# SECTION LAN SYSTEM

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#### PRECAUTIONS

#### [CAN] PRECAUTIONS PFP:00001 А Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT **BELT PRE-TENSIONER**" AKS00CG9 The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along В 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 C air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual. WARNING: To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death . in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer. F Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section. F Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors. Precautions When Using CONSULT-II AKSODARN When connecting CONSULT-II to data link connector, connect them through CONSULT-II CONVERTER. Н **CAUTION:** If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication. CHECK POINTS FOR USING CONSULT-II 1 Has CONSULT-II been used without connecting CONSULT-II CONVERTER on this vehicle? If YES, GO TO 2. If NO, GO TO 5. Is there any indication other than indications relating to CAN communication system in the self-diagnosis 2. results? LAN If YES, GO TO 3. If NO, GO TO 4. L 3. Based on self-diagnosis results unrelated to CAN communication, carry out the inspection. 4 Malfunctions may be detected in self-diagnosis depending on control units carrying out CAN communication. Therefore, erase the self-diagnosis results. Diagnose CAN communication system. Refer to LAN-21, "CAN Communication Unit". М 5. **Precautions For Trouble Diagnosis** AKS000BF **CAN SYSTEM** Do not apply voltage of 7.0 V or higher to the measurement terminals. Use the tester with its open terminal voltage being 7.0 V or less. Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

#### Precautions For Harness Repair CAN SYSTEM

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





OK: Soldered and wound with tape

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[CAN]	
TROUBLE DIAGNOSES WORK FLOW PFP:00004	
When Displaying CAN Communication System Errors AKSOUCER WHEN A MALFUNCTION IS DETECTED BY CAN COMMUNICATION SYSTEM	:
CAN communication line is open. (CAN H, CAN L, or both)	
<ul> <li>CAN communication line is shorted. (Ground, between CAN lines, or other harnesses)</li> </ul>	
<ul> <li>The areas related to CAN communication of unit is malfunctioning.</li> </ul>	
WHEN A MALFUNCTION IS DETECTED EXCEPT CAN COMMUNICATION SYSTEM	
<ul> <li>Removal and installation of parts : When the units that perform CAN communication or the sensors related to CAN communication are removed and installed, malfunction may be detected (or DTC other than CAN communication may be detected).</li> </ul>	
• Fuse blown out (removed): CAN communication of the unit may be stopped at such time.	
<ul> <li>Low voltage : If the voltage decreases because of battery discharge when IGN is ON, malfunction may be detected by self-diagnosis according to the units.</li> </ul>	

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#### **TROUBLE DIAGNOSIS FLOW CHART**

Depending on the control unit which performs CAN communication, "U1010" may be indicated as the result of self-diagnosis. Replace the control unit if "U1010" is indicated.



- Step 1 : Refer to LAN-7, "SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)".
- Step 2 : Refer to LAN-8, "ACQUISITION OF DATA BY CONSULT-II" .
- Step 3 : Refer to LAN-9, "HOW TO USE CHECK SHEET TABLE" .
- Step 4 : Refer to LAN-10, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- Step 5 : Check and repair according to system diagnosis.

#### [CAN]

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#### Diagnosis Procedure SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)

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

CAN Communication Unit						
Go to CAN system, when sele	cting your CAN	system type from	n the following ta	ble.		
Body type		Se	dan		_ )	
Axle	2	WD		4WD		
Engine		VQ	35DE		$\succ$ Check basic specification of the vehicle.	
Transmission		Д	VT			
Brake control		V	DC	- )		
Intelligent Key system		×		×	Select " ×" if it is model with Intelligent Key	
Automatic drive positioner		×		×	Select " ×" if it is model with Automatic drive	
CAN system type	1	2	3	4	positioner system.	
CAN system trouble diagnosis	ХХ-ХХ	XX-XX	XX:XX	XX-XX	Which number is selected when	
< : Applicable			4	-+	the specification table?	
					The number is "CAN system type" of	
					the applicable vehicle.	
					In the case of this example:	
					It corresponds to type 3.	
					PKIB4940E	

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#### **ACQUISITION OF DATA BY CONSULT-II**

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



#### HOW TO USE CHECK SHEET TABLE



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

#### "--": Column not used (It is not necessary for CAN communication trouble diagnosis.)

#### NOTE:

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

- When the initial conditions are reproduced. Refer to <u>LAN-10</u>, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced".
- When the initial conditions are not reproduced. Refer to <u>LAN-13</u>, "Example of Filling in Check Sheet When <u>Initial Conditions Are Not Reproduced</u>".

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

#### NOTE:

Put a check mark to "No indication" of BCM because BCM is not displayed on "SELECT SYSTEM" screen.

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

#### NOTE:

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



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

NOTE:

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

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#### NOTE:

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

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

Start CAN system trouble diagnosis if this procedure can be confirmed. Refer to <u>LAN-21</u>, "CAN Communication Unit".

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



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

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#### NOTE:

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

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

#### CAN Diagnostic Support Monitor DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR ECM

Example)	CAN DIAG SUPPORT MNTF		CAN DIAG	G SUP	PORT	MNTR	_
• •	ENGINE			ENGI	NE		
	PRSNT				PRS	SNT	
	INITIAL DIAG OK	7	TRANSMIT [	DIAG	0	ιK	
	TRANSMIT DIAG OK		TCM		0	ιK	
	TCM OK		VDC/TCS/AE	BS	0	ĸ	
	VDC/TCS/ABS OK		METER/M&A	Ą	0	ĸ	
	METER/M&A OK		ICC		UNK	(WN	1
	ICC UNKWN		BCM/SEC		0	ĸ	
	BCM/SEC OK		IPDM E/R		0	ĸ	
	IPDM E/R OK		AWD/4WD/e	4WD	0	ĸ	
	AWD/4WD/e4WD OK		EPS		UNK	(WN	
	PRINT Scrol Down		PRINT	- 5	Scroll Up		
	MODE BACK LIGHT COP	,	MODE BA	аск   і	LIGHT	COPY	

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

**Display Results (Present)** 

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

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#### [CAN]

# DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN (Example)

mple)	CAN D	IAG SU	MNTR		
• •		A/T			
			PR	SNT	
	INITIAL	DIAG	C	ĸ	1
	TRANS	/IT DIAG	C	ĸ	
	ECM		С	ĸ	
	VDC/TC	S/ABS OK			
	METER/	M&A	С	ĸ	
	ICC/e4W	/D	UNF	(WN	
	AWD/4W	/D	С	ĸ	
	PR	INT			
	MODE	BACK	LIGHT	COPY	SKIB2335E

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

#### **Display Results (Present)**

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

#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR AWD CONTROL UNIT

(Example)	CAN D	IAG SU			
· · /	ALI	MODE			
	INITIAL	DIAG	C	κ	
	TRANS	/IT DIAG	С	ιK	
	VDC/TC	S/ABS			
	ECM OK				
	TCM UNKWN				
	METER/M&A OK				
	PR	INT			
	MODE	BACK	LIGHT	COPY	PKIA8948E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
ALL MODE AWD/ 4WD	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from VDC/TCS/ABS control unit.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	ТСМ	TCM is not diagnosed.	UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN

#### **Display Results (Present)**

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

#### [CAN]

SKIB1625E

PRINT

MODE BACK LIGHT COPY

#### **DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN** (Example) CAN DIAG SUPPORT MNTR FOR BCM А всм PRSNT INITIAL DIAG TRANSMIT DIAG ECM OK OK ОК В IPDM E/R METER/M&A OK OK I-KEY OK С

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"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
RCM	ECM	Make sure of normal reception from ECM.	OK/UNKWN
DCIVI	IPDM E/R	Make sure of normal reception from IPDM E/R.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	I-KEY	Make sure of normal reception from Intelligent Key unit.	OK/UNKWN

**Display Results (Present)** 

• OK : Normal

NG : Malfunction

• UNKWN : The diagnosed unit does not transmit or receive the applicable data normally.

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# DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN (Example to the second sec

mple)	CAN	DIAG SU			
. ,		INTELLIG			
	TRANSM	IT DIAG	ОК	ОК	
	ECM		OK	ОК	
	METER/	M&A	OK	ОК	
	BCM/SE	С	OK	ОК	
	PR	NT			
	MODE	BACK	LIGHT	COPY	SKIB2359E

"SELECT SYS- TEM" screen	"CAN DIAG SUP- PORT MNTR" screen	Description	Present	past
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN	
	ECM	Make sure of normal reception from ECM.	OK/UNKWN	OK/0/1 30/
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN	010/0/1~39/-
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN	1

#### **Display Results (Present)**

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

#### **Display Results (Past)**

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

#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR VDC/TCS/ABS CONTROL UNIT

CAN DIAG SU	FFURI			
AE	3S			
	PR	SNT		
INITIAL DIAG	0	к		
TRANSMIT DIAG	0	к		
ECM	0	Ж		
TCM	0	к		
STRG	0	к		
METER/M&A	0	к		
AWD/4WD	0	к		
PRINT				
MODE BACK	LIGHT	COPY	SKIB233	6F
	INITIAL DIAG TRANSMIT DIAG ECM TCM STRG METER/M&A AWD/4WD PRINT MODE BACK	INITIAL DIAG         CC           INITIAL DIAG         CC           TRANSMIT DIAG         CC           ECM         CC           TCM         CC           STRG         CC           METER/M&A         CC           PRINT         Integration           MODE         BACK         LIGHT	PRSNT           INITIAL DIAG         OK           TRANSMIT DIAG         OK           ECM         OK           TCM         OK           STRG         OK           MWD/4WD         OK           PRINT         Image: Copy of the second s	PRSNT           INITIAL DIAG         OK           TRANSMIT DIAG         OK           ECM         OK           TCM         OK           STRG         OK           MODE         BACK         LIGHT           COPY         SKIB233

[CAN]

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present	D
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG	E
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN	_
	ECM	Make sure of normal reception from ECM.	OK/UNKWN	
ABS	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN	F
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN	
	STRG	Make sure of normal reception from steering angle sensor.	OK/UNKWN	0
	AWD/4WD	Make sure of normal reception from AWD control unit.	OK/UNKWN	G

#### **Display Results (Present)**

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

#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR DRIVER SEAT CONTROL UNIT

#### (Example) CAN DIAG SUPPORT MNTR AUTO DRIVE POS. PRSNT INITIAL DIAG OK TRANSMIT DIAG OK BCM/SEC OK METER/M&A OK TCM OK PRINT MODE BACK LIGHT COPY SKIB2360E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
AUTO DRIVE POS.	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN

#### **Display Results (Present)**

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

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#### [CAN]

# DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN [(Examp

ample)	CAN D	IAG SU	MNTR		
• •		IPDN			
	TRANSM	IT DIAG	OK	OK	
	ECM		OK	OK	
	BCM/SE	С	OK	OK	
		NIT			
	MODE	BACK	LIGHT	COPY	SKIB0595E

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

**Display Results (Present)** 

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

#### **Display Results (Past)**

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

#### **CAN COMMUNICATION**

#### 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.

#### **CAN Communication Unit**

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

Body type	Sedan								
Axle	2\	ND	-						
Engine	VQ35DE								
Transmission	A/T								
Brake control	VDC								
Intelligent Key system		×		×	-				
Automatic drive positioner		×		×	_				
CAN system type	1	2	3	4	- (				
CAN system trouble diagnosis	LAN-30	LAN-30 LAN-57 LAN-90 LAN-119							
×:Applicable	1	1	1	1	-				

×:Applicable

#### TYPE 1 System Diagram



#### Input/output Signal Chart

						T: Transmi	it R: Receive
Signals	ECM	ТСМ	Combina- tion meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
A/C compressor request signal	Т						R
A/C switch signal	R			Т			
A/T CHECK indicator lamp signal		Т	R				
A/T position indicator signal		Т	R			R	
A/T self-diagnosis signal	R	Т					
Accelerator pedal position signal	Т	R				R	

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Signals	ECM	ТСМ	Combina- tion meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
ASCD CRUISE lamp signal	Т		R				
ASCD OD cancel request signal	Т	R					
ASCD operation signal	Т	R					
ASCD SET lamp signal	Т		R				
Battery voltage signal	Т	R					
Blower fan motor switch signal	R			Т			
Buzzer output signal			R	Т			
Closed throttle position signal	Т	R					
Cooling fan motor operation signal	Т						R
Door switch signal			R	Т			R
Engine coolant temperature signal	Т		R				
Engine speed signal	Т	R	R			R	
Front fog lights request signal				Т			R
Front wiper request signal				Т			R
Front wiper stop position signal				R			Т
Fuel level sensor signal	R		Т				
High beam request signal			R	Т			R
High beam status signal	R						Т
Hood switch signal				R			Т
Horn chirp signal				Т			R
Low beam request signal				Т			R
Low beam status signal	R						Т
Malfunction indicator lamp signal	Т		R				
Manual mode indicator signal		Т	R				
Manual mode shift down signal		R	Т				
Manual mode shift up signal		R	Т				
Manual mode signal		R	Т				
Not manual mode signal		R	Т				
Oil pressure switch signal			R				Т
Output shaft revolution signal	R	Т					
Position lights request signal			R	Т			R
Rear window defogger control sig- nal	R						Т
Rear window defogger switch sig- nal				Т			R
Seat belt buckle switch signal			Т	R			
Sleep request 1 signal			R	Т			
Sleep request 2 signal				Т			R
Snow mode switch signal	R		Т				
Steering angle sensor signal					Т	R	
Stop lamp switch signal		R	Т				
Theft warning horn request signal				Т			R
Tire pressure signal			R	Т			
Turbine revolution signal	R	Т					

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Signals	ECM	TCM	Combina- tion meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R	A
Turn indicator signal			R	Т				
Vahiala apaad signal			R			Т		В
venicie speeu sigliai	R	R	Т	R				
Wake up request 1 signal				Т			R	C
Wake up request 2 signal				Т			R	0
Wide open throttle position signal	Т	R						

#### **TYPE 2**

#### System Diagram



#### Input/output Signal Chart

#### VDC/ Steer-Driver LAN Combi-Intelli-TCS/ seat IPDM E/ ing Signals ECM TCM nation BCM gent ABS angle control R meter Key unit control sensor unit unit L Т R A/C compressor request signal R т A/C switch signal т A/T CHECK indicator lamp signal R Μ Т R R\* A/T position indicator signal R A/T self-diagnosis signal R Т Т R Accelerator pedal position signal R ASCD CRUISE lamp signal Т R ASCD OD cancel request signal Т R ASCD operation signal Т R ASCD SET lamp signal Т R Т R Battery voltage signal Blower fan motor switch signal R т т Buzzer output signal R Closed throttle position signal Т R т R Cooling fan motor operation signal Т R Door lock/unlock status signal

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T: Transmit R: Receive

Signals	ECM	ТСМ	Combi- nation meter	BCM	Steer- ing angle sensor	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Driver seat control unit	IPDM E/ R
Door lock/unlock/trunk open request signal				R		т			
Door switch signal			R	Т		R		R	R
Engine coolant temperature signal	Т		R						
Engine speed signal	Т	R	R			R	R		
Front fog lights request signal				Т					R
Front wiper request signal				Т					R
Front wiper stop position signal				R					Т
Fuel level sensor signal	R		Т						
Hazard and horn request signal				R		Т			
High beam request signal			R	Т					R
High beam status signal	R								Т
Hood switch signal				R					Т
Horn chirp signal				Т					R
Key fob door unlock signal				Т				R	
Key switch signal				Т				R	
Low beam request signal				Т					R
Low beam status signal	R								Т
Malfunction indicator lamp signal	Т		R						
Manual mode indicator signal		Т	R						
Manual mode shift down signal		R	Т						
Manual mode shift up signal		R	Т						
Manual mode signal		R	Т						
Not manual mode signal		R	Т						
Oil pressure switch signal			R						Т
Output shaft revolution signal	R	Т							
Panic alarm request signal				R		Т			
Position lights request signal			R	Т					R
Power window open request signal				R		Т			
Rear window defogger control sig- nal	R								Т
Rear window defogger switch signal				Т					R
Seat belt buckle switch signal			Т	R					
Sleep request 1 signal			R	Т					
Sleep request 2 signal				Т					R
Snow mode switch signal	R		Т						
Starter permission signal				R		Т			
Steering angle sensor signal					Т		R		
Stop lamp switch signal		R	Т						
Theft warning horn request signal				Т					R
Tire pressure signal			R	Т					
Turbine revolution signal	R	Т							

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Signals	ECM	ТСМ	Combi- nation meter	BCM	Steer- ing angle sensor	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Driver seat control unit	IPDM E/ R	/
Turn indicator signal			R	Т						L
Vehicle speed signal			R				Т			
venicie speed signal	R	R	Т	R		R		R		(
Wake up request 1 signal				Т					R	
Wake up request 2 signal				Т					R	
Wide open throttle position signal	Т	R								L

\*: P range and R range only

#### TYPE 3 System Diagram



#### Input/output Signal Chart

							T: Transmit	R: Receive
Signals	ECM	тсм	AWD con- trol unit	Combi- nation meter	BCM	Steering angle sensor	VDC/ TCS/ABS control unit	IPDM E/R
A/C compressor request signal	Т							R
A/C switch signal	R				Т			
A/T CHECK indicator lamp signal		Т		R				
A/T position indicator signal		Т		R			R	
A/T self-diagnosis signal	R	Т						
Accelerator pedal position signal	Т	R	R				R	
ASCD CRUISE lamp signal	Т			R				
ASCD OD cancel request signal	Т	R						
ASCD operation signal	Т	R						
ASCD SET lamp signal	Т			R				
AWD warning lamp signal			Т	R				
Battery voltage signal	Т	R						
Blower fan motor switch signal	R				Т			
Buzzer output signal				R	Т			

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Signals	ECM	ТСМ	AWD con- trol unit	Combi- nation meter	BCM	Steering angle sensor	VDC/ TCS/ABS control unit	IPDM E/R
Closed throttle position signal	Т	R						
Cooling fan motor operation signal	Т							R
Door switch signal				R	Т			R
Engine coolant temperature signal	Т			R				
Engine speed signal	Т	R	R	R			R	
Front fog lights request signal					Т			R
Front wiper request signal					Т			R
Front wiper stop position signal					R			Т
Fuel level sensor signal	R			Т				
High beam request signal				R	Т			R
High beam status signal	R							Т
Hood switch signal					R			Т
Horn chirp signal					Т			R
Low beam request signal					Т			R
Low beam status signal	R							Т
Malfunction indicator lamp signal	Т			R				
Manual mode indicator signal		Т		R				
Manual mode shift down signal		R		Т				
Manual mode shift up signal		R		Т				
Manual mode signal		R		Т				
Not manual mode signal		R		Т				
Oil pressure switch signal				R				Т
Output shaft revolution signal	R	Т						
Parking brake switch signal			R	Т				
Position lights request signal				R	Т			R
Rear window defogger control sig- nal	R							Т
Rear window defogger switch sig- nal					Т			R
Seat belt buckle switch signal				Т	R			
Sleep request 1 signal				R	Т			
Sleep request 2 signal					Т			R
SNOW mode switch signal	R		R	Т				
Steering angle sensor signal						Т	R	
		R		Т				
Stop lamp switch signal			R				Т	
Theft warning horn request signal					Т			R
Tire pressure signal				R	Т			
Turbine revolution signal	R	Т						
Turn indicator signal				R	Т			
Vahiala anag di sisus si			R	R			Т	
venicle speed signal	R	R		Т	R			
Wake up request 1 signal					т			R

Signals	ECM	ТСМ	AWD con- trol unit	Combi- nation meter	BCM	Steering angle sensor	VDC/ TCS/ABS control unit	IPDM E/R	A
Wake up request 2 signal					Т			R	В
Wide open throttle position signal	Т	R							_

#### **TYPE 4**

#### System Diagram



#### Input/output Signal Chart

#### T: Transmit R: Receive

Signals	ECM	ТСМ	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Driver seat control unit	IPDM E/R	J
A/C compressor request sig- nal	т									R	LAN
A/C switch signal	R				Т						
A/T CHECK indicator lamp signal		т		R							L
A/T position indicator signal		Т		R				R	R*		
A/T self-diagnosis signal	R	Т									M
Accelerator pedal position sig- nal	Т	R	R					R			
ASCD CRUISE lamp signal	Т			R							
ASCD OD cancel request sig- nal	т	R									
ASCD operation signal	Т	R									
ASCD SET lamp signal	Т			R							
AWD warning lamp signal			Т	R							
Battery voltage signal	Т	R									
Blower fan motor switch sig- nal	R				Т						
Buzzer output signal				R	Т						
Closed throttle position signal	Т	R									

Signals	ECM	ТСМ	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Driver seat control unit	IPDM E/R
Cooling fan motor operation signal	Т									R
Door lock/unlock status signal					Т		R			
Door lock/unlock/trunk open request signal					R		т			
Door switch signal				R	Т		R	R	R	R
Engine coolant temperature signal	Т			R						
Engine speed signal	Т	R	R	R			R	R		
Front fog lights request signal					Т					R
Front wiper request signal					Т					R
Front wiper stop position sig- nal					R					Т
Fuel level sensor signal	R			Т						
Hazard and horn request sig- nal					R		т			
High beam request signal				R	Т					R
High beam status signal	R									Т
Hood switch signal					R					Т
Horn chirp signal					Т					R
Key fob door unlock signal					Т				R	
Key switch signal					Т				R	
Low beam request signal					Т					R
Low beam status signal	R									Т
Malfunction indicator lamp signal	Т			R						
Manual mode indicator signal		Т		R						
Manual mode shift down sig- nal		R		т						
Manual mode shift up signal		R		Т						
Manual mode signal		R		Т						
Not manual mode signal		R		Т						
Oil pressure switch signal				R						Т
Output shaft revolution signal	R	Т								
Panic alarm request signal					R		Т			
Parking brake switch signal			R	Т						
Position lights request signal				R	Т					R
Power window open request signal					R		т			
Rear window defogger control signal	R									Т
Rear window defogger switch signal					Т					R
Seat belt buckle switch signal				Т	R					
Sleep request 1 signal		1		R	т					

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Signals	ECM	ТСМ	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Driver seat control unit	IPDM E/R	A
Sleep request 2 signal					Т					R	
SNOW mode switch signal	R		R	Т							
Starter permission signal					R		Т				С
Steering angle sensor signal						Т		R			•
Stop Jamp switch signal		R		Т							
Stop lamp switch signal			R					Т			D
Theft warning horn request signal					т					R	
Tire pressure signal				R	Т						· L
Turbine revolution signal	R	Т									
Turn indicator signal				R	Т						F
Vehiele anead signal			R	R				Т			
venicie speed signal	R	R		Т	R		R		R		
Wake up request 1 signal					Т					R	G
Wake up request 2 signal					Т					R	•
Wide open throttle position signal	Т	R									Н

\*: P range and R range only

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#### CAN SYSTEM (TYPE 1)

#### **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.

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



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AKS0092C

#### CAN SYSTEM (TYPE 1)

#### Schematic-



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TKWM2111E

AKS0092E

LAN-CAN-01

DATA LINE



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM2112E

#### [CAN]

#### LAN-CAN-02 A



TKWM2113E

#### LAN-CAN-03





REFER TO THE FOLLOWING. B1 -SUPER MULTIPLE JUNCTION (SMJ) M93 -ELECTRICAL UNITS

TKWM2114E

## **CAN SYSTEM (TYPE 1)**

#### **CHECK SHEET**

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#### NOTE:

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

		1		AN DIAC	3 SUPPC	RT MNT	R				
ELECT SYSTEM screen	Initial	Transmit		TOM	METER	BCM		VDC/TCS	IPDM	SELF-DIAG	RESULTS
			ECM	TCM	/M&A	/SEC	SING	/ABS	E/R		
NGINE —	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	(U1000) CAN COMM CIRCUIT	(U1001)
г	NG	UNKWN	UNKWN	_	UNKWN	-	-	UNKWN	-	(U1000) CAN COMM CIBCUIT	-
M No indication	NG	UNKWN	UNKWN	-	UNKWN	_	-	-	UNKWN	(U1000) CAN COMM CIRCUIT	_
3S –	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	-	(U1000) CAN COMM CIBCUIT	_
DM E/R No indication	_	UNKWN	UNKWN	_	_	UNKWN	-	_	_	(U1000)	-
		Attach SELECT	copy of SYSTEI	И				Attach	n copy of Γ SYSTE	м	

#### CAN SYSTEM (TYPE 1)


#### CHECK SHEET RESULTS (EXAMPLE)

#### NOTE:

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

#### Case 1

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Check harness between TCM and data link connector. Refer to <u>LAN-47, "Inspection Between TCM and Data</u> <u>Link Connector Circuit"</u>.

				C	AN DIAG	3 SUPPC Reco	ORT MNT	R nosis				
SELECT SYS	SIEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNK	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT	_
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN		UNKWN	-	UNKWN	_	_	CAN COMM CIRCUIT (U)000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	-	_	CAN COMM CIRCUIT (UN000)	_



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Check harness between data link connector and VDC/TCS/ABS control unit. Refer to <u>LAN-48</u>, "Inspection <u>Between Data Link Connector and VDC/TCS/ABS Control Unit Circuit</u>".

				C	AN DIAG	SUPPC	DRT MNT	R				
SELECT SY	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	Rece METER /M&A	eive diag BCM /SEC	nosis STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_			CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	_		-	CAN COMM CIRCUIT	_
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	-		CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN			-	UNK	-	_	CAN COMM CIRCUIT	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	UNKWN	_	-	_	CAN COMM CIRCUIT (Un000)	_
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#### Case 3

Check ECM circuit. Refer to LAN-49, "ECM Circuit Inspection" .

				С	AN DIAG	SUPPC	DRT MNT	R				
SELECT SY	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	-	NG	UNKWN	_	UNKWN		UNK	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U 100)	CAN COMM CIRCUIT (UN001)
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	-	-	UNKWN	_	CAN COMM CIRCUIT (U 100)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	_



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Check TCM circuit. Refer to LAN-49, "TCM Circuit Inspection" .

				C		SUPPO		B				
	STEM scroon	1.22.1	<b>-</b>			Rec	eive diag	nosis				
SELECT ST		Initial diagnosis	Iransmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	A NESULIS
ENGINE	-	NG	UNKWN	_		UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN		_	UNKWN	-	_		_	CAN COMM CIRCUIT (U 100)	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN		UNKWN	-	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	-	_	CAN COMM CIRCUIT (U1000)	-
												PKIB3896E



#### Case 5

Check data link connector circuit. Refer to LAN-50, "Data Link Connector Circuit Inspection" .

				C	AN DIAG	SUPPC	RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit		-	Rece	eive diagi	nosis			SELE-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	-	UNKWN	_	-	_	CAN COMM CIRCUIT (U1000)	_



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Check combination meter circuit. Refer to LAN-50, "Combination Meter Circuit Inspection" .

				С	AN DIAG	SUPPC	RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diag	nosis				BESUITS
	diagnosis     Induction       diagnosis     ECM     TCM     METER     BCM     STRG     VDC/TCS     IF       -     NG     UNKWN     -     UNKWN     UNKWN     UNKWN     UNKWN     -     UNKWN	IPDM E/R	OLLI DIAC	I LOOLIO								
ENGINE	_	NG	UNKWN	_	UNKWN	UNK	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_		-	_	UNKWN	_	CAN COMM CIRCUIT (U 000)	_
всм	No indication	NG	UNKWN	UNKWN	-		-	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
ABS	_	NG	UNKWN	UNKWN	UNKWN		-	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	_
		8							·			-
												PKIB3898E



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#### Case 7

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Check BCM circuit. Refer to LAN-51, "BCM Circuit Inspection" .

				c	AN DIAG	SUPPC	DRT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagi	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN		_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	Ι	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	Ι	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	-		_	-	-	CAN COMM CIRCUIT (U 000)	_



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Check steering angle sensor circuit. Refer to LAN-51, "Steering Angle Sensor Circuit Inspection" .

				С	AN DIAG	SUPPC	ORT MNT	R				
SELECT SYS	TFM screen	Initial	Tronomit			Rece	eive diag	nosis				RESULTS
OLLEON ONO		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELI-DIAC	THEODERS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM 1	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	—	_	_	CAN COMM CIRCUIT (U1000)	_



#### Case 9

Check VDC/TCS/ABS control unit circuit. Refer to LAN-52, "VDC/TCS/ABS Control Unit Circuit Inspection" .

				С	AN DIAC	SUPPC	ORT MNT	R				
SELECT SY	STEM screen	Initial	Tranemit		-	Rece	eive diag	nosis			SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	-	CAN COMM CIRCUIT (UN000)	—
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
ABS	-	NZ	UNKWN	UNKWN	UNKWN		-	UNKWN	-	-	CAN COMM CIRCUIT (U 000)	—
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	-	CAN COMM CIRCUIT (U1000)	—



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Check IPDM E/R circuit. Refer to LAN-52, "IPDM E/R Circuit Inspection" .

				C	AN DIAC	SUPPC	DRT MNT	R				
SELECT SYS	TEM screen	Initial	Transmit			Rece	eive diag	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNK	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM N	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	_	_	-	CAN COMM CIRCUIT (U 000)	-



#### Case 11

Check CAN communication circuit. Refer to LAN-53, "CAN Communication Circuit Inspection" .

				С	AN DIAC	SUPPC	ORT MNT	R				
SELECT SYS	STEM screen	Initial	Tranemit			Rece	eive diag	nosis			SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG		_	UNKWN	UNKWN	UNKWN	_		UNK	CAN COMM CIRCUIT (UV000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	Ι	CAN COMM CIRCUIT (UN000)	_
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	N	UNKWN	UNKWN		UNKWN	-	UNKWN	-	I	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	-	-	CAN COMM CIRCUIT (UV00)	_
		-										
												PKIB3903E

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-56</u>, "IPDM E/R Ignition Relay <u>A</u> <u>Circuit Inspection</u>".

				С	AN DIAG	SUPPC	ORT MNT	R				
SELECT SVS	STEM screen	Initial	Transmit			Rece	eive diagi	nosis			SELE-DIAG	RESULTS
OLLEOT OT		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	OLLI -DIAC	
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_		UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-56</u>, "IPDM E/R Ignition Relay Circuit Inspection".

				С	AN DIAG	SUPPC	RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagr	nosis				RESULTS
OLLEOT ON	GINE –	diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	OLLI DIAC	
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	_	-	_	-	_	UNKWN	-	CAN COMM CIRCUIT (U 1000)	—
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	_	UNKWN	_	-	-	-	Ι	CAN COMM CIRCUIT (U 000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	_

### Inspection Between TCM and Data Link Connector Circuit

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3 (L) 24H (L)
  - 8 (R) 25H (P)

: Continuity should exist. : Continuity should exist.

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



### $\mathbf{3}$ . Check harness for open circuit

Check continuity between harness connector M72 terminals 24H (L), 25H (P) and data link connector M8 terminals 6 (L), 14 (P).

- 24H (L) 6 (L) 25H (P) – 14 (P)
- : Continuity should exist. : Continuity should exist.

- OK or NG
- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW".
- NG >> Repair harness.

# Inspection Between Data Link Connector and VDC/TCS/ABS Control Unit Circuit

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and VDC/TCS/ABS control unit connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (P) and VDC/TCS/ABS control unit harness connector M93 terminals 61 (L), 63 (P).
  - 6 (L) 61 (L) 14 (P) - 63 (P)

: Continuity should exist. : Continuity should exist.

#### OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW".
- NG >> Repair harness.







## **Data Link Connector Circuit Inspection**

#### 1. CHECK CONNECTOR

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

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) - 14 (P)

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Diagnose again. Refer to <u>LAN-5, "TROUBLE DIAG-</u> <u>NOSES WORK FLOW"</u>.
- NG >> Repair harness between data link connector and combination meter.



### **Combination Meter Circuit Inspection**

### 1. CHECK CONNECTOR

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

#### OK or NG

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

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

#### OK or NG

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



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# VDC/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

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

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

#### 61 (L) – 63 (P)

: Approx. 54 – 66 Ω

#### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and harness connector M12.



### **IPDM E/R Circuit Inspection**

### **1. CHECK CONNECTOR**

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- IPDM E/R connector
- Harness connector B2
- Harness connector E106
- Harness connector M12
- Harness connector B1

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

#### 48 (L) – 49 (P)

: **Approx. 108 – 132** Ω

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and VDC/TCS/ABS control unit.



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			[CAN]
CAN	Communication	Circuit Inspection	AKS0092P
1. c	HECK CONNECTOR		
1. T	urn ignition switch OFF.		
2. D	isconnect the battery ca	able from the negative terminal.	
3. C	heck following terminal	s and connectors for damage, bend and	d loose connection (control module side,
m r	neter side, sensor side, (	control unit side and harness side).	
- E			
- A C	ombination meter		
- 0 - B	CM		
- S	teering angle sensor		
- V	DC/TCS/ABS control ur	nit	
– IF	PDM E/R		
– B	etween ECM and IPDM	E/R	
OK or	NG		
OK	>> GO TO 2.	r connector	
	>> Repair terminar o	i connector.	
2. c	HECK HARNESS FOR	SHORT CIRCUIT	
1. D	isconnect following con	nectors.	
- E	CM connector		
– A	/T assembly connector		
- H	arness connector F102		
2. C n	heck continuity betwee als 94 (L) and 86 (P).	n ECM harness connector F108 termi-	
	94 (L) – 86 (P)	: Continuity should not exist.	ECM connector
OK or	NG		
OK	>> GO TO 3.		94 86
NG	>> Check the followi	ng harnesses. If any harness is dam-	
	<ul> <li>Aged, repair the r</li> <li>Harness between</li> </ul>	rances.	Ω
	<ul> <li>Harness between</li> </ul>	een ECM and harness connector F102	
_			PKIA9860E
3. c	HECK HARNESS FOR	SHORT CIRCUIT	
Checl	continuity between E	CM harness connector F108 terminals	
94 (L)	, 86 (P) and ground.		BAT H.S.
	94 (L) – Ground	: Continuity should not exist.	ECM connector
	86 (P) – Ground	: Continuity should not exist.	
OK or	<u>NG</u>		94,86
	>> GO TO 4.	ng harnesses. If any harness is dam	
NG.	aged, repair the h	namesses. If any namess is dalli-	
	<ul> <li>Harness between</li> </ul>	een ECM and A/T assembly	
	<ul> <li>Harness between</li> </ul>	en ECM and harness connector F102	PKIA9867E

- 1. Disconnect following connectors.
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- VDC/TCS/ABS control unit connector
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) – 14 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 5.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12

### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

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

#### OK or NG

- OK >> GO TO 6.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12





### 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B2.
- 2 Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

### OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector B1 and harness connector B2.



SMJ harness connector

52J, 51J

SMJ

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### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- 52J (L) Ground 51J (P) - Ground
- : Continuity should not exist. : Continuity should not exist.

#### OK or NG

- OK >> GO TO 8.
- NG >> Repair harness between harness connector B1 and harness connector B2.

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R connector E9 terminals 48 2. (L) and 49 (P).

#### 48 (L) - 49 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 9. >> Repair harness between IPDM E/R and harness con-NG nector B2.



### 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- 49 (P) Ground
- : Continuity should not exist. : Continuity should not exist.

#### OK or NG

OK >> GO TO 10.

NG >> Repair harness between IPDM E/R and harness connector B2.



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# 10. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

**94 – 86** : Approx. 108 – 132 Ω

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

: **Approx. 108 – 132** Ω

- OK or NG
- OK >> GO TO 11.

48 - 49

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



# 11. снеск зумртом

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

OK or NG

OK >> GO TO 12.

NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"

# 12. CHECK UNIT REPRODUCIBILITY

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

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the unit connector.
- 4. Connect the battery cable to the negative terminal.
- 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)
- 6. Make sure that the same symptom is reproduce.
- A/T assembly
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- ECM
- IPDM E/R

#### Check results

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

### **IPDM E/R Ignition Relay Circuit Inspection**

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

- IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY IGNITION SW. IN "ON"</u> <u>AND/OR "START"</u>.

### **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.

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



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PFP:23710

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### Schematic

AKS00C9N



TKWM2465E

[CAN]



TKWM2466E

## LAN-CAN-05



TKWM2467E

### [CAN]

### LAN-CAN-06 A



TKWM2468E

# **CHECK SHEET**

#### AKS00C9P

#### NOTE:

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

Check shee	t table												
					CAN	DIAG SU	PPORT M	NTR					
	EM coroon		_				Receive	diagnosis					DECUITO
SELECT STST	EM Screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	RESULIS
ENGINE		NG	UNKWN	-	UNKWN	UNKWN	UNKWN	—	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	_	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	_	UNKWN	UNKWN	_	—	—	_	CAN COMM CIRCUIT (U1000)	
ABS		NG	UNKWN	UNKWN	UNKWN	UNKWN	I	UNKWN	_	-	_	CAN COMM CIRCUIT (U1000)	
AUTO DRIVE POS.	No indication	NG	UNKWN	I	UNKWN	UNKWN	UNKWN	—	—	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-	_	CAN COMM CIRCUIT (U1000)	_
			Atta SELE	ach copy CT SYS	/ of STEM				5	Attach SELECT	copy of SYSTE	м	
													PKIB3940E



### CHECK SHEET RESULTS (EXAMPLE)

#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-77</u>, "Inspection Between TCM and Data <u>Link Connector Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR					
	TEM scroon						Receive	diagnosis					
		Initial diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN			-	-			CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-		_	-	-		-	CAN COMV CIRCUIT (U 000)	_
ВСМ	No indication	NG	UNKWN		_	UNKWN	_	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN		—	UNKWN	UNKWN	—	-	—	-	CAN COMM CIRCUIT (U 000)	_
ABS	_	NG	UNKWN	UNKWN		UNKWN	_	UNKWN	-	-	-	CAN COMM CIRCUIT (UN000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_		UNKWN	UNKWN	_	-	_	ļ	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN		_	_	UNKWN	_	-	_	I	CAN COMM CIRCUIT (UN000)	_
	•			•				•	•	•			
													PKIB3908E



Check harness between data link connector and Intelligent Key unit. Refer to <u>LAN-78</u>, "Inspection Between <u>A</u> <u>Data Link Connector and Intelligent Key Unit Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen	Initial	Tronomit				Receive	diagnosis		_		SELE-DIAG	BESULTS
011101010		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	-	_		1	CAN COMM CIRCUIT (U0000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	-	UNKWN	_			-		CAN COMM CIRCUIT (U1000)	Ι
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	-	-	-	-	CAN COMM CIRCUIT (U 000)	-
ABS	-	NG	UNKWN				_		_	-	-	CAN COMM CIRCUIT (UN000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_		CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	-	_	-	_	CAN COMM CIRCUIT (U 000)	_



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Check harness between Intelligent Key unit and driver seat control unit. Refer to <u>LAN-79</u>, "Inspection Between Intelligent Key Unit and Driver Seat Control Unit Circuit".

					CAN	DIAG SU	PPORT MI	NTR					
SELECT SYST	FM screen	1	T				Receive	diagnosis				SELE-DIAG	RESULTS
OLLOT OTO		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMP CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	-	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	_		CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	-	-	_	_	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	_	-	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	_	_	_	CAN COMM CIRCUIT	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	-	-	_	_		_



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#### Case 4

Check ECM circuit. Refer to LAN-79, "ECM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM screen		_				Receive	diagnosis					DECINTO
SELECT STS	I EWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	TRESULIS
ENGINE	_	NG		_				_	_			CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN		_	UNKWN	-	_	-	UNKWN	_	CAN COMM CIRCUIT (U 000)	-
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	_	_	CAN COMM CIRCUIT (U 000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	_	CAN COMM CIRCUIT (U 000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN		_	_	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U 000)	_



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Check TCM circuit. Refer to LAN-80, "TCM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
			_				Receive	diagnosis					DECUITO
SELECT STS	I EWI SCIEEN	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	-		UNKWN	UNKWN		-	UNKWN	UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN		_		-	-	-	UNKIN	_	CAN COMM CIRCUIT (U 000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	Ι	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	1	-	_	_	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKIN	UNKWN	-	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	I		UNKWN	UNKWN	I	-	_	Ι	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	_	-	-	-	CAN COMM CIRCUIT (U1000)	_
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													PKIB3912E



#### Case 6

Check data link connector circuit. Refer to LAN-80, "Data Link Connector Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM scroop		_				Receive	diagnosis					DECINTO
SELECT STS	I EWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	-	_	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	_	_	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	-	_	_	_	CAN COMM CIRCUIT (U1000)	_



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Check combination meter circuit. Refer to LAN-81, "Combination Meter Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen						Receive	diagnosis				SELE-DIAG	BESUITS
SELECT STS		Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	A ALGOLIG
ENGINE	_	NG	UNKWN	_	UNKWN		UNKWN		_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	-	-	UNKWN	_	CAN COMM CIRCUIT (U 000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKIN	_	I	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-		UNKWN		-	-	-	CAN COMM CIRCUIT (UN000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN		—	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	-	-	-	CAN COMM CIRCUIT (U 1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-	-	CAN COMM CIRCUIT (U1000)	-
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#### Case 8

Check BCM circuit. Refer to LAN-81, "BCM Circuit Inspection" .

					CAN	DIAG SU	PPORT MI	NTR					
	EM screen						Receive of	diagnosis					
322201 313		Initial diagnosis	Iransmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		THEOULIO
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN		_	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	-	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNK	-	-	_	_	CAN COMM CIRCUIT (UN000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	-	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	UNKWN		_	_	_	-	CAN COMIL CIRCUIT (U 1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_		_	-	_	_	CAN COMM CIRCUIT (U 000)	_



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Check steering angle sensor circuit. Refer to LAN-82, "Steering Angle Sensor Circuit Inspection" .

					CAN							Γ	
					CAN	DIAG SU	Receive	diagnosis					
SELECT SYST	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	À RESULTS
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	_		_	_	I	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	_	_	ļ	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	_


### Case 10

Check Intelligent Key unit circuit. Refer to LAN-82, "Intelligent Key Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT MI	NTR					
	EM scroop		_				Receive	diagnosis					DECINTO
322201 313		diagnosis diagnosis ECM TCM METER BCM /SEC STRG I-KEY VDC/TC: /ABS				VDC/TCS /ABS	IPDM E/R	SELI-DIAC	THEOULIO				
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-		UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	_	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-			_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	_	-	_	_	CAN COMM CIRCUIT (U 000)	-
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	-	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN		_	_	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	_	_	CAN COMM CIRCUIT (U1000)	_



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Check VDC/TCS/ABS control unit circuit. Refer to LAN-83, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	FM screen						Receive	diagnosis					BESHITS
GELEOTOTO	EWISCICCI	Initial diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	-		UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	-		_	CAN COMM CIRCUIT (UN000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	_	-	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	-	V	UNKIN	UNKIN	UNKWN	UNKWN	-		-	_	-	CAN COMM CIRCUIT (UN000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	_	-	_	-	CAN COMM CIRCUIT (U1000)	_
													PKIB3918E



### Case 12

Check driver seat control unit circuit. Refer to LAN-83, "Driver Seat Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM coroon		_				Receive	diagnosis					DECUITO
SELECT STS	I EIWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	-	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	_	—	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	_	-	_	_	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	-	_	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U 000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	UNKWN	_	-	_	_	CAN COMM CIRCUIT (U1000)	_



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#### Check IPDM E/R circuit. Refer to LAN-84, "IPDM E/R Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen						Receive	diagnosis					BESHITS
SELECTORS	EW Scicch	Initial diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	-	-	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 01)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	-	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	_		CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	_	-	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	_	_	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	UNKWN	-	-	-	_	CAN COMM CIRCUIT (UV000)	_
						-					-		
													PKIB3920E



#### Case 14

Check CAN communication circuit. Refer to LAN-85, "CAN Communication Circuit Inspection" .

					CAN	DIAG SU	PPORT MI	NTR					
SELECT SYST	EM screen	1	<b>T</b> ere e e e it				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG		_		UNKWN		_	_		UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMY CIRCUIT (UV01)
A/T	—	NG	UNKWN	UNKWN	_		—	-	-		-	CAN COMM CIRCUIT (UN000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	Ι	UNKWN	-	Ι	UNKWN		UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication		UNKWN	UNKWN	1	UNKWN	UNKWN	1	-	_	I	CAN COMM CIRCUIT (UN00)	_
ABS	_	N/	UNKINN	UNK	UNKINN		—	UNKIN	-	_	Ι	CAN COMM CIRCUIT (UN000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	-	-	-		_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	UNKWN	_	-	-	-		-
	▼											(0,000)	

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-89</u>, "IPDM E/R Ignition Relay <u>A</u> <u>Circuit Inspection</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	TEM screen	1	T				Receive	diagnosis				SELE-DIAC	BESUITS
OLLEON ON O		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	OLLI DIAC	
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_		UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	_	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	—
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	_	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	_	-	_	_	CAN COMM CIRCUIT (U1000)	-
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	_	-	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	-	_	_	CAN COMM CIRCUIT (UN000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	_

### Case 16

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-89</u>, "IPDM E/R Ignition Relay Circuit Inspection".

					CAN	DIAG SUI	PPORT MI	NTR					
SELECT SYS	TEM screen	1	T				Receive	diagnosis				SELE-DIAG	RESULTS
SELECT OTO		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	_	-	-	-	_	_	UNKWN	-	CAN COMM CIRCUIT (UN000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKWN	_	-	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	-	UNKWN	-	_	_	-	—	-	CAN COMM CIRCUIT (UN000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_		CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	_

# Inspection Between TCM and Data Link Connector Circuit

### 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3 (L) 24H (L)
  - 8 (R) 25H (P)

: Continuity should exist. : Continuity should exist.

### OK or NG

OK >> GO TO 3.

NG >> Repair harness.



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

Check continuity between harness connector M72 terminals 24H (L), 25H (P) and data link connector M8 terminals 6 (L), 14 (P).

- 24H (L) 6 (L) 25H (P) – 14 (P)
- : Continuity should exist. : Continuity should exist.

### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW"

NG >> Repair harness.



# Inspection Between Data Link Connector and Intelligent Key Unit Circuit

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and Intelligent Key unit connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (P) and Intelligent Key unit harness connector M75 terminals 2 (L), 3 (P).
  - 6 (L) 2 (L) 14 (P) – 3 (P)

: Continuity should exist. : Continuity should exist.

### OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW"
- NG >> Repair harness.



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

#### OK or NG

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

- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) – 86 (P)

: Approx. 108 – 132 Ω

### OK or NG

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



# **TCM Circuit Inspection**

### **1. CHECK CONNECTOR**

1. Turn ignition switch OFF.

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

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### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

#### 3 (L) - 8 (R)

: Approx. 54 – 66  $\Omega$ 

### OK or NG

OK >> Replace control valve with TCM.

NG >> Repair harness between A/T assembly and harness connector F102.



# 1. CHECK CONNECTOR

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

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



A/T assembly connector

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3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

### OK or NG

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

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

: **Approx. 54 – 66** Ω

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> Repair harness between BCM and data link connector.



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# Steering Angle Sensor Circuit Inspection

# 1. CHECK CONNECTOR

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

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector.
- Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

#### : Approx. 54 – 66 Ω

### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and data link connector.



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# Intelligent Key Unit Circuit Inspection

# 1. CHECK CONNECTOR

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

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

- 1. Disconnect Intelligent Key unit connector.
- 2. Check resistance between Intelligent Key unit harness connector M75 terminals 2 (L) and 3 (P).

: **Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace Intelligent Key unit.
- NG >> Repair harness between Intelligent Key unit and VDC/ TCS/ABS control unit.



# VDC/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

### 1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

#### 61 (L) – 63 (P)

#### : Approx. 54 – 66 $\Omega$

### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and harness connector M12.



### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control unit side, connector side and harness side).
- Driver seat control unit connector
- Harness connector B6
- Harness connector B321

#### OK or NG

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

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- 1. Disconnect driver seat control unit connector.
- 2. Check resistance between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) – 19 (LG)

OK or NG

- OK >> Replace driver seat control unit.
- NG >> Repair harness between driver seat control unit and harness connector B2.



# **IPDM E/R Circuit Inspection**

### 1. CHECK CONNECTOR

AKS00C9Z

[CAN]

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- IPDM E/R connector
- Harness connector B2
- Harness connector E106

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

### 48 (L) – 49 (P)

#### : Approx. 108 – 132 $\Omega$

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and harness connector B6.



	N Communication Circuit Inspection
I.	
1.	Turn ignition switch OFF.
2.	Disconnect the battery cable from the negative terminal.
3.	Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, sensor side, control unit side and harness side).
-	ECM
-	A/T assembly
-	Combination meter
-	BCM
-	Steering angle sensor
-	Intelligent Key unit
-	VDC/TCS/ABS control unit
-	Driver seat control unit
-	IPDM E/R
-	Between ECM and IPDM E/R
<u>OK</u>	or NG
O N	K >> GO TO 2. G >> Repair terminal or connector.
2.	CHECK HARNESS FOR SHORT CIRCUIT
1.	Disconnect following connectors.
_	ECM connector
_	A/T assembly connector
-	Harness connector F102
2.	Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

94 (L) - 86 (P)

# : Continuity should not exist.

### OK or NG

OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

# **3. CHECK HARNESS FOR SHORT CIRCUIT**

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

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

: Continuity should not exist.

### OK or NG

OK >> GO TO 4.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102



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94

ECM

ECM connector

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86

LAN

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### 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Intelligent Key unit connector
- VDC/TCS/ABS control unit connector
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) – 14 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 5.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and Intelligent Key unit
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12

### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

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

#### OK or NG

- OK >> GO TO 6.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and Intelligent Key unit
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12





# 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B6 and harness connector B2.
- 2 Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

#### OK or NG

OK >> GO TO 7.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness B6
  - Harness between harness connector B1 and harness connector B2

# 7. CHECK HARNESS FOR SHORT CIRCUIT



- Harness between harness connector B1 and harness **B6**
- Harness between harness connector B1 and harness connector B2

# 8. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect driver seat control unit connector. 1.
- 2. Check continuity between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) - 19 (LG)

### : Continuity should not exist.

#### OK or NG

OK or NG

OK

NG

- OK >> GO TO 9.
- NG >> Repair harness between driver seat control unit and harness connector B321.





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# 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between driver seat control unit harness connector B324 terminals 3 (OR), 19 (LG) and ground.

- 3 (OR) Ground
- : Continuity should not exist. 19 (LG) - Ground

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between driver seat control unit and harness connector B321.

# 10. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- 2 Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

48 (L) - 49 (P) : Continuity should not exist.

#### OK or NG

- OK >> GO TO 11.
- NG >> Repair harness between IPDM E/R and harness connector E106.



IPDM E/R connector

49 48

48, 49

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# 11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- : Continuity should not exist. 49 (P) - Ground
  - : Continuity should not exist.

#### OK or NG

OK >> GO TO 12. NG >> Repair harness between IPDM E/R and harness connector E106.

# 12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 - 86: Approx. 108 – 132  $\Omega$ 

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

48 - 49

: Approx. 108 – 132 Ω

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





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13	В. СНЕСК ЗҮМРТОМ	А
1.	Fill in described symptoms on the column "Symptom" in the check sheet.	
2.	Connect all the connectors, and then make sure that the symptom is reproduced.	
OK	<u>or NG</u>	В
O N	<ul> <li>K &gt;&gt; GO TO 14.</li> <li>G &gt;&gt; Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"</li> <li>.</li> </ul>	С
14	1. CHECK UNIT REPRODUCIBILITY	
Pe	form the following procedure for each unit, and then perform reproducibility test.	D
1.	Turn ignition switch OFF.	
2.	Disconnect the battery cable from the negative terminal.	F
3.	Disconnect the unit connector.	
4.	Connect the battery cable to the negative terminal.	
5.	Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)	F
6.	Make sure that the same symptom is reproduce.	
-	A/T assembly	G
-	Combination meter	
-	BCM	
-	Steering angle sensor	H
-	Intelligent Key unit	
-	VDC/TCS/ABS control unit	
-	Driver seat control unit	1
-	ECM	
-	IPDM E/R	J
Ch	eck results	
R N	eproduced>>Install removed unit, and then check the other unit. ot reproduced>>Replace removed unit.	LAN
IPI	DM E/R Ignition Relay Circuit Inspection	
Ch	eck the following. If no malfunction is found, replace the IPDM E/R.	
•	IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection"	L
•	Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN "ON"</u> <u>AND/OR "START"</u>	М

# **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.

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



[CAN]

AKS00AU3

AKS00AU4

# Schematic





TKWM2469E

AKS00AU6

LAN-CAN-07

DATA LINE



(F108) -ELECTRICAL UNITS

\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM2470E

### [CAN]

# LAN-CAN-08 A



TKWM2471E

# LAN-CAN-09





REFER TO THE FOLLOWING. B1 -SUPER MULTIPLE JUNCTION (SMJ) M93 -ELECTRICAL UNITS

TKWM2472E

# **CHECK SHEET**

# [CAN]

#### AKS00AU7

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### NOTE:

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

					CAN	I DIAG SU	PPORT M	NTR					
ELECT SYS	TEM screen	Initial	Transmit				Receive	diagnosis				SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
NGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
г	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	-	UNKWN	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
СМ	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	_	_	_	UNKWN	CAN COMM CIRCUIT	_
S	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
DM E/R	No indication	_	UNKWN	UNKWN	-	_	_	UNKWN	_	_	_	CAN COMM CIRCUIT	_
												u	
			Att SELE	ach copy CT SYS	/ of STEM				S	Attach SELECT	copy of SYSTEI	М	



[CAN]

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

#### NOTE:

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

#### Case 1

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Check harness between TCM and data link connector. Refer to LAN-108, "Inspection Between TCM and Data Link Connector Circuit" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	TEM screen	1-14-1	T				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	OLLI DIAC	
ENGINE	_	NG	UNKWN	-	UNKWN				_			CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	UNKWN	-	CAN COMM CIRCUIT (UN000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	—	-	—	—	_	—	—	-	CAN COMIN CIRCUIT (UN00)	_
всм	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN		UNKWN	UNKWN	—	UNKWN	-	-	CAN COMM CIRCUIT (U 000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	_	UNKWN	_	_	-	CAN COMM CIRCUIT (UN000)	_



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Check harness between data link connector and VDC/TCS/ABS control unit. Refer to <u>LAN-109</u>, "Inspection <u>Between Data Link Connector and VDC/TCS/ABS Control Unit Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR			_		
	EM screen						Receive	diagnosis					
	EW Screen	Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_			CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UV001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	—	I		-	CAN COMM CIRCUIT (UN000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	-	UNKWN	—	Ι		-	CAN COMIN CIRCUIT (UN00)	_
BCM	No indication	NG	UNKWN	UNKWN	_	—	UNKWN	—	-	—		CAN COMM CIRCUIT (U1000)	_
ABS	Ι	NG	UNKWN		UNK	UNKWN	UNKWN	—	UNKWN	—	-	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-	-	CAN COMM CIRCUIT (UN000)	-
			-	_		-		-		-			
													DI/ID0007E



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### Case 3

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Check ECM circuit. Refer to LAN-110, "ECM Circuit Inspection" .

SELECT SYSTEM Screen Hintial Initial Initia Init				NTR	PPORT M	DIAG SU	CAN					
ENGINE       -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       -       UNKWN       UNKWN       -       UNKWN       CAN COMIL CIRCUIT       CAN COMIL CIRCUIT         A/T       -       NG       UNKWN       -       UNKWN       -       -       UNKWN       -       CAN COMIL CIRCUIT       (UM000)         A/T       -       NG       UNKWN       -       UNKWN       -       -       UNKWN       -       CAN COMIL CIRCUIT       CAN COMIL CIRCUIT       -         ALL MODE AWD/4WD       -       NG       UNKWN       -       -       UNKWN       -       -       UNKWN       -       CAN COMIL CIRCUIT       -         ALL MODE AWD/4WD       -       NG       UNKWN       -       -       UNKWN       -       CAN COMIL CIRCUIT       -         COM       -       NG       UNKWN       -       -       UNKWN       -       -       CAN COMIL CIRCUIT       -         COM       -       -       UNKWN       -       -       UNKWN       -       CAN COMIL CIRCUIT       -				diagnosis	Receive						TEM screen	SELECT SYST
ENGINE       -       NG       UNKWN       -       UNKWN       UNKWN       -       UNKWN       UNKWN       CAN COMM CIRCUIT (UM000)       CAN COMM CIRCUIT (UM001)         A/T       -       NG       UNKWN       -       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM001)       -         ALL MODE AWD/4WD       -       NG       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM000)       -         ALL MODE AWD/4WD       -       NG       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM000)       -	M STRG VDC/TCS IPDM /ABS E/R	VDC/TCS /ABS	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	тсм	ECM	diagnosis	diagnosis		SELECT OF O
A/T         -         NG         UNKWN         -         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (UM000)         -           ALL MODE AWD/4WD         -         NG         UNKWN         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (UM000)         -           DOM         NG         UNKWN         -         -         UNKWN         -         -         UNKWN         -         -         CAN COMM CIRCUIT (UM000)         -           DOM         NG         UNKAN         UNKAN         -         -         UNKUN         -         CAN COMM CIRCUIT (UM00)         -	WN - UNWN UNWN CAN COMM CIRCUIT CAN COMM CIRCUIT		_	UNKWN	UNKWN	UNION		_		NG	_	ENGINE
ALL MODE AWD/4WD - NG UNKWN UNKWN UNKWN UNKWN - CAN COMM CIRCUIT	- UNKWN - CAN COMM CIRCUIT -	UNKWN	_	_	UNKWN	UNKWN	—	UNKWN	UNKWN	NG	_	A/T
		UNKWN	-	—	UNKWN	_	-		UNKWN	NG	_	ALL MODE AWD/4WD
	- – UNKWN CAN COMM CIRCUIT – UNKWN (U1000)	-	_	_	UNKWN	_	_		UNKWN	NG	No indication	ВСМ
ABS – NG UNKWN UNKWN UNKWN UNKWN – UNKWN – CAN COMM CIRCUIT –	UNKWN CAN COMM CIRCUIT -	_	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	NG	_	ABS
IPDM E/R No indication - UNKWN UNKWN UNKWN CAN COMM CIRCUIT -		-	-	UNKWN	_	_	-		UNKWN	_	No indication	IPDM E/R



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Check TCM circuit. Refer to LAN-110, "TCM Circuit Inspection" .

Receive diagnosis           SELECT SYSTEM screen         Initial diagnosis         Transmit diagnosis         Transmit diagnosis         Transmit diagnosis         Receive diagnosis         STRG         VDC/TCS /ABS         IPDM E/ABS         SELF-DIAG RESULTS           ENGINE         —         NG         UNKWN         —         UNKWN         UNKWN         UNKWN         —         UNKWN         CAN COMM CIRCUIT (UM00)         CAN COMM CIRCUIT (UM00)         —           A/T         —         NG         UNKWN         UNWN         —         —         UNKWN         —         CAN COMM CIRCUIT (UM00)         —           ALL MODE AWD/4WD         —         NG         UNKWN         UNKWN         —         —         UNKWN         —         CAN COMM CIRCUIT (U1000)         —           BCM         No indication         NG         UNKWN         UNKWN         —         —         UNKWN         —         —         UNKWN         —         —         CAN COMM CIRCUIT (U1000)         —           BCM         No indication         NG         UNKWN         UNKWN         —         —         —         UNKWN         —         —         CAN COMM CIRCUIT (U1000)         —						CAN	DIAG SU	PPORT M	NTR					
DELECTO OTO TELM Soldent       Initial diagnosis       Iransmit diagnosis       ECM       TCM       AWD/4WD       METER MSEC       STRG       VDC/TCS       IPDM         ENGINE       -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       UNKWN       CAN COMM CIRCUIT (UM00)       CAN COMM CIRCUIT (UM00)       -         A/T       -       NG       UNKWN       UNKWN       -       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM00)       -         A/T       -       NG       UNKWN       UNKWN       -       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM00)       -         ALL MODE AWD/4WD       -       NG       UNKWN       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (U100)       -         BCM       No indication       NG       UNKWN       UNKWN       -       -       -       UNKWN       -       -       CAN COMM CIRCUIT (U1000)       -         ABS       -       NG       UNKWN       UNKWN       UNKWN       -       -       UNKWN       -       -       CAN COMM CIRCUIT (U1000)       -	SELECT SVS	TEM screen		<b>-</b>				Receive	diagnosis					BESHITS
ENGINE       -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       -       UNKWN       UNKWN       UNKWN       UNKWN       CAN COMM CIRCUIT (UM00)       CAN COMM CIRCUIT (UM00)       CAN COMM CIRCUIT (UM00)       -         A/T       -       NG       UNKWN       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (UM00)       -         ALL MODE AWD/4WD       -       NG       UNKWN       UNKWN       -       -       UNKWN       -       CAN COMM CIRCUIT (U1000)       -         BCM       No indication       NG       UNKWN       UNKWN       -       -       UNKWN       -       -       UNKWN       -       -       CAN COMM CIRCUIT (U1000)       -         ARS       -       NG       UNKWN       UNKWN       UNKWN       -       -       UNKWN       -       -       CAN COMM CIRCUIT (U1000)       -	SELECT STO		Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	I NEGOLI G
AT         -         NG         UNKWN         UNKWN         -         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (UX00)         -           ALL MODE AWD/4WD         -         NG         UNKWN         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (U1000)         -           BCM         No indication         NG         UNKWN         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (U1000)         -           ABS         -         NG         UNKWN         UNKWN         UNKWN         -         UNKWN         -         CAN COMM CIRCUIT (U1000)         -	ENGINE	-	NG	UNKWN	-		UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUI (UN001)
ALL MODE AWD/4WD - NG UNKWN UNKWN UNKWN - UNKWN - CAN COMM CIRCUIT BCM No indication NG UNKWN UNKWN UNKWN UNKWN - UNKWN CAN COMM CIRCUIT ABS - NG UNKWN UNKWN UNKWN UNKWN UNKWN UNKWN - UNKWN - UNKWN - CAN COMM CIRCUIT CAN COMM CIRCUIT	A/T	-	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	_	-	UNKWN	_	CAN COMM CIRCUIT (U 000)	-
BCM     No indication     NG     UNKWN     UNKWN     —     —     UNKWN     —     —     UNKWN     CAN COMM CIRCUIT (U1000)     —       ABS     —     NG     LINKWN     LINKWN     LINKWN     —     LINKWN     —     CAN COMM CIRCUIT (U1000)     —	ALL MODE AWD/4WE	-	NG	UNKWN	UNKWN	_	-	UNKWN	—	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
	BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	_	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
	ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R         No indication         UNKWN         UNKWN         -         -         -         CAN COMM CIRCUIT (U1000)         -	IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_



#### Case 5

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Check AWD control unit circuit. Refer to LAN-111, "AWD Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	TEM screen						Receive	diagnosis					
SELECT STO	I LIW SCIECH	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	A NEGULI G
ENGINE	_	NG	UNKWN	_	UNKWN	UNIOWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	_	—	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG		-	_	_	_	—	—	-	_	CAN COMM CIRCUIT (U 000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	_	UNKWN	_	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	-



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LAN-101

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Check data link connector circuit. Refer to LAN-111, "Data Link Connector Circuit Inspection" .

Initial diagnosi NG NG NG	Transmit diagnosis UNKWN UNKWN	ECM — UNKWN	TCM UNKWN —	AWD/4WD /e4WD UNKWN UNKWN	Receive METER /M&A UNKWN UNKWN	diagnosis BCM /SEC UNKWN	STRG	VDC/TCS /ABS UNKWN	IPDM E/R UNKWN	SELF-DIAG CAN COMM CIRCUIT (U1000)	RESULTS CAN COMM CIRCUIT (U1001)
Initial diagnosi NG NG NG	UNKWN	ECM — UNKWN	TCM UNKWN —	AWD/4WD /e4WD UNKWN UNKWN	METER /M&A UNKWN UNKWN	BCM /SEC UNKWN	STRG	VDC/TCS /ABS UNKWN	IPDM E/R UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
NG NG NG		– UNKWN	UNKWN —	UNKWN UNKWN	UNKWN UNKWN	UNKWN —	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
NG NG		UNKWN	_	UNKWN	UNKWN	_	_				
NG					1		_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
		UNKWN	-	_	UNKWN	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
on NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
on —	UNKWN	UNKWN	-	-	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
				1							
	NG on —	NG UNKWN	ng Unkwn Unkwn on — Unkwn Unkwn	NG UNKWN UNKWN UNKWN on — UNKWN UNKWN —	NG UNKWN UNKWN UNKWN UNKWN on — UNKWN UNKWN — —	NG UNKWN UNKWN UNKWN UNKWN UNKWN on — UNKWN UNKWN — — —	NG UNKWN UNKWN UNKWN UNKWN on UNKWN UNKWN UNKWN	NG UNKWN UNKWN UNKWN UNKWN UNKWN — UNKWN on — UNKWN UNKWN — — — UNKWN —	NG UNKWN UNKWN UNKWN UNKWN — UNKWN — UNKWN — UNKWN — — — — — UNKWN — — —	NG         UNKWN         UNKWN         UNKWN         UNKWN         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         #         #         #         #         #         #         #         #         #         #         #         #	NG     UNKWN     UNKWN     UNKWN     UNKWN     —     UNKWN     —     —     CAN COMM CIRCUIT (U1000)       Dn     —     UNKWN     UNKWN     —     —     UNKWN     —     —     CAN COMM CIRCUIT (U1000)       Dn     —     UNKWN     UNKWN     —     —     UNKWN     —     —     CAN COMM CIRCUIT (U1000)



#### Case 7

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Check combination meter circuit. Refer to LAN-112, "Combination Meter Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	FFM screen	1-14-1	T				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	_	—	UNKWN	_		_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	_	UNKWN	—	—	UNKWN	_	CAN COMM CIRCUIT	_
BCM	No indication	NG	UNKWN	UNKWN	_	_	UNKIN	_	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	-
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Check BCM circuit. Refer to LAN-112, "BCM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen	1-11-1	T				Receive	diagnosis				SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	_	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	-	UNKWN	_	-	_	CAN COMM CIRCUIT (U 000)	—



#### Case 9

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Check steering angle sensor circuit. Refer to LAN-113, "Steering Angle Sensor Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	TEM screen		+				Receive	diagnosis	_				BESHITS
	EWBOICEN	Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
LL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	-	UNKWN	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	-	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNK	-		CAN COMM CIRCUIT (U1000)	_
PDM E/R	No indication	-	UNKWN	UNKWN	-	_	-	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	_



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Check VDC/TCS/ABS control unit circuit. Refer to LAN-113, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen	1	Too a consist			_	Receive	diagnosis				SELE-DIAG	BESUITS
		Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_		UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	—	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	-	—	UNKWN	Ι	CAN COMM CIRCUIT (UN000)	—
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	_	UNKWN		_	UNKWN	_	CAN COMM CIRCUIT (UN000)	—
BCM	No indication	NG	UNKWN	UNKWN	-	_	UNKWN	Ι	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	V			UNKWN	UNKWN	UNKIN	-	UNKWN	-	_	CAN COMV CIRCUIT (UN000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	_	UNKWN	-	-	Ι	CAN COMM CIRCUIT (U1000)	_
													PKIB3935E



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### Case 11

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#### Check IPDM E/R circuit. Refer to LAN-114, "IPDM E/R Circuit Inspection" .

					CAN	DIAG SUI	PPORT M	NTR					
SELECT SYST	TEM screen	1	T				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	_	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	-	UNKWN	—	I	UNKWN	—	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	_	-		CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	_	UNKWN	_	-	-	CAN COMM CIRCUIT (UN000)	-



#### Case 12



					CAN	DIAG SU	PPORT M	NTR					
							Receive	diagnosis					DECUITO
SELECT STS	EM SCIEEN	Initial diagnosis	Transmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	RESULIS
ENGINE	_	NG		-	UNION	UNKWN	UNKWN	UNKWN	_			CAN COMM CIRCUIT (U 000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN		_	UNKWN	UNKWN	_	_	UNKWN	-	CAN COMM CIRCUIT (U 000)	_
ALL MODE AWD/4WD	_	NG		-	_	_	_	—	_	-	-	CAN COMIN CIRCUIT (U 000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	-	_	UNKWN	_	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	_	*			UNKWN	UNKWN	UNKWN	_	UNKWN	-	-	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	UNKWN	_	-	-	CAN COMM CIRCUIT (UV000)	_
													PKIB3937E

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-118</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

					CAN	DIAG SU	PPORT M	NTR					
	EM scroop						Receive	diagnosis					
SELECT STOR	LINISCIECT	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	-		UNKWN	UNKWN	UNKWN	-		UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)
A/T	—	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	-	UNKWN	—	_	UNKWN	-	CAN COMM CIRCUIT (UN000)	—
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	_	I	-	CAN COMM CIRCUIT (U1000)	_

#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-118</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

					CAN	DIAG SU	PPORT M	NTR					
	TEM screen		-				Receive	diagnosis					
SELECT STS	I LIW SCIECH	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	—	—	-	—	-	—	UNKWN	-	CAN COMM CIRCUIT (UN000)	—
ALL MODE AWD/4WD		NG	UNKWN	UNKWN	_	-	UNKWN	—	—	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	—	-	UNKWN	_	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
ABS	-	NG	UNKWN	-	UNKWN	-	_	-	_	-	-	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	_	UNKWN	_	-	_	CAN COMM CIRCUIT (U1000)	-

# Inspection Between TCM and Data Link Connector Circuit 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.
# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3 (L) 24H (L)
  - 8 (R) 25H (P)
- : Continuity should exist.
- : Continuity should exist.

## OK or NG

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



SMJ harness connector

24H, 25H

SMJ

• CONNECTOR

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Data link connector

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# 3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M72 terminals 24H (L), 25H (P) and data link connector M8 terminals 6 (L), 14 (P).

- 24H (L) 6 (L) 25H (P) – 14 (P)
- : Continuity should exist. : Continuity should exist.

## OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW".
- NG >> Repair harness.

## Inspection Between Data Link Connector and VDC/TCS/ABS Control Unit Circuit

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and VDC/TCS/ABS control unit connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (P) and VDC/TCS/ABS control unit harness connector M93 terminals 61 (L), 63 (P).
  - 6 (L) 61 (L) 14 (P) - 63 (P)
- : Continuity should exist. : Continuity should exist.

## OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW".
- NG >> Repair harness.





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# **ECM Circuit Inspection**

# 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

## 94 (L) - 86 (P)

: Approx. 108 – 132  $\Omega$ 

## OK or NG

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



# **TCM Circuit Inspection**

## 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

: Approx. 54 – 66 Ω

## OK or NG

- OK >> Replace control valve with TCM.
- NG >> Repair harness between A/T assembly and harness connector F102.



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# CAN SYSTEM (TYPE 3)



# **Data Link Connector Circuit Inspection**

## **1. CHECK CONNECTOR**

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (P).

### 6 (L) – 14 (P)

: **Approx. 54 – 66** Ω

### OK or NG

- OK >> Diagnose again. Refer to <u>LAN-5</u>, "TROUBLE DIAG-<u>NOSES WORK FLOW"</u>.
- NG >> Repair harness between data link connector and combination meter.



2005 G35 Sedan



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# **Combination Meter Circuit Inspection**

# 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

## 4 (L) – 5 (P)

: **Approx. 54 – 66** Ω

## OK or NG

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



# **BCM Circuit Inspection**

## 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

39 (L) – 40 (P)

: **Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16</u>, "Removal and Installation of BCM" .
- NG >> Repair harness between BCM and data link connector.



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# CAN SYSTEM (TYPE 3)

Steering Angle Sensor Circuit Inspection	AUF
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of steering angle sensor for damage, bend and loose connection (sens side and harness side).</li> <li>OK or NG</li> <li>OK &gt;&gt; GO TO 2.</li> <li>NG &gt;&gt; Repair terminal or connector</li> </ol>	or
2. CHECK HARNESS FOR OPEN CIRCUIT	
<ol> <li>Disconnect steering angle sensor connector.</li> <li>Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).</li> </ol>	_ _ E
4 (L) – 5 (P) : Approx. 54 – 66 Ω OK or NG Steering angle sensor connector	F
OK       >> Replace steering angle sensor.         NG       >> Repair harness between steering angle sensor and data link connector.	G
VDC/TCS/ABS Control Unit Circuit Inspection	: AUG
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).</li> <li><u>OK or NG</u> OK &gt;&gt; GO TO 2.</li> </ol>	 on LA
NG >> Repair terminal or connector. 2. CHECK HARNESS FOR OPEN CIRCUIT	L
<ol> <li>Disconnect VDC/TCS/ABS control unit connector.</li> <li>Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).</li> <li>61 (L) - 63 (P) : Approx. 54 - 66 Ω</li> <li>OK or NG</li> <li>OK or NG</li> <li>OK &gt;&gt; Replace VDC/TCS/ABS control unit.</li> <li>NG &gt;&gt; Repair harness between VDC/TCS/ABS control unit and harness connector M12.</li> </ol>	

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# **IPDM E/R Circuit Inspection**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- IPDM E/R
- Harness connector B2
- Harness connector E106
- Harness connector M12
- Harness connector B1

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

### 48 (L) - 49 (P)

: **Approx. 108 – 132** Ω

### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and VDC/TCS/ABS control unit.



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# CAN Communication Circuit Inspection

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).
- ECM
- A/T assembly
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

## OK or NG

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

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# CAN SYSTEM (TYPE 3)

# Edition; 2004 September

# 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- 2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

## 94 (L) – 86 (P)

## : Continuity should not exist.

## OK or NG

OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

# 3. CHECK HARNESS FOR SHORT CIRCUIT



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

## 86 (P) – Ground OK or NG

- OK >> GO TO 4.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102



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ECM

94

ECM connector

86

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## 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- AWD control unit connector
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- VDC/TCS/ABS control unit connector
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

### 6 (L) – 14 (P)

### : Continuity should not exist.

### OK or NG

OK >> GO TO 5.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and AWD control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12

## 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

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

### OK or NG

OK >> GO TO 6.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and AWD control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12





## 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B2.
- Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

## 52J (L) – 51J (P) : Continuity should not exist.

## OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector B1 and harness connector B2.



SMJ harness connector

52J, 51J

SMJ

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# 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- 52J (L) Ground : C 51J (P) – Ground : C
- : Continuity should not exist. : Continuity should not exist.

: Continuity should not exist.

## OK or NG

- OK >> GO TO 8.
- NG >> Repair harness between harness connector B1 and harness connector B2.

## 8. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

## 48 (L) - 49 (P)

## OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between IPDM E/R and harness connector E106.



# 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- 49 (P) Ground

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

## OK or NG

OK >> GO TO 10.

NG >> Repair harness between IPDM E/R and harness connector E106.





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# 10. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

**94 – 86** : Approx. 108 – 132 Ω

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

: Approx. 108 – 132 Ω

- OK or NG
- OK >> GO TO 11.

48 - 49

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



# 11. СНЕСК ЗУМРТОМ

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

OK or NG

OK >> GO TO 12.

NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"

# 12. CHECK UNIT REPRODUCIBILITY

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

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the unit connector.
- 4. Connect the battery cable to the negative terminal.
- 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)
- 6. Make sure that the same symptom is reproduce.
- A/T assembly
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- ECM
- IPDM E/R

## Check results

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

# **IPDM E/R Ignition Relay Circuit Inspection**

AKS00AUJ

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

- IPDM E/R power supply circuit. Refer to <u>PG-26, "IPDM E/R Power/Ground Circuit Inspection"</u>.
- Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY IGNITION SW. IN "ON"</u> <u>AND/OR "START"</u>.

# **CAN SYSTEM (TYPE 4)**

# 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.

## Component Parts and Harness Connector Location



PFP:23710

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# CAN SYSTEM (TYPE 4)

# Schematic

AKS00CA5



TKWM2473E

[CAN]



TKWM2474E

# LAN-CAN-11



TKWM2475E

## [CAN]

# LAN-CAN-12 A



TKWM2476E

# **CHECK SHEET**

#### AKS00CA7

## NOTE:

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

Check shee	t table													
					(	CAN DIAC	SUPPC	RT MNT	F					
SELECT SYS	FEM screen	Initial	Transmit				Re	ceive dia	gnosis		1		SELF-DIAC	RESULTS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	-	_	UNKWN	UNKWN	(U1000)	U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	_	UNKWN	-		_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	-	_	UNKWN	-	-	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	-	_	UNKWN	UNKWN	-	_	_	-	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN		-	_	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	_	UNKWN	Ι	-	-	_	CAN COMM CIRCUIT (U1000)	_
			م SE	ttach co ∟ECT S	opy of YSTEM	1				SE	Attach	copy of SYSTEI	VI	

# CAN SYSTEM (TYPE 4)



PKIB3942E

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

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

## Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-140, "Inspection Between TCM and Data</u> <u>Link Connector Circuit"</u>.

													-	
					(	CAN DIAG	G SUPPC	RT MNT	R					
SELECT SYST	FFM screen	La Mart	T				Re	ceive dia	gnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		HEODETO
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—			CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—	-	—		Ι	CAN COMM CIRCUIT (UN000)	_
ALL MODE AWD/4WD	—	NG	UNKWN	_	—	-	_	—	-	—	-	Ι	CAN COMN CIRCUIT (UN000)	-
всм	No indication	NG	UNKWN		_	-	UNKWN	_	_	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	_	_	CAN COMM CIRCUIT (UN000)	_
ABS	—	NG	UNKWN	UNK	UNKWN	UNKWN	UNKWN	—	UNKWN	—	_	-	CAN COMM CIRCUIT (UN000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	_	_	_		CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	_	UNKWN	UNK	_	_	_	UNKWN	_	_	-	-	CAN COMM CIRCUIT (UN000)	_
-	•	•	-	•		•			•	•	•			



# [CAN]

## Case 2

Check harness between data link connector and Intelligent Key unit. Refer to <u>LAN-141</u>, "Inspection Between <u>A</u> <u>Data Link Connector and Intelligent Key Unit Circuit</u>".

					(	CAN DIAG	G SUPPC	RT MNT	R					
	TEM screen						Re	ceive dia	gnosis					
SELECT OTO	I LWI SCICCII	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-		UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	_	_	UNKWN	_	CAN COMM CIRCUIT (U 000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	_	_	UNKWN	-	-	_	UNKWN	_	CAN COMM CIRCUIT (UN000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	-		CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	_	UNKWN	UNKWN	_	_	-	_	CAN COMM CIRCUIT (UN000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNK	-	UNKWN	_	-	_	CAN COMM CIRCUIT (UN000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	_	_	-	_	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	UNKWN	_	_	-	_	CAN COMM CIRCUIT	_



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Check harness between Intelligent Key unit and driver seat control unit. Refer to <u>LAN-142</u>, "Inspection <u>Between Intelligent Key Unit and Driver Seat Control Unit Circuit</u>".

					(	CAN DIAG	G SUPPC	RT MNT	F					
	EM scroop		_				Re	ceive dia	gnosis					
SELECT OTO	LWISCICCI	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	-	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCU (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-		_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	-	UNKWN	-	-	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	_	-	UNKWN	-	-	UNKWN	-	UNIÓWN	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	_	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (UN000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	-	UNKWN	-	_	_	_	CAN COMM CIRCUIT (UN000)	-



# **CAN SYSTEM (TYPE 4)**

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## Case 4

Check ECM circuit. Refer to LAN-142, "ECM Circuit Inspection" .

					C	CAN DIAG	G SUPPC	RT MNT	3					
	EM scroop						Re	ceive dia	jnosis					
SELECT OTO		Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	_	UNKWN		UNK		_	-	UNIWN	UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UV001)
A/T	—	NG	UNKWN	UNI	_	UNKWN	UNKWN	—	-	-	UNKWN	-	CAN COMM CIRCUIT (UN000)	_
ALL MODE AWD/4WD	—	NG	UNKWN	UNI	_	_	UNKWN	—	_	-	UNKWN	-	CAN COMN CIRCUIT	-
BCM	No indication	NG	UNKWN		—	-	UNKWN	—	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	_	-	-	-	CAN COMM CIRCUIT (UN000)	-
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	-	-	CAN COMM CIRCUIT (UN000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	-	_	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	UNKWN	_	-	_	-	CAN COMM CIRCUIT (UN000)	-



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Check TCM circuit. Refer to LAN-143, "TCM Circuit Inspection" .

					(	CAN DIAG	G SUPPC	RT MNT	R					
	FEM screen		- ··				Re	ceive dia	gnosis					
SELECT OTO	EW Scicen	Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U 000)	CAN COMM CIRCU (UN001)
A/T	—	NG	UNKWN	UNIWN	_	UNKWN	UNKWN	-	_	-		-		_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	-	UNKWN	-	_	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	1	UNKWN	UNKWN	_	-	UNKWN	UNKWN	_	-	_	_	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	_	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	_	_		_
IPDM E/R	No indication	1	UNKWN	UNKWN	_	_	-	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	_



Check AWD control unit circuit. Refer to LAN-143, "AWD Control Unit Circuit Inspection" .

					(	CAN DIAG	SUPPC	RT MNT	3					
	EM scroop		_				Re	ceive dia	jnosis					
SELECT STS		Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	A NESOLIS
ENGINE	—	NG	UNKWN	—	UNKWN	UNI	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	I	NG	UNKWN	_	_	1	-	-	_	_	_	-	CAN COMM CIRCUIT (UN000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	-	UNKWN	-	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	-	UNKWN	UNKWN	—	—	—	Ι	CAN COMM CIRCUIT (U1000)	_
ABS	Ι	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	UNKWN	_	_	-	_	CAN COMM CIRCUIT (U1000)	_



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Check data link connector circuit. Refer to LAN-144, "Data Link Connector Circuit Inspection" .

					(	CAN DIAC	G SUPPC	RT MNT	3					
	TEM scroon		<b>-</b> "				Re	ceive diag	inosis				SELE-DIAG	
SELECT OTO	EW Scicen	Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCU (U1001)
A/T	—	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	-	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	—	-	UNKWN	-	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	_	CAN COMM CIRCUIT (U1000)	-
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	-	_	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	-



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## Case 8

Check combination meter circuit. Refer to LAN-144, "Combination Meter Circuit Inspection" .

					(	CAN DIAG	SUPPC	RT MNT	٦					
	TEM scroop						Re	ceive dia	gnosis					
SELECT STS		Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	THEOUEIG
ENGINE	_	NG UNKWI	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	—	NG	UNKWN	UNKWN	-	UNKWN		—	_	-	UNKWN	-	CAN COMM CIRCUIT (UN000)	-
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	_	UNKWN	—	—	-	UNKWN	-	CAN COMM CIRCUIT (UN000)	-
BCM	No indication	NG	UNKWN	UNKWN		-	UNK	—	-	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	Ι	CAN COMM CIRCUIT (U 000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN		_	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	_	-	_	-	CAN COMM CIRCUIT	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	_	UNKWN	_	-	-	-	CAN COMM CIRCUIT (U1000)	—



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Check BCM circuit. Refer to LAN-145, "BCM Circuit Inspection" .

					(	CAN DIAG	G SUPPC	RT MNTI	٦					
SELECT SYST	FFM screen	La Mart	<b>T</b>				Re	ceive dia	gnosis				SELE-DIAG	BESHITS
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	GEEF DIAC	
ENGINE	_	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (UN001)
A/T	—	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	-	-	-	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	-	UNKWN	-	_	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	-	UNKWN	-	-	UNKWN		UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-			Ι	CAN COMM CIRCUIT (UN000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	Ι	Ι	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	-	Ι	Ι	Ι	CAN COMM CIRCUIT (UN000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	_	UNKWN	_	_	-	_	CAN COMM CIRCUIT (U 000)	—



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## Case 10

Check steering angle sensor circuit. Refer to LAN-145, "Steering Angle Sensor Circuit Inspection" .

					(	CAN DIAG	SUPPC	RT MNT	٦					
	FEM screen		<b>-</b> "				Re	ceive diag	gnosis					
SELECT CTO	EW Scicen	Initial diagnosis	Iransmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	-	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-		-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	1	1	UNKWN	-	1	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN		1	UNKWN	-	I	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN		-		I	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-		-	-	Ι	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	_	UNKWN	1	_	-	_	CAN COMM CIRCUIT (U1000)	_



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Check Intelligent Key unit circuit. Refer to LAN-146, "Intelligent Key Unit Circuit Inspection" .

					(	CAN DIAC	G SUPPC	RT MNT	٦					
SELECT SYST	FFM screen	1	<b>T</b>	Receive diagnosis										
		diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	_	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	—	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	—	-	UNKWN	—	—	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	—	-	UNKWN	—	-		-	UNKWN	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	1	UNKWN	UNKWN	_	-	UNKWN	UNKWN	_	_	-	-	CAN COMM CIRCUIT (UN000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	1	UNKWN	UNKWN	—	_	—	UNKWN	_	—	-	_	CAN COMM CIRCUIT (U1000)	_
														PKIB3952E



# **CAN SYSTEM (TYPE 4)**

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## Case 12

А Check VDC/TCS/ABS control unit circuit. Refer to LAN-146, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					(	CAN DIAC	G SUPPC	RT MNT	٦					
	EM coroon		_				Re							
SELECT STS	I EIWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	AWD/4WD /e4WD	WD/4WD METER /e4WD /M&A		STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	_		UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	_	_	UNKWN	-	CAN COMM CIRCUIT (UV00)	_
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	_	_	UNKWN	-	_	_		-	CAN COMM CIRCUIT (UN000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	—	V		UNKWN	UNKWN		UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (UV000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	_	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	_



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Check driver seat control unit circuit. Refer to LAN-147, "Driver Seat Control Unit Circuit Inspection" .

					(	CAN DIAC	G SUPPC	RT MNT	٦					
	TEM screen						Re							
		Initial diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCU (U1001)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-		_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	—	-	UNKWN	-		_	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	-	UNKWN	UNKWN	-	-	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	_	_	-	CAN COMM CIRCUIT (UN000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	_	UNKWN	-	_	_	-	CAN COMM CIRCUIT (U1000)	-



# CAN SYSTEM (TYPE 4)

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# Case 14

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Check IPDM E/R circuit. Refer to LAN-148, "IPDM E/R Circuit Inspec	<u>:tion"</u> .
--------------------------------------------------------------------	-----------------

					C	CAN DIAG	SUPPC	ORT MNT	۲						
SELECT SVST	TEM screen			Receive diagnosis											
SELECT OF S		Initial diagnosis	Iransmit diagnosis	ECM	тсм	TCM AWD/4WD /e4WD		BCM /SEC	STRG	i I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULTS		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	_	UNKWN		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (UN001)	
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	-	-	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_	
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	1	UNKWN	-	_	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_	
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	-		CAN COMM CIRCUIT (U1000)	_	
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	_	-	-	I	CAN COMM CIRCUIT (U1000)	-	
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	Ι	CAN COMM CIRCUIT (U1000)	_	
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	-	_	CAN COMM CIRCUIT (U1000)	_	
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	-	UNKWN	_	_	-	_		_	



## Case 15

Check CAN communication circuit. Refer to LAN-148, "CAN Communication Circuit Inspection" .

					(	CAN DIAC	SUPPC	RT MNT	۹						
							Re	ceive dia	gnosis						
SELECT SYS	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM AWD/4WD /e4WD		METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG	RESULIS	
ENGINE	—	NG	UNI	_	UNKWN			UNKWN	-	_		UNKWN	CAN COMM CIRCUIT (UN000)	CAN COMM CIRCUIT (UN001)	
A/T		NG	UNKWN	UNKWN	-	UNKWN	UNK	-	-	-		-		_	
ALL MODE AWD/4WD	-	NG	UNYWN	-	-	_	-	-	-	-	_	-	CAN COMM CIRCUIT (U1000)	—	
всм	No indication	NG	UNKWN	UNKWN	-	_	UNKWN	-	_	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	_	
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	-	UNKWN	UNKWN	-	-	-	_	CAN COMM CIRCUIT (UN000)	_	
ABS		×	UNKWN	UNK			UNKWN	_	UNKWN	-	_	_	CAN COMM CIRCUIT (UN000)	_	
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (UN000)	_	
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	UNKWN	-	_	_	_	CAN COMM CIRCUIT (UV000)	_	
•			•					•			•				

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-153</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

					(	CAN DIAC	G SUPPC	RT MNT	3						
SELECT SYST	EM screen	La Mart					Re								
I		diagnosis	Transmit diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULIS		
ENGINE	-	NG	UNKWN	-		UNKWN	UNKWN	UNKWN	Ι	-		UNKWN	CAN COMM CIRCUIT (UV000)	CAN COMM CIRCUIT (UN001)	
A/T	Ι	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	—	-	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	—	
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	_	-	UNKWN	-	-	_	UNKWN	-	CAN COMM CIRCUIT (UN000)	_	
BCM	No indication	NG	UNKWN	UNKWN	_	-	UNKWN	-	-	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	-	
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	_	-	Ι	CAN COMM CIRCUIT (U1000)	_	
ABS	-	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-	
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	-	UNKWN	UNKWN	_	_	_	_	CAN COMM CIRCUIT (UN000)	-	
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-	-	_	CAN COMM CIRCUIT (U1000)	—	

## Case 17

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-153</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

				(	CAN DIAG	G SUPPC	RT MNT	3						
EM screen	La Mart	T	Receive diagnosis									SELE-DIAG RESULTS		
Lin boreon	diagnosis	diagnosis	ECM	тсм	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	I-KEY	VDC/TCS /ABS	IPDM E/R			
_	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	_	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)	
_	NG	UNKWN	-	-	-	-	-	-	-	UNKWN	-	CAN COMM CIRCUIT (U 000)	_	
—	NG	UNKWN	UNKWN	—	_	UNKWN	—	_	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_	
No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	_	
No indication	-	UNKWN	UNKWN	-	-	UNKWN	UNKWN	_	-	-	Ι	CAN COMM CIRCUIT (U1000)	_	
_	NG	UNKWN	-	UNKWN	—	-	-	—	-	_	-	CAN COMM CIRCUIT (UN000)	_	
No indication	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	_	_	_	-	CAN COMM CIRCUIT (U1000)	_	
No indication	_	UNKWN	UNKWN	_	_	—	UNKWN	_	_	—	-	CAN COMM CIRCUIT (U1000)	_	
	EM screen No indication No indication No indication No indication	EM screen Initial Jinitial diagnosis — NG — NG No indication NG No indication MG No indication NG No indication MG	EM screen Initial diagnosis diagnosis diagnosis diagnosis (fiagnosis) - NG UNKWN - NG UNKWN - NG UNKWN No indication NG UNKWN - NG UNKWN No indication NG UNKWN No indication NG UNKWN No indication NG UNKWN No indication - UNKWN	EM screen       Initial diagnosis       Transmit diagnosis         -       NG       UNKWN       -         -       NG       UNKWN       -         -       NG       UNKWN       -         -       NG       UNKWN       -         -       NG       UNKWN       UNKWN         No indication       NG       UNKWN       UNKWN         -       NG       UNKWN       -         No indication       -       UNKWN       -	EM screen       Initial diagnosis       Transmit diagnosis       ECM       TCM         —       NG       UNKWN       —       UNKWN         —       NG       UNKWN       —       —         Mo indication       NG       UNKWN       UNKWN       —         No indication       NG       UNKWN       —       UNKWN         No indication       NG       UNKWN       —       UNKWN         No indication       NG       UNKWN       —       UNKWN         No indication       NG       UNKWN       —       UNKWN	CAN DIAC         EM screen       Initial diagnosis       Transmit diagnosis       CAN DIAC         —       NG       UNKWN       TCM       AWD/4WD         —       NG       UNKWN       —       UNKWN       UNKWN         —       NG       UNKWN       —       UNKWN       —       —         —       NG       UNKWN       UNKWN       —       —       —         No indication       NG       UNKWN       UNKWN       —       —         No indication       —       UNKWN       UNKWN       —       —         No indication       NG       UNKWN       —       UNKWN       —	CAN DIAG SUPPO         Re         Initial diagnosis       Transmit diagnosis         ECM       TCM       AWD/4WD       METER //e4WD       METER //M&A         -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       UNKWN       UNKWN       UNKWN       UNKWN       UNKWN       UNKWN       Initial diagnosis       Image: Note that the state tha	CAN DIAG SUPPORT MNTF           EM screen         Initial diagnosis         Transmit diagnosis         Receive diagnosis           -         NG         UNKWN         TCM         AWD/4WD         METER //M&A         //SEC           -         NG         UNKWN         -         UNKWN         UNKWN         UNKWN         UNKWN           -         NG         UNKWN         -         -         -         -         -           NG         UNKWN         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	$\begin{array}{ c c c c c c c } \hline & & & & & & & & & & & & & & & & & & $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	EM screen         Initial diagnosis         Transmit diagnosis         SELF-DIAG SUPPORT MNTR         SELF-DIAG           Initial diagnosis         Transmit diagnosis         Transmit diagnosis         TCM         AWD/4WD METER M-2         BCM /SEC         STRG         I-KEY         VDC/TCS         IPDM E/R         SELF-DIAG           -         NG         UNKWN         -         UNKWN         UNKWN         UNKWN         UNKWN         CAN COMM CIRCUIT (U1000)           -         NG         UNKWN         -         -         -         UNKWN         CAN COMM CIRCUIT (U1000)           -         NG         UNKWN         -         -         -         -         UNKWN         CAN COMM CIRCUIT (U1000)           -         NG         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (U1000)           No indication         NG         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (U1000)           No indication         -         UNKWN         -         -         UNKWN         -         CAN COMM CIRCUIT (U1000)           No indication         -         UNKWN         -         -         -         -         -	

# Inspection Between TCM and Data Link Connector Circuit 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

## OK or NG

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

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3 (L) 24H (L) 8 (R) – 25H (P)
- : Continuity should exist.
- : Continuity should exist.

## OK or NG

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



# 3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M72 terminals 24H (L), 25H (P) and data link connector M8 terminals 6 (L), 14 (P).

- 24H (L) 6 (L) 25H (P) – 14 (P)
- : Continuity should exist. : Continuity should exist.

## OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW".

NG >> Repair harness.



# Inspection Between Data Link Connector and Intelligent Key Unit Circuit

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and Intelligent Key unit connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (P) and Intelligent Key unit harness connector M75 terminals 2 (L), 3 (P).
  - 6 (L) 2 (L) 14 (P) – 3 (P)
- : Continuity should exist. : Continuity should exist.

## OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW"
- NG >> Repair harness.



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# Inspection Between Intelligent Key Unit and Driver Seat Control Unit Circuit

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector M12
- Harness connector B1

## OK or NG

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

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect Intelligent Key unit connector and harness connector M12.
- Check continuity between Intelligent Key unit harness connector M75 terminals 2 (L), 3 (P) and harness connector M12 terminals 52J (L), 51J (P).
  - 2 (L) 52J (L) 3 (P) – 51J (P)
- : Continuity should exist.

: Continuity should exist.

: Continuity should exist.

: Continuity should exist.

## OK or NG

OK >> GO TO 3.

NG >> Repair harness.

#### DISCONNECT DISCON

# 3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect harness connector B6.
- Check continuity between harness connector B1 terminals 52J (L), 51J (P) and harness connector B6 terminals 3 (L), 19 (P).
  - 52J (L) 3 (L)
  - 51J (P) 19 (P)

## OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW". NG >> Repair harness.



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# ECM Circuit Inspection

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

## OK or NG

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

- 1. Disconnect ECM connector.
- 2 Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

## 94 (L) - 86 (P)

: Approx. 108 – 132 Ω

## OK or NG

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



# **TCM Circuit Inspection**

## 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- 2. Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

### 3(L) - 8(R)

### : Approx. 54 – 66 $\Omega$

## OK or NG

- OK >> Replace control valve with TCM.
- NG >> Repair harness between A/T assembly and harness connector F102.

# **AWD Control Unit Circuit Inspection**

## 1. CHECK CONNECTOR

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

### OK or NG

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



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- 1. Disconnect AWD control unit connector.
- 2. Check resistance between AWD control unit harness connector M10 terminals 8 (L) and 16 (P).

: **Approx. 54 – 66** Ω

## OK or NG

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



# Data Link Connector Circuit Inspection

# 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (P).

### 6 (L) - 14 (P)

: Approx. 54 – 66 Ω

## OK or NG

- OK >> Diagnose again. Refer to <u>LAN-5, "TROUBLE DIAG-</u> NOSES WORK FLOW"
- NG >> Repair harness between data link connector and combination meter.



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# Combination Meter Circuit Inspection

# 1. CHECK CONNECTOR

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

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.
- 1. Disconnect combination meter connector.
- 2. Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

: **Approx. 54 – 66** Ω

OK or NG

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



# **BCM Circuit Inspection**

### **1. CHECK CONNECTOR**

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

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

#### 39 (L) – 40 (P)



### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> Repair harness between BCM and data link connector.



### **1. CHECK CONNECTOR**

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

### OK or NG

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



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- 1. Disconnect steering angle sensor connector.
- 2. Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

: **Approx. 54 – 66** Ω

OK or NG

- OK >> Replace steering angle sensor.
- NG >> Repair harness between steering angle sensor and data link connector.



# Intelligent Key Unit Circuit Inspection

### 1. CHECK CONNECTOR

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

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect Intelligent Key unit connector.
- 2. Check resistance between Intelligent Key unit harness connector M75 terminals 2 (L) and 3 (P).

: **Approx. 54 – 66** Ω

### OK or NG

OK >> Replace Intelligent Key unit.

NG >> Repair harness between Intelligent Key unit and VDC/ TCS/ABS control unit.



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# VDC/TCS/ABS Control Unit Circuit Inspection

# 1. CHECK CONNECTOR

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

### OK or NG

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

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

### 61 (L) – 63 (P)

### : Approx. 54 – 66 Ω

### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and harness connector M12.



# **Driver Seat Control Unit Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Check following terminals and connectors for damage, bend and loose connection (control unit side, connector side and harness side).
- Driver seat control unit connector
- Harness connector B6
- Harness connector B321

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect driver seat control unit connector.
- 2. Check resistance between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

: Approx. 54 – 66  $\Omega$ 

#### 3 (OR) – 19 (LG)

### OK or NG

- OK >> Replace driver seat control unit.
- NG >> Repair harness between driver seat control unit and harness connector B2.



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# **IPDM E/R Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- IPDM E/R
- Harness connector B2
- Harness connector E106

### OK or NG

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

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

#### 48 (L) – 49 (P)

: Approx. 108 – 132 Ω

### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and harness connector B6.



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# **CAN Communication Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).
- ECM
- A/T assembly
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- Intelligent Key unit
- VDC/TCS/ABS control unit
- Driver seat control unit
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

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

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# CAN SYSTEM (TYPE 4)

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# 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) - 86 (P)

### : Continuity should not exist.

OK or NG

#### OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

# 3. CHECK HARNESS FOR SHORT CIRCUIT



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

#### OK or NG

OK >> GO TO 4.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102





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### 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- AWD control unit
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Intelligent Key unit
- VDC/TCS/ABS control unit
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

### 6 (L) – 14 (P)

### : Continuity should not exist.

### OK or NG

OK >> GO TO 5.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and AWD control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and Intelligent Key unit
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12

# 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

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

#### OK or NG

- OK >> GO TO 6.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and AWD control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and Intelligent Key unit
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and harness connector M12





<u>r NG</u>

# 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B6 and harness connector B2.
- 2 Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

### OK or NG

OK >> GO TO 7.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

# 7. CHECK HARNESS FOR SHORT CIRCUIT



- 52J (L) Ground
- : Continuity should not exist. : Continuity should not exist.
- 51J (P) Ground

### OK or NG

- OK >> GO TO 8.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect driver seat control unit connector. 1.
- 2. Check continuity between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) - 19 (LG)

### : Continuity should not exist.

#### OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between Driver seat control unit and harness connector B321.







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# 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between driver seat control unit harness connector B324 terminals 3 (OR), 19 (LG) and ground.

- 3 (OR) Ground
- 19 (LG) Ground

: Continuity should not exist.

: Continuity should not exist.

OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between Driver seat control unit and harness connector B321.

# 10. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

48 (L) – 49 (P)

#### : Continuity should not exist.

#### OK or NG

- OK >> GO TO 11.
- NG >> Repair harness between IPDM E/R harness connector E106.



IPDM E/R connector

49 48

48, 49

Ω

Driver seat control unit connector

3,19

19

# 11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

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

: Continuity should not exist.

### OK or NG

- OK >> GO TO 12.
- NG >> Repair harness between IPDM E/R harness connector E106.



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

**94 – 86** : Approx. 108 – 132 Ω

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

48 – 49

: Approx. 108 – 132 Ω

LAN-152

OK or NG

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

ECM and IPDM E/R



SKIA5025E

BAT

SKIA6879E

# CAN SYSTEM (TYPE 4)

1:	3. снеск зумртом	А
1.	Fill in described symptoms on the column "Symptom" in the check sheet.	7.
2.	Connect all the connectors, and then make sure that the symptom is reproduced.	
<u>Ok</u>	<u>Cor NG</u>	В
O	VK >> GO TO 14.	
IN	S >> Relef to LAN-13, Example of Filling in Check Sheet when Initial Conditions Are Not Reproduced	С
14	4. CHECK UNIT REPRODUCIBILITY	
Pe	rform the following procedure for each unit, and then perform reproducibility test.	D
1.	Turn ignition switch OFF.	
2.	Disconnect the battery cable from the negative terminal.	F
3.	Disconnect the unit connector.	
4.	Connect the battery cable to the negative terminal.	
5.	Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)	F
6.	Make sure that the same symptom is reproduce.	
_	A/T assembly	G
_	AWD control unit	
_	Combination meter	
_	BCM	Н
_	Steering angle sensor	
_	Intelligent Key unit	
-	VDC/TCS/ABS control unit	1
-	Driver seat control unit	
-	ECM	J
_	IPDM E/R	
<u>Ch</u>	eck results	
R N	eproduced>>Install removed unit, and then check the other unit. lot reproduced>>Replace removed unit.	LAN
IP	DM E/R Ignition Relay Circuit Inspection	I
Ch	eck the following. If no malfunction is found, replace the IPDM E/R.	L
•	IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection"	
	Ignition power supply circuit Refer to PG-10 "IGNITION POWER SUPPLY - IGNITION SW IN "ON"	ЪЛ

 Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY - IGNITION</u> <u>AND/OR "START"</u>.