SECTION DI
DRIVER INFORMATION SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

BKS000Z9

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.**

Maintenance Information

BKS000ZA

If any of following part is replaced, always replace with new* one.
If it's not (or fail to do so), the electrical system may not be operated properly.
*: New one means a virgin control unit that has never been energized on-board.

RHD MODELS

- BCM (Models without Intelligent Key system)
- Intelligent Key unit (Models with Intelligent Key system)
- ECM
- IPDM E/R
- Combination meter
- EPS control unit

LHD MODELS

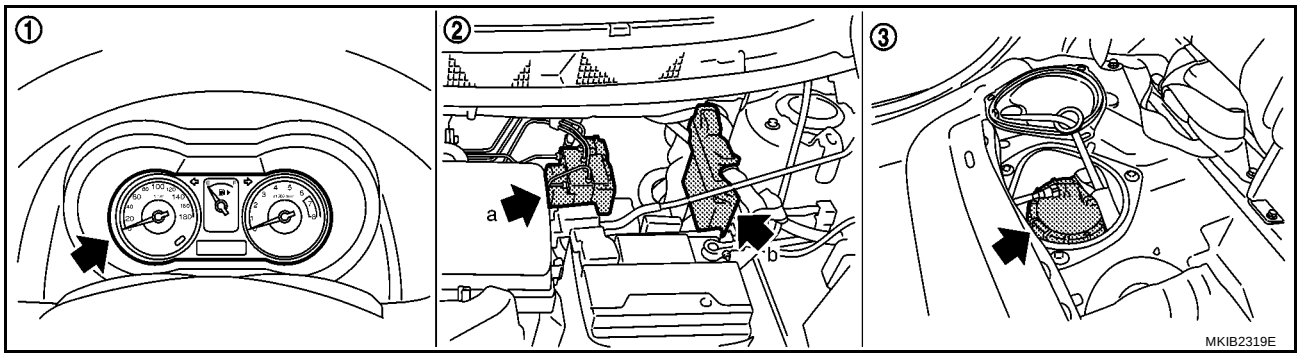
- BCM (Models without Intelligent Key system)
- Intelligent Key unit (Models with Intelligent Key system)
- ECM

COMBINATION METERS

PFP:24814

Component Parts and Harness Connector Location

BKS000ZD



1. Combination meter M27
2. ABS actuator and electronic unit
   E32: With ESP
   E33: Without ESP
3. Fuel level sensor unit and fuel pump B33

System Description

BKS0026A

UNIFIED METER CONTROL UNIT

- Speedometer, odo/trip meter, tachometer and fuel gauge are controlled by the unified meter control unit, which is built into the combination meter.
- Warning lamp and indicator lamp are controlled by signals drawn from the CAN communication system, BCM (body control module), and components connected directly to the combination meter.
- Odo/trip meter and A/T indicator segments can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 10A fuse [No. 7, located in the fuse block (J/B)]
- to combination meter terminal 27.

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

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

Ground is supplied

- to combination meter terminals 21, 22 and 23
- through grounds M21 and M66.

SPEEDOMETER

The speedometer indicates the vehicle speed.

- ABS actuator and electric unit (control unit) converses a pulse signal from wheel sensor to vehicle speed signal, and transmit vehicle speed signal to combination meter with CAN communication.
- Combination meter converses the vehicle speed signal to angle, and commands to speedometer.

TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).

- ECM converses a signal from crank position sensor to engine speed signal, and transmits to combination meter with CAN communication.
- Combination meter converses the engine speed signal to angle, and commands to tachometer.

LOW WATER TEMPERATURE INDICATOR LAMP, HIGH WATER TEMPERATURE WARNING LAMP

The water temperature warning/indicator lamp indicate the engine coolant temperature.
ECM provides a engine coolant temperature signal to combination meter for water temperature warning/indicator lamp via CAN communication line.
When turn ignition switch ON, water temperature warning/indicator lamp will be ON with red color for 1 second then blue color for1 second.

After engine started,

- Water temperature warning/indicator lamp will be ON with blue color while engine coolant temperature is less than 55 °C.
- Water temperature warning/indicator lamp will be OFF with blue color, while engine coolant temperature is more than 55 °C.
- Water temperature warning/indicator lamp will be OFF, while engine coolant temperature is between 55 °C and 114 °C.
- Water temperature warning/indicator lamp will be ON with red color, while engine coolant temperature is more than 114 °C.
- Water temperature warning/indicator lamp will be OFF with red color, while engine coolant temperature is less than 108 °C.

FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by the combination meter and a variable resistor signal supplied

- to combination meter terminal 6
- through fuel level sensor unit and fuel pump terminal 2
- through fuel level sensor unit and fuel pump terminal 4
- from combination meter terminal 24.

ODO/TRIP METER

The vehicle speed signal and the memory signals from the meter memory circuit are processed by the combination meter and the mileage is displayed.

How to Change the Display

Refer to DI-21, "System Description" .

CAN Communication

BKS000ZF

SYSTEM DESCRIPTION

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

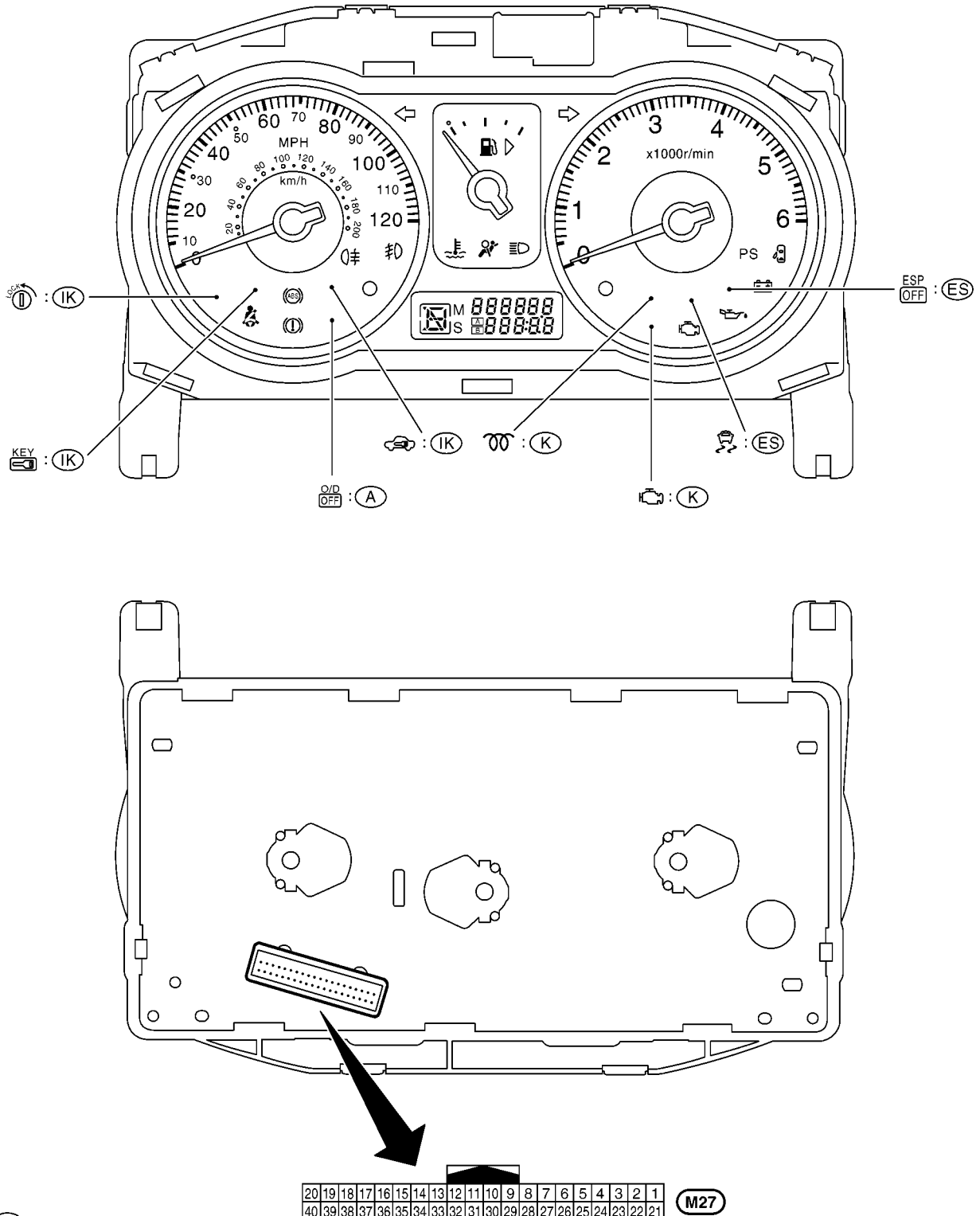
CAN Communication Unit

BKS0026E

Refer to LAN-27, "CAN Communication Unit"

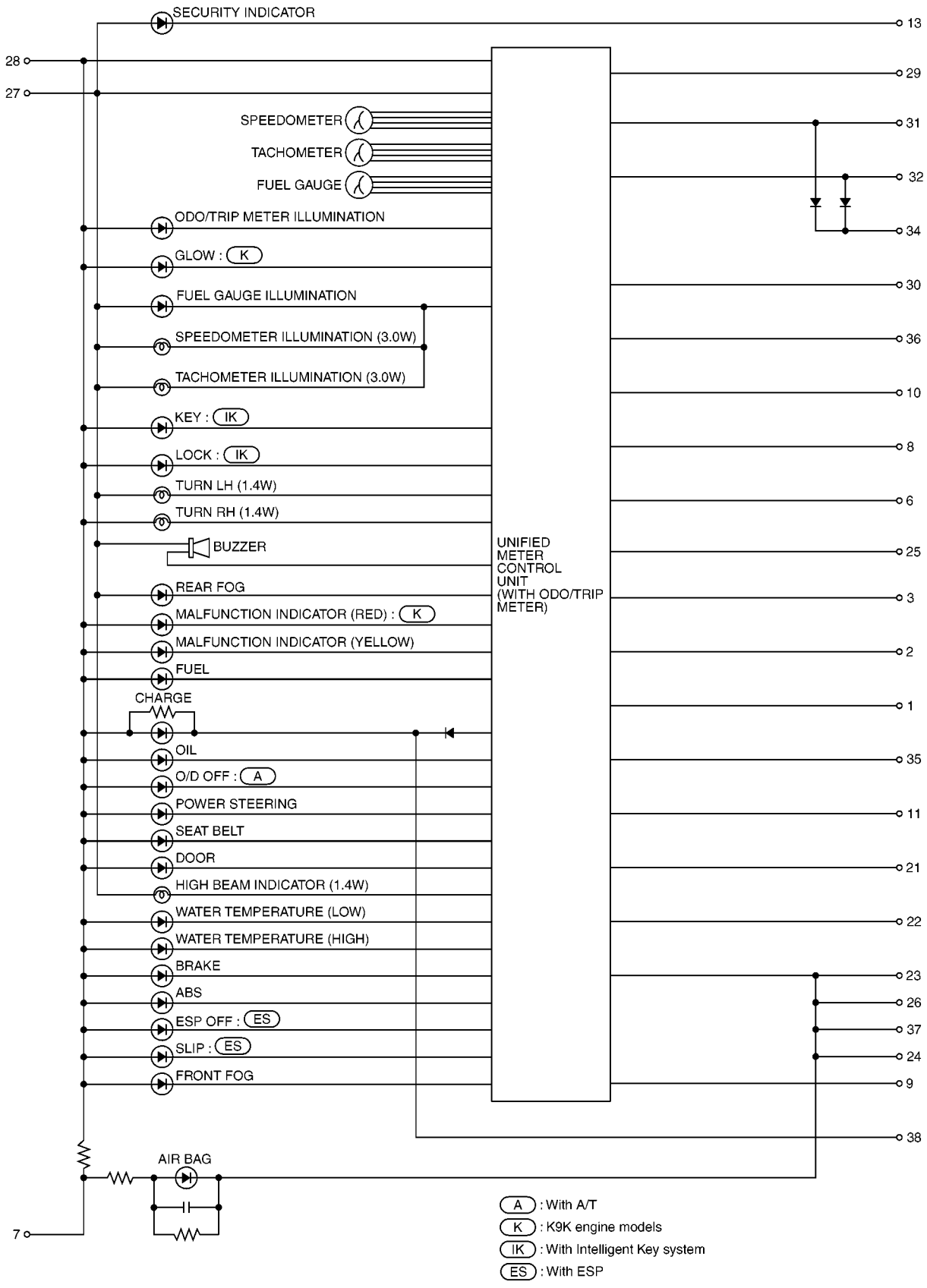
Arrangement of Combination Meter

BKS0026B



Schematic

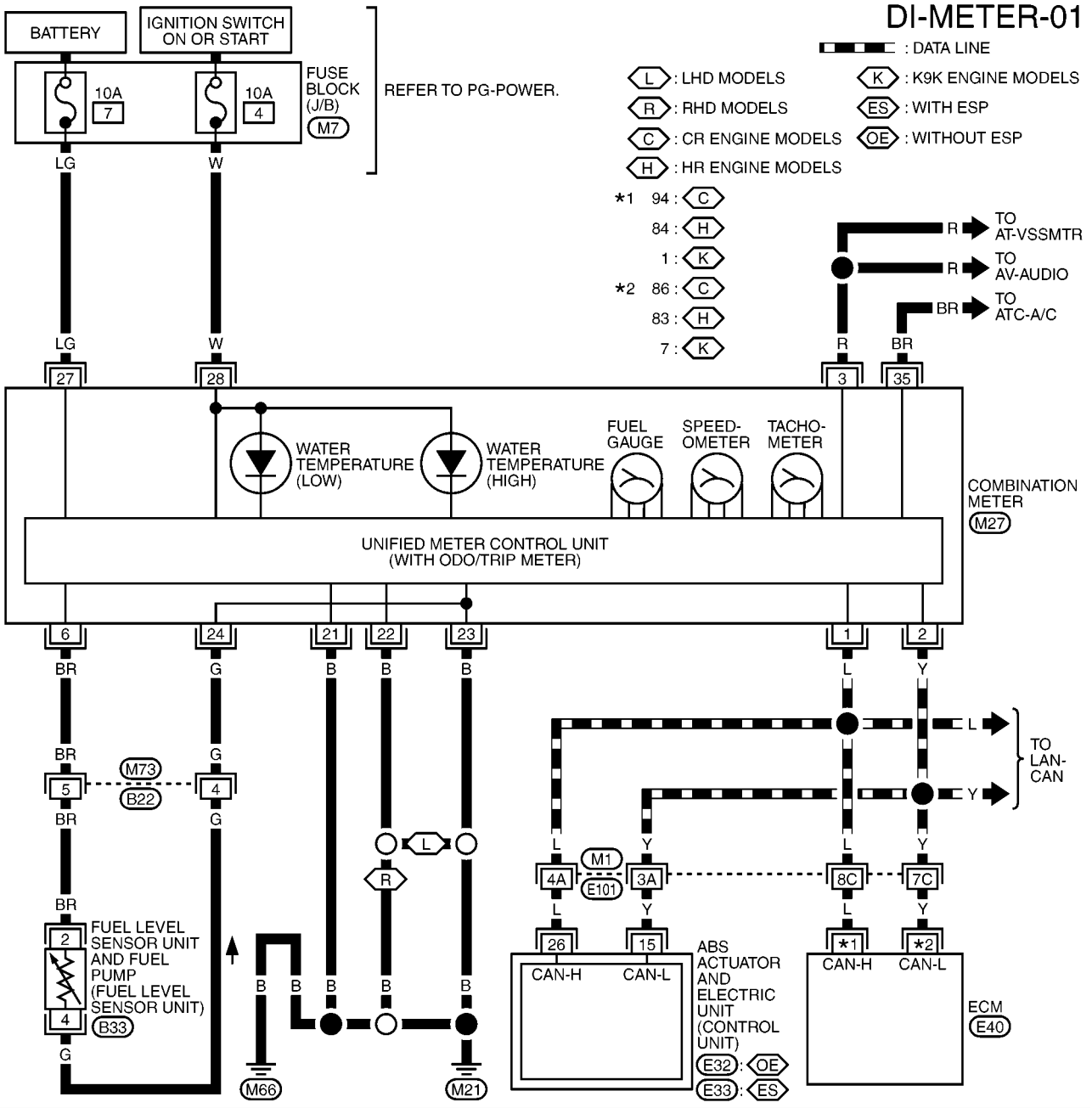
BKS000ZI

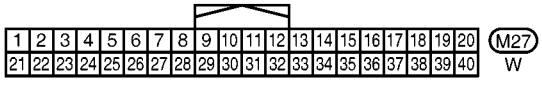


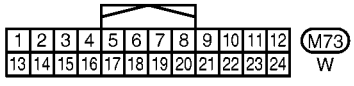
MKWA4297E

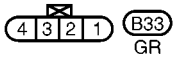
Wiring Diagram — METER —

BKS000ZJ









REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M7 - FUSE BLOCK - JUNCTION BOX (J/B)
E32, E33, E40 - ELECTRICAL UNITS

MKWA4298E

Terminals and Reference Value for Combination Meter

BKS000ZK

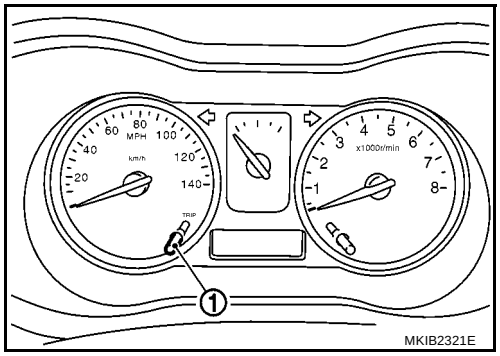
Terminal	Wire color	Item	Signal Input/ Output	Condition		Reference value (V) (Approx.)
				Ignition switch	Operation or condition	
1	L	CAN- H	Input/ Output	—	—	—
2	Y	CAN- L	Input/ Output	—	—	—
6	BR	Fuel level sensor signal	Input	—	—	Refer to (CR engine) FL-4, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" . (HR engine)FL-15, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" . (K9K engine)FL-29, "FUEL LEVEL SENSOR UNIT" .
21	B	Ground	—	—	—	0
22	B	Ground	—	—	—	0
23	B	Ground	—	—	—	0
24	G	Fuel level sensor ground	—	ON	—	0
27	LG	Power source (BAT)	Input	OFF	—	Battery voltage
28	W	Power source (IGN)	Input	ON	—	Battery voltage

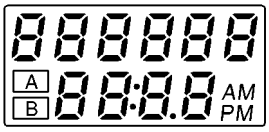
Combination Meter Self-Diagnosis

BKS000ZL

PERFORMING SELF-DIAGNOSIS MODE

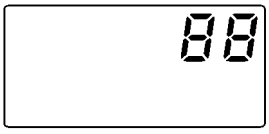
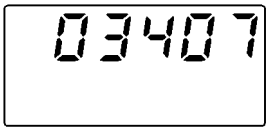
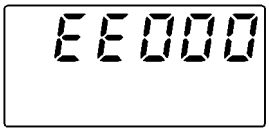
1. Turn the ignition switch ON.
2. Turn ignition switch OFF after setting the display to trip A or B with the trip button (1).
3. Turn ON the ignition switch while pressing the trip button.
4. Release the trip button after 1second or more from the ignition switch is turned ON. The sequence (A) is activated.

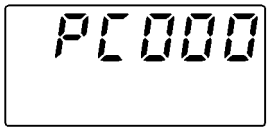
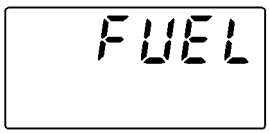


	Check items	Display	Remarks
A	Segment test	 MKIB2322E	All LCD segments are ON.

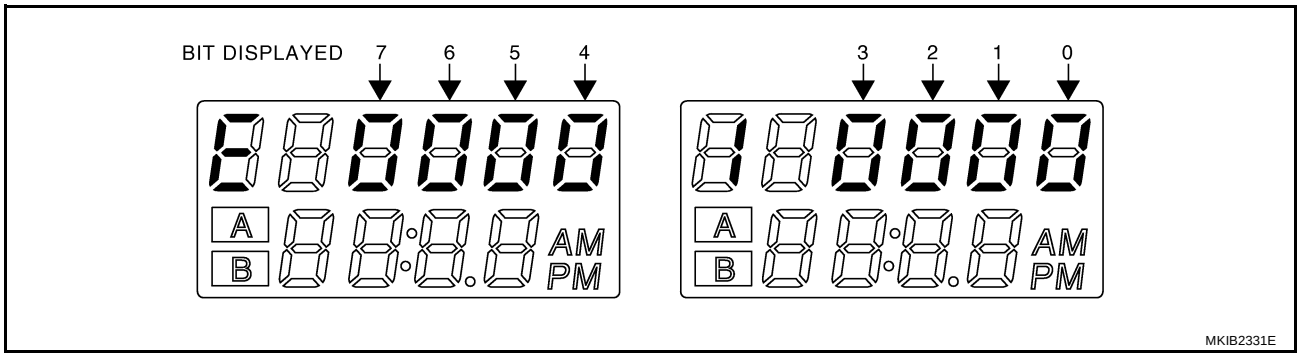
5. After all segments are ON, press the trip button or clock switch within 20seconds the sequence (B to J) is activated.

   NOTE:
   If either reset switch is not pressed within 20 seconds, the self-diagnosis mode is exited.

	Check items	Display	Remarks
B	Work instruction code	 This code is an example. MKIB2323E	This information is not used for service. Skip this step.
C	Software code	 This code is an example. MKIB2324E	This information is not used for service. Skip this step.
D	EEPROM code	 This code is an example. MKIB2325E	This information is not used for service. Skip this step.

	Check items	Display	Remarks
E	Hardware code	 This code is an example. MKIB2326E	This information is not used for service. Skip this step.
F	PCB code	 This code is an example. MKIB2327E	This information is not used for service. Skip this step.
G	Meter/gauge test (Sweeping movement)	 This code is an example. MKIB2327E	Tachometer, speedometer and fuel level gauge have sweeping movement test. (The meter/gauges operate MIN. → MAX., MAX. → MIN.) Water temperature warning/indicator lamp are ON with blue color during the sweep movement.
H	Error 1 (Bit 0 - Bit 3)	 This value is an example. MKIB2328E	The segment of each bit displays “0” or “5” meaning no malfunction. If the bit(s) displays figures other than “0” or “5” the item of the bit has malfunctioned. For details, refer to DI-12, "Malfunction Chart for “Error 1” and “Error E”" .
I	Error E (Bit 4 - Bit 7)	 This value is an example. MKIB2329E	
J	Warning lamp test	 Flashing MKIB2330E	All warning lamp and indicator lamp which is control by meter CPU are ON and odo/trip meter segment “FUEL” flashes.

Malfunction Chart for “Error 1” and “Error E”



Bit	Detectable items	Description of the malfunction		Displayed figure on the bit	
				Malfunction	No malfunction
0	Speedometer input signal	No input signal When no signal is detected for 2seconds minutes continuously with the ignition ON, it should be judged as signal malfunction.		1	0
		Unusual input signal When invalid value is detected for 2seconds continuously with the ignition switch ON, it should be judged as signal malfunction.		2	
1	Tachometer input signal	No input signal When no signal is detected for 2seconds continuously with the ignition ON, it should be judged as signal malfunction.		1	0
2	Fuel level input signal	Short circuit When short circuit of the signal line is detected for 120 seconds or more, it should be judged as short-circuit malfunction.		1	0
		Open circuit When open circuit of the signal line is detected for 120 seconds or more, it should be judged as open-circuit malfunction.		2	
3	Water temperature input signal	Short circuit When no signal is detected for 2seconds continuously with the ignition ON, it should be judged as signal malfunction.		1	0
4	Reset buttons	Short circuit for reset buttons When the short circuit is continuously detected for 5 minutes or more, it should be judged as short-circuit malfunction.	Odo/trip meter switch has malfunctioned.	1	0
			Clock switch has malfunctioned.	2	
			Both switch have malfunctioned.	3	
5	OAT input signal	● When short circuit of the signal line is detected for 4 seconds or more, it should be judged as short-circuit malfunction. ● When no signal is detected for 2seconds continuously with the ignition ON, it should be judged as signal malfunction.		1	5
		● When open circuit of the signal line is detected for 4 seconds or more, it should be judged as open-circuit malfunction. ● When unusual signal is detected for 2seconds continuously with the ignition ON, it should be judged as signal malfunction.		2	
6	—	—		0	0
7	—	—		0	0

Trouble Diagnoses

BKS000ZM

PRELIMINARY CHECK

1. CHECK POWER SUPPLY

1. Turn ignition switch ON.
2. Warning lamps should illuminate (seat belt warning or door warning etc.).

Do warning lamps illuminate?

YES >> GO TO 2.
NO >> Check power supply and ground circuit check. Refer to DI-15, "Check Power Supply and Ground Circuit" .

2. CHECK OPERATION OF SELF-DIAGNOSIS MODE

Perform self-diagnosis mode. Refer to DI-10, "PERFORMING SELF-DIAGNOSIS MODE" .

Can self-diagnosis mode be activated?

YES >> GO TO 3.
NO >> Replace combination meter. Refer to DI-20, "Removal and Installation for Combination Meter" .

3. CHECK OPERATION OF METER/GAUGE

Check meter/gauge operation in self-diagnosis mode (meter/gauge test). Refer to DI-10, "PERFORMING SELF-DIAGNOSIS MODE" .

Is any malfunction indicated in self-diagnosis mode?

YES >> GO TO “Symptom Chart 1”. Refer to DI-15, "Symptom Chart 1" .
NO >> GO TO 4.

4. CHECK WATER TEMPERATURE WARNING/INDICATOR

- Check water temperature warning/indicator lamp.

1. Turn ignition switch OFF.
2. When turn ignition switch ON, water temperature warning/indicator lamp will be ON with red color for 1 second then blue color for 1 second.

- Check water temperature indicator lamp (blue color)

Check meter/gauge operation in self-diagnosis mode (meter/gauge test). Refer to DI-10, "Combination Meter Self-Diagnosis" .

Does water temperature warning/lenticular lamp is ON?

Yes >> GO TO 5.
No >> Replace combination meter.

5. CHECK SEGMENTS

Check all odo/trip meter segments in self-diagnosis mode (odo/trip meter segment test). Refer to DI-10, "PERFORMING SELF-DIAGNOSIS MODE" .

Do all segments indicate?

YES >> GO TO 6.
NO >> Replace combination meter.

6. CHECK INPUT SIGNALS

Check input signals from each sensors in self-diagnosis mode (Error 1 and Error E). Refer to DI-12, "Malfunction Chart for “Error 1” and “Error E”" .

OK or NG

OK >> GO TO 7.
NG >> GO TO “Symptom Chart 2”. Refer to DI-15, "Symptom Chart 2" .

7. CHECK WARNING INDICATOR LAMP

Check warning lamp in self-diagnosis mode. Refer to DI-10, "PERFORMING SELF-DIAGNOSIS MODE" .

All warning/indicator lamp should turn ON.

OK or NG

OK >> GO TO 8.
NG >> Replace combination meter.

8. CHECK OTHER MALFUNCTION

Check each malfunction according to the instruction of the “SYMPTOM CHART 3”. Refer to DI-15, "Symptom Chart 3" .

OK or NG

OK >> Combination meter is OK.
NG >> Check the case of malfunction.

SYMPTOM CHART

Symptom Chart 1

Symptom	Possible causes	Repair order	Reference page
Odo/trip meter indicates malfunction in Diagnosis mode.	Unified meter control unit	Replace combination meter	DI-20
Multiple meter/gauge indicate malfunction in Diagnosis mode.			
One of speedometer/tachometer/fuel gauge/Water temperature lamp. indicates malfunction in Diagnosis mode.			

Symptom Chart 2

Symptom	Possible causes	Repair order	Reference page
Speedometer input signal indicates malfunction in Diagnosis mode.	Speedometer input signal	Check signal for speedometer	DI-16
Tachometer input signal indicates malfunction in Diagnosis mode.	Tachometer input signal	Check signal for tachometer	DI-17
Fuel level input signal indicates malfunction in Diagnosis mode.	Fuel level input signal	Check fuel level signal	DI-17
Water temperature input signal Indicates malfunction in Diagnosis mode.	Water temp. warning/indicator lamps input signal	Check water temperature signal	DI-19
Reset buttons indicates malfunction in Diagnosis mode.	Unified meter control unit	Combination meter	DI-20
CPU indicates malfunction in Diagnosis mode.	Unified meter control unit	Combination meter	DI-20

Symptom Chart 3

Symptom	Possible causes	Repair order	Reference page
Fuel gauge pointer fluctuates, Indicator wrong value or varies.	—	Check the case of malfunction	DI-19
Fuel gauge does not move to “F” position.	—	Check the case of malfunction	DI-19

Check Power Supply and Ground Circuit

BKS0026C

1. CHECK FUSE

Check for blown combination meter fuses.

Power source	Fuse No.
Battery	7
Ignition switch ON or START	4

OK or NG

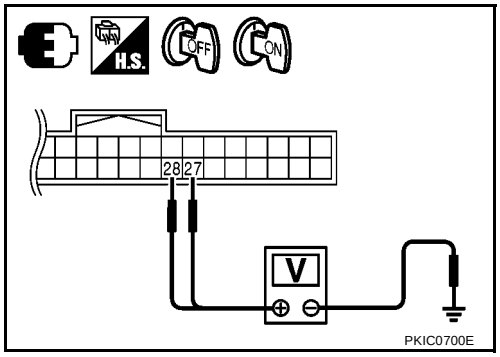
OK >> GO TO 2.

NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "POWER SUPPLY ROUTING CIRCUIT" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector terminals and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Combination meter connector	Terminal			
M27	27	Ground	Battery voltage	Battery voltage
	28		0 V	Battery voltage



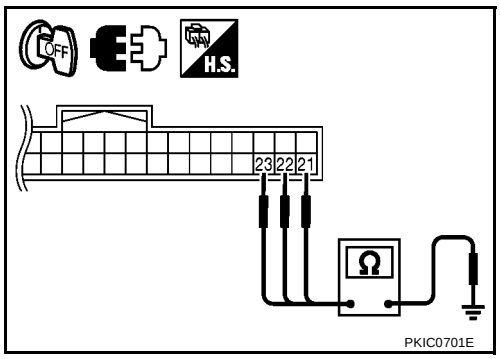
OK or NG

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

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector terminals and ground.

Combination meter connector	Terminal		Continuity
M27	21	Ground	Yes
	22		
	23		



OK or NG

OK >> Replace combination meter.
NG >> Repair harness or connector.

Check Vehicle Speed Signal

BKS000ZO

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT SYSTEM

Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to BRC-19, "CONSULT-II Functions (ABS)" (With ABS models), BRC-62, "CONSULT-II Functions (ABS)" (With ESP/TCS/ABS models).

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic procedure” for displayed self-diagnosis result.

Check Engine Revolution Signal

BKS000ZP

1. CHECK ECM SYSTEM

Perform ECM self-diagnosis. Refer to EC-48, "Emission-related Diagnostic Information" (CR engine models with EURO-OBD), EC-476, "Emission-related Diagnostic Information" (CR engine models without EURO-OBD), EC-831, "Emission-related Diagnostic Information" (HR engine models with EURO-OBD), EC-1264, "Emission-related Diagnostic Information" (HR engine models without EURO-OBD) or Rfer to EC-1628, "ON BOARD DIAGNOSTIC (OBD) SYSTEM" (K9K engine models).

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic procedure” for displayed DTC.

Check Fuel Level Sensor Signal

BKS0026D

Symptom:

- Fuel gauge indication is malfunction.
- Low-fuel warning lamp indication is irregular.

NOTE:
The following symptoms are not malfunction.

Fuel level sensor unit

- Depending on vehicle position or driving circumstance, the fuel level in the tank varies, and the pointer may fluctuate.
- If the vehicle is fueled with the ignition switch ON, the pointer will move slowly.

Low-fuel warning lamp

- Depending on vehicle position or driving circumstance, the fuel in the tank flows and the warning lamp ON timing may change.

1. CHECK HARNESS CONNECTOR

1. Turn ignition switch OFF.
2. Check combination meter and fuel level sensor unit terminals (meter-side and harness-side) for poor connection.

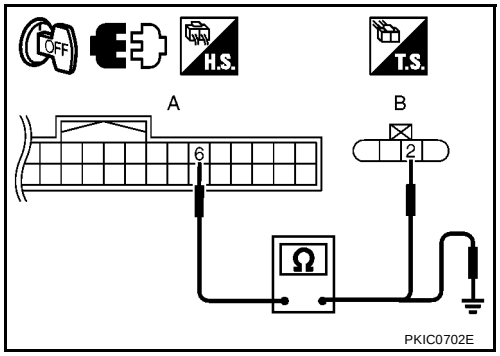
OK or NG

OK >> GO TO 2.
NG >> Repair or replace terminals or connectors.

2. CHECK FUEL LEVEL SENSOR UNIT CIRCUIT

1. Disconnect combination meter connector and fuel level sensor unit connector.
2. Check continuity between combination meter harness connector and fuel level sensor unit and fuel pump harness connector.

A		B		Continuity
Combination meter connector	Terminal	Fuel level sensor unit and fuel pump connector	Terminal	
M27	6	B33	2	Yes



3. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	6		No

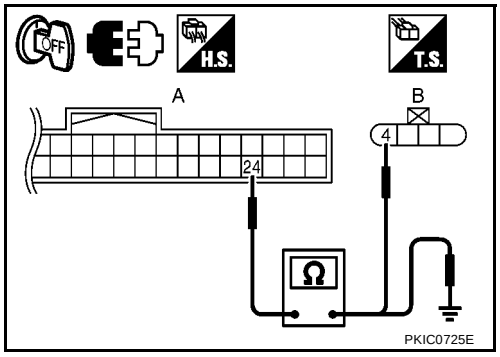
OK or NG

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

3. CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

1. Check continuity between combination meter harness connector and fuel level sensor unit and fuel pump harness connector.

A		B		Continuity
Combination meter connector	Terminal	Fuel level sensor and fuel pump connector	Terminal	
M27	24	B33	4	Yes



2. Check continuity between combination meter harness connector (A) and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	24		No

OK or NG

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

4. CHECK FUEL LEVEL SENSOR UNIT

Check fuel level sensor unit. Refer to DI-19, "Check Electrical Components"

OK or NG

OK >> Check fuel level sensor unit installation, and check whether the float arm interferes or binds with any of the internal components in the fuel tank. Repair or replace malfunctioning part, if necessary.
NG >> Replace fuel level sensor unit.

Check Water Temperature Warning/indicator Lamp

BKS000ZR

1. CHECK ECM SYSTEM

Perform ECM self-diagnosis. Refer to EC-48, "Emission-related Diagnostic Information" (CR engine models with EURO-OBD), EC-476, "Emission-related Diagnostic Information" (CR engine models without EURO-OBD), EC-831, "Emission-related Diagnostic Information" (HR engine models with EURO-OBD), EC-1264, "Emission-related Diagnostic Information" (HR engine models without EURO-OBD) or Rfer to EC-1628, "ON BOARD DIAGNOSTIC (OBD) SYSTEM" (K9K engine models).

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic procedure” for displayed DTC.

Check Fuel Gauge Fluctuation

BKS000ZS

1. CHECK FUEL GAUGE FLUCTUATION

Test drive vehicle to see if gauge fluctuates only during driving or at the instant of stopping.

Does the indication value vary only during driving or at the instant of stopping?

YES >> The pointer fluctuation may be caused by fuel level change in the fuel tank. Condition is normal.
NO >> Ask the customer about the situation when the symptom occurs in detail, and perform the trouble diagnosis.

Fuel Gauge Does Not Move to FULL position

BKS000ZT

1. QUESTION 1

Does it take a long time for the pointer to move to FULL position?

YES or NO

YES >> GO TO 2.
NO >> GO TO 3.

2. QUESTION 2

Was the vehicle fueled with the ignition switch ON?

YES or NO

YES >> Be sure to fuel the vehicle with the ignition switch OFF. Otherwise it will take a long time to move to FULL position because of the characteristic of the fuel gauge.
NO >> GO TO 3.

3. QUESTION 3

Is the floor or the vehicle inclined?

YES or NO

YES >> It may not be filled fully.
NO >> GO TO 4.

4. QUESTION 4

During driving, does the fuel gauge pointer move gradually toward EMPTY position?

YES or NO

YES >> Check the components. Refer to DI-19, "Check Electrical Components" .
NO >> The float arm may interfere or bind with any of the components in the fuel tank.

Check Electrical Components

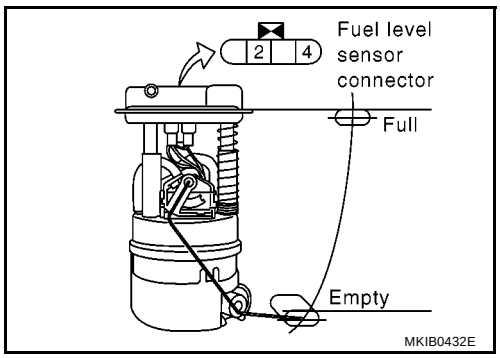
BKS000ZV

CHECK FUEL LEVEL SENSOR UNIT

For removal, refer to [refer to FL-4, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" (CR engine models), FL-15, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" (HR engine models) or FL-29, "FUEL LEVEL SENSOR UNIT" (K9K engine models)].

Check the resistance between terminals 2 and 4.

Ohmmeter		Float position	Resistance value [Ω]
4	2	Full	Approx. 46
		Empty	Approx. 320



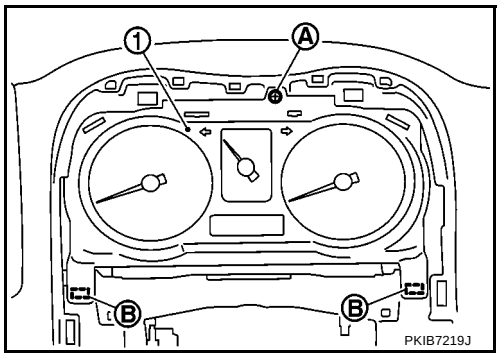
Removal and Installation for Combination Meter

BKS000ZW

CAUTION:
Always replace with new* combination meter when the combination meter replacement is required.
***: New one means virgin control unit that has never been energized on-board.**

REMOVAL

1. Remove the cluster lid A. Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screw (A), and metal clip (B), and remove combination meter (1).



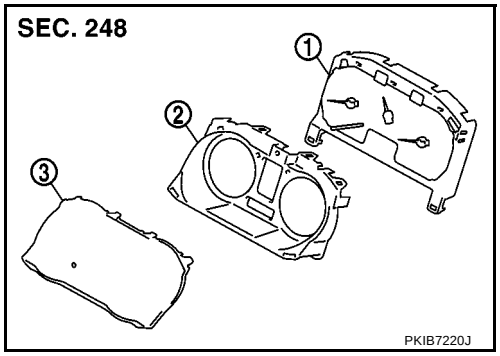
INSTALLATION

- Install in the reverse order of removal.

Disassembly and Assembly for Combination Meter

BKS000ZX

1. Front cover
2. Upper housing
3. Unified meter control unit assembly



DISASSEMBLY

1. Disengage the tabs (7) to separate upper housing.
2. Disengage the tabs (6) to separate front cover.

ASSEMBLY

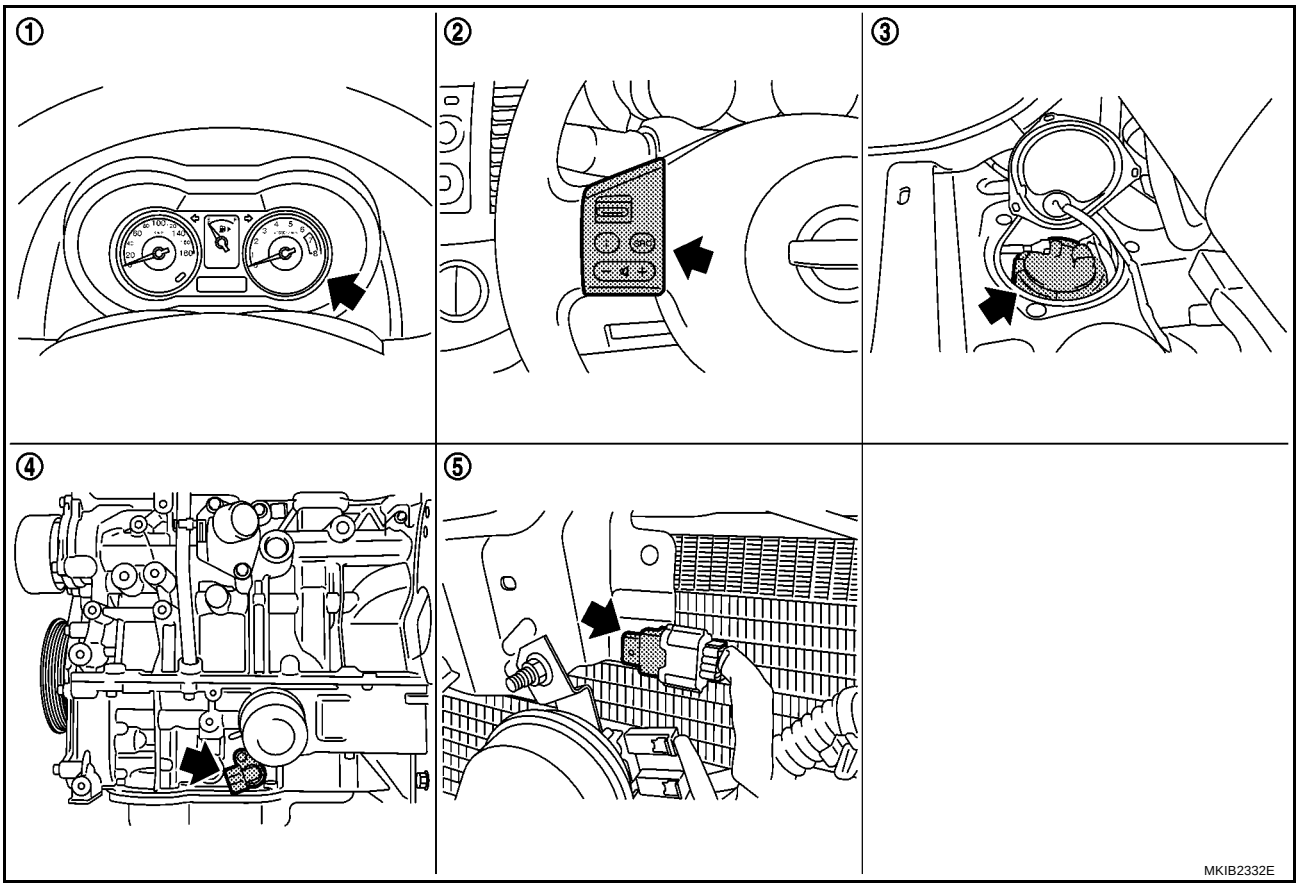
Assembly is the reverse order of disassembly.

DRIVE COMPUTER

PFP:24859

Component Parts and Harness Connector Location

BKS000ZY



1. Combination meter M27
2. Steering wheel switch M502
3. Fuel level sensor unit and fuel pump B33
4. Oil level sensor
   F44: HR engine model
   F126: K9K engine models
5. Ambient sensor E17

System Description

BKS000ZZ

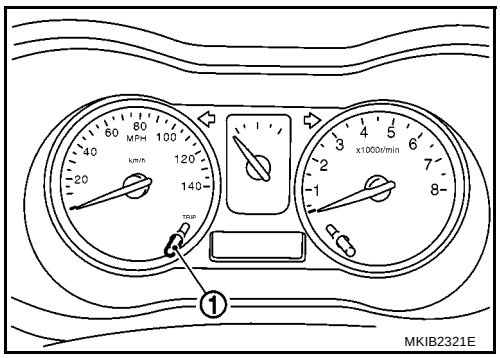
Refer to Owner's Manual for drive computer operating instructions.

DRIVE COMPUTER

Drive computer can indicate the following item.

- Odo
- Trip A/B
- Range
- Average fuel consumption
- Average speed
- Journey time
- Outside temp

Indication can be changed by in the following order by pushing trip button (1).
Odo → Trip A → Trip B → Range → Average fuel consumption → Average speed → Journey time → Outside temp → Odo ……



NOTE:

- Holding the switch for more than 1 second in each mode (except odo range and outside temp), the function is reset.
- Holding the switch for more than 3 seconds (the display flash one time) in each mode (except odo, trip A, range and outside temp), all mode are reset at the same time (except odo, trip A, range and outside temp).

Range

- The elapsed time indication provides driver with an estimation of the distance that can be driven before refuelling. The range is conducted by fuel tank level sensor unit (fuel remaining), ECM pulse signal (fuel consumption) and vehicle speed signal.
- The range is conducted by combination meter and sent to CAN communication line. Combination meter calculate the range by fuel level sensor unit (fuel remaining), ECM pulse signal (fuel consumption signal) and vehicle speed signal.

Average Fuel Consumption

- The average fuel economy is conducted by combination meter sent to CAN communication line. Combination meter calculate the average fuel economy by fuel consumption signal and vehicle speed signal.
- There are two display types, instantaneous and average.
- At about 0.5 km and for 30 seconds after resetting, the display shows “– – –”.

Average Speed

- Average vehicle speed indication is conducted by trip distance and trip time.
- At about 0.5 km and for 30 seconds after resetting, the display shows “– – –”.

Journey Time

- Trip time is calculated by drive computer as elapsed time since last reset.
- It only increases with ignition switch ON.

SERVICE REMINDER

- Show the distance to the next maintenance.
- For the first 5 seconds after ignition switch ON, the odometer displays distance to service and the maintenance symbol.
- The interval can be changed.

NOTE:
Refer to owner's manual for setting.

OIL LEVEL WARNING

- The oil amount is shown on the display 5 to 10 seconds after the ignition is turn ON.
- The display changes depending on the oil level.
  - Oil level LOW: “o– – – –”
  - Oil level HI: “ooooo”
- The indicator flashes when the oil level drop below the limit level.

Combination meter read oil level sensor signal to measure oil level.
The signal is supplied

- to combination meter terminal 36
- through oil level sensor terminal 1 and 2
- through combination meter terminal 37.

OUTSIDE AIR TEMPERATURE

Outside air temperature is displayed ON when ignition switch ON.

- When the outside air temperature is lower than -30°C or higher than 60°C the display shows. only “– –” though it is operating. This is not a malfunction.
- When the outside air temperature drops below freezing point (Approx. 3°C), it indicator as following. (Low temperature warning)
  - Outside air temperature is 3°C - –30°C: “3°C” is flushed.
  - Outside air temperature is –30°C - –40°C: “– –°C” is flushed.
  - Outside air temperature is less than –40°C or more than 60°C: “– –” is flushed.
  - Outside air temperature is more than 4°C low temperature warning is canceled.

Combination meter should read ambient sensor.
The ambient sensor is regulated by a variable resistor signal supplied

- to combination meter terminal 25
- from ambient sensor terminal 2
- through ambient sensor terminal 1 and
- through combination meter terminal 26.

CAN Communication

BKS00100

SYSTEM DESCRIPTION

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

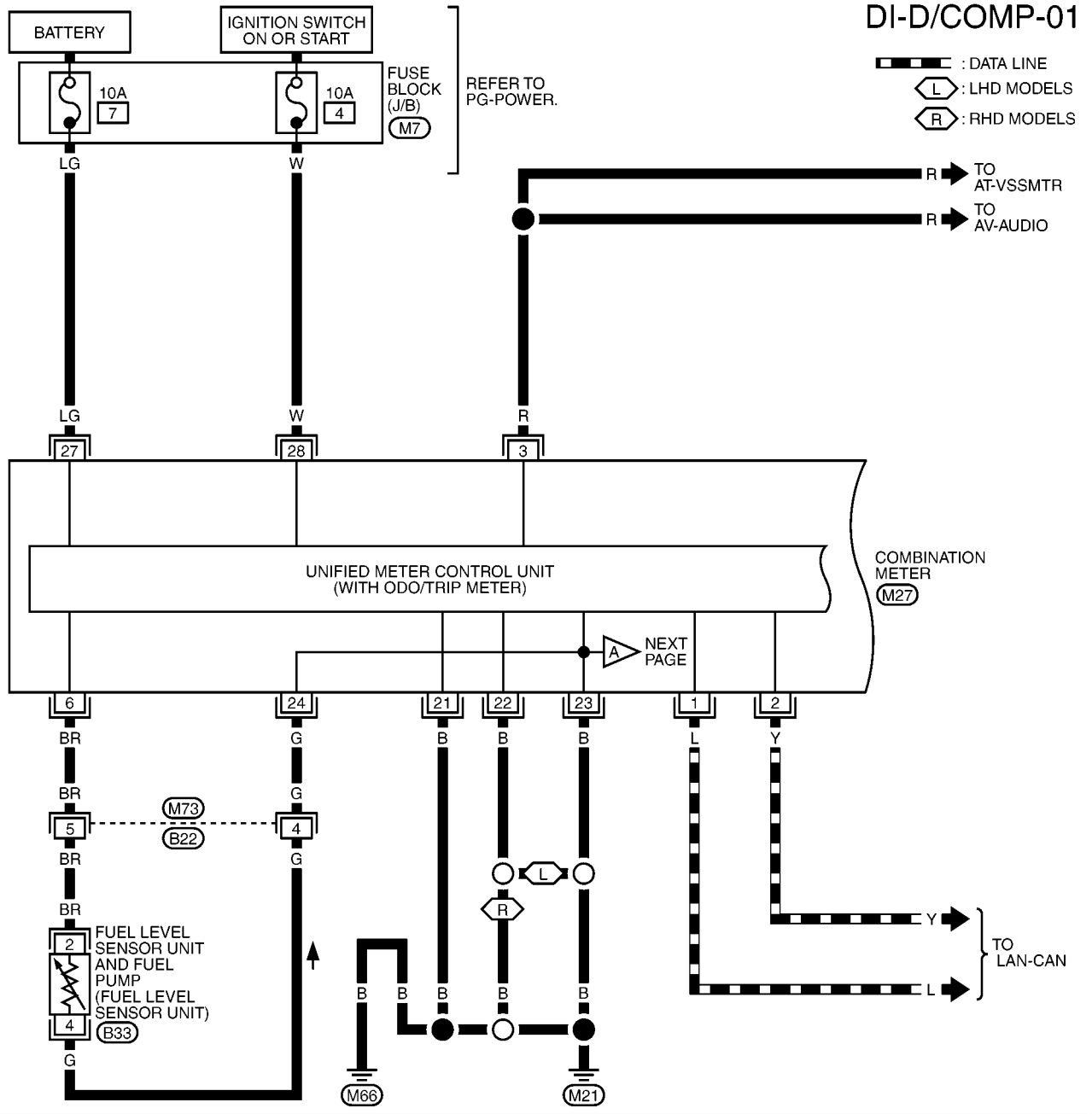
CAN Communication Unit

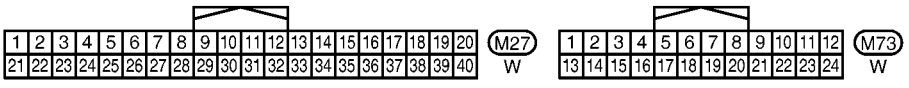
BKS00101

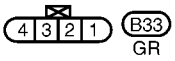
Refer to LAN-27, "CAN Communication Unit" .

Wiring Diagram — D/COMP —

BKS00102



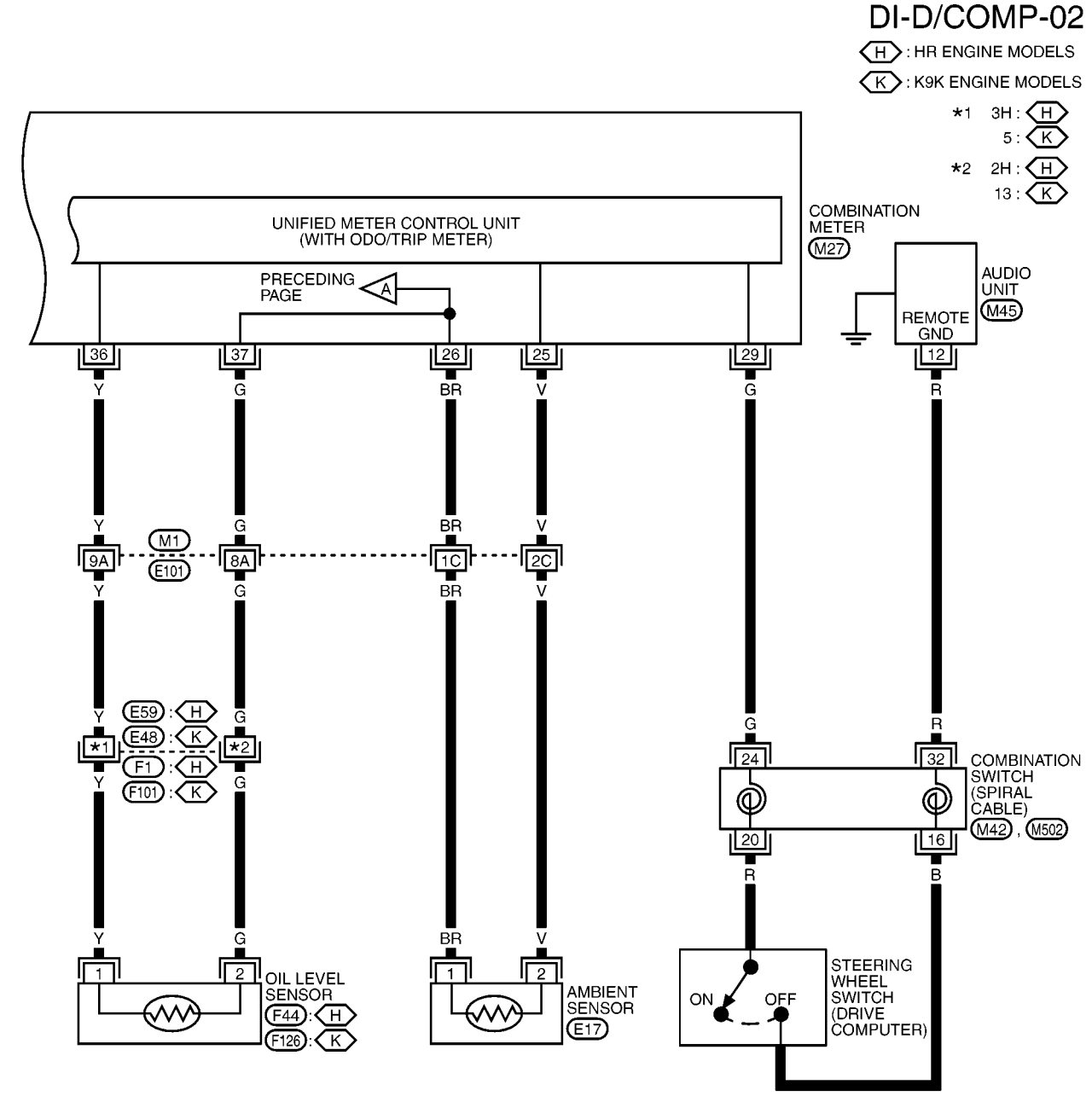


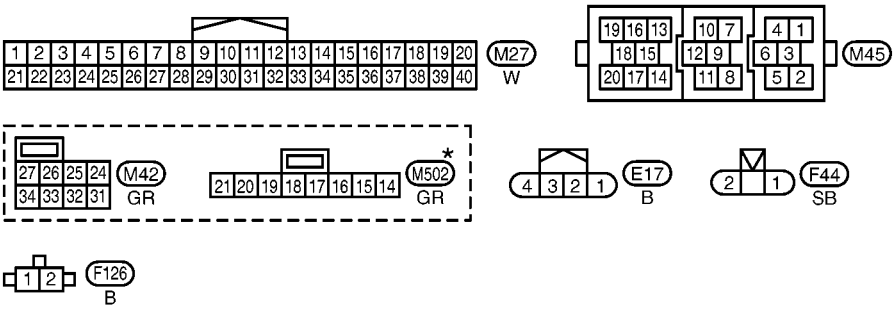


REFER TO THE FOLLOWING.
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4299E

DI-D/COMP-02





REFER TO THE FOLLOWING.
M1 , F1 , F101
- SUPER MULTIPLE JUNCTION (SMJ)

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

MKWA4300E

Terminals and Reference Value for Combination Meter

BKS00103

Terminal No.	Wire color	Item	Signal Input/Output	Condition		Voltage (V) (Approx.)
				Ignition switch	Operation or condition	
1	L	CAN- H	Input/Output	—	—	—
2	Y	CAN- L	Input/Output	—	—	—
6	BR	Fuel level sensor signal	Input	—	—	Refer to (CR engine)FL-4, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" (HR engine)FL-15, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" (K9K engine) FL-29, "FUEL LEVEL SENSOR UNIT" .
21	B	Ground	—	—	—	0
22	B	Ground	—	—	—	0
23	B	Ground	—	—	—	0
24	G	Fuel level sensor ground	—	ON	—	0
25	V	Ambient sensor signal	Input	ON	—	2.6
					Disconnect ambient sensor connector	5
26	BR	Ambient sensor ground	—	ON	—	0
27	LG	Power source (BAT)	Input	OFF	—	Battery voltage
28	W	Power source (IGN)	Input	ON	—	Battery voltage
29	G	Steering switch signal	Input	ON	Steering switch release	10
					Steering switch pushed	0
36	Y	Oil level sensor signal	Input	ON	—	—
37	G	Oil level sensor ground	—	ON	—	0

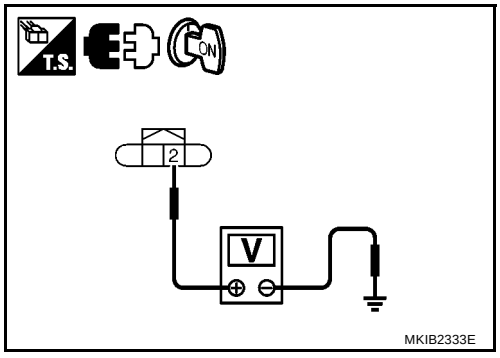
Check Ambient Sensor Signal

BKS0026M

1. CHECK OUTPUT VOLTAGE OF COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect ambient sensor harness connector.
3. Turn ignition switch ON.
4. Check voltage between ambient sensor harness connector and ground.

Terminals			Voltage (V) (Approx.)
(+)		(–)	
Ambient sensor connector	Terminal		
E17	2	Ground	5



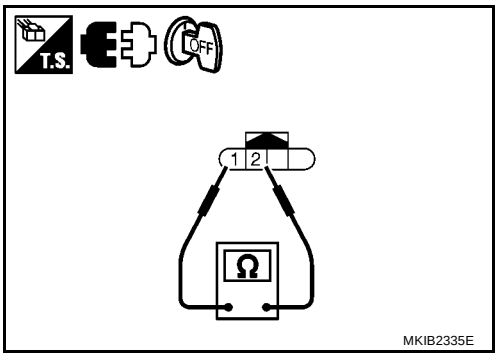
OK or NG

OK >> GO TO 2.
NG >> GO TO 4.

2. CHECK AMBIENT SENSOR

1. Turn ignition switch OFF.
2. Check ambient sensor.

Ambient sensor connector	Terminals		Temperature (°C)	Resistance (kΩ)
E17	1	2	–15	12.73
			–10	9.92
			0	6.19
			10	3.99
			20	2.65
			30	1.81
			40	1.27



OK or NG

OK >> GO TO 3.
NG >> Replace ambient sensor.

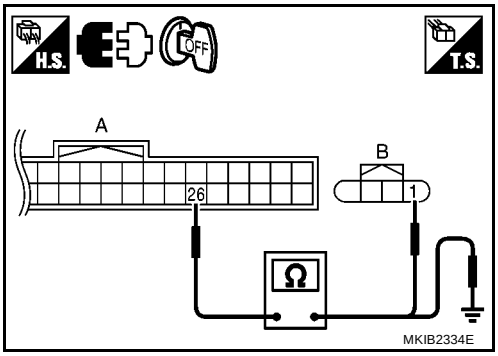
3. CHECK AMBIENT SENSOR CIRCUIT (–)

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector and ambient sensor harness connector.

A		B		Continuity
Combination meter connector	Terminal	Ambient sensor connector	Terminal	
M27	26	E17	1	Yes

3. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	26		No



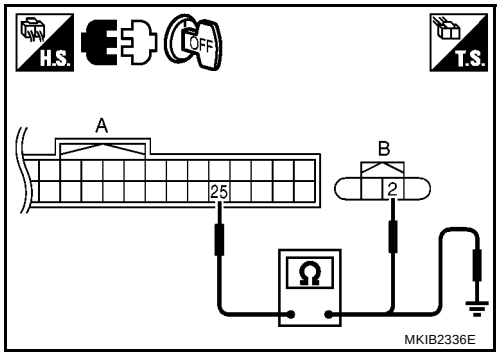
OK or NG

OK >> Replace combination meter.
NG >> Repair harness or connector.

4. CHECK AMBIENT SENSOR CIRCUIT (+)

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector and ambient sensor harness connector.

A		B		Continuity
Combination meter connector	Terminal	ambient sensor connector	Terminal	
M27	25	E17	2	Yes



4. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	25		No

OK or NG

OK >> Replace combination meter.
NG >> Repair harness or connector.

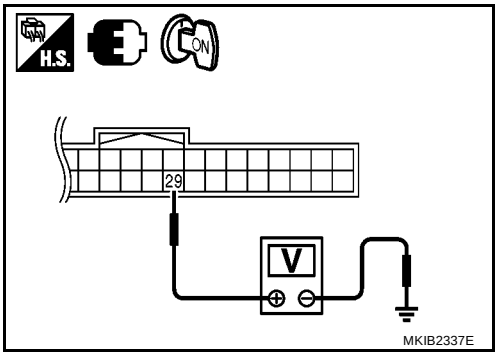
Check Steering Wheel Switch

BKS00106

1. CHECK COMBINATION METER INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between combination meter harness connector and ground.

Connector meter connector	Terminal (+)	Terminal (-)	Condition	Voltage (V) (Approx.)
M27	29	Ground	Steering wheel switch is pushed.	Battery voltage
			Steering wheel switch is released.	



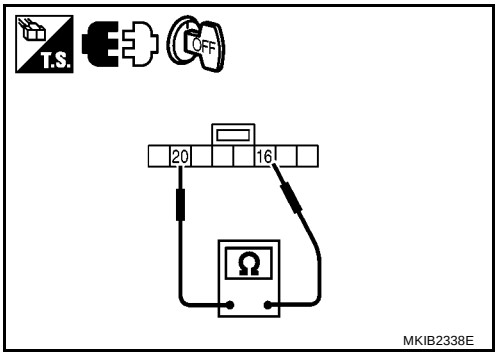
OK or NG

OK >> Replace combination meter.
NG >> GO TO 2.

2. CHECK STEERING WHEEL SWITCH

1. Turn ignition switch OFF.
2. Disconnect steering wheel switch.
3. Check steering wheel switch (drive computer).

Steering wheel switch connector	Terminal		Condition	Continuity
M502	16	20	Steering wheel switch is pushed.	No
			Steering wheel switch is released.	Yes



OK or NG

OK >> GO TO 3.
NG >> Replace steering wheel switch.

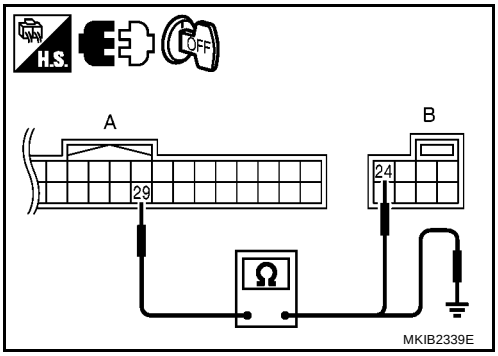
3. CHECK STEERING WHEEL SWITCH CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector and combination switch (spiral cable) harness connector.

A		B		Continuity
Combination meter connector	Terminal	Combination switch connector	Terminal	
M27	29	M42	24	Yes

3. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	29		No



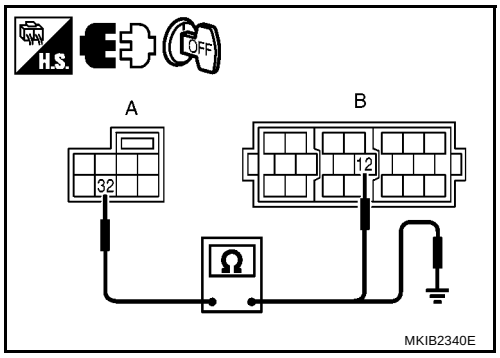
OK or NG

OK >> GO TO 4.
NG >> Replace harness or connector.

4. CHECK STEERING WHEEL SWITCH GROUND CIRCUIT

1. Disconnect audio unit connector.
2. Check continuity between combination switch harness connector and audio unit harness connector.

A		B		Continuity
Combination meter connector	Terminal	Audio unit connector	Terminal	
M42	32	M45	12	Yes



3. Check continuity between combination switch harness connector and ground.

A		Ground	Continuity
Combination switch connector	Terminal		
M42	32		No

OK or NG

OK >> Check audio unit ground circuit. Refer to PG-4, "POWER SUPPLY ROUTING CIRCUIT" .
NG >> Repair harness or connector.

Check Oil Level sensor

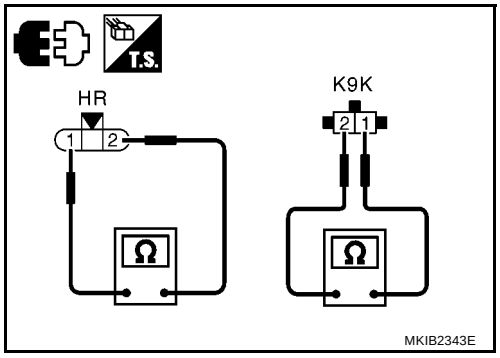
BKS0026N

NOTE:
For engine oil level inspection, refer to LU-6, "ENGINE OIL" (CR engine models), LU-16, "ENGINE OIL" (HR engine models), LU-23, "ENGINE OIL" (K9K engine models).

1. CHECK OIL LEVEL SENSOR

1. Turn ignition switch OFF.
2. Disconnect oil level sensor connector.
3. Check oil level sensor.

Oil level sensor	Terminal		Resistance value (Ω)
M44: HG engine models F126: K9K engine models	1	2	3 – 20



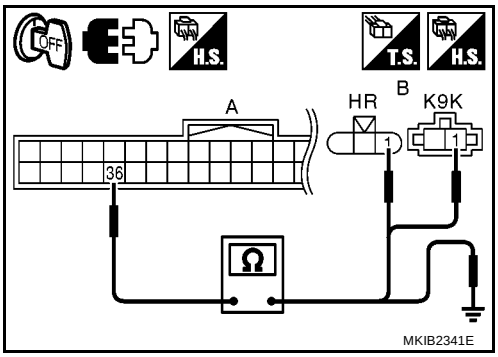
OK or NG

OK >> GO TO 2.
NG >> Replace oil level sensor.

2. CHECK OIL LEVEL SENSOR POWER SUPPLY CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector and oil level sensor harness connector.

A		B		Continuity
Combination meter	Terminal	Audio unit connector	Terminal	
M27	36	M44: HG engine models F126: K9K engine models	1	Yes



3. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter	Terminal		
M27	36		No

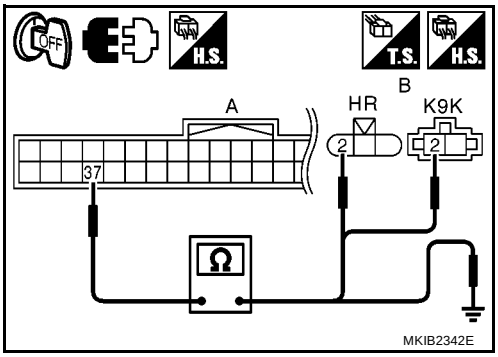
OK or NG

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

3. CHECK OIL LEVEL SENSOR GROUND CIRCUIT

1. Check continuity between combination meter harness connector and oil level sensor harness connector.

A		B		Continuity
Combination meter	Terminal	Audio unit connector	Terminal	
M27	37	M44: HG engine models F126: K9K engine models	2	Yes



2. Check continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter	Terminal		
M27	37		No

OK or NG

OK >> Replace combination meter.
NG >> Repair harness or connector.

WARNING LAMPS

PFP:24814

System Description

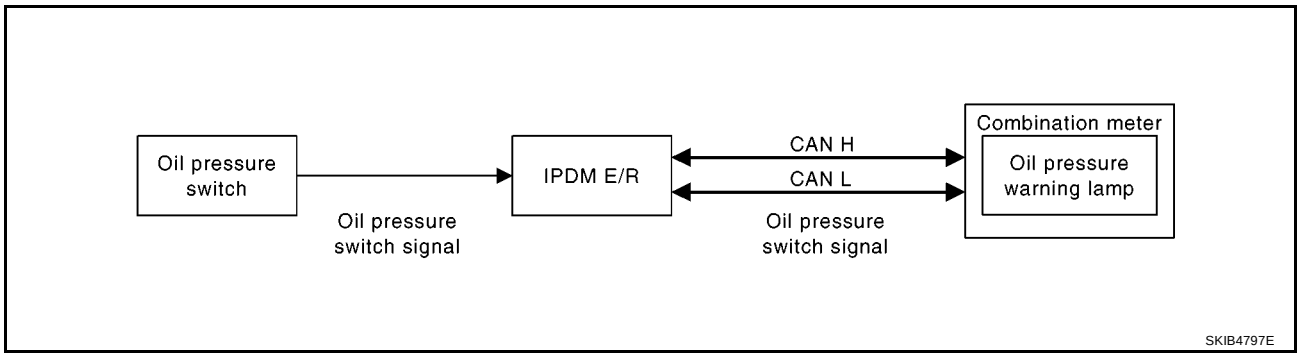
BKS0026Z

OIL PRESSURE WARNING LAMP

Oil Pressure Warning

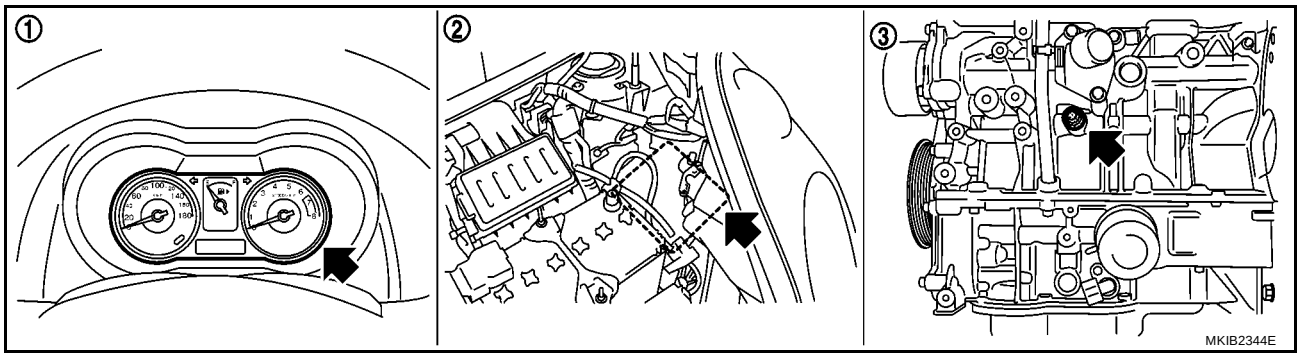
Oil pressure warning lamp turns ON when engine oil pressure reducing abnormally.

- IPDM E/R reads oil pressure switch signal from oil pressure switch, and transmits the signal to combination meter with CAN communication.
- Combination meter turns oil pressure warning lamp ON with received oil pressure switch signal.



Component Parts and Harness Connector Location

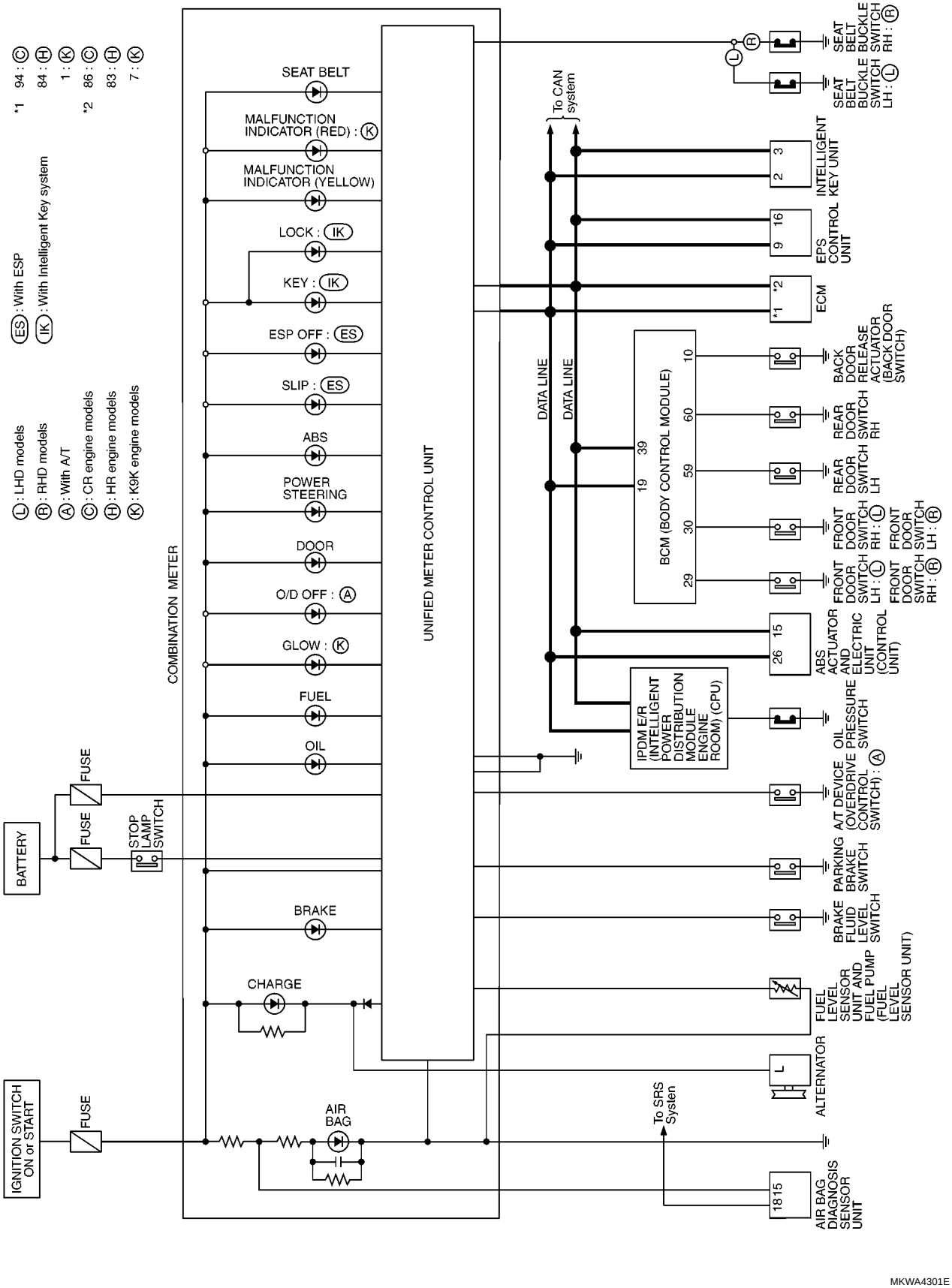
BKS00270



1. Combination meter M27
2. IPDM E/R E5, E12
3. Oil pressure switch
   F23: CR engine models
   F45: HR engine models
   F137 K9K engine models

Schematic

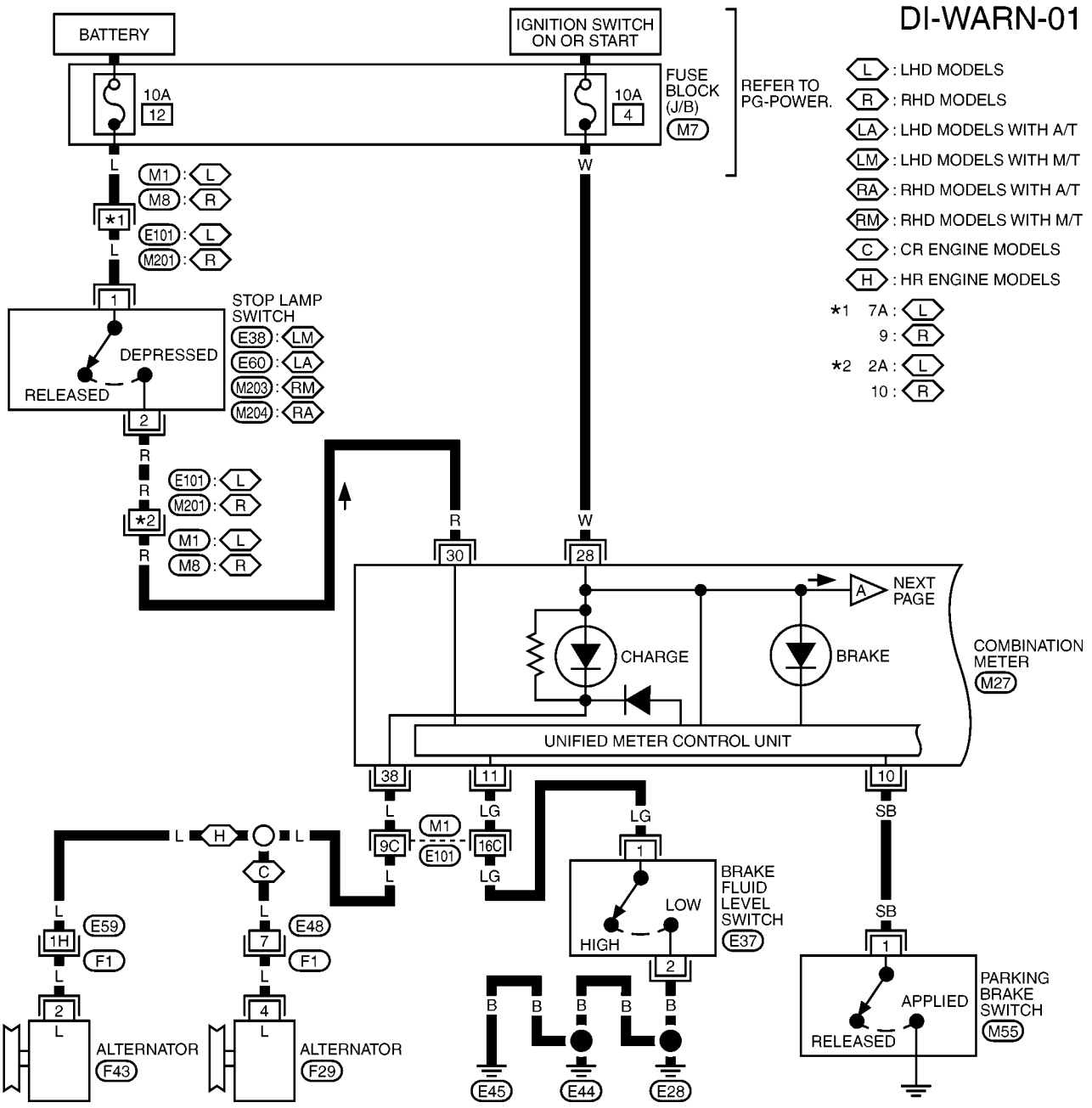
BKS00271

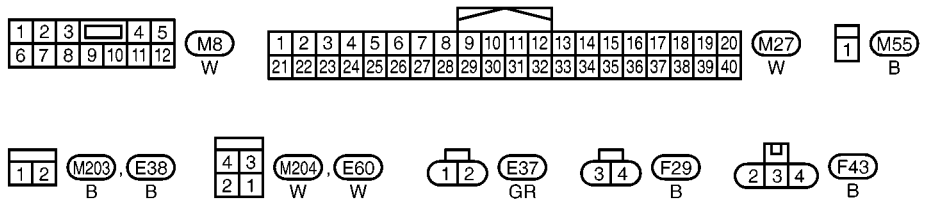


MKWA4301E

Wiring Diagram — WARN — / With Gasoline Engine Models

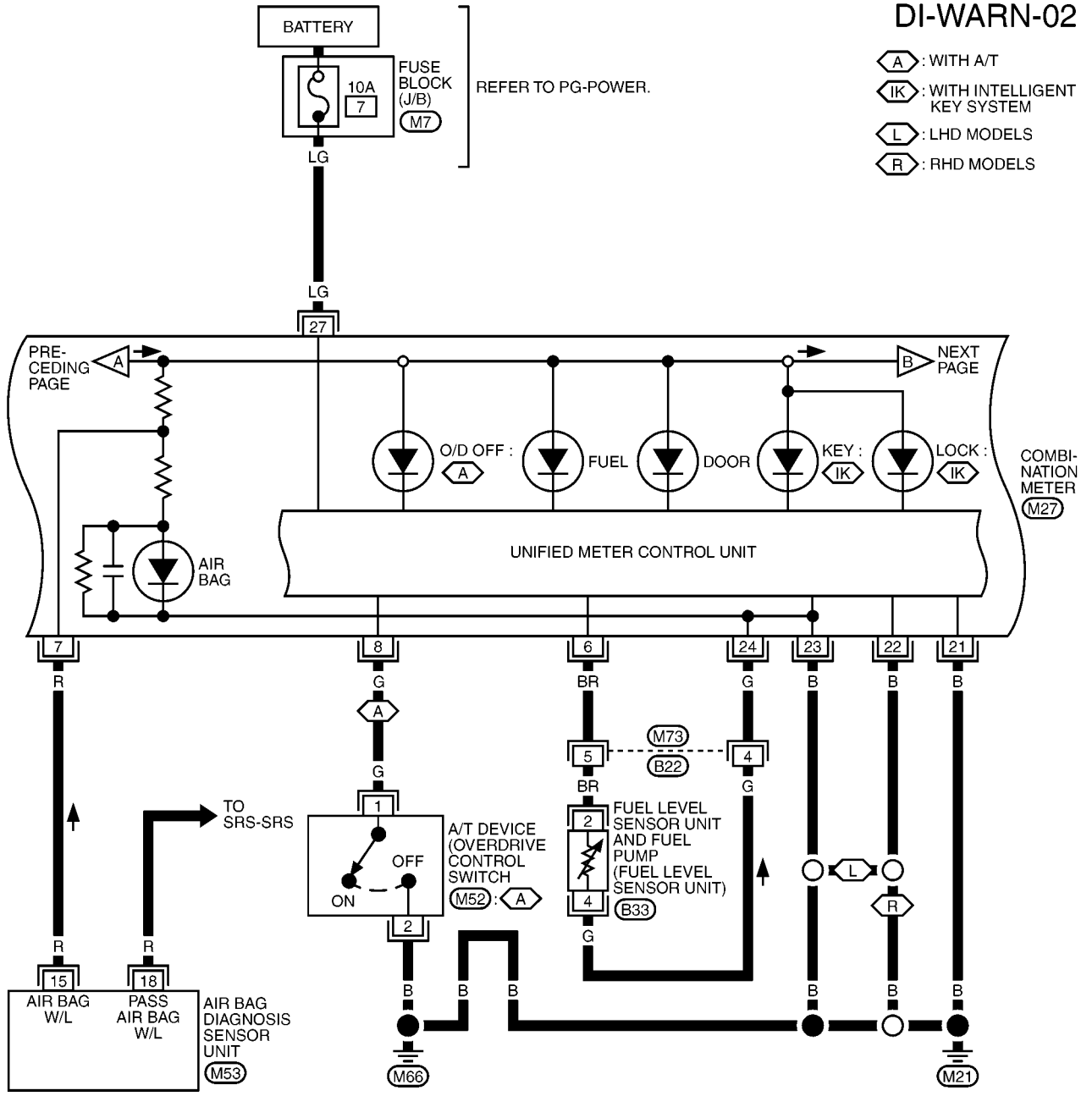
BKS00272

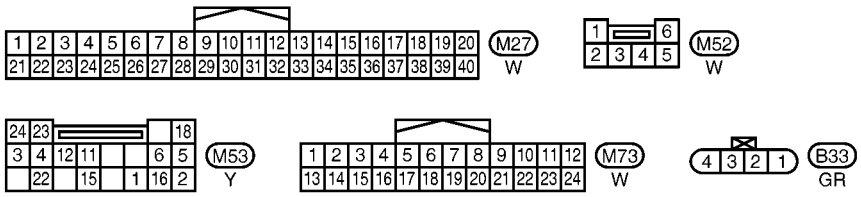




REFER TO THE FOLLOWING.
M1, F1 - SUPER MULTIPLE JUNCTION (SMJ)
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4302E

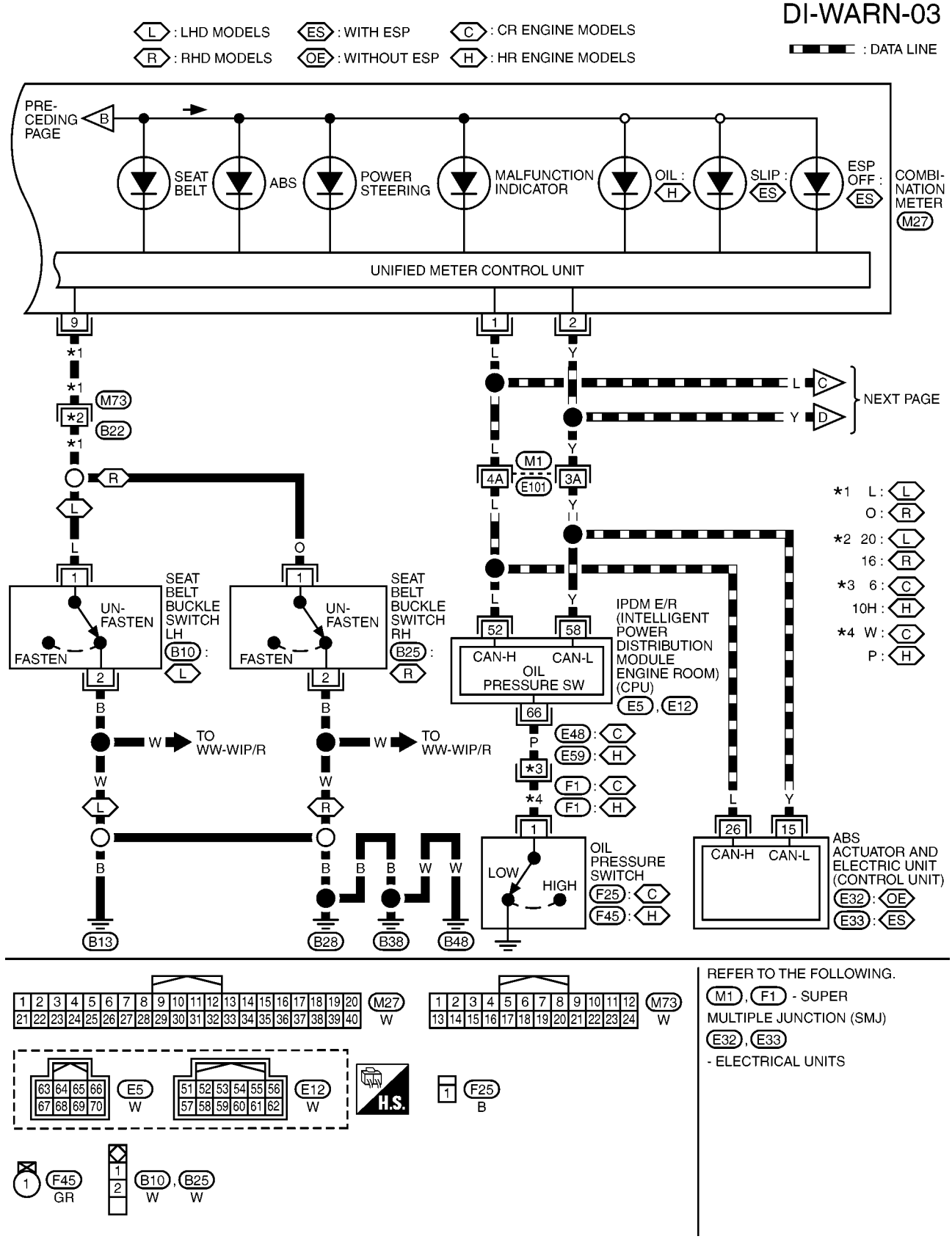




REFER TO THE FOLLOWING.
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

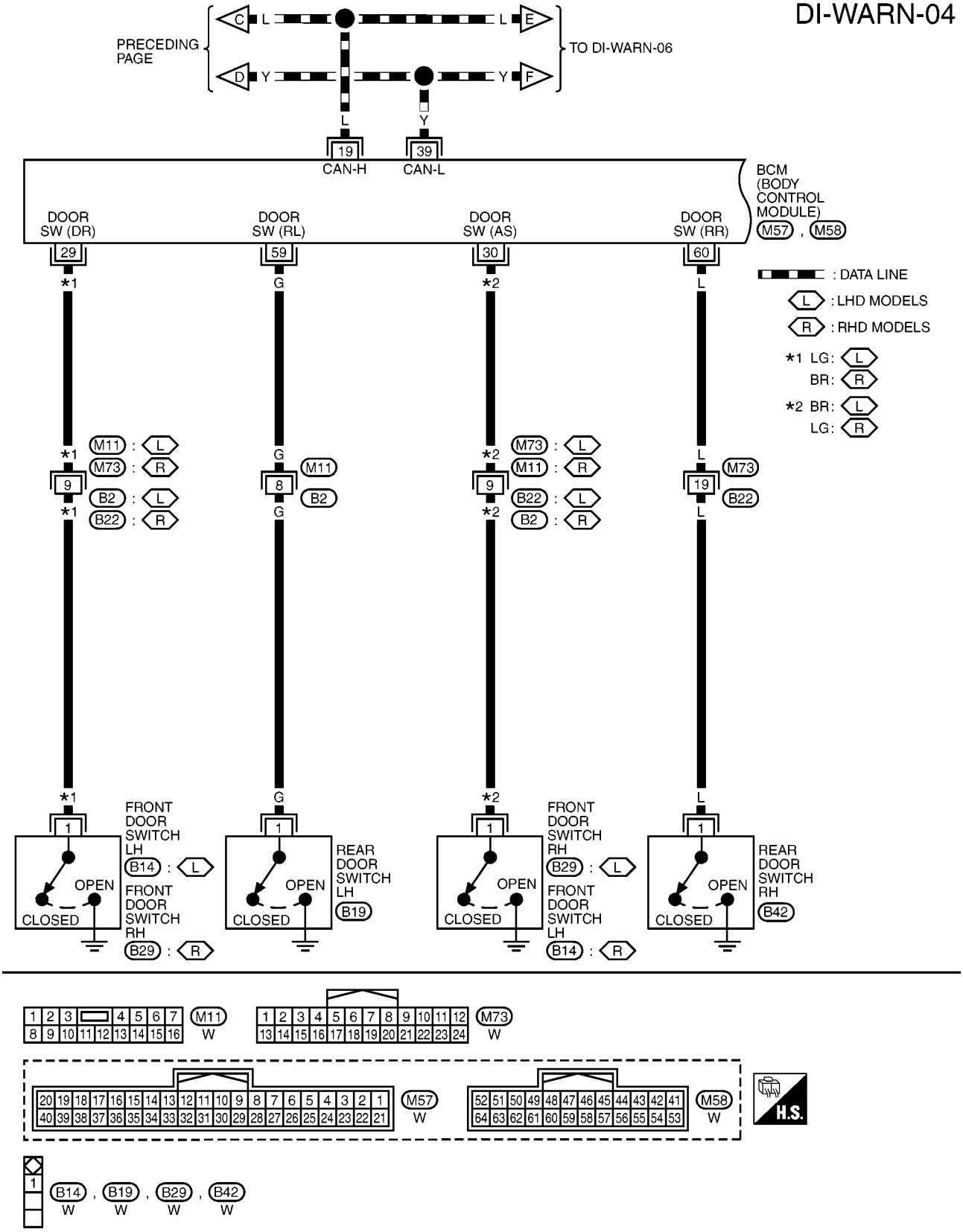
MKWA4303E

DI-WARN-03



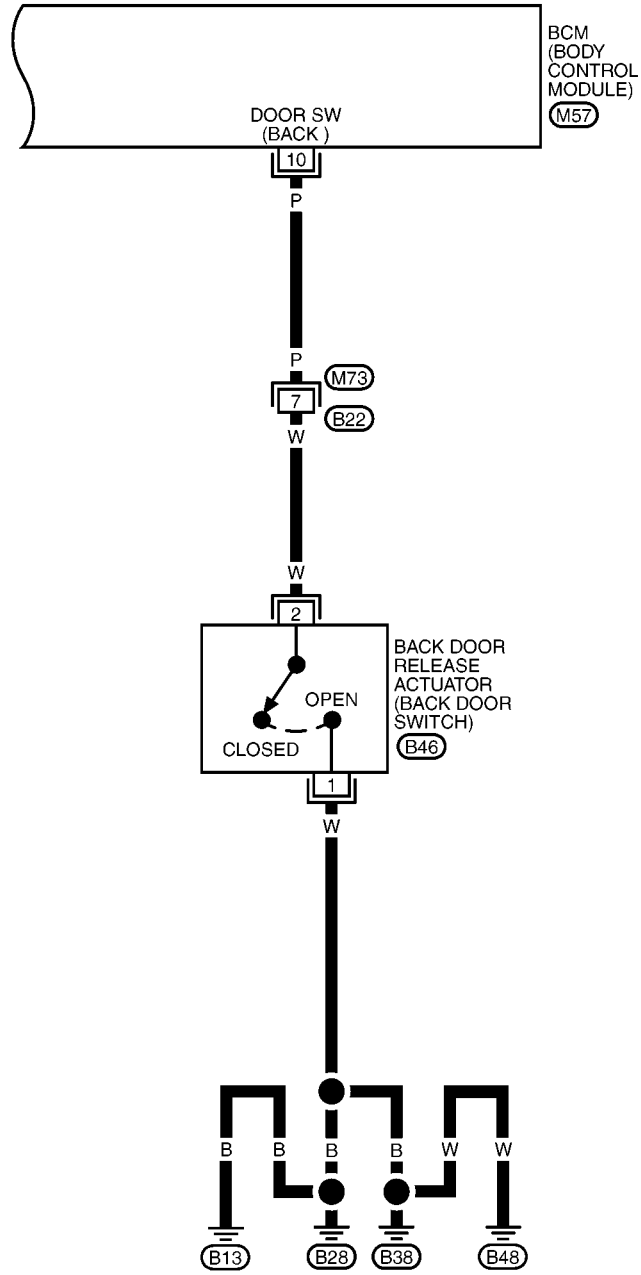
MKWA4304E

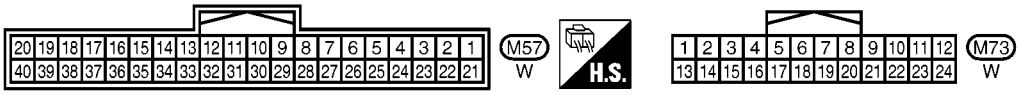
DI-WARN-04

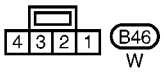


MKWA4305E

DI-WARN-05

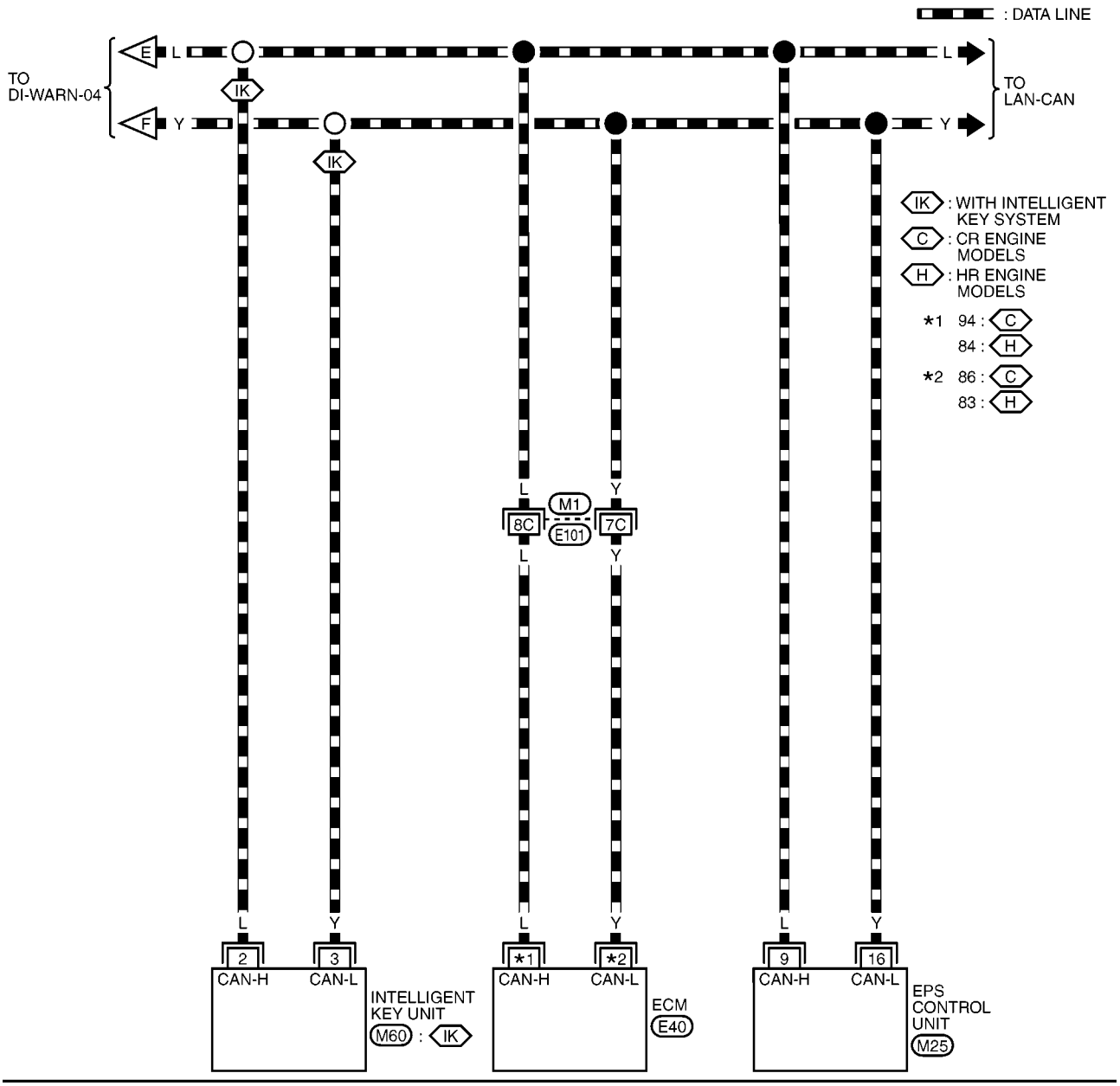


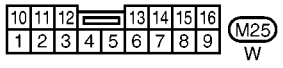


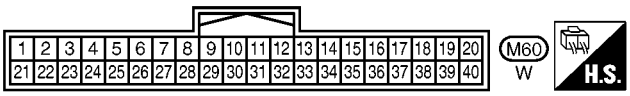


MKWA4306E

DI-WARN-06





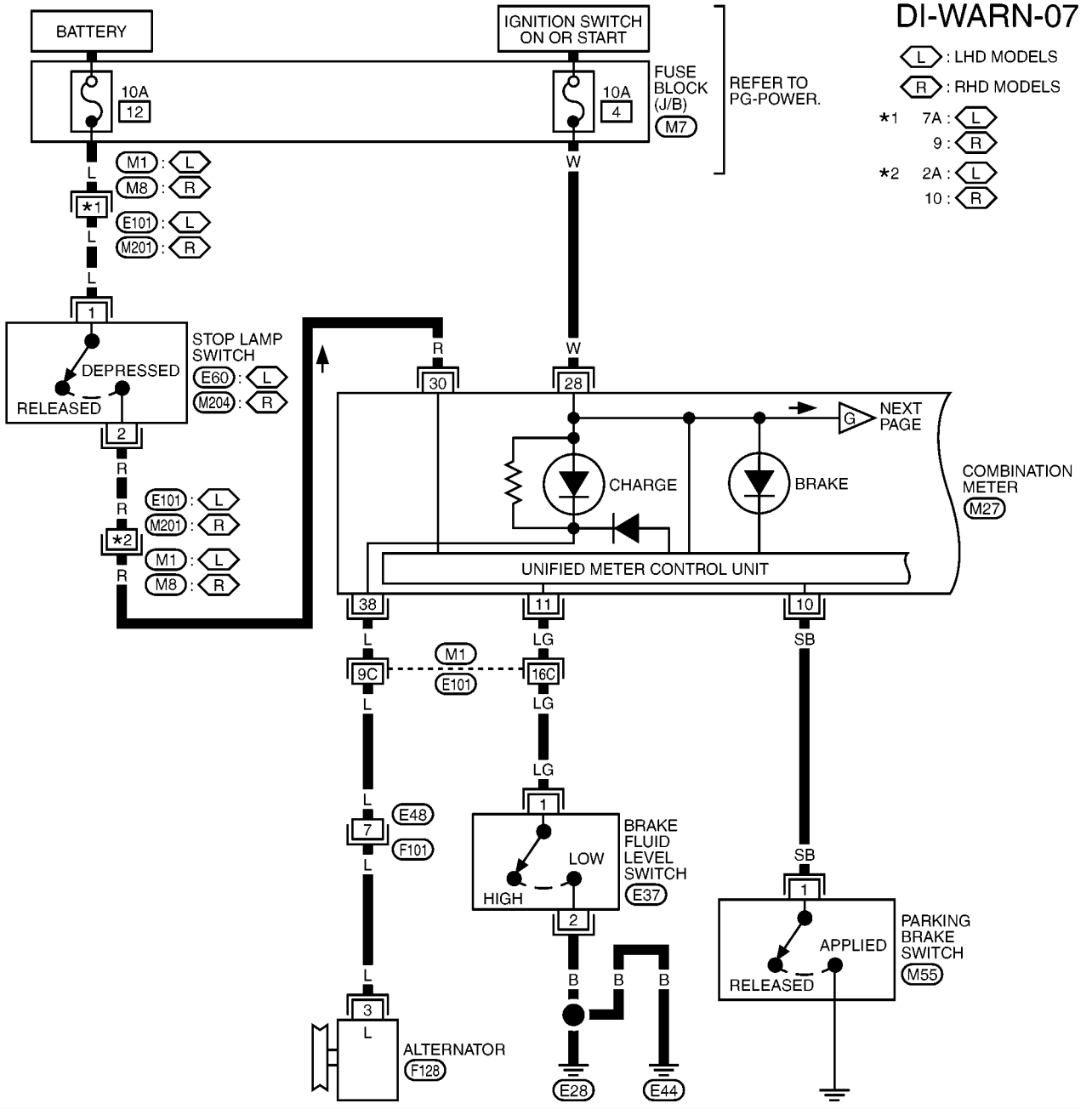


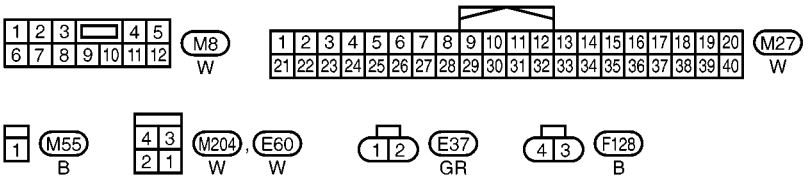
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
E40 - ELECTRICAL UNITS

MKWA4307E

Wiring Diagram — WARN — / With Diesel Engine Models

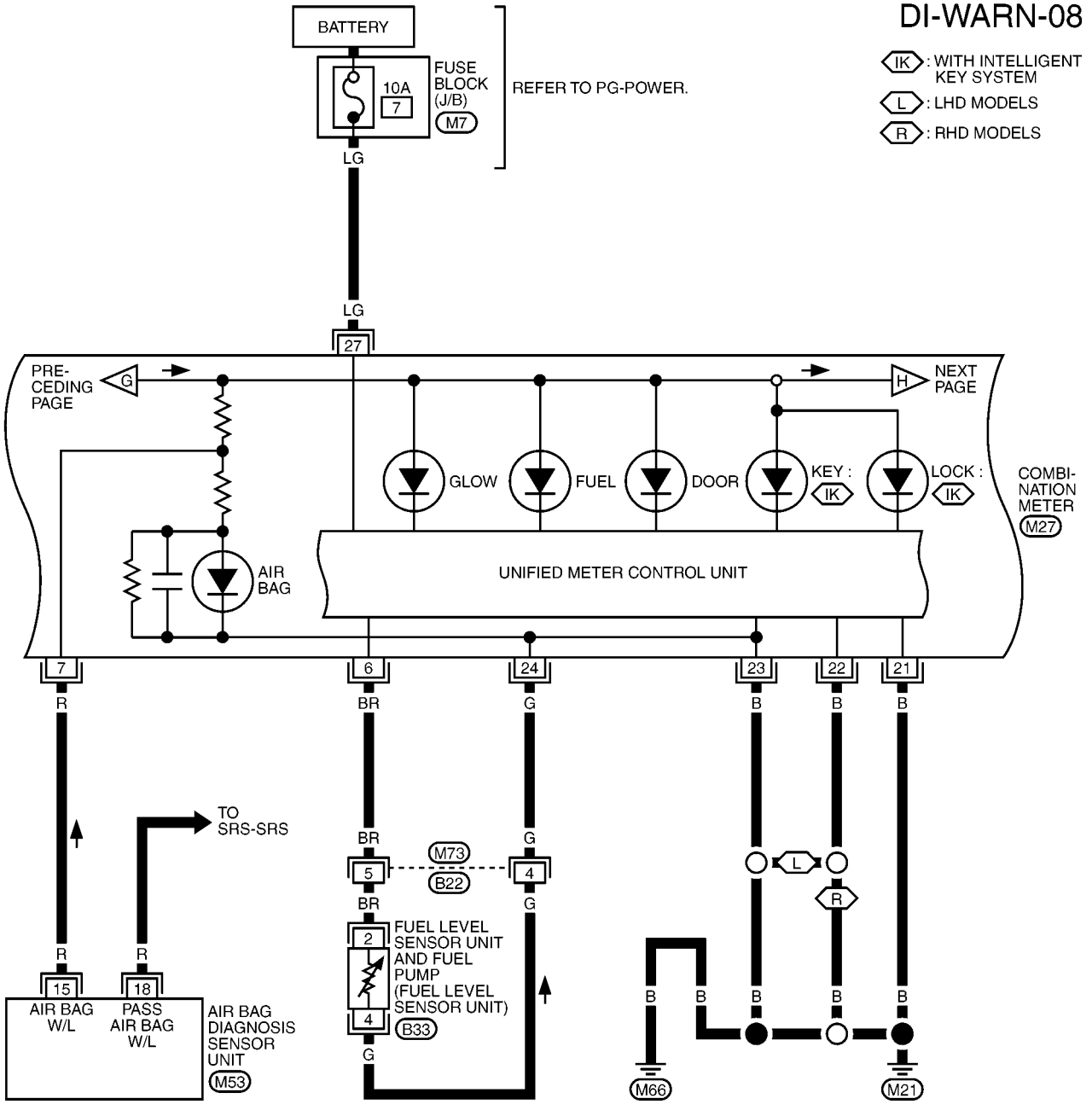
BKS00273

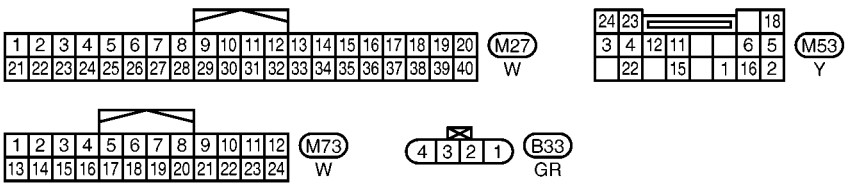




REFER TO THE FOLLOWING.
M1, F101 - SUPER MULTIPLE JUNCTION (SMJ)
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4308E

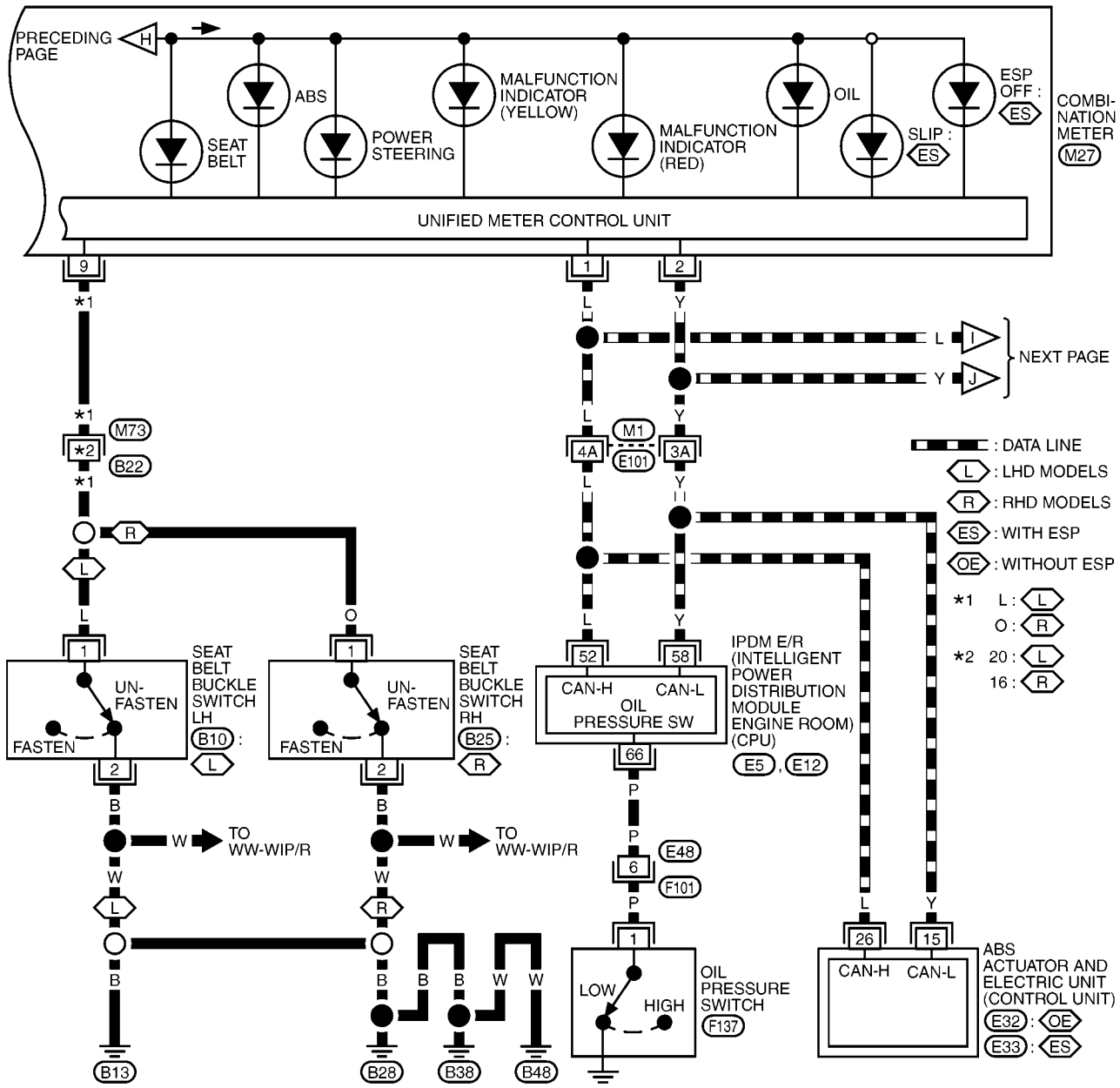


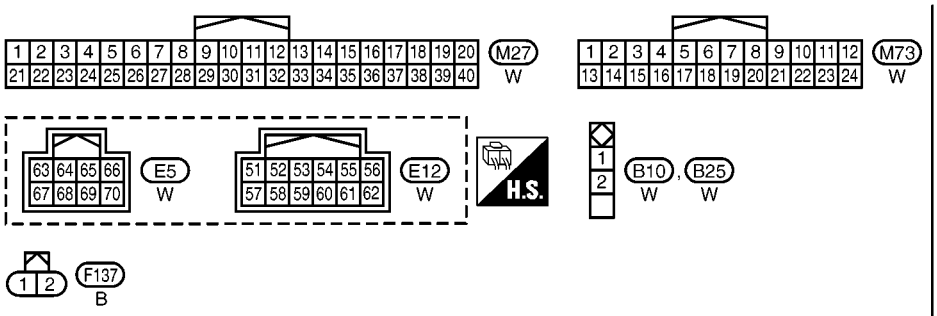


REFER TO THE FOLLOWING.
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4309E

DI-WARN-09



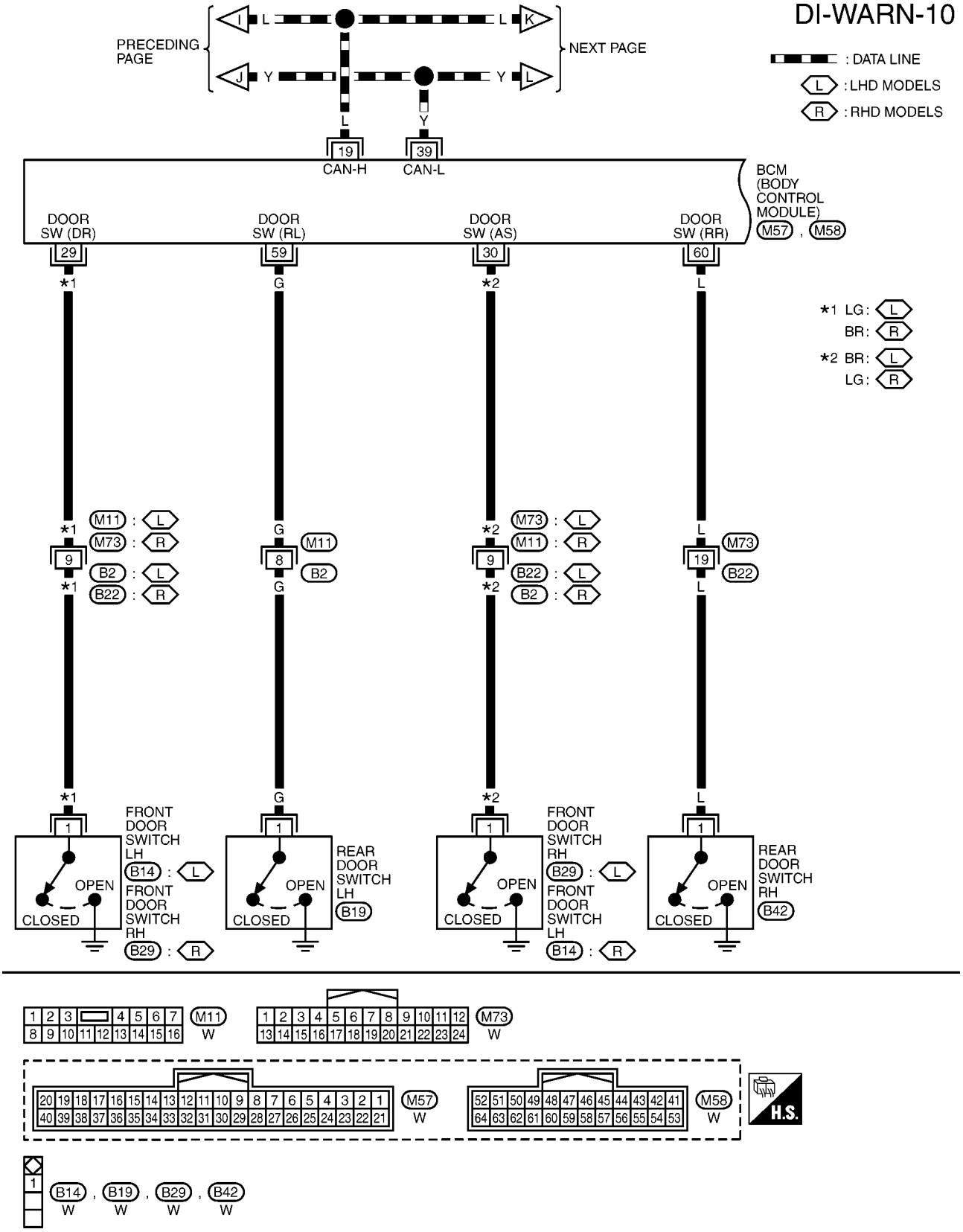


REFER TO THE FOLLOWING.

M1, F101 - SUPER MULTIPLE JUNCTION (SMJ)

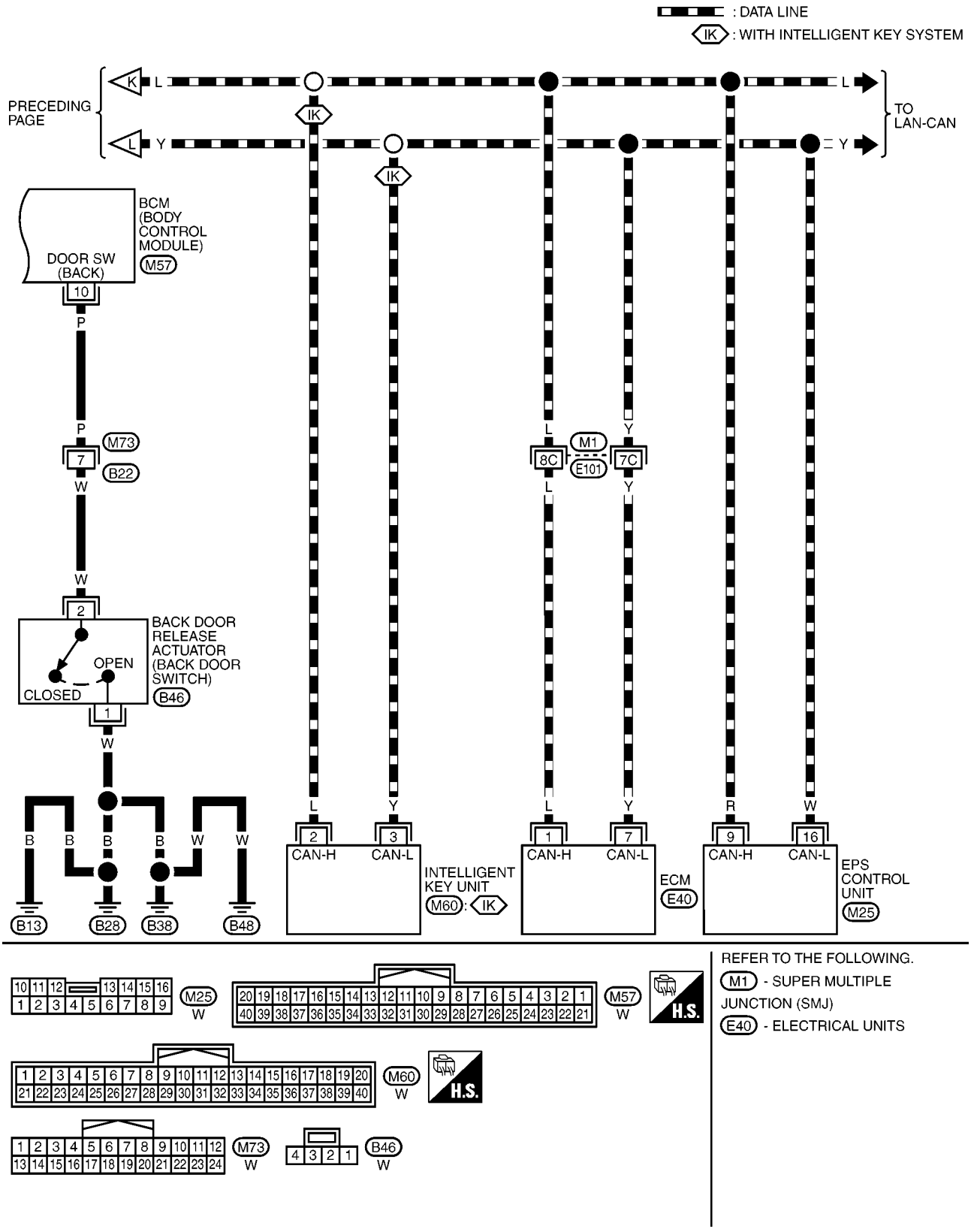
E32, E33 - ELECTRICAL UNITS

MKWA4310E


PRECEDING PAGE
NEXT PAGE
: DATA LINE
: LHD MODELS
: RHD MODELS
CAN-H
CAN-L
BCM (BODY CONTROL MODULE)
M57 , M58
DOOR SW (DR)
DOOR SW (RL)
DOOR SW (AS)
DOOR SW (RR)
*1 LG:
BR:
*2 BR:
LG:
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
OPEN
CLOSED
M11 W
M73 W
M57 W
M58 W
H.S.
B14 , B19 , B29 , B42

MKWA4311E

DI-WARN-11



MKWA4312E

Oil Pressure Warning Lamp Stays Off (Ignition Switch ON)

BKS00274

1. CHECK IPDM SELF-DIAGNOSIS

1. Perform IPDM E/R self-diagnosis. Refer to PG-20, "CONSULT-II Function (IPDM E/R)" .

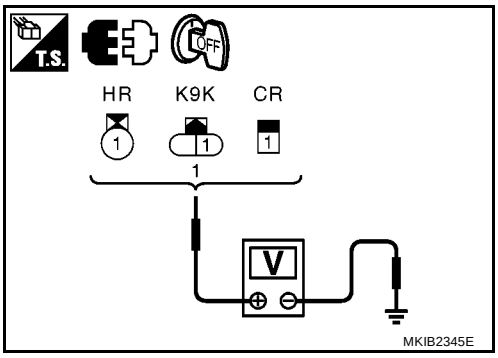
self-diagnostic results content

NON DTC IS DETECTED >>GO TO 2.
DTC IS DETECTED >>Check IPDM E/R. Refer to PG-33, "Inspection With CONSULT-II (Self-Diagnosis)" .

2. CHECK IPDM E/R INPUT SIGNAL

1. Disconnect oil pressure switch.
2. Turn the ignition switch ON.
3. Check voltage between oil pressure switch harness connector and ground.

Terminals			Voltage (V) (Approx.)
(+)		(-)	
Oil pressure switch connector	Terminal		
F23: CR engine models F45: HR engine models F137: K9K engine models	1	Ground	Battery voltage



OK or NG

OK >> Replace combination meter.
NG >> GO TO 3.

3. CHECK OIL PRESSURE SWITCH

Check oil pressure switch. Refer to DI-47, "Electrical Components Inspection" .

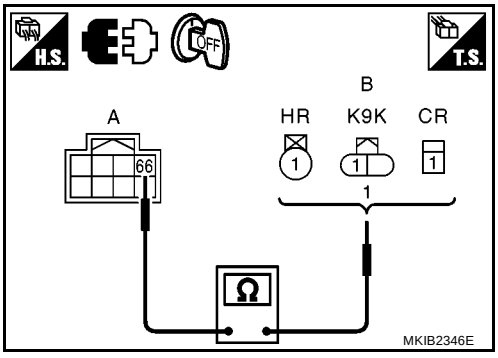
OK or NG

OK >> GO TO 4.
NG >> Replace the oil pressure switch.

4. CHECK OIL PRESSURE SWITCH CIRCUIT

1. Disconnect IPDM E/R connector and oil pressure switch connector.
2. Check continuity between IPDM E/R harness connector and oil pressure switch harness connector.

A		B		Continuity
IPDM E/R connector	Terminal	Oil pressure switch connector	Terminal	
E5	66	F23: CR engine models F45: HR engine models F137: K9K engine models	1	Yes



OK or NG

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

Oil Pressure Warning Lamp Does Not Turn Off (Oil Pressure Is Normal)

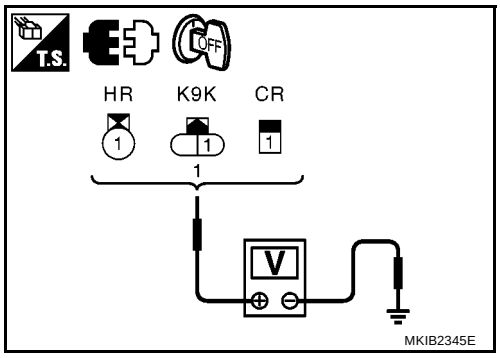
BKS00275

NOTE:
For oil pressure inspection, refer to LU-6, "ENGINE OIL" (CR engine models), LU-16, "ENGINE OIL" (HR engine models) or LU-23, "ENGINE OIL" (K9K engine models).

1. CHECK OIL PRESSURE SWITCH INPUT

1. Disconnect oil pressure switch.
2. Turn the ignition switch ON.
3. Check voltage between oil pressure switch harness connector and ground.

Terminals			Voltage (V) (Approx.)
(+)		(-)	
Oil pressure switch connector	Terminal		
F23: CR engine models F45: HR engine models F137: K9K engine models	1	Ground	Battery voltage



OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

2. CHECK OIL PRESSURE SWITCH

Check oil pressure switch. Refer to DI-47, "OIL PRESSURE SWITCH CHECK" .

OK or NG

OK >> Replace combination meter.
NG >> Replace the oil pressure switch.

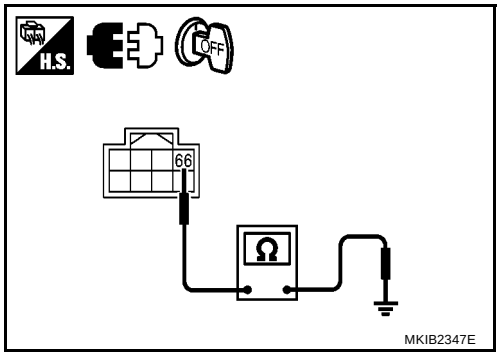
3. CHECK OIL PRESSURE SWITCH CIRCUIT

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

IPDM E/R connector	Terminal	Ground	Continuity
E5	66		No

OK or NG

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



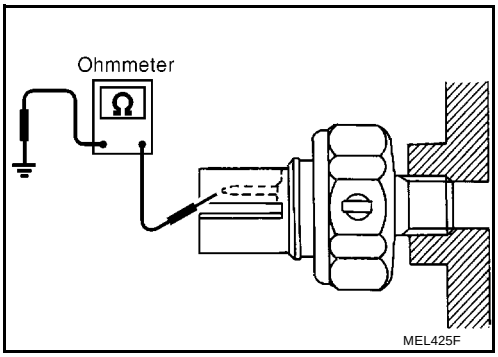
Electrical Components Inspection

BKS00276

OIL PRESSURE SWITCH CHECK

	Oil pressure kPa (bar, kg/cm^2 , psi)	Continuity
Engine running	More than 10 - 20 (0.10 - 0.20, 0.1 - 0.2, 1 - 3)	No
Engine not running	Less than 10 - 20 (0.10 - 0.20, 0.1 - 0.2, 1 - 3)	Yes

Check the continuity between the terminals of oil pressure switch and body ground.



A/T INDICATOR

PFP:24814

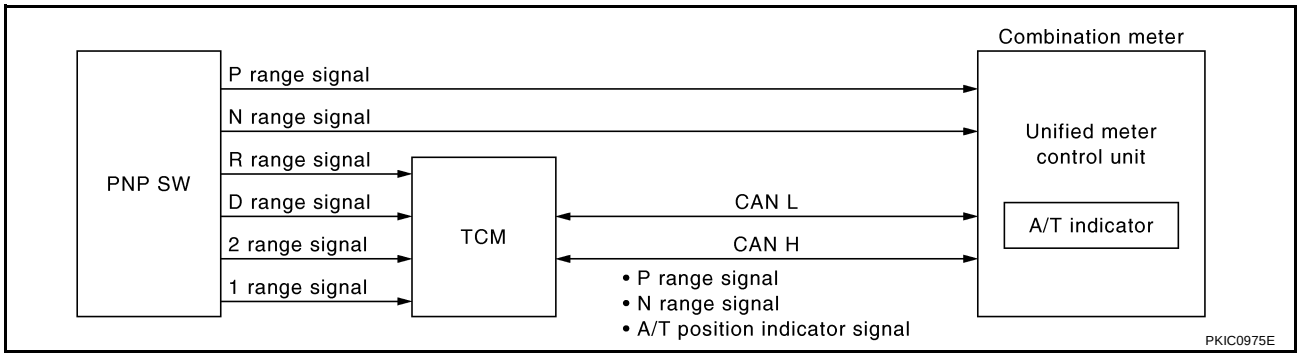
System Description

BKS0026J

A/T position is displayed in the segment display in the combination meter.

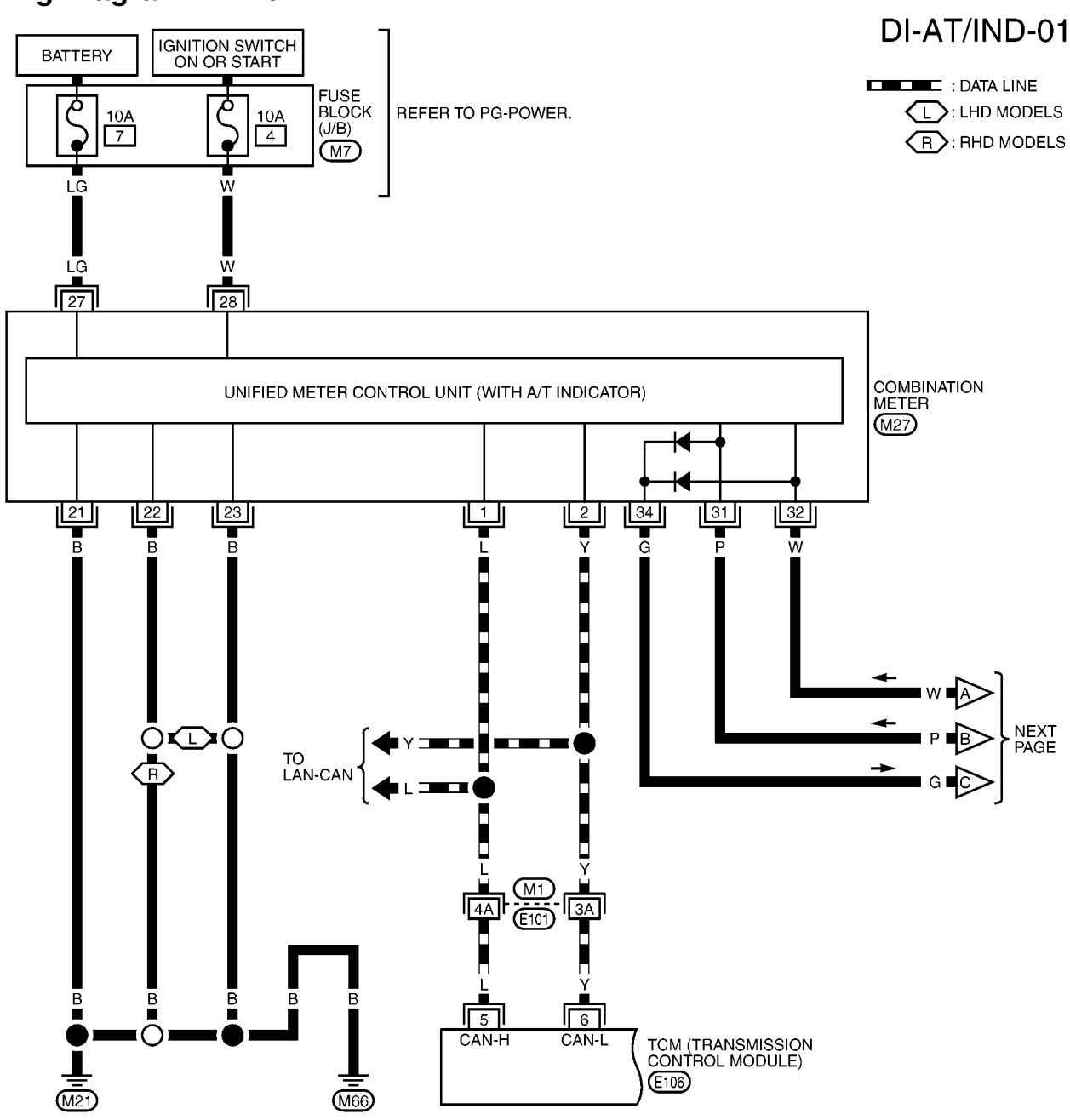
FEATURE DESCRIPTION

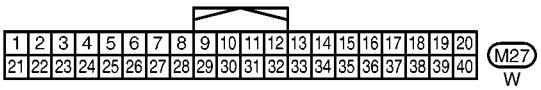
When TCM detects output A/T position indicator signals (R-range, D-range, 2-range, and 1-range) from PNP switch and A/T position indicator signals (P-range and N-range) input from combination meter, TCM sends A/T position indicator signals to combination meter with the CAN communication. Combination meter indicates received shift position.

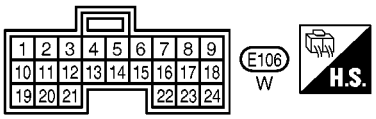


Wiring Diagram — AT/IND —

BKS0026K



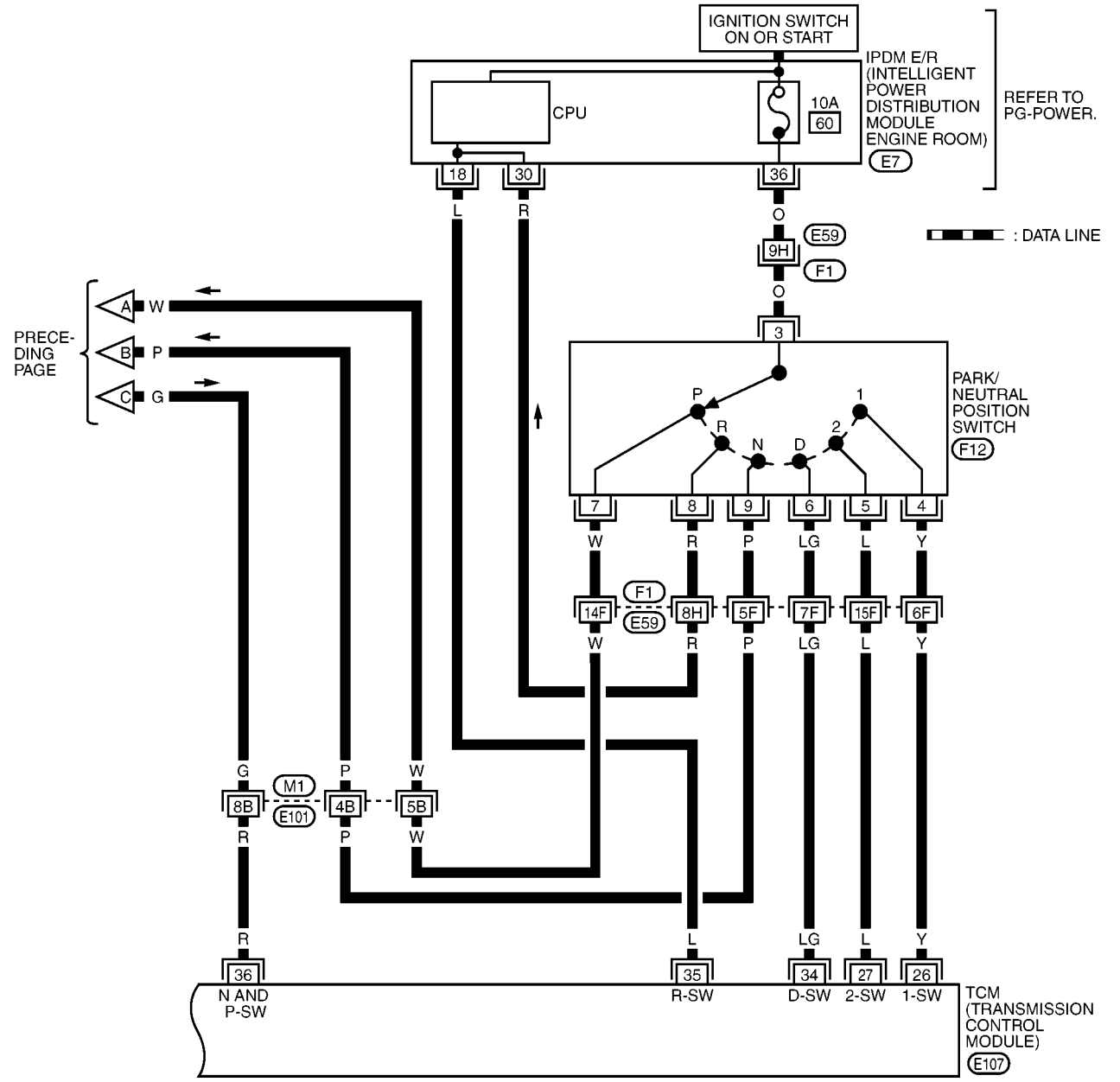


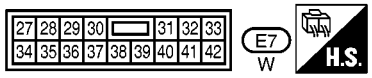


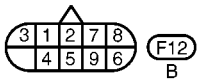
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4380E

DI-AT/IND-02







REFER TO THE FOLLOWING.
M1 , F1 - SUPER MULTIPLE JUNCTION (SMJ)
E107 - ELECTRICAL UNITS

MKWA4381E

A/T Indicator Does Not Illuminate

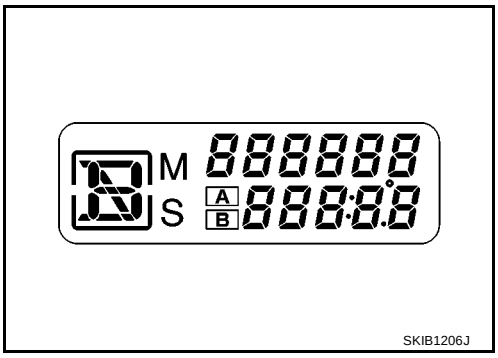
BKS0026L

1. CHECK SEGMENT OF A/T INDICATOR

Perform self-diagnosis of combination meter. Refer to DI-10, "Combination Meter Self-Diagnosis" .

Are all segments displayed?

YES >> GO TO 2.
NO >> Replace combination meter.



SKIB1206J

2. CHECK SELF-DIAGNOSIS RESULTS OF TCM

Perform self-diagnosis of TCM. Refer to AT-83, "CONSULT-II Function (A/T)" .

OK or NG

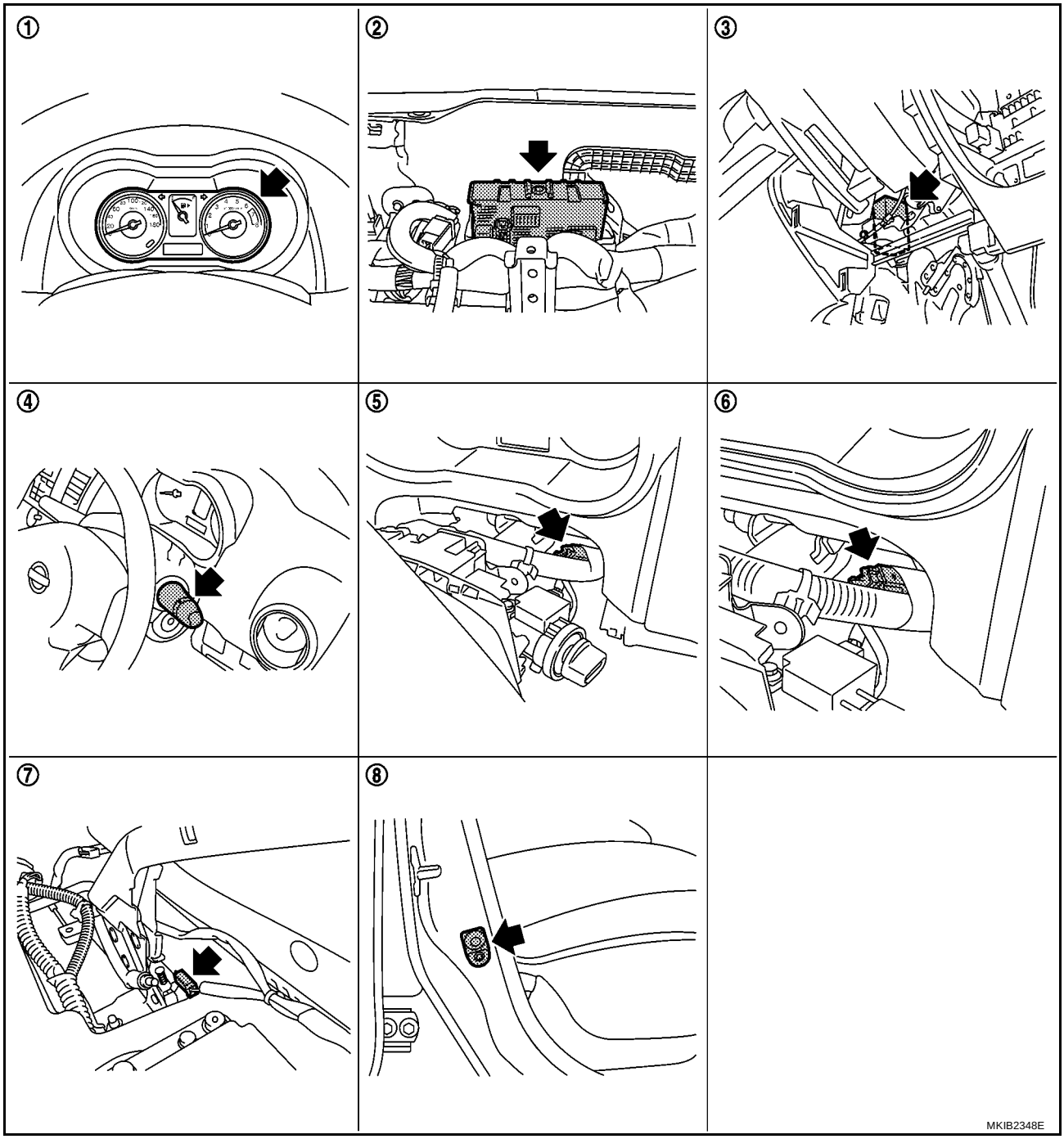
OK >> Check TCM input/output signal. Repair of replace malfunctioning part, if necessary. Refer to AT-80, "TCM Terminals and Reference Value" .
NG >> Check applicable part, and repair or replace corresponding parts.

WARNING CHIME

PFP:24814

Component Parts and Harness Connector Location

BKS0010E



1. Combination meter M27
2. BCM M57,M59
3. Intelligent Key unit M60
4. Combination switch M38
5. Key and ignition knob switch M34 (With Intelligent Key system)
6. Key switch M33 (Without Intelligent Key system)
7. Parking break switch M55
8. Front door switch B14: LHD models B29: RHD models

System Description

BKS0010F

The warning chime is controlled by the BCM.
The warning chime is located in the combination meter.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 40A fusible link (letter **J** , located in fuse and fusible link box)
- to BCM terminals 74 and 79
- through 10A fuse [No. 7, located in fuse block (J/B)]
- to combination meter terminal 27
- through 10A fuse [No. 9, located in the fuse block (J/B)]
- to key switch terminal 2 (without Intelligent Key system)
- through 10A fuse [No. 13, located in the fuse block (J/B)]
- to key switch and ignition knob terminals 2 and 4 (with Intelligent Key system).

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

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to BCM terminal 24.
- through 10 A fuse [No. 4, located in the fuse block (J/B)]
- to combination meter terminals 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.

IGNITION KEY WARNING CHIME

With the key in the ignition key cylinder, the ignition switch in OFF or ACC position, and the driver's door open, the warning chime will sound.
Power is supplied

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

Ground is supplied

- from front door switch LH (LHD models) or RH (RHD models) terminal 1
- to BCM terminal 29.

Ground is supplied through the case of the front door switch LH (LHD models) or RH (RHD models).
BCM sends buzzer output signal to combination meter via CAN communication line.
When combination meter receives buzzer output signal, it sounds warning chime.

INTELLIGENT KEY SYSTEM WARNING CHIME

For information regarding Intelligent Key system, BL-135, "WARNING AND ALARM FUNCTION" .

LIGHT WARNING CHIME

With ignition switch OFF position, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound. [Except when headlamp battery saver control operates (for 5 minutes after ignition switch is turned to OFF or ACC position) and headlamps do not illuminate.]
Signal is supplied

- from combination switch (lighting switch) terminals 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10
- to BCM terminals 7, 8, 9, 13, 14, 15, 27, 28, 33 and 34

NOTE:
BCM detection lighting switch in 1st or 2nd position, refer to WW-8, "COMBINATION SWITCH READING FUNCTION" .
Ground is supplied

- from front door switch LH (LHD models) or RH (RHD models) terminal 1
- to BCM terminal 29.

Ground is supplied through the case of the front door switch LH (LHD models) or RH (RHD models).
BCM sends buzzer output signal to combination meter via CAN communication line. when combination meter receives buzzer output signal, it sounds warning chime.

SEAT BELT WARNING CHIME

Seat belt warning chime will sound for approximately 90 seconds, when vehicle speed becomes more than 25 km/h (16 MPH) with driver or passenger seat belt unfastened.
When driver side seat belt is unfastened, ground is supplied as signal

- to combination meter terminal 9
- through seat belt buckle switch (driver side) terminals 1 and 2
- through grounds B13, B28, B38 and B48.

ABS actuator and electric unit (control unit) provides a vehicle speed signal to the combination meter.
Combination meter detects that driver or passenger seat belt is unfastened (seat belt buckle switch ON) and vehicle speed more than 25 km/h (16 MPH). And then it sounds seat belt warning chime for 90 seconds.

NOTE:
Warning chime should be turned off under the following conditions.

- Seat belt is fastened (seat belt buckle switch OFF)
- 90 seconds elapsed since warning chime start

PARKING BRAKE WARNING CHIME

Parking break warning chime will sound, when vehicle speed becomes more than 7 km/h with parking break applied (parking break: ON) until parking break is released or vehicle speed become less than 3km/h.
When parking break is applied, ground is supplied as signal

- to combination meter terminal 10
- through parking break switch terminals 1 and ground part of parking break switch.

CAN Communication

BKS0010G

SYSTEM DESCRIPTION

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

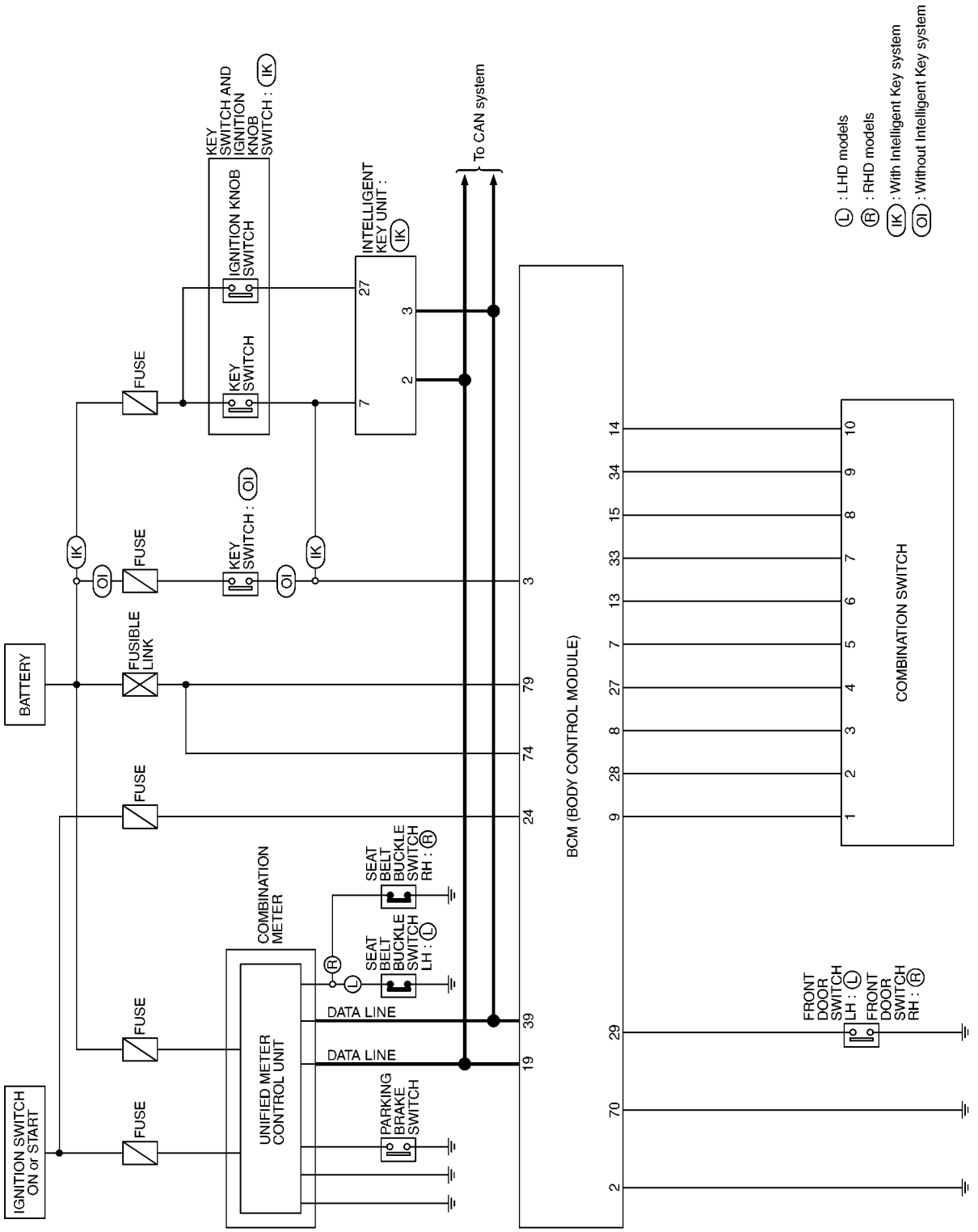
CAN Communication Unit

BKS0010H

Refer to LAN-27, "CAN Communication Unit" .

Schematic

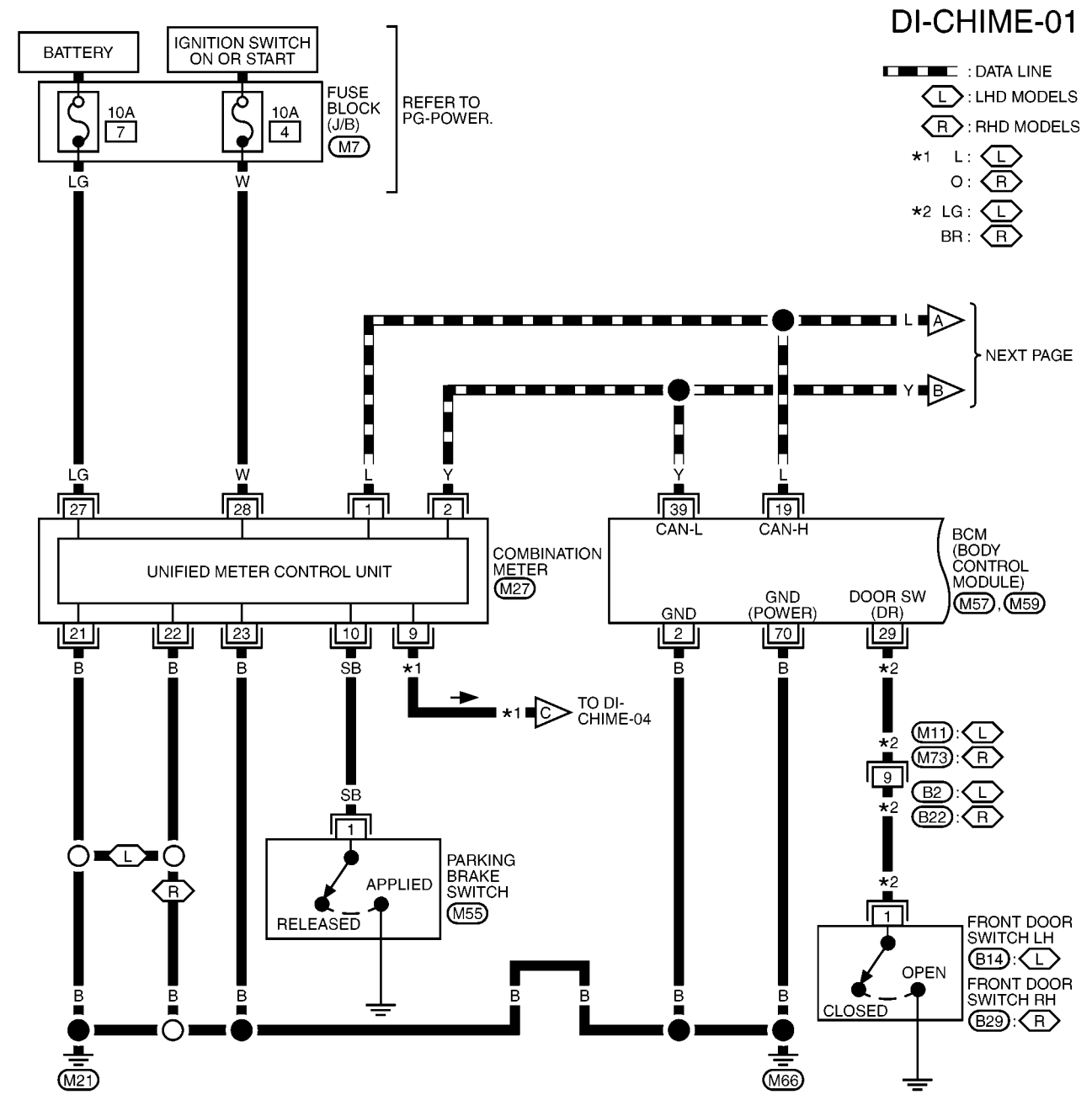
BKS0010I

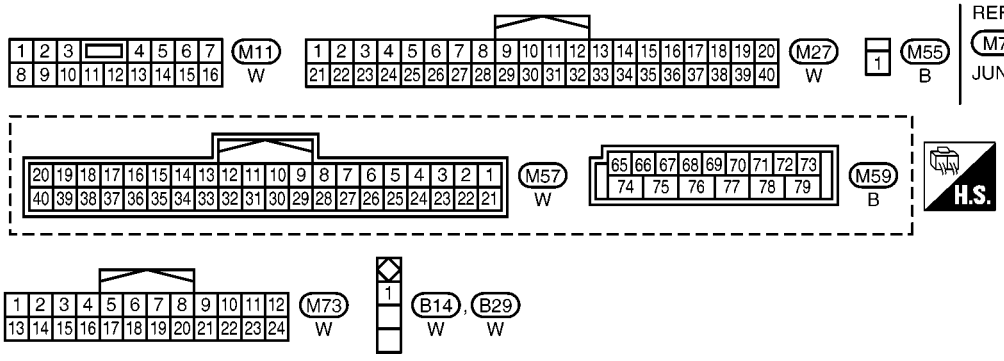


MKWA4313E

Wiring Diagram — CHIME —

BKS0010J

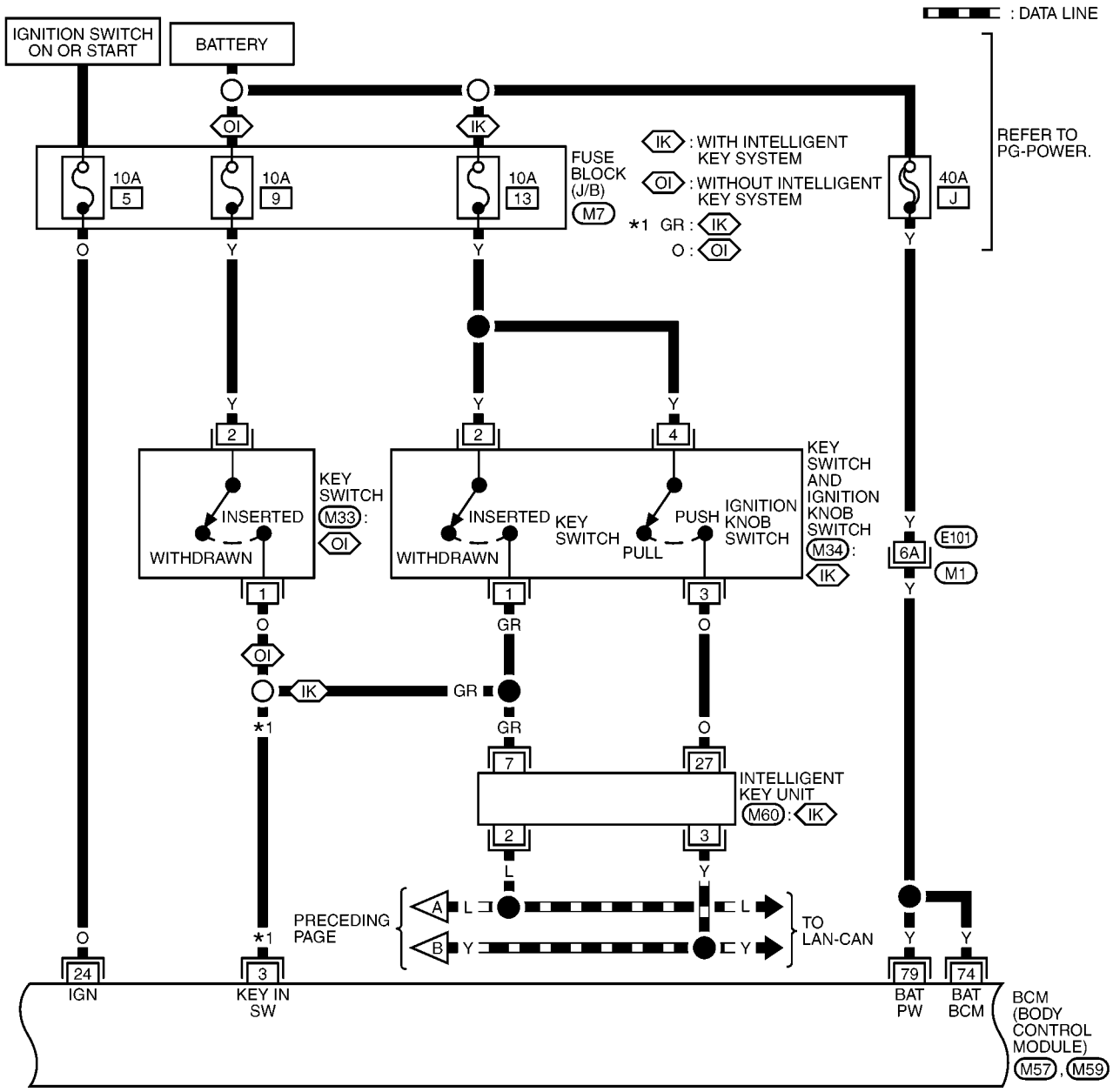


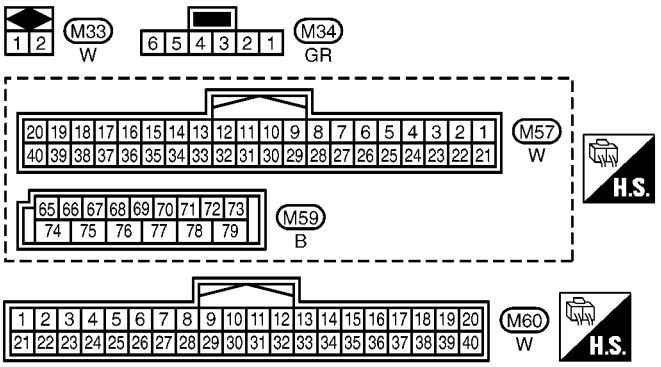


REFER TO THE FOLLOWING.
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4314E

DI-CHIME-02

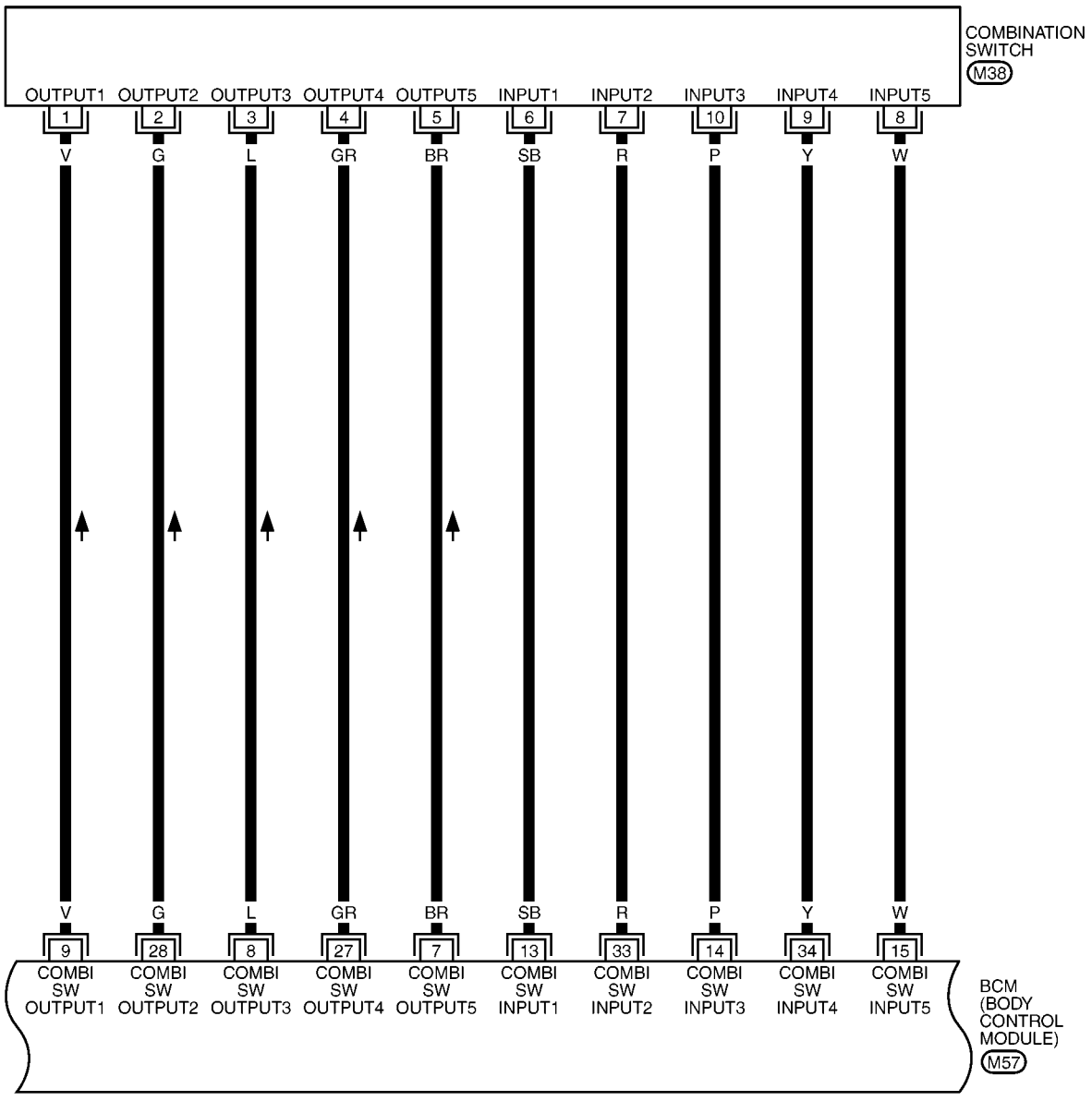


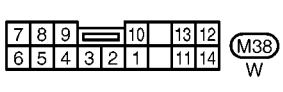


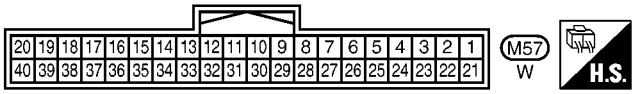
REFER TO THE FOLLOWING.
M1 - SUPER MULTIPLE JUNCTION (SMJ)
M7 - FUSE BLOCK - JUNCTION BOX (J/B)

MKWA4315E

DI-CHIME-03

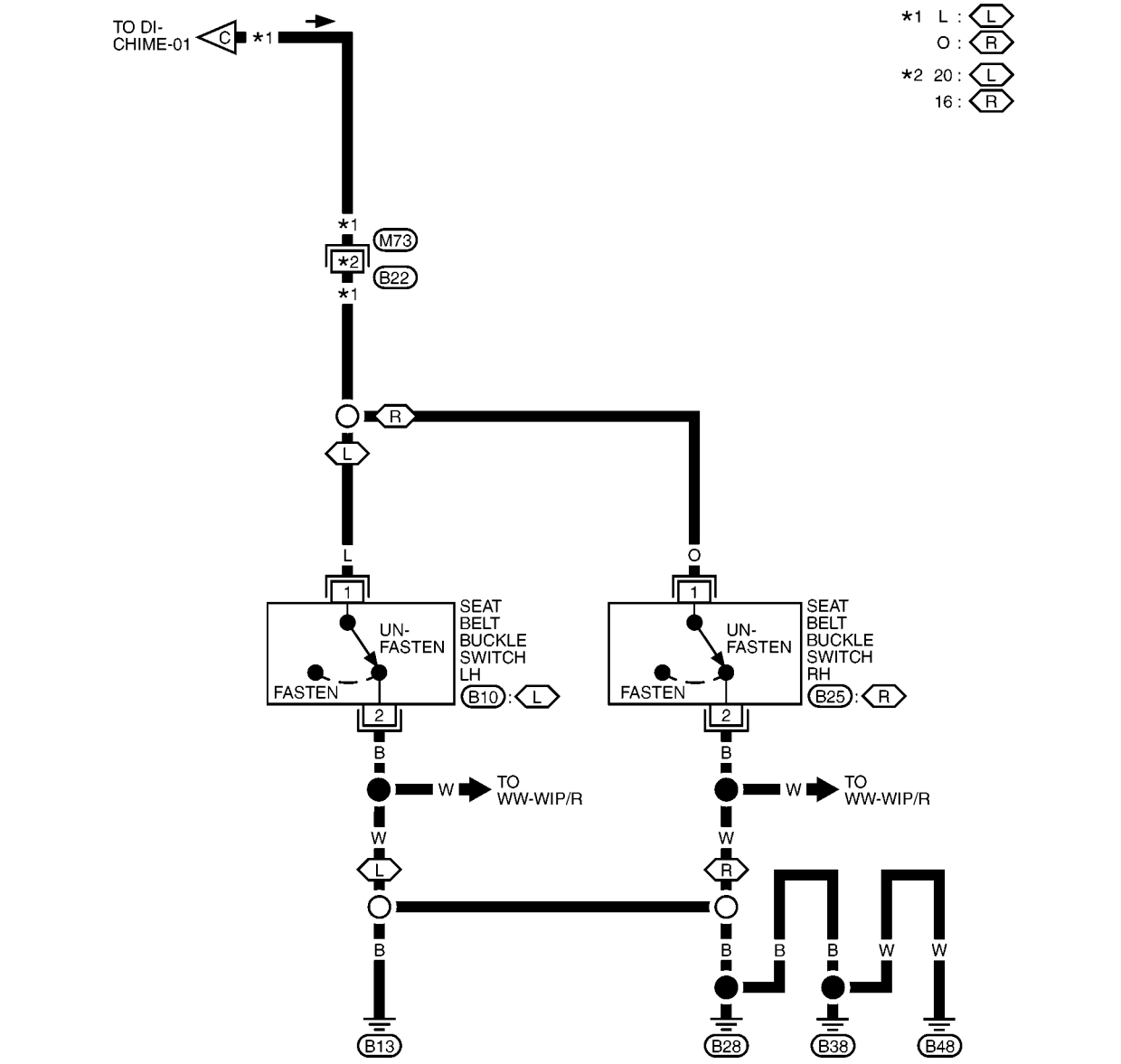


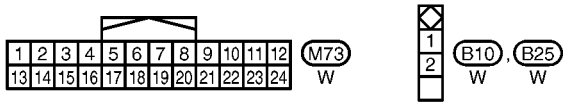




MKWA4316E

DI-CHIME-04

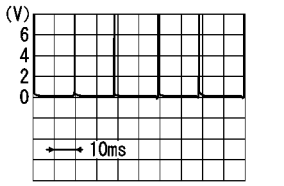




MKWA4317E

Terminals and Reference Value for BCM

BKS0010K

Terminal	Wire color	Item	Signal Input/ Output	Condition		Voltage (V) (Approx.)
				Ignition switch	Measurement method	
2	B	Ground	—	ON	—	0
3	GR (O)	Key switch signal	Input	OFF	key is withdrawn.	0
					Key is inserted.	Battery voltage
7	BR	Combination switch input 5	Output	ON	—	 SKIA2167J
8	L	Combination switch input 3	Output			
9	V	Combination switch input 1	Output			
27	GR	Combination switch input 4	Output			
28	G	Combination switch input 2	Output			
13	SB	Combination switch input 1	Input		● OFF ● Front wiper switch HI (Wiper intermittent dial position 4) ● Rear wiper switch INT (Wiper intermittent dial position 4) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2 ● Wiper intermittent dial position 3 ● Wiper intermittent dial position 6 ● Wiper intermittent dial position 7	WW-20, "Reference Values for BCM (Input)"
14	P	Combination switch input 3	Input		● OFF ● Lighting switch AUTO ● Rear fog lamp switch ● Front wiper switch MIST ● Front wiper switch INT ● Front wiper switch LO	WW-20, "Reference Values for BCM (Input)"
15	W	Combination switch input 5	Input		● OFF ● Lighting switch 1ST ● Lighting switch 2ND ● Lighting switch HIGH beam (Operates only HIGH beam switch) ● Turn signal switch to right	WW-20, "Reference Values for BCM (Input)"
19	L	CAN H	Input/Output	—	—	—
24	O	Power source (IGN)	Input	ON	—	Battery voltage

Terminal	Wire color	Item	Signal Input/ Output	Condition		Voltage (V) (Approx.)
				Ignition switch	Measurement method	
29	LG*1 BR*2	Front door switch (driver side)	Input	OFF	ON (open)	0
					OFF (closed)	Battery voltage
33	R	Combination switch input 2	Input	ON	● OFF ● Front washer switch (Wiper intermittent dial position 4) ● Rear wiper switch ON (Wiper intermittent dial position 4) ● Rear washer switch ON (Wiper intermittent dial position 4) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 5 ● Wiper intermittent dial position 6	WW-20, "Reference Values for BCM (Input)"
34	Y	Combination switch input 4	Input		● OFF ● Front fog lamp switch ON ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Turn signal switch to left	WW-20, "Reference Values for BCM (Input)"
39	Y	CAN L	Input/Output	—	—	—
70	B	Ground	—	ON	—	0
74	Y	Power source (BAT)	Input	OFF	—	Battery voltage
79	Y	Power source (BAT)	Input	OFF	—	Battery voltage

(): Without Intelligent Key system
*1: LHD models
*2: RHD models

Terminals and Reference Value for Combination Meter

BKS0010L

Terminal	Wire color	Item	Signal Input/ Output	Condition		Voltage (V) (Approx.)
				Ignition switch	Measurement method	
1	L	CAN H	Input/Output	—	—	—
2	Y	CAN L	Input/Output	—	—	—
9	L*1 O*2	Seat belt buckle switch (Driver side)	Input	ON	Unfastened.	0
					Fastened.	Battery voltage
10	SB	Parking brake switch	Input	ON	Applied	0
					Release	Battery voltage
21	B	Ground	—	ON	—	0
22	B	Ground	—	ON	—	0
23	B	Ground	—	ON	—	0
27	LG	Battery power supply	Input	OFF	—	Battery voltage
28	W	Ignition switch (ON or START)	Input	ON	—	Battery voltage

*1 : LHD models

*2 : RHD models

Trouble Diagnosis

BKS00277

HOW TO PERFORM TROUBLE DIAGNOSIS

1. Confirm the symptom and customer complaint.
2. Understand the outline of system. Refer to DI-53, "System Description" .
3. Perform the preliminary inspection. Refer to DI-63, "PRELIMINARY INSPECTION" .
4. Referring to trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to DI-63, "SYMPTOM CHART" .
5. Does warning chime system operate normally? If yes, GO TO 6. If not, GO TO 3.
6. INSPECTION END

PRELIMINARY INSPECTION

1. CHECK BCM (CONSULT-II)

Perform self-diagnosis of BCM. Refer to BCS-9, "CONSULT-II Function (BCM)" .

Self-diagnostic results

No malfunction detected>>**INSPECTION END**
Malfunction detected>>Check applicable parts, and repair or replace corresponding parts.

SYMPTOM CHART

Symptom	Diagnoses/Service procedure
Key reminder warning chime does not operate.	Check key reminder system trouble diagnosis. Refer to the following: [LHD models] BL-35, "Work Flow". [RHD models] BL-79, "Work Flow".
Intelligent Key system warning chime does not operate. (With Intelligent Key)	Check Intelligent Key system trouble diagnosis. Refer to BL-153, "Trouble Diagnosis Procedure" .
Light warning chime does not activate.	Check the following inspection. ● WW-20, "Reference Values for BCM (Input)". ● DI-63, "Check Front Door Switch (Driver Side) Signal". Replace combination meter, found normal function in the above inspection.
Seat belt warning chime does not activate.	Check the following inspection. ● Confirm speedometer operation ● DI-64, "Check Seat Belt Buckle Switch Signal". Replace combination meter, found normal function in the above inspection.
Parking brake warning chime does not activate.	Check DI-66, "Check Parking Break Switch Signal" . Replace combination meter, found normal function in the above inspection.

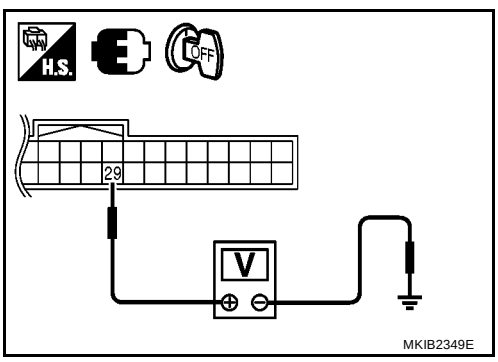
Check Front Door Switch (Driver Side) Signal

BKS00278

1. CHECK BCM INPUT SIGNAL

Check voltage between BCM harness connector and ground.

BCM connector	Terminal (+)	Terminal (-)	Condition	Voltage (V) (Approx.)
M57	29	Ground	Driver side door: CLOSE	Battery voltage
			Driver side door: OPEN	0



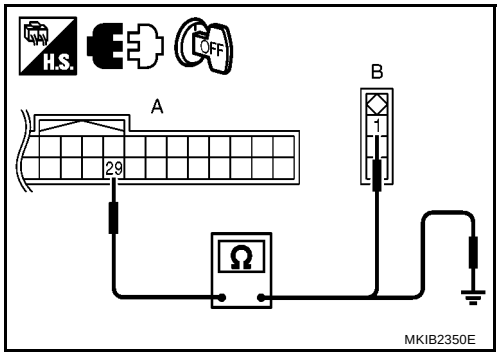
OK or NG

OK >> Front door switch (driver side) signal is OK. Return to DI-63, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK FRONT DOOR SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and front door switch (driver side) connector.
3. Check continuity between BCM harness connector and front door switch (driver side) harness connector.

A		B		Continuity
BCM connector	Terminal	Front door switch (driver side) connector	Terminal	
M57	29	B14: LHD B29: RHD	1	Yes



4. Check continuity between BCM harness connector and ground.

A		Ground	Continuity
BCM connector	Terminal		
M57	29		No

OK or NG

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

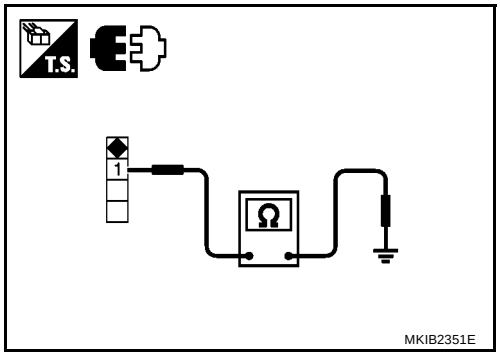
3. CHECK FRONT DOOR SWITCH (DRIVER SIDE)

Check front door switch (driver side).

terminal		Condition	Continuity
1	Door switch case ground	When door switch is released	Yes
		When door switch is pressed	No

OK or NG

OK >> Replace BCM.
NG >> Replace front door switch (driver side).



Check Seat Belt Buckle Switch Signal

BKS00279

1. CHECK OPERATION OF SEAT BELT WARNING LAMP

1. Turn ignition switch ON.
2. Check operation of seat belt warning lamp.

When driver seat belt is fastened : Seat belt warning lamp OFF
When driver seat belt is unfastened : Seat belt warning lamp ON

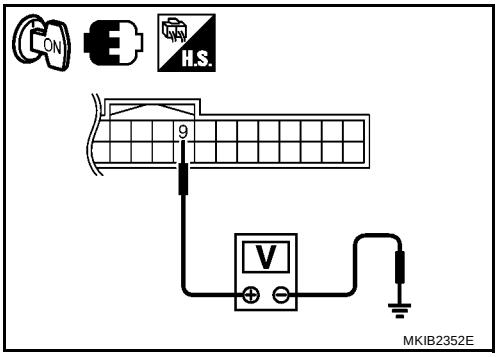
OK or NG

OK >> Seat belt buckle switch signal is OK. Return to DI-63, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK COMBINATION METER INPUT SIGNAL

Check voltage between combination meter harness connector and ground.

Terminals			Condition	Voltage (V) (Approx.)
(+)		(–)		
Combination meter connector	Terminal			
M27	9	Ground	Driver seat belt is fastened	Battery voltage
			Driver seat belt is unfastened	0



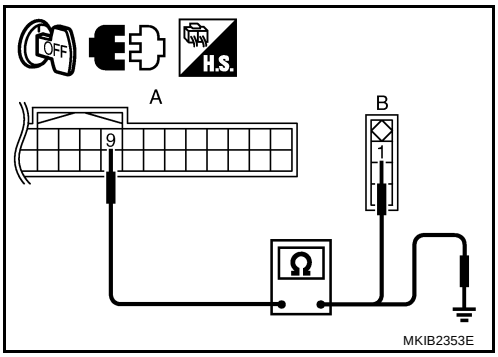
OK or NG

OK >> Replace combination meter.
NG >> GO TO 3.

3. CHECK SEAT BELT BUCKLE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and seat belt buckle switch (driver side) connector.
3. Check continuity between combination meter harness connector and seat belt buckle switch harness connector.

A		B		Continuity
Combination meter connector	Terminal	Seat belt buckle switch connector	Terminal	
M27	9	B10 (LHD) B25 (RHD)	1	Yes



4. Check harness continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	9		No

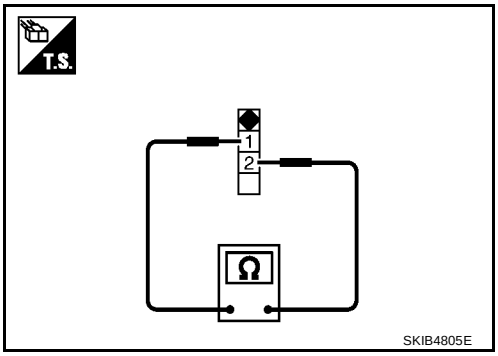
OK or NG

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

4. CHECK SEAT BELT BUCKLE SWITCH

Check seat belt buckle switch.

terminal		Condition	Continuity
1	2	When seat belt is fastened	No
		When seat belt is unfastened	Yes



OK or NG

OK >> Check seat belt buckle switch (driver side) ground circuit.
NG >> Replace seat belt buckle switch (driver side).

Check Parking Break Switch Signal

BKS0027B

1. CHECK OPERATION OF BREAK WARNING LAMP WARNING LAMP

1. Turn ignition switch ON.
2. Check operation of break warning lamp.

When parking break is applied : Break warning lamp ON
When parking break is released : Break warning lamp OFF

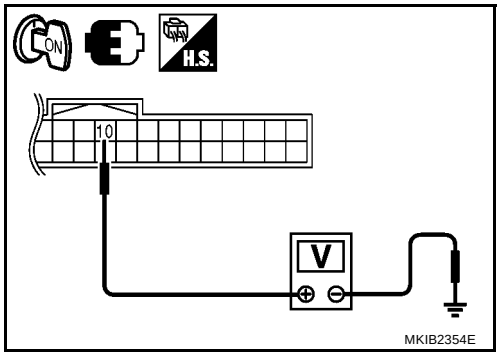
OK or NG

OK >> Parking break switch signal is OK. Return to DI-63, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK COMBINATION METER INPUT SIGNAL

Check voltage between combination meter harness connector and ground.

Terminals			Condition	Voltage (V) (Approx.)
(+)		(–)		
Combination meter connector	Terminal			
M27	10	Ground	Parking break is applied	Battery voltage
			Parking break is released	0



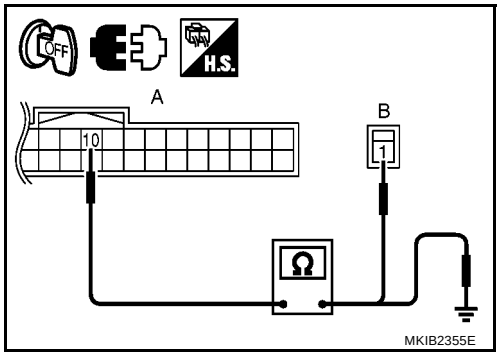
OK or NG

OK >> Replace combination meter.
NG >> GO TO 3.

3. CHECK PARKING BREAK SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and parking break switch connector.
3. Check continuity between combination meter harness connector and parking break switch harness connector.

A		B		Continuity
Combination meter connector	Terminal	Parking break switch connector	Terminal	
M27	10	M55	1	Yes



4. Check harness continuity between combination meter harness connector and ground.

A		Ground	Continuity
Combination meter connector	Terminal		
M27	10		No

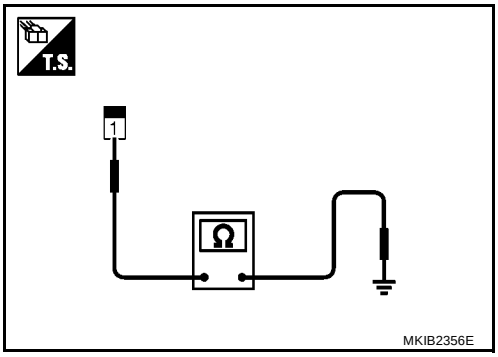
OK or NG

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

4. CHECK PARKING BREAK SWITCH (DRIVER SIDE)

Check parking break switch.

Terminal		Condition	Continuity
1	Ground part of parking break switch	Parking break is released	No
		Parking break is applied	Yes



OK or NG

OK >> Check parking break switch ground condition.
NG >> Replace parking break switch.