

SECTION

DI

DRIVER INFORMATION SYSTEM

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PRECAUTIONS

PRECAUTIONS

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

EKS002UZ

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 harness connectors.

Wiring Diagrams and Trouble Diagnosis

EKS002V0

When you read wiring diagrams, refer to the followings:

- Refer to [GI-13, "How to Read Wiring Diagrams"](#) in GI section
- Refer to [PG-2, "POWER SUPPLY ROUTING"](#) for power distribution circuit in PG section

When you perform trouble diagnosis, refer to the followings:

- Refer to [GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"](#) in GI section
- Refer to [GI-23, "How to Perform Efficient Diagnosis for an Electrical Incident"](#) in GI section

COMBINATION METERS

COMBINATION METERS

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System Description

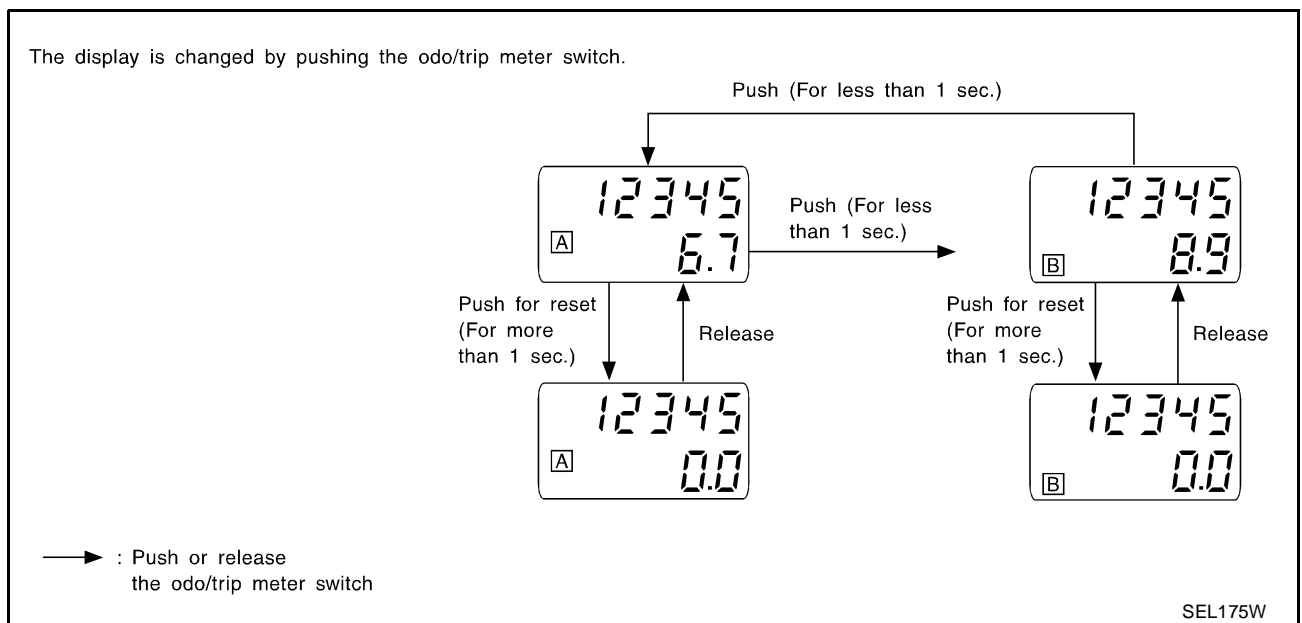
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UNIFIED CONTROL METER

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by control unit built in 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 self-diagnosis function.
- Odo/trip meter segments can be checked in self-diagnosis function.
- Meter/gauge can be checked in diagnosis mode.

HOW TO CHANGE THE DISPLAY FOR ODO/TRIP METER

- Vehicle speed signal from vehicle speed sensor, and the memory signals from the meter memory circuit are processed by the combination meter, and the mileage is displayed.
- Operating the odometer/trip switch allows switching the mode in the following order.



- The odometer/trip display switching and trip display resetting can be identified by the time from pressing the odometer/trip switch to releasing it.
- When resetting with trip A displayed, only trip A display is reset (same as trip B).

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 10A fuse [No.2,located in fuse and fusible link box]
- to combination meter terminal 12(with tachometer) or 23(without tachometer).

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

- through 10A fuse [No.11,located in fuse and fusible link box]
- to combination meter terminal 13(with tachometer) or 67(without tachometer).

Ground is supplied

- to combination meter terminal 14(with tachometer) or 11(without tachometer)
- RHD Models: through body grounds M2 and M27.
- LHD Models: through body grounds D2 (only with power window),M2 , M49 and M121.

WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is based on the resistance of the thermal transmitter.

COMBINATION METERS

As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal 6(with tachometer) or 22(without tachometer) of the combination meter for the water temperature gauge. The needle on the gauge moves from “C” to “H”.

TACHOMETER

The tachometer indicates engine speed in revolution per minutes (rpm).

The tachometer is regulated by a signal.

- from terminal 18(Gasoline engine models) or 5(Diesel engine models) of the ECM
- to combination meter terminal 9 for the tachometer.

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

- to combination meter terminal 5(with tachometer) or 21(without tachometer) for the fuel level sensor
- from terminal 4(Gasoline engine models) or 3(Diesel engine models) of the fuel level sensor unit
- through terminal 1 of the fuel level sensor unit and
- RHD Models:through body grounds M2 and M27.
- LHD Models:through body grounds D2 (only with power window),M2,M49 and M121.

SPEEDOMETER

The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.

The voltage is supplied

- to combination meter terminals 10 and 11(with tachometer) or 10 and 19 (without tachometer) for the speedometer
- from terminal 1 and 2 of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

TIME CONTROL SYSTEM

OUTLINE

Unified meter control unit (time control system) totally controls the following body electrical system operations.

- Rear window defogger
- Power door lock

INPUT/OUTPUT

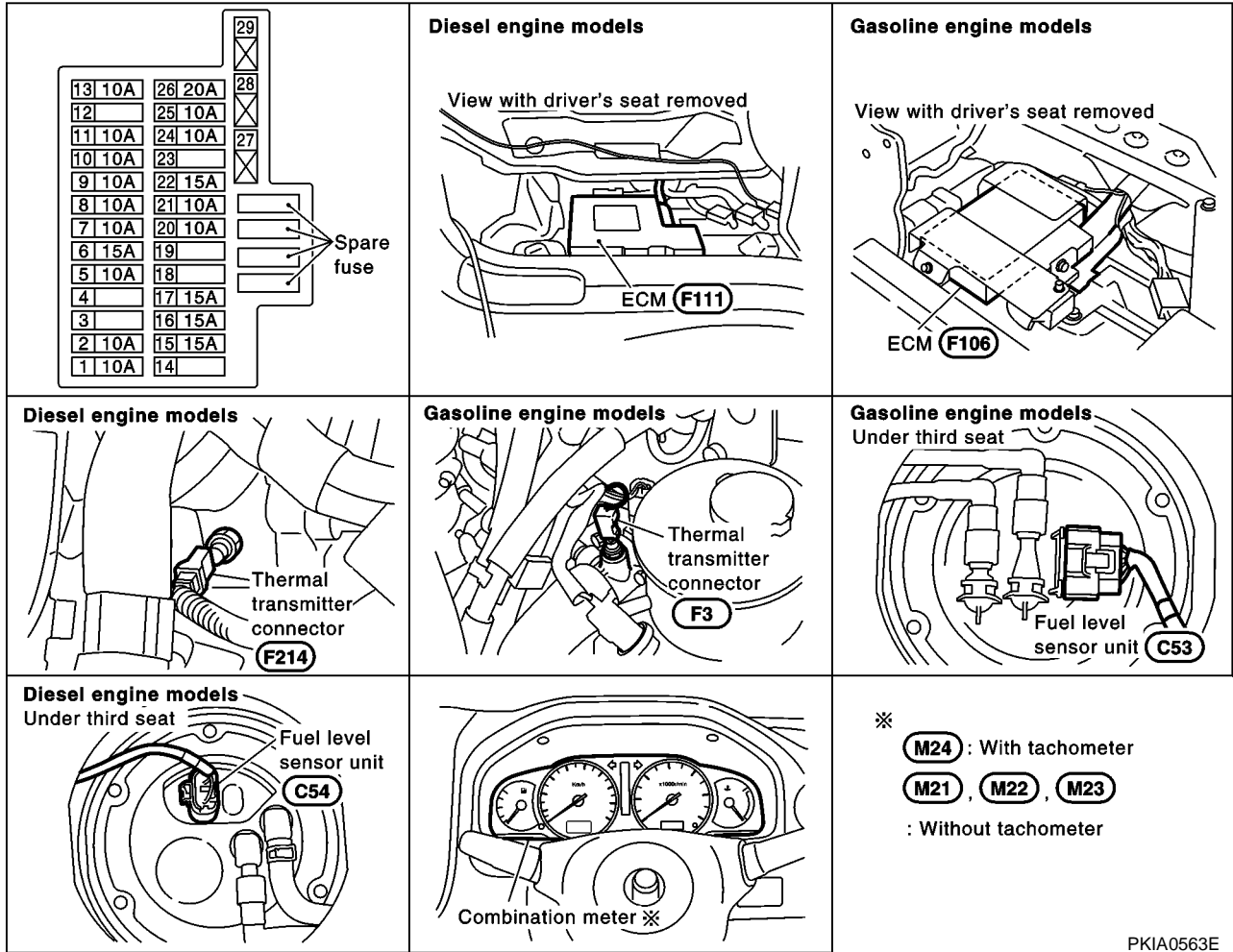
System	Input	Output
Power door lock	Door lock/unlock switch Door unlock sensor	Door lock actuator
Rear window defogger	Ignition switch (ON) Rear window defogger switch	Rear window defogger relay

COMBINATION METERS

Component Parts and Harness Connector Location

EKS002V3

A
B
C
D
E
F
G
H
I
J
DI
L
M

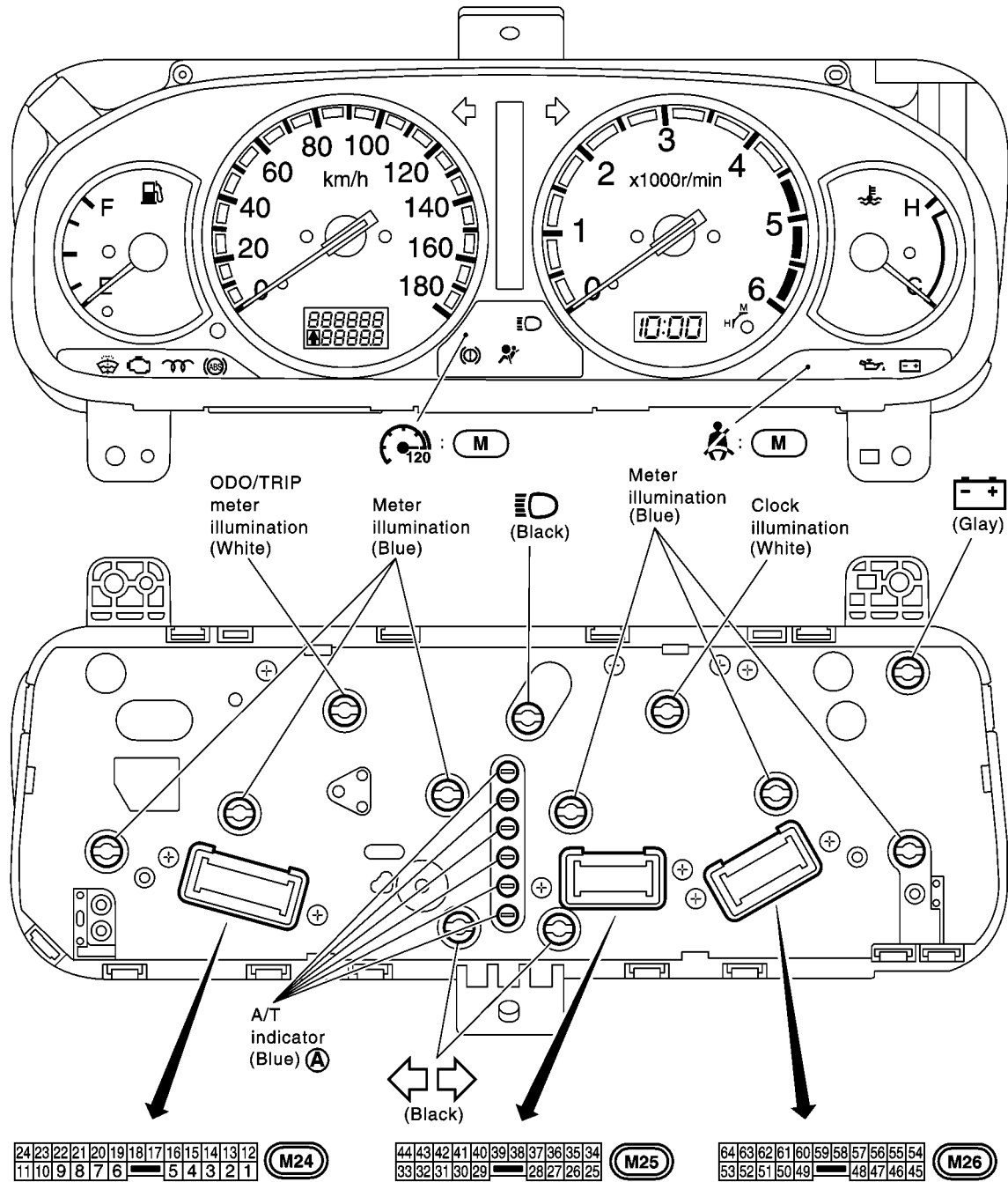


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COMBINATION METERS

Combination Meter CHECK/WITH TACHOMETER

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Bulb socket color	Bulb wattage
White	1.12W
Black	1.12W
Blue	3W
Gray	3W

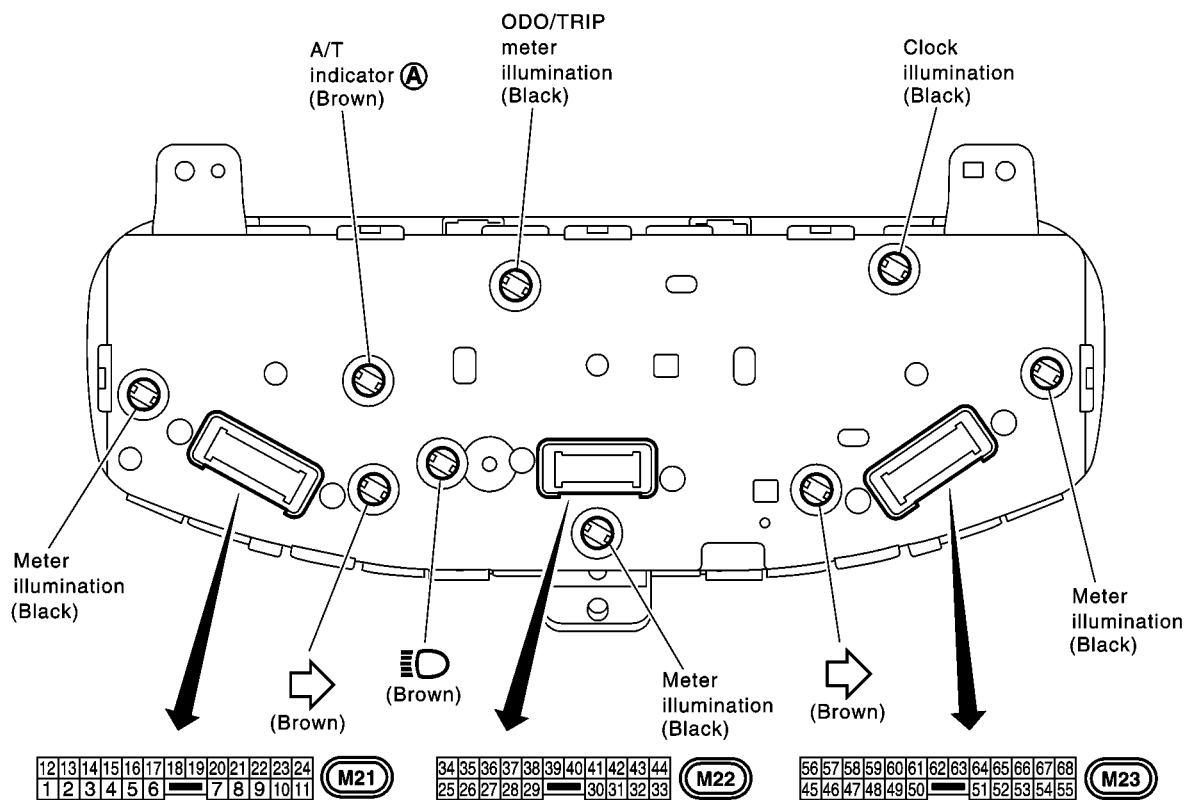
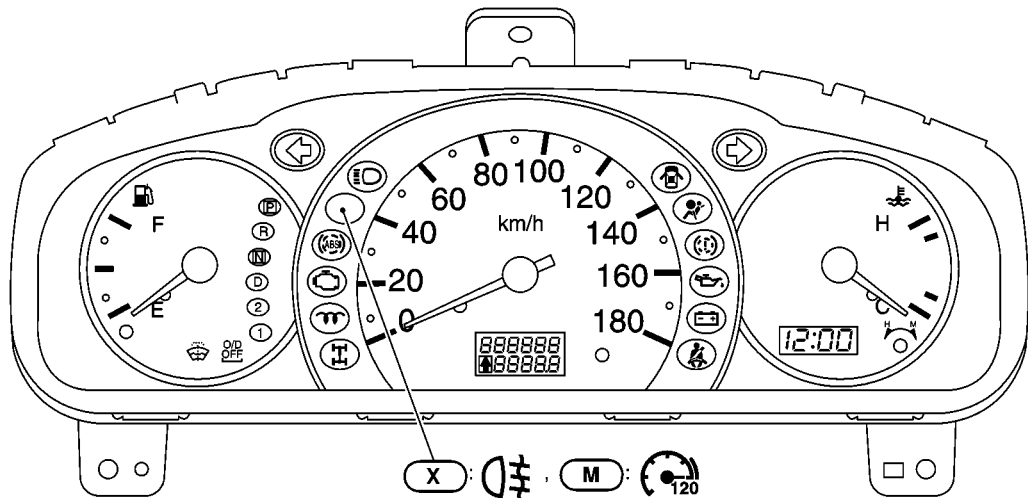
(A) : A/T models
(M) : Models for the Middle East

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COMBINATION METERS

Combination Meter CHECK/WITHOUT TACHOMETER

EKS002ZQ



Bulb socket color	Bulb wattage
Brown	1.4W
Black	3W

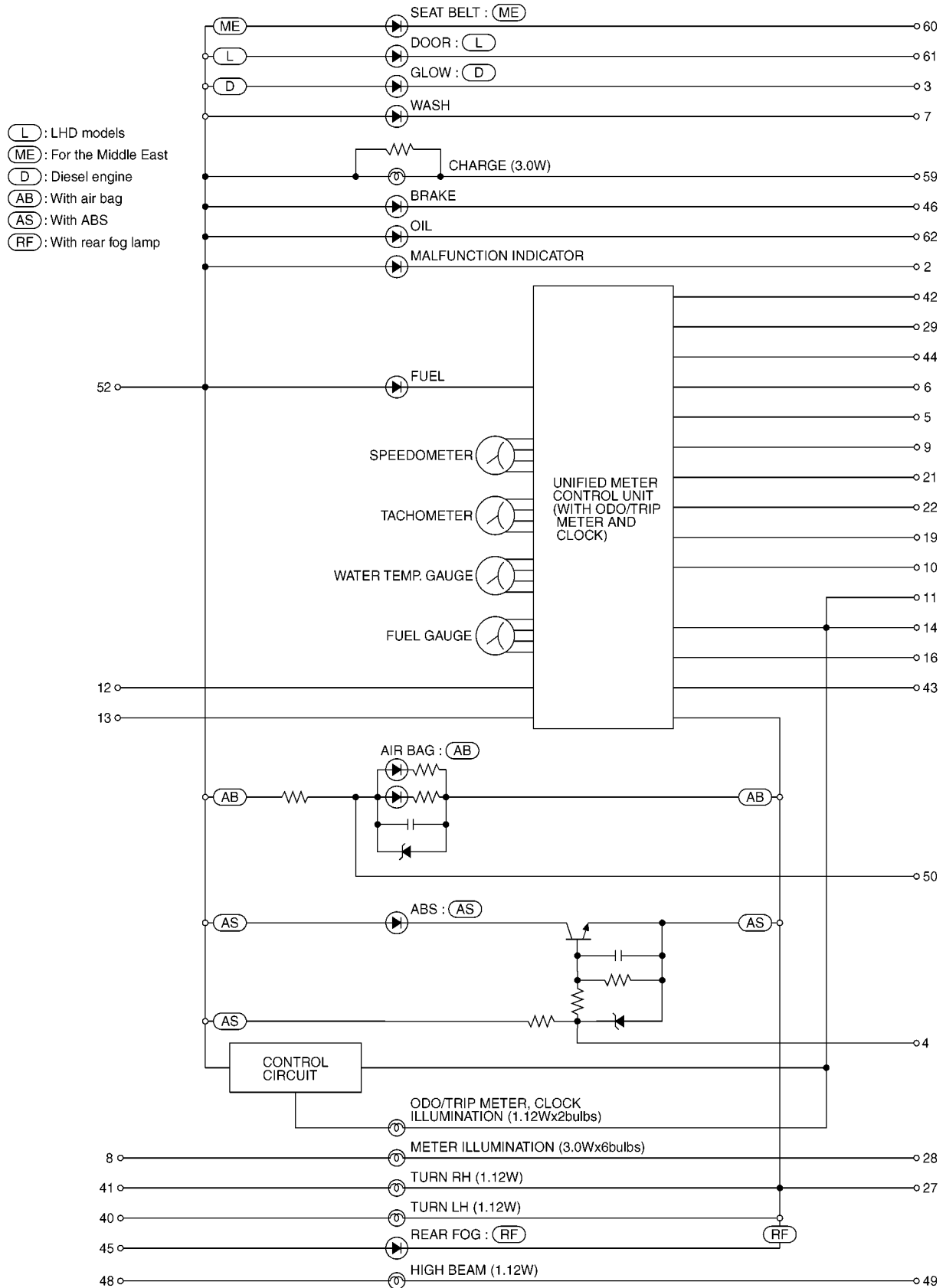
- A** : A/T models
- M** : Models for the Middle East
- X** : Models except for the Middle East

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COMBINATION METERS

Schematic/With Tachometer

EKS002Y1



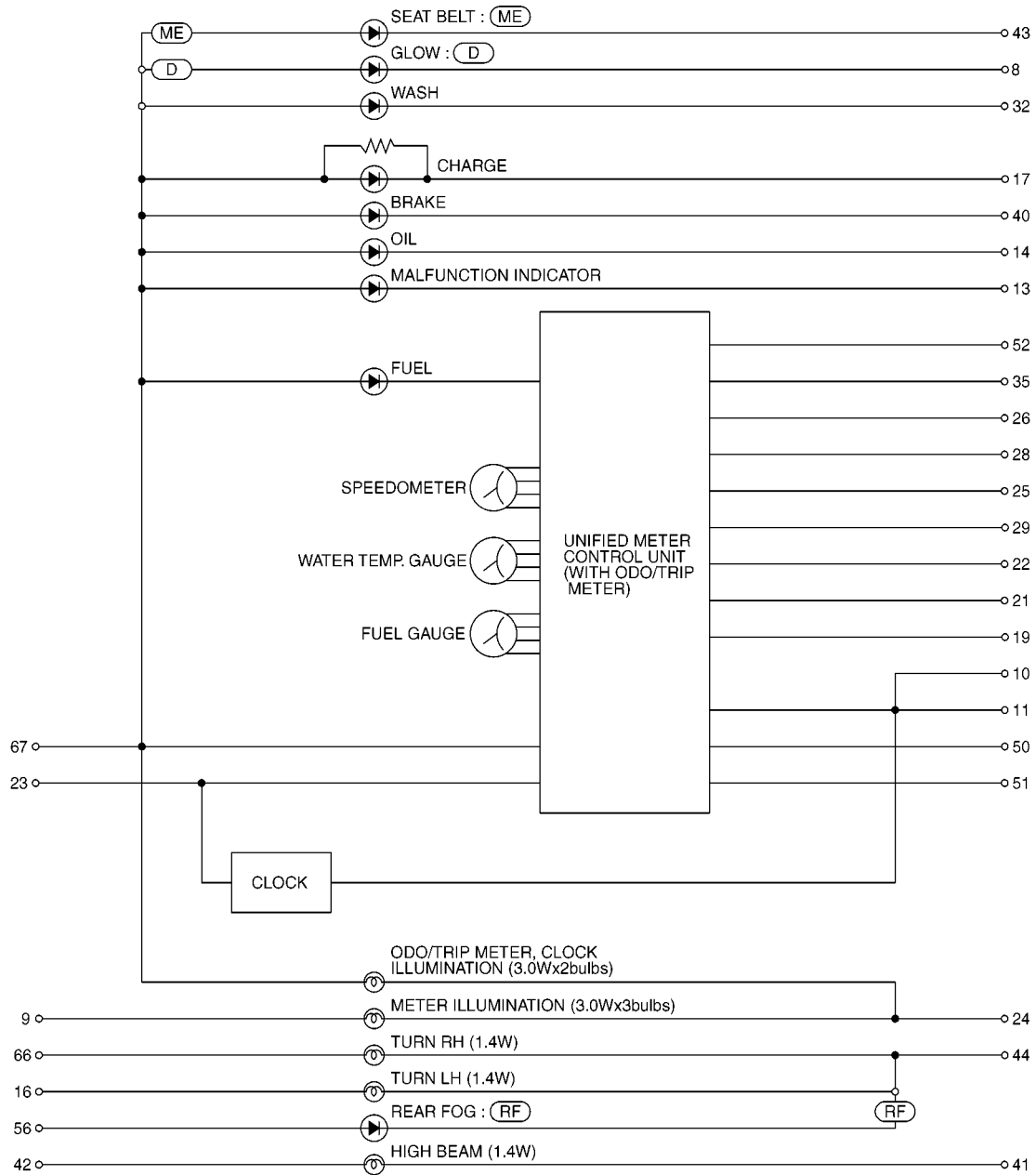
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COMBINATION METERS

Schematic/Without Tachometer

EKS002WA

(ME) : For the Middle East
(D) : Diesel engine
(RF) : With rear fog lamp



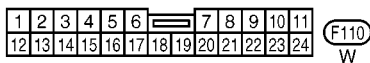
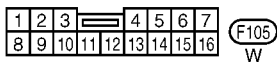
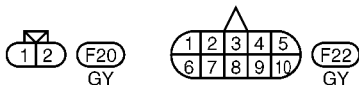
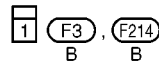
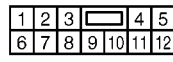
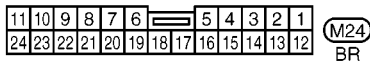
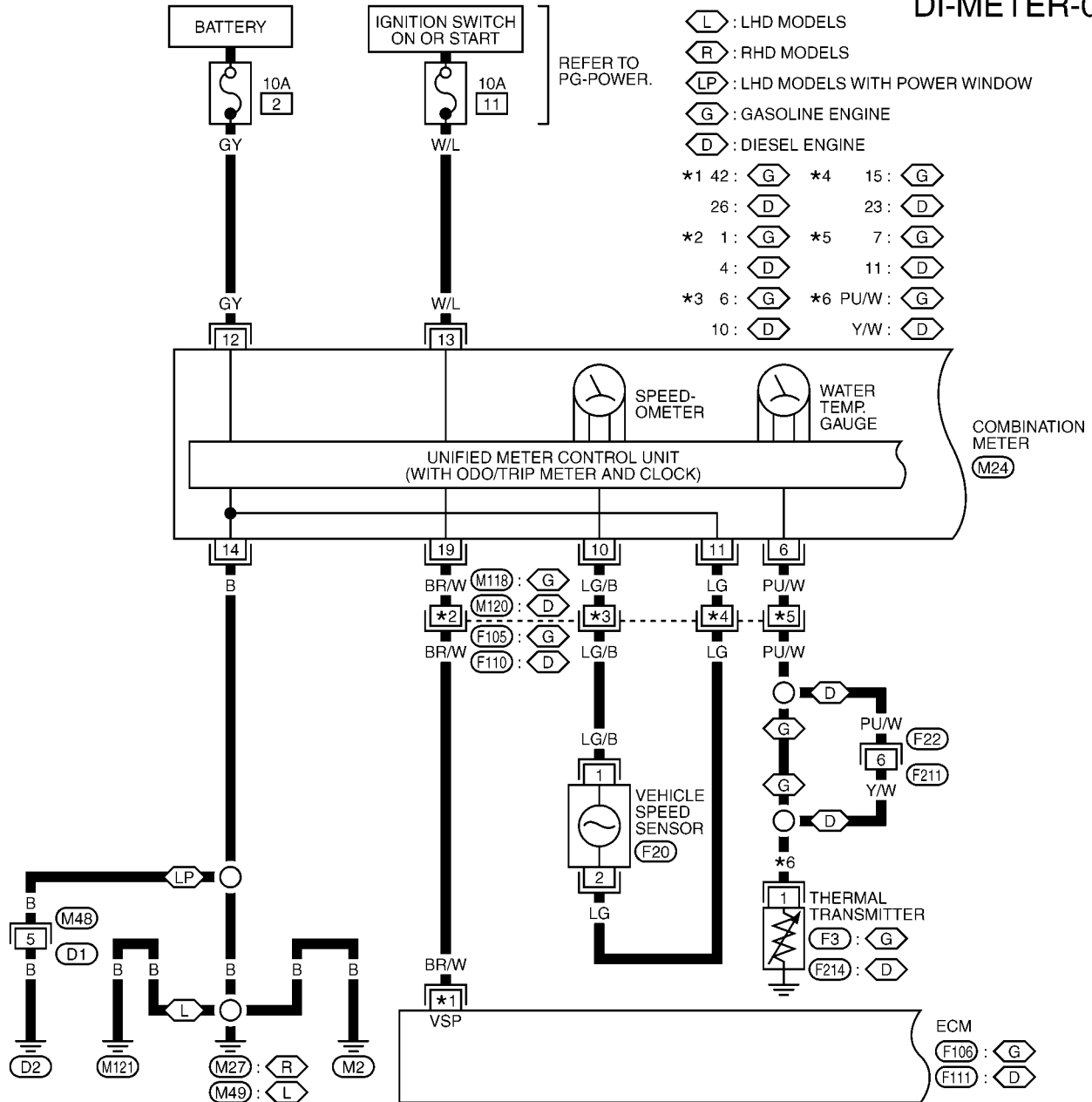
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COMBINATION METERS

Wiring Diagram — METER —/With Tachometer

EKS002YJ

DI-METER-01

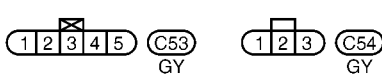
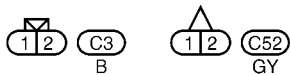
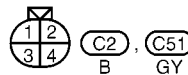
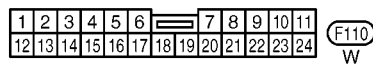
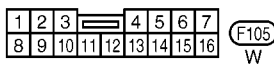
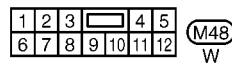
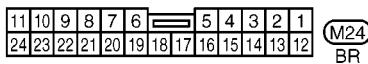
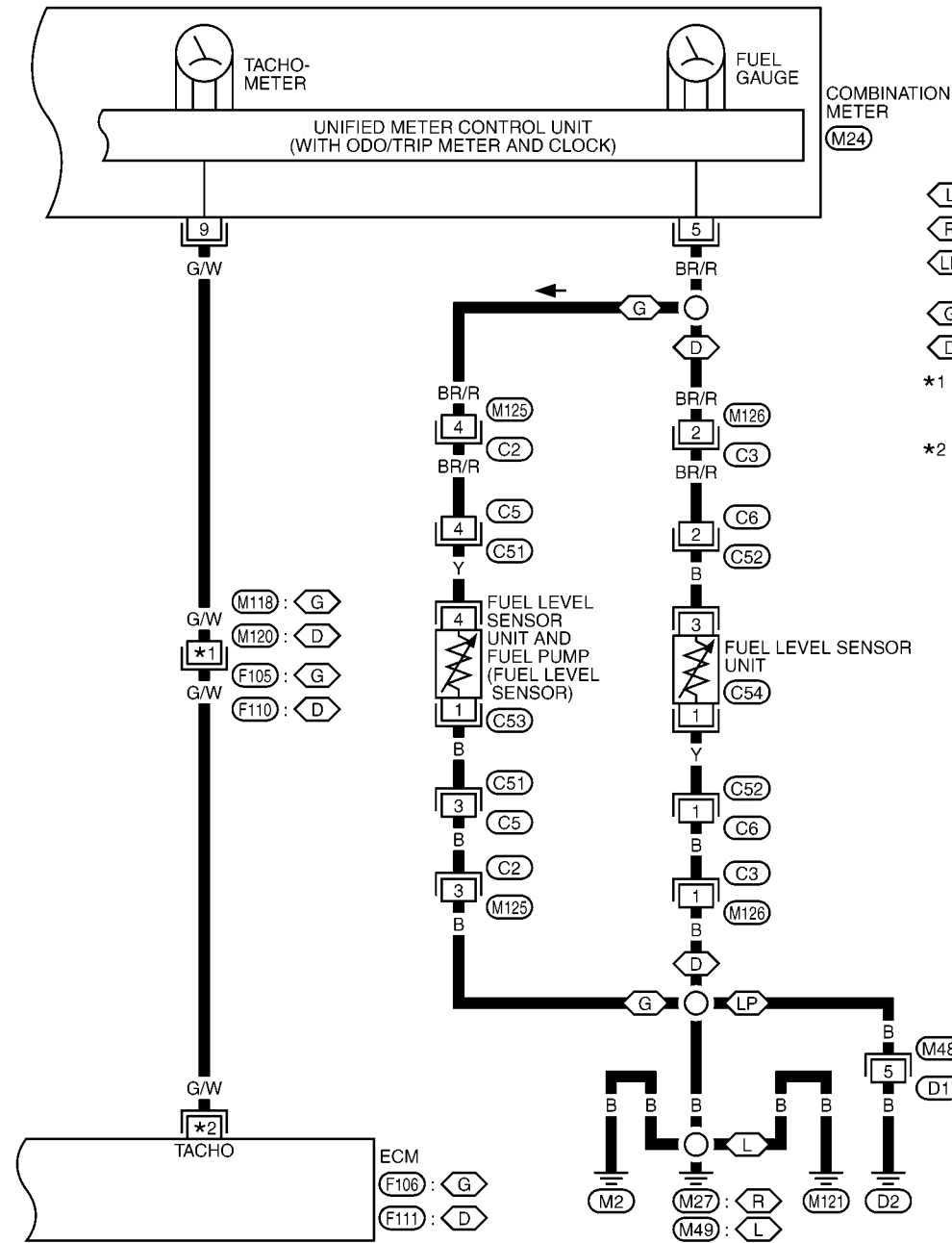


REFER TO THE FOLLOWING.
F106, F111 -ELECTRICAL
UNITS

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COMBINATION METERS

DI-METER-02



REFER TO THE FOLLOWING.

F106, F111 -ELECTRICAL UNITS

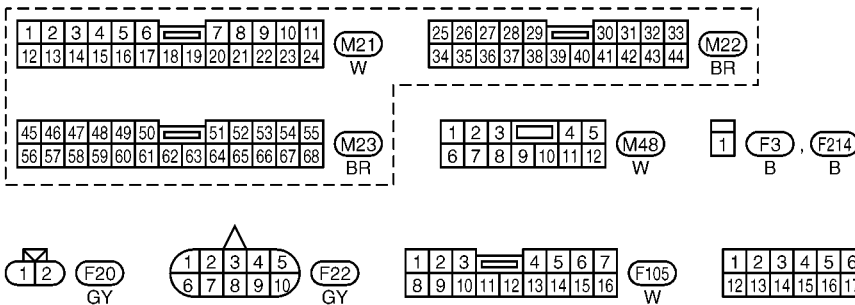
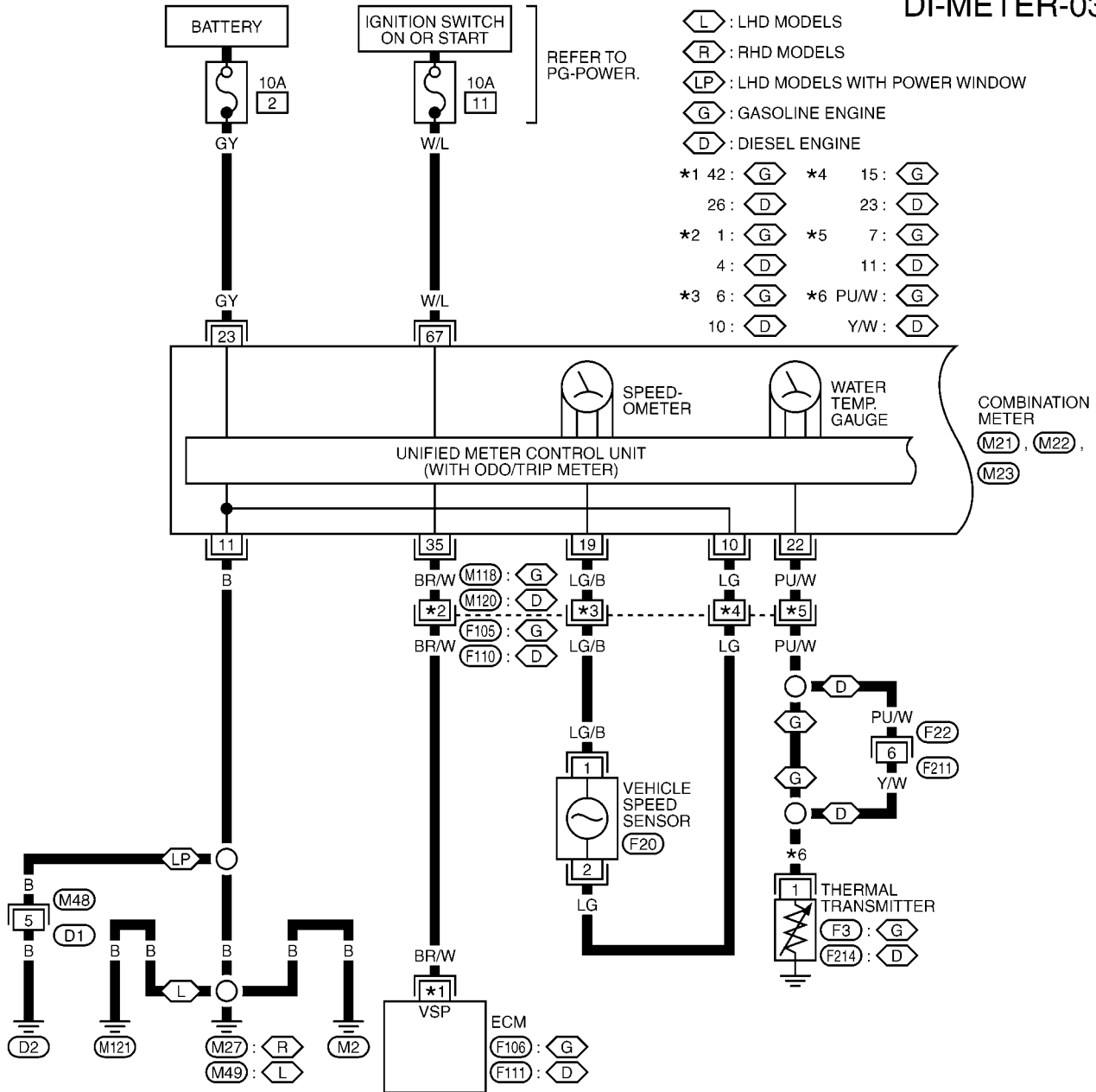
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COMBINATION METERS

Wiring Diagram — METER — / Without Tachometer

EKS002XX

DI-METER-03

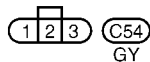
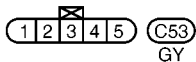
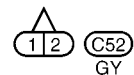
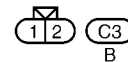
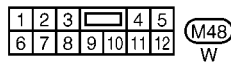
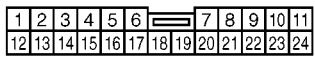
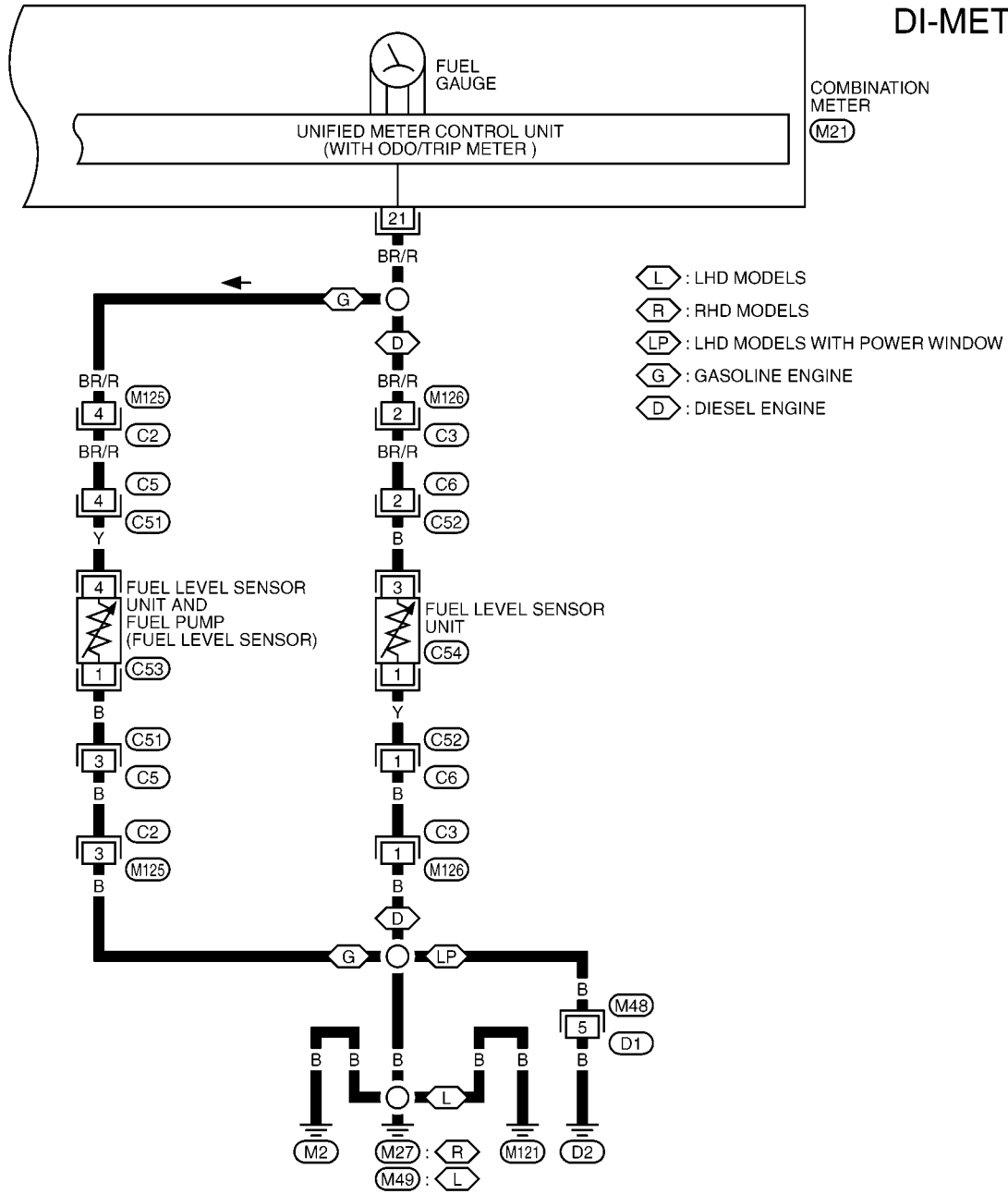


REFER TO THE FOLLOWING.
(F106, F111) -ELECTRICAL
UNITS

TKWH0117E

COMBINATION METERS

DI-METER-04

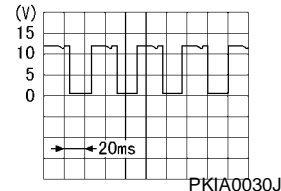
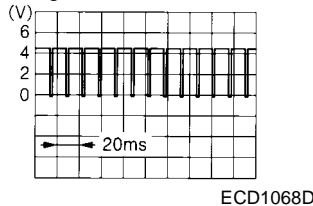
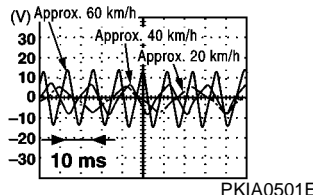
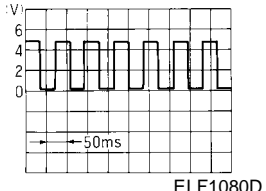


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COMBINATION METERS

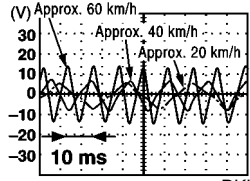
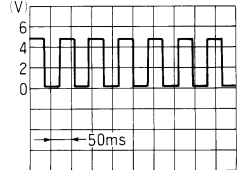
Terminals and Reference Value for Combination Meter WITH TACHOMETER

EKS002VA

TERMI- NAL	WIRE COLOR	ITEM	CONDITION		Voltage (V)
			Ignition switch	Operation or condition	
5	BR/R	Fuel level sensor signal	ON	—	Refer to DI-27, "Electrical Components Inspection"
6	PU/W	Thermal transmitter signal	—	—	Refer to DI-27, "Electrical Components Inspection"
9	G/W	Engine speed in revolutions per minute signal	ON	When ECM connector disconnected	Approx. 8-10V
				Idle speed	<p>Gasoline engine models</p>  <p>Diesel engine models</p> 
10	LG/B	Vehicle speed sensor input signal	ON	Speedometer operated [When vehicle speed is approx. 20 km/h (12.5MPH)]	Approx. 12V
11	LG			[When vehicle speed is approx. 40 km/h (25MPH)] [When vehicle speed is approx. 60 km/h (37.5MPH)]	
12	GY	Battery power supply	OFF	—	Approx. 12V
13	W/L	Ignition switch ON or START	ON	—	Approx. 12V
14	B	Ground	ON	—	Approx. 0V
19	BR/W	Vehicle speed signal (2-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25MPH)]	

COMBINATION METERS

WITHOUT TACHOMETER

TERMI- NAL	WIRE COLOR	ITEM	CONDITION		Voltage (V)
			Ignition switch	Operation or condition	
10	LG	Vehicle speed sensor input signal	ON	Speedometer operated [When vehicle speed is approx. 20 km/ h(12.5MPH)] [When vehicle speed is approx. 40 km/h(25MPH)] [When vehicle speed is approx. 60 km/ h(37.5MPH)]	 PKIA0501E
19	LG/B				
11	B	Ground	ON	—	Approx. 0V
21	BR/R	Fuel level sensor signal	ON	—	Refer to DI-27, "Electrical Components Inspection"
22	PU/W	Thermal transmitter sig- nal	—	—	Refer to DI-27, "Electrical Components Inspection"
23	GY	Battery Power supply	OFF	—	Approx. 12V
35	BR/W	Vehicle speed signal (2-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h(25MPH)]	 ELF1080D
67	W/L	Ignition switch ON or START	ON	—	Approx. 12V

Meter/Gauges Operation, Odo/Trip Meter SELF-DIAGNOSIS FUNCTION

EKS002VB

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

HOW TO ALTERNATE SELF-DIAGNOSIS FUNCTION

1. Turn the ignition switch ON, and switch the odometer/trip meter to "trip A" or "trip B".

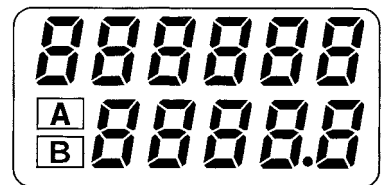
NOTE:

If the diagnosis function is activated with the trip meter A displayed, the mileage on the trip meter A is reset to 0.0 km (same as the trip meter B display).

2. Turn the ignition switch OFF.
3. While pushing the odo/trip meter switch, turn the ignition switch ON again.
4. Check that the trip meter displays "0000.0".
5. Push the odo/trip meter switch at least 3 times within 5 seconds.
6. All the segments on the odo/trip meter illuminate, and simultaneously the low-fuel warning lamp indicator illuminate. At this time, the unified control meter is turned to diagnosis mode.

NOTE:

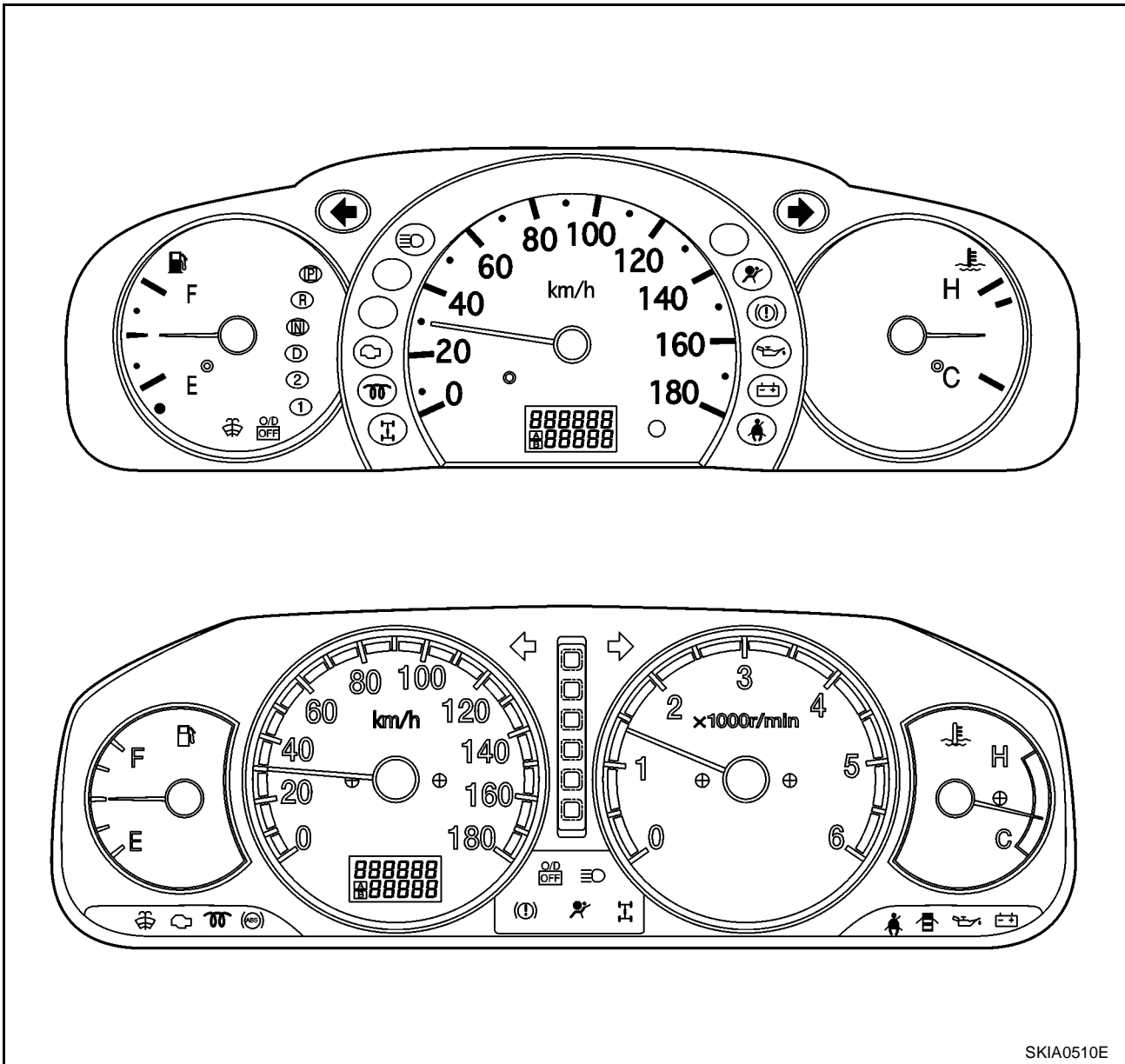
If any of the segments is not displayed, replace the odo/trip meter with the speedometer assembly.



EL-2563D

COMBINATION METERS

7. Push the odometer switch. Indication of each meter/gauge should be as shown in the figure during pushing odometer switch if there is no malfunctioning. (at this time, the low-fuel warning lamp goes off).



Work Flow/With Tachometer

EKS002YK

1. CHECK WARNING LAMPS

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 >> Power supply and ground circuit check. Refer to [DI-18. "Power Supply and Ground Circuit Check/With Tachometer"](#).

COMBINATION METERS

2. CHECK SELF-DIAGNOSIS MODE OPERATION

Perform self-diagnosis mode. Refer to [DI-15, "Meter/Gauges Operation, Odo/Trip Meter"](#)

Can diagnosis mode be activated?

YES >> GO TO 3

NO >> Power supply and ground circuit check. Refer to [DI-18, "Power Supply and Ground Circuit Check/With Tachometer"](#)

3. SEGMENTS CHECK

Check odo / trip meter segment.

Do all segments illuminate?

YES >> GO TO 4

NO >> Replace unified meter control unit.

4. CHECK FUEL WARNING LAMP

Check fuel warning lamp in self-diagnosis mode. Refer to [DI-15, "HOW TO ALTERNATE SELF-DIAGNOSIS FUNCTION"](#) in No.6

Do fuel warning lamp illuminate?

OK >> GO TO 5

NG >> Replace unified meter control unit.

5. CHECK METER CIRCUIT

Check indication of each meter/gauge in self-diagnosis mode. Refer to [DI-15, "HOW TO ALTERNATE SELF-DIAGNOSIS FUNCTION"](#) in No.7

OK or NG

OK >> Symptom chart 1

NG >> GO TO 6

6. CHECK METER INSTALLATION STATE

Check whether the malfunctioning meter/gauge secures by screws properly.

OK or NG

OK >> Symptom chart 2

NG >> Secures the malfunctioning meter/gauge properly, and restart self-diagnosis.

Trouble Diagnoses/With Tachometer SYMPTOM CHART 1

EKS002YL

Symptom	Possible cause	Repair procedure
Fuel warning lamp is malfunctioning.	1. Sensor Signal	1. Check the sensor for malfunctioning meter/gauge. INSPECTION/ENGINE SPEED SIGNAL (Refer to DI-20, "Inspection/Engine Speed Signal") INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to DI-24, "Inspection/Fuel Level Sensor Unit") INSPECTION/THERMAL TRANSMITTER (Refer to DI-22, "Inspection/Water Temperature Gauge")
One of tachometer/fuel gauge/water temp. gauge is malfunctioning.	– Engine speed signal – Fuel gauge – Water temp gauge 2. Unified meter control unit	2. Replace unified meter control unit
Speedometer and odo/trip meter is malfunctioning.	1. Sensor Signal – Vehicle speed signal 2. Unified meter control unit	1. Check the sensor for malfunctioning meter/gauge. INSPECTION/VEHICLE SPEED SIGNAL (Refer to DI-23, "Inspection/Vehicle Speed Signal") 2. Replace unified meter control unit
Multiple meter/gauge are malfunctioning.	● Unified meter control unit	● Replace unified meter control unit.

COMBINATION METERS

SYMPTOM CHART 2

Symptom	Possible case	Repair order
One of speedometer/tachometer/fuel gauge/water temp. gauge is malfunctioning.	1. Meter/Gauge 2. Unified meter control unit	1. Check resistance of meter/gauge indicating malfunction. If resistance is NG, replace the meter/gauge. Refer to DI-28, "METER/GAUGE RESISTANCE CHECK" 2. If the resistance of meter/gauge is OK, replace unified meter control unit.
Multiple meter/gauge are malfunctioning, (except for odo/ trip meter)	● Unified meter control unit	● Replace unified meter control unit.

Power Supply and Ground Circuit Check/With Tachometer

EKS002YM

1. CHECK FUSES

- Check that any of the fuses in combination meter is blown.

Unit	Power source	Fuse No.
Combination meter	Battery	2
	Ignition switch ON or START	11

OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to [PG-2, "POWER SUPPLY ROUTING"](#).

2. POWER SUPPLY CIRCUIT CHECK

- Disconnect the combination meter connector.
- Check voltage between combination meter harness connectors M24 terminal 12(GY), M24 terminal 13(W/L) and ground.

Terminals		Ignition switch position			
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M24	12(GY)	Ground	Battery voltage	Battery voltage	Battery voltage
M24	13(W/L)		0V	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between combination meter and fuse.

3. GROUND CIRCUIT CHECK

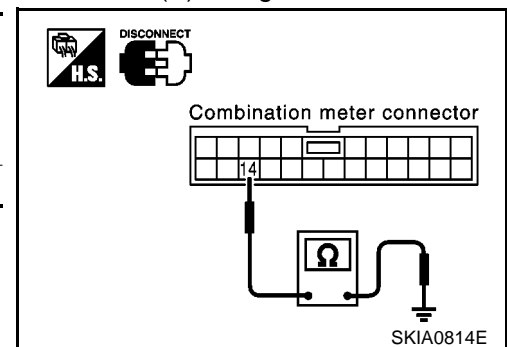
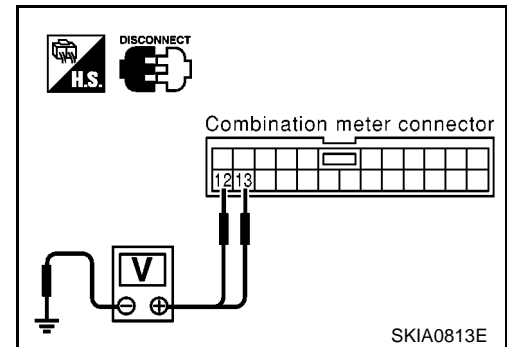
Check continuity between combination meter harness connector M24 terminal 14(B) and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal (Wire color)		
M24	14(B)	Ground	
			Yes

OK or NG

OK >> Inspection end.

NG >> Check ground harness.



COMBINATION METERS

Work Flow/Without Tachometer

EKS002WB

1. CHECK WARNING LAMPS

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 >> Power supply and ground circuit check. Refer to [DI-20, "Power Supply and Ground Circuit Check/Without Tachometer"](#).

2. CHECK SELF-DIAGNOSIS MODE OPERATION

Perform self-diagnosis mode. Refer to [DI-15, "Meter/Gauges Operation, Odo/Trip Meter"](#)

Can diagnosis mode be activated?

YES >> GO TO 3

NO >> Power supply and ground circuit check. Refer to [DI-20, "Power Supply and Ground Circuit Check/Without Tachometer"](#)

3. SEGMENTS CHECK

Check odo / trip meter segment.

Do all segments illuminate?

YES >> GO TO 4

NO >> Replace unified meter control unit assembly.

4. CHECK FUEL WARNING LAMP

Check fuel warning lamp in self-diagnosis mode. Refer to [DI-15, "HOW TO ALTERNATE SELF-DIAGNOSIS FUNCTION"](#) in No.6

Do fuel warning lamp illuminate?

OK >> GO TO 5

NG >> Replace unified meter control unit assembly.

5. CHECK METER CIRCUIT

Check indication of each meter/gauge in self-diagnosis mode. Refer to [DI-15, "HOW TO ALTERNATE SELF-DIAGNOSIS FUNCTION"](#) in No.7

OK or NG

OK >> Symptom chart

NG >> Replace unified meter control unit.

Trouble Diagnoses/Without Tachometer SYMPTOM CHART

EKS002WC

Symptom	Possible cause	Repair procedure
Fuel warning lamp is malfunctioning.	1. Sensor Signal	1. Check the sensor for malfunctioning meter/gauge. INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to DI-24, "Inspection/Fuel Level Sensor Unit")
One of tachometer/fuel gauge/water temp. gauge is malfunctioning.	– Fuel gauge – Water temp gauge	INSPECTION/THERMAL TRANSMITTER (Refer to DI-22, "Inspection/Water Temperature Gauge")
	2. Unified meter control unit	2. Replace unified meter control unit assembly
Speedometer and odo/trip meter is malfunctioning.	1. Sensor Signal	1. Check the sensor for malfunctioning meter/gauge. INSPECTION/VEHICLE SPEED SIGNAL (Refer to DI-23, "Inspection/Vehicle Speed Signal")
	– Vehicle speed signal	
	2. Unified meter control unit	2. Replace unified meter control unit assembly
Multiple meter/gauge are malfunctioning.	● Unified meter control unit	● Replace unified meter control unit assembly.

COMBINATION METERS

Power Supply and Ground Circuit Check/Without Tachometer

EKS002WD

1. CHECK FUSES

- Check that any of the fuses in combination meter is blown.

Unit	Power source	Fuse No.
Combination meter	Battery	2
	Ignition switch ON or START	11

OK or NG

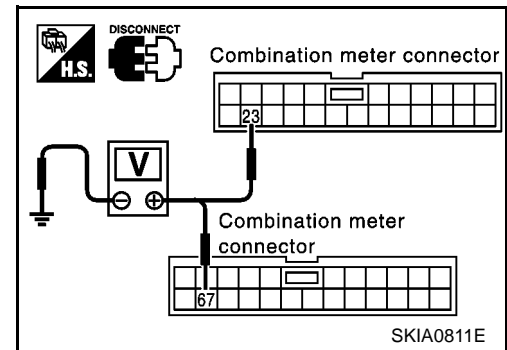
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to [PG-2](#), "POWER SUPPLY ROUTING".

2. POWER SUPPLY CIRCUIT CHECK

- Disconnect the combination meter connector.
- Check voltage between combination meter harness connectors M21 terminal 23(GY), M23 terminals 67(W/L) and ground.

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M21	23(GY)	Ground	Battery voltage	Battery voltage	Battery voltage
M23	67(W/L)		0V	Battery voltage	Battery voltage



OK or NG

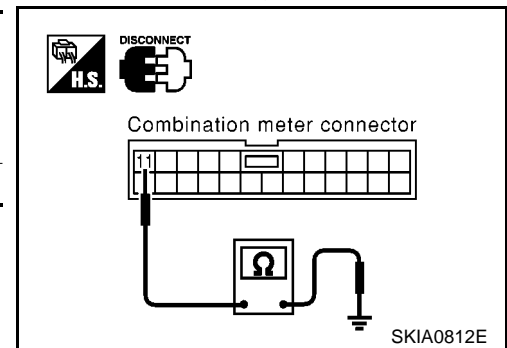
OK >> GO TO 3.

NG >> Check harness for open or short between combination meter and fuse.

3. GROUND CIRCUIT CHECK

Check continuity between combination meter harness connector M24 terminal 14(B) and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal (Wire color)		
M21	11(B)	Ground	Yes



OK or NG

OK >> Inspection end.

NG >> Check ground harness.

Inspection/Engine Speed Signal

EKS002VG

1. HARNESS CONNECTOR INSPECTION

- Turn the ignition switch OFF.
- Check combination meter, ECM unit and terminals (meter-side, control unit side, and harness-side) for poor connection and bend.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace terminals or connectors.

COMBINATION METERS

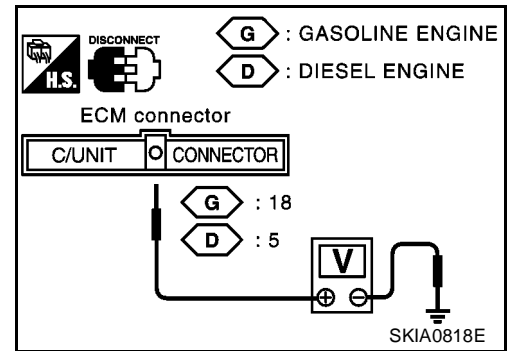
2. CHECK ECM OUTPUT VOLTAGE

1. Disconnect ECM connector.
2. Turn the ignition switch ON.
3. Check the following
 - Gasoline engine models
 - Check voltage between ECM harness connector F106 terminal 18(G/W) and ground.
 - Diesel engine models
 - Check voltage between ECM harness connector F111 terminal 5(G/W) and ground.

Approx. 8-10V

OK or NG

- OK >> GO TO 4
NG >> GO TO 3



3. CHECK ECM OUTPUT SIGNAL

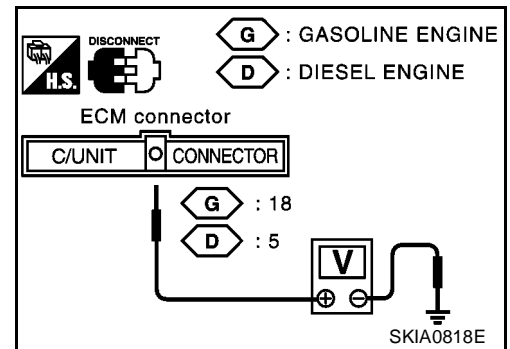
1. Connect ECM connector.
2. Turn the ignition switch START.
3. Check the following
 - Gasoline engine models
 - Check output signal between ECM harness connector F106 terminal 18(G/W) and ground.
 - Diesel engine models
 - Check output signal between ECM harness connector F111 terminal 5(G/W) and ground.

5-ground Refer to [DI-14, "Terminals and Reference Value for Combination Meter"](#)

18-ground Refer to [DI-14, "Terminals and Reference Value for Combination Meter"](#)

OK or NG

- OK >> Replace unified meter control unit.
NG >> Check Engine Control System.



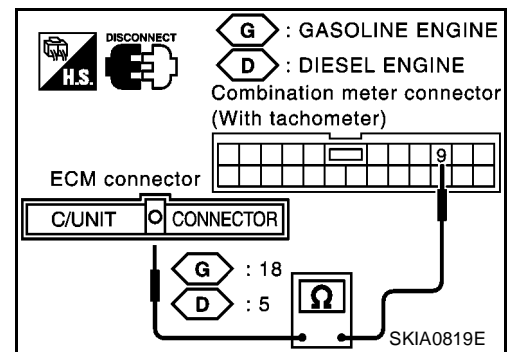
4. CHECK HARNESS FOR OPEN OR SHORT

1. Turn the ignition switch OFF.
2. Disconnect combination meter.
3. Check the following
 - Gasoline engine models
 - Check continuity between combination meter harness connector M24 terminal 9(G/W) and ECM harness connector F106 terminal 18(G/W).
 - Diesel engine models
 - Check continuity between combination meter harness connector M24 terminal 9(G/W) and ECM harness connector F111 terminal 5(G/W).

Continuity should exist.

OK or NG

- OK >> Replace unified meter control unit.
NG >> Repair or replace harness or connectors.



COMBINATION METERS

EKS002VH

Inspection/Water Temperature Gauge

1. HARNESS CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Check combination meter, thermal transmitter and terminals (meter-side, module-side, lead-side. and harness-side) for poor connection and bend.

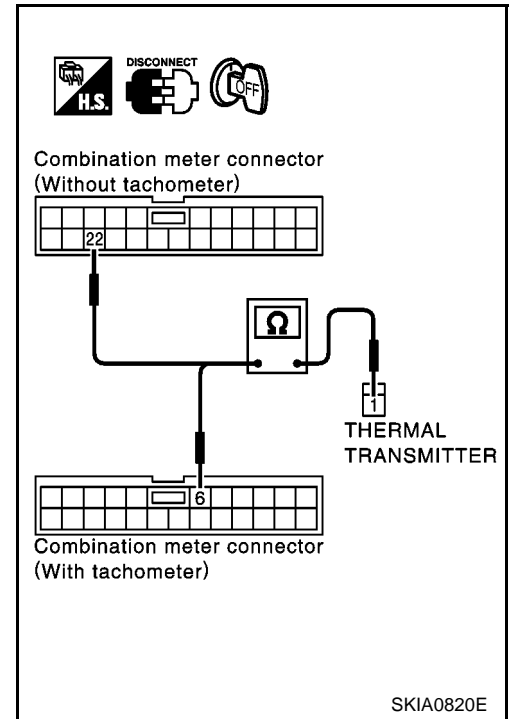
OK or NG

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

2. CHECK HARNESS FOR OPEN OR SHORT

1. Turn the ignition Switch OFF.
2. Disconnect combination meter and thermal transmitter harness connector.
3. Check the following
 - With tachometer
 - Check continuity between combination meter harness connector M24 terminal 6(PU/W) and thermal transmitter harness connector F3 or F214 terminal 1(PU/W or Y/W).
 - Without tachometer
 - Check continuity between combination meter harness connector M21 terminal 22(PU/W) and thermal transmitter harness connector F3 or F214 terminal 1(PU/W or Y/W).

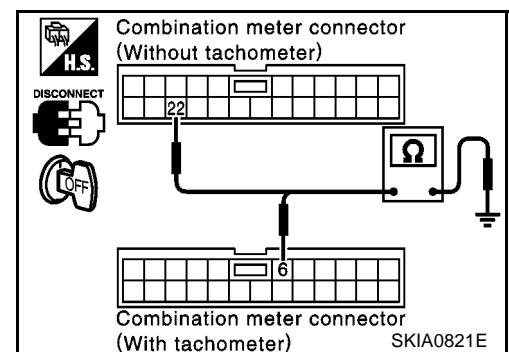
Continuity should exist.



SKIA0820E

- With tachometer
 - Check continuity between combination meter harness connector M24 terminal 6(PU/W) and ground.
- Without tachometer
 - Check continuity between combination meter harness connector M21 terminal 22(PU/W) and ground.(without tachometer)

Continuity should not exist.



SKIA0821E

OK or NG

- OK >> GO TO 3
NG >> Repair or replace harness or connectors.

3. THERMAL TRANSMITTER INSPECTION

Check the components. Refer to [DI-28, "THERMAL TRANSMITTER CHECK"](#) .

OK or NG

- OK >> Replace unified meter control unit (with tachometer) or unified meter control assembly (without tachometer).
NG >> Replace thermal transmitter.

COMBINATION METERS

Inspection/Vehicle Speed Signal

EKS002V1

1. HARNESS CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Check combination meter, vehicle speed sensor and terminals (meter-side, module-side, lead-side, and harness-side) for poor connection and bend.

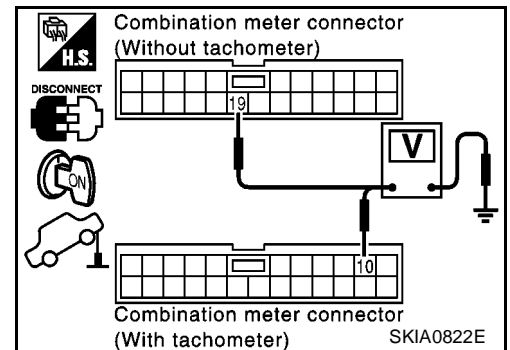
OK or NG

OK >> GO TO 2.

NG >> Repair or replace terminals or connectors.

2. CHECK VEHICLE SPEED OUTPUT SIGNAL

1. Disconnect combination meter connector.
2. Jack-up the drive wheels.
3. Maintain the conditions below.
 - Vehicle speed is more than 40 km/h (25 MPH).
4. Check the following
 - With tachometer
 - Check output signal between combination meter harness connector M24 terminal 10(LG/B) and ground.
 - Without tachometer.
 - Check output signal between combination meter harness connector M21 terminal 19(LG/B) and ground.



10-ground Refer to [DI-14, "Terminals and Reference Value for Combination Meter"](#)

19-ground Refer to [DI-14, "Terminals and Reference Value for Combination Meter"](#)

OK or NG

OK >> Replace unified meter control unit (with tachometer) or unified meter control unit assembly (without tachometer).

NG >> GO TO 3

COMBINATION METERS

3. CHECK HARNESS FOR OPEN OR SHORT

1. Turn the ignition Switch OFF.
2. Disconnect combination meter connector and vehicle speed sensor connector.
3. Check the following
 - With tachometer
 - Check continuity between combination meter harness connector M24 terminal 10(LG/B) and vehicle speed sensor F20 terminal 1(LG/B).
 - Check continuity between combination meter harness connector M24 terminal 11(LG) and vehicle speed sensor F20 terminal 2(LG).
 - Without tachometer
 - Check continuity between combination meter harness connector M21 terminal 19(LG/B) and vehicle speed sensor F20 terminal 1(LG/B).
 - Check continuity between combination meter harness connector M21 terminal 10(LG) and vehicle speed sensor F20 terminal 2(LG).

Continuity should exist.

- with tachometer
 - Check continuity between combination meter harness connector M24 terminal 10(LG/B) and ground.
 - Check continuity between combination meter harness connector M24 terminal 11(LG) and ground.
- Without tachometer
 - Check continuity between combination meter harness connector M21 terminal 19(LG/B) and ground.
 - Check continuity between combination meter harness connector M21 terminal 10(LG) and ground.

Continuity should not exist.

OK or NG

OK >> GO TO 4

NG >> Repair or replace harness or connectors.

4. VEHICLE SPEED SENSOR INSPECTION

Check the components. Refer to [DI-28, "VEHICLE SPEED SENSOR CHECK"](#).

OK or NG

OK >> Replace unified meter control unit (with tachometer) or unified meter control unit assembly (without tachometer).

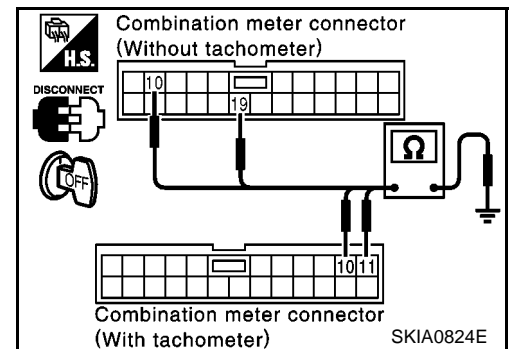
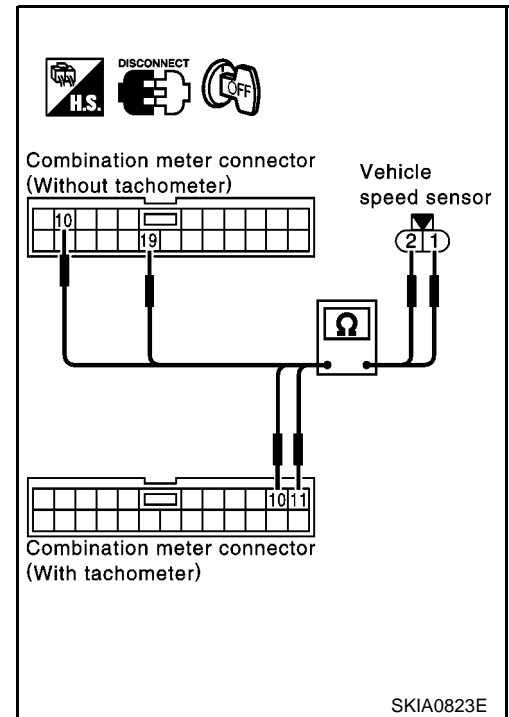
NG >> Replace thermal transmitter.

Inspection/Fuel Level Sensor Unit FUEL LEVEL SENSOR UNIT

EKS002VJ

The following symptoms do not indicate a malfunction.

- Depending on vehicle posture 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.



COMBINATION METERS

LOW-FUEL WARNING LAMP

Depending on vehicle posture or driving circumstance, the fuel level in the tank varies, and the warning lamp ON timing may be changed.

1. HERNESS CONNECTOR INSPECTION

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

OK or NG

OK >> GO TO 2.

NG >> Repair or replace terminals or connectors.

2. CHECK HARNESS FOR OPEN OR SHORT

1. Turn the ignition Switch OFF.
2. Disconnect combination meter connector and fuel level sensor unit connector.
3. Check the following
 - With tachometer.
 - Check continuity between combination meter harness connector M24 terminal 5(BR/R) and fuel level sensor unit harness connector C53 terminal 4(Y) (Gasoline engine models).
 - Check continuity between combination meter harness connector M24 terminal 5(BR/R) and fuel level sensor unit harness connector C54 terminal 3(B) (Diesel engine models).
 - Without tachometer.
 - Check continuity between combination meter harness connector M21 terminal 21(BR/R) and fuel level sensor unit harness connector C53 terminal 4(Y) (Gasoline engine models).
 - Check continuity between combination meter harness connector M21 terminal 21(BR/R) and fuel level sensor unit harness connector C54 terminal 3(B) (Diesel engine models).

Continuity should exist.

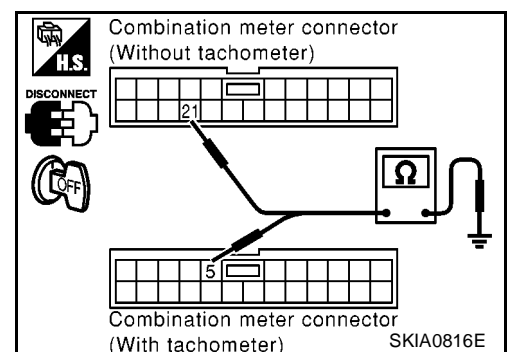
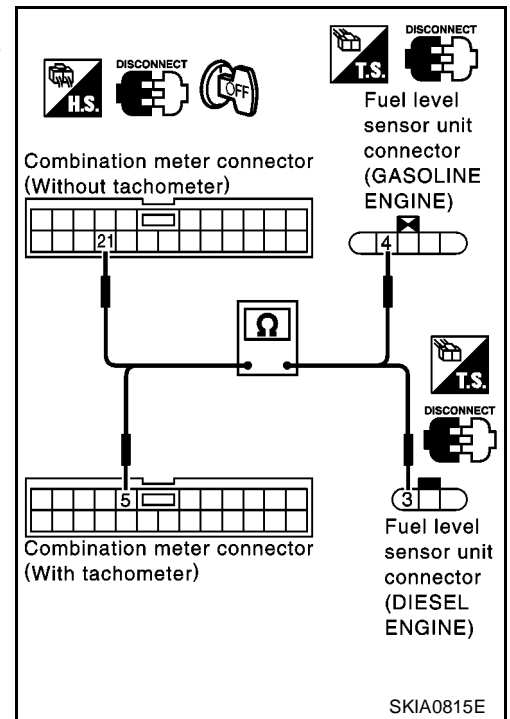
- With tachometer
 - Check continuity between combination meter harness connector M24 terminal 5(BR/R) and ground.
- Without tachometer
 - Check continuity between combination meter harness connector M21 terminal 21(BR/R) and ground.

Continuity should not exist.

OK or NG

OK >> GO TO 3

NG >> Repair or replace harness or connectors.



COMBINATION METERS

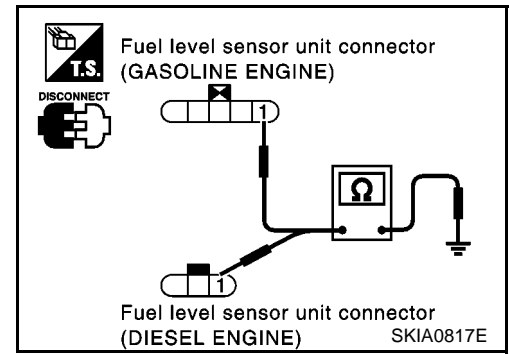
3. CHECK GROUND CIRCUIT

1. Check the following.
 - Gasoline engine models
 - Check continuity between fuel level sensor harness connector C53 terminal 1(B) and ground.
 - Diesel engine models
 - Check continuity between fuel level sensor harness connector C54 terminal 1(Y) and ground.

Continuity should exist.

OK or NG

- OK >> GO TO 4
NG >> Repair or replace harnesses or connectors.



4. FUEL LEVEL SENSOR UNIT INSPECTION

Check the components. Refer to [DI-27, "FUEL LEVEL SENSOR UNIT CHECK"](#).

OK or NG

- OK >> GO TO 5.
NG >> Replace fuel level sensor unit,

5. CHECK INSTALLATION CONDITION

Check fuel level sensor unit installation, and check whether the float arm interferes or binds with any components inside the arm.

OK or NG

- OK >> Replace unified meter control unit (with tachometer) or unified meter control unit assembly (without tachometer).
NG >> Install fuel level sensor unit properly.

The Fuel Gauge Pointer Fluctuates, Indicator Wrong Value or Varies.

EKS002VK

1. CHECK THE FUEL GAUGE POINTER FOR FLUCTUATION.

Does the indication value fluctuate during driving or before/after stop?

Does the indication value vary?

- YES >> The pointer fluctuation may be caused by fuel level change in the fuel tank.
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 F-Position.

EKS002VL

1. QUESTIONNAIRE 1

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

YES?

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

2. QUESTIONNAIRE 2

Was the vehicle fueled with the ignition switch ON?

YES?

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

COMBINATION METERS

3. QUESTIONNAIRE 3

Is the floor or the vehicle inclined?

YES?

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

4. QUESTIONNAIRE 4

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

YES?

- YES >> Check the components. Refer to [DI-24, "FUEL LEVEL SENSOR UNIT"](#) .
NO >> The float arm may interfere or bind with any of the components in the fuel tank.

The Fuel Gauge Does Not Work.

EKS002VM

1. HARNESS CONNECTOR INSPECTION

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

OK or NG

- OK >> GO TO 2.
NG >> Replace fuel level sensor unit.

2. CHECK INSTALLATION CONDITION.

Check fuel level sensor unit installation (refer to [FL-7, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP \(KA24DE\)"](#), [FL-12, "FUEL LEVEL SENSOR UNIT \(ZD30DD\)"](#) , and check whether the float arm interferes or binds with any components inside the arm.

OK or NG

- OK >> Fuel level sensor unit is OK.
NG >> Check fuel level sensor unit. Refer to [DI-24, "FUEL LEVEL SENSOR UNIT"](#) .

Low Fuel Warning Lamp Illuminate or Not Illuminate

EKS002VN

1. SELF-DIAGNOSIS INSPECTION

Preform combination meter self-diagnosis mode. Refer to [DI-15, "Meter/Gauges Operation, Odo/Trip Meter"](#) .

OK or NG

- OK >> Check fuel level sensor unit. Refer to [DI-24, "FUEL LEVEL SENSOR UNIT"](#) .
NG >> Replace unified meter control unit (sub).

Electrical Components Inspection

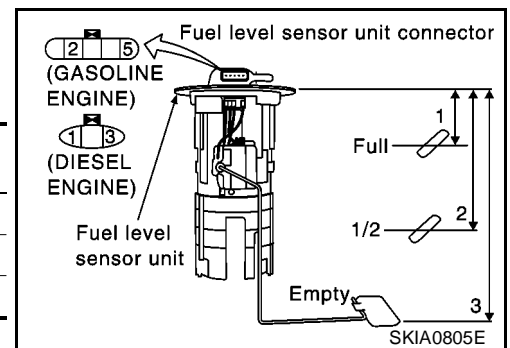
EKS002VO

FUEL LEVEL SENSOR UNIT CHECK

- For removal, Refer to [FL-7, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP \(KA24DE\)"](#), [FL-12, "FUEL LEVEL SENSOR UNIT \(ZD30DD\)"](#)
- Check the resistance between terminals 2 and 5 (Gasoline engine models).
- Check the resistance between terminals 1 and 3 (Diesel engine models).

Gasoline engine models

Measurement terminal		Float position mm (in)		Resistance value (Ω)
2	5	Full (1)	Approx. 59 (2.3)	Approx. 6
		1/2 (2)	Approx. 160 (6.30)	Approx. 33
		Empty (3)	Approx. 270 (10.6)	Approx. 80



COMBINATION METERS

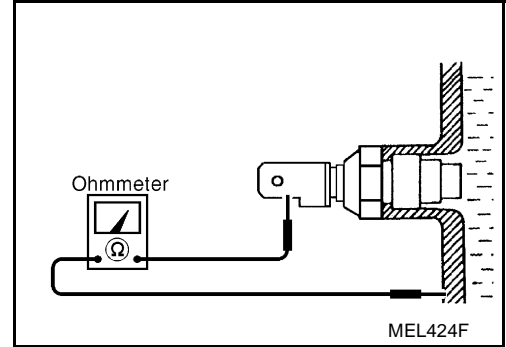
Diesel engine models

Measurement terminal		Float position mm (in)		Resistance value (Ω)
1	3	Full (1)	Approx. 53 (2.1)	Approx. 6
		1/2 (2)	Approx. 161 (6.34)	Approx. 33
		Empty (3)	Approx. 275 (10.8)	Approx. 80

THERMAL TRANSMITTER CHECK

Check the resistance between the terminals of thermal transmitter and body ground.

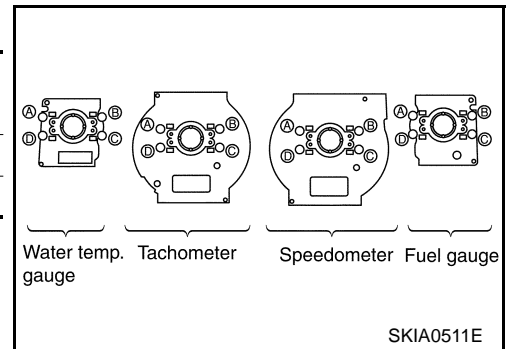
Water temperature	Resistance
60°C (140°F)	Approx. 170 - 210 Ω
100°C (212°F)	Approx. 47 - 53 Ω



METER/GAUGE RESISTANCE CHECK

Check the resistance between installation screws of meter/gauge.

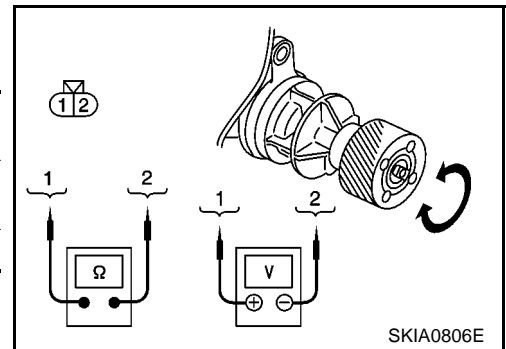
Screws		Resistance Ω
Tacho/Speedometer	Fuel/Water temp.gauge	
A - C	A - C	Approx. 190 - 260
B - D	B - C	Approx. 230 - 310



VEHICLE SPEED SENSOR CHECK

- Remove vehicle speed sensor from transmission.
- Check the voltage and resistance between vehicle speed sensor terminals 1 and 2.

Measurement terminal		Condition	Voltage V	Resistance Ω
1	2	Rotate vehicle speed sensor	Approx. 0 - 5	—
		—	—	Approx. 250 - 330



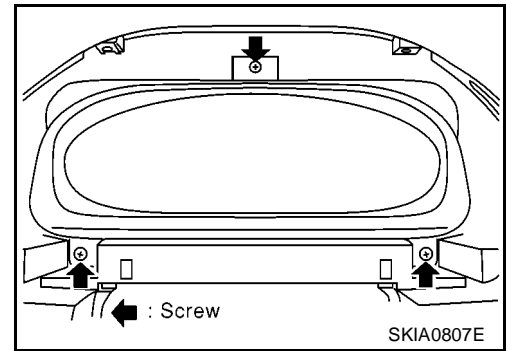
Removal and Installation for Combination Meter

- Remove the cluster lid A. Refer to [IP-3, "INSTRUMENT PANEL ASSEMBLY"](#).

EKS002VP

COMBINATION METERS

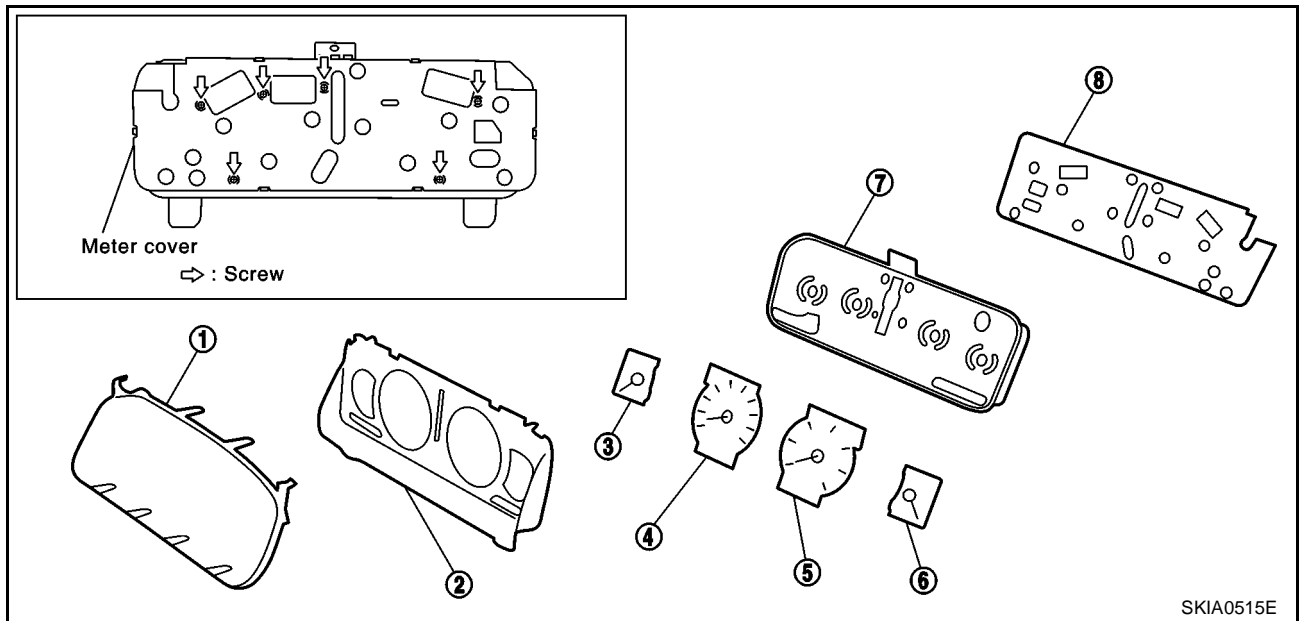
- Remove the screws (3), and disconnect connectors.



- Remove the combination meter.

Disassembly and Assembly for Combination Meter WITH TACHOMETER

EKS002VQ

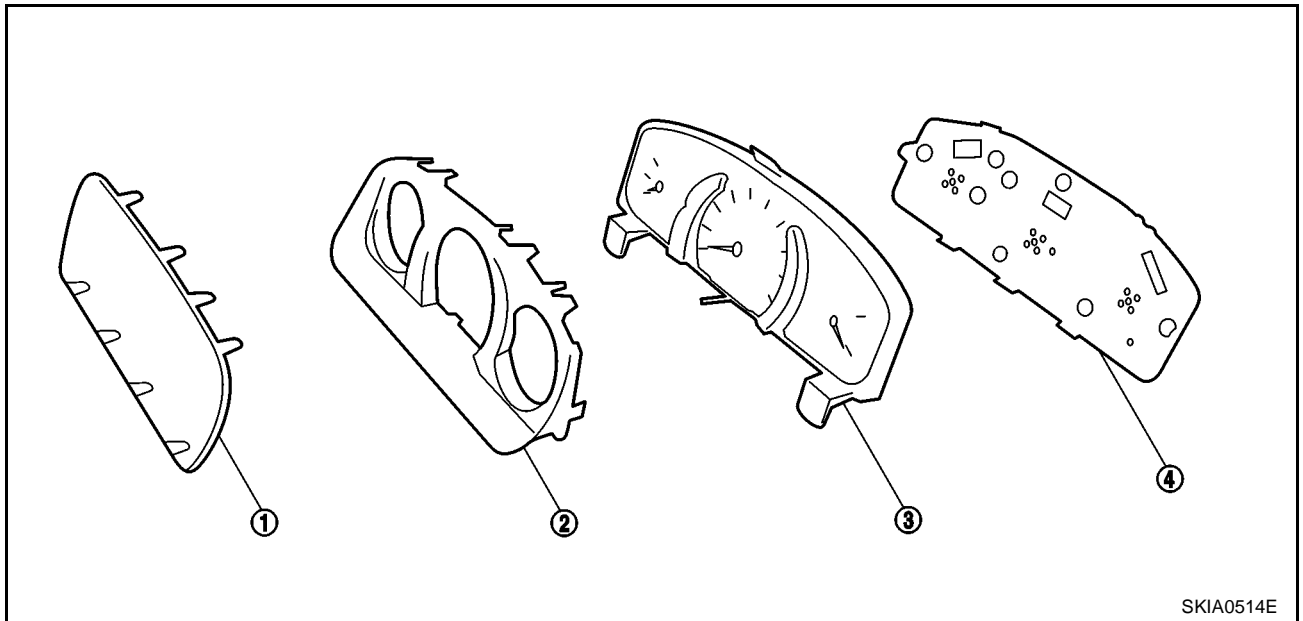


- | | | |
|------------------------------|-----------------|---------------------------|
| 1 Front cover | 2 Upper housing | 3 Fuel gauge |
| 4 Speedometer | 5 Tachometer | 6 water temperature gauge |
| 7 unified meter control unit | 8 meter cover | |

- Remove the pawls to separate front cover.
- Remove the screw to separate meter cover.
- Remove the pawls to separate upper housing.
- Remove the fuel gauge, speedometer, tachometer and water temp gauge.
- Remove the bulbs to separate unified meter control unit.

COMBINATION METERS

WITHOUT TACHOMETER



- | | | | | | |
|---|-------------|---|---------------|---|-------------------------------------|
| 1 | Front cover | 2 | Upper housing | 3 | unified meter control unit assembly |
| 4 | Meter cover | | | | |

1. Remove the pawls to separate front cover.
2. Remove the pawls to separate upper housing.
3. Remove the pawls to separate meter cover.
4. Remove the bulbs to separate unified meter control unit assembly.

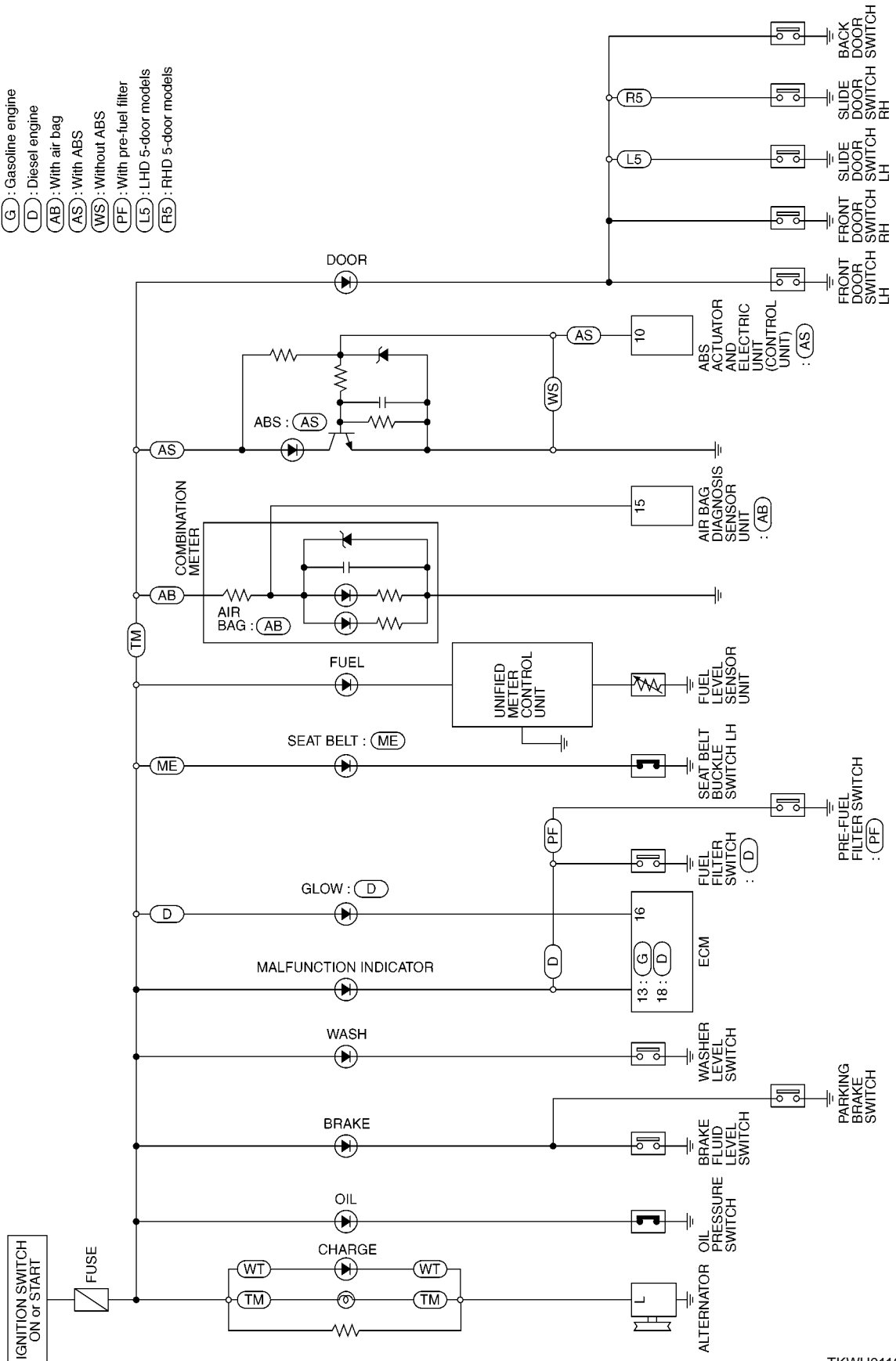
WARNING LAMPS

PFP:24814

Schematic

EKS002VS

- (ME) : For the Middle East
- (TM) : With tachometer
- (WT) : Without tachometer
- (G) : Gasoline engine
- (D) : Diesel engine
- (AB) : With air bag
- (AS) : With ABS
- (WS) : Without ABS
- (PF) : With pre-fuel filter
- (L5) : LHD 5-door models
- (R5) : RHD 5-door models



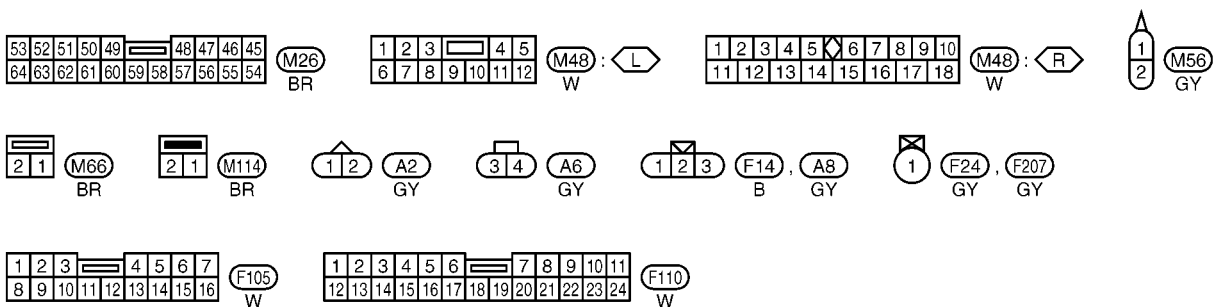
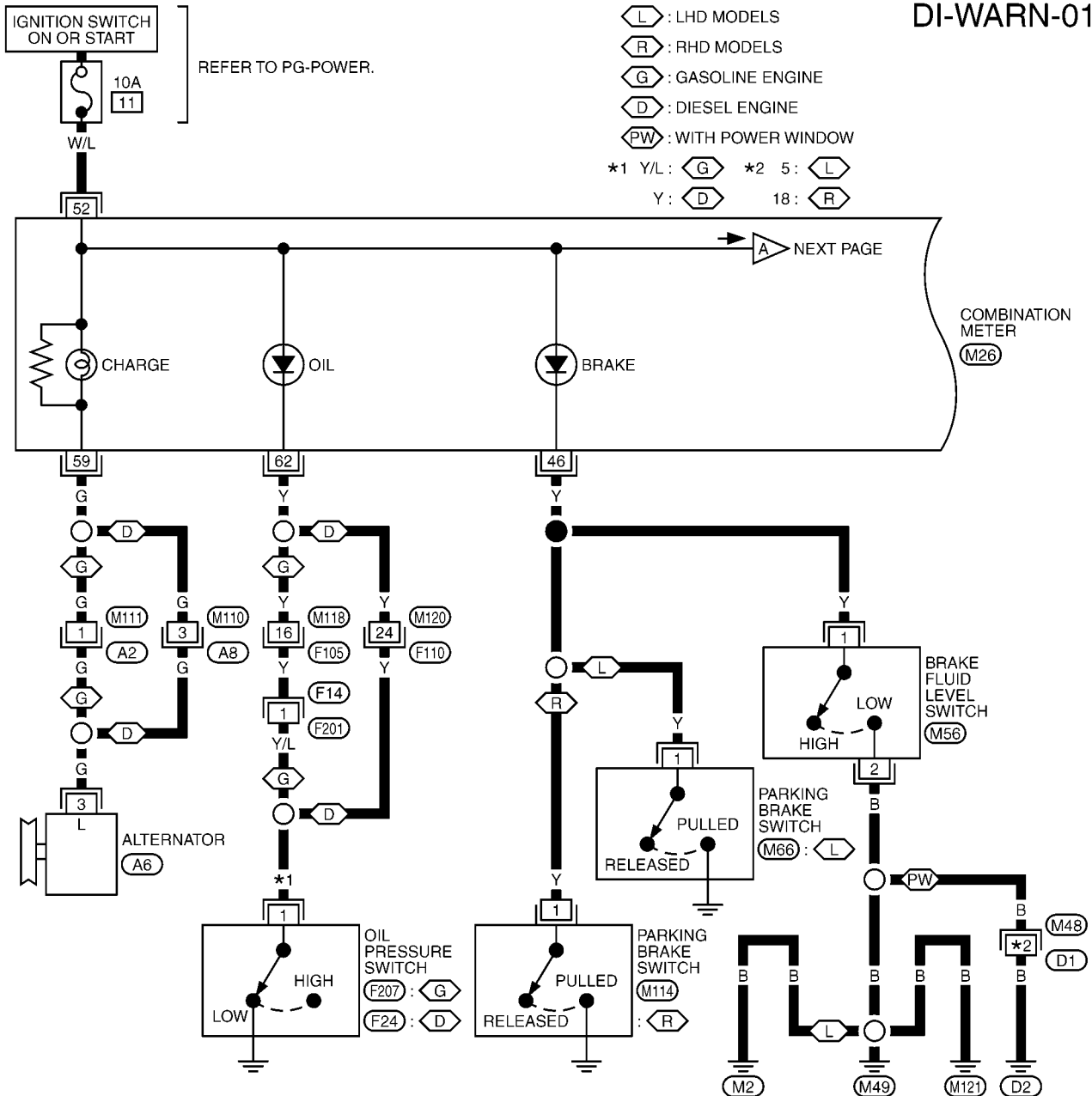
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WARNING LAMPS

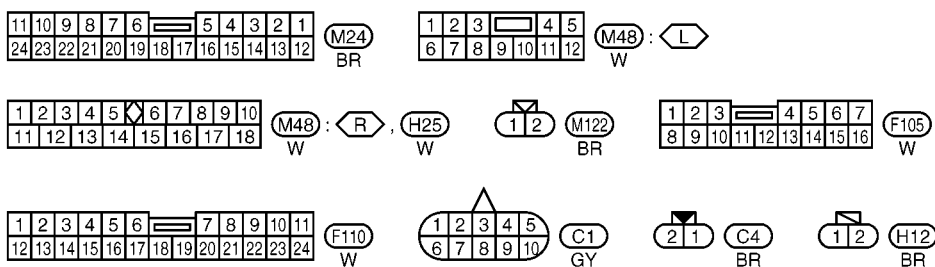
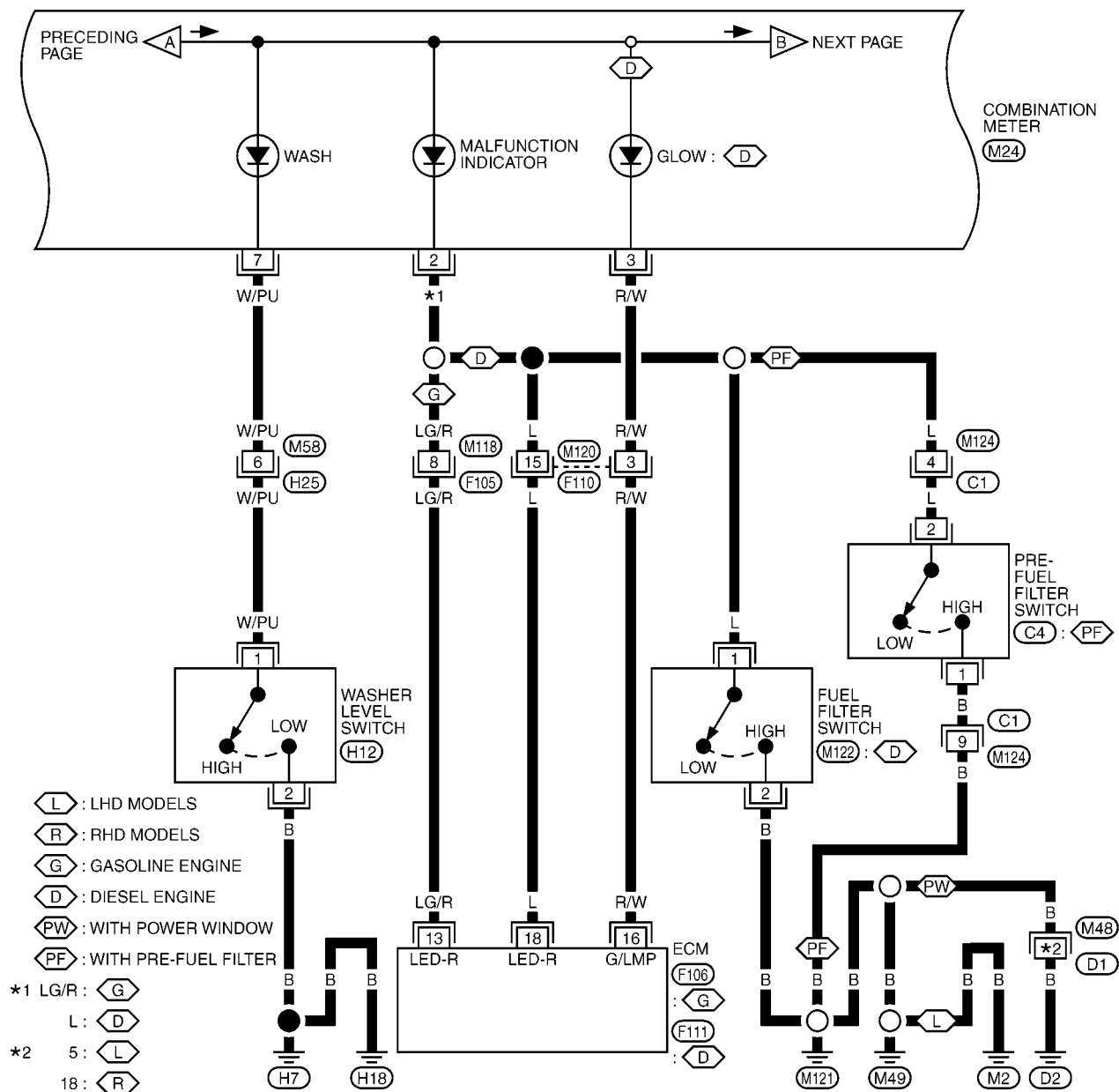
Wiring Diagram — WARN — / With Tachometer

EKS002YB

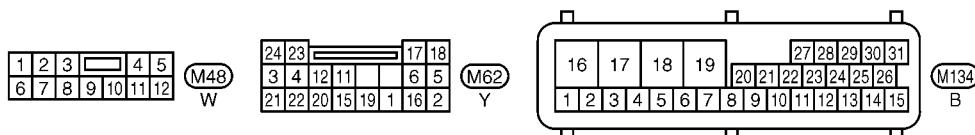
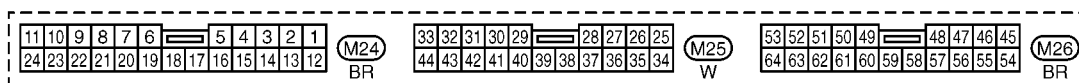
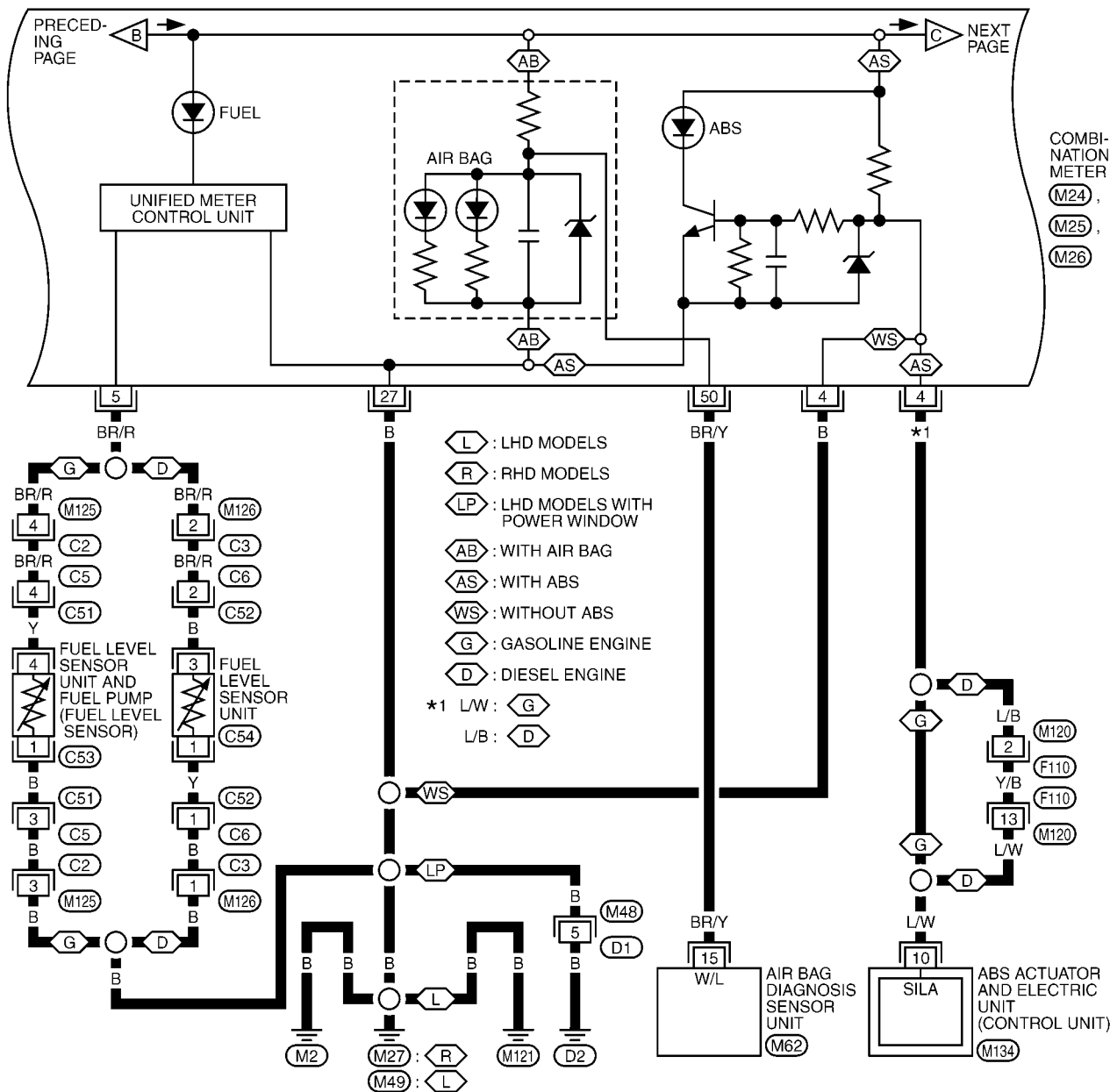
DI-WARN-01



TKWH0120E

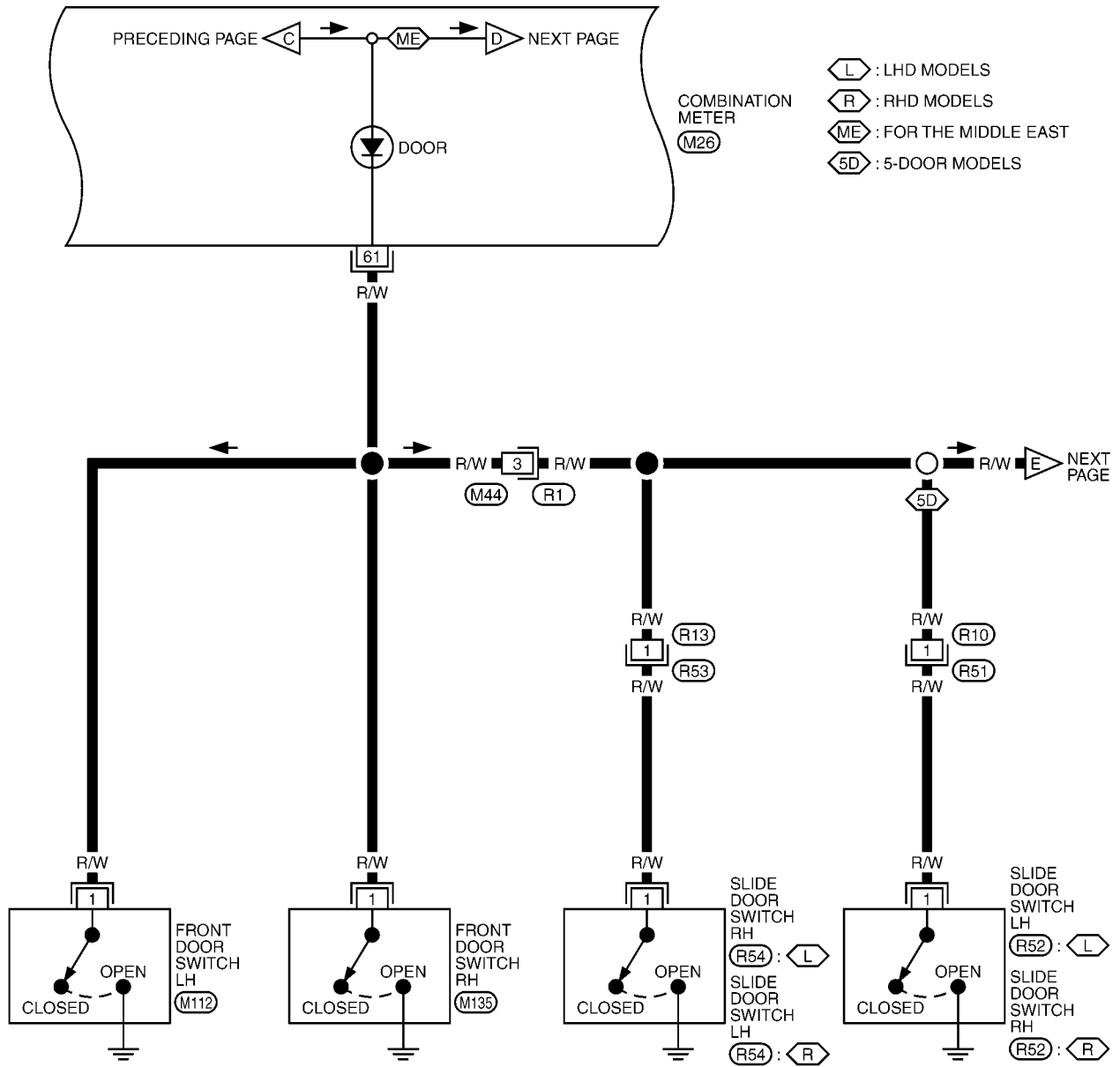


REFER TO THE FOLLOWING.
(F106), (F111) -ELECTRICAL
UNITS



WARNING LAMPS

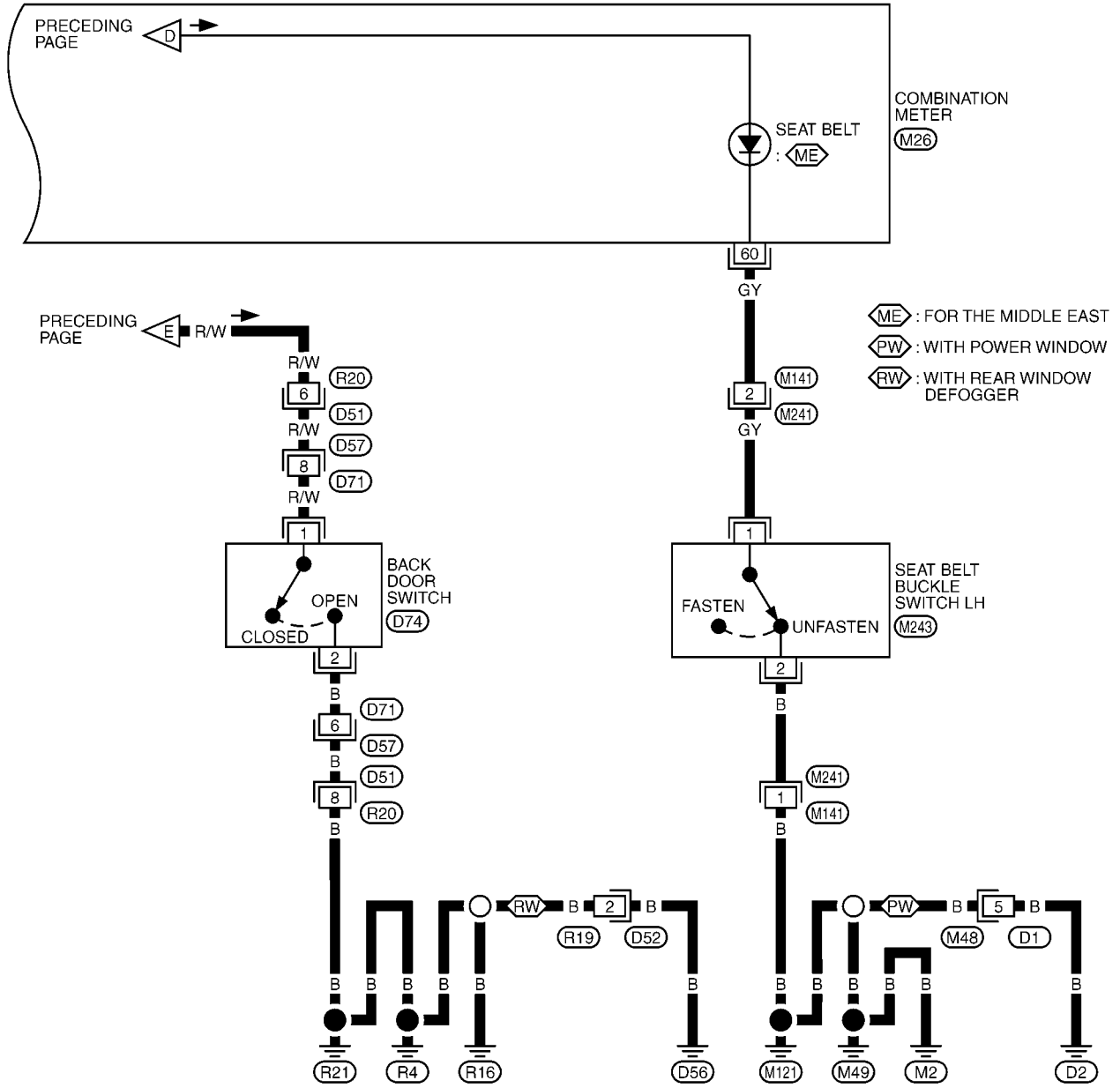
DI-WARN-04



TKWH0123E

WARNING LAMPS

DI-WARN-05



53	52	51	50	49			48	47	46	45
64	63	62	61	60	59	58	57	56	55	54

(M26)
BR

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

(M48)
W

1	2
3	4

(M241)
B

1
2
3

(M243)
W

1	2		3	
4	5	6	7	8

D5

W

(D51), (D57)
W W

1	2
3	4

(D52)
W

1	2
3	4

(D74)
BR

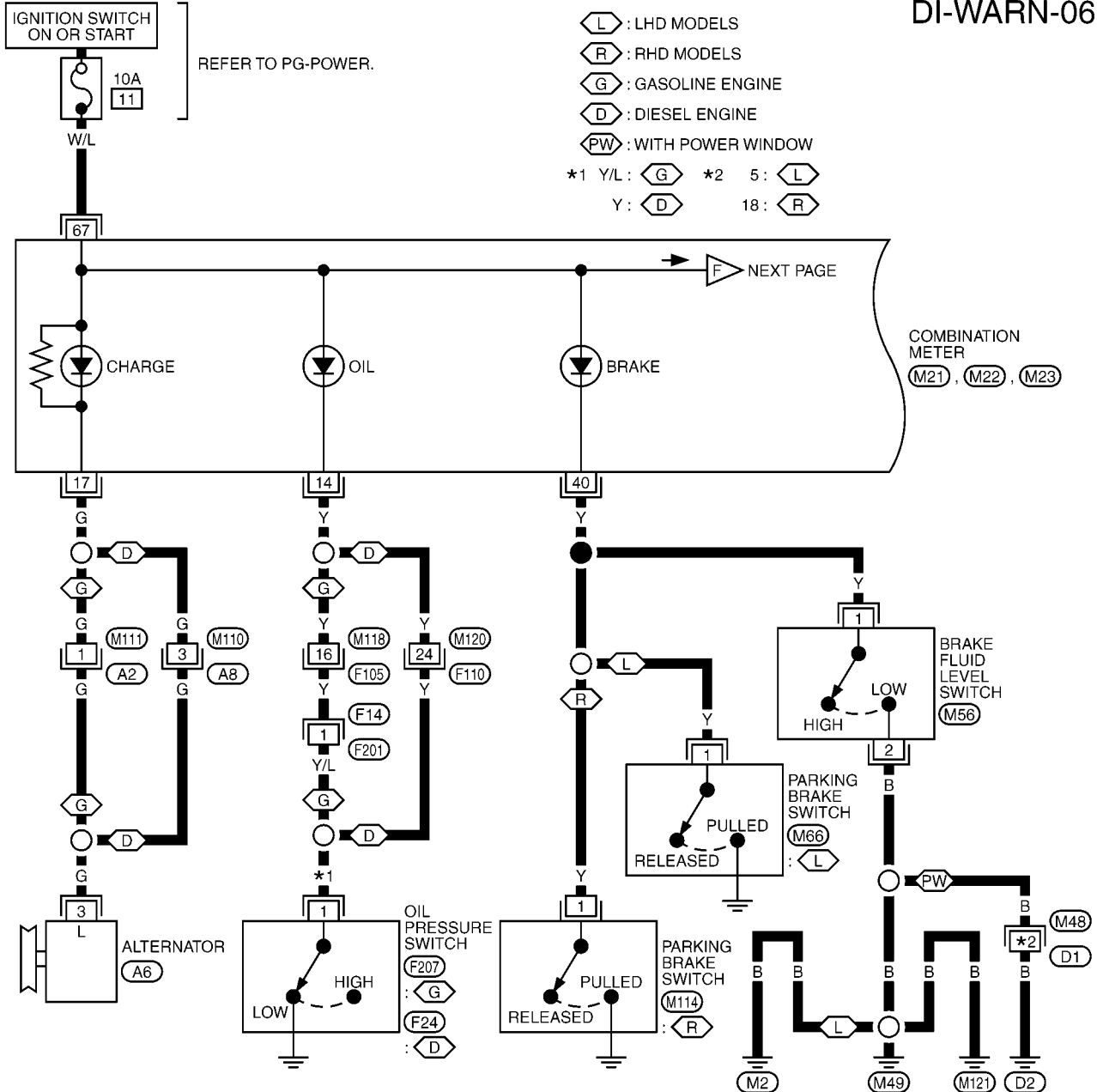
TKWH0124E

WARNING LAMPS

Wiring Diagram — WARN —/Without Tachometer

EKS002VT

DI-WARN-06



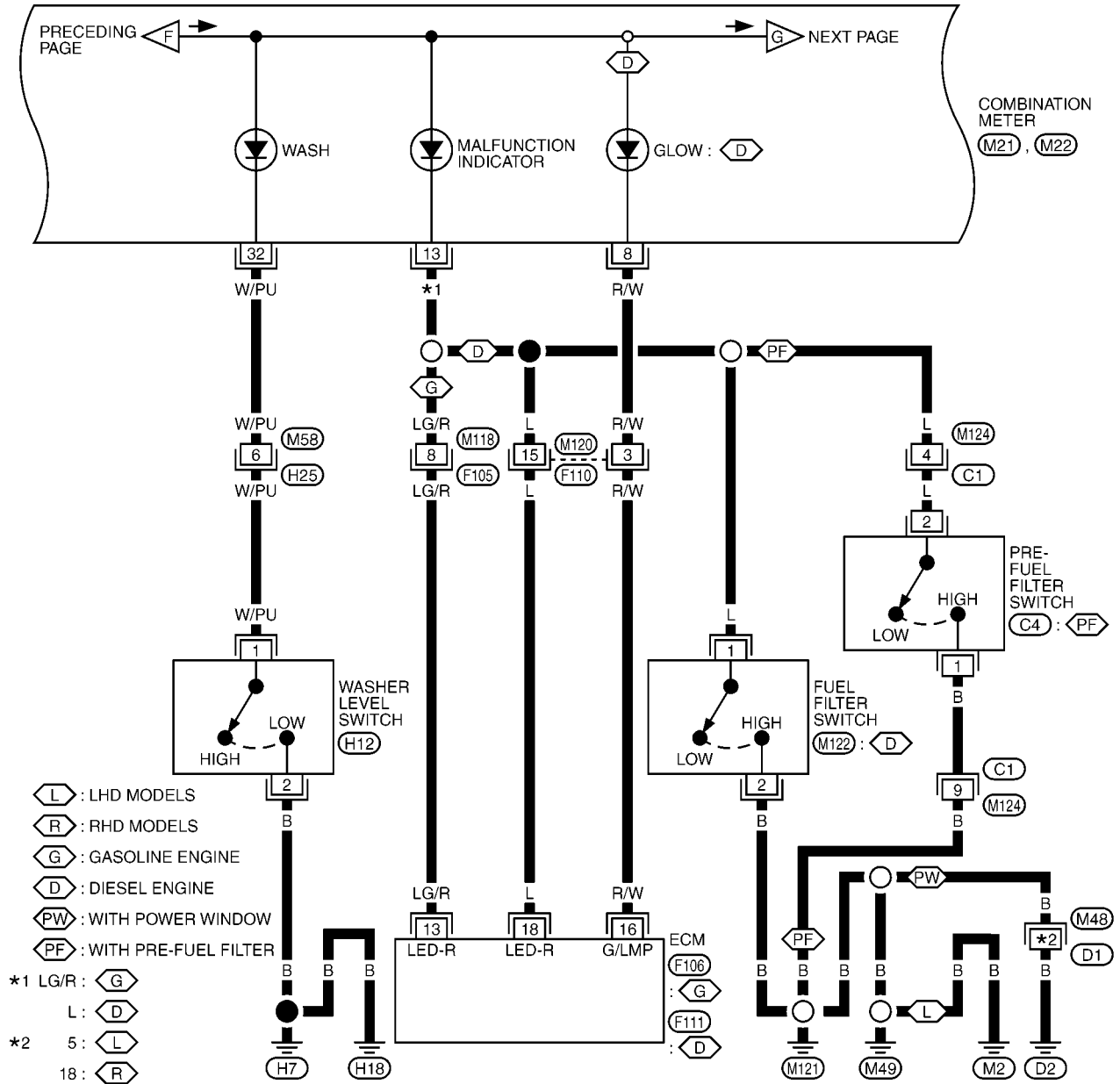
1 2 3 4 5 6 7 8 9 10 11	M21	25 26 27 28 29 30 31 32 33	M22	45 46 47 48 49 50 51 52 53 54 55	M23
12 13 14 15 16 17 18 19 20 21 22 23 24	W	34 35 36 37 38 39 40 41 42 43 44	BR	56 57 58 59 60 61 62 63 64 65 66 67 68	BR

1 2 3 4 5	M48	1 2 3 4 5 6 7 8 9 10	M48	1 2	M56	2 1	M66	2 1	M114
6 7 8 9 10 11 12	W	11 12 13 14 15 16 17 18	W		GY		BR		BR
1 2	A2	3 4	A6	1 2 3	F14	A8	1	F24	F207
	GY		GY		B	GY		GY	GY
1 2 3 4 5 6 7 8 9 10 11	F110	1 2 3 4 5 6 7	F105						
12 13 14 15 16 17 18 19 20 21 22 23 24	W	8 9 10 11 12 13 14 15 16	W						

TKWH0125E

WARNING LAMPS

DI-WARN-07



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	M21 W	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	M22 BR
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REFER TO THE FOLLOWING.

(F106, F111) -ELECTRICAL UNITS

1 2 3 4 5 6 7 8 9 10 11 12	(M48) : (L) W
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	(M48) : (R) W
--	---------------

1 2 3 4 5 6 7 8 9 10 11 12	(M122) BR
----------------------------	-----------

1 2 3 4 5 6 7 8 9 10	(C1) GY
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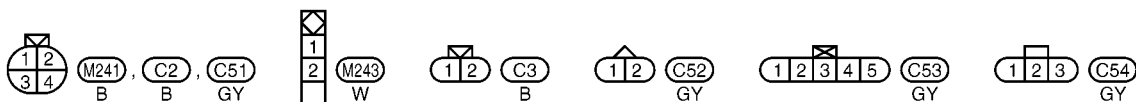
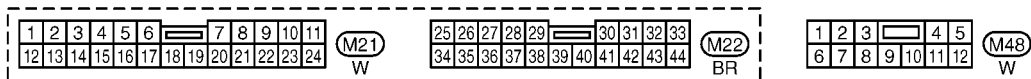
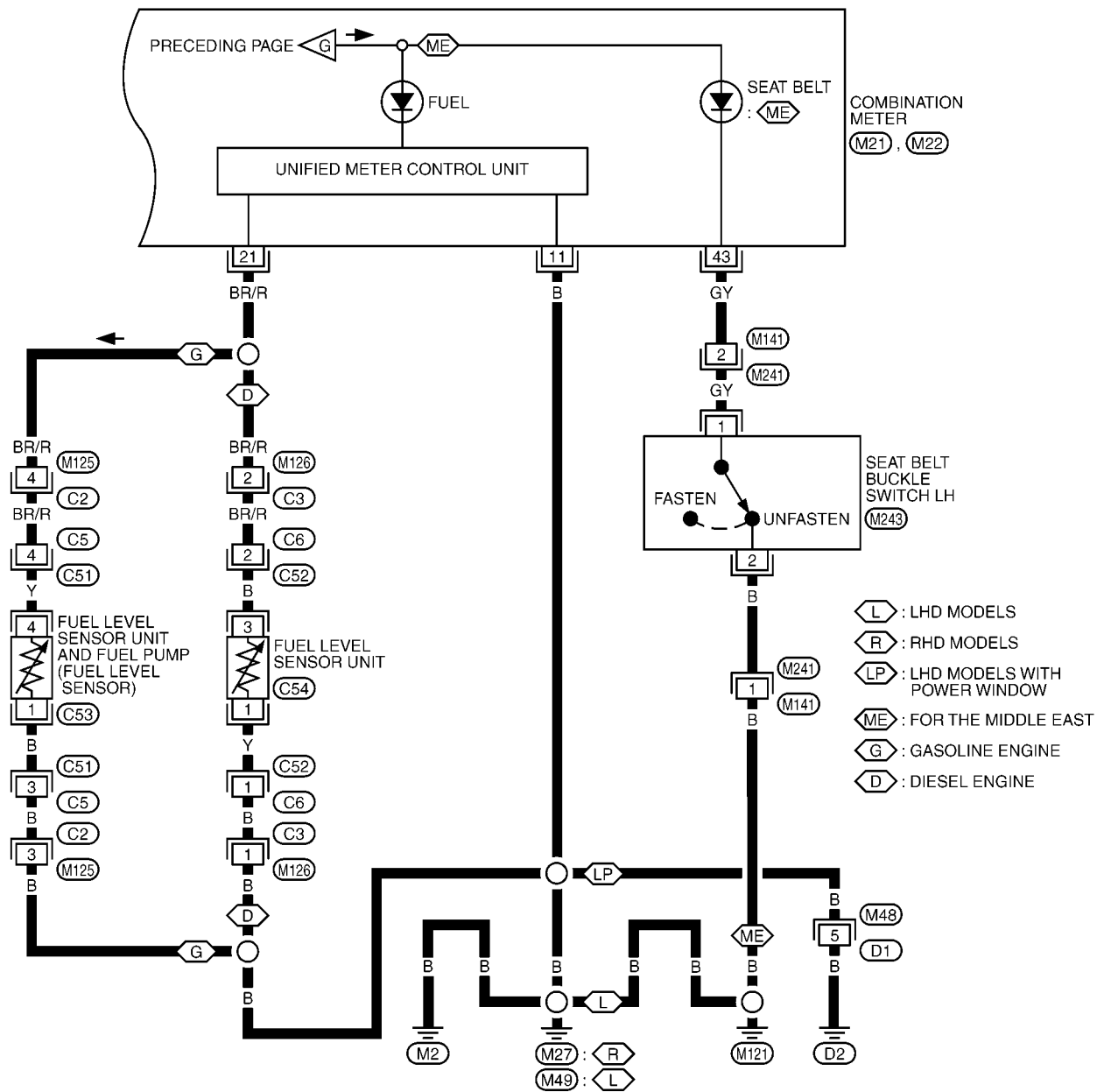
1 2 3 4 5 6 7 8 9 10 11 12	(C4) BR
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	(F105) W
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	(F110) W
--	----------

1 2 3 4 5 6 7 8 9 10 11 12	(H12) BR
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TKWH0126E



WARNING LAMPS

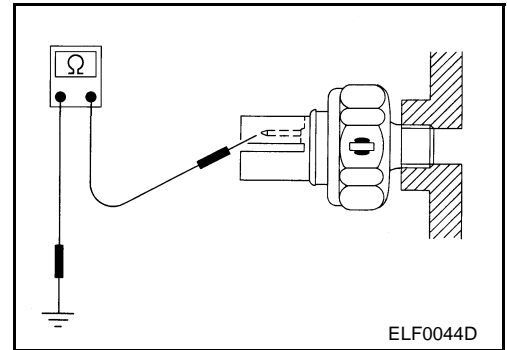
Electrical Components Inspection

EKS002W4

OIL PRESSURE SWITCH

Check continuity between the oil pressure switch and body ground.

	Oil pressure MPa (kg/cm ²)	Continuity
Engine not running	Less than 0.02 - 0.029 (0.2-0.3)	Yes
Engine running	More than 0.02 - 0.029 (0.2-0.3) o	No



WARNING BUZZER

WARNING BUZZER

PFP:24814

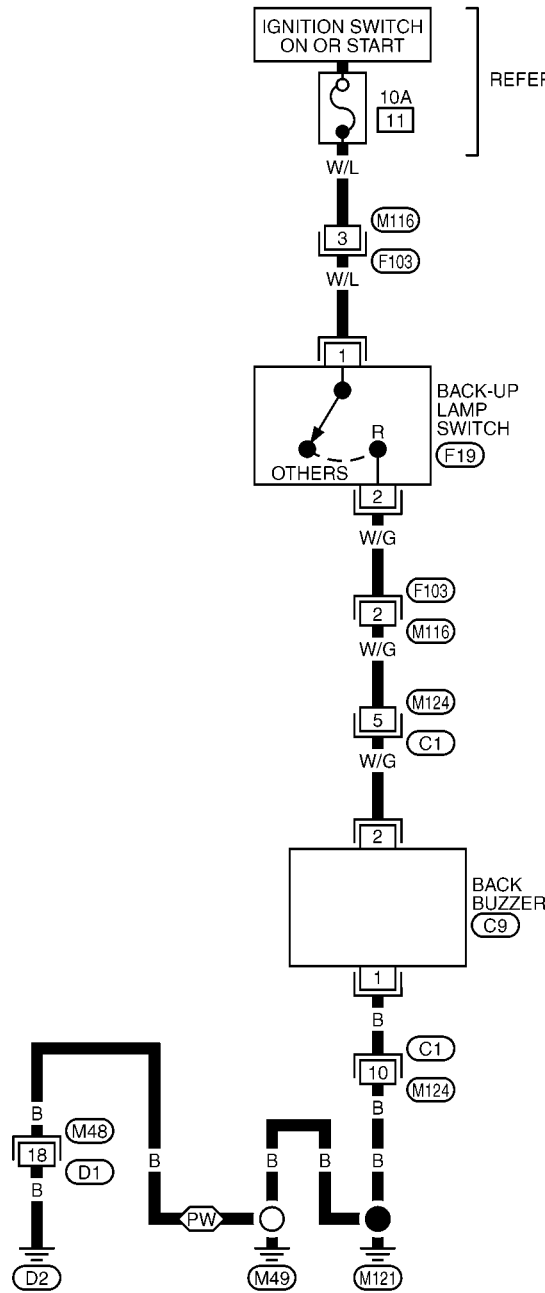
Wiring Diagram — BUZZER —/RHD MODELS

EKS002W6

DI-BUZZER-01

REFER TO PG-POWER.

 : WITH POWER WINDOW



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18		

M48
W

1	2
---	---

F19
GY

1	2	3
4	5	6

F103
W

1	2	3	4	5
6	7	8	9	10

C1
GY

1	2
---	---

C9
GY

CLOCK

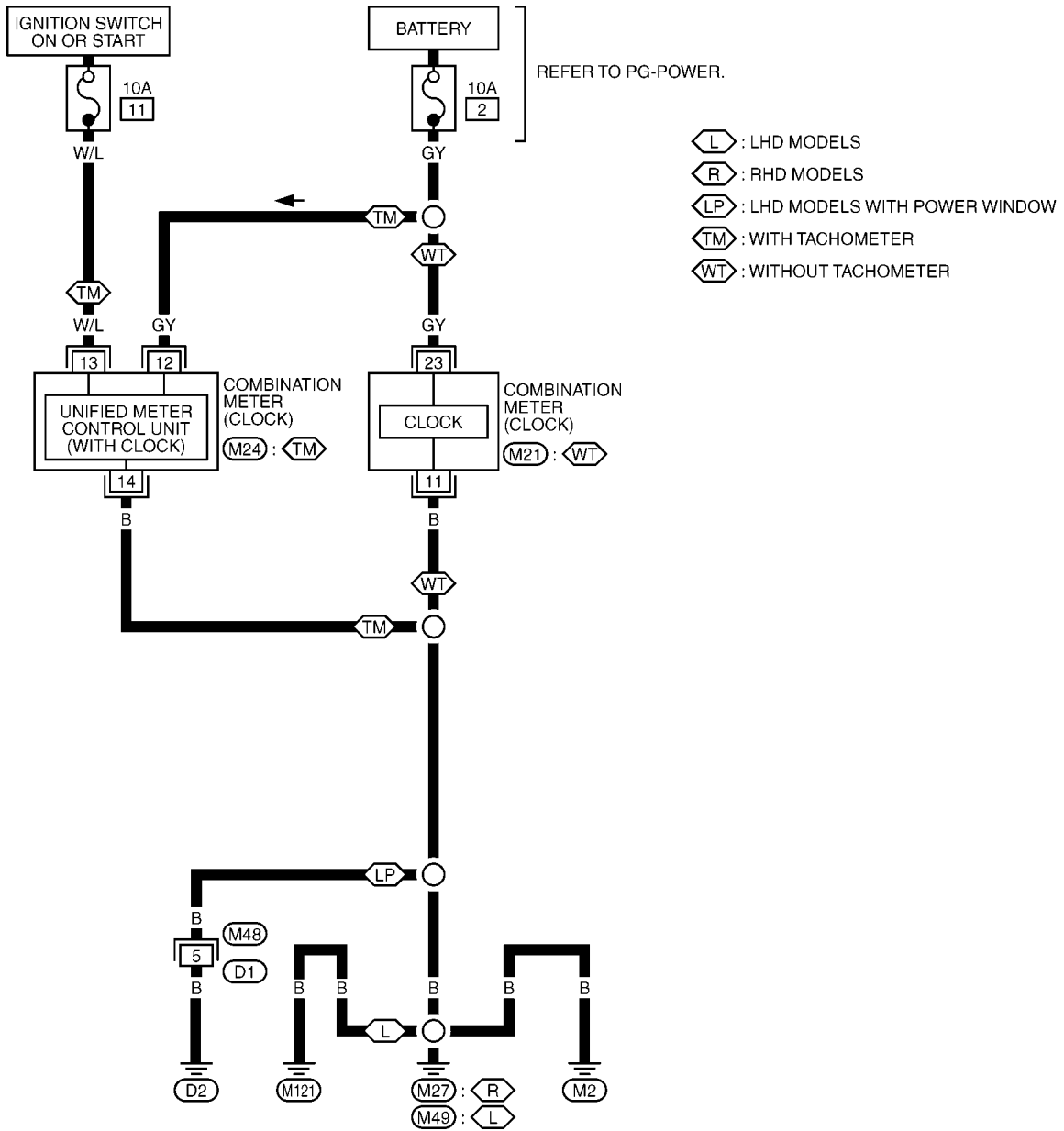
CLOCK


PFP:25820

Wiring Diagram — CLOCK —

EKS002W9

DI-CLOCK-01




1	2	3	4	5	6			7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22	23	24

M21

W

(M21)
W

11	10	9	8	7	6			5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13	12

(M24)
BR

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

M48

W

(M48)
W