SECTION DI
DRIVER INFORMATION SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

BKS000KI

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.**

COMBINATION METERS

PFP:24814

System Description

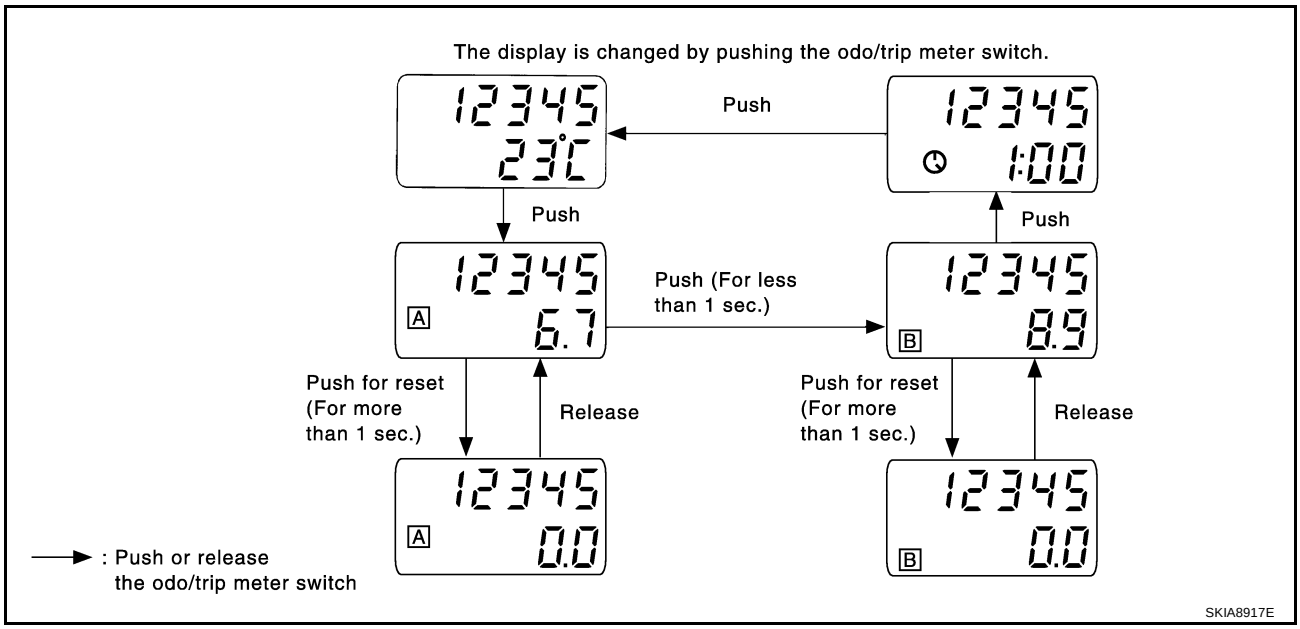
BKS000KK

UNIFIED CONTROL METER

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled by the unified meter control unit, which is built into the combination meter.
- Digital meter is adopted for odo/trip meter.*
  *The record of the odo meter is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.
- Odo/trip meter segments can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

HOW TO CHANGE THE DISPLAY FOR 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.
- Ambient temperature indicator indicates signal from ambient sensor processed by combination meter.
- Depressing the odo/trip meter switch toggles the mode in the following order.



- The odo/trip meter display mode toggling and trip display resetting can be identified by the amount of time that elapses from pressing the odo/trip meter switch to releasing it.
- When resetting with trip A displayed, only trip A display is reset (The same way for trip B).

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to combination meter terminal 1.

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

- through 10A fuse [No. 11, located in the fuse block (J/B)]
- to combination meter terminals 2.

Ground is supplied

- to combination meter terminals 21
- through grounds M27 and M70.

WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature.
ECM provides an engine coolant temperature signal to combination meter for water temperature gauge with CAN communication line.

TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).
ECM provides an engine speed signal to combination meter for tachometer with CAN communication line.

SPEEDOMETER

ESP/TCS/ABS control unit (with ESP) or ABS actuator and electric unit (without ESP) provides a vehicle speed signal to the combination meter for the speedometer with CAN communication line.

FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by a variable ground signal supplied

- from grounds B8 and B18 (LHD models)
- from grounds B107 and B119 (RHD models)
- through terminal 1 and 4 of the fuel level sensor unit
- through terminal 3 and 1 of the sub fuel level sensor unit and
- to combination meter terminal 8 for the fuel gauge.

AMBIENT TEMPERATURE INDICATOR

System Description

Combination meter displays ambient temperature on odo/trip meter.

NOTE:

- Indication range is between -30 and 55 °C (-22 and 131 °F).
- When ambient temperature is less than -30 °C (-22 °F) or more than 55 °C (131 °F), display shows "--- °C".

Power and ground are supplied

- from A/C auto amp. terminal 9
- through ambient sensor terminal 1and 2
- to combination meter terminal 28 and A/C auto amp. terminal 24

Combination meter reads ambient sensor signal from ambient sensor.

Signal is supplied

- through ambient sensor terminal 1
- to combination meter terminal 27.

NOTE:

When combination meter detects an auto A/C recognition signal from A/C auto amp., combination meter judges the vehicle with auto A/C.

Signal is supplied

- from A/C auto amp. terminal 28
- to combination meter terminal 29.

Ambient Temperature Warning

When indicated temperature becomes 3 °C (37 °F) or less, ambient temperature indicator flashes as a sign of warning.

- Under the warning condition while indicating other modes, ambient temperature is automatically indicated.
- 1 minute after the start of the warning, the mode before the warning is automatically displayed again.
- If the indicated temperature is 4 °C (39°F) or more, the mode before the warning is displayed again.
- When switching to other modes while the warning, the mode before the warning is displayed again. When selecting the mode of ambient temperature under the warning condition, the warning is continuously displayed.

Indication When Turning Ignition Switch OFF

- In a case that temperature detected by ambient sensor is higher than indicated temperature before turning ignition switch off.
  - In a case of more than 3.5 hours after turning ignition switch off, temperature detected by ambient sensor is indicated when turning ignition switch on.
  - In a case of less then 3.5 hours after turning ignition switch off, temperature at the time of turning ignition switch off is indicated.
- In a case that temperature detected by ambient sensor is lower than indicated temperature before turning ignition switch off.
  - Temperature detected by ambient sensor is indicated when turning ignition switch on.

Indication During Running

Though temperature detected by ambient sensor temporarily changed, indicating temperature continentally indicates.

- In a case that temperature detected by ambient sensor is higher than indicated temperature.
  - If vehicle speed is more than 20 km/h (13 MPH), elevation of indicating temperature is limited according to the speed until temperature detected by ambient sensor is indicated.

    NOTE:
    Vehicle speed 20 km/h (13 MPH): 256 sec., 25 km/h (16 MPH): 238 sec., 35 km/h (22 MPH): 200 sec., 50 km/h (31 MPH): 144 sec., 65 km/h (40 MPH): 88 sec., more than 80 km/h (50 MPH): 32 sec.
  - If vehicle speed is more than 20 km/h (13 MPH), and that temperature detected by ambient sensor becomes 8 °C (46 °F) more than indicating temperature, indicating temperature will be elevated unit the degree becomes same as temperature detected by ambient sensor with limiting elevation of indicating temperature 1 °C par a minute.
  - If vehicle speed is less than 20 km/h (13 MPH), indicating temperature is continually kept.
- In a case that temperature detected by ambient sensor is lower than indicated temperature.
  - Temperature detected by ambient sensor is indicated during running.

CAN Communication

BKS000KL

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.

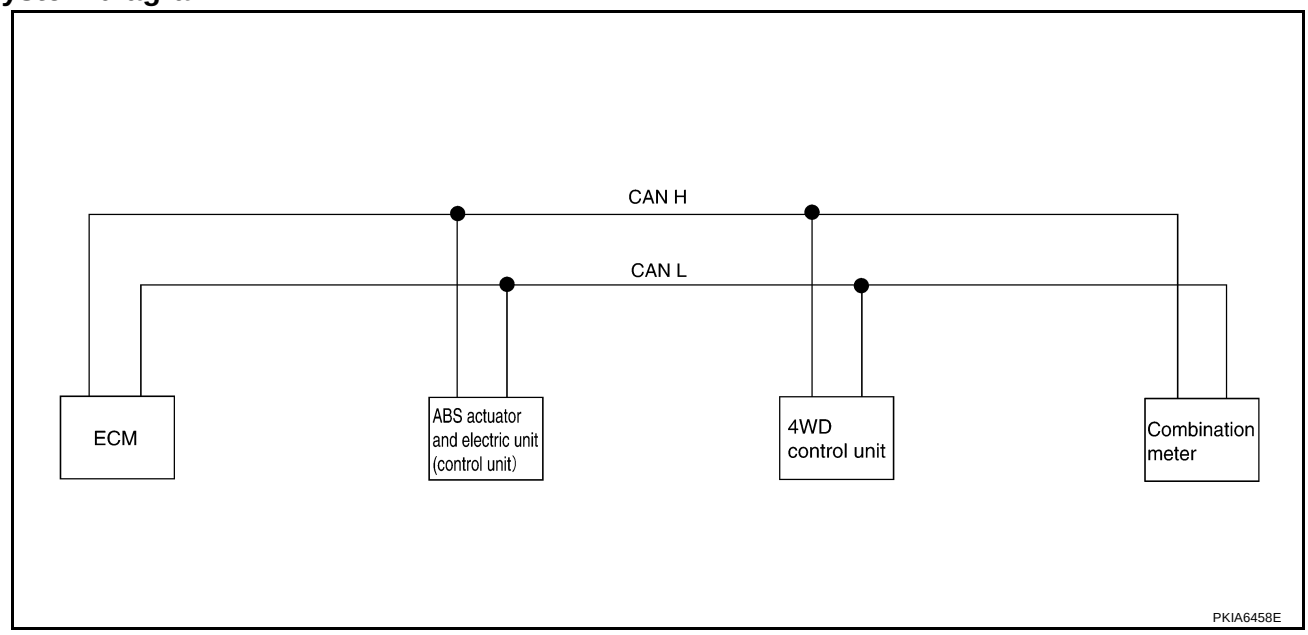
CAN Communication Unit

BKS000KM

Body type	Wagon								
Axle	4WD						2WD		
Engine	YD22DDTi	QR20DE/QR25DE		YD22DDTi	QR25DE		QR20DE	YD22DDTi	
Transmission	M/T		A/T	M/T		A/T	M/T		
Brake control	ABS			ESP			ABS		ESP
CAN system type	1	2	3	4	5	6	7	8	9

TYPE 1/TYPE 2

System diagram



Input/output signal chart

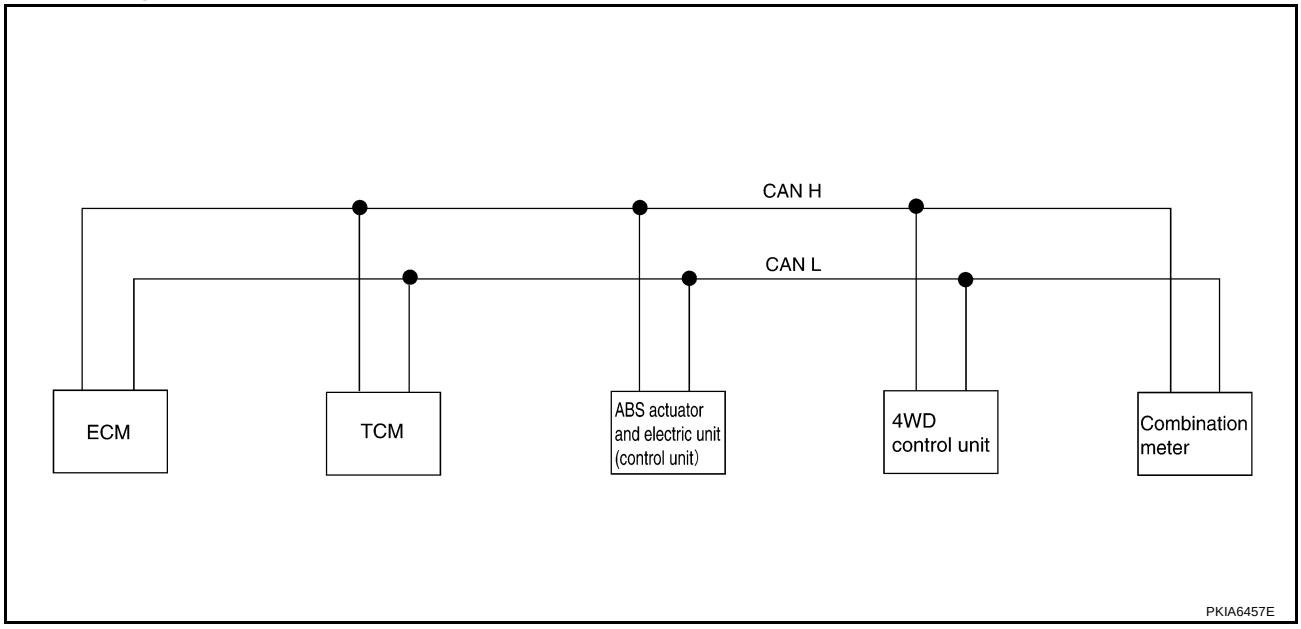
T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
4WD mode indicator lamp signal			T	R
4WD warning lamp signal			T	R
A/C compressor feedback signal	T			R
ABS warning lamp signal		T		R
Accelerator pedal position signal	T		R	
Engine coolant temperature signal	T			R
Engine speed signal	T		R	R
MI signal	T			R
Parking brake switch signal			R	T
Stop lamp switch signal		T	R	
Vehicle speed signal		T	R	R
	R			T
ASCD SET lamp signal	T			R
ASCD CRUISE lamp signal	T			R
Stop lamp switch signal	T			R
Glow indicator lamp signal*	T			R
A/C switch signal*	R			T

*: YD engine models only

TYPE 3

System diagram



Input/output signal chart

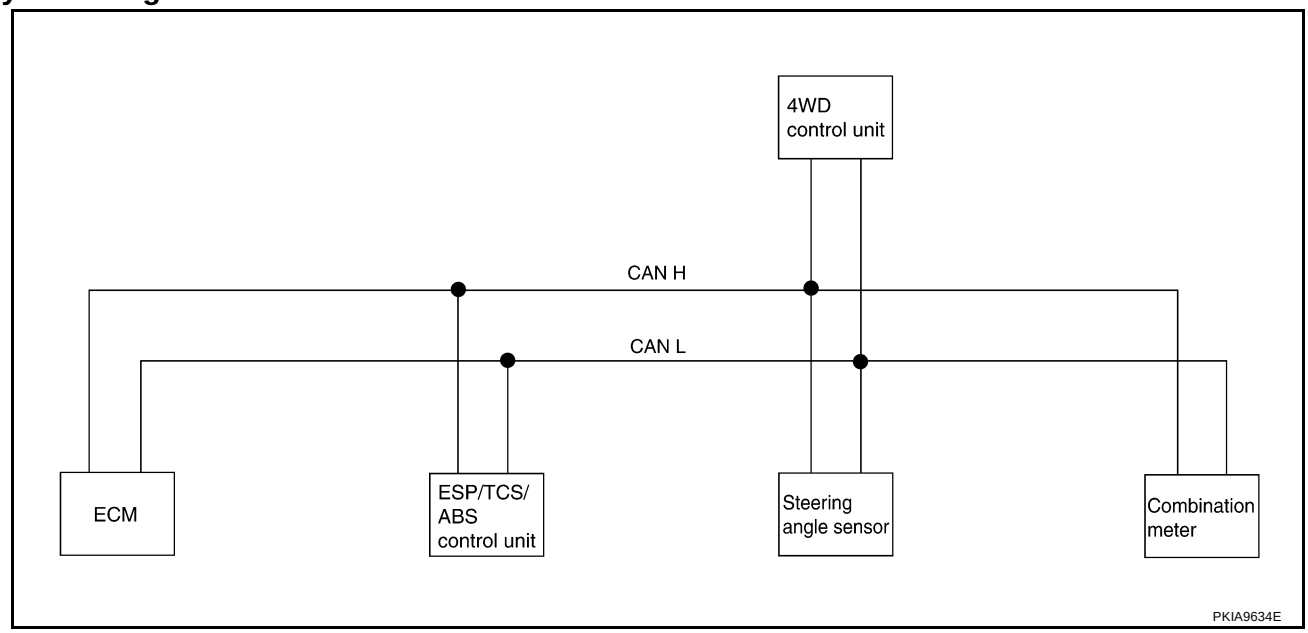
T: Transmit R: Receive

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
4WD mode indicator lamp signal				T	R
4WD warning lamp signal				T	R
A/C compressor feedback signal	T				R
A/T position indicator lamp signal		T			R
A/T self-diagnosis signal	R	T			
ABS warning lamp signal			T		R
Accelerator pedal position signal	T			R	
Closed throttle position signal	T	R			
Engine A/T integrated control signal	T	R			
	R	T			
Engine coolant temperature signal	T				R
Engine speed signal	T			R	R
MI signal	T				R
O/D OFF indicator signal		T			R
Output shaft revolution signal	R	T			
Overdrive control switch signal		R			T
P·N range signal		R			T
Parking brake switch signal				R	T
Stop lamp switch signal		R			T
			T	R	
Vehicle speed signal			T	R	R
	R				T
Wide open throttle position signal	T	R			

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
ASCD SET lamp signal	T				R
ASCD CRUISE lamp signal	T				R

TYPE 4/TYPE 5

System diagram



Input/output signal chart

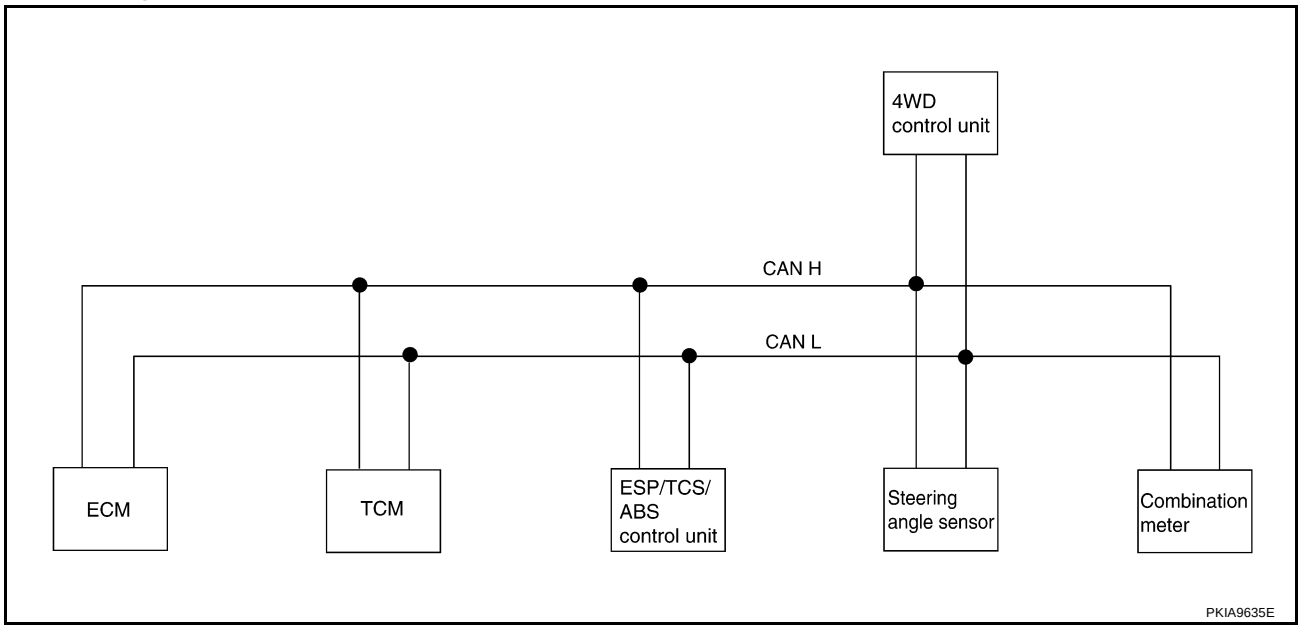
T: Transmit R: Receive

Signals	ECM	ESP/TCS/ABS control unit	Steering angle sensor	4WD control unit	Combination meter
4WD mode indicator lamp signal				T	R
4WD warning lamp signal				T	R
A/C compressor feedback signal*2	T				R
A/C switch signal*1	R				T
ABS warning lamp signal		T			R
Accelerator pedal position signal	T	R		R	
Brake warning lamp signal		T			R
Engine coolant temperature signal	T				R
Engine speed signal	T	R		R	R
ESP OFF indicator lamp signal		T			R
Glow indicator lamp signal*1	T				R
MI signal	T				R
Stop lamp switch signal		T		R	
Vehicle speed signal		T		R	R
	R				T
SLIP indicator lamp signal		T			R
Parking brake switch signal				R	T
Steering angle sensor signal		R	T		
ASCD SET lamp signal	T				R
ASCD CRUISE lamp signal	T				R

*1: YD engine models only
*2: QR engine models only

TYPE 6

System diagram



Input/output signal chart

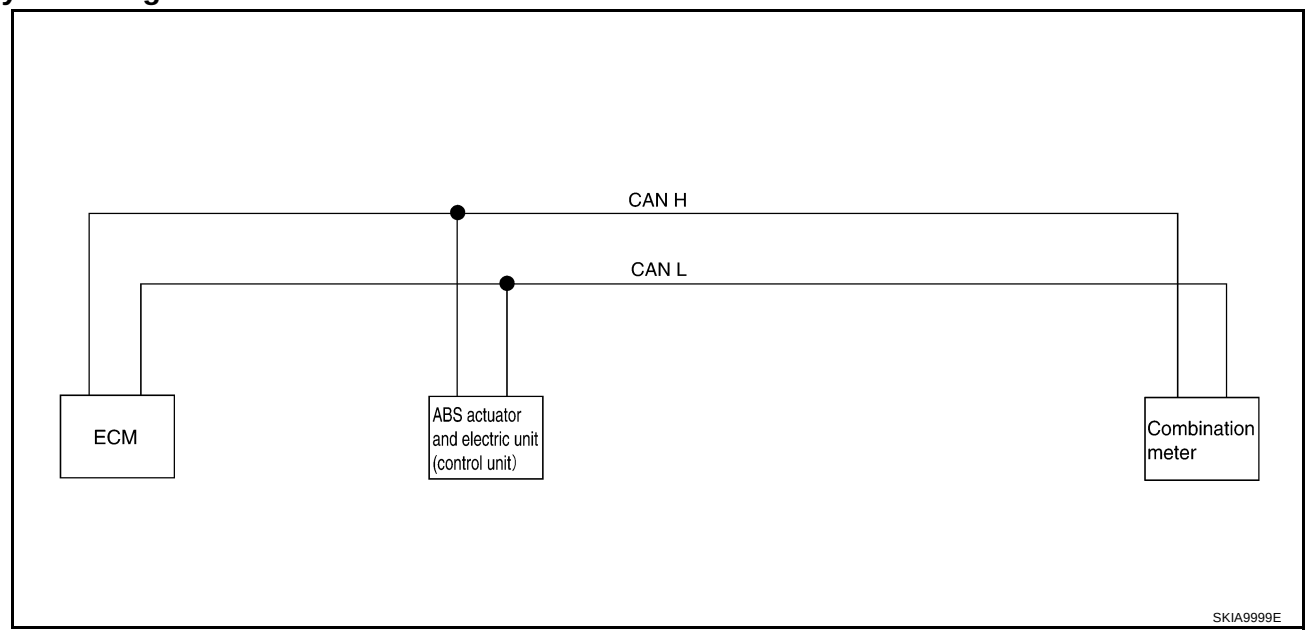
T: Transmit R: Receive

Signals	ECM	TCM	ESP/TCS/ ABS control unit	Steering angle sensor	4WD control unit	Combination meter
4WD mode indicator lamp signal					T	R
4WD warning lamp signal					T	R
A/C compressor feedback signal	T					R
A/T position indicator lamp signal		T	R			R
A/T self-diagnosis signal	R	T				
ABS warning lamp signal			T			R
Accelerator pedal position signal	T		R		R	
Brake warning lamp signal			T			R
Closed throttle position signal	T	R				
Engine and A/T integrated	T	R				
	R	T				
Engine coolant temperature signal	T					R
Engine speed signal	T		R		R	R
ESP OFF indicator lamp signal			T			R
MI signal	T					R
O/D OFF indicator signal		T				R
Output shaft revolution signal	R	T				
Overdrive control switch signal		R				T
P·N range signal		R				T
SLIP indicator lamp signal			T			R
Steering angle sensor signal			R	T		

Signals	ECM	TCM	ESP/TCS/ ABS control unit	Steering angle sensor	4WD control unit	Combination meter
Stop lamp switch signal		R				T
			T		R	
Vehicle speed signal			T		R	R
	R					T
Parking brake switch signal					R	T
Wide open throttle position signal	T	R				
ASCD SET lamp signal	T					R
ASCD CRUISE lamp signal	T					R

TYPE 7/TYPE 8

System diagram



Input/output signal chart

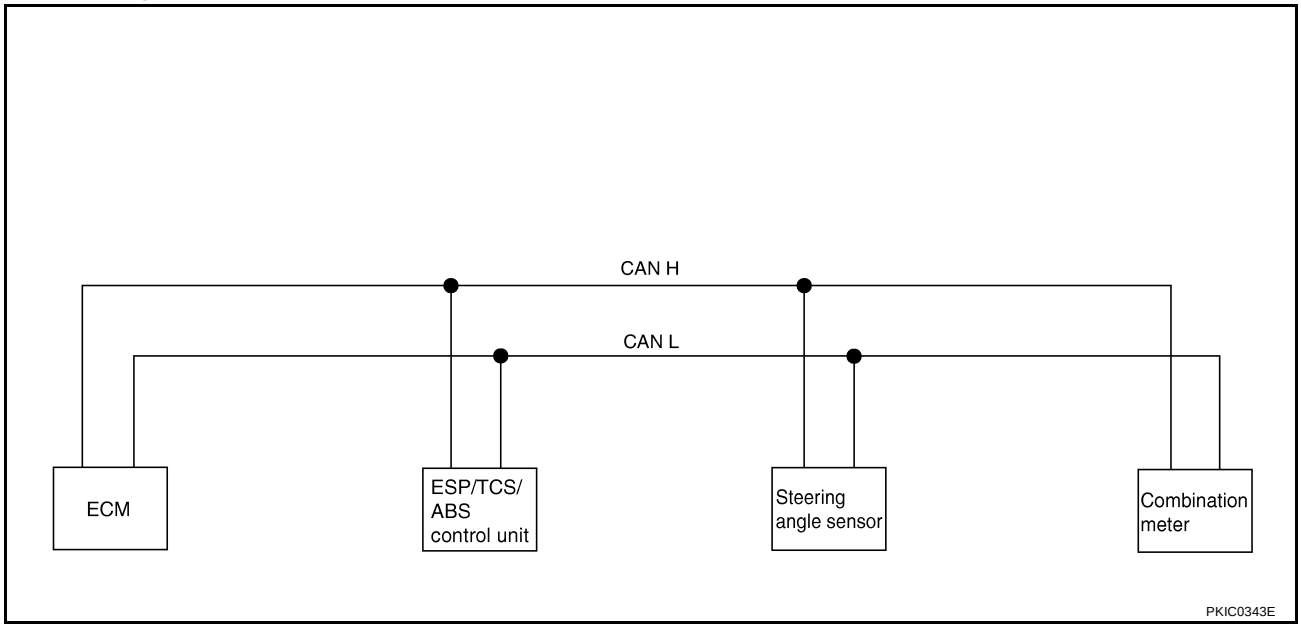
T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	Combination meter
A/C compressor feedback signal	T		R
ABS warning lamp signal		T	R
Engine coolant temperature signal	T		R
Engine speed signal	T		R
MI signal	T		R
Vehicle speed signal		T	R
	R		T
ASCD SET lamp signal	T		R
ASCD CRUISE lamp signal	T		R
Stop lamp switch signal	T		R
Glow indicator lamp signal*	T		R
A/C switch signal*	R		T

*: YD engine models only

TYPE 9

System diagram



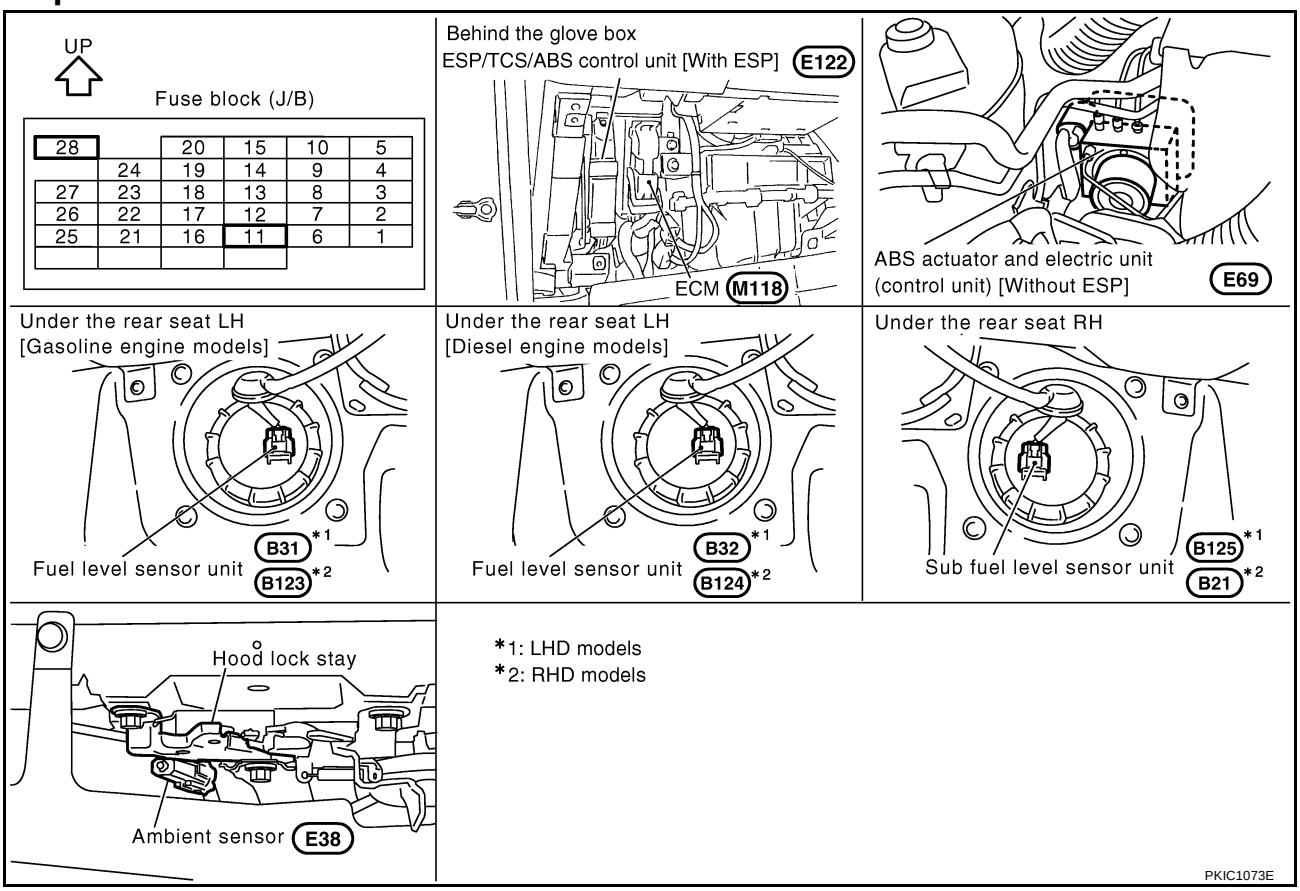
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ESP/TCS/ABS control unit	Steering angle sensor	Combination meter
A/C switch signal	R			T
ABS warning lamp signal		T		R
Accelerator pedal position signal	T	R		
Brake warning lamp signal		T		R
Engine coolant temperature signal	T			R
Engine speed signal	T	R		R
ESP OFF indicator lamp signal		T		R
Glow indicator lamp signal	T			R
MI signal	T			R
Vehicle speed signal		T		R
	R			T
SLIP indicator lamp signal		T		R
Steering angle sensor signal		R	T	
ASCD SET lamp signal	T			R
ASCD CRUISE lamp signal	T			R

Component Parts and Harness Connector Location

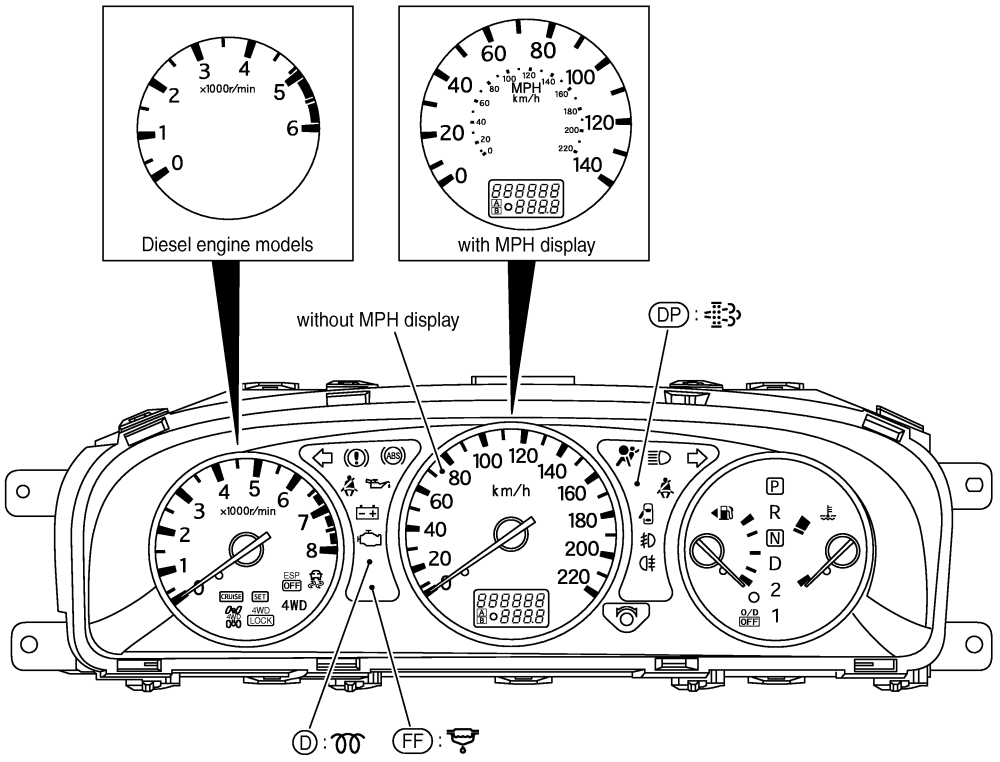
BKS000KN

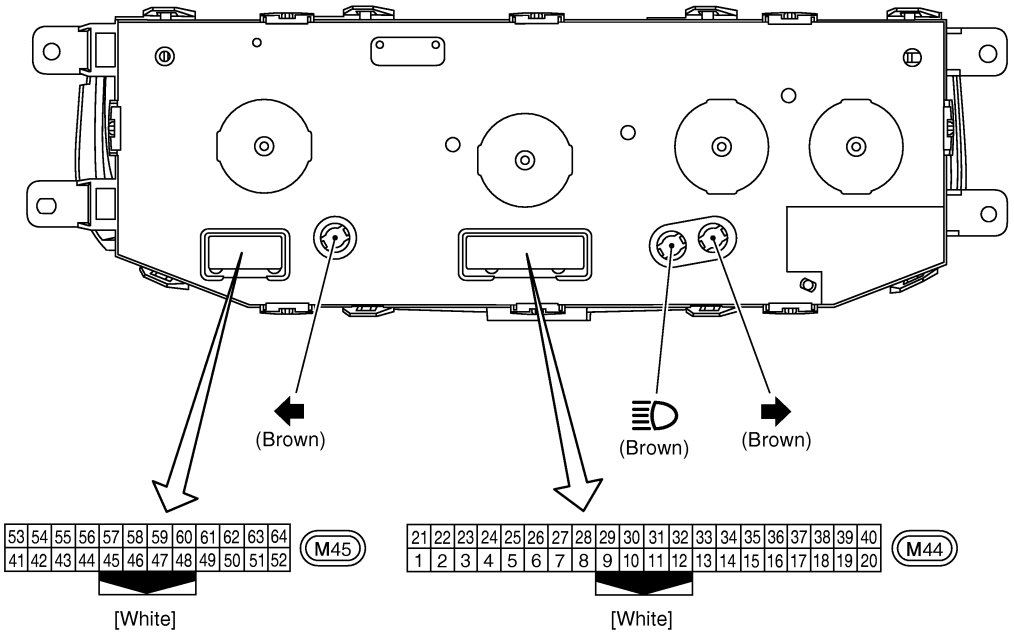


Combination Meter

BKS000KO

CHECK





Bulb socket color	Bulb wattage
Brown	1.4W

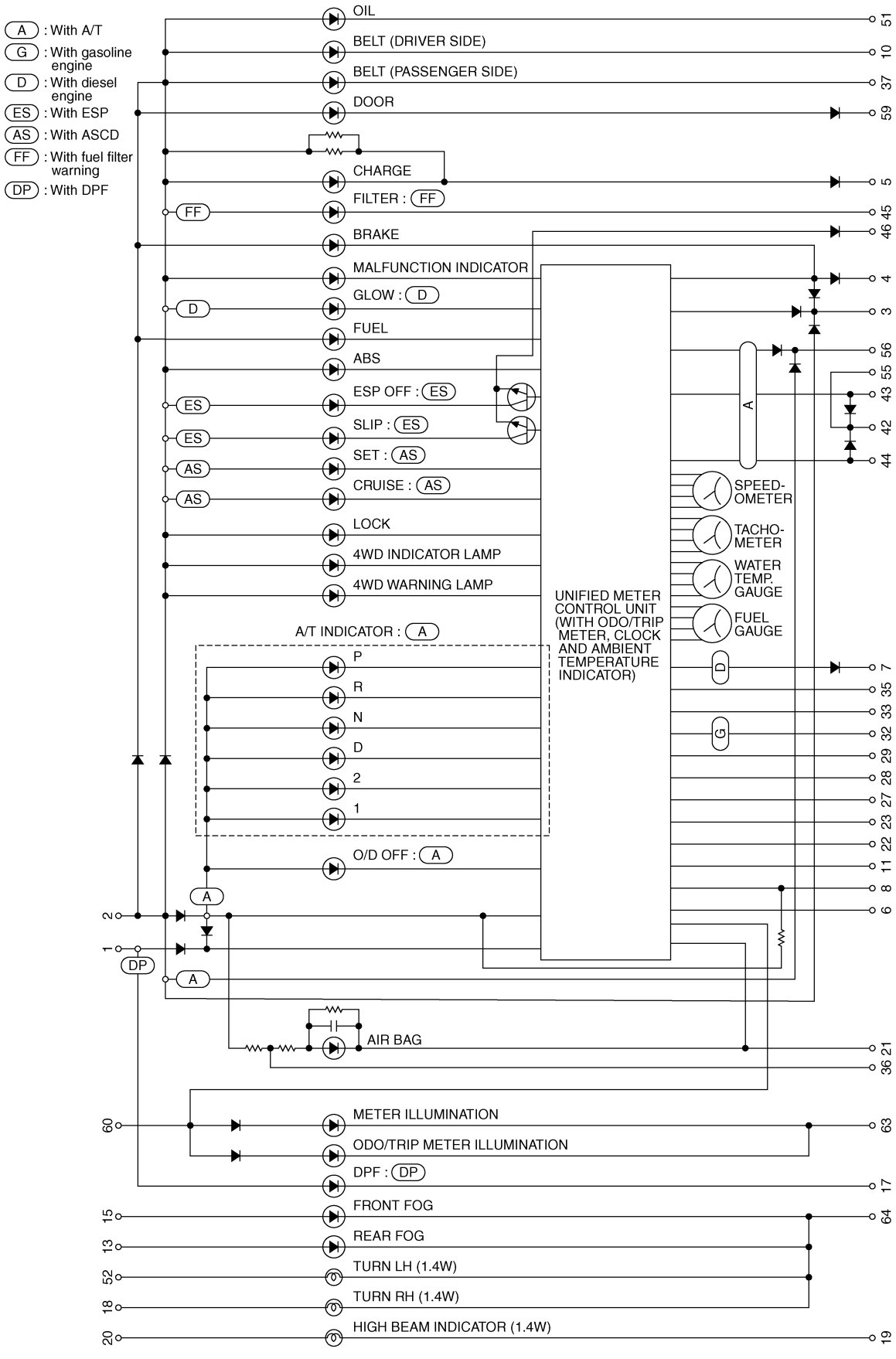
( ) : Bulb socket color

FF : With fuel filter warning
DP : With DPF
D : Disel engine models

PKIC6341E

Schematic/LHD Models

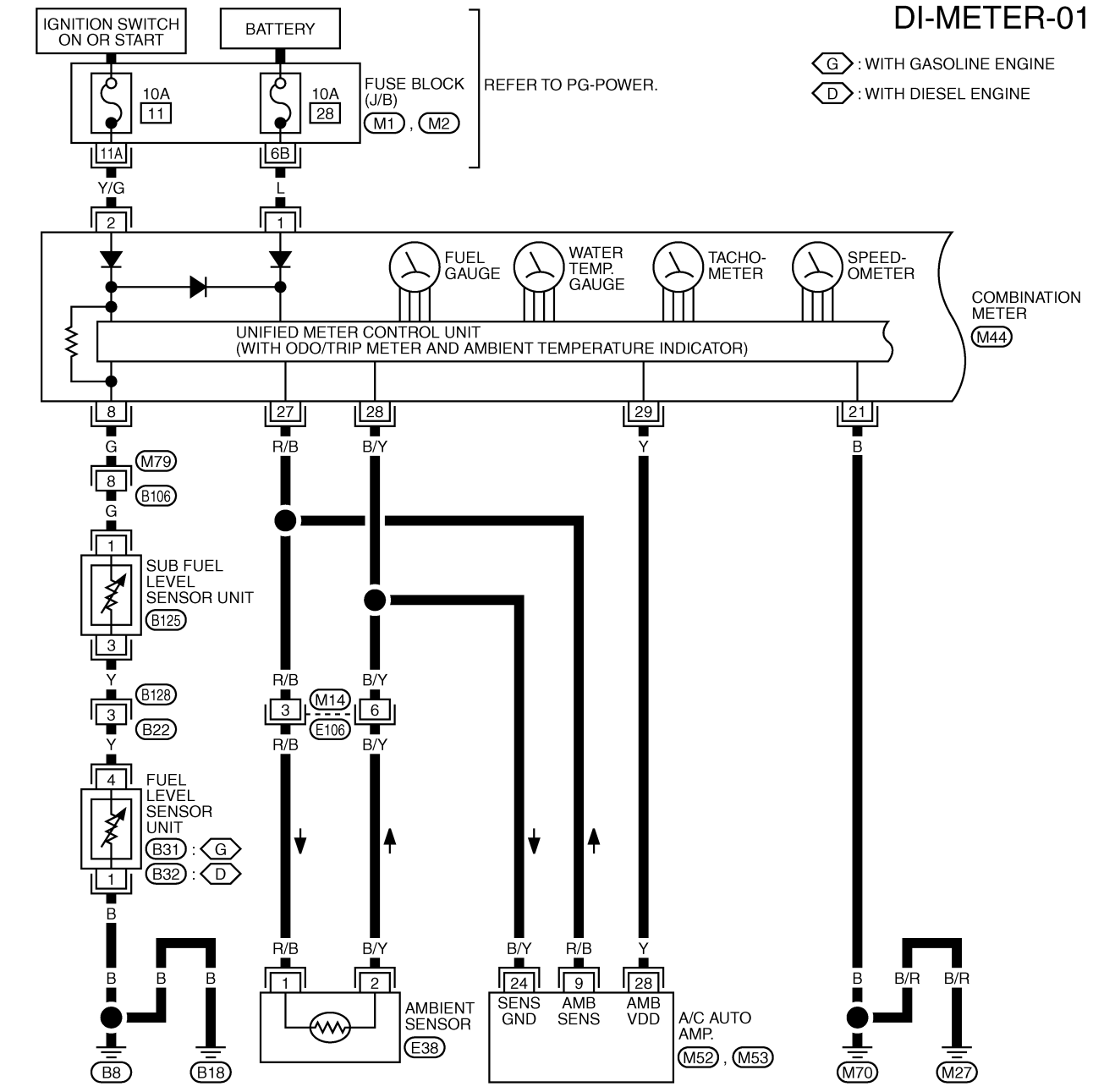
BKS000KP

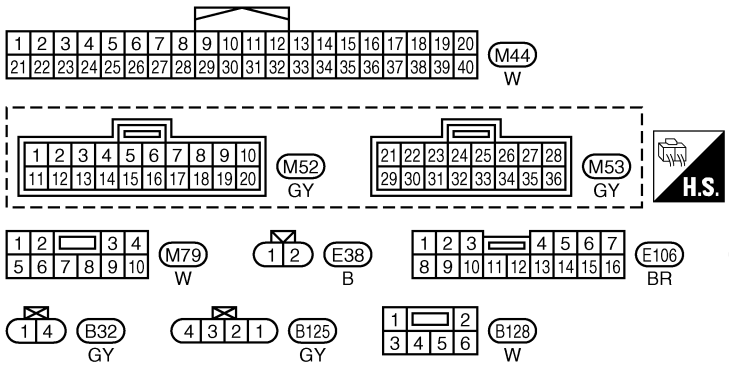


TKWB2788E

Wiring Diagram — METER —/LHD Models

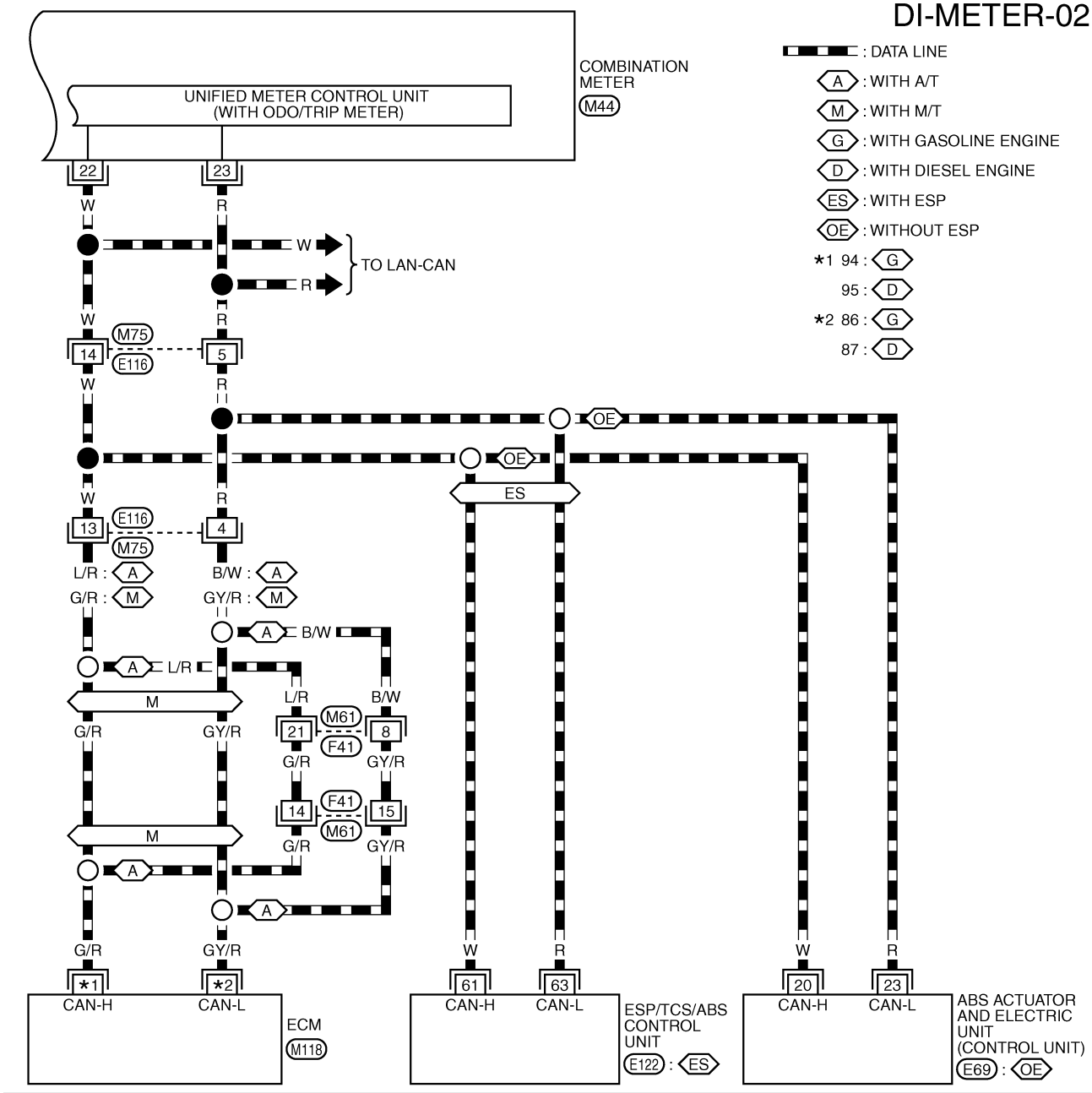
BKS000KQ





REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

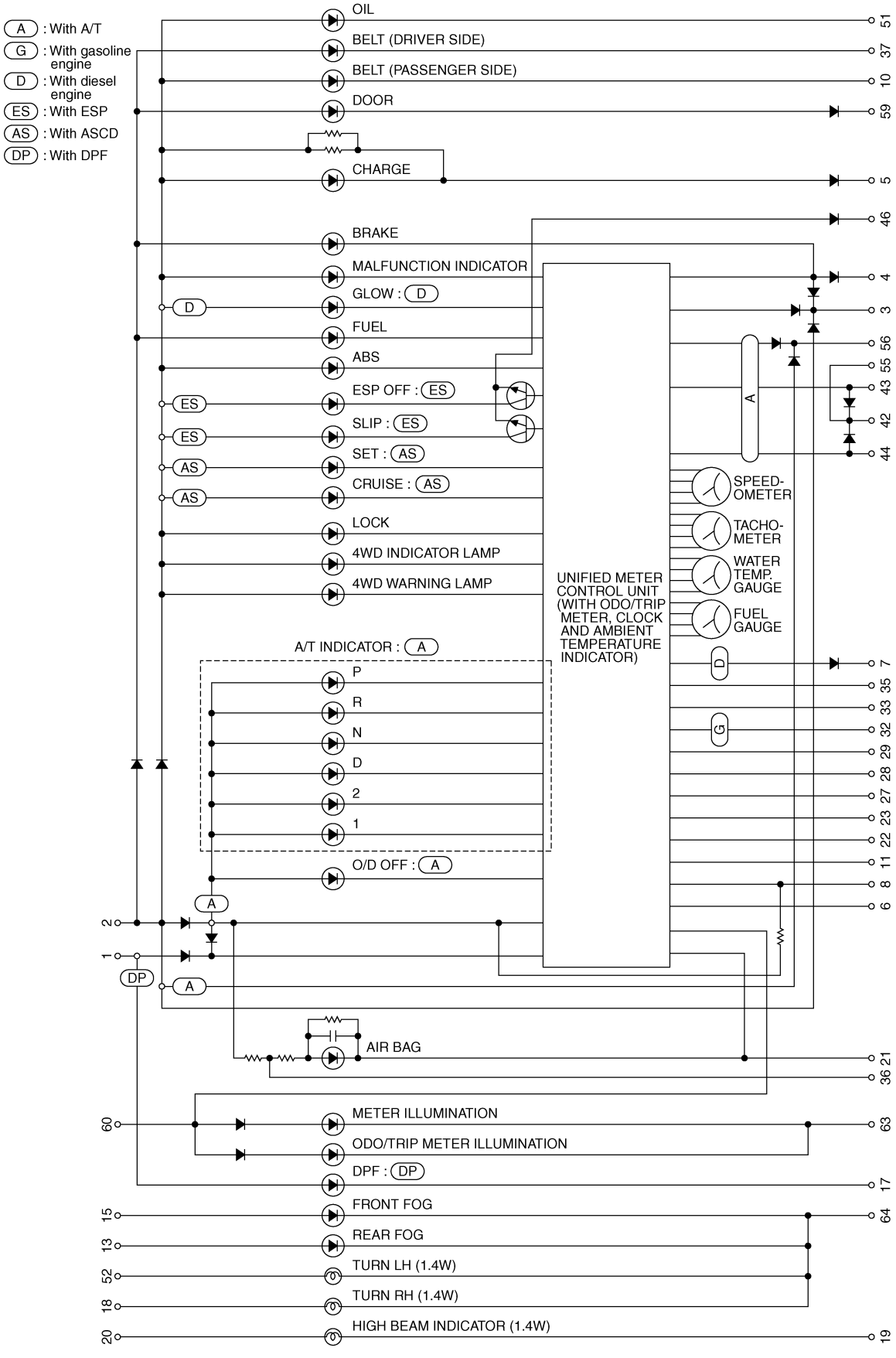
TKWB2789E


DI-METER-02
: DATA LINE
A : WITH A/T
M : WITH M/T
G : WITH GASOLINE ENGINE
D : WITH DIESEL ENGINE
ES : WITH ESP
OE : WITHOUT ESP
*1 94 : G
95 : D
*2 86 : G
87 : D
COMBINATION METER
M44
UNIFIED METER CONTROL UNIT (WITH ODO/TRIP METER)
22
23
TO LAN-CAN
M75
E116
14
5
13
4
L/R : A
G/R : M
B/W : A
GY/R : M
M61
F41
21
8
14
15
OE
ES
*1
*2
61
63
20
23
CAN-H
CAN-L
ECM
M118
ESP/TCS/ABS CONTROL UNIT
E122 : ES
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E69 : OE
M44
W
M61
BR
M75
BR
REFER TO THE FOLLOWING.
M118 , E69 , E122
-ELECTRICAL UNITS

TKWA1607E

Schematic/RHD Models

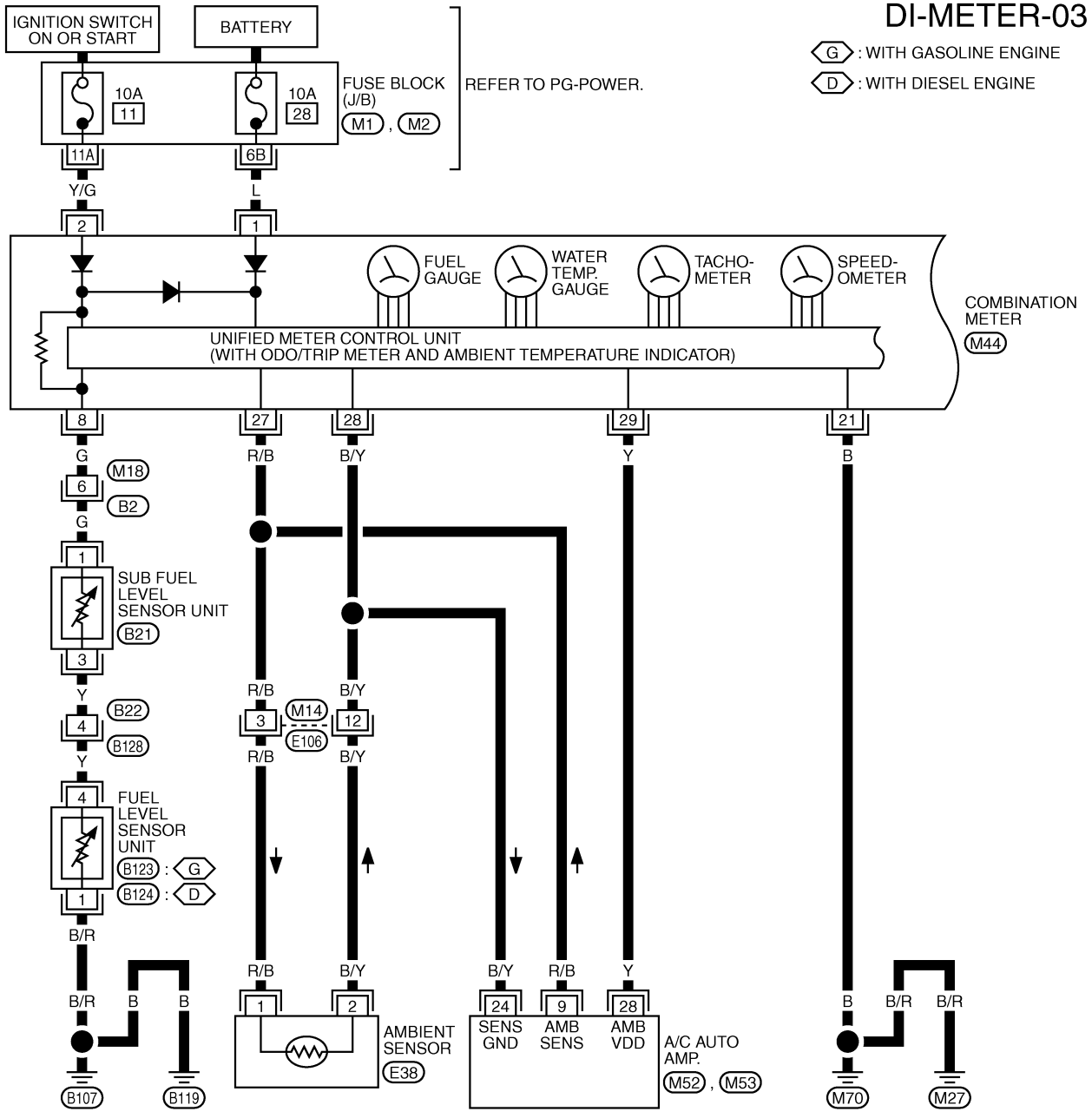
BKS000KR

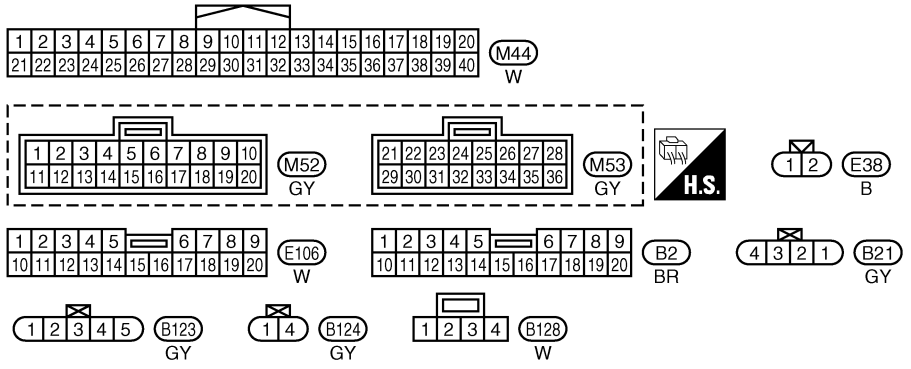


TKWB2790E

Wiring Diagram — METER —/RHD Models

BKS000KS

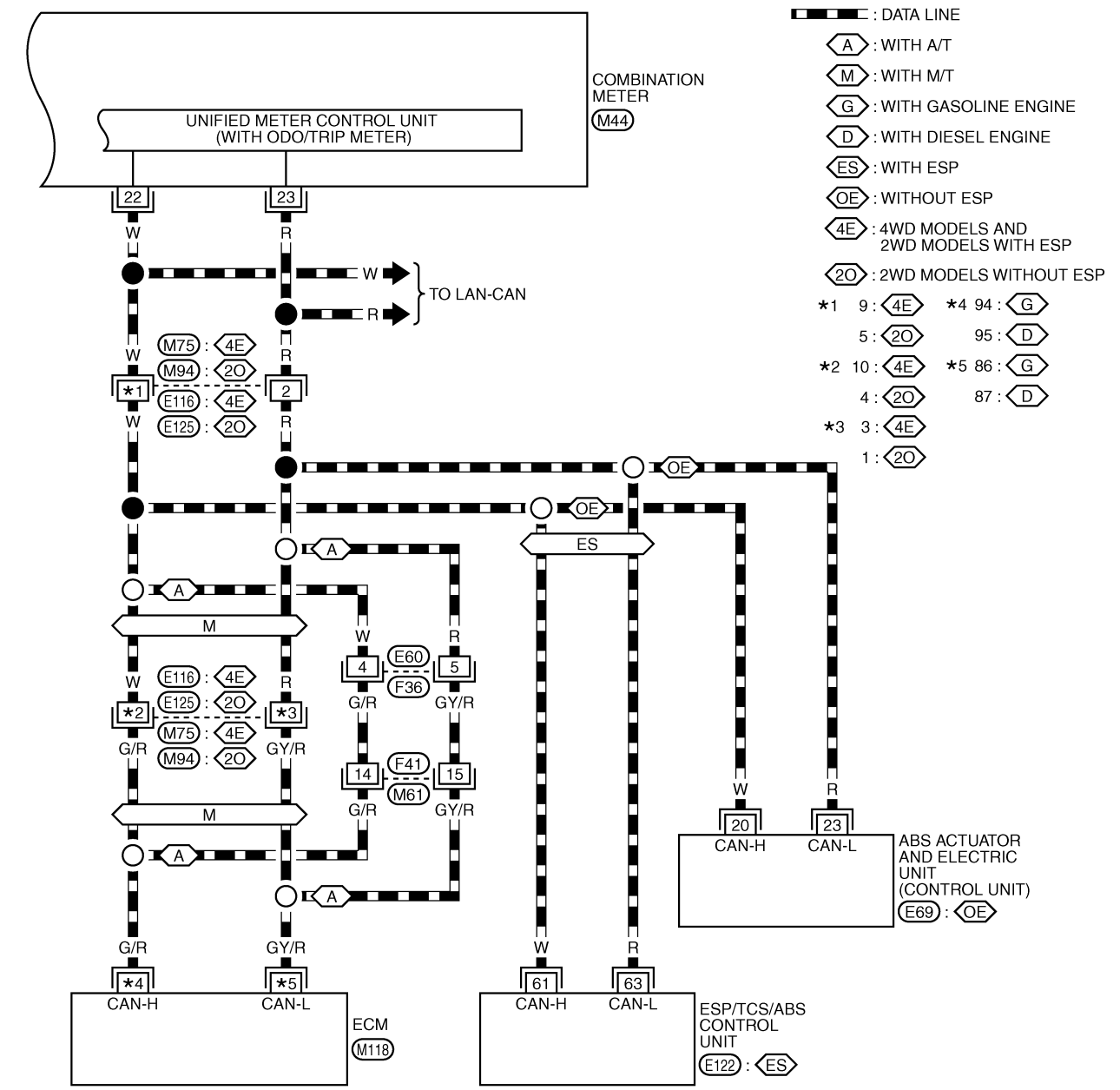


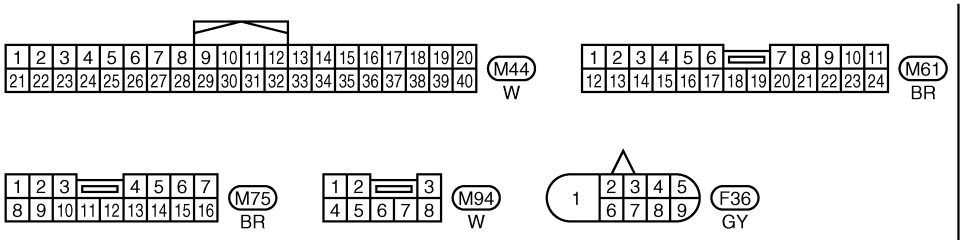


REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWB2791E

DI-METER-04





REFER TO THE FOLLOWING.
M118 , E69 , E122
-ELECTRICAL UNITS

TKWB1774E

Terminals and Reference Value for Combination Meter

BKS000KT

Terminal No.	Wire color	Item	Condition		Reference value
			Ignition switch	Operation or condition	
1	L	Battery power supply	OFF	—	Battery voltage
2	Y/G	Ignition switch (ON)	ON	—	Battery voltage
8	G	Fuel level sensor signal	—	—	Refer to DI-31, "FUEL LEVEL SENSOR UNIT CHECK/GASOLINE ENGINE MODELS" or DI-31, "FUEL LEVEL SENSOR UNIT CHECK/DIESEL ENGINE MODELS" .
21	B	Ground	ON	—	Approx. 0 V
22	W	CAN H	—	—	—
23	R	CAN L	—	—	—
27	R/B	Ambient sensor signal	—	—	Refer to DI-32, "AMBIENT SENSOR CHECK" .
28	B/Y	Ambient sensor ground	ON	—	Approx. 0 V
29	Y	Auto A/C recognition signal	ON	—	Approx. 5 V

Meter/Gauges Operation and Odo/Trip Meter

BKS000KU

SELF-DIAGNOSIS FUNCTION

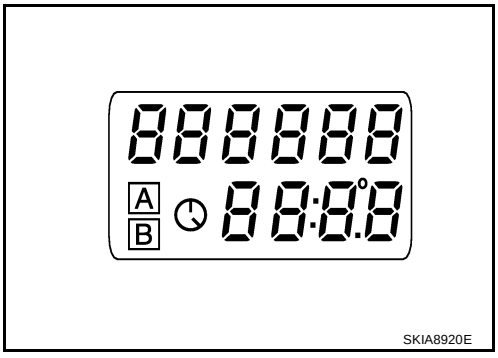
- Odo/trip meter segment operation can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

HOW TO ALTERNATE DIAGNOSIS MODE

1. Turn ignition switch ON, and switch the odo/trip meter to “trip A” or “trip B”.

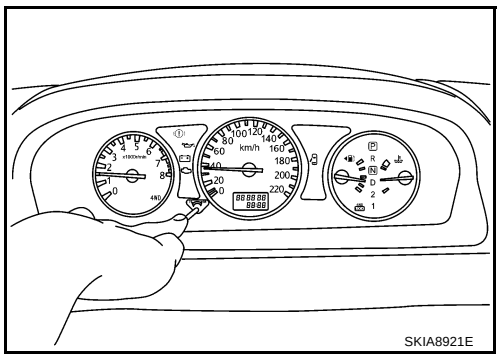
   NOTE:
   If the diagnosis function is activated with the trip meter A displayed, the mileage on the trip meter A will indicate 0.0 miles, but the actual trip mileage will be retained (The same way for trip B).
2. Turn ignition switch OFF.
3. While pushing the odo/trip meter switch, turn ignition switch ON again.
4. Make sure that the trip meter displays “0.0”.
5. Push the odo/trip meter switch at least 3 times (Within 7 seconds after the ignition switch is turned ON).
6. All the segments on the odo/trip meter illuminate, and simultaneously the low-fuel warning lamp indicator illuminates. At this time, the unified meter control unit is turned to diagnosis mode.

   NOTE:
   If any of the segments is not displayed, replace the combination meter.



SKIA8920E

7. Push the odo/trip meter switch. Each meter/gauge should indicate as shown in the figure while pushing odo/trip meter switch. (At this time, the low-fuel warning lamp goes off.)



How to Perform Trouble Diagnosis

BKS000KV

1. Confirm the symptom or customer complaint.
2. Perform diagnosis according to diagnosis flow. Refer to DI-22, "Diagnosis Flow" .
3. According to the trouble diagnosis chart, repair or replace the cause of the symptom. Refer to DI-24, "Trouble Diagnosis Chart for Symptom" .
4. Does the meter operate normally? If so, GO TO 5. If not, GO TO 2.
5. INSPECTION END

Diagnosis Flow

BKS000KW

1. CHECK WARNING LAMP ILLUMINATION

1. Turn ignition switch ON.
2. Make sure that warning lamps (such as MIL and oil pressure warning lamp) illuminate.

Does warning lamp illuminate?

YES >> GO TO 2.
NO >> Check ignition power supply circuit of combination meter. Refer to DI-23, "Power Supply and Ground Circuit Inspection" .

2. CHECK SELF-DIAGNOSIS OPERATION

Perform combination meter self-diagnosis. Refer to DI-21, "SELF-DIAGNOSIS FUNCTION" .

Does self-diagnosis function operate?

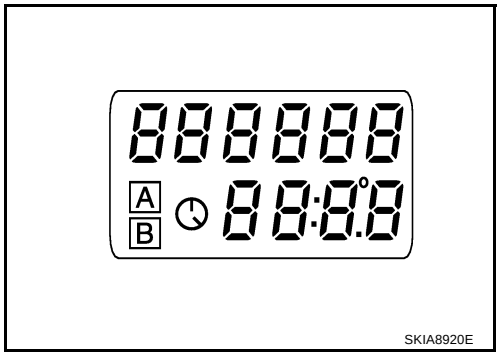
YES >> GO TO 3.
NO >> Check battery power supply of combination meter and ground system. Refer to DI-23, "Power Supply and Ground Circuit Inspection" .

3. CHECK ODO/TRIP METER OPERATION

Check segment display status of odo/trip meter.

Is the display normal?

YES >> GO TO 4.
NO >> Replace combination meter.



4. CHECK LOW-FUEL WARNING LAMP ILLUMINATION

During fuel warning lamp check, confirm illumination of low-fuel warning lamp.

Condition of odo/trip meter switch	Fuel warning lamp
Pushed	Does not illuminate.
Released	Illuminates.

OK or NG

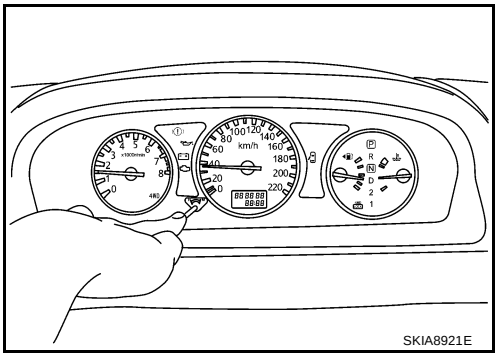
OK >> GO TO 5.
NG >> Replace combination meter.

5. CHECK METER CIRCUIT

Check indication of each meter/gauge in self-diagnosis mode.

OK or NG

OK >> Go to diagnosis results. Refer to DI-24, "Trouble Diagnosis Chart for Symptom" .
NG >> Replace combination meter.


SKIA8921E

Power Supply and Ground Circuit Inspection

BKS000KX

1. CHECK FUSES

Check for blown combination meter fuses.

Unit	Power source	Fuse No.
Combination meter	Battery	28
	Ignition switch (ON)	11

OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-80, "FUSE AND FUSIBLE LINK BOX" .

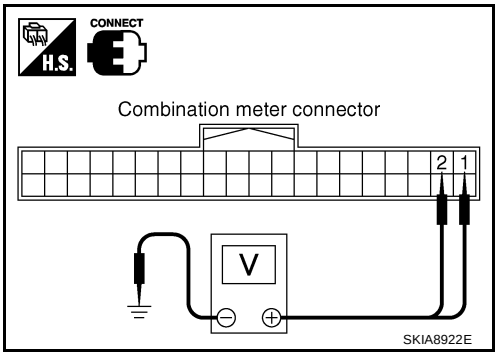
2. CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal (Wire color)			
M44	2 (Y/G)	Ground	0 V	Battery voltage
	1 (L)		Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Check harness between combination meter and fuse.

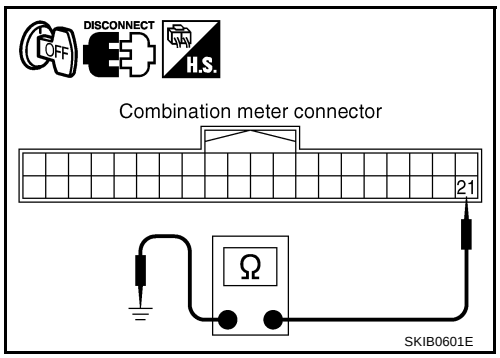


SKIA8922E

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector M44 terminals 21 (B) and ground.

Continuity should exist.



OK or NG

OK >> INSPECTION END
NG >> Check ground harness.

Trouble Diagnosis Chart for Symptom

BKS000KY

DIAGNOSIS RESULTS

Symptom	Possible cause
Tachometer indication is malfunction.	Refer to DI-28, "Engine Speed Signal Inspection" .
Low–fuel warning lamp indication is irregular.	Refer toDI-25, "Fuel Level Sensor Signal Inspection [Gasoline Engine Models]" or DI-26, "Fuel Level Sensor Signal Inspection [Diesel Engine Models]" .
Fuel gauge indication is malfunction.	
Water temperature gauge indication is malfunction.	Refer to DI-28, "Engine Coolant Temperature Signal Inspection" .
Indication is irregular for the speedometer and odo/trip meter.	Refer to DI-28, "Vehicle Speed Signal Inspection [With ESP]" or DI-28, "Vehicle Speed Signal Inspection [Without ESP]".
A/T position indicator is malfunction.	Refer to DI-55, "A/T Indicator Does Not Illuminate" .
Ambient temperature indicator is malfunction.	Refer to DI-30, "Ambient Temperature Signal Inspection" .

Fuel Level Sensor Signal Inspection [Gasoline Engine Models]

BKS000KZ

The following symptoms are not malfunction.

FUEL GAUGE

- Depending on vehicle posture or driving circumstance, the fuel level changes 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 posture or driving circumstance, the fuel level changes and the warning lamp ON timing may change.

1. CHECK HARNESS CONNECTOR

Check combination meter and fuel level sensor unit terminals (meter side, unit side, harness side) for looseness or bent terminals.

OK or NG

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

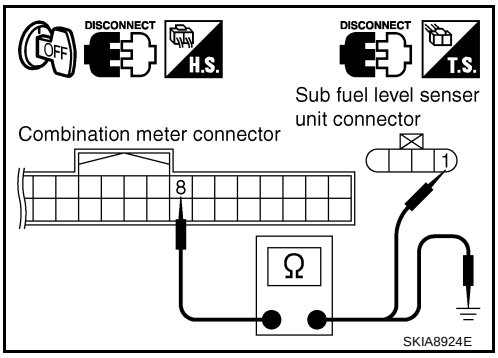
2. CHECK COMBINATION METER CIRCUIT

1. Disconnect combination meter connector and sub fuel level sensor unit connector.
2. Check continuity between combination meter harness connector M44 terminal 8 (G) and sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 1 (G).

   Continuity should exist.

3. Check continuity between combination meter harness connector M44 terminal 8 (G) and ground.

   Continuity should not exist.



NOTE:
*1: LHD models, *2: RHD models

OK or NG

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

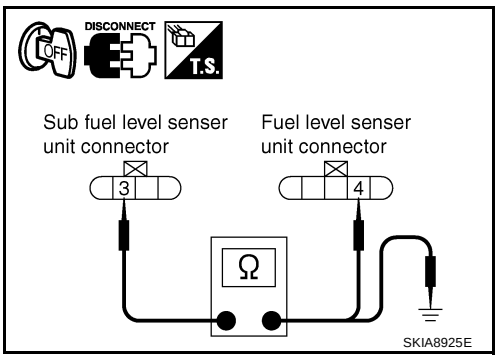
3. CHECK FUEL LEVEL SENSOR CIRCUIT

1. Disconnect fuel level sensor unit connector.
2. Check continuity between sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 3 (Y) and fuel level sensor unit harness connector B31*1 or B123*2 terminal 4 (Y).

   Continuity should exist.

3. Check continuity between sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 3 (Y) and ground.

   Continuity should not exist.



NOTE:
*1: LHD models, *2: RHD models

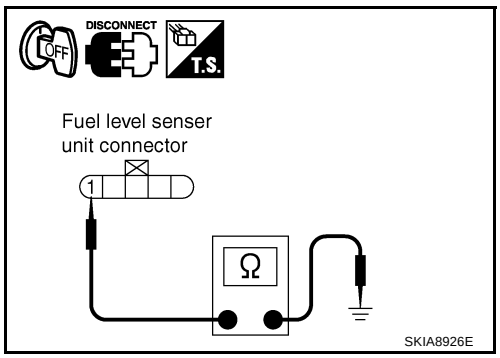
OK or NG

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

4. CHECK GROUND CIRCUIT

Check continuity between fuel level sensor unit harness connector B31*1 terminal 1 (B) or B123*2 terminal 1 (B/R) and ground.

Continuity should exist.



NOTE:
*1: LHD models, *2: RHD models

OK or NG

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

5. CHECK FUEL LEVEL SENSOR

Check fuel level sensor units. Refer to DI-25, "Fuel Level Sensor Signal Inspection [Gasoline Engine Models]".

OK or NG

OK >> GO TO 6.
NG >> Replace fuel level sensor unit or sub fuel level sensor unit.

6. CHECK INSTALLATION CONDITION

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.

OK or NG

OK >> Replace combination meter.
NG >> Install fuel level sensor unit properly.

Fuel Level Sensor Signal Inspection [Diesel Engine Models]

BKS000L0

The following symptoms are not malfunction.

FUEL GAUGE

- Depending on vehicle posture or driving circumstance, the fuel level changes 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 posture or driving circumstance, the fuel level changes and the warning lamp ON timing may change.

1. CHECK HARNESS CONNECTOR

Check combination meter and fuel level sensor unit terminals (meter side, unit side, harness side) for looseness or bent terminals.

OK or NG

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

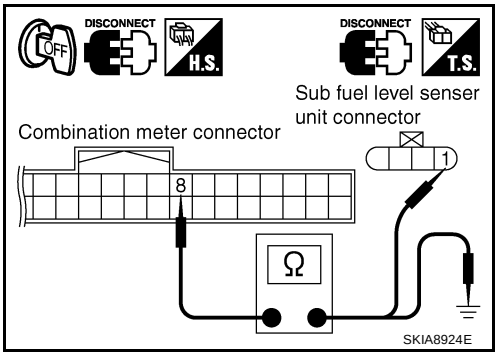
2. CHECK COMBINATION METER CIRCUIT

1. Disconnect combination meter connector and sub fuel level sensor unit connector.
2. Check continuity between combination meter harness connector M44 terminal 8 (G) and sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 1 (G).

Continuity should exist.

3. Check continuity between combination meter harness connector M44 terminal 8 (G) and ground.

Continuity should not exist.



NOTE:
*1: LHD models, *2: RHD models

OK or NG

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

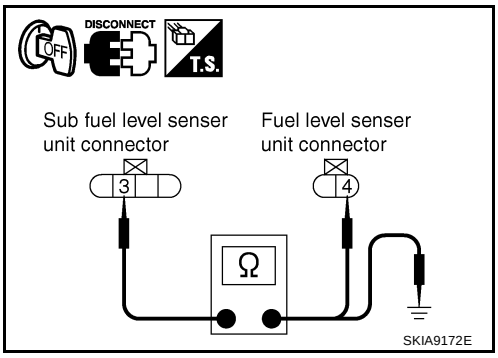
3. CHECK FUEL LEVEL SENSOR CIRCUIT

1. Disconnect fuel level sensor unit connector.
2. Check continuity between sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 3 (Y) and fuel level sensor unit harness connector B32*1 or B124*2 terminal 4 (Y).

Continuity should exist.

3. Check continuity between sub fuel level sensor unit harness connector B125*1 or B21*2 terminal 3 (Y) and ground.

Continuity should not exist.



NOTE:
*1: LHD models, *2: RHD models

OK or NG

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

4. CHECK GROUND CIRCUIT

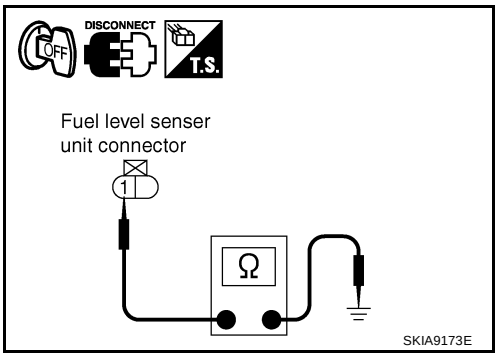
Check continuity between fuel level sensor unit harness connector B32*1 terminal 1 (B) or B124*2 terminal 1 (B/R) and ground.

Continuity should exist.

NOTE:
*1: LHD models, *2: RHD models

OK or NG

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



5. CHECK FUEL LEVEL SENSOR

Check fuel level sensor units. Refer to DI-26, "Fuel Level Sensor Signal Inspection [Diesel Engine Models]" .

OK or NG

OK >> GO TO 6.
NG >> Replace fuel level sensor unit or sub fuel level sensor unit.

6. CHECK INSTALLATION CONDITION

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.

OK or NG

OK >> Replace combination meter.
NG >> Install fuel level sensor unit properly.

Engine Speed Signal Inspection

BKS000L1

1. CHECK ECM SELF-DIAGNOSIS

Perform ECM self-diagnosis. Refer to EC-106, "CONSULT-II Function (ENGINE)" [QR (WITH EURO-OBD)], EC-606, "CONSULT-II Function (ENGINE)" [QR (WITHOUT EURO -OBD)] or EC-1044, "CONSULT-II Function (ENGINE)" [YD].

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic Procedure” in displayed DTC.

Engine Coolant Temperature Signal Inspection

BKS000L2

1. CHECK ECM SELF-DIAGNOSIS

Perform ECM self-diagnosis. Refer to EC-106, "CONSULT-II Function (ENGINE)" [QR (WITH EURO-OBD)], EC-606, "CONSULT-II Function (ENGINE)" [QR (WITHOUT EURO - OBD)] or EC-1044, "CONSULT-II Function (ENGINE)" [YD].

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic Procedure” in displayed DTC.

Vehicle Speed Signal Inspection [With ESP]

BKS000L3

1. CHECK ESP/TCS/ABS CONTROL UNIT SELF-DIAGNOSIS

Perform ESP/TCS/ABS control unit self-diagnosis. Refer to BRC-71, "CONSULT-II Functions (ABS)" .

OK or NG

OK >> Replace combination meter.
NG >> Check applicable parts.

Vehicle Speed Signal Inspection [Without ESP]

BKS000L4

1. CHECK ABS ACTUATOR CONTROL UNIT SELF-DIAGNOSIS

Perform ABS actuator and electric unit self-diagnosis. Refer to BRC-23, "CONSULT- II Functions (ABS)" .

OK or NG

OK >> Replace combination meter.
NG >> Check applicable parts.

The Fuel Gauge Pointer Fluctuates, Indicator Wrong Value or Varies

BKS000L5

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.

The Fuel Gauge Does Not Move to FULL Position

BKS000L6

1. QUESTION 1

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

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

2. QUESTION 2

Was the vehicle fueled with the ignition switch ON?

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 vehicle parked on an incline?

YES >> Check the fuel level indication with vehicle on a level surface.
NO >> GO TO 4.

4. QUESTION 4

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

YES >> Check fuel level sensor unit. Refer to DI-25, "Fuel Level Sensor Signal Inspection [Gasoline Engine Models]" or DI-26, "Fuel Level Sensor Signal Inspection [Diesel Engine Models]" .
NO >> The float arm may interfere or bind with any of the components in the fuel tank.

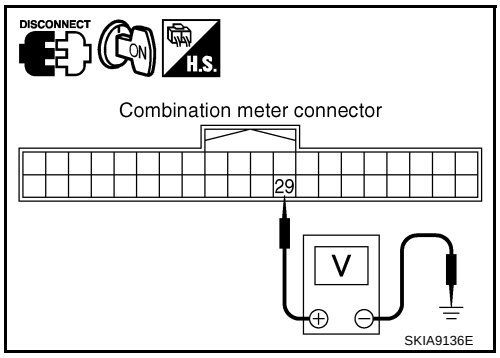
Ambient Temperature Signal Inspection

BKS000L8

1. CHECK AUTO A/C RECOGNITION SIGNAL INPUT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Turn ignition switch ON.
4. Check voltage between combination meter harness connector M44 terminal 29 (Y) and ground.

Approx. 5 V



OK or NG

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

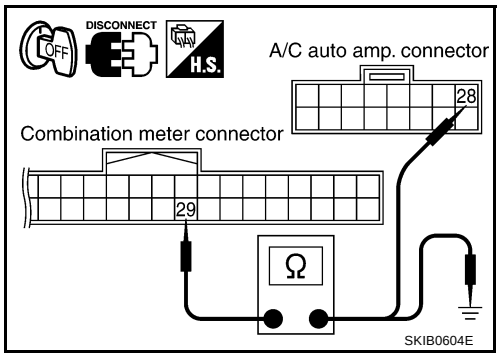
2. CHECK AUTO A/C RECOGNITION SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between combination meter harness connector M44 terminal 29 (Y) and A/C auto amp. harness connector M53 terminal 28(Y).

Continuity should exist.

4. Check continuity between combination meter harness connector M44 terminal 29 (Y) and ground.

Continuity should not exist.



OK or NG

OK >> Replace A/C auto amp.
NG >> Repair harness or connector.

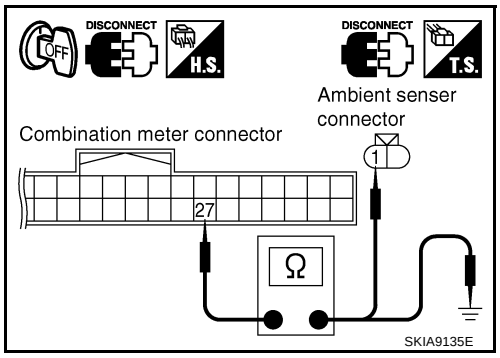
3. CHECK AMBIENT SENSOR CIRCUIT BETWEEN AMBIENT SENSOR AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect ambient sensor connector.
3. Check continuity between combination meter harness connector M44 terminal 27 (R/B) and ambient sensor harness connector E38 terminal 1 (R/B).

Continuity should exist.

4. Check continuity between combination meter harness connector M44 terminal 27 (R/B) and ground.

Continuity should not exist.



OK or NG

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

4. CHECK A/C AUTO AMP. CIRCUIT

Check A/C auto amp. circuit. Refer to ATC-106, "Ambient Sensor Circuit" in ATC section.

OK or NG

OK >> Replace combination meter.
NG >> Check applicable parts, and repair or replace corresponding parts.

Electrical Components Inspection

BKS000L9

FUEL LEVEL SENSOR UNIT CHECK/GASOLINE ENGINE MODELS

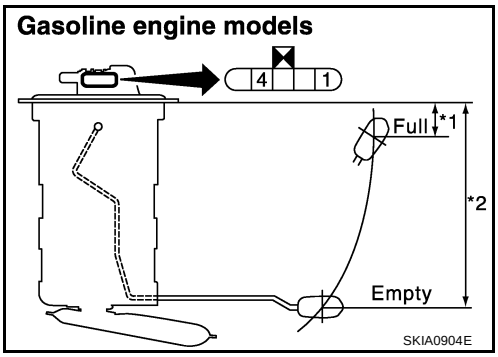
For removal, refer to FL-4, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" for Gasoline engine models.

Fuel level sensor unit

Check resistance between terminals 1 and 4.

Terminal		Float position [mm (in)]			Resistance value [Ω]
1	4	*1	Full	24 (0.94)	Approx. 5
		*2	Empty	167 (6.57)	Approx. 80

*1 and *2: When float rod is in contact with stopper.

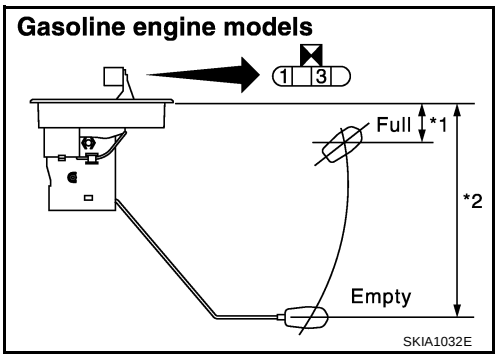


Sub fuel level sensor unit

Check resistance between terminals 1 and 3.

Terminal		Float position [mm (in)]			Resistance value [Ω]
1	3	*1	Full	35 (1.38)	Approx. 1
		*2	Empty	186 (7.32)	Approx. 40

*1 and *2: When float rod is in contact with stopper.



FUEL LEVEL SENSOR UNIT CHECK/DIESEL ENGINE MODELS

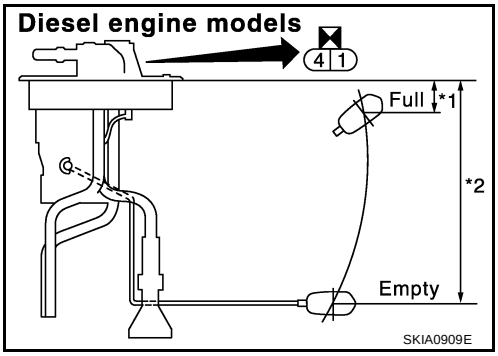
For removal, refer to FL-21, "FUEL LEVEL SENSOR UNIT" for Diesel engine models.

Fuel level sensor unit

Check resistance between terminals 1 and 4.

Terminal		Float position [mm (in)]			Resistance value [Ω]
1	4	*1	Full	24 (0.94)	Approx. 5
		*2	Empty	170 (6.69)	Approx. 80

*1 and *2: When float rod is in contact with stopper.

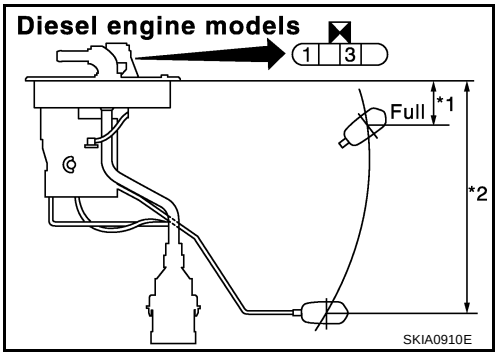


Sub fuel level sensor unit

Check resistance between terminals 1 and 3.

Terminal		Float position [mm (in)]			Resistance value [Ω]
1	3	*1	Full	34 (1.34)	Approx. 1
		*2	Empty	186 (7.32)	Approx. 40

*1 and *2: When float rod is in contact with stopper.

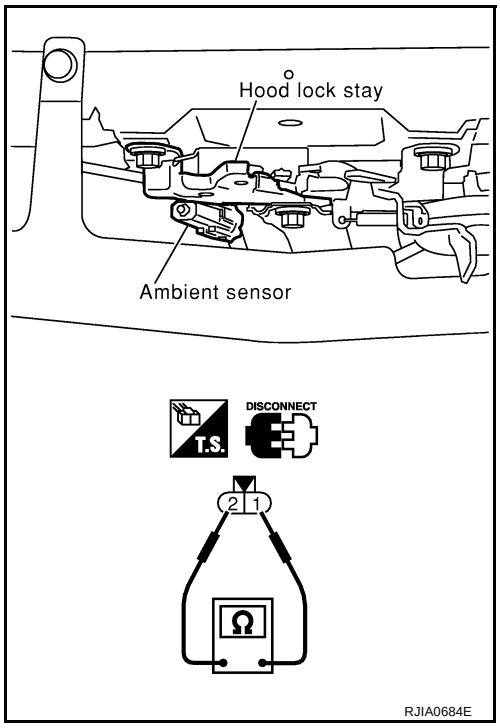


AMBIENT SENSOR CHECK

Ambient Sensor

After disconnecting ambient sensor harness connector, measure resistance between terminals 2 and 1 at sensor harness side, using the table below.

Temperature [°C (°F)]	Resistance [kΩ]
–15 (5)	12.73
–10 (14)	9.92
–5 (23)	7.80
0 (32)	6.19
5 (41)	4.95
10 (50)	3.99
15 (59)	3.24
20 (68)	2.65
25 (77)	2.19
30 (86)	1.81
35 (95)	1.51
40 (104)	1.27
45 (113)	1.07



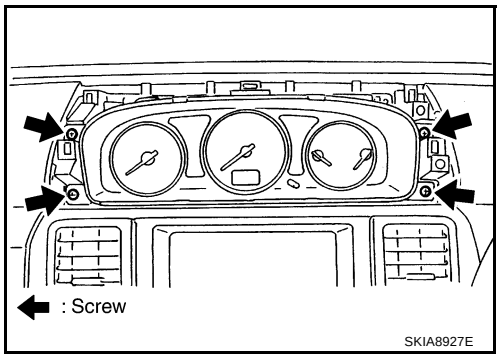
If NG, replace ambient sensor.

Removal and Installation for Combination Meter

BKS000LA

REMOVAL

1. Remove cluster lid A. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screws (4), and pull out combination meter.
3. Disconnect connectors and remove combination meter.

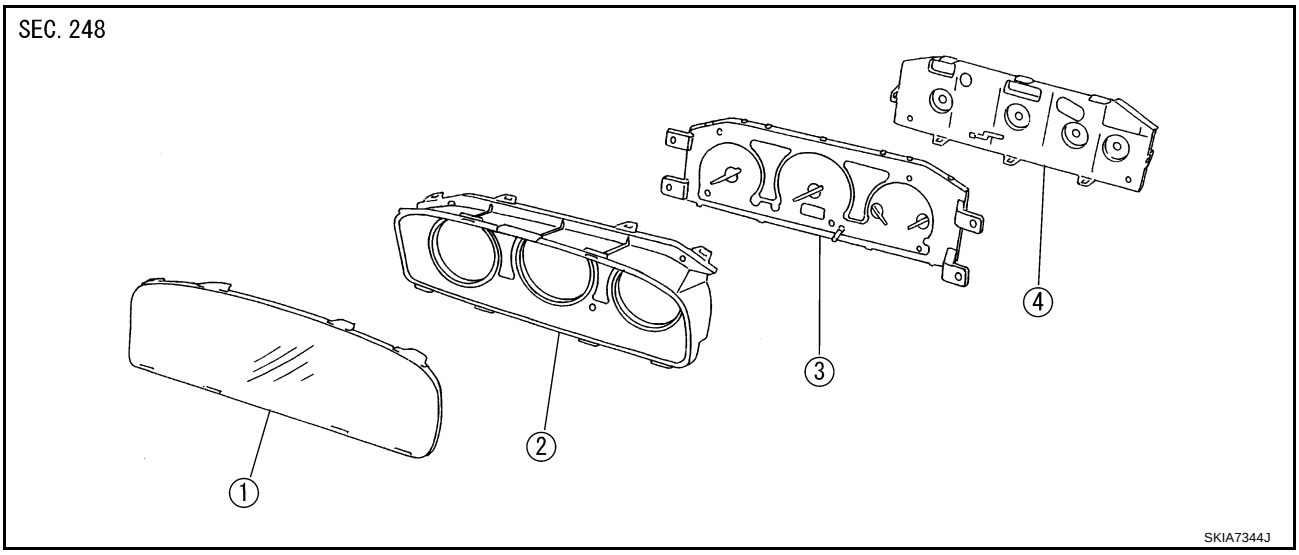


INSTALLATION

Installation is the reverse order of removal.

Disassembly and Assembly for Combination Meter

BKS000LB



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

DISASSEMBLY

1. Disengage the tabs (8) to separate front cover.
2. Disengage the tabs (8) to separate upper housing.
3. Disengage the tabs (8) to separate meter cover.

ASSEMBLY

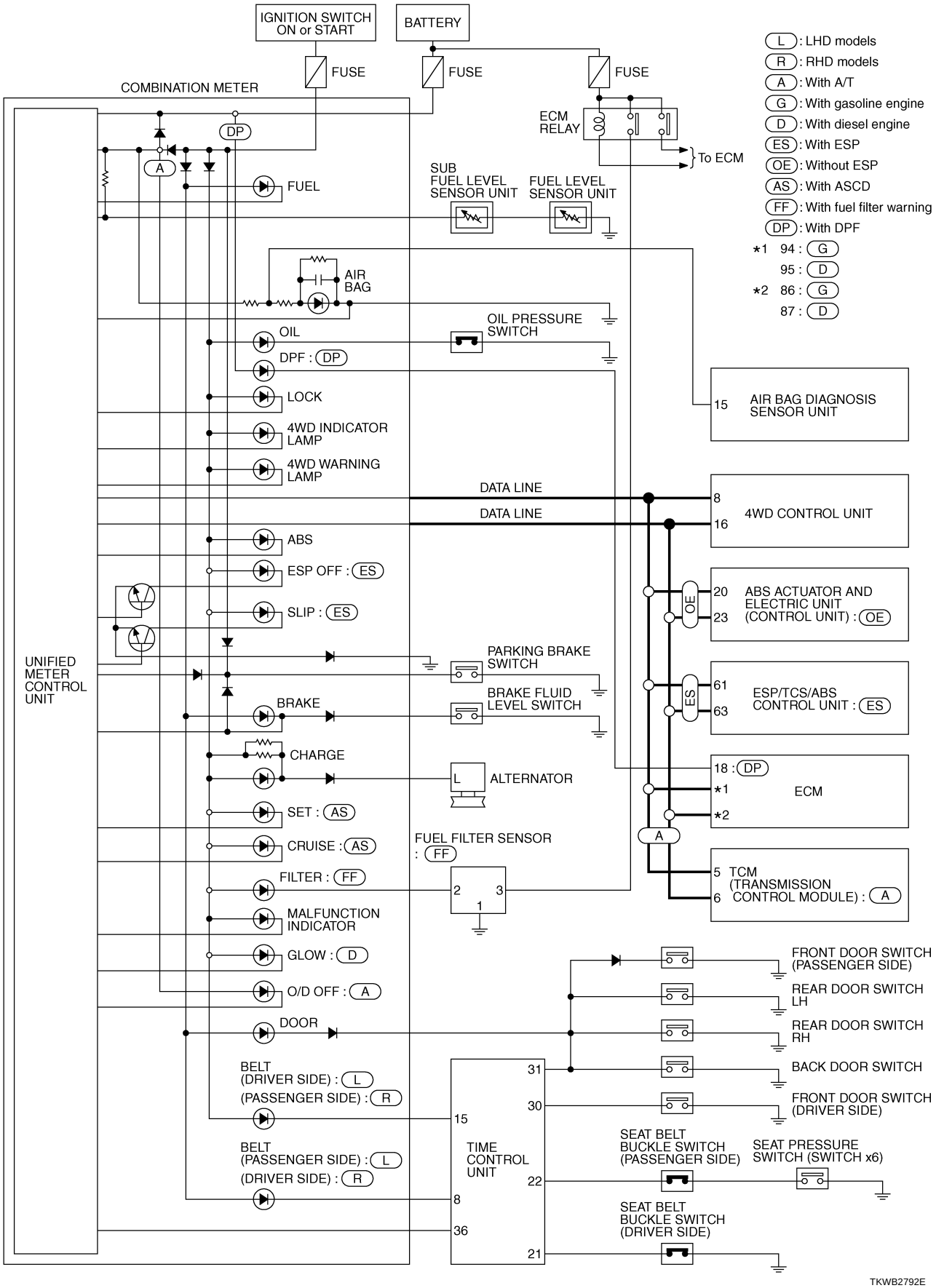
Assembly is the reverse order of disassembly.

WARNING LAMPS

PFP:24814

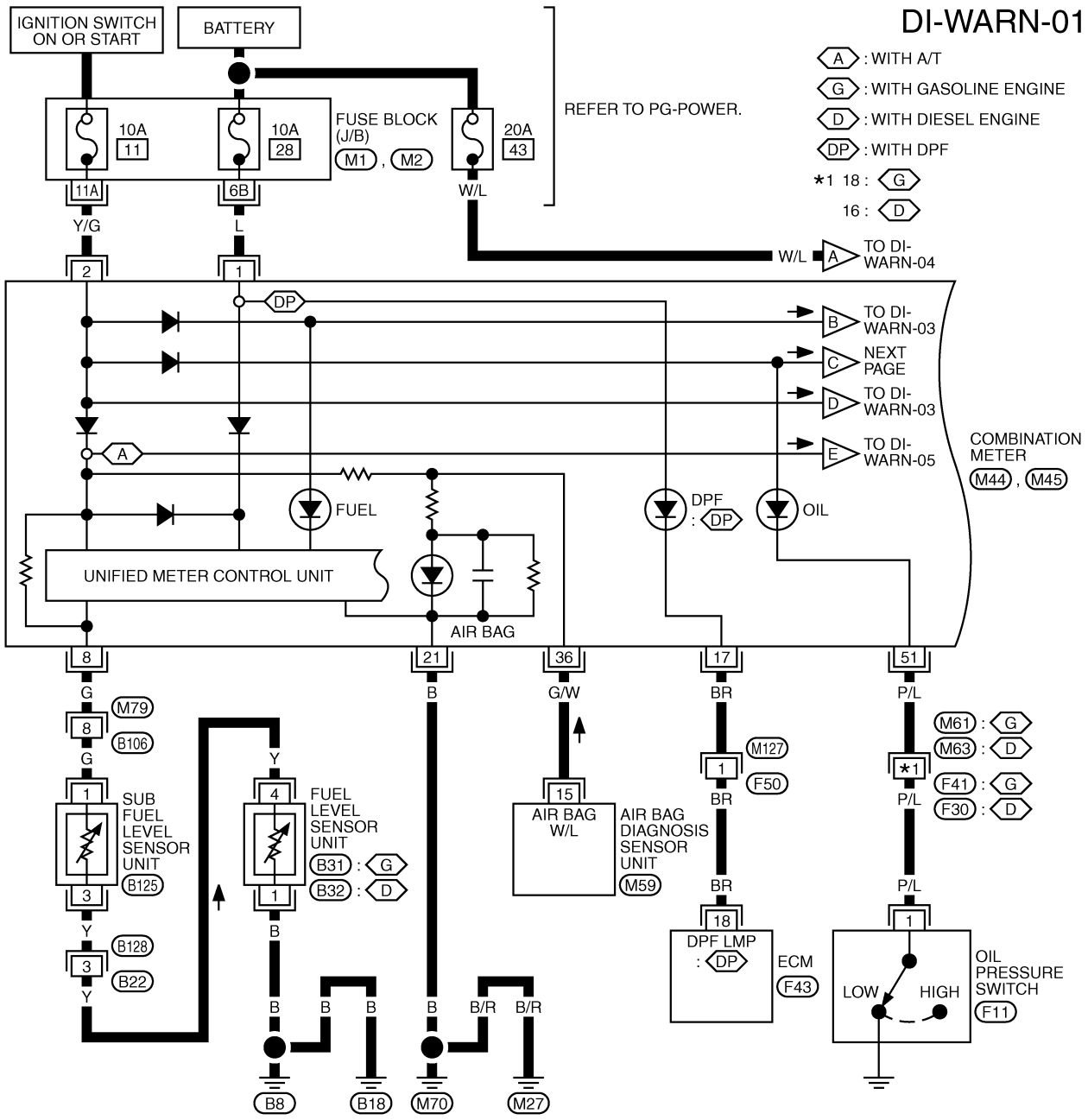
Schematic

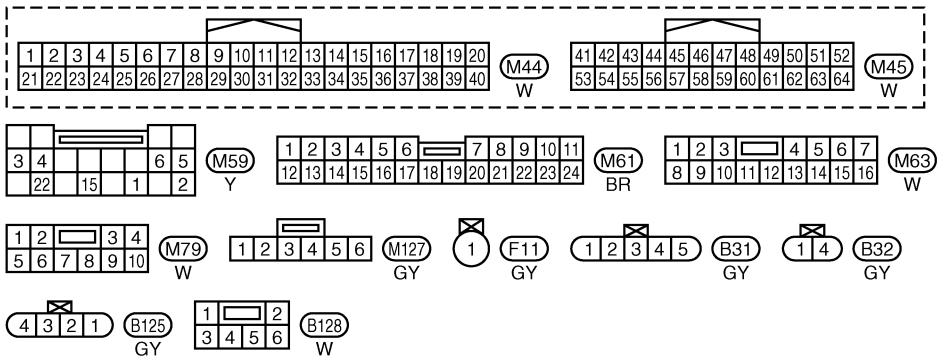
BKS000LC



Wiring Diagram — WARN —/LHD Models

BKS000LD

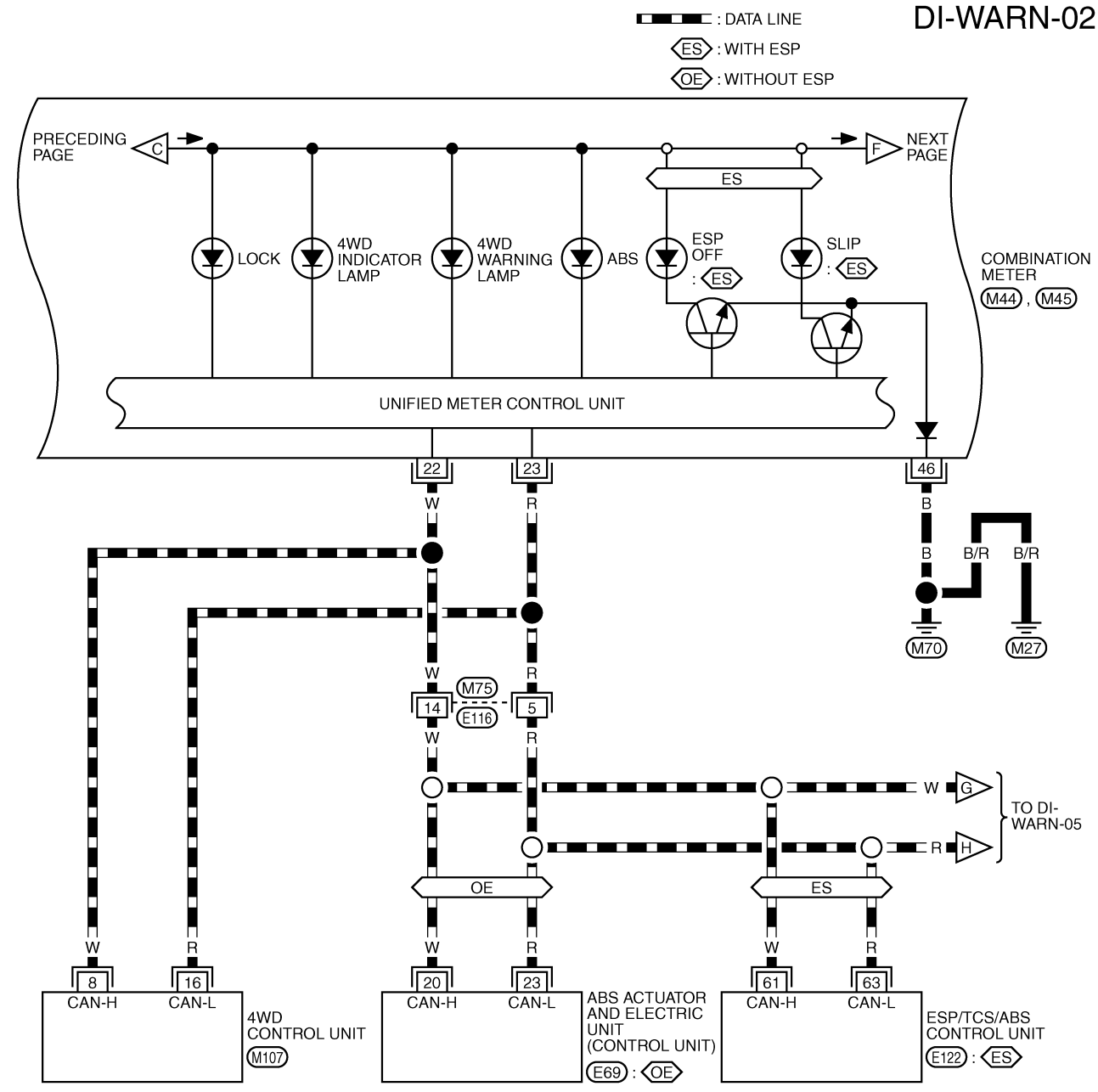


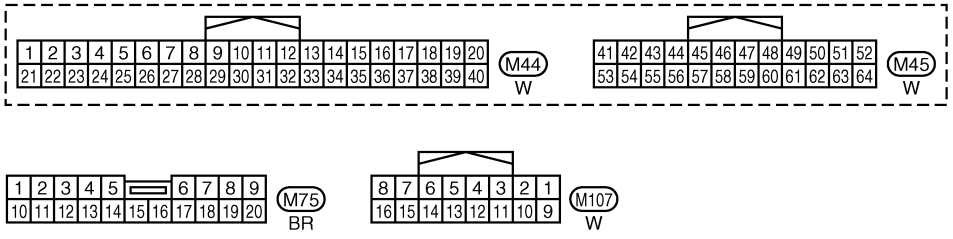


REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)
F43 -ELECTRICAL UNITS

TKWB2793E

DI-WARN-02

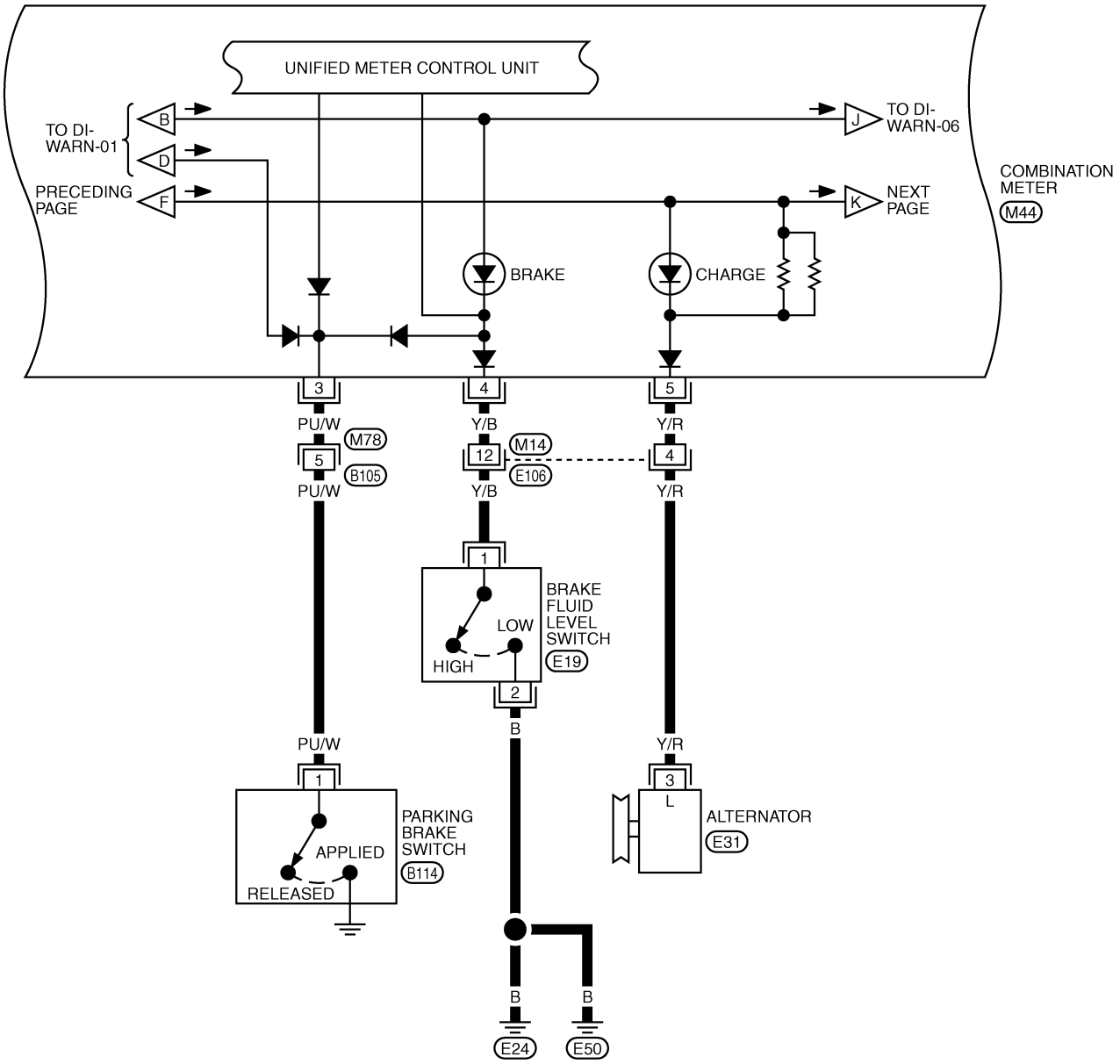


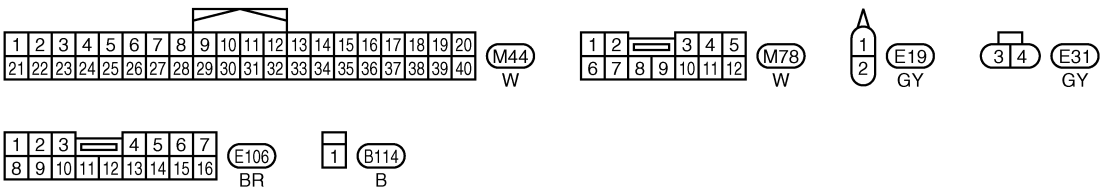


REFER TO THE FOLLOWING.
E69 , E122 -ELECTRICAL UNITS

TKWB2794E

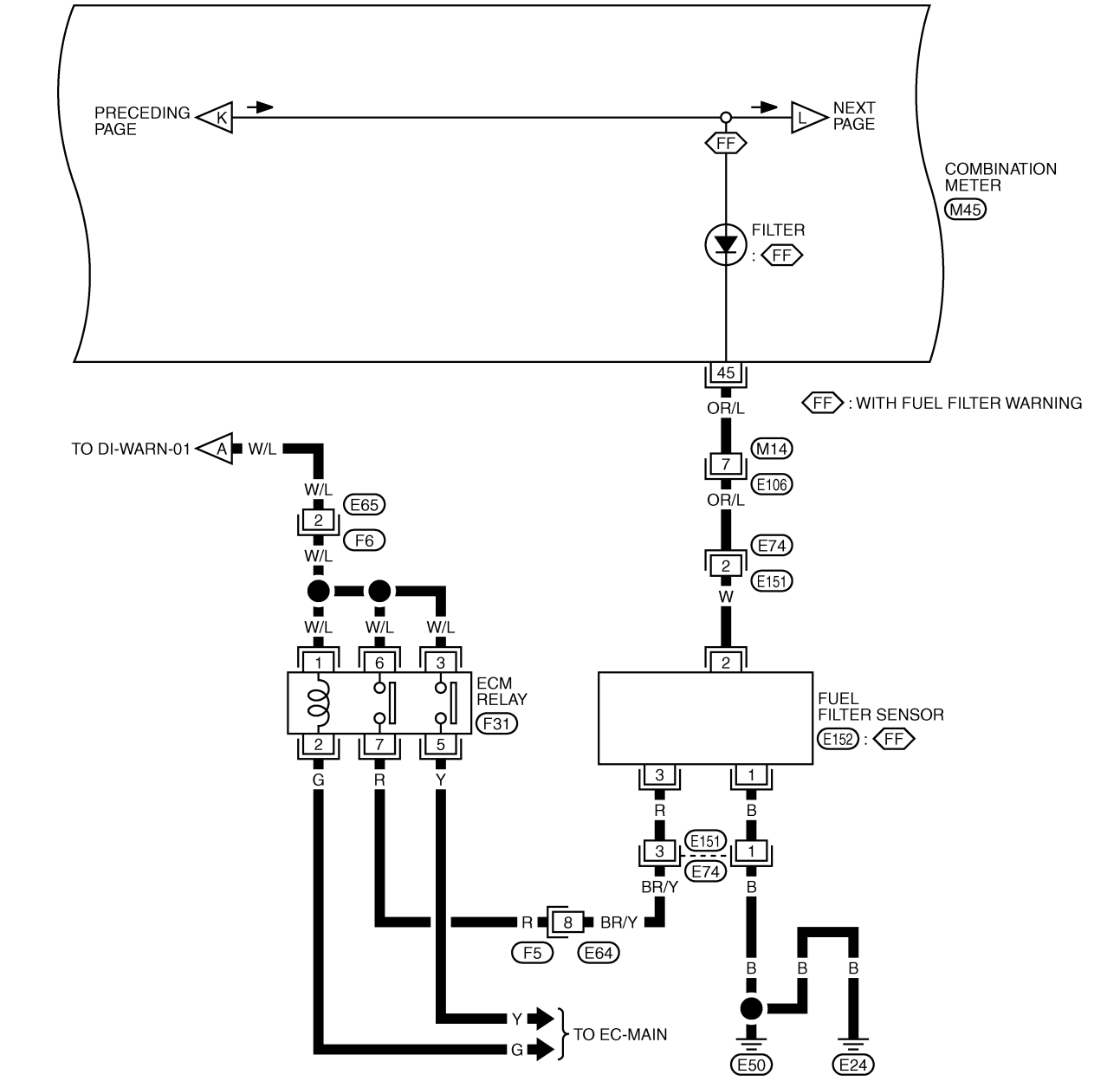
DI-WARN-03

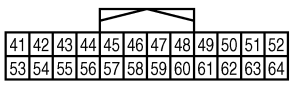


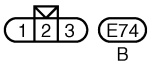


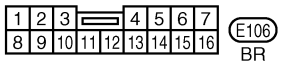
TKWB2795E

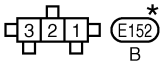
DI-WARN-04

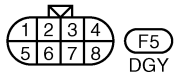


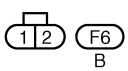


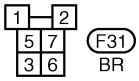








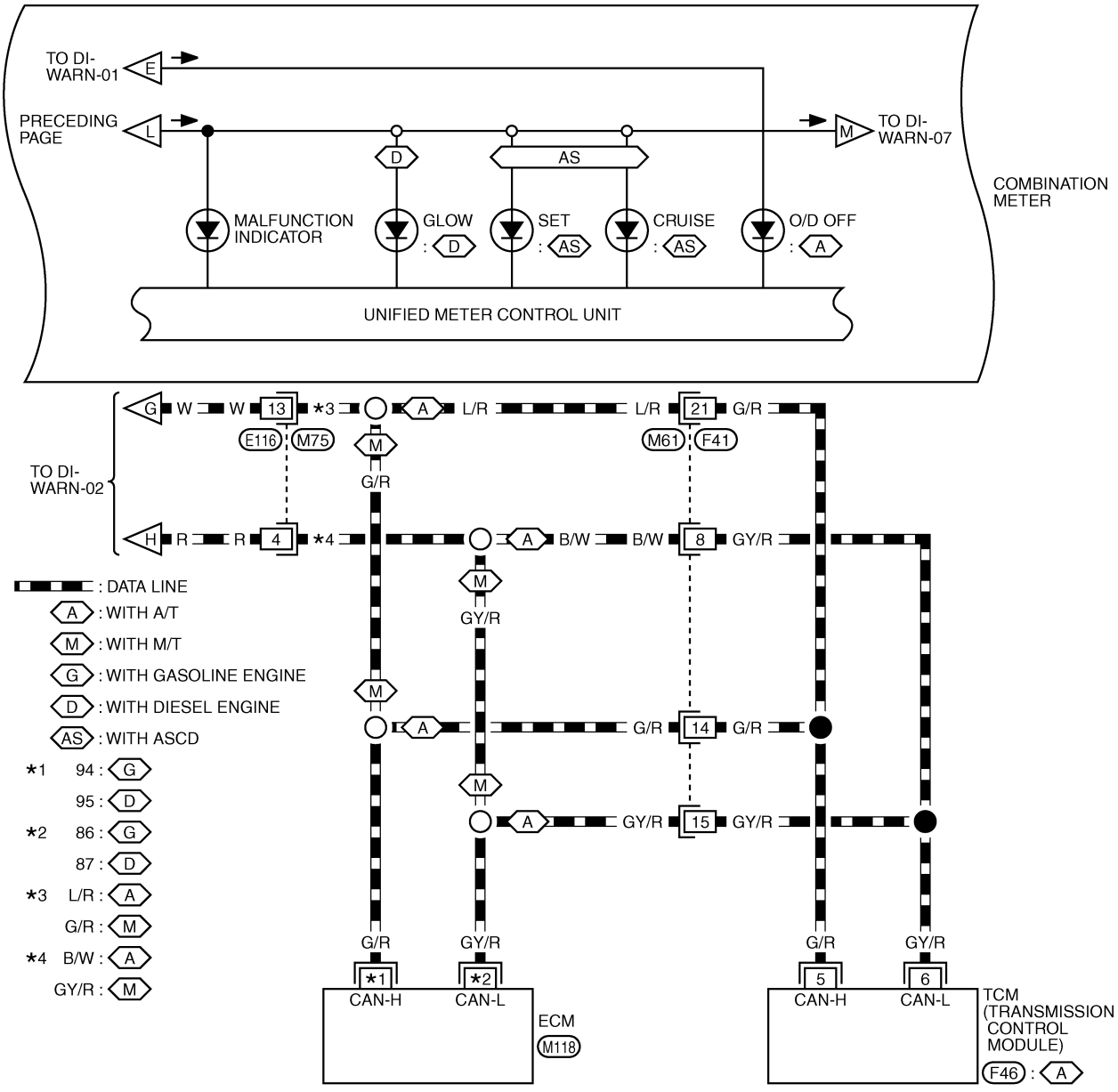


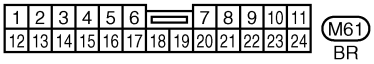


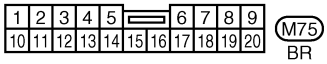
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

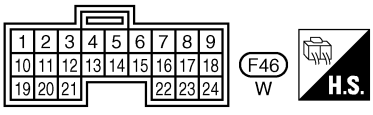
TKWB2809E

DI-WARN-05





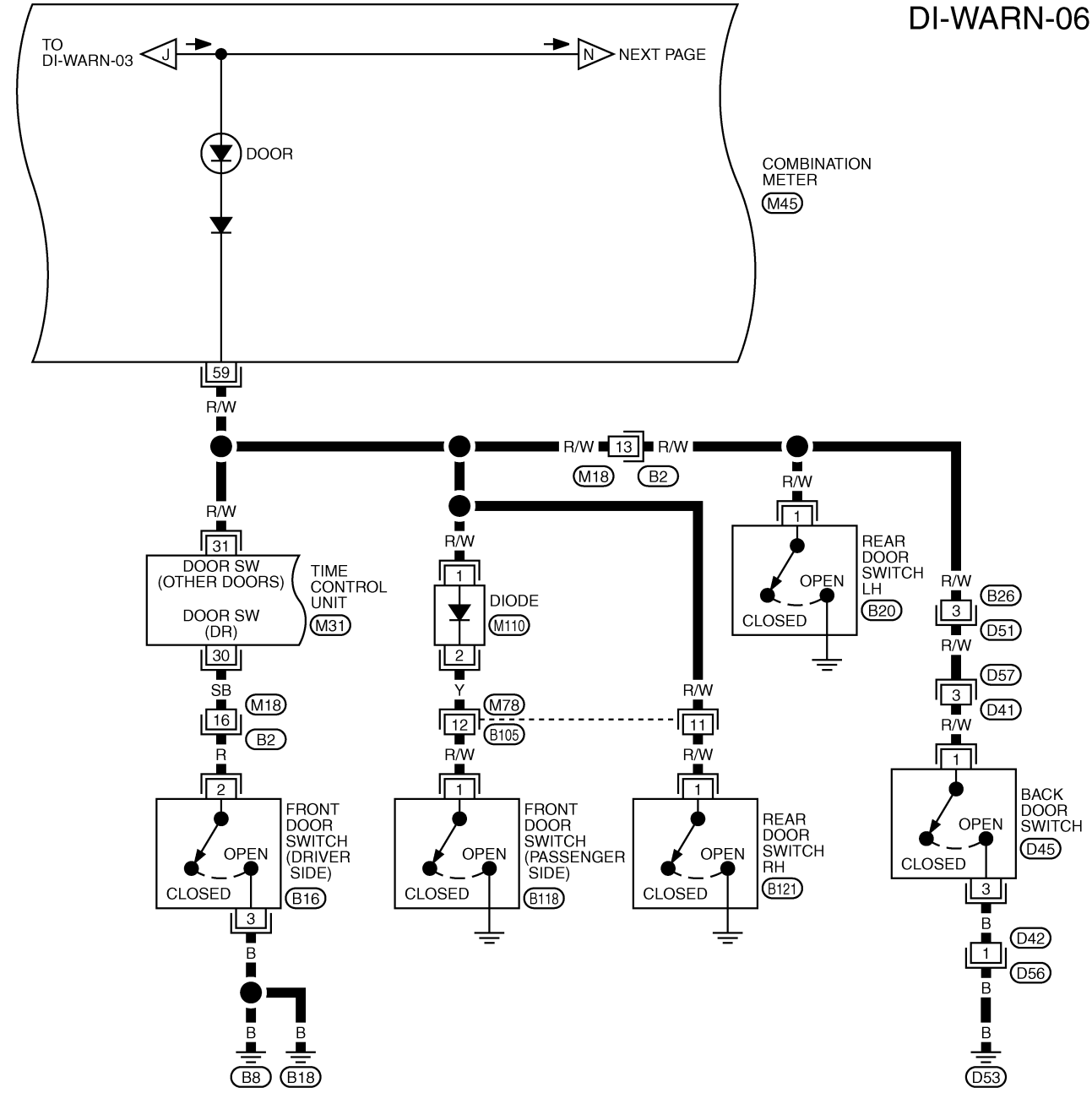




REFER TO THE FOLLOWING.
M118 -ELECTRICAL UNITS

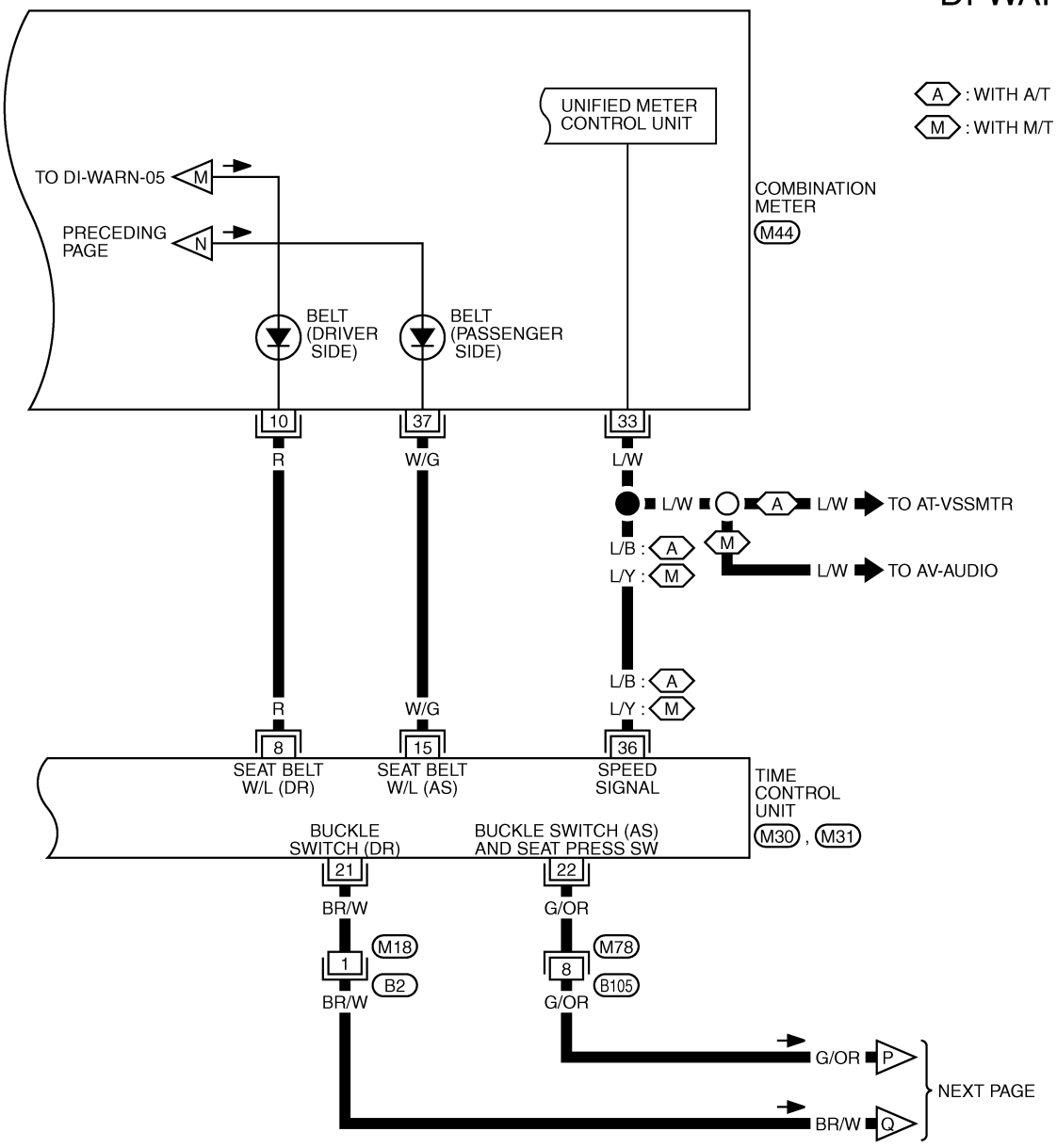
TKWB2796E

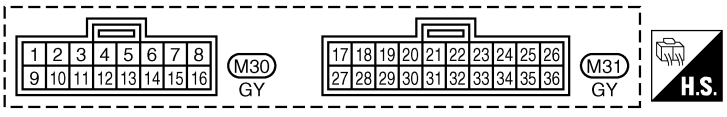
DI-WARN-06

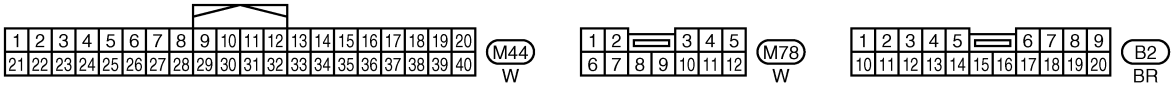


TKWB2797E

DI-WARN-07

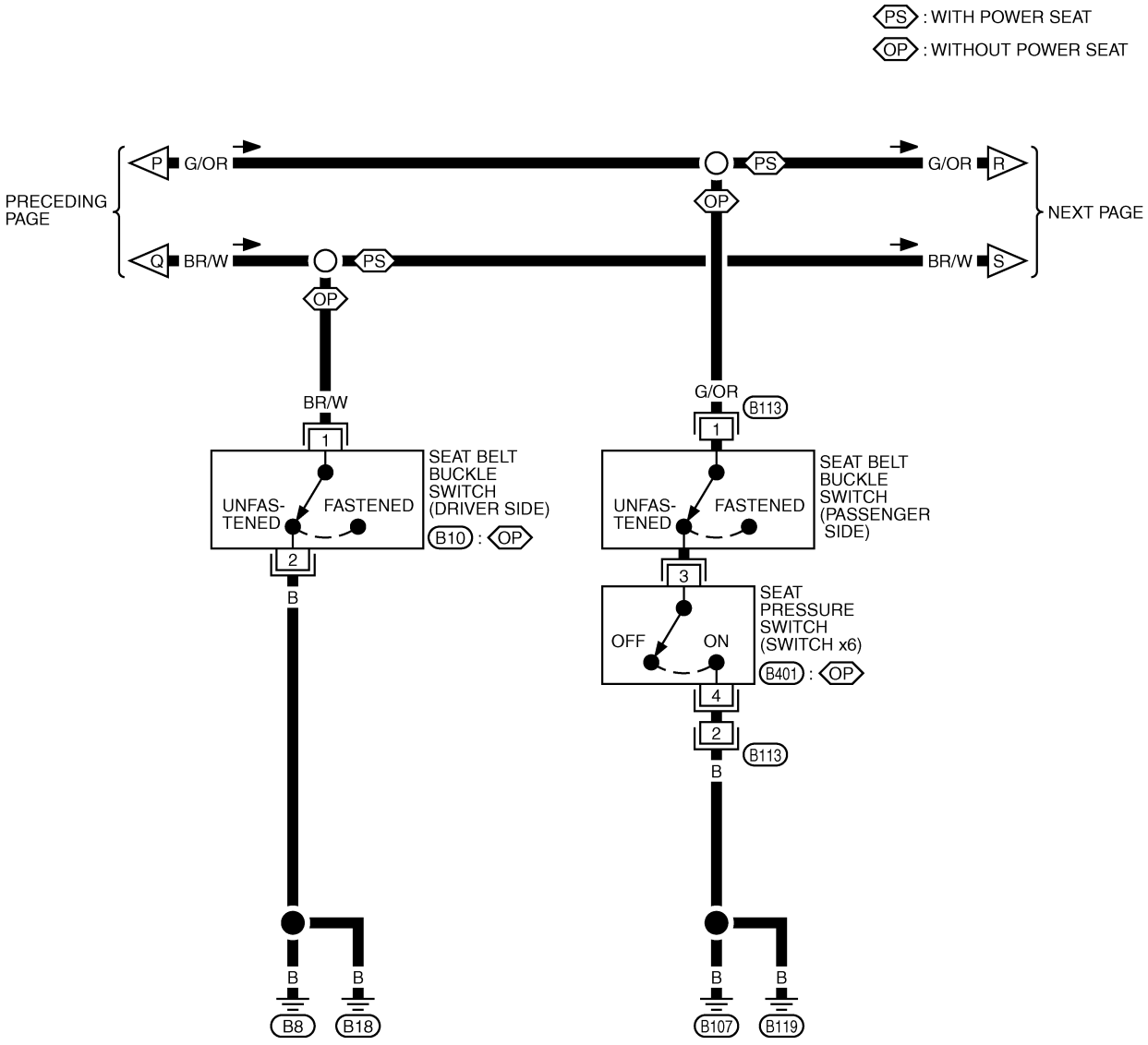


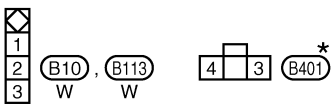




TKWB2798E

DI-WARN-08



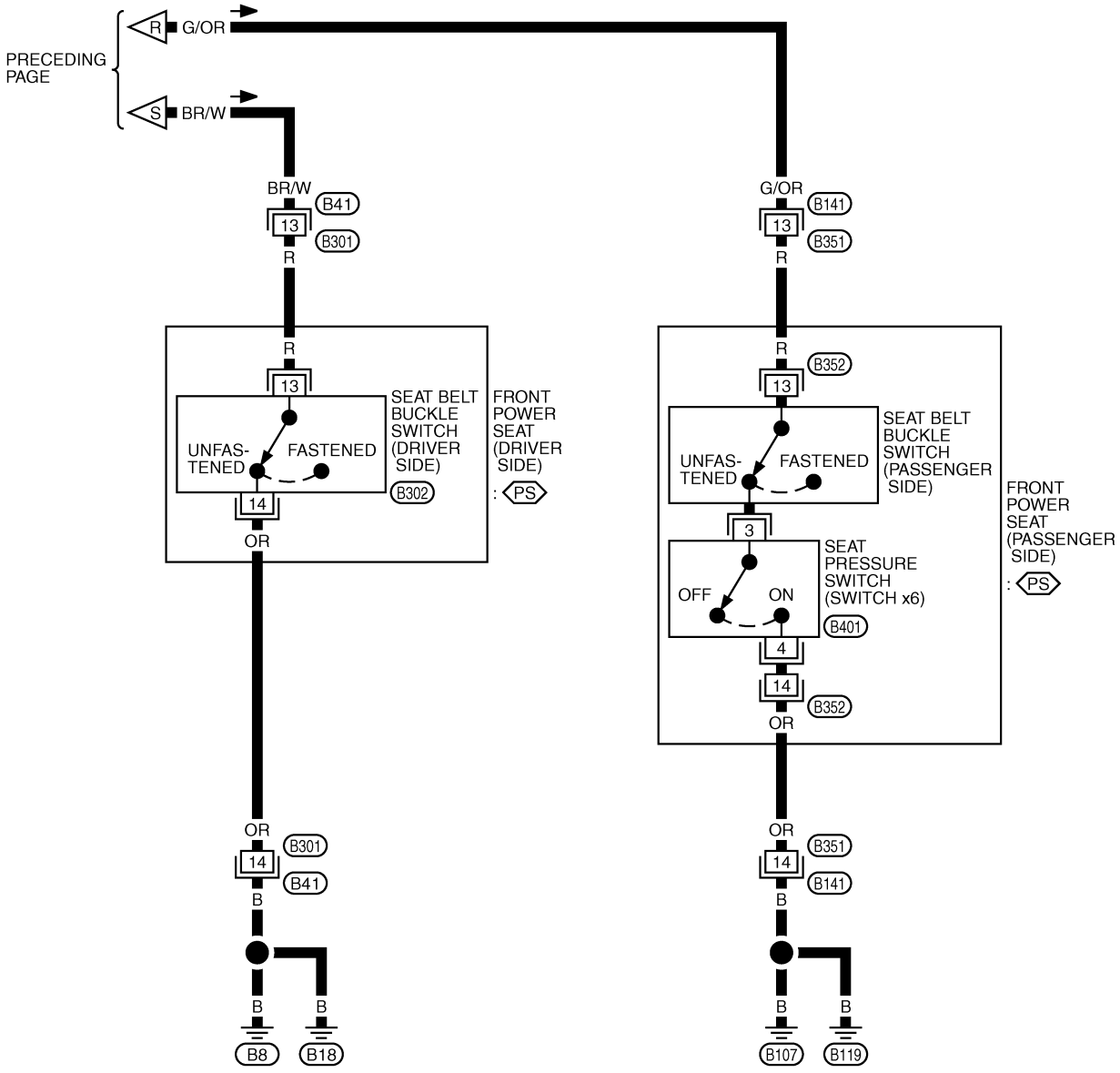


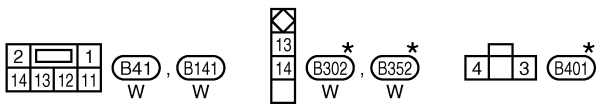
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWB2799E

DI-WARN-09

PS : WITH POWER SEAT



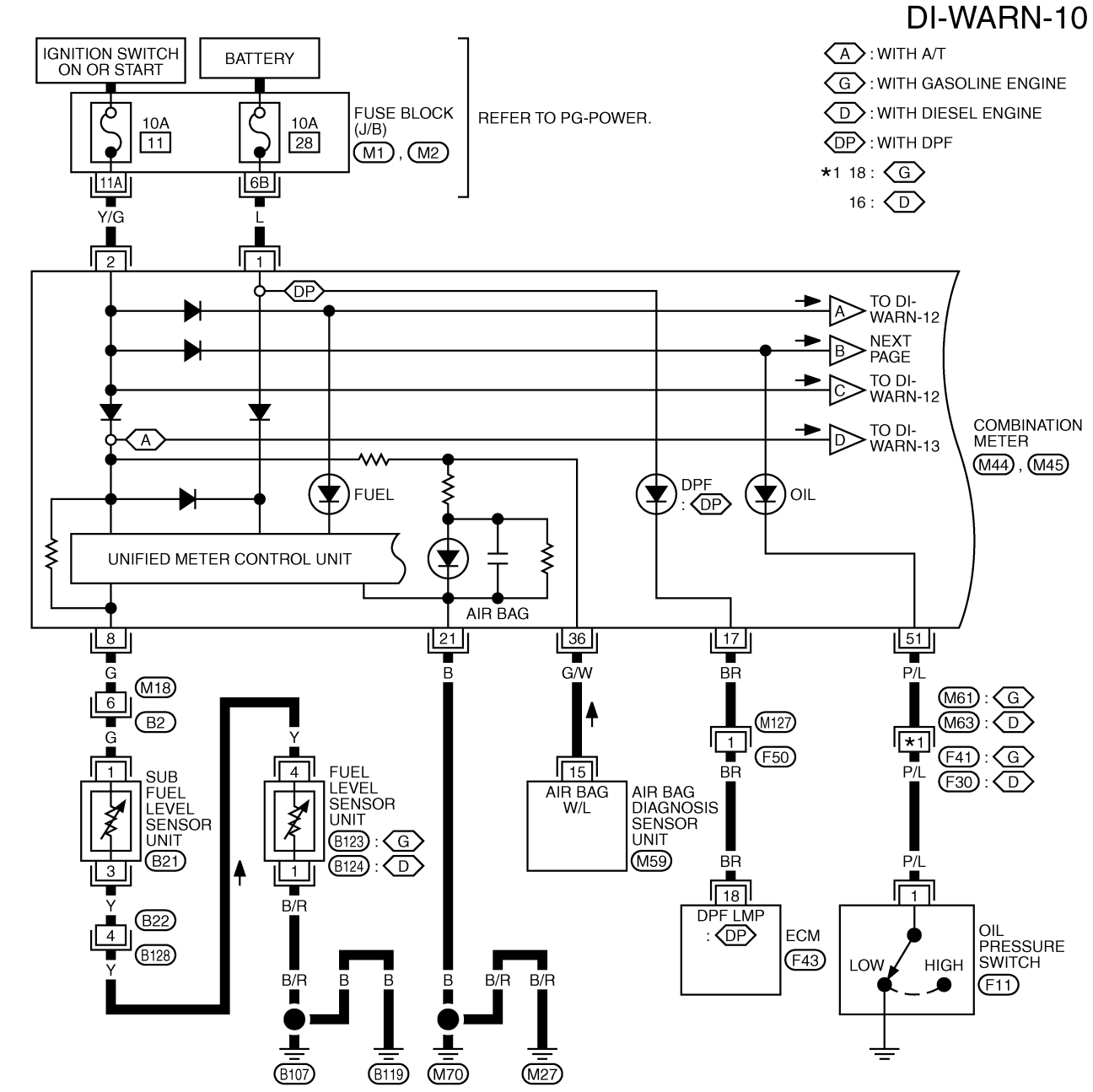


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWB2800E

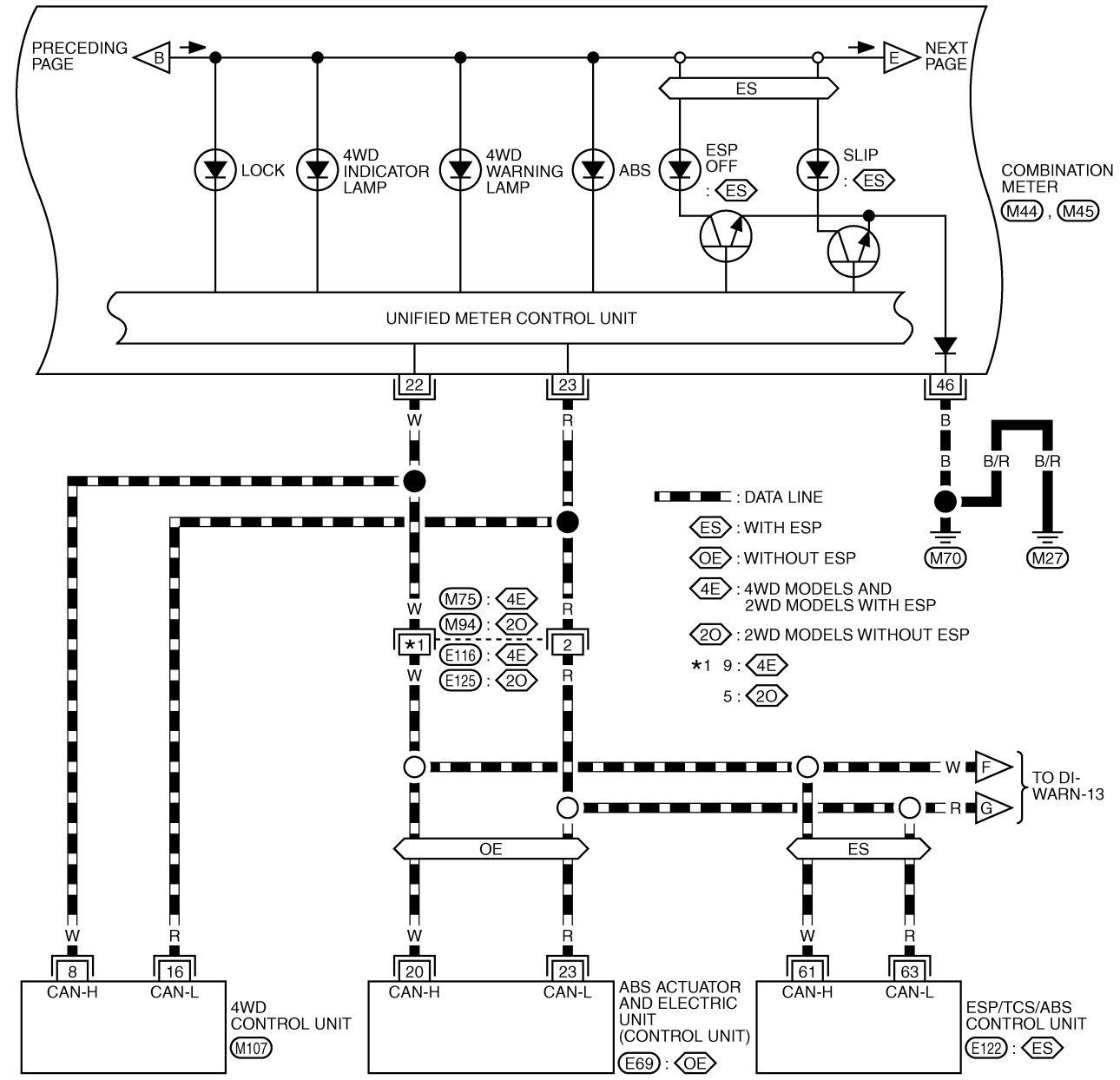
Wiring Diagram — WARN —/RHD Models

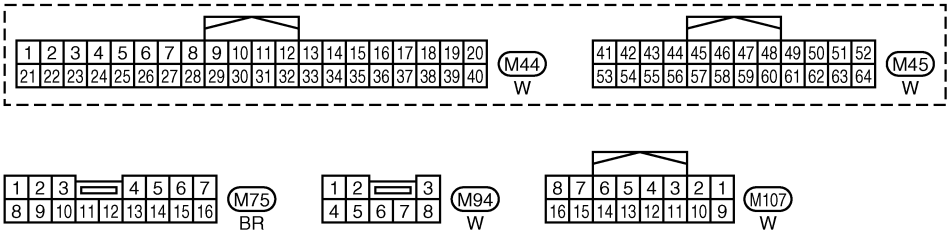
BKS000LE



TKWB2801E

DI-WARN-11

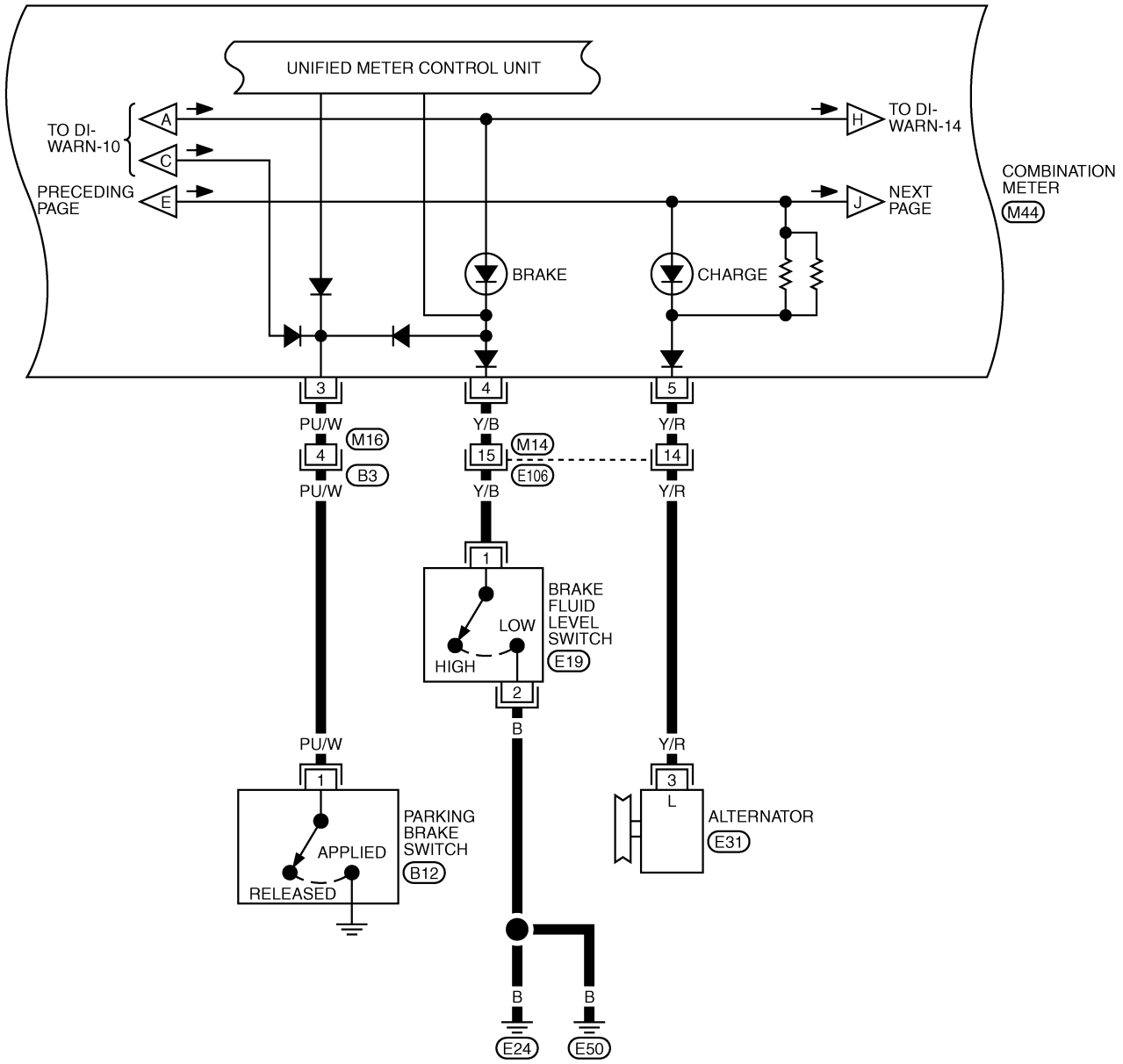


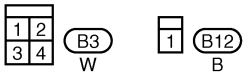


REFER TO THE FOLLOWING.
E69 , E122 -ELECTRICAL UNITS

TKWB2802E

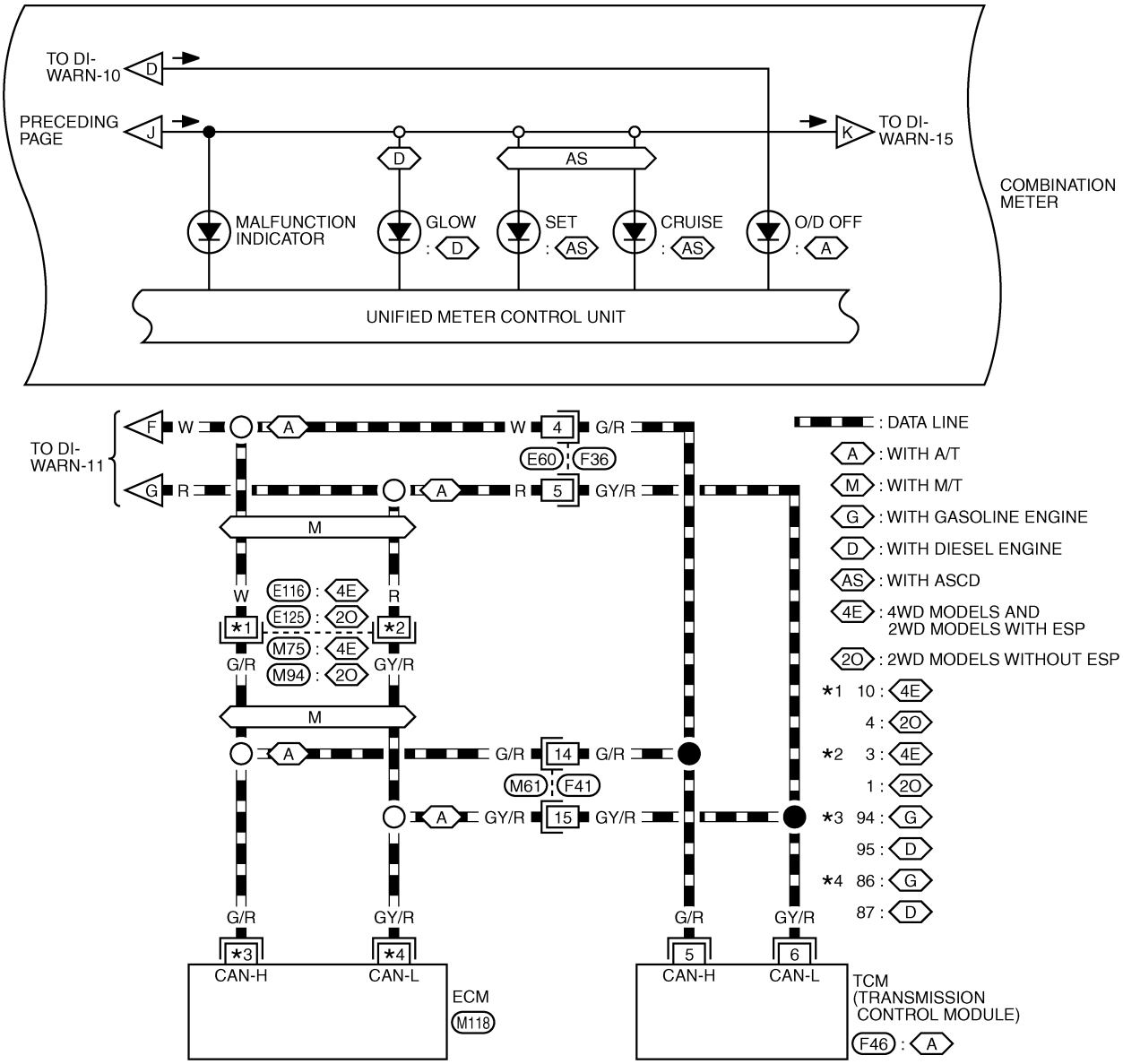
DI-WARN-12

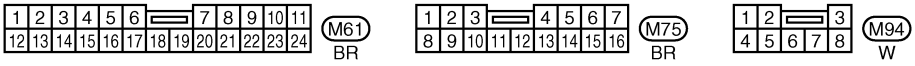


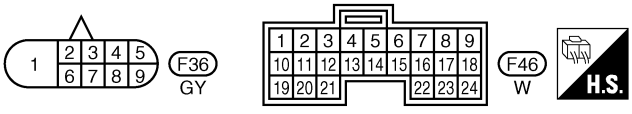


TKWB2810E

DI-WARN-13



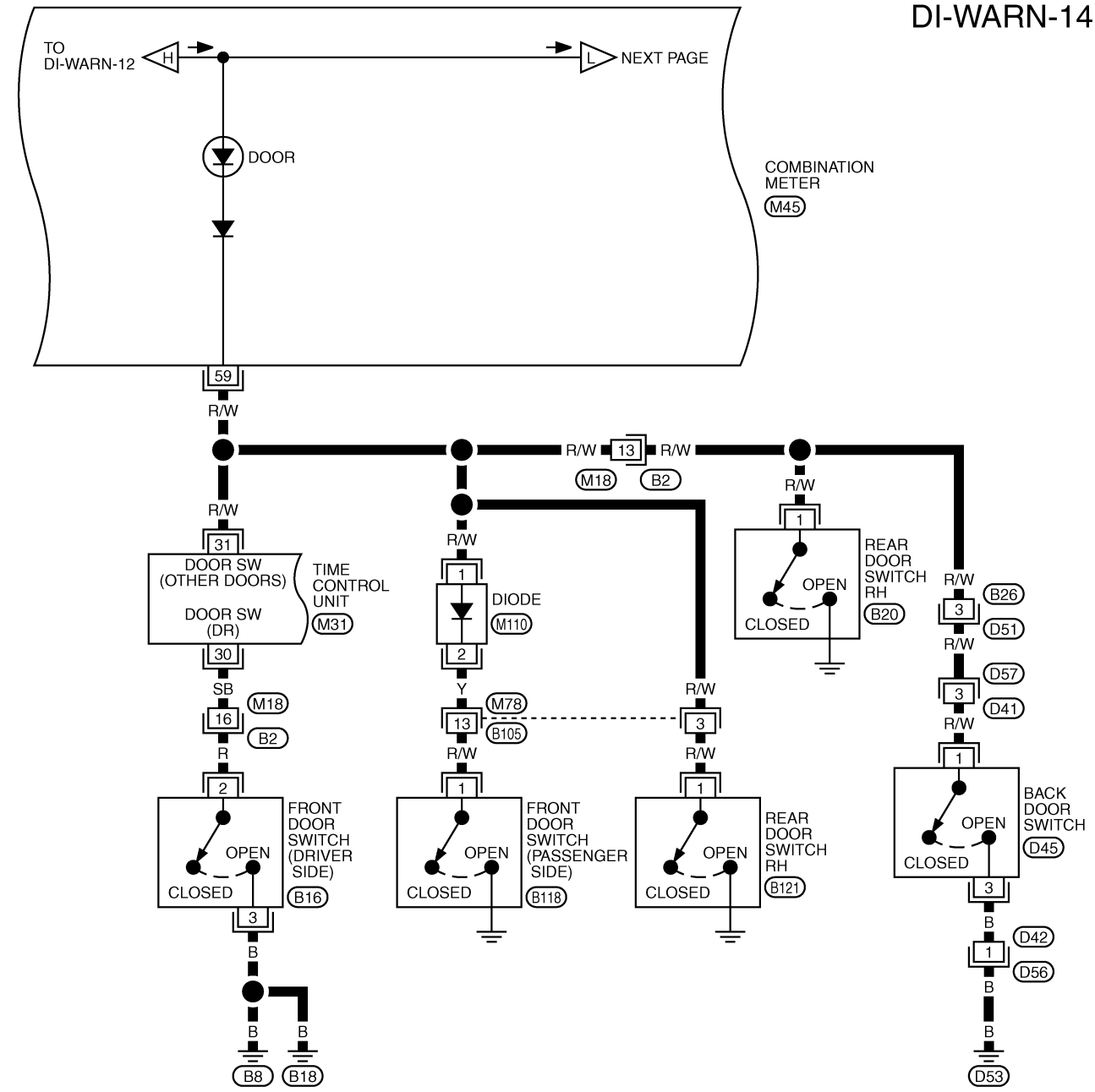




REFER TO THE FOLLOWING.
M118 -ELECTRICAL UNITS

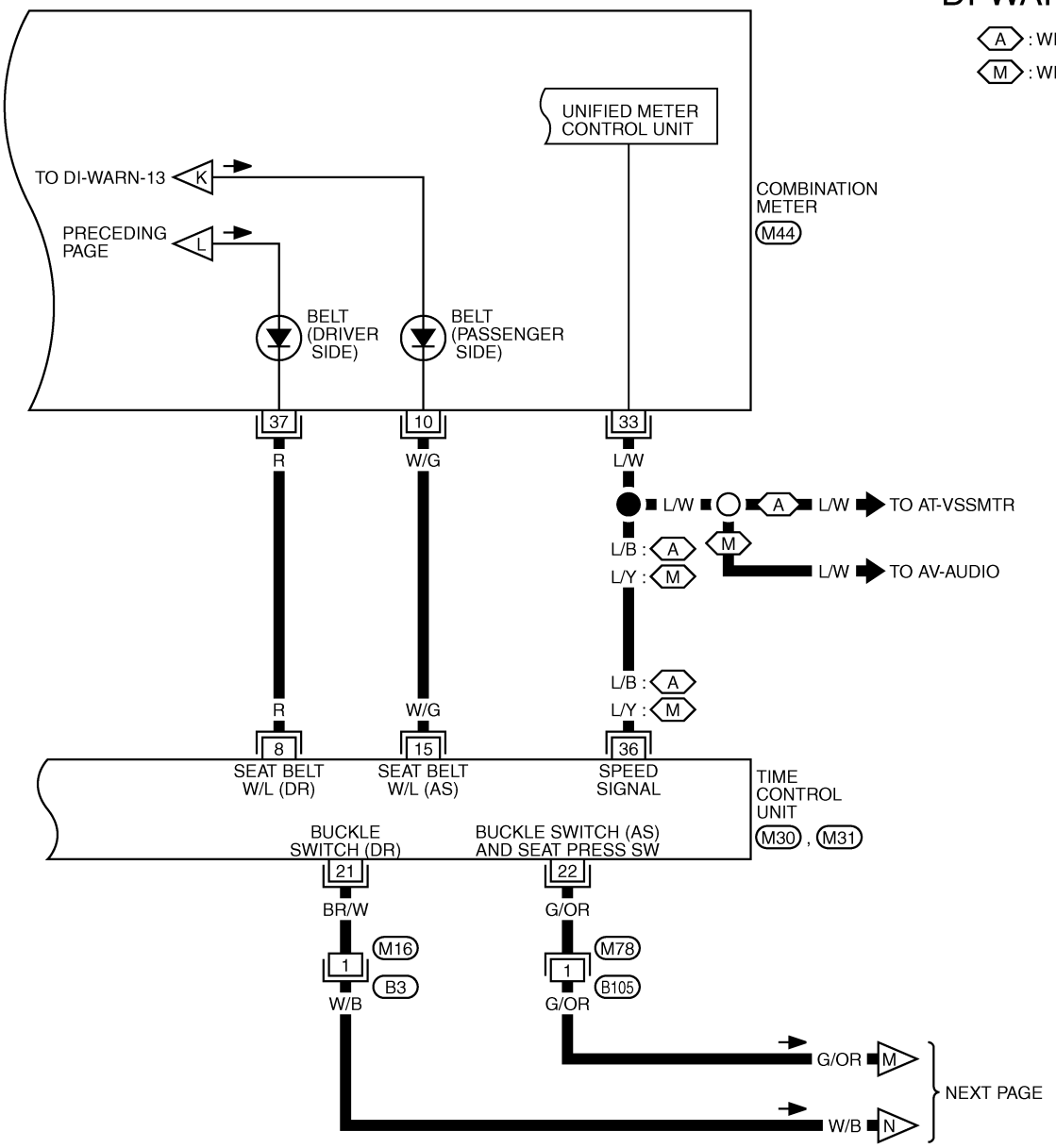
TKWB2811E

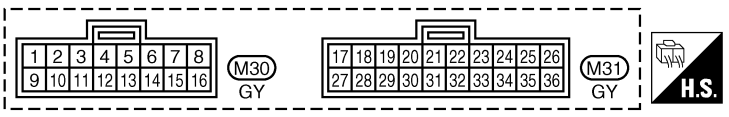
DI-WARN-14

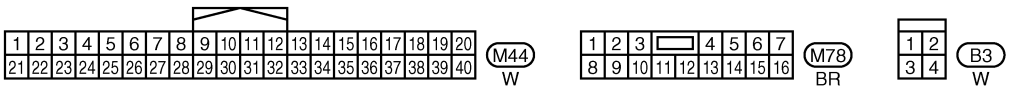


TKWB2812E

DI-WARN-15



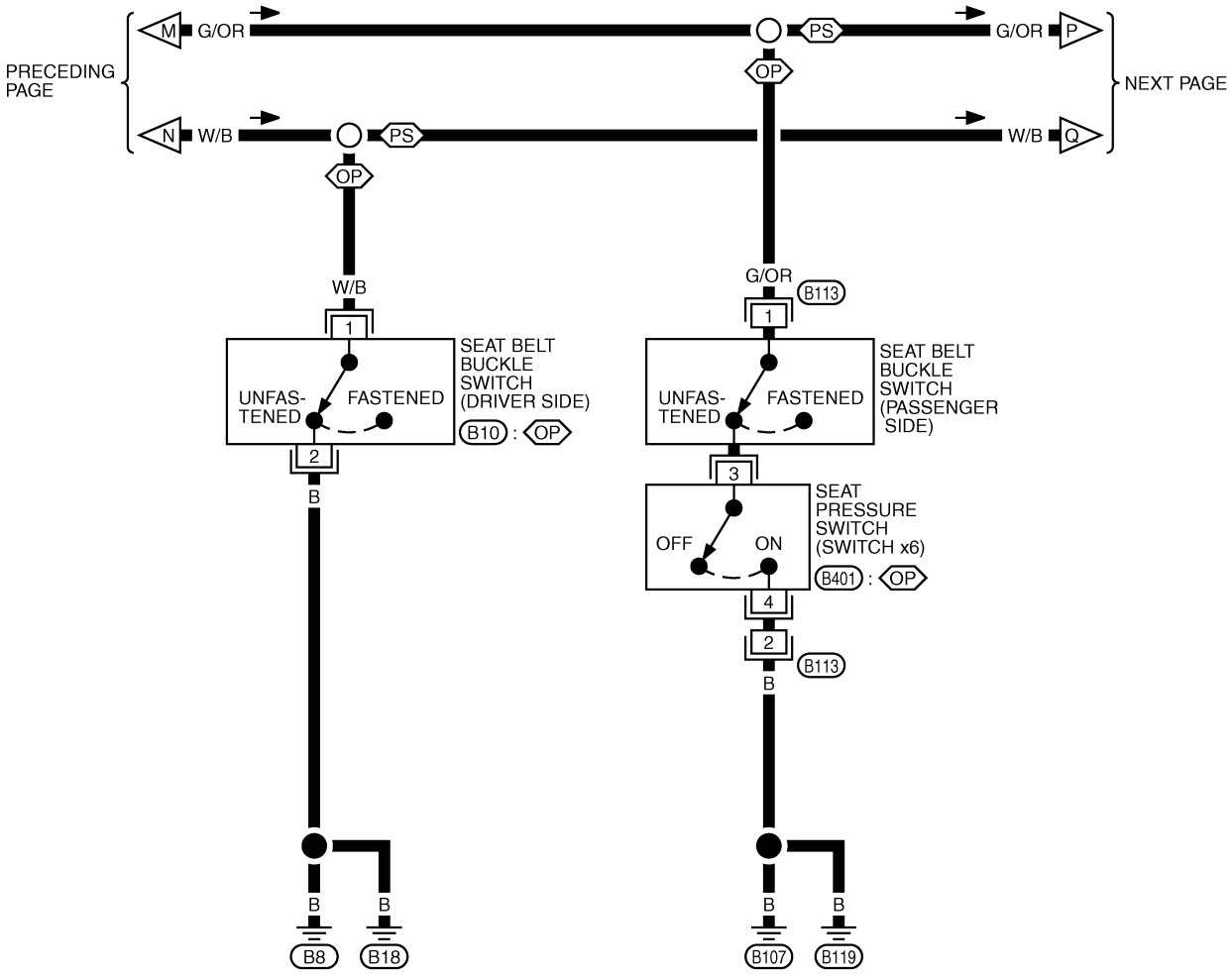


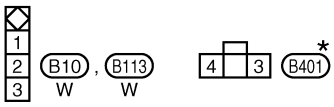


TKWB2813E

DI-WARN-16

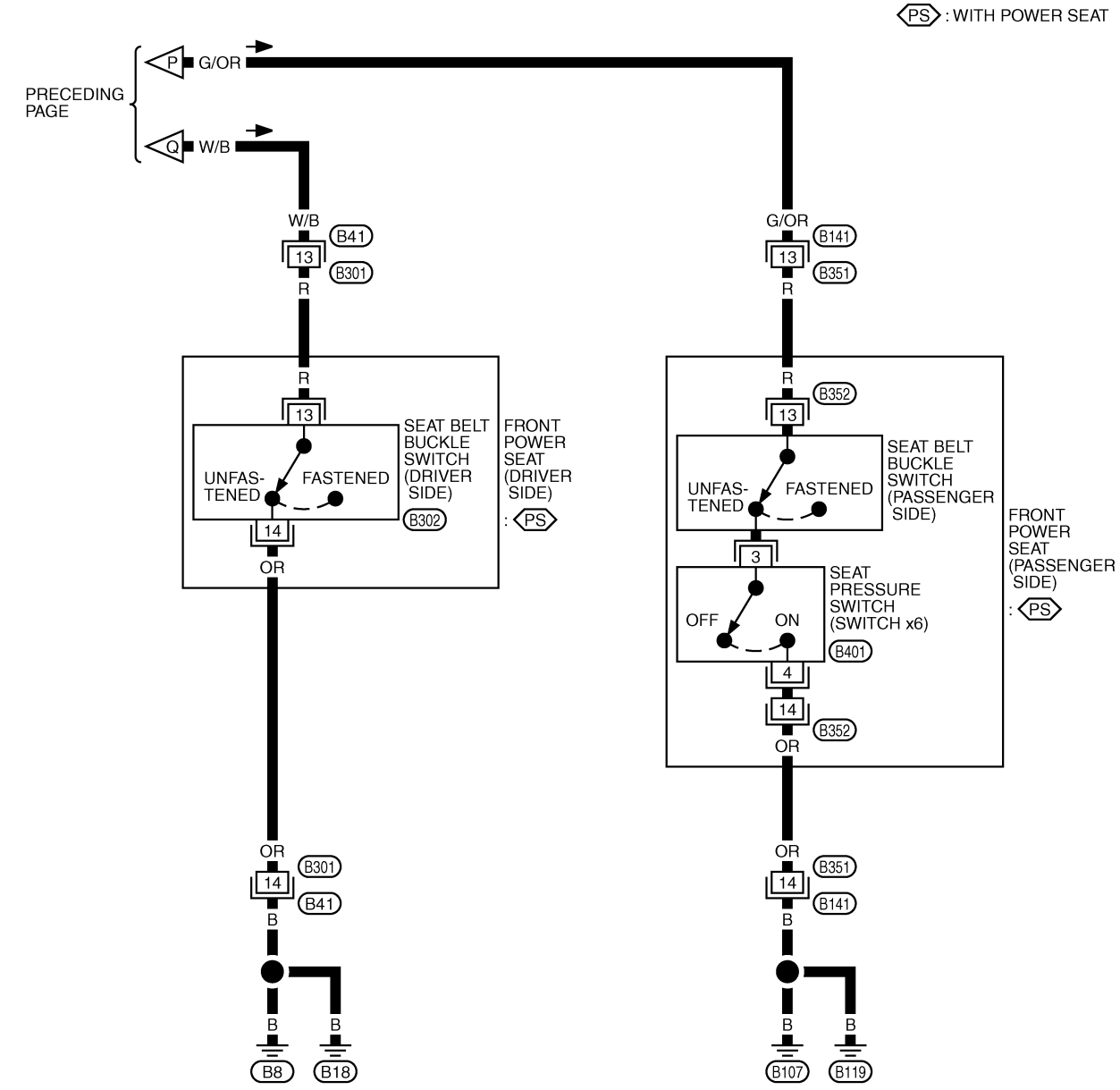
PS : WITH POWER SEAT
OP : WITHOUT POWER SEAT

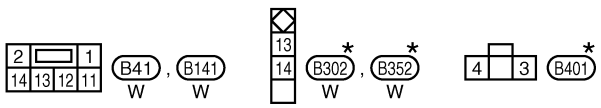




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWB2814E





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

TKWB2815E

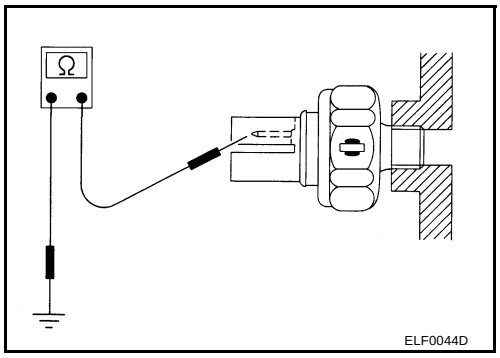
Electrical Components Inspection

BKS000LF

OIL PRESSURE SWITCH CHECK

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

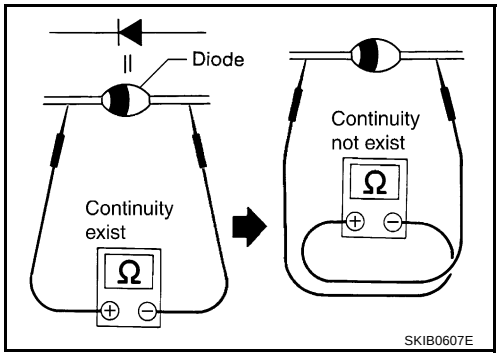
Condition	Oil pressure [kPa (bar, kg/cm^2 , psi)]	Continuity
Engine running	More than 29 (0.30, 0.3, 4)	No
Engine stopped	Less than 29 (0.30, 0.3, 4)	Yes



DIODE CHECK

- Check continuity using the anlog tester.
- Diode is functioning properly if test results are as shown in the figure.
- Check diodes at the combination meter harness connector instead of on the combination meter assembly. Refer to DI-35, "Wiring Diagram — WARN —/LHD Models" or DI-44, "Wiring Diagram — WARN —/RHD Models" .

  NOTE:
  Specification may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual for the tester to be used.



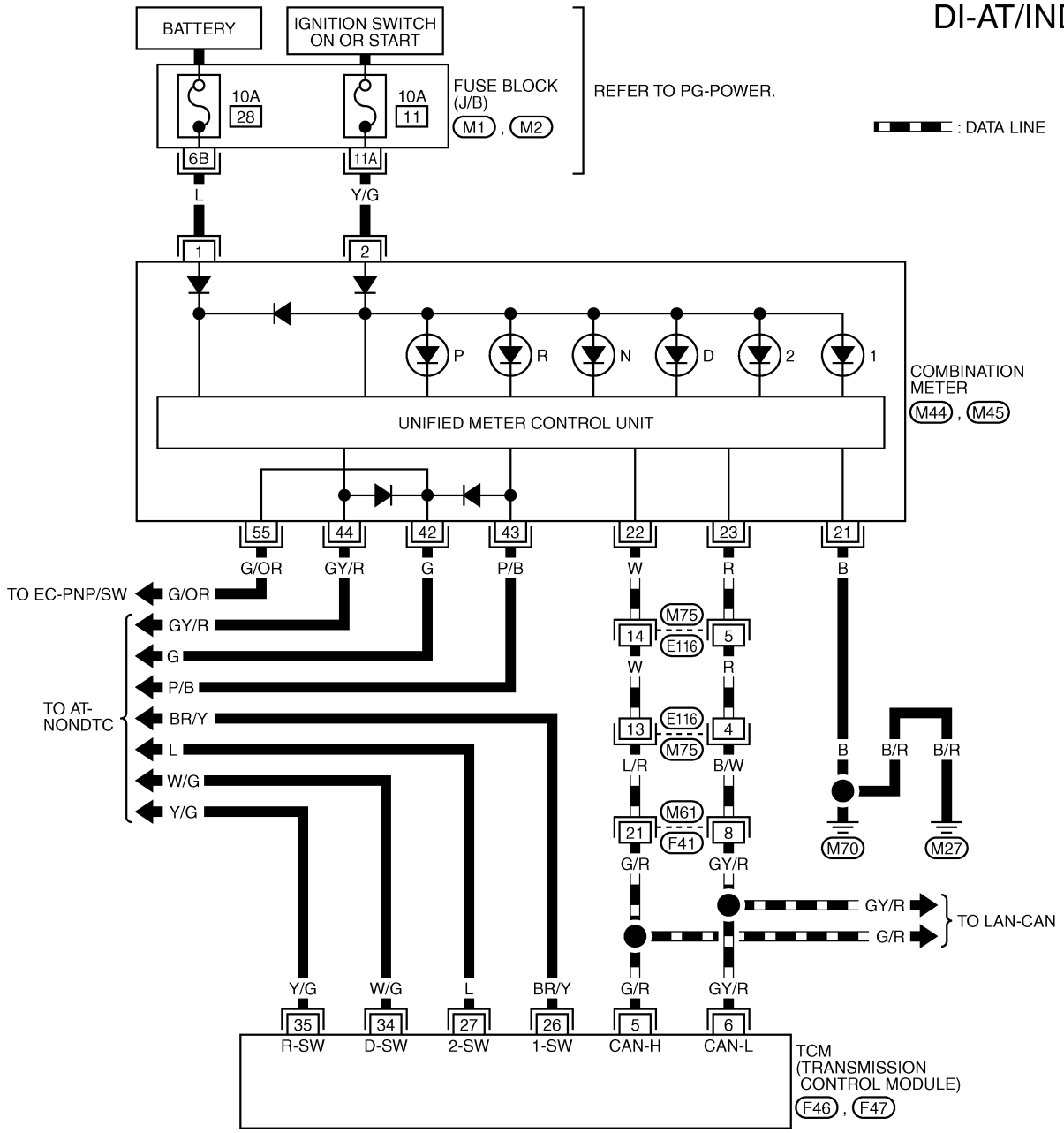
A/T INDICATOR

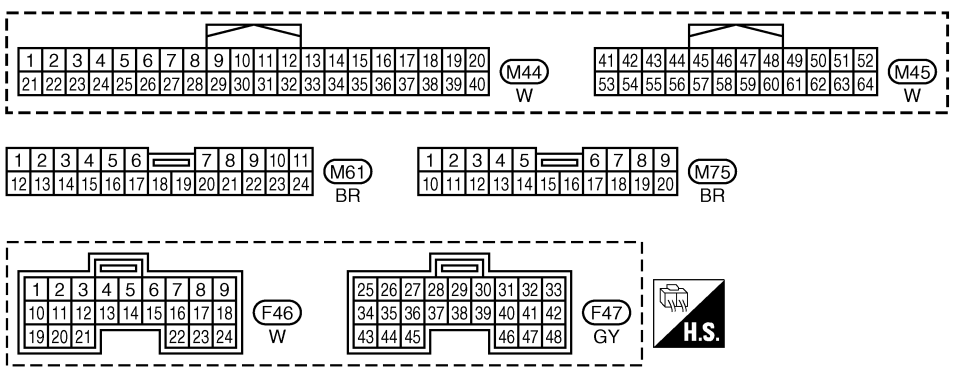
PFP:24814

Wiring Diagram — AT/IND —/LHD Models

BKS000LG

DI-AT/IND-01





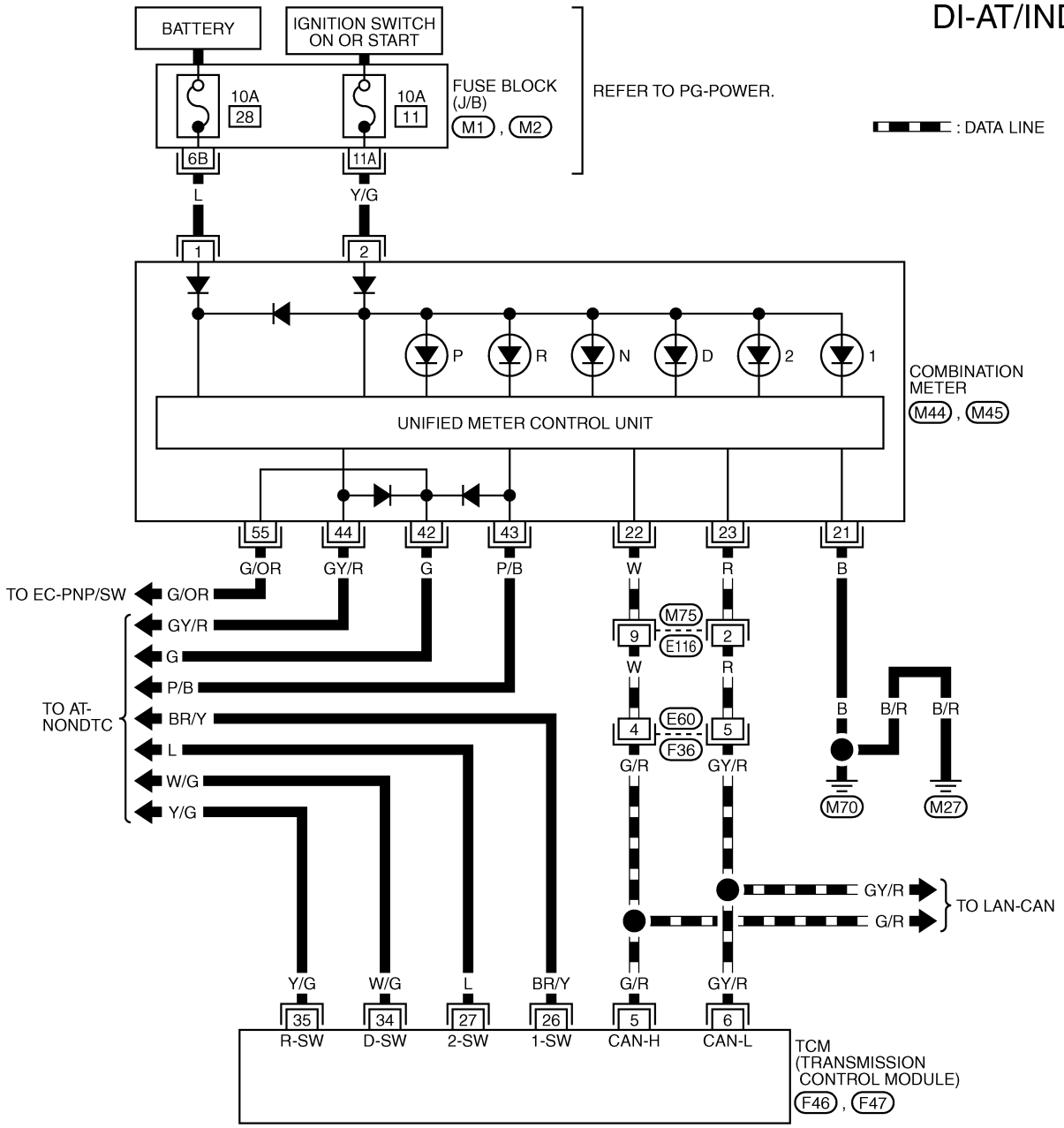
REFER TO THE FOLLOWING.
M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)

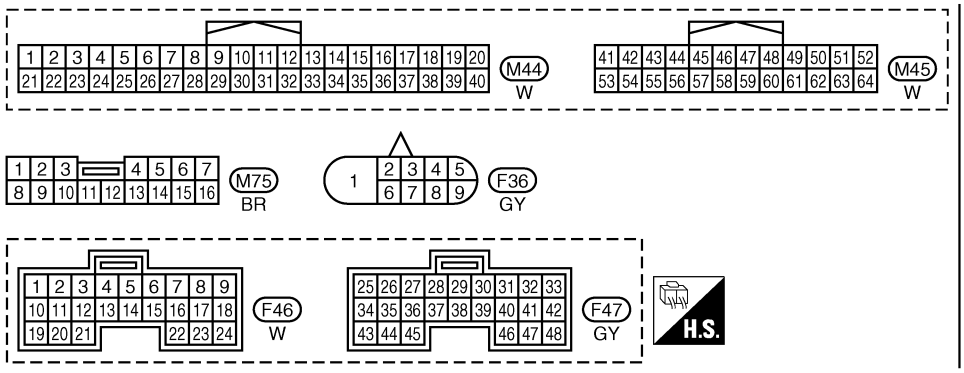
TKWA1624E

Wiring Diagram — AT/IND —/RHD Models

BKS000LH

DI-AT/IND-02





REFER TO THE FOLLOWING.
M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1625E

A/T Indicator Does Not Illuminate

BKS000LI

1. CHECK TCM SELF-DIAGNOSIS

Perform TCM self-diagnosis. Refer to AT-38, "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION" [EURO-OBD] or AT-235, "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION" [EXC.F/EURO-OBD].

OK or NG

OK >> Replace combination meter.
NG >> Go to TCM trouble diagnosis.

WARNING CHIME

PFP:24814

System Description

BKS000LJ

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- to combination switch terminal 11 and
- to daytime light control unit terminal 1 (with daytime light system)
- through 10A fuse (No. 31, located in fuse and fusible link box), and
- to key switch terminal 1 (RHD models) and
- to time control unit terminal 1
- through 10A fuse [No. 28, located in the fuse block (J/B)].

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

- to time control unit terminal 17
- through 10A fuse [No. 5, located in the fuse block (J/B)].

Ground is supplied

- to time control unit terminal 16
- through grounds M27 and M70.

LIGHT WARNING CHIME

With ignition switch OFF position, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound.
Power is supplied

- from the lighting switch terminal 12 or daytime light control unit terminal 11 (with daytime light system)
- to time control unit terminal 19.

Ground is supplied

- to time control unit terminal 30
- through front door switch (driver side) terminal 2.

Front door switch (driver side) terminal 3 is grounded through grounds B8 and B18.

SEAT BELT WARNING CHIME

When the vehicle speed exceeds 25 km/h (16 MPH) with driver or passenger seat belt unfastened (seat belt switch ON), warning chime will sound. Refer to SB-6, "SEAT BELT WARNING SYSTEM" .

KEY REMINDER WARNING CHIME [FOR RHD MODELS]

Key reminder chime will sound, at the same time, key reminder system will start operating.
When the following three conditions are simultaneously met.

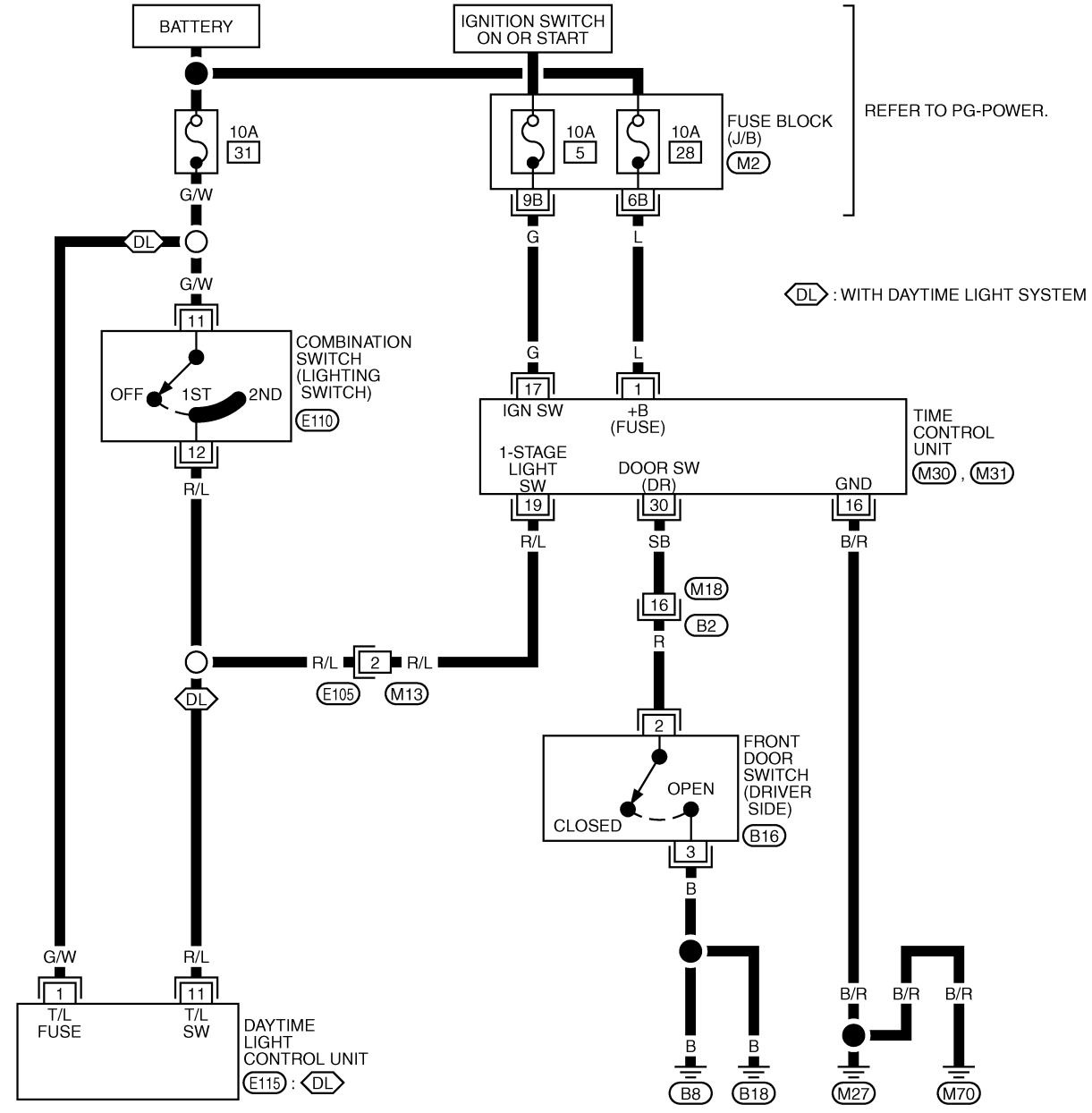
- Key is inserted in the ignition key cylinder.
- Driver's door is opened.
- The setting of driver's door lock knob is “LOCK”.

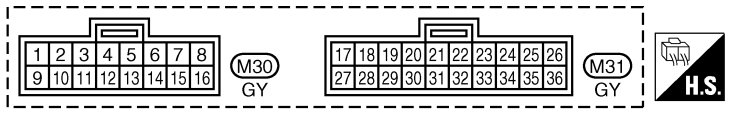
For information regarding key reminder system, refer to BL-42, "Key reminder system" in BL section.

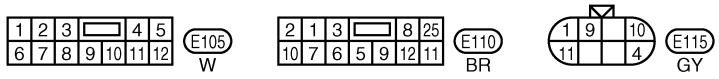
Wiring Diagram — CHIME —/LHD Models

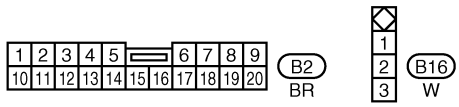
BKS000LK

DI-CHIME-01









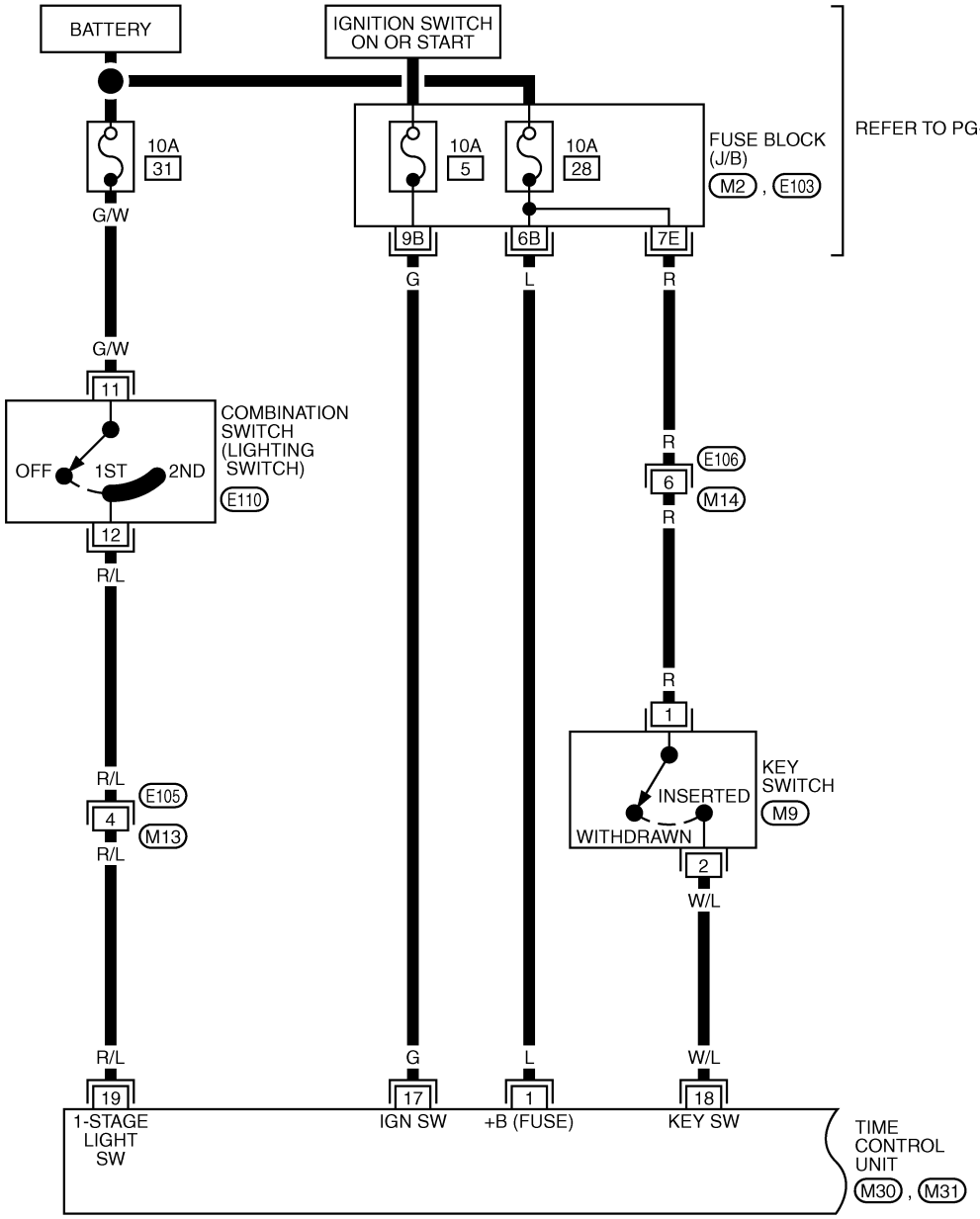
REFER TO THE FOLLOWING.
M2 -FUSE BLOCK-JUNCTION BOX (J/B)

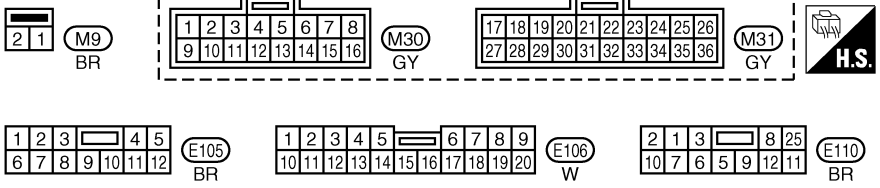
TKWA1626E

Wiring Diagram — CHIME —/RHD Models

BKS000LL

DI-CHIME-02

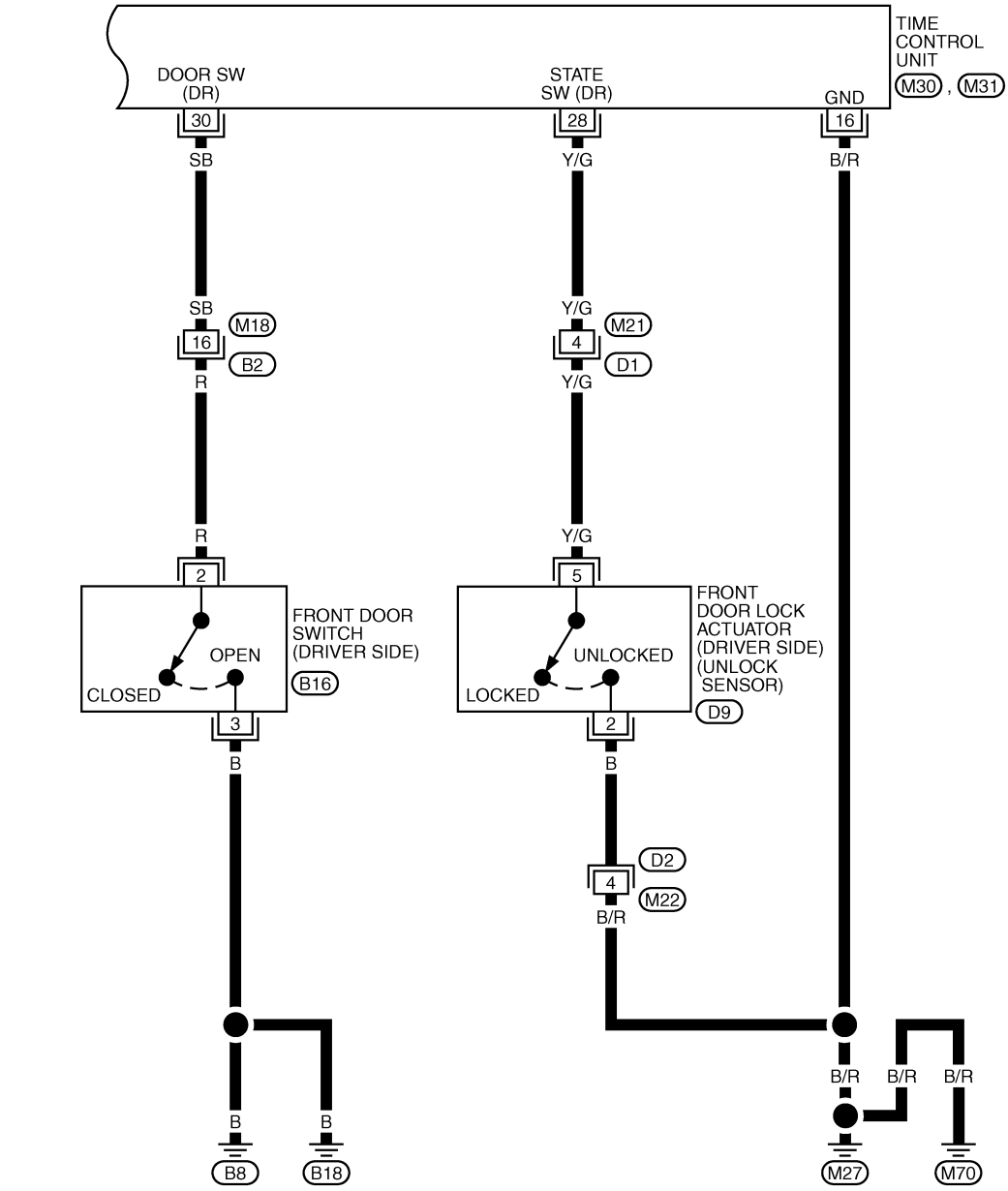


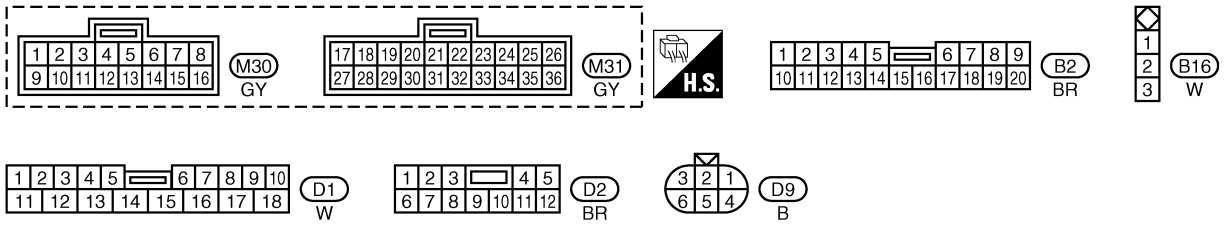


REFER TO THE FOLLOWING.
M2 , E103 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1628E

DI-CHIME-03





TKWA1629E

Symptom Chart

BKS000LM

Symptom	Diagnosis/Service procedure
Light warning chime does not activate.	Perform the following inspections. 1. DI-60, "Power Supply and Ground Circuit Inspection" 2. DI-61, "Front Door Switch (Driver Side) Inspection" 3. DI-62, "Lighting Switch Input Signal Inspection" Replace time control unit, found normal function in the above inspections.
Key reminder warning chime does not activate.	Perform key reminder system trouble diagnosis. Refer to BL-53, "SYMPTOM CHART" .
Seat belt warning chime does not activate.	Perform seat belt warning system trouble diagnosis. Refer to SB-16, "Trouble Diagnosis Chart by Symptom" .

Power Supply and Ground Circuit Inspection

BKS000LN

1. CHECK FUSES

Check for blown time control unit fuses.

Unit	Power source	Fuse No.
Time control unit	Battery	28 (10A)
	Ignition switch (ON)	5 (10A)

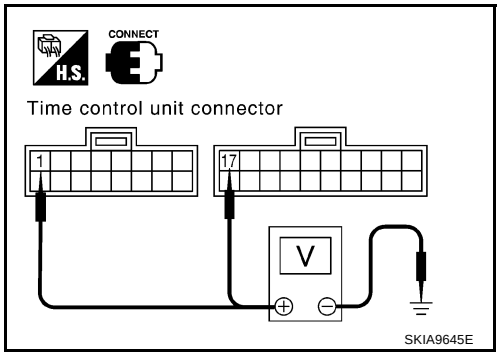
OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-79, "FUSE BLOCK - JUNCTION BOX (J/B)" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between time control unit connector and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal (Wire color)			
M30	1 (L)	Ground	Battery voltage	Battery voltage
M31	17 (G)	Ground	0 V	Battery voltage



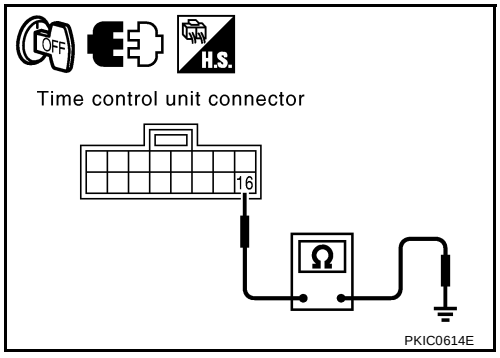
OK or NG

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

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect time control unit connection.
3. Check continuity between time control unit harness connector M30 terminal 16 (B/R) and ground.

Continuity should exist.



OK or NG

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

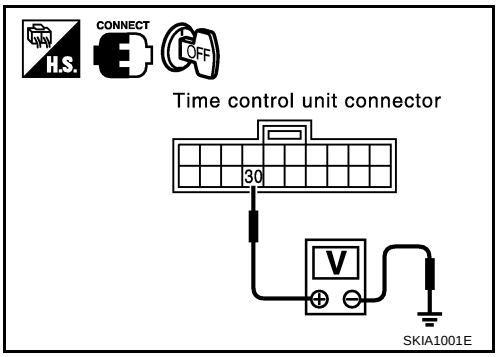
Front Door Switch (Driver Side) Inspection

BKS000LO

1. CHECK DOOR SWITCH (DRIVER SIDE) INPUT SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between time control unit harness connector M31 terminal 30 (SB) and ground.

When driver side door is opened : Approx. 0 V
When driver side door is closed : Approx. 12 V



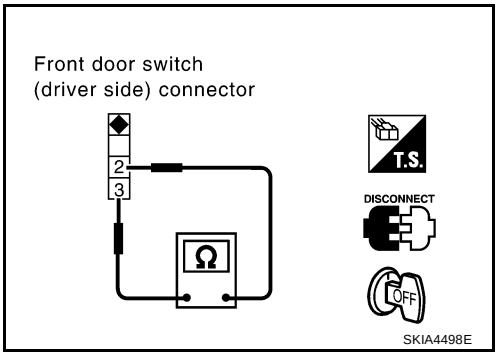
OK or NG

OK >> Front door switch (driver side) is OK.
NG >> GO TO 2.

2. CHECK FRONT DOOR SWITCH (DRIVER SIDE)

1. Disconnect front door switch (driver side) connector.
2. Check continuity between front door switch (driver side) connector B16 terminals 2 and 3.

When door switch is released : Continuity should exist.
When door switch is pushed : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Replace front door switch (driver side).

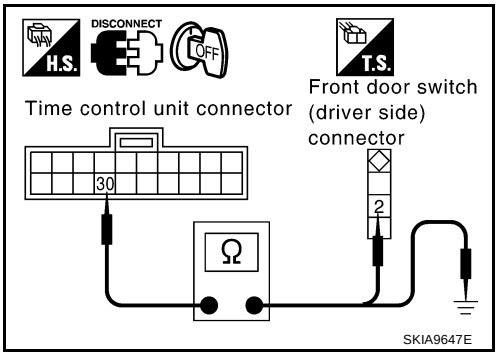
3. CHECK FRONT DOOR SWITCH (DRIVER SIDE) CIRCUIT

1. Disconnect time control unit connector.
2. Check continuity between time control unit harness connector M31 terminal 30 (SB) and front door switch (driver side) harness connector B16 terminal 2 (R).

Continuity should exist.

3. Check continuity between time control unit harness connector M31 terminal 30 (SB) and ground.

Continuity should not exist.



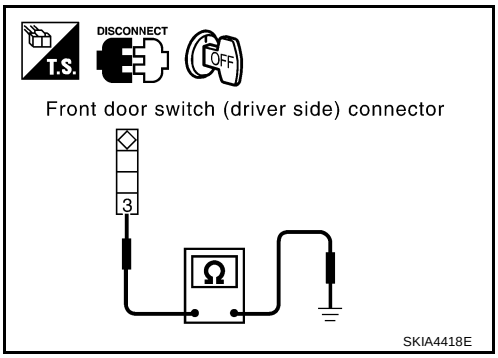
OK or NG

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

4. CHECK FRONT DOOR SWITCH (DRIVER SIDE) GROUND CIRCUIT

Check continuity between front door switch (driver side) harness connector B16 terminal 3 (B) and ground.

Continuity should exist.



OK or NG

OK >> Replace time control unit.
NG >> Repair harness or connector.

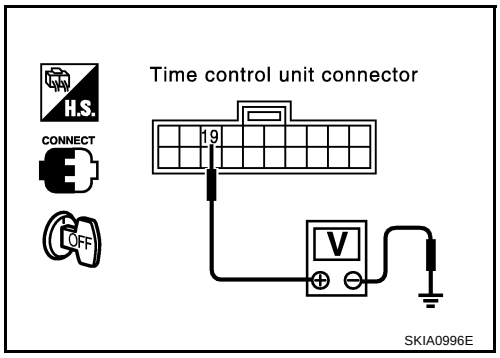
Lighting Switch Input Signal Inspection

BKS000LP

1. CHECK LIGHTING SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between time control unit harness connector M31 terminal 19 (R/L) and ground.

Lighting switch (1st or 2nd position) : Approx. 12 V
Lighting switch (OFF) : Approx. 0 V



OK or NG

OK >> Lighting switch is OK.
NG >> ● GO TO 2 (without daytime light control unit).
● GO TO 3 (with daytime light control unit).

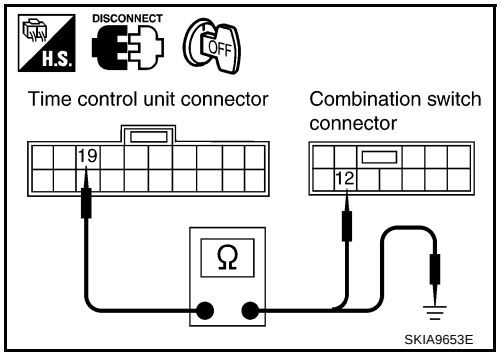
2. CHECK LIGHTING SWITCH CIRCUIT (WITHOUT DAYTIME LIGHT SYSTEM)

1. Disconnect time control unit connector and combination switch connector.
2. Check continuity between time control unit harness connector M31 terminal 19 (R/L) and combination switch harness connector E110 terminal 12 (R/L).

Continuity should exist.

3. Check continuity between time control unit harness connector M31 terminal 19 (R/L) and ground.

Continuity should not exist.



OK or NG

OK >> Check combination switch. Refer to LT-121, "COMBINATION SWITCH" .
NG >> Repair harness or connector.

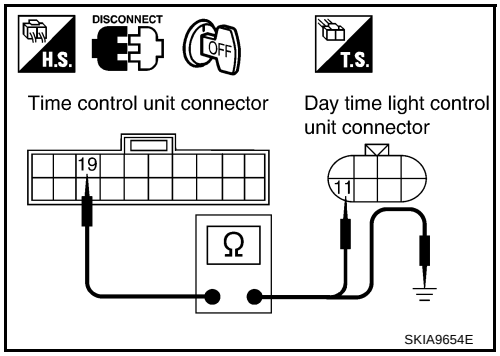
3. CHECK LIGHTING SWITCH CIRCUIT (WITH DAYTIME LIGHT SYSTEM)

1. Disconnect time control unit connector and daytime light control unit connector.
2. Check continuity between time control unit harness connector M31 terminal 19 (R/L) and daytime light control unit harness connector E115 terminal 11 (R/L).

Continuity should exist.

3. Check continuity between time control unit harness connector M31 terminal 19 (R/L) and ground.

Continuity should not exist.



OK or NG

OK >> Check daytime light control unit. Refer to LT-52, "Trouble Diagnoses" in HEADLAMP (WITH DAYTIME) - XENON TYPE - or LT-62, "Trouble Diagnoses" in HEADLAMP (WITH DAYTIME) - CONVENTIONAL TYPE -.
NG >> Repair harness or connector.

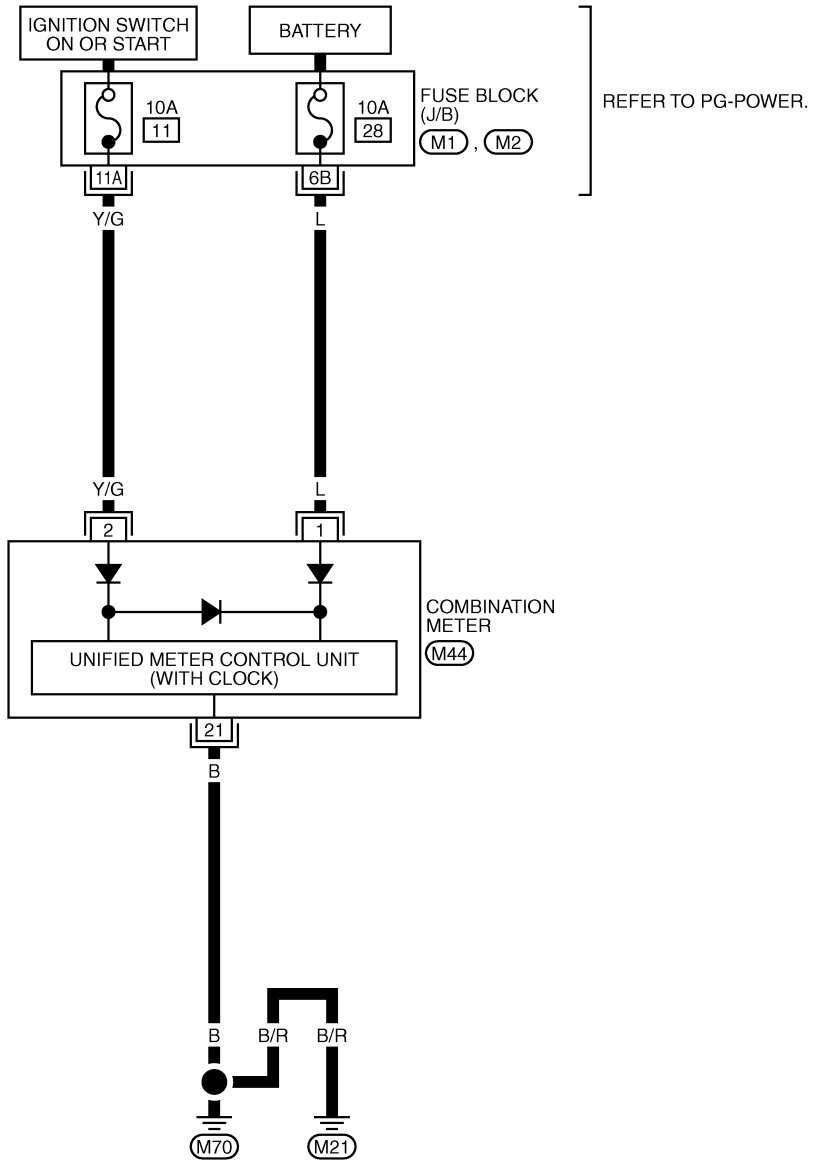
CLOCK

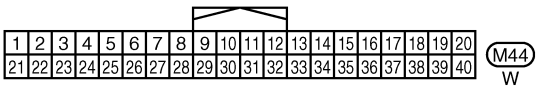
PFP:25820

Wiring Diagram — CLOCK —

BKS000LQ

DI-CLOCK-01





REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1630E