SECTION LT
LIGHTING SYSTEM

CONTENTS

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:

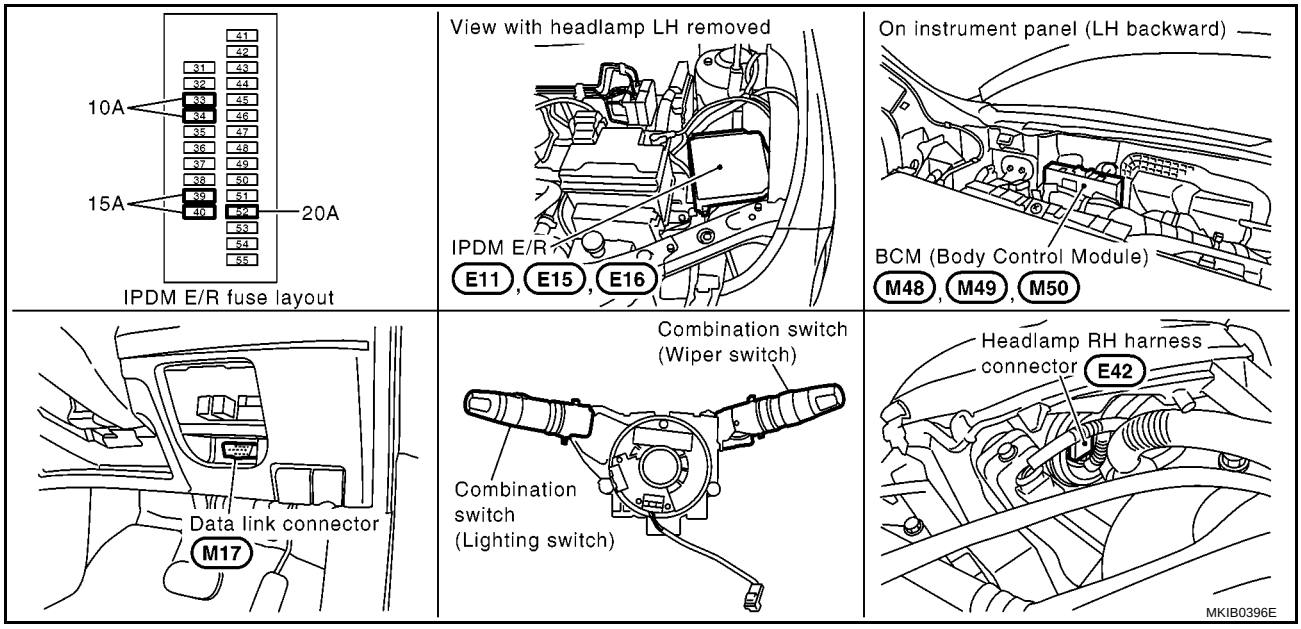
- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal 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-189, "System Description" .

OUTLINE

Power is supplied at all times

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

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

- to BCM (body control module) terminal 24
- through 10A fuse [No. 4, located in the fuse block (J/B)],
- to combination meter terminal 28
- through 10A fuse [No. 2, located in the fuse block (J/B)],
- 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(Gasoline 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-189, "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(Gasoline 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-189, "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(Gasoline 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-189, "System Description" .

FRIENDLY LIGHTING FUNCTION

Low beam headlamps will illuminate for 30 seconds when,

- ignition switch is in OFF position,
- lighting switch is placed in OFF position, and
- lighting switch is placed in PASS position.

BCM re-starts to count for 30 seconds, when all doors are locked with remote controller or Intelligent Key during friendly lighting function is activating.
Friendry lighting function time can be changed using “WORK SUPPORT” mode in “HEADLAMP”.

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. 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-19, "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

EKS00LT7

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

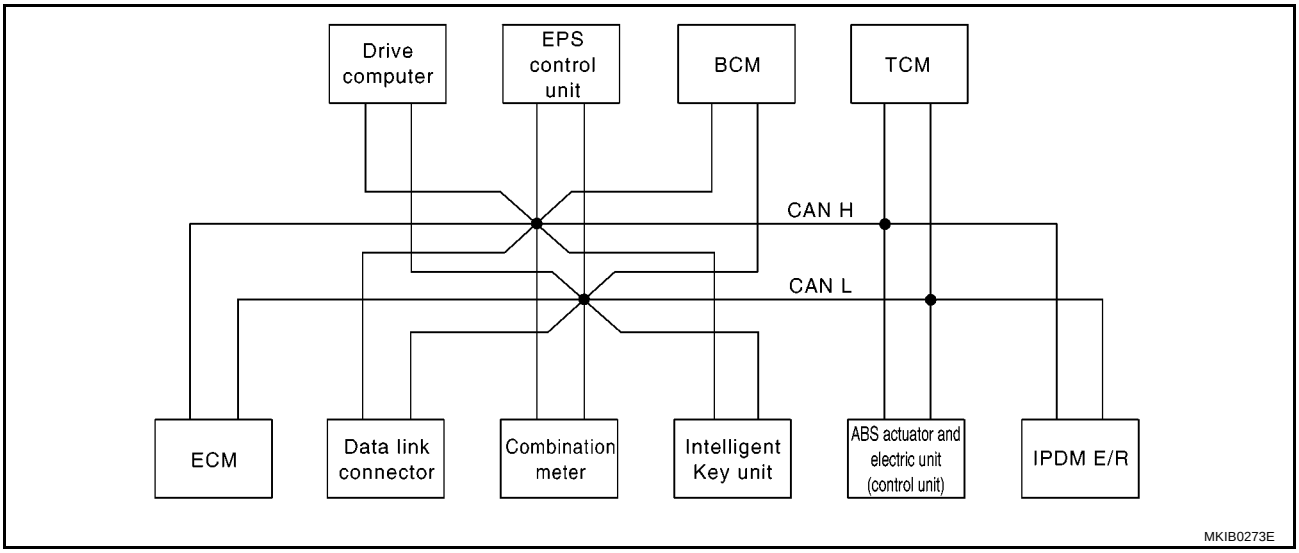
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-9, "TYPE 1/ TYPE 2"				LT-12, "TYPE 3/ TYPE 4"				LT-14, "TYPE 5/ TYPE 6"				LT-17, "TYPE 7/ TYPE 8"				LT-19, "TYPE 9/ TYPE 10"			

×: Applicable

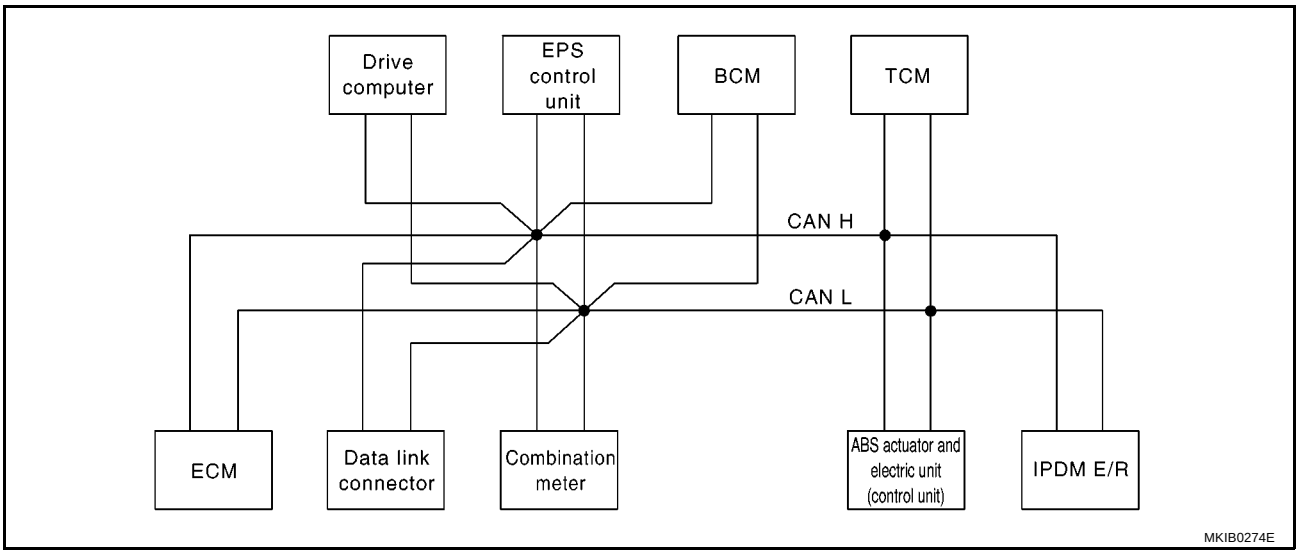
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

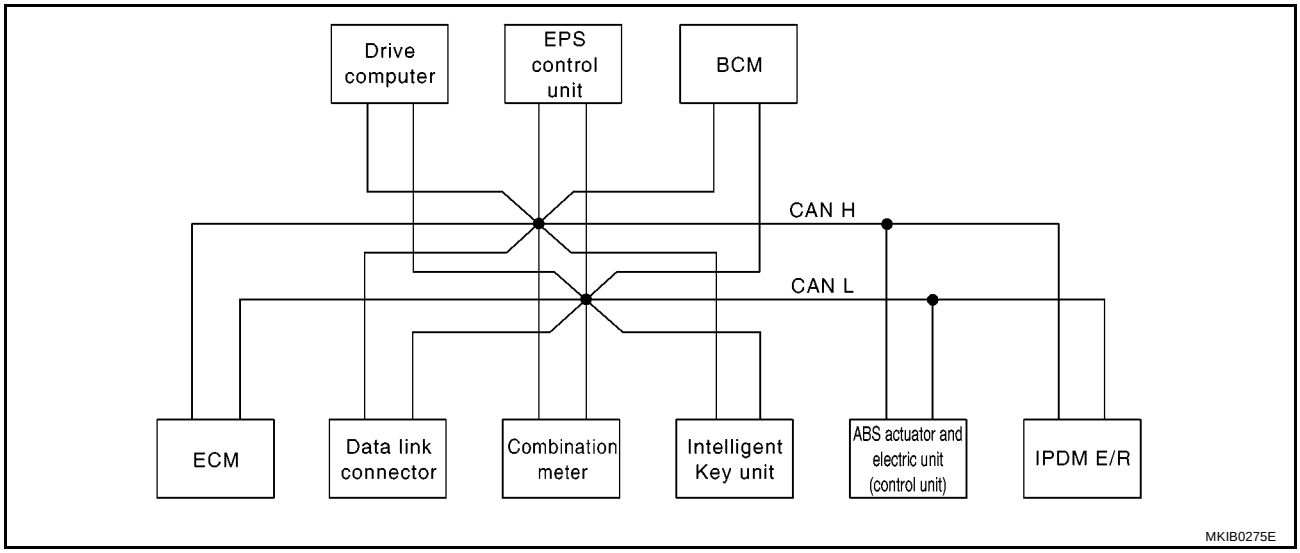
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

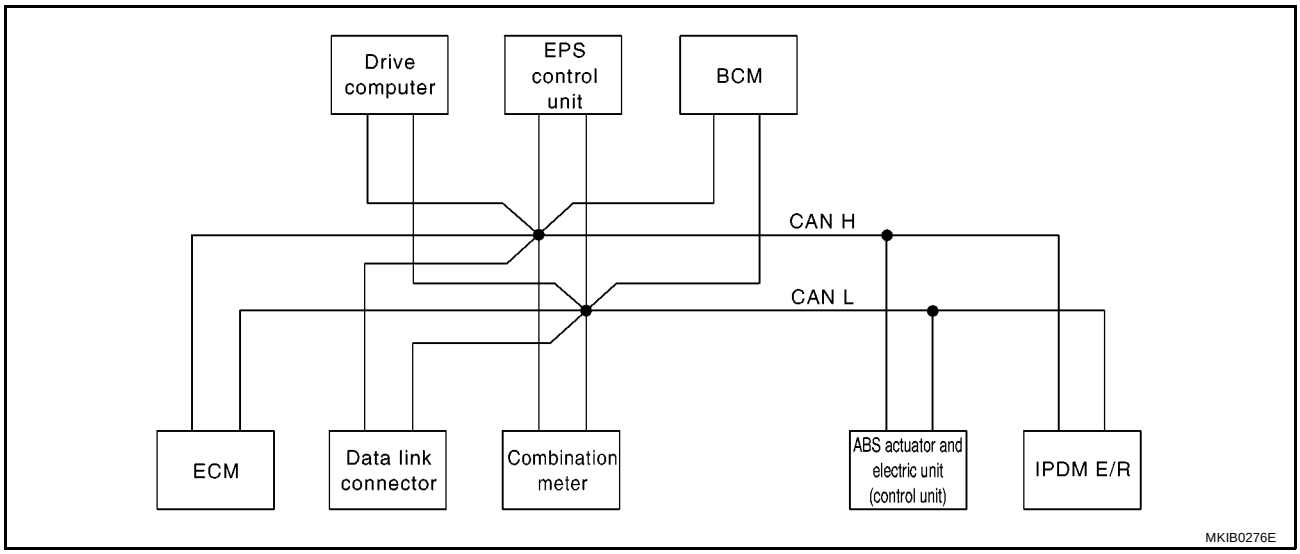
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

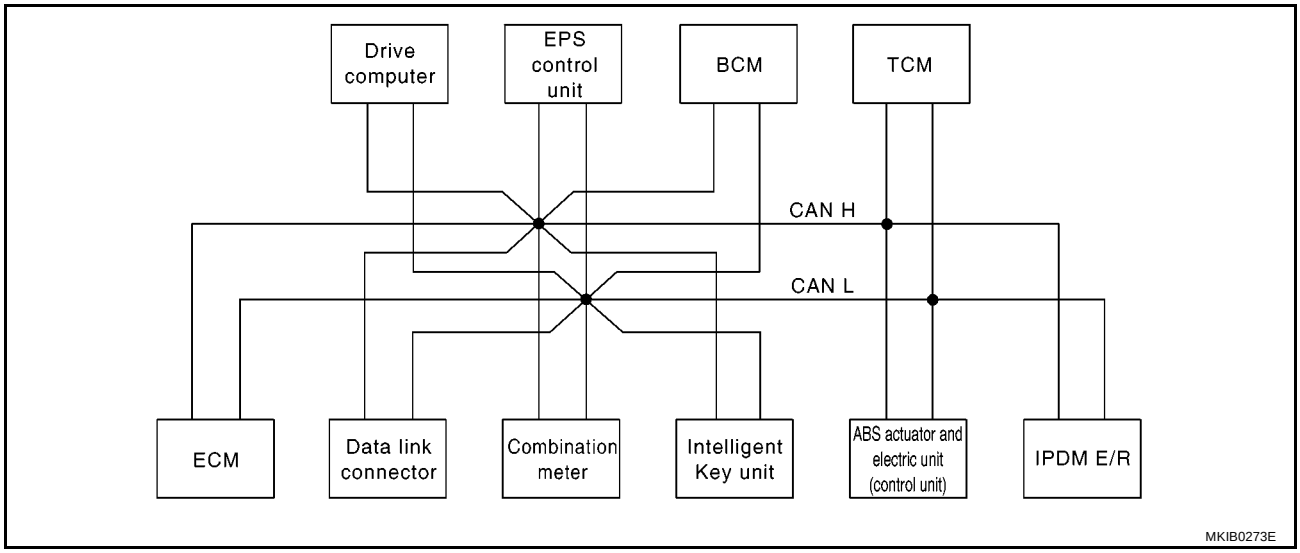
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

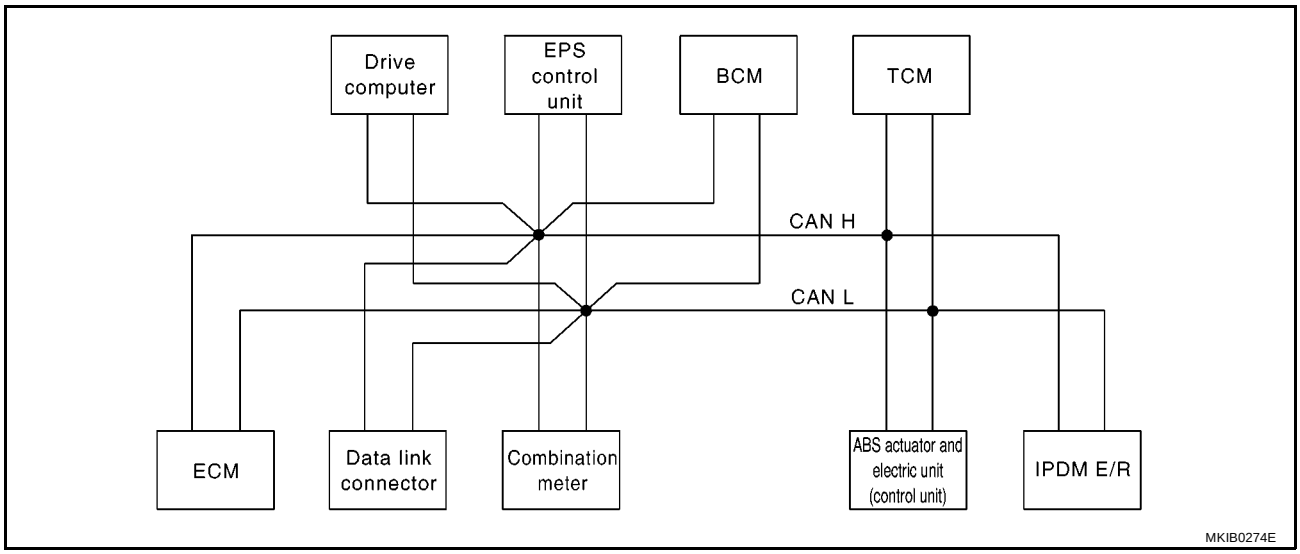
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

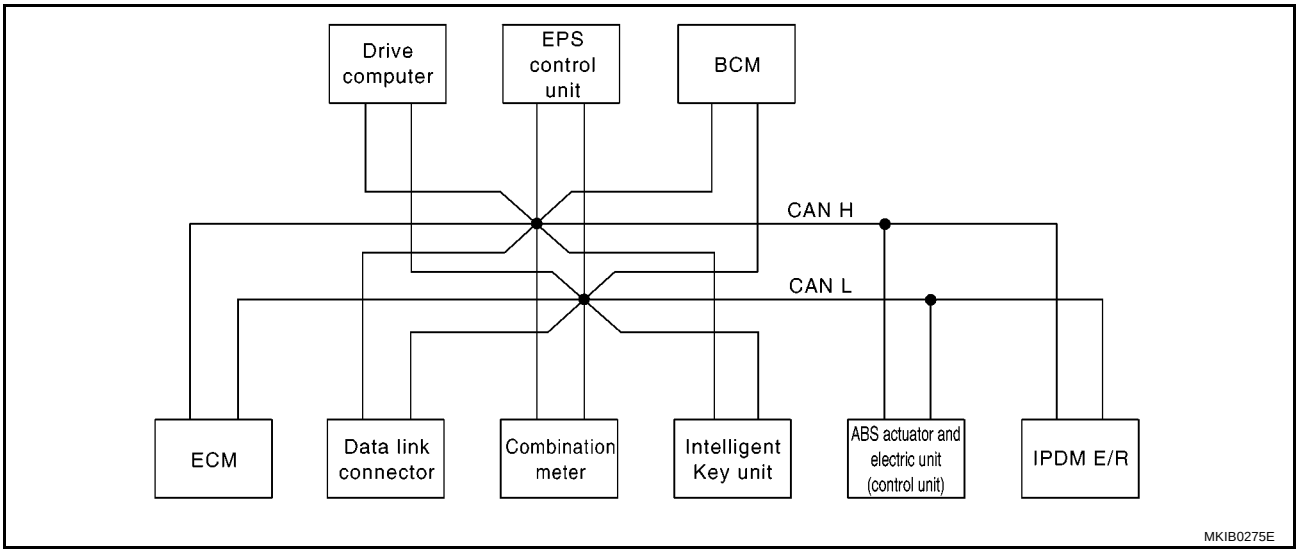
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

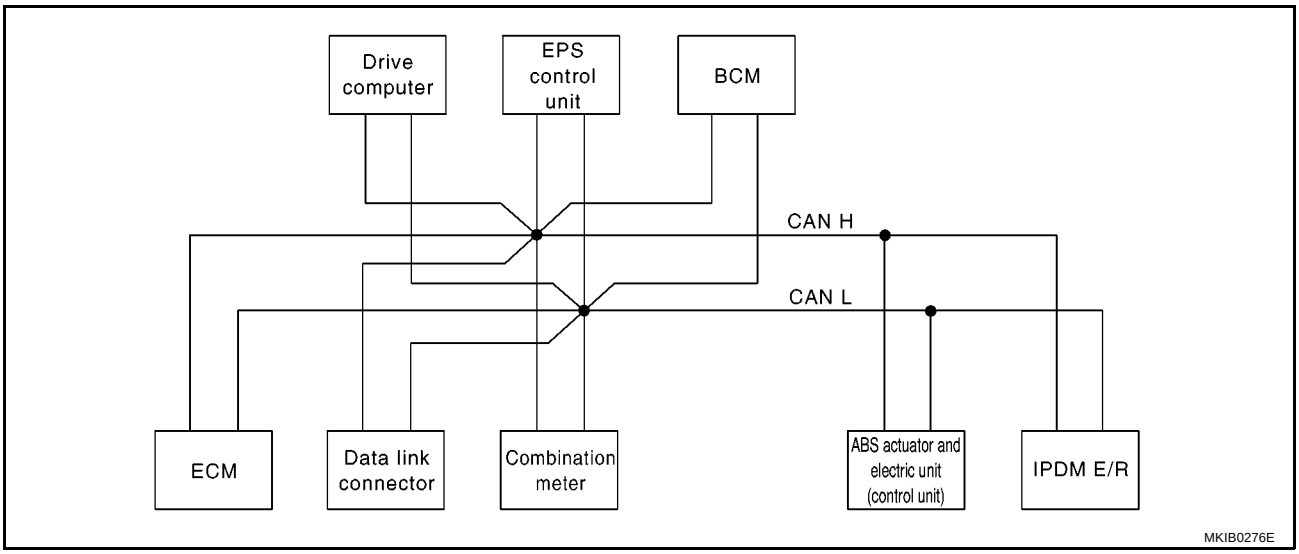
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

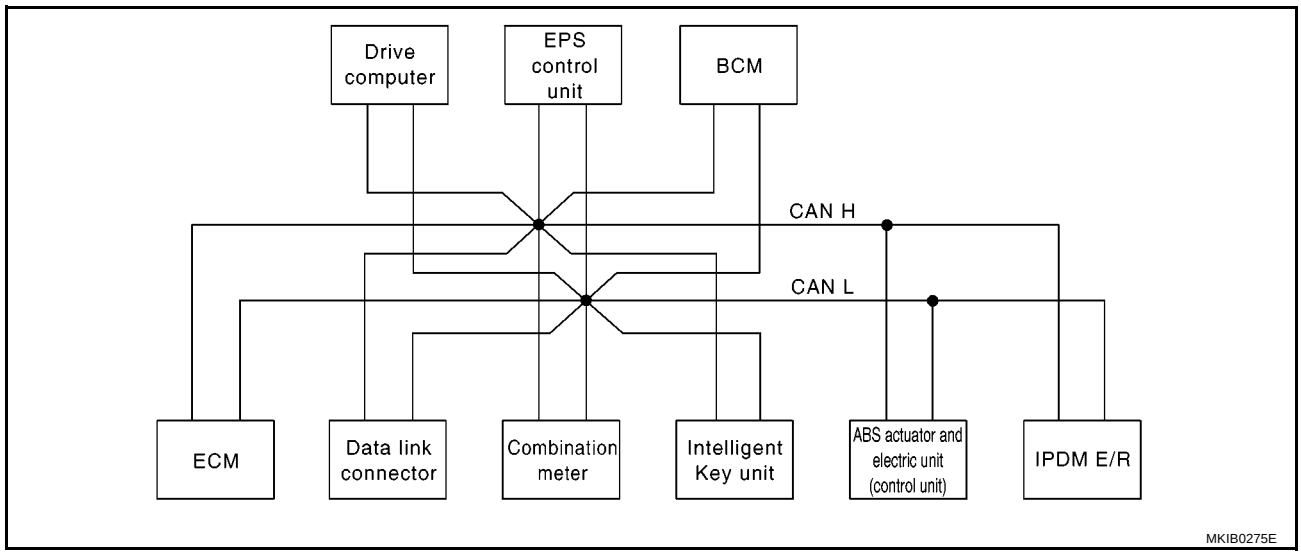
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

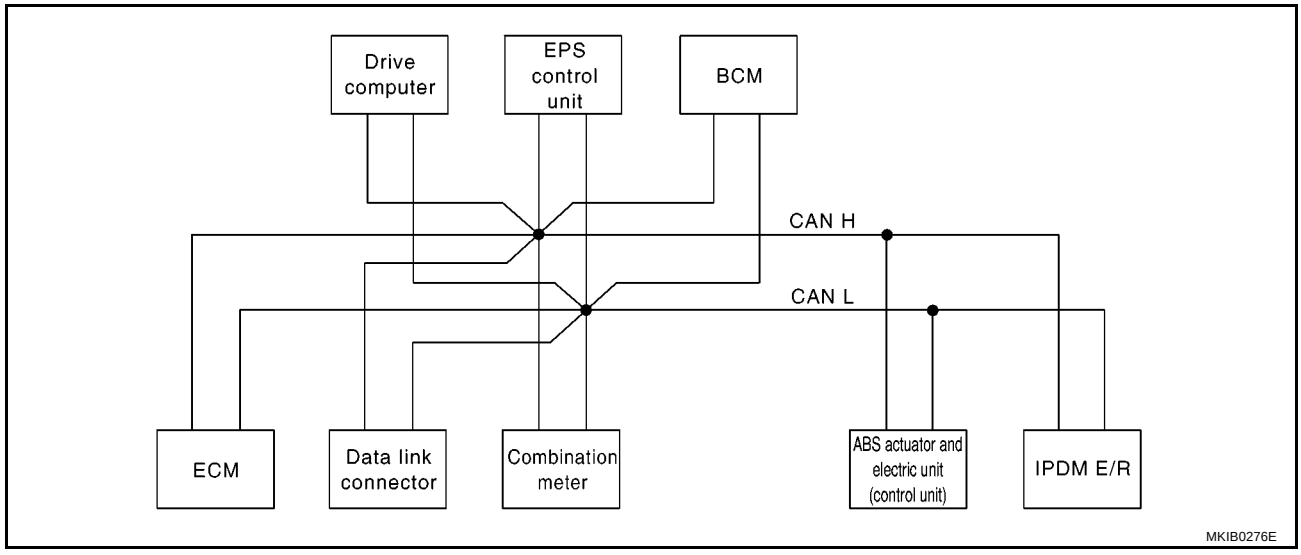
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

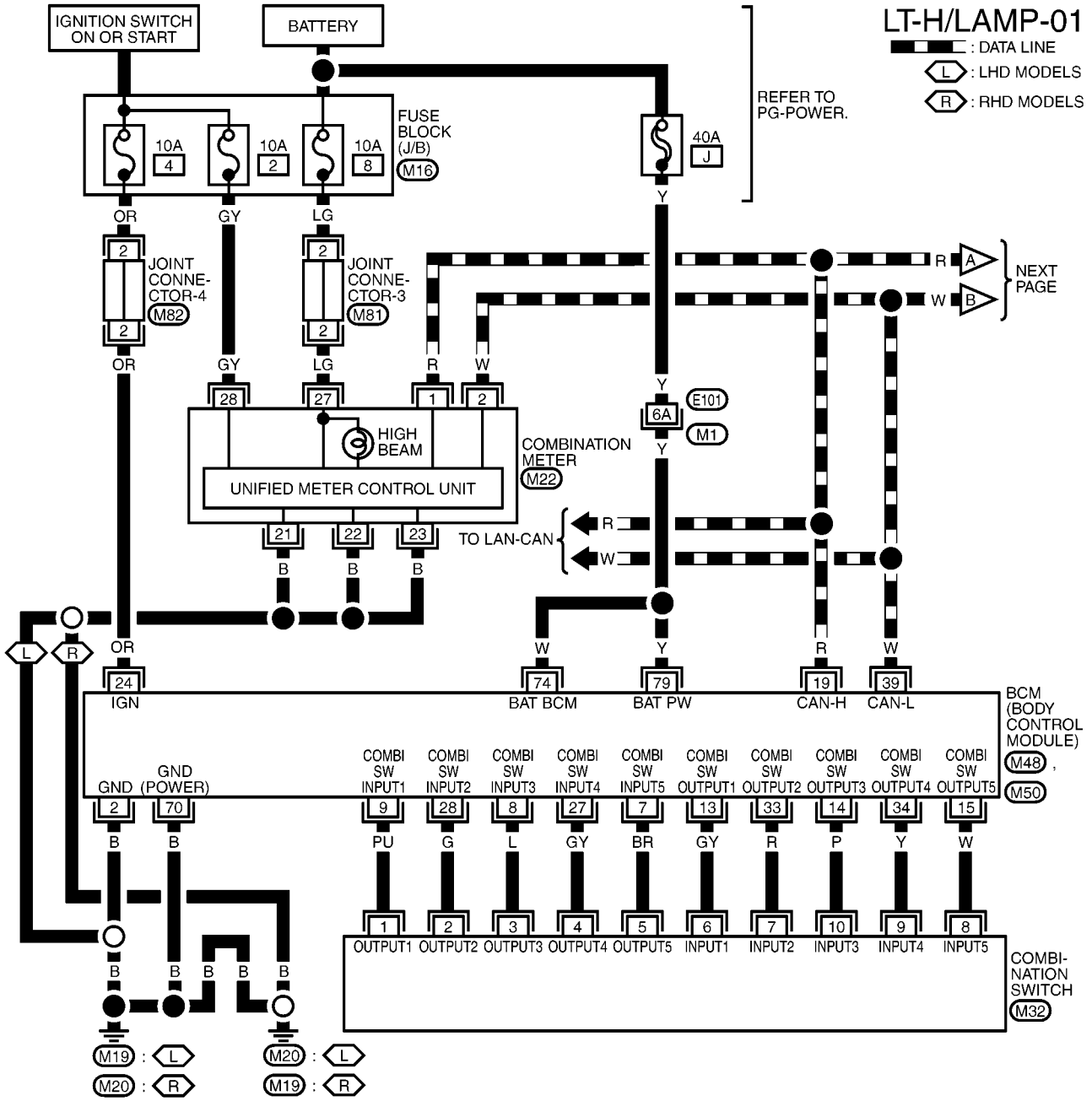
T: Transmit R: Receive

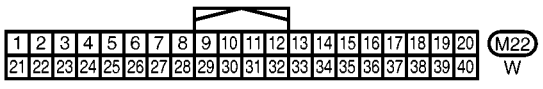
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

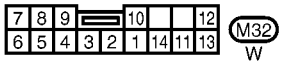
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

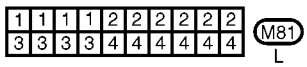
Wiring Diagram — H/LAMP—

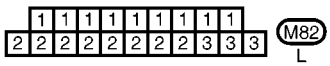
EKS00EKW





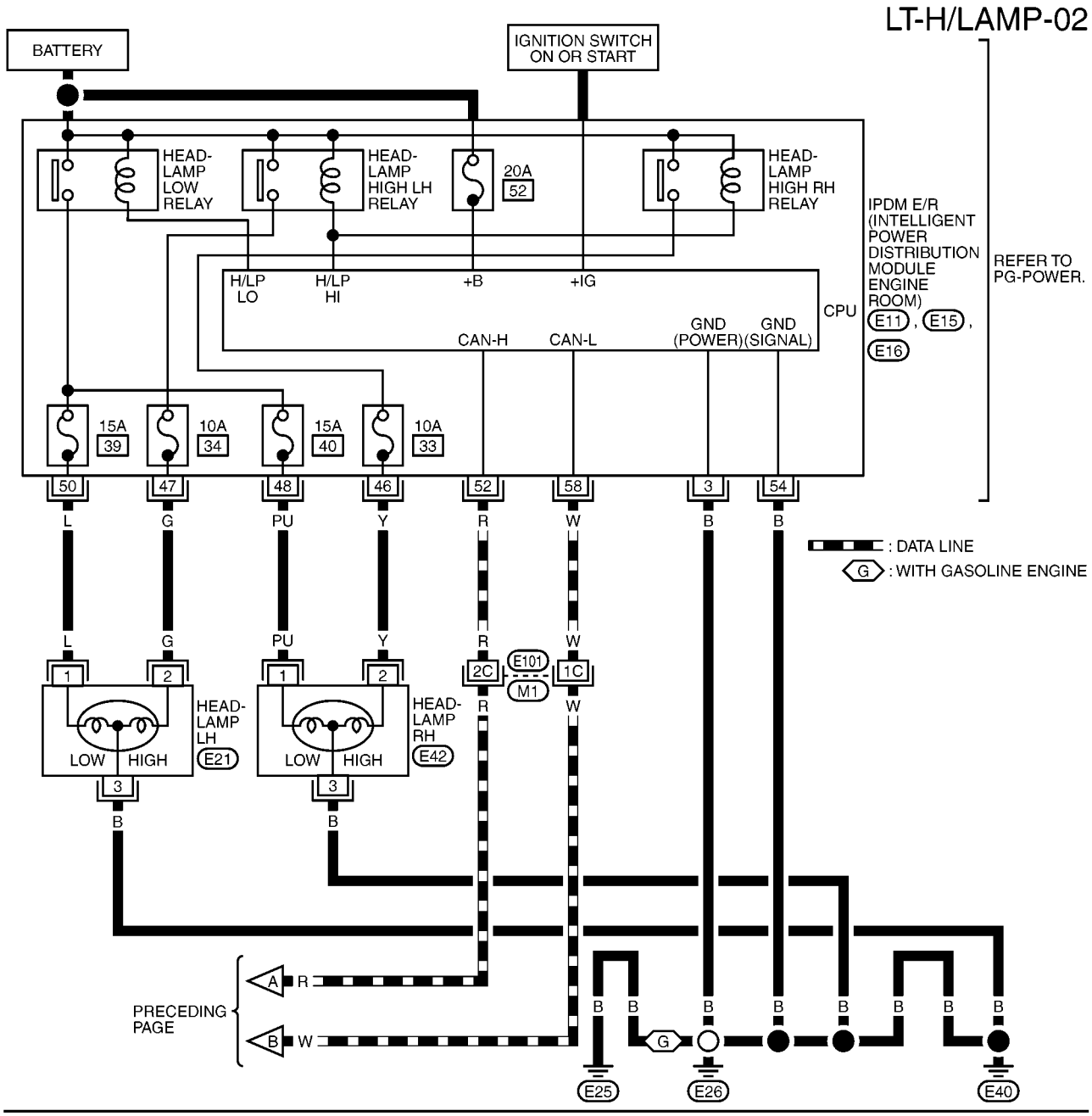


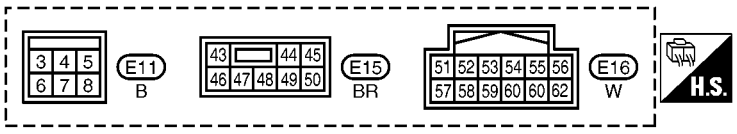


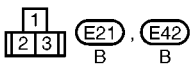


REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)
M16 -FUSE BLOCK-JUNCTION BOX (J/B)
M48, M50 -ELECTRICAL UNITS

MKWA1523E





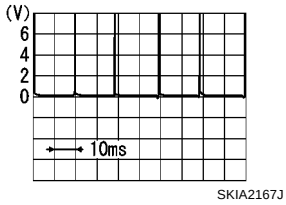
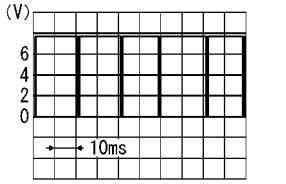
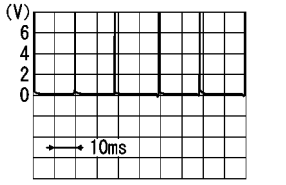


REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1435E

Terminals and Reference Value for BCM

EKS00EKX

Terminal No.	Wire color	Signal designation	Measuring condition		Reference value (V)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	Approx. 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	—	Approx. 12
39	W	CAN L	—	—	—
70	B	Ground	ON	—	Approx. 0
74	W	Battery power supply	OFF	—	Approx. 12
79	Y	Battery power supply	OFF	—	Approx. 12

Terminals and Reference Values for IPDM E/R

EKS00EKY

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		Approx. 0
46	Y	Headlamp high beam (RH)	ON	Lighting switch (high beam)	ON	Approx. 12
					OFF	Approx. 0
47	G	Headlamp high beam (LH)	ON		ON	Approx. 12
					OFF	Approx. 0
48	PU	Headlamp low beam (RH)	ON	Lighting switch (low beam)	ON	Approx. 12
					OFF	Approx. 0
50	L	Headlamp low beam (LH)	ON		ON	Approx. 12
					OFF	Approx. 0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		Approx. 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-6, "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-19, "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

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

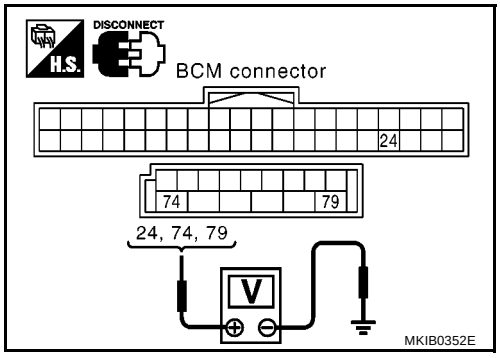
Refer to LT-22, "Wiring Diagram — H/LAMP—" .

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-4, "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 (W)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

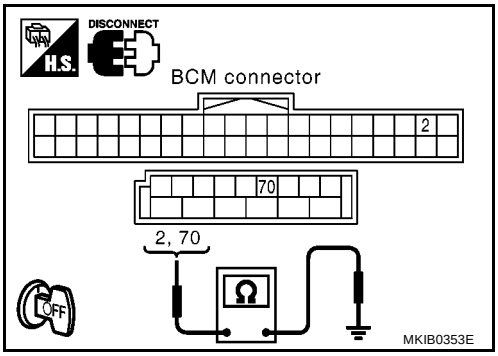
OK or NG

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.

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



OK or NG

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

CONSULT-II Functions (BCM)

EKS00EL1

CONSULT-II can display each diagnosis itemusing the diagnostic test modes shown following. Data is received and transmitted via the control module communication line.

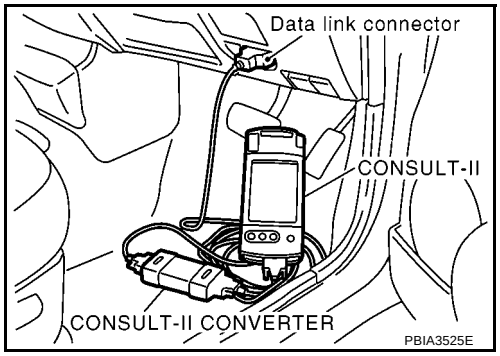
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Headlamp	Work support	Changes the setting for each function.
	Data monitor	Displays BCM input data in real time.
	Active test	Sends a drive signal to electronic components to check their operation.
BCM C/U	Self-diagnosis	BCM performs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

CONSULT-II BASIC OPERATION

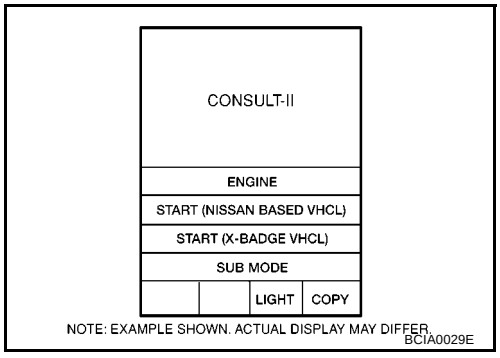
CAUTION:

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.

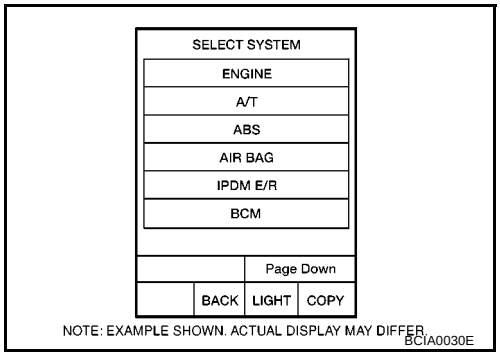
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to data link connector.



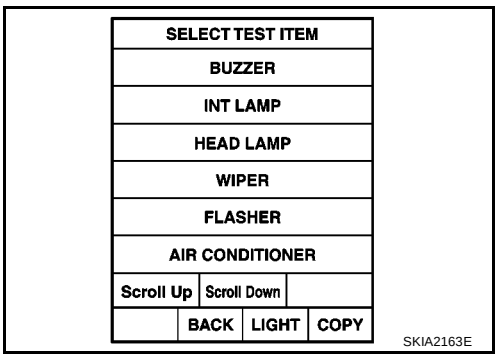
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



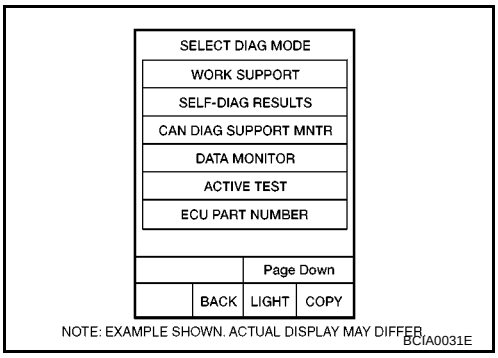
5. Touch “BCM” on the “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



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 “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “BATTERY SAVER” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “CHANGE SET”.
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	Battery saver can be selected.	ON	—
		OFF	❍

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” or “SELETION FROM MENU” on the “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
SELECTION FROM MENU	Selects and monitors individual items.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. 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.
HEADLAMP SW	[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 itemusing the diagnostic test modes shown following. Data is received and transmitted via the control module communication line.

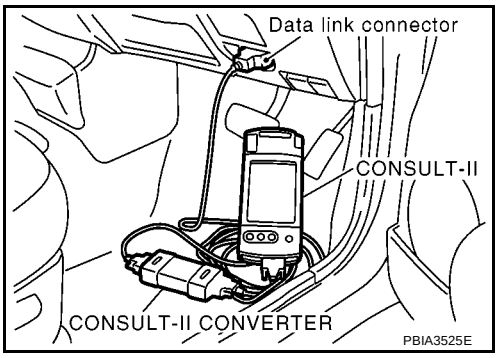
Inspection Item, Diagnosis Mode	Description
Self-diagnostic results	Refer to PG-34, "SELF-DIAG RESULTS" .
Data monitor	Displays the real-time input/output data from IPDM E/R I/O data.
Active test	IPDM E/R can Sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

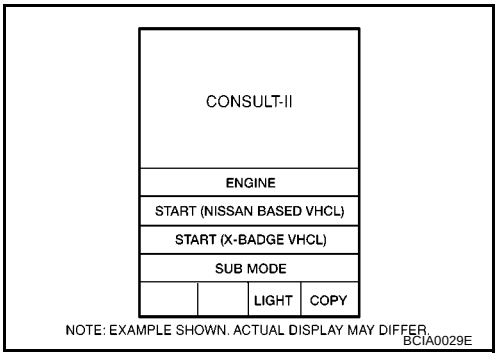
CAUTION:

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.

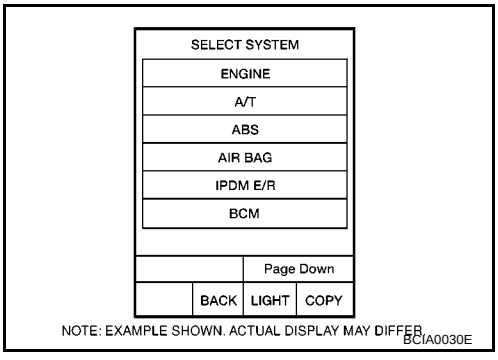
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to data link connector.



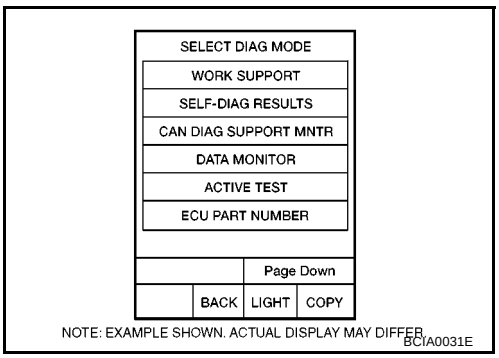
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



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-34, "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	HEADLAMP	Headlamp relay (LO, HI) can be operated using random operation (OFF, HI ON, LO ON).
Front fog lamp relay output	FRONT FOGLAMP	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

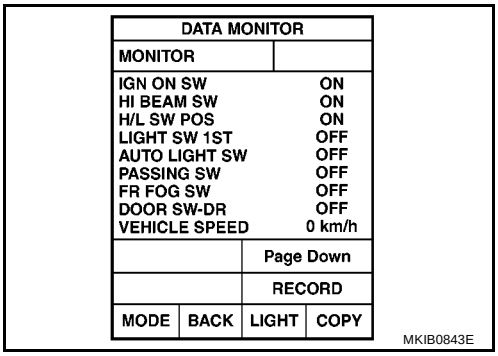
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

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-196, "Check Combination Switch" .

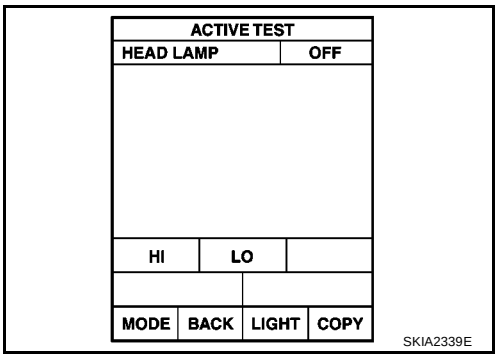
OK or NG

OK >> GO TO 2.
NG >> Refer to LT-196, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R TO HEADLAMP

With CONSULT-II

1. Select “IPDM” 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-42, "Auto Active Test" .
2. Make sure that headlamp (high beam) operate normally.

OK or NG

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

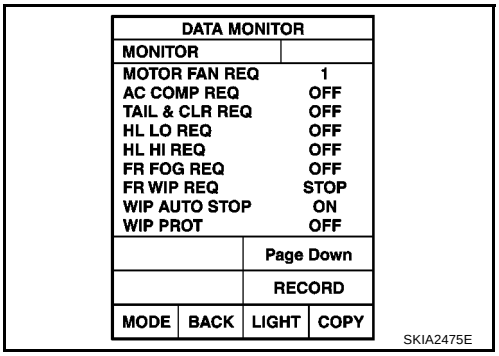
- Headlamp LH/RH bulb
- Headlamp ground circuit harness
- Open or short for the harness between headlamp LH/RH and IPDM E/R. If there are no malfunctions, replace IPDM E/R.

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).

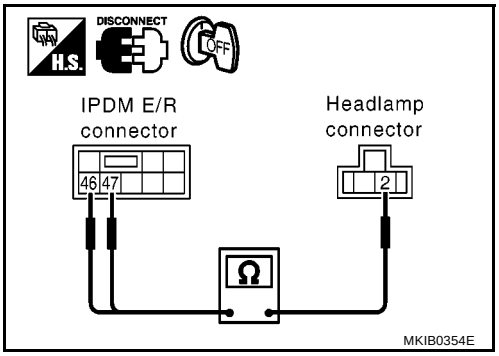
OK or NG

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)	



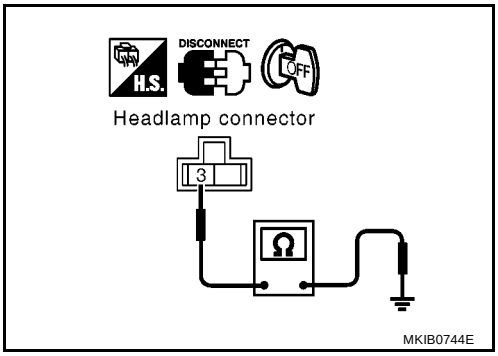
OK or NG

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.

Headlamp			Continuity
Connector		Terminal (Wire color)	
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

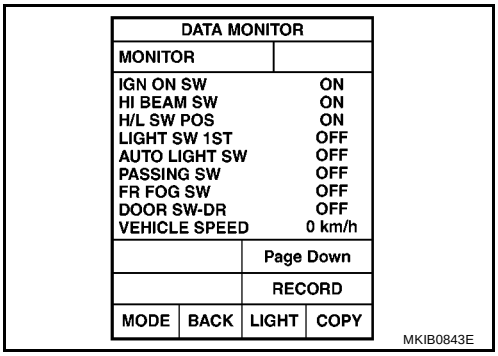
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

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-196, "Check Combination Switch" .

OK or NG

OK >> GO TO 2.
NG >> Refer to LT-196, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R AND HEADLAMP

With CONSULT-II

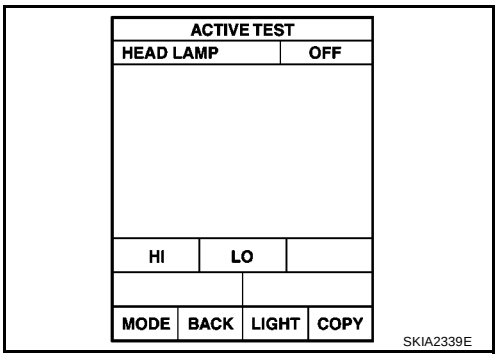
1. Select “IPDM” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “HEADLAMP” on “ACTIVE TEST” screen.
3. Make sure that headlamp (low beam) operate normally.

Without CONSULT-II

1. Start up auto active test. Refer to PG-42, "Auto Active Test" .
2. Make sure that headlamp (low beam) operate normally.

OK or NG

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

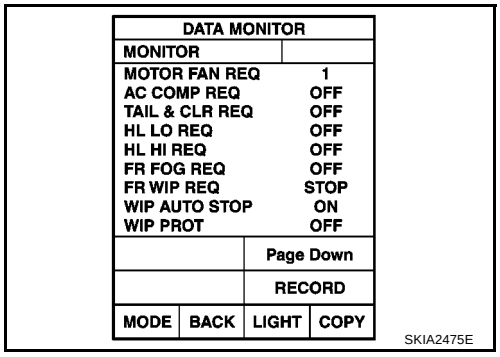


3. CHECK BETWEEN IPDM E/R AND BCM

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



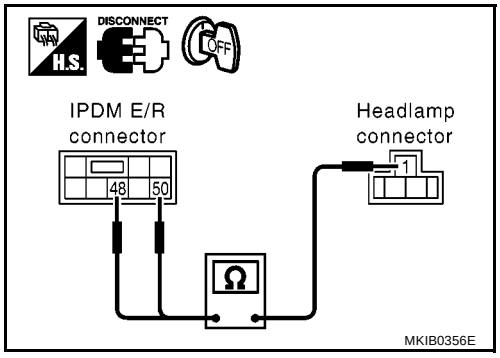
OK or NG

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)	



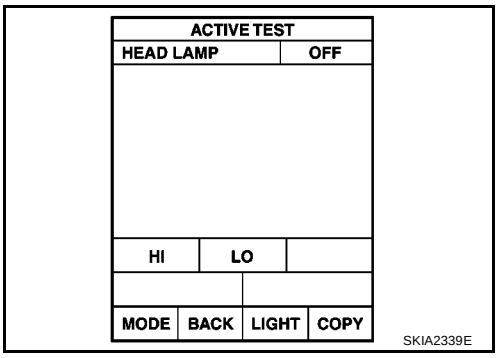
OK or NG

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

5. CHECK IPDM E/R

With CONSULT-II

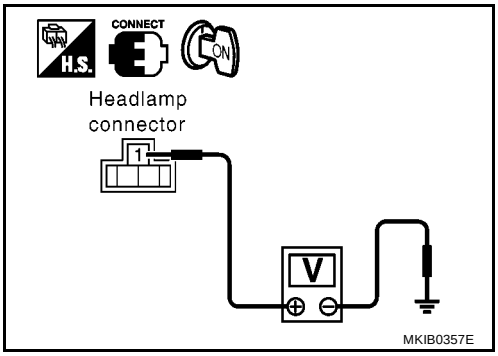
1. Connect IPDM E/R connector and headlamp LH/RH connector.
2. Select “IPDM” by CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Select “HEADLAMP” on “ACTIVE TEST” screen.
4. Check voltage between headlamp LH/RH connector terminals and ground.



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

Without CONSULT-II

1. Connect IPDM E/R connector and headlamp LH/RH connector.
2. Start auto active test. Refer to PG-42, "Auto Active Test" , check voltage between headlamp LH/RH connector terminals and ground.



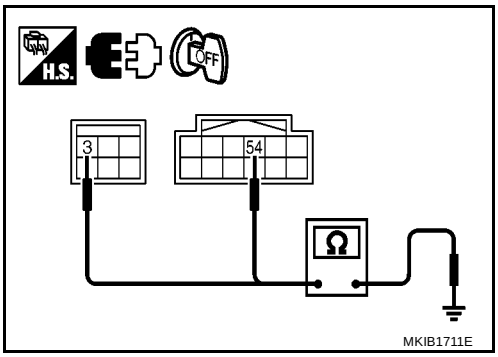
Terminals				Voltage [V]
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E42	1 (PU)	Ground	Battery voltage
LH	E21	1 (L)		

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.



Terminals			Continuity
Connector	Terminal (Wire color)		
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).

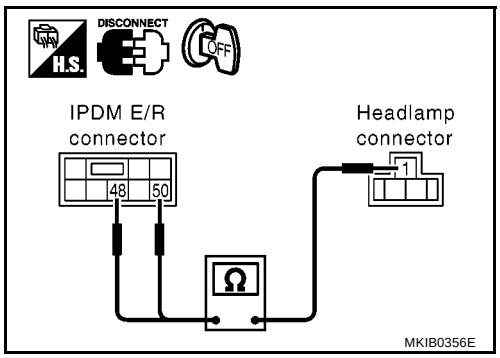
OK or NG

OK >> GO TO 3.
NG >> If fuse is blown, be sure to elimate 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)	



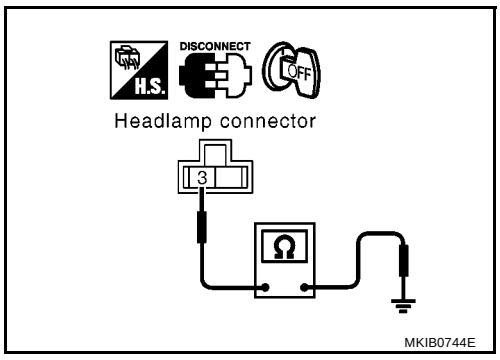
OK or NG

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.

Headlamp			Continuity
Connector		Terminal (Wire color)	
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.

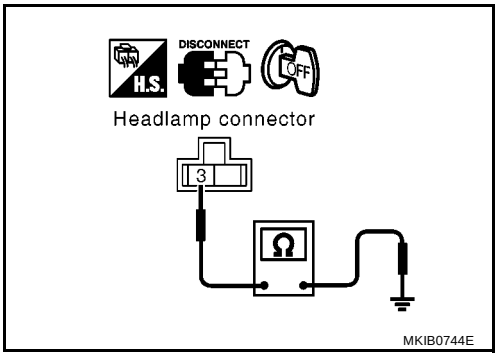
OK or NG

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.

Headlamp			Continuity
Connector		Terminal (Wire color)	
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 Do Not 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-19, "FAIL-SAFE FUNCTION" and check CAN system.

OK or NG

Fail-safe operation>>Refer to PG-48, "Inspection With CONSULT-II (Self-Diagnosis)" .
Other than fail-safe operation>>Refer to PG-51, "Diagnosis of IPDM E/R Integrated Relay" .

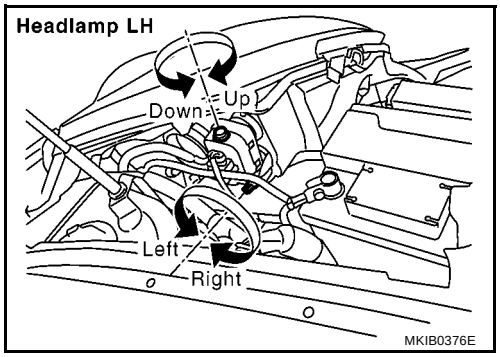
Aiming Adjustment

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.

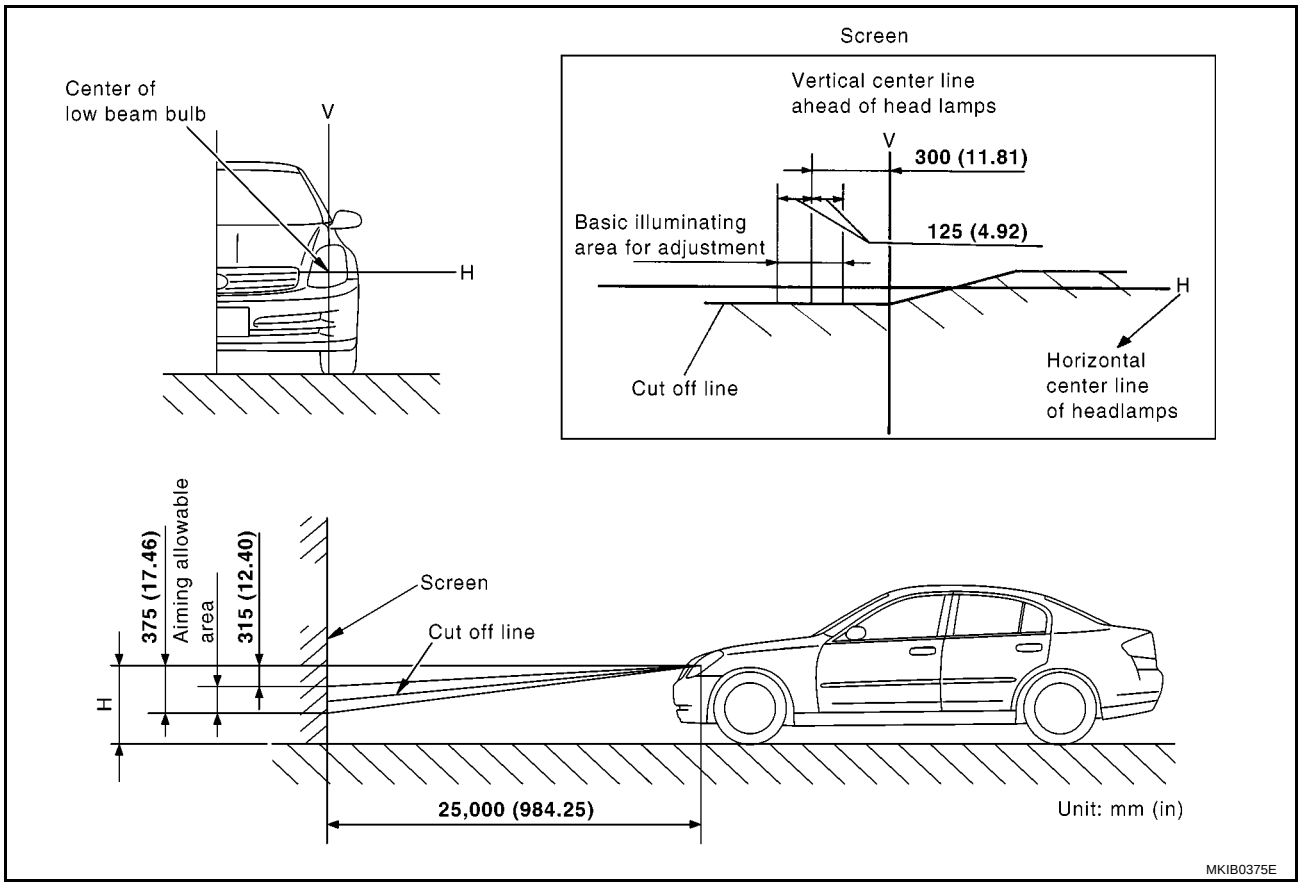
Before performing aiming adjustment, check the following.

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

1. Turn headlamp low beam on.
2. Use adjusting screws to perform aiming adjustment.

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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.

- Basic illumination area for adjustment should be within the range shown on the aiming chart.

Adjust headlamp accordingly.

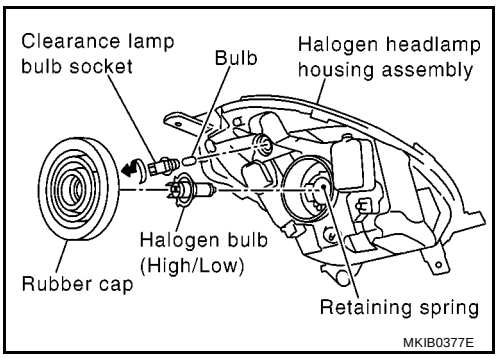
Bulb Replacement

EKS00ELB

HEADLAMP

1. Turn ignition switch OFF.
2. Disconnect headlamp connector.
3. Remove rubber cover.
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:

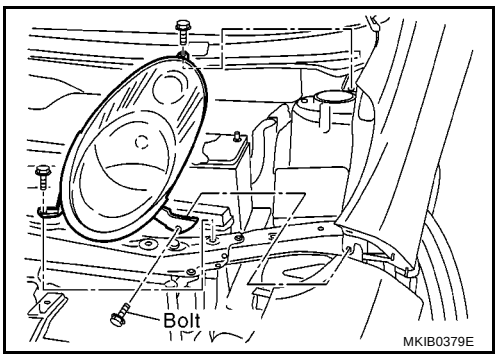
After the bulb is installed, the rubber cover must be attached securely to insure the assembly is water-tight.

Removal and Installation

EKS00ELC

REMOVAL

1. Remove fender protector. Refer to EI-11, "FENDER PROTECTOR" .
2. Remove bolt of front fender front end and bolt of front bumper fascia. Remove front bumper fascia. Refer to EI-4, "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

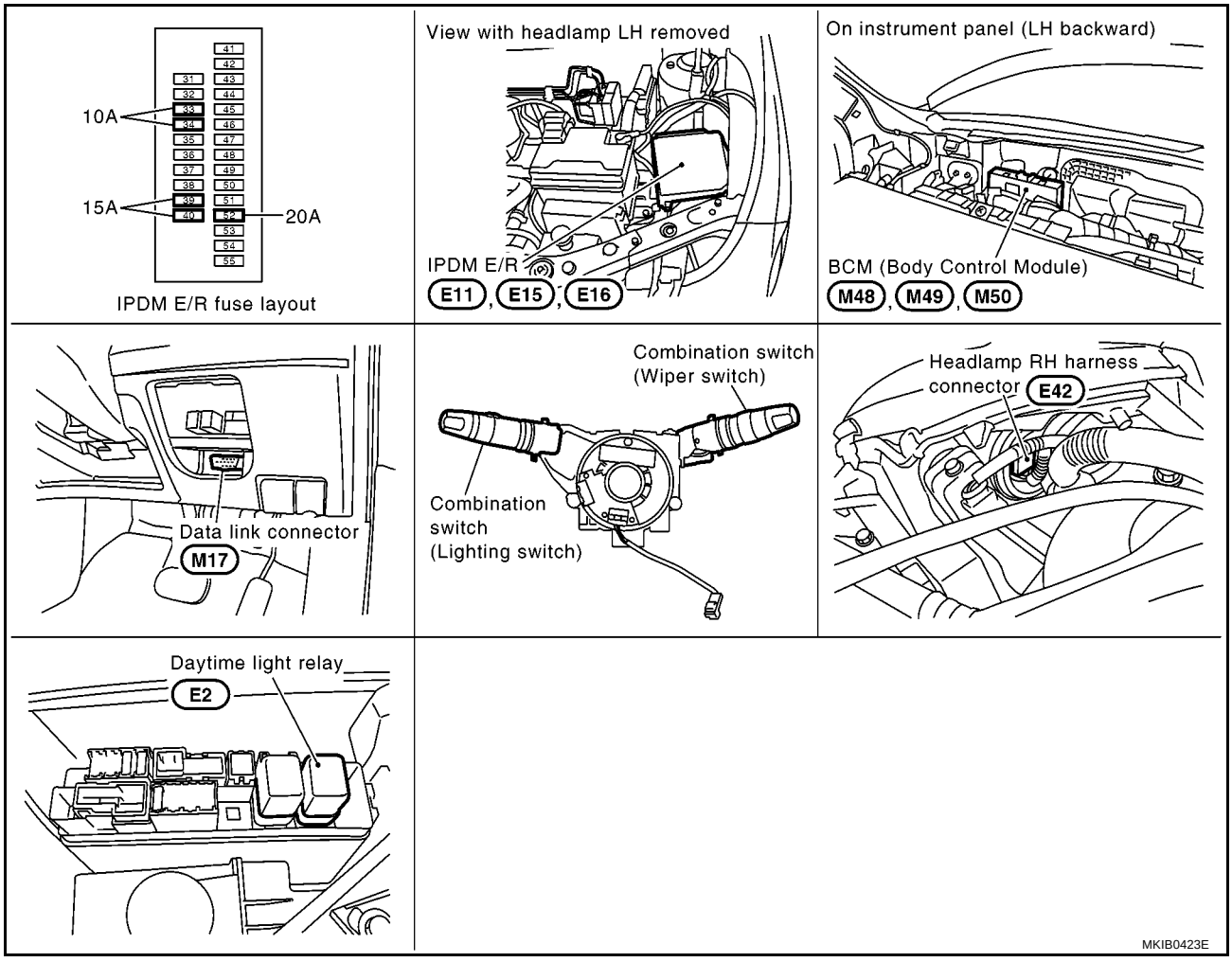
Tightening torque : 4.4 - 6.5 N·m (0.45 - 0.66 kg-m, 39 - 58 in-lb)

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

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

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 combination meter terminal 28

- through 10A fuse [No. 2, located in the fuse block (J/B)]
- to IPDM E/R.

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

- to BCM terminal 3
- through 10A fuse [No. 14, located in the fuse block (J/B)].

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(Gasoline 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-189, "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(Gasoline engine models), E26 and E40, and
- to terminal 3 of headlamp RH
- through daytime light relay 3 and 4
- through body grounds E25(Gasoline engine models), E26, E40.

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

High Beam Operation (When engine stopped)/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-189, "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(Gasoline engine models), E26 and E40
- to terminal 3 of headlamp RH
- through daytime light relay 3 and 4
- through body grounds E25, 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-189, "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(Gasoline 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.

FRIENDLY LIGHTING FUNCTION

High beam headlamps will illuminate for 30 seconds when,

- ignition switch is in OFF position,
- lighting switch is placed in OFF position, and
- lighting switch is placed in PASS position.

BCM re-starts to count for 30 seconds, when all doors are locked with remote controller or Intelligent Key during Friendly lighting function is activating.
Friendry lighting function time can be changed using “WORK SUPPORT” mode in “HEADLAMP”.

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-19, "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

EKS00LT8

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

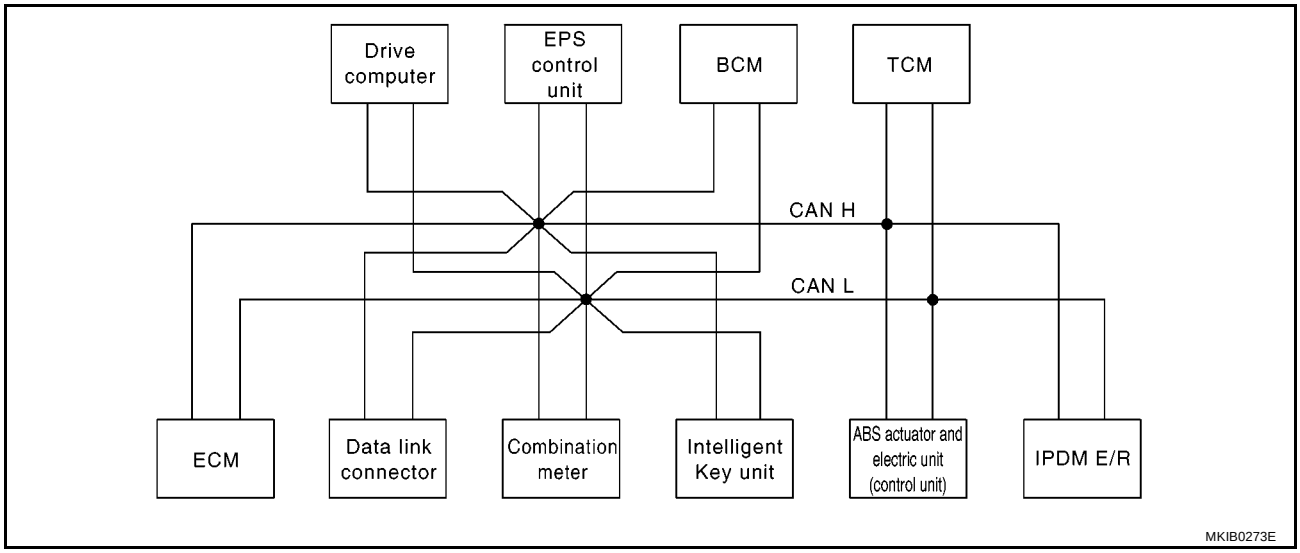
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
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"				LT-51, "TYPE 5/ TYPE 6"				LT-54, "TYPE 7/ TYPE 8"				LT-56, "TYPE 9/ TYPE 10"			

×: Applicable

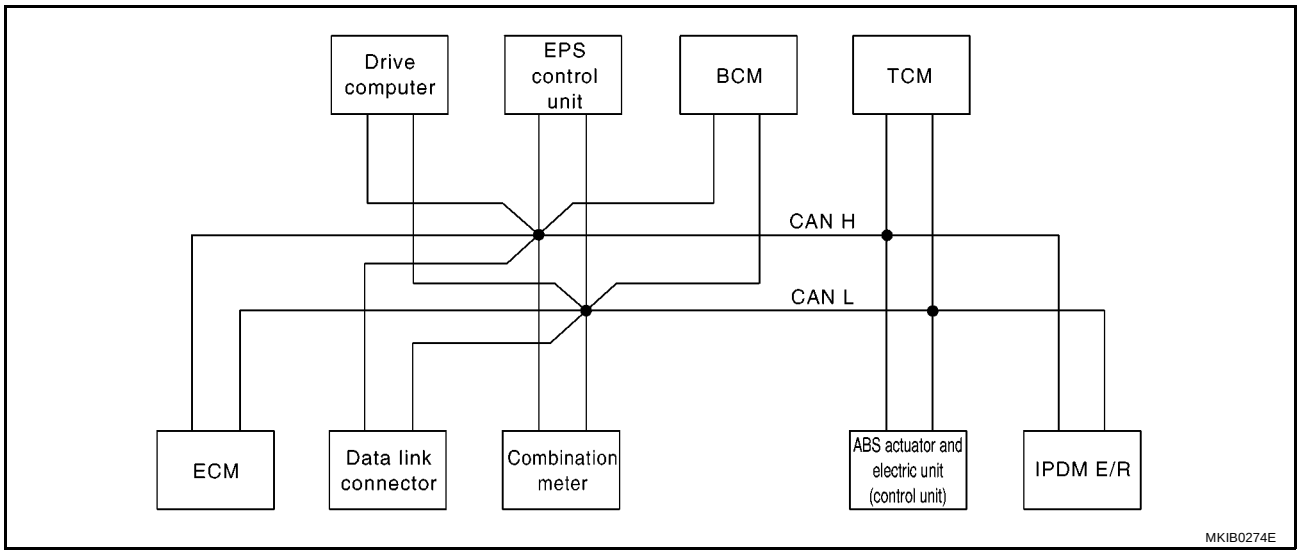
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

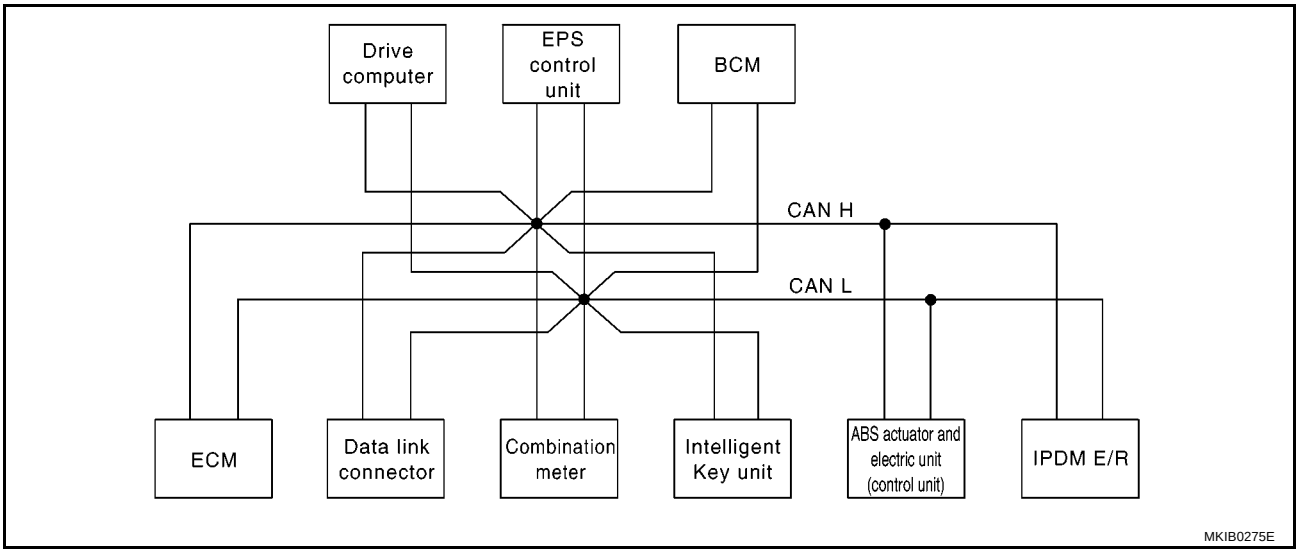
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

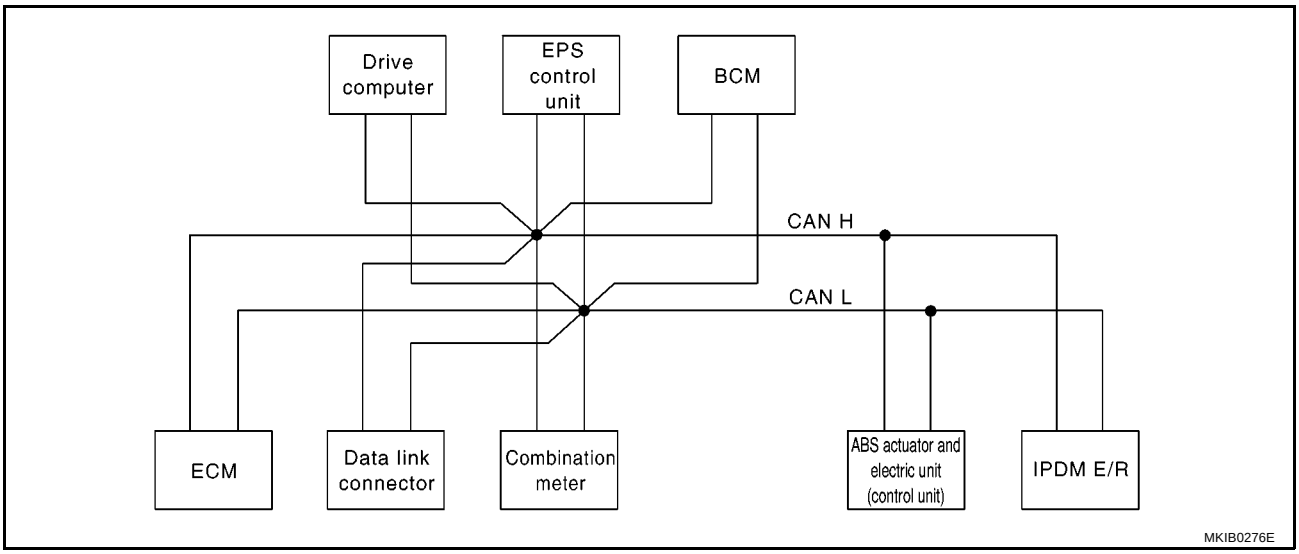
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

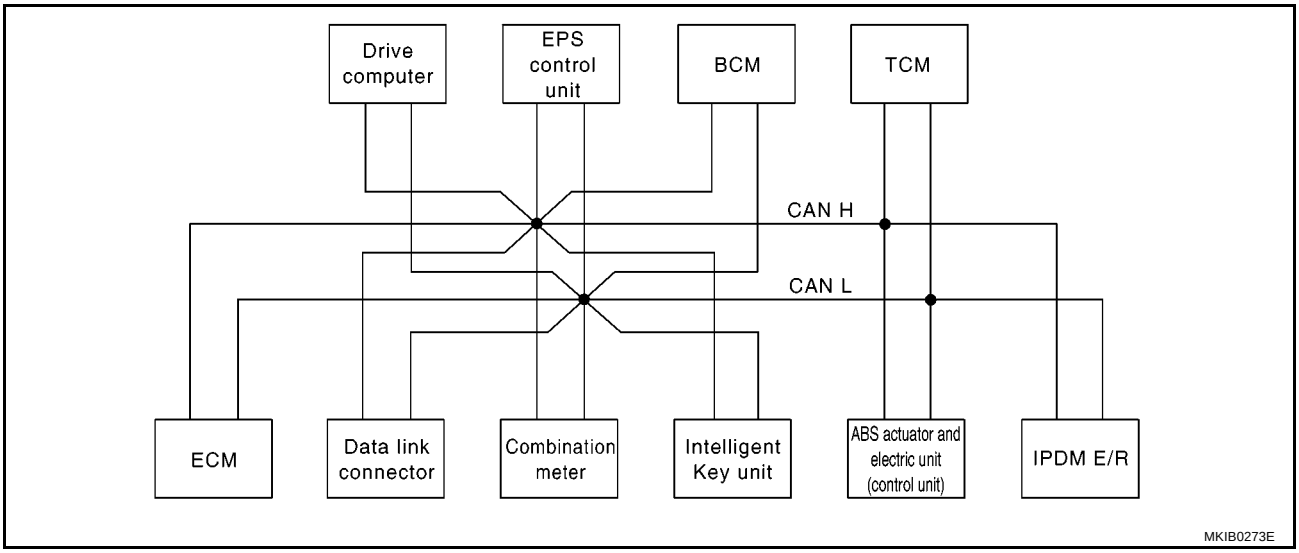
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

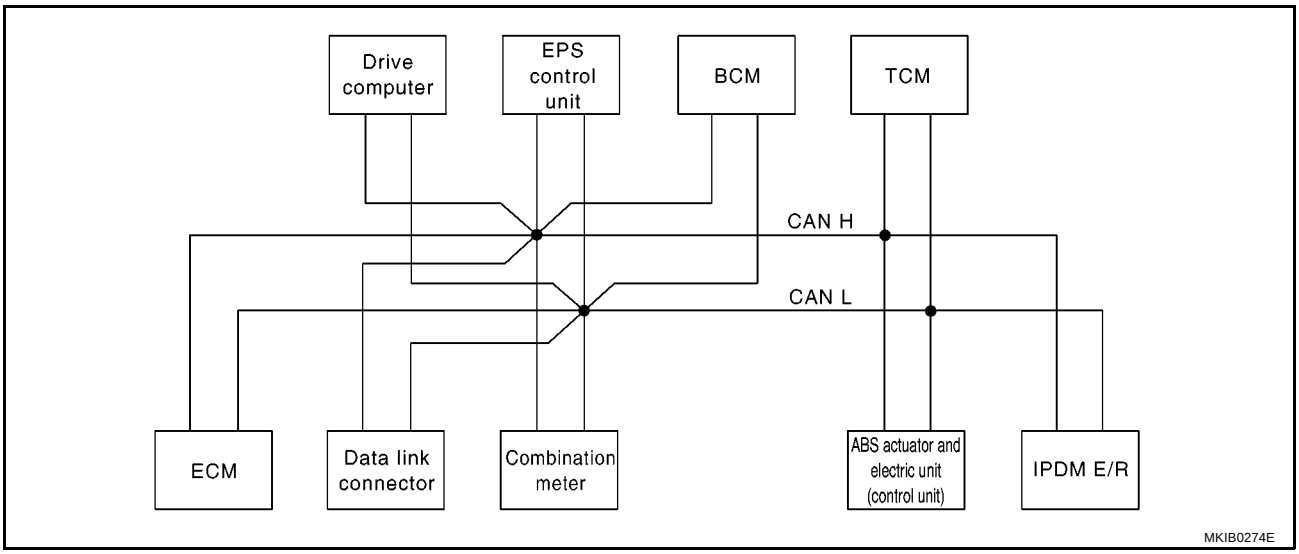
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

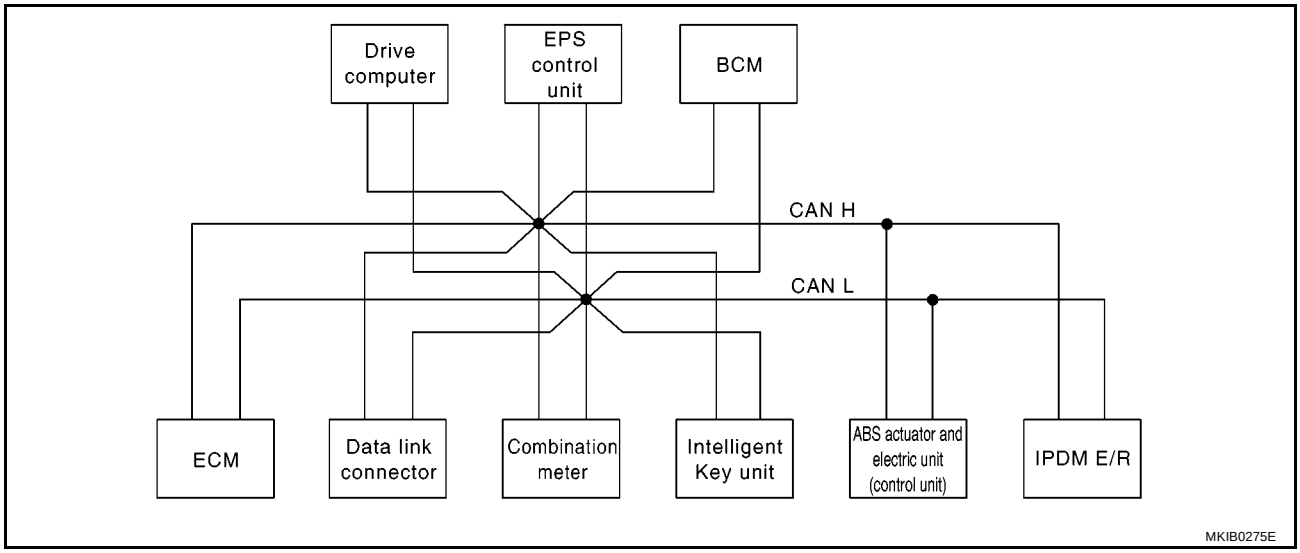
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

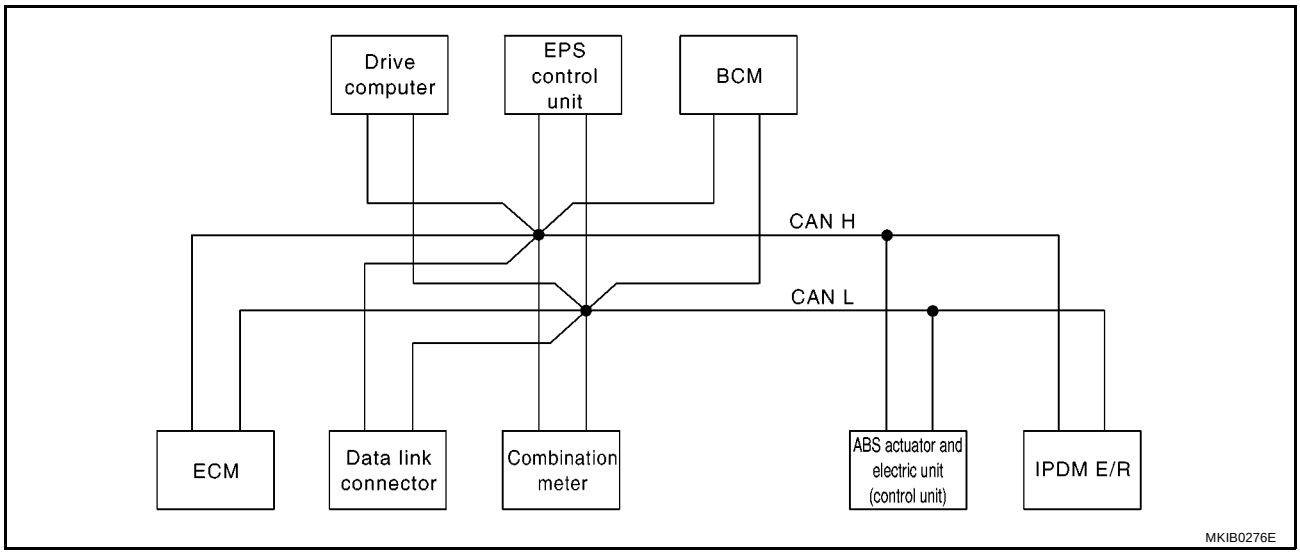
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

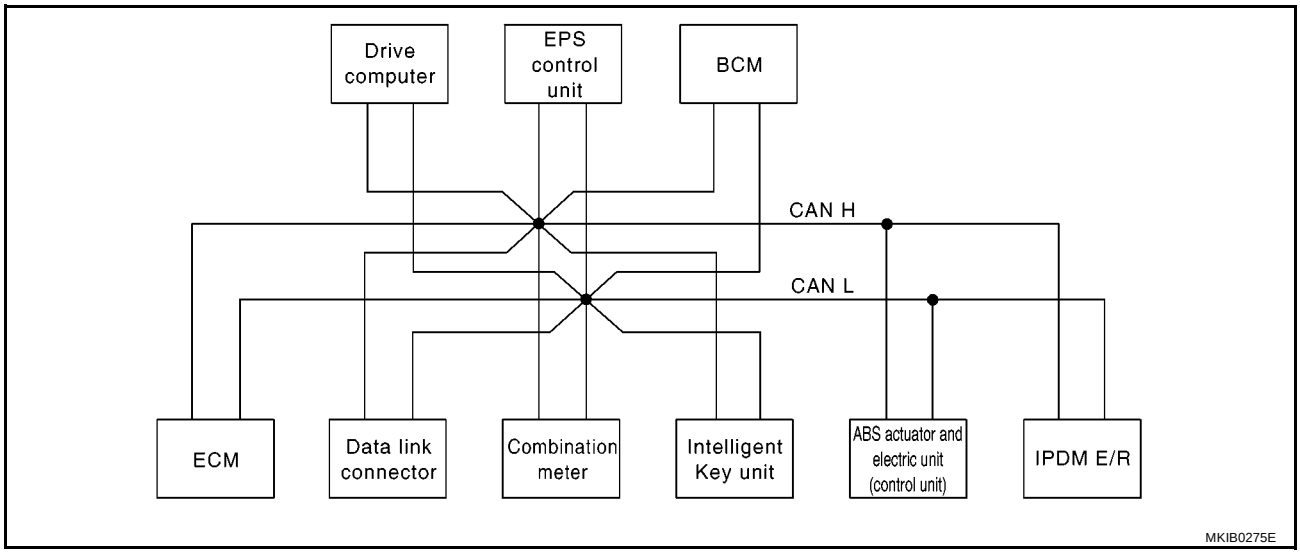
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

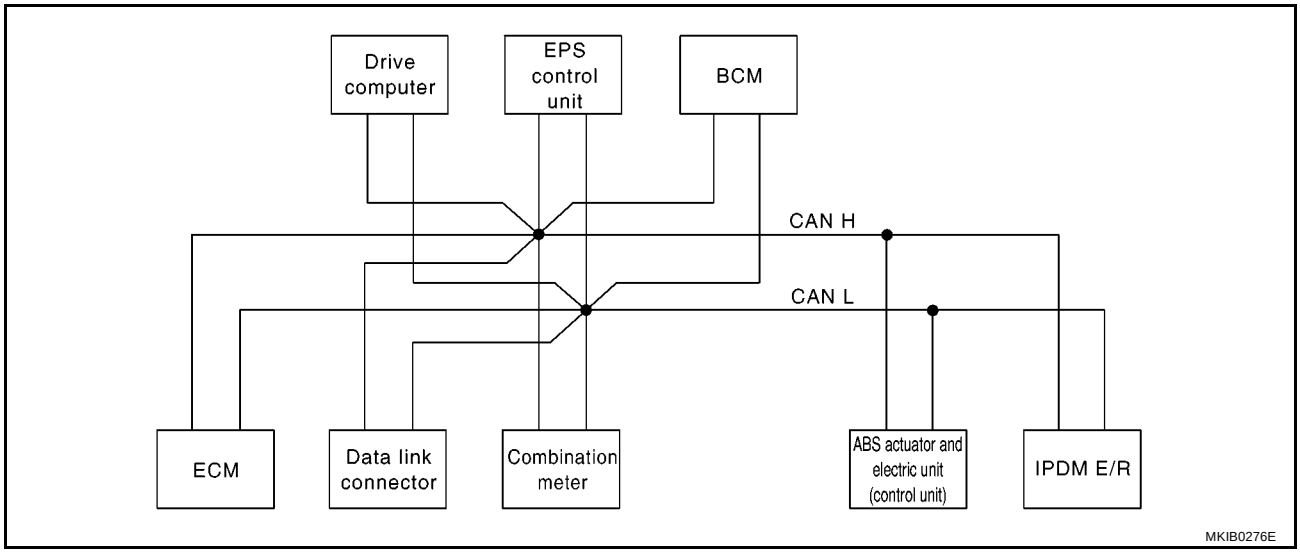
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

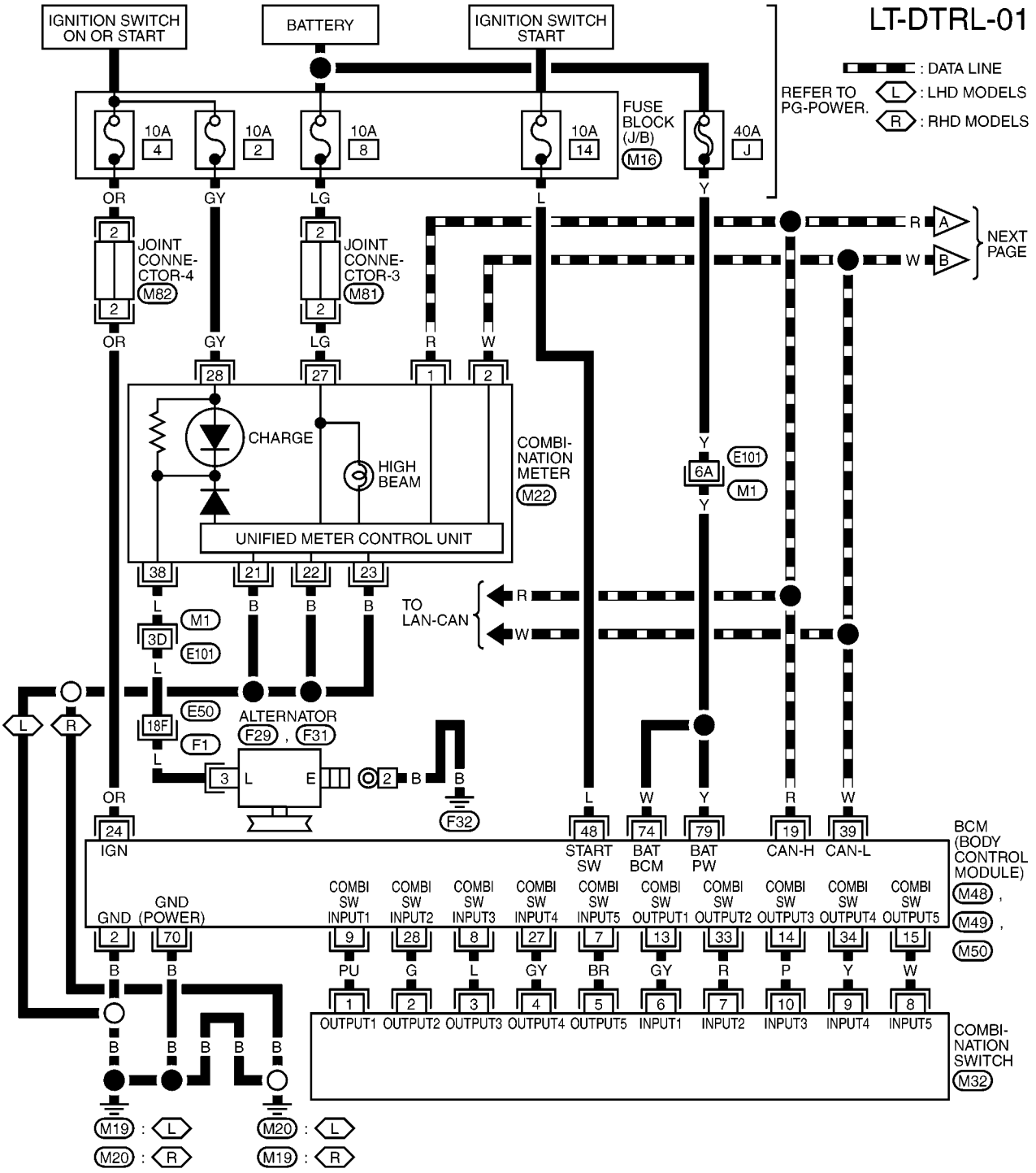
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

Wiring Diagram — DTRL —

EKS00ELG

WITH GASOLINE ENGINE



REFER TO THE FOLLOWING.

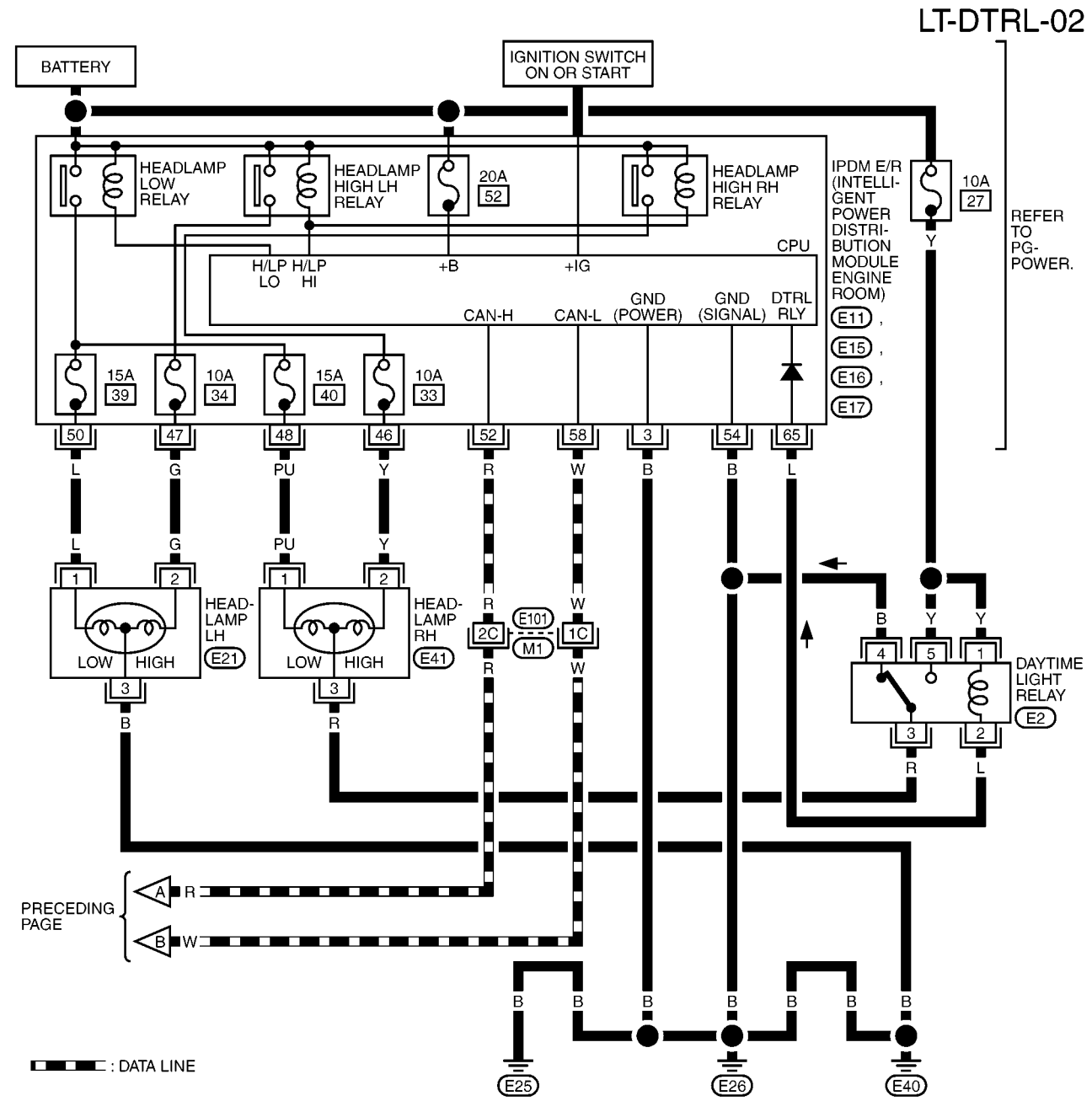
M1 , F1 -SUPER MULTIPLE JUNCTION (SMJ)

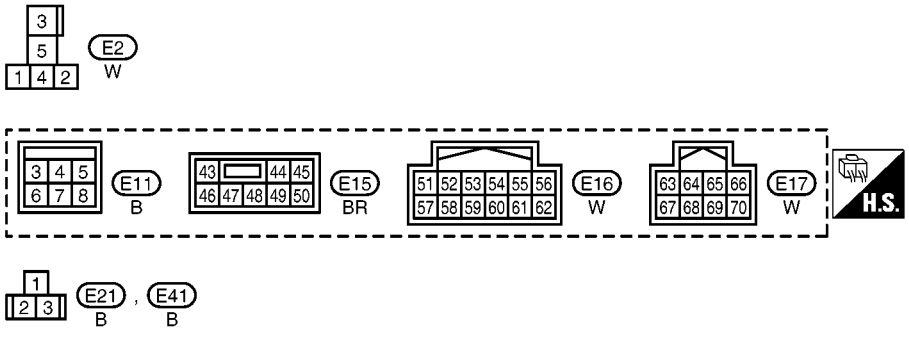
M16 -FUSE BLOCK- JUNCTION BOX (J/B)

M48 , M49 , M50 -ELECTRICAL UNITS

M81 , M82 -JOINT CONNECTOR (J/C)

MKWA3236E

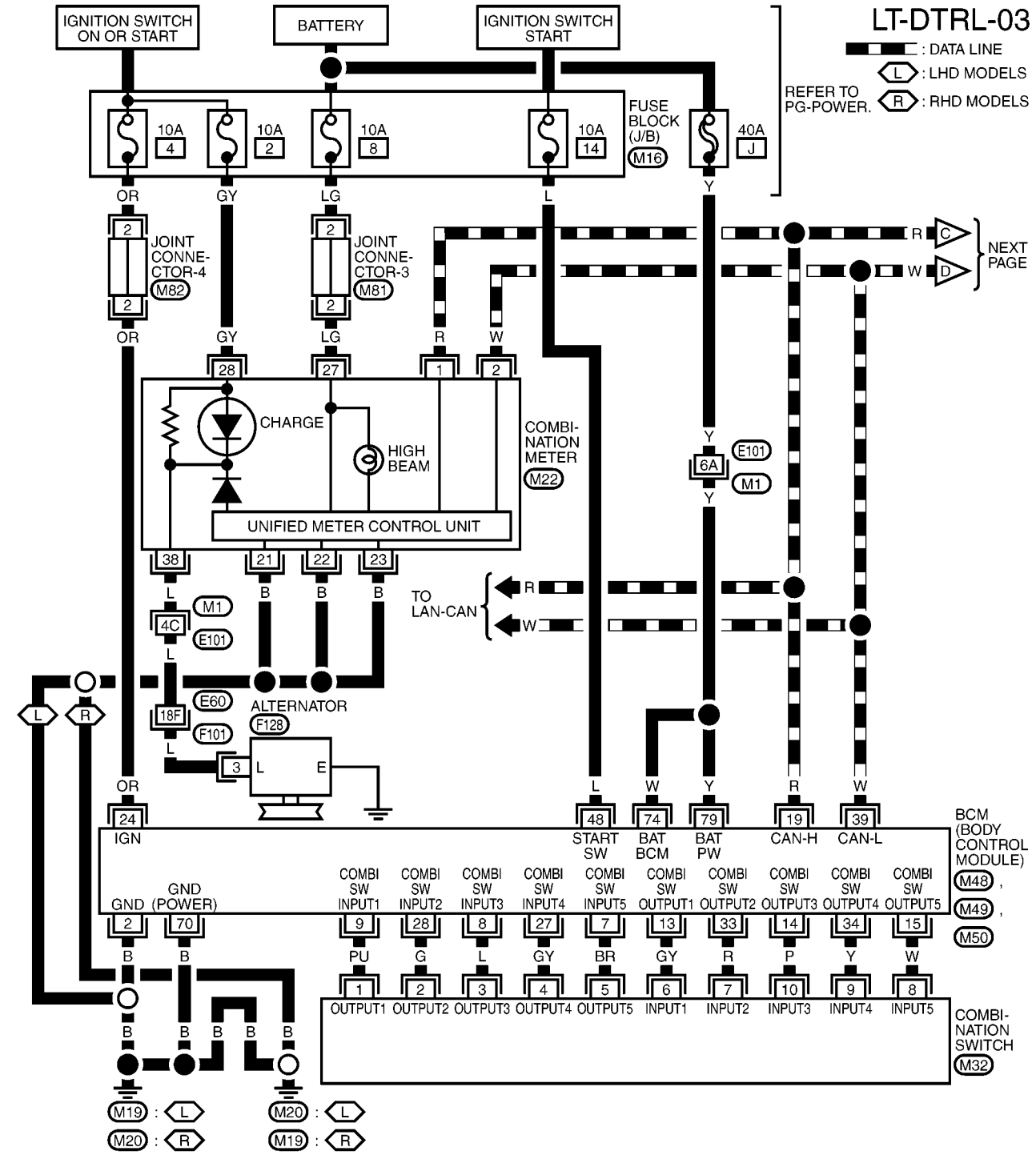




REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

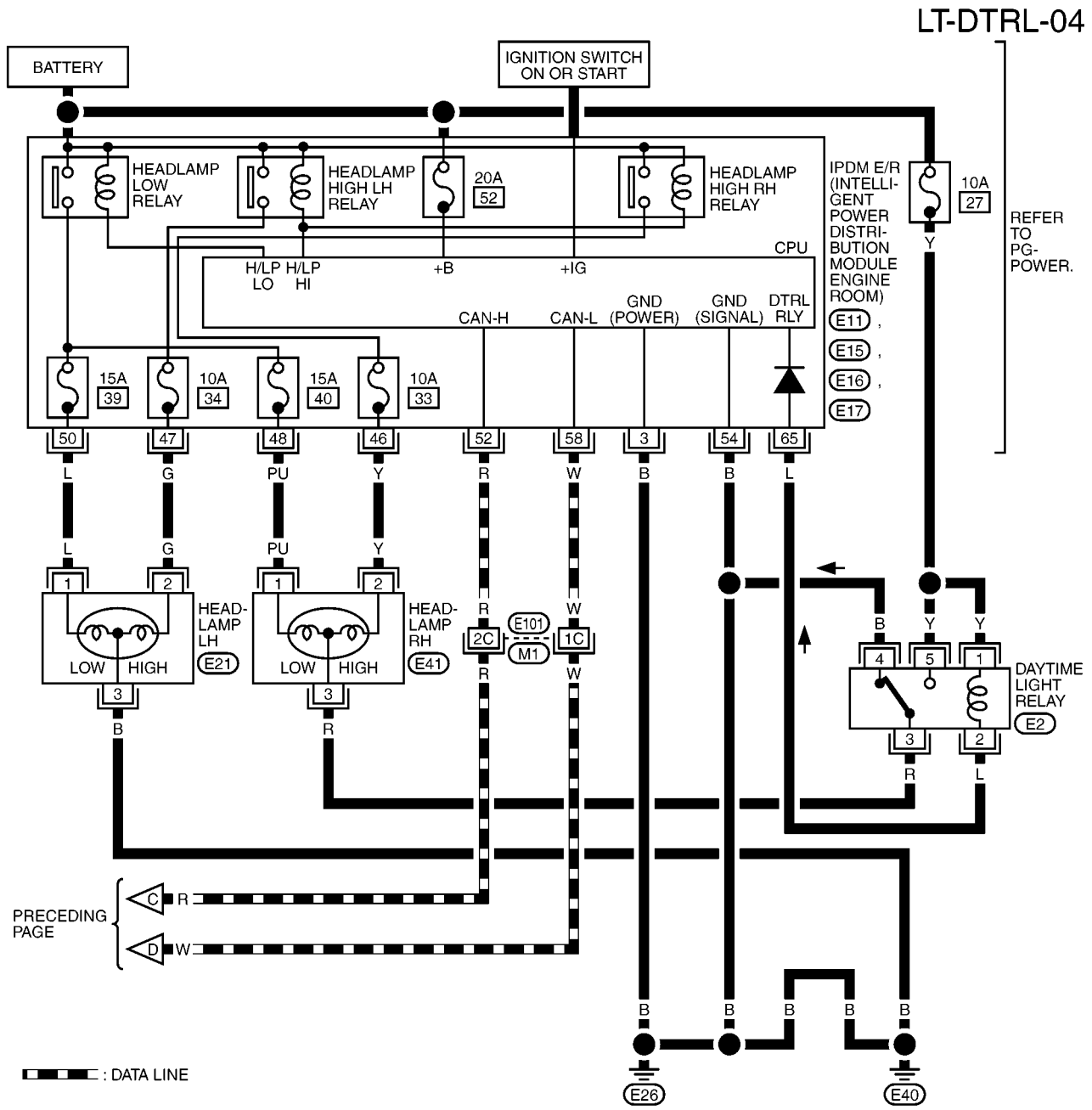
MKWA0810E

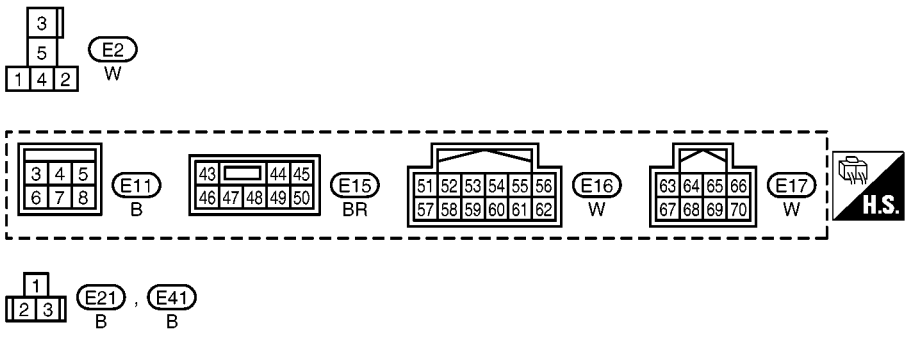
WITH DIESEL ENGINE



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)

MKWA1437E



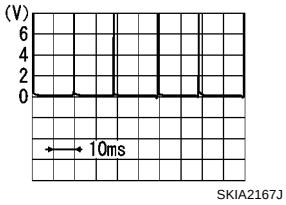
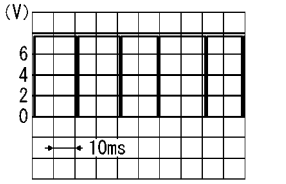
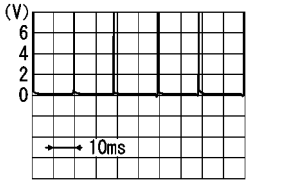


REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1438E

Terminals and Reference Value for BCM

EKS00ELI

Terminal No.	Wire color	Signal designation	Measuring condition		Reference value (V)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	Approx. 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	—	Approx. 12
39	W	CAN L	—	—	—
48	L	Start signal	OFF	—	Approx. 0
			ON	—	Approx. 0
			START	—	Approx. 12
70	B	Ground	ON	—	Approx. 0
74	W	Battery power supply	OFF	—	Approx. 12
79	Y	Battery power supply	OFF	—	Approx. 12

Terminals and Reference Values for IPDM E/R

EKS00ELJ

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		Approx. 0
46	Y	Headlamp HI (RH)	ON	Lighting switch (high beam)	ON	Approx. 12
47	G	Headlamp HI (LH)	ON		OFF	Approx. 0
48	PU	Headlamp LO (RH)	ON	Lighting switch (low beam)	ON	Approx. 12
50	L	Headlamp LO (LH)	ON		OFF	Approx. 0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		Approx. 0
58	W	CAN L	—	—		—
65	L	Daytime light relay	ON	Engine status (Lighting switch OFF)	RUNNING	Approx. 0
					STOP	Approx. 12

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-64, "Preliminary Check"
4. Confirm headlamp does not operate by fail-safe control of IPDM E/R. Refer to PG-19, "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-59, "Wiring Diagram — DTRL —" .

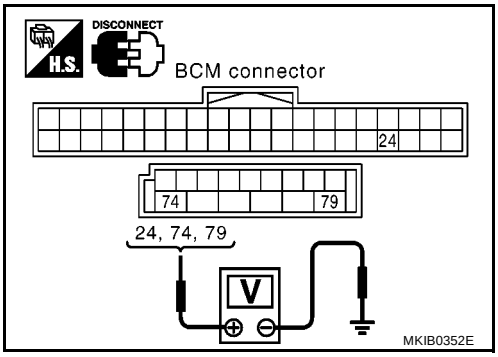
OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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.



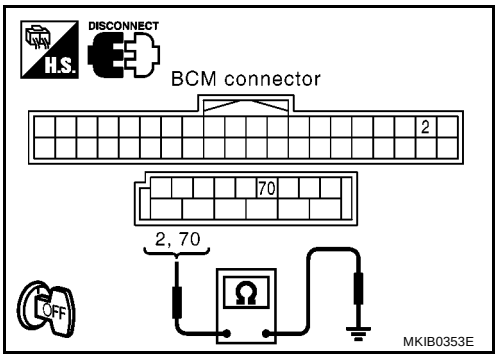
Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M50	74 (W)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

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.



Terminals			Continuity
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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.

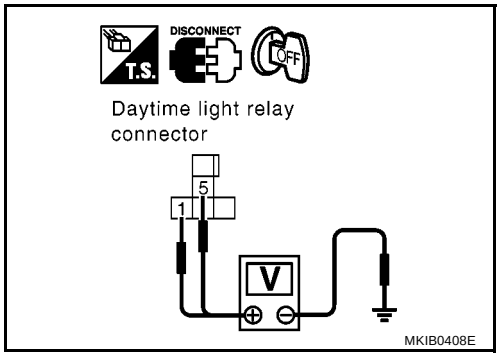
Does headlamp operate normally?

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]
(+)		(–)	
Connector	Terminal (Wire color)		
E2	1 (Y)	Ground	Battery voltage
	5 (Y)		

OK or NG

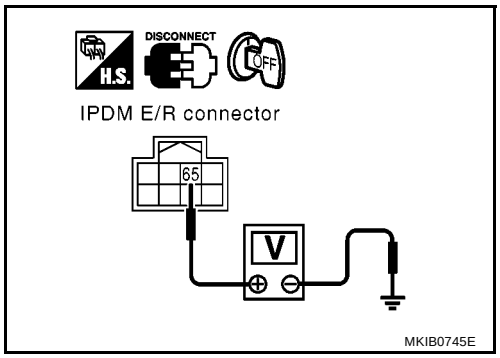
OK >> GO TO 3.
NG >> Check the following.

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

Battery voltage should exist.

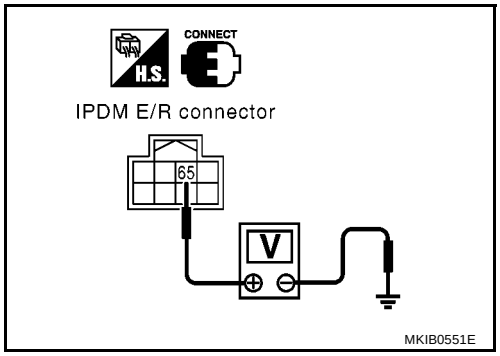


OK or NG

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.



Connector	Terminal (Wire color)	Condition	Voltage [V]
E17	65 (L)	Engine stop	Approx. 12
		Engine running	Approx. 0

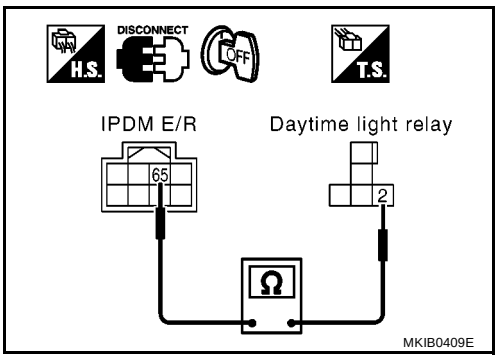
OK or NG

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.

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.

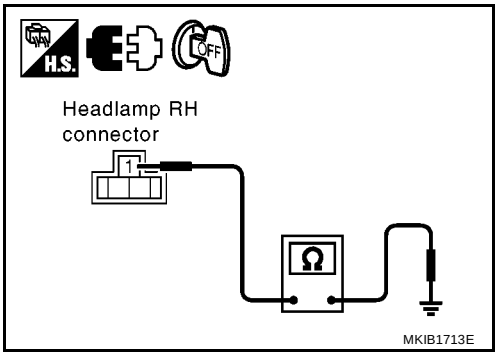
OK or NG

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 termional 2 (Y) and ground.

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



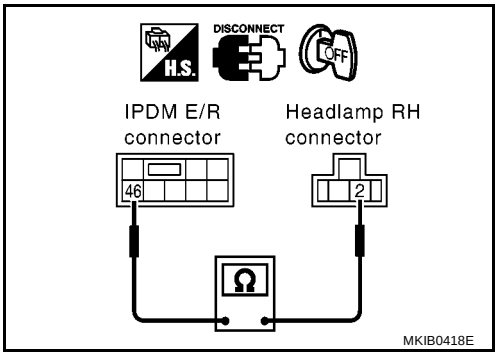
OK or NG

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.

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].

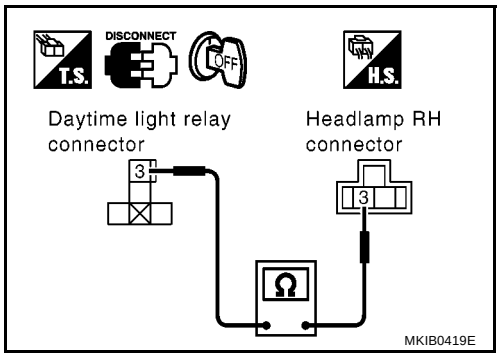
OK or NG

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.

Continuity should exist.



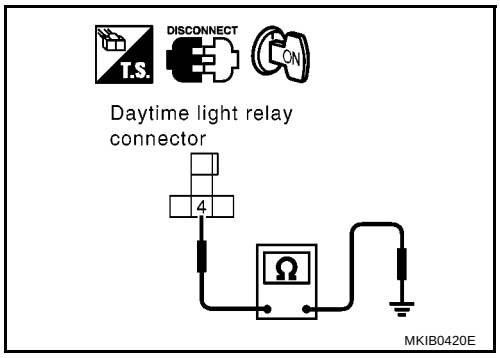
OK or NG

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.

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.

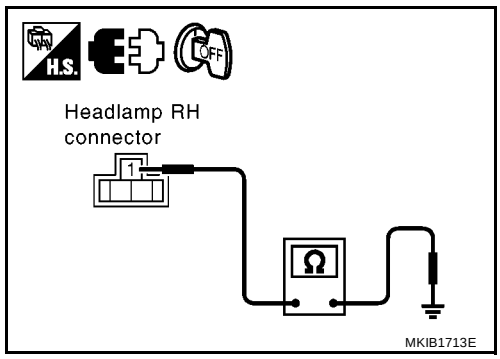
OK or NG

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 termional 1 (PU) and ground.

Terminals			Condition	Voltage [V]
(+)		(–)		
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.

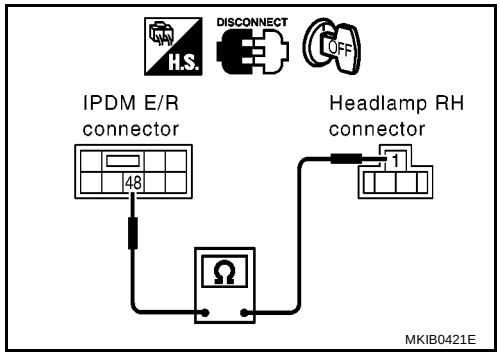
3. CHECK IPDM E/R CIRCUIT

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.

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-49, "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.

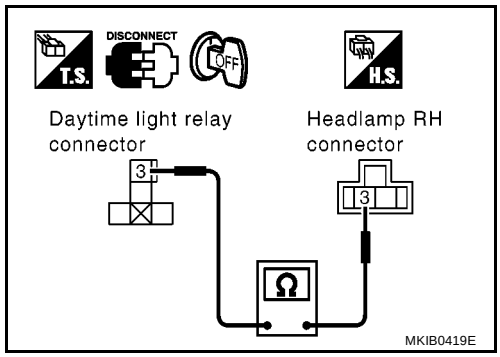
5. CHECK HEADLAMP RH GROUND CIRCUIT

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

Continuity should exist.

OK or NG

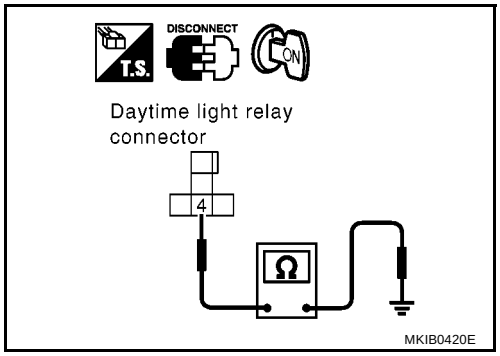
OK >> GO TO 6.
NG >> Repair or replace harness or connector.



6. CHECK DAYTIME LIGHT GROUND CIRCUIT

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

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 Do Not Turn OFF" .

Aiming Adjustment

EKS00ELX

Refer to LT-40, "Aiming Adjustment" .

Bulb Replacement

EKS00ELY

Refer to LT-41, "Bulb Replacement" .

Removal and Installation

EKS00ELZ

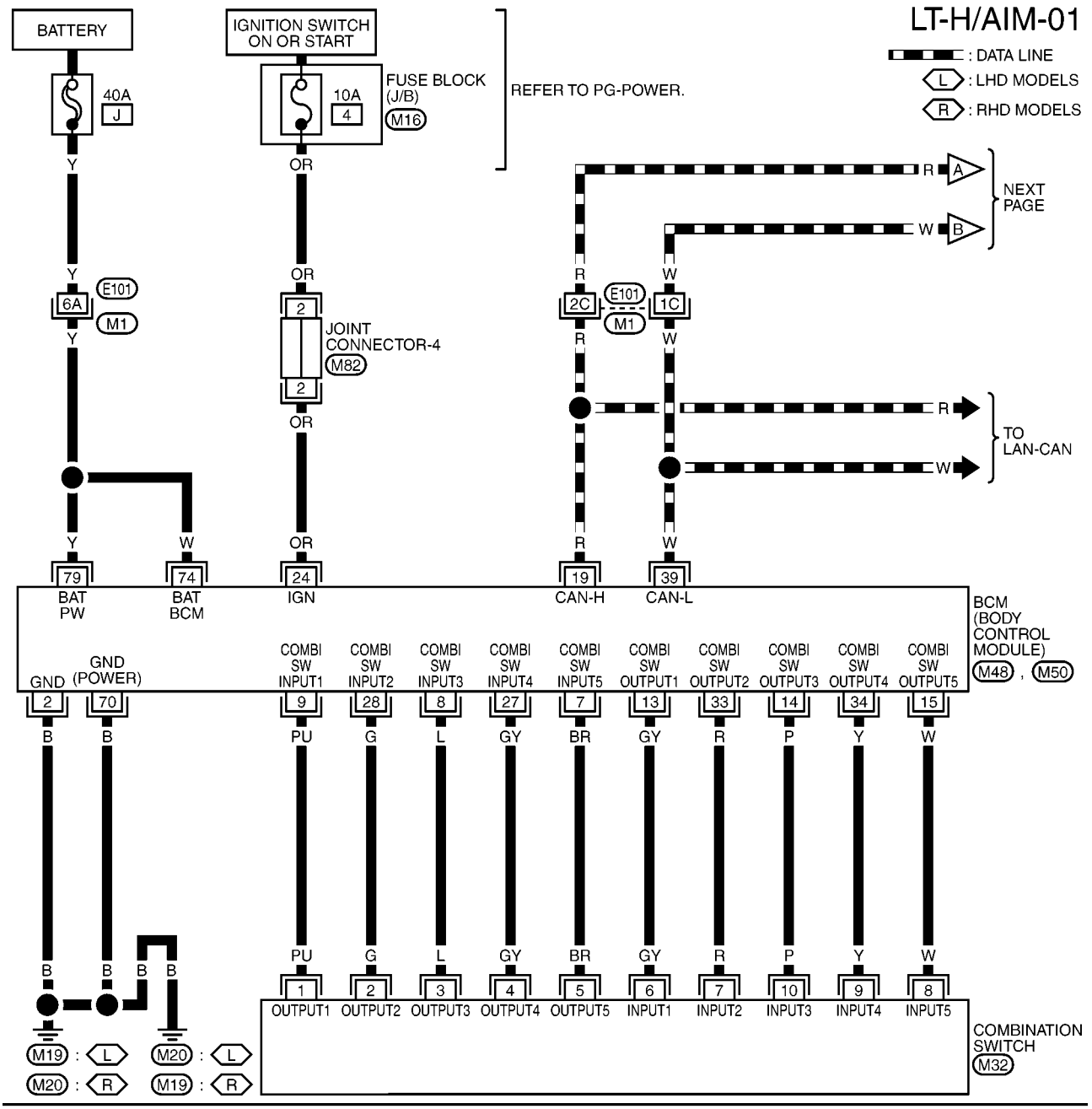
Refer to LT-41, "Removal and Installation" .

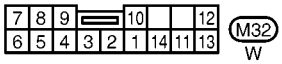
HEADLAMP AIMING CONTROL

PFP:26010

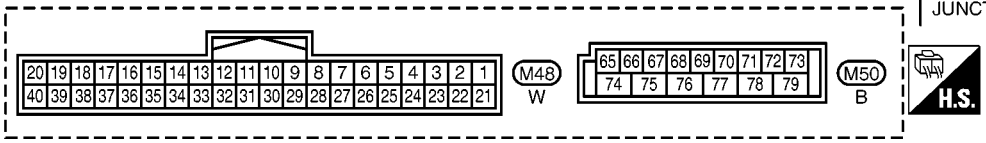
Wiring Diagram— H/AIM —

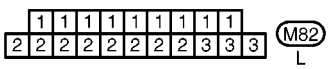
EKS00EM0



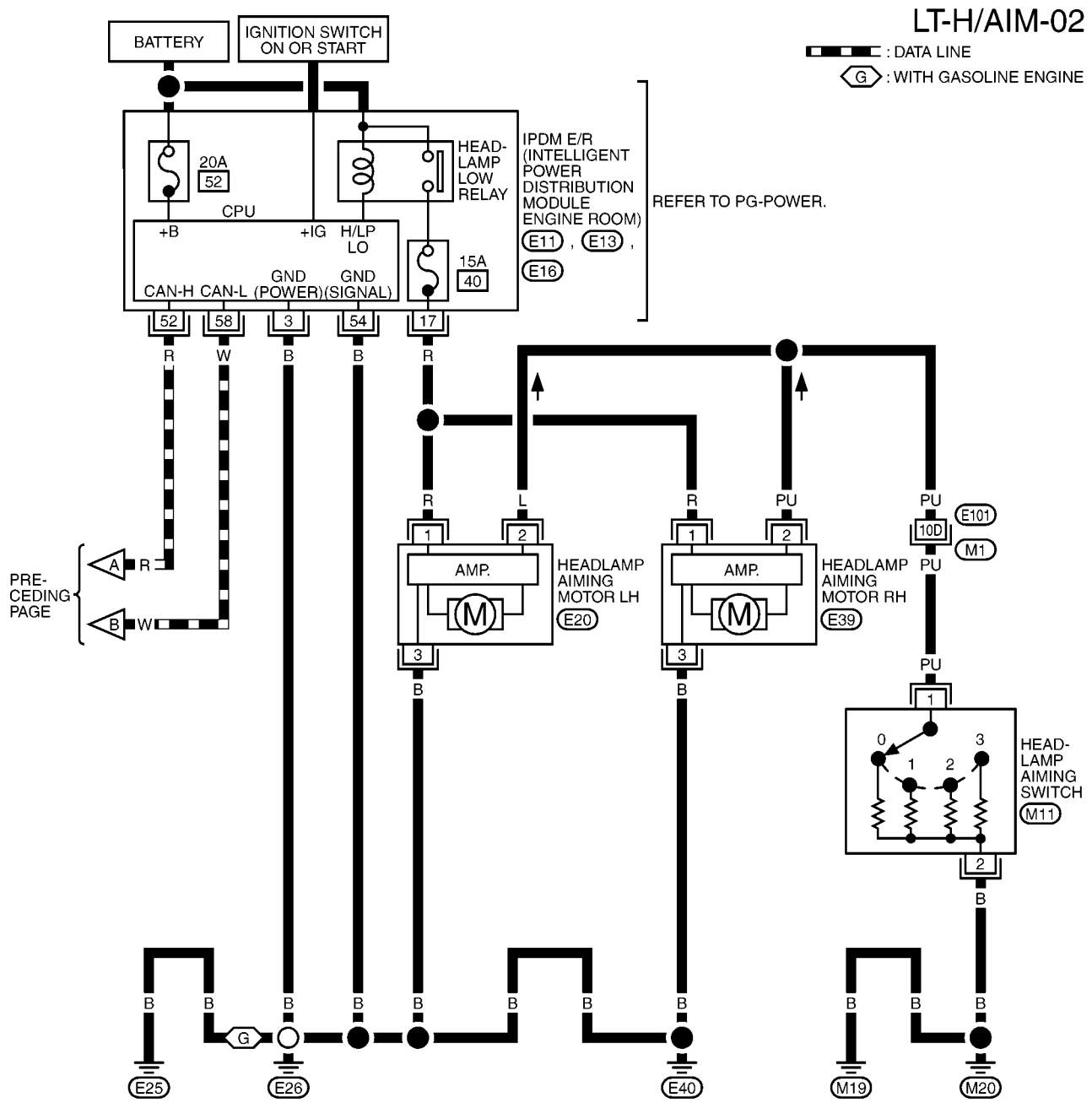


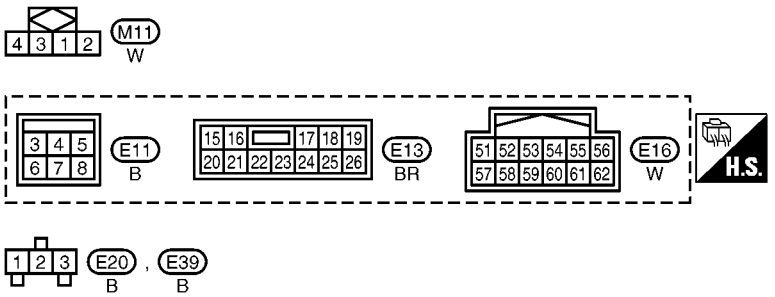
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)
M16 -FUSE BLOCK-JUNCTION BOX (J/B)





MKWA1524E





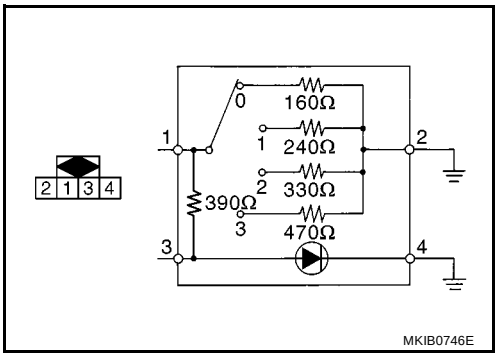
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1439E

Switch Circuit Inspection

EKS00EM1

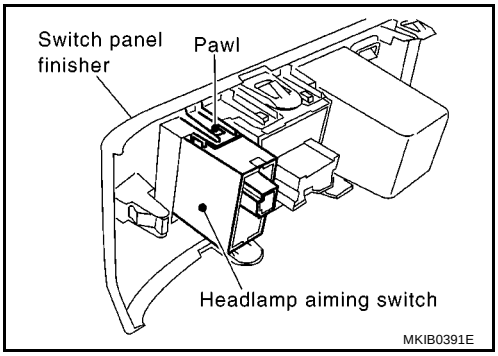
Using a circuit tester, check continuity between the headlamp aiming switch connector terminals in each operation status of the aiming switch.



Removal and Installation

EKS00EM2

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.



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-189, "System Description"

OUTLINE

Power is supplied at all times

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

Power is also supplied at all times

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

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

- to terminal 24 of the BCM
- through 10A fuse [No. 4, located in fuse block (J/B)],
- 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(Gasoline 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-189, "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, and
- 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(Gasoline engine models), E26, E40, and
- to front fog lamp RH terminal 2
- through body grounds E25(Gasoline engine models), E26 and E40.

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-189, "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

EKS00LT9

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

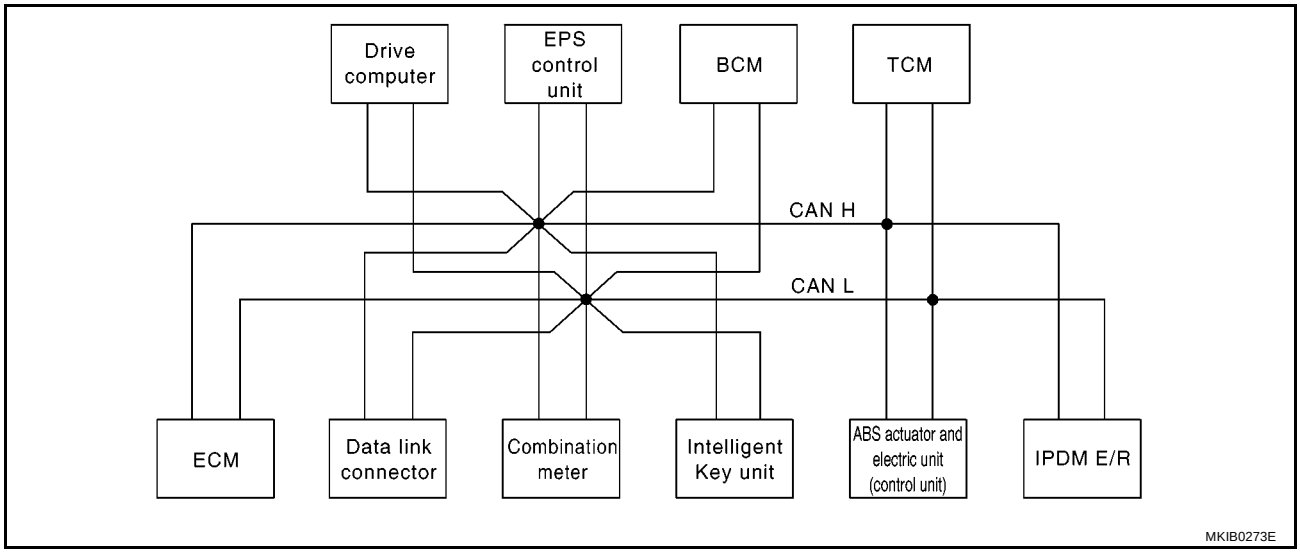
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-76, "TYPE 1/ TYPE 2"				LT-79, "TYPE 3/ TYPE 4"				LT-81, "TYPE 5/ TYPE 6"				LT-84, "TYPE 7/ TYPE 8"				LT-86, "TYPE 9/ TYPE 10"			

×: Applicable

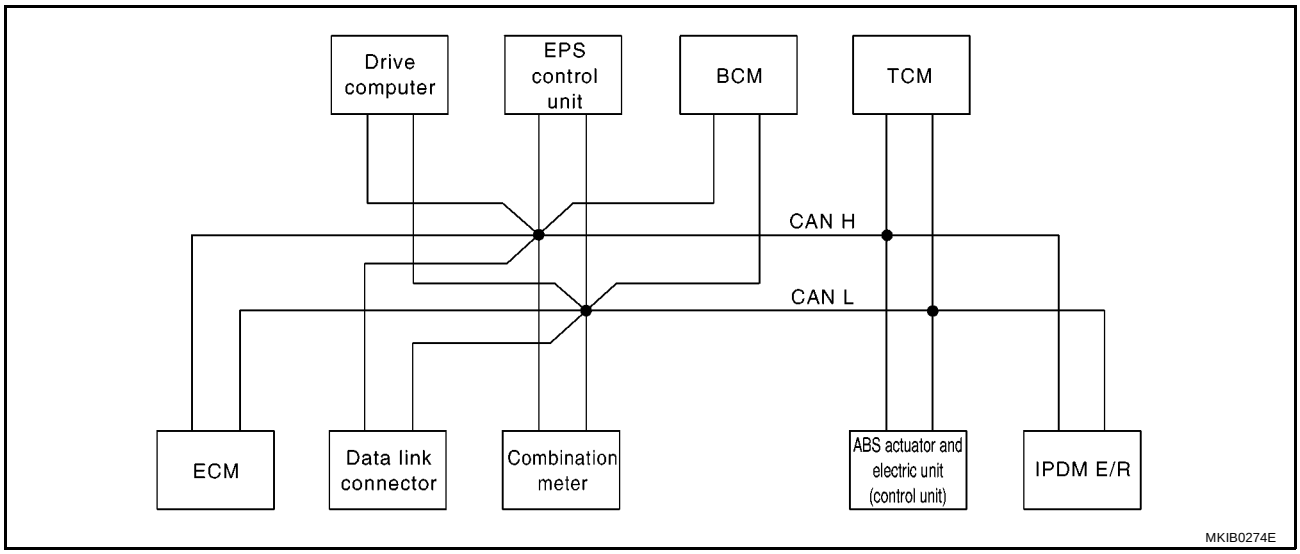
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

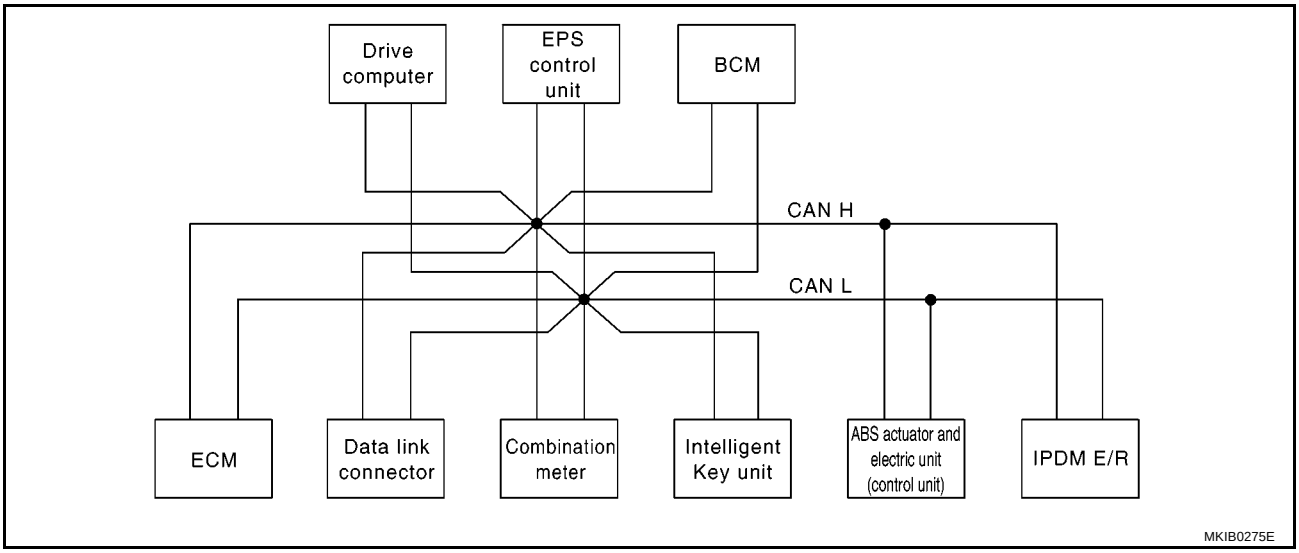
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

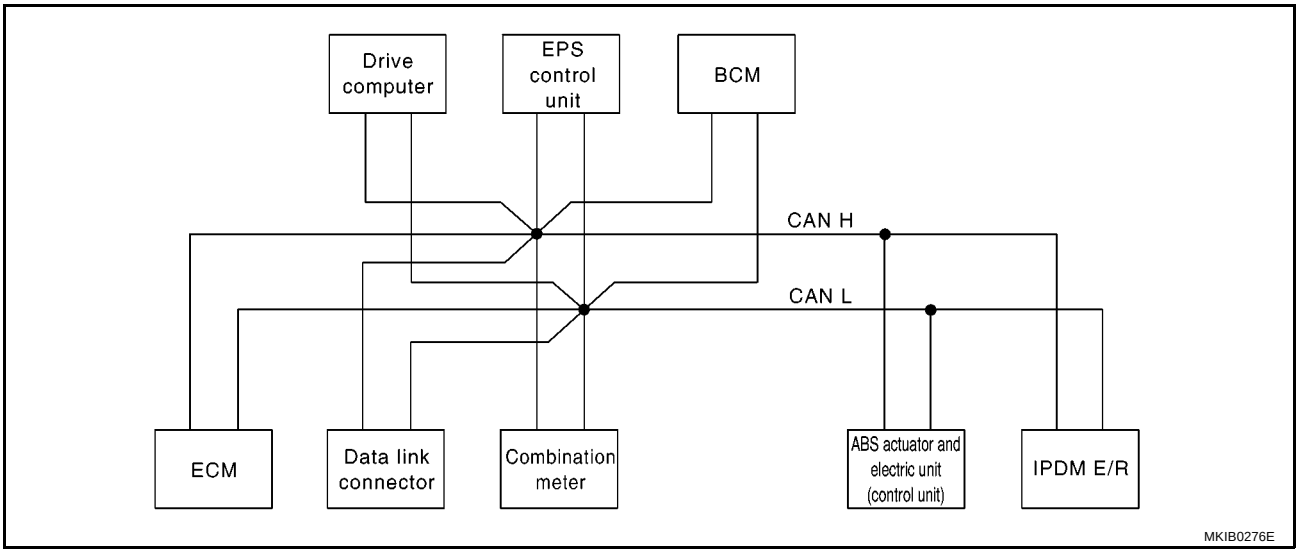
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

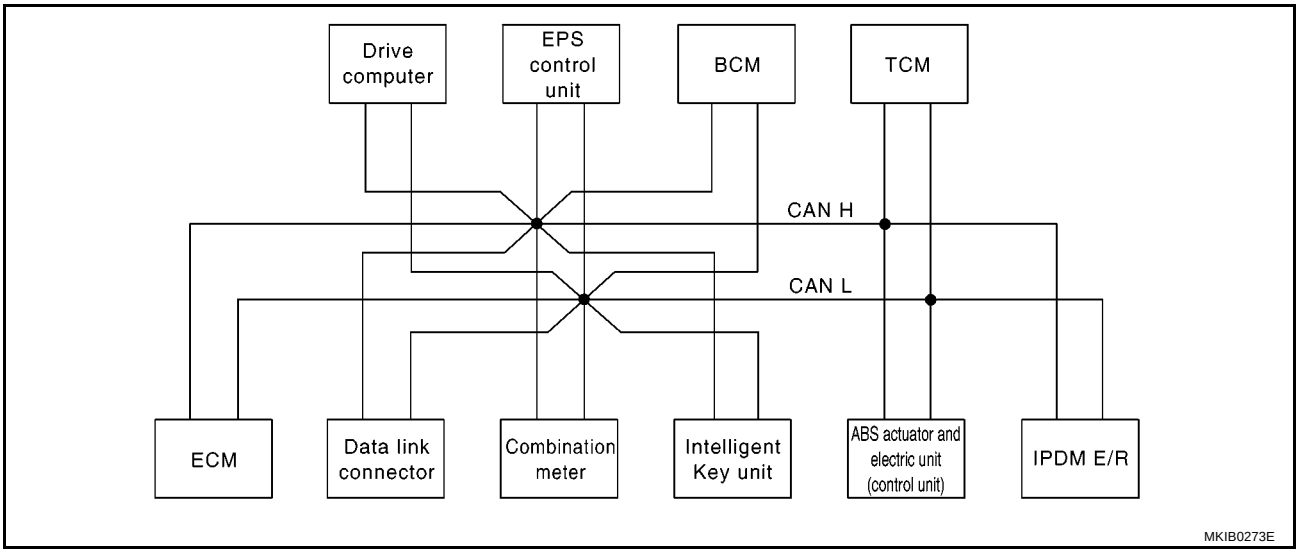
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

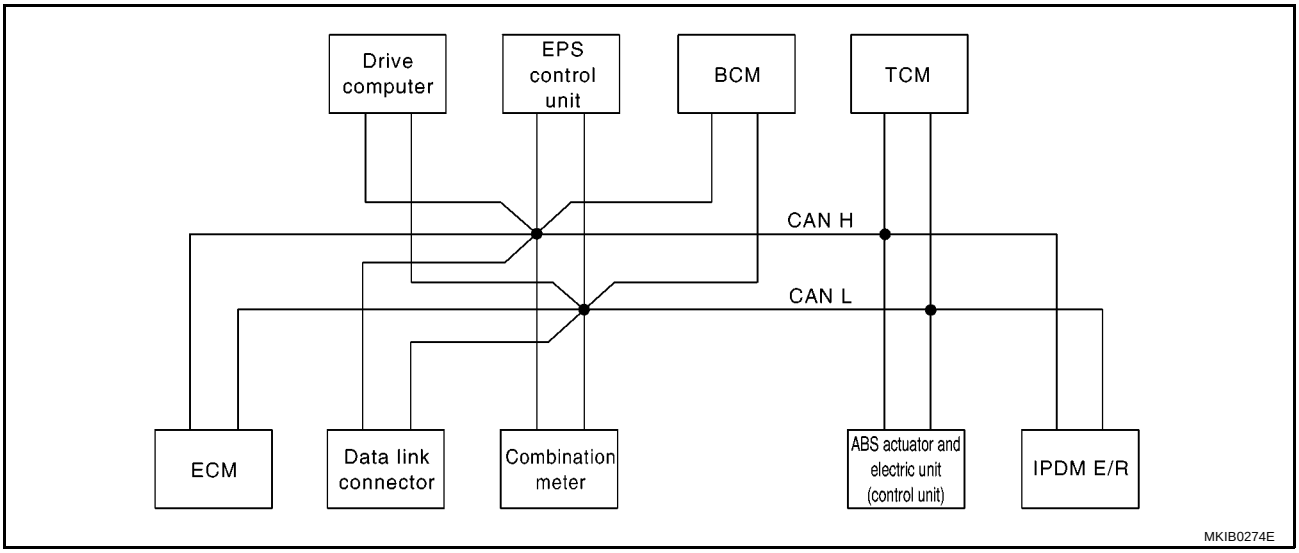
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	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	R	

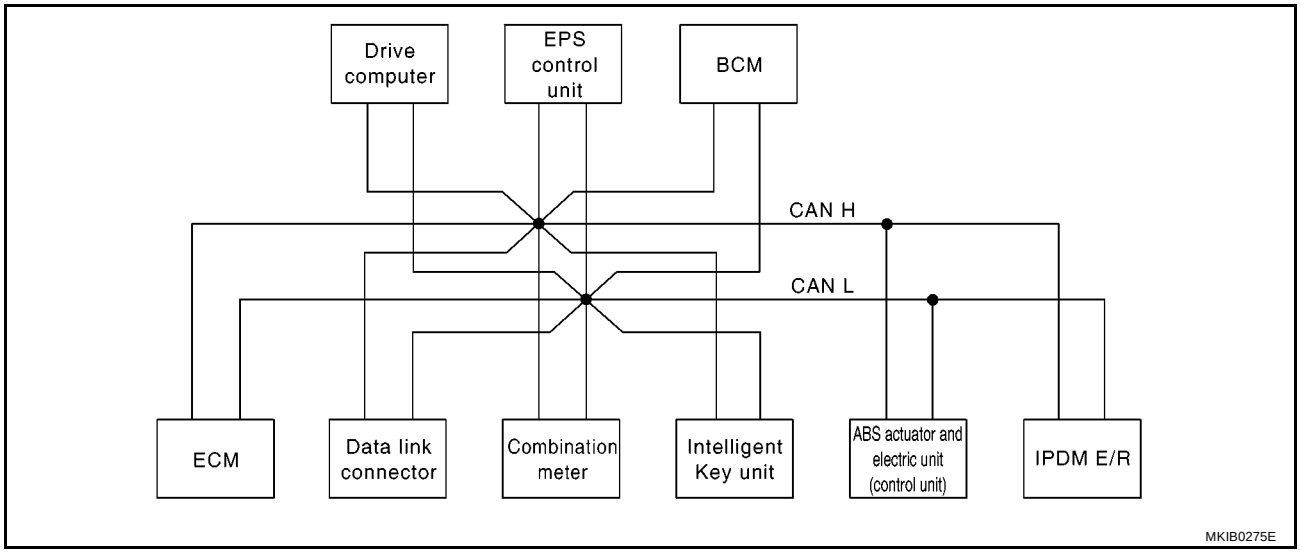
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

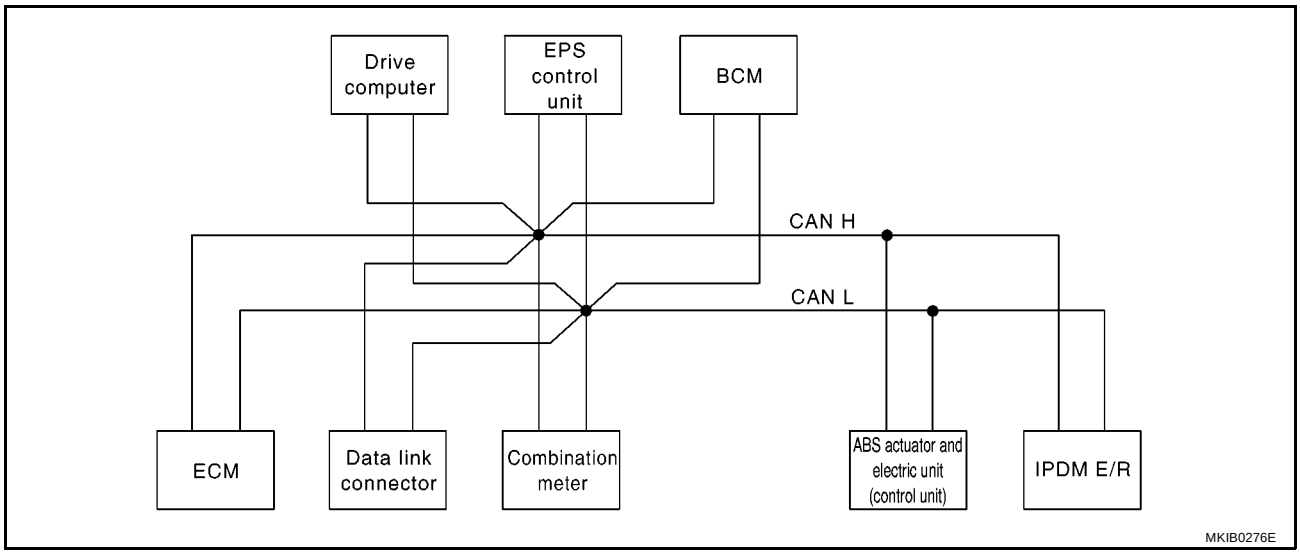
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

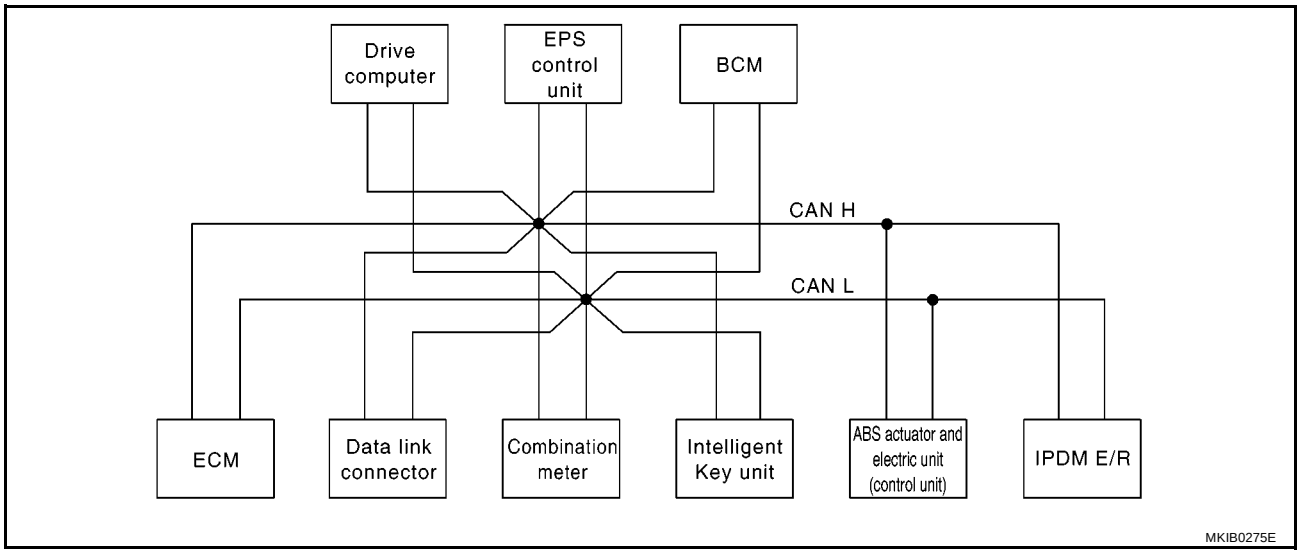
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

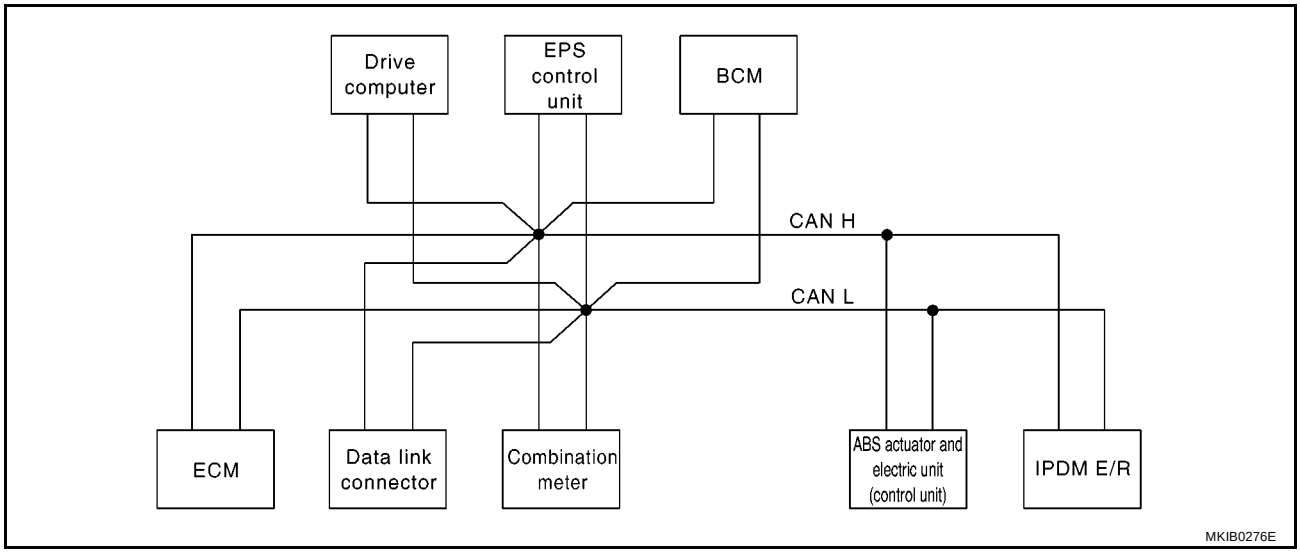
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

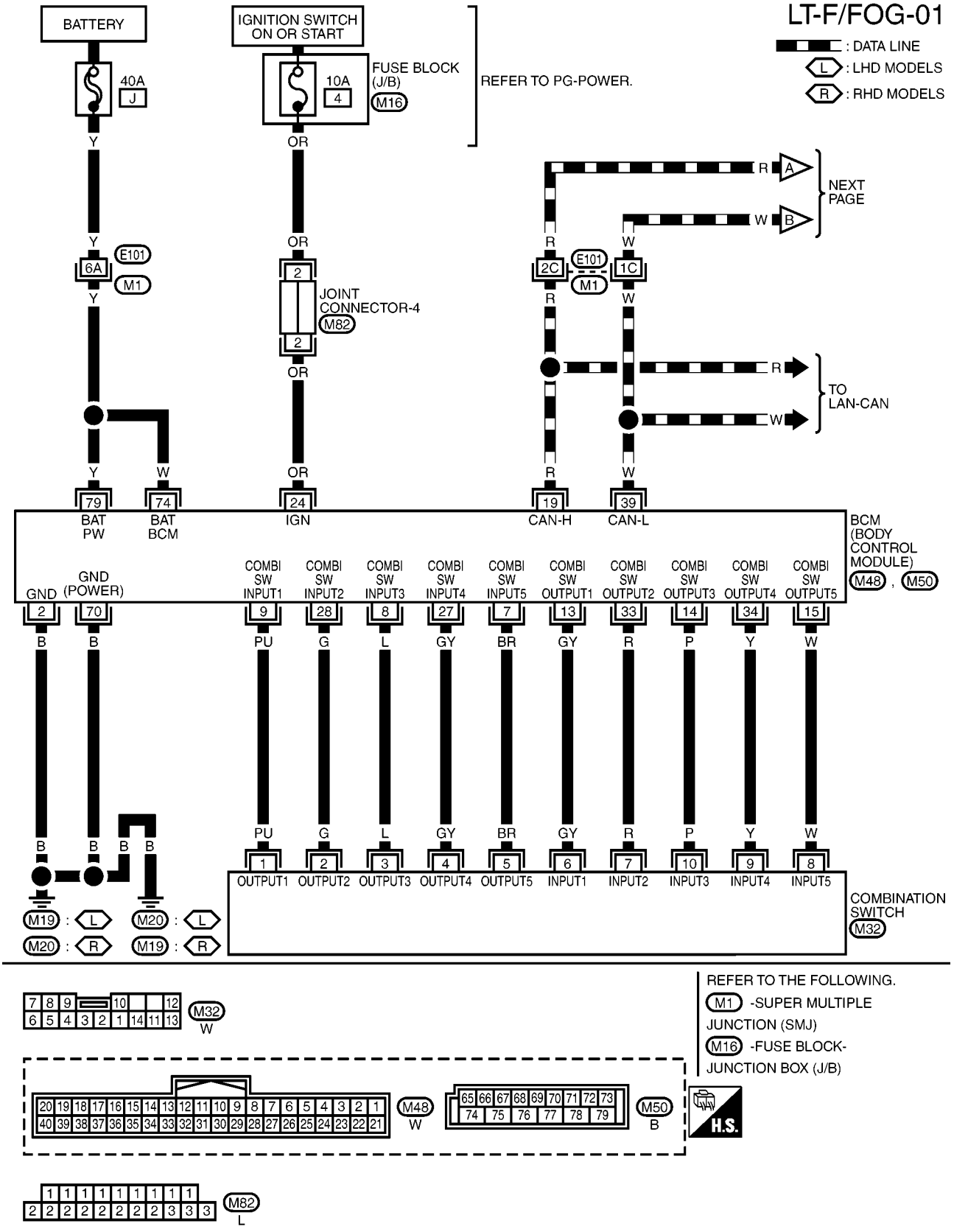
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

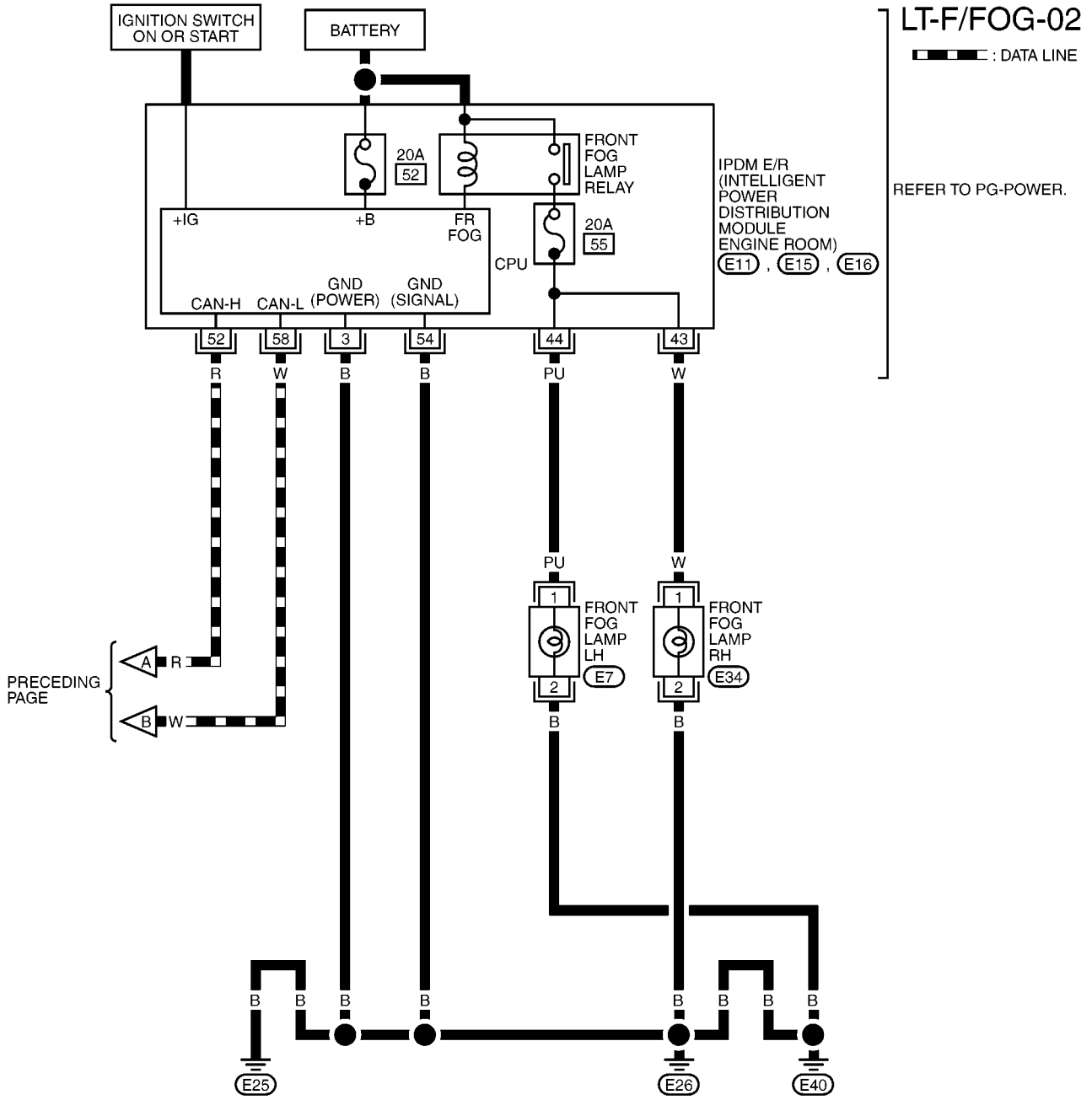
Wiring Diagram — F/FOG —

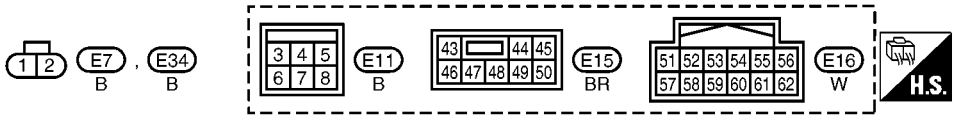
EKS00EM5

WITH GASOLINE ENGINE



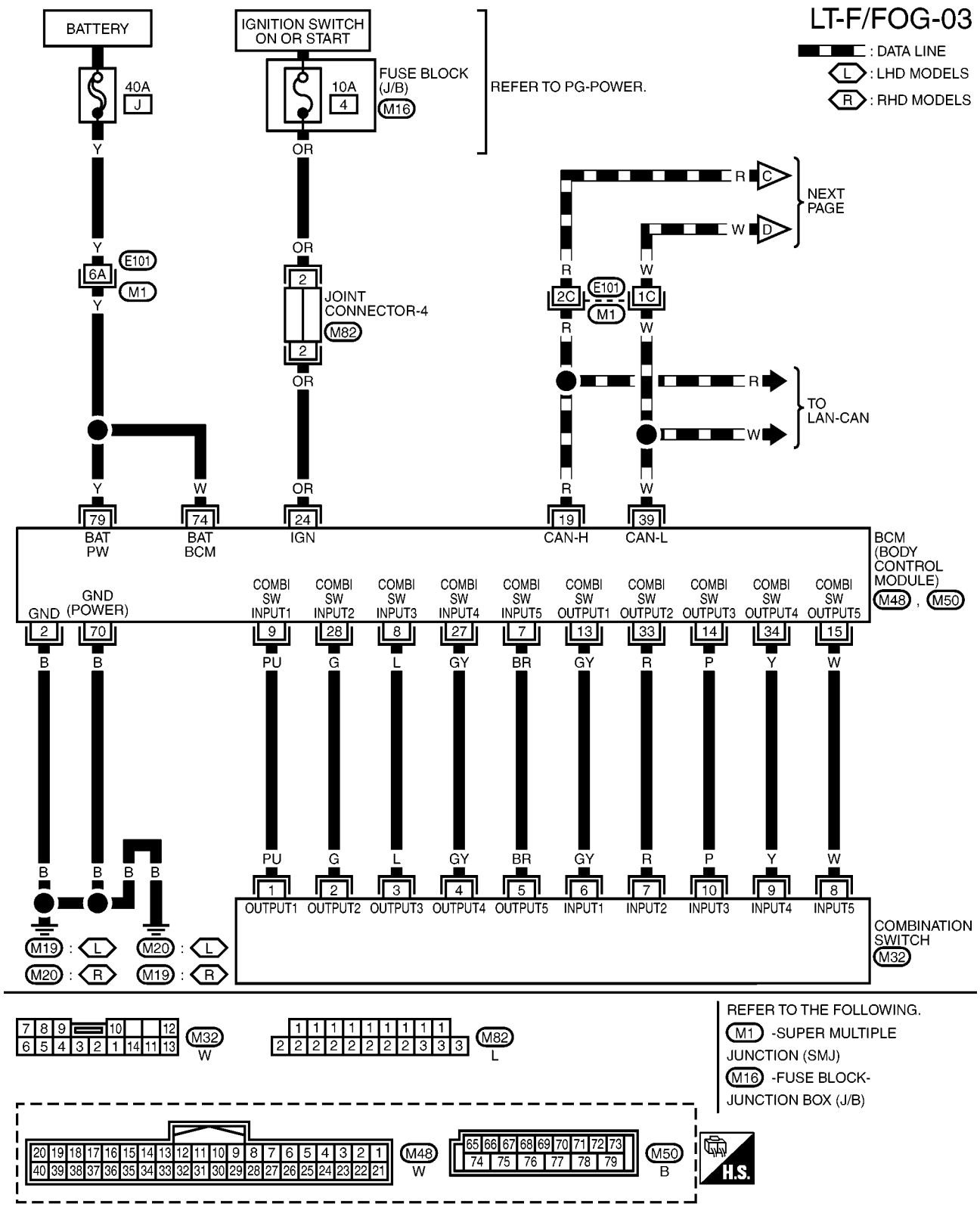
MKWA1527E


IGNITION SWITCH ON OR START
BATTERY
LT-F/FOG-02
: DATA LINE
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
PRECEDING PAGE
A R
B W
FRONT FOG LAMP LH E7
FRONT FOG LAMP RH E34
E25
E26
E40

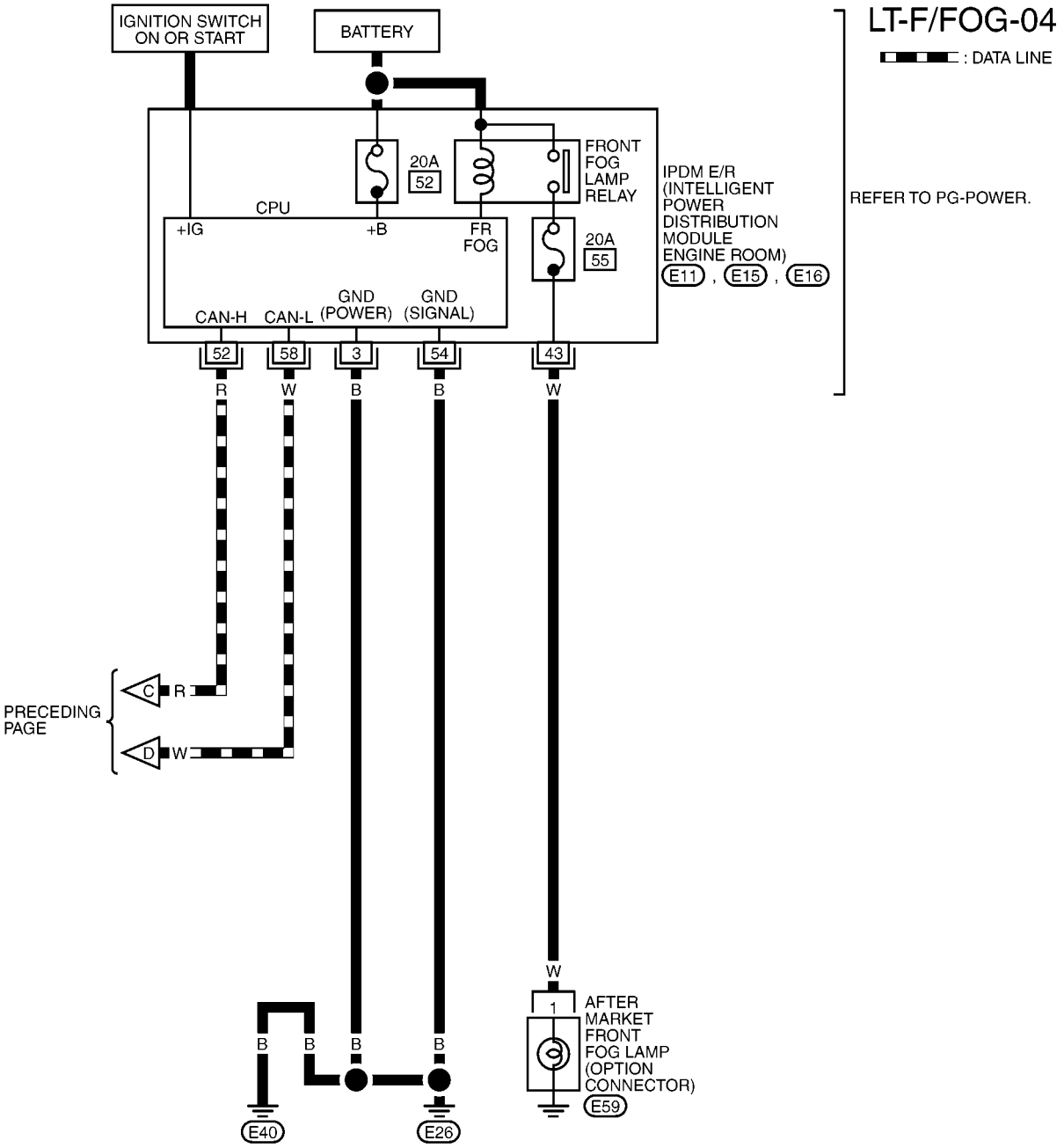

1 2 E7 , E34
B B
3 4 5 6 7 8 E11 B
43 44 45 46 47 48 49 50 E15 BR
51 52 53 54 55 56 57 58 59 60 61 62 E16 W
H.S.

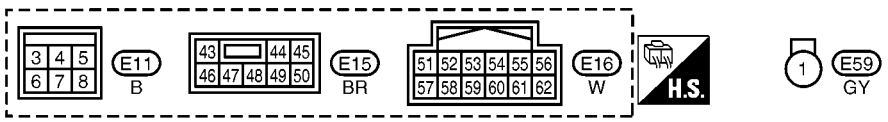
MKWA1528E

WITH DIESEL ENGINE



MKWA1446E

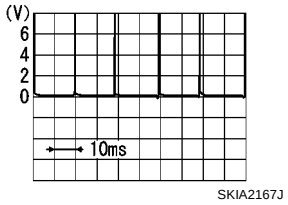
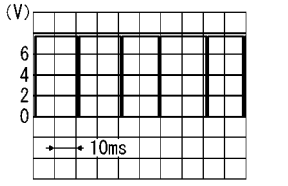
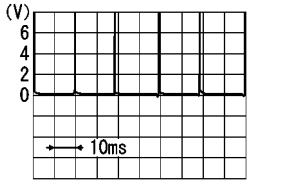

IGNITION SWITCH ON OR START
BATTERY
20A 52
FRONT FOG LAMP RELAY
CPU
+IG
+B
FR FOG
20A 55
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E11 , E15 , E16
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
52
58
3
54
43
R
W
B
B
W
LT-F/FOG-04
: DATA LINE
REFER TO PG-POWER.
PRECEDING PAGE
C R
D W
B B B B
E40
E26
W
1
AFTER MARKET FRONT FOG LAMP (OPTION CONNECTOR)
E59


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.
1
E59
GY

MKWA1447E

Terminals and Reference Value for BCM

EKS00EM7

Terminal No.	Wire color	Signal designation	Measuring condition		Reference value (V)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	Approx. 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	—	Approx. 12
39	W	CAN L	—	—	—
70	B	Ground	ON	—	Approx. 0
74	W	BAT power supply	—	—	Approx. 12
79	Y	Battery power supply	—	—	Approx. 12

Terminals and Reference Values for IPDM E/R

EKS00EM8

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		Approx. 0
43	W	Front fog lamp (RH)	ON	Front fog lamp switch	ON	Approx. 12
					OFF	Approx. 0
44	PU	Front fog lamp (LH)	ON		ON	Approx. 12
					OFF	Approx. 0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		Approx. 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-74, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-94, "Preliminary Check"
4. Confirm headlamp does not operate by fail-safe control of IPDM E/R. Refer to PG-19, "FAIL-SAFE FUNCTION" .
5. Check symptom and repair or replace the cause of malfunction.
6. Dose 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

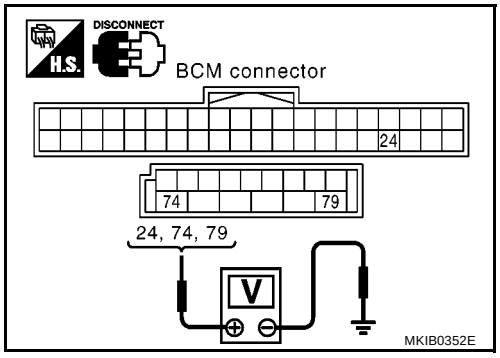
Refer to LT-89, "Wiring Diagram — F/FOG —" .

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-4, "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 (W)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

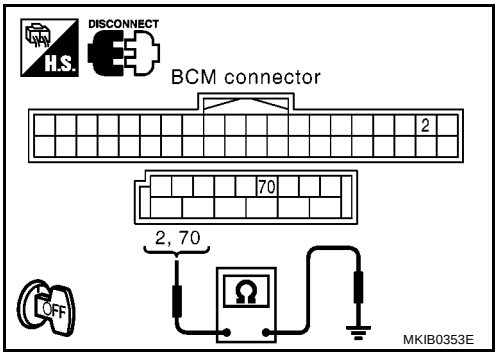
OK or NG

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.

Terminals			Continuity
(+)		(–)	
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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.

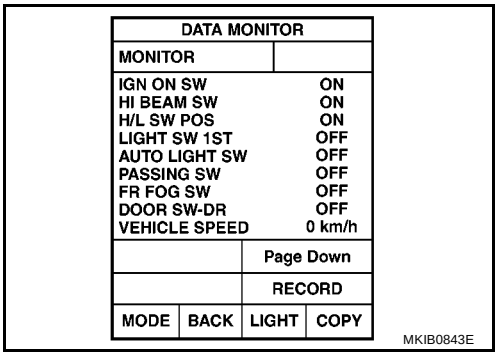
2. CHECK BETWEEN COMBINATION SWITCH AND BCM

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-196, "Check Combination Switch" .

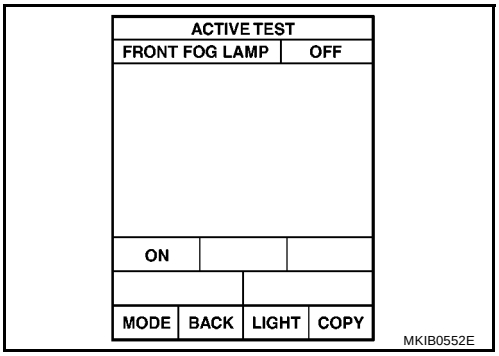
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-196, "Check Combination Switch" .

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

With CONSULT-II

1. Select “IPDM” 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-42, "Auto Active Test" .
2. Make sure that front fog lamp operate normally.

OK or NG

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

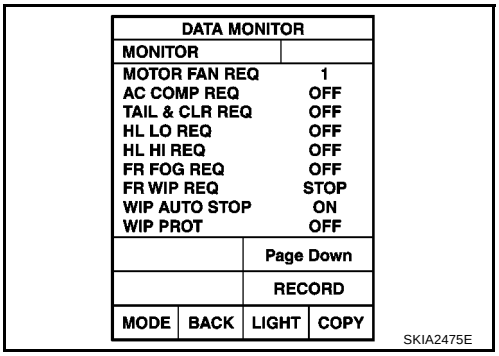
- Fog lamp bulbs
- Fog lamp ground circuit harness
- Harness between fog lamps and IPDM E/R

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

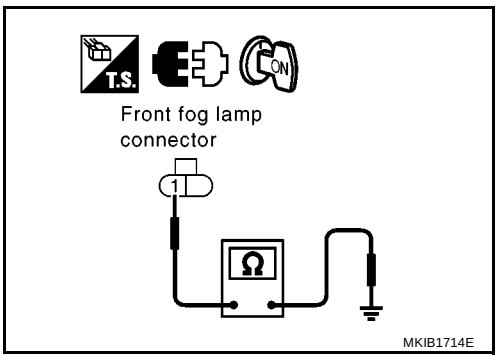
Check front fog bulb.

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.



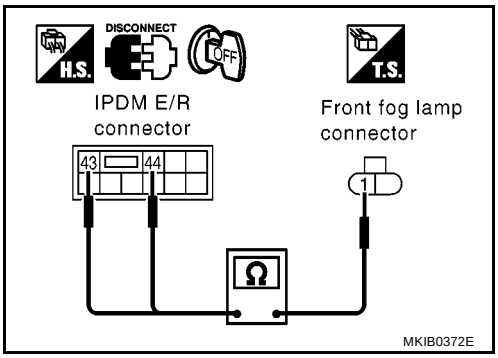
Terminals			Condition	Voltage [V]
(+)		(–)		
Connector	Terminal (Wire color)			
E7	1 (PU)	Ground	Lighting switch high beam ON	Battery voltage
E37	1 (W)			

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)	

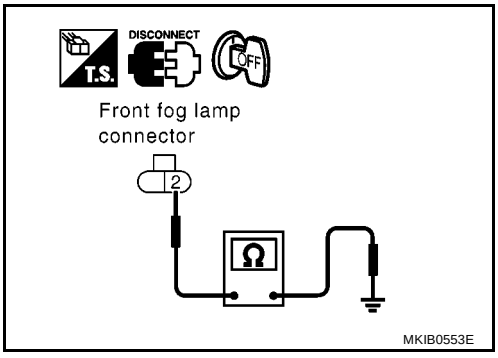
OK or NG

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.

Continuity should exist.



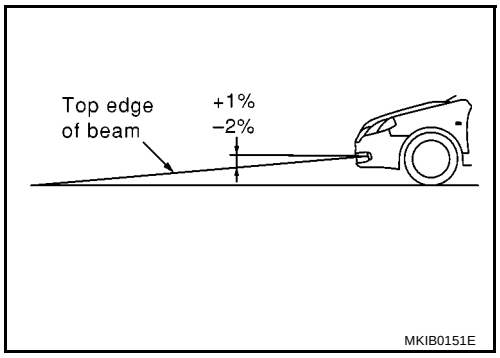
OK or NG

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

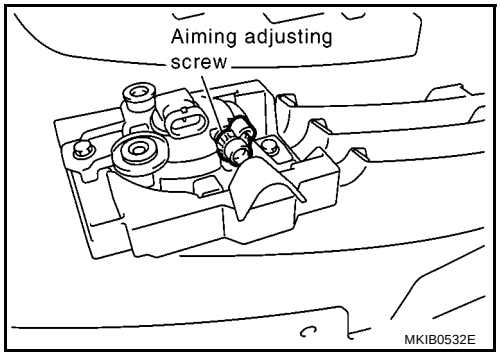
Aiming Adjustment

EKS00EMF

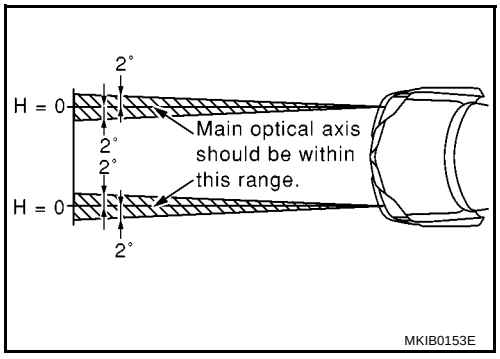
1. Set the top edge of the fog lamp lens as shown in the figure.



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-11, "FENDER PROTECTOR" .
3. Remove front bumper. Refer to EI-4, "FRONT BUMPER" .
4. Turn bulb socket counterclockwise and unlock it.
5. Remove bulb from socket.

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

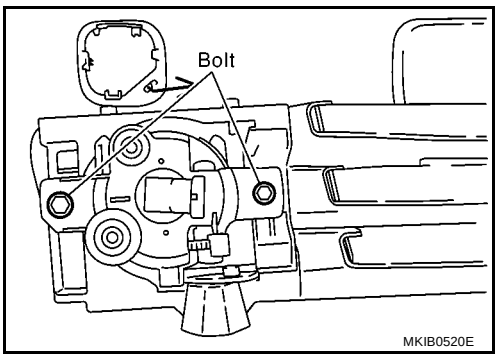
Removal and Installation

EKS00EMH

REMOVAL

1. Turn ignition switch OFF
2. Remove fender protector. Refer to EI-11, "FENDER PROTECTOR" .
3. Remove front bumper. Refer to EI-4, "FRONT BUMPER" .

4. Remove front fog lamp mounting bolt.



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-189, "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-189, "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.

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

Ground is supplied

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

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-189, "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

EKS00LTA

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

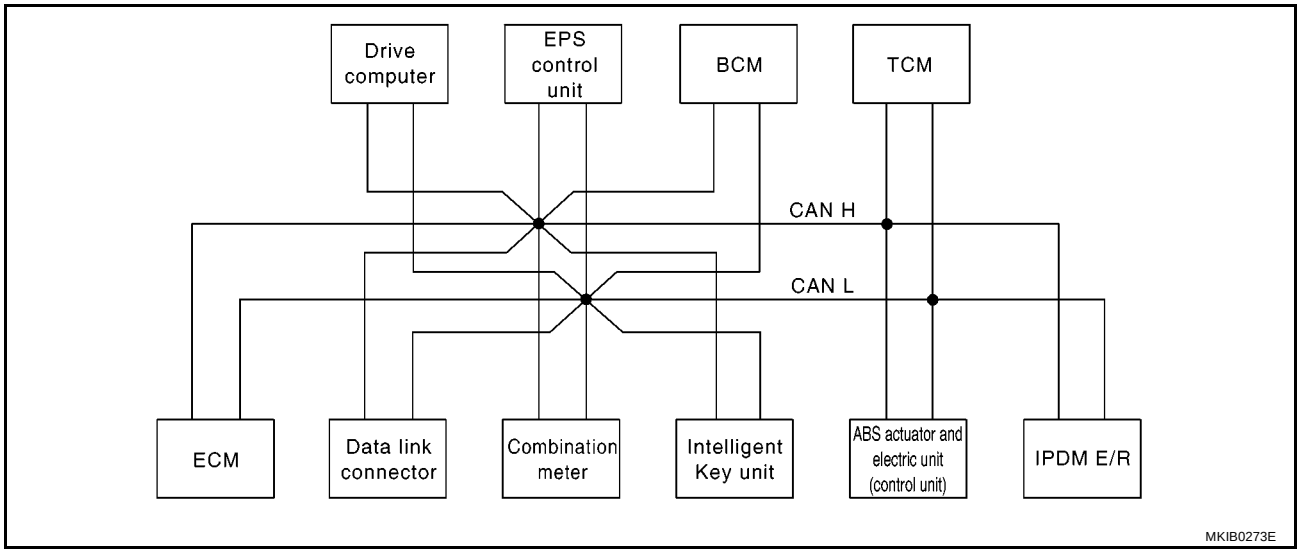
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-102, "TYPE 1/ TYPE 2"				LT-105, "TYPE 3/ TYPE 4"				LT-107, "TYPE 5/ TYPE 6"				LT-110, "TYPE 7/ TYPE 8"				LT-112, "TYPE 9/ TYPE 10"			

×: Applicable

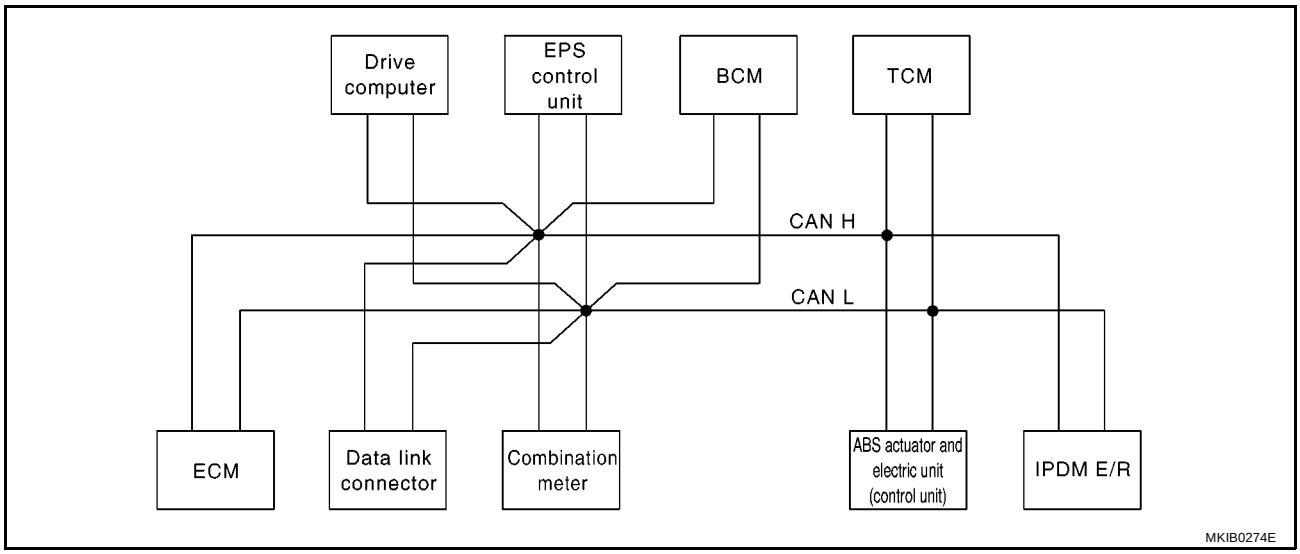
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

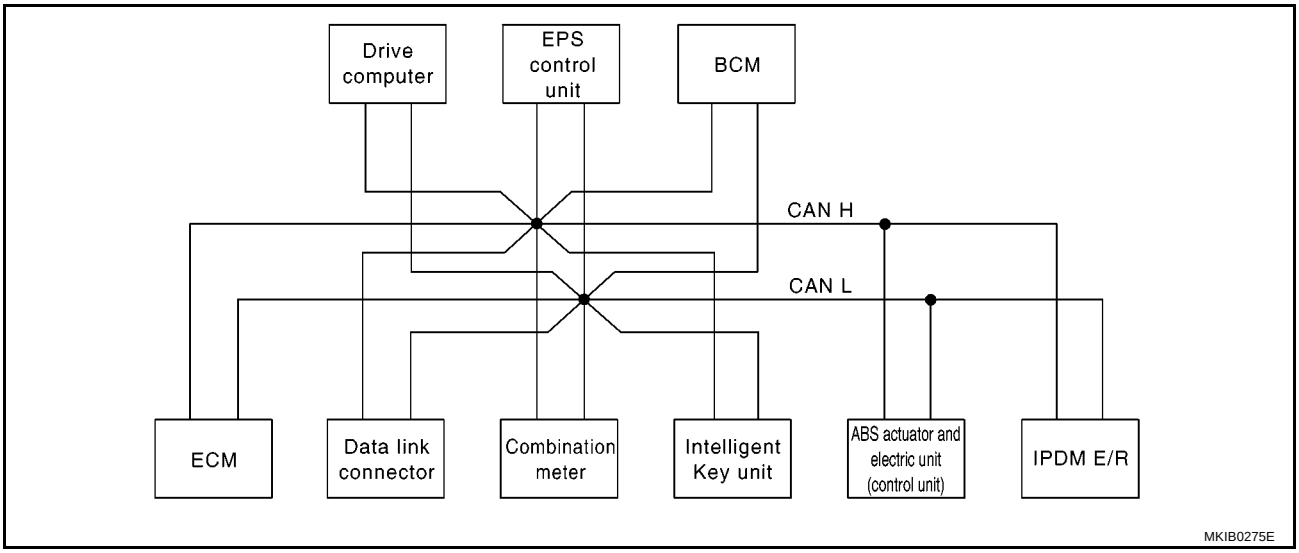
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

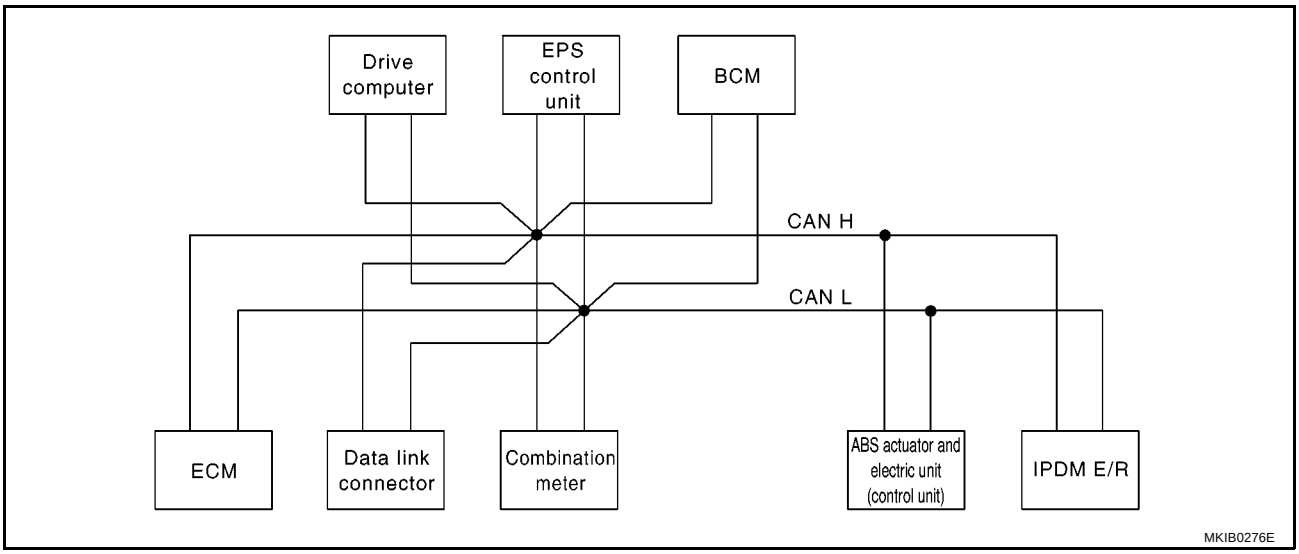
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

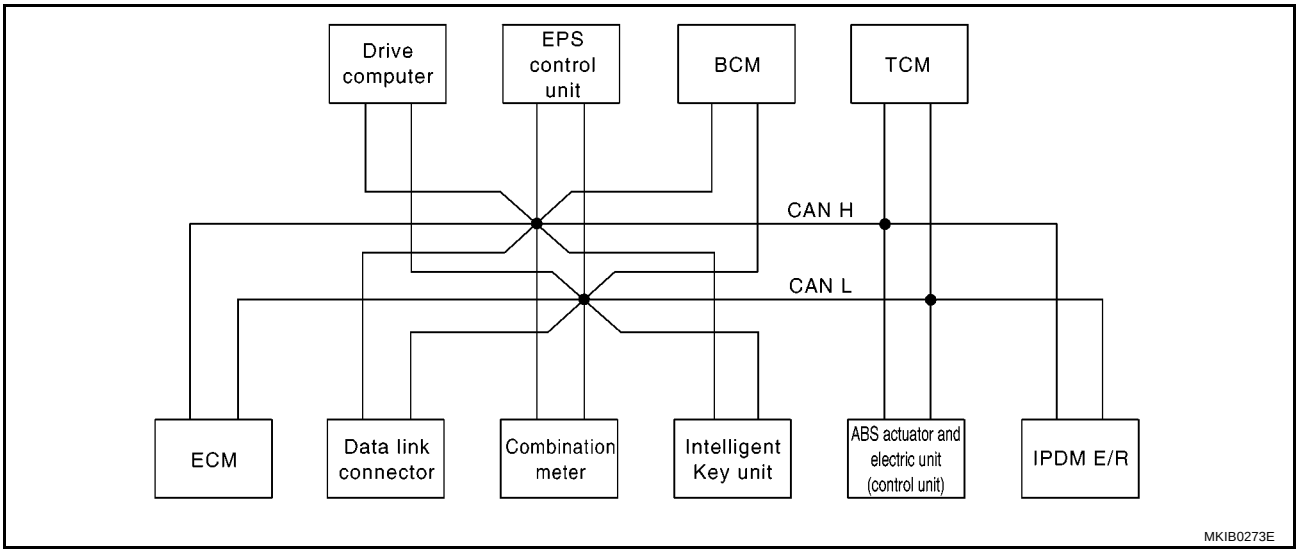
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

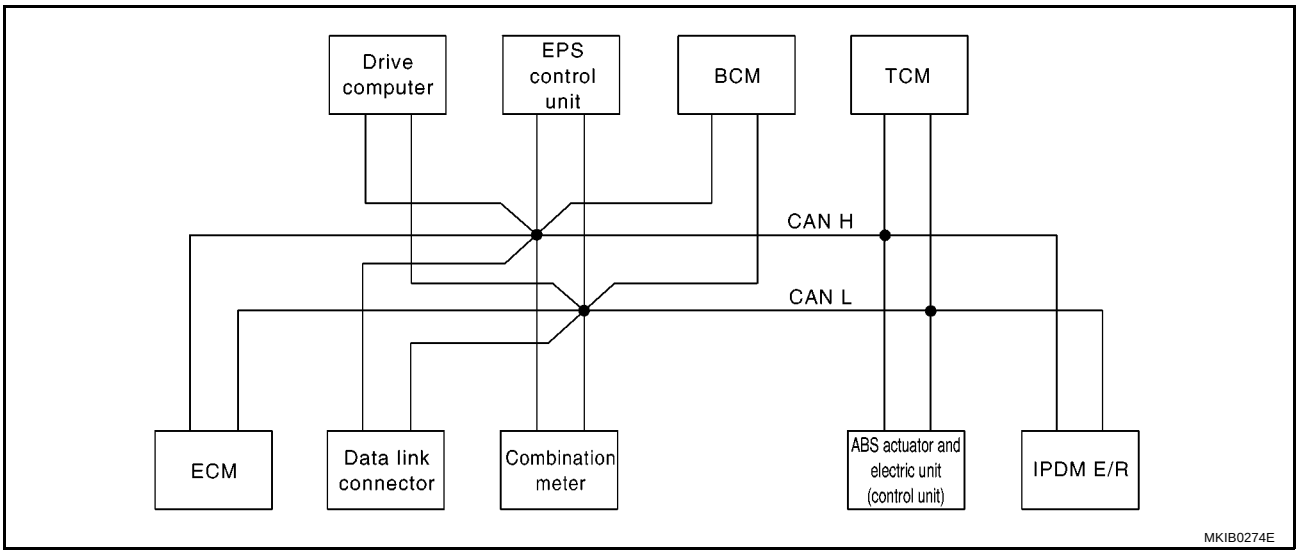
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	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	R	

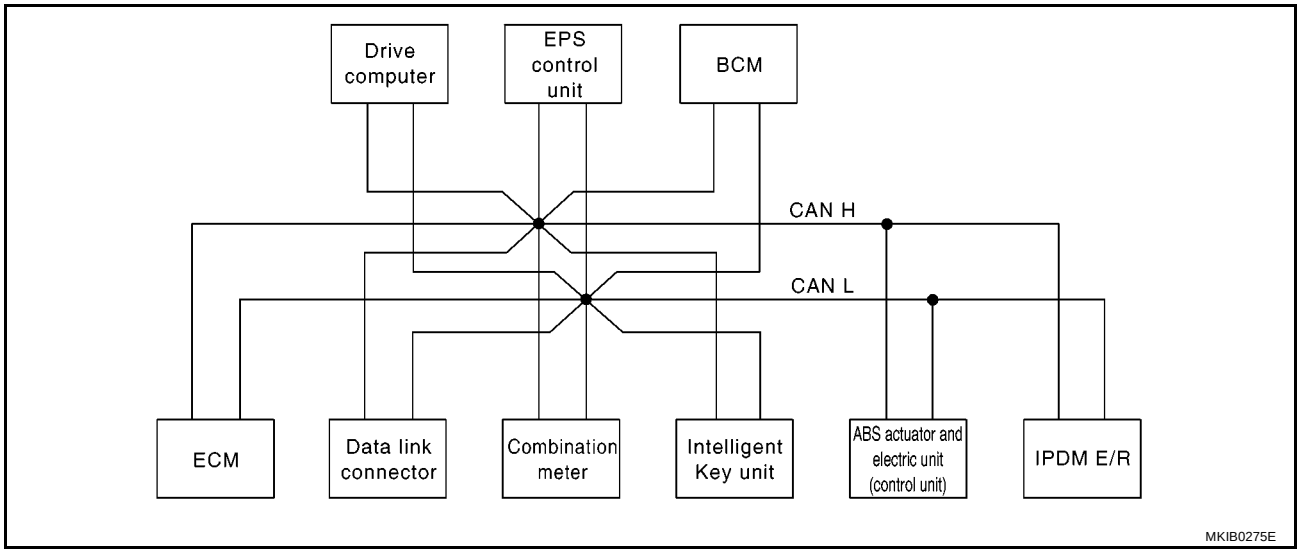
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

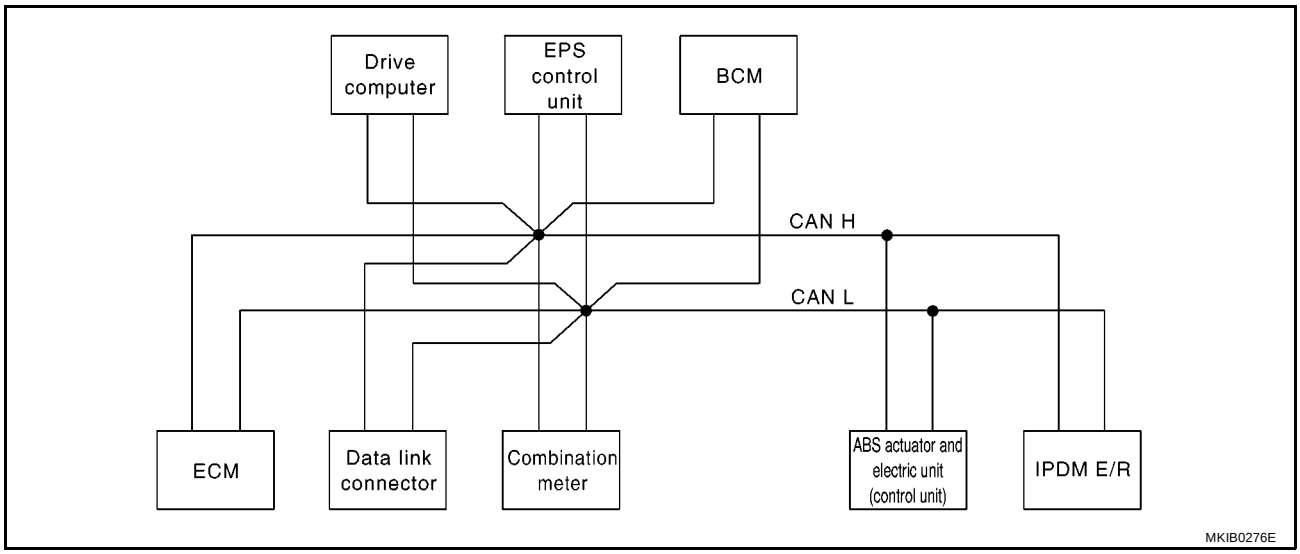
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

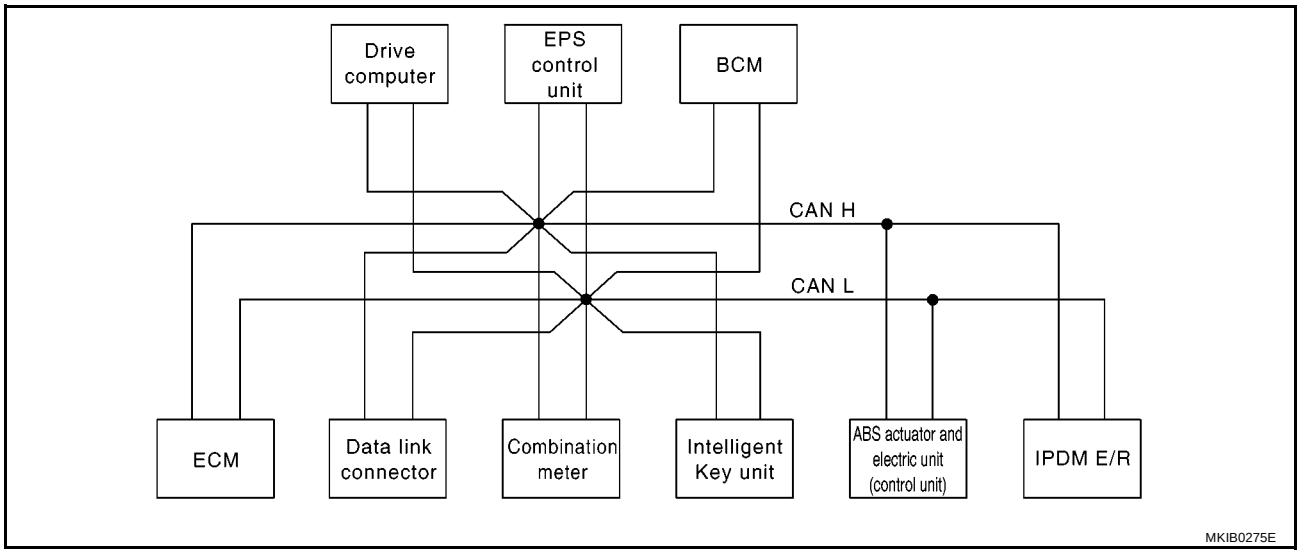
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

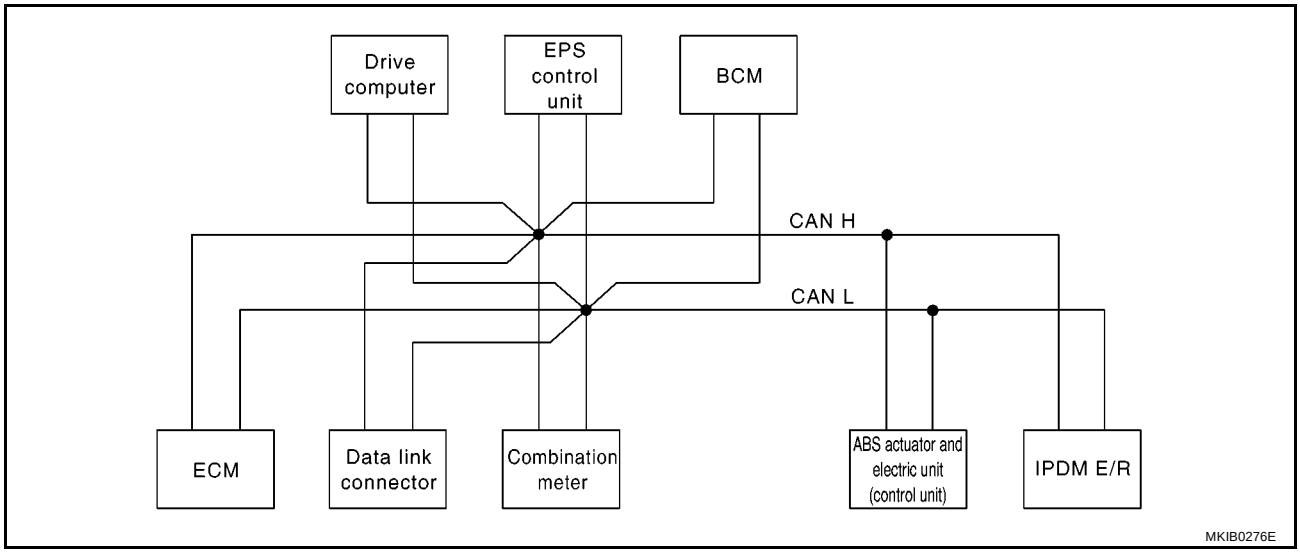
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

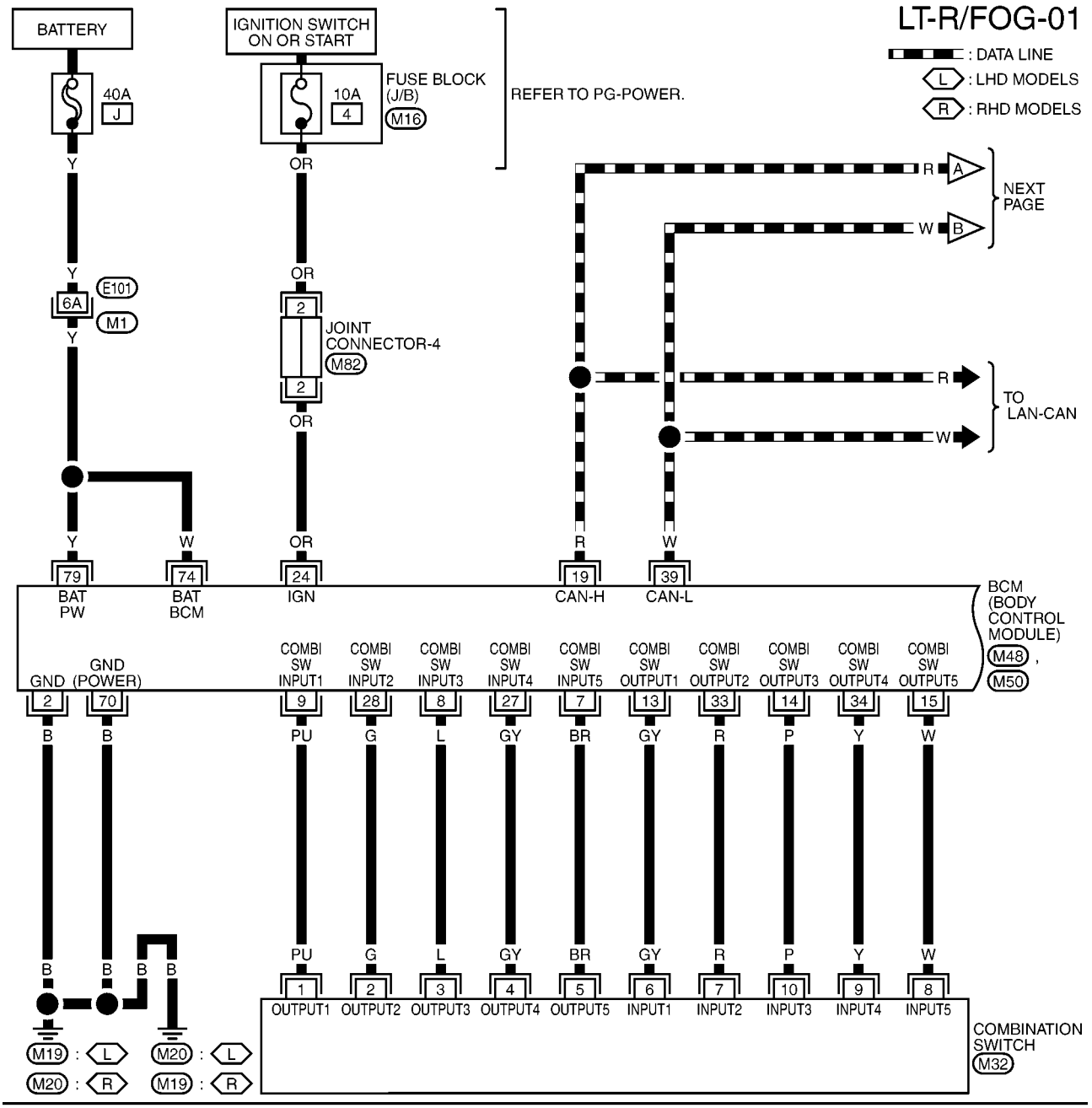
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

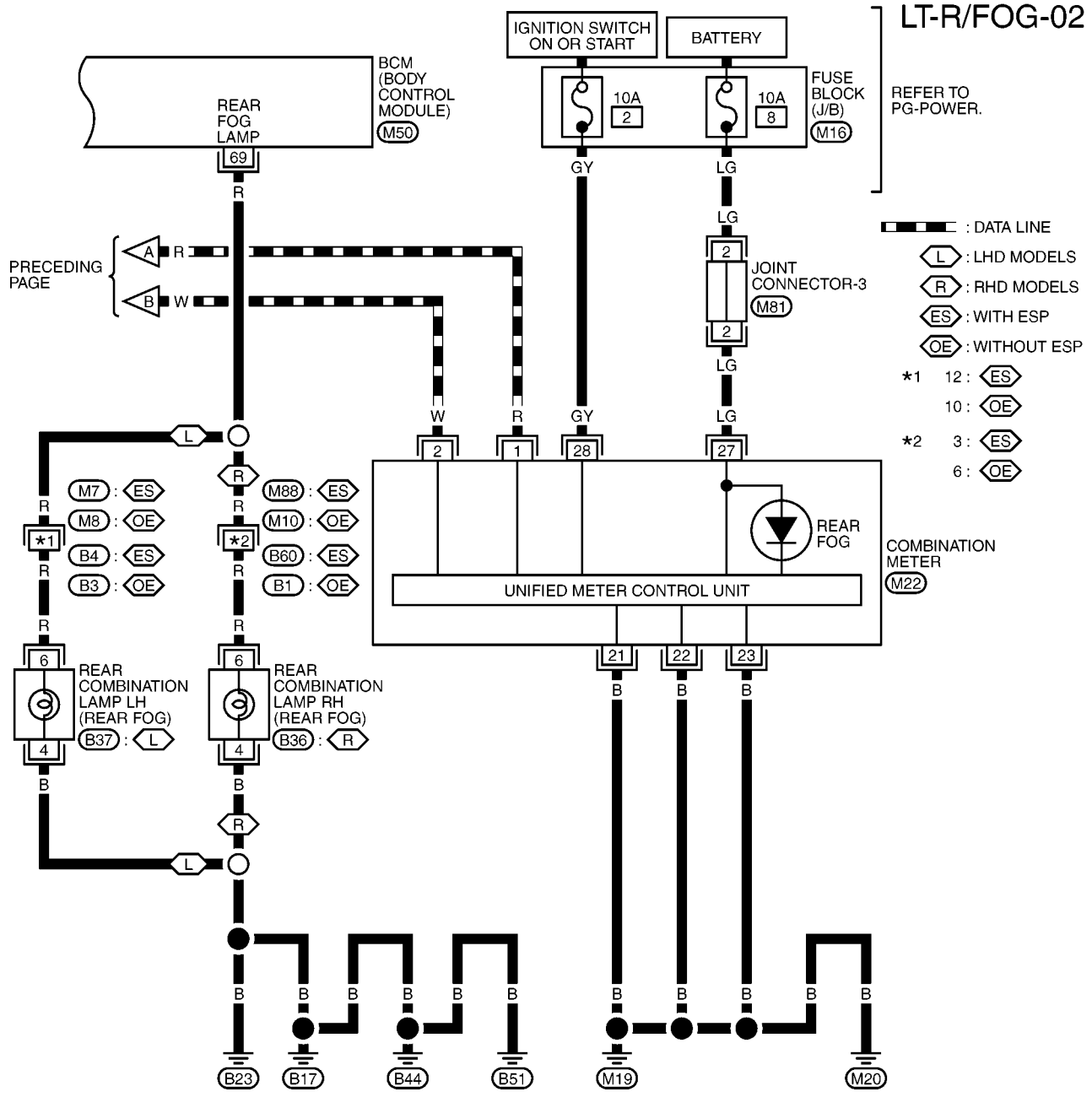
Wiring Diagram — R/FOG —

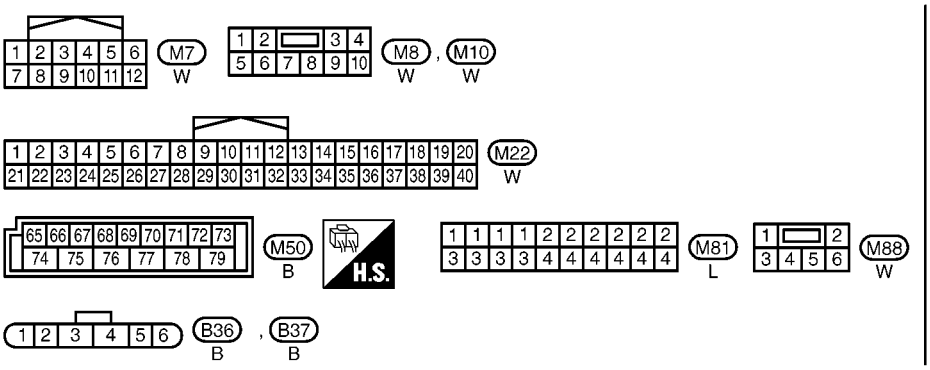
SMA for VIN >SJN**AK12U1309269

EKS00EMK



MKWA1529E



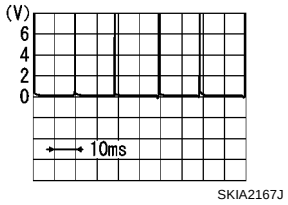
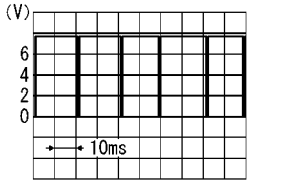
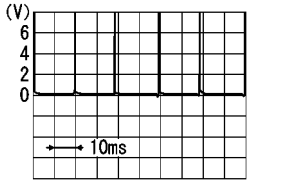


REFER TO THE FOLLOWING.
M16 -FUSE BLOCK-JUNCTION BOX (J/B)

MKWA1751E

Terminals and Reference Value for BCM

EKS00EML

Terminal No.	Wire color	Signal designation	Measuring condition		Reference value (V)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	Approx. 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	—	Approx. 12
39	W	CAN L	—	—	—
69	R	Rear fog lamp signal	ON	Rear fog lamp switch: ON	Approx. 12
				Rear fog lamp switch: OFF	Approx. 0
70	B	Ground	ON	—	Approx. 0
74	W	BAttery power supply	—	—	Approx. 12
79	Y	Battery power supply	—	—	Approx. 12

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-100, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-118, "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-115, "Wiring Diagram — R/FOG —" .

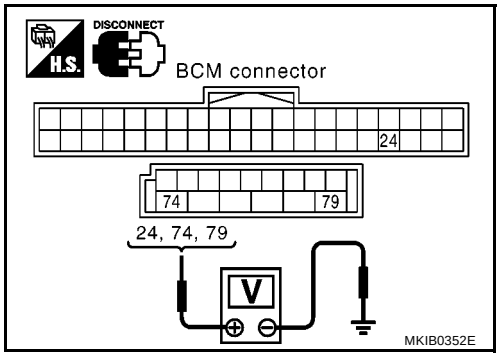
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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 (W)		Battery voltage	Battery voltage	Battery voltage



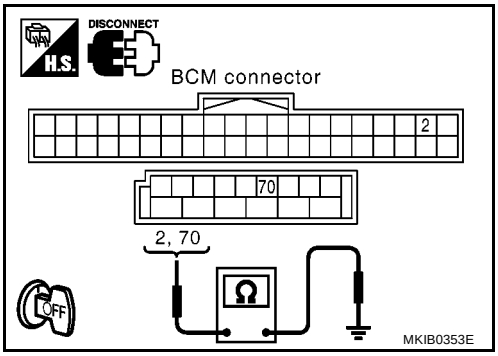
OK or NG

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.

Terminals			Continuity
(+)		(–)	
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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

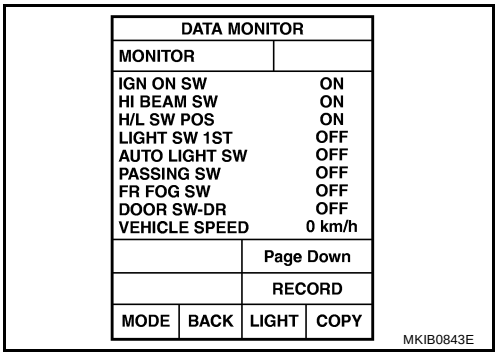
1. AHECK BETWEEN COMBINATION SWITCH AND BCM

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-189, "COMBINATION SWITCH" .

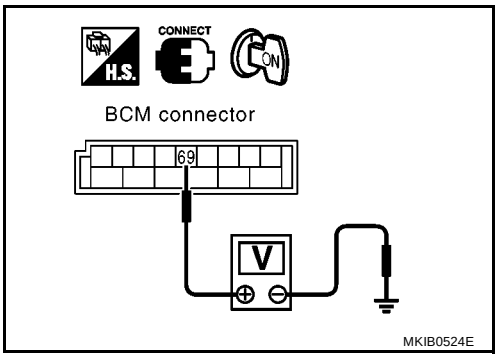
OK or NG

OK >> GO TO 2.
NG >> Refer to LT-189, "COMBINATION SWITCH" .

2. CHECK BCM OUTPUT SIGNAL

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

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



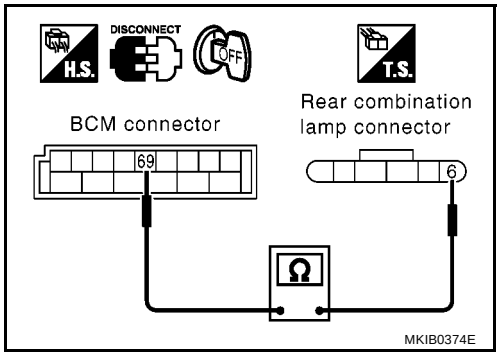
OK or NG

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

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 BULB

Check rear fog lamp bulb.

OK or NG

OK >> GO TO 5.
NG >> Replace rear fog lamp bulb.

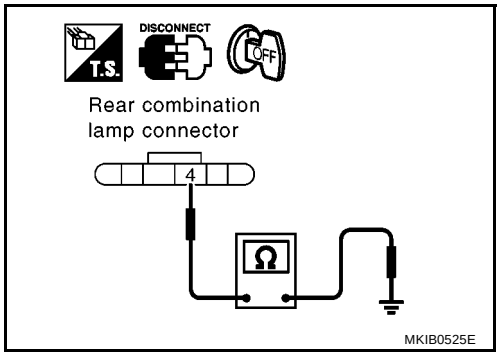
5. CHECK REAR FOG LAMP GROUND CIRCUIT

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

Continuity should exist.

OK or NG

OK >> Replace rear fog lamp.
NG >> Repair or replace harness or connector.



Bulb Replacement

EKS00EMQ

Refer to LT-186, "Bulb Replacement" .

Removal and Installation

EKS00EMR

Refer to LT-186, "Removal and Installation" .

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, and
- 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, and
- 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-189, "System Description")power is supplied.

- through BCM terminal 65
- to front turn signal lamp LH terminal 1,
- to side turn signal lamp LH terminal 1 and
- 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(Gasoline 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.
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-189, "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(Gasoline 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.
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

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

Ground is supplied

- to hazard switch terminal 1,
- to BCM terminals 2 and 70 and
- 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(Gasoline 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(Gasoline engine models), E26 and E40
- 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.

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

Power is supplied at all times

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

Ground is supplied

- to BCM terminals 2 and 70
- through body grounds M19, M20, and
- 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(Gasoline 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(Gasoline engine models), E26 and E40.
- 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.

BCM send turn indicator signal to combination meter via 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.

COMBINATION SWITCH READING FUNCTION

Refer to LT-189, "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

EKS00LTB

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

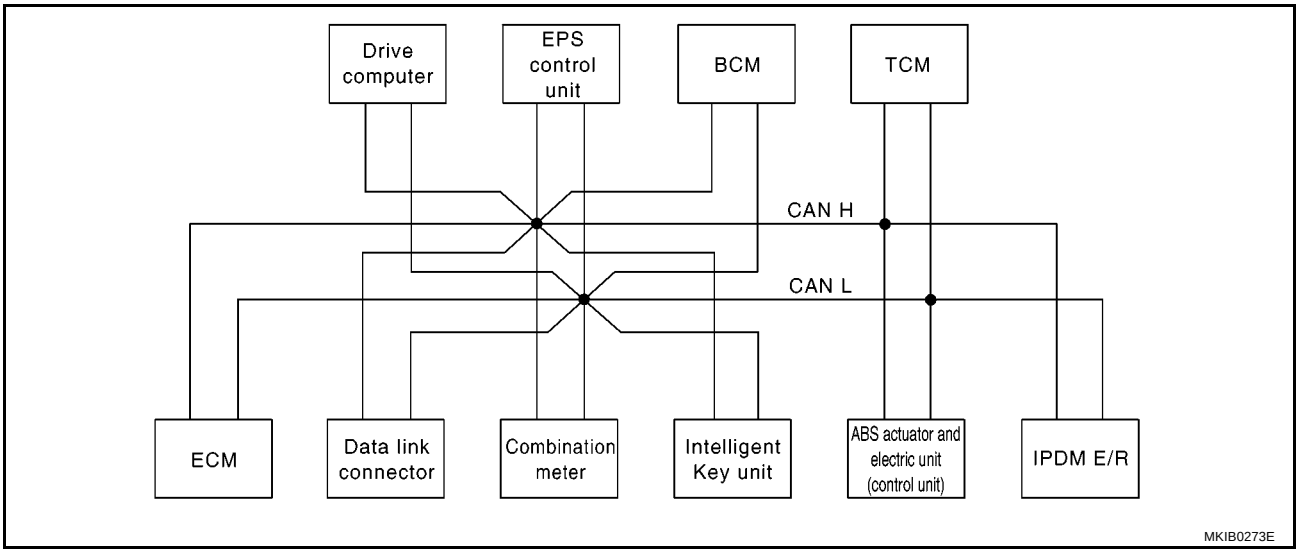
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-125, "TYPE 1/ TYPE 2"				LT-128, "TYPE 3/ TYPE 4"				LT-130, "TYPE 5/ TYPE 6"				LT-133, "TYPE 7/ TYPE 8"				LT-135, "TYPE 9/ TYPE 10"			

×: Applicable

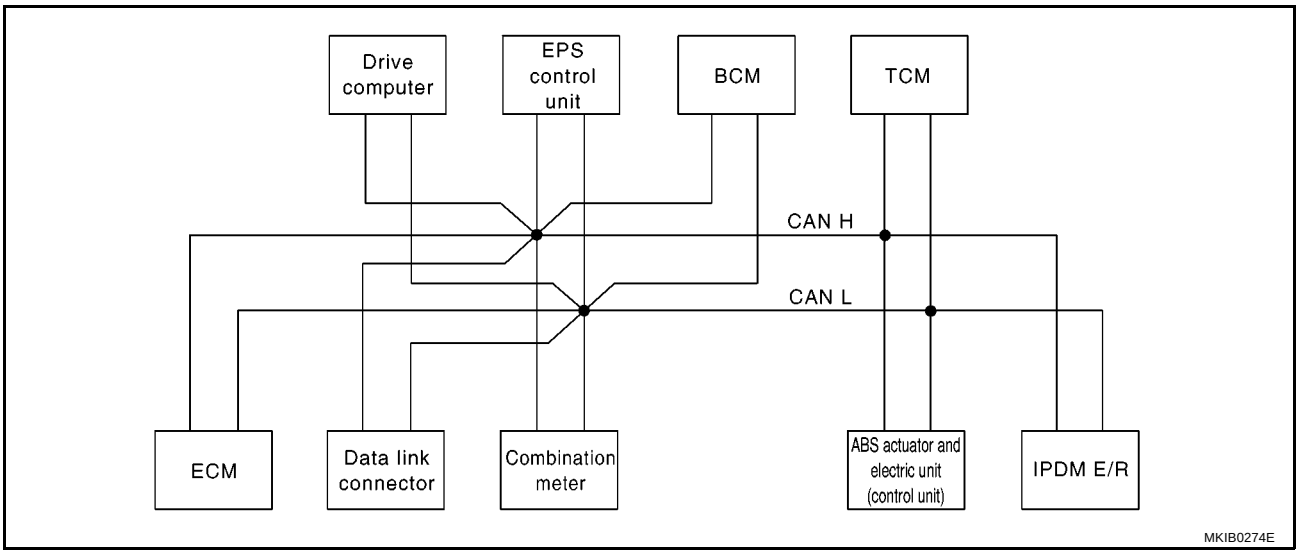
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		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	
Closed throttle position signal	T							R	
Wide open throttle position signal	T							R	

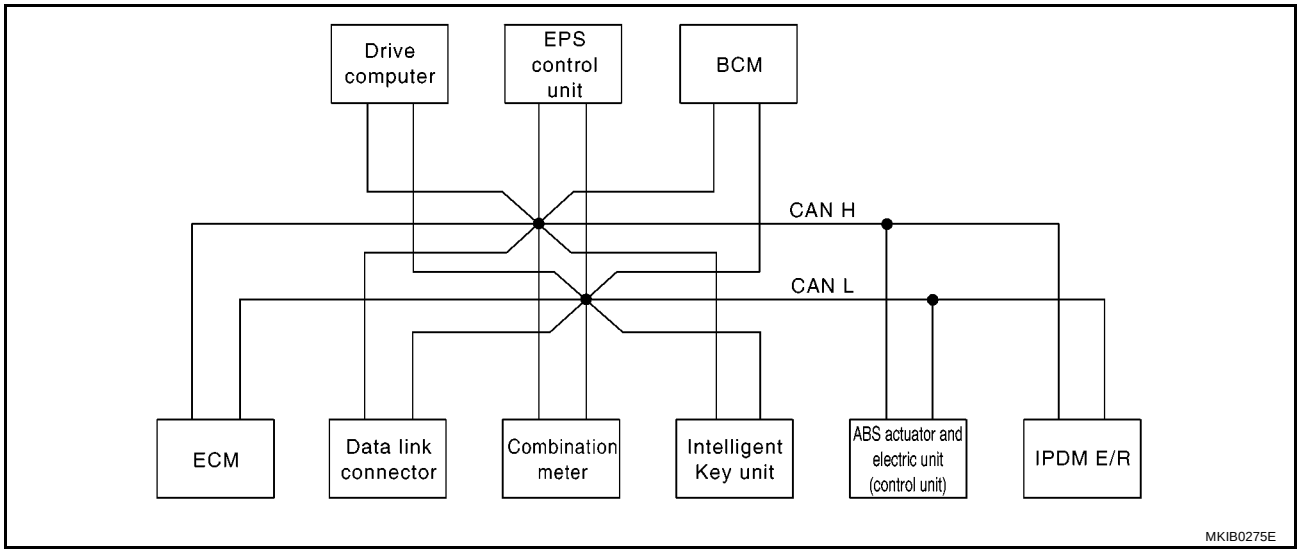
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

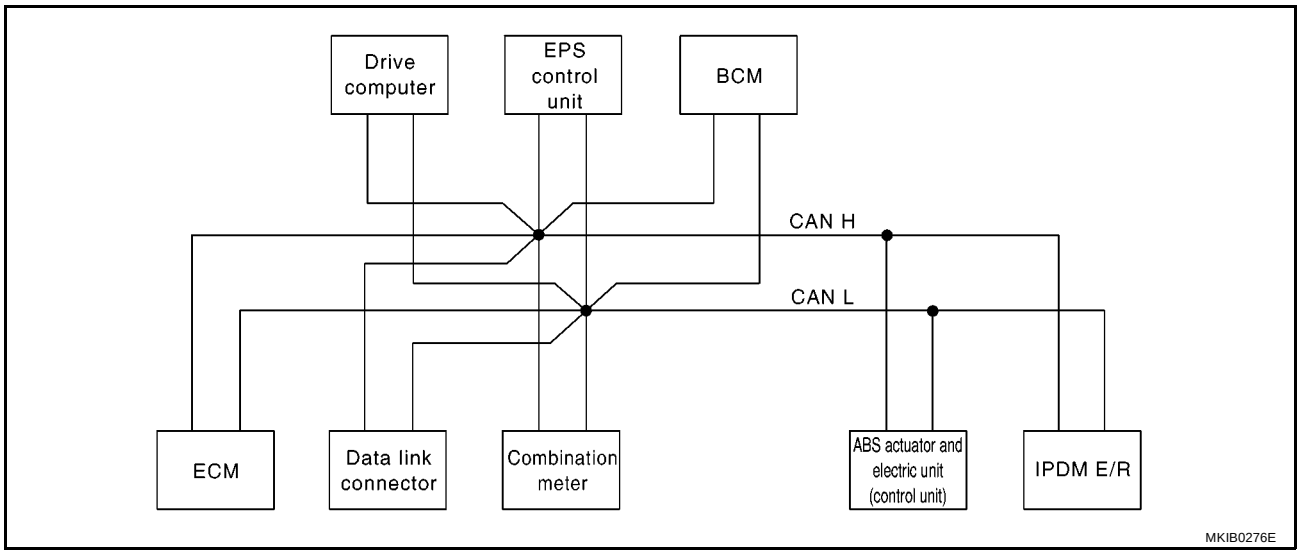
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

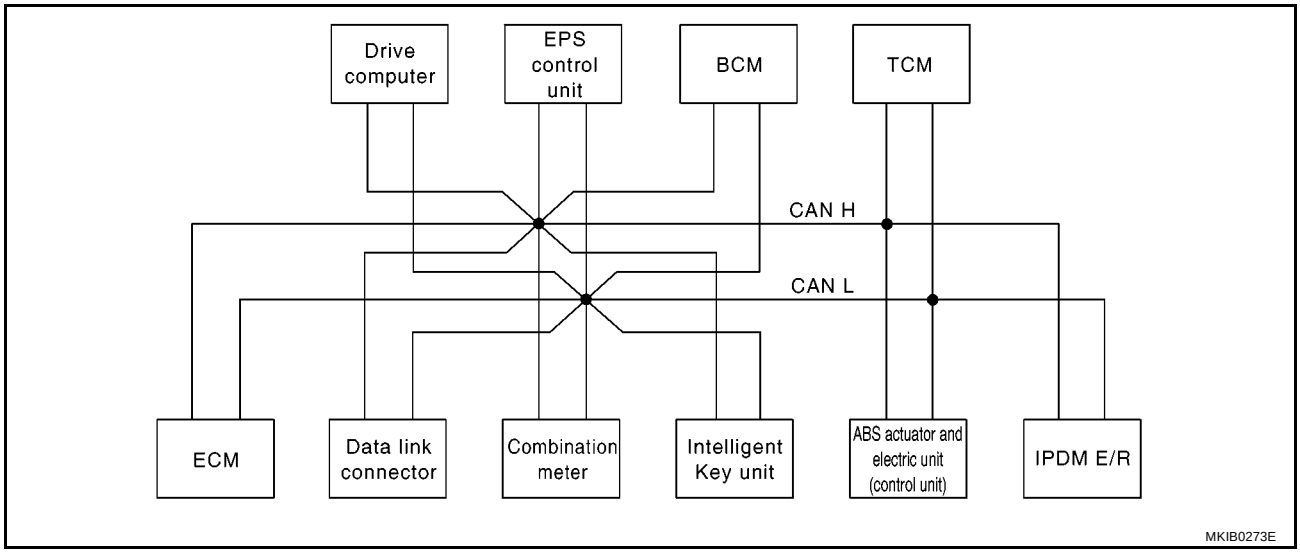
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

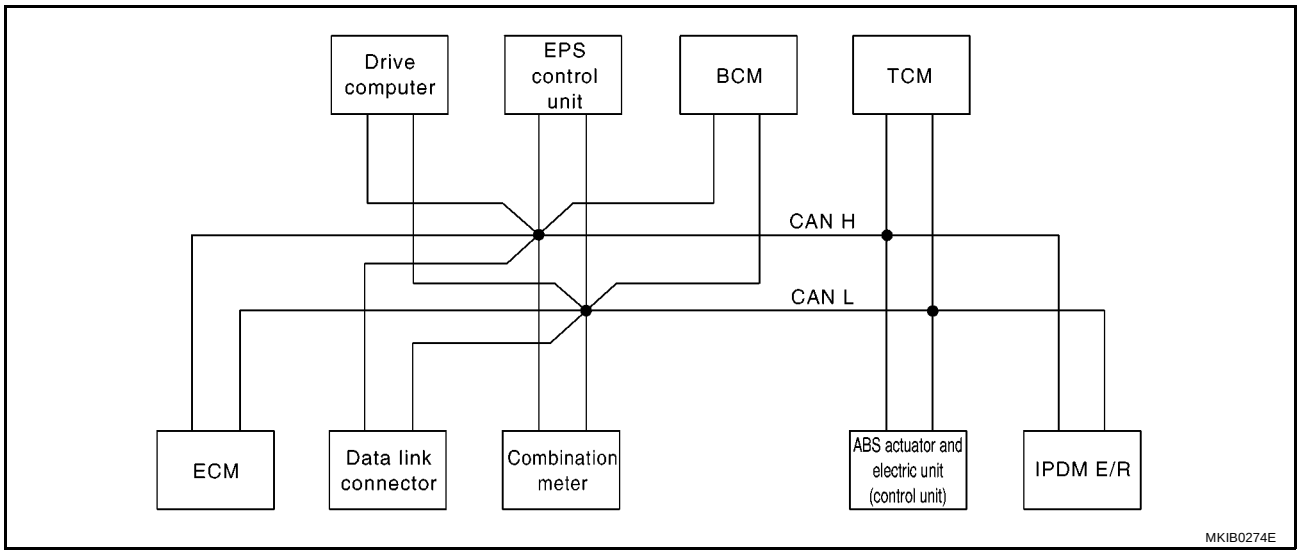
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

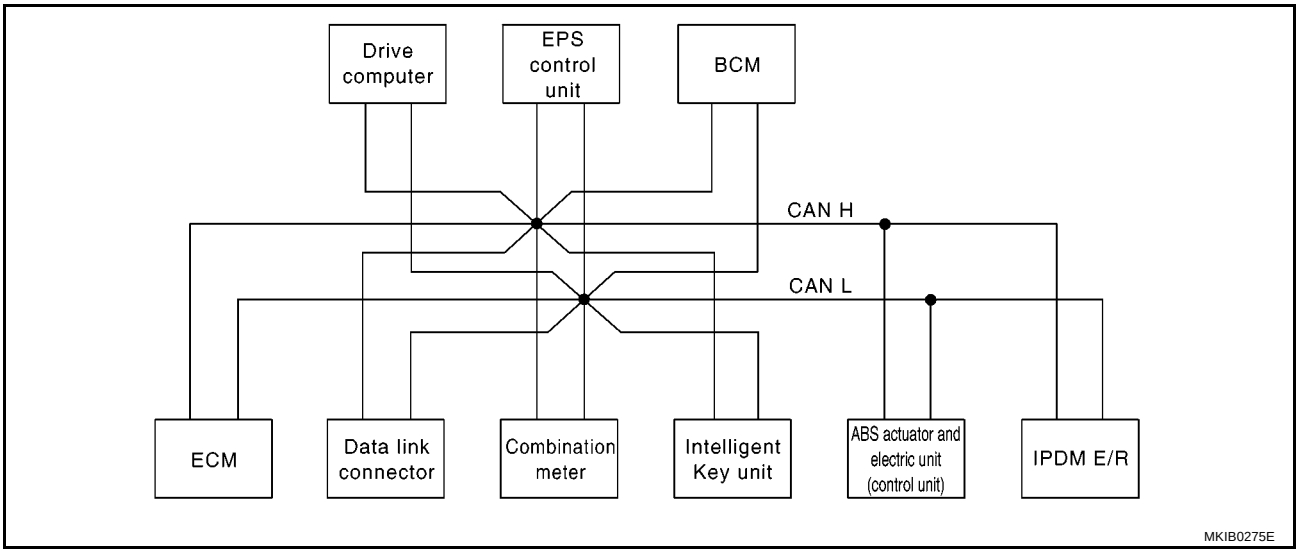
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

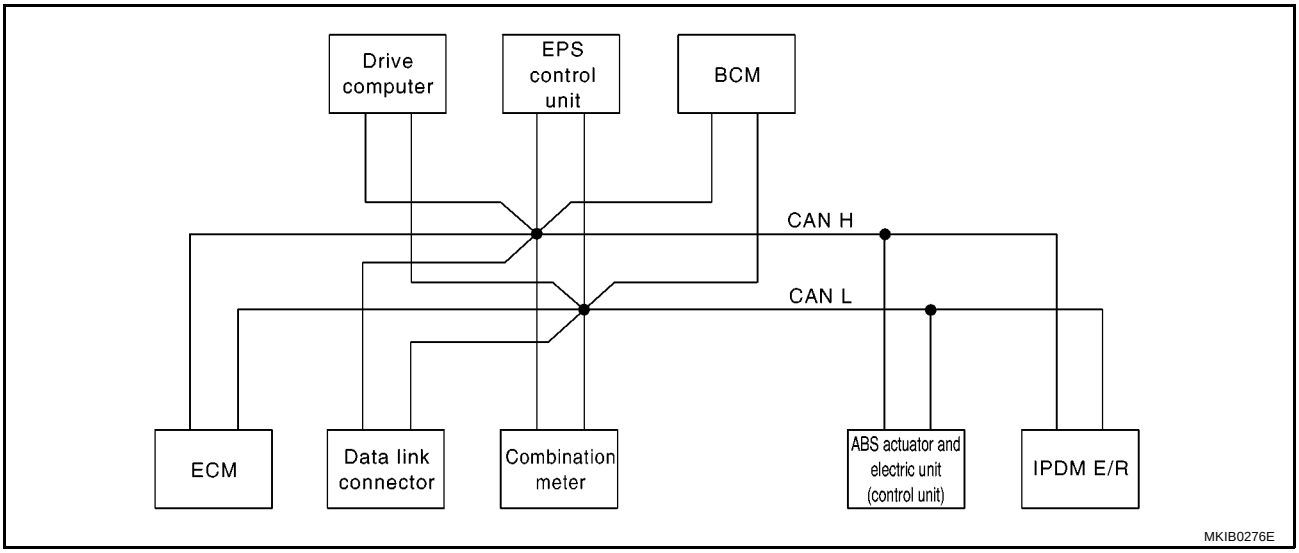
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

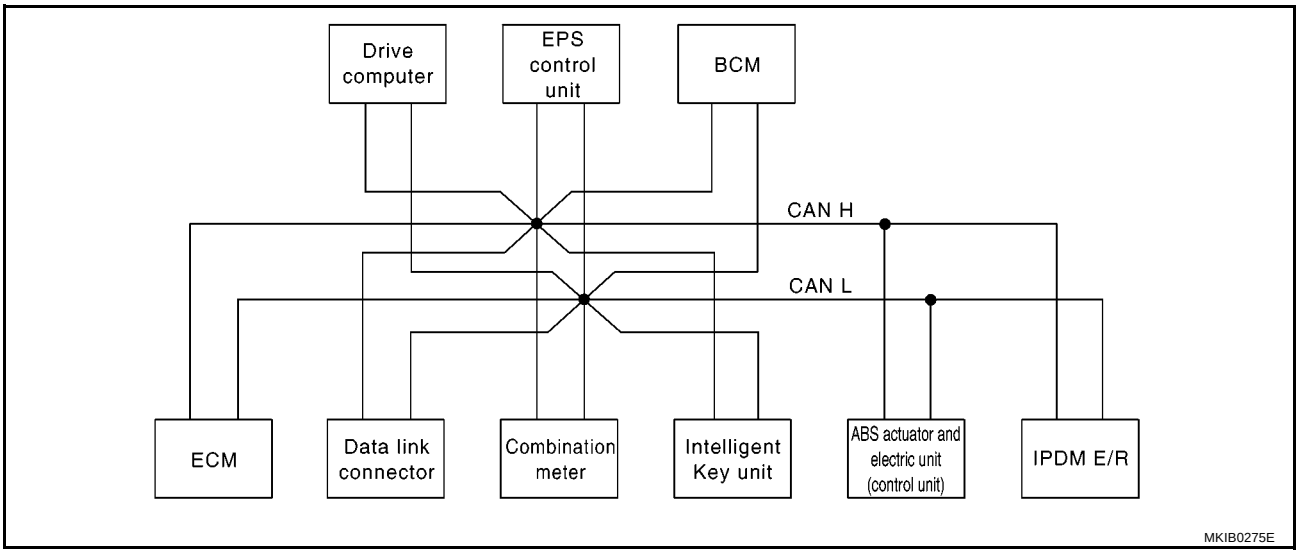
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

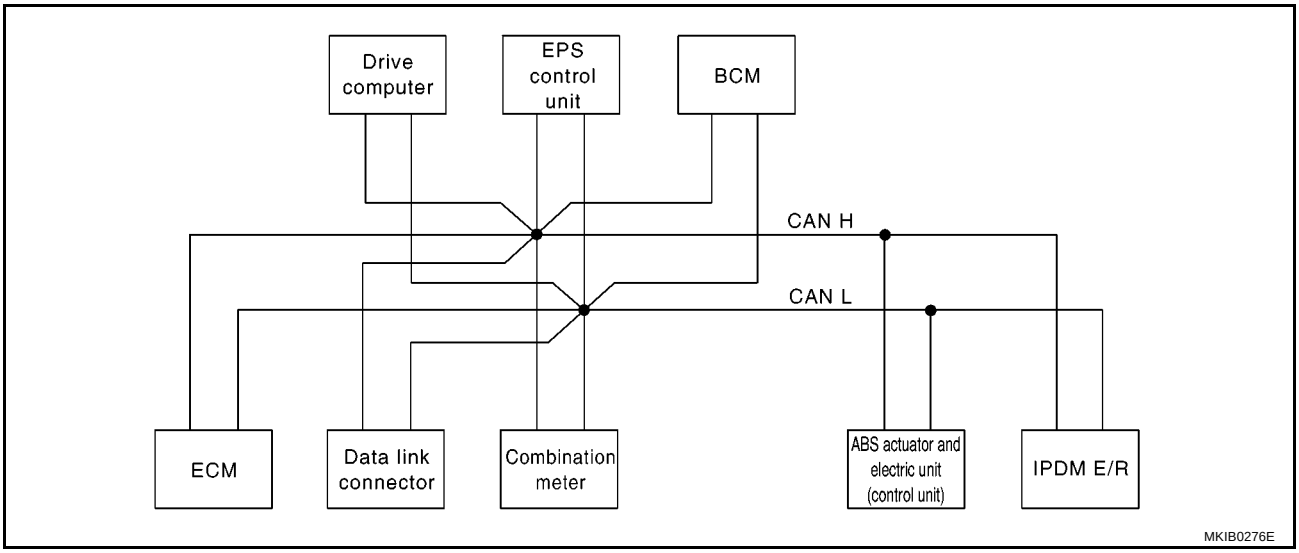
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

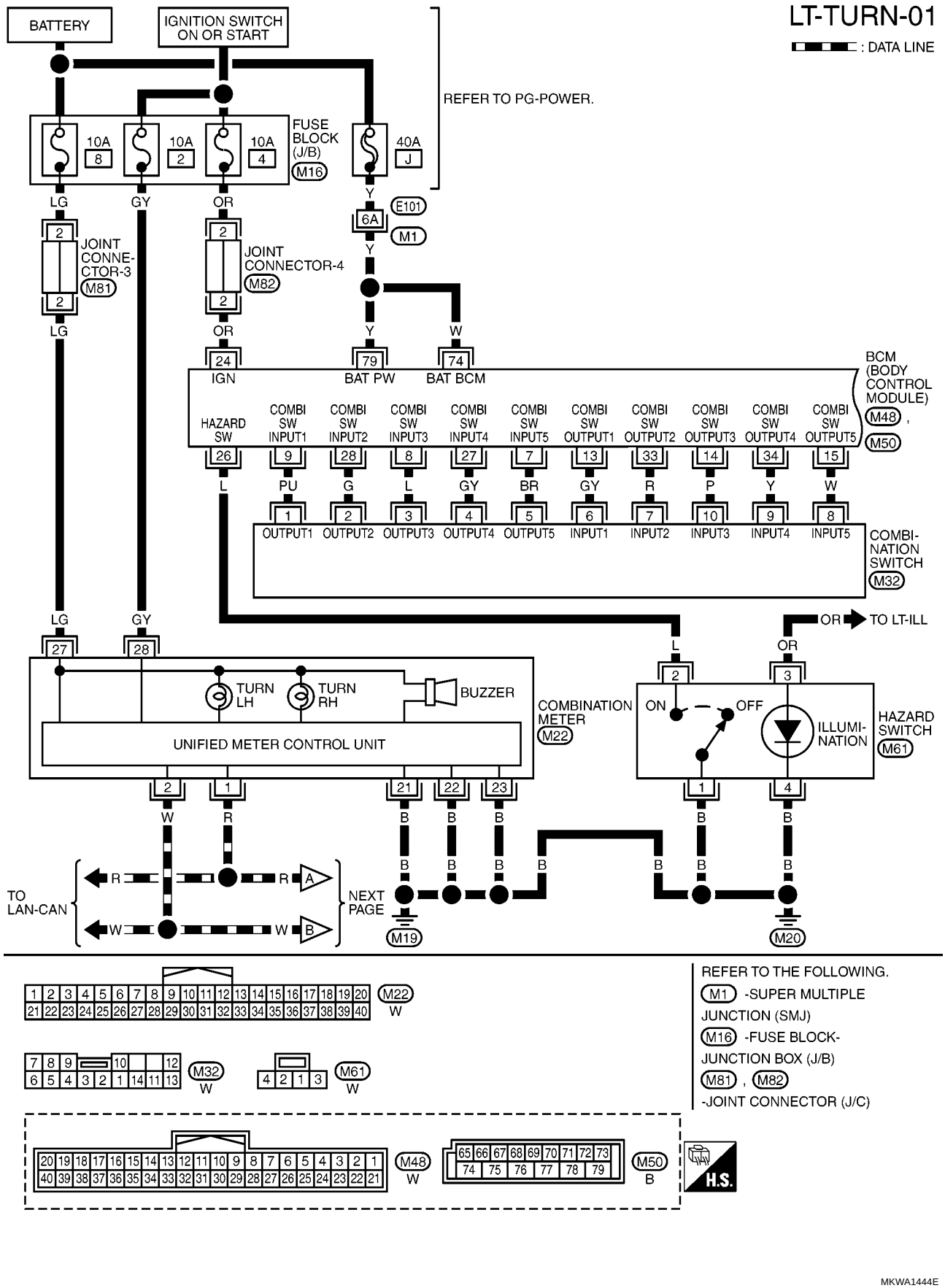
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

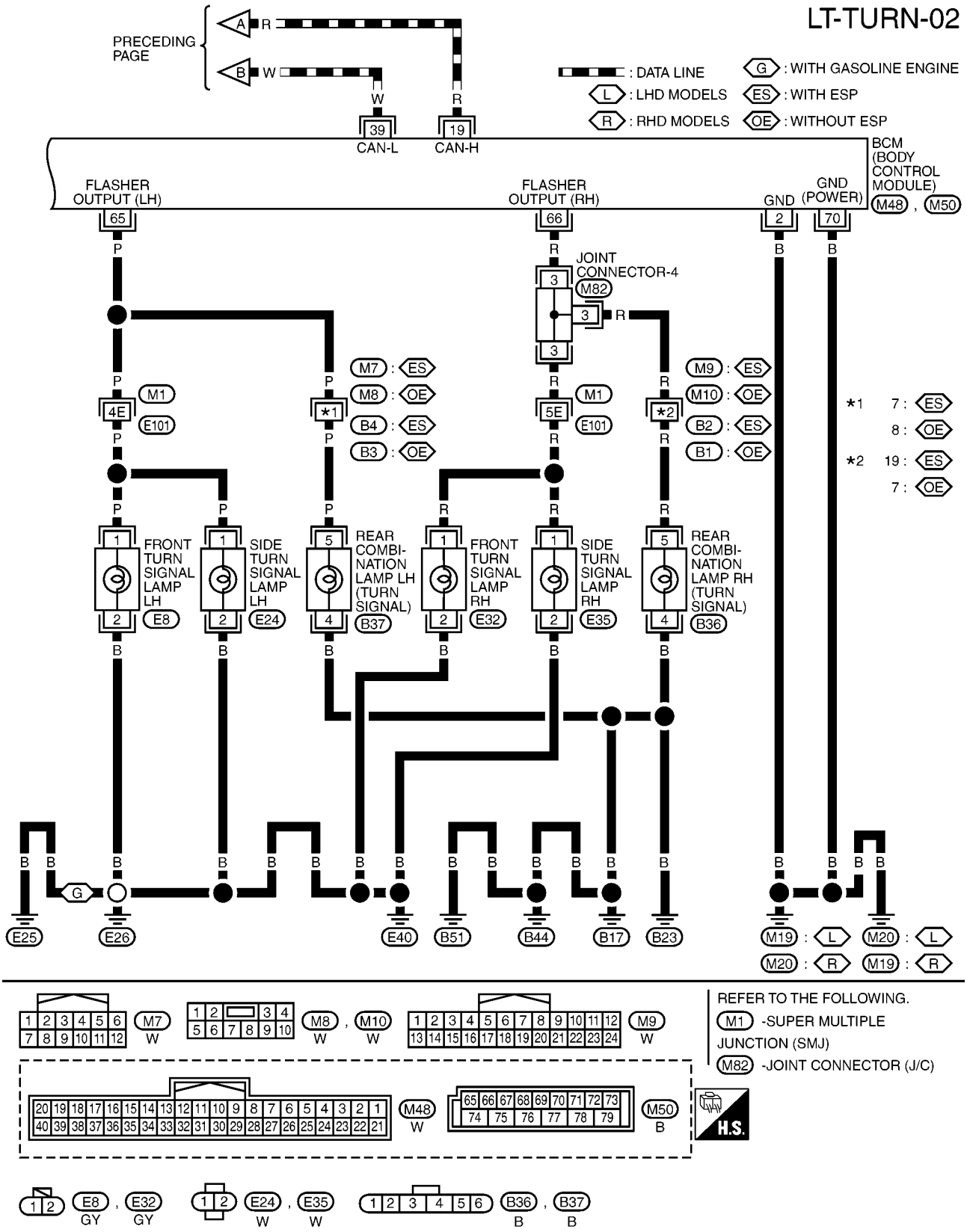
Wiring Diagram — TURN —

SMA for VIN >SJN**AK12U1309269

EKS00EMU



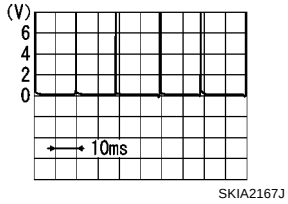
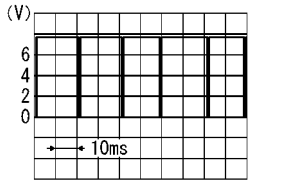
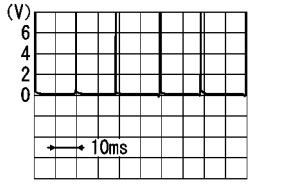
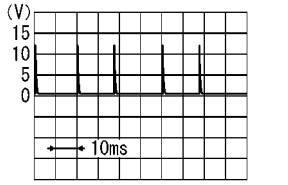
MKWA1444E

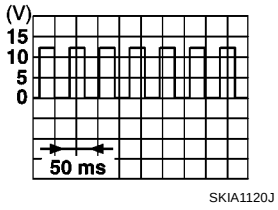
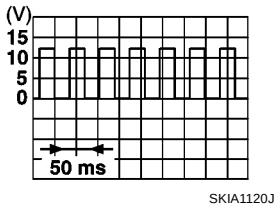

LT-TURN-02
PRECEDING PAGE
A R
B W
W
R
39
19
CAN-L
CAN-H
: DATA LINE
L : LHD MODELS
R : RHD MODELS
G : WITH GASOLINE ENGINE
ES : WITH ESP
OE : WITHOUT ESP
BCM (BODY CONTROL MODULE)
M48 , M50
FLASHER OUTPUT (LH)
FLASHER OUTPUT (RH)
GND
GND (POWER)
65
66
2
70
JOINT CONNECTOR-4
M82
M1
4E
E101
5E
M7 : ES
M8 : OE
B4 : ES
B3 : OE
M9 : ES
M10 : OE
B2 : ES
B1 : OE
*1 7 : ES
8 : OE
*2 19 : ES
7 : OE
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
M19 : L
M20 : L
M20 : R
M19 : R
M7 W
M8 , M10 W
M9 W
M48 W
M50 B
H.S.
E8 , E32 GY
E24 , E35 W
B36 , B37 B
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)
M82 -JOINT CONNECTOR (J/C)

MKWA1752E

Terminals and Reference Value for BCM

EKS00EMV

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
2	B	Ground	ON	—		Approx. 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	—		Approx. 12
26	L	Hazard	OFF	Hazard switch	ON	Approx. 0
					OFF	 SKIA2239J
39	W	CAN L	—	—		—

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
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	—		Approx. 0
74	W	Battery power supply	—	—		Approx. 12
79	Y	Battery power supply	—	—		Approx. 12

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-121, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-142, "Preliminary Check"
4. Check symptom and repair or replace the cause of malfunction.
5. Dose 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-138, "Wiring Diagram — TURN —" .

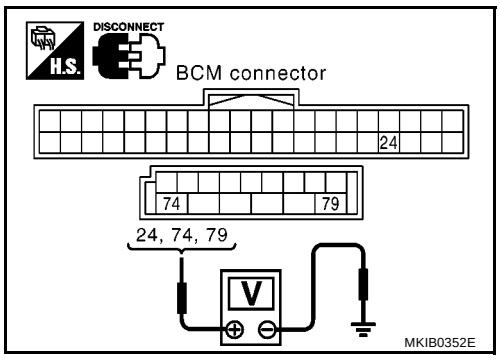
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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 (W)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage



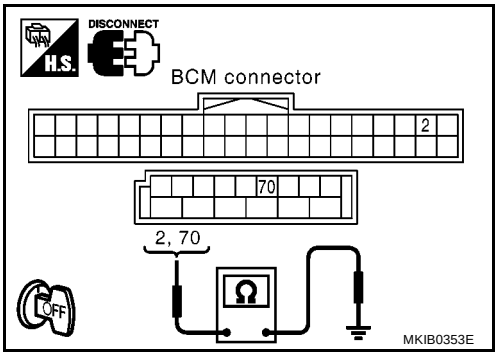
OK or NG

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.

Terminals			Continuity
(+)		(–)	
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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 itemusing the diagnostic test modes shown following. Data is received and transmitted via the control module communication line.

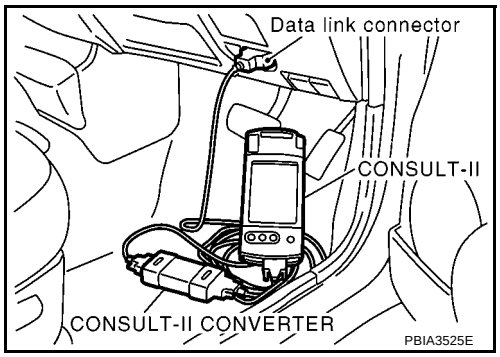
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Flasher	Work Support	Changes the setting for each function.
	Data monitor	Displays BCM input data in real time.
	Active Test	Sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

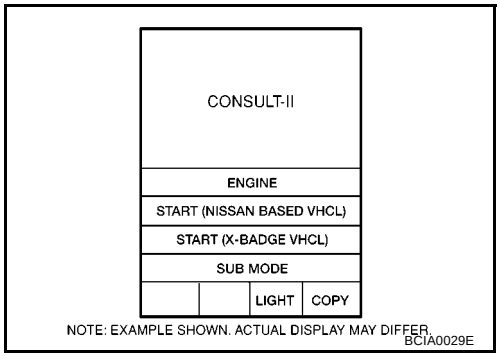
CAUTION:

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.

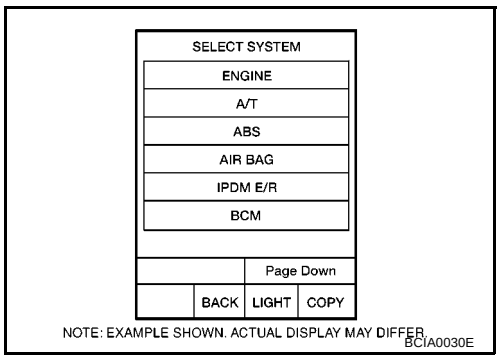
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



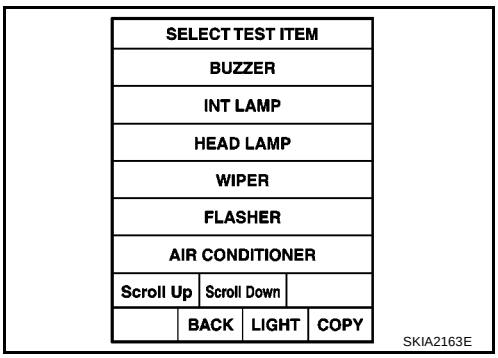
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



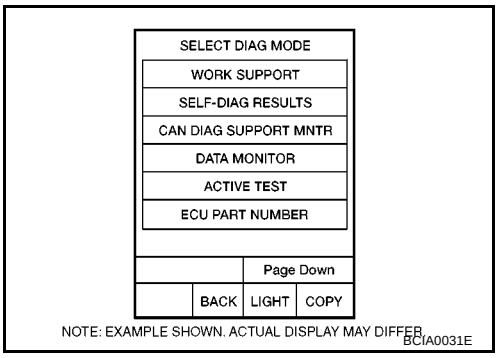
5. Touch “BCM” on “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



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” or “SELETION FROM MENU” on the “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
SELECTION FROM MENU	Selects and monitors individual items.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. 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.

Monitor item “UNIT”		Display content
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.

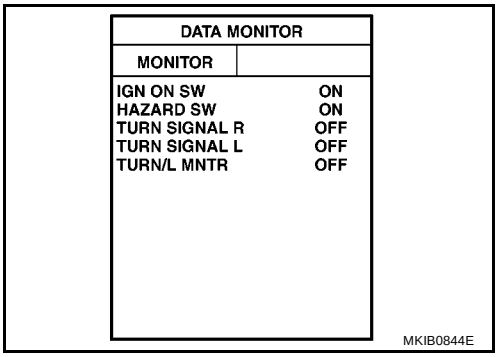
2. CHECK BCM INPUT SIGNAL

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

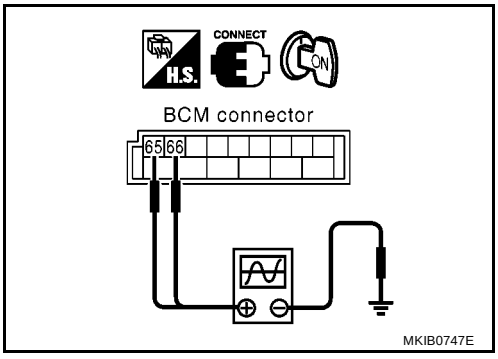
Refer to LT-196, "Check Combination Switch" .

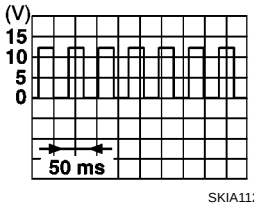
OK or NG

OK >> GO TO 3.
NG >> Refer to LT-196, "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		Voltage
(+)			(-)			
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.

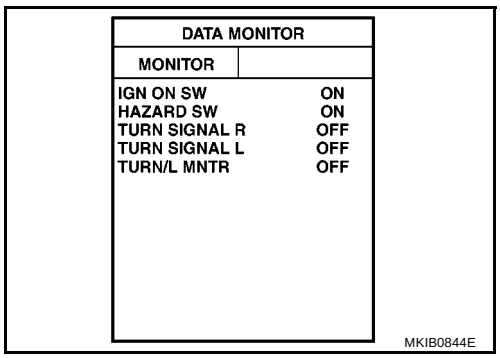
2. CHECK BCM INPUT SIGNAL

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

Refer to LT-196, "Check Combination Switch" .

OK or NG

OK >> GO TO 3.
NG >> Refer to LT-196, "Check Combination Switch" .

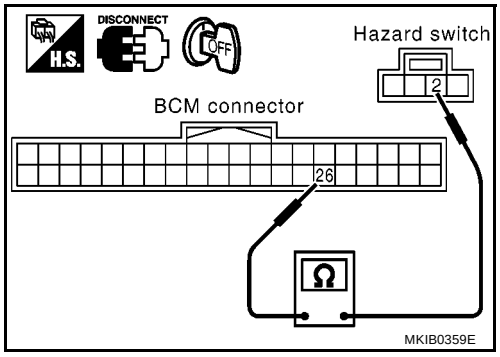
3. CHECK HAZARD SWITCH AND BCM

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).

Continuity should exist.

4. Check continuity between harness connector M48 terminal 26 (L) of BCM and body ground.

Continuity should not exist.

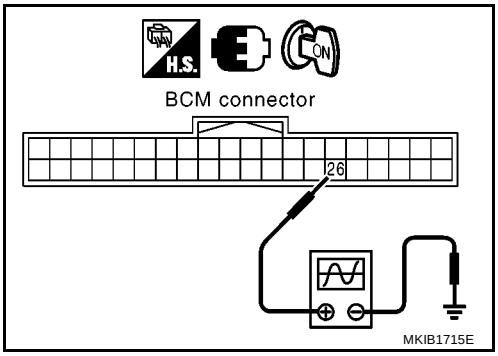


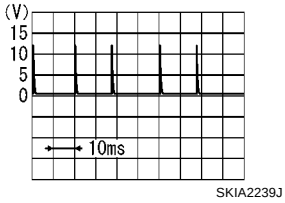
OK or NG

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

4. CHECK BCM AND GROUND

1. Connect BCM connector.
2. Check voltage between harness connector M48 terminal 26 (L) of BCM and ground with hazard switch in OFF position.



Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			IGN switch	Condition		
26	L	Hazard	OFF	Hazard switch	ON	Approx. 0
					OFF	

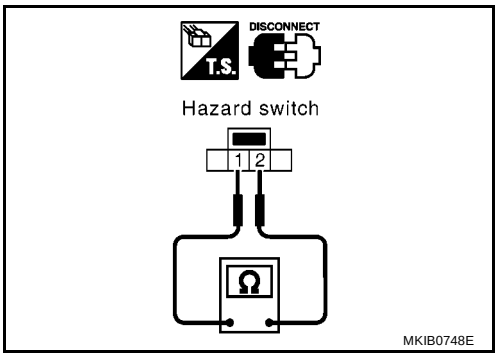
OK or NG

OK >> GO TO 5.
NG >> Replace BCM.

5. CHECK HAZARD SWITCH

Check continuity hazard switch connector M61.

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



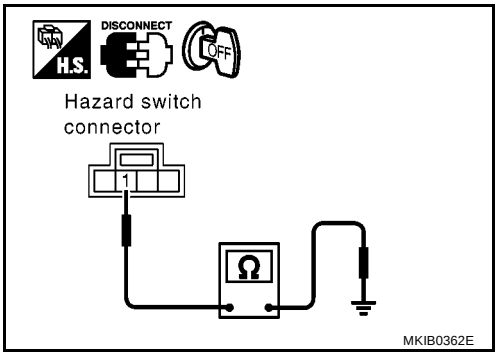
OK or NG

OK >> GO TO 6.
NG >> Replace hazard switch.

6. CHECK HAZARD SWITCH AND GROUND

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

Continuity should exist.



OK or NG

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

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.

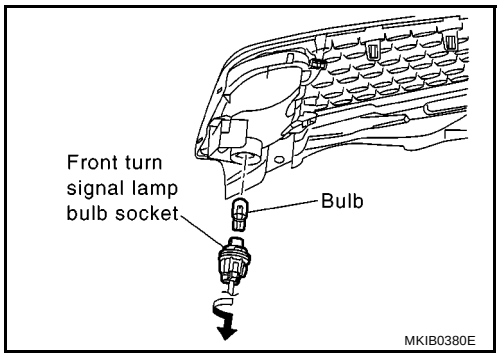
Bulb Replacement

EKS00EN2

FRONT TURN SIGNAL LAMP

1. Remove front grille. Refer to EI-8, "FRONT GRILLE" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

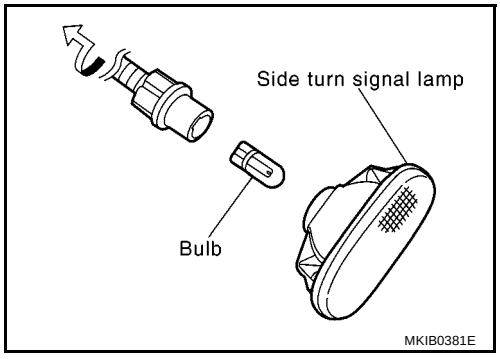
Front turn signal lamp : 12V-21W



SIDE TURN SIGNAL LAMP

1. Remove side turn signal lamp. Refer to LT-151, "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

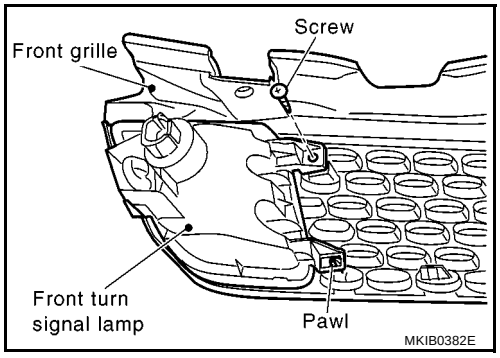
Refer to LT-186, "REAR COMBINATION LAMP" .

Removal and Installation

EKS00EN3

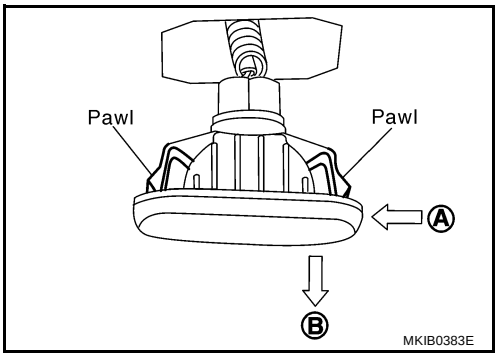
FRONT TURN SIGNAL LAMP

1. Remove front grille. Refer to EI-8, "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-186, "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-189, "System Description"

Power is supplied at all times

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

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(Gasoline engine models), E26 and E40.

OPERATION BY LIGHTING SWITCH

When the lighting switch is turned to 1ST position, BCM read combination switch condition (refer to LT-189, "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.

Ground is supplied at all times

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

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-189, "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-19, "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

EKS00LTC

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

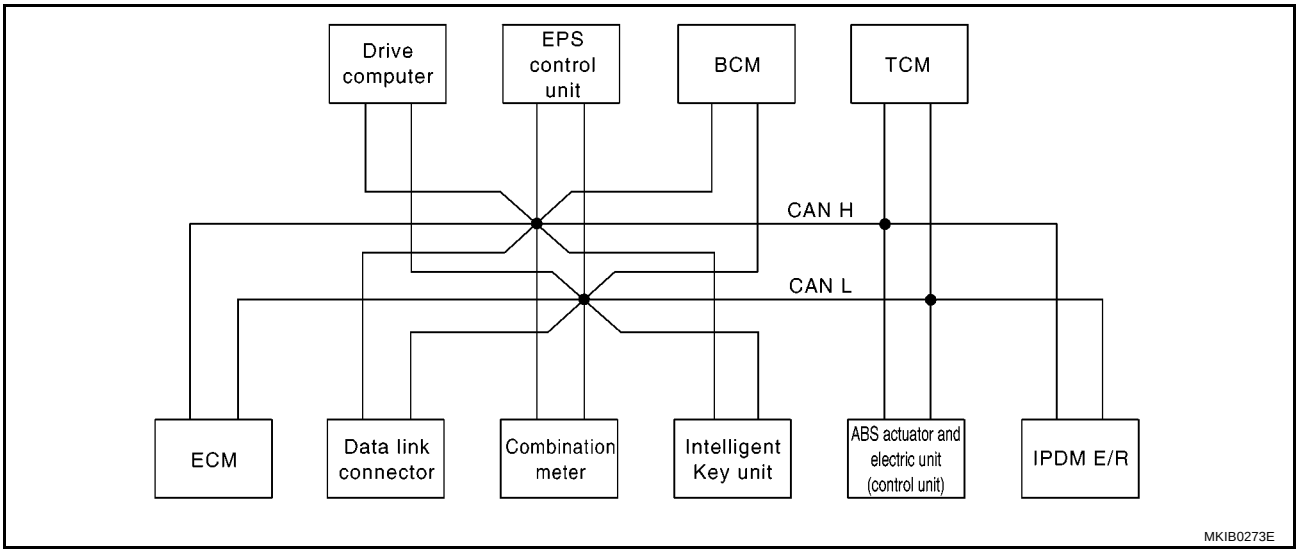
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-155, "TYPE 1/ TYPE 2"				LT-158, "TYPE 3/ TYPE 4"				LT-160, "TYPE 5/ TYPE 6"				LT-163, "TYPE 7/ TYPE 8"				LT-165, "TYPE 9/ TYPE 10"			

×: Applicable

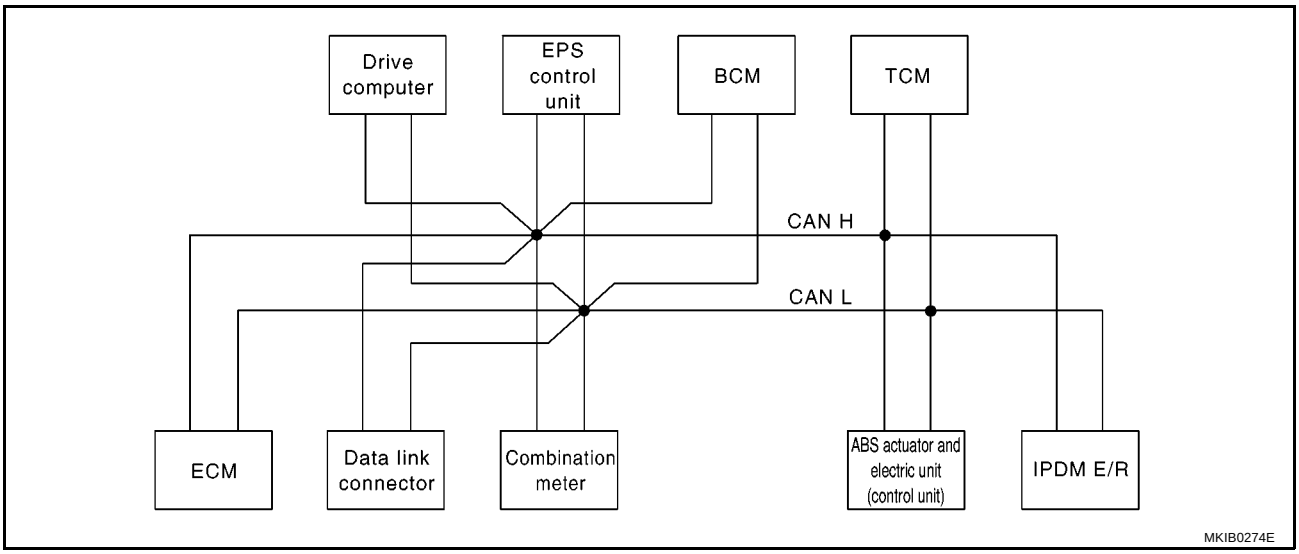
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

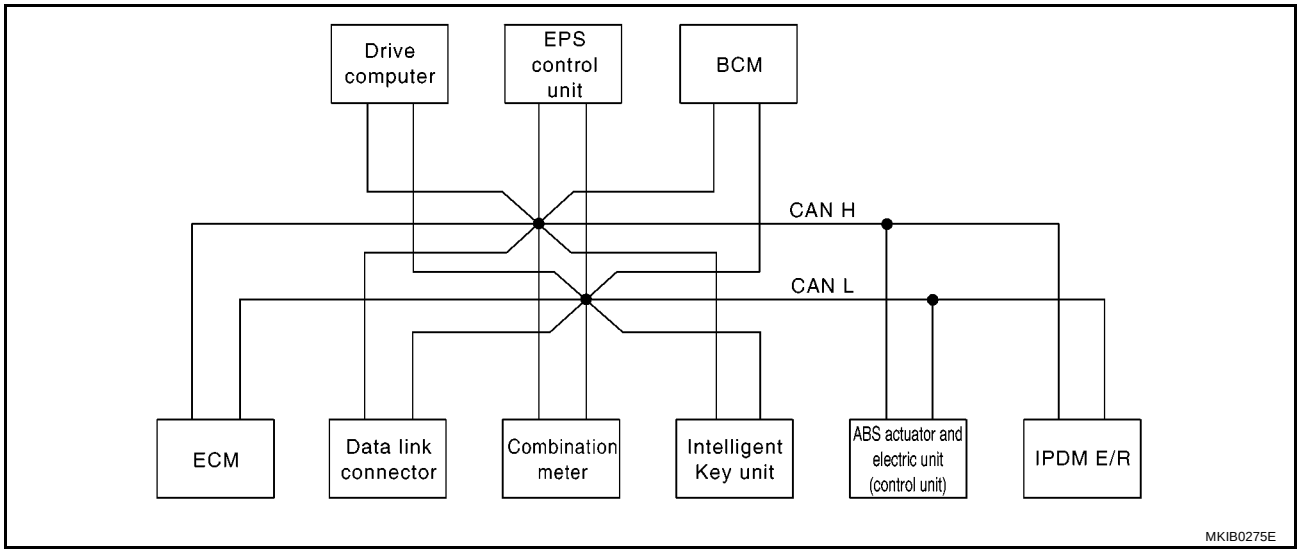
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

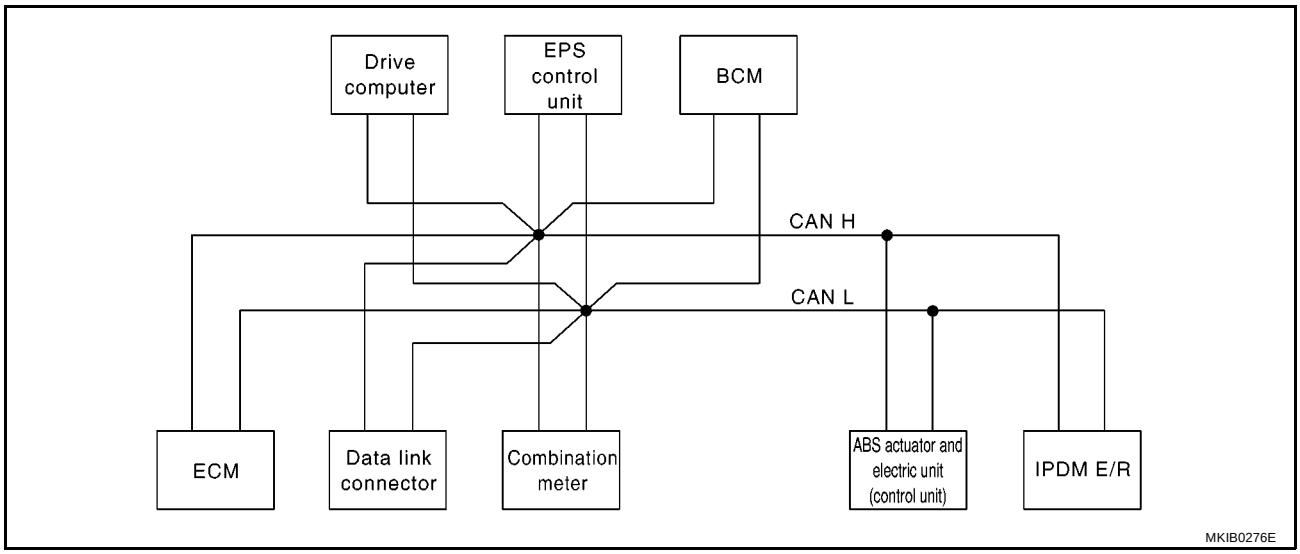
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

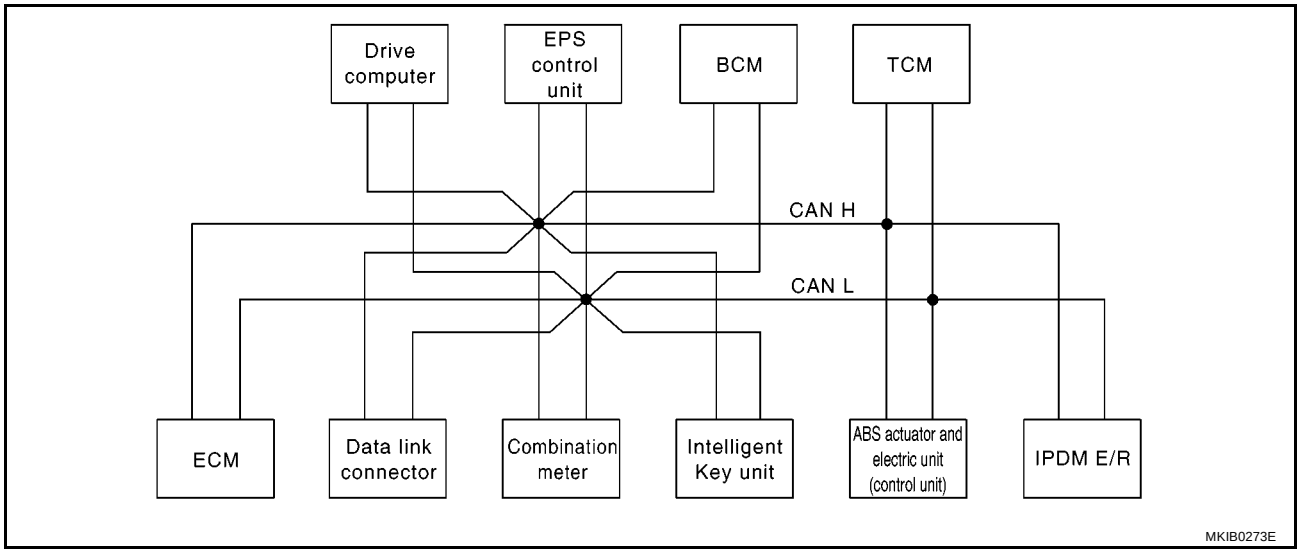
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

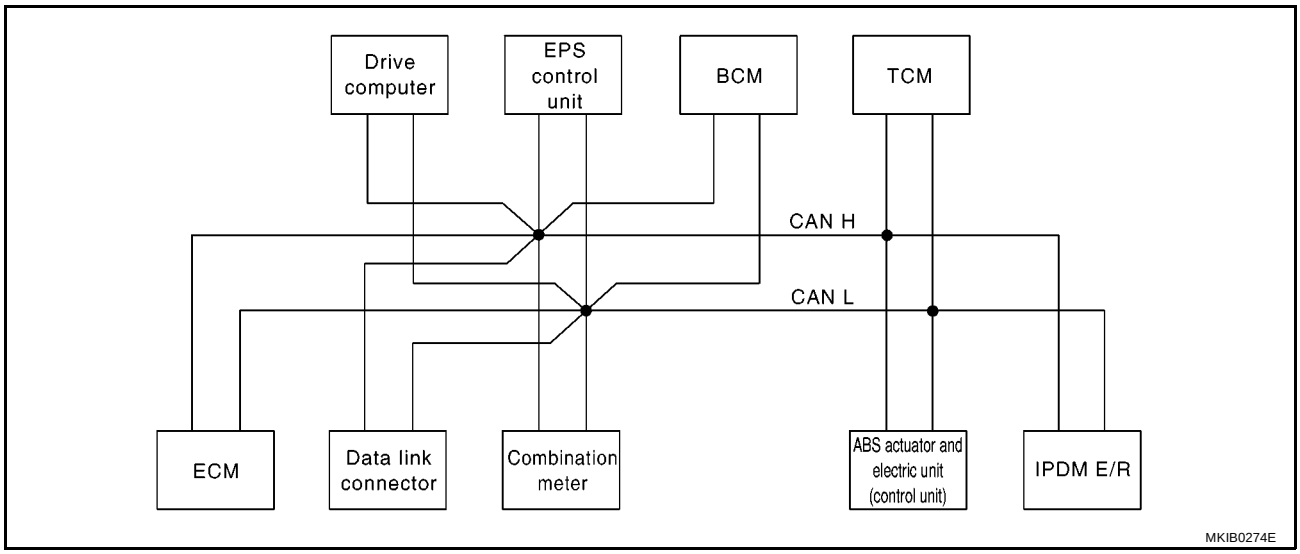
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

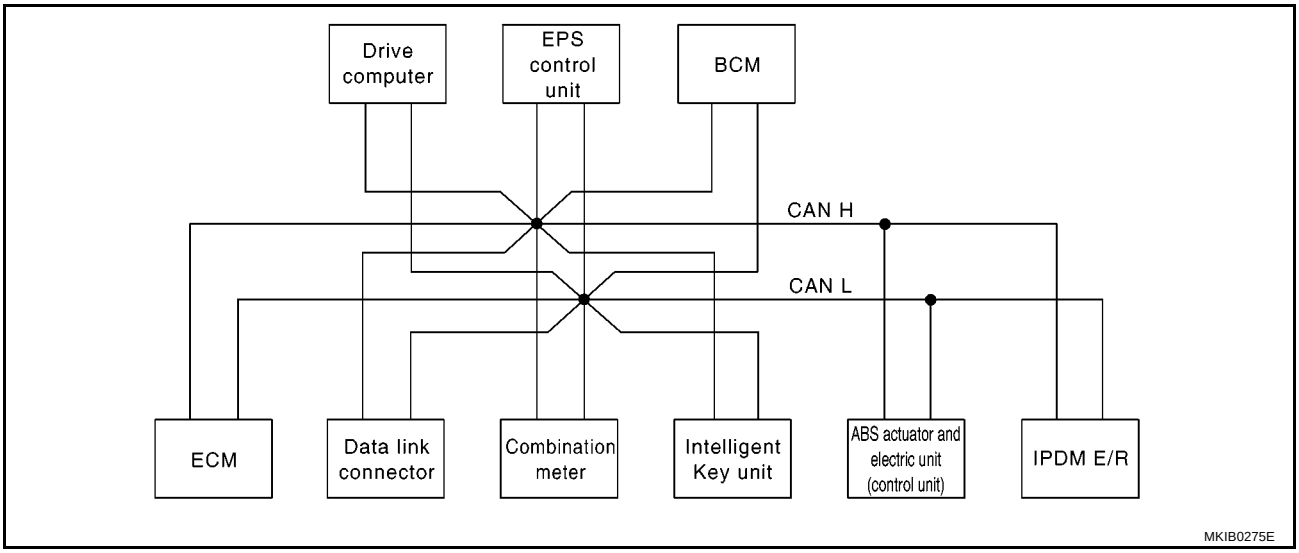
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

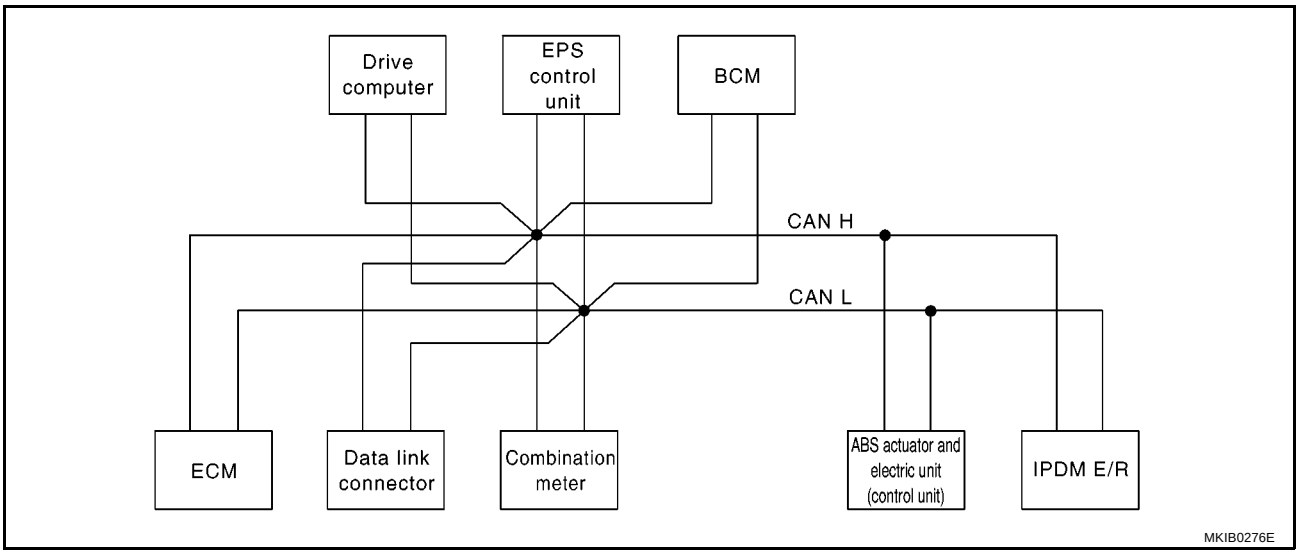
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

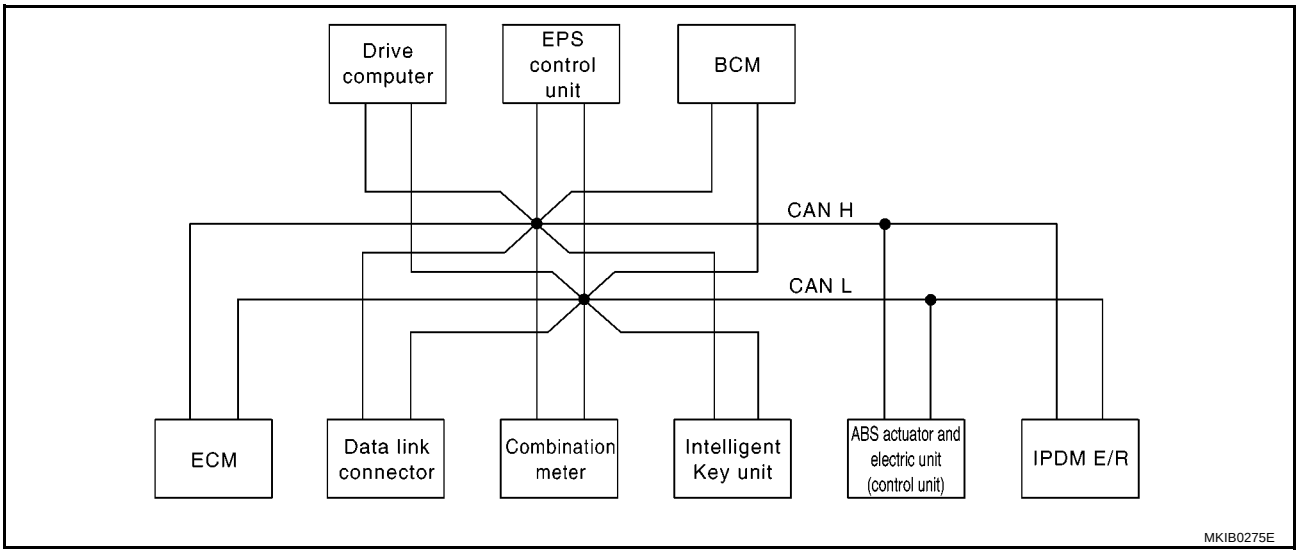
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

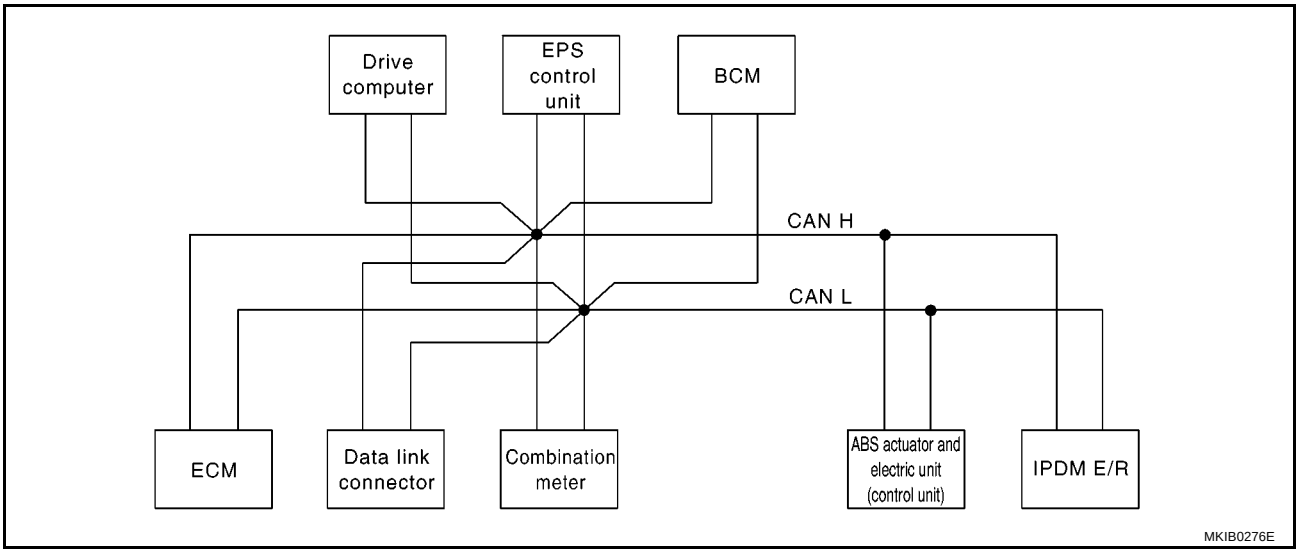
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

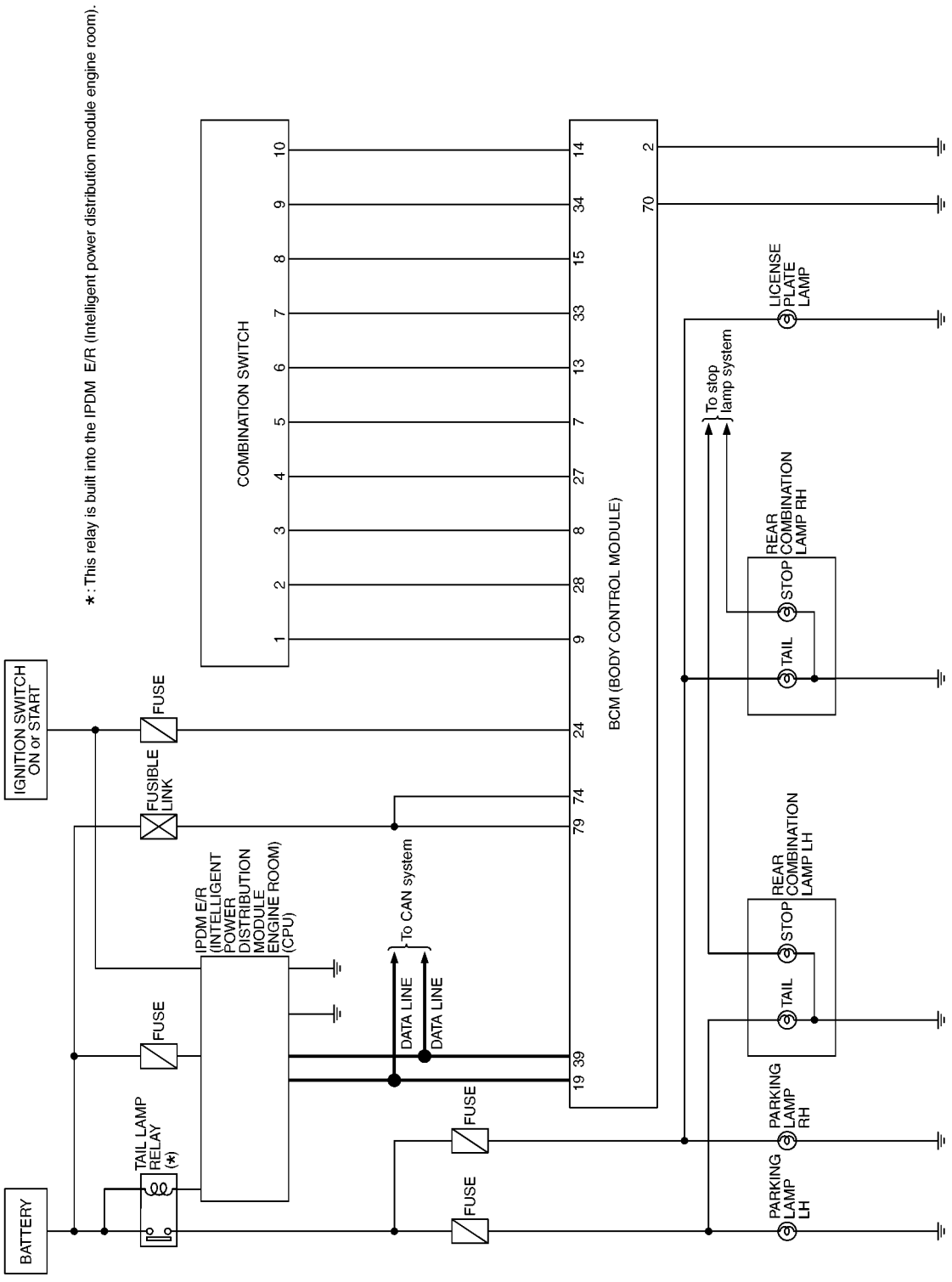
T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		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		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

Schematic

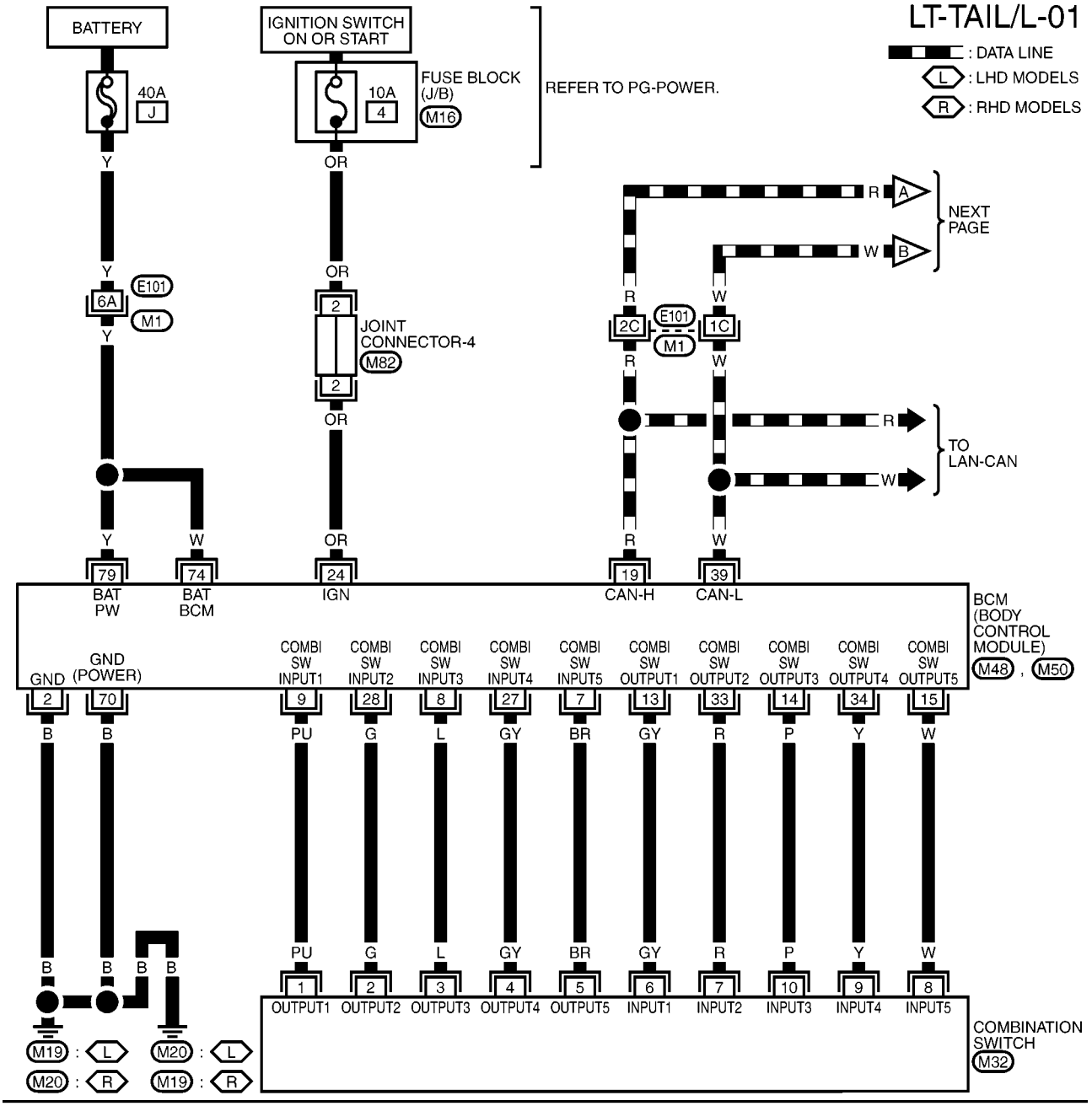
EKS00EN6



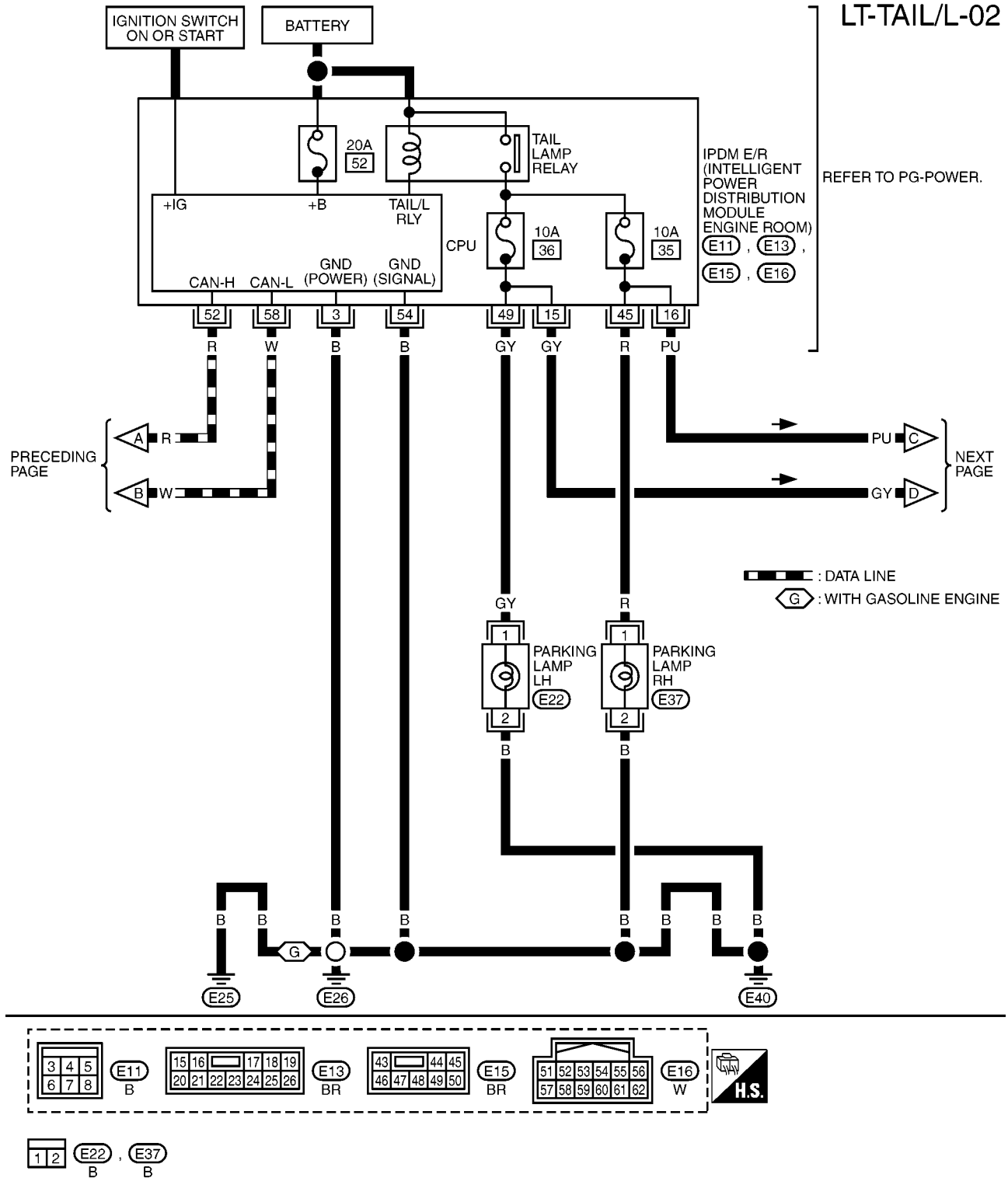
MKWA1440E

Wiring Diagram — TAIL/L —

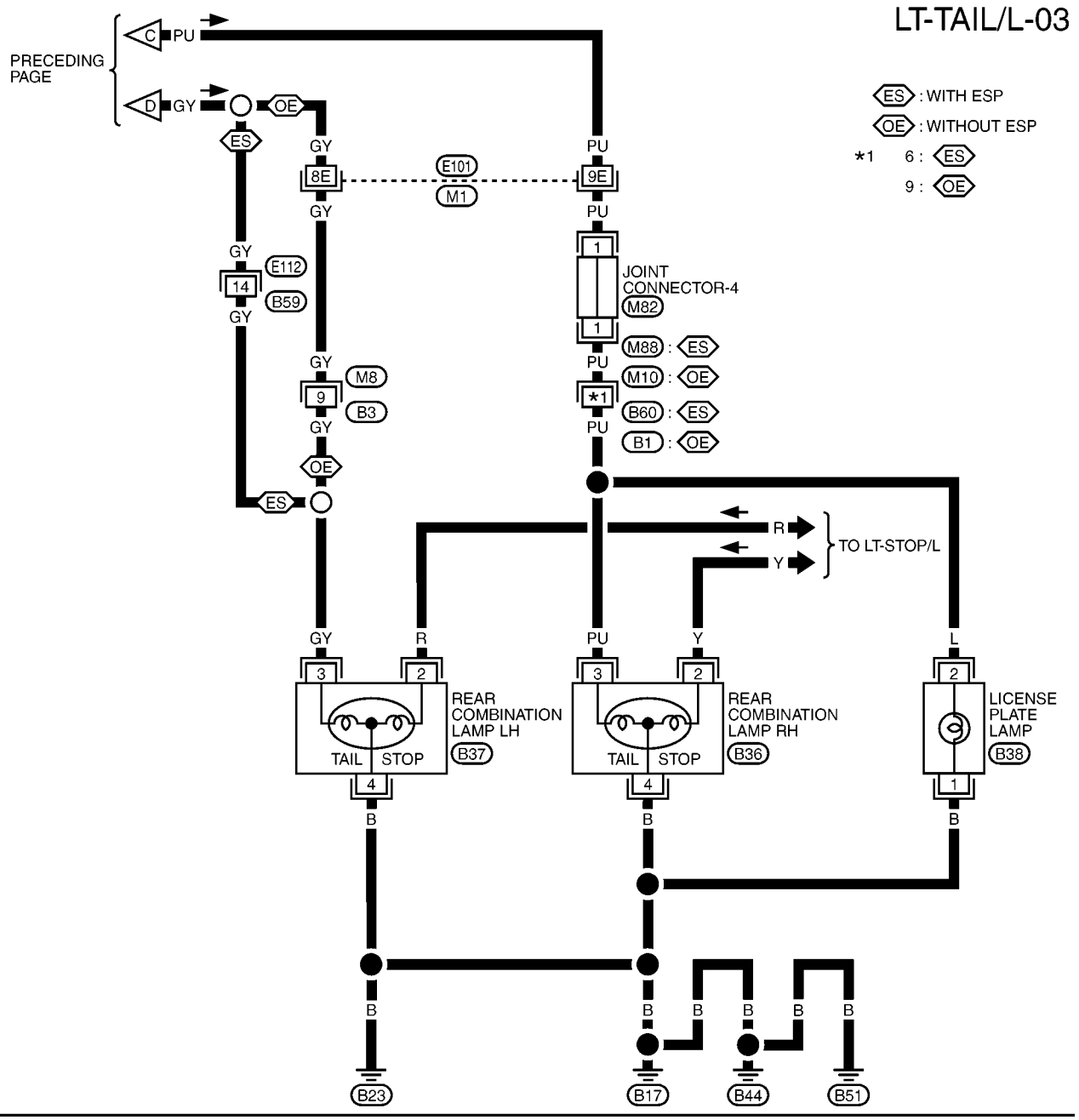
SMA for VIN >SJN**AK12U1309269 EKS00EN7

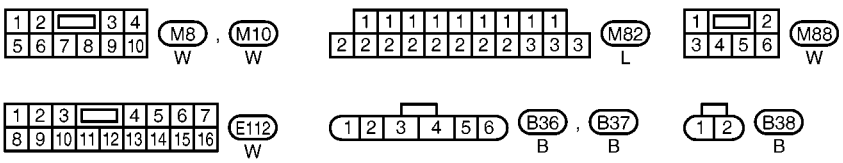


MKWA1525E


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
G : WITH GASOLINE ENGINE
GY R
1 1
PARKING LAMP LH E22
PARKING LAMP RH E37
2 2
B B
B B G B B B B B B
E25 E26 E40
E11 B
E13 BR
E15 BR
E16 W
H.S.
1 2 E22 B , E37 B

MKWA1441E



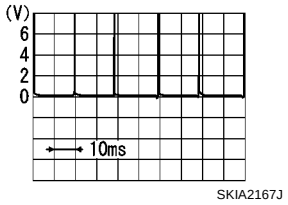
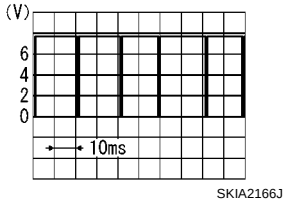
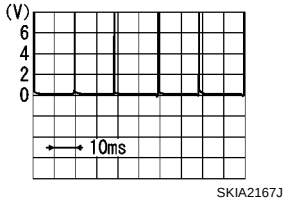


REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1753E

Terminals and Reference Value for BCM

EKS00EN8

Terminal No.	Wire color	Signal designation	Measuring condition		Reference value (V)
			Ignition switch	Operation or condition	
2	B	Ground	ON	—	Approx. 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	—	Approx. 12
39	W	CAN L	—	—	—
70	B	Ground	ON	—	Approx. 0
74	W	Battery power supply	—	—	Approx. 12
79	Y	Battery power supply	—	—	Approx. 12

Terminals and Reference Value for IPDM E/R

EKS00EN9

Terminal No.	Wire color	Signal designation	Measuring condition			Reference value (V)
			Ignition switch	Operation or condition		
3	B	Ground	ON	—		Approx. 0
15 16 45 49	GY PU R GY	Tail lamp (LH) Tail lamp (RH) Tail lamp (RH) Tail lamp (LH)	ON	Lighting switch	1st position	Approx. 12
					OFF	Approx. 0
52	R	CAN H	—	—		—
54	B	Ground	ON	—		Approx. 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-152, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-173, "Preliminary Check" .
4. Confirm parking, license plate and tail lamps does not operate by fail-safe control of IPDM E/R. Refer to PG-19, "FAIL-SAFE FUNCTION" .
5. Check symptom and repair or replace the cause of malfunction.
6. Dose 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

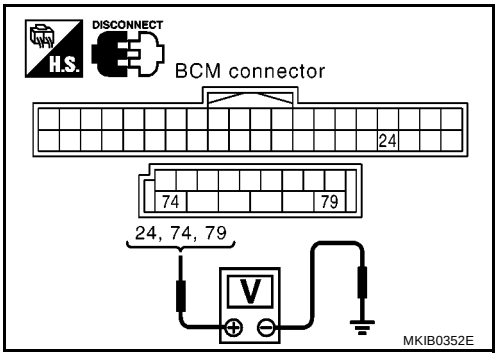
Refer to LT-169, "Wiring Diagram — TAIL/L —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer toPG-4, "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 (W)	Ground	Battery voltage	Battery voltage	Battery voltage
M50	79 (Y)		Battery voltage	Battery voltage	Battery voltage
M48	24 (OR)		0V	0V	Battery voltage

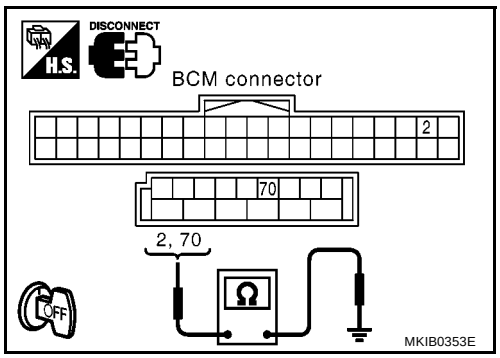
OK or NG

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.

Terminals			Continuity
(+)		(–)	
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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

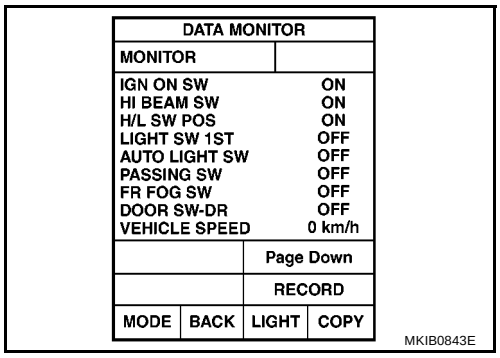
1. CHECK BETWEEN COMBINATION SWITCH AND BCM

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-196, "Check Combination Switch" .

OK or NG

OK >> GO TO 2.
NG >> Refer to LT-196, "Check Combination Switch" .

2. CHECK BETWEEN IPDM E/R TO PARKING LAMP

With CONSULT-II

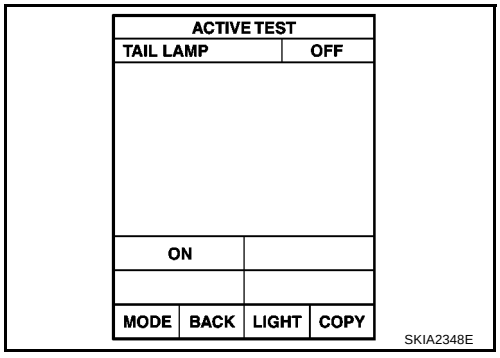
1. Select “IPDM E/R” by CONSULT-II, and select “Active test” on “Diagnosis System selection” screen.
2. Select “TAIL LAMP” on “Select Test Item” screen.
3. Make sure that parking lamps operate normally.

Without CONSULT-II

1. Start up auto active test. Refer to PG-42, "Auto Active Test" .
2. Make sure that parking lamps operate normally.

OK or NG

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

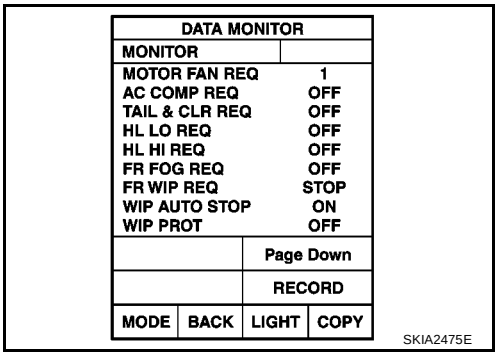


3. CHECK BETWEEN IPDM E/R AND BCM

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

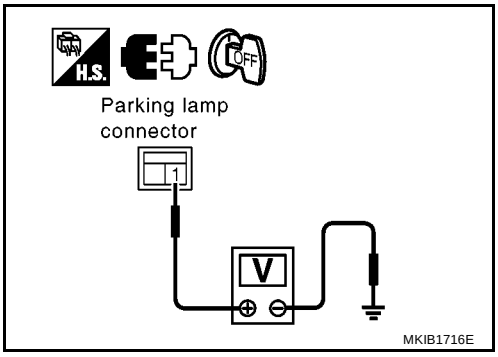
- 10A fuse (No. 35, located in the IPDM E/R).
- 10A fuse (No. 36, located in the IPDM E/R).

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.



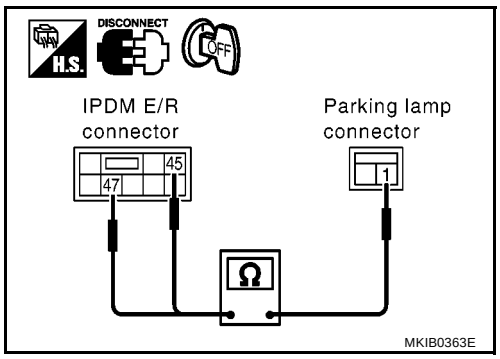
Terminals				Condition	Voltage [V]
(+)			(–)		
Connector		Terminal (Wire color)			
RH	E37	1 (R)	Ground	Lighting switch 1st position	Battery voltage
LH	E22	1 (GY)			

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.



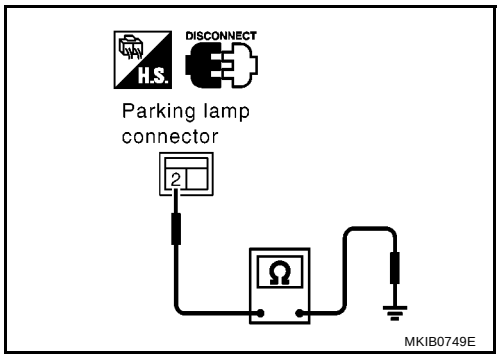
Terminals					Continuity
IPDM E/R		Parking lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E15	45 (R)	RH	E37	1 (R)	Yes
	49 (GY)	LH	E22	1 (GY)	

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.



Terminals				Continuity
Connector		Terminal (Wire color)		
RH	E37	2 (B)	Ground	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)

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

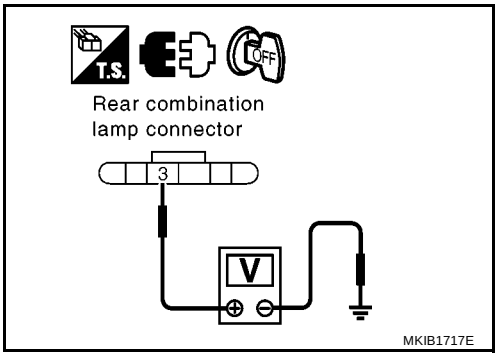
- 10A fuse (No. 35, located in the IPDM E/R).
- 10A fuse (No. 36, located in the IPDM E/R).

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]
(+)			(–)		
Connector		Terminal (Wire color)			
RH	B36	3 (PU)	Ground	Lighting switch 1st position	Battery voltage
LH	B37	3 (PU)			

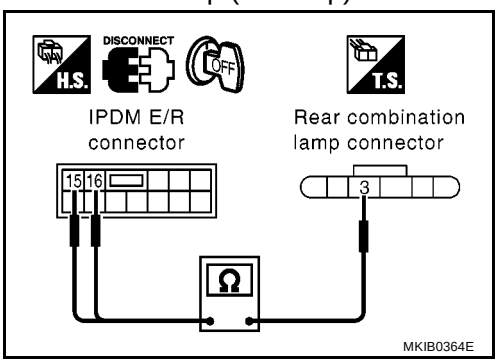
OK or NG

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)	



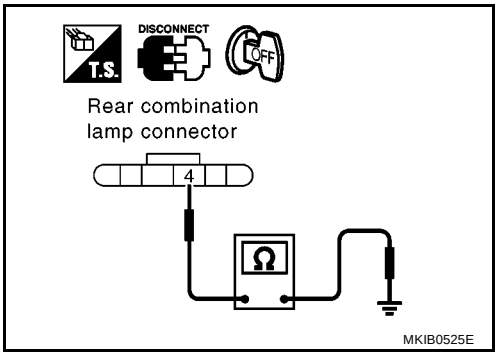
OK or NG

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

5. CHECK GROUND CIRCUIT

Check continuity between tail lamp and ground.

Terminals				Continuity
(+)			(–)	
Connector		Terminal (Wire color)		
RH	B36	4 (B)	Ground	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

EKS00ENH

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).

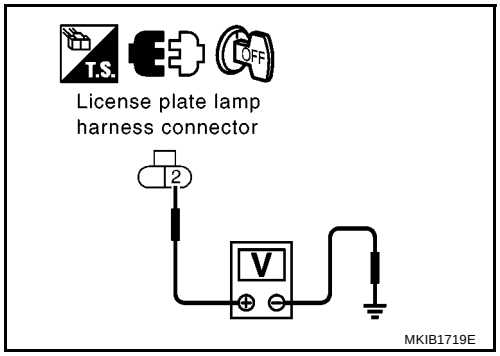
OK or NG

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.

Battery voltage.



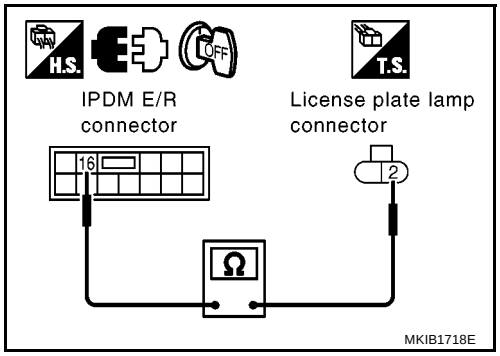
OK or NG

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).

Continuity should exist.



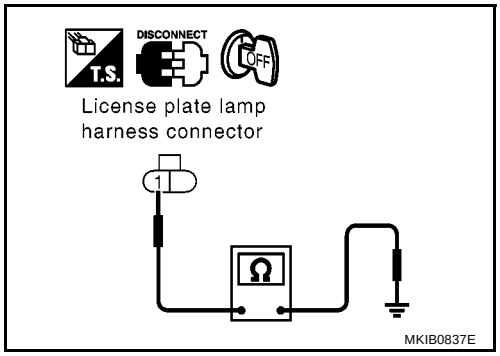
OK or NG

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.

Continuity should exist.



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)

EKS00ENI

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-19, "FAIL-SAFE FUNCTION" .

OK or NG

Fail-safe operation>>Refer to PG-48, "Inspection With CONSULT-II (Self-Diagnosis)" .
Other than fail-safe operation>>Refer to PG-51, "Diagnosis of IPDM E/R Integrated Relay"

Bulb Replacement

EKS00ENJ

PARKING LAMP

Refer to LT-41, "Bulb Replacement" .

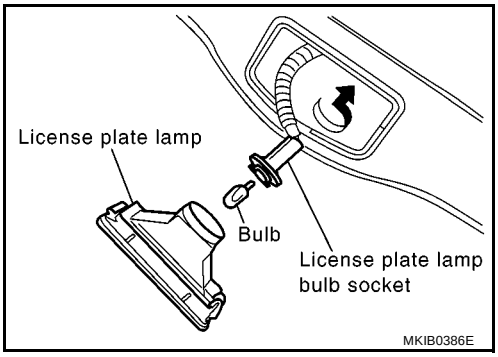
TAIL LAMP

Refer to LT-186, "REAR COMBINATION LAMP" .

LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-180, "LICENSE PLATE LAMP" .
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



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

EKS00ENK

PARKING LAMP

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

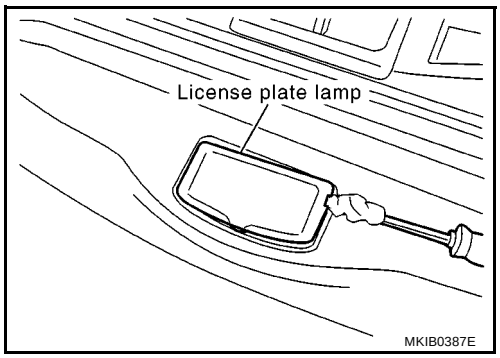
TAIL LAMP

Refer to LT-186, "REAR COMBINATION LAMP" .

LICENSE PLATE LAMP

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

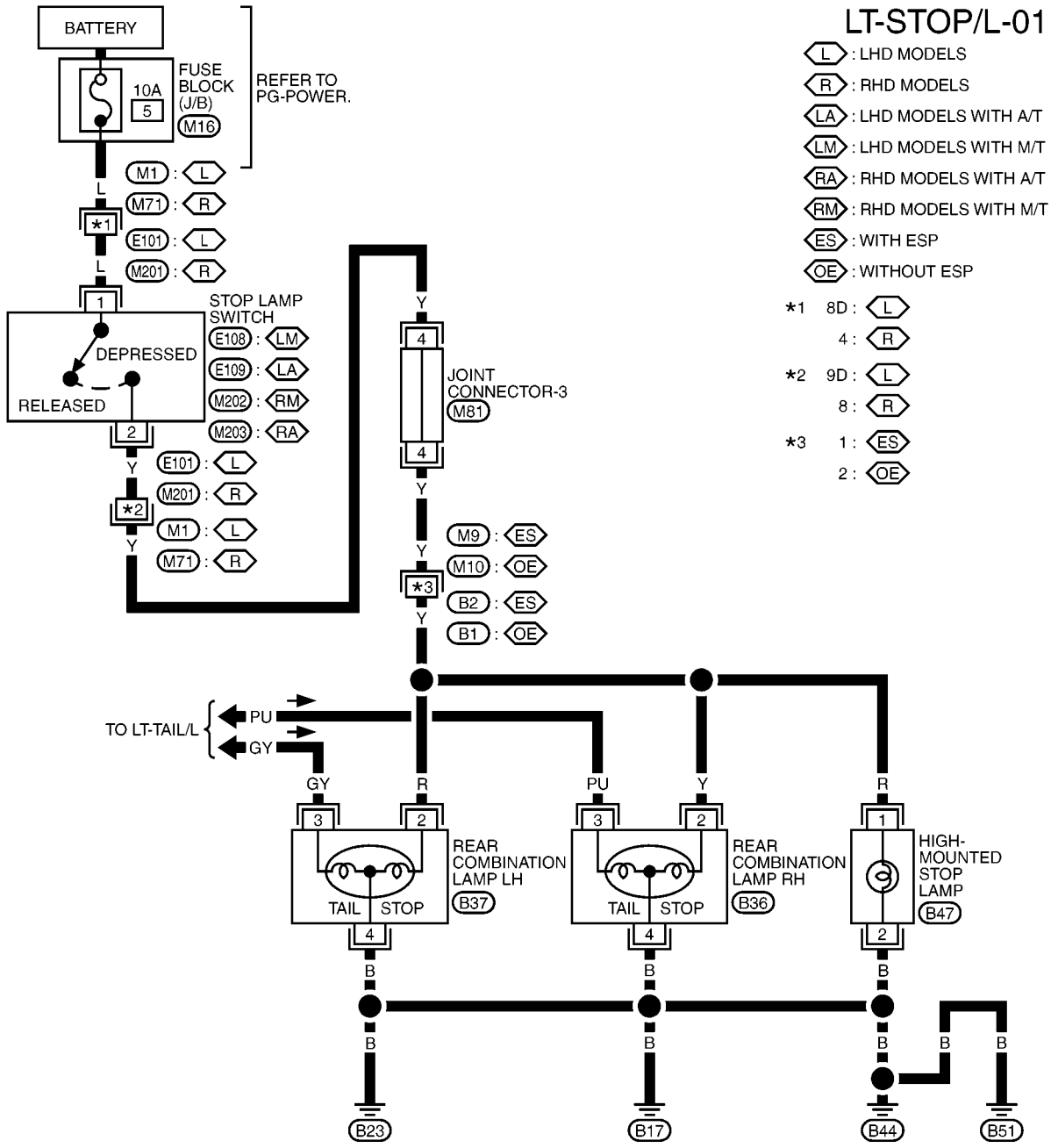
Install in the reverse order of removal.

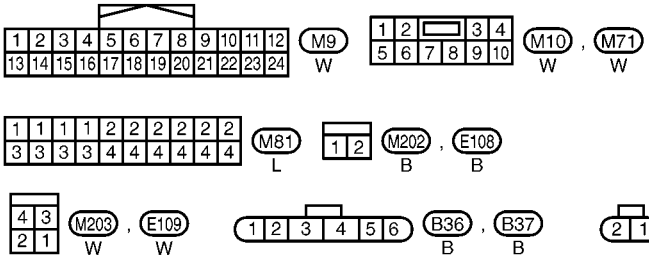
STOP LAMP

PFP:26554

Wiring Diagram— STOP/L —

SMA for VIN >SJN**AK12U1309269 EKS00ENL





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

MKWA1754E

Bulb Replacement

EKS00ENM

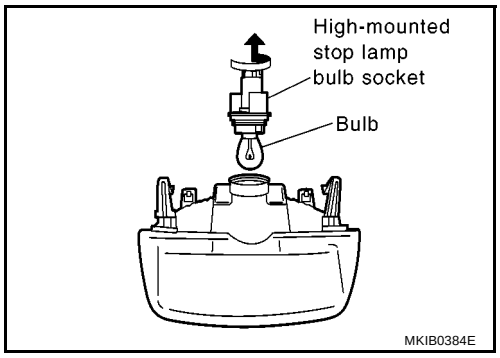
STOP LAMP

Refer to LT-186, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP

1. Remove high-mounted stop lamp. Refer to LT-182, "HIGH-MOUNTED STOP LAMP" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

High-mounted stop lamp : 12V-21W



Removal and Installation

EKS00ENN

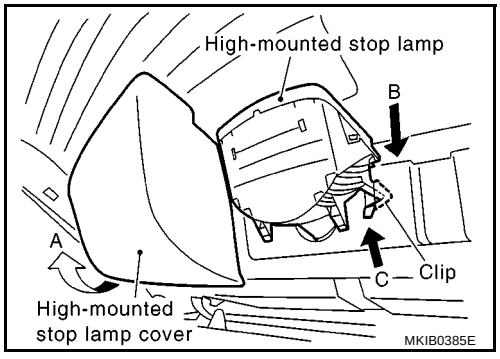
STOP LAMP

Refer to LT-186, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP

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

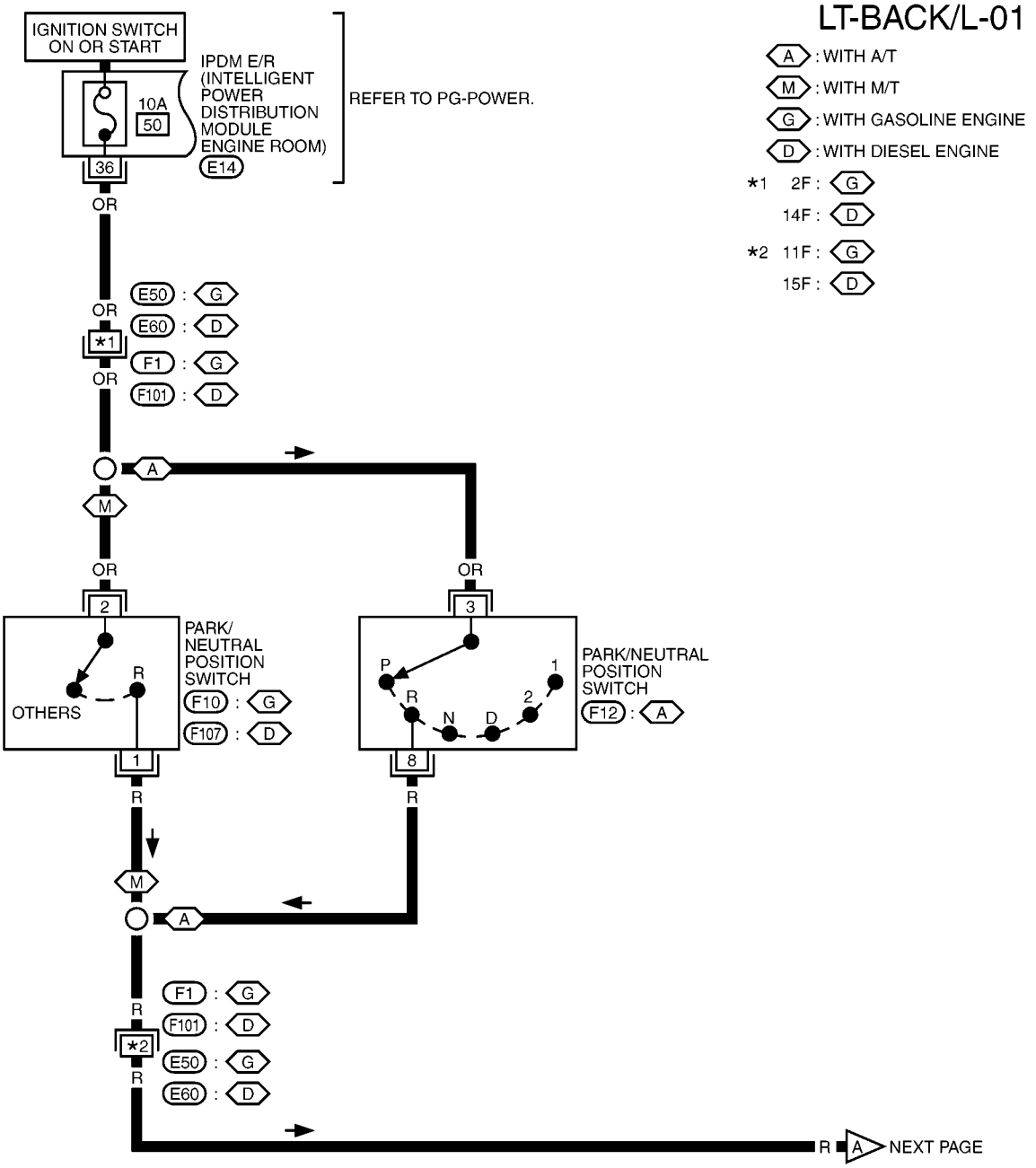
Install in the reverse order of removal.

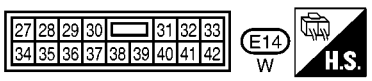
BACK-UP LAMP

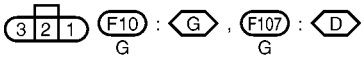
PFP:26550

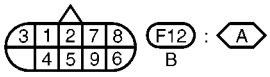
Wiring Diagram — BACK/L —

SMA for VIN >SJN**AK12U1309269 EKS00ENO



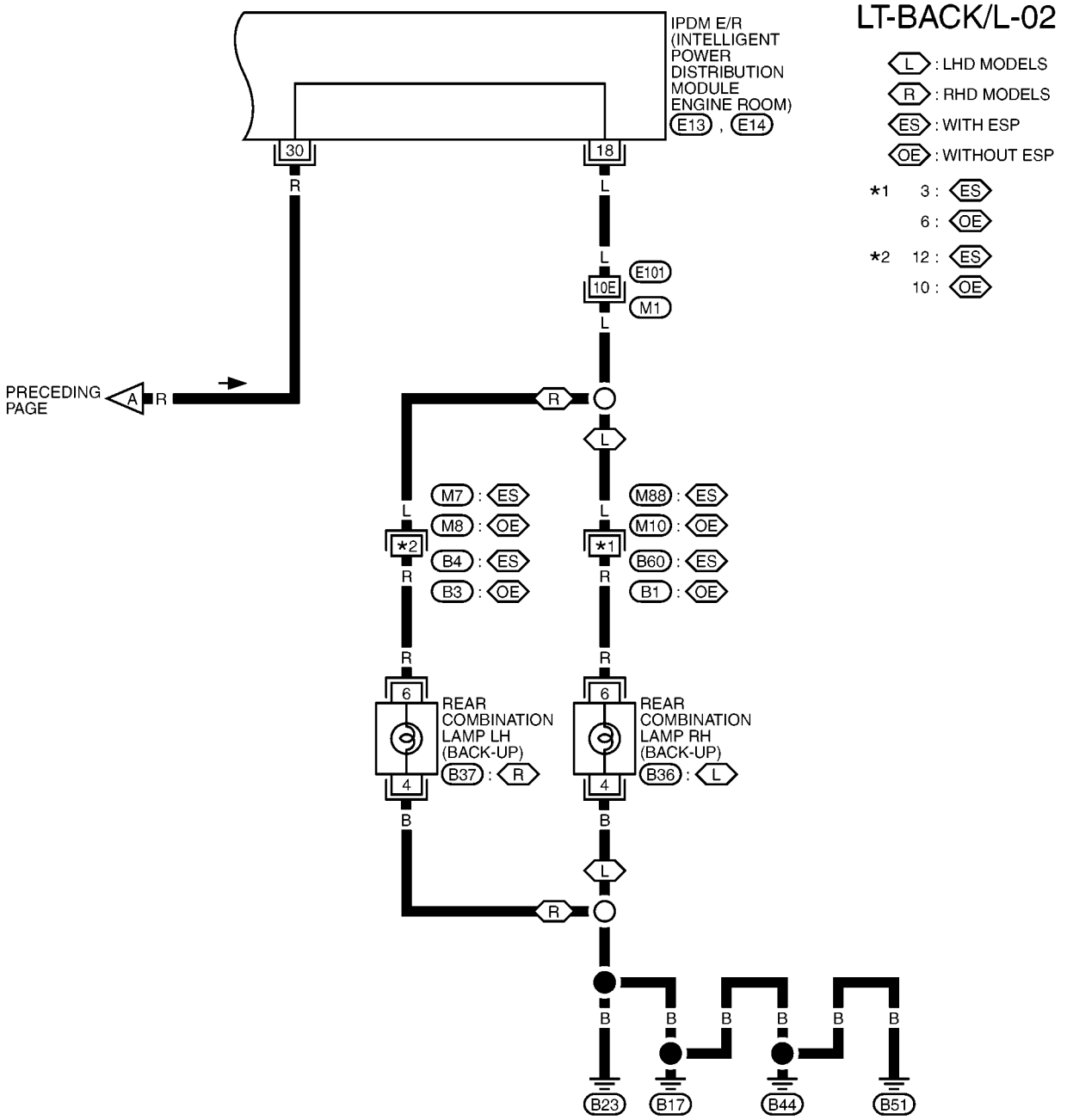


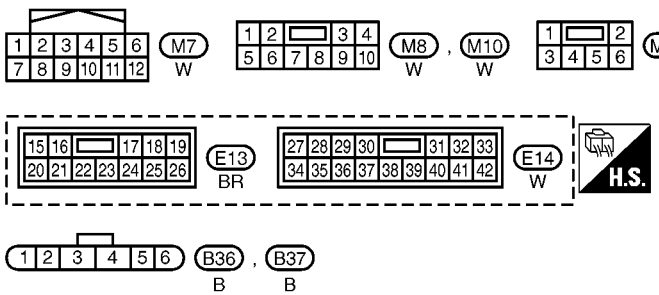




REFER TO THE FOLLOWING.
F1 , F101 -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1443E





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

MKWA1755E

Bulb Replacement

EKS00ENP

Refer to LT-186, "REAR COMBINATION LAMP" .

Removal and Installation

EKS00ENQ

Refer to LT-186, "REAR COMBINATION LAMP" .

REAR COMBINATION LAMP

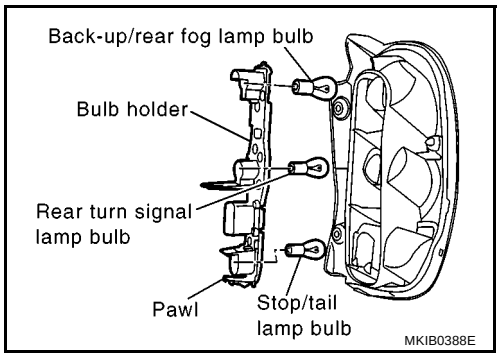
PFP:26554

Bulb Replacement

EKS00ENR

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

1. Open the back door, and remove rear combination lamp. Refer to LT-186, "Removal and Installation" .
2. Release holder assembly bottom hooks and remove from combination lamp housing.
3. Remove all bulbs.



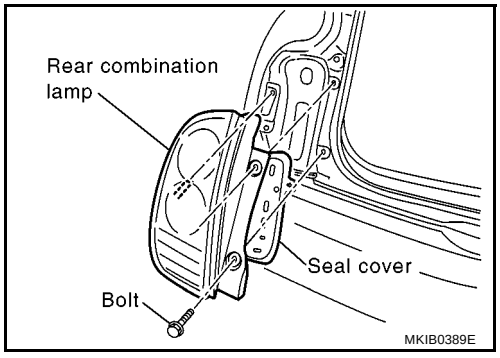
Stop/Tail lamp	**: 12V-21/5W**
Rear turn signal lamp	**: 12V-21W**
Back-up lamp	**: 12V-21W**
Rear fog lamp	**: 12V-21W**

Removal and Installation

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)**

LIGHTING AND TURN SIGNAL SWITCH

PFP:25540

Removal and Installation

EKS00ENT

Refer to LT-199, "Removal and Installation" .

HAZARD SWITCH

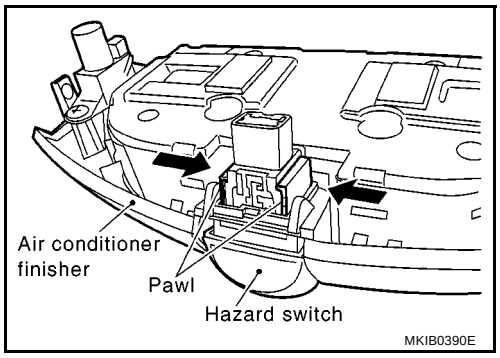
PFP:25290

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

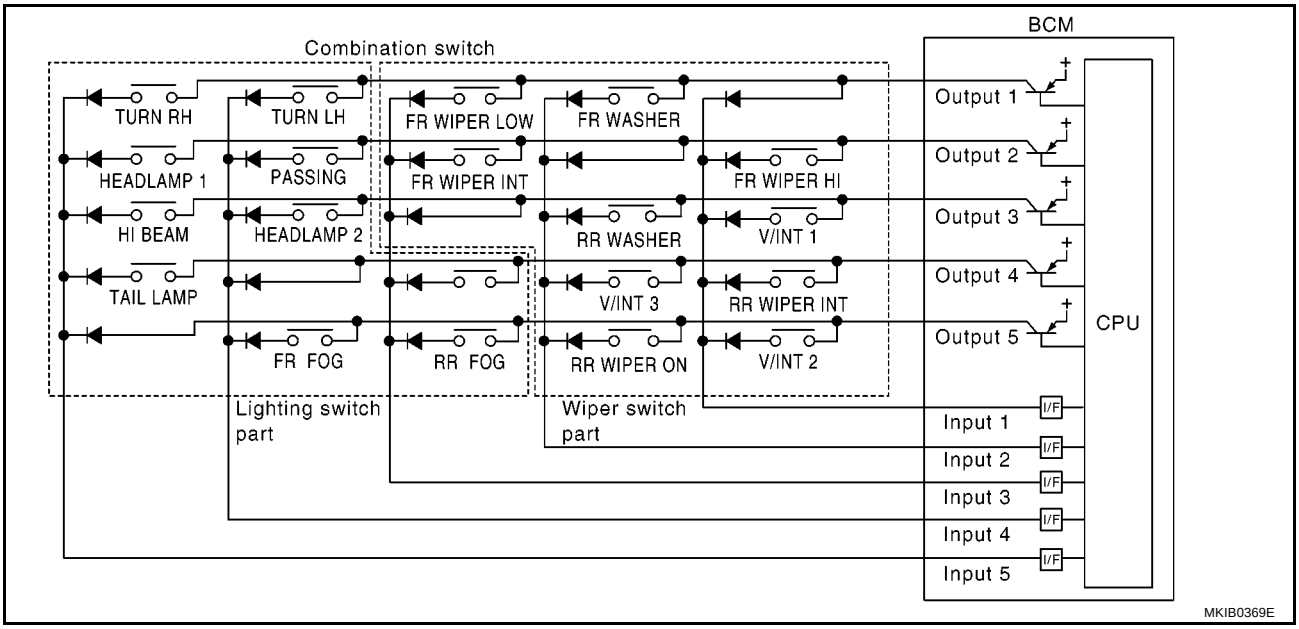
PFP:25567

System Description

EKS00ENV

COMBINATION SWITCH READING FUNCTION

1. Description
   - BCM reads combination switch (headlamp, wiper washer, turn signal) status, and controls various electrical components according to the results.
   - BCM reads information of 20 switches results by combining five output terminals (output 1 - 5) and five input terminals (input 1 - 5).
2. Operation description
   - BCM makes current flow through transistors in output terminals (output 1 - 5) at regular intervals in order.
   - When any of switches is turned ON, a circuit is established between output terminals (output 1 - 5) and input terminals (input 1 - 5).
   - At this time, transistors in output terminals (output 1 - 5) operate, and current flows, and then voltage of input terminals (input 1 - 5) corresponding to switch varies. Interface inside BCM detects status, and judges that the switch is ON.



3. BCM - Operation table of combination switches

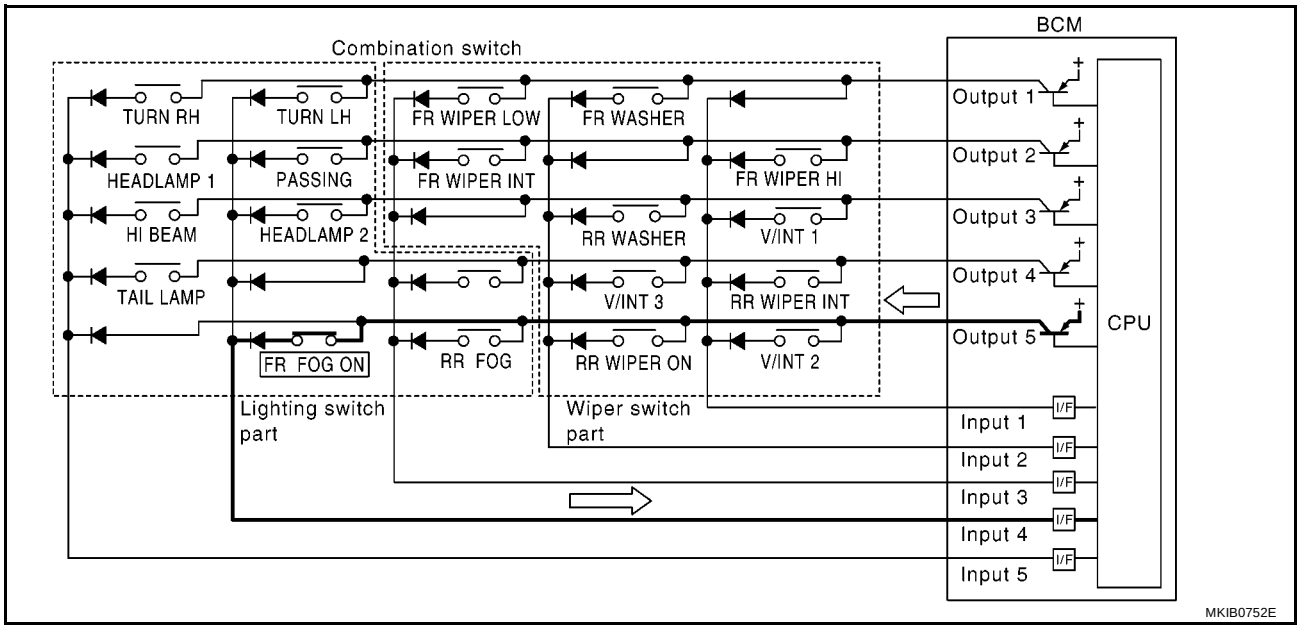
- BCM reads operation status of combination switches by the combination shown in the table.

	Combination SW INPUT 1		Combination SW INPUT 2		Combination SW INPUT 3		Combination SW INPUT 4		Combination SW INPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Combination SW OUTPUT 1	—	—	FR WIPER HI ON	FR WIPER HI OFF	V/INT 1 ON	V/INT 1 OFF	RR WIPER INT ON	RR WIPER INT OFF	V/INT 2 ON	V/INT 2 OFF
Combination SW OUTPUT 2	FR WASHER ON	FR WASHER OFF	—	—	RR WASHER ON	RR WASHER OFF	V/INT 3 ON	V/INT 3 OFF	RR WIPER ON	RR WIPER OFF
Combination SW OUTPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	—	—	—	—	RR FOG ON	RR FOG OFF
Combination SW OUTPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEADLAMP 2 ON	HEADLAMP 2 OFF	—	—	FR FOG ON	FR FOG OFF
Combination SW OUTPUT 5	TURN RH ON	TURN RH OFF	HEADLAMP 1 ON	HEADLAMP 1 OFF	HI BEAM ON	HI BEAM OFF	TAIL LAMP ON	TAIL LAMP OFF	—	—

MKIB0370E

NOTE:
Dual switches are set for headlamps.

4. Example (When front fog lamp switch is turned ON)
   1. When front fog lamp switch is turned ON position, FR FOG ON contact inside combination switch becomes ON.
   2. Transistor in output 5 operates, and BCM detects that voltage at input 4 varies.
   3. When BCM detects voltage change at input 4 while transistor in output 5 is in ON status, BCM determines that front fog lamp switch is set to ON, and sends a front fog lamp request signal to IPDM E/R via CAN communication line.
   4. When BCM detects voltage change at input 4 when transistor in output 5 is operated again, it determines that front fog lamp ON operation continues.



MKIB0752E

NOTE:
Each output terminal transistor is activated at 20 ms intervals. Therefore, after a switch is turned ON, the electrical loads are activated with a time delay, but this time delay is too short to be noticed.

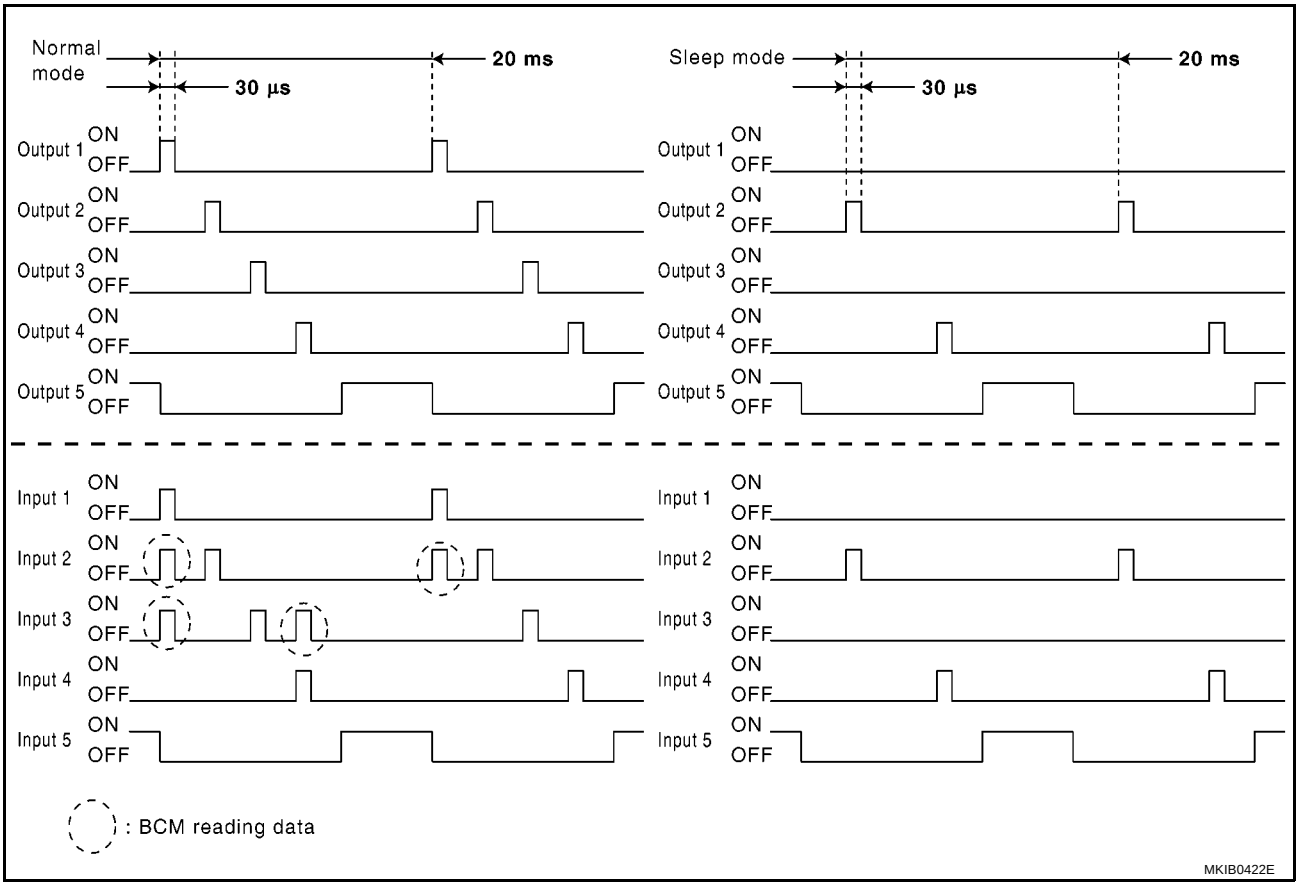
5. Operation mode
   - Combination switch reading function has operation modes shown below.

a. Normal mode

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

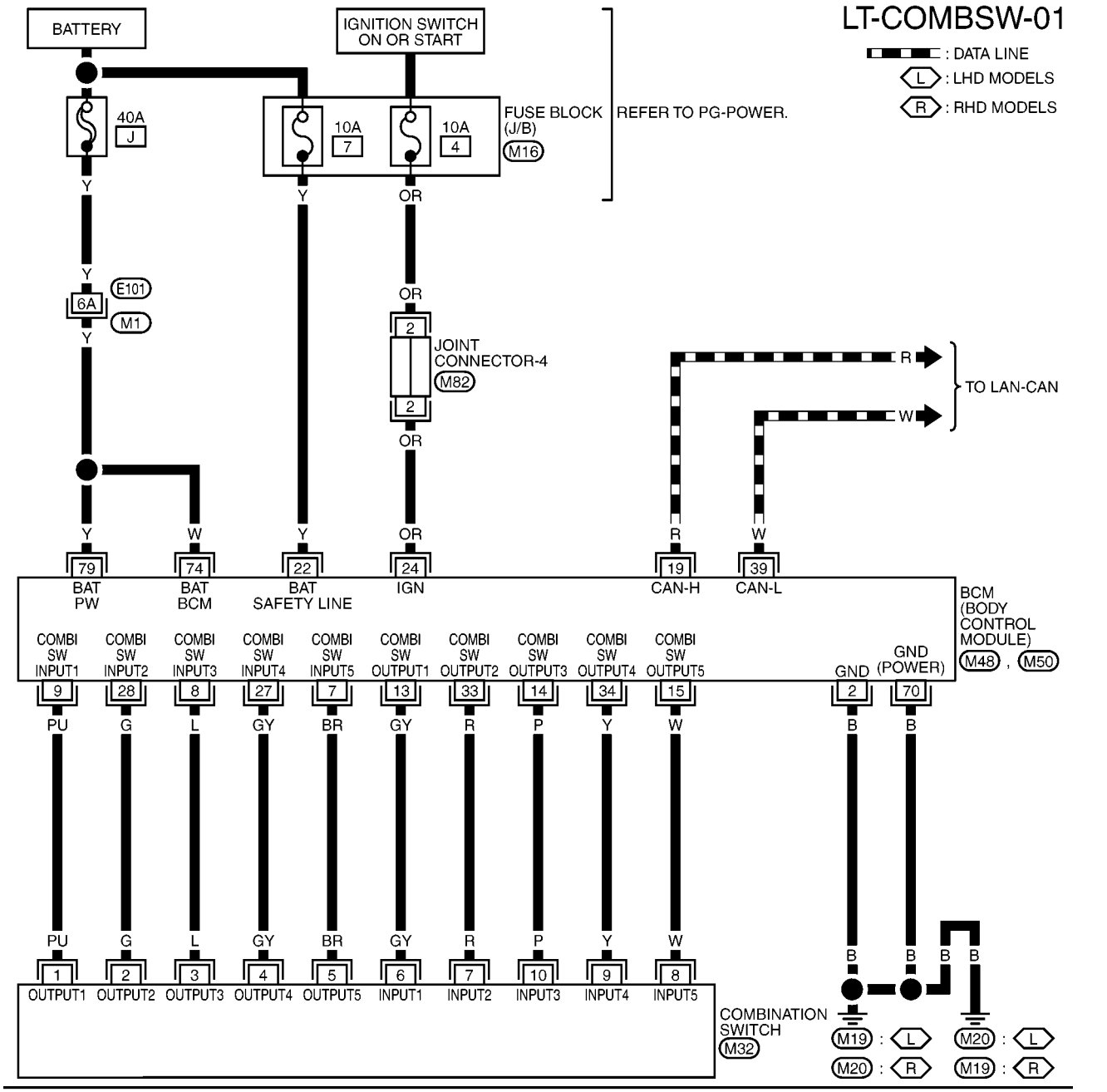
b. Sleep mode

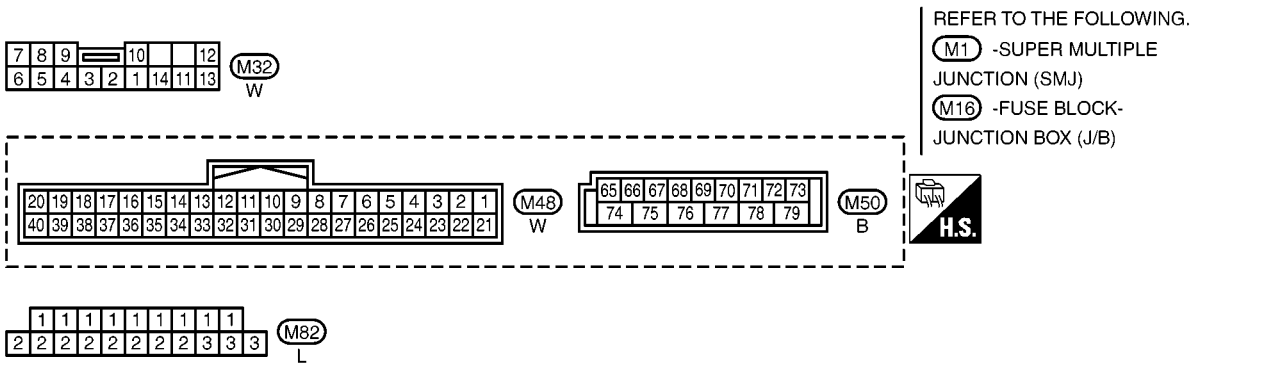
- While BCM is in sleep status, transistors in output 1 and 3 stop their input, with BCM entering a power-saving mode. Input 2, 4 and 5 turn ON-OFF every 20 ms, and accept only output from lighting switch system.



Wiring Diagram — COMBSW —

EKS00ENW





MKWA1535E

CONSULT-II Functions (BCM)

EKS00ENX

CONSULT-II can display each diagnosis itemusing the diagnostic test modes shown following. Data is received and transmitted via the control module communication line.

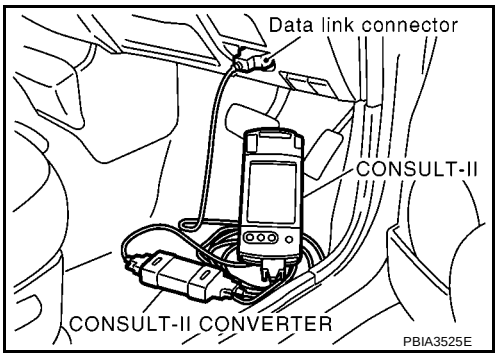
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Combination switch	Data monitor	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

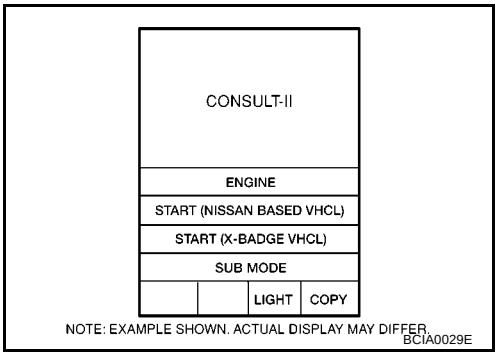
CAUTION:

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.

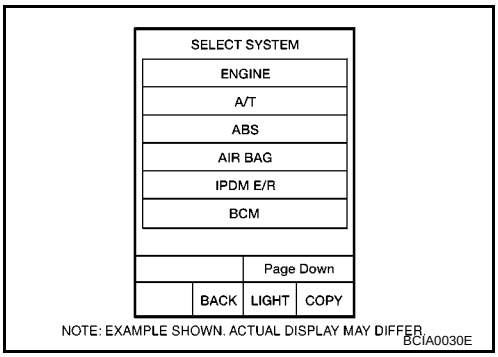
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



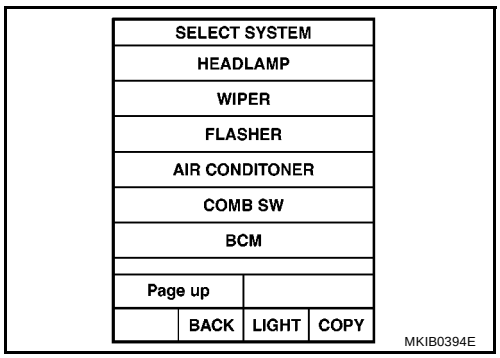
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



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 “COMBINATION SWITCH” 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” or “SELETION FROM MENU” on the “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
SELECTION FROM MENU	Selects and monitors individual items.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. 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.
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.

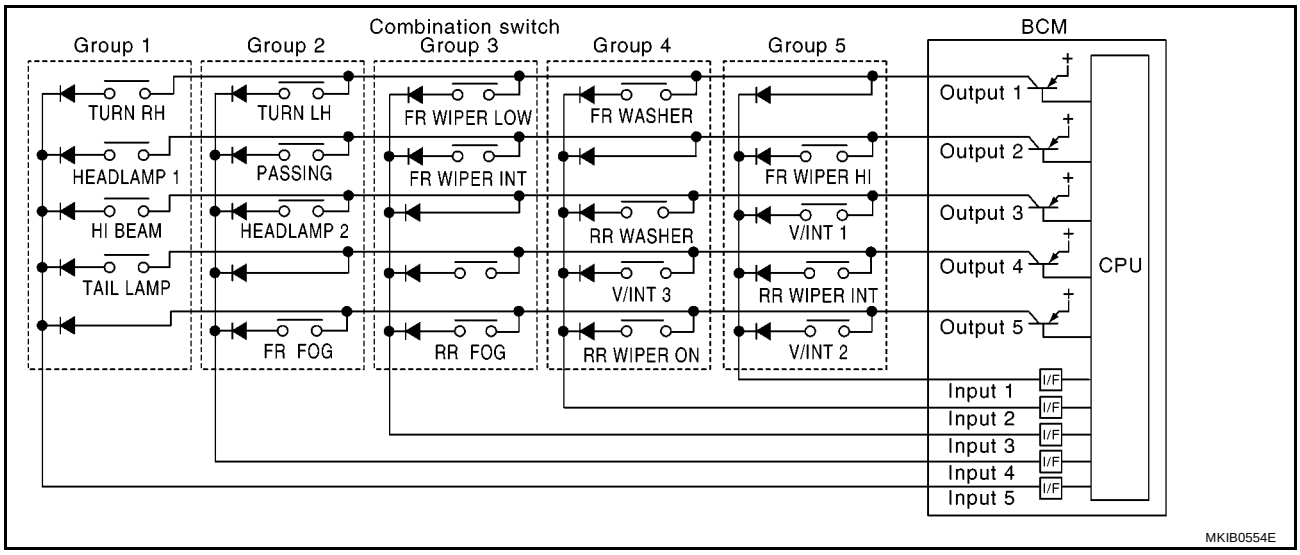
Check Combination Switch

EKS00ENY

1. CHECK COMBINATION SWITCH OPERATION

1. Check the malfunctioning operation which is controlled by combination switch, and check the group which including the malfunctioning operation.

Group 5	Group 4	Group 3	Group 2	Group 1
—	FR WASHER	FR WIPER LO	TURN LH	TURN RH
FR WIPER HI	—	FR WIPER INT	PASSING	HEAD LAMP1
V/INT 1	RR WASHER	—	HEAD LAMP2	HI BEAM
RR WIPER INT	V/INT 3	—	—	TAIL LAMP
V/INT 2	RR WIPER ON	RR FOG	FR FOG	—

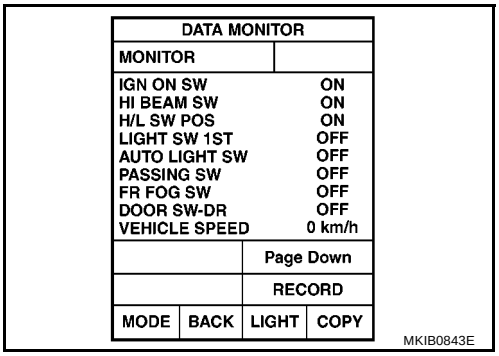


>> Confirm the group where malfunctioning operation is in and GO TO 2.

2. CHECK SYSTEM

With CONSULT-II

1. Select BCM on CONSULT-II.Check combination switch (“COMB SW”) in “DATA MONITOR” mode with CONSULT-II.
2. Select “START” and confirm all switch except the malfunctioning switch are operating normally.(Refer to LT-195, "Display Item List")
   Example: When there is RR fog lamp switch malfunction, confirm that “FR WIPER LOW” and “FR WIPER INT”, which are in the same group 3, turn ON/OFF normally.



Without CONSULT-II

Operate combination switch to Make sure other switches in the system with an error operate normally.
Example: When there is an error with RR fog lamp switch, make sure front wiper low operation and front wiper intermittent operation in the same group 3 operate normally.

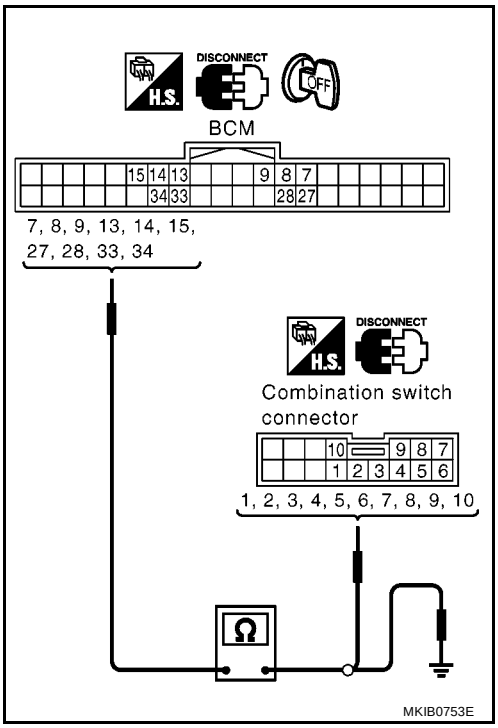
What is the inspection results?

Other switches in the group with an error operate normally.>>Replace combination switch.
Other switches in the group with an error 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.

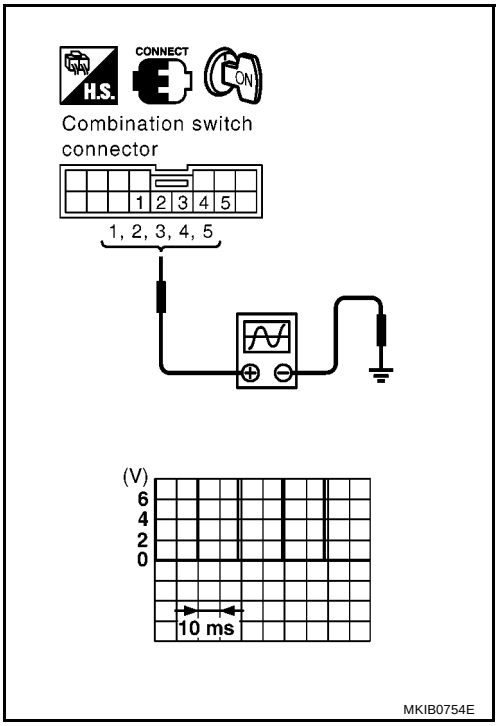
4. CHECK BCM OUTPUT SIGNAL

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 >> Repair combination switch.
NG >> Replace BCM.



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-36, "DRIVER AIR BAG MODULE" .
3. Remove spiral cable. Refer to SRS-38, "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
- to key switch and ignition knob switch terminal 3 (Gasoline engine with Intelligent Key system)
- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to key switch and ignition knob switch terminals 1 (Diesel engine models 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 4 (Gasoline engine models with Intelligent Key system) or
- through key switch and ignition knob switch terminal 2 (Diesel engine models with Intelligent Key system)
- to BCM terminal 48.

When Intelligent Key unit receives unlock signal from Intelligent Key controller. BCM receives door lock/unlock signal from Intelligent Key unit via CAN communication line.
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:

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

When any door is opened, ground is supplied:

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

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

- through BCM terminal 21
- to interior room lamp terminal 1

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:

- to interior room lamp terminal 2
- through BCM terminal 73.

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

- to luggage room lamp terminal 2
- through back door release actuator (back door switch) terminal 2 and 1
- through body grounds B17,B23,B44 and B51.

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

INTERIOR ROOM LAMP TIMER OPERATION

When interior room lamp switch is in the “DOOR” position, the BCM keeps the interior room lamp illuminated for about 30 seconds when:

- unlock signal is received from Intelligent Key controller, while all doors are closed and key is out of the ignition key cylinder (with Intelligent Key system).
- unlock signal is received from remote controller 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 controller, 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).

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.

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

EKS00LTD

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

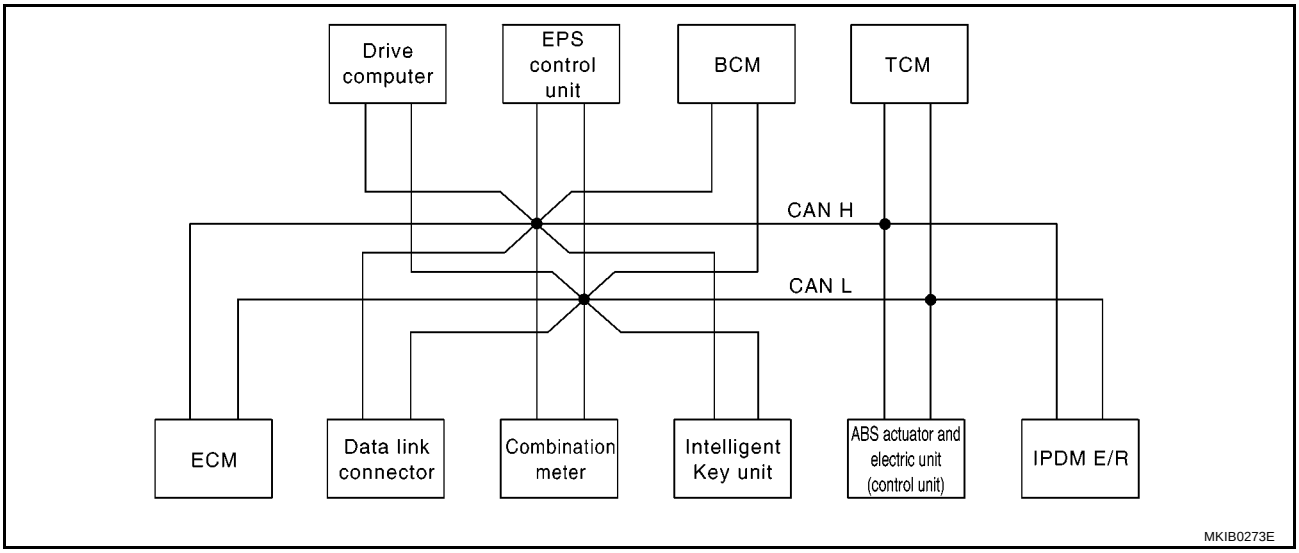
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-203, "TYPE 1/ TYPE 2"				LT-206, "TYPE 3/ TYPE 4"				LT-208, "TYPE 5/ TYPE 6"				LT-211, "TYPE 7/ TYPE 8"				LT-213, "TYPE 9/ TYPE 10"			

×: Applicable

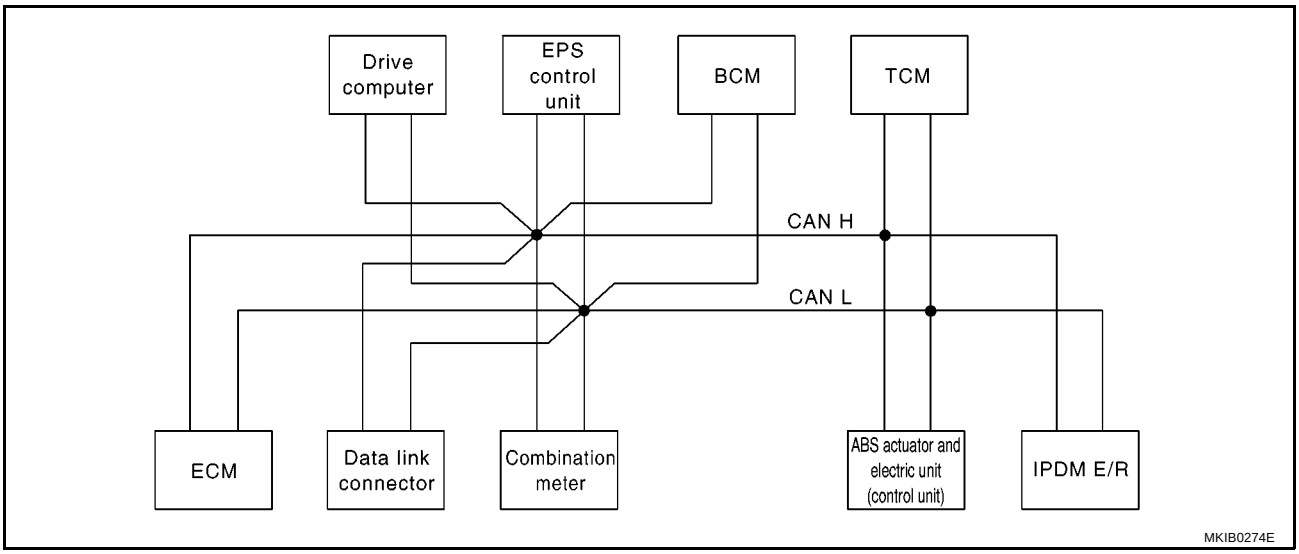
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		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	
Closed throttle position signal	T							R	
Wide open throttle position signal	T							R	

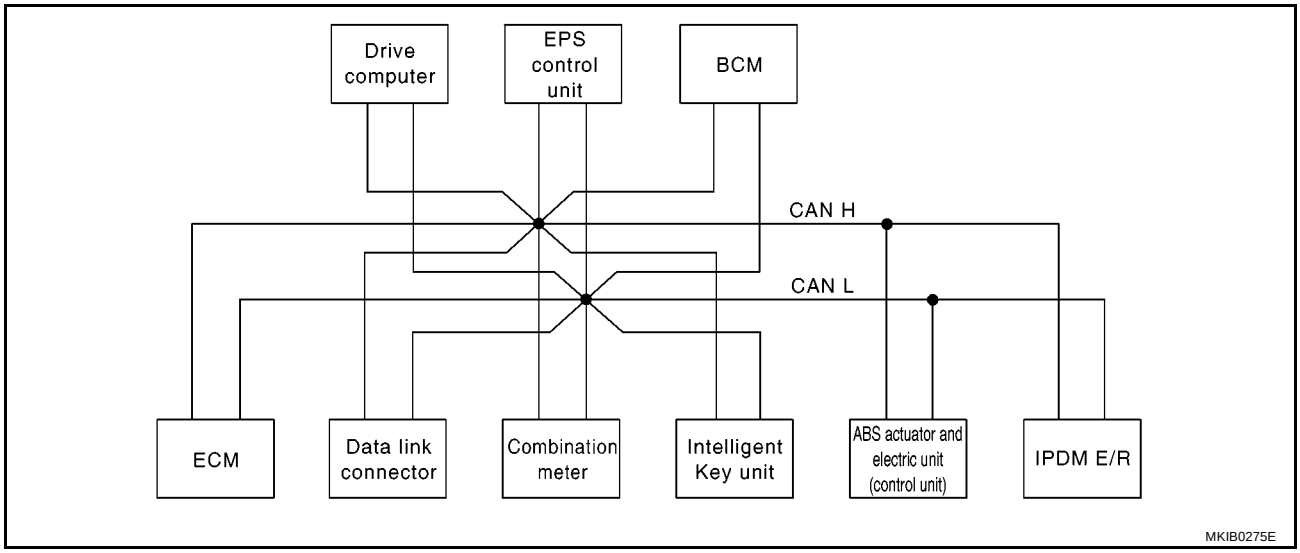
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

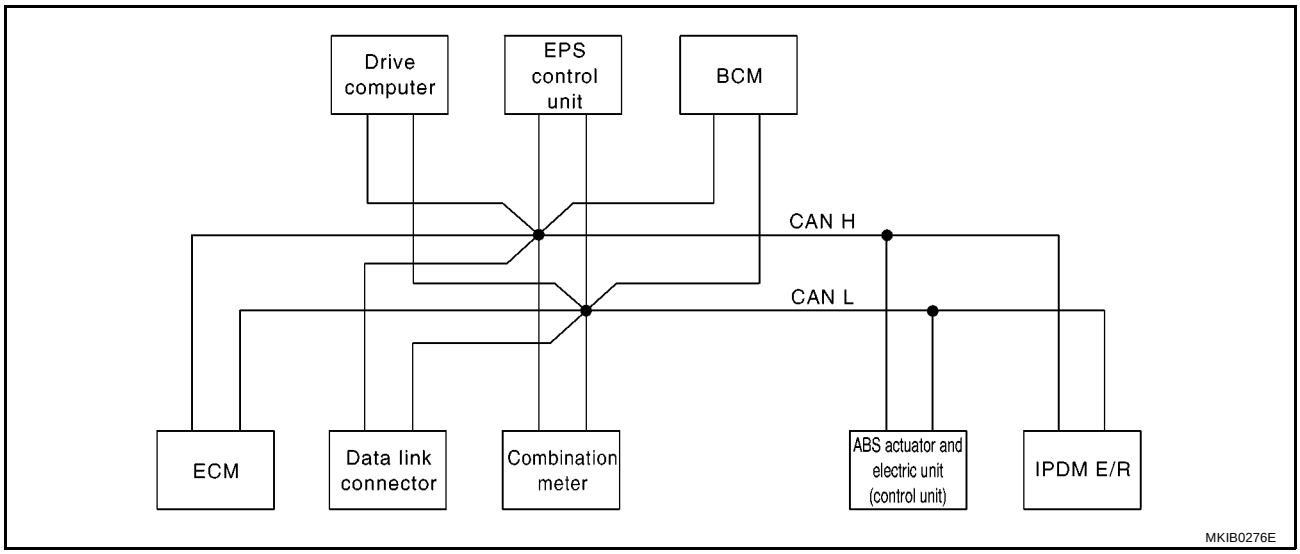
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

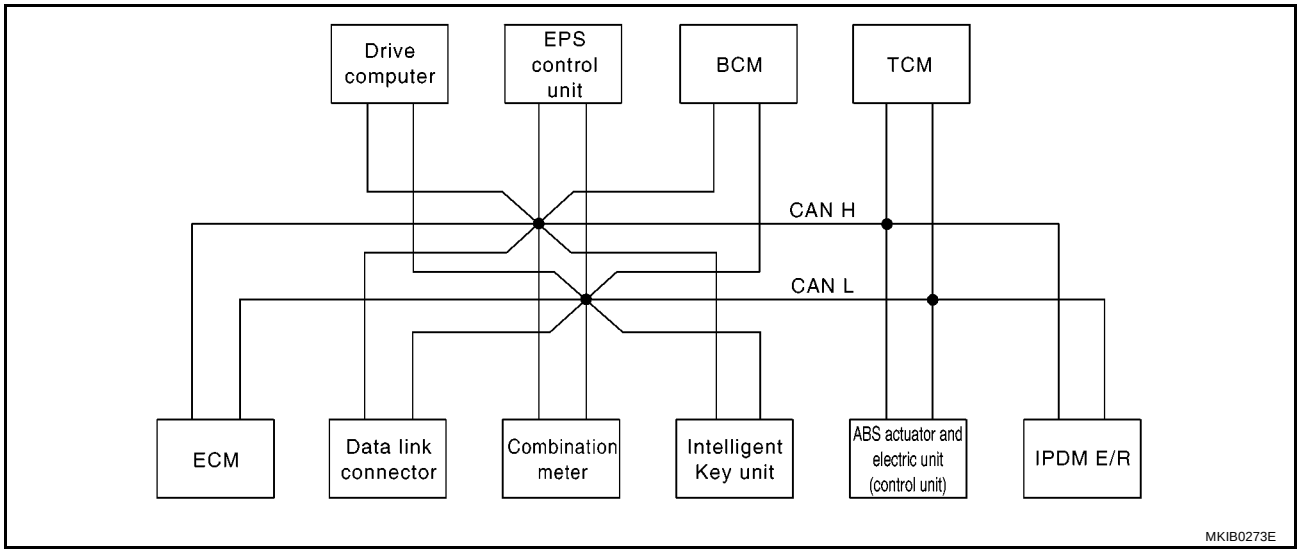
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

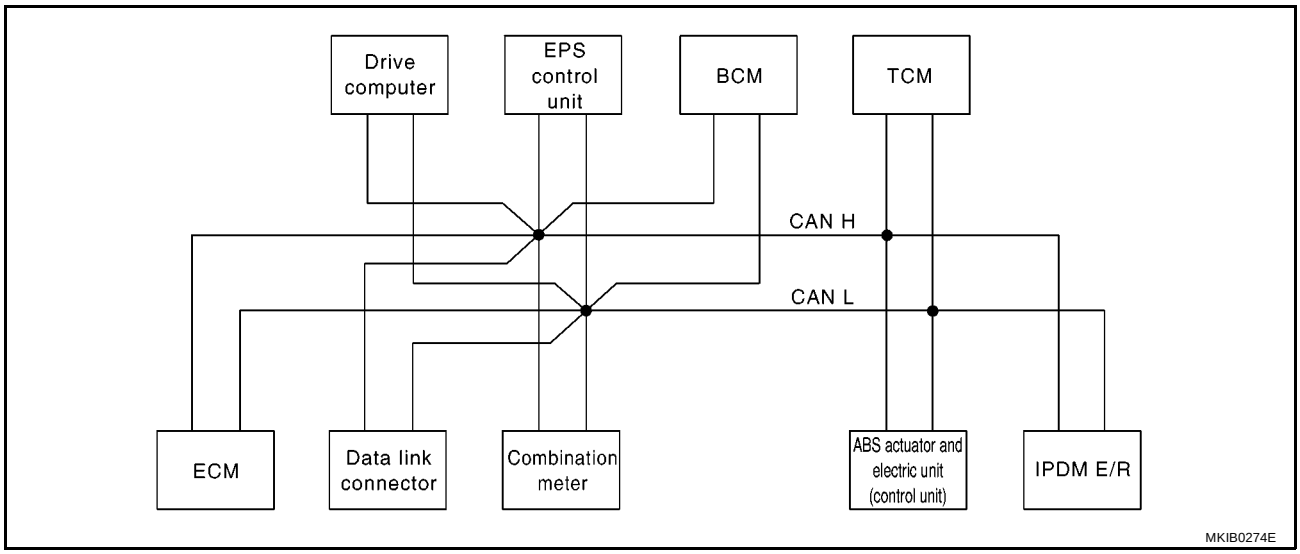
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

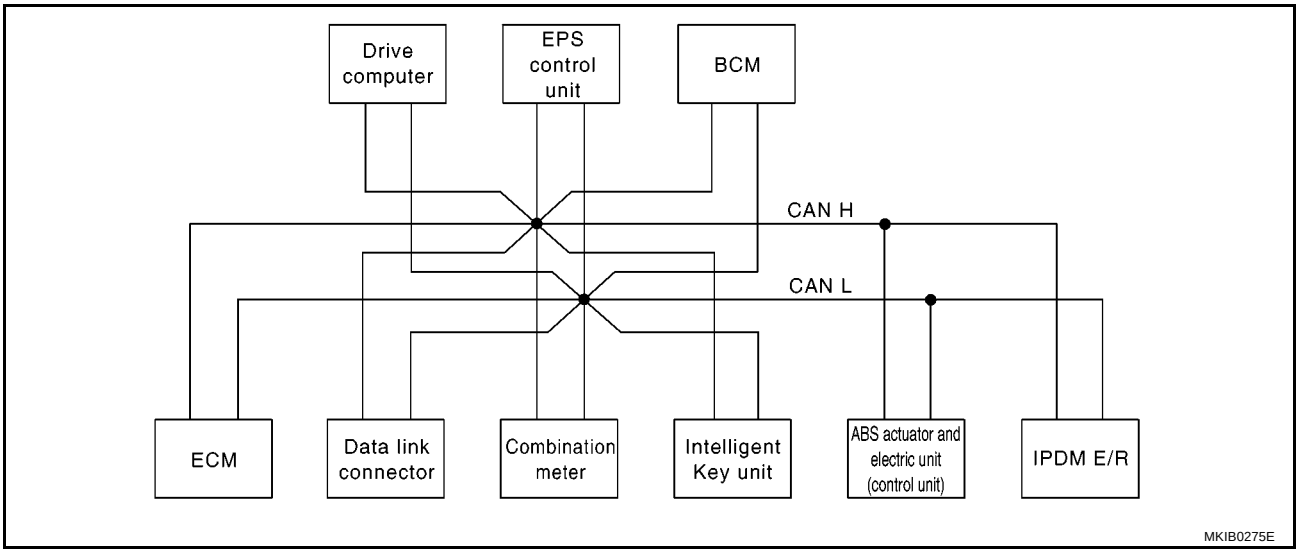
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

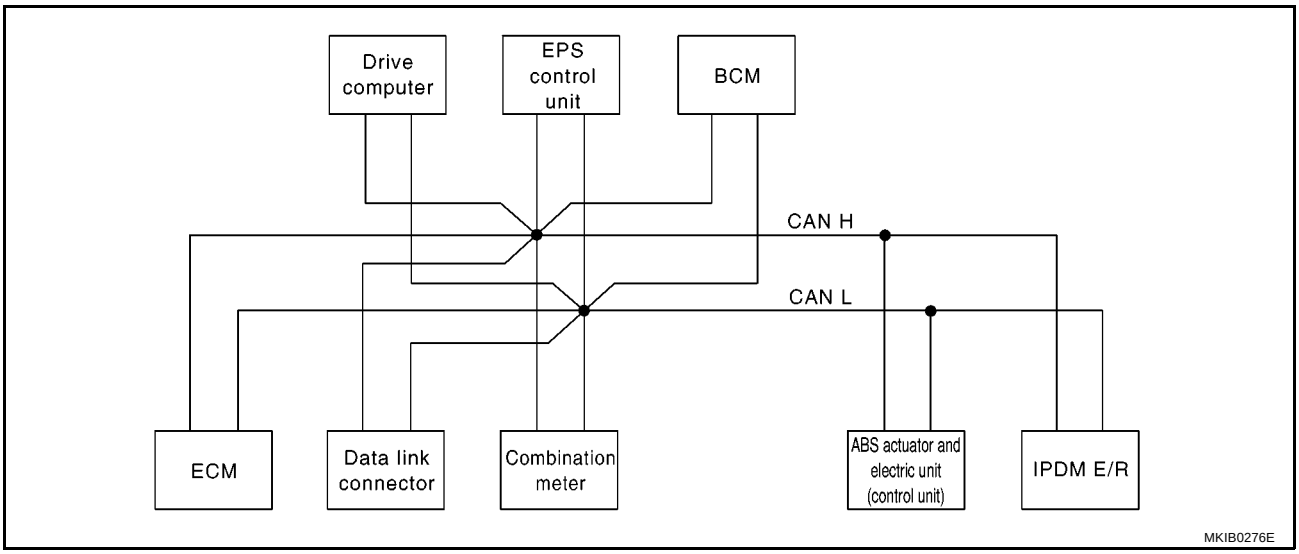
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

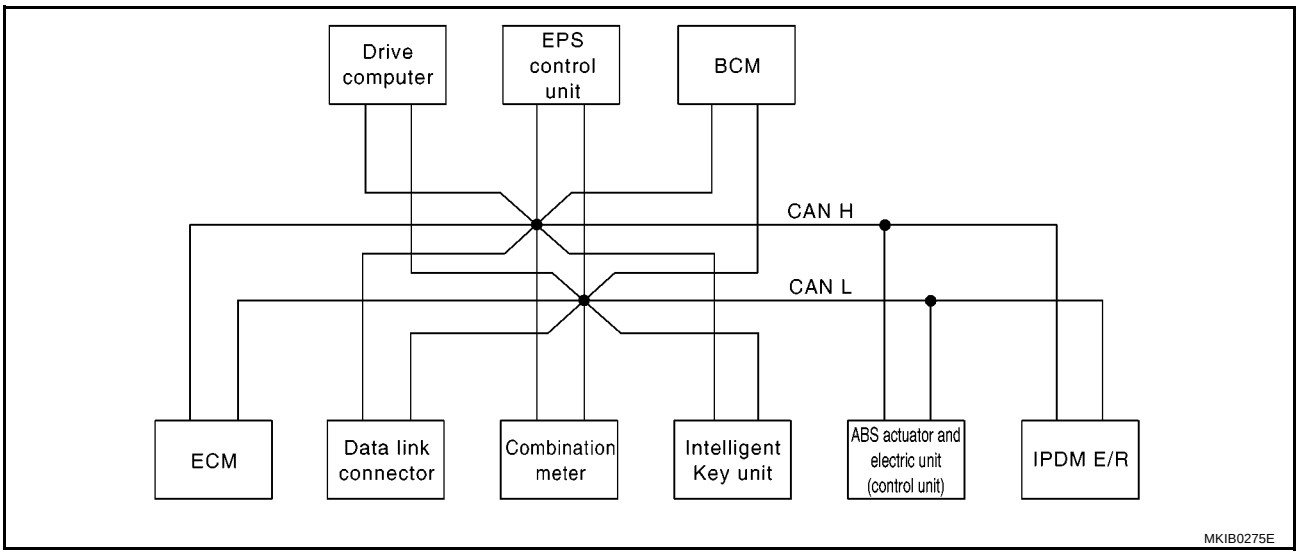
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

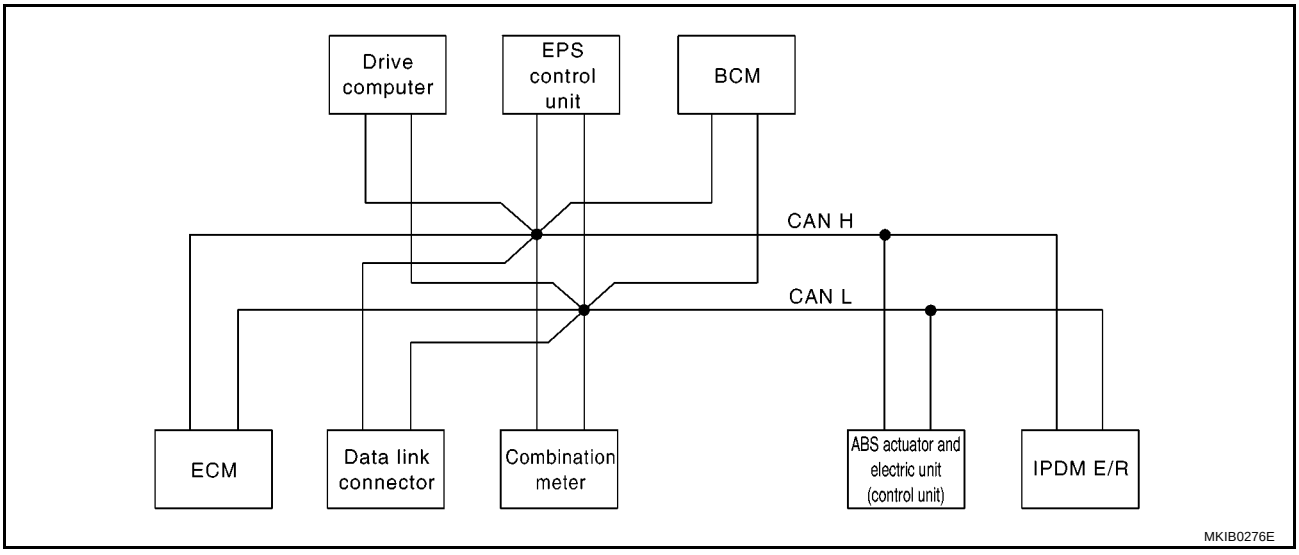
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

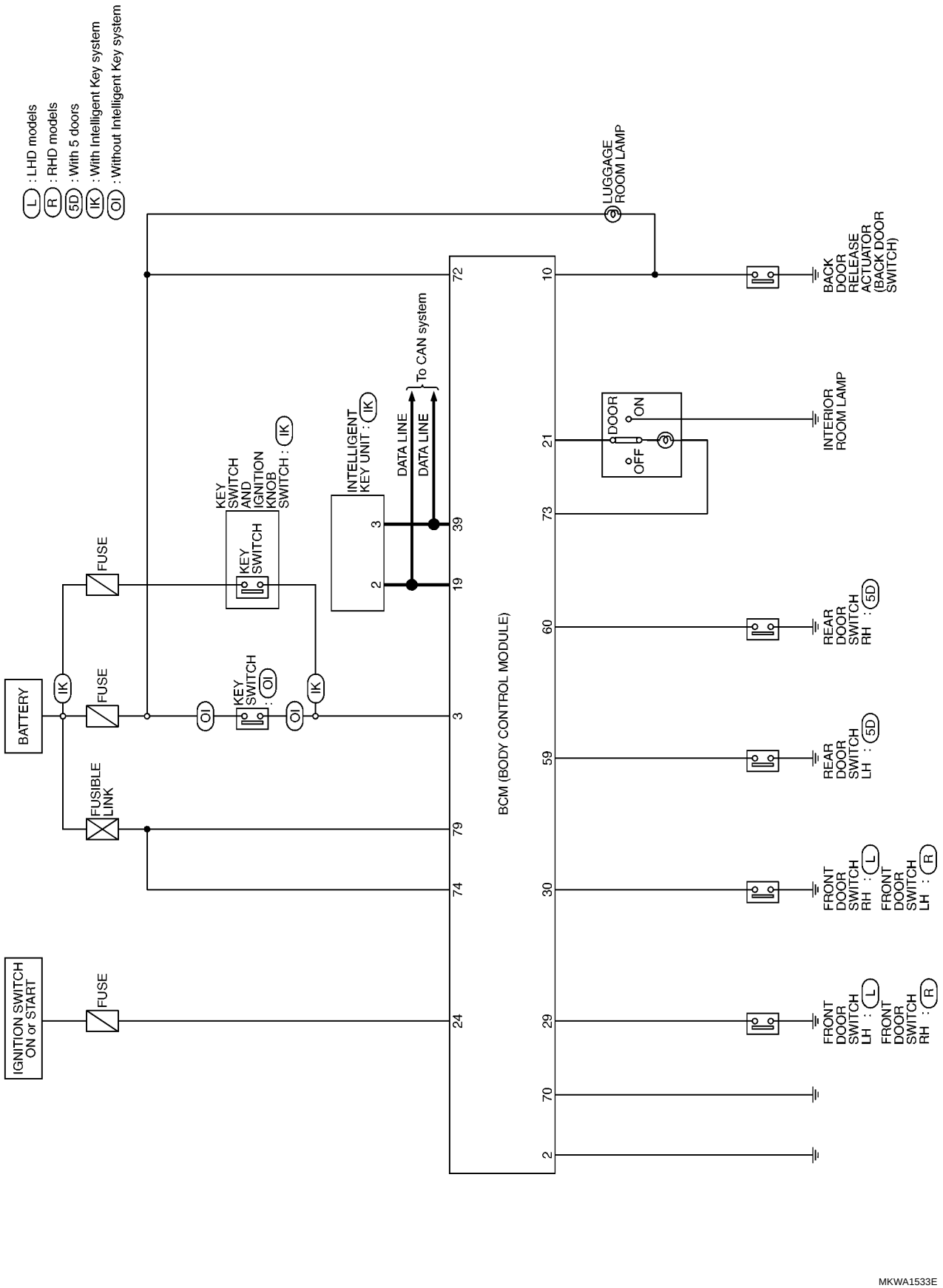
T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		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		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

Schematic

EKS00EO2

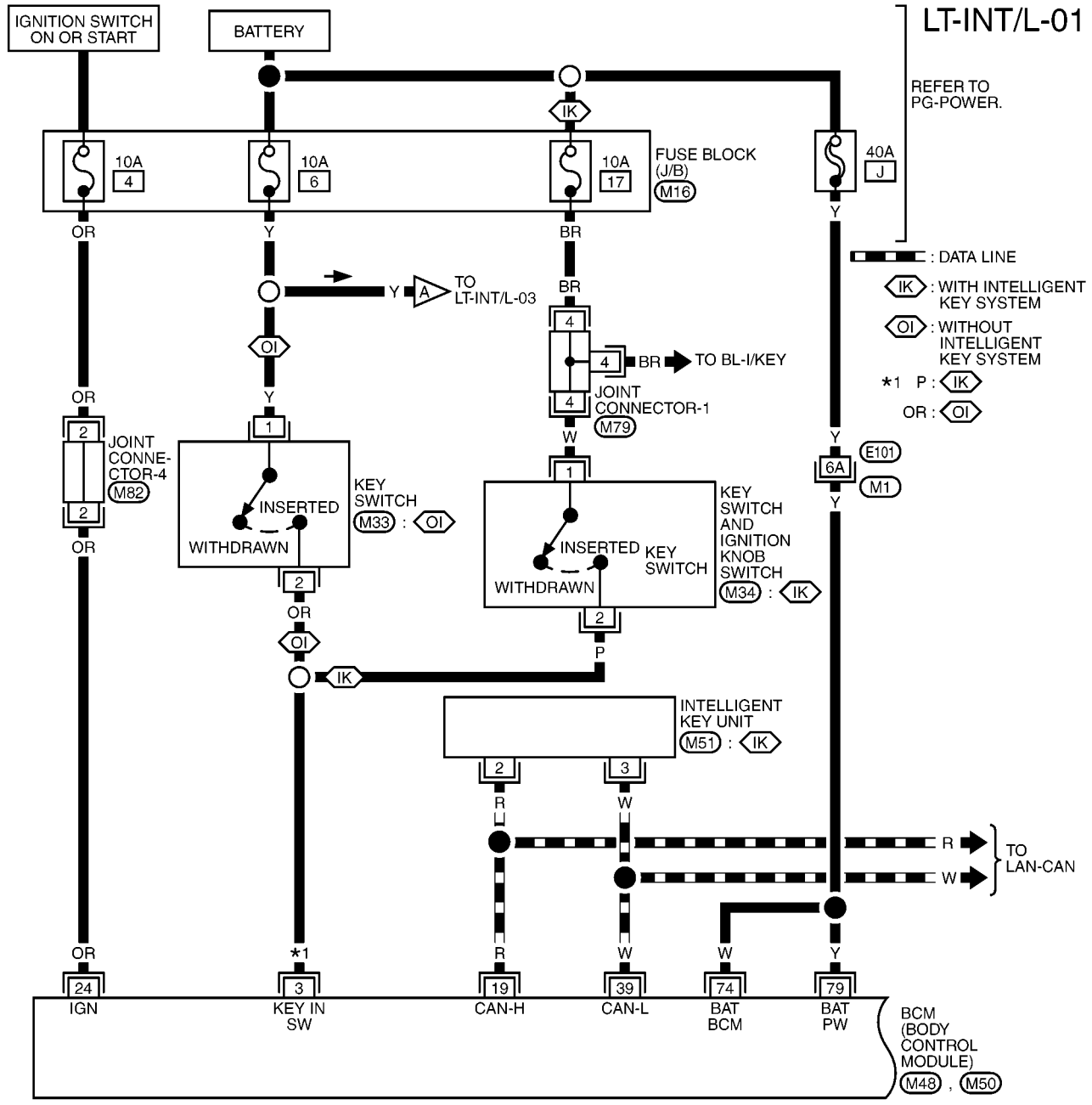


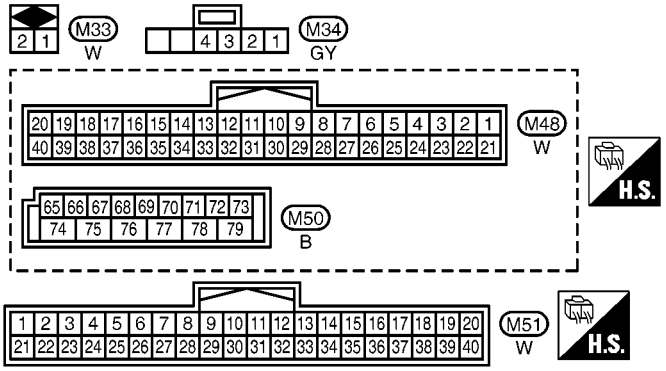
MKWA1533E

Wiring Diagram — INT/L —

SMA for VIN >SJN**AK12U1149635

EKS00EO3

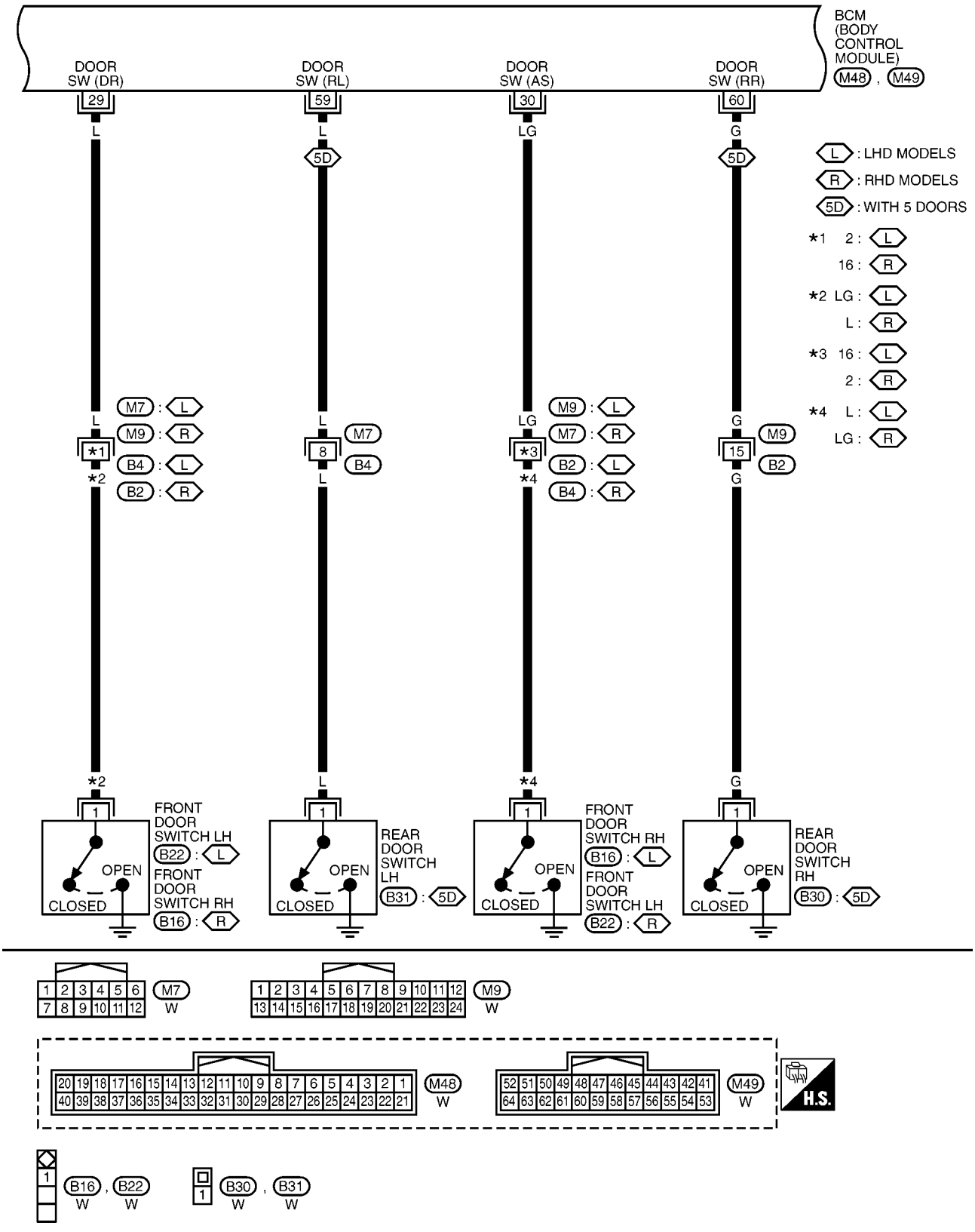




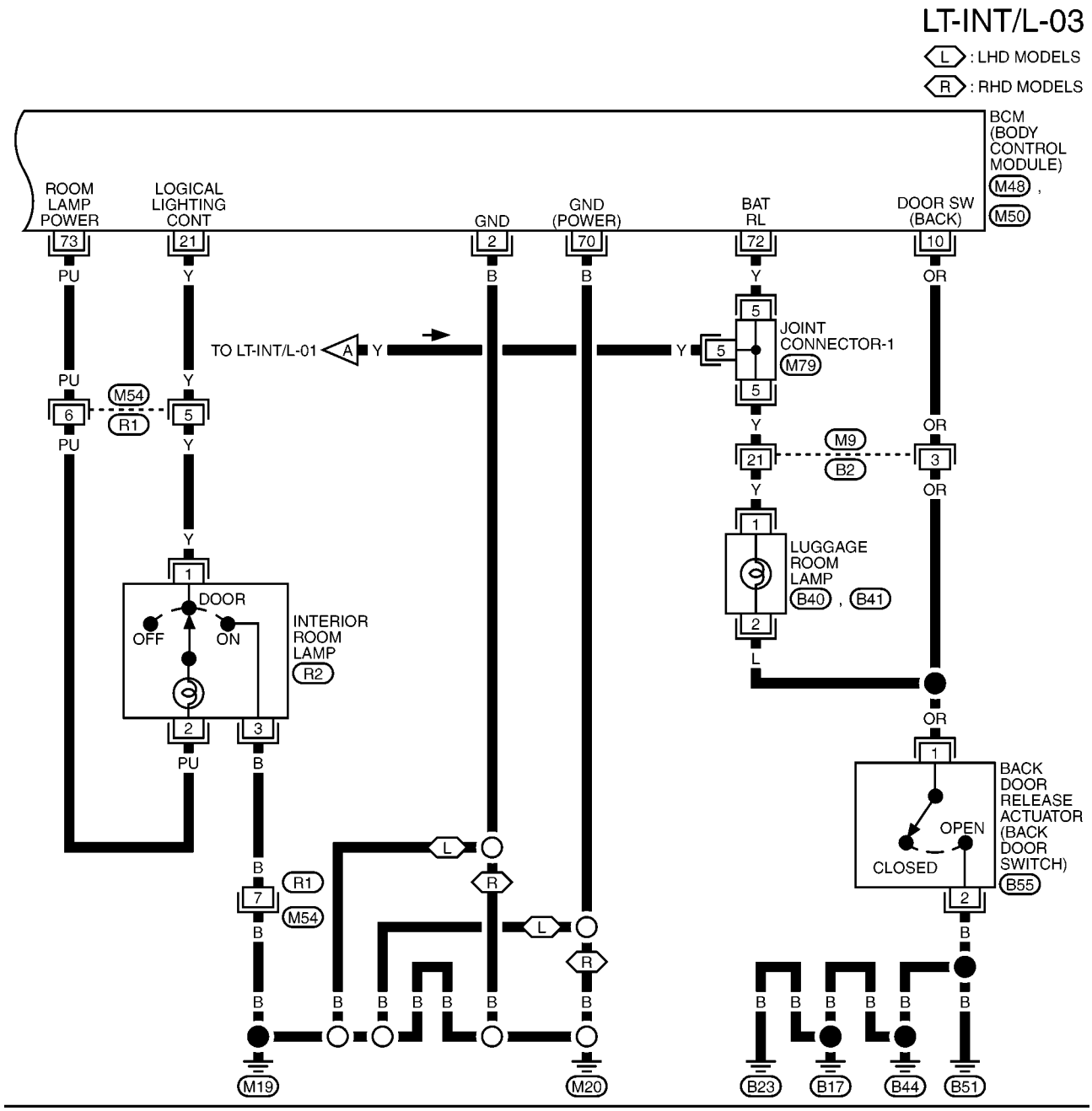
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)
M16 -FUSE BLOCK-JUNCTION BOX (J/B)
M79 , M82 -JOINT CONNECTOR (J/C)

MKWA1450E

LT-INT/L-02



MKWA0832E


LT-INT/L-03
L : LHD MODELS
R : RHD MODELS
BCM (BODY CONTROL MODULE) M48, M50
ROOM LAMP POWER
LOGICAL LIGHTING CONT
GND
GND (POWER)
BAT RL
DOOR SW (BACK)
TO LT-INT/L-01
JOINT CONNECTOR-1 M79
LUGGAGE ROOM LAMP B40, B41
INTERIOR ROOM LAMP R2
DOOR
OFF
ON
BACK DOOR RELEASE ACTUATOR (BACK DOOR SWITCH) B55
OPEN
CLOSED
M54
R1
M9
B2
M19
M20
B23
B17
B44
B51
M9 W
M48 W
M50 B
H.S.
M54 W
M79 W
B40 B
B41 B
B55 W
R2 W

MKWA1534E

Terminals and Reference Value for BCM

EKS00EO4

Terminal No.	Wire color	Signal designation	Measuring condition						Reference value (V)
			Ignition switch	Operation or condition					
2	B	Ground	ON	—					Approx. 0
10	OR	Back door switch signal	OFF	Back door switch signal		ON (open)			Approx. 0
						OFF (close)			Approx. 12
21	Y	Logical lighting control	OFF	Room lamp switch: DOOR position	Key is inserted	Any door switch	ON (Open)		Approx. 0
							OFF (Close)		Approx. 12
					Close all doors	Key is removed from key cylincer			Approx. 0
						Turn igntion switch ON			Approx. 12
					Key is removed				Approx. 0
					Interior room lamp timer		OFF		Approx. 12
							ON		Approx. 0
24	OR	Ignition power supply	ON	—					Approx. 12
29	L	Driver door switch signal	OFF	Driver door switch signal		ON (open)			Approx. 0
						OFF (closed)			Approx. 12
30	LG	Passenger door switch signal	OFF	Passenger door switch signal		ON (open)			Approx. 0
						OFF (close)			Approx. 12
48	P*1	Key detection switch signal	OFF	Remove key.					Approx. 0
	OR*2			Key is inserted.					Approx. 12
59	L	Rear door switch LH signal	OFF	Rear door switch LH signal		ON (open)			Approx. 0
						OFF (close)			Approx. 12
60	G	Rear door switch RH signal	OFF	Rear door switch RH signal		ON (open)			Approx. 0
						OFF (close)			Approx. 12
70	B	Ground	ON	—					Approx. 0
73	PU	Room lamp signal	OFF	Room lamp switch: DOOR position	Key is inserted.	Any door switch	ON (open)		Approx. 0
							OFF (closed)		Approx. 12
			—		Close all doors.	Key is removed after being fully inserted.			Approx. 0
						Turn ignition switch ON.			Approx. 12
74	W	Battery power supply	OFF	—					Approx. 12
79	Y	Battery power supply	OFF	—					Approx. 12

*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-200, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-221, "Preliminary Check"
4. Check symptom and repair or replace the cause of malfunction.
5. Dose 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-217, "Wiring Diagram — INT/L —" .

OK or NG

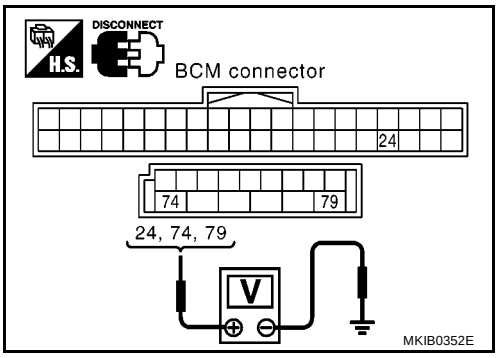
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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 (W)	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

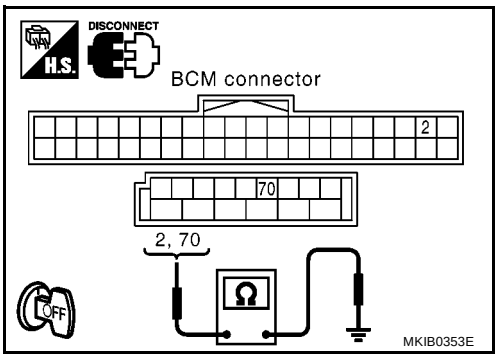
Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M48	2 (B)	Ground	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 itemusing the diagnostic test modes shown following. Data is received and transmitted via the control module communication line.

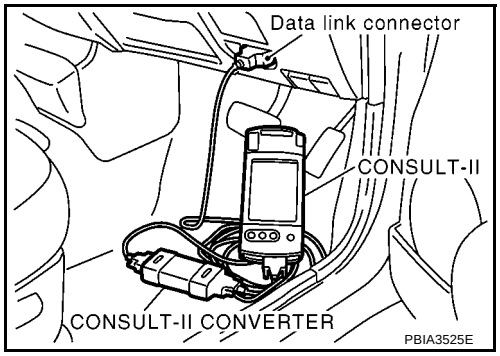
BCM trouble diagnosis item	Inspection Item, Diagnosis Mode	Description
Room lamp	Data monitor	Displays BCM input data in real time.
	Active test	BCM can sends a drive signal to electrical components to their opration.

CONSULT-II BASIC OPERATION

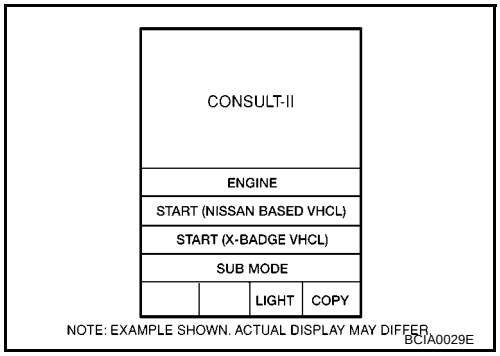
CAUTION:

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.

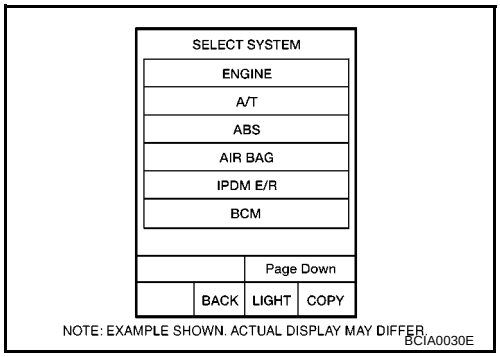
1. Turn ignition switch OFF.
2. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



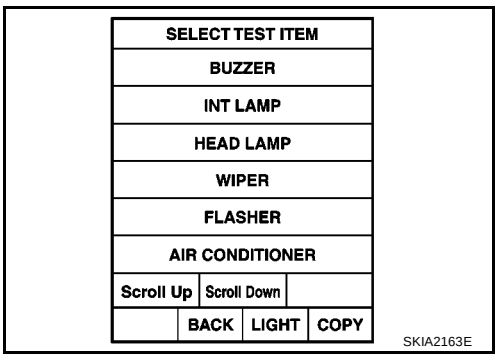
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



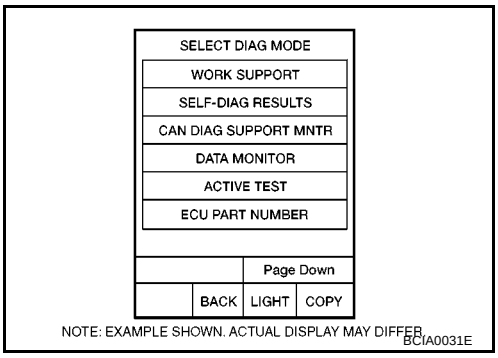
5. Touch “BCM” on the “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-36, "CONSULT-II Data Link Connector (DLC) Circuit" .



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” or “SELETION FROM MENU” on the “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
SELECTION FROM MENU	Selects and monitors individual items.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. 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.

Monitor item “UNIT”		Display content
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)
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

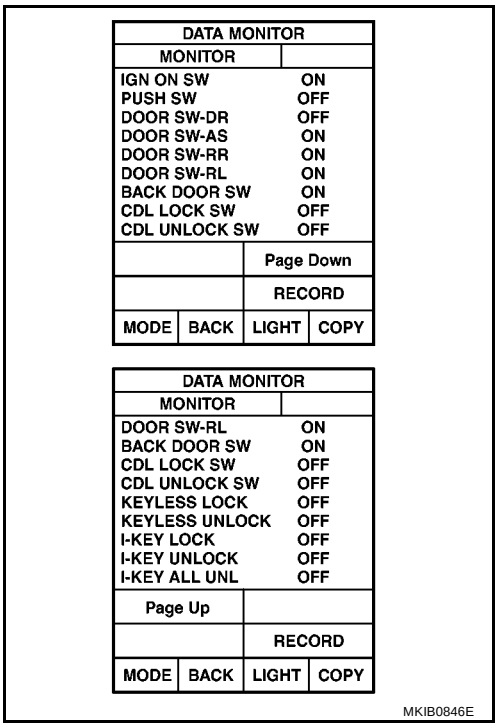
1. CHECK SWITCH SIGNAL

SMA for VIN >SJN**AK12U1149635

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	Ignition knob is pushed	ON
	Ignition knob is released	OFF
KEY IN SW	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

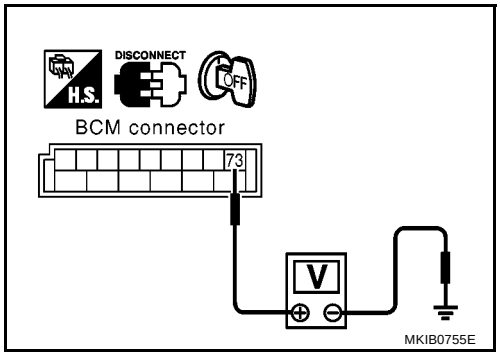
OK >> GO TO 2.

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-58, "DRIVER SIDE"
- DOOR SW-AS: Refer to BL-60, "PASSENGER SIDE"

- DOOR SW-RR: Refer to BL-64, "REAR RH SIDE"
- DOOR SW-RL: Refer to BL-62, "REAR LH SIDE"
- BACK DOOR SW: Refer to BL-66, "Check External Back Door Release Switch"
- CDL LOCK/UNLOCK SW: Refer to BL-50, "Check Door Lock / Unlock Switch"
- KEYLESS LOCK/UNLOCK: Refer to BL-143, "Remote controller Check"
- I-KEY LOCK/UNLOCK: Refer to BL-194, "Check Door Request Switch"
- I-KEY ALL UNL: Refer to BL-194, "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			Condition				Voltage (V)
(+)		(-)					
Con-nector	Termi-nal (Wire color)						
M50	73 (PU)	Ground	Ignition switch OFF	Key is inserted	Any door switch	ON (open)	Approx. 0
						OFF (closed)	Approx. 12
			—	Close all doors.	Key is removed after being fully inserted.		Approx. 0
					Turn ignition switch ON.		Approx. 12

OK or NG

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

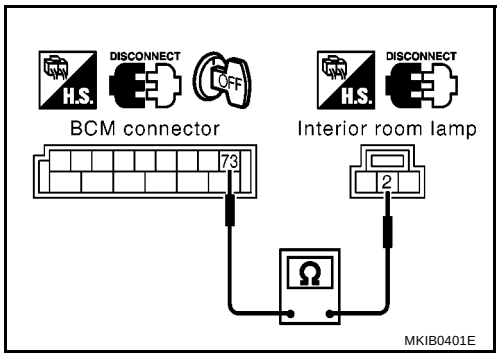
3. CHECK INTERIOR ROOM LAMP INPUT SIGNAL CIRCUIT

1. Turn igntion 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 2(PU).

Continuity should exist.

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

Continuity should not exist.



OK or NG

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

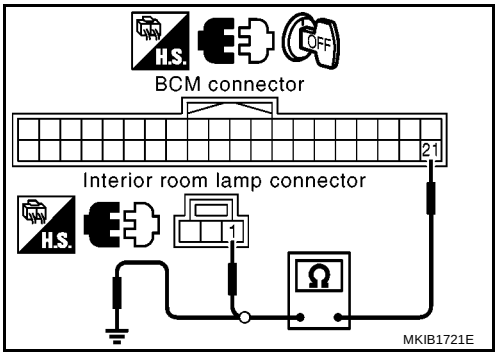
4. CHECK INTERIOR ROOM LAMP GROUND CIRCUIT

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

   Continuity should exist.

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

   Continuity should not exist.

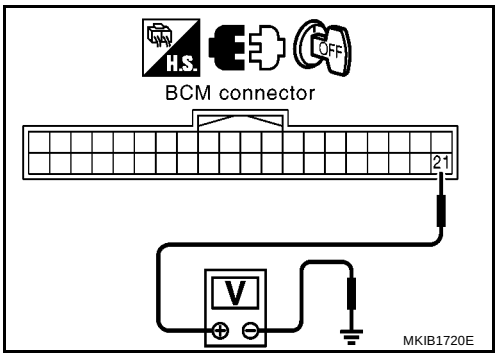


OK or NG

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.



Terminal No.	Wire color	Signal designation	Measuring condition					Reference value (V)
			Ignition switch	Operation or condition				
21	Y	Logical lighting control	OFF	Room lamp switch: DOOR position	Key is inserted	Any door switch	ON (Open)	Approx. 0
							OFF (Close)	Approx. 12
					Close all doors	Key is removed from key cylincer		Approx. 0
						Turn igntion switch ON		Approx. 12
					Key is removed			Approx. 0
					Interior room lamp timer		OFF	Approx. 12
							ON	Approx. 0

OK or NG

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

Luggage Room Lamp Does Not Illuminate

EKS00EO9

1. CHECK BULB

Check luggage room lamp bulb.

OK or NG

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

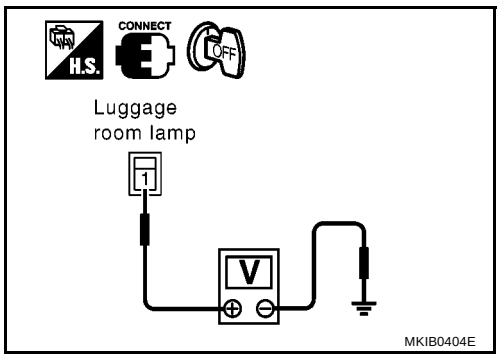
2. CHECK LUGGAGE ROOM LAMP INPUT SIGNAL

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

Battery voltage should exist.

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

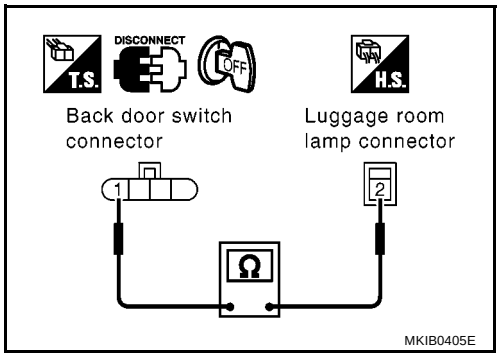
1. Turn ignition switch OFF.
2. Disconnect back door release actuator connector and luggage room lamp connector.
3. Check continuity between back door release actuator harness connector B55 terminal 1(OR) and luggage room lamp harness connector B41 terminal 2(L).

Continuity should exist.

4. Check continuity between

OK or NG

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



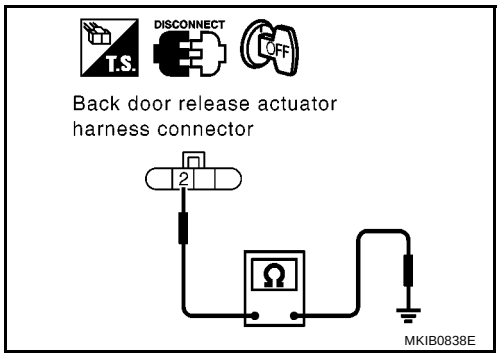
4. CHECK BACK DOOR SWITCH GROUND CIRCUIT

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

Continuity should exist.

OK or NG

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



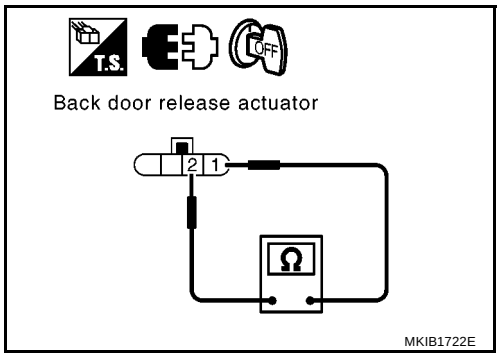
5. CHECK BACK DOOR SWITCH

Check continuity back door switch terminals.

Terminals		Condition	Continuity
1	2	Back door : OPEN	Yes
		Back door : CLOSED	No

OK or NG

OK >> Check condition of the harness and connector.
NG >> Replace theback door release actuator.



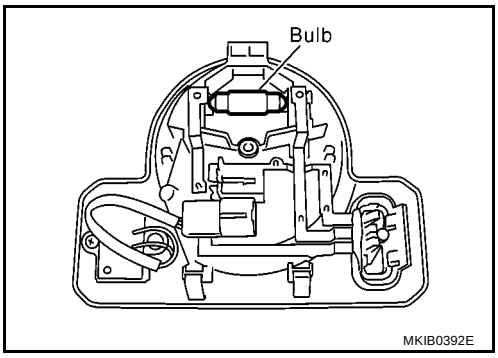
Bulb Replacement

SMA for VIN >SJN**AK12U1149635

EKS00EOA

1. Remove interior room lamp. Refer to LT-229, "Removal and Installation" .
2. Remove bulb.

Interior room lamp : 12V - 10W

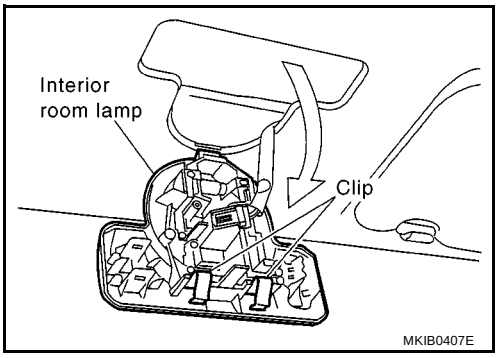


Removal and Installation

EKS00EOB

REMOVAL

1. Without damaging the headliner, insert a clip driver in the interior room lamp back edge to disengage metal clips.
2. Disconnect connector and remove interior room lamp.



INSTALLATION

Install in the reverse order of removal.

ILLUMINATION

PFP:27545

System Description

SMA for VIN >SJN**AK12U1309269 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-189, "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 5
- 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-189, "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 driver side (illumination) terminal 5
- to heated seat switch passenger side (illumination) 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 terminal 1 and
- to A/T device terminal 5
- to ESP OFF switch terminal 3

Ground is supplied at all times

- to door lock/unlock switch terminal 4
- to heated seat switch driver side terminal 6
- to heated seat switch passenger side terminal 6
- through body grounds B17, B23, B44 and B51
- 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 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 unit terminal 36
- to audio and navi control unit terminal 36
- through body ground M60

With power and ground supplied, illumination lamps illuminate.

COMBINATION SWITCH READING FUNCTION

Refer to LT-189, "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

EKS00LTE

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

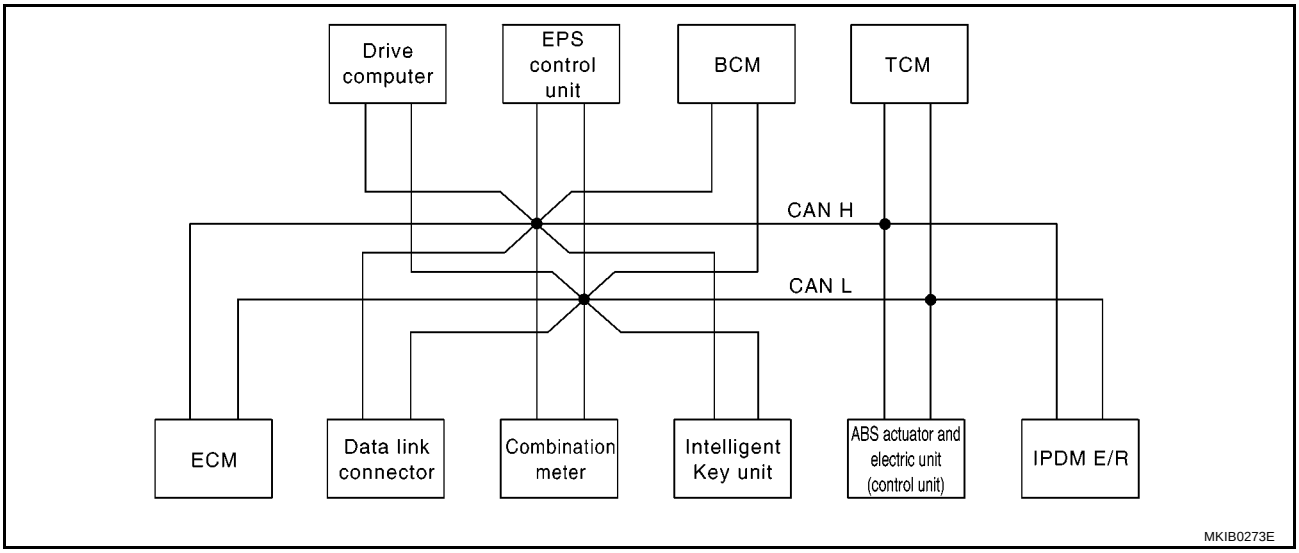
Body type	3door/5door																			
Axle	2WD																			
Engine	CR10DE/CR12DE/CR14DE								CR12DE/CR14DE								K9K			
Handle	LHD/RHD																			
Brake control	ABS system								ESP system								ABS			
Transmission	A/T				M/T				A/T				M/T				M/T			
Intelligent Key system	Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable		Applicable		Not applicable	
CAN communication unit																				
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×	×			×	×			×	×			×	×			×	×		
Drive computer	×		×		×		×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×					×	×	×	×								
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LT-233, "TYPE 1/ TYPE 2"				LT-236, "TYPE 3/ TYPE 4"				LT-238, "TYPE 5/ TYPE 6"				LT-241, "TYPE 7/ TYPE 8"				LT-243, "TYPE 9/ TYPE 10"			

×: Applicable

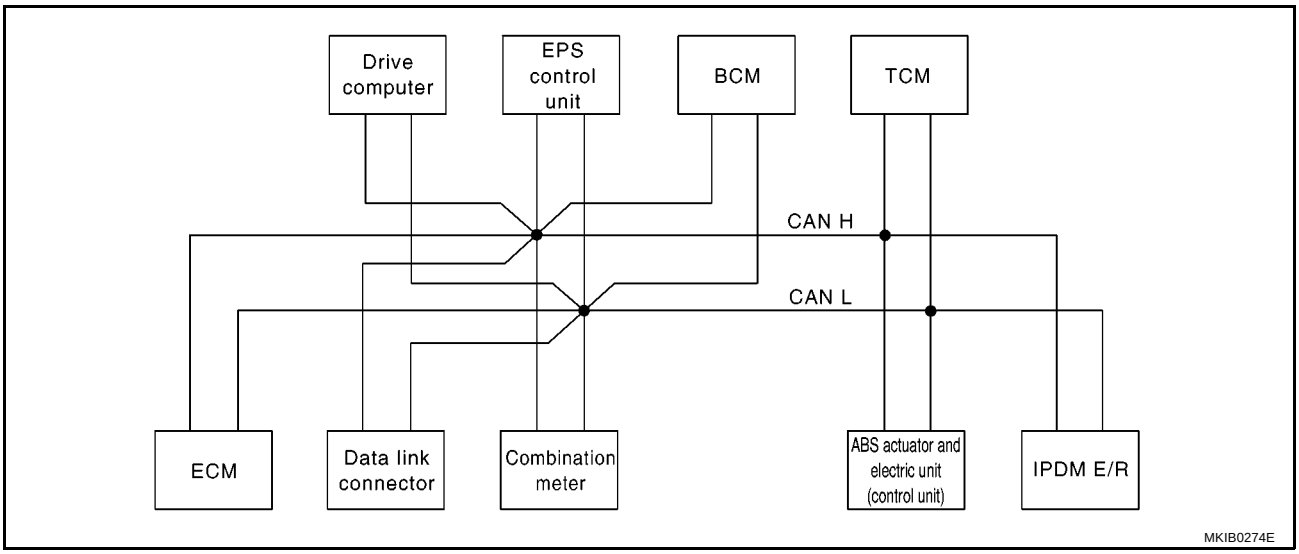
TYPE 1/TYPE 2

System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R				
Engine coolant temperature sig-nal	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 sig-nal	T							R	

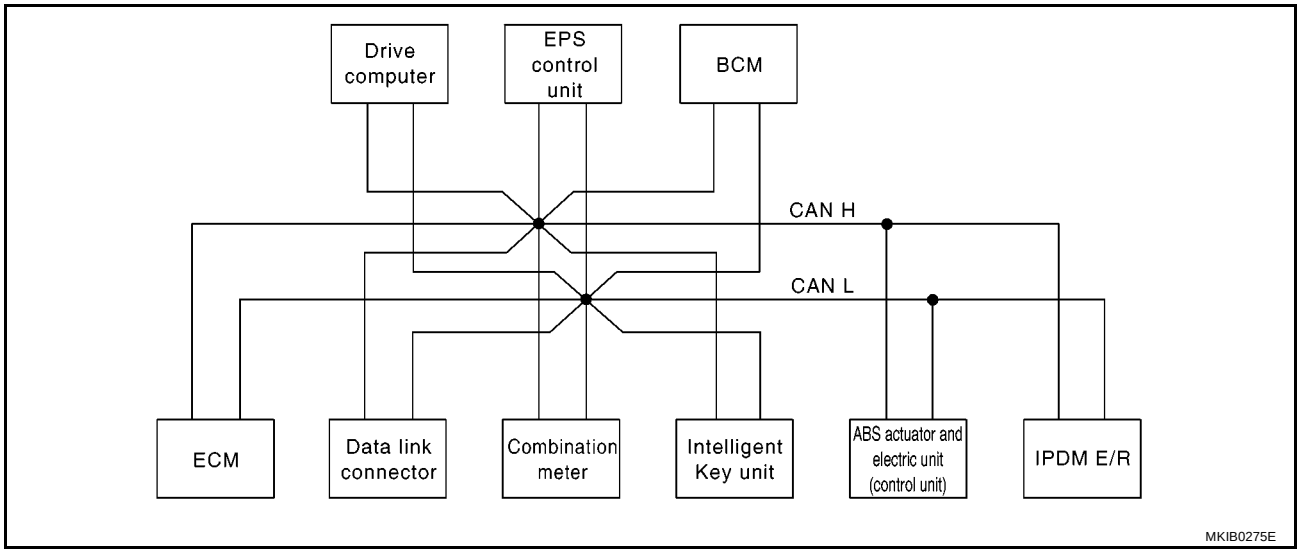
Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ABS operation signal	R						T		
Brake warning lamp signal		R		R			T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

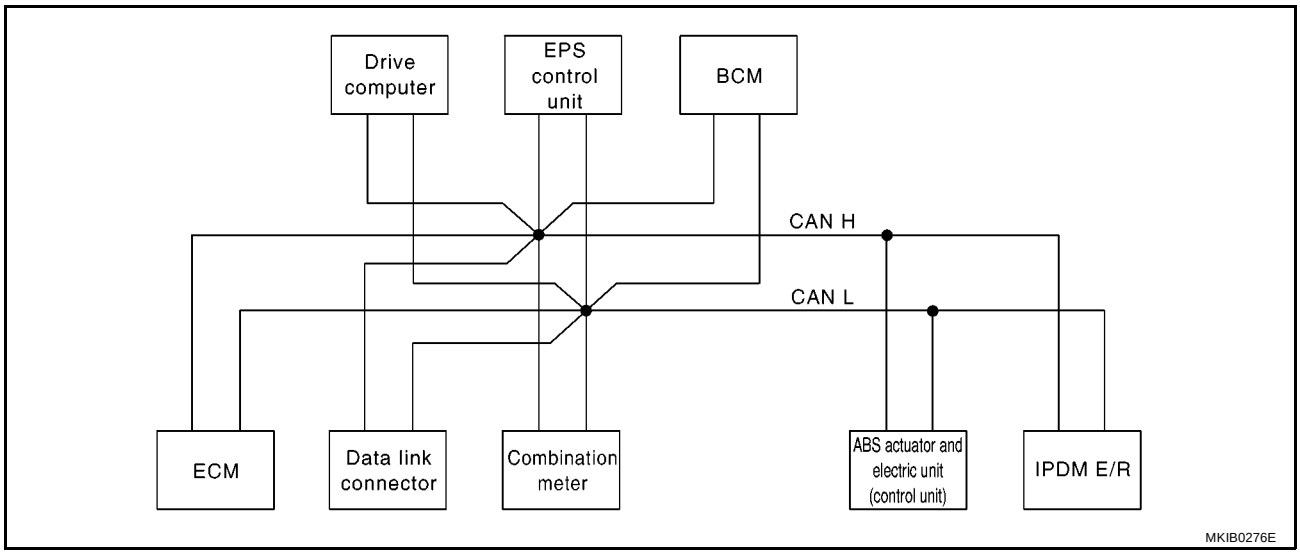
TYPE 3/TYPE 4

System diagram

- Type 3



- Type 4



Input/output signal chart

T: Transmit R: Receive

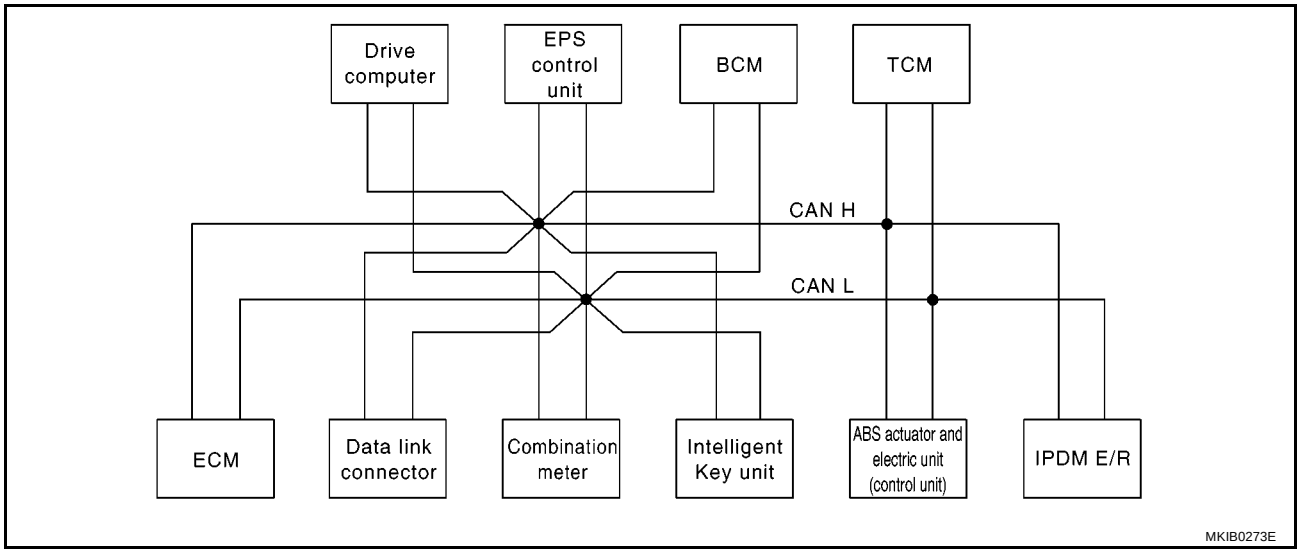
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R						
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C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

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Position light status signal	R							T
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal	R			R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

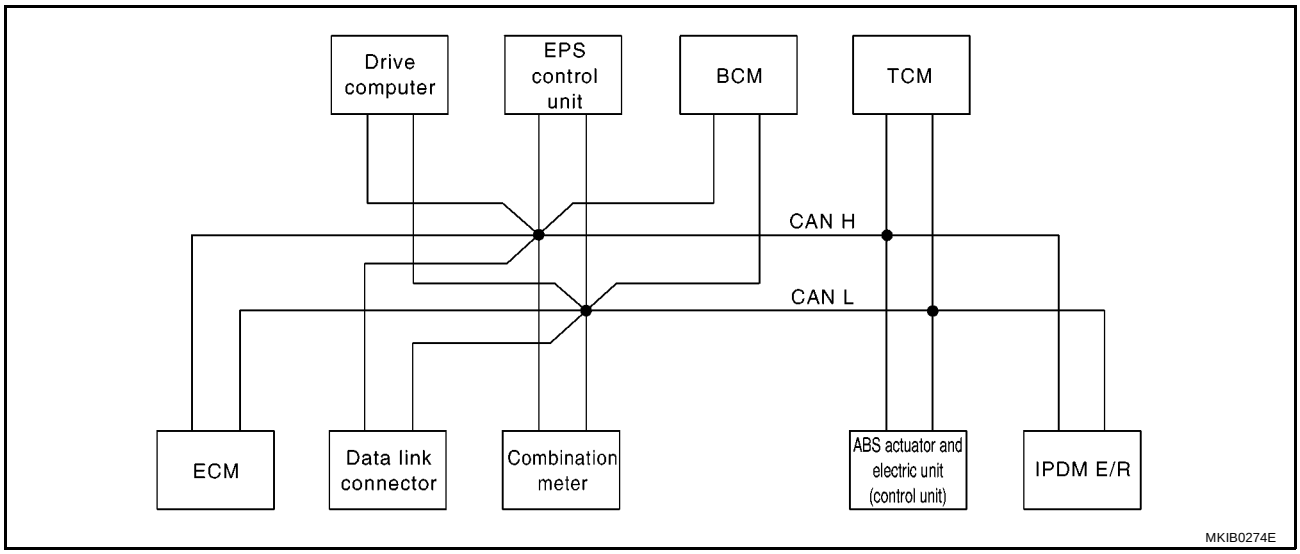
TYPE 5/TYPE 6

System diagram

- Type 5



- Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R		R	R		R		
Engine coolant temperature sig-nal	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 sig-nal	T						R	R	

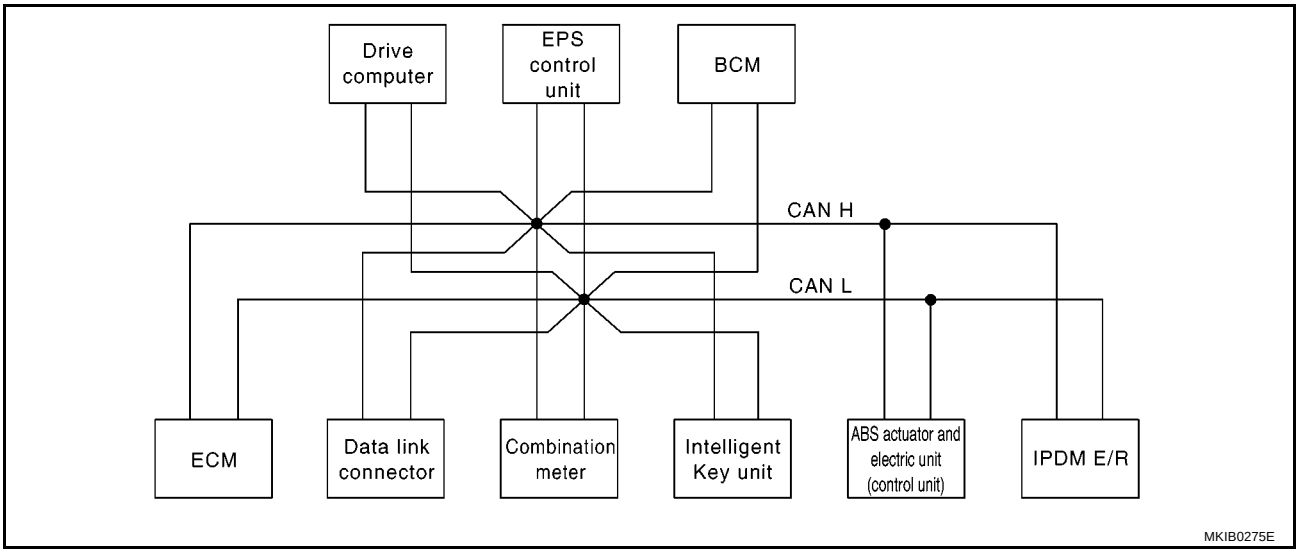
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T shift position signal		R						T	
A/T shift schedule change demand signal							T	R	
Stop lamp switch signal		T						R	
O/D OFF indicator lamp signal		R						T	
Engine and A/T integrated control signal	T							R	
	R							T	
Fuel consumption monitor signal	T	R							
Oil pressure switch signal		R		R					T
A/C compressor request signal	T								R
A/C switch signal	R								T
Heater fan switch signal	R					T			
Cooling fan speed request signal	T								R
Cooling fan speed status signal	R								T
Position lights request signal		R		R		T			R
Position light status signal	R								T
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	R			
Sleep/wake up signal		R	R			T			R
Door switch signal		R	R	R		T			R
Turn indicator signal		R				T			
Buzzer output signal		R				T			
		R	T						
MI signal	T	R		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
Drive computer signal		T		R					
EPS warning lamp signal		R		R	T				
ABS warning lamp signal		R		R			T		
ESP warning lamp signal		R		R			T		
ESP OFF indicator signal		R					T		
SLIP indicator lamp signal		R					T		

Signals	ECM	Combi-nation meter.	Intelli-gent Key unit	Drive com-puter	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
ESP operation signal	R						T		
TCS operation signal	R						T		
ABS operation signal	R						T		
Steering angle signal					T		R		
Brake warning lamp signal		R					T		
Buck-up lamp signal					R	T			
Fuel low warning signal		T		R					
Battery charge malfunction signal		T		R					
Air bag system warning signal		T		R					
Brake fluid level warning signal		T		R					
Engine coolant temperature warning signal		T		R					
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			R			T			
Door lock/unlock status signal			R			T			
KEY indicator signal		R	T						
LOCK indicator signal		R	T						

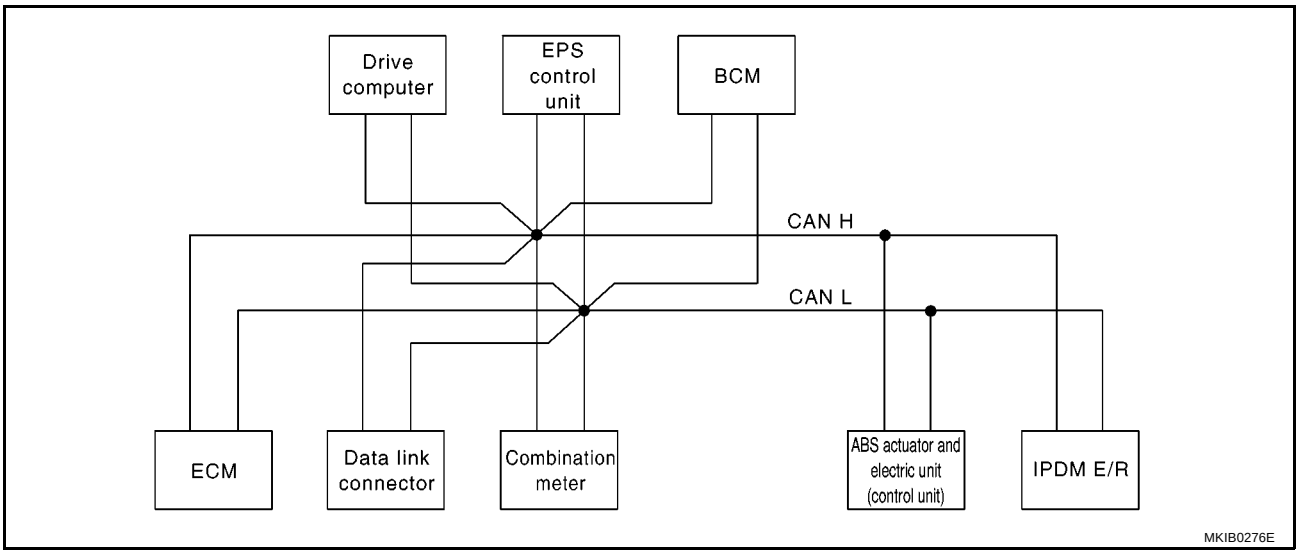
TYPE 7/TYPE 8

System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	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		R				T
A/C compressor request signal	T							R
A/C switch signal	R							T
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R

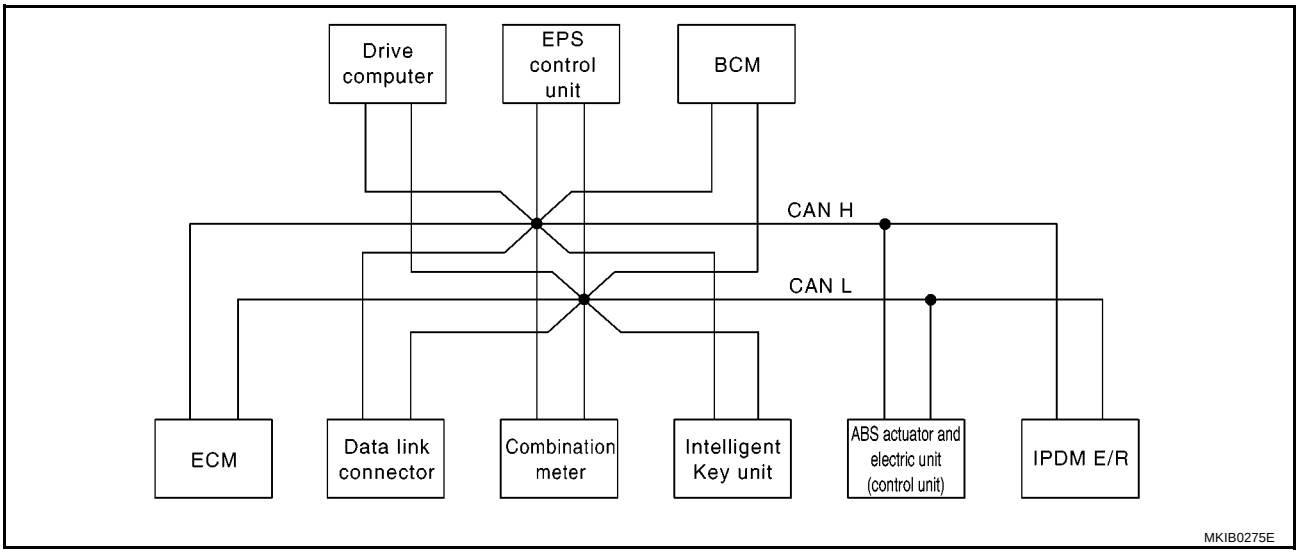
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed status signal	R							T
Position lights request signal		R		R		T		R
Position light status signal	R							T
Low beam request signal						T		R
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	R		
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		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
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ESP warning lamp signal		R		R			T	
ESP OFF indicator signal		R					T	
SLIP indicator lamp signal		R					T	
ESP operation signal	R						T	
TCS operation signal	R						T	
ABS operation signal	R						T	
Steering angle signal					T		R	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
Front fog lamp request signal		R				T		R
Rear fog lamp status signal		R				T		
Headlamp washer request signal						T		R

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Door lock/unlock request signal			R			T		
Door lock/unlock status signal			R			T		
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

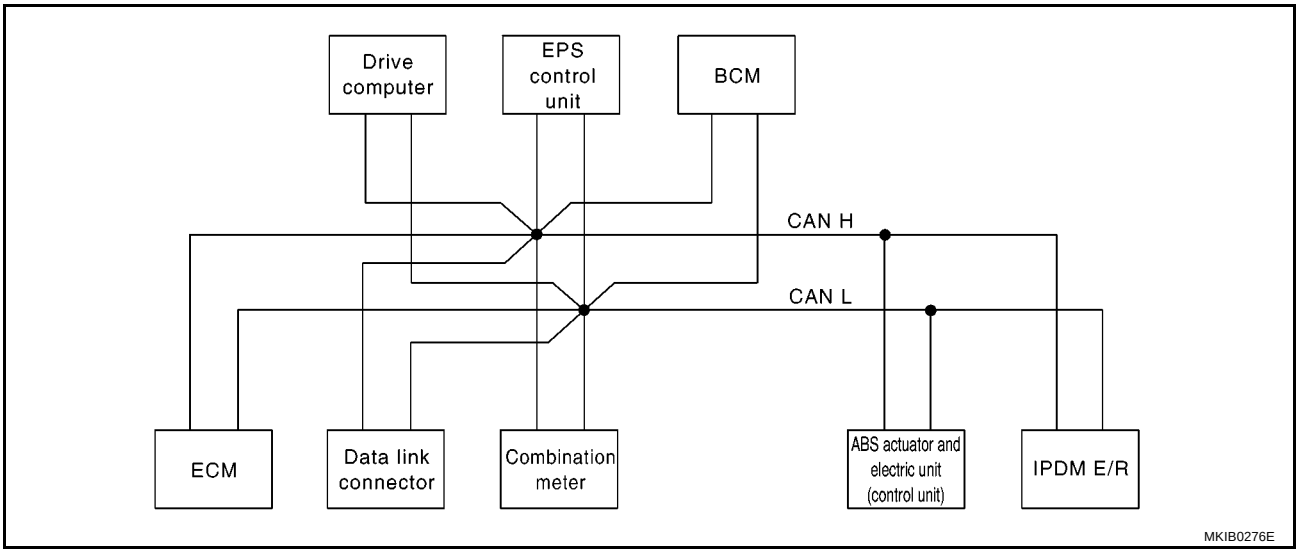
TYPE 9/TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

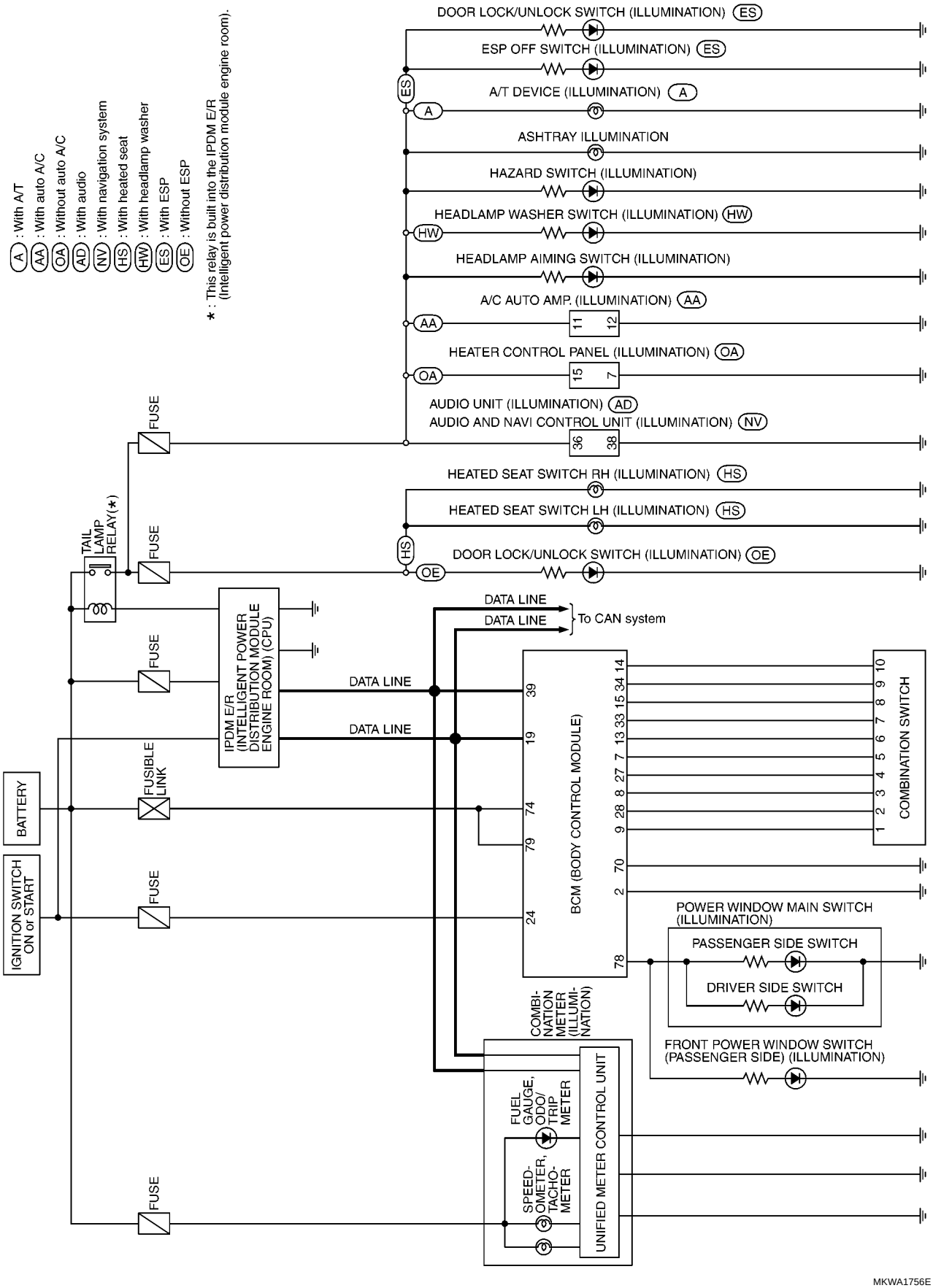
Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R			
Engine coolant temperature signal	T	R				R		
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R		R				T
A/C compressor request signal	T							R
Heater fan switch signal	R					T		
Cooling fan speed request signal	T							R
Position lights request signal		R		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	R			
Sleep/wake up signal		R	R			T		R
Door switch signal		R	R	R		T		R
Turn indicator signal		R				T		
Buzzer output signal		R				T		
		R	T					
MI signal	T	R		R				
Front wiper request signal						T		R
Front wiper stop position signal						R		T
Rear window defogger switch signal						T		R
Drive computer signal		T		R				
EPS warning indicator signal		R		R	T			
ABS warning lamp signal		R		R			T	
ABS operation signal				R			T	
Brake warning lamp signal		R					T	
Buck-up lamp signal					R	T		
Fuel low warning signal		T		R				
Battery charge malfunction signal		T		R				
Air bag system warning signal		T		R				
Brake fluid level warning signal		T		R				
Engine coolant temperature warning signal		T		R				
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		

Signals	ECM	Combination meter.	Intelligent Key unit	Drive computer	EPS control unit	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
KEY indicator signal		R	T					
LOCK indicator signal		R	T					

Schematic

SMA for VIN >SJN**AK12U1309269

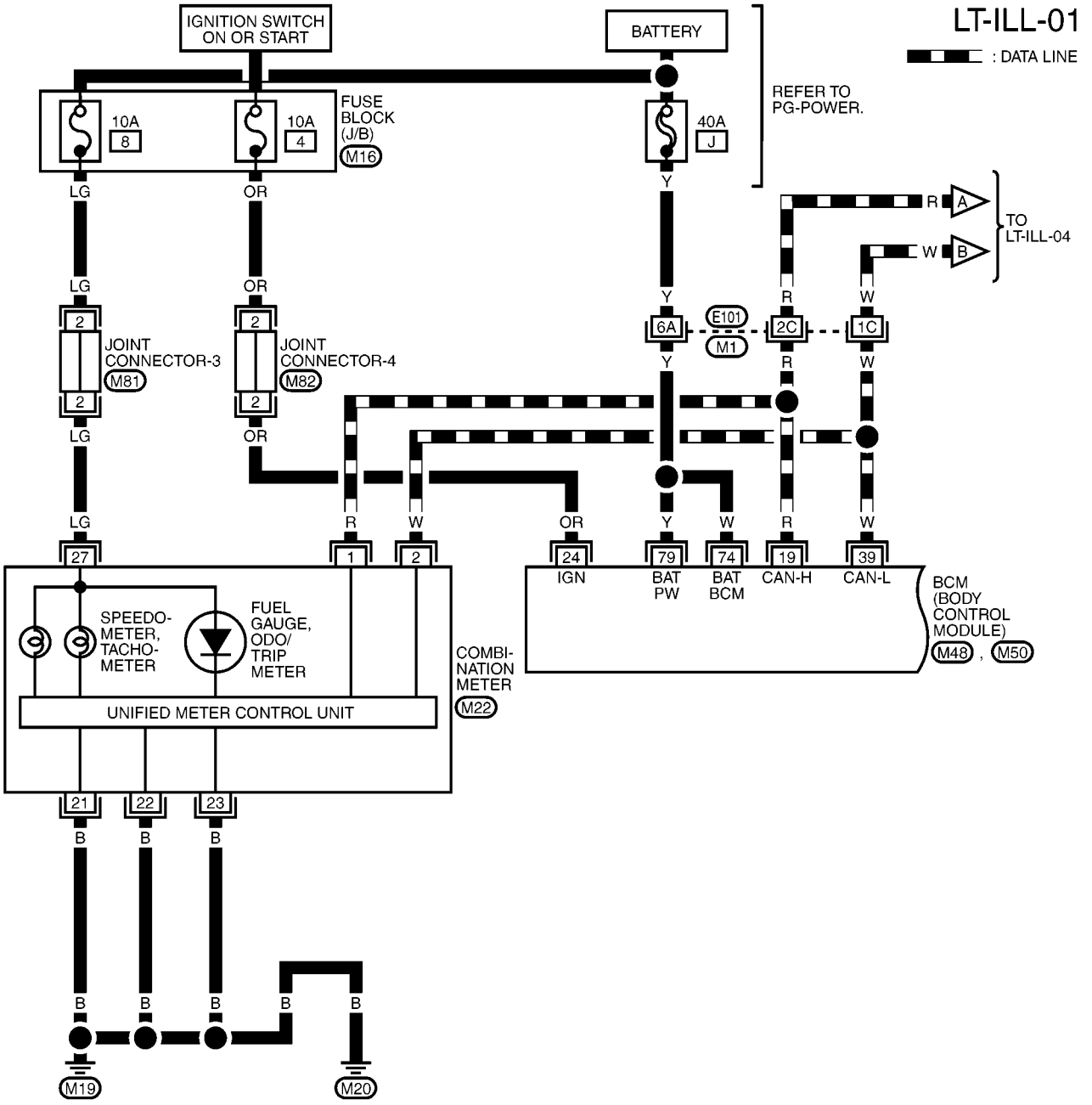
EKS00EOE

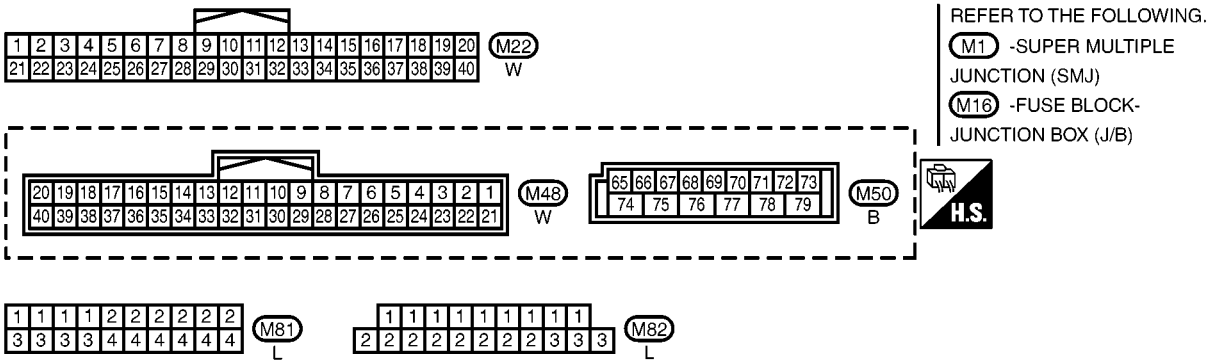


Wiring Diagram — ILL —

SMA for VIN >SJN**AK12U1309269

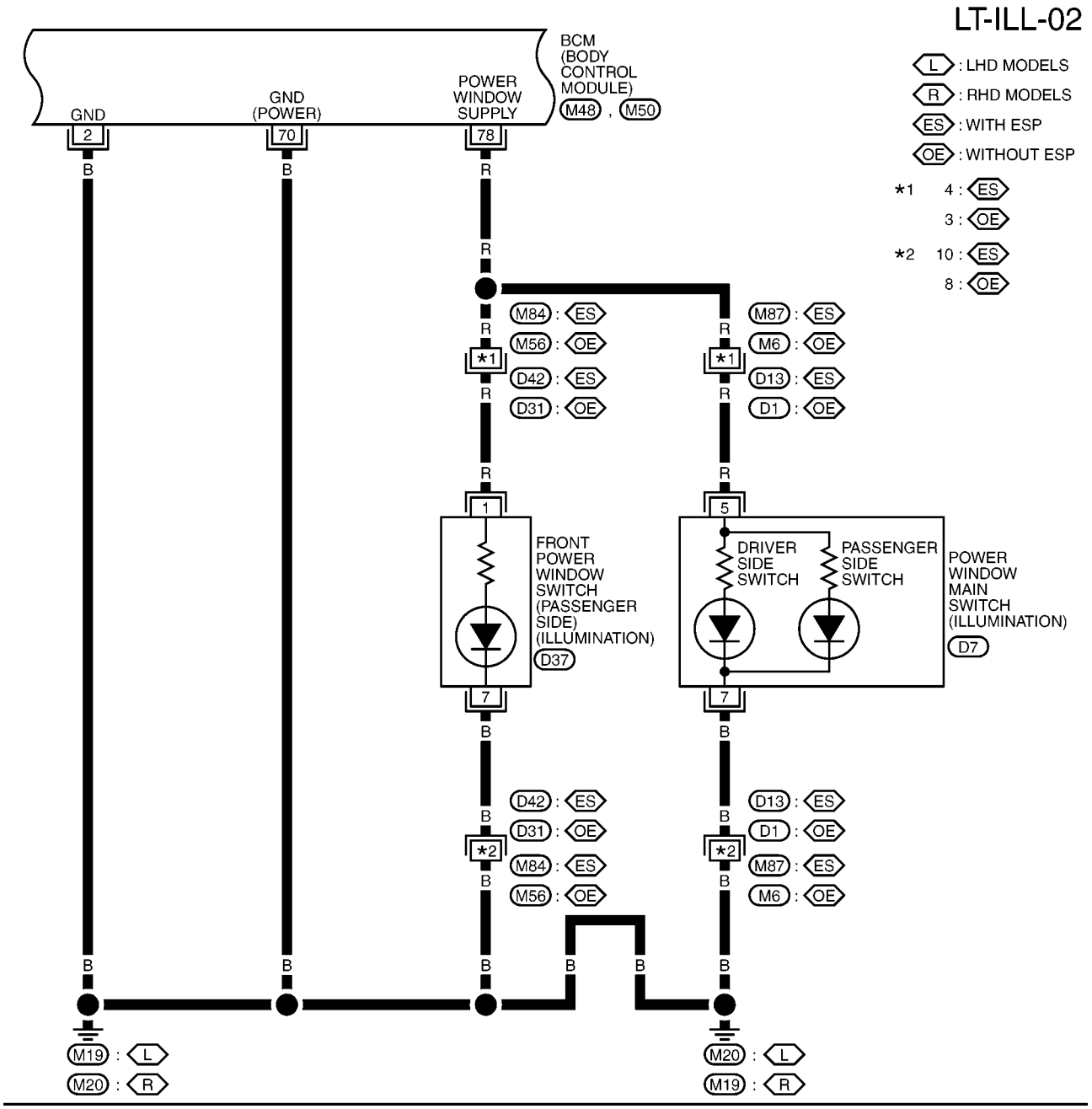
EKS00EOF





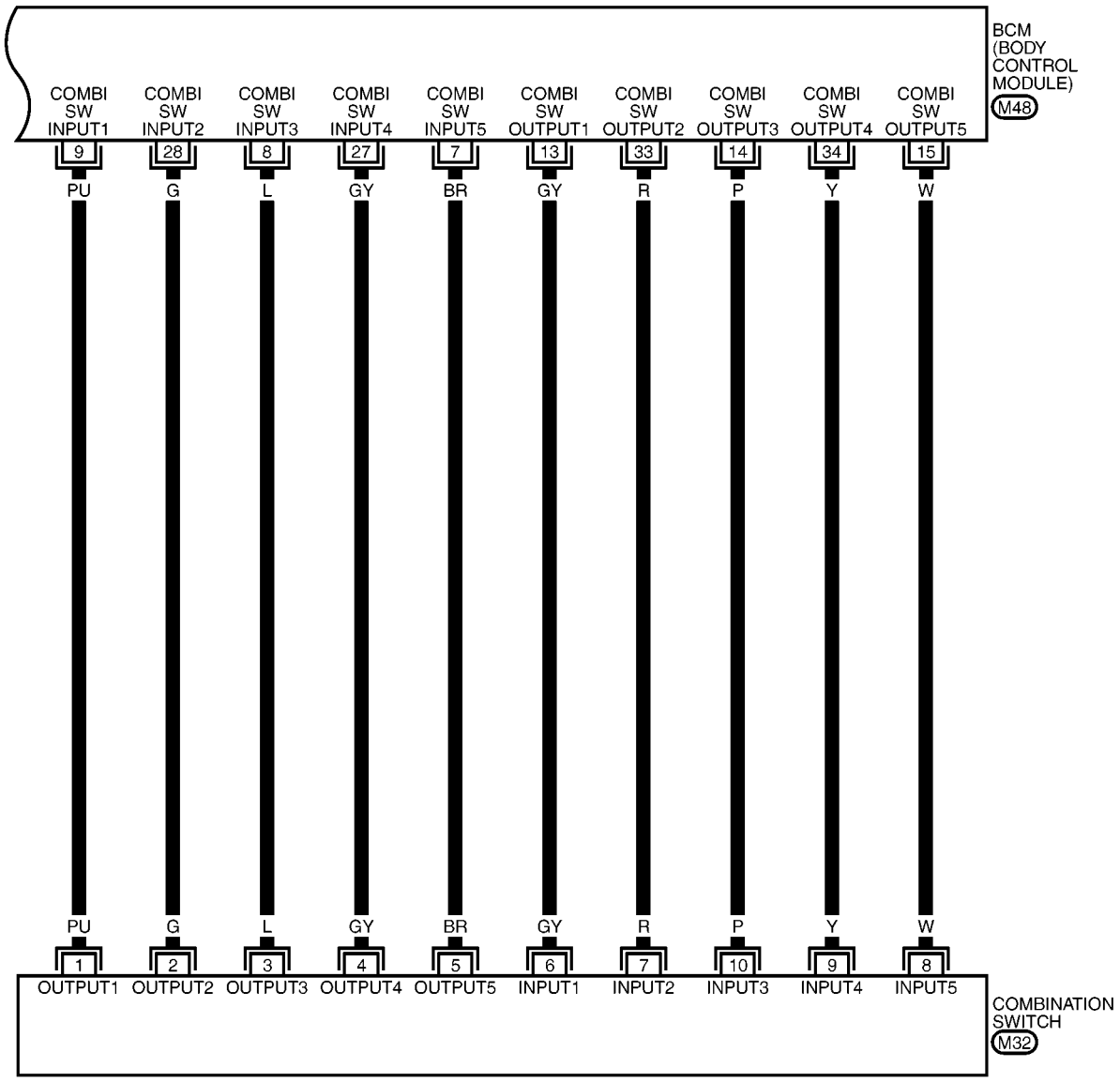
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)
M16 -FUSE BLOCK-JUNCTION BOX (J/B)

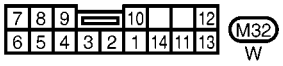
MKWA1530E

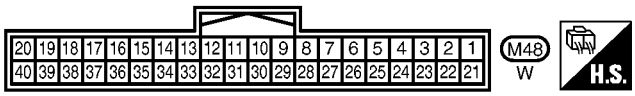

LT-ILL-02
L : LHD MODELS
R : RHD MODELS
ES : WITH ESP
OE : WITHOUT ESP
*1 4 : ES
3 : OE
*2 10 : ES
8 : OE
BCM (BODY CONTROL MODULE) M48 , M50
GND 2
GND (POWER) 70
POWER WINDOW SUPPLY 78
M84 : ES
M56 : OE
D42 : ES
D31 : OE
M87 : ES
M6 : OE
D13 : ES
D1 : OE
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) (ILLUMINATION) D37
DRIVER SIDE SWITCH
PASSENGER SIDE SWITCH
POWER WINDOW MAIN SWITCH (ILLUMINATION) D7
M19 : L
M20 : R
M20 : L
M19 : R
M48 W
M50 B
H.S.
D1 , D31 W
D7 W
D13 , D42 W
D37 W

MKWA1757E

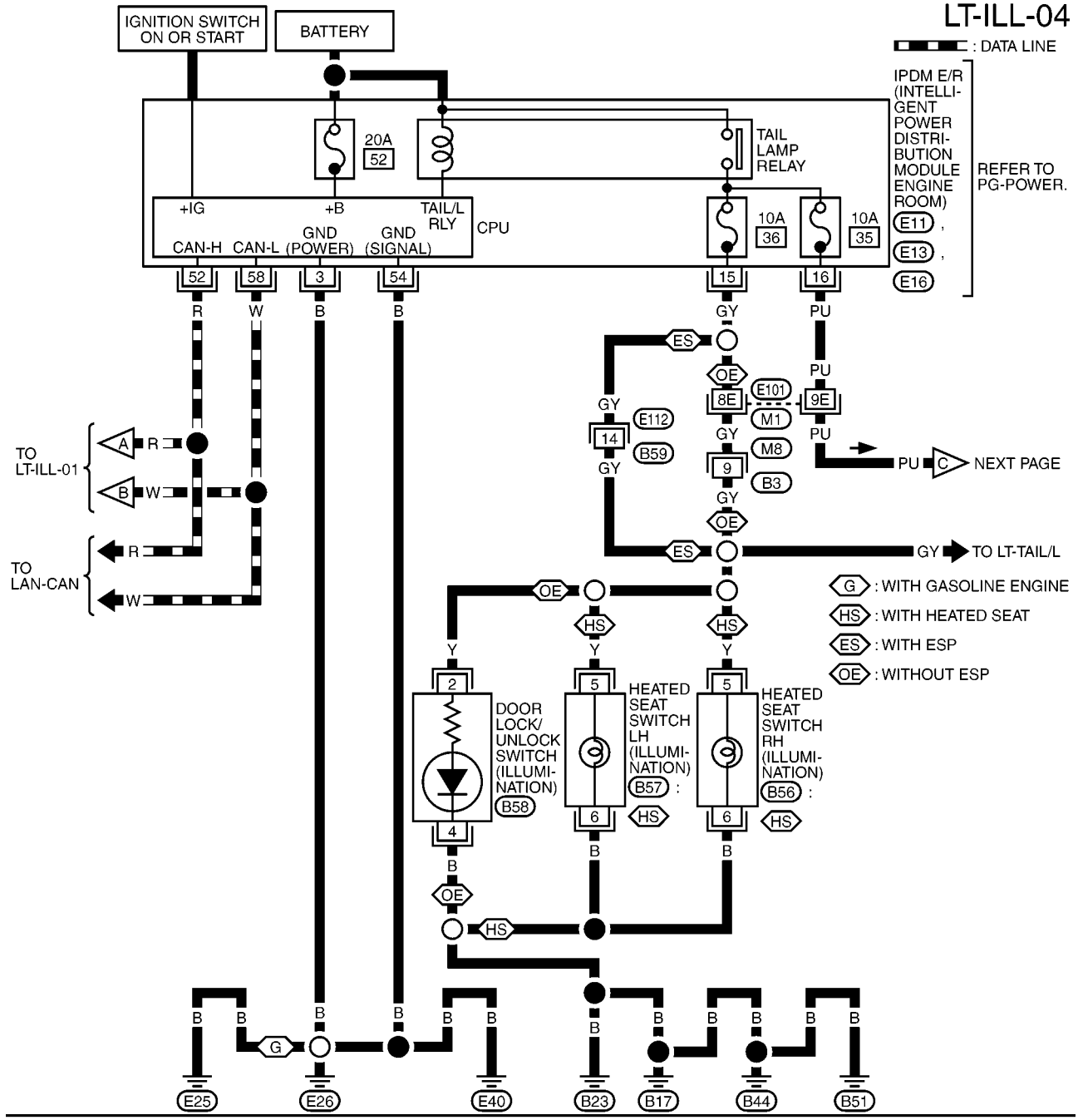
LT-ILL-03

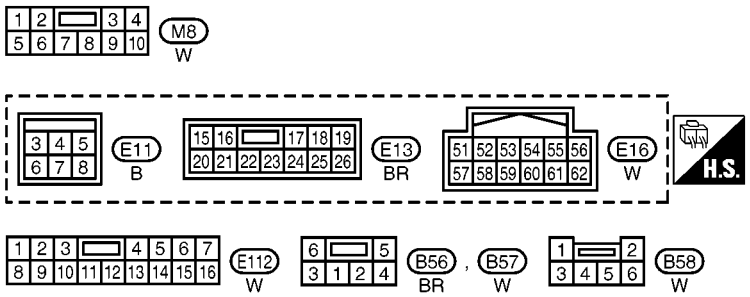






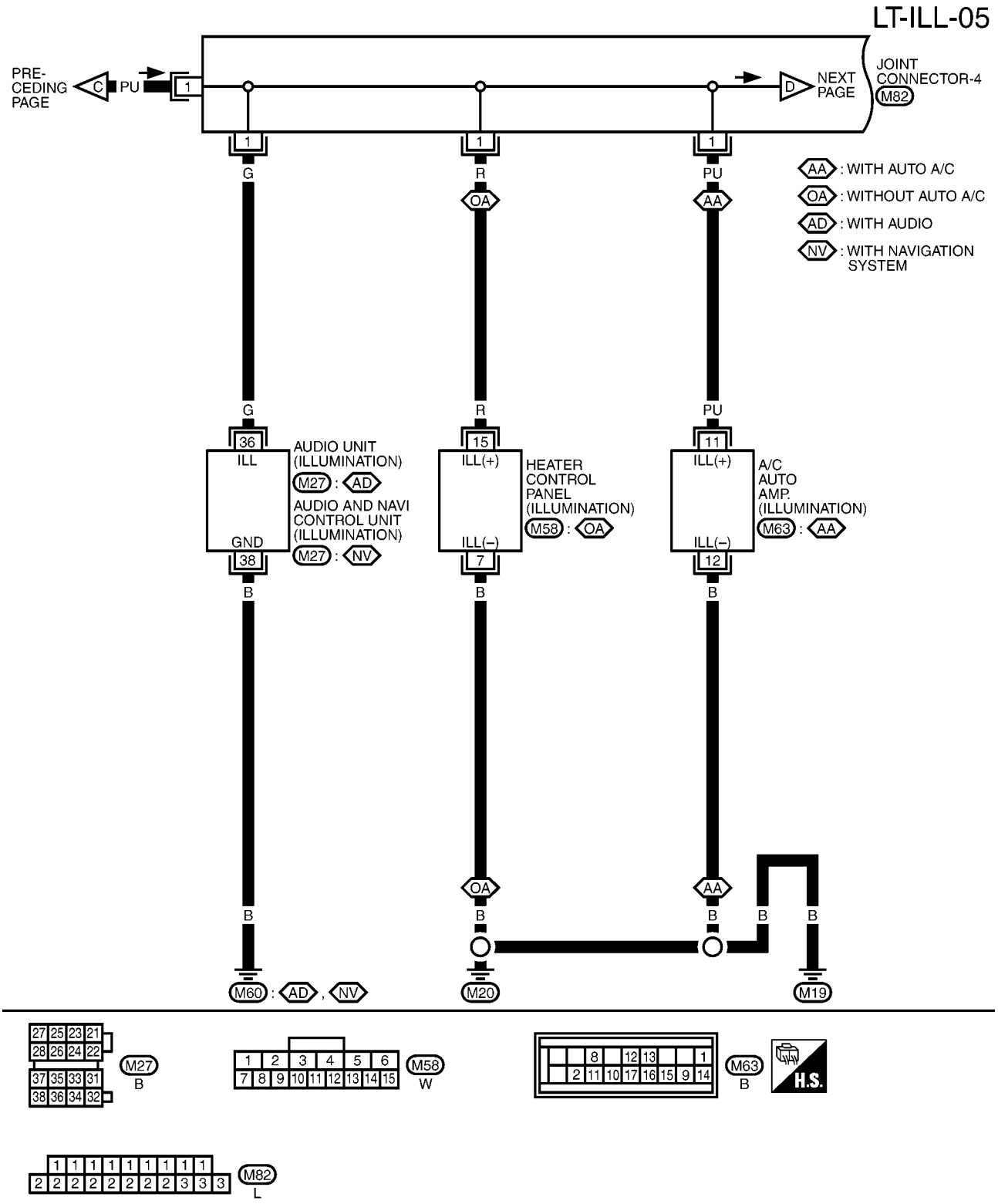
MKWA1748E





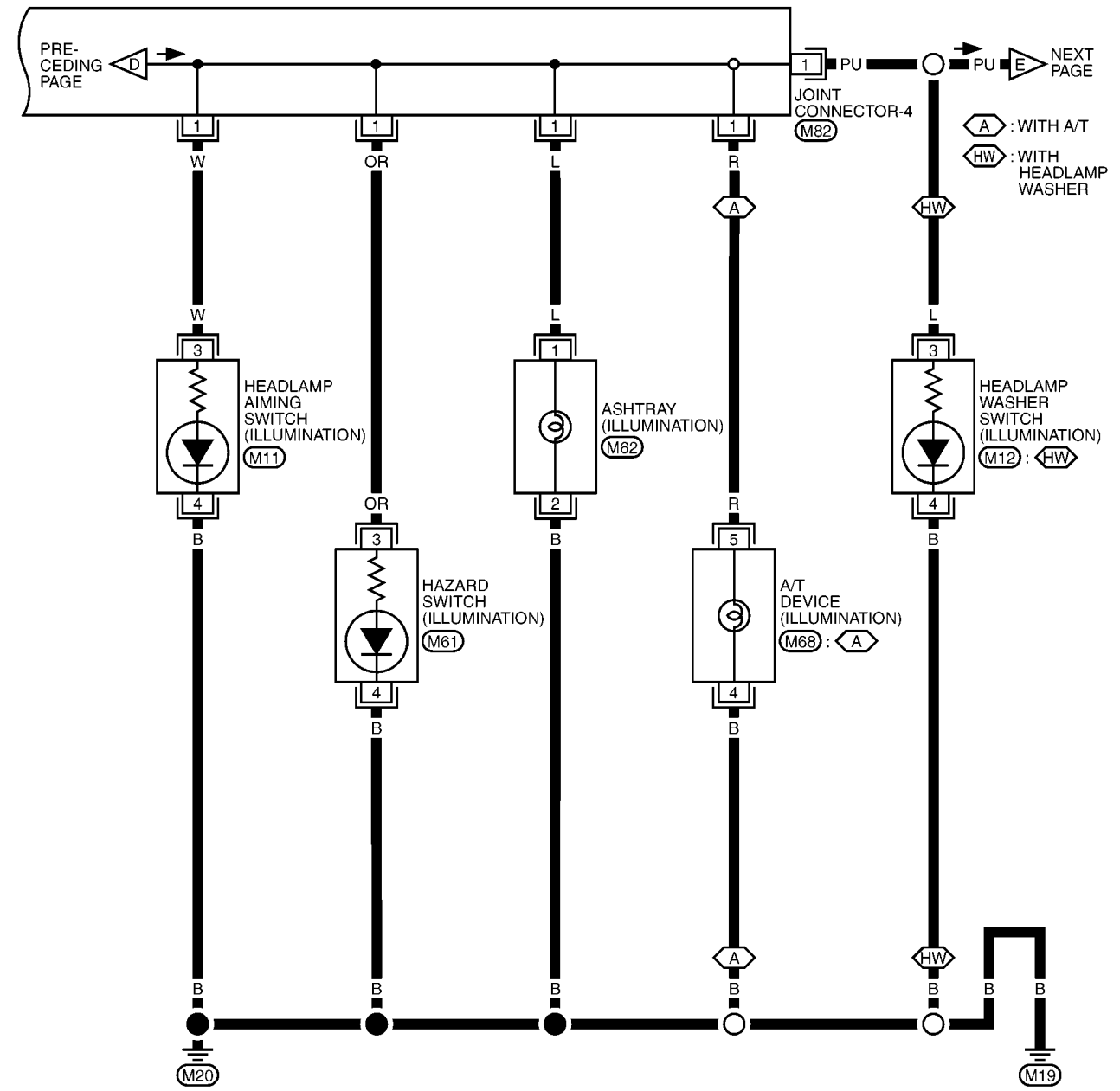
REFER TO THE FOLLOWING.
M1 -SUPER MULTIPLE JUNCTION (SMJ)

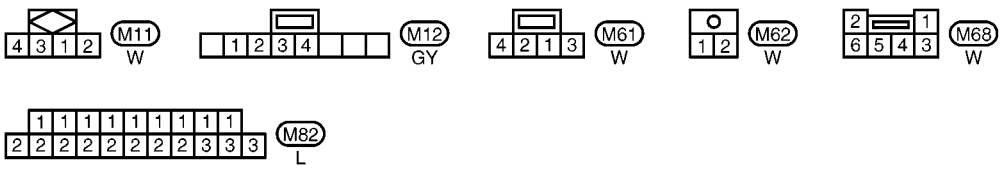
MKWA1758E


LT-ILL-05
PRE-CEDING PAGE
C
PU
1
JOINT CONNECTOR-4
M82
D
NEXT PAGE
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

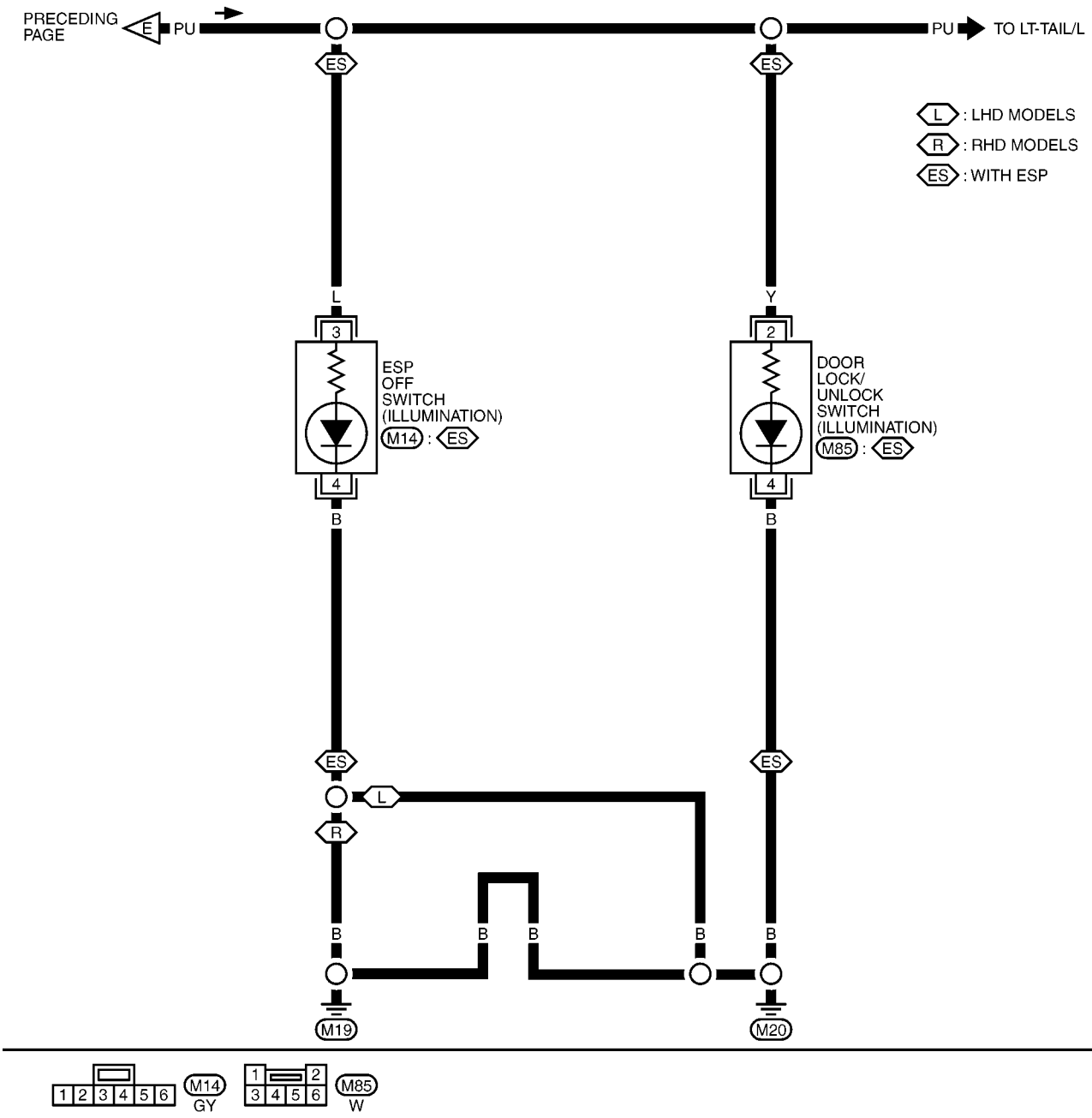
LT-ILL-06





MKWA1759E

LT-ILL-07



MKWA1760E

Removal and Installation

EKS00EOG

GLOVE BOX LAMP

Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .

BULB SPECIFICATIONS

SMA for VIN >SJN**AK12U1149635 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		10
High-mounted stop lamp		21

Interior Lamp/Illumination

EKS00EOJ

Item	Wattage (W)
Interior room lamp	10
Luggage room lamp	10