

SECTION

LAN

LAN SYSTEM

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PRECAUTIONS

PFP:00001

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

EKS004SR

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

WARNING:

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

Precautions For Trouble Diagnosis CAN SYSTEM

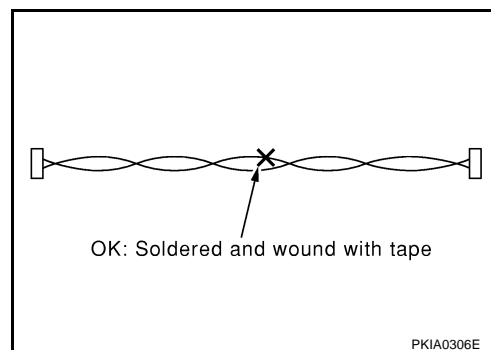
EKS00409

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

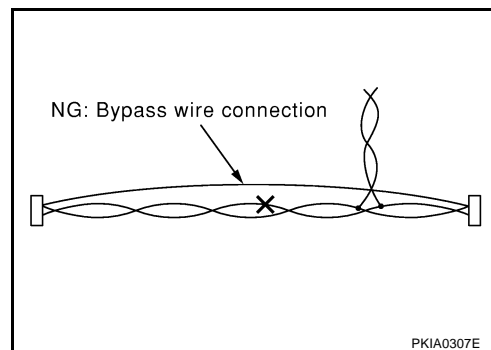
Precautions For Harness Repair CAN SYSTEM

EKS0040A

- 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

EKS0040B

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.

A

B

C

D

E

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H

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LAN

L

M

CAN COMMUNICATION

[CAN]

CAN Communication Unit

EKS004JE

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

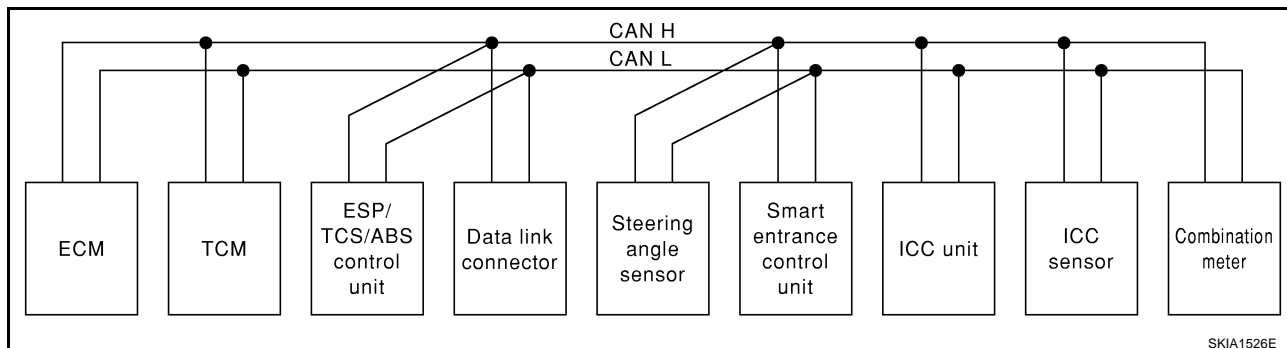
Body type			Sedan/Wagon/Hatch back											
Axle			2WD											
Engine			QR20DE		QG18DE		QR20DE		QG18 DE	YD22 DDTi	QG16 DE	QG18 DE	QR20 DE	YD22D DTi
Transmission			CVT		A/T		6M/T		5M/T	6M/T	5M/T		6M/T	
Brake control			ESP		ABS	ABS	ESP	ESP			ABS			
ICC system			Appli- cable	Not applicable			Appli- cable	Not applicable						
CAN communication unit														
ECM			×	×	×	×	×	×	×	×	×	×	×	×
TCM			×	×	×	×	×							
ESP/TCS/ABS control unit			×	×			×	×	×	×				
ABS actuator and electric unit (control unit)					×	×					×	×	×	×
Data link con- nector			×	×	×	×	×	×	×	×	×	×	×	×
Steering angle sensor			×	×			×	×	×	×				
Smart entrance control unit			×	×	×	×	×	×	×	×	×	×	×	×
ICC unit			×				×							
ICC sensor			×				×							
Combination meter			×	×	×	×	×	×	×	×	×	×	×	×
Can communica- tion type			LAN-9. "TYP E 1/ TYPE 8"	LAN-11. "TYP E 2/ TYPE 9"	LAN-12. "TYP E 3/ TYPE 10"	LAN-14. "TYP E 4/ TYPE 11"	LAN-17. "TYP E 15/ TYPE 18"	LAN-19. "TYP E 16/ TYPE 19"	LAN-15. "TYPE 5.TYPE 17/TYPE 12.TYPE 20"			LAN-16. "TYPE 6.TYPE 7/TYPE 13,TYPE 14"		
Can sys- tem trou- ble diagno- sis	LHD mod- els	LAN-21. "CAN SYS- TEM (TYP E 1)"	LAN-46. "CAN SYS- TEM (TYP E 2)"	LAN-62. "CAN SYS- TEM (TYP E 3)"	LAN-78. "CAN SYS- TEM (TYP E 4)"	LAN-255. "CAN SYS- TEM (TYP E 15)"	LAN-271. "CAN SYS- TEM (TYP E 16)"	LAN-94. "CAN SYS- TEM (TYPE 5)"		LAN-291. "CAN SYS- TEM (TYP E 17)"	LAN-108. "CAN SYSTEM (TYPE 6)"			LAN-122. "CAN SYS- TEM (TYPE 7)"
	RHD mod- els	LAN-135. "CAN SYS- TEM (TYP E 8)"	LAN-162. "CAN SYS- TEM (TYP E 9)"	LAN-180. "CAN SYS- TEM (TYP E 10)"	LAN-196. "CAN SYS- TEM (TYP E 11)"	LAN-304. "CAN SYS- TEM (TYP E 18)"	LAN-322. "CAN SYS- TEM (TYP E 19)"	LAN-212. "CAN SYS- TEM (TYPE 12)"		LAN-342. "CAN SYS- TEM (TYP E 20)"	LAN-227. "CAN SYSTEM (TYPE 13)"			LAN-241. "CAN SYS- TEM (TYPE 14)"

×:Applicable

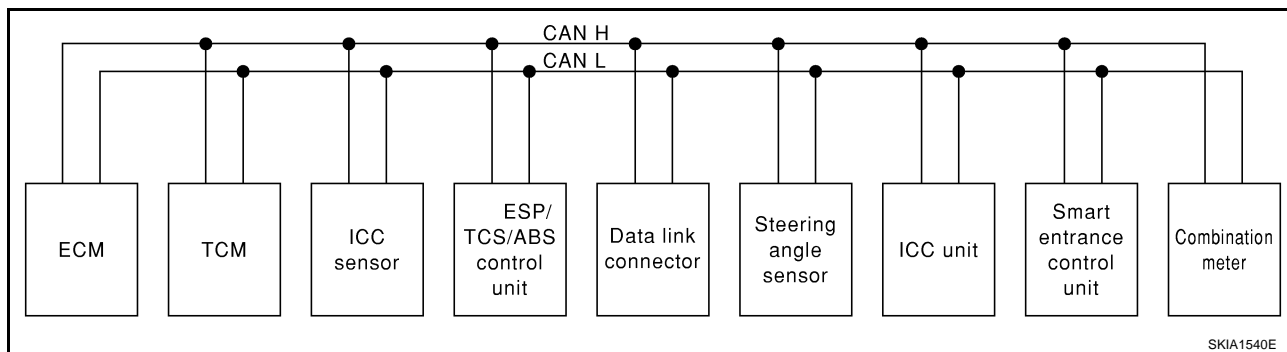
TYPE 1/TYPE 8

System diagram

- LHD models (Type 1)



- RHD models (Type 8)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ESP/ TCS / ABS con- trol unit	Steering angle sensor	Smart entrance control unit	ICC unit	ICC sen- sor	Combina- tion meter
Engine speed signal	T		R			R		R
Accelerator pedal position signal	T	R	R			R		
Closed throttle position signal	T	R				R		
ICC steering switch signal	T					R		
Shift pattern signal		T				R		
Parking brake switch signal			T			R		
ICC system display signal						T		R
ICC sensor signal						R	T	
ESP operation signal	R	R	T			R		
TCS operation signal	R	R	T			R		
ABS operation signal	R	R	T			R		
Stop lamp switch signal		R	T					
Steering wheel angle sensor signal			R	T				
Wheel speed sensor signal			T			R		
Rear window defogger signal	R				T			
Heater fan switch signal	R							T
Air conditioner switch signal	R							T
Primary pulley revolution signal	R	T	R			R		
Secondary pulley revolution signal	R	T	R			R		

CAN COMMUNICATION

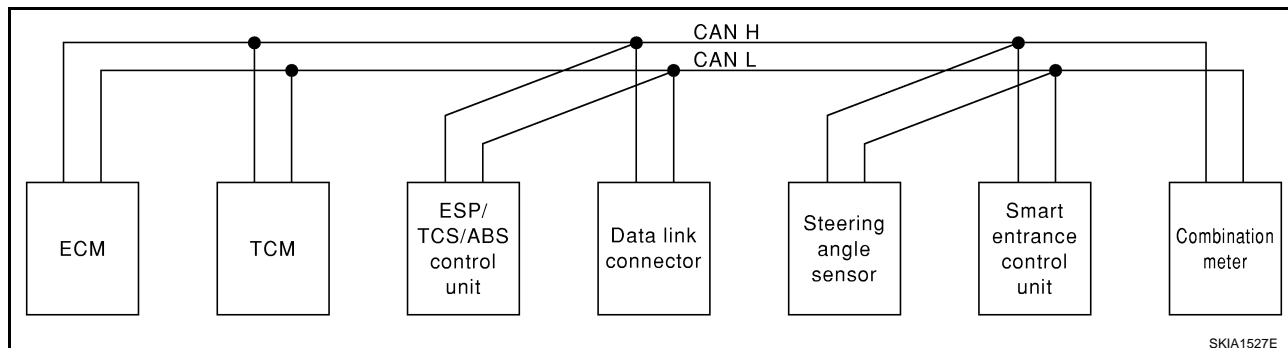
[CAN]

Signals	ECM	TCM	ESP/ TCS / ABS con- trol unit	Steering angle sensor	Smart entrance control unit	ICC unit	ICC sen- sor	Combina- tion meter
ICC operation signal	R					T		
Brake switch signal		R						T
MI signal	T							R
Current gear position signal		T						R
Engine coolant temperature signal	T					R		R
Fuel consumption signal	T							R
Vehicle speed signal		R	T					
			T					R
	R							T
Seat belt reminder signal					R			T
Lighting switch position signal					T			R
Flashing indicator signal					T			R
Engine cooling fan speed signal	T				R			
Child lock indicator signal					T			R
Door switches state signal					T			R
A/C compressor signal	T				R			

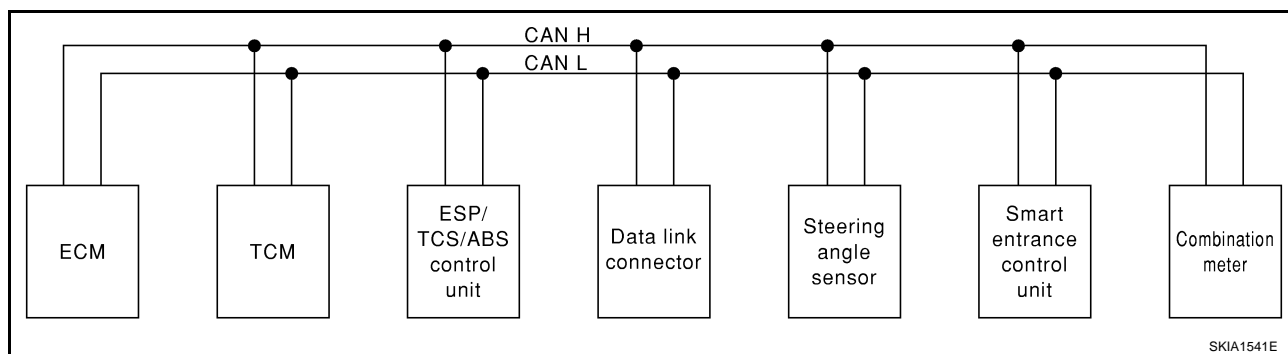
TYPE 2/TYPE 9

System diagram

- LHD models (Type 2)



- RHD models (Type 9)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combina- tion meter
Engine speed signal	T		R			R
Accelerator pedal position signal	T	R	R			
Closed throttle position signal	T	R				
ESP operation signal	R	R	T			
TCS operation signal	R	R	T			
ABS operation signal	R	R	T			
Stop lamp switch signal		R	T			
Steering wheel angle sensor signal			R	T		
Rear window defogger signal	R				T	
Heater fan switch signal	R					T
Air conditioner switch signal	R					T
Primary pulley revolution signal	R	T				
Secondary pulley revolution signal	R	T				
MI signal	T					R
Current gear position signal		T				R
Engine coolant temperature signal	T					R
Fuel consumption signal	T					R
Vehicle speed signal		R	T			
			T			R
	R					T

CAN COMMUNICATION

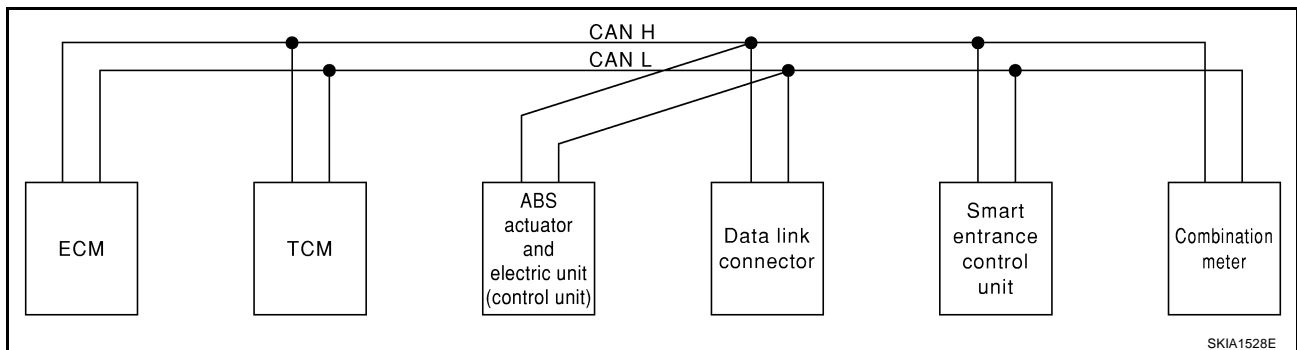
[CAN]

Signals	ECM	TCM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combina- tion meter
Seat belt reminder signal					R	T
Lighting switch position signal					T	R
Flashing indicator signal					T	R
Engine cooling fan speed signal	T				R	
Child lock indicator signal					T	R
Door switches state signal					T	R
A/C compressor signal	T				R	
ASCD main switch signal	T					R
ASCD cruise signal	T					R

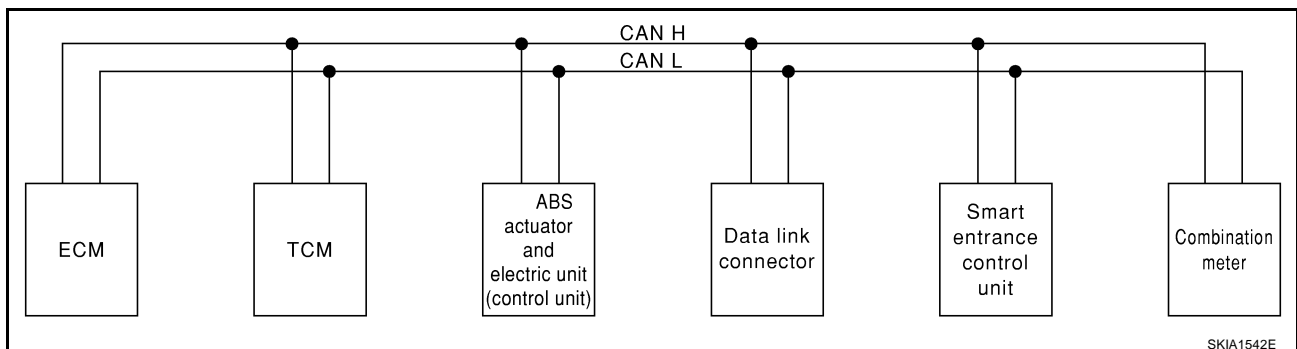
TYPE 3/TYPE 10

System diagram

- LHD models (Type 3)



- RHD models (Type 10)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	Smart entrance con- trol unit	Combination meter
Engine speed signal	T				R
Closed throttle position signal	T	R			
ABS operation signal	R	R	T		
Stop lamp switch signal		R	T		
Rear window defogger signal	R			T	
Heater fan switch signal	R				T
Air conditioner switch signal	R				T
Primary pulley revolution signal	R	T			

CAN COMMUNICATION

[CAN]

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Combination meter
Secondary pulley revolution signal	R	T			
MI signal	T				R
Current gear position signal		T			R
Engine coolant temperature signal	T				R
Fuel consumption signal	T				R
Vehicle speed signal		R	T		
			T		R
	R				T
Seat belt reminder signal				R	T
Lighting switch position signal				T	R
Flashing indicator signal				T	R
Engine cooling fan speed signal	T			R	
Child lock indicator signal				T	R
Door switches state signal				T	R
A/C compressor signal	T			R	
ASCD main switch signal	T				R
ASCD cruise signal	T				R
Accelerator pedal position signal	T	R			

A

B

C

D

E

F

G

H

I

J

LAN

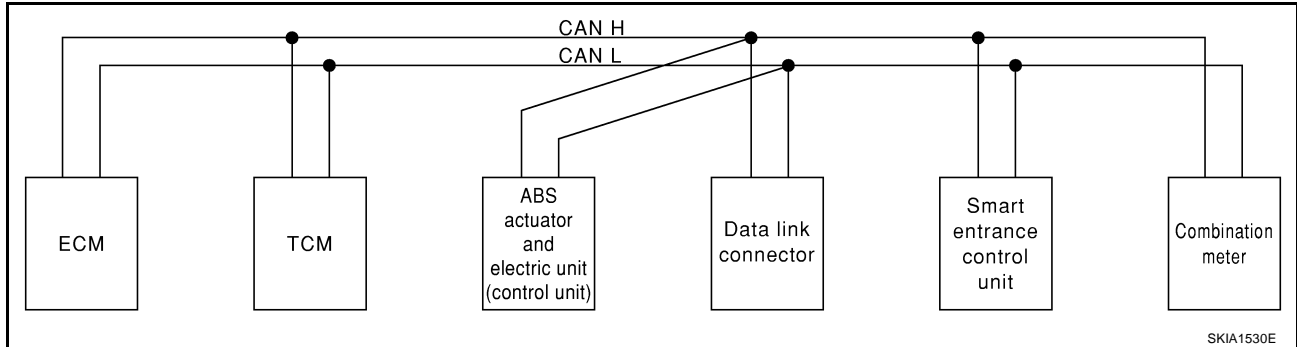
L

M

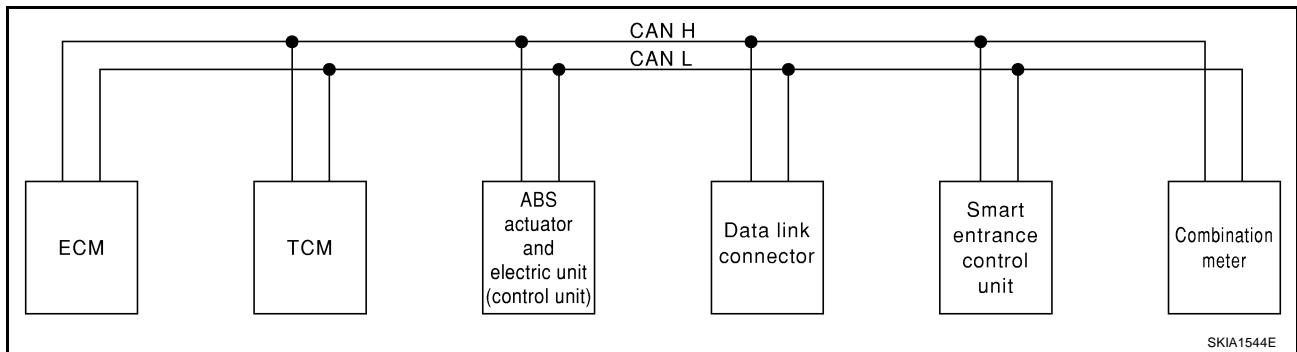
TYPE 4/TYPE 11

System diagram

- LHD models (Type 4)



- RHD models (Type 11)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Combination meter
Engine speed signal	T				R
Stop lamp switch signal		R	T		
Rear window defogger signal	R			T	
Heater fan switch signal	R				T
Air conditioner switch signal	R				T
MI signal	T				R
Current gear position signal		T			R
Engine coolant temperature signal	T				R
Fuel consumption signal	T				R
Vehicle speed signal			T		R
	R				T
Seat belt reminder signal				R	T
Lighting switch position signal				T	R
Flashing indicator signal				T	R
Engine cooling fan speed signal	T			R	
Child lock indicator signal				T	R
Door switches state signal				T	R
A/C compressor signal	T			R	
ASCD main switch signal	T				R
ASCD cruise signal	T				R

CAN COMMUNICATION

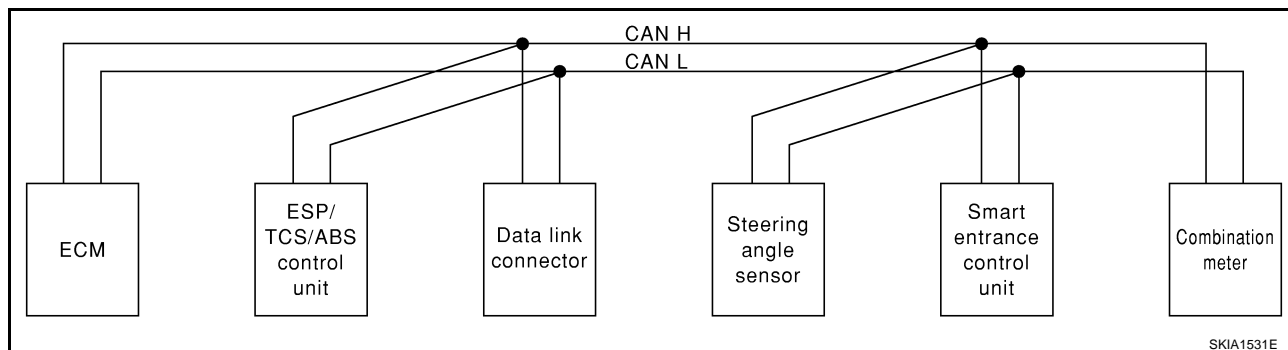
[CAN]

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Combination meter
Accelerator pedal position signal	T	R			
Output shaft revolution signal	R	T			

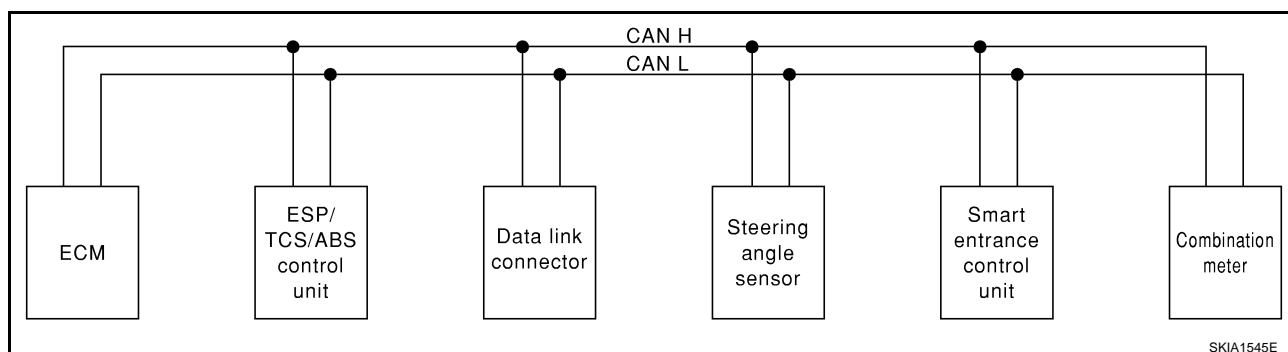
TYPE 5,TYPE 17/TYPE 12,TYPE 20

System diagram

- LHD models (Type 5,Type 17)



- RHD models (Type 12,Type 20)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combination meter
Engine speed signal	T	R			R
Accelerator pedal position signal	T	R			
ESP operation signal	R	T			
TCS operation signal	R	T			
ABS operation signal	R	T			
Steering wheel angle sensor signal		R	T		
Rear window defogger signal ^{*2}	R			T	
Heater fan switch signal ^{*2}	R				T
Air conditioner switch signal	R				T
MI signal	T				R
Engine coolant temperature signal	T				R
Fuel consumption signal	T				R
Vehicle speed signal		T			R
	R				T
Seat belt reminder signal				R	T

CAN COMMUNICATION

[CAN]

Signals	ECM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combination meter
Lighting switch position signal				T	R
Flashing indicator signal				T	R
Engine cooling fan speed signal	T			R	
Child lock indicator signal				T	R
Door switches state signal				T	R
A/C compressor signal	T			R	
ASCD main switch signal*2	T				R
ASCD cruise signal*2	T				R
Glow lamp signal*1	T				R

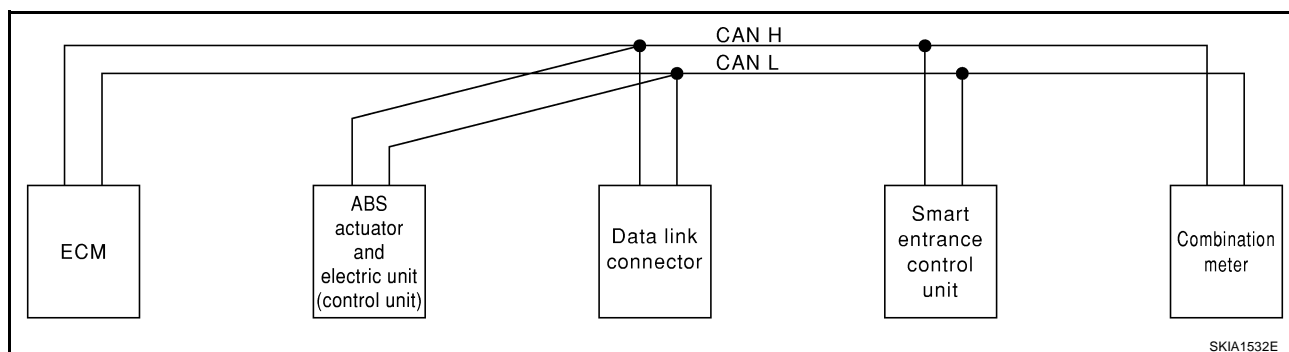
*1:YD22DDTi engine model only

*2:Except YD22DDTi engine models

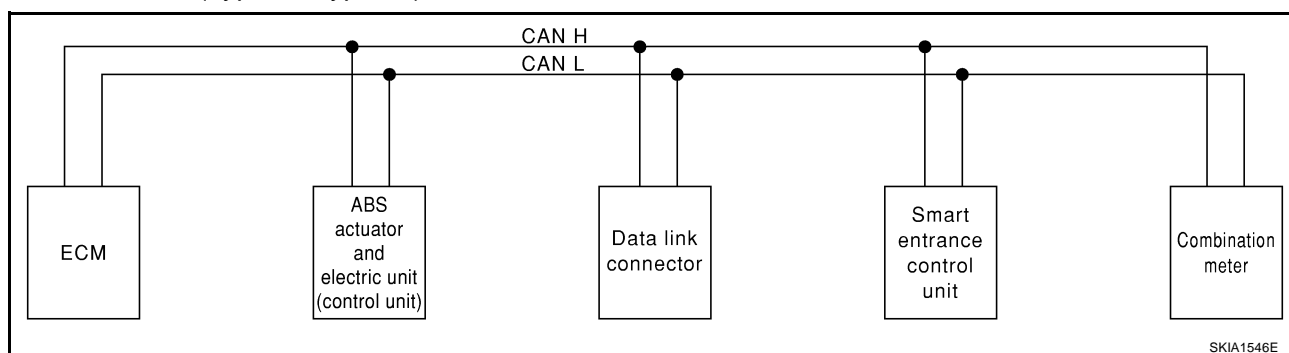
TYPE 6,TYPE 7/TYPE 13,TYPE 14

System diagram

- LHD models (Type 6,Type 7)



- RHD models (Type 13,Type 14)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (con- trol unit)	Smart entrance control unit	Combination meter
Engine speed signal	T			R
Rear window defogger signal*2	R		T	
Heater fan switch signal*2	R			T
Air conditioner switch signal	R			T
MI signal	T			R
Glow lamp signal*1	T			R

CAN COMMUNICATION

[CAN]

Signals	ECM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Combination meter
Engine coolant temperature signal	T			R
Fuel consumption signal	T			R
Vehicle speed signal		T		R
	R			T
Seat belt reminder signal			R	T
Lighting switch position signal			T	R
Flashing indicator signal			T	R
Engine cooling fan speed signal	T		R	
Child lock indicator signal			T	R
Door switches state signal			T	R
A/C compressor signal	T		R	
ASCD main switch signal ^{*2}	T			R
ASCD cruise signal ^{*2}	T			R

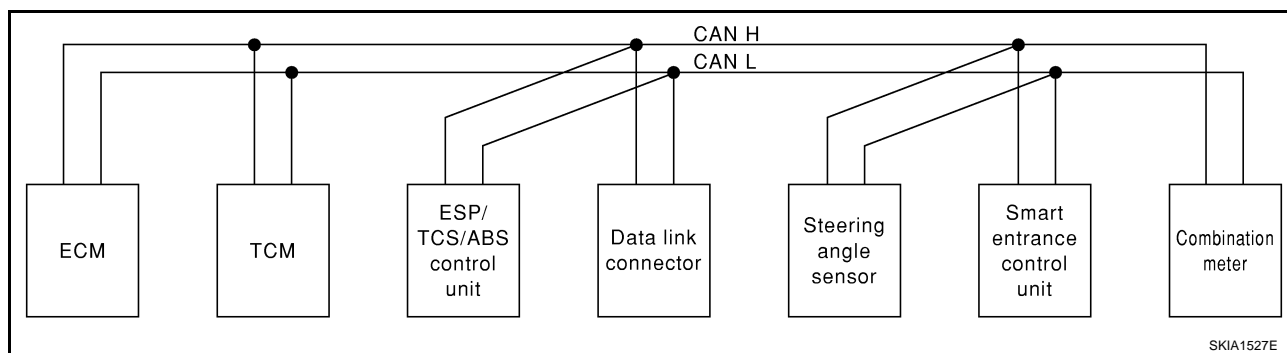
*1:YD22DDTi engine model only

*2:Except YD22DDTi engine models

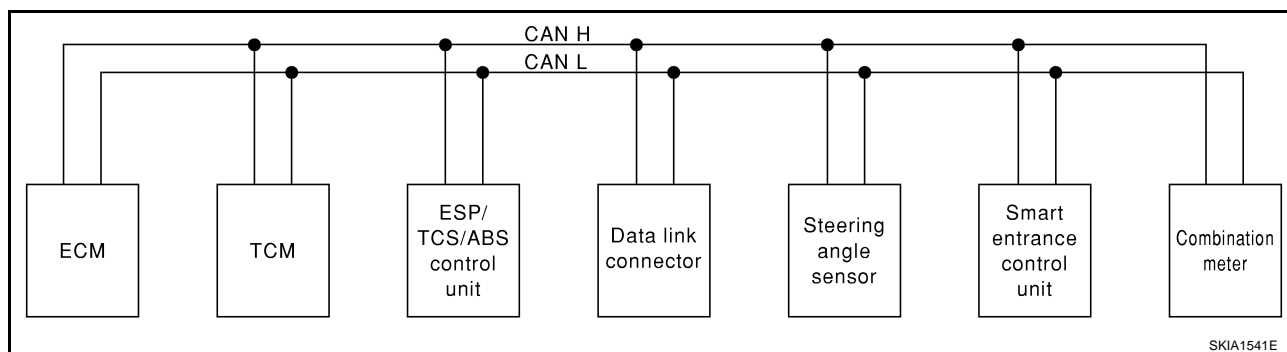
TYPE 15/TYPE 18

System diagram

- LHD models (Type 15)



- RHD models (Type 18)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ESP / TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combination meter
Engine speed signal	T		R			R
Accelerator pedal position signal	T	R	R			

CAN COMMUNICATION

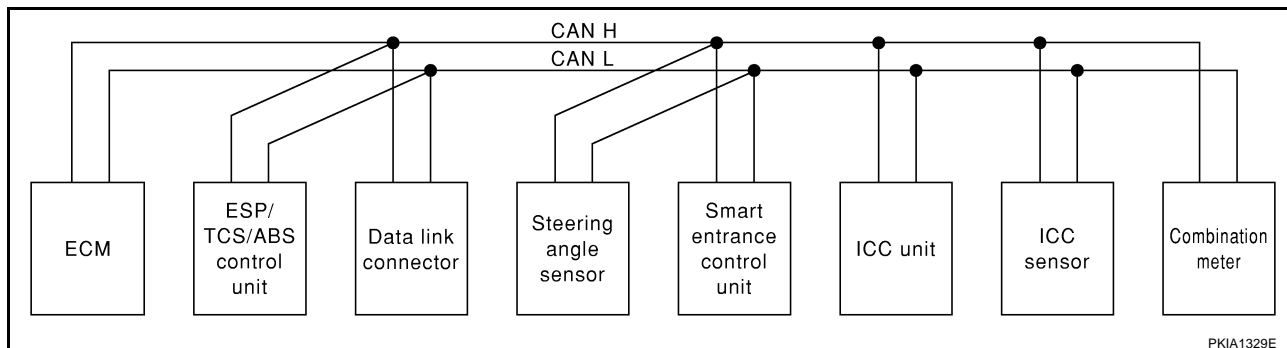
[CAN]

Signals	ECM	TCM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Combina- tion meter
ESP operation signal	R		T			
TCS operation signal	R		T			
ABS operation signal	R	R	T			
Stop lamp switch signal		R	T			
Steering wheel angle sensor signal			R	T		
Rear window defogger signal	R				T	
Heater fan switch signal	R					T
Air conditioner switch signal	R					T
MI signal	T					R
Current gear position signal		T				R
Engine coolant temperature signal	T					R
Fuel consumption signal	T					R
Vehicle speed signal			T			R
	R					T
Seat belt reminder signal					R	T
Lighting switch position signal					T	R
Flashing indicator signal					T	R
Engine cooling fan speed signal	T				R	
Child lock indicator signal					T	R
Door switches state signal					T	R
A/C compressor signal	T				R	
ASCD main switch signal	T					R
ASCD cruise signal	T					R
Output shaft revolution signal	R	T				

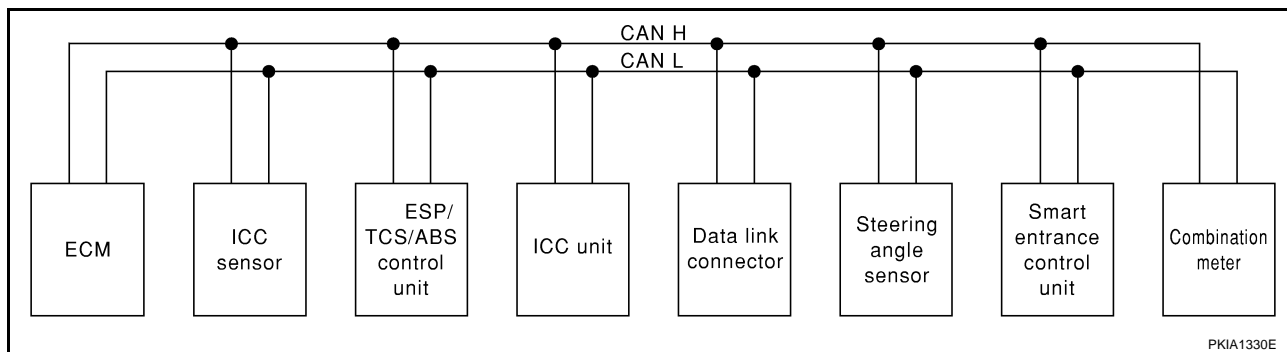
TYPE 16/TYPE 19

System diagram

- LHD models (Type 16)



- RHD models (Type 19)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ESP/TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	ICC unit	ICC sensor	Combination meter
Engine speed signal	T	R			R		R
Accelerator pedal position signal	T	R			R		
Closed throttle position signal	T				R		
ICC steering switch signal	T				R		
Parking brake switch signal		T			R		
ICC system display signal					T		R
ICC sensor signal					R	T	
ESP operation signal	R	T			R		
TCS operation signal	R	T			R		
ABS operation signal	R	T			R		
Stop lamp switch signal		T					
Steering wheel angle sensor signal		R	T				
Wheel speed sensor signal		T			R		
Rear window defogger signal	R			T			
Heater fan switch signal	R						T
Air conditioner switch signal	R						T
ICC operation signal	R				T		
Brake switch signal	R				T		
MI signal	T						R
Engine coolant temperature signal	T				R		R

CAN COMMUNICATION

[CAN]

Signals	ECM	ESP/TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	ICC unit	ICC sensor	Combination meter
Fuel consumption signal	T						R
Vehicle speed signal		T					R
	R						T
Seat belt reminder signal				R			T
Lighting switch position signal				T			R
Flashing indicator signal				T			R
Engine cooling fan speed signal	T			R			
Child lock indicator signal				T			R
Door switches state signal				T			R
A/C compressor signal	T			R			

CAN SYSTEM (TYPE 1)

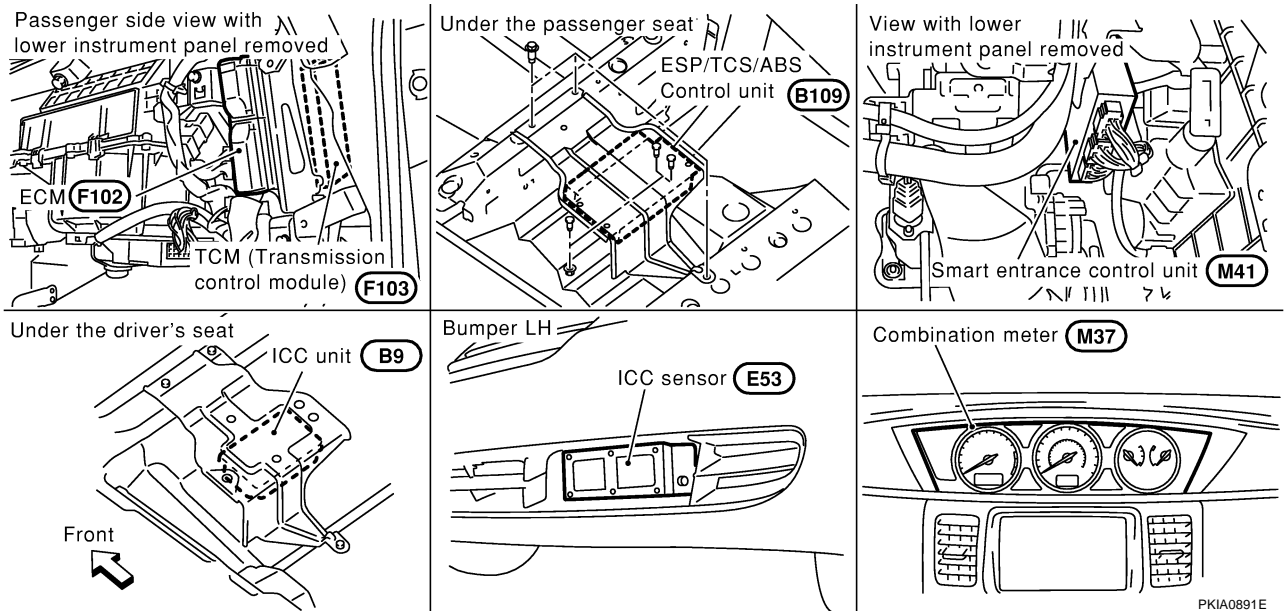
System Description

EKS005D0

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

EKS005D1



A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 1)

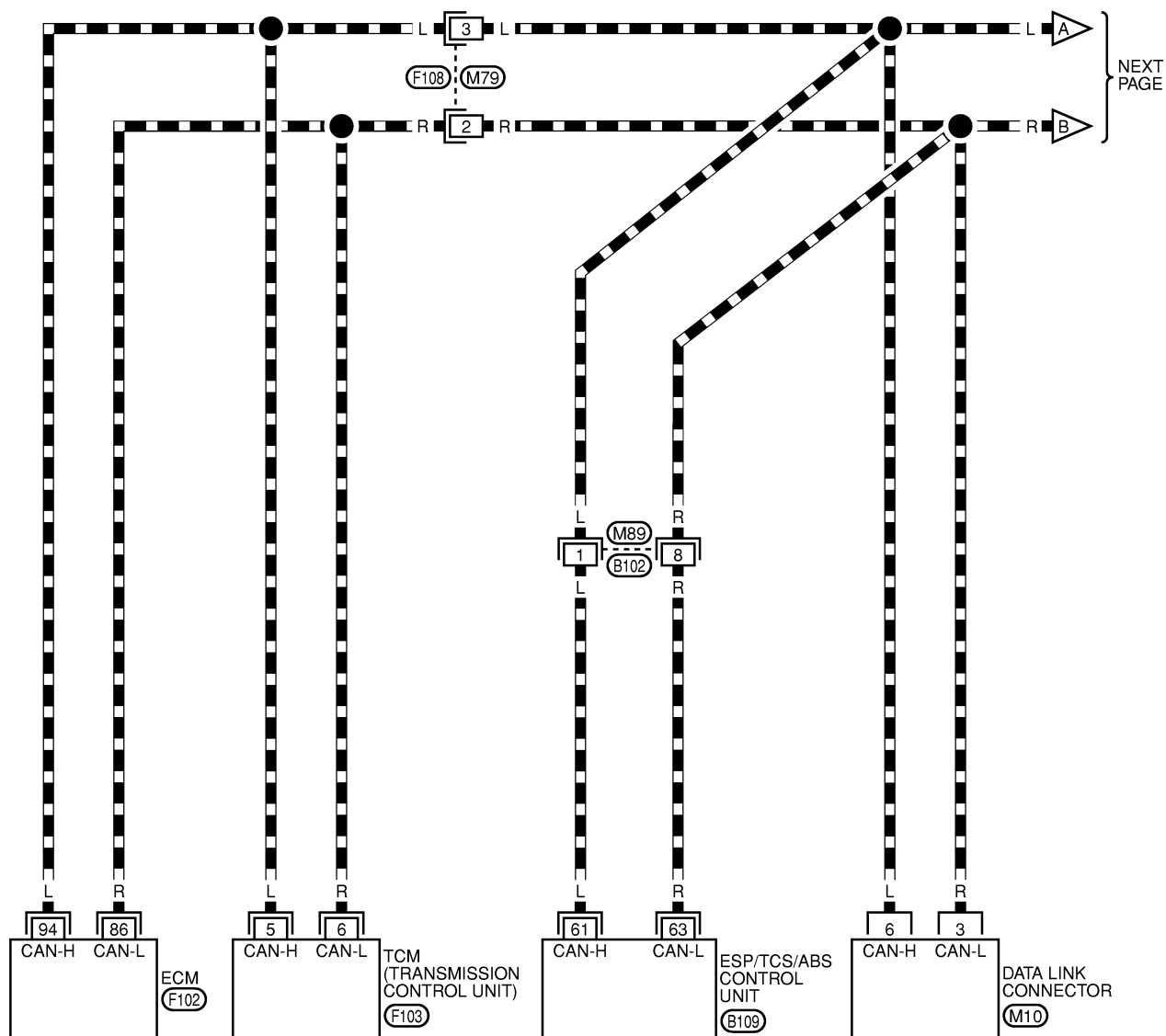
[CAN]

Wiring Diagram — CAN —

EKS005D2

LAN-CAN-01

— : DATA LINE



16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1

(M10)
W

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

(M89)
W

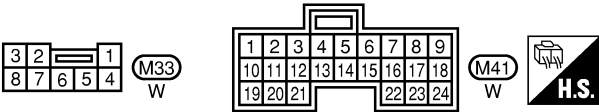
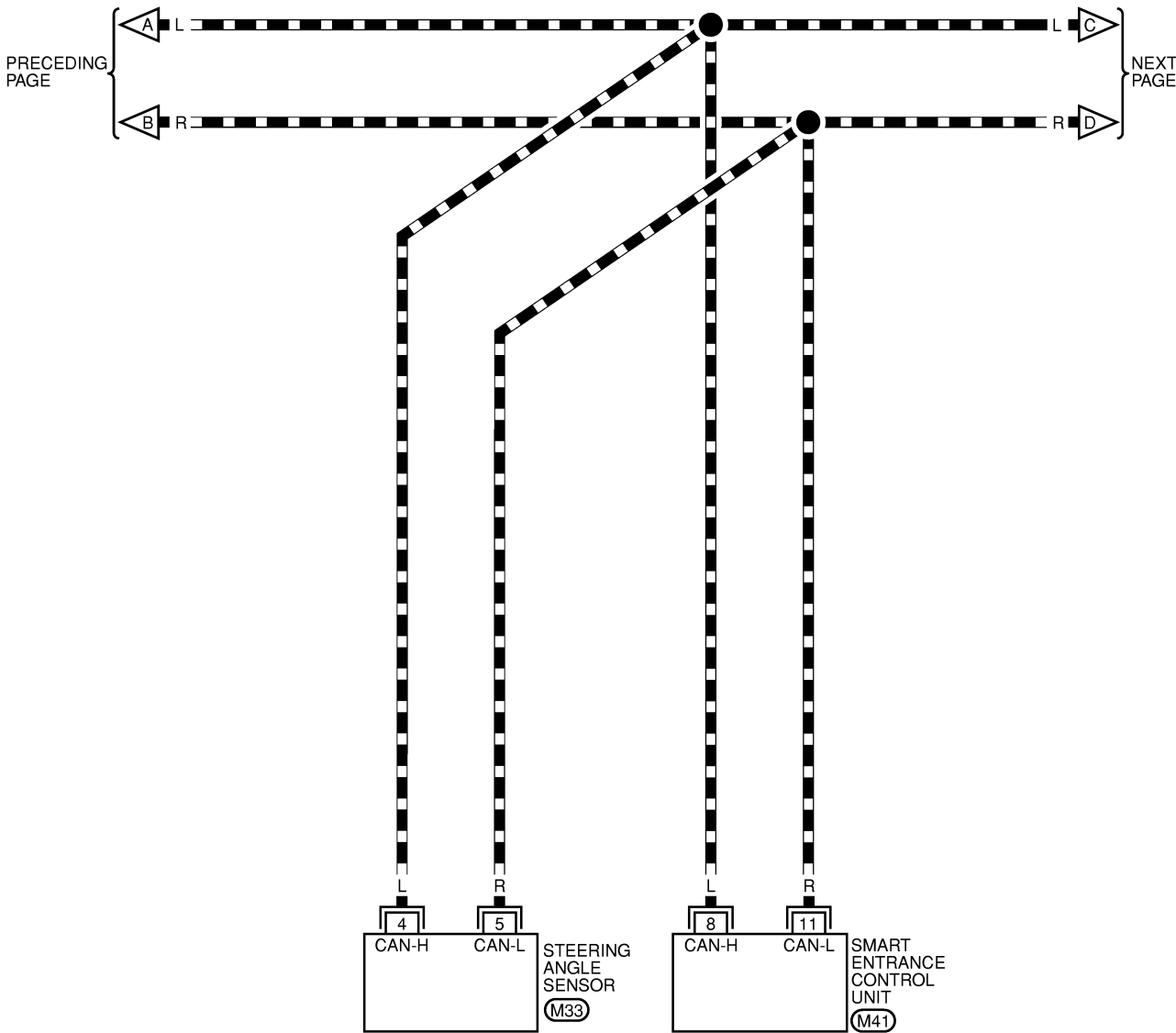
(F108)
W

REFER TO THE FOLLOWING.

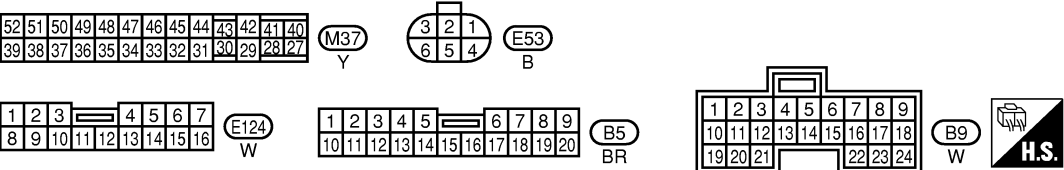
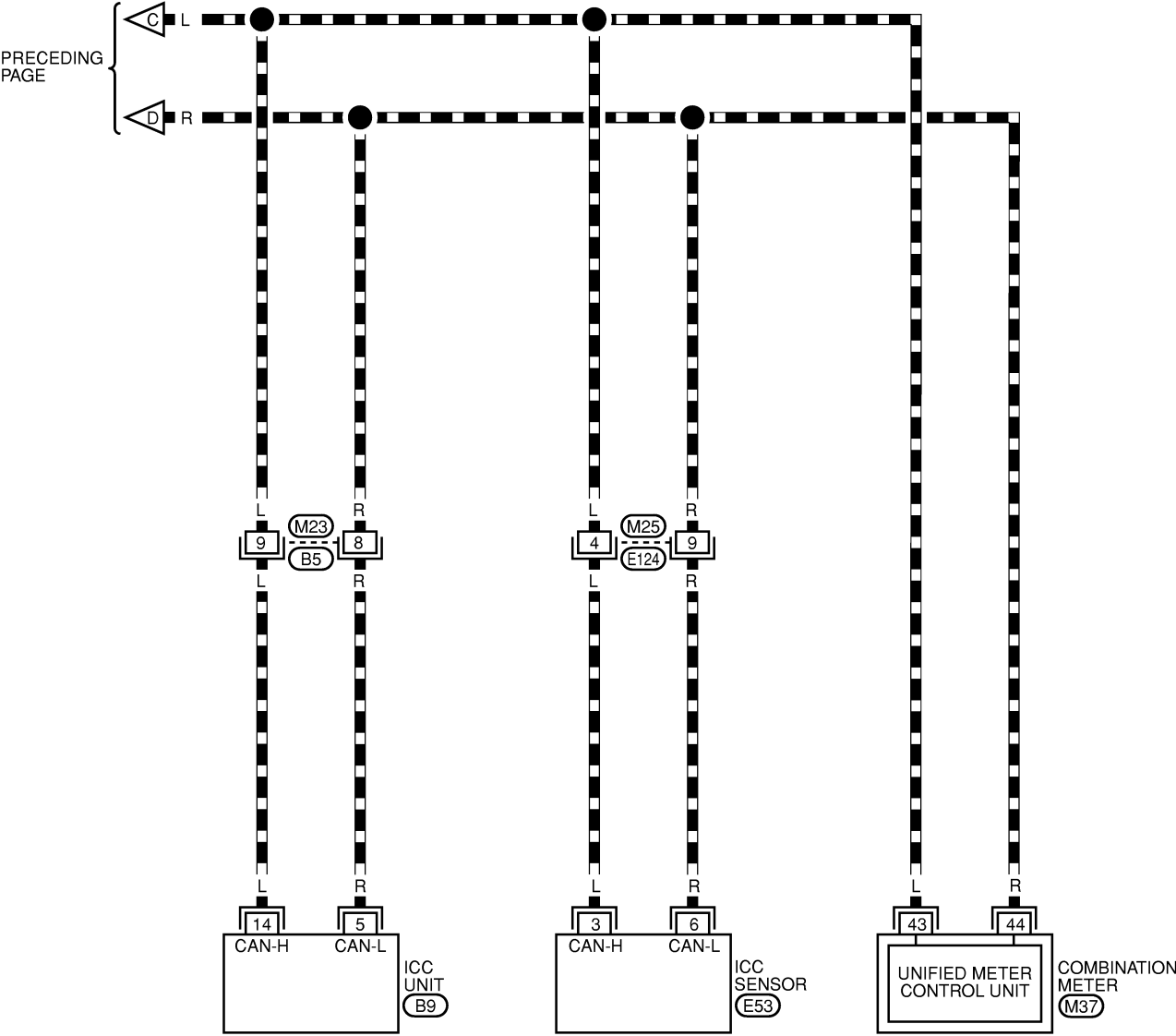
(F102), (F103), (B109)

-ELECTRICAL UNITS

▬ : DATA LINE



▬ : DATA LINE



Work Flow

EKS005D3

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-26, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-26, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-27, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
CVT
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ICC
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
CVT
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

Attach copy of
ICC
DATA MONITOR

PKIA1301E

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM ✓	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2 ✓	CAN CIRC 3 ✓	—	CAN CIRC 6 ✓	CAN CIRC 5 ✓	—	CAN CIRC 4 ✓
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2 ✓	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM ✓	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4 ✓	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	CAN CIRC 3 ✓	—	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

PKIA1302E

CAN SYSTEM (TYPE 1)

[CAN]

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

PKIA1303E

CAN SYSTEM (TYPE 1)

[CAN]

Case 5: Replace ICC unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

PKIA1304E

CAN SYSTEM (TYPE 1)

[CAN]

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

CAN SYSTEM (TYPE 1)

[CAN]

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 15

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 16

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

PKIA1306E

Case 17

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 18

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 3	—	—	—	CAN CIRC 8	—

PKIA1307E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Replace ICC unit.

Case 6: Check Harness between TCM and Data link connector. Refer to [LAN-33, "Circuit Check Between TCM and Data Link Connector"](#).

Case 7: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-34, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 8: Check Harness between Smart entrance control unit and ICC unit. Refer to [LAN-35, "Circuit Check Between Smart Entrance Control Unit and ICC Unit"](#).

Case 9: Check Harness between ICC unit and ICC sensor. Refer to [LAN-36, "Circuit Check Between ICC Unit and ICC Sensor"](#).

Case 10: Check ECM Circuit. Refer to [LAN-36, "ECM Circuit Check"](#).

Case 11: Check TCM Circuit. Refer to [LAN-37, "TCM Circuit Check"](#).

Case 12: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-37, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 13: Check Steering angle sensor Circuit. Refer to [LAN-38, "Steering Angle Sensor Circuit Check"](#).

Case 14: Check Smart entrance control unit Circuit. Refer to [LAN-38, "Smart Entrance Control Unit Circuit Check"](#).

Case 15: Check ICC unit Circuit. Refer to [LAN-39, "ICC Unit Circuit Check"](#).

Case 16: Check ICC sensor Circuit. Refer to [LAN-40, "ICC Sensor Circuit Check"](#).

Case 17: Check Combination meter Circuit. Refer to [LAN-40, "Combination Meter Circuit Check"](#).

Case 18: Check CAN communication Circuit. Refer to [LAN-41, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and Data Link Connector

EKS005D4

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F108
 - Harness connector M79

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

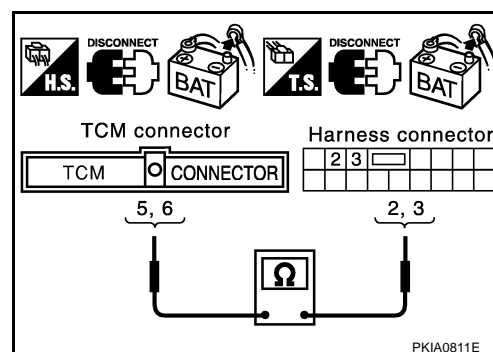
1. Disconnect TCM connector and harness connector F108.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F108 terminals 3 (L), 2 (R).

5(L) – 3(L) : Continuity should exist.

6(R) – 2(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 M79 terminals 3 (L), 2 (R) and Data link connector M10 terminals 6 (L), 3 (R).

3(L) – 6(L) : Continuity should exist.

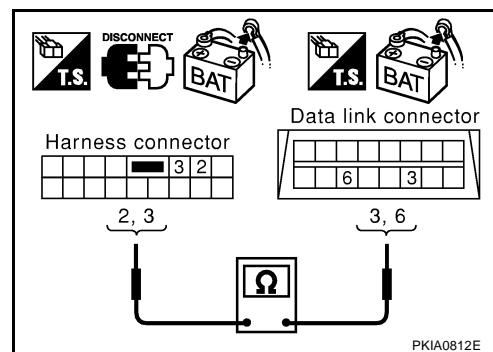
2(R) – 3(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

- NG >> Repair harness.



Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005D5

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

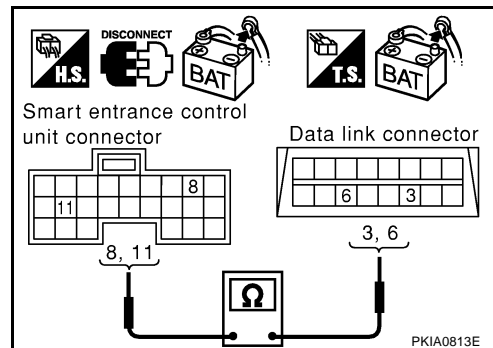
8(L) – 6(L) : Continuity should exist.

11(R) – 3(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Repair harness.



Circuit Check Between Smart Entrance Control Unit and ICC Unit

EKS005D6

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - ICC unit connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and ICC unit harness connector B9 terminals 14 (L), 5 (R).

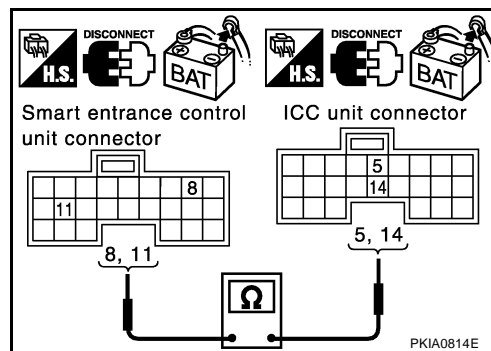
8(L) – 14(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Repair harness.



Circuit Check Between ICC Unit and ICC Sensor

EKS005D7

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - ICC unit connector
 - ICC sensor connector
 - Combination meter connector
4. Check continuity between ICC unit harness connector B9 terminals 14 (L), 5 (R) and ICC sensor harness connector E53 terminals 3 (L), 6 (R).

14(L) – 3(L) : Continuity should exist.

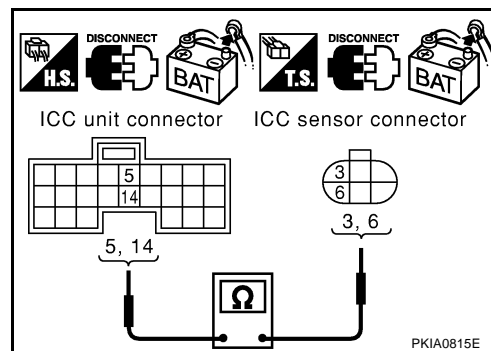
5(R) – 6(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Repair harness.



ECM Circuit Check

EKS005D8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery 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 F102 terminals 94(L) and 86(R).

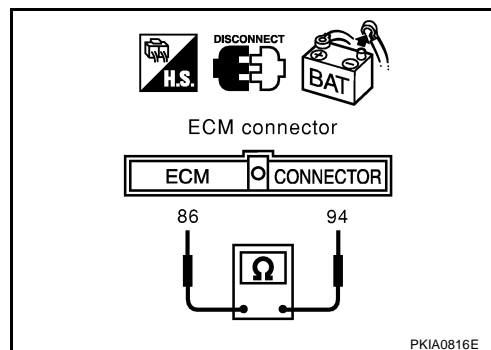
94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



EKS005D9

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

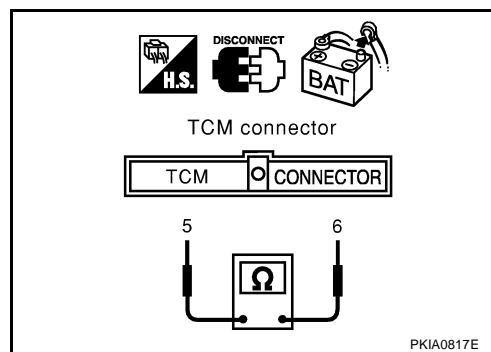
5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.



EKS005DA

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

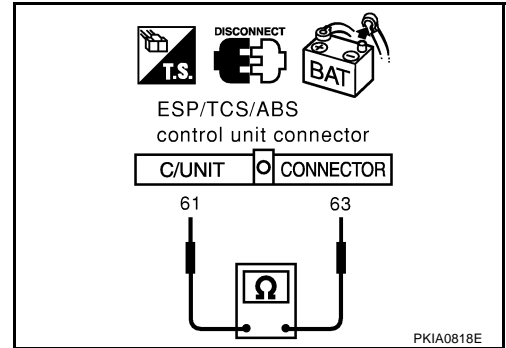
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



EKS005DB

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

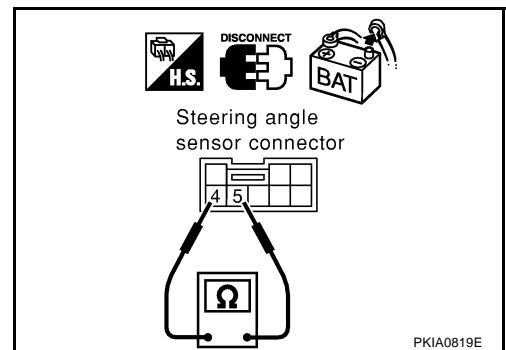
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



EKS005DC

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

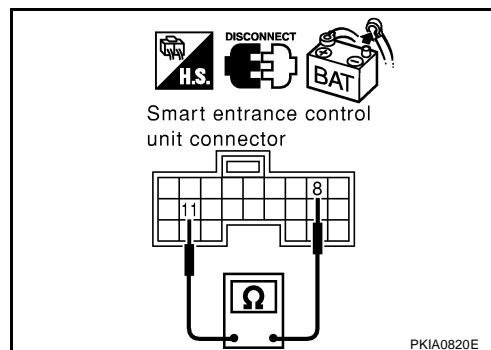
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005DD

ICC Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ICC unit
 - Harness connector B5
 - Harness connector M23

OK or NG

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

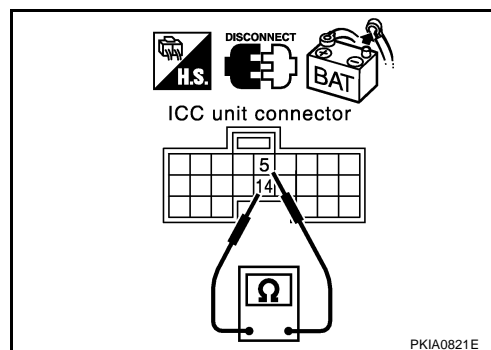
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ICC unit connector.
2. Check resistance between ICC unit harness connector B9 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 smart entrance control unit.



LAN

ICC Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (sensor-side and harness-side)
 - ICC sensor
 - Harness connector E124
 - Harness connector M25

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 E53 terminals 3(L) and 6(R).

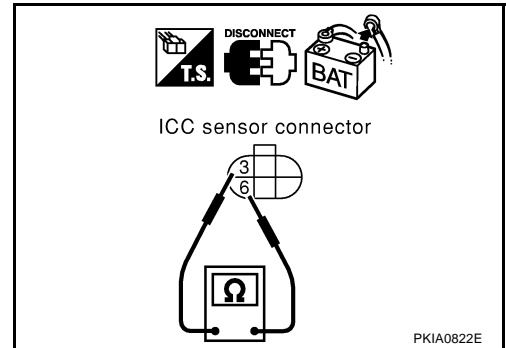
3(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace ICC sensor.

NG >> Repair harness between ICC unit and ICC sensor.



Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

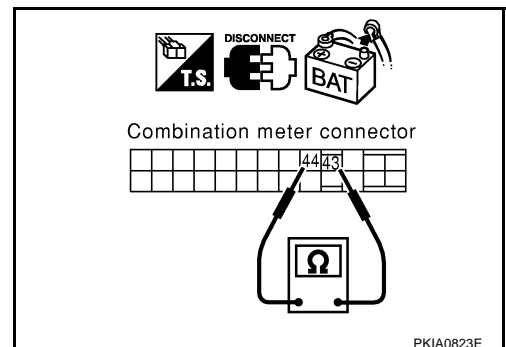
43(L) – 44(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between ICC sensor and combination meter.



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, sensor-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - ICC sensor
 - ICC unit
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - TCM
 - ECM
 - Between ICC sensor and ICC unit
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

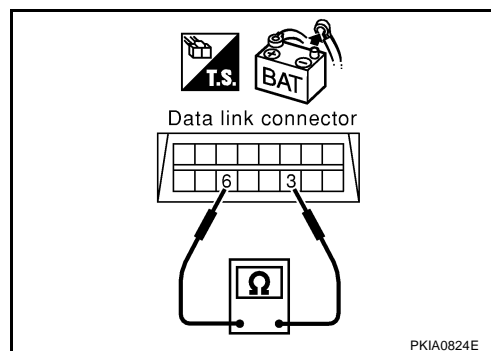
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M25
 - Harness connector M23
 - Harness connector M89
 - Harness connector M79
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

6(L) – 3(R) : Continuity should not exist.**OK or NG**

OK >> GO TO 3.

- NG >>
- Repair harness between harness connector M25 and combination meter.
 - Repair harness between harness connector M25 and harness connector M23.
 - Repair harness between harness connector M23 and smart entrance control unit.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

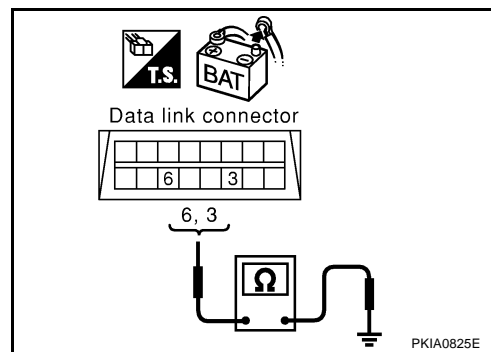
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between harness connector M25 and combination meter.

- Repair harness between harness connector M25 and harness connector M23.
- Repair harness between harness connector M23 and smart entrance control unit.
- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between harness connector M89 and harness connector M79.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ICC sensor connector.

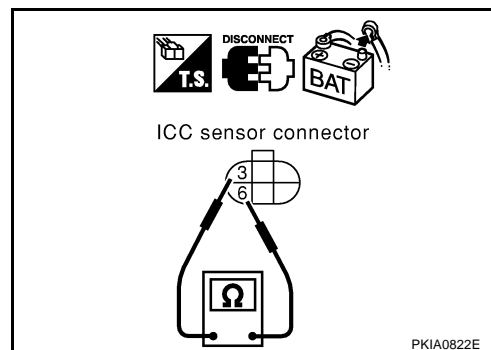
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L) and 6(R).

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

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ICC sensor and harness connector E124.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and ground.

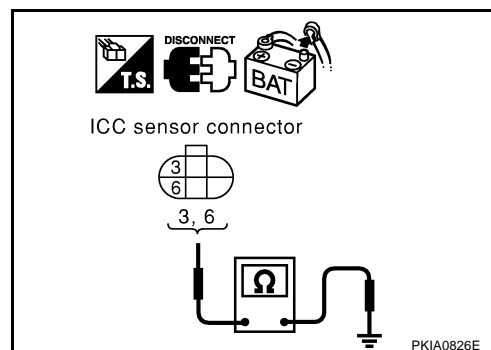
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ICC sensor and harness connector E124.



6. CHECK HARNESS FOR SHORT CIRCUIT

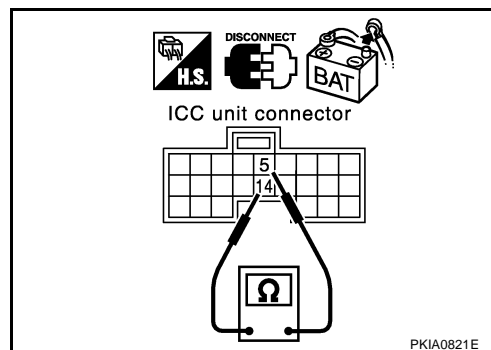
1. Disconnect ICC unit connector.
2. Check continuity between ICC unit harness connector B9 terminals 14 (L) and 5(R).

14(L) – 5(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ICC unit and harness connector B5.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC unit harness connector B9 terminals 14 (L), 5 (R) and ground.

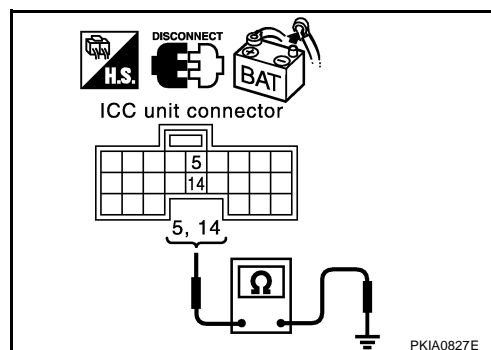
14(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ICC unit and harness connector B5.



8. CHECK HARNESS FOR SHORT CIRCUIT

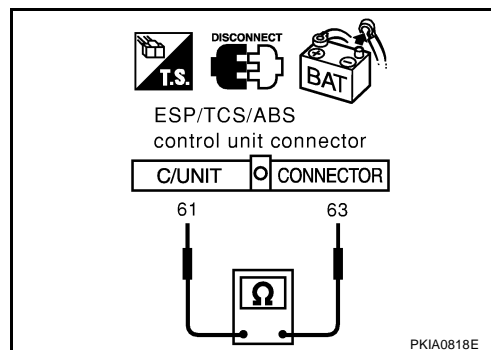
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

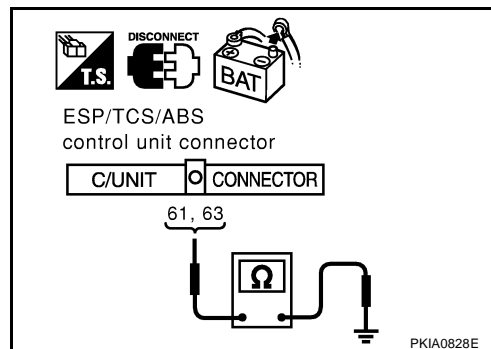
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



10. CHECK HARNESS FOR SHORT CIRCUIT

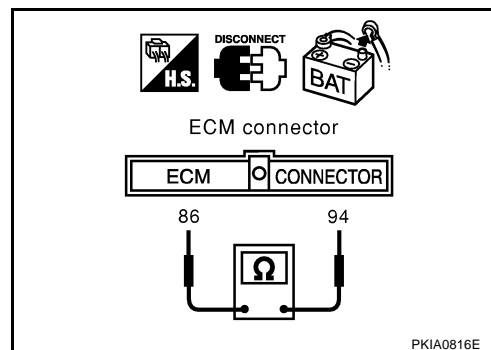
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 11.

- NG >> ● Repair harness between ECM and harness connector F108.
 ● Repair harness between TCM and harness connector F108.



11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

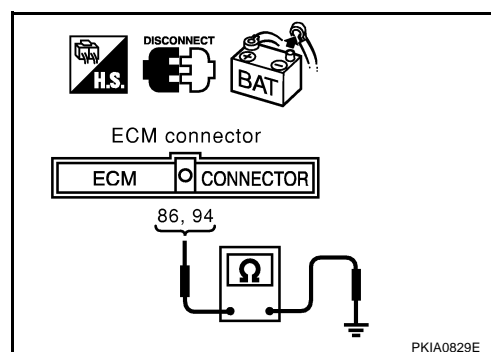
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 12.

- NG >> ● Repair harness between ECM and harness connector F108.
 ● Repair harness between TCM and harness connector F108.



12. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-45, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- NG >> Replace ECM and/or Combination meter.

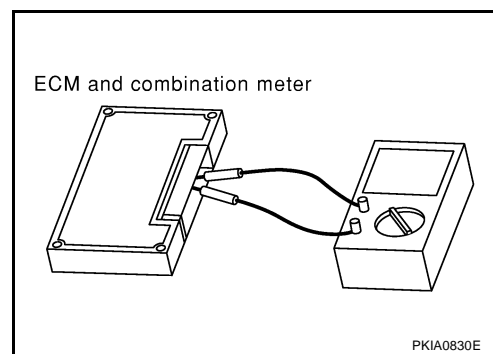
Component Inspection

EKS005DH

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	43 - 44	



A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 2)

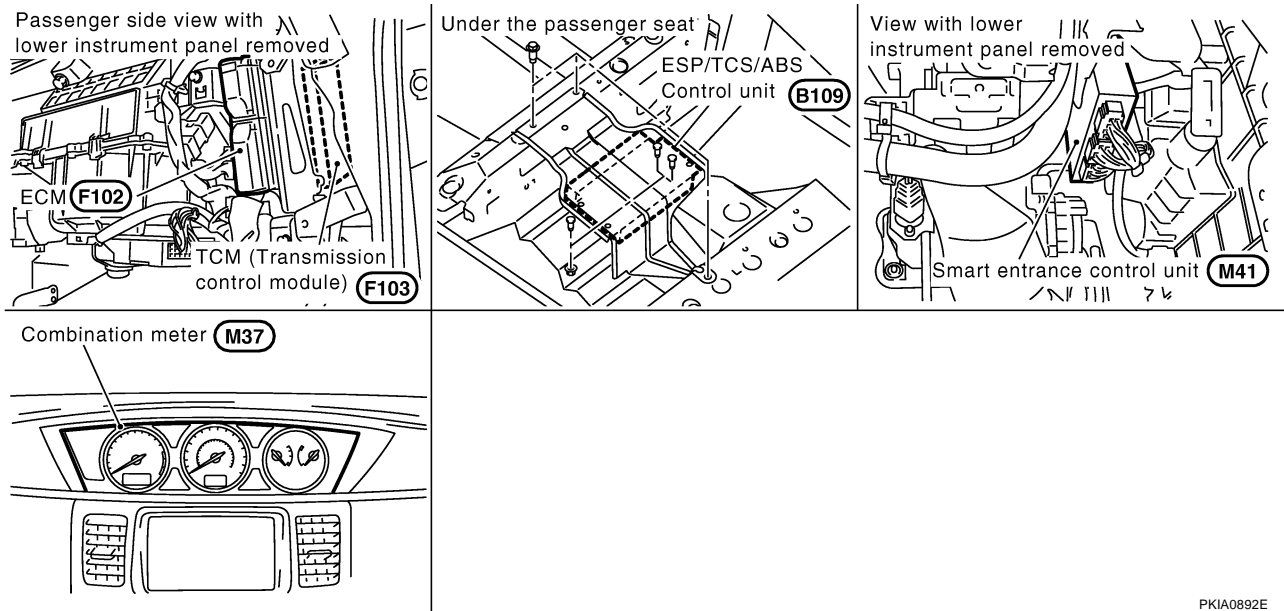
System Description

EKS005DI

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

EKS005DJ



PKIA0892E

CAN SYSTEM (TYPE 2)

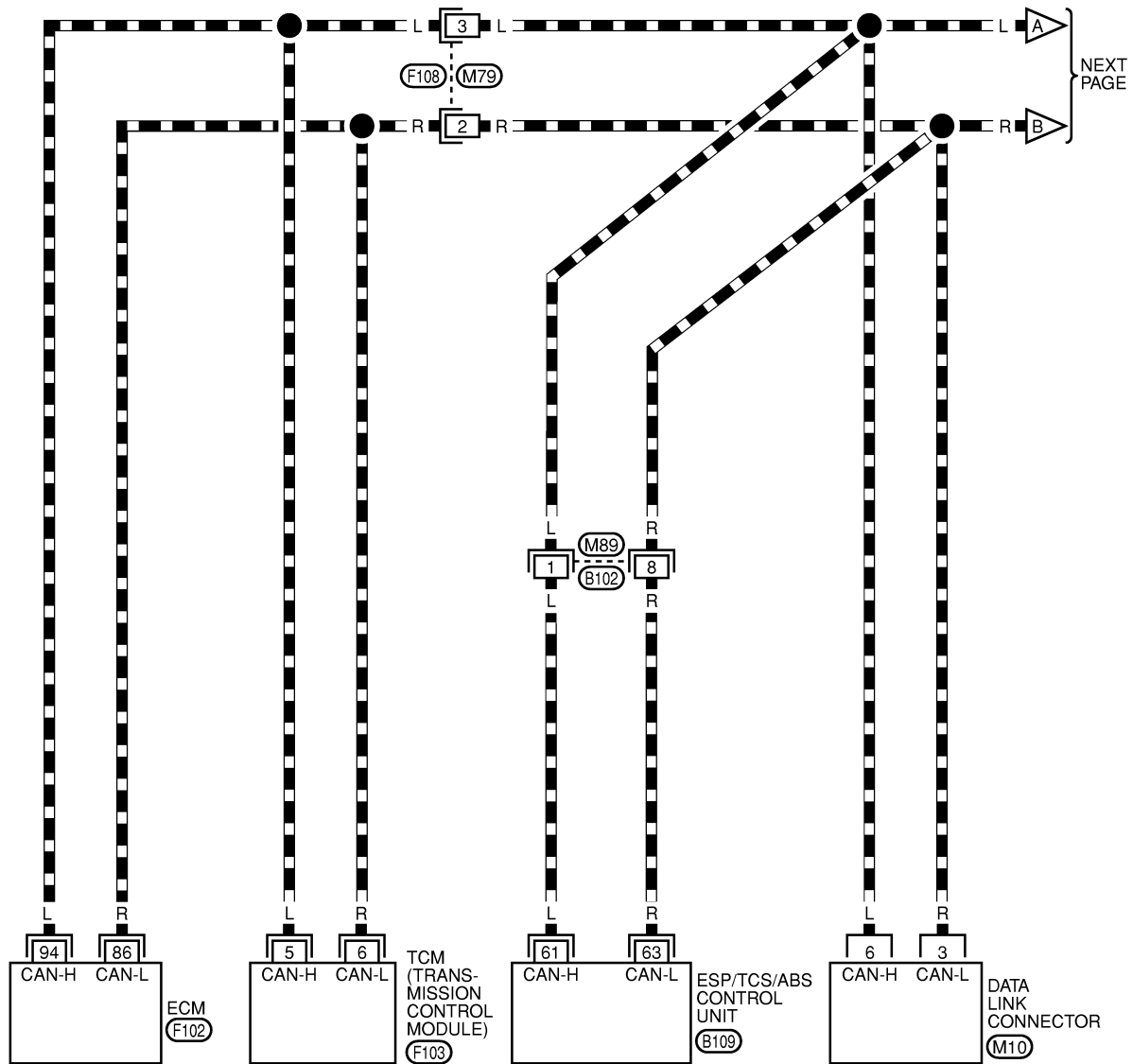
[CAN]

Wiring Diagram — CAN —

EKS005DK

LAN-CAN-04

DATA LINE



16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1

(M10)
W

1	2	3	4	5	6	7
8	9	10	11	12	13	14

(M89) , (F108)
W W

REFER TO THE FOLLOWING.

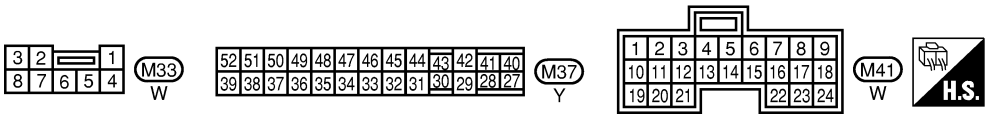
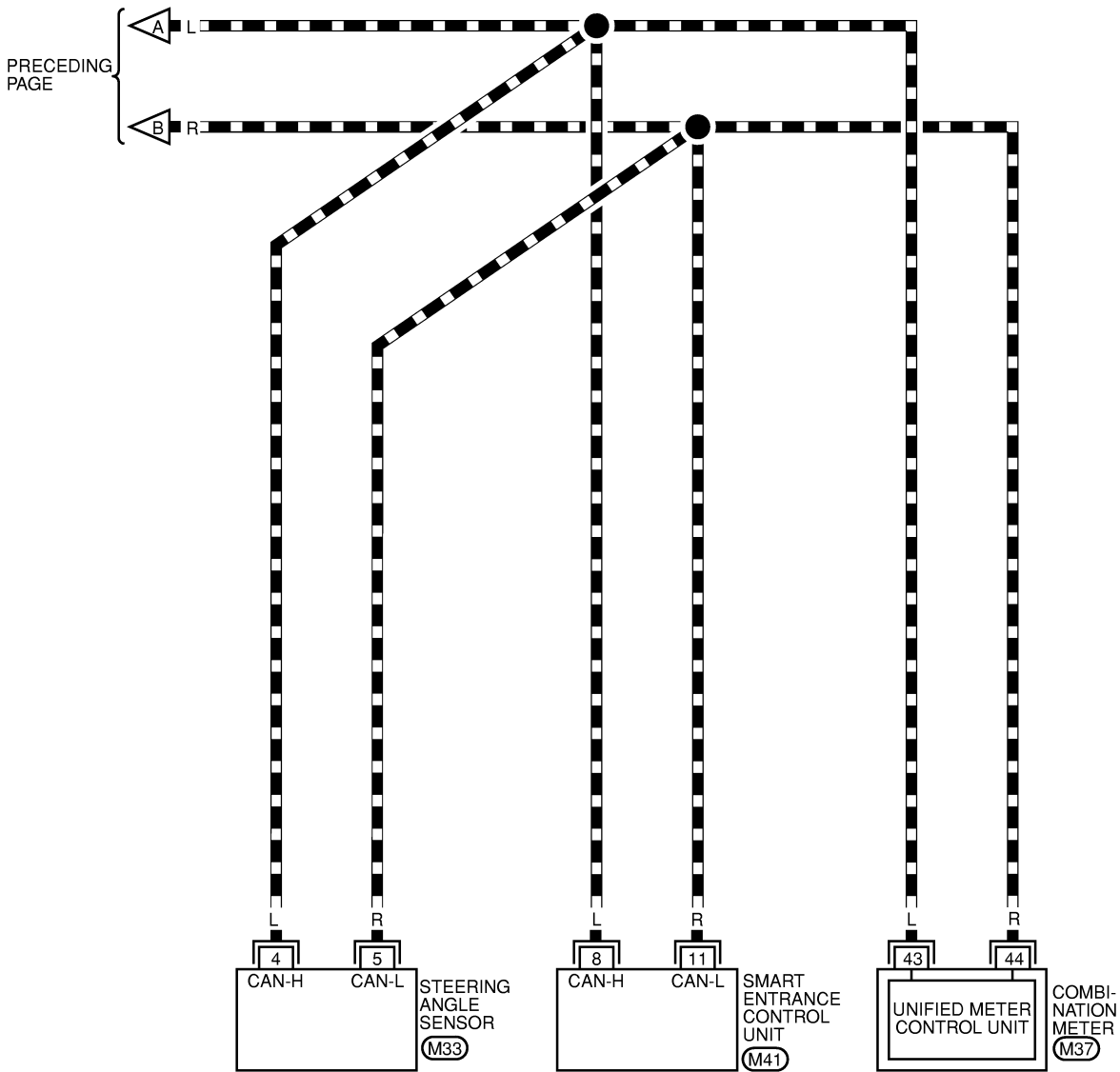
(F102) , (F103) -ELECTRICAL UNITS

61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

(B109)
B

MKWA0524E

— : DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-50, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-50, "CHECK SHEET"](#).

NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-51, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A
B
C
D
E
F
G
H
I
J
L
M

LAN

CAN SYSTEM (TYPE 2)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
CVT
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
CVT
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1308E

CAN SYSTEM (TYPE 2)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1309E

CAN SYSTEM (TYPE 2)

[CAN]

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1310E

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1311E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and Data link connector. Refer to [LAN-53, "Circuit Check Between TCM and Data Link Connector"](#).

Case 6: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-55, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-55, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-56, "TCM Circuit Check"](#).

Case 9: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-56, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 10: Check Steering angle sensor Circuit. Refer to [LAN-57, "Steering Angle Sensor Circuit Check"](#).

Case 11: Check Smart entrance control unit Circuit. Refer to [LAN-57, "Smart Entrance Control Unit Circuit Check"](#).

Case 12: Check Combination meter Circuit. Refer to [LAN-58, "Combination Meter Circuit Check"](#).

Case 13: Check CAN communication Circuit. Refer to [LAN-58, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and Data Link Connector

EKS005DM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F108
 - Harness connector M79

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F108.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F108 terminals 3 (L), 2 (R).

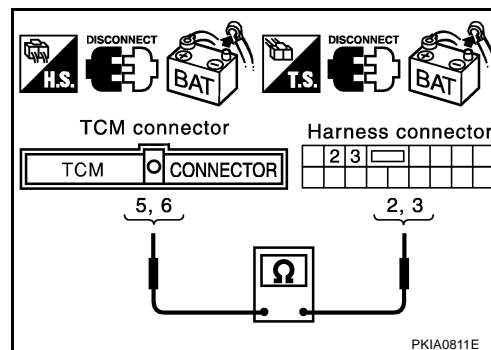
5(L) – 3(L) : Continuity should exist.

6(R) – 2(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 M79 terminals 3 (L), 2 (R) and Data link connector M10 terminals 6 (L), 3 (R).

3(L) – 6(L) : Continuity should exist.

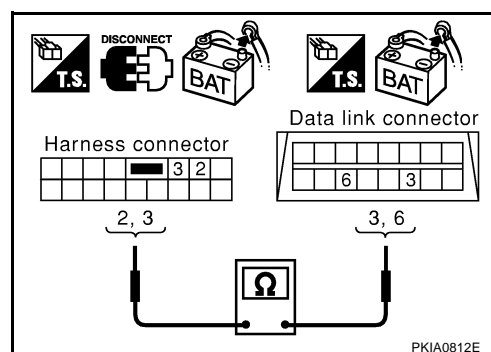
2(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005DN

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

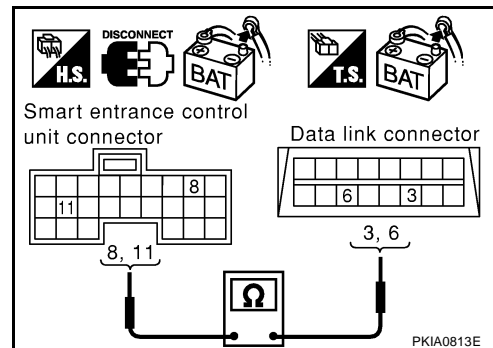
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005DO

1. CHECK CONNECTOR

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

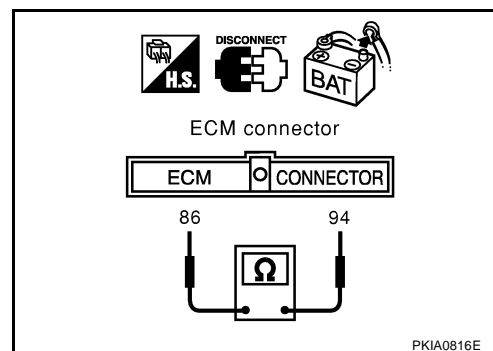
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R) : Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



TCM Circuit Check

EKS005DP

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

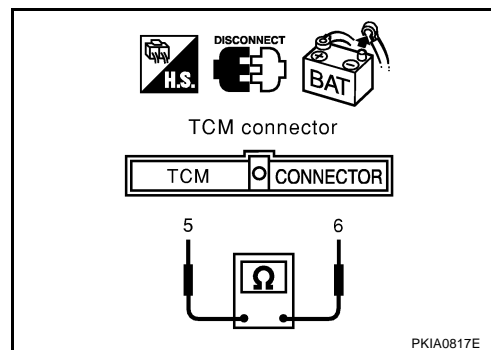
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.

**ESP/TCS/ABS Control Unit Circuit Check**

EKS005DQ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

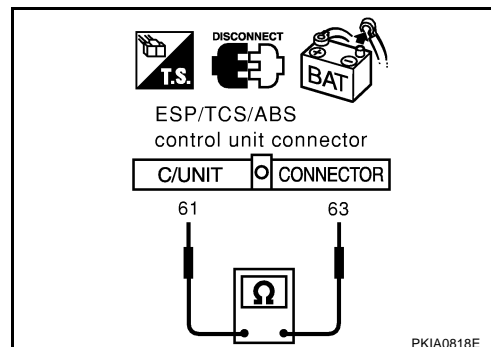
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace ESP/TCS/ABS control unit.

NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



Steering Angle Sensor Circuit Check

EKS005DR

1. CHECK CONNECTOR

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

OK or NG

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

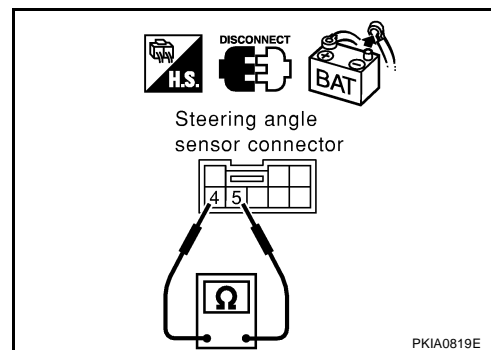
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



Smart Entrance Control Unit Circuit Check

EKS005DS

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

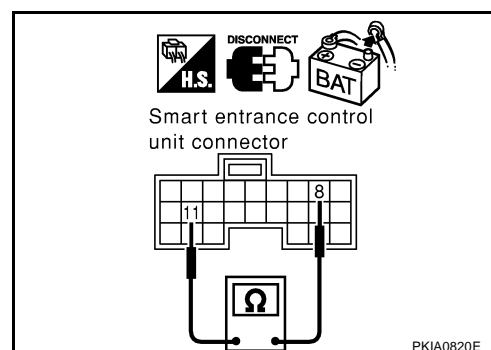
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
NG >> Repair harness between steering angle sensor and smart entrance control unit.



Combination Meter Circuit Check

EKS005DT

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

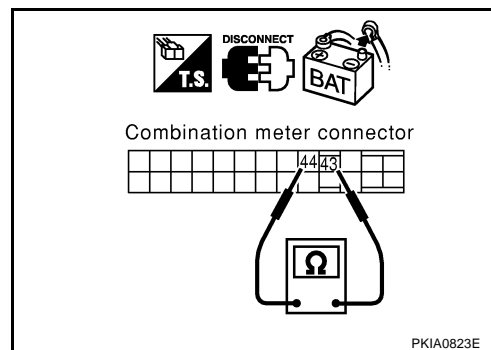
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace combination meter.

NG >> Repair harness between smart entrance control unit and combination meter.

**CAN Communication Circuit Check**

EKS005DU

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - TCM
 - ECM
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

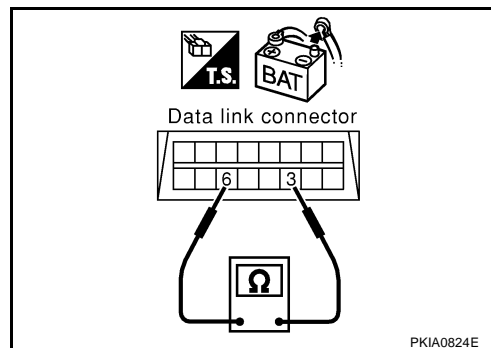
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M79
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

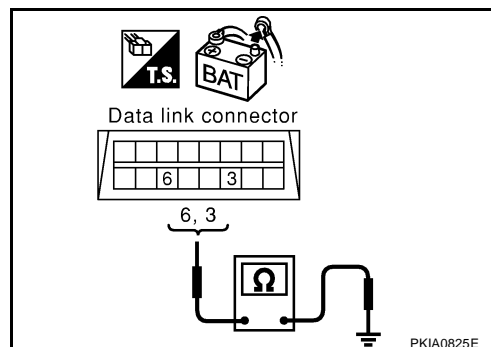
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.



4. CHECK HARNESS FOR SHORT CIRCUIT

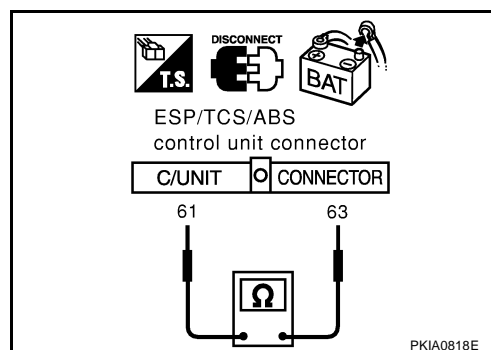
- Disconnect ESP/TCS/ABS control unit connector.
- Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 5.

- NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

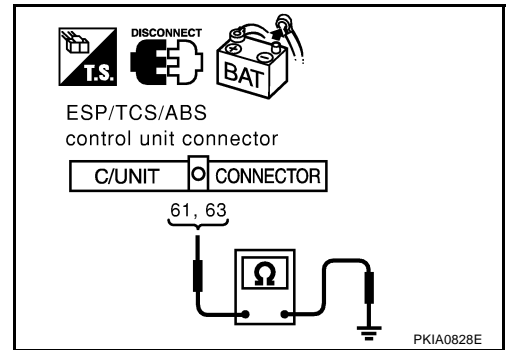
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

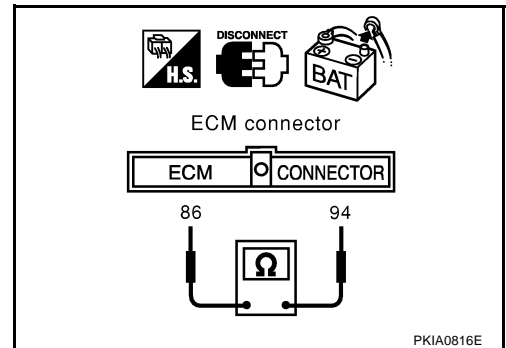
94(L) – 86(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> ● Repair harness between ECM and harness connector F108.

- Repair harness between TCM and harness connector F108.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

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

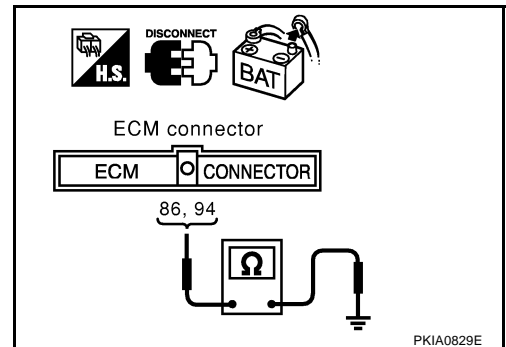
86(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> ● Repair harness between ECM and harness connector F108.

- Repair harness between TCM and harness connector F108.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-61, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

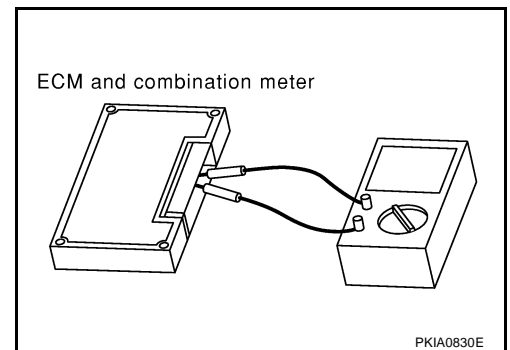
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	43 - 44	



CAN SYSTEM (TYPE 3)

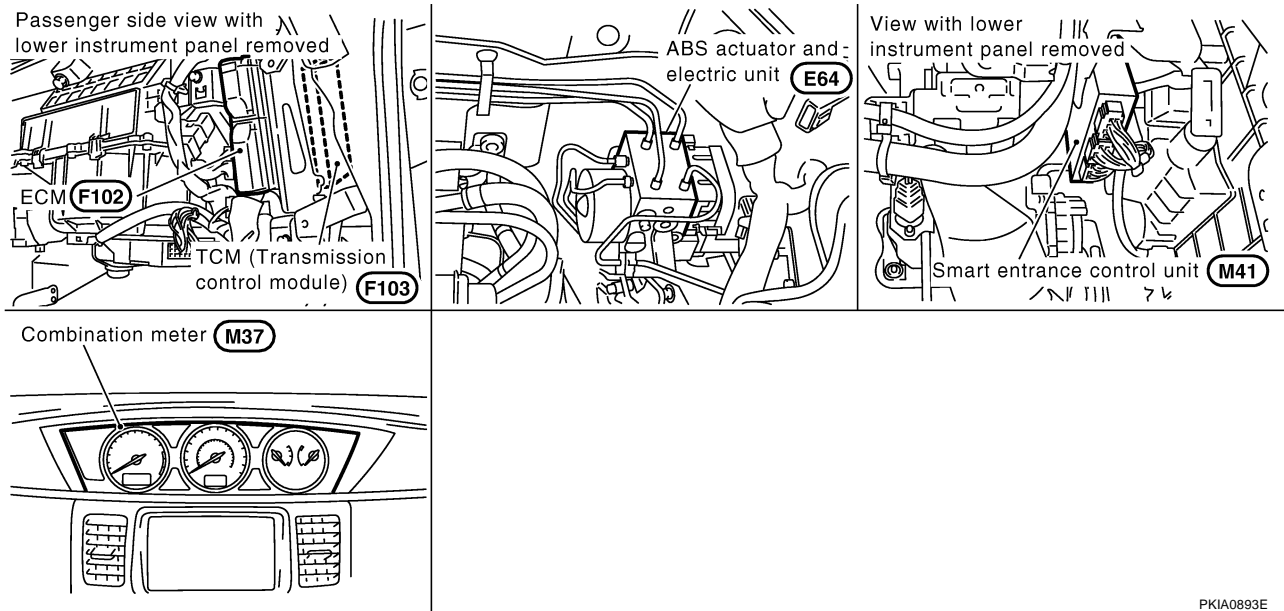
System Description

EKS005DW

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

EKS005DX



PKIA0893E

CAN SYSTEM (TYPE 3)

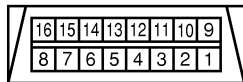
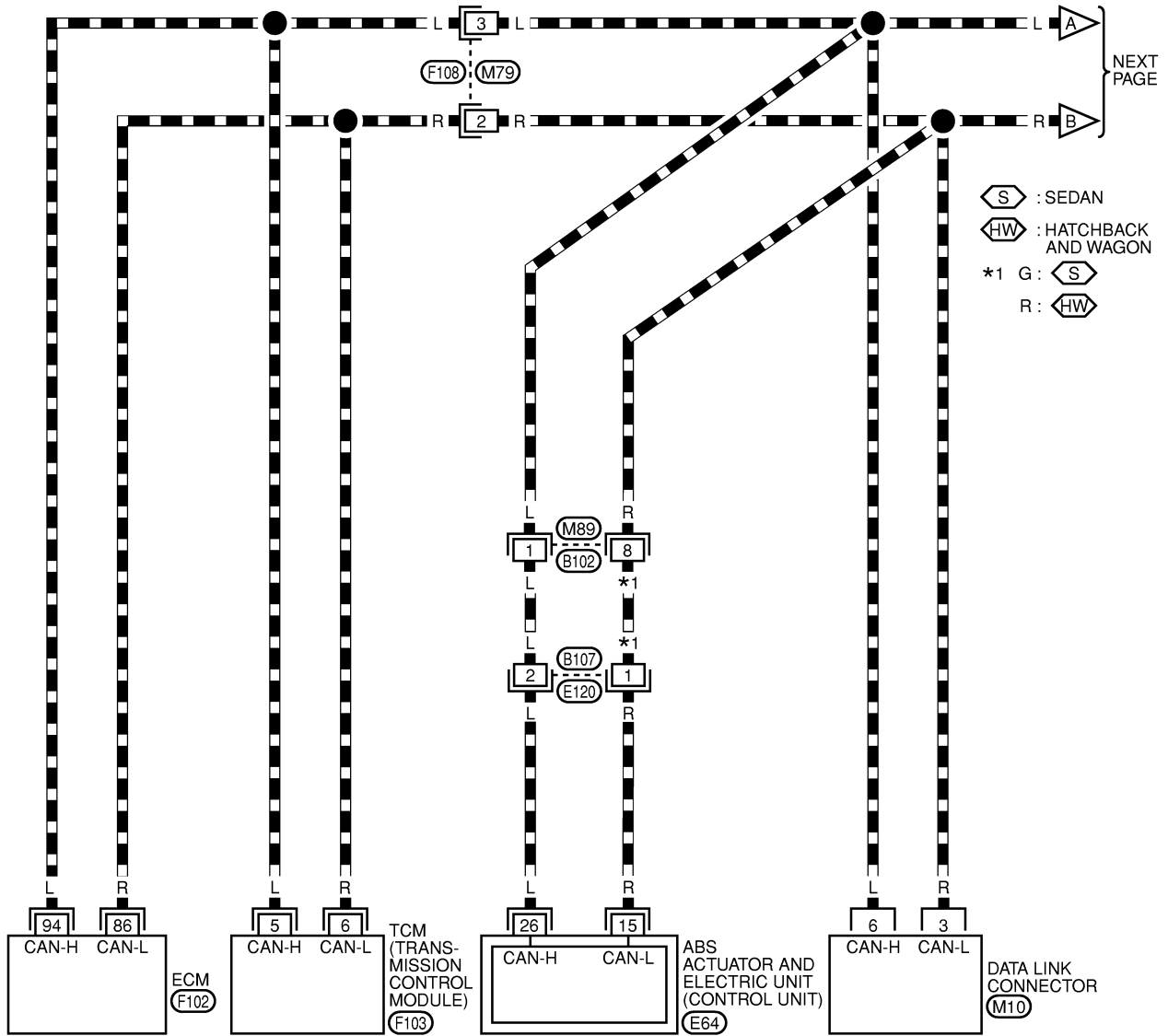
[CAN]

Wiring Diagram — CAN —

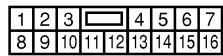
EKS005DY

LAN-CAN-06

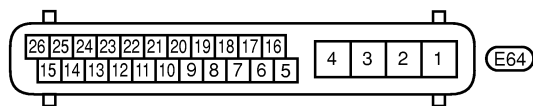
— : DATA LINE



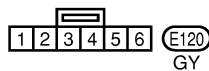
(M10)
W



(M89) , (F103)
W



(E64)



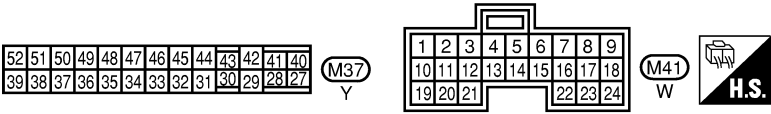
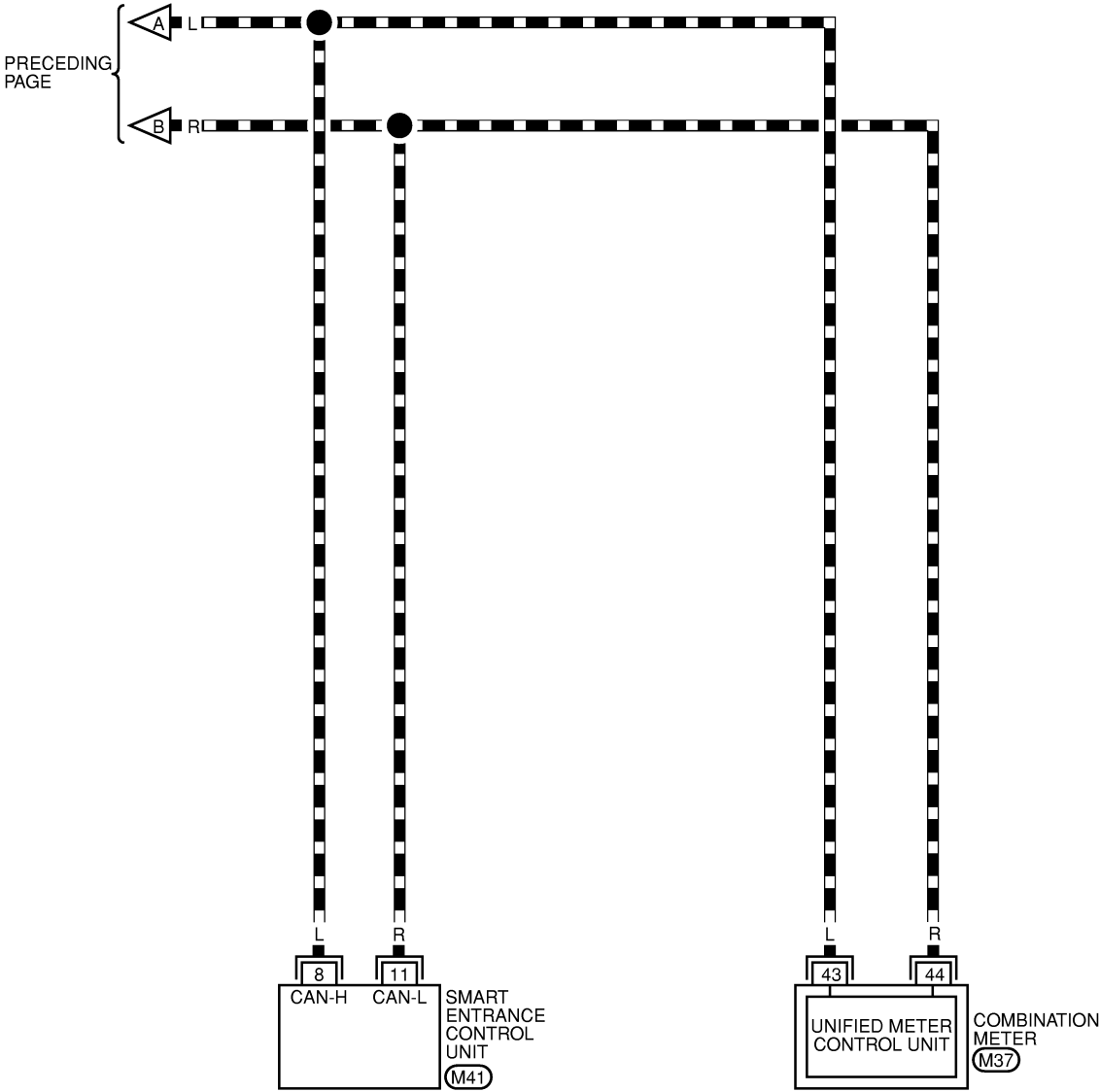
(E120)
GY

REFER TO THE FOLLOWING.

(F102) , (F103) -ELECTRICAL UNITS

MKWA0526E

▬ : DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-66, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-66, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-67, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 3)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
CVT
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
CVT
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 3)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0742E

CAN SYSTEM (TYPE 3)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0743E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ABS actuator and electric unit (control unit).

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and Data link connector. Refer to [LAN-69, "Circuit Check Between TCM and Data Link Connector"](#).

Case 6: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-70, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-71, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-71, "TCM Circuit Check"](#).

Case 9: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-72, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-72, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-73, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-73, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and Data Link Connector

EKS005E0

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F108
 - Harness connector M79

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F108.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F108 terminals 3 (L), 2 (R).

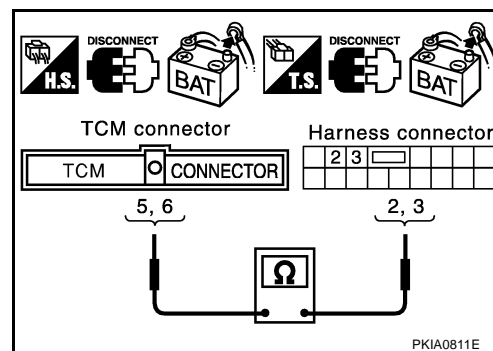
5(L) – 3(L) : Continuity should exist.

6(R) – 2(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 M79 terminals 3 (L), 2 (R) and Data link connector M10 terminals 6 (L), 3 (R).

3(L) – 6(L) : Continuity should exist.

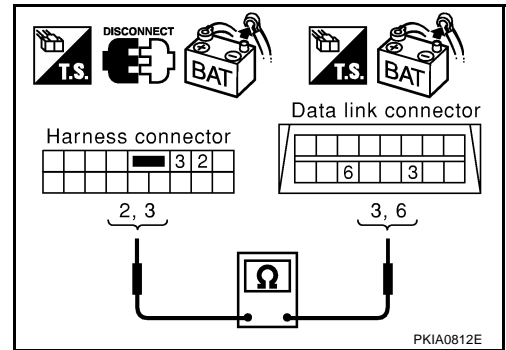
2(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005E1

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

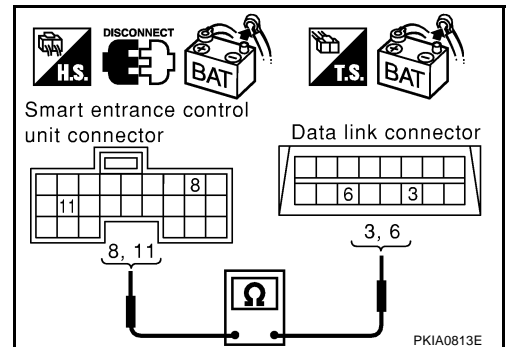
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005E2

1. CHECK CONNECTOR

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

OK or NG

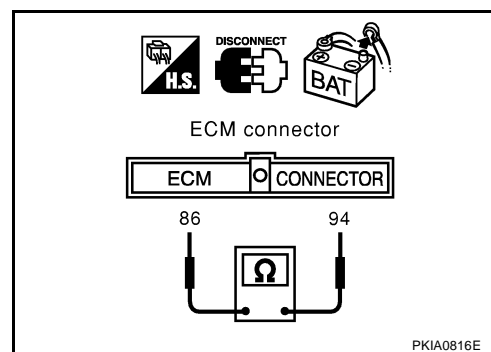
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

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

- OK >> Replace ECM.
 NG >> Repair harness between TCM and ECM.

**TCM Circuit Check**

EKS005E3

1. CHECK CONNECTOR

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

OK or NG

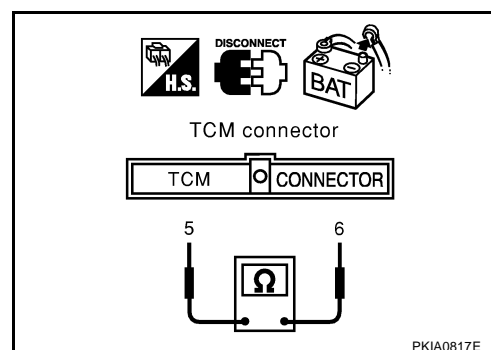
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)**: Approx. 54 – 66Ω**OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and ECM.



ABS Actuator and Electric Unit (control unit) Circuit Check

EKS005E4

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ABS actuator and electric unit (control unit)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

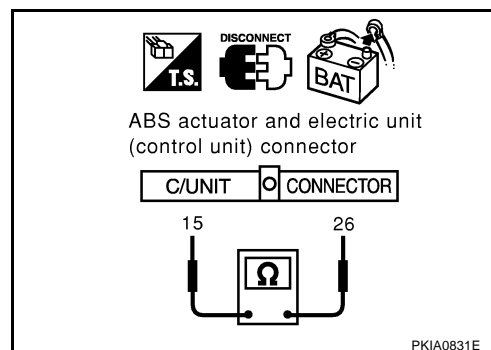
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between Data link connector and ABS actuator and electric unit (control unit).

**Smart Entrance Control Unit Circuit Check**

EKS005E5

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

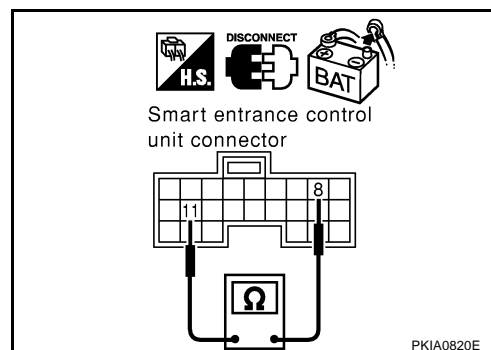
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace smart entrance control unit.

NG >> Repair harness between Data link connector and smart entrance control unit.



Combination Meter Circuit Check

EKS005E6

1. CHECK CONNECTOR

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

OK or NG

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

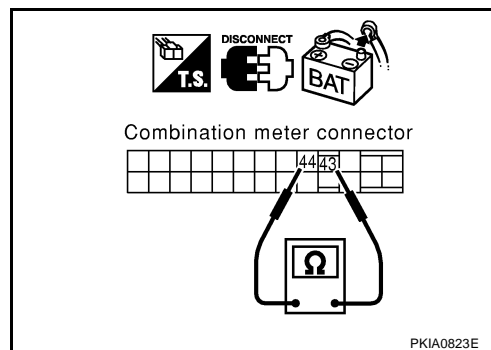
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.

**CAN Communication Circuit Check**

EKS005E7

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - TCM
 - ECM
 - Between ABS actuator and electric unit (control unit) and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

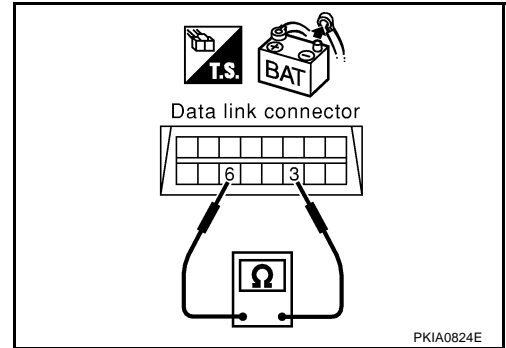
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M79
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M79.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

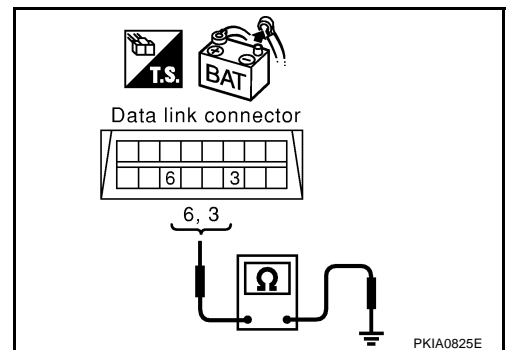
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M79.



4. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect harness connector B107.
- Check the following.
 - Continuity between harness connector B102 terminals 1 (L) and 8(G)(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L) and 8(R)(Hatch back and wagon models)

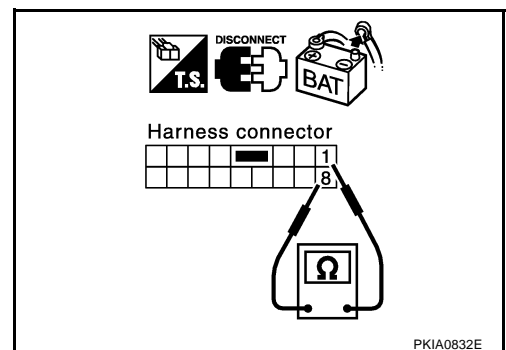
1(L) – 8(G) (Sedan models) : Continuity should not exist.

1(L) – 8(R) (Hatch back and wagon models) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

- NG >> Repair harness between harness connector B102 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

1. Check the following.

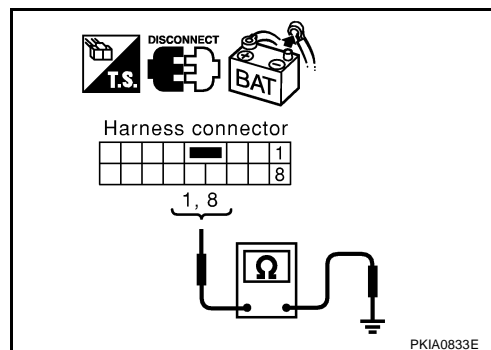
- Continuity between harness connector B102 terminals 1 (L), 8(G) and ground(Sedan models)
- Continuity between harness connector B102 terminals 1 (L), 8(R) and ground(Hatch back and wagon models)

1(L) – ground (Sedan models) : Continuity should not exist.

8(G) – ground (Sedan models) : Continuity should not exist.

1(L) – ground (Hatch back and wagon models) : Continuity should not exist.

8(R) – ground (Hatch back and wagon models) : Continuity should not exist.



OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B102 and harness connector B107.

6. CHECK HARNESS FOR SHORT CIRCUIT

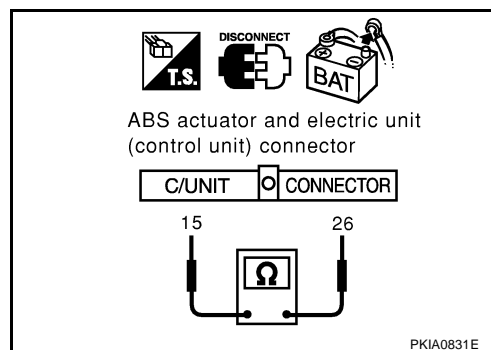
- Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

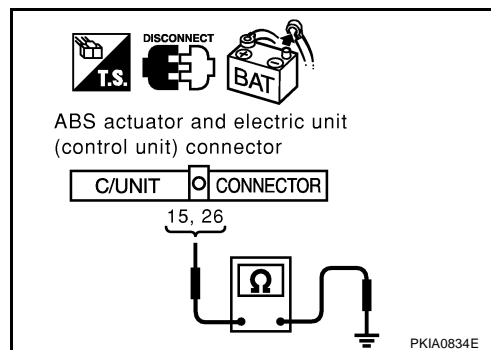
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



8. CHECK HARNESS FOR SHORT CIRCUIT

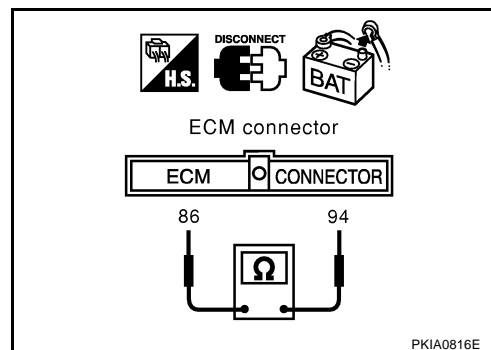
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F108.
 ● Repair harness between TCM and harness connector F108.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

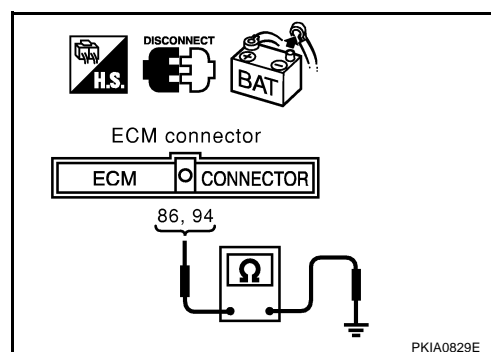
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

- NG >> ● Repair harness between ECM and harness connector F108.
 ● Repair harness between TCM and harness connector F108.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-77, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- NG >> Replace ECM and/or Combination meter.

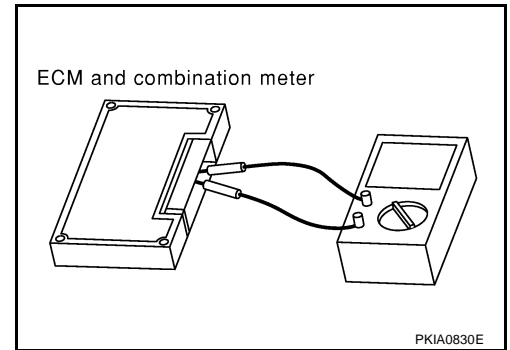
Component Inspection

EKS005E8

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	43 - 44	



A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 4)

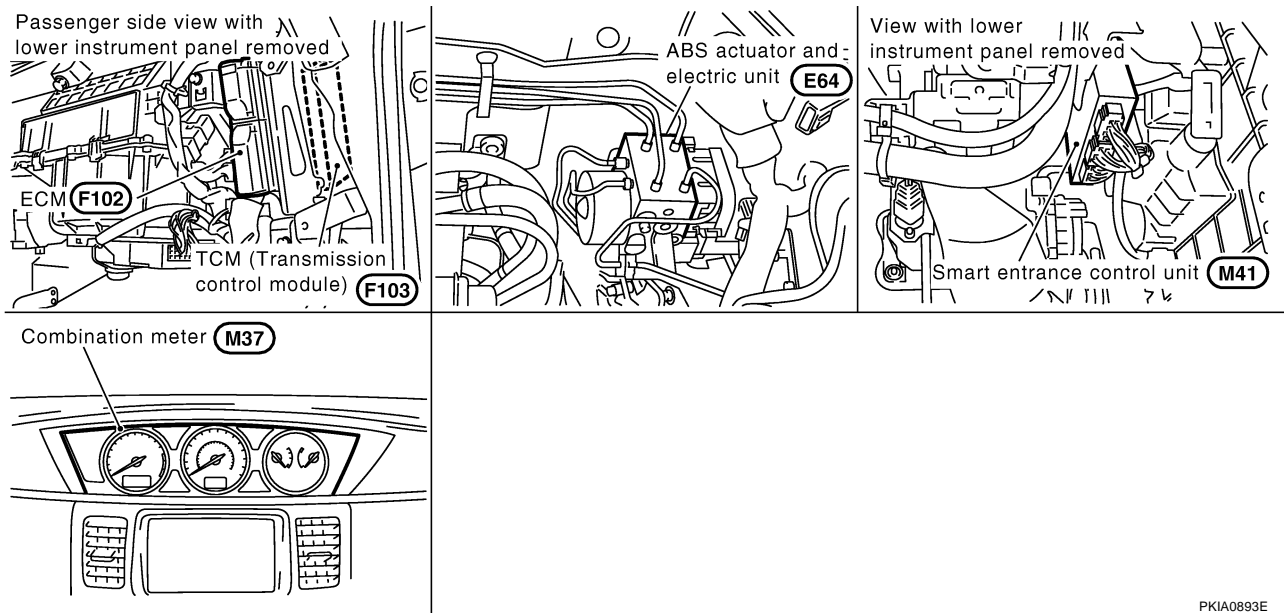
System Description

EKS005E9

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

EKS005EA



PKIA0893E

CAN SYSTEM (TYPE 4)

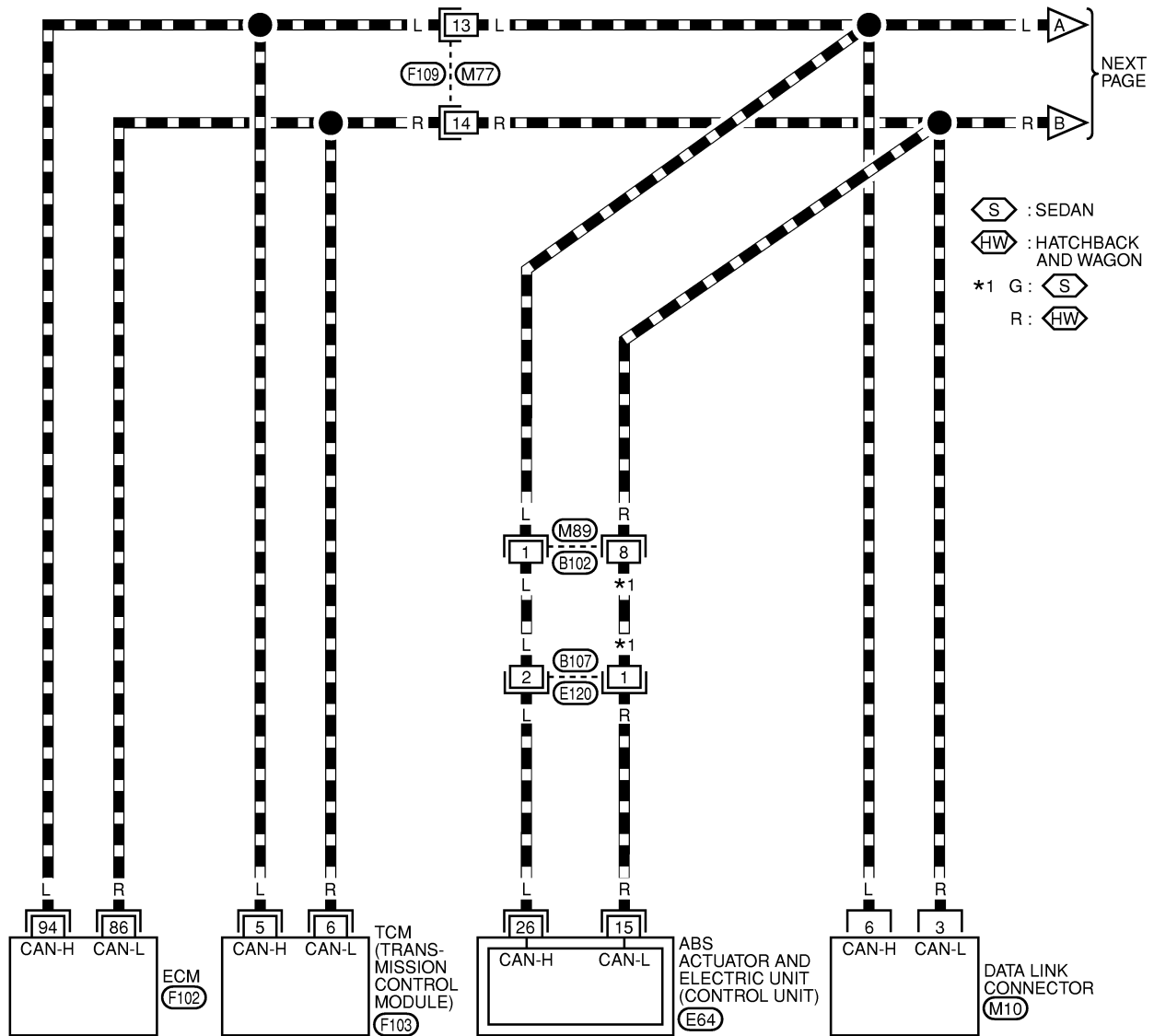
[CAN]

Wiring Diagram — CAN —

EKS005EB

LAN-CAN-08

DATA LINE

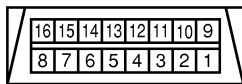


A
B
C
D
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G
H
I
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LAN
L
M

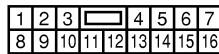
LAN

L

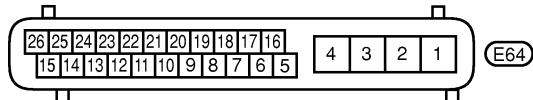
M



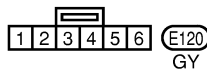
M10
W



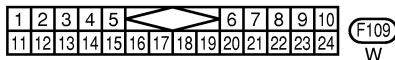
M89
W



E64



E120
GY



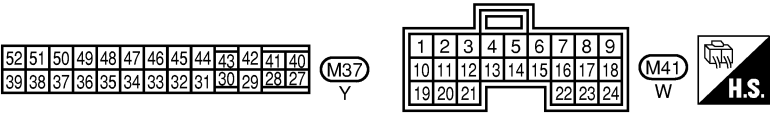
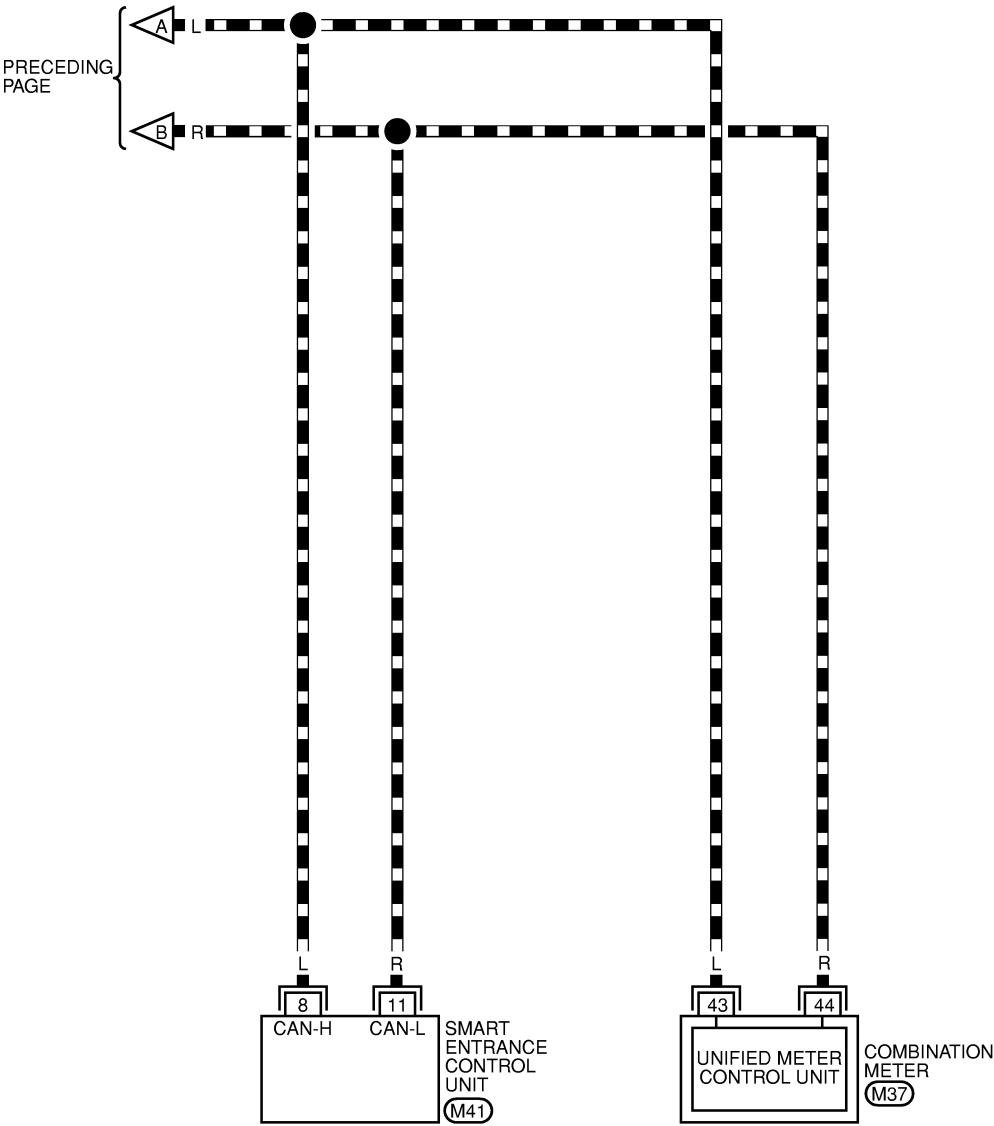
F109
W

REFER TO THE FOLLOWING.

F102 , F103 -ELECTRICAL UNITS

MKWA0528E

▬ : DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-82, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-82, "CHECK SHEET"](#).

NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-83, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 4)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
A/T
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA0744E

CAN SYSTEM (TYPE 4)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN ✓ COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN ✓ CIRC 2	—	CAN ✓ CIRC 6	CAN ✓ CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN ✓ CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN ✓ COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN ✓ CIRC 2	—	—	—	CAN ✓ CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN ✓ COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN ✓ CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN ✓ COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN ✓ CIRC 2	—	—	—	CAN ✓ CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN ✓ CIRC 6	CAN ✓ CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN ✓ CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN ✓ CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN ✓ CIRC 2	—	—	—	CAN CIRC 3

PKIA0745E

CAN SYSTEM (TYPE 4)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0746E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ABS actuator and electric unit (control unit).

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and Data link connector. Refer to [LAN-85, "Circuit Check Between TCM and Data Link Connector"](#).

Case 6: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-86, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-87, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-87, "TCM Circuit Check"](#).

Case 9: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-88, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-88, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-89, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-89, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and Data Link Connector

EKS005ED

1. CHECK CONNECTOR

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

- Harness connector F109
- Harness connector M77

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F109.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F109 terminals 13 (L), 14 (R).

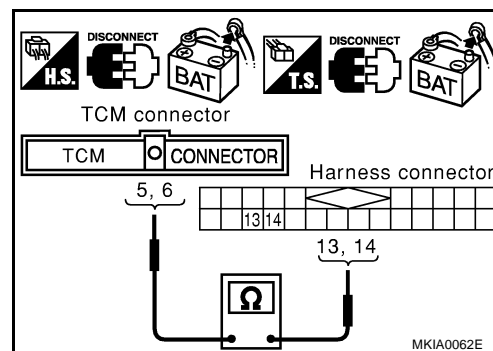
5(L) – 13(L) : Continuity should exist.

6(R) – 14(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 M77 terminals 13 (L), 14 (R) and Data link connector M10 terminals 6 (L), 3 (R).

13(L) – 6(L) : Continuity should exist.

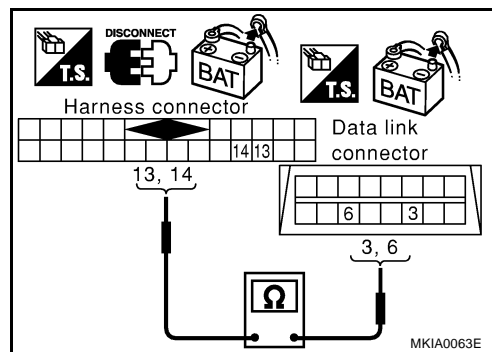
14(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005EE

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

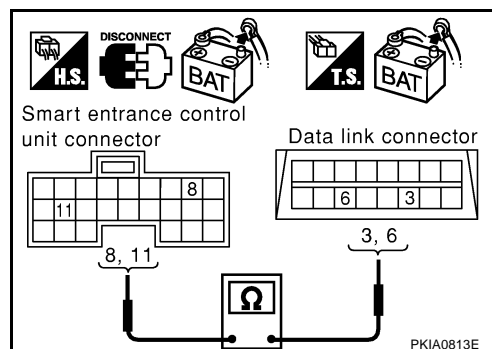
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005EF

1. CHECK CONNECTOR

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

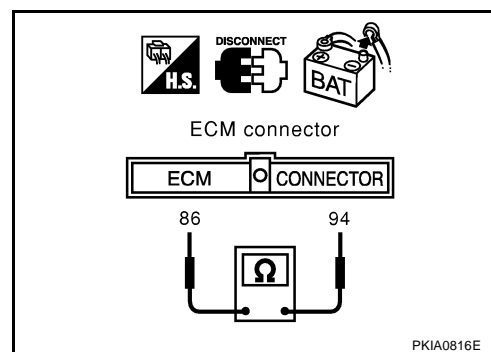
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

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

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



EKS005EG

TCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

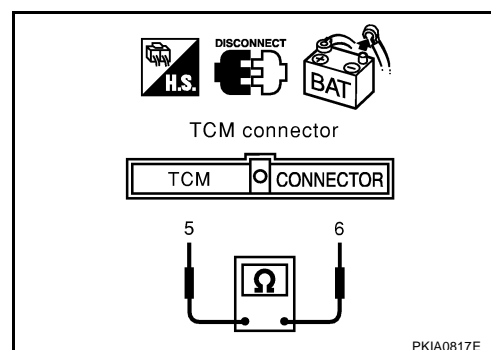
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.



ABS Actuator and Electric Unit (control unit) Circuit Check

EKS005EH

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ABS actuator and electric unit (control unit)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

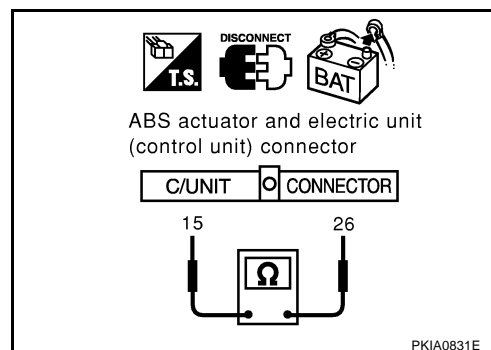
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between Data link connector and ABS actuator and electric unit (control unit).

**Smart Entrance Control Unit Circuit Check**

EKS005EI

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

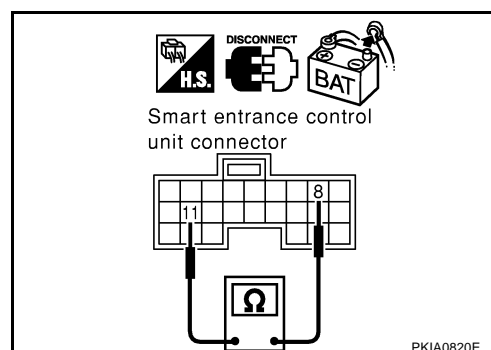
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace smart entrance control unit.

NG >> Repair harness between Data link connector and smart entrance control unit.



Combination Meter Circuit Check

EKS005EJ

1. CHECK CONNECTOR

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

OK or NG

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

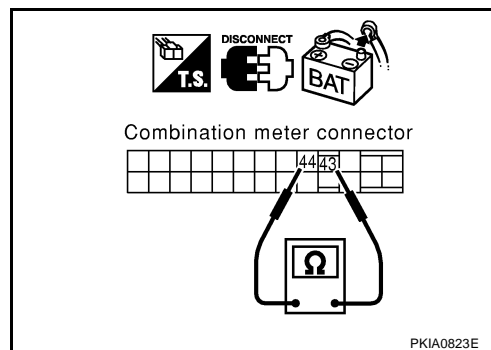
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.

**CAN Communication Circuit Check**

EKS005EK

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - TCM
 - ECM
 - Between ABS actuator and electric unit (control unit) and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

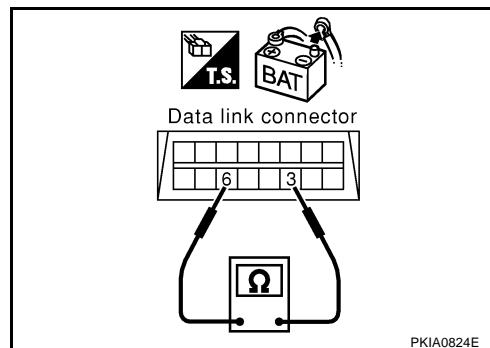
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M77
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M77.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

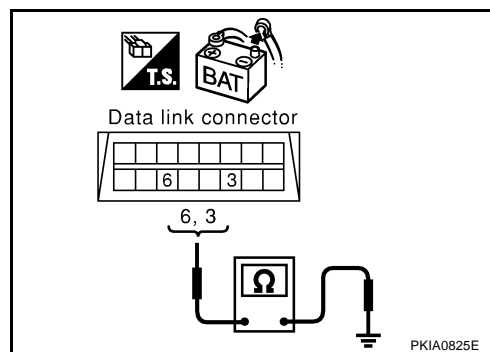
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M77.



4. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect harness connector B107.
- Check the following.
 - Continuity between harness connector B102 terminals 1 (L) and 8(G)(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L) and 8(R)(Hatch back and wagon models)

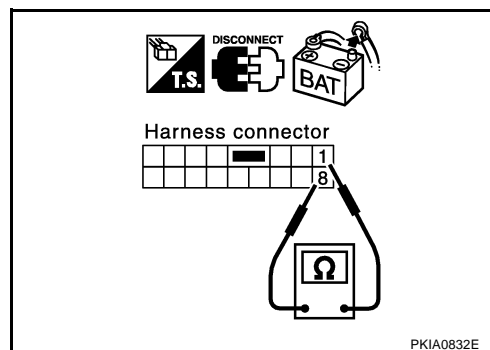
1(L) – 8(G) (Sedan models) : Continuity should not exist.

1(L) – 8(R) (Hatch back and wagon models) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

- NG >> Repair harness between harness connector B102 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

1. Check the following.

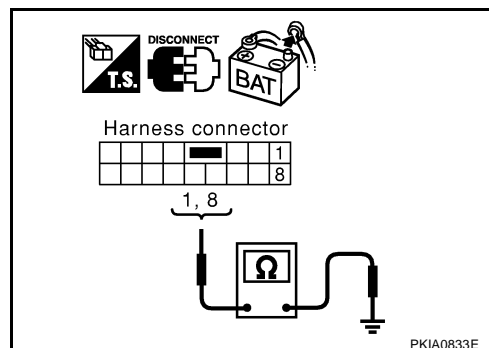
- Continuity between harness connector B102 terminals 1 (L), 8(G) and ground(Sedan models)
- Continuity between harness connector B102 terminals 1 (L), 8(R) and ground(Hatch back and wagon models)

1(L) – ground (Sedan models) : Continuity should not exist.

8(G) – ground (Sedan models) : Continuity should not exist.

1(L) – ground (Hatch back and wagon models) : Continuity should not exist.

8(R) – ground (Hatch back and wagon models) : Continuity should not exist.



OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B102 and harness connector B107.

6. CHECK HARNESS FOR SHORT CIRCUIT

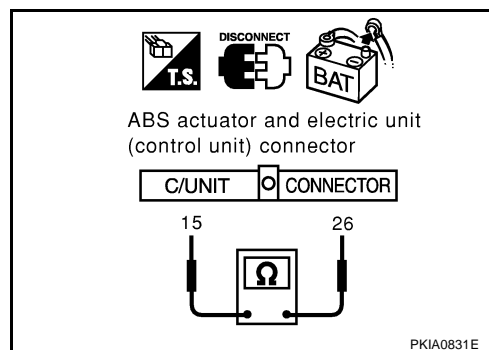
- Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

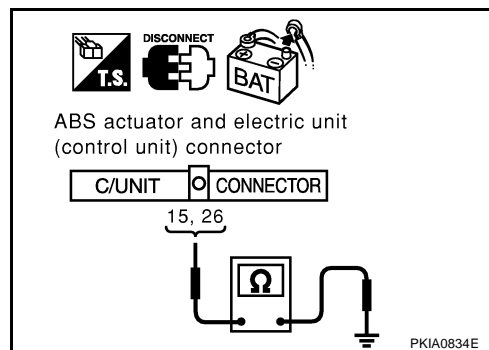
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



8. CHECK HARNESS FOR SHORT CIRCUIT

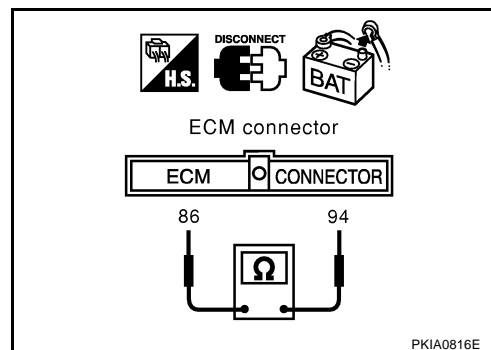
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F109.
 ● Repair harness between TCM and harness connector F109.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

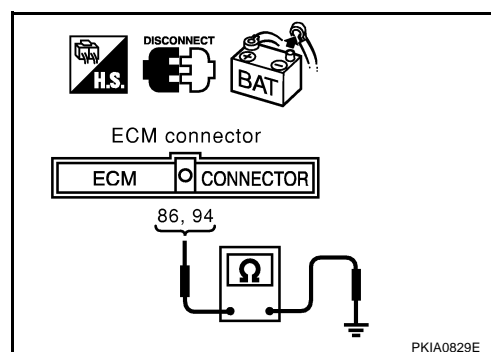
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

- NG >> ● Repair harness between ECM and harness connector F109.
 ● Repair harness between TCM and harness connector F109.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-93, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- NG >> Replace ECM and/or Combination meter.

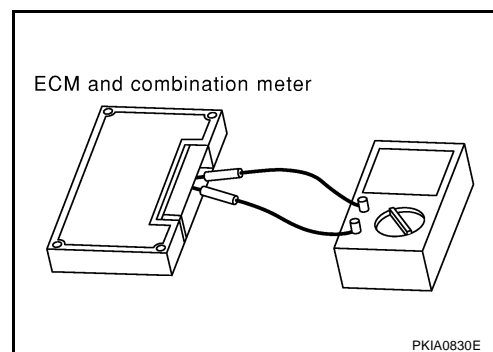
Component Inspection

EKS005EL

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	43 – 44	



A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 5)

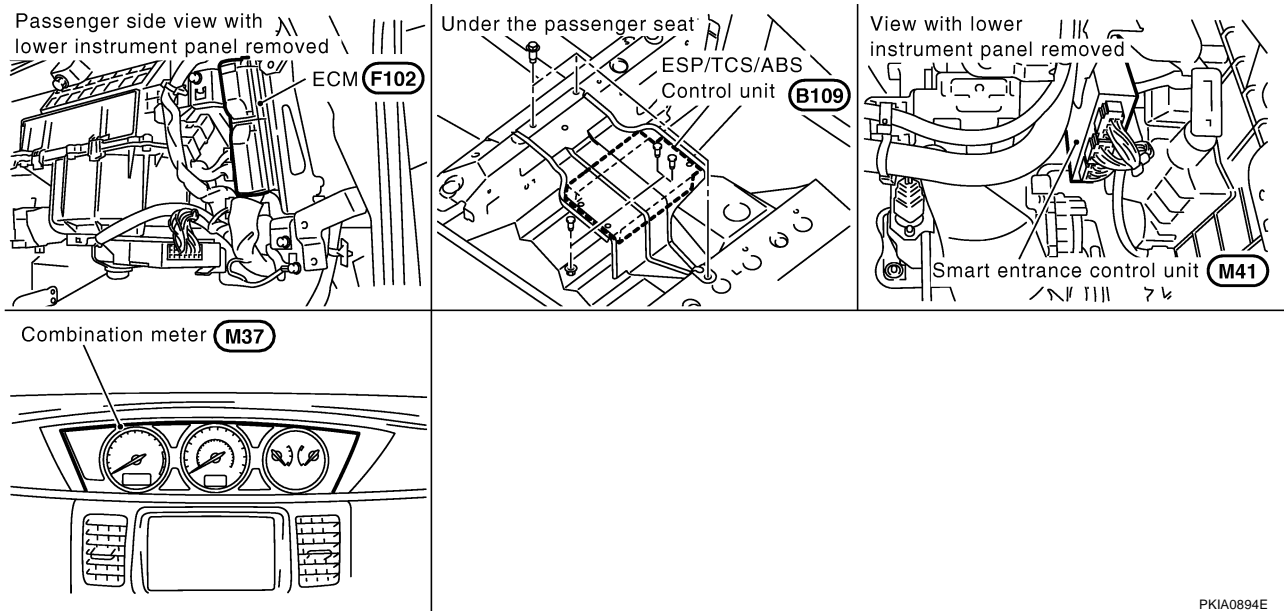
System Description

EKS005EM

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

EKS005EN



PKIA0894E

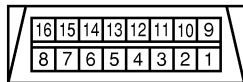
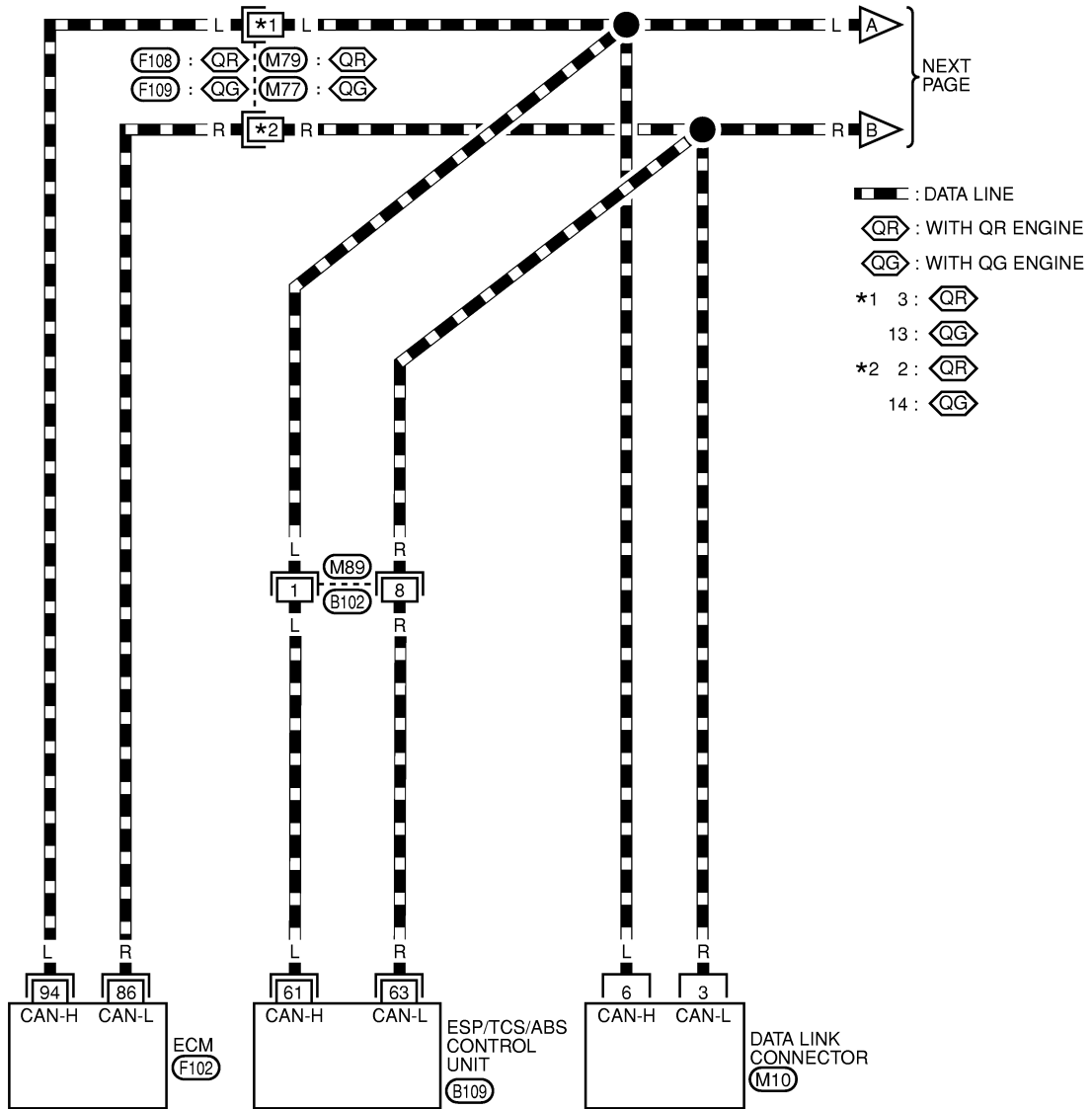
CAN SYSTEM (TYPE 5)

[CAN]

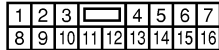
Wiring Diagram — CAN —

EKS005EO

LAN-CAN-10



(M10)
W



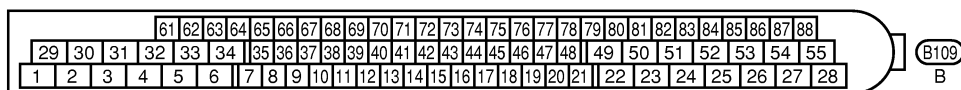
(M89)
W

(F108)
W

REFER TO THE FOLLOWING.
(F102) -ELECTRICAL UNITS



(F109)
W

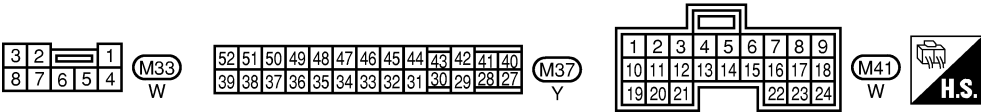
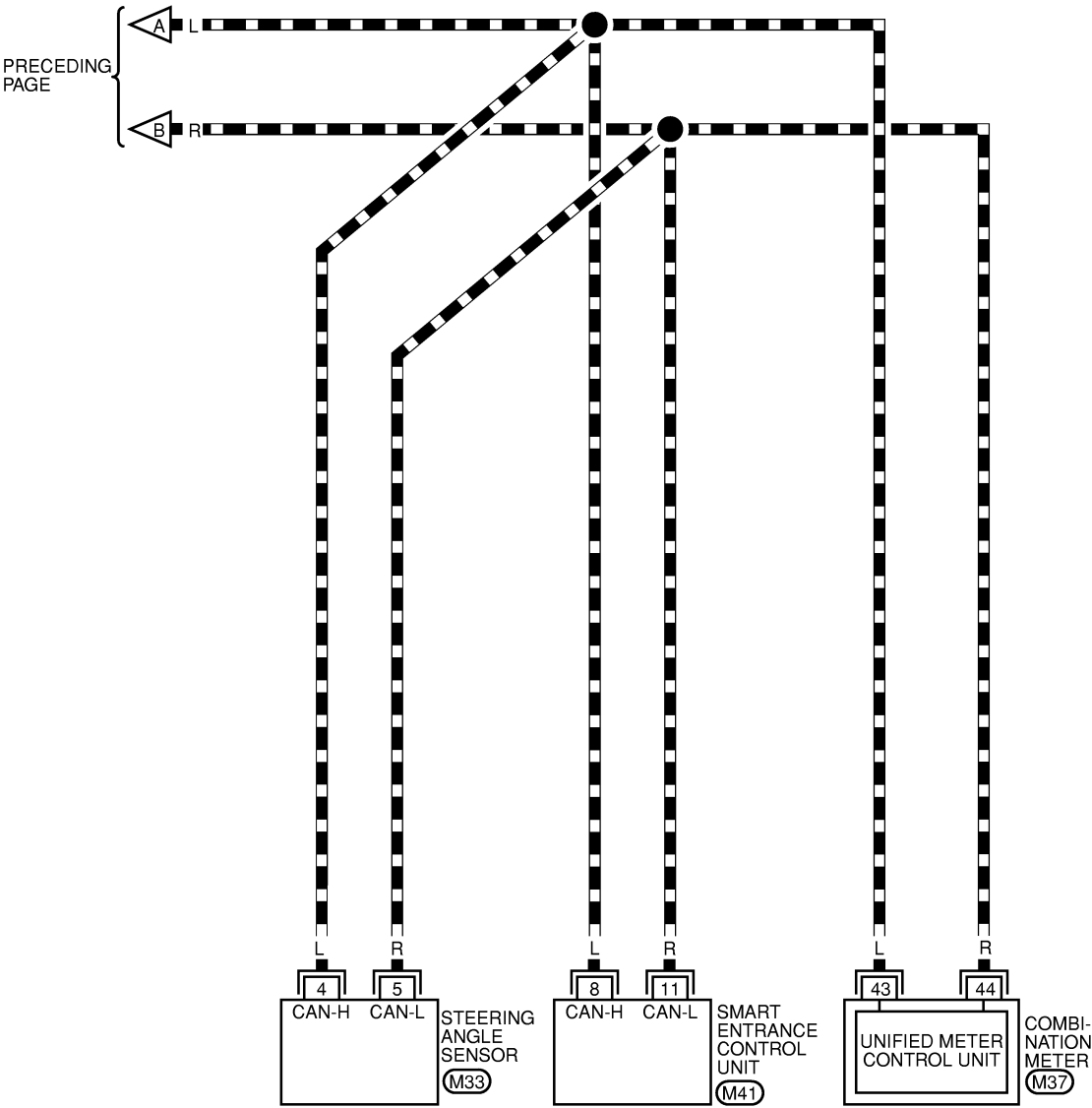


(B109)
B

MKWA0533E

LAN-CAN-11

DATA LINE



Work Flow

EKS005EP

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-98, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-98, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-99, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 5)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0748E

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0749E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-101, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-101, "ECM Circuit Check"](#).

Case 6: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-102, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 7: Check Steering angle sensor Circuit. Refer to [LAN-102, "Steering Angle Sensor Circuit Check"](#).

Case 8: Check Smart entrance control unit Circuit. Refer to [LAN-103, "Smart Entrance Control Unit Circuit Check"](#).

Case 9: Check Combination meter Circuit. Refer to [LAN-103, "Combination Meter Circuit Check"](#).

Case 10: Check CAN communication Circuit. Refer to [LAN-104, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005EQ

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBd) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBd) for "ENGINE"
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBd) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBd) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

ECM Circuit Check

EKS005ER

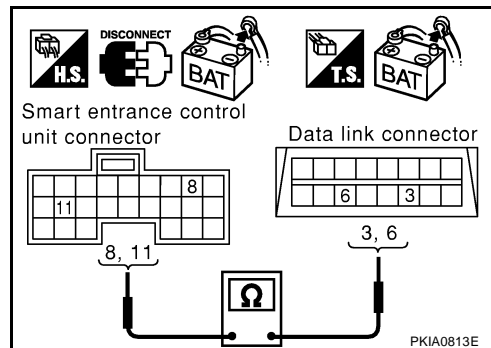
1. CHECK CONNECTOR

1. Turn ignition switch OFF.
 2. Disconnect the negative battery terminal.
 3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
- ECM
 - Harness connector F108(QR engine models)
 - Harness connector M79(QR engine models)
 - Harness connector F109(QG engine models)
 - Harness connector M77(QG engine models)

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



2. CHECK HARNESS FOR OPEN CIRCUIT

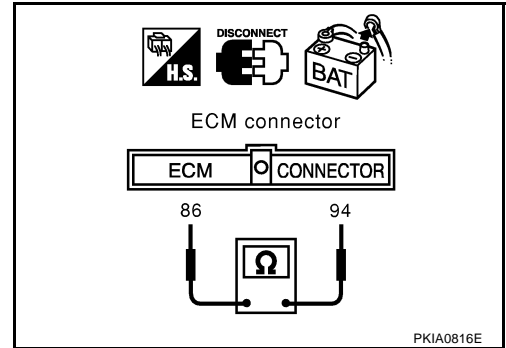
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

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



EKS005ES

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

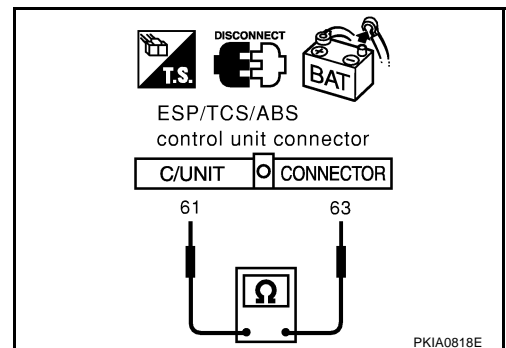
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



EKS005ET

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

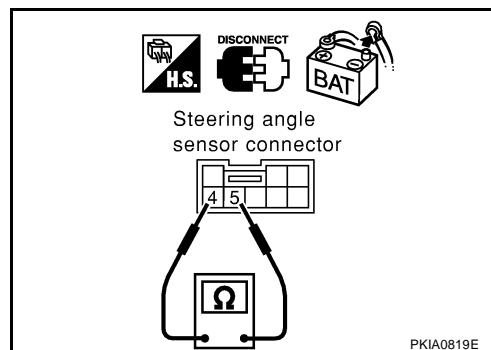
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace steering angle sensor.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005EU

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

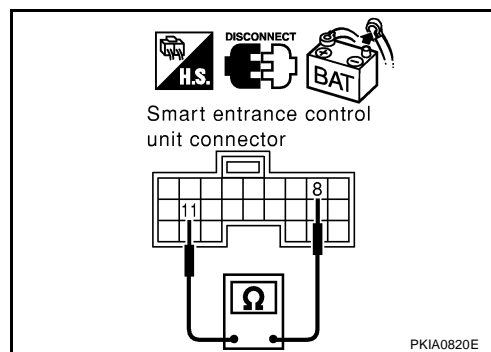
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005EV

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

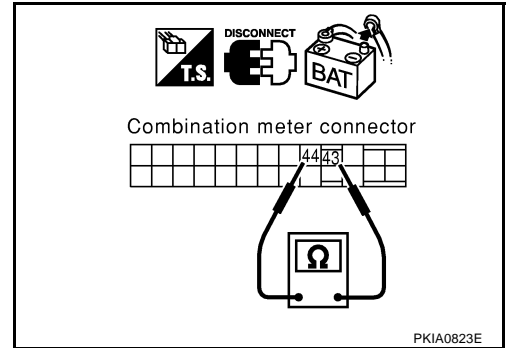
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005EW

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ECM
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

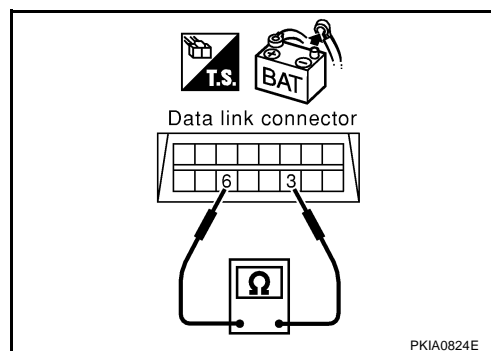
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M79(QR engine models)
 - Harness connector M77(QG engine models)
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.(QR engine models)
 - Repair harness between harness connector M89 and harness connector M77.(QG engine models)



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

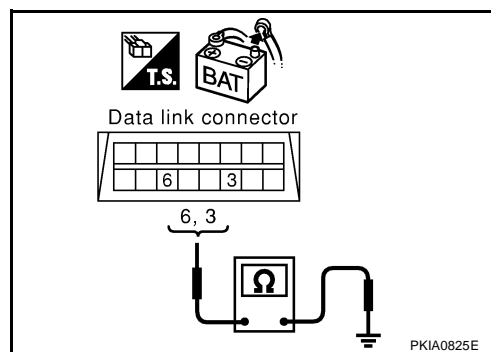
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.(QR engine models)
 - Repair harness between harness connector M89 and harness connector M77.(QG engine models)



4. CHECK HARNESS FOR SHORT CIRCUIT

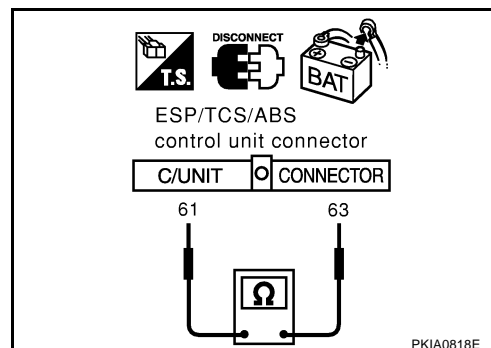
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

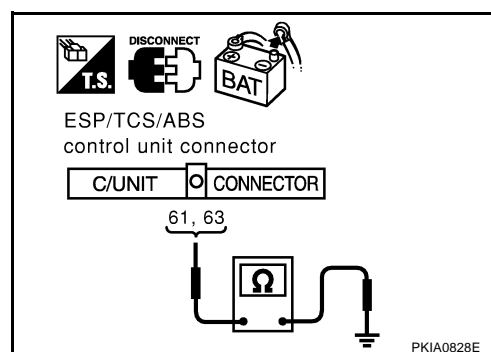
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



6. CHECK HARNESS FOR SHORT CIRCUIT

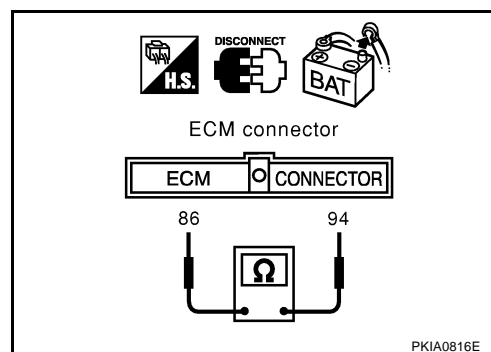
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 7.

- NG >> ● Repair harness between ECM and harness connector F108.(QR engine models)
- Repair harness between ECM and harness connector F109.(QG engine models)



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

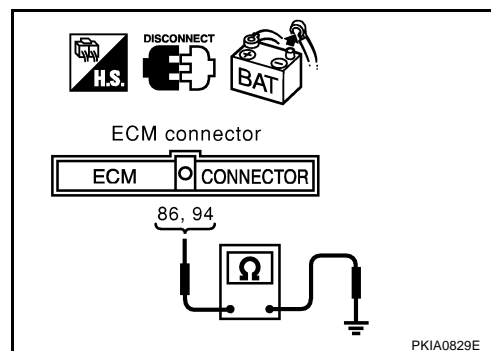
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

- NG >> ● Repair harness between ECM and harness connector F108.(QR engine models)
- Repair harness between ECM and harness connector F109.(QG engine models)



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-107, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#)

OK or NG

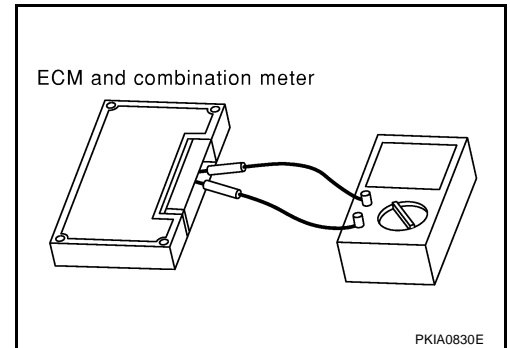
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 6)

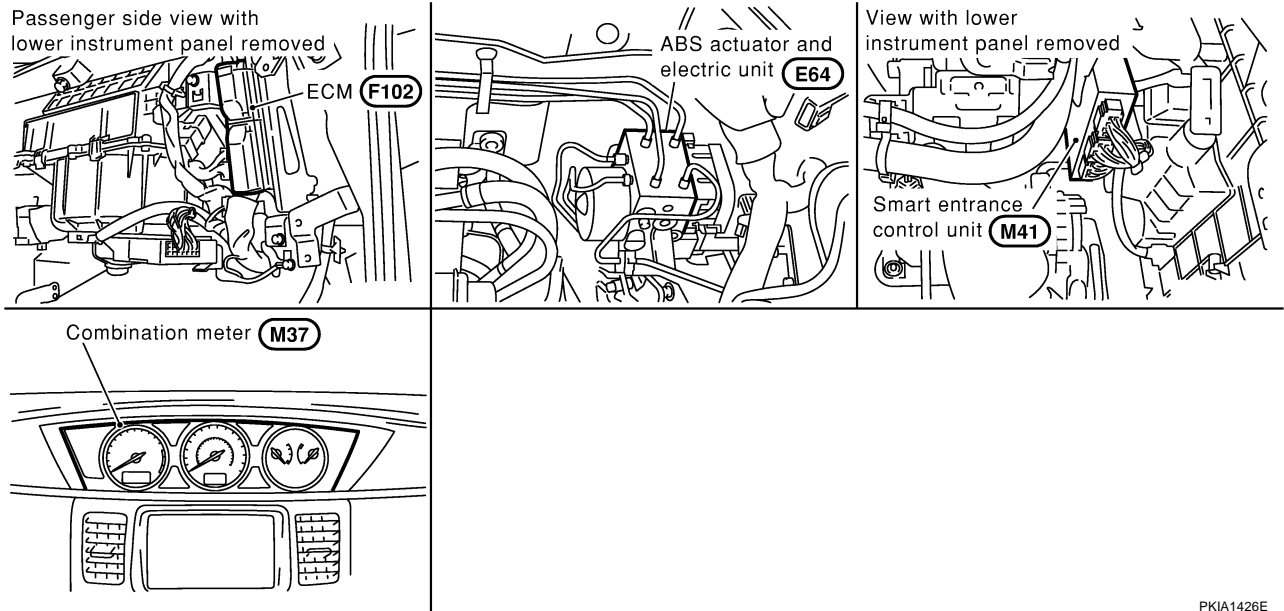
System Description

EKS005EY

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

EKS005EZ



PKIA1426E

Wiring Diagram — CAN —

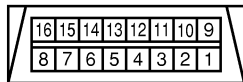
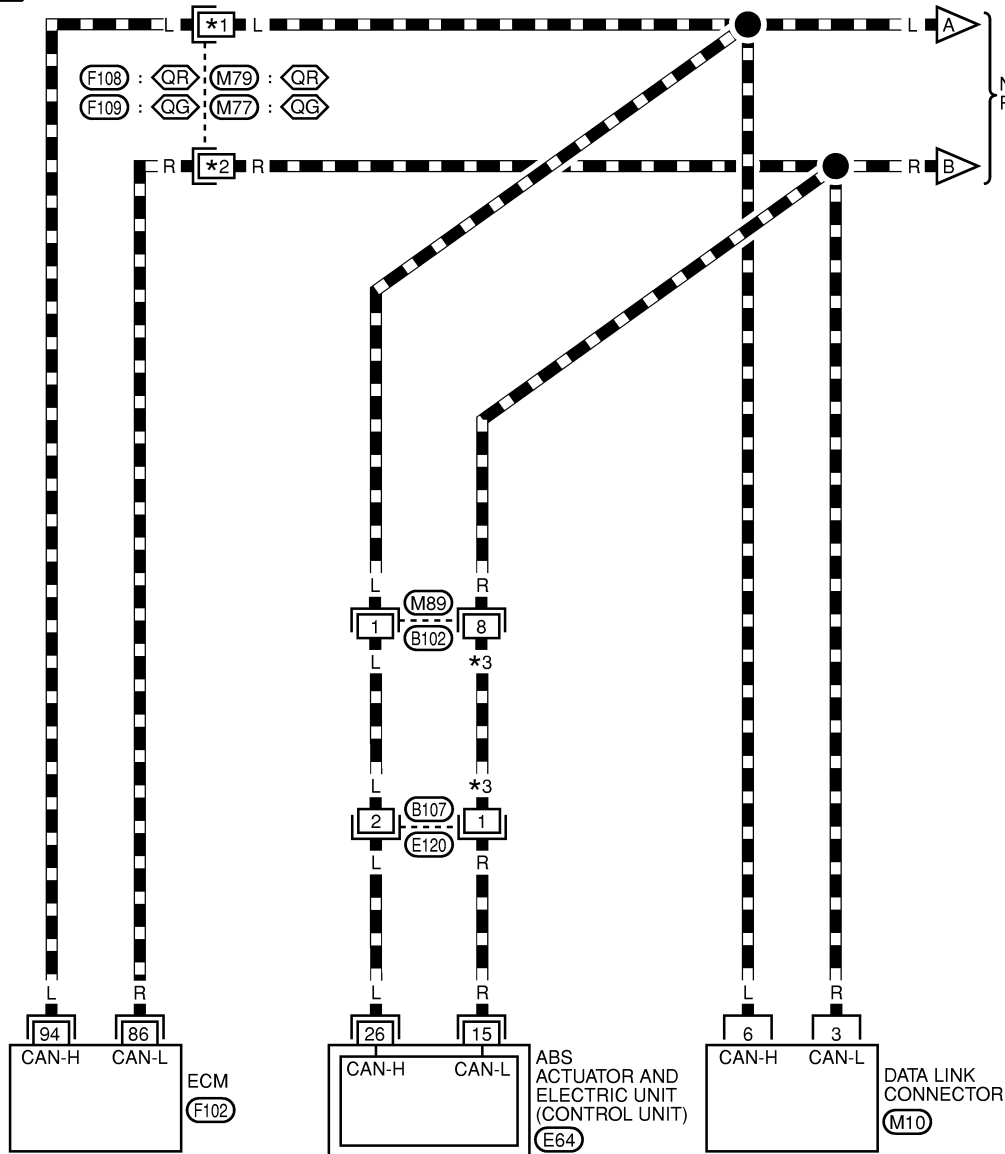
- QR : WITH QR ENGINE
 QG : WITH QG ENGINE
 S : SEDAN
 HW : HATCHBACK AND WAGON

LAN-CAN-12

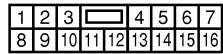
— : DATA LINE

- *1 3 : QR
 13 : QG
 *2 2 : QR
 14 : QG
 *3 G : S
 R : HW

NEXT
PAGE

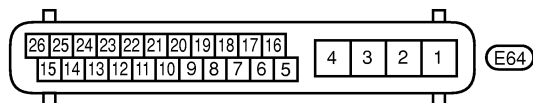


(M10)
W

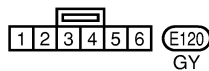


(M89)
W

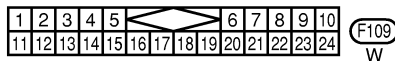
(F108)
W



(E64)



(E120)
GY

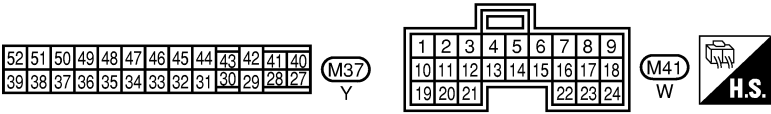
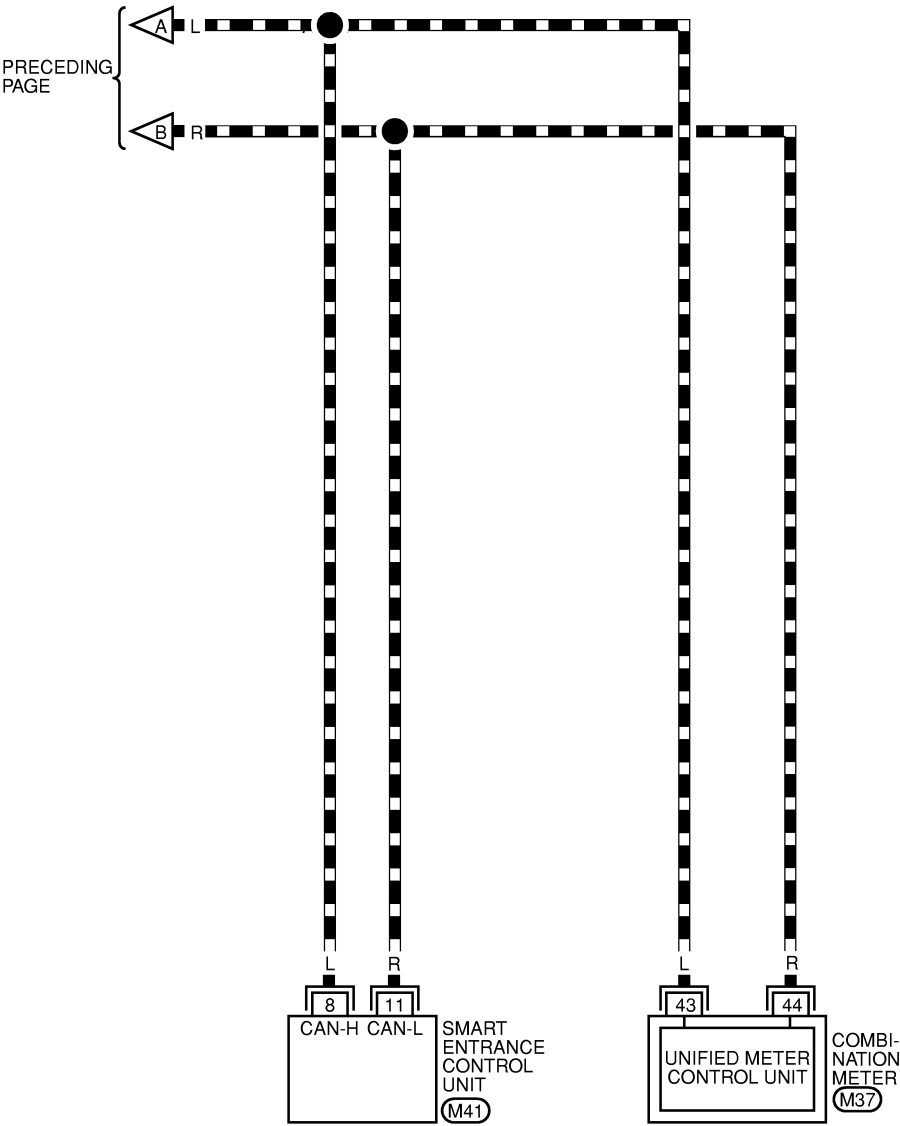


(F109)
W

REFER TO THE FOLLOWING.

(F102) -ELECTRICAL UNITS

▬ : DATA LINE



Work Flow

EKS005F1

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-112, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-112, "CHECK SHEET"](#) .

NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-113, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

A
B
C
D
E
F
G
H
I
J
L
M

LAN

CAN SYSTEM (TYPE 6)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1312E

CAN SYSTEM (TYPE 6)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 2: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA1314E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ABS actuator and electric unit (control unit).

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-115, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-115, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-116, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-116, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-117, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-117, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005F2

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

ECM Circuit Check

EKS005F3

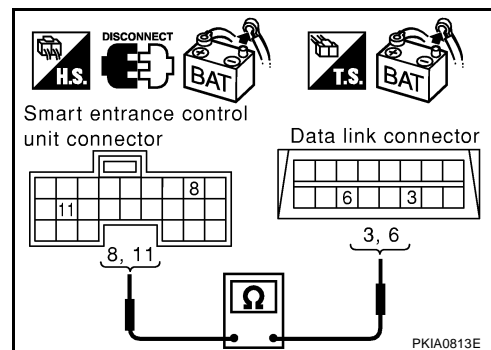
1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM.
 - Harness connector F108(QR engine models)
 - Harness connector M79(QR engine models)
 - Harness connector F109(QG engine models)
 - Harness connector M77(QG engine models)

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 94(L) and 86(R).

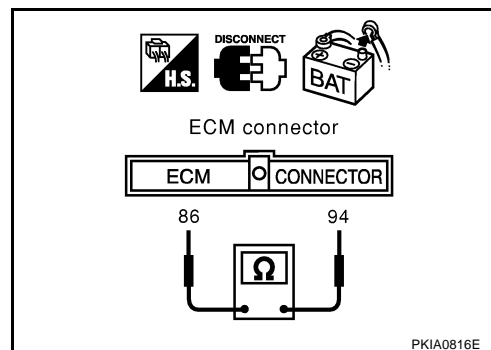
94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

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



ABS Actuator and Electric Unit (control unit) Circuit Check

EKS005F4

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ABS actuator and electric unit (control unit).
 - Harness connector E120
 - Harness connector B107
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

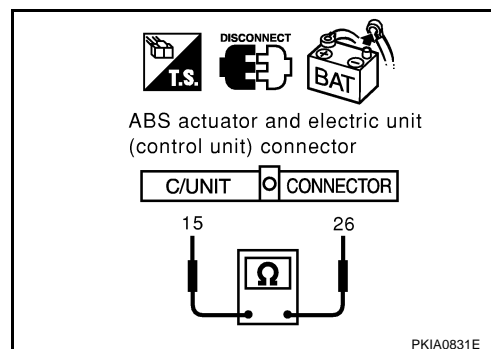
26(L) – 15(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between Data link connector and ABS actuator and electric unit (control unit).



Smart Entrance Control Unit Circuit Check

EKS005F5

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

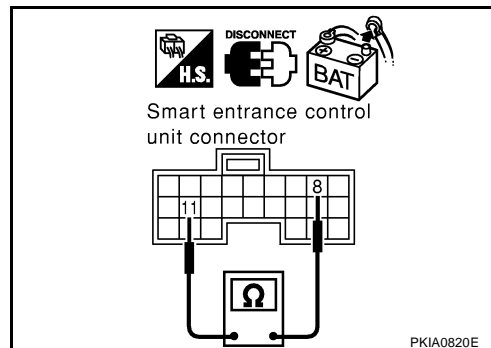
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between Data link connector and smart entrance control unit.



EKS005F6

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

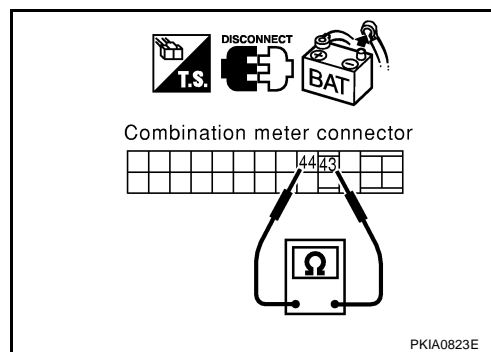
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005F7

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - ECM
 - Between ABS actuator and electric unit (control unit) and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

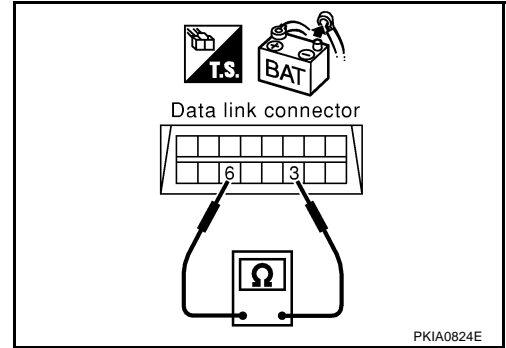
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M79(QR engine models)
 - Harness connector M77(QG engine models)
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M79.(QR engine models)
 - Repair harness between harness connector M89 and harness connector M77.(QG engine models)



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

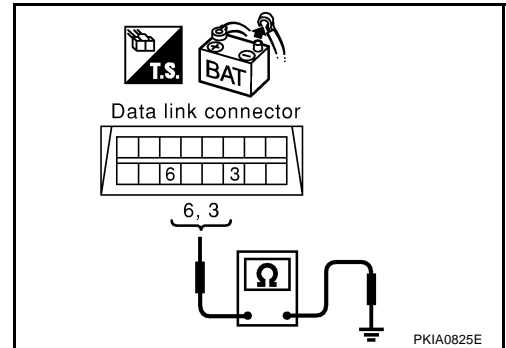
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M79.(QR engine models)
 - Repair harness between harness connector M89 and harness connector M77.(QG engine models)

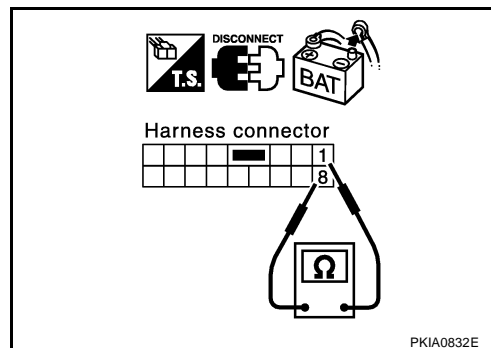


4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector B107.
2. Check the following.
 - Continuity between harness connector B102 terminals 1 (L) and 8(G)(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L) and 8(R)(Hatch back and wagon models)

1(L) – 8(G) (Sedan models) : Continuity should not exist.

1(L) – 8(R) (Hatch back and wagon models) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B102 and harness connector B107.

5. CHECK HARNESS FOR SHORT CIRCUIT

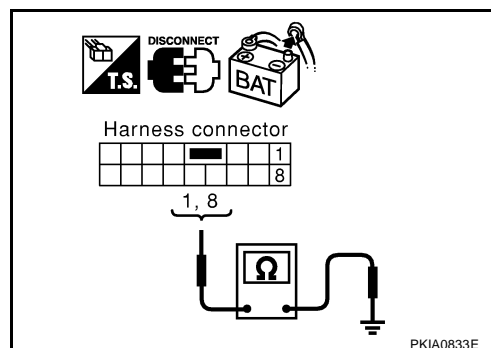
1. Check the following.
 - Continuity between harness connector B102 terminals 1 (L), 8(G) and ground(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L), 8(R) and ground(Hatch back and wagon models)

1(L) – ground (Sedan models) : Continuity should not exist.

8(G) – ground (Sedan models) : Continuity should not exist.

1(L) – ground (Hatch back and wagon models) : Continuity should not exist.

8(R) – ground (Hatch back and wagon models) : Continuity should not exist.



OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B102 and harness connector B107.

6. CHECK HARNESS FOR SHORT CIRCUIT

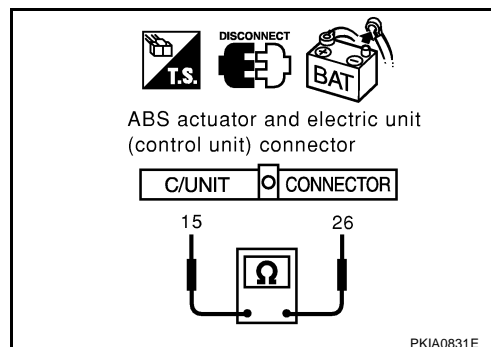
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

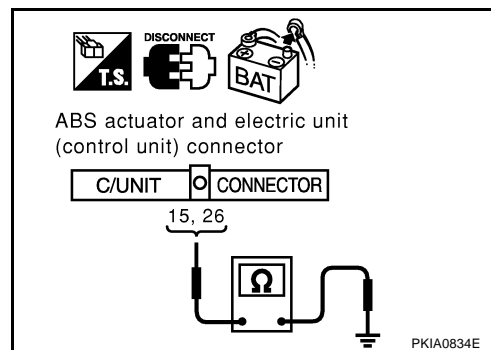
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



8. CHECK HARNESS FOR SHORT CIRCUIT

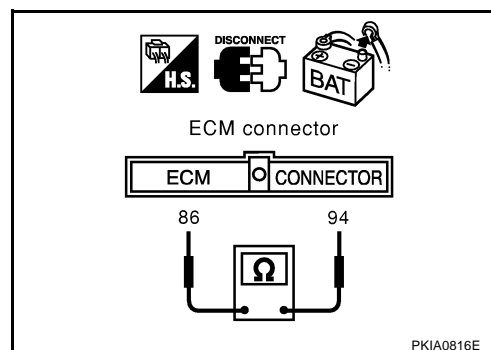
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F108.(QR engine models)
- Repair harness between ECM and harness connector F109.(QG engine models)



9. CHECK HARNESS FOR SHORT CIRCUIT

1. Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

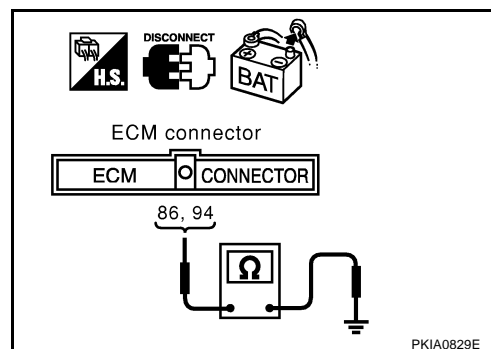
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

- NG >> ● Repair harness between ECM and harness connector F108.(QR engine models)
- Repair harness between ECM and harness connector F109.(QG engine models)



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-121, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

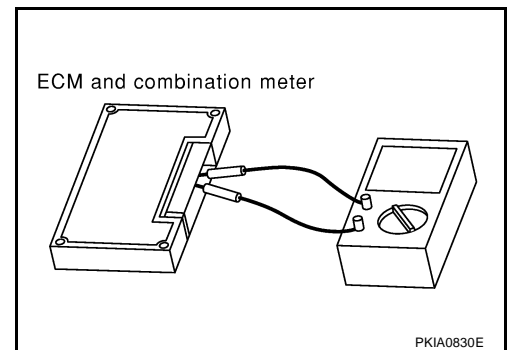
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	43 - 44	



CAN SYSTEM (TYPE 7)

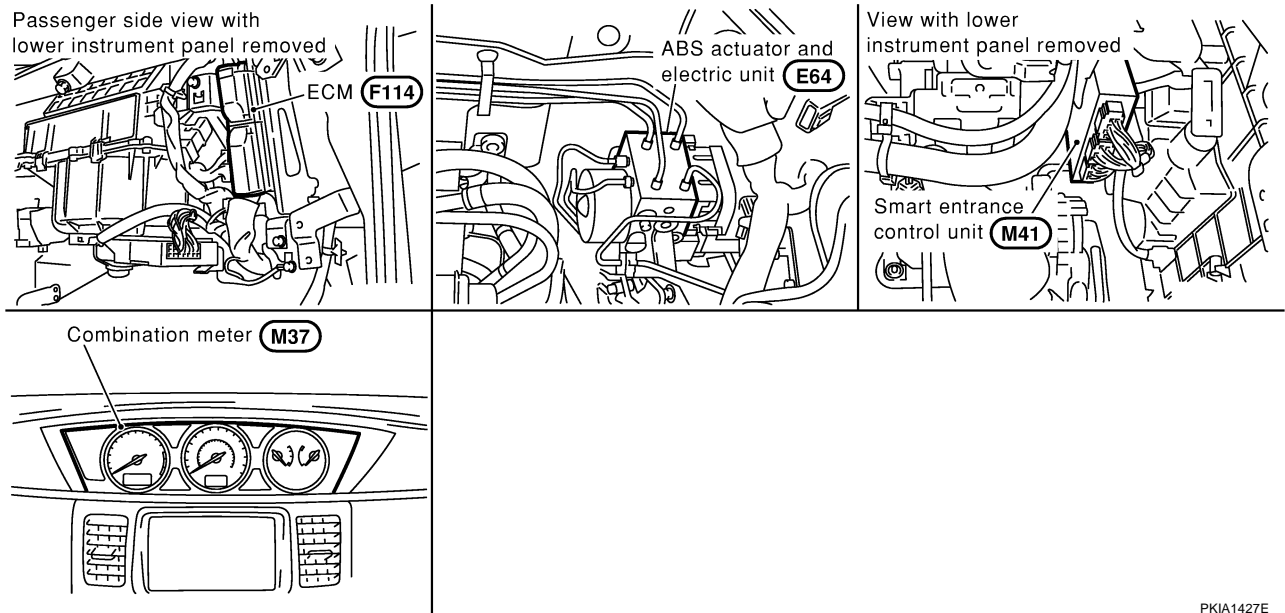
System Description

EKS005F9

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

EKS005FA



PKIA1427E

CAN SYSTEM (TYPE 7)

[CAN]

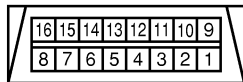
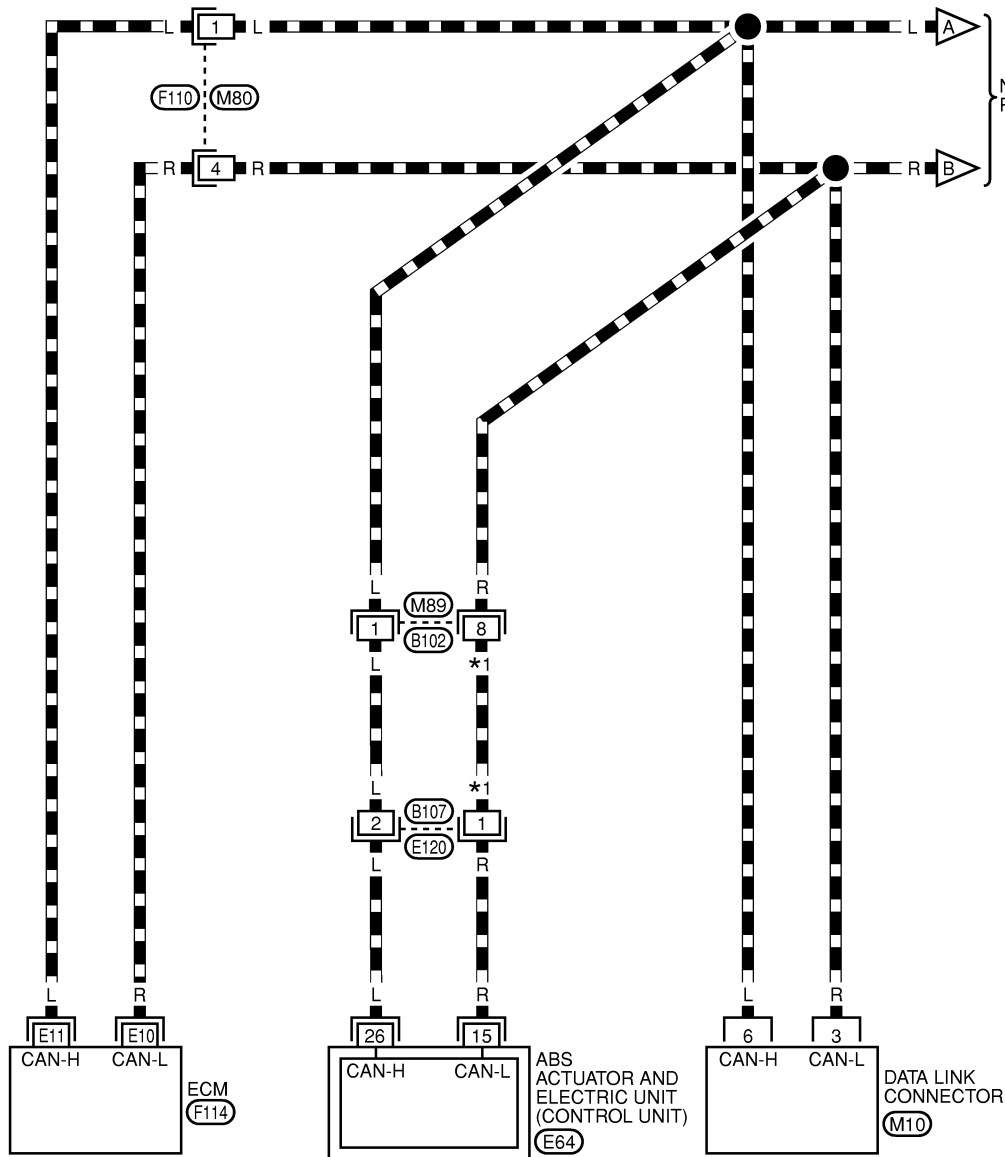
Wiring Diagram — CAN —

EKS005FB

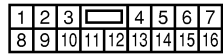
LAN-CAN-14

- : DATA LINE
 S : SEDAN
 HW : HATCHBACK AND WAGON
 *1 G: S
 R: HW

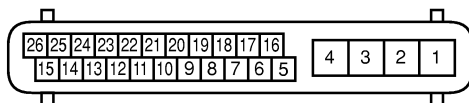
NEXT PAGE



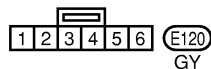
M10
W



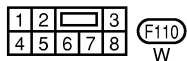
M89
W



E64



E120
GY



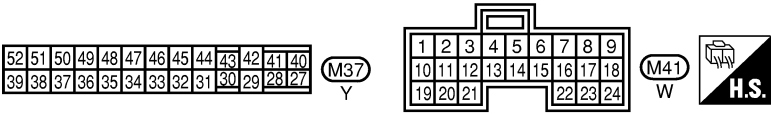
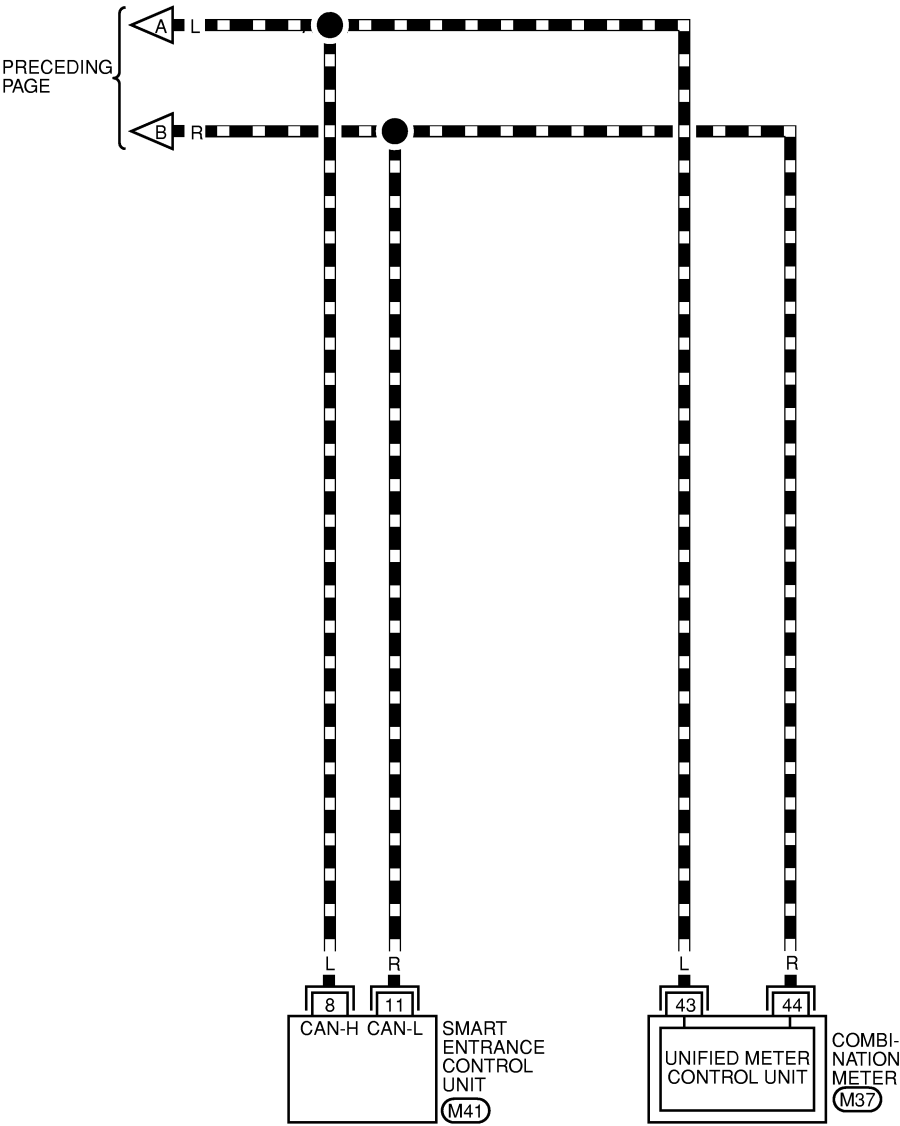
F110
W

REFER TO THE FOLLOWING.

F114 -ELECTRICAL UNITS

MKWA0767E

▬ : DATA LINE



Work Flow

EKS005FC

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-126, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-126, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-127, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 7)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA0750E

CAN SYSTEM (TYPE 7)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM ✓	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 2: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM ✓	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM ✓	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	CAN CIRC 3 ✓

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1 ✓	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1 ✓	CAN CIRC 2 ✓	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1 ✓	CAN CIRC 2 ✓	—	—	CAN CIRC 3 ✓

PKIA0751E

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0752E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ABS actuator and electric unit (control unit).

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-128, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-129, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-129, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-130, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-130, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-131, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005FD

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

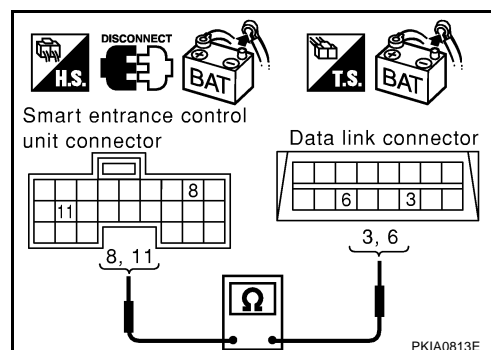
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



PKIA0813E

ECM Circuit Check

EKS005FE

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F110
 - Harness connector M80

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

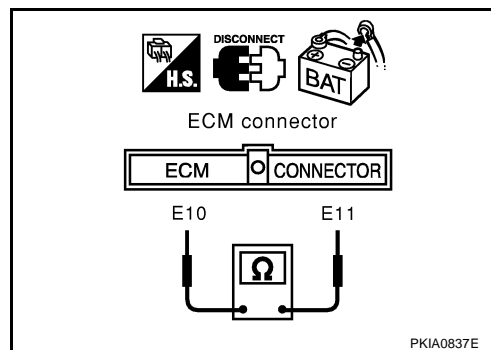
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F114 terminals E11(L) and E10(R).

E11(L) – E10(R)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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

**ABS Actuator and Electric Unit (control unit) Circuit Check**

EKS005FF

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ABS actuator and electric unit (control unit)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

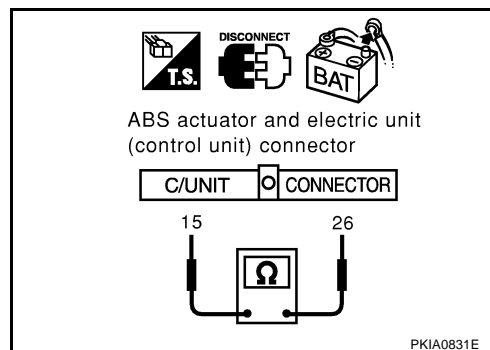
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005FG

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

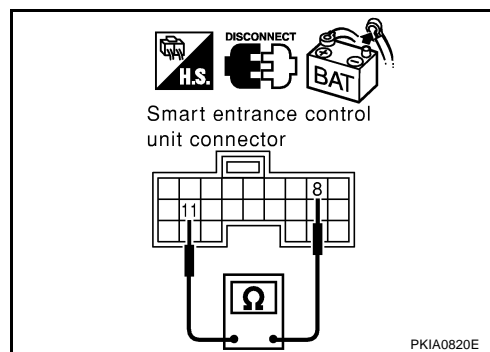
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between Data link connector and smart entrance control unit.



EKS005FH

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

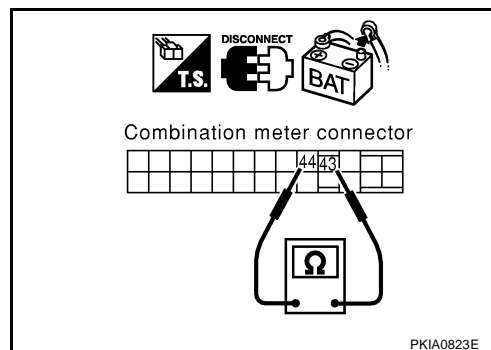
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005FI

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - ECM
 - Between ABS actuator and electric unit (control unit) and ECM

OK or NG

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

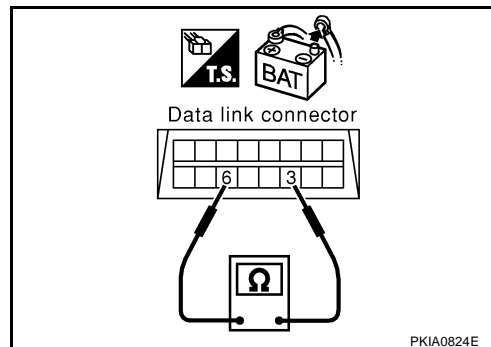
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M80
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between harness connector M89 and harness connector M80.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

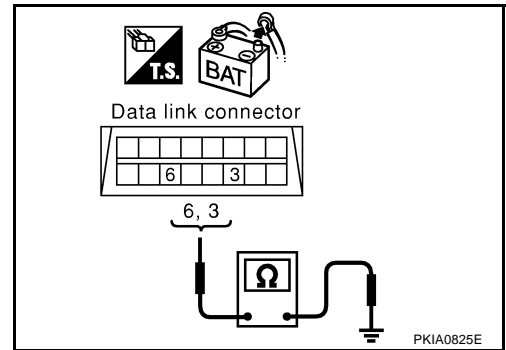
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
 ● Repair harness between Data link connector and smart entrance control unit.
 ● Repair harness between harness connector M89 and harness connector M80.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector B107.
2. Check the following.
 - Continuity between harness connector B102 terminals 1 (L) and 8(G)(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L) and 8(R)(Hatch back and wagon models)

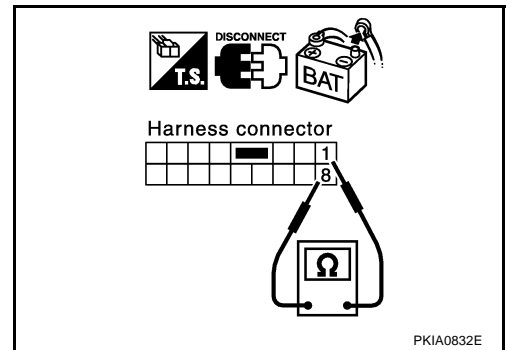
1(L) – 8(G) (Sedan models) : Continuity should not exist.

1(L) – 8(R) (Hatch back and wagon models) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B102 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

1. Check the following.
 - Continuity between harness connector B102 terminals 1 (L), 8(G) and ground(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L), 8(R) and ground(Hatch back and wagon models)

1(L) – ground (Sedan models) : Continuity should not exist.

8(G) – ground (Sedan models) : Continuity should not exist.

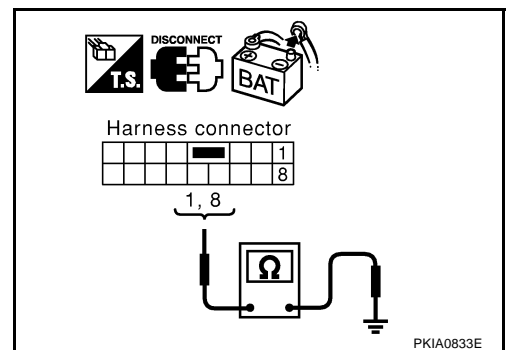
1(L) – ground (Hatch back and wagon models) : Continuity should not exist.

8(R) – ground (Hatch back and wagon models) : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B102 and harness connector B107.



6. CHECK HARNESS FOR SHORT CIRCUIT

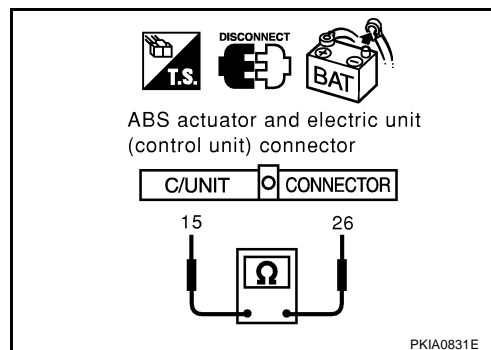
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

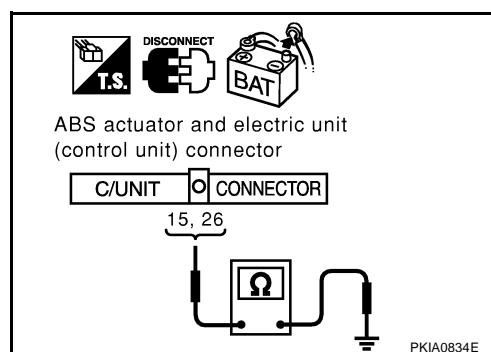
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.



8. CHECK HARNESS FOR SHORT CIRCUIT

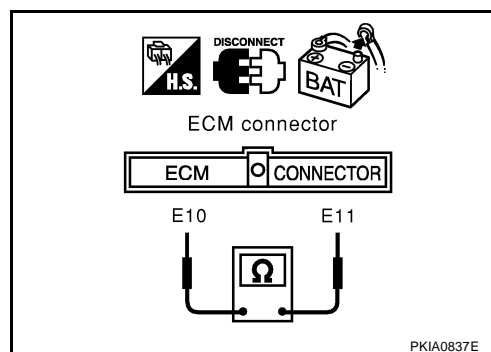
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F114 terminals E11 (L) and E10(R).

E11(L) – E10(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F110.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F114 terminals E11 (L), E10 (R) and ground.

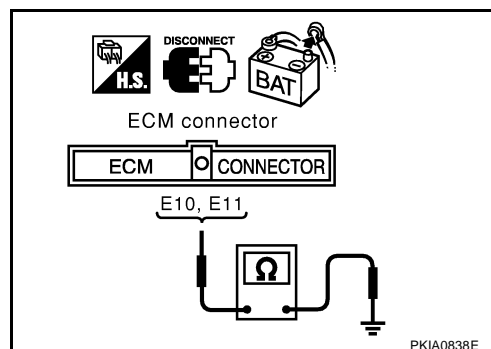
E11(L) – ground : Continuity should not exist.

E10(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F110.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-134, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Replace ECM and/or Combination meter.

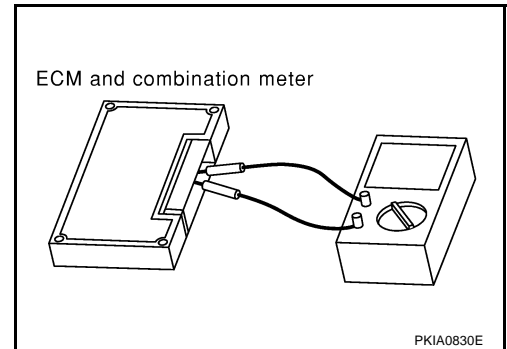
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS005FJ

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals E11 and E10.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	E11 – E10	Approx. 108 - 132
Combination meter	43 – 44	



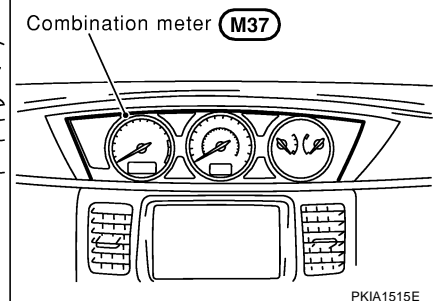
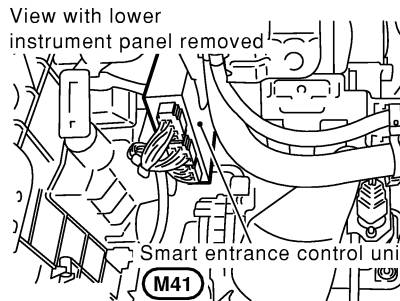
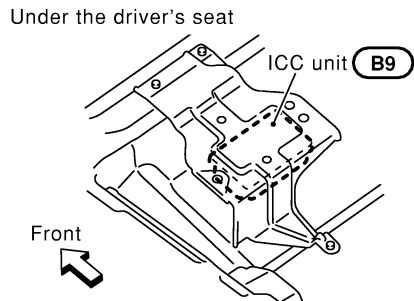
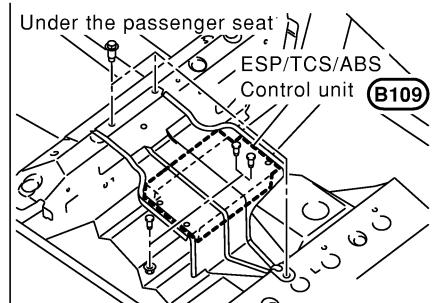
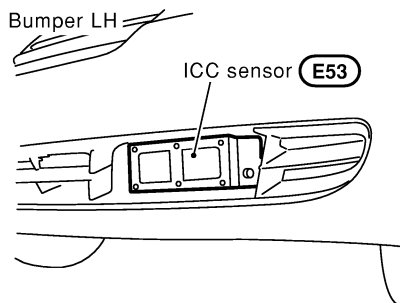
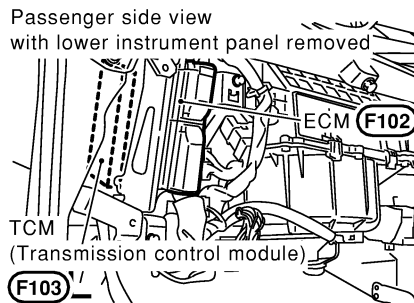
CAN SYSTEM (TYPE 8)**System Description**

EKS005FK

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

EKS005FL



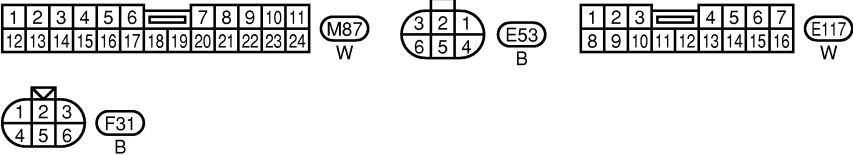
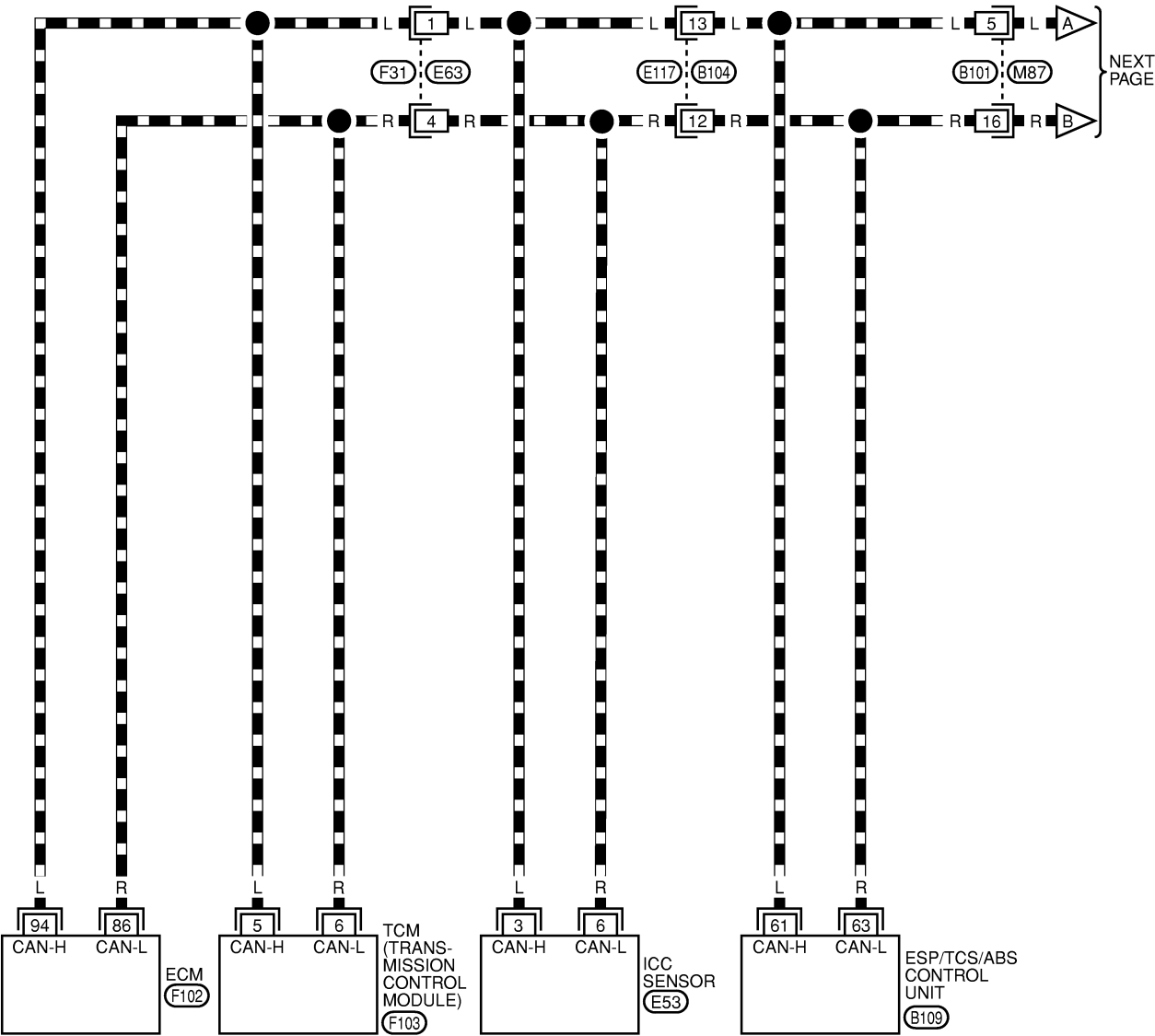
PKIA1515E

Wiring Diagram — CAN —

EKS005FM

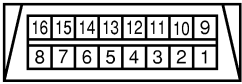
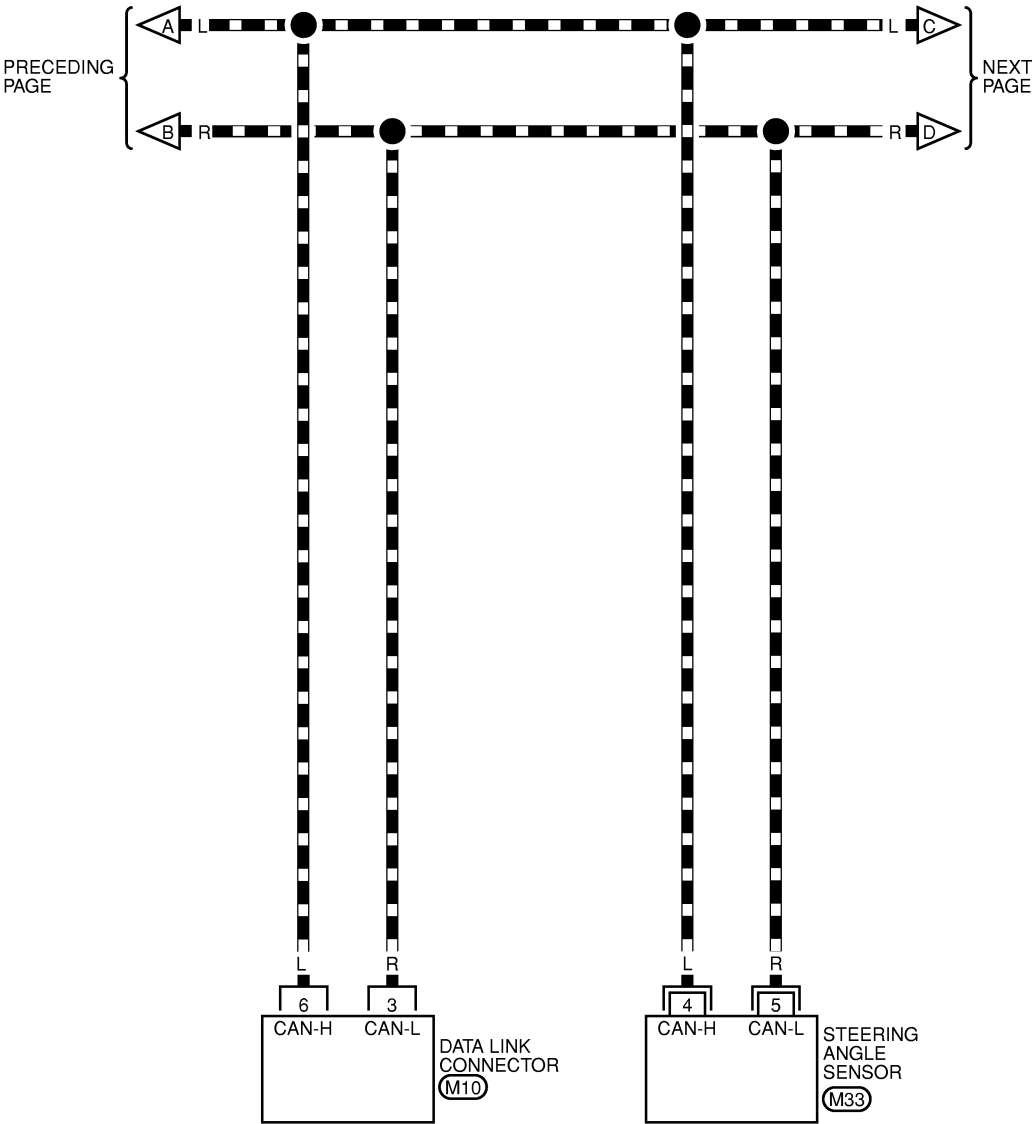
LAN-CAN-16

DATA LINE

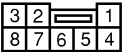


REFER TO THE FOLLOWING.
(F102), (F103), (B109)
-ELECTRICAL UNITS

▬ : DATA LINE



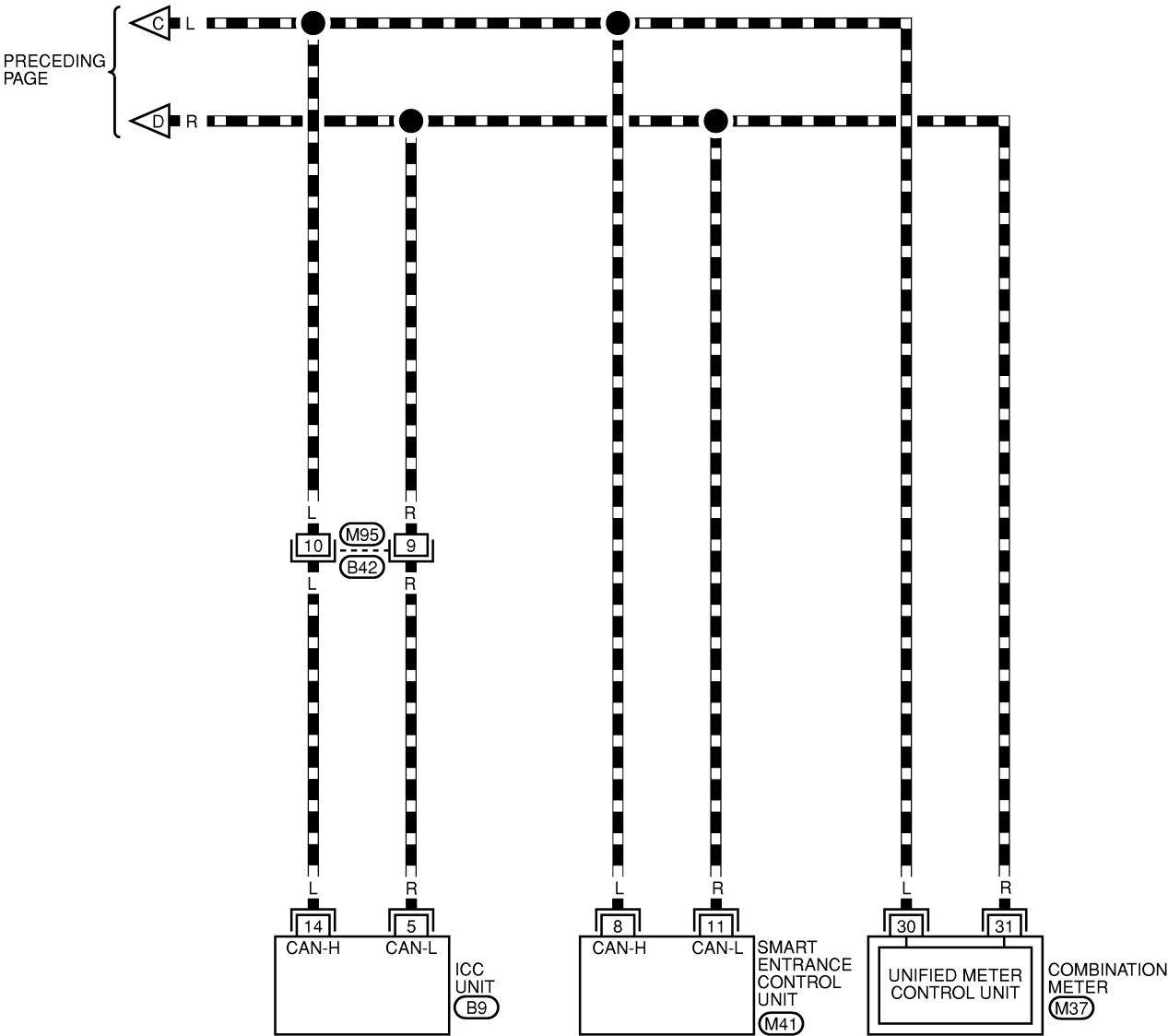
M10
W



M33
W

LAN

▬ : DATA LINE



Work Flow

EKS005FN

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-140, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-140, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-141, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CAN SYSTEM (TYPE 8)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of CVT SELF-DIAG RESULTS	Attach copy of ABS SELF-DIAG RESULTS
Attach copy of ICC SELF-DIAG RESULTS	Attach copy of SMART ENTRANCE SELF-DIAG RESULTS	
Attach copy of ENGINE DATA MONITOR	Attach copy of CVT DATA MONITOR	Attach copy of ABS DATA MONITOR
Attach copy of ICC DATA MONITOR	Attach copy of SMART ENTRANCE DATA MONITOR	

PKIA1315E

CAN SYSTEM (TYPE 8)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM ✓	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2 ✓	—	CAN CIRC 3 ✓	—	CAN CIRC 5 ✓	CAN CIRC 6 ✓	CAN CIRC 4 ✓
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2 ✓	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM ✓	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4 ✓	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	CAN CIRC 3 ✓	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

PKIA1316E

CAN SYSTEM (TYPE 8)

[CAN]

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 4: Replace ICC unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

PKIA1317E

CAN SYSTEM (TYPE 8)

[CAN]

Case 5: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

PKIA1318E

CAN SYSTEM (TYPE 8)

[CAN]

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

CAN SYSTEM (TYPE 8)

[CAN]

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 15

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 16

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

PKIA1320E

CAN SYSTEM (TYPE 8)

[CAN]

Case 17

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 18

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

Case 19

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 5	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 5	CAN CIRC 6	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 4	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	—	CAN CIRC 3

PKIA1321E

NOTE:

If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace ICC unit.

Case 5: Replace Smart entrance control unit.

Case 6: Check Harness between TCM and ICC sensor. Refer to [LAN-147, "Circuit Check Between TCM and ICC Sensor"](#).

Case 7: Check Harness between ICC sensor and ESP/TCS/ABS control unit. Refer to [LAN-148, "Circuit Check Between ICC Sensor and ESP/TCS/ABS Control Unit"](#).

Case 8: Check Harness between ESP/TCS/ABS control unit and Steering angle sensor. Refer to [LAN-149, "Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#).

Case 9: Check Harness between Steering angle sensor and ICC unit. Refer to [LAN-151, "Circuit Check Between Steering Angle Sensor and ICC Unit"](#).

Case 10: Check Harness between ICC unit and Smart entrance control unit. Refer to [LAN-152, "Circuit Check Between ICC Unit and Smart Entrance Control Unit"](#).

Case 11: Check ECM Circuit. Refer to [LAN-152, "ECM Circuit Check"](#).

Case 12: Check TCM Circuit. Refer to [LAN-153, "TCM Circuit Check"](#).

Case 13: Check ICC sensor Circuit. Refer to [LAN-153, "ICC Sensor Circuit Check"](#).

Case 14: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-154, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 15: Check Steering angle sensor Circuit. Refer to [LAN-154, "Steering Angle Sensor Circuit Check"](#).

Case 16: Check ICC unit Circuit. Refer to [LAN-155, "ICC Unit Circuit Check"](#).

Case 17: Check Smart entrance control unit Circuit. Refer to [LAN-155, "Smart Entrance Control Unit Circuit Check"](#).

Case 18: Check Combination meter Circuit. Refer to [LAN-156, "Combination Meter Circuit Check"](#).

Case 19: Check CAN communication Circuit. Refer to [LAN-157, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and ICC Sensor

EKS005FO

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F31
 - Harness connector E63

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F31.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F31 terminals 1 (L), 4 (R).

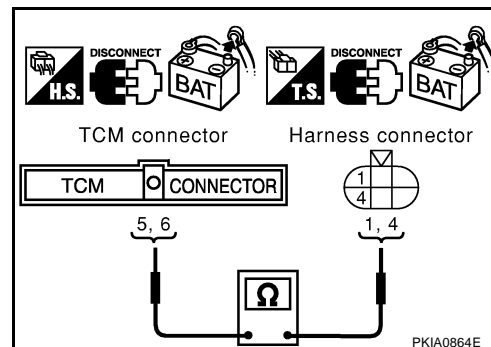
5(L) – 1(L) : Continuity should exist.

6(R) – 4(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ICC sensor connector.
2. Check continuity between harness connector E63 terminals 1 (L), 4 (R) and ICC sensor harness connector E53 terminals 3 (L), 6 (R).

1(L) – 3(L) : Continuity should exist.

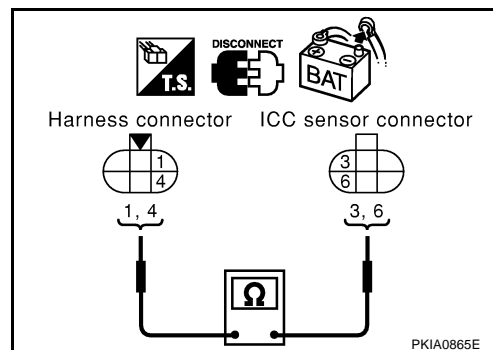
4(R) – 6(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ICC Sensor and ESP/TCS/ABS Control Unit

EKS005FP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E117
 - Harness connector B104

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ICC sensor connector and harness connector E117.
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and harness connector E117 terminals 13 (L), 12 (R).

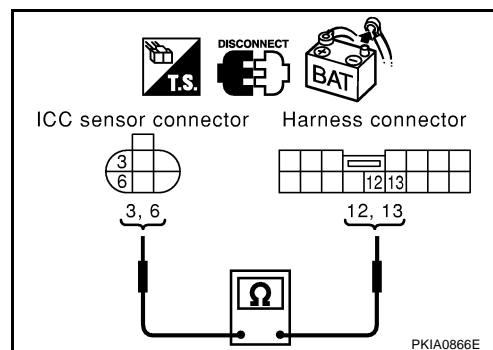
3(L) – 13(L) : Continuity should exist.

6(R) – 12(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between harness connector B104 terminals 13 (L), 12 (R) and ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R).

13(L) – 61(L) : Continuity should exist.

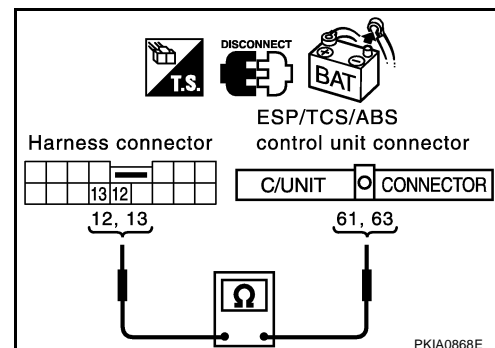
12(R) – 63(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor

EKS005FQ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

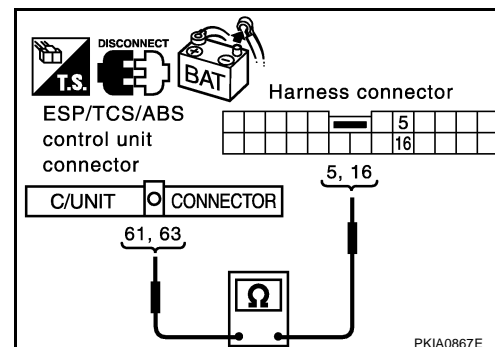
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

5(L) – 4(L) : Continuity should exist.

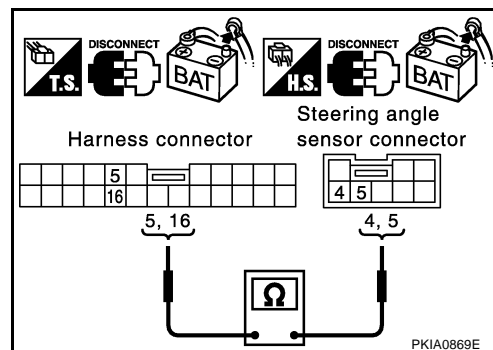
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and ICC Unit

EKS005FR

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - ICC unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between ICC unit harness connector B9 terminals 14 (L), 5 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

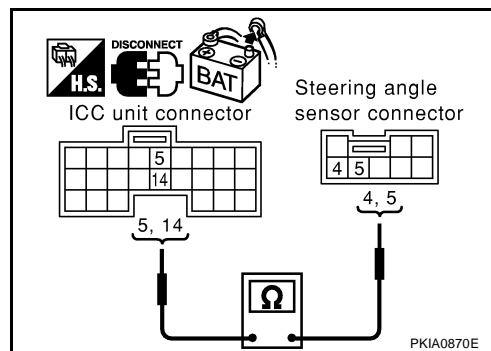
14(L) – 4(L) : Continuity should exist.

5(R) – 5(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ICC Unit and Smart Entrance Control Unit

EKS005FS

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - ICC unit connector
 - Smart entrance control unit connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and ICC unit harness connector B9 terminals 14 (L), 5 (R).

8(L) – 14(L) : Continuity should exist.

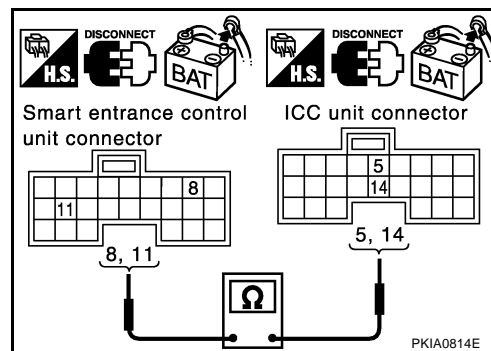
11(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005FT

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery 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 F102 terminals 94(L) and 86(R).

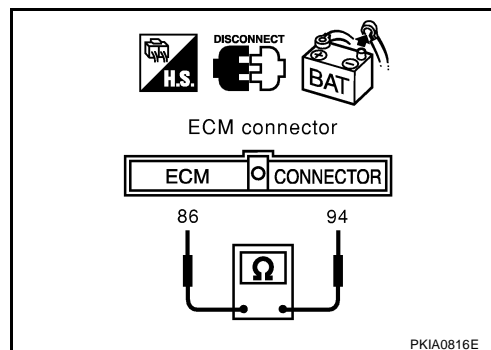
94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



EKS005FU

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

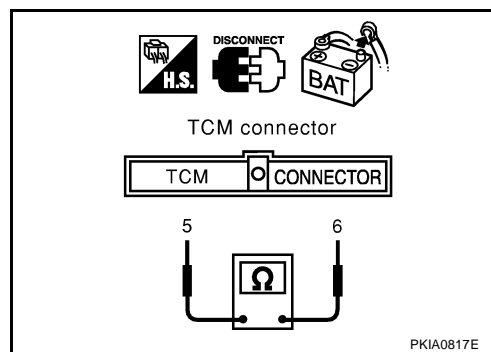
5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.



EKS005FV

ICC Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ICC 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 ICC sensor connector.
2. Check resistance between ICC sensor harness connector E53 terminals 3(L) and 6(R).

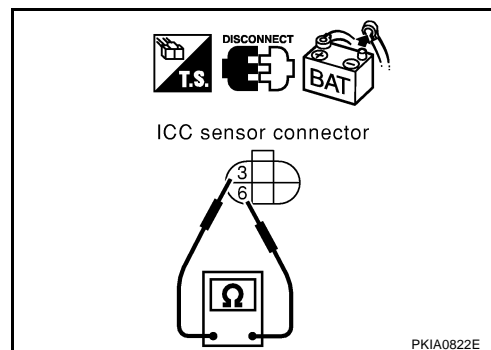
3(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace ICC sensor.

NG >> Repair harness between ESP/TCS/ABS control unit and ICC sensor.



EKS005FW

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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 ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

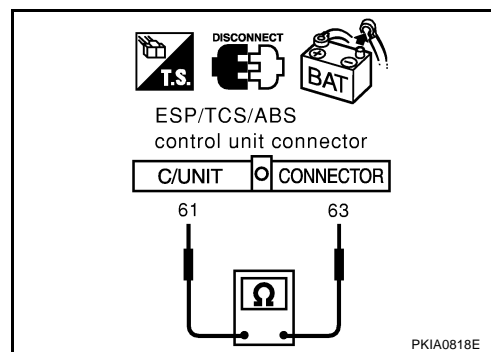
61(L) – 63(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace ESP/TCS/ABS control unit.

NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



EKS005FX

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

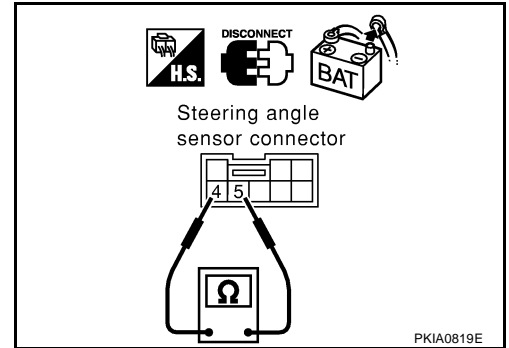
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005FY

ICC Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ICC unit
 - Harness connector B42
 - Harness connector M95

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

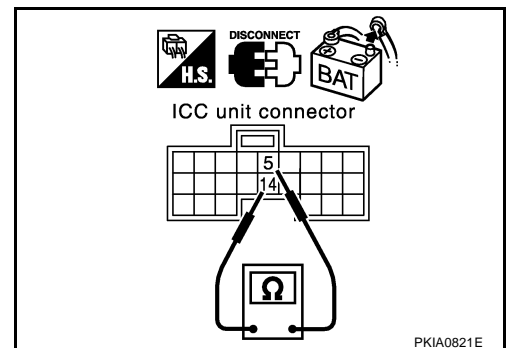
1. Disconnect ICC unit connector.
2. Check resistance between ICC unit harness connector B9 terminals 14(L) and 5(R).

14(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ICC unit.
 NG >> Repair harness between ICC unit and smart entrance control unit.



EKS005FZ

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

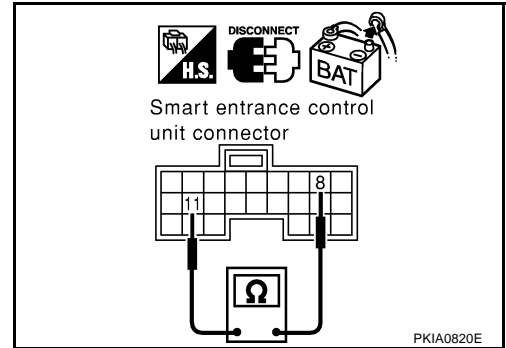
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between ICC unit and smart entrance control unit.



EKS005G0

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

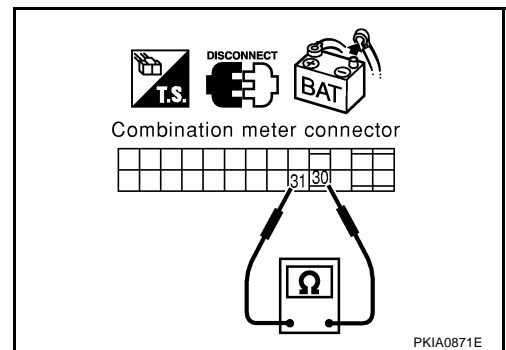
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



PKIA0871E

CAN Communication Circuit Check

EKS005G1

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ICC unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ICC sensor
 - TCM
 - ECM
 - Between ICC unit and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

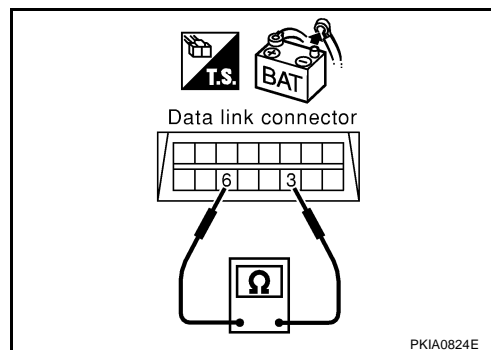
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M95
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and harness connector M95.
 - Repair harness between harness connector M95 and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and harness connector M87.



PKIA0824E

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

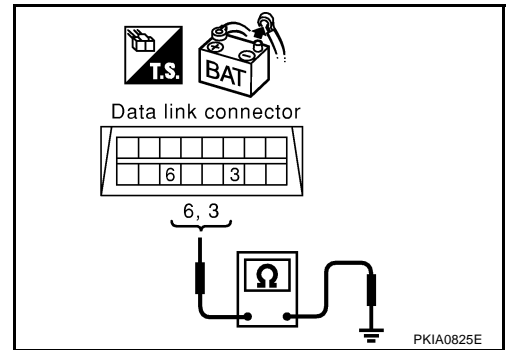
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and harness connector M95.
- Repair harness between harness connector M95 and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ICC unit connector.

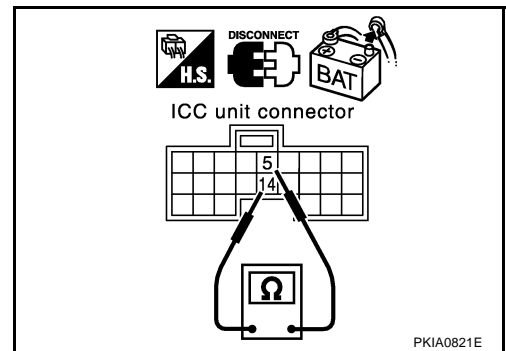
2. Check continuity between ICC unit harness connector B9 terminals 14 (L) and 5(R).

14(L) – 5(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ICC unit and harness connector B42.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC unit harness connector B9 terminals 14 (L), 5 (R) and ground.

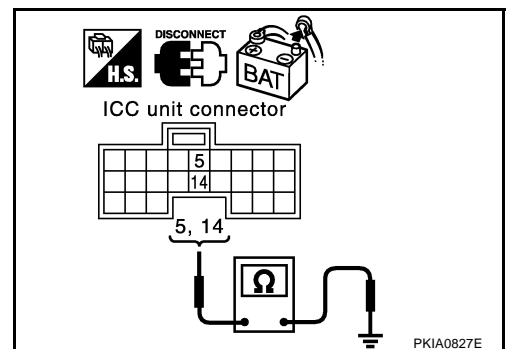
14(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ICC unit and harness connector B42.



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B104.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

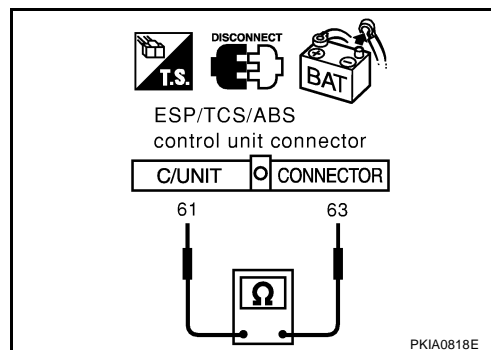
61(L) – 63(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

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

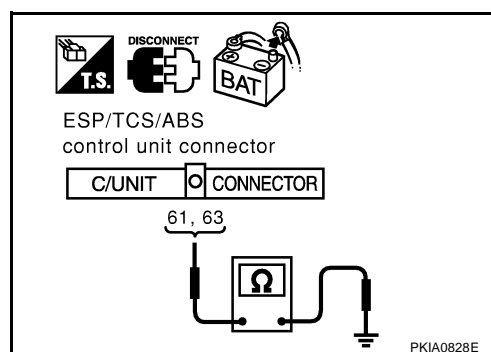
63(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ICC sensor connector and harness connector E63.
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L) and 6(R).

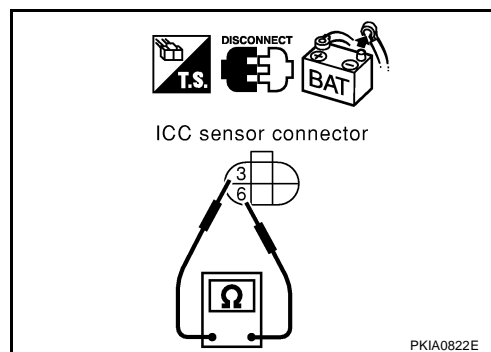
3(L) – 6(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> ● Repair harness between ICC sensor and harness connector E117.

- Repair harness between harness connector E117 and harness connector E63.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and ground.

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

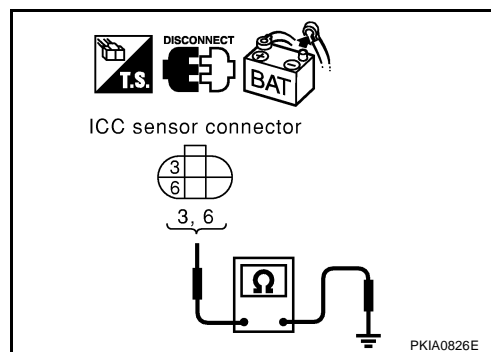
6(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> ● Repair harness between ICC sensor and harness connector E117.

- Repair harness between harness connector E117 and harness connector E63.



10. CHECK HARNESS FOR SHORT CIRCUIT

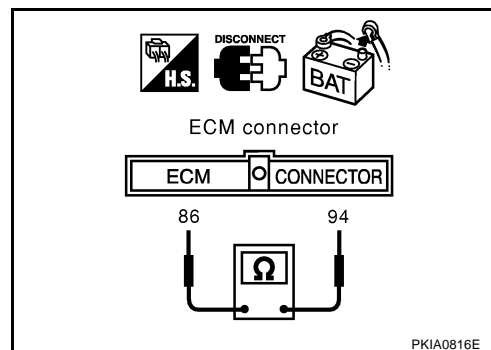
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 11.

- NG >> ● Repair harness between ECM and harness connector F31.
 ● Repair harness between TCM and harness connector F31.



11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

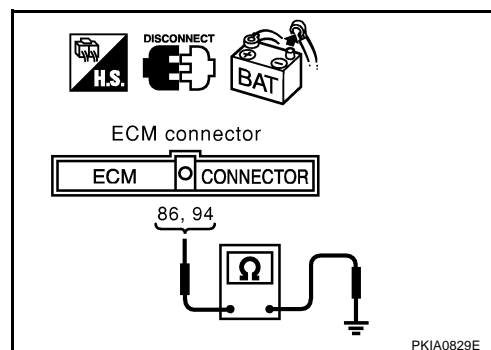
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 12.

- NG >> ● Repair harness between ECM and harness connector F31.
 ● Repair harness between TCM and harness connector F31.



12. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-161, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- NG >> Replace ECM and/or Combination meter.

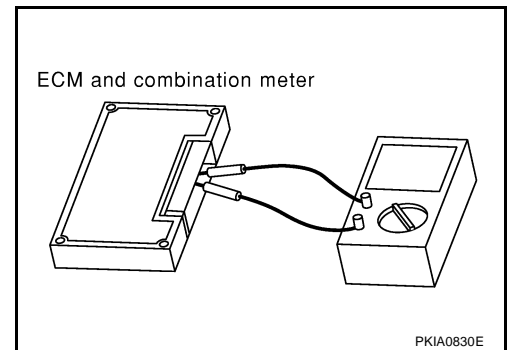
Component Inspection

EKS005G2

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	30 - 31	



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CAN SYSTEM (TYPE 9)

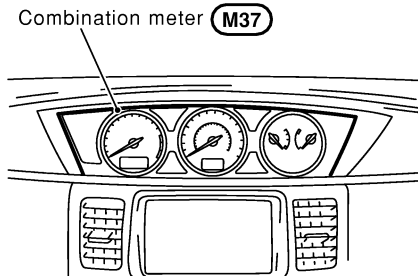
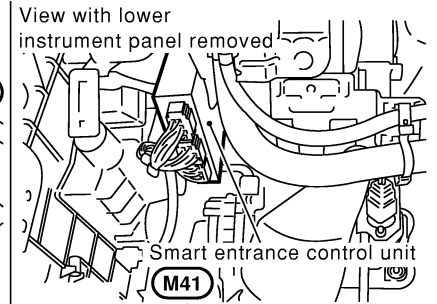
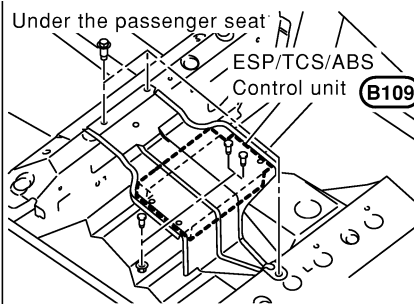
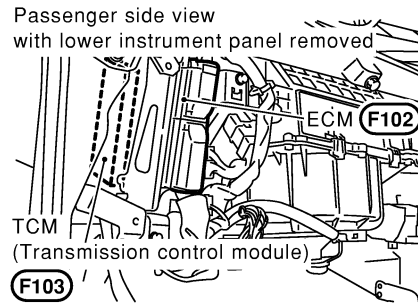
System Description

EKS005G3

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

EKS005G4



PKIA0902E

CAN SYSTEM (TYPE 9)

[CAN]

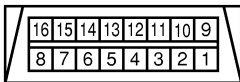
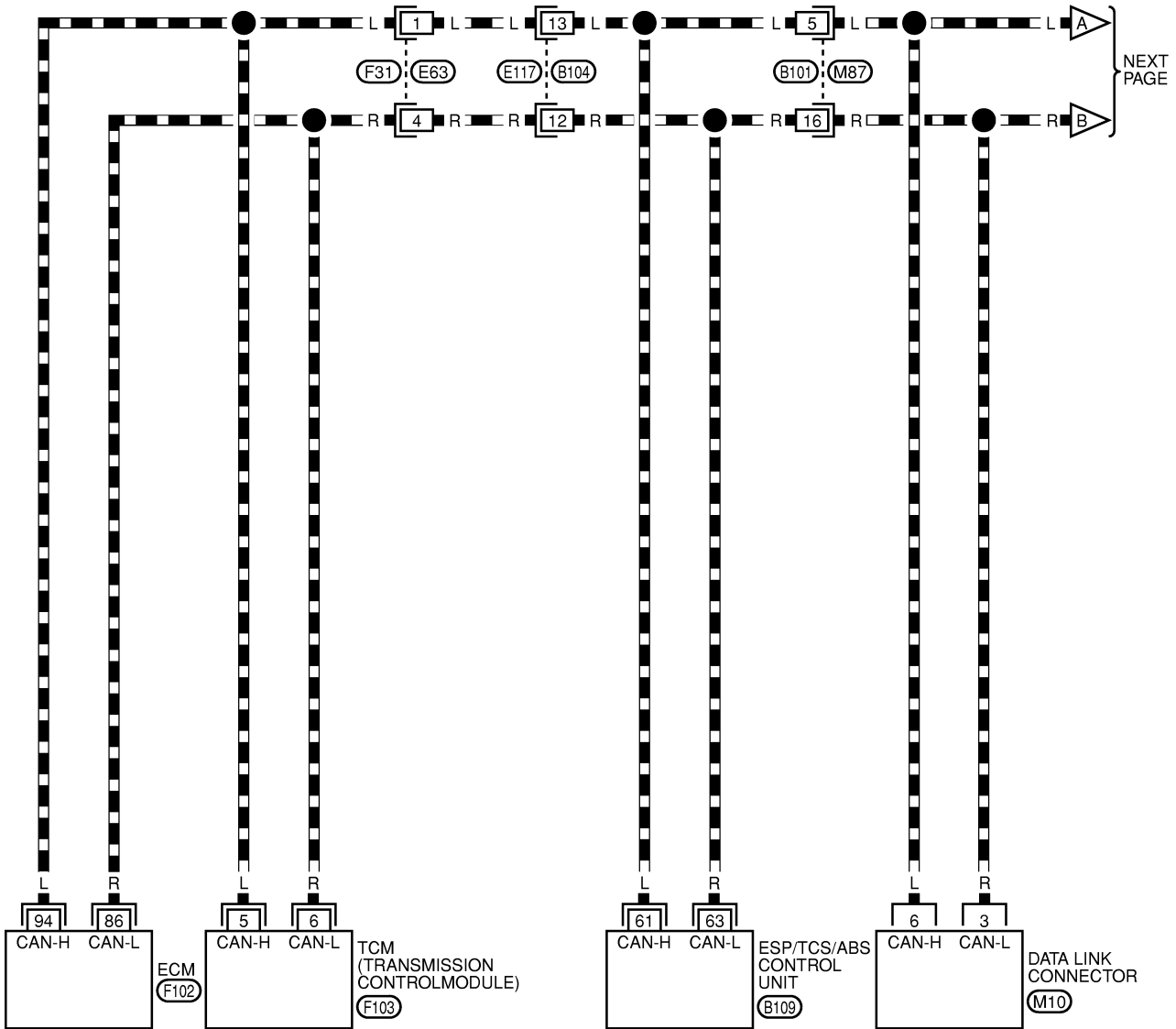
Wiring Diagram — CAN —

EKS005G5

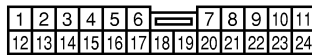
LAN-CAN-19

DATA LINE

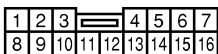
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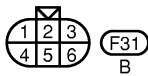
M10
W



M87
W



E117
W



F31
B

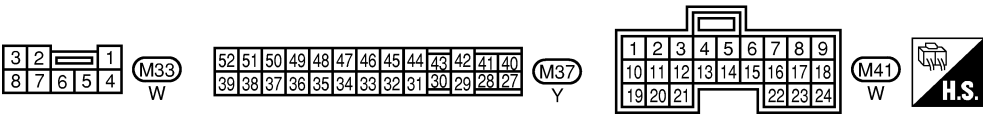
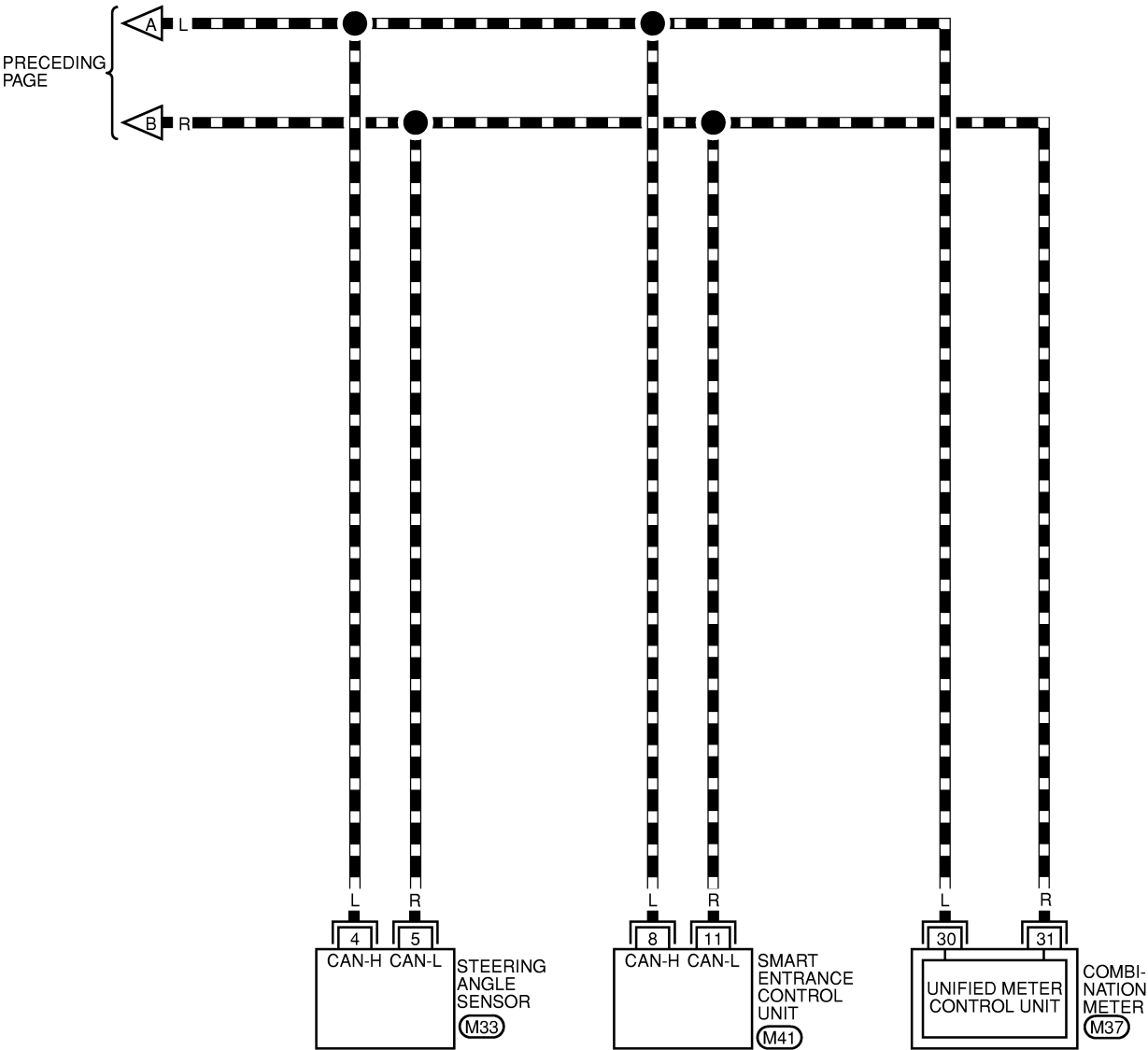
REFER TO THE FOLLOWING.

F102 , F103 , B109

-ELECTRICAL UNITS

MKWA0540E

DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-166, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-166, "CHECK SHEET"](#).
NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-167, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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LAN

CAN SYSTEM (TYPE 9)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
CVT
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
CVT
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1322E

CAN SYSTEM (TYPE 9)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1323E

CAN SYSTEM (TYPE 9)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1324E

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1325E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and ESP/TCS/ABS control unit. Refer to [LAN-169, "Circuit Check Between TCM and ESP/TCS/ABS Control Unit"](#).

Case 6: Check Harness between ESP/TCS/ABS control unit and Steering angle sensor. Refer to [LAN-171, "Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#).

Case 7: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-172, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 8: Check ECM Circuit. Refer to [LAN-172, "ECM Circuit Check"](#).

Case 9: Check TCM Circuit. Refer to [LAN-173, "TCM Circuit Check"](#).

Case 10: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-173, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 11: Check Steering angle sensor Circuit. Refer to [LAN-174, "Steering Angle Sensor Circuit Check"](#).

Case 12: Check Smart entrance control unit Circuit. Refer to [LAN-174, "Smart Entrance Control Unit Circuit Check"](#).

Case 13: Check Combination meter Circuit. Refer to [LAN-175, "Combination Meter Circuit Check"](#).

Case 14: Check CAN communication Circuit. Refer to [LAN-176, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and ESP/TCS/ABS Control Unit

EKS005G7

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F31
 - Harness connector E63
 - Harness connector E117
 - Harness connector B104

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F31.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F31 terminals 1 (L), 4 (R).

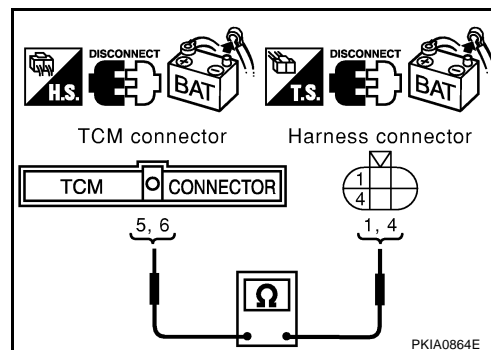
5(L) – 1(L) : Continuity should exist.

6(R) – 4(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E117.
2. Check continuity between harness connector E63 terminals 1 (L), 4 (R) and harness connector E117 terminals 13 (L), 12 (R).

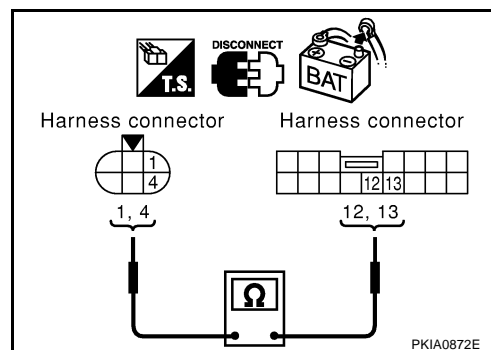
1(L) – 13(L) : Continuity should exist.

4(R) – 12(R) : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness.



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between harness connector B104 terminals 13 (L), 12 (R) and ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R).

13(L) – 61(L) : Continuity should exist.

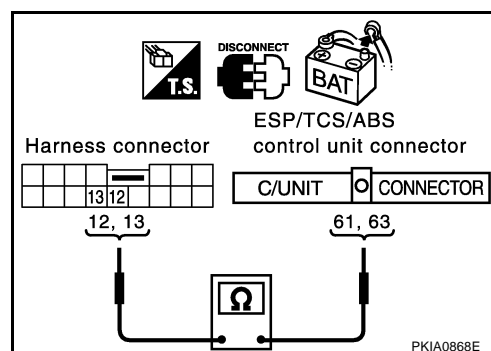
12(R) – 63(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor

EKS005G8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

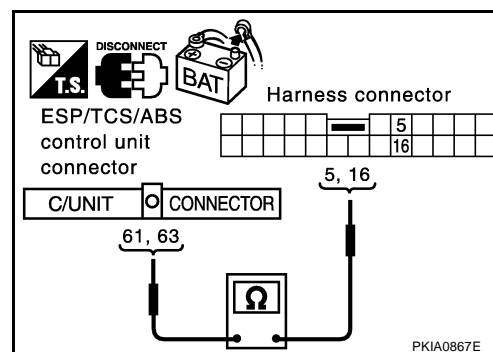
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

5(L) – 4(L) : Continuity should exist.

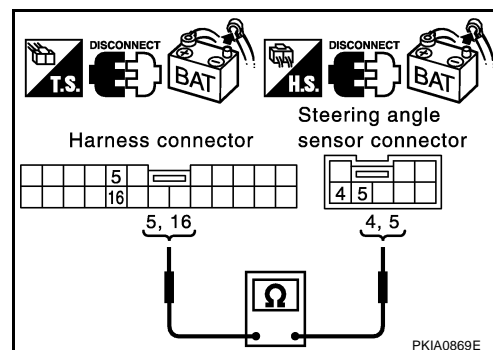
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBd) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBd) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBd) for "CVT"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

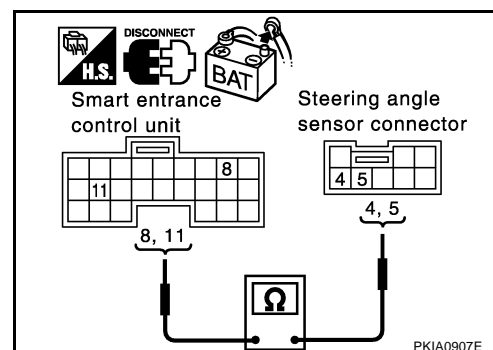
EKS005G9

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

8(L) – 4(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.

**OK or NG**

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

ECM Circuit Check

EKS005GA

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery 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 F102 terminals 94(L) and 86(R).

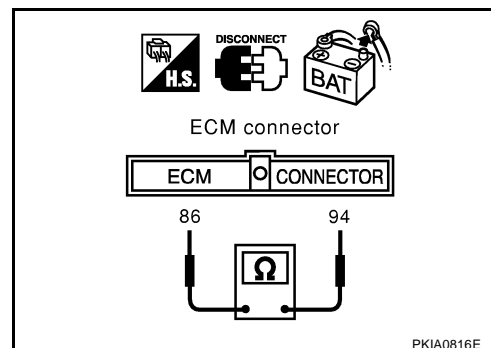
94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



EKS005GB

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

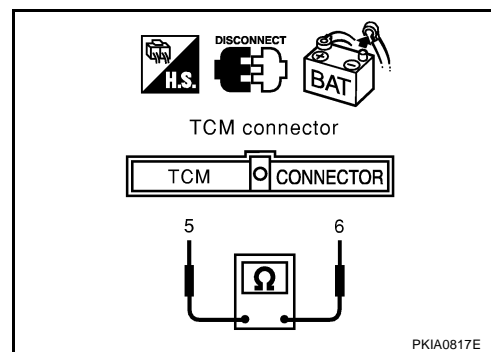
5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.



EKS005GC

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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.

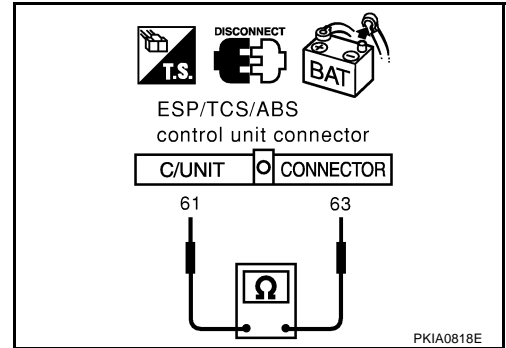
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



Steering Angle Sensor Circuit Check

EKS005GD

1. CHECK CONNECTOR

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

OK or NG

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

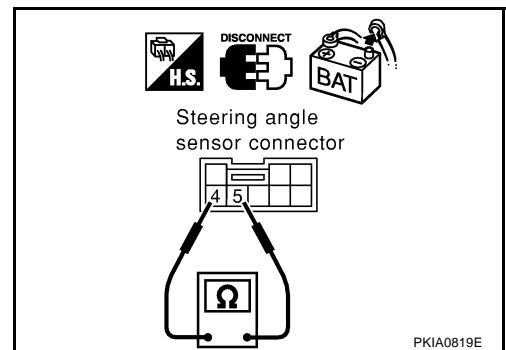
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



Smart Entrance Control Unit Circuit Check

EKS005GE

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

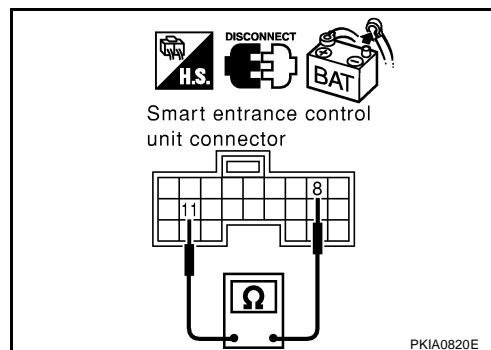
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005GF

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

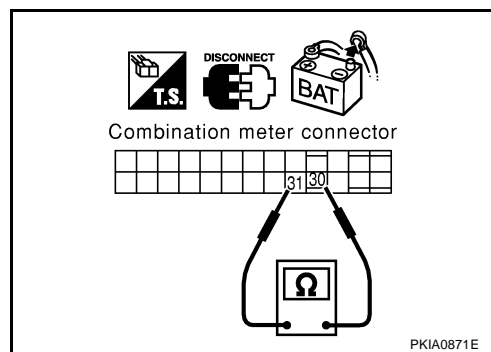
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



PKIA0871E

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - TCM
 - ECM
 - Between Data link connector and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

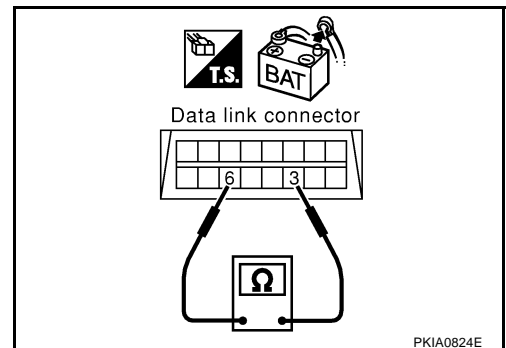
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >>
- Repair harness between smart entrance control unit and combination meter.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

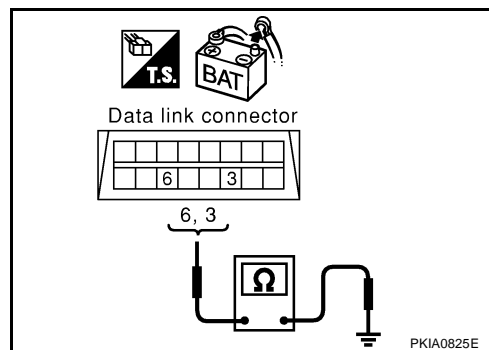
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B104.

2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

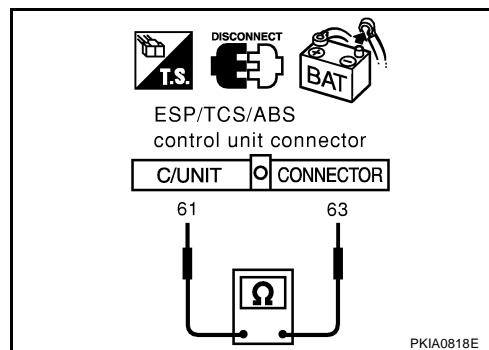
61(L) – 63(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

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

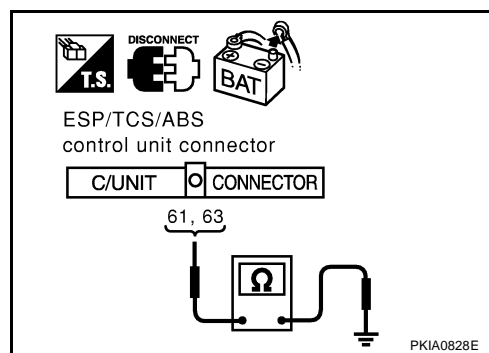
63(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



6. CHECK HARNESS FOR SHORT CIRCUIT

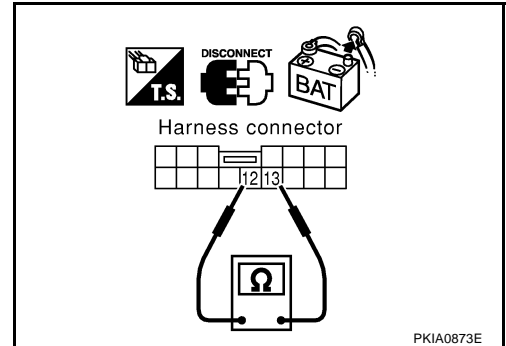
1. Disconnect harness connector E63.
2. Check continuity between harness connector E117 terminals 13 (L) and 12(R).

13(L) – 12(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between harness connector E117 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E117 terminals 13 (L) and 12(R) and ground.

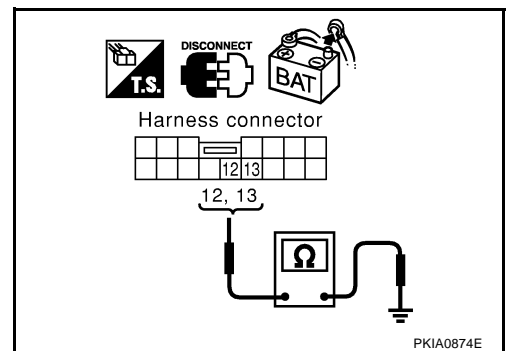
13(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E117 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

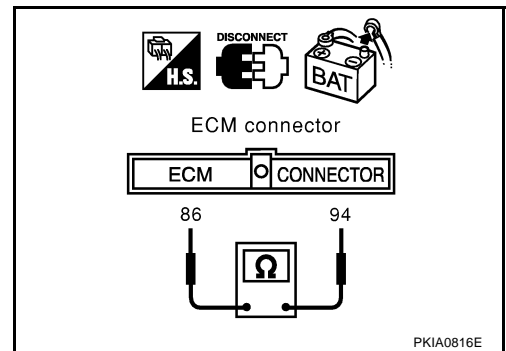
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F31.
● Repair harness between TCM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

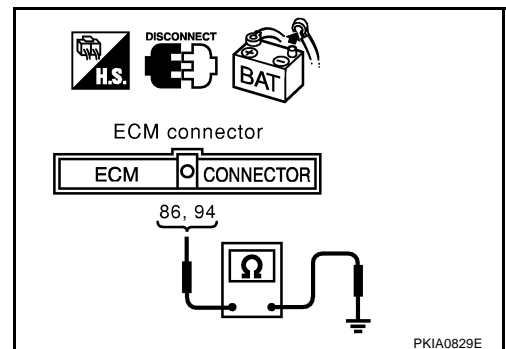
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

- NG >> ● Repair harness between ECM and harness connector F31.
● Repair harness between TCM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-179, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

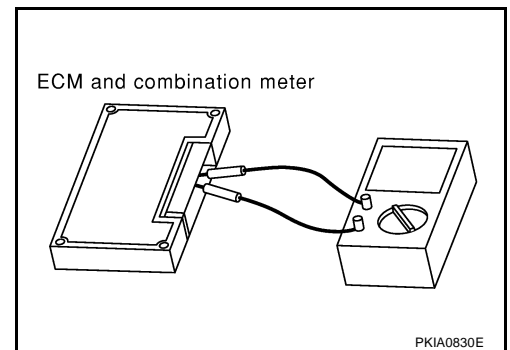
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "CVT"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 10)

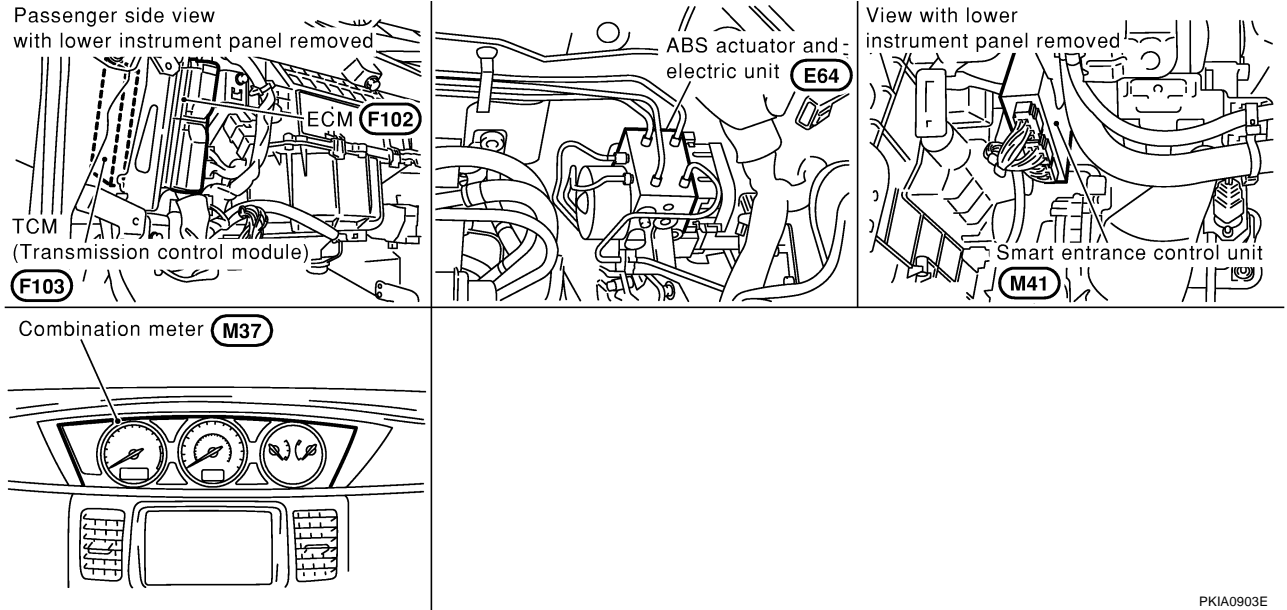
System Description

EKS005GI

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

EKS005GJ



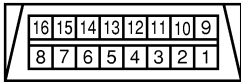
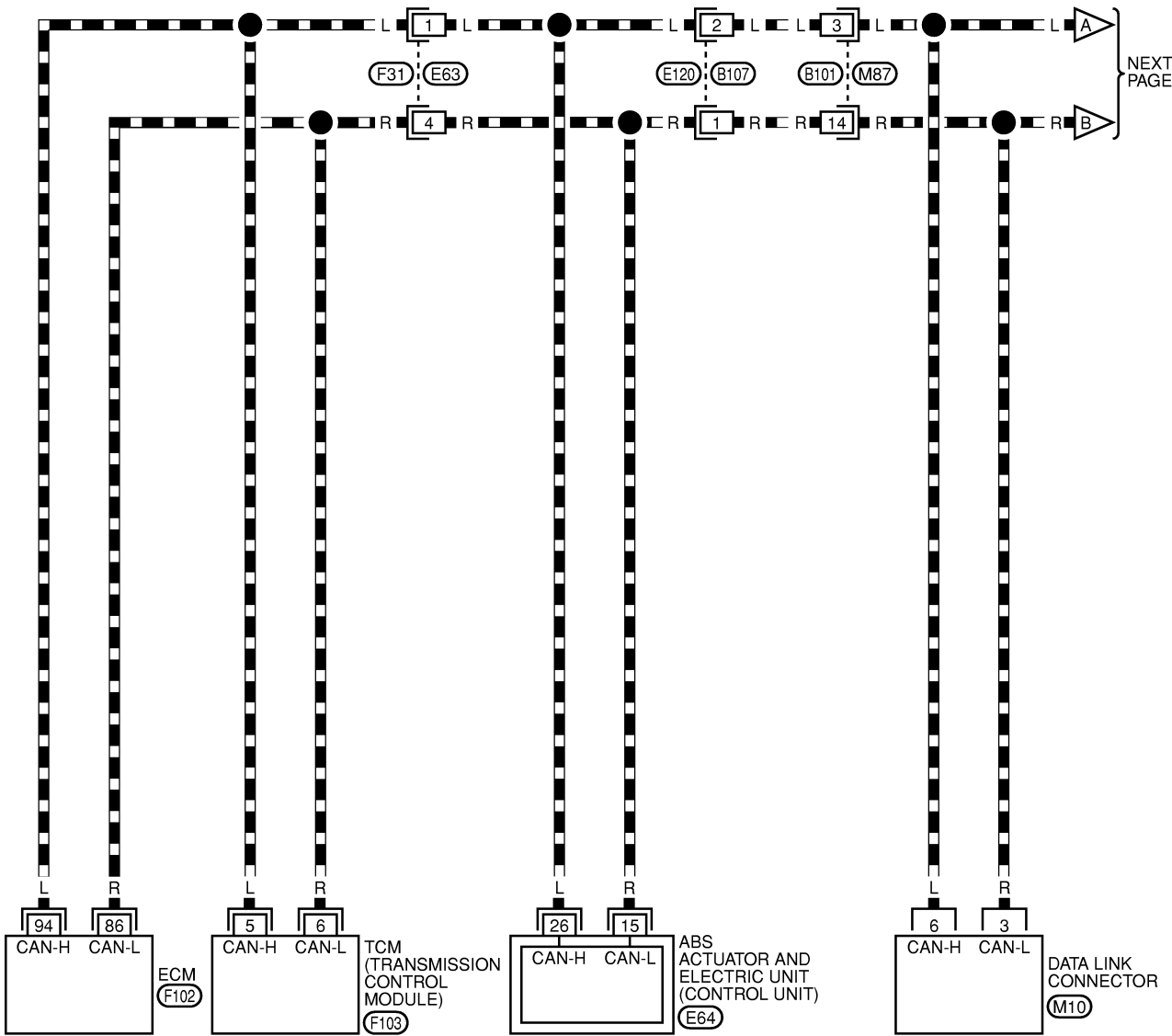
PKIA0903E

Wiring Diagram — CAN —

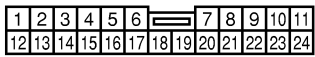
EKS005GK

LAN-CAN-21

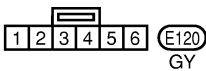
DATA LINE



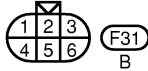
M10
W



M87
W



E120
GY



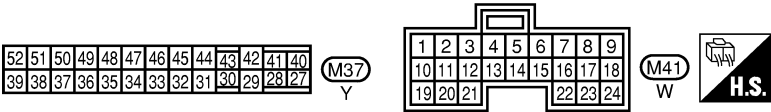
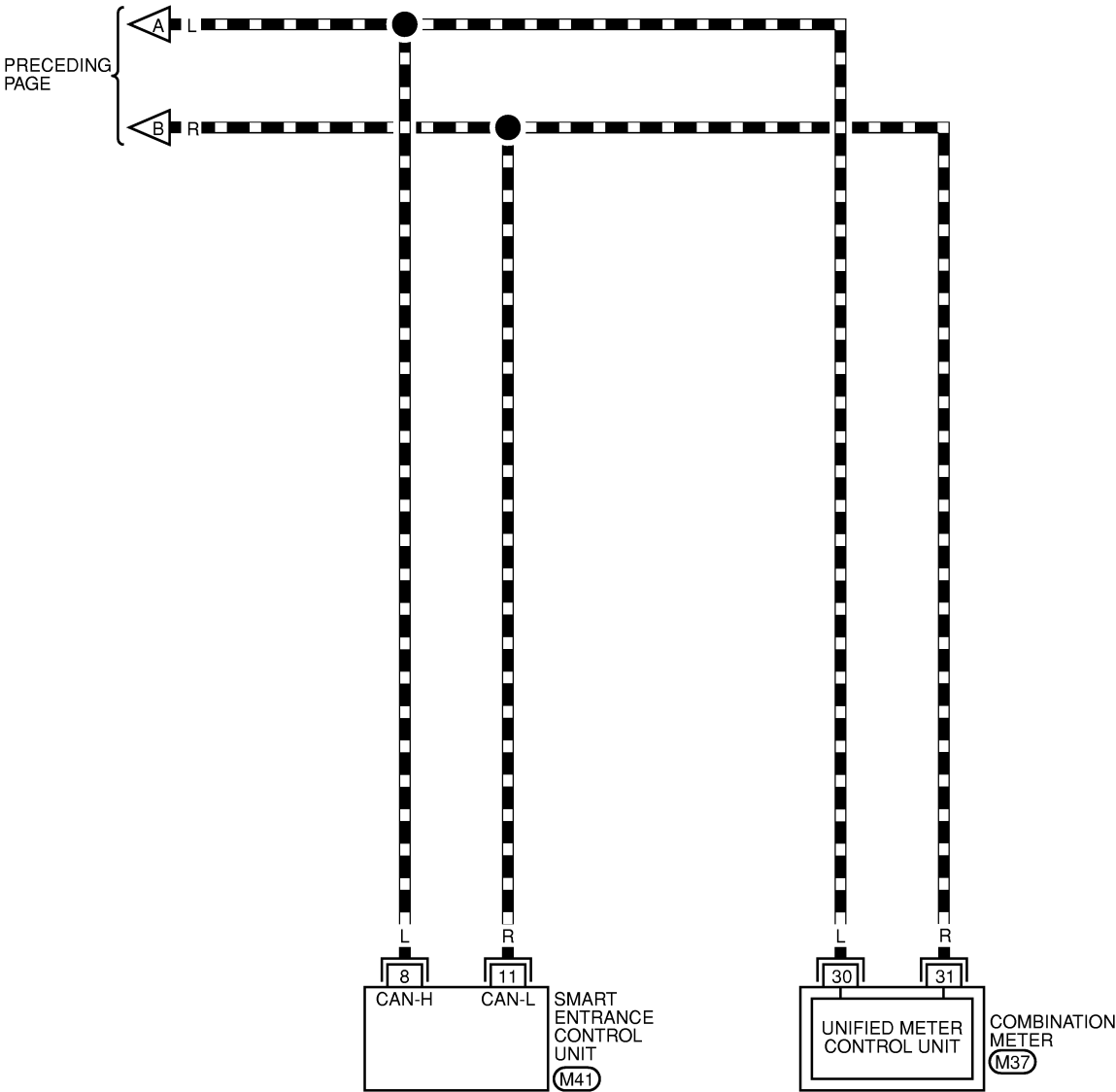
F31
B

REFER TO THE FOLLOWING.

E64 , F102 , F103

-ELECTRICAL UNITS

▬ : DATA LINE



Work Flow

EKS005GL

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "ENGINE"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-184, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-184, "CHECK SHEET"](#).

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-185, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

LAN

CAN SYSTEM (TYPE 10)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
CVT
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
CVT
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA0799E

CAN SYSTEM (TYPE 10)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0800E

CAN SYSTEM (TYPE 10)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
CVT	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 3	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0801E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ABS actuator and electric unit (control unit).

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and ABS actuator and electric unit (control unit). Refer to [LAN-187, "Circuit Check Between TCM and ABS Actuator and Electric Unit \(control unit\)"](#).

Case 6: Check Harness between ABS actuator and electric unit (control unit) and Smart entrance control unit. Refer to [LAN-188, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-189, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-190, "TCM Circuit Check"](#).

Case 9: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-190, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-191, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-191, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-192, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and ABS Actuator and Electric Unit (control unit)

EKS005GM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F31
 - Harness connector E63

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F31.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F31 terminals 1 (L), 4 (R).

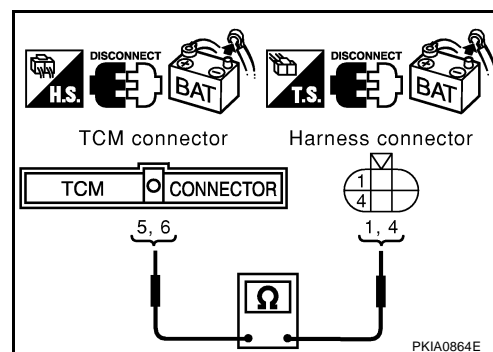
5(L) – 1(L) : Continuity should exist.

6(R) – 4(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E63 terminals 1 (L), 4 (R) and ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R).

1(L) – 26(L) : Continuity should exist.

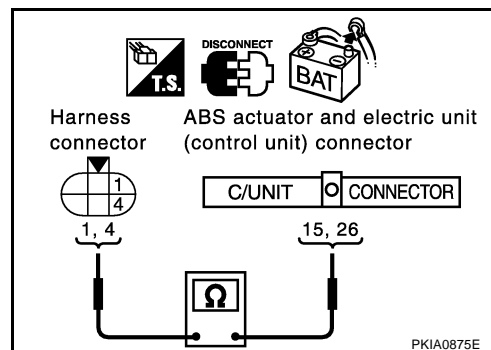
4(R) – 15(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "ENGINE"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit

EKS005GN

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E120.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and harness connector E120 terminals 2 (L), 1 (R).

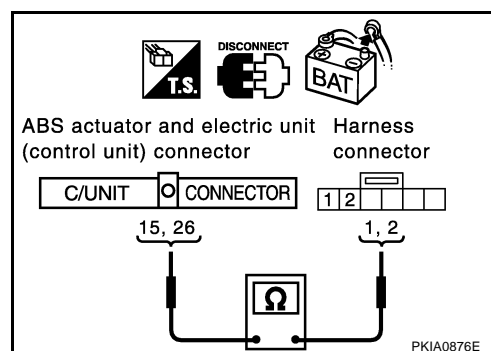
26(L) – 2(L) : Continuity should exist.

15(R) – 1(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

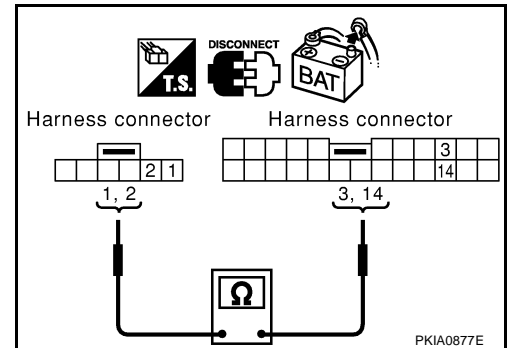
1. Disconnect harness connector B101.
2. Check continuity between harness connector B107 terminals 2 (L), 1 (R) and harness connector B101 terminals 3 (L), 14 (R).

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

1(R) – 14(R) : Continuity should exist.

OK or NG

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



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check continuity between harness connector M87 terminals 3 (L), 14 (R) and smart entrance control unit harness connector M41 terminals 8 (L), 11 (R).

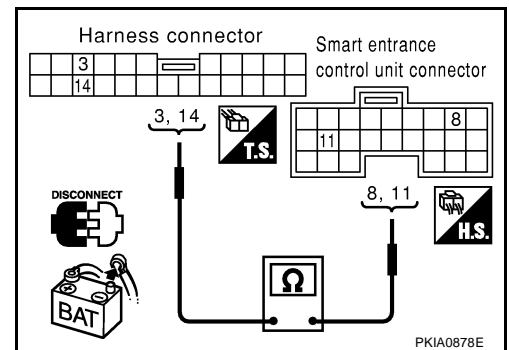
3(L) – 8(L) : Continuity should exist.

14(R) – 11(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "ENGINE"
 - [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005GO

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery 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 F102 terminals 94(L) and 86(R).

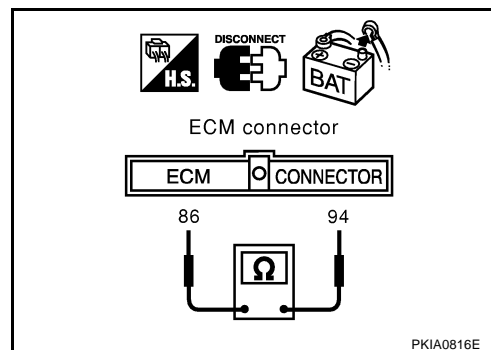
94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



EKS005GP

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

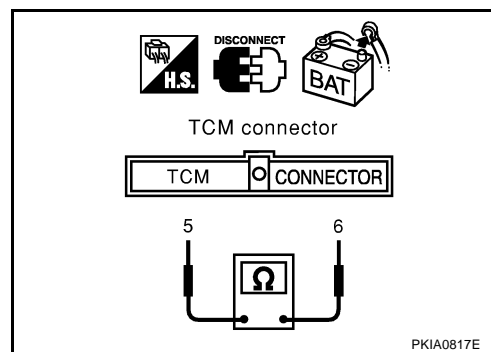
5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM and ECM.



EKS005GQ

ABS Actuator and Electric Unit (control unit) Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

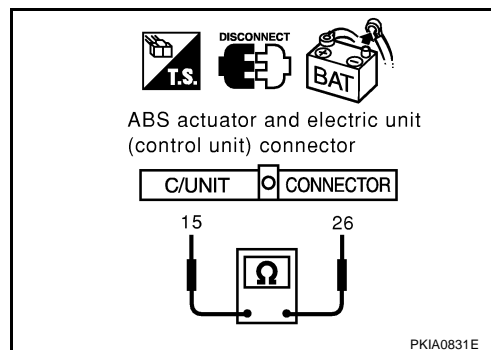
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005GR

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

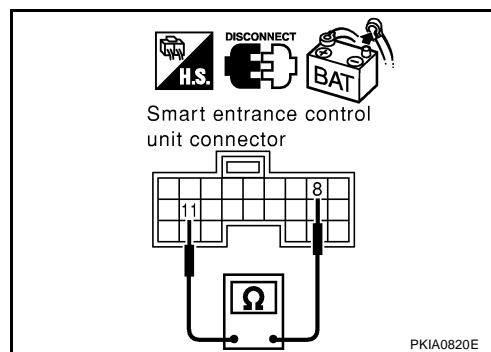
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between Data link connector and smart entrance control unit.



EKS005GS

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

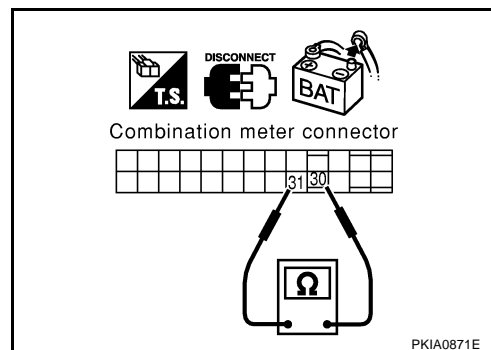
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005GT

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - TCM
 - ECM
 - Between Data link connector and ECM

OK or NG

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

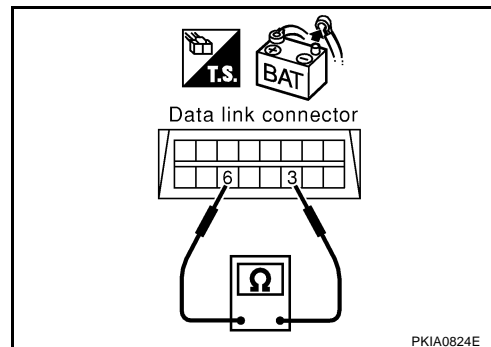
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

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

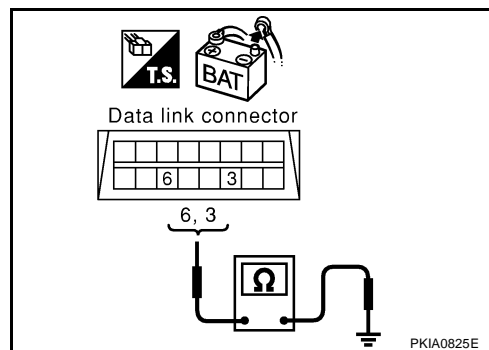
OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

● Repair harness between Data link connector and smart entrance control unit.

● Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector B107.

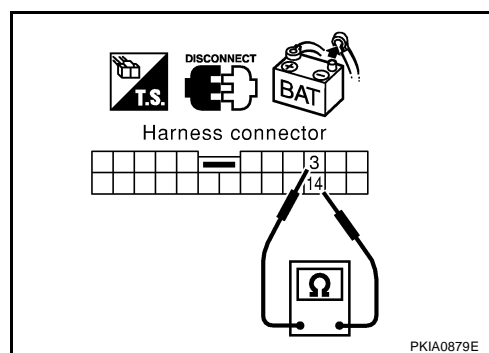
2. Check continuity between harness connector B101 terminals 3 (L) and 14(R).

3(L) – 14(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B101 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B101 terminals 3 (L), 14(R) and ground

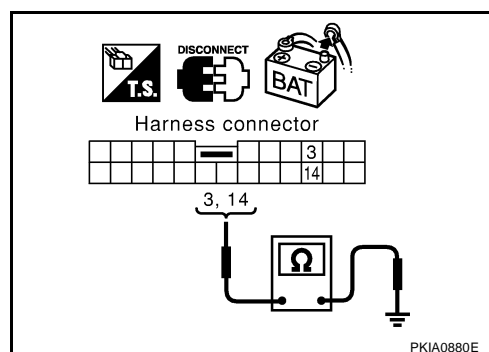
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B101 and harness connector B107.



6. CHECK HARNESS FOR SHORT CIRCUIT

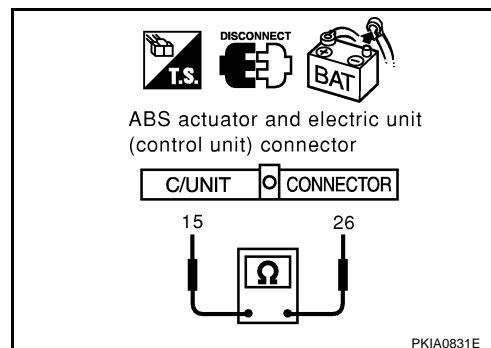
1. Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector
 - Harness connector E63
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

- NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
- Repair harness between harness connector E120 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

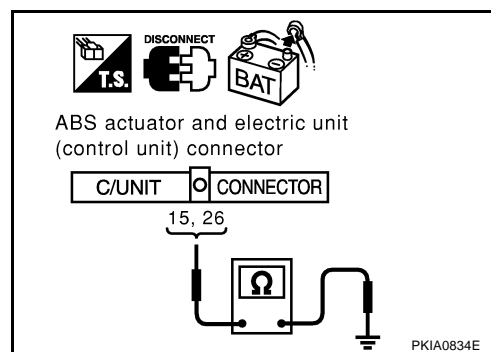
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

- NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
- Repair harness between harness connector E120 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

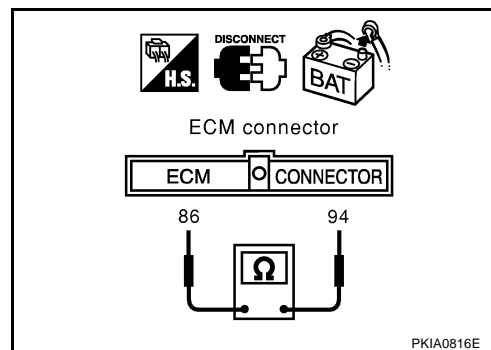
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F31.
- Repair harness between TCM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

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

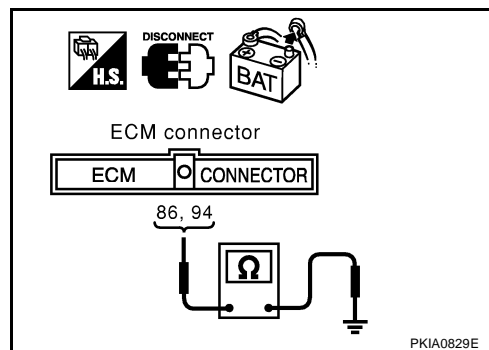
86(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> ● Repair harness between ECM and harness connector F31.

- Repair harness between TCM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-195, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "CVT", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [CVT-108, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "ENGINE"
- [CVT-192, "CAN COMMUNICATION LINE"](#) (ALL) for "CVT"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

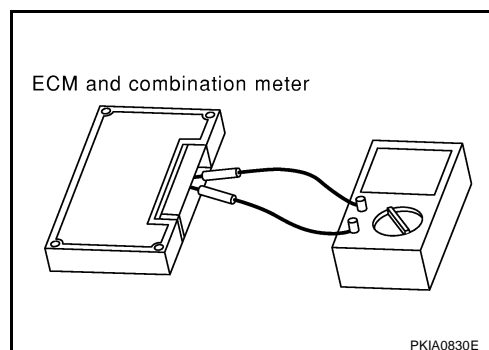
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 11)

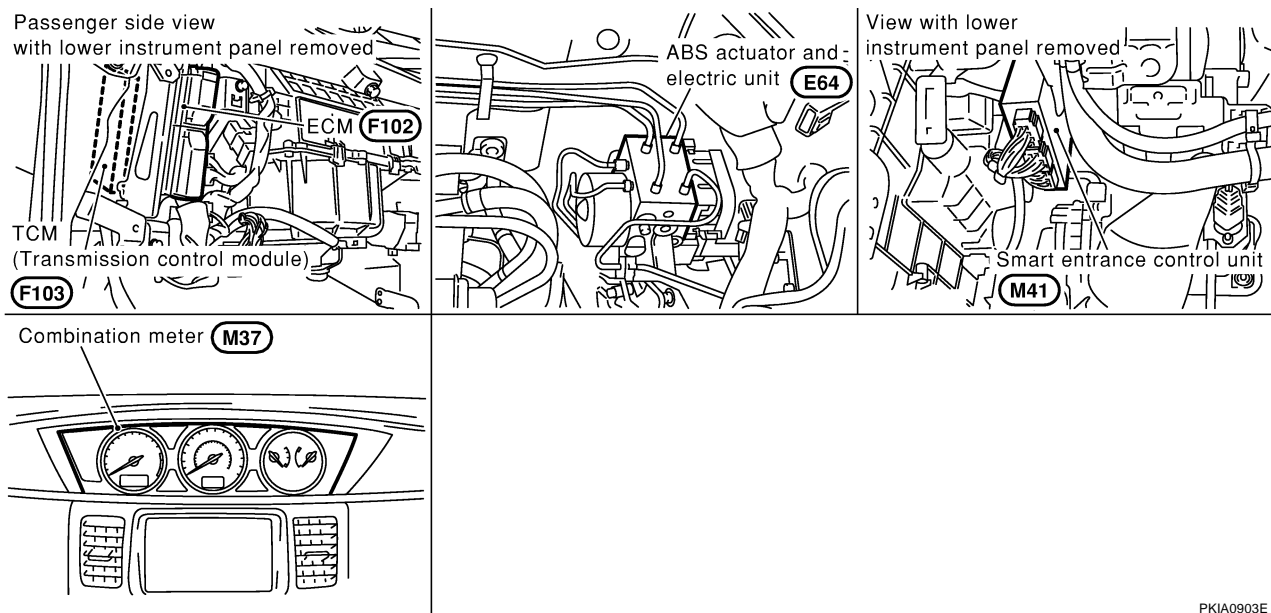
System Description

EKS005GV

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

EKS005GW



PKIA0903E

CAN SYSTEM (TYPE 11)

[CAN]

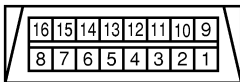
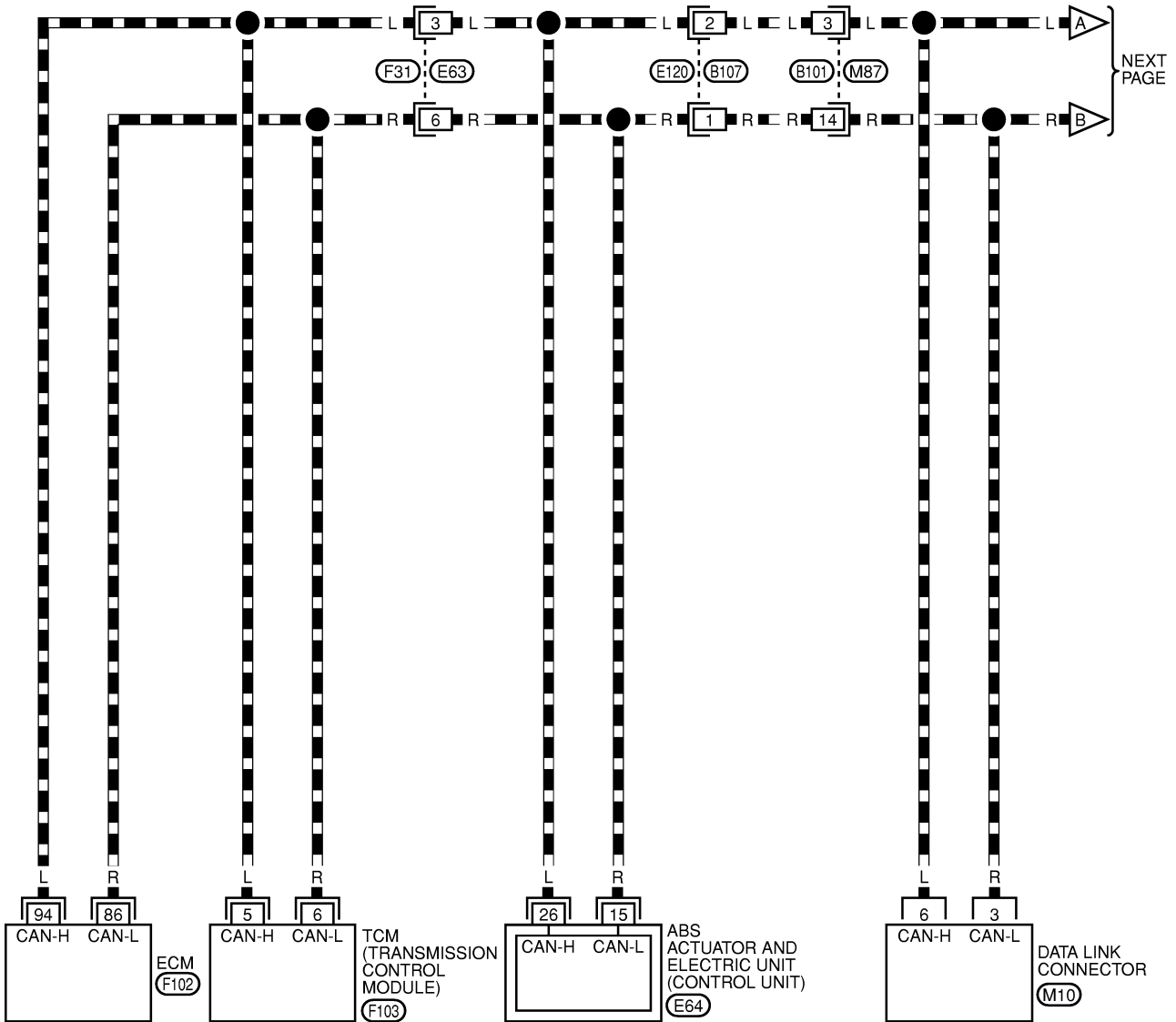
Wiring Diagram — CAN —

EKS005GX

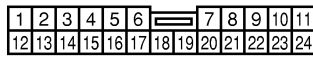
LAN-CAN-23

DATA LINE

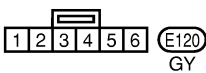
A
B
C
D
E
F
G
H
I
J
LAN
L
M



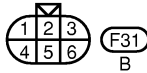
M10
W



M87
W



E120
GY



F31
B

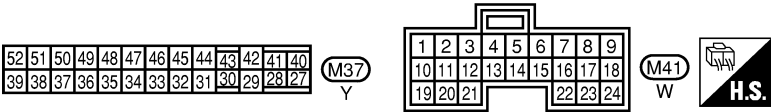
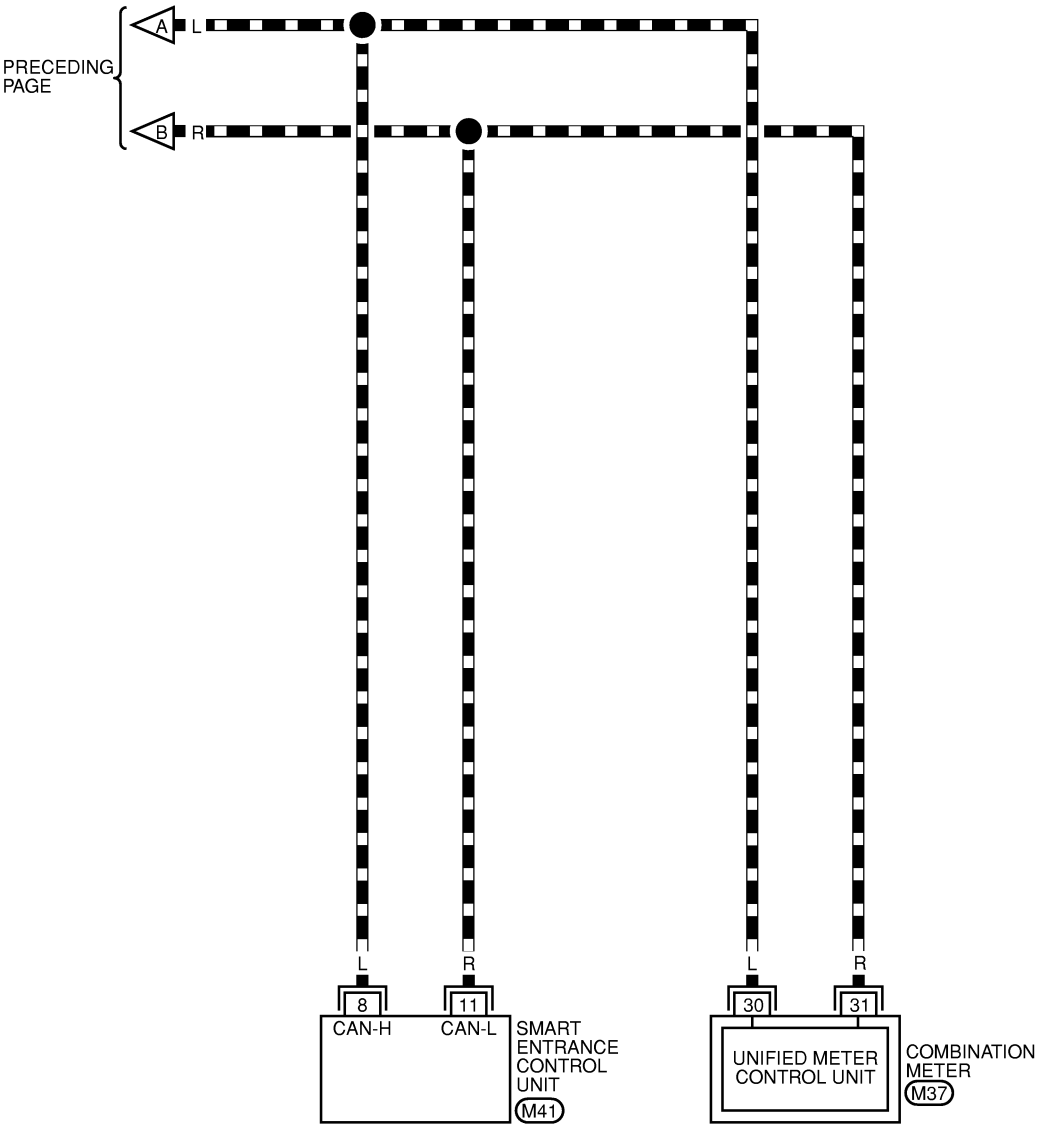
REFER TO THE FOLLOWING.

E64, F102, F103

-ELECTRICAL UNITS

MKWA0544E

▬ : DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-200, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-200, "CHECK SHEET"](#).

NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-201, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 11)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
A/T
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA0802E

CAN SYSTEM (TYPE 11)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 6	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN <input checked="" type="checkbox"/> CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 6	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN CIRC 3

PKIA0803E

CAN SYSTEM (TYPE 11)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0804E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ABS actuator and electric unit (control unit).

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and ABS actuator and electric unit (control unit). Refer to [LAN-203, "Circuit Check Between TCM and ABS Actuator and Electric Unit \(control unit\)"](#).

Case 6: Check Harness between ABS actuator and electric unit (control unit) and Smart entrance control unit. Refer to [LAN-204, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-205, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-206, "TCM Circuit Check"](#).

Case 9: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-206, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-207, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-207, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-208, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and ABS Actuator and Electric Unit (control unit)

EKS005GZ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F31
 - Harness connector E63

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F31.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F31 terminals 3 (L), 6 (R).

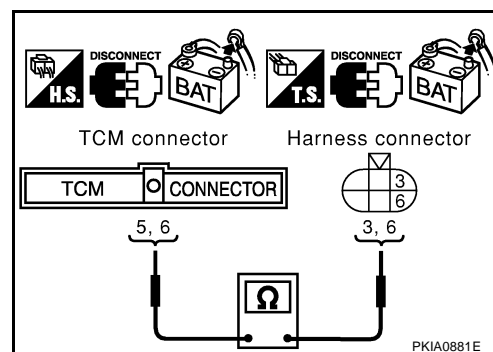
5(L) – 3(L) : Continuity should exist.

6(R) – 6(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E63 terminals 3 (L), 6 (R) and ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R).

3(L) – 26(L) : Continuity should exist.

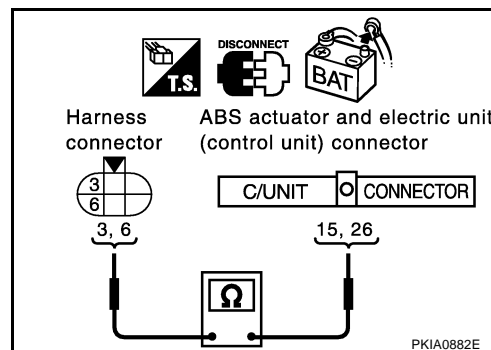
6(R) – 15(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit

EKS005H0

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E120.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and harness connector E120 terminals 2 (L), 1 (R).

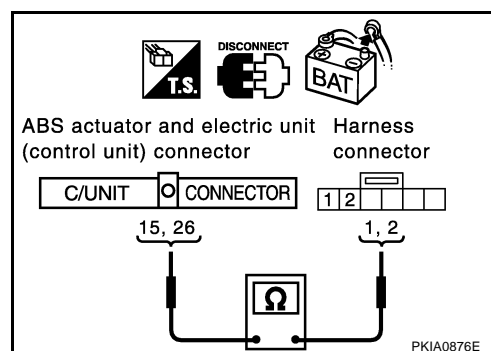
26(L) – 2(L) : Continuity should exist.

15(R) – 1(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

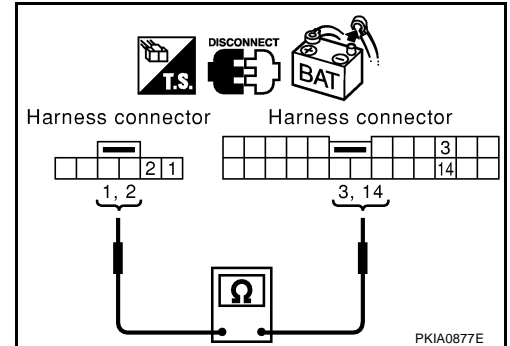
1. Disconnect harness connector B101.
2. Check continuity between harness connector B107 terminals 2 (L), 1 (R) and harness connector B101 terminals 3 (L), 14 (R).

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

1(R) – 14(R) : Continuity should exist.

OK or NG

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



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check continuity between harness connector M87 terminals 3 (L), 14 (R) and smart entrance control unit harness connector M41 terminals 8 (L), 11 (R).

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

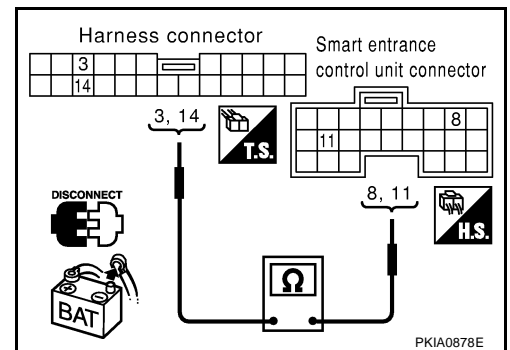
14(R) – 11(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

- NG >> Repair harness.



ECM Circuit Check

1. CHECK CONNECTOR

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

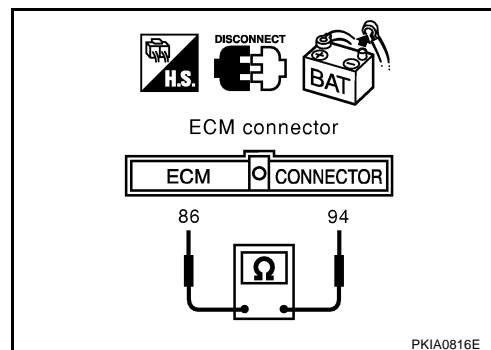
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace ECM.
NG >> Repair harness between TCM and ECM.



EKS005H2

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

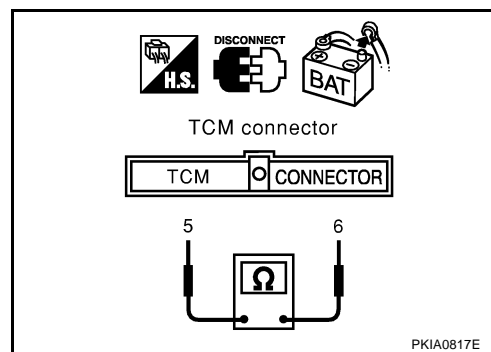
1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
NG >> Repair harness between TCM and ECM.



EKS005H3

ABS Actuator and Electric Unit (control unit) Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

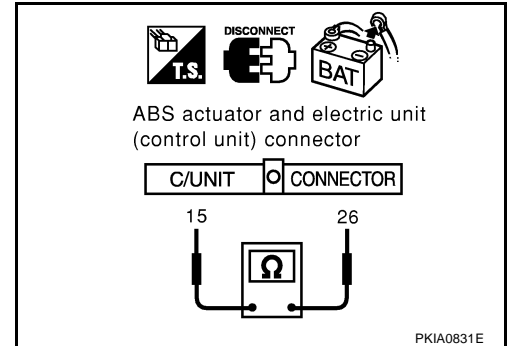
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005H4

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

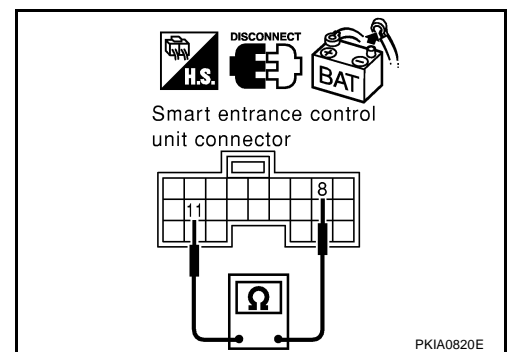
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between Data link connector and smart entrance control unit.



EKS005H5

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

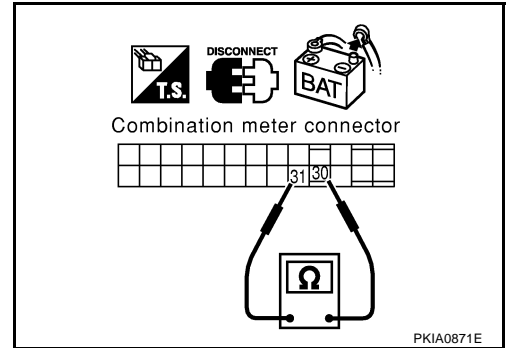
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005H6

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - TCM
 - ECM
 - Between Data link connector and ECM

OK or NG

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

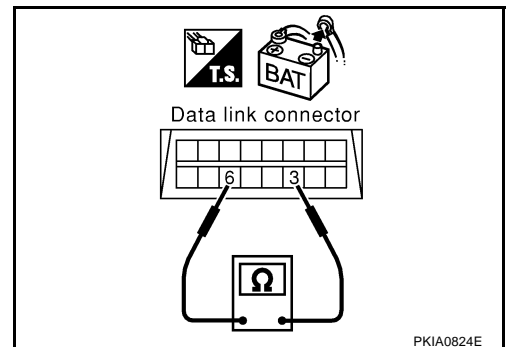
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

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

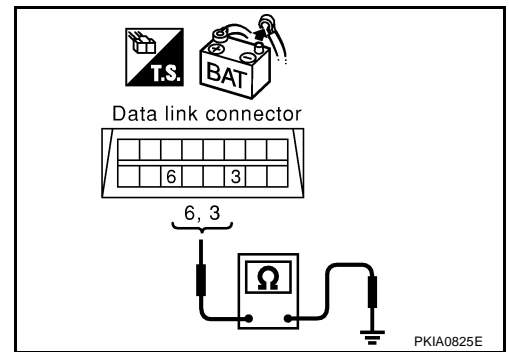
OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

● Repair harness between Data link connector and smart entrance control unit.

● Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector B107.

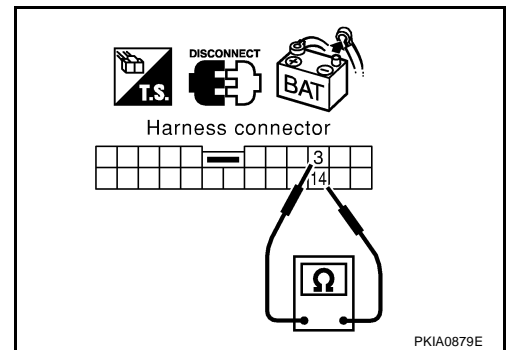
2. Check continuity between harness connector B101 terminals 3 (L) and 14(R).

3(L) – 14(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B101 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B101 terminals 3 (L), 14(R) and ground

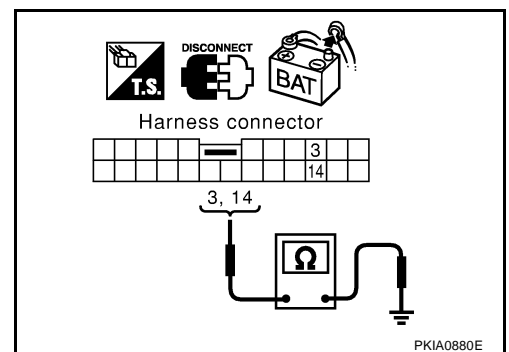
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B101 and harness connector B107.



6. CHECK HARNESS FOR SHORT CIRCUIT

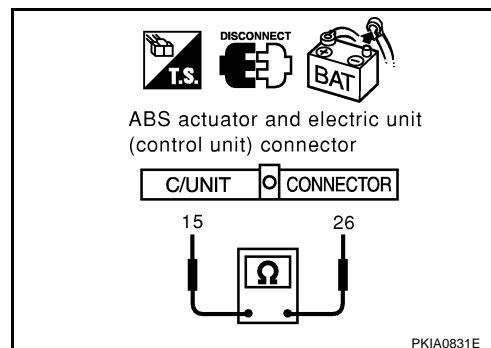
1. Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector
 - Harness connector E63
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

- NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
- Repair harness between harness connector E120 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

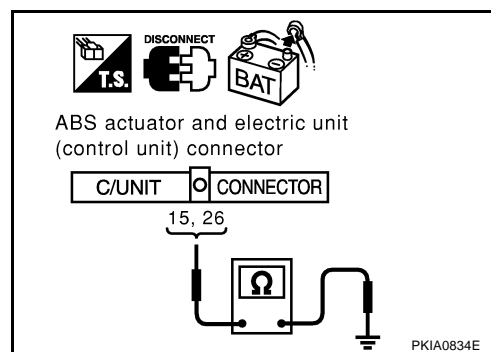
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

- NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
- Repair harness between harness connector E120 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

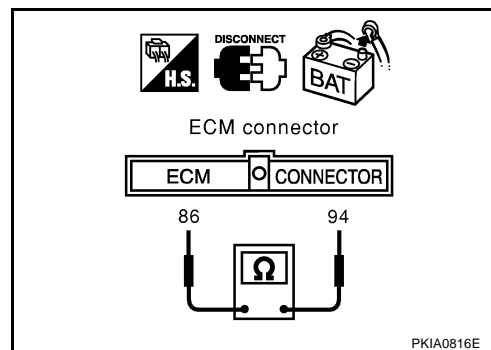
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> ● Repair harness between ECM and harness connector F31.
- Repair harness between TCM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

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

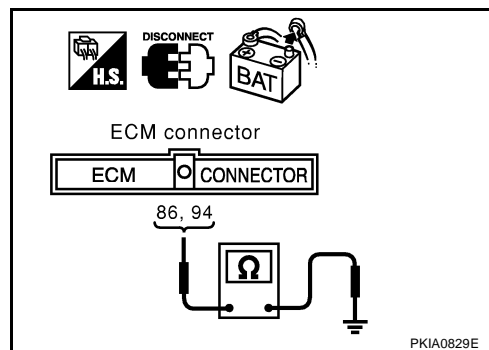
86(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> ● Repair harness between ECM and harness connector F31.

- Repair harness between TCM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-211, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

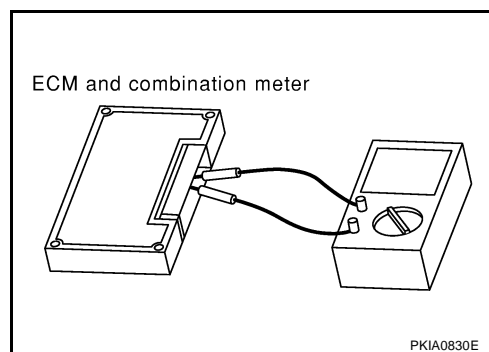
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 12)

PFP:23710

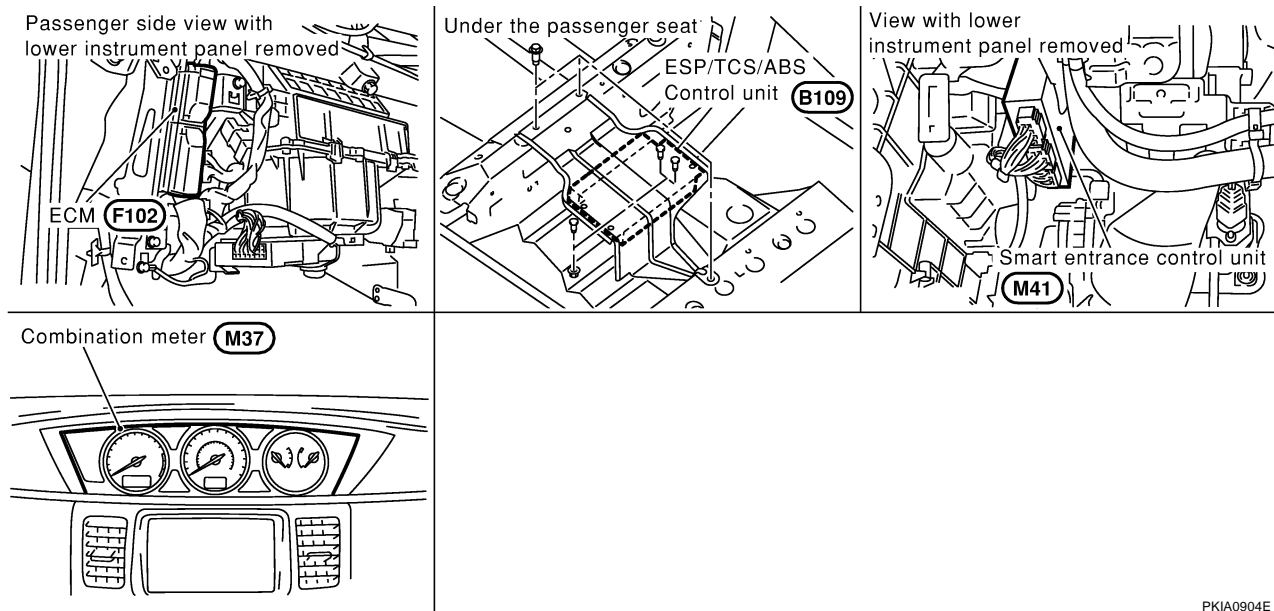
System Description

EKS005H8

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

EKS005H9



PKIA0904E

Wiring Diagram — CAN —

LAN-CAN-25

A

B

C

D

E

F

G

H

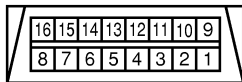
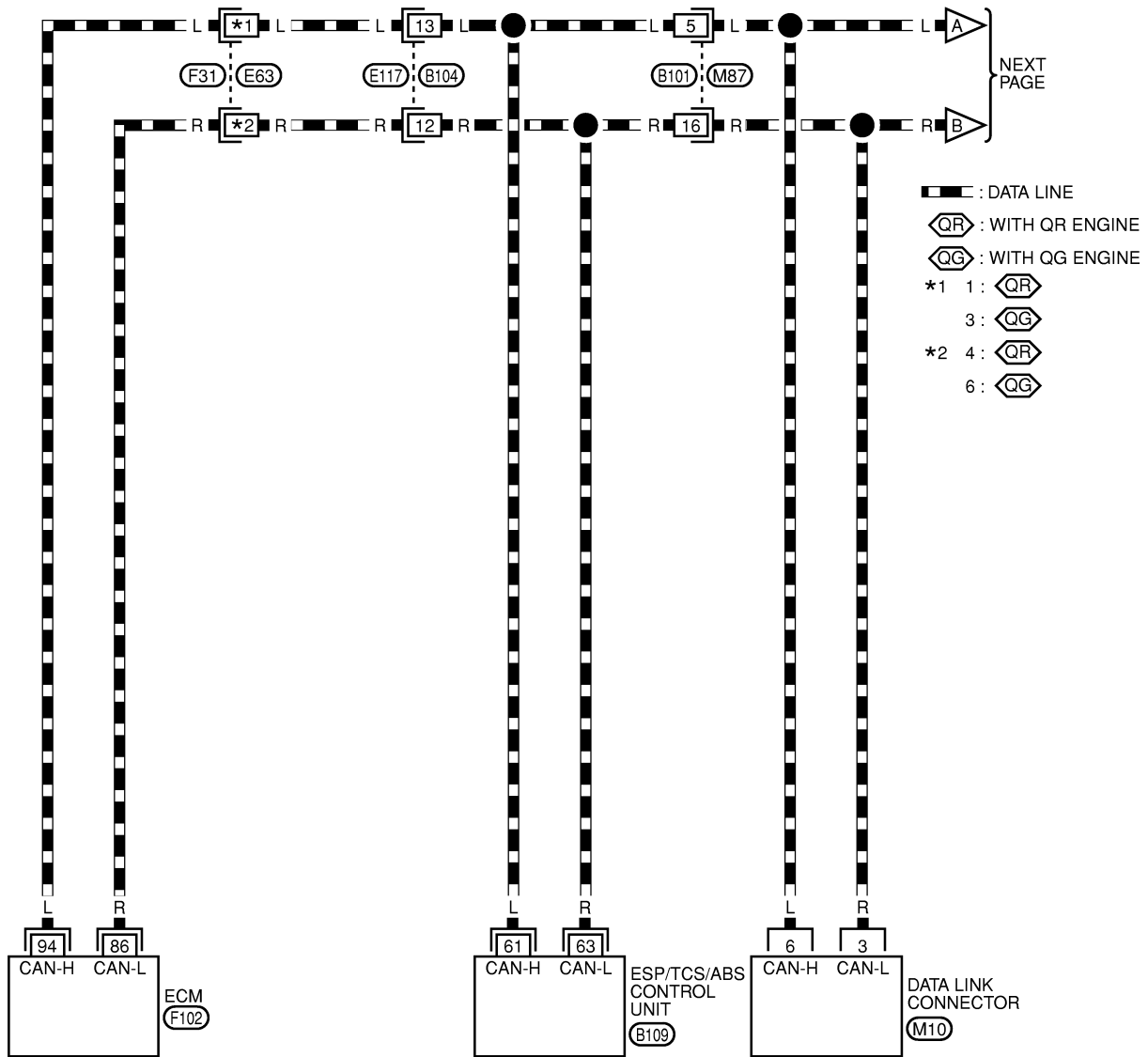
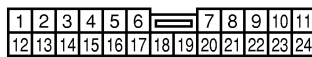
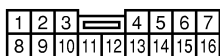
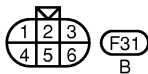
I

J

LAN

L

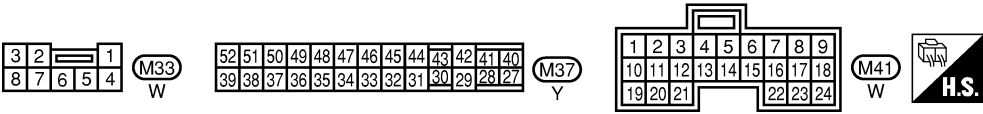
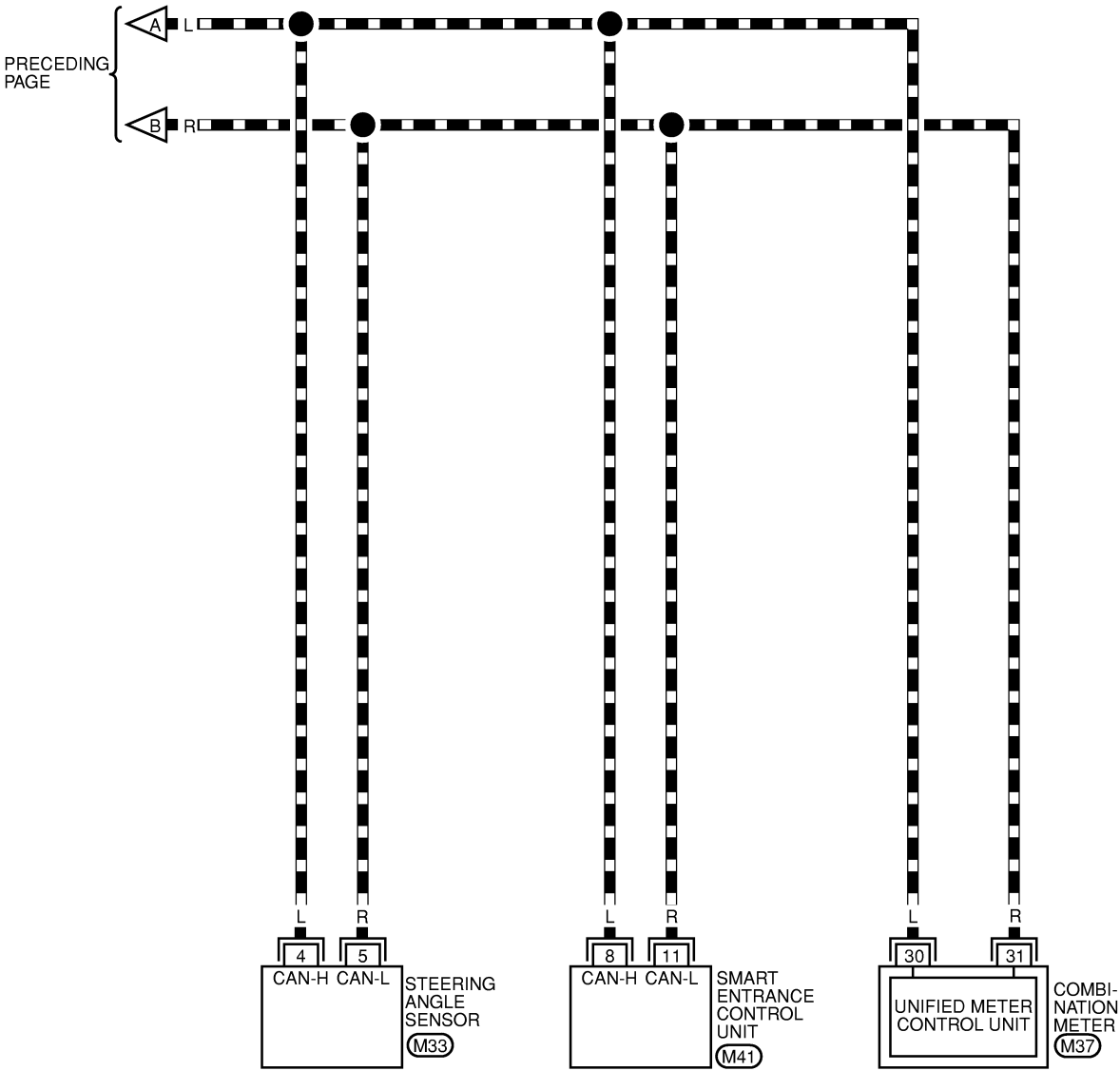
M

M10
WM87
WE117
WF31
B

REFER TO THE FOLLOWING.

(F102), (B109) -ELECTRICAL UNITS

DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-216, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-216, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-217, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A
B
C
D
E
F
G
H
I
J
L
M

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CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 12)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0806E

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA0807E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between ESP/TCS/ABS control unit and Steering angle sensor. Refer to [LAN-219, "Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#)

Case 5: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-220, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 6: Check ECM Circuit. Refer to [LAN-220, "ECM Circuit Check"](#).

Case 7: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-221, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 8: Check Steering angle sensor Circuit. Refer to [LAN-221, "Steering Angle Sensor Circuit Check"](#).

Case 9: Check Smart entrance control unit Circuit. Refer to [LAN-222, "Smart Entrance Control Unit Circuit Check"](#).

Case 10: Check Combination meter Circuit. Refer to [LAN-222, "Combination Meter Circuit Check"](#).

Case 11: Check CAN communication Circuit. Refer to [LAN-223, "CAN Communication Circuit Check"](#).

Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor

EKS005HC

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

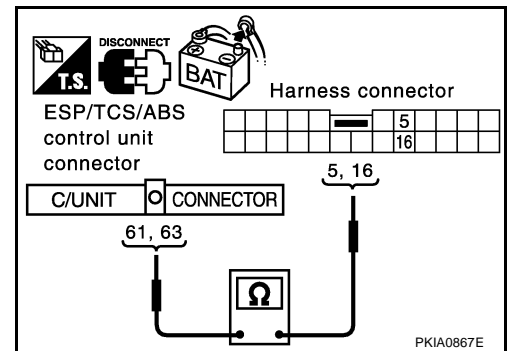
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

5(L) – 4(L) : Continuity should exist.

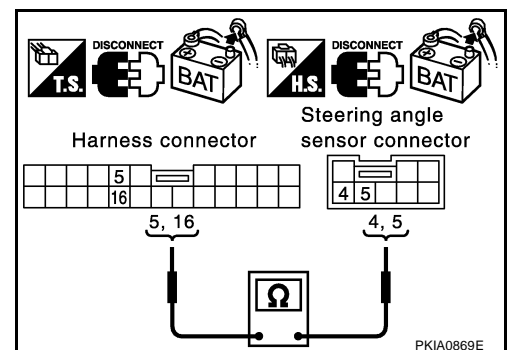
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

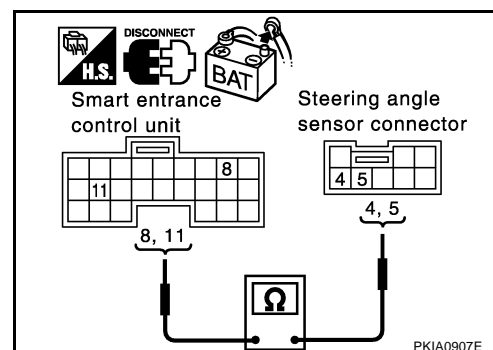
EKS005HD

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

8(L) – 4(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.



OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

ECM Circuit Check

EKS005HE

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F31
 - Harness connector E63
 - Harness connector E117
 - Harness connector B104

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

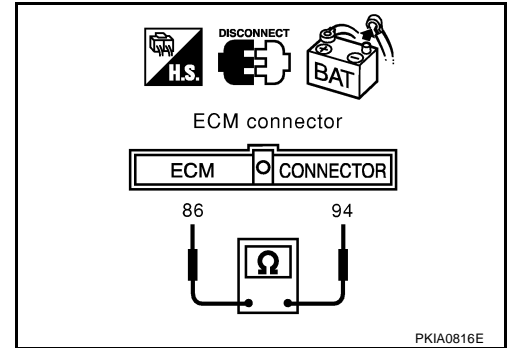
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace ECM.
 NG >> Repair harness between ESP/TCS/ABS control unit and ECM.



EKS005HF

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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

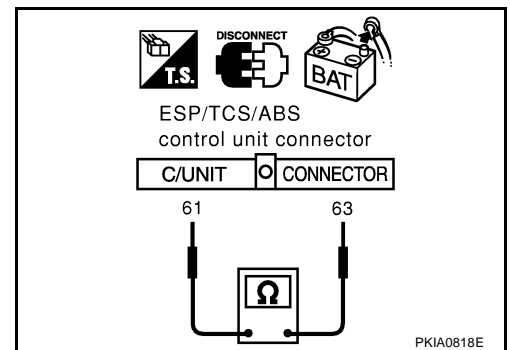
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



EKS005HG

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

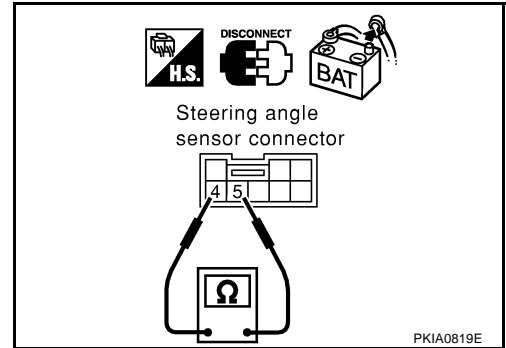
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace steering angle sensor.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005HH

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

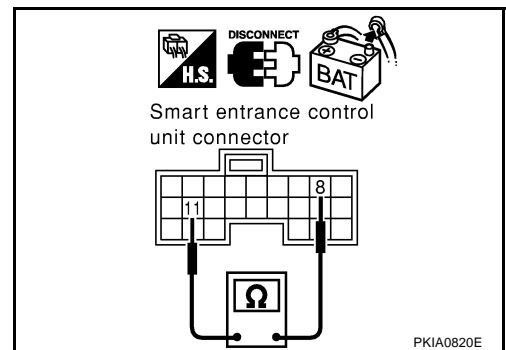
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005HI

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

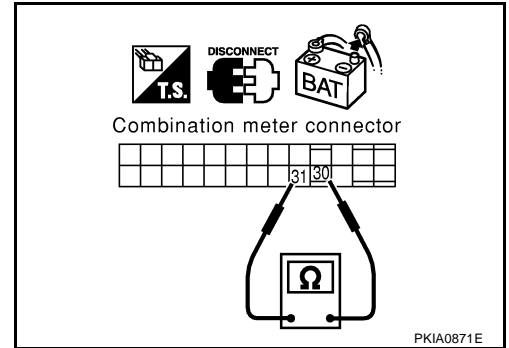
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005HJ

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ECM
 - Between Data link connector and ECM

OK or NG

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

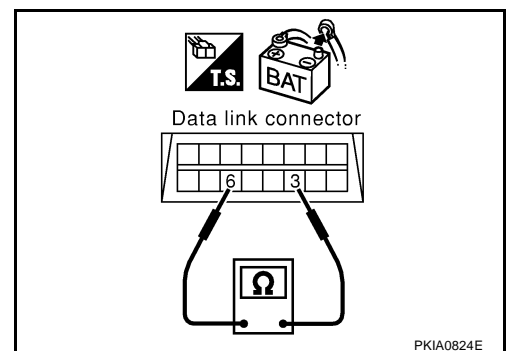
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

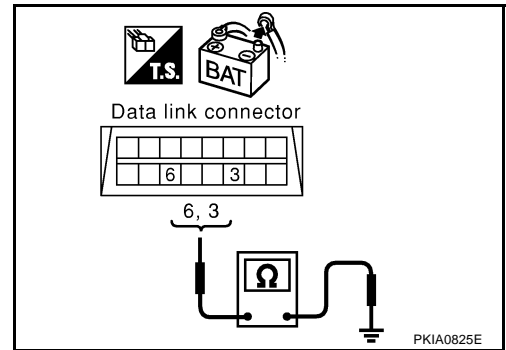
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B104.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

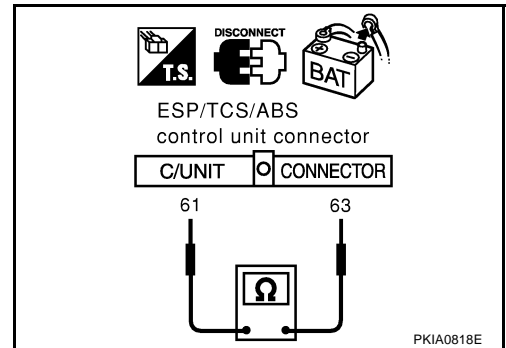
61(L) – 63(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

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

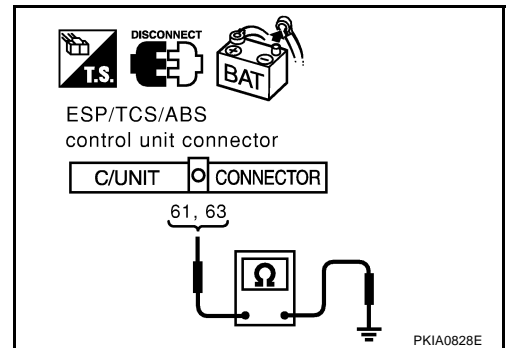
63(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



6. CHECK HARNESS FOR SHORT CIRCUIT

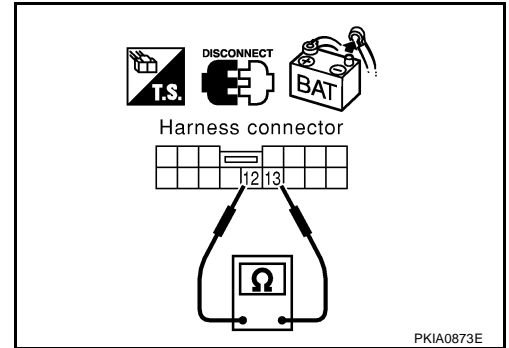
1. Disconnect harness connector E63.
2. Check continuity between harness connector E117 terminals 13 (L) and 12(R).

13(L) – 12(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between harness connector E117 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E117 terminals 13 (L) and 12(R) and ground.

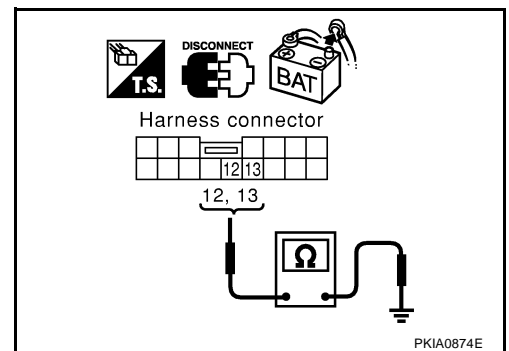
13(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E117 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

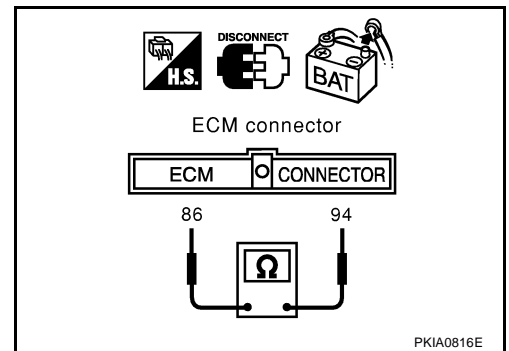
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

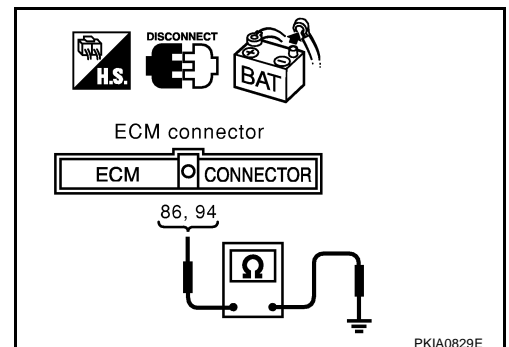
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-226, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#)

OK or NG

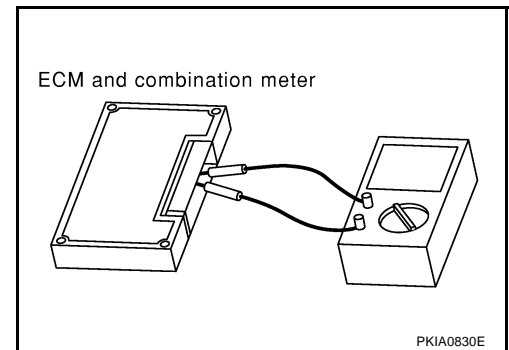
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



EKS005HK

PKIA0830E

CAN SYSTEM (TYPE 13)

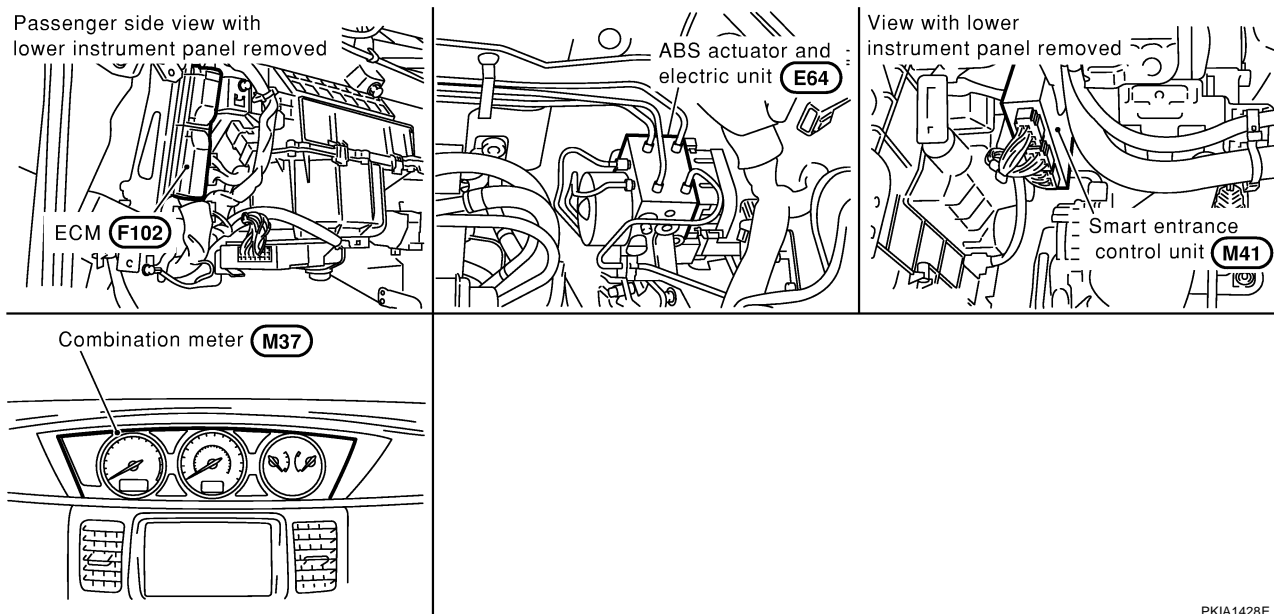
System Description

EKS005HL

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

EKS005HM



PKIA1428E

LAN

CAN SYSTEM (TYPE 13)

[CAN]

Wiring Diagram — CAN —

EKS005HN

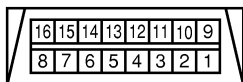
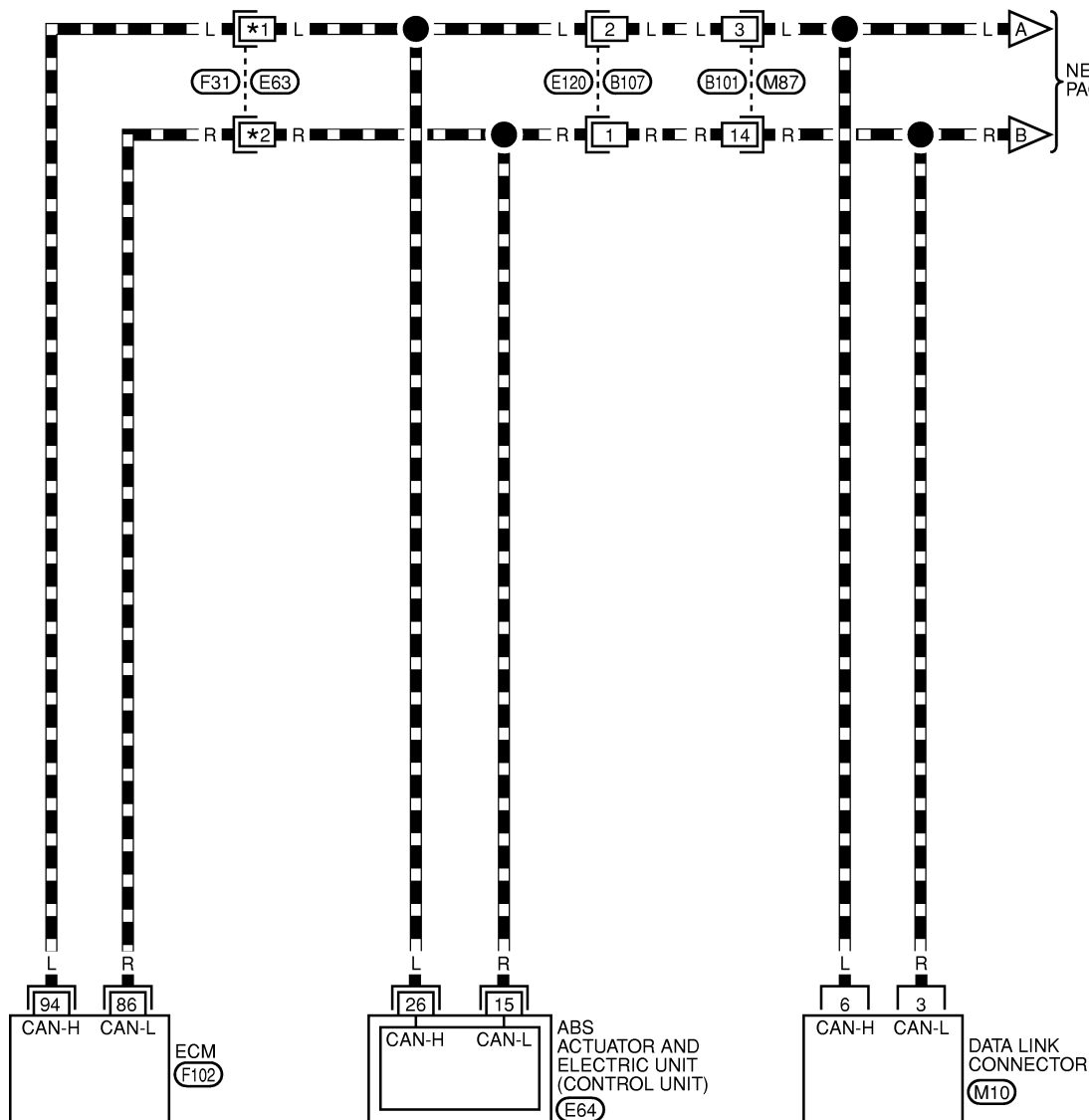
QR : WITH QR ENGINE
QG : WITH QG ENGINE

LAN-CAN-27

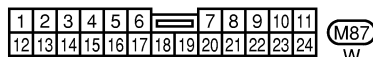
DATA LINE

- *1 1: QR
3: QG
*2 4: QR
6: QG

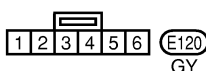
NEXT PAGE



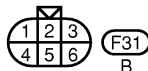
M10
W



M87
W



E120
GY



F31
B

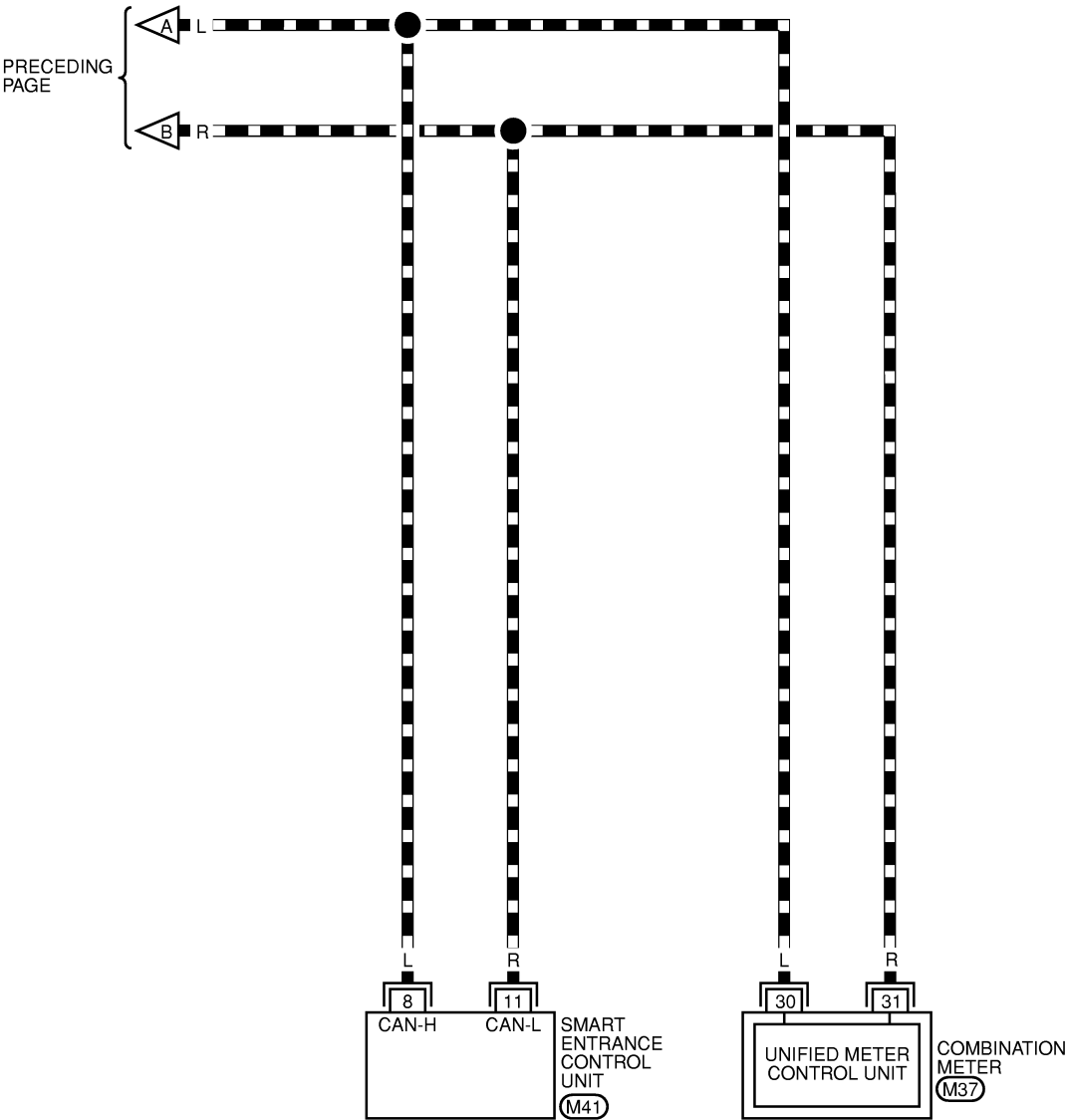
REFER TO THE FOLLOWING.

E64 , F102

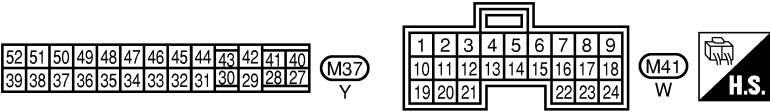
-ELECTRICAL UNITS

MKWA0551E

▬ : DATA LINE



A
B
C
D
E
F
G
H
I
J
LAN
L
M



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-231, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-231, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-232, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTSAttach copy of
ABS
SELF-DIAG RESULTSAttach copy of
SMART ENTRANCE
SELF-DIAG RESULTSAttach copy of
ENGINE
DATA MONITORAttach copy of
ABS
DATA MONITORAttach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 13)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 2: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

PKIA1328E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ABS actuator and electric unit (control unit).

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between ABS actuator and electric unit (control unit) and Smart entrance control unit. Refer to [LAN-233, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-235, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-235, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-236, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-236, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-237, "CAN Communication Circuit Check"](#).

Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit

EKS005HP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E120.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and harness connector E120 terminals 2 (L), 1 (R).

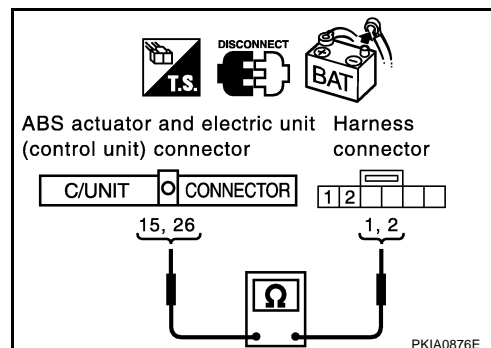
26(L) – 2(L) : Continuity should exist.

15(R) – 1(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector B101.
2. Check continuity between harness connector B107 terminals 2 (L), 1 (R) and harness connector B101 terminals 3 (L), 14 (R).

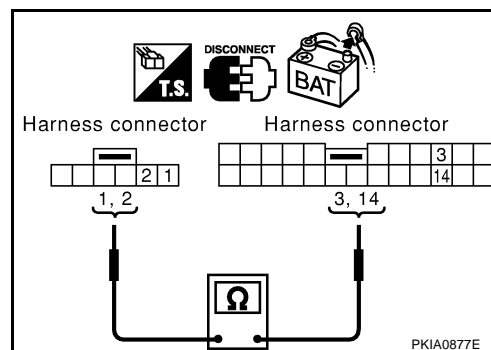
2(L) – 3(L) : Continuity should exist.

1(R) – 14(R) : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness.



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check continuity between harness connector M87 terminals 3 (L), 14 (R) and smart entrance control unit harness connector M41 terminals 8 (L), 11 (R).

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

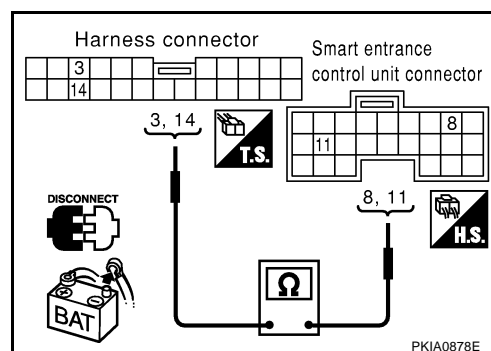
14(R) – 11(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005HQ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F31
 - Harness connector E63

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

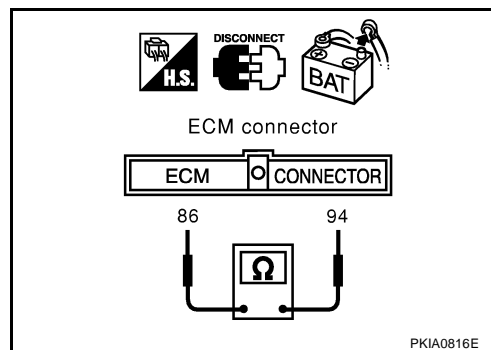
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

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

OK >> Replace ECM.

NG >> Repair harness between ABS actuator and electric unit (control unit) and ECM.

**ABS Actuator and Electric Unit (control unit) Circuit Check**

EKS005HR

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

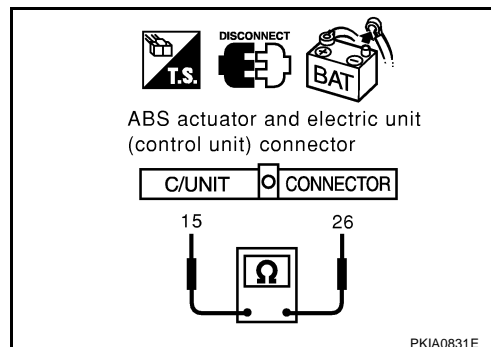
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)**: Approx. 54 – 66Ω**OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between Data link connector and ABS actuator and electric unit (control unit).



Smart Entrance Control Unit Circuit Check

EKS005HS

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

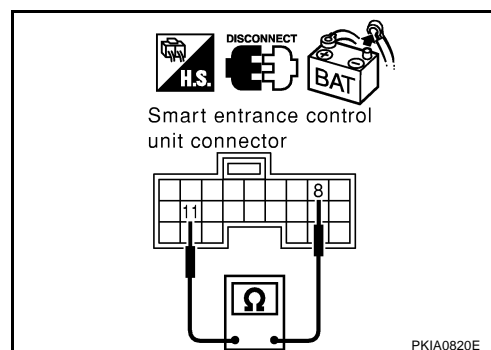
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)**: Approx. 54 – 66Ω**

OK or NG

OK >> Replace smart entrance control unit.

NG >> Repair harness between Data link connector and smart entrance control unit.



Combination Meter Circuit Check

EKS005HT

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

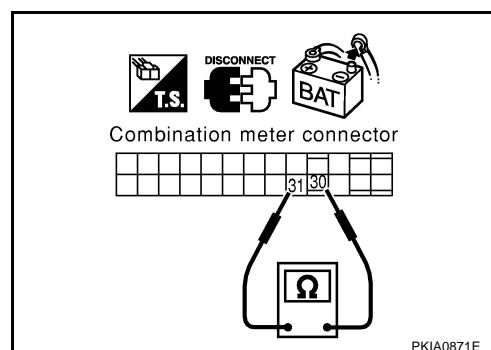
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R)**: Approx. 108 – 132Ω**

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between smart entrance control unit and combination meter.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - ECM
 - Between Data link connector and ECM

OK or NG

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

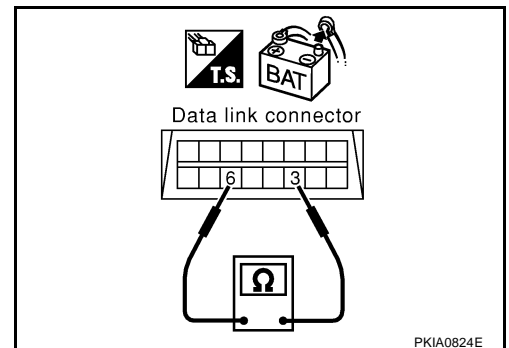
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

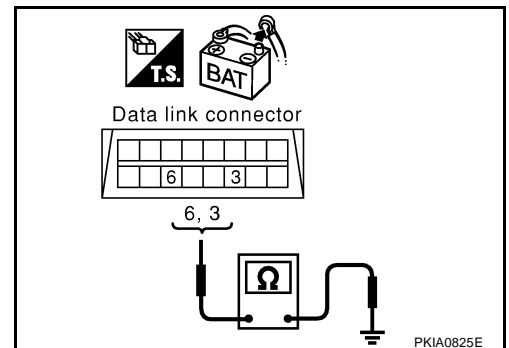
Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

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

OK or NG

- OK >> GO TO 4.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

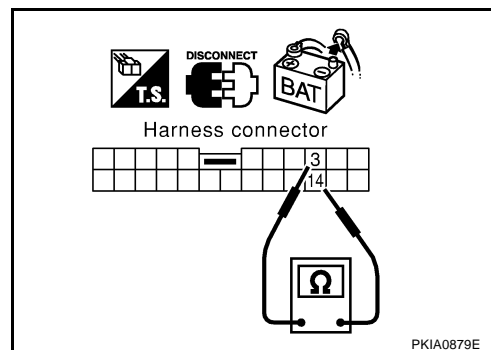
1. Disconnect harness connector B107.
2. Check continuity between harness connector B101 terminals 3 (L) and 14(R).

3(L) – 14(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B101 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B101 terminals 3 (L), 14(R) and ground.

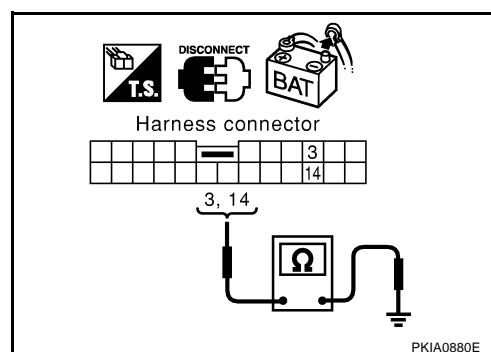
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B101 and harness connector B107.



6. CHECK HARNESS FOR SHORT CIRCUIT

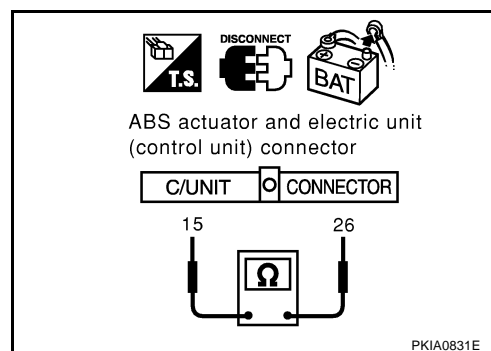
1. Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector
 - Harness connector E63
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
● Repair harness between harness connector E120 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

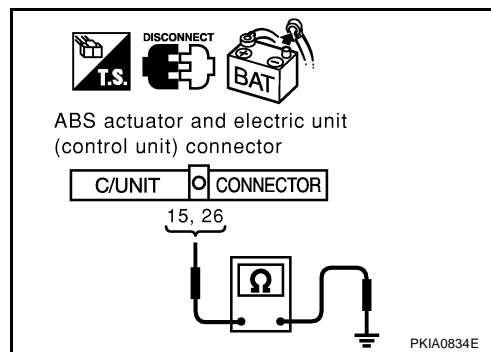
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
● Repair harness between harness connector E120 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

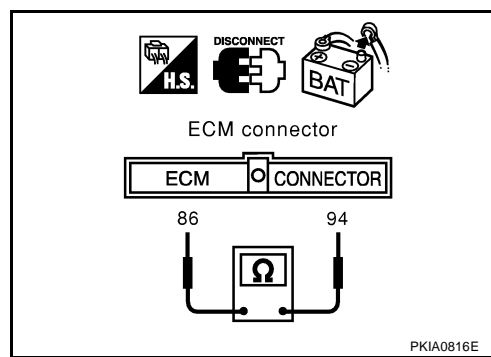
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

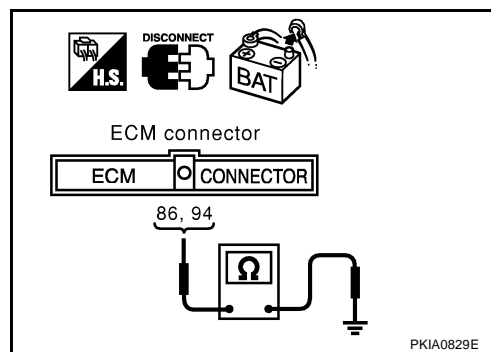
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-240, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

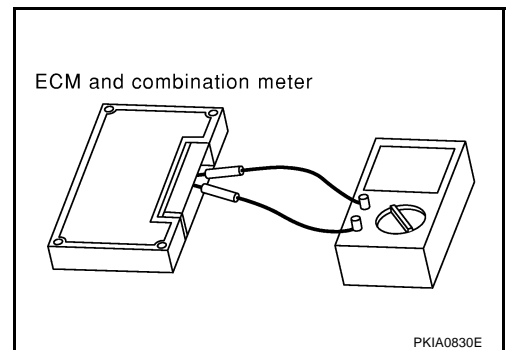
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QG ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (QR ENGINE MODELS WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



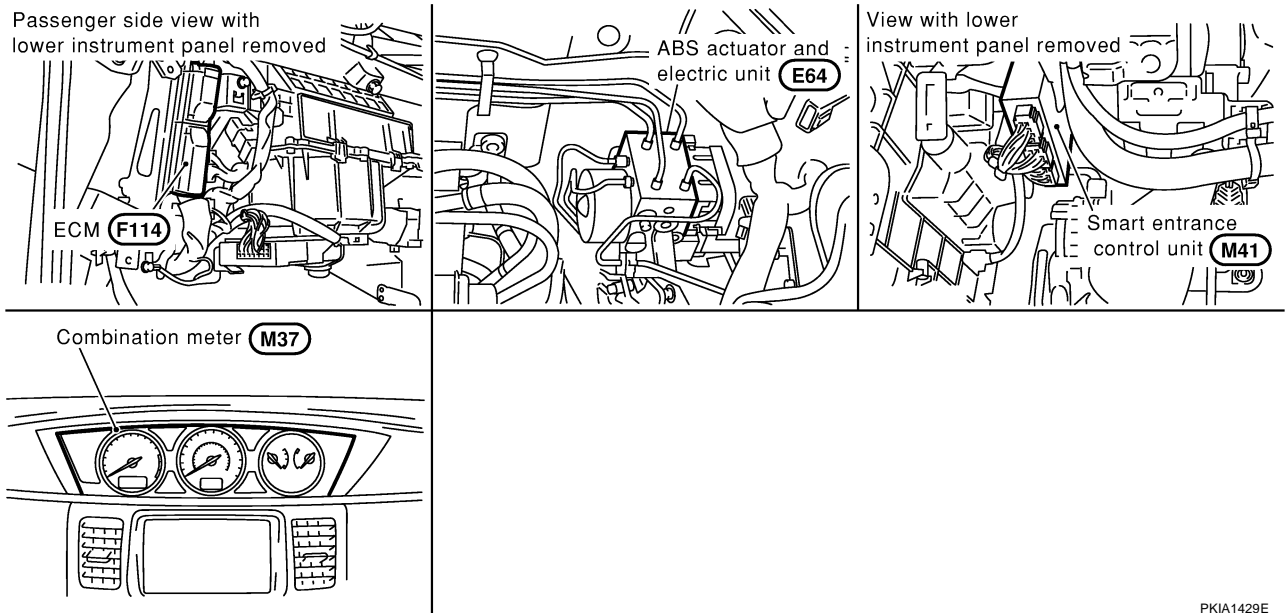
CAN SYSTEM (TYPE 14)**System Description**

EKS005HW

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

EKS005HX



PKIA1429E

CAN SYSTEM (TYPE 14)

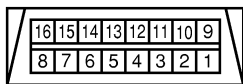
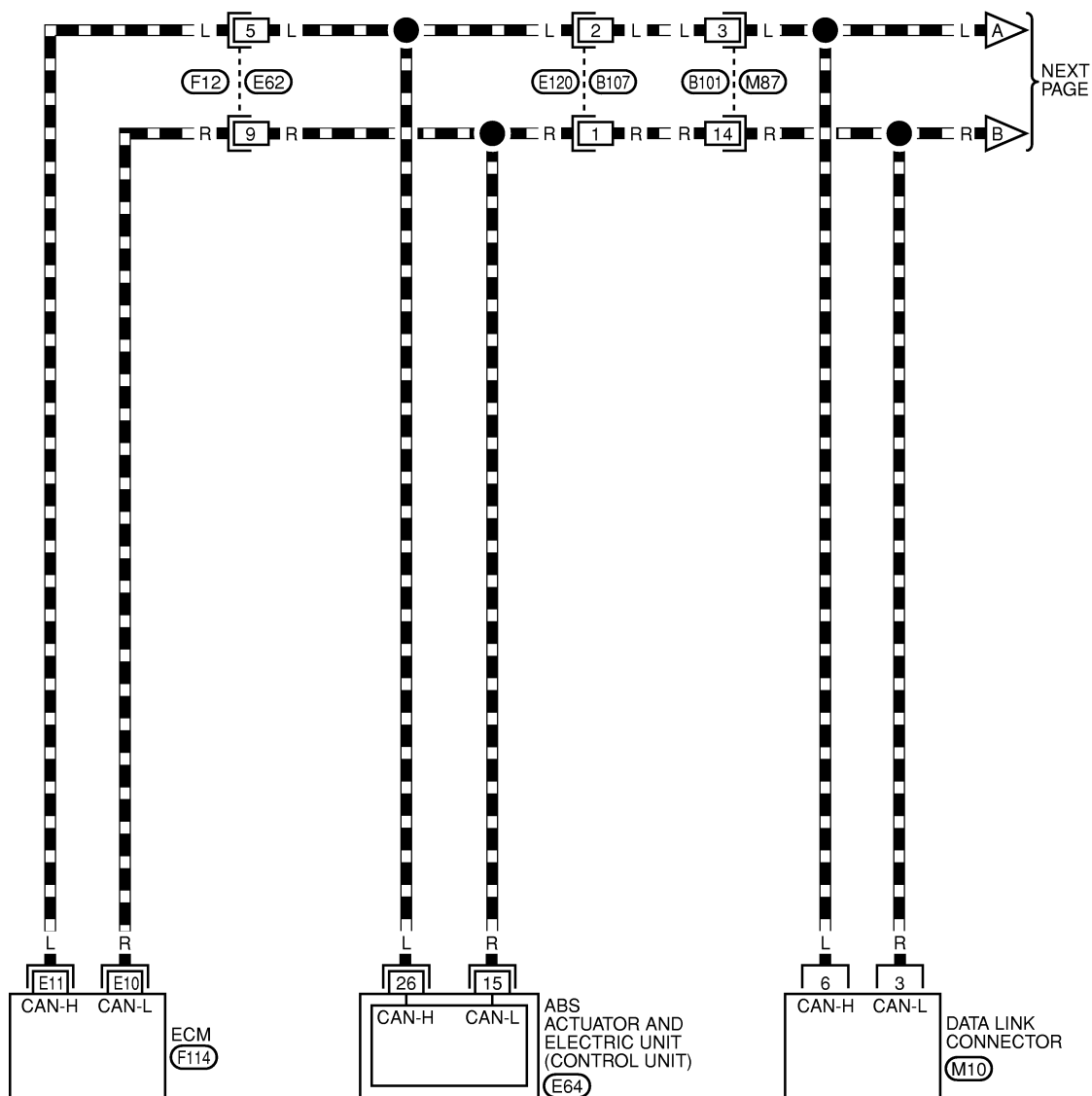
[CAN]

Wiring Diagram — CAN —

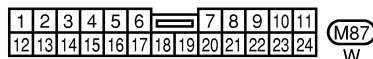
EKS005HY

LAN-CAN-29

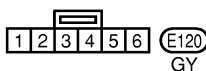
— : DATA LINE



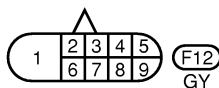
M10
W



M87
W



E120
GY



F12
GY

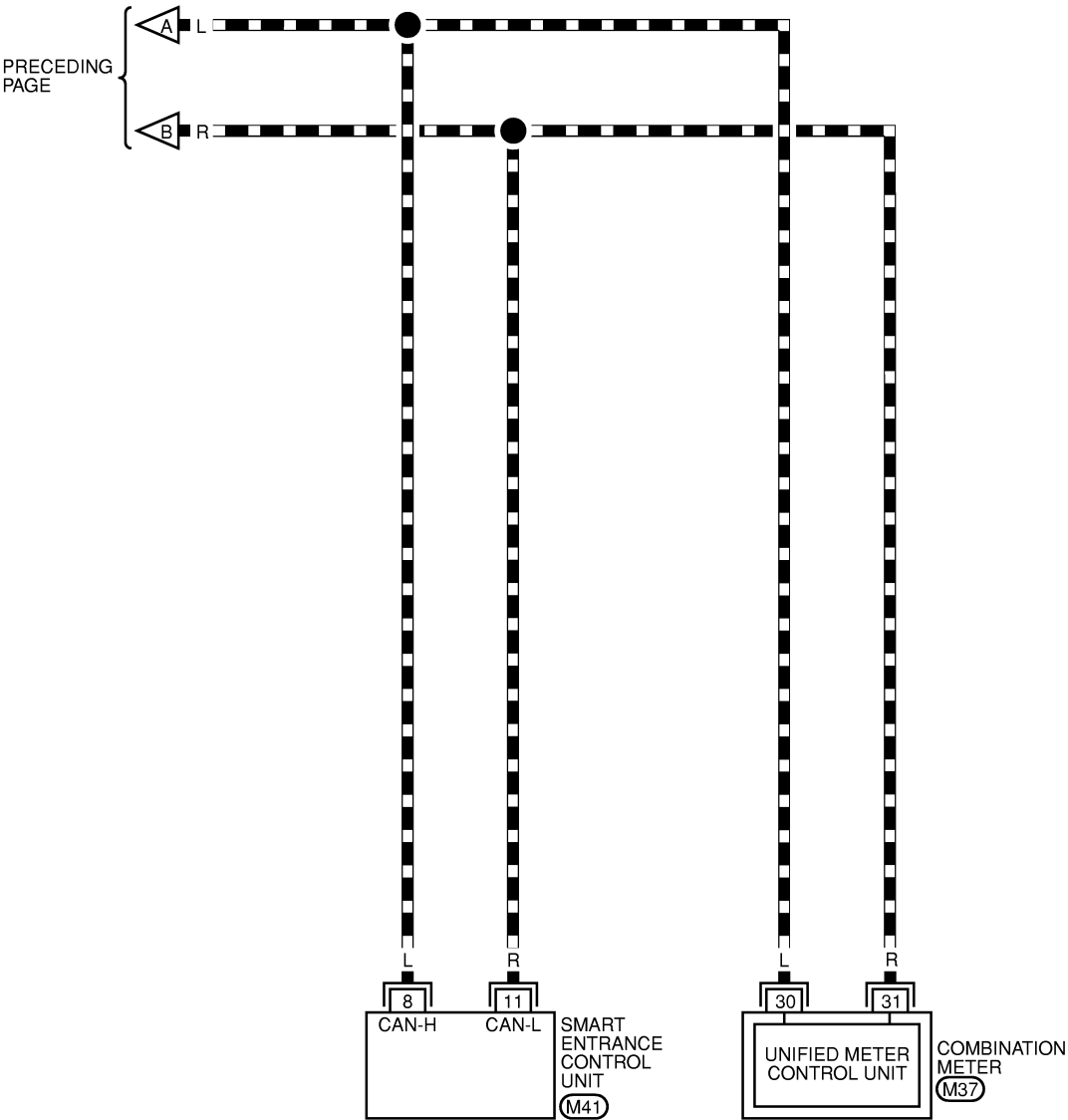
REFER TO THE FOLLOWING.

(E64), (F114)

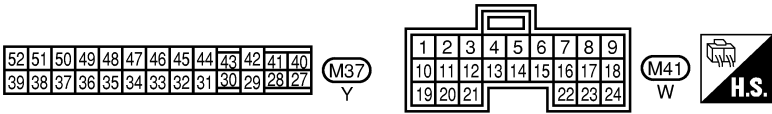
-ELECTRICAL UNITS

MKWA0769E

▬ : DATA LINE



LAN



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-27, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-245, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-245, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-246, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
LAN	

L	
M	

CAN SYSTEM (TYPE 14)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 2: Replace ABS actuator and electric unit (control unit)

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 3

PKIA0810E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ABS actuator and electric unit (control unit).

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between ABS actuator and electric unit (control unit) and Smart entrance control unit. Refer to [LAN-247, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-249, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-249, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-250, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-250, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-251, "CAN Communication Circuit Check"](#).

Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit

EKS00510

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E120
 - Harness connector B107
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E120.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and harness connector E120 terminals 2 (L), 1 (R).

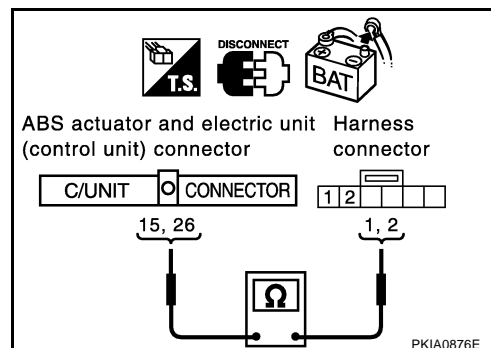
26(L) – 2(L) : Continuity should exist.

15(R) – 1(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector B101.
2. Check continuity between harness connector B107 terminals 2 (L), 1 (R) and harness connector B101 terminals 3 (L), 14 (R).

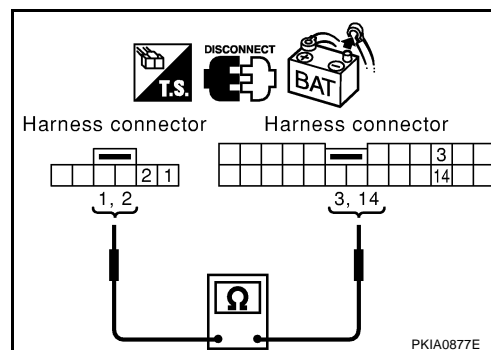
2(L) – 3(L) : Continuity should exist.

1(R) – 14(R) : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness.



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check continuity between harness connector M87 terminals 3 (L), 14 (R) and smart entrance control unit harness connector M41 terminals 8 (L), 11 (R).

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

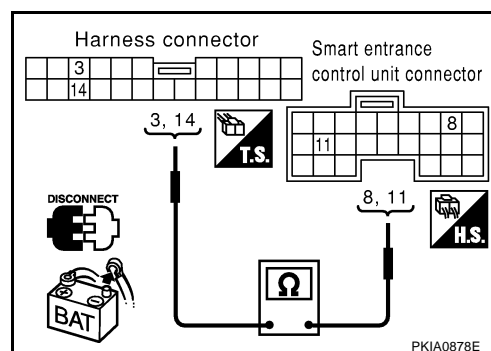
14(R) – 11(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F12
 - Harness connector E62

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

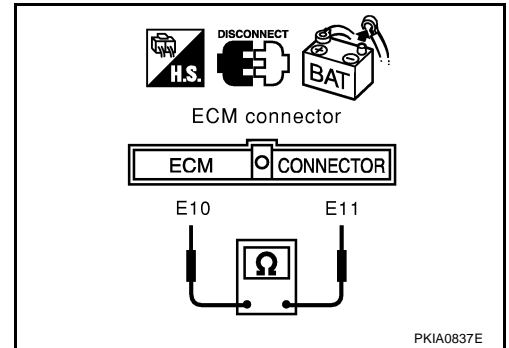
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F114 terminals E11(L) and E10(R).

E11(L) – E10(R)**: Approx. 108 – 132Ω**

OK or NG

OK >> Replace ECM.

NG >> Repair harness between ABS actuator and electric unit (control unit) and ECM.

**ABS Actuator and Electric Unit (control unit) Circuit Check****1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

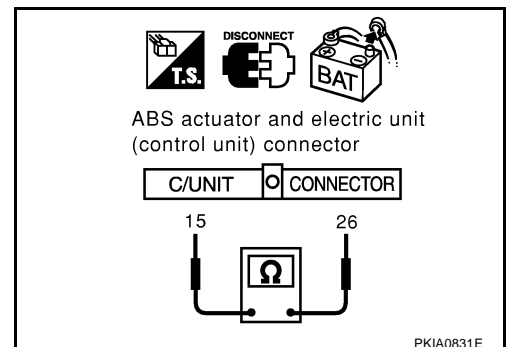
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E64 terminals 26(L) and 15(R).

26(L) – 15(R)**: Approx. 54 – 66Ω**

OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between Data link connector and ABS actuator and electric unit (control unit).



Smart Entrance Control Unit Circuit Check

EKS005/3

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

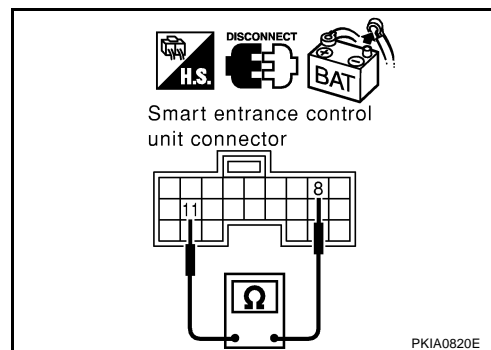
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
NG >> Repair harness between Data link connector and smart entrance control unit.



Combination Meter Circuit Check

EKS005/4

1. CHECK CONNECTOR

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

OK or NG

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

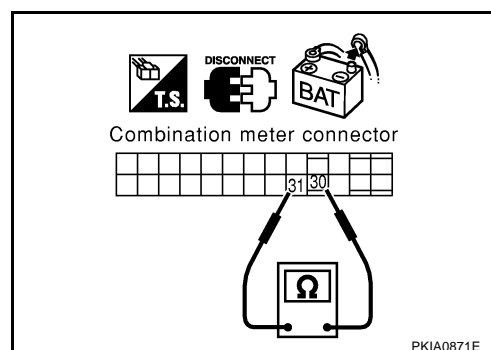
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
NG >> Repair harness between smart entrance control unit and combination meter.



CAN Communication Circuit Check

EKS005/5

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - ABS actuator and electric unit (control unit)
 - ECM
 - Between Data link connector and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

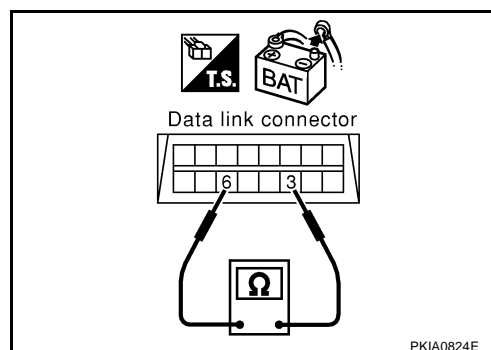
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

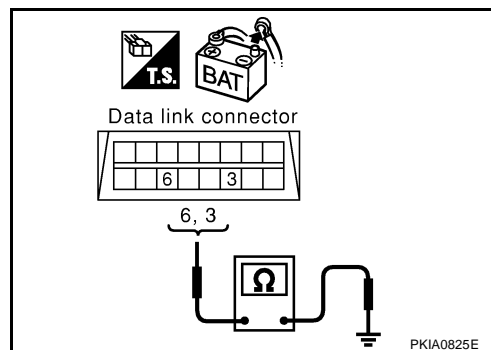
Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between Data link connector and smart entrance control unit.
 - Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

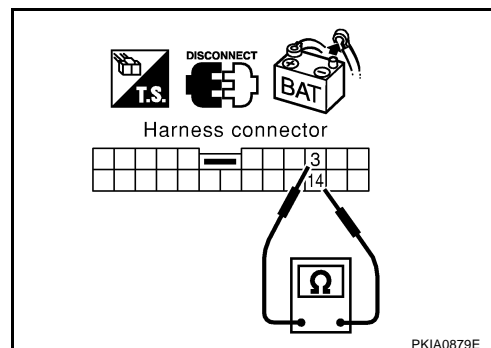
1. Disconnect harness connector B107.
2. Check continuity between harness connector B101 terminals 3 (L) and 14(R).

3(L) – 14(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between harness connector B101 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B101 terminals 3 (L), 14(R) and ground.

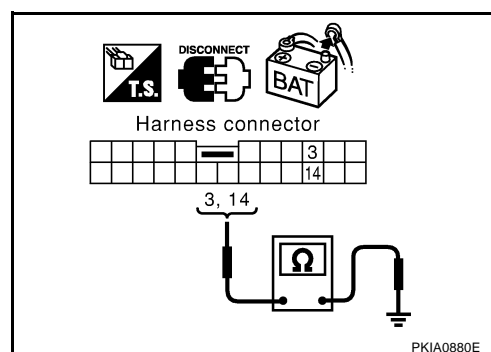
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between harness connector B101 and harness connector B107.



6. CHECK HARNESS FOR SHORT CIRCUIT

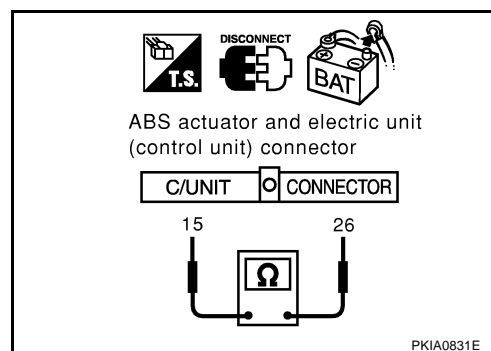
1. Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector
 - Harness connector E62
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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

OK or NG

OK >> GO TO 7.

- NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
- Repair harness between harness connector M120 and harness connector E62.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

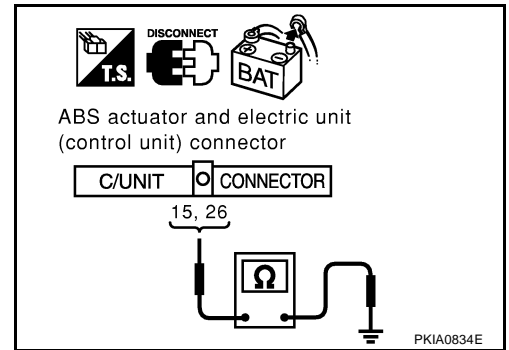
26(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> ● Repair harness between ABS actuator and electric unit (control unit) and harness connector E120.
● Repair harness between harness connector M120 and harness connector E62.



8. CHECK HARNESS FOR SHORT CIRCUIT

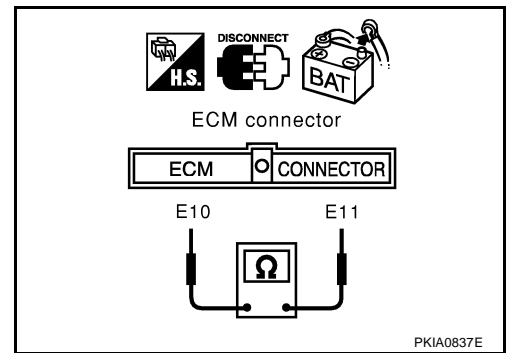
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F114 terminals E11 (L) and E10(R).

E11(L) – E10(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F12.



9. CHECK HARNESS FOR SHORT CIRCUIT

1. Check continuity between ECM harness connector F114 terminals E11 (L), E10 (R) and ground.

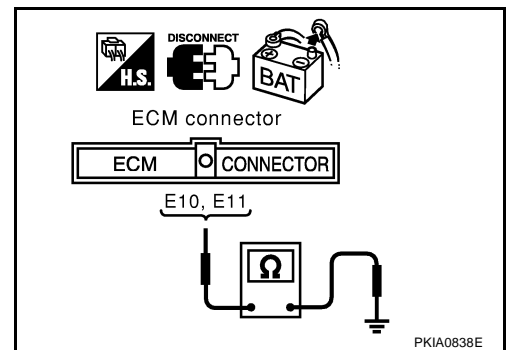
E11(L) – ground : Continuity should not exist.

E10(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F12.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-254, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-27, "CAN Communication Circuit"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Replace ECM and/or Combination meter.

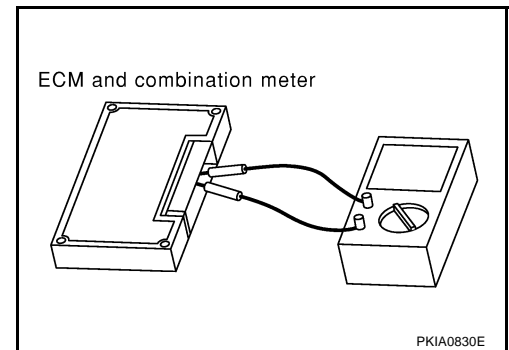
Component Inspection

EKS00516

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals E11 and E10.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	E11 – E10	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 15)

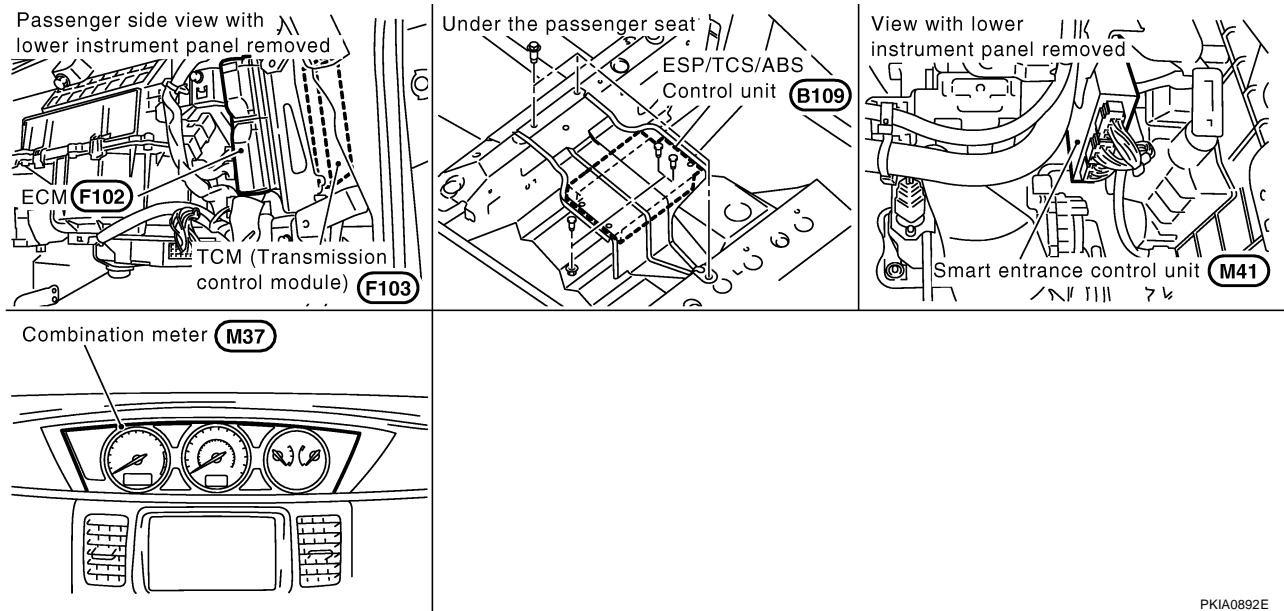
System Description

EKS005IW

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

EKS005IX



PKIA0892E

CAN SYSTEM (TYPE 15)

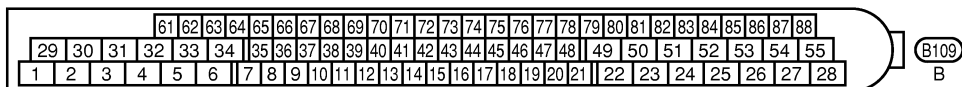
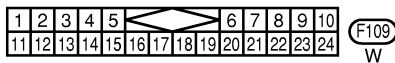
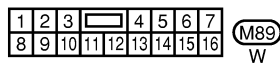
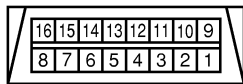
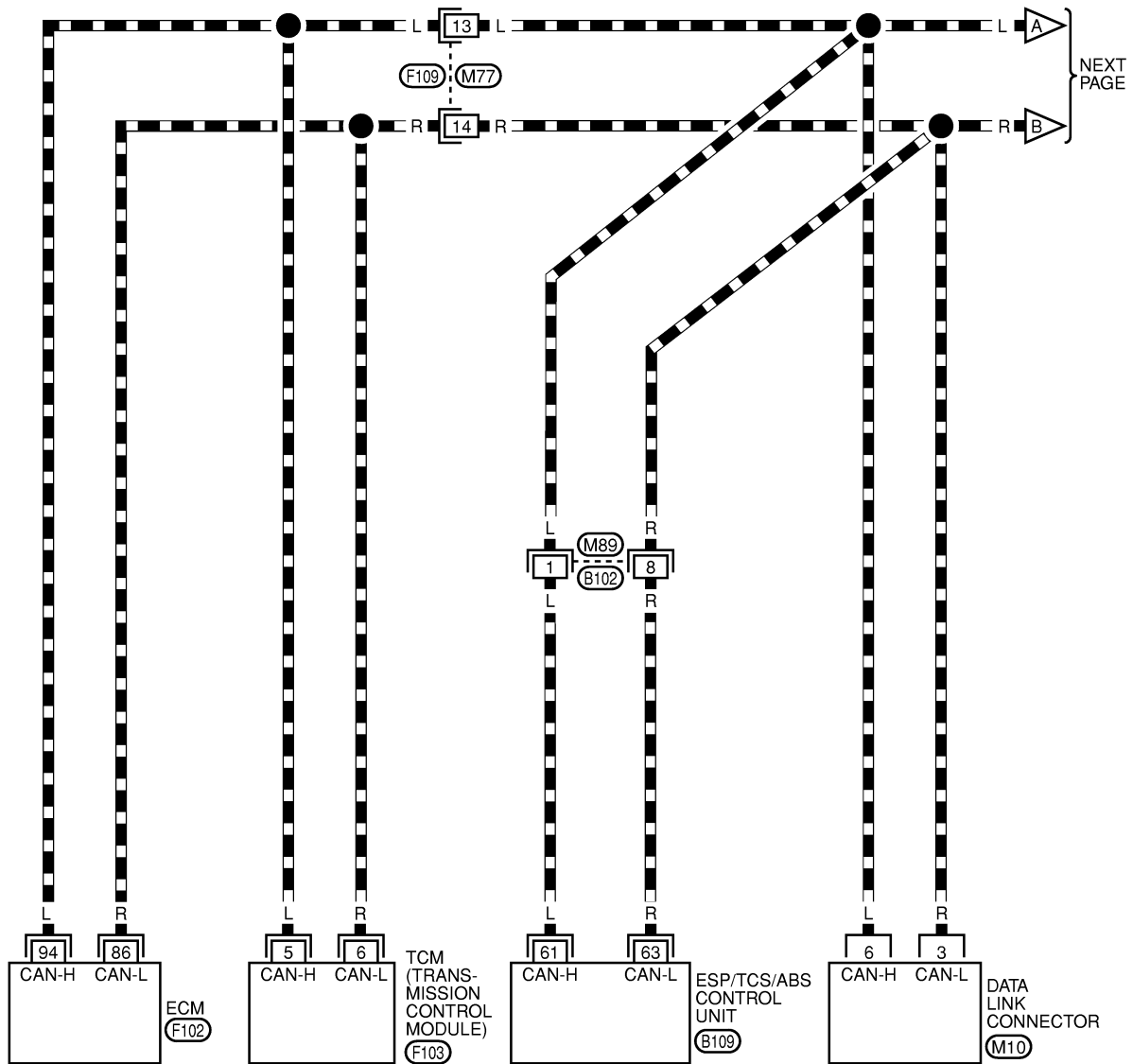
[CAN]

Wiring Diagram — CAN —

EKS0051Y

LAN-CAN-31

DATA LINE

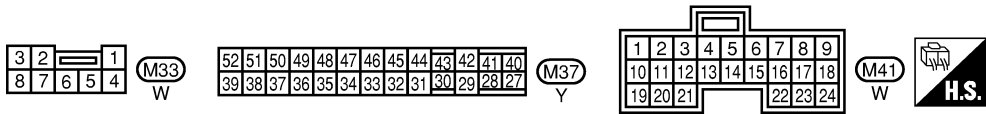
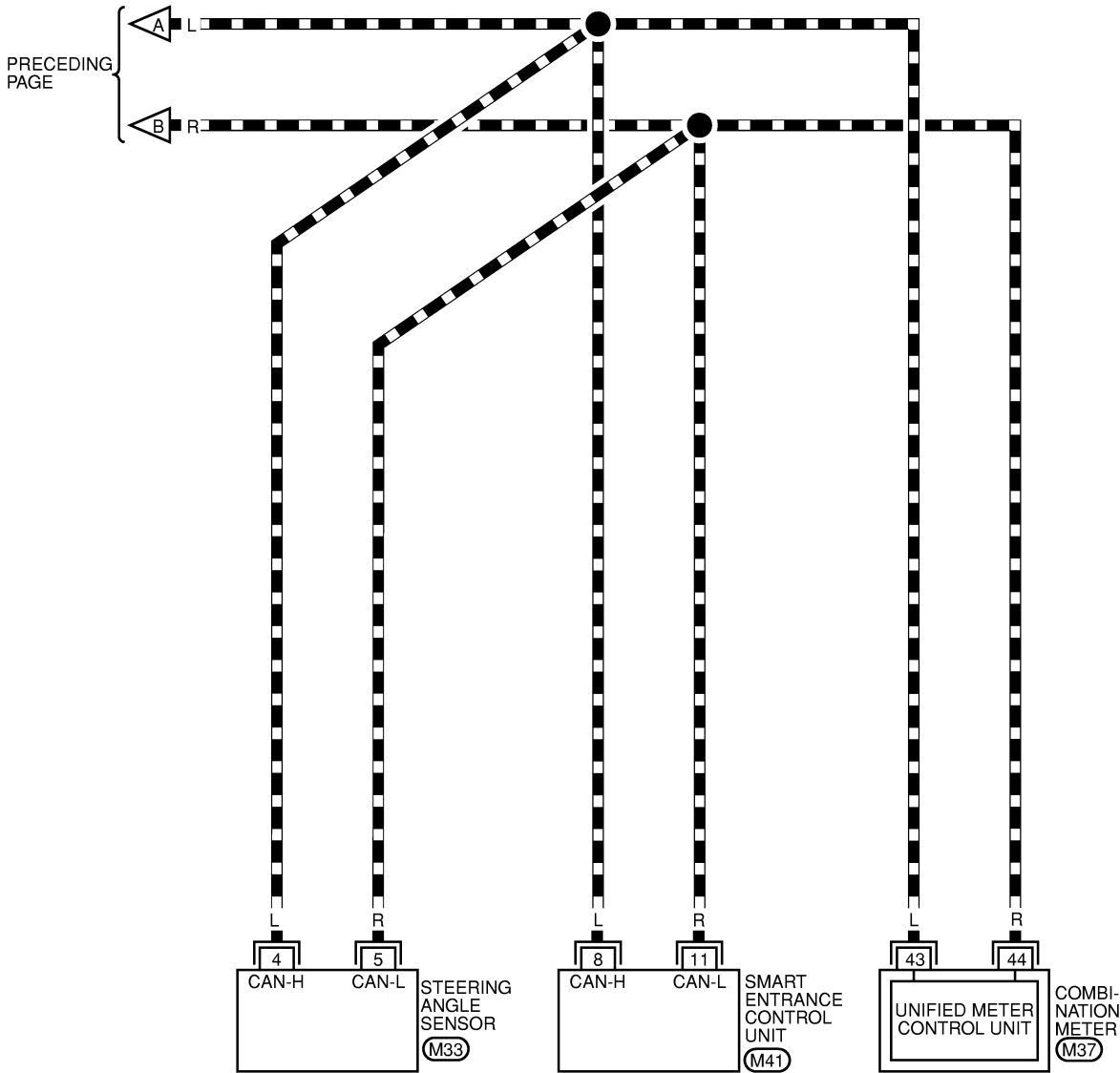


REFER TO THE FOLLOWING.
(F102), (F103) -ELECTRICAL UNITS

MKWA0771E

LAN-CAN-32

DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-259, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-259, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-260, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CAN SYSTEM (TYPE 15)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
A/T
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1459E

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 15)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1460E

CAN SYSTEM (TYPE 15)

[CAN]

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1461E

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1462E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and Data link connector. Refer to [LAN-262, "Circuit Check Between TCM and Data Link Connector"](#).

Case 6: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-264, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-264, "ECM Circuit Check"](#).

Case 8: Check TCM Circuit. Refer to [LAN-265, "TCM Circuit Check"](#).

Case 9: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-265, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 10: Check Steering angle sensor Circuit. Refer to [LAN-266, "Steering Angle Sensor Circuit Check"](#).

Case 11: Check Smart entrance control unit Circuit. Refer to [LAN-266, "Smart Entrance Control Unit Circuit Check"](#).

Case 12: Check Combination meter Circuit. Refer to [LAN-267, "Combination Meter Circuit Check"](#).

Case 13: Check CAN communication Circuit. Refer to [LAN-267, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and Data Link Connector

EKS005J0

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F109
 - Harness connector M77

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F109.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F109 terminals 13 (L), 14 (R).

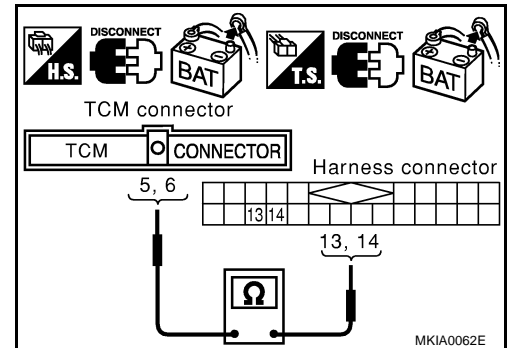
5(L) – 13(L) : Continuity should exist.

6(R) – 14(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 M77 terminals 13 (L), 14 (R) and Data link connector M10 terminals 6 (L), 3 (R).

13(L) – 6(L) : Continuity should exist.

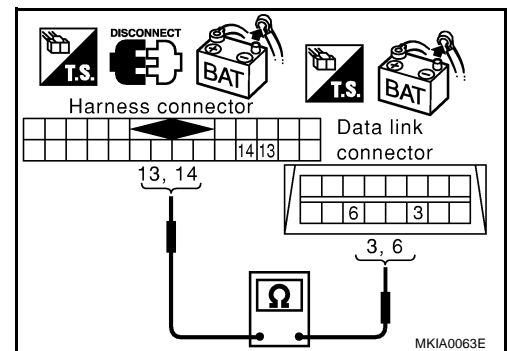
14(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005J1

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

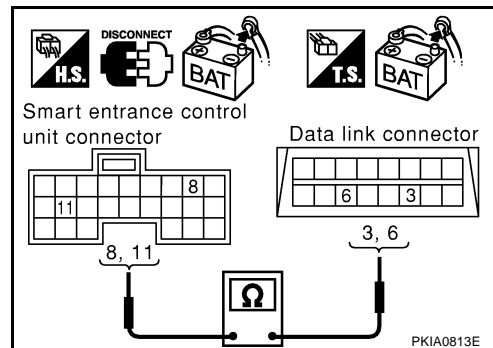
8(L) – 6(L) : Continuity should exist.

11(R) – 3(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005J2

1. CHECK CONNECTOR

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

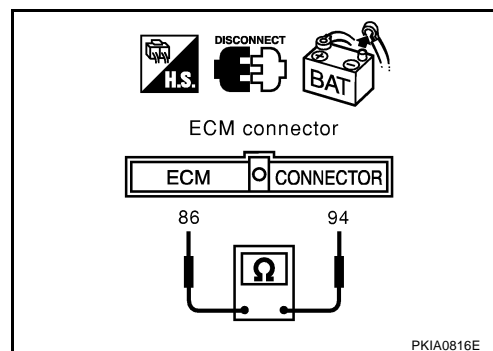
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R) : Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between TCM and ECM.



TCM Circuit Check

EKS005J3

1. CHECK CONNECTOR

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

OK or NG

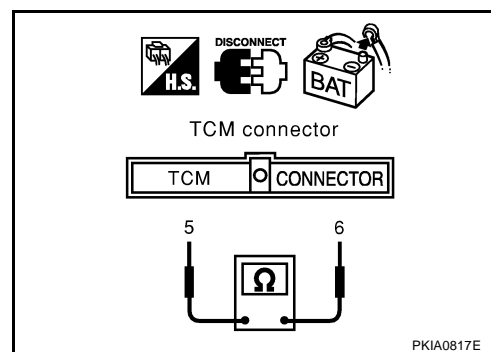
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)**: Approx. 54 – 66Ω**OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and ECM.

**ESP/TCS/ABS Control Unit Circuit Check**

EKS005J4

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

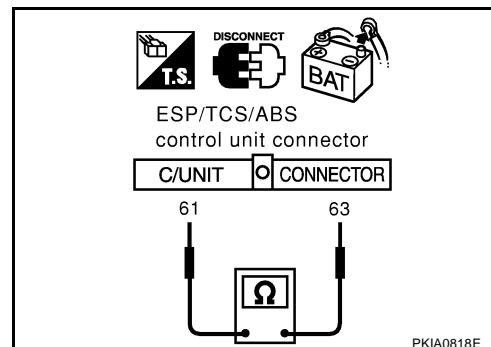
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R)**: Approx. 54 – 66Ω**OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

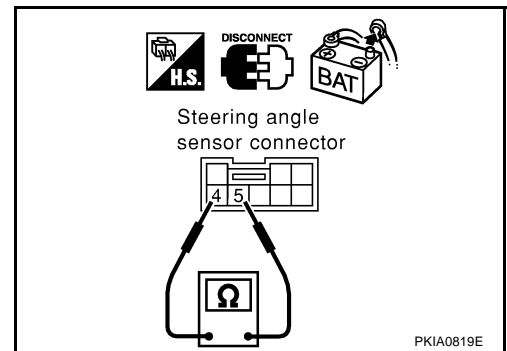
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

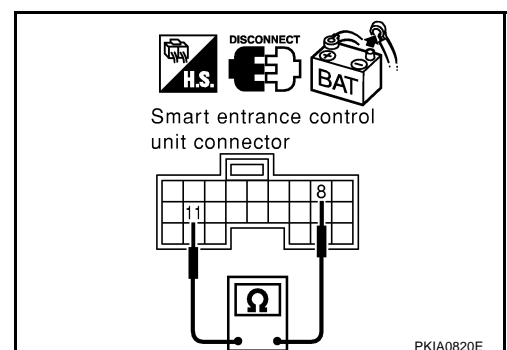
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
NG >> Repair harness between steering angle sensor and smart entrance control unit.



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

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

OK or NG

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

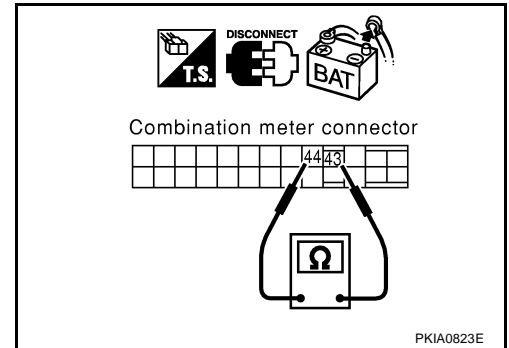
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.

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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - TCM
 - ECM
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

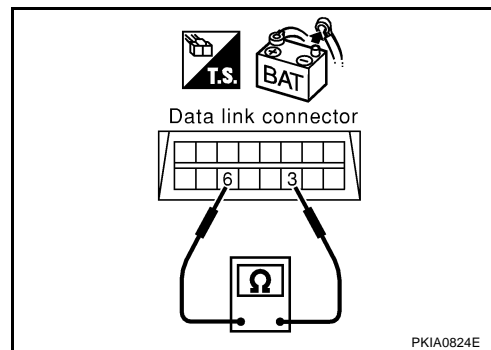
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M77
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M77.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

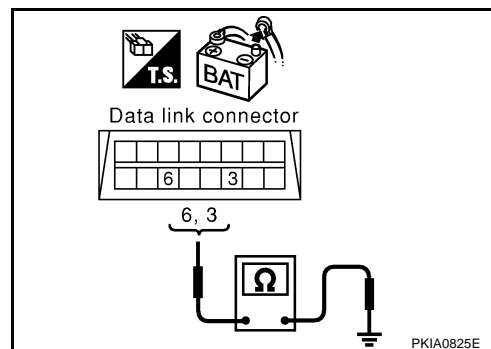
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M77.



4. CHECK HARNESS FOR SHORT CIRCUIT

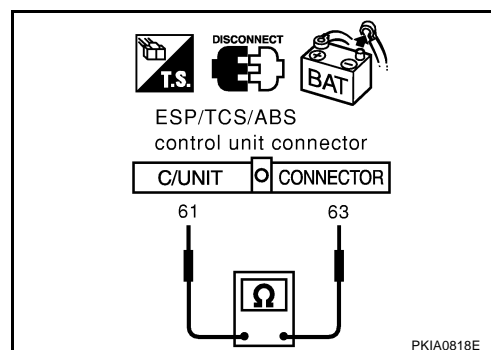
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 5.

- NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

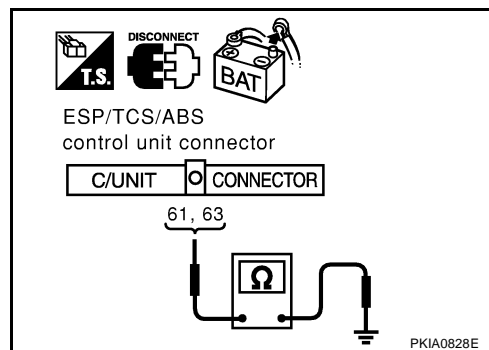
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

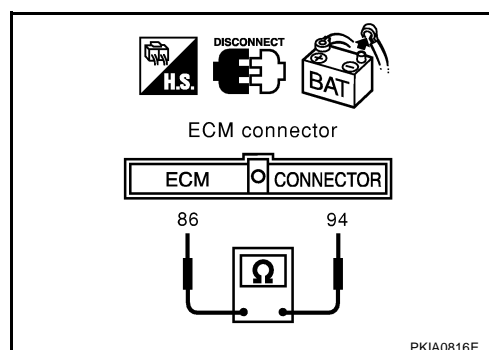
94(L) – 86(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> ● Repair harness between ECM and harness connector F109.

- Repair harness between TCM and harness connector F109.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

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

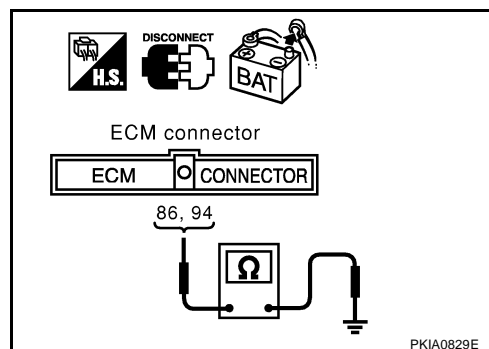
86(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> ● Repair harness between ECM and harness connector F109.

- Repair harness between TCM and harness connector F109.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-270, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- NG >> Replace ECM and/or Combination meter.

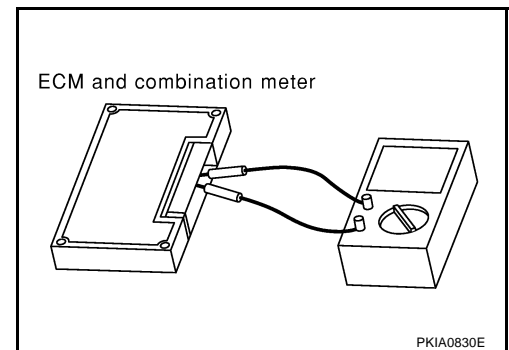
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS005J9

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 - 86	Approx. 108 - 132
Combination meter	43 - 44	



CAN SYSTEM (TYPE 16)

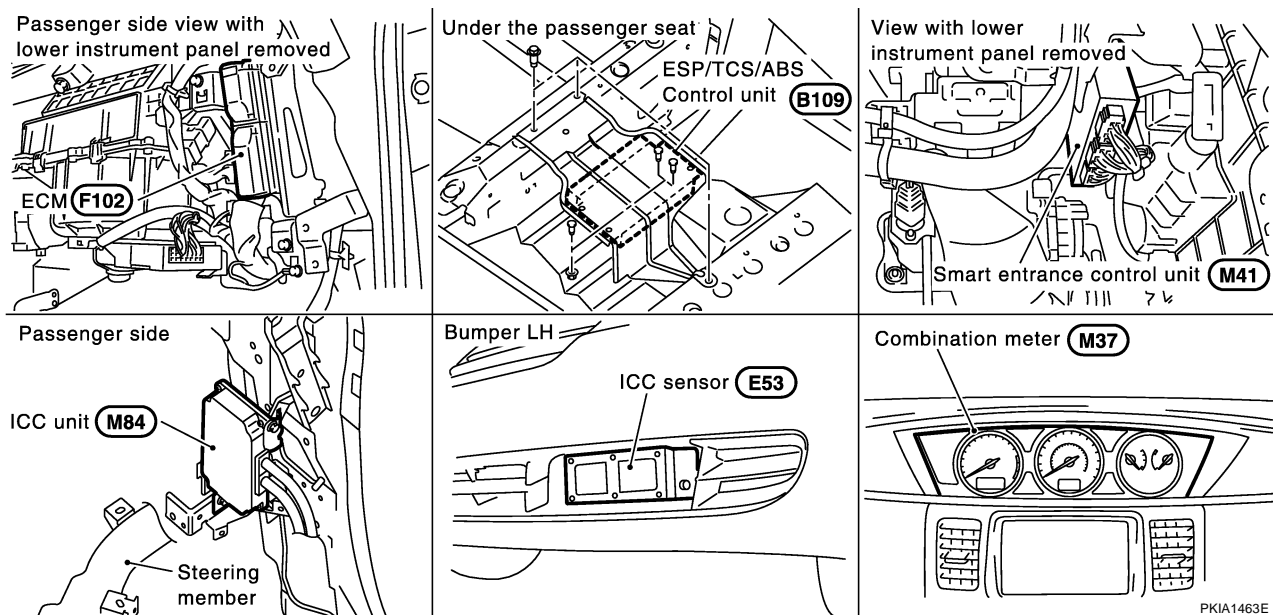
System Description

EKS005JP

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

EKS005JQ



CAN SYSTEM (TYPE 16)

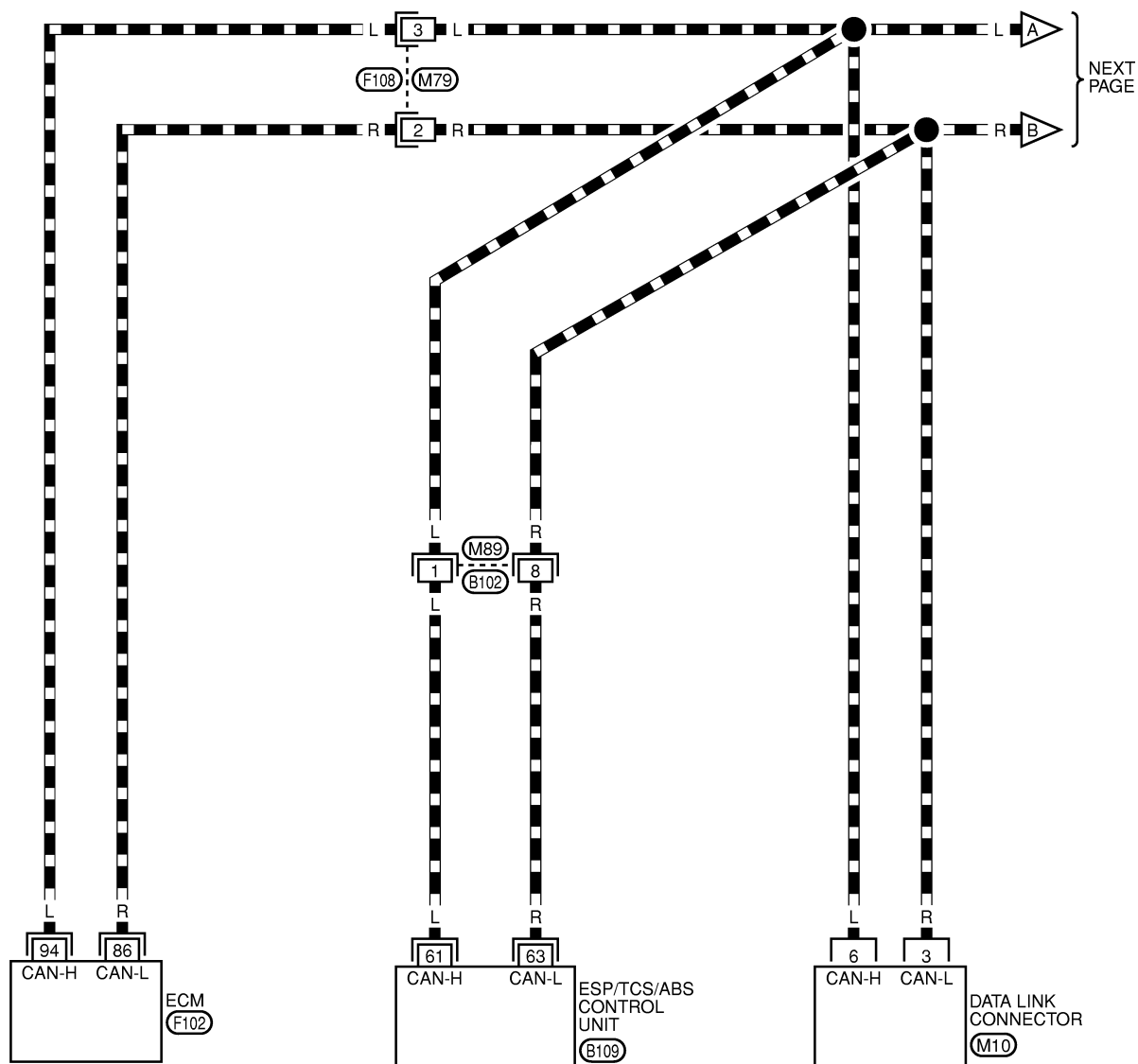
[CAN]

Wiring Diagram — CAN —

EKS005JR

LAN-CAN-33

— : DATA LINE



NEXT
PAGE

16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1

(M10)
W

1	2	3	4	5	6	7
8	9	10	11	12	13	14

(M89)
W

(F108)
W

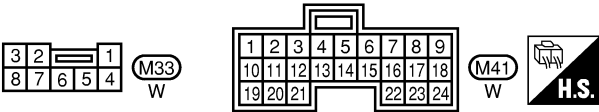
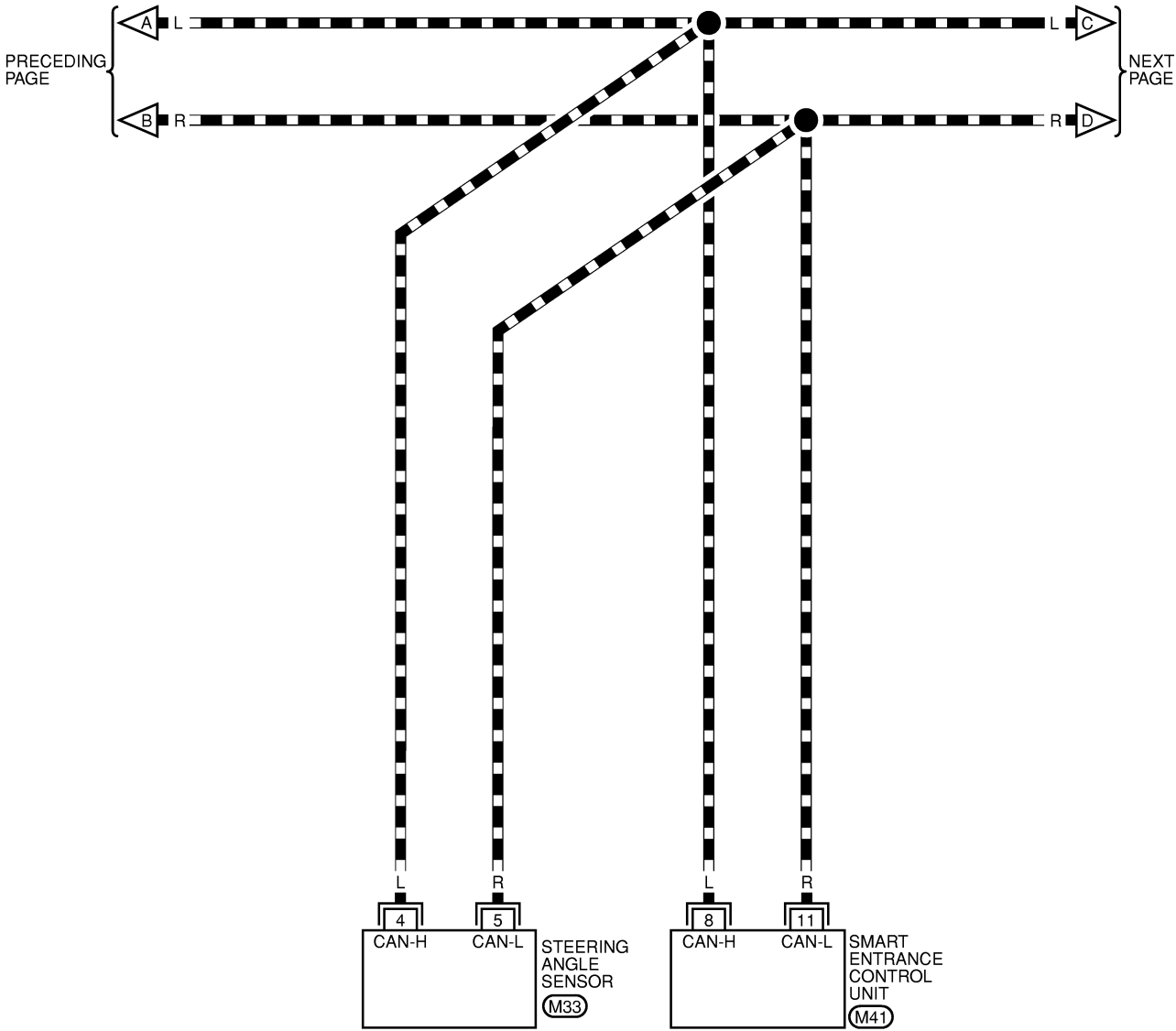
REFER TO THE FOLLOWING.

(F102) , (B109)

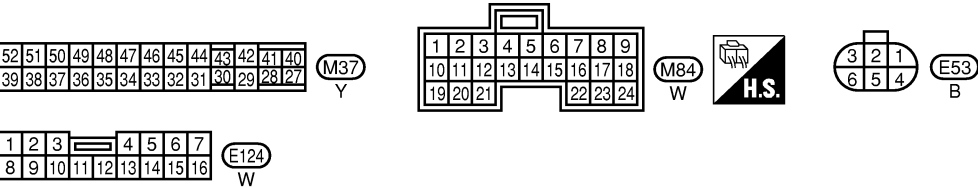
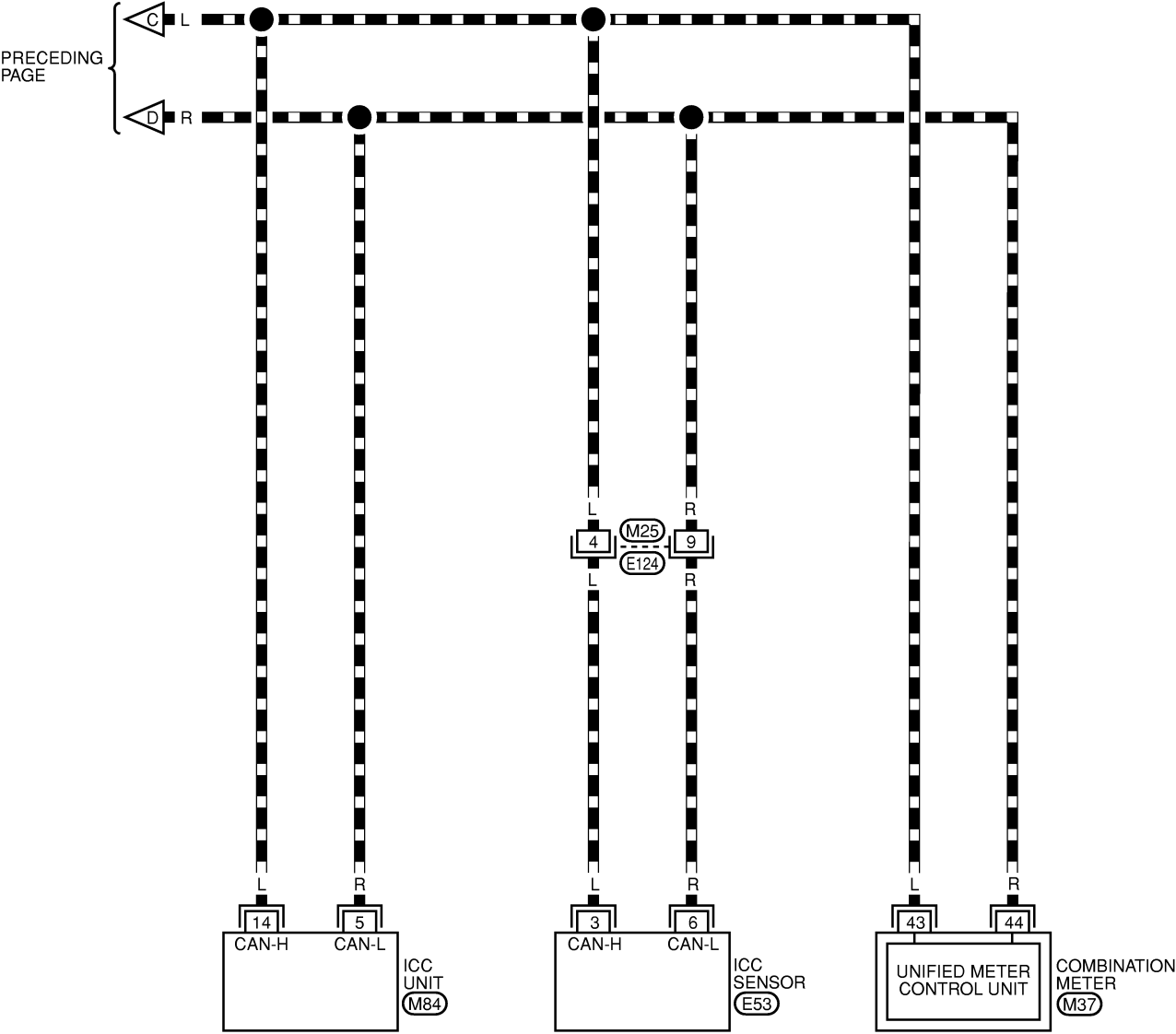
-ELECTRICAL UNITS

MKWA0530E

▬ : DATA LINE



▬ : DATA LINE



Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-276, "CHECK SHEET"](#).
 3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-276, "CHECK SHEET"](#).
- NOTE:**
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-277, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 16)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ICC
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

Attach copy of
ICC
DATA MONITOR

PKIA1464E

CAN SYSTEM (TYPE 16)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 4: Replace ICC unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

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CAN SYSTEM (TYPE 16)

[CAN]

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

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Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

Case 15

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 5	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	CAN CIRC 6	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	—	—	CAN CIRC 8	—

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NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace Smart entrance control unit.

Case 4: Replace ICC unit.

Case 5: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-280, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 6: Check Harness between Smart entrance control unit and ICC unit. Refer to [LAN-281, "Circuit Check Between Smart Entrance Control Unit and ICC Unit"](#).

Case 7: Check Harness between ICC unit and ICC sensor. Refer to [LAN-282, "Circuit Check Between ICC Unit and ICC Sensor"](#).

Case 8: Check ECM Circuit. Refer to [LAN-282, "ECM Circuit Check"](#).

Case 9: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-283, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 10: Check Steering angle sensor Circuit. Refer to [LAN-283, "Steering Angle Sensor Circuit Check"](#).

Case 11: Check Smart entrance control unit Circuit. Refer to [LAN-284, "Smart Entrance Control Unit Circuit Check"](#).

Case 12: Check ICC unit Circuit. Refer to [LAN-284, "ICC Unit Circuit Check"](#).

Case 13: Check ICC sensor Circuit. Refer to [LAN-285, "ICC Sensor Circuit Check"](#).

Case 14: Check Combination meter Circuit. Refer to [LAN-285, "Combination Meter Circuit Check"](#).

Case 15: Check CAN communication Circuit. Refer to [LAN-286, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005JU

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

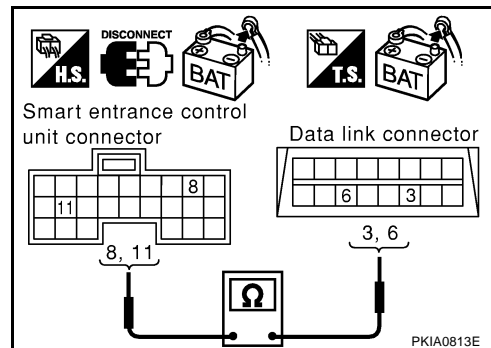
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Repair harness.



Circuit Check Between Smart Entrance Control Unit and ICC Unit

EKS005JV

1. CHECK HARNESS FOR OPEN CIRCUIT

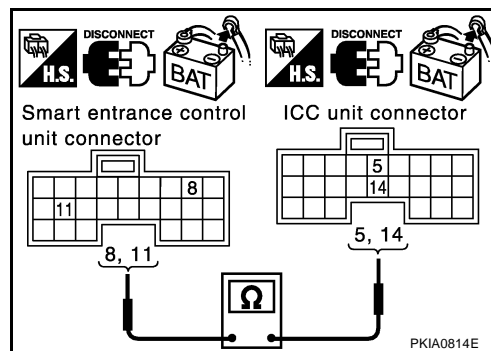
1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - ICC unit connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and ICC unit harness connector M84 terminals 14 (L), 5 (R).

8(L) – 14(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- NG >> Repair harness.



Circuit Check Between ICC Unit and ICC Sensor

EKS005JW

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - ICC unit connector
 - ICC sensor connector
 - Combination meter connector
4. Check continuity between ICC unit harness connector M84 terminals 14 (L), 5 (R) and ICC sensor harness connector E53 terminals 3 (L), 6 (R).

14(L) – 3(L) : Continuity should exist.

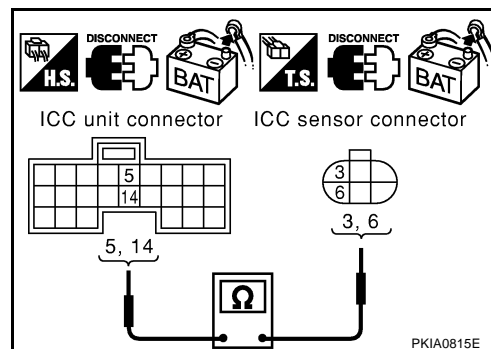
5(R) – 6(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Repair harness.



ECM Circuit Check

EKS005JX

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F108
 - Harness connector M79

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

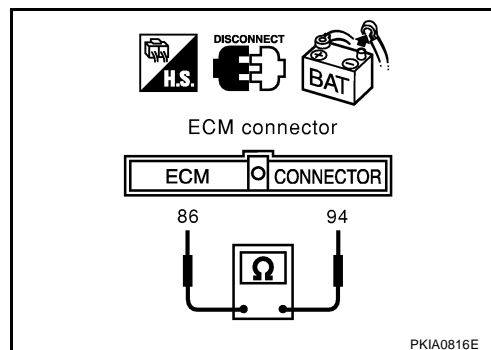
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace ECM.
 NG >> Repair harness between ESP/TCS/ABS control unit and ECM.



EKS005JZ

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

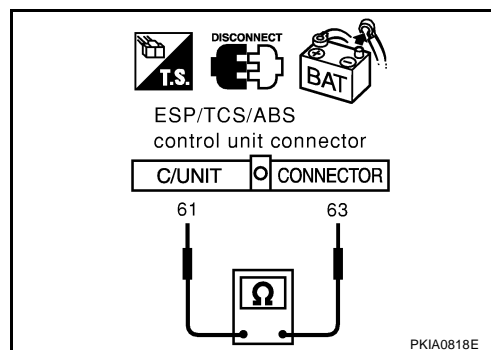
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
 NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



EKS005K0

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

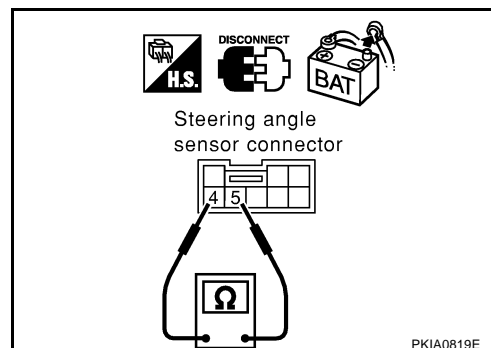
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



Smart Entrance Control Unit Circuit Check

EKS005K1

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

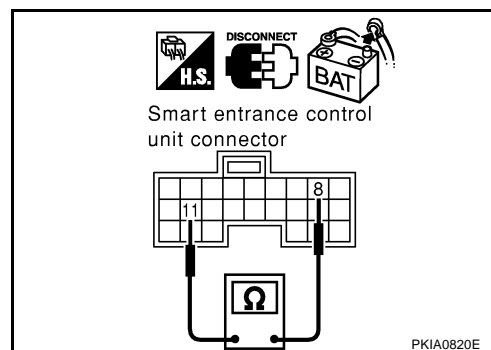
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



ICC Unit Circuit Check

EKS005K2

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ICC 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

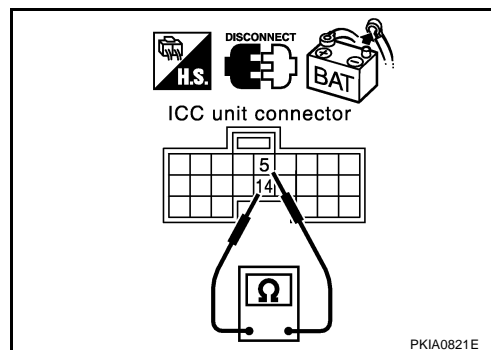
1. Disconnect ICC unit connector.
2. Check resistance between ICC unit harness connector M84 terminals 14(L) and 5(R).

14(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ICC unit.
 NG >> Repair harness between ICC unit and smart entrance control unit.



EKS005K3

ICC Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
 2. Disconnect the negative battery terminal.
 3. Check following terminals and connector for damage, bend and loose connection. (sensor-side and harness-side)
- ICC sensor
 - Harness connector E124
 - Harness connector M25

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

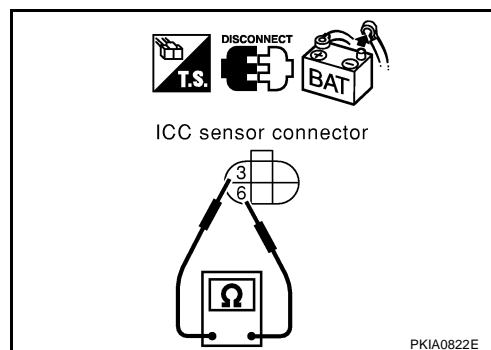
1. Disconnect ICC sensor connector.
2. Check resistance between ICC sensor harness connector E53 terminals 3(L) and 6(R).

3(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005K4

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

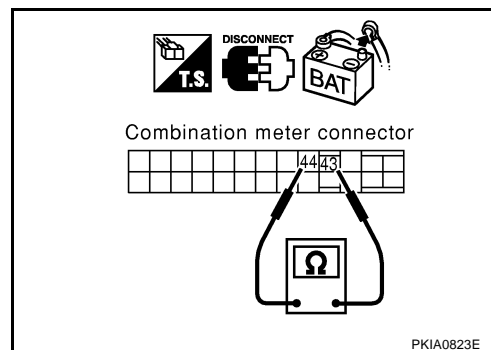
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

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



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EKS005K5

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, sensor-side, control unit-side, control module-side and harness-side)
 - Combination meter
 - ICC sensor
 - ICC unit
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ECM
 - Between ICC sensor and ICC unit
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

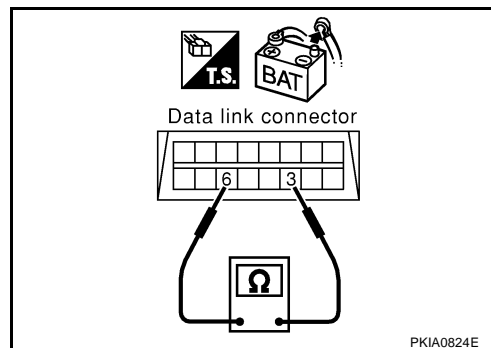
1. Disconnect the following connectors.
 - Combination meter connector
 - ICC unit connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M25
 - Harness connector M89
 - Harness connector M79
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between harness connector M25 and combination meter.
- Repair harness between harness connector M25 and ICC unit.
 - Repair harness between ICC unit and smart entrance control unit.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

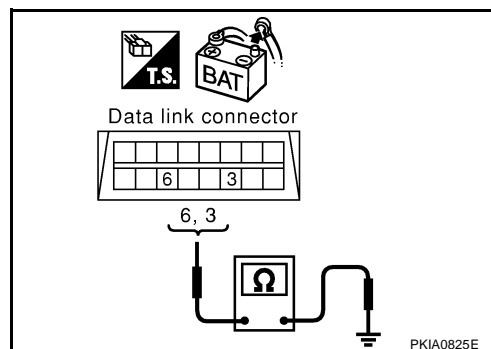
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between harness connector M25 and combination meter.
- Repair harness between harness connector M25 and ICC unit.
 - Repair harness between ICC unit and smart entrance control unit.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M79.



4. CHECK HARNESS FOR SHORT CIRCUIT

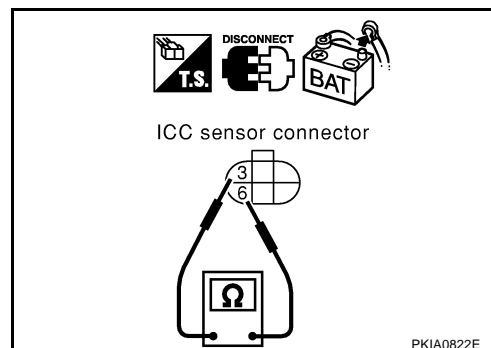
1. Disconnect ICC sensor connector.
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L) and 6(R).

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

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ICC sensor and harness connector E124.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and ground.

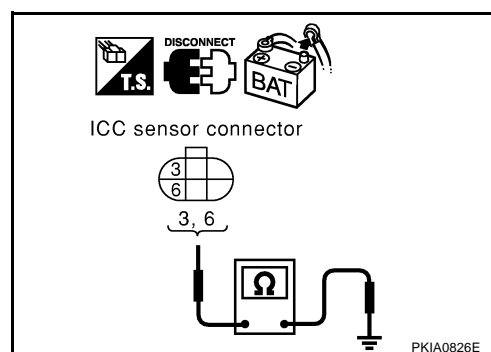
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ICC sensor and harness connector E124.



6. CHECK HARNESS FOR SHORT CIRCUIT

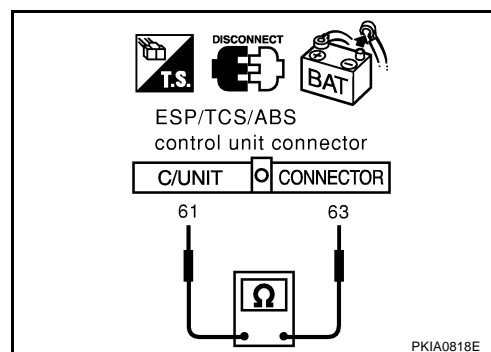
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

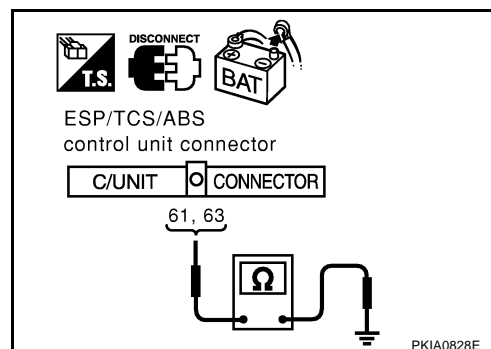
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



8. CHECK HARNESS FOR SHORT CIRCUIT

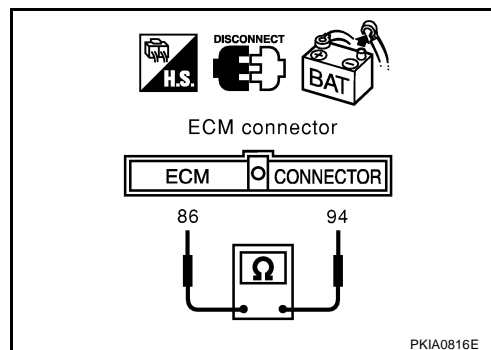
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F108.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

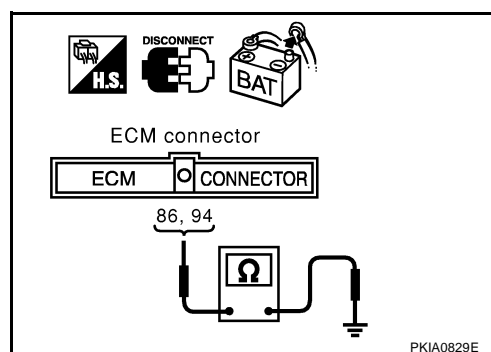
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F108.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-290, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "ICC" displayed on CONSULT-II. Refer to the following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"

NG >> Replace ECM and/or Combination meter.

LAN

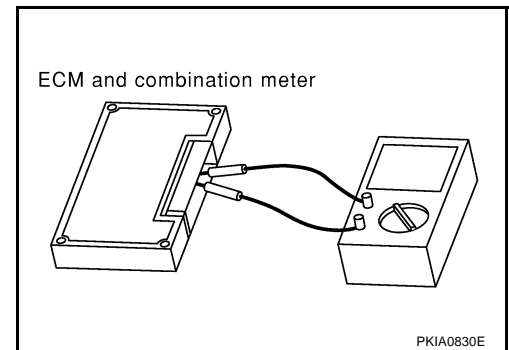
Component Inspection

EKS005K6

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 17)

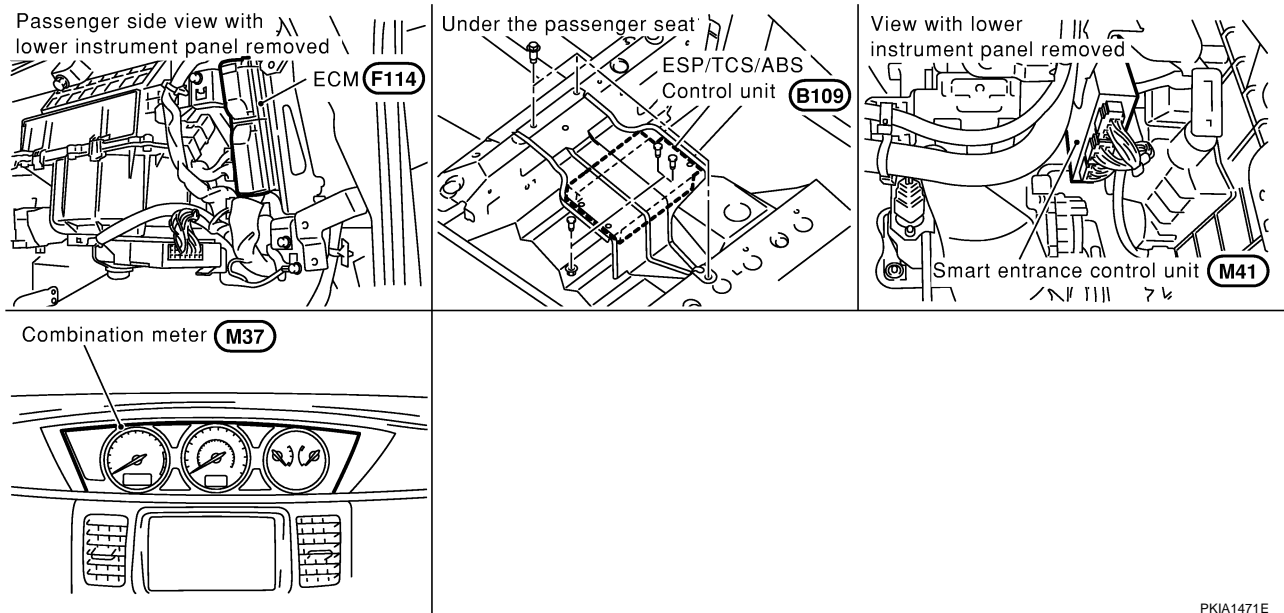
System Description

EKS005KQ

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

EKS005KR



PKIA1471E

CAN SYSTEM (TYPE 17)

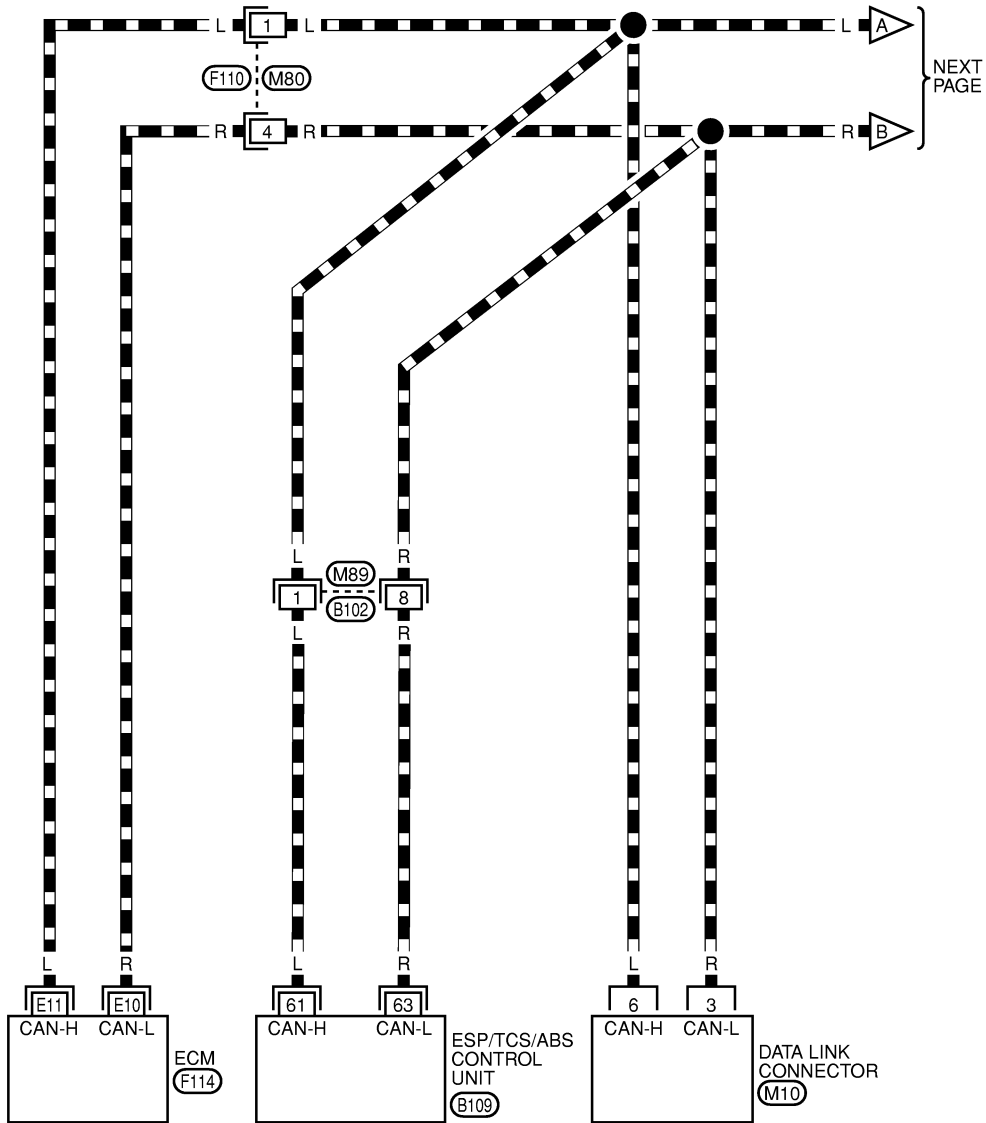
[CAN]

Wiring Diagram — CAN —

EKS005KS

LAN-CAN-36

— : DATA LINE



16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1

(M10)
W

1	2	3	4	5	6	7
8	9	10	11	12	13	14

(M89)
W

1	2	3
4	5	6

(F110)
W

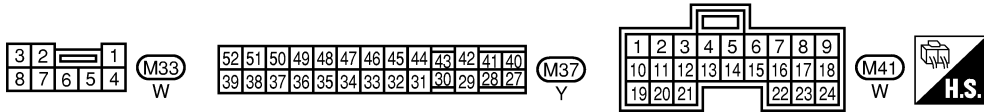
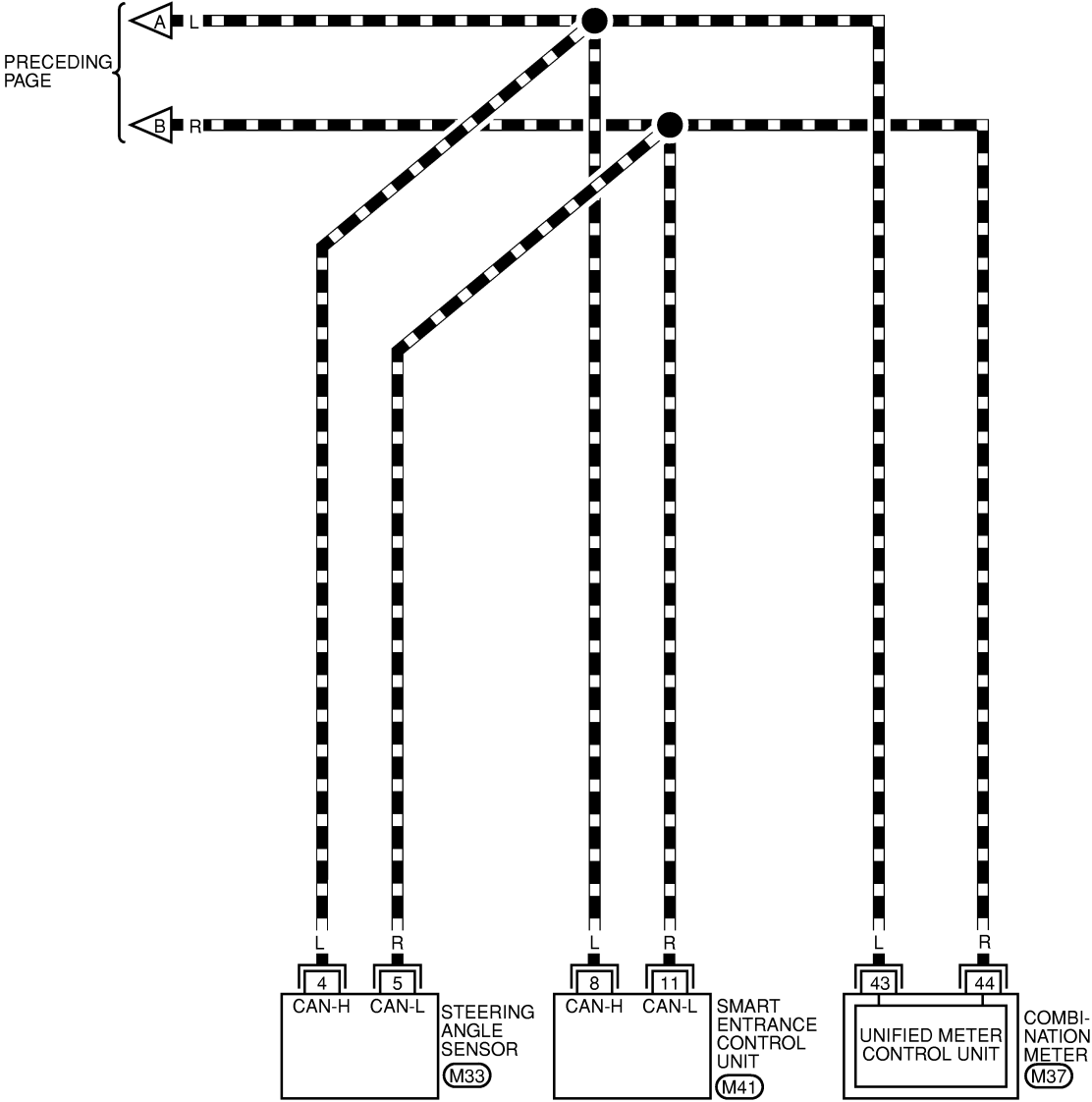
REFER TO THE FOLLOWING.
(F114) -ELECTRICAL UNITS

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(B109)
B

MKWA0773E

DATA LINE



Work Flow

EKS005KT

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-295, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-295, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-296, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTSAttach copy of
ABS
SELF-DIAG RESULTSAttach copy of
SMART ENTRANCE
SELF-DIAG RESULTSAttach copy of
ENGINE
DATA MONITORAttach copy of
ABS
DATA MONITORAttach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 17)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 3	—	—	CAN <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 3	—	—	CAN CIRC 4
ABS	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN <input checked="" type="checkbox"/> CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 3	—	—	CAN <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN <input checked="" type="checkbox"/> CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN <input checked="" type="checkbox"/> CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA1474E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-298, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-298, "ECM Circuit Check"](#).

Case 6: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-299, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 7: Check Steering angle sensor Circuit. Refer to [LAN-299, "Steering Angle Sensor Circuit Check"](#).

Case 8: Check Smart entrance control unit Circuit. Refer to [LAN-300, "Smart Entrance Control Unit Circuit Check"](#).

Case 9: Check Combination meter Circuit. Refer to [LAN-300, "Combination Meter Circuit Check"](#).

Case 10: Check CAN communication Circuit. Refer to [LAN-301, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS005KU

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect smart entrance control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 3 (R).

8(L) – 6(L) : Continuity should exist.

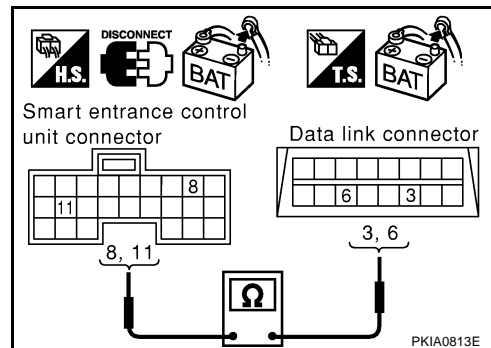
11(R) – 3(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE" for "ENGINE"](#)
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
- [BCS-25, "CAN Communication Line Check" for "SMART ENTRANCE"](#)

NG >> Repair harness.



ECM Circuit Check

EKS005KV

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F110
 - Harness connector M80

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

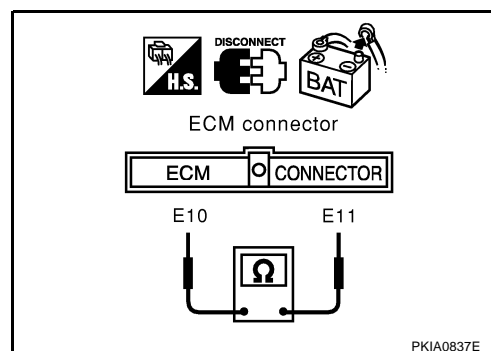
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F114 terminals E11(L) and E10(R).

E11(L) – E10(R) : Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

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



ESP/TCS/ABS Control Unit Circuit Check

EKS005KW

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control unit-side and harness-side)
 - ESP/TCS/ABS control unit
 - Harness connector B102
 - Harness connector M89

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

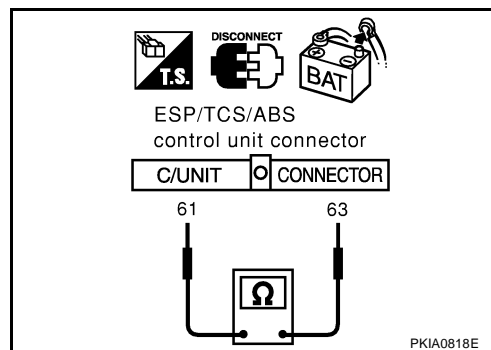
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R) : Approx. 54 – 66ΩOK or NG

OK >> Replace ESP/TCS/ABS control unit.

NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.

**Steering Angle Sensor Circuit Check**

EKS005KX

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

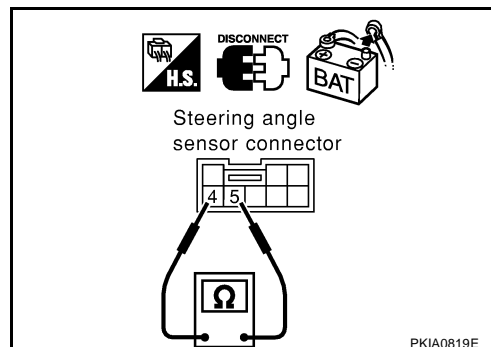
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R) : Approx. 54 – 66ΩOK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and smart entrance control unit.



Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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.

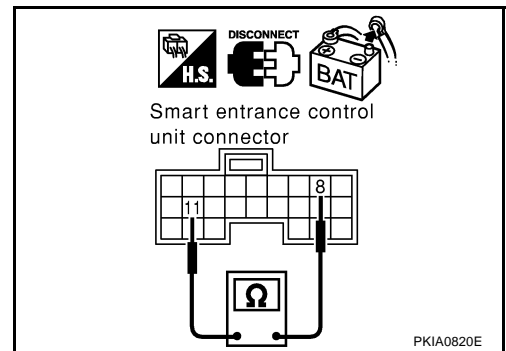
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
NG >> Repair harness between steering angle sensor and smart entrance control unit.



Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

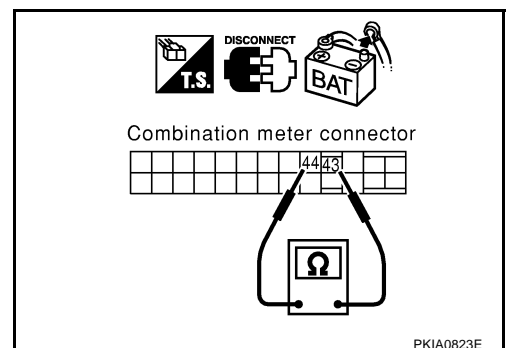
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 43(L) and 44(R).

43(L) – 44(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
NG >> Repair harness between smart entrance control unit and combination meter.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ECM
 - Between ESP/TCS/ABS control unit and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

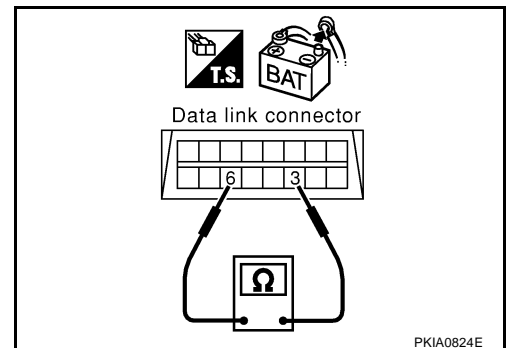
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M80
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between harness connector M89 and harness connector M80.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

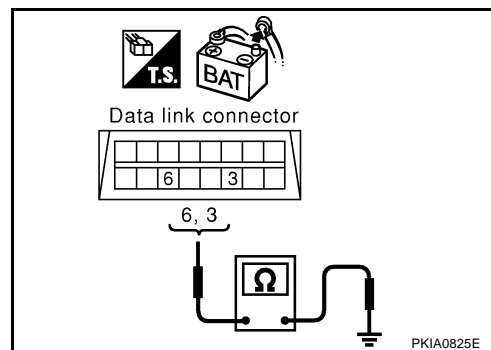
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between harness connector M89 and harness connector M80.



4. CHECK HARNESS FOR SHORT CIRCUIT

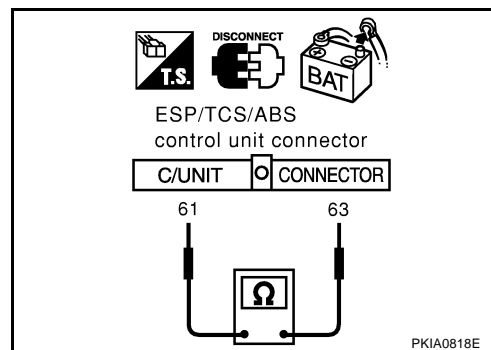
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

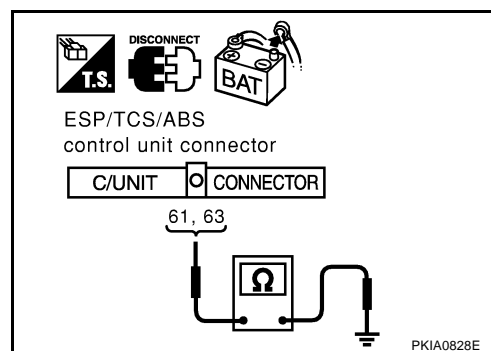
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector B102.



6. CHECK HARNESS FOR SHORT CIRCUIT

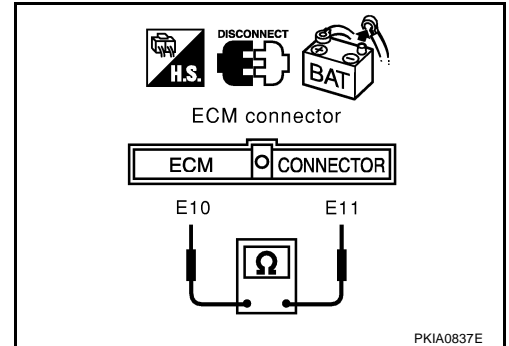
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F114 terminals E11 (L) and E10(R).

E11(L) – E10(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ECM and harness connector F110.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F114 terminals E11 (L), E10 (R) and ground.

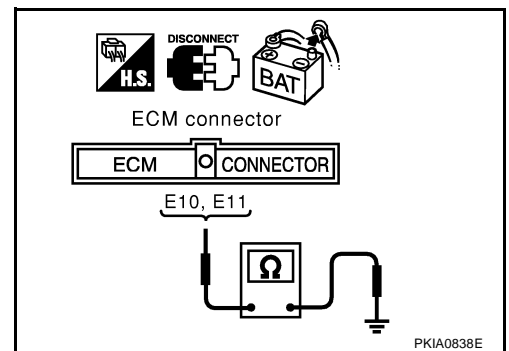
E11(L) – ground : Continuity should not exist.

E10(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ECM and harness connector F110.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-303, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

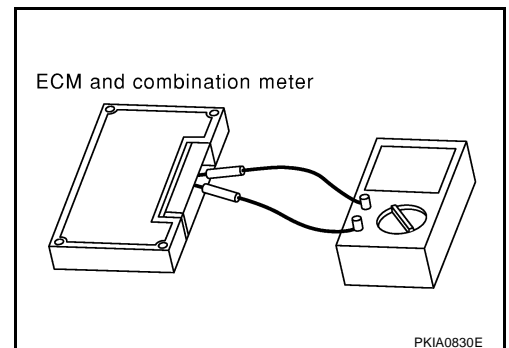
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals E11 and E10.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	E11 – E10	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 18)

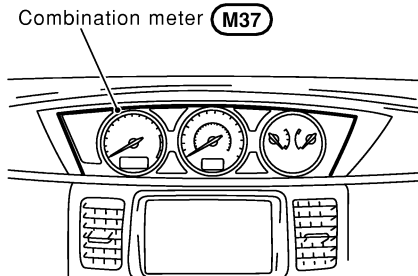
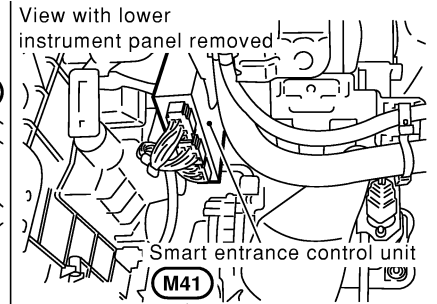
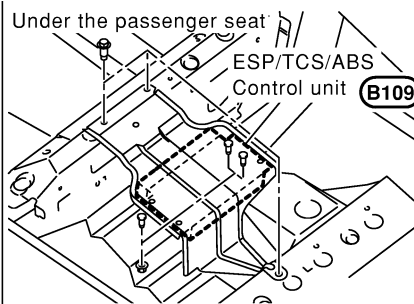
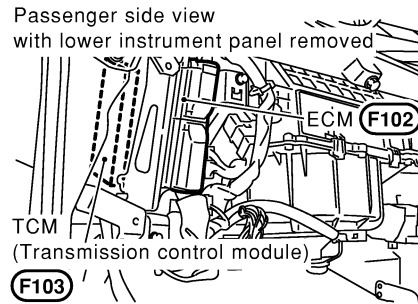
System Description

EKS005JA

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

EKS005JB



PKIA0902E

CAN SYSTEM (TYPE 18)

[CAN]

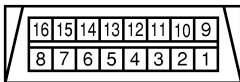
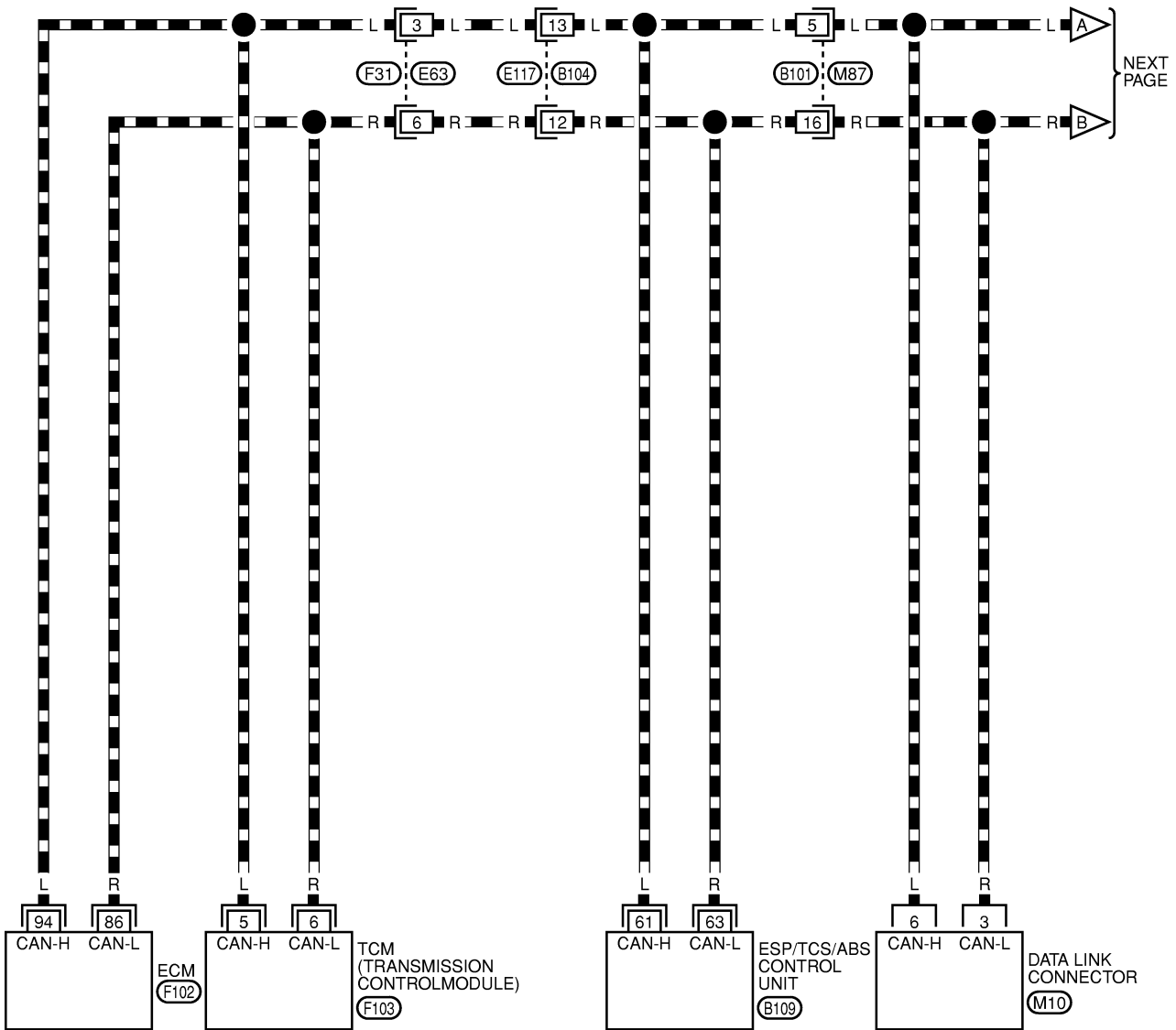
Wiring Diagram — CAN —

EKS005JC

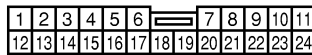
LAN-CAN-38

DATA LINE

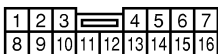
A
B
C
D
E
F
G
H
I
J
LAN
L
M



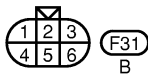
M10
W



M87
W



E117
W



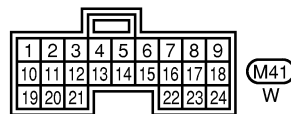
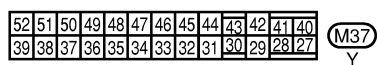
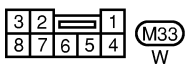
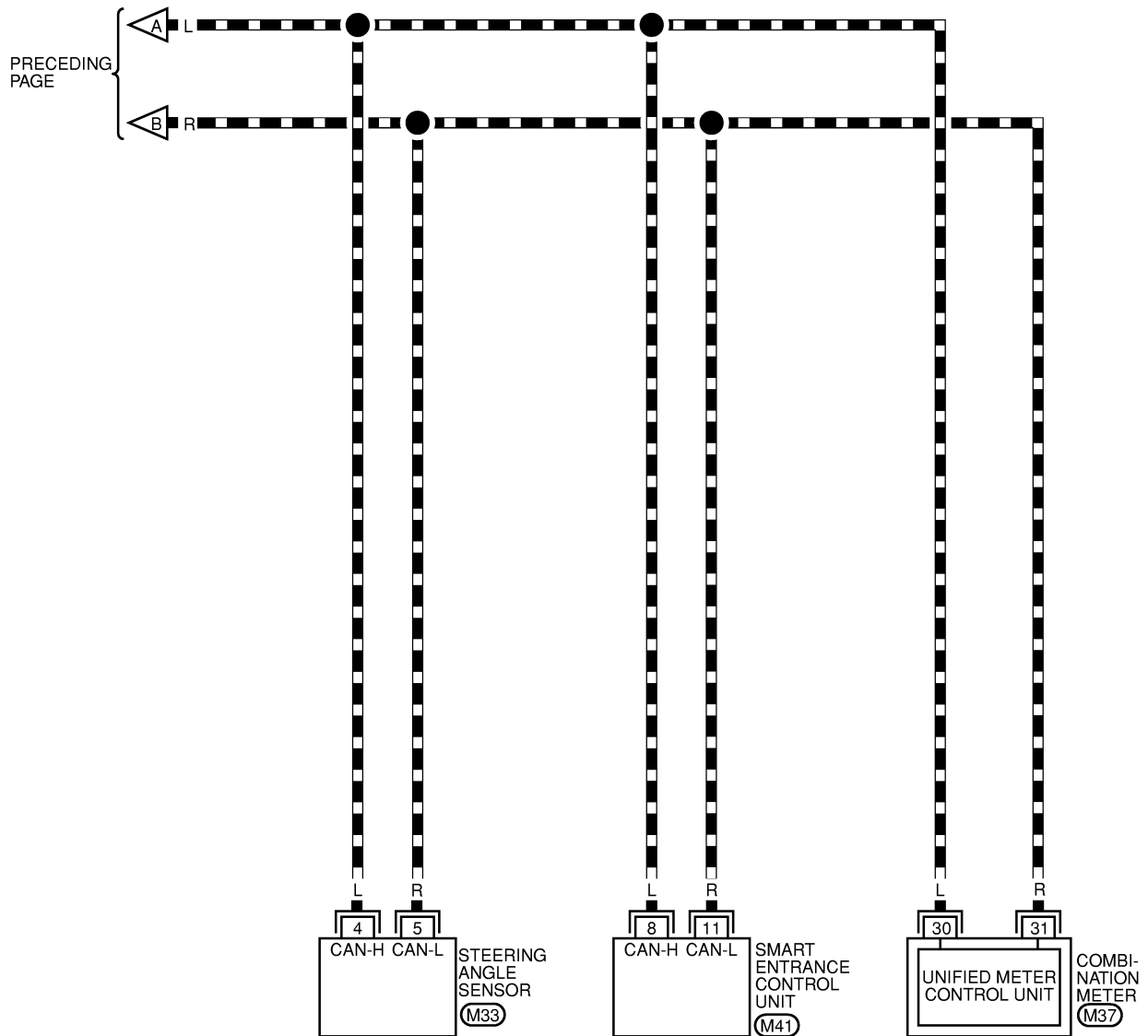
F31
B

REFER TO THE FOLLOWING.

F102 , F103 , B109

-ELECTRICAL UNITS

MKWA0775E

 : DATA LINE


Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-308, "CHECK SHEET"](#).
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-308, "CHECK SHEET"](#).

NOTE:
If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.
4. According to the check sheet results (example), start inspection. Refer to [LAN-309, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 18)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
A/T
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1475E

CAN SYSTEM (TYPE 18)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

A
B
C
D
E
F
G
H
I
J
L
M

LAN

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 2: Replace TCM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 3: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1476E

CAN SYSTEM (TYPE 18)

[CAN]

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 6	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 3	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

PKIA1478E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Replace ESP/TCS/ABS control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between TCM and ESP/TCS/ABS control unit. Refer to [LAN-311, "Circuit Check Between TCM and ESP/TCS/ABS Control Unit"](#).

Case 6: Check Harness between ESP/TCS/ABS control unit and Steering angle sensor. Refer to [LAN-313, "Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#).

Case 7: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-314, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 8: Check ECM Circuit. Refer to [LAN-314, "ECM Circuit Check"](#).

Case 9: Check TCM Circuit. Refer to [LAN-315, "TCM Circuit Check"](#).

Case 10: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-315, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 11: Check Steering angle sensor Circuit. Refer to [LAN-316, "Steering Angle Sensor Circuit Check"](#).

Case 12: Check Smart entrance control unit Circuit. Refer to [LAN-316, "Smart Entrance Control Unit Circuit Check"](#).

Case 13: Check Combination meter Circuit. Refer to [LAN-317, "Combination Meter Circuit Check"](#).

Case 14: Check CAN communication Circuit. Refer to [LAN-318, "CAN Communication Circuit Check"](#).

Circuit Check Between TCM and ESP/TCS/ABS Control Unit

EKS005JE

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector F31
 - Harness connector E63
 - Harness connector E117
 - Harness connector B104

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F31.
2. Check continuity between TCM harness connector F103 terminals 5 (L), 6 (R) and harness connector F31 terminals 3 (L), 6 (R).

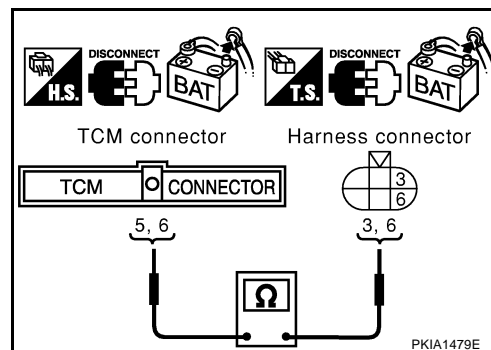
5(L) – 3(L) : Continuity should exist.

6(R) – 6(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E117.
2. Check continuity between harness connector E63 terminals 3 (L), 6 (R) and harness connector E117 terminals 13 (L), 12 (R).

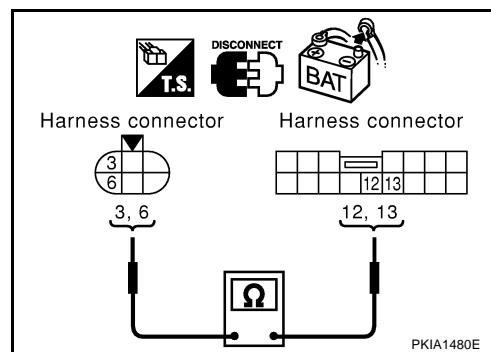
3(L) – 13(L) : Continuity should exist.

6(R) – 12(R) : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness.



4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between harness connector B104 terminals 13 (L), 12 (R) and ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R).

13(L) – 61(L) : Continuity should exist.

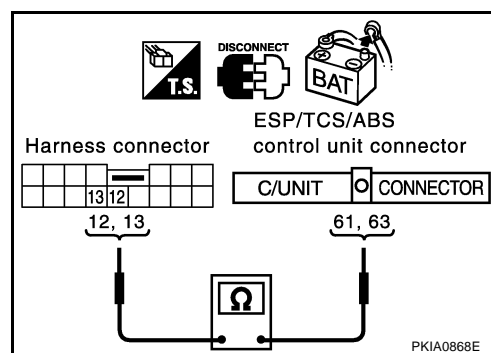
12(R) – 63(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor

EKS005JF

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

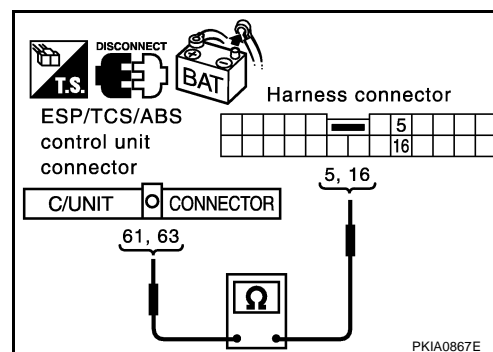
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

5(L) – 4(L) : Continuity should exist.

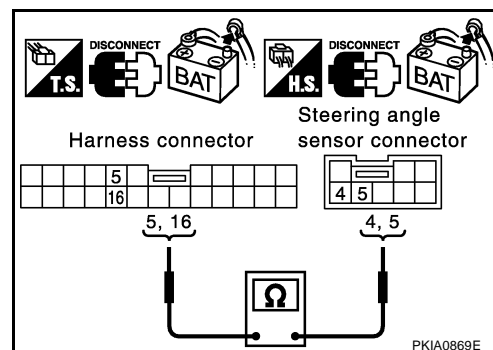
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
- [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

EKS005/JG

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

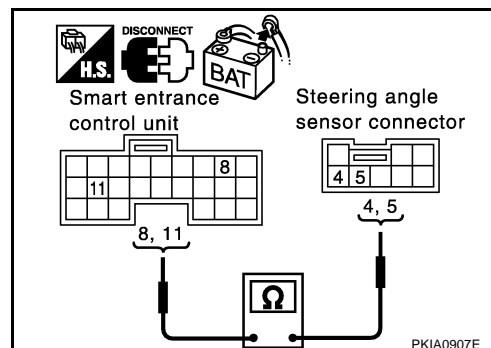
8(L) – 4(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS005/JH

1. CHECK CONNECTOR

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

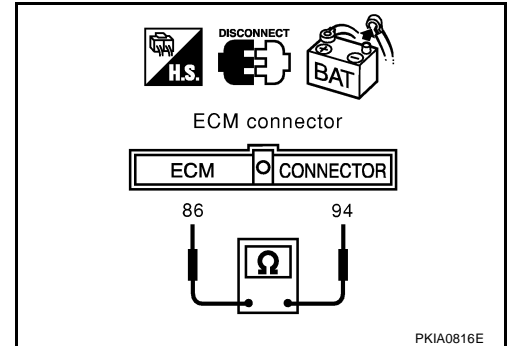
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace ECM.
 NG >> Repair harness between TCM and ECM.



EKS005JJ

TCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

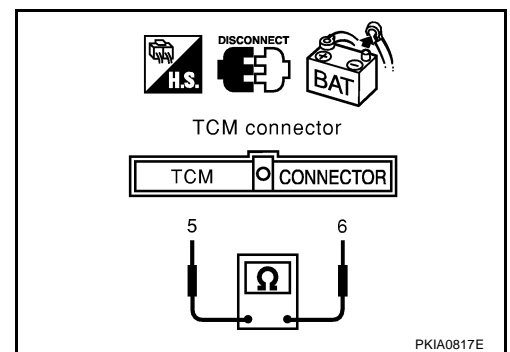
1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 5(L) and 6(R).

5(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and ECM.



EKS005JJ

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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.

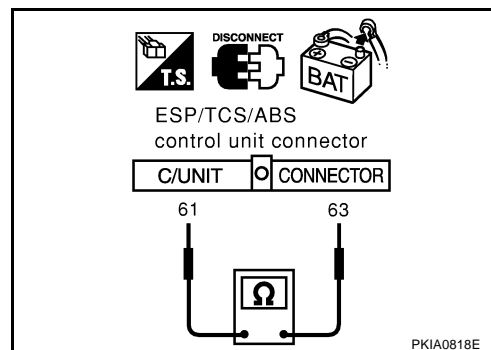
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
- NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



Steering Angle Sensor Circuit Check

EKS005JK

1. CHECK CONNECTOR

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

OK or NG

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

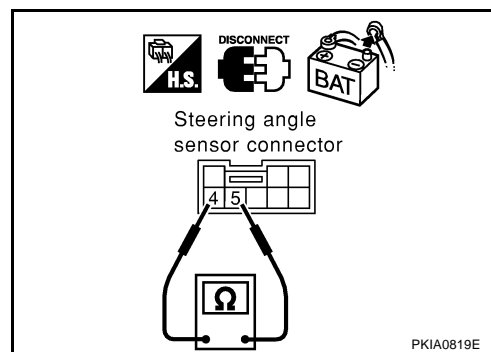
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 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 smart entrance control unit.



Smart Entrance Control Unit Circuit Check

EKS005JL

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

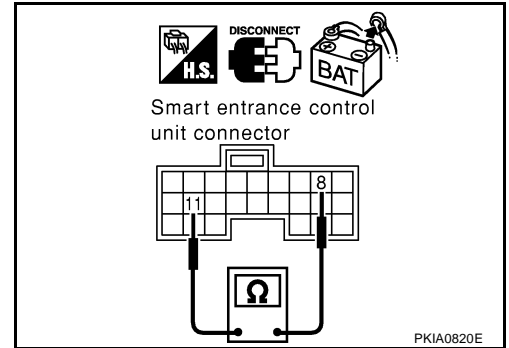
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005JM

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

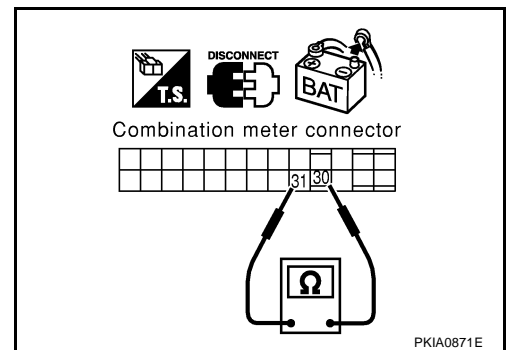
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R)

: Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



CAN Communication Circuit Check

EKS005JN

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - TCM
 - ECM
 - Between Data link connector and ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

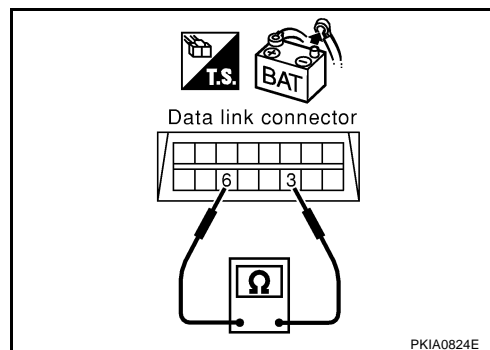
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >>
- Repair harness between smart entrance control unit and combination meter.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

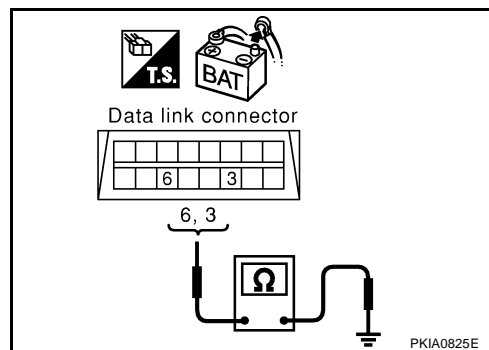
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B104.

2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

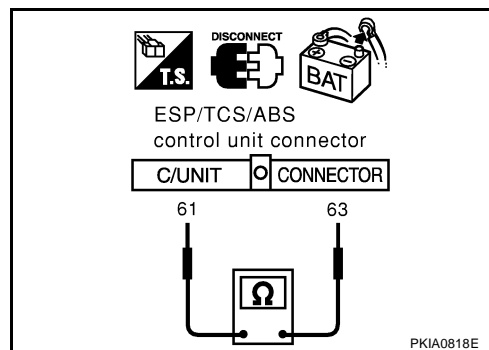
61(L) – 63(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

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

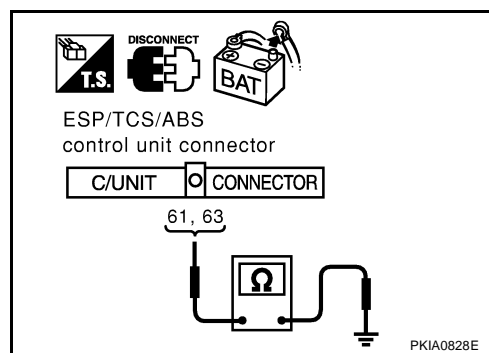
63(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



6. CHECK HARNESS FOR SHORT CIRCUIT

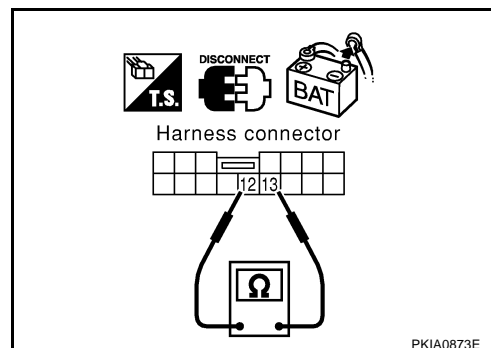
1. Disconnect harness connector E63.
2. Check continuity between harness connector E117 terminals 13 (L) and 12(R).

13(L) – 12(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between harness connector E117 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E117 terminals 13 (L) and 12(R) and ground.

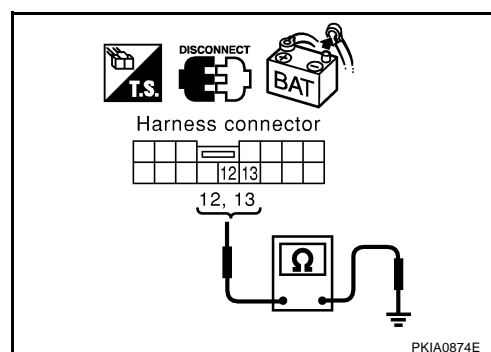
13(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E117 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

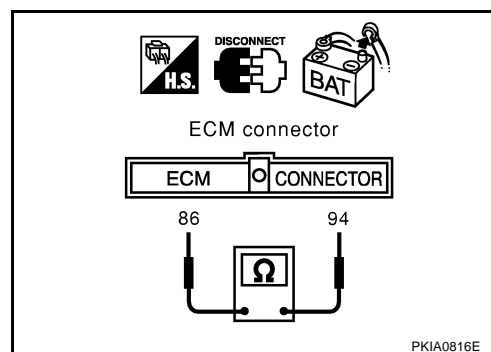
94(L) – 86(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> ● Repair harness between ECM and harness connector F31.

- Repair harness between TCM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

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

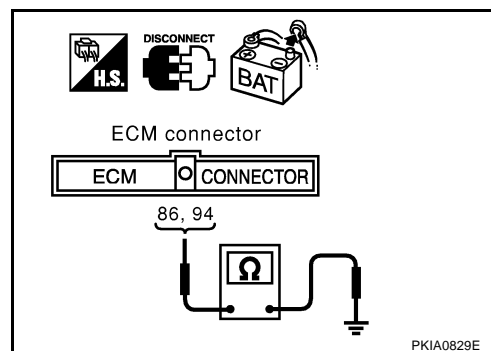
86(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> ● Repair harness between ECM and harness connector F31.

- Repair harness between TCM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-321, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

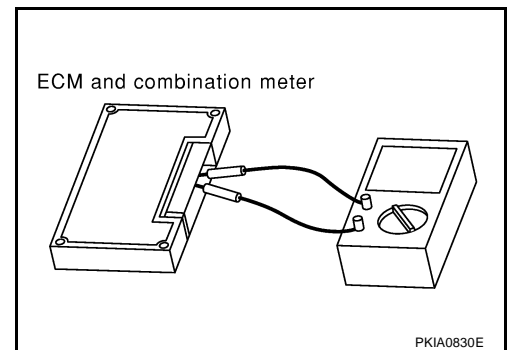
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "A/T", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-150, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-699, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [AT-194, "DTC U1000 CAN COMMUNICATION LINE"](#) (EURO-OBD) for "A/T"
 - [AT-399, "CAN COMMUNICATION LINE"](#) (ALL) for "A/T"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 19)

System Description

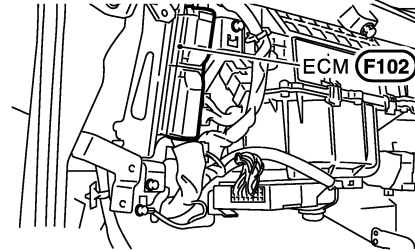
EKS005K7

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.

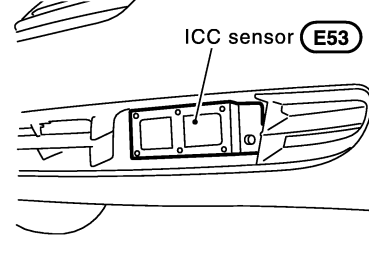
Component Parts and Harness Connector Location

EKS005K8

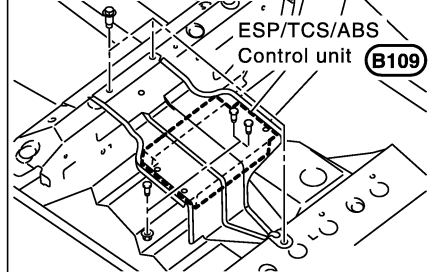
Passenger side view
with lower instrument panel removed



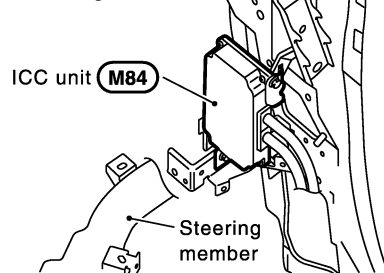
Bumper LH



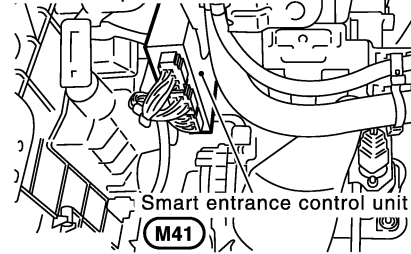
Under the passenger seat



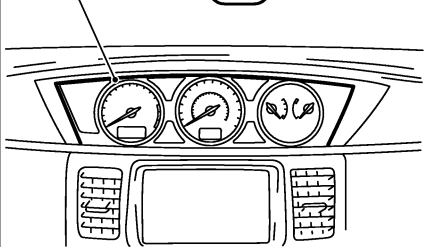
Passenger side



View with lower
instrument panel removed



Combination meter (M37)



PKIA1481E

CAN SYSTEM (TYPE 19)

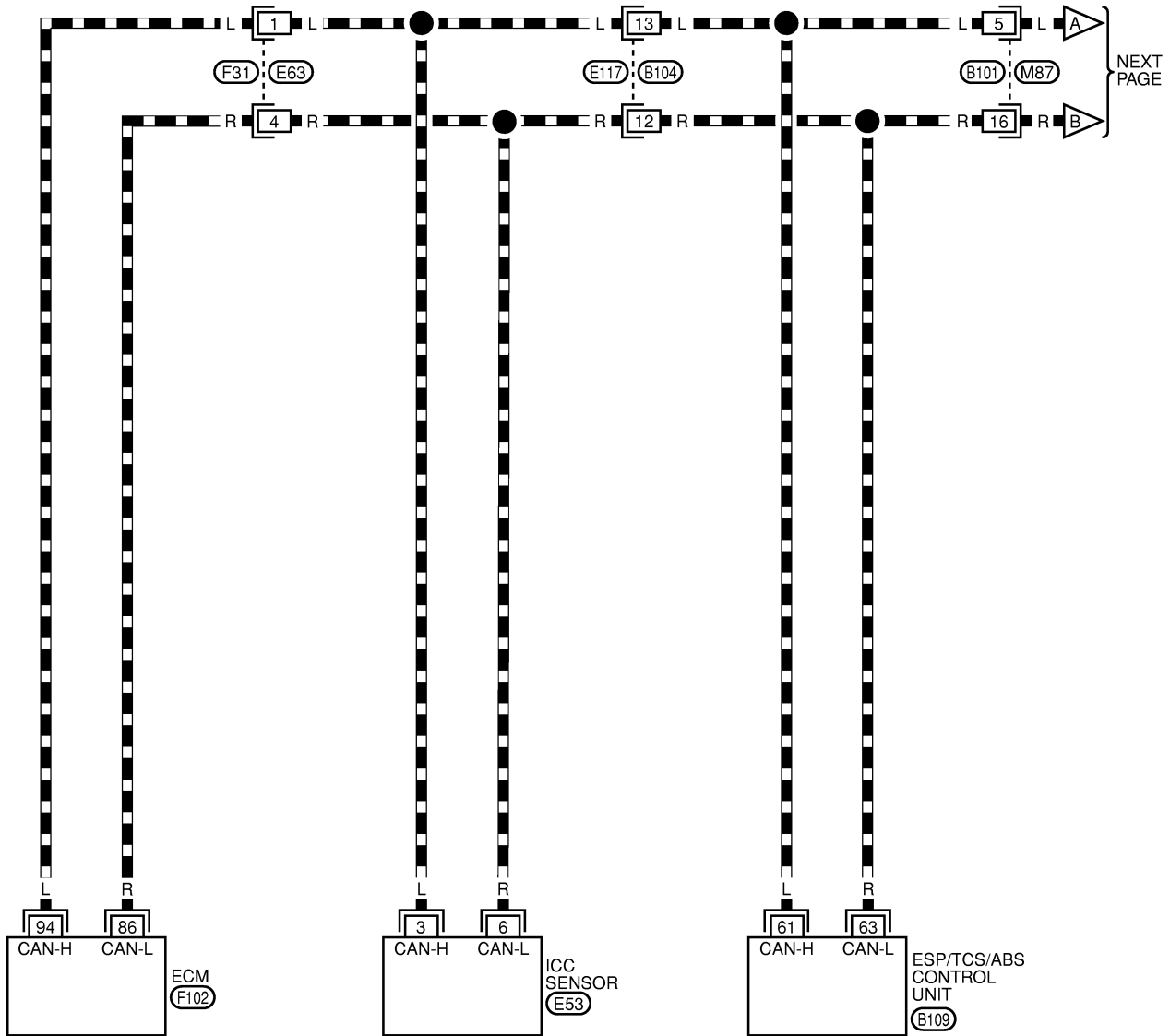
[CAN]


Wiring Diagram — CAN —

EKS005K9

LAN-CAN-40

DATA LINE



1	2	3	4	5	6			7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22	23	24

M87
W

3	2	1
6	5	4

E53
B

1	2	3			4	5	6	7
8	9	10	11	12	13	14	15	16

E117
W

1	2	3
4	5	6

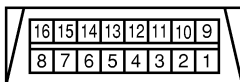
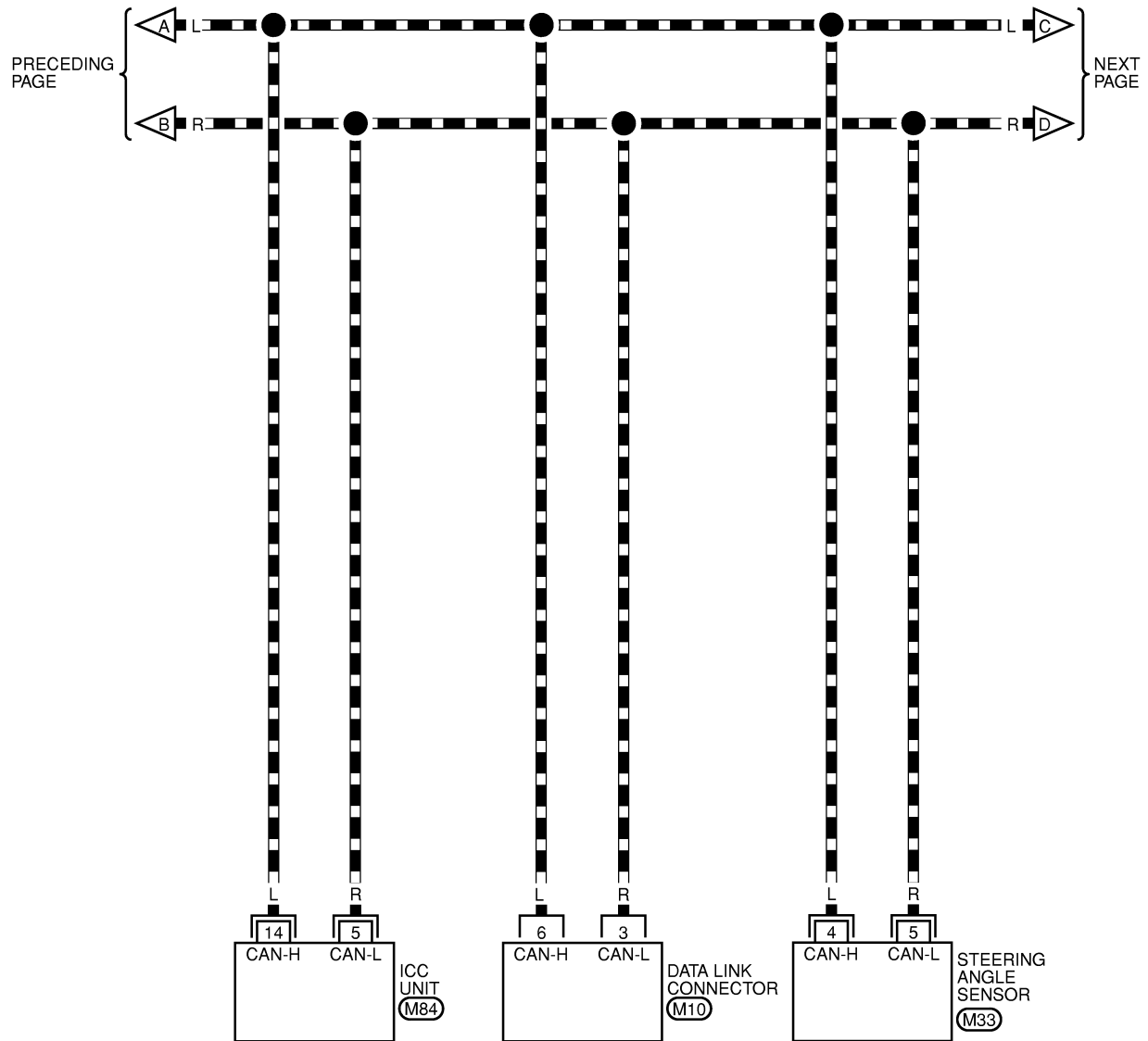
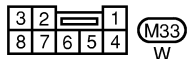
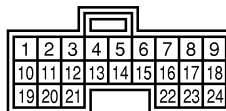
F31
B

REFER TO THE FOLLOWING.

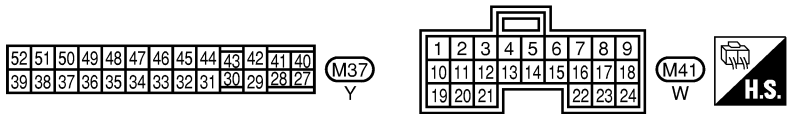
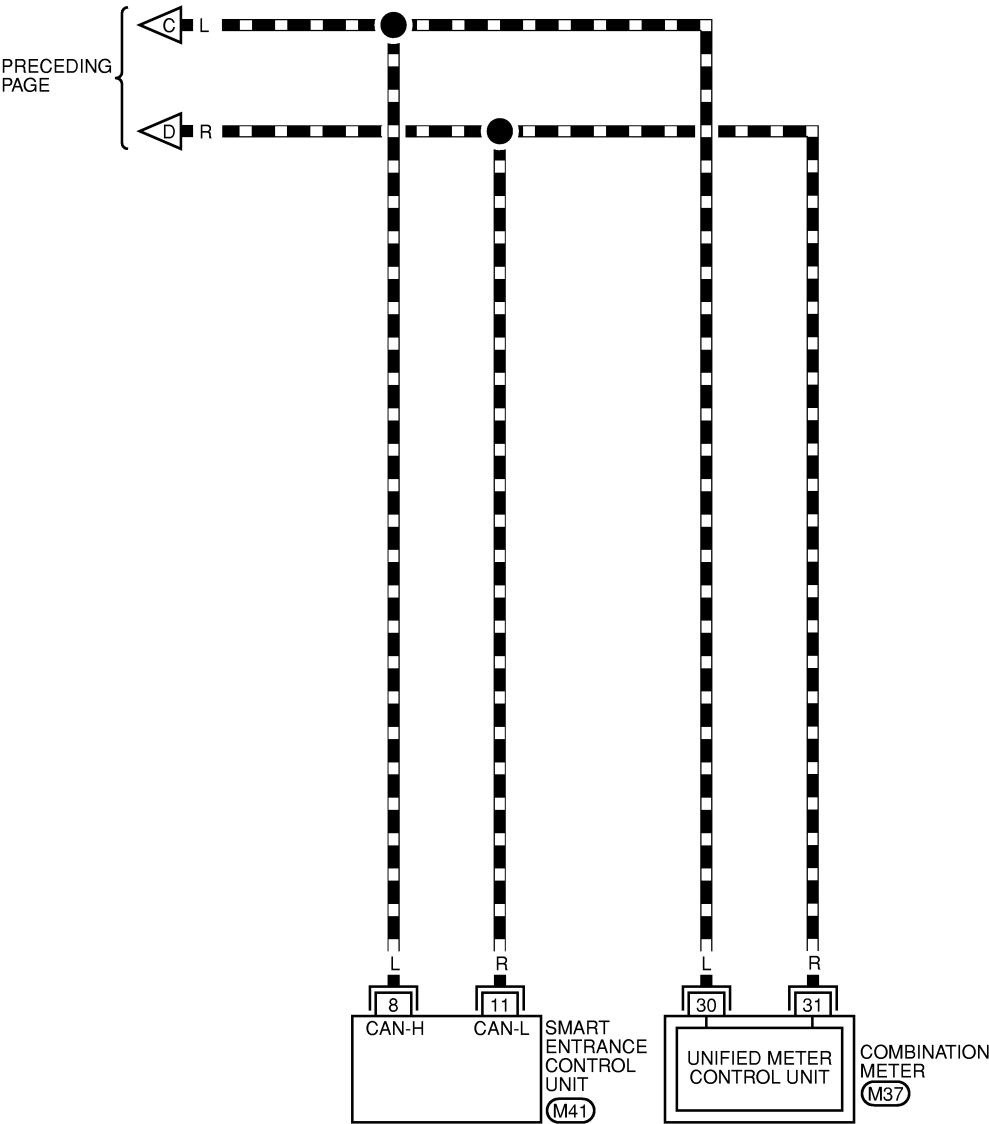
F102 , B109

-ELECTRICAL UNITS

LAN-CAN-41

 : DATA LINE

M10
W

M33
W

M84
W


▬ : DATA LINE



Work Flow

EKS005KA

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:
 - [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-327, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-327, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-328, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 19)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
ICC
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
ICC
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA1487E

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 19)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 3: Replace ICC unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

CAN SYSTEM (TYPE 19)

[CAN]

Case 14

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 15

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

Case 16

ENGINE	CAN COMM	CAN CIRC 1	—	—	CAN CIRC 3	CAN CIRC 5	—	CAN CIRC 6	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 6	CAN CIRC 5	—	—
ICC	CAN COMM	CAN CIRC 1	CAN CIRC 2	CAN CIRC 8	CAN CIRC 3	—	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	—	CAN CIRC 3

PKIA1490E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace ICC unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between ICC sensor and ESP/TCS/ABS control unit. Refer to [LAN-331, "Circuit Check Between ICC Sensor and ESP/TCS/ABS Control Unit"](#).

Case 6: Check Harness between ESP/TCS/ABS control unit and ICC unit. Refer to [LAN-332, "Circuit Check Between ESP/TCS/ABS Control Unit and ICC Unit"](#).

Case 7: Check Harness between ICC unit and Steering angle sensor. Refer to [LAN-333, "Circuit Check Between ICC Unit and Steering Angle Sensor"](#).

Case 8: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-334, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 9: Check ECM Circuit. Refer to [LAN-334, "ECM Circuit Check"](#).

Case 10: Check ICC sensor Circuit. Refer to [LAN-335, "ICC Sensor Circuit Check"](#).

Case 11: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-335, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 12: Check ICC unit Circuit. Refer to [LAN-336, "ICC Unit Circuit Check"](#).

Case 13: Check Steering angle sensor Circuit. Refer to [LAN-336, "Steering Angle Sensor Circuit Check"](#).

Case 14: Check Smart entrance control unit Circuit. Refer to [LAN-337, "Smart Entrance Control Unit Circuit Check"](#).

Case 15: Check Combination meter Circuit. Refer to [LAN-337, "Combination Meter Circuit Check"](#).

Case 16: Check CAN communication Circuit. Refer to [LAN-338, "CAN Communication Circuit Check"](#).

Circuit Check Between ICC Sensor and ESP/TCS/ABS Control Unit

EKS005KC

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector E117
 - Harness connector B104

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

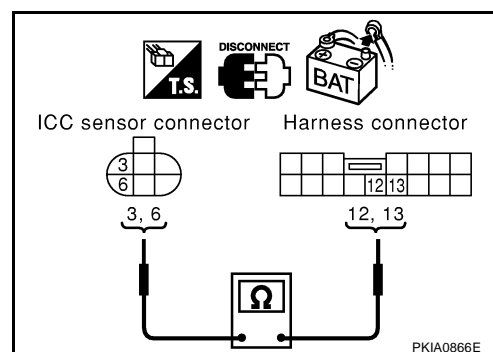
1. Disconnect ICC sensor connector and harness connector E117.
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and harness connector E117 terminals 13 (L), 12 (R).

3(L) – 13(L) : Continuity should exist.

6(R) – 12(R) : Continuity should exist.

OK or NG

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



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between harness connector B104 terminals 13 (L), 12 (R) and ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R).

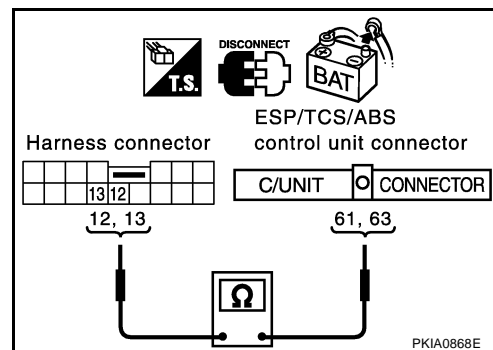
13(L) – 61(L) : Continuity should exist.

12(R) – 63(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

- NG >> Repair harness.



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

EKS005KD

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101.
 - Harness connector M87.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

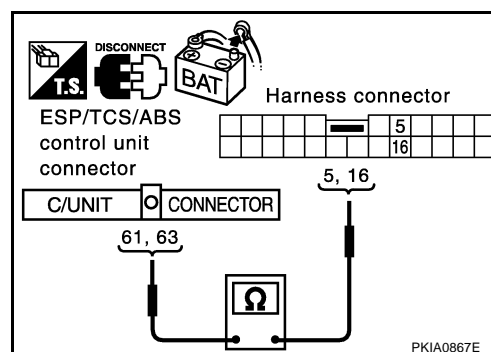
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ICC unit connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and ICC unit harness connector M84 terminals 14 (L), 5 (R).

5(L) – 14(L) : Continuity should exist.

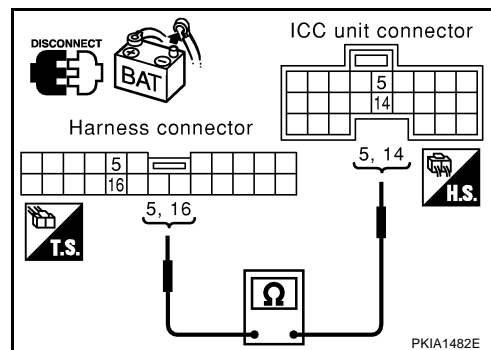
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between ICC Unit and Steering Angle Sensor

1. CHECK HARNESS FOR OPEN CIRCUIT

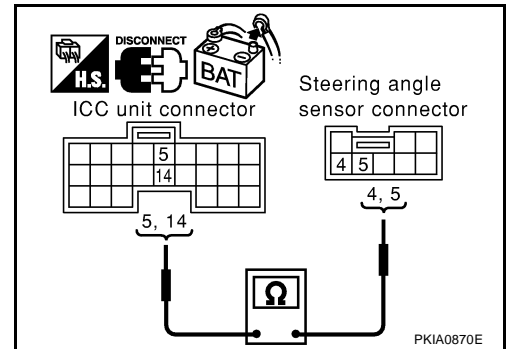
1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - ICC unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between ICC unit harness connector M84 terminals 14 (L), 5 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

14(L) – 4(L) : Continuity should exist.

5(R) – 5(R) : Continuity should exist.

OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

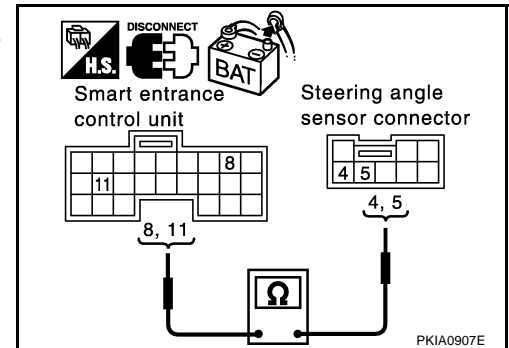
EKS005KF

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

8(L) – 4(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.

**OK or NG**

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:
- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
 - [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
 - [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

ECM Circuit Check

EKS005KG

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F31
 - Harness connector E63

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

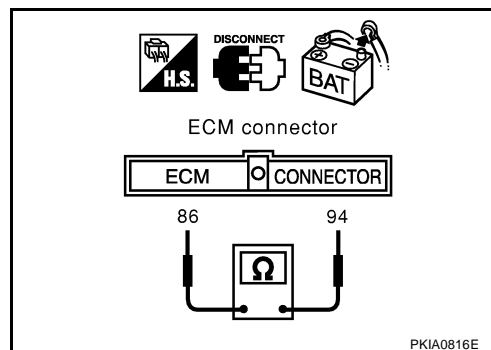
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 94(L) and 86(R).

94(L) – 86(R)

: Approx. 108 – 132Ω

OK or NG

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



EKS005KJ

ICC Sensor Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ICC 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

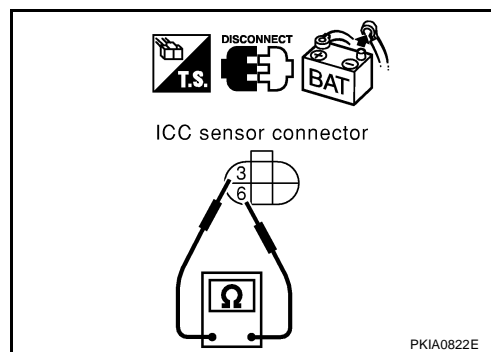
1. Disconnect ICC sensor connector.
2. Check resistance between ICC sensor harness connector E53 terminals 3(L) and 6(R).

3(L) – 6(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace ICC sensor.
 NG >> Repair harness between ESP/TCS/ABS control unit and ICC sensor.



EKS005KJ

ESP/TCS/ABS Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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.

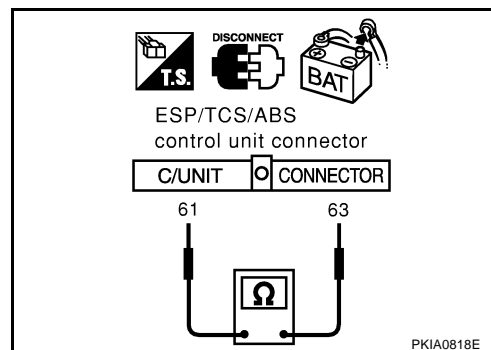
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

61(L) – 63(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ESP/TCS/ABS control unit.
- NG >> Repair harness between ICC unit and ESP/TCS/ABS control unit.



EKS005KL

ICC Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ICC 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.

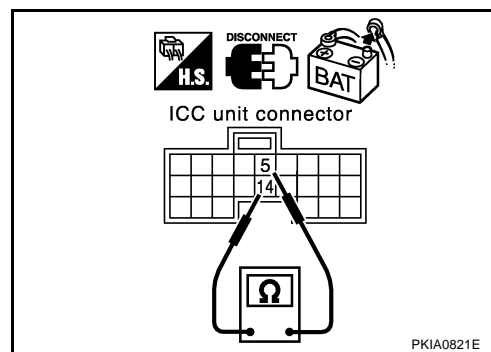
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ICC unit connector.
2. Check resistance between ICC unit harness connector M84 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 Data link connector.



EKS005KK

Steering Angle Sensor Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

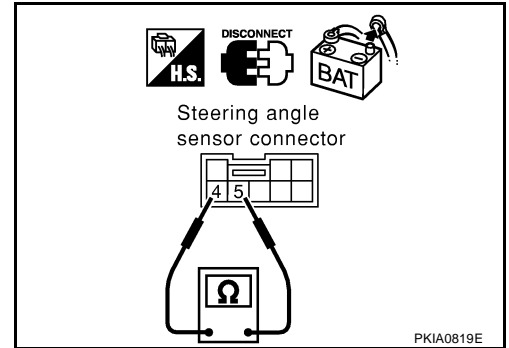
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

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



EKS005KM

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

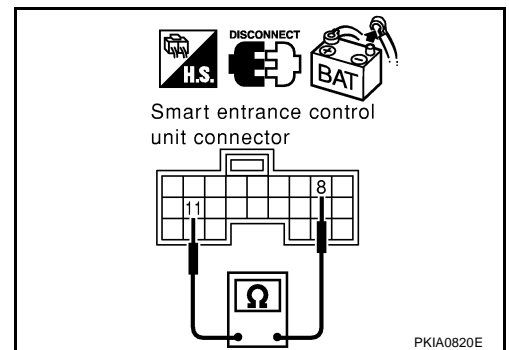
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005KN

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

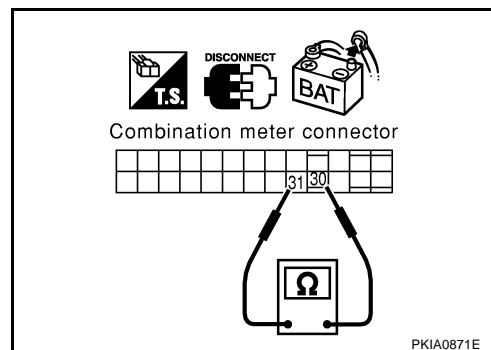
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ICC unit
 - ESP/TCS/ABS control unit
 - ICC sensor
 - ECM
 - Between ICC unit and ECM

OK or NG

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

EKS005KO

2. CHECK HARNESS FOR SHORT CIRCUIT

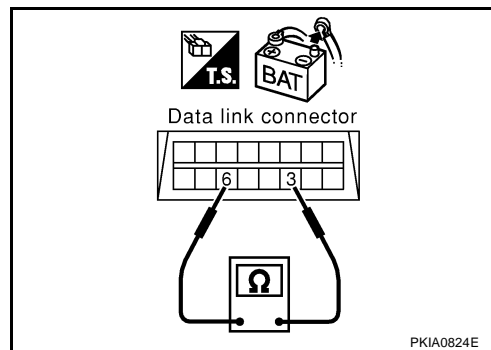
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - ICC unit connector
 - Harness connector M87
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and ICC unit.
 - Repair harness between ICC unit and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

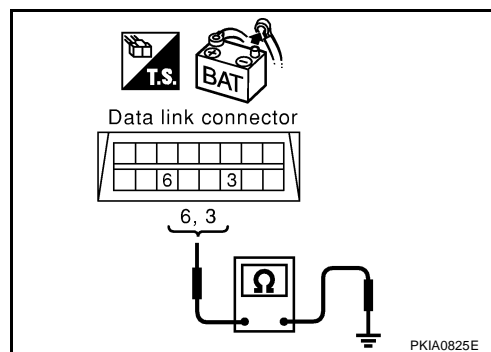
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between smart entrance control unit and combination meter.
- Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and ICC unit.
 - Repair harness between ICC unit and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

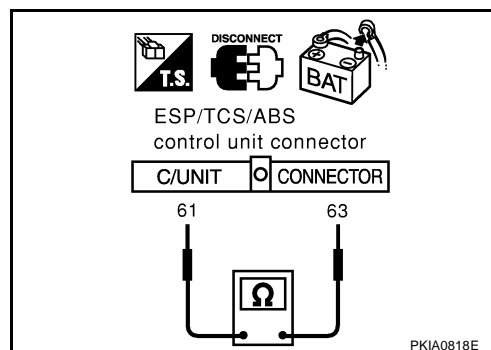
- Disconnect ESP/TCS/ABS control unit connector and harness connector B104.
- Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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

OK or NG

OK >> GO TO 5.

- NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.
- Repair harness between harness connector B104 and harness connector B101.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

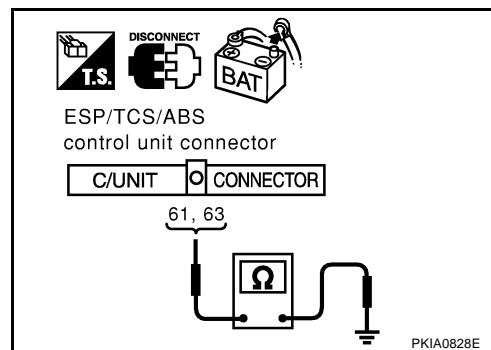
61(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 6.

- NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.
● Repair harness between harness connector B104 and harness connector B101.



6. CHECK HARNESS FOR SHORT CIRCUIT

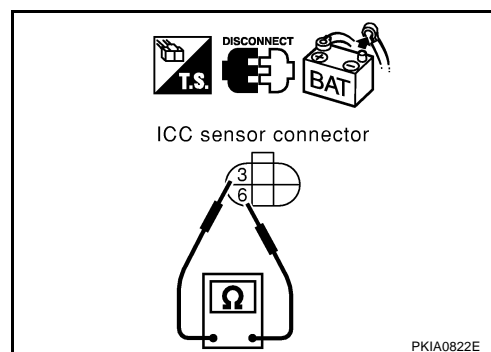
1. Disconnect ICC sensor connector and harness connector E63.
2. Check continuity between ICC sensor harness connector E53 terminals 3 (L) and 6 (R).

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

OK or NG

OK >> GO TO 7.

- NG >> ● Repair harness between ICC sensor and harness connector E117.
● Repair harness between harness connector E117 and harness connector E63.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ICC sensor harness connector E53 terminals 3 (L), 6 (R) and ground.

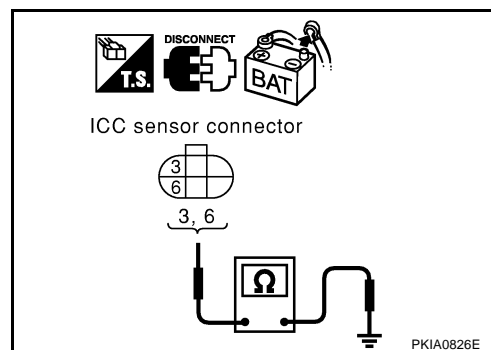
3(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

- NG >> ● Repair harness between ICC sensor and harness connector E117.
● Repair harness between harness connector E117 and harness connector E63.



8. CHECK HARNESS FOR SHORT CIRCUIT

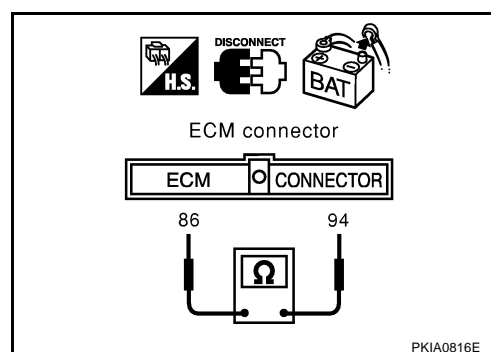
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F102 terminals 94 (L) and 86(R).

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

OK or NG

OK >> GO TO 9.

- NG >> Repair harness between ECM and harness connector F31.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F102 terminals 94 (L), 86 (R) and ground.

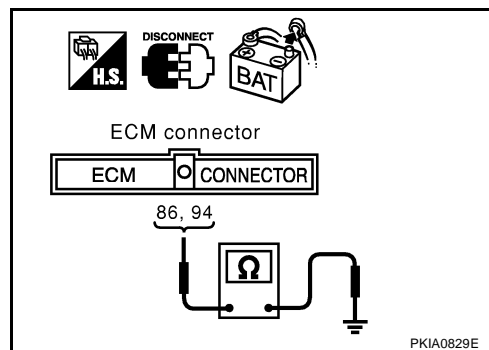
94(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F31.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-341, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "ICC", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to following:

- [EC-1105, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITH EURO-OBD) for "ENGINE"
- [EC-1563, "DTC U1000, U1001 CAN COMMUNICATION LINE"](#) (WITHOUT EURO-OBD) for "ENGINE"
- [ACS-51, "DTC 20 CAN COMM CIRCUIT"](#) for "ICC"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

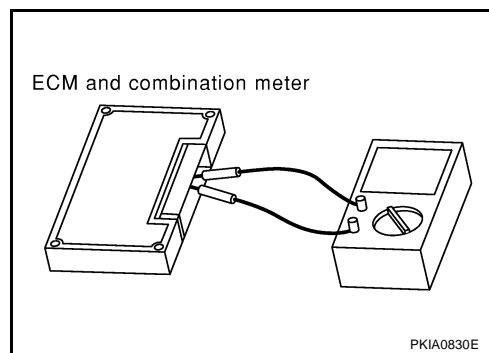
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	94 – 86	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 20)

PFP:23710

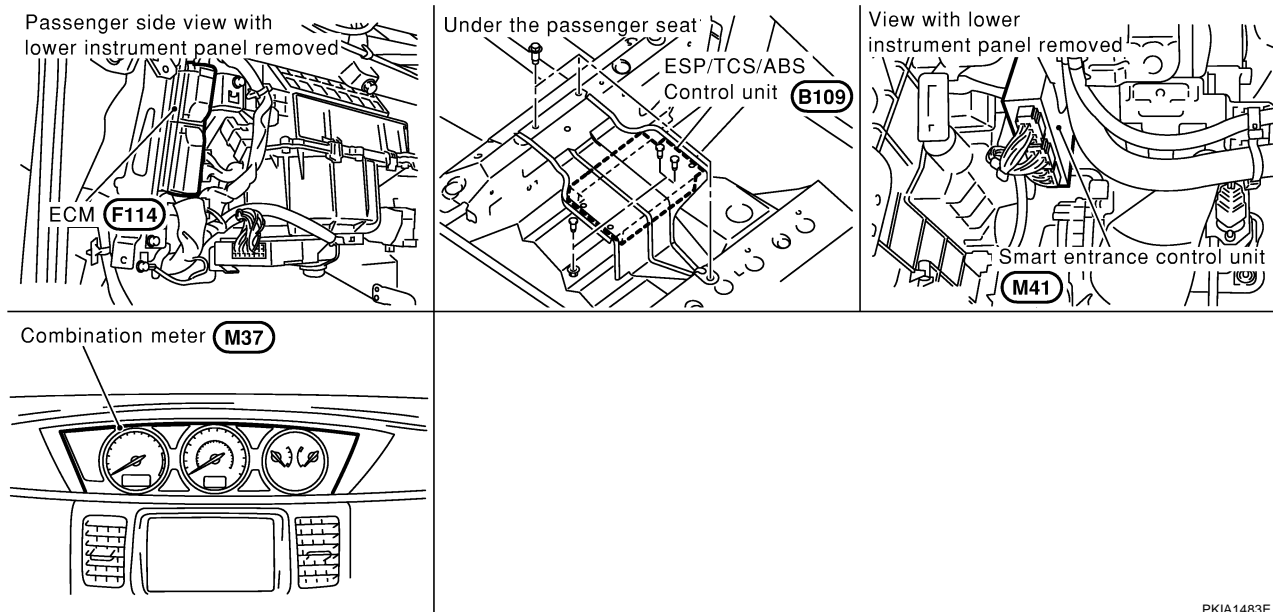
System Description

EKS005L2

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

EKS005L3



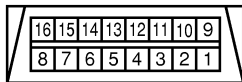
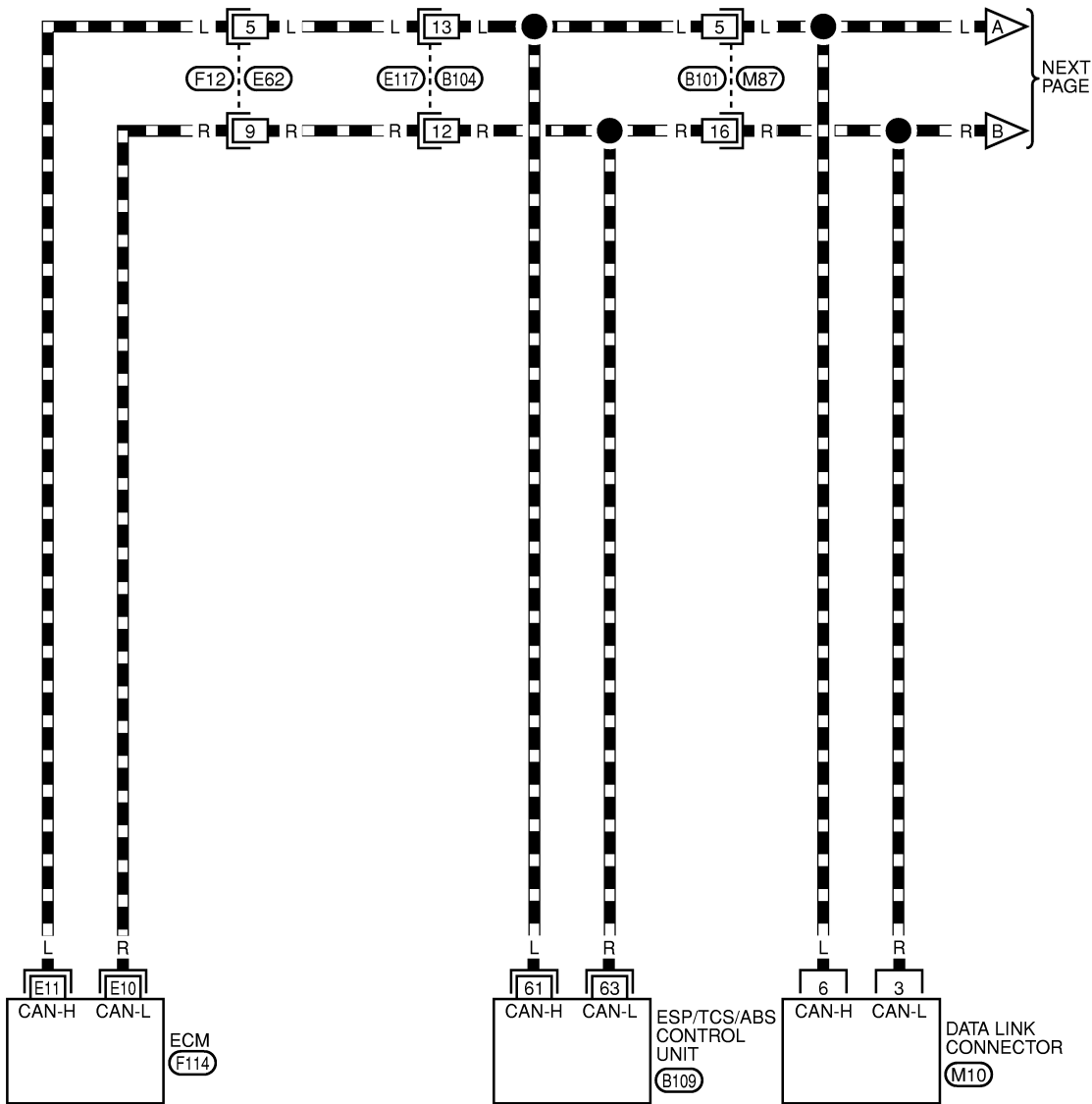
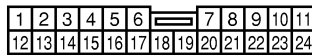
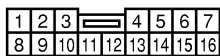
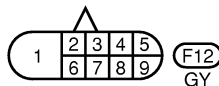
PKIA1483E

Wiring Diagram — CAN —

EKS005L4

LAN-CAN-43

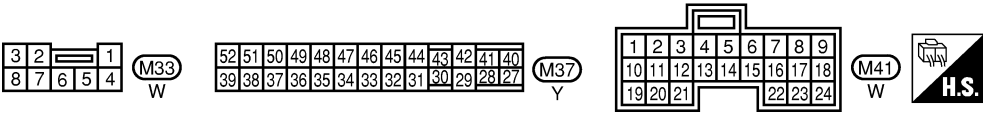
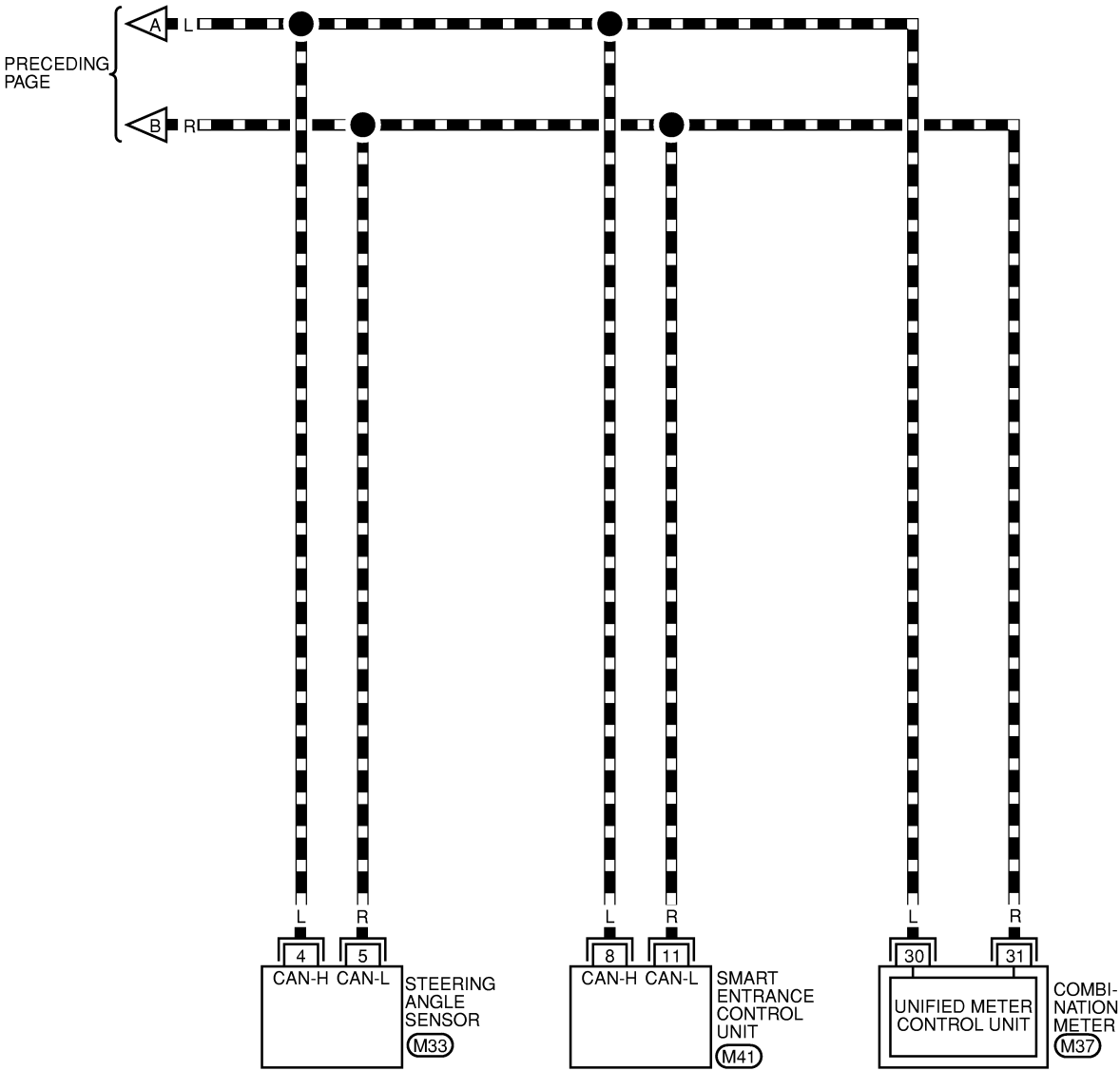
— : DATA LINE

A
B
C
D
E
F
G
H
I
J
LAN
L
MM10
WM87
WE117
WF12
GY

REFER TO THE FOLLOWING.

(F114), (B109) -ELECTRICAL UNITS

▬ : DATA LINE



Work Flow

EKS005L5

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-346, "CHECK SHEET"](#) .
3. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-346, "CHECK SHEET"](#) .

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-347, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

A
B
C
D
E
F
G
H
I
J
L
M

LAN

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Symptoms:

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAG RESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 20)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 4

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 6

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 7

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA1485E

Case 8

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 10

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 11

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

PKIA1486E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace ESP/TCS/ABS control unit.

Case 3: Replace Smart entrance control unit.

Case 4: Check Harness between ESP/TCS/ABS control unit and Steering angle sensor. Refer to [LAN-349, "Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#).

Case 5: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-350, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 6: Check ECM Circuit. Refer to [LAN-350, "ECM Circuit Check"](#).

Case 7: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-351, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 8: Check Steering angle sensor Circuit. Refer to [LAN-351, "Steering Angle Sensor Circuit Check"](#).

Case 9: Check Smart entrance control unit Circuit. Refer to [LAN-352, "Smart Entrance Control Unit Circuit Check"](#).

Case 10: Check Combination meter Circuit. Refer to [LAN-352, "Combination Meter Circuit Check"](#).

Case 11: Check CAN communication Circuit. Refer to [LAN-353, "CAN Communication Circuit Check"](#).

Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor

EKS005L6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (connector-side and harness-side)
 - Harness connector B101
 - Harness connector M87

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B101.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and harness connector B101 terminals 5 (L), 16 (R).

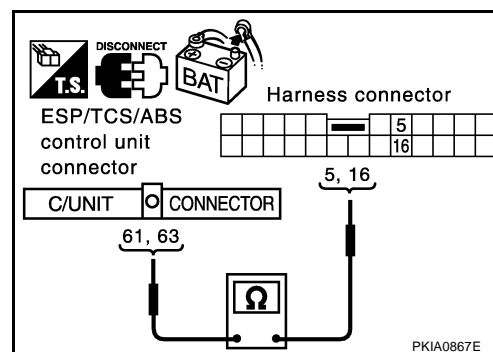
61(L) – 5(L) : Continuity should exist.

63(R) – 16(R) : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

5(L) – 4(L) : Continuity should exist.

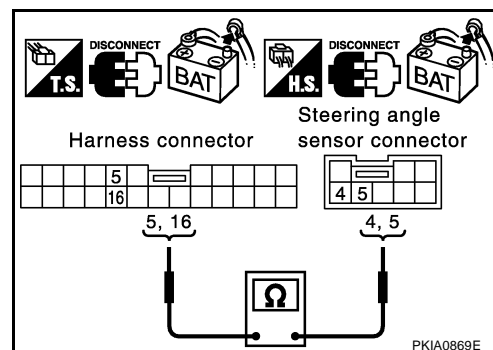
16(R) – 5(R) : Continuity should exist.

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:

- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

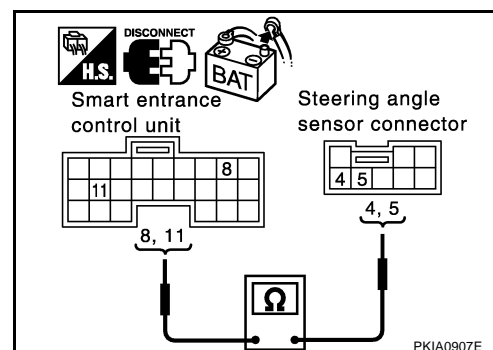
EKS005L7

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Combination meter connector
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

8(L) – 4(L) : Continuity should exist.

11(R) – 5(R) : Continuity should exist.



OK or NG

- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE" for "ENGINE"](#)
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
 - [BCS-25, "CAN Communication Line Check" for "SMART ENTRANCE"](#)
- NG >> Repair harness.

ECM Circuit Check

EKS005L8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)
 - ECM
 - Harness connector F12
 - Harness connector E62
 - Harness connector E117
 - Harness connector B104

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 F114 terminals E11(L) and E10(R).

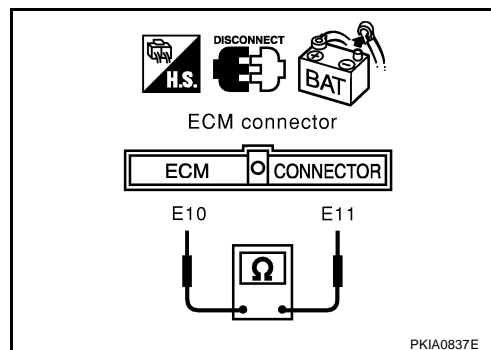
E11(L) – E10(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between ESP/TCS/ABS control unit and ECM.



ESP/TCS/ABS Control Unit Circuit Check

EKS005L9

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ESP/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 ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

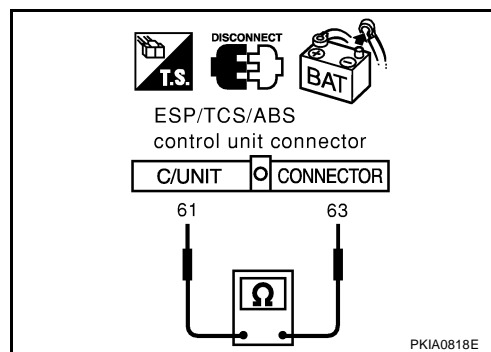
61(L) – 63(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace ESP/TCS/ABS control unit.

NG >> Repair harness between Data link connector and ESP/TCS/ABS control unit.



Steering Angle Sensor Circuit Check

EKS005LA

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

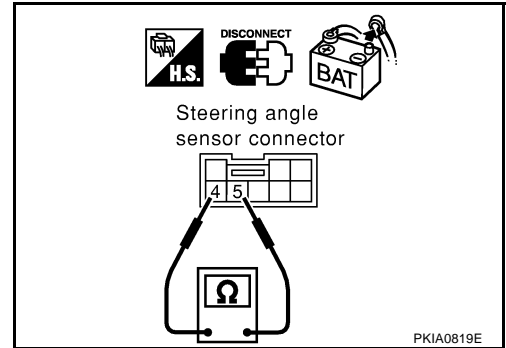
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

4(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace steering angle sensor.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005LB

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of smart entrance 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

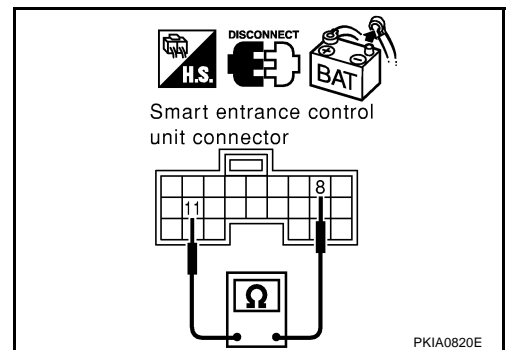
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between steering angle sensor and smart entrance control unit.



EKS005LC

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

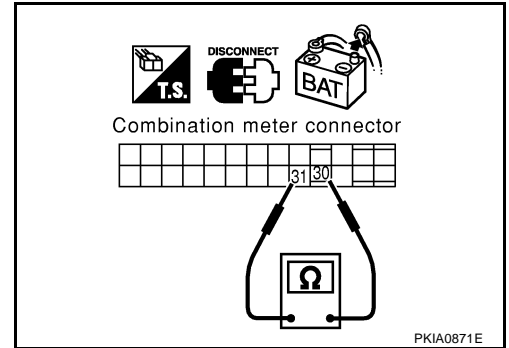
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M37 terminals 30(L) and 31(R).

30(L) – 31(R) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between smart entrance control unit and combination meter.



EKS005LD

CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connector for damage, bend and loose connection. (meter-side, control unit-side, sensor-side, control module-side and harness-side)
 - Combination meter
 - Smart entrance control unit
 - Steering angle sensor
 - ESP/TCS/ABS control unit
 - ECM
 - Between Data link connector and ECM

OK or NG

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

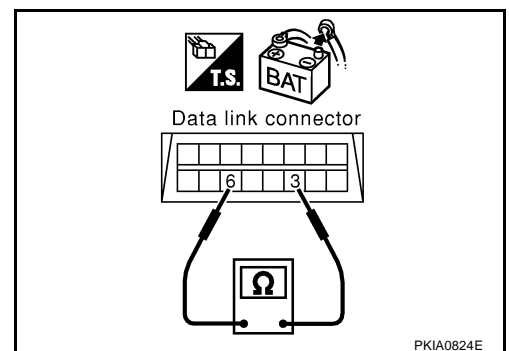
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M87
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

- OK >> GO TO 3.
 NG >>
 - Repair harness between smart entrance control unit and combination meter.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between Data link connector and steering angle sensor.
 - Repair harness between Data link connector and harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 3(R) and ground.

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

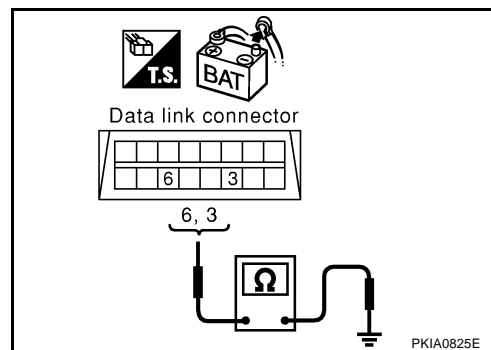
3(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> ● Repair harness between smart entrance control unit and combination meter.

- Repair harness between smart entrance control unit and steering angle sensor.
- Repair harness between Data link connector and steering angle sensor.
- Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector B104.

2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

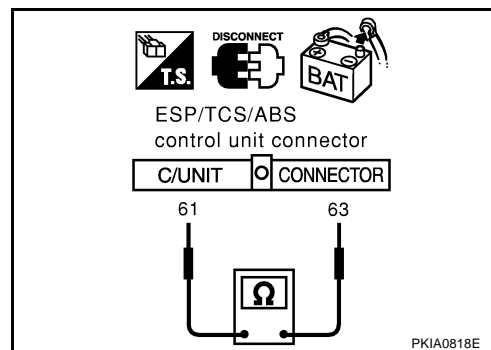
61(L) – 63(R) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L), 63 (R) and ground.

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

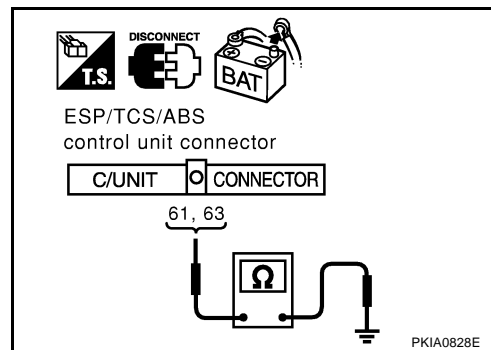
63(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> ● Repair harness between ESP/TCS/ABS control unit and harness connector B101.

- Repair harness between harness connector B104 and harness connector B101.



6. CHECK HARNESS FOR SHORT CIRCUIT

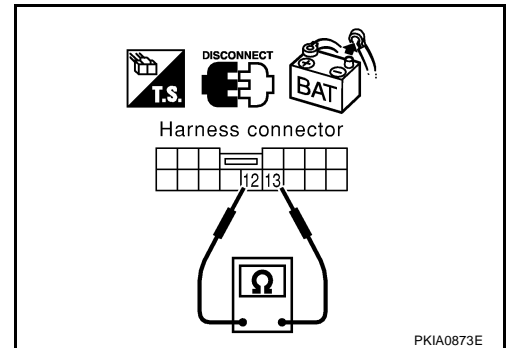
1. Disconnect harness connector E62.
2. Check continuity between harness connector E117 terminals 13 (L) and 12(R).

13(L) – 12(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between harness connector E117 and harness connector E62.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E117 terminals 13 (L) and 12(R) and ground.

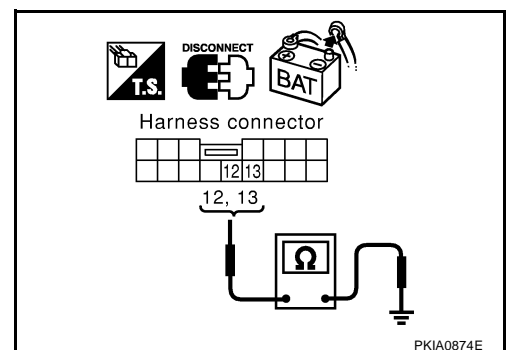
13(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E117 and harness connector E62.



8. CHECK HARNESS FOR SHORT CIRCUIT

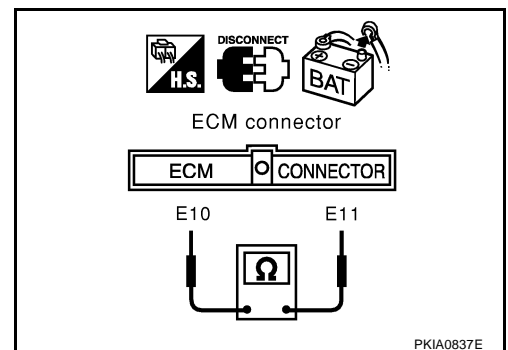
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F114 terminals E11 (L) and E10(R).

E11(L) – E10(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F12.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F114 terminals E11 (L), E10 (R) and ground.

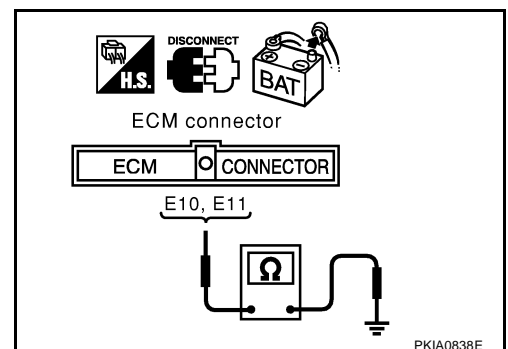
E11(L) – ground : Continuity should not exist.

E10(R) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector F12.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-356, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#)

OK or NG

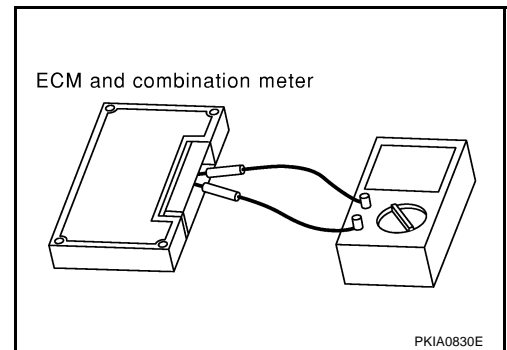
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-1849, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-99, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-25, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- 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 E11 and E10.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	E11 – E10	Approx. 108 - 132
Combination meter	30 – 31	



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