SECTION LT
LIGHTING SYSTEM

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APPLICATION NOTICE

PFP:00000

How to Check Vehicle Type

EKS00Q9L

Confirm K9K engine type with Model written on identification plate (refer to GI-44, "IDENTIFICATION INFORMATION"), then refer to service information in LT section.

Vehicle type	Engine type
xTKxxxxK12Vxx	Euro3 48kW
xTKxxxxK12Yxx	Euro3 60kW
xTKxxxxK12Txx	Euro4 50kW
xTKxxxxK12Uxx	Euro4 63kW

PRECAUTIONS

PFP:00001

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

EKS0085Y

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:

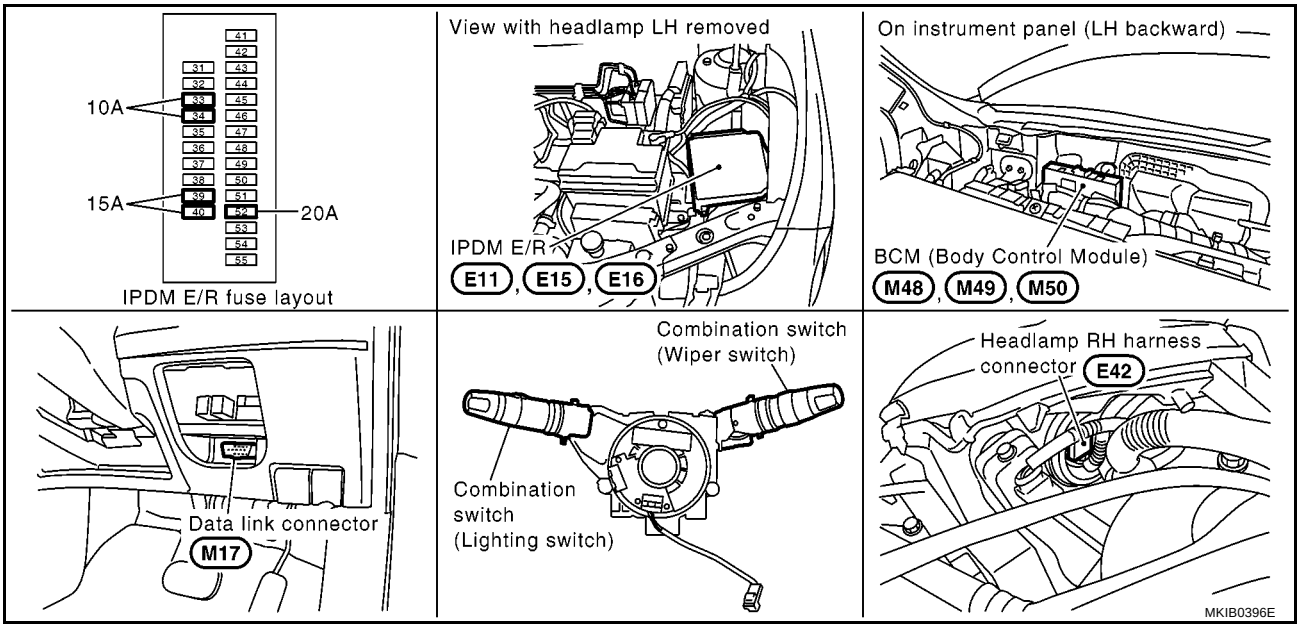
- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal 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.**

HEADLAMP -CONVENTIONAL TYPE-

PFP:26010

Component Parts and Harness Connector Location

EKS00EKT



System Description

EKS00EKU

The headlamp operation is controlled by the lighting switch which built into the combination switch, BCM and IPDM E/R (intelligent power distribution module engine room). Headlamp low relay, headlamp LH and RH relays are built into IPDM E/R.BCM read combination switch condition. refer to LT-212, "System Description" .

OUTLINE

Power is supplied at all times

- through 40A fusible link (letter **J** , located in the fuse and fusible link box),
- to BCM (body control module) terminals 74 and 79
- through 20A fuse (No.52, located in the IPDM E/R),
- to IPDM E/R
- through 10A fuse [No. 8, located in the fuse block (J/B)].
- to combination meter terminal 27
- to headlamp high LH relay, located in the IPDM E/R, and
- to headlamp high RH relay, located in the IPDM E/R, and
- to headlamp low relay, located in the IPDM E/R.

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 4, located in the fuse block (J/B)],
- to BCM (body control module) terminal 24
- through 10A fuse [No. 2, located in the fuse block (J/B)],
- to combination meter terminal 28
- to IPDM E/R.

Ground is supplied

- to BCM (body control module) terminal 2 and 70
- to combination meter terminals 21, 22 and 23
- through body grounds M19 and M20, and
- to IPDM E/R terminals 3 and 54
- through body grounds E25 (CR engine models), E26 and E40.

Low Beam Operation

When the lighting switch is turned to 2ND position and placed in LOW position, BCM reads combination switch condition (refer to LT-212, "System Description"). And BCM sends low beam request signal to IPDM E/R with

CAN communication line. Then IPDM E/R turns on headlamp low relay. With headlamp low relay is energized, power is supplied.

- through 15A fuse (No. 39, located in the IPDM E/R)
- through terminal 50 of the IPDM E/R
- to terminal 1 of headlamp LH, and
- through 15A fuse (No. 40, located in the IPDM E/R)
- through terminal 48 of the IPDM E/R
- to terminal 1 of headlamp RH.

Ground is supplied

- to terminal 3 of each headlamp
- through body grounds E25 (CR engine models), E26 and E40.

With power and ground supplied, low beam headlamps will illuminate.

High Beam Operation/Flash-to-Pass Operation

With the lighting switch is turned to 2ND position and placed in HIGH or PASS position, BCM reads combination switch condition (refer to LT-212, "System Description"). And BCM sends high beam request signal to IPDM E/R and combination meter with CAN communication line. Then IPDM E/R turns on headlamp high relay LH and RH. With headlamp high relays are energized, power is supplied.

- through 10A fuse (No. 34, located in the IPDM E/R)
- through terminal 47 of the IPDM E/R
- to terminal 2 of headlamp LH, and
- through 10A fuse (No. 33, located in the IPDM E/R)
- through terminal 46 of the IPDM E/R
- to terminal 2 of headlamp RH.

Ground is supplied

- to terminal 3 of each headlamp
- through body grounds E25 (CR engine models), E26 and E40.

With power and ground supplied, the high beam headlamps will illuminate.
When combination meter receives high beam request signal from BCM across the CAN communication lines, combination meter will illuminate high beam indicator.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description" .

EXTERIOR LAMP BATTERY SAVER CONTROL

When the headlamp is activated, The headlamps are turned OFF when the door is opened.

FAIL-SAFE FUNCTION

When CAN communication with other control units is impossible, IPDM E/R performs fail-safe control. If the fail-safe system is operating, headlamps illuminate with low beam when the ignition switch is turned from OFF to ON and headlamps are turned off when the ignition switch is turn from ON to OFF. During the fail-safe system is activated, headlamps will not respond to combination switch no matter what position it is turned to.
Once the CAN communication is back online with the system, fail-safe controls will be deactivated and headlamp behavior is back to the normal phase. (Refer to PG-20, "FAIL-SAFE FUNCTION")

CAN Communication

EKS00ERC

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP4

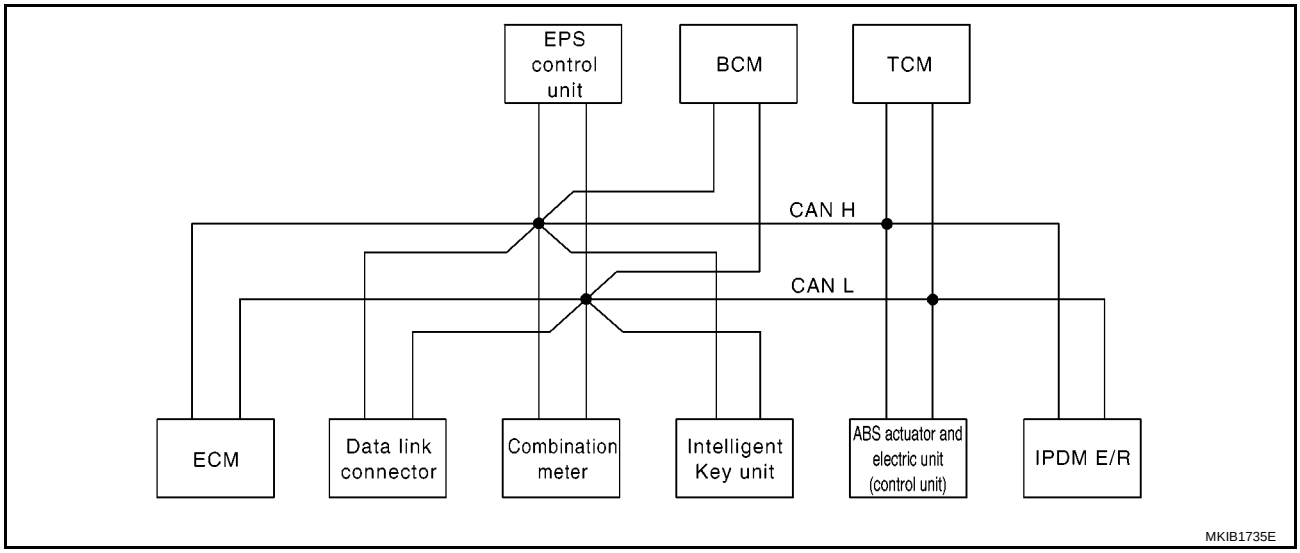
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-10, "TYPE 1/TYPE 2"		LT-13, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-15, "TYPE 7/TYPE 8"		LT-18, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-20, "TYPE 13/TYPE 14"	

×: Applicable

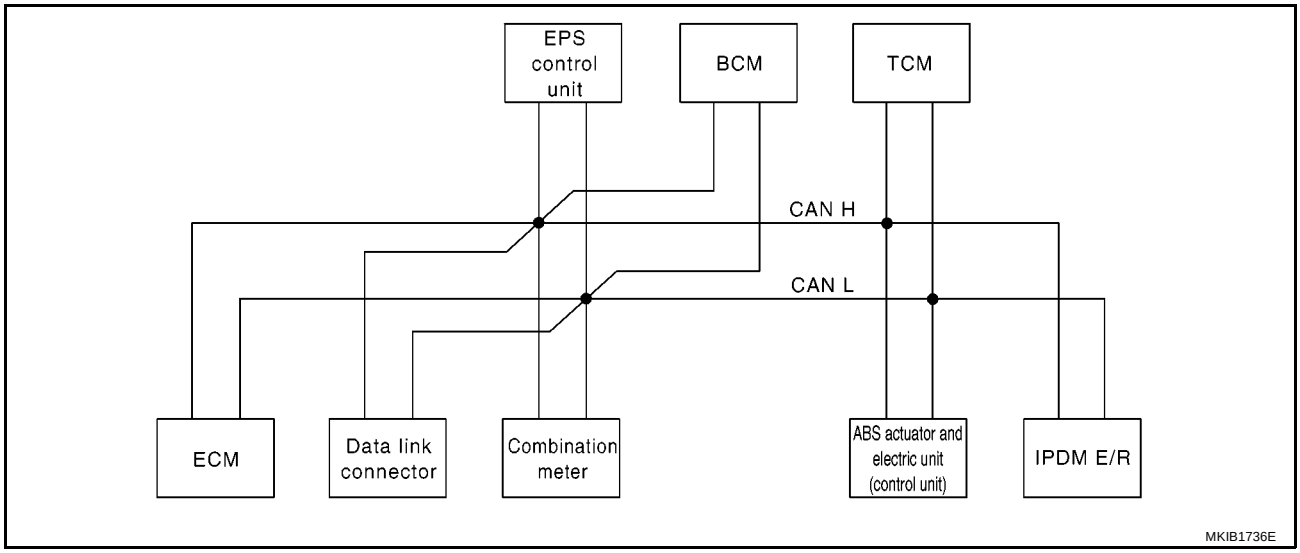
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

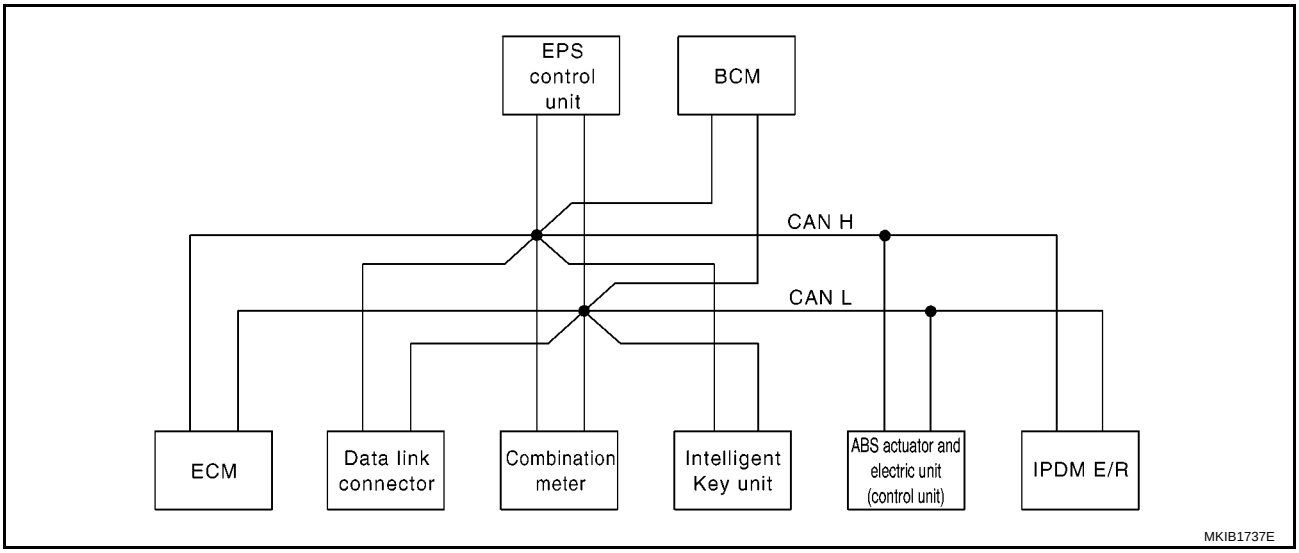
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

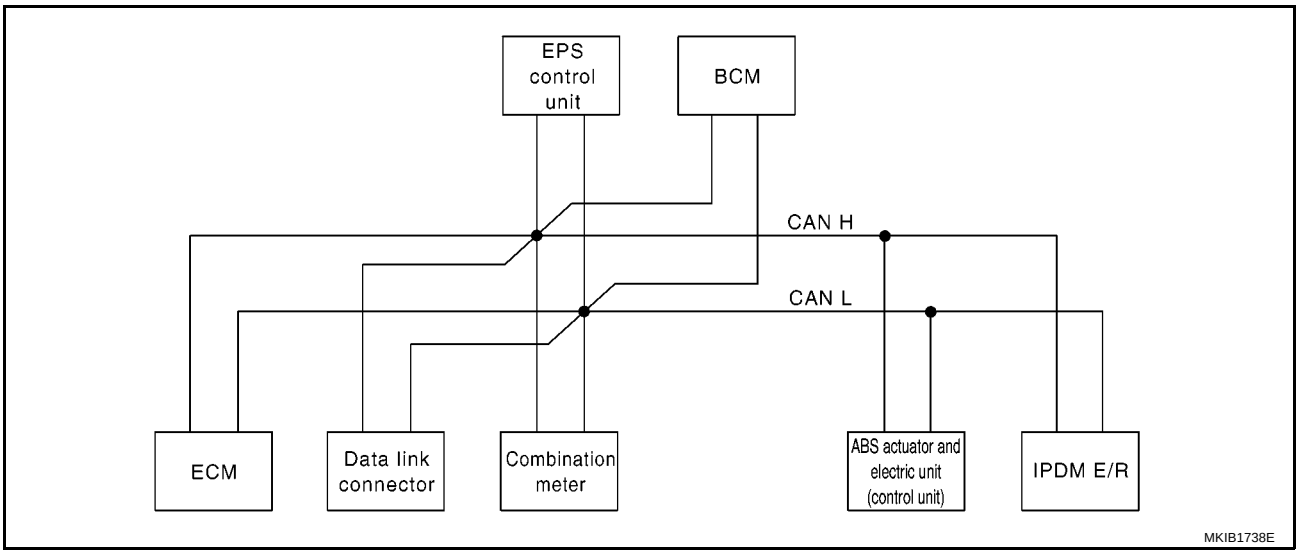
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

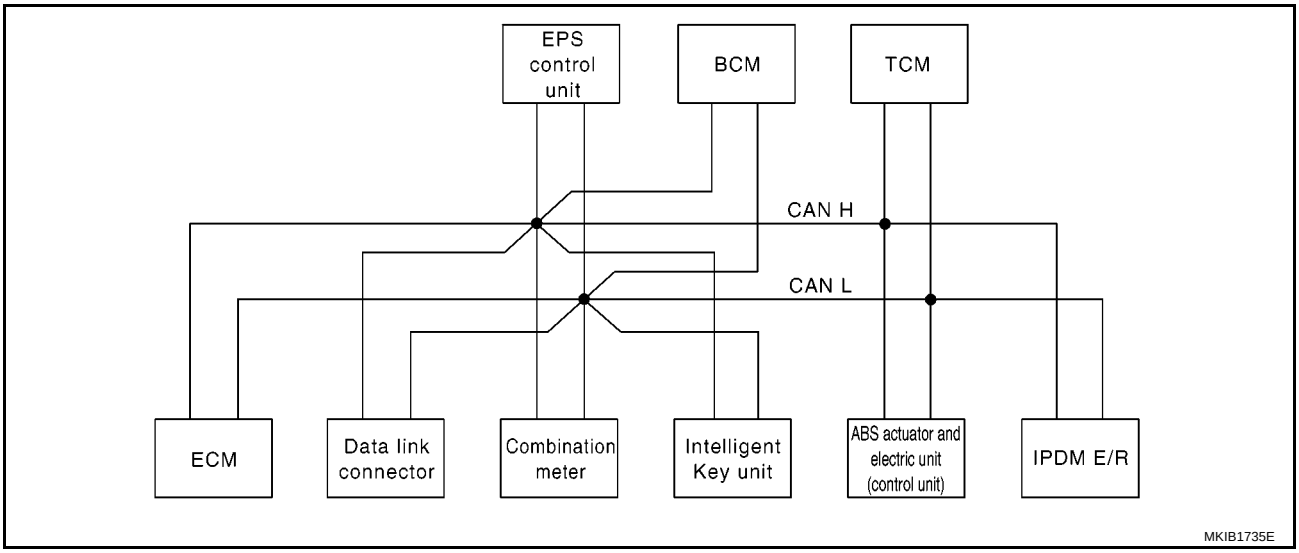
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

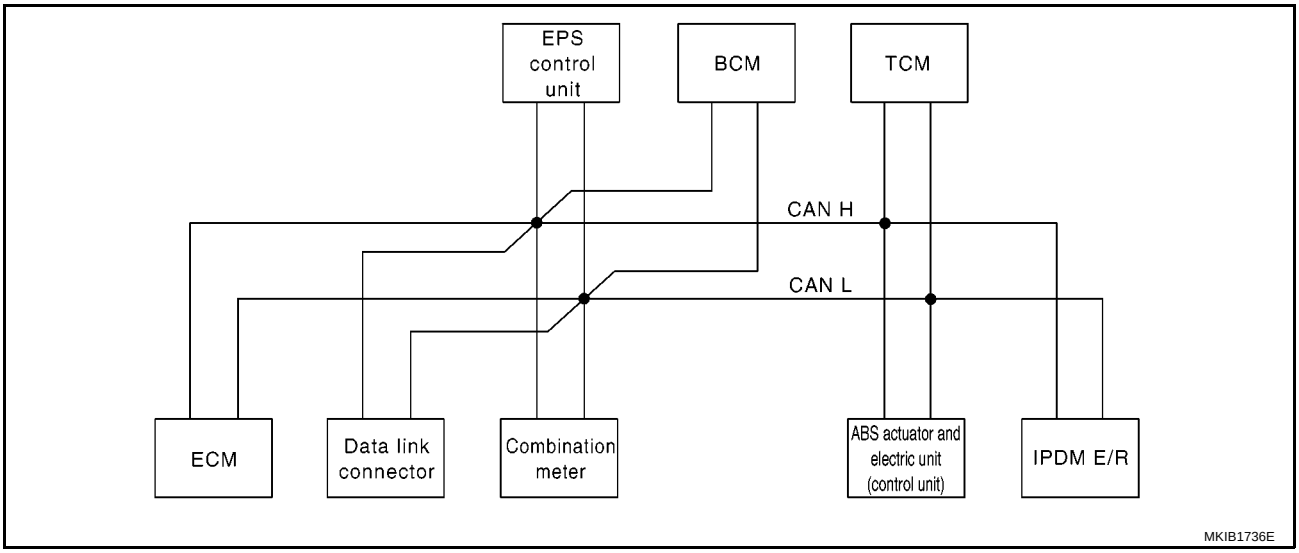
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

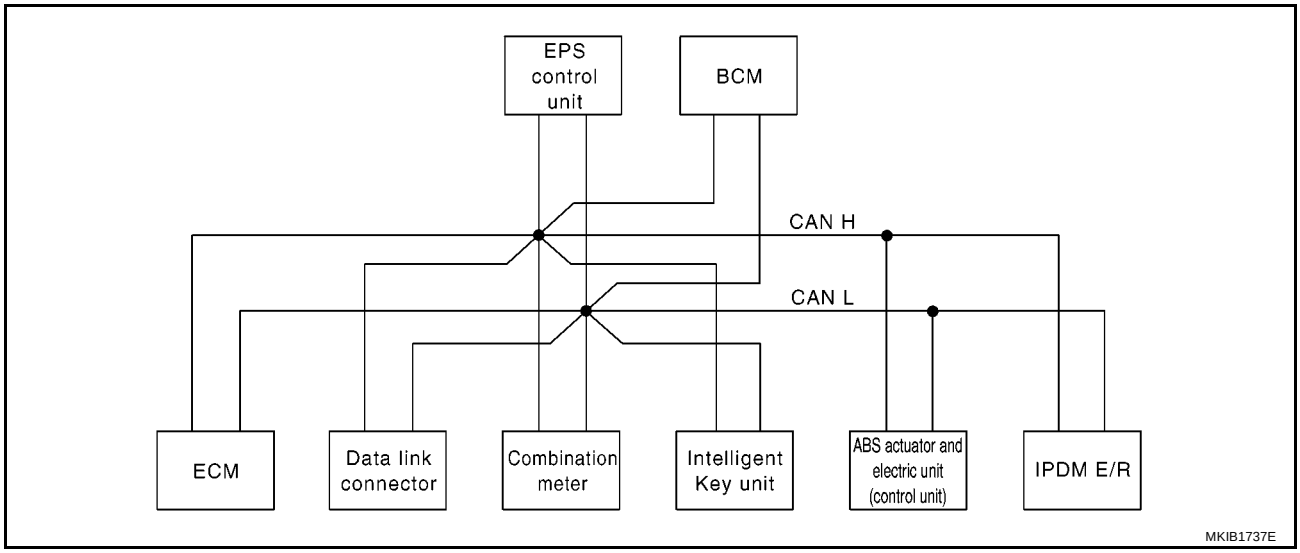
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

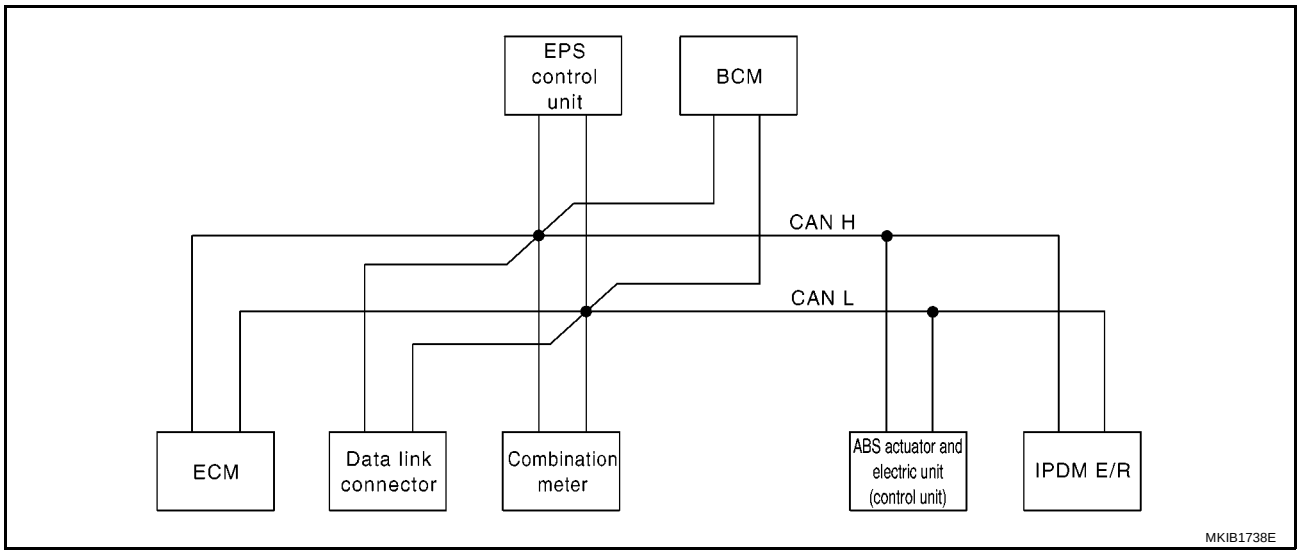
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

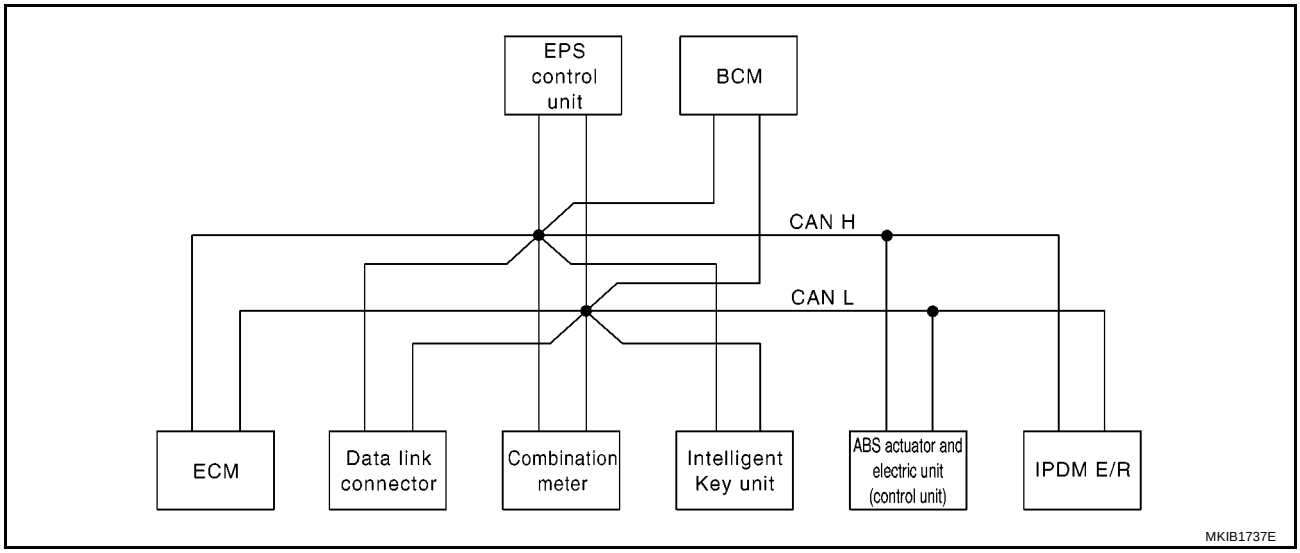
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

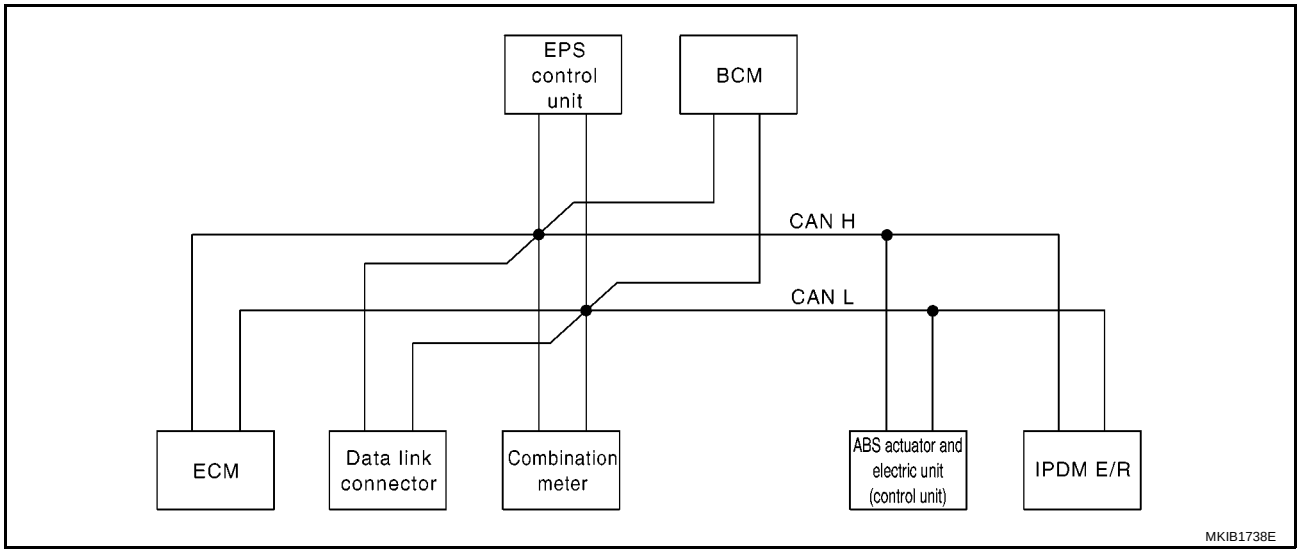
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



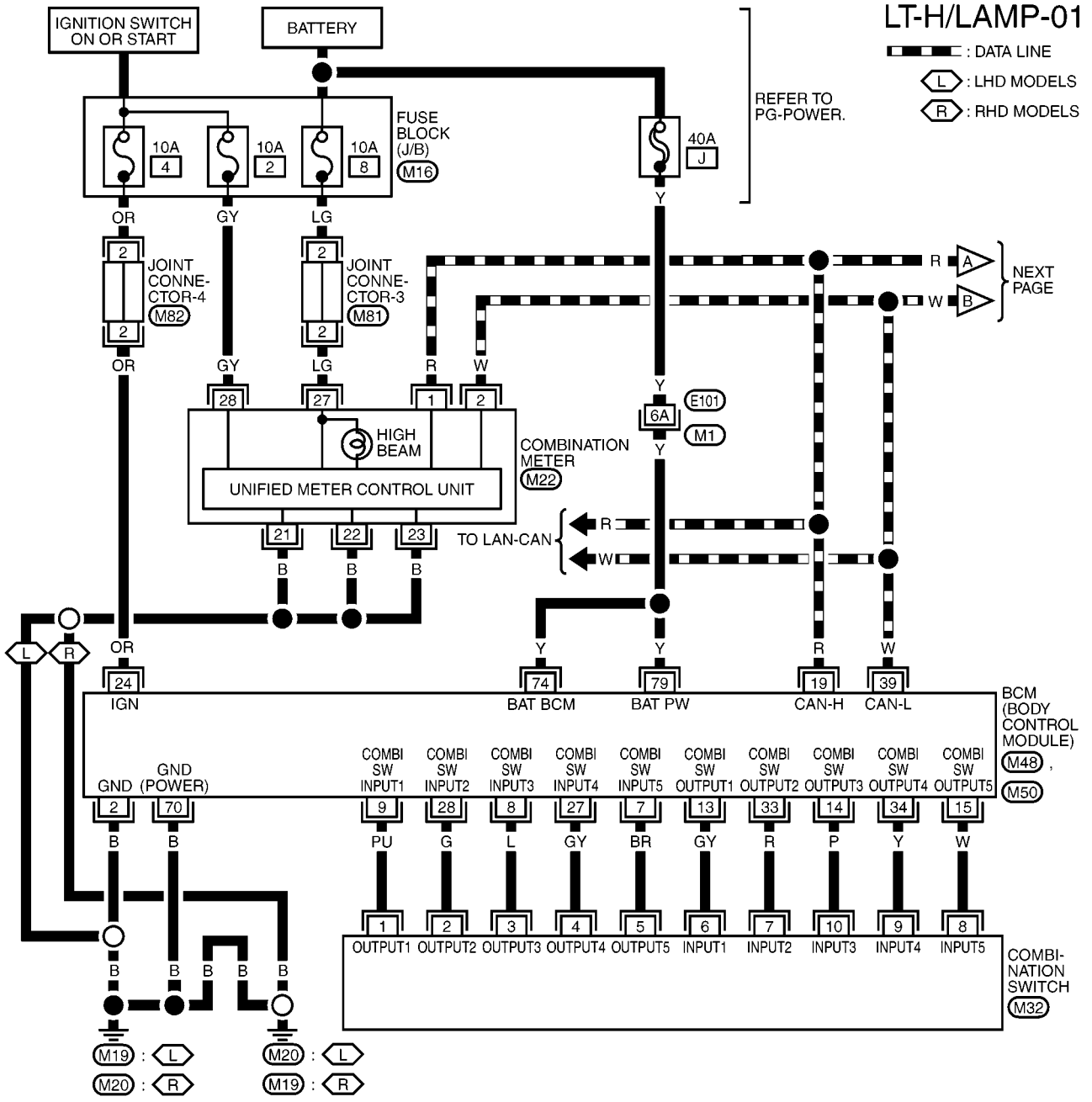
Input/output signal chart

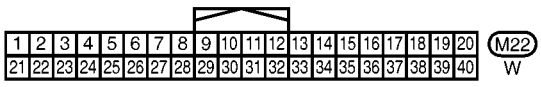
T: Transmit R: Receive

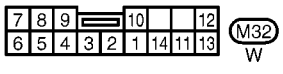
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

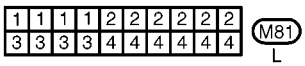
Wiring Diagram — H/LAMP—

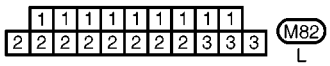
EKS00EKW





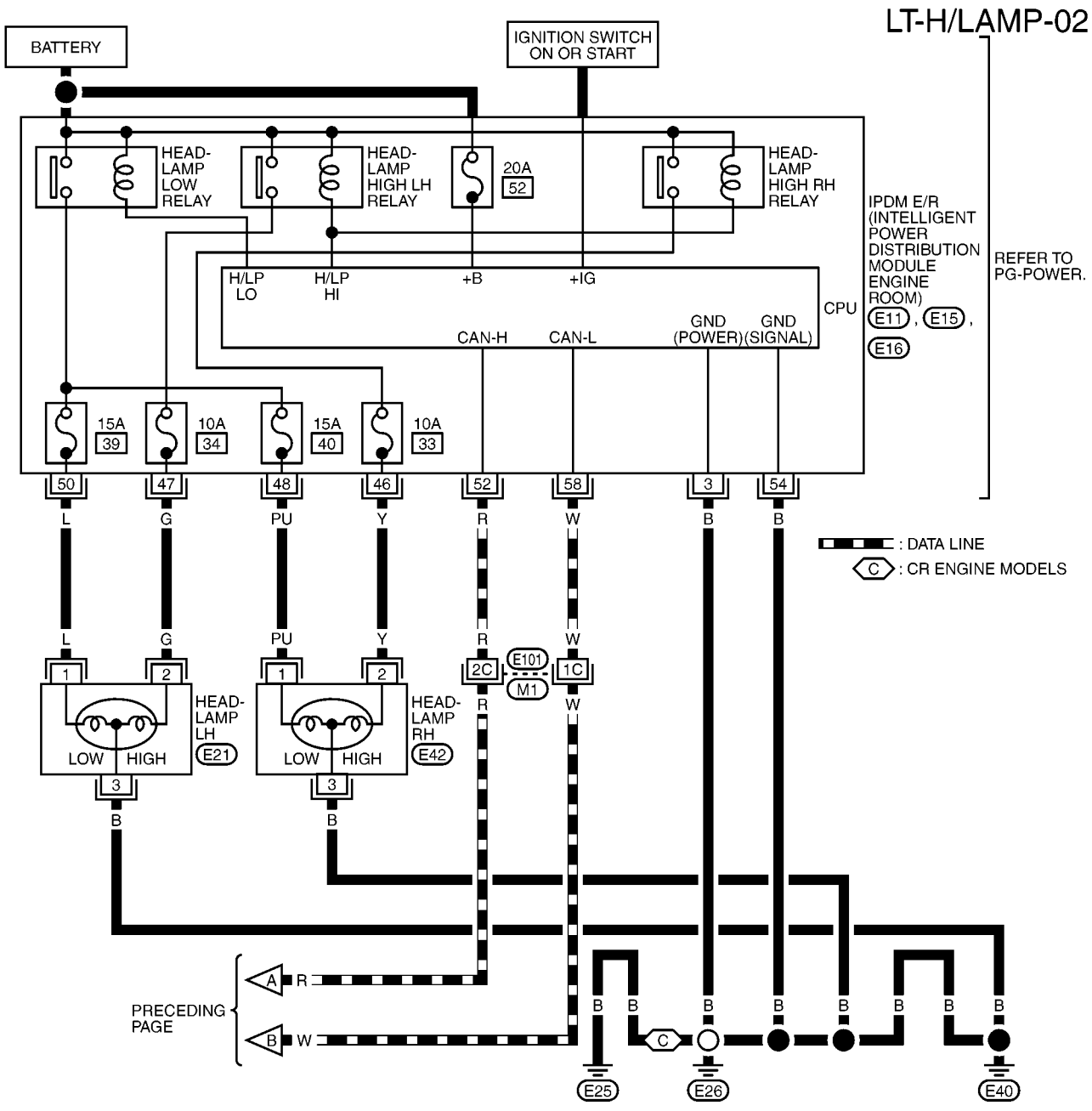


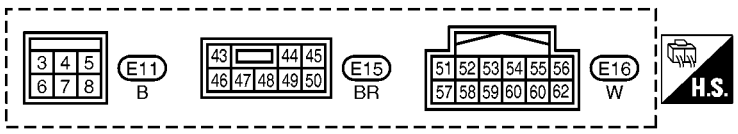


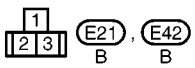


REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)
M48, M50 - ELECTRICAL UNITS

MKWA3449E





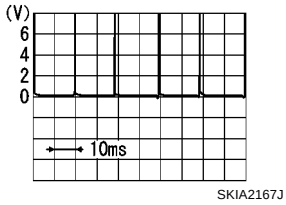
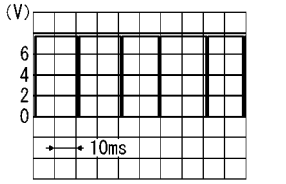
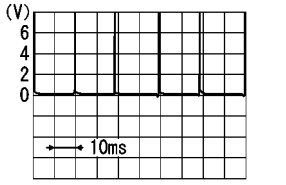


REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA3834E

Terminals and Reference Value for BCM

EKS00EKX

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signals, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
33	R	Combination switch output 2		Headlamps, turn signals, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
39	W	CAN L	—	—	—
70	B	Ground	ON	—	0
74	Y	Power source (Fusible link)	OFF	—	Battery voltage
79	Y	Power source (Fusible link)	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

EKS00EKY

Terminal No.	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		0
46	Y	Headlamp high beam (RH)	ON	Lighting switch (high beam)	ON	Battery voltage
					OFF	0
47	G	Headlamp high beam (LH)	ON		ON	Battery voltage
					OFF	0
48	PU	Headlamp low beam (RH)	ON	Lighting switch (low beam)	ON	Battery voltage
					OFF	0
50	L	Headlamp low beam (LH)	ON		ON	Battery voltage
					OFF	0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		0
58	W	CAN L	—	—		—

How to Proceed With Trouble Diagnosis

EKS00EKZ

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Headlamp LT-7, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-26, "Preliminary Check" .
4. Confirm headlamp does not operate by fail-safe control of IPDM E/R. Refer to PG-20, "FAIL-SAFE FUNCTION" .
5. Check symptom and repair or replace the cause of malfunction.
6. Does the headlamp operate normally? Yes: GO TO 7. No: GO TO 5.
7. INSPECTION END.

Preliminary Check

EKS00EL0

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch ON or START position	4

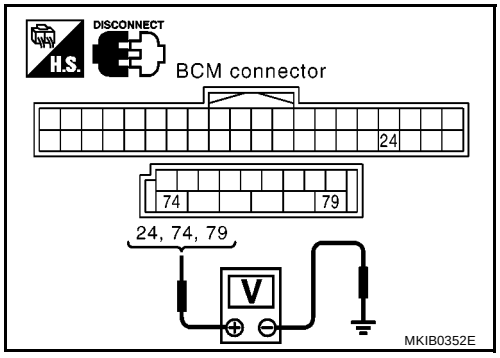
Refer to LT-22, "Wiring Diagram — H/LAMP—" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

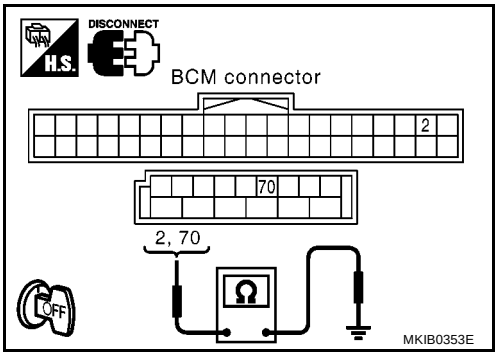
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse. If NG, repair or replace the harness or fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END.
NG >> Repair or replace the harness.

CONSULT-II Functions (BCM)

EKS00EL1

CONSULT-II can display each diagnosis item using the diagnostic test modes shown following.

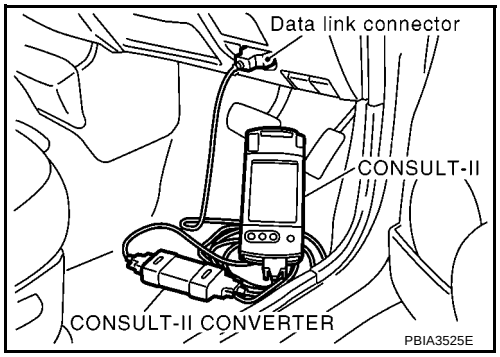
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Headlamp	Work support	Changes the setting for each function.
	Data monitor	Displays BCM input data in real time.
	Active test	Sends a drive signal to electronic components to check their operation.
BCM	Self-diagnosis	BCM performs self-diagnosis of CAN communication and combination switch

CONSULT-II BASIC OPERATION

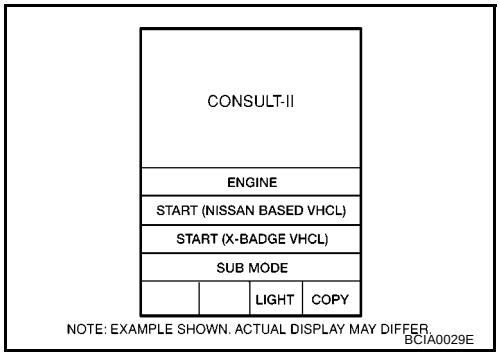
CAUTION:

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.

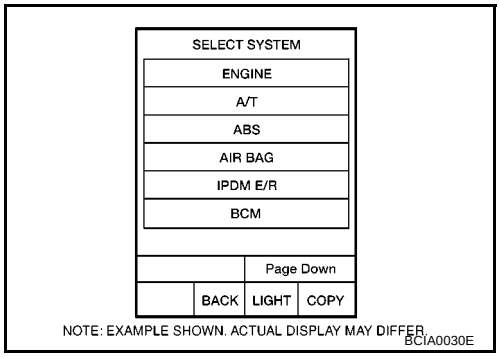
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to data link connector.



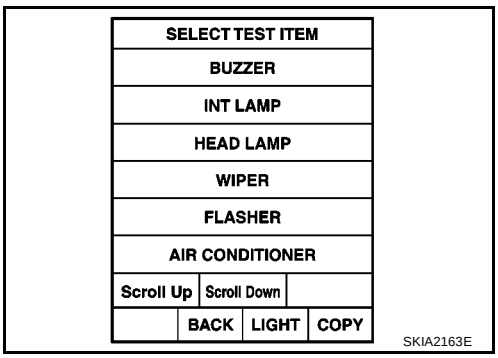
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



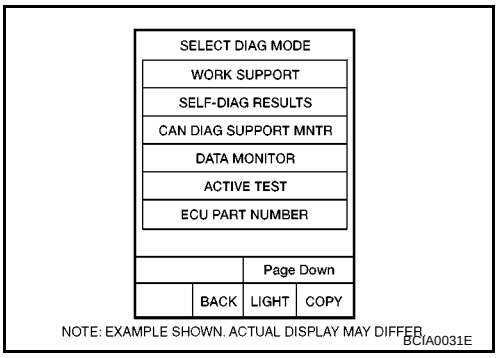
5. Touch “BCM” on the “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.



7. Touch “WORK SUPPORT”, “DATA MONITOR”, or “ACTIVE TEST” on the “SELECT DIAG MODE” screen.



WORK SUPPORT

Operation Procedure

1. Touch “BCM” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “BATTERY SAVER SET” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “CHANGE SET” on “SELECT DIAG MODE” screen.
6. The setting will be changed and “CUSTOMIZING COMPLETED” will be displayed.
7. Touch “END”.

Display Item List

Item	Description	CONSULT-II	Factory setting
BATTERY SAVER SET*	Battery saver can be selected	ON	—
		OFF	○

*: For setting battery saver mode, please follow instruction required by low.

DATA MONITOR

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” on the “DATA MONITOR” screen.
4. Touch “START”.
5. When “ALL SIGNALS” is selected, all the items will be monitored.
6. Touch “RECORD” while monitoring to record the status of the item being monitored. To stop recording, touch “STOP”.

Display Item List

Monitor item UNIT.		Display content
IGN ON SW	[ON/OFF]	Displays status (Ignition switch ON: ON/Others OFF, ACC: OFF) as judged from the ignition switch signal.
HI BEAM SW	[ON/OFF]	Displays status (High beam switch: ON/Others: OFF) as judged from lighting switch signal.
H/L SW POS	[ON/OFF]	Displays status (Headlamp switch: ON/Others: OFF) as judged from lighting switch signal.
LIGHT SW 1ST	[ON/OFF]	Displays status (Lighting switch 1st position: ON/Others: OFF) as judged from lighting switch signal.
PASSING SW	[ON/OFF]	Displays status (Flash-to-pass switch: ON/Others: OFF) as judged from lighting switch signal.
FR FOG SW	[ON/OFF]	Displays status (Front fog lamp switch: ON/Others: OFF) as judged from lighting switch signal.
RR FOG SW	[ON/OFF]	Displays status (Rear fog lamp switch: ON/Others: OFF) as judged from lighting switch signal.
DOOR SW-DR	[ON/OFF]	Displays status (Door open: ON/door closed: OFF) as judged from the door switch DR signal.
H/L WASH SW	[ON/OFF]	Displays status (Headlamp washer switch: ON/Others: OFF) as judged from headlamp washer switch signal.
ENGINE STATUS	[STOP/ STALL/ RUN/ CRA]	Displays status (Engine stop: STOP/engine stall: STALL/engine running: RUN/engine cranking: CRA) as judged from the engine status.

ACTIVE TEST

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “ACTIVE TEST” on the “SELECT DIAG MODE” screen.
3. Touch item to be tested and check operation of the selected item.
4. During operation check, touching “STOP” deactivates operation.

Display Item List

Test item	CONSULT-II screen display	Description
Tail lamp relay output	TAIL LAMP	Tail lamp relay can be operated by any ON–OFF operation.
Headlamp relay output	HEADLAMP	Headlamp relay can be operated by any ON–OFF operation.
Front fog lamp relay output	FR FOG LAMP	Front fog lamp relay can be operated by any ON–OFF operation.
Rear fog lamp relay output	RR FOG LAMP	Rear fog lamp relay can be operated by any ON–OFF operation.

SELF-DIAGNOSTIC RESULTS

Operation Procedure

1. Touch “BCM C/U” on “SELECT TEST ITEM” screen.
2. Touch “SELF-DIAGNOSTIC RESULTS” on “SELECT DIAG MODE” screen.
3. Self-diagnostic results are displayed.

Display Item List

Item to be displayed	CONSULT-II display	Description
CAN communication	CAN COMMUNICATION [U1000]	Malfunction is detected in CAN communication.
CAN communication system	CAN COMMUNICATION SYSTEM TO 6 [U1000]	Malfunction is detected in CAN system.
Combination switch	Diagnosis 1-5 systems open circuit	Malfunction is detected in combination switch system.

CONSULT-II Functions (IPDM E/R)

EKS00EL2

CONSULT-II can display each diagnosis item using the diagnostic test modes shown following.

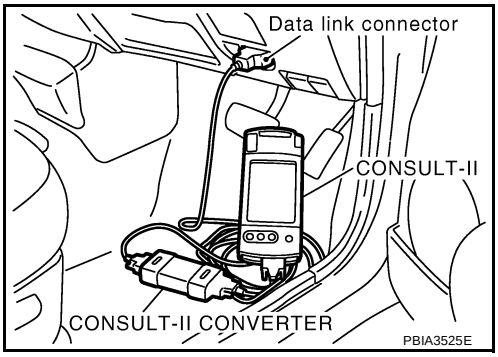
Inspection Item, Diagnosis Mode	Description
Self-diagnostic results	Refer to PG-35, "SELF-DIAG RESULTS" .
Data monitor	Displays the real-time input/output data from IPDM E/R I/O data.
Active test	IPDM E/R can sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

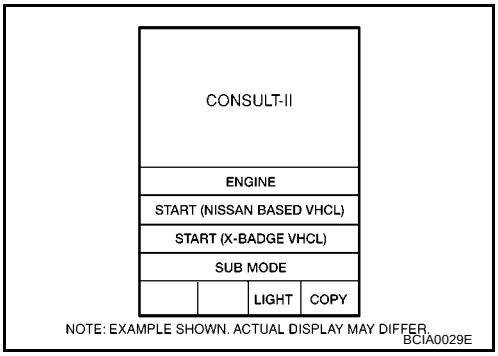
CAUTION:

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.

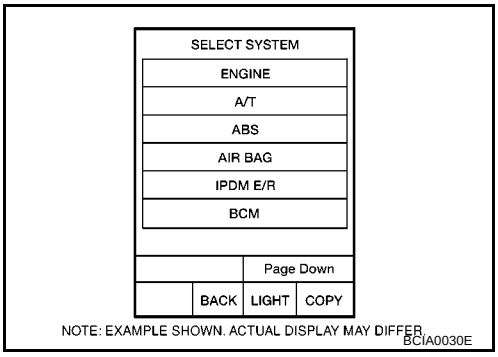
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to data link connector.



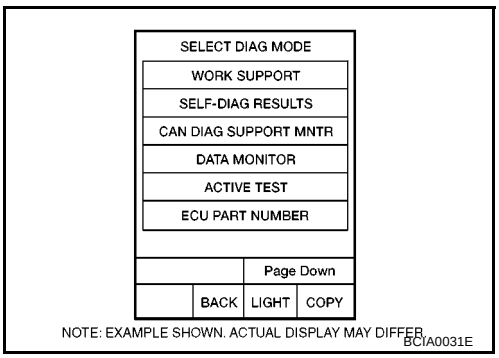
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



5. Touch “IPDM E/R” on the “SELECT SYSTEM” screen.
   If “IPDM E/R” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “SELF-DIAG RESULTS”, “DATA MONITOR”, “ACTIVE TEST” on the “SELECT DIAG MODE” screen.



SELF-DIAG RESULTS

IPDM E/R perform self-diagnosis of CAN communication. Refer to PG-35, "SELF-DIAG RESULTS" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.
2. Touch “ALL SIGNALS”,“MAIN SIGNALS” or “SELETION FROM MENU” on the “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitors previously selected items.
SELECTION FROM MENU	Items are freely selected and monitored.

3. Touch “START”.
4. For “SELECTION FROM MENU”, touch the required monitor items. For “ALL SIGNALS”, all items are monitored. For “MAIN SIGNALS”, the previously selected items are monitored.
5. Touch “RECORD” while monitoring to record the status of the item being monitored. To stop recording, touch “STOP”.

All Signals, Main Signals, Selection From Menu

Monitor item name	Display and unit	Monitor item selection			Display content
		All signals	Main signals	selection from menu	
TAIL & CLR REQ	ON/OFF	×	×	×	Signal status input from BCM
HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM
HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM
FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM
IGN RLY	ON/OFF	×	×	×	Status of ignition relay being monitored by IPDM E/R
BAT VOLT	V	×		×	Value measured at IPDM E/R

NOTE:

- IPDM E/R data monitoring is performed with ignition switch ON. When monitored at ACC position, the display might not be normal.

ACTIVE TEST

Operation Procedure

1. Touch “ACTIVE TEST” on the “SELECT DIAG MODE” screen.
2. Touch item to be tested and check operation of the selected item.
3. Touch “START”.
4. Touch “STOP” while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Headlamp relay (HI, LO) output	HEAD LAMP	Headlamp relay (LO, HI) can be operated using random operation (OFF, HI ON, LO ON).
Front fog lamp relay output	FRONT FOG LAMP	Fog lamp relay can be operated by any ON–OFF operation.
Tail lamp relay output	TAIL LAMP	Tail lamp relay can be operated by any ON–OFF operation.

Headlamp High Beam Does Not Illuminate (Both Sides)

EKS00EL3

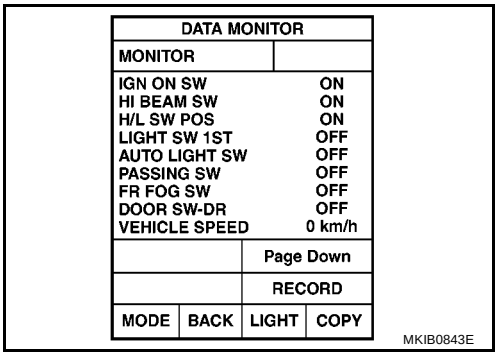
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select “BCM” on CONSULT-II. Check lighting switch (“HI BEAM SW”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 2nd position and placed in HIGH or PASS position : HI BEAM SW ON

When lighting switch is in OFF position : HI BEAM SW OFF



Without CONSULT-II

Refer to LT-219, "Check Combination Switch" .

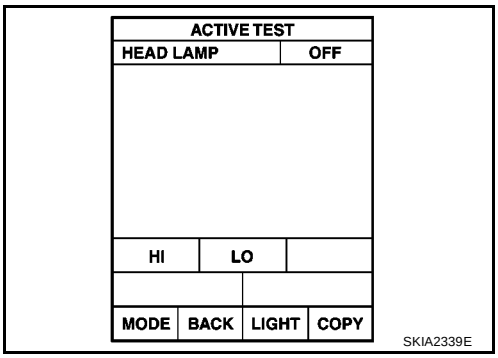
OK or NG

OK >> GO TO 2.
NG >> Refer to LT-219, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R TO HEADLAMP

With CONSULT-II

1. Select “IPDM E/R” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “HEADLAMP” on “ACTIVE TEST” screen.
3. Make sure that headlamp (high beam) operate normally.



Without CONSULT-II

1. Start up auto active test. Refer to PG-43, "Auto Active Test" .
2. Make sure that headlamp (high beam) operate normally.

OK or NG

OK >> GO TO 3.
NG >> Check the following:

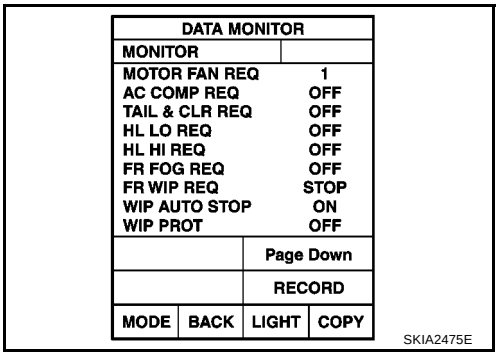
- Headlamp LH/RH bulb
- Headlamp ground circuit harness
- Open or short for the harness between headlamp LH/RH and IPDM E/R. If there are no malfunctions, replace IPDM E/R.

3. CHECK BETWEEN IPDM E/R AND BCM

Select “IPDM E/R” on CONSULT-II. Check lighting switch (“HL HI REQ”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 2nd position and placed in HIGH or PASS position : HL HI REQ ON

When lighting switch is in OFF position : HL HI REQ OFF



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM.

Headlamp High Beam Does Not Illuminate (One Side)

EKS00EL4

1. CHECK BULB

Check headlamp bulb which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace headlamp bulb.

2. CHECK FUSE

Check the following

- 10A fuse (No. 33, located in the IPDM E/R).
- 10A fuse (No. 34, located in the IPDM E/R).

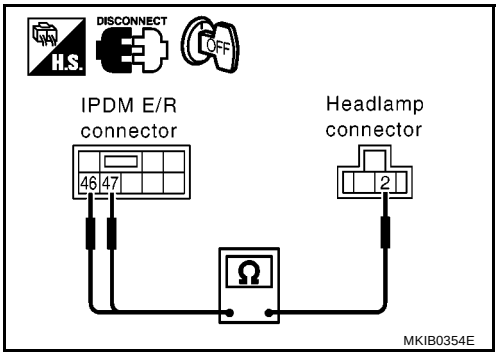
OK or NG

OK >> GO TO 3.
NG >> If fuse is blown be sure to eliminate cause of malfunction before installing new fuse.

3. CHECK BETWEEN IPDM E/R AND HEADLAMP

1. Disconnect IPDM E/R connector and headlamp connector.
2. Check continuity between harness connector terminals of IPDM E/R and harness connector terminal of headlamp.

Terminals					Continuity
Headlamp			IPDM E/R		
Connector		Terminal (Wire color)	Connector	Terminal (Wire color)	
RH	E42	2 (Y)	E15	46 (Y)	Yes
LH	E21	2 (G)		47 (G)	



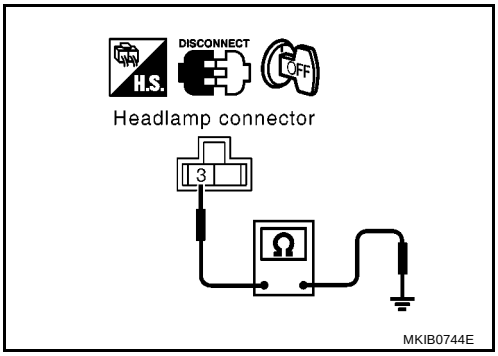
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

4. CHECK BETWEEN HEADLAMP AND GROUND

Check continuity between harness connector of headlamp and ground.

Connector		Terminal (Wire color)	Ground	Continuity
RH	E42	3 (B)		Yes
LH	E21	3 (B)		



OK or NG

OK >> Replace IPDM E/R.
NO >> Repair harness or connector.

High-Beam Indicator Does Not Illuminate

EKS00EL5

1. CHECK BULB

Check high-beam indicator bulb.

OK or NG

OK >> Replace combination meter.
NG >> Replace indicator bulb.

Headlamp Low Beam Does Not Illuminate (Both Sides)

EKS00EL6

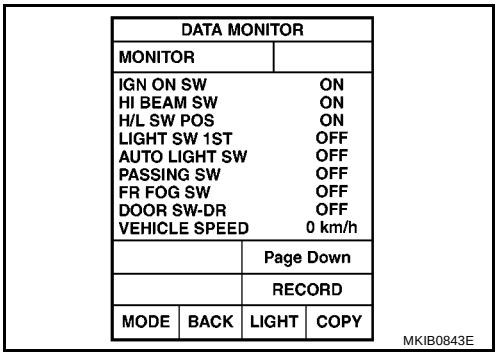
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select “BCM” on CONSULT-II.Check lighting switch (“H/L SW POS”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 2nd position : H/L SW POS ON

When lighting switch is in OFF position : H/L SW POS OFF



Without CONSULT-II

Refer to LT-219, "Check Combination Switch" .

OK or NG

OK >> GO TO 2.
NG >> Refer to LT-219, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R AND HEADLAMP

With CONSULT-II

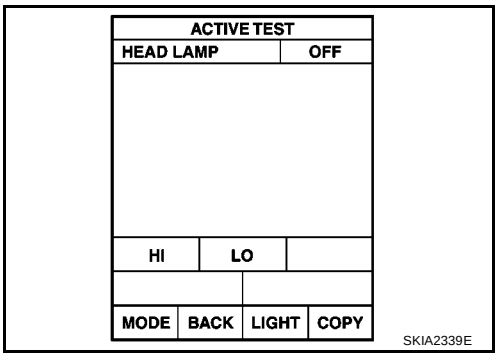
1. Select “IPDM E/R” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “HEADLAMP” on “ACTIVE TEST” screen.
3. Make sure that headlamp (low beam) operate normally.

Without CONSULT-II

1. Start up auto active test. Refer to PG-43, "Auto Active Test" .
2. Make sure that headlamp (low beam) operate normally.

OK or NG

OK >> GO TO 3.
NG >> GO TO 4.

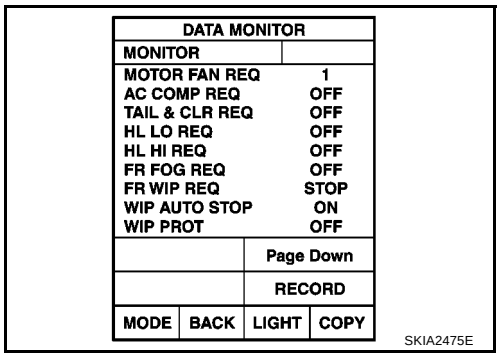


3. CHECK BETWEEN IPDM E/R AND BCM

Select “IPDM E/R” on CONSULT-II.Check lighting switch (“HL LO REQ”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 2nd position : HL LO REQ ON

When lighting switch is in OFF position : HL LO REQ OFF



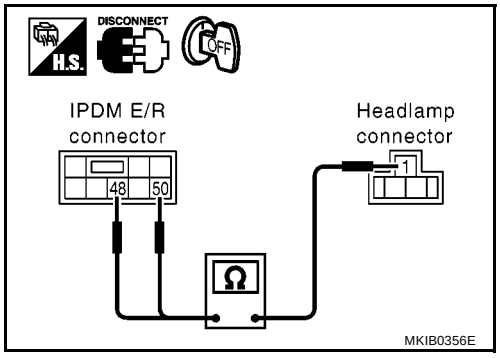
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM.

4. CHECK BETWEEN IPDM E/R AND HEADLAMPS

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and LH/RH headlamp connector.
3. Check continuity between harness connector of IPDM E/R and harness connector of LH/RH headlamp.

Terminals					Continuity
Headlamp			IPDM E/R		
Connector		Terminal (Wire color)	Connector	Terminal (Wire color)	
RH	E42	1 (PU)	E15	48 (PU)	Yes
LH	E21	1 (L)		50 (L)	



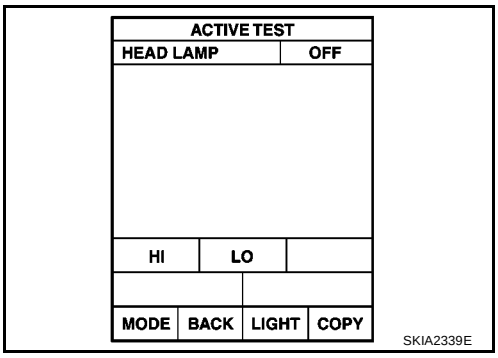
OK or NG

OK >> GO TO 5.
NG >> Repair or replace harness or connector.

5. CHECK IPDM E/R

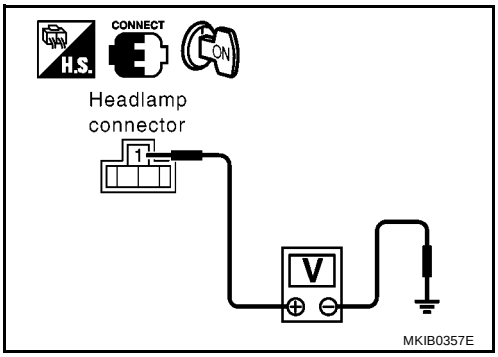
With CONSULT-II

1. Connect IPDM E/R connector and headlamp LH/RH connector.
2. Select “IPDM E/R” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Select “HEADLAMP” on “ACTIVE TEST” screen.
4. Check voltage between headlamp LH/RH connector terminals and ground.



Without CONSULT-II

1. Connect IPDM E/R connector and headlamp LH/RH connector.
2. Start auto active test. Refer to PG-43, "Auto Active Test" , check voltage between headlamp LH/RH connector terminals and ground.



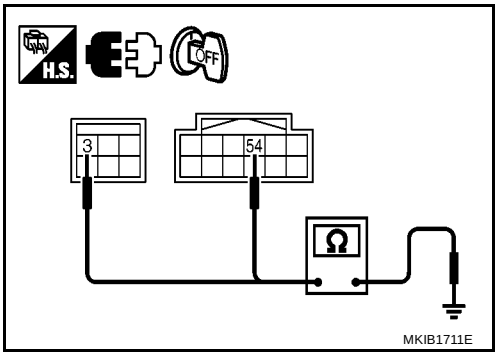
Terminals			Voltage [V] (Approx.)
(+)		(-)	
Connector		Terminal (Wire color)	
RH	E42	1 (PU)	Battery voltage
LH	E21	1 (L)	
		Ground	

OK or NG

OK >> GO TO 6.
NG >> Replace IPDM E/R.

6. CHECK IPDM E/R AND GROUND

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R connector terminals and ground.



IPDM E/R connector	Terminal (Wire color)		Continuity
E11	3 (B)	Ground	Yes
E16	54 (B)		

OK or NG

OK >> Check the condition of the harness and connectors.
NG >> Repair or replace the harness.

Headlamp Low Beam Does Not Illuminate (One Side)

EKS00EL7

1. CHECK BULB

Check headlamp bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace headlamp bulb.

2. FUSE CHECK

Check the following
15A fuse (No. 39, located in the IPDM E/R).
15A fuse (No. 40, located in the IPDM E/R).

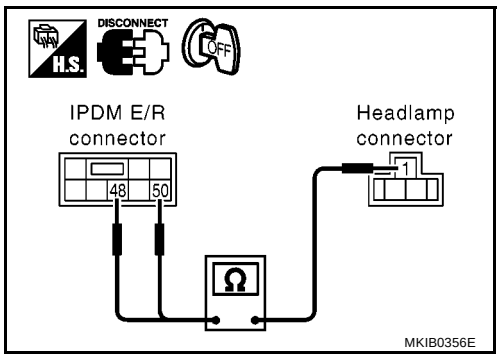
OK or NG

OK >> GO TO 3.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

3. CHECK BETWEEN IPDM E/R AND HEADLAMPS

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and headlamp connector.
3. Check continuity between harness connector of IPDM E/R and harness connector terminal of headlamp.

Terminals					Continuity
Headlamp			Terminals		
Connector		Terminal (Wire color)	Connector	Terminal (Wire color)	
RH	E42	1 (PU)	E15	48 (PU)	Yes
LH	E21	1 (L)		50 (L)	



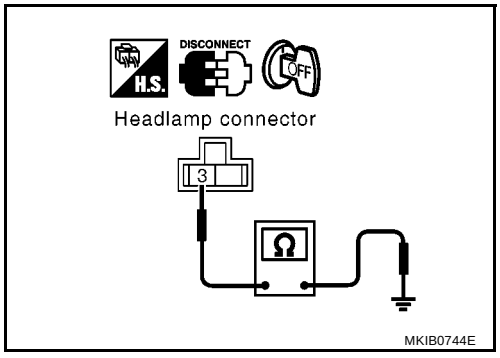
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

4. CHECK BETWEEN HEADLAMP AND GROUND

Check continuity between harness connector of headlamp and ground.

Connector		Terminal (Wire color)	Ground	Continuity
RH	E42	3 (B)		Yes
LH	E21	3 (B)		



OK or NG

OK >> Replace IPDM E/R.
NO >> Repair or replace harness or connector.

Headlamp Low Beam And High Beam Does Not Illuminate (One Side)

EKS00EL8

1. CHECK BULB

Check headlamp bulb.

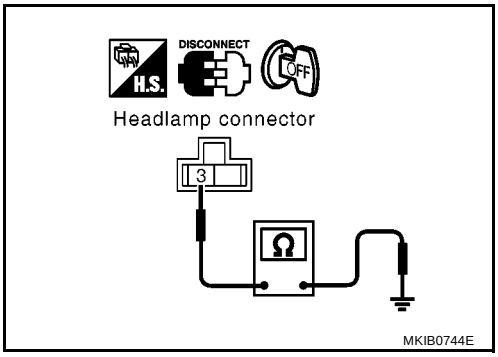
OK or NG

OK >> GO TO 2.
NG >> Replace headlamp bulb.

2. CHECK BETWEEN HEADLAMP AND GROUND

1. Disconnect headlamp connector.
2. Check continuity between harness connector of headlamp and ground.

Connector		Terminal (Wire color)	Ground	Continuity
RH	E42	3 (B)		Yes
LH	E21	3 (B)		



OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

Headlamps Can Not Be Turn OFF

EKS00EL9

1. CHECK IPDM E/R

- Check whether symptom is caused by IPDM E/R fail-safe operation or by factors other than fail-safe operation.Refer to PG-20, "FAIL-SAFE FUNCTION" and check CAN system.

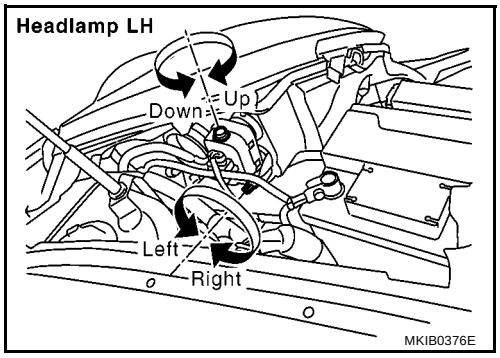
OK or NG

Fail-safe operation>>Refer to PG-49, "Inspection With CONSULT-II (Self-Diagnosis)" .
Other than fail-safe operation>>Refer to PG-52, "Diagnosis of IPDM E/R Integrated Relay" .

Aiming Adjustment

EKS00ELA

- Turn the aiming adjusting screw to adjust.
- For positions of the adjustment screws, refer to the figures.



CAUTION:

Adjustment with the aiming adjusting screw must be done in the tightening direction. (When adjusting in the loosening direction, first loosen the screw, then tighten again.)

PREPARATION BEFORE ADJUSTING

For details, refer to the regulations in your own country.

Before performing aiming adjustment, check the following.

1. Keep all tyres inflated to correct pressures.
2. Place vehicle on flat surface.
3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.

LOW BEAM AND HIGH BEAM

NOTE:

Aim each headlamp individually and ensure other headlamp beam pattern is blocked from screen.

1. Turn headlamp low beam ON.
2. Use adjusting screws to perform aiming adjustment.
   - First tighten the adjusting screw all the way and then make adjustment by loosening the screw. If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.
   - Adjust headlamps so that main axis of light is parallel to center line of body and is aligned with point P shown in illustration.
   - Figure shows headlamp aiming pattern for driving on right side of road; for driving on left side of road, aiming pattern is reversed.
   - Dotted lines to point P in illustration show center of headlamp.

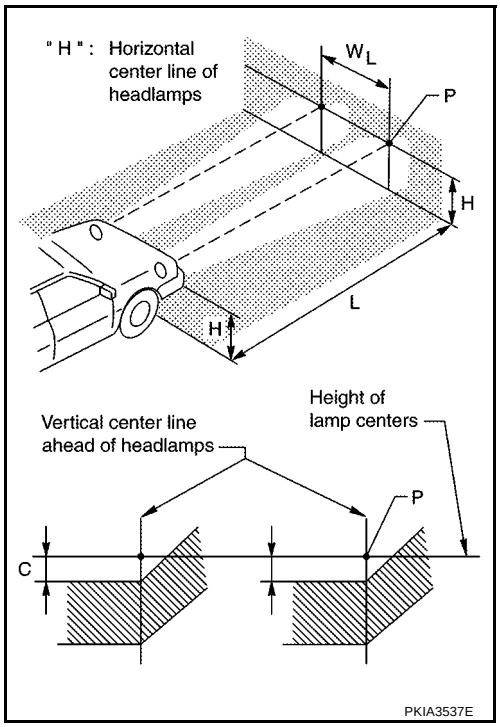
     “H” : Horizontal center line of headlamps

     “W_L” : Distance between each headlamp center

     “L” : 25,000mm (984.25 in)

     “C” : 315mm (12.40 in) – 375mm (14.76in)

   - Elbow point for LHD models must be in 125 mm (4.92 in) to the right form point P.
     Elbow point for RHD models must be in 125 mm (4.92 in) to the left form point P.
   - Basic illuminating area for adjustment should be within the range shown in the figure. Adjust headlamps accordingly.



CAUTION:

Be sure aiming switch is set to “0” when preforming aiming adjustment.

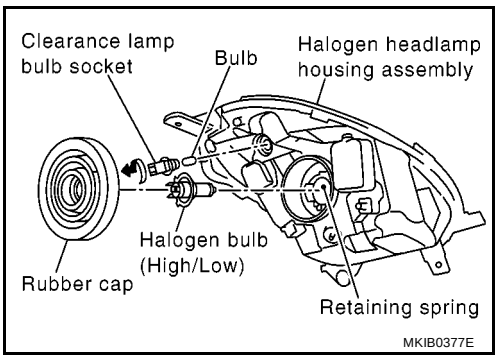
Bulb Replacement

EKS00ELB

HEADLAMP

1. Turn ignition switch OFF.
2. Disconnect headlamp connector.
3. Remove rubber cap.
4. Remove the retaining spring lock, then remove the bulb.
5. Install in reverse order of remove.

Headlamps (High beam, Low beam) : 12V 60/55W (H4)



CLEARANCE LAMPS (PARKING LAMPS)

1. Turn ignition switch OFF.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.
4. Install in reverse order of remove.

Parking lamps : 12V 5W

CAUTION:

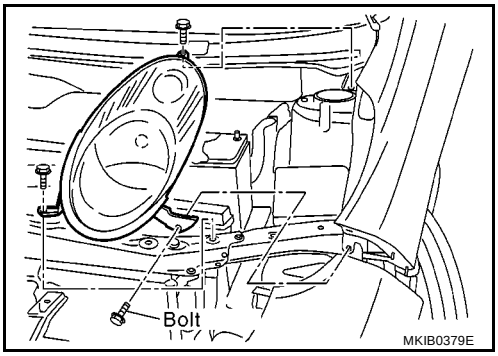
After the bulb is installed, the rubber cover must be attached securely to insure the assembly is water-tight.

Removal and Installation

EKS00ELC

REMOVAL

1. Remove fender protector. Refer to EI-14, "FENDER PROTECTOR" .
2. Remove bolt of front fender front end and bolt of front bumper fascia. Remove front bumper fascia. Refer to EI-5, "FRONT BUMPER" .
3. Disconnect the headlamp, clearance lamp and headlamp aiming connector.
4. Remove headlamp bolts.
5. Pull the entire headlamp forward while raising top mounting bracket.



INSTALLATION

Install in the reverse order of removal, paying attention to the following.

Headlamp bolt

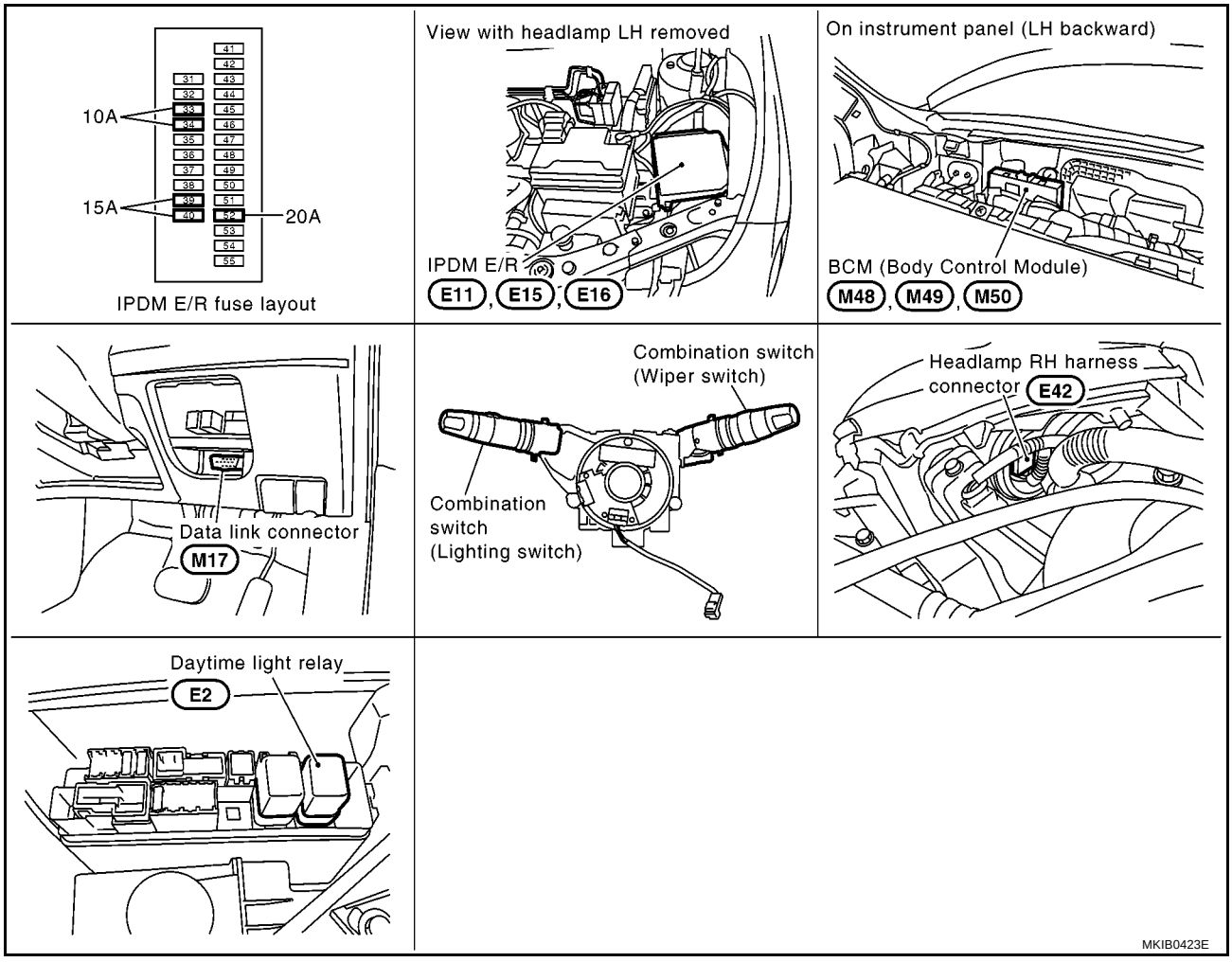
Tightening torque : 4.4 - 6.5 N·m (0.45 - 0.66 kg-m, 39 - 58 in-lb)

HEADLAMP - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

EKS00ELD



System Description

EKS00ELE

The headlamp system for Northern Europe vehicles is equipped with a daytime light system that activates the low beam headlamps at approximately half illumination whenever the engine is running.
Power is supplied at all times

- to headlamp high LH and RH relay located in the IPDM E/R (intelligent power distribution module engine room).
- to headlamp low relay located in the IPDM E/R.

Power is also supplied at all times

- through 40A fusible link (letter **J** , located in the fuse and fusible link box),
- to BCM terminals 74 and 79
- through 20A fuse (No.52, located in the IPDM E/R),
- to IPDM E/R
- through 10A fuse (No.27, located in the fuse and fusible link box) and
- to daytime light relay terminals 1 and 5
- through 10A fuse [No. 8, located in the fuse block (J/B)].
- to combination meter terminal 27

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 4, located in the fuse block (J/B)],
- to BCM terminal 24
- through 10A fuse [No. 2, located in the fuse block (J/B)]

- to combination meter terminal 28
- to IPDM E/R.

With the ignition switch in the START position, power is supplied

- through 10A fuse [No. 14, located in the fuse block (J/B)].
- to BCM terminal 48

Ground is supplied

- to BCM terminals 2 and 70, and
- to combination meter terminals 21, 22 and 23
- through body grounds M19 and M20,
- to IPDM E/R terminals 3 and 54
- through body grounds E25 (CR engine models), E26 and E40.

HEADLAMP OPERATION

Low Beam Operation

When the lighting switch is turned to 2ND position and placed in LOW position, BCM read combination switch condition (refer to LT-212, "System Description"). And BCM send low beam request signal to IPDM E/R with CAN communication line. Then IPDM E/R is turned on headlamp low relay. Headlamp low relay is energized and then power is supplied

- through 15A fuse (No. 39, located in the IPDM E/R)
- through terminal 50 of the IPDM E/R
- to terminal 1 of headlamp LH, and
- through 15A fuse (No. 40, located in the IPDM E/R)
- through terminal 48 of the IPDM E/R
- to terminal 1 of headlamp RH.

Ground is supplied at all times

- to terminal 3 of headlamp LH
- through body grounds E25 (CR engine models), E26 and E40, and
- to terminal 3 of headlamp RH
- through daytime light relay 3 and 4
- through body grounds E25 (CR engine models), E26, E40.

With power and ground supplied, low beam headlamps will illuminate.

High Beam Operation/Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH or PASS position, BCM read combination switch condition (refer to LT-212, "System Description"). And BCM send high beam request signal to IPDM E/R and combination meter with CAN communication line. Then IPDM E/R is turned on headlamp high LH and RH relay. Headlamp high relays are energized and then power is supplied

- through 10A fuse (No. 34, located in the IPDM E/R)
- through terminal 47 of the IPDM E/R
- to terminal 2 of the headlamp LH, and
- through 10A fuse (No. 33, located in the IPDM E/R)
- through terminal 46 of the IPDM E/R
- to terminal 2 of the headlamp RH.

Ground is supplied

- to terminal 3 of headlamp LH
- through body grounds E25(CR engine models), E26 and E40
- to terminal 3 of headlamp RH
- through daytime light relay 3 and 4
- through body grounds E25 (CR engine models), E26 and E40

When power and ground supplied, the high beam headlamps will illuminate.
When combination meter received high beam request signal, combination meter will illuminate high beam indicator.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

DAYTIME LIGHT OPERATION

With the engine running and the lighting switch in the OFF position. BCM sends daytime light request signal to IPDM E/R with CAN communication line. Ground is supplied

- through terminal 65 of IPDM E/R
- to terminal 2 of daytime light relay.

Daytime light relay is energized, power is supplied.

- through daytime light relay terminals 3 and 5
- to terminal 3 of headlamp RH
- through terminal 1 of headlamp RH
- to IPDM E/R terminal 48
- through IPDM E/R terminal 50
- to terminal 1 of headlamp LH.

Ground is supplied

- to terminal 3 of headlamp LH and
- to IPDM E/R terminals 3 and 54
- through body grounds E25 (CR engine models), E26 and E40.

Because the low beam headlamps are now wired in series, they operate at half illumination.
If the lighting switch is in the 1st and 2nd position, daytime light operation is canceled.

EXTERIOR LAMP BATTERY SAVER CONTROL

When the headlamp is activated (if auto light system is activated), The headlamps are turned OFF when the door is opened.

FAIL-SAFE FUNCTION

When CAN communication with other control units is impossible, IPDM E/R performs fail-safe control. If the fail-safe system is operating, headlamps illuminate when the ignition switch is turned from OFF to ON or ACC and headlamps are turned off when the ignition switch is turn from ON or ACC to OFF. If the fail-safe system is operating, headlamps does not operate when the combination switch is in any position. After CAN communication recovers normally, it also returns to normal control. (Refer to PG-20, "FAIL-SAFE FUNCTION")

CAN Communication

EKS00ERE

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP5

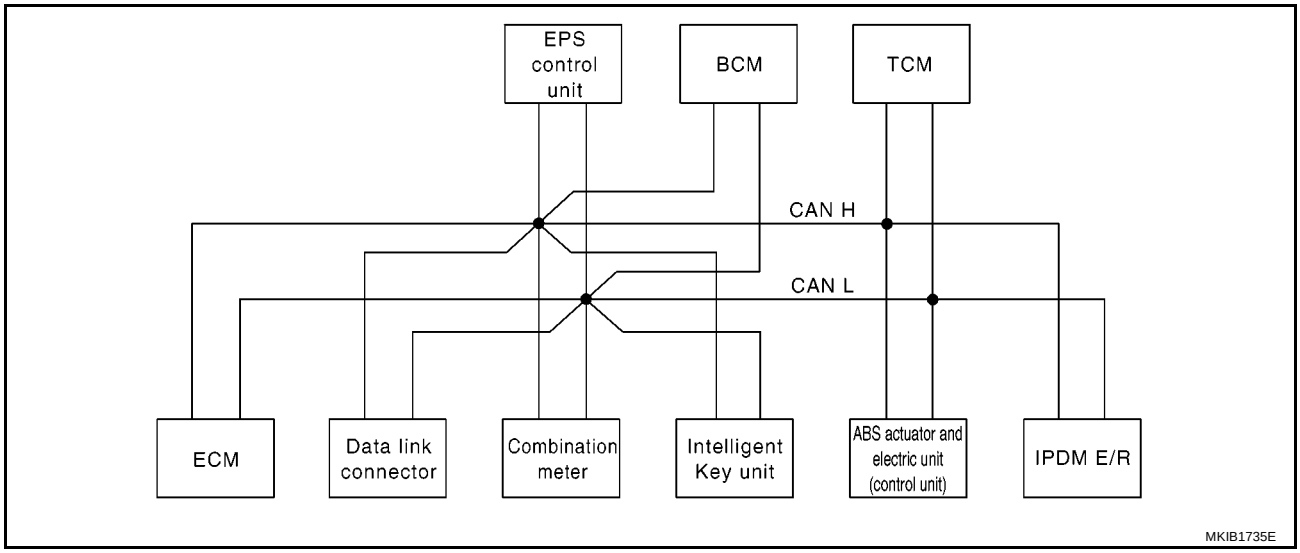
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-46, "TYPE 1/TYPE 2"		LT-49, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-51, "TYPE 7/TYPE 8"		LT-54, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-56, "TYPE 13/TYPE 14"	

×: Applicable

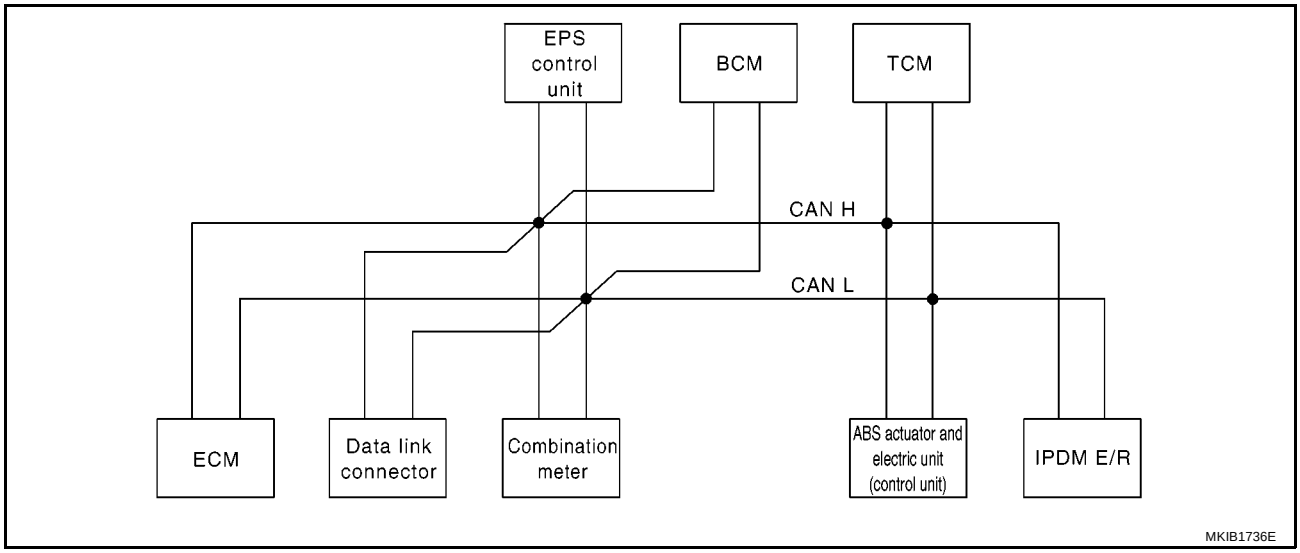
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

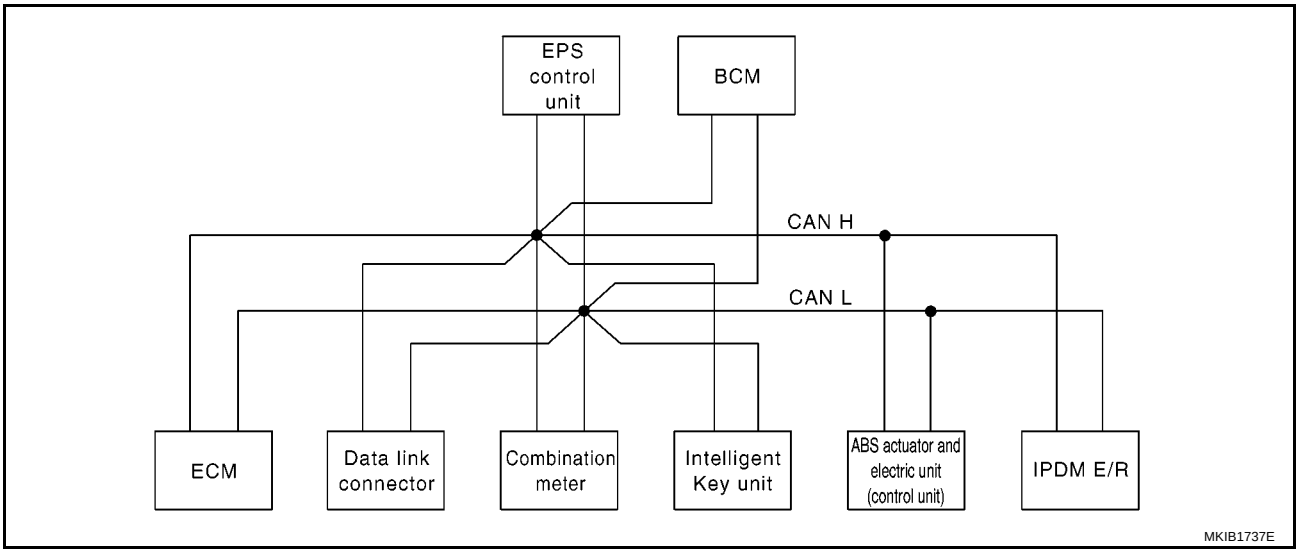
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

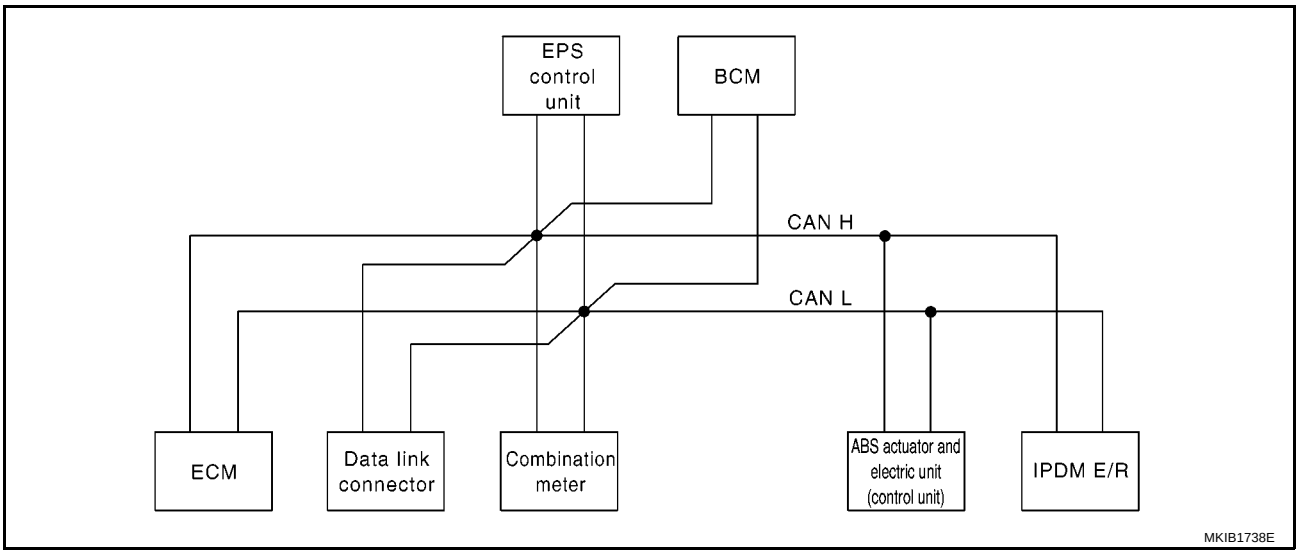
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

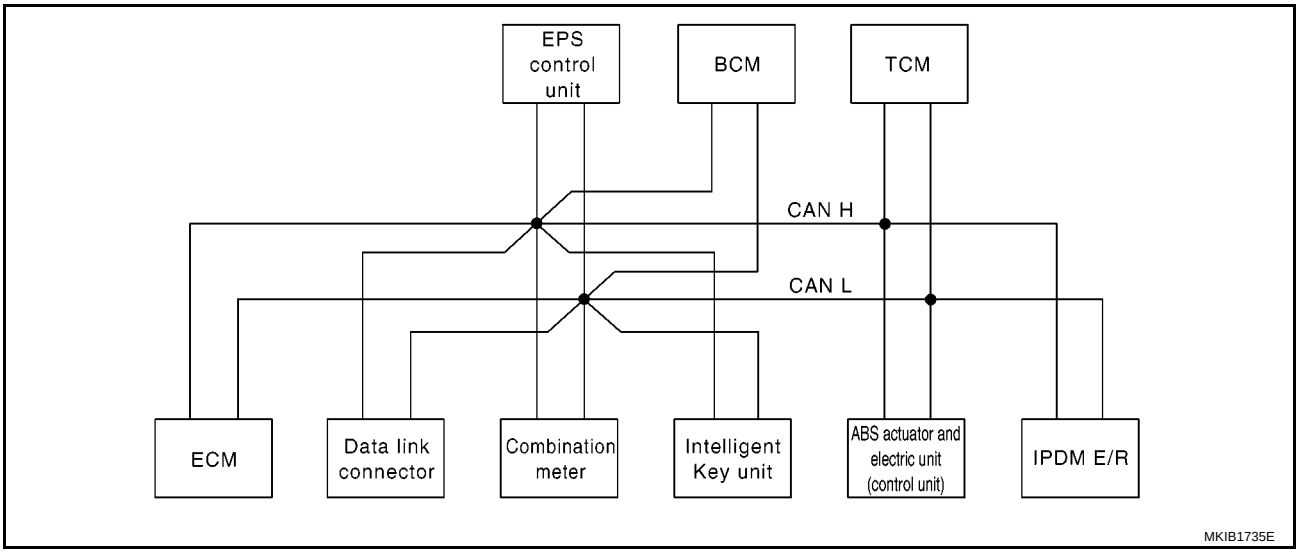
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

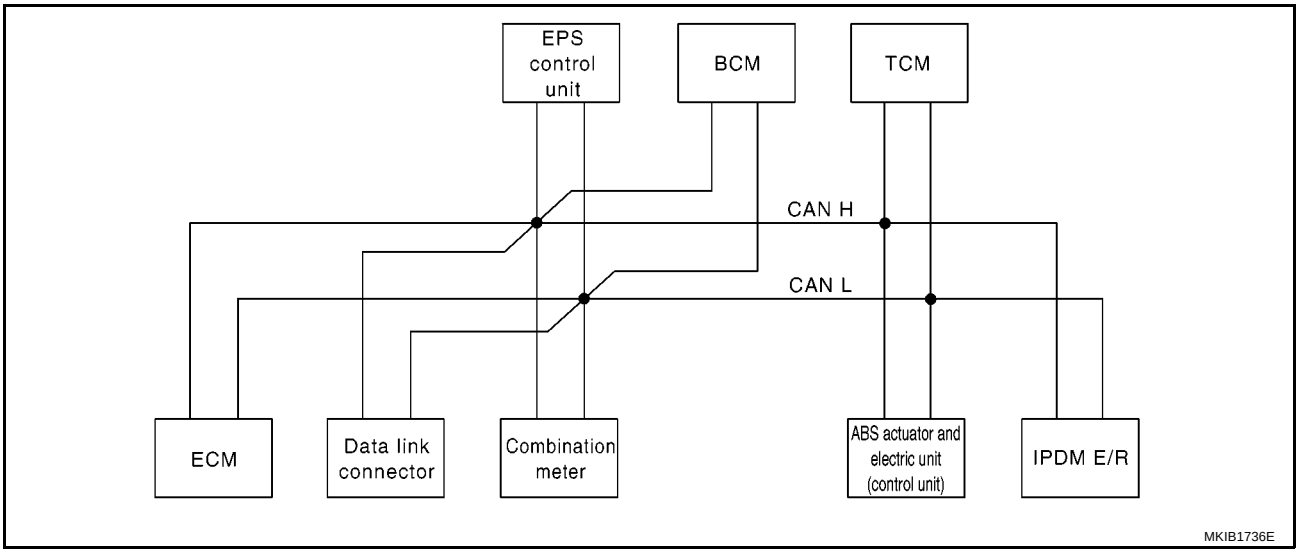
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

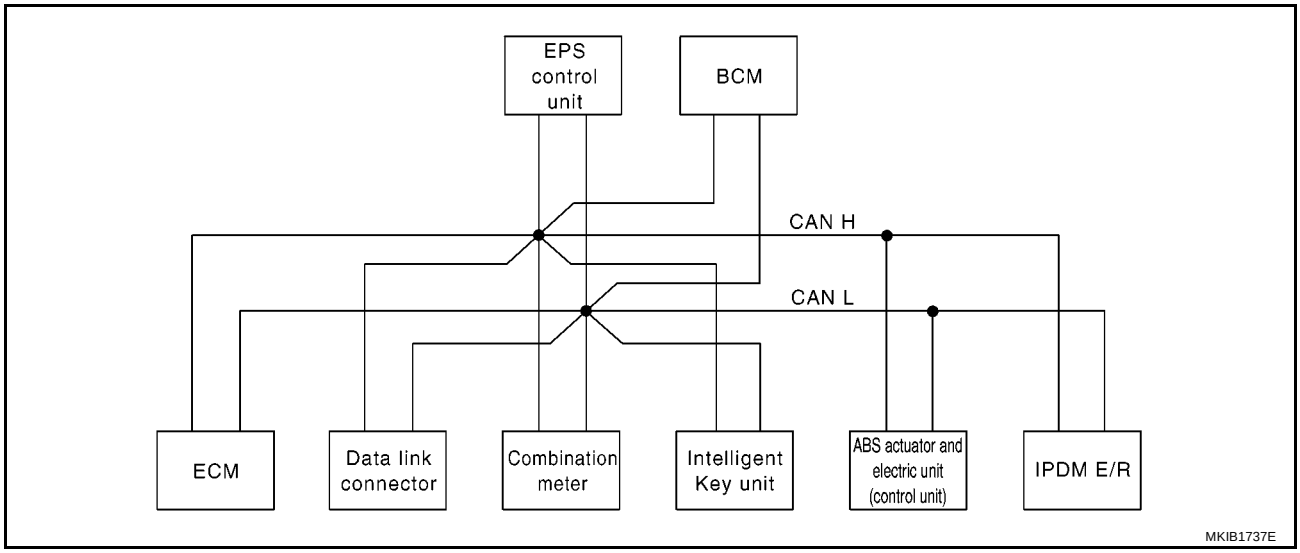
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

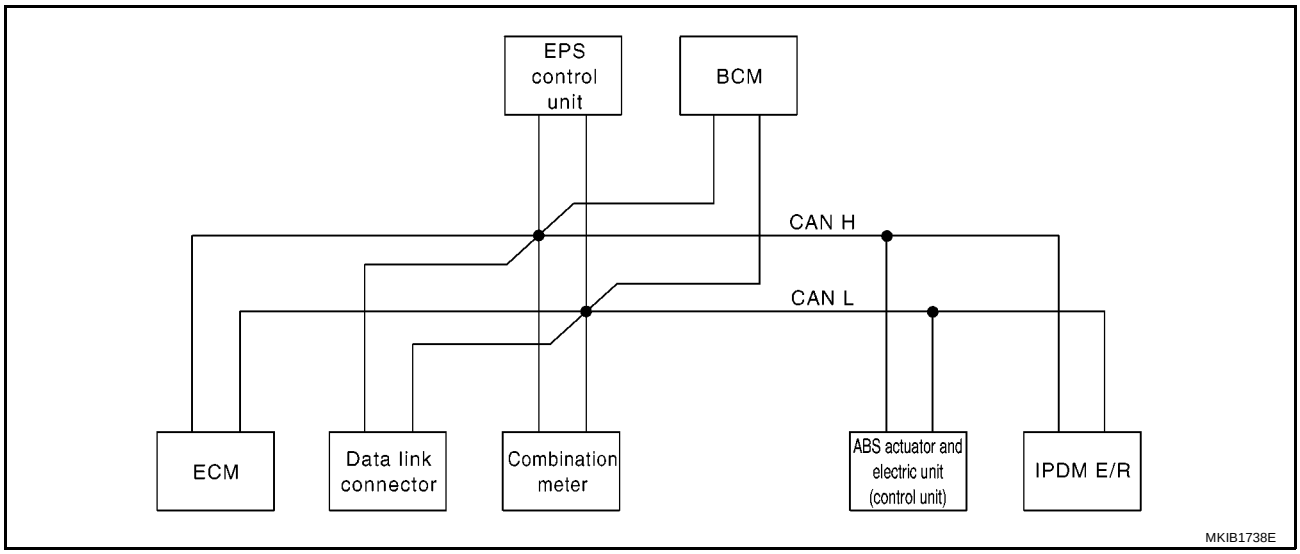
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

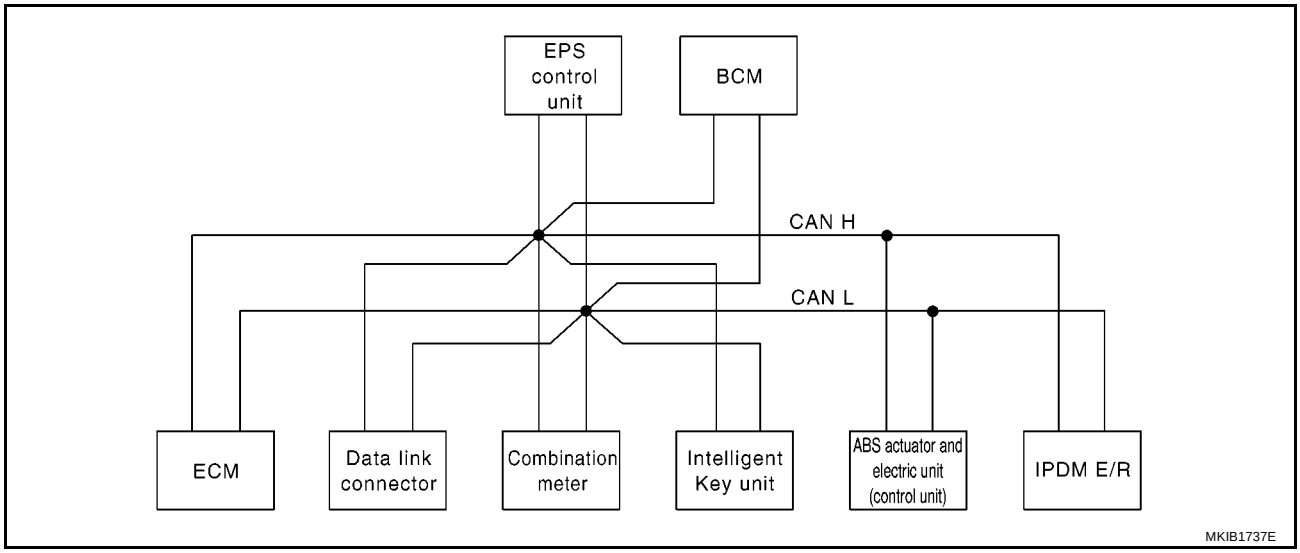
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

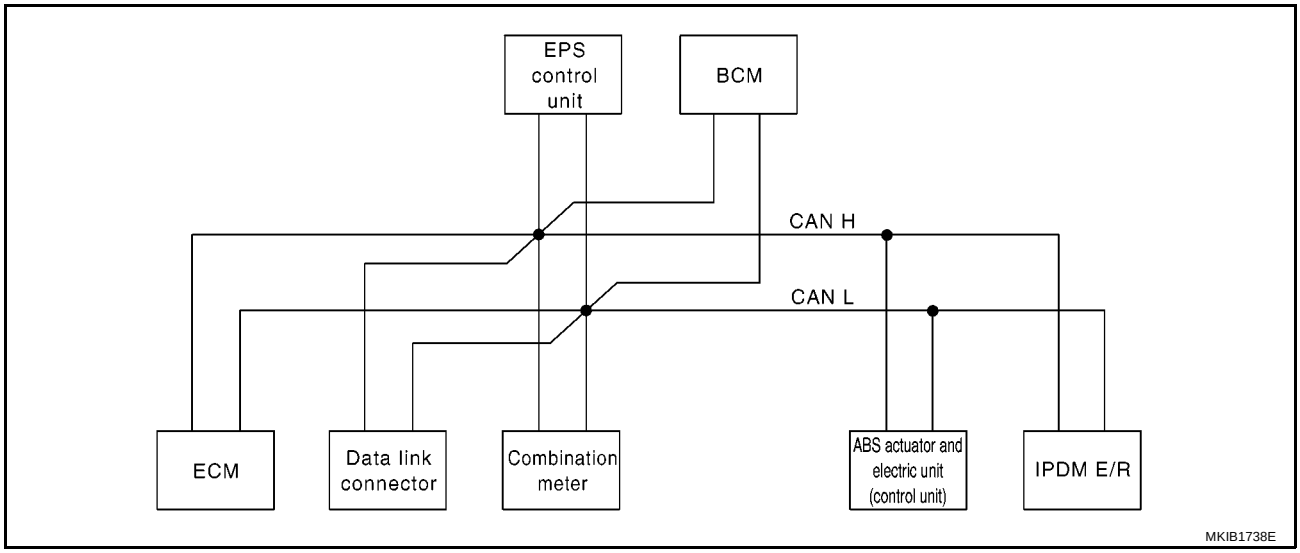
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



Input/output signal chart

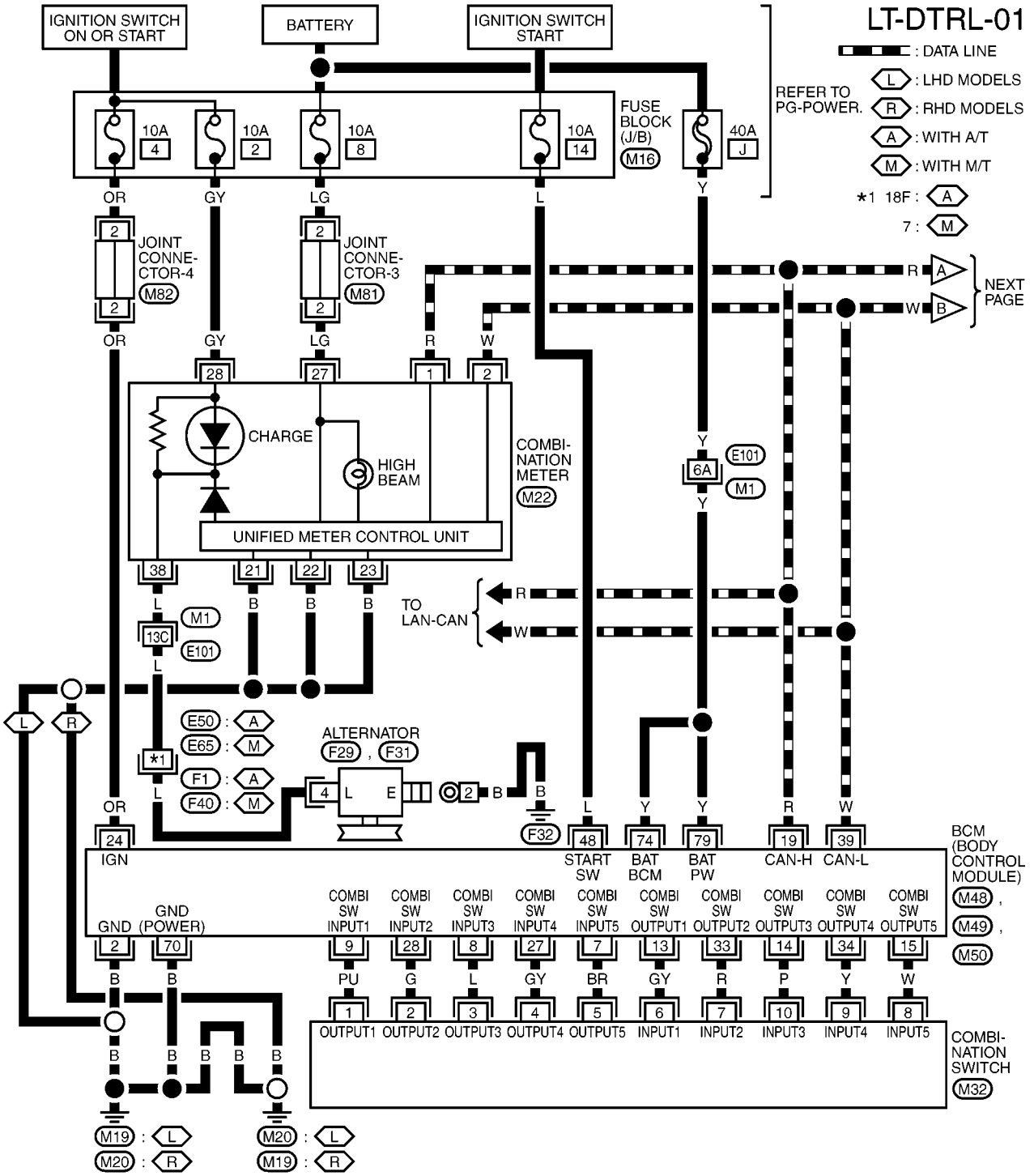
T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Wiring Diagram — DTRL —

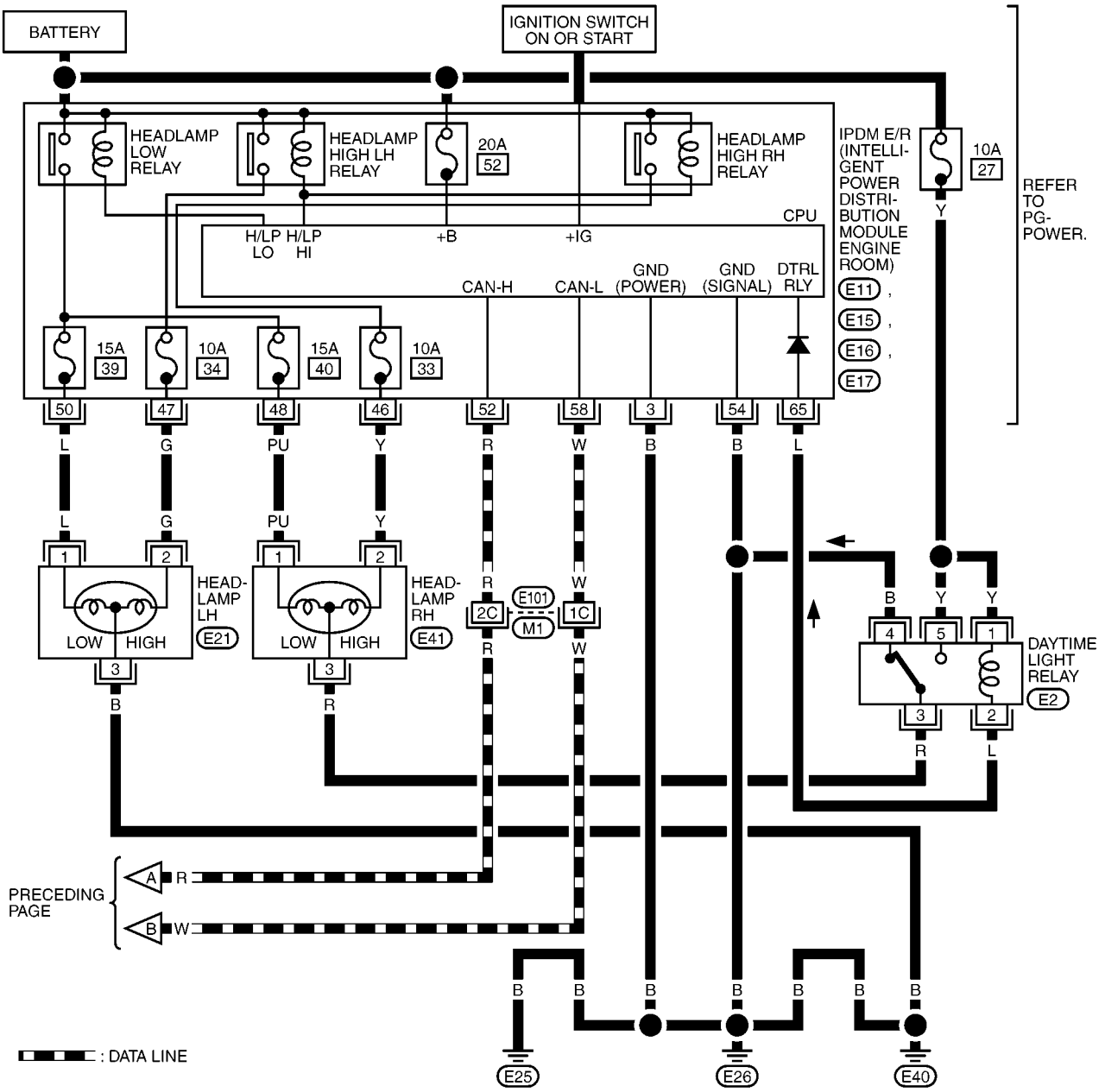
EKS00ELG

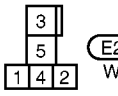
WITH CR ENGINE

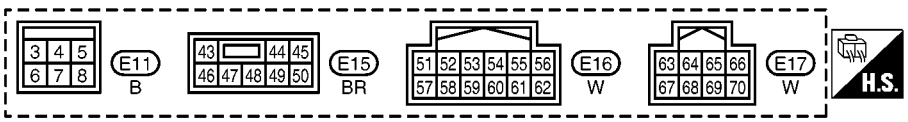


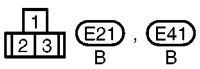
MKWA3450E

LT-DTRL-02





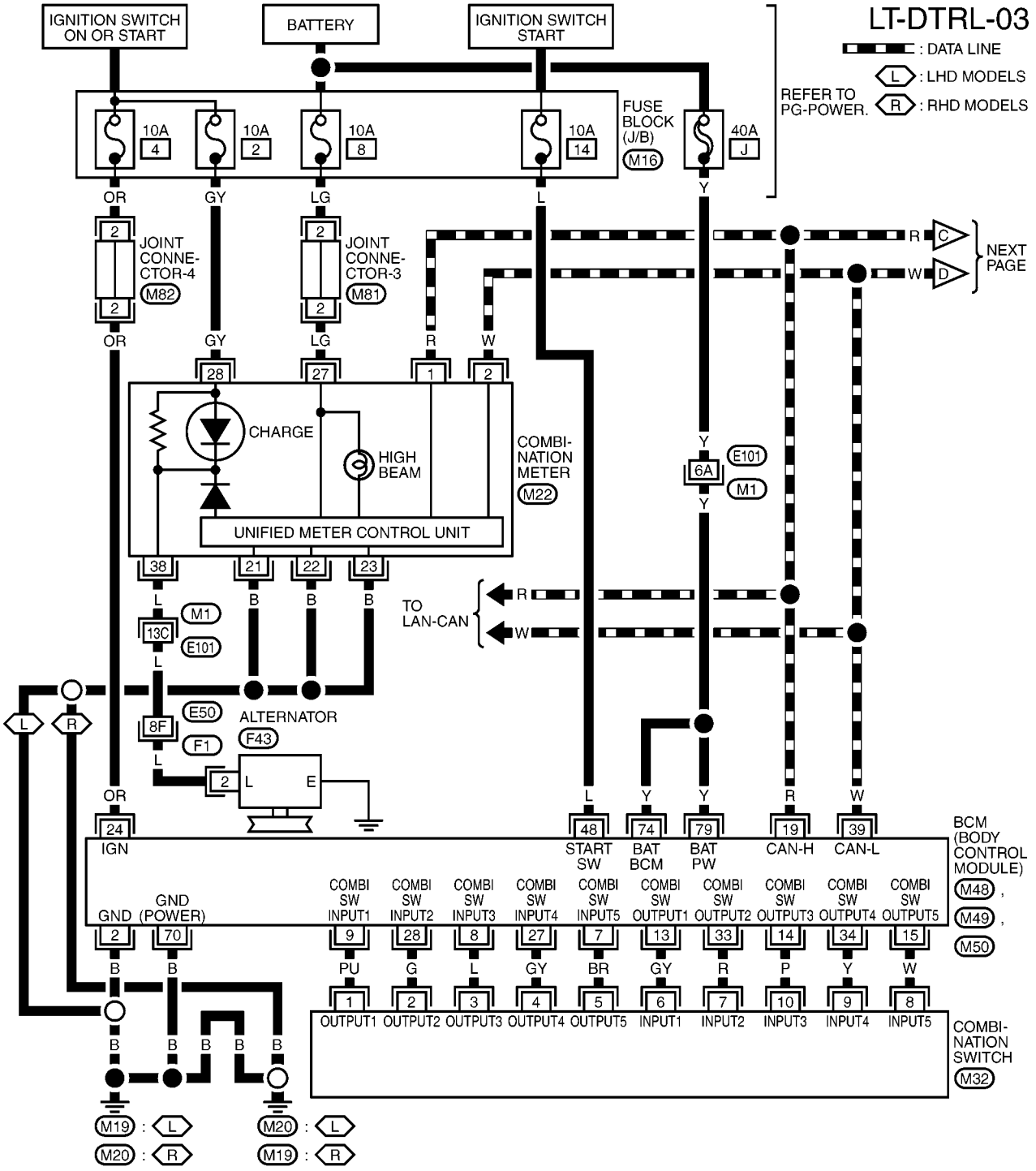




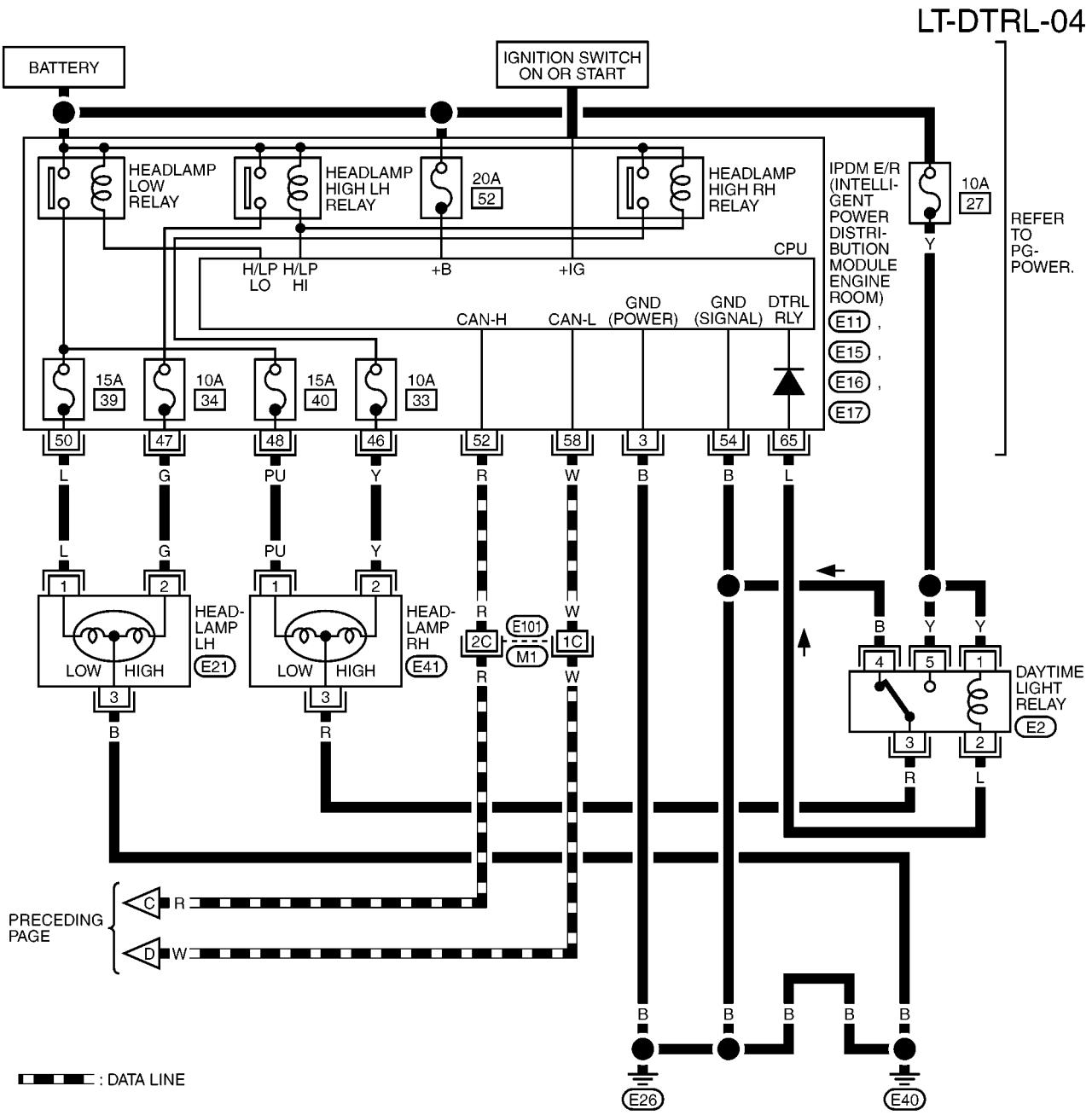
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

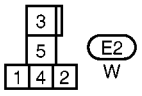
MKWA0810E

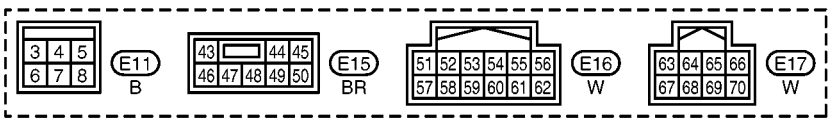
WITH HR ENGINE

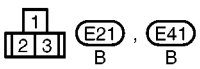


MKWA3451E





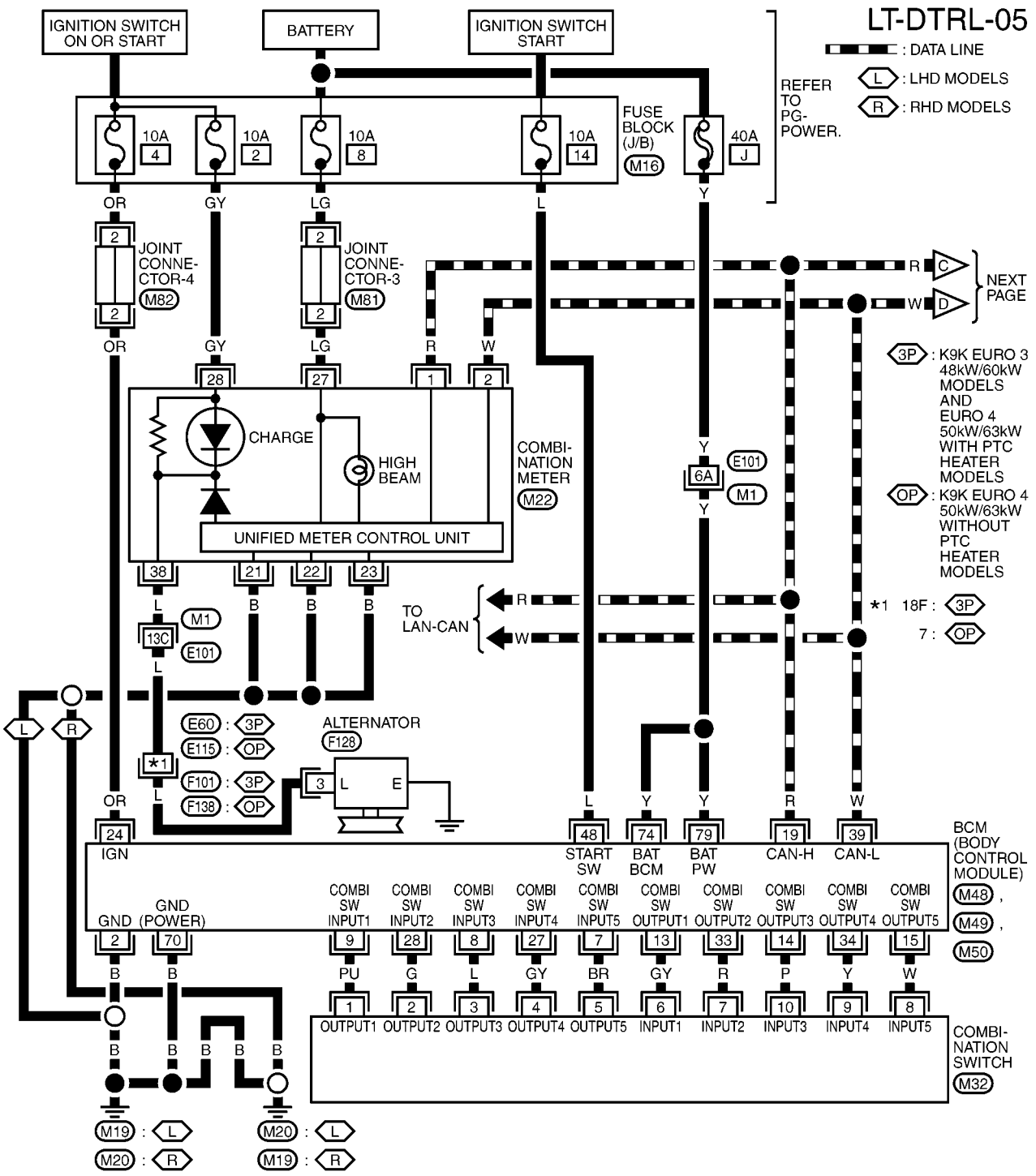


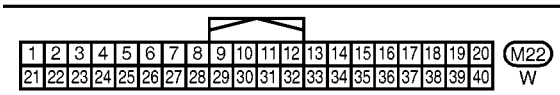


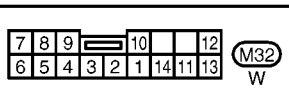
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

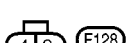
MKWA1438E

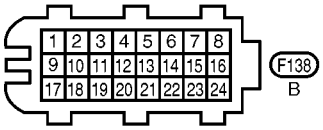
WITH K9K ENGINE





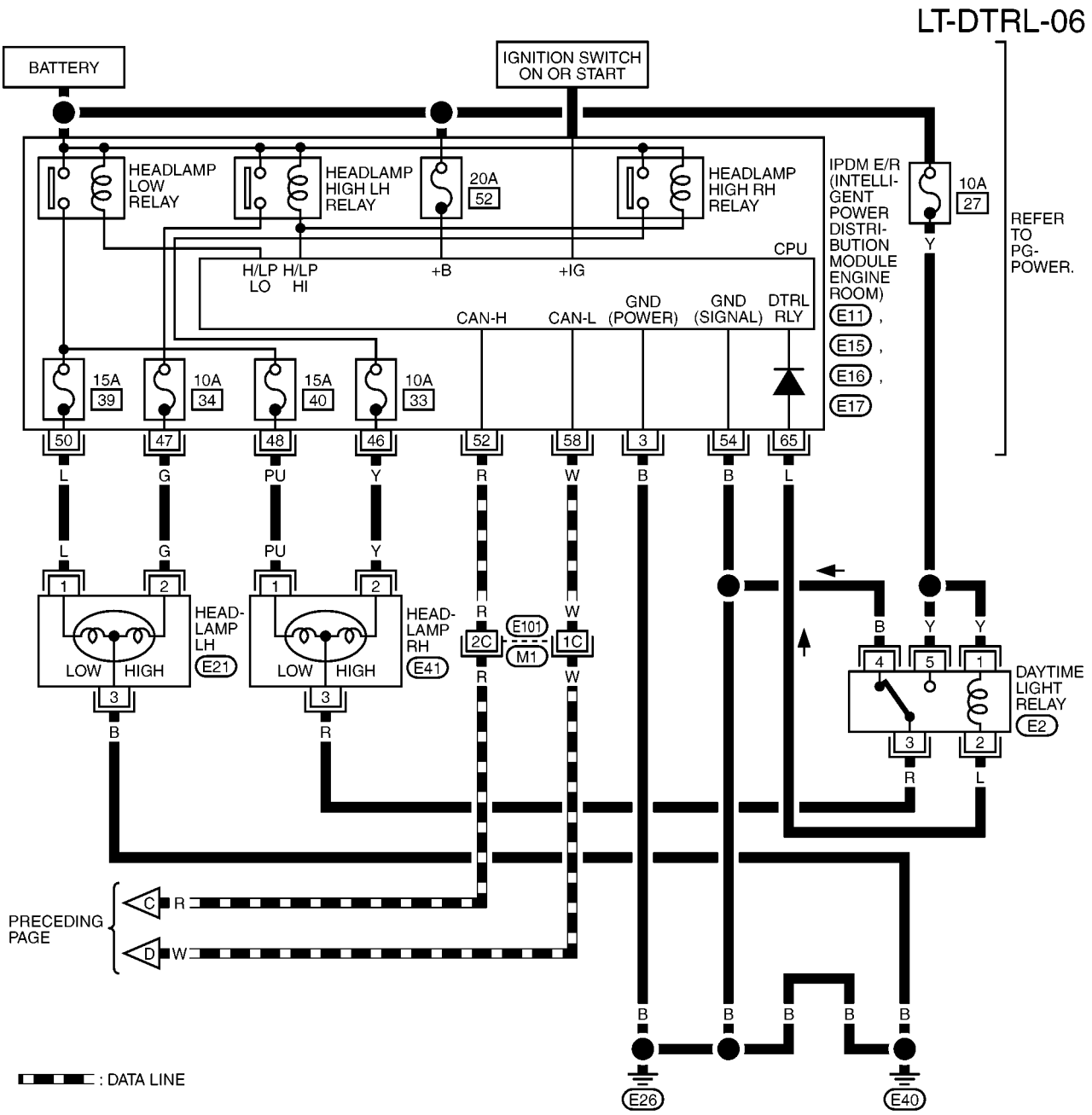


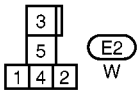


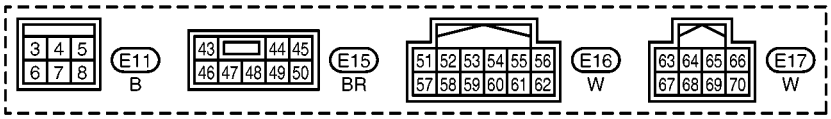


REFER TO THE FOLLOWING.
M1, F101 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)
M48, M49, M50 - ELECTRICAL UNITS
M81, M82 - JOINT CONNECTOR (J/C)

MKWA3452E





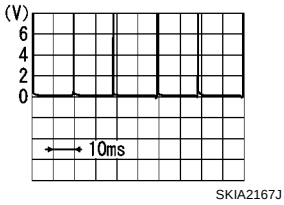
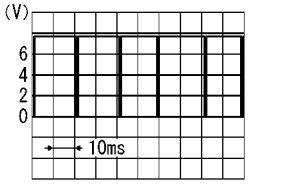
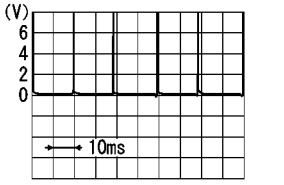


REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

MKWA3453E

Terminals and Reference Value for BCM

EKS00ELI

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
33	R	Combination switch output 2		Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
39	W	CAN L	—	—	—
48	L	Start signal	OFF	—	0
			ON	—	0
			START	—	Battery voltage
70	B	Ground	ON	—	0
74	Y	Power source (Fusible link)	OFF	—	Battery voltage
79	Y	Power source (Fusible link)	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

EKS00ELJ

Terminal No.	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		0
46	Y	Headlamp HI (RH)	ON	Lighting switch (high beam)	ON	Battery voltage
47	G	Headlamp HI (LH)	ON		OFF	0
48	PU	Headlamp LO (RH)	ON	Lighting switch (low beam)	ON	Battery voltage
50	L	Headlamp LO (LH)	ON		OFF	0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		0
58	W	CAN L	—	—		—
65	L	Daytime light relay	ON	Engine status (Lighting switch OFF)	RUNNING	0
					STOP	Battery voltage

How to Proceed With Trouble Diagnosis

EKS00ELK

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Headlamp LT-42, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-65, "Preliminary Check"
4. Confirm headlamp does not operate by fail-safe control of IPDM E/R. Refer to PG-20, "FAIL-SAFE FUNCTION"
5. Check symptom and repair or replace the cause of malfunction.
6. Dose the headlamp operate normally? Yes: GO TO 7. No: GO TO 5.
7. INSPECTION END.

Preliminary Check

EKS00ELL

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch (ON)	4
	Ignition switch (START)	14

Refer to LT-58, "Wiring Diagram — DTRL —" .

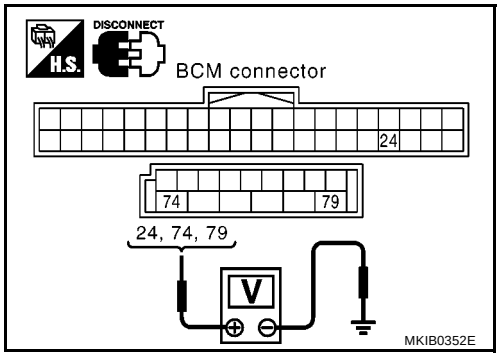
OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.



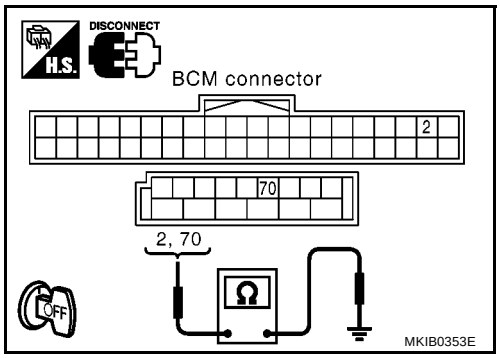
Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		

OK or NG

OK >> INSPECTION END
NG >> Repair or replace the harness.

CONSULT-II Function (BCM)

EKS00ELM

Refer to LT-28, "CONSULT-II Functions (BCM)" .

CONSULT-II Function (IPDM E/R)

EKS00ELN

Refer to LT-31, "CONSULT-II Functions (IPDM E/R)" .

Daytime Light Control Does Not Operate Properly

EKS00ELO

1. CHECK HEADLAMP OPERATION

Lighting switch is turned to 2nd position.

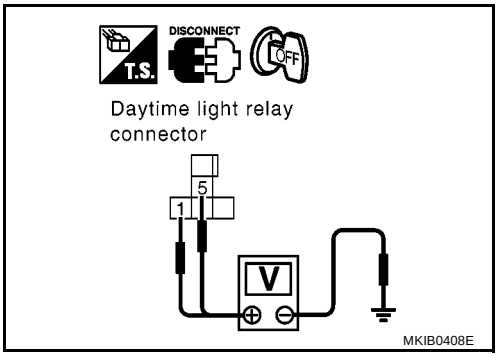
Does headlamp operate normally?

Yes >> GO TO 2.
No >> Check the following.

- Headlamp does not illuminate (both sides). GO TO LT-35, "Headlamp Low Beam Does Not Illuminate (Both Sides)" .
- Headlamp does not illuminate (one side). GO TO LT-38, "Headlamp Low Beam Does Not Illuminate (One Side)" .

2. CHECK DAYTIME LIGHT RELAY

1. Turn ignition switch OFF.
2. Disconnect daytime light relay connector.
3. Check voltage between daytime light relay harness connector and ground.



Terminals			Voltage [V] (Approx.)
(+)		(–)	
Connector	Terminal (Wire color)		
E2	1 (Y)	Ground	Battery voltage
	5 (Y)		

OK or NG

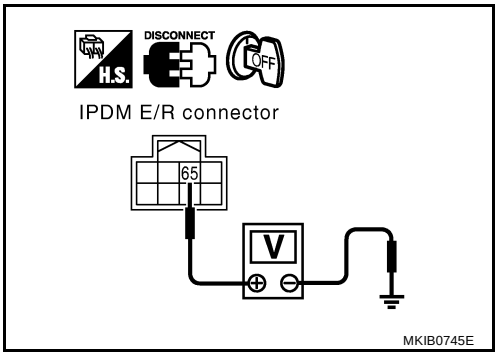
OK >> GO TO 3.
NG >> Check the following.

- 10A fuse (No. 27, located in fuse and fusible link box).
- Harness for open or short between daytime relay and fuse.

3. CHECK IPDM E/R OUTPUT SIGNAL

1. Connect daytime light relay.
2. Disconnect IPDM E/R connector and connector daytime light relay.
3. Check voltage between IPDM E/R harness connector E17 terminal 65(L) and ground.

65 (L) - Ground : Battery voltage

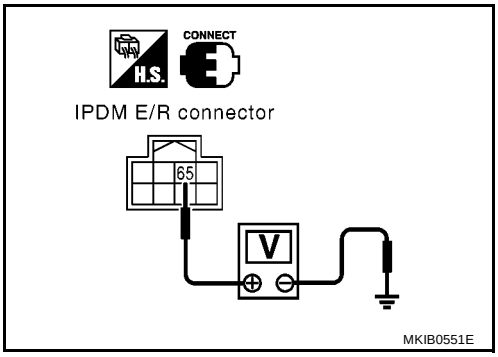


OK or NG

OK >> GO TO 4.
NG >> GO TO 5.

4. CHECK IPDM E/R OUTPUT SIGNAL

1. Connect IPDM E/R connector.
2. Check voltage between IPDM and ground.



Terminals			Condition	Voltage [V] (Approx.)
(+)		(–)		
Connector	Terminal (Wire color)			
E17	65 (L)	Ground	Engine stop	Battery voltage
			Engine running	0

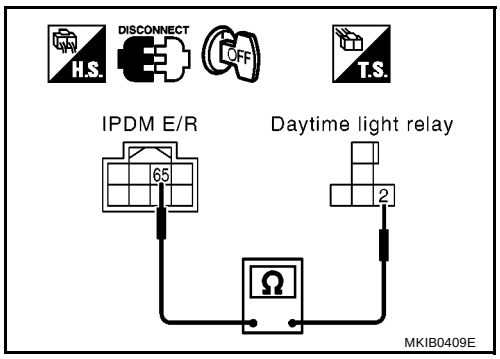
OK or NG

OK >> Replace daytime relay.
NG >> Replace IPDM E/R.

5. CHECK IPDM E/R OUTPUT SIGNAL CIRCUIT

1. Disconnect daytime light relay connector.
2. Check continuity between harness connector E2 terminal 2 (L) of daytime light relay and harness connector E17 terminal 65 (L) of IPDM E/R.

2 (L) - 65 (L) : Continuity should exist.



OK or NG

OK >> Replace daytime light relay.
NG >> Repair or replace harness or connector.

Headlamp High Beam Does Not Illuminate (Both Sides)

EKS00ELP

Refer to LT-33, "Headlamp High Beam Does Not Illuminate (Both Sides)" .

RH High beam Does Not Illuminate

EKS00ELQ

1. CHECK BULB

Check bulb of headlamp RH.

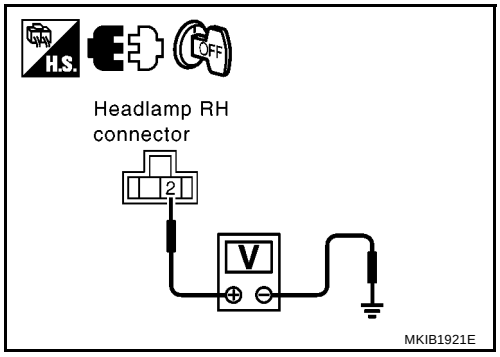
OK or NG

OK >> GO TO 2.
NG >> Replace bulb of headlamp.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect headlamp RH connector.
3. Check voltage between headlamp RH harness connector E41 terminal 2 (Y) and ground.

Terminals			Condition	Voltage [V] (Approx.)
(+)		(–)		
Connector	Terminal (Wire color)			
E41	2 (Y)	Ground	Lighting switch high beam ON	Battery voltage



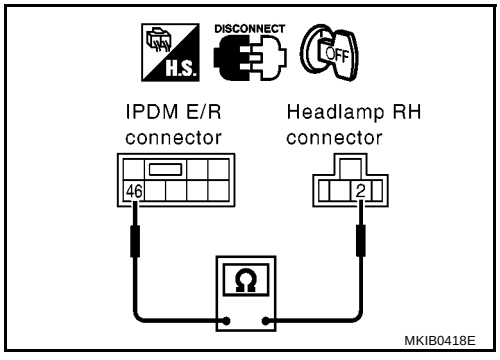
OK or NG

OK >> GO TO 5.
NG >> GO TO 3.

3. CHECK IPDM E/R CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between harness connector E15 terminal 46 (Y) of IPDM E/R and harness connector E41 terminal 2 (Y) of headlamp RH.

46 (Y) - 2 (Y) : Continuity should exist.



OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

4. CHECK FUSE

Check 10A fuse [No. 33, located in IPDM E/R].

OK or NG

OK >> Replace IPDM E/R.
NG >> Replace fuse. If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

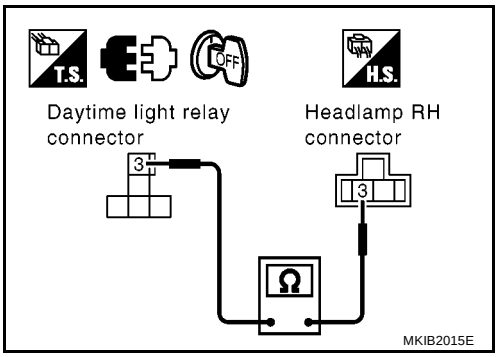
5. CHECK HEADLAMP RH GROUND CIRCUIT

Check continuity between harness connector E2 terminal 3 (R) of daytime light relay and harness connector E41 terminal 3 (R) of headlamp RH.

3 (R) - 3 (R) : Continuity should exist.

OK or NG

OK >> GO TO 6.
NG >> Repair or replace harness or connector.



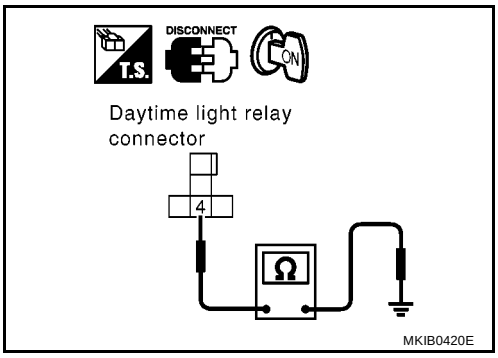
6. CHECK DAYTIME LIGHT GROUND CIRCUIT

Check continuity daytime light relay harness connector E2 terminal 4 (B) and ground.

4 (B) - Ground : Continuity should exist.

OK or NG

OK >> Replace daytime light relay.
NG >> Repair or replace harness or connector.



Headlamp LH High Beam Does Not Illuminate

EKS00ELR

Refer to LT-34, "Headlamp High Beam Does Not Illuminate (One Side)" .

Headlamp Low Beam Does Not Illuminate (Both Sides)

EKS00ELS

Refer to LT-35, "Headlamp Low Beam Does Not Illuminate (Both Sides)" .

RH Low Beam Does Not Illuminate

EKS00ELT

1. CHECK BULB

Check bulb of headlamp RH.

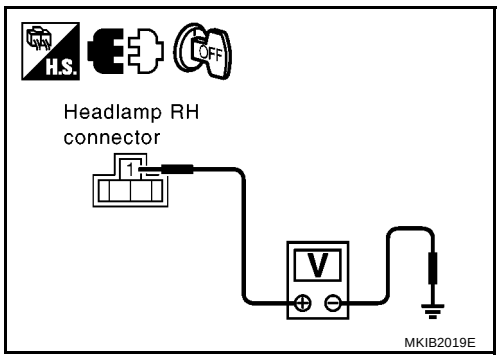
OK or NG

OK >> GO TO 2.
NG >> Replace bulb of lamp.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect headlamp RH connector.
3. Check voltage between headlamp RH harness connector E41 terminal 1 (PU) and ground.

Terminals			Condition	Voltage [V] (Approx.)
(+)		(–)		
Connector	Terminal (Wire color)			
E41	1 (PU)	Ground	Lighting switch low beam ON	Battery voltage



OK or NG

OK >> GO TO 5.
NG >> GO TO 3.

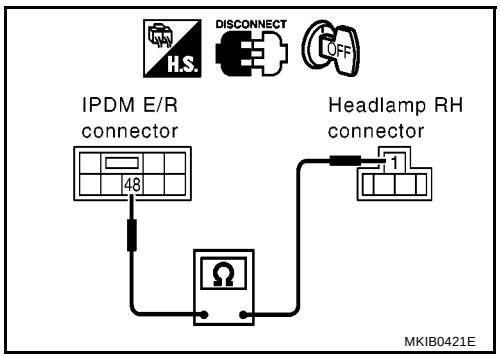
3. CHECK IPDM E/R CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between harness connector E15 terminal 48 (PU) of IPDM E/R and harness connector E41 terminal 1 (PU) of headlamp RH.

48 (PU) - 1 (PU) : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.



4. CHECK FUSE

Check 15A fuse (No. 40 located in IPDM E/R). Refer to PG-50, "IPDM E/R Terminal Inspection" .

OK or NG

OK >> Replace IPDM E/R.
NG >> Replace fuse. If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

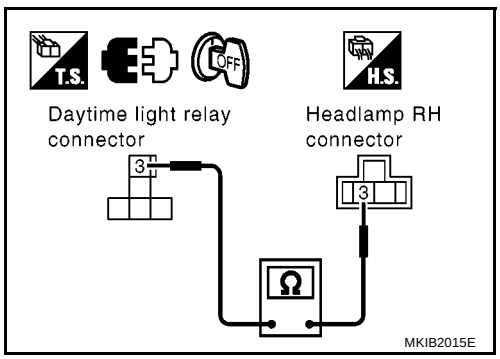
5. CHECK HEADLAMP RH GROUND CIRCUIT

Check continuity between harness connector E2 terminal 3 (R) of daytime light relay and harness connector E41 terminal 3 (R) of headlamp RH.

3 (R) - 3 (R) : Continuity should exist.

OK or NG

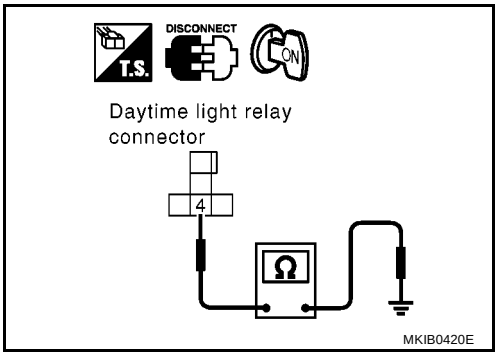
OK >> GO TO 6.
NG >> Repair or replace harness or connector.



6. CHECK DAYTIME LIGHT GROUND CIRCUIT

Check continuity daytime light relay harness connector E2 terminal 4 (B) and ground.

4 (B) - Ground : Continuity should exist.



OK or NG

OK >> Replace daytime light relay.
NG >> Repair or replace harness connector.

Headlamp LH Low Beam Does Not Illuminate

EKS00ELU

Refer to LT-38, "Headlamp Low Beam Does Not Illuminate (One Side)" .

High-Beam Indicator Lamp Does Not Illuminate

EKS00ELV

Refer to LT-35, "High-Beam Indicator Does Not Illuminate" .

Headlamps Do Not Turn OFF

EKS00ELW

Refer to LT-39, "Headlamps Can Not Be Turn OFF" .

Aiming Adjustment

EKS00ELX

Refer to LT-40, "Aiming Adjustment" .

Bulb Replacement

EKS00ELY

Refer to LT-41, "Bulb Replacement" .

Removal and Installation

EKS00ELZ

Refer to LT-41, "Removal and Installation" .

AUTO LIGHT SYSTEM

PFP:28491

System Description

EKS00OWZ

OUTLINE

The auto light system uses an light and rain sensor that detects outside brightness.
When the lighting switch is in AUTO position and the engine is running, it automatically turns on/off the parking lamps, headlamps and illumination in accordance with the ambient light.
Light and rain sensor ground is supplied

- to light rain sensor terminal 3
- through ground M19 and M20.

When ignition switch is turned to ON position and when outside brightness is darker than prescribed level, input is supplied

- to BCM terminal 63
- from light rain sensor terminal 2.

The headlamps will then illuminate. For a description of headlamp operation, refer to LT-7, "System Description" (CONVENTIONAL TYPE), LT-42, "System Description" (DAYTIME LIGHT).

FOG LAMP OPERATION (IF EQUIPPED)

When front and/or rear fog lamp are turned ON with light switch is in auto position and ignition switch is in ON position. Headlamps tail lamps and illumination will be turned ON.
During the above state, if ignition switch is turned OFF, headlamps, tail lamps and illumination will be turned OFF simultaneously.

NOTE:
Headlamp, tail lamps and illumination will be turned ON again if the ignition switch is turned to ON position.

EXTERIOR LAMP BATTERY SAVER CONTROL

When the headlamp is activated (if auto light system is activated), The headlamps are turned OFF when the door is opened.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "COMBINATION SWITCH READING FUNCTION" .

CAN Communication

EKS00OX0

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP6

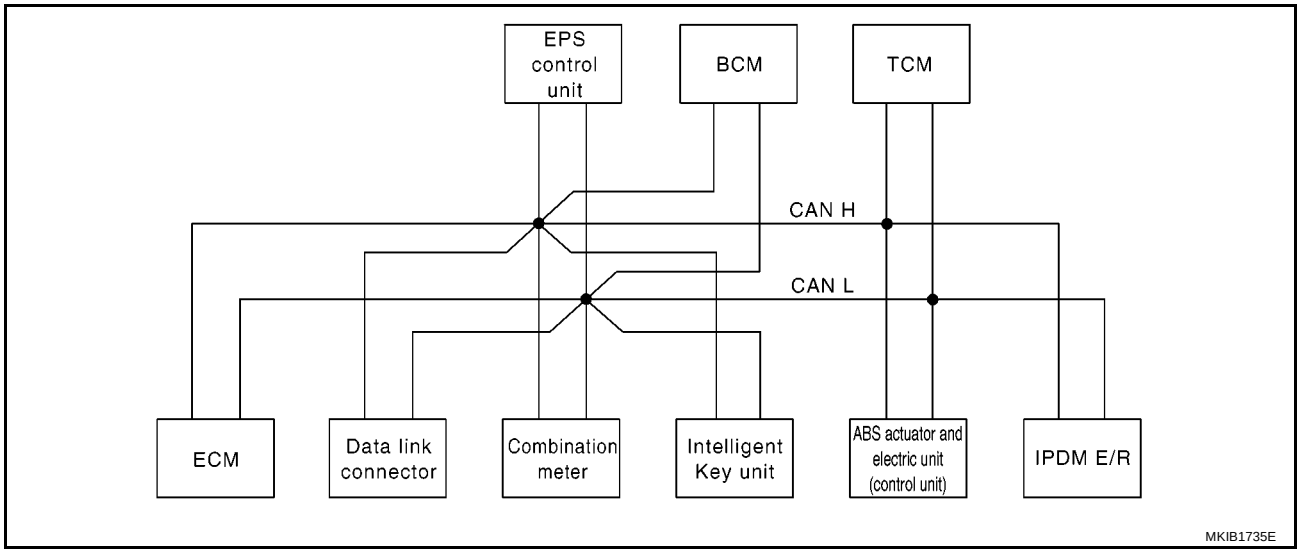
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-74, "TYPE 1/TYPE 2"		LT-77, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-79, "TYPE 7/TYPE 8"		LT-82, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-84, "TYPE 13/TYPE 14"	

×: Applicable

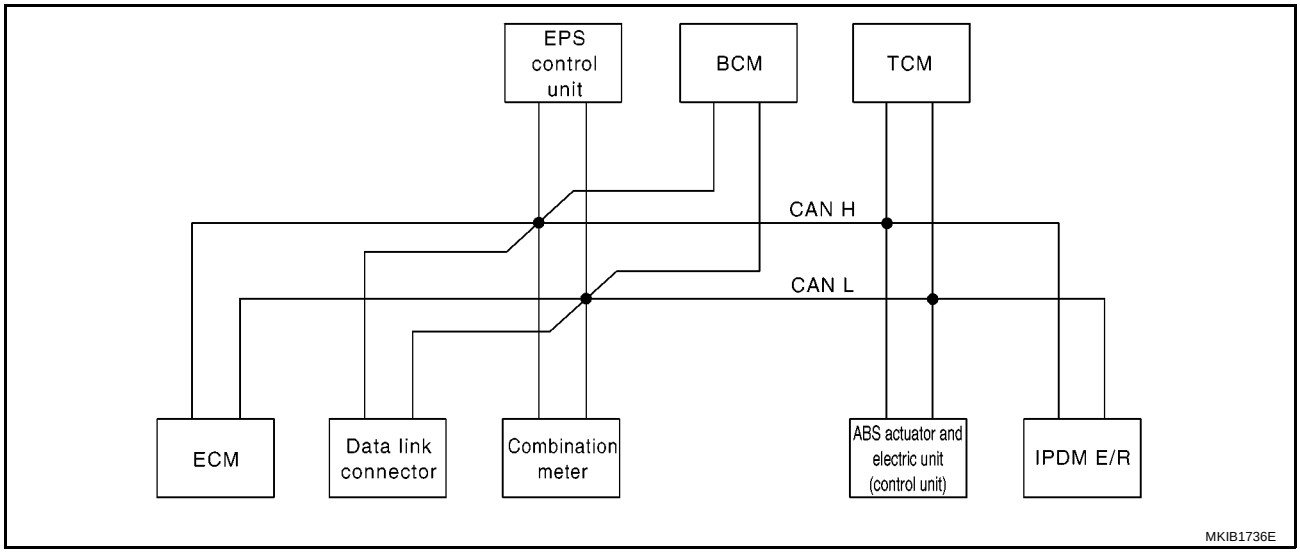
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

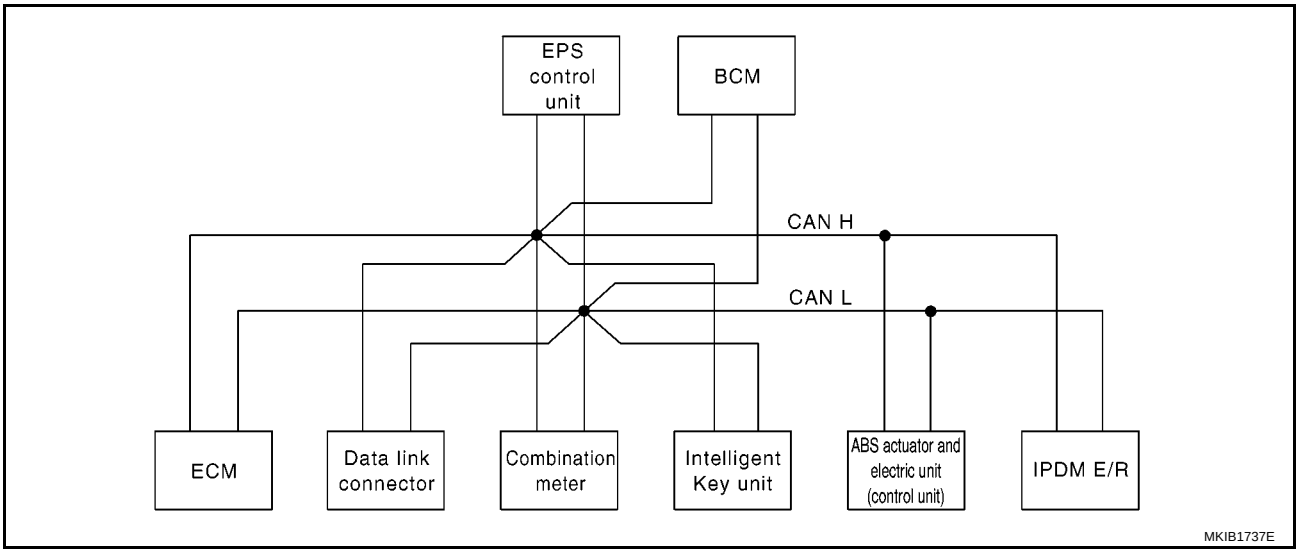
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

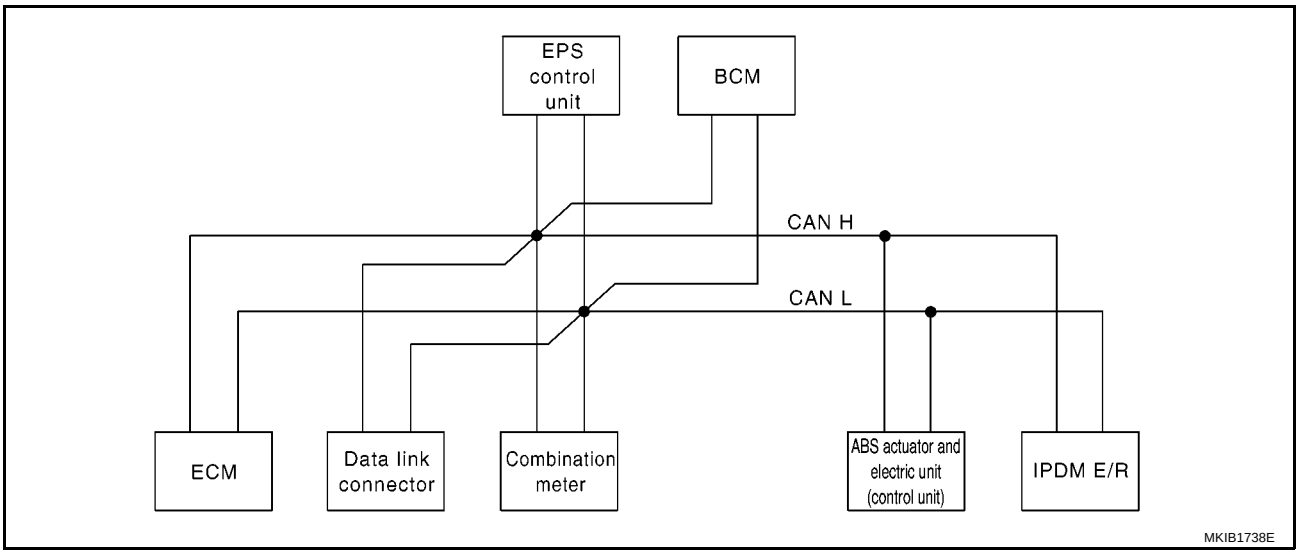
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

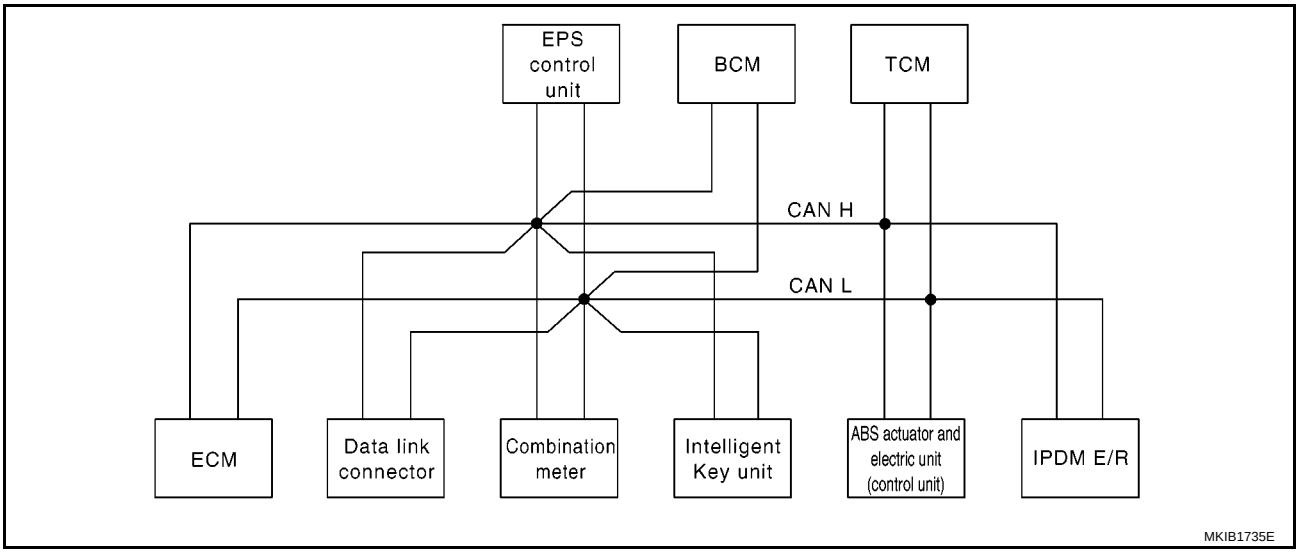
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

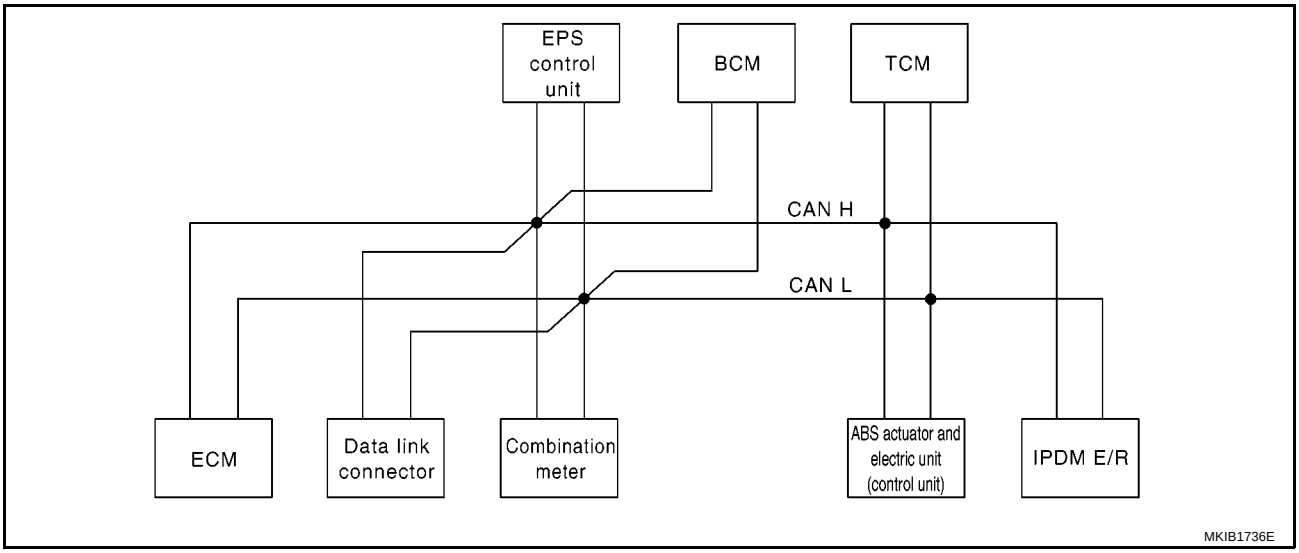
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

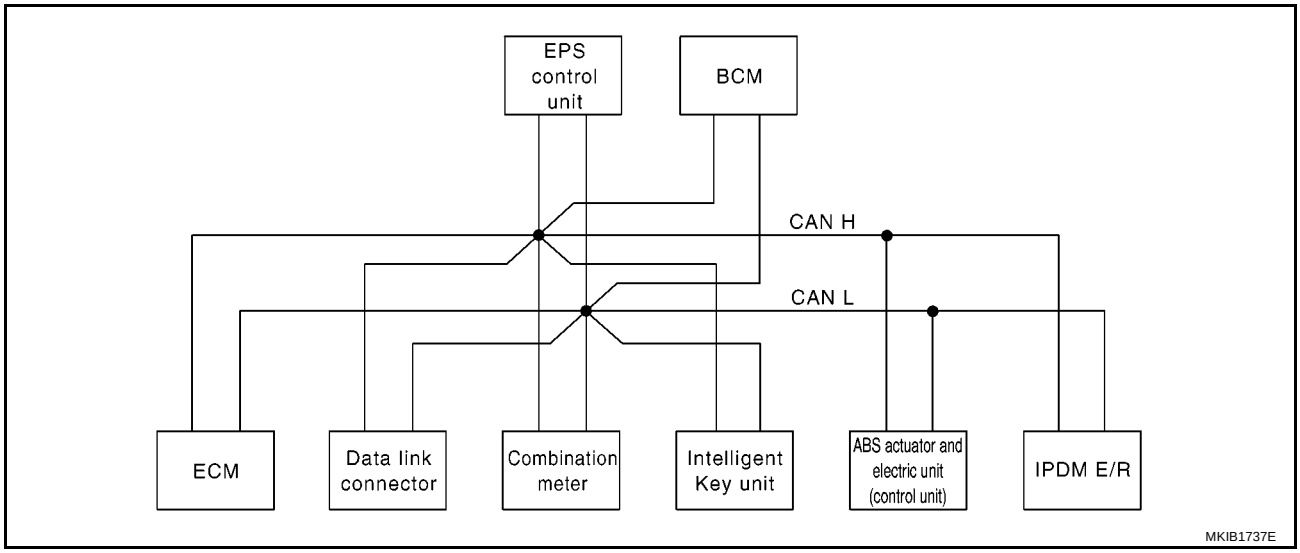
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

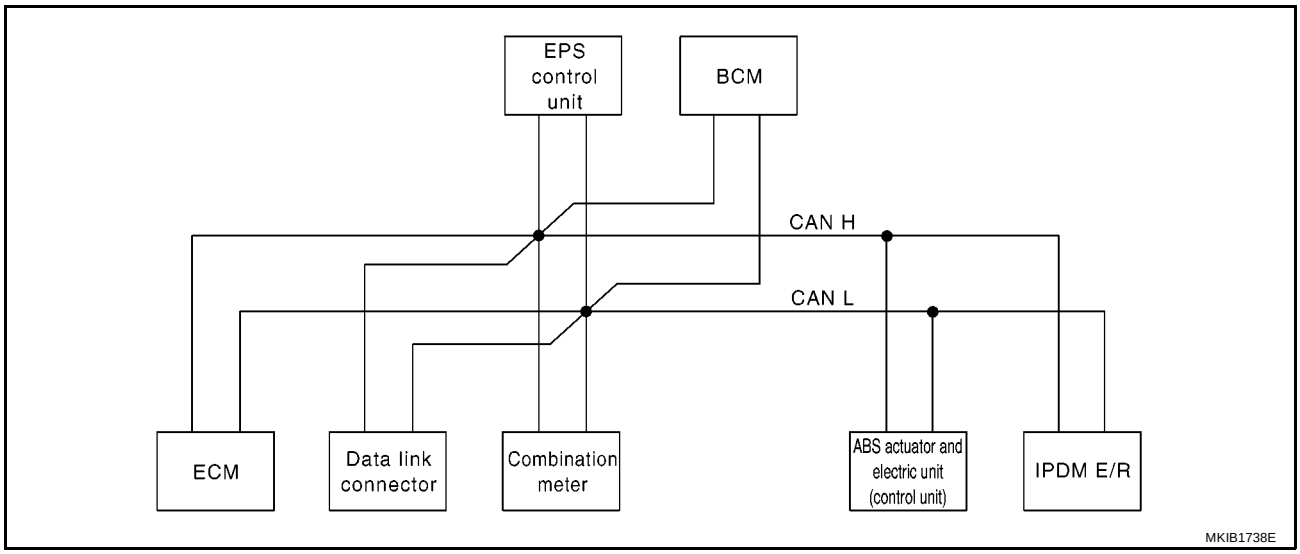
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

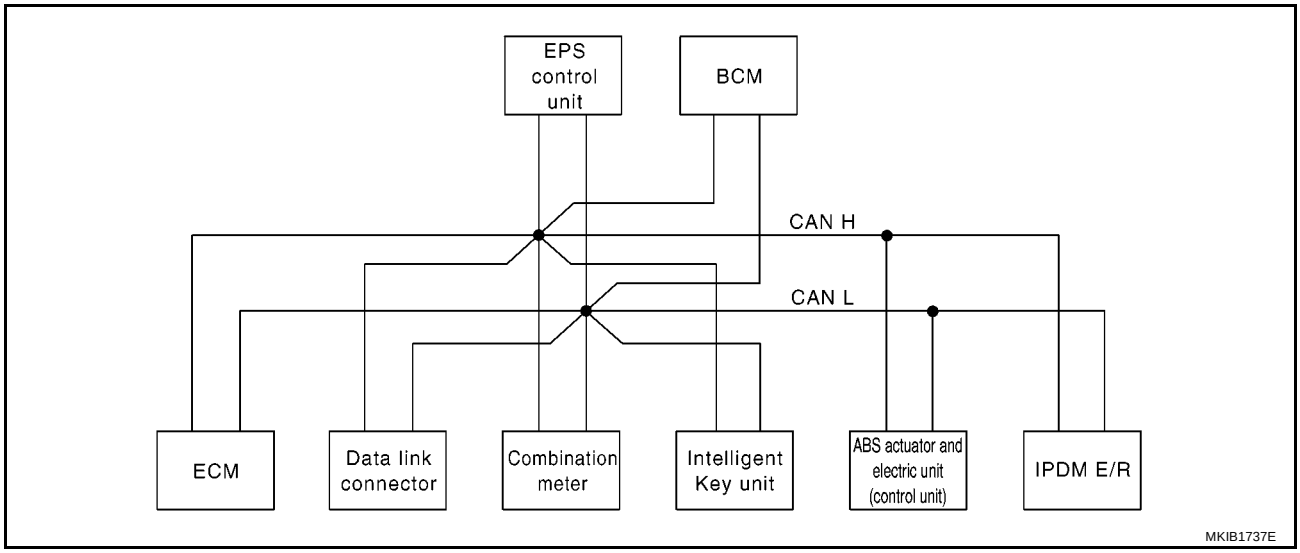
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

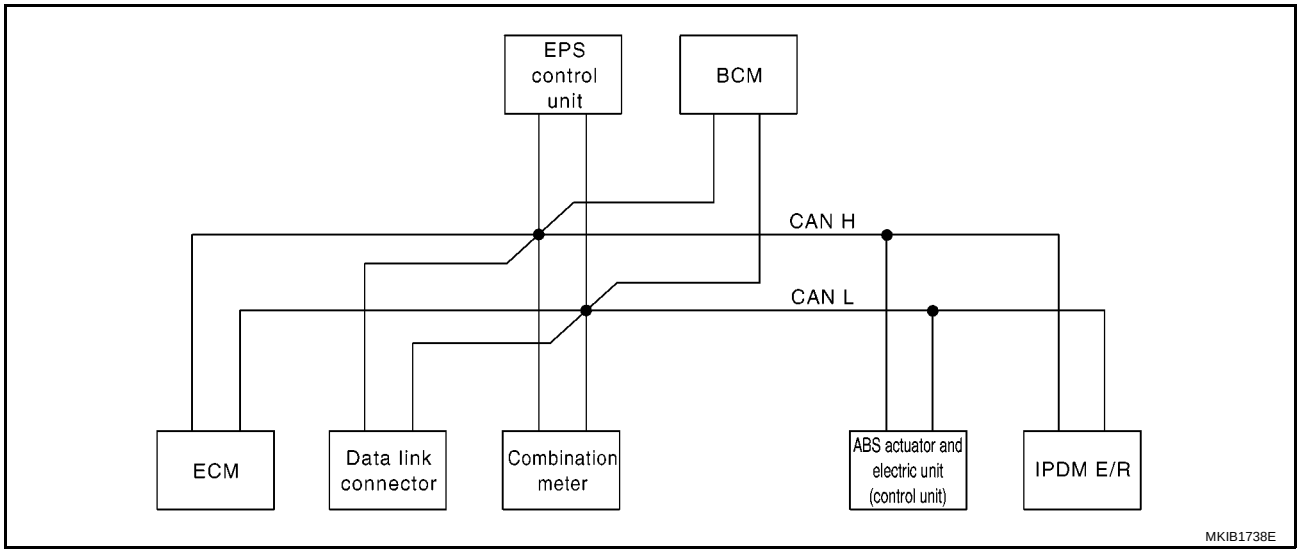
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



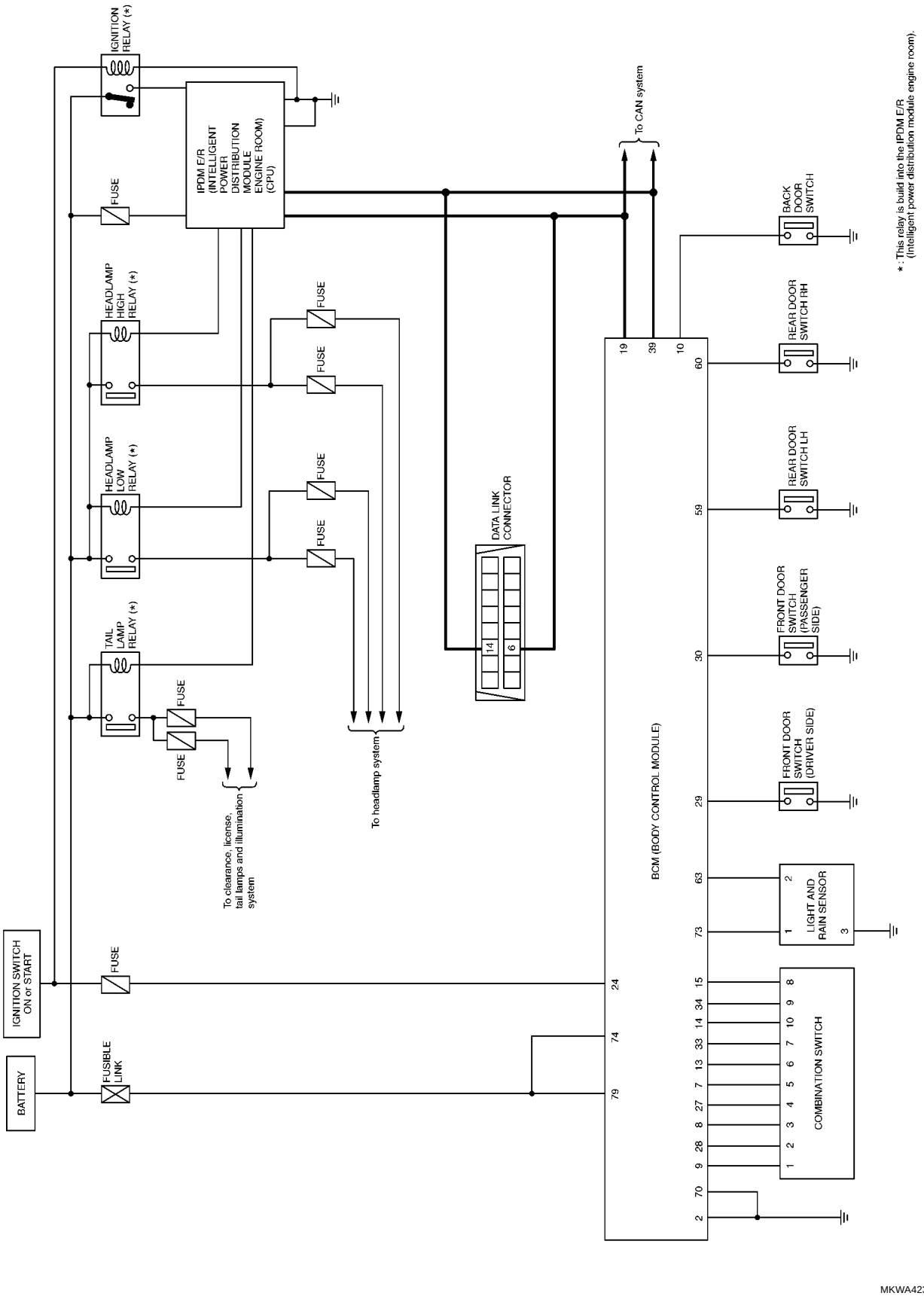
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Schematic

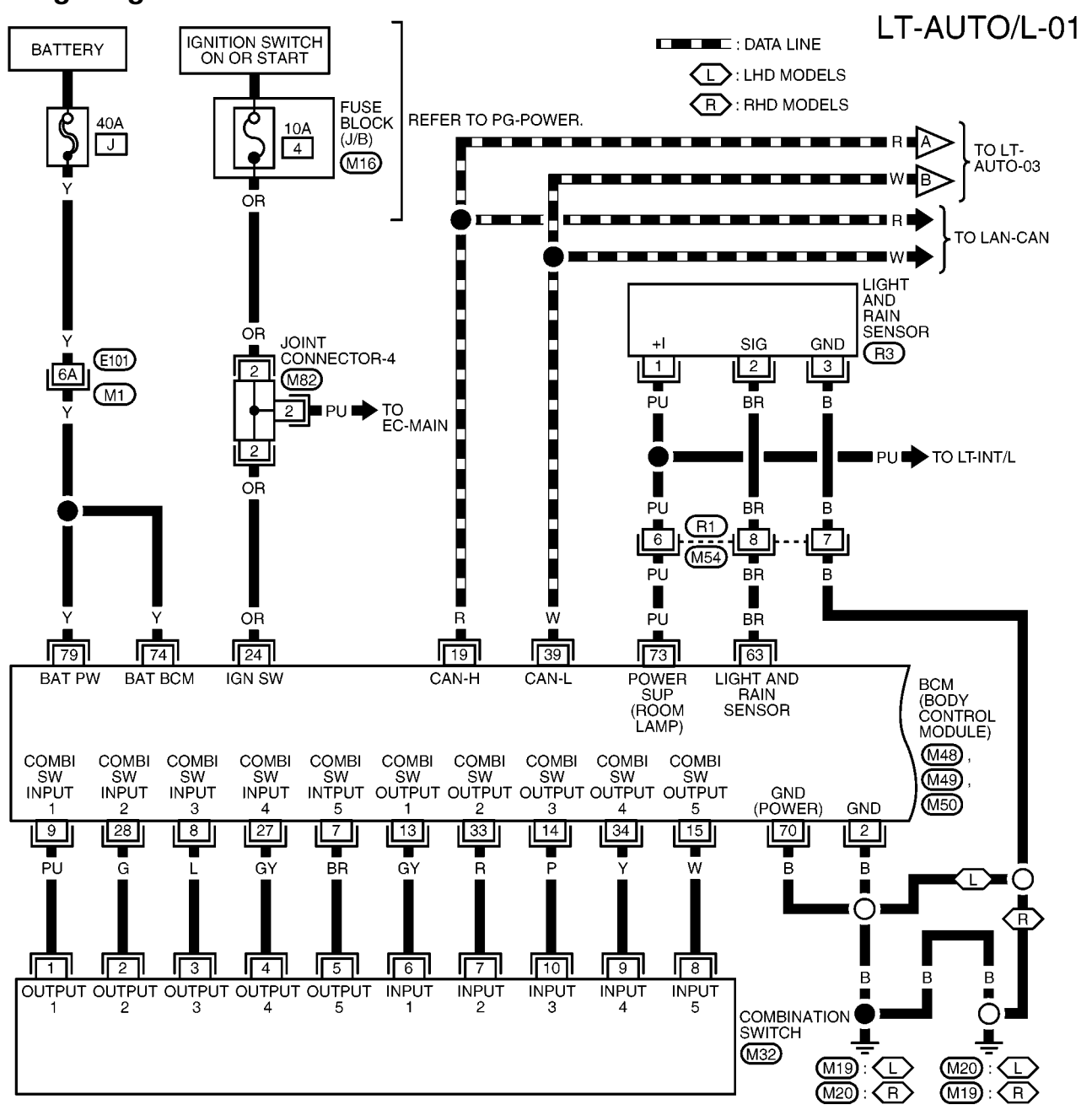
EKS00OX2

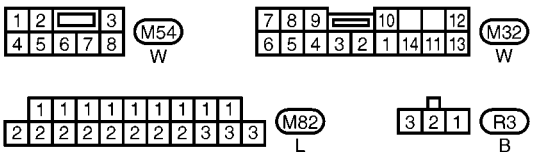


MKWA4237E

Wiring Diagram — AUTO/L —

EKS00OX3

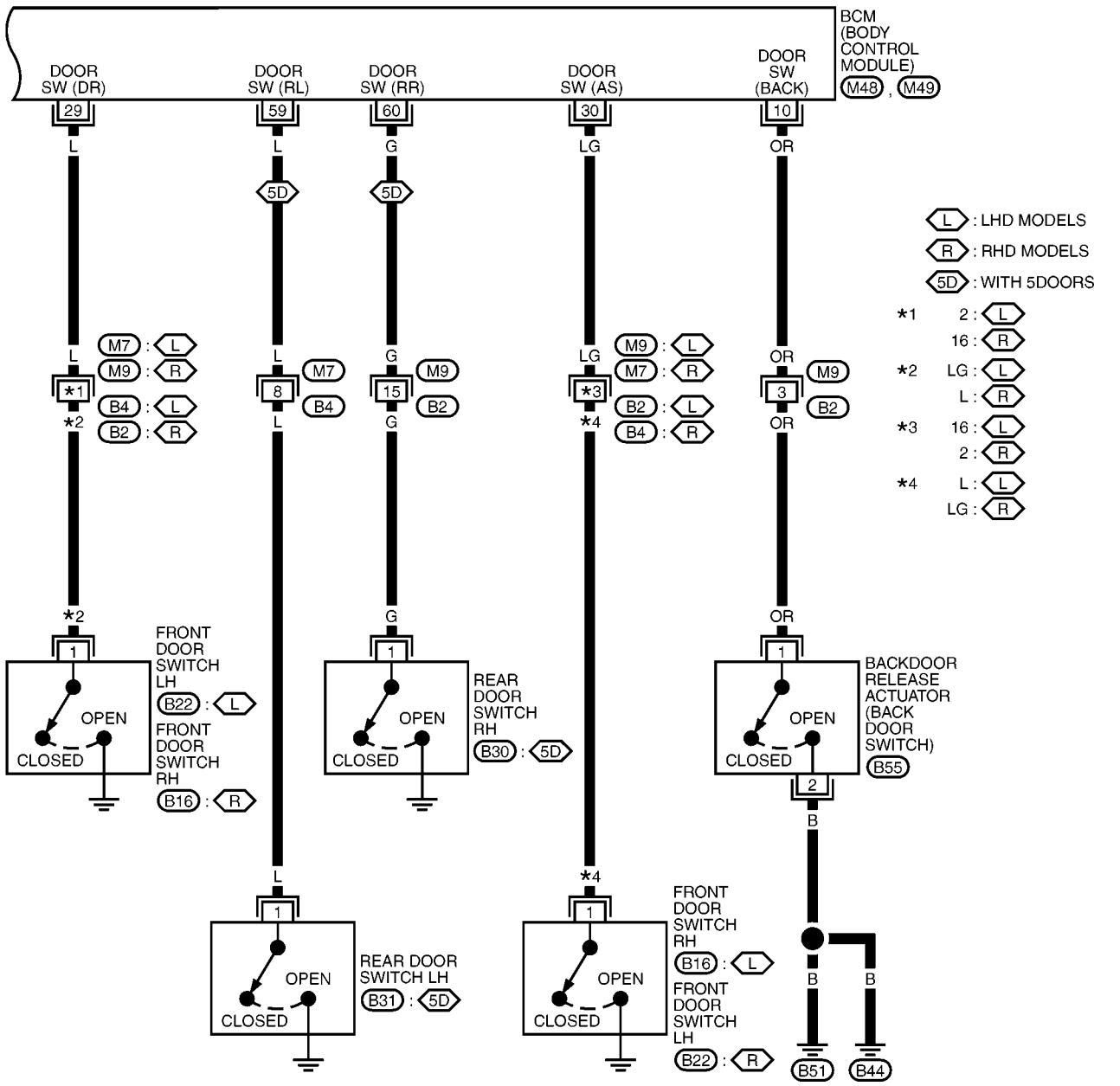


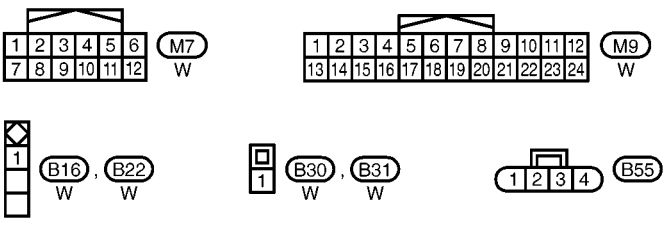


REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)
M48, M49, M50 - ELECTRICAL UNITS

MKWA4238E

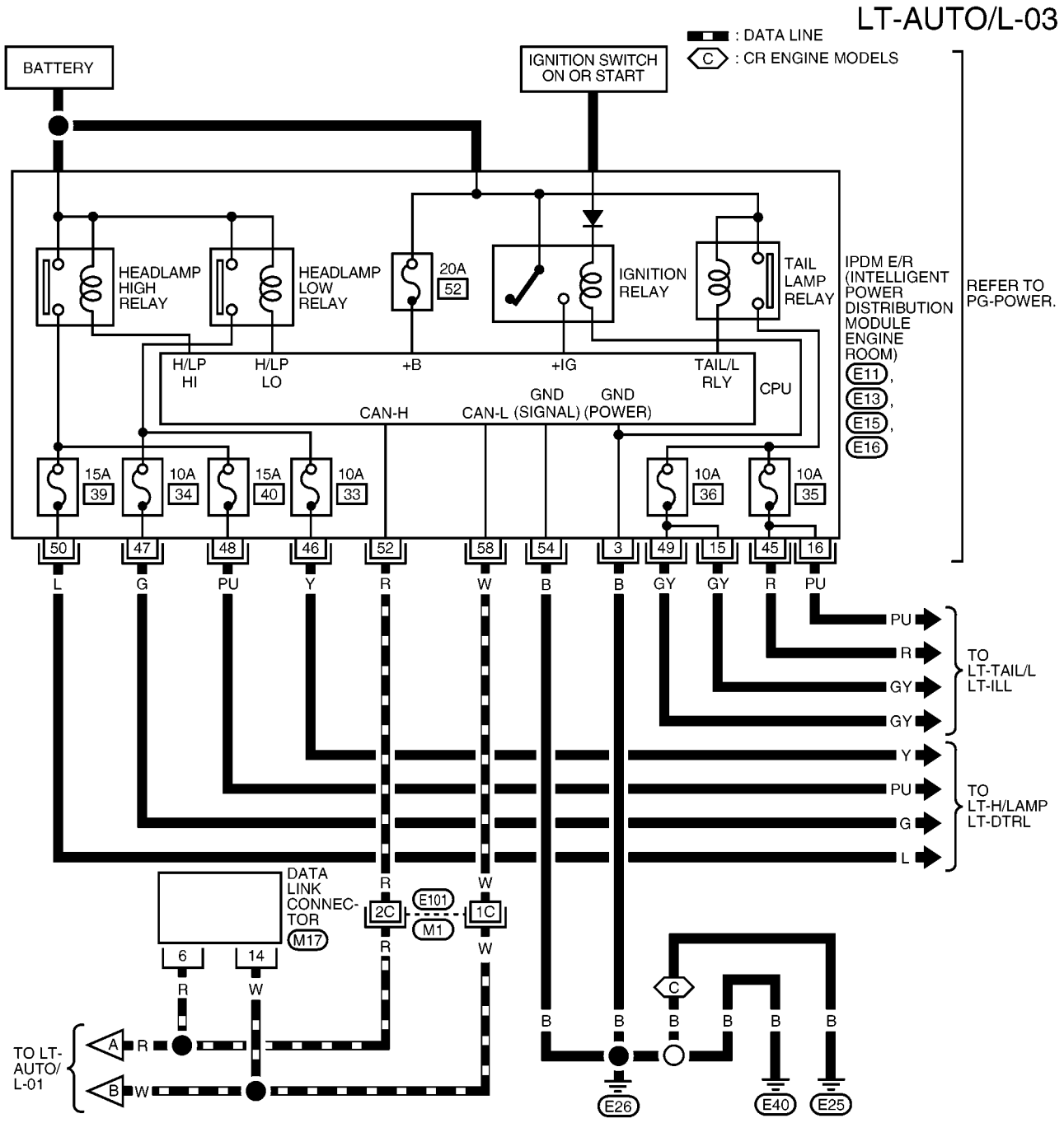
LT-AUTO/L-02

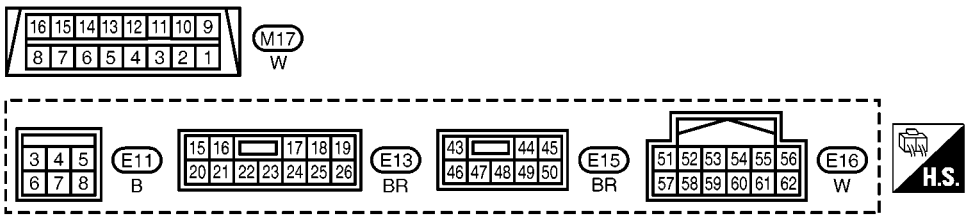




REFER TO THE FOLLOWING.
M48, M49 - ELECTRICAL UNITS

MKWA4239E



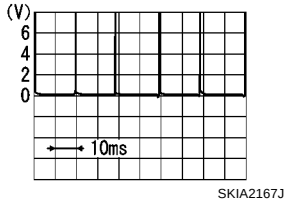
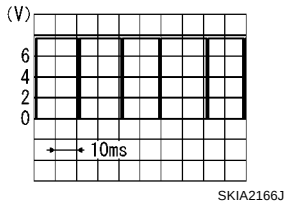
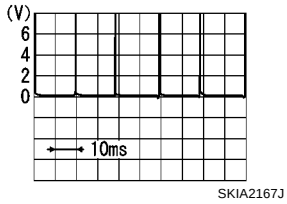
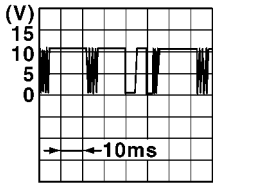


REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

MKWA4240E

Terminals and Reference Values for BCM

EKS00OX4

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
10	OR	Back door or trunk lid switch	Open (ON) → Close (OFF)		0 → 5
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
				Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
33	R	Combination switch output 2			
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
29	L	Front door switch LH	Door open (ON) → close (OFF)		0 → Battery voltage
30	LG	Front door switch RH	Door open (ON) → close (OFF)		0 → Battery voltage
39	W	CAN L	—	—	—
48	L	Start signal	OFF	—	0
			ON	—	0
			START	—	Battery voltage
59	L	Rear door switch LH	Door open (ON) → close (OFF)		0 → Battery voltage
60	G	Rear door switch RH	Door open (ON) → close (OFF)		0 → Battery voltage
63	BR	Light and rain sensor signal	ON	—	 MKIB2017E
70	B	Ground	ON	—	0
73	PU	Room lamp power supply	—	—	Battery voltage

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
74	Y	Power source (Fusible link)	OFF	—	Battery voltage
79	Y	Power source (Fusible link)	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

EKS00OX5

Terminal No.	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		0
45	R	Tail lamp relay signal 2	ON	Lighting switch 2ST position	ON	Battery voltage
16	PU	Tail lamp relay signal 2	ON		OFF	0
49	GY	Tail lamp relay signal 1	ON	Light switch 1ST position	ON	Battery voltage
15	GY	Tail lamp relay signal 1	ON		OFF	0
46	Y	Headlamp HI (RH)	ON	Lighting switch (high beam)	ON	Battery voltage
47	G	Headlamp HI (LH)	ON		OFF	0
48	PU	Headlamp LO (RH)	ON	Lighting switch (low beam)	ON	Battery voltage
50	L	Headlamp LO (LH)	ON		OFF	0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		0
58	W	CAN L	—	—		—

How to Proceed With Trouble Diagnosis

EKS00OX6

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-72, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-92, "Preliminary Check" .
4. Does the auto light system operate normally? If YES, GO TO 6. If NO, GO TO 4.
5. Inspection End.

Preliminary Check

EKS00OX7

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch (ON)	4
	Ignition switch (START)	14

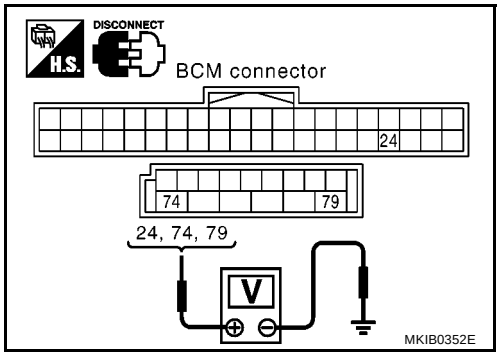
Refer to LT-58, "Wiring Diagram — DTRL —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.



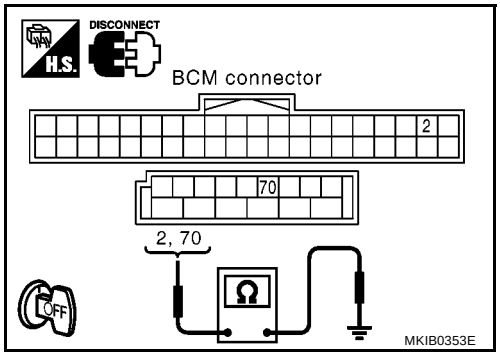
Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		

OK or NG

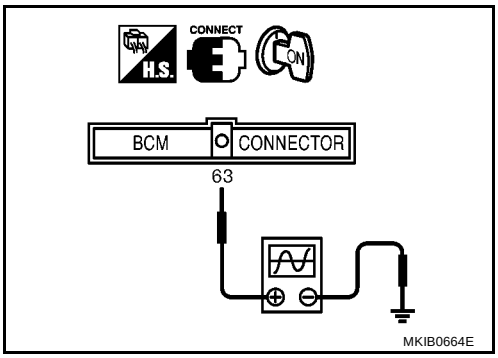
OK >> INSPECTION END
NG >> Repair or replace the harness.

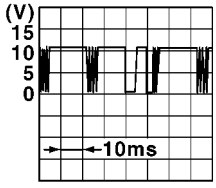
Auto Light System Does Not Operate

EKS00OXA

1. CHECK LIGHT AND RAIN SENSOR SIGNAL

1. Turn ignition switch ON.
2. Check signal between BCM connector and ground with oscilloscope.



Terminals			Condition	Signal (Reference value.)
(+)		(-)		
Connector	Terminal (Wire color)			
M49	63 (BR)	Ground	IGN ON	 MKIB2017E

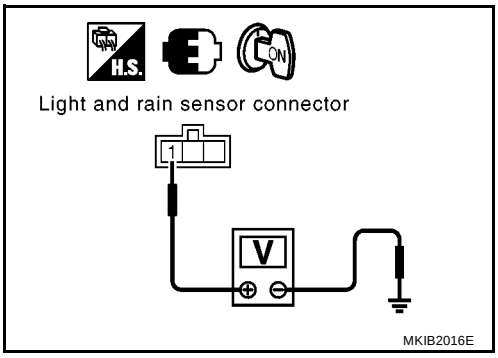
OK or NG

OK >> Check combination switch. Ref to LT-219, "Check Combination Switch" .
NG >> GO TO 2.

2. CHECK LIGHT AND RAIN SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect light and rain sensor connector.
3. Turn ignition switch ON.
4. Check voltage between light and rain sensor connector R3 terminal 1 and ground.

1 (PU) - Ground : Battery voltage



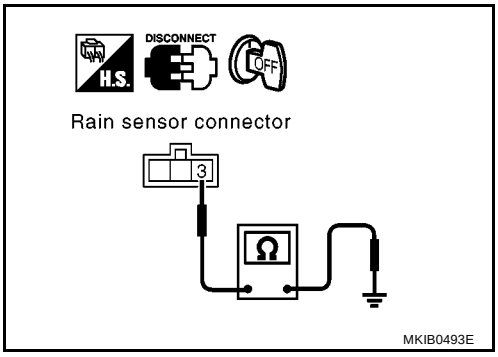
OK or NG

OK >> GO TO 3.
NG >> GO TO 5.

3. CHECK LIGHT AND RAIN SENSOR GROUND CIRCUIT

Check continuity between light and rain sensor connector R3 terminal 3 and ground.

3 (B) - Ground : Continuity should exist.



OK or NG

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

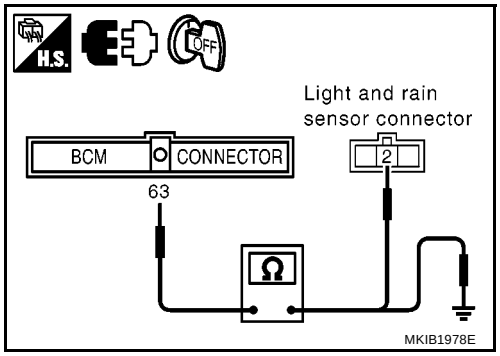
4. CHECK LIGHT AND RAIN SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM connector M49 terminal 63 and light and rain sensor connector R3 terminal 2.

   63 (BR) - 2(BR) : Continuity should exist.

4. Check continuity between BCM connector M49 terminal 63 and ground.

   63 (BR) - Ground : Continuity should not exist.



OK or NG

OK >> Replace light and rain sensor.
NG >> Check the condition of the harness and the connector.

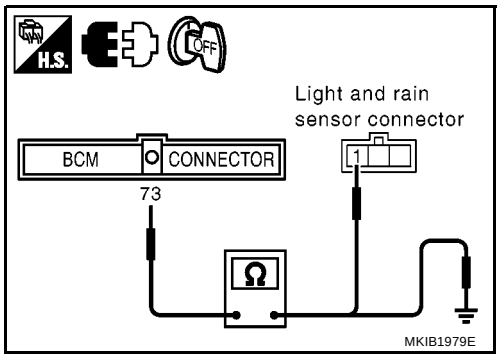
5. CHECK LIGHT AND RAIN SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM connector M50 terminal 73 and light and rain sensor connector R3 terminal 1.

   73 (PU) - 1(PU) : Continuity should exist.

4. Check continuity between BCM connector M50 terminal 73 and ground.

   73 (PU) - Ground : Continuity should not exist.



OK or NG

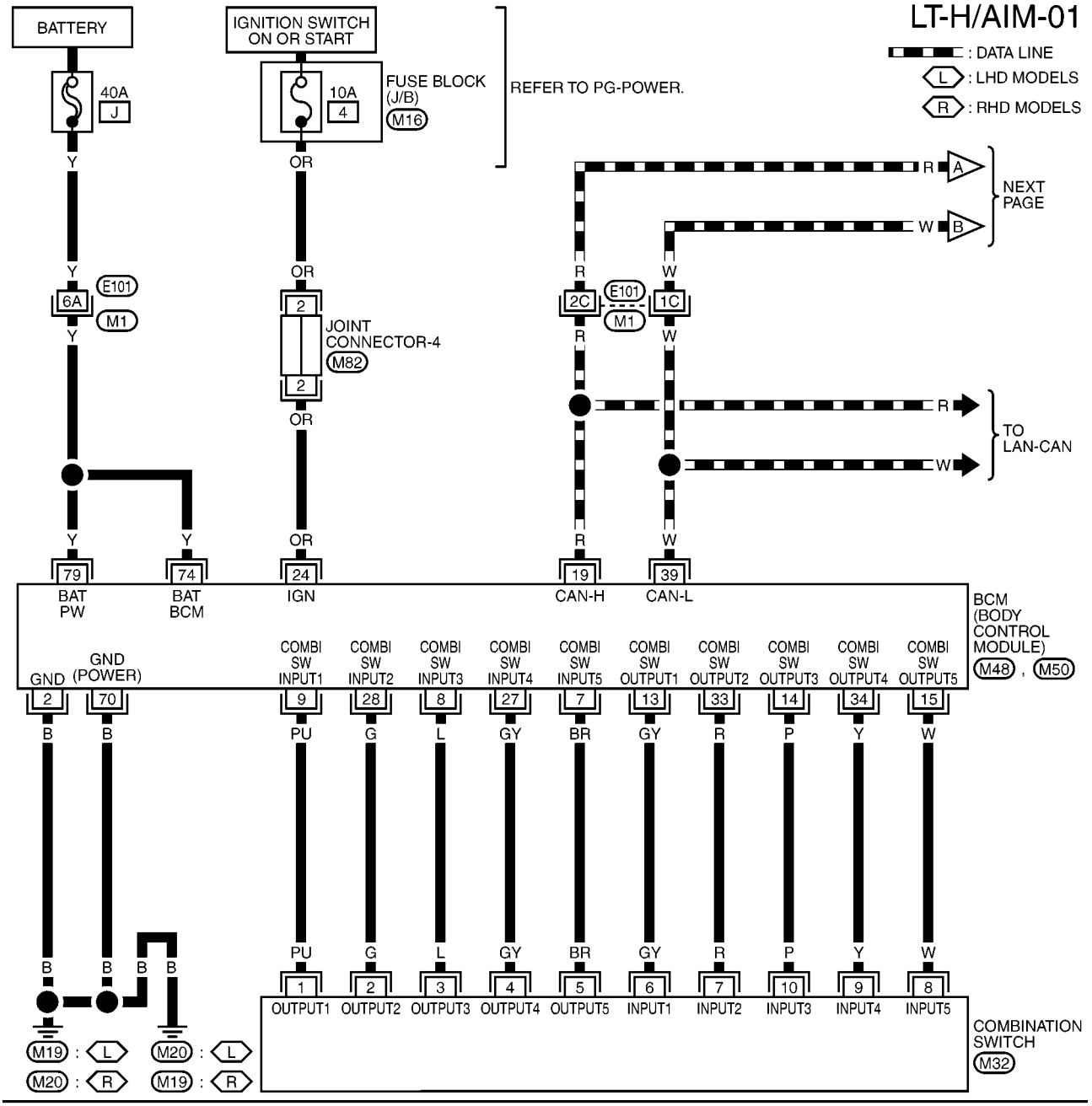
OK >> Check the condition of the harness and the connector.
NG >> Repair or replace harness.

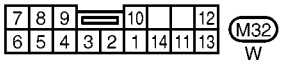
HEADLAMP AIMING CONTROL

PFP:26010

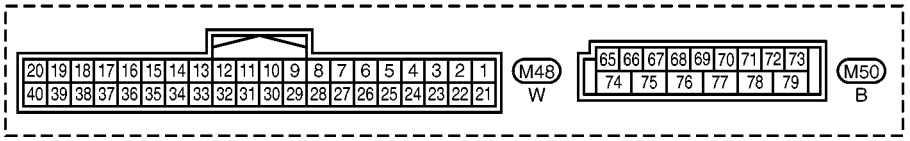
Wiring Diagram— H/AIM —

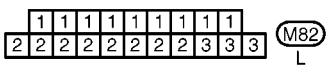
EKS00EM0



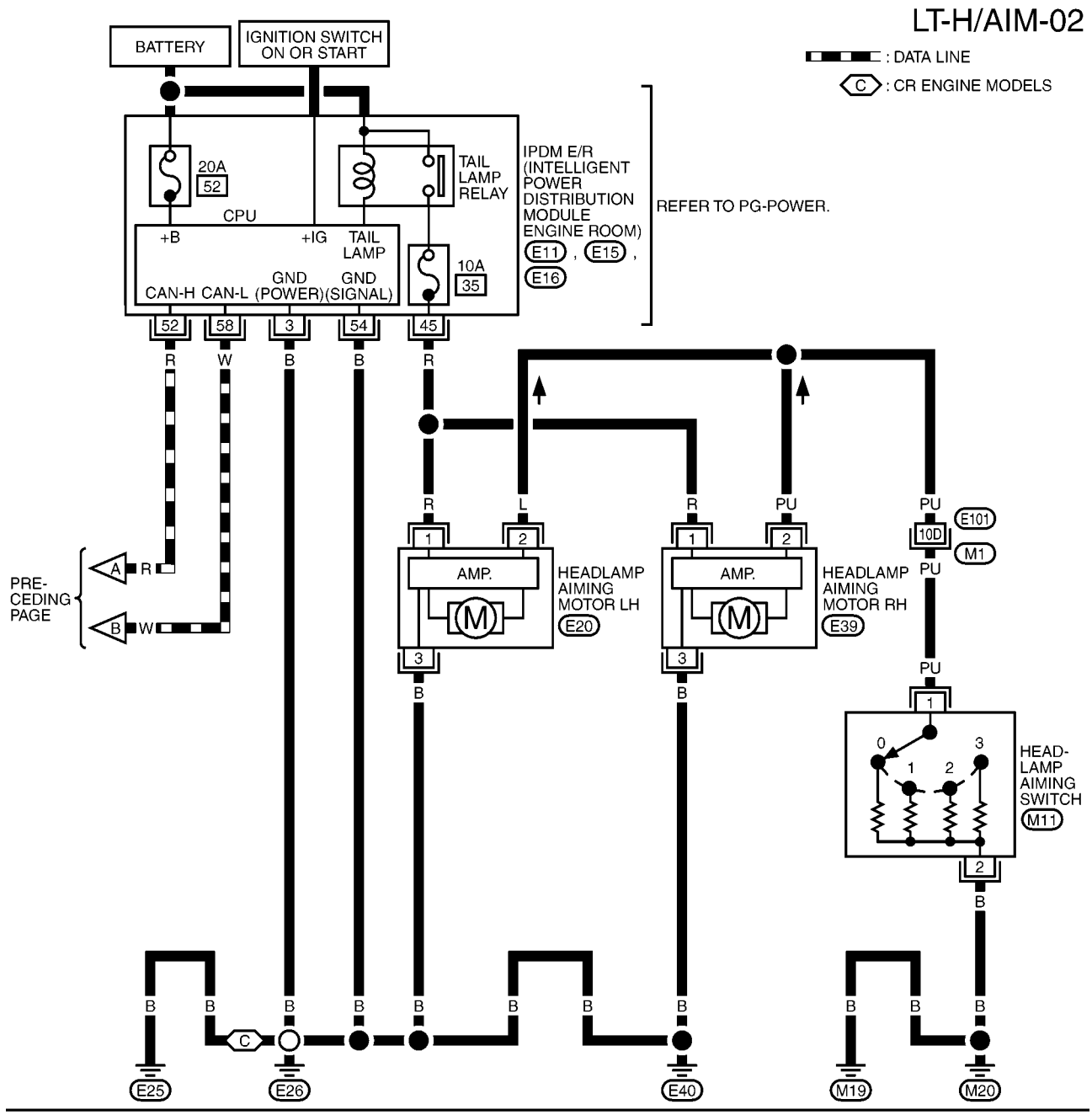


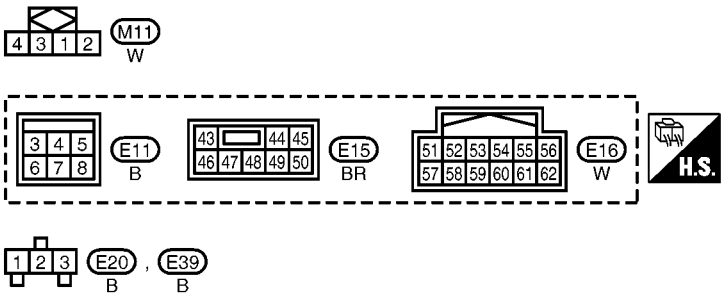
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)





MKWA3454E





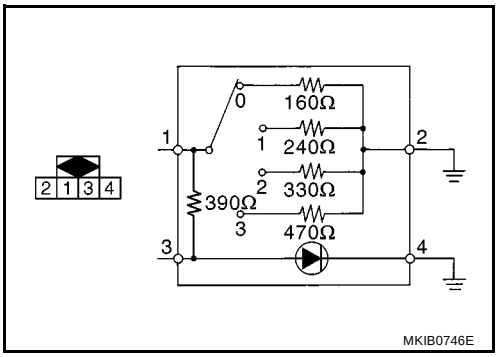
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

MKWA4045E

Switch Circuit Inspection

EKS00EM1

Using a circuit tester, check continuity between the headlamp aiming switch connector terminals in each operation status of the aiming switch.

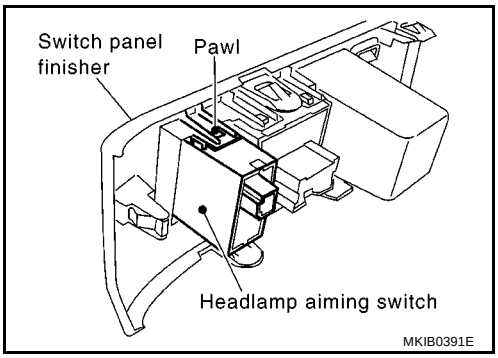


Removal and Installation

EKS00EM2

REMOVAL

1. Remove switch panel finisher. Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .
2. Pull forward while expands switch panel finisher hooks, and remove from switch panel finisher.



INSTALLATION

Install in the reverse order removal.

FRONT FOG LAMP

PFP:26150

System Description

EKS00EM3

The front fog lamp operation is controlled by the lighting switch which built into the combination switch, BCM (body control module) and IPDM E/R (intelligent power distribution module engine/room).Front fog lamp relay is built into IPDM E/R. BCM read combination switch condition.Refer toLT-212, "System Description"

OUTLINE

Power is supplied at all times

- to front fog lamp relay, located in the IPDM E/R
- through 20A fusible link (No.52, located in the IPDM E/R).
- to IPDM E/R

Power is also supplied at all times

- through 40A fusible link (letter **J** , fuse and fusible link box).
- to terminals 74 and 79 of the BCM

When the ignition switch is ON or START position, power is supplied

- through 10A fuse [No. 4, located in fuse block (J/B)],
- to terminal 24 of the BCM
- to IPDM E/R

Ground is supplied

- to BCM terminals 2 and 70
- through body grounds M19, and M20,
- to IPDM E/R terminals 3 and 54
- through body grounds E25 (CR engine models), E26 and E40.

FOG LAMP OPERATION

The fog lamp switch is built into the combination switch. The lighting switch must be in the 1ST position and the fog lamp switch must be ON for fog lamp operation.
When the lighting switch is turned to 1ST position and front fog lamp switch in ON position, BCM reads combination switch condition (refer to LT-212, "System Description"). And BCM sends low beam request signal to IPDM E/R with CAN communication line. Then IPDM E/R is turned on front fog lamp relay. Front fog lamp relay is energized and then power is supplied.

- to front fog lamp LH terminal 1
- through IPDM E/R terminal 44
- to front fog lamp RH terminal 1
- through IPDM E/R terminal 43.

Ground is supplied

- to front fog lamp LH terminal 2
- through body grounds E25 (CR engine models), E26, E40
- to front fog lamp RH terminal 2
- through body grounds E25 (CR engine models), E26 and E40.

With power and grounds supplied, the front fog lamps illuminate.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

FAIL-SAFE FUNCTION

When CAN communication with other control units is impossible, IPDM E/R performs fail-safe control. If the fail-safe system is operating, front fog lamps does not operate when the combination switch is in any position. After CAN communication recovers normally, it also returns to normal control.

CAN Communication

EKS00ERG

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP7

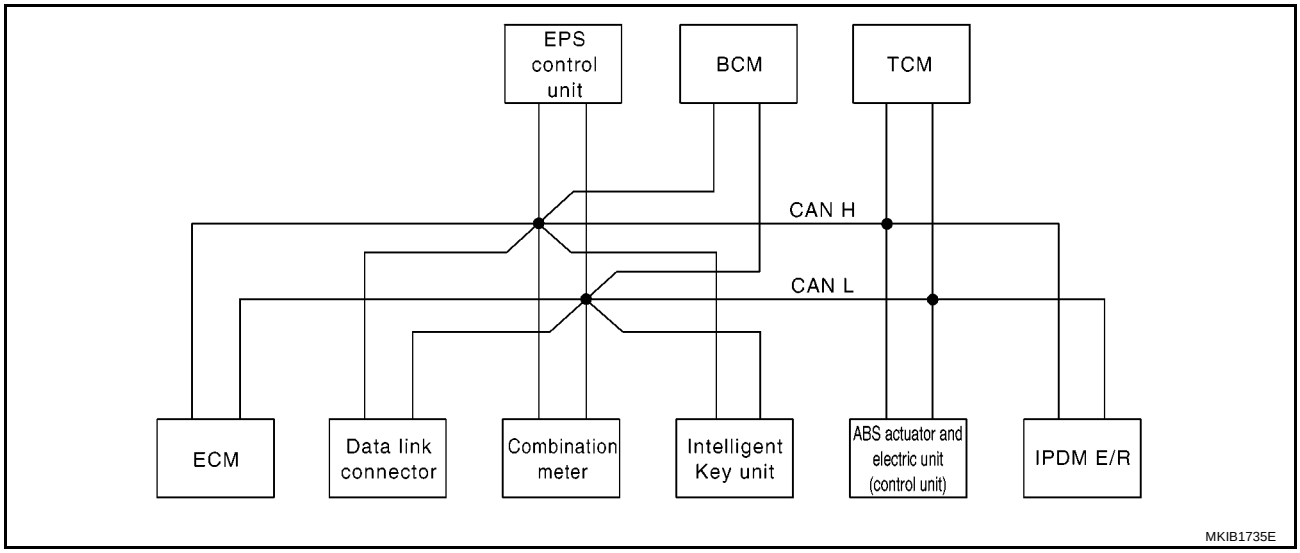
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-100, "TYPE 1/ TYPE 2"		LT-103, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-105, "TYPE 7/ TYPE 8"		LT-108, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-110, "TYPE 13/ TYPE 14"	

×: Applicable

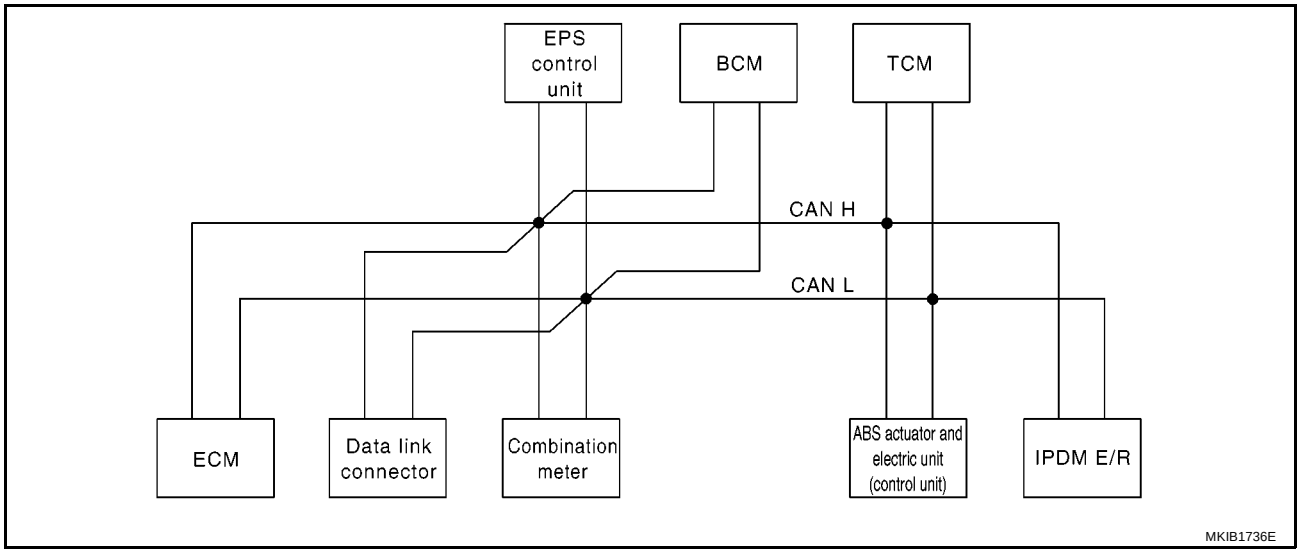
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

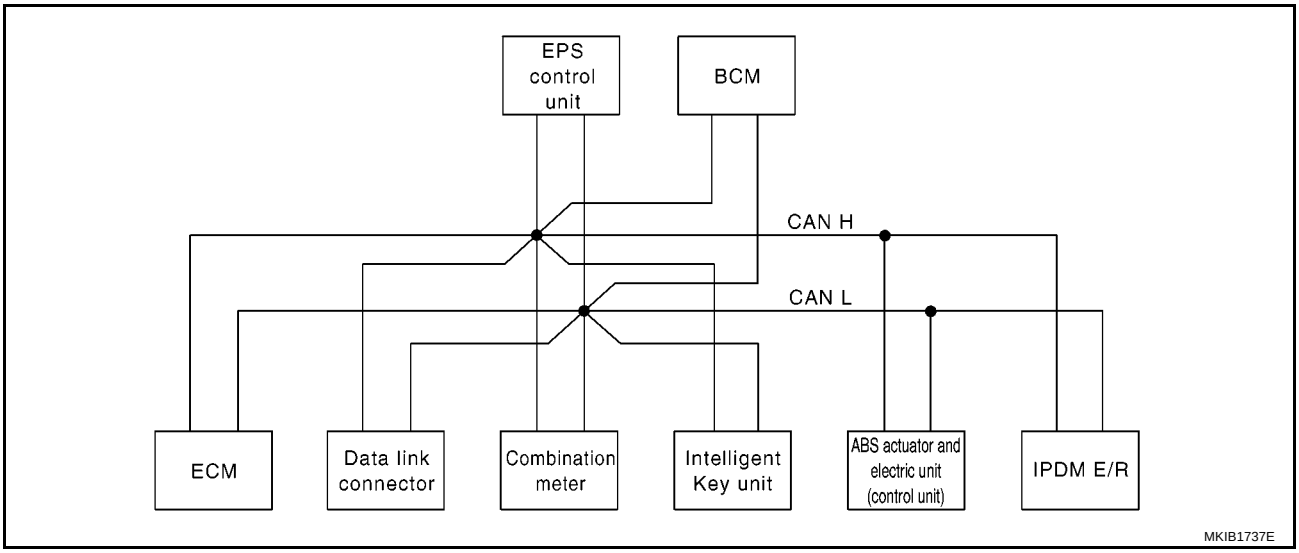
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

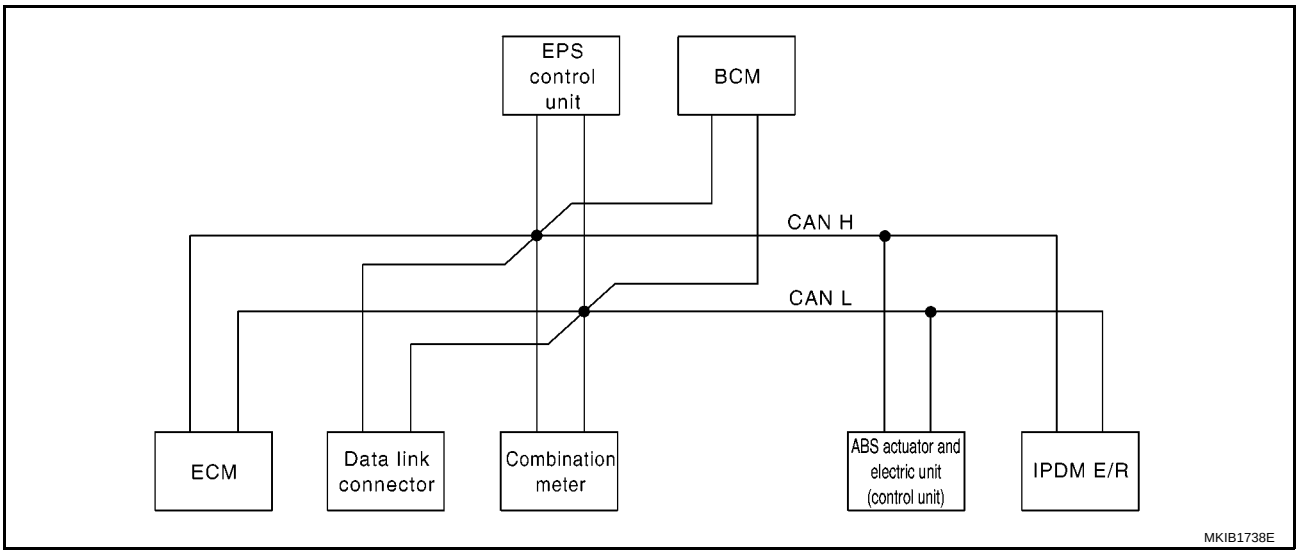
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

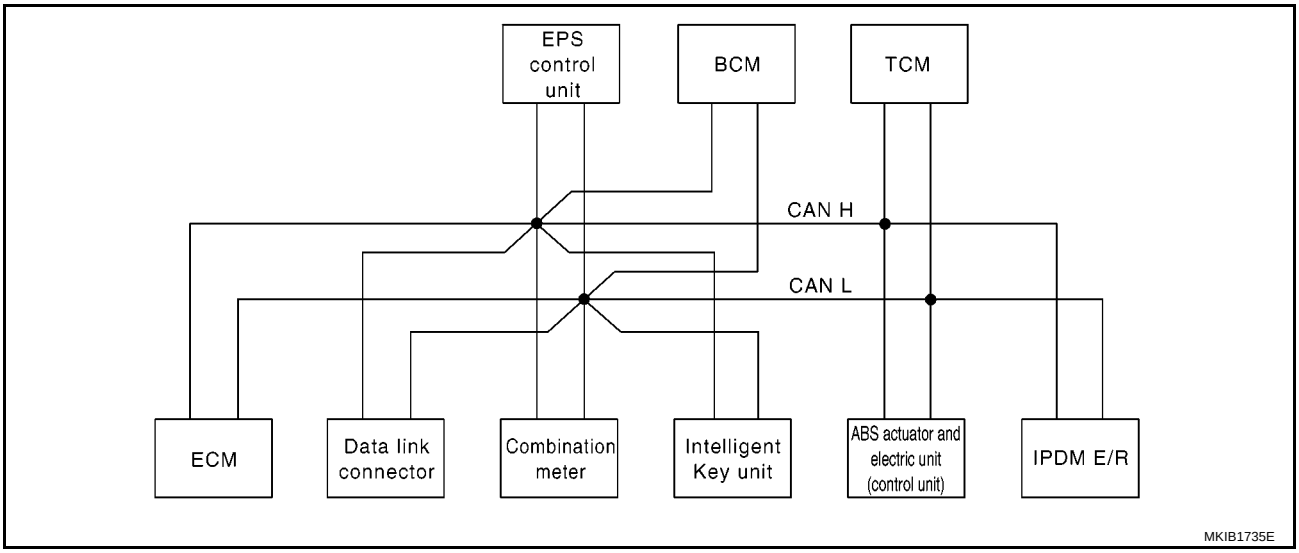
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

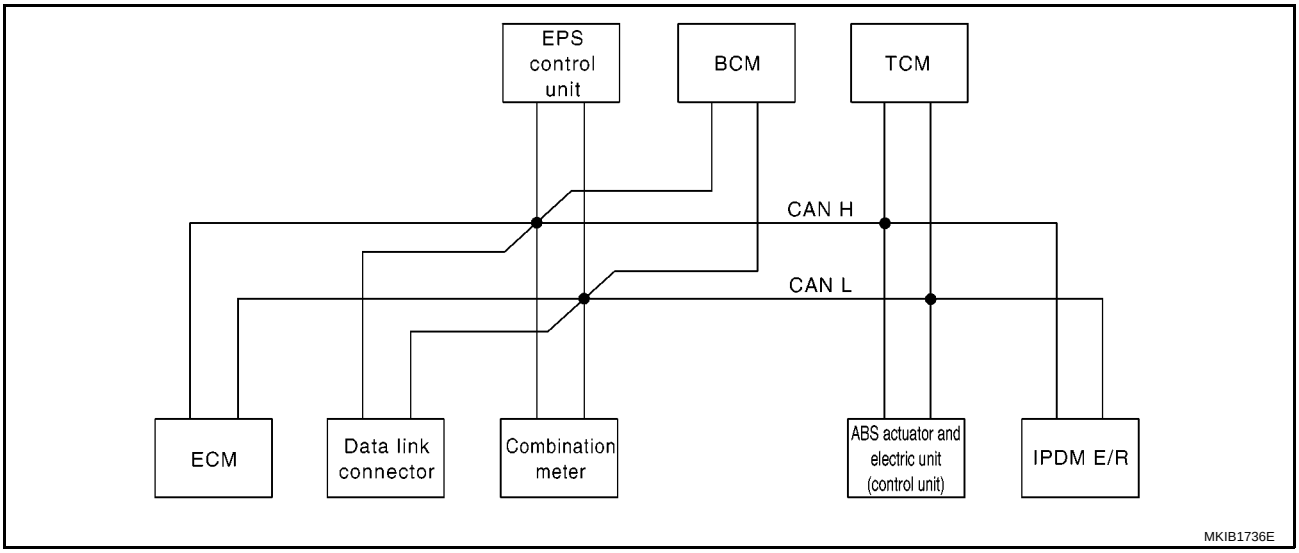
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

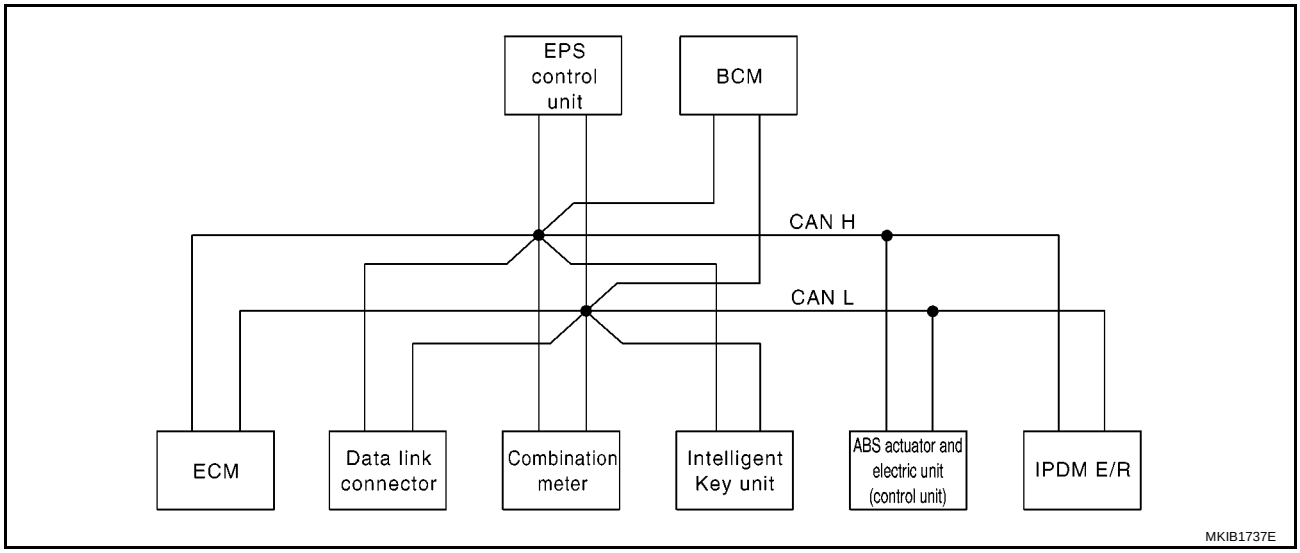
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

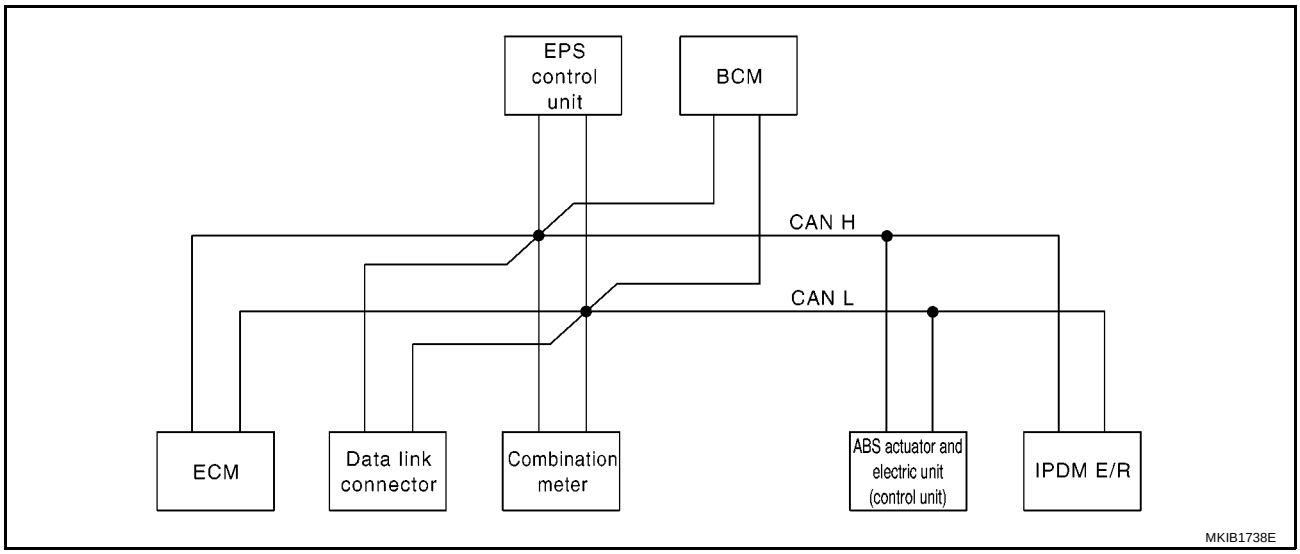
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

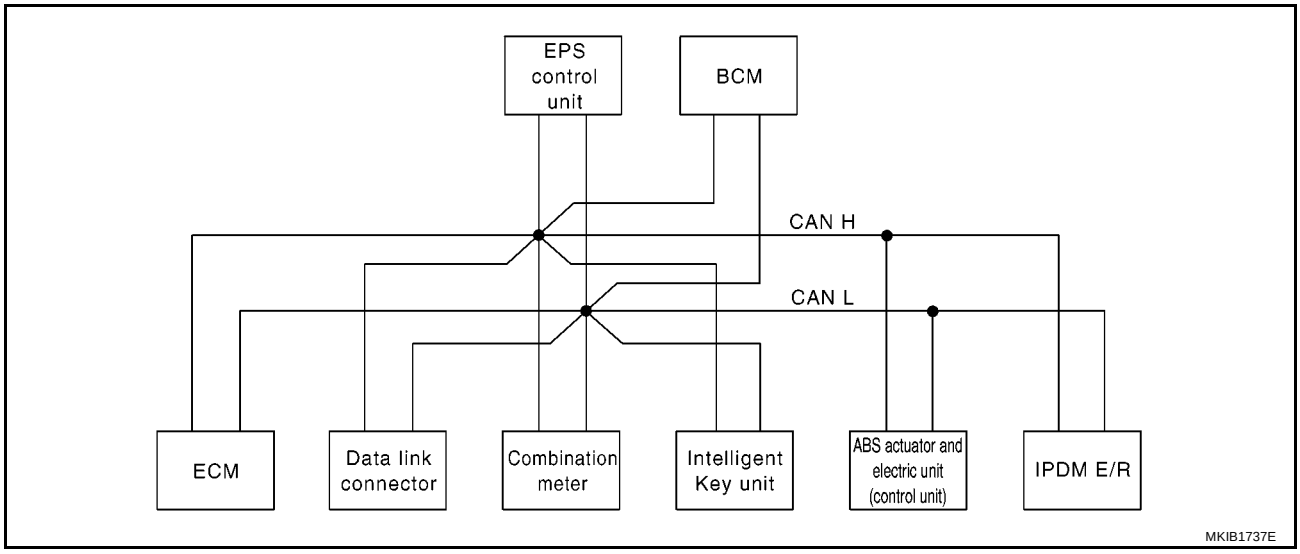
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

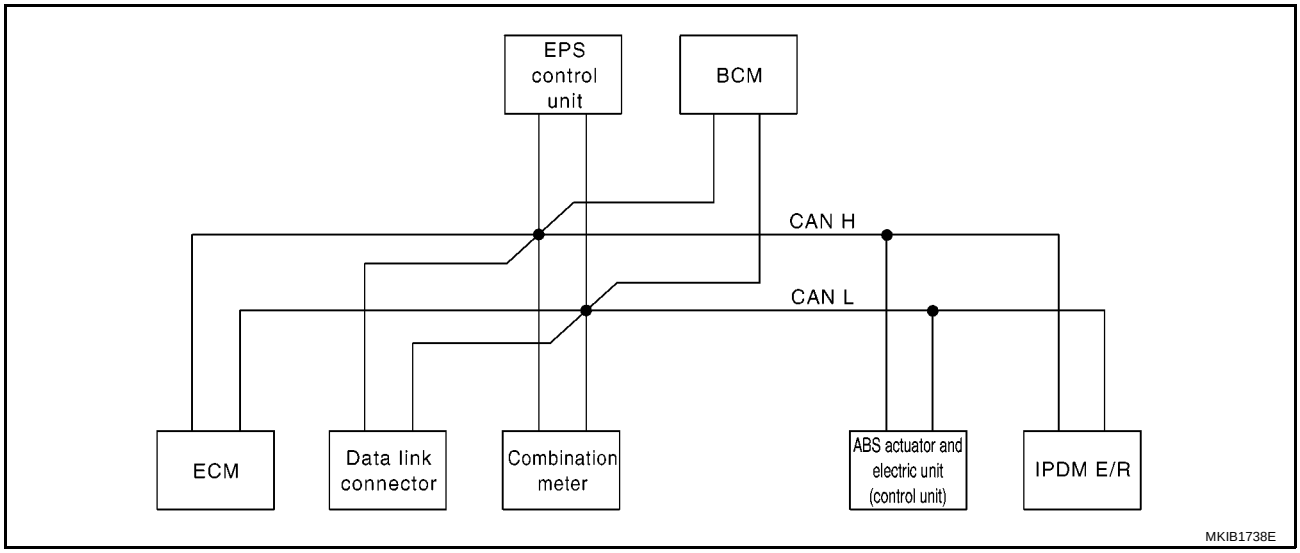
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



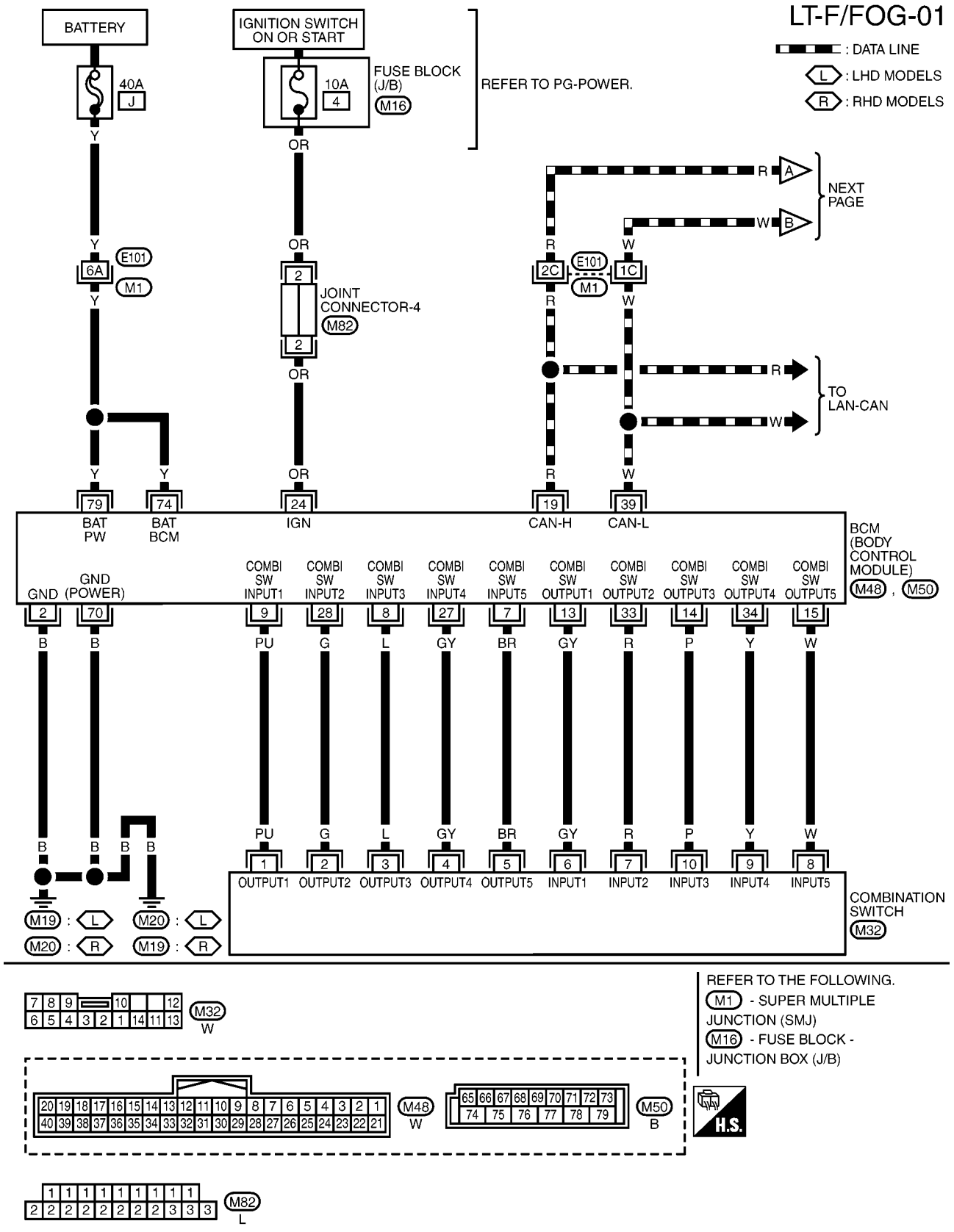
Input/output signal chart

T: Transmit R: Receive

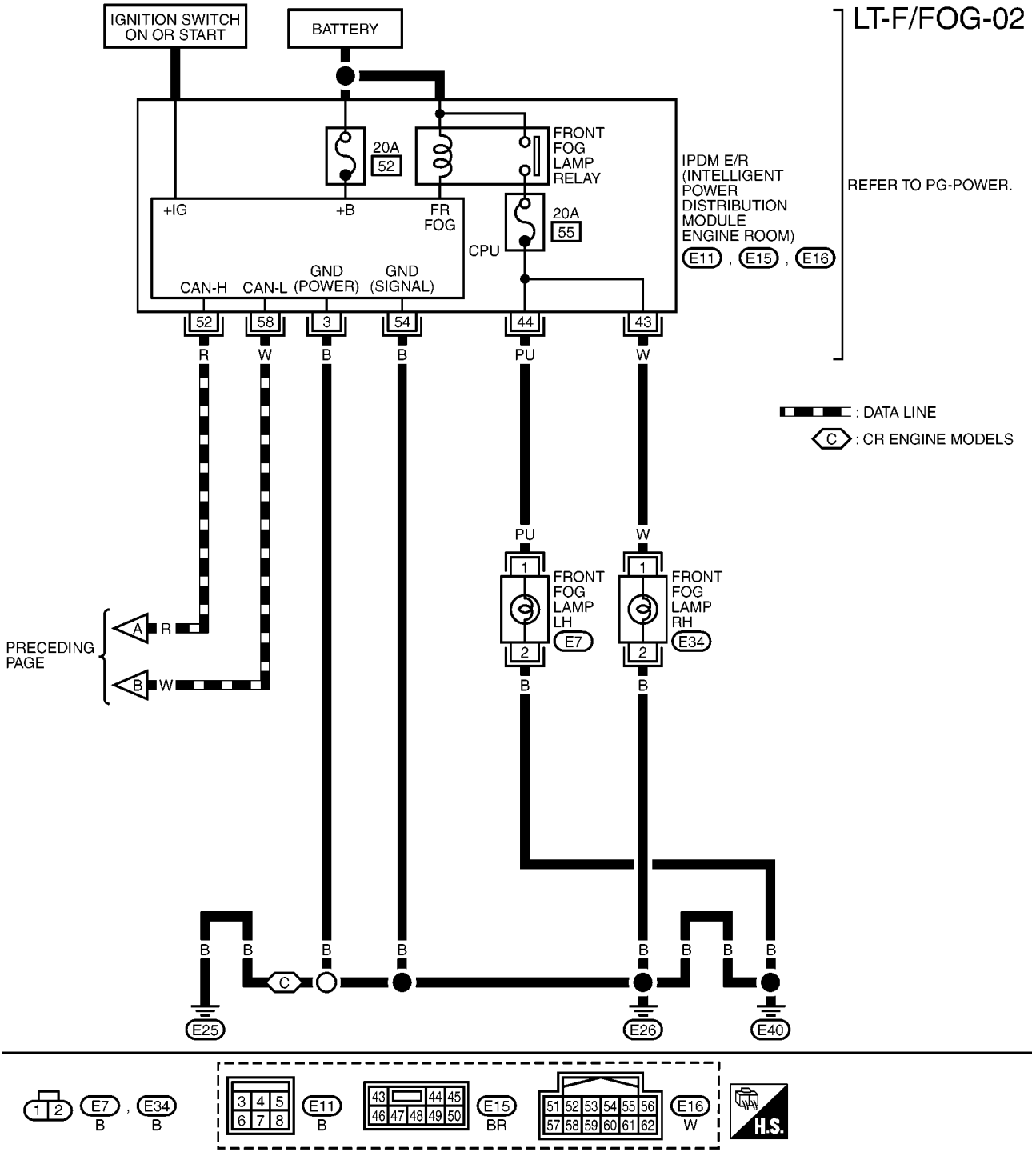
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Wiring Diagram — F/FOG —

EKS00EM5



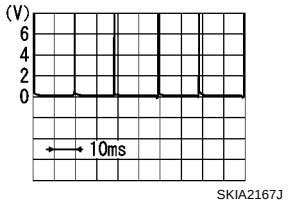
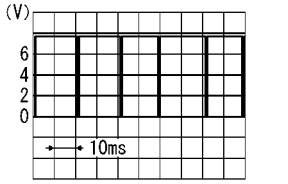
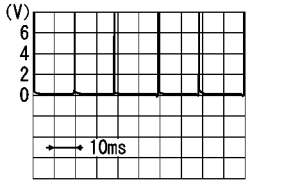
MKWA3456E


IGNITION SWITCH ON OR START
BATTERY
LT-F/FOG-02
20A 52
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E11 , E15 , E16
REFER TO PG-POWER.
+IG
+B
FR FOG
CPU
20A 55
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
52
58
3
54
44
43
R
W
B
B
PU
W
: DATA LINE
C : CR ENGINE MODELS
PU
W
1
2
FRONT FOG LAMP LH
E7
FRONT FOG LAMP RH
E34
B
B
PRECEDING PAGE
A R
B W
B
B
B
B
B
B
B
B
C
E25
E26
E40
1 2
E7 , E34
B
3 4 5 6 7 8
E11
B
43 44 45 46 47 48 49 50
E15
BR
51 52 53 54 55 56 57 58 59 60 61 62
E16
W
H.S.

MKWA3457E

Terminals and Reference Value for BCM

EKS00EM7

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
33	R	Combination switch output 2		Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
39	W	CAN L	—	—	—
70	B	Ground	ON	—	0
74	Y	Power source (Fusible link)	—	—	Battery voltage
79	Y	Power source (Fusible link)	—	—	Battery voltage

Terminals and Reference Values for IPDM E/R

EKS00EM8

Terminal No.	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		0
43	W	Front fog lamp (RH)	ON	Front fog lamp switch	ON	Battery voltage
					OFF	0
44	PU	Front fog lamp (LH)	ON		ON	Battery voltage
					OFF	0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		0
58	W	CAN L	—	—		—

How to Proceed With Trouble Diagnosis

EKS00EM9

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Front fog lamp LT-98, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-115, "Preliminary Check"
4. Confirm headlamp does not operate by fail-safe control of IPDM E/R. Refer to PG-20, "FAIL-SAFE FUNCTION" .
5. Check symptom and repair or replace the cause of malfunction.
6. Does the front fog lamp operate normally? Yes: GO TO 7. No: GO TO 5.
7. INSPECTION END.

Preliminary Check

EKS00EMA

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch ON or START position	4

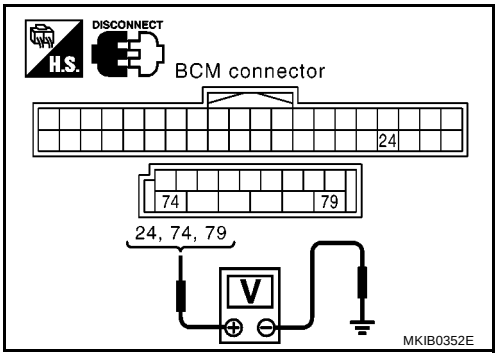
Refer to LT-112, "Wiring Diagram — F/FOG —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM connector and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

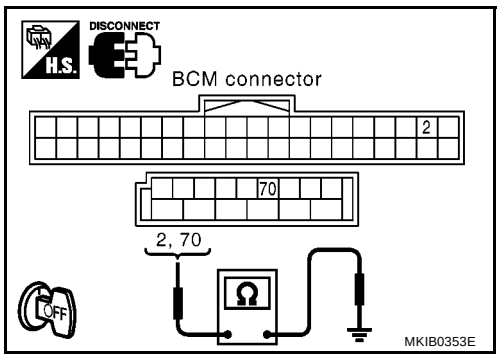
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse. If NG, repair or replace the harness or fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END.
NG >> Repair or replace the harness.

CONSULT-II Function (BCM)

EKS00EMB

Refer to LT-28, "CONSULT-II Functions (BCM)" .

CONSULT-II Function (IPDM)

EKS00EMC

Refer to LT-31, "CONSULT-II Functions (IPDM E/R)" .

Front fog lamps Does Not Illuminate (Both Sides)

EKS00EMD

1. CHECK FUSE

Check the following
20A fuse (No. 55, located in the IPDM E/R).

OK or NG

OK >> GO TO 2.
NG >> Replace front fog lamp fuses, if fuses are blown, it verified that harness are malfunctions for short between IPDM E/R and front fog lamps.

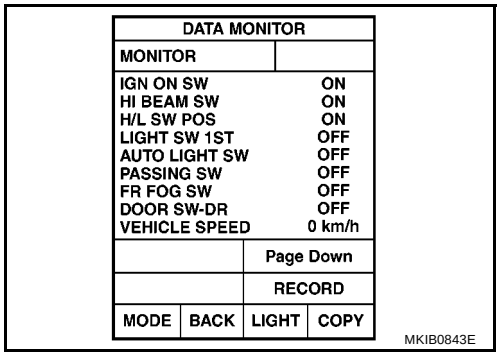
2. CHECK BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select “BCM” on CONSULT-II.Check lighting switch (“FR FOG SW”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 1st position and fog lamp switch in ON position : FR FOG SW ON

When lighting switch is in OFF position : FR FOG SW OFF



Without CONSULT-II

Refer to LT-219, "Check Combination Switch" .

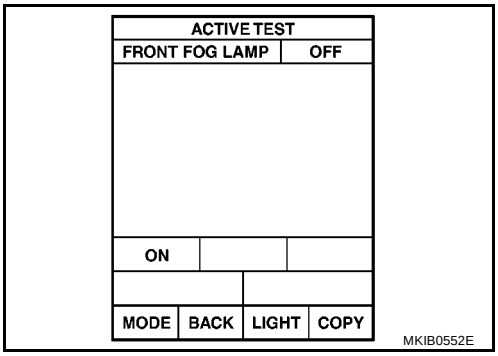
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-219, "Check Combination Switch" .

3. CHECK BETWEEN IPDM E/R AND FRONT FOG LAMP

With CONSULT-II

1. Select “IPDM E/R” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “FRONT FOG” on “SELECT TEST ITEM” screen.
3. Make sure that front fog lamp operate normally.



Without CONSULT-II

1. Start up auto active test. Refer to PG-43, "Auto Active Test" .
2. Make sure that front fog lamp operate normally.

OK or NG

OK >> GO TO 4.
NG >> Check the following:

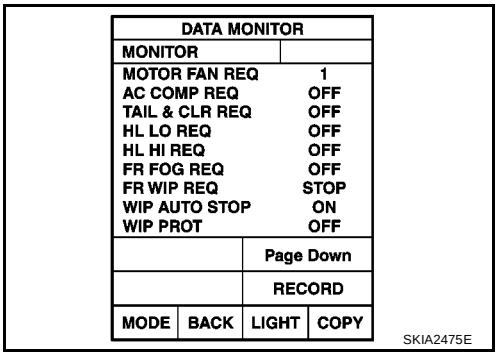
- Fog lamp bulbs
- Fog lamp ground circuit harness
- Harness between fog lamps and IPDM E/R

4. CHECK BETWEEN IPDM E/R AND BCM

Select “IPDM E/R” on CONSULT-II. Check lighting switch (“FR FOG REQ”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 1st position and fog lamp switch in ON position : FR FOG REQ ON

When lighting switch is in OFF position : FR FOG REQ OFF



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM.

Front Fog Lamp Does Not Illuminate (One Side)

EKS00EME

1. CHECK BULB

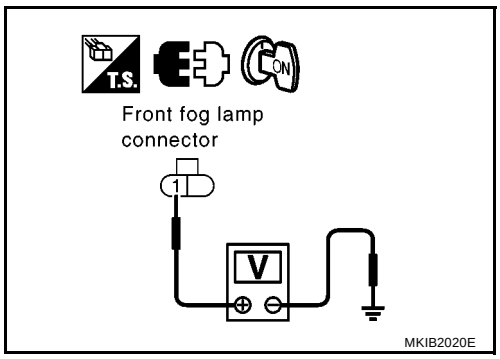
Check front fog bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace front fog lamp bulb.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front fog lamp connector.
3. Turn ignition switch ON.
4. Check voltage between front fog lamp harness connector terminal and ground.



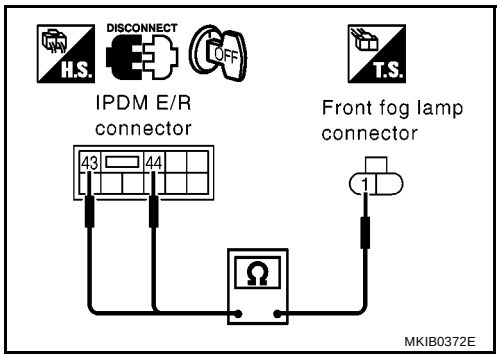
Terminals			Condition	Voltage [V] (Approx.)
(+)		(–)		
Connector	Terminal (Wire color)			
E7	1 (PU)	Ground	Lighting switch high beam ON	Battery voltage
E37	1 (W)			

OK or NG

OK >> GO TO 3.
NG >> GO TO 4.

3. CHECK BETWEEN IPDM E/R AND FRONT FOG LAMPS

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between harness connector terminals of IPDM E/R and harness connector terminal of front fog lamps.



Terminals					Continuity
IPDM E/R		Front fog lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E15	43 (W)	RH	E34	1 (W)	Yes
	44 (PU)	LH	E7	1 (PU)	

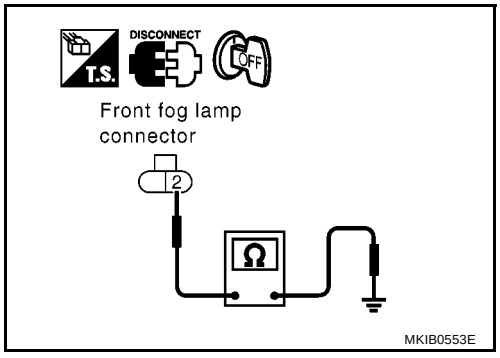
OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

4. CHECK FRONT FOG LAMP AND GROUND CIRCUIT

Check continuity between front fog lamp harness connector E7 (LH) or E34 (RH) terminal 2 (B) and ground.

2 (B) - Ground : Continuity should exist.



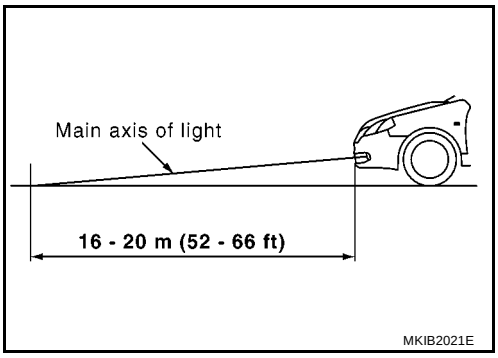
OK or NG

OK >> Check the condition of harness and the connector.
NG >> Repair or replace harness or connector.

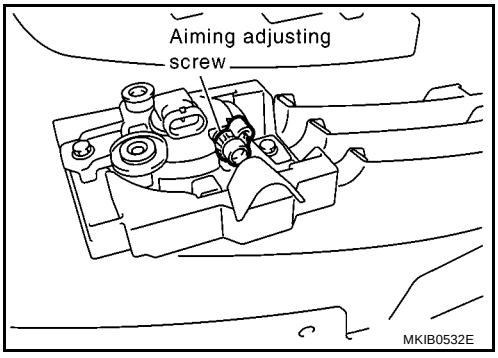
Aiming Adjustment

EKS00EMF

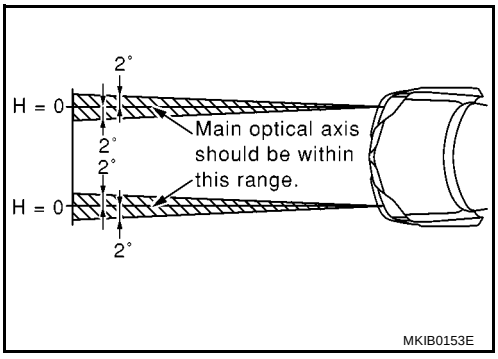
1. Set the main axis of light as shown in the figure.



2. Turn front fog lamps ON.



3. Adjust front fog lamps as shown in the figure.
   - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.



Bulb Replacement

EKS00EMG

1. Turn ignition switch OFF
2. Remove fender protector. Refer to EI-14, "FENDER PROTECTOR" .
3. Remove front bumper. Refer to EI-5, "FRONT BUMPER" .
4. Turn bulb socket counterclockwise and unlock it.
5. Remove bulb from socket.

Front fog lamp: 12V-55W (H11)

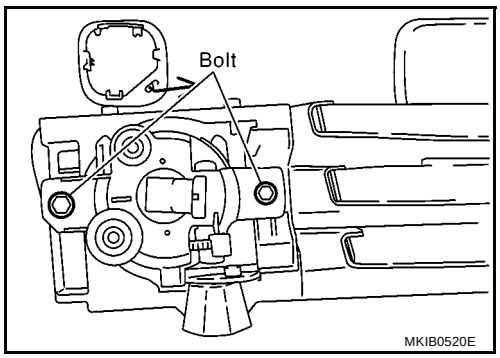
Removal and Installation

EKS00EMH

REMOVAL

1. Turn ignition switch OFF
2. Remove fender protector. Refer to EI-14, "FENDER PROTECTOR" .
3. Remove front bumper. Refer to EI-5, "FRONT BUMPER" .

4. Remove front fog lamp mounting bolts.



INSTALLTION

Install in the reverse order of removal.

REAR FOG LAMP

PFP:26550

System Description

EKS00EMI

The rear fog lamp operation is controlled by the lighting switch which built into the combination switch and BCM (body control module).BCM read combination switch condition.Refer toLT-212, "System Description"

OUTLINE

Power is supplied at all times

- through 40A fusible link (letter **J** , located in fuse and fusible link box)
- to terminals 74 and 79 of the BCM.

When the ignition switch is in ON or START position, power is supplied

- through 10A fuse [No. 4, located in fuse block (J/B)]
- to terminal 24 of the BCM.

Ground is supplied

- to BCM terminals 2 and 70
- through body grounds M19 and M20.

REAR FOG LAMP OPERATION

When the lighting switch is turned to 2ND position or front fog lamp switch ON position and rear fog lamp switch in ON position, BCM read combination switch condition (refer to LT-212, "System Description"). Rear fog lamp is energized and then power is supplied.
With the rear fog lamp switch in the ON position, BCM supplies the power supply to rear fog lamp.

- through BCM terminal 69
- to rear combination lamp LH/RH terminal 6

Ground is supplied (Hatchback)

- to rear combination lamp LH/RH terminal 4
- through body grounds B17, B23, B44 and B51

Ground is supplied (C+C)

- to rear combination lamp LH/RH terminal 4
- though body ground B17, B23 and B81

With power and grounds supplied, the rear fog lamps illuminate.
Rear fog indicator illuminate when combination meter receives input requesting rear fog indicator illuminate. This is communicated to BCM across the CAN communication lines.
When combination meter received rear fog lamp request signal, combination meter will illuminate rear fog indicator.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

CAN Communication

EKS00ERI

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP8

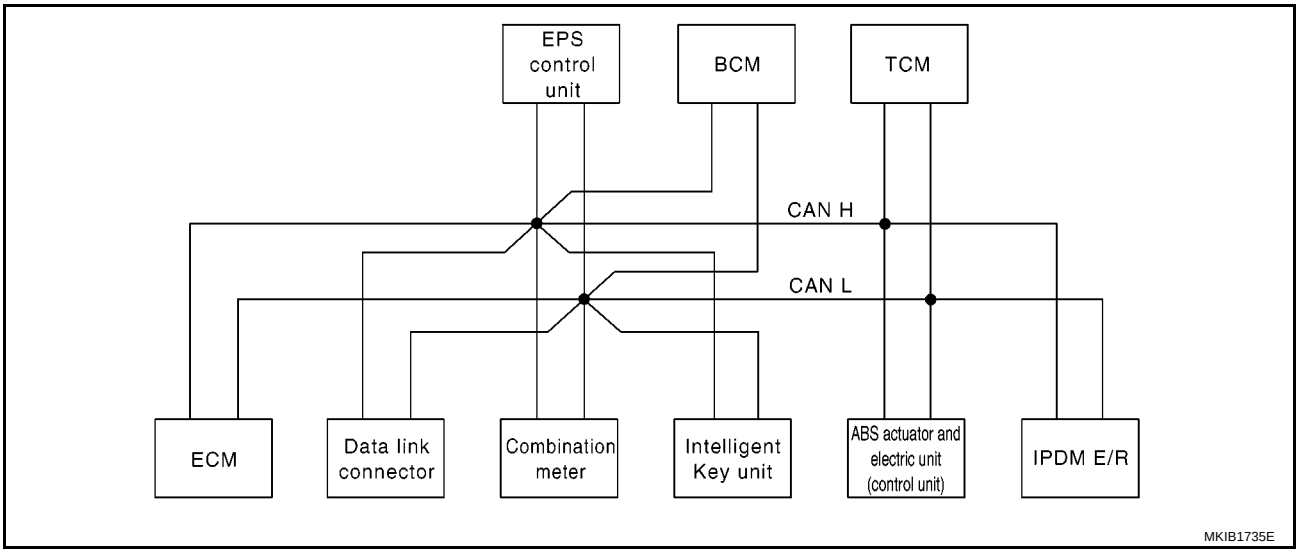
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-123, "TYPE 1/ TYPE 2"		LT-126, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-128, "TYPE 7/ TYPE 8"		LT-131, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-133, "TYPE 13/ TYPE 14"	

×: Applicable

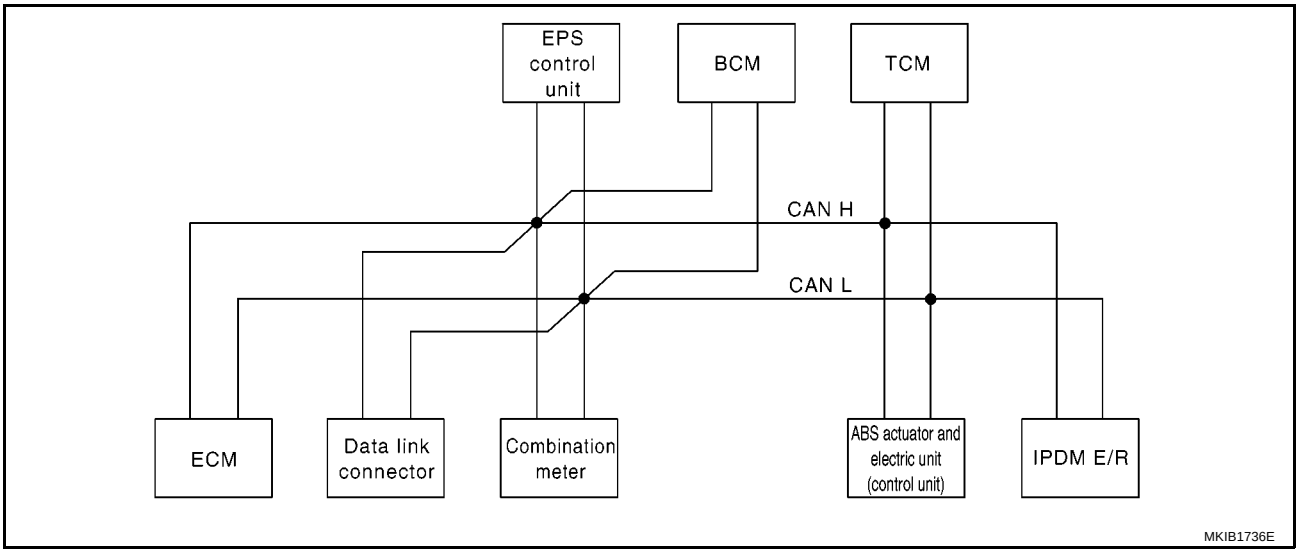
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

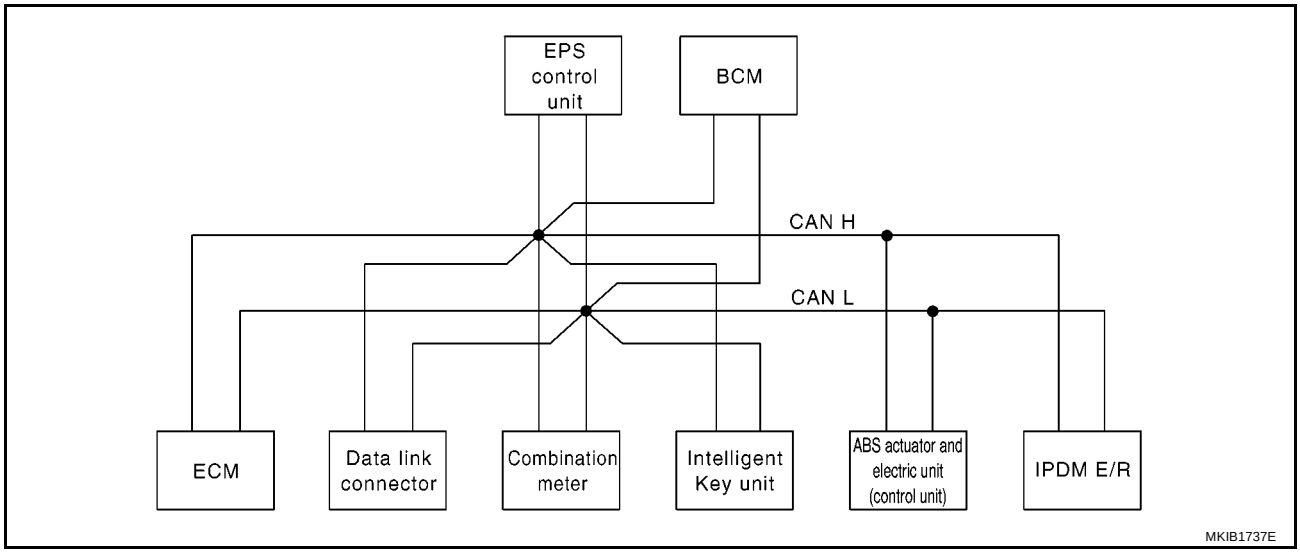
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

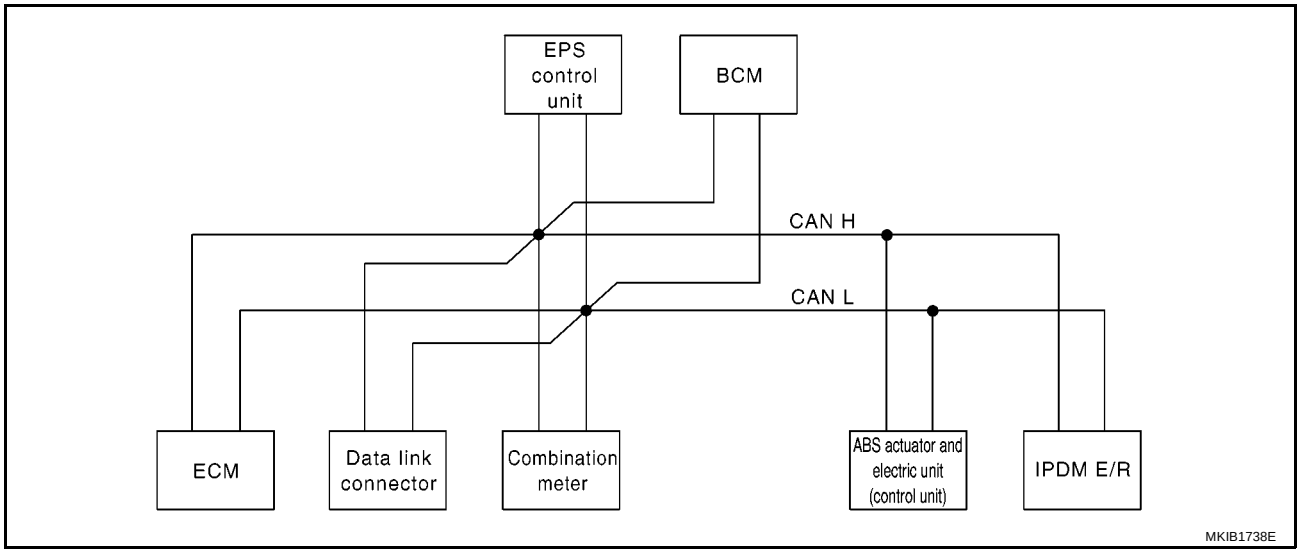
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

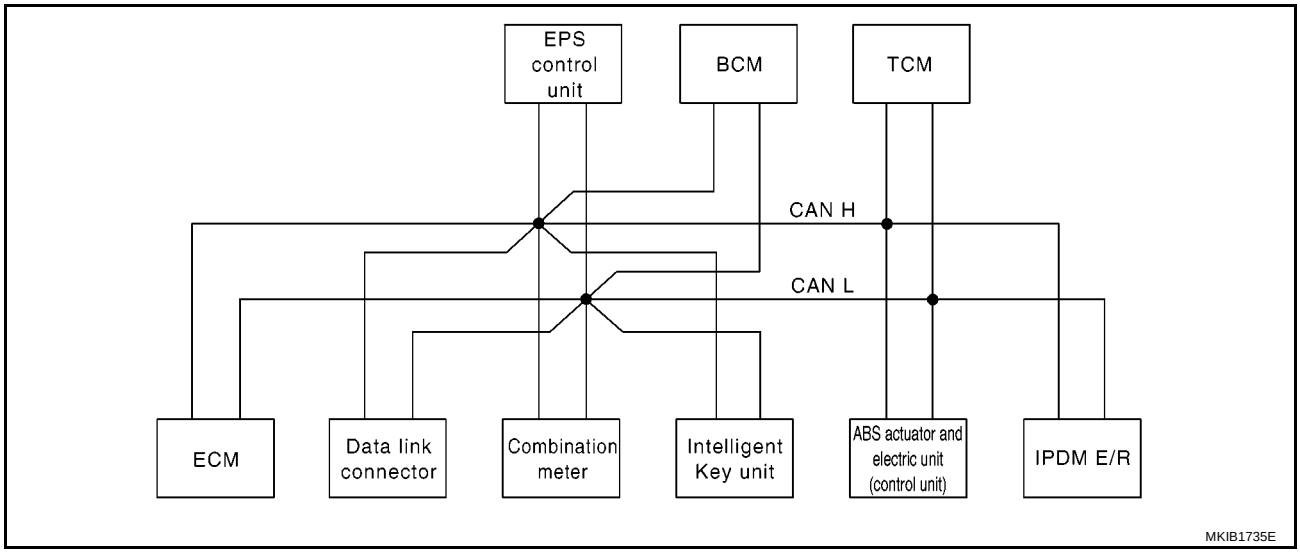
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

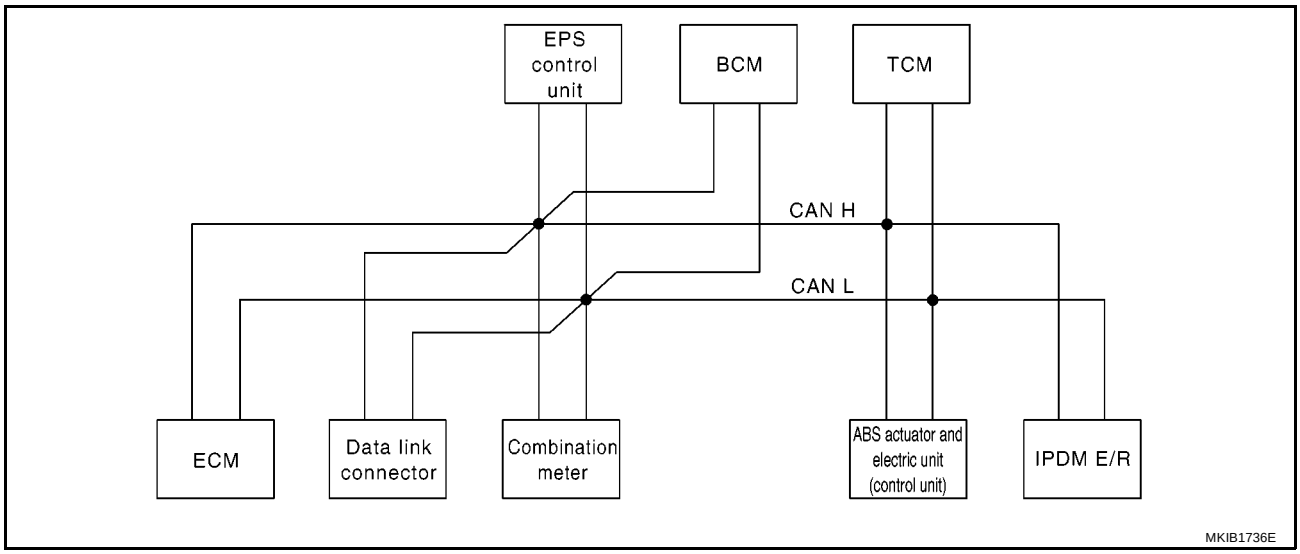
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

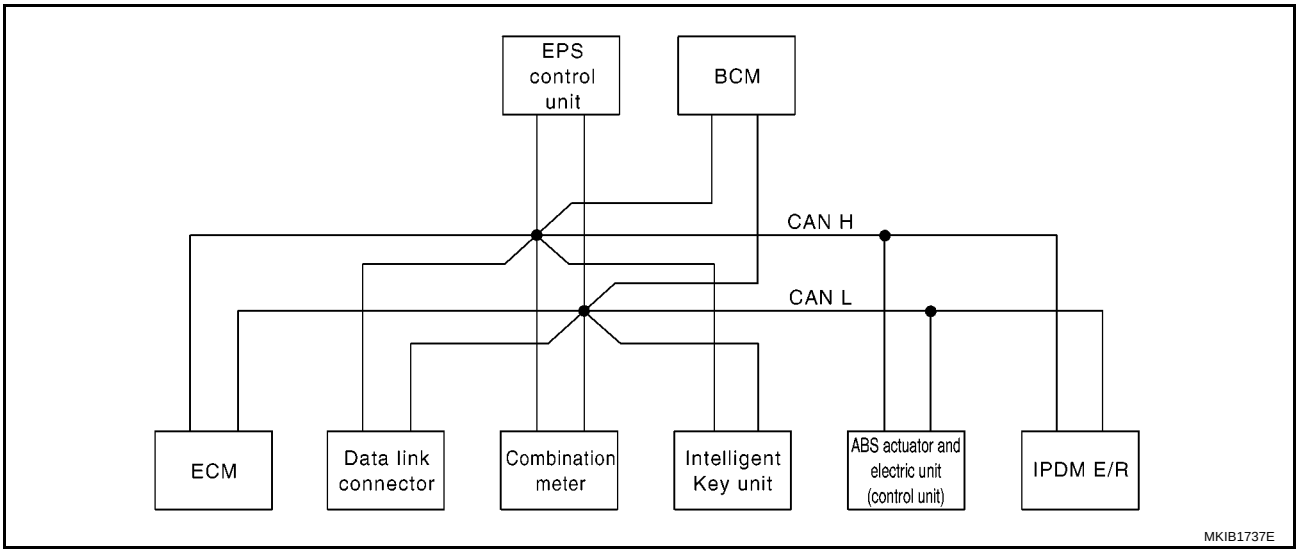
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

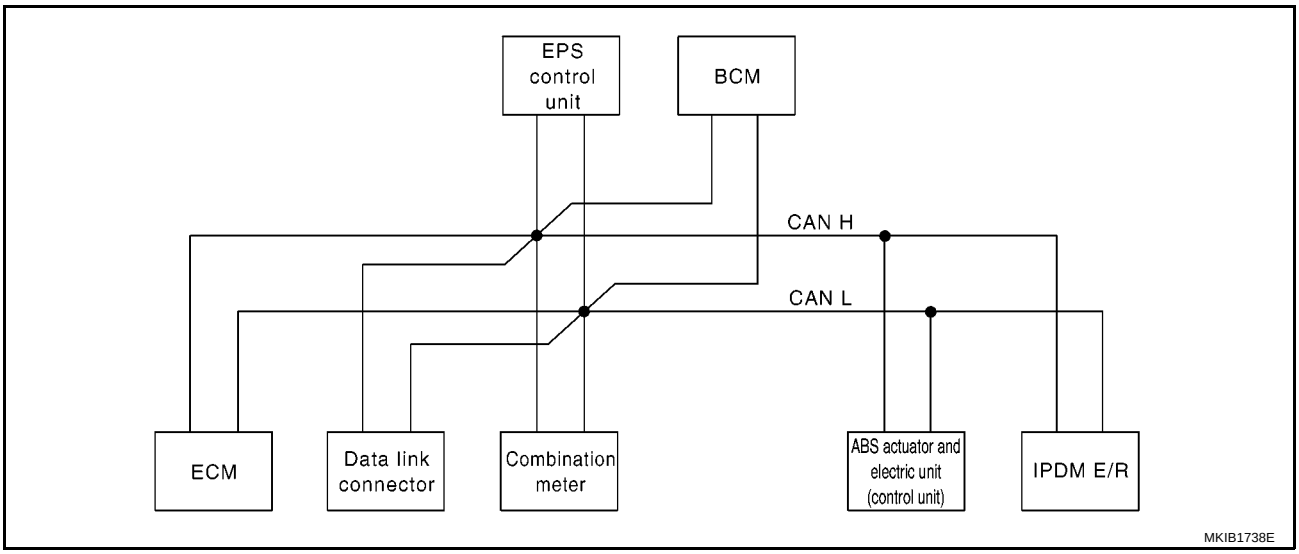
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

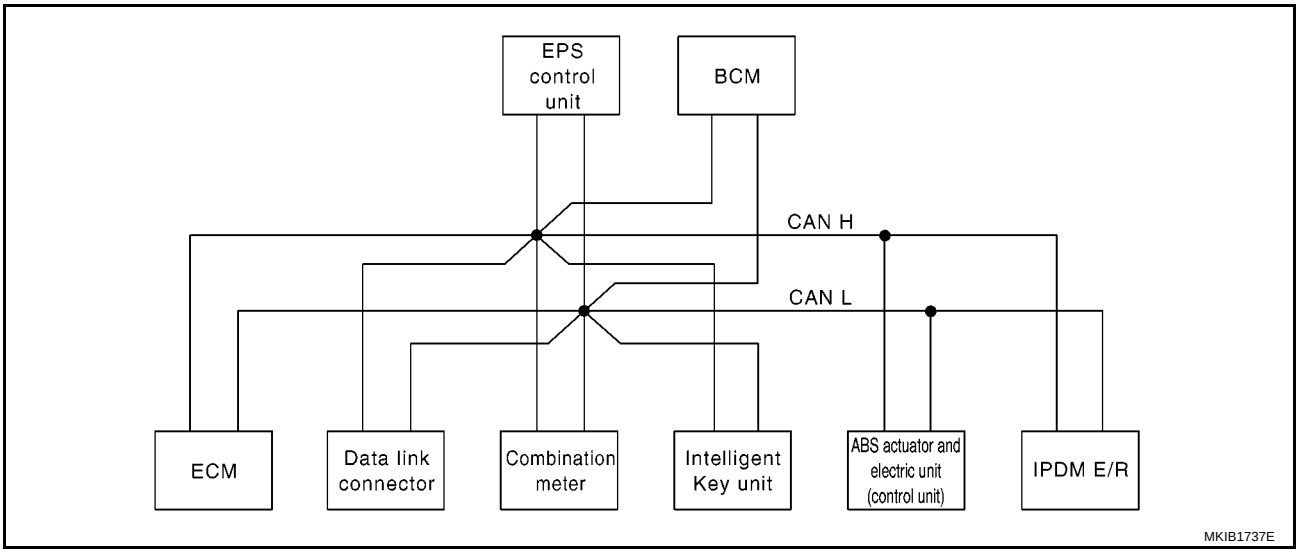
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

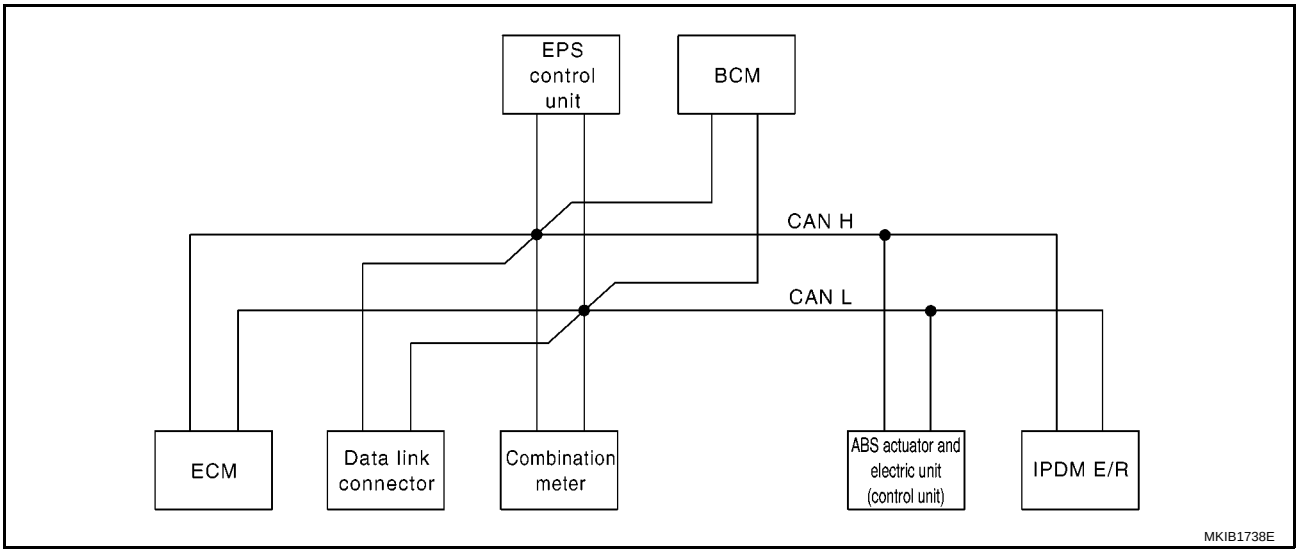
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



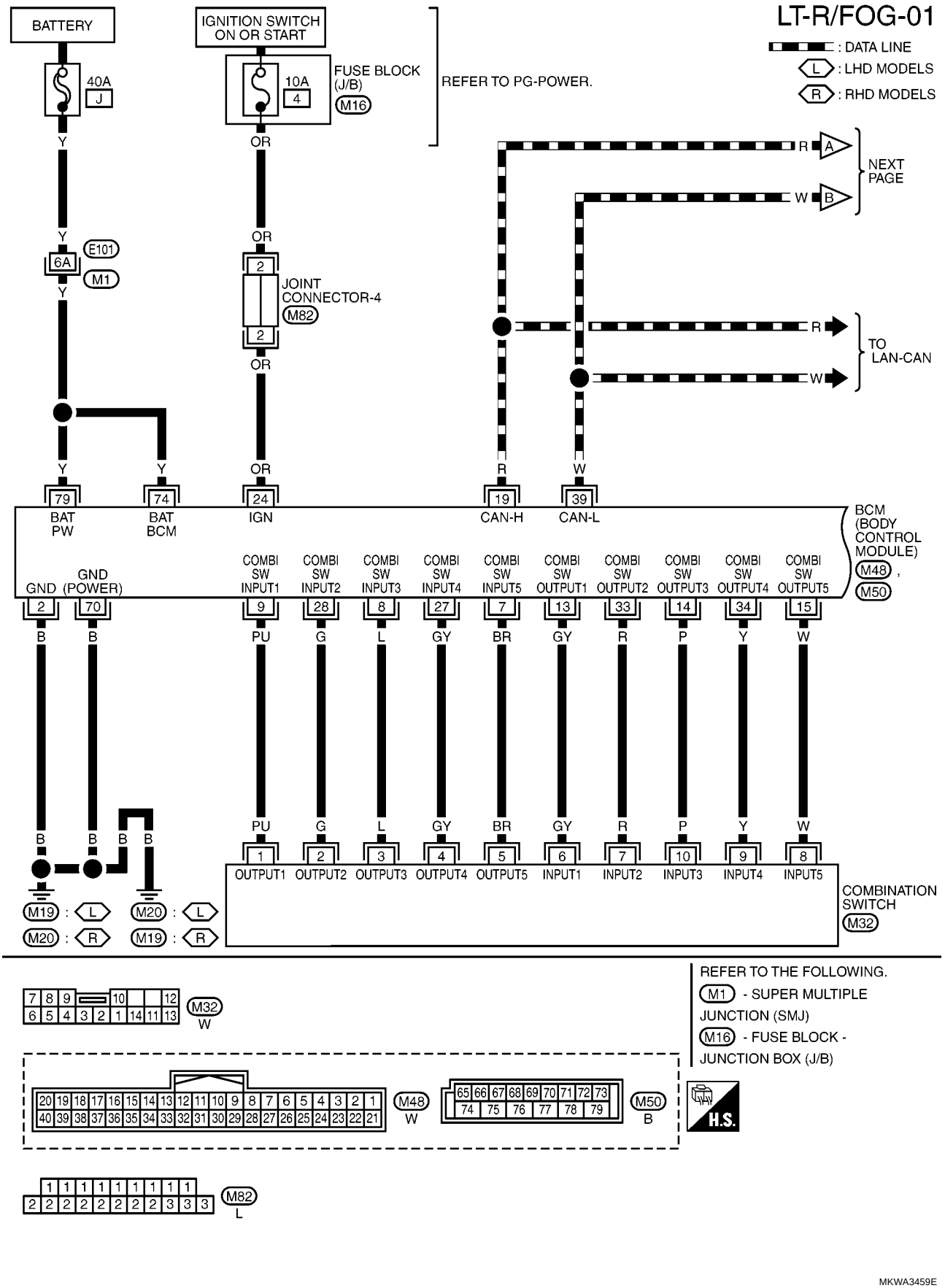
Input/output signal chart

T: Transmit R: Receive

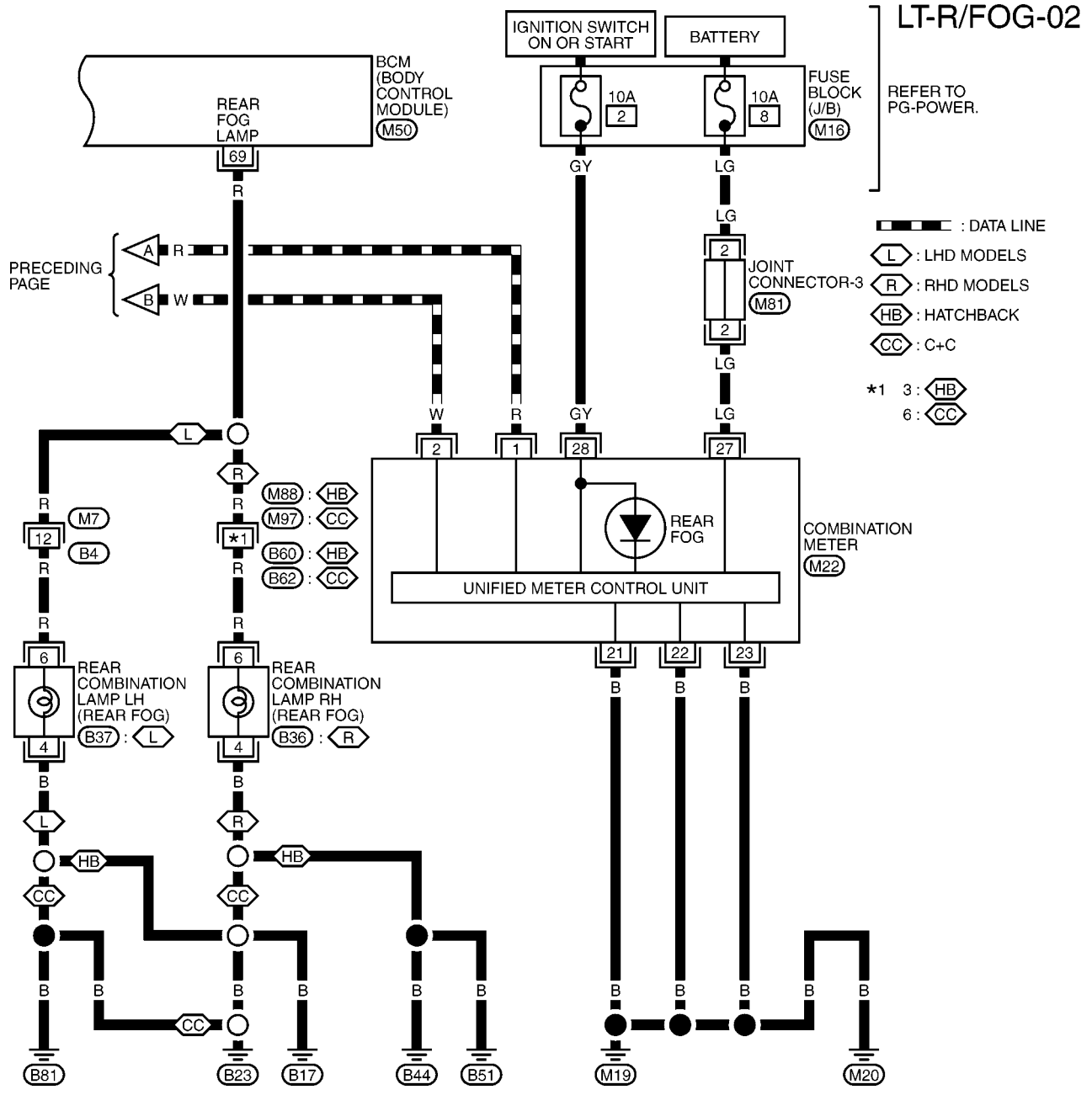
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

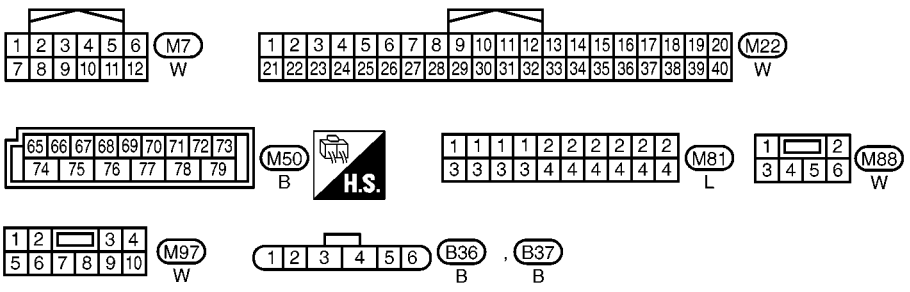
Wiring Diagram — R/FOG —

EKS00EMK



MKWA3459E



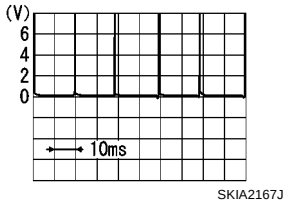
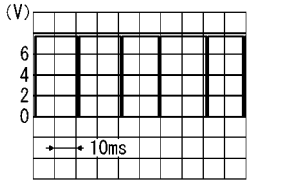
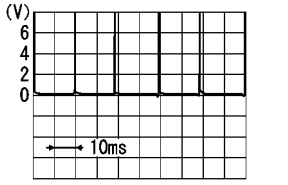


REFER TO THE FOLLOWING.
M16 - FUSE BLOCK-JUNCTION BOX (J/B)

MKWA4046E

Terminals and Reference Value for BCM

EKS00EML

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
33	R	Combination switch output 2		Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
39	W	CAN L	—	—	—
69	R	Rear fog lamp signal	ON	Rear fog lamp switch: ON	Battery voltage
				Rear fog lamp switch: OFF	0
70	B	Ground	ON	—	0
74	Y	Power source (Fusible link)	—	—	Battery voltage
79	Y	Power source (Fusible link)	—	—	Battery voltage

How to Proceed With Trouble Diagnosis

EKS00EMM

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to rear fog lamp LT-121, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-138, "Preliminary Check"
4. Check symptom and repair or replace the cause of malfunction.
5. Does the rear fog lamp operate normally? Yes: GO TO 6. No: GO TO 4.
6. INSPECTOPN END.

Preliminary Check

EKS00EMN

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch (ON)	4

Refer to LT-135, "Wiring Diagram — R/FOG —" .

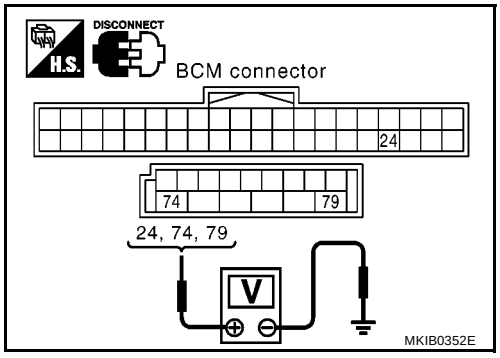
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	79 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage
M50	74 (Y)		Battery voltage	Battery voltage	Battery voltage



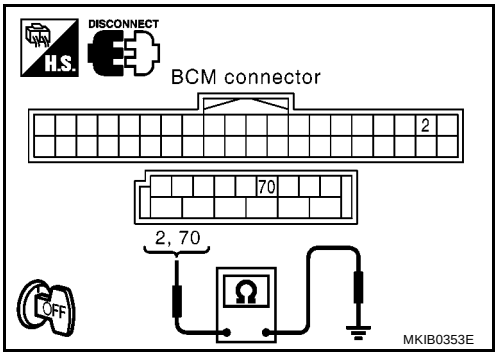
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse. If NG, repair or replace the harness or fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END.
NG >> Repair or replace the harness.

CONSULT-II Function (BCM)

EKS00EMO

Refer to LT-28, "CONSULT-II Functions (BCM)" .

Rear Fog Lamp Does Not Illuminate

EKS00EMP

1. CHECK BULB

Check rear fog lamp bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace rear fog lamp bulb.

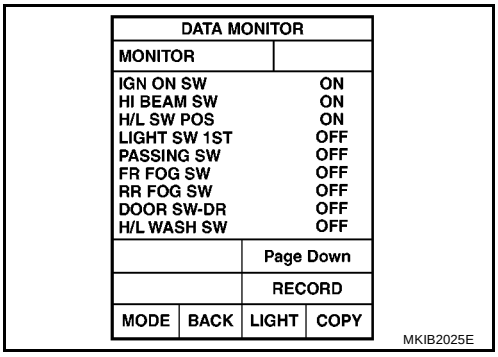
2. CHECK BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select “BCM” on CONSULT-II. Check lighting switch (“RR FOG SW”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 2nd position, fog lamp switch in ON position and rear fog lamp switch in ON position : RR FOG SW ON

When rear fog lamp switch is in OFF position : RR FOG SW OFF



Without CONSULT-II

Refer to LT-212, "COMBINATION SWITCH" .

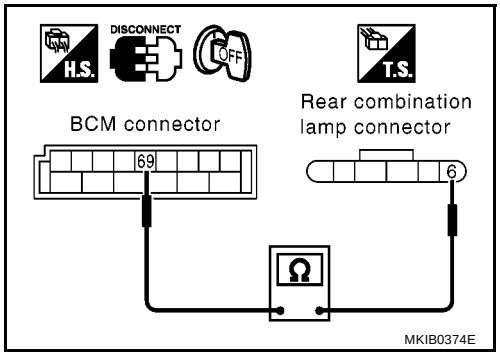
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-212, "COMBINATION SWITCH" .

3. CHECK BETWEEN BCM AND REAR FOG LAMPS

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear combination lamp connector.
3. Check continuity between BCM and rear combination lamps.

Terminals					Continuity
Rear fog lamp (Rear combination lamp)			BCM		
Connector		Terminal (Wire color)	Connector	Terminal (Wire color)	
RHD models	B36	6 (R)	M50	69 (R)	Yes
LHD models	B37	6 (R)			



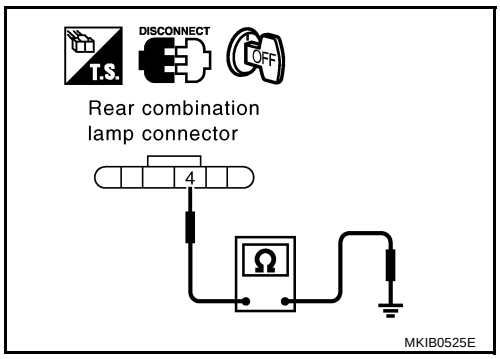
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

4. CHECK REAR FOG LAMP GROUND CIRCUIT

Check continuity between rear fog lamp harness connector B36 (RHD) or B37 (LHD) terminal 4(B) and ground.

4 (B) - Ground : Continuity should exist.



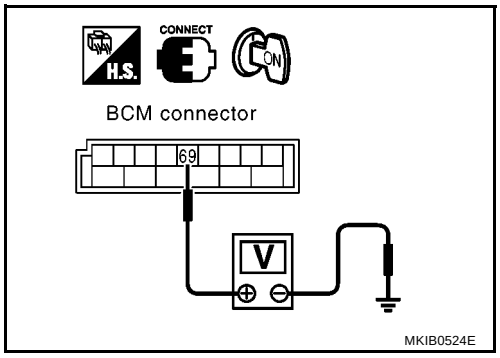
OK or NG

OK >> GO TO 5.
NG >> Repair or replace harness or connector.

5. CHECK BCM OUTPUT SIGNAL

Check voltage between BCM terminal 69 (R) and ground.

(+)		(–)	Condition	Voltage [V] (Approx.)
Connector	Terminal (Wire color)			
M50	69 (R)	Ground	Rear fog switch ON	Battery voltage
			Rear fog switch OFF	0



OK or NG

OK >> Check condition of harness and connector.
NG >> Replace BCM.

Bulb Replacement

EKS00EMQ

Refer to LT-208, "Bulb Replacement" .

Removal and Installation

EKS00EMR

Refer to LT-208, "Removal and Installation (Hatchback)" .

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

System Description

EKS00EMS

TURN SIGNAL OPERATION

When the ignition switch is in the ON or START position, power is supplied

- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to BCM (body control module) terminal 24
- through 10A fuse [No. 2, located in the fuse block (J/B)]
- to combination meter terminal 28.

Ground is supplied

- to BCM terminals 2 and 70
- to combination meter terminals 21, 22 and 23
- through body grounds M19 and M20.

LH Turn

When the turn signal switch (combination switch) is moved to the LH position, the BCM read combination switch condition (Refer to LT-212, "System Description") then power is supplied.

- through BCM terminal 65
- to front turn signal lamp LH terminal 1,
- to side turn signal lamp LH terminal 1
- to rear combination lamp LH (turn signal) terminal 5.

Ground is supplied to the front turn signal lamp LH terminal 2 and side turn signal lamp LH terminal 2 through body grounds E25 (CR engine models), E26 and E40.
Ground is also supplied to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23, B44, and B51. (Hatchback)
Ground is also supplied to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23 and B81. (C+C)
BCM send turn indicator signal to combination meter with CAN communication line.Combination meter is flashed turn LH indicator lamp.
With power and ground supplied, the BCM controls the flashing of the LH turn signal lamps.

RH Turn

When the turn signal switch (combination switch) is moved to the RH position, the BCM read combination meter condition (Refer to LT-212, "System Description").Power is supplied.

- through BCM terminal 66
- to front turn signal lamp RH terminal 1,
- to side turn signal lamp RH terminal 1 and
- to rear combination lamp RH (turn signal) terminal 5.

Ground is supplied to the front turn signal lamp RH terminal 2 and side turn signal lamp RH terminal 2 through body grounds E25 (CR engine models), E26 and E40.
Ground is supplied to rear combination lamp RH (turn signal) terminal 4 through body ground B17, B23, B44 and B51. (Hatchback)
Ground is also supplied to rear combination lamp RH (turn signal) terminal 4 through body grounds B17, B23 and B81. (C+C)
BCM send turn indicator signal to combination meter via CAN communication line.Combination meter is flashed turn RH indicator lamp.
With power and ground supplied, the BCM controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- through 40A fusible link (letter **J** , located in the fuse and fusible link box), and
- to BCM terminals 74 and 79
- through 10A fuse [No. 8, located in the fuse block (J/B)].
- to combination meter terminal 27

Ground is supplied

- to hazard switch terminal 1,
- to BCM terminals 2 and 70
- to combination meter terminals 21, 22 and 23
- through body grounds M19 and M20.

When the hazard switch is ON position, ground is supplied

- to BCM terminal 26
- through hazard switch terminal 2.

Power is supplied

- through BCM terminal 65
- to front turn signal lamp LH terminal 1
- to side turn signal lamp LH terminal 1
- to rear combination lamp LH (turn signal) terminal 5
- through BCM terminal 66
- to front turn signal lamp RH terminal 1
- to side turn signal lamp RH terminal 1
- to rear combination lamp RH (turn signal) terminal 5.

Ground is supplied

- to the front turn signal lamp LH terminal 2 and side turn signal lamp LH terminal 2 through body grounds E25(CR engine models), E26 and E40
- to the front turn signal lamp RH terminal 2 and side turn signal lamp RH terminal 2 through body grounds E25 (CR engine models), E26 and E40

(Hatchback)

- to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23, B44 and B51
- to rear combination lamp RH (turn signal) terminal 4 through body grounds B17, B23, B44 and B51.

(C+C)

- to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23 and B81.
- to rear combination lamp RH (turn signal) terminal 4 through body grounds B17, B23 and B81.

BCM send turn indicator signal to combination meter with CAN communication line.Combination meter is flashed turn LH and RH indicator lamps.
With power and ground supplied, the BCM controls the flashing of the hazard warning lamps.

MULTI-REMOTE CONTROL SYSTEM OPERATION

When the doors are locked or unlocked by remote controller power is supply to hazard warning lamp flashes as follows

- LOCK operation: Flash once
- UNLOCK operation: Flash twice

Answer back mode can be changed using “HAZARD LAMP SET” mode in “WORK SUPPORT” of “FLASHER”. Refer to LT-162, "WORK SUPPORT" .
Power is supplied at all times

- through 40A fusible link (letter **J** , located in the fuse and fusible link box), and
- to BCM terminals 74 and 79
- through 10A fuse [No. 8, located in the fuse block (J/B)].
- to combination meter terminal 27

Ground is supplied

- to BCM terminals 2 and 70
- through body grounds M19, M20
- to combination meter terminals 21, 22 and 23
- through body grounds M19 and M20.

When BCM receives LOCK or UNLOCK signal from remote controller, power is supplied.

- through BCM terminal 65
- to front turn signal lamp LH terminal 1

- to side turn signal lamp LH terminal 1
- to rear combination lamp LH (turn signal) terminal 5
- through BCM terminal 66
- to front turn signal lamp RH terminal 1
- to side turn signal lamp RH terminal 1
- to rear combination lamp RH (turn signal) terminal 5.

Ground is supplied

- to the front turn signal lamp LH terminal 2 and side turn signal lamp LH terminal 2 through body grounds E25 (CR engine models), E26 and E40.
- to the front turn signal lamp RH terminal 2 and side turn signal lamp RH terminal 2 through body grounds E25 (CR engine models), E26 and E40.

(Hatchback)

- to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23, B44 and B51.
- to rear combination lamp RH (turn signal) terminal 4 through body grounds B17, B23, B44 and B51.

(C+C)

- to rear combination lamp LH (turn signal) terminal 4 through body grounds B17, B23 and B81.
- to rear combination lamp RH (turn signal) terminal 4 through body grounds B17, B23 and B81.

BCM send turn indicator signal to combination meter via CAN communication line.Combination meter flashes LH and RH indicator lamps.
With power and ground supplied, the BCM send out signals to operate the hazard warning lamps.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

CAN Communication

EKS00ERK

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. Modern vehicles are equipped with many electronic control units 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

EKS00QP9

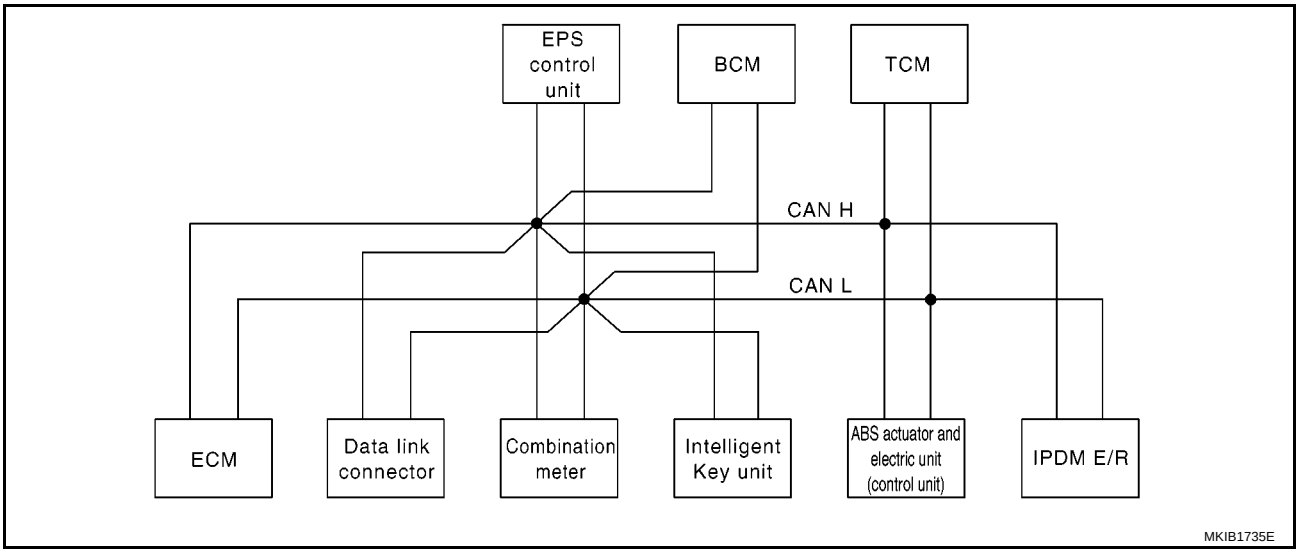
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-145, "TYPE 1/ TYPE 2"		LT-148, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-150, "TYPE 7/ TYPE 8"		LT-153, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-155, "TYPE 13/ TYPE 14"	

×: Applicable

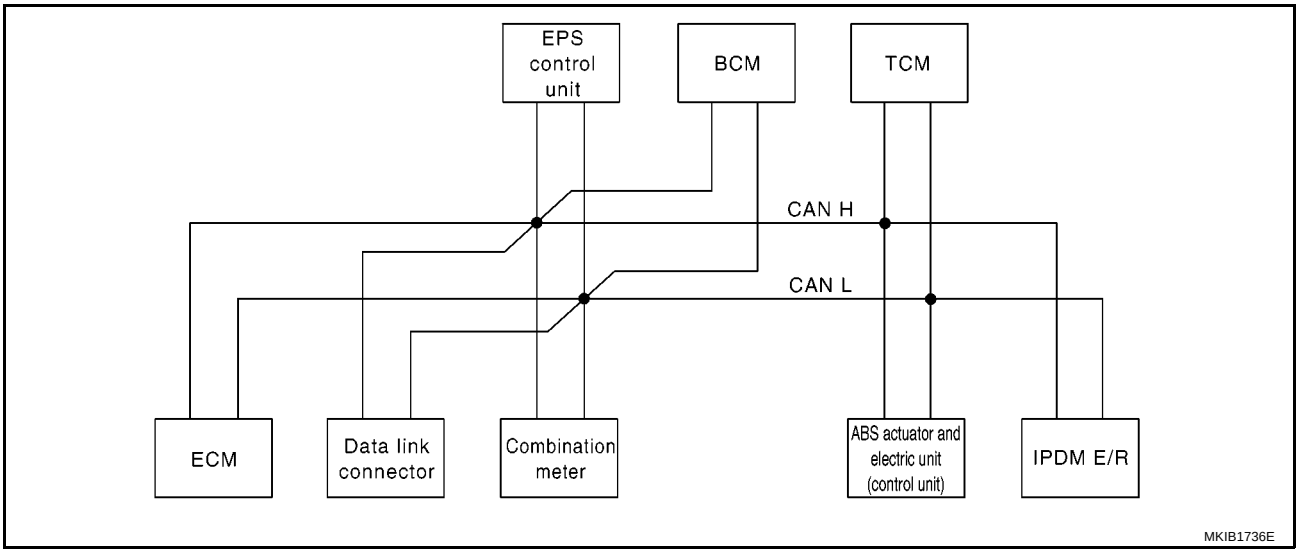
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

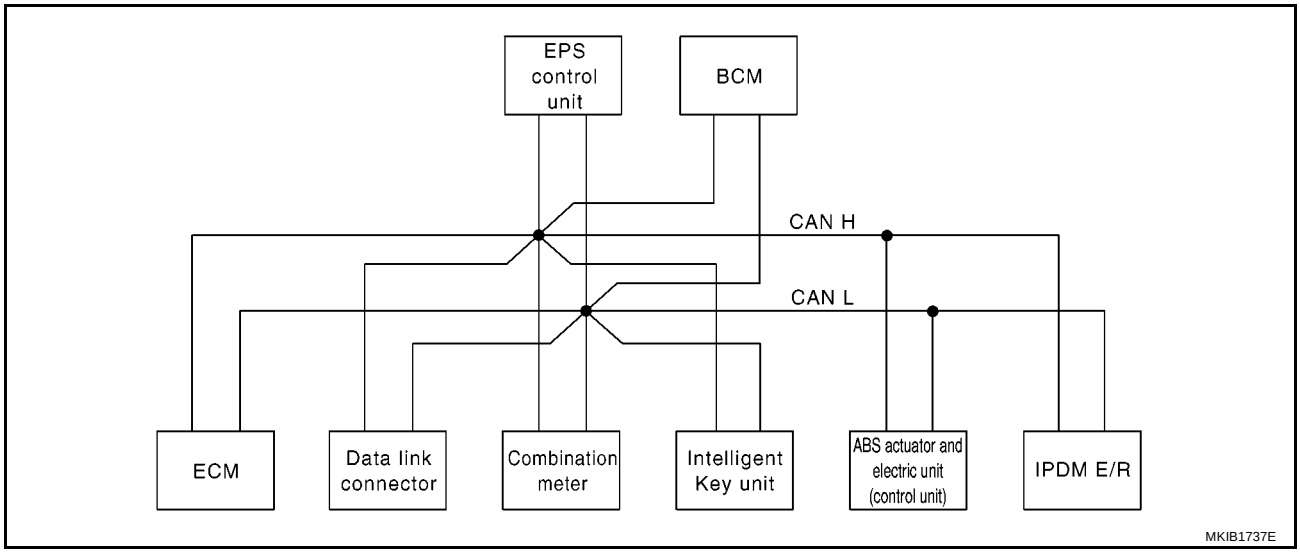
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

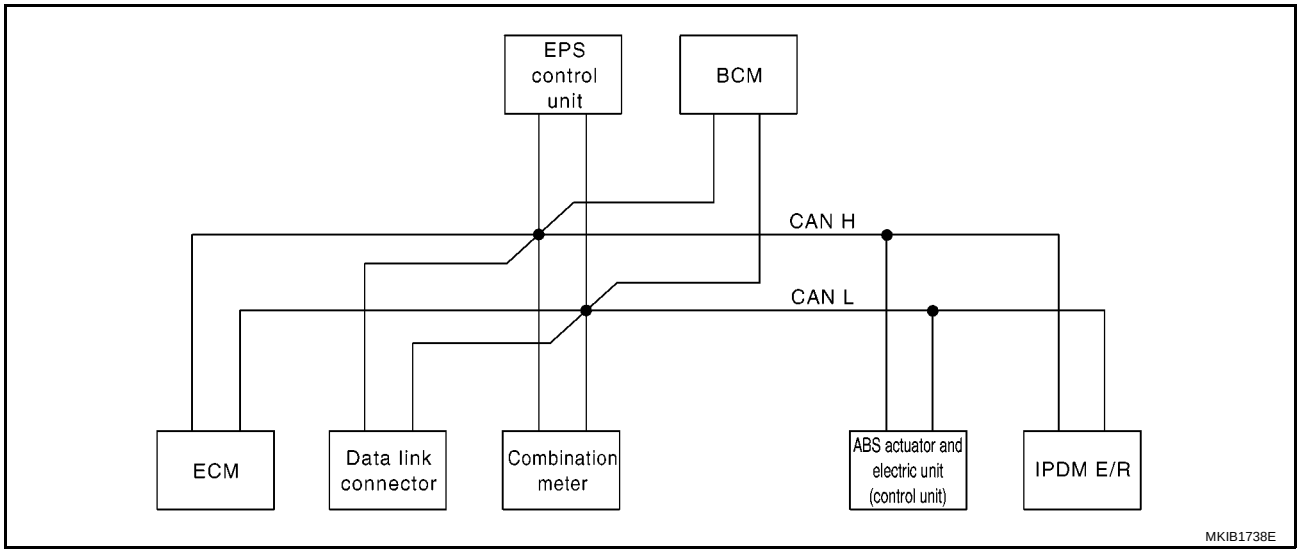
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

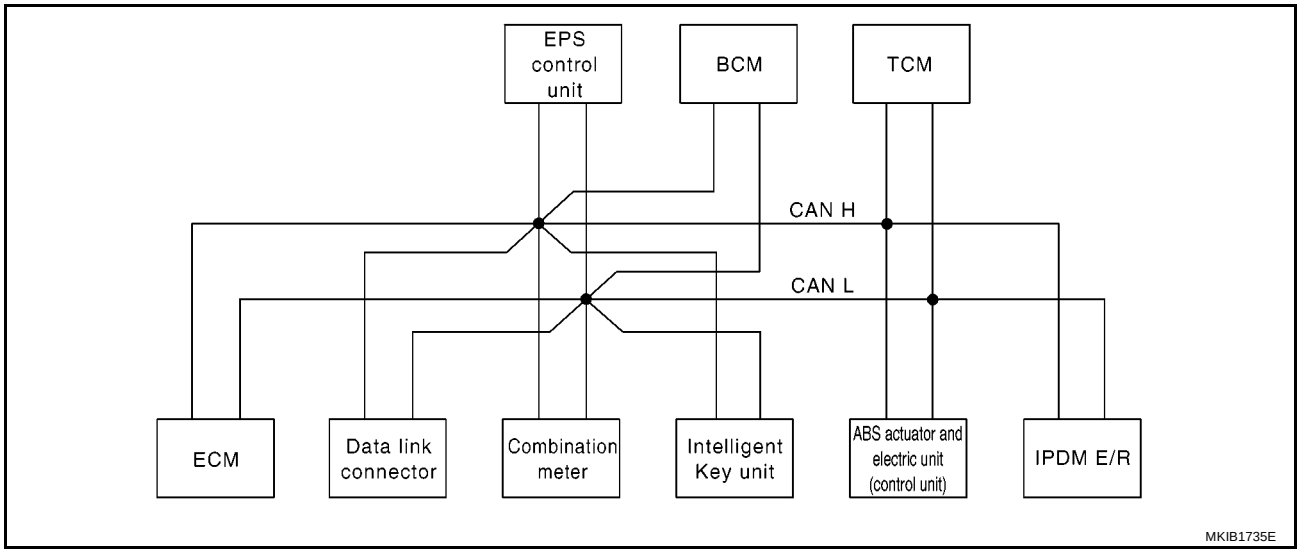
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

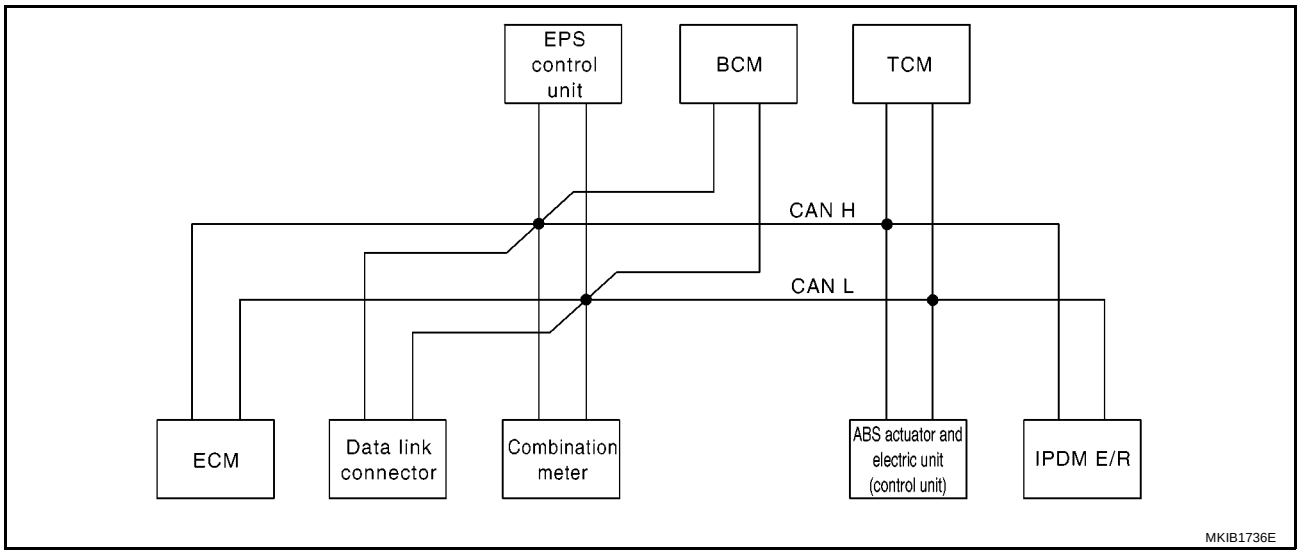
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

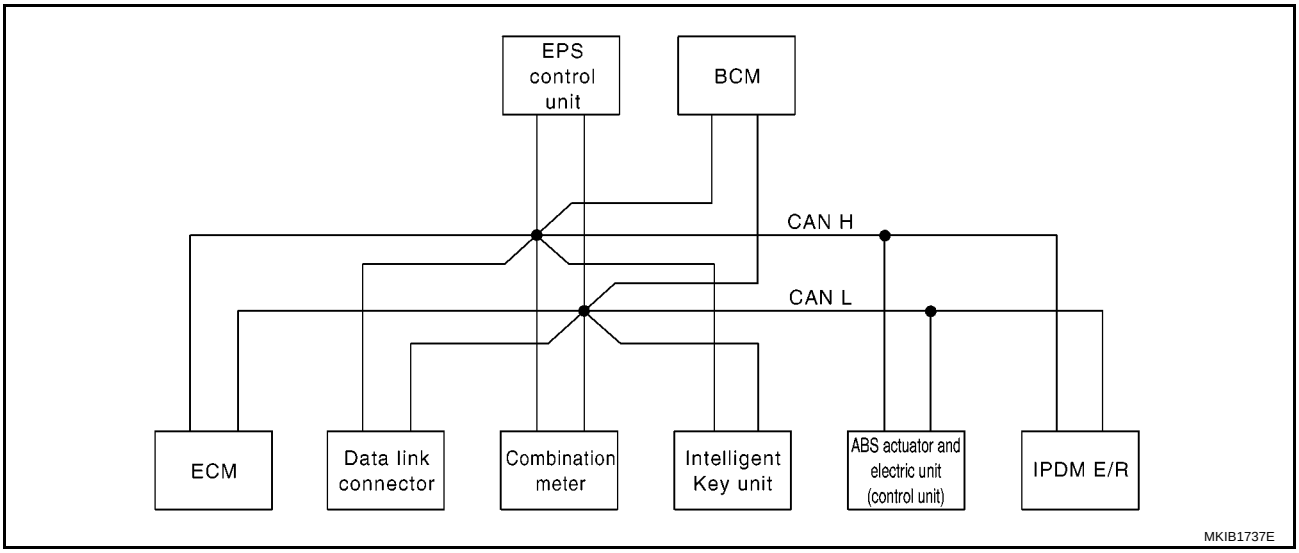
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

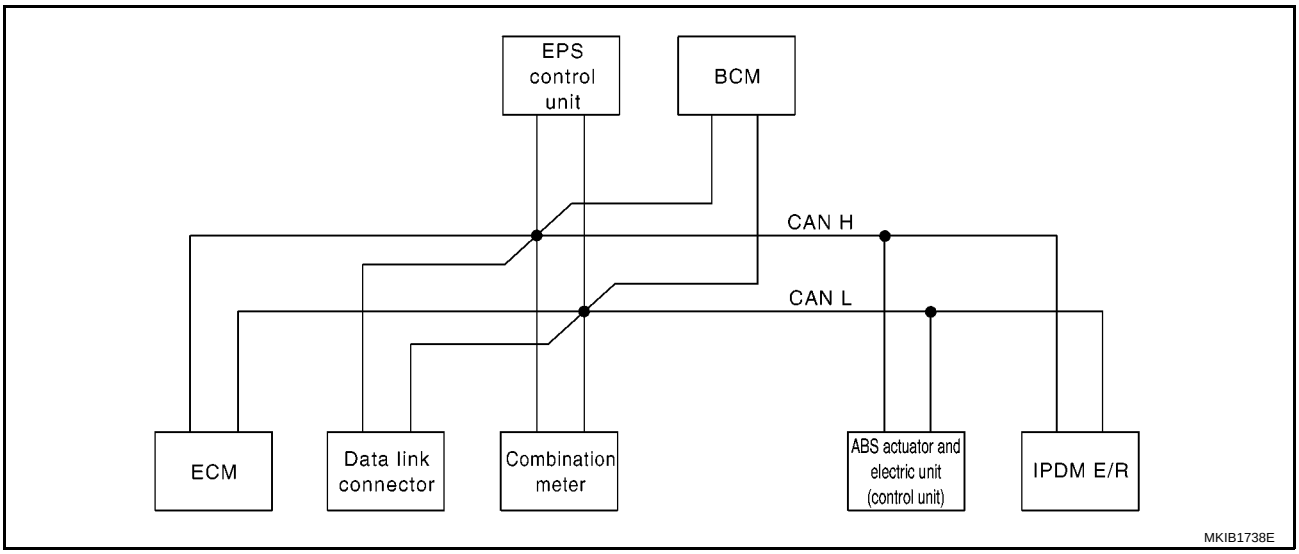
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

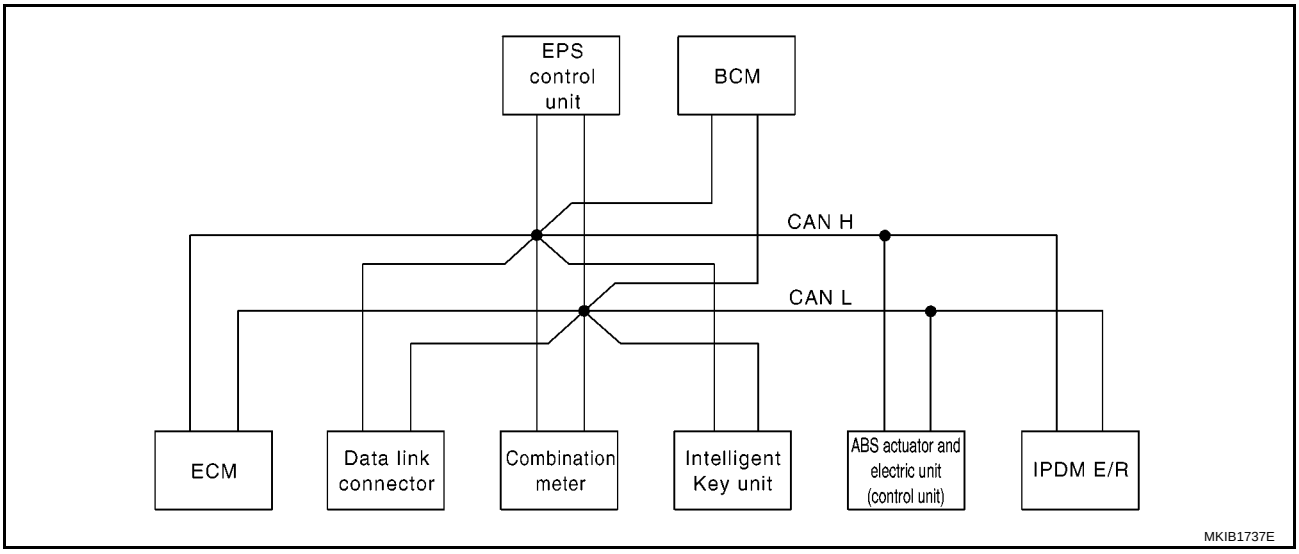
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

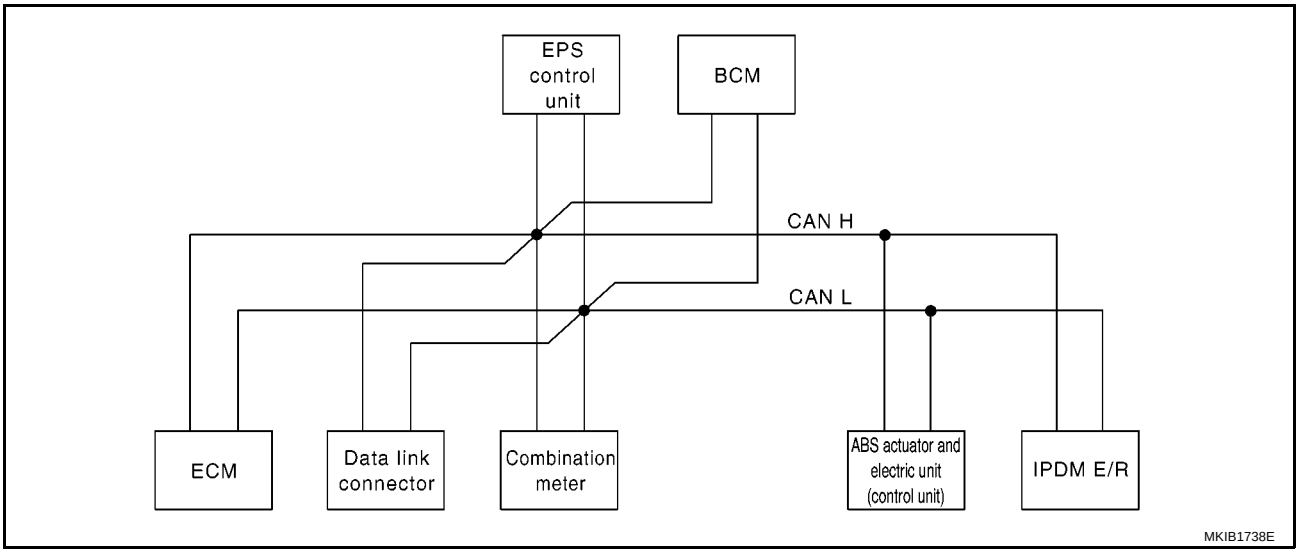
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



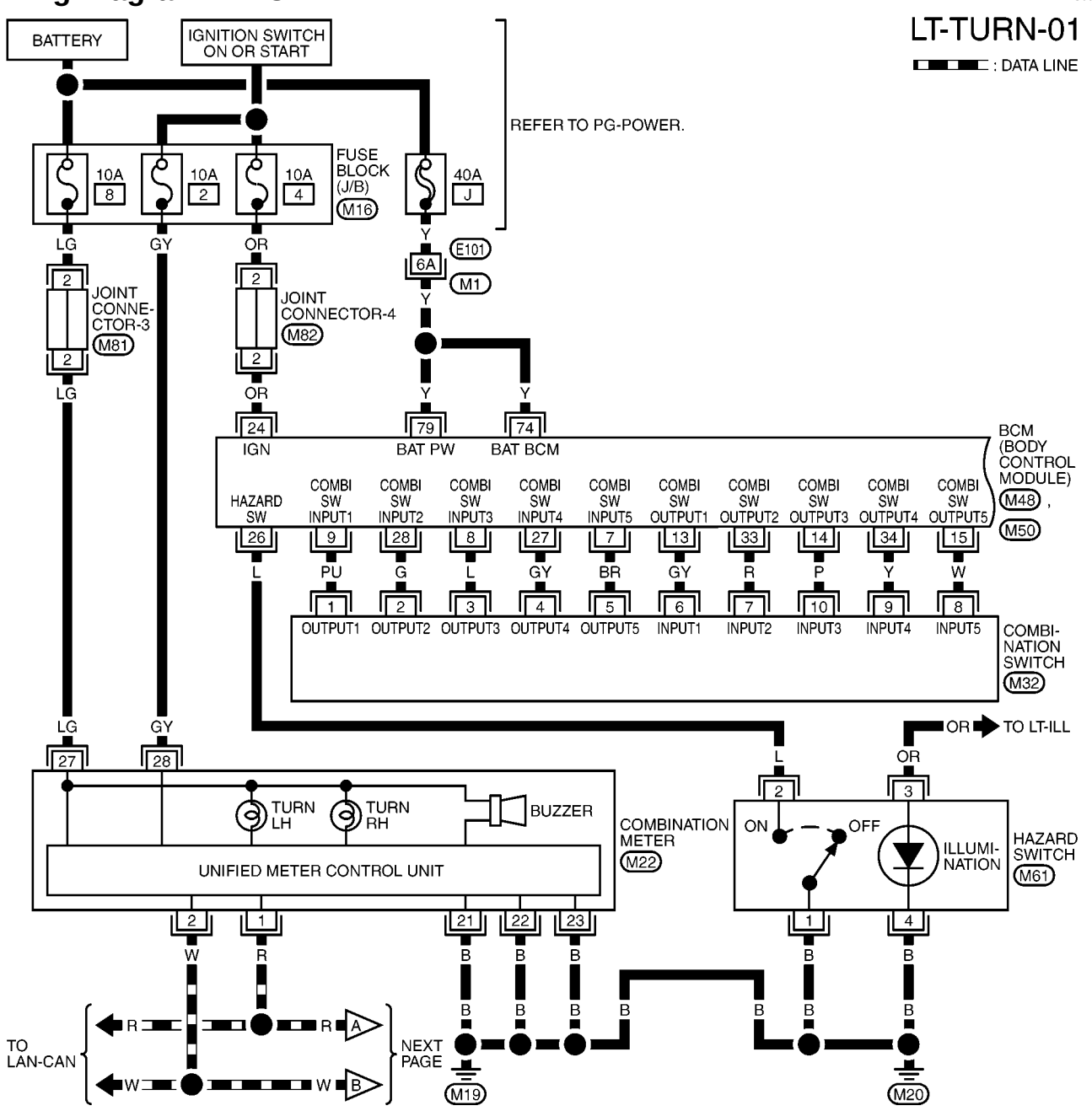
Input/output signal chart

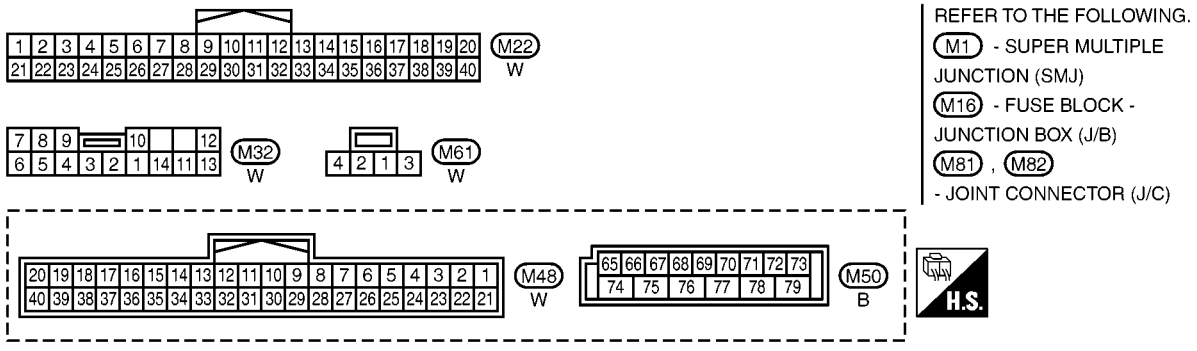
T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Wiring Diagram — TURN —

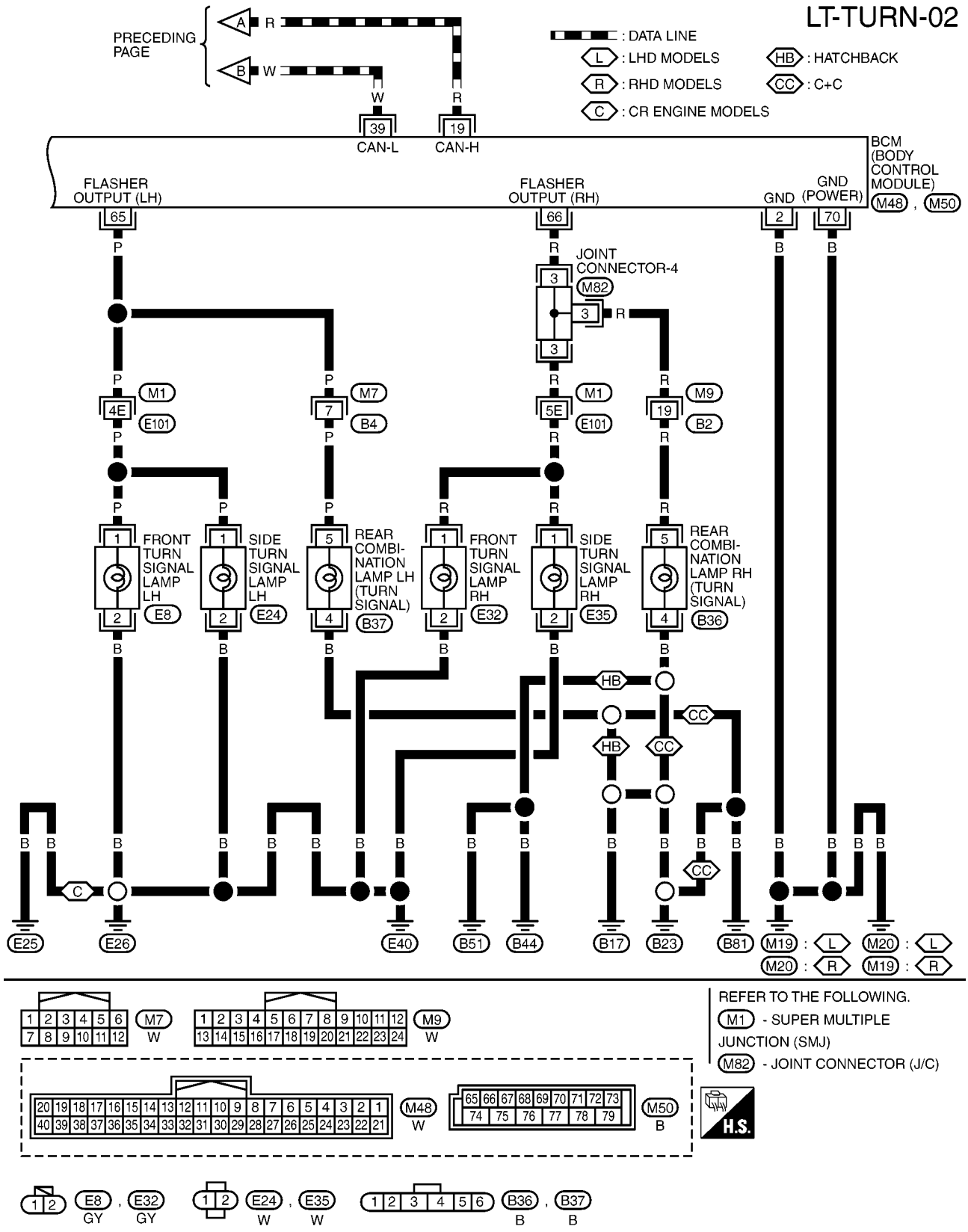
EKS00EMU





REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)
M81, M82 - JOINT CONNECTOR (J/C)

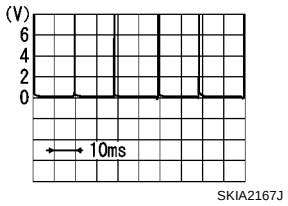
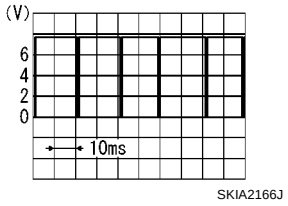
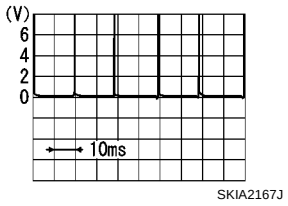
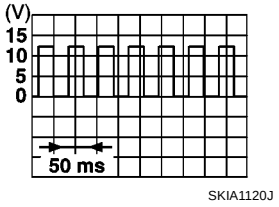
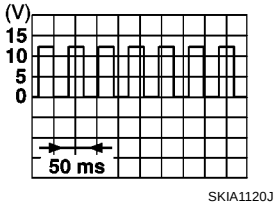
MKWA3460E


LT-TURN-02
PRECEDING PAGE
A R
B W
: DATA LINE
L : LHD MODELS
R : RHD MODELS
C : CR ENGINE MODELS
HB : HATCHBACK
CC : C+C
39 CAN-L
19 CAN-H
BCM (BODY CONTROL MODULE) M48 , M50
FLASHER OUTPUT (LH) 65
FLASHER OUTPUT (RH) 66
GND 2
GND (POWER) 70
JOINT CONNECTOR-4 M82
4E M1 E101
7 M7 B4
5E M1 E101
19 M9 B2
FRONT TURN SIGNAL LAMP LH E8
SIDE TURN SIGNAL LAMP LH E24
REAR COMBI-NATION LAMP LH (TURN SIGNAL) B37
FRONT TURN SIGNAL LAMP RH E32
SIDE TURN SIGNAL LAMP RH E35
REAR COMBI-NATION LAMP RH (TURN SIGNAL) B36
E25 E26 E40 B51 B44 B17 B23 B81
M19 : L M20 : R
M20 : L M19 : R
M7 W
M9 W
M48 W
M50 B
H.S.
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M82 - JOINT CONNECTOR (J/C)
E8 , E32 GY GY
E24 , E35 W W
B36 , B37 B B

MKWA4047E

Terminals and Reference Value for BCM

EKS00EMV

Terminal No.	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
2	B	Ground	ON	—		0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF		 SKIA2167J
8	L	Combination switch input 3				
9	PU	Combination switch input 1				
27	GY	Combination switch input 4				
28	G	Combination switch input 2				
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)		 SKIA2166J
14	P	Combination switch output 3				
15	W	Combination switch output 5				
33	R	Combination switch output 2		Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)		 SKIA2167J
34	Y	Combination switch output 4				
19	R	CAN H	—	—		—
24	OR	Ignition power supply	ON	—		Battery voltage
26	L	Hazard	OFF	Hazard switch	ON	0
					OFF	Battery voltage
39	W	CAN L	—	—		—
65	P	Turn signal (LH)	ON	Combination switch	Turn left ON	 SKIA1120J
66	R	Turn signal (RH)			Turn right ON	 SKIA1120J
70	B	Ground	ON	—		0
74	Y	Power source	—	—		Battery voltage
79	Y	Power source	—	—		Battery voltage

How to Proceed With Trouble Diagnosis

EKS00EMW

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Turn signal and hazard warning lamps LT-141, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-160, "Preliminary Check"
4. Check symptom and repair or replace the cause of malfunction.
5. Does the turn signal and hazard warning lamps operate normally? Yes: GO TO 6. No: GO TO 4.
6. INSPECTION end.

Preliminary Check

EKS00EMX

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch ON or START position	4

Refer to LT-157, "Wiring Diagram — TURN —" .

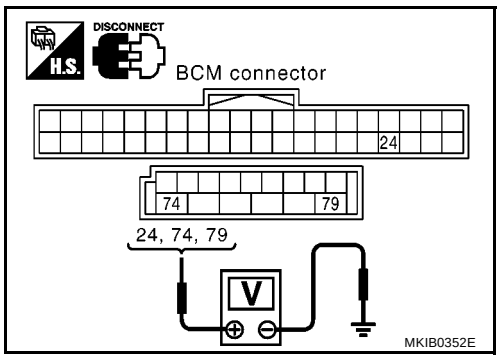
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM connector and ground.

Terminals			Ignition switch position		
(+)		(–)			
Connector	Terminal (Wire color)		OFF	ACC	ON
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage



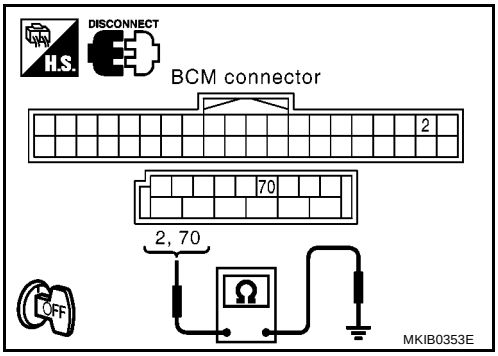
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse. If NG, repair or replace the harness or fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END
NG >> Repair or replace the harness (ground circuit).

CONSULT-II Functions (BCM)

EKS00EMY

CONSULT-II can display each diagnosis item using the diagnostic test modes shown following.

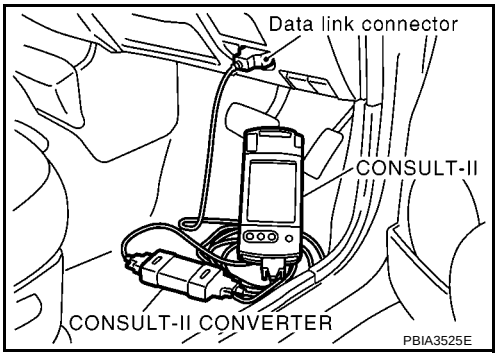
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Flasher	Work Support	Changes the setting for each function.
	Data monitor	Displays BCM input data in real time.
	Active Test	Sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

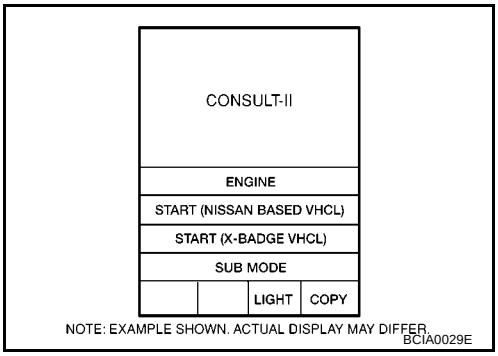
CAUTION:

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.

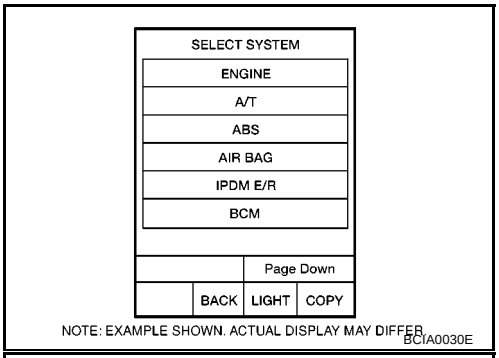
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



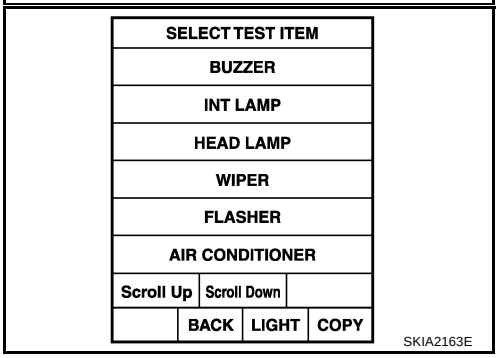
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



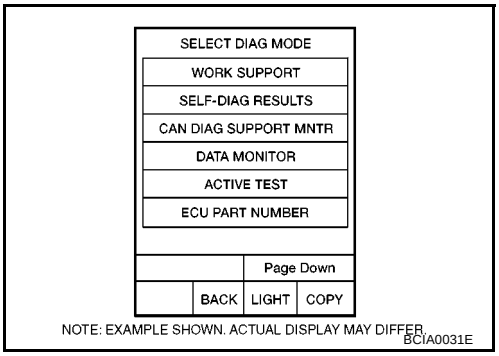
5. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “FLASHER” on “SELECT TEST ITEM” screen.



7. Touch “WORK SUPPORT”, “DATA MONITOR” or “ACTIVE TEST” on “SELECT DIAG MODE” screen.



WORK SUPPORT

Supported Item	All items will be monitored.
HAZARD LAMP SET	hazard reminder function mode can be changed in this mode.

Hazard Lamp Set

	MODE1		MODE2		MODE3		MODE4	
Remote controller operation	Lock	Unlock	Lock	Unlock	Lock	Unlock	Lock	Unlock
Hazard warning lamp flash	-	-	-	Twice	Once	-	Once	Twice

DATA MONITOR

Operation Procedure

1. Touch “FLASHER” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” on the “DATA MONITOR” screen.
4. Touch “START”.
5. When “ALL SIGNALS” is selected, all the items will be monitored.
6. Touch “RECORD” while monitoring to record the status of the item being monitored. To stop recording, touch “STOP”.

Display Item List

Monitor item “UNIT”		Display content
IGN ON SW	[ON/OFF]	Displays status (Ignition switch ON: ON/Others OFF, ACC: OFF) as judged from the ignition switch signal.
HAZARD SW	[ON/OFF]	Displays status (Hazard ON: ON/Hazard OFF: OFF) as judged from hazard switch signal.
TURN SIGNAL R	[ON/OFF]	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	[ON/OFF]	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
TURN/L MNTR	[ON/OFF]	Displays status (One bulb blown: ON/Others: OFF) as judged from bulb signal.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check left or right turn signal lamp operation. The turn signal lamp turned ON when “LH” or “RH” on CONSULT-II screen is touched.

Turn Signal Lamp Does Not Operate

EKS00EMZ

1. CHECK BULB

Check turn signal lamp bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace turn signal lamp bulb.

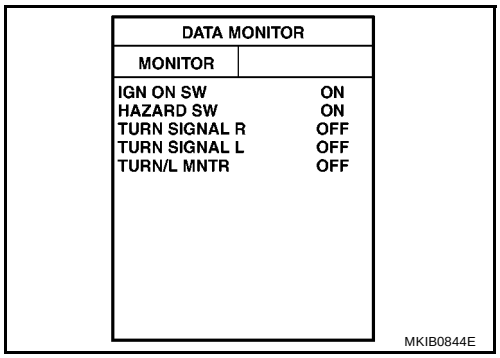
2. CHECK BCM INPUT SIGNAL

With CONSULT-II

Select “BCM” on CONSULT-II. Check turn signal (“TURN SIGNAL”) in “DATA MONITOR” mode with CONSULT-II.

When combination switch LH position : TURN SIGNAL L ON

When combination switch RH position : TURN SIGNAL R ON



Without CONSULT-II

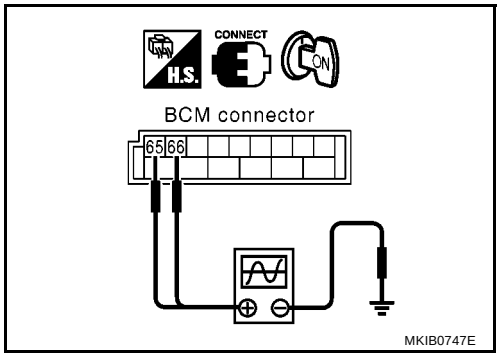
Refer to LT-219, "Check Combination Switch" .

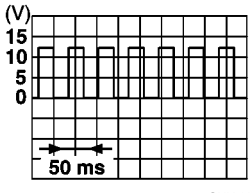
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-219, "Check Combination Switch" .

3. CHECK BCM

1. Connect BCM connector and all turn signal lamp connectors.
2. Check voltage between BCM connector M50 terminals 65, 66 and ground.



Terminals				Condition		Signal (Reference value)
(+)			(-)			
Connector		Terminal (Wire color)				
RH	M50	66 (R)	Ground	Combination switch	Turn right ON	
LH		65 (P)			Turn left ON	

OK or NG

OK >> Check harness for open between BCM and turn signal lamps, turn signal lamp ground circuit.
NG >> ● Replace BCM
● Check harness for short between BCM and turn signal lamps. If NG, repair or replace the harness.

Hazard Lamp Does Not Operate

EKS00EN0

1. CHECK BULB

Check turn signal lamp bulb.

OK or NG

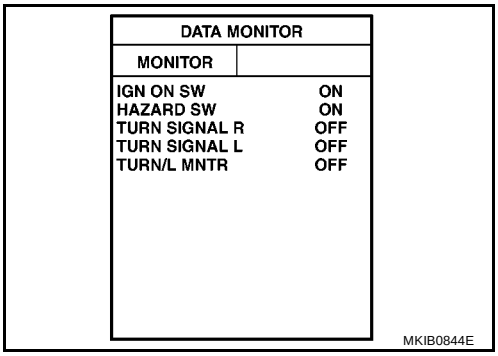
OK >> GO TO 2.
NG >> Replace turn signal lamp bulb.

2. CHECK BCM INPUT SIGNAL

With CONSULT-II

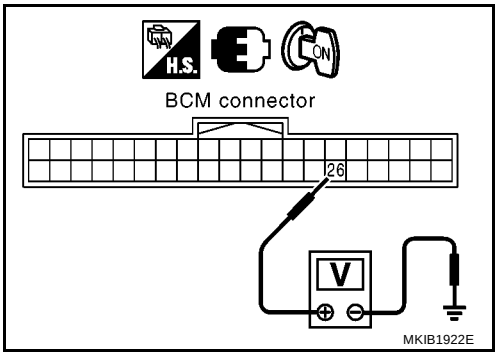
Select “BCM” on CONSULT-II.Check turn signal (“HAZARD SW”) in “DATA MONITOR” mode with CONSULT-II.

When hazard switch ON : HAZARD SW ON
When hazard switch OFF : HAZARD SW OFF



Without CONSULT-II

1. Turn ignition switch OFF.
2. Check voltage between harness connector M48 terminal 26 (L) of BCM and ground.



Terminals			Measuring condition			Voltage [V] (Approx.)
(+)		(-)				
Connector	Terminal (wire color)		IGN switch	Condition		
M48	26 (L)	Ground	OFF	Hazard switch	ON	0
					OFF	Battery voltage

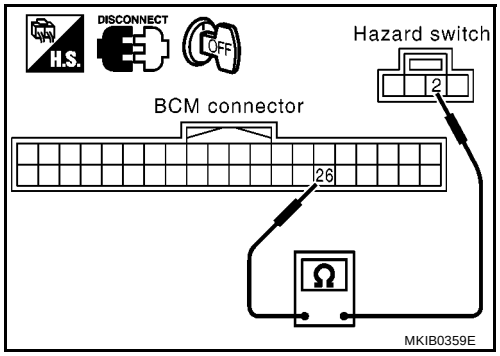
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-219, "Check Combination Switch" .

3. CHECK HAZARD SWITCH AND BCM

1. Turn ignition switch OFF.
2. Disconnect BCM connector and hazard switch connector.
3. Check continuity between harness connector M48 terminal 26 (L) of BCM and hazard switch harness connector M61 terminal 2 (L).

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



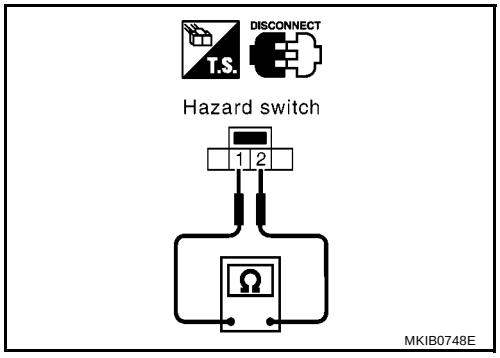
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

4. CHECK HAZARD SWITCH

Check continuity hazard switch connector M61.

Terminal		Condition	Continuity
1	2	Hazard switch is ON	Yes
		Hazard switch is OFF	No



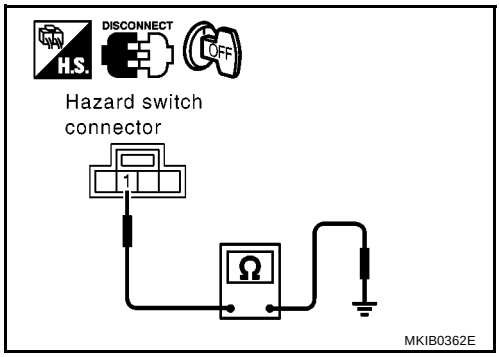
OK or NG

OK >> GO TO 5.
NG >> Replace hazard switch.

5. CHECK HAZARD SWITCH AND GROUND

Check continuity between harness connector M61 terminal 1 (B) of hazard switch and ground.

1 (B) - Ground : Continuity should exist.



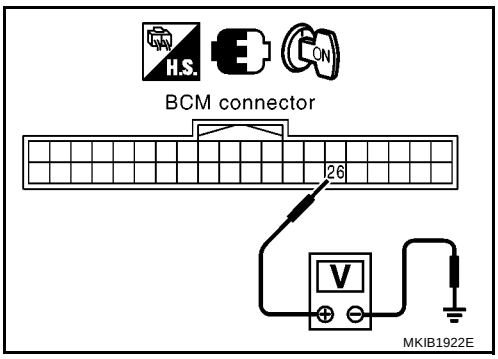
OK or NG

OK >> GO TO 6.
NG >> Repair or replace harness or connector.

6. CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between harness connector M48 terminal 26 (L) of BCM and ground.

26 (L) - Ground : Buttery voltage



OK >> Check condition of harness and connector.
NG >> Replace BCM.

Turn Signal Indicator Lamp Does Not Operate

EKS00EN1

1. CHECK BULB

Check indicator bulb.

OK or NG

OK >> Replace combination meter.
NG >> Replace indicator bulb.

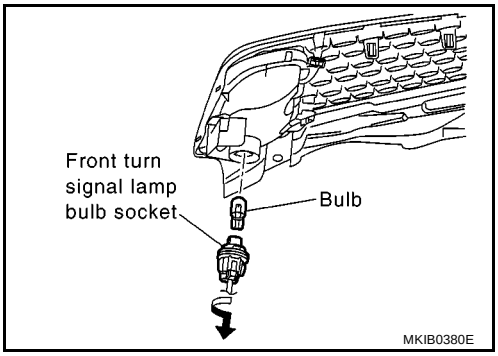
Bulb Replacement

EKS00EN2

FRONT TURN SIGNAL LAMP

1. Remove front grille. Refer to EI-11, "FRONT GRILLE" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

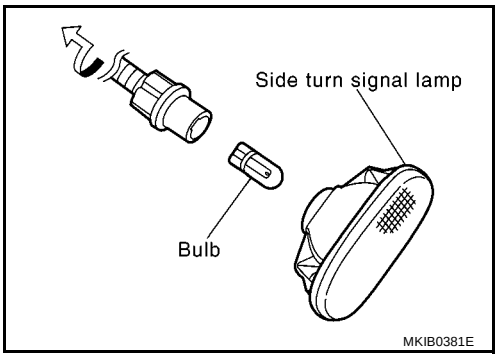
Front turn signal lamp : 12V-21W



SIDE TURN SIGNAL LAMP

1. Remove side turn signal lamp. Refer to LT-168, "SIDE TURN SIGNAL LAMP" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

Side turn signal lamp : 12V-5W



REAR TURN SIGNAL LAMP

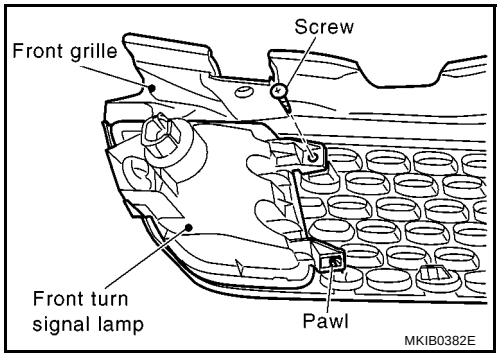
Refer to LT-208, "REAR COMBINATION LAMP" .

Removal and Installation

EKS00EN3

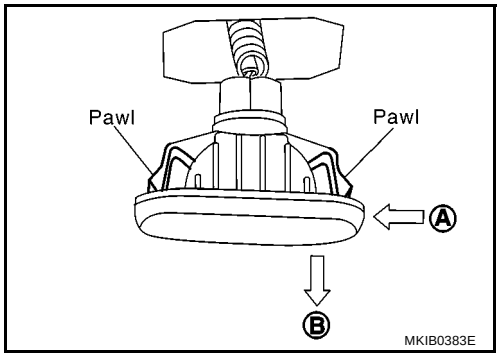
FRONT TURN SIGNAL LAMP

1. Remove front grille. Refer to EI-11, "FRONT GRILLE" .
2. Remove screw and tabs, and then remove front turn signal lamp from front grille.



SIDE TURN SIGNAL LAMP

1. Pull the side turn signal lamp in direction B while pushing it in direction A as shown by the arrow in the figure and remove from the vehicle.
2. Disconnect side turn signal lamp connector.
   When installing, face surface with rib upwards.



REAR TURN SIGNAL LAMP

Refer to LT-208, "REAR COMBINATION LAMP" .

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

System Description

EKS00EN4

The parking, license plate and tail lamps operation is controlled by the lighting switch which built into the combination switch, BCM (body control module) and IPDM E/R (intelligent power distribution module engine room).Tail lamp relay is built into IPDM E/R.BCM read combination switch condition.Refer toLT-212, "System Description"

Power is supplied at all times

- to tail lamp relay, located in the IPDM E/R, and
- through 20A fusible link (No.52, located in the IPDM E/R).
- to IPDM E/R

Power is also supplied at all times

- through 40A fusible link (letter **J** , located in the fuse and fusible link box).
- to BCM terminals 74 and 79

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 4, located in the fuse block (J/B)].
- to BCM terminal 24

Ground is supplied

- through body grounds M19 and M20.
- to BCM terminals 2 and 70
- through body grounds E25 (CR engine models), E26 and E40.
- to IPDM E/R terminals 3 and 54

OPERATION BY LIGHTING SWITCH

When the lighting switch is turned to 1ST position, BCM read combination switch condition (refer to LT-212, "System Description"). And BCM send parking, license plate and tail lamps request signal to IPDM E/R with CAN communication line. Then IPDM E/R is turned on tail lamp relay. Tail lamp relay is energized and then power is supplied.

- through terminal 49 of the IPDM E/R
- to parking lamp LH terminal 1
- through terminal 15 of the IPDM E/R
- to rear combination lamp LH terminal 3
- through terminal 45 of the IPDM E/R
- to parking lamp RH terminal 1
- through terminal 16 of the IPDM E/R
- to rear combination lamp RH terminal 3
- to license plate lamp terminal 2.

(Hatchback)
Ground is supplied at all times

- to each parking lamps terminal 2
- through body grounds E25 (CR engine models), E26 and E40
- to each rear combination lamps terminal 4
- to license plate lamp terminal 1
- through body grounds
  B17,B23 rear combination lamp LH
  B44,B51 rear combination lamp RH and license plate lamp.

(C+C)
Ground is supplied at all times

- to each parking lamps terminal 2
- through body grounds E25 (CR engine models), E26 and E40
- to each rear combination lamps terminal 4
- to license plate lamp terminal 1

- through body grounds B17, B23 and B81.

With power and ground supplied, the parking, license plate and tail lamps illuminate.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

FAIL-SAFE FUNCTION

When CAN communication with other control units is impossible, IPDM E/R performs fail-safe control. If the fail-safe system is operating, parking, license plate and tail lamps illuminate when the ignition switch is turned from OFF to ON or ACC and parking, license plate and tail lamps are turned off when the ignition switch is turn from ON or ACC to OFF. If the fail-safe system is operating, parking, license plate and tail lamps does not operate when the combination switch is in any position. After CAN communication recovers normally, it also returns to normal control. (Refer to PG-20, "FAIL-SAFE FUNCTION")

CAN Communication

EKS00ERM

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. Modern vehicles are equipped with many electronic control units 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

EKS00QPA

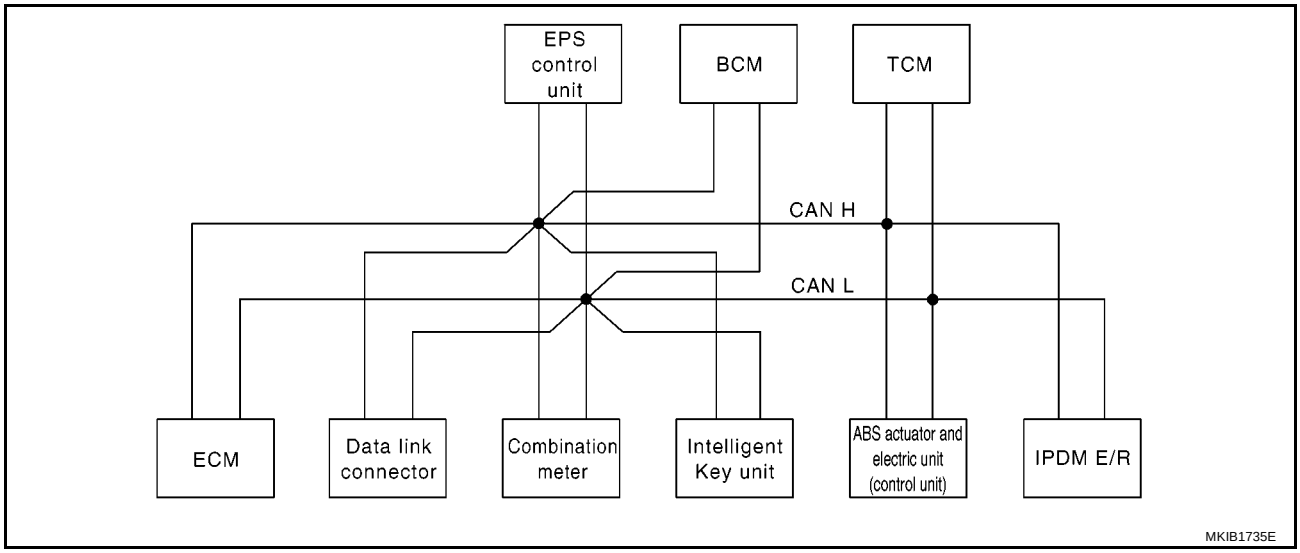
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-172, "TYPE 1/ TYPE 2"		LT-175, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-177, "TYPE 7/ TYPE 8"		LT-180, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-182, "TYPE 13/ TYPE 14"	

×: Applicable

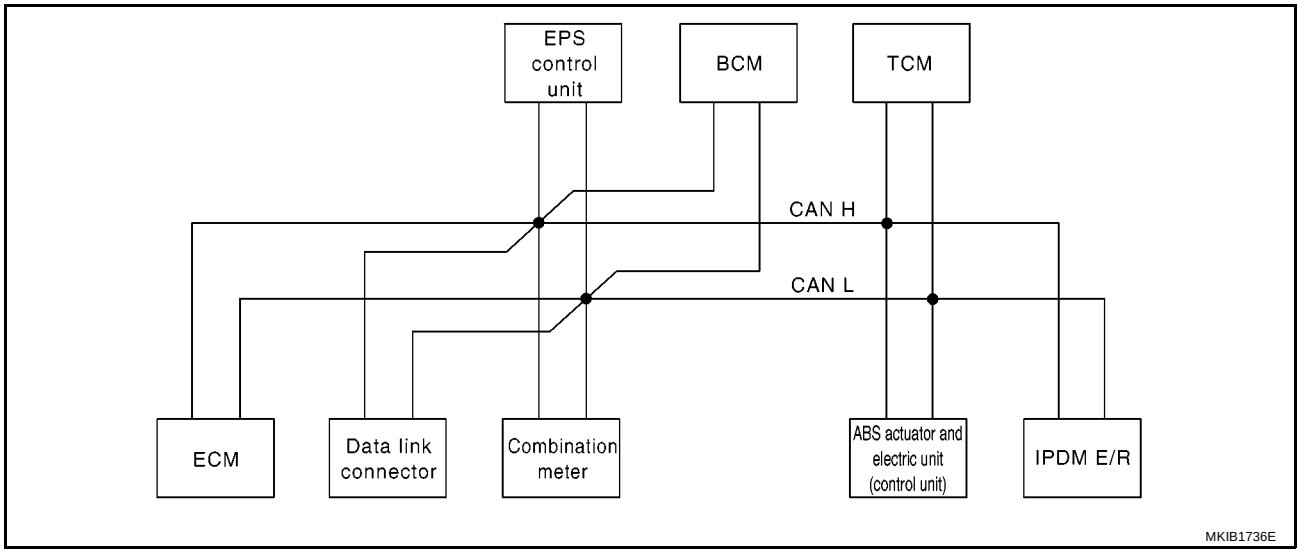
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

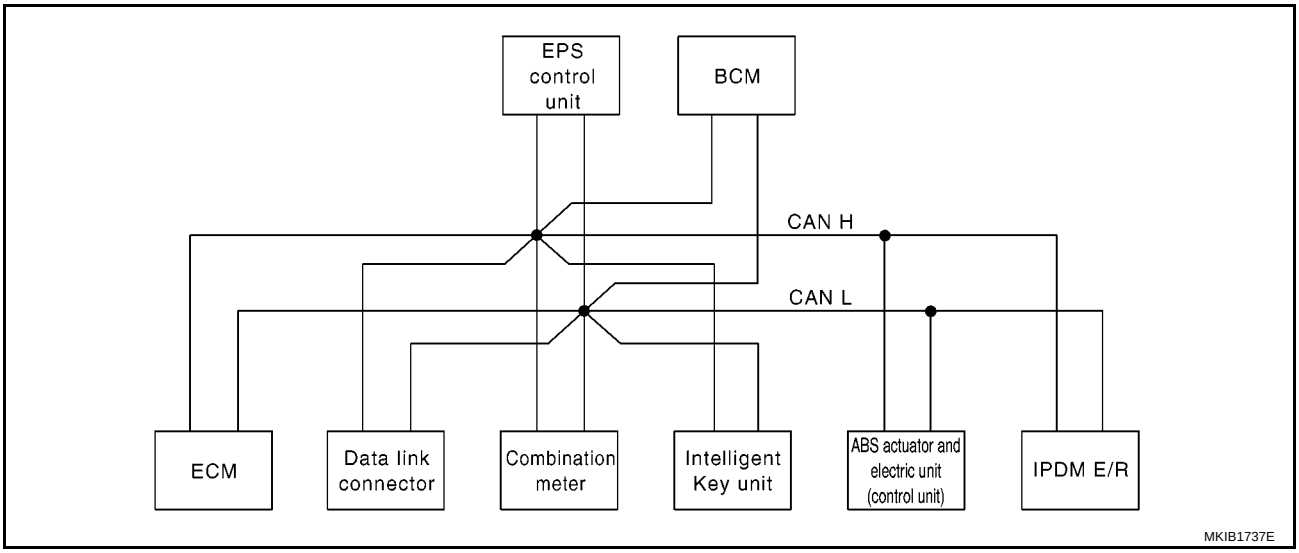
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

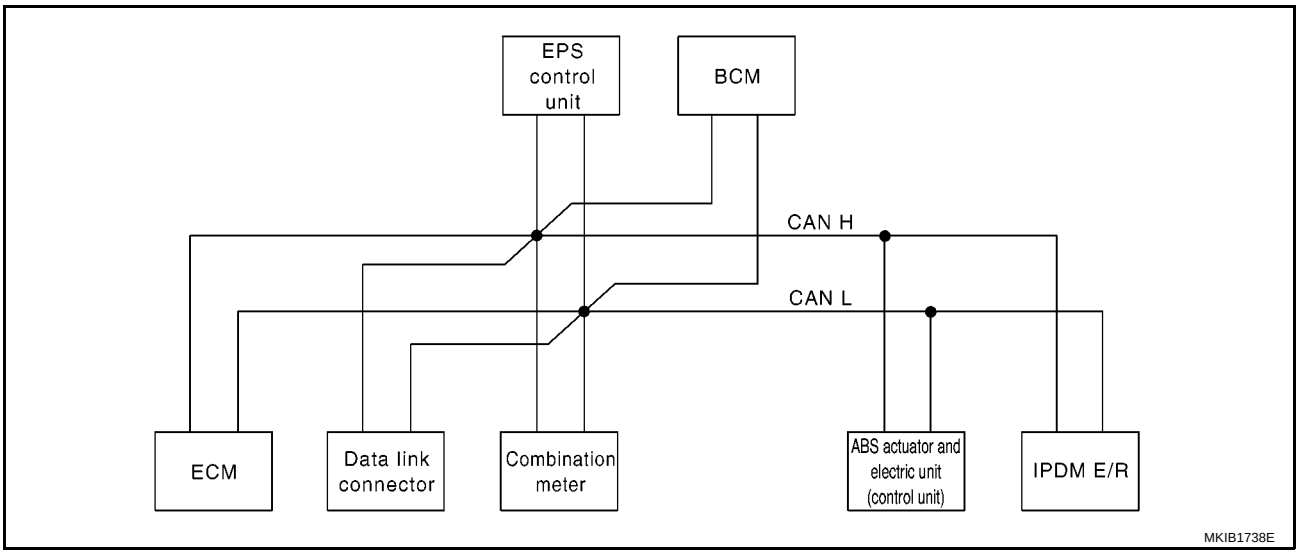
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

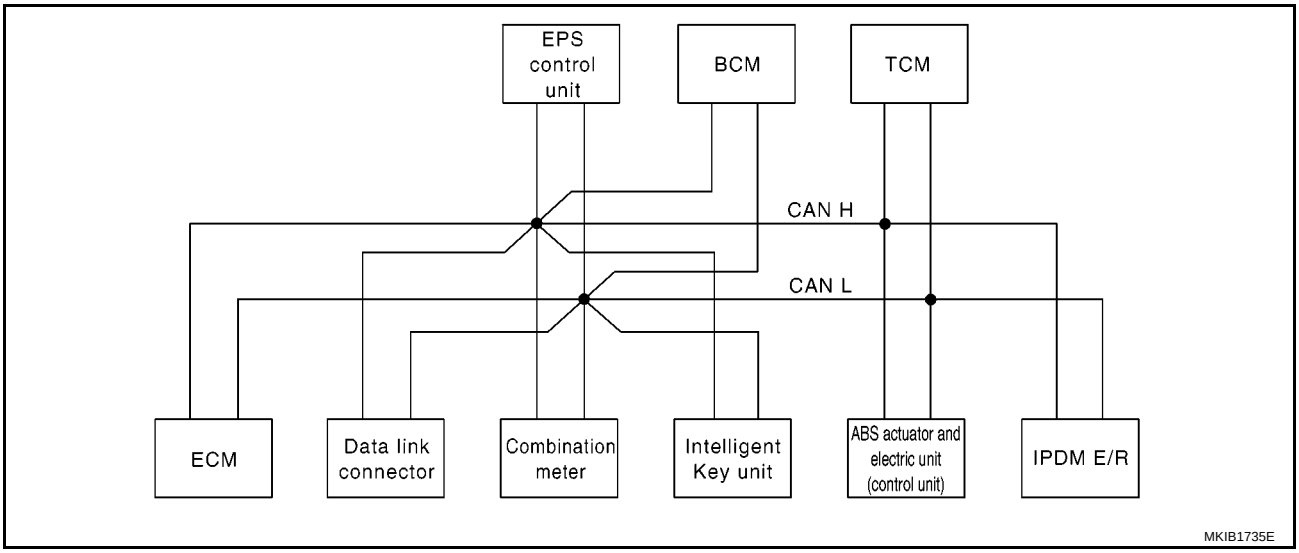
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

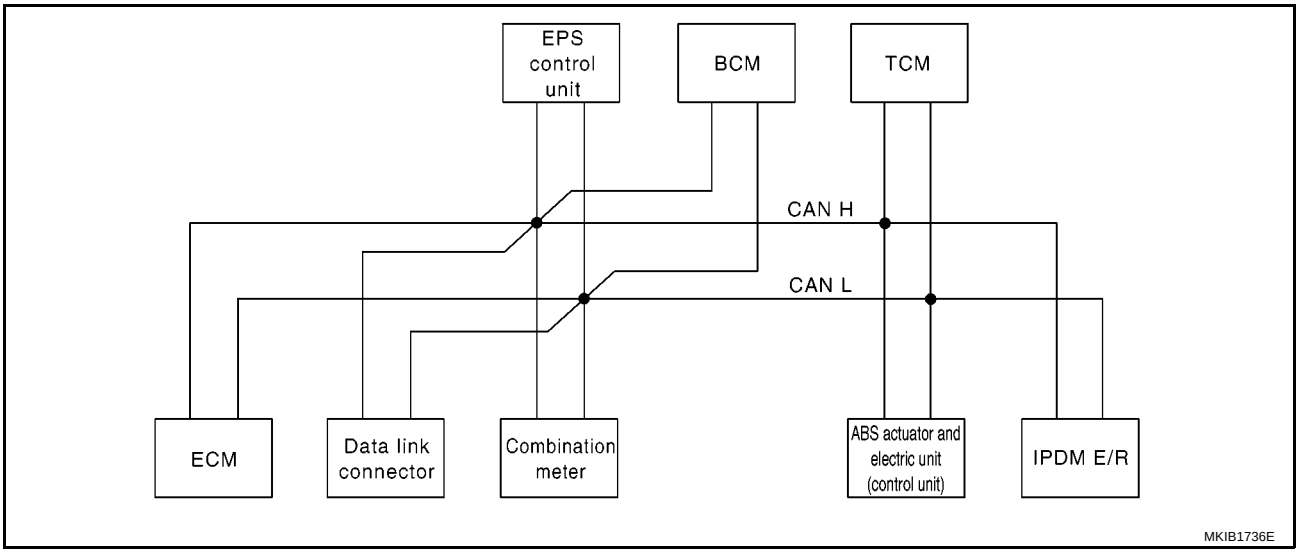
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

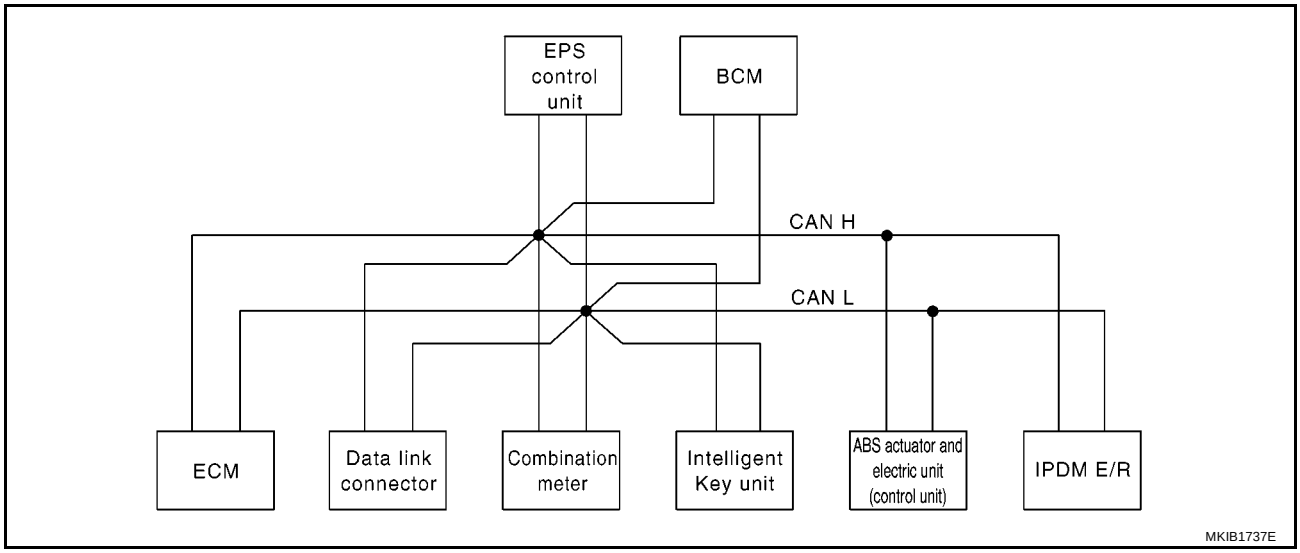
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

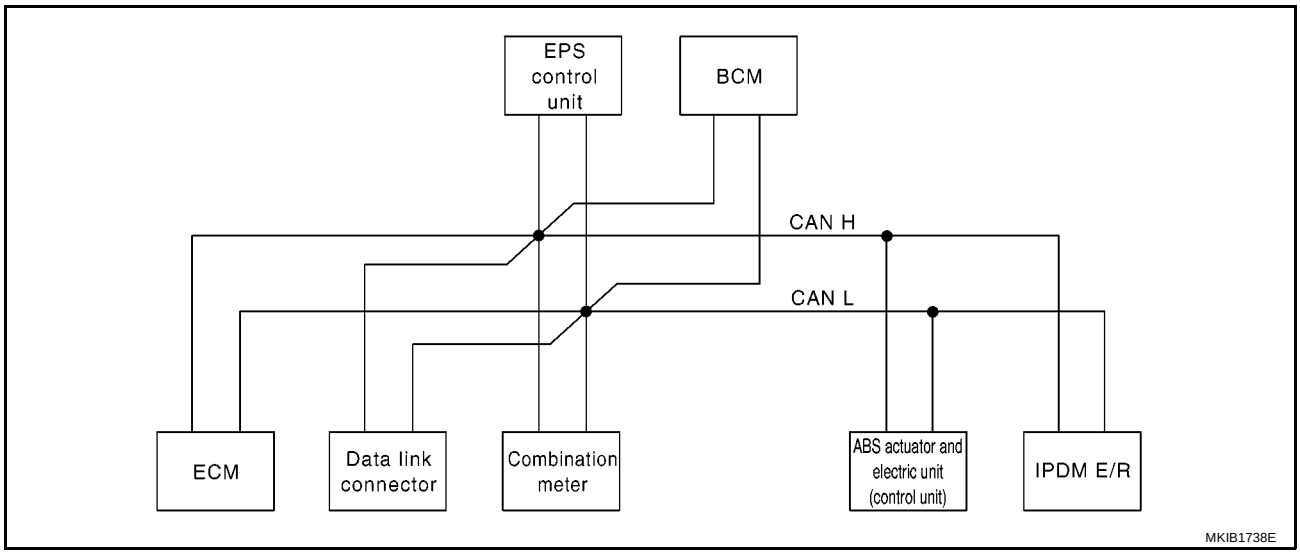
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

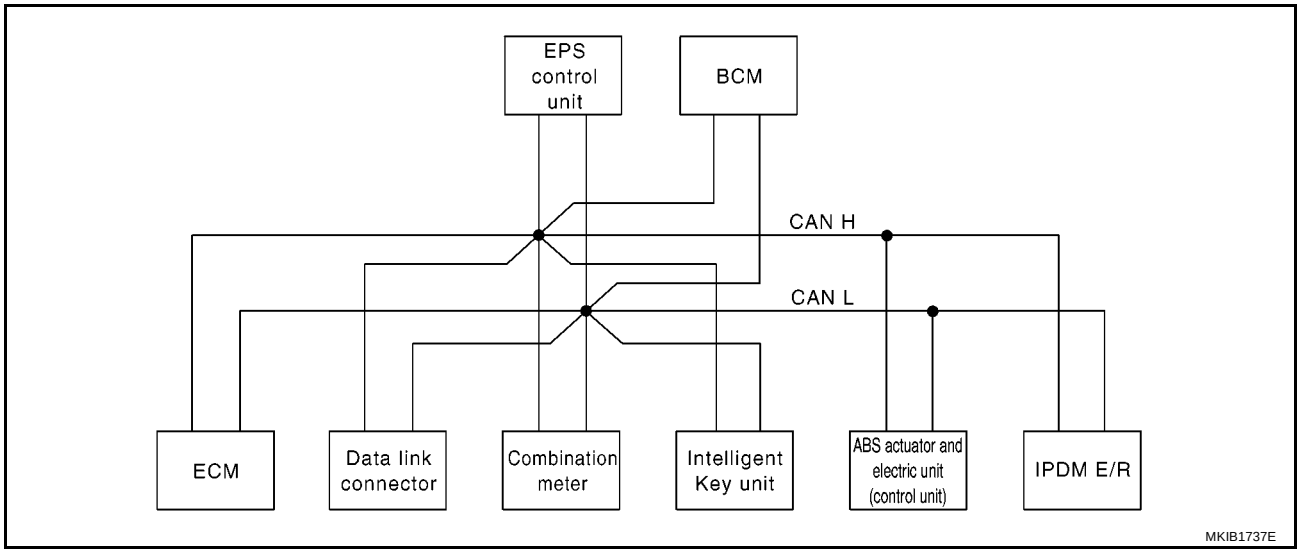
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

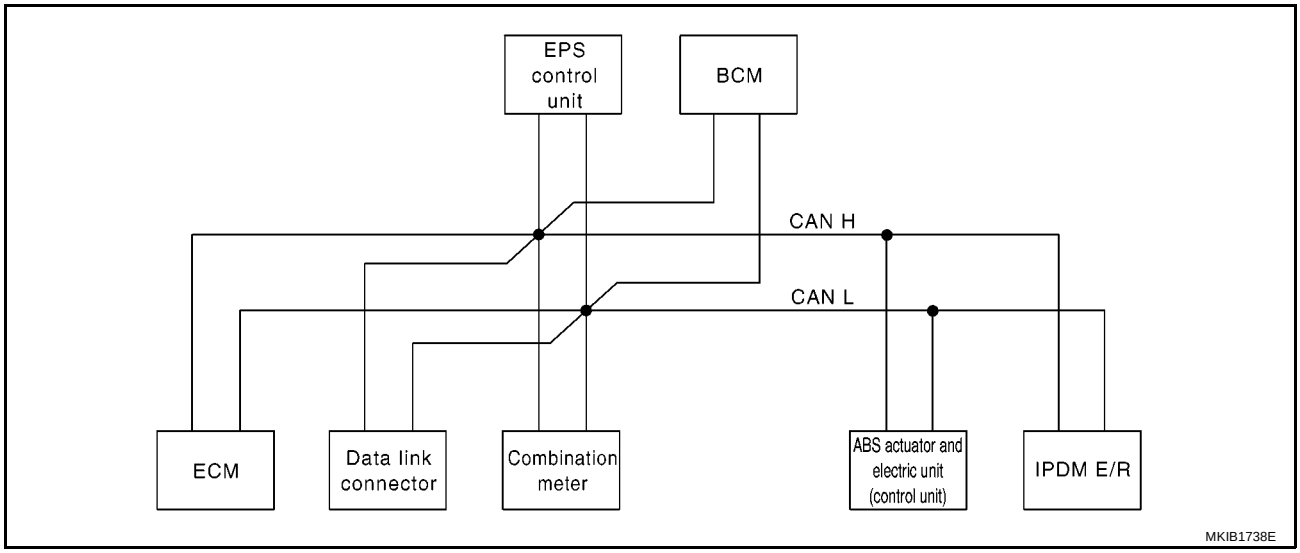
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



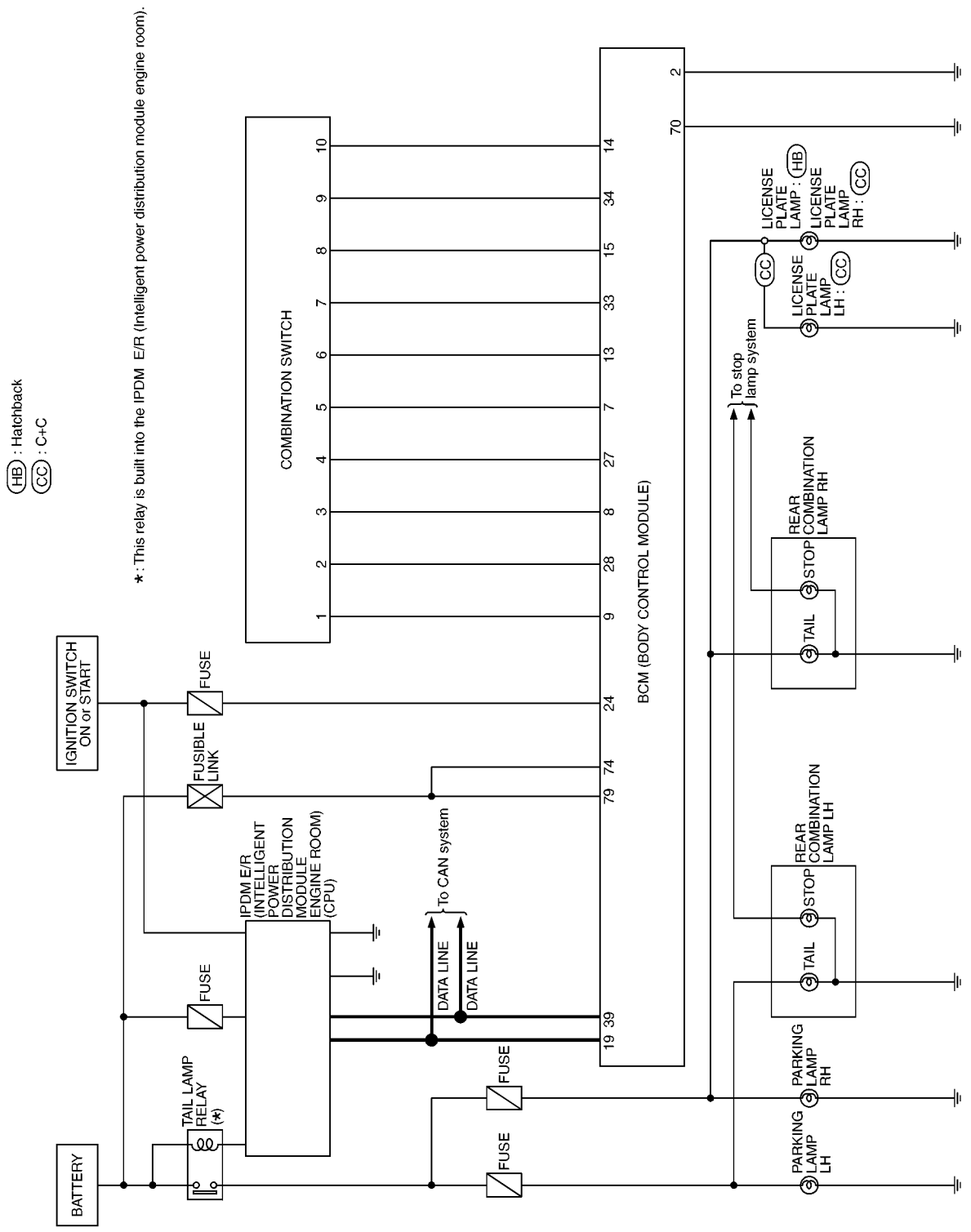
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Schematic

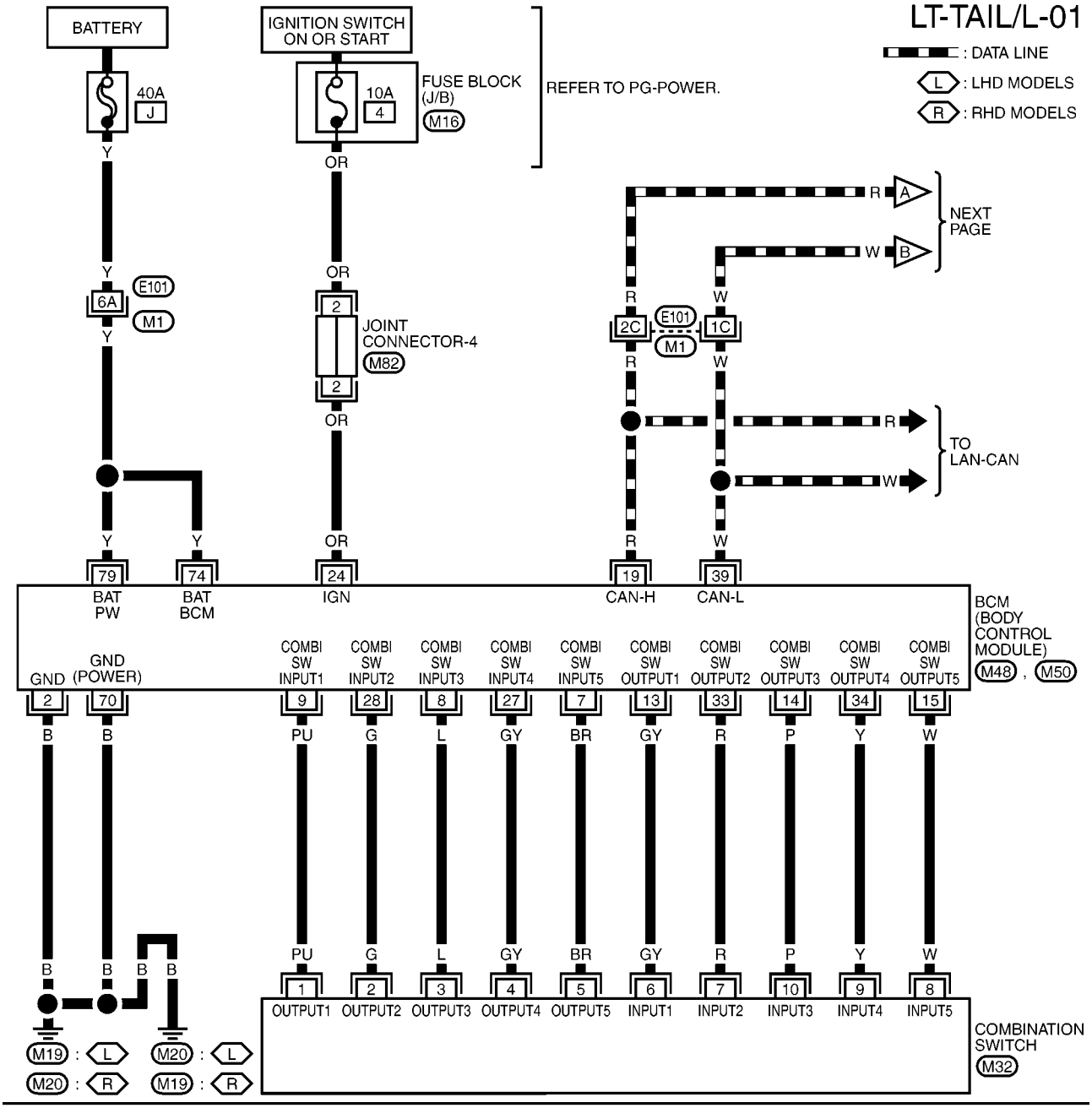
EKS00EN6



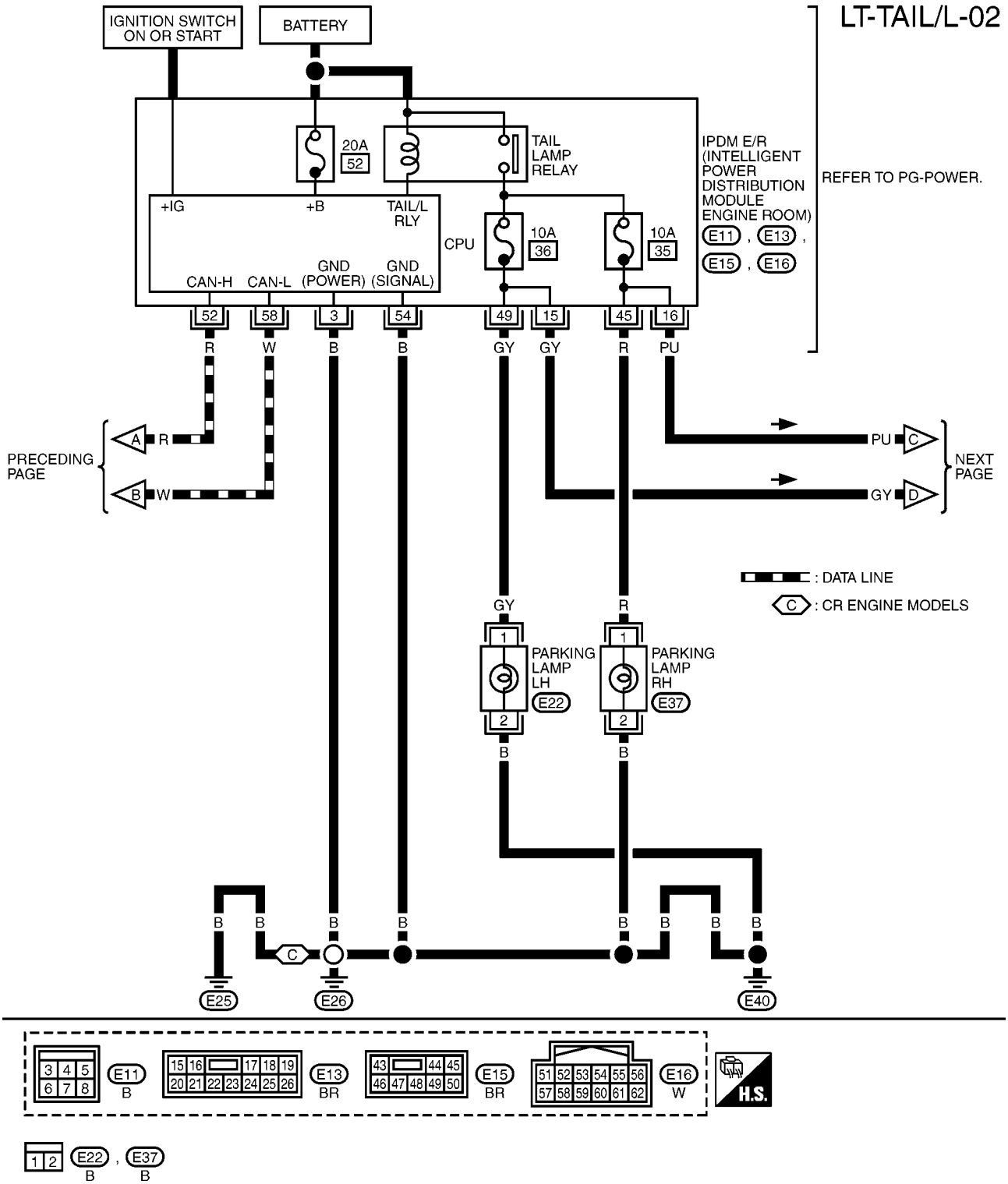
MKWA4048E

Wiring Diagram — TAIL/L —

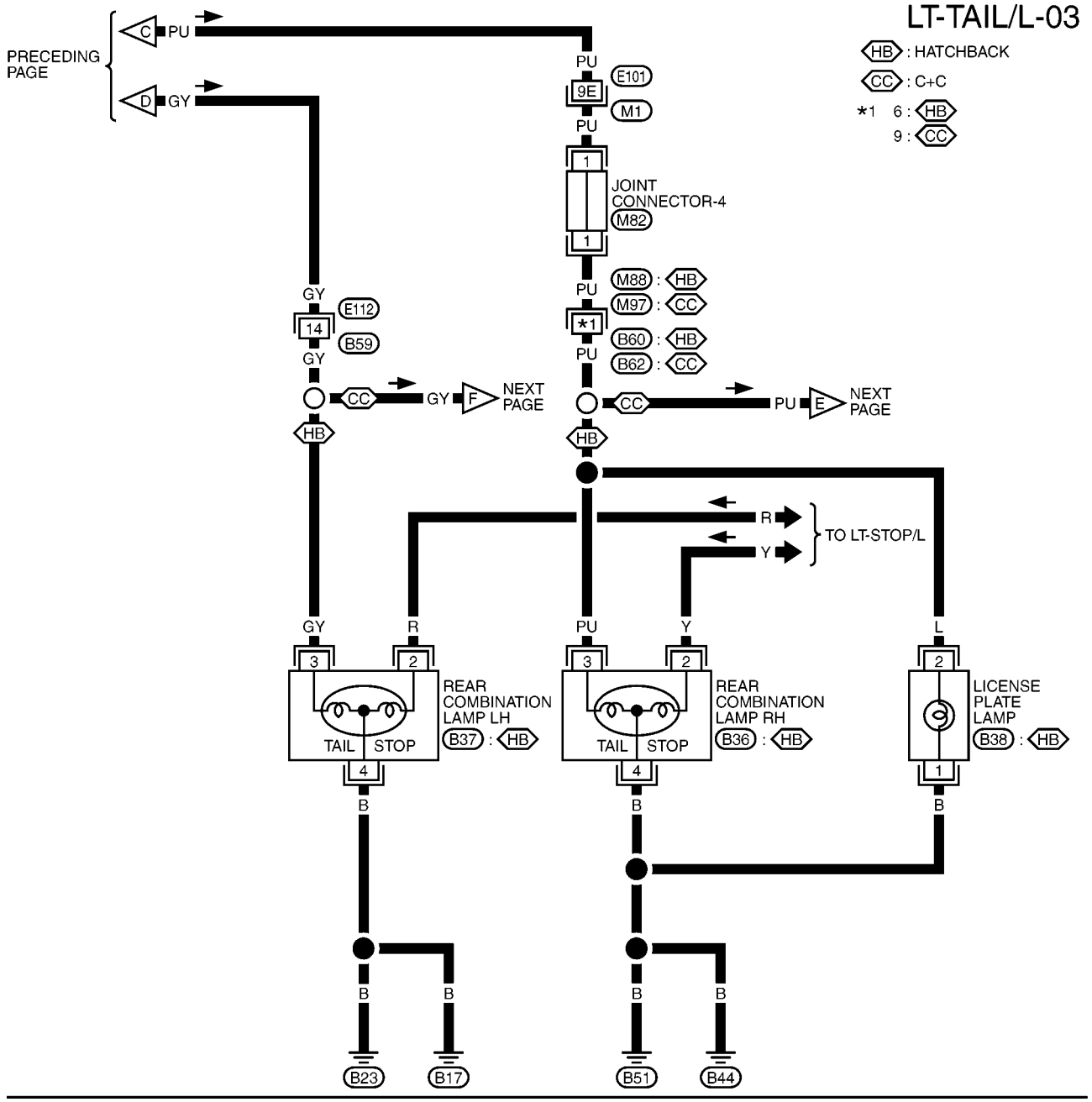
EKS00EN7

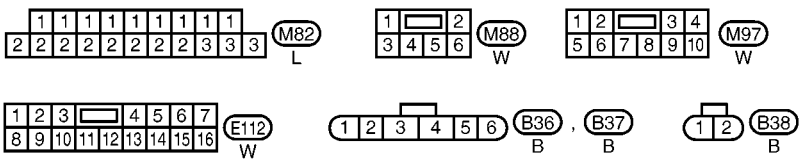


MKWA3462E


LT-TAIL/L-02
IGNITION SWITCH ON OR START
BATTERY
20A 52
TAIL LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E11 , E13 , E15 , E16
REFER TO PG-POWER.
+IG
+B
TAIL/L RLY
CPU
10A 36
10A 35
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
52 58 3 54 49 15 45 16
R W B B GY GY R PU
PRECEDING PAGE
A R
B W
PU C
GY D
NEXT PAGE
: DATA LINE
C : CR ENGINE MODELS
GY R
1
PARKING LAMP LH E22
PARKING LAMP RH E37
2
B B
B B B B B B B B
C
E25 E26 E40
3 4 5 6 7 8
E11 B
15 16 17 18 19 20 21 22 23 24 25 26
E13 BR
43 44 45 46 47 48 49 50
E15 BR
51 52 53 54 55 56 57 58 59 60 61 62
E16 W
H.S.
1 2
E22 B , E37 B

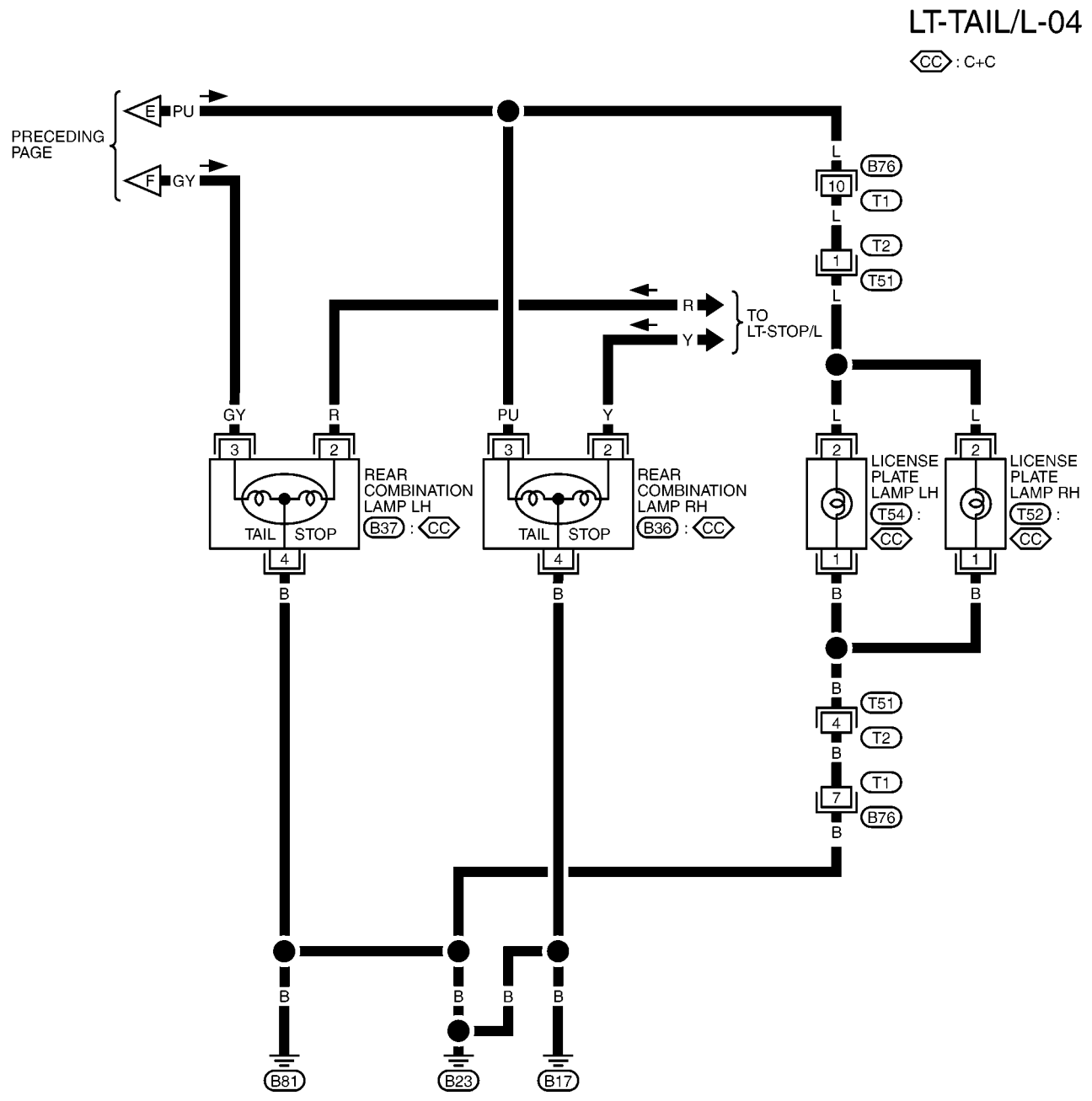
MKWA3463E

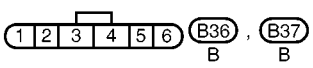


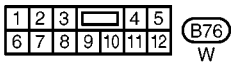


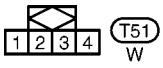
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

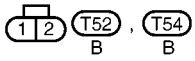
MKWA4049E


LT-TAIL/L-04
CC : C+C
PRECEDING PAGE
E PU
F GY
R
Y
TO LT-STOP/L
L
B76
10
T1
T2
1
T51
GY
R
PU
Y
3
2
REAR COMBINATION LAMP LH
B37 : CC
TAIL
STOP
4
REAR COMBINATION LAMP RH
B36 : CC
LICENSE PLATE LAMP LH
T54 : CC
LICENSE PLATE LAMP RH
T52 : CC
B
T51
4
T2
7
T1
B76
B81
B23
B17


1 2 3 4 5 6
B36
B
B37
B


1 2 3 4 5
6 7 8 9 10 11 12
B76
W

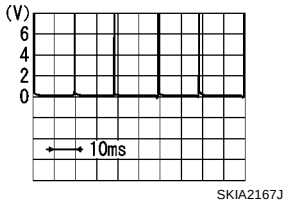
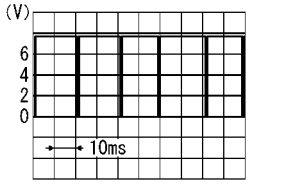
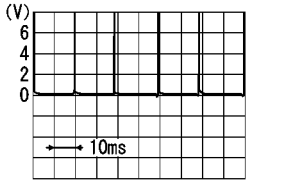

1 2 3 4
T51
W


1 2
T52
B
T54
B

MKWA4050E

Terminals and Reference Value for BCM

EKS00EN8

Terminal	Wire color	Signal designation	Measuring condition		Voltage [V] (Approx.)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	0
7	BR	Combination switch input 5	ON	Headlamps, turn signal, wipers OFF	 SKIA2167J
8	L	Combination switch input 3			
9	PU	Combination switch input 1			
27	GY	Combination switch input 4			
28	G	Combination switch input 2			
13	GY	Combination switch output 1	ON	Headlamps, turn signal, wipers OFF (wiper volume is 1 or 7)	 SKIA2166J
14	P	Combination switch output 3			
15	W	Combination switch output 5			
33	R	Combination switch output 2		Headlamps, turn signal, wipers OFF (wiper volume is other than 1 or 7)	 SKIA2167J
34	Y	Combination switch output 4			
19	R	CAN H	—	—	—
24	OR	Ignition power supply	ON	—	Battery voltage
39	W	CAN L	—	—	—
70	B	Ground	ON	—	0
74	Y	Power source (Fusible link)	—	—	Battery voltage
79	Y	Power source (Fusible link)	—	—	Battery voltage

Terminals and Reference Value for IPDM E/R

EKS00EN9

Terminal	Wire color	Signal designation	Measuring condition			Voltage [V] (Approx.)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		0
15 16 45 49	GY PU R GY	Tail lamp (LH) Tail lamp (RH) Parking lamp (RH) Parking lamp (LH)	ON	Lighting switch	1st position	Battery voltage
					OFF	0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		0
58	W	CAN L	—	—		—

How to Proceed With Trouble Diagnosis

EKS00ENA

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Parking, license plate and tail lamps LT-169, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-190, "Preliminary Check" .
4. Confirm parking, license plate and tail lamps does not operate by fail-safe control of IPDM E/R. Refer to PG-20, "FAIL-SAFE FUNCTION" .
5. Check symptom and repair or replace the cause of malfunction.
6. Does the parking, license plate and tail lamps operate normally? Yes: GO TO 7. No: GO TO 5.
7. INSPECTION END.

Preliminary Check

EKS00ENB

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch ON or START position	4

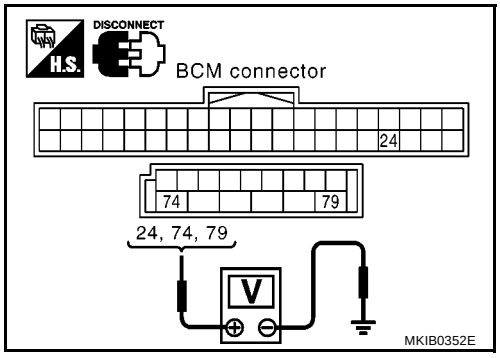
Refer to LT-185, "Wiring Diagram — TAIL/L —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM connector and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

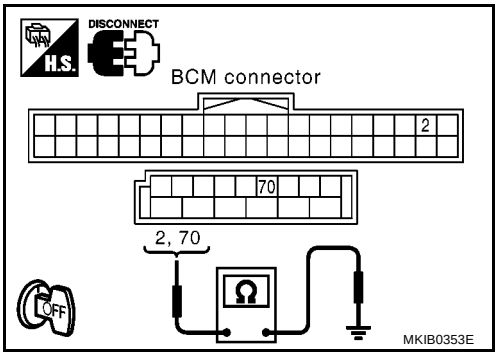
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between BCM and fuse. If NG, repair or replace the harness.

3. GROUND CIRCUIT CHECK

Check continuity between BCM and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END.
NG >> Repair or replace the harness.

CONSULT-II Function (BCM)

EKS00ENC

Refer to LT-28, "CONSULT-II Functions (BCM)" .

CONSULT-II Function (IPDM E/R)

EKS00END

Refer to LT-31, "CONSULT-II Functions (IPDM E/R)" .

Parking, License Plate And Tail Lamps Does Not Illuminate

EKS00ENE

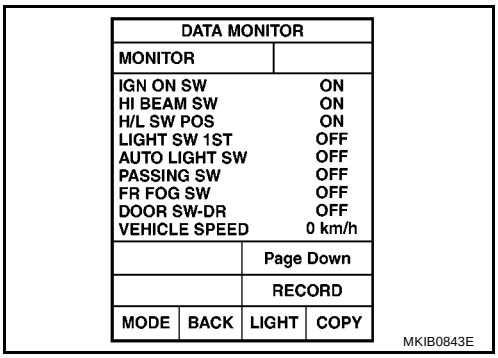
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select “BCM” on CONSULT-II.Check lighting switch (“LIGHT SW 1ST”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 1ST position : LIGHT SW 1ST ON

When lighting switch is in OFF position : LIGHT SW 1ST OFF



Without CONSULT-II

Refer to LT-219, "Check Combination Switch" .

OK or NG

OK >> GO TO 2.
NG >> Refer to LT-219, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R TO PARKING LAMP

With CONSULT-II

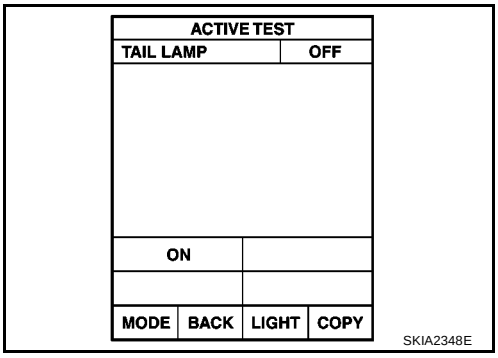
1. Select “IPDM E/R” by CONSULT-II, and select “Active test” on “Diagnosis System selection” screen.
2. Select “TAIL LAMP” on “Select Test Item” screen.
3. Make sure that parking lamps operate normally.

Without CONSULT-II

1. Start up auto active test. Refer to PG-43, "Auto Active Test" .
2. Make sure that parking lamps operate normally.

OK or NG

OK >> GO TO 3.
NG >> Replace IPDM E/R.

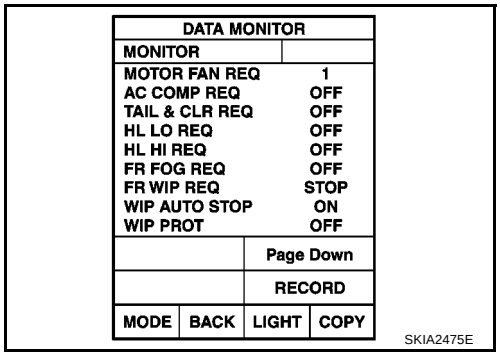


3. CHECK BETWEEN IPDM E/R AND BCM

Select “IPDM E/R” on CONSULT-II.Check lighting switch (“TAIL & CLR REQ”) in “DATA MONITOR” mode with CONSULT-II.

When lighting switch is in 1ST position : TAIL & CLR REQ ON

When lighting switch is in OFF position : TAIL & CLR REQ OFF



OK or NG

OK >> INSPECTION END
NG >> Replace BCM.

Parking Lamp Does Not Illuminate (One Side)

EKS00ENF

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace parking lamp bulb.

2. CHECK FUSE

Check the following

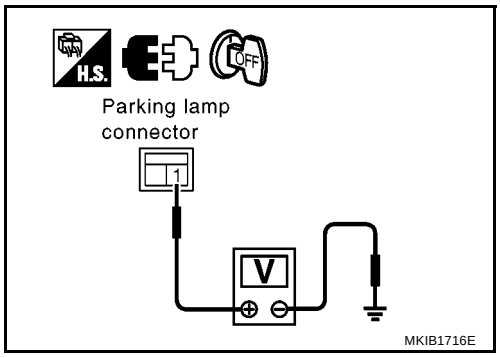
- 10A fuse (No. 35, located in the IPDM E/R).
- 10A fuse (No. 36, located in the IPDM E/R).

OK or NG

OK >> GO TO 3.
NG >> Replace fuse.

3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect parking lamp connector.
3. Check voltage between parking lamp harness connector terminal 1 and ground.



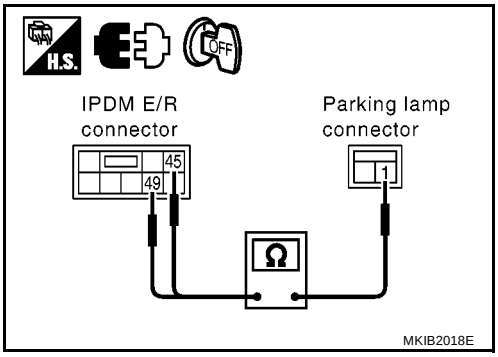
Terminals				Condition	Voltage [V] (Approx.)
(+)			(–)		
Connector		Terminal (Wire color)			
RH	E37	1 (R)	Ground	Lighting switch 1st position	Battery voltage
LH	E22	1 (GY)			

OK or NG

OK >> GO TO 5.
NG >> GO TO 4.

4. CHECK BETWEEN IPDM E/R AND PARKING LAMP

1. Disconnect IPDM E/R connector.
2. Check harness continuity between IPDM E/R connector and parking lamp connector.



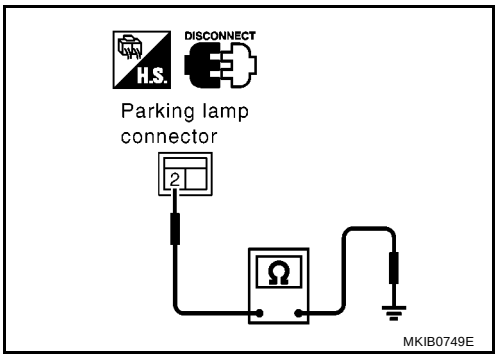
Terminals					Continuity
IPDM E/R		Parking lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E15	45 (R)	RH	E37	1 (R)	Yes
	49 (GY)	LH	E22	1 (GY)	

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

5. CHECK GROUND CIRCUIT

Check continuity between parking lamp harness connector and ground.



Connector		Terminal (Wire color)	Ground	Continuity
RH	E37	2 (B)		Yes
LH	E22	2 (B)		

OK or NG

OK >> Check condition of harness and connector.
NG >> Repair or replace harness.

Rear Combination Lamp (Tail lamp) Does Not Illuminate (One Side) (Hatchback)

EKS00ENG

1. CHECK BULB

Check rear combination lamp (tail lamp) bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace rear combination lamp (tail lamp) bulb.

2. CHECK FUSE

Check the following

- 10A fuse (No. 35, located in the IPDM E/R).
- 10A fuse (No. 36, located in the IPDM E/R).

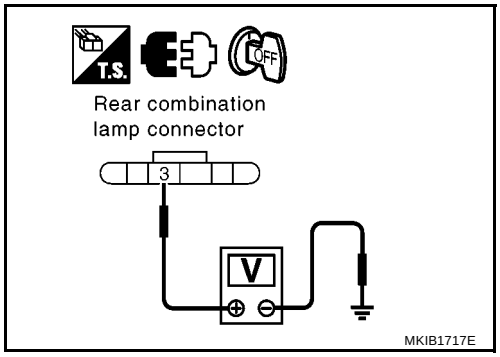
OK or NG

OK >> GO TO 3.
NG >> Replace fuse.

3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear combination lamp (tail lamp) connector.
3. Check voltage between rear combination lamp (tail lamp) connector and ground.

Terminals				Condition	Voltage [V] (Approx.)
(+)			(–)		
Connector		Terminal (Wire color)			
RH	B36	3 (PU)	Ground	Lighting switch 1st position	Battery voltage
LH	B37	3 (GY)			



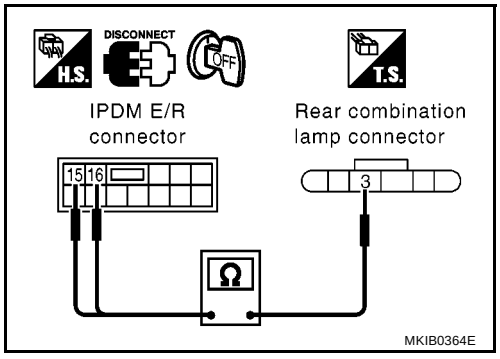
OK or NG

OK >> GO TO 5.
NG >> GO TO 4.

4. CHECK BETWEEN IPDM E/R AND REAR COMBINATION LAMP (TAIL LAMP)

1. Disconnect IPDM E/R connector.
2. Check harness continuity between IPDM E/R connector and rear combination lamp (tail lamp) connector.

Terminals					Continuity
IPDM E/R		Rear combination lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E13	16 (PU)	RH	B36	3 (PU)	Yes
	15 (GY)	LH	B37	3 (GY)	



OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

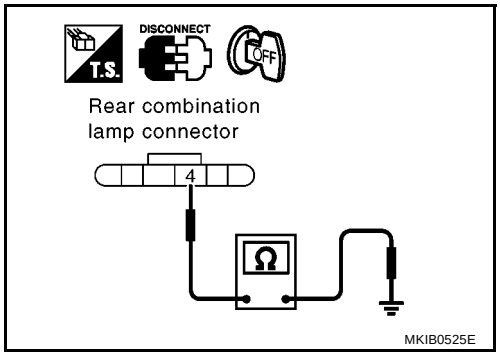
5. CHECK GROUND CIRCUIT

Check continuity between tail lamp and ground.

Connector		Terminal (Wire color)	Ground	Continuity
RH	B36	4 (B)		Yes
LH	B37	4 (B)		

OK or NG

OK >> Check condition of harness and connector.
NG >> Repair or replace harness.



License plate Lamp Does Not Illuminate (Hatchback)

EKS00QKZ

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace license plate lamp bulb.

2. CHECK FUSE

Check the following

- 10A fuse (No. 35, located in the IPDM E/R).

OK or NG

OK >> GO TO 3.
NG >> Replace fuse.

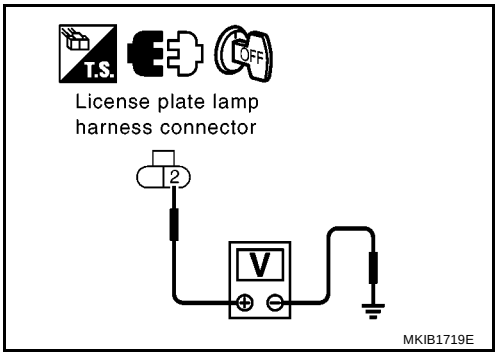
3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect license plate lamp connector.
3. Check voltage between license plate lamp connector B38 terminal 2 (L) and ground.

2 (L) - Ground : Battery voltage.

OK or NG

OK >> GO TO 5.
NG >> GO TO 4.



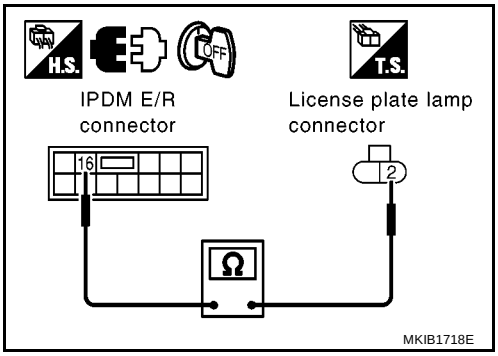
4. CHECK BETWEEN IPDM E/R AND LICENSE PLATE LAMP

1. Disconnect IPDM E/R connector.
2. Check continuity between license plate lamp connector B38 terminal 2 (L) and IPDM E/R connector E13 terminal 16 (PU).

16 (PU) - 2 (L) : Continuity should exist.

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.



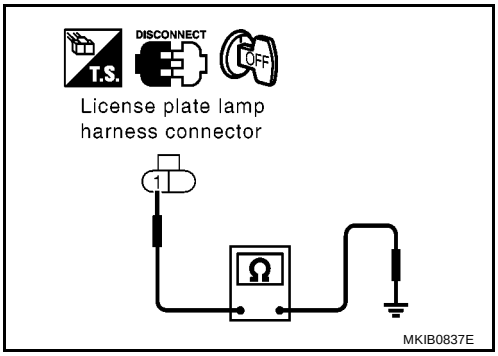
5. CHECK GROUND CIRCUIT

Check continuity between license plate lamp connector B38 terminal 1 (B) and ground.

1 (B) - Ground : Continuity should exist.

OK or NG

OK >> Check condition of harness and connector.
NG >> Repair or replace harness.



Rear Combination Lamp (Tail lamp) Does Not Illuminate (One Side) (C+C)

EKS00QL0

1. CHECK BULB

Check rear combination lamp (tail lamp) bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace rear combination lamp (tail lamp) bulb.

2. CHECK FUSE

Check the following

- 10A fuse (No. 35, located in the IPDM E/R).
- 10A fuse (No. 36, located in the IPDM E/R).

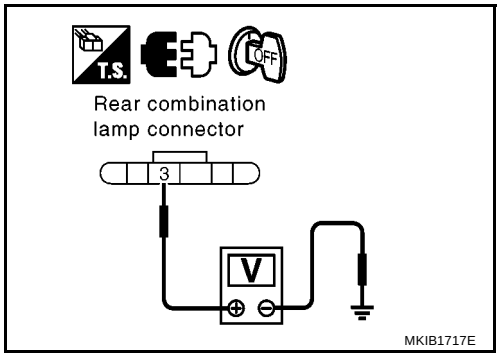
OK or NG

OK >> GO TO 3.
NG >> Replace fuse.

3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear combination lamp (tail lamp) connector.
3. Check voltage between rear combination lamp (tail lamp) connector and ground.

Terminals				Condition	Voltage [V] (Approx.)
(+)			(–)		
Connector		Terminal (Wire color)			
RH	B36	3 (PU)	Ground	Lighting switch 1st position	Battery voltage
LH	B37	3 (GY)			



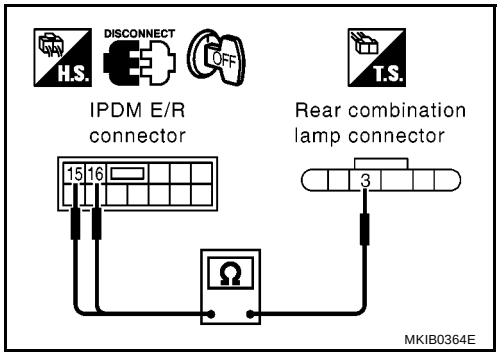
OK or NG

OK >> GO TO 5.
NG >> GO TO 4.

4. CHECK BETWEEN IPDM E/R AND REAR COMBINATION LAMP (TAIL LAMP)

1. Disconnect IPDM E/R connector.
2. Check harness continuity between IPDM E/R connector and rear combination lamp (tail lamp) connector.

Terminals					Continuity
IPDM E/R		Rear combination lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E13	16 (PU)	RH	B36	3 (PU)	Yes
	15 (GY)	LH	B37	3 (GY)	



OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

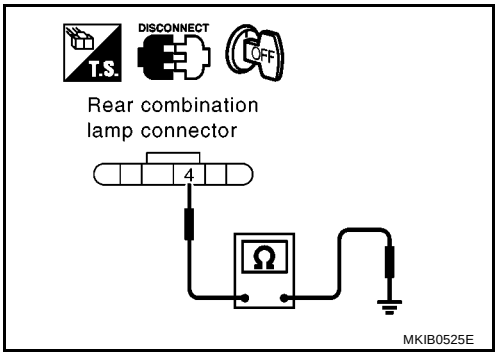
5. CHECK GROUND CIRCUIT

Check continuity between tail lamp and ground.

Connector		Terminal (Wire color)	Ground	Continuity
RH	B36	4 (B)		Yes
LH	B37	4 (B)		

OK or NG

OK >> Check condition of harness and connector.
NG >> Repair or replace harness.



License plate Lamp Does Not Illuminate (One Side) (C+C)

EKS00QL1

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace license plate lamp bulb.

2. CHECK FUSE

Check the following

- 10A fuse (No. 35, located in the IPDM E/R).

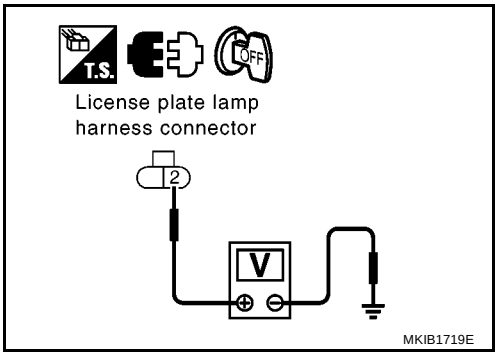
OK or NG

OK >> GO TO 3.
NG >> Replace fuse.

3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect license plate lamp RH or LH connector.
3. Check voltage between license plate lamp connector T52 (RH) or T54 (LH) terminal 2 (L) and ground.

Terminals				Condition	Voltage [V] (Approx.)
(+)			(-)		
Connector		Terminals (Wire color)			
RH	T52	2 (L)	Ground	Lighting switch 1st position	Battery Voltage
LH	T54	2 (L)			

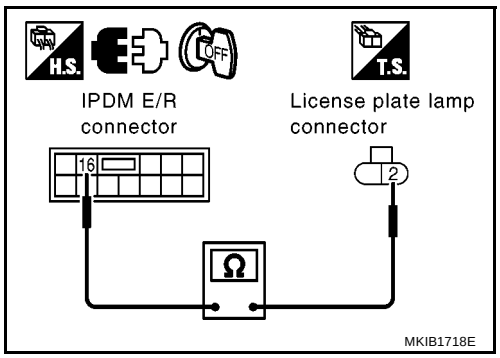


OK or NG

OK >> GO TO 5.
NG >> GO TO 4.

4. CHECK BETWEEN IPDM E/R AND LICENSE PLATE LAMP

1. Disconnect IPDM E/R connector.
2. Check continuity between license plate lamp RH or LH connector T52 (RH) or T54 (LH) terminal 2 (L) and IPDM E/R connector E13 terminal 16 (PU).



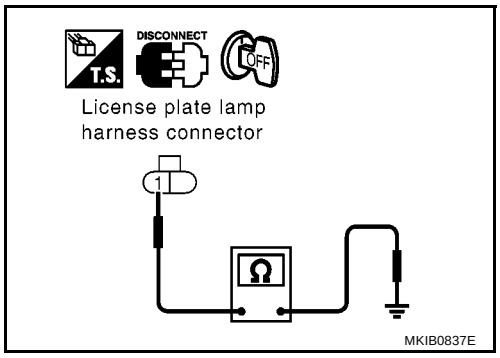
Terminals					Continuity
IPDM E/R		Parking lamp			
Connector	Terminal (Wire color)	Connector		Terminals (Wire color)	
E13	16 (PU)	RH	T52	2 (L)	Yes
		LH	T54	2 (L)	

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair or replace harness or connector.

5. CHECK GROUND CIRCUIT

Check continuity between license plate lamp RH or LH connector T52 (RH) or T54 (LH) terminal 1 (B) and ground.



Connector		Terminals (Wire color)	Ground	Continuity
RH	T52	1 (B)		Yes
LH	T54	1 (B)		

OK or NG

OK >> Check condition of harness and connector.
NG >> Repair or replace harness.

Parking, License Plate and Tail Lamps Do Not Turn OFF (After Approx. 10 Minutes)

EKS00QL2

1. CHECK IPDM E/R

- Check whether symptom is caused by IPDM E/R fail-safe operation or by factors other than fail-safe operation.Refer to PG-20, "FAIL-SAFE FUNCTION" .

OK or NG

Fail-safe operation>>Refer to PG-49, "Inspection With CONSULT-II (Self-Diagnosis)" .
Other than fail-safe operation>>Refer to PG-52, "Diagnosis of IPDM E/R Integrated Relay"

Bulb Replacement

EKS00QL3

PARKING LAMP

Refer to LT-41, "Bulb Replacement" .

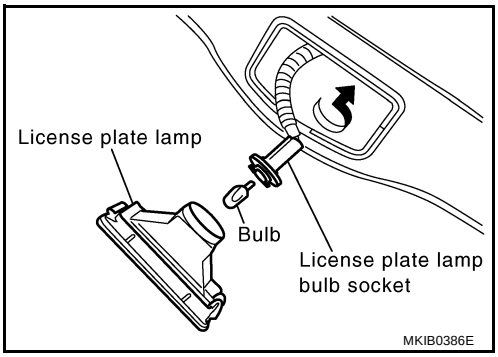
TAIL LAMP

Refer to LT-208, "REAR COMBINATION LAMP" .

LICENSE PLATE LAMP(HATCHBACK)

1. Remove license plate lamp. Refer to LT-199, "LICENSE PLATE LAMP (Hatchback)" .
2. Rotate license plate lamp bulb socket counterclockwise to release lock, then remove socket.
3. Remove bulb from license plate lamp bulb socket.

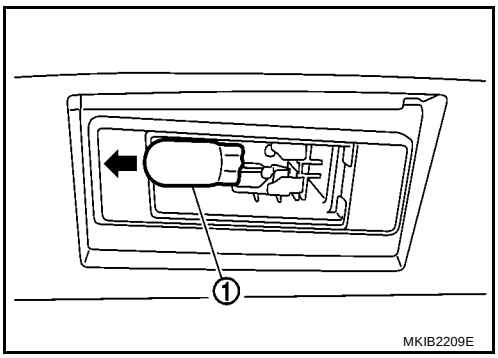
License plate lamp : 12V-10W



LICENSE PLATE LAMP (C+C)

1. Remove license plate lamp lens. Refer to LT-200, "LICENSE PLATE LAMP (C+C)" .
2. Remove bulb (1) from license plate lamp bulb socket.

License plate lamp : 12V-5W



Removal and Installation of Parking Lamp, Tail Lamp and License Plate Lamp

EKS00QL4

PARKING LAMP

Refer to LT-41, "Removal and Installation" .

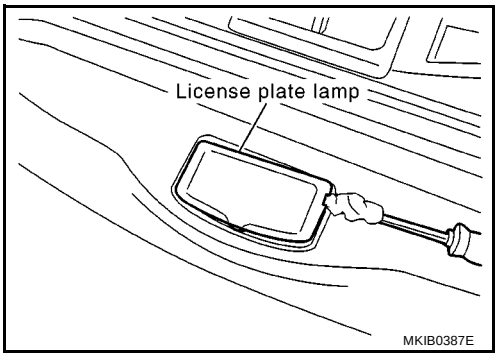
TAIL LAMP

Refer to LT-208, "REAR COMBINATION LAMP" .

LICENSE PLATE LAMP (HATCHBACK)

Removal

1. Insert a screwdriver or the like wrapped in a cloth into the lens notch and remove license plate lamp from rear bumper.



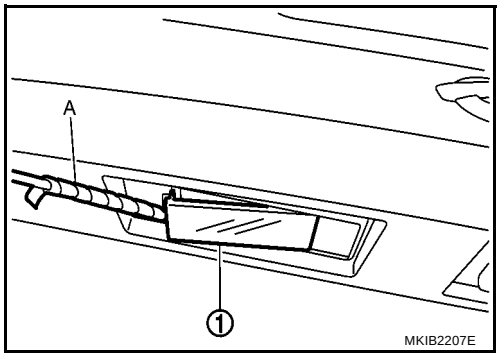
Installation

Install in the reverse order of removal.

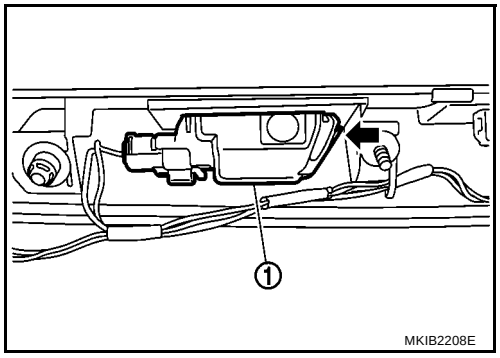
LICENSE PLATE LAMP (C+C)

Removal

1. Insert a screwdriver A or the like wrapped in a cloth into the lens (1) notch.



2. Remove trunk lid finisher assembly. Refer to EI-24, "Removal and Installation" .
3. Remove the license plate lamp while pushing the tabs.



Installation

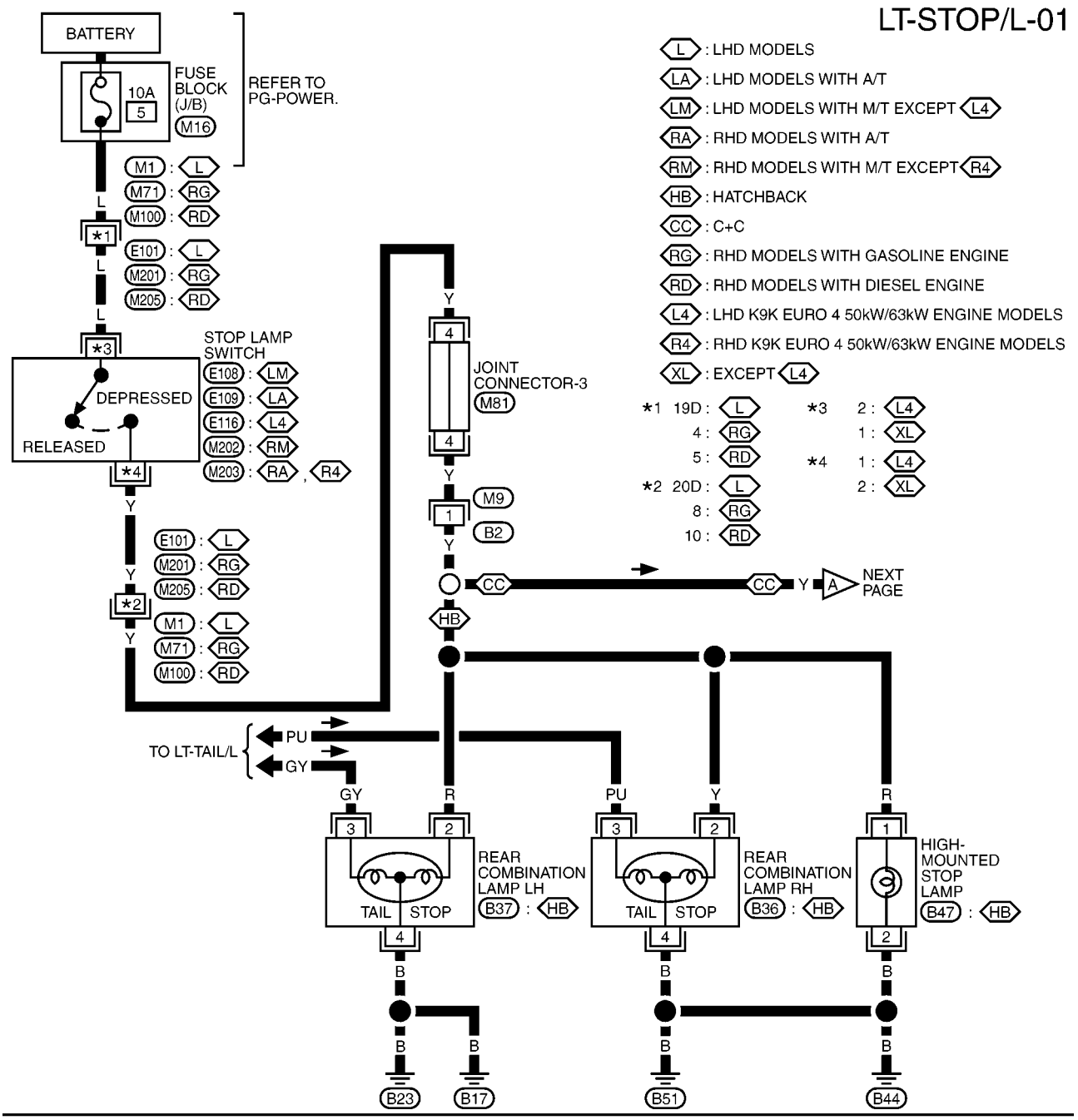
Install in the reverse order of removal.

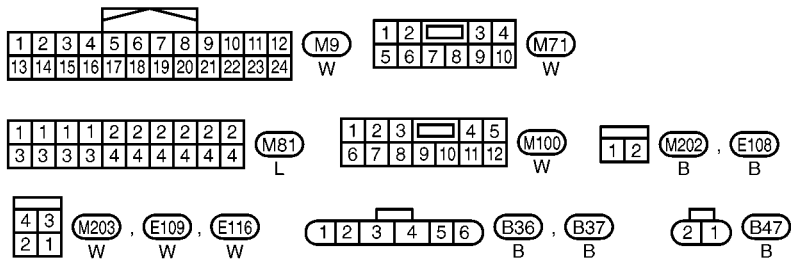
STOP LAMP

PFP:26554

Wiring Diagram— STOP/L —

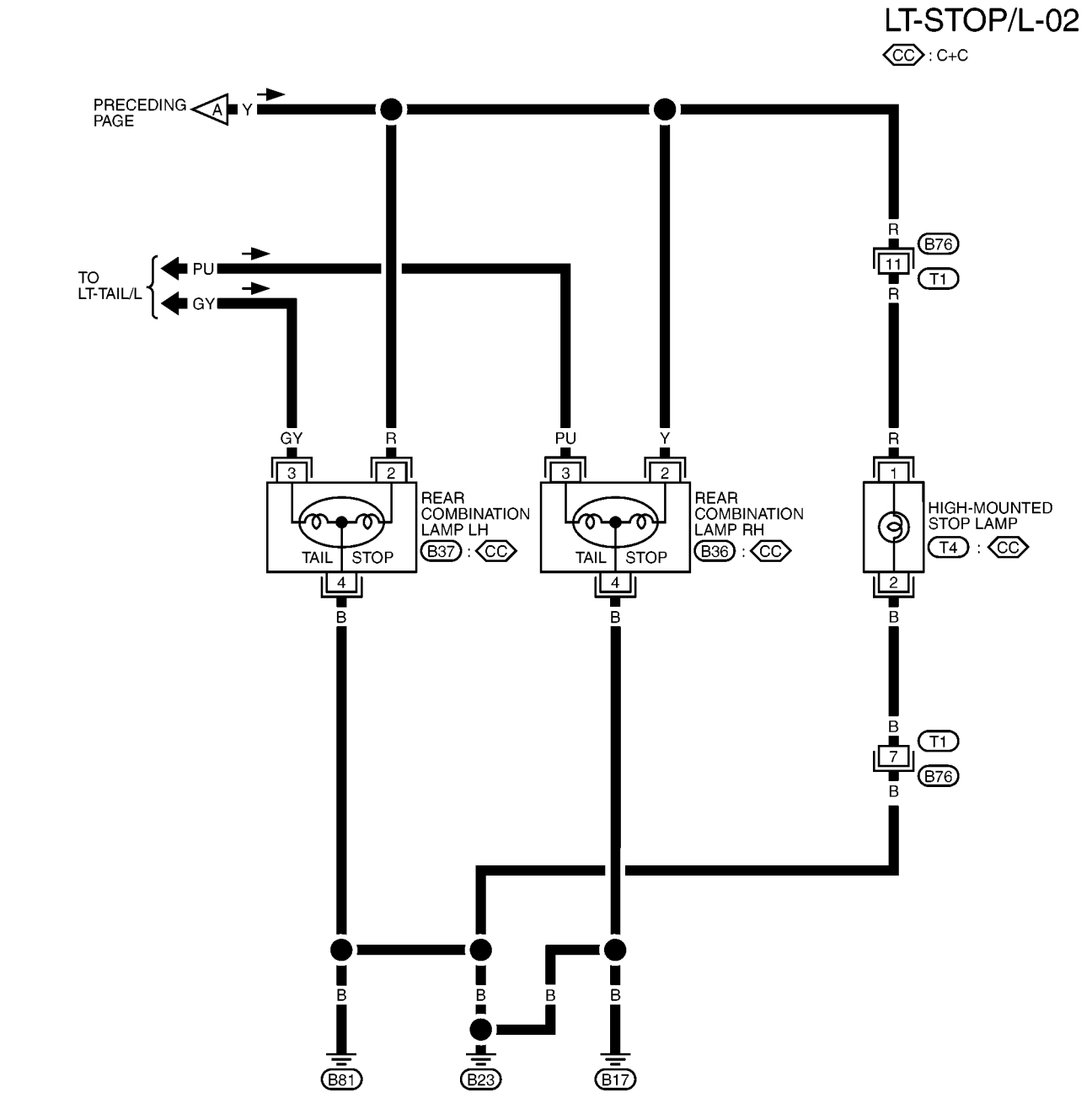
EKS00ENL

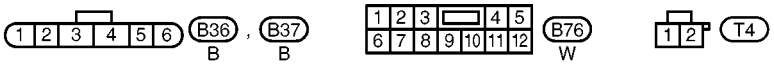




REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4051E


LT-STOP/L-02
CC : C+C
PRECEDING PAGE
A
Y
TO LT-TAIL/L
PU
GY
R
B76
11
T1
GY
R
PU
Y
R
3
2
1
REAR COMBINATION LAMP LH
B37 : CC
REAR COMBINATION LAMP RH
B36 : CC
HIGH-MOUNTED STOP LAMP
T4 : CC
TAIL
STOP
4
2
B
T1
7
B76
B81
B23
B17


1 2 3 4 5 6
B36
B
B37
B
1 2 3 4 5
6 7 8 9 10 11 12
B76
W
1 2
T4

MKWA4052E

Bulb Replacement

EKS00ENM

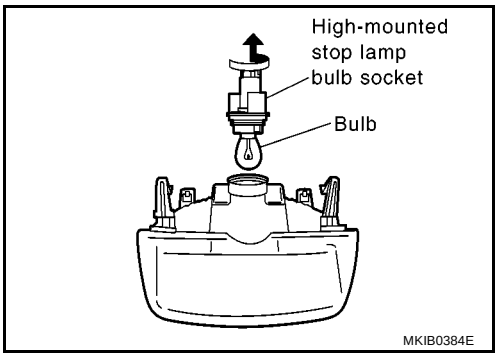
STOP LAMP

Refer to LT-208, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP

1. Remove high-mounted stop lamp. Refer to LT-203, "HIGH-MOUNTED STOP LAMP (Hatchback)" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

High-mounted stop lamp : 12V-21W



Removal and Installation

EKS00ENN

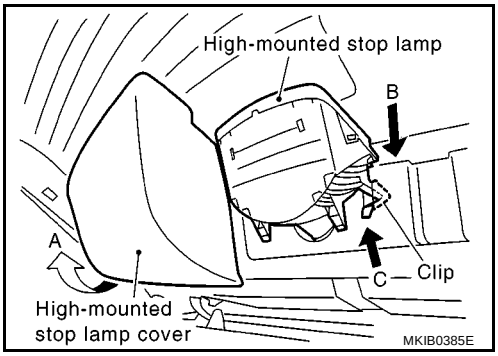
STOP LAMP

Refer to LT-208, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP (HATCHBACK)

Removal

1. Open back door and with both hands pull high-mounted stop lamp cover roof side horizontal edge in direction A to remove it.
2. Push high-mounted stop lamp clip shown in figure in direction B, release top hooks, then push in direction C to release it, then remove it from back door.



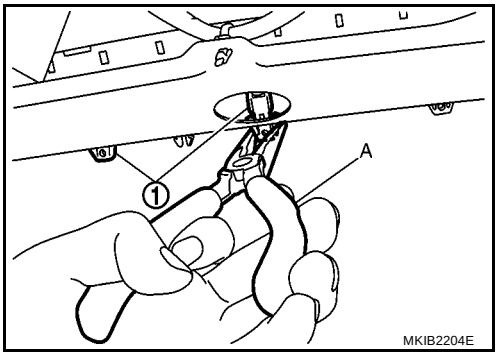
Installation

Install in the reverse order of removal.

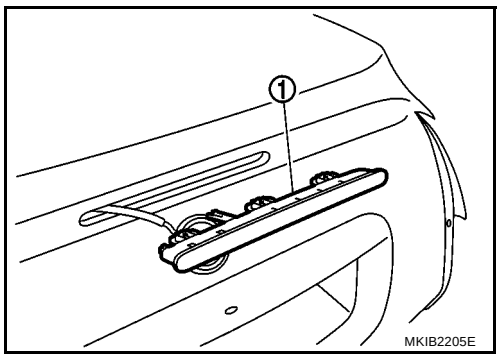
HIGH-MOUNTED STOP LAMP (C+C)

Removal

1. Remove rear trunk lid trim. Refer to EI-23, "TRUNK LID TRIM" .
2. Compress the tabs using pliers.

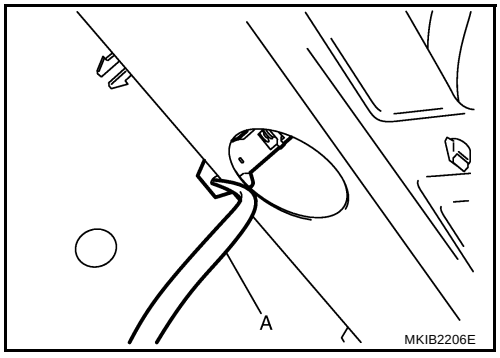


3. Disconnect high-mounted stop lamp connector and remove high-mounted stop lamp.



Installation

1. Connect high-mounted stop lamp connector.
2. Pull the hole of the tabs with the L-tool, and then install the high-mount stop lamp.



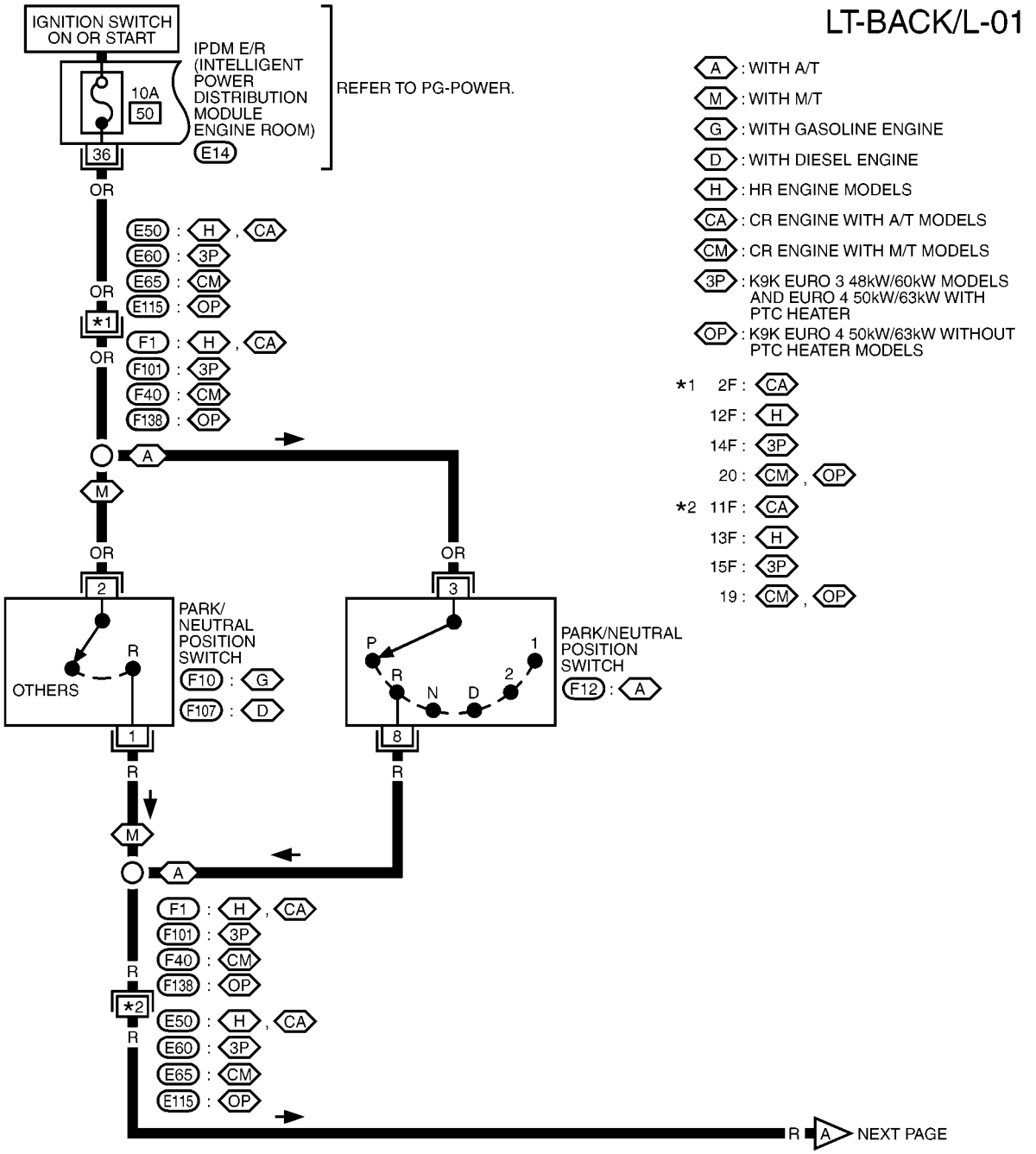
3. Install rear trunk lid trim. Refer to EI-23, "TRUNK LID TRIM" .

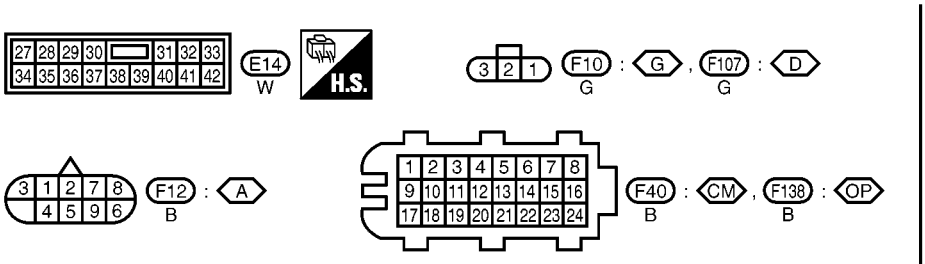
BACK-UP LAMP

PFP:26550

Wiring Diagram — BACK/L —

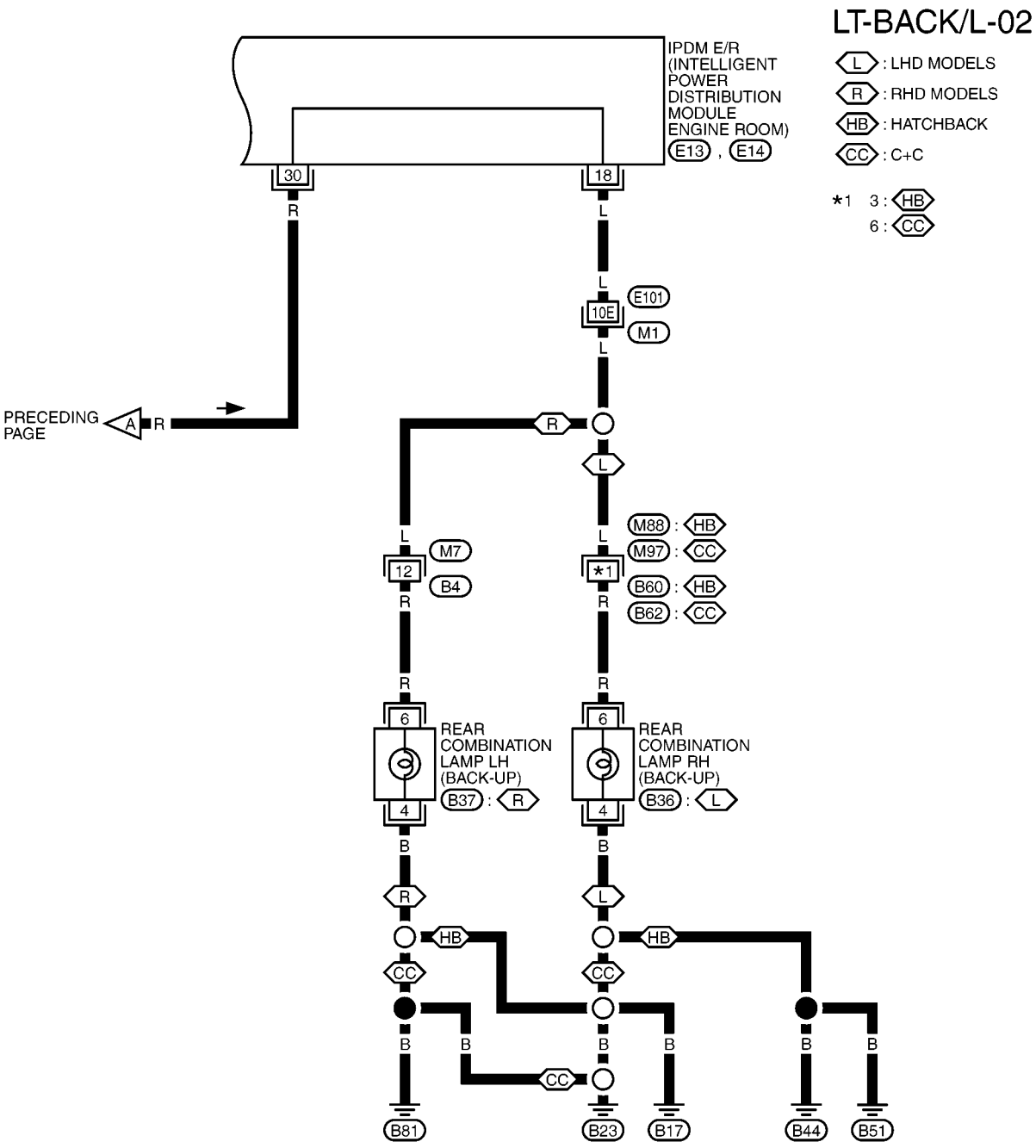
EKS00ENO

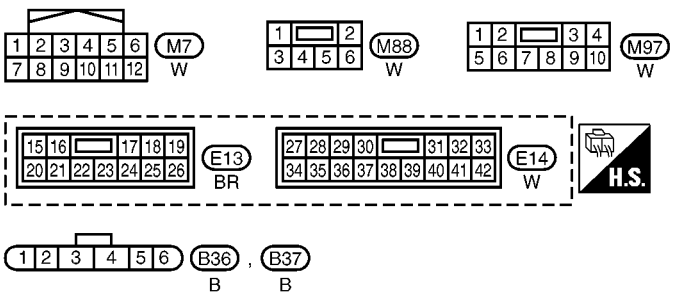




REFER TO THE FOLLOWING.
F1 , F101 - SUPER MULTIPLE JUNCTION (SMJ)

MKWA3470E





REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

MKWA4053E

Bulb Replacement

EKS00ENP

Refer to LT-208, "REAR COMBINATION LAMP" .

Removal and Installation

EKS00ENQ

Refer to LT-208, "REAR COMBINATION LAMP" .

REAR COMBINATION LAMP

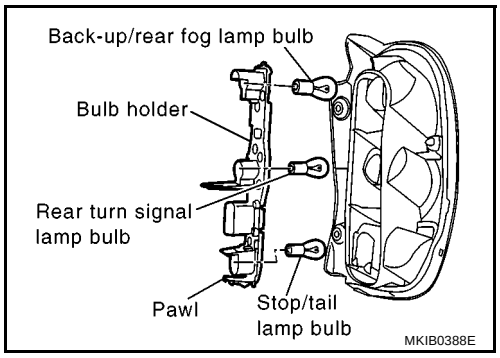
PFP:26554

Bulb Replacement

EKS00ENR

REAR TURN SIGNAL LAMP BULB, BACK-UP LAMP BULB, STOP/TAIL LAMP BULB, REAR FOG LAMP BULB

1. Remove rear combination lamp. Refer to LT-208, "Removal and Installation (Hatchback)" ,LT-208, "Removal and Installation (C+C)" .
2. Release holder assembly bottom hooks and remove from combination lamp housing.
3. Remove all bulbs.



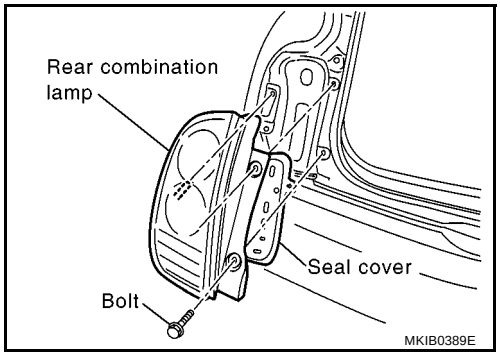
Stop/Tail lamp	**: 12V-21/5W**
Rear turn signal lamp	**: 12V-21W**
Back-up lamp	**: 12V-21W**
Rear fog lamp	**: 12V-21W**

Removal and Installation (Hatchback)

EKS00ENS

REMOVAL

1. Open the back door, and remove rear combination lamp bolts.
2. Pull the rear combination lamp toward rear of the vehicle and remove from the vehicle.
3. Disconnect rear combination lamp connector.



INSTALLATION

Install in the reverse order of removal, paying attention to the following.

Rear combination lamp bolts

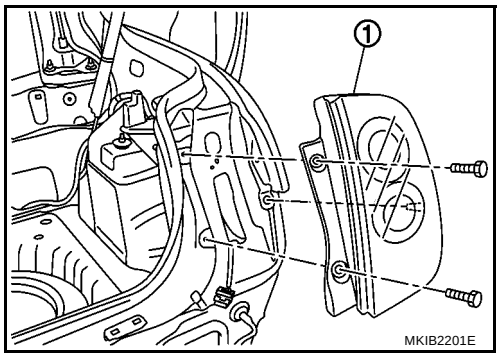
Tightening torque : 3.24 - 7.75 N·m (0.33 - 0.79 kg-m, 29 - 69 in-lb)

Removal and Installation (C+C)

EKS00QO8

REMOVAL

1. Open the trunk lid, and remove rear combination lamp bolts.
2. Pull the rear combination lamp (1) toward rear of the vehicle and remove from the vehicle.
3. Disconnect rear combination lamp connector.



INSTALLATION

Install in the reverse order of removal, paying attention to the following.

Rear combination lamp bolts

Tightening torque : 3.6 - 5.1 N·m (0.37 - 0.52 kg-m, 32 - 45 in-lb)

LIGHTING AND TURN SIGNAL SWITCH

PFP:25540

Removal and Installation

EKS00ENT

Refer to LT-222, "Removal and Installation" .

HAZARD SWITCH

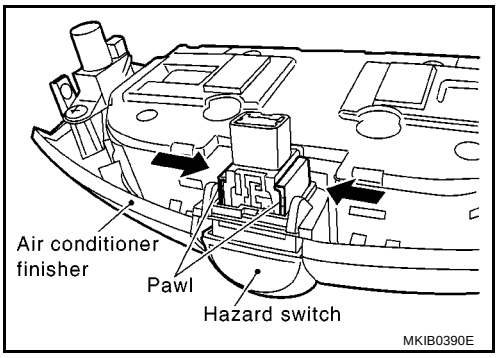
PFP:25290

Removal and Installation

EKS00ENU

REMOVAL

1. Remove air conditioner finisher. Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove connector.
3. Press tab on reverse side and pull hazard switch towards you to remove.



INSTALLATION

Install in the reverse order of removal.

COMBINATION SWITCH

PFP:25567

System Description

EKS00ENV

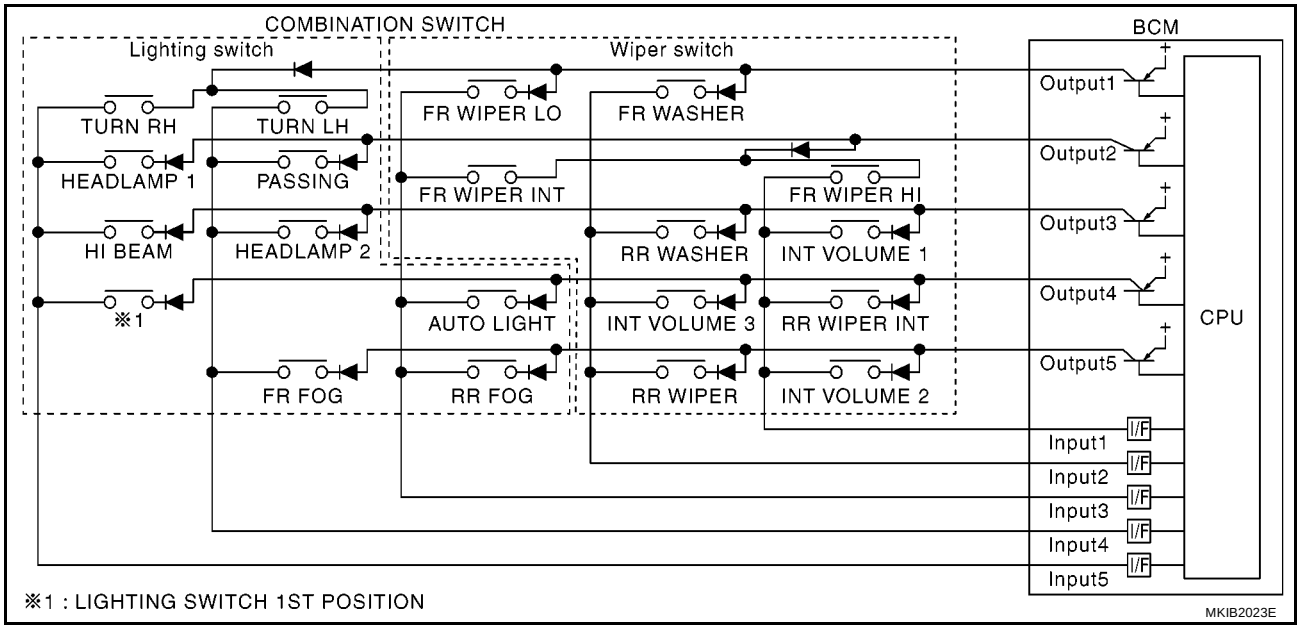
COMBINATION SWITCH READING FUNCTION

Description

- BCM reads combination switch (light, wiper) status, and controls various electrical components according to the results.
- BCM reads information of a maximum of 20 switches by combining five output terminals (OUTPUT 1-5) and five input terminals (INPUT 1-5).

Operation Description

- BCM activates transistors of output terminals (OUTPUT 1-5) periodically and allows current to flow in turn.
- If any (1 or more) of the switches are turned ON, circuit of output terminals (OUTPUT 1-5) and input terminals (INPUT 1-5) becomes active.
- At this time, transistors of output terminals (OUTPUT 1-5) are activated to allow current to flow. When voltage of input terminals (INPUT 1-5) corresponding to that switch changes, interface in BCM detects voltage change and BCM determines that switch is ON.



BCM - Operation Table of Combination Switch

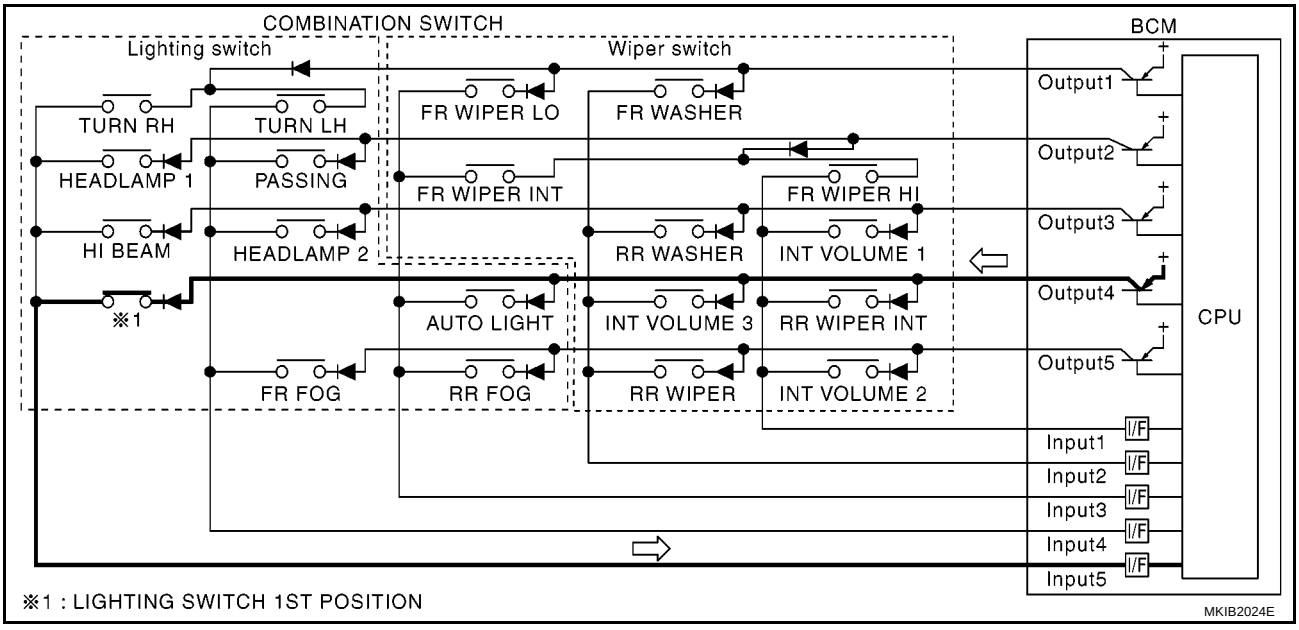
- BCM reads operation status of combination switch by the combination shown in the following table.

	COMB SW OUTPUT 1		COMB SW OUTPUT 2		COMB SW OUTPUT 3		COMB SW OUTPUT 4		COMB SW OUTPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW INPUT 1	–	–	FR WIPER HI ON	FR WIPER HI OFF	INT VOLUME 1 ON	INT VOLUME 1 OFF	RR WIPER INT ON	RR WIPER INT OFF	INT VOLUME 2 ON	INT VOLUME 2 OFF
COMB SW INPUT 2	FR WASHER ON	FR WASHER OFF	–	–	RR WASHER ON	RR WASHER OFF	INT VOLUME 3 ON	INT VOLUME 3 OFF	RR WIPER ON	RR WIPER OFF
COMB SW INPUT 3	FR WIPER LO ON	FR WIPER LO OFF	FR WIPER INT ON	FR WIPER INT OFF	–	–	AUTO LIGHT ON	AUTO LIGHT OFF	RR FOG ON	RR FOG OFF
COMB SW INPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD-LAMP 2 ON	HEAD-LAMP 2 OFF	–	–	FR FOG ON	FR FOG OFF
COMB SW INPUT 5	TURN RH ON	TURN RH OFF	HEAD-LAMP 1 ON	HEAD-LAMP 1 OFF	HI BEAM ON	HI BEAM OFF	LIGHTING SW (1ST) ON	LIGHTING SW (1ST) OFF	–	–

PKIC0420E

Example Operation: (When Lighting Switch 1st Position Turned ON)

- When lighting switch 1st position is turned ON, contact in combination switch turns ON. At this time if OUTPUT 4 transistor is activated, BCM detects that voltage changes in INPUT 5.
- When OUTPUT 4 transistor is ON, BCM detects that voltage changes in INPUT 5, and judges lighting switch 1st position is ON. Then BCM sends tail lamp ON signal to IPDM E/R using CAN communication.
- When OUTPUT 4 transistor is activated again, BCM detects that voltage changes in INPUT 5 and recognizes that lighting switch 1st position is continuously ON.



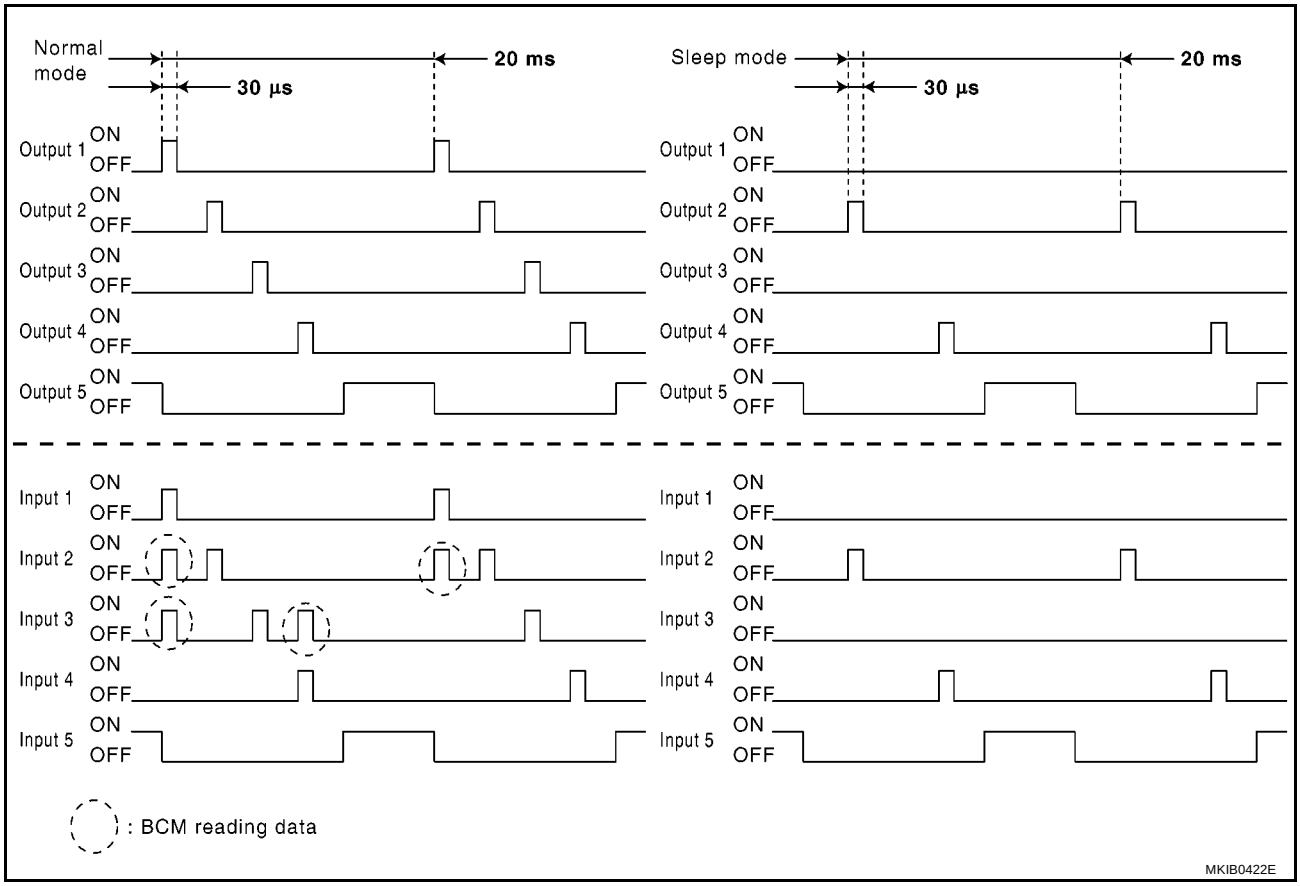
NOTE:
Each OUTPUT terminal transistor is activated at 20 ms intervals. Therefore, after a switch is turned ON, electrical loads are activated with a time delay. But this time delay is so short that it cannot be noticed.

Operation Mode

- Combination switch reading function has operation modes shown below.

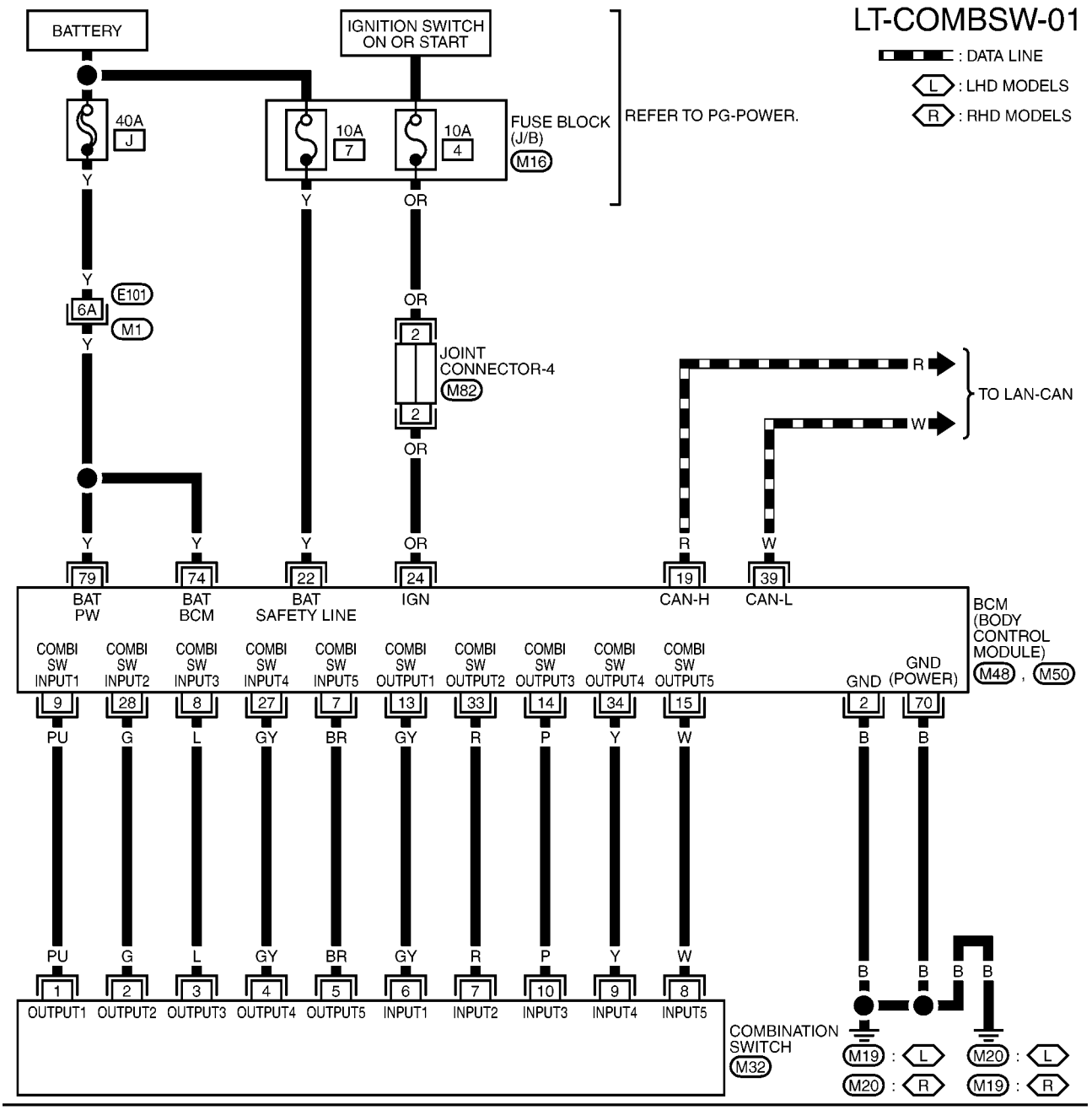
– **Normal mode**
When BCM is not in sleep mode, each output (1 - 5) terminal turns ON-OFF at 20 ms intervals.

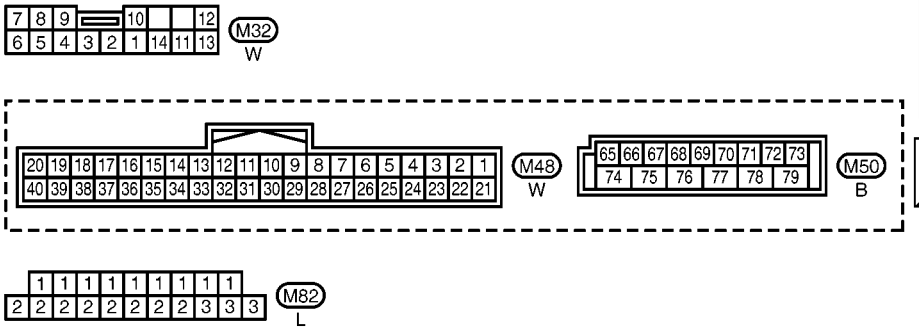
– **Sleep mode**
While BCM is in sleep status, transistors in output 1 and 3 stop their input, with BCM entering a power-saving mode. Input 2, 4 and 5 turn ON-OFF every 20 ms, and accept only output from lighting switch system.



Wiring Diagram — COMBSW —

EKS00ENW





REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA3465E

CONSULT-II Functions (BCM)

EKS00ENX

CONSULT-II can display each diagnosis item using the diagnostic test modes shown following.

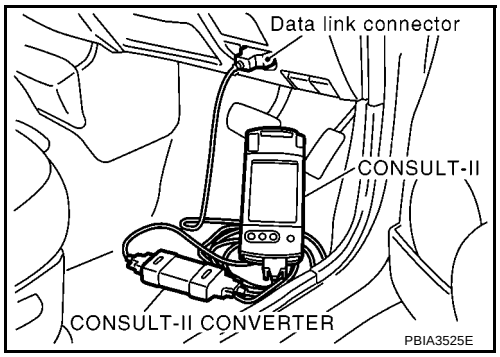
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Combination switch	Data monitor	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

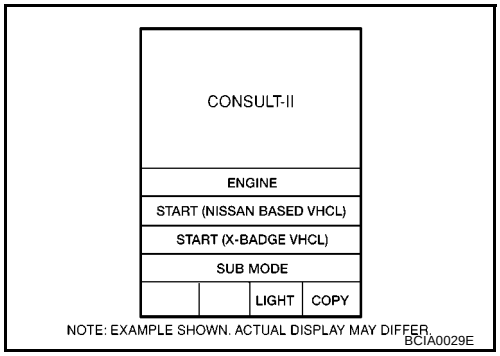
CAUTION:

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.

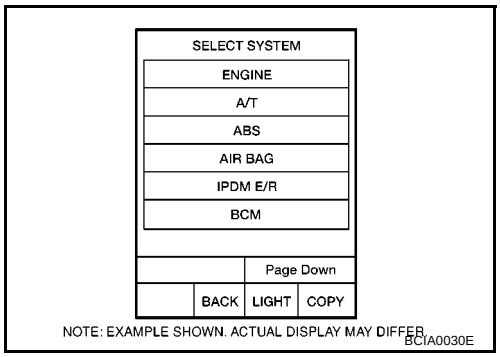
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



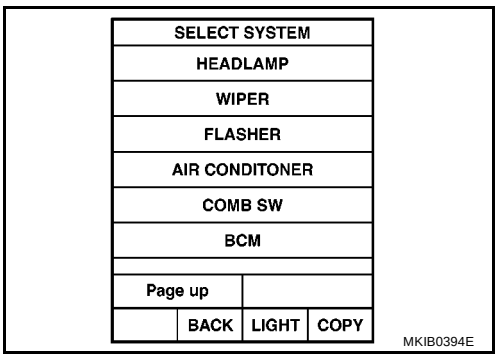
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



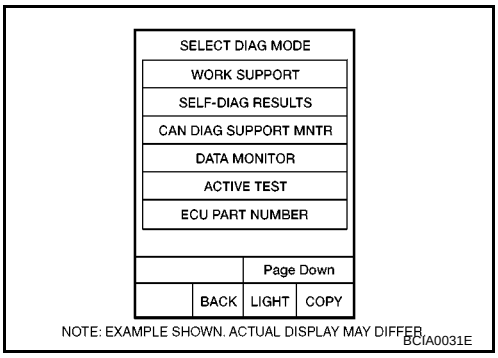
5. Touch “BCM CAN” on the “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “COMB SW” on “SELECT TEST ITEM” screen.



7. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.



DATA MONITOR

Operation Procedure

1. Touch “COMBINATION SWITCH” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” on the “DATA MONITOR” screen.
4. Touch “START”.
5. When “ALL SIGNALS” is selected, all the items will be monitored.
6. Touch “RECORD” while monitoring to record the status of the item being monitored. To stop recording, touch “STOP”.

Display Item List

Monitor item “UNIT”		Display content
TURN SIGNAL R	[ON/OFF]	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	[ON/OFF]	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
HI BEAM SW	[ON/OFF]	Displays status (High beam switch: ON/Others: OFF) as judged from lighting switch signal.
H/L SW POS	[ON/OFF]	Displays status (Headlamp switch 1: ON/Others: OFF) as judged from lighting switch signal.
LIGHT SW 1ST	[ON/OFF]	Displays status (Lighting switch 1st position: ON/Others: OFF) as judged from lighting switch signal.
PASSING SW	[ON/OFF]	Displays status (Flash-to-pass switch: ON/Others: OFF) as judged from lighting switch signal.
FR FOG SW	[ON/OFF]	Displays status (Front fog lamp switch: ON/Others: OFF) as judged from lighting switch signal. (ON is also displayed when rear fog lamp switch is on.)
RR FOG SW	[ON/OFF]	Displays status (Rear fog lamp switch: ON/Others: OFF) as judged from lighting switch signal.
FR WIPER HI	[ON/OFF]	Displays status (Front Wiper HI: ON/Others: OFF) as judged from wiper switch signal.
FR WIPER LOW	[ON/OFF]	Displays status (Front Wiper LOW: ON/Others: OFF) as judged from wiper switch signal.
FR WIPER INT	[ON/OFF]	Displays status (Front Wiper INT: ON/Others: OFF) as judged from wiper switch signal.
FR WASHER SW	[ON/OFF]	Displays status (Front Washer Switch: ON/Others: OFF) as judged from wiper switch signal.

Monitor item “UNIT”		Display content
INT VOLUME	[1 - 7]	Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal.
RR WIPER ON	[ON/OFF]	Displays status (Rear Wiper ON: ON/Others: OFF) as judged from wiper switch signal.
RR WIPER INT	[ON/OFF]	Displays status (Rear Wiper INT: ON/Others: OFF) as judged from wiper switch signal.
RR WASHER SW	[ON/OFF]	Displays status (Rear Washer Switch: ON/Others: OFF) as judged from wiper switch signal.

Check Combination Switch

EKS00ENY

1. SYSTEM CHECK

Referring to table below, check to which system the malfunctioning switch belongs.

System 1	System 2	System 3	System 4	System 5
—	FR WASHER	FR WIPER LO	TURN LH	TURN RH
FR WIPER HI	—	FR WIPER INT	PASSING	HEAD LAMP1
INT VOLUME 1	RR WASHER	—	HEAD LAMP2	HI BEAM
RR WIPER INT	INT VOLUME 3	AUTO LIGHT	—	LIGHT SW 1ST
INT VOLUME 2	RR WIPER ON	RR FOG	FR FOG	—

>> GO TO 2.

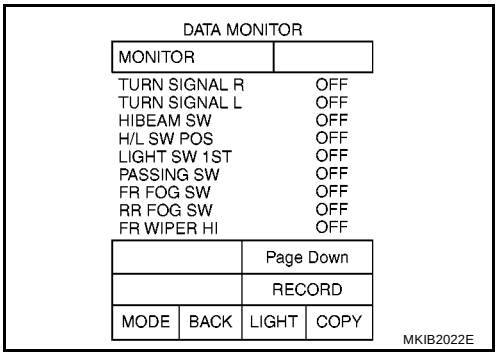
2. SYSTEM CHECK

With CONSULT-II

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.

1. Connect CONSULT-II, and select “COMB SW” on “SELECT TEST ITEM” screen.
2. Select “DATA MONITOR”.
3. Select “START”, and confirm that other switches in malfunctioning system operate normally.
   Example: When the HI BEAM switch is malfunctioning, confirm that “TURN RH”, “HEAD LAMP 1” and “LIGHT SW 1ST” in system 5, to which the HI BEAM switch belongs, turn ON-OFF normally.



Without CONSULT-II

Operating combination switch, and confirm that other switches in malfunctioning system operate normally.
Example: When the HI BEAM switch is malfunctioning, confirm that “TURN RH”, “HEAD LAMP 1” and “LIGHT SW 1ST” in system 5, to which HI BEAM switch belongs, turn ON-OFF normally.

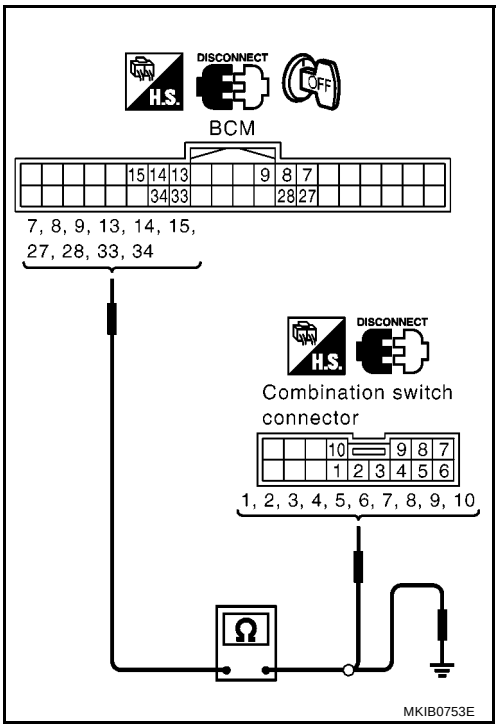
Check results

Other switches in malfunctioning system operate normally.>> Replace lighting switch or wiper switch.
Other switches in malfunctioning system do not operate normally.>> GO TO 3.

3. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect BCM and combination switch connectors.
3. Check continuity between BCM harness connector of the inoperative system and the corresponding combination switch connector terminals.
4. Check continuity between BCM harness connector of the suspect system and ground.

Group	Connector terminal			Continuity
	BCM		Combination switch	
1	output 1	13 (GY)	6 (GY)	Yes
	input 1	9 (PU)	1 (PU)	
2	output 2	33 (R)	7 (R)	
	input 2	28 (G)	2 (G)	
3	output 3	14 (P)	10 (P)	
	input 3	8 (L)	3 (L)	
4	output 4	34 (Y)	9 (Y)	
	input 4	27 (GY)	4 (GY)	
5	output 5	15 (W)	8 (W)	
	input 5	7 (BR)	5 (BR)	



Group	Connector terminal		—	Continuity
	BCM			
1	output 1	13 (GY)	Ground	No
	input 1	9 (PU)		
2	output 2	33 (R)		
	input 2	28 (G)		
3	output 3	14 (P)		
	input 3	8 (L)		
4	output 4	34 (Y)		
	input 4	27 (GY)		
5	output 5	15 (W)		
	input 5	7 (BR)		

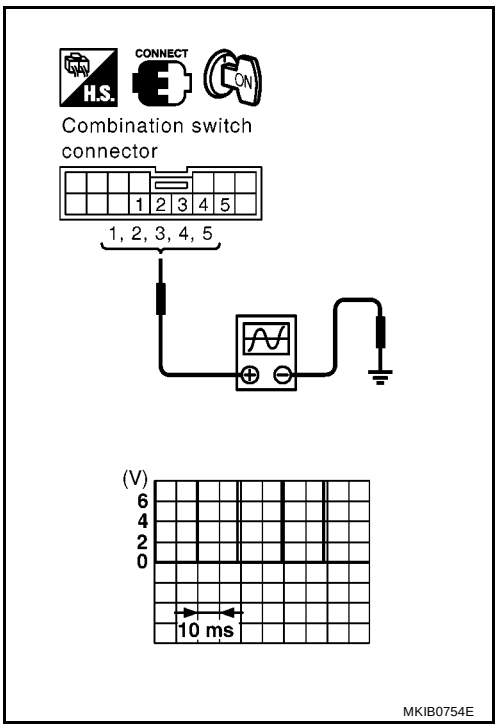
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness connector.

4. CHECK BCM OUTPUT SIGNAL

Connect BCM and combination switch connector, and check voltage waveform of malfunctioning system.

Group	Connector	terminal (wire color)	
		(+)	(-)
1	M32	1 (PU)	Ground
2		2 (G)	
3		3 (L)	
4		4 (GY)	
5		5 (BR)	



OK or NG

OK >> Open circuit in combination switch, GO TO 5.
NG >> Replace BCM.

5. COMBINATION SWITCH INSPECTION

Referring to table below, perform combination switch inspection.

Procedure									
1	2		3	4		5	6		7
Replace lighting switch	Confirm check results	OK	INSPECTION END	Confirm check results	OK	INSPECTION END	Confirm check results	OK	INSPECTION END
		NG	Replace wiper switch		NG	Replace switch base		NG	Confirm symptom again

>> INSPECTION END

Removal and Installation

EKS00ENZ

REMOVAL

1. Remove steering column cover. Refer to PS-7, "STEERING COLUMN" .
2. Remove driver air bag module. Refer to SRS-37, "DRIVER AIR BAG MODULE" .
3. Remove spiral cable. Refer to SRS-39, "SPIRAL CABLE" .
4. Remove screw and remove combination switch.

INSTALLATION

Install in the reverse order of removal, for details.

INTERIOR ROOM LAMP

PFP:26410

System Description

EKS00EO0

POWER SUPPLY AND GROUND

Power is supplied at all times:

- through 40A fusible link (letter **J** , located in the fuse and fusible link box)
- to BCM terminals 74 and 79.
- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to luggage room lamp terminal 1
- to BCM terminal 72
- to key switch terminal 1 (without Intelligent Key system) or
- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to key switch and ignition knob switch terminal 1 (with Intelligent Key system)

When the key is removed from ignition key cylinder, power is interrupted

- through key switch terminal 2 (without Intelligent Key system) or
- through key switch and ignition knob switch terminal 2 (with Intelligent Key system)
- to BCM terminal 3.

With the ignition key switch in the ON or START position, power is supplied:

- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to BCM terminal 24.

Ground is supplied:

- to BCM terminals 2 and 70.
- through body grounds M19 and M20

When any door is opened, ground is supplied:

- to BCM terminal 29.
- to front door switch (driver side) terminal 1
- through case ground of front door switch (driver side)
- to BCM terminal 30.
- to front door switch (passenger side) terminal 1
- through case ground of front door switch (passenger side)
- to BCM terminal 59.
- to rear door switch LH terminal 1
- through case ground of rear door switch LH
- to BCM terminal 60.
- to rear door switch RH terminal 1
- through case ground of rear door switch RH
- to BCM terminal 10.
- to back door or trunk lid switch terminal 1
- to back door or trunk lid switch terminal 2
- through body grounds B44 and B51 (Hatchback)
- through body grounds B17, B23 and B81. (C+C)

When a signal, or combination of signal is received by the BCM ground is supplied:

- through BCM terminal 21
- to interior room lamp terminal 2

With power and ground are supplied, the interior room lamp illuminates.

SWITCH OPERATION

Ground is supplied:

- through body grounds M19 and M20
- to interior room lamp terminal 3,

When interior room lamp switch is ON, power is supplied:

- through BCM terminal 73.
- to interior room lamp terminal 4

With power and ground are supplied, the interior room lamp illuminates.
When back door is opened, ground supplied:

- through luggage room/ trunk room lamp terminal 2
- through back door or trunk lid switch terminal 1 and 2
- through body grounds B44 and B51. (Hatchback)
- through body grounds B17, B23 and B81. (C+C)

With power and ground are supplied, the luggage room lamp illuminates.

ON-OFF CONTROL

When the driver side door, front passenger door, rear LH or RH door is opened, the interior room lamp turns on while the interior room lamp switch is in the “DOOR” position.

INTERIOR ROOM LAMP TIMER OPERATION

When interior room lamp switch is in the “DOOR” position, the BCM keeps the interior room lamp illuminated for Approx. 28 seconds when:

- unlock signal is received from Intelligent Key, while all doors are closed and key is out of the ignition key cylinder (with Intelligent Key system).
- unlock signal is received from key fob while all doors are closed and key is out of the ignition key cylinder (without Intelligent Key system).
- key is removed from ignition key cylinder while all doors are closed (without Intelligent Key system)
- any door is opened and then closed while key is out of the ignition key cylinder.

The timer is canceled when:

- ignition switch is turned ON.
- lock signal is received from Intelligent Key, while all doors are closed and key is out of the ignition key cylinder (with Intelligent Key system).
- lock signal is received from remote controller while all doors are closed and key is out of the ignition key cylinder (without Intelligent Key system).

INTERIOR ROOM LAMP BATTERY SAVER CONTROL

If interior lamp is left ON, it will not be turned off even when door is closed.
BCM turns off interior lamp automatically to save battery 15 minutes after ignition switch is turned off.
BCM controls interior lamps listed below:

- Interior room lamp

After lamps turn OFF by the battery saver system, the lamps illuminate again when

- unlock signal is send from keyfob,
- door lock/unlock switch is operated.
- signal received from Intelligent Key is locked or unlocked.
- door is opened or closed,
- key is inserted in ignition key cylinder.

CAN Communication

EKS00ERO

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. Modern vehicles are equipped with many electronic control units 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

EKS00QPB

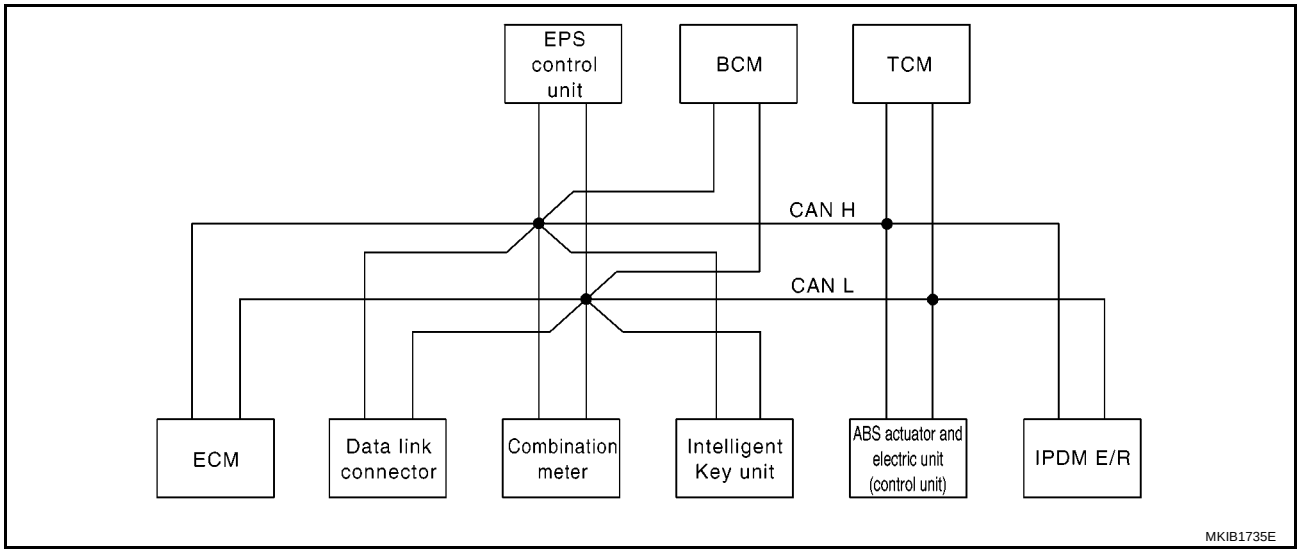
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-226, "TYPE 1/ TYPE 2"		LT-229, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-231, "TYPE 7/ TYPE 8"		LT-234, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-236, "TYPE 13/ TYPE 14"	

×: Applicable

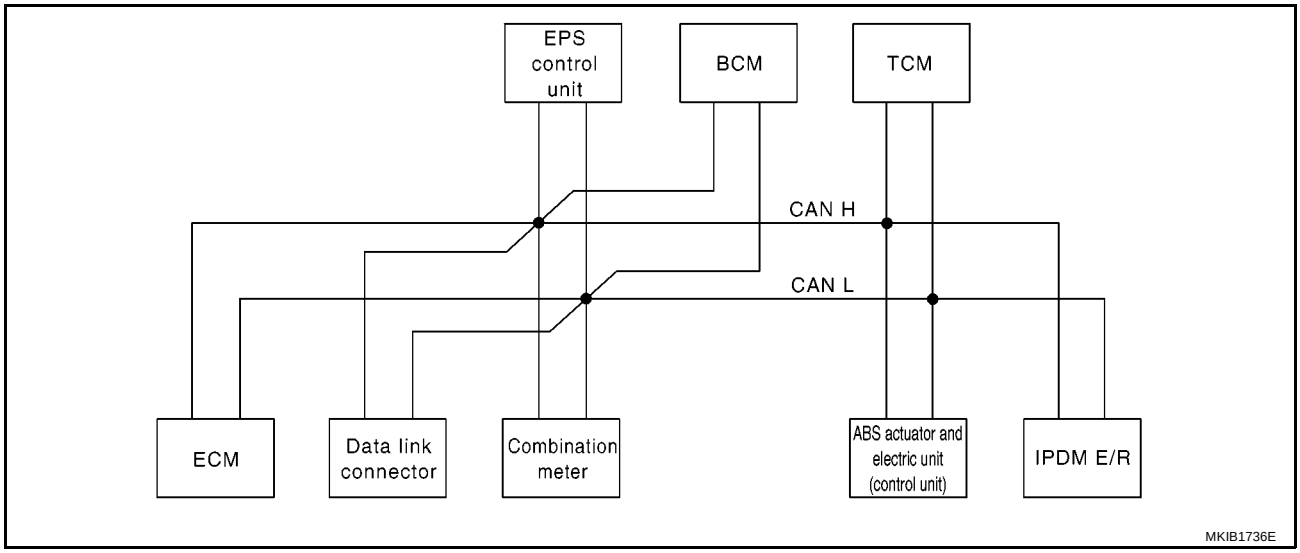
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

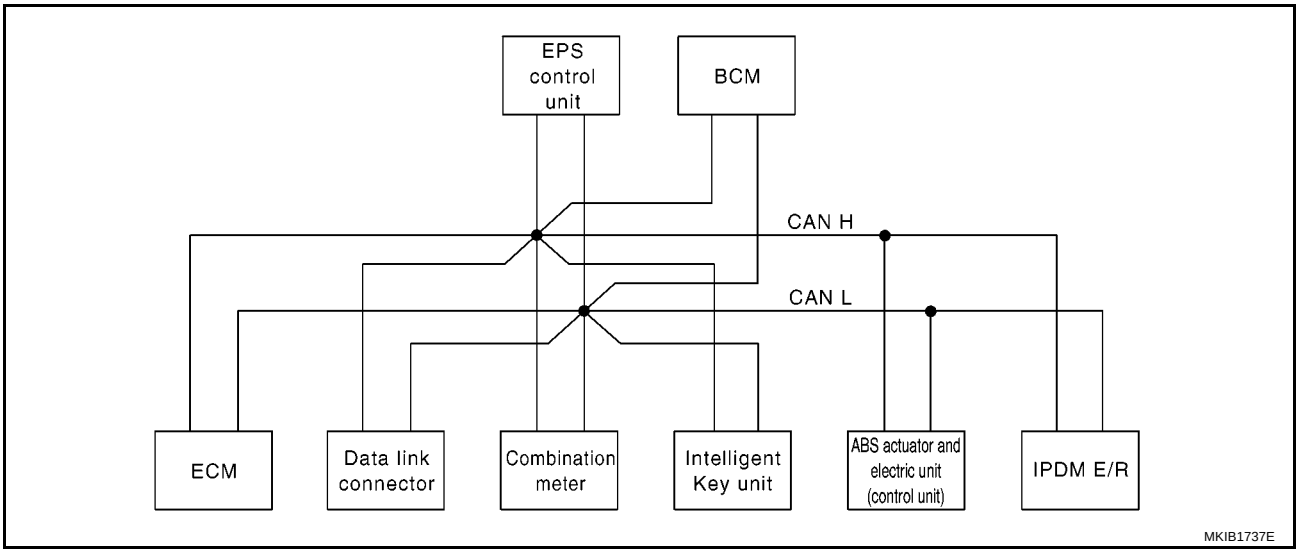
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

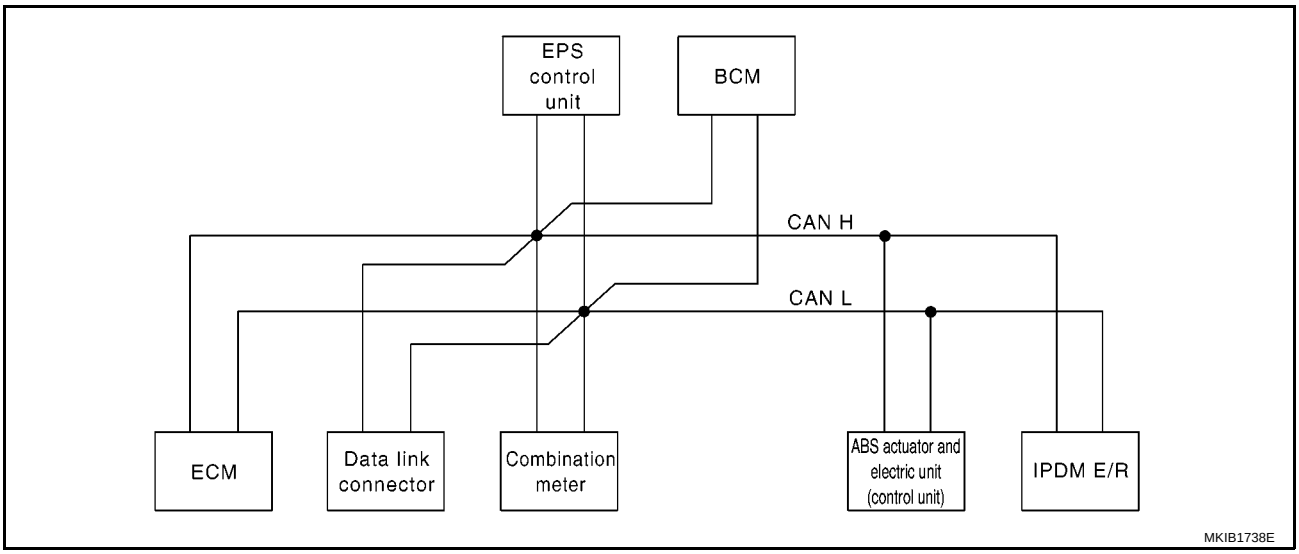
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

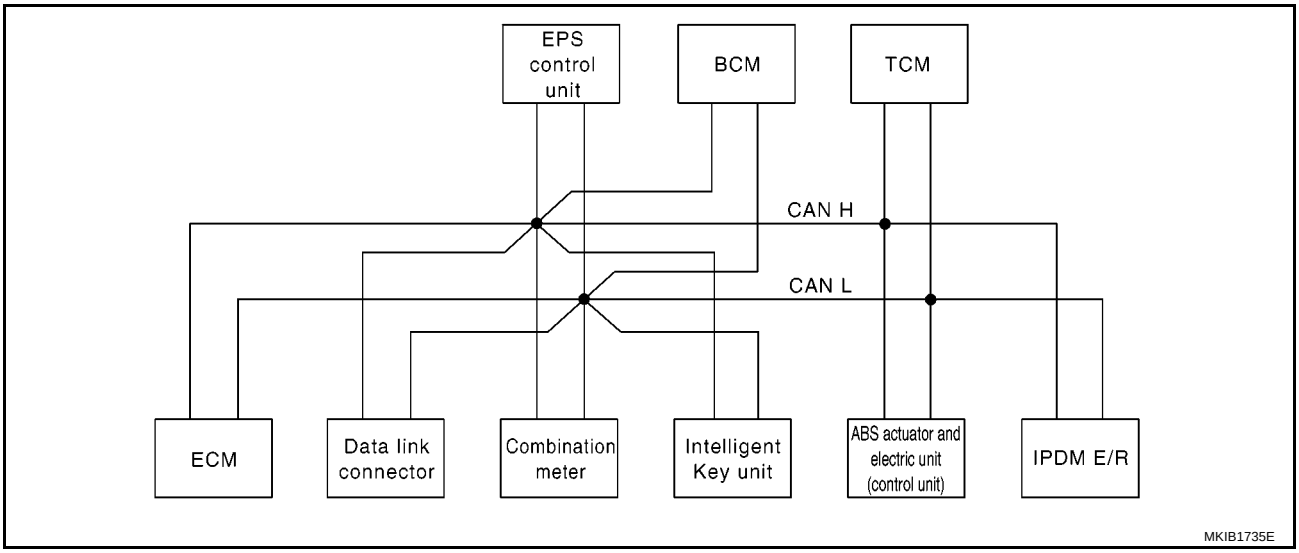
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

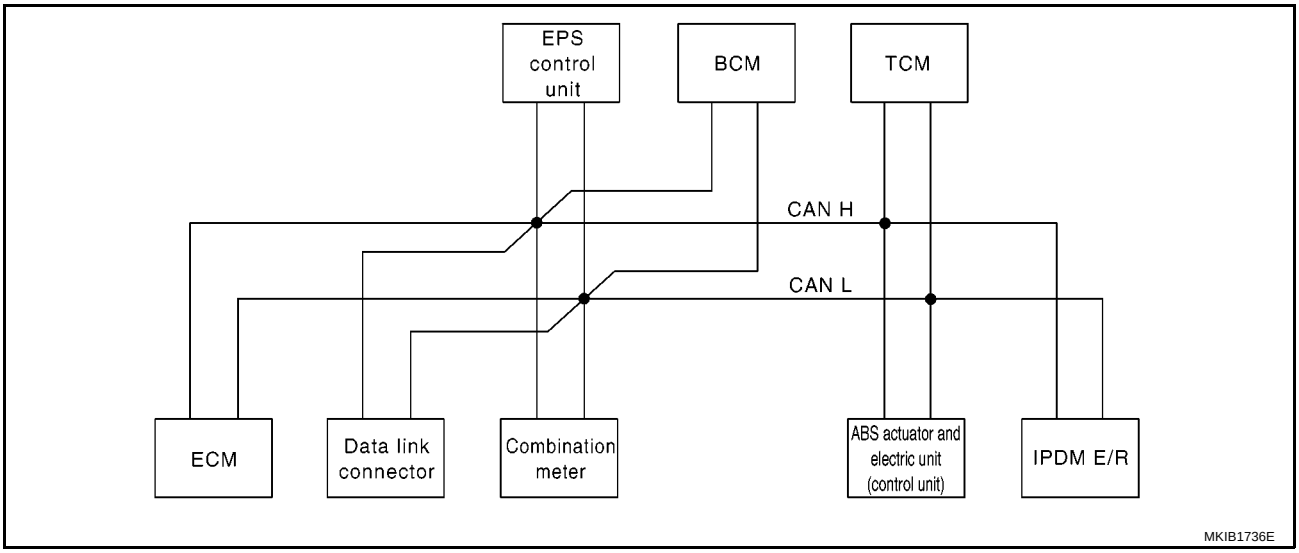
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

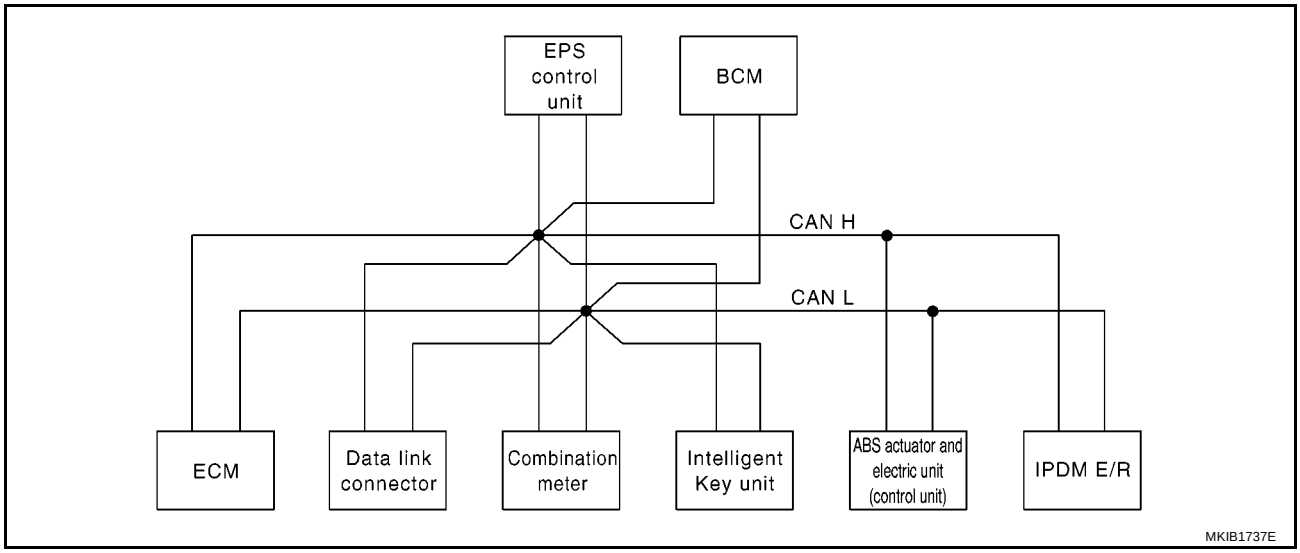
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

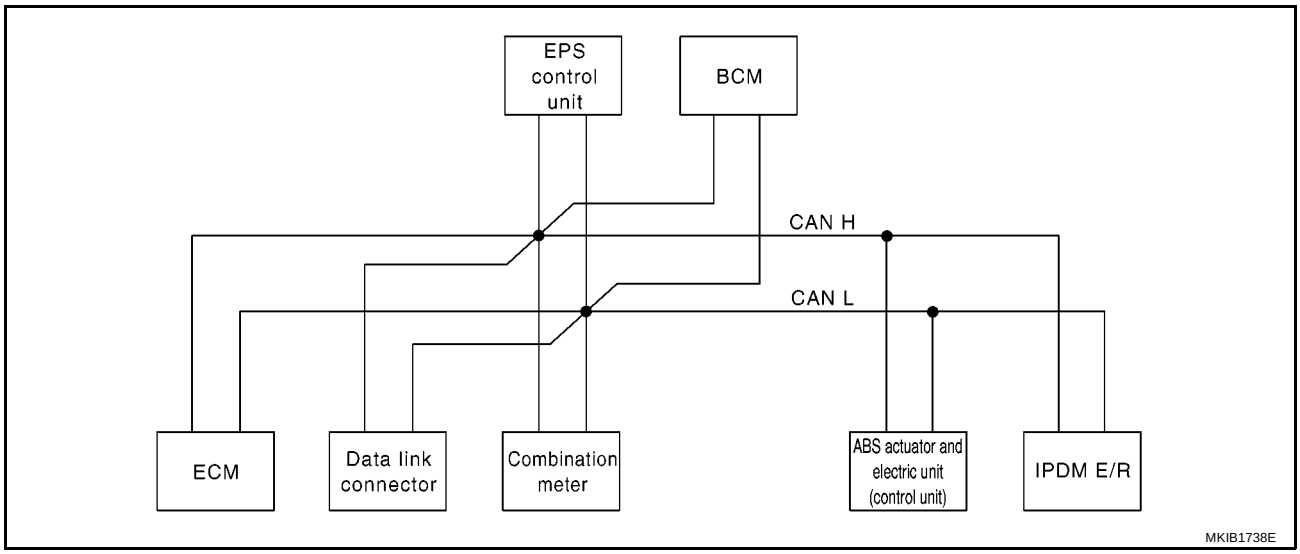
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

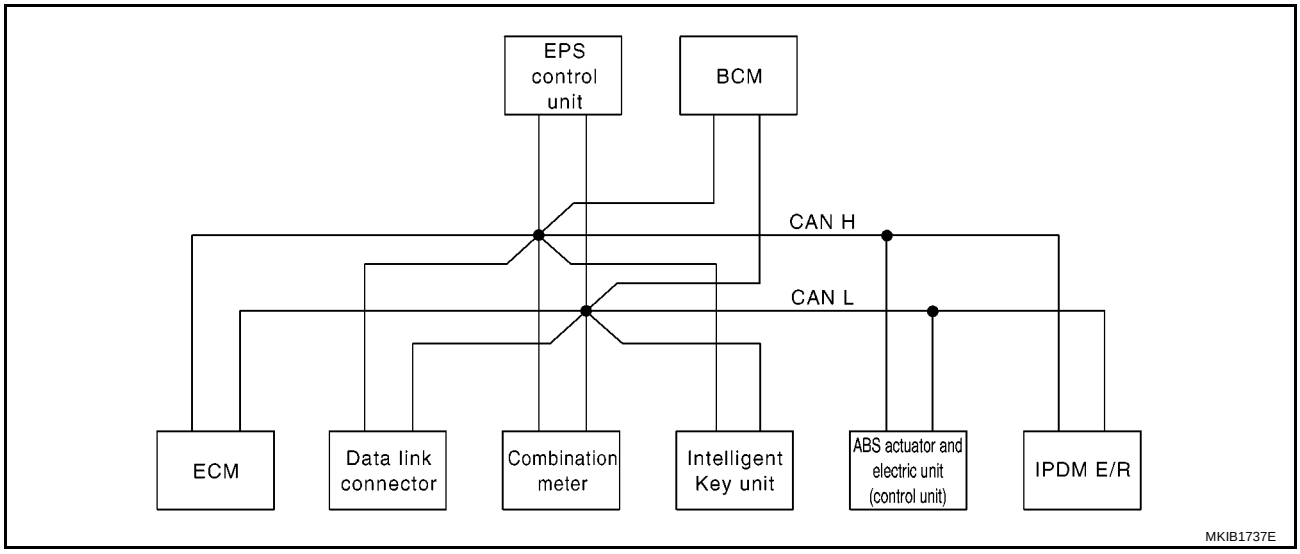
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

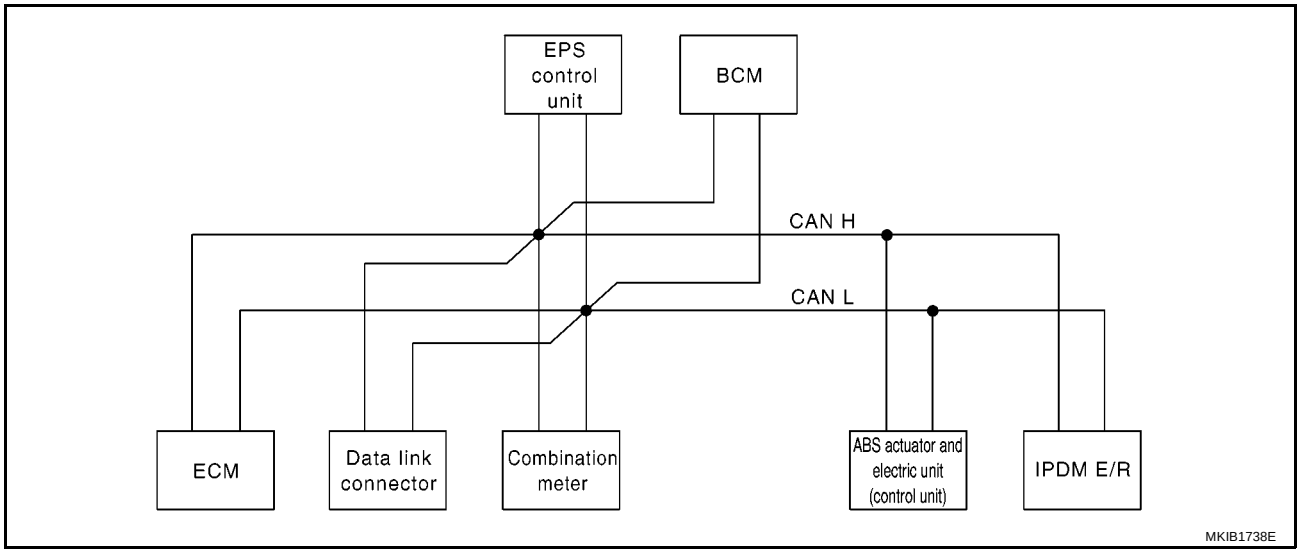
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



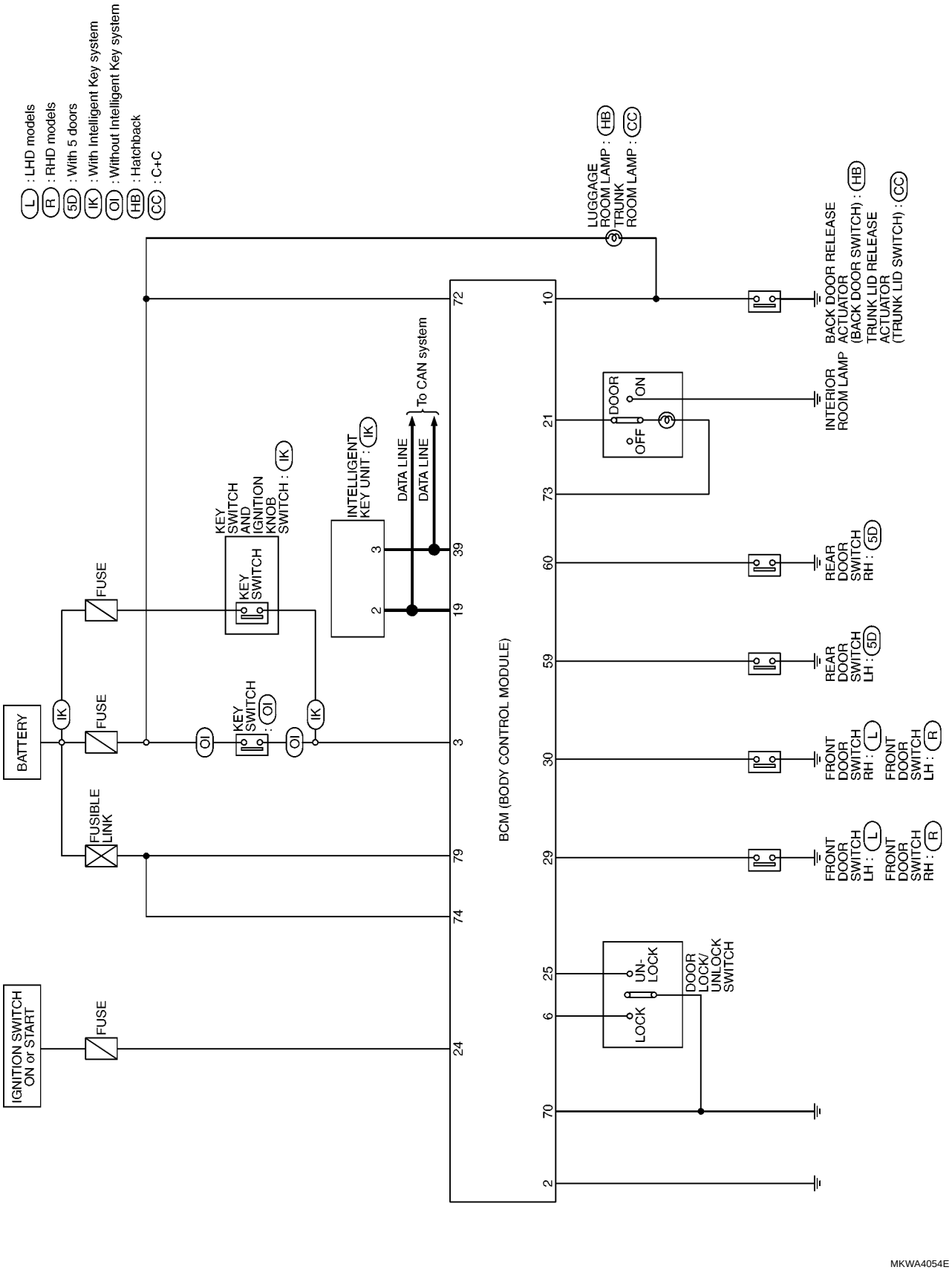
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

Schematic

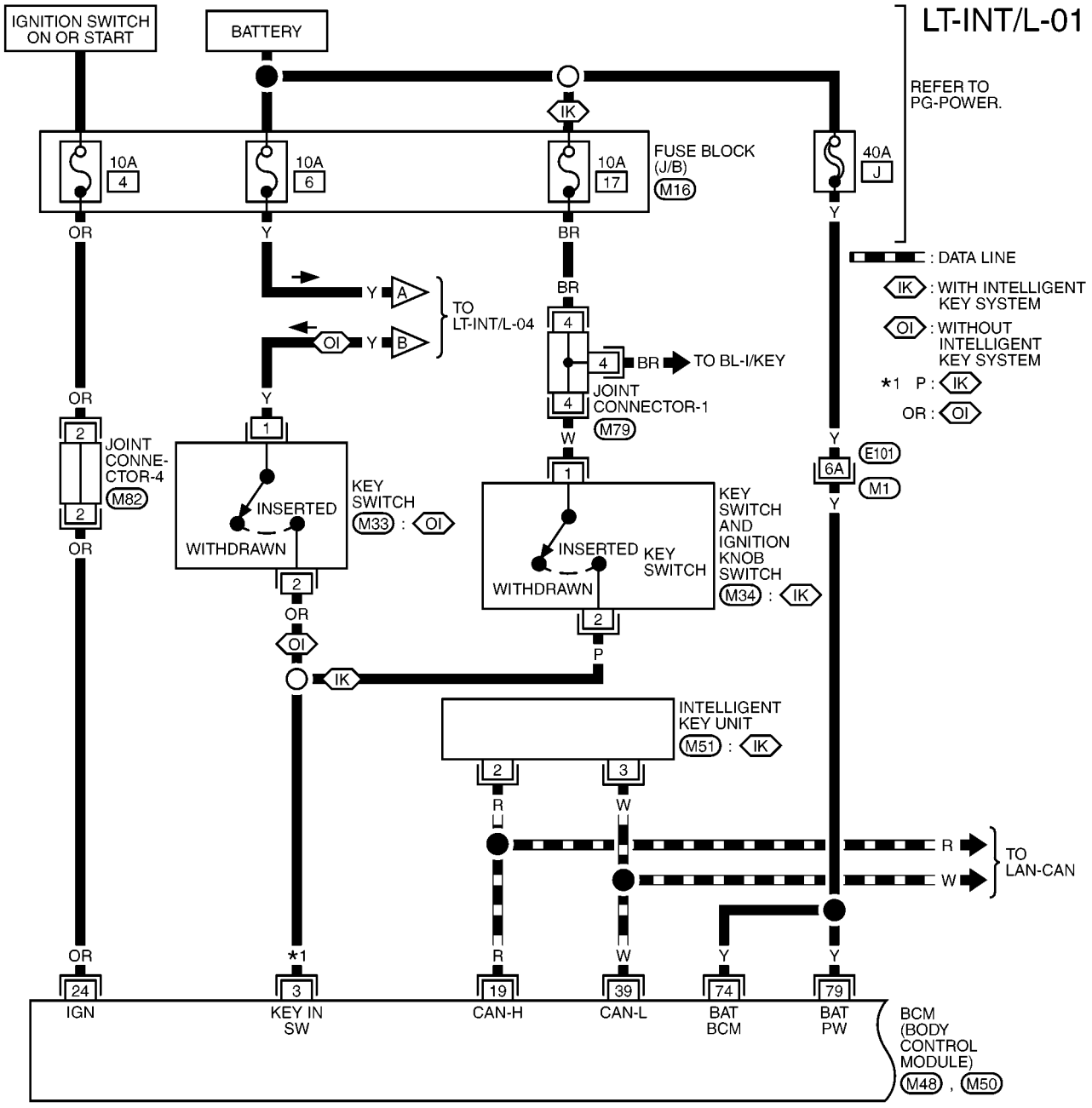
EKS00EO2

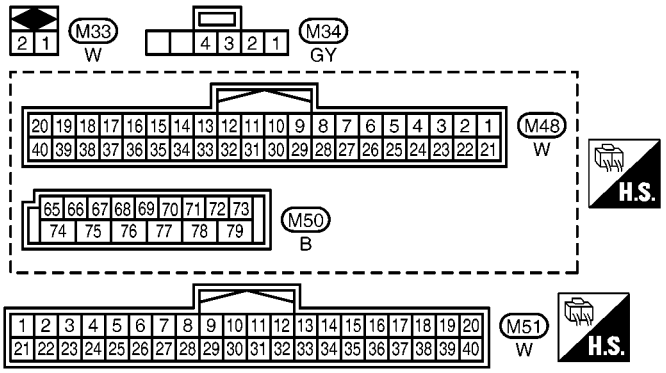


MKWA4054E

Wiring Diagram — INT/L —

EKS00EO3

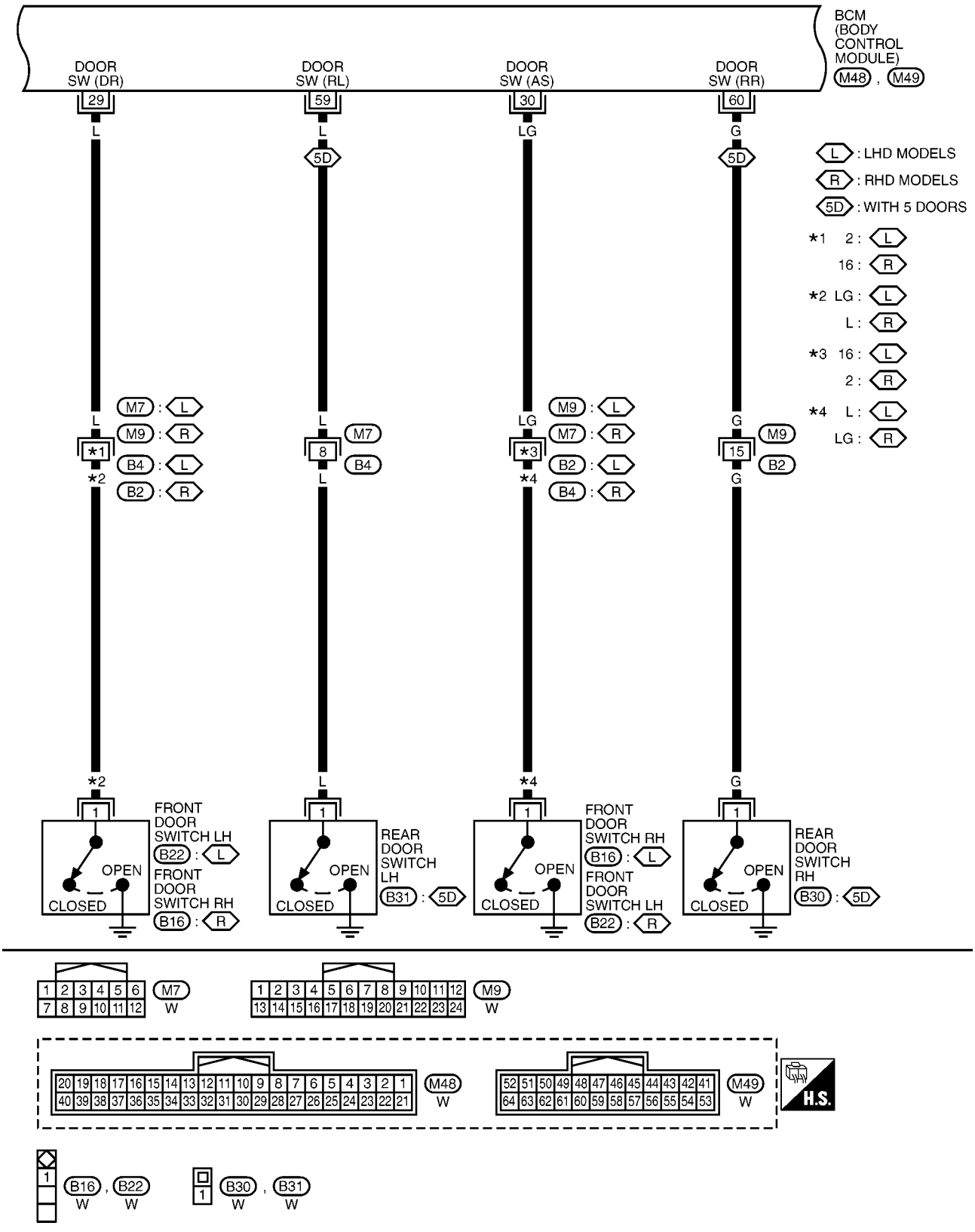




REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M16 - FUSE BLOCK - JUNCTION BOX (J/B)
M79 , M82 - JOINT CONNECTOR (J/C)

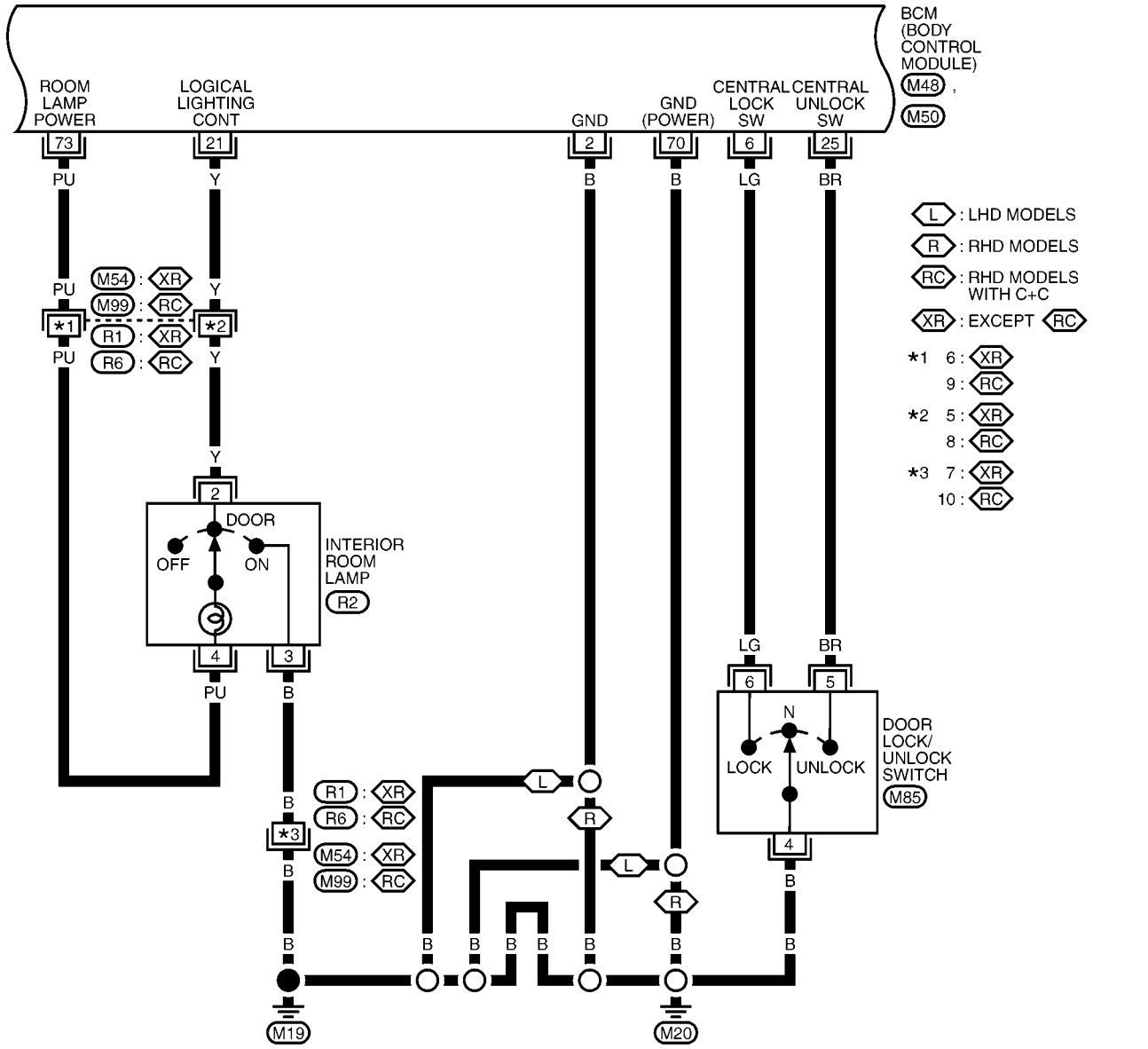
MKWA4055E

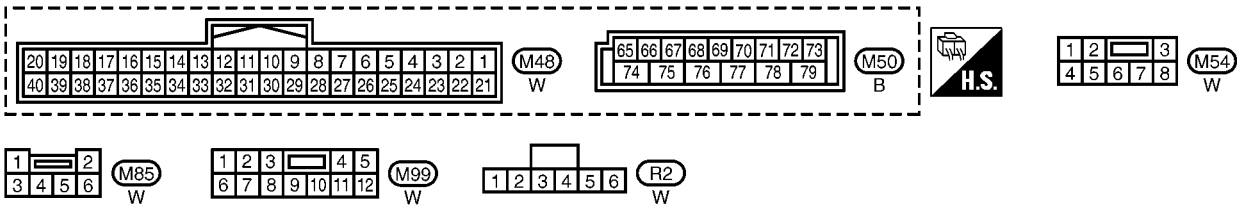
LT-INT/L-02



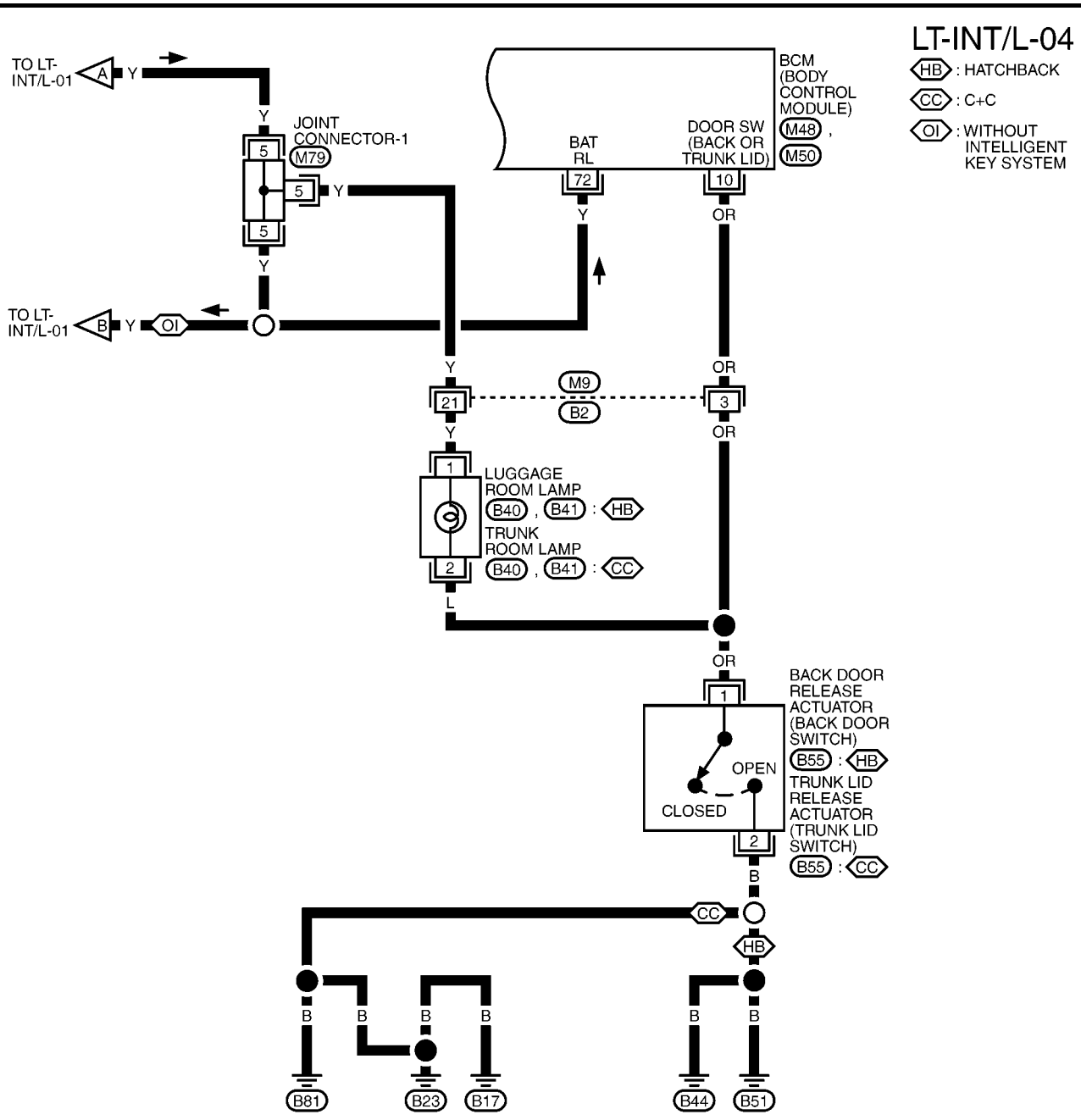
MKWA0832E

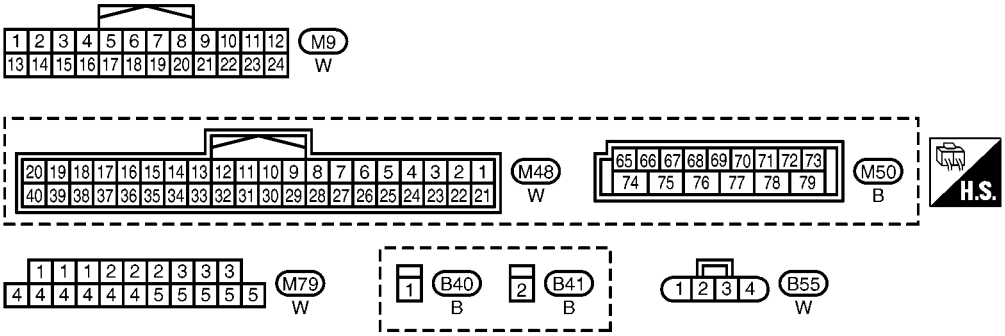
LT-INT/L-03





MKWA4056E


LT-INT/L-04
HB : HATCHBACK
CC : C+C
OI : WITHOUT INTELLIGENT KEY SYSTEM
TO LT-INT/L-01
A
Y
JOINT CONNECTOR-1
M79
5
BCM (BODY CONTROL MODULE)
M48
M50
BAT
RL
72
DOOR SW (BACK OR TRUNK LID)
10
OR
TO LT-INT/L-01
B
OI
M9
B2
21
3
1
LUGGAGE ROOM LAMP
B40 , B41 : HB
TRUNK ROOM LAMP
B40 , B41 : CC
2
L
BACK DOOR RELEASE ACTUATOR (BACK DOOR SWITCH)
B55 : HB
OPEN
CLOSED
TRUNK LID RELEASE ACTUATOR (TRUNK LID SWITCH)
B55 : CC
B
CC
HB
B81
B23
B17
B44
B51


M9
W
M48
W
M50
B
H.S.
M79
W
B40
B
B41
B
B55
W

MKWA4057E

Terminals and Reference Value for BCM

EKS00EO4

Terminal No.	Wire color	Signal designation	Measuring condition					Voltage [V] (Approx.)
			Ignition switch	Operation or condition				
2	B	Ground	ON	—				0
3	P*1	Key switch signal	OFF	Remove key.				0
	OR*2			Key is inserted.				Battery voltage
10	OR	Back door switch signal	OFF	Back door switch signal		ON (open)		0
						OFF (close)		Battery voltage
19	R	CAN H	—	—				—
21	Y	Logical lighting control	OFF	Room lamp switch: DOOR position	Key is inserted	Any door switch	ON (Open)	0
							OFF (Close)	Battery voltage
					Close all doors	Key is removed from key cylinder		0
						Turn ignition switch ON		Battery voltage
					Key is removed			0
					Interior room lamp timer		OFF	Battery voltage
							ON	0
24	OR	Ignition power supply	ON	—				Battery voltage
29	L	Driver door switch signal	OFF	Driver door switch signal		ON (open)		0
						OFF (closed)		Battery voltage
30	LG	Passenger door switch signal	OFF	Passenger door switch signal		ON (open)		0
						OFF (close)		Battery voltage
39	W	CAN L	—	—				—
59	L	Rear door switch LH signal	OFF	Rear door switch LH signal		ON (open)		0
						OFF (close)		Battery voltage
60	G	Rear door switch RH signal	OFF	Rear door switch RH signal		ON (open)		0
						OFF (close)		Battery voltage
70	B	Ground	ON	—				0
72	Y	Power source (Fuse)	OFF	—				Battery voltage
73	PU	Room lamp signal	OFF	Room lamp switch: DOOR position	Key is inserted.	Any door switch	ON (open)	0
							OFF (closed)	Battery voltage
			—		Close all doors.	Key is removed after being fully inserted.		0
						Turn ignition switch ON.		Battery voltage
74	Y	Power supply (Fusible link)	OFF	—				Battery voltage
79	Y	Power supply (Fusible link)	OFF	—				Battery voltage

*1: With Intelligent Key system
*2: Without Intelligent Key system

How to Proceed With Trouble Diagnosis

EKS00EO5

1. Confirm the symptom or customer complaints.
2. Understand operation description and function description.
   Refer to Interior room lamp LT-223, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-244, "Preliminary Check"
4. Check symptom and repair or replace the cause of malfunction.
5. Does the interior room lamp operate normally? Yes: GO TO 6. No: GO TO 4.
6. INSPECTION END.

Preliminary Check

EKS00EO6

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check BCM fuse and fusible link for blown-out.

UNIT	POWER SOURCE	FUSE No.
BCM	Battery	J
	Ignition switch ON or START position	4

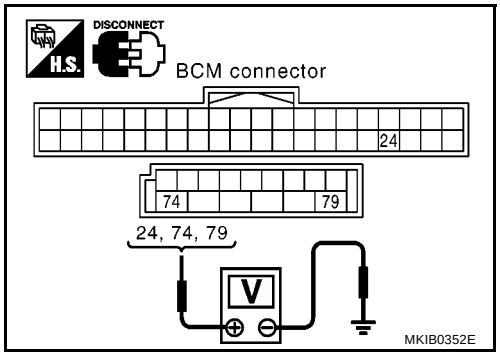
Refer to LT-239, "Wiring Diagram — INT/L —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-5, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

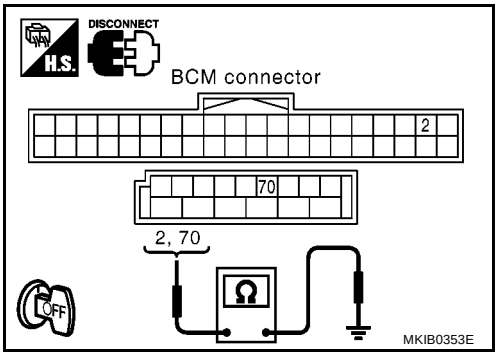
OK or NG

OK >> GO TO 3.
NG >> Repair harness for open or short between BCM and fuse. If NG, repair and replace the harness or fuse.

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Connector	Terminal (Wire color)	Ground	Continuity
M48	2 (B)		Yes
M50	70 (B)		



OK or NG

OK >> INSPECTION END
NG >> Repair or replace the harness.

CONSULT-II Functions (BCM)

EKS00EO7

CONSULT-II can display each diagnosis item using the diagnostic test modes shown following.

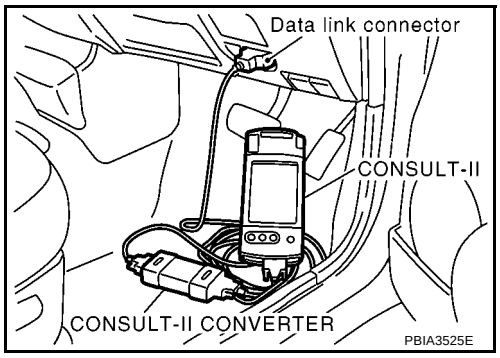
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
INT lamp	Data monitor	Displays BCM input data in real time.
	Active test	BCM can sends a drive signal to electrical components to their operation.

CONSULT-II BASIC OPERATION

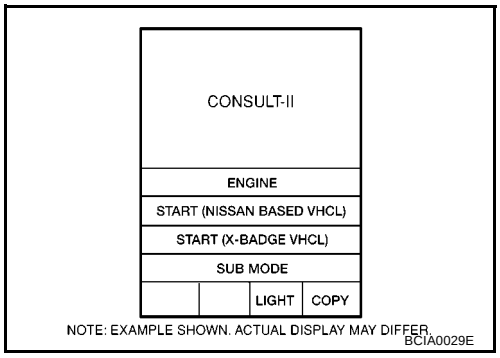
CAUTION:

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.

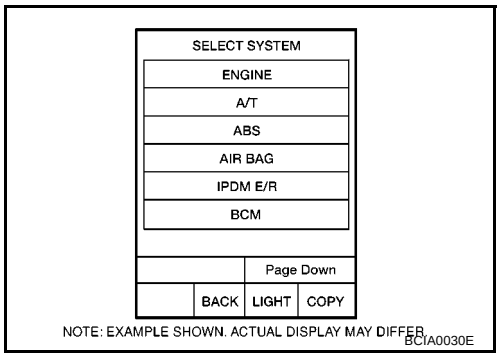
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



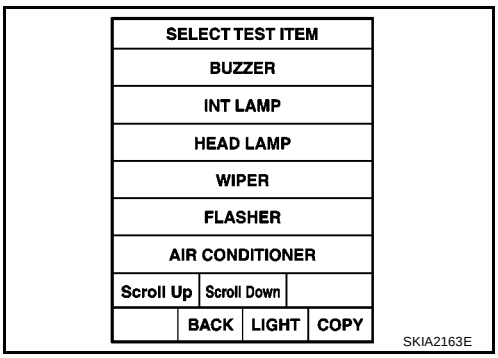
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



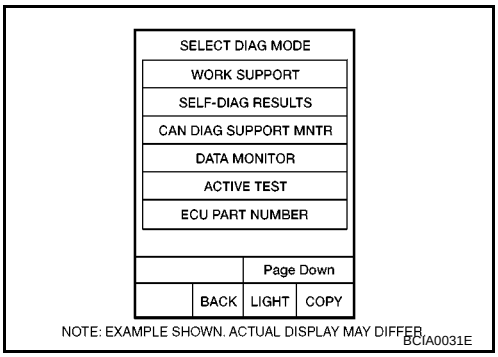
5. Touch “BCM” on the “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “INT LAMP” on “SELECT TEST ITEM” screen.



7. Touch “DATA MONITOR” or “ACTIVE TEST” on the “SELECT DIAG MODE” screen.



DATA MONITOR

Operation Procedure

1. Touch “INT LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on the “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” on the “DATA MONITOR” screen.
4. Touch “START”.
5. When “ALL SIGNALS” is selected, all the items will be monitored.
6. Touch “RECORD” while monitoring to record the status of the item being monitored. To stop recording, touch “STOP”.

Display Item List

Monitor item “UNIT”		Display content
IGN ON SW	[ON/OFF]	Displays status (Ignition switch ON: ON/Others OFF, ACC: OFF) as judged from the ignition switch signal.
PUSH SW (*1)	[ON/OFF]	Displays status (Ignition knob is pushed: ON/ released: OFF) as judged from the ignition knob switch signal.
KEY IN SW (*2)	[ON/OFF]	Displays status (Key inserted: ON/Key removed: OFF) as judged from the key switch signal.
DOOR SW-DR	[ON/OFF]	Displays status (Door open: ON/door closed: OFF) as judged from the front door switch RH signal.
DOOR SW-AS	[ON/OFF]	Displays status (Door open: ON/Door closed: OFF) as judged from the front door switch LH signal.
DOOR SW-RR	[ON/OFF]	Displays status (Door open: ON/door closed: OFF) as judged from the rear door switch RH signal.
DOOR SW-RL	[ON/OFF]	Displays status (Door open: ON/Door closed: OFF) as judged from the rear door switch LH signal.
BACK DOOR SW	[ON/OFF]	Displays status (Door open: ON/Door closed: OFF) as judged from the back door switch signal.
CDL LOCK SW	[ON/OFF]	Displays status (Locked: ON/Others: OFF) as judged from lock signal.
CDL UNLOCK SW	[ON/OFF]	Displays status (Unlocked: ON/Others: OFF) as judged from unlock signal.
KEYLESS LOCK (*2)	[ON/OFF]	Displays status (Locked: ON/Others: OFF) as judged from lock signal. (Locked by Multi-Remote control system)

Monitor item “UNIT”		Display content
KEYLESS UNLOCK(*2)	[ON/OFF]	Displays status (Unlocked: ON/Others: OFF) as judged from unlock signal. (Unlocked by Multi-Remote control system)
I-KEY LOCK (*1)	[ON/OFF]	Displays status (Locked: ON/Others: OFF) as judged from lock signal. (Locked by Intelligent Key system)
I-KEY UNLOCK (*1)	[ON/OFF]	Displays status (Unlocked: ON/Others: OFF) as judged from unlock signal. (Unlocked by Intelligent Key system)
I-KEY ALL UNL (*1)	[ON/OFF]	Displays status (Unlocked: ON/Others: OFF) as judged from unlock signal. (Unlocked by Intelligent Key system)

*1: Displayed for models with Intelligent Key system.
*2: Displayed for models without Intelligent Key system.

ACTIVE TEST

Test Item	Description
INT LAMP	This test is able to check interior lamp operation. The interior lamp turned ON when “ON” on CONSULT-II display is touched.

Room Lamp Does Not Operate

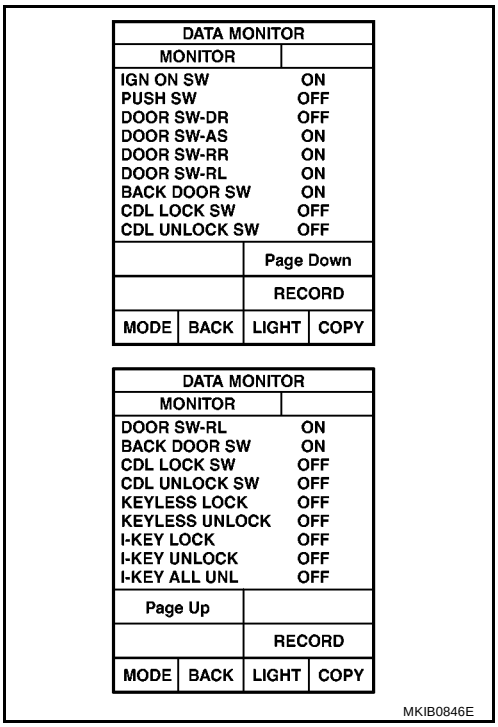
EKS00EO8

1. CHECK SWITCH SIGNAL

Select “BCM” on CONSULT-II. Check following item in “DATA MONITOR” mode with CONSULT-II.

Monitor item	Condition	
IGN ON SW	Ignition switch is in ON position	ON
	Ignition switch is in other position	OFF
PUSH SW (*1)	Ignition knob is pushed	ON
	Ignition knob is released	OFF
KEY IN SW (*2)	Key is inserted	ON
	Key is removed	OFF
DOOR SW-DR	Front RH door is opened	ON
	Front RH door is closed	OFF
DOOR SW-AS	Front LH door is opened	ON
	Front LH door is closed	OFF
DOOR SW-RR	Rear RH door is opened	ON
	Rear RH door is closed	OFF
DOOR SW-RL	Rear LH door is opened	ON
	Rear LH door is closed	OFF
BACK DOOR SW	Back door is opened	ON
	Back door is closed	OFF
CDL LOCK SW	Lock/unlock switch lock position	ON
	Lock/unlock switch unlock position	OFF
CDL UNLOCK SW	Lock/unlock switch unlock position	ON
	Lock/unlock switch lock position	OFF
KEYLESS LOCK (*2)	Keyless lock/unlock switch lock position	ON
	Keyless lock/unlock switch unlock position	OFF
KEYLESS UNLOCK (*2)	Keyless lock/unlock switch unlock position	ON
	Keyless lock/unlock switch lock position	OFF
I-KEY LOCK (*1)	Intelligent Key lock/unlock switch lock position	ON
	Intelligent Key lock/unlock switch unlock position	OFF
I-KET UNLOCK (*1)	Intelligent Key lock/unlock switch unlock position	ON
	Intelligent Key lock/unlock switch lock position	OFF
I-KEY ALL UNL (*1)	Intelligent Key all door unlock switch unlock position	ON
	Intelligent Key all door unlock switch lock position	OFF

*1: Display for models with Intelligent Key system
*2: Displayed for models without Intelligent Key system



OK or NG

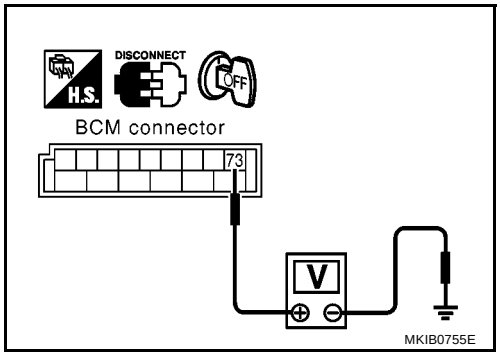
OK >> GO TO 2.

NG >>
- IGN ON SW: Refer to DI-110, "Ignition ON Signal Check" .
- PUSH SW (with Intelligent Key system): Refer to DI-107, "Key Switch Signal Check/With Intelligent Key System"
- KEY IN SW (without Intelligent Key system): Refer to DI-105, "Key Switch Signal Check/Without Intelligent Key System"
- DOOR SW-DR: Refer to BL-62, "DRIVER SIDE"
- DOOR SW-AS: Refer to BL-64, "PASSENGER SIDE"

- DOOR SW-RR: Refer to BL-68, "REAR RH SIDE"
- DOOR SW-RL: Refer to BL-66, "REAR LH SIDE"
- BACK DOOR SW: Refer to BL-72, "Check External Back Door Release Switch (Hatchback)"
- CDL LOCK/UNLOCK SW: Refer to BL-54, "Check Door Lock / Unlock Switch"
- KEYLESS LOCK/UNLOCK: Refer to BL-167, "Remote controller Check"
- I-KEY LOCK/UNLOCK: Refer to BL-223, "Check Door Request Switch"
- I-KEY ALL UNL: Refer to BL-223, "Check Door Request Switch"

2. CHECK BCM OUTPUT SIGNAL

1. Interior room lamp switch is in DOOR position.
2. Check voltage between BCM and ground.



Terminal (+) Connector	Terminal (+) Terminal (Wire color)	Terminal (-)	Condition				Voltage [V] (Approx.)
M50	73 (PU)	Ground	Ignition switch OFF	Key is inserted	Any door switch	ON (open)	0
						OFF (closed)	Battery voltage
			—	Close all doors.	Key is removed after being fully inserted.		0
					Turn ignition switch ON.		Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Replace BCM.

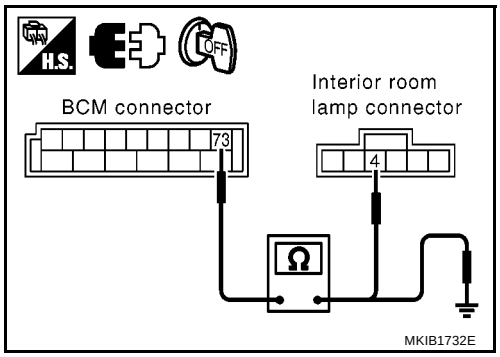
3. CHECK INTERIOR ROOM LAMP INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and room lamp connector.
3. Check continuity between BCM harness connector M50 terminal 73(PU) and interior room lamp harness connector R2 terminal 4(PU).

73 (PU) - 4 (PU) : Continuity should exist.

4. Check continuity between BCM connector M50 terminal 73 (PU) and ground.

73 (PU) - Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness or connector.

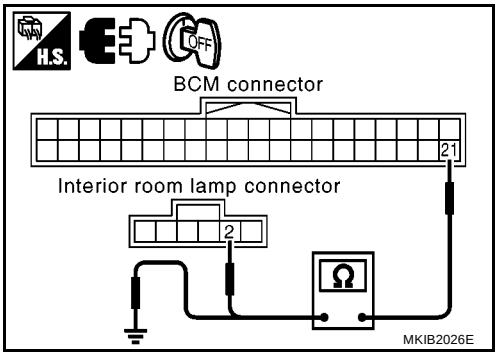
4. CHECK INTERIOR ROOM LAMP GROUND CIRCUIT

1. Check continuity between BCM connector M48 terminal 21(Y) and interior room lamp connector R2 terminal 2 (Y).

   21 (Y) - 2(Y) : Continuity should exist.

2. Check continuity between BCM connector M48 terminal 21 (Y) and ground.

   21 (Y) - Ground : Continuity should not exist.

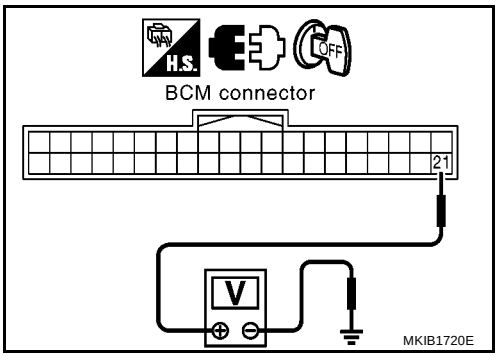


OK or NG

OK >> GO TO 5.
NG >> Repair or replace harness or connector.

5. CHECK BCM OUTPUT SIGNAL

1. Interior room lamp switch is in DOOR position.
2. Connect BCM connector
3. Check voltage between BCM connector terminal and ground.



Terminals				Measuring condition				Voltage [V] (Approx.)
(+)			(-)					
Connector	Terminal	Wire color		Ignition switch	Operation or condition			
M48	21	Y	Ground	OFF	Room lamp switch: DOOR position	Key is inserted	Any door switch	ON (Open)	0
								OFF (Close)	Battery voltage
						Close all doors	Key is removed from key cylinder		0
							Turn ignition switch ON		Battery voltage
						Key is removed			0
						Interior room lamp timer		OFF	Battery voltage
								ON	0

OK or NG

OK >> Check condition of the harness and connector.
NG >> Replace BCM.

Luggage Room Lamp Does Not Illuminate (Hatchback)

EKS00EO9

1. CHECK BULB

Check luggage room lamp bulb.

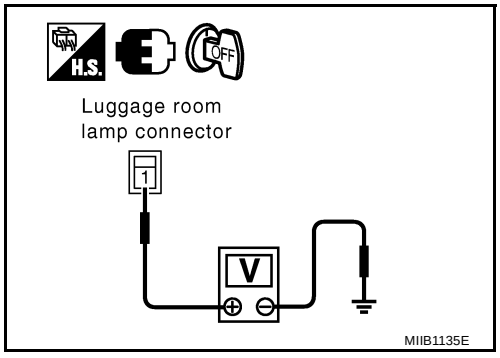
OK or NG

OK >> GO TO 2.
NG >> Replace luggage room lamp bulb.

2. CHECK LUGGAGE ROOM LAMP INPUT SIGNAL

Check voltage between luggage room lamp harness connector B40 terminal 1(Y) and ground.

1 (Y) - Ground : Battery voltage



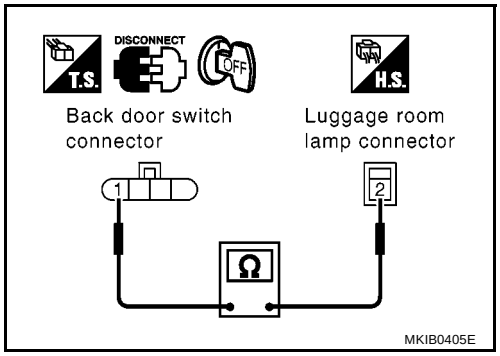
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between luggage room lamp and fuse. If NG, repair or replace the harness or fuse.

3. CHECK BACK DOOR SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect back door release actuator connector and luggage room lamp connector.
3. Check continuity between back door release actuator harness connector B55 terminal 1(OR) and luggage room lamp harness connector B41 terminal 2(L).

1 (OR) - 2 (L) : Continuity should exist.



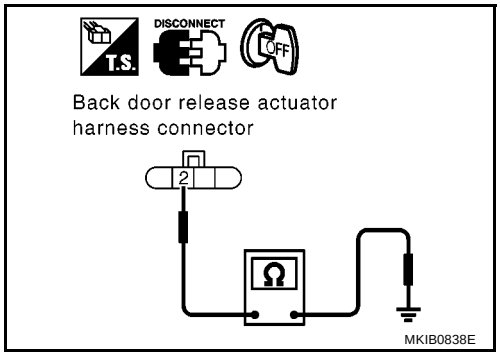
OK or NG

OK >> GO TO 4.
NG >> Repair or replace the harness.

4. CHECK BACK DOOR SWITCH GROUND CIRCUIT

Check continuity between back door release actuator harness connector B55 terminal 2(B) and ground.

2 (B) - Ground : Continuity should exist.



OK or NG

OK >> GO TO 5.
NG >> Repair or harness connector.

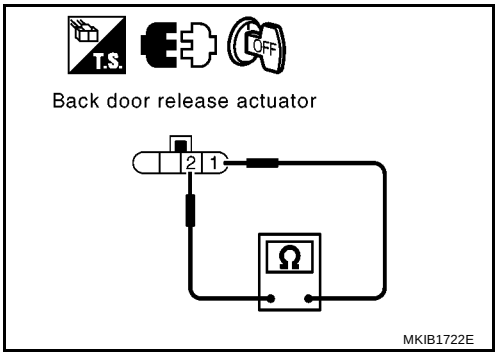
5. CHECK BACK DOOR SWITCH

Check continuity back door switch terminals.

Terminals		Condition		Continuity
1	2	Back door	OPEN	Yes
			CLOSED	No

OK or NG

OK >> Check condition of the harness and connector.
NG >> Replace the back door release actuator.



Trunk Room Lamp Does Not Illuminate (C+C)

EKS00QL5

1. CHECK BULB

Check trunk room lamp bulb.

OK or NG

OK >> GO TO 2.
NG >> Replace trunk room lamp bulb.

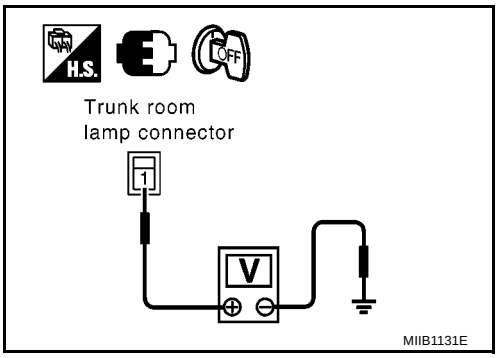
2. CHECK TRUNK ROOM LAMP INPUT SIGNAL

Check voltage between trunk room lamp harness connector B40 terminal 1(Y) and ground.

1 (Y) - Ground : Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between trunk room lamp and fuse. If NG, repair or replace the harness or fuse.



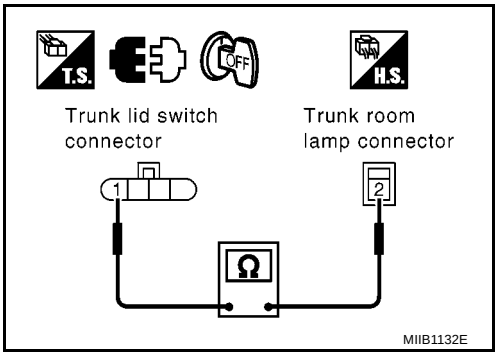
3. CHECK TRUNK LID SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect trunk lid release actuator connector and trunk room lamp connector.
3. Check continuity between trunk lid release actuator harness connector B55 terminal 1(OR) and trunk room lamp harness connector B41 terminal 2(L).

1 (OR) - 2 (L) : Continuity should exist.

OK or NG

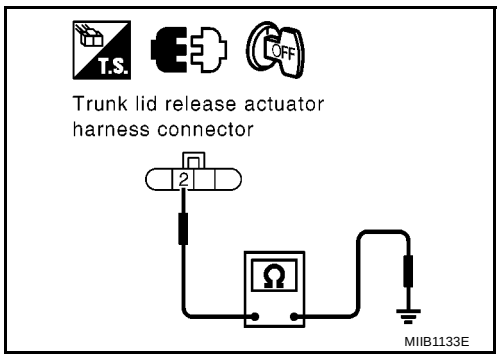
OK >> GO TO 4.
NG >> Repair or replace the harness.



4. CHECK TRUNK LID SWITCH GROUND CIRCUIT

Check continuity between trunk lid release actuator harness connector B55 terminal 2(B) and ground.

2 (B) - Ground : Continuity should exist.



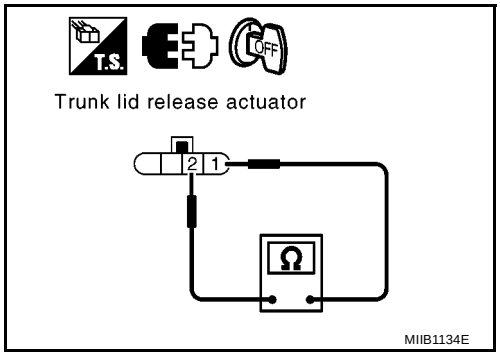
OK or NG

OK >> GO TO 5.
NG >> Repair or harness connector.

5. CHECK TRUNK LID SWITCH

Check continuity trunk lid switch terminals.

Terminals		Condition		Continuity
1	2	Trunk lid	OPEN	Yes
			CLOSED	No



OK or NG

OK >> Check condition of the harness and connector.
NG >> Replace the trunk release actuator.

Bulb Replacement

EKS00QL6

INTERIOR ROOM LAMP

1. Remove interior room lamp. Refer to LT-255, "INTERIOR ROOM LAMP" .
2. Remove bulbs.

Interior room lamp : 12V - 5W

TRUNK ROOM LAMP

1. Remove trunk room lamp. Refer to LT-255, "TRUNK ROOM LAMP"
2. Remove bulbs.

Interior room lamp : 12V - 10W

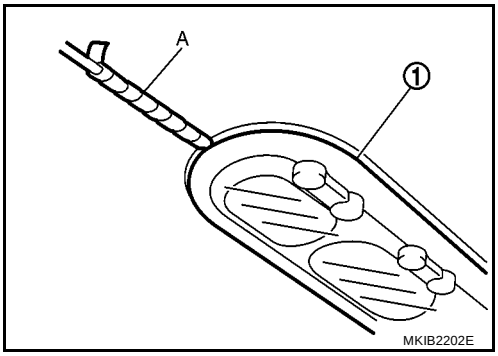
Removal and Installation

EKS00QL7

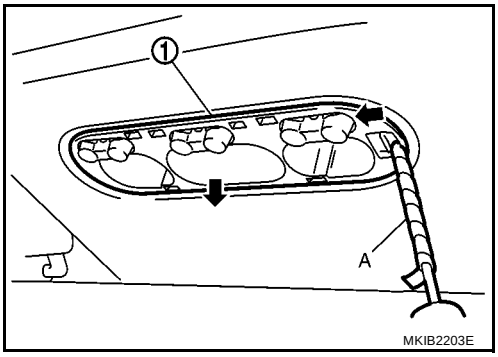
INTERIOR ROOM LAMP

Removal

1. Insert a screwdriver A or the like wrapped in a cloth into the lens notch and remove interior room lamp lens (1).



2. Pull the room lamp (1) out forward while shifting the tabs with a screwdriver A or similar tool.
3. Disconnect interior room lamp connector.



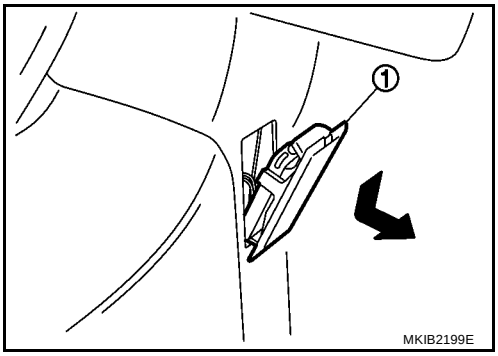
Installation

Installation is the reverse order of removal

TRUNK ROOM LAMP

Removal

1. Pull the upper part of the lamp forward while pushing the trunk room lamp (1) down.
2. Disconnect trunk room lamp connector and remove trunk room lamp.



Installation

Installation is the reverse order of removal

ILLUMINATION

PFP:27545

System Description

EKS00EOC

The illumination lamps operation is controlled by the lighting switch which built into the combination switch, BCM and IPDM E/R.Tail lamp relay is built into IPDM E/R.BCM read combination switch condition.Refer toLT-212, "System Description"

Power is supplied at all times

- to tail lamp relay (located in the IPDM E/R).

Power is also supplied at all times

- to BCM terminals 74 and 79
- through 40A fusible link (letter **J** , located in the fuse and fusible link box).

With the ignition switch in the ON or START position, power is supplied

- to BCM terminal 24
- through 10A fuse [No. 4, located in the fuse block (J/B)].
- to power window main switch terminal 2
- to front power window switch (passenger side) terminal 1
- through BCM terminal 78

Ground is supplied

- to BCM terminals 2 and 70
- through grounds M19, and M20.

ILLUMINATION OPERATION BY LIGHTING SWITCH

When the lighting switch is turned to 1ST position, BCM read combination switch condition (refer to LT-212, "System Description"). And BCM send illumination lamp request signal to IPDM E/R via CAN communication line. Then IPDM E/R is turned on tail lamp relay. Tail lamp relay is energized and then power is supplied:

- through terminal 15 of the IPDM E/R
- to heated seat switch LH (illumination) terminal 5
- to heated seat switch RH (illumination) terminal 5
- to folding roof switch terminal 5
- to door lock/unlock switch terminal 2
- through terminal 16 of the IPDM E/R
- to audio unit terminal 36
- to audio and navi control unit terminal 36
- to heater control panel terminal 15
- to A/C auto amplifier terminal 11
- to headlamp aiming switch terminal 3
- to headlamp washer switch terminal 3
- to hazard switch terminal 3
- to ashtray illumination (option connector) terminal 1 and
- to A/T device terminal 5
- to ESP OFF switch terminal 3

Ground is supplied at all times

- to folding roof switch terminal 6
- to door lock/unlock switch terminal 4
- to heated seat switch LH terminal 6
- to heated seat switch RH terminal 6
- through body grounds B17and B23 (Hatchback)
- through body grounds B17, B23 and B81 (C+C)
- to heater control panel terminal 7
- to A/C auto amplifier terminal 12
- to headlamp aiming switch terminal 4

- to headlamp washer switch terminal 4
- to hazard switch terminal 4
- to ashtray illumination (option connector) terminal 2
- to A/T device terminal 4
- to power window main switch terminal 7
- to front power window switch (passenger side) terminal 7
- to ESP OFF switch terminal 4
- through body grounds M19 and M20
- to audio and navi control unit terminal 38
- through body ground M60

With power and ground supplied, illumination lamps illuminate.

COMBINATION SWITCH READING FUNCTION

Refer to LT-212, "System Description"

CAN Communication

EKS00ERQ

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. Modern vehicles are equipped with many electronic control units 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

EKS00QPC

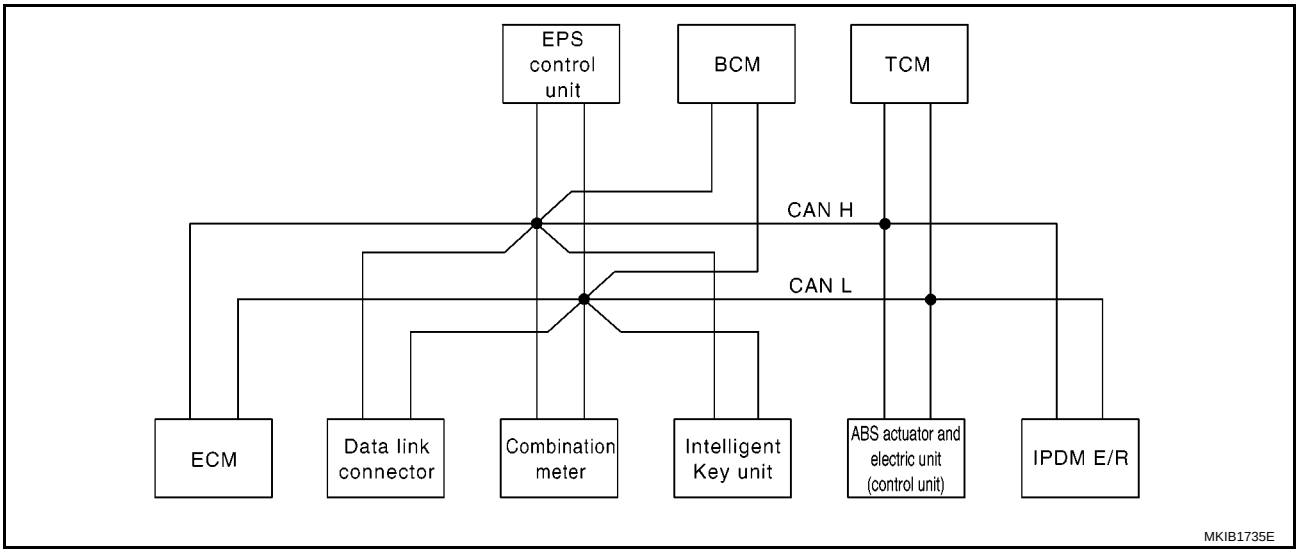
Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-259, "TYPE 1/ TYPE 2"		LT-262, "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LT-264, "TYPE 7/ TYPE 8"		LT-267, "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LT-269, "TYPE 13/ TYPE 14"	

×: Applicable

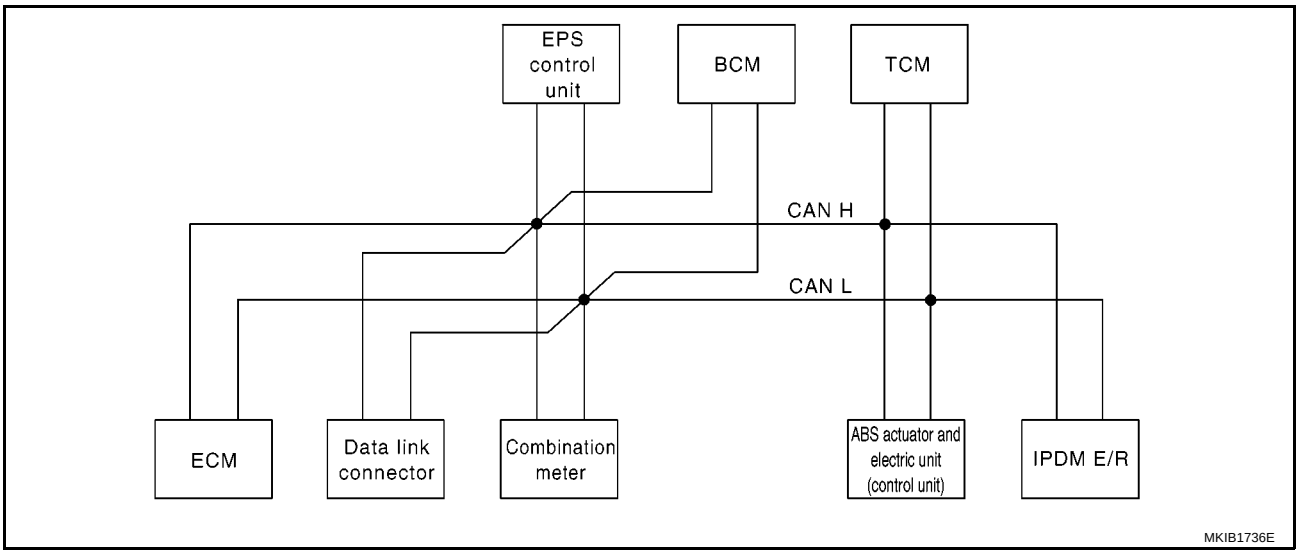
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

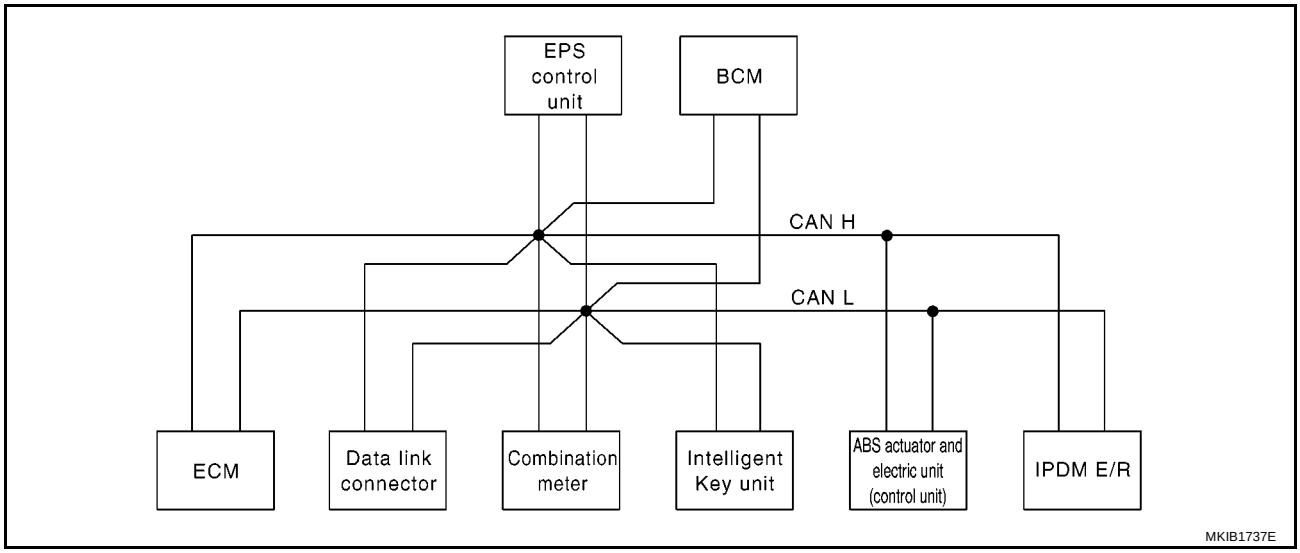
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	EPS control unit	BCM	ABS actua-tor and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

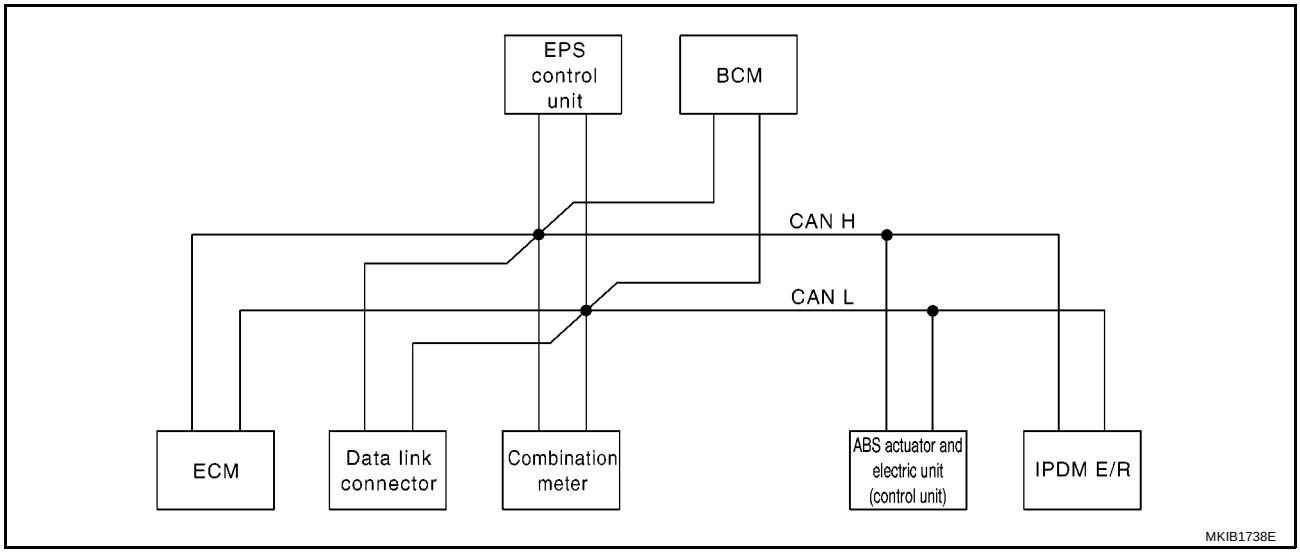
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

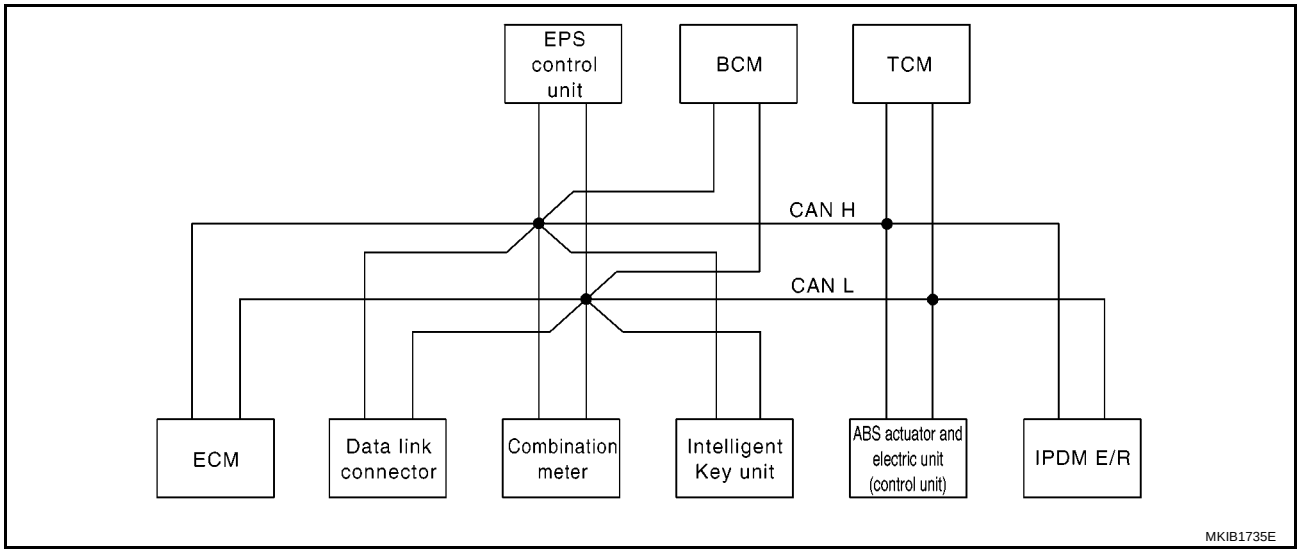
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

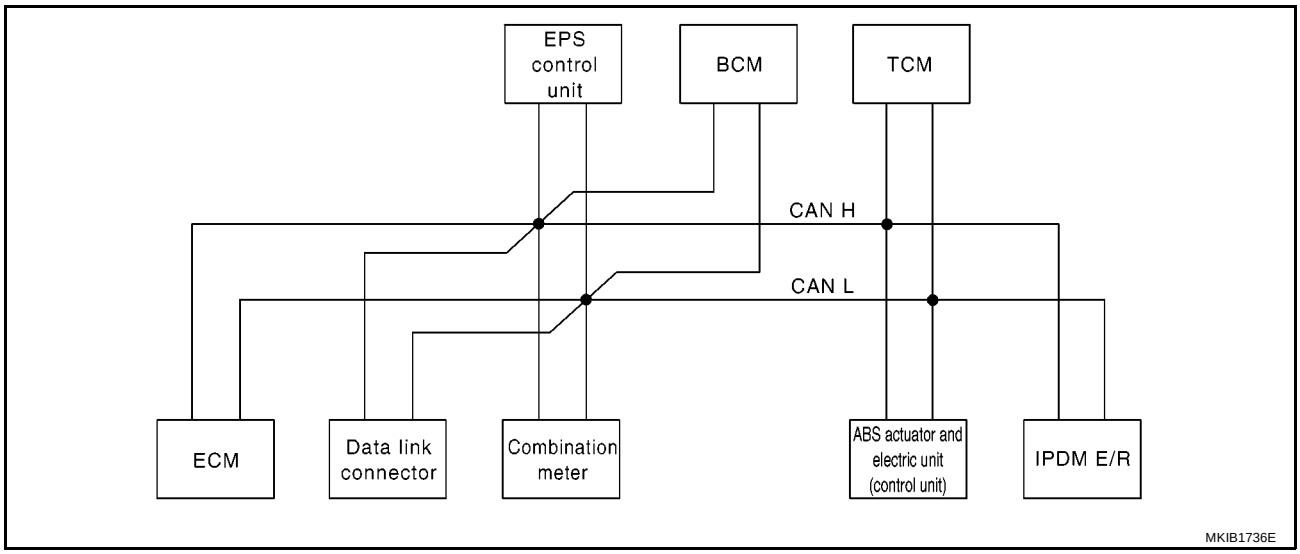
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

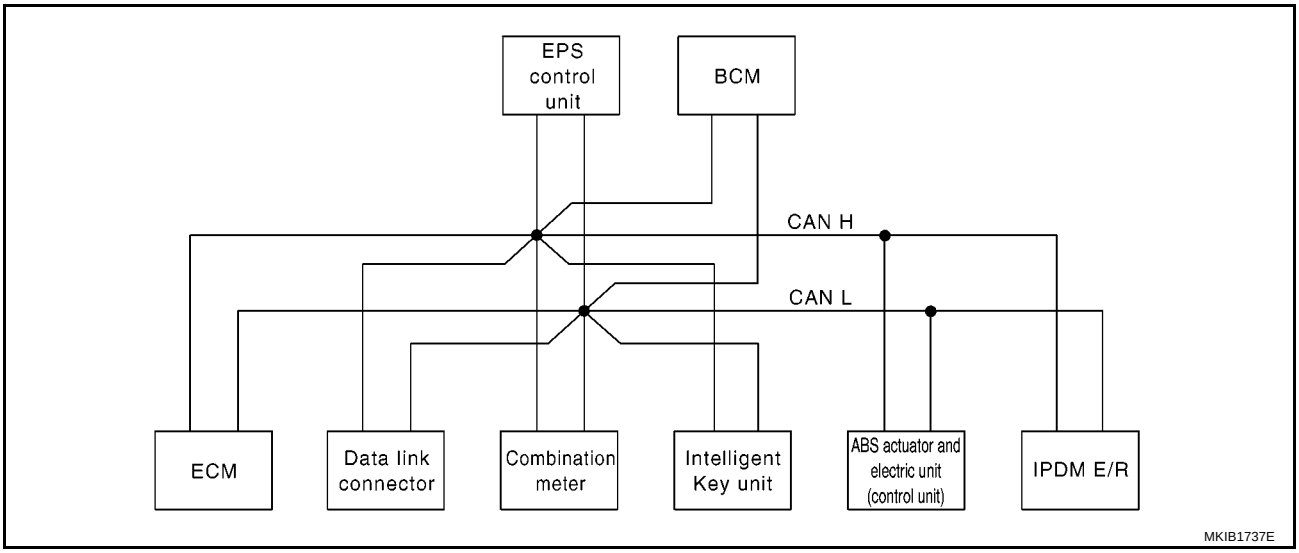
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

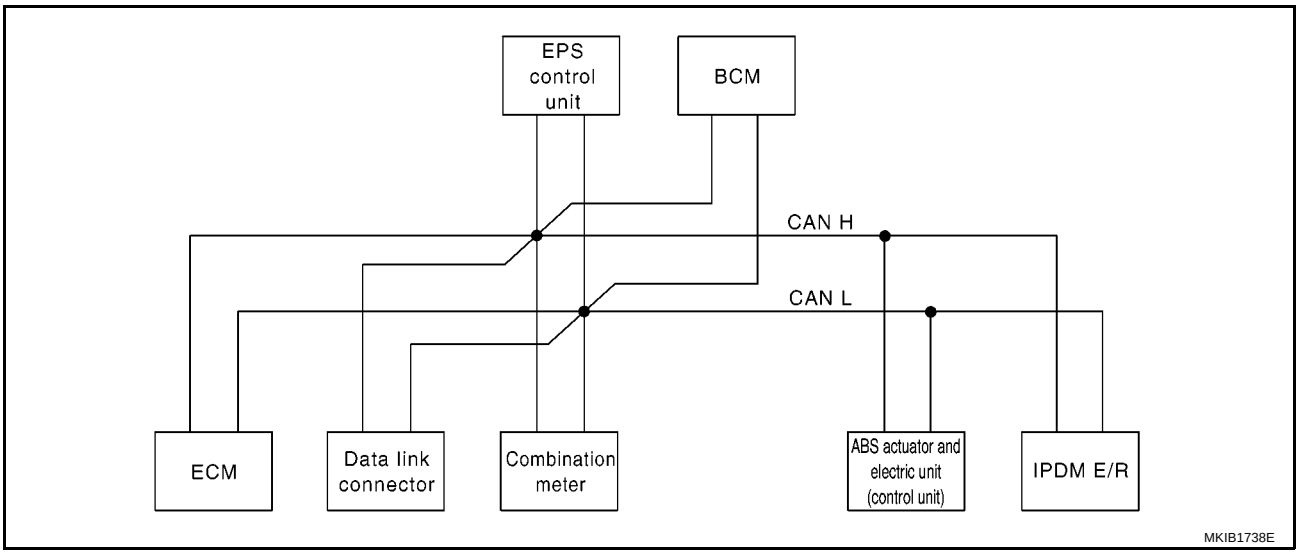
TYPE 9/TYPE 10/TYPE 11/TYPE 12

System diagram

- Type 9/Type 11



- Type 10/Type 12



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

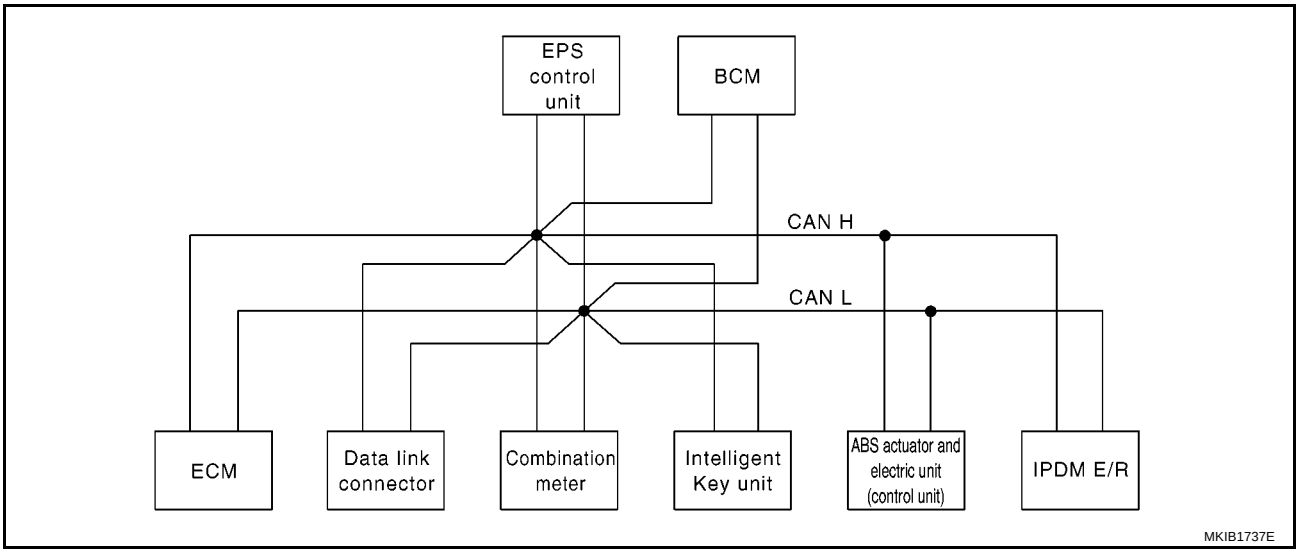
Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

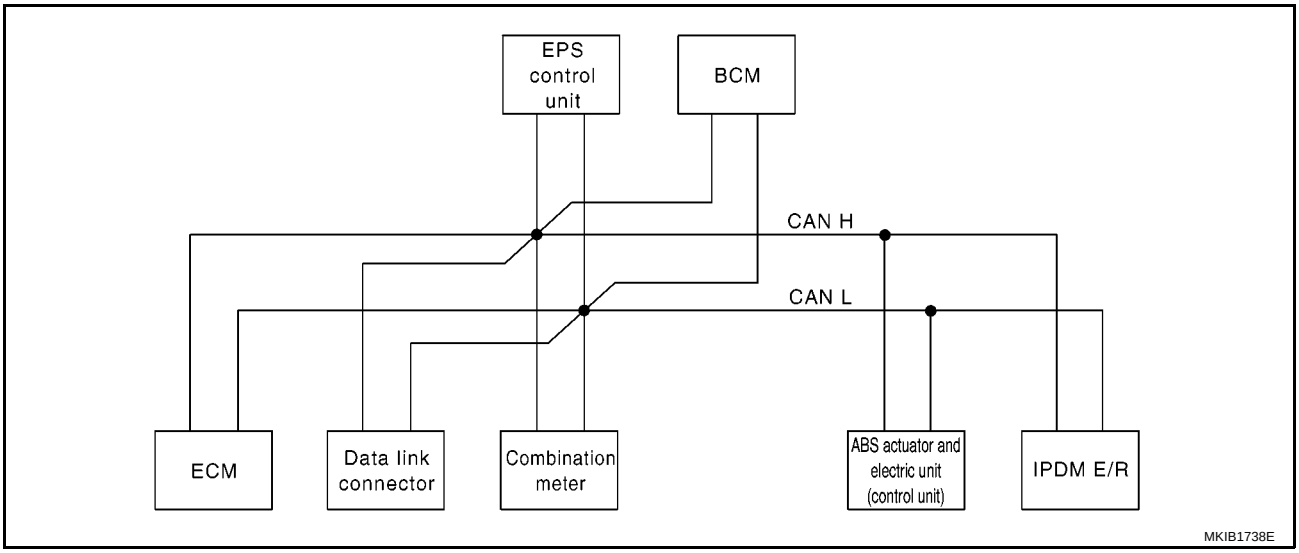
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



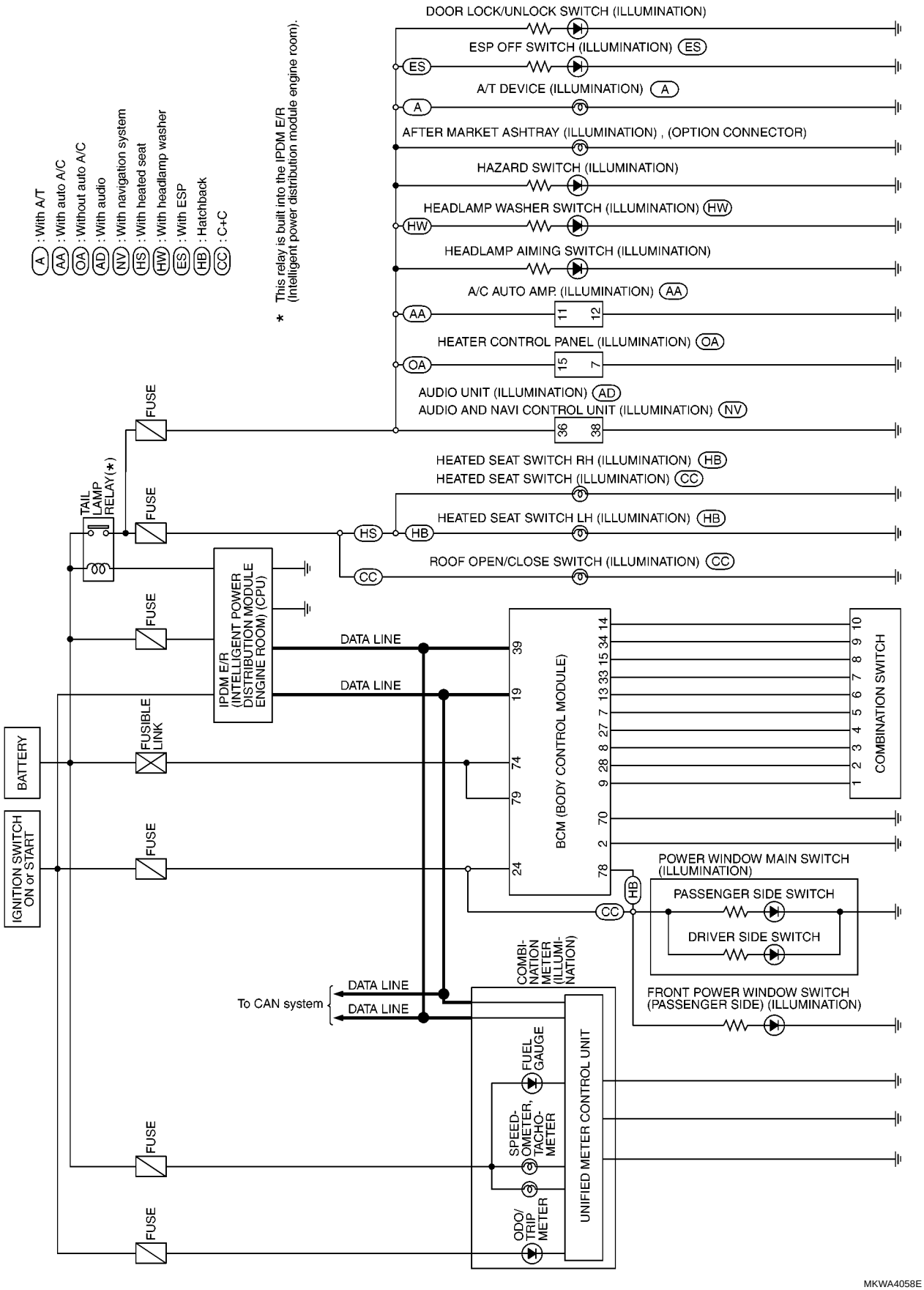
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

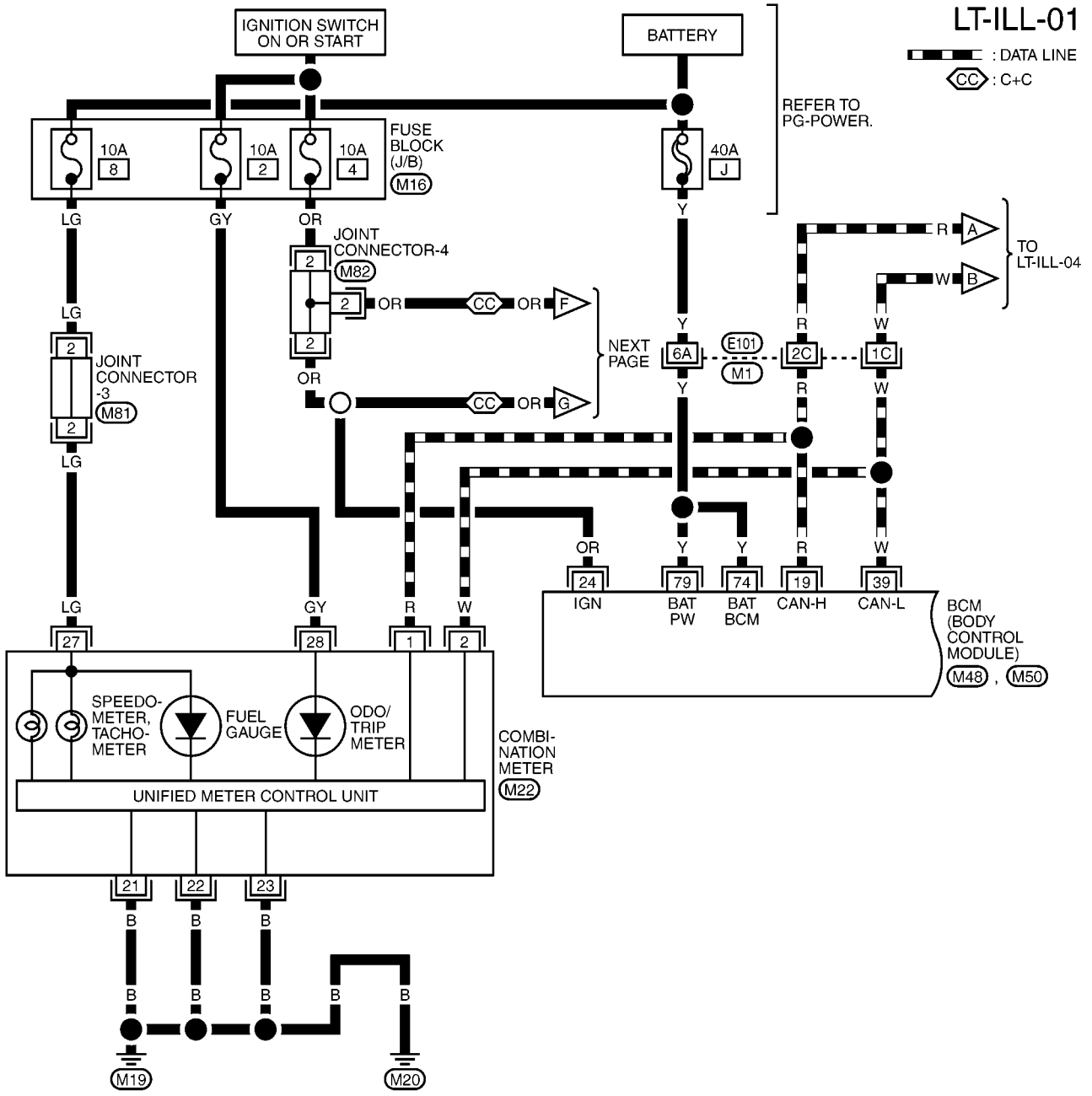
Schematic

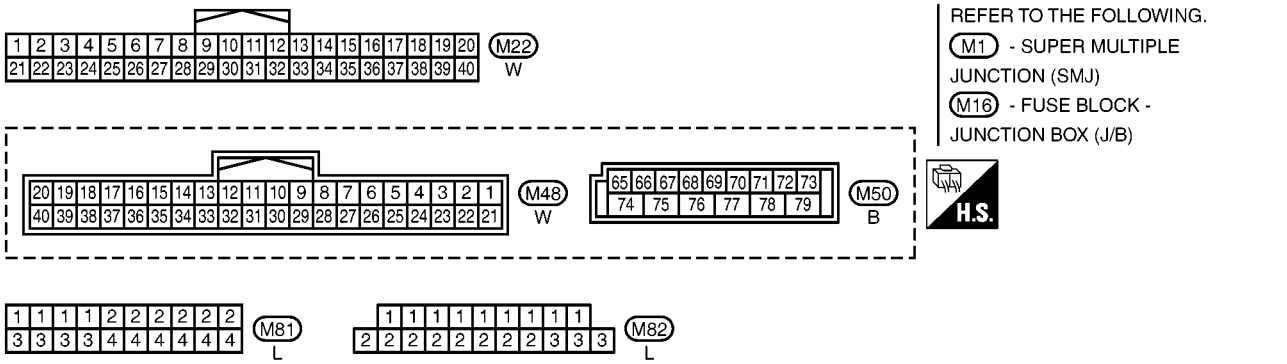
EKS00EOE



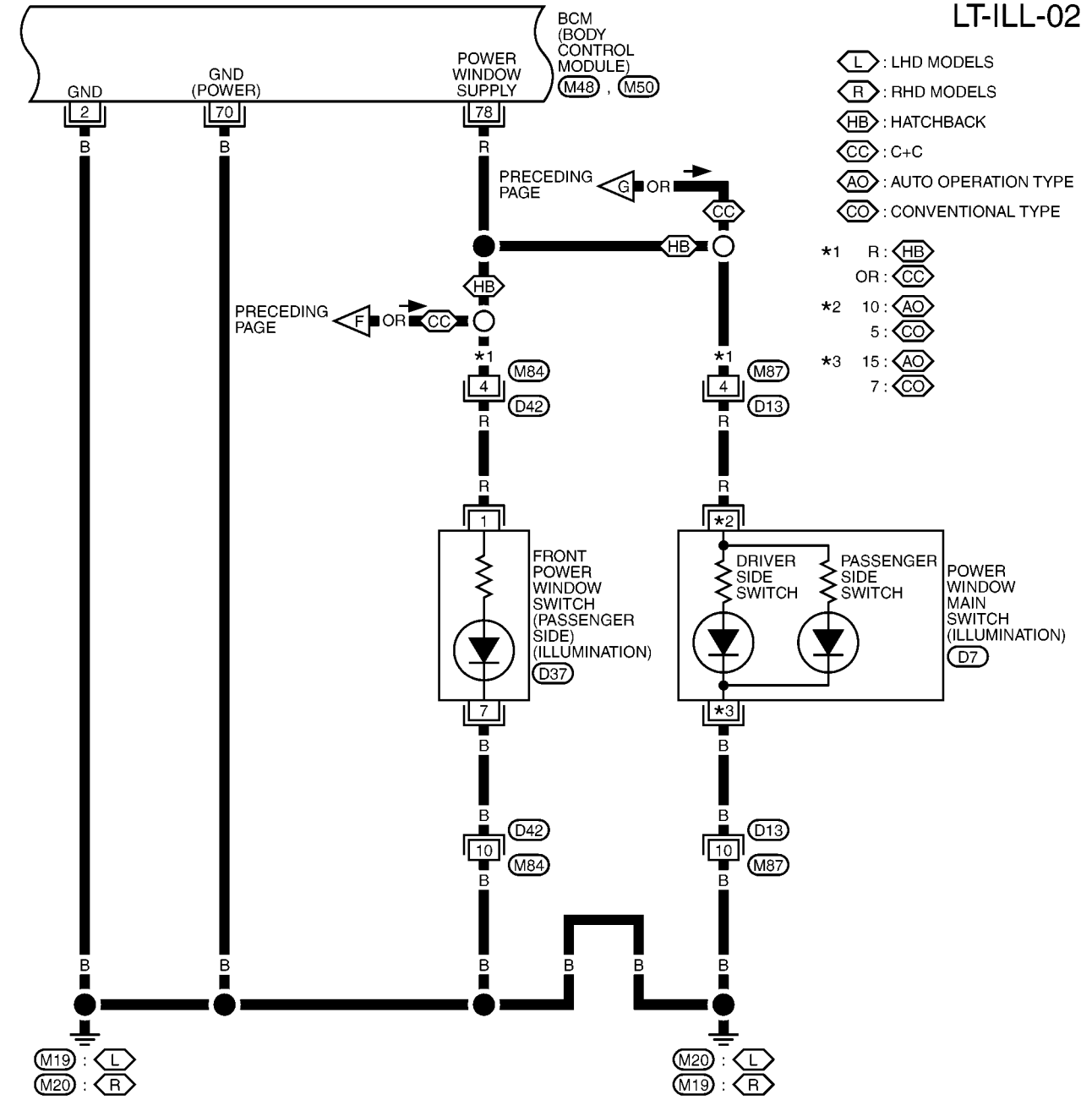
Wiring Diagram — ILL —

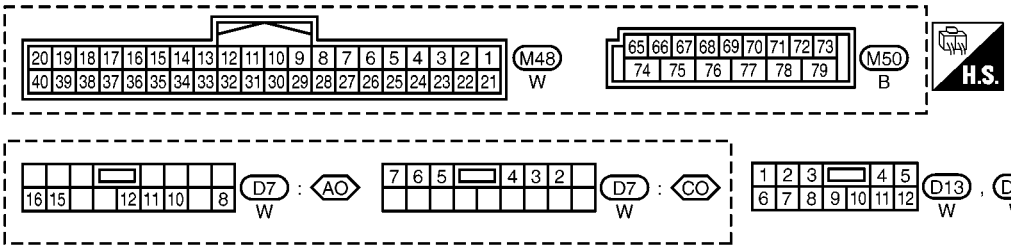
EKS00EOF





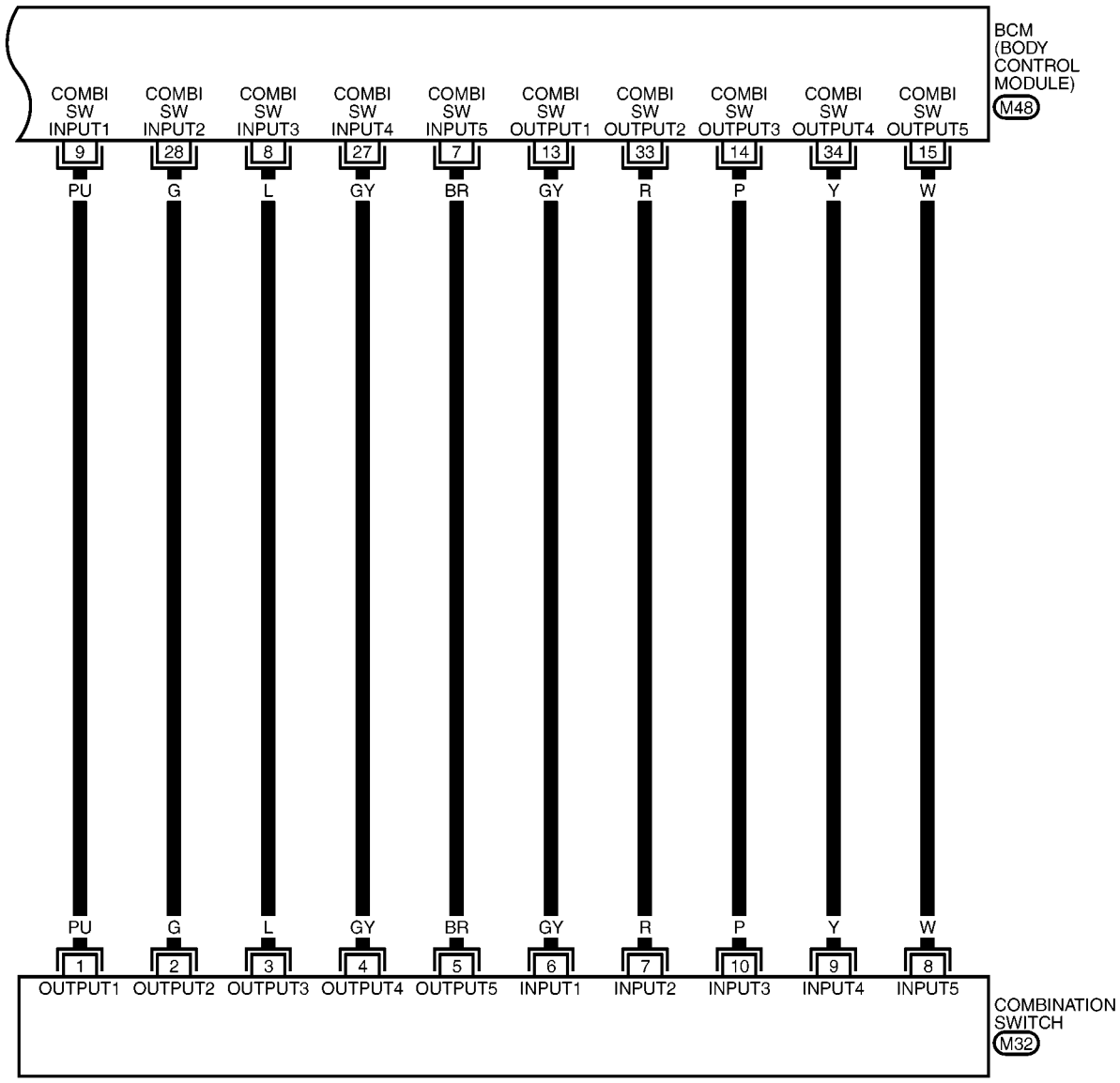
MKWA4059E

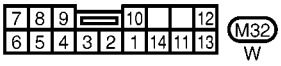

LT-ILL-02
BCM (BODY CONTROL MODULE) M48, M50
GND 2
GND (POWER) 70
POWER WINDOW SUPPLY 78
L : LHD MODELS
R : RHD MODELS
HB : HATCHBACK
CC : C+C
AO : AUTO OPERATION TYPE
CO : CONVENTIONAL TYPE
*1 R : HB
OR : CC
*2 10 : AO
5 : CO
*3 15 : AO
7 : CO
PRECEDING PAGE G OR CC
PRECEDING PAGE F OR CC
M84 4 D42
M87 4 D13
1 FRONT POWER WINDOW SWITCH (PASSENGER SIDE) (ILLUMINATION) D37 7
*2 DRIVER SIDE SWITCH PASSENGER SIDE SWITCH POWER WINDOW MAIN SWITCH (ILLUMINATION) D7 *3
D42 10 M84
D13 10 M87
M19 : L
M20 : R
M20 : L
M19 : R

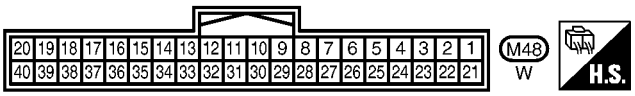

M48 W
M50 B
H.S.
D7 W : AO
D7 W : CO
D13 W, D42 W
D37 W

MKWA4060E

LT-ILL-03







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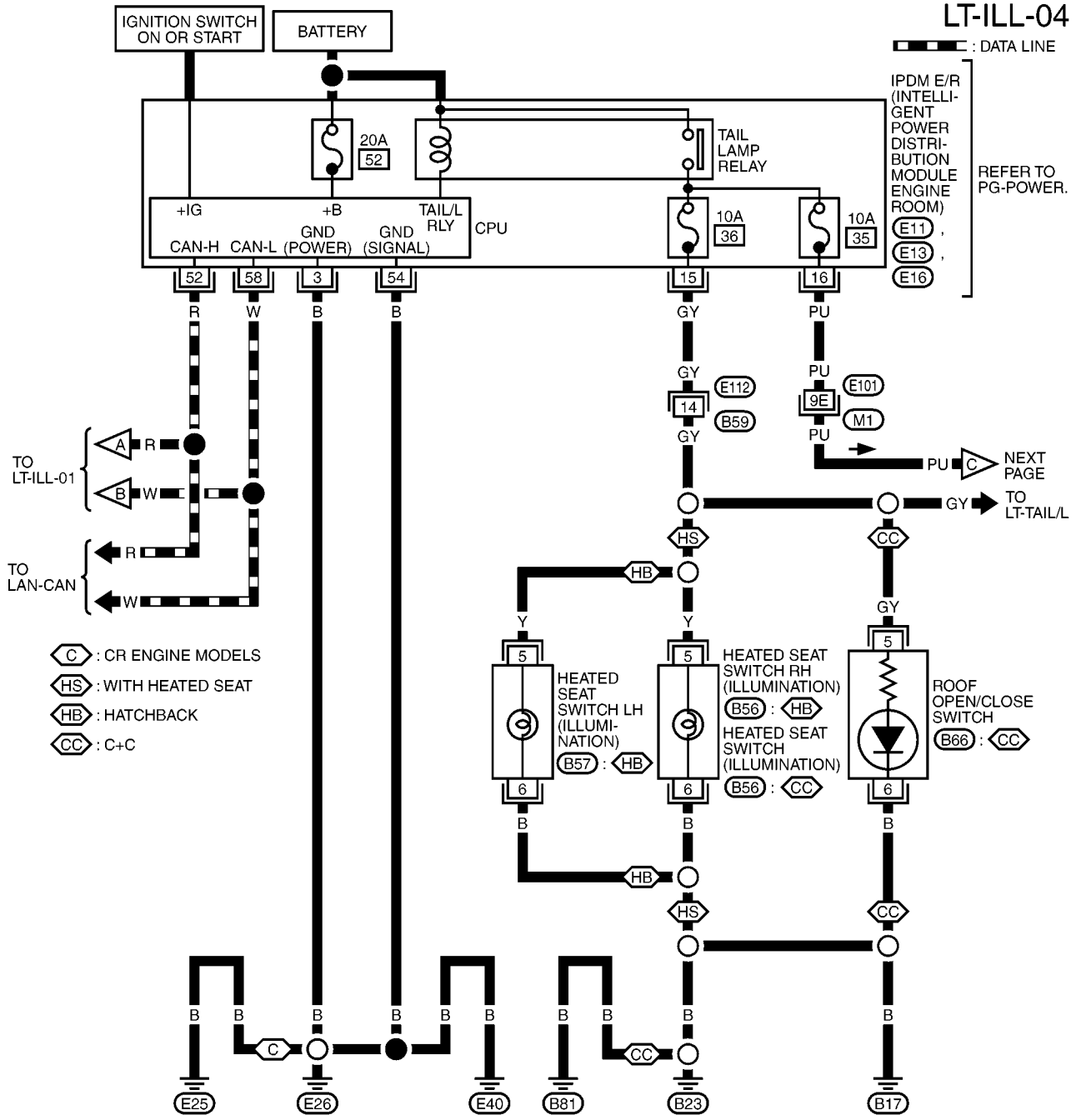
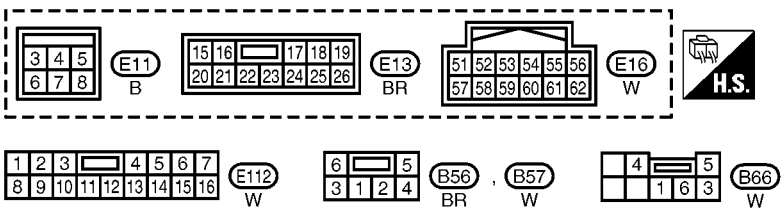
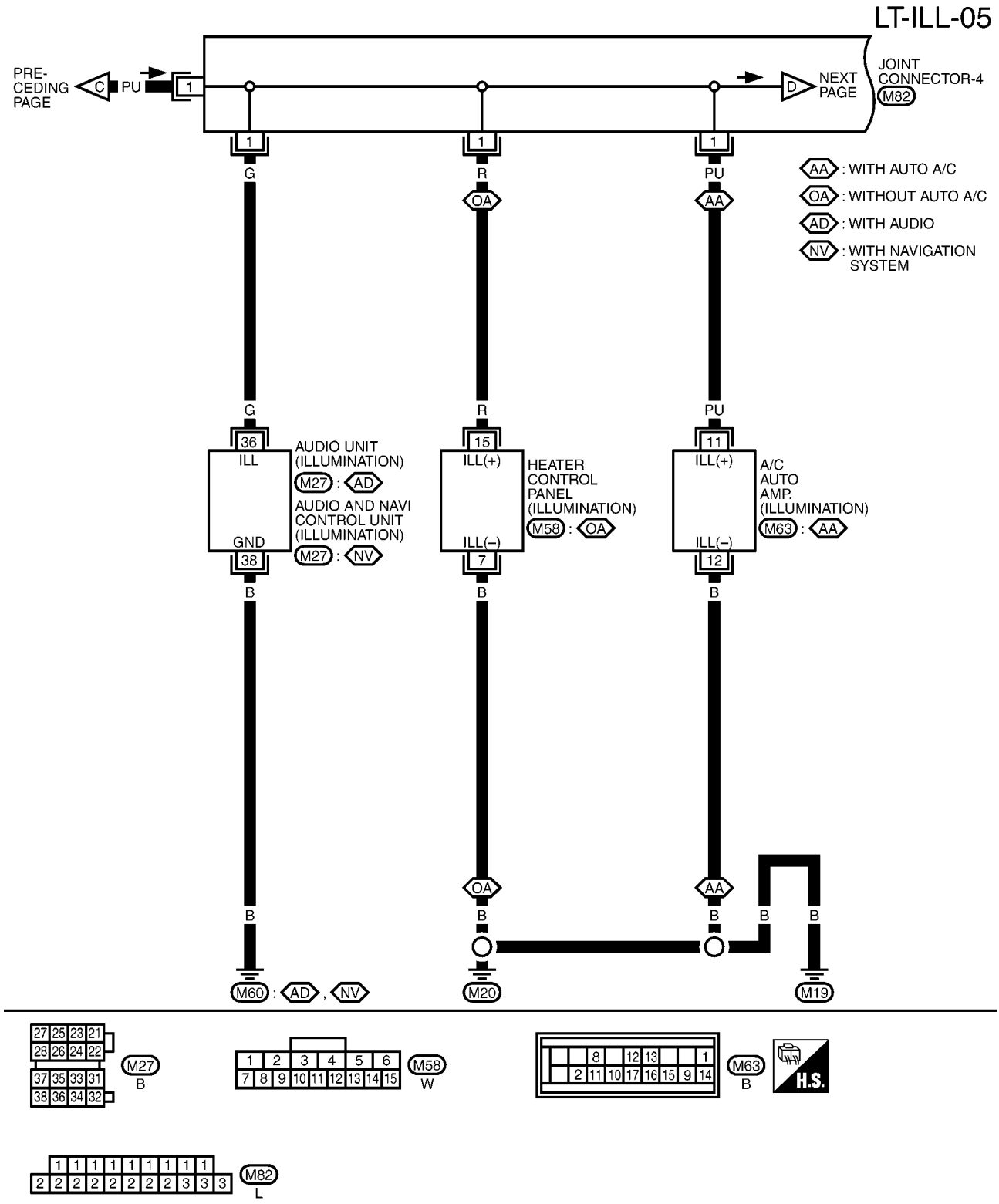




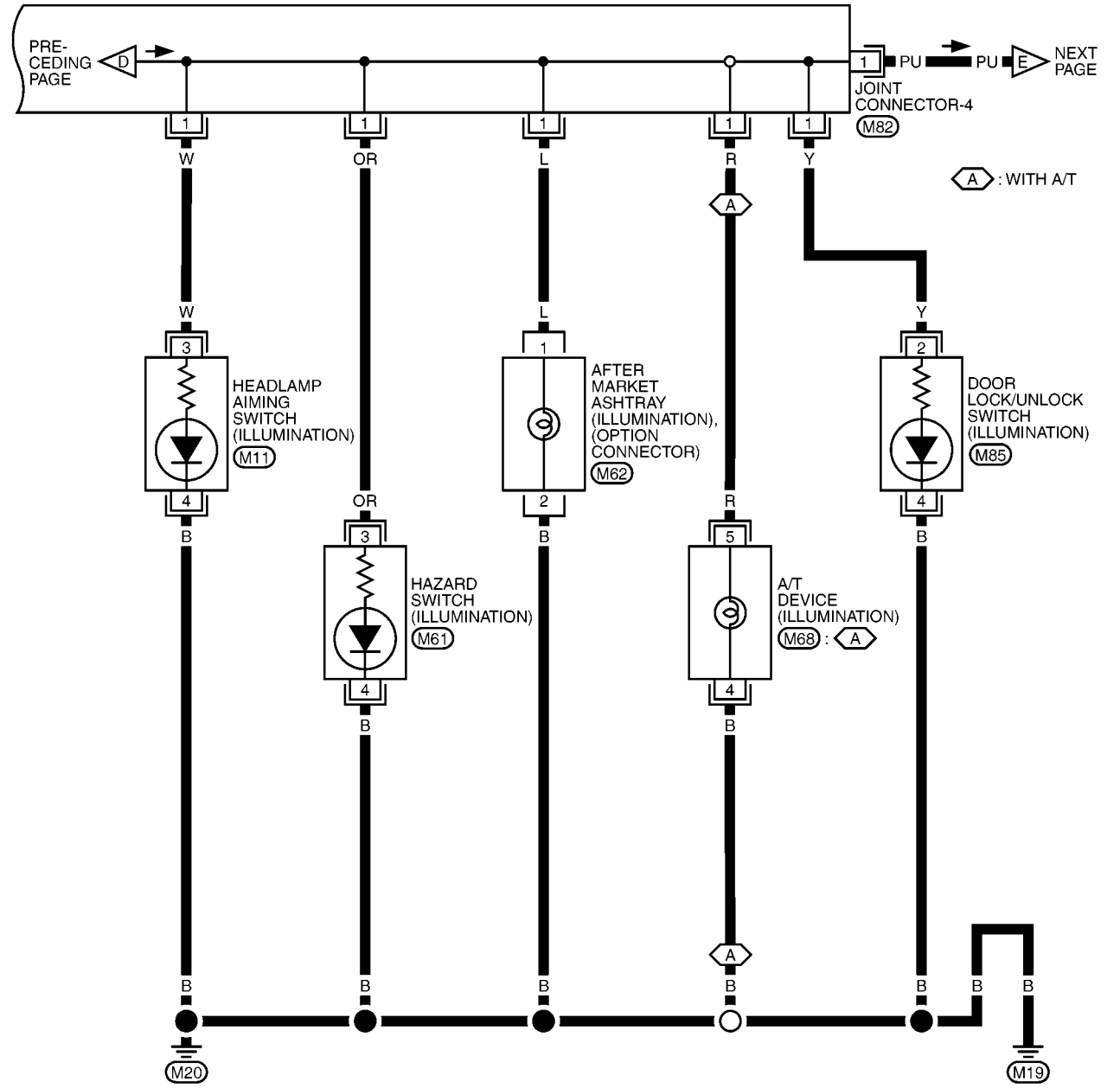
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)

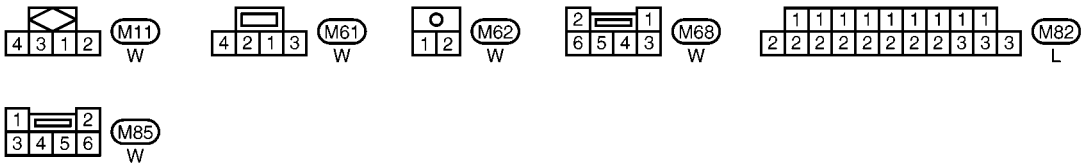
MKWA4061E


LT-ILL-05
PRE-CEDING PAGE
C
PU
1
D
NEXT PAGE
JOINT CONNECTOR-4
M82
AA : WITH AUTO A/C
OA : WITHOUT AUTO A/C
AD : WITH AUDIO
NV : WITH NAVIGATION SYSTEM
G
R
PU
36
ILL
GND
38
AUDIO UNIT (ILLUMINATION)
M27 : AD
AUDIO AND NAVI CONTROL UNIT (ILLUMINATION)
M27 : NV
15
ILL(+)
ILL(–)
7
HEATER CONTROL PANEL (ILLUMINATION)
M58 : OA
11
ILL(+)
ILL(–)
12
A/C AUTO AMP. (ILLUMINATION)
M63 : AA
B
M60 : AD , NV
M20
M19
M27
B
M58
W
M63
B
H.S.
M82
L

MKWA1531E

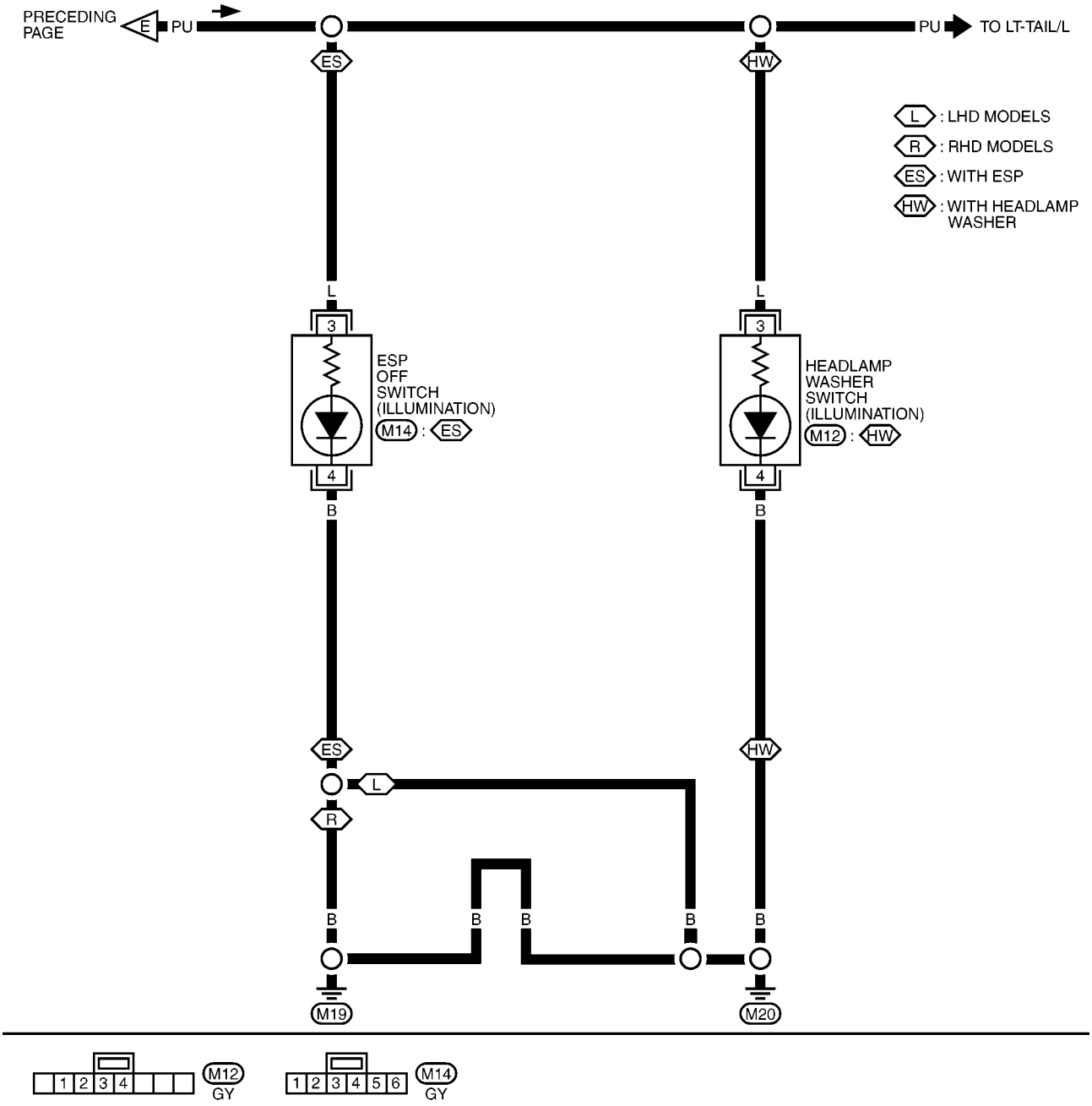
LT-ILL-06





MKWA4062E

LT-ILL-07



MKWA4063E

Removal and Installation

EKS00EOG

GLOVE BOX LAMP

Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .

BULB SPECIFICATIONS

PFP:26297

Headlamp

EKS00EOH

Item		Wattage (W)
High/Low	Halogen	60/55 (H4)

Exterior Lamp

EKS00EOI

Item		Wattage (W)
Clearance lamp		5
Front turn signal lamp		21 (amber)
Side turn signal lamp		5
Front fog lamp		55 (H11)
Rear combination lamp	Rear fog lamp	21
	Stop/Tail lamp	21/5
	Turn signal lamp	21
	Back-up lamp	21
License plate lamp (Hatchback)		10
License plate lamp (C+C)		5
High-mounted stop lamp (Hatchback)		21

Interior Lamp/Illumination

EKS00EOJ

Item	Wattage (W)
Interior room lamp	5
Luggage room lamp	10
Trunk room lamp	10