

ENGINE CONTROL SYSTEM

SECTION EC

MODIFICATION NOTICE:

Gasoline engine

- Wiring Diagrams for KA24DE engine models have been changed.

Diesel engine

- YD25DDTi engine models have been added for Middle East. For specifications other than those described here, refer to YD25DDTi engine of Supplement-VI 1st Revision Volume 1 (SM1E-1D22FG1).
- Wiring Diagrams for YD25DDTi (except for Middle East), ZD30DDT, TD27 and QD32 engine models have been changed.

CONTENTS

KA24DE

TROUBLE DIAGNOSIS FOR NON-DETECTABLE

ITEMS.....	3
Vehicle Speed Sensor (VSS)	3
MIL & Data Link Connectors	5

QD & TD

QUICK-GLOW SYSTEM.....	9
Wiring Diagram	9

YD25DDTi

ENGINE AND EMISSION CONTROL OVERALL SYSTEM.....	20
Circuit Diagram	20
TROUBLE DIAGNOSIS FOR POWER SUPPLY	21
Main Power Supply and Ground Circuit.....	21
DTC 0104 VEHICLE SPEED SEN	28
Wiring Diagram	28
DTC 0208 OVER HEAT (FOR MIDDLE EAST).....	30
Description	30
CONSULT-II Reference Value in Data Monitor Mode	30
ECM Terminals and Reference Value	31
On Board Diagnosis Logic.....	31
Overall Function Check	32
Wiring Diagram	33
Diagnostic Procedure	34
Main 12 Causes of Overheating.....	44

DTC 0402 P9-FUEL TEMP SEN	45
Wiring Diagram	45
DTC 0403 ACCEL POS SENSOR	46
Wiring Diagram	46
DTC 0701 P1-CAM POS SEN	48
Wiring Diagram	48
DTC 0702 P2-TDC PULSE SIG	49
Wiring Diagram	49
DTC 0703 P3-PUMP COMM LINE	50
Wiring Diagram	50
DTC 0704 P4-SPILL/V CIRC, DTC 0706 P6-SPILL VALVE	51
Wiring Diagram	51
DTC 0707 P7-F/INJ TIMG FB	52
Wiring Diagram	52
DTC 0902 ECM RLY	53
Wiring Diagram	53
Diagnostic Procedure	54
DTC 1004 FUEL CUT SYSTEM1	56
Wiring Diagram	56
GLOW CONTROL SYSTEM	57
Wiring Diagram	57
PARK/NEUTRAL POSITION (PNP) SWITCH	58
Wiring Diagram	58
Diagnostic Procedure	59
HEAT UP SWITCH	62
Wiring Diagram	62
MIL & DATA LINK CONNECTORS	63
Wiring Diagram	63

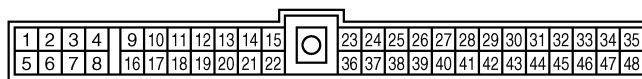
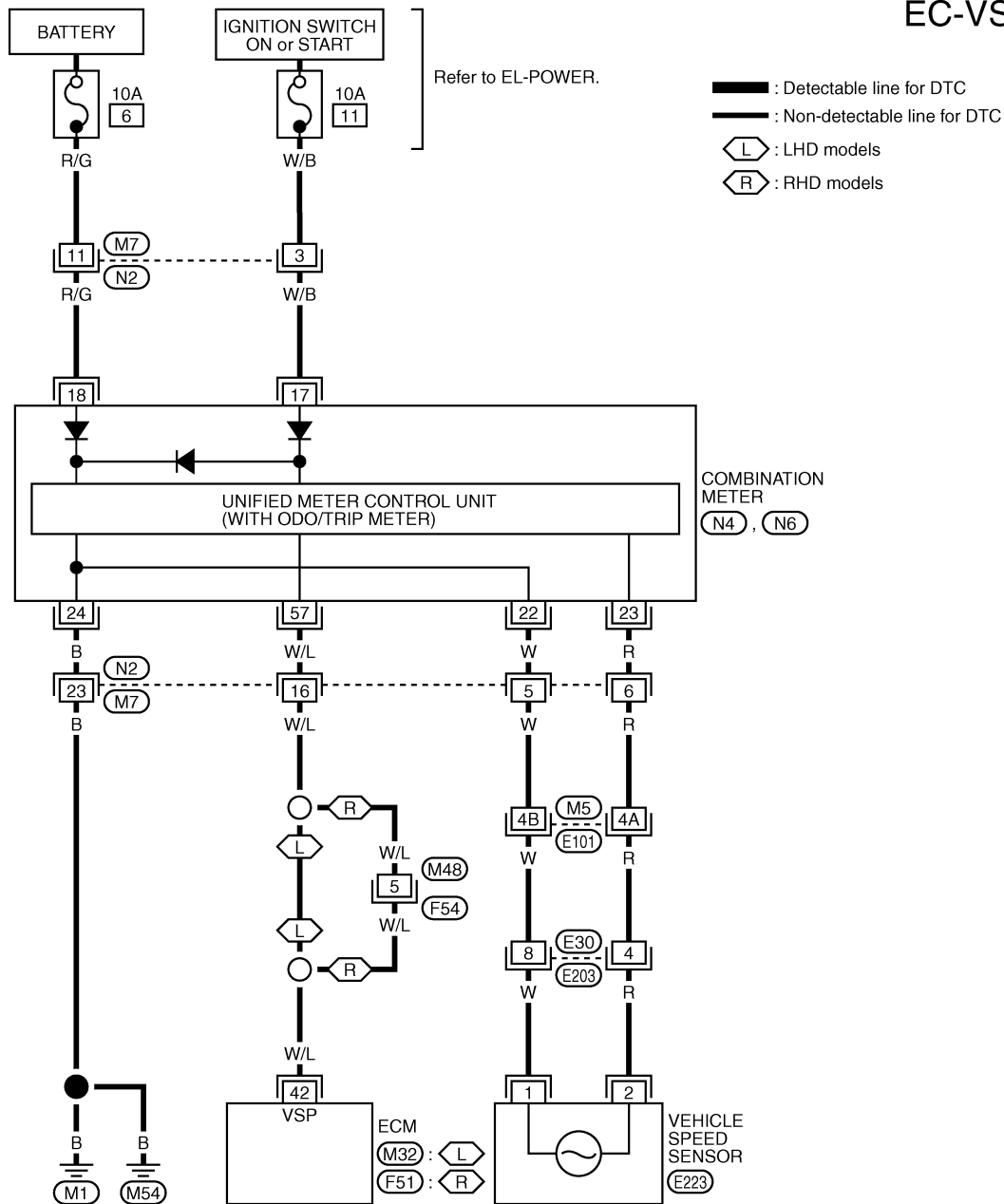
CONTENTS (Cont'd)

<div></div>	ZD30DDT	<div></div>	GLOW CONTROL SYSTEM	70
			Wiring Diagram	70
ENGINE AND EMISSION CONTROL OVERALL			HEAT UP SWITCH	71
SYSTEM			Wiring Diagram	71
Circuit Diagram			MIL & DATA LINK CONNECTORS	72
DTC 0104 VEHICLE SPEED SEN			Wiring Diagram	72
Wiring Diagram				

Vehicle Speed Sensor (VSS)

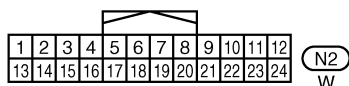
MODELS WITH TACHOMETER

EC-VSS-01

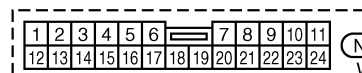

 M32 : L
 F51 : R


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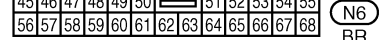
M5, E101



N2 : W



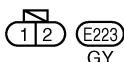
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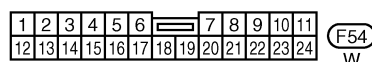
N6 : BR



E203 : GY



E223 : GY

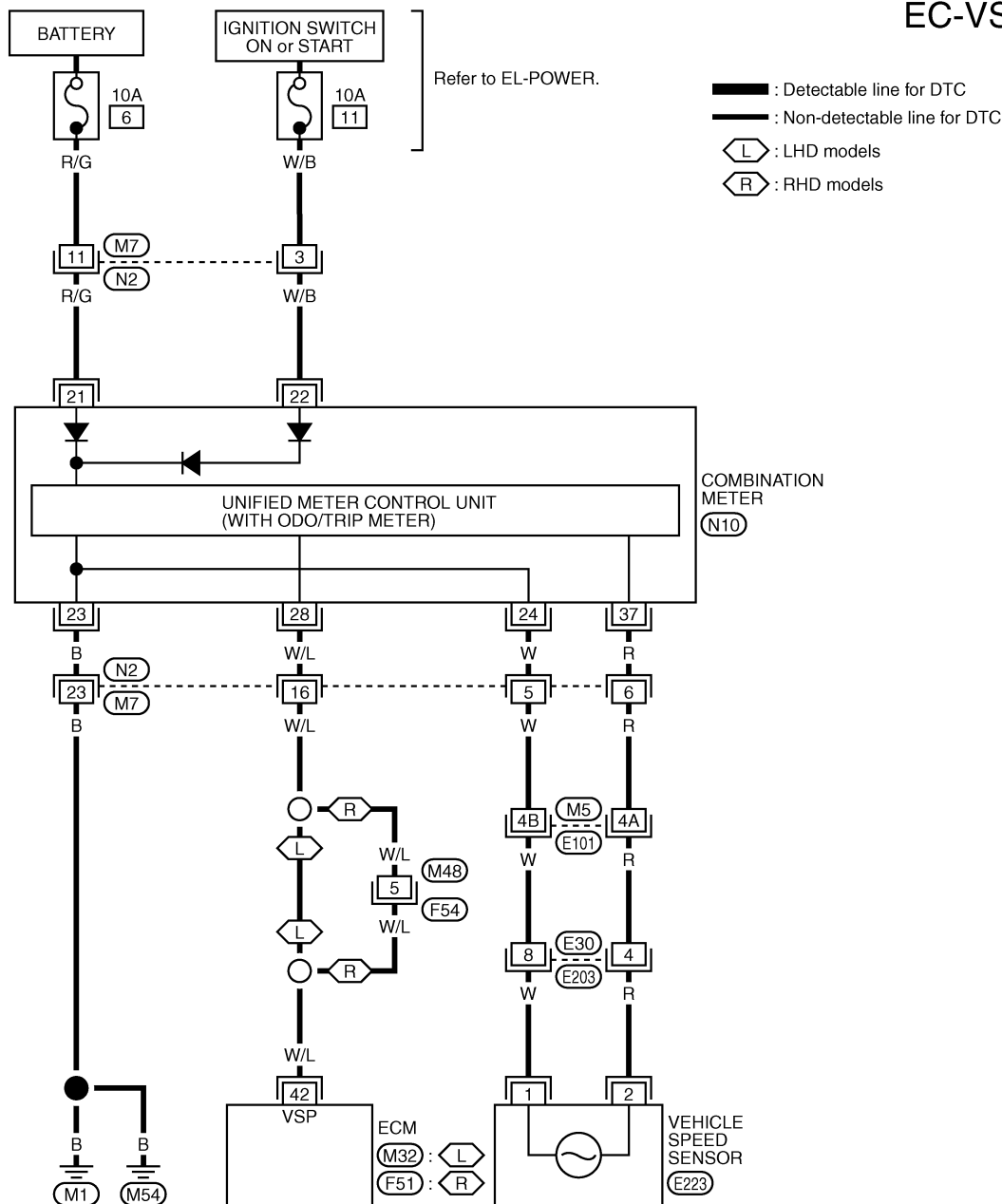


F54 : W

Vehicle Speed Sensor (VSS) (Cont'd)

MODELS WITHOUT TACHOMETER

EC-VSS-02



1	2	3	4	9	10	11	12	13	14	15	23	24	25	26	27	28	29	30	31	32	33	34	35
5	6	7	8	16	17	18	19	20	21	22	36	37	38	39	40	41	42	43	44	45	46	47	48

(M32), (F51)
W W



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(M5), (E101)

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

(N2)
W

21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38

(N10)
BR

1	2	3	4
5	6	7	8

(E203)
GY

1	2
---	---

(E223)
GY

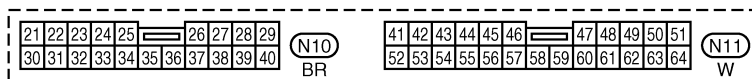
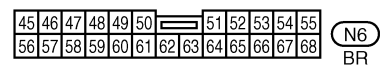
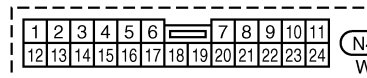
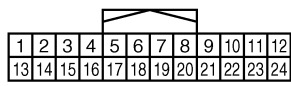
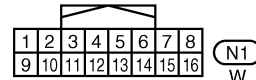
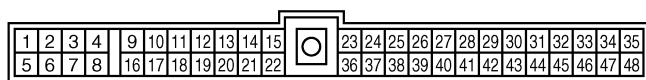
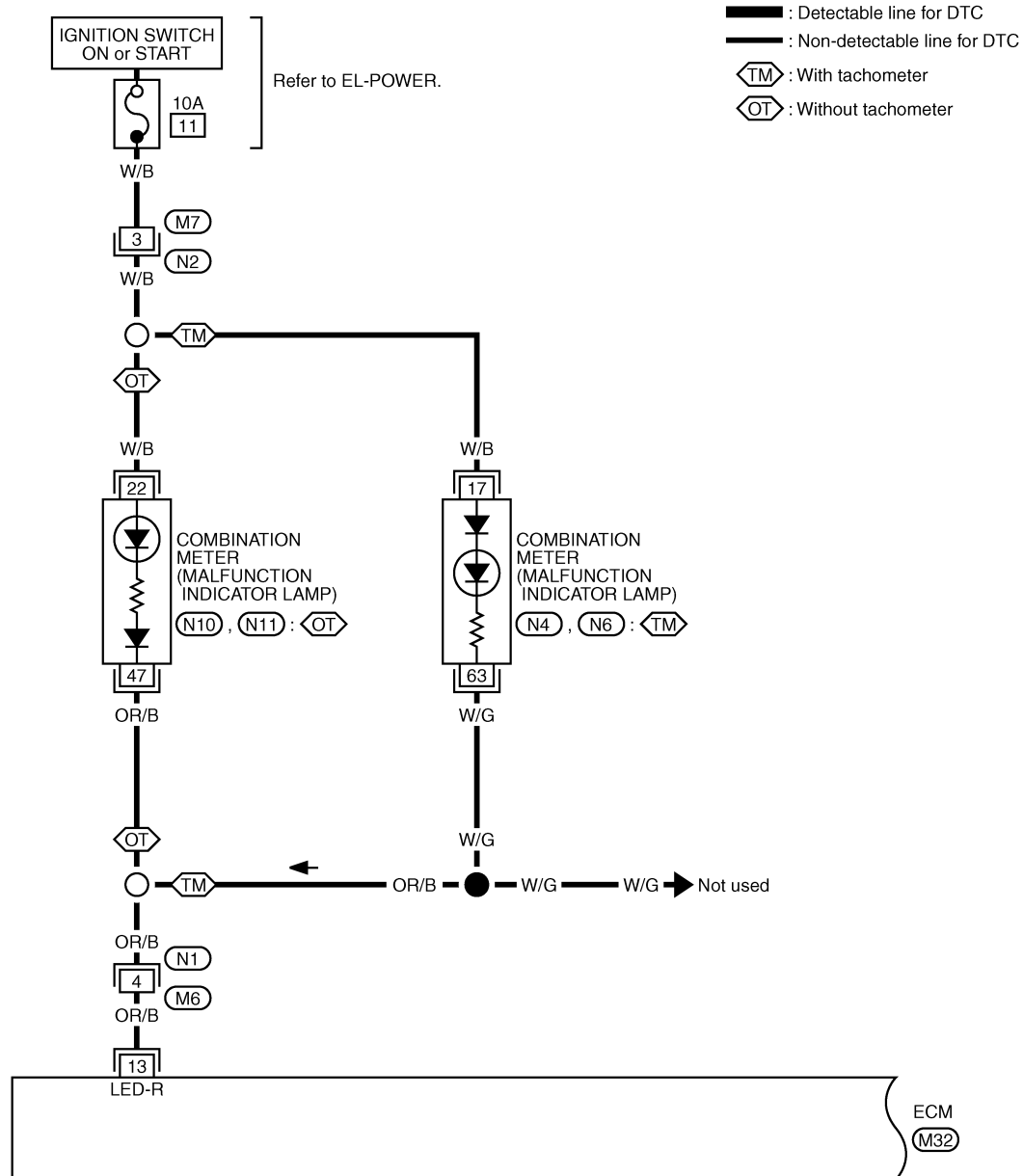
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12	13	14	15	16	17	18	19	20	21	22

(F54)
W

MIL & Data Link Connectors

LHD MODELS

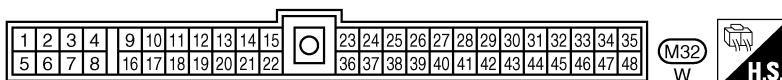
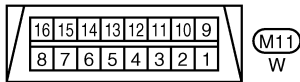
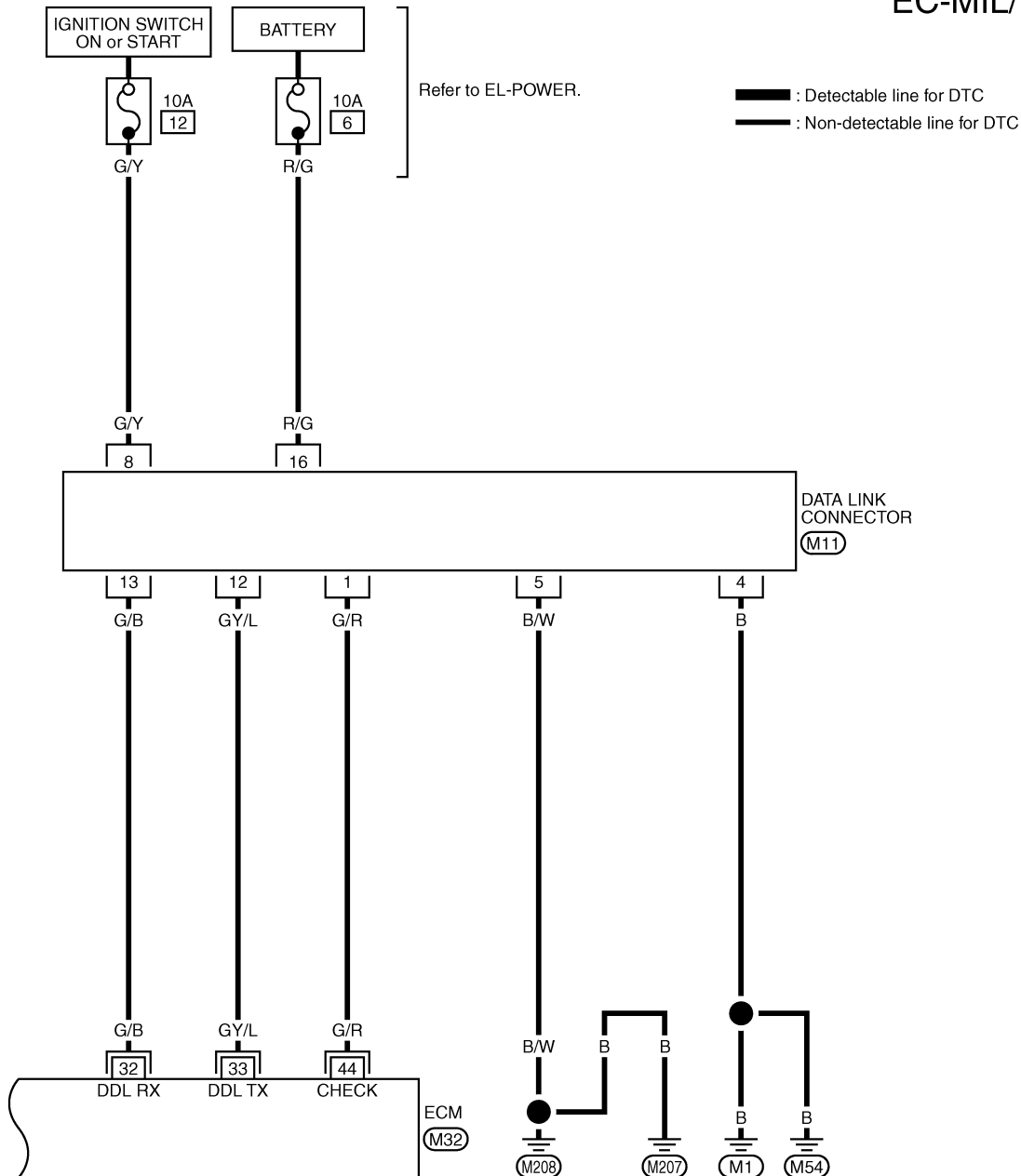
EC-MIL/DL-01



MIL & Data Link Connectors (Cont'd)

LHD MODELS

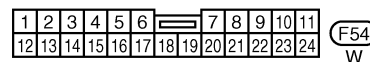
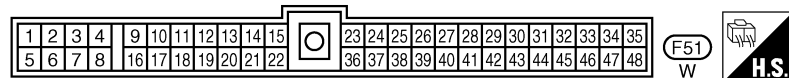
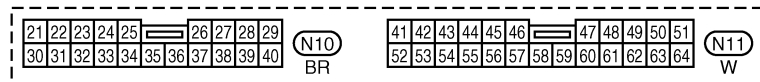
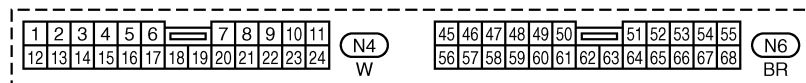
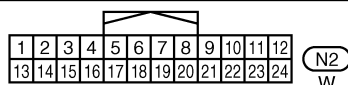
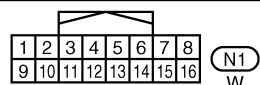
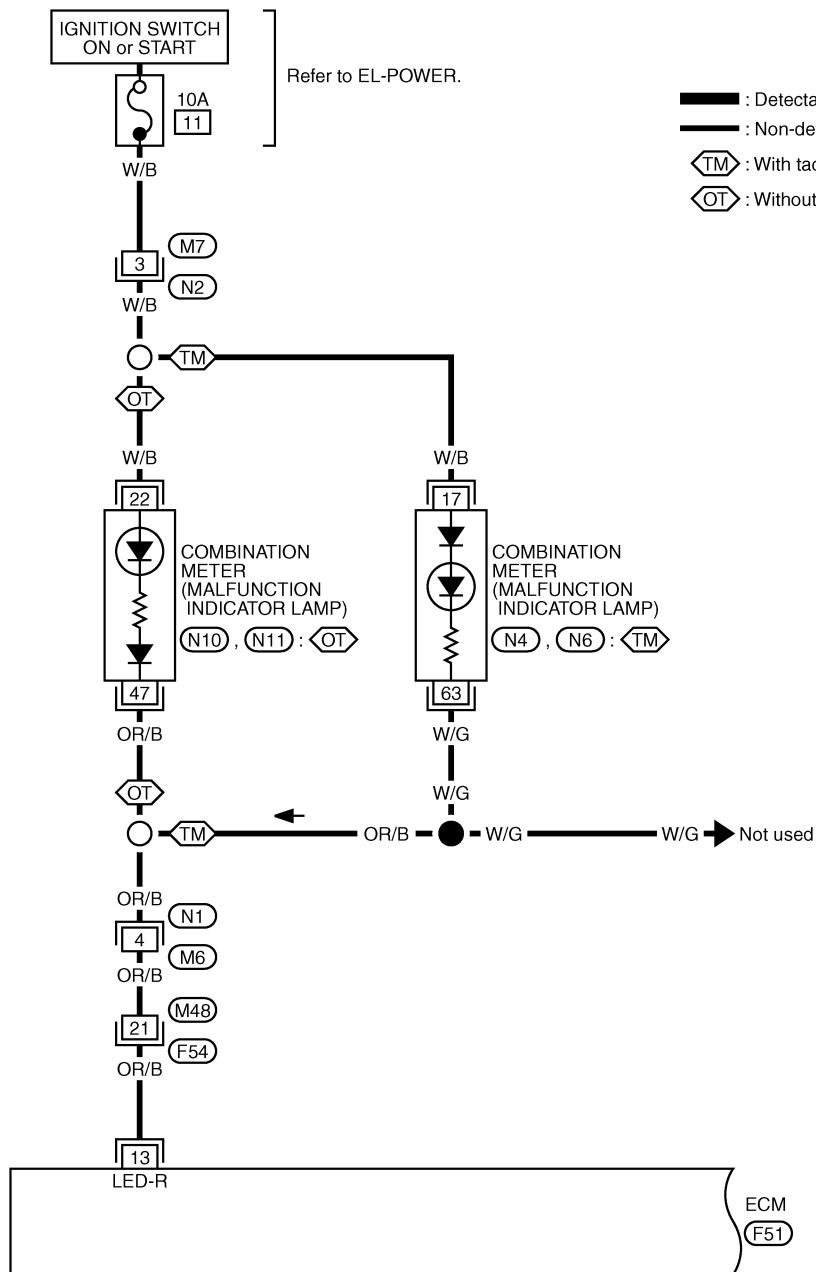
EC-MIL/DL-02



MIL & Data Link Connectors (Cont'd)

RHD MODELS

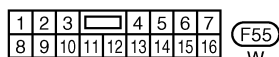
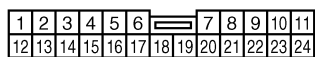
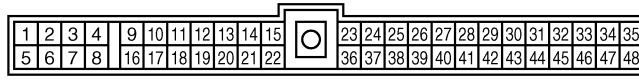
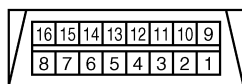
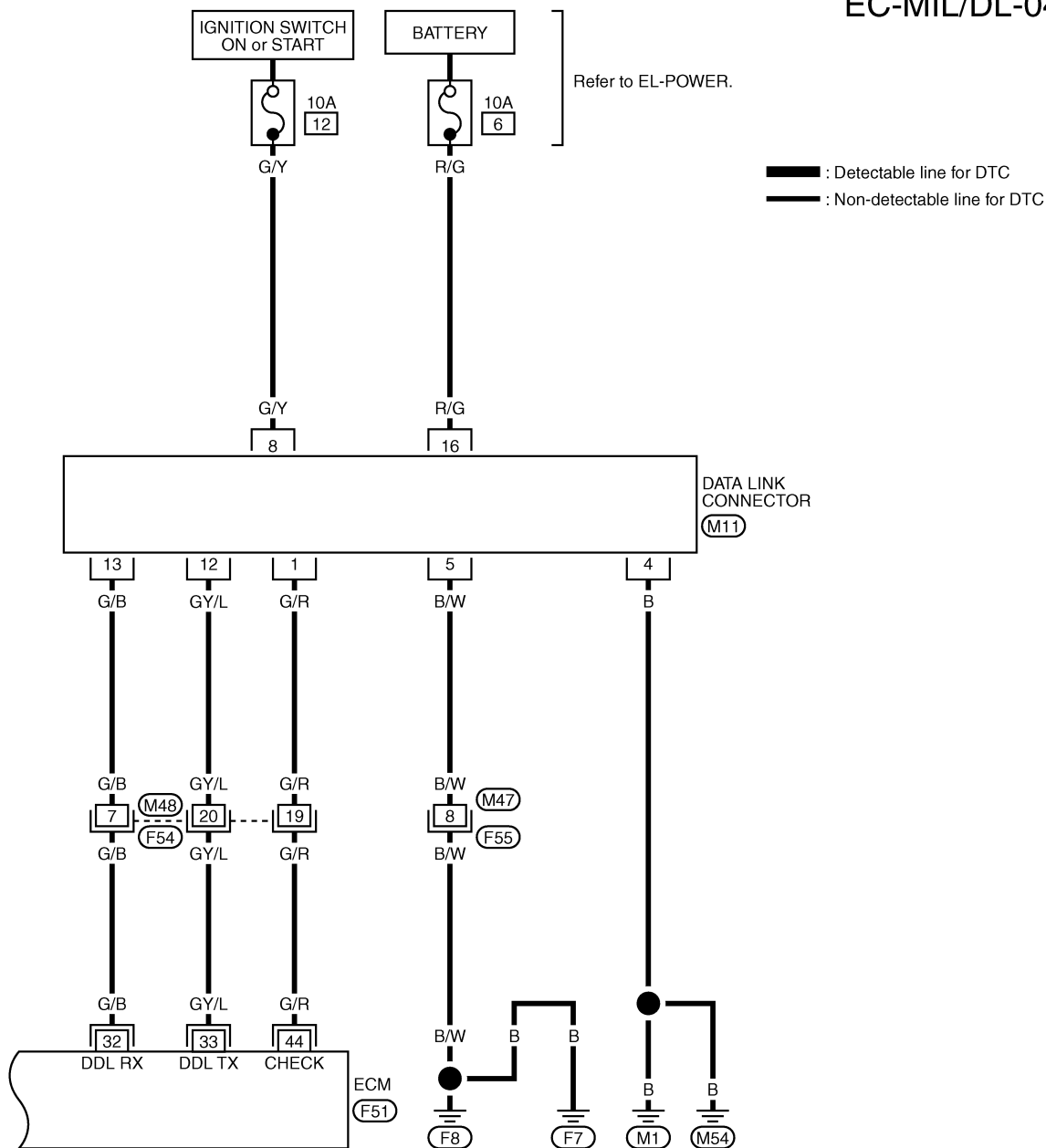
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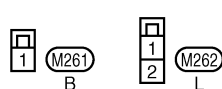
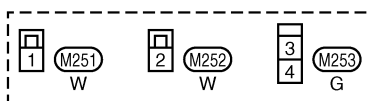
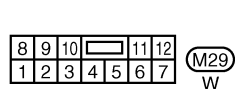
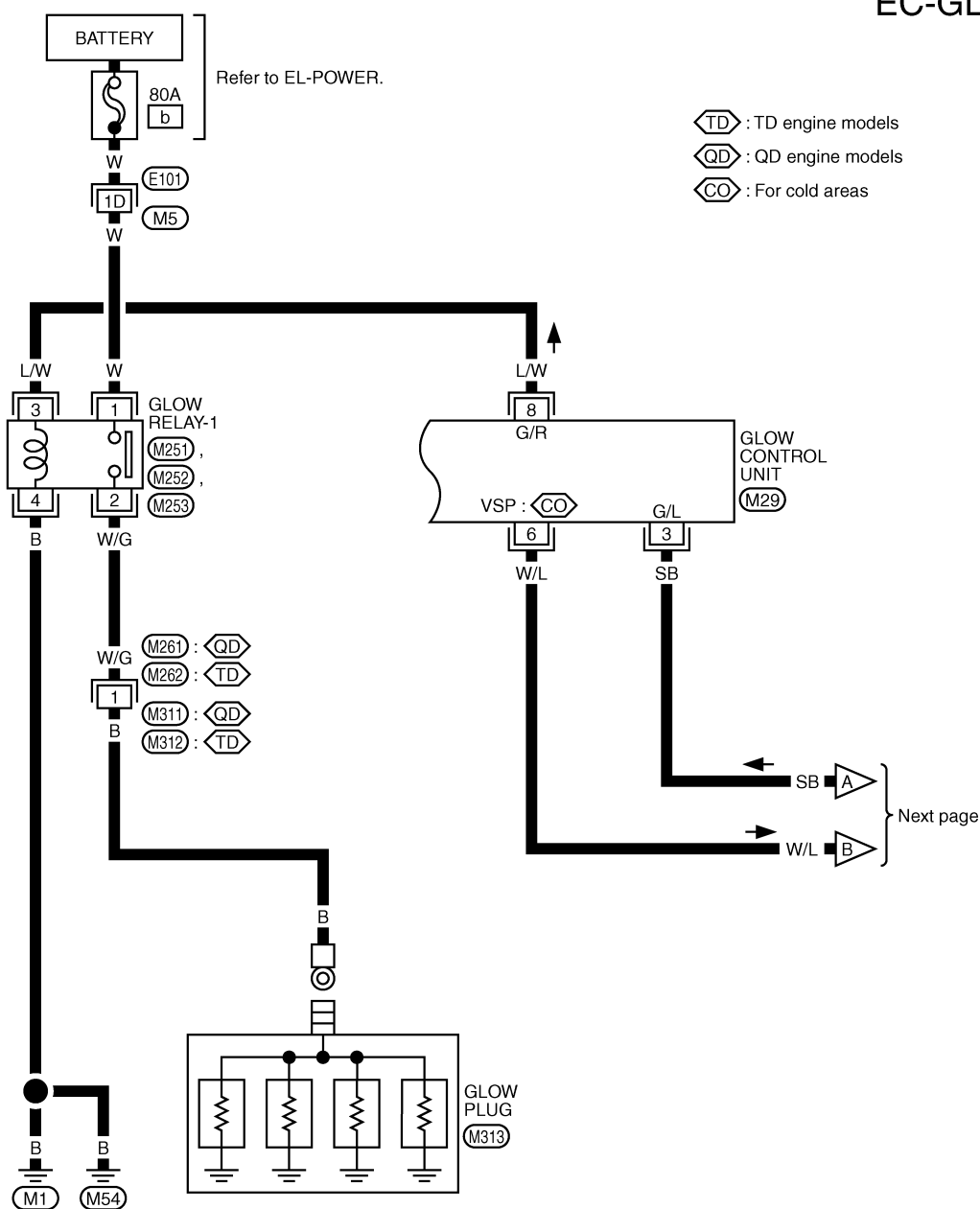
MIL & Data Link Connectors (Cont'd)

RHD MODELS

EC-MIL/DL-04



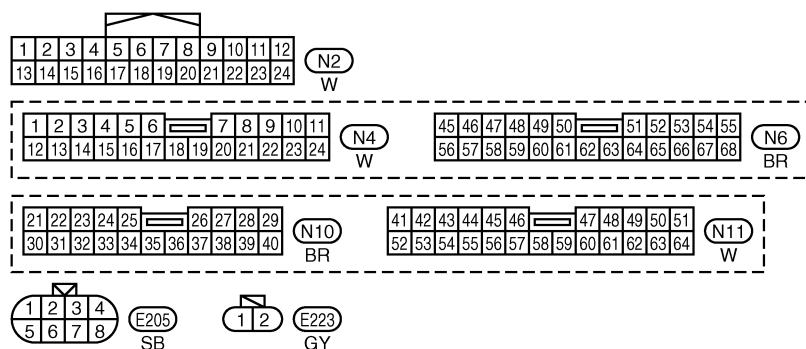
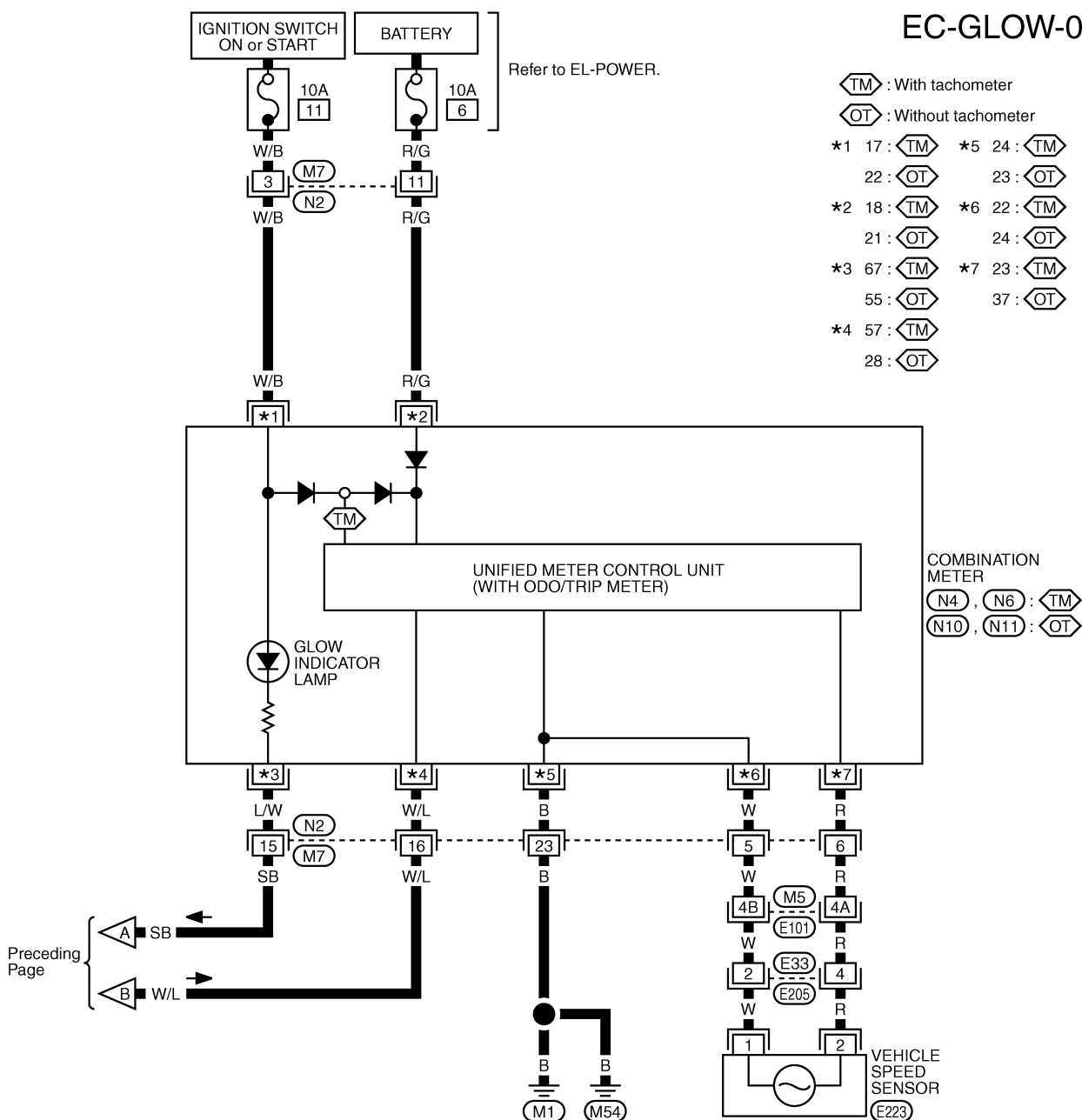
EC-GLOW-02



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M5, E101

Wiring Diagram (Cont'd)

EC-GLOW-03



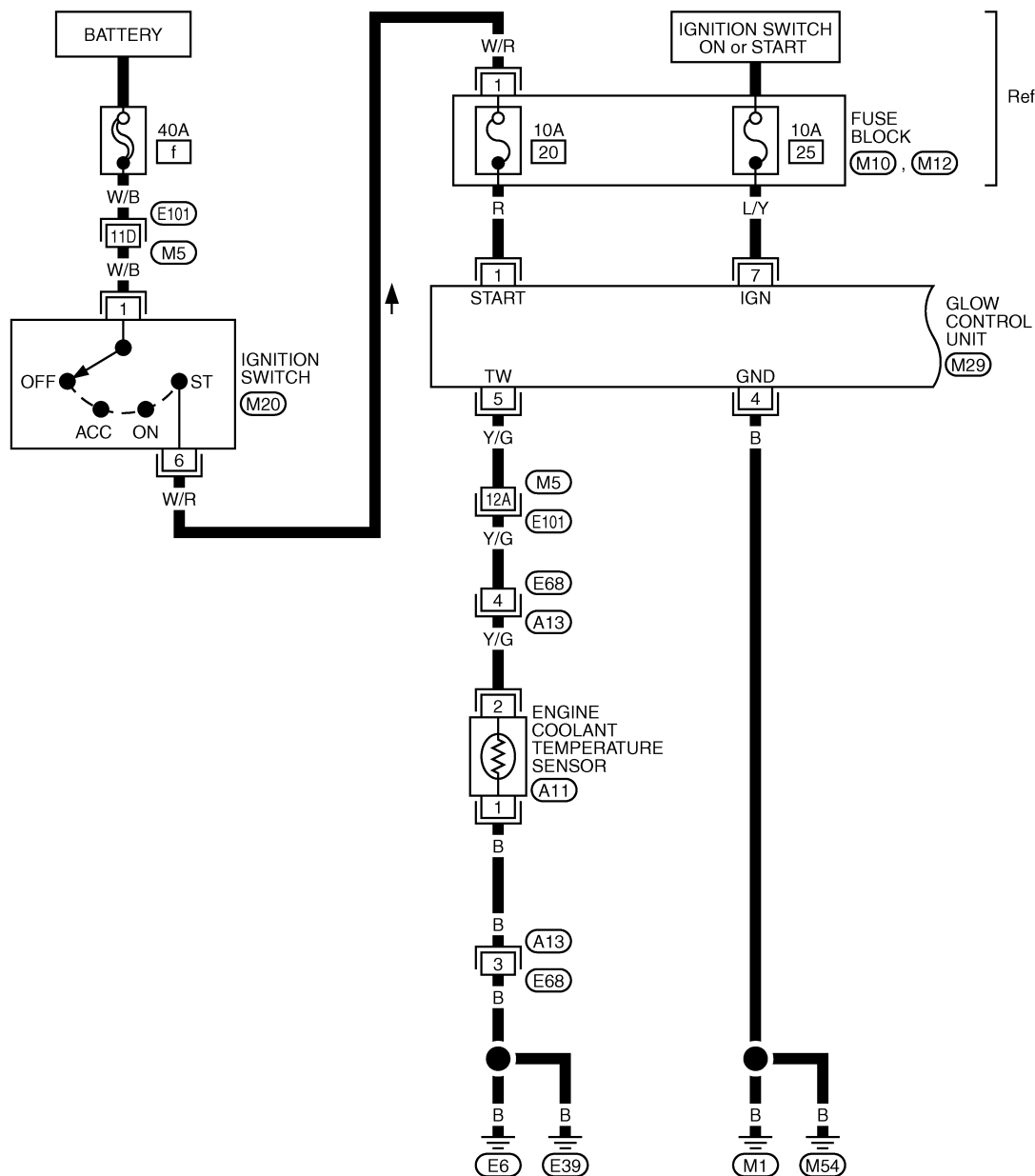
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(M5, E101)

Wiring Diagram (Cont'd)

RHD MODELS WITH TD27 ENGINE (WITHOUT EGR) AND QD32 ENGINE

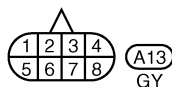
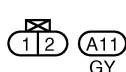
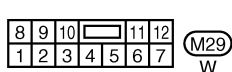
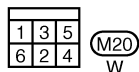
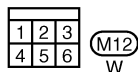
EC-GLOW-04



Refer to EL-POWER.

GLOW CONTROL UNIT (M29)

ENGINE COOLANT TEMPERATURE SENSOR (A11)



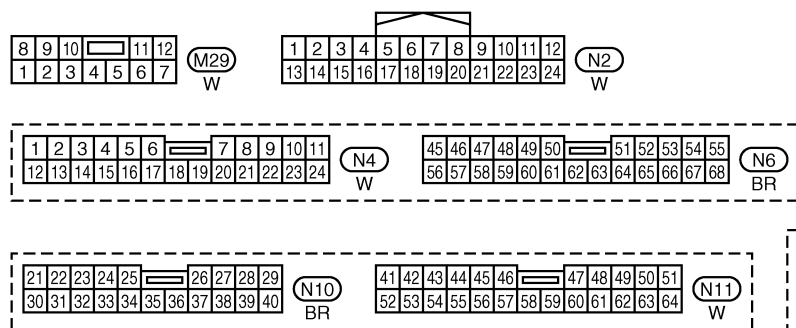
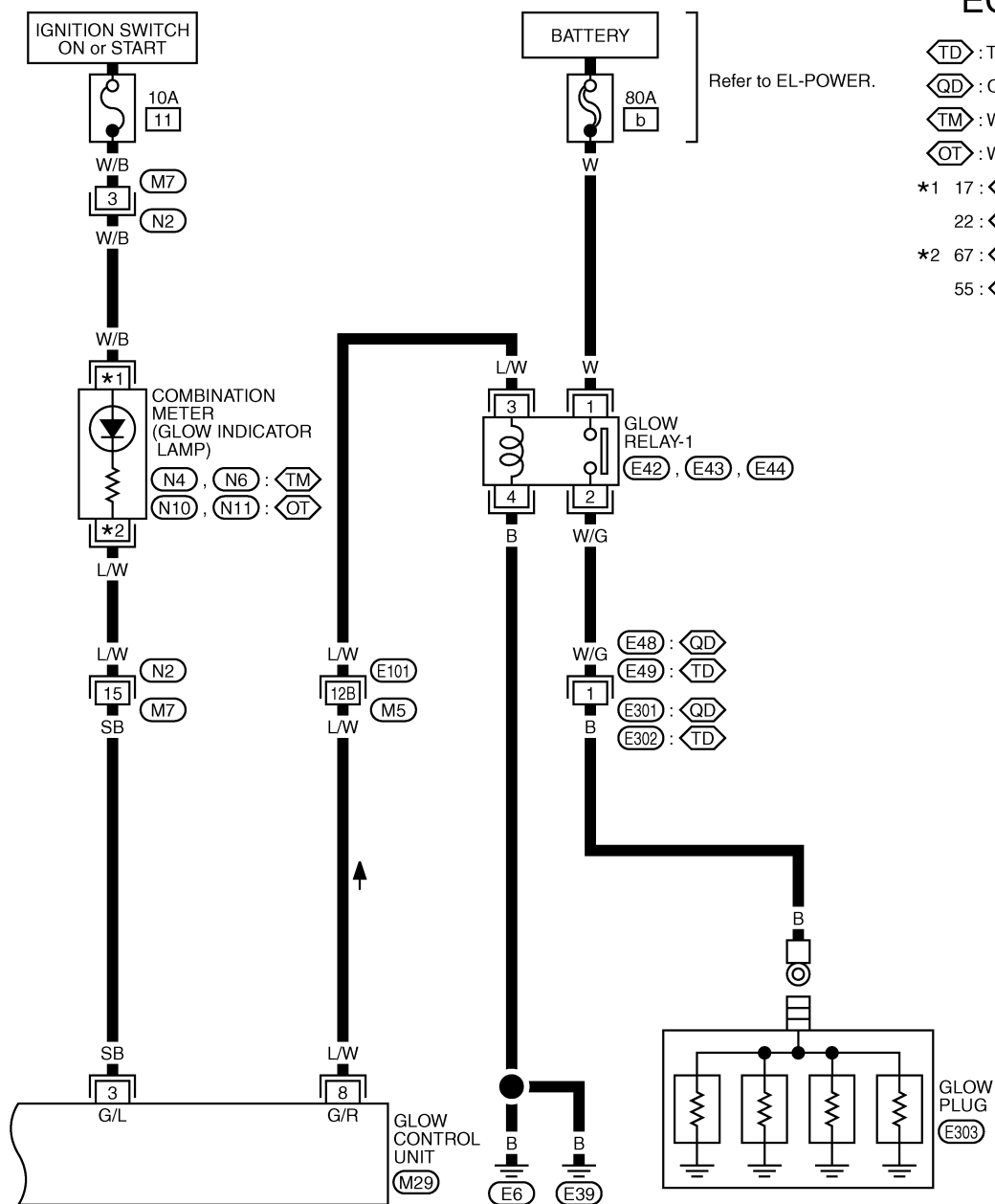
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(M5), (E101)

(M10)

Wiring Diagram (Cont'd)

EC-GLOW-05



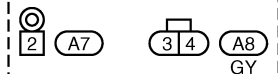
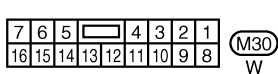
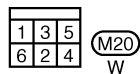
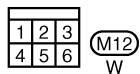
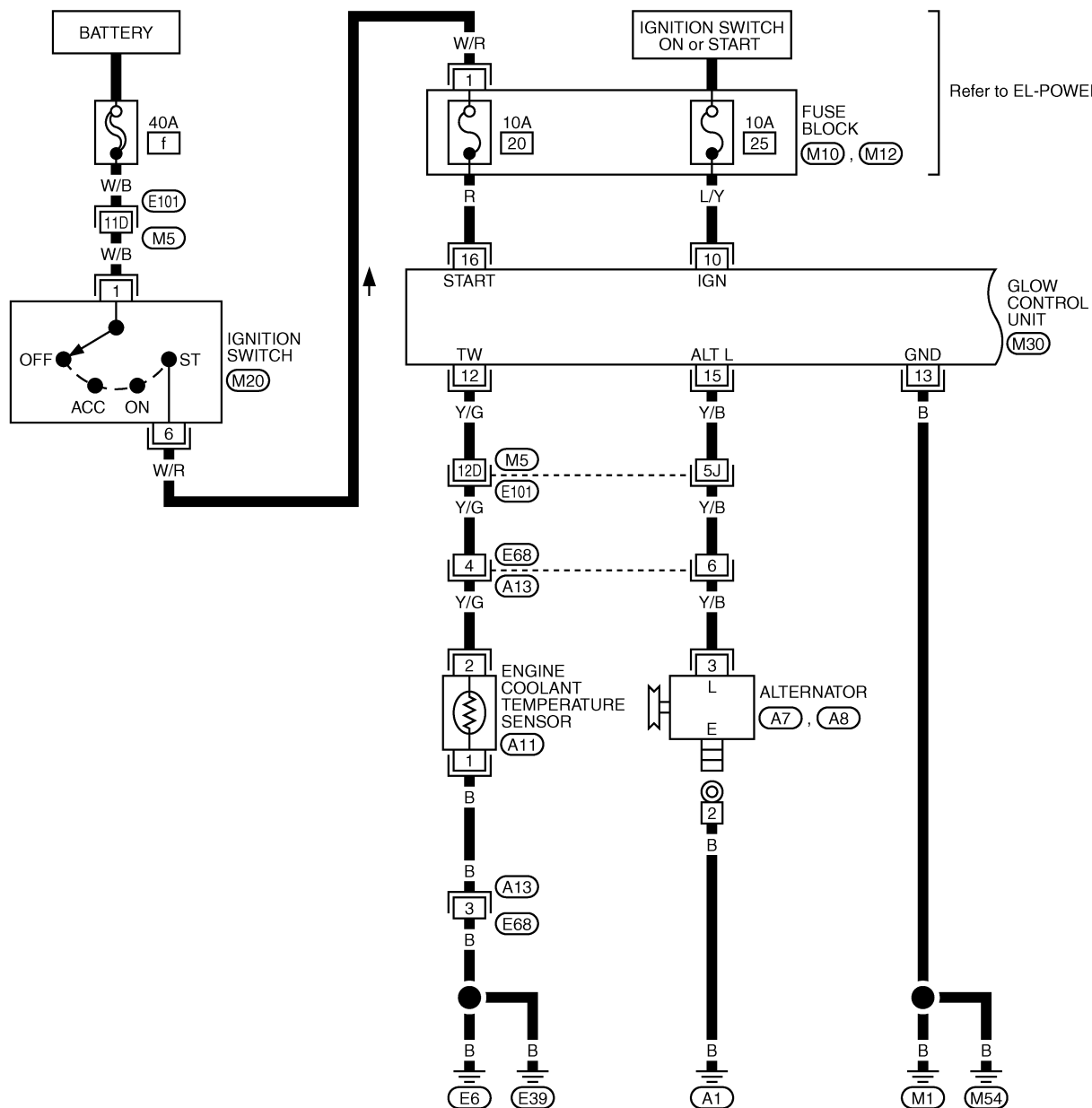
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(M5, E101)

Wiring Diagram (Cont'd)

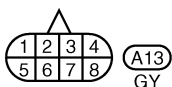
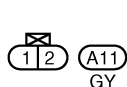
LHD MODELS WITH TD27 ENGINE FOR COLD AREAS

EC-GLOW-06



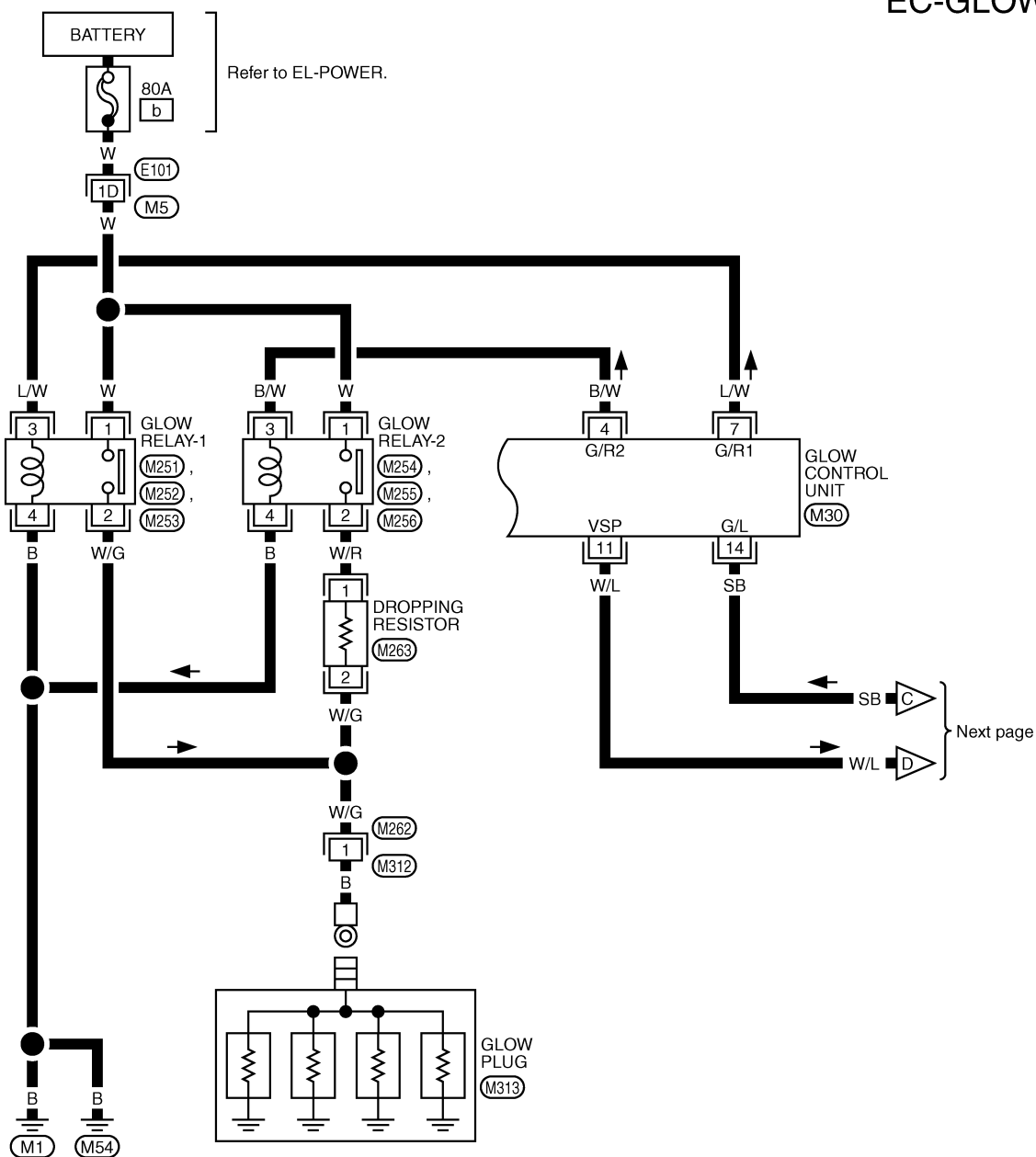
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(M5), (E101)
(M10)



Wiring Diagram (Cont'd)



EC-GLOW-07



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

M30

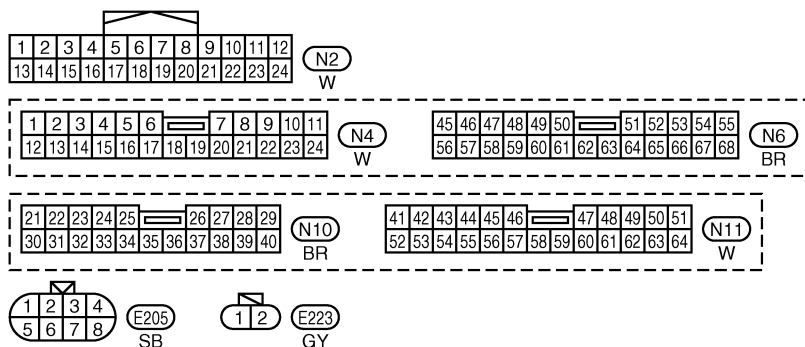
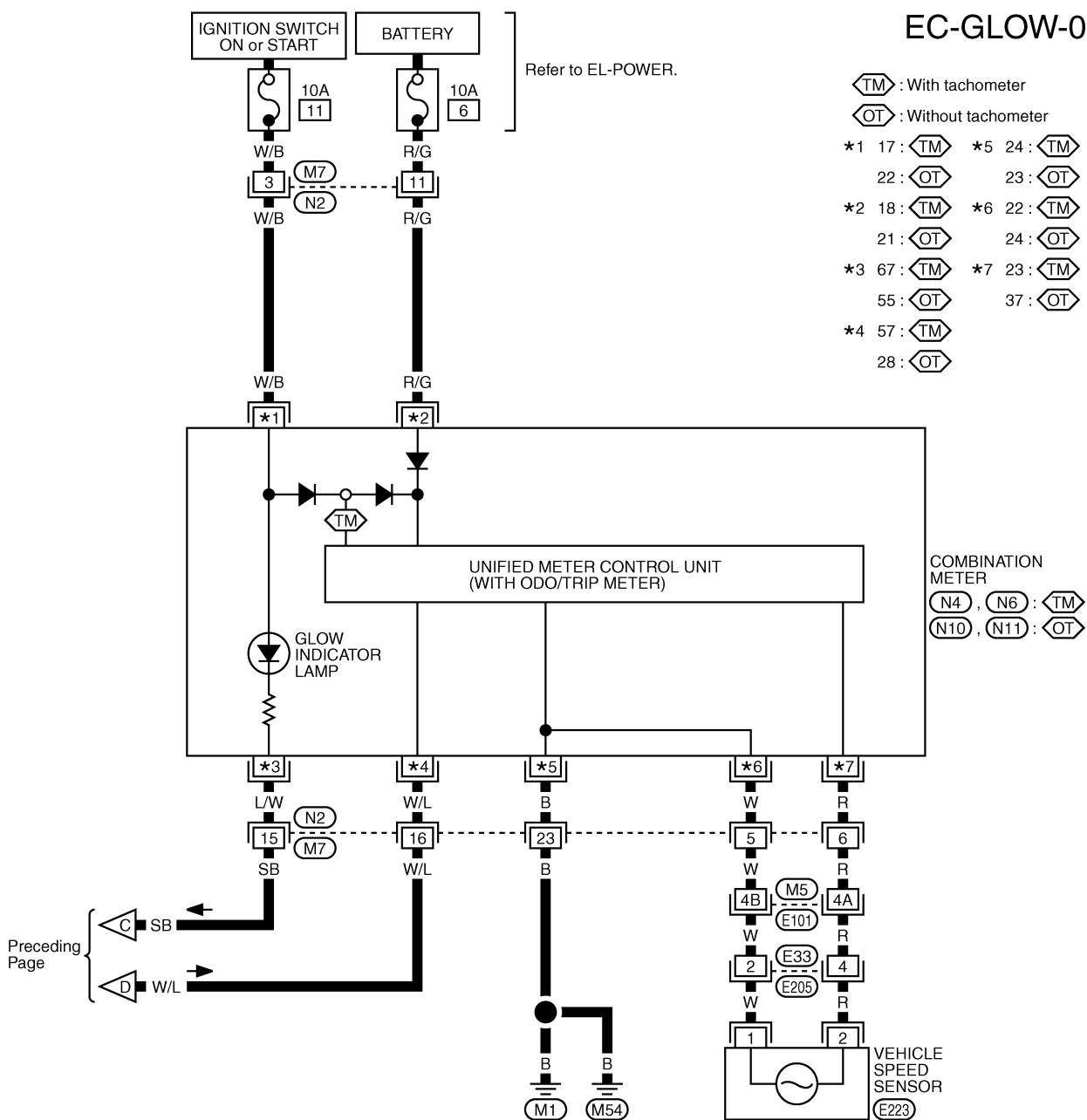
W

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 (M5), (E101)

Wiring Diagram (Cont'd)

EC-GLOW-08



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M5, E101

Wiring Diagram (Cont'd)

TD27 ENGINE MODELS WITH EGR

EC-GLOW-09

GI

MA

EM

LC

EC

FE

CL

MT

AT

TF

PD

FA

RA

BR

ST

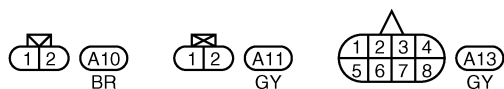
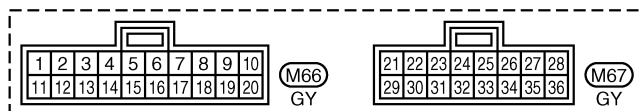
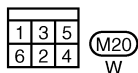
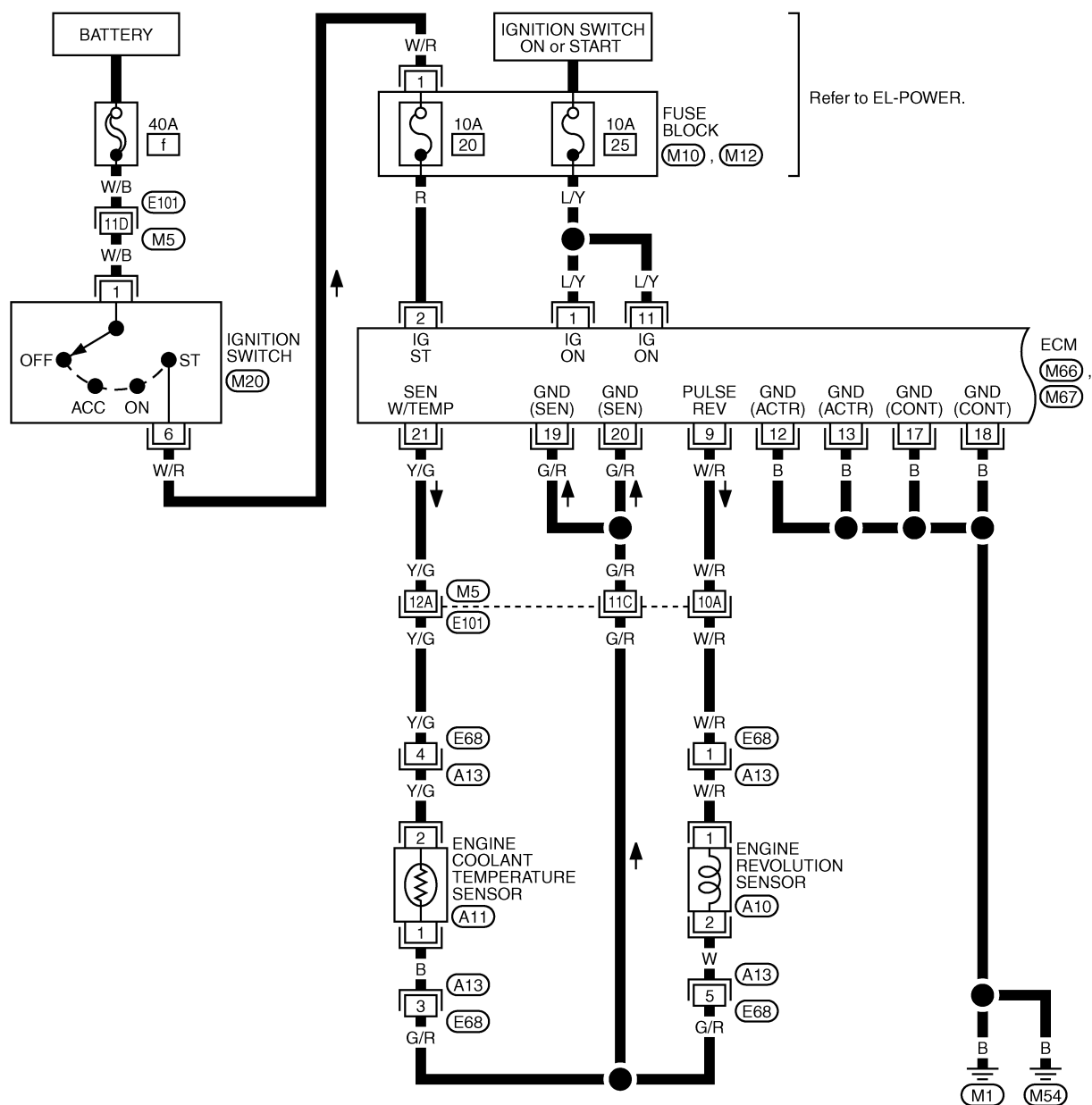
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BT

HA

EL

IDX

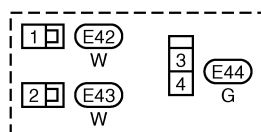
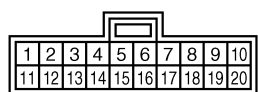
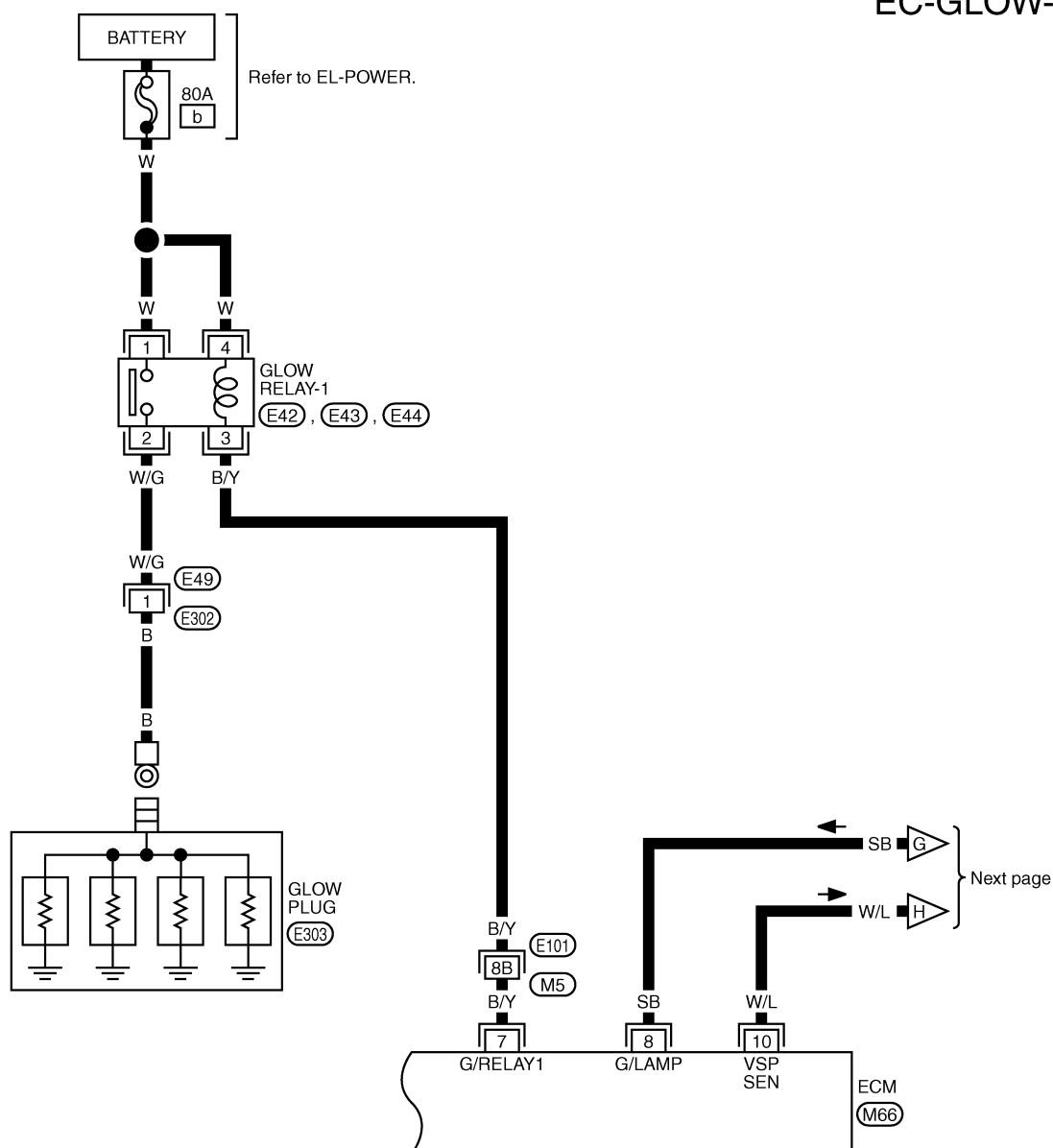


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M5, E101

M10

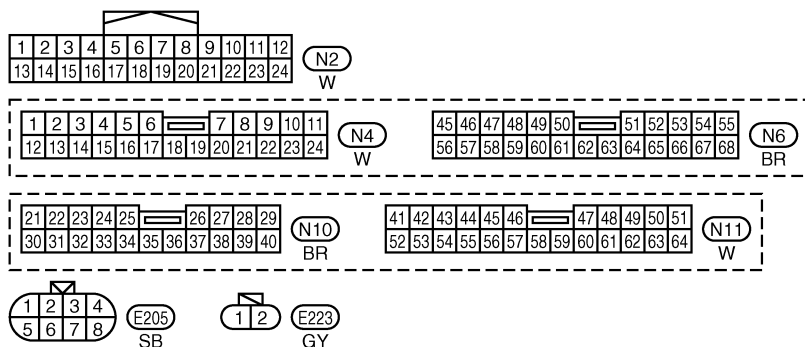
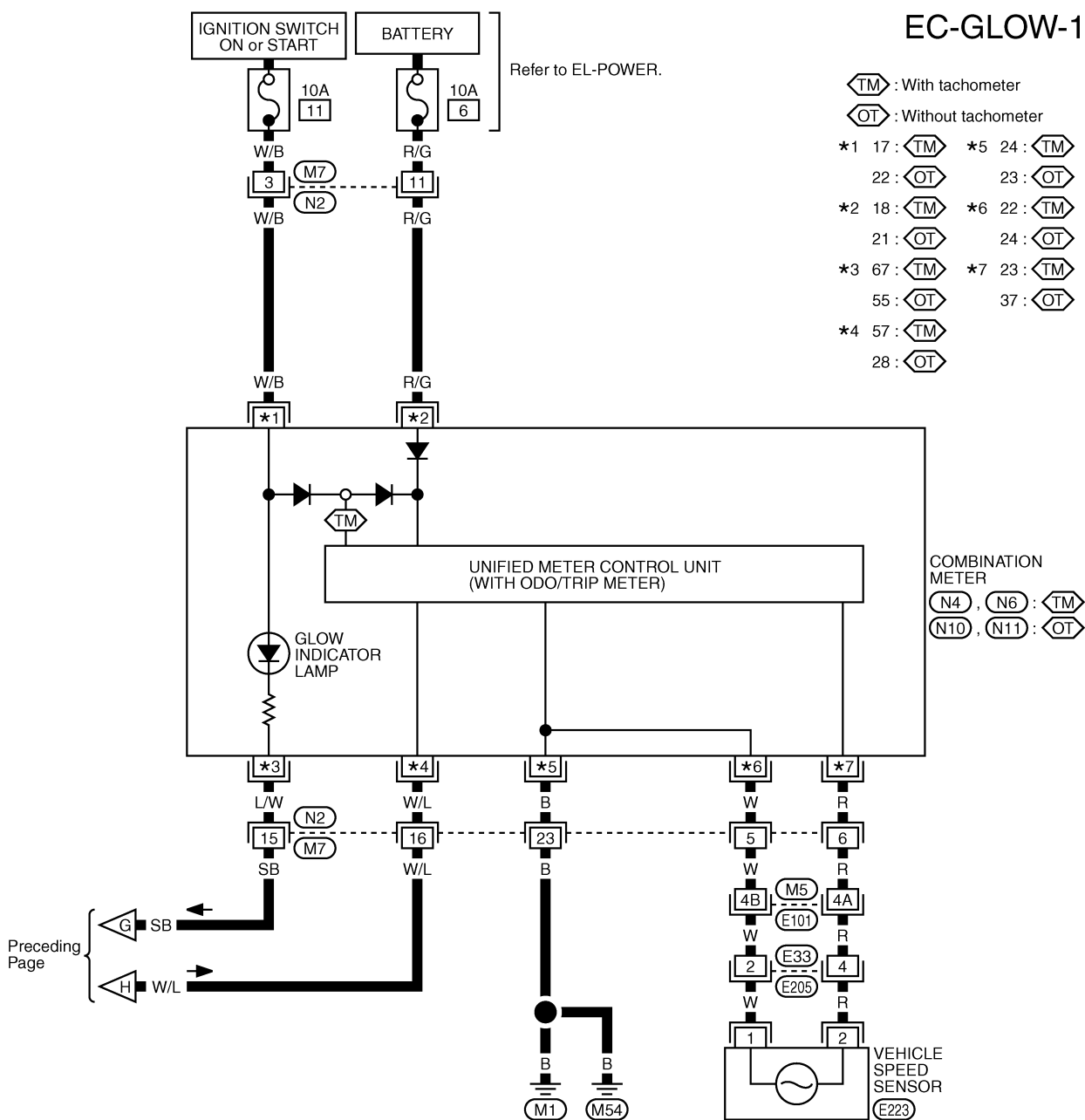
EC-GLOW-10



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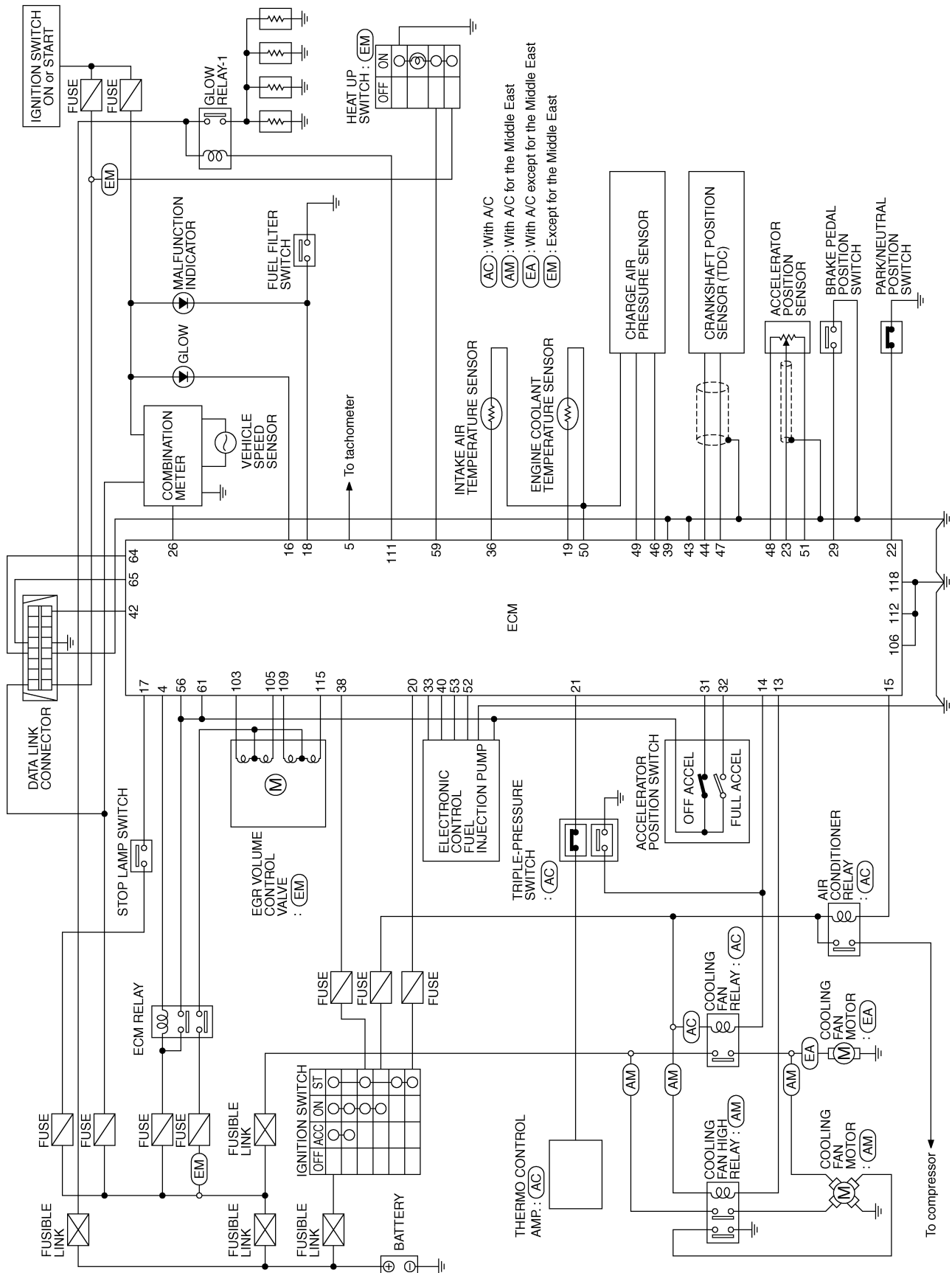
M5, E101

EC-GLOW-11



(M5), (E101)

Circuit Diagram

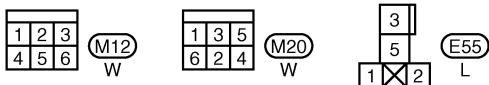
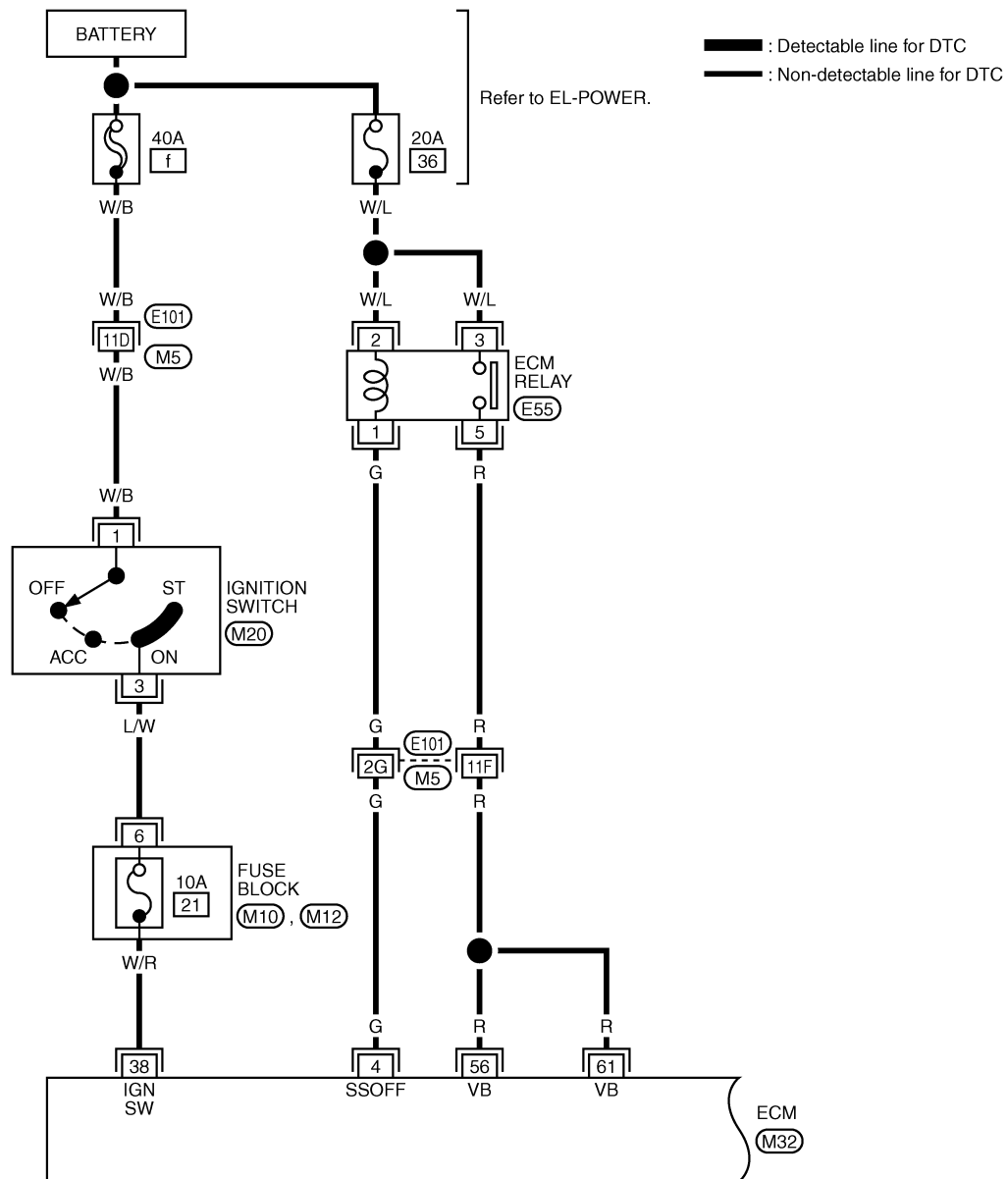


GEC562A

Main Power Supply and Ground Circuit

WIRING DIAGRAM - MODELS FOR MIDDLE EAST

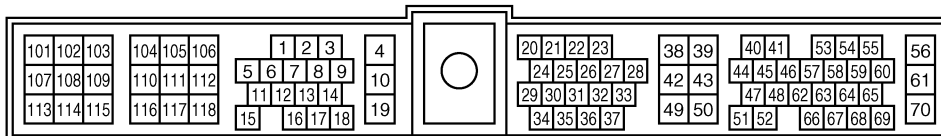
EC-MAIN-01



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M5, E101

M10



M32

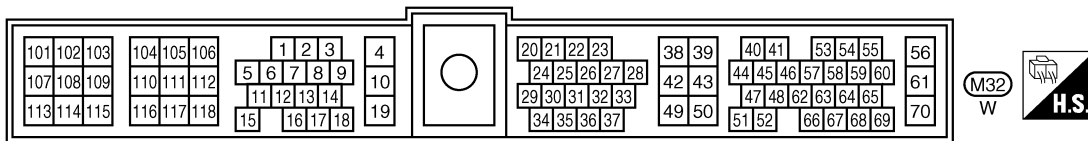
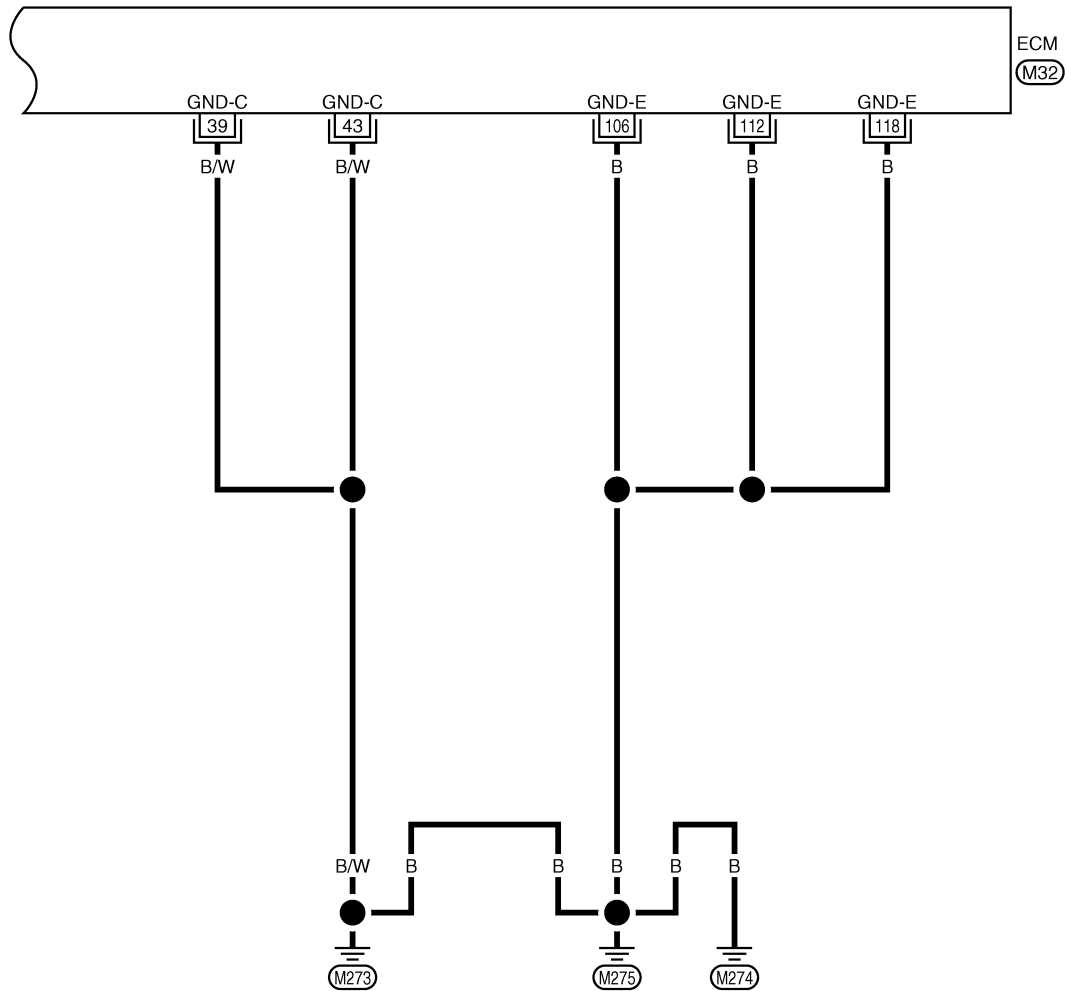
W



Main Power Supply and Ground Circuit
(Cont'd)

EC-MAIN-02

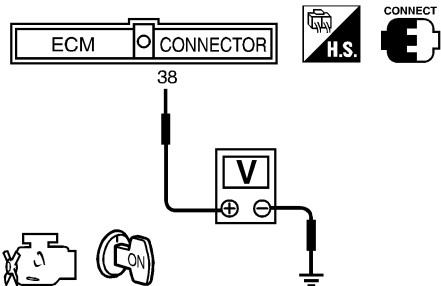
— : Detectable line for DTC
 — : Non-detectable line for DTC



Main Power Supply and Ground Circuit (Cont'd)

DIAGNOSTIC PROCEDURE - MODELS FOR MIDDLE EAST

1	INSPECTION START
Start engine. Is engine running?	
Yes or No	
Yes	▶ GO TO 7.
No	▶ GO TO 2.

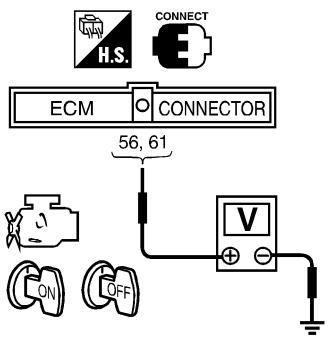
2	CHECK ECM POWER SUPPLY CIRCUIT-I
1. Turn ignition switch "ON". 2. Check voltage between ECM terminal 38 and ground with CONSULT-II or tester.	
<div style="text-align: center;">  <p style="text-align: right;">Voltage: Battery voltage</p> <p style="text-align: right;">SEF397Y</p> <p style="text-align: center;">OK or NG</p> </div>	
OK	▶ GO TO 4.
NG	▶ GO TO 3.

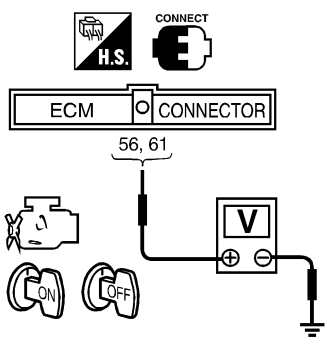
3	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> ● Fuse block (J/B) connector M10, M12 ● 10A fuse ● Harness for open or short between ECM and fuse 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

4	CHECK ECM GROUND CIRCUIT FOR OPEN AND SHORT
1. Turn ignition switch "OFF". 2. Disconnect ECM harness connector. 3. Check harness continuity between ECM terminals 39, 43, 106, 112, 118 and engine ground. Refer to Wiring Diagram. Continuity should exist. 4. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 6.
NG	▶ GO TO 5.

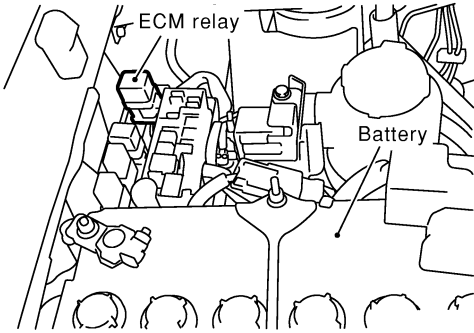
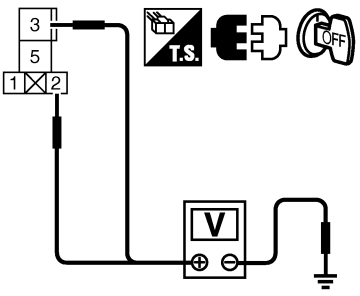
Main Power Supply and Ground Circuit (Cont'd)

5	DETECT MALFUNCTIONING PART
Check harness for open or short between ECM and engine ground	
▶	Repair open circuit or short to power in harness or connectors.

6	CHECK ECM POWER SUPPLY CIRCUIT-II
1. Reconnect ECM harness connector. 2. Turn ignition switch "ON" and then "OFF". 3. Check voltage between ECM terminals 56, 61 and ground with CONSULT-II or tester.	
<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Voltage: After turning ignition switch "OFF", battery voltage will exist for a few seconds, then drop to approximately 0V.</p> </div> </div>	
SEC949C	
OK or NG	
OK	▶ Check electronic control fuel injection pump power supply circuit. Refer to "Diagnostic Procedure", EC-653 in Service Manual (Publication No. SM1E-1D22FG1).
NG (Battery voltage does not exist.)	▶ GO TO 8.
NG (Battery voltage exists for more than a few seconds.)	▶ GO TO 10.

7	CHECK ECM POWER SUPPLY CIRCUIT-II
1. Reconnect ECM harness connector. 2. Turn ignition switch "ON" and then "OFF". 3. Check voltage between ECM terminals 56, 61 and ground with CONSULT-II or tester.	
<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Voltage: After turning ignition switch "OFF", battery voltage will exist for a few seconds, then drop to approximately 0V.</p> </div> </div>	
SEC949C	
OK or NG	
OK	▶ GO TO 15.
NG (Battery voltage does not exist.)	▶ GO TO 8.
NG (Battery voltage exists for more than a few seconds.)	▶ GO TO 10.

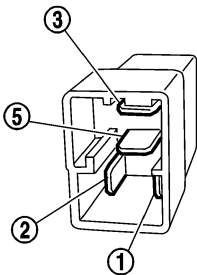
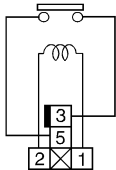
Main Power Supply and Ground Circuit (Cont'd)

8	CHECK ECM POWER SUPPLY CIRCUIT-III
<p>1. Disconnect ECM relay.</p> <div data-bbox="592 310 1063 640">  </div> <p>2. Check voltage between ECM relay terminals 2, 3 and ground with CONSULT-II or tester.</p> <div data-bbox="495 787 852 1081">  <p>Voltage: Battery voltage</p> </div> <p style="text-align: right;">SEC950C</p> <p style="text-align: right;">SEC049E</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 10.
NG	▶ GO TO 9.

9	DETECT MALFUNCTIONING PART
<p>Check the following.</p> <ul style="list-style-type: none"> ● 20A fuse ● Harness for open or short between ECM relay and fuse 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

10	CHECK OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT
<p>1. Disconnect ECM harness connector.</p> <p>2. Check harness continuity between ECM terminal 4 and ECM relay terminal 1. Refer to Wiring Diagram. Continuity should exist.</p> <p>3. Also check harness for short to ground and short to power.</p> <p style="text-align: right;">OK or NG</p>	
OK	▶ GO TO 12.
NG	▶ GO TO 11.

Main Power Supply and Ground Circuit (Cont'd)

11	DETECT MALFUNCTIONING PART						
Check the following. <ul style="list-style-type: none"> ● Harness connectors E101, M5 ● Harness for open or short between ECM and ECM relay 							
	▶ Repair open circuit or short to ground or short to power in harness or connectors.						
12	CHECK ECM POWER SUPPLY CIRCUIT-IV						
1. Check harness continuity between ECM terminals 56, 61 and ECM relay terminal 5. Refer to Wiring Diagram. Continuity should exist.							
2. Also check harness for short to ground and short to power.							
OK or NG							
OK	▶ GO TO 14.						
NG	▶ GO TO 13.						
13	DETECT MALFUNCTIONING PART						
Check the following. <ul style="list-style-type: none"> ● Harness connectors E101, M5 ● Harness for open or short between ECM and ECM relay 							
	▶ Repair open circuit or short to ground or short to power in harness or connectors.						
14	CHECK ECM RELAY						
1. Apply 12V direct current between ECM relay terminals 1 and 2. 2. Check continuity between ECM relay terminals 3 and 5.							
<div style="display: flex; align-items: center; justify-content: space-around;">   <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Conditions</th><th style="text-align: center;">Continuity</th></tr> </thead> <tbody> <tr> <td>12V direct current supply between terminals 1 and 2</td><td style="text-align: center;">Yes</td></tr> <tr> <td>No current supply</td><td style="text-align: center;">No</td></tr> </tbody> </table> </div>		Conditions	Continuity	12V direct current supply between terminals 1 and 2	Yes	No current supply	No
Conditions	Continuity						
12V direct current supply between terminals 1 and 2	Yes						
No current supply	No						
SEC340C							
OK or NG							
OK	▶ GO TO 15.						
NG	▶ Replace ECM relay.						

Main Power Supply and Ground Circuit (Cont'd)

15	CHECK ECM GROUND CIRCUIT FOR OPEN AND SHORT	
1. Check harness continuity between ECM terminals 39, 43, 106, 112, 118 and engine ground. Refer to Wiring Diagram. Continuity should exist.		
2. Also check harness for short to ground and short to power.		
OK or NG		
OK	▶	GO TO 17.
NG	▶	GO TO 16.

16	DETECT MALFUNCTIONING PART	
Check harness for open or engine ground.		
	▶	Repair open circuit or short to power in harness or connectors.

17	CHECK INTERMITTENT INCIDENT	
Refer to “TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT”, EC-561 in Service Manual (Publication No. SM1E-1D22FG1).		
	▶	INSPECTION END

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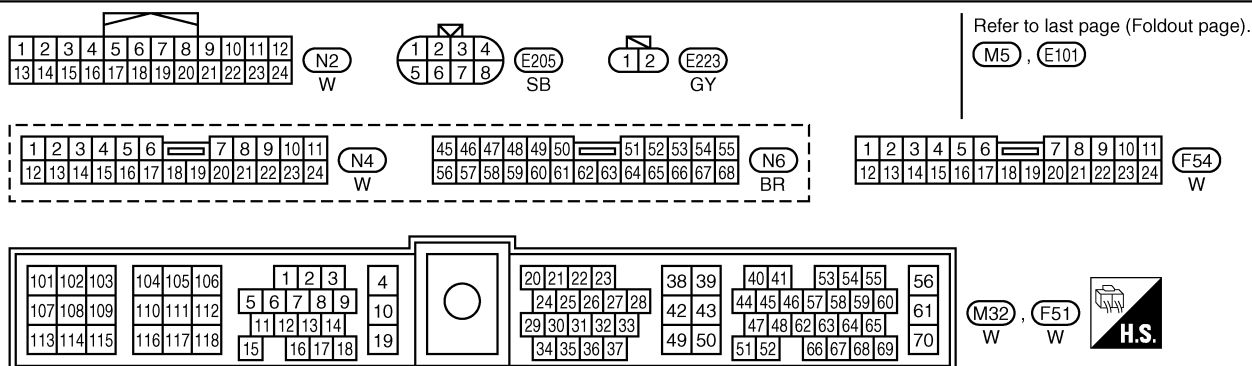
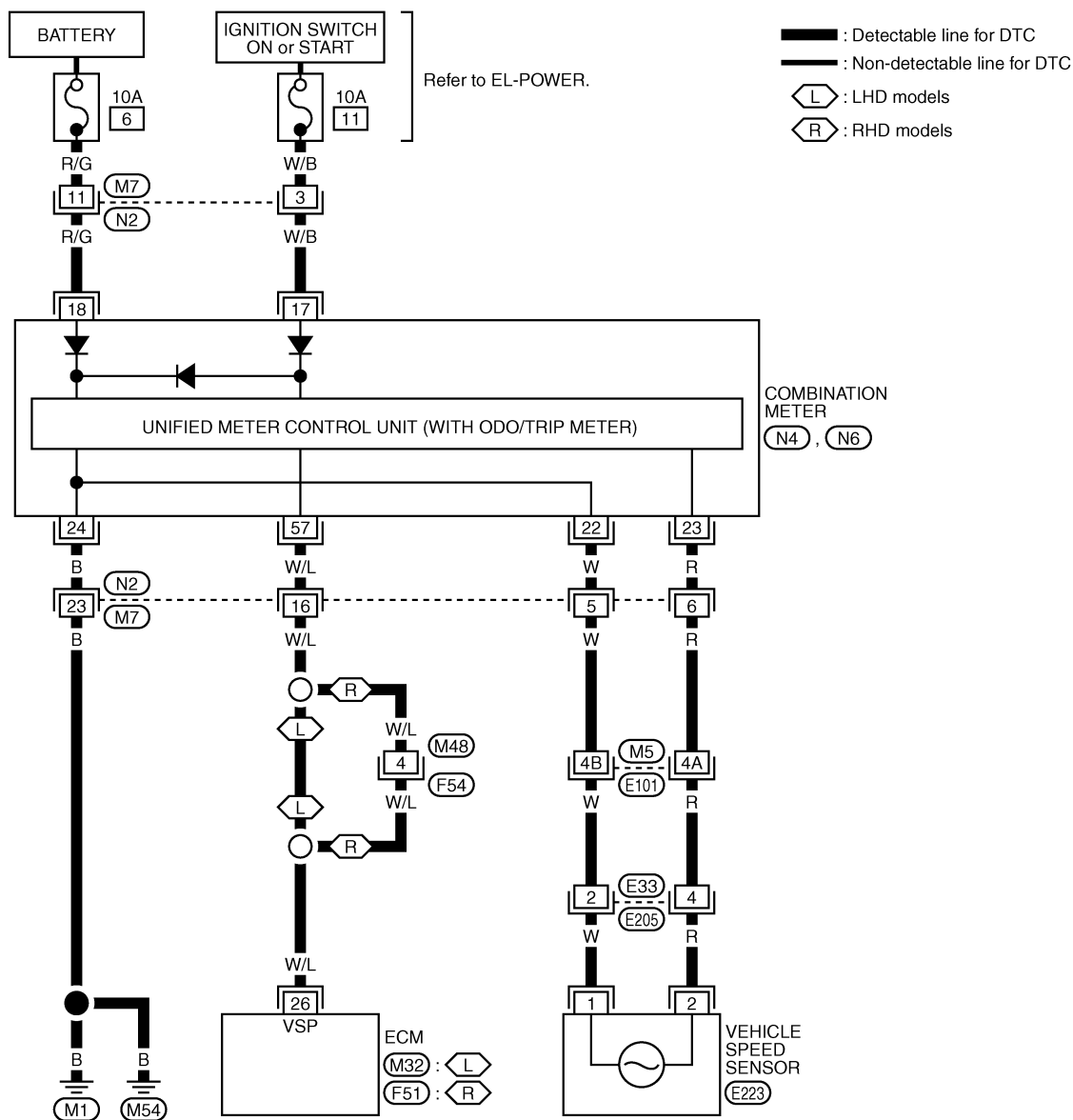
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Wiring Diagram

MODELS WITH TACHOMETER

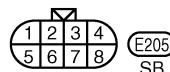
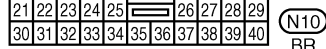
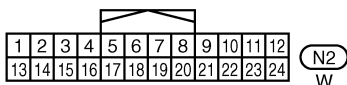
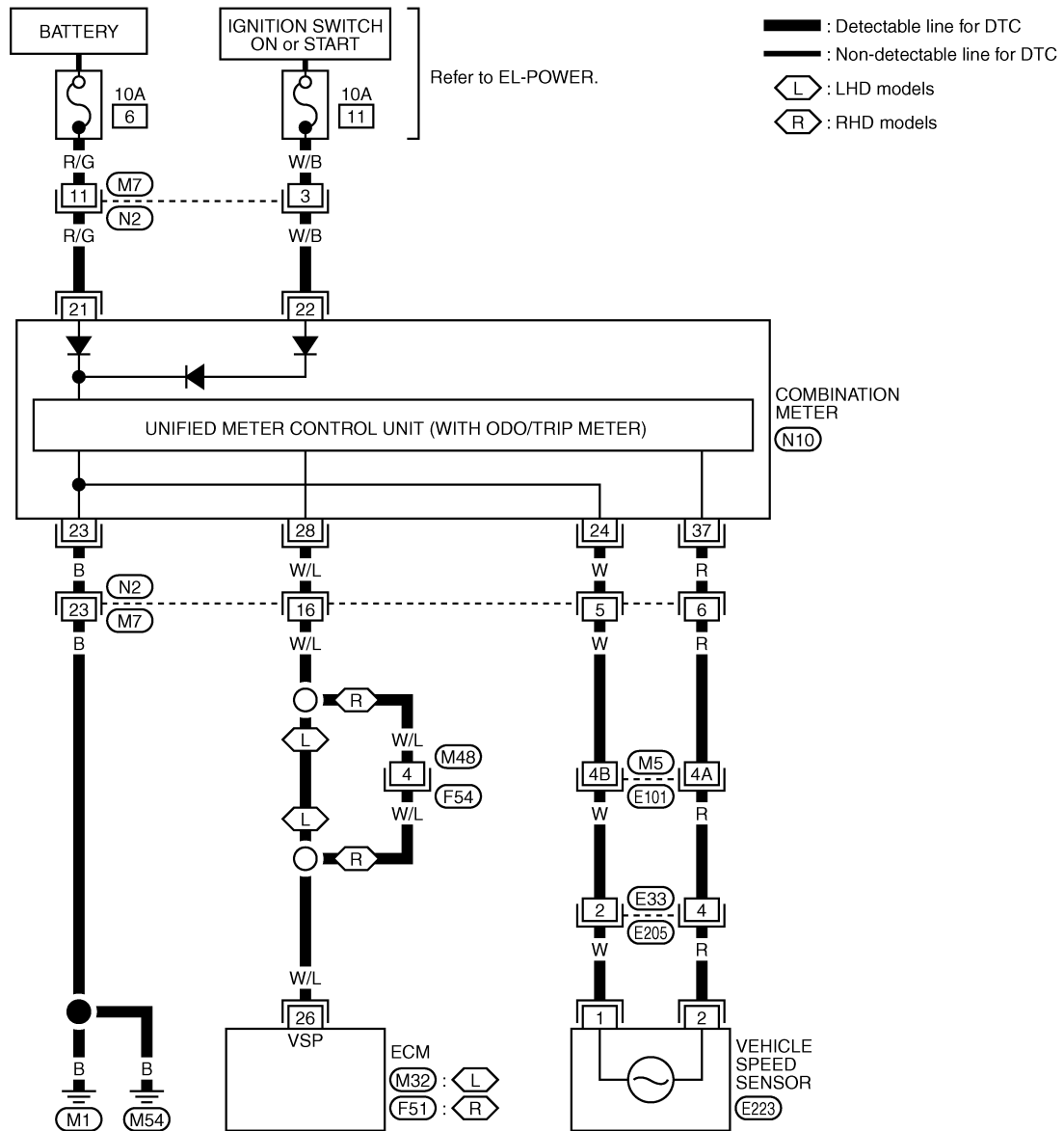
EC-VSS-01



Wiring Diagram (Cont'd)

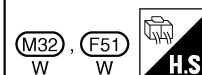
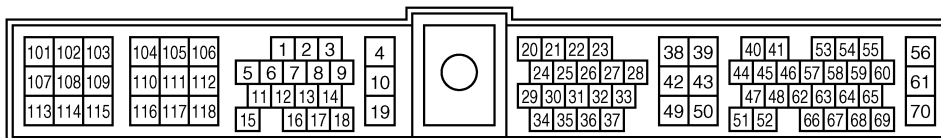
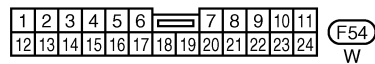
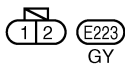
MODELS WITHOUT TACHOMETER

EC-VSS-02



Refer to last page (Foldout page).

(M5), (E101)



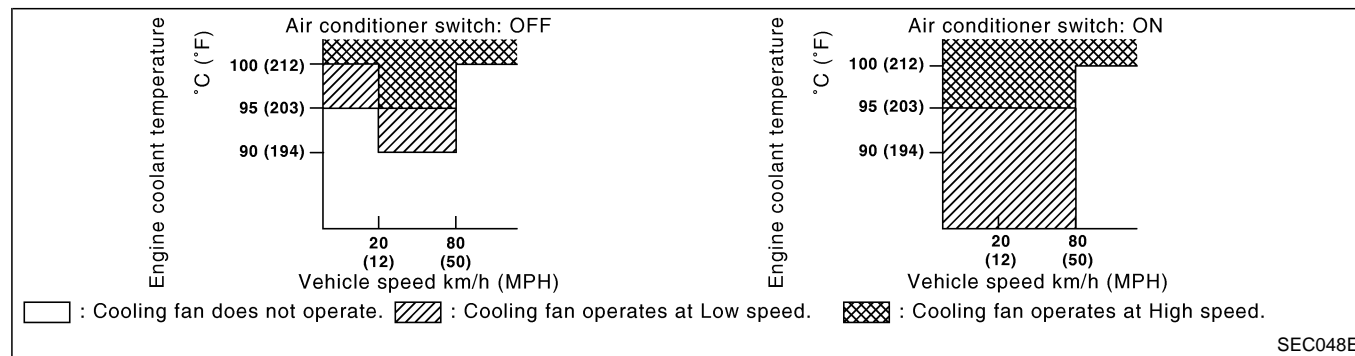
Description

SYSTEM DESCRIPTION

Sensor	Input signal to ECM	ECM function	Actuator
Vehicle speed sensor	Vehicle speed	Cooling fan control	Cooling fan relay
Engine coolant temperature sensor	Engine coolant temperature		
Air conditioner switch	Air conditioner "ON" signal		

The ECM controls the cooling fan corresponding to the vehicle speed, engine coolant temperature. The control system has 3-step control [HIGH/LOW/OFF].

OPERATION



CONSULT-II Reference Value in Data Monitor Mode

Specification data are reference values.

MONITOR ITEM	CONDITION		SPECIFICATION
AIR COND RLY	● Engine: After warming up, idle the engine	Air conditioner switch: OFF	OFF
		Air conditioner switch: ON (Compressor operates.)	ON
COOLING FAN	● When cooling fan is stopped.		OFF
	● When cooling fan operates at low speed.		LOW
	● When cooling fan operates at high speed.		HIGH

ECM Terminals and Reference Value

Specification data are reference values and are measured between each terminal and ground.

CAUTION:

Do not use ECM ground terminals when measuring input/output voltage. Doing so may damage the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
13	OR	Cooling fan high relay	Engine is running. └ Cooling fan is not operating └ Cooling fan is operating at low speed	BATTERY VOLTAGE (11 - 14V)
			Engine is running. └ Cooling fan is operating at high speed	Approximately 0.1V
14	G/B	Cooling fan relay	Engine is running. └ Cooling fan is not operating	BATTERY VOLTAGE (11 - 14V)
			Engine is running. └ Cooling fan is operating	Approximately 0.1V

On Board Diagnosis Logic

This diagnosis continuously monitors the engine coolant temperature.

If the cooling fan or another component in the cooling system malfunctions, engine coolant temperature will rise.

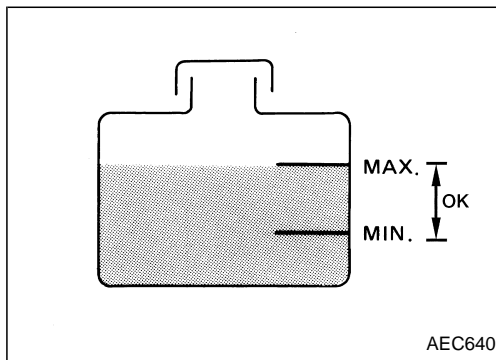
When the engine coolant temperature reaches an abnormally high temperature condition, a malfunction is indicated.

Malfunction is detected when ...	Check Items (Possible Cause)
<ul style="list-style-type: none"> ● Cooling fan does not operate properly (Overheat). ● Cooling fan system does not operate properly (Overheat). ● Engine coolant was not added to the system using the proper filling method. ● Engine coolant is not within the specified range. 	<ul style="list-style-type: none"> ● Harness or connectors (The cooling fan circuit is open or shorted.) ● Cooling fan ● Radiator hose ● Radiator ● Radiator cap ● Water pump ● Thermostat ● Fan belt ● Engine coolant temperature sensor <p>For more information, refer to "MAIN 12 CAUSES OF OVERHEATING", EC-44.</p>

CAUTION:

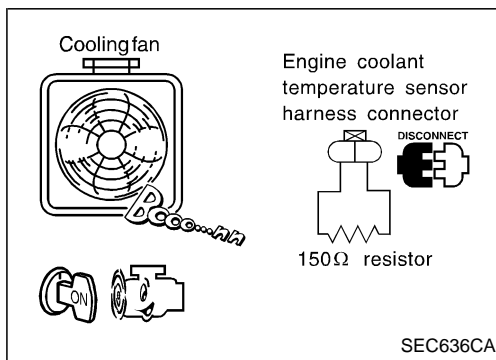
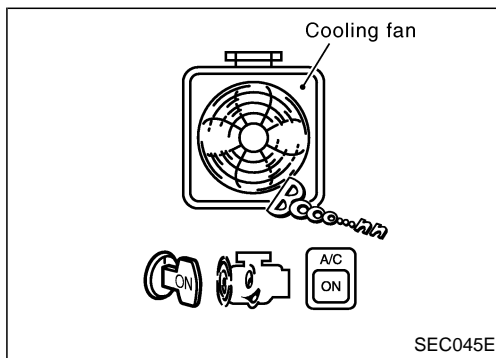
When a malfunction is indicated, be sure to replace the coolant following the procedure in the MA section ("Changing Engine Coolant", "ENGINE MAINTENANCE"). Also, replace the engine oil.

- 1) Fill radiator with coolant up to specified level with a filling speed of 2 liters per minute. Be sure to use coolant with the proper mixture ratio. Refer to MA section ("Anti-freeze Coolant Mixture Ratio", "RECOMMENDED LUBRICANTS AND FLUIDS").
- 2) After refilling coolant, run engine to ensure that no water-flow noise is emitted.



ACTIVE TEST	
COOLING FAN	OFF
MONITOR	
COOLAN TEMP/S	XXX °C

SEF111X



Overall Function Check

Use this procedure to check the overall function of the cooling fan. During this check, a DTC might not be confirmed.

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could be caused by high pressure fluid escaping from the radiator.

Wrap a thick cloth around the cap. Carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape. Then turn the cap all the way off.



WITH CONSULT-II

- 1) Check the coolant level in the reservoir tank and radiator.
Allow engine to cool before checking coolant level.
If the coolant level in the reservoir tank and/or radiator is below the proper range, skip the following steps and go to "Diagnostic Procedure", EC-34.
- 2) Confirm whether customer filled the coolant or not. If customer filled the coolant, skip the following steps and go to "Diagnostic Procedure", EC-34.
- 3) Turn ignition switch "ON".
- 4) Perform "COOLING FAN" in "ACTIVE TEST" mode with CONSULT-II and make sure that cooling fans operate when touching "HIGH" or "LOW".
If NG, go to "Diagnostic Procedure", EC-34.

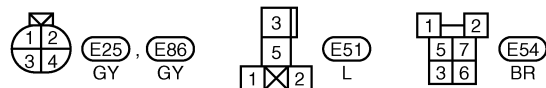
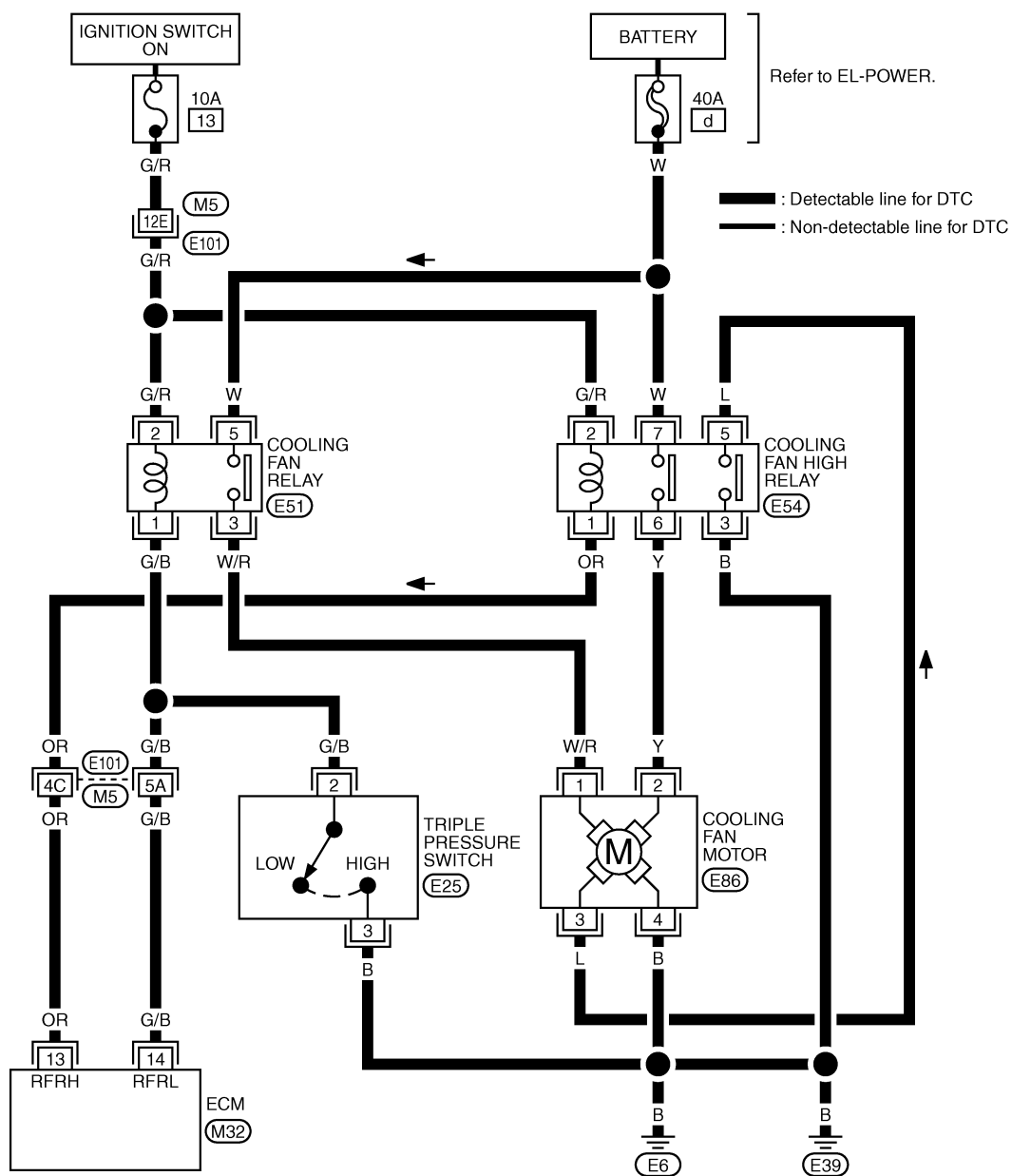


WITHOUT CONSULT-II

- 1) Check the coolant level in the reservoir tank and radiator.
Allow engine to cool before checking coolant level.
If the coolant level in the reservoir tank and/or radiator is below the proper range, skip the following steps and go to "Diagnostic Procedure", EC-34.
- 2) Confirm whether customer filled the coolant or not. If customer filled the coolant, skip the following steps and go to "Diagnostic Procedure", EC-34.
- 3) Start engine.
Be careful not to overheat engine.
- 4) Set temperature control lever to full cold position.
- 5) Turn air conditioner switch "ON".
- 6) Turn blower fan switch "ON".
- 7) Run engine at idle for a few minutes with air conditioner operating.
Be careful not to overheat engine.
- 8) Make sure that cooling fans operate at low speed.
- 9) Turn ignition switch "OFF".
- 10) Turn air conditioner switch and blower fan switch "OFF".
- 11) Disconnect engine coolant temperature sensor harness connector.
- 12) Connect 150Ω resistor to engine coolant temperature sensor harness connector.
- 13) Start engine and make sure that cooling fans operate at higher speed than low speed.
Be careful not to overheat engine.
- 14) If NG, go to "Diagnostic Procedure", EC-34.

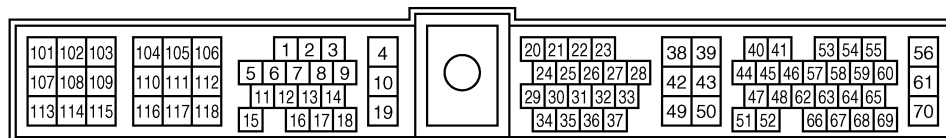
Wiring Diagram

EC-COOL/F-01



Refer to last page (Foldout page).

(M5), (E101)




Diagnostic Procedure

1	CHECK COOLING FAN (CRANKSHAFT DRIVEN) OPERATION	
Start engine and make sure that cooling fan (crankshaft driven) operates.		
OK or NG		
OK (With CONSULT-II)	▶	GO TO 2.
OK (Without CONSULT-II)	▶	GO TO 4.
NG	▶	Check cooling fan (crankshaft driven). Refer to LC section, "Cooling Fan".

2

CHECK COOLING FAN LOW SPEED OPERATION

 With CONSULT-II

1. Turn ignition switch "ON".

2. Perform "COOLING FAN" in "ACTIVE TEST" mode with CONSULT-II.

ACTIVE TEST	
COOLING FAN	OFF
MONITOR	
COOLANT TEMP/S	XXX °C

SEF646X

3. Touch "LOW".

4. Make sure that cooling fan operates at low speed.

OK or NG

OK


▶

GO TO 3.

NG

▶

Check cooling fan low speed control circuit. (Go to PROCEDURE A, EC-39.)

3	CHECK COOLING FAN HIGH SPEED OPERATION																							
<div><div></div><div>With CONSULT-II</div></div> <div>1. Touch "HIGH".</div> <div><table><tr><th colspan="2">ACTIVE TEST</th></tr><tr><td>COOLING FAN</td><td>OFF</td></tr><tr><th colspan="2">MONITOR</th></tr><tr><td>COOLANT TEMP/S</td><td>XXX °C</td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table></div> <div>SEF111X</div>			ACTIVE TEST		COOLING FAN	OFF	MONITOR		COOLANT TEMP/S	XXX °C														
ACTIVE TEST																								
COOLING FAN	OFF																							
MONITOR																								
COOLANT TEMP/S	XXX °C																							
2. Make sure that cooling fan operates at higher speed than low speed.																								
OK or NG																								
OK	▶	GO TO 6.																						
NG	▶	Check cooling fan high speed control circuit. (Go to PROCEDURE B, EC-42.																						

Diagnostic Procedure (Cont'd)

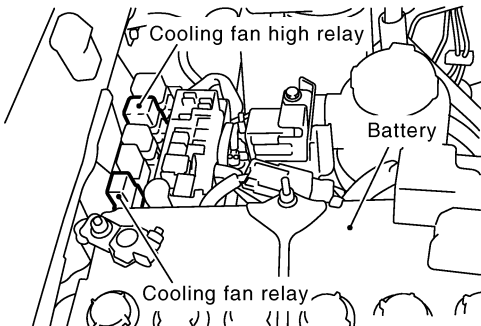
4

CHECK COOLING FAN LOW SPEED OPERATION

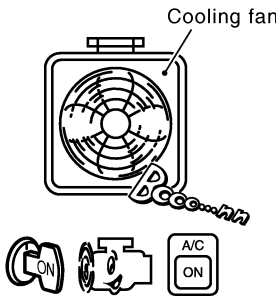


Without CONSULT-II

1. Turn ignition switch "OFF".
2. Disconnect cooling fan high relay.



3. Start engine and let it idle.
4. Set temperature lever at full cold position.
5. Turn air conditioner switch "ON".
6. Turn blower fan switch "ON".
7. Make sure that cooling fan operates at low speed.



SEC044E

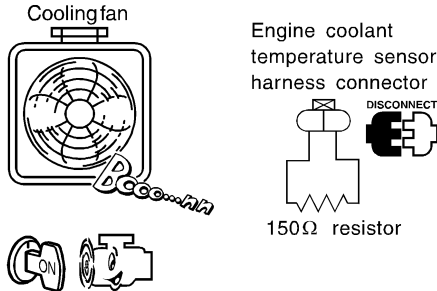
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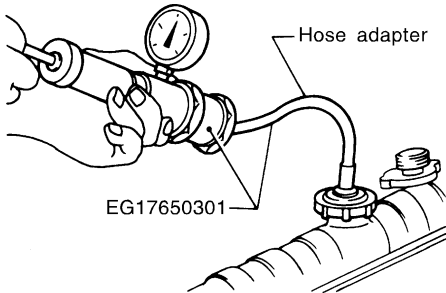
OK or NG

OK	▶	GO TO 5.
NG	▶	Check cooling fan low speed control circuit. (Go to PROCEDURE A, EC-39.)

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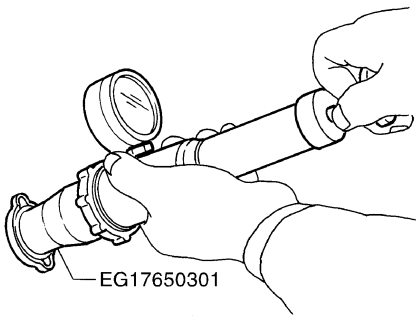
Diagnostic Procedure (Cont'd)

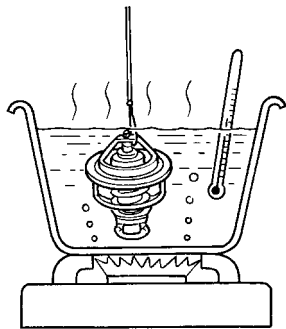
5	CHECK COOLING FAN HIGH SPEED OPERATION
<p>⊗ Without CONSULT-II</p> <ol style="list-style-type: none"> 1. Turn ignition switch "OFF". 2. Reconnect cooling fan high relay. 3. Turn air conditioner switch and blower fan switch "OFF". 4. Disconnect engine coolant temperature sensor harness connector. 5. Connect 150Ω resistor to engine coolant temperature sensor harness connector. 6. Restart engine and make sure that cooling fan operates at high speed. 	
 <p>OK or NG</p> <p>SEC636CA</p>	
OK	▶ GO TO 6.
NG	▶ Check cooling fan high speed control circuit. (Go to PROCEDURE B, EC-42.)

6	CHECK COOLING SYSTEM FOR LEAK
<p>Apply pressure to the cooling system with a tester, and check if the pressure drops.</p> <p>Testing pressure: 157 kPa (1.57 bar, 1.6 kg/cm², 23 psi)</p> <p>CAUTION:</p> <p>Higher than the specified pressure may cause radiator damage.</p>	
 <p>Pressure should not drop.</p> <p>OK or NG</p> <p>SLC754AB</p>	
OK	▶ GO TO 8.
NG	▶ GO TO 7.

7	DETECT MALFUNCTIONING PART
<p>Check the following for leak.</p> <ul style="list-style-type: none"> ● Hose ● Radiator ● Water pump (Refer to LC section, "Water Pump".) 	
	▶ Repair or replace.

Diagnostic Procedure (Cont'd)

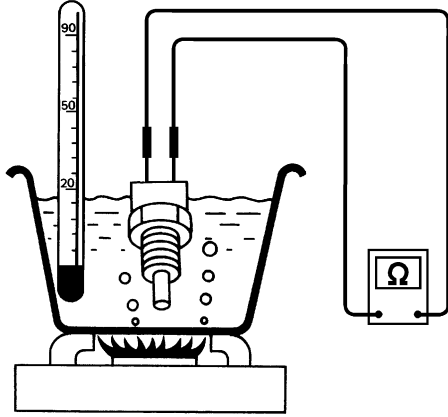
8	CHECK RADIATOR CAP
<p>Apply pressure to cap with a tester and check radiator cap relief pressure.</p> <div data-bbox="623 254 1036 569">  <p>EG17650301</p> </div> <p style="text-align: right;">SLC755AE</p> <p>Radiator cap relief pressure: 79 - 98 kPa (0.78 - 0.98 bar, 0.8 - 1.0 kg/cm², 11 - 14 psi)</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 9.
NG	▶ Replace radiator cap.

9	CHECK THERMOSTAT
<ol style="list-style-type: none"> 1. Remove thermostat. 2. Check valve seating condition at normal room temperatures. It should seat tightly. 3. Check valve opening temperature and valve lift. <div data-bbox="678 1066 961 1392">  </div> <p style="text-align: right;">SLC343</p> <p>Valve opening temperature: 82°C (180°F) [standard]</p> <p>Valve lift: More than 10 mm/95°C (0.394 in/203°F)</p> <ol style="list-style-type: none"> 4. Check if valve is closed at 5°C (9°F) below valve opening temperature. For details, refer to LC section, "Thermostat". <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 10.
NG	▶ Replace thermostat.

Diagnostic Procedure (Cont'd)

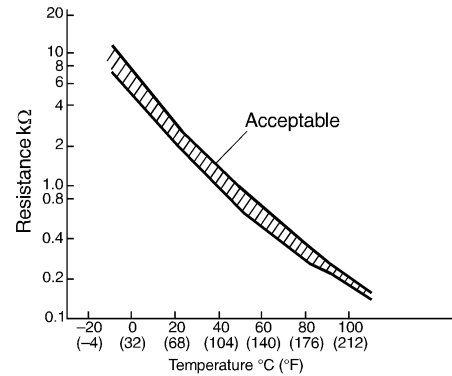
10 CHECK ENGINE COOLANT TEMPERATURE SENSOR

1. Remove engine coolant temperature sensor.
2. Check resistance between engine coolant temperature sensor terminals 1 and 2 as shown in the figure.



<Reference data>

Temperature °C (°F)	Resistance kΩ
20 (68)	2.1 - 2.9
50 (122)	0.68 - 1.00
90 (194)	0.236 - 0.260



SEF304X

OK or NG

- | | |
|----|--|
| OK | ▶ GO TO 11. |
| NG | ▶ Replace engine coolant temperature sensor. |

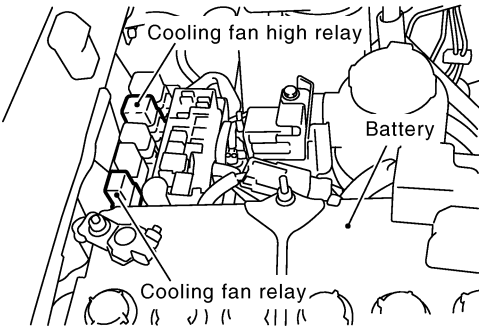


11 CHECK MAIN 12 CAUSES

If the cause cannot be isolated, go to "MAIN 12 CAUSES OF OVERHEATING", EC-44.

▶ INSPECTION END


Diagnostic Procedure (Cont'd)

PROCEDURE A

1	CHECK COOLING FAN POWER SUPPLY CIRCUIT
1. Turn ignition switch "OFF". 2. Disconnect cooling fan relay.	
	
3. Turn ignition switch "ON". 4. Check voltage between cooling fan relay terminals 2, 5 and ground with CONSULT-II or tester.	
	
	
OK or NG	
OK	▶ GO TO 3.
NG	▶ GO TO 2.

2	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> ● Harness connectors M5, E101 ● 10A fuse ● 40A fusible link ● Harness for open or short between cooling fan relay and fuse ● Harness for open or short between cooling fan relay and battery 	
▶ Repair open circuit or short to ground or short to power in harness or connectors.	

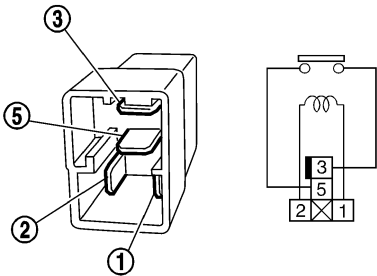
Diagnostic Procedure (Cont'd)

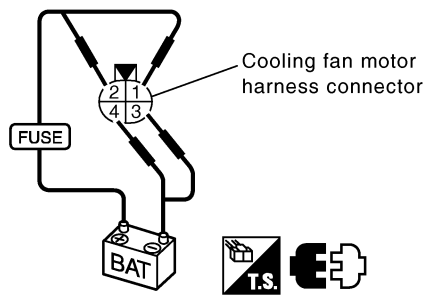
3	CHECK COOLING FAN GROUND CIRCUIT FOR OPEN AND SHORT	
<div>1. Turn ignition switch "OFF".</div> <div>2. Disconnect cooling fan motor harness connector.</div>		
<div></div> <div>SEC232D</div>		
<div>3. Check harness continuity between cooling fan relay terminal 3 and cooling fan motor terminals 1, cooling fan motor terminals 4 and body ground. Refer to Wiring Diagram.</div> <div>Continuity should exist.</div> <div>4. Also check harness for short to ground and short to power.</div>		
OK or NG		
OK	▶	GO TO 4.
NG	▶	Repair open circuit or short to ground or short to power in harness or connectors.

4	CHECK COOLING FAN OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT	
<div>1. Disconnect ECM harness connector.</div> <div>2. Disconnect triple-pressure switch harness connector.</div> <div>3. Check harness continuity between ECM terminal 14 and cooling fan relay terminal 1, cooling fan relay terminal 1 and triple-pressure switch terminal 2, triple-pressure switch terminal 3 and ground. Refer to Wiring Diagram.</div> <div>Continuity should exist.</div> <div>4. Also check harness for short to ground and short to power.</div>		
OK or NG		
OK	▶	GO TO 6.
NG	▶	GO TO 5.

5	DETECT MALFUNCTIONING PART	
Check the following. <ul style="list-style-type: none">● Harness connectors M5, E101● Harness for open or short between cooling fan relay and ECM● Harness for open or short between cooling fan relay and triple-pressure switch● Harness for open or short between triple-pressure switch and ground		
	▶	Repair open circuit or short to ground or short to power in harness or connectors.

Diagnostic Procedure (Cont'd)

6	CHECK COOLING FAN RELAY							
Check continuity between cooling fan relay terminals 3 and 5 under the following conditions.								
 <table border="1" data-bbox="901 346 1274 472"> <thead> <tr> <th>Conditions</th> <th>Continuity</th> </tr> </thead> <tbody> <tr> <td>12V direct current supply between terminals 1 and 2</td> <td>Yes</td> </tr> <tr> <td>No current supply</td> <td>No</td> </tr> </tbody> </table>			Conditions	Continuity	12V direct current supply between terminals 1 and 2	Yes	No current supply	No
Conditions	Continuity							
12V direct current supply between terminals 1 and 2	Yes							
No current supply	No							
SEC340C								
OK or NG								
OK	▶	GO TO 7.						
NG	▶	Replace cooling fan relay.						

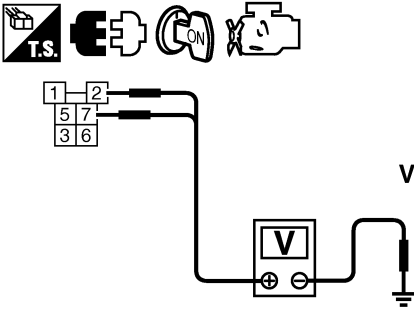
7	CHECK COOLING FAN MOTOR														
Supply battery voltage between the following terminals and check operation.															
 <table border="1" data-bbox="876 1008 1404 1134"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Speed</th> <th colspan="2">Terminals</th> </tr> <tr> <th>(+)</th> <th>(-)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Cooling fan motor</td> <td>Low</td> <td>1</td> <td>4</td> </tr> <tr> <td>High</td> <td>1, 2</td> <td>3, 4</td> </tr> </tbody> </table>				Speed	Terminals		(+)	(-)	Cooling fan motor	Low	1	4	High	1, 2	3, 4
	Speed	Terminals													
		(+)	(-)												
Cooling fan motor	Low	1	4												
	High	1, 2	3, 4												
SEC046E															
OK or NG															
OK	▶	GO TO 8.													
NG	▶	Replace cooling fan motor.													

8	CHECK TRIPLE PRESSURE SWITCH	
Refer to HA section.		
OK or NG		
OK	▶	GO TO 9.
NG	▶	Replace triple pressure switch.

9	CHECK INTERMITTENT INCIDENT	
Perform "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-561 in Service Manual (Publication No. SM1E-1D22FG1).		
▶ INSPECTION END		

Diagnostic Procedure (Cont'd)

PROCEDURE B

1	CHECK COOLING FAN POWER SUPPLY CIRCUIT
<p>1. Turn ignition switch "OFF". 2. Disconnect cooling fan high relay. 3. Turn ignition switch "ON". 4. Check voltage between cooling fan high relay terminals 2, 7 and ground with CONSULT-II or tester.</p>  <p style="text-align: right;">SEC047E</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 3.
NG	▶ GO TO 2.

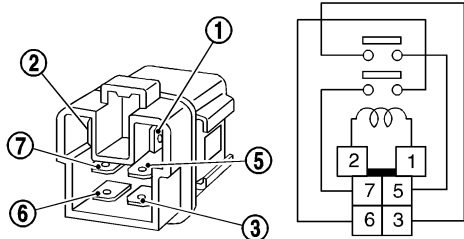
2	DETECT MALFUNCTIONING PART
<p>Check the following.</p> <ul style="list-style-type: none"> ● Harness connectors M5, E101 ● 10A fuse ● 40A fusible link ● Harness for open between cooling fan high relay and fuse ● Harness for open between cooling fan high relay and battery 	
	▶ Repair harness or connectors.

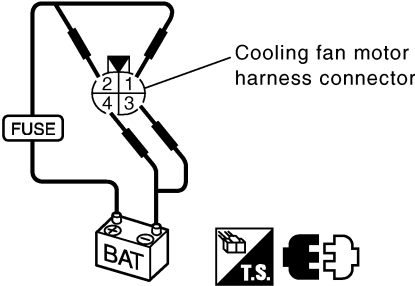
3	CHECK COOLING FAN GROUND CIRCUIT FOR OPEN AND SHORT
<p>1. Turn ignition switch "OFF". 2. Disconnect cooling fan motor harness connector. 3. Check harness continuity between cooling fan high relay terminal 6 and cooling fan motor terminal 2, cooling fan motor terminal 3 and cooling fan high relay terminal 5, cooling fan high relay terminal 3 and body ground. Refer to Wiring Diagram. Continuity should exist. 4. Also check harness for short to ground and short to power.</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 4.
NG	▶ Repair open circuit or short to power in harness or connectors.

4	CHECK COOLING FAN OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT
<p>1. Disconnect ECM harness connector. 2. Check harness continuity between ECM terminal 13 and cooling fan high relay terminal 1. Refer to Wiring Diagram. Continuity should exist. 3. Also check harness for short to ground and short to power.</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ GO TO 6.
NG	▶ GO TO 5.

Diagnostic Procedure (Cont'd)

5	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> ● Harness connectors E101, M5 ● Harness for open between cooling fan high relay and ECM 	
▶ Repair open circuit or short to ground or short to power in harness or connectors.	

6	CHECK COOLING FAN HIGH RELAY						
Check continuity between cooling fan high relay terminals 3 and 5, 7 and 6 under the following conditions.							
							
<table border="1"> <thead> <tr> <th>Condition</th><th>Continuity</th></tr> </thead> <tbody> <tr> <td>12V direct current supply between terminals 1 and 2</td><td>Yes</td></tr> <tr> <td>OFF</td><td>No</td></tr> </tbody> </table>		Condition	Continuity	12V direct current supply between terminals 1 and 2	Yes	OFF	No
Condition	Continuity						
12V direct current supply between terminals 1 and 2	Yes						
OFF	No						
<div style="text-align: right;">SEF296X</div>							
OK or NG							
OK	▶ GO TO 7.						
NG	▶ Replace cooling fan high relay.						

7	CHECK COOLING FAN MOTOR													
Supply battery voltage between the following terminals and check operation.														
<div><p>Cooling fan motor harness connector</p></div>														
<table><tr><th rowspan="2"></th><th rowspan="2">Speed</th><th colspan="2">Terminals</th></tr><tr><th>(+)</th><th>(-)</th></tr><tr><td rowspan="2">Cooling fan motor</td><td>Low</td><td>1</td><td>4</td></tr><tr><td>High</td><td>1, 2</td><td>3, 4</td></tr></table>			Speed	Terminals		(+)	(-)	Cooling fan motor	Low	1	4	High	1, 2	3, 4
	Speed			Terminals										
		(+)	(-)											
Cooling fan motor	Low	1	4											
	High	1, 2	3, 4											
SEC046E														
OK or NG														
OK	▶ GO TO 8.													
NG	▶ Replace cooling fan motor.													

8	CHECK INTERMITTENT INCIDENT
1. Perform "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-561 in Service Manual (Publication No. SM1E-1D22FG1).	
▶ INSPECTION END	

Main 12 Causes of Overheating

Engine	Step	Inspection item	Equipment	Standard	Reference page
OFF	1	<ul style="list-style-type: none"> Blocked radiator Blocked condenser Blocked radiator grille Blocked bumper 	<ul style="list-style-type: none"> Visual 	No blocking	—
	2	<ul style="list-style-type: none"> Coolant mixture 	<ul style="list-style-type: none"> Coolant tester 	30 - 50% coolant mixture	See "RECOMMENDED FLUIDS AND LUBRICANTS" in MA section.
	3	<ul style="list-style-type: none"> Coolant level 	<ul style="list-style-type: none"> Visual 	Coolant up to MAX level in reservoir tank and radiator filler neck	See "Changing Engine Coolant", "ENGINE MAINTENANCE" in MA section.
	4	<ul style="list-style-type: none"> Radiator cap 	<ul style="list-style-type: none"> Pressure tester 	78 - 98 kPa (0.78 - 0.98 bar, 0.8 - 1.0 kg/cm ² , 11 - 14 psi) 59 - 98 kPa (0.59 - 0.98 bar, 0.6 - 1.0 kg/cm ² , 9 - 14 psi) (Limit)	See "System Check", "ENGINE COOLING SYSTEM" in LC section.
ON*2	5	<ul style="list-style-type: none"> Coolant leaks 	<ul style="list-style-type: none"> Visual 	No leaks	See "System Check", "ENGINE COOLING SYSTEM" in LC section.
ON*2	6	<ul style="list-style-type: none"> Thermostat 	<ul style="list-style-type: none"> Touch the upper and lower radiator hoses 	Both hoses should be hot.	See "Thermostat" and "Radiator", "ENGINE COOLING SYSTEM" in LC section.
ON*1	7	<ul style="list-style-type: none"> Cooling fan 	<ul style="list-style-type: none"> Visual 	Operating	See "DTC 0208 OVER HEAT", EC-30.
ON*2	7	<ul style="list-style-type: none"> Cooling fan (Crankshaft driven) 	<ul style="list-style-type: none"> Visual 	Operating	See "Cooling Fan" in LC section.
OFF	8	<ul style="list-style-type: none"> Combustion gas leak 	<ul style="list-style-type: none"> Color checker chemical tester 4 gas analyzer 	Negative	—
ON*3	9	<ul style="list-style-type: none"> Coolant temperature gauge 	<ul style="list-style-type: none"> Visual 	Gauge less than 3/4 when driving	—
		<ul style="list-style-type: none"> Coolant overflow to reservoir tank 	<ul style="list-style-type: none"> Visual 	No overflow during driving and idling	See "Changing Engine Coolant", "ENGINE MAINTENANCE" in MA section.
OFF*4	10	<ul style="list-style-type: none"> Coolant return from reservoir tank to radiator 	<ul style="list-style-type: none"> Visual 	Should be initial level in reservoir tank	See "ENGINE MAINTENANCE" in MA section.
OFF	11	<ul style="list-style-type: none"> Cylinder head 	<ul style="list-style-type: none"> Straight gauge feeler gauge 	0.1 mm (0.004 in) Maximum distortion (warping)	See "Inspection", "CYLINDER HEAD" in EM section.
	12	<ul style="list-style-type: none"> Cylinder block and pistons 	<ul style="list-style-type: none"> Visual 	No scuffing on cylinder walls or piston	See "Inspection", "CYLINDER BLOCK" in EM section.

*1: Engine running at idle.

*2: Engine running at 3,000 rpm for 10 minutes.

*3: Drive at 90 km/h (55 MPH) for 30 minutes and then let idle for 10 minutes.

*4: After 60 minutes of cool down time.

For more information, refer to "OVERHEATING CAUSE ANALYSIS" in LC section.

FOR MIDDLE EAST

GI

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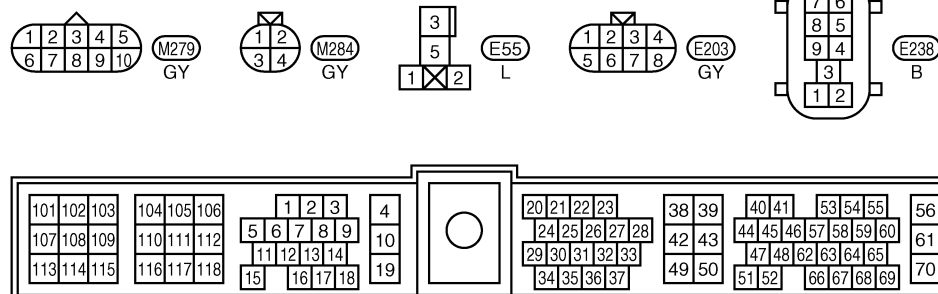
RS

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IDX



Refer to last page (Foldout page).
M5, E101

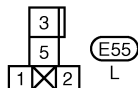
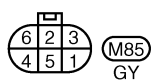
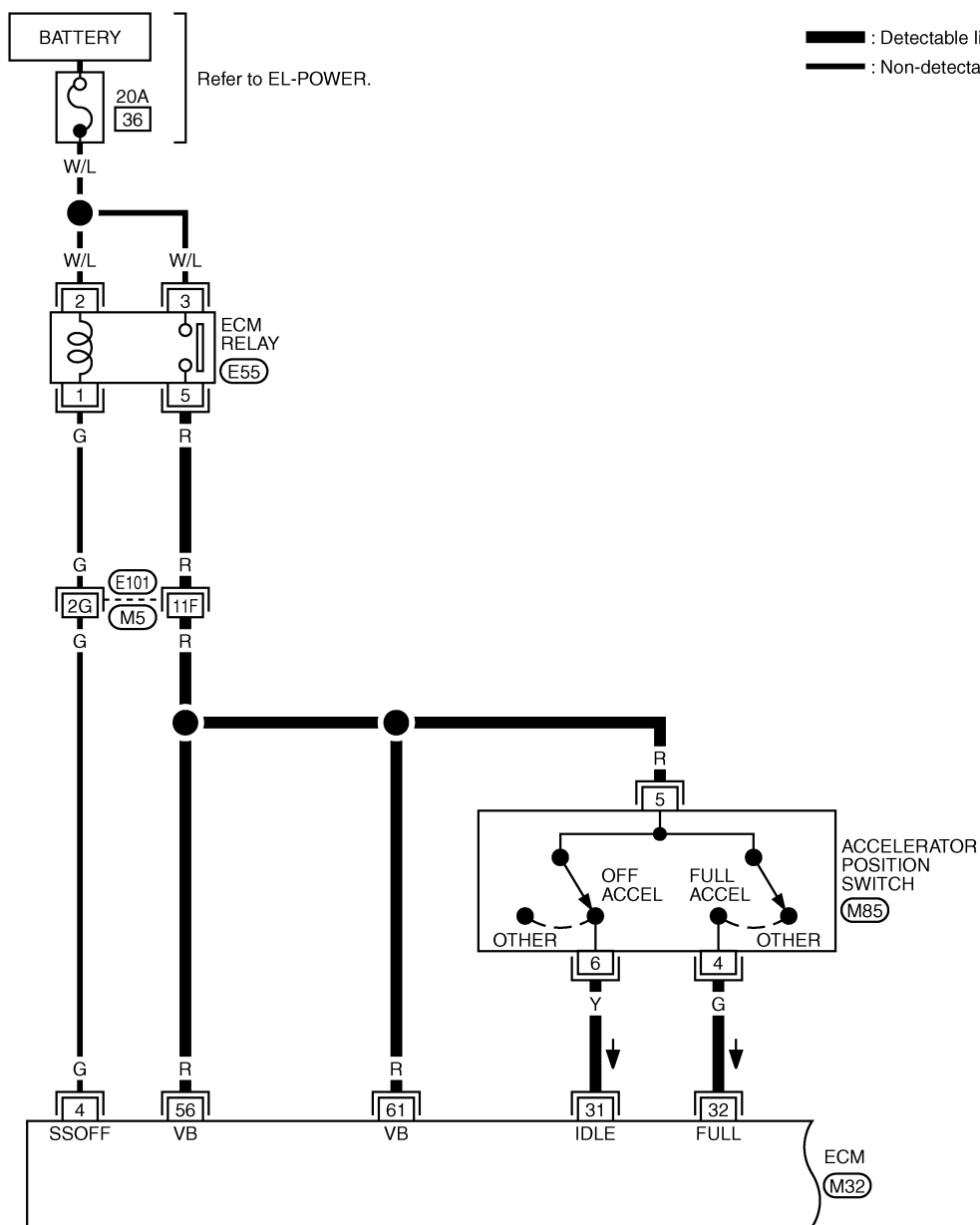
M3
W



Wiring Diagram

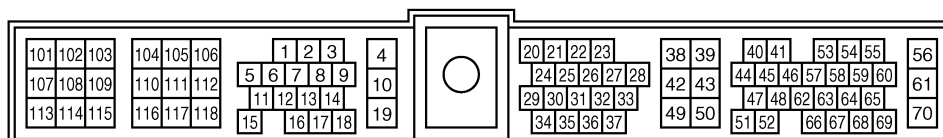
FOR MIDDLE EAST

EC-APS-01

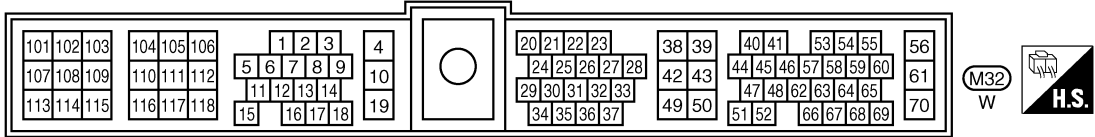
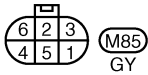
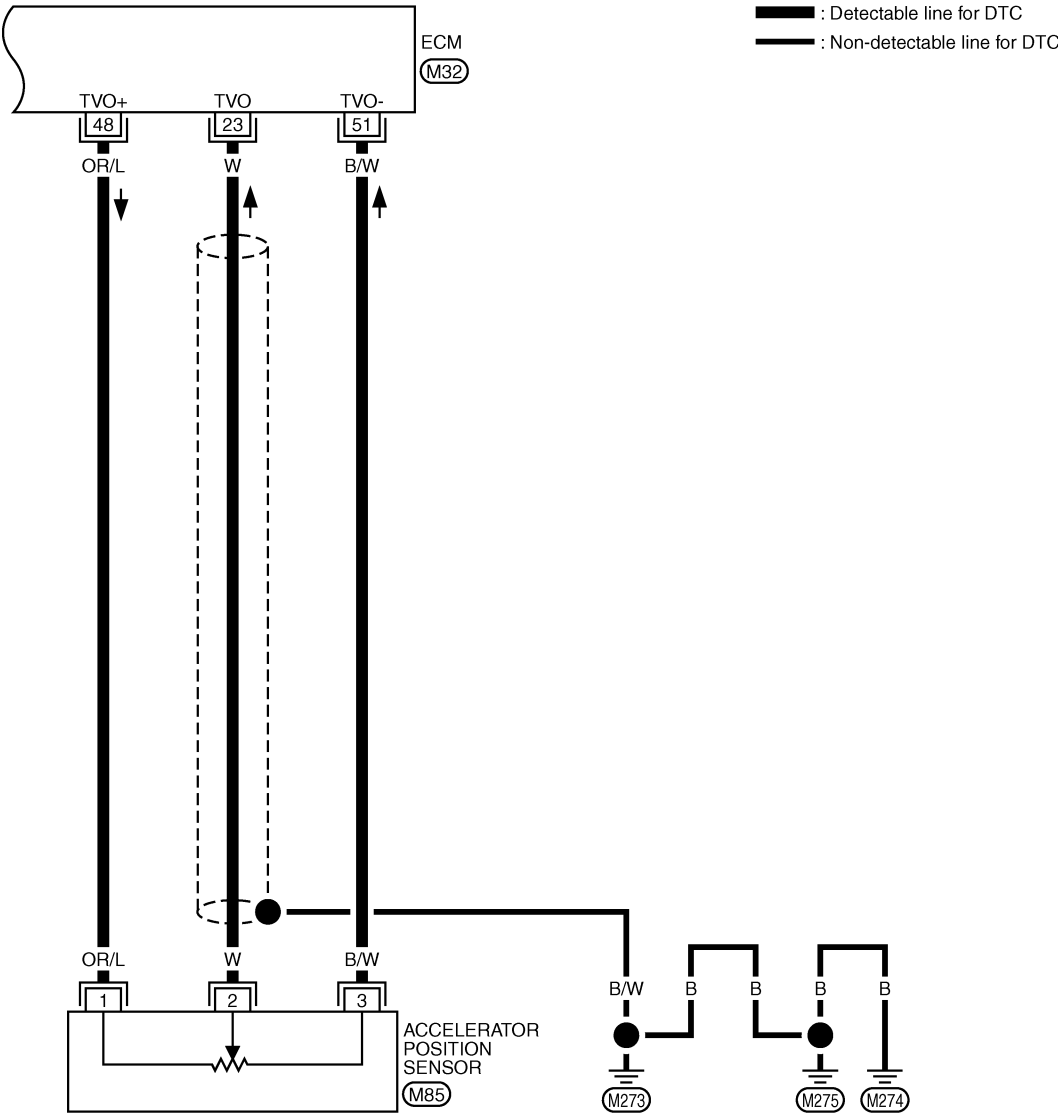


Refer to last page (Foldout page).

(M5), (E101)



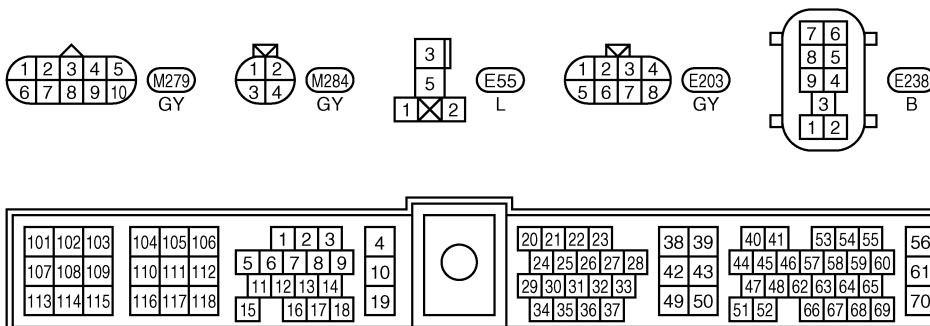
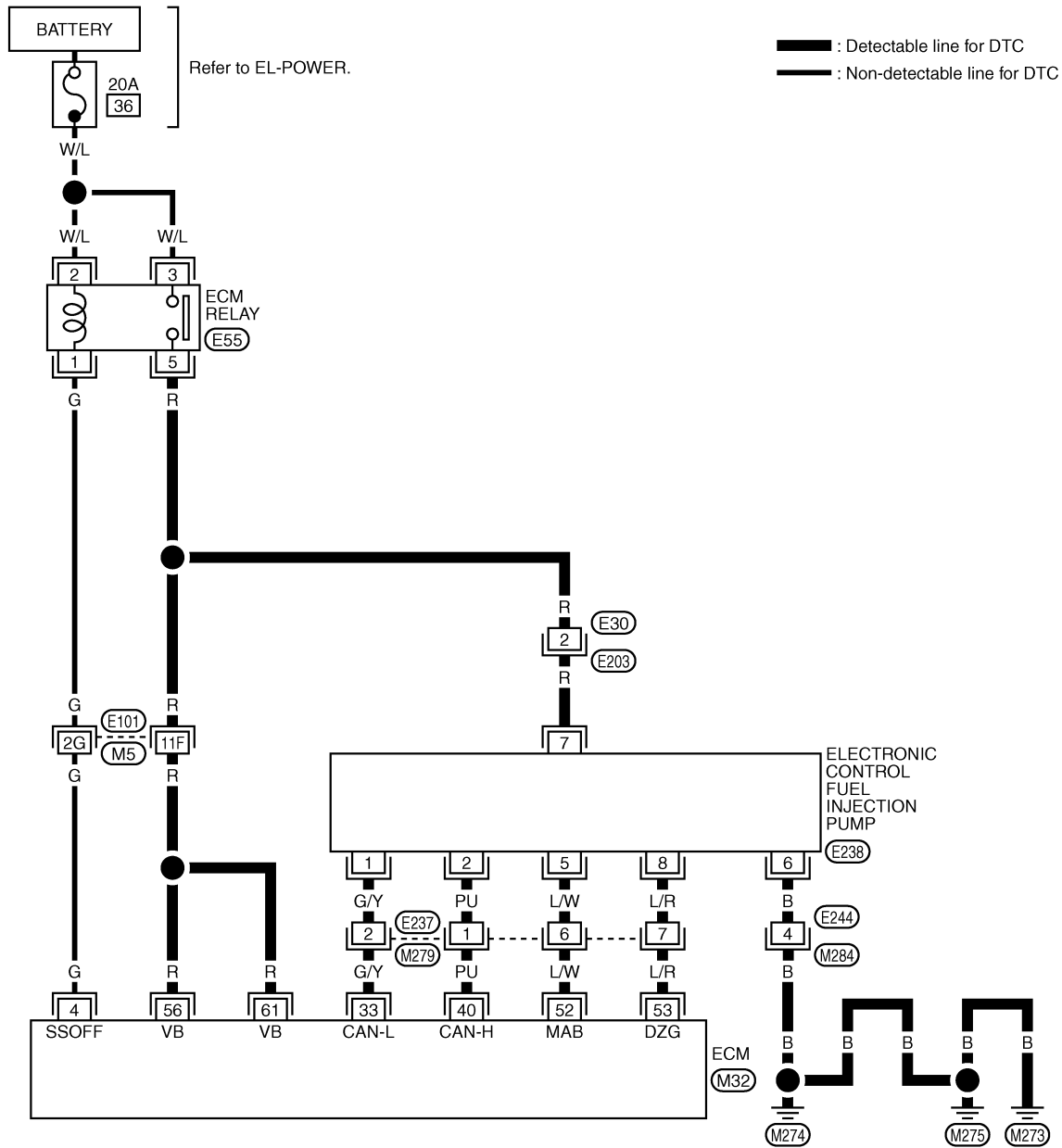
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Wiring Diagram

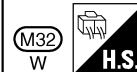
FOR MIDDLE EAST

EC-INJPMP-01



Refer to last page (Foldout page).

M5, E101



FOR MIDDLE EAST

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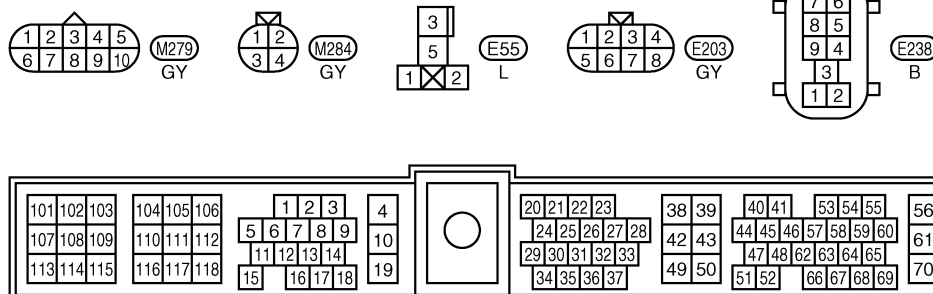
RS

BT

HA

EL

IDX




Refer to last page (Foldout page).

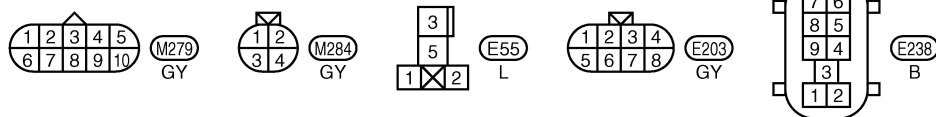
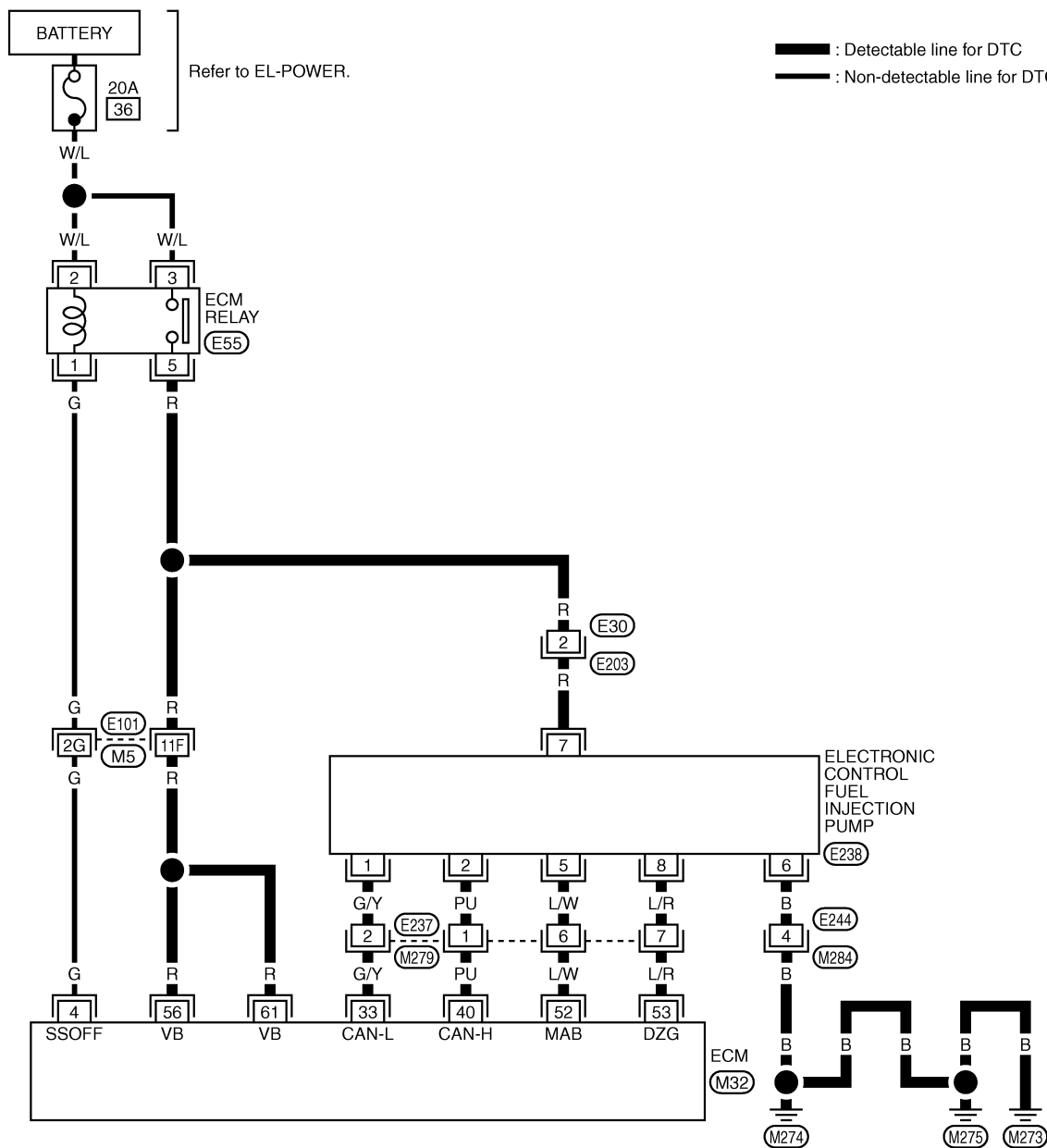
M5, E101

M3
W

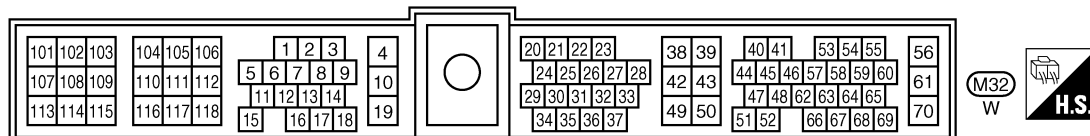


FOR MIDDLE EAST

 : Detectable line for DTC
 : Non-detectable line for DTC



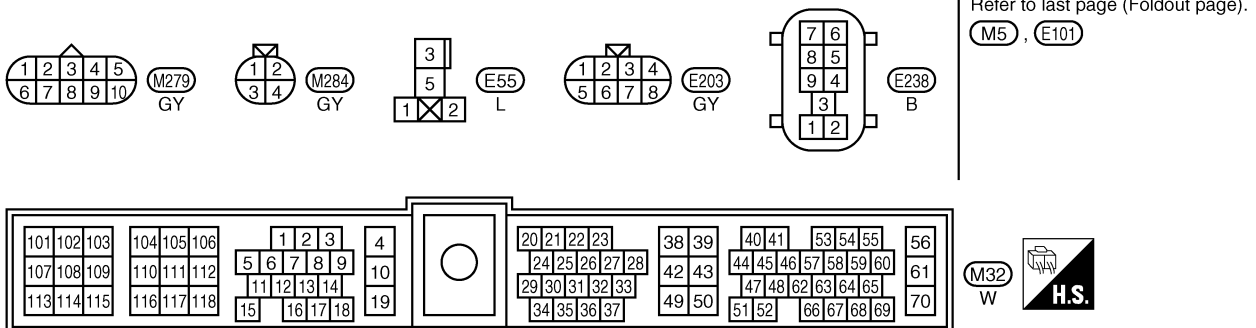
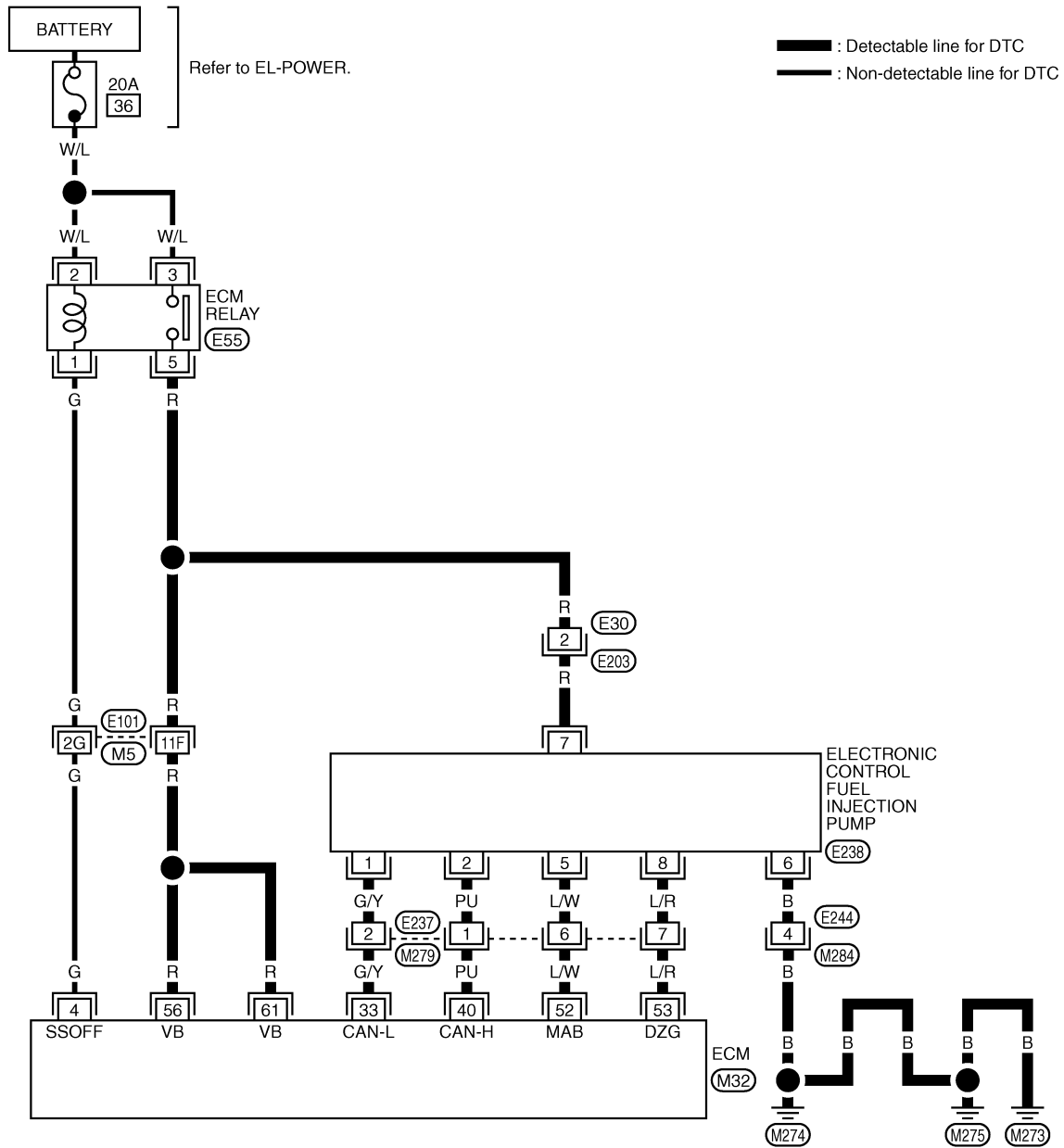
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M5, E101




Wiring Diagram

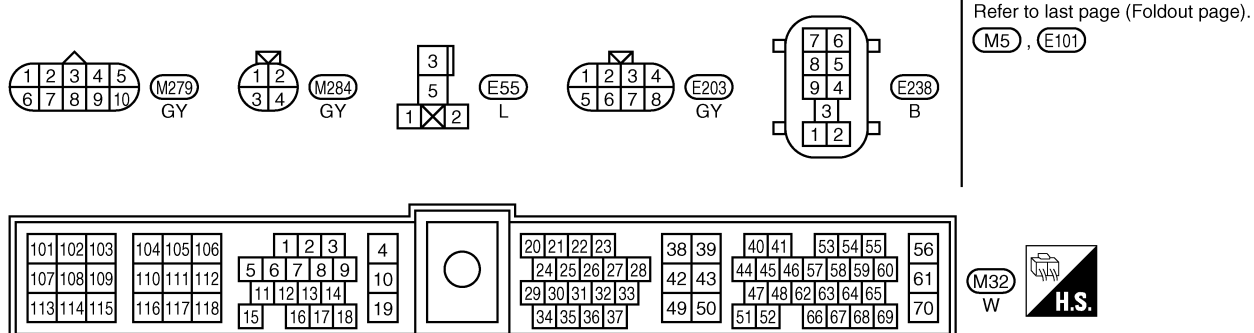
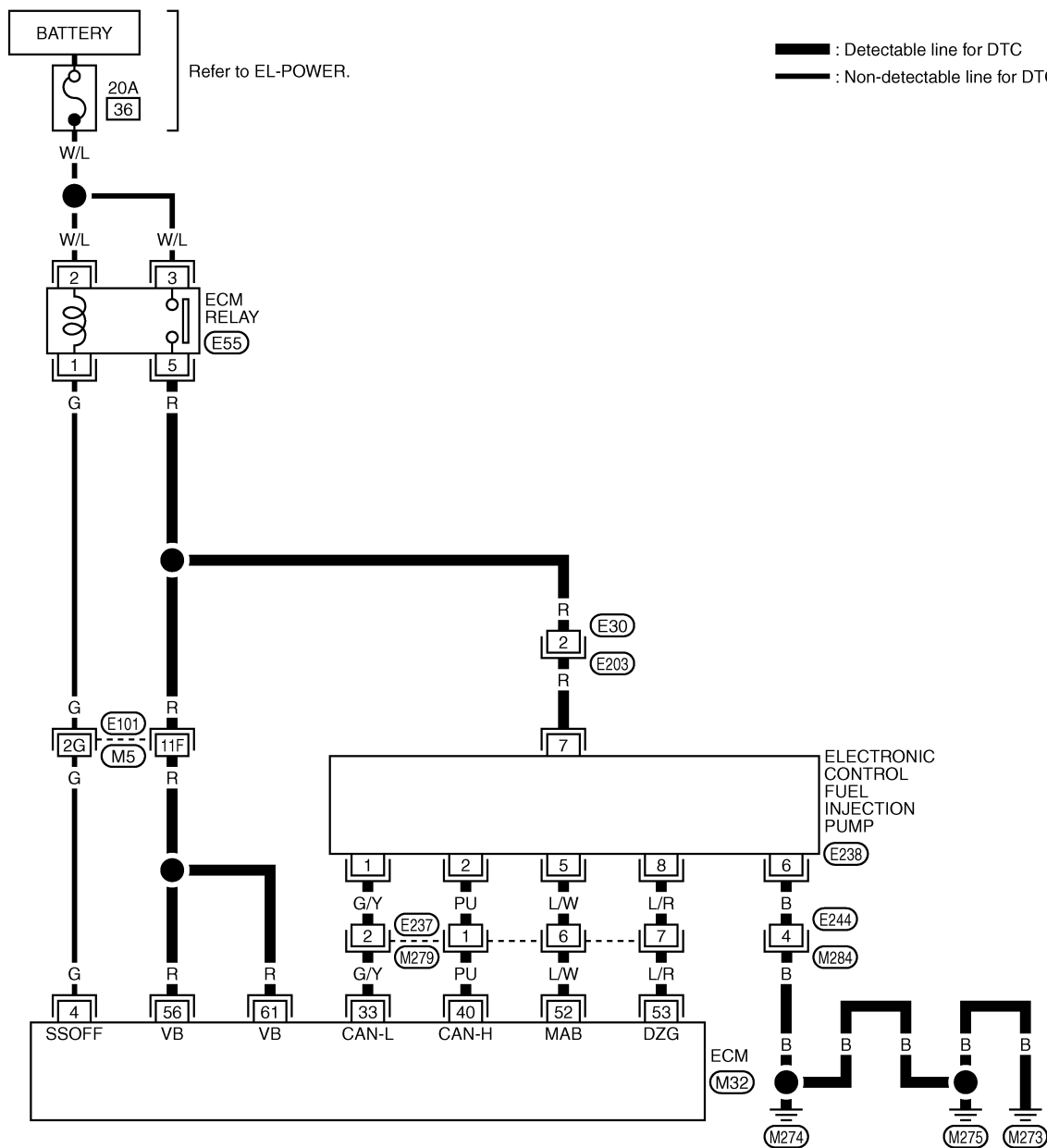
FOR MIDDLE EAST

EC-INJPMP-01



FOR MIDDLE EAST

 : Detectable line for DTC
 : Non-detectable line for DTC



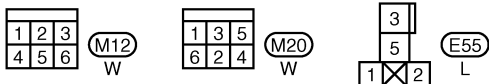
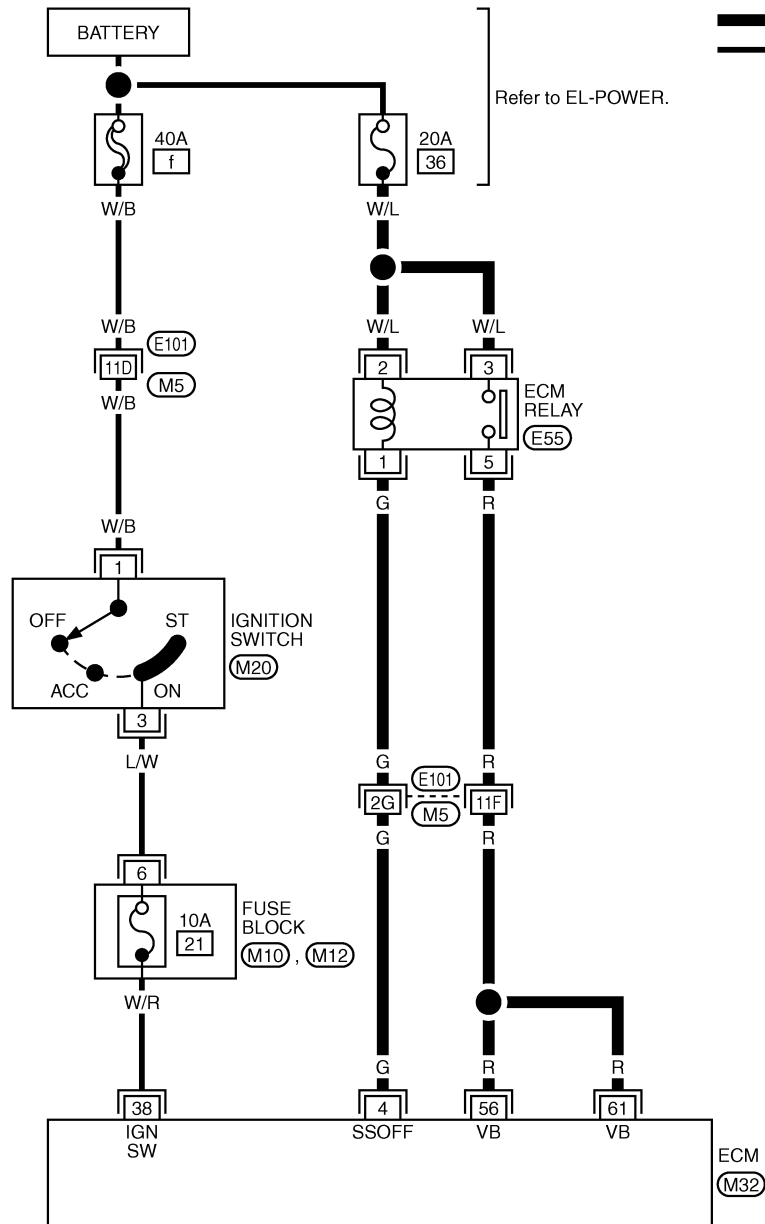
Wiring Diagram

FOR MIDDLE EAST

EC-ECMRLY-01

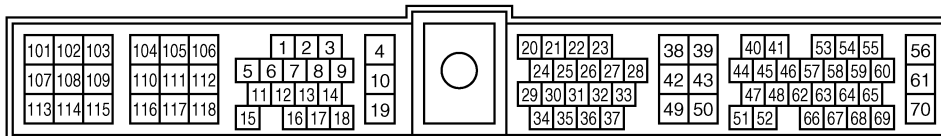
— : Detectable line for DTC
 — : Non-detectable line for DTC

Refer to EL-POWER.



Refer to last page (Foldout page).

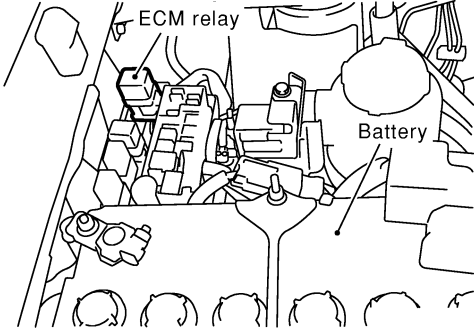
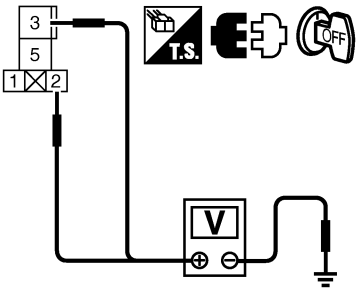
(M5), (E101)
 (M10)



GI
 MA
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Diagnostic Procedure

FOR MIDDLE EAST

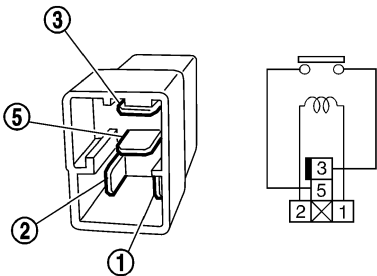
1	CHECK ECM POWER SUPPLY CIRCUIT
1. Turn ignition switch "OFF". 2. Disconnect ECM relay.	
	
	SEC950C
3. Check voltage between ECM terminals 2, 3 and ground with CONSULT-II or tester.	
	
	Voltage: Battery voltage
	SEC049E
OK or NG	
OK	▶ GO TO 3.
NG	▶ GO TO 2.
2	DETECT MALFUNCTIONING PART
Check the following.	
<ul style="list-style-type: none"> ● 20A fuse ● Harness for open and short between ECM relay and battery 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.
3	CHECK ECM INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT
1. Disconnect ECM harness connector.	
2. Check harness continuity between ECM terminals 56, 61 and ECM relay terminal 5. Refer to Wiring Diagram.	
Continuity should exist.	
3. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 5.
NG	▶ GO TO 4.

Diagnostic Procedure (Cont'd)

4	DETECT MALFUNCTIONING PART
Check the following.	
<ul style="list-style-type: none"> ● Harness connectors E101, M5 ● Harness for open or short between ECM and ECM relay 	
▶ Repair open circuit or short to ground or short to power in harness or connectors.	

5	CHECK ECM OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT
1. Check harness continuity between ECM terminal 4 and ECM relay terminal 1. Refer to Wiring Diagram. Continuity should exist.	
2. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 7.
NG	▶ GO TO 6.


6	DETECT MALFUNCTIONING PART
Check the following.	
<ul style="list-style-type: none"> ● Harness connectors E101, M5 ● Harness for open or short between ECM and ECM relay 	
▶ Repair open circuit or short to ground or short to power in harness or connectors.	

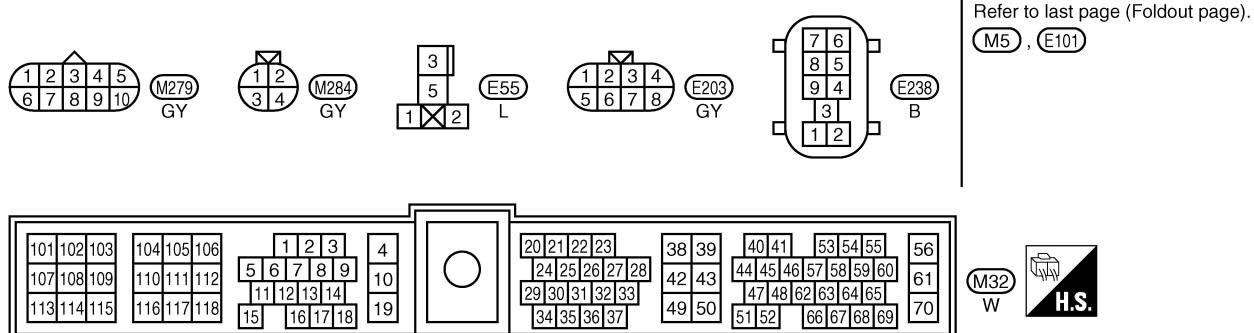
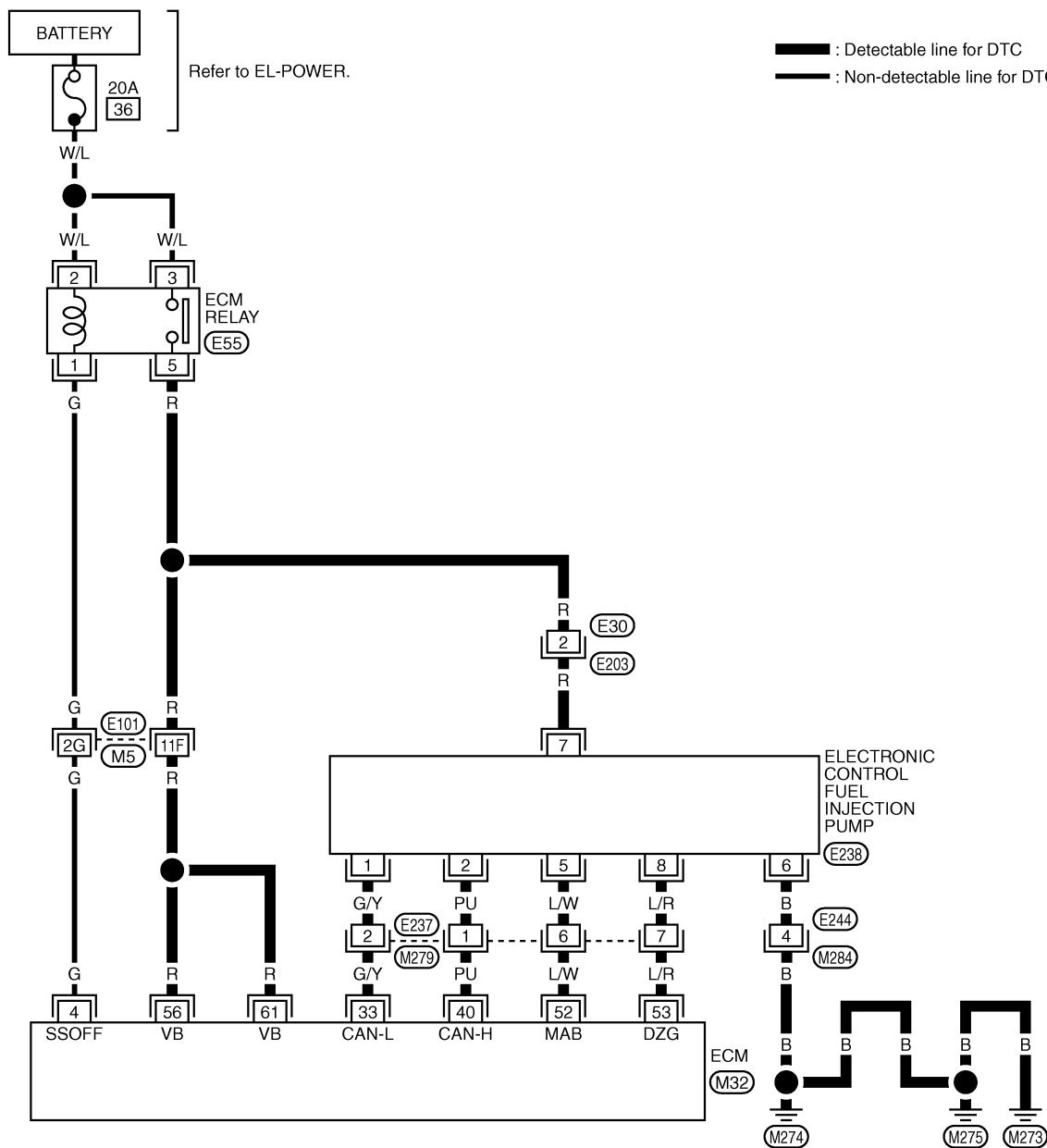
7	CHECK ECM RELAY						
1. Apply 12V direct current between ECM relay terminals 1 and 2.							
2. Check continuity between ECM relay terminals 3 and 5.							
 <table border="1" data-bbox="901 1113 1274 1239"> <thead> <tr> <th>Conditions</th><th>Continuity</th></tr> </thead> <tbody> <tr> <td>12V direct current supply between terminals 1 and 2</td><td>Yes</td></tr> <tr> <td>No current supply</td><td>No</td></tr> </tbody> </table>		Conditions	Continuity	12V direct current supply between terminals 1 and 2	Yes	No current supply	No
Conditions	Continuity						
12V direct current supply between terminals 1 and 2	Yes						
No current supply	No						
OK or NG							
OK	▶ GO TO 8.						
NG	▶ Replace ECM relay.						

SEC340C

8	CHECK INTERMITTENT INCIDENT
Refer to "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-561 in Service Manual (Publication No. SM1E-1D22FG1).	
▶ INSPECTION END	

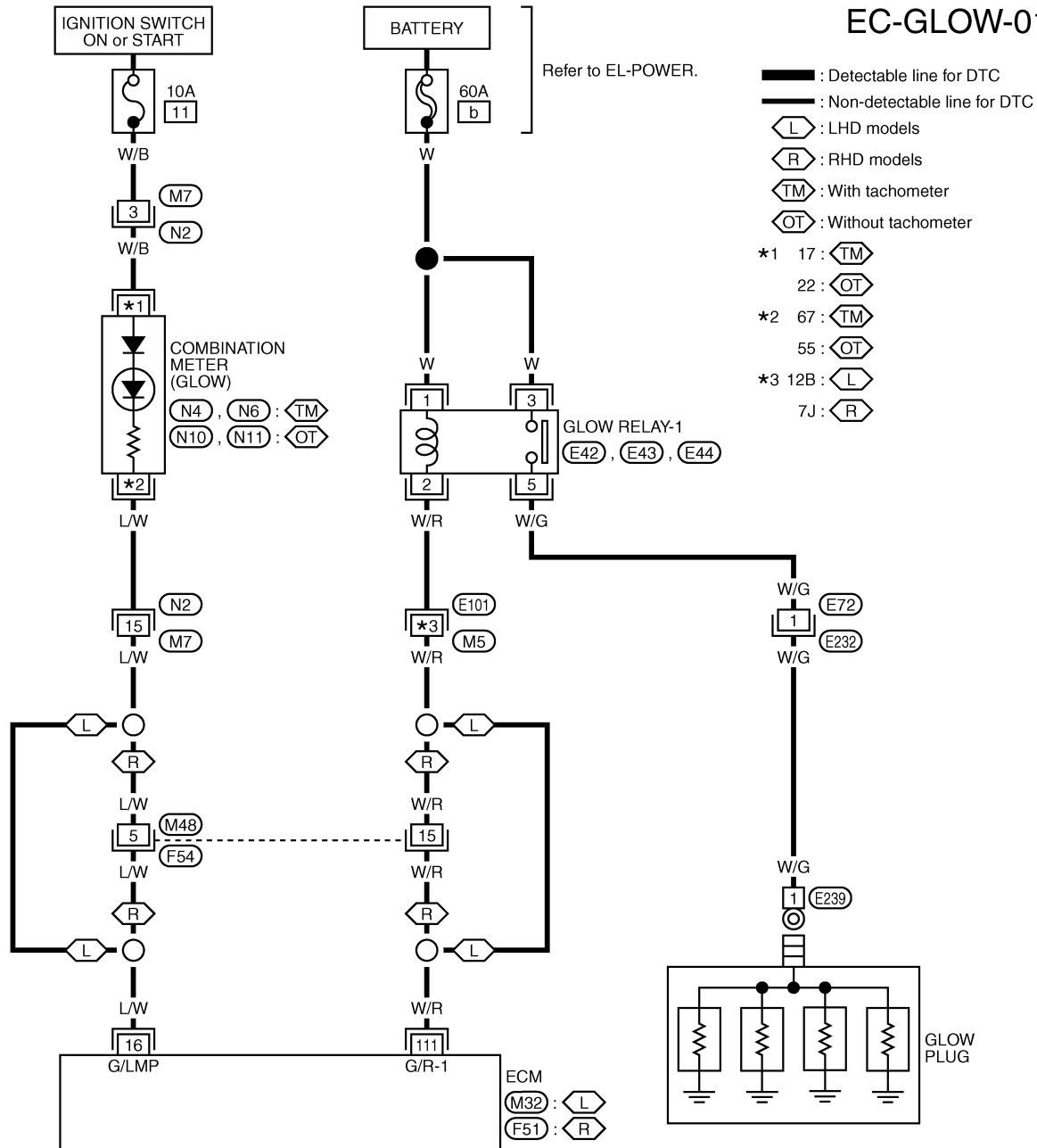
FOR MIDDLE EAST

 : Detectable line for DTC
 : Non-detectable line for DTC



Wiring Diagram

EC-GLOW-01



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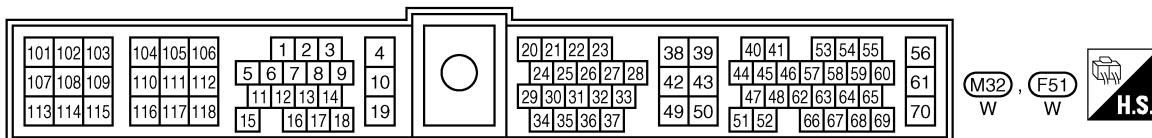
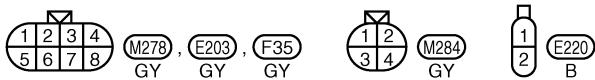
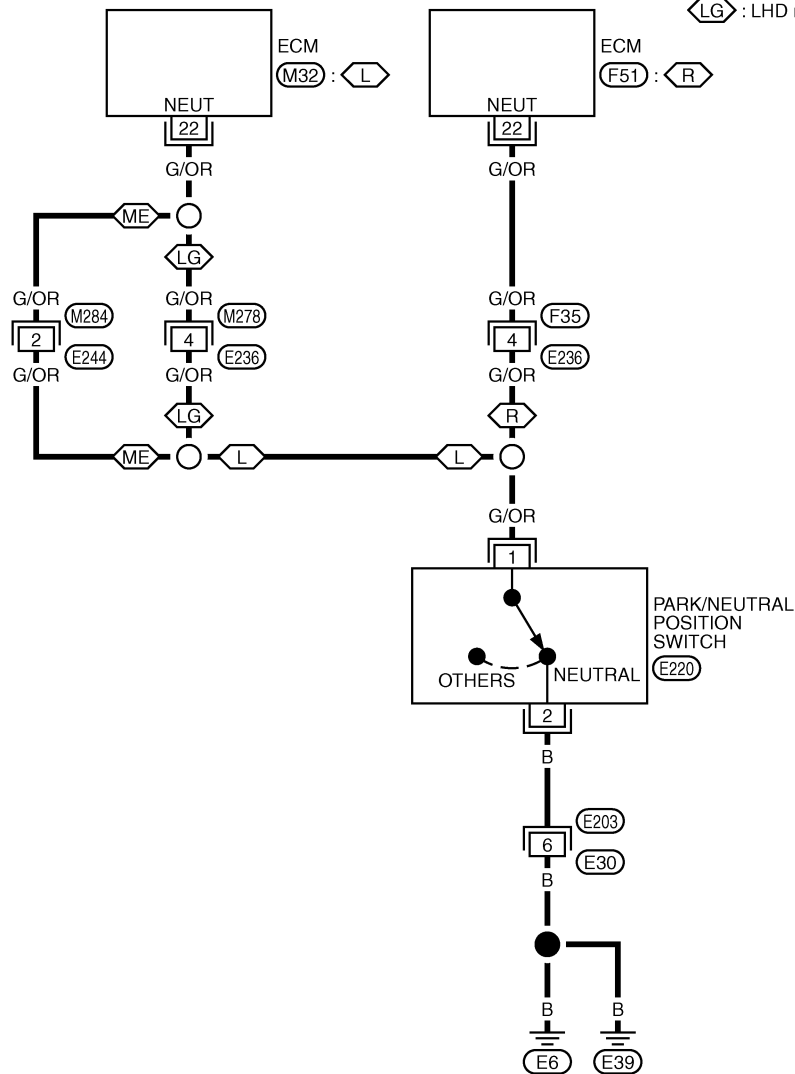
EL

IDX



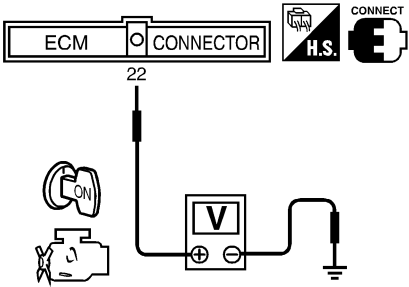
Wiring Diagram

EC-PNP/SW-01

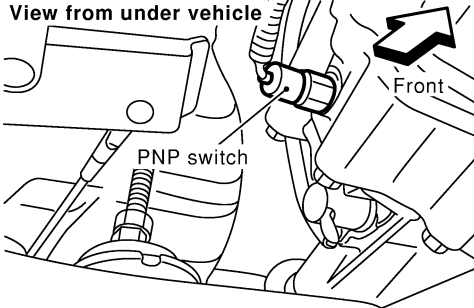
- : Detectable line for DTC
- : Non-detectable line for DTC
- L : LHD models
- R : RHD models
- ME : For the Middle East
- LG : LHD models except for the Middle East



Diagnostic Procedure

1	CHECK OVERALL FUNCTION												
<p> With CONSULT-II</p> <ol style="list-style-type: none"> 1. Turn ignition switch "ON". 2. Select "P/N POSI SW" in "DATA MONITOR" mode with CONSULT-II. 3. Check "P/N POSI SW" signal under the following conditions. 													
<div style="display: flex; align-items: center; justify-content: space-around;"> <table border="1" data-bbox="418 399 680 720"> <thead> <tr> <th colspan="2">DATA MONITOR</th> </tr> <tr> <th>MONITOR</th><th>NO DTC</th></tr> </thead> <tbody> <tr> <td>P/N POSI SW</td><td>ON</td></tr> </tbody> </table> <table border="1" data-bbox="732 497 1153 617"> <thead> <tr> <th>Condition (Gear position)</th><th>P/N POSI SW</th></tr> </thead> <tbody> <tr> <td>Neutral position</td><td>ON</td></tr> <tr> <td>Except the above position</td><td>OFF</td></tr> </tbody> </table> </div>		DATA MONITOR		MONITOR	NO DTC	P/N POSI SW	ON	Condition (Gear position)	P/N POSI SW	Neutral position	ON	Except the above position	OFF
DATA MONITOR													
MONITOR	NO DTC												
P/N POSI SW	ON												
Condition (Gear position)	P/N POSI SW												
Neutral position	ON												
Except the above position	OFF												
SEF049YA													
<p> Without CONSULT-II</p> <ol style="list-style-type: none"> 1. Turn ignition switch "ON". 2. Check voltage between ECM terminal 22 and ground under the following conditions. 													
<div style="display: flex; align-items: center; justify-content: space-around;">  <table border="1" data-bbox="802 1005 1360 1144"> <thead> <tr> <th>Condition (Gear position)</th><th>Voltage V</th></tr> </thead> <tbody> <tr> <td>Neutral position</td><td>Approx. 0V</td></tr> <tr> <td>Except the above position</td><td>Battery voltage</td></tr> </tbody> </table> </div>		Condition (Gear position)	Voltage V	Neutral position	Approx. 0V	Except the above position	Battery voltage						
Condition (Gear position)	Voltage V												
Neutral position	Approx. 0V												
Except the above position	Battery voltage												
SEF419Y													
OK or NG													
OK	▶ INSPECTION END												
NG	▶ GO TO 2.												

Diagnostic Procedure (Cont'd)

2	CHECK PNP SWITCH GROUND CIRCUIT FOR OPEN AND SHORT
1. Turn ignition switch "OFF". 2. Disconnect park/neutral position (PNP) switch harness connector.	
 <p>View from under vehicle</p> <p>PNP switch</p> <p>Front</p>	
3. Check harness continuity between PNP switch terminal 2 and body ground. Refer to Wiring Diagram. Continuity should exist. 4. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 4.
NG	▶ GO TO 3.

SEC170D

3	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> • Harness connectors E203, E30 • Harness for open or short between PNP switch and body ground 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

4	CHECK PNP SWITCH INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT
1. Disconnect ECM harness connector. 2. Check harness continuity between ECM terminal 22 and PNP switch terminal 1. Refer to Wiring Diagram. Continuity should exist. 3. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 6.
NG	▶ GO TO 5.

5	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> • Harness connectors M278, E236 (LHD models except for Middle East) • Harness connectors F35, E236 (RHD models) • Harness connectors M284, E244 (for Middle East) • Harness for open or short between PNP switch and ECM 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

6	CHECK PARK/NEUTRAL POSITION SWITCH
Refer to MT section ("POSITION SWITCH CHECK").	
OK or NG	
OK	▶ GO TO 7.
NG	▶ Replace park/neutral position switch.

Diagnostic Procedure (Cont'd)

7	CHECK INTERMITTENT INCIDENT
Refer to "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-561 in Service Manual (Publication No. SM1E-1D22FG1).	
▶	INSPECTION END

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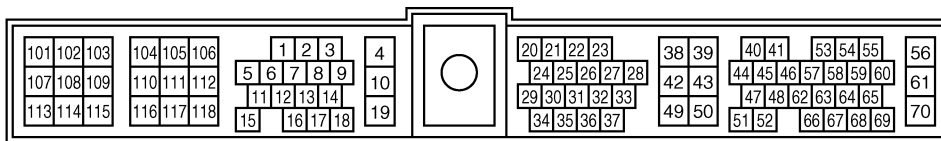
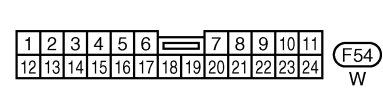
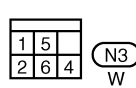
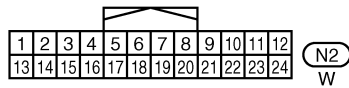
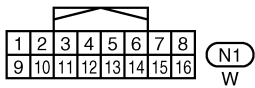
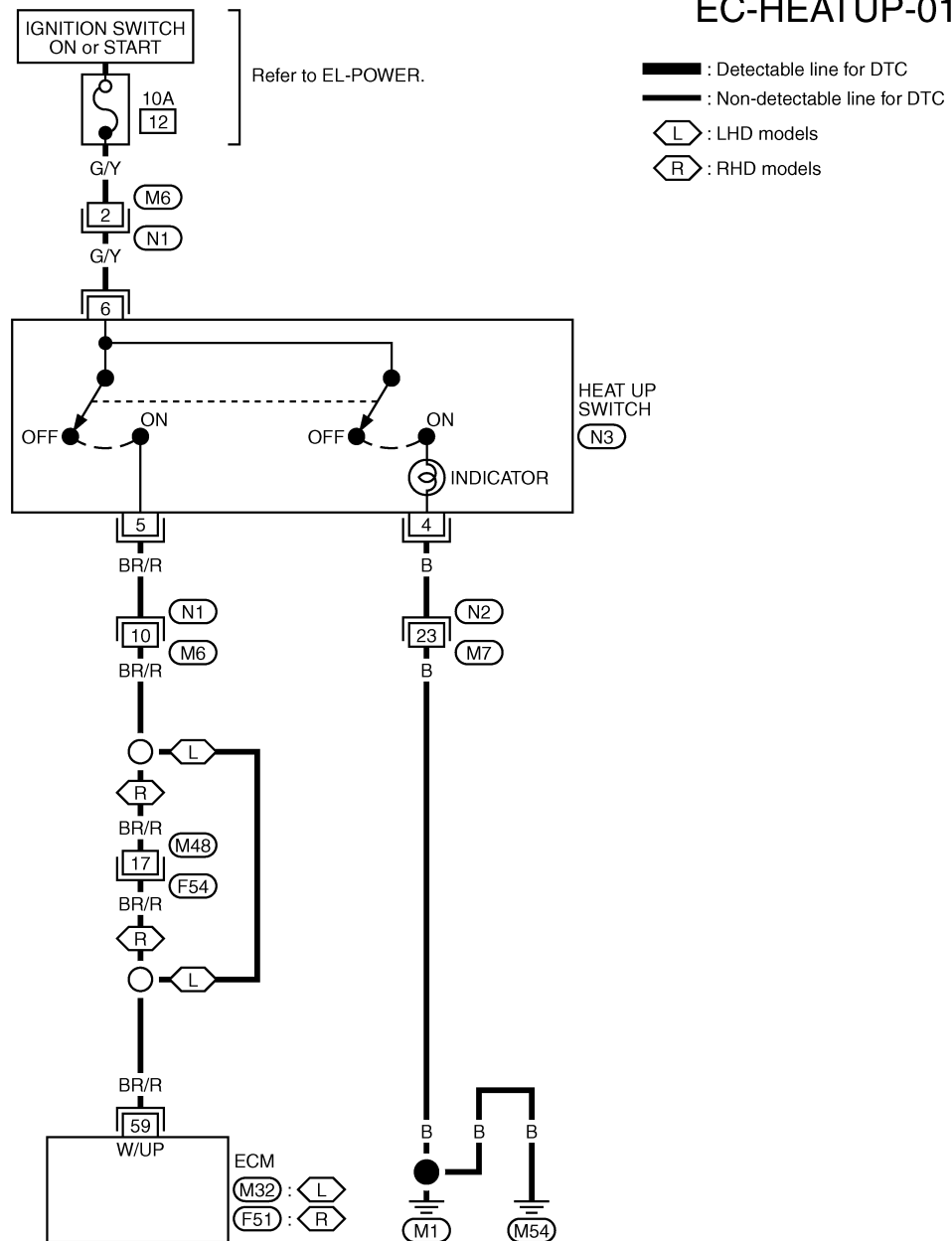
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IDX

Wiring Diagram

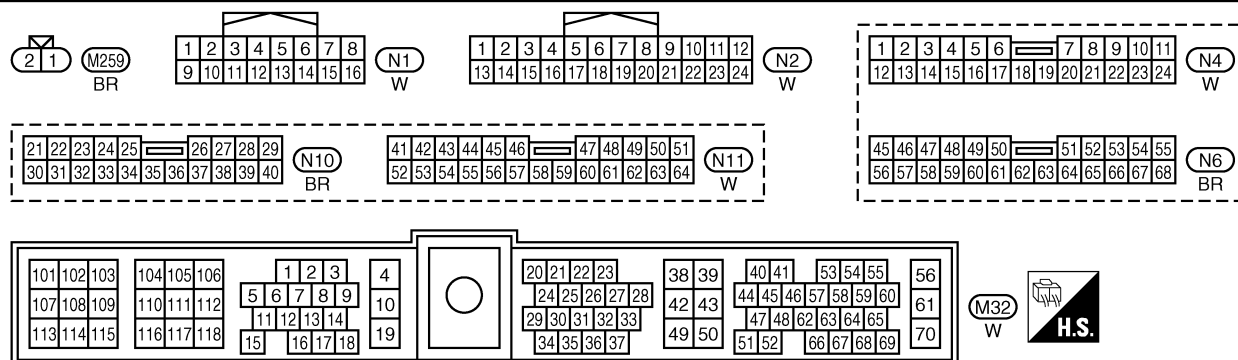
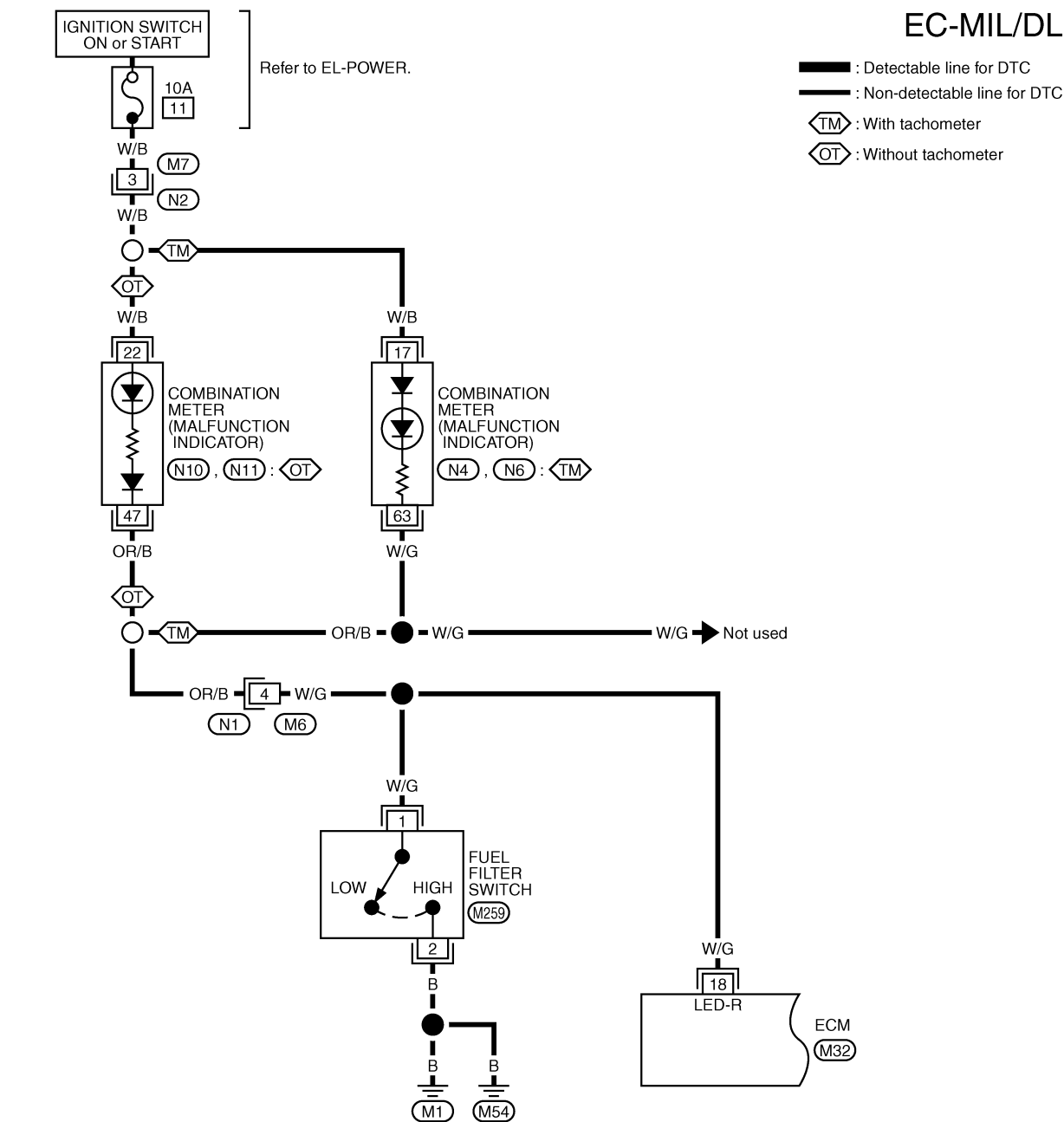
EC-HEATUP-01



Wiring Diagram

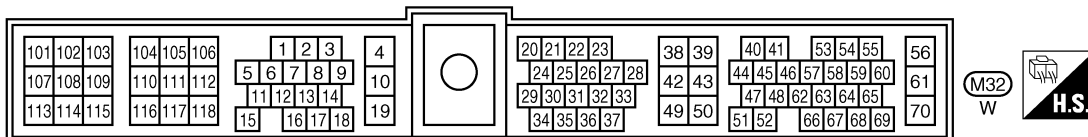
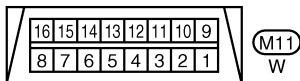
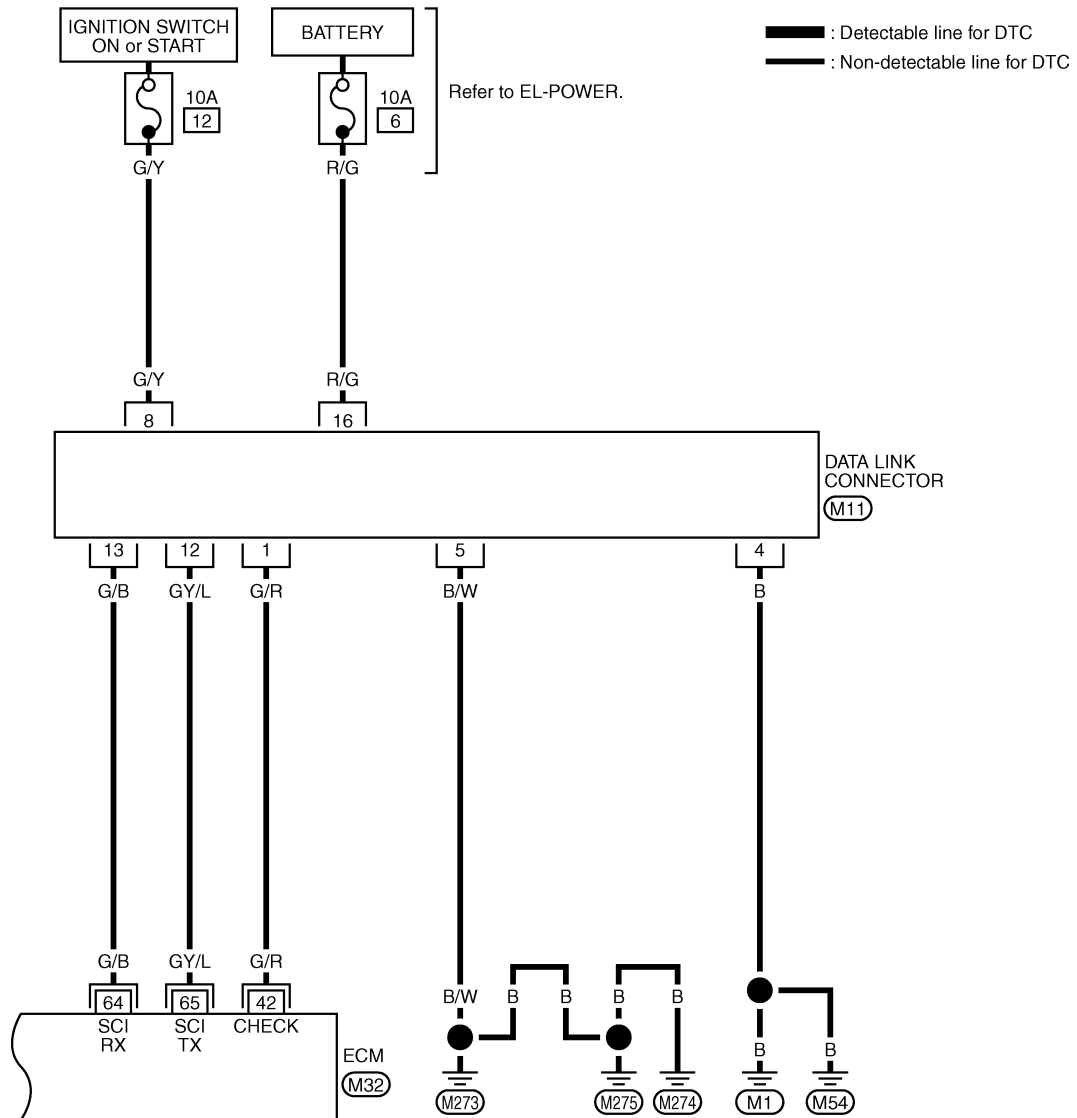
LHD MODELS

EC-MIL/DL-01



Wiring Diagram (Cont'd)

EC-MIL/DL-02

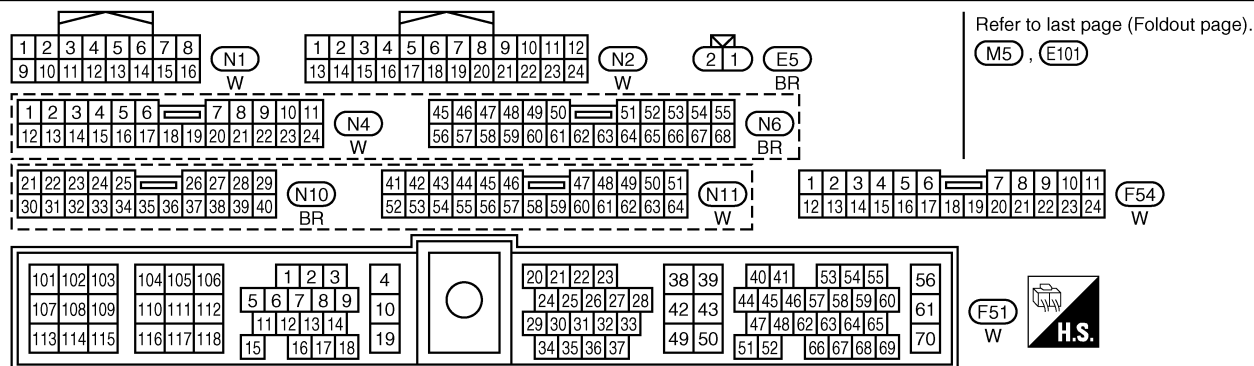
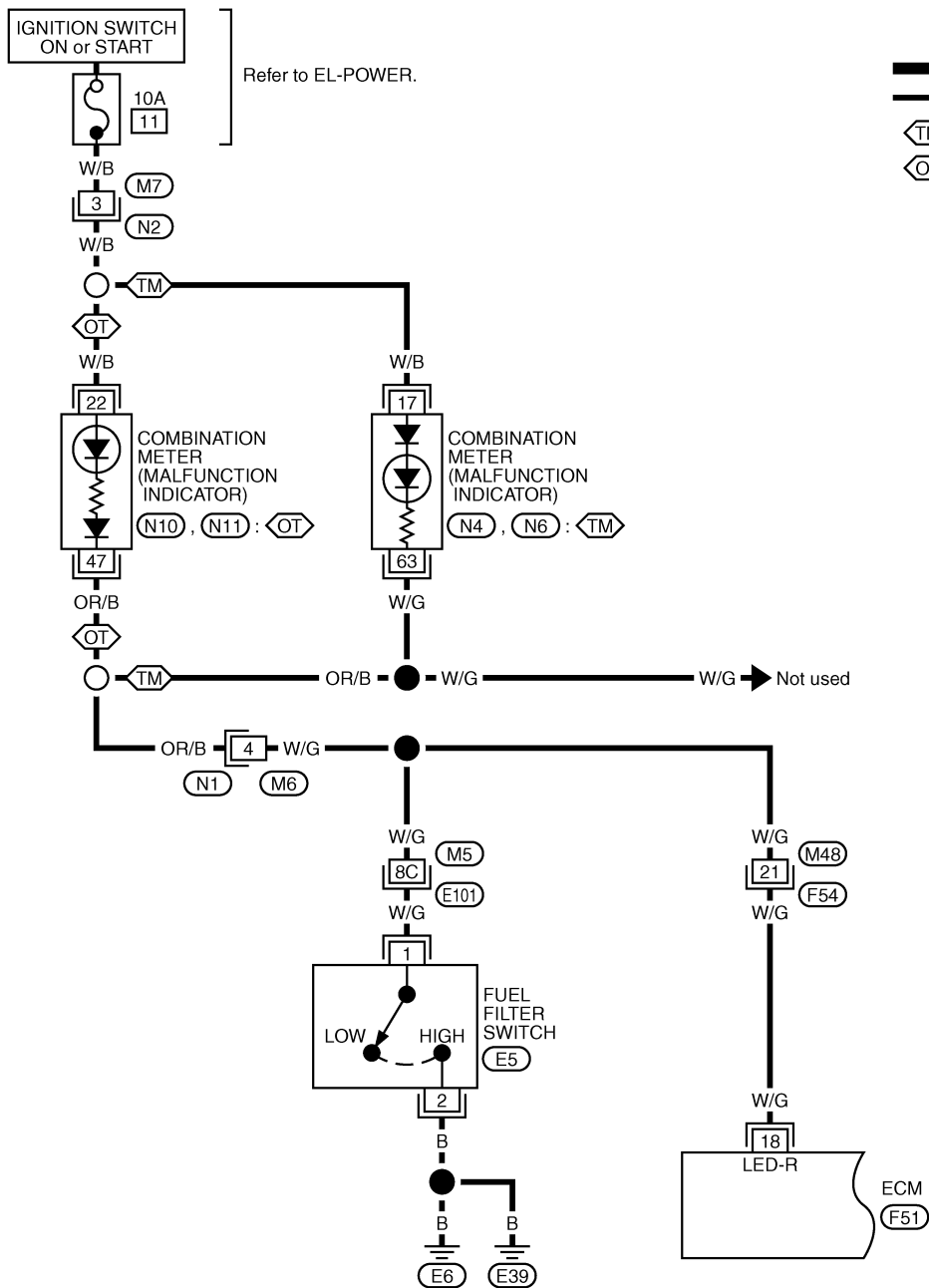


Wiring Diagram (Cont'd)

RHD MODELS

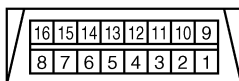
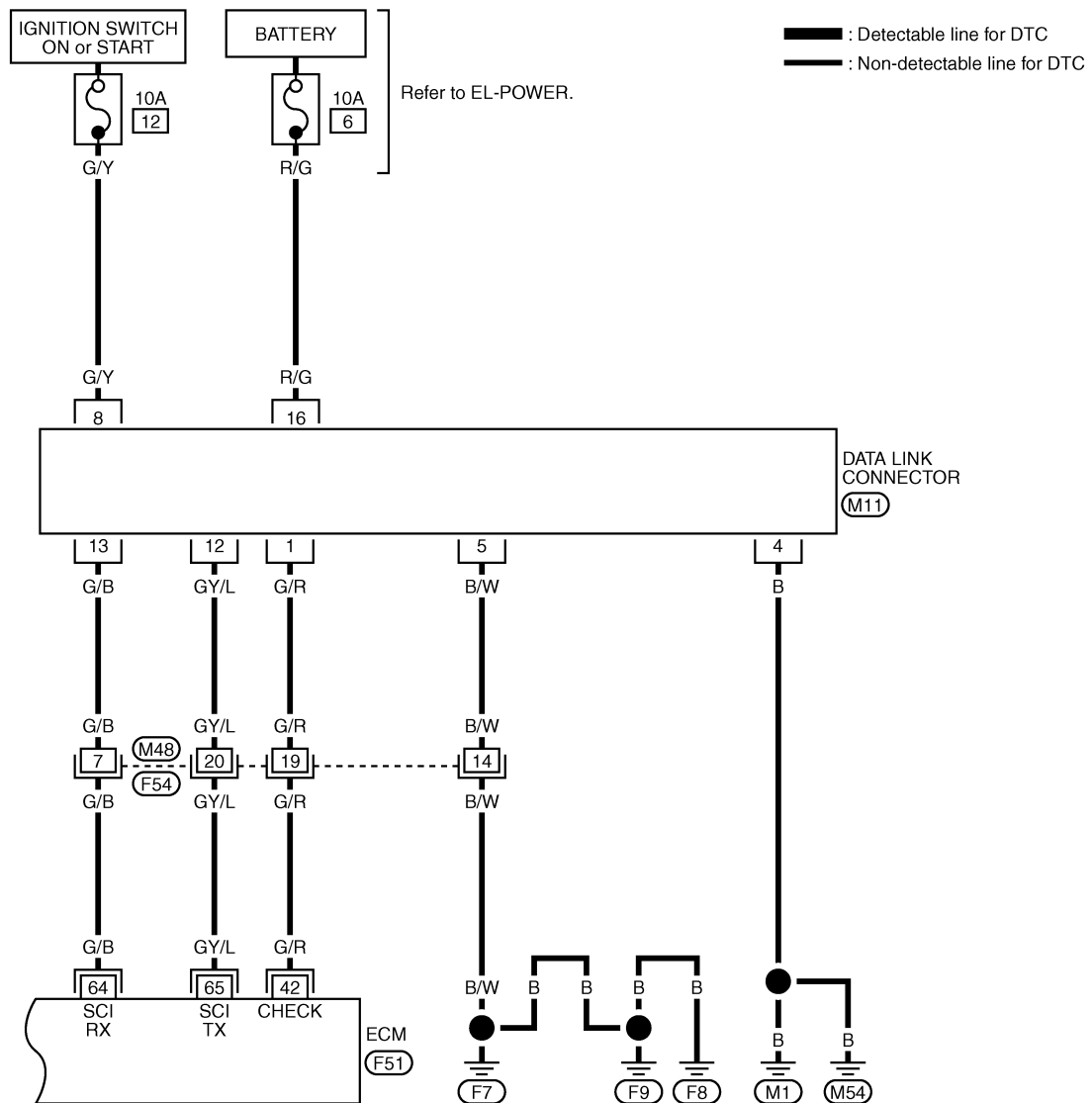
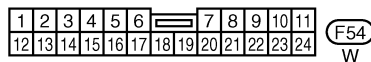
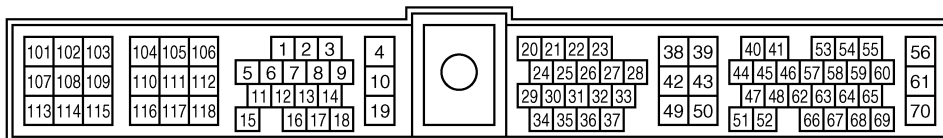
EC-MIL/DL-03

- : Detectable line for DTC
 — : Non-detectable line for DTC
 TM : With tachometer
 OT : Without tachometer

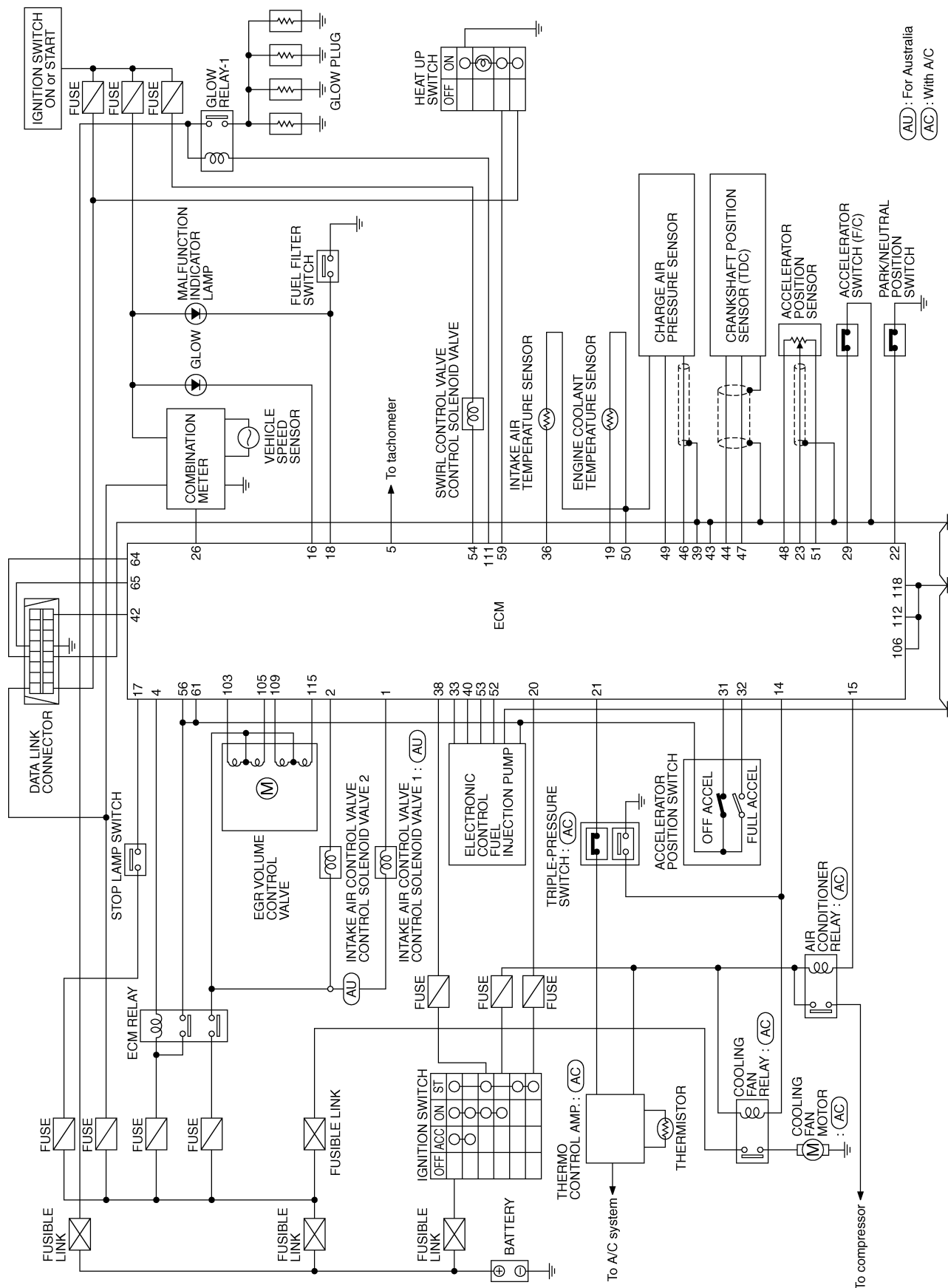


Wiring Diagram (Cont'd)

EC-MIL/DL-04

(M11)
W(F54)
W(F51)
W

Circuit Diagram



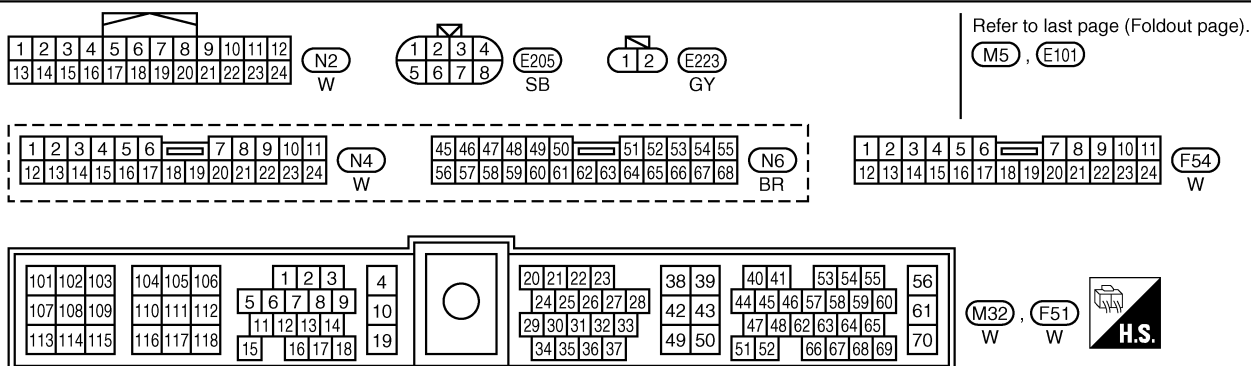
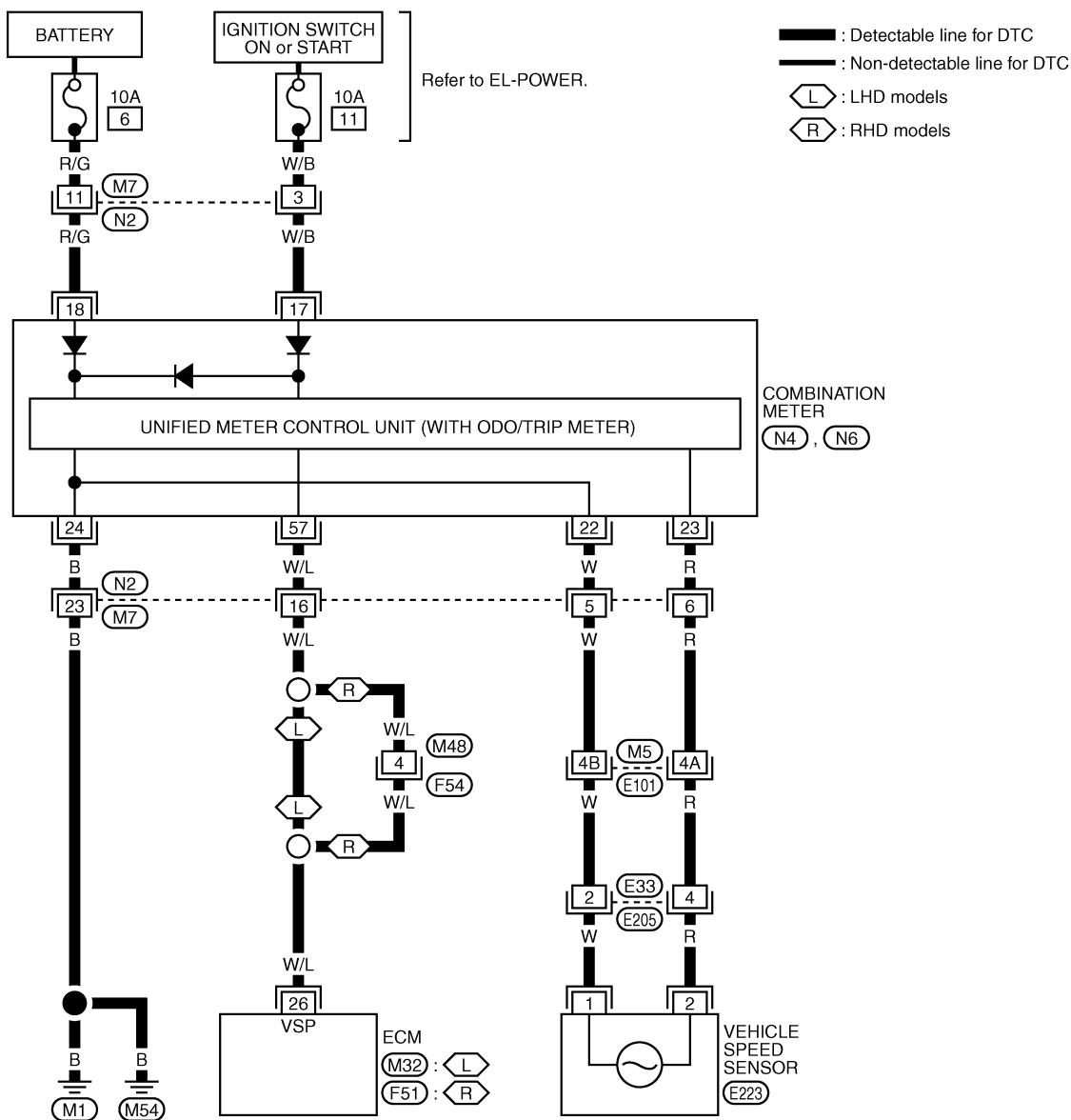
(AU) : For Australia
(AC) : With A/C

GEC577A

Wiring Diagram

MODELS WITH TACHOMETER

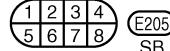
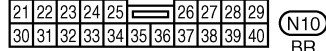
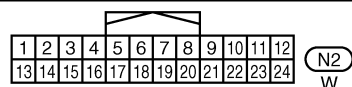
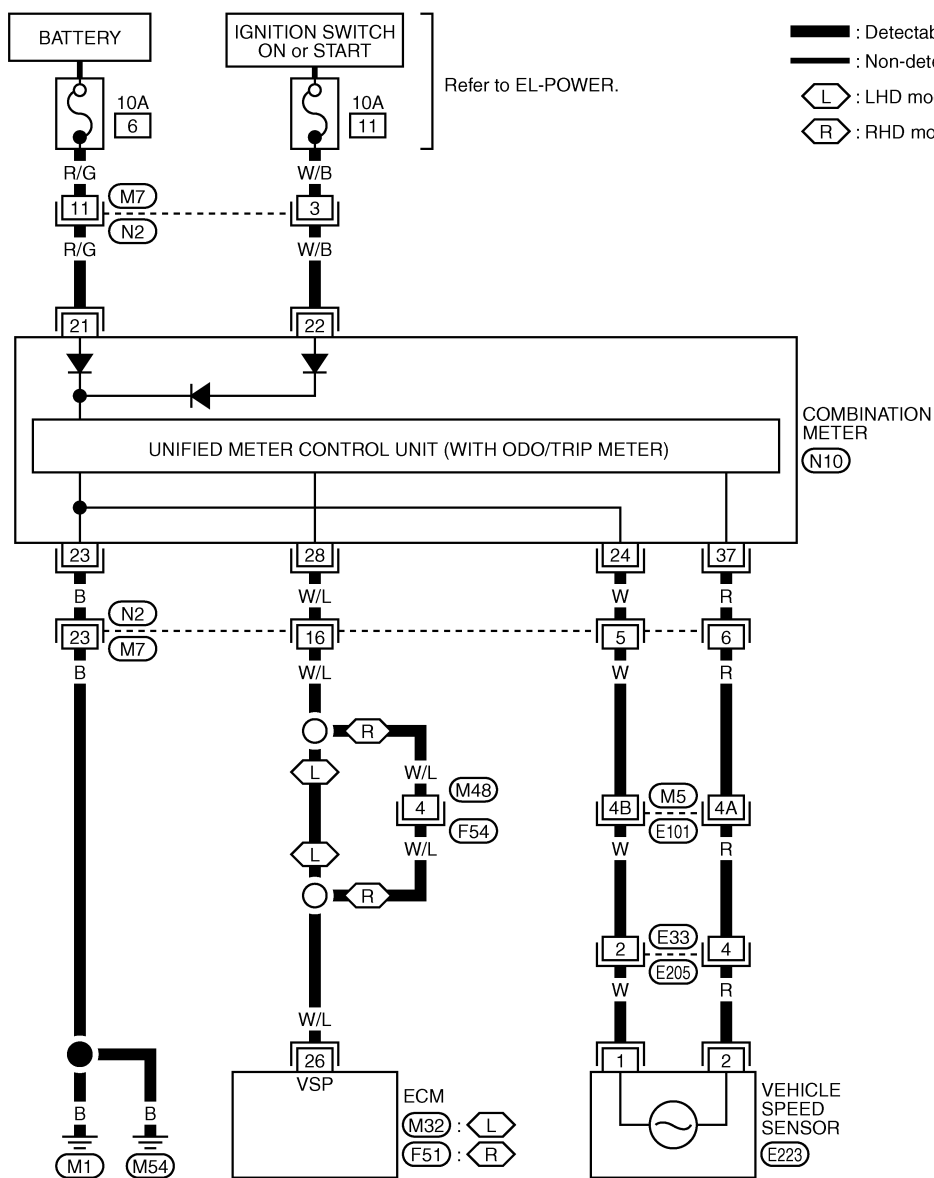
EC-VSS-01



Wiring Diagram (Cont'd)

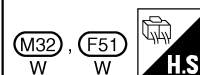
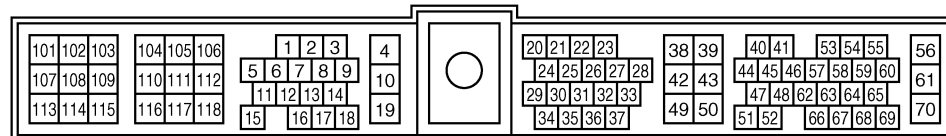
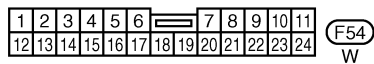
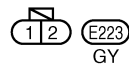
MODELS WITHOUT TACHOMETER

EC-VSS-02



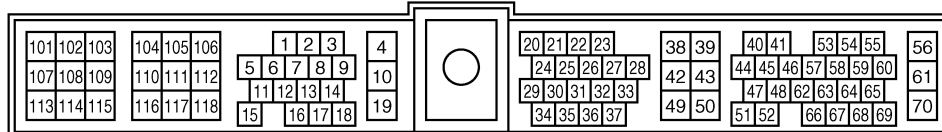
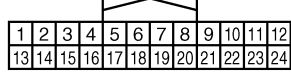
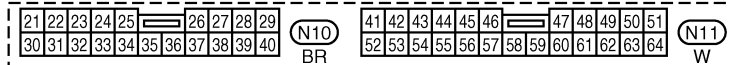
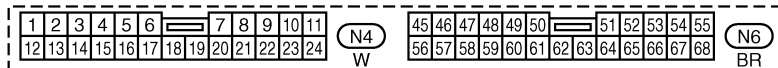
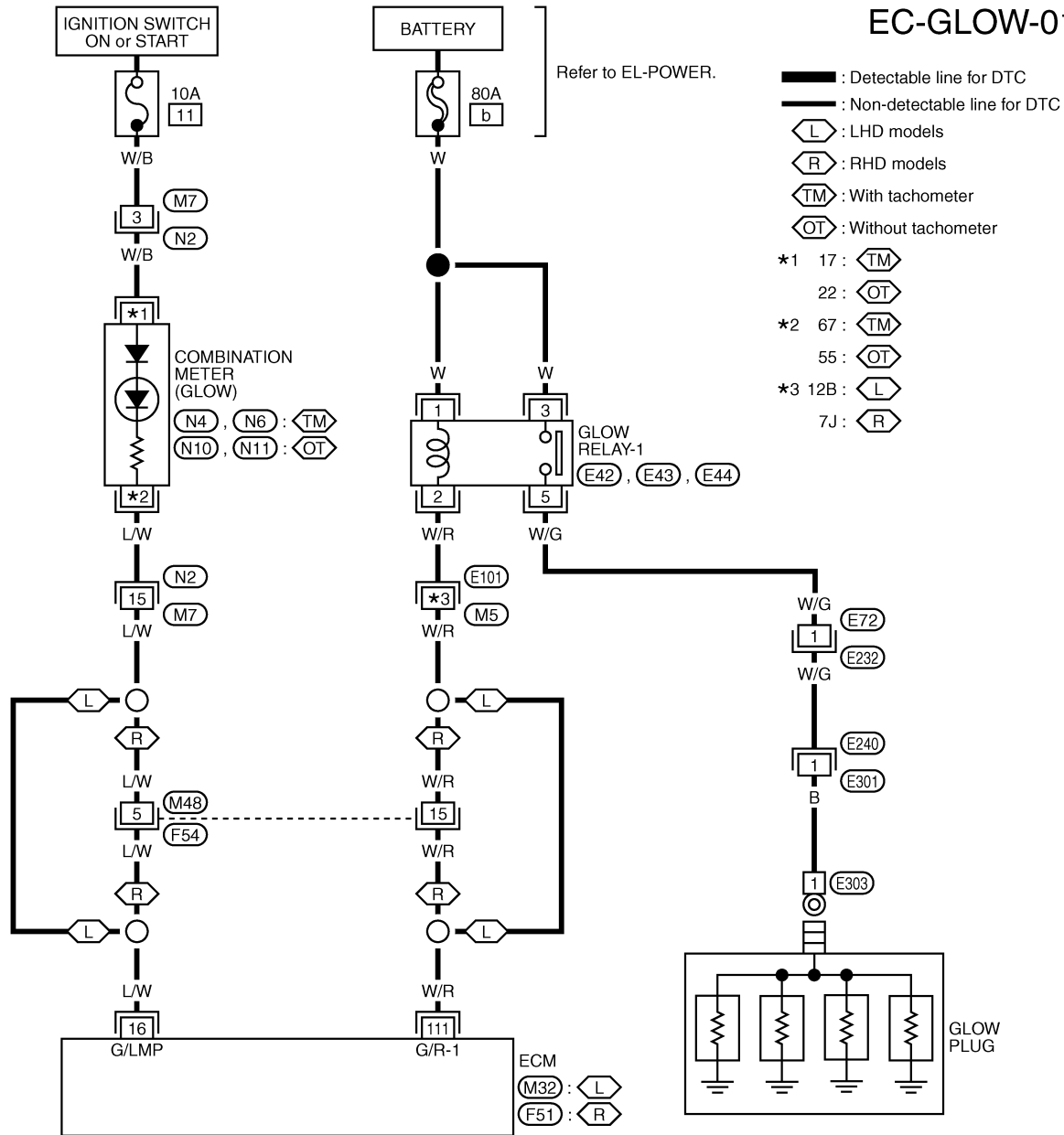
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M5, E101



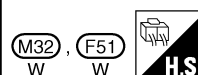
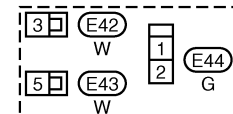
Wiring Diagram

EC-GLOW-01



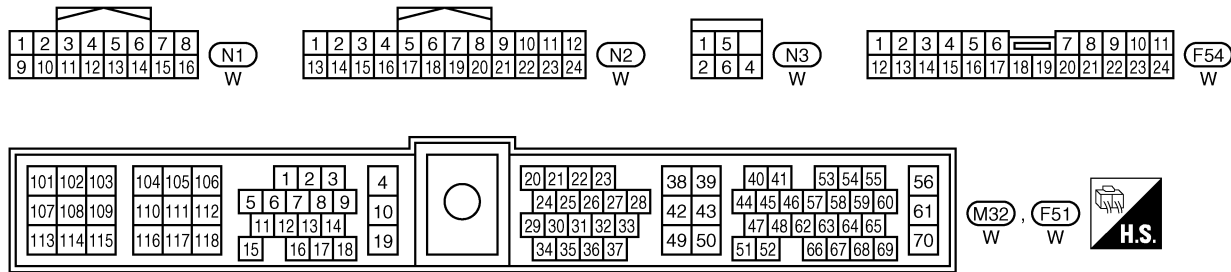
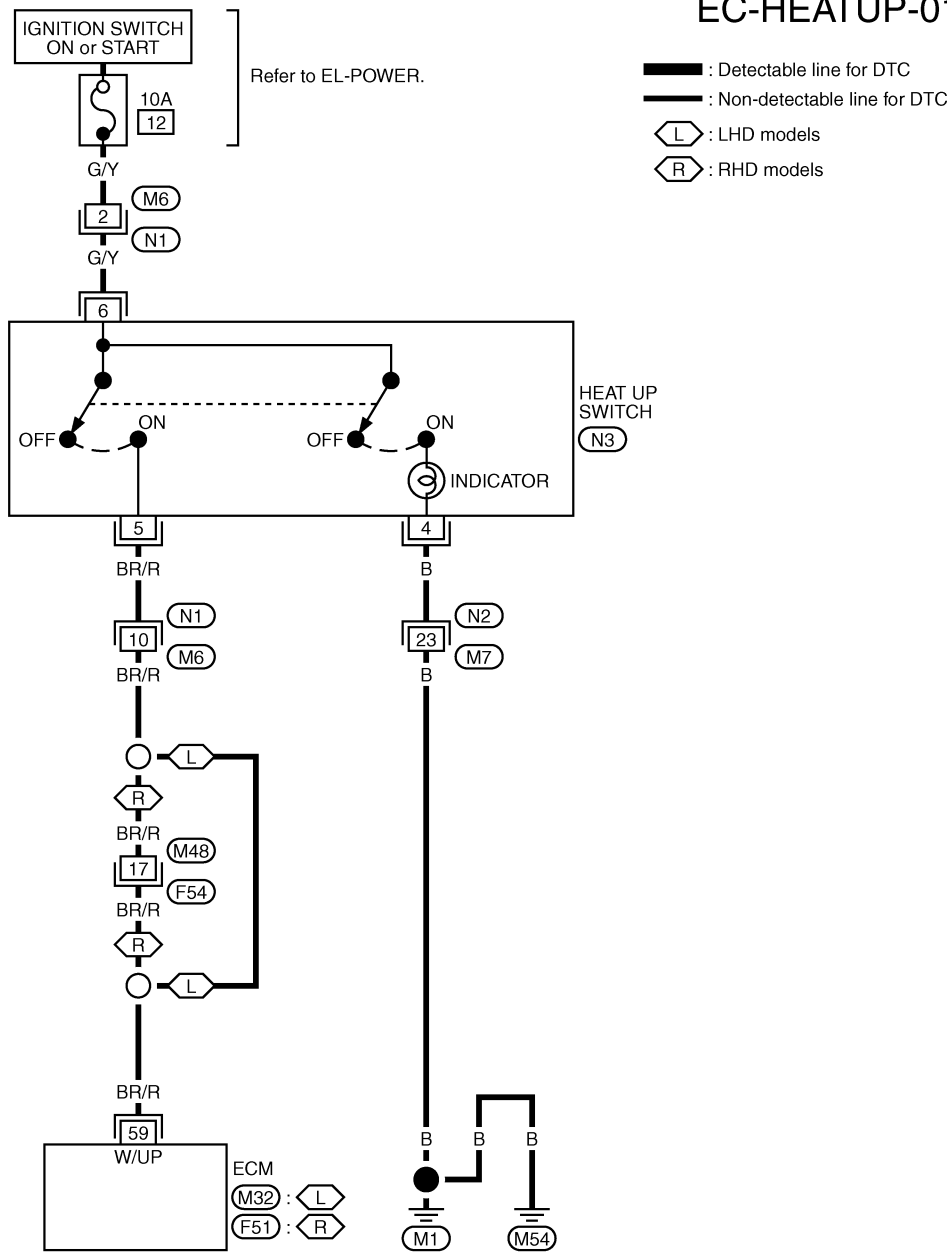
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M5, E101



Wiring Diagram

EC-HEATUP-01

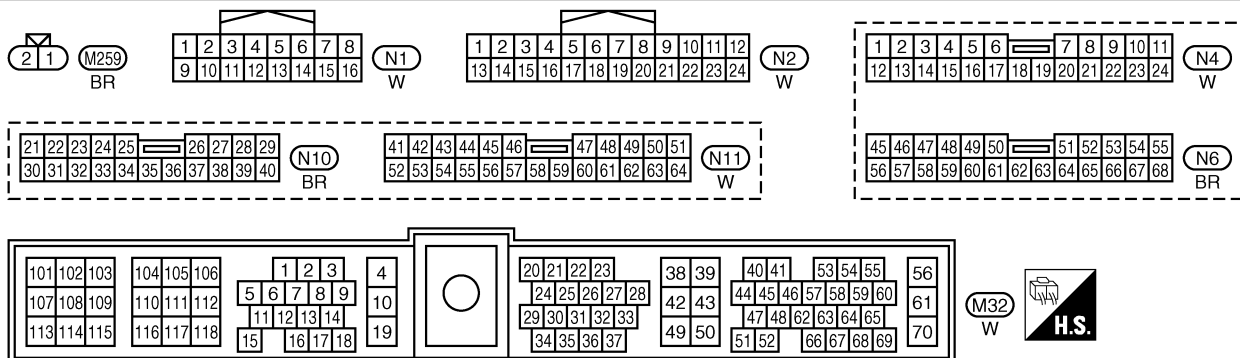
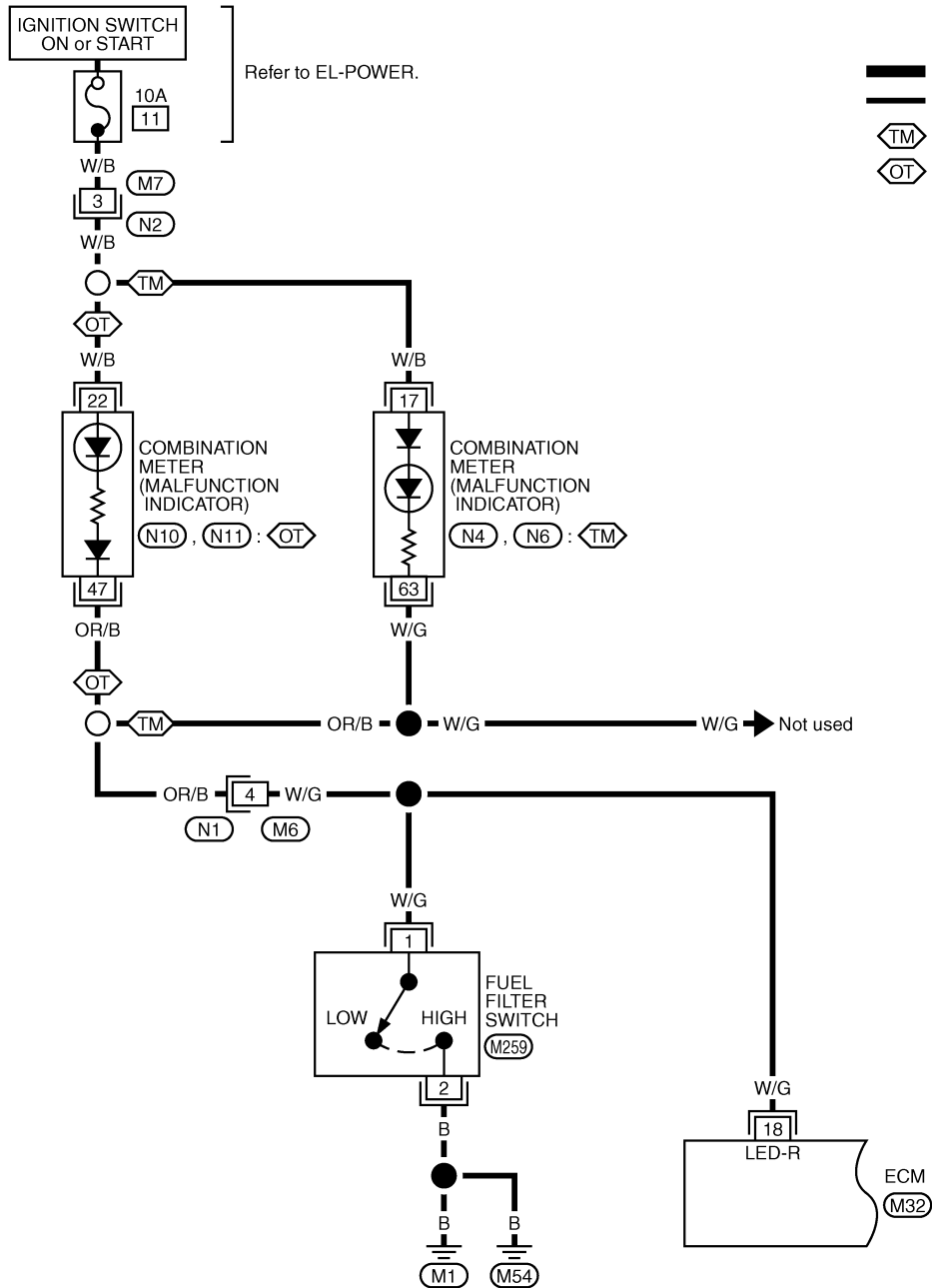


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Wiring Diagram

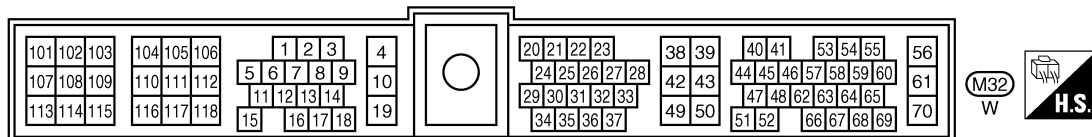
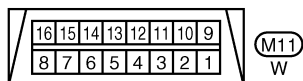
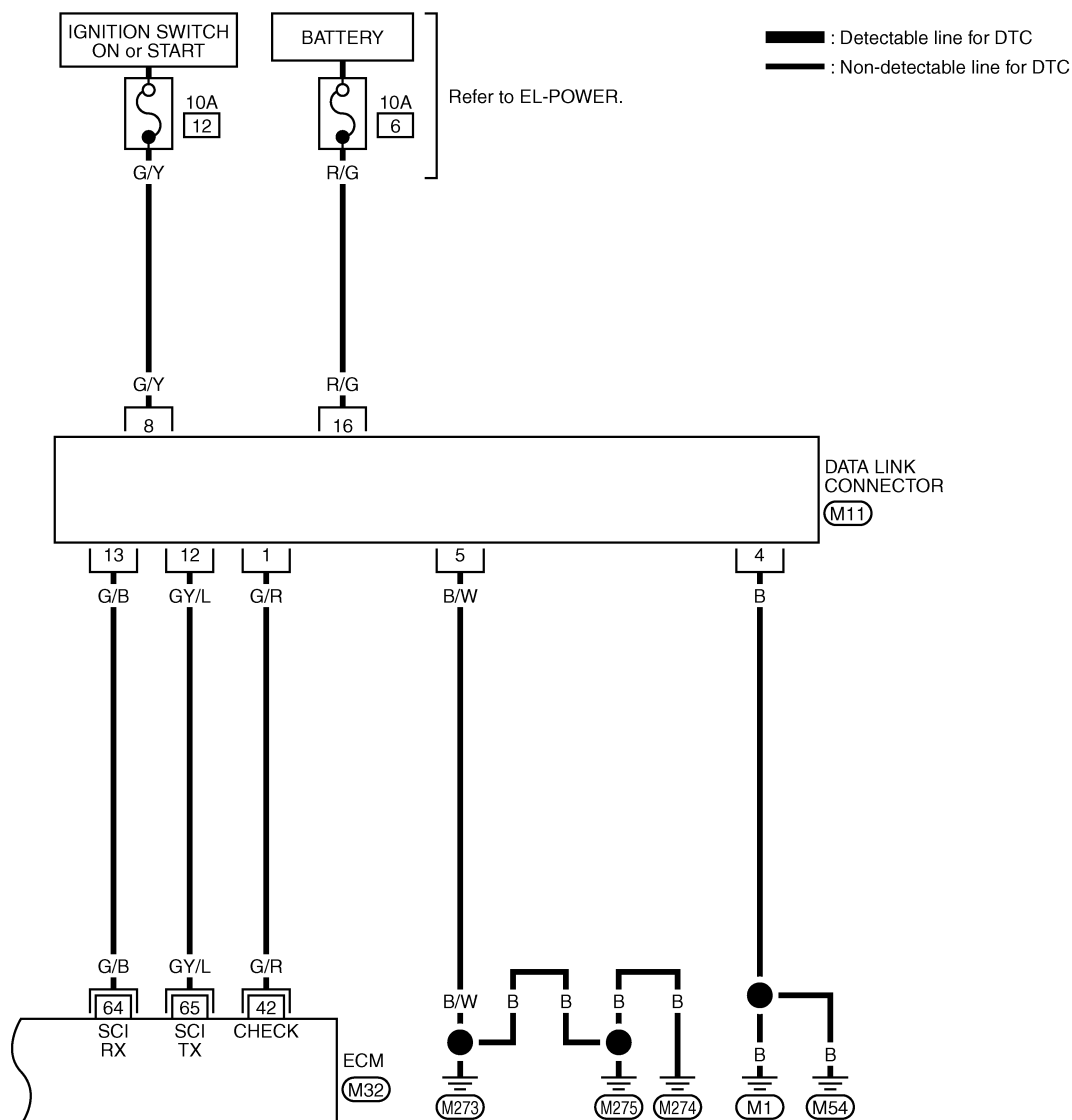
LHD MODELS

EC-MIL/DL-01



Wiring Diagram (Cont'd)

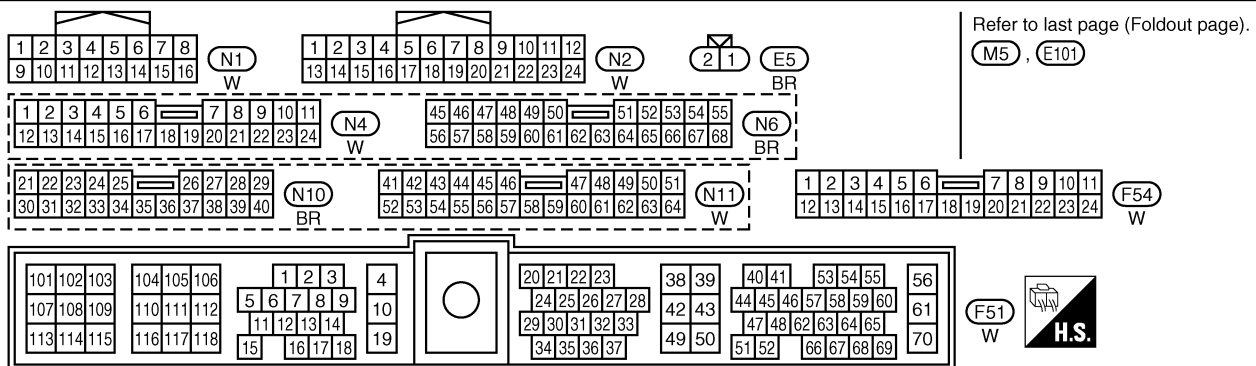
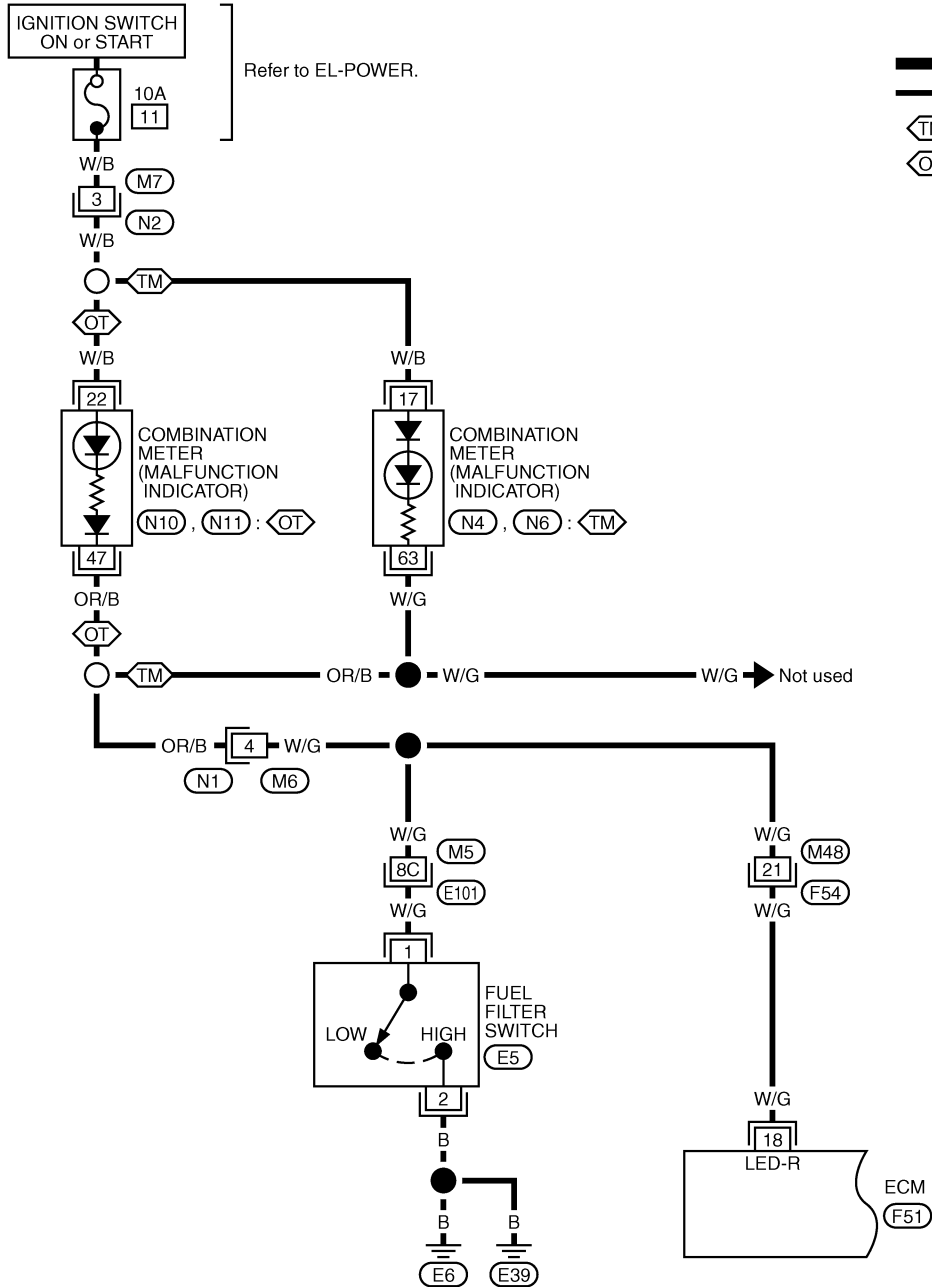
EC-MIL/DL-02



Wiring Diagram (Cont'd)

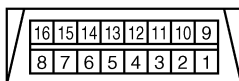
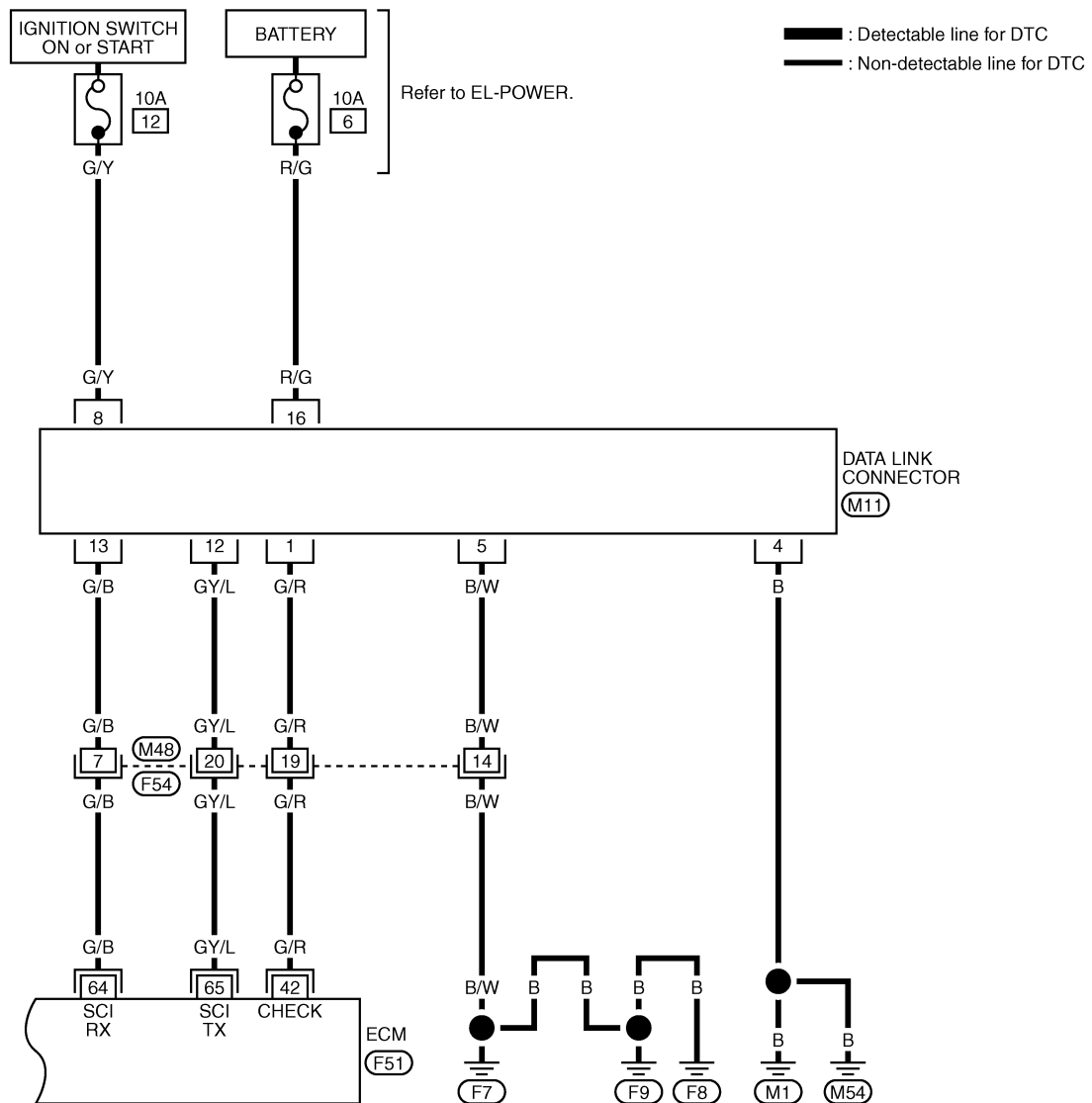
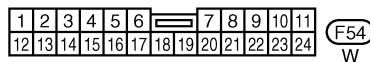
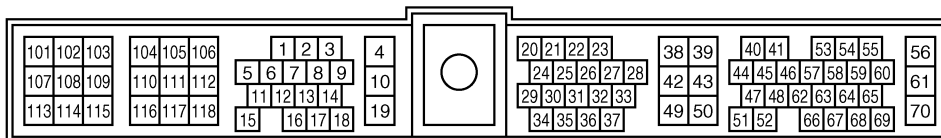
RHD MODELS

EC-MIL/DL-03



Wiring Diagram (Cont'd)

EC-MIL/DL-04

(M11)
W(F54)
W(F51)
W

GI

MA

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LC

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