SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

EKS00651

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

WARNING:

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

Precautions When Using CONSULT-II

EKS008XS

When connecting CONSULT-II to data link connector, connect them through CONSULT-II CONVERTER.

CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

CHECK POINTS FOR USING CONSULT-II

1. Has CONSULT-II been used without connecting CONSULT-II CONVERTER on this vehicle?
   - If YES, GO TO 2.
   - If NO, GO TO 5.
2. Is there any indication other than indications relating to CAN communication system in the self-diagnosis results?
   - If YES, GO TO 3.
   - If NO, GO TO 4.
3. Based on self-diagnosis results unrelated to CAN communication, carry out the inspection.
4. Malfunctions may be detected in self-diagnosis depending on control units carrying out CAN communication. Therefore, erase the self-diagnosis results.
5. Diagnose CAN communication system. Refer to LAN-4, "System Description" .

Precautions For Trouble Diagnosis

EKS003HN

CAN SYSTEM

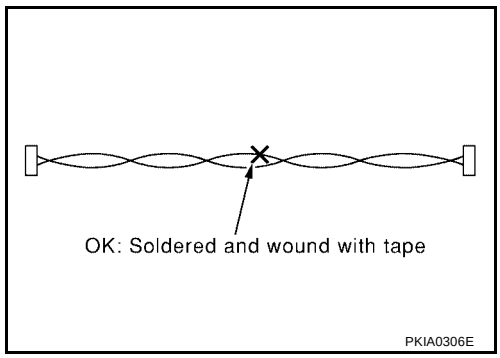
- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

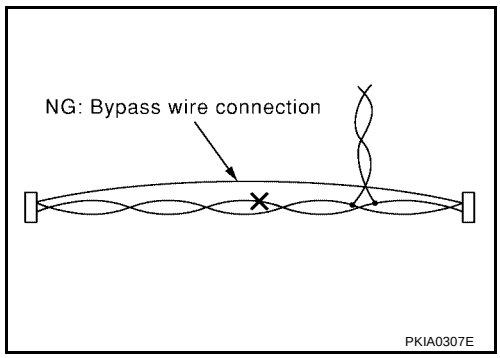
EKS003HO

CAN SYSTEM

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



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



CAN COMMUNICATION

PFP:23710

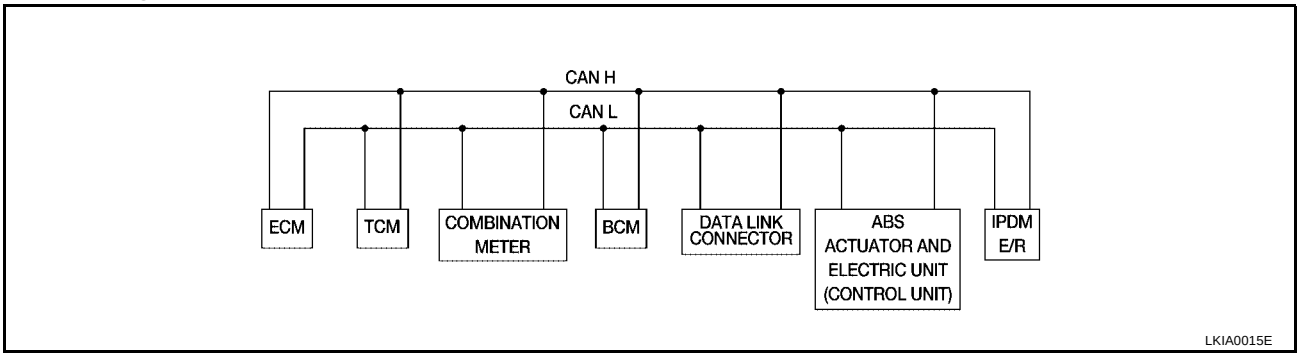
System Description

EKS003HP

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.

FOR TCS MODELS

System diagram



Input/output signal chart

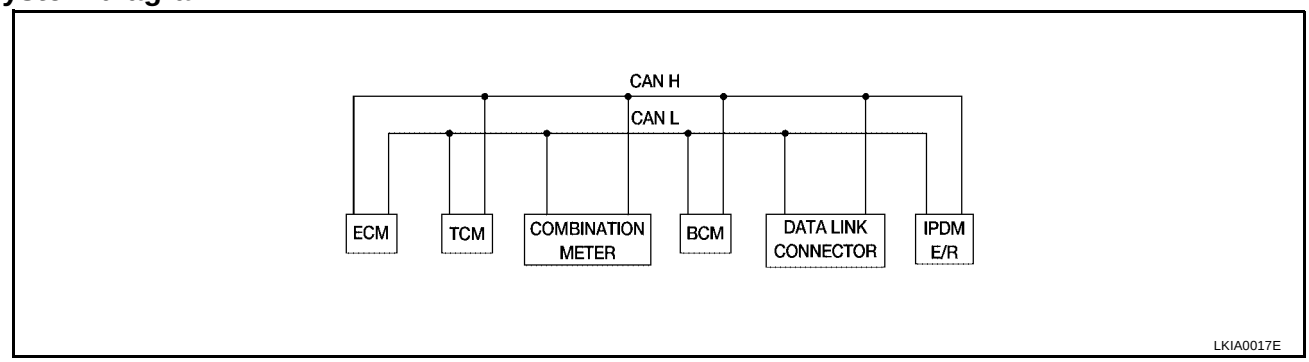
T: Transmit R: Receive

Signals	ECM	TCM	COMBINATION METER	BCM	ABS/TCS control unit	IPDM E/R
Engine speed signal	T		R		R	
Engine coolant temperature signal	T		R			
Accelerator pedal position signal	T					
Fuel consumption monitor signal	T		R			
A/T warning lamp signal		T	R			
A/T position indicator signal	R	T	R	R(R range only)	R	
ABS operation signal	R				T	
TCS operation signal	R	R			T	
Air conditioner switch signal	R			T		
Air conditioner compressor signal	R					T
A/C compressor request signal	T					R
Cooling fan motor operation signal	R					T
Cooling fan speed request signal	T					R
Position lights request			R	T		R
Position lights status				R		T
Low beam request				T		R
Low beam status	R			R		T
High beam request			R	T		R
High beam status	R			R		T
Front fog lights request				T		R
Front fog light status				R		T
OD cancel switch signal		R	T			R
Brake switch signal		R	T			

Signals	ECM	TCM	COMBINATION METER	BCM	ABS/TCS control unit	IPDM E/R
Vehicle speed signal	R		T			
	R		T	R		
Oil pressure switch			R			T
Sleep request1			R	T		
Sleep request2				T		R
N range switch signal		R	T			
P range switch signal		R	T			
Seat belt buckle switch signal			T	R		
Door switch signal			R	T		R
Tail lamp request			R	T		R
Turn indicator signal			R	T		
Buzzer output signal			R	T		
Trunk switch signal			R	T		
ASCD main switch signal	T		R			
ASCD cruise signal	T		R			
Wiper operation				R		T
Wiper stop position signal				R		T
Rear window defogger switch signal				T		R
Rear window defogger control signal	R			R		T

FOR A/T MODELS

System diagram



Input/output signal chart

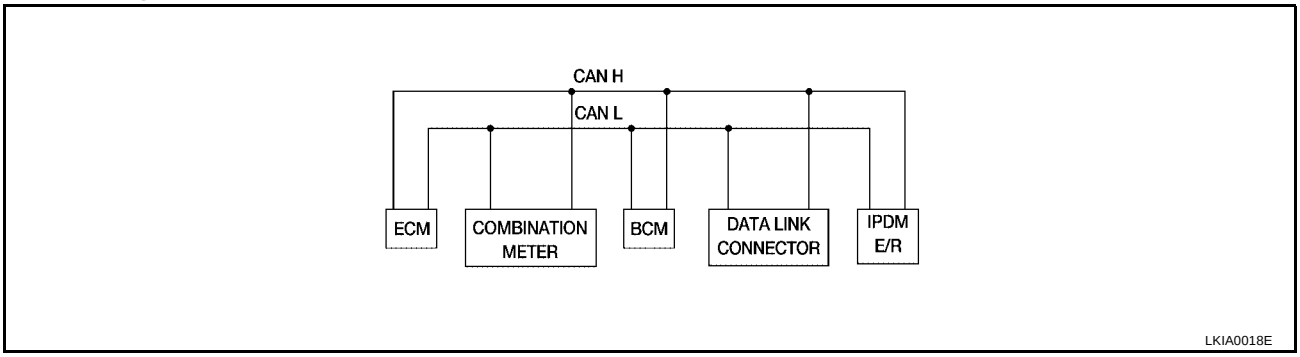
T: Transmit R: Receive

Signals	ECM	TCM	COMBINATION METER	BCM	IPDM E/R
Engine speed signal	T		R		
Engine coolant temperature signal	T		R		
Accelerator pedal position signal	T				R
Fuel consumption monitor signal	T		R		
A/T warning lamp signal		T	R		
A/T position indicator signal	R	T	R	R(R range only)	
Air conditioner switch signal	R			T	
Air conditioner compressor signal	R				T
A/C compressor request signal	T				R

Signals	ECM	TCM	COMBINATION METER	BCM	IPDM E/R
Blower fan switch signal	R(QR25DE)			T	
Cooling fan motor operation signal	R			T	
Cooling fan speed request signal	T				R
Position lights request			R	T	R
Position lights status				R	T
Low beam request				T	R
Low beam status	R			R	T
High beam request			R	T	R
High beam status	R			R	T
Front fog lights request				T	R
Front fog light status				R	T
OD cancel switch signal		R	T		R
Brake switch signal		R	T		
Vehicle speed signal	R		T		
	R		T	R	
Oil pressure switch			R		T
Sleep request1			R	T	
Sleep request2				T	R
N range switch signal		R	T		
P range switch signal		R	T		
Seat belt buckle switch signal			T	R	
Door switch signal			R	T	R
Tail lamp request			R	T	R
Turn indicator signal			R	T	
Buzzer output signal			R	T	
Trunk switch signal			R	T	
ASCD main switch signal	T		R		
ASCD cruise signal	T		R		
Wiper operation				R	T
Wiper stop position signal				R	T
Rear window defogger switch signal				T	R
Rear window defogger control signal	R			R	T

FOR M/T MODELS

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	COMBINATION METER	BCM	IPDM E/R
Engine speed signal	T			
Engine coolant temperature signal	T			
Fuel consumption monitor signal	T			
Air conditioner switch signal	R		T	
Air conditioner compressor signal	R			T
A/C compressor request signal	T			R
Blower fan switch signal	R(QR25DE)		T	
Cooling fan motor operation signal	R			T
Cooling fan speed request signal	T			R
Position lights request		R	T	R
Position lights status			R	T
Low beam request			T	R
Low beam status	R		R	T
High beam request		R	T	R
High beam status	R		R	T
Front fog lights request			T	R
Front fog light status			R	T
Vehicle speed signal	R	T		
Oil pressure switch		R		T
Sleep request1		R	T	
Sleep request2			T	R
Seat belt buckle switch signal		T	R	
Door switch signal		R	T	R
Tail lamp request		R	T	R
Turn indicator signal		R	T	
Buzzer output signal		R	T	
Trunk switch signal		R	T	
ASCD main switch signal	T	R		
ASCD cruise signal	T	R		
Wiper operation			R	T
Wiper stop position signal			R	T
Rear window defogger switch signal			T	R
Rear window defogger control signal	R		R	T

CAN SYSTEM (FOR TCS MODELS)

PFP:23710

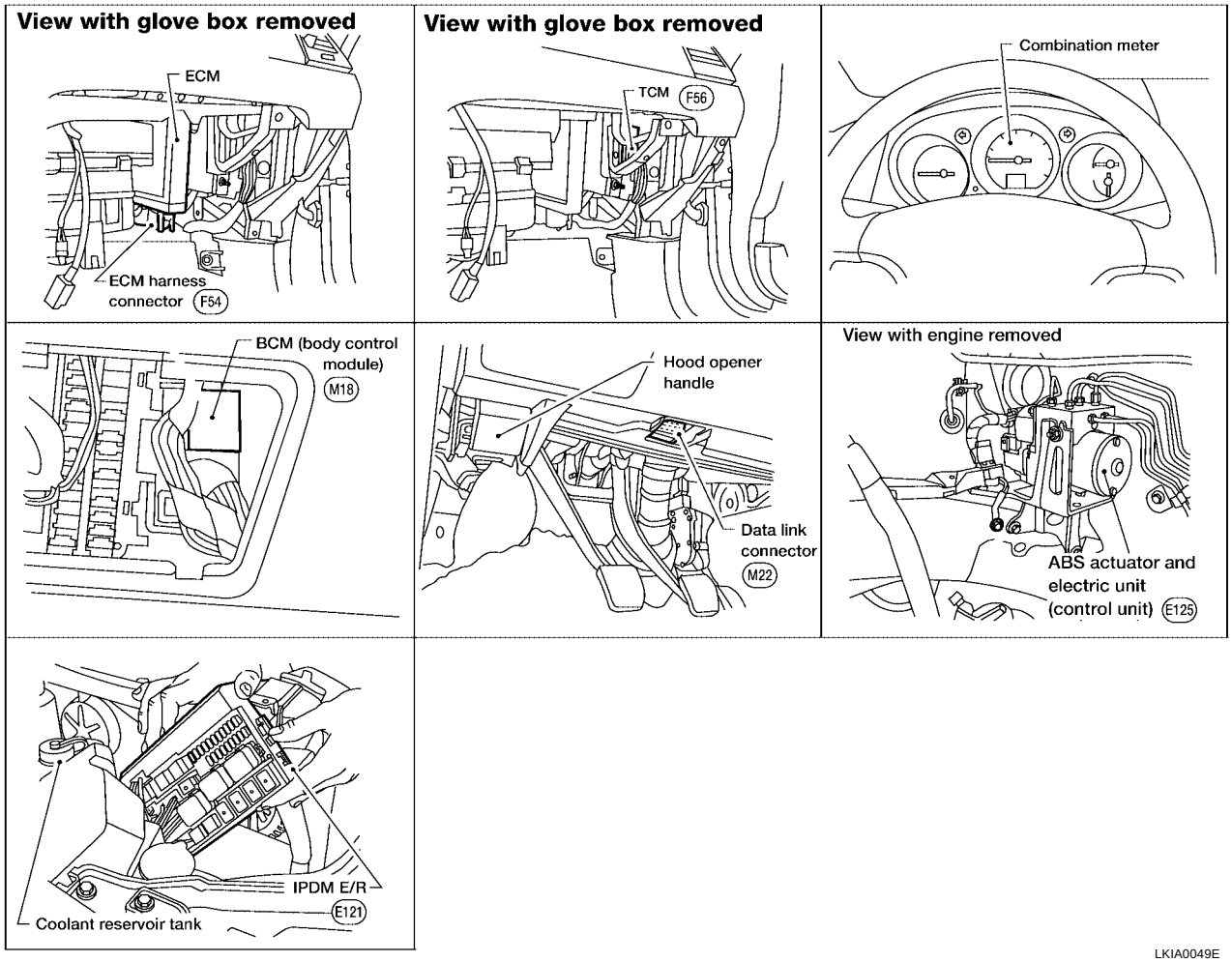
System Description

EKS003HQ

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

EKS003HR



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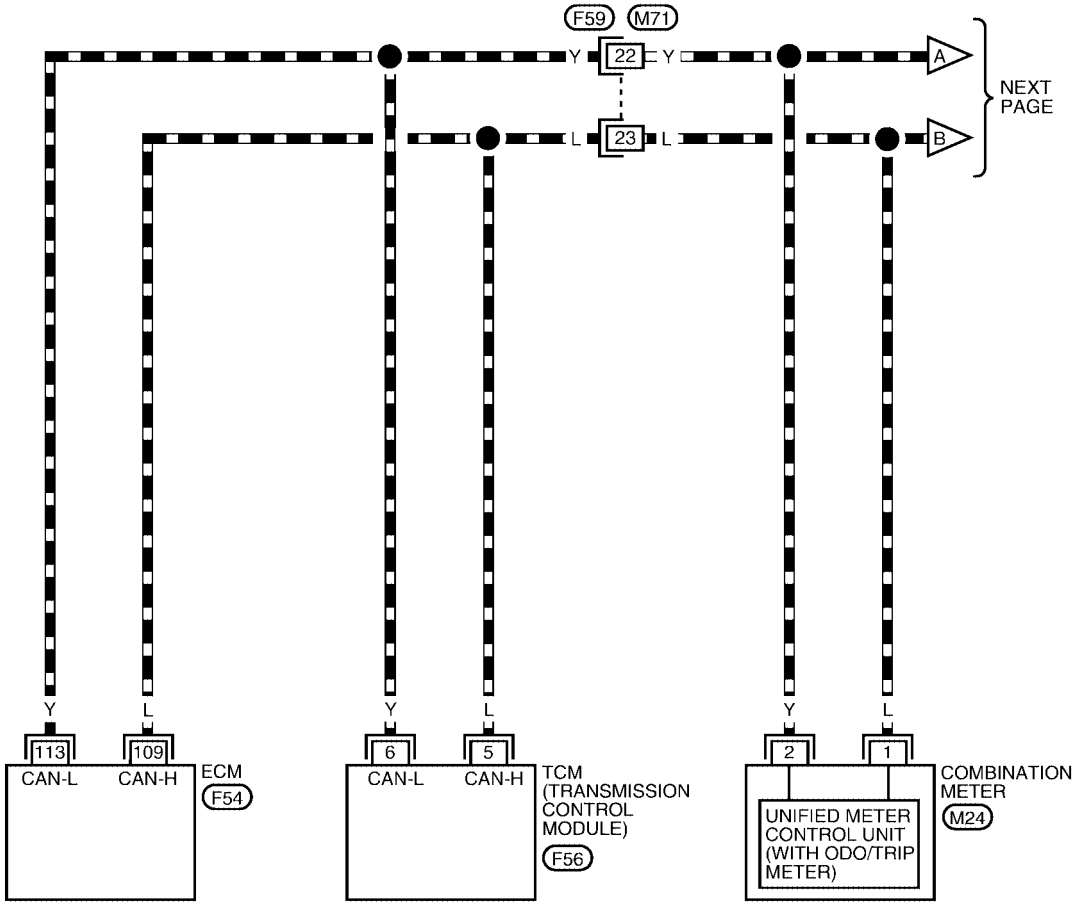
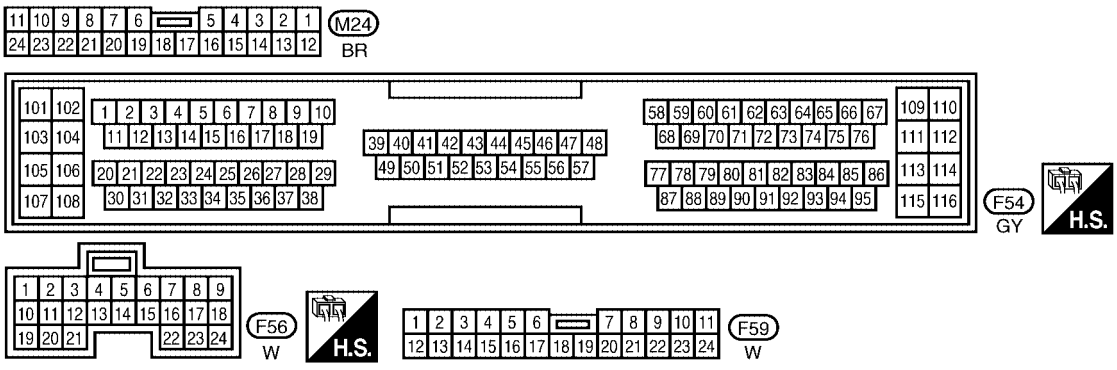
Wiring Diagram — CAN —

EKS003HS

LAN-CAN-01





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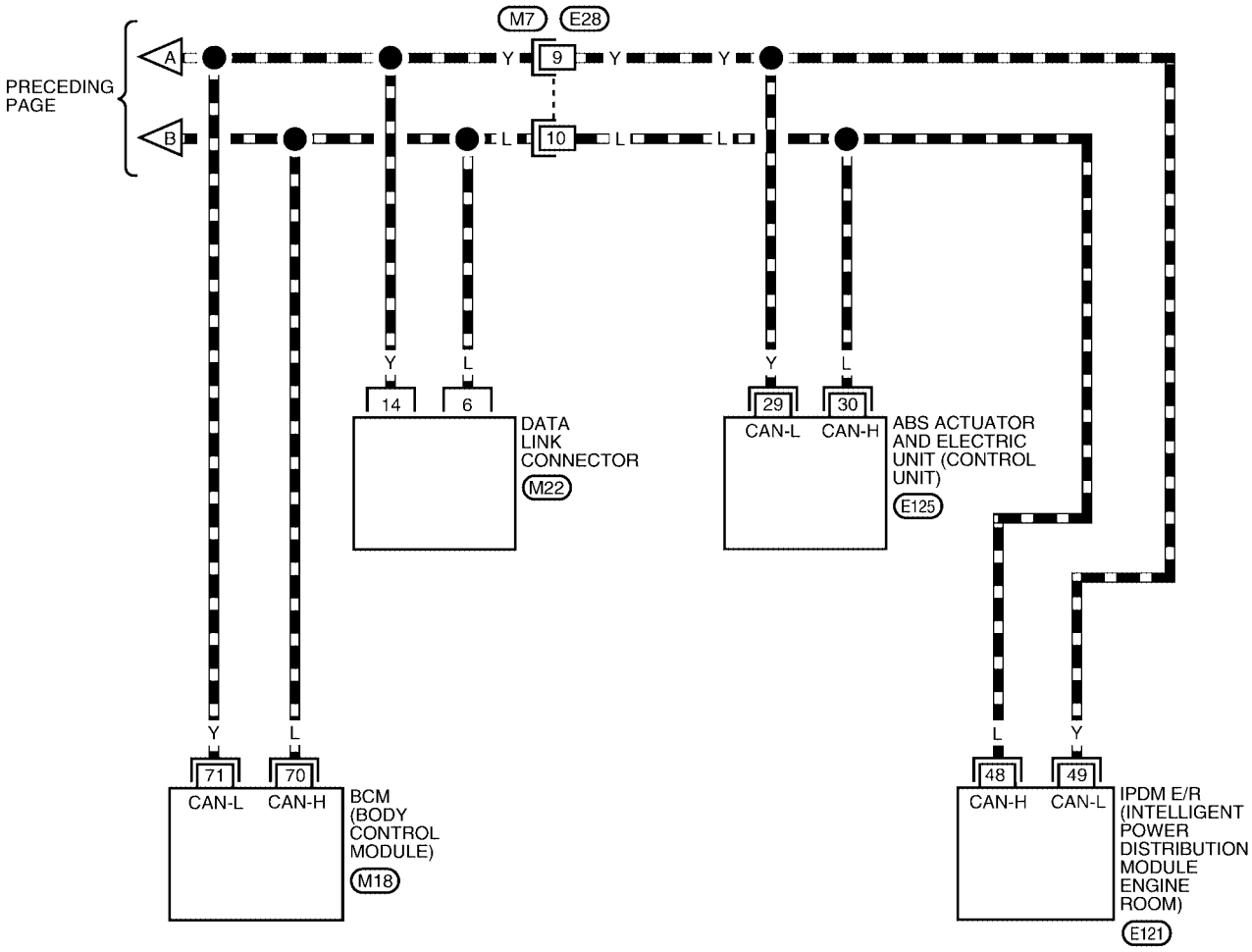
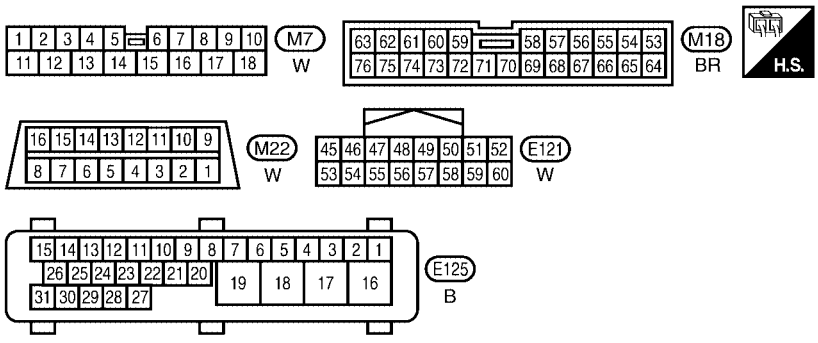
LAN-CAN-02

: DATA LINE



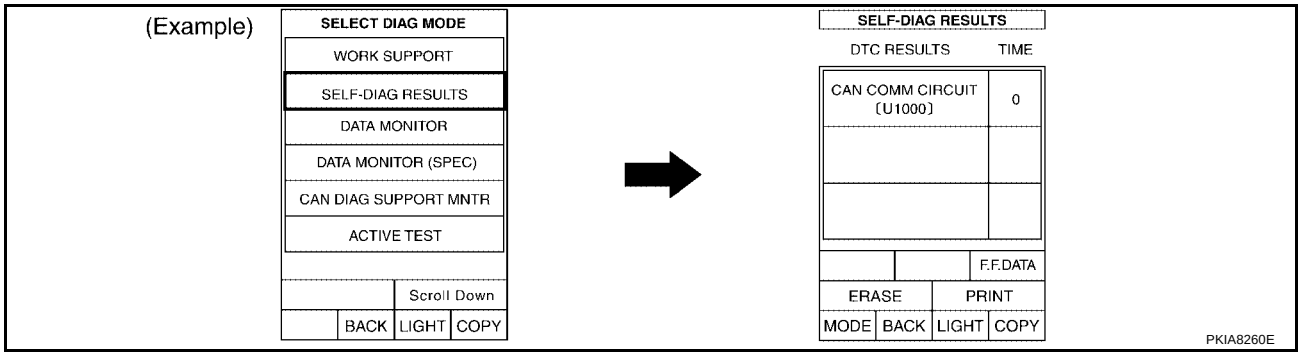


WKWA4946E

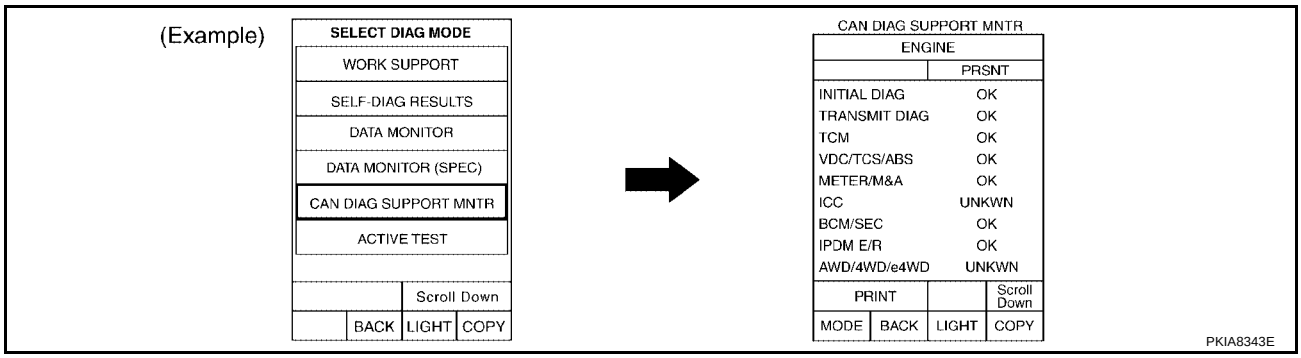
Work Flow

EKS003HT

1. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “A/T”, “BCM”, and “ABS” displayed on CONSULT-II.



2. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “A/T”, “BCM”, and “ABS” displayed on CONSULT-II.



3. Attach the printed sheet of “SELF-DIAG RESULTS” and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-12, "CHECK SHEET" .
4. Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to LAN-12, "CHECK SHEET" .

   NOTE:
   If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
5. According to the check sheet results (example), start inspection. Refer to LAN-13, "CHECK SHEET RESULTS (EXAMPLE)" .

CHECK SHEET

NOTE:

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

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of A/T SELF-DIAG RESULTS

Attach copy of BCM SELF-DIAG RESULTS

Attach copy of ABS SELF-DIAG RESULTS

Attach copy of ENGINE CAN DIAG SUPPORT MNTR

Attach copy of A/T CAN DIAG SUPPORT MNTR

Attach copy of BCM CAN DIAG SUPPORT MNTR

Attach copy of ABS CAN DIAG SUPPORT MNTR

WKIA2878E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

Replace ECM.

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

WKIA2879E

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

WKIA2880E

Case 2

Replace TCM.

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

WKIA2881E

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

WKIA2882E

Case 3

Replace BCM.

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

WKIA2883E

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

WKIA2884E

Case 4

Replace ABS actuator and electric unit (control unit). Refer to BRC-91, "Removal and Installation" .

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

WKIA2885E

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

WKIA2886E

Case 5

Check harness between TCM and combination meter. Refer to LAN-18, "Circuit Check Between TCM and Combination Meter" .

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

WKIA2887E

Case 6

Check harness between combination meter and BCM. Refer to LAN-19, "Circuit Check Between Combination Meter and BCM" .

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

WKIA2888E

Case 7

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-20, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)" .

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

WKIA2889E

Case 8

Check ECM circuit. Refer to LAN-22, "ECM Circuit Check" .

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

WKIA2890E

Case 9

Check TCM circuit. Refer to LAN-22, "TCM Circuit Check" .

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

WKIA2891E

Case 10

Check combination meter circuit. Refer to LAN-23, "Combination Meter Circuit Check" .

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

WKIA2892E

Case 11

Check BCM circuit. Refer to LAN-23, "BCM Circuit Check" .

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

WKIA2893E

Case 12

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-24, "ABS Actuator and Electric Unit (Control Unit) Circuit Check" .

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

WKIA2894E

Case 13

Check IPDM E/R circuit. Refer to LAN-24, "IPDM E/R Circuit Check" .

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

WKIA2895E

Case 14

Check CAN communication circuit. Refer to LAN-25, "CAN Communication Circuit Check" .

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

WKIA2896E

Case 15

Check IPDM E/R ignition relay circuit. Refer to LAN-28, "IPDM E/R Ignition Relay Circuit Check" .

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

WKIA2897E

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

WKIA2898E

Circuit Check Between TCM and Combination Meter

EKS003HU

1. CHECK CONNECTOR

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

- TCM.
- Combination meter.
- Between TCM and combination meter.

OK or NG

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

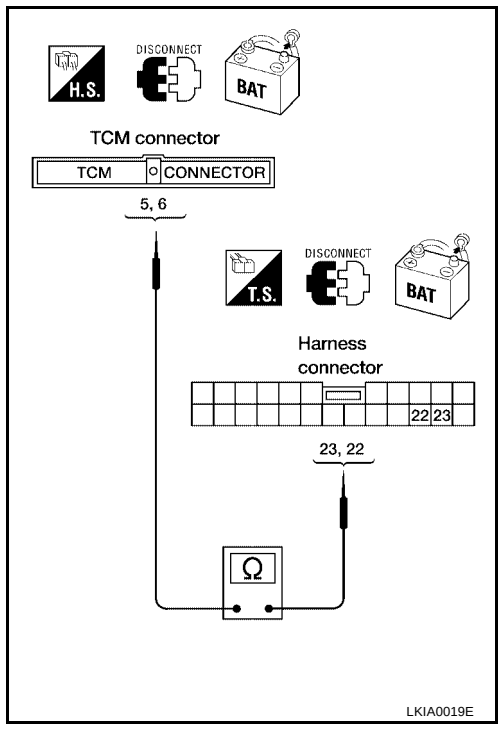
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F59.
2. Check continuity between TCM harness connector F56 terminals 5 (L), 6 (Y) and harness connector F59 terminals 23 (L), 22 (Y).

5 (L) – 23 (L) : Continuity should exist.
6 (Y) – 22 (Y) : Continuity should exist.

OK or NG

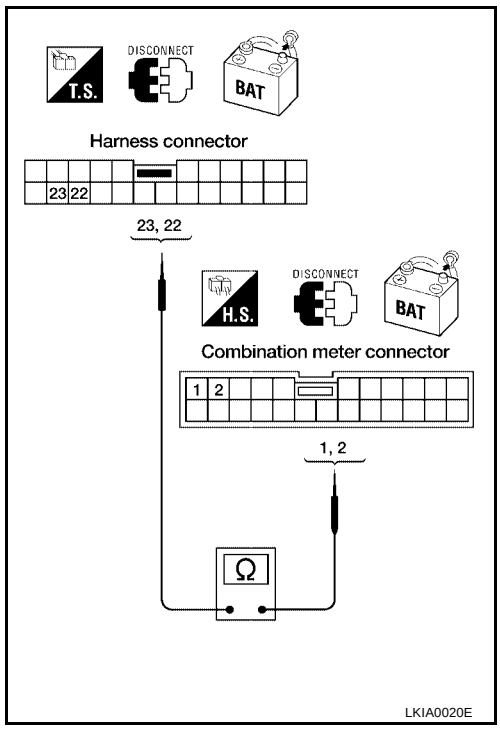
OK >> GO TO 3.
NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between harness connector M71 terminals 23 (L), 22 (Y) and combination meter harness connector M24 terminals 1 (L), 2 (Y).

23 (L) – 1 (L) : Continuity should exist.
22 (Y) – 2 (Y) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .
NG >> Repair harness.

Circuit Check Between Combination Meter and BCM

EKS003HV

1. CHECK CONNECTOR

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

- Combination meter.
- BCM.

OK or NG

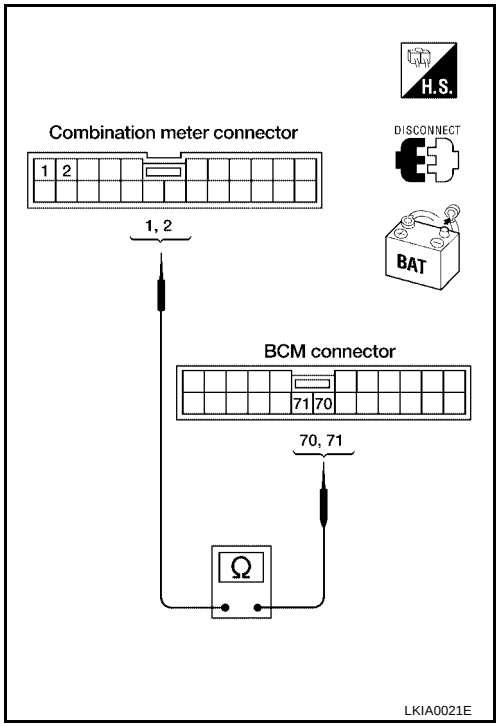
OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector and BCM connector.
2. Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) – 70 (L) : Continuity should exist.

2 (Y) – 71 (Y) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .

NG >> Repair harness.

Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)

EKS003HW

1. CHECK CONNECOTR

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

- BCM.
- ABS actuator and electric unit (control unit).
- Between BCM and ABS actuator and electric unit (control unit).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

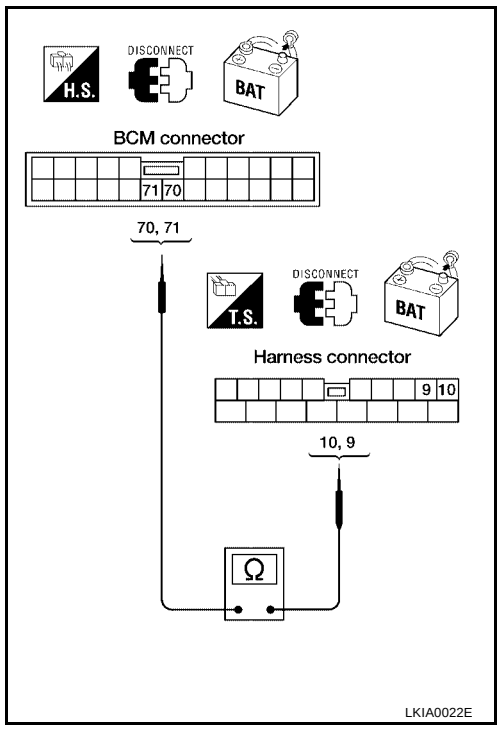
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector and harness connector M7.
2. Check continuity between BCM harness connector M18 terminals 70 (L), 71 (Y) and harness connector M7 terminals 10 (L), 9 (Y).

70 (L) – 10 (L) : Continuity should exist.
71 (Y) – 9 (Y) : Continuity should exist.

OK or NG

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



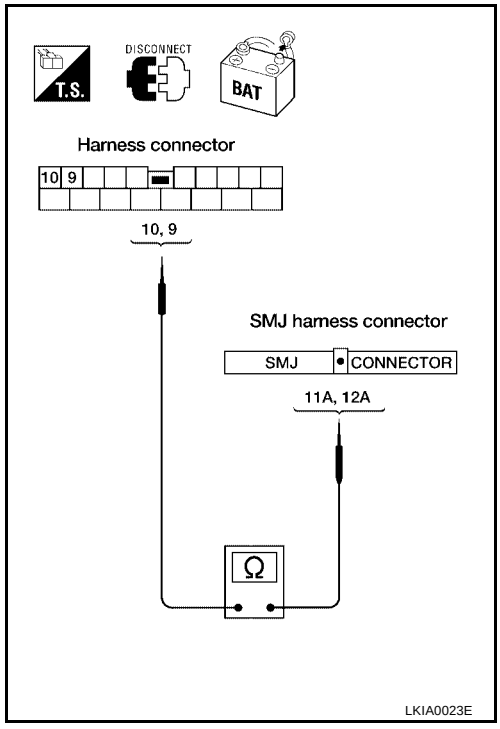
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E27.
2. Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and harness connector E27 terminals 11A (L), 12A (Y).

10 (L) – 11A (L) : Continuity should exist.
9 (Y) – 12A (Y) : Continuity should exist.

OK or NG

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

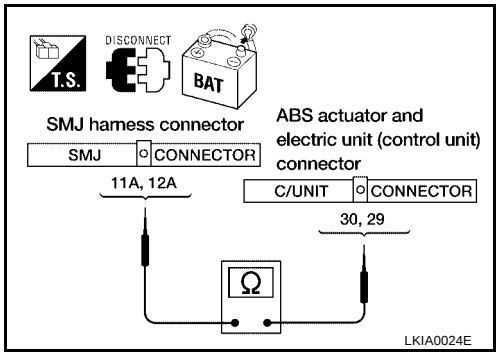


4. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E130 terminals 11A (L), 12A (Y) and ABS actuator and electric unit (control unit) connector harness connector E125 terminals 30 (L), 29 (Y).

11A (L) – 30 (L) : Continuity should exist.

12A (Y) – 29 (Y) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .

NG >> Repair harness.

ECM Circuit Check

EKS003HX

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

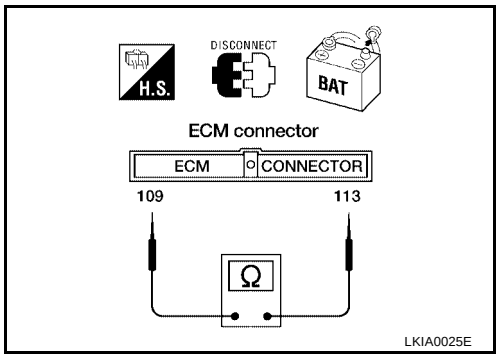
1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F54 terminals 109 (L) and 113 (Y).

109 (L) – 113 (Y) : Approx. 108 – 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between harness connector F59 and ECM.



TCM Circuit Check

EKS003HY

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

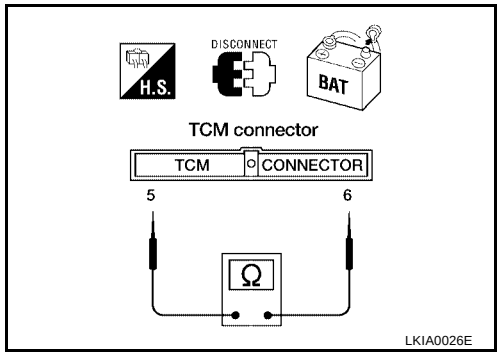
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F56 terminals 5 (L) and 6 (Y).

5 (L) – 6 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.
NG >> Repair harness between harness connector F59 and TCM.



Combination Meter Circuit Check

EKS003HZ

1. CHECK CONNECTOR

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

OK or NG

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

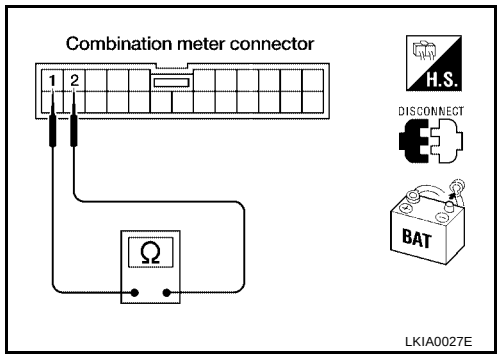
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 1 (L) and 2 (Y).

1 (L) – 2 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace combination meter. Refer to DI-17, "Removal and Installation of Combination Meter" .
NG >> Repair harness between harness connector M71 and combination meter.



BCM Circuit Check

EKS003I0

1. CHECK CONNECTOR

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

OK or NG

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

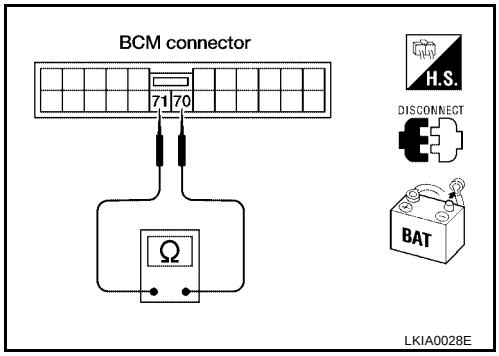
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

70 (L) – 71 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM.
NG >> Repair harness between harness connector M7 and BCM.



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS003I1

1. CHECK CONNECTOR

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

OK or NG

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

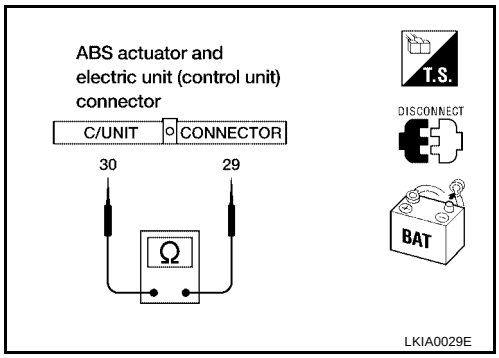
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E125 terminals 30 (L) and 29 (Y).

30 (L) – 29 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace ABS actuator and electric unit (control unit).
NG >> Repair harness between harness connector E130 and ABS actuator and electric unit (control unit). Refer to BRC-91, "Removal and Installation" .



IPDM E/R Circuit Check

EKS003I2

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the terminals and connector of IPDM E/R for damage, bent or loose connection (control module-side and harness-side).

OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

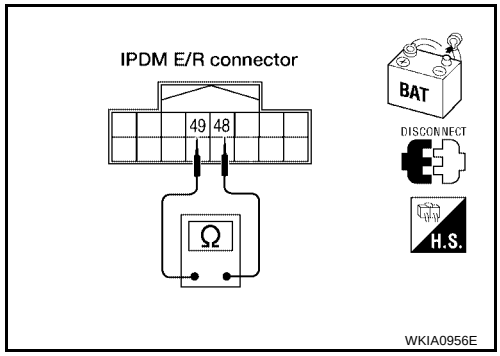
1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

48 (L) – 49 (Y) : Approx. 108 – 132Ω

OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".

NG >> Repair harness between harness connector E130 and IPDM E/R.



CAN Communication Circuit Check

EKS003I3

1. CHECK CONNECTOR

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

- ECM.
- TCM.
- Combination meter.
- BCM.
- ABS actuator and electric unit (control unit).
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

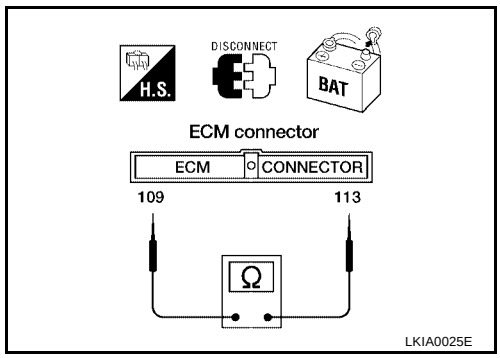
1. Disconnect ECM connector, TCM connector and harness connector F59.
2. Check continuity between ECM harness connector F54 terminals 109 (L) and 113 (Y).

109 (L) – 113 (Y) : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >>
- Repair harness between ECM and harness connector F59.
- Repair harness between TCM and harness connector F59.

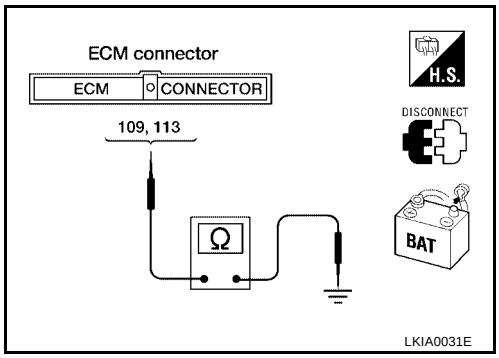


3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground.

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

113 (Y) – ground : Continuity should not exist.



OK or NG

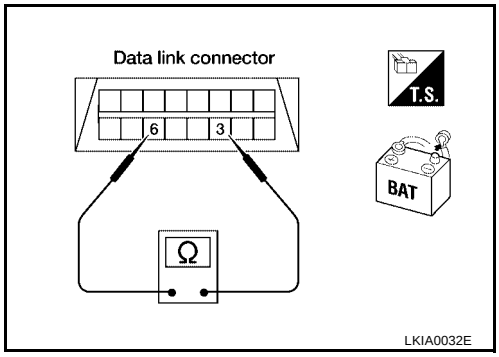
OK >> GO TO 4.

NG >>
- Repair harness between ECM and harness connector F59.
- Repair harness between TCM and harness connector F59.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector, BCM connector and harness connector M7.
2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).

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



OK or NG

OK >> GO TO 5.

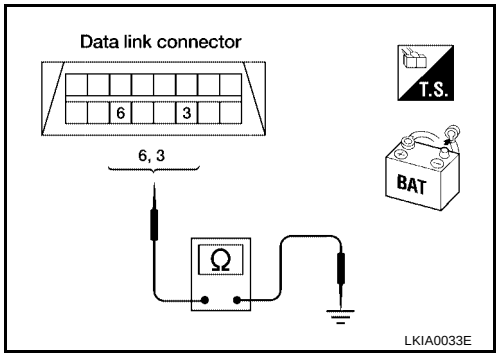
NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.

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

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



OK or NG

OK >> GO TO 6.

NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

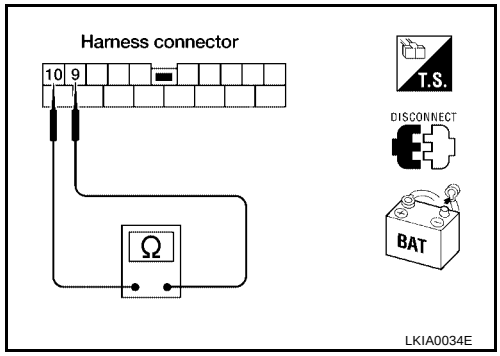
6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E27.
2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

10 (L) – 9 (Y) : Continuity should not exist.

OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E28 and harness connector E27.



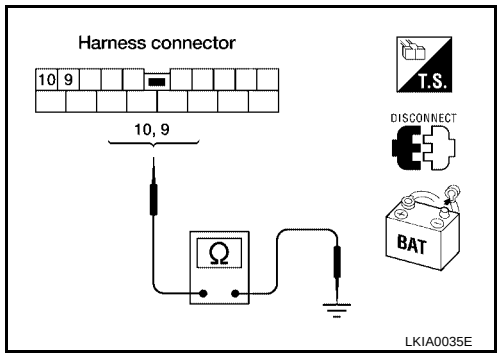
7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

10 (L) – ground : Continuity should not exist.
9 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.
NG >> Repair harness between harness connector E28 and harness connector E27.



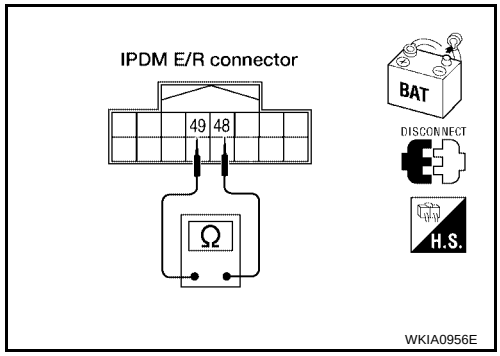
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

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

OK or NG

OK >> GO TO 9.
NG >>
- Repair harness between harness connector E130 and ABS actuator and electric unit (control unit).
- Repair harness between harness connector E130 and IPDM E/R.



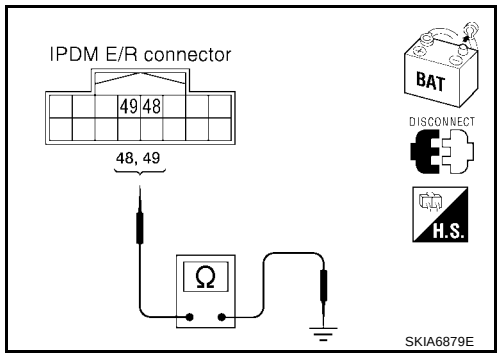
9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

48 (L) – ground : Continuity should not exist.
49 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.
NG >>
- Repair harness between harness connector E130 and ABS actuator and electric unit (control unit).
- Repair harness between harness connector E130 and IPDM E/R.



10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to LAN-28, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

EKS003KT

Check the following. If no problem is found, replace the IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

- IPDM E/R Power Circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition Power Supply Circuit. Refer to PG-12, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

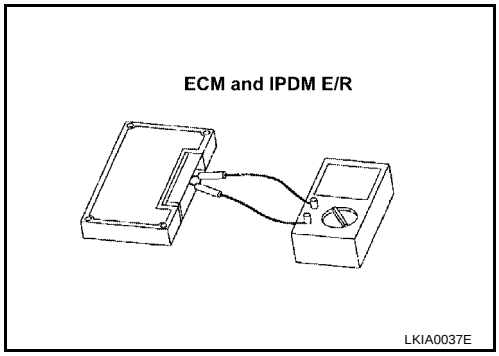
Component Inspection

EKS003I4

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle. Refer to PG-27, "Removal and Installation of IPDM E/R" .
- Check resistance between ECM terminals 109 and 113.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	109 – 113	108 - 132
IPDM E/R	48 – 49	



CAN SYSTEM (FOR A/T MODELS)

PFP:23710

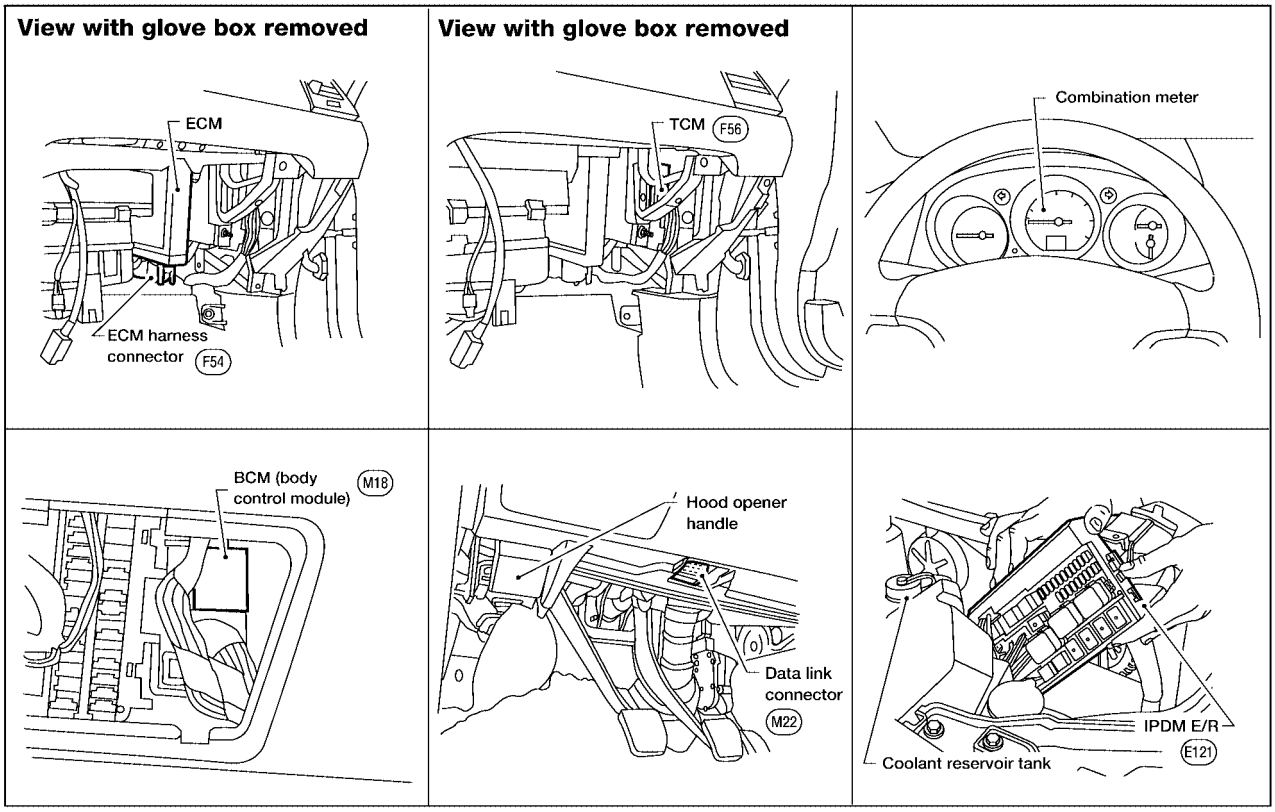
System Description

EKS003I5

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

EKS003I6

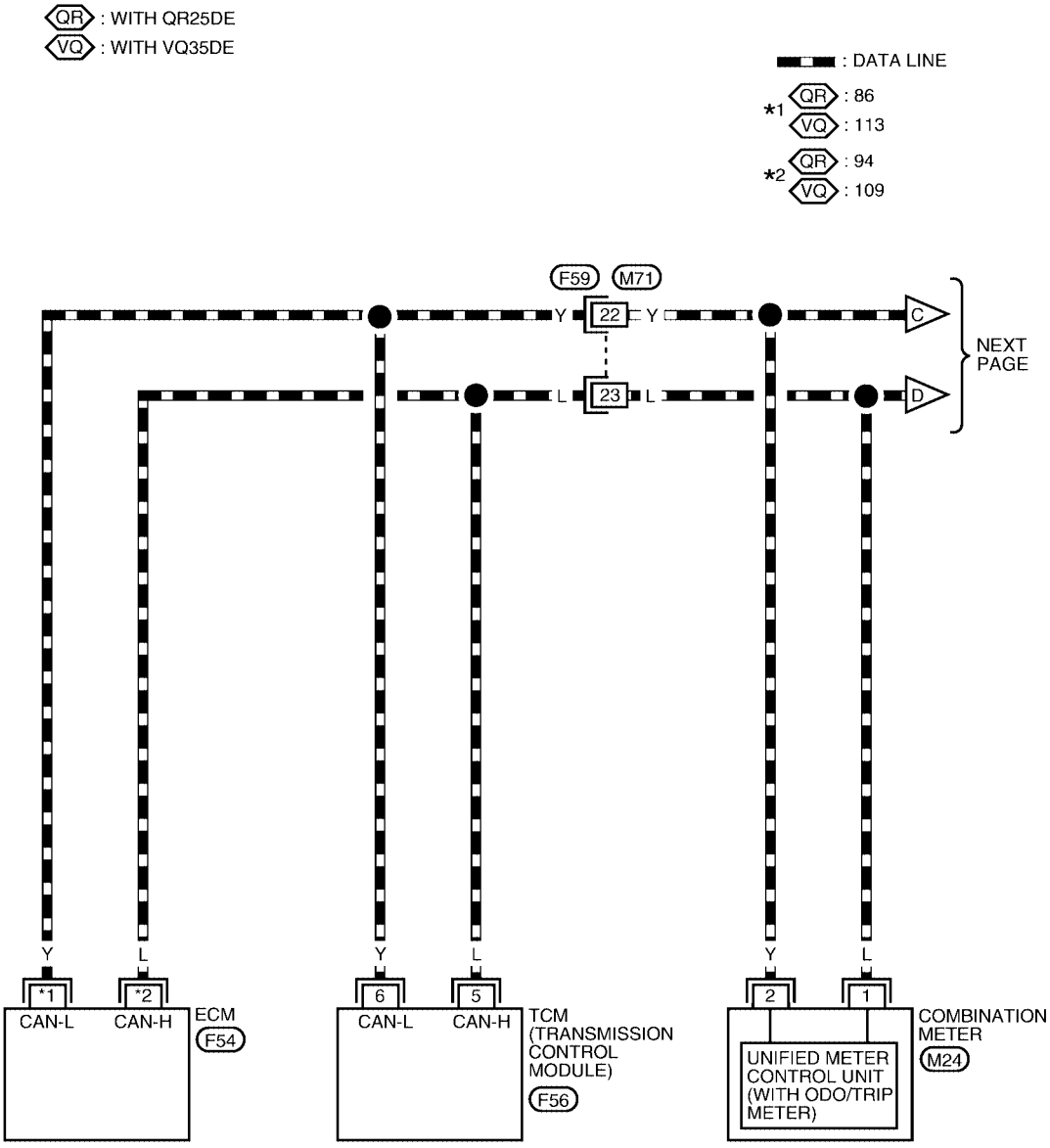


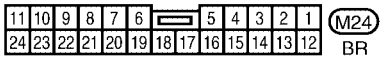
LKIA0050E

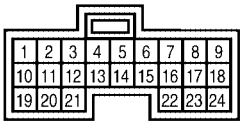
Wiring Diagram — CAN —

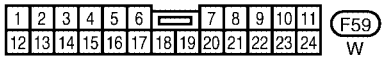
EKS003I7

LAN-CAN-03







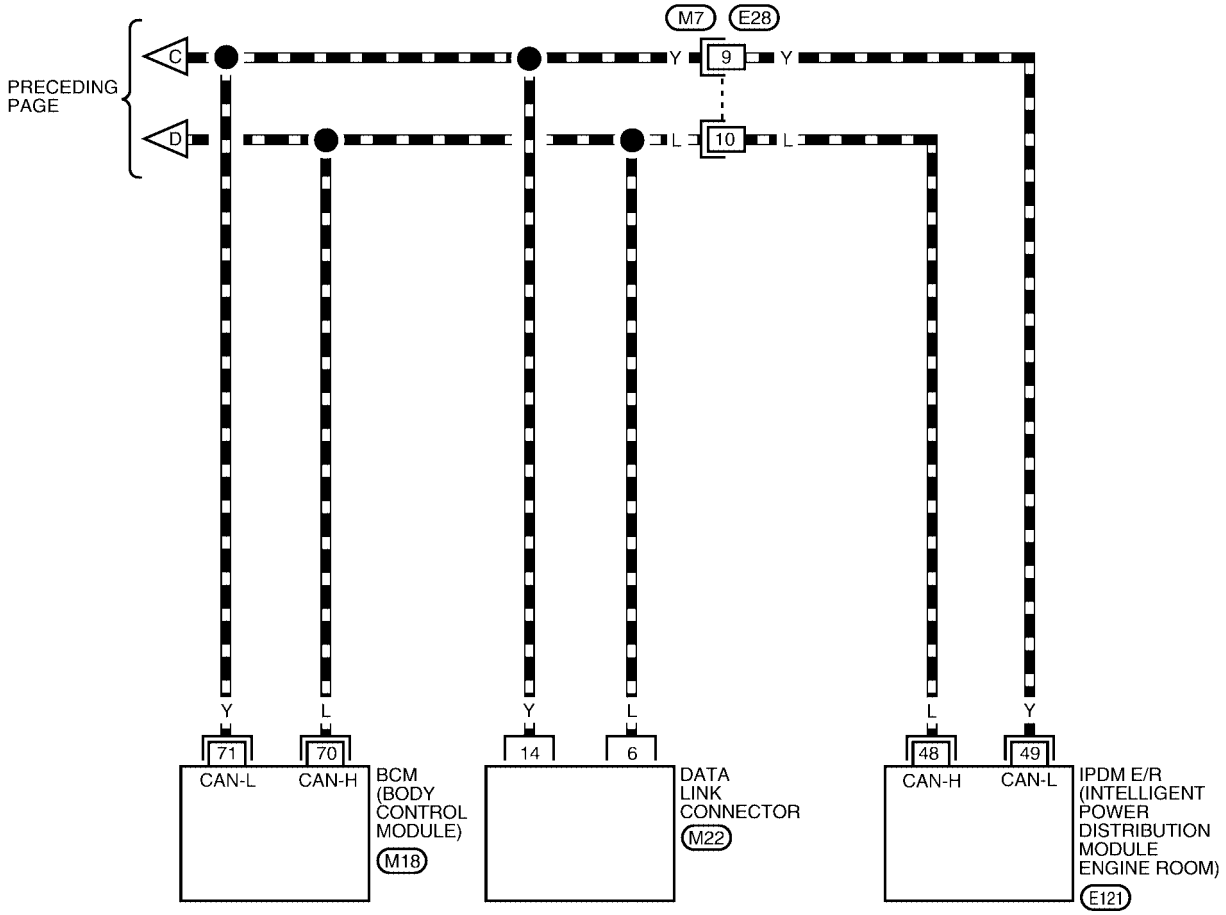


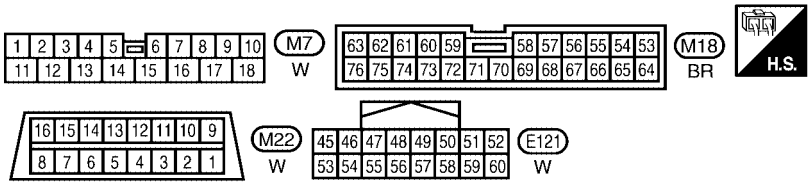
REFER TO THE FOLLOWING.
F54 - ELECTRICAL UNITS

WKWA1055E

LAN-CAN-04

: DATA LINE



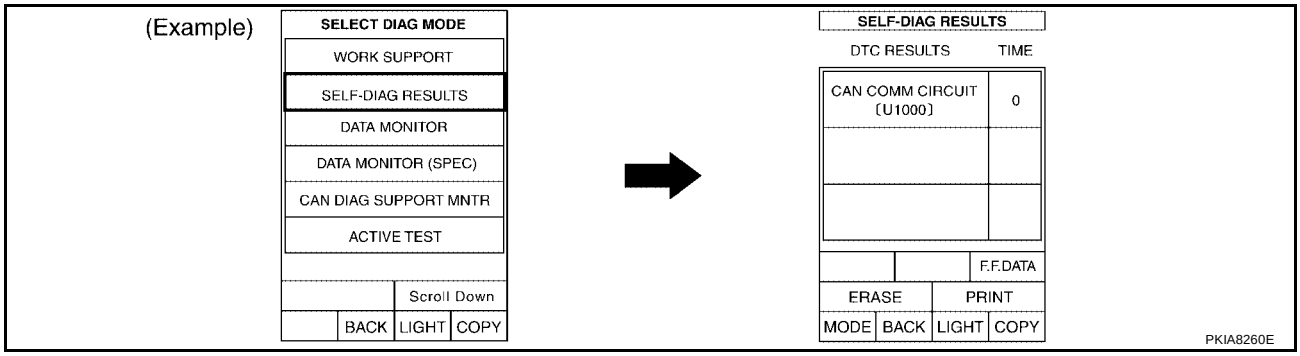


WKWA4947E

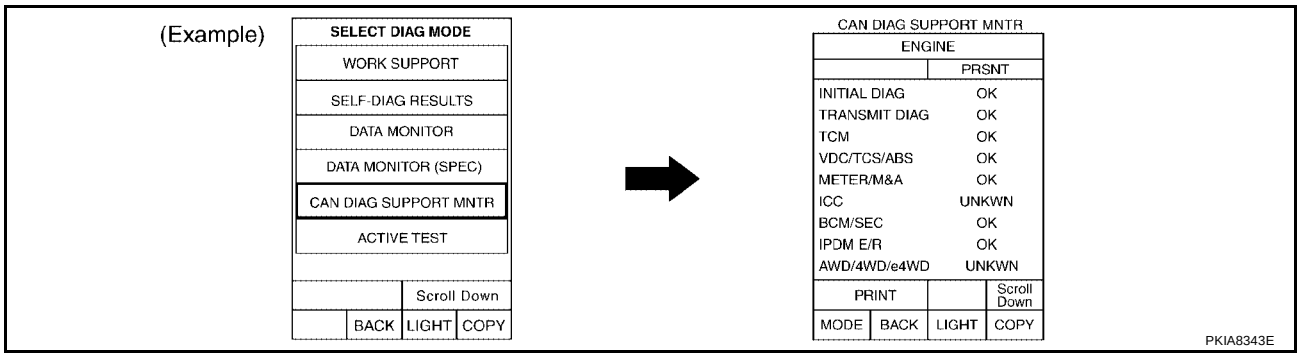
Work Flow

EKS003I8

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



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



3. Attach the printed sheet of “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-33, "CHECK SHEET" .
4. Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to LAN-33, "CHECK SHEET" .

   NOTE:
   If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
5. According to the check sheet results (example), start inspection. Refer to LAN-34, "CHECK SHEET RESULTS (EXAMPLE)" .

CHECK SHEET

NOTE:

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

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of A/T SELF-DIAG RESULTS

Attach copy of BCM SELF-DIAG RESULTS

Attach copy of ENGINE CAN DIAG SUPPORT MNTR

Attach copy of A/T CAN DIAG SUPPORT MNTR

Attach copy of BCM CAN DIAG SUPPORT MNTR

WKIA2899E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

Replace ECM.

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG ✓	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2900E

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2901E

Case 2

Replace TCM.

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN ✓	UNKWN	UNKWN	UNKWN
A/T	NG ✓	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2902E

Case 3

Replace BCM.

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG ✓	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2903E

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN ✓	-	UNKWN ✓	-	UNKWN ✓

WKIA2904E

Case 4

Check harness between TCM and combination meter. Refer to LAN-38, "Circuit Check Between TCM and Combination Meter" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	-	UNKWN ✓	-	-
BCM	NG	UNKWN	UNKWN ✓	-	UNKWN	-	UNKWN

WKIA2905E

Case 5

Check harness between combination meter and BCM. Refer to LAN-39, "Circuit Check Between Combination Meter and BCM" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN ✓	-	UNKWN ✓	-	UNKWN

WKIA2906E

Case 6

Check ECM circuit. Refer to LAN-40, "ECM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN ✓	-	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN ✓	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN ✓	-	UNKWN	-	UNKWN

WKIA2907E

Case 7

Check TCM circuit. Refer to LAN-41, "TCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN ✓	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN ✓	UNKWN ✓	-	UNKWN ✓	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2908E

Case 8

Check combination meter circuit. Refer to LAN-41, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN ✓	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN ✓	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN ✓	-	UNKWN

WKIA2909E

Case 9

Check BCM circuit. Refer to LAN-42, "BCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN ✓	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN ✓	UNKWN ✓	-	UNKWN ✓	-	UNKWN ✓

WKIA2910E

Case 10

Check IPDM E/R circuit. Refer to LAN-42, "IPDM E/R Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN ✓
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN ✓

WKIA2911E

Case 11

Check CAN communication circuit. Refer to LAN-43, "CAN Communication Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2912E

Case 12

Check IPDM E/R ignition relay circuit. Refer to LAN-46, "IPDM E/R Ignition Relay Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2913E

Case 13

Check IPDM E/R. Refer to LAN-46, "IPDM E/R Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

WKIA2914E

Circuit Check Between TCM and Combination Meter

EKS003I9

1. CHECK CONNECTOR

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

- TCM.
- Combination meter.
- Between TCM and combination meter.

OK or NG

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

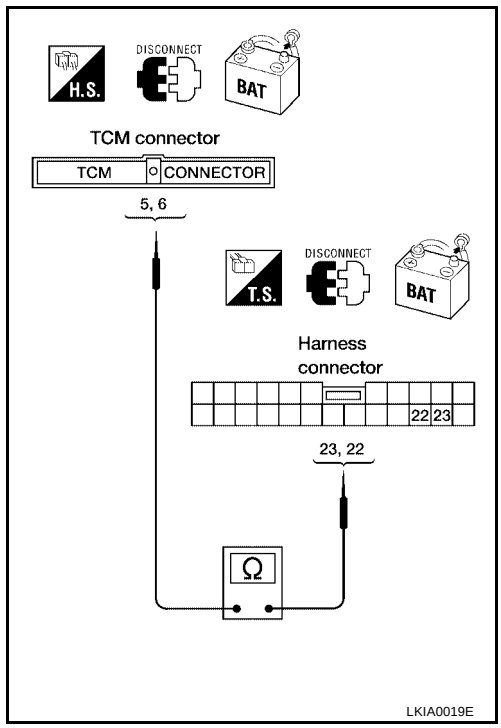
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F59.
2. Check continuity between TCM harness connector F56 terminals 5 (L), 6 (Y) and harness connector F59 terminals 23 (L), 22 (Y).

5 (L) – 23 (L) : Continuity should exist.
6 (Y) – 22 (Y) : Continuity should exist.

OK or NG

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



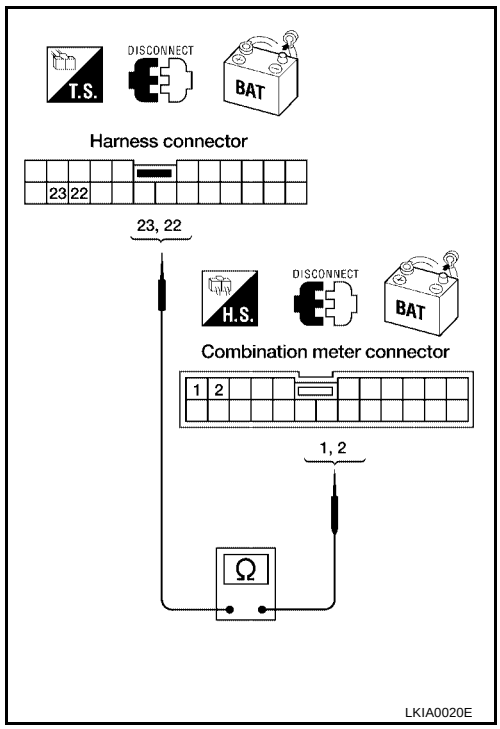
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between harness connector M71 terminals 23 (L), 22 (Y) and combination meter harness connector M24 terminals 1 (L), 2 (Y).

23 (L) – 1 (L) : Continuity should exist.
22 (Y) – 2 (Y) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-32, "Work Flow" .
NG >> Repair harness.



Circuit Check Between Combination Meter and BCM

EKS003IA

1. CHECK CONNECTOR

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

- Combination meter.
- BCM.

OK or NG

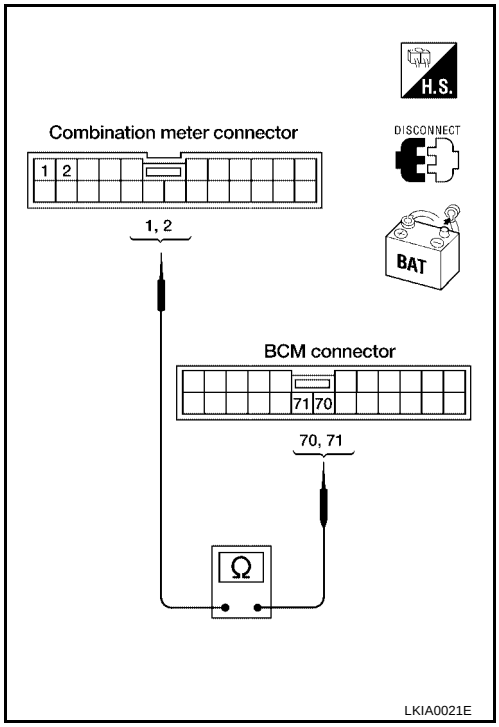
OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector and BCM connector.
2. Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) – 70 (L) : Continuity should exist.

2 (Y) – 71 (Y) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-32, "Work Flow" .

NG >> Repair harness.

ECM Circuit Check

EKS003IB

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

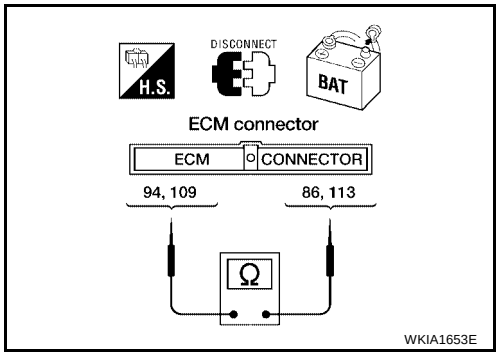
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check the following.

- Resistance between ECM harness connector F54 terminals 94 (L) and 86 (Y) (QR25DE models).
- Resistance between ECM harness connector F54 terminals 109 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models) : Approx. 108 – 132Ω

109 (L) – 113 (Y) (VQ35DE models) : Approx. 108 – 132Ω



OK or NG

OK >> Replace ECM.

NG >> Repair harness between harness connector F59 and ECM.

TCM Circuit Check

EKS003IC

1. CHECK CONNECTOR

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

OK or NG

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

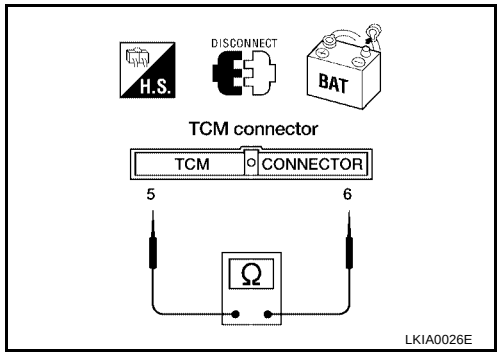
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F56 terminals 5 (L) and 6 (Y).

5 (L) – 6 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace TCM.
NG >> Repair harness between harness connector F59 and TCM.



Combination Meter Circuit Check

EKS003ID

1. CHECK CONNECTOR

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

OK or NG

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

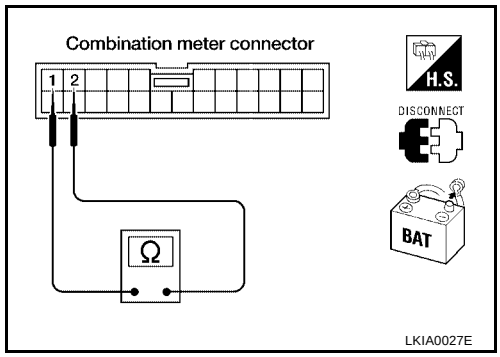
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 1 (L) and 2 (Y).

1 (L) – 2 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace combination meter. Refer to DI-17, "Removal and Installation of Combination Meter" .
NG >> Repair harness between harness connector M71 and combination meter.



BCM Circuit Check

EKS003IE

1. CHECK CONNECTOR

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

OK or NG

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

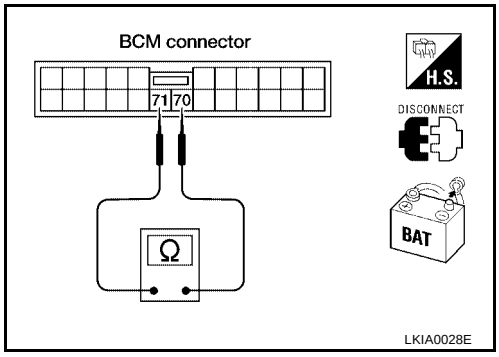
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

70 (L) – 71 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM.
NG >> Repair harness between harness connector M7 and BCM.



IPDM E/R Circuit Check

EKS003IF

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the terminals and connector of IPDM E/R for damage, bent or loose connection (control module-side and harness-side).

OK or NG

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

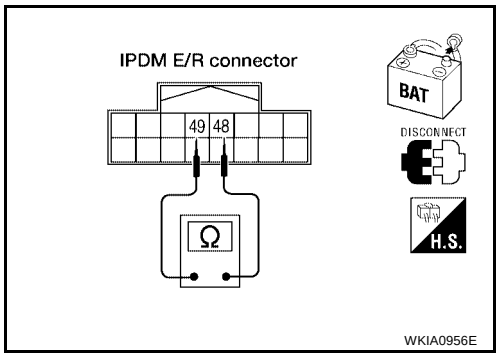
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

48 (L) – 49 (Y) : Approx. 108 – 132Ω

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair harness between data link connector and IPDM E/R.



CAN Communication Circuit Check

EKS003IG

1. CHECK CONNECTOR

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

- ECM.
- TCM.
- Combination meter.
- BCM.
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

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

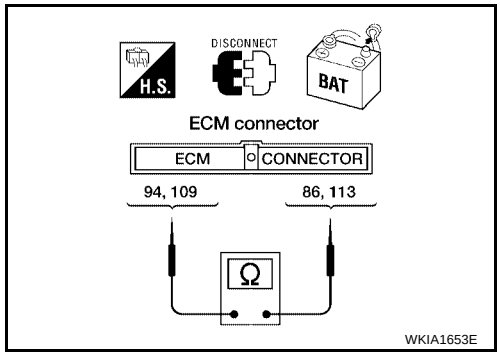
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector, TCM connector and harness connector F59.
2. Check the following.

- Continuity between ECM harness connector F54 terminals 94 (L) and 86 (Y) (QR25DE models).
- Continuity between ECM harness connector F54 terminals 109 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models) **: Continuity should not exist.**

109 (L) – 113 (Y) (VQ35DE models) **: Continuity should not exist.**



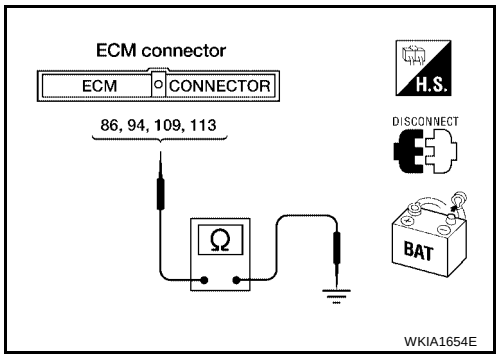
OK or NG

OK >> GO TO 3.
NG >> ● Repair harness between ECM and harness connector F59.
● Repair harness between TCM and harness connector F59.

3. CHECK HARNESS FOR SHORT CIRCUIT

1. Check the following.

- Continuity between ECM harness connector F54 terminals 94 (L), 86 (Y) and ground. (QR25DE models)
- Continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground. (VQ35DE models)



94 (L) – ground (QR25DE models)	**: Continuity should not exist.**
86 (Y) – ground (QR25DE models)	**: Continuity should not exist.**
109 (L) – ground (VQ35DE models)	**: Continuity should not exist.**
113 (Y) – ground (VQ35DE models)	**: Continuity should not exist.**

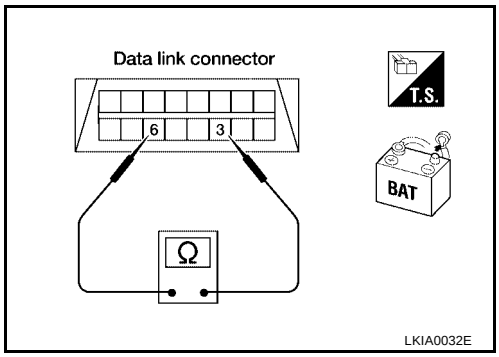
OK or NG

OK >> GO TO 4.

NG >>
- Repair harness between ECM and harness connector F59.
- Repair harness between TCM and harness connector F59.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector, BCM connector and harness connector M7.
2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).



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

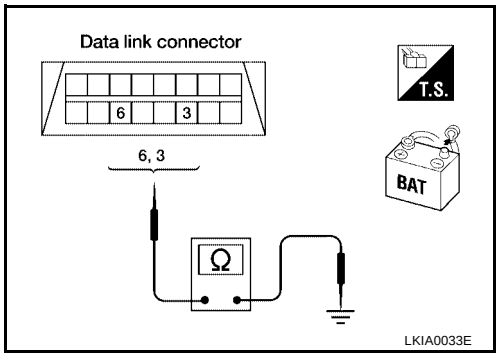
OK or NG

OK >> GO TO 5.

NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.



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

OK or NG

OK >> GO TO 6.

NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

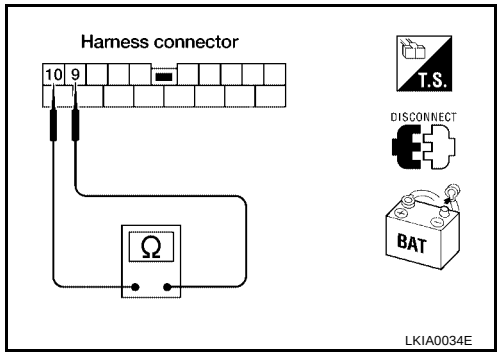
6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E27.
2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

10 (L) – 9 (Y) : Continuity should not exist.

OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E28 and harness connector E27.



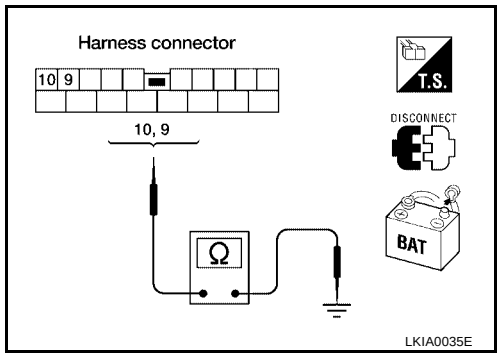
7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

10 (L) – ground : Continuity should not exist.
9 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.
NG >> Repair harness between harness connector E28 and harness connector E27.



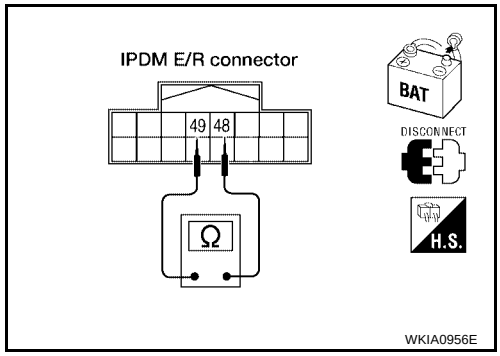
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

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

OK or NG

OK >> GO TO 9.
NG >> Repair harness between harness connector E130 and IPDM E/R.



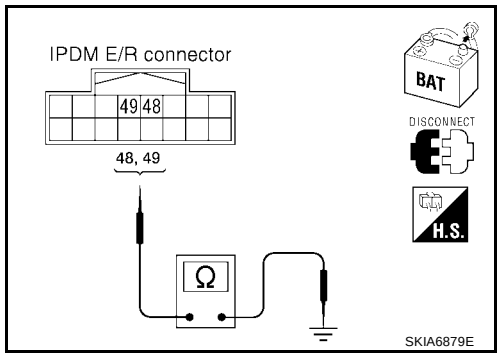
9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

48 (L) – ground : Continuity should not exist.
49 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.
NG >> Repair harness between harness connector E130 and IPDM E/R.



10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to LAN-46, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-32, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

IPDM E/R Ignition Relay Circuit Check

EKS003KU

Check the following. If no problem is found, replace the IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

- IPDM E/R Power Circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition Power Supply Circuit. Refer to PG-12, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

IPDM E/R Check

EKS003KV

1. CHECK IPDM E/R

1. Turn ignition switch ON and then OFF.
2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

OK or NG

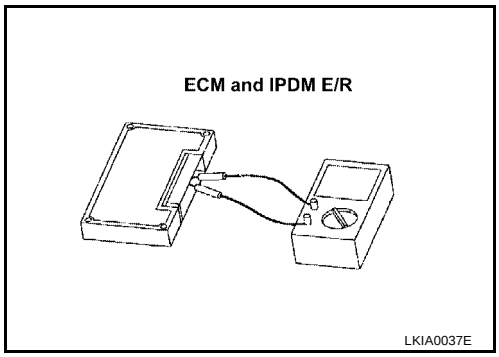
OK >> Replace the TCM.
NG >> Replace the IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

Component Inspection

EKS003IH

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle. Refer to PG-27, "Removal and Installation of IPDM E/R" .
- Check resistance between ECM terminals 86 and 94 (QR25DE models).
- Check resistance between ECM terminals 109 and 113 (VQ35DE models).
- Check resistance between IPDM E/R terminals 48 and 49.



Unit	Terminal	Resistance value (Ω) (Approx.)
ECM (QR25DE models)	86 – 94	108 - 132
ECM (VQ35DE models)	109 – 113	
IPDM E/R	48 – 49	

CAN SYSTEM (FOR M/T MODELS)

PFP:23710

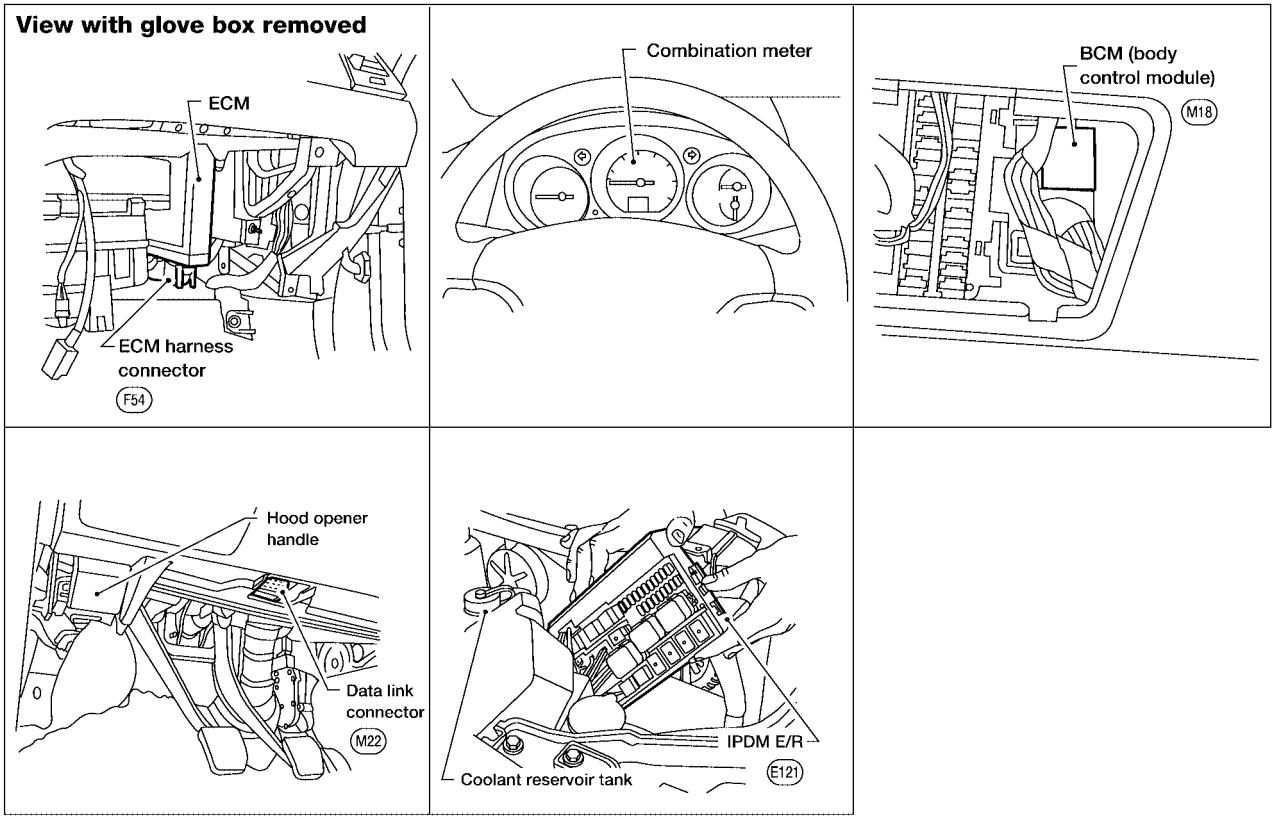
System Description

EKS003II

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

EKS003IJ

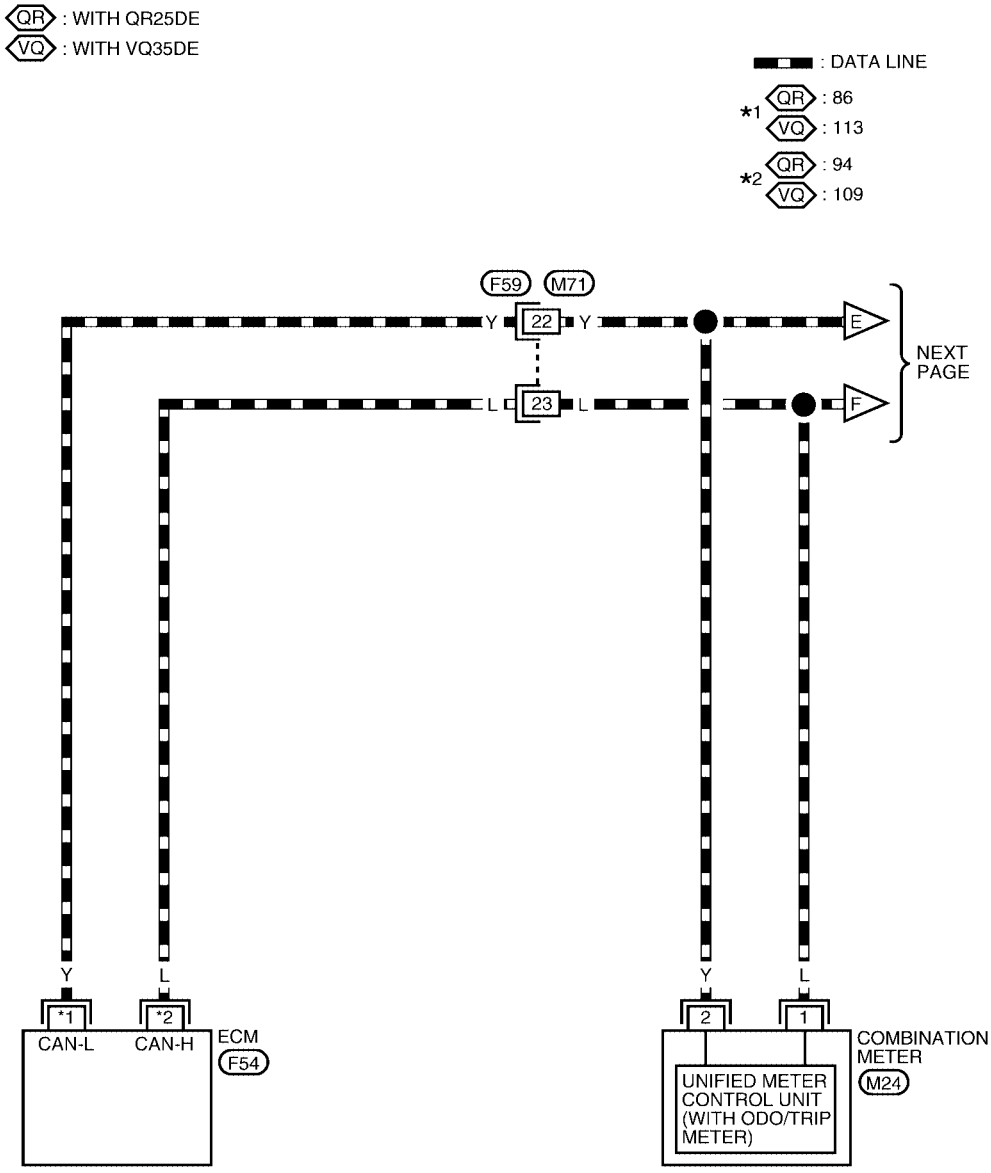


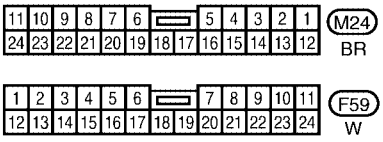
LKIA0051E

Wiring Diagram — CAN —

EKS003IK

LAN-CAN-05

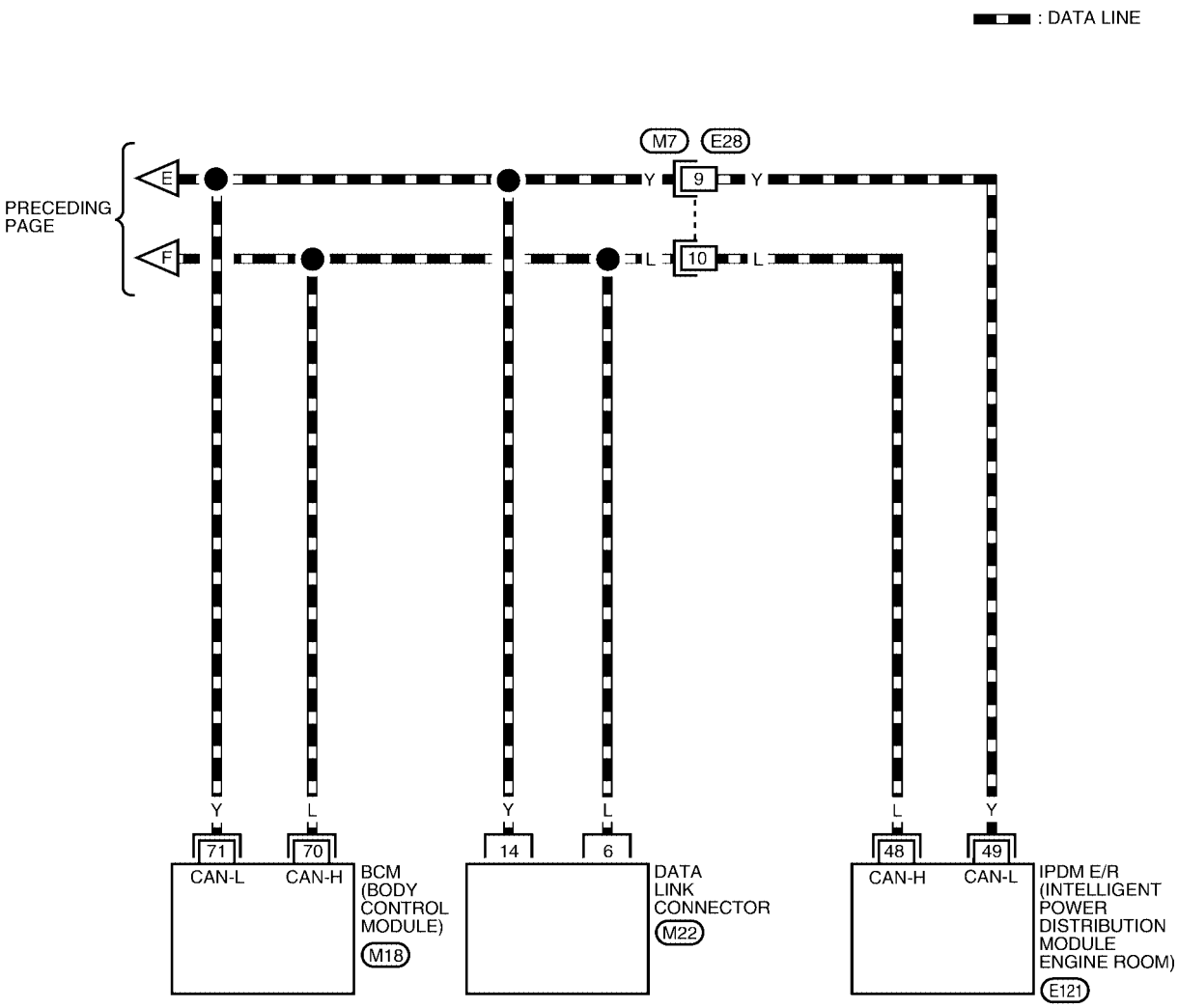


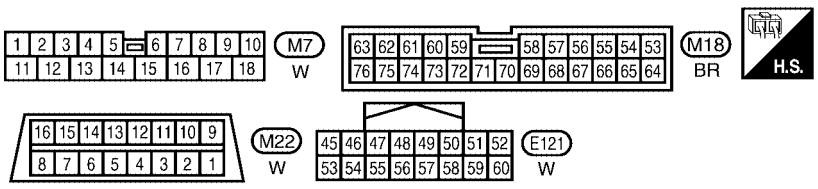


REFER TO THE FOLLOWING.
F54 - ELECTRICAL UNITS

WKWA1057E

LAN-CAN-06



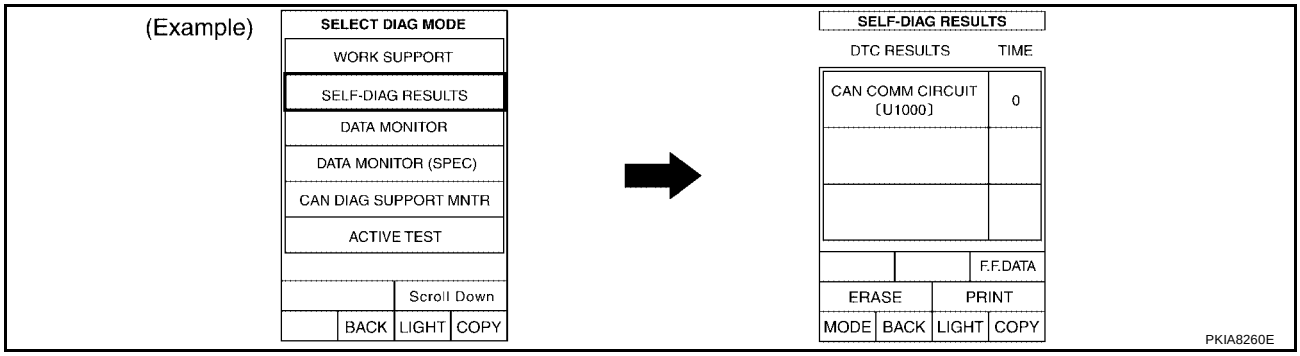


WKWA4948E

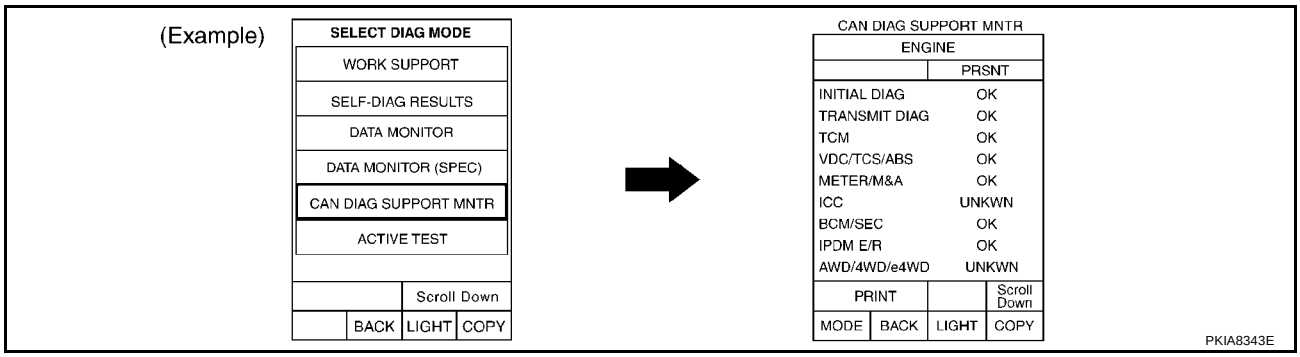
Work Flow

EKS003IL

1. Print all the data of “SELF-DIAG RESULTS” for “ENGINE” and “BCM” displayed on CONSULT-II.



2. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE” and “BCM” displayed on CONSULT-II.



3. Attach the printed sheet of “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-51, "CHECK SHEET" .
4. Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to LAN-51, "CHECK SHEET" .

   NOTE:
   If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” for the diagnosed control unit, replace the control unit.
5. According to the check sheet results (example), start inspection. Refer to LAN-52, "CHECK SHEET RESULTS (EXAMPLE)" .

CHECK SHEET

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

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	-	UNKWN

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of BCM SELF-DIAG RESULTS

Attach copy of ENGINE CAN DIAG SUPPORT MNTR

Attach copy of BCM CAN DIAG SUPPORT MNTR

WKIA2915E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

Replace ECM.

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG ✓	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	-	UNKWN

WKIA2916E

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN ✓	UNKWN ✓	UNKWN ✓
BCM	NG	UNKWN	UNKWN	UNKWN	-	UNKWN

WKIA2917E

Case 2

Replace BCM.

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	NG ✓	UNKWN	UNKWN	UNKWN	-	UNKWN

WKIA2918E

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN ✓	UNKWN ✓	-	UNKWN ✓

WKIA2919E

Case 3

Check harness between combination meter and BCM. Refer to LAN-55, "Circuit Check Between Combination Meter and BCM" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN ✓	UNKWN ✓
BCM	NG	UNKWN	UNKWN ✓	UNKWN ✓	-	UNKWN

WKIA2920E

Case 4

Check ECM circuit. Refer to LAN-55, "ECM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN ✓	-	UNKWN ✓	UNKWN ✓	UNKWN ✓
BCM	NG	UNKWN	UNKWN ✓	UNKWN	-	UNKWN

WKIA2921E

Case 5

Check combination meter circuit. Refer to LAN-56, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN ✓	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN ✓	-	UNKWN

WKIA2922E

Case 6

Check BCM circuit. Refer to LAN-56, "BCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN ✓	UNKWN
BCM	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	-	UNKWN ✓

WKIA2923E

Case 7

Check IPDM E/R circuit. Refer to LAN-57, "IPDM E/R Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN ✓
BCM	NG	UNKWN	UNKWN	UNKWN	-	UNKWN ✓

WKIA2924E

Case 8

Check CAN communication circuit. Refer to LAN-58, "CAN Communication Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN ✓	-	UNKWN ✓	UNKWN ✓	UNKWN ✓
BCM	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	-	UNKWN ✓

WKIA2925E

Circuit Check Between Combination Meter and BCM

EKS003IM

1. CHECK CONNECTOR

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

- Combination meter.
- BCM.

OK or NG

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

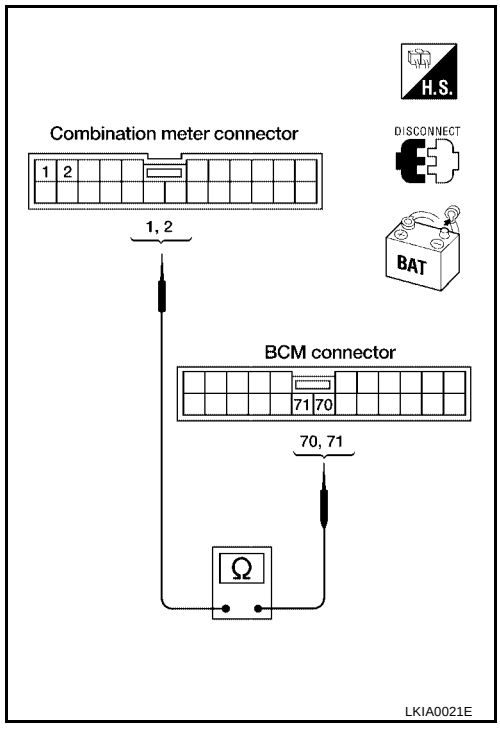
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector and BCM connector.
2. Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) – 70 (L) : Continuity should exist.
2 (Y) – 71 (Y) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-50, "Work Flow" .
NG >> Repair harness.



ECM Circuit Check

EKS003IN

1. CHECK CONNECTOR

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

- ECM.
- Harness connector F59.
- Harness connector M71.

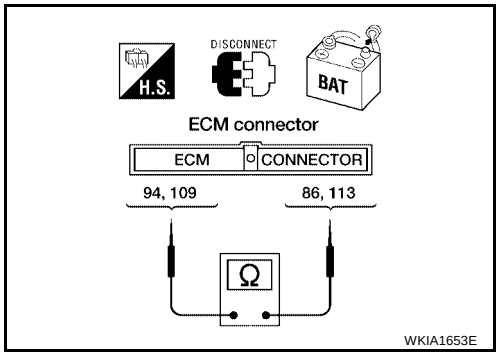
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check the following.

- Resistance between ECM harness connector F54 terminals 94 (L) and 86 (Y) (QR25DE models).
- Resistance between ECM harness connector F54 terminals 109 (L) and 113 (Y) (VQ35DE models).



94 (L) – 86 (Y) (QR25DE models)	**: Approx. 108 – 132Ω**
109 (L) – 113 (Y) (VQ35DE models)	**: Approx. 108 – 132Ω**

OK or NG

OK >> Replace ECM.
NG >> Repair harness between harness connector M7 and ECM.

Combination Meter Circuit Check

EKS003IO

1. CHECK CONNECTOR

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

OK or NG

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

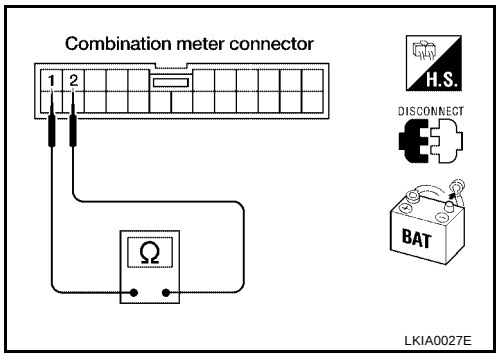
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 1 (L) and 2 (Y).

1 (L) – 2 (Y)	**: Approx. 54 – 66Ω**

OK or NG

OK >> Replace combination meter. Refer to DI-17, "Removal and Installation of Combination Meter" .
NG >> Repair harness between harness connector M71 and combination meter.



BCM Circuit Check

EKS003IP

1. CHECK CONNECTOR

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

OK or NG

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

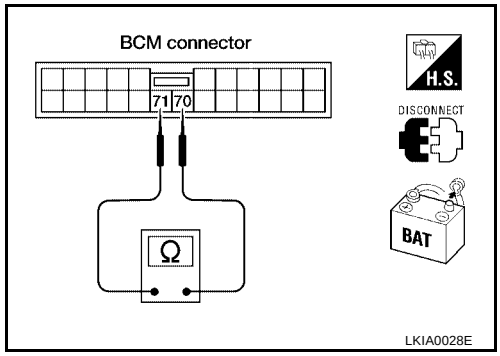
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

70 (L) – 71 (Y) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM.
NG >> Repair harness between harness connector M7 and BCM.



IPDM E/R Circuit Check

EKS003IQ

1. CHECK CONNECTOR

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

- IPDM E/R.
- Harness connector E130.
- Harness connector E27.
- Harness connector E28.
- Harness connector M7.

OK or NG

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

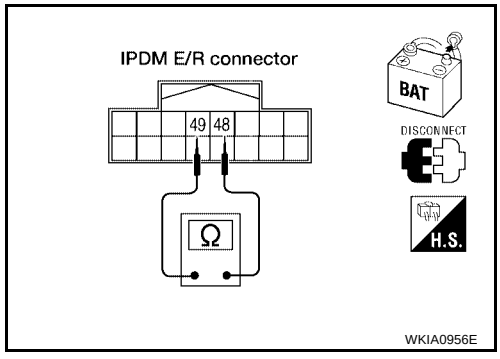
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

48 (L) – 49 (Y) : Approx. 108 – 132Ω

OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".
NG >> Repair harness between data link connector and IPDM E/R.



CAN Communication Circuit Check

EKS003IR

1. CHECK CONNECTOR

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

- ECM.
- Combination meter.
- BCM.
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

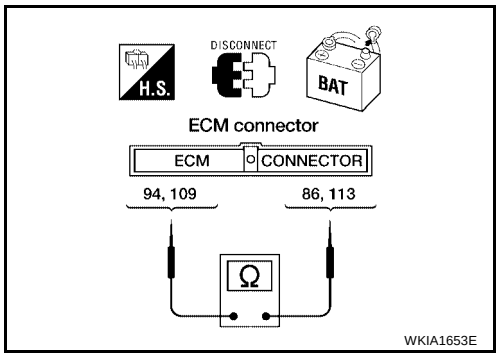
OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector F59.
2. Check the following.

- Continuity between ECM harness connector F54 terminals 94 (L) and 86 (Y) (QR25DE models)
- Continuity between ECM harness connector F54 terminals 109 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models) : Continuity should not exist.
109 (L) – 113 (Y) (VQ35DE models) : Continuity should not exist.



OK or NG

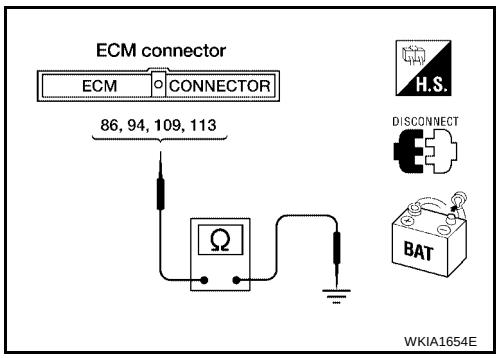
OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector F59.

3. CHECK HARNESS FOR SHORT CIRCUIT

1. Check the following.

- Continuity between ECM harness connector F54 terminals 94 (L), 86 (Y) and ground (QR25DE models).
- Continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground (VQ35DE models).

94 (L) – ground (QR25DE models) : Continuity should not exist.
86 (Y) – ground (QR25DE models) : Continuity should not exist.
109 (L) – ground (VQ35DE models) : Continuity should not exist.
113 (Y) – ground (VQ35DE models) : Continuity should not exist.



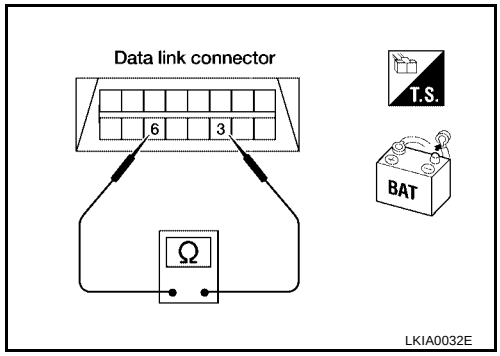
OK or NG

OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector F59.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector, BCM connector and harness connector M7.
2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).

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



OK or NG

OK >> GO TO 5.

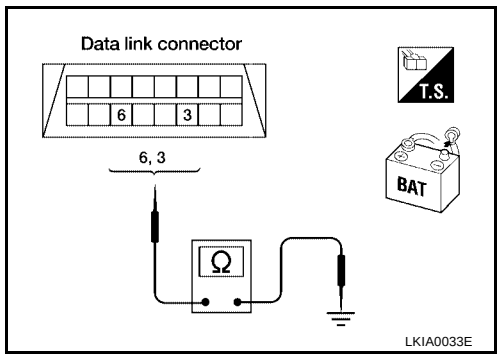
NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.

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

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



OK or NG

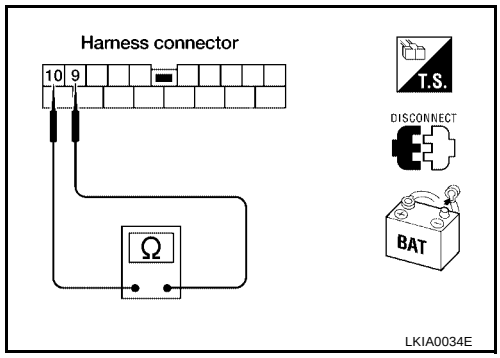
OK >> GO TO 6.

NG >>
- Repair harness between harness connector M71 and harness connector M7.
- Repair harness between harness connector M71 and combination meter.
- Repair harness between harness connector M71 and data link connector.
- Repair harness between harness connector M71 and BCM.

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E27.
2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

10 (L) – 9 (Y) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

NG >> Repair harness between harness connector E28 and harness connector E27.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

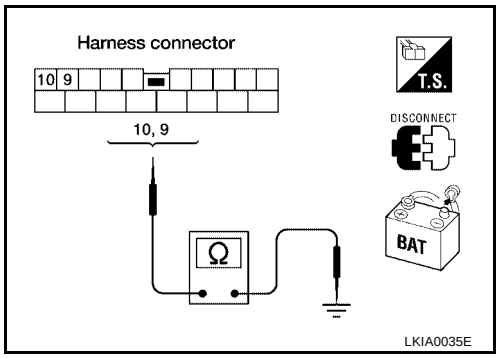
10 (L) – ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E28 and harness connector E27.



8. CHECK HARNESS FOR SHORT CIRCUIT

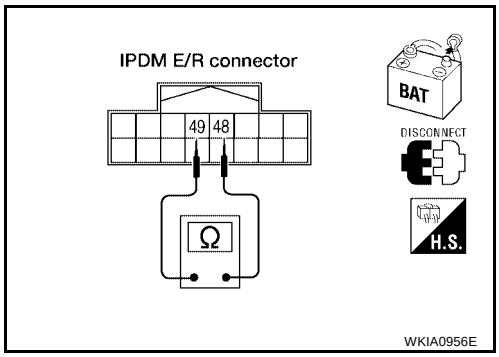
1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

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

OK or NG

OK >> GO TO 9.

NG >> Repair harness between harness connector E130 and IPDM E/R.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

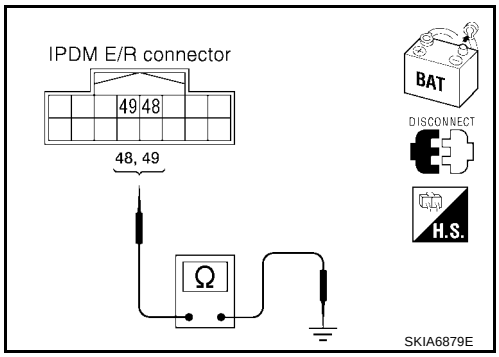
48 (L) – ground : Continuity should not exist.

49 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between harness connector E130 and IPDM E/R.



10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to LAN-61, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-50, "Work Flow" .

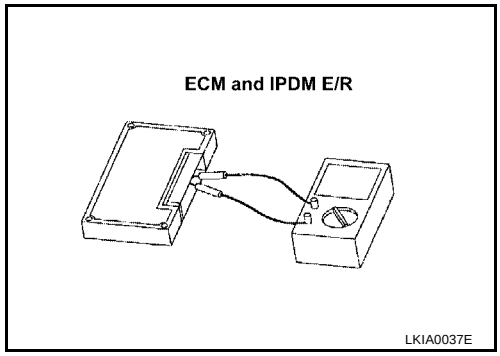
NG >> Replace ECM and/or IPDM E/R. Refer to PG-27, “Removal and Installation of IPDM E/R”.

Component Inspection

EKS003IS

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle. Refer to PG-27, "Removal and Installation of IPDM E/R" .
- Check resistance between ECM terminals 86 and 94 (QR25DE models).
- Check resistance between ECM terminals 109 and 113 (VQ35DE models).
- Check resistance between IPDM E/R terminals 48 and 49.



Unit	Terminal	Resistance value (Ω) (Approx.)
ECM (QR25DE models)	86 – 94	108 - 132
ECM (VQ35DE models)	109 – 113	
IPDM E/R	48 – 49	