

SECTION LAN

LAN SYSTEM

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PRECAUTIONS

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

AKS004VD

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

WARNING:

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

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IVMS (LAN)**Overall Description
OUTLINE**

The In-Vehicle Multiplexing System, IVMS (LAN system), consists of a BCM (Body Control Module) and four LCUs (Local Control Units). Some switches and electrical loads are connected to each LCU. Some electrical systems are directly connected to the BCM. Control of each LCU, (which is provided by a switch and electrical load), is accomplished by the BCM, via multiplex data lines (A-1, A-2 or A-3) connected between them.

BCM (BODY CONTROL MODULE)

The BCM, which is a master unit of the IVMS (LAN), consists of microprocessor, memory and communication LSI sections and has communication and control functions. It receives data signals from the LCUs and sends electrical load data signals to them.

LCU (LOCAL CONTROL UNIT)

The LCUs, which are slave units of the BCM, have only a communication function and consist of communication LSI and input-output interface circuits. They receive data signals from the BCM, control the ON/OFF operations of electrical loads and the sleep operation, as well as send switch signals to the BCM.

CONTROLLED SYSTEMS

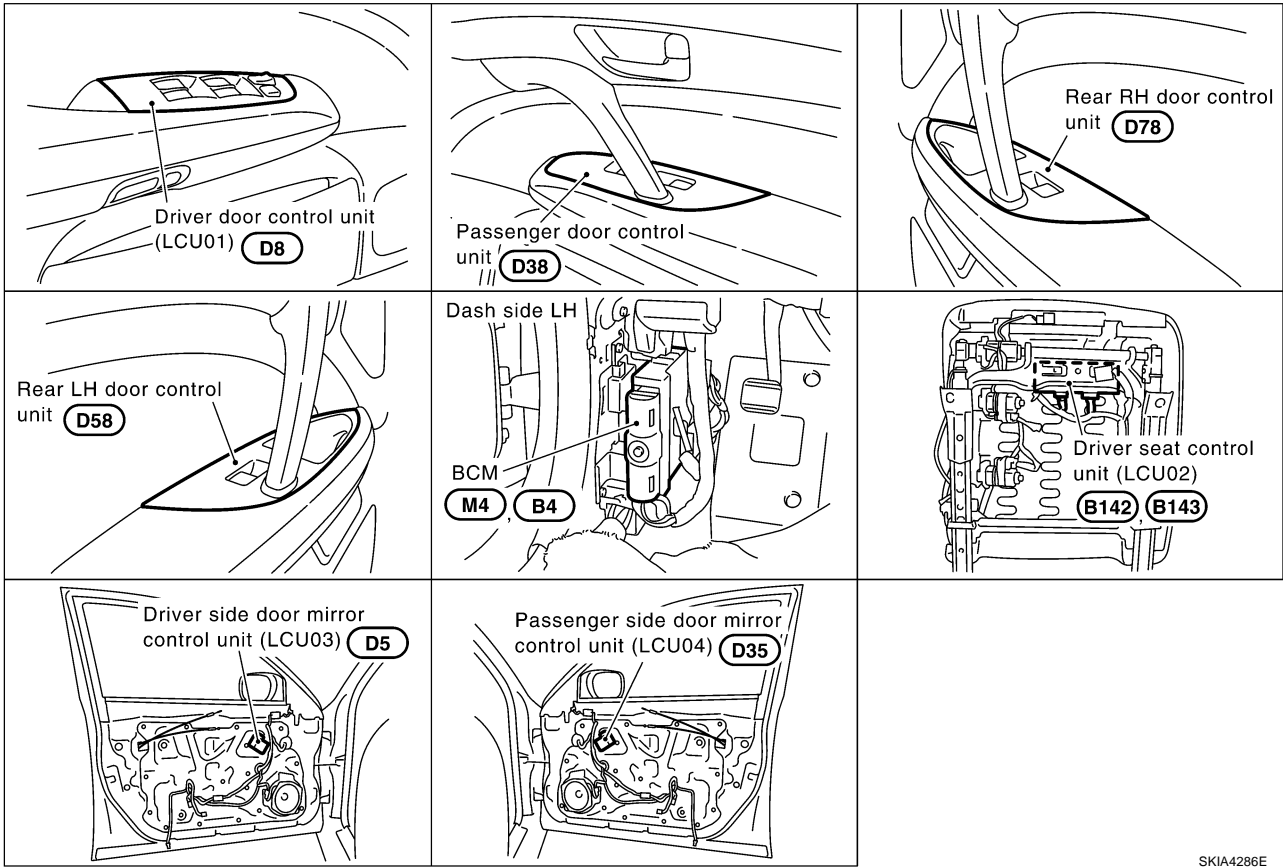
The IVMS controls several body-electrical systems. The systems included in the IVMS are as follows:

- Power window system (Refer to [GW-15, "POWER WINDOW SYSTEM"](#))
- Power door lock system (Refer to [BL-18, "POWER DOOR LOCK SYSTEM"](#))
- Remote keyless entry system (Refer to [BL-51, "REMOTE KEYLESS ENTRY SYSTEM"](#))
- Vehicle security (Theft warning) system (Refer to [BL-125, "VEHICLE SECURITY \(THEFT WARNING\) SYSTEM"](#))
- Reverse interlock door mirror system (Refer to [GW-78, "REVERSE INTERLOCK DOOR MIRROR SYSTEM"](#))
- Interior room lamp (Refer to [LT-124, "INTERIOR ROOM LAMP"](#))
- Step lamp (Refer to [LT-151, "STEP LAMP"](#))
- Illumination (Refer to [LT-171, "ILLUMINATION"](#))
- Automatic drive positioner (Refer to [SE-13, "AUTOMATIC DRIVE POSITIONER"](#))
- Auto light (Refer to [LT-6, "HEADLAMP \(FOR USA\)"](#))
- Door warning lamp (Refer to [DI-30, "WARNING LAMPS"](#))
- Ignition key warning (Refer to [DI-52, "WARNING CHIME"](#))
- Light warning (Refer to [DI-52, "WARNING CHIME"](#))
- Seat belt warning (Refer to [DI-52, "WARNING CHIME"](#))
- Front wiper and washer system (Refer to [WW-4, "FRONT WIPER AND WASHER SYSTEM"](#))
- Rear window defogger timer (Refer to [GW-60, "REAR WINDOW DEFOGGER"](#))
- Trouble diagnosis system
 - with CONSULT-II
 - ON BOARD

Also, IVMS has the "sleep/wake-up control" function. IVMS puts itself (the whole IVMS system) to sleep under certain conditions to prevent unnecessary power consumption. Then, when a certain input is detected, the system wakes itself up. For more detailed information, refer to "Sleep/Wake-up Control".

Component Parts and Harness Connector Location

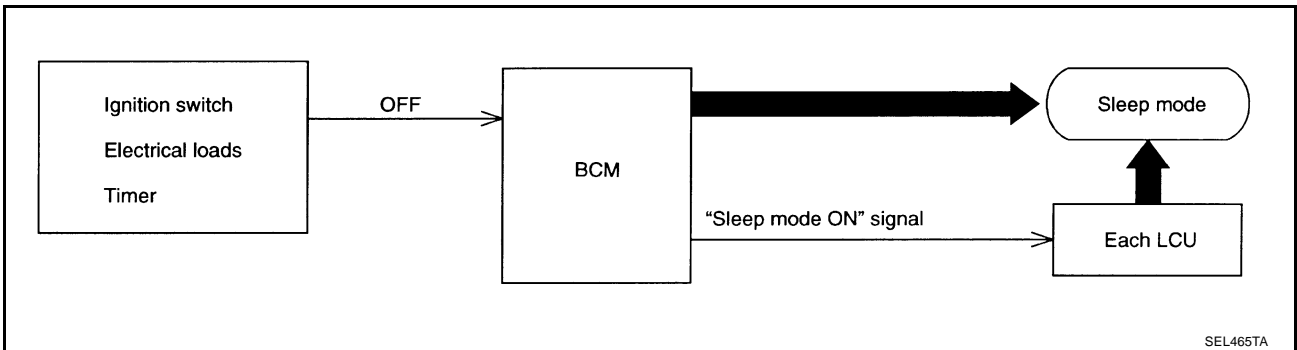
AKS002M4



SKIA4286E

Sleep/Wake-up Control
SLEEP CONTROL

AKS002M5



SEL465TA

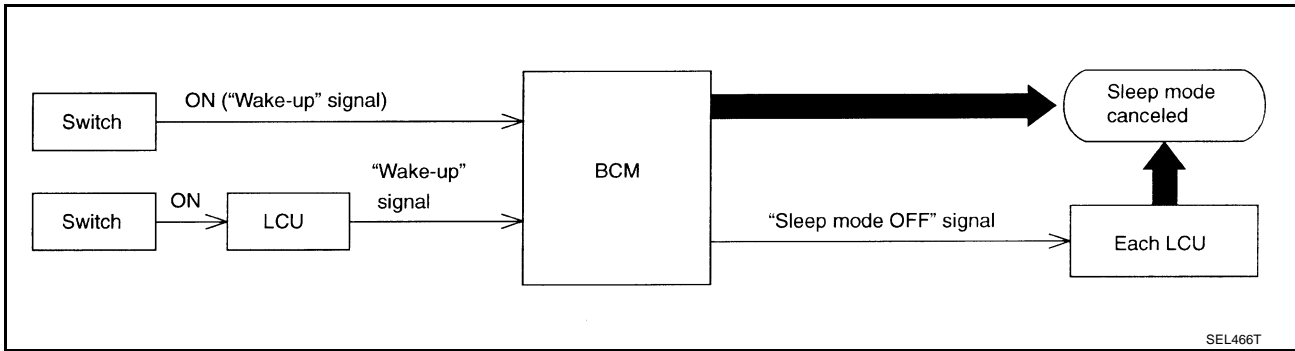
“Sleep” control prevents unnecessary power consumption. After the following conditions are met, the BCM suspends the communication between itself and all LCUs. The whole IVMS is set in the “sleep” mode.

- Ignition switch “OFF”
- All electrical loads (in the IVMS) “OFF”
- Timer “OFF”

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WAKE-UP CONTROL



As shown above, when the BCM detects a “wake-up” signal, it wakes up the whole system and starts communicating again. The “sleep” mode of all LCUs is now canceled, and the BCM returns to the normal control mode. When any one of the following switches are turned ON, the “sleep” mode is canceled:

- All switches combined or connected with BCM
- All switches combined or connected with LCU

Fail-safe System

AKS002M6

Fail-safe system operates when the signal from LCU is judged to be malfunctioning by BCM. If LCU sends no signal or an irregular signal to BCM a certain number of times in succession, the IVMS is set in a fail-safe condition. In the fail-safe condition, the electrical loads controlled by the switch on the questionable LCU will be operated at fail-safe mode.

CONSULT-II Function

AKS002M7

CONSULT-II executes the following functions by combining data reception and command transmission via the communication line from BCM. IVMS communication inspection, work support (only function setting of seats and steering wheel), self-diagnosis, data monitor, and active test display.

DIAGNOSTIC ITEMS DESCRIPTION

IVMS diagnosis position	Diagnosis mode	Description
IVMS– COMM CHECK	IVMS– COMM DIAGNOSIS	Diagnosis of continuity in the communication line(s), and of the function of the IVMS-communication interface between the body control module and the local control units, accomplished by transmitting a signal from the body control module to the local control units.
	WAKE–UP DIAGNOSIS	Diagnosis of the “wake-up” function of local control units by having a technician input the switch data into the local control unit that is in the temporary “sleep” condition.
Each system inspection	Work support	Changes the setting for each function.
	Self-diagnosis results	Carries out self-diagnosis.
	Data monitor	Displays data relative to the body control module (BCM) input signals and various control related data for each system.
	Active test	Turns on/off actuators, relay and according to the commands transmitted by the CONSULT-II unit.
BCM PART NUMBER		Displays BCM part No.

DIAGNOSTIC ITEMS APPLICATION

Test item	Diagnosed system	MODE					
		IVMS COMM DIAGNOSIS	WAKE-UP DIAGNOSIS	SELF DIAGNOSTIC RESULTS	DATA MONITOR	ACTIVE TEST	WORK SUPPORT
IVMS-COMM CHECK	IVMS communication and wake-up function	×	×				
DOOR LOCK	Power door lock system			×	×	×	
AUTO DRIVE POSITIONER	Automatic drive positioner / Reverse interlock door mirror system			×	×	×	×
WIPER	Front wiper and washer system				×	×	×
REAR DEFOGGER	Rear window defogger				×	×	
IGN KEY WARN ALM	Warning chime				×	×	
LIGHT WARN ALM	Warning chime				×	×	
SEAT BELT TIMER	Warning chime				×	×	
THEFT WARNING SYSTEM	Vehicle security (Theft warning) system				×	×	×
STEP LAMP	Step lamps				×	×	
MULTI-REMOTE CONT-SYS	Remote keyless entry system				×	×	×
INTERIOR ILLUMINATION	Interior room lamp				×	×	×
SUNROOF RELAY	Sunroof				×	×	
DOOR OPEN WARNING	Warning chime				×	×	
AUTO LIGHT SYSTEM	Headlamp				×	×	×

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X: Applicable

For diagnostic item in each control system, read the CONSULT-II Operation Manual.

On Board Diagnosis

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ON BOARD DIAGNOSTIC RESULTS INDICATOR LAMP

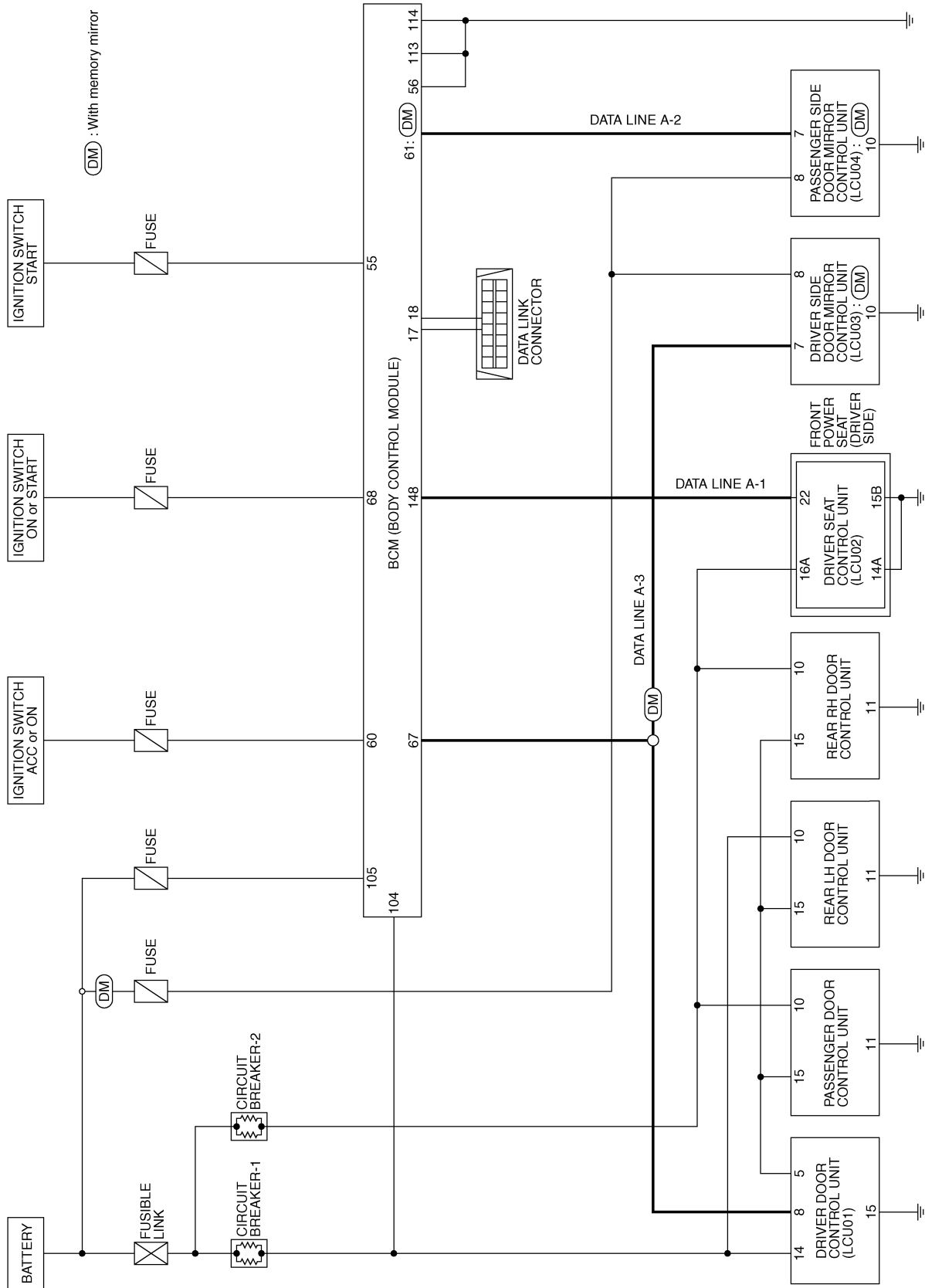
- Front map lamps and step lamps (all seats) act as the indicators for the on board diagnosis.

DIAGNOSIS ITEM

Diagnosis item	Content
IVMS communication diagnosis	Diagnosis any error or inability of communication between BCM and LCUs.
Switch monitor	Monitoring conditions of switches connected to BCM, LCUs and door control units.
Power door lock system self-diagnosis	Diagnose malfunctions in the each door lock actuator system.
Auto drive positioner self-diagnosis	Diagnose malfunctions in the each motor and sensor in the electrical load parts of the driver power seat system (sliding, reclining, and lifter [front/rear]), of the steering wheel system (tilt, telescoping), and of door mirror.

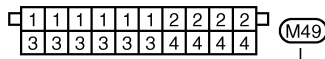
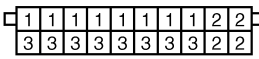
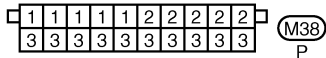
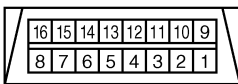
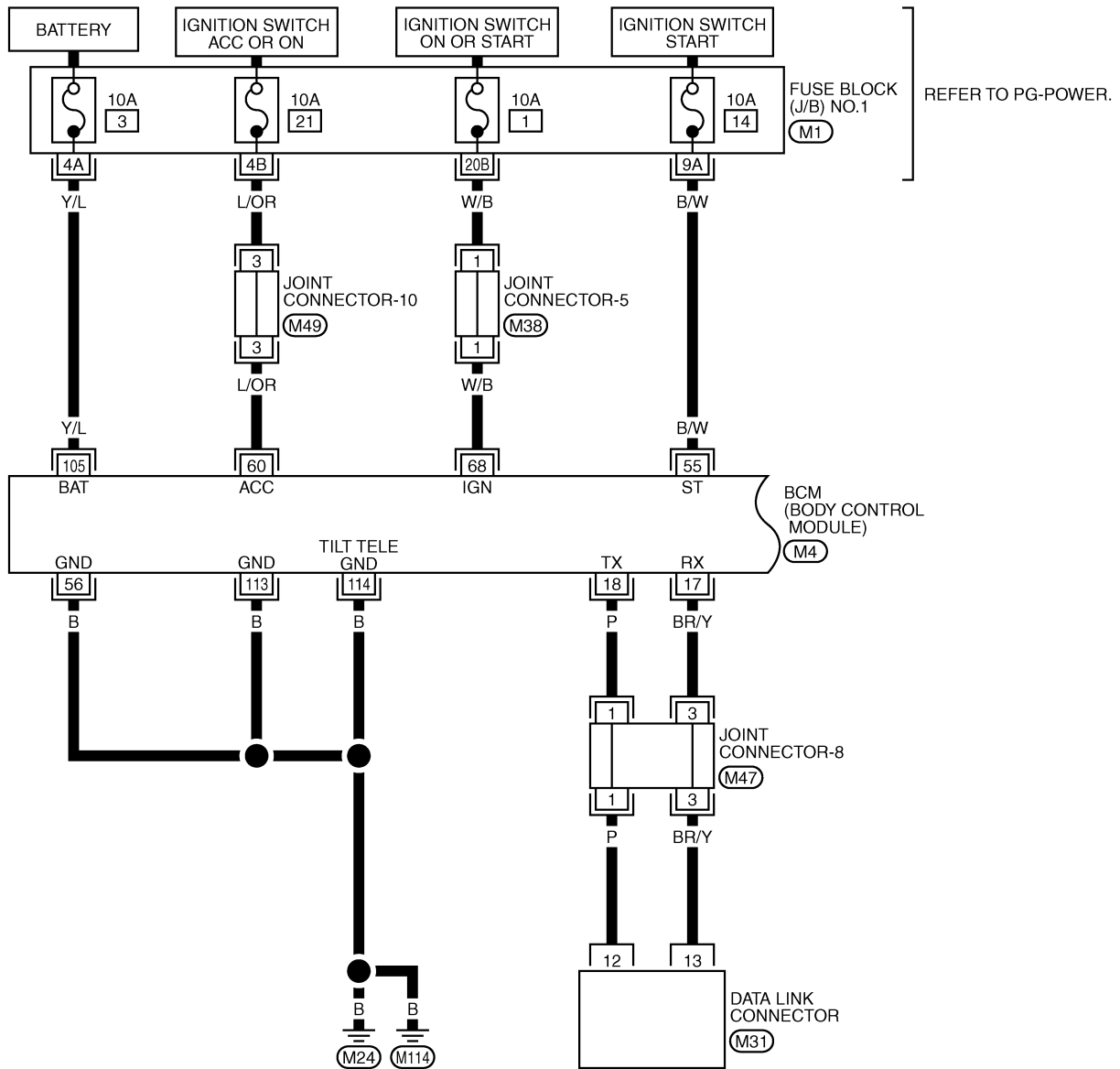
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Schematic
POWER SUPPLY, GROUND AND COMMUNICATION CIRCUITS



**Wiring Diagram — COMM —
POWER SUPPLY, GROUND AND COMMUNICATION CIRCUITS**

LAN-COMM-01

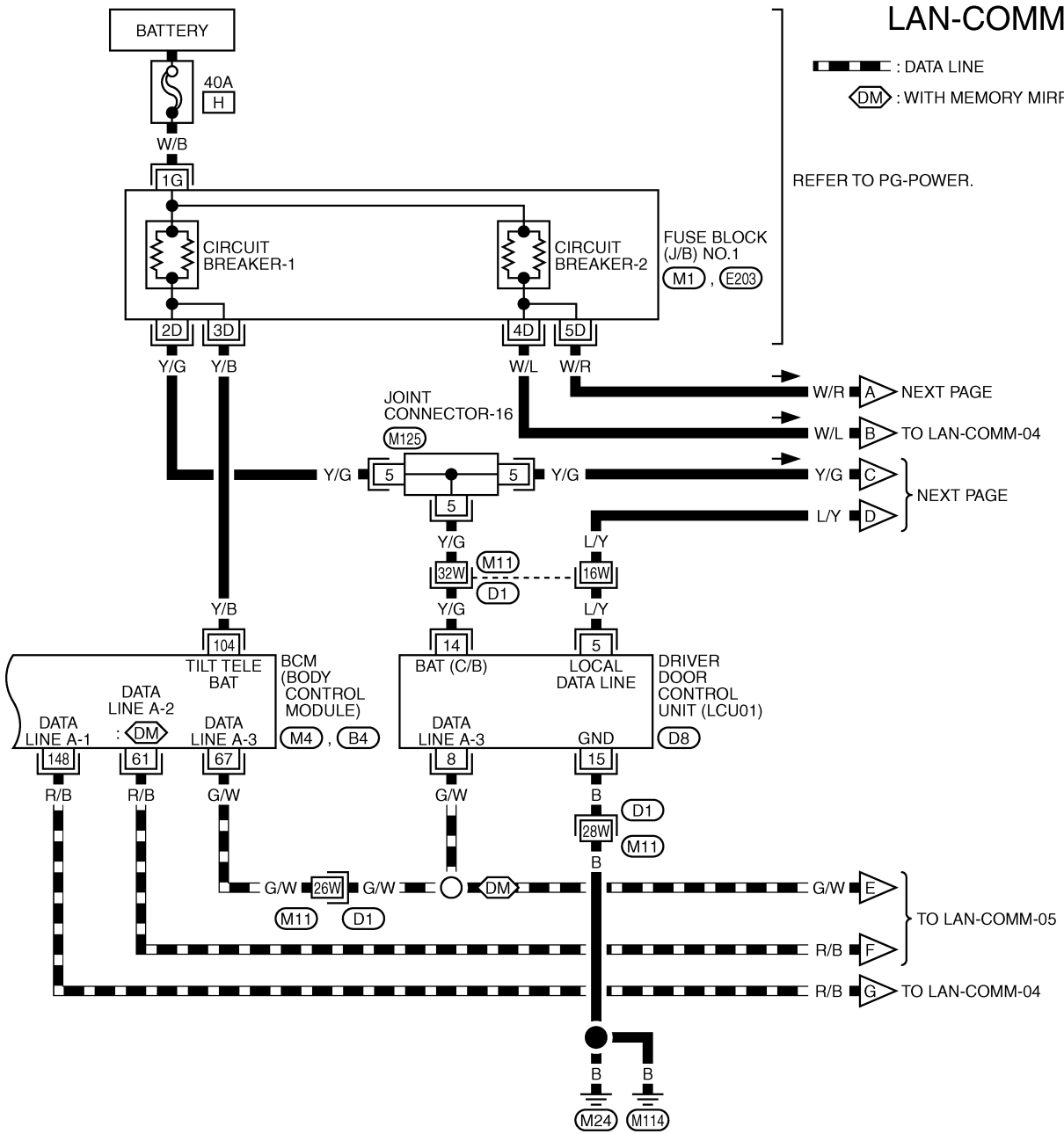


REFER TO THE FOLLOWING.

- (M1) - FUSE BLOCK-JUNCTION BOX (J/B) NO.1
- (M4) - ELECTRICAL UNITS

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LAN-COMM-02



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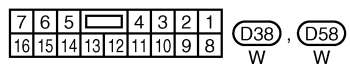
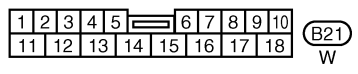
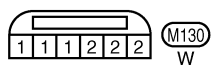
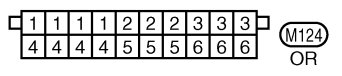
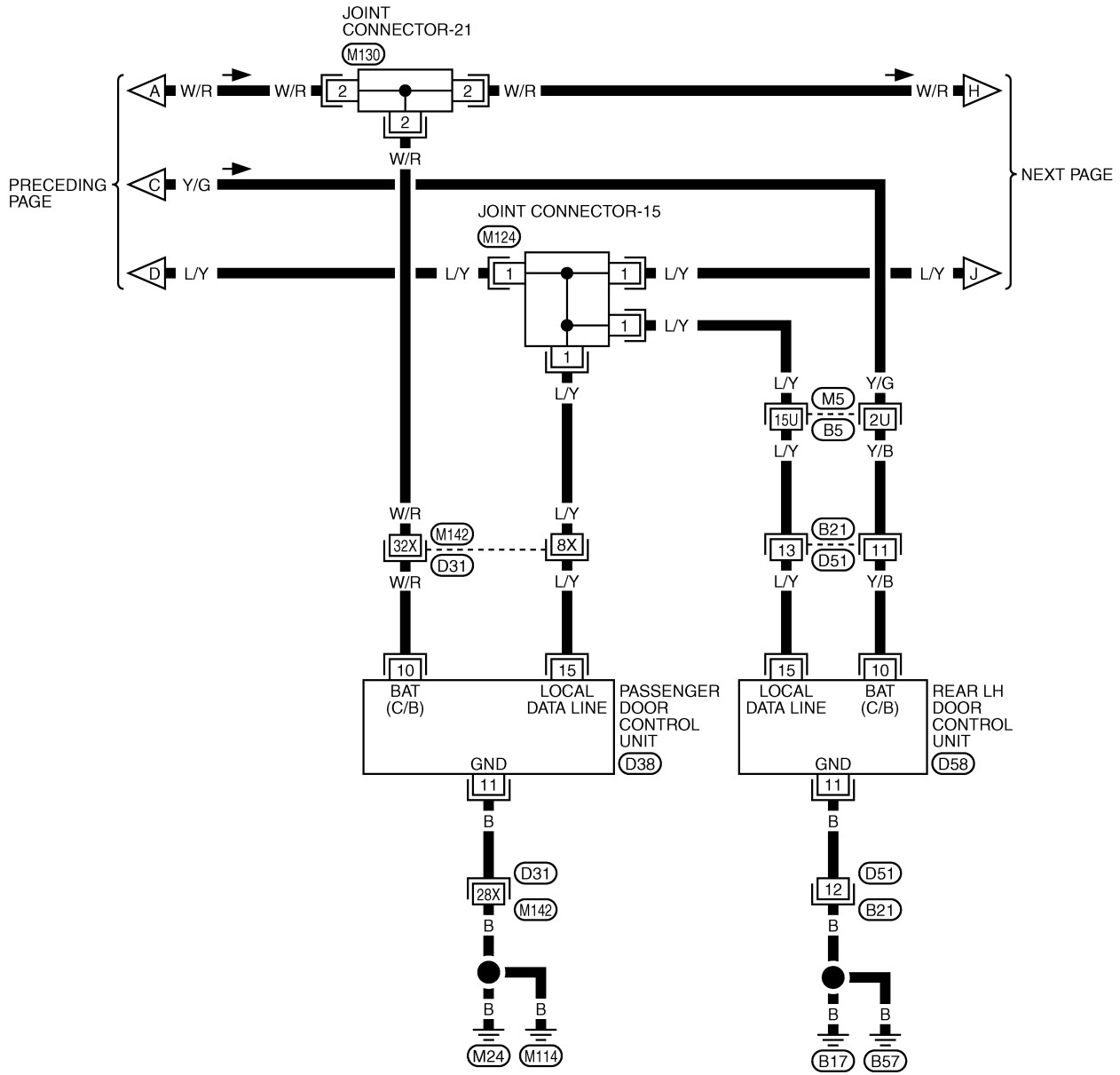
(M125)
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18	17	16	15	14	13	12	11		

(D8)
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REFER TO THE FOLLOWING.
 (D1) -SUPER MULTIPLE JUNCTION (SMJ)
 (M1), (E203) -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
 (M4), (B4) -ELECTRICAL UNITS

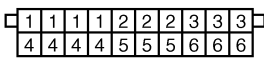
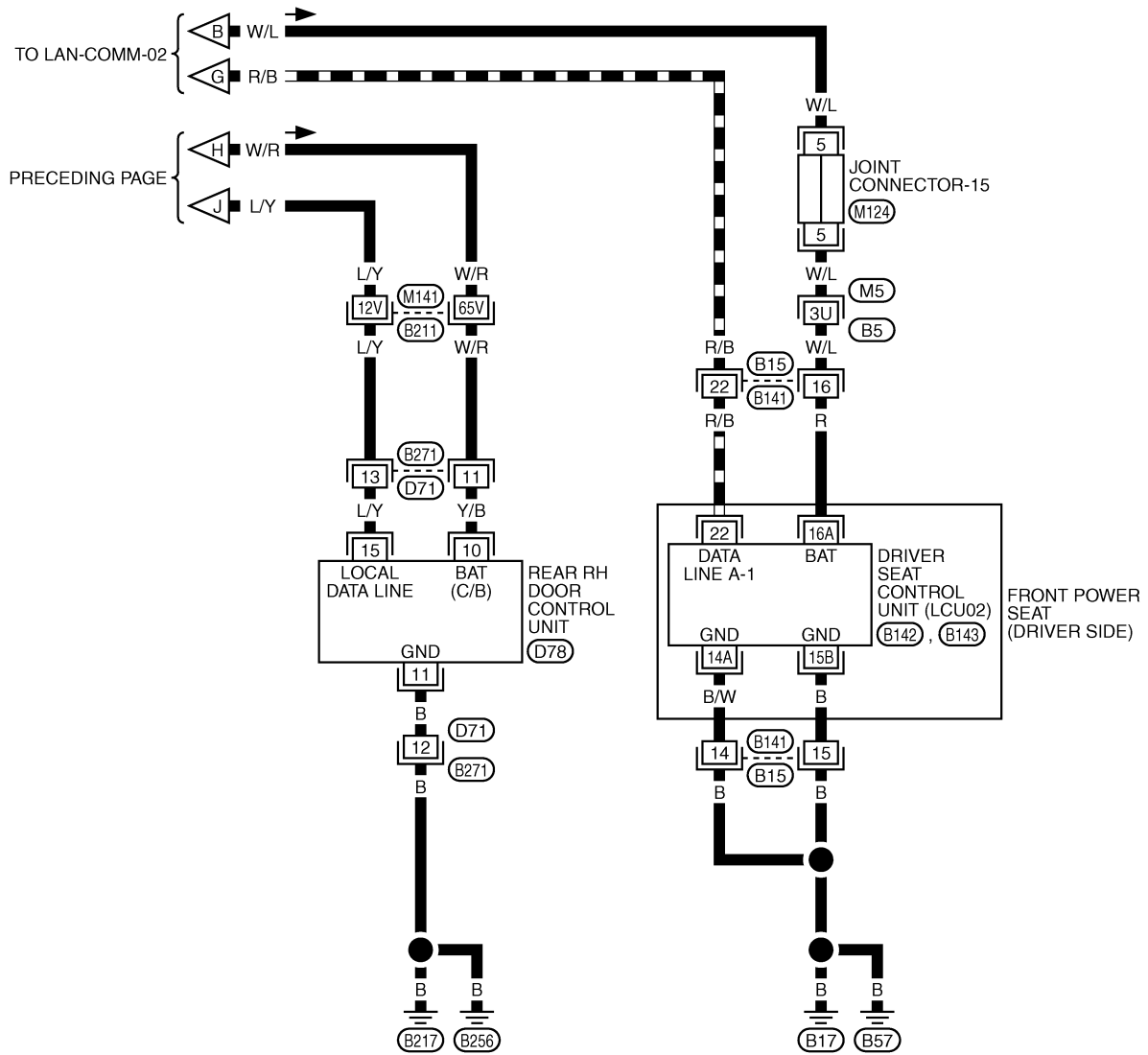
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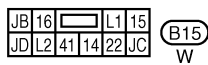
REFER TO THE FOLLOWING.
 (M5), (D31) -SUPER MULTIPLE JUNCTION (SMJ)

LAN-COMM-04

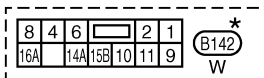
▬ : DATA LINE



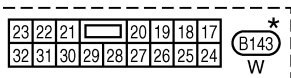
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OR



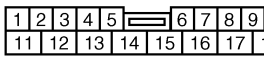
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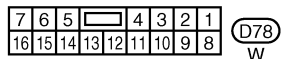
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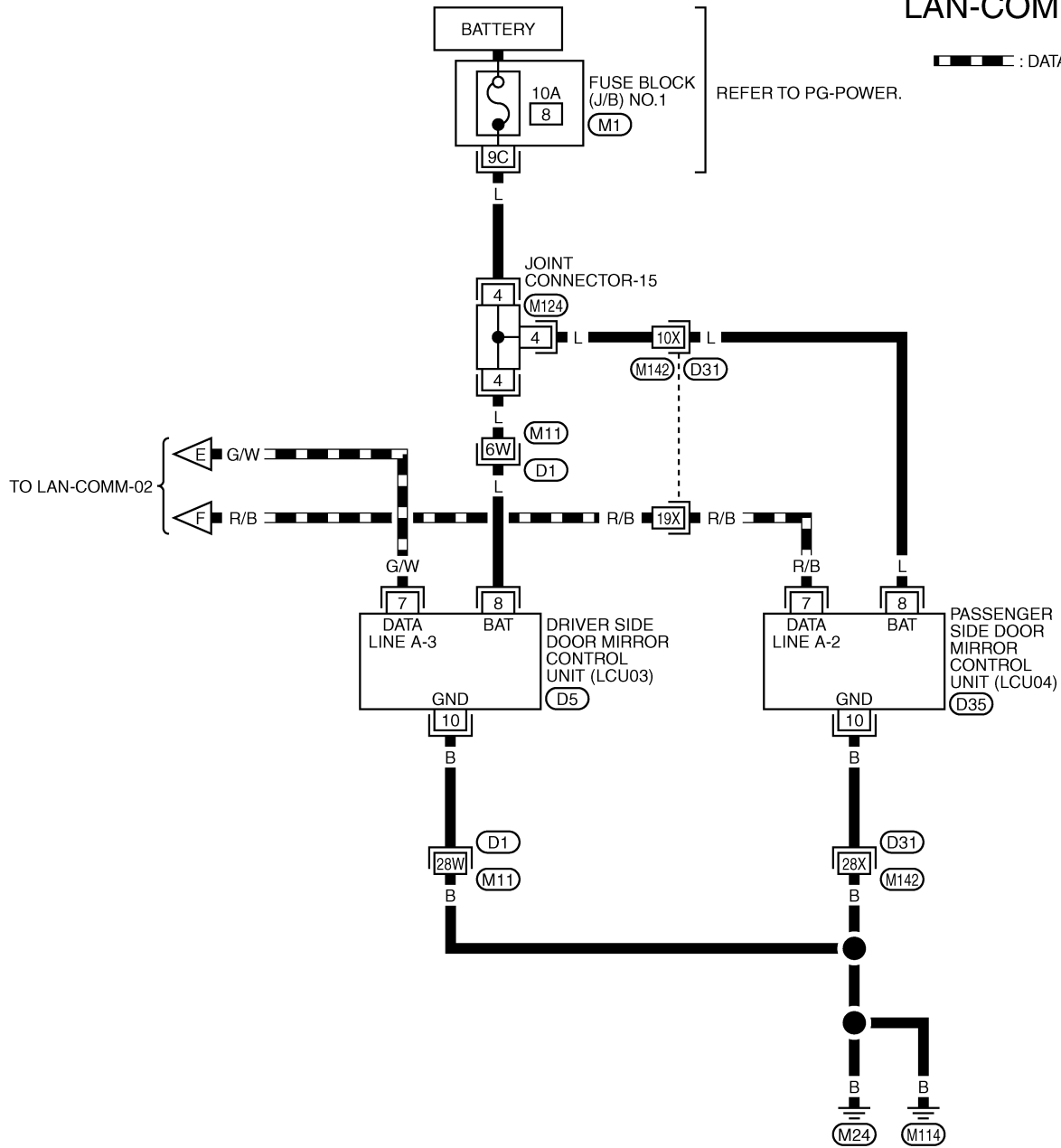
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

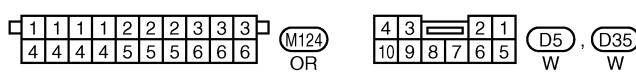
(M5), (B211) -SUPER MULTIPLE JUNCTION (SMJ)

WITH DOOR MIRROR MEMORY SYSTEM

LAN-COMM-05



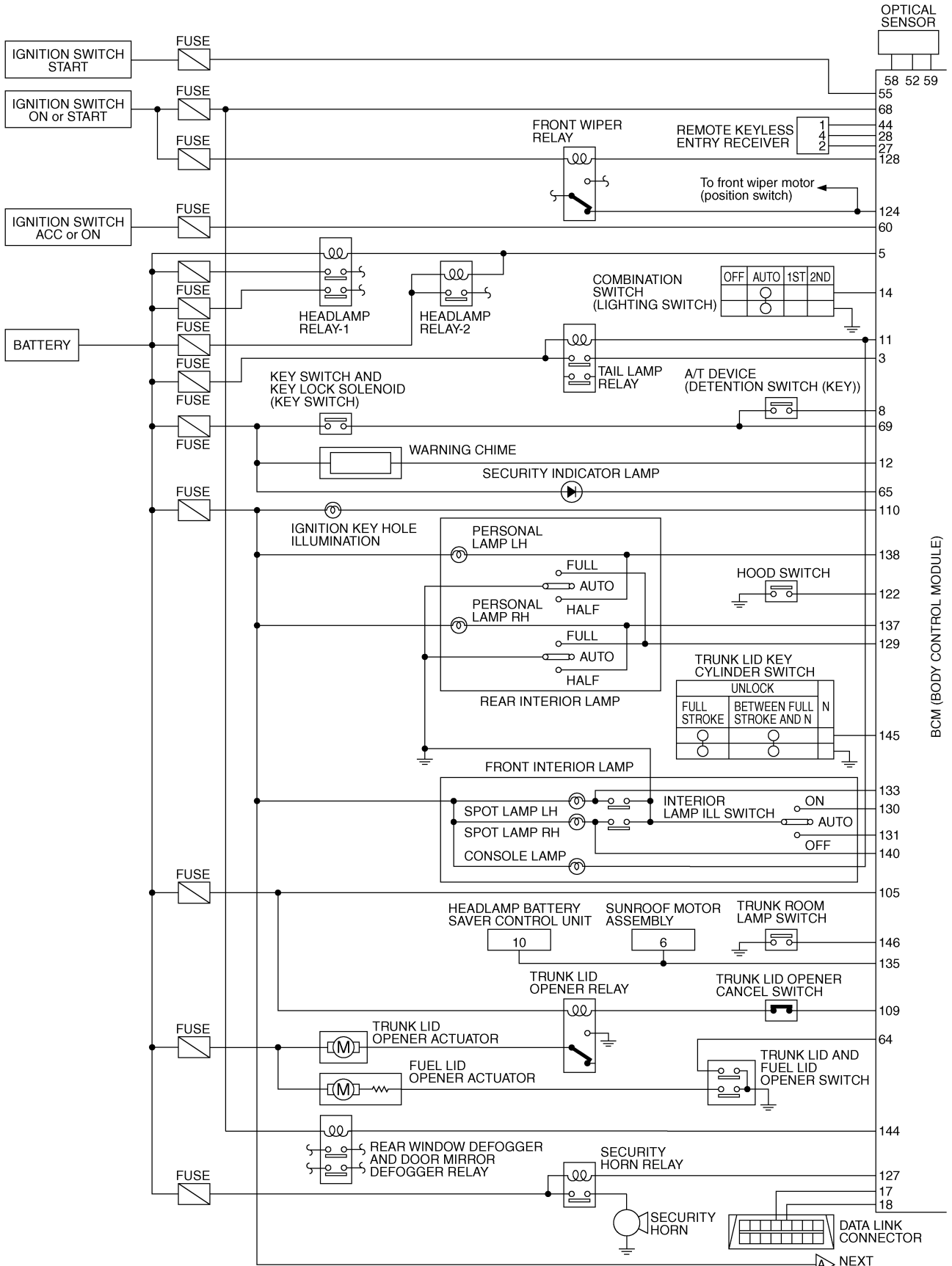
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REFER TO THE FOLLOWING.
 (D1), (D31) -SUPER MULTIPLE JUNCTION (SMJ)
 (M1) -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

Schematic — BCM —

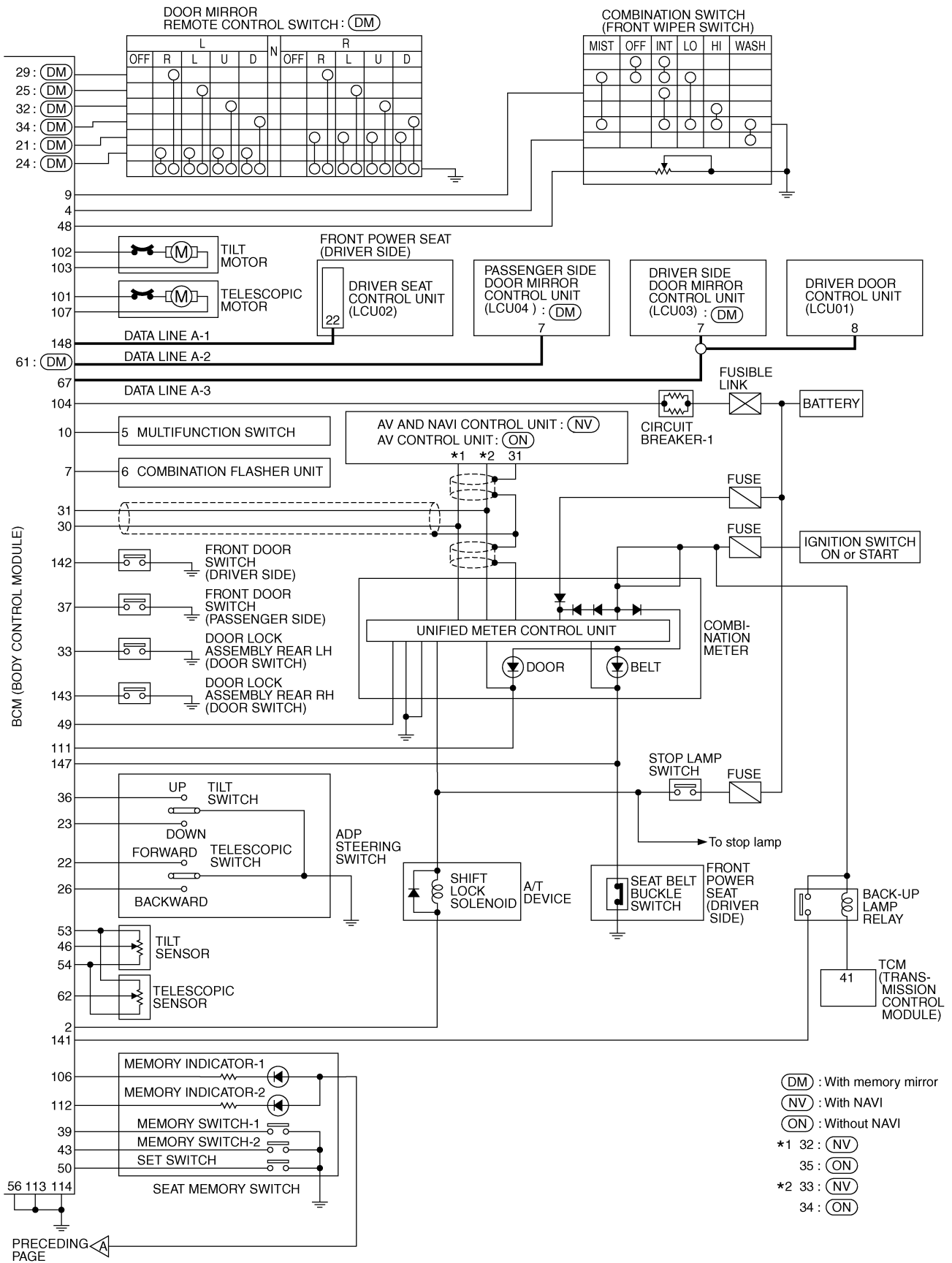
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BCM (BODY CONTROL MODULE)

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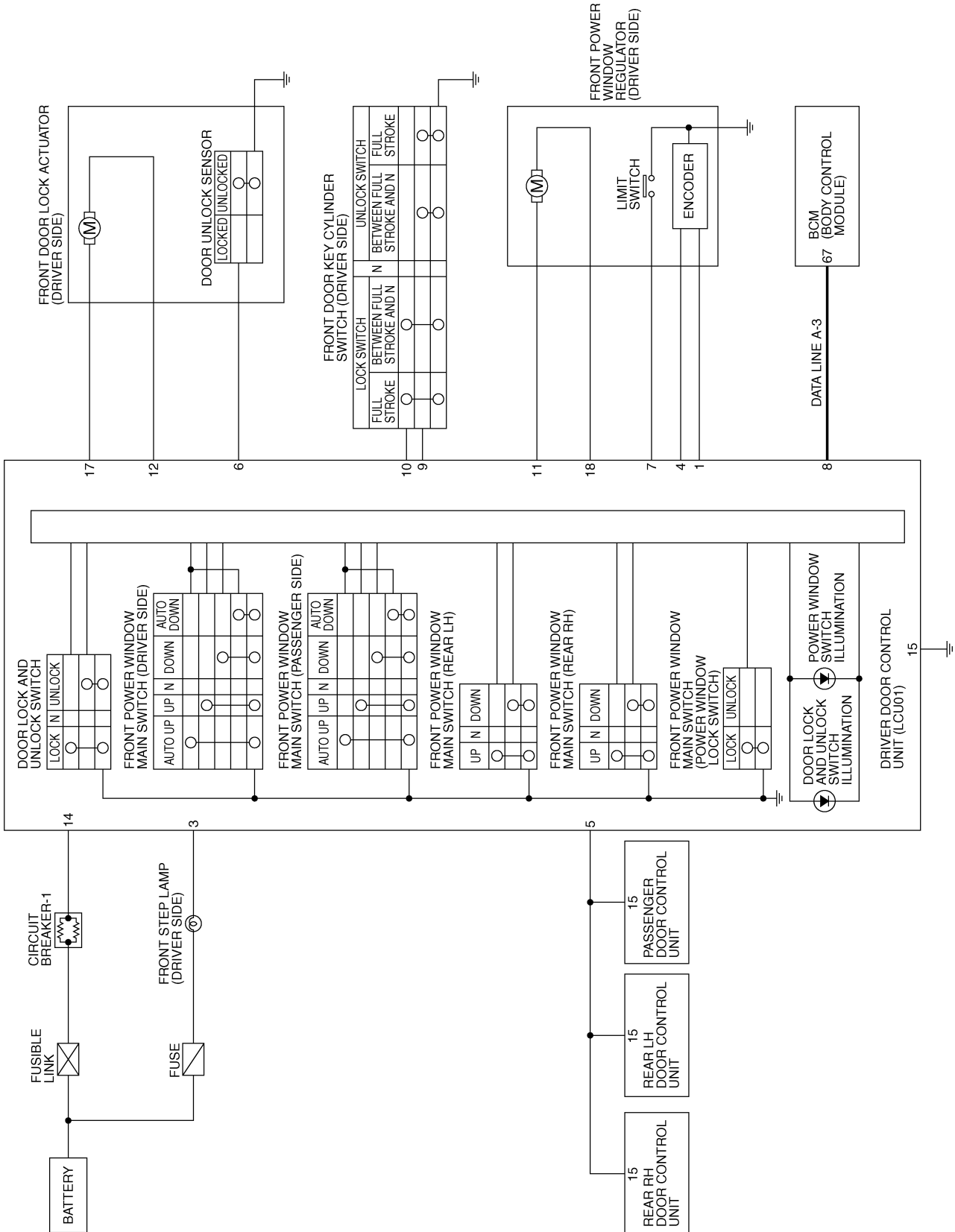
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**Schematic — LCU01 —
DRIVER'S DOOR CONTROL UNIT**

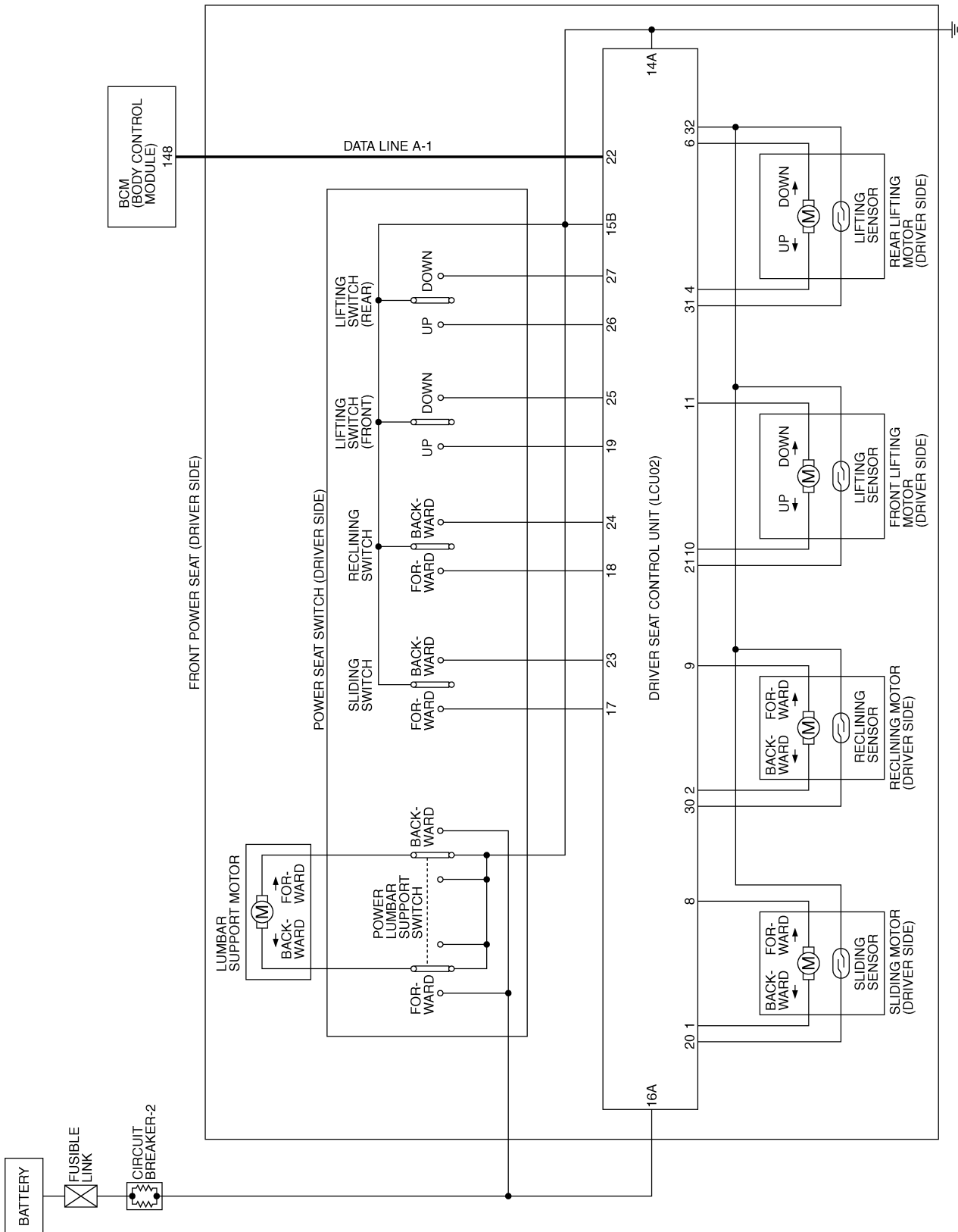
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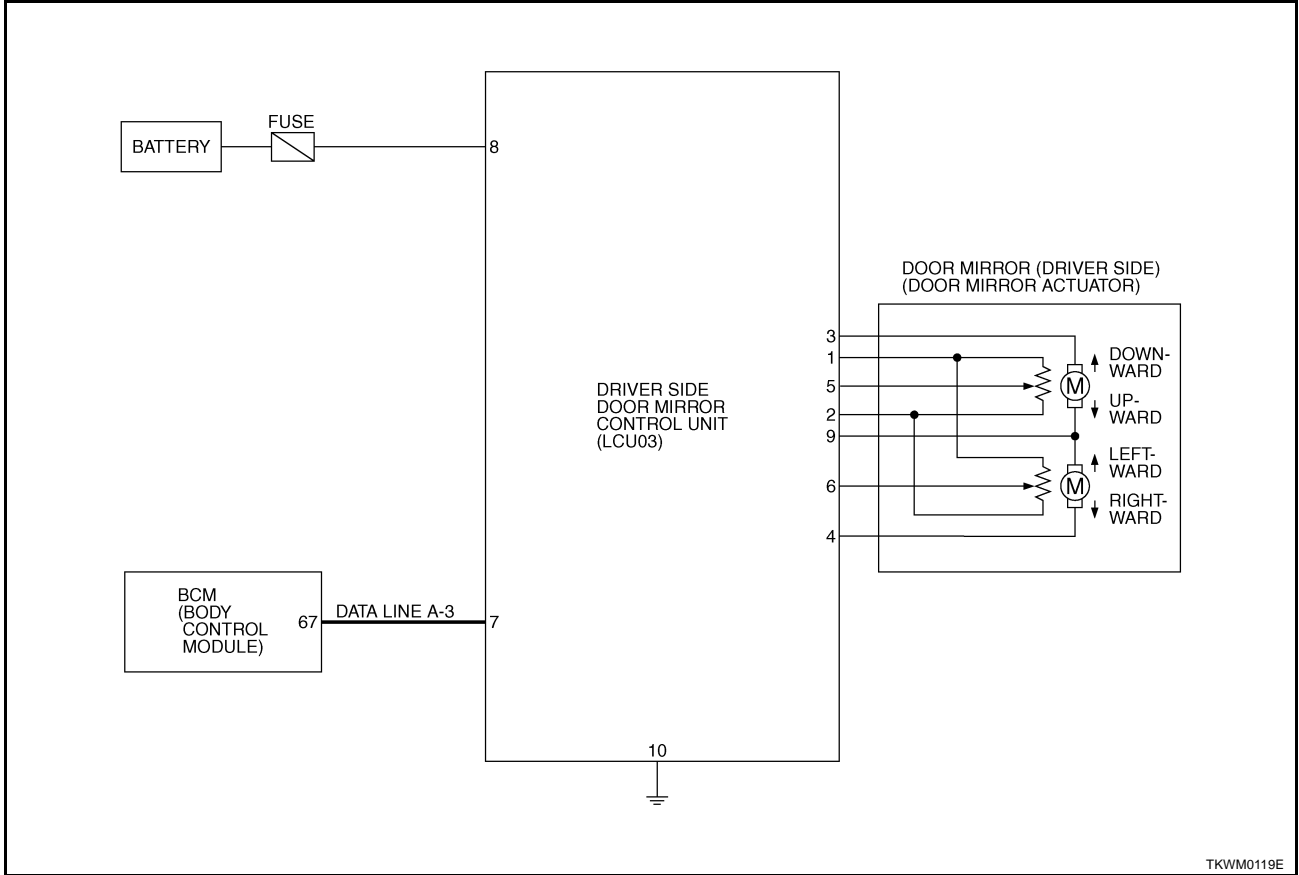
TKWA0640E

**Schematic — LCU02 —
DRIVER'S SEAT CONTROL UNIT**

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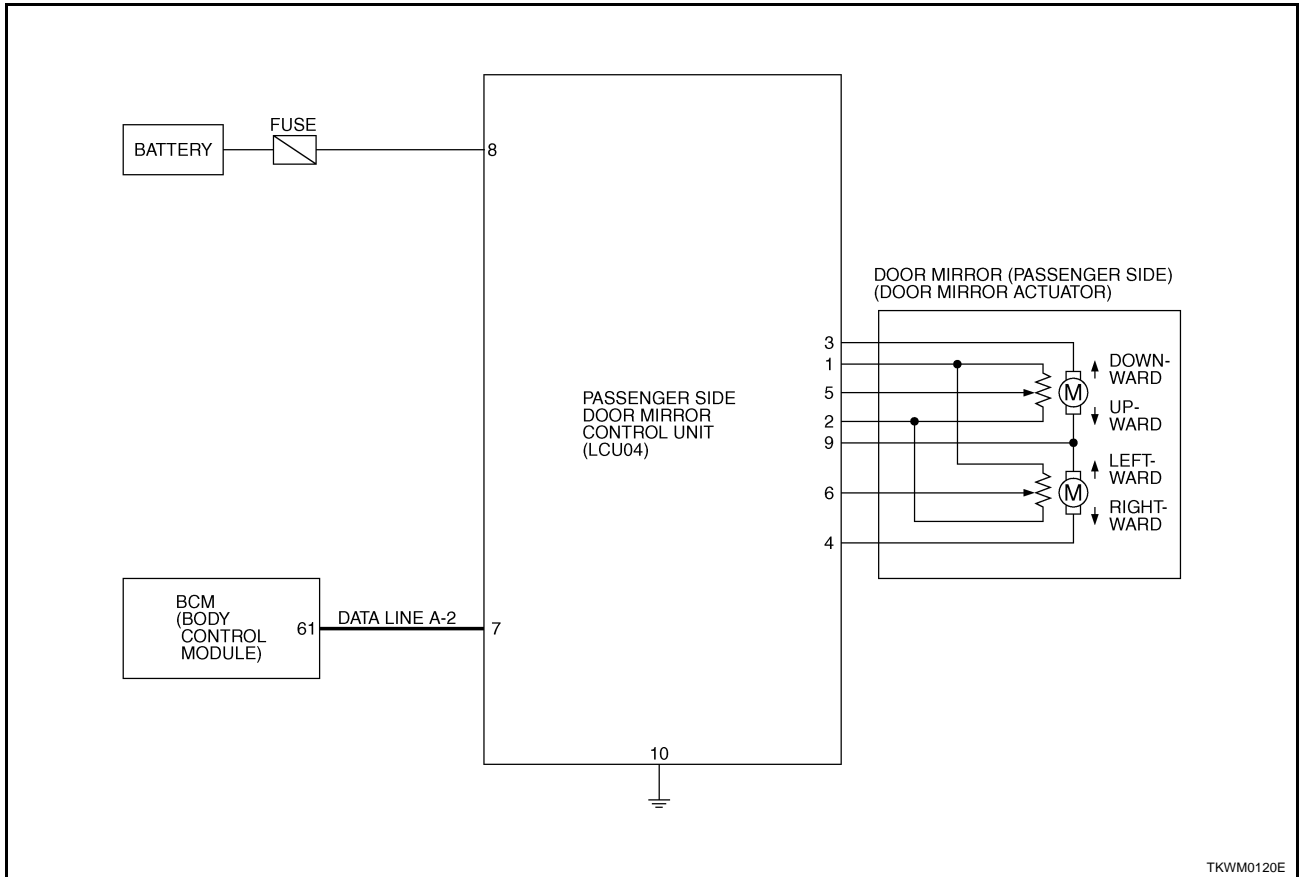
Schematic — LCU03 —
DRIVER'S SIDE DOOR MIRROR CONTROL UNIT (WITH DOOR MIRROR MEMORY SYSTEM)



TKWM0119E

Schematic — LCU04 —

PASSENGER SIDE DOOR MIRROR CONTROL UNIT (WITH DOOR MIRROR MEMORY SYSTEM)



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PRECAUTIONS

PFP:00001

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

AKS004VE

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

WARNING:

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

Precautions For Trouble Diagnosis CAN SYSTEM

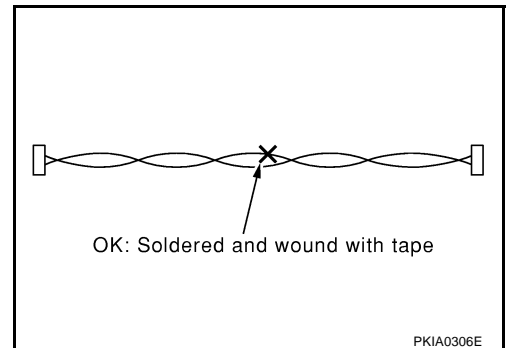
AKS002MH

- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.

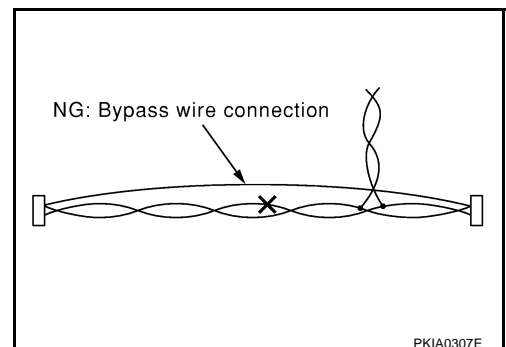
Precautions For Harness Repair CAN SYSTEM

AKS002MI

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



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



CAN COMMUNICATION

PFP:23710

System Description

AKS0031B

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

AKS0091S

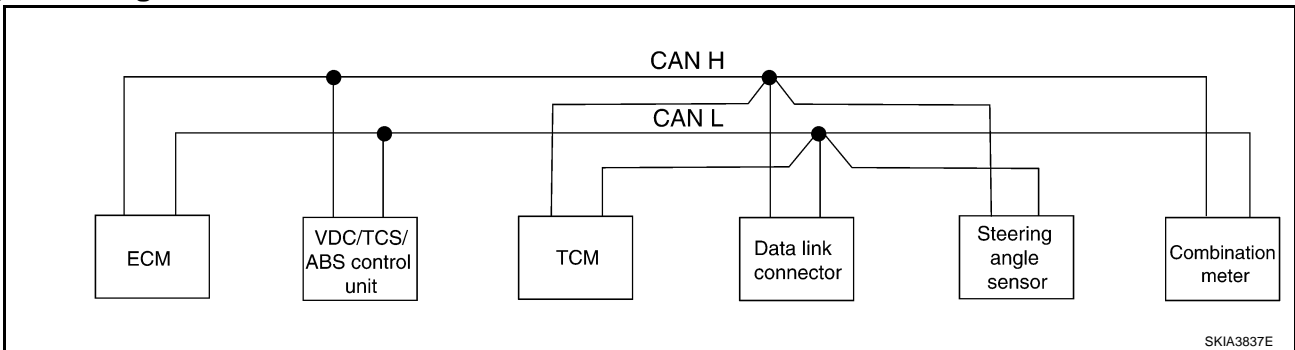
Go to CAN system, when selecting your CAN system type from the following table.

Body type	Sedan	
Axle	2WD	
Engine	VK45DE	
Transmission	A/T	
Brake control	VDC	
ICC system		×
CAN system type	1	2
CAN system trouble diagnosis	LAN-24	LAN-40

×: Applicable

TYPE 1

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	VDC/TCS/ABS control unit	TCM	Steering angle sensor	Combination meter
Engine speed signal	T	R	R		R
Engine coolant temperature signal	T				R
Accelerator pedal position signal	T	R	R		
Engine torque signal	T	R	R		
Battery voltage signal	T		R		
Closed throttle position signal	T		R		
Wide open throttle position signal	T		R		
Engine and A/T integrated control signal	T		R		
	R		T		
Fuel consumption monitor signal	T				R
A/T CHECK indicator signal			T		R
A/T position indicator signal			T		R

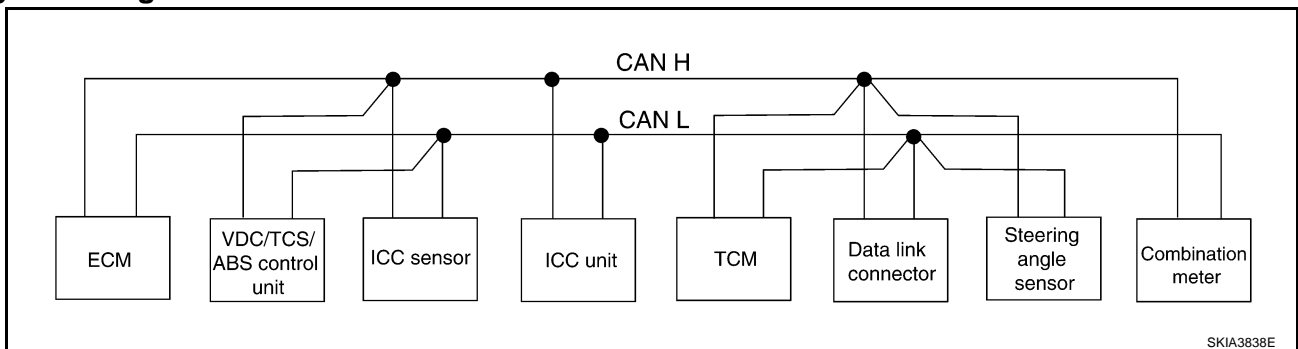
CAN COMMUNICATION

[CAN]

Signals	ECM	VDC/TCS/ABS control unit	TCM	Steering angle sensor	Combination meter
Current gear position signal	R	R	T		R
Next gear position signal	R	R	T		
Shift change signal	R	R	T		
Shift pattern signal	R		T		
VDC operation signal	R	T			
Stop lamp switch signal			R		T
Steering angle sensor signal		R		T	
Air conditioner switch signal	R				T
Headlamp switch signal	R				T
Rear window defogger switch signal	R				T
OD cancel switch signal		R			T
Vehicle speed signal		T			R
	R		R		T
Output shaft revolution signal	R		T		
ABS operation signal	R	T	R		
TCS operation signal	R	T			
A/T shift schedule change demand signal		T	R		
ASCD operation signal	R		R		T
Overdrive cancel signal	R		R		T
Manual mode signal			R		T
Not manual mode signal			R		T
Manual mode shift up signal			R		T
Manual mode shift down signal			R		T
Manual mode indicator signal			T		R

TYPE 2

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	VDC/TCS/ABS control unit	ICC sensor	ICC unit	TCM	Steering angle sensor	Combination meter
ICC system display signal				T			R
ICC sensor signal			T	R			
ICC operation signal				T	R		
Engine speed signal	T	R		R	R		R
Engine coolant temperature signal	T			R			R

CAN COMMUNICATION

[CAN]

Signals	ECM	VDC/TCS/ ABS con- trol unit	ICC sensor	ICC unit	TCM	Steering angle sensor	Combina- tion meter	
Accelerator pedal position signal	T	R		R	R			A
Engine torque signal	T	R			R			B
Battery voltage signal	T				R			
Closed throttle position signal	T			R	R			C
Wide open throttle position signal	T				R			
Engine and A/T integrated control signal	T				R			
	R				T			D
Fuel consumption monitor signal	T						R	
A/T CHECK indicator signal					T		R	E
A/T position indicator signal					T		R	
Current gear position signal	R	R		R	T		R	
Next gear position signal	R	R		R	T			F
Shift change signal	R	R			T			
Shift pattern signal	R			R	T			
VDC operation signal	R	T		R				G
Stop lamp switch signal					R		T	
Steering angle sensor signal		R				T		H
Air conditioner switch signal	R						T	
Headlamp switch signal	R						T	
Rear window defogger switch signal	R						T	I
OD cancel switch signal		R					T	
Vehicle speed signal		T		R			R	J
	R				R		T	
Output shaft revolution signal	R			R	T			
ABS operation signal	R	T		R	R			LAN
TCS operation signal	R	T		R				
A/T shift schedule change demand signal		T			R			
Manual mode signal				R	R		T	L
Not manual mode signal					R		T	
Manual mode shift up signal					R		T	M
Manual mode shift down signal					R		T	
Manual mode indicator signal					T		R	

CAN SYSTEM (TYPE 1)

PFP:23710

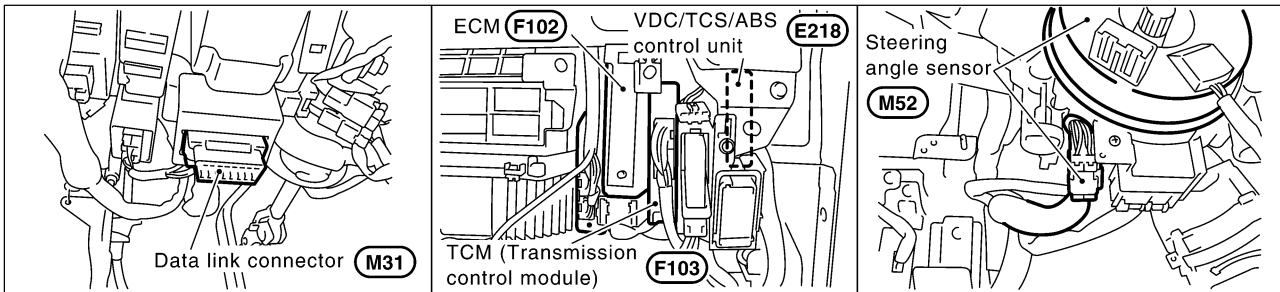
System Description

AKS003WP

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

AKS003WQ



SKIA3772E

CAN SYSTEM (TYPE 1)

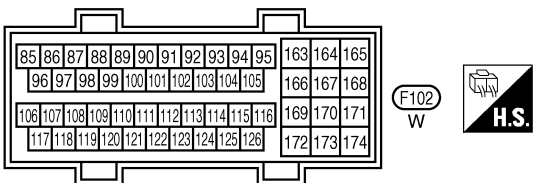
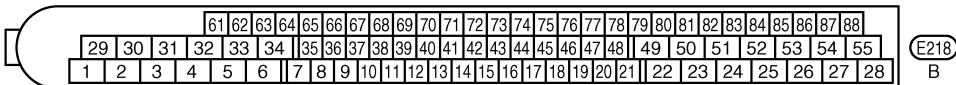
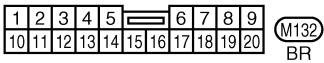
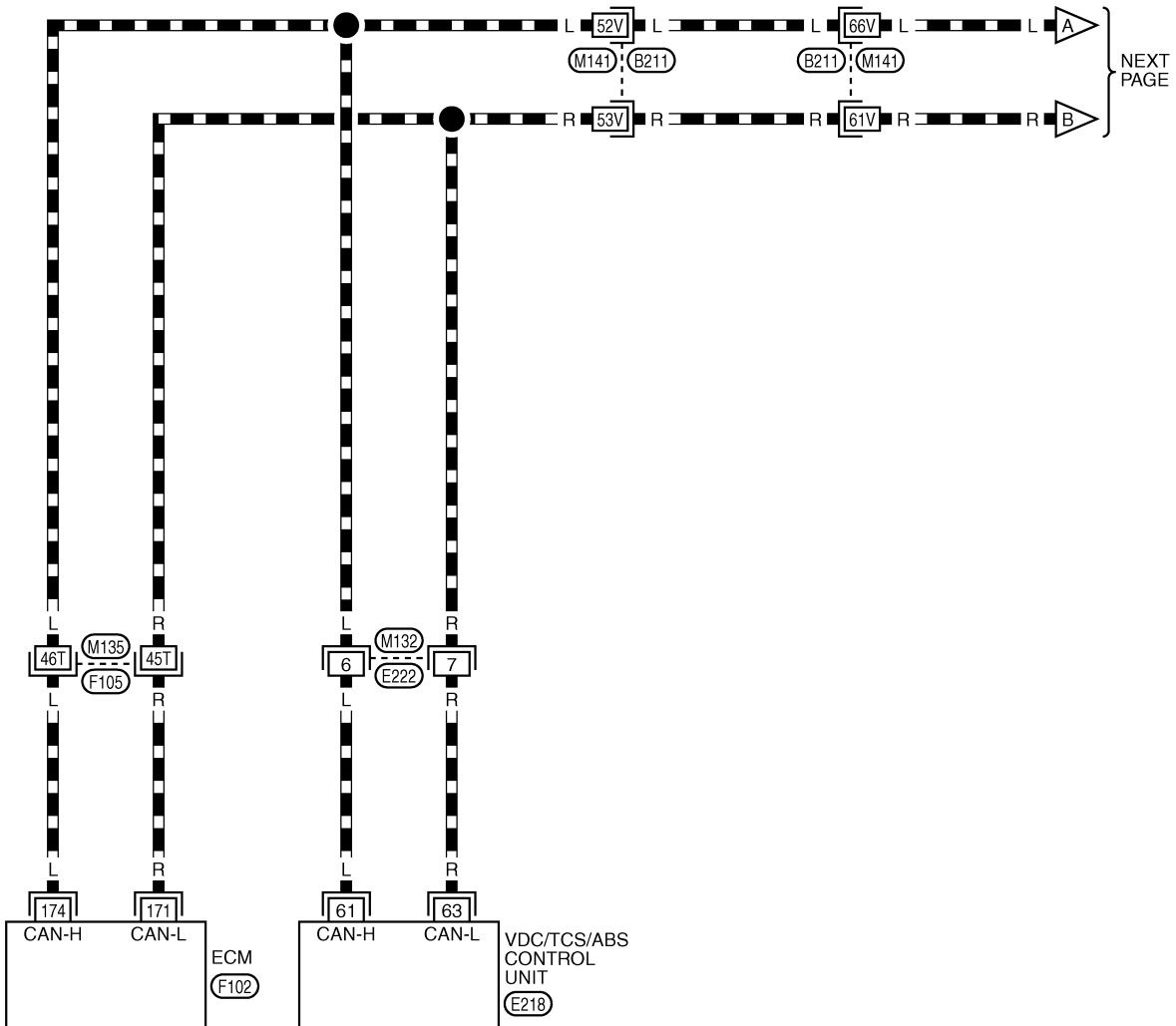
[CAN]

AKS003WR

Wiring Diagram — CAN —

LAN-CAN-01

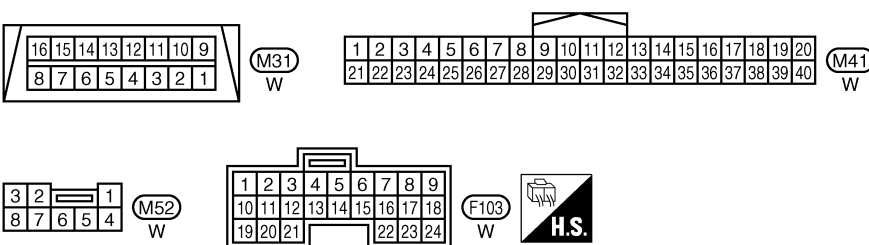
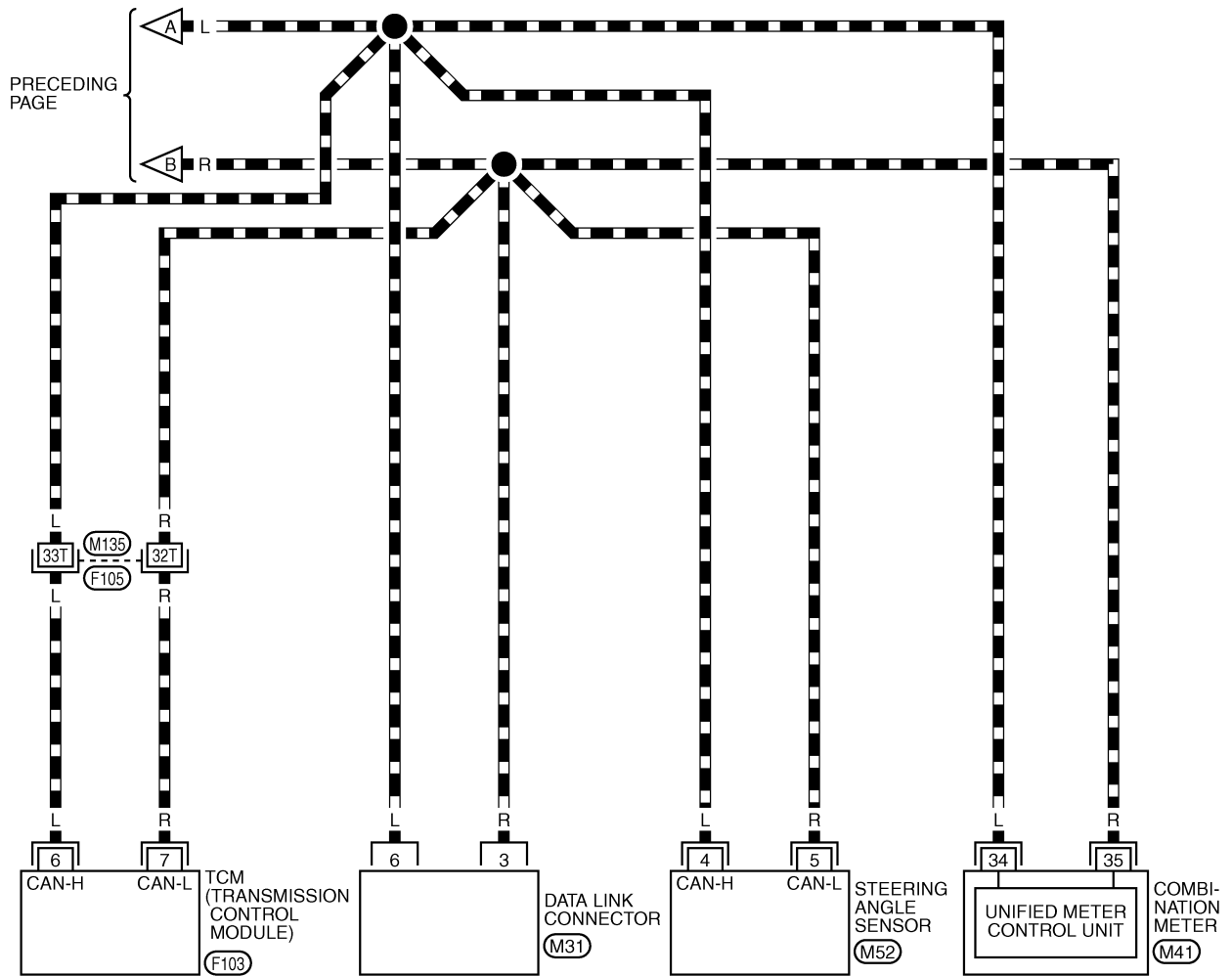
▬ : DATA LINE



REFER TO THE FOLLOWING.
(F105), (B211) -SUPER MULTIPLE JUNCTION (SMJ)

TKWA0644E

▬ : DATA LINE



REFER TO THE FOLLOWING.

(F105) -SUPER MULTIPLE JUNCTION (SMJ)

Work Flow

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "VDC", and "A/T" displayed on CONSULT-II.

(Example)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">SELECT DIAG MODE</td></tr> <tr><td style="text-align: center;">WORK SUPPORT</td></tr> <tr><td style="text-align: center;">SELF-DIAG RESULTS</td></tr> <tr><td style="text-align: center;">DATA MONITOR</td></tr> <tr><td style="text-align: center;">DATA MONITOR (SPEC)</td></tr> <tr><td style="text-align: center;">CAN DIAG SUPPORT MNTR</td></tr> <tr><td style="text-align: center;">ACTIVE TEST</td></tr> <tr><td style="text-align: center;"> </td></tr> <tr><td style="text-align: center;">Scroll Down</td></tr> <tr><td style="text-align: center;">BACK LIGHT COPY</td></tr> </table>	SELECT DIAG MODE	WORK SUPPORT	SELF-DIAG RESULTS	DATA MONITOR	DATA MONITOR (SPEC)	CAN DIAG SUPPORT MNTR	ACTIVE TEST		Scroll Down	BACK LIGHT COPY	➔	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">SELF-DIAG RESULTS</td></tr> <tr><td style="text-align: center;">DTC RESULTS</td><td style="text-align: center;">TIME</td></tr> <tr><td style="text-align: center;">CAN COMM CIRCUIT [U1000]</td><td style="text-align: center;">0</td></tr> <tr><td style="text-align: center;"> </td><td style="text-align: center;"> </td></tr> <tr><td style="text-align: center;"> </td><td style="text-align: center;"> </td></tr> <tr><td colspan="2" style="text-align: center;">F.F.DATA</td></tr> <tr><td style="text-align: center;">ERASE</td><td style="text-align: center;">PRINT</td></tr> <tr><td style="text-align: center;">MODE BACK LIGHT COPY</td></tr> </table>	SELF-DIAG RESULTS		DTC RESULTS	TIME	CAN COMM CIRCUIT [U1000]	0					F.F.DATA		ERASE	PRINT	MODE BACK LIGHT COPY	PKIA8260E
SELECT DIAG MODE																													
WORK SUPPORT																													
SELF-DIAG RESULTS																													
DATA MONITOR																													
DATA MONITOR (SPEC)																													
CAN DIAG SUPPORT MNTR																													
ACTIVE TEST																													
Scroll Down																													
BACK LIGHT COPY																													
SELF-DIAG RESULTS																													
DTC RESULTS	TIME																												
CAN COMM CIRCUIT [U1000]	0																												
F.F.DATA																													
ERASE	PRINT																												
MODE BACK LIGHT COPY																													

2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "VDC", and "A/T" displayed on CONSULT-II.

(Example)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">SELECT DIAG MODE</td></tr> <tr><td style="text-align: center;">WORK SUPPORT</td></tr> <tr><td style="text-align: center;">SELF-DIAG RESULTS</td></tr> <tr><td style="text-align: center;">DATA MONITOR</td></tr> <tr><td style="text-align: center;">DATA MONITOR (SPEC)</td></tr> <tr><td style="text-align: center;">CAN DIAG SUPPORT MNTR</td></tr> <tr><td style="text-align: center;">ACTIVE TEST</td></tr> <tr><td style="text-align: center;"> </td></tr> <tr><td style="text-align: center;">Scroll Down</td></tr> <tr><td style="text-align: center;">BACK LIGHT COPY</td></tr> </table>	SELECT DIAG MODE	WORK SUPPORT	SELF-DIAG RESULTS	DATA MONITOR	DATA MONITOR (SPEC)	CAN DIAG SUPPORT MNTR	ACTIVE TEST		Scroll Down	BACK LIGHT COPY	➔	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">CAN DIAG SUPPORT MNTR</td></tr> <tr><td colspan="2" style="text-align: center;">ENGINE</td></tr> <tr><td style="text-align: center;"> </td><td style="text-align: center;">PRSNT</td></tr> <tr><td style="text-align: center;">INITIAL DIAG</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">TRANSMIT DIAG</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">TCM</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">VDC/TCS/ABS</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">METER/M&A</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">ICC</td><td style="text-align: center;">UNKWN</td></tr> <tr><td style="text-align: center;">BCM/SEC</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">IPDM E/R</td><td style="text-align: center;">OK</td></tr> <tr><td style="text-align: center;">AWD/4WD/e4WD</td><td style="text-align: center;">UNKWN</td></tr> <tr><td style="text-align: center;">PRINT</td><td style="text-align: center;">Scroll Down</td></tr> <tr><td style="text-align: center;">MODE BACK LIGHT COPY</td></tr> </table>	CAN DIAG SUPPORT MNTR		ENGINE			PRSNT	INITIAL DIAG	OK	TRANSMIT DIAG	OK	TCM	OK	VDC/TCS/ABS	OK	METER/M&A	OK	ICC	UNKWN	BCM/SEC	OK	IPDM E/R	OK	AWD/4WD/e4WD	UNKWN	PRINT	Scroll Down	MODE BACK LIGHT COPY	PKIA8343E
SELECT DIAG MODE																																									
WORK SUPPORT																																									
SELF-DIAG RESULTS																																									
DATA MONITOR																																									
DATA MONITOR (SPEC)																																									
CAN DIAG SUPPORT MNTR																																									
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BCM/SEC	OK																																								
IPDM E/R	OK																																								
AWD/4WD/e4WD	UNKWN																																								
PRINT	Scroll Down																																								
MODE BACK LIGHT COPY																																									

3. Attach the printed sheet of "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-28. "CHECK SHEET"](#).
4. Based on the "CAN DIAG SUPPORT MNTR" results, put marks "v" onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-28. "CHECK SHEET"](#).

NOTE:

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

5. According to the check sheet results (example), start inspection. Refer to [LAN-29. "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET

NOTE:

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

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN

Symptoms :

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
VDC
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
VDC
CAN DIAG SUPPORT
MNTR

Attach copy of
A/T
CAN DIAG SUPPORT
MNTR

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

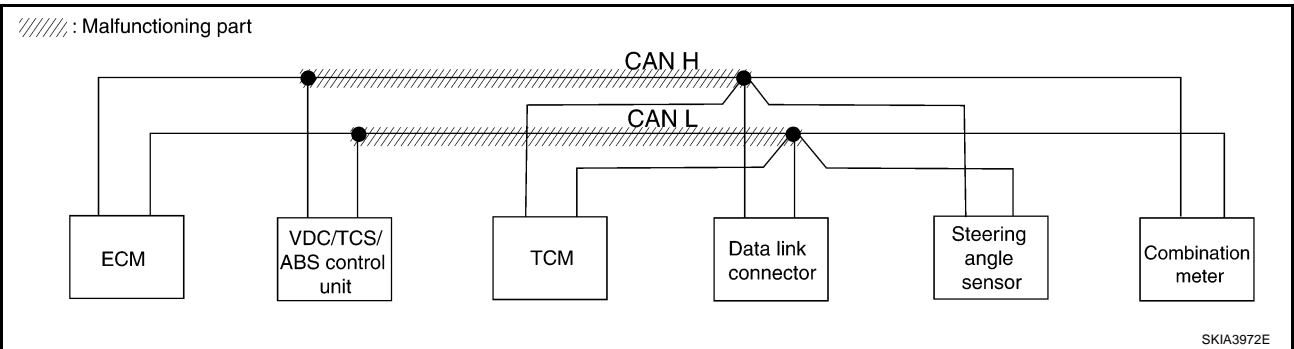
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between VDC/TCS/ABS control unit and data link connector. Refer to [LAN-32. "Circuit Check Between VDC/TCS/ABS Control Unit and Data Link Connector"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	-	UNKWN	UNKWN ✓	-	UNKWN ✓
VDC	NG	UNKWN	UNKWN	-	UNKWN ✓	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN ✓	UNKWN ✓	-	-	UNKWN

PKIA8633E

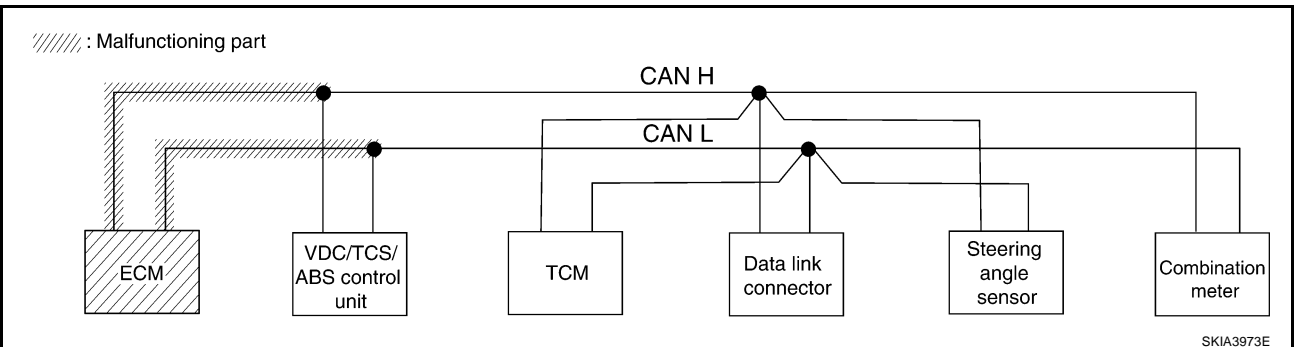


Case 2

Check ECM circuit. Refer to [LAN-33. "ECM Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN ✓	-	UNKWN ✓	UNKWN ✓	-	UNKWN ✓
VDC	NG	UNKWN	UNKWN ✓	-	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN ✓	UNKWN	-	-	UNKWN

PKIA8634E



A
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LAN

CAN SYSTEM (TYPE 1)

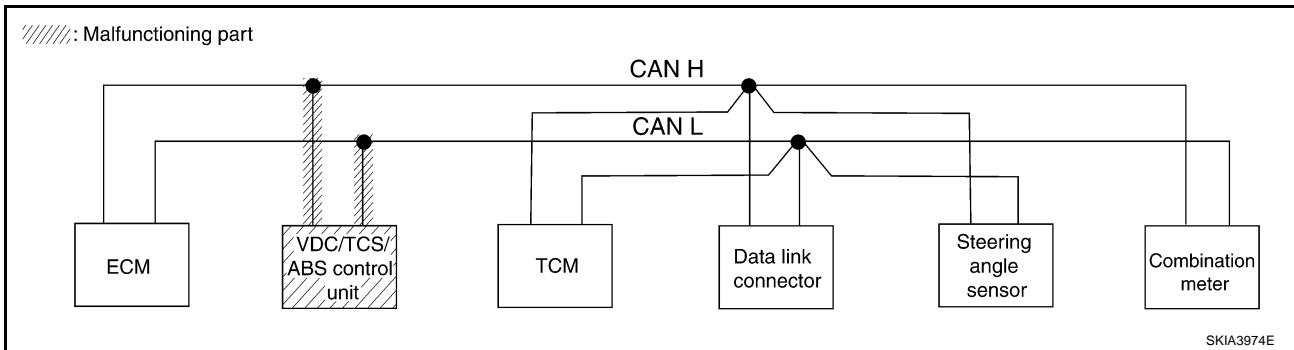
[CAN]

Case 3

Check VDC/TCS/ABS control unit circuit. Refer to [LAN-33, "VDC/TCS/ABS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN

PKIA8635E

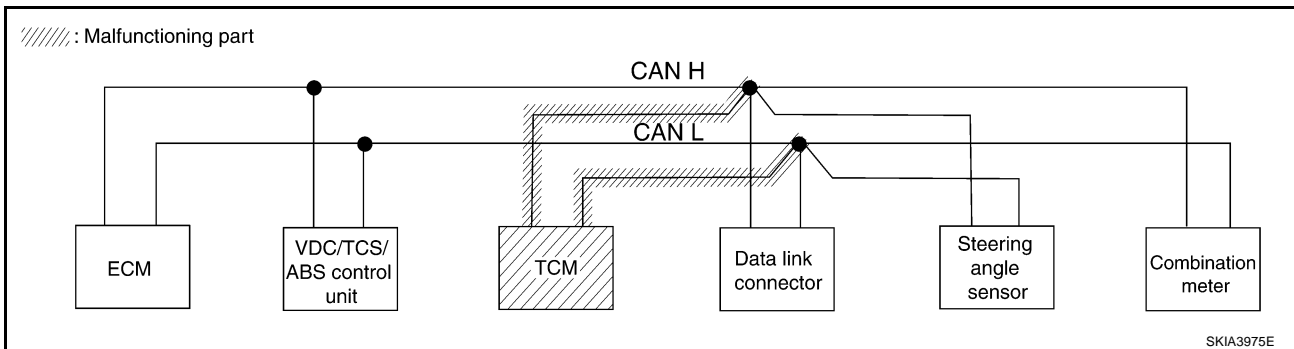


Case 4

Check TCM circuit. Refer to [LAN-34, "TCM Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN

PKIA8636E

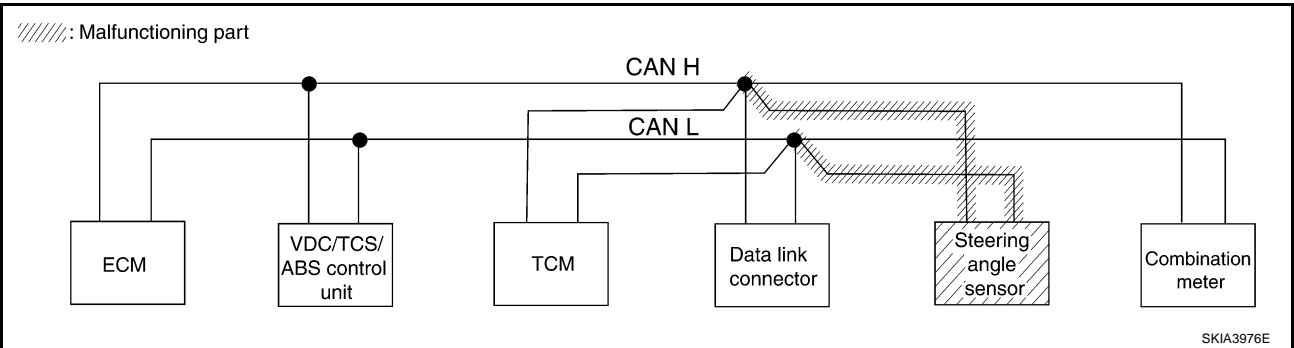


Case 5

Check steering angle sensor circuit. Refer to [LAN-34, "Steering Angle Sensor Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	UNKWN
A/T	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN

PKIA8637E

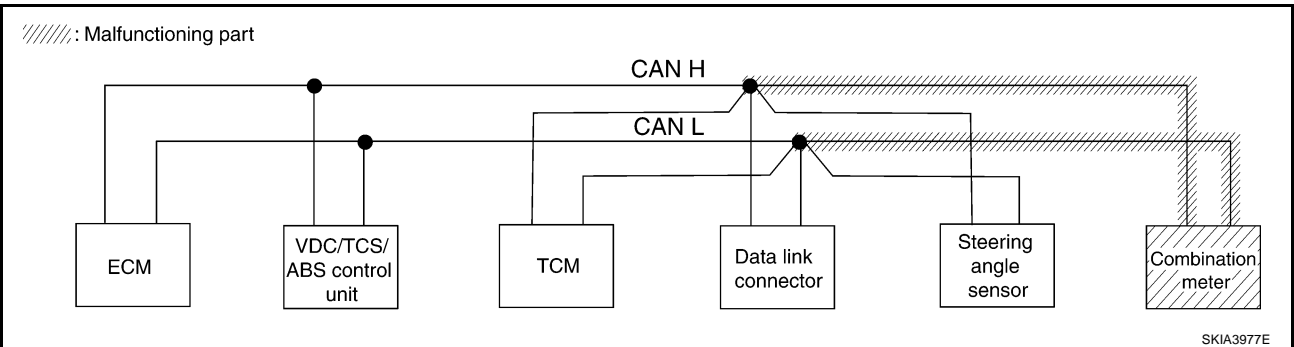


Case 6

Check combination meter circuit. Refer to [LAN-35, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN ✓
VDC	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	UNKWN ✓
A/T	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓

PKIA8638E



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Case 7

Check CAN communication circuit. Refer to [LAN-35, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	TCM	STRG	METER /M&A
ENGINE	NG	UNKN	—	UNKN	UNKN	—	UNKN
VDC	NG	UNKN	UNKN	—	UNKN	UNKN	UNKN
A/T	NG	UNKN	UNKN	UNKN	—	—	UNKN

PKIA8639E

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

AKS003WT

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
 - Harness connector M141
 - Harness connector B211

OK or NG

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

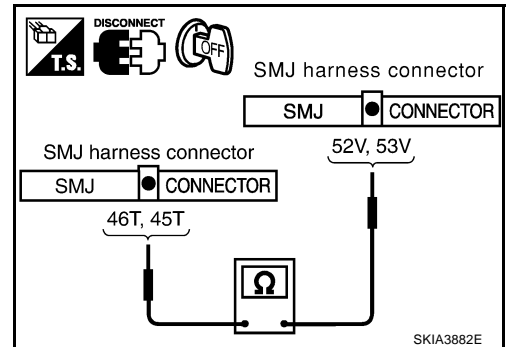
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M135 and harness connector M141.
2. Check continuity between harness connector M135 terminals 46T (L), 45T (R) and harness connector M141 terminals 52V (L), 53V (R).

- 46T (L) – 52V (L) : Continuity should exist.**
45T (R) – 53V (R) : Continuity should exist.

OK or NG

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



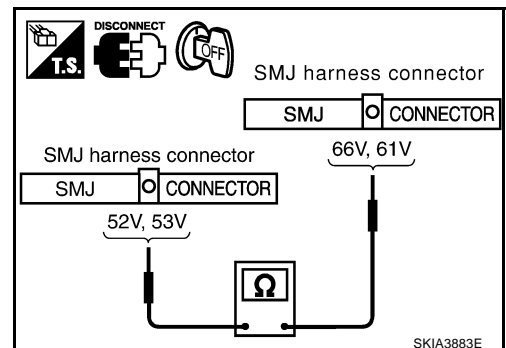
3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector B211 terminals 52V (L), 53V (R) and harness connector B211 terminals 66V (L), 61V (R).

- 52V (L) – 66V (L) : Continuity should exist.**
53V (R) – 61V (R) : Continuity should exist.

OK or NG

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



4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M141 terminals 66V (L), 61V (R) and data link connector M31 terminals 6 (L), 3 (R).

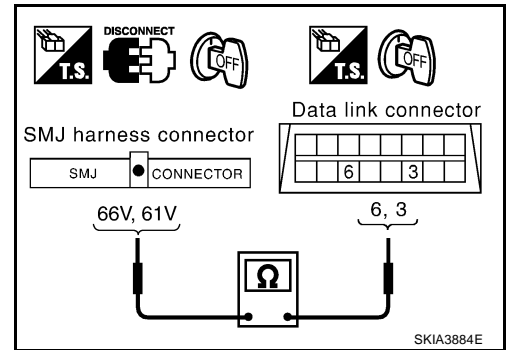
66V (L) – 6 (L) : Continuity should exist.

61V (R) – 3 (R) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-27, "Work Flow"](#).

NG >> Repair harness.



AKS003WX

ECM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
 - ECM connector
 - Harness connector F105
 - Harness connector M135

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

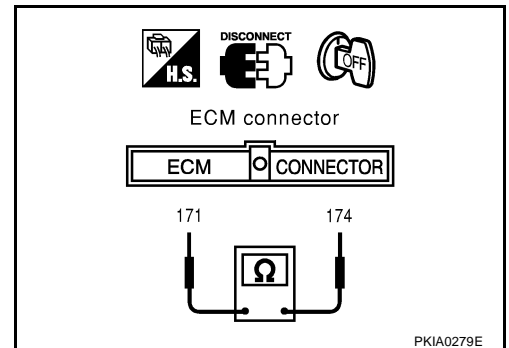
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 174 (L) and 171 (R).

174 (L) – 171 (R) : Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and harness connector M141.



AKS003XB

VDC/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control unit-side and harness-side).
 - VDC/TCS/ABS control unit connector
 - Harness connector E222
 - Harness connector M132

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

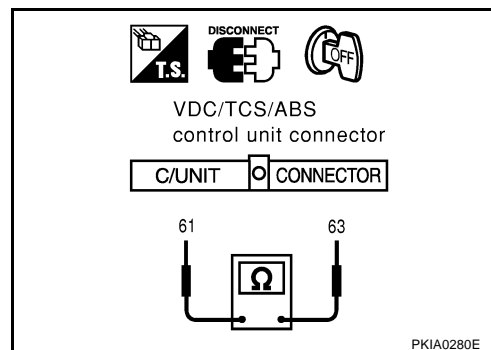
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect VDC/TCS/ABS control unit connector.
2. Check resistance between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L) and 63 (R).

61 (L) – 63 (R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
 NG >> Repair harness between VDC/TCS/ABS control unit and harness connector M141.



AKS003X6

TCM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
 - TCM connector
 - Harness connector F105
 - Harness connector M135

OK or NG

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

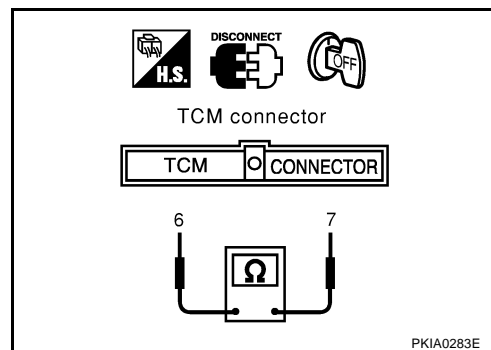
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) – 7 (R) : Approx. 54 – 66Ω

OK or NG

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



AKS003XA

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor-side and harness-side).

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

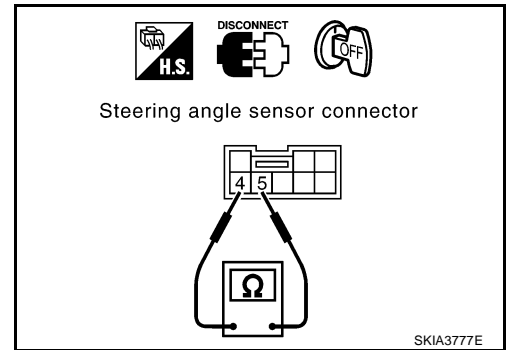
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M52 terminals 4 (L) and 5 (R).

4 (L) – 5 (R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace steering angle sensor.
 NG >> Repair harness between steering angle sensor and combination meter.



AKS003X8

Combination Meter Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check terminals and connector of combination meter for damage, bend and loose connection (meter-side and harness-side).

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

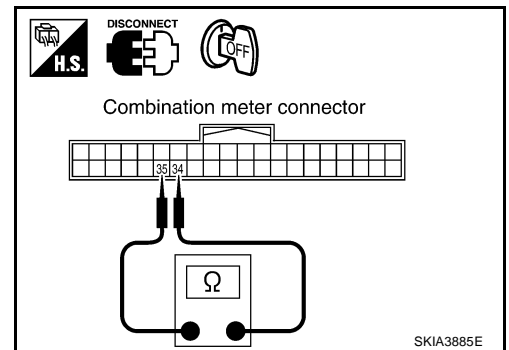
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M41 terminals 34 (L) and 35 (R).

34 (L) – 35 (R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and steering angle sensor.



AKS003X4

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side, control unit-side, sensor-side, meter-side and harness-side).

- ECM
- VDC/TCS/ABS control unit
- TCM
- Steering angle sensor
- Combination meter
- Between ECM and TCM
- Between ECM and VDC/TCS/ABS control unit

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

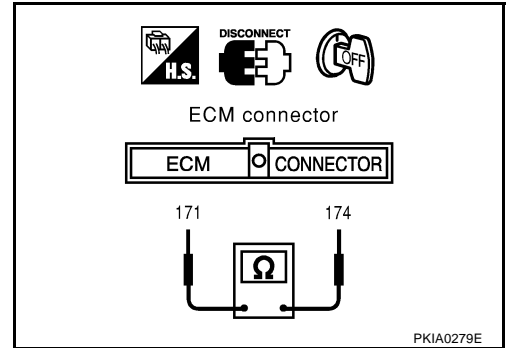
1. Disconnect ECM connector and harness connector F105.
2. Check continuity between ECM harness connector F102 terminals 174 (L) and 171 (R).

174 (L) – 171 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F105.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 174 (L), 171 (R) and ground.

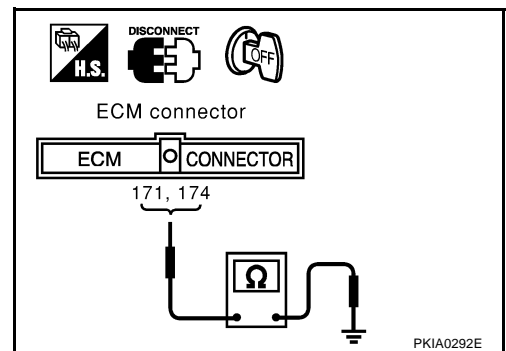
174 (L) – ground : Continuity should not exist.

171 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F105.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector M132 and harness connector M141.
2. Check continuity between harness connector M135 terminals 46T (L) and 45T (R).

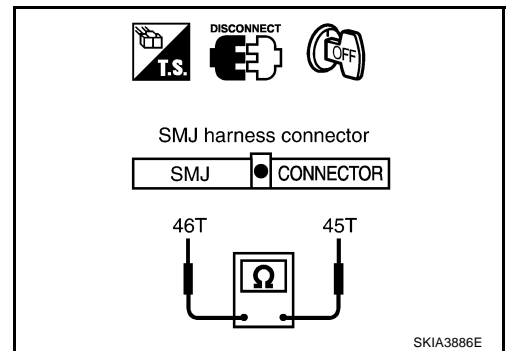
46T (L) – 45T (R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between harness connector M135 and harness connector M132.
- Harness between harness connector M135 and harness connector M141.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector M135 terminals 46T (L), 45T (R) and ground.

46T (L) – ground : Continuity should not exist.

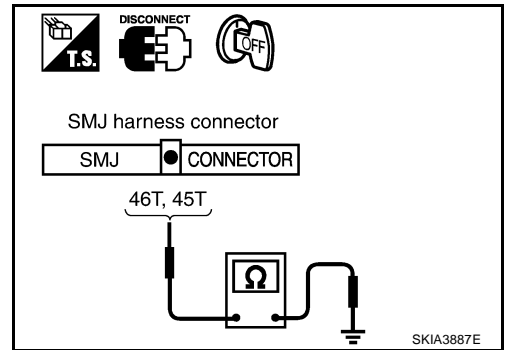
45T (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

- Harness between harness connector M135 and harness connector M132.
- Harness between harness connector M135 and harness connector M141.



6. CHECK HARNESS FOR SHORT CIRCUIT

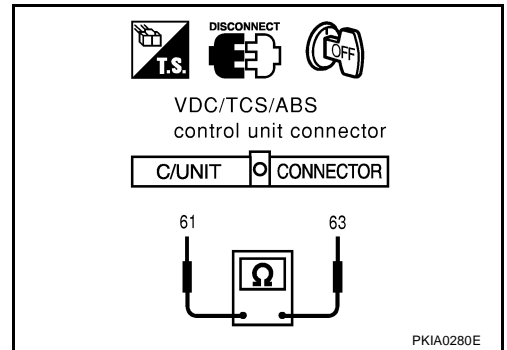
1. Disconnect VDC/TCS/ABS control unit connector.
2. Check continuity between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L) and 63 (R).

61 (L) – 63 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between VDC/TCS/ABS control unit and harness connector E222.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L), 63 (R) and ground.

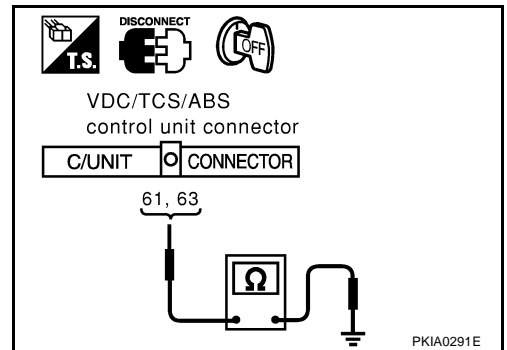
61 (L) – ground : Continuity should not exist.

63 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness between VDC/TCS/ABS control unit and harness connector E222.



8. CHECK HARNESS FOR SHORT CIRCUIT

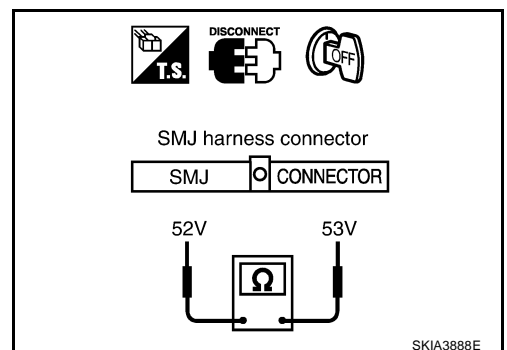
Check continuity between harness connector B211 terminals 52V (L) and 53V (R).

52V (L) – 53V (R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between harness connector B211 and harness connector B211.



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9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B211 terminals 52V (L), 53V (R) and ground.

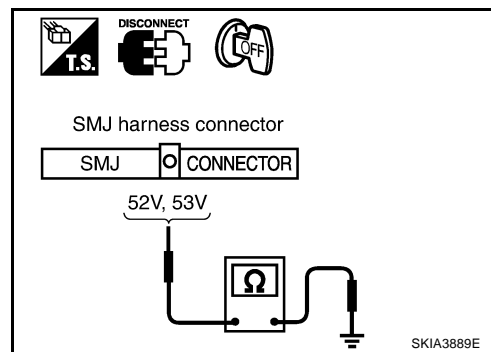
52V (L) – ground : Continuity should not exist.

53V (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between harness connector B211 and harness connector B211.



10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect steering angle sensor connector and combination meter connector.
2. Check continuity between data link connector M31 terminals 6 (L) and 3 (R).

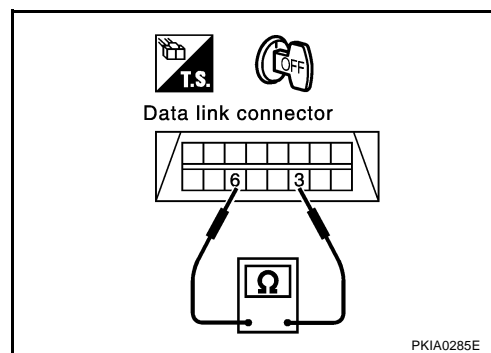
6 (L) – 3 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 11.

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

- Harness between data link connector and harness connector M141.
- Harness between data link connector and harness connector M135.
- Harness between data link connector and steering angle sensor.
- Harness between data link connector and combination meter.



11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M31 terminals 6 (L), 3 (R) and ground.

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

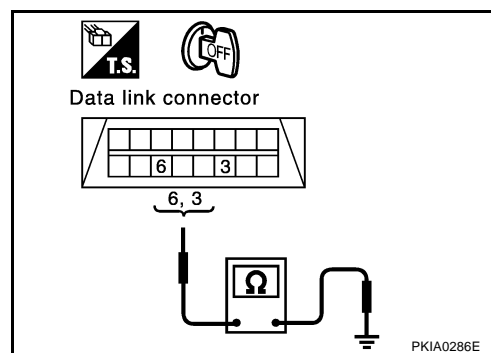
3 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 12.

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

- Harness between data link connector and harness connector M141.
- Harness between data link connector and harness connector M135.
- Harness between data link connector and steering angle sensor.
- Harness between data link connector and combination meter.



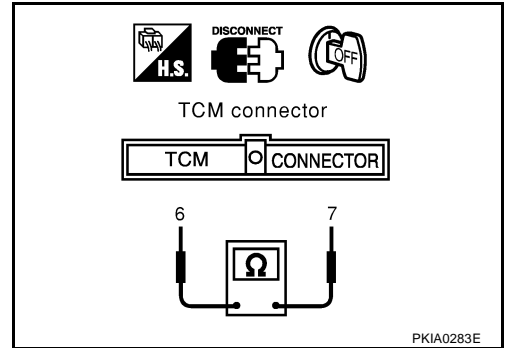
12. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect TCM connector.
2. Check continuity between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) – 7 (R) : Continuity should not exist.

OK or NG

- OK >> GO TO 13.
- NG >> Repair harness between TCM and harness connector F105.



13. CHECK HARNESS FOR SHORT CIRCUIT

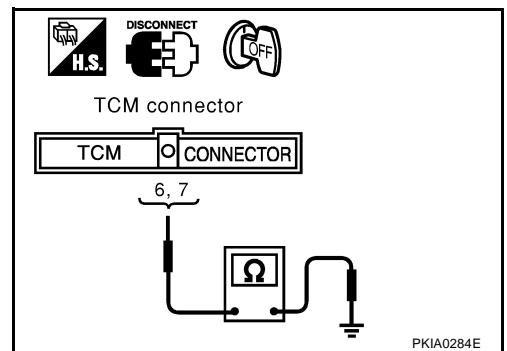
Check continuity between TCM harness connector F103 terminals 6 (L), 7 (R) and ground.

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

7 (R) – ground : Continuity should not exist.

OK or NG

- OK >> GO TO 14.
- NG >> Repair harness between TCM and harness connector F105.



14. ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-39, "ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

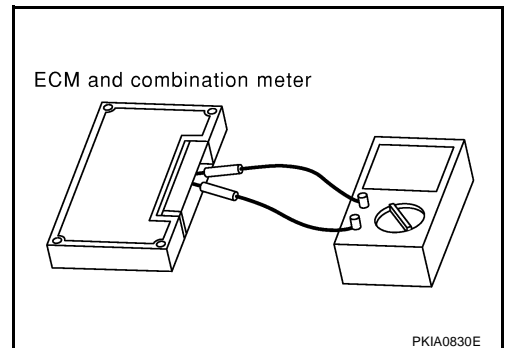
- OK >> Connect all the connectors and diagnose again. Refer to [LAN-27, "Work Flow"](#).
- NG >> Replace ECM and/or combination meter.

Component Inspection

ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 174 and 171.
- Check resistance between combination meter terminals 34 and 35.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	174 – 171	108 - 132
Combination meter	34 – 35	



CAN SYSTEM (TYPE 2)

PFP:23710

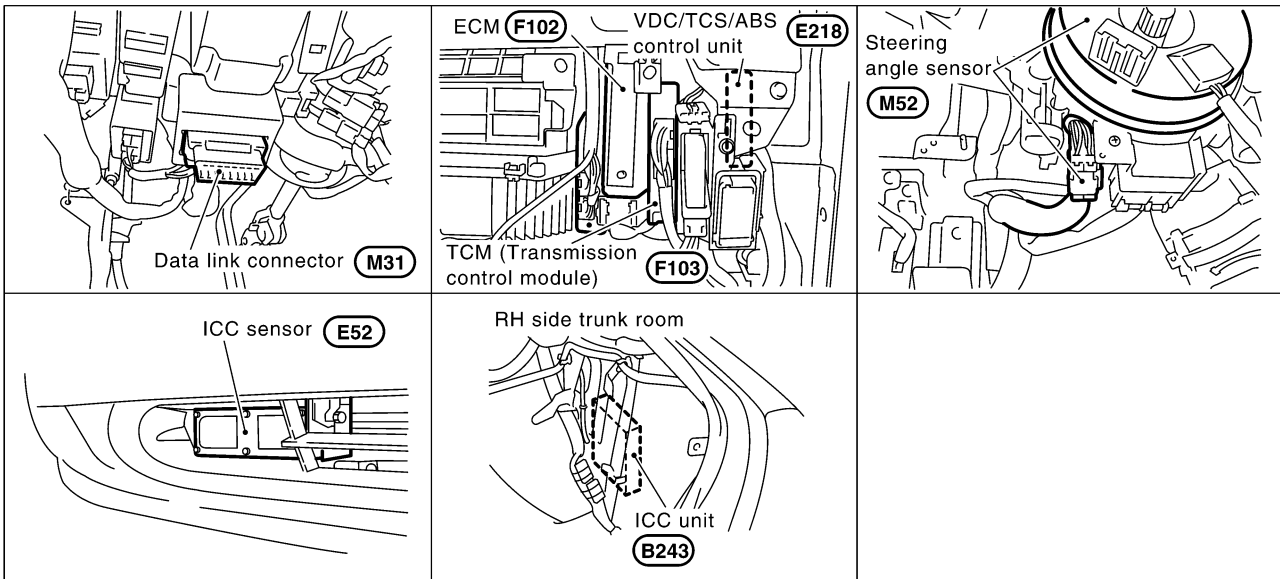
System Description

AKS003Y9

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

AKS003YA



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CAN SYSTEM (TYPE 2)

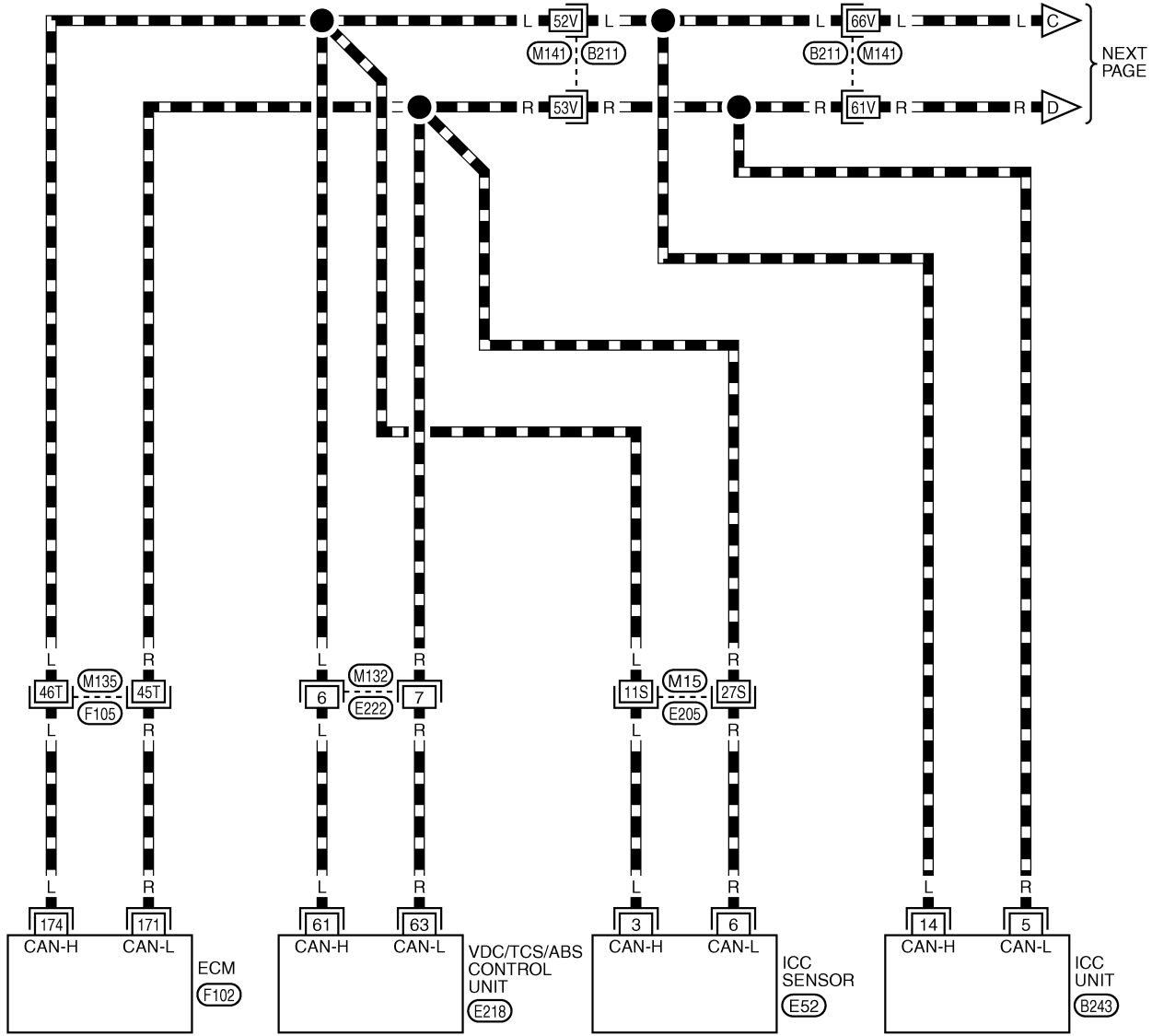
[CAN]

Wiring Diagram — CAN —

AKS003YB

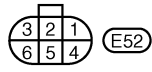
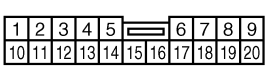
LAN-CAN-03

DATA LINE

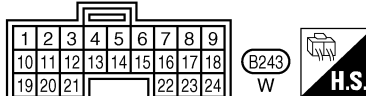
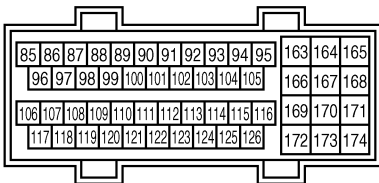
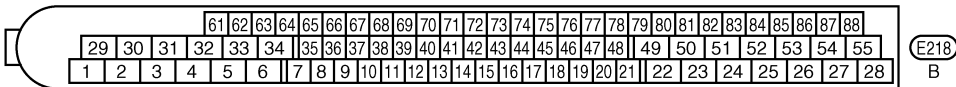


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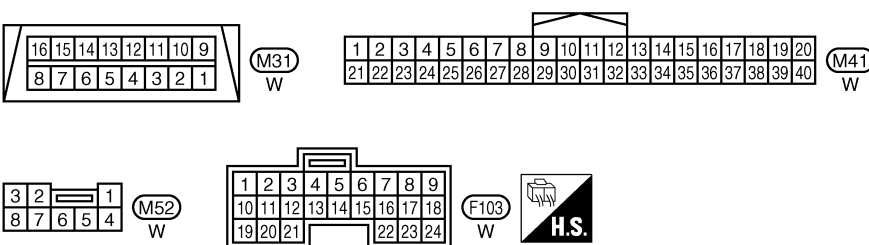
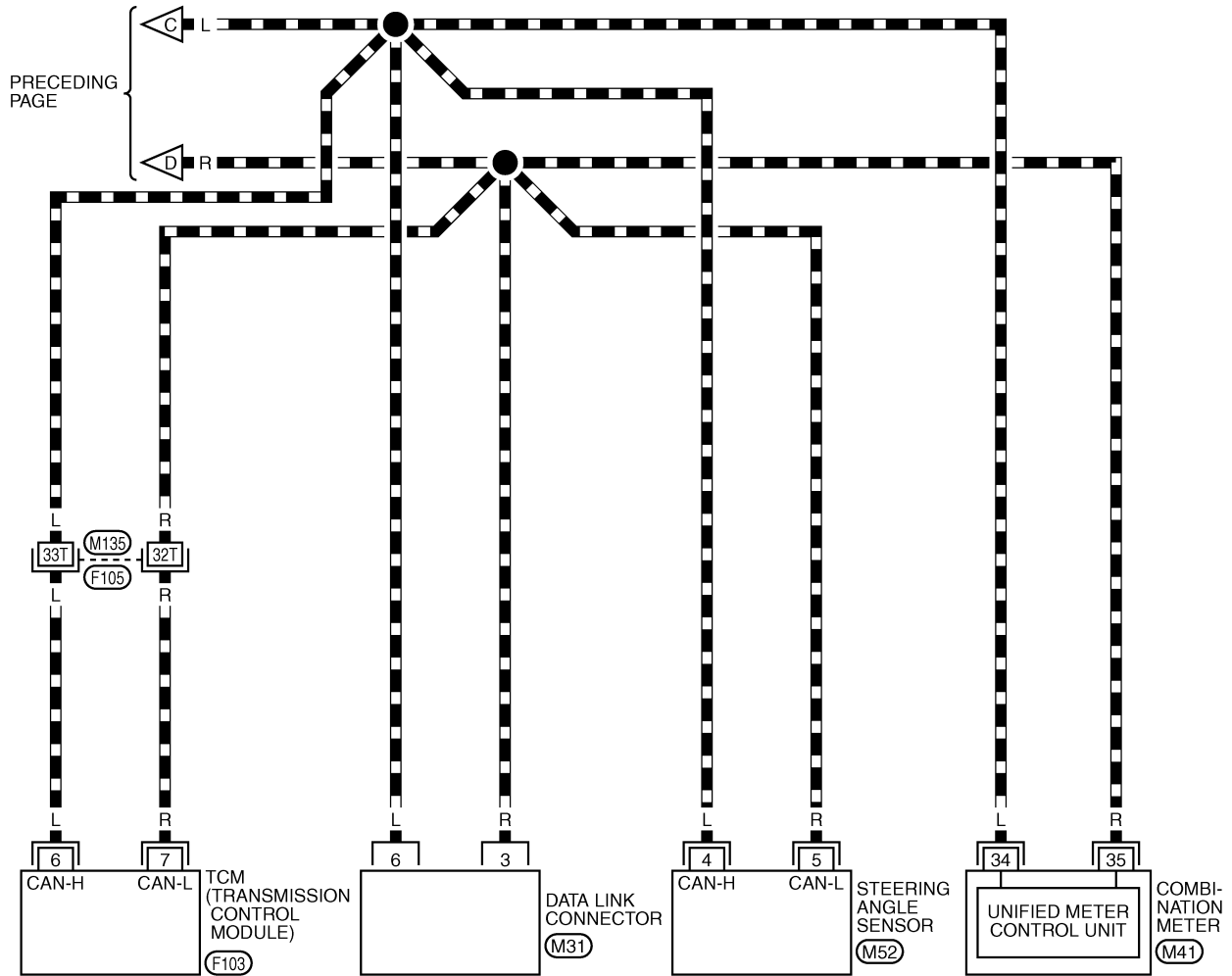


REFER TO THE FOLLOWING.
 (F105), (E205), (B211) -SUPER
 MULTIPLE JUNCTION (SMJ)



TKWA0642E

▬ : DATA LINE



REFER TO THE FOLLOWING.

(F105) -SUPER MULTIPLE JUNCTION (SMJ)



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "VDC", "ICC", and "A/T" displayed on CONSULT-II.

(Example)

SELECT DIAG MODE			
WORK SUPPORT			
SELF-DIAG RESULTS			
DATA MONITOR			
DATA MONITOR (SPEC)			
CAN DIAG SUPPORT MNTR			
ACTIVE TEST			
			Scroll Down
BACK	LIGHT	COPY	

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SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]	0		
			F.F.DATA
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

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2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "VDC", "ICC", and "A/T" displayed on CONSULT-II.

(Example)

SELECT DIAG MODE			
WORK SUPPORT			
SELF-DIAG RESULTS			
DATA MONITOR			
DATA MONITOR (SPEC)			
CAN DIAG SUPPORT MNTR			
ACTIVE TEST			
			Scroll Down
BACK	LIGHT	COPY	

➔

CAN DIAG SUPPORT MNTR			
ENGINE			
		PRSNT	
INITIAL DIAG	OK		
TRANSMIT DIAG	OK		
TCM	OK		
VDC/TCS/ABS	OK		
METER/M&A	OK		
ICC	UNKWN		
BCM/SEC	OK		
IPDM E/R	OK		
AWD/4WD/e4WD	UNKWN		
PRINT		Scroll Down	
MODE	BACK	LIGHT	COPY

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3. Attach the printed sheet of "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-44, "CHECK SHEET"](#).
4. Based on the "CAN DIAG SUPPORT MNTR" results, put marks "v" onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-44, "CHECK SHEET"](#).

NOTE:

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

5. According to the check sheet results (example), start inspection. Refer to [LAN-45, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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CAN SYSTEM (TYPE 2)

[CAN]

CHECK SHEET

NOTE:

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

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

Symptoms :

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
VDC
SELF-DIAG RESULTS

Attach copy of
ICC
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
VDC
CAN DIAG SUPPORT
MNTR

Attach copy of
ICC
CAN DIAG SUPPORT
MNTR

Attach copy of
A/T
CAN DIAG SUPPORT
MNTR

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CHECK SHEET RESULTS (EXAMPLE)

NOTE:

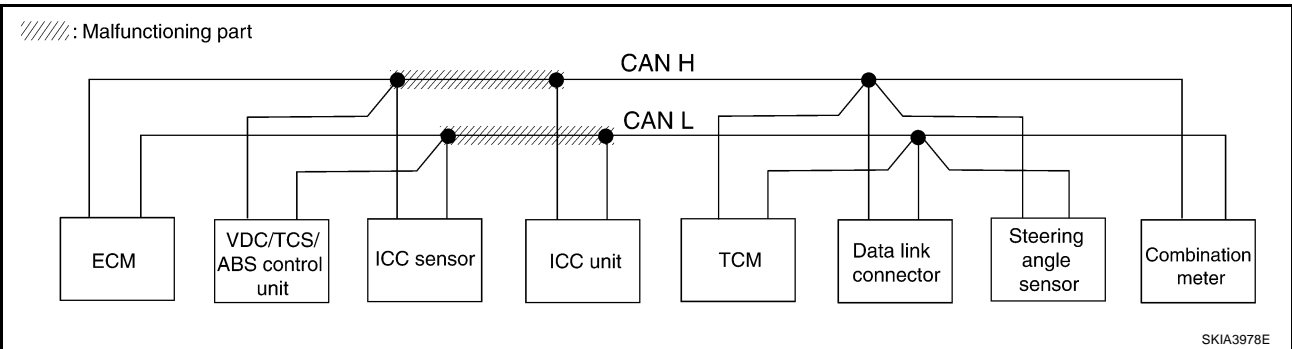
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between VDC/TCS/ABS control unit and ICC unit. Refer to [LAN-50, "Circuit Check Between VDC/TCS/ABS Control Unit and ICC Unit"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN ✓	—	UNKWN ✓
VDC	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
ICC	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	UNKWN	—	—	UNKWN

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CAN SYSTEM (TYPE 2)

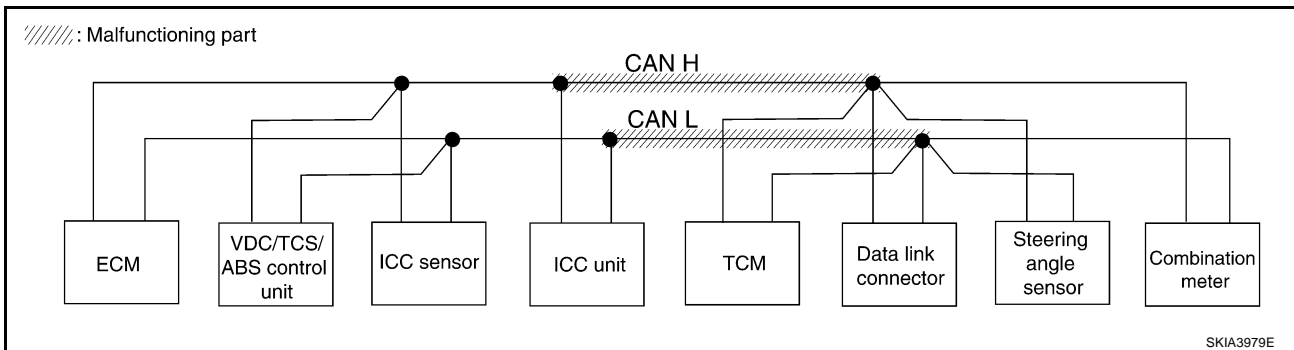
[CAN]

Case 2

Check harness between ICC unit and data link connector. Refer to [LAN-51, "Circuit Check Between ICC Unit and Data Link Connector"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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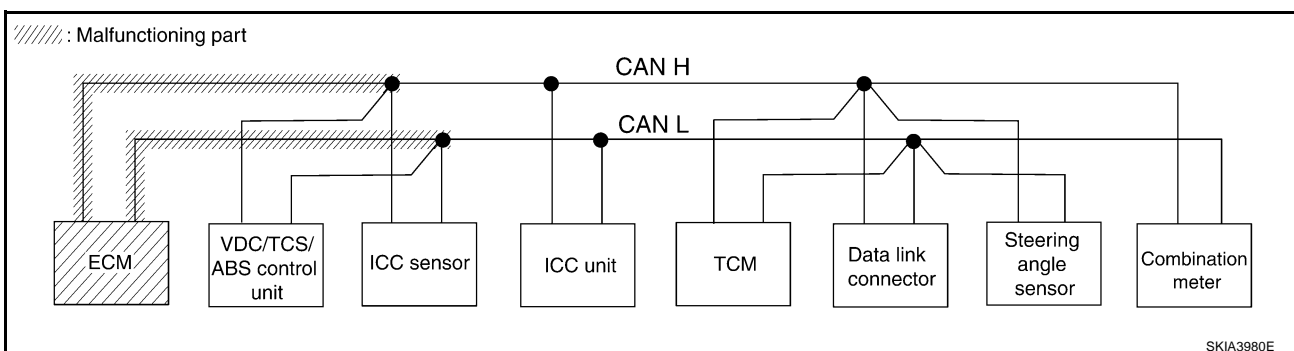


Case 3

Check ECM circuit. Refer to [LAN-51, "ECM Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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CAN SYSTEM (TYPE 2)

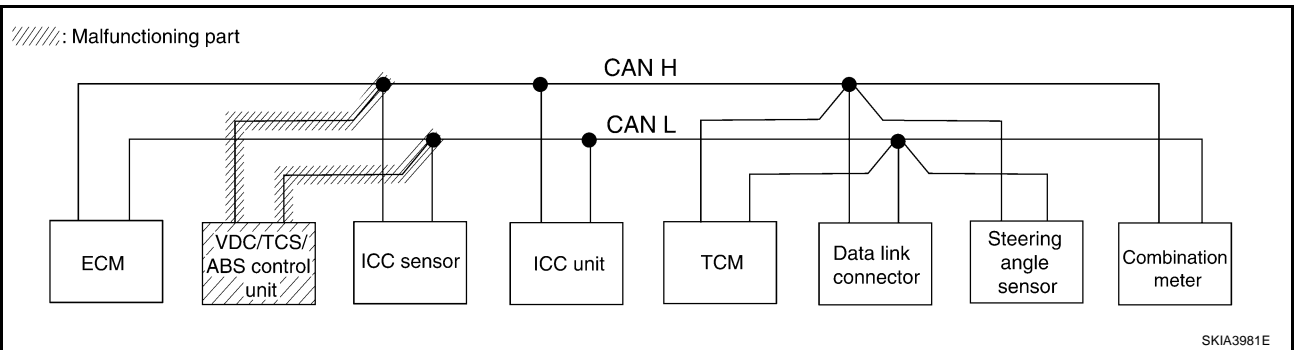
[CAN]

Case 4

Check VDC/TCS/ABS control unit circuit. Refer to [LAN-52. "VDC/TCS/ABS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKW	—	UNKW	—	—	UNKW	—	UNKW
VDC	NG	UNKW	UNKW	—	—	UNKW	UNKW	UNKW	UNKW
ICC	NG	UNKW	UNKW	UNKW	UNKW	—	UNKW	—	—
A/T	NG	UNKW	UNKW	UNKW	—	UNKW	—	—	UNKW

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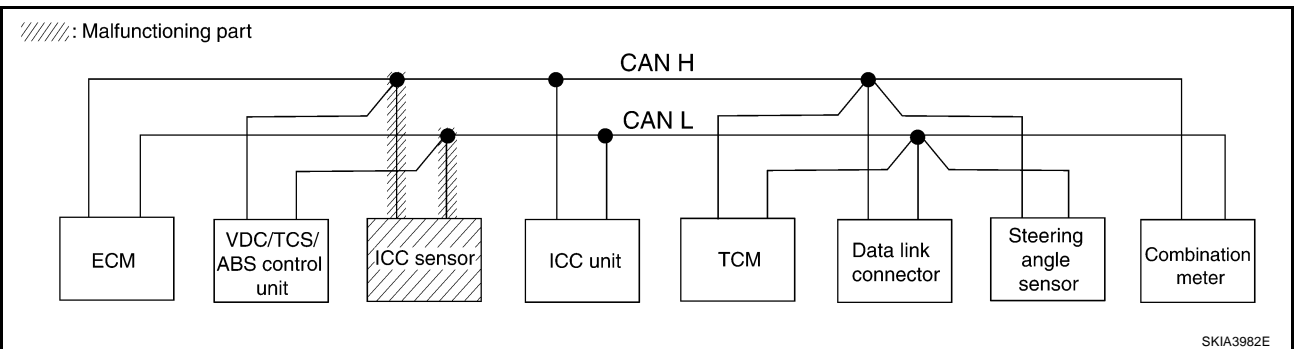


Case 5

Check ICC sensor circuit. Refer to [LAN-52. "ICC Sensor Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKW	—	UNKW	—	—	UNKW	—	UNKW
VDC	NG	UNKW	UNKW	—	—	UNKW	UNKW	UNKW	UNKW
ICC	NG	UNKW	UNKW	UNKW	UNKW	—	UNKW	—	—
A/T	NG	UNKW	UNKW	UNKW	—	UNKW	—	—	UNKW

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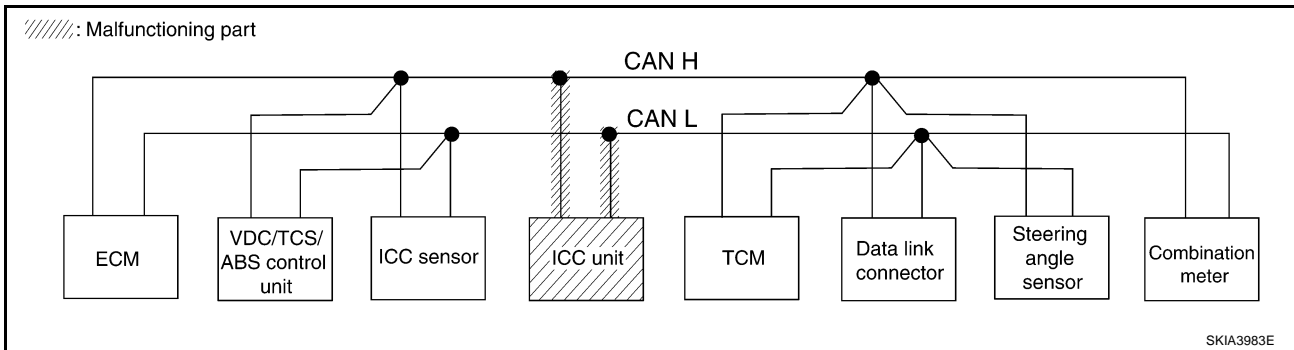
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Case 6

Check ICC unit circuit. Refer to [LAN-53, "ICC Unit Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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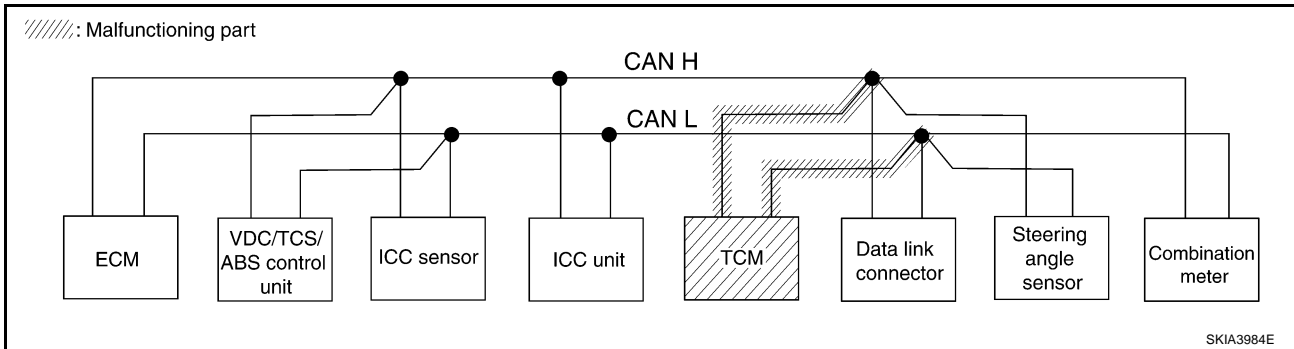


Case 7

Check TCM circuit. Refer to [LAN-53, "TCM Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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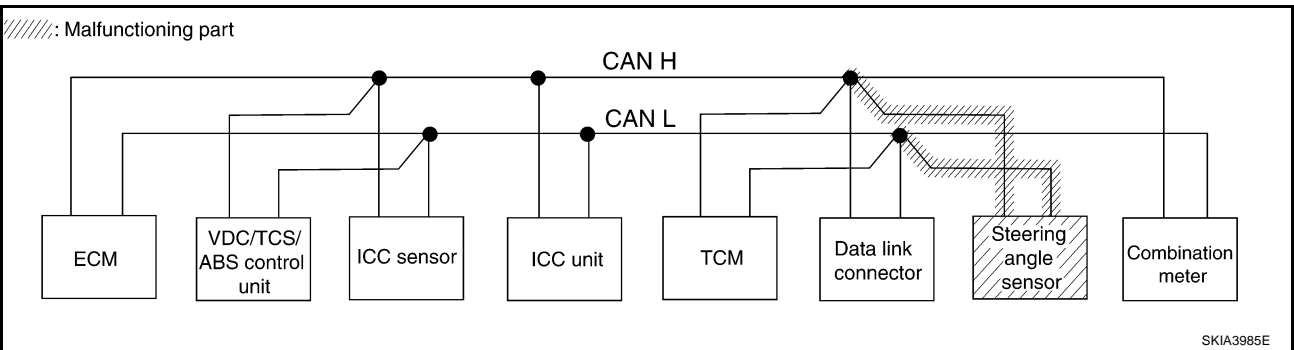


Case 8

Check steering angle sensor circuit. Refer to [LAN-54, "Steering Angle Sensor Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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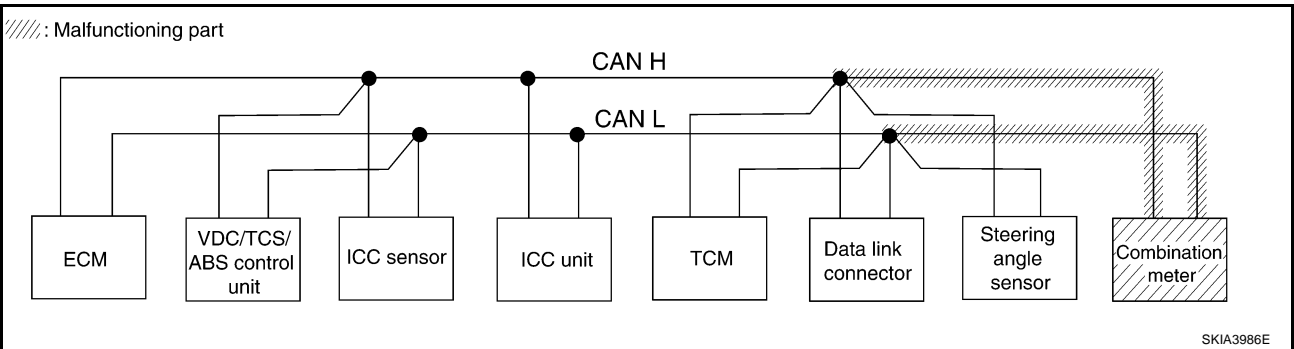


Case 9

Check combination meter circuit. Refer to [LAN-54, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	METER /M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN	—	UNKWN
VDC	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
ICC	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—
A/T	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN

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Case 10

Check CAN communication circuit. Refer to [LAN-55, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						METER /M&A
			ECM	VDC/TCS /ABS	ICC SENSOR	ICC	TCM	STRG	
ENGINE	NG	UNKNWN	—	UNKNWN	—	—	UNKNWN	—	UNKNWN
VDC	NG	UNKNWN	UNKNWN	—	—	UNKNWN	UNKNWN	UNKNWN	UNKNWN
ICC	NG	UNKNWN	UNKNWN	UNKNWN	UNKNWN	—	UNKNWN	—	—
A/T	NG	UNKNWN	UNKNWN	UNKNWN	—	UNKNWN	—	—	UNKNWN

PKIA8650E

Circuit Check Between VDC/TCS/ABS Control Unit and ICC Unit

AKS003YD

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
 - Harness connector M141
 - Harness connector B211

OK or NG

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

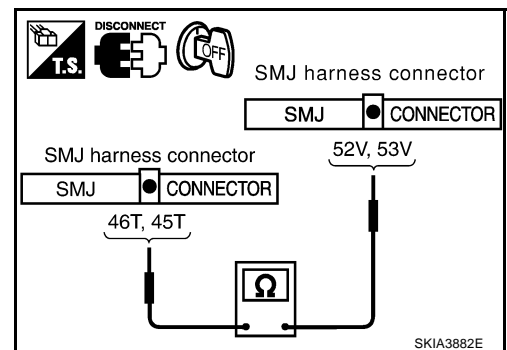
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M135 and harness connector M141.
2. Check continuity between harness connector M135 terminals 46T (L), 45T (R) and harness connector M141 terminals 52V (L), 53V (R).

46T (L) – 52V (L) : Continuity should exist.
45T (R) – 53V (R) : Continuity should exist.

OK or NG

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



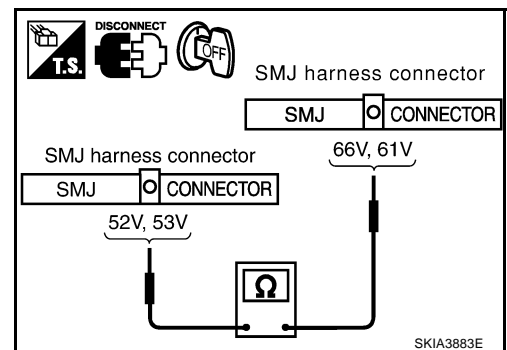
3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector B211 terminals 52V (L), 53V (R) and harness connector B211 terminals 66V (L), 61V (R).

52V (L) – 66V (L) : Continuity should exist.
53V (R) – 61V (R) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to [LAN-43, "Work Flow"](#) .
 NG >> Repair harness.



Circuit Check Between ICC Unit and Data Link Connector**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
 - Harness connector B211
 - Harness connector M141

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

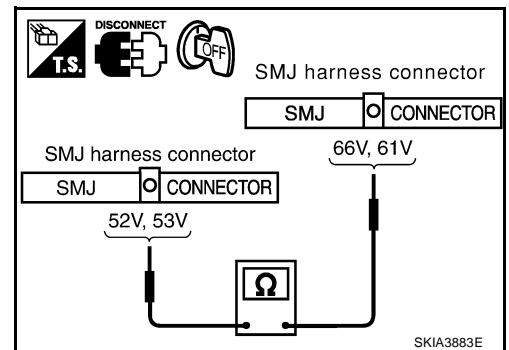
1. Disconnect harness connector B211.
2. Check continuity between harness connector B211 terminals 52V (L), 53V (R) and harness connector B211 terminals 66V (L), 61V (R).

52V (L) – 66V (L) : Continuity should exist.

53V (R) – 61V (R) : Continuity should exist.

OK or NG

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

**3. CHECK HARNESS FOR OPEN CIRCUIT**

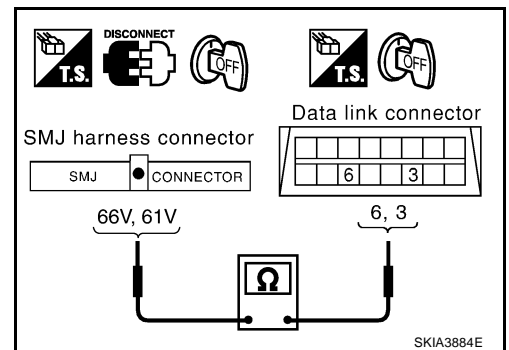
Check continuity between harness connector M141 terminals 66V (L), 61V (R) and data link connector M31 terminals 6 (L), 3 (R).

66V (L) – 6 (L) : Continuity should exist.

61V (R) – 3 (R) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to [LAN-43. "Work Flow"](#) .
 NG >> Repair harness.

**ECM Circuit Check****1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
 - ECM connector
 - Harness connector F105
 - Harness connector M135

OK or NG

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

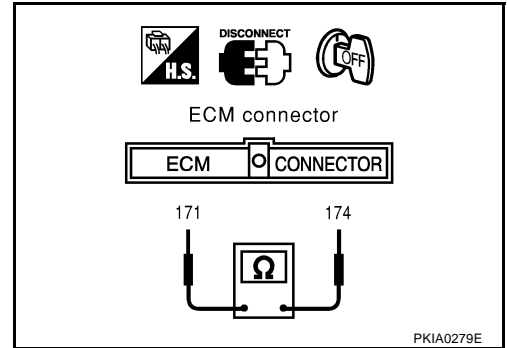
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 174 (L) and 171 (R).

174 (L) – 171 (R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace ECM.
 NG >> Repair harness between ECM and harness connector M141.



VDC/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control unit-side and harness-side).
 - VDC/TCS/ABS control unit connector
 - Harness connector E222
 - Harness connector M132

OK or NG

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

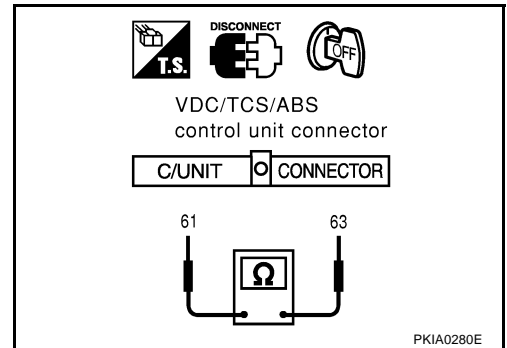
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect VDC/TCS/ABS control unit connector.
2. Check resistance between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L) and 63 (R).

61 (L) – 63 (R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
 NG >> Repair harness between VDC/TCS/ABS control unit and harness connector M141.



ICC Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (sensor-side and harness-side).
 - ICC sensor connector
 - Harness connector E205
 - Harness connector M15

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

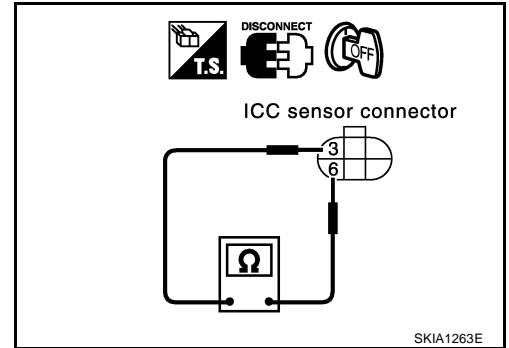
1. Disconnect ICC sensor connector.
2. Check resistance between ICC sensor harness connector E52 terminals 3 (L) and 6 (R).

3 (L) – 6 (R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ICC sensor.
 NG >> Repair harness between ICC sensor and harness connector M141.



AKS003YO

ICC Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check terminals and connector of ICC 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

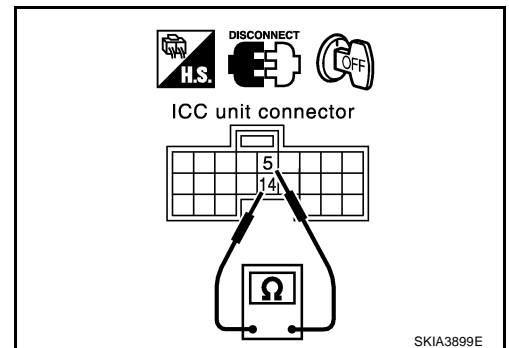
1. Disconnect ICC unit connector.
2. Check resistance between ICC unit harness connector B243 terminals 14 (L) and 5 (R).

14 (L) – 5 (R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ICC unit.
 NG >> Repair harness between ICC unit and harness connector B211.



AKS003YG

TCM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
 - TCM connector
 - Harness connector F105
 - Harness connector M135

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

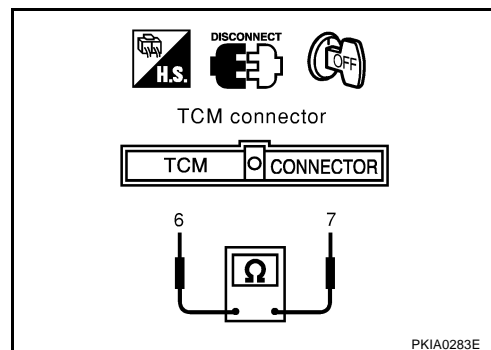
1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) – 7 (R)

: Approx. 54 – 66Ω

OK or NG

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



Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor-side and harness-side).

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

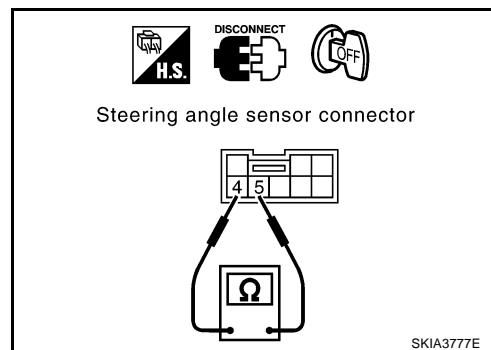
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M52 terminals 4 (L) and 5 (R).

4 (L) – 5 (R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace steering angle sensor.
 NG >> Repair harness between steering angle sensor and combination meter.



Combination Meter Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check terminals and connector of combination meter for damage, bend and loose connection (meter-side and harness-side).

OK or NG

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

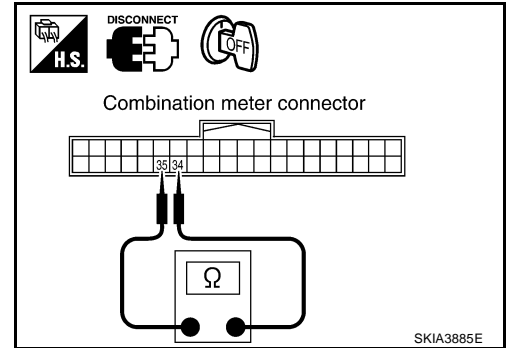
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M41 terminals 34 (L) and 35 (R).

34 (L) – 35 (R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and steering angle sensor.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side, control unit-side, sensor-side, unit-side, meter-side and harness-side).

- ECM
- VDC/TCS/ABS control unit
- ICC sensor
- ICC unit
- TCM
- Steering angle sensor
- Combination meter
- Between ECM and TCM
- Between ECM and ICC sensor
- Between ECM and VDC/TCS/ABS control unit

OK or NG

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

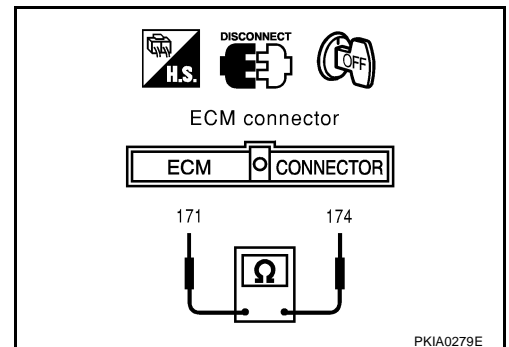
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector F105.
2. Check continuity between ECM harness connector F102 terminals 174 (L) and 171 (R).

174 (L) – 171 (R) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector F105.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 174 (L), 171 (R) and ground.

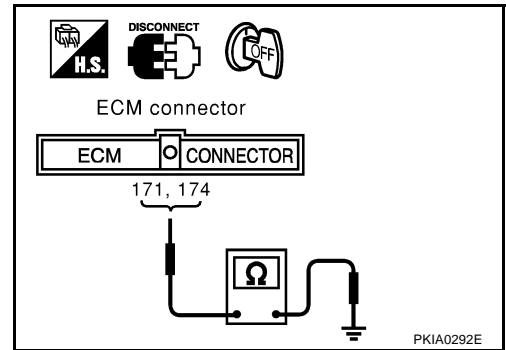
174 (L) – ground : Continuity should not exist.

171 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F105.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.

- Harness connector M132
- Harness connector M15
- Harness connector M141

2. Check continuity between harness connector M135 terminals 46T (L) and 45T (R).

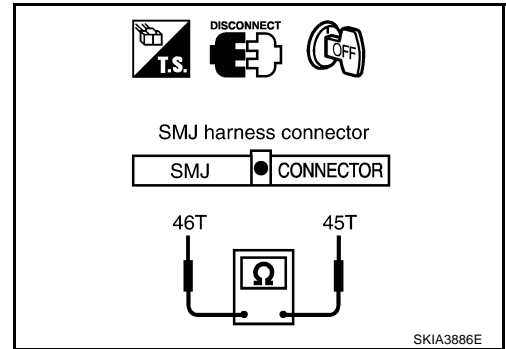
46T (L) – 45T (R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between harness connector M135 and harness connector M132.
- Harness between harness connector M135 and harness connector M15.
- Harness between harness connector M135 and harness connector M141.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector M135 terminals 46T (L), 45T (R) and ground.

46T (L) – ground : Continuity should not exist.

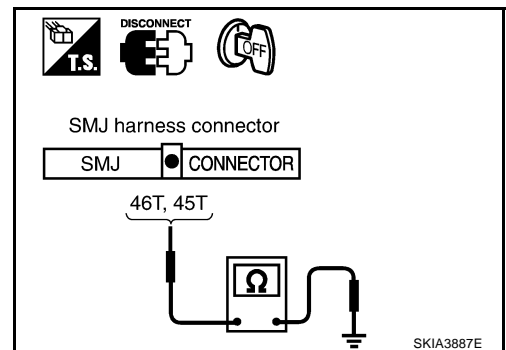
45T (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

- Harness between harness connector M135 and harness connector M132.
- Harness between harness connector M135 and harness connector M15.
- Harness between harness connector M135 and harness connector M141.



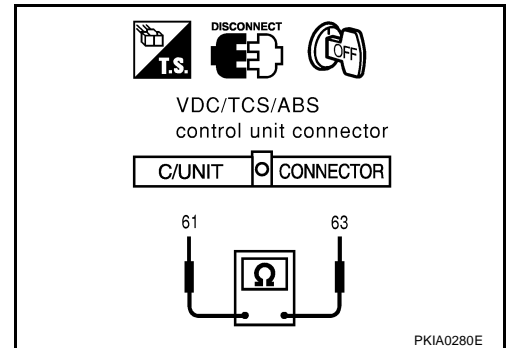
6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect VDC/TCS/ABS control unit connector.
2. Check continuity between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L) and 63 (R).

61 (L) – 63 (R) : Continuity should not exist.

OK or NG

- OK >> GO TO 7.
 NG >> Repair harness between VDC/TCS/ABS control unit and harness connector E222.



7. CHECK HARNESS FOR SHORT CIRCUIT

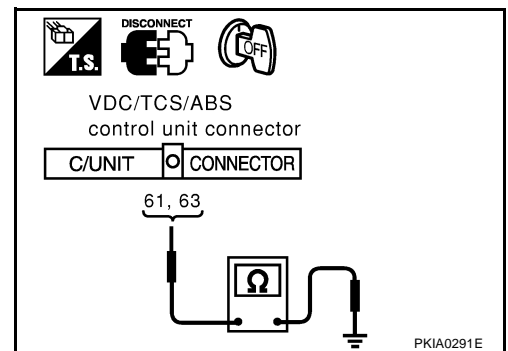
- Check continuity between VDC/TCS/ABS control unit harness connector E218 terminals 61 (L), 63 (R) and ground.

61 (L) – ground : Continuity should not exist.

63 (R) – ground : Continuity should not exist.

OK or NG

- OK >> GO TO 8.
 NG >> Repair harness between VDC/TCS/ABS control unit and harness connector E222.



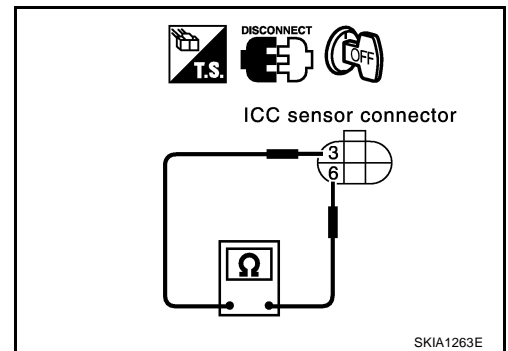
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ICC sensor connector.
2. Check continuity between ICC sensor harness connector E52 terminals 3 (L) and 6 (R).

3 (L) – 6 (R) : Continuity should not exist.

OK or NG

- OK >> GO TO 9.
 NG >> Repair harness between ICC sensor and harness connector E205.



9. CHECK HARNESS FOR SHORT CIRCUIT

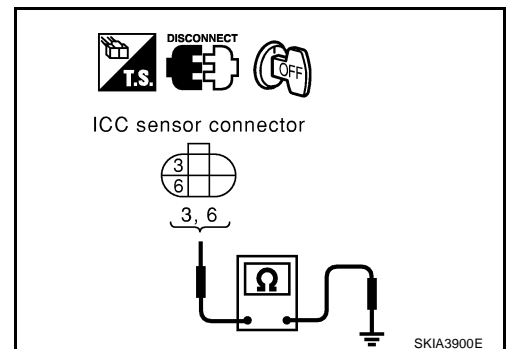
- Check continuity between ICC sensor harness connector E52 terminals 3 (L), 6 (R) and ground.

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

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

OK or NG

- OK >> GO TO 10.
 NG >> Repair harness between ICC sensor and harness connector E205.



10. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B211 terminals 52V (L) and 53V (R).

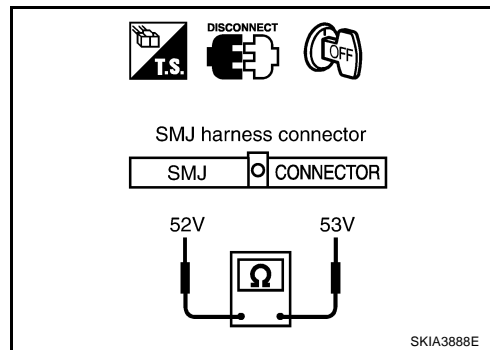
52V (L) – 53V (R) : Continuity should not exist.

OK or NG

OK >> GO TO 11.

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

- Repair harness between harness connector B211 and harness connector B211.
- Repair harness between harness connector B211 and ICC unit.



11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B211 terminals 52V (L), 53V (R) and ground.

52V (L) – ground : Continuity should not exist.

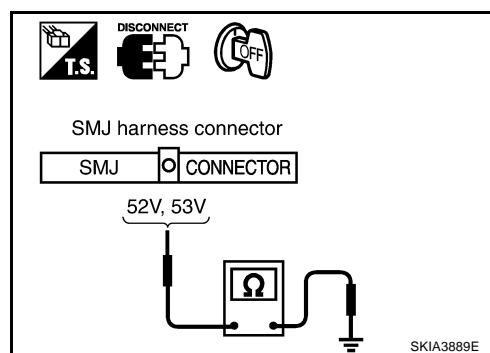
53V (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 12.

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

- Repair harness between harness connector B211 and harness connector B211.
- Repair harness between harness connector B211 and ICC unit.



12. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect steering angle sensor connector and combination meter connector.
2. Check continuity between data link connector M31 terminals 6 (L) and 3 (R).

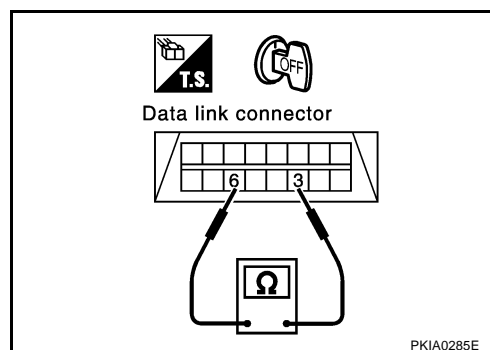
6 (L) – 3 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 13.

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

- Harness between data link connector and harness connector M141.
- Harness between data link connector and harness connector M135.
- Harness between data link connector and steering angle sensor.
- Harness between data link connector and combination meter.



13. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M31 terminals 6 (L), 3 (R) and ground.

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

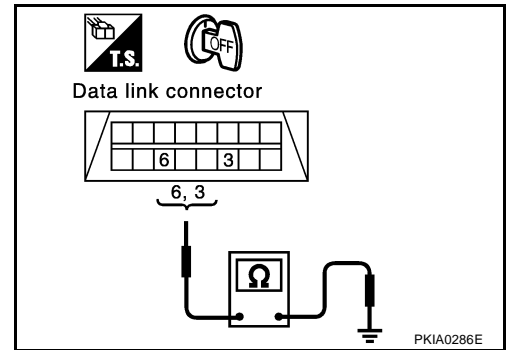
3 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 14.

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

- Harness between data link connector and harness connector M141.
- Harness between data link connector and harness connector M135.
- Harness between data link connector and steering angle sensor.
- Harness between data link connector and combination meter.



14. CHECK HARNESS FOR SHORT CIRCUIT

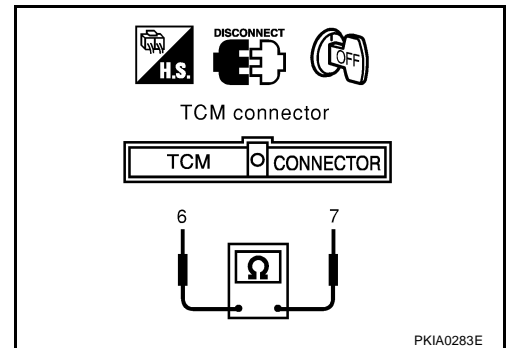
1. Disconnect TCM connector.
2. Check continuity between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) – 7 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 15.

NG >> Repair harness between TCM and harness connector F105.



15. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between TCM harness connector F103 terminals 6 (L), 7 (R) and ground.

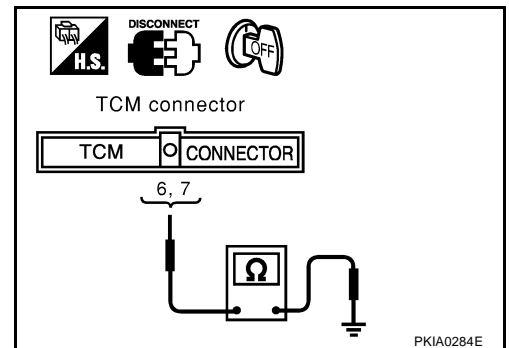
6 (L) – ground : Continuity should not exist.

7 (R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 16.

NG >> Repair harness between TCM and harness connector F105.



16. ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-60, "ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-43, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

Component Inspection

ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 174 and 171.
- Check resistance between combination meter terminals 34 and 35.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	174 – 171	108 - 132
Combination meter	34 – 35	

