

SECTION LAN

LAN SYSTEM

CONTENTS

CAN		
PRECAUTIONS	4	
Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	4	
Precautions For Trouble Diagnosis	4	
CAN SYSTEM	4	
Precautions For Harness Repair	4	
CAN SYSTEM	4	
CAN COMMUNICATION	5	
System Description	5	
CAN Communication Unit	5	
TYPE 21, TYPE22/TYPE29, TYPE30	6	
TYPE 23, TYPE24/TYPE31, TYPE32	7	
TYPE 25/TYPE26	8	
TYPE 27/TYPE28	9	
CAN SYSTEM (TYPE 21)	10	
System Description	10	
Component Parts and Harness Connector Location	10	
Wiring Diagram — CAN —	11	
Work Flow	13	
CHECK SHEET	14	
CHECK SHEET RESULTS (EXAMPLE)	15	
INSPECTION	18	
Circuit Check Between Data Link Connector and Smart Entrance Control Unit	19	
Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit	20	
ECM Circuit Check	21	
ESP/TCS/ABS Control Unit Circuit Check	22	
Steering Angle Sensor Circuit Check	22	
Smart Entrance Control Unit Circuit Check	23	
Tyre Pressure Monitoring Control Unit Circuit Check	23	
Combination Meter Circuit Check	24	
CAN Communication Circuit Check	25	
Component Inspection	27	
ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	27	
CAN SYSTEM (TYPE 22)	28	
System Description	28	
Component Parts and Harness Connector Location	28	
Wiring Diagram — CAN —	29	
Work Flow	31	
CHECK SHEET	32	
CHECK SHEET RESULTS (EXAMPLE)	33	
INSPECTION	34	
Circuit Check Between Data Link Connector and Smart Entrance Control Unit	35	
ECM Circuit Check	35	
ESP/TCS/ABS Control Unit Circuit Check	36	
Steering Angle Sensor Circuit Check	36	
Smart Entrance Control Unit Circuit Check	37	
Combination Meter Circuit Check	37	
CAN Communication Circuit Check	38	
Component Inspection	40	
ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	40	
CAN SYSTEM (TYPE 23)	41	
System Description	41	
Component Parts and Harness Connector Location	41	
Wiring Diagram — CAN —	42	
Work Flow	44	
CHECK SHEET	45	
CHECK SHEET RESULTS (EXAMPLE)	46	
INSPECTION	48	
Circuit Check Between Data Link Connector and Smart Entrance Control Unit	48	
Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit	49	
ECM Circuit Check	50	
ABS Actuator and Electric Unit (control unit) Circuit Check	51	
Smart Entrance Control Unit Circuit Check	52	
Tyre Pressure Monitoring Control Unit Circuit Check	52	
Combination Meter Circuit Check	53	
CAN Communication Circuit Check	53	
Component Inspection	56	
ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	56	

CAN SYSTEM (TYPE 24)	57	CAN Communication Circuit Check	101
System Description	57	Component Inspection	103
Component Parts and Harness Connector Location..	57	ECM / COMBINATION METER INTERNAL CIR-	
Wiring Diagram — CAN —	58	CUIT INSPECTION	103
Work Flow	60	CAN SYSTEM (TYPE 27)	104
CHECK SHEET	61	System Description	104
CHECK SHEET RESULTS (EXAMPLE)	62	Component Parts and Harness Connector Location	104
INSPECTION	63	Wiring Diagram — CAN —	105
Circuit Check Between Data Link Connector and		Work Flow	107
Smart Entrance Control Unit	64	CHECK SHEET	108
ECM Circuit Check	64	CHECK SHEET RESULTS (EXAMPLE)	110
ABS Actuator and Electric Unit (control unit) Circuit		INSPECTION	112
Check	65	Circuit Check Between Data Link Connector and	
Smart Entrance Control Unit Circuit Check	65	Smart Entrance Control Unit	113
Combination Meter Circuit Check	66	Circuit Check Between Smart Entrance Control Unit	
CAN Communication Circuit Check	66	and Tyre Pressure Monitoring Control Unit	113
Component Inspection	69	Data Link Connector Circuit and ECM Circuit Check	114
ECM / COMBINATION METER INTERNAL CIR-		ECM Circuit Check	115
CUIT INSPECTION	69	ABS actuator and electric unit (control unit) Circuit	
CAN SYSTEM (TYPE 25)	70	Check	116
System Description	70	Smart Entrance Control Unit Circuit Check	116
Component Parts and Harness Connector Location..	70	Tyre Pressure Monitoring Control Unit Circuit Check	117
Wiring Diagram — CAN —	71	Combination Meter Circuit Check	117
Work Flow	73	CAN Communication Circuit Check	118
CHECK SHEET	74	Component Inspection	121
CHECK SHEET RESULTS (EXAMPLE)	76	ECM / COMBINATION METER INTERNAL CIR-	
INSPECTION	79	CUIT INSPECTION	121
Circuit Check Between Data Link Connector and		CAN SYSTEM (TYPE 28)	122
Smart Entrance Control Unit	80	System Description	122
Circuit Check Between Smart Entrance Control Unit		Component Parts and Harness Connector Location	122
and Tyre Pressure Monitoring Control Unit	80	Wiring Diagram — CAN —	123
Data Link Connector Circuit and ECM Circuit Check..	81	Work Flow	125
ECM Circuit Check	82	CHECK SHEET	126
ESP/TCS/ABS Control Unit Circuit Check	82	CHECK SHEET RESULTS (EXAMPLE)	128
Steering Angle Sensor Circuit Check	83	INSPECTION	129
Smart Entrance Control Unit Circuit Check	83	Circuit Check Between Data Link Connector and	
Tyre Pressure Monitoring Control Unit Circuit Check..	84	Smart Entrance Control Unit	130
Combination Meter Circuit Check	84	Data Link Connector Circuit and ECM Circuit Check	130
CAN Communication Circuit Check	85	ECM Circuit Check	132
Component Inspection	87	ABS actuator and electric unit (control unit) Circuit	
ECM / COMBINATION METER INTERNAL CIR-		Check	133
CUIT INSPECTION	87	Smart Entrance Control Unit Circuit Check	133
CAN SYSTEM (TYPE 26)	88	Combination Meter Circuit Check	134
System Description	88	CAN Communication Circuit Check	134
Component Parts and Harness Connector Location..	88	Component Inspection	137
Wiring Diagram — CAN —	89	ECM / COMBINATION METER INTERNAL CIR-	
Work Flow	91	CUIT INSPECTION	137
CHECK SHEET	92	CAN SYSTEM (TYPE 29)	138
CHECK SHEET RESULTS (EXAMPLE)	94	System Description	138
INSPECTION	95	Component Parts and Harness Connector Location	138
Circuit Check Between Data Link Connector and		Wiring Diagram — CAN —	139
Smart Entrance Control Unit	96	Work Flow	141
Data Link Connector Circuit and ECM Circuit Check..	96	CHECK SHEET	142
ECM Circuit Check	98	CHECK SHEET RESULTS (EXAMPLE)	143
ESP/TCS/ABS Control Unit Circuit Check	98	INSPECTION	146
Steering Angle Sensor Circuit Check	99	Circuit Check Between ESP/TCS/ABS Control Unit	
Smart Entrance Control Unit Circuit Check	99	and Tyre Pressure Monitoring Control Unit	147
Combination Meter Circuit Check	100	Circuit Check Between Tyre Pressure Monitoring	
		Control Unit and Steering Angle Sensor	148

Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit	149	CHECK SHEET	176	A
ECM Circuit Check	150	CHECK SHEET RESULTS (EXAMPLE)	177	
ESP/TCS/ABS Control Unit Circuit Check	151	INSPECTION	179	
Tyre Pressure Monitoring Control Unit Circuit Check	151	Circuit Check Between ABS Actuator and Electric Unit (control unit) and Tyre Pressure Monitoring Control Unit	179	B
Steering Angle Sensor Circuit Check	152	Circuit Check Between Tyre pressure monitoring control unit and Smart Entrance Control Unit	181	
Smart Entrance Control Unit Circuit Check	152	ECM Circuit Check	181	C
Combination Meter Circuit Check	153	ABS Actuator and Electric Unit (control unit) Circuit Check	182	
CAN Communication Circuit Check	153	Tyre Pressure Monitoring Control Unit Circuit Check	182	D
Component Inspection	156	Smart Entrance Control Unit Circuit Check	183	
ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	156	Combination Meter Circuit Check	183	E
CAN SYSTEM (TYPE 30)	157	CAN Communication Circuit Check	184	
System Description	157	Component Inspection	187	
Component Parts and Harness Connector Location	157	ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	187	F
Wiring Diagram — CAN —	158	CAN SYSTEM (TYPE 32)	188	
Work Flow	160	System Description	188	G
CHECK SHEET	161	Component Parts and Harness Connector Location	188	
CHECK SHEET RESULTS (EXAMPLE)	162	Wiring Diagram — CAN —	189	
INSPECTION	163	Work Flow	191	
Circuit Check Between ESP/TCS/ABS Control Unit and Steering Angle Sensor	164	CHECK SHEET	192	H
Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit	165	CHECK SHEET RESULTS (EXAMPLE)	193	
ECM Circuit Check	166	INSPECTION	194	I
ESP/TCS/ABS Control Unit Circuit Check	166	Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit	195	
Steering Angle Sensor Circuit Check	167	ECM Circuit Check	196	J
Smart Entrance Control Unit Circuit Check	167	ABS Actuator and Electric Unit (control unit) Circuit Check	197	
Combination Meter Circuit Check	168	Smart Entrance Control Unit Circuit Check	197	
CAN Communication Circuit Check	168	Combination Meter Circuit Check	198	
Component Inspection	171	CAN Communication Circuit Check	198	
ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	171	Component Inspection	201	
CAN SYSTEM (TYPE 31)	172	ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION	201	LAN
System Description	172			
Component Parts and Harness Connector Location	172			
Wiring Diagram — CAN —	173			
Work Flow	175			

PRECAUTIONS

PFP:00001

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

EKS009QJ

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 harnesses or harness connectors.

Precautions For Trouble Diagnosis CAN SYSTEM

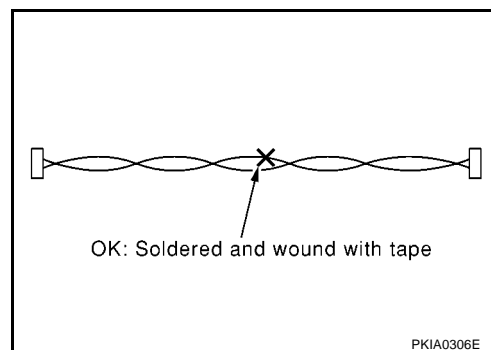
EKS009QK

- 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 cable before checking the circuit.

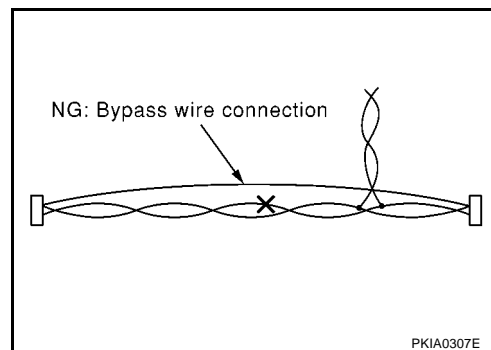
Precautions For Harness Repair CAN SYSTEM

EKS009QL

- 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

System Description

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Unit

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

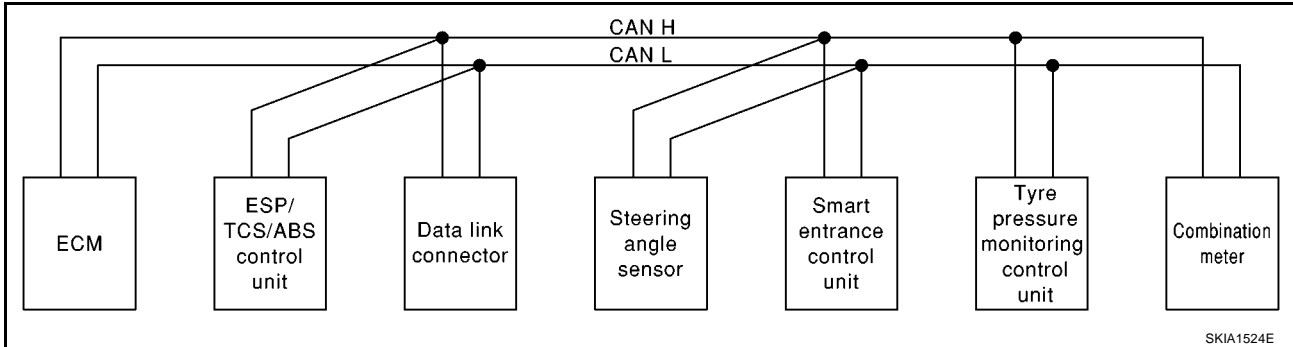
Body type		Sedan/Wagon/Hatch back							
Axle		2WD							
Engine		YD22DDTi				F9Q			
Transmission		M/T							
Brake control		ESP		ABS		ESP		ABS	
CAN communication unit									
ECM		×	×	×	×	×	×	×	×
ESP/TCS/ABS control unit		×	×			×	×		
ABS actuator and electric unit (control unit)				×	×			×	×
Data link connector		×	×	×	×	×	×	×	×
Tyre pressure monitoring control unit		×		×		×		×	
Steering angle sensor		×	×			×	×		
Smart entrance control unit		×	×	×	×	×	×	×	×
Combination meter		×	×	×	×	×	×	×	×
Can communication type		<u>LAN-6, "TYPE 21.TYPE22/TYPE29, TYPE30"</u>		<u>LAN-7, "TYPE 23.TYPE24/TYPE31, TYPE32"</u>		<u>LAN-8, "TYPE 25/TYPE26"</u>		<u>LAN-9, "TYPE 27/TYPE28"</u>	
Can system trouble diagnosis	LHD models	<u>LAN-10, "CAN SYSTEM (TYPE 21)"</u>	<u>LAN-28, "CAN SYSTEM (TYPE 22)"</u>	<u>LAN-41, "CAN SYSTEM (TYPE 23)"</u>	<u>LAN-57, "CAN SYSTEM (TYPE 24)"</u>	<u>LAN-70, "CAN SYSTEM (TYPE 25)"</u>	<u>LAN-88, "CAN SYSTEM (TYPE 26)"</u>	<u>LAN-104, "CAN SYSTEM (TYPE 27)"</u>	<u>LAN-122, "CAN SYSTEM (TYPE 28)"</u>
	RHD models	<u>LAN-138, "CAN SYSTEM (TYPE 29)"</u>	<u>LAN-157, "CAN SYSTEM (TYPE 30)"</u>	<u>LAN-172, "CAN SYSTEM (TYPE 31)"</u>	<u>LAN-188, "CAN SYSTEM (TYPE 32)"</u>	-	-	-	-

×:Applicable

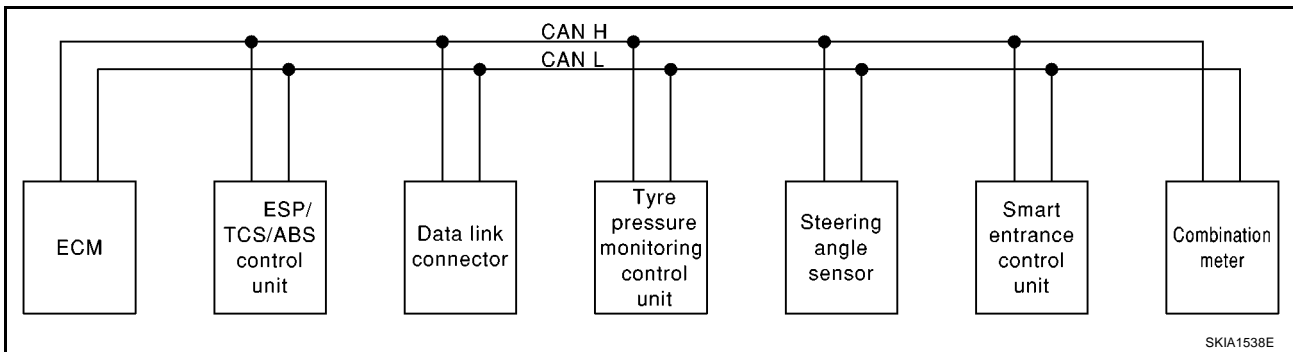
TYPE 21, TYPE22/TYPE29, TYPE30

System diagram

- LHD models (Type21, Type22)



- RHD models (Type29, Type30)



Input/output signal chart

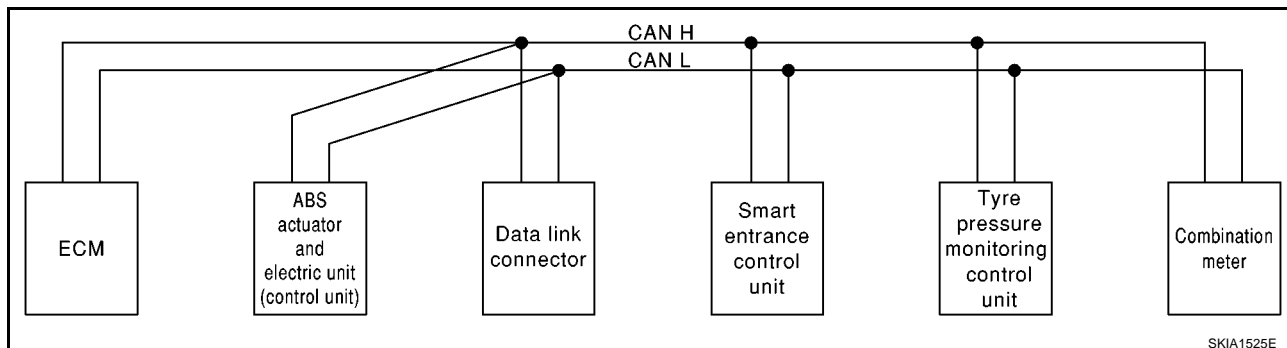
T: Transmit R: Receive

Signals	ECM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Tyre pres- sure monitor- ing control unit	Combination meter
Engine speed signal	T	R				R
Accelerator pedal position signal	T	R				
Steering angle sensor signal		R	T			
Air conditioner switch signal	R					T
MI signal	T					R
Glow indicator lamp signal	T					R
Engine coolant temperature signal	T					R
Fuel consumption signal	T					R
Vehicle speed signal		T				R
	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		
Tyre pressure signal					T	R
ASCD SET lamp signal	T					R
ASCD CRUISE lamp signal	T					R

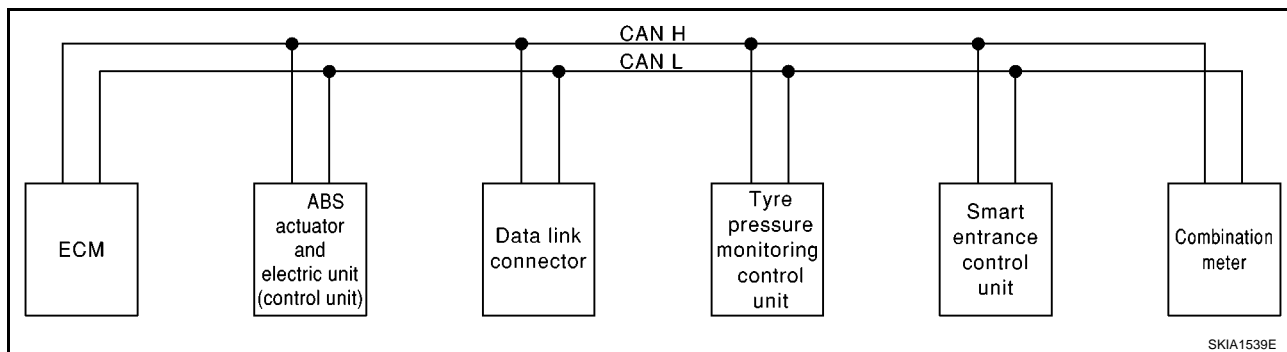
TYPE 23, TYPE24/TYPE31, TYPE32

System diagram

- LHD models (Type23, Type24)



- RHD models (Type31, Type32)



Input/output signal chart

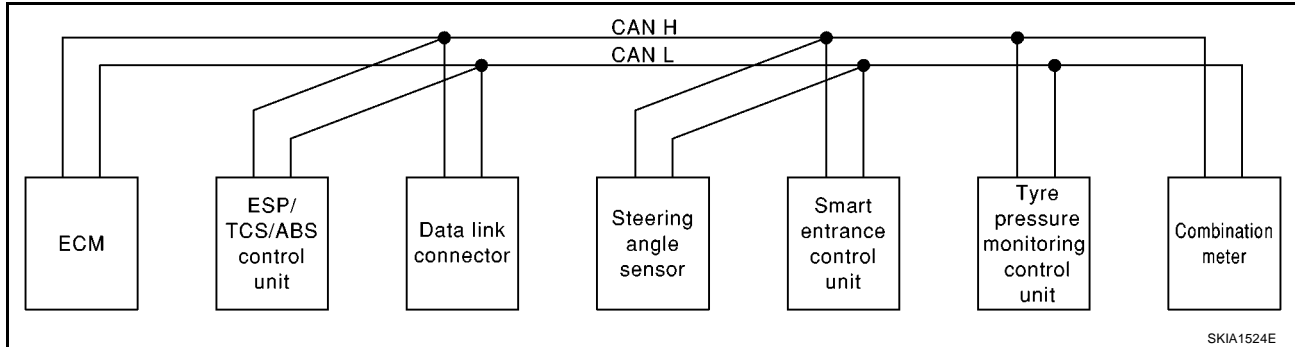
T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Tyre pressure monitoring control unit	Combination meter
Engine speed signal	T				R
Air conditioner switch signal	R				T
MI signal	T				R
Glow indicator lamp signal*1	T				R
Engine coolant temperature signal	T				R
Fuel consumption signal	T				R
Vehicle speed signal		T			R
	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		
Tyre pressure signal				T	R
ASCD SET lamp signal	T				R
ASCD CRUISE lamp signal	T				R

TYPE 25/TYPE26

System diagram

LHD models (Type25, Type26)



Input/output signal chart

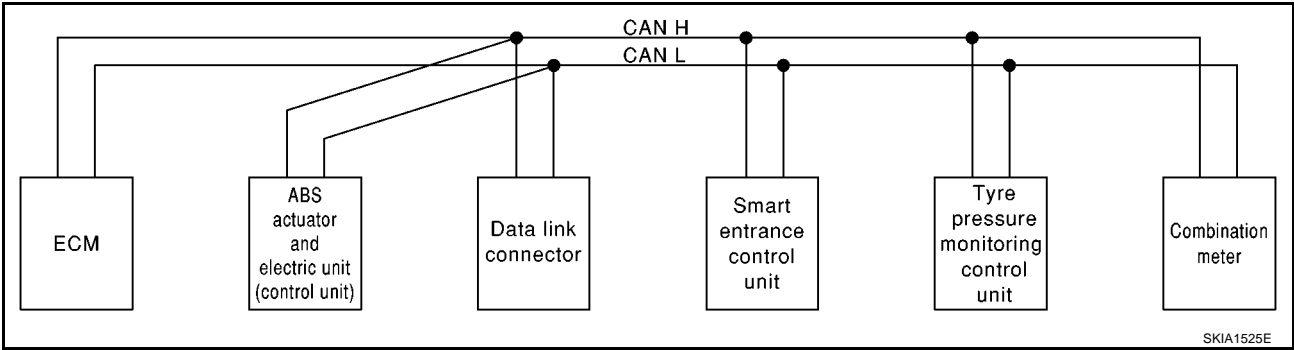
T: Transmit R: Receive

Signals	ECM	ESP/ TCS / ABS control unit	Steering angle sensor	Smart entrance control unit	Tyre pres- sure monitor- ing 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 angle sensor signal		R	T			
MI signal	T					R
Engine coolant temperature signal	T					R
Fuel consumption signal	T					R
Vehicle speed signal	R	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		
Glow indicator lamp signal	T					R
Tyre pressure signal					T	R

TYPE 27/TYPE28

System diagram

LHD models (Type27, Type28)



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	Smart entrance control unit	Tyre pressure monitoring control unit	Combination meter
Engine speed signal	T				R
ABS operation signal	R	T			
MI signal	T				R
Glow indicator lamp signal	T				R
Engine coolant temperature signal	T				R
Fuel consumption signal	T				R
Vehicle speed signal	R	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		
Tyre pressure signal				T	R

CAN SYSTEM (TYPE 21)

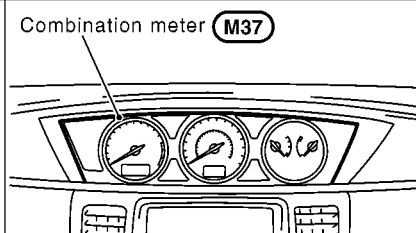
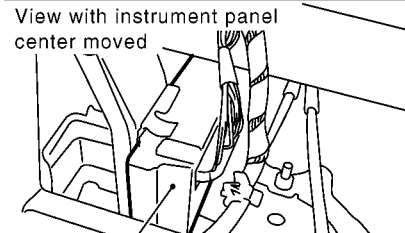
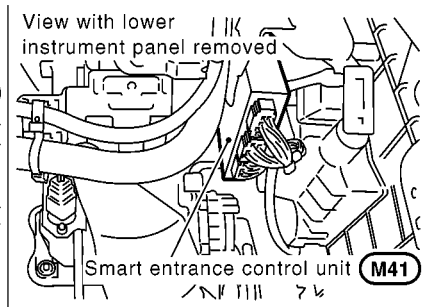
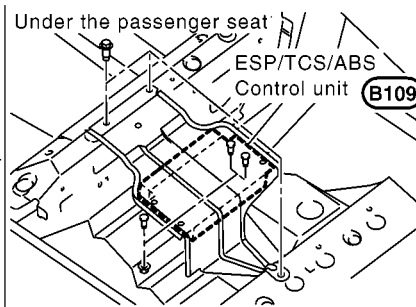
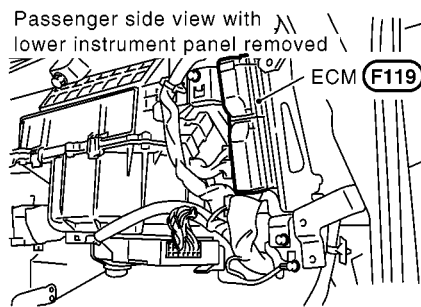
System Description

EKS00AQ1

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

EKS00AQ2



MK1B0603E

CAN SYSTEM (TYPE 21)

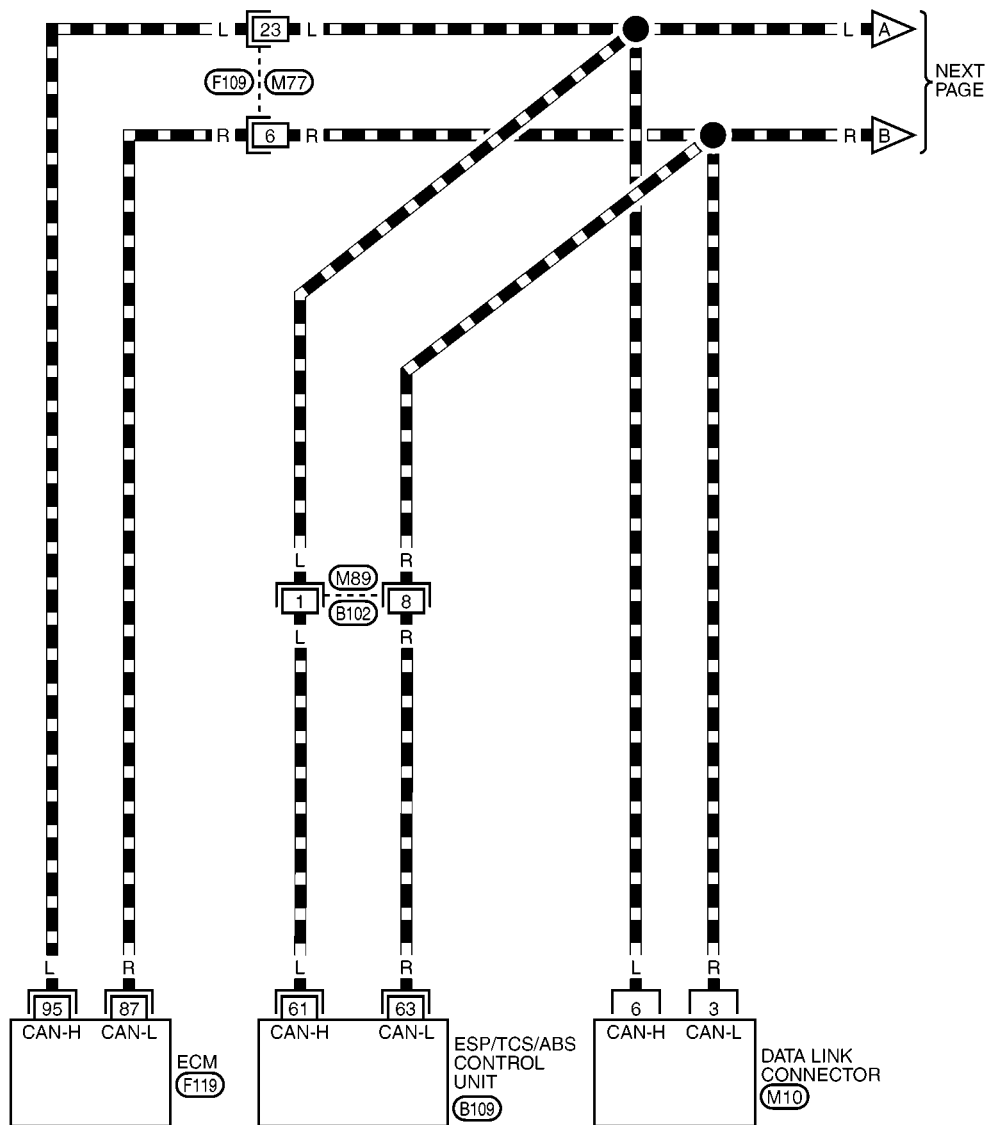
[CAN]

Wiring Diagram — CAN —

EKS00AQ3

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

M89
W

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

F109
W

106	107	108	109	110	111	112	113
98	99	100	101	102	103	104	105
90	91	92	93	94	95	96	97
82	83	84	85	86	87	88	89

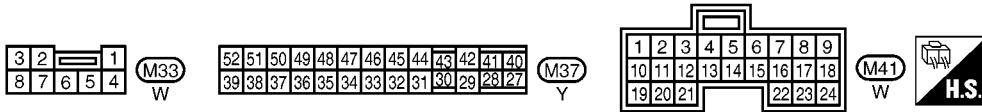
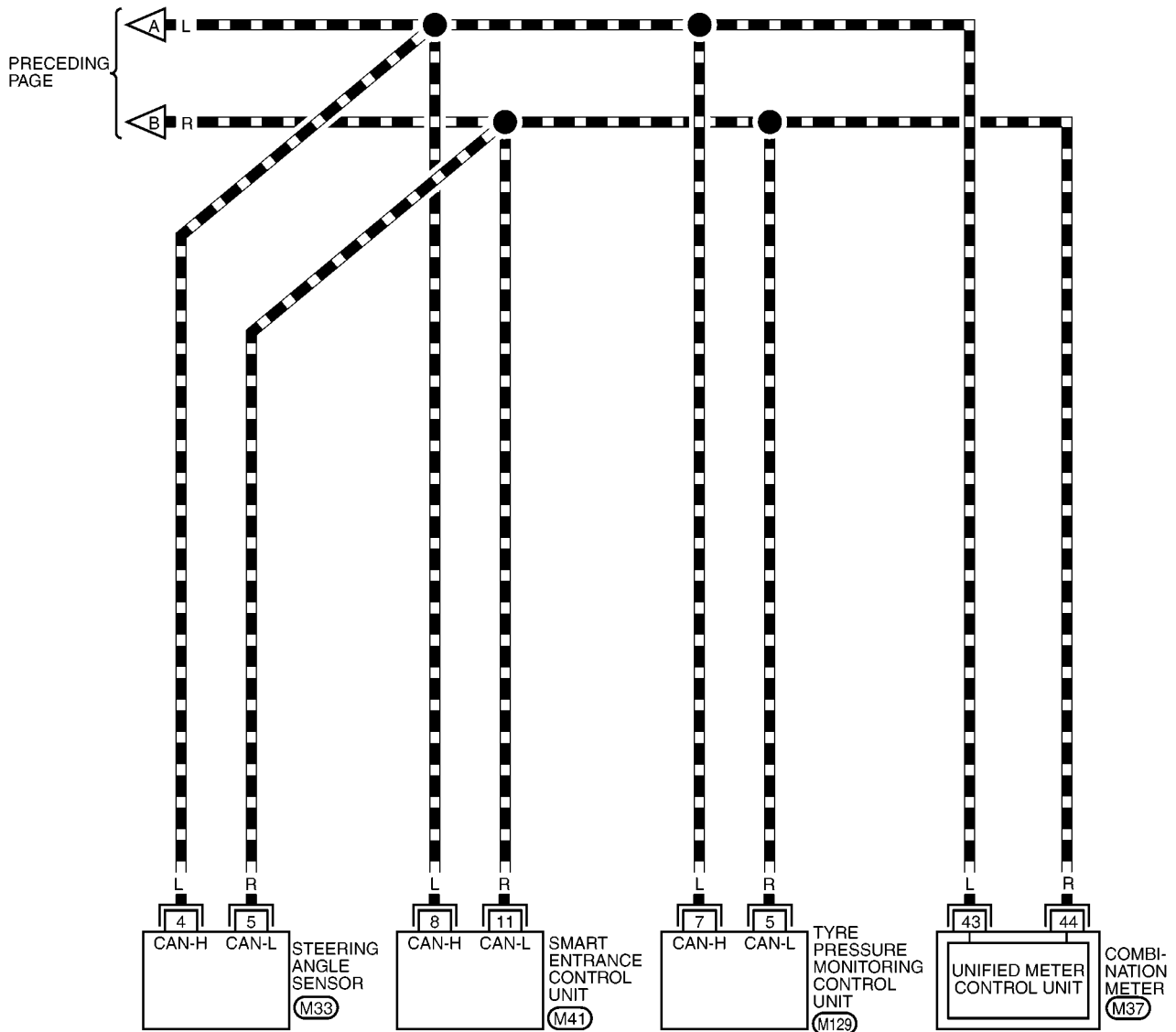
F119



						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

MKWA1715E

 : DATA LINE


Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
 - [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR".
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-14, "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-14, "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-15, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 21)

[CAN]

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE
MONITOR
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
AIR PRESSURE
MONITOR
DATA MONITOR

MKIB0604E

CAN SYSTEM (TYPE 21)

[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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

MKIB0605E

CAN SYSTEM (TYPE 21)

[CAN]

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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 ✓
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 4: Replace Tyre pressure monitoring 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
AIR PRESSURE MONITOR	CAN COMM ✓	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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 ✓
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

MKIB0606E

CAN SYSTEM (TYPE 21)

[CAN]

Case 7

ENGINE	CAN COMM	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 8

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

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 ✓	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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 ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓

MKIB0607E

Case 12

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC ✓

Case 13

ENGINE	CAN COMM	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—
SMART ENTRANCE	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓

MKIB0608E

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 Tyre pressure monitoring control unit.

Case 5: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-19, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 6: Check Harness between Smart entrance control unit and Tyre pressure monitoring control unit. Refer to [LAN-20, "Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-21, "ECM Circuit Check"](#).

Case 8: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-22, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 9: Check Steering angle sensor Circuit. Refer to [LAN-22, "Steering Angle Sensor Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-23, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Tyre pressure monitoring control unit Circuit. Refer to [LAN-23, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 12: Check Combination meter Circuit. Refer to [LAN-24, "Combination Meter Circuit Check"](#).

Case 13: Check CAN communication Circuit. Refer to [LAN-25, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS00AQ5

1. CHECK CONNECTOR

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

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 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.

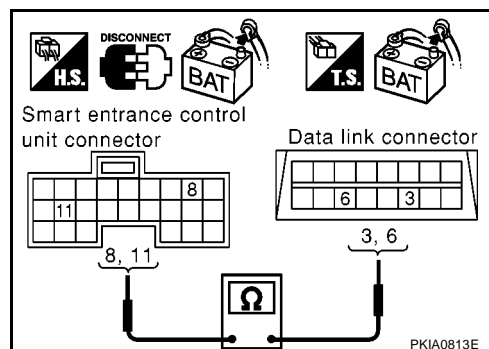
11(R) – 3(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.



Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit

EKS00AQ6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side, sensor side and harness side)
 - Smart entrance control unit.
 - Tyre pressure monitoring control unit.
 - Steering angle sensor.

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 and tyre pressure monitoring control unit connector.
2. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

8(L) – 7(L) : Continuity should exist.

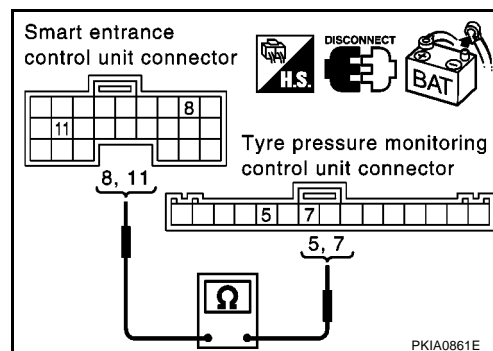
11(R) – 5(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

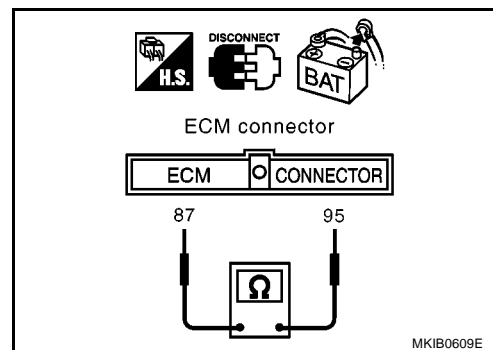
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F102 terminals 95(L) and 87(R).

95(L) – 87(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

EKS00AQ8

1. CHECK CONNECTOR

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

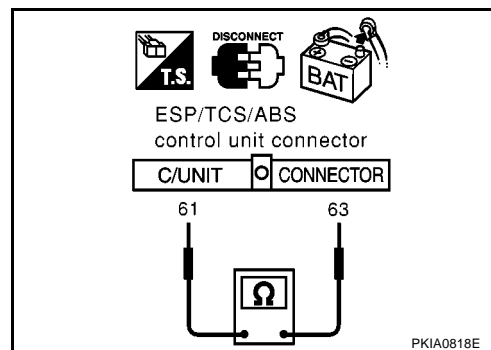
2. CHECK HARNESS FOR OPEN CIRCUIT

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**

EKS00AQ9

1. CHECK CONNECTOR

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

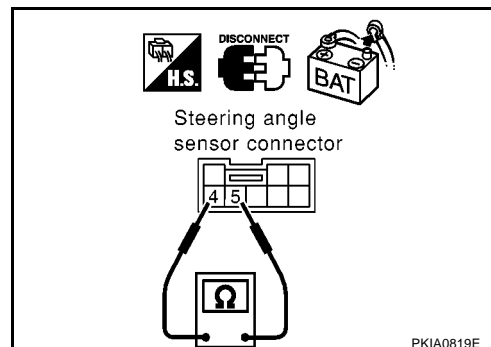
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.

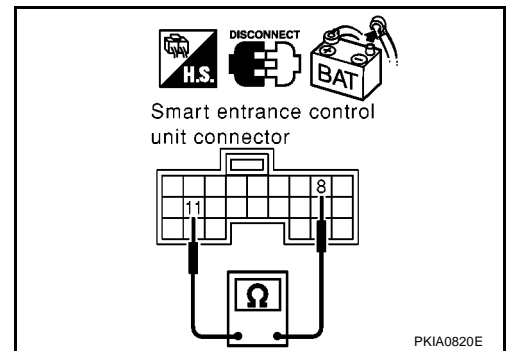
2. CHECK HARNESS FOR OPEN CIRCUIT

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.



Tyre Pressure Monitoring Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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.

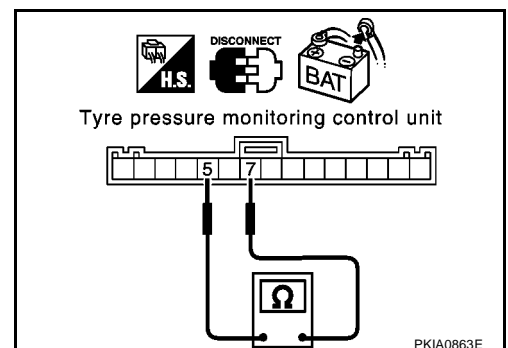
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M129 terminals 7(L) and 5(R).

7(L) – 5(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace tyre pressure monitoring control unit.
NG >> Repair harness between smart entrance control unit and tyre pressure monitoring control unit.



Combination Meter Circuit Check

1. CHECK CONNECTOR

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

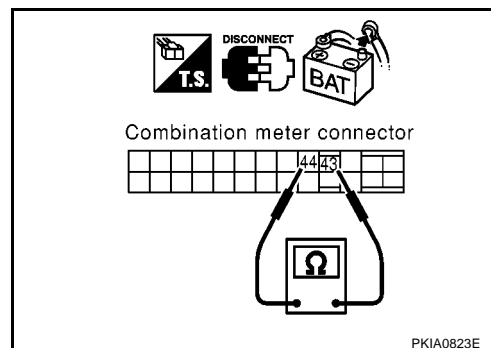
43(L) – 44(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between tyre pressure monitoring control unit and combination meter.



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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.
 - Tyre pressure monitoring control unit.
 - 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.

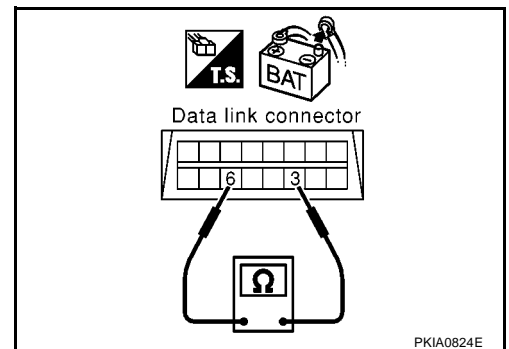
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector.
 - Tyre pressure monitoring control unit 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 tyre pressure monitoring control unit and combination meter.
 - Repair harness between smart entrance control unit and tyre pressure monitoring 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 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.

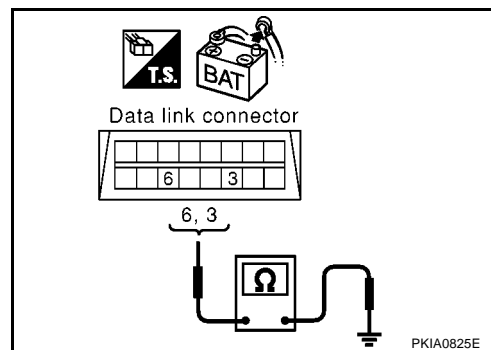
NG >> ● Repair harness between tyre pressure monitoring control unit and combination meter.

● Repair harness between smart entrance control unit and tyre pressure monitoring 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 M77.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.

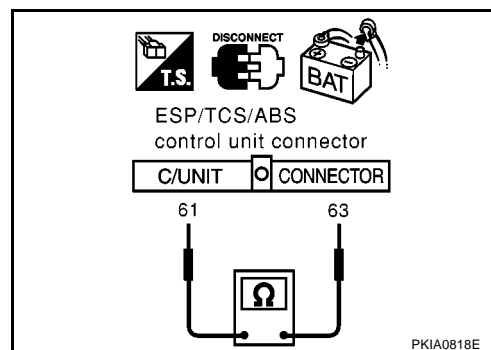
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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.

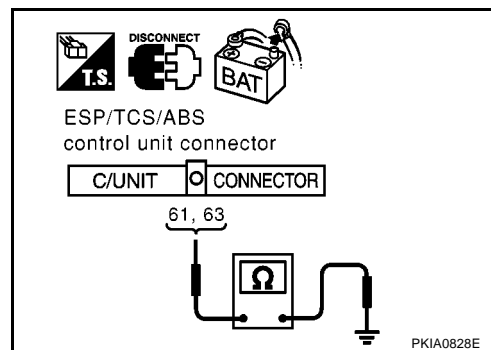
61(L) – ground : Continuity should not exist.

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

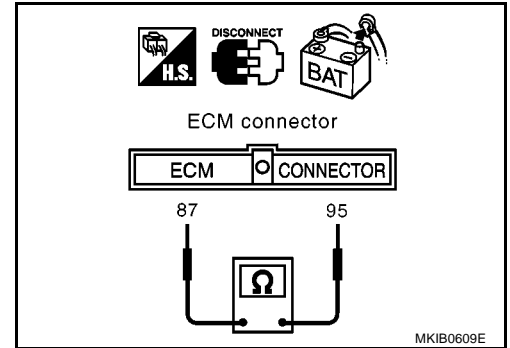
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95 (L) and 87(R).

95(L) – 87(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ECM and harness connector F109.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F119 terminals 95 (L), 87 (R) and ground.

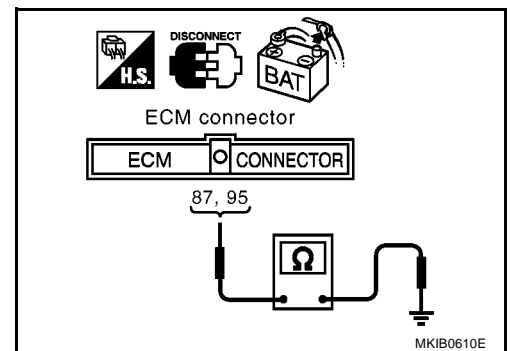
95(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ECM and harness connector F109.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-27, "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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Replace ECM and/or Combination meter.

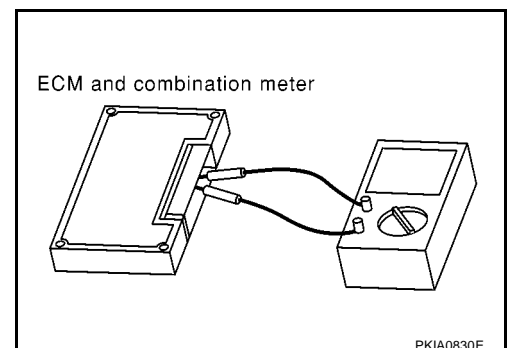
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS00AQE

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 22)

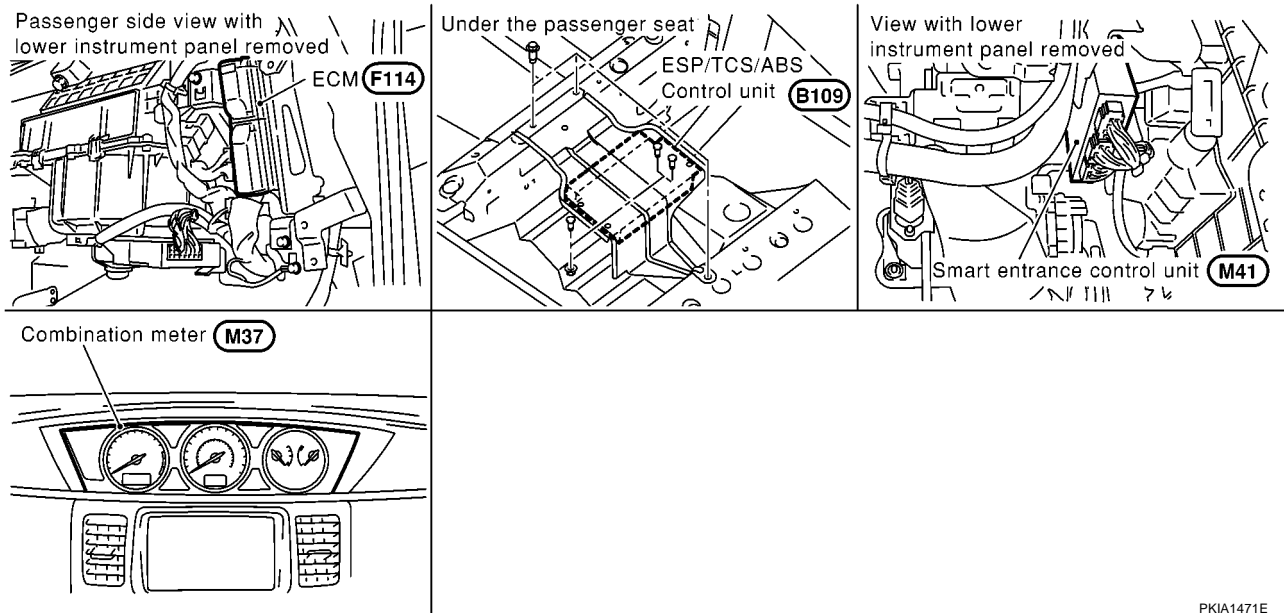
System Description

EKS00AQF

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

EKS00AQQ



PKIA1471E

CAN SYSTEM (TYPE 22)

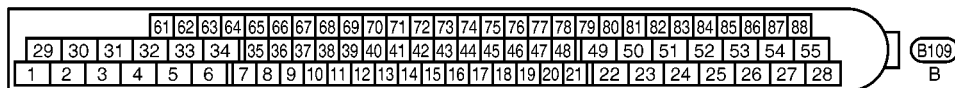
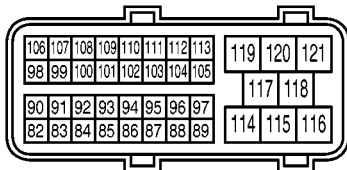
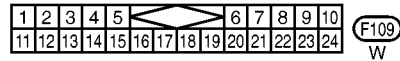
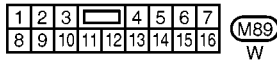
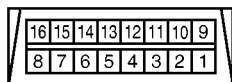
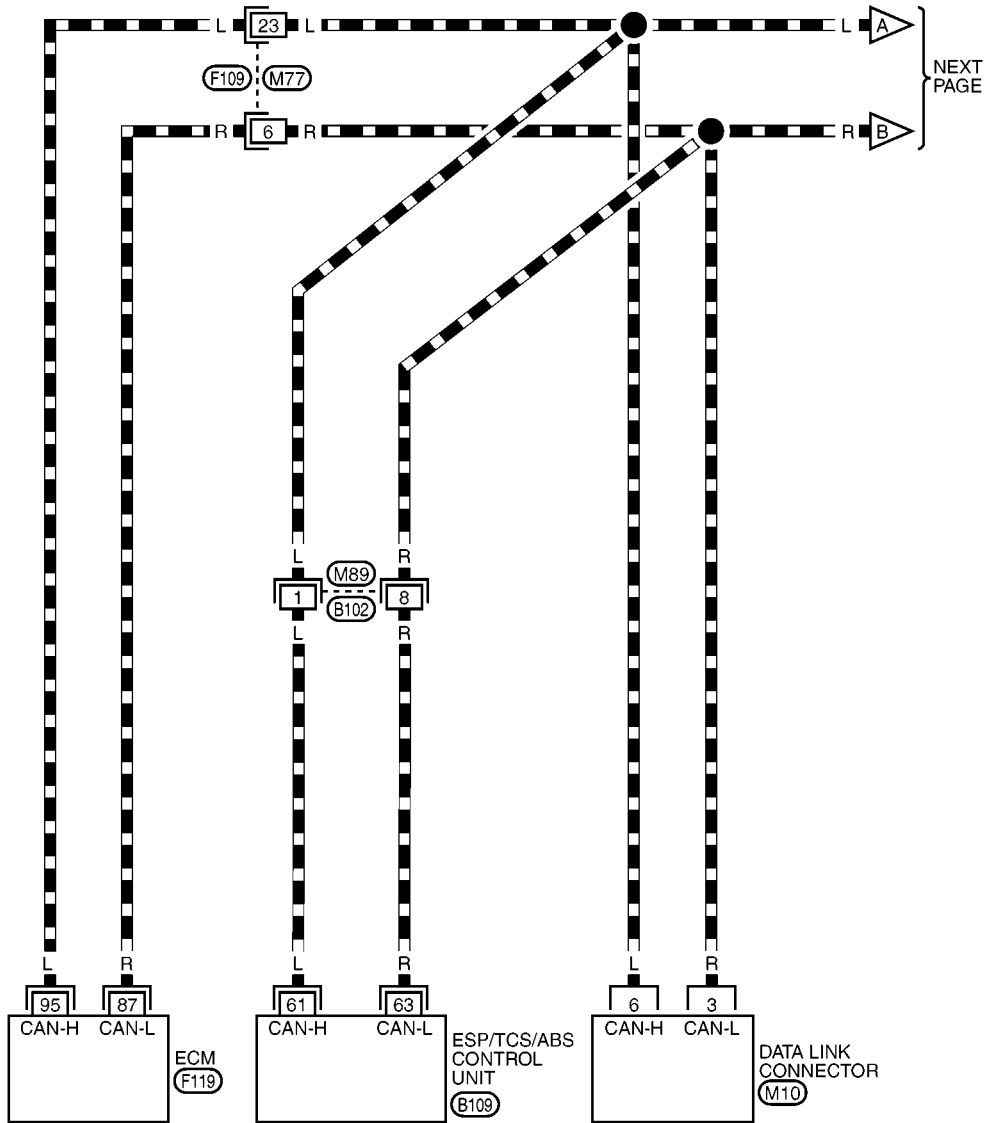
[CAN]

Wiring Diagram — CAN —

EKS00AQH

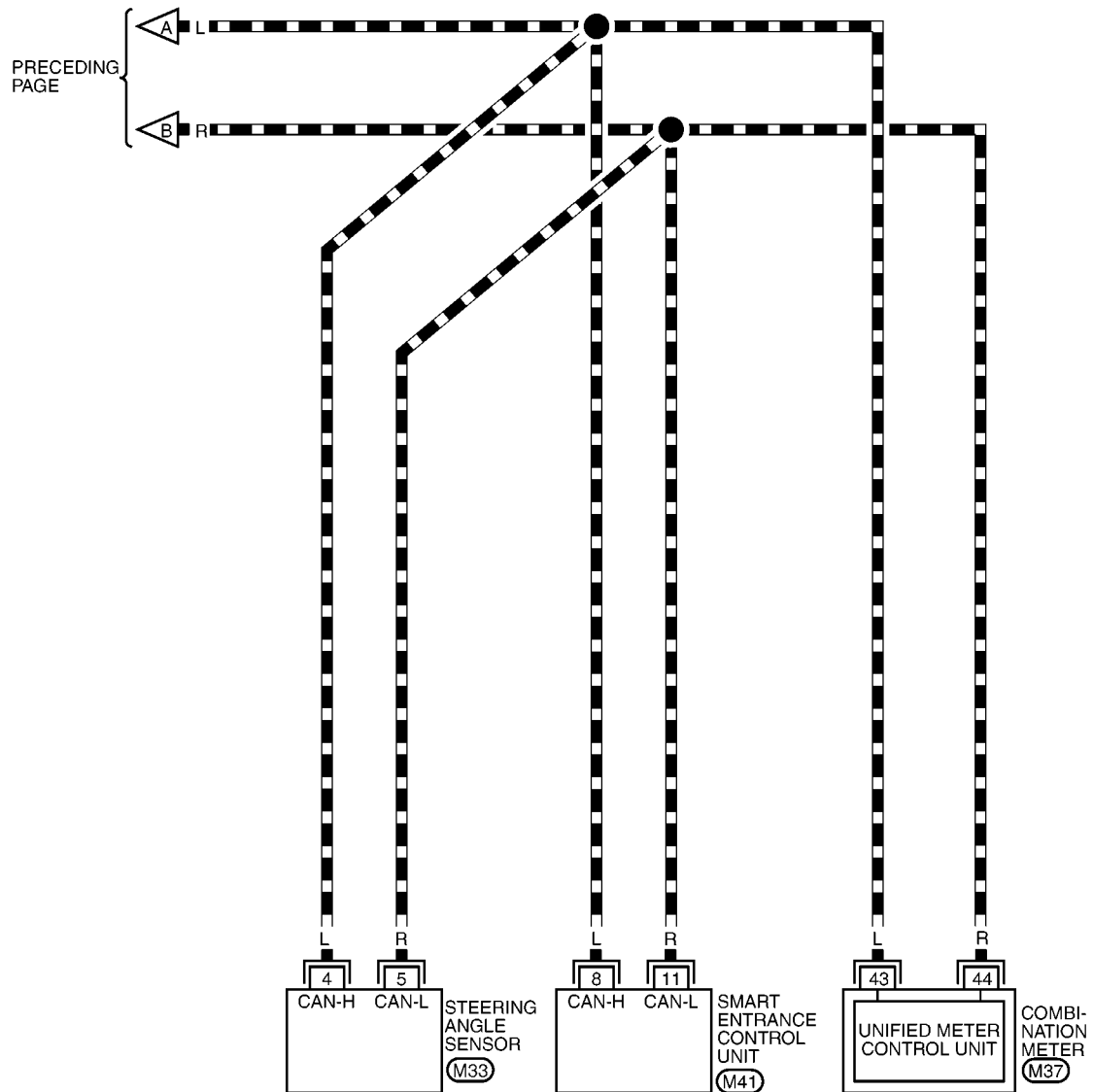
LAN-CAN-03

DATA LINE



MKWA1717E

LAN-CAN-04

 : DATA LINE


3	2	1
8	7	6

(M33)
W

52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)
Y

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21				22	23	24

(M41)
W



Work Flow

EKS00AQI

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-23, "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-32, "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-32, "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-33, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

A

B

C

D

E

F

G

H

I

J

LAN

L

M

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

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

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-35, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-35, "ECM Circuit Check"](#).

Case 6: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-36, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 7: Check Steering angle sensor Circuit. Refer to [LAN-36, "Steering Angle Sensor Circuit Check"](#).

Case 8: Check Smart entrance control unit Circuit. Refer to [LAN-37, "Smart Entrance Control Unit Circuit Check"](#).

Case 9: Check Combination meter Circuit. Refer to [LAN-37, "Combination Meter Circuit Check"](#).

Case 10: Check CAN communication Circuit. Refer to [LAN-38, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS00AQJ

1. CHECK HARNESS FOR OPEN CIRCUIT

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

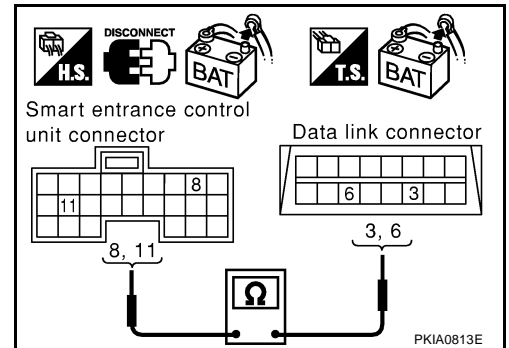
11(R) – 3(R) : Continuity should exist.

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-83, "DTC U1000 CAN COMMUNICATION LINE" for "ENGINE"](#)
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
- [BCS-23, "CAN Communication Line Check" for "SMART ENTRANCE"](#)

NG >> Repair harness.



ECM Circuit Check

EKS00AQK

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

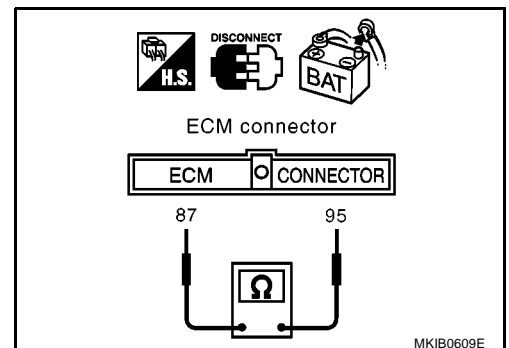
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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

EKS00AQL

1. CHECK CONNECTOR

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

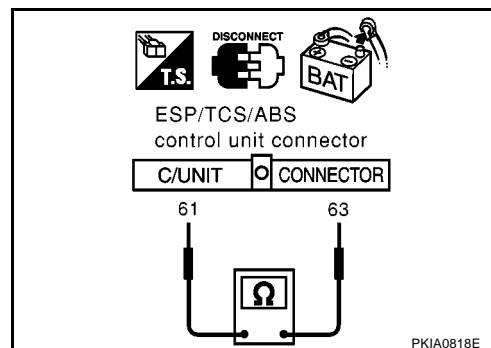
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

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**

EKS00AQM

1. CHECK CONNECTOR

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

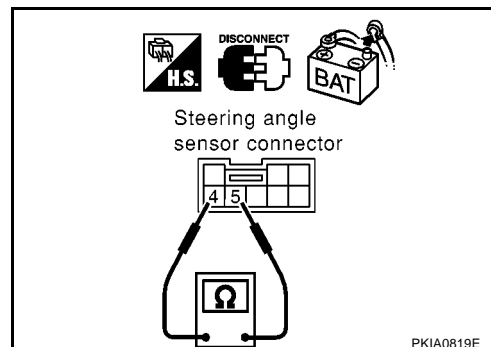
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M33 terminals 4(L) and 5(R).

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 cable.
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.

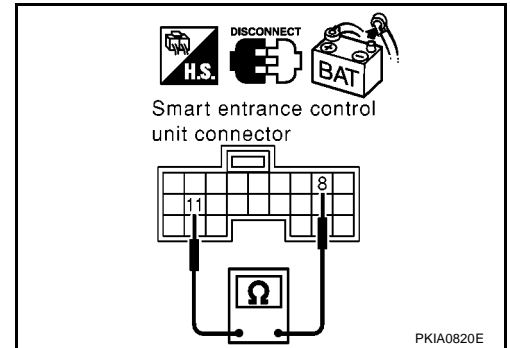
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.

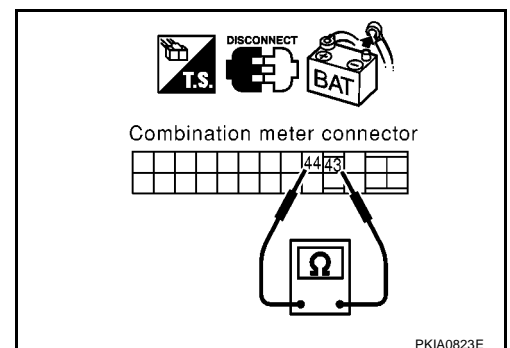
2. CHECK HARNESS FOR OPEN CIRCUIT

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

EKS00AQP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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 M77
2. Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

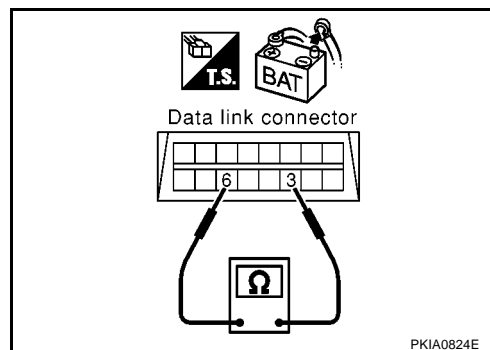
6(L) – 3(R)

: 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.

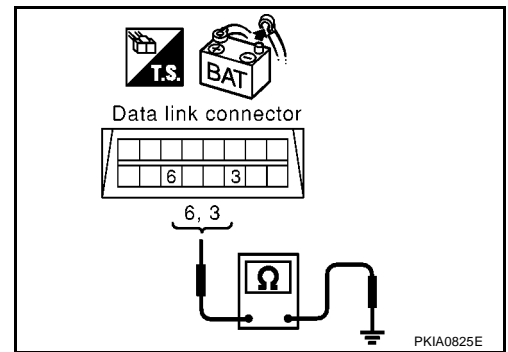
6(L) – ground : Continuity should not exist.

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

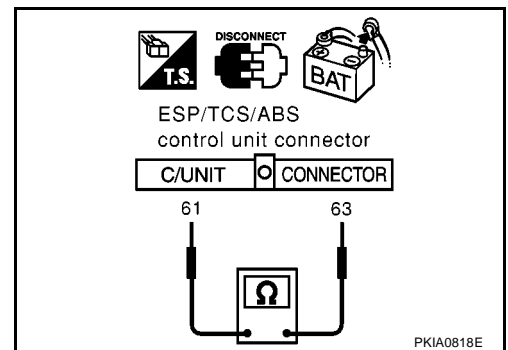
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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.

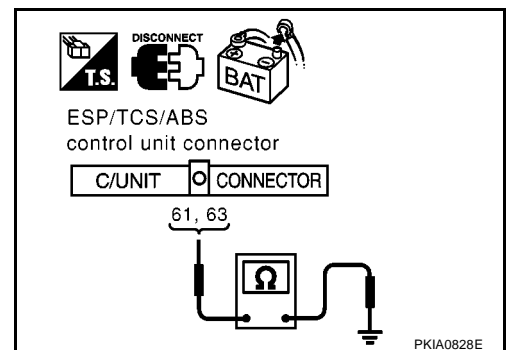
61(L) – ground : Continuity should not exist.

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

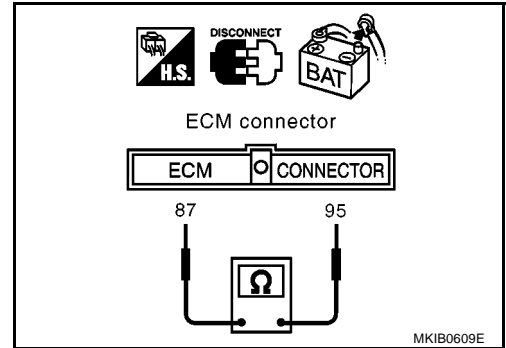
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ECM and harness connector F109.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F119 terminals 95(L), 87(R) and ground.

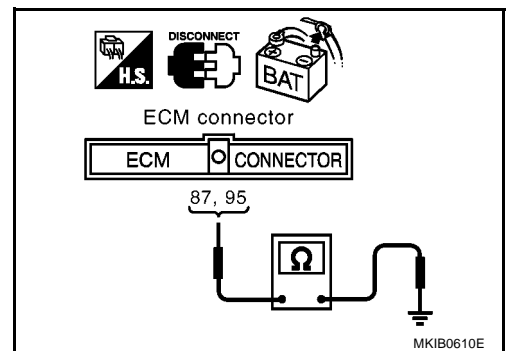
95(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ECM and harness connector F109.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-40, "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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Replace ECM and/or Combination meter.

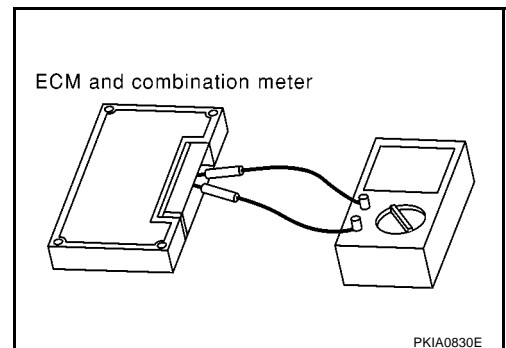
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS00AQQ

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 23)

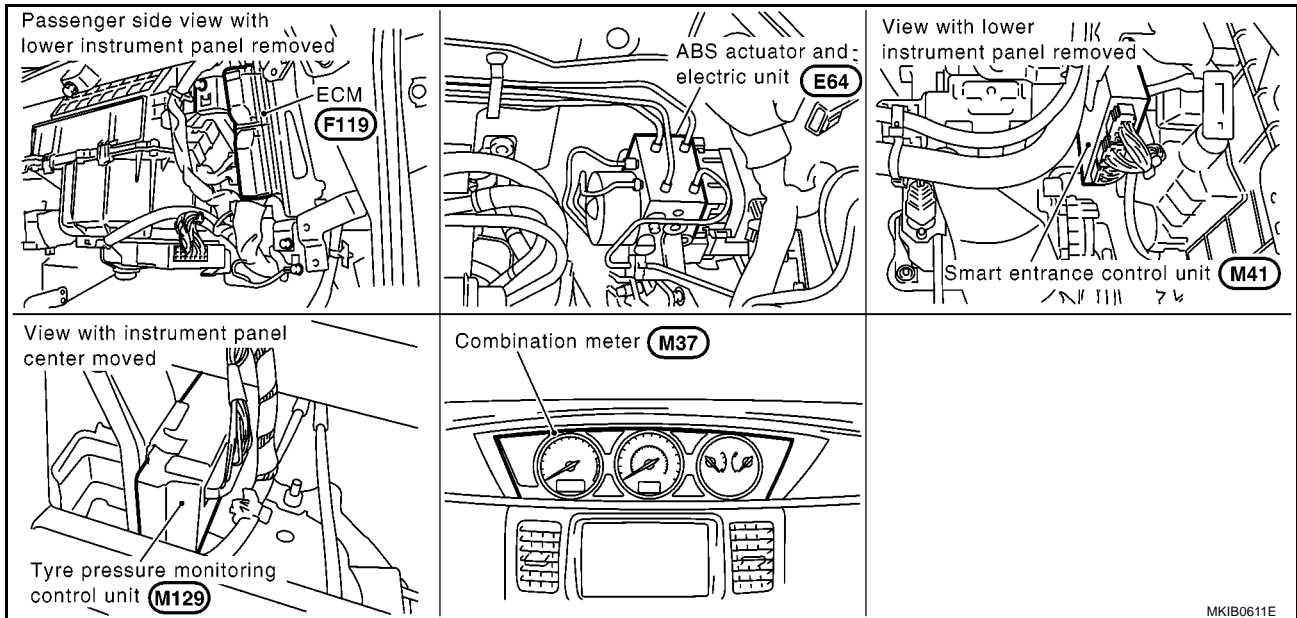
System Description

EKS00AQR

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

EKS00AQS



CAN SYSTEM (TYPE 23)

[CAN]

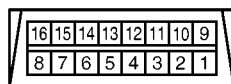
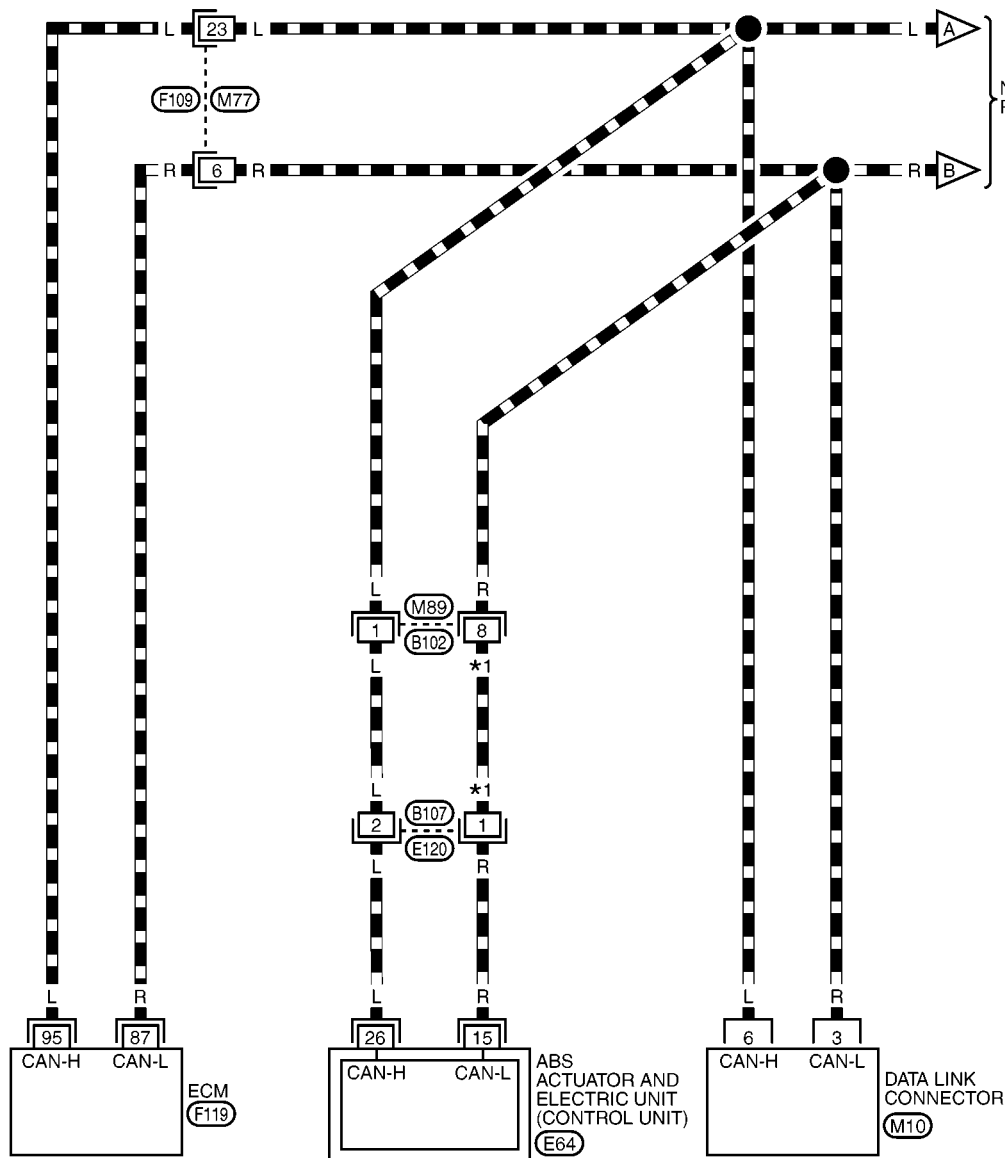
Wiring Diagram — CAN —

EKS00AQT

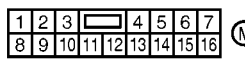
LAN-CAN-05

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

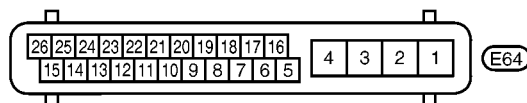
NEXT PAGE



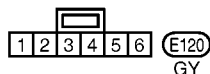
M10
W



M89
W



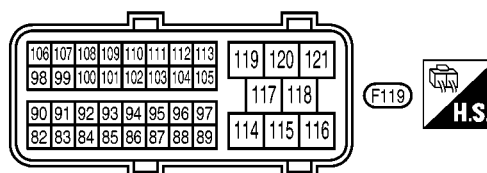
E64



E120
GY



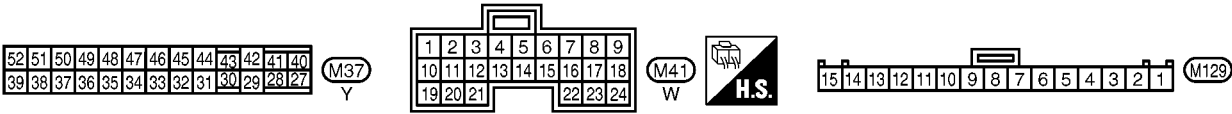
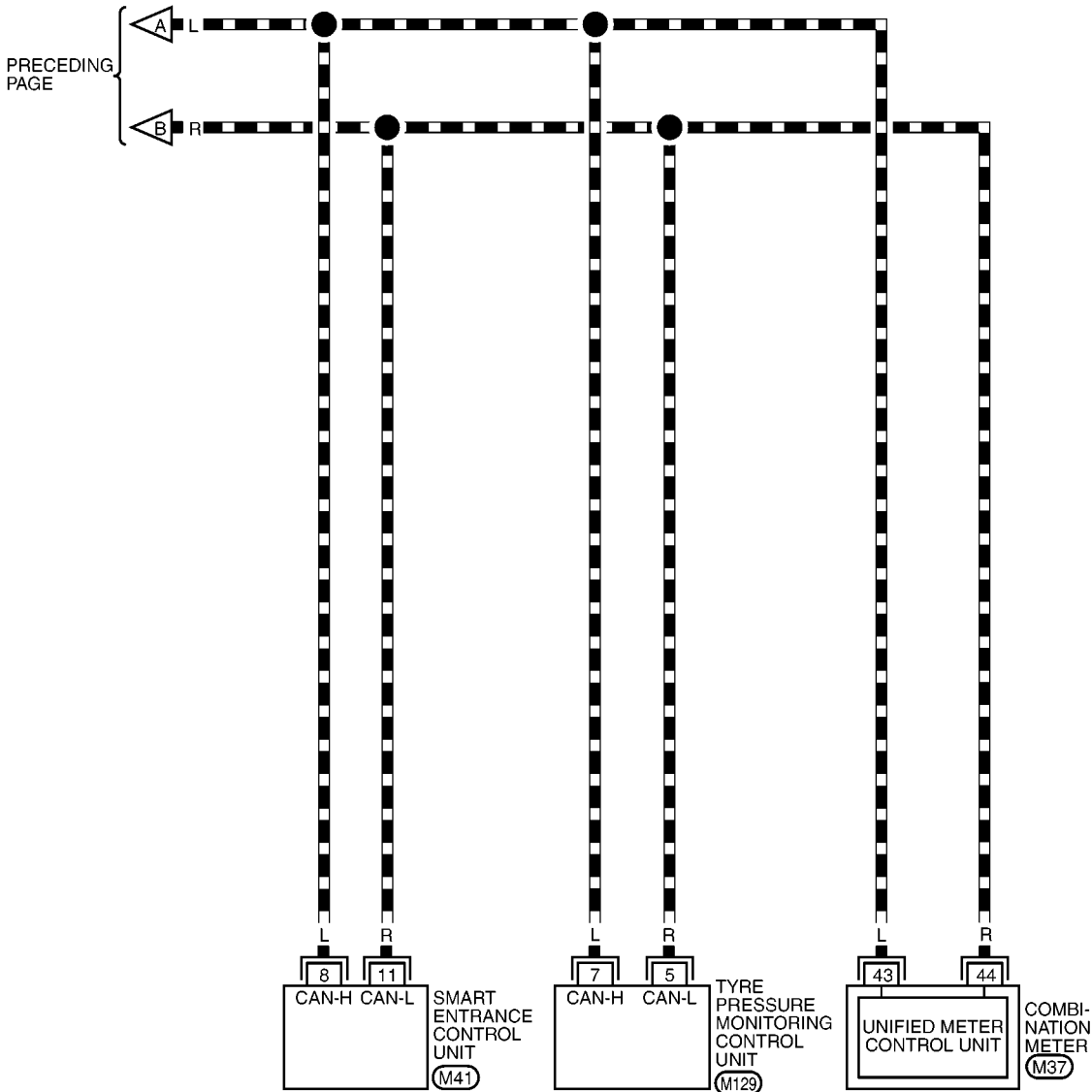
F109
W



F119



DATA LINE



Work Flow

EKS00AQU

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
 - [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-45, "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-45, "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-46, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

CAN SYSTEM (TYPE 23)

[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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE
MONITOR
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
AIR PRESSURE
MONITOR
DATA MONITOR

PKIA0727E

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN <input checked="" type="checkbox"/> 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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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 <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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 <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN <input checked="" type="checkbox"/> CIRC 3
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 4: Replace Tyre pressure monitoring 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
AIR PRESSURE MONITOR	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 5

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN <input checked="" type="checkbox"/> 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 CIRC 3
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

CAN SYSTEM (TYPE 23)

[CAN]

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 10

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 11

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 12

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
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

PKIA0729E

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: Replace Tyre pressure monitoring control unit.

Case 5: Check Harness between Data link connector and Smart entrance control unit. Refer to [LAN-48, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 6: Check Harness between Smart entrance control unit and Tyre pressure monitoring control unit. Refer to [LAN-49, "Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-50, "ECM Circuit Check"](#).

Case 8: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-51, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 9: Check Smart entrance control unit Circuit. Refer to [LAN-52, "Smart Entrance Control Unit Circuit Check"](#).

Case 10: Check Tyre pressure monitoring control unit Circuit. Refer to [LAN-52, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-53, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-53, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS00AQV

1. CHECK CONNECTOR

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

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 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.

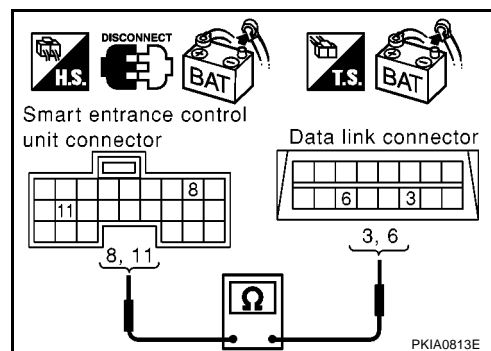
11(R) – 3(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.



Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit

EKS00AQW

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side and harness side)
 - Smart entrance control unit
 - Tyre pressure monitoring control unit

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 and tyre pressure monitoring control unit connector.
2. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and tyre pressure monitoring control unit harness connector M96 terminals 7 (L), 5 (R).

8(L) – 7(L) : Continuity should exist.

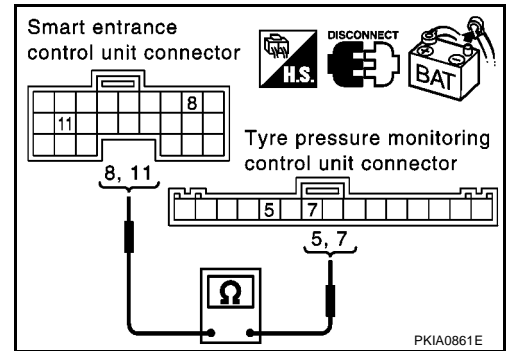
11(R) – 5(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

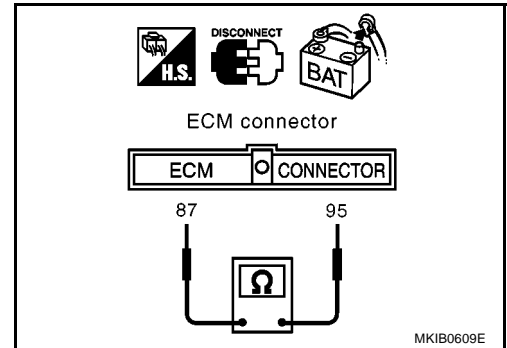
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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

EKS00AQY

1. CHECK CONNECTOR

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

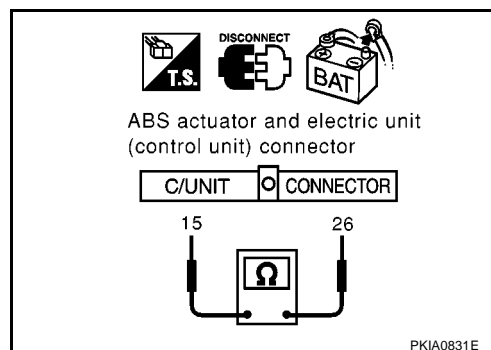
2. CHECK HARNESS FOR OPEN CIRCUIT

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

1. CHECK CONNECTOR

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

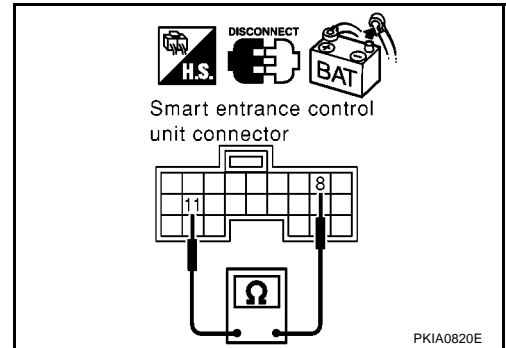
2. CHECK HARNESS FOR OPEN CIRCUIT

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.



Tyre Pressure Monitoring Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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.

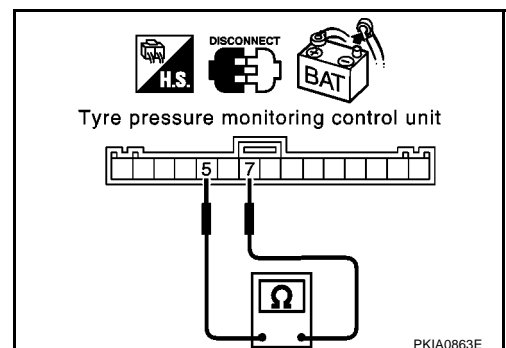
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M96 terminals 7(L) and 5(R).

7(L) – 5(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace tyre pressure monitoring control unit.
NG >> Repair harness between smart entrance control unit and tyre pressure monitoring control unit.



Combination Meter Circuit Check**1. CHECK CONNECTOR**

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

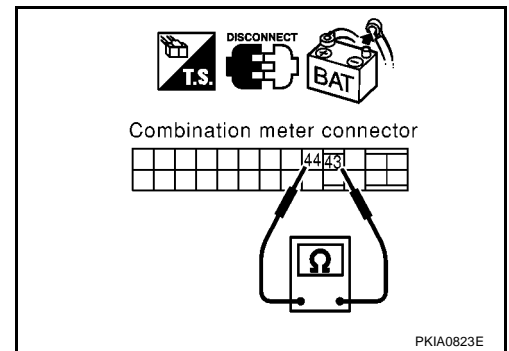
2. CHECK HARNESS FOR OPEN CIRCUIT

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 tyre pressure monitoring control unit and combination meter.



PKIA0823E

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

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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
 - Tyre pressure monitoring control unit
 - 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

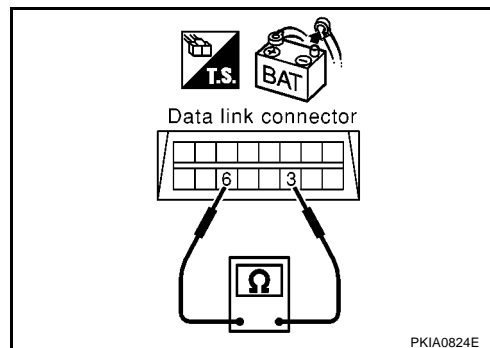
- Disconnect the following connectors.
 - Combination meter connector
 - Tyre pressure monitoring control unit connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M77
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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

OK or NG

OK >> GO TO 3.

- NG >> ● Repair harness between tyre pressure monitoring control unit and combination meter.
- Repair harness between smart entrance control unit and tyre pressure monitoring control unit.
 - 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.

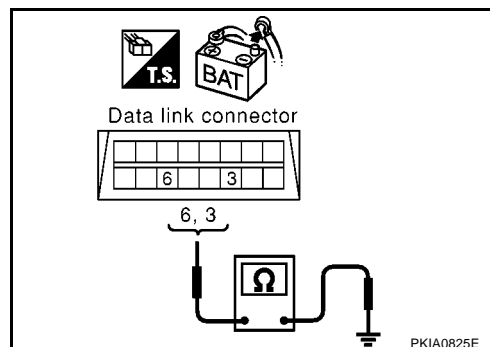
6(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

- NG >> ● Repair harness between tyre pressure monitoring control unit and combination meter.
- Repair harness between smart entrance control unit and tyre pressure monitoring control unit.
 - 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).(Wagon models)

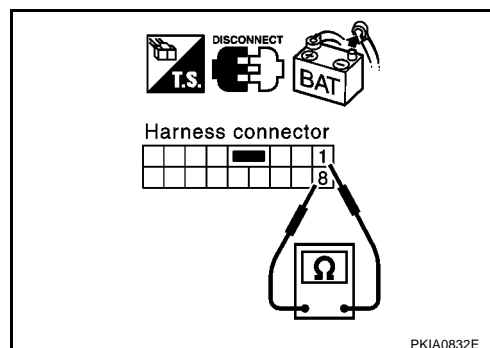
1(L) – 8(G) (Sedan models) : Continuity should not exist.

1(L) – 8(R) (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

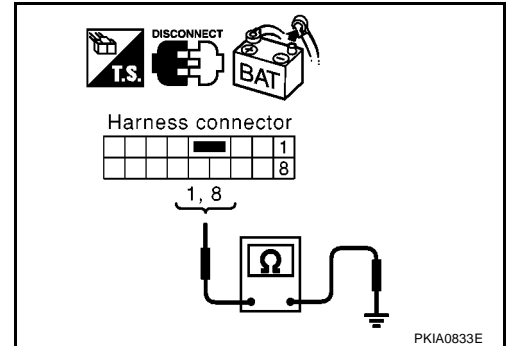
- Check the following.
 - Continuity between harness connector B102 terminals 1 (L), 8(G) and ground.(Sedan models)
 - Continuity between harness connector B102 terminals 1 (L), 8(R) and ground.(Wagon models)

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

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

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

8(R) – ground (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

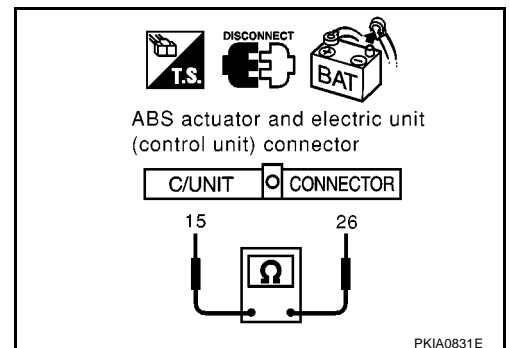
- Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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.

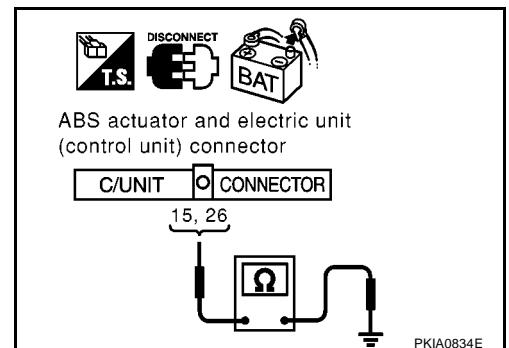
26(L) – ground : Continuity should not exist.

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

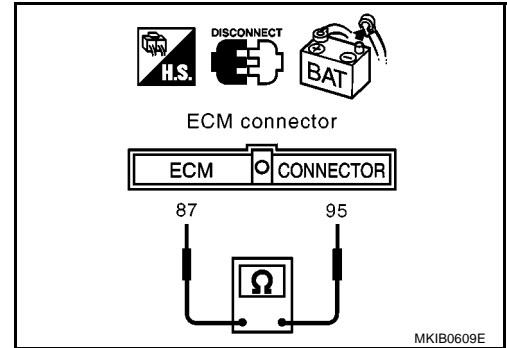
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95 (L) and 87(R).

95(L) – 87(R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector F109.



9. CHECK HARNESS FOR SHORT CIRCUIT

1. Check continuity between ECM harness connector F119 terminals 95(L), 87(R) and ground.

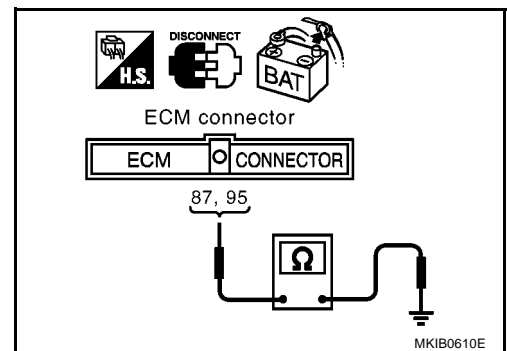
95(L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

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



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-56, "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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Replace ECM and/or Combination meter.

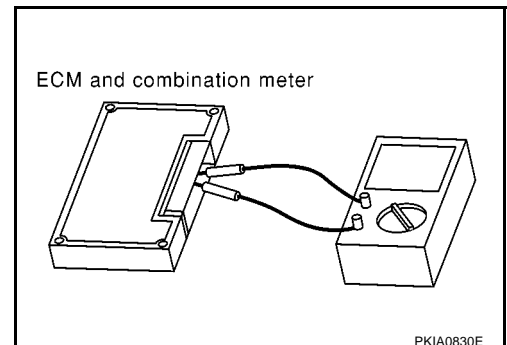
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS00AR3

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 24)

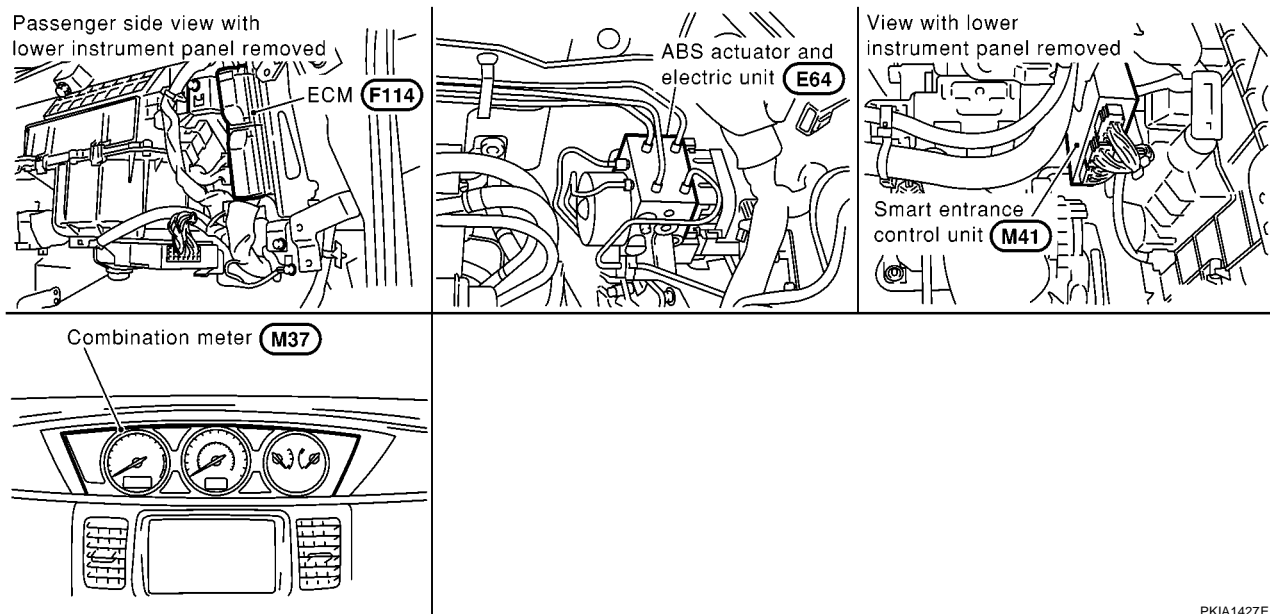
System Description

EKS00AR4

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

EKS00AR5



PKIA1427E

CAN SYSTEM (TYPE 24)

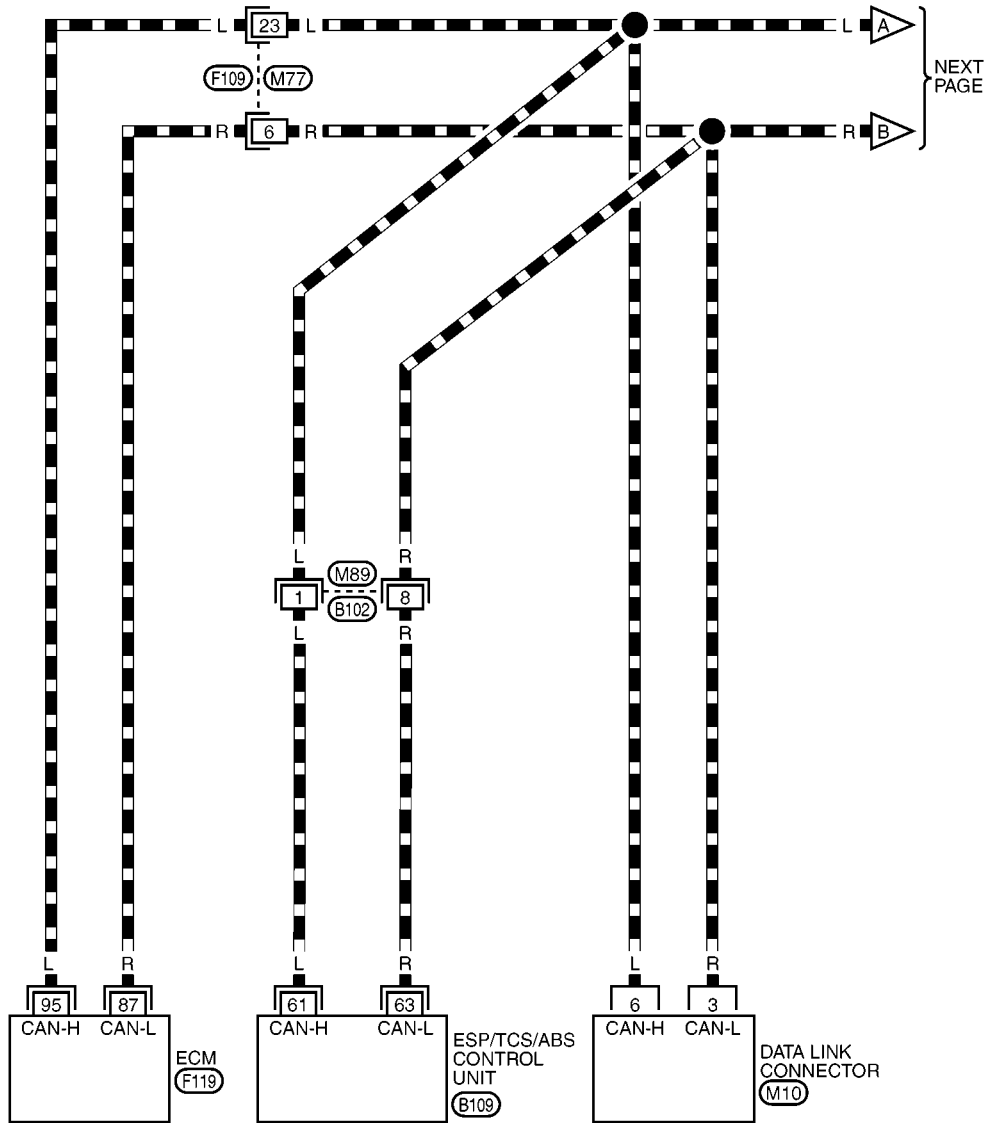
[CAN]

Wiring Diagram — CAN —

EKS00AR6

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

M89
W

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

F109
W

106	107	108	109	110	111	112	113
98	99	100	101	102	103	104	105
90	91	92	93	94	95	96	97
82	83	84	85	86	87	88	89

F119



						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

MKWA1715E

[CAN]

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "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-61, "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-61, "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-62, "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 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

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

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-64, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-64, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-65, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-65, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-66, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-66, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

EKS00AR8

1. CHECK HARNESS FOR OPEN CIRCUIT

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

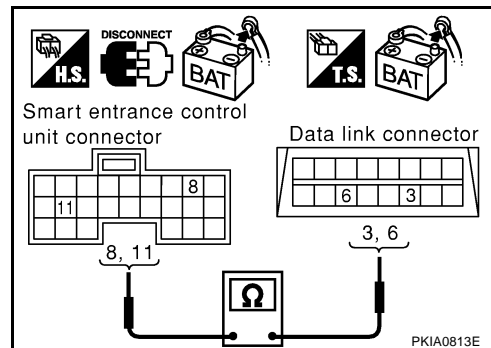
11(R) – 3(R) : Continuity should exist.

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS00AR9

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

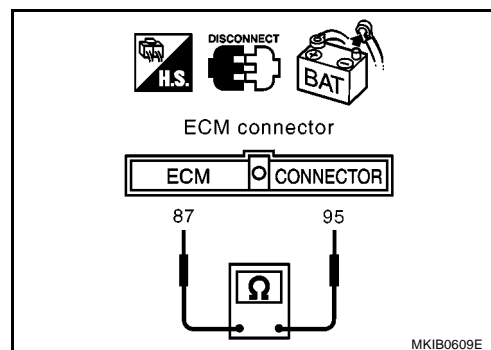
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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

EKS00ARA

1. CHECK CONNECTOR

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

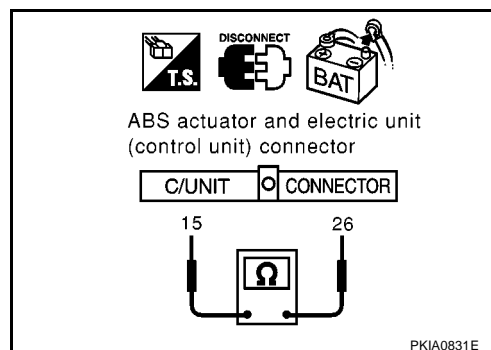
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

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**

EKS00ARB

1. CHECK CONNECTOR

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

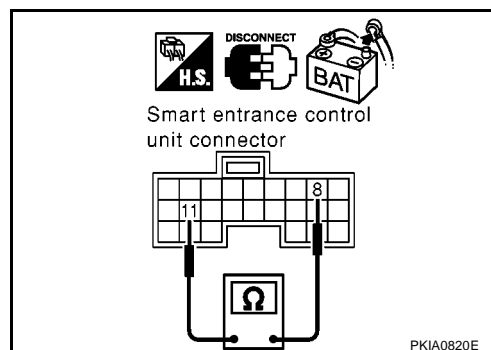
- OK >> GO TO 2.
 NG >> Repair terminal or connector.

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

1. CHECK CONNECTOR

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

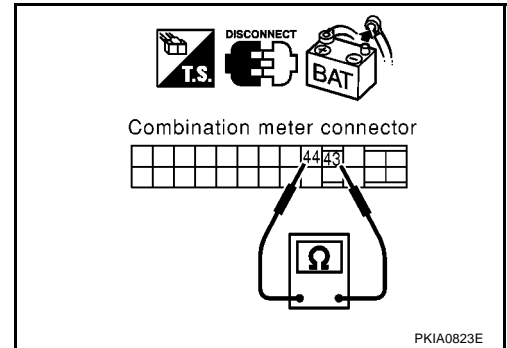
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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

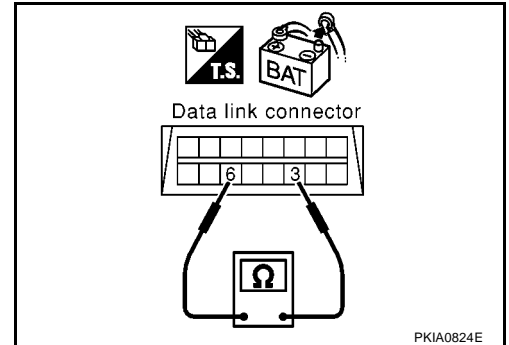
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M89
 - Harness connector M77
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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.

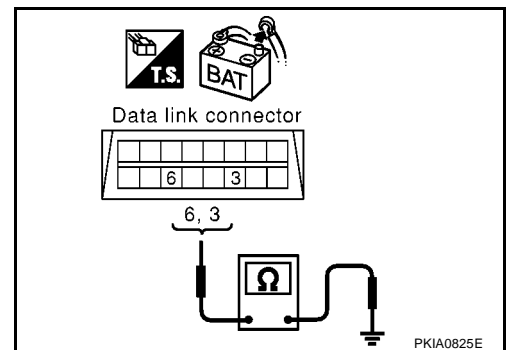
6(L) – ground : Continuity should not exist.

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)

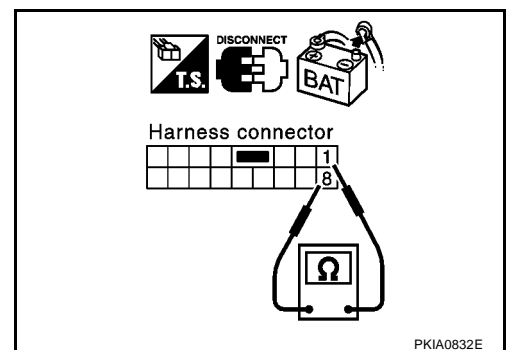
1(L) – 8(G) (Sedan models) : Continuity should not exist.

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

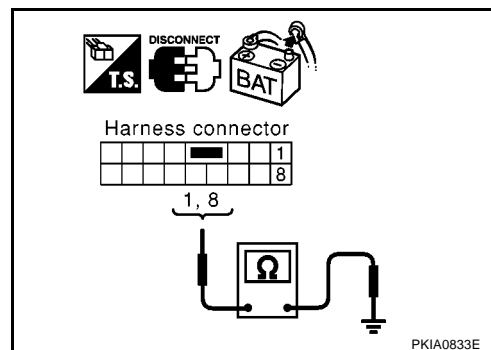
- Check the following.
 - Continuity between harness connector B102 terminals 1 (L), 8(G) and ground (Sedan models)
 - Continuity between harness connector B102 terminals 1 (L), 8(R) and ground (Hatch back and wagon models)

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

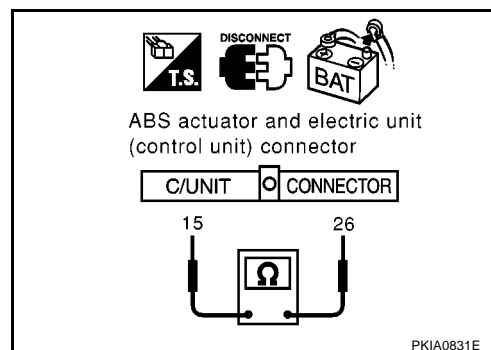
- Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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.

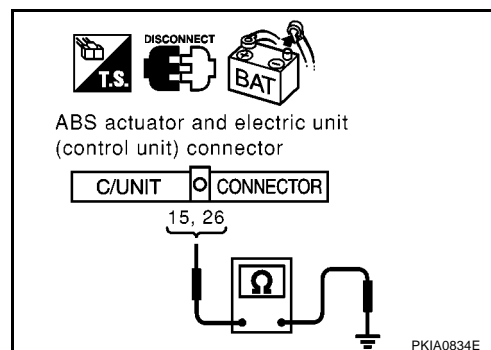
26(L) – ground : Continuity should not exist.

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.



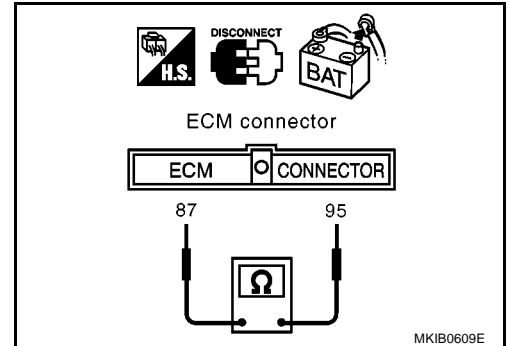
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(R) : Continuity should not exist.

OK or NG

- OK >> GO TO 9.
 NG >> Repair harness between ECM and harness connector F109.



9. CHECK HARNESS FOR SHORT CIRCUIT

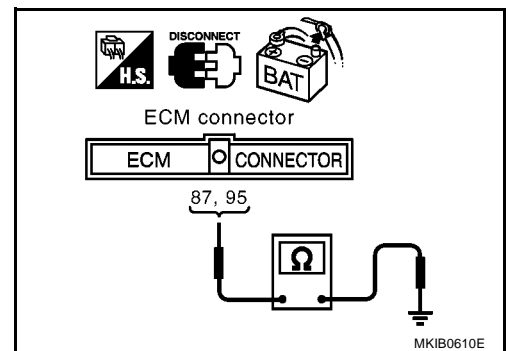
Check continuity between ECM harness connector F119 terminals 95(L), 87(R) and ground.

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

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

OK or NG

- OK >> GO TO 10.
 NG >> Repair harness between ECM and harness connector F109.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-69, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

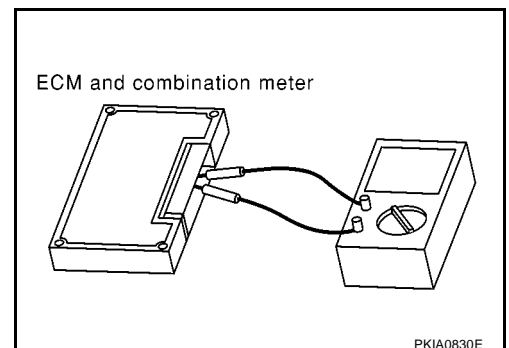
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "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 95 and 87.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	43 – 44	



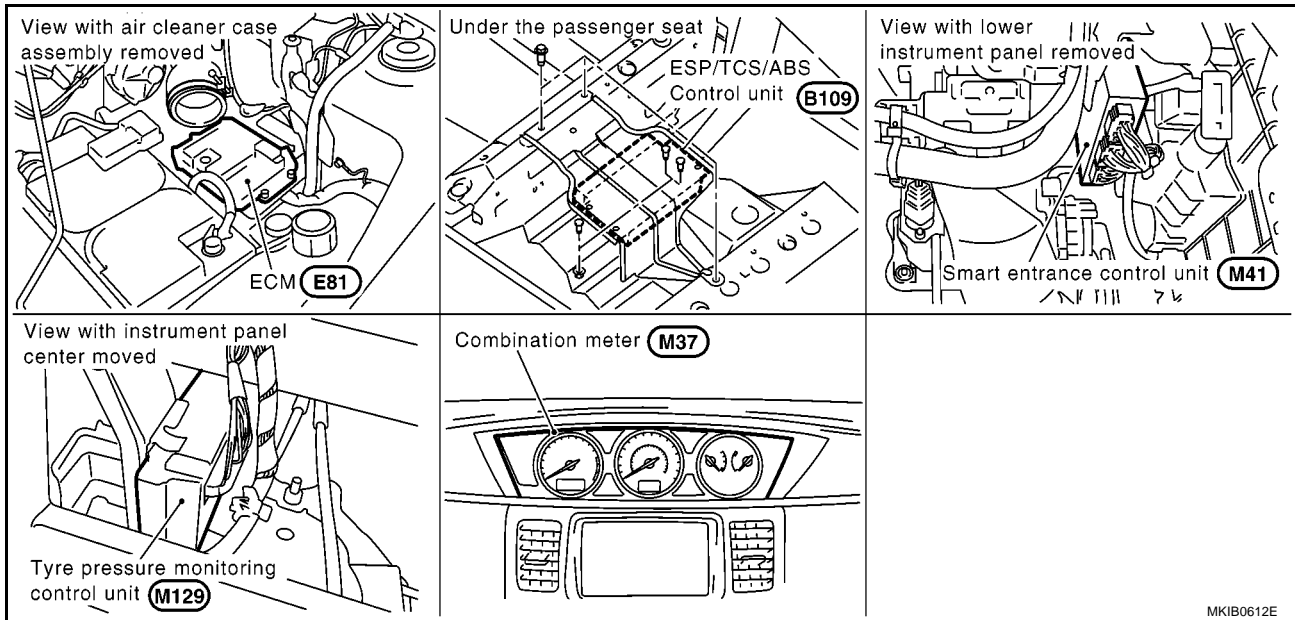
CAN SYSTEM (TYPE 25)**System Description**

EKS00ARF

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

EKS00ARG



CAN SYSTEM (TYPE 25)

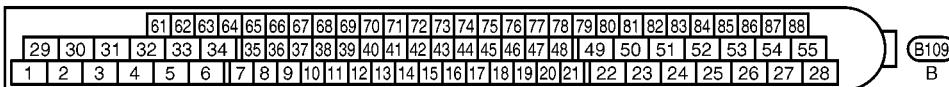
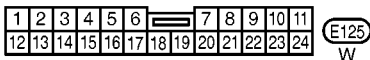
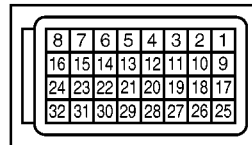
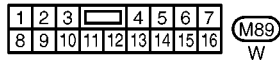
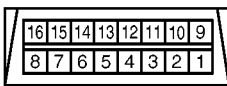
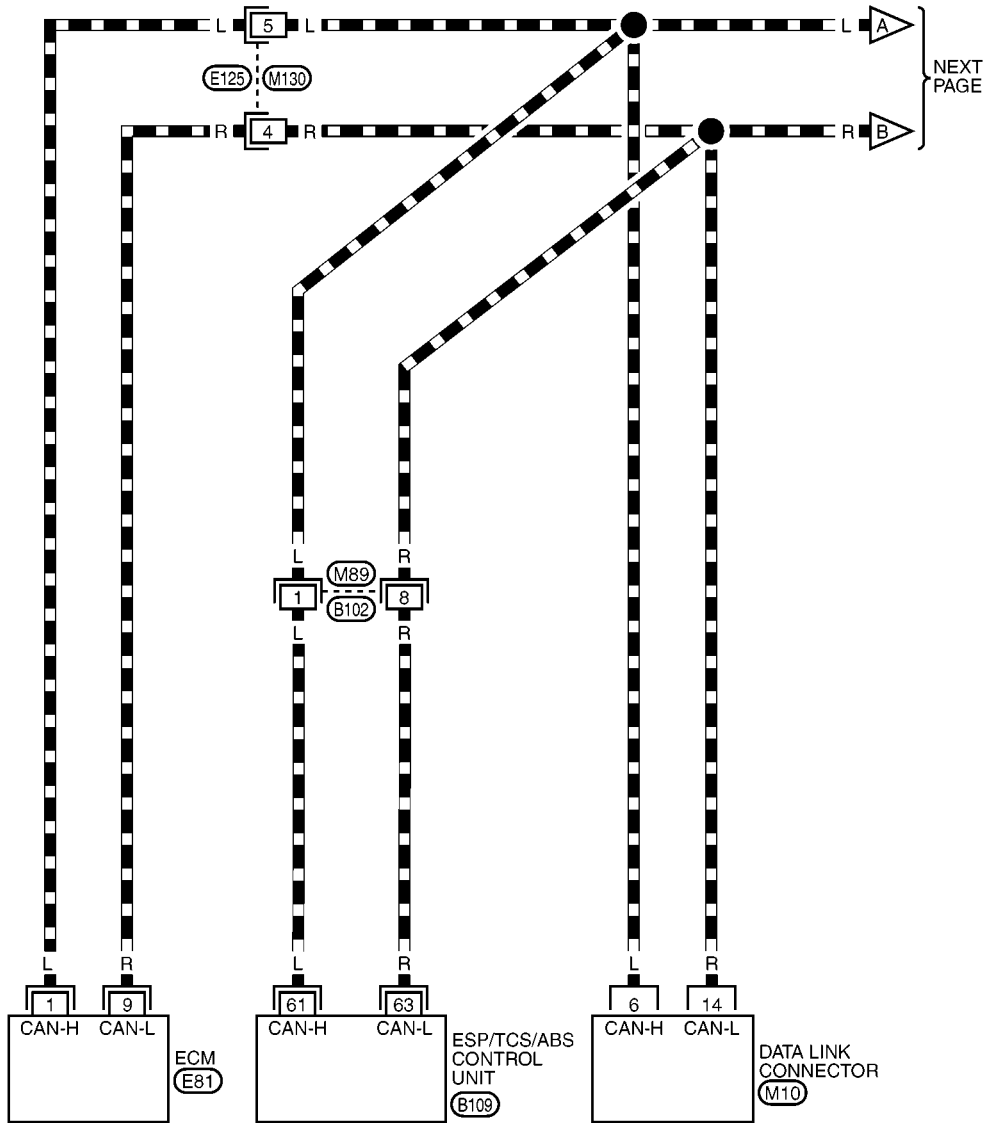
[CAN]

Wiring Diagram — CAN —

EKS00ARH

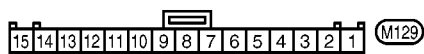
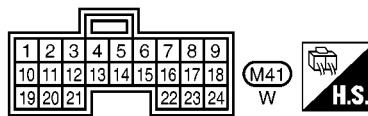
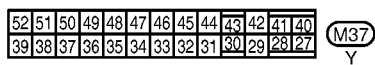
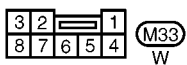
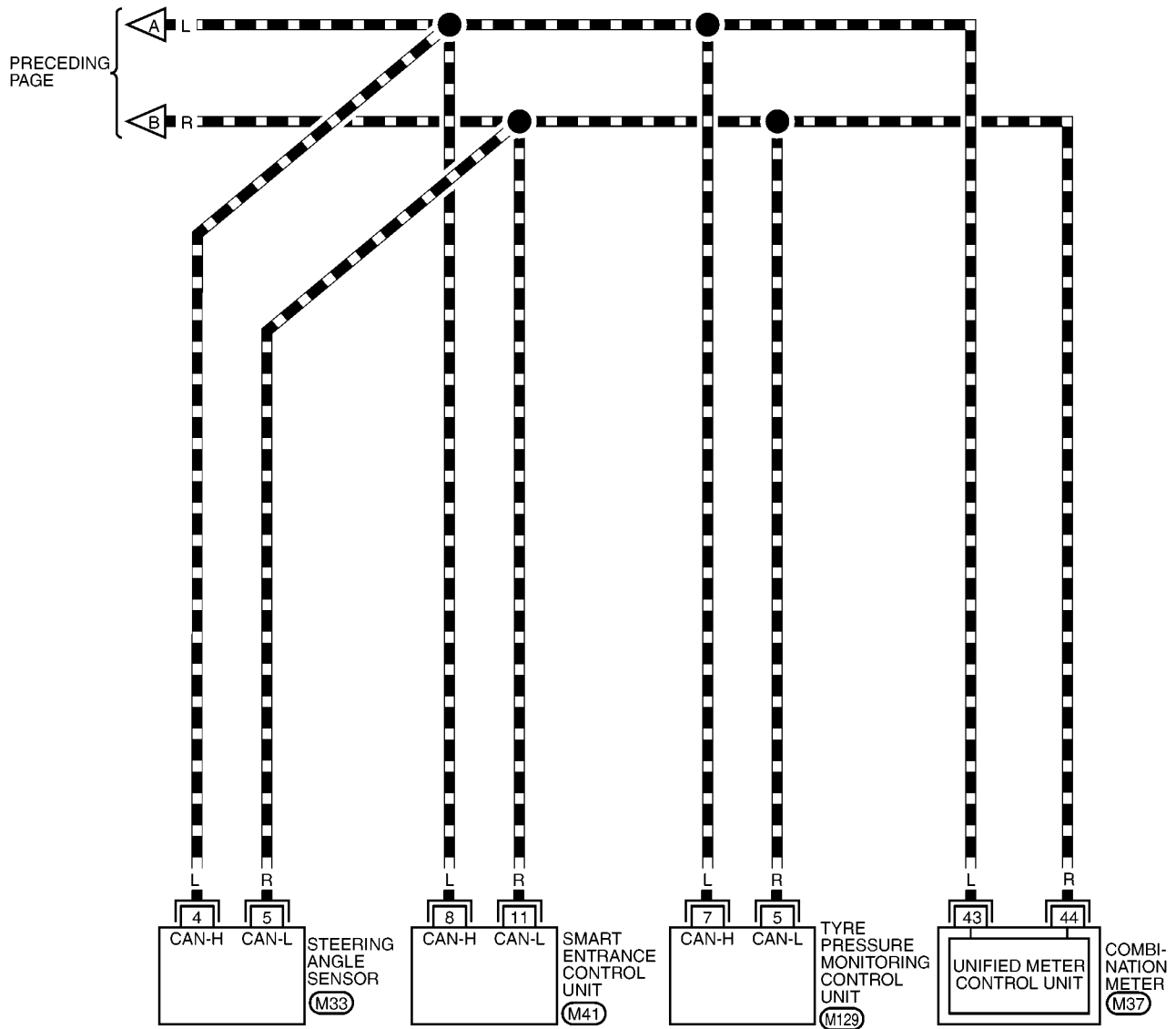
LAN-CAN-09

DATA LINE



MKWA1729E

LAN-CAN-10

 : DATA LINE


Work Flow

EKS00ARI

1. When there are no indications of "ENGINE" display of CONSULT-II, print the "SELECT SYSTEM".
2. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
 - EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
3. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-74, "CHECK SHEET"](#)
4. Based on the data monitor results, put "V" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-74, "CHECK SHEET"](#)

NOTE:

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

5. According to the check sheet results (example), start inspection. Refer to [LAN-76, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

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

LAN

CAN SYSTEM (TYPE 25)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM		DATA MONITOR (CAN DIAG SUPPORT MNTR)							
ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB0613E

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

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 AIR PRESSURE MONITOR 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 AIR PRESSURE MONITOR DATA MONITOR

CAN SYSTEM (TYPE 25)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 2: Replace ESP/TCS/ABS control unit

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 3: Replace smart entrance control unit

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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 ✓
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

MKIB0615E

CAN SYSTEM (TYPE 25)

[CAN]

Case 4: Replace tyre pressure monitoring control unit

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM ✓	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC ✓

Case 5

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC ✓	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 6

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 7

ENGINE	No indication ✓	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

MKIB0616E

CAN SYSTEM (TYPE 25)

[CAN]

Case 8

ENGINE	No indication ✓	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 9

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 10

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC ✓	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 11

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2

Case 12

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓

MKIB0617E

Case 13

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	CAN CIRC 5	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC ✓

Case 14

ENGINE	No indication ✓	—	CAN CIRC 1	—	—	—	—	—	—
ABS	—	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓

MKIB0618E

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 tyre pressure monitoring control unit.

Case 5: Check Harness between data link connector and smart entrance control unit. Refer to [LAN-80, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 6: Check Harness between smart entrance control unit and tyre pressure monitoring control unit. Refer to [LAN-80, "Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit"](#).

Case 7: Check data link connector circuit and ECM circuit. Refer to [LAN-81, "Data Link Connector Circuit and ECM Circuit Check"](#).

Case 8: Check ECM circuit. Refer to [LAN-82, "ECM Circuit Check"](#).

Case 9: Check ESP/TCS/ABS control unit circuit. Refer to [LAN-82, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 10: Check steering angle sensor circuit. Refer to [LAN-83, "Steering Angle Sensor Circuit Check"](#).

Case 11: Check smart entrance control unit circuit. Refer to [LAN-83, "Smart Entrance Control Unit Circuit Check"](#).

Case 12: Check tyre pressure monitoring control unit circuit. Refer to [LAN-84, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 13: Check combination meter circuit. Refer to [LAN-84, "Combination Meter Circuit Check"](#).

Case 14: Check CAN communication circuit. Refer to [LAN-85, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

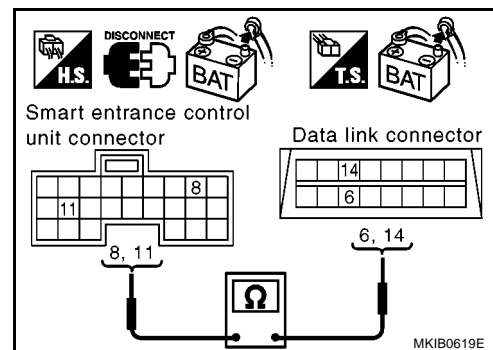
EKS00ARJ

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector and combination meter.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 14 (R).

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

11 (R) – 14 (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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
- EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
 - [BCS-23, "CAN Communication Line Check" for "SMART ENTRANCE"](#)
 - [WT-23, "Inspection 4: CAN Communication Line" for "AIR PRESSURE MONITOR"](#)

NG >> Repair harness.

Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit

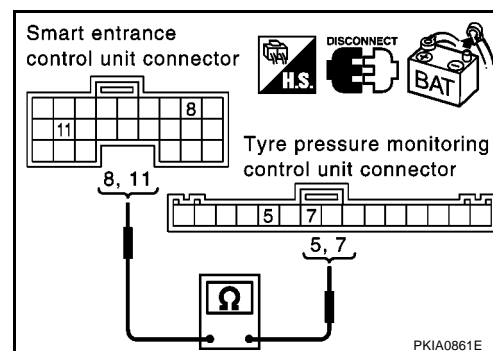
EKS00ARK

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector, tyre pressure monitoring control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

8(L) – 7(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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
- EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
 - [BCS-23, "CAN Communication Line Check" for "SMART ENTRANCE"](#)
 - [WT-23, "Inspection 4: CAN Communication Line" for "AIR PRESSURE MONITOR"](#)

NG >> Repair harness.

Data Link Connector Circuit and ECM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect ECM connector and harness connector E125.
4. Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and harness connector E125 terminals 5 (L), 4 (R).

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

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

OK or NG

OK >> GO TO 3.

NG >> Repair harness.

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Check continuity between harness connector M130 terminals 5 (L), 4 (R) and data link connector M10 terminals 6 (L), 14 (R).

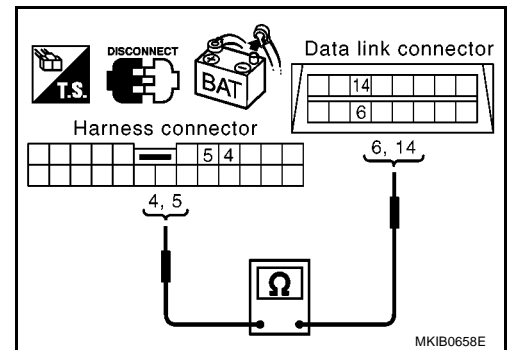
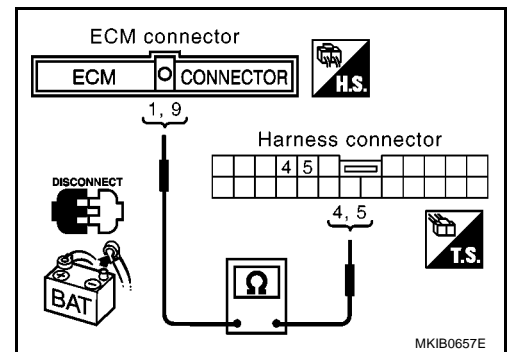
5(L) – 6(L) : Continuity should exist.

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

OK or NG

OK >> Replace ECM.

NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

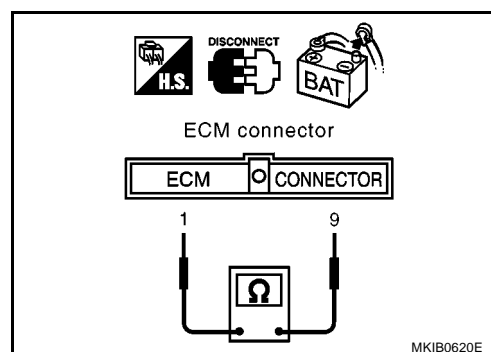
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (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****1. CHECK CONNECTOR**

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

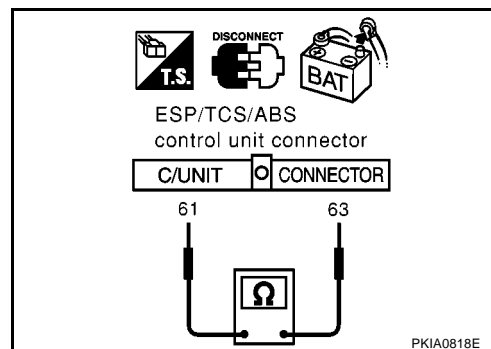
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61(L) and 63(R).

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

EKS00ARN

1. CHECK CONNECTOR

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

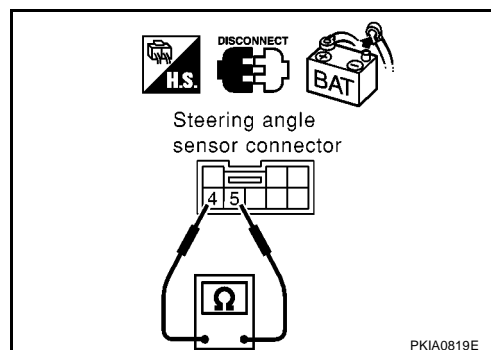
4(L) – 5(R)

: 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

EKS00ARO

1. CHECK CONNECTOR

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

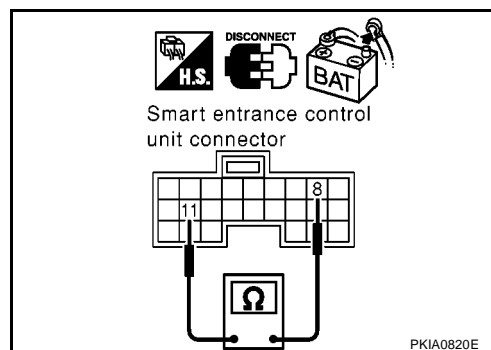
8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace smart entrance control unit.

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



Tyre Pressure Monitoring Control Unit Circuit Check

EKS00ARP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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 tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M129 terminals 7(L) and 5(R).

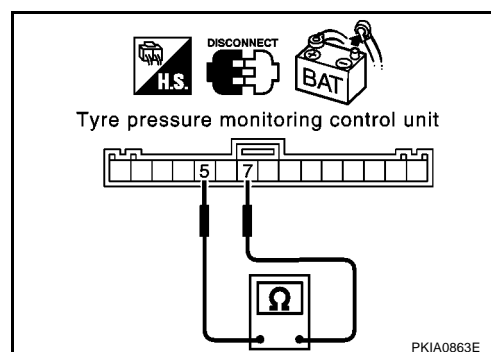
7(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace tyre pressure monitoring control unit.

NG >> Repair harness between smart entrance control unit and tyre pressure monitoring control unit.



Combination Meter Circuit Check

EKS00ARQ

1. CHECK CONNECTOR

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

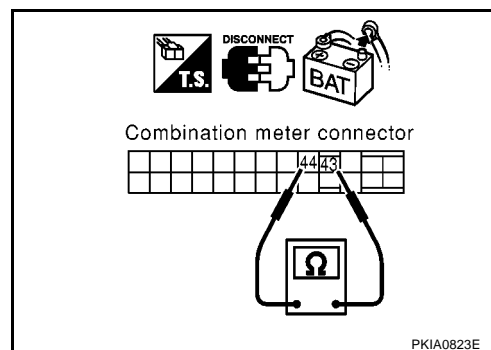
43(L) – 44(R)

: Approx. 108 – 132Ω

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between tyre pressure monitoring control unit and combination meter.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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
 - Tyre pressure monitoring control unit
 - 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.

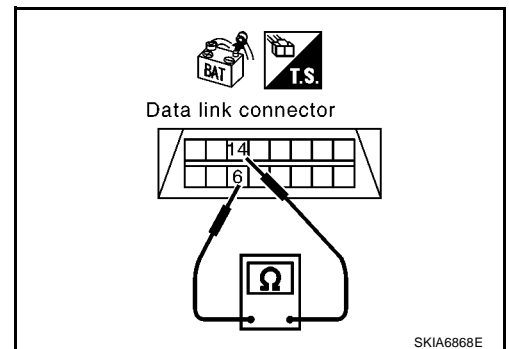
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Tyre pressure monitoring control unit connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M130
2. Check continuity between Data link connector M10 terminals 6 (L) and 14(R).

6(L) – 14(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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 14 (R) and ground.

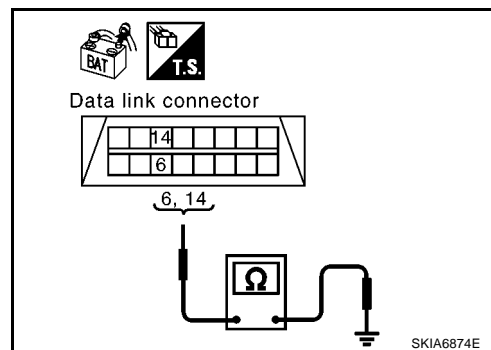
6 (L) – ground : Continuity should not exist.

14 (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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and steering angle sensor.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



4. CHECK HARNESS FOR SHORT CIRCUIT

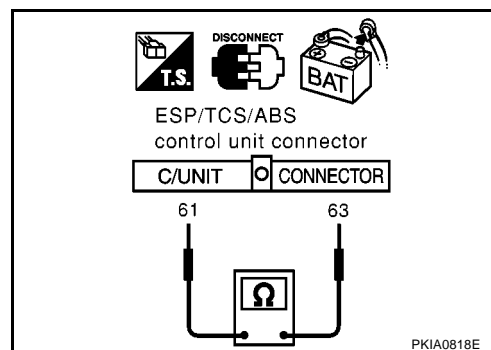
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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.

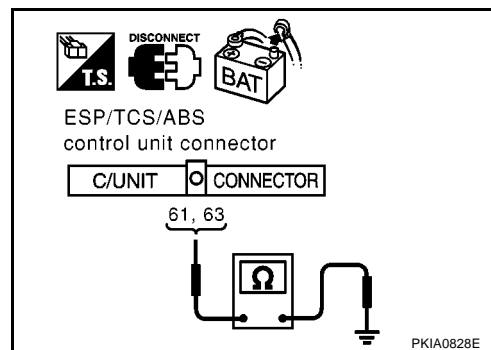
61(L) – ground : Continuity should not exist.

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

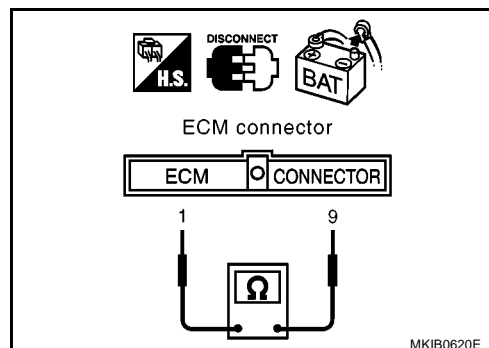
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ECM and harness connector E125.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and ground.

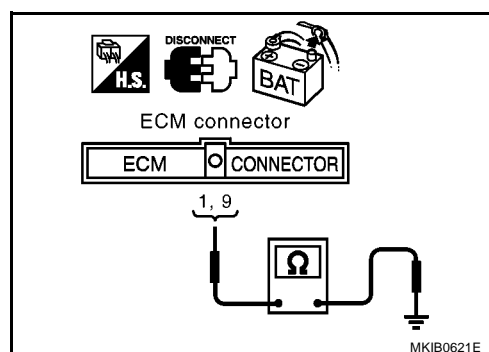
1 (L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ECM and harness connector E125.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-87, "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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:

- EC-F9Q-136, "CAN Communication" for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Replace ECM and/or Combination meter.

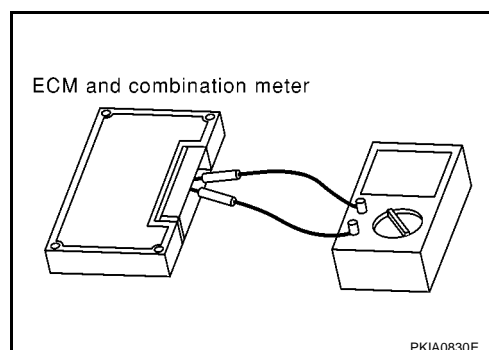
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS00ARS

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 1 and 9.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	1 – 9	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 26)

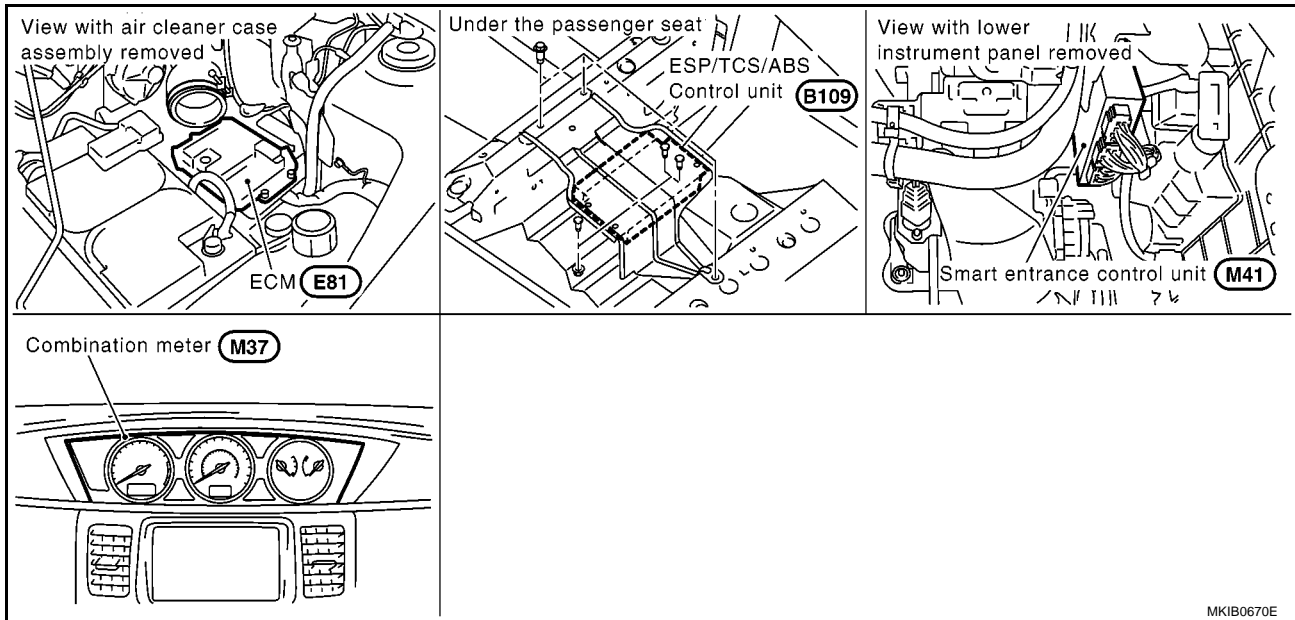
System Description

EKS00B6Q

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

EKS00B6R

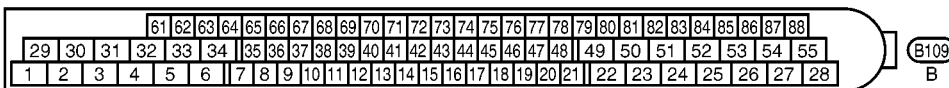
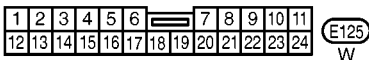
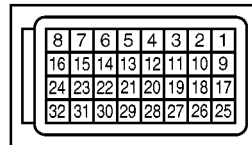
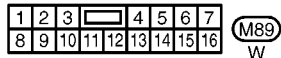
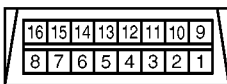
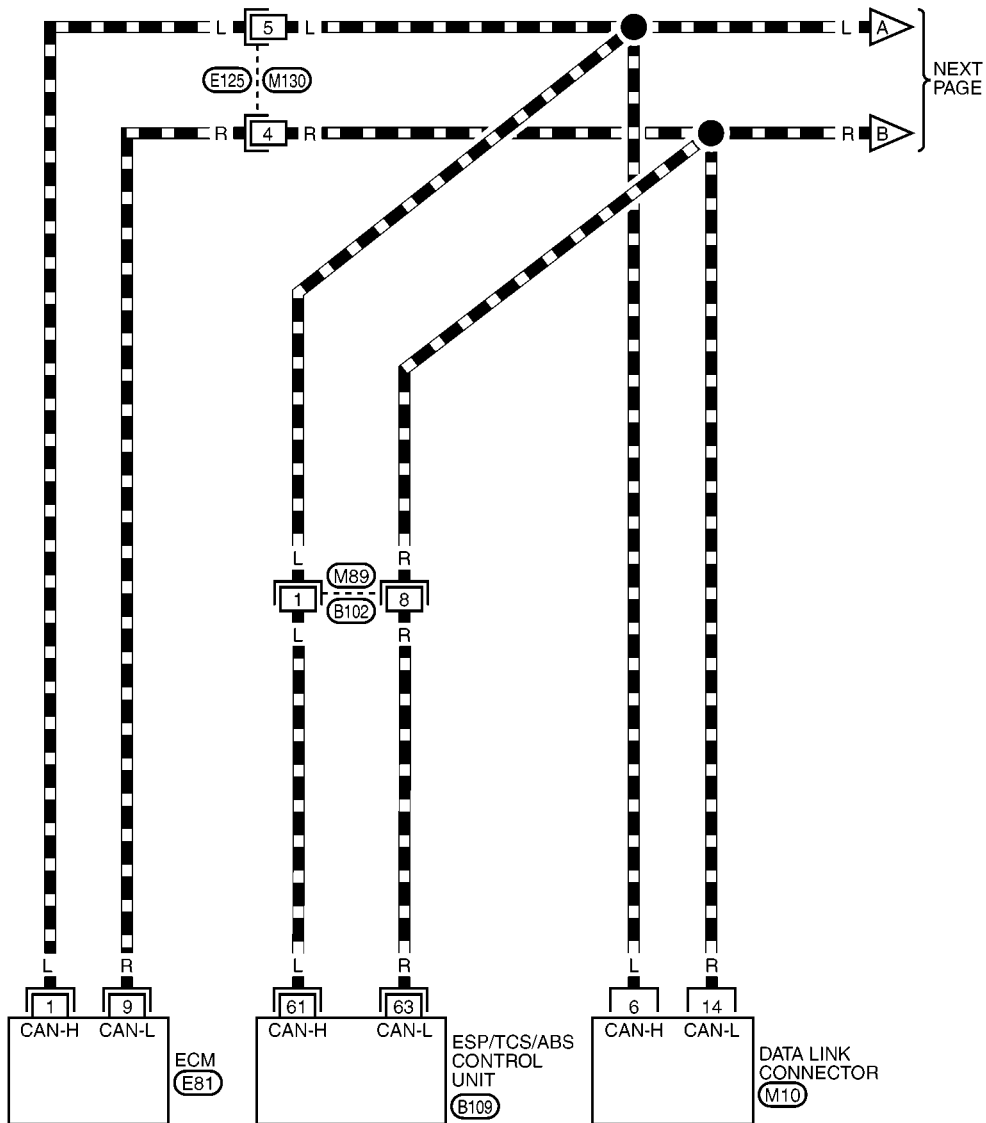


Wiring Diagram — CAN —

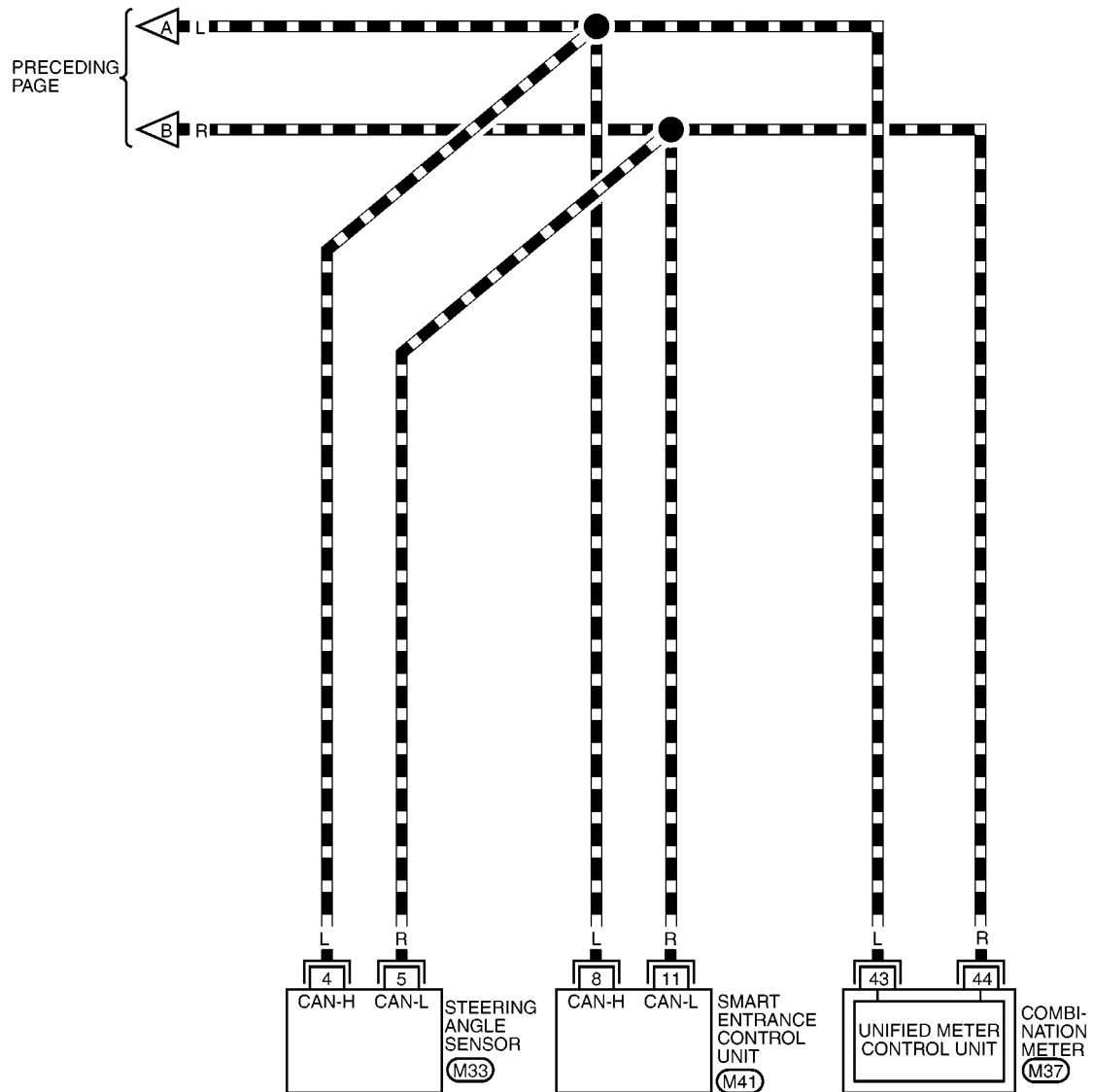
EKS00B6S

LAN-CAN-11

— : DATA LINE



LAN-CAN-12

 : DATA LINE


3	2	1
8	7	6

(M33)
W

52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)
Y

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21				22	23	24

(M41)
W



Work Flow

EKS00B6T

1. When there are no indications of "ENGINE" display of CONSULT-II, print the "SELECT SYSTEM".
2. 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-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
3. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-92, "CHECK SHEET"](#)
4. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-92, "CHECK SHEET"](#)

NOTE:

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

5. According to the check sheet results (example), start inspection. Refer to [LAN-94, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 26)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM		DATA MONITOR (CAN DIAG SUPPORT MNTR)							
ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB0666E

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

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

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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	No indication	—	CAN CIRC 1	—	—	—	—	—	—
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

MKIB0669E

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-96, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check data link connector circuit and ECM circuit. Refer to [LAN-96, "Data Link Connector Circuit and ECM Circuit Check"](#).

Case 6: Check ECM circuit. Refer to [LAN-98, "ECM Circuit Check"](#).

Case 7: Check ESP/TCS/ABS control unit circuit. Refer to [LAN-98, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 8: Check steering angle sensor circuit. Refer to [LAN-99, "Steering Angle Sensor Circuit Check"](#).

Case 9: Check smart entrance control unit circuit. Refer to [LAN-99, "Smart Entrance Control Unit Circuit Check"](#).

Case 10: Check combination meter circuit. Refer to [LAN-100, "Combination Meter Circuit Check"](#).

Case 11: Check CAN communication circuit. Refer to [LAN-101, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

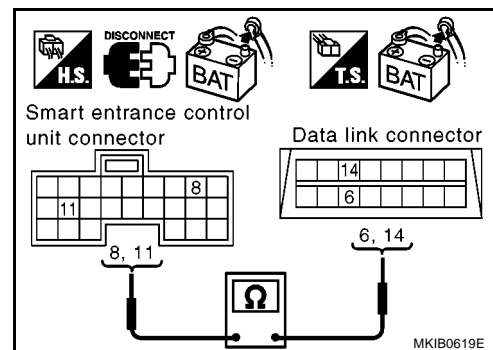
EKS00B6U

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector and combination meter.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 14 (R).

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

11 (R) – 14 (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-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor" for "ABS"](#)
 - [BCS-23, "CAN Communication Line Check" for "SMART ENTRANCE"](#)

NG >> Repair harness.

Data Link Connector Circuit and ECM Circuit Check

EKS00B6W

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

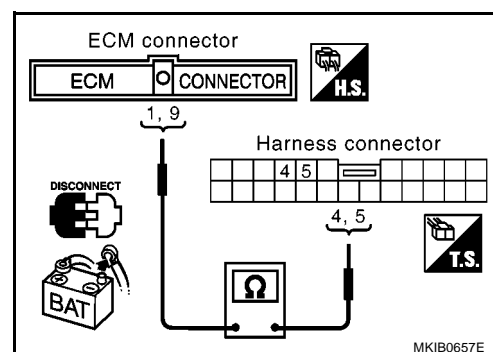
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect ECM connector and harness connector E125.
4. Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and harness connector E125 terminals 5 (L), 4 (R).

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

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness.

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Check continuity between harness connector M130 terminals 5 (L), 4 (R) and data link connector M10 terminals 6 (L), 14 (R).

5 (L) – 6 (L)

: Continuity should exist.

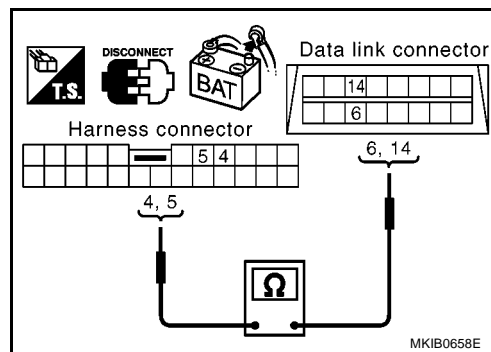
4 (R) – 14 (R)

: Continuity should exist.

OK or NG

OK >> Replace ECM.

NG >> Repair harness.



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

ECM Circuit Check

EKS00B6X

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

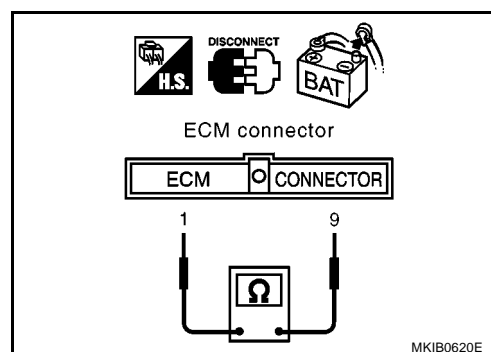
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (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**

EKS00B6Y

1. CHECK CONNECTOR

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

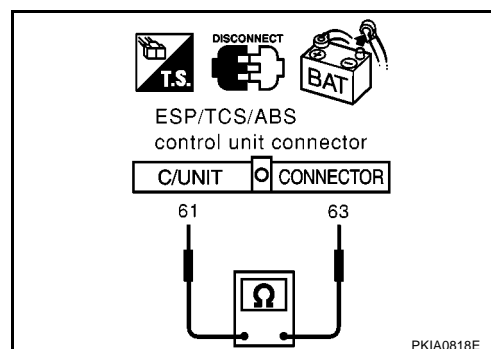
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63 (R).

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

EKS00B6Z

1. CHECK CONNECTOR

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

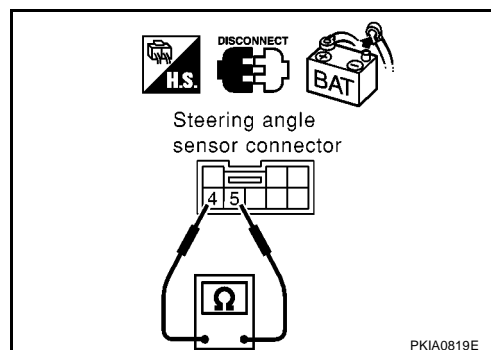
4 (L) – 5 (R)

: 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

EKS00B70

1. CHECK CONNECTOR

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

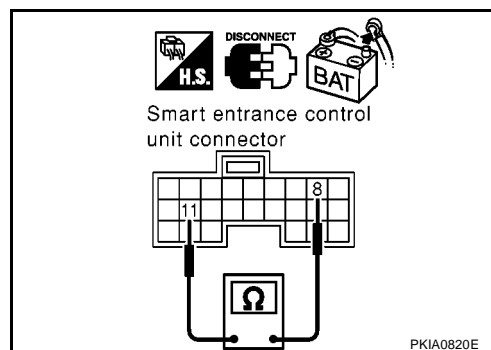
8 (L) – 11 (R)

: 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 cable.
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).

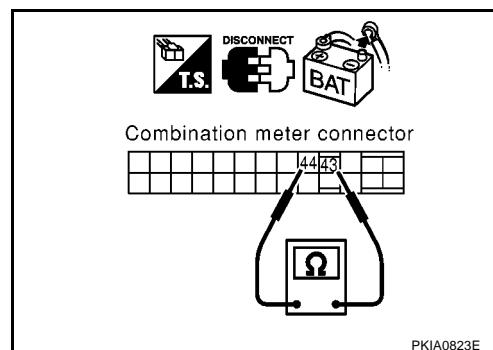
43 (L) – 44 (R)

: 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 cable.
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

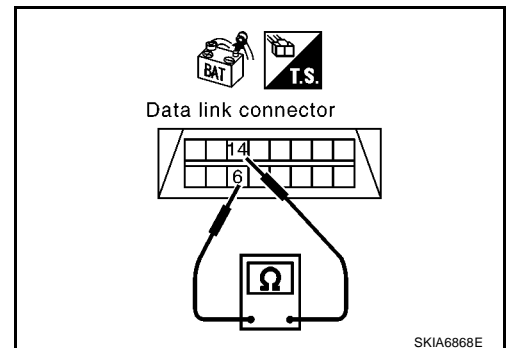
1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M89
 - Harness connector M130
2. Check continuity between Data link connector M10 terminals 6 (L) and 14 (R).

6 (L) – 14 (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 smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 14 (R) and ground.

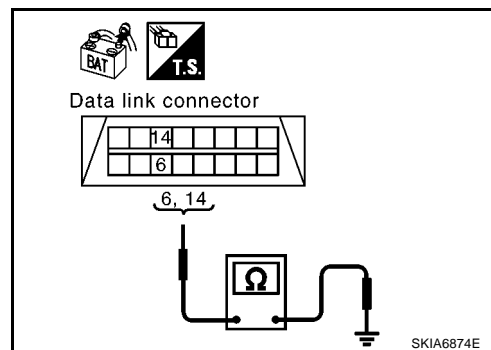
6 (L) – ground : Continuity should not exist.

14 (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 smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



4. CHECK HARNESS FOR SHORT CIRCUIT

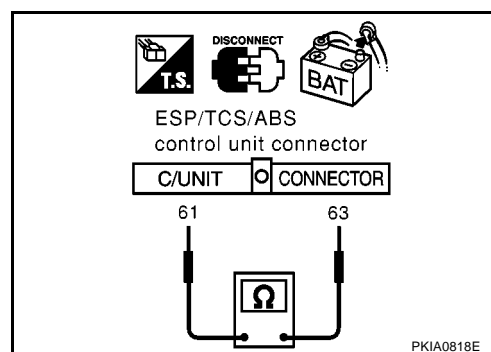
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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.

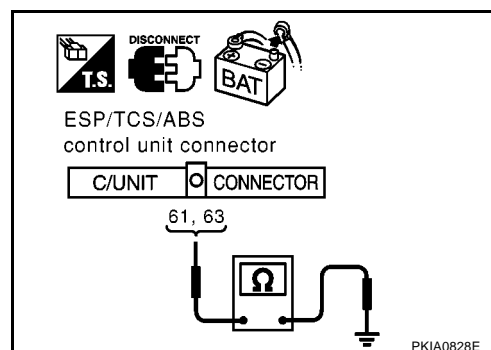
61 (L) – ground : Continuity should not exist.

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

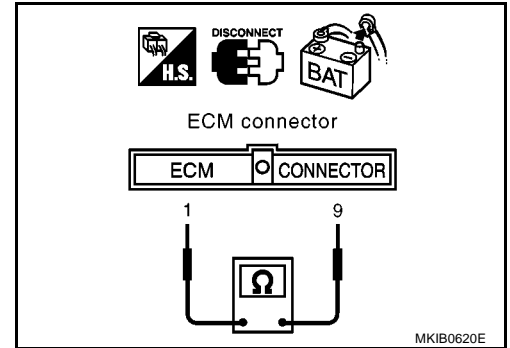
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness between ECM and harness connector E125.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and ground.

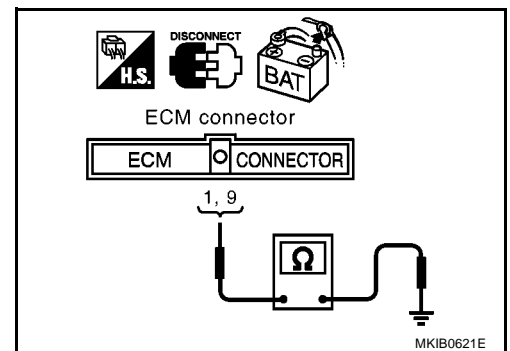
1 (L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between ECM and harness connector E125.



8. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-103, "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-F9Q-136, "CAN Communication" for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Replace ECM and/or Combination meter.

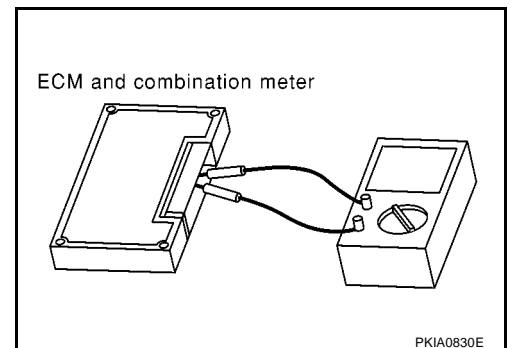
Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS00B74

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 1 and 9.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	1 – 9	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 27)

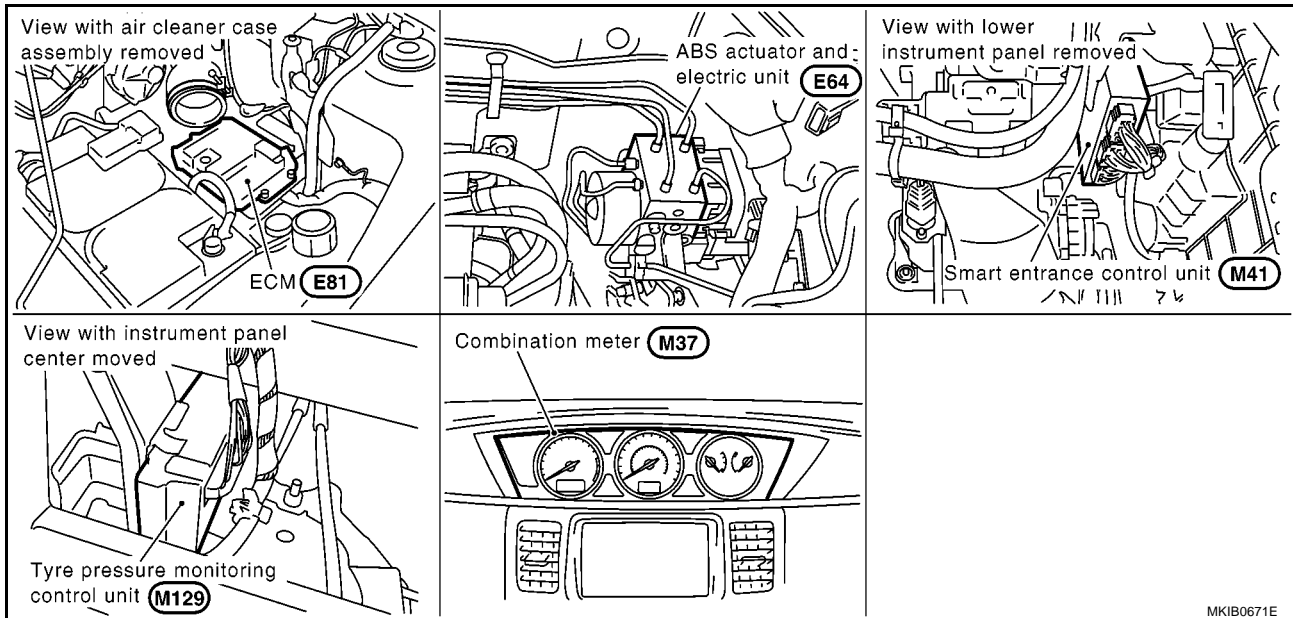
System Description

EKS00B5X

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

EKS00B5Y



CAN SYSTEM (TYPE 27)

[CAN]

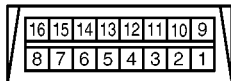
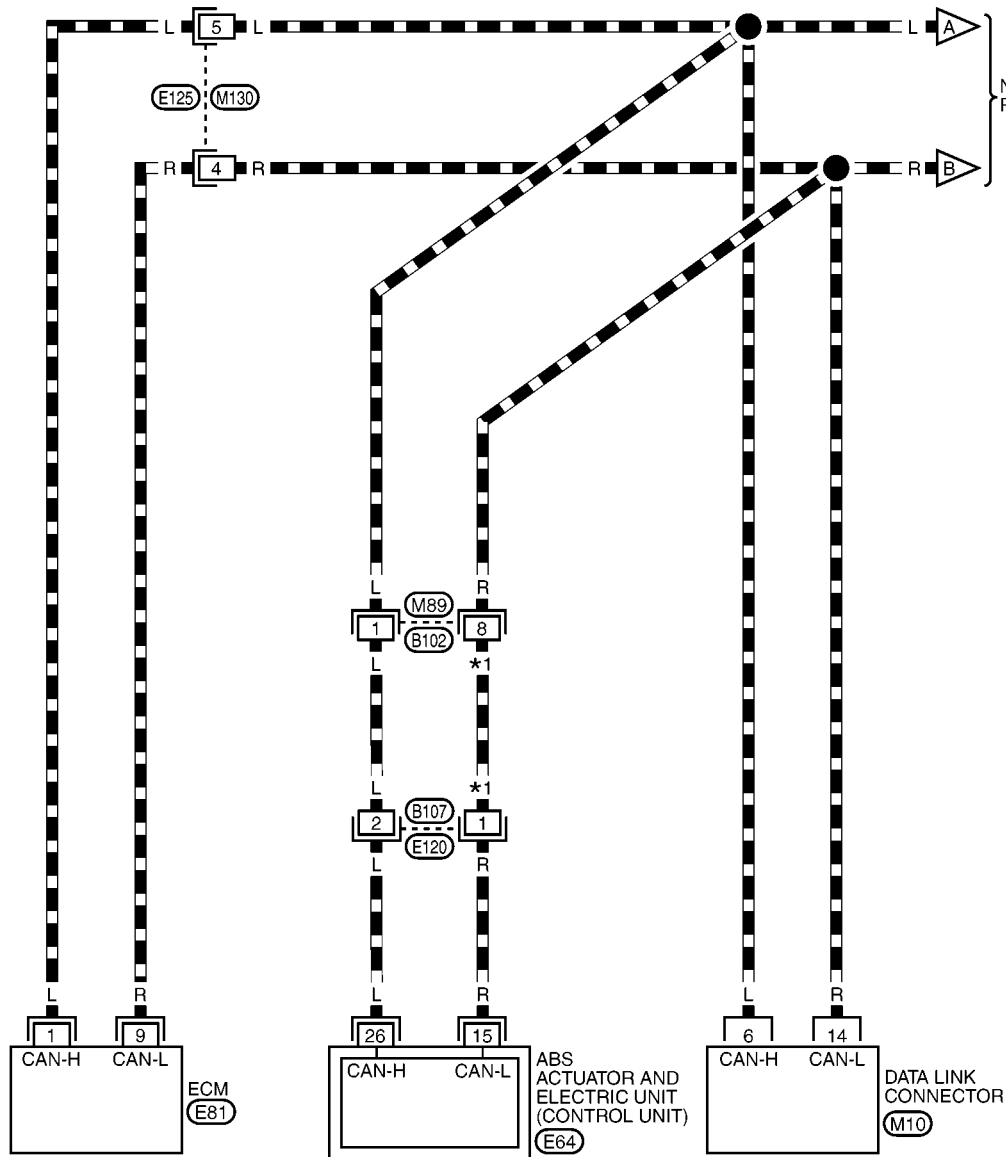
Wiring Diagram — CAN —

EKS00B5Z

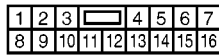
LAN-CAN-13

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

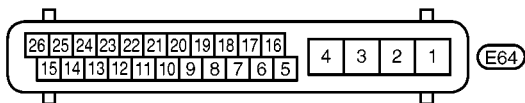
NEXT PAGE



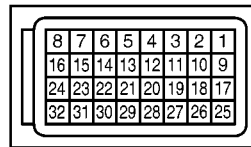
M10
W



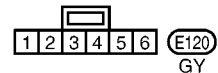
M89
W



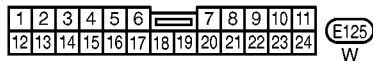
E64



E81



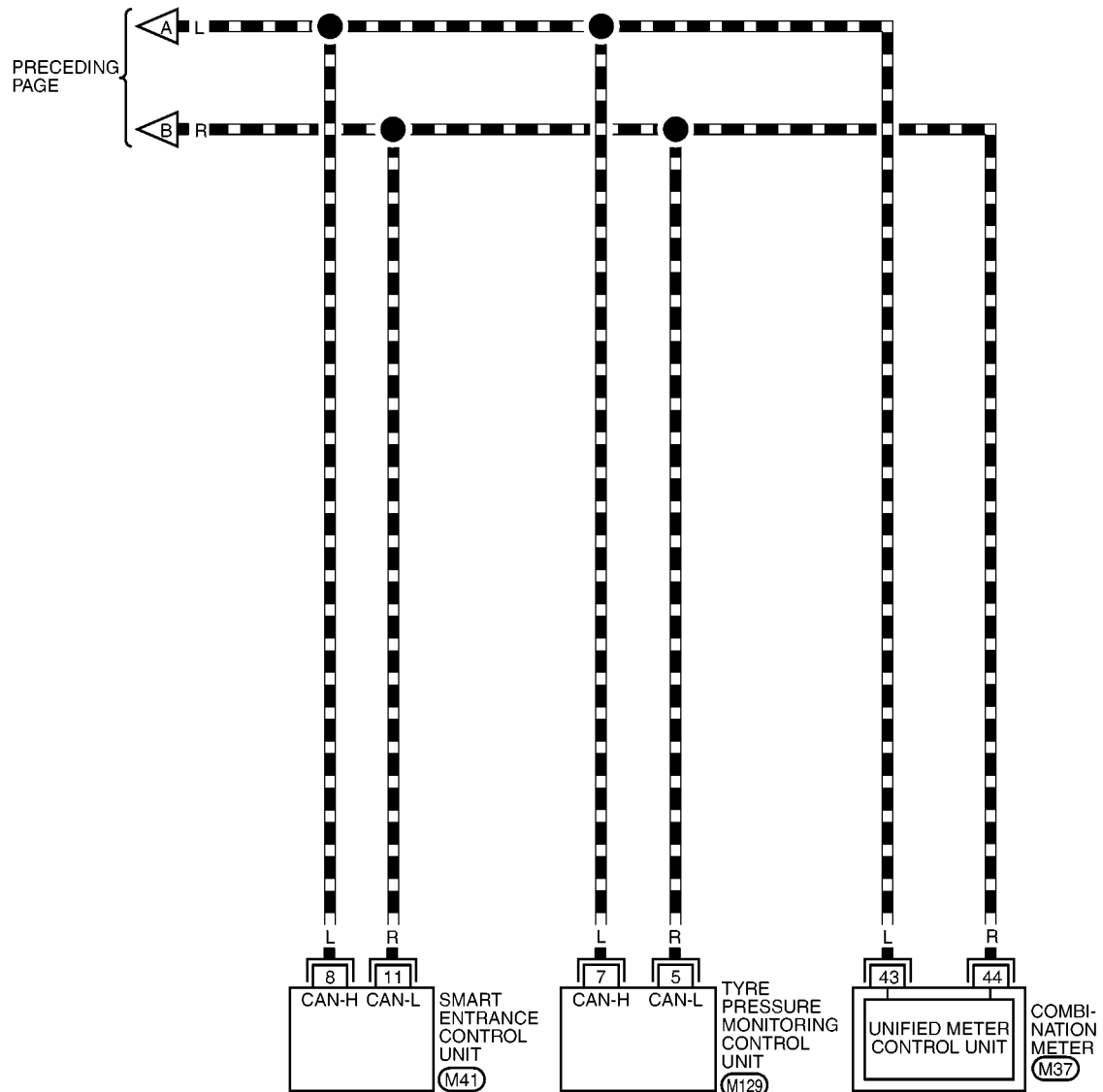
E120
GY



E125
W

LAN

LAN-CAN-14

 : DATA LINE


52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)
Y

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24			

(M41)
W



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

(M129)

Work Flow

1. When there are no indications of "ENGINE" display of CONSULT-II, print the "SELECT SYSTEM".
2. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
 - EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
3. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-108, "CHECK SHEET"](#)
4. Based on the data monitor results, put "v" marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-108, "CHECK SHEET"](#)

NOTE:

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

5. According to the check sheet results (example), start inspection. Refer to [LAN-110, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 27)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM		DATA MONITOR (CAN DIAG SUPPORT MNTR)						
ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB0672E

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

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 AIR PRESSURE MONITOR 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 AIR PRESSURE MONITOR DATA MONITOR

MKIB0673E

CAN SYSTEM (TYPE 27)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

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

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 3: Replace smart entrance control unit

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 4: Replace tyre pressure monitoring control unit

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

MKIB0674E

CAN SYSTEM (TYPE 27)

[CAN]

Case 5

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 6

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 7

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 8

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 9

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 10

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

MKIB0675E

Case 11

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 12

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

Case 13

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3
AIR PRESSURE MONITOR	—	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2

MKIB0676E

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: Replace tyre pressure monitoring control unit.

Case 5: Check Harness between data link connector and smart entrance control unit. Refer to [LAN-113, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 6: Check Harness between smart entrance control unit and tyre pressure monitoring control unit. Refer to [LAN-113, "Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit"](#).

Case 7: Check data link connector circuit and ECM circuit. Refer to [LAN-114, "Data Link Connector Circuit and ECM Circuit Check"](#).

Case 8: Check ECM circuit. Refer to [LAN-115, "ECM Circuit Check"](#).

Case 9: Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-116, "ABS actuator and electric unit \(control unit\) Circuit Check"](#).

Case 10: Check smart entrance control unit circuit. Refer to [LAN-116, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check tyre pressure monitoring control unit circuit. Refer to [LAN-117, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 12: Check combination meter circuit. Refer to [LAN-117, "Combination Meter Circuit Check"](#).

Case 13: Check CAN communication circuit. Refer to [LAN-118, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

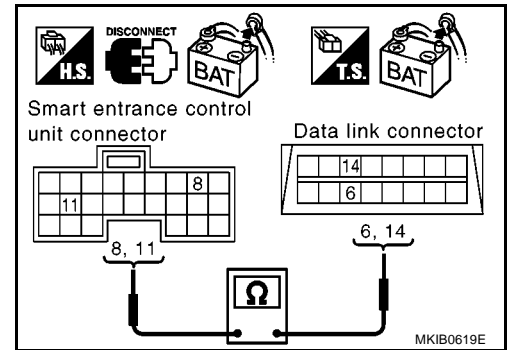
EKS00B61

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector and combination meter.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 14 (R).

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

11 (R) – 14 (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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:

- EC-F9Q-136, "CAN Communication" for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.

Circuit Check Between Smart Entrance Control Unit and Tyre Pressure Monitoring Control Unit

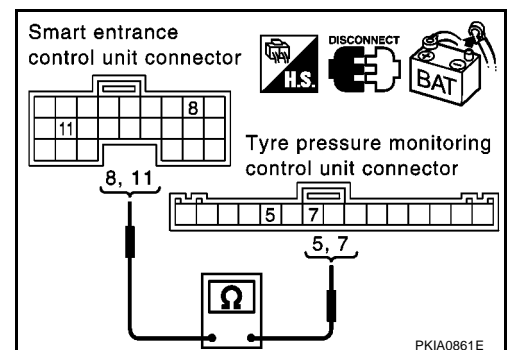
EKS00B62

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector, tyre pressure monitoring control unit connector and combination meter connector.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

8(L) – 7(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 "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:

- EC-F9Q-136, "CAN Communication" for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"

NG >> Repair harness.

Data Link Connector Circuit and ECM Circuit Check

EKS00B63

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect ECM connector and harness connector E125.
4. Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and harness connector E125 terminals 5 (L), 4 (R).

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

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

OK or NG

OK >> GO TO 3.

NG >> Repair harness.

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Check continuity between harness connector M130 terminals 5 (L), 4 (R) and data link connector M10 terminals 6 (L), 14 (R).

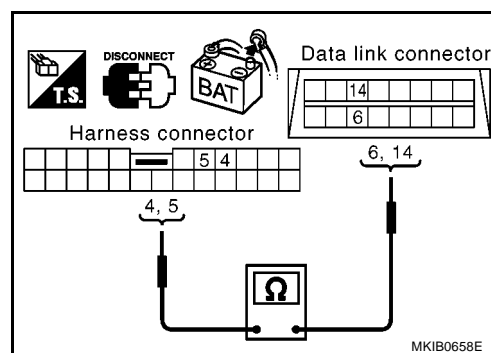
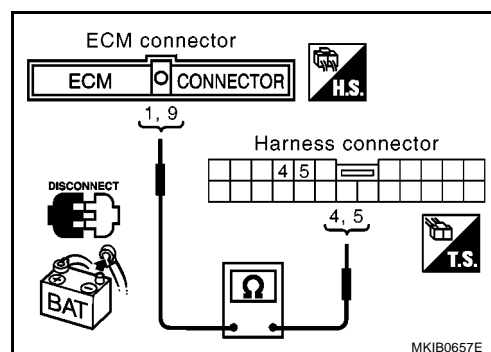
5(L) – 6(L) : Continuity should exist.

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

OK or NG

OK >> Replace ECM.

NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

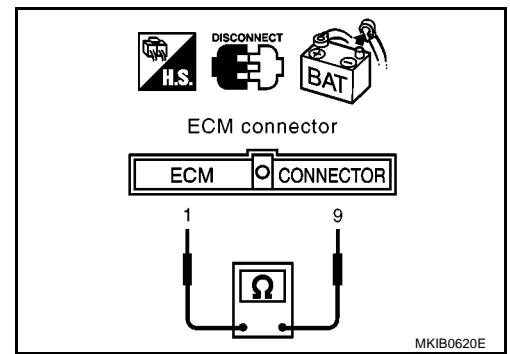
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (R)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



A

B

C

D

E

F

G

H

I

J

LAN

L

M

ABS actuator and electric unit (control unit) Circuit Check

EKS00B65

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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 B102.
 - Harness connector M89.
 - Harness connector B107.
 - Harness connector E120.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

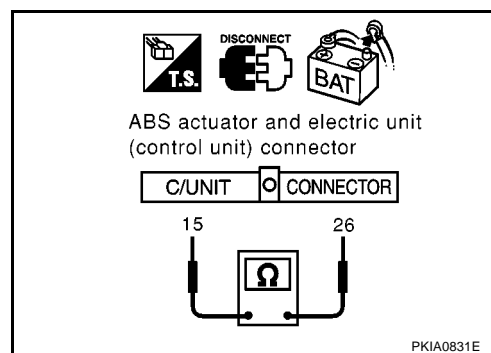
2. CHECK HARNESS FOR OPEN CIRCUIT

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**

EKS00B67

1. CHECK CONNECTOR

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

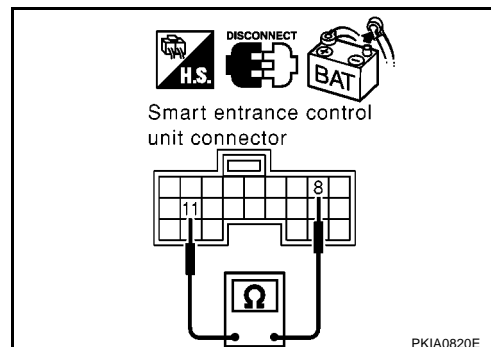
2. CHECK HARNESS FOR OPEN CIRCUIT

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.



Tyre Pressure Monitoring Control Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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.

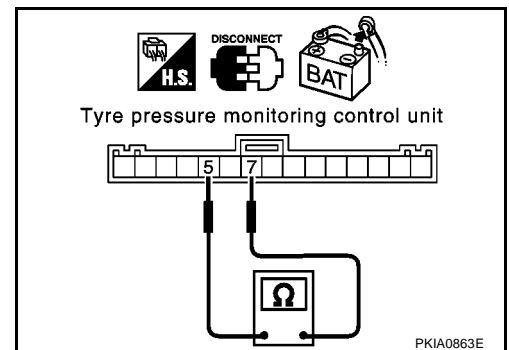
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M129 terminals 7(L) and 5(R).

7(L) – 5(R) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace tyre pressure monitoring control unit.
NG >> Repair harness between smart entrance control unit and tyre pressure monitoring control unit.



Combination Meter Circuit Check

1. CHECK CONNECTOR

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

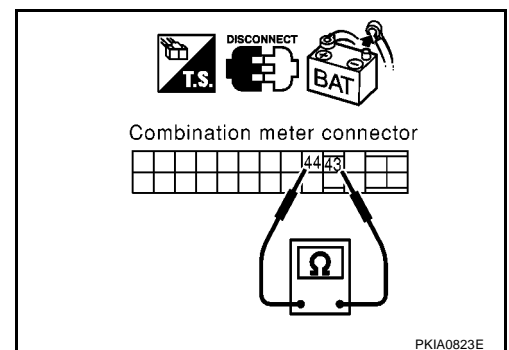
2. CHECK HARNESS FOR OPEN CIRCUIT

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 tyre pressure monitoring control unit and combination meter.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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.
 - Tyre pressure monitoring control unit.
 - 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

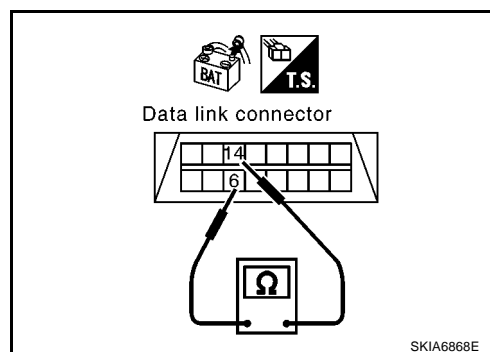
1. Disconnect the following connectors.
 - Combination meter connector.
 - Tyre pressure monitoring control unit connector.
 - Smart entrance control unit connector.
 - Harness connector M89.
 - Harness connector M130.
2. Check continuity between Data link connector M10 terminals 6 (L) and 14(R).

6(L) – 14(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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 14 (R) and ground.

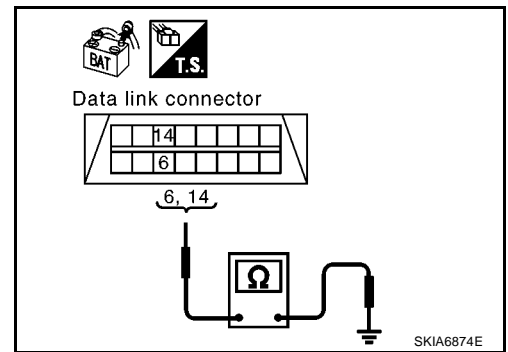
6 (L) – ground : Continuity should not exist.

14 (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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



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)

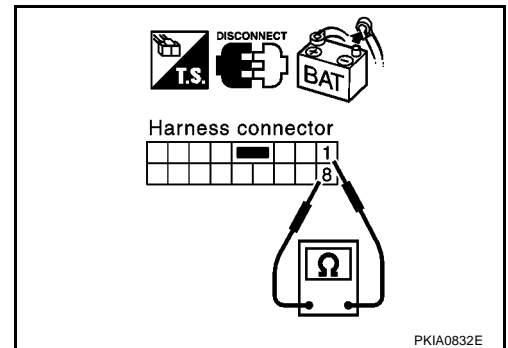
1(L) – 8(G) (Sedan models) : Continuity should not exist.

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.

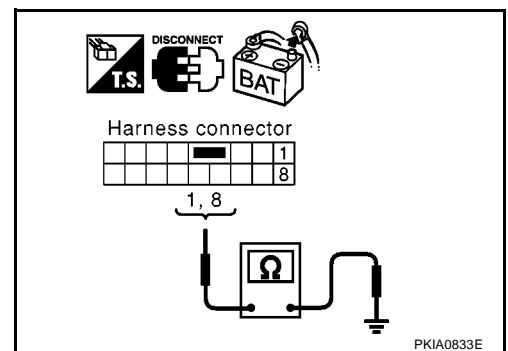
1(L) – ground (Hatch back and wagon models) : Continuity should not exist.

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

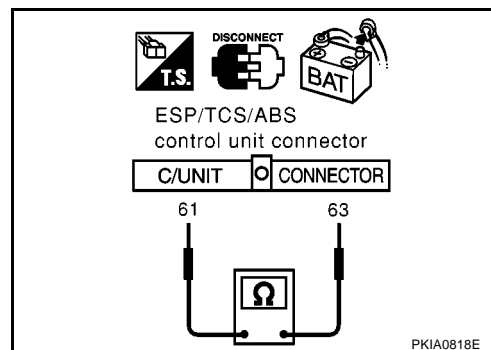
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15(R).

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.

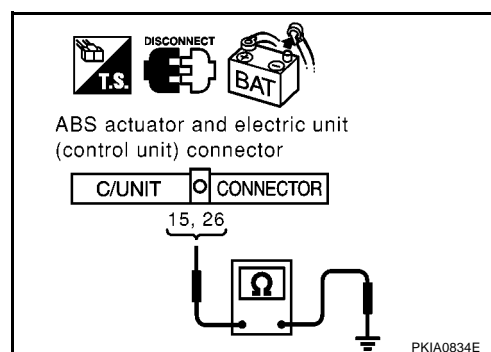
26 (L) – ground : Continuity should not exist.

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

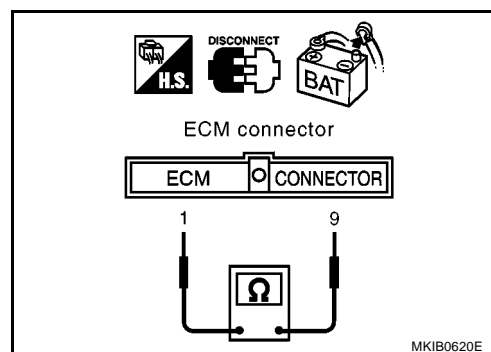
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector E125.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and ground.

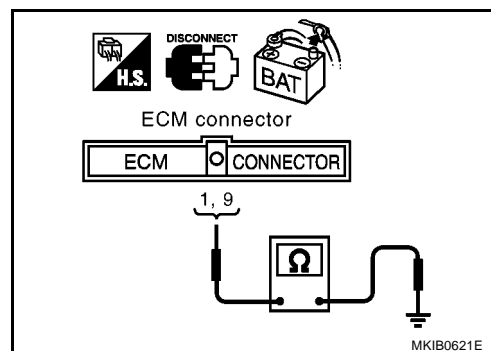
1 (L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector E125.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

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

OK or NG

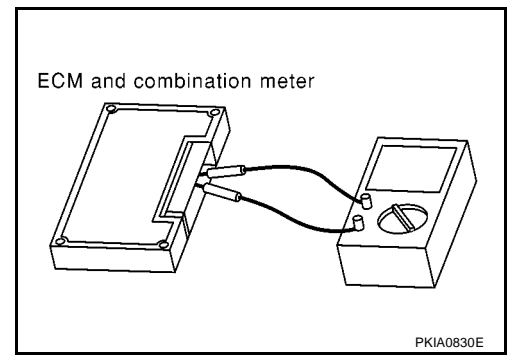
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
- EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- 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 1 and 9.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	1 - 9	Approx. 108 - 132
Combination meter	43 - 44	



CAN SYSTEM (TYPE 28)

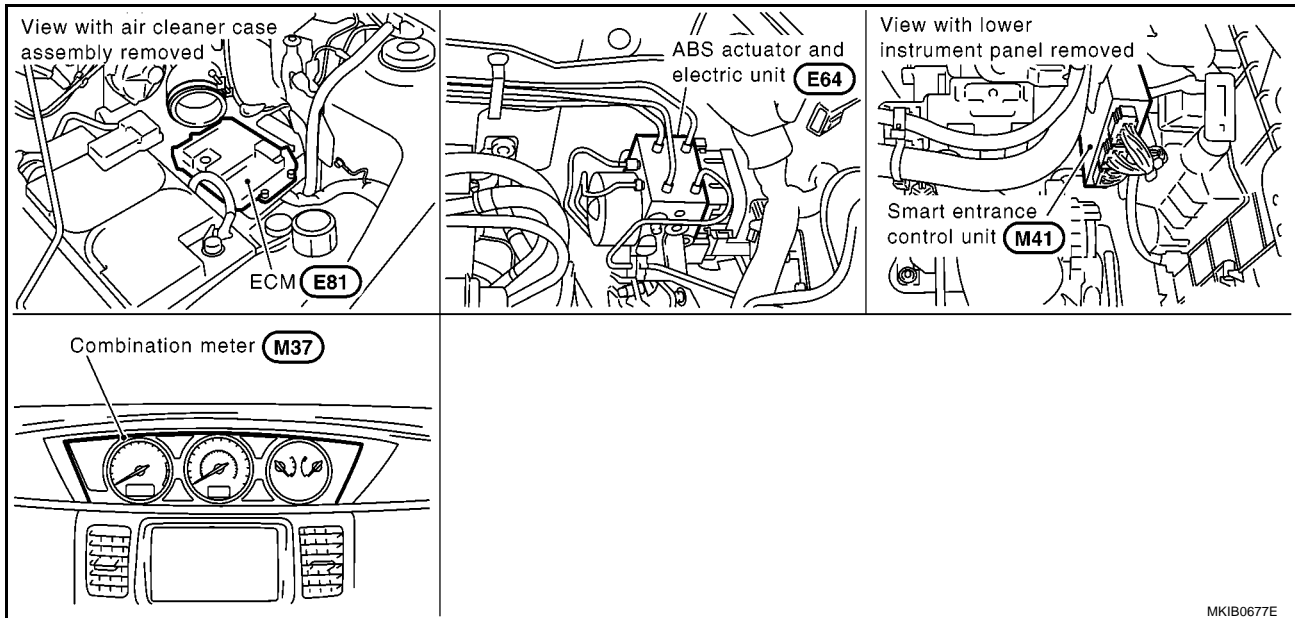
System Description

EKS00B6C

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

EKS00B6D



CAN SYSTEM (TYPE 28)

[CAN]

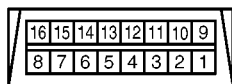
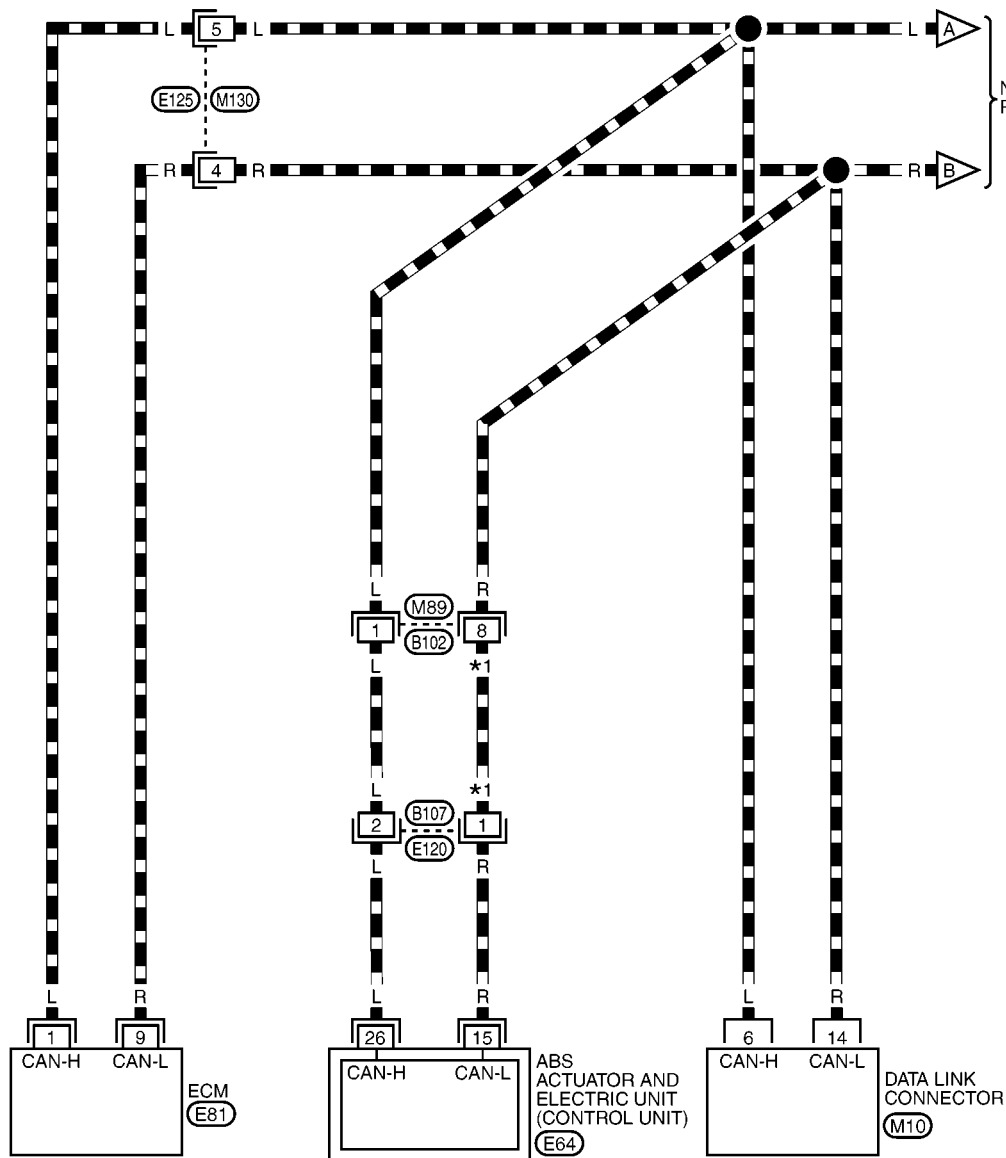
Wiring Diagram — CAN —

EKS00B6E

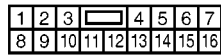
LAN-CAN-15

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

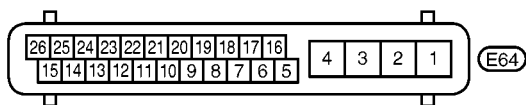
NEXT PAGE



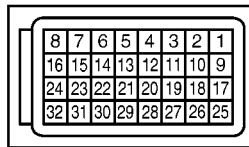
M10
W



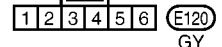
M89
W



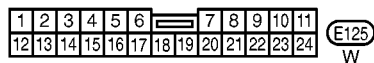
E64



E81



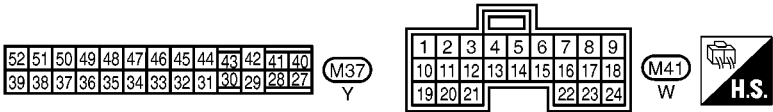
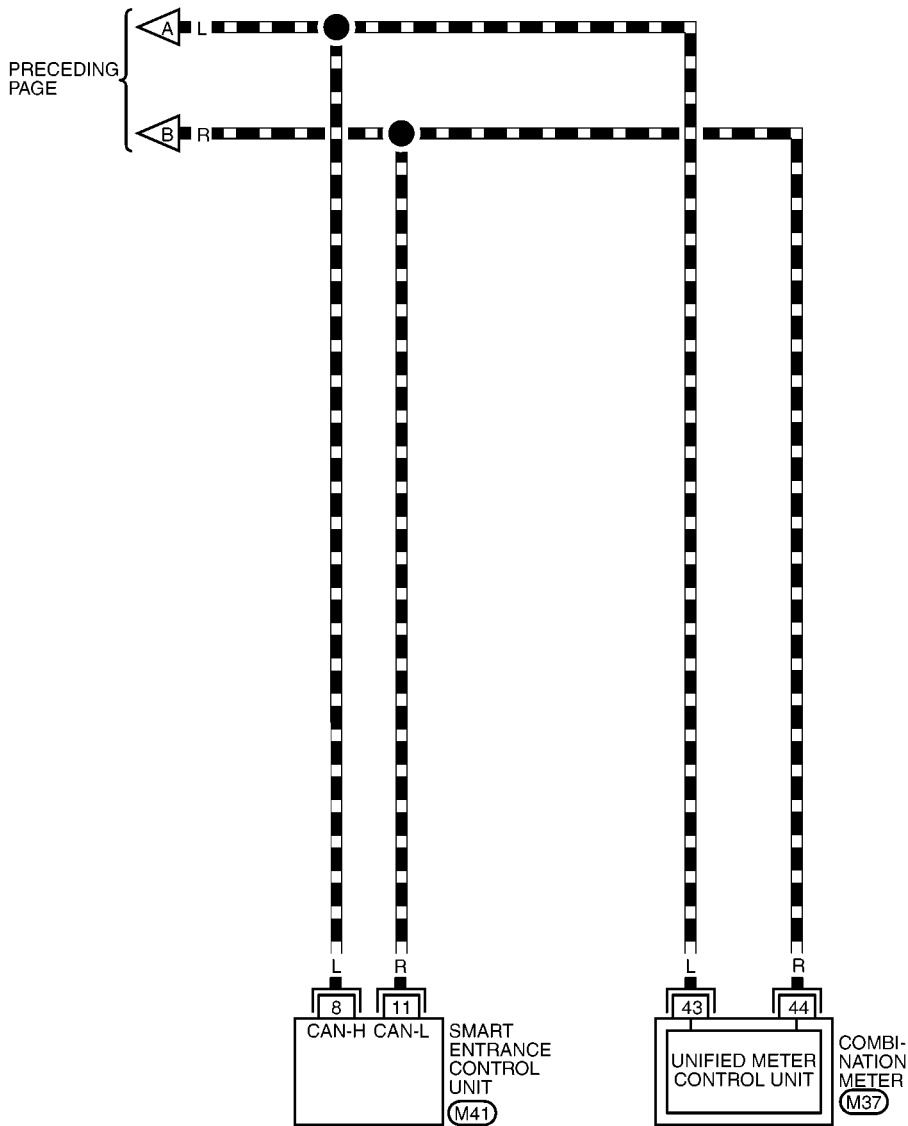
E120
GY



E125
W

LAN

▬ : DATA LINE



Work Flow

1. When there are no indications of "ENGINE" display of CONSULT-II, print the "SELECT SYSTEM".
2. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "SMART ENTRANCE", and "AIR PRESSURE MONITOR" displayed on CONSULT-II. Refer to the following:
 - EC-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"
3. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-126, "CHECK SHEET"](#)
4. 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.
5. According to the check sheet results (example), start inspection. Refer to [LAN-128, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

A

B

C

D

E

F

G

H

I

J

LAN

L

M

CAN SYSTEM (TYPE 28)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM		DATA MONITOR (CAN DIAG SUPPORT MNTR)						
ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB0678E

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

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 28)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

MKIB0680E

Case 6

ENGINE	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
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	No indication	—	CAN CIRC 1	—	CAN CIRC 2	—	—	—
ABS	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
SMART ENTRANCE	—	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

MKIB0681E

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-130, "Circuit Check Between Data Link Connector and Smart Entrance Control Unit"](#).

Case 5: Check data link connector circuit and ECM circuit. Refer to [LAN-130, "Data Link Connector Circuit and ECM Circuit Check"](#).

Case 6: Check ECM circuit. Refer to [LAN-132, "ECM Circuit Check"](#).

Case 7: Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-133, "ABS actuator and electric unit \(control unit\) Circuit Check"](#).

Case 8: Check smart entrance control unit circuit. Refer to [LAN-133, "Smart Entrance Control Unit Circuit Check"](#).

Case 9: Check combination meter circuit. Refer to [LAN-134, "Combination Meter Circuit Check"](#).

Case 10: Check CAN communication circuit. Refer to [LAN-134, "CAN Communication Circuit Check"](#).

Circuit Check Between Data Link Connector and Smart Entrance Control Unit

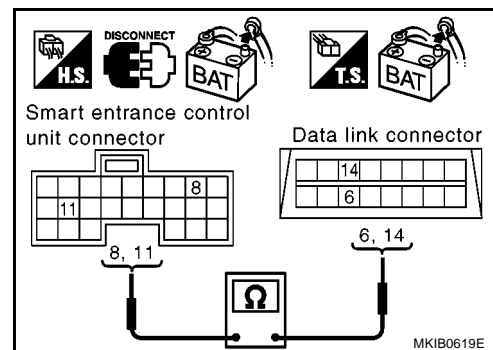
EKS00B6G

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect smart entrance control unit connector and combination meter.
4. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and Data link connector M10 terminals 6 (L), 14 (R).

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

11 (R) – 14 (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-F9Q-136, "CAN Communication" for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.

Data Link Connector Circuit and ECM Circuit Check

EKS00B6I

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

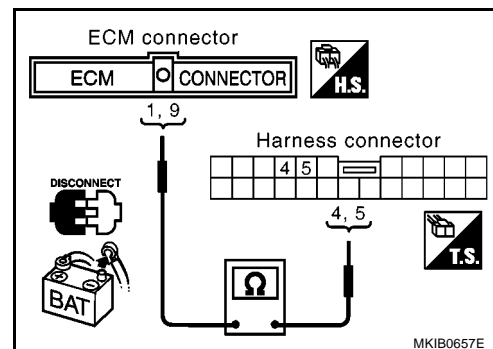
- OK >> GO TO 2.
- NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Disconnect ECM connector and harness connector E125.
4. Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and harness connector E125 terminals 5 (L), 4 (R).

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

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



OK or NG

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

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Check continuity between harness connector M130 terminals 5 (L), 4 (R) and data link connector M10 terminals 6 (L), 14 (R).

5 (L) – 6 (L)

: Continuity should exist.

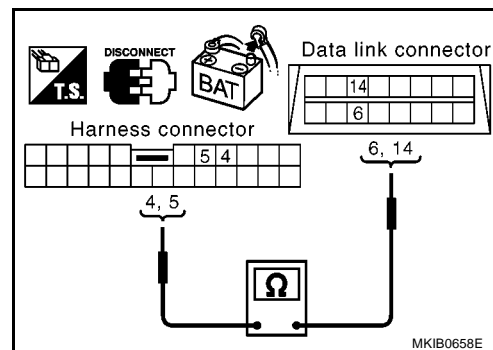
4 (R) – 14 (R)

: Continuity should exist.

OK or NG

OK >> Replace ECM.

NG >> Repair harness.



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

ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control module side and harness side)
 - ECM
 - Harness connector E125
 - Harness connector M130

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

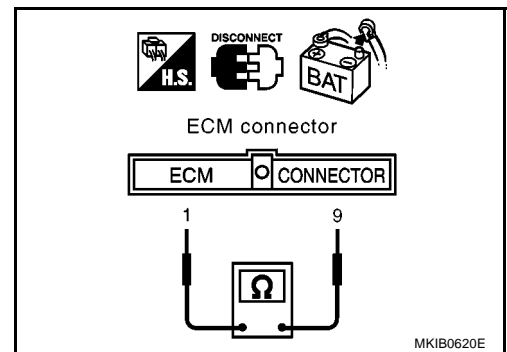
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (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

EKS00B6K

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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 B102.
 - Harness connector M89.
 - Harness connector B107.
 - Harness connector E120.

OK or NG

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

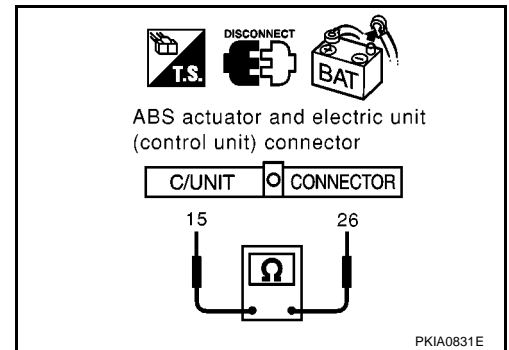
2. CHECK HARNESS FOR OPEN CIRCUIT

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**

EKS00B6L

1. CHECK CONNECTOR

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

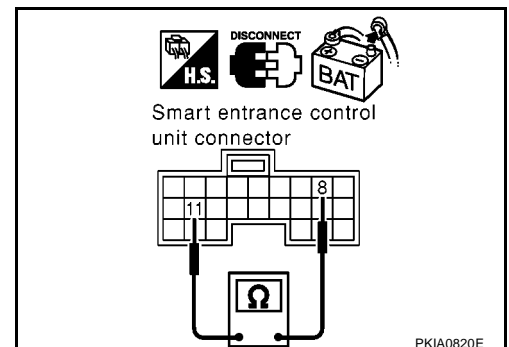
2. CHECK HARNESS FOR OPEN CIRCUIT

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

1. CHECK CONNECTOR

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

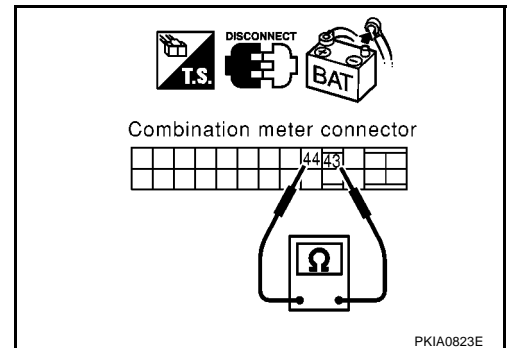
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.
 - 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

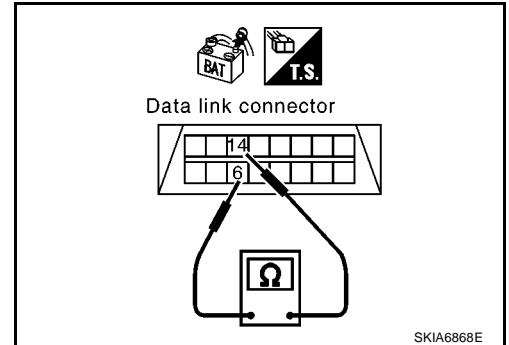
- Disconnect the following connectors.
 - Combination meter connector.
 - Smart entrance control unit connector.
 - Harness connector M89.
 - Harness connector M130.
- Check continuity between Data link connector M10 terminals 6 (L) and 14 (R).

6 (L) – 14 (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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between Data link connector M10 terminals 6 (L), 14 (R) and ground.

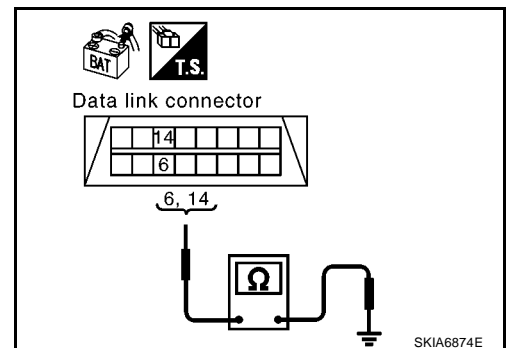
6 (L) – ground : Continuity should not exist.

14 (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 tyre pressure monitoring control unit.
 - Repair harness between smart entrance control unit and data link connector.
 - Repair harness between harness connector M89 and harness connector M130.



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)

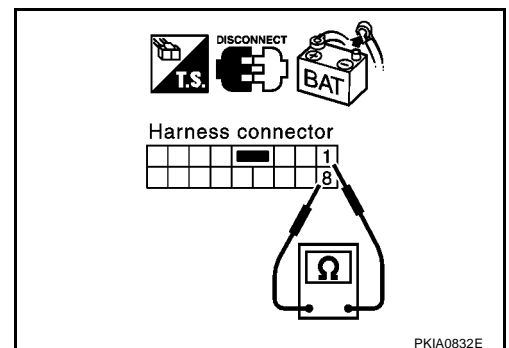
1 (L) – 8 (G) (Sedan models) : Continuity should not exist.

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

OK or NG

OK >> GO TO 5.

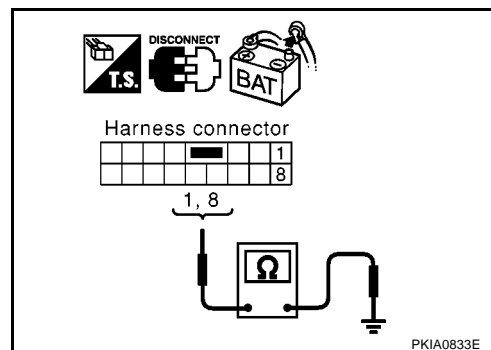
NG >> Repair harness between harness connector B102 and harness connector B107.



5. CHECK HARNESS FOR SHORT CIRCUIT

- 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

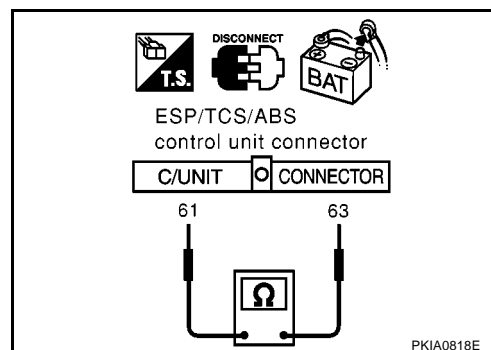
- Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15 (R).

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

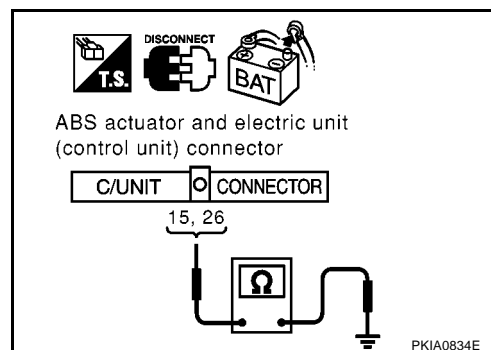
Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L), 15 (R) and ground.

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

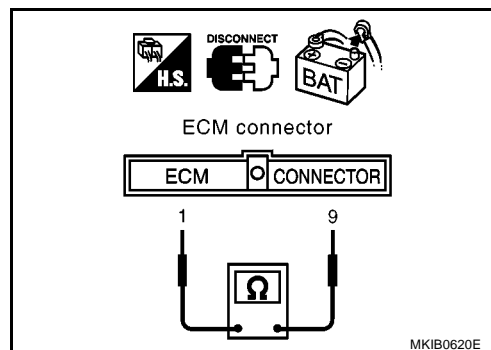
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector E81 terminals 1 (L) and 9 (R).

1 (L) – 9 (R) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between ECM and harness connector E125.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E81 terminals 1 (L), 9 (R) and ground.

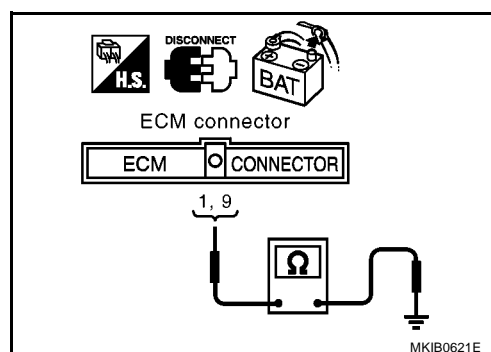
1 (L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 10.

NG >> Repair harness between ECM and harness connector E125.



10. ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-137, "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-F9Q-136, "CAN Communication" for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

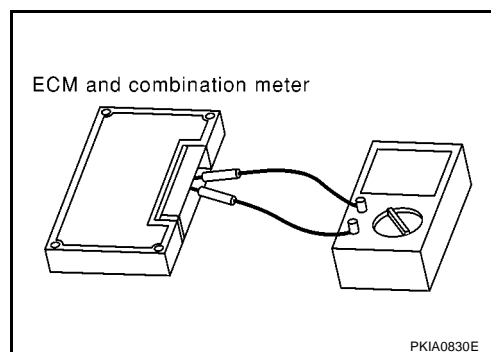
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 1 and 9.
- Check resistance between Combination meter terminals 43 and 44.

Unit	Terminal	Resistance value (Ω)
ECM	1 – 9	Approx. 108 - 132
Combination meter	43 – 44	



CAN SYSTEM (TYPE 29)

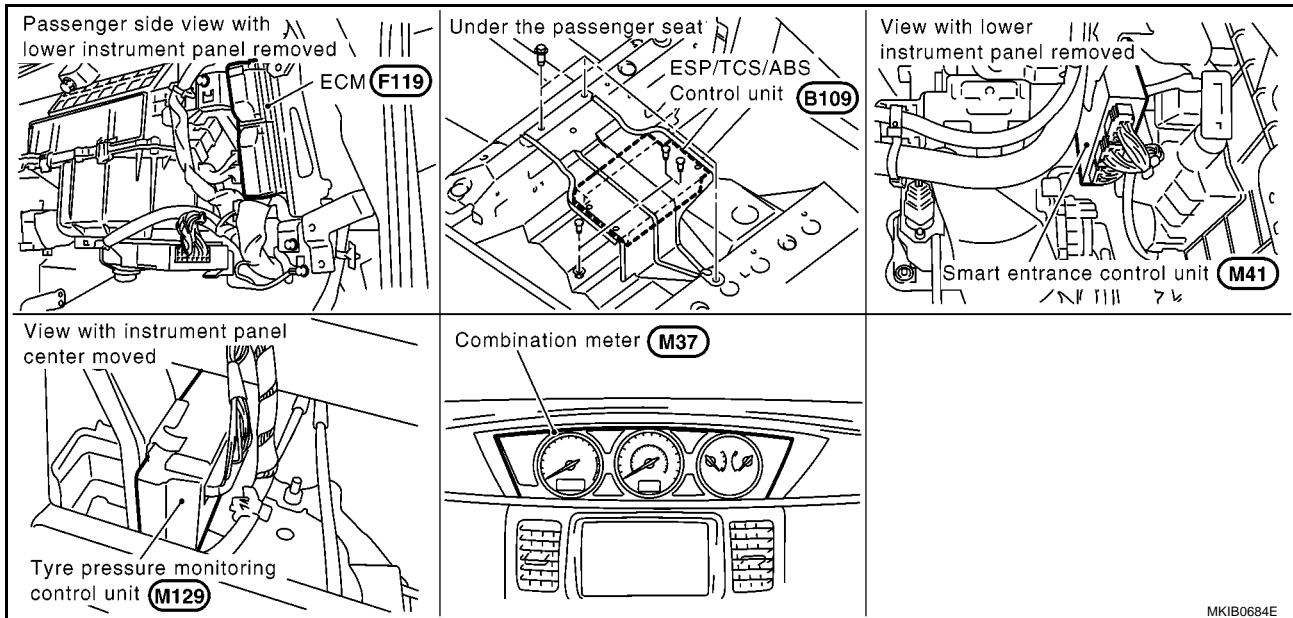
System Description

EKS00ART

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

EKS00ARU



CAN SYSTEM (TYPE 29)

[CAN]

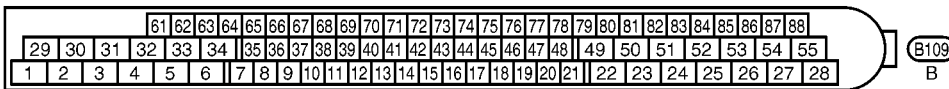
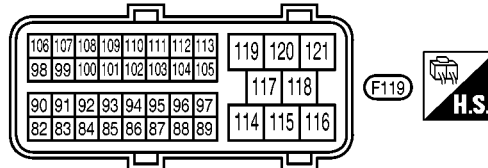
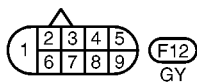
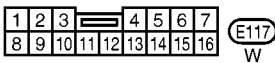
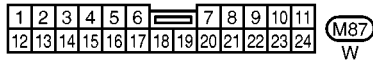
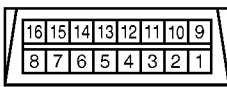
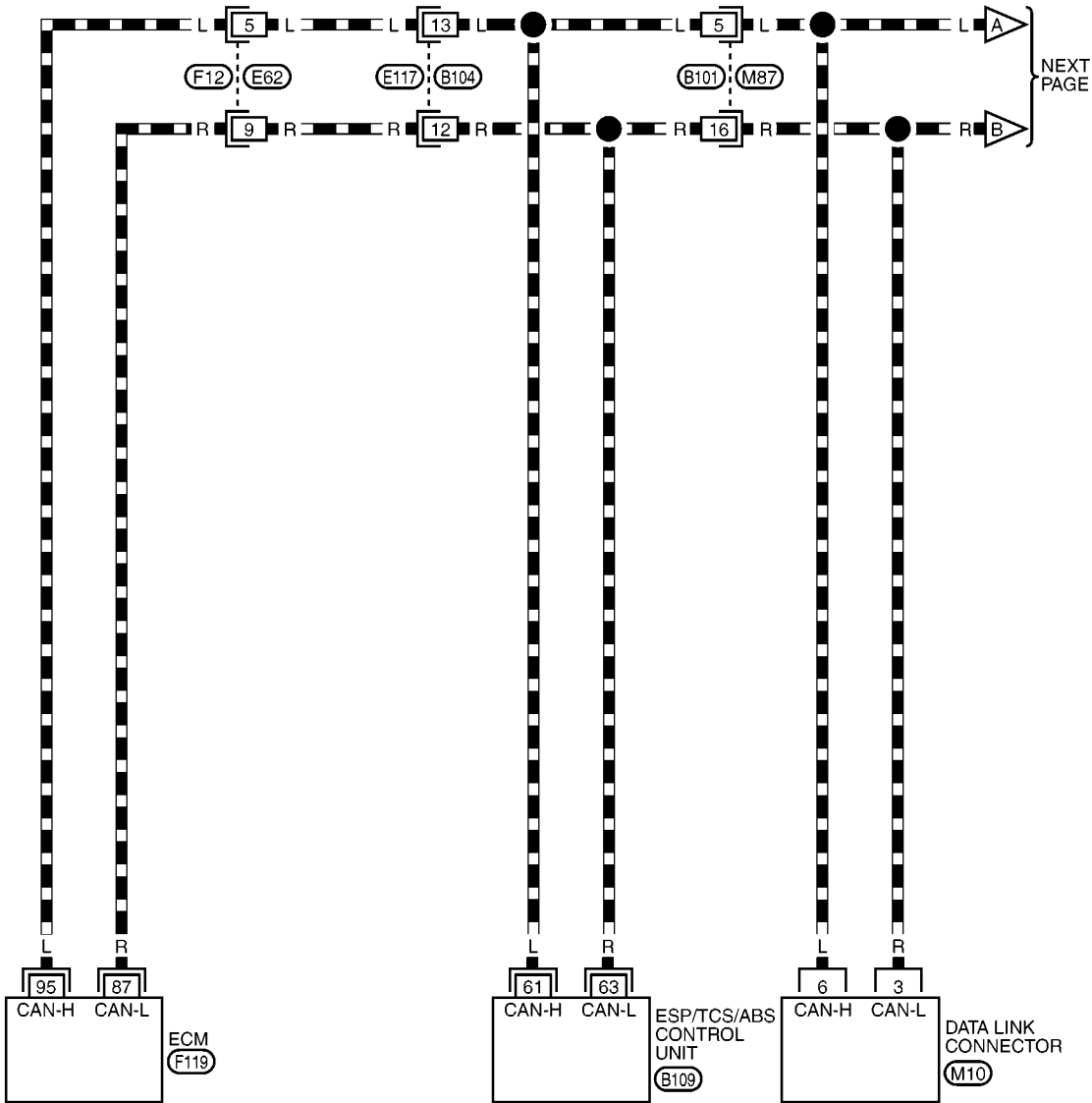
Wiring Diagram — CAN —

EKS00ARV

LAN-CAN-17


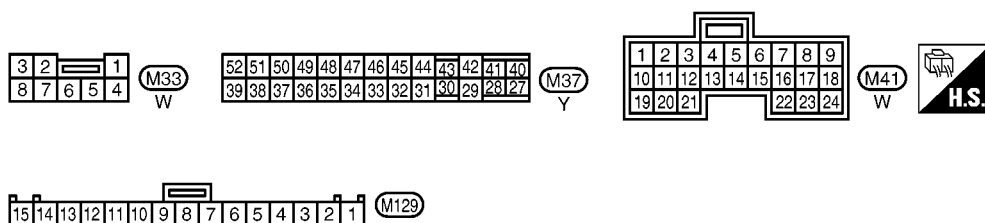
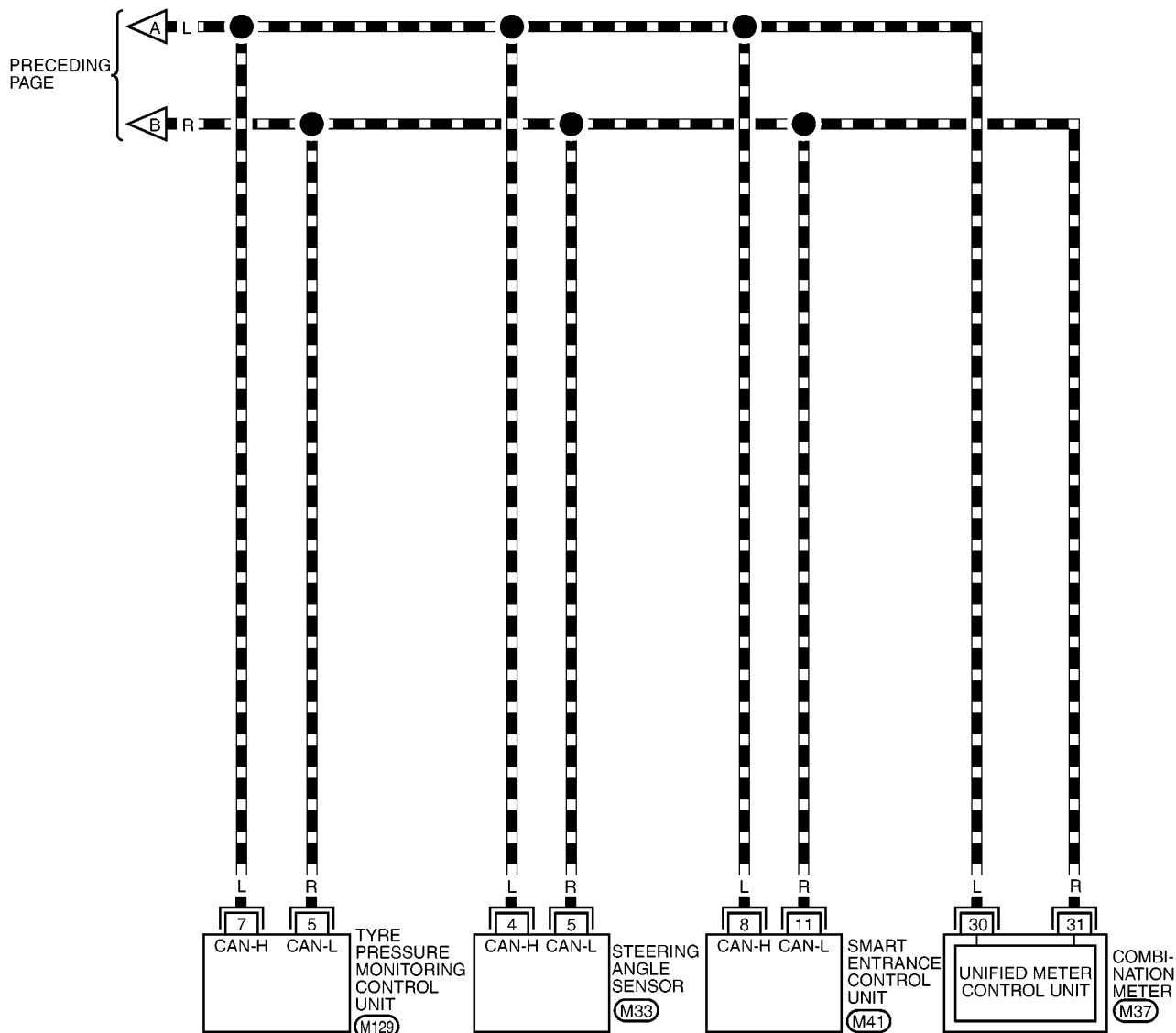
— : DATA LINE

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



MKWA1723E

LAN-CAN-18

 : DATA LINE


Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "AIR PRESSURE MONITOR", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
 - [BCS-23, "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-142, "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-142, "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-143, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

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

LAN

CAN SYSTEM (TYPE 29)

[CAN]

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	—	—
AIR PRESSURE MONITOR	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
AIR PRESSURE
MONITOR
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
AIR PRESSURE
MONITOR
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

MKIB0685E

CAN SYSTEM (TYPE 29)

[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	—	—
AIR PRESSURE MONITOR	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 3 ✓	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2
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	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	CAN CIRC 5 ✓	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

Case 3: Replace Tyre pressure monitoring 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	—	—
AIR PRESSURE MONITOR	CAN COMM ✓	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC 3

MKIB0686E

CAN SYSTEM (TYPE 29)

[CAN]

Case 4: 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	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5 ✓	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5 ✓	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4 ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2 ✓
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2 ✓	—	—	—	—	CAN CIRC 3

MKIB0687E

CAN SYSTEM (TYPE 29)

[CAN]

Case 8

ENGINE	CAN COMM	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC ✓	—	—	—	—	CAN CIRC 3

Case 9

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC ✓	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	CAN CIRC ✓	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓
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 ✓	—	—
AIR PRESSURE MONITOR	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 3	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓

MKIB0688E

Case 13

ENGINE	CAN COMM	CAN CIRC 1	—	CAN CIRC 3	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	CAN CIRC 5	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	—	CAN CIRC ✓
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—	CAN CIRC ✓

Case 14

ENGINE	CAN COMM	CAN CIRC ✓	—	CAN CIRC ✓	—	—	—	CAN CIRC ✓
ABS	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	CAN CIRC ✓	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC ✓	—	—	—	—	—	CAN CIRC ✓
SMART ENTRANCE	CAN COMM	CAN CIRC ✓	CAN CIRC ✓	—	—	—	—	CAN CIRC ✓

MK1B0689E

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 Tyre pressure monitoring control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between ESP/TCS/ABS control unit and Tyre pressure monitoring control unit. Refer to [LAN-147, "Circuit Check Between ESP/TCS/ABS Control Unit and Tyre Pressure Monitoring Control Unit"](#).

Case 6: Check Harness between Tyre pressure monitoring control unit and Steering angle sensor. Refer to [LAN-148, "Circuit Check Between Tyre Pressure Monitoring Control Unit and Steering Angle Sensor"](#).

Case 7: Check Harness between Steering angle sensor and Smart entrance control unit. Refer to [LAN-149, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 8: Check ECM Circuit. Refer to [LAN-150, "ECM Circuit Check"](#).

Case 9: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-151, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 10: Check Tyre pressure monitoring control unit Circuit. Refer to [LAN-151, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 11: Check Steering angle sensor Circuit. Refer to [LAN-152, "Steering Angle Sensor Circuit Check"](#).

Case 12: Check Smart entrance control unit Circuit. Refer to [LAN-152, "Smart Entrance Control Unit Circuit Check"](#).

Case 13: Check Combination meter Circuit. Refer to [LAN-153, "Combination Meter Circuit Check"](#).

Case 14: Check CAN communication Circuit. Refer to [LAN-153, "CAN Communication Circuit Check"](#).

Circuit Check Between ESP/TCS/ABS Control Unit and Tyre Pressure Monitoring Control Unit

EKS00ARX

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side and harness side)
 - Tyre pressure monitoring control unit
 - ESP/TCS/ABS control unit
 - Between ESP/TCS/ABS control unit and tyre pressure monitoring control unit

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).

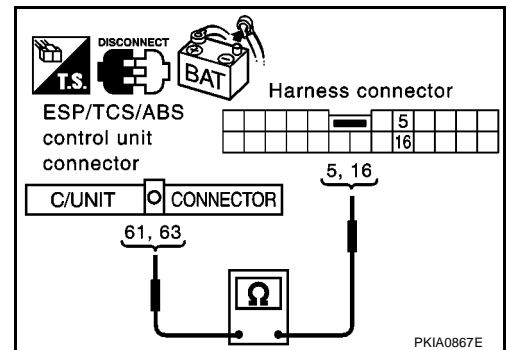
61 (L) – 5 (L) : Continuity should exist.

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 tyre pressure monitoring control unit connector.
2. Check continuity between harness connector M87 terminals 5 (L), 16 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

5 (L) – 7 (L) : Continuity should exist.

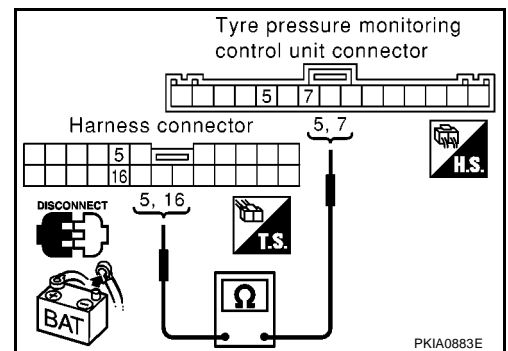
16 (R) – 5 (R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Tyre Pressure Monitoring Control Unit and Steering Angle Sensor

EKS00ARY

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (sensor side, control unit side and harness side)
 - Steering angle sensor
 - Tyre pressure monitoring control unit

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect tyre pressure monitoring control unit connector and steering angle sensor connector.
2. Check continuity between tyre pressure monitoring control unit harness connector M96 terminals 7 (L), 5 (R) and steering angle sensor harness connector M33 terminals 4 (L), 5 (R).

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

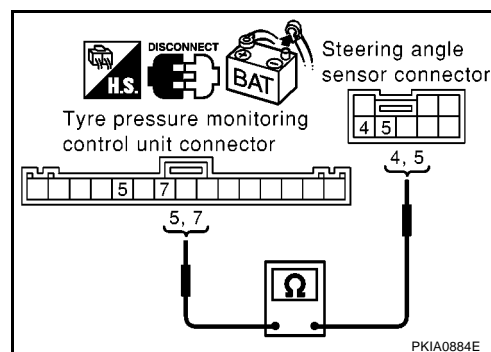
5 (R) – 5 (R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side, sensor side and harness side)
 - Smart entrance control unit
 - Steering angle sensor

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 and steering angle sensor connector.
2. 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).

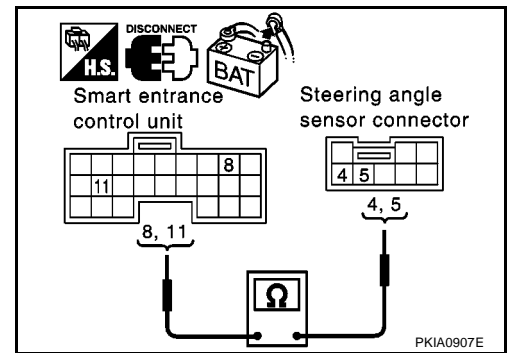
8 (L) – 4 (L) : Continuity should exist.**11 (R) – 5 (R) : Continuity should exist.**

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "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 cable.
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.

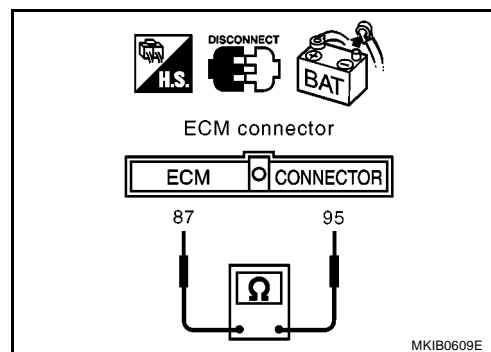
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95 (L) and 87 (R).

95 (L) – 87 (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**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following 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

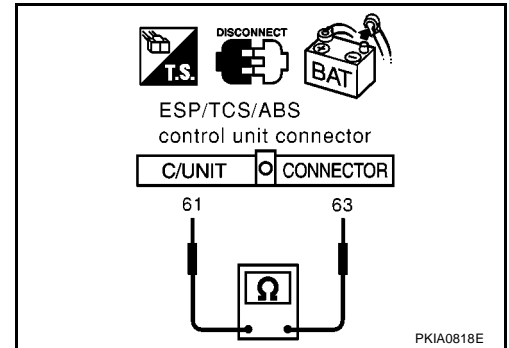
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63 (R).

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.

**Tyre Pressure Monitoring Control Unit Circuit Check****1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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

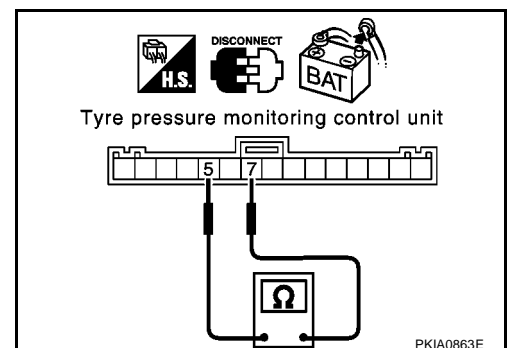
1. Disconnect tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M96 terminals 7 (L) and 5 (R).

7 (L) – 5 (R)**: Approx. 54 – 66Ω**

OK or NG

OK >> Replace tyre pressure monitoring control unit.

NG >> Repair harness between steering angle sensor and tyre pressure monitoring control unit.



Steering Angle Sensor Circuit Check

EKS00AS3

1. CHECK CONNECTOR

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

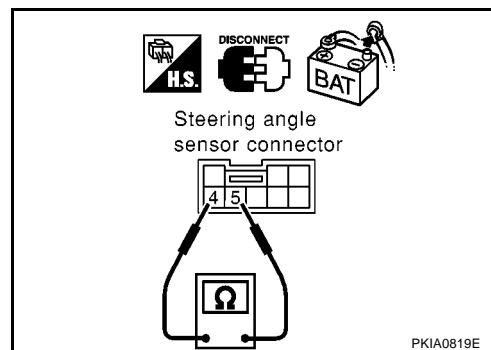
2. CHECK HARNESS FOR OPEN CIRCUIT

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

EKS00AS4

1. CHECK CONNECTOR

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

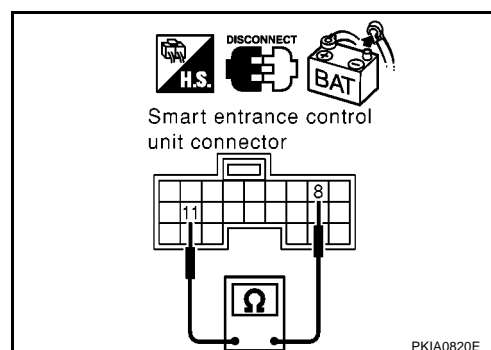
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.

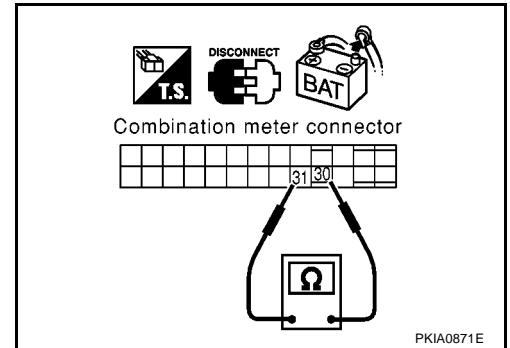
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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
 - Tyre pressure monitoring control unit
 - 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

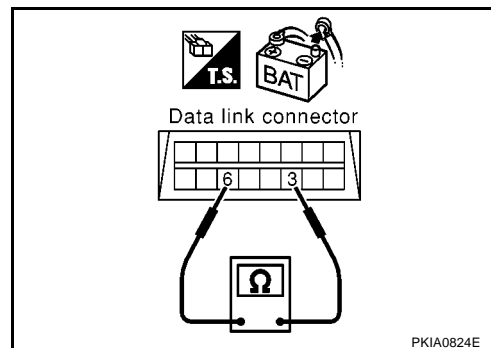
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Tyre pressure monitoring control unit connector
 - Harness connector M87
- Check continuity between Data link connector M10 terminals 6 (L) and 3 (R).

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 steering angle sensor and tyre pressure monitoring control unit.
 - Repair harness between Data link connector and tyre pressure monitoring 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.

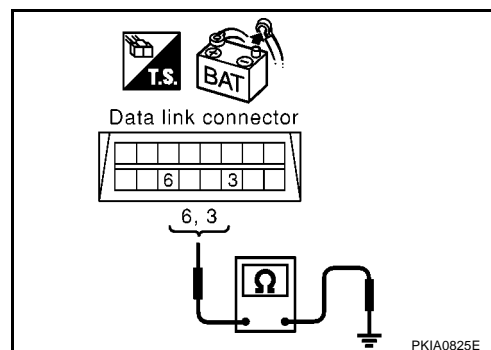
6 (L) – ground : Continuity should not exist.

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 smart entrance control unit and steering angle sensor.
 - Repair harness between steering angle sensor and tyre pressure monitoring control unit.
 - Repair harness between Data link connector and tyre pressure monitoring control unit.
 - Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

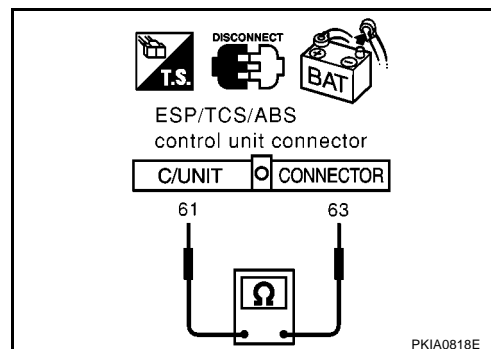
- Disconnect ESP/TCS/ABS control unit connector and harness connector B104.
- Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63 (R).

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.

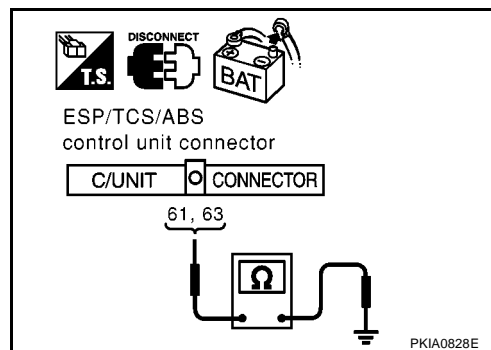
61 (L) – ground : Continuity should not exist.

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

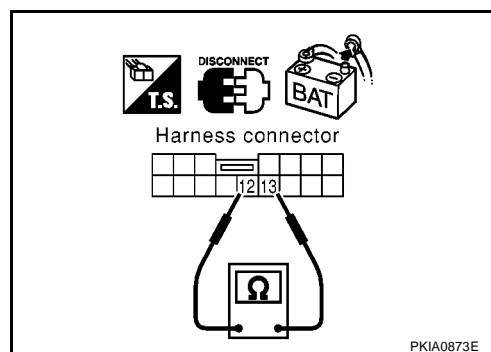
1. Disconnect harness connector E62.
2. Check continuity between harness connector E117 terminals 13 (L) and 12 (R).

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.

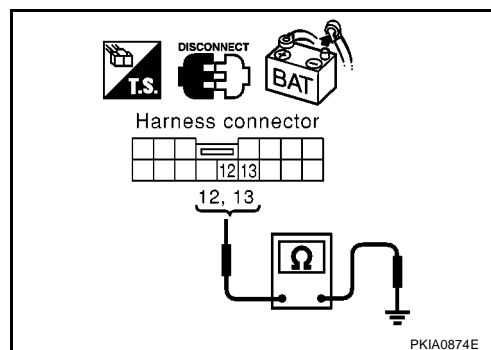
13 (L) – ground : Continuity should not exist.

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

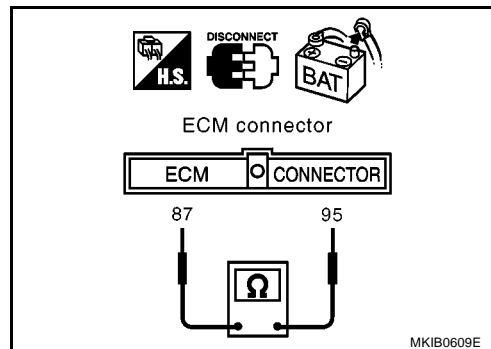
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95 (L) and 87 (R).

95 (L) – 87 (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 F119 terminals 95 (L), 87 (R) and ground.

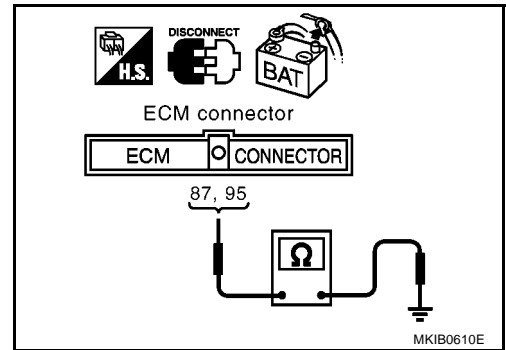
95 (L) – ground : Continuity should not exist.

87 (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-156, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#)

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

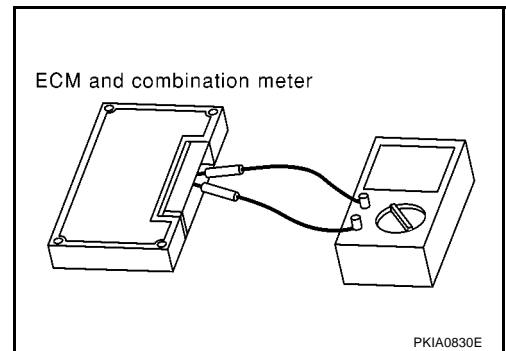
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 30)

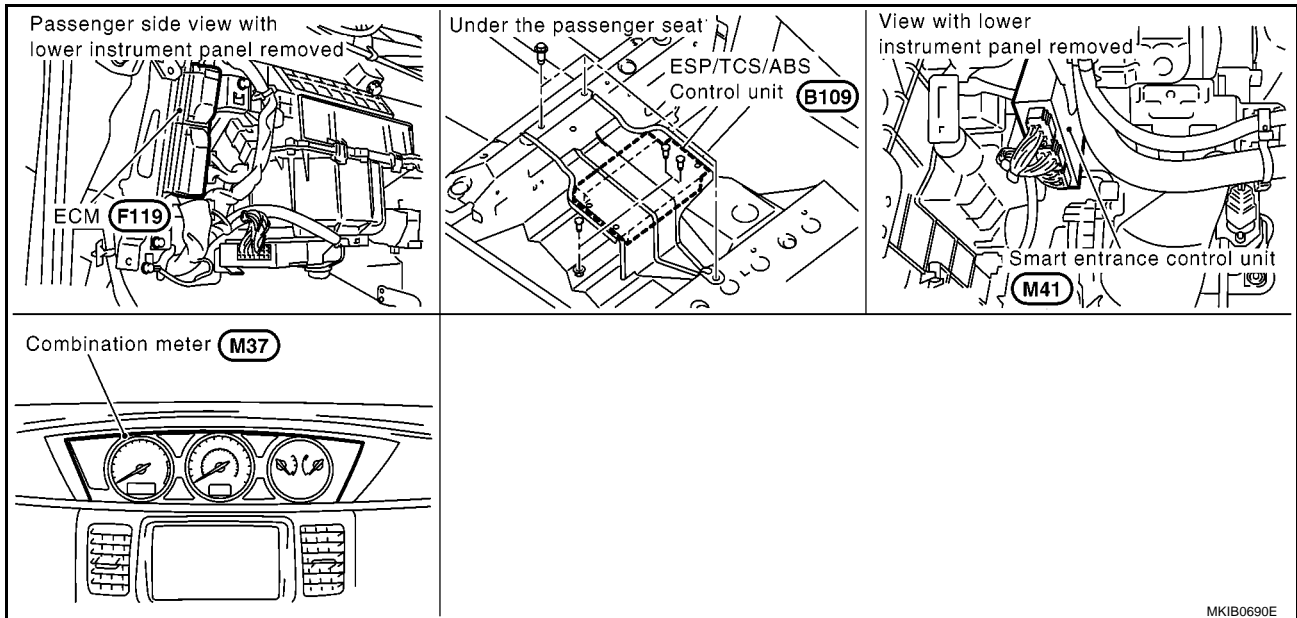
System Description

EKS00AS8

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

EKS00AS9



CAN SYSTEM (TYPE 30)

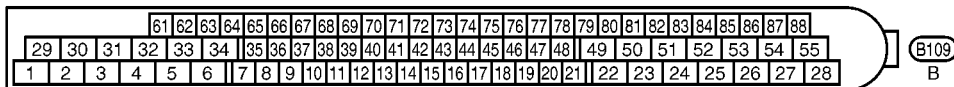
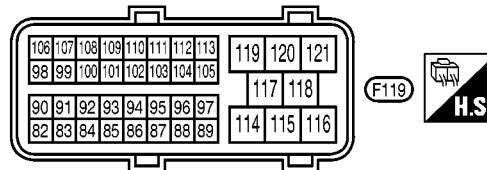
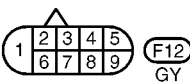
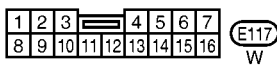
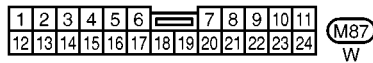
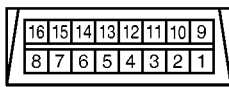
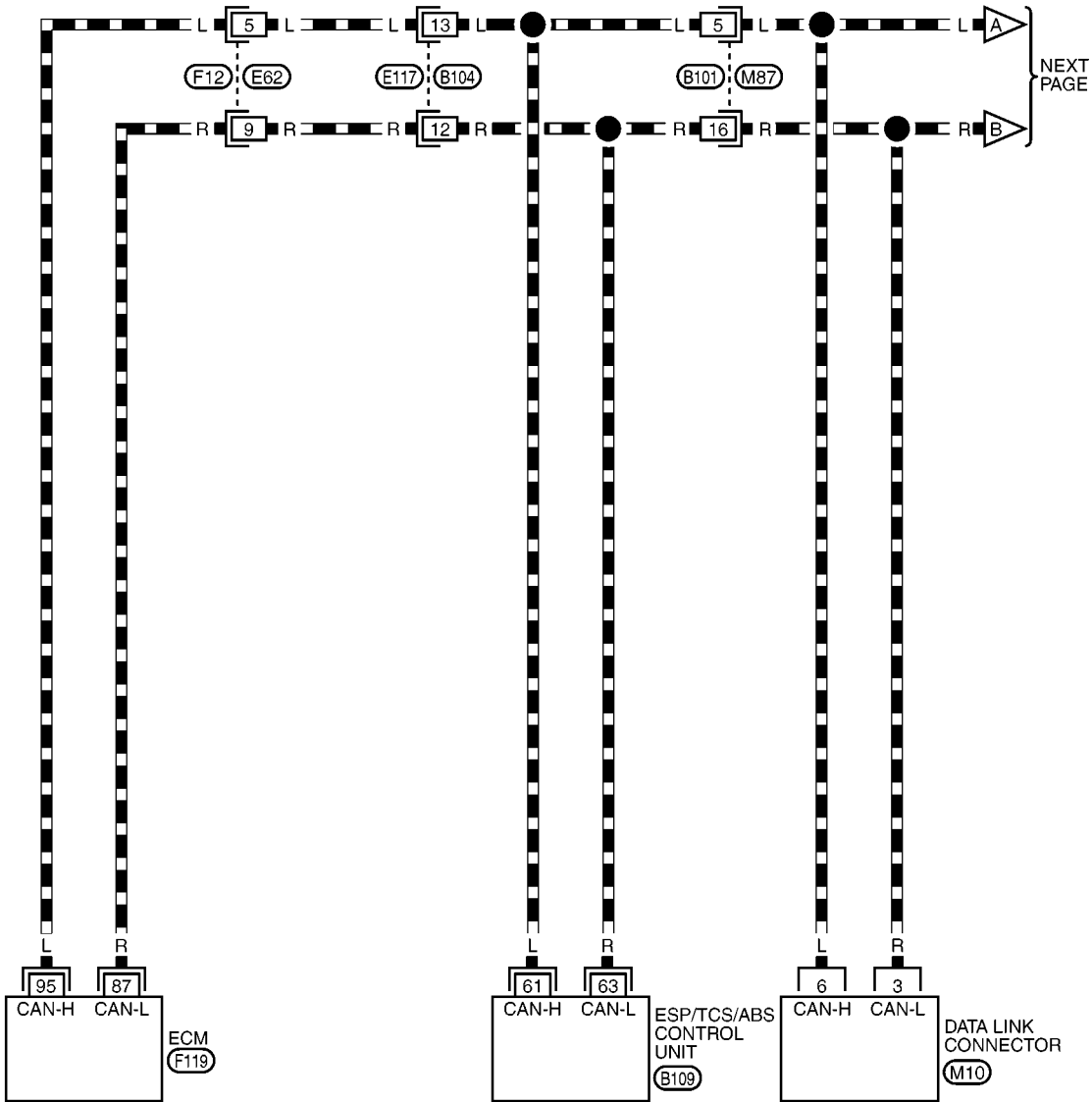
[CAN]

EKS000ASA

Wiring Diagram — CAN —

LAN-CAN-19

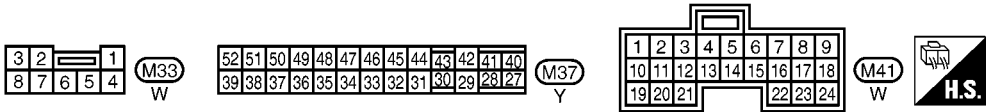
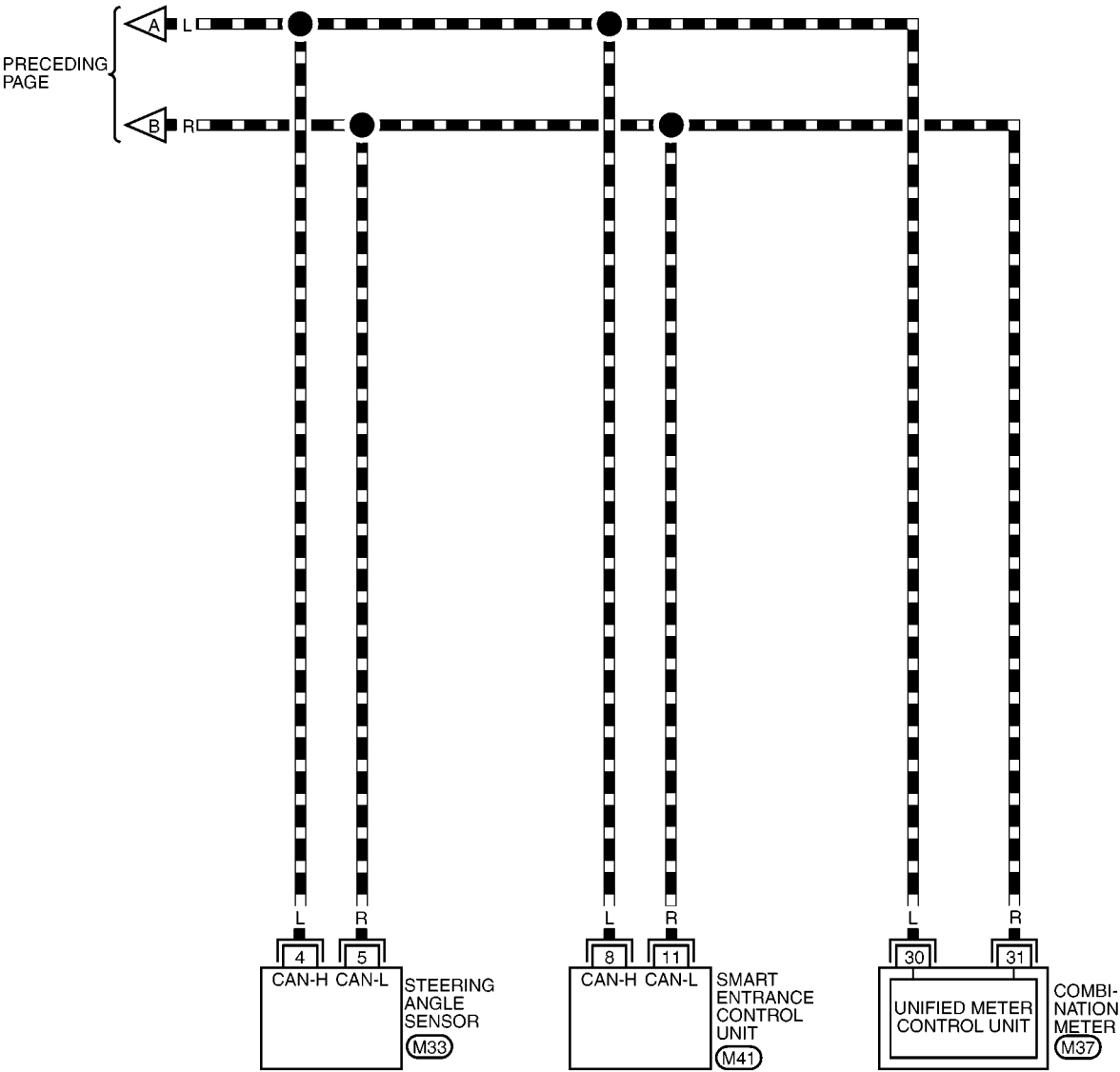
— : DATA LINE



MKWA1725E

LAN-CAN-20

DATA LINE



Work Flow

EKS00ASB

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
 - [BCS-23, "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-161, "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-161, "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-162, "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 RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
SMART ENTRANCE
SELF-DIAGRESULTS

Attach copy of
ENGINE
DATA MONITOR

Attach copy of
ABS
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

CAN SYSTEM (TYPE 30)

[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

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

PKJA1486E

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-164, "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-165, "Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit"](#).

Case 6: Check ECM Circuit. Refer to [LAN-166, "ECM Circuit Check"](#).

Case 7: Check ESP/TCS/ABS control unit Circuit. Refer to [LAN-166, "ESP/TCS/ABS Control Unit Circuit Check"](#).

Case 8: Check Steering angle sensor Circuit. Refer to [LAN-167, "Steering Angle Sensor Circuit Check"](#).

Case 9: Check Smart entrance control unit Circuit. Refer to [LAN-167, "Smart Entrance Control Unit Circuit Check"](#).

Case 10: Check Combination meter Circuit. Refer to [LAN-168, "Combination Meter Circuit Check"](#).

Case 11: Check CAN communication Circuit. Refer to [LAN-168, "CAN Communication Circuit Check"](#).

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

EKS00ASC

1. CHECK CONNECTOR

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

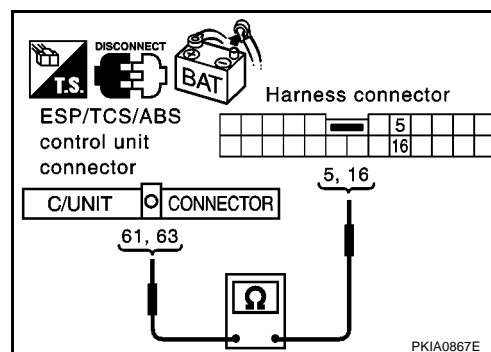
61(L) – 5(L) : Continuity should exist.

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.

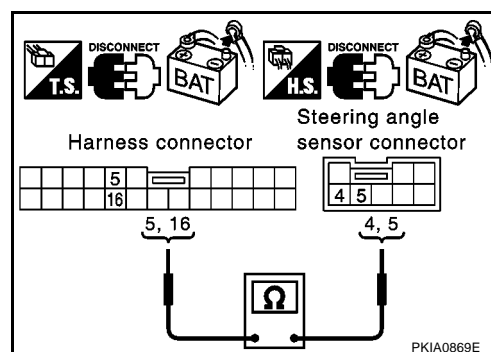
16(R) – 5(R) : Continuity should exist.

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Steering Angle Sensor and Smart Entrance Control Unit

EKS00ASD

1. CHECK HARNESS FOR OPEN CIRCUIT

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

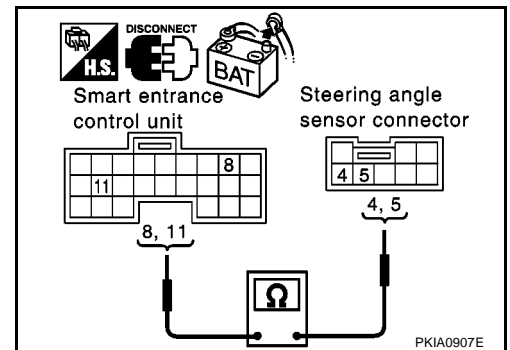
11(R) – 5(R) : Continuity should exist.

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS00ASE

1. CHECK CONNECTOR

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

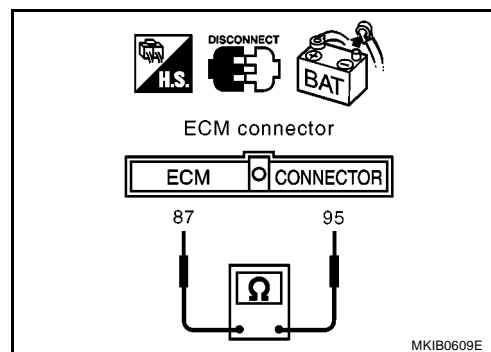
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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**

EKS00ASF

1. CHECK CONNECTOR

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

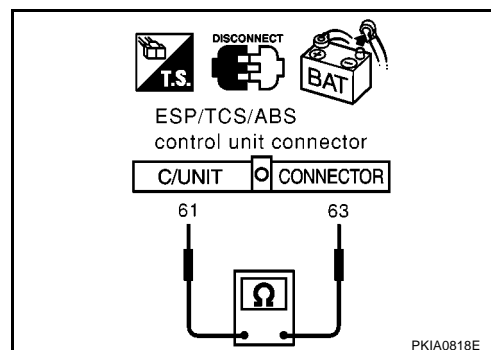
2. CHECK HARNESS FOR OPEN CIRCUIT

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

1. CHECK CONNECTOR

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

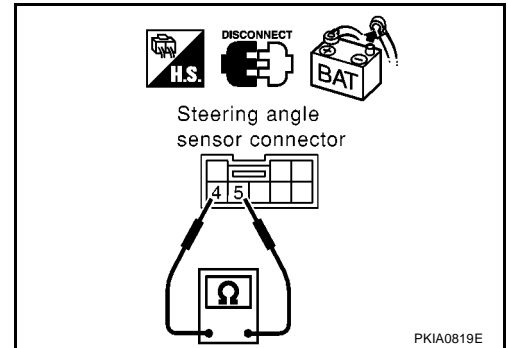
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.

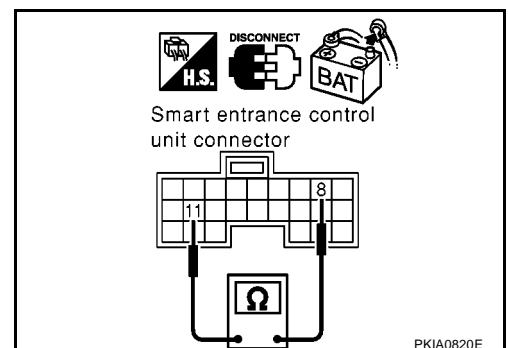
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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.

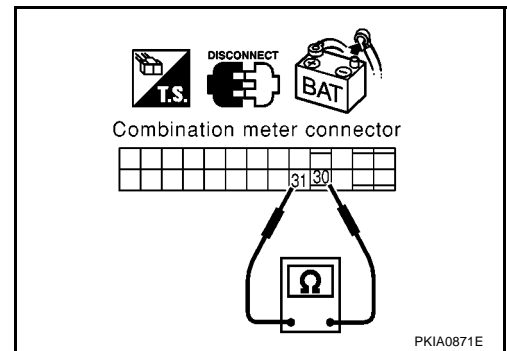
2. CHECK HARNESS FOR OPEN CIRCUIT

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

EKS00ASJ

1. CHECK CONNECTOR

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

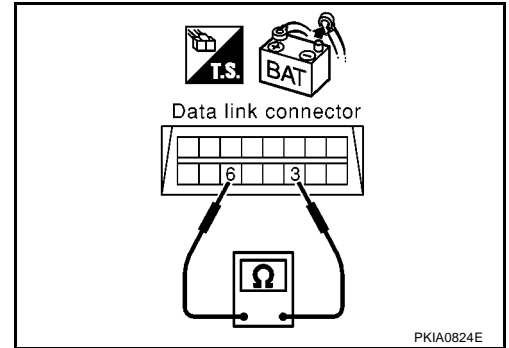
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Steering angle sensor connector
 - Harness connector M87
- Check continuity between Data link connector M10 terminals 6 (L) and 3(R).

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 harness connector M87.



3. CHECK HARNESS FOR SHORT CIRCUIT

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

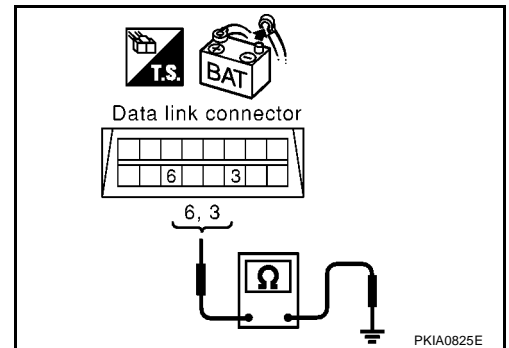
6(L) – ground : Continuity should not exist.

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

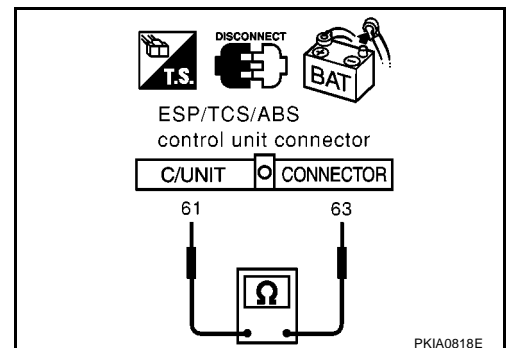
- Disconnect ESP/TCS/ABS control unit connector and harness connector B104.
- Check continuity between ESP/TCS/ABS control unit harness connector B109 terminals 61 (L) and 63(R).

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.

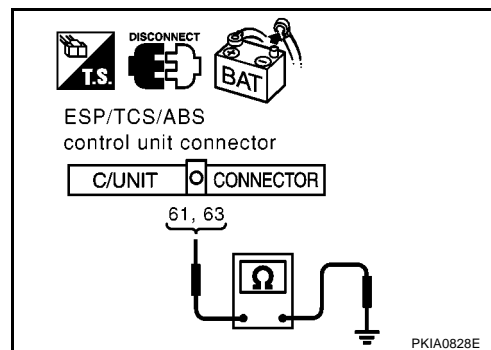
61(L) – ground : Continuity should not exist.

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

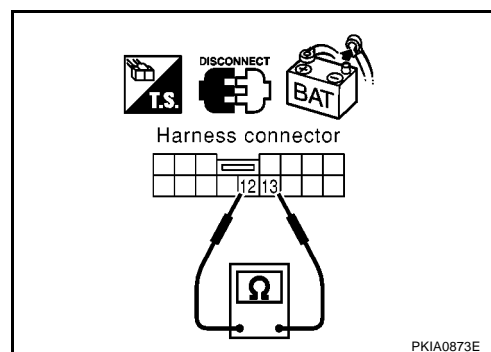
1. Disconnect harness connector E62.
2. Check continuity between harness connector E117 terminals 13 (L) and 12(R).

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.

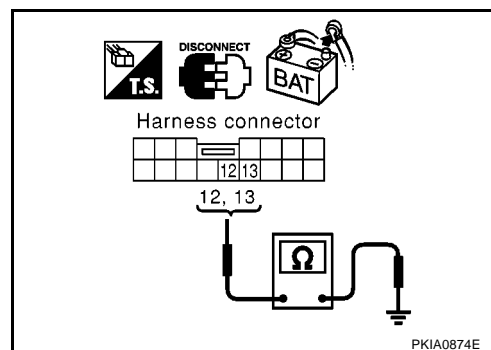
13(L) – ground : Continuity should not exist.

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

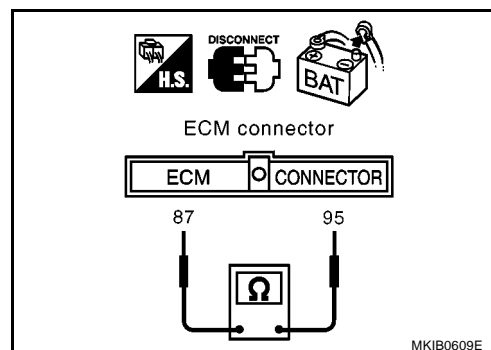
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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 F119 terminals 95 (L), 87 (R) and ground.

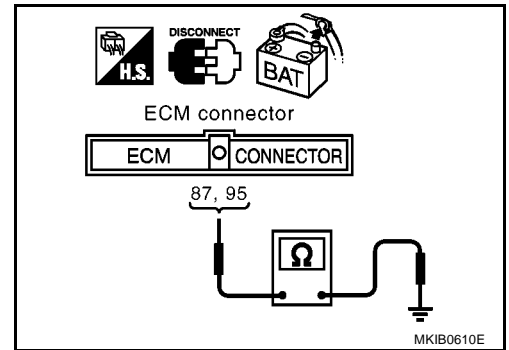
95(L) – ground : Continuity should not exist.

87(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-171, "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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-94, "Inspection 15 CAN Communication Circuit, ESP/TCS/ABS Control Unit and Steering Angle Sensor"](#) for "ABS"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

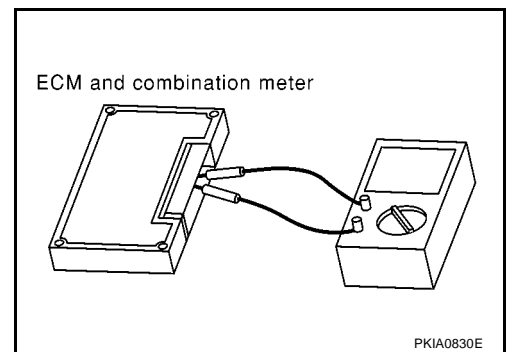
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	30 – 31	



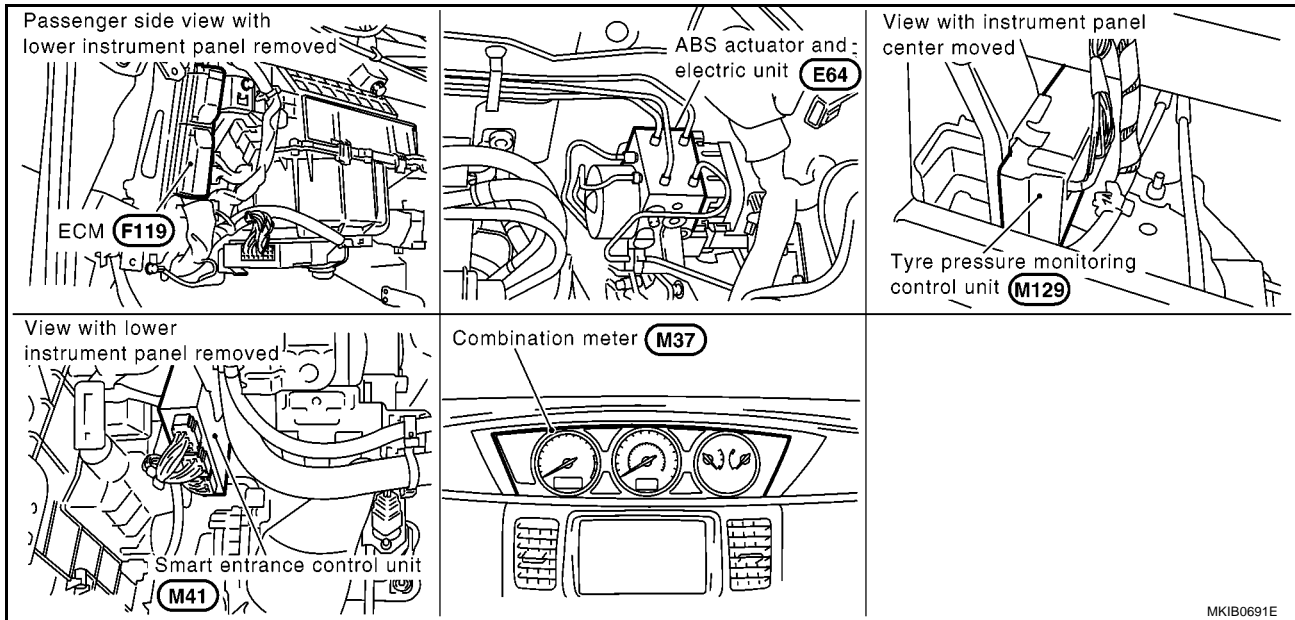
CAN SYSTEM (TYPE 31)**System Description**

EKS00ASL

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

EKS00ASM



CAN SYSTEM (TYPE 31)

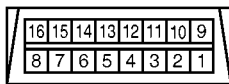
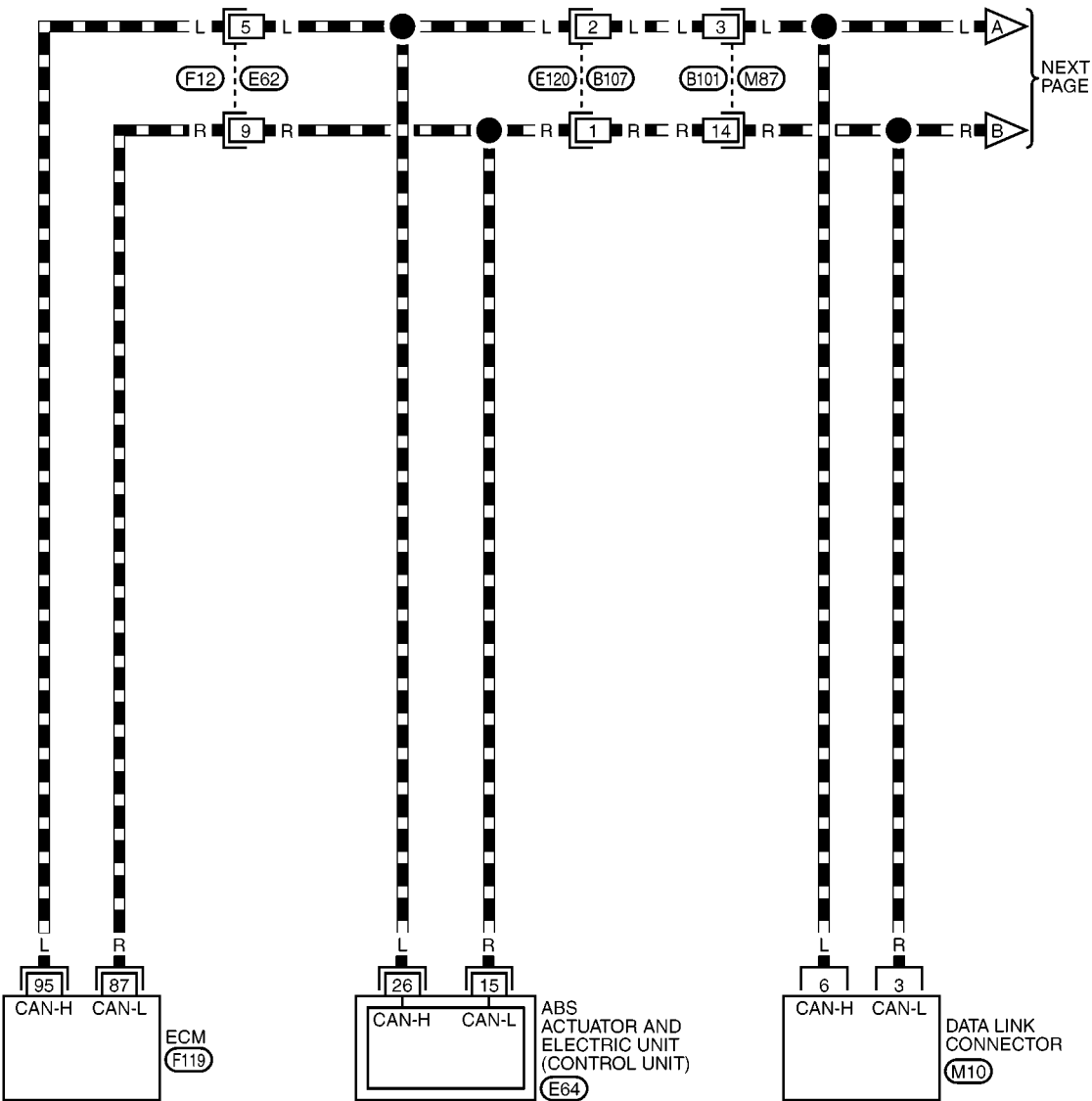
[CAN]

EKS00ASN

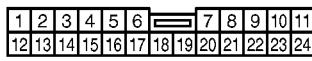
LAN-CAN-21

DATA LINE

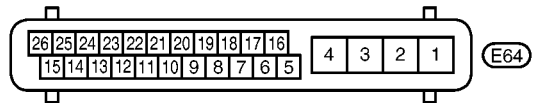
Wiring Diagram — CAN —



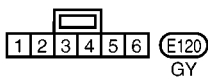
M10
W



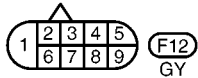
M87
W



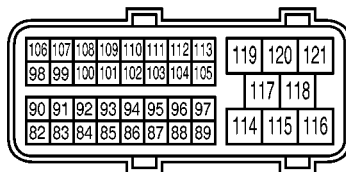
E64



E120
GY



F12
GY

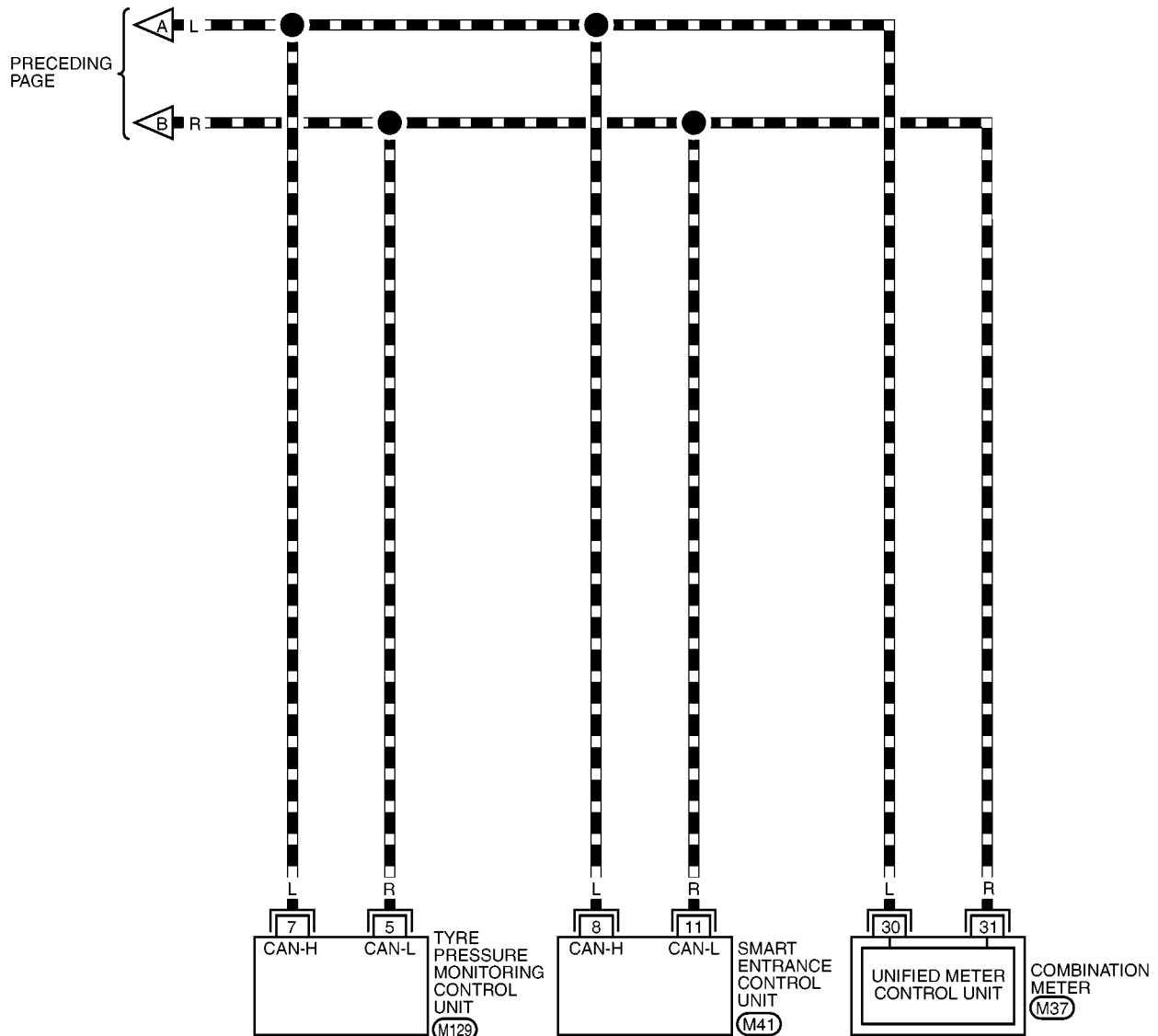


F119



MKWA1727E

LAN-CAN-22

 : DATA LINE


52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)
Y

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24			

(M41)
W



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

Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS", "AIR PRESSURE MONITOR", and "SMART ENTRANCE" displayed on CONSULT-II. Refer to the following:
 - [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
 - [BCS-23, "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-176, "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-176, "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-177, "CHECK SHEET RESULTS \(EXAMPLE\)"](#)

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

LAN

CAN SYSTEM (TYPE 31)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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
AIR PRESSURE
MONITOR
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
AIR PRESSURE
MONITOR
DATA MONITOR

Attach copy of
SMART ENTRANCE
DATA MONITOR

PKIA0785E

CAN SYSTEM (TYPE 31)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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 <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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 <input checked="" type="checkbox"/> CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	CAN CIRC 3

Case 3: Replace Tyre pressure monitoring control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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

Case 4: Replace Smart entrance control unit

ENGINE	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	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 <input checked="" type="checkbox"/> CIRC 4
ABS	CAN COMM	CAN CIRC 1	CAN CIRC 2	—	—	—	—
AIR PRESSURE MONITOR	CAN COMM	CAN CIRC 1	—	—	—	—	CAN CIRC 2
SMART ENTRANCE	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2	—	—	—	CAN CIRC 3

PKIA0786E

CAN SYSTEM (TYPE 31)

[CAN]

Case 6

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

PKIA0787E

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 Tyre pressure monitoring control unit.

Case 4: Replace Smart entrance control unit.

Case 5: Check Harness between ABS actuator and electric unit (control unit) and Tyre pressure monitoring control unit. Refer to [LAN-179, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Tyre Pressure Monitoring Control Unit"](#).

Case 6: Check Harness between Tyre pressure monitoring control unit and Smart entrance control unit. Refer to [LAN-181, "Circuit Check Between Tyre pressure monitoring control unit and Smart Entrance Control Unit"](#).

Case 7: Check ECM Circuit. Refer to [LAN-181, "ECM Circuit Check"](#).

Case 8: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-182, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 9: Check Tyre pressure monitoring control unit Circuit. Refer to [LAN-182, "Tyre Pressure Monitoring Control Unit Circuit Check"](#).

Case 10: Check Smart entrance control unit Circuit. Refer to [LAN-183, "Smart Entrance Control Unit Circuit Check"](#).

Case 11: Check Combination meter Circuit. Refer to [LAN-183, "Combination Meter Circuit Check"](#).

Case 12: Check CAN communication Circuit. Refer to [LAN-184, "CAN Communication Circuit Check"](#).

Circuit Check Between ABS Actuator and Electric Unit (control unit) and Tyre Pressure Monitoring Control Unit

EKS00ASP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side and harness side)
 - Tyre pressure monitoring control unit.
 - ABS actuator and electric unit (control unit).
 - Between tyre pressure monitoring control unit and ABS actuator and electric unit (control unit).

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).

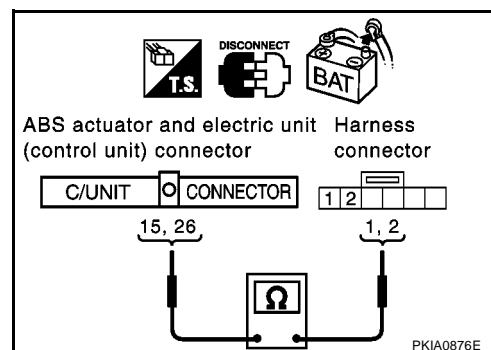
26(L) – 2(L) : Continuity should exist.

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).

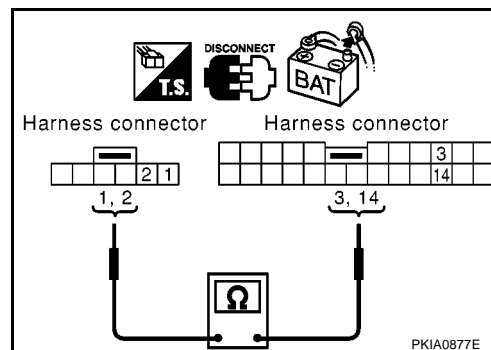
2(L) – 3(L) : Continuity should exist.

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 tyre pressure monitoring control unit connector.
2. Check continuity between harness connector M87 terminals 3 (L), 14 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

3(L) – 7(L) : Continuity should exist.

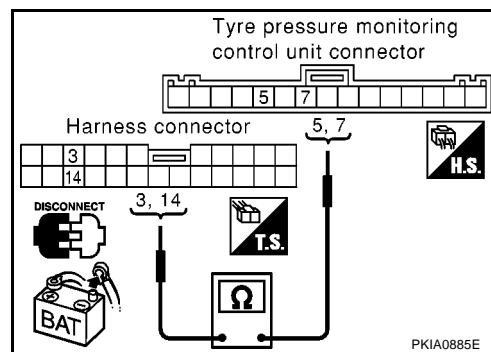
14(R) – 5(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



Circuit Check Between Tyre pressure monitoring control unit and Smart Entrance Control Unit

EKS00ASQ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check following terminals and connector for damage, bend and loose connection. (control unit side and harness side)
 - Smart entrance control unit.
 - Tyre pressure monitoring control unit.

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 and tyre pressure monitoring control unit connector.
2. Check continuity between smart entrance control unit harness connector M41 terminals 8 (L), 11 (R) and tyre pressure monitoring control unit harness connector M129 terminals 7 (L), 5 (R).

8(L) – 7(L) : Continuity should exist.

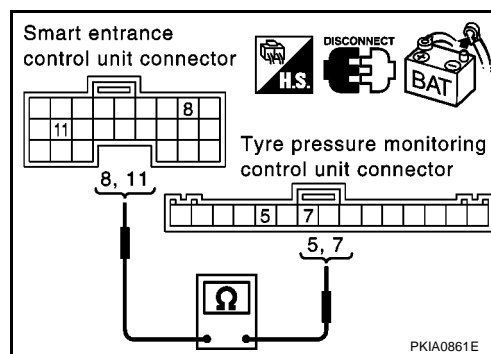
11(R) – 5(R) : Continuity should exist.

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



PKIA0861E

ECM Circuit Check

EKS00ASR

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
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 F119 terminals 95(L) and 87(R).

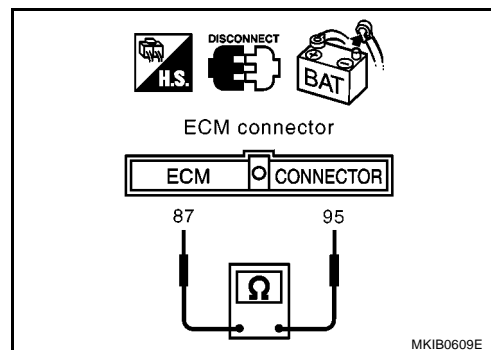
95(L) – 87(R)

: 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

EKS00ASS

1. CHECK CONNECTOR

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

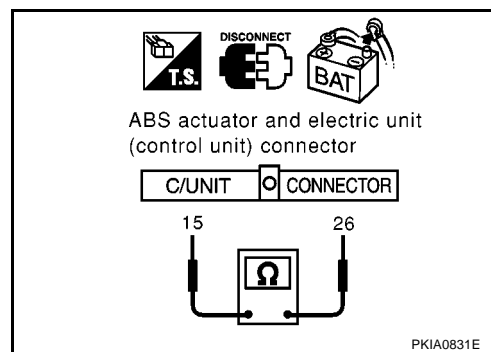
26(L) – 15(R)

: 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).



Tyre Pressure Monitoring Control Unit Circuit Check

EKS00AST

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery cable.
3. Check terminals and connector of tyre pressure monitoring 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

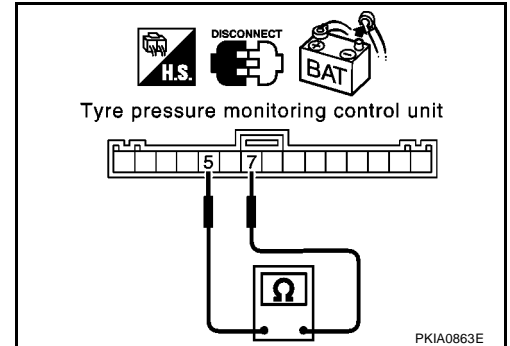
1. Disconnect tyre pressure monitoring control unit connector.
2. Check resistance between tyre pressure monitoring control unit harness connector M129 terminals 7(L) and 5(R).

7(L) – 5(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace tyre pressure monitoring control unit.
 NG >> Repair harness between smart entrance control unit and tyre pressure monitoring control unit.



EKS00ASU

Smart Entrance Control Unit Circuit Check

1. CHECK CONNECTOR

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

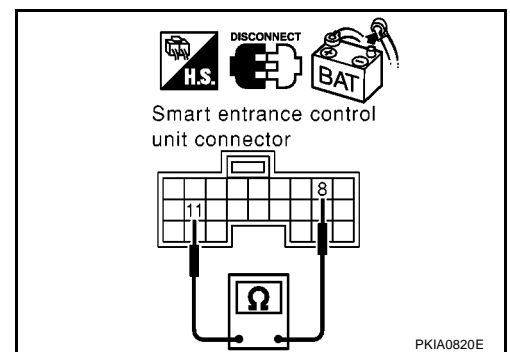
1. Disconnect smart entrance control unit connector.
2. Check resistance between smart entrance control unit harness connector M41 terminals 8(L) and 11(R).

8(L) – 11(R)

: Approx. 54 – 66Ω

OK or NG

- OK >> Replace smart entrance control unit.
 NG >> Repair harness between tyre pressure monitoring control unit and smart entrance control unit.



EKS00ASV

Combination Meter Circuit Check

1. CHECK CONNECTOR

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

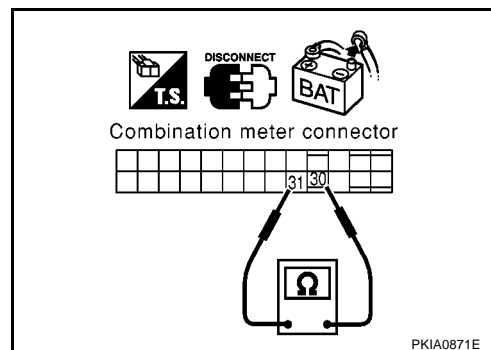
2. CHECK HARNESS FOR OPEN CIRCUIT

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 cable.
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
 - Tyre pressure monitoring 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.

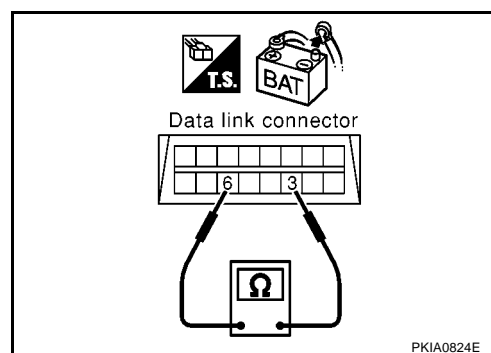
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Tyre pressure monitoring 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 smart entrance control unit and tyre pressure monitoring control unit.
 - Repair harness between Data link connector and tyre pressure monitoring 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

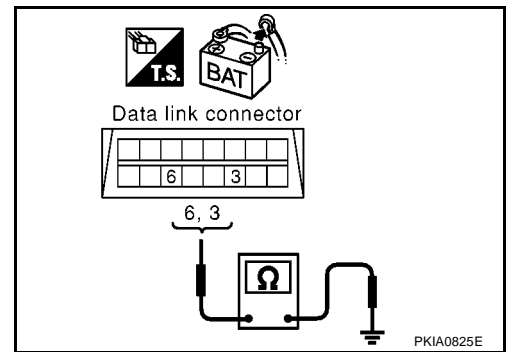
OK >> GO TO 4.

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

● Repair harness between smart entrance control unit and tyre pressure monitoring control unit.

● Repair harness between Data link connector and tyre pressure monitoring control unit.

● Repair harness between Data link connector and harness connector M87.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector B107.

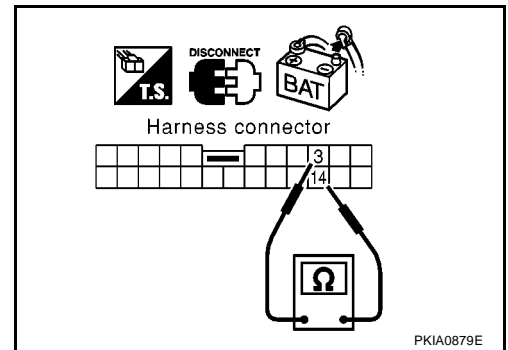
2. Check continuity between harness connector B101 terminals 3 (L) and 14(R).

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.

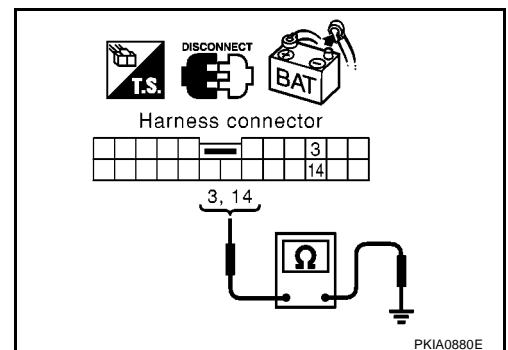
3(L) – ground : Continuity should not exist.

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

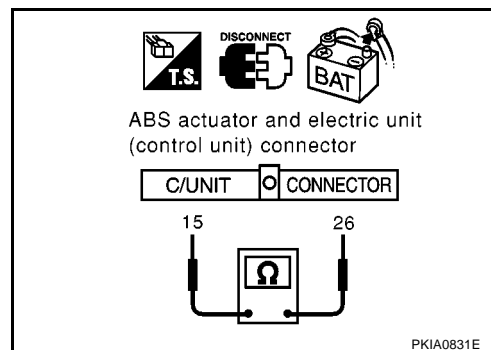
1. Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector.
 - Harness connector E63.(Gasoline engine models)
 - Harness connector E62.(Diesel engine models)
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 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.

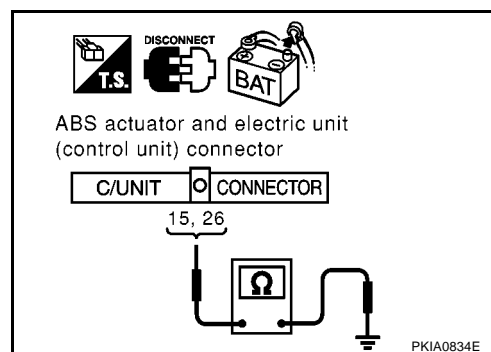
26(L) – ground : Continuity should not exist.

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

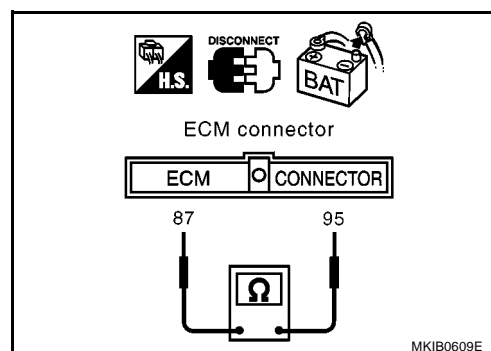
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95(L) and 87(R).

95(L) – 87(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 F119 terminals 95 (L), 87 (R) and ground.

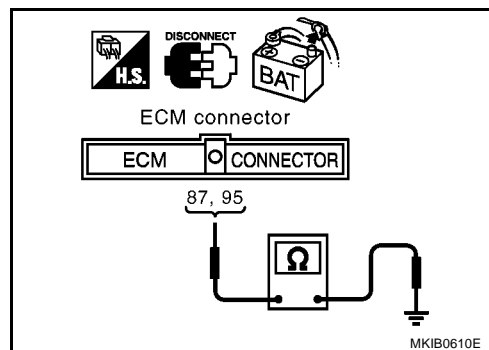
95(L) – ground : Continuity should not exist.

87(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-187, "ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#)

OK or NG

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

- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [WT-23, "Inspection 4: CAN Communication Line"](#) for "AIR PRESSURE MONITOR"
- [EC-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "SMART ENTRANCE"

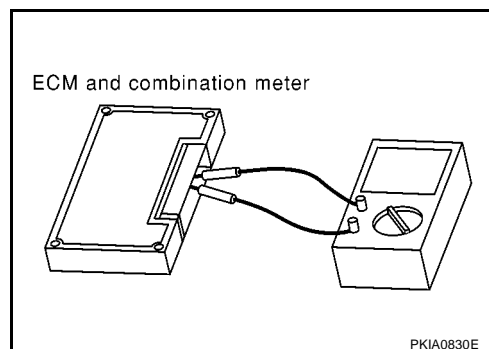
NG >> Replace ECM and/or Combination meter.

Component Inspection

ECM / COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and Combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	30 – 31	



CAN SYSTEM (TYPE 32)

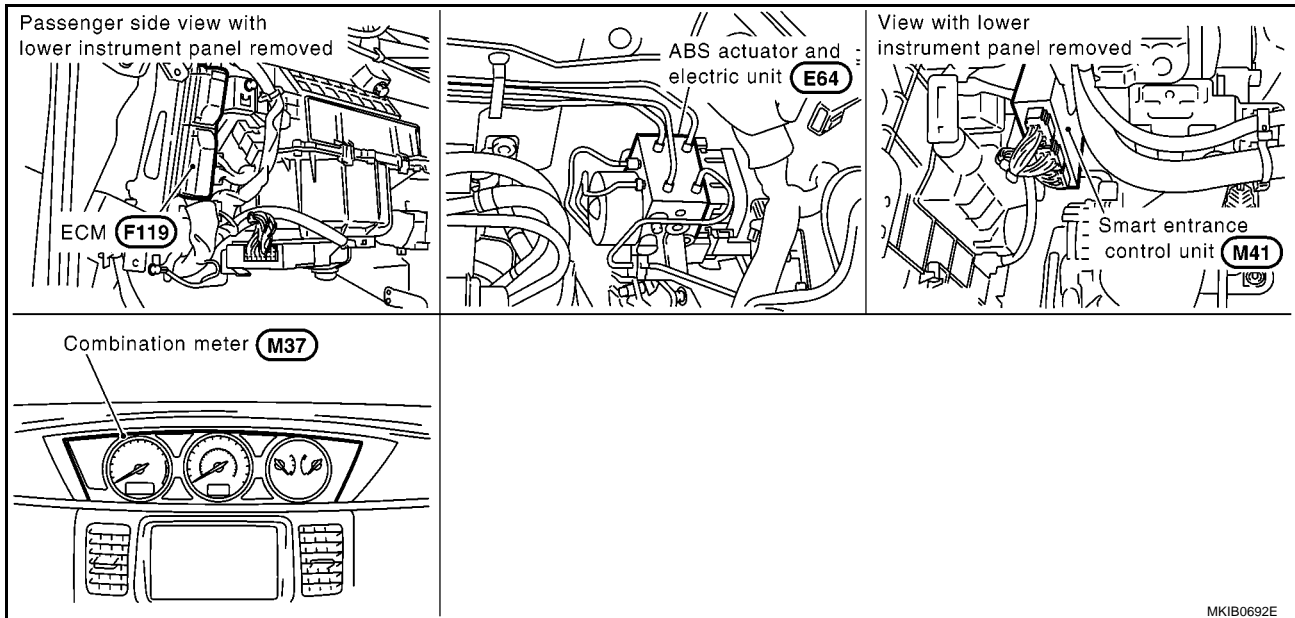
System Description

EKS00ASY

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

EKS00ASZ



CAN SYSTEM (TYPE 32)

[CAN]

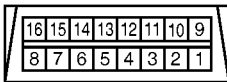
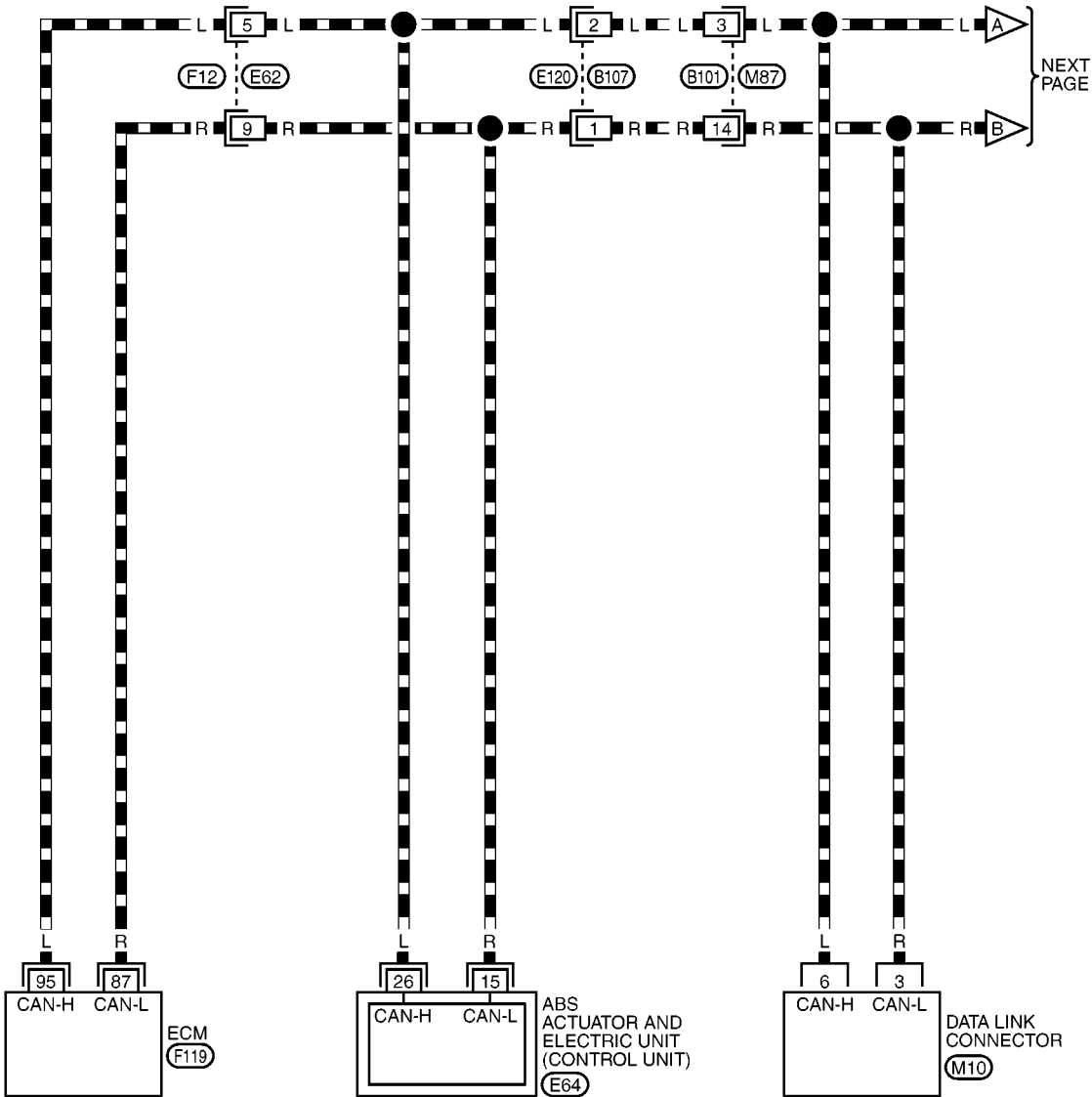
Wiring Diagram — CAN —

EKS00A70

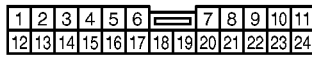
LAN-CAN-23

DATA LINE

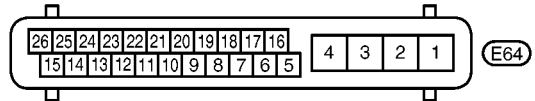
A
B
C
D
E
F
G
H
I
J
LAN
L
M



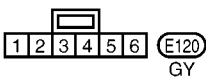
M10
W



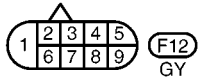
M87
W



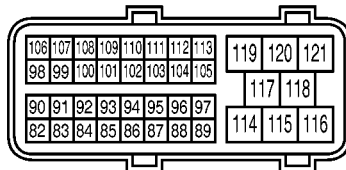
E64



E120
GY



F12
GY

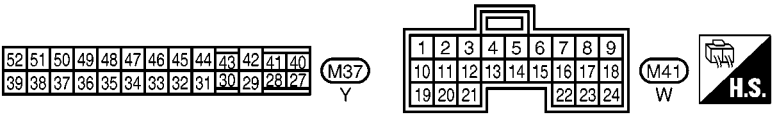
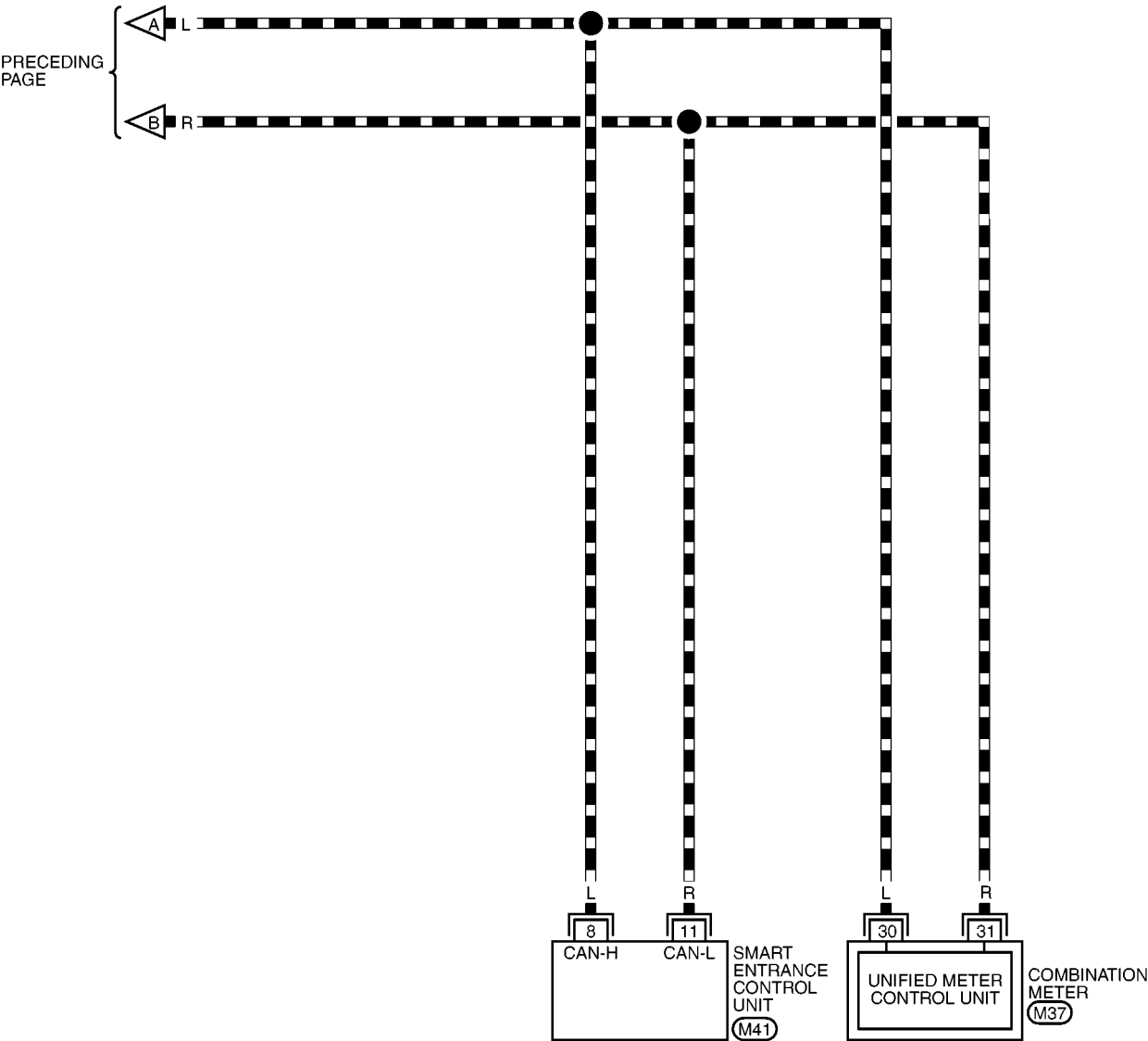


F119



MKWA1749E

DATA LINE



Work Flow

EKS00AT1

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "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-192, "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-192, "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-193, "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 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

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-195, "Circuit Check Between ABS Actuator and Electric Unit \(control unit\) and Smart Entrance Control Unit"](#).

Case 5: Check ECM Circuit. Refer to [LAN-196, "ECM Circuit Check"](#).

Case 6: Check ABS actuator and electric unit (control unit) Circuit. Refer to [LAN-197, "ABS Actuator and Electric Unit \(control unit\) Circuit Check"](#).

Case 7: Check Smart entrance control unit Circuit. Refer to [LAN-197, "Smart Entrance Control Unit Circuit Check"](#).

Case 8: Check Combination meter Circuit. Refer to [LAN-198, "Combination Meter Circuit Check"](#).

Case 9: Check CAN communication Circuit. Refer to [LAN-198, "CAN Communication Circuit Check"](#).

Circuit Check Between ABS Actuator and Electric Unit (control unit) and Smart Entrance Control Unit

1. CHECK CONNECTOR

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

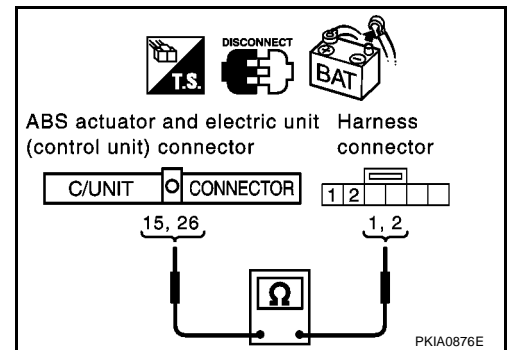
26(L) – 2(L) : Continuity should exist.

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).

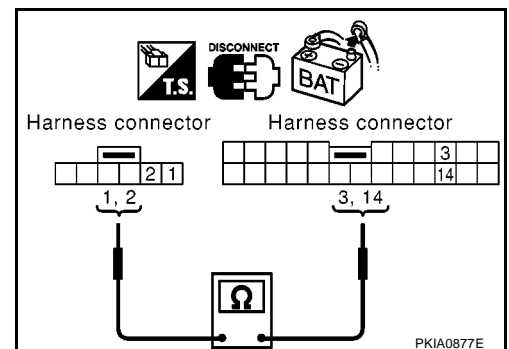
2(L) – 3(L) : Continuity should exist.

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).

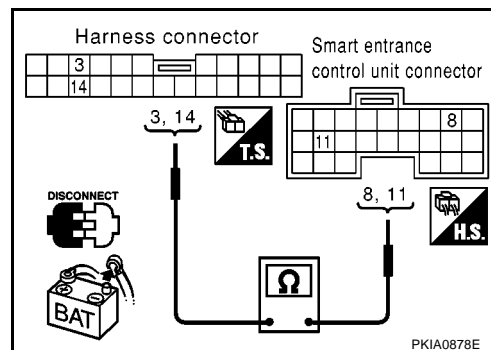
3(L) – 8(L) : Continuity should exist.

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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
 - [BRC-25, "CAN Communication Circuit"](#) for "ABS"
 - [BCS-23, "CAN Communication Line Check"](#) for "SMART ENTRANCE"

NG >> Repair harness.



ECM Circuit Check

EKS00AT3

1. CHECK CONNECTOR

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

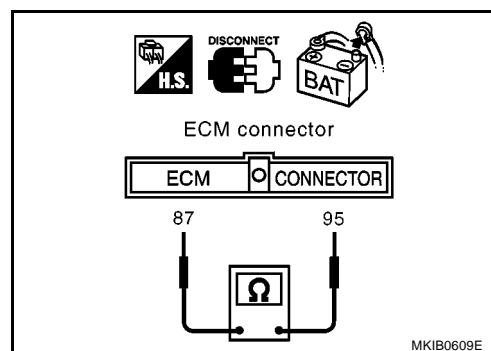
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F119 terminals 95 (L) and 87 (R).

95 (L) – 87 (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

EKS00AT4

1. CHECK CONNECTOR

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

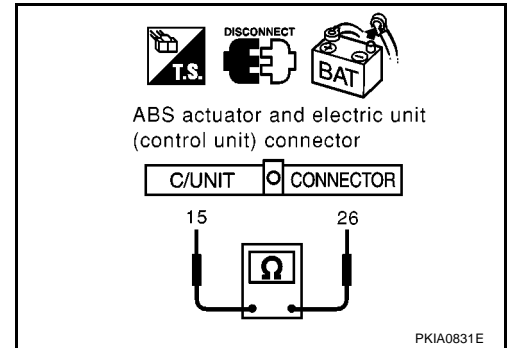
2. CHECK HARNESS FOR OPEN CIRCUIT

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**

EKS00AT5

1. CHECK CONNECTOR

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

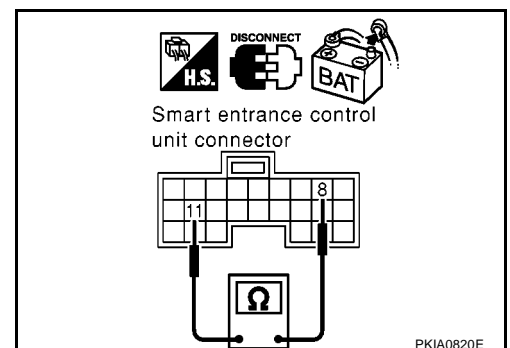
2. CHECK HARNESS FOR OPEN CIRCUIT

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

EKS00AT6

1. CHECK CONNECTOR

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

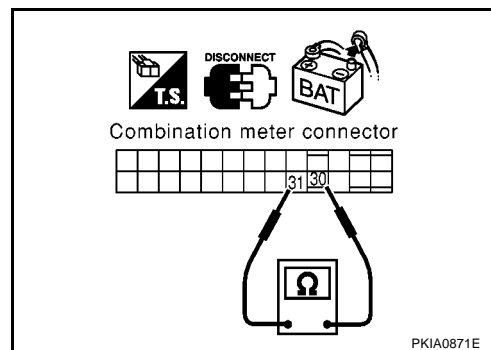
2. CHECK HARNESS FOR OPEN CIRCUIT

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**

EKS00AT7

1. CHECK CONNECTOR

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

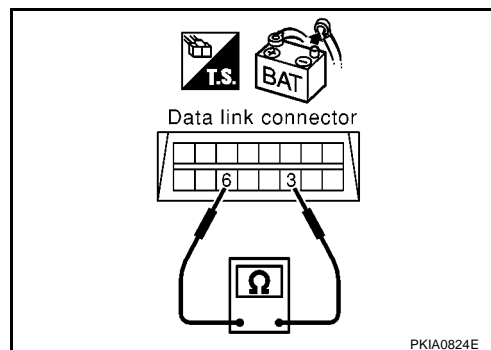
- Disconnect the following connectors.
 - Combination meter connector
 - Smart entrance control unit connector
 - Harness connector M87
- Check continuity between Data link connector M10 terminals 6 (L) and 3 (R).

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 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.

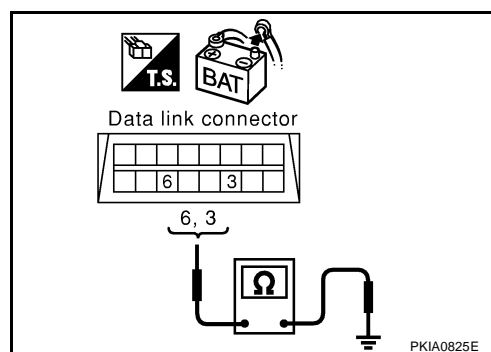
6 (L) – ground : Continuity should not exist.

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

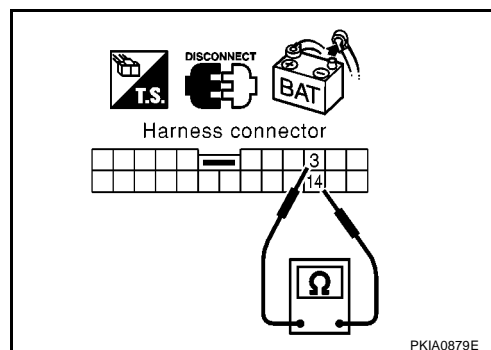
- Disconnect harness connector B107.
- Check continuity between harness connector B101 terminals 3 (L) and 14 (R).

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.

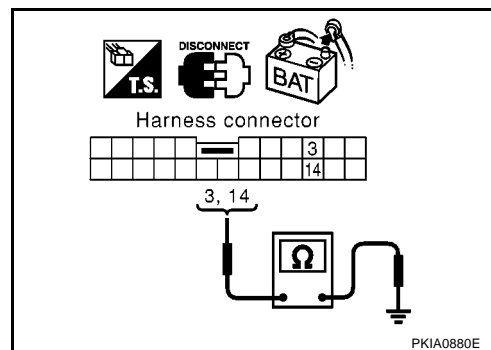
3 (L) – ground : Continuity should not exist.

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

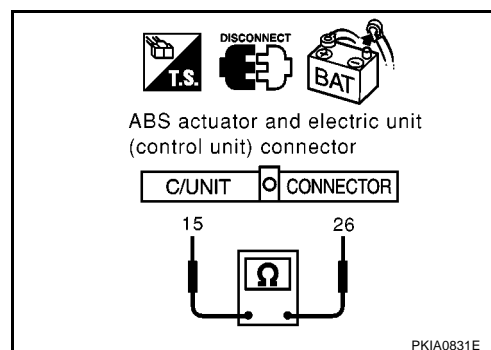
- Disconnect the following connectors.
 - ABS actuator and electric unit (control unit) connector
 - Harness connector E62
- Check continuity between ABS actuator and electric unit (control unit) harness connector E64 terminals 26 (L) and 15 (R).

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.

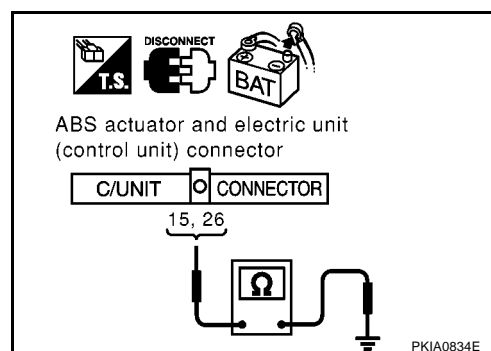
26 (L) – ground : Continuity should not exist.

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

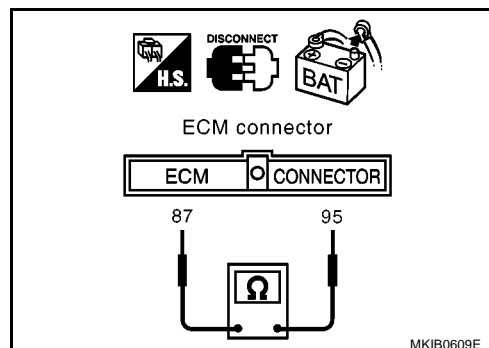
1. Disconnect ECM connector.
2. Check continuity between ECM harness connector F119 terminals 95 (L) and 87 (R).

95 (L) – 87 (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 F119 terminals 95 (L), 87 (R) and ground.

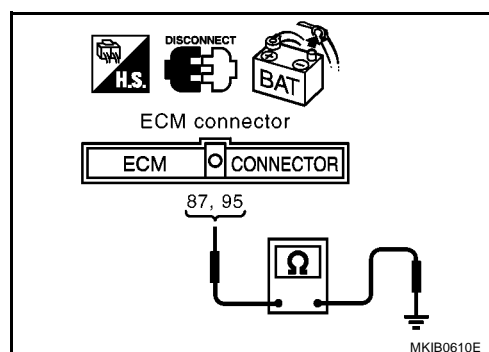
95 (L) – ground : Continuity should not exist.

87 (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-201, "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-83, "DTC U1000 CAN COMMUNICATION LINE"](#) for "ENGINE"
- [BRC-25, "CAN Communication Circuit"](#) for "ABS"
- [BCS-23, "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 95 and 87.
- Check resistance between Combination meter terminals 30 and 31.

Unit	Terminal	Resistance value (Ω)
ECM	95 – 87	Approx. 108 - 132
Combination meter	30 – 31	

