

SECTION HA

MODIFICATION NOTICE:

- Compressor has been changed. (KA, TD and QD engine models)
- Refrigerant amount has been changed.
- A/C cycle for VG33 engine models has been added.
- Fusible plug attached to liquid tank has been deleted.
- Pressure relief valve has been added to high-pressure flexible hose. (VG engine models)
- Pressure relief valve has been added to compressor. (Except VG engine models)
- Wiring diagrams have been changed.
- Thermo control amp. of auto A/C has been abolished and trouble diagnosis of magnet clutch has been changed. (For Europe)
- Pressure relief valve has been added to compressor. (KA24DE and YD25DDT engine models for Europe)
- Refrigerant amount has been changed. (YD25DDT engine models for Europe) Refer to SDS.

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

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The SRS composition which is available to NISSAN MODEL D22 is as follows (The composition varies according to the destination and optional equipment.):

Driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioner, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.

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 dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.
- 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 connector.

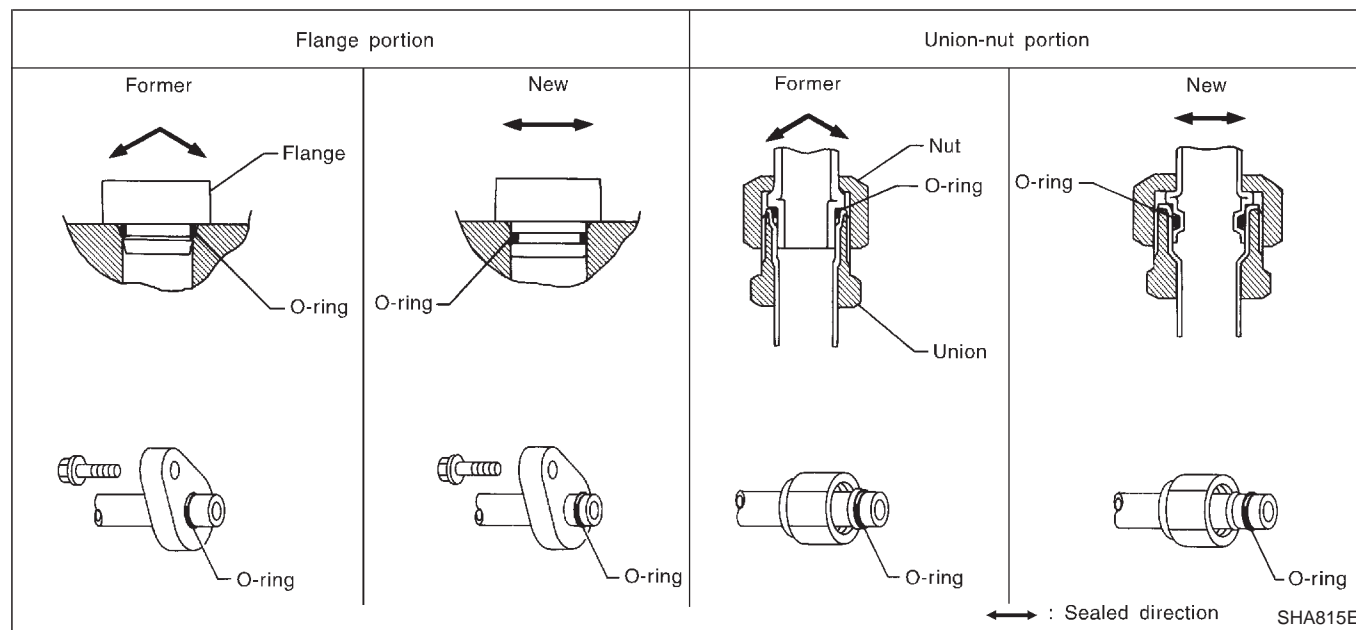
Precautions for Refrigerant Connection

A new type refrigerant connection has been introduced to all refrigerant lines except the following location.

- Expansion valve to cooling unit

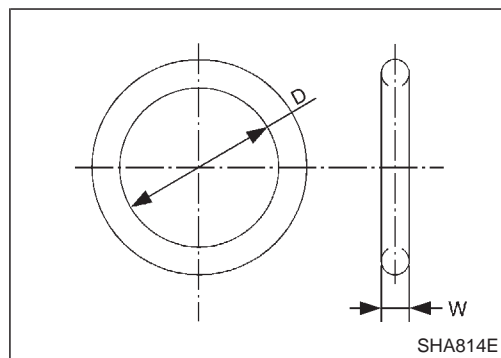
FEATURES OF NEW TYPE REFRIGERANT CONNECTION

- The O-ring has been relocated. It has also been provided with a groove for proper installation. This eliminates the chance of the O-ring being caught in, or damaged by, the mating part. The sealing direction of the O-ring is now set vertically in relation to the contacting surface of the mating part to improve sealing characteristics.
- The reaction force of the O-ring will not occur in the direction that causes the joint to pull out, thereby facilitating piping connections.



CAUTION:

The new and former refrigerant connections use different O-ring configurations. Do not confuse O-rings since they are not interchangeable. If a wrong O-ring is installed, refrigerant will leak at, or around, the connection.



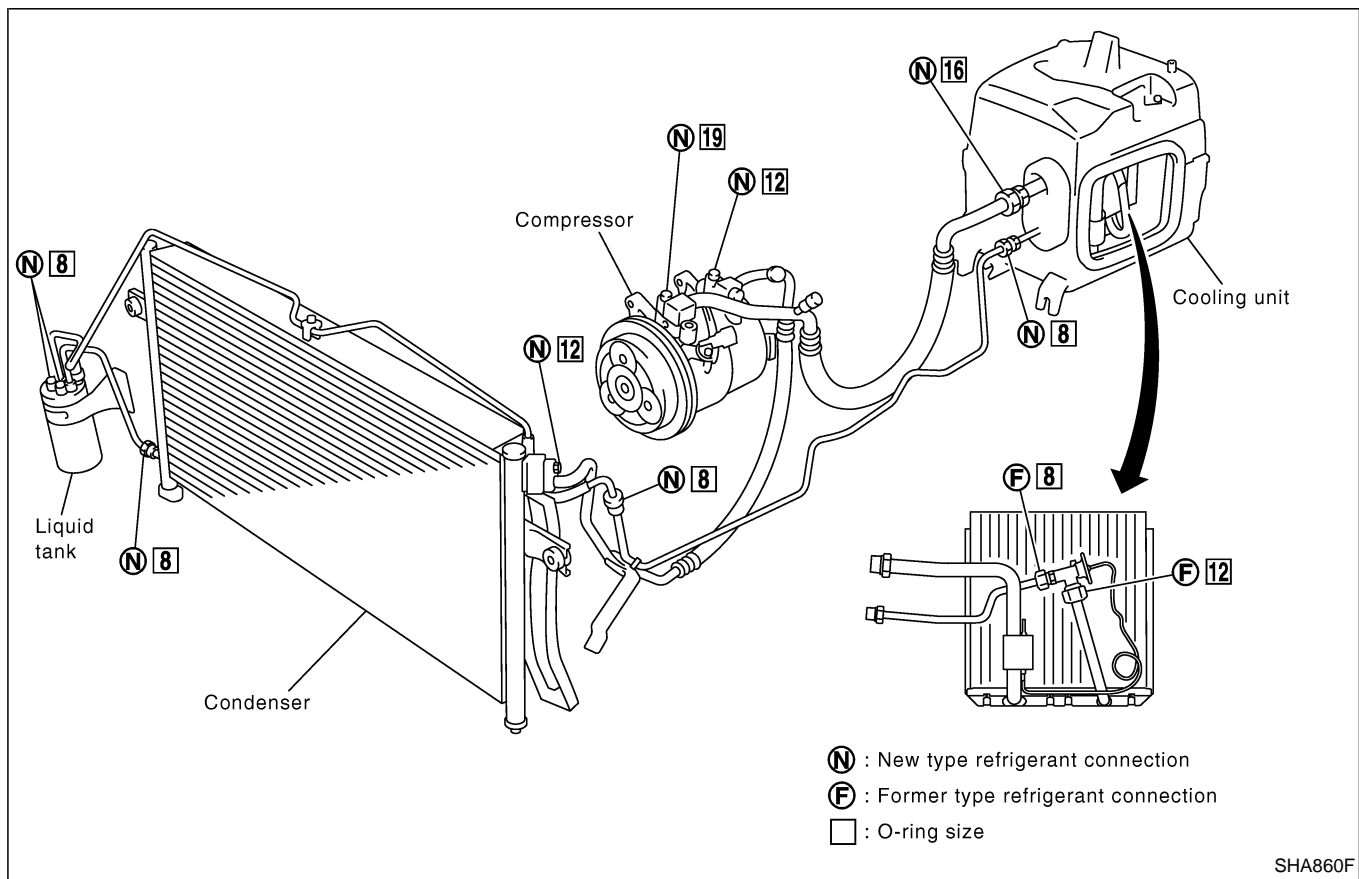
O-ring part numbers and specifications

Connection type	O-ring size	Part number	D mm (in)	W mm (in)
New	8	92471 N8210	6.8 (0.268)	1.87 (0.0736)
Former		92470 N8200	6.07 (0.2390)	1.78 (0.0701)
New	12	92472 N8210	10.9 (0.429)	2.43 (0.0957)
Former		92475 71L00	11.0 (0.433)	2.4 (0.094)
New	16	92473 N8210	13.6 (0.535)	2.43 (0.0957)
Former		92475 72L00	14.3 (0.563)	2.3 (0.091)
New	19	92474 N8210	16.5 (0.650)	2.43 (0.0957)
Former		92477 N8200	17.12 (0.6740)	1.78 (0.0701)

Precautions for Refrigerant Connection (Cont'd)

O-RING AND REFRIGERANT CONNECTION

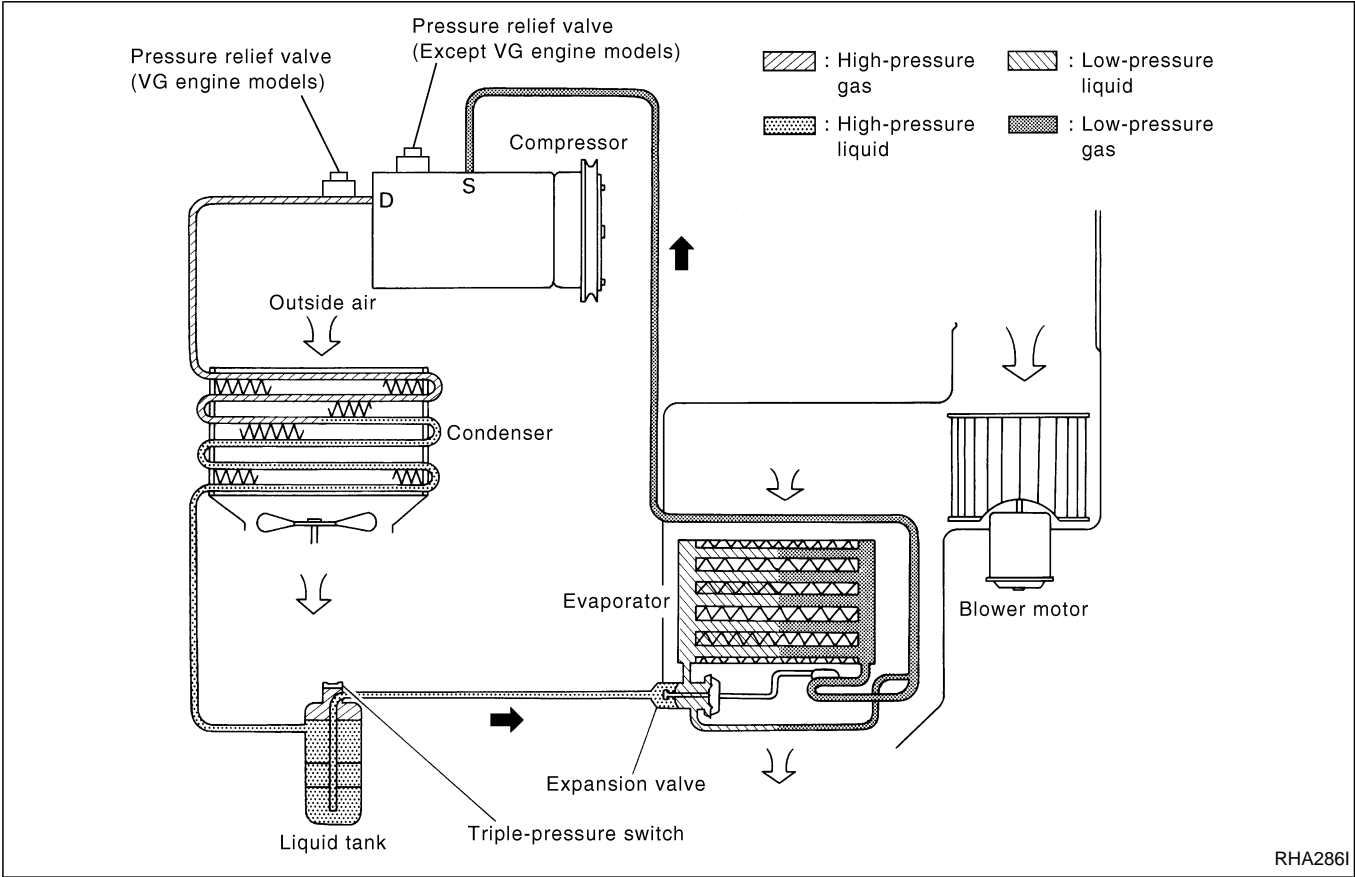
VG engine models



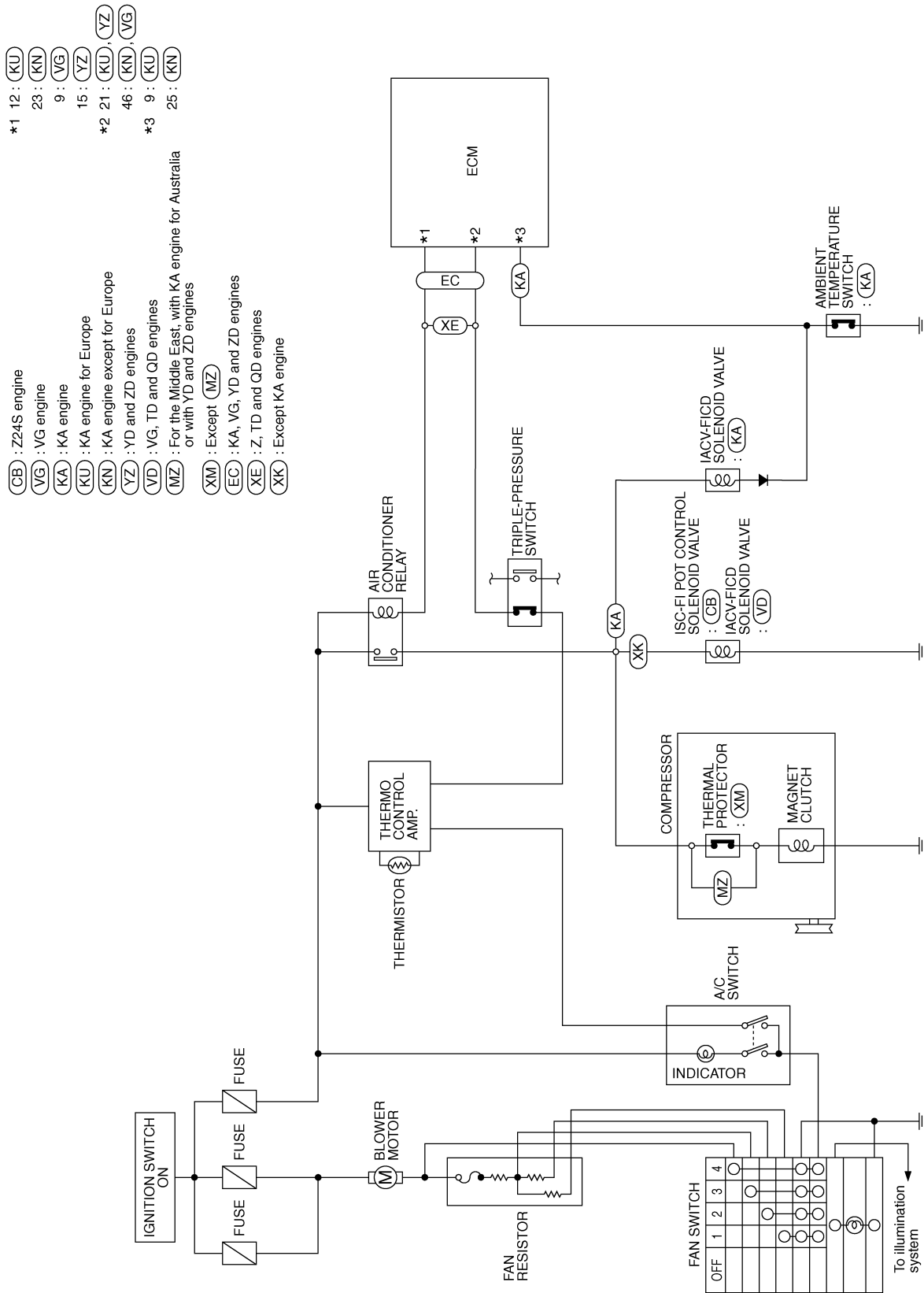
Refrigeration Cycle

REFRIGERANT SYSTEM PROTECTION

The refrigerant system is also protected by a pressure relief valve located on the compressor (Except VG engine models) or high-pressure flexible hose (VG engine models). When the pressure of refrigerant in the system increases to an unusual level [more than 3,727 kPa (37.3 bar, 38 kg/cm², 540 psi)], the release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere.

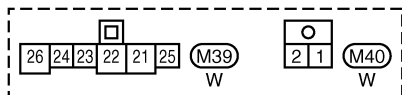
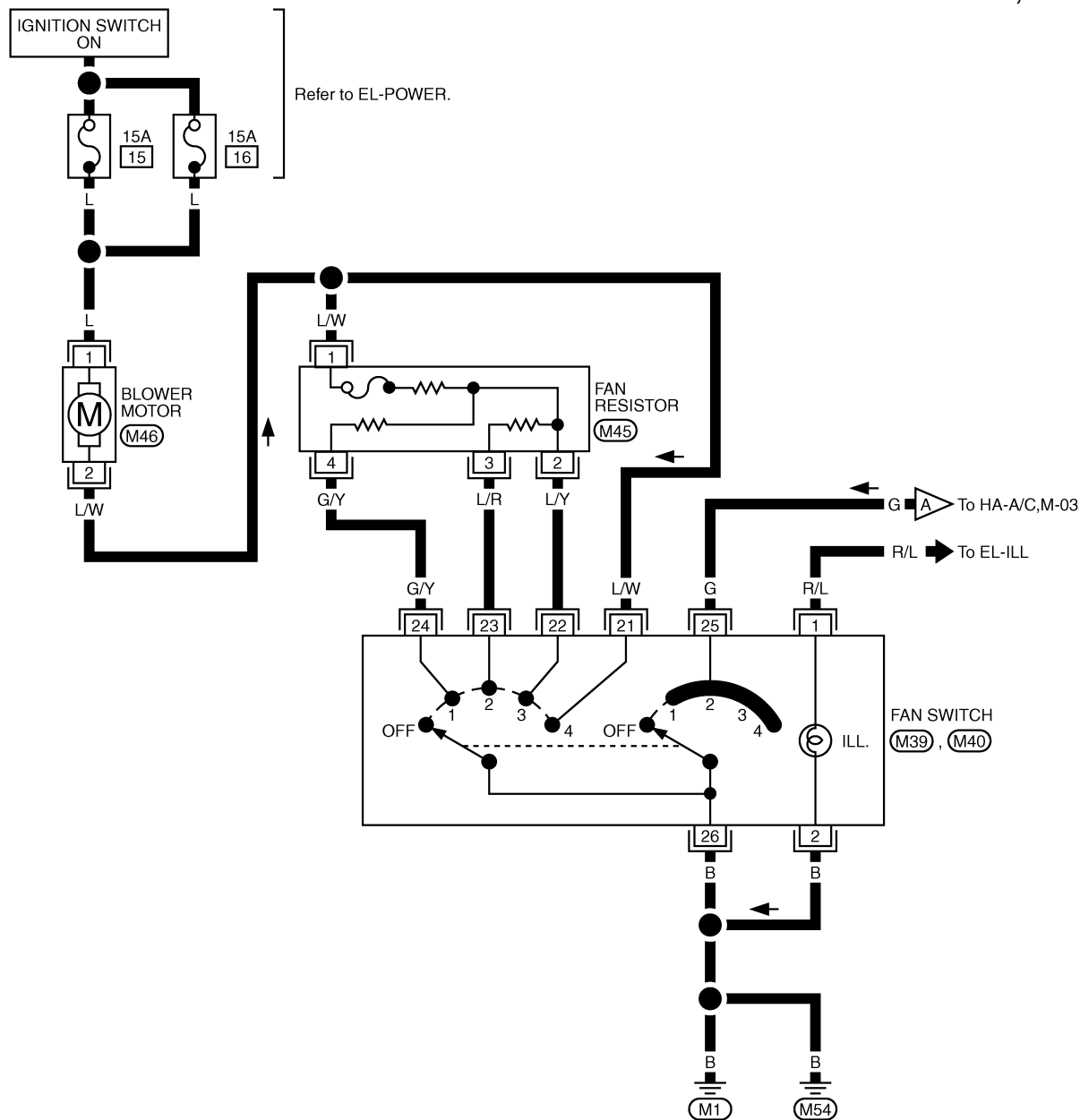


Circuit Diagram — A/C, M —



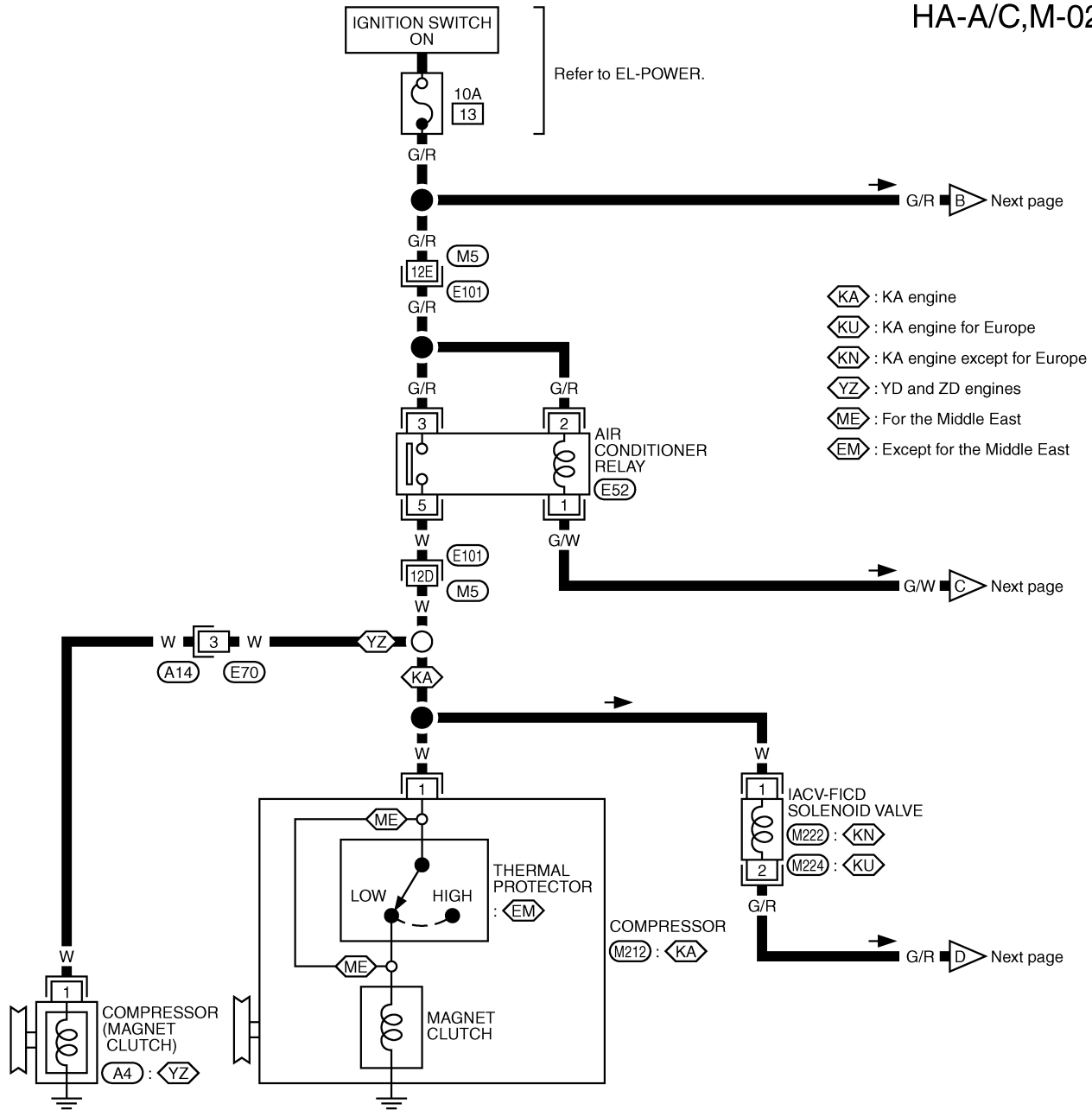
Wiring Diagram — A/C, M —/LHD Models with KA, YD and ZD Engines

HA-A/C,M-01

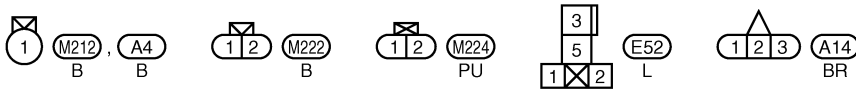


Wiring Diagram — A/C, M —/LHD Models with KA, YD and ZD Engines (Cont'd)

HA-A/C,M-02

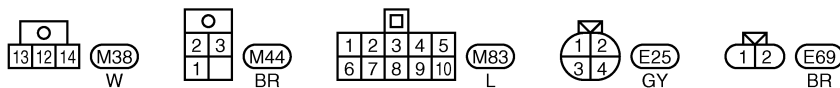
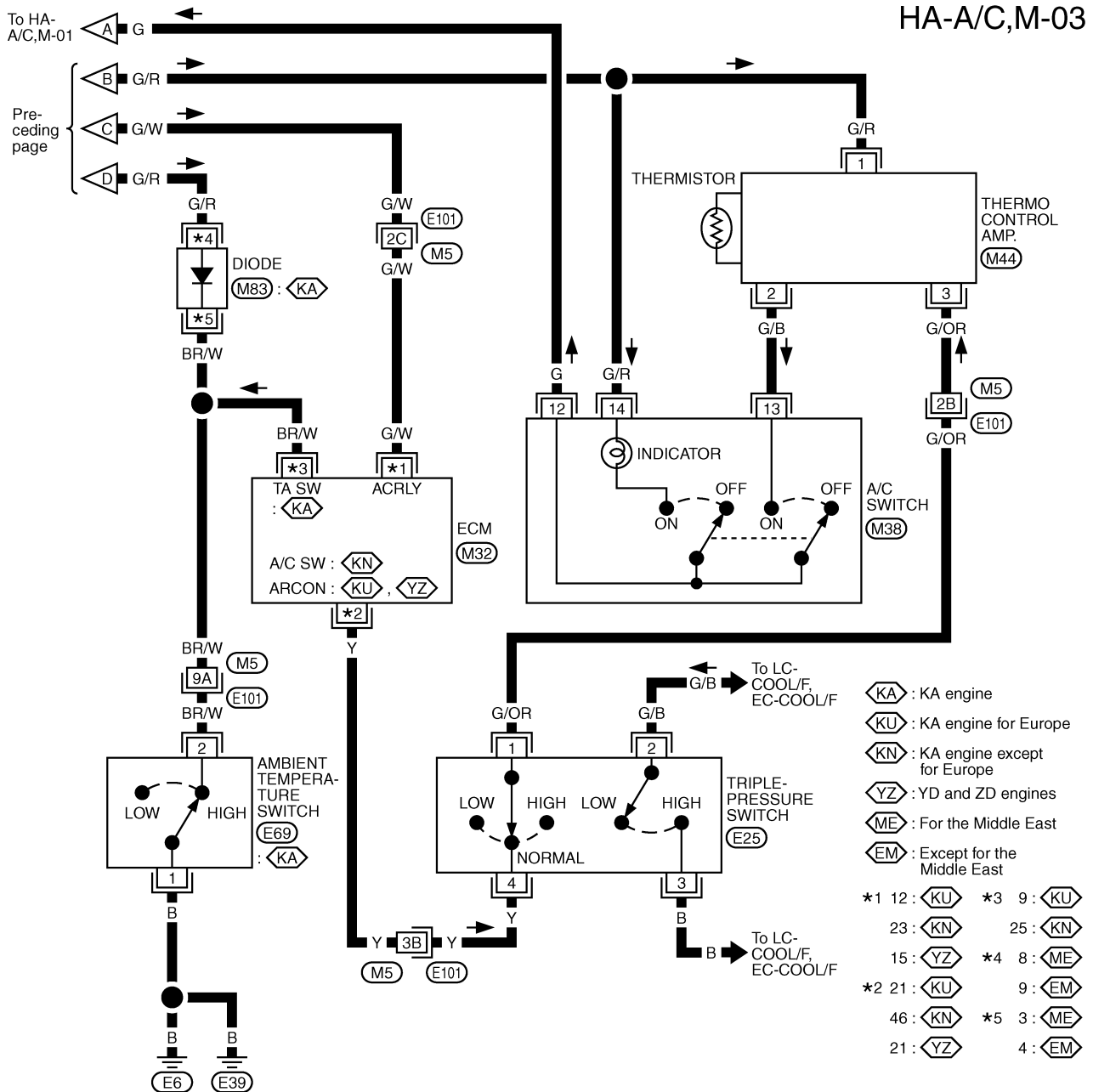


- KA : KA engine
- KU : KA engine for Europe
- KN : KA engine except for Europe
- YZ : YD and ZD engines
- ME : For the Middle East
- EM : Except for the Middle East



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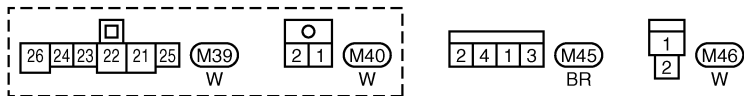
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Wiring Diagram — A/C, M —/LHD Models with
KA, YD and ZD Engines (Cont'd)

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HA-A/C,M-04



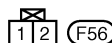
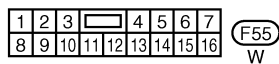
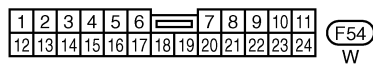
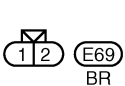
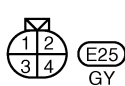
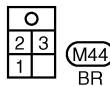
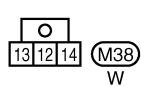
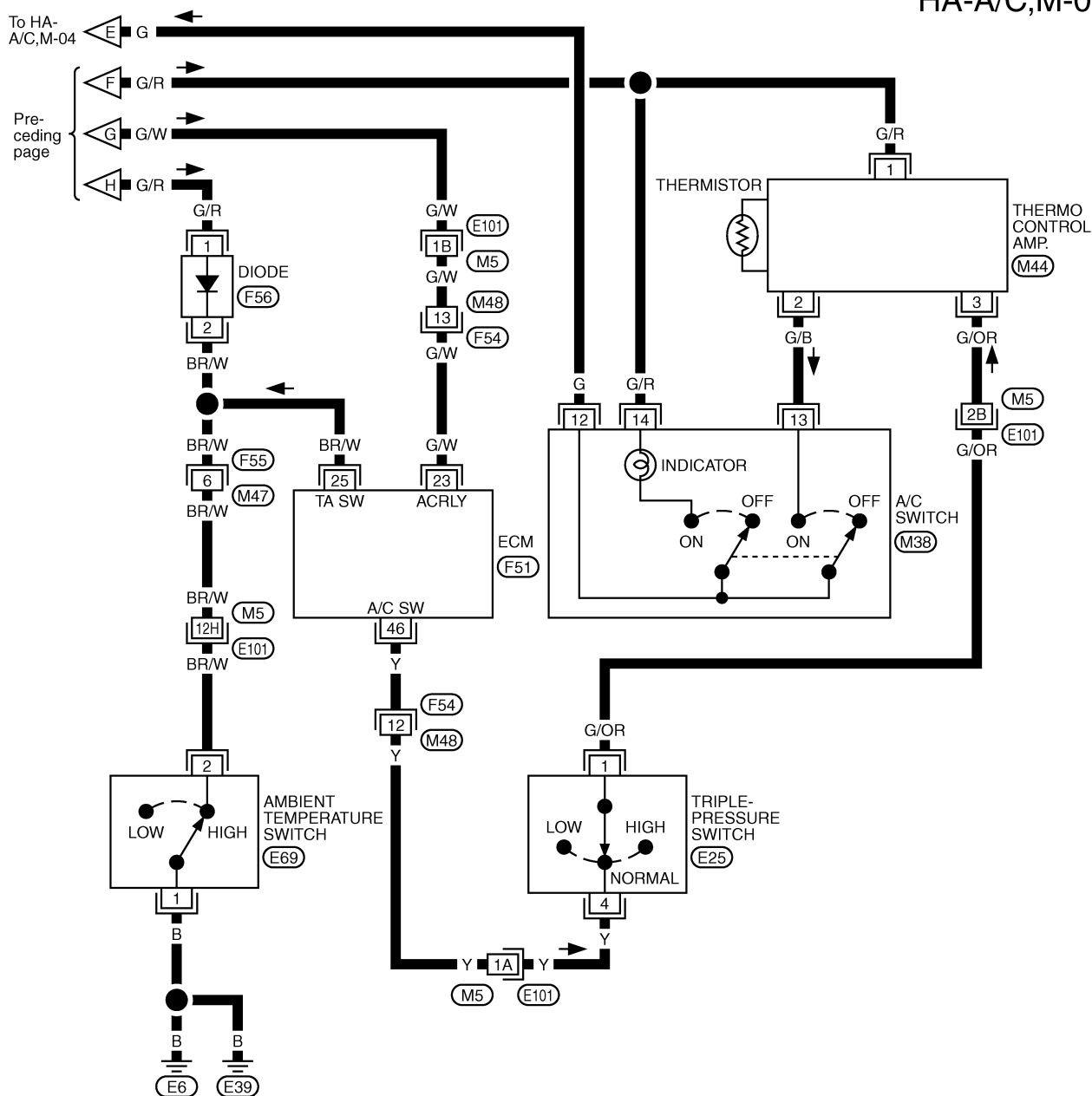
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Wiring Diagram — A/C, M —/RHD Models with
KA Engine (Cont'd)

HA-A/C,M-06

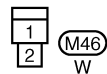


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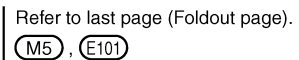
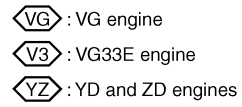
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HA-A/C,M-07



HA-A/C,M-08



Wiring Diagram — A/C, M —/RHD Models with
VG, YD and ZD Engines (Cont'd)

HA-A/C,M-09

⬡ VG : VG engine

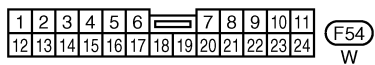
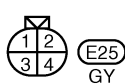
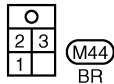
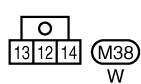
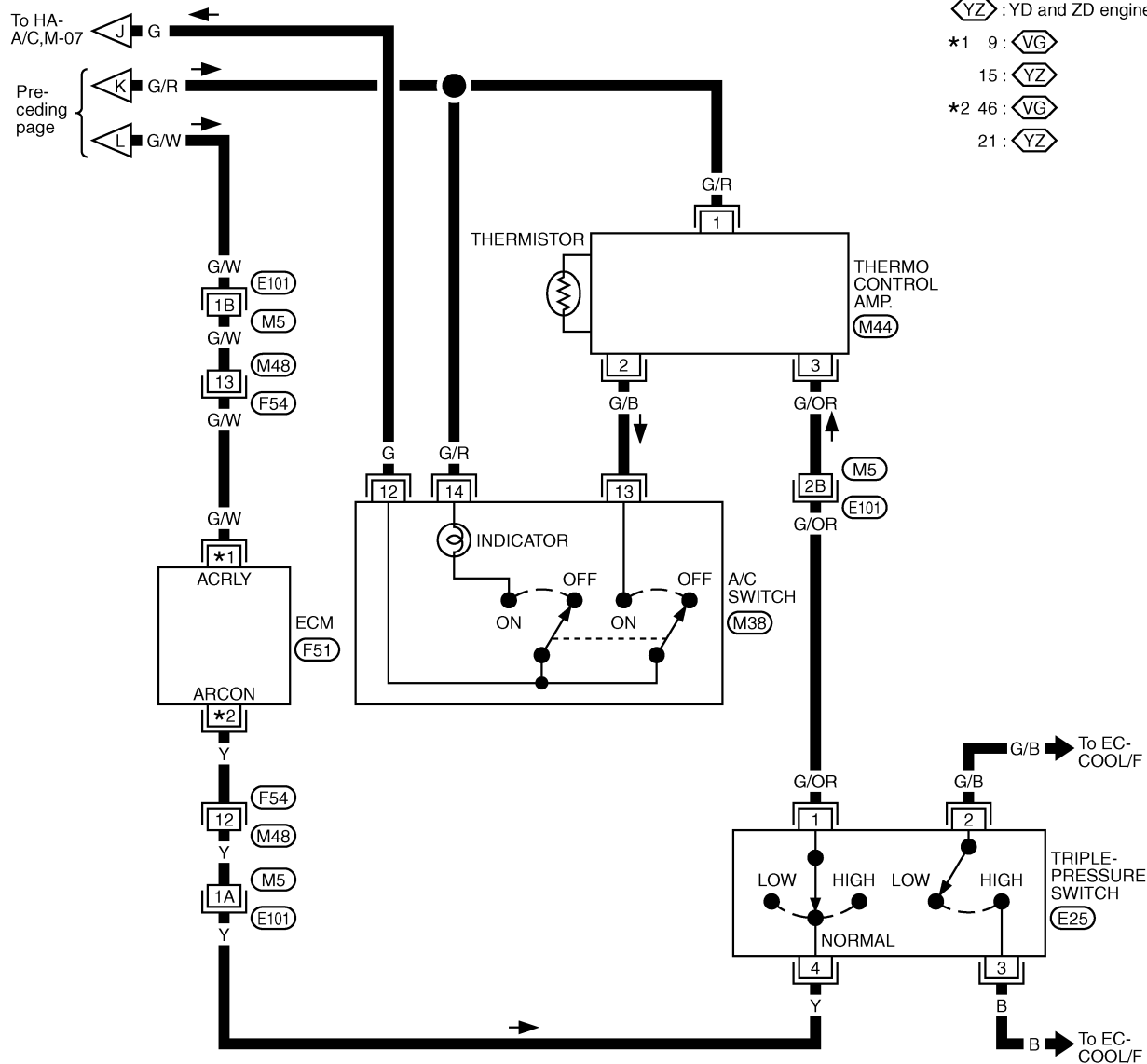
⬡ YZ : YD and ZD engines

*1 9 : ⬡ VG

15 : ⬡ YZ

*2 46 : ⬡ VG

21 : ⬡ YZ



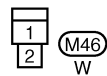
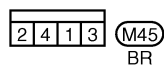
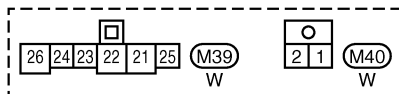
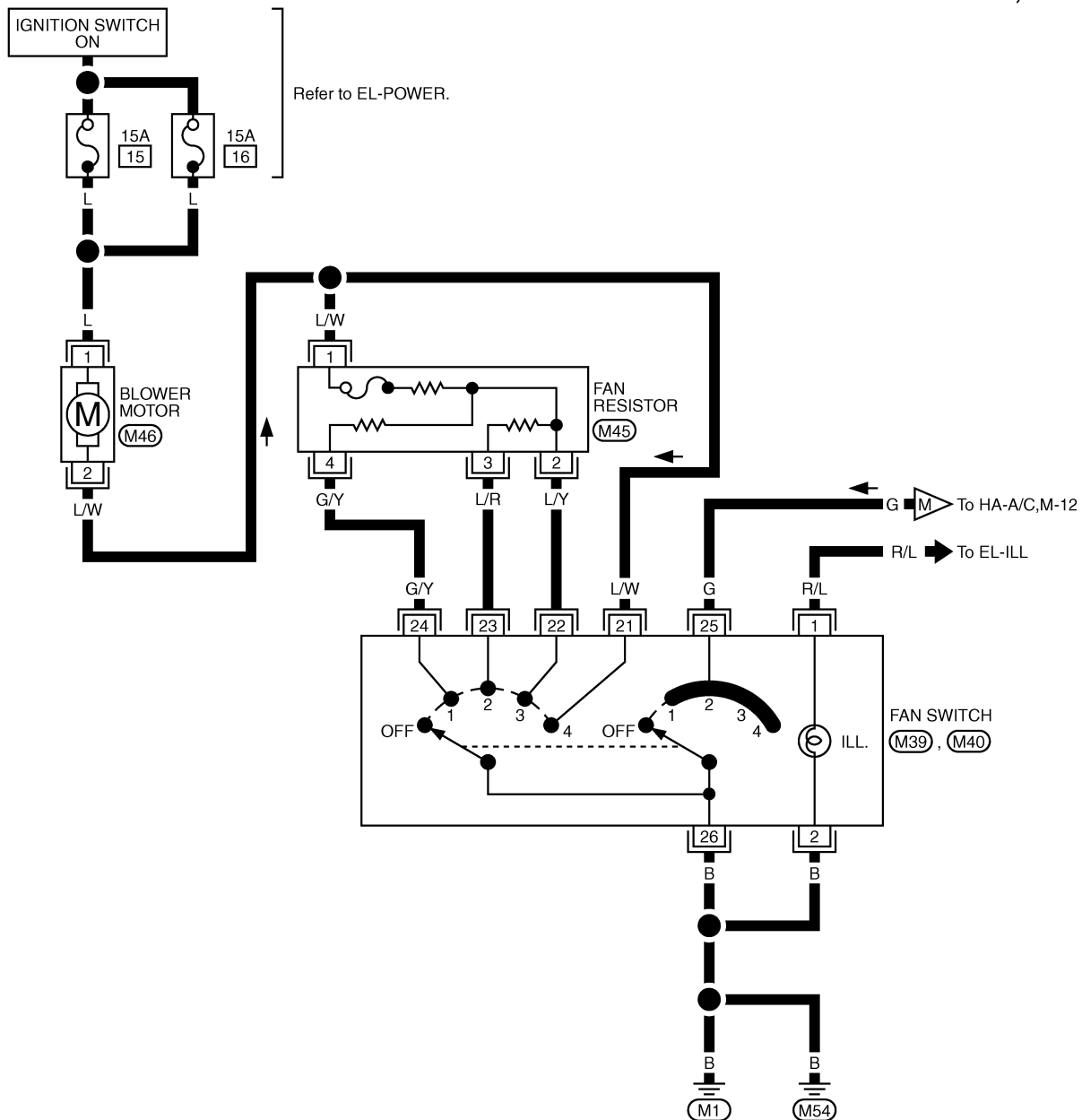
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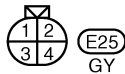
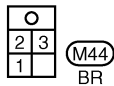
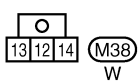
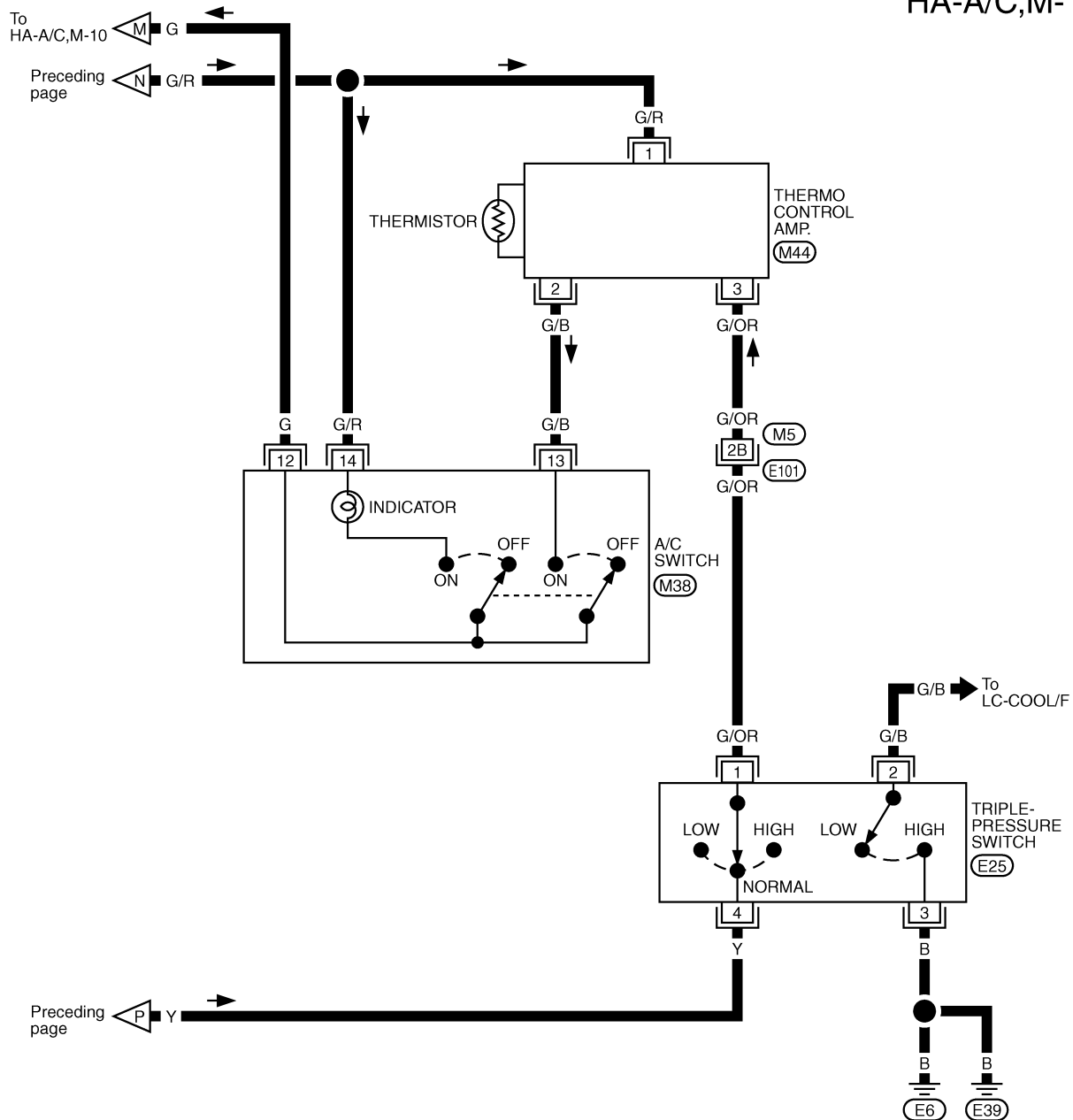
Wiring Diagram — A/C, M —/Z, TD, QD Engine Models

HA-A/C,M-10



Wiring Diagram — A/C, M —/Z, TD, QD Engine Models (Cont'd)

HA-A/C,M-12

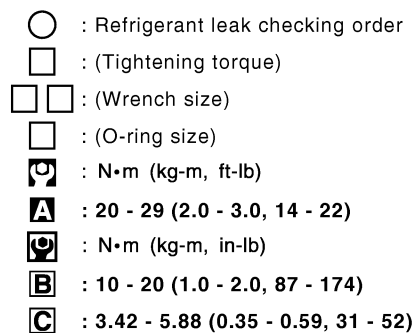


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- Refer to page HA-3 regarding “Precautions for Refrigerant Connection”.

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Checking Refrigerant Leaks

CHECKING PROCEDURE

To prevent inaccurate or false readings, make sure there is no refrigerant vapor or tobacco smoke in the vicinity of the vehicle. Perform the leak test in calm area (low air/wind movement) so that the leaking refrigerant is not dispersed.

1. Turn engine off.
2. Connect a suitable A/C manifold gauge set to the A/C service ports.
3. Check if the A/C refrigerant pressure is at least 345 kPa (3.452 bar, 3.52 kg/cm², 50 psi) above 16°C (61°F). If less than specification, evacuate and recharge the system with the specified amount of refrigerant.

NOTE: At temperatures below 16°C (61°F), leaks may not be detected since the system may not reach 345 kPa (3.452 bar, 3.52 kg/cm², 50 psi).

4. Conduct the leak test from the high side to the low side at points ① through ④. Refer to HA-19.

Perform a leak check for the following areas carefully. Clean the component to be checked and move the leak detector probe completely around the connection/component.

- **Compressor**

Check the fitting of high and low pressure hoses, relief valve and shaft seal.

- **Liquid tank**

Check the pressure switch and tube fitting.

- **Service valves**

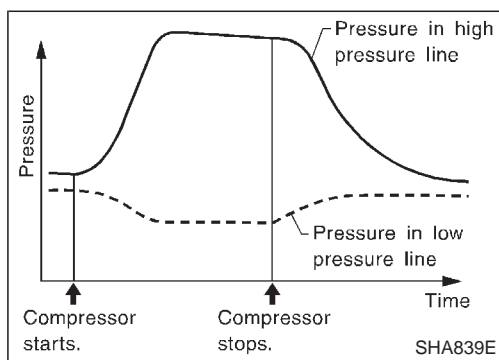
Check all around the service valves. Ensure service valve caps are secured on the service valves (to prevent leaks).

NOTE: After removing A/C manifold gauge set from service valves, wipe any residue from valves to prevent any false readings by leak detector.

- **Cooling unit (Evaporator)**

Turn blower fan on "High" for at least 15 seconds to dissipate any refrigerant trace in the cooling unit. Insert the leak detector probe into the drain hose immediately after stopping the engine. (Keep the probe inserted for at least ten seconds.)

5. If a leak detector detects a leak, verify at least once by blowing compressed air into area of suspected leak, then repeat check.
6. Do not stop when one leak is found. Continue to check for additional leaks at all system components.
7. Start engine.
8. Set the heater A/C control as follows:
 - a. A/C switch ON
 - b. Face mode
 - c. Recirculation switch ON
 - d. Max cold temperature
 - e. Fan speed high
9. Run engine at 1,500 rpm for at least 2 minutes.
10. Turn engine off and perform leak check again following steps 4 through 6 above.



Checking Refrigerant Leaks (Cont'd)

Refrigerant leaks should be checked immediately after stopping the engine. Begin with the leak detector on the high pressure line. The pressure in the high pressure line will gradually drop after refrigerant circulation stops and pressure in the low pressure line will gradually rise, as shown in the graph. Leaks are more easily detected when pressure is high.

11. Discharge A/C system using approved refrigerant recovery equipment. Repair the leaking fitting or component as necessary.
12. Evacuate and recharge A/C system and perform the leak test to confirm no refrigerant leaks.
13. Conduct A/C performance test to ensure system works properly.

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General Specifications

COMPRESSOR

Model		Except VG engine models	VG engine models
		ZEXEL VALEO CLIMATE CONTROL make DKS-17CH	ZEXEL VALEO CLIMATE CONTROL make DKV-14C
Type		Swash plate	Vane rotary
Displacement	cm ³ (cu in)	168 (10.25)	140 (8.54)
Cylinder bore x stroke	mm (in)	38.0 x 24.7 (1.50 x 0.972)	—
Direction of rotation		Clockwise (Viewed from drive belt)	
Drive belt		Type A	

LUBRICANT

Model		Except VG engine models	VG engine models
		ZEXEL VALEO CLIMATE CONTROL make DKS-17CH	ZEXEL VALEO CLIMATE CONTROL make DKV-14C
Type		KLH00-PAGS0	KLH00-PAGR0
Capacity mℓ (Imp fl oz)	Total in system	200 (7.0)	
	Compressor (Service parts) charging amount	200 (7.0)	

Inspection and Adjustment

REFRIGERANT

	YD engine for Europe	Except YD engine for Europe and VG engine models	VG engine models
Type	HFC-134a (R-134a)		
Capacity	kg (lb)	0.55 (1.21)	0.60 (1.32)

ENGINE IDLING SPEED (When A/C is ON)

- Refer to EC section.

BELT TENSION

- Refer to MA section ("Checking Drive Belts").

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

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Driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioner, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.

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 dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.
- 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 connector.

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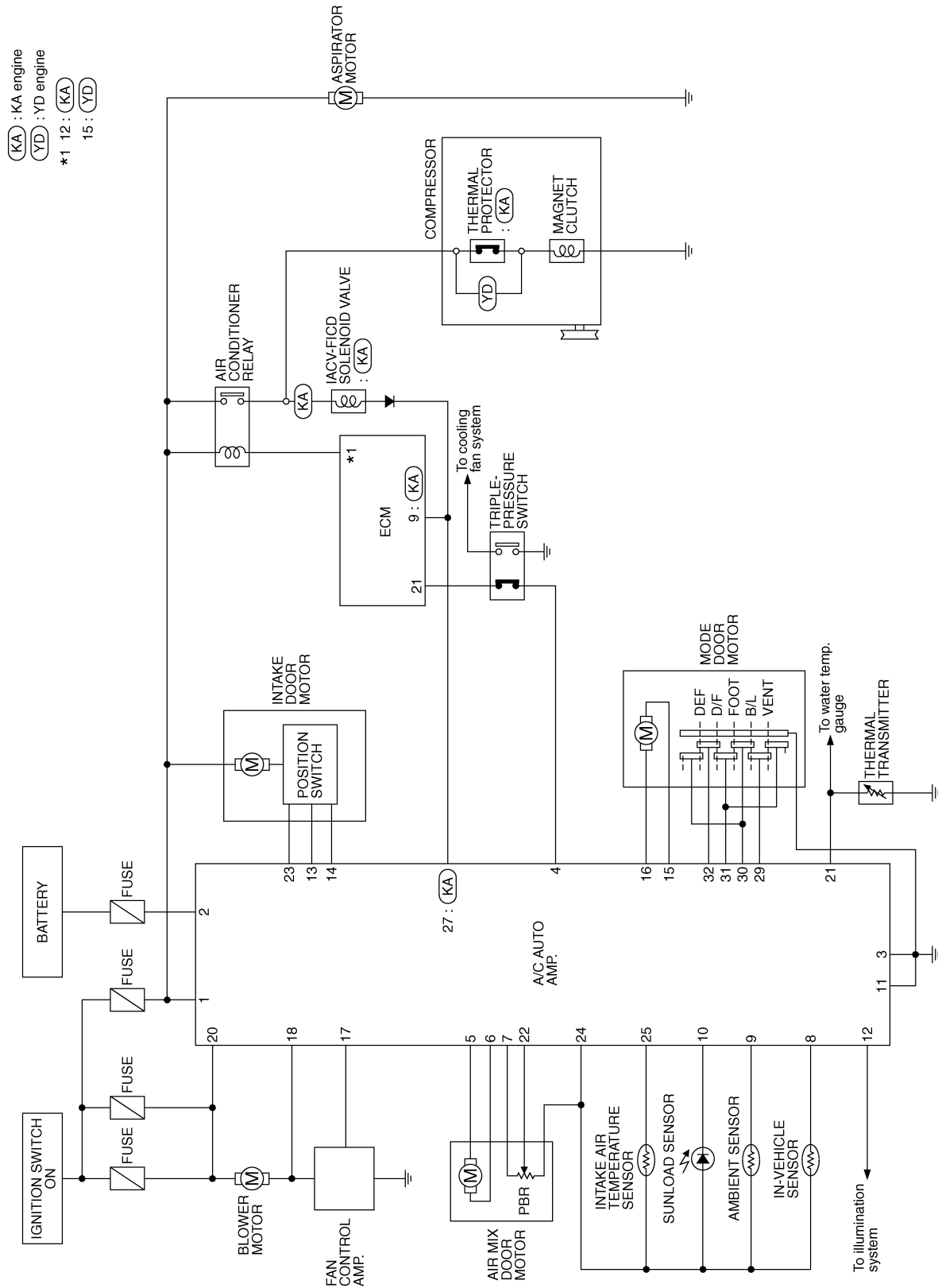
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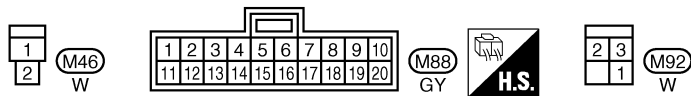
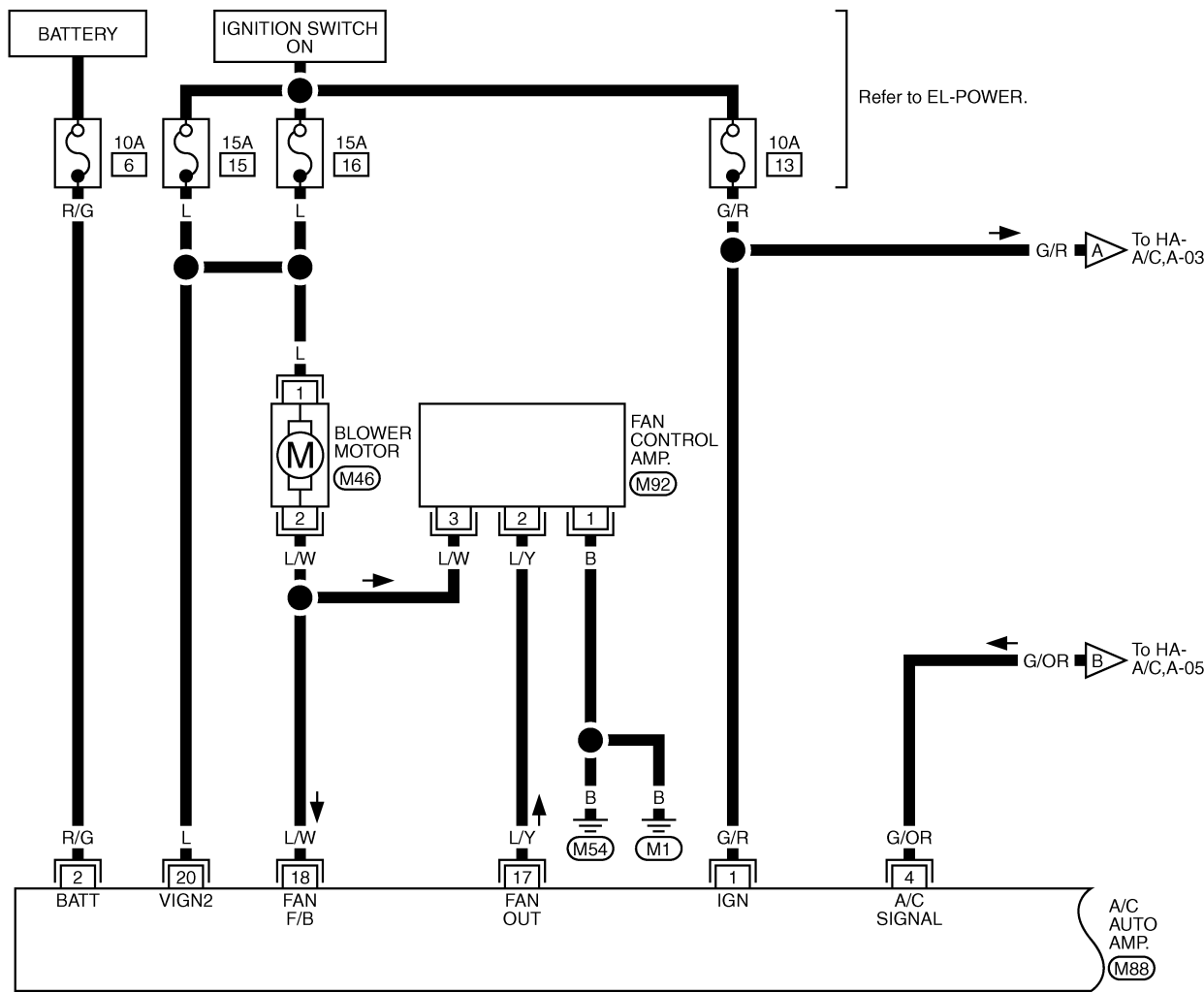
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Circuit Diagram — A/C, A —



Wiring Diagram — A/C, A —/For Europe

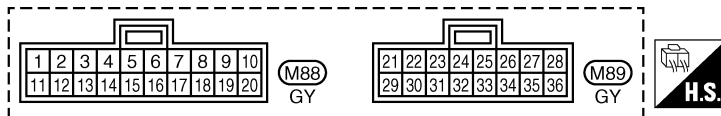
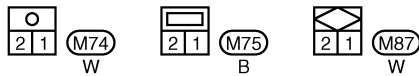
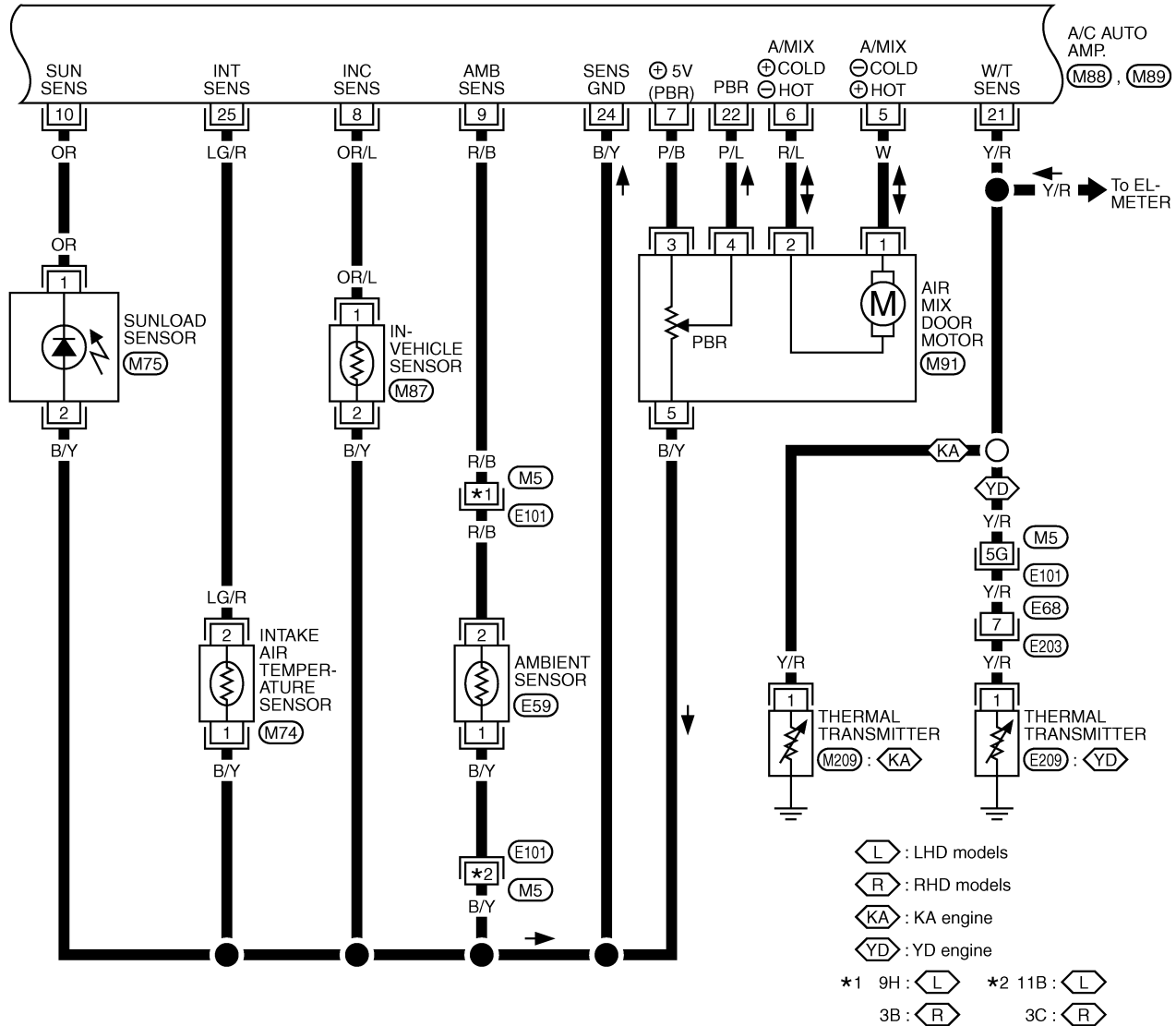
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Wiring Diagram — A/C, A —/For Europe
(Cont'd)

HA-A/C,A-02

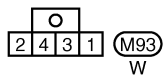
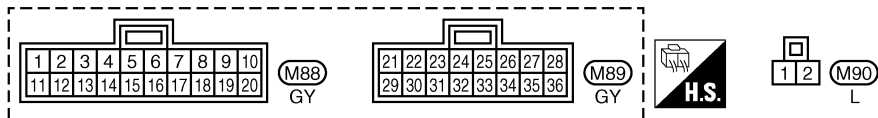
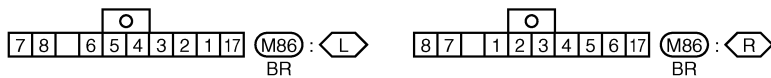
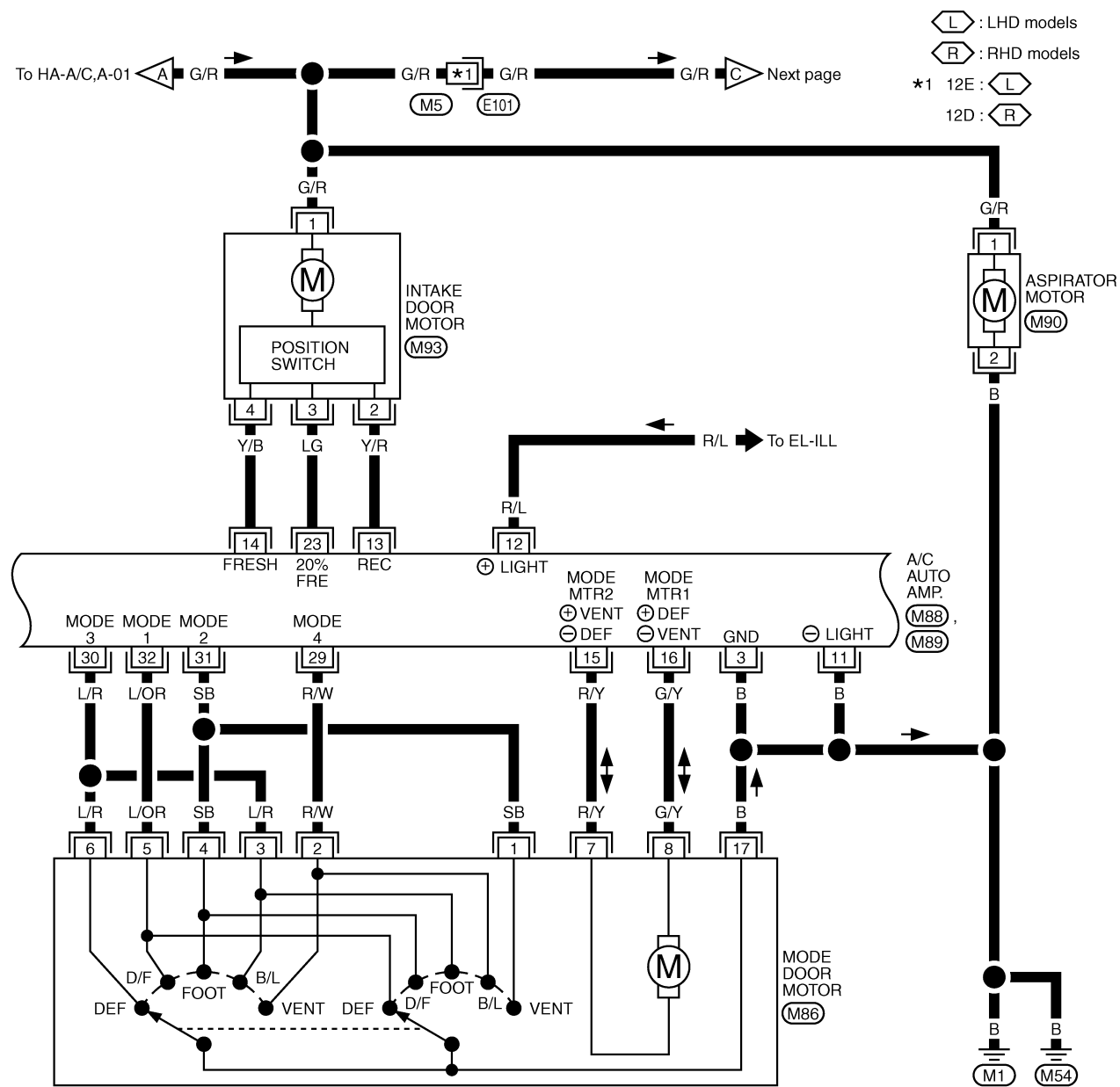


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Wiring Diagram — A/C, A —/For Europe
(Cont'd)

HA-A/C,A-03



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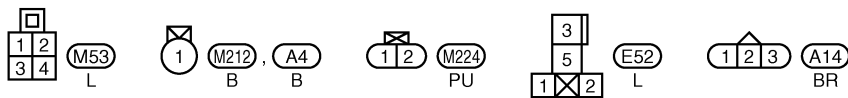
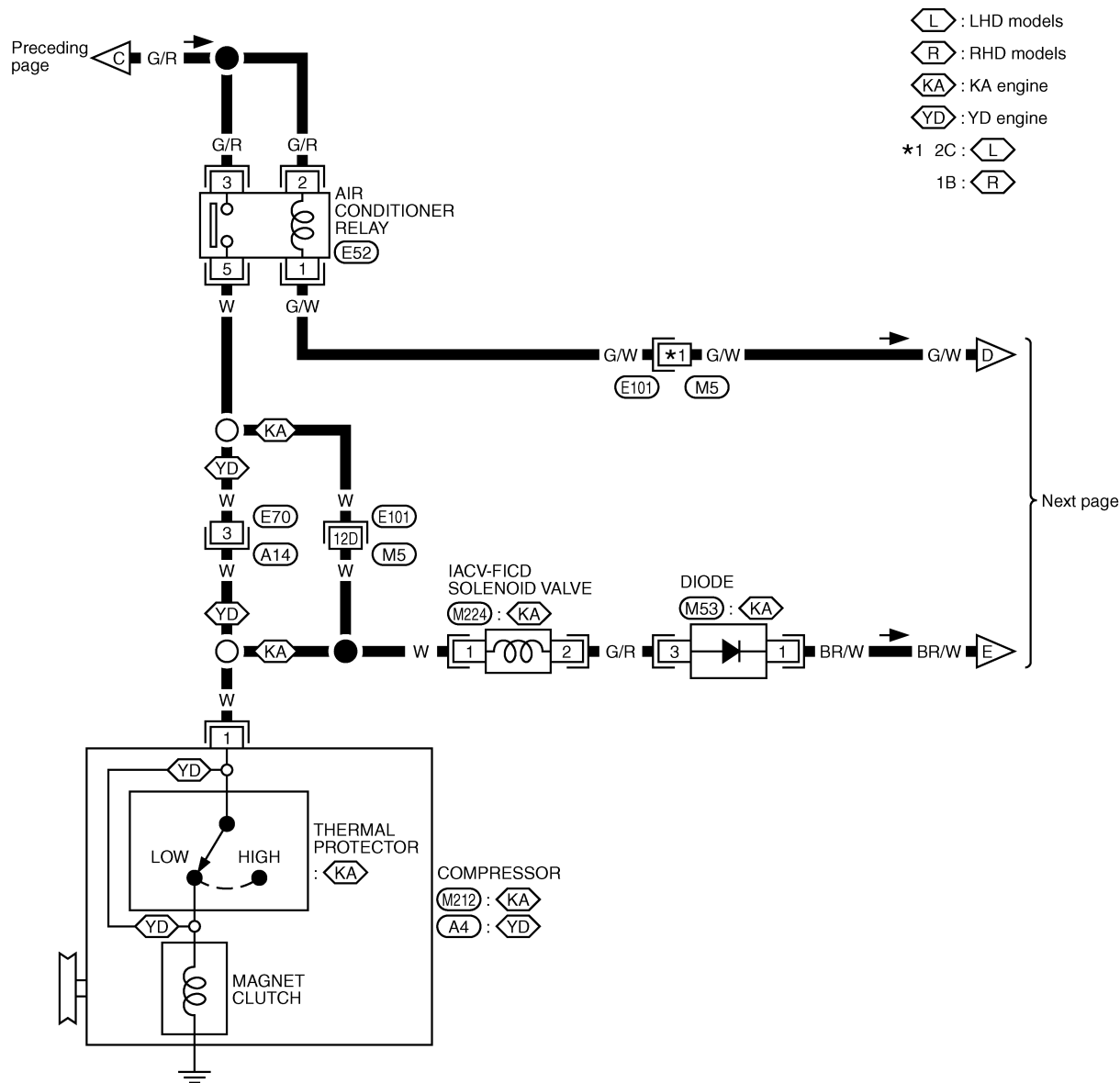
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Wiring Diagram — A/C, A —/For Europe
(Cont'd)

HA-A/C,A-04

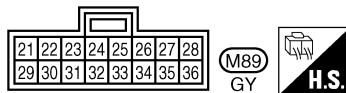
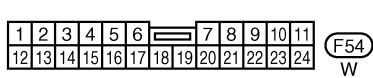
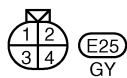
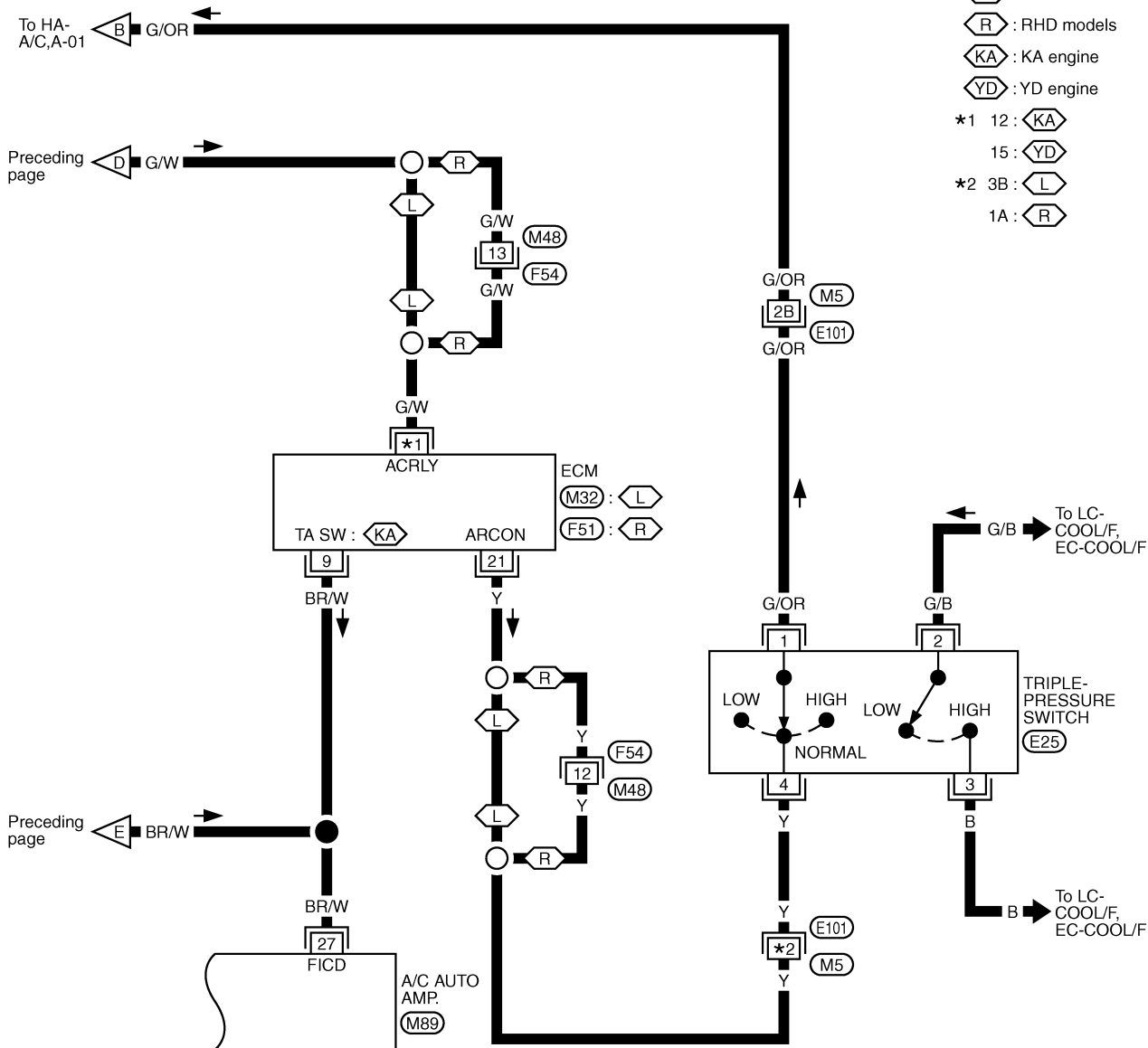


Refer to last page (Foldout page).

M5, E101

Wiring Diagram — A/C, A —/For Europe
(Cont'd)

HA-A/C,A-05



Refer to last page (Foldout page).

(M5), (E101)

(M32)

(F51)

GI

MA

EM

LC

EC

FE

CL

MT

AT

TF

PD

FA

RA

BR

ST

RS

BT

HA

EL

IDX

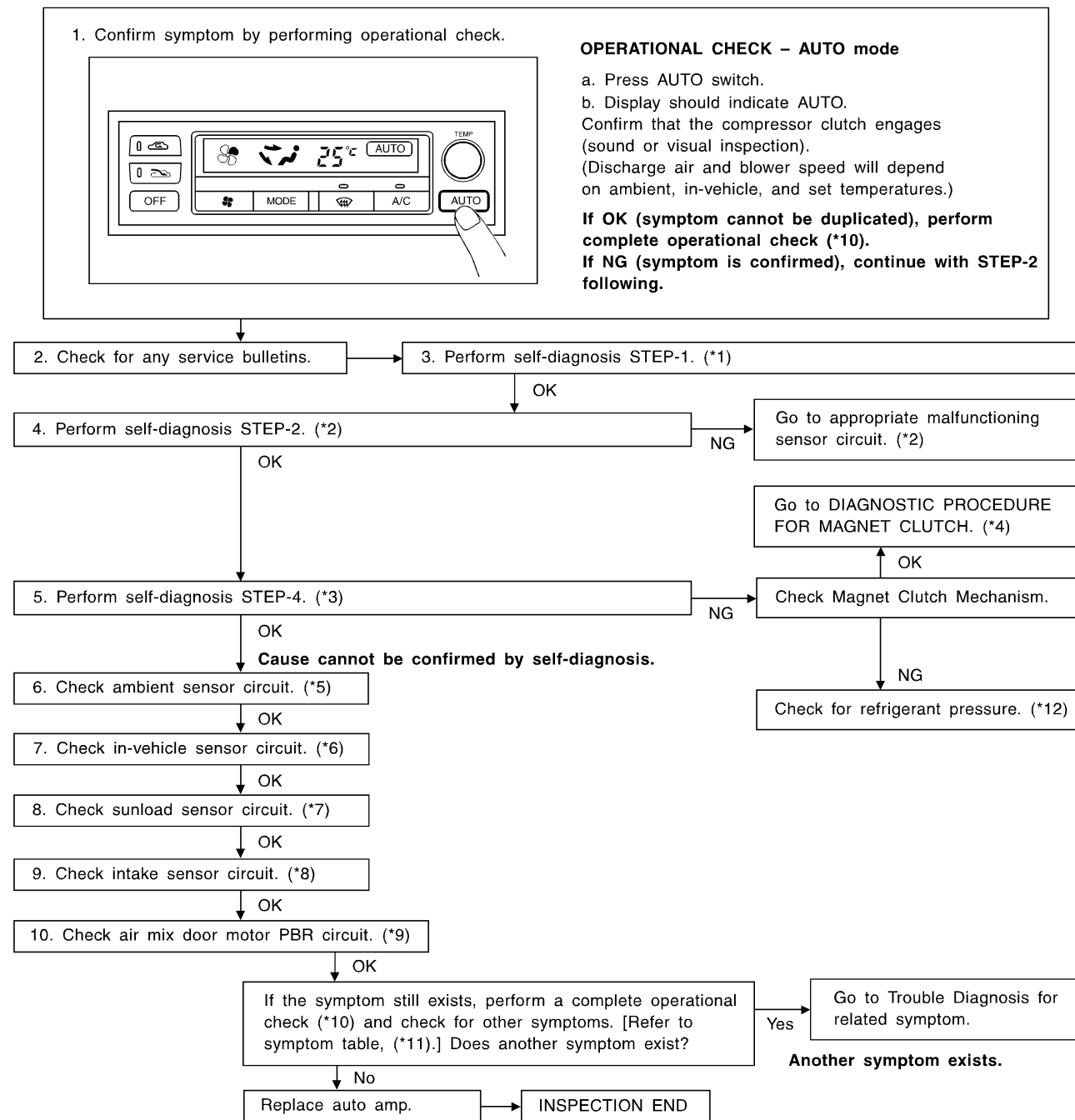
Magnet Clutch (For Europe)

TROUBLE DIAGNOSIS PROCEDURE FOR MAGNET CLUTCH

SYMPTOM:

- Magnet clutch does not engage.

Inspection flow



SHA341FB

*1: HA-35

*2: HA-36

*3: HA-38

*4: HA-31

*5: HA-79

*6: HA-81

*7: HA-83

*8: HA-85

*9: HA-53

*10: HA-41

*11: HA-40

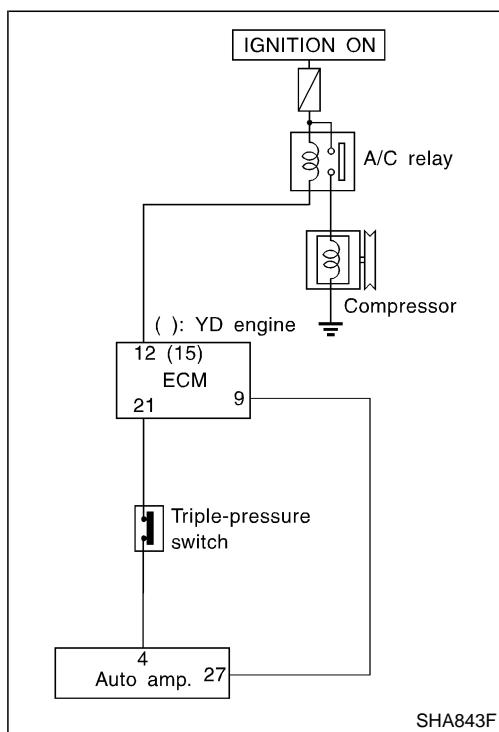
*12: HA-28 in D22 Service
Manual, Publication No.
SM7E-0D22G1

Note: *1 - *3 and *5 - *11: Refer to D22 SERVICE MANUAL, Publication No. SM9E-D22BG0.

Magnet Clutch (For Europe) (Cont'd)

DIAGNOSTIC PROCEDURE

SYMPTOM: Magnet clutch does not engage when A/C switch and fan switch are ON.

**A**

CHECK POWER SUPPLY FOR COMPRESSOR.
Disconnect compressor harness connector. Do approx. 12 volts exist between compressor harness terminal No. ① and body ground?

Yes

Check magnet clutch coil.

NG

Replace magnet clutch.
Refer to HA-69 in D22 SERVICE MANUAL, Publication No. SM7E-0D22G1.

No

Disconnect A/C relay.

B

Note

CHECK CIRCUIT CONTINUITY BETWEEN A/C RELAY HARNESS TERMINAL NO. ⑤ AND COMPRESSOR HARNESS TERMINAL NO. ①.
Continuity should exist.
If OK, check harness for short.

OK

C

CHECK POWER SUPPLY FOR A/C RELAY.
Disconnect A/C relay. Do approx. 12 volts exist between A/C relay harness terminal Nos. ②, ③ and body ground?

No

CHECK POWER SUPPLY CIRCUIT AND 10A (No. 13) FUSE AT FUSE BLOCK.
Refer to EL section ("Wiring Diagram", "POWER SUPPLY ROUTING").

Yes

CHECK A/C RELAY AFTER DISCONNECTING IT.
Refer to HA-32.

NG

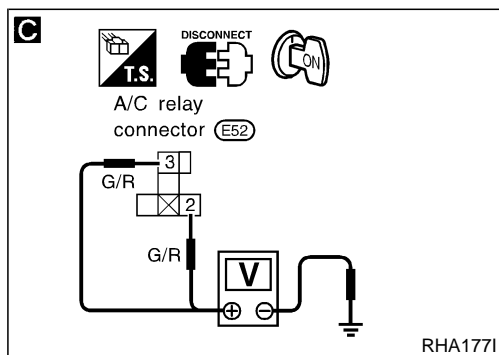
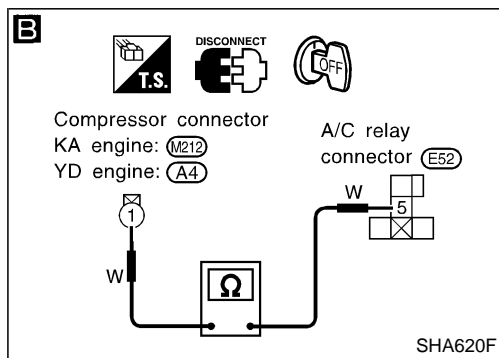
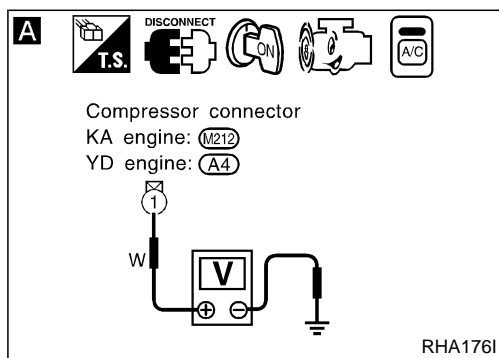
Replace A/C relay.

OK

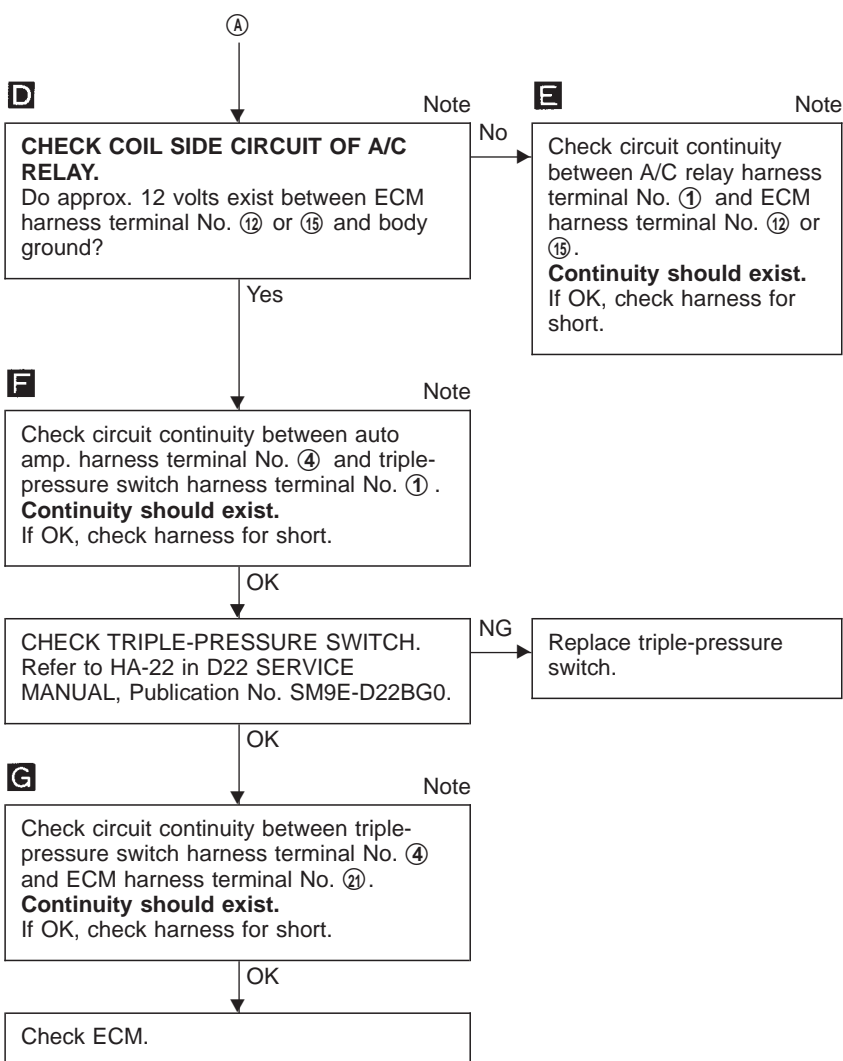
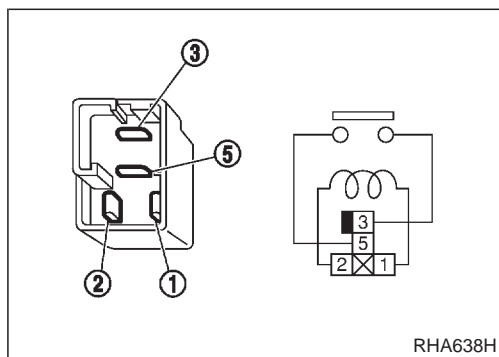
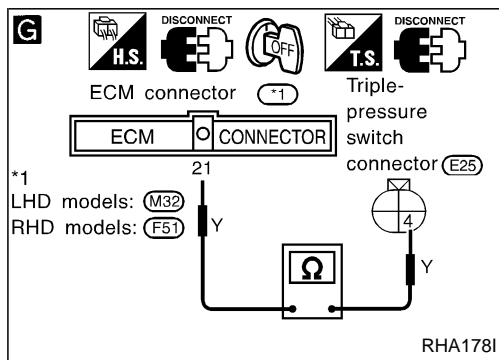
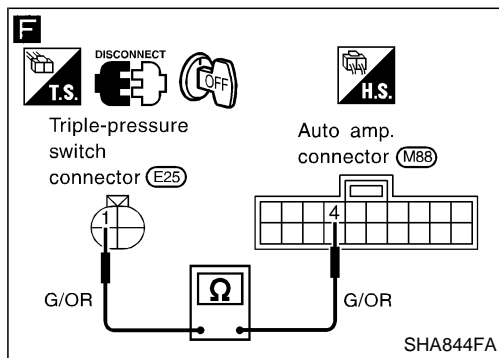
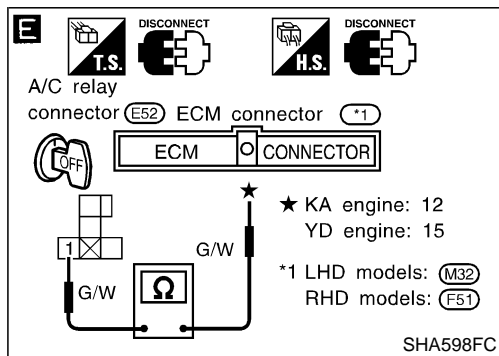
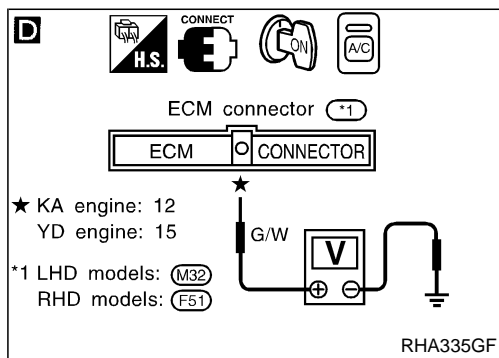
①
(Go to next page.)

Note:

If the result is NG or No after checking circuit continuity, repair harness or connector.



Magnet Clutch (For Europe) (Cont'd)

**Note:**

If the result is NG or No after checking circuit continuity, repair harness or connector.

ELECTRICAL COMPONENT INSPECTION**A/C Relay**

Check continuity between terminal Nos. 3 and 5.

Conditions	Continuity
12V direct current supply between terminal Nos. 1 and 2	Yes
No current supply	No

If NG, replace relay.

General Specifications

COMPRESSOR

	Except VG engine models	VG engine models
Model	ZEXEL VALEO CLIMATE CONTROL make DKS-17CH	ZEXEL VALEO CLIMATE CONTROL make DKV-14C
Type	Swash plate	Vane rotary
Displacement cm ³ (cu in)	168 (10.25)	140 (8.54)
Cylinder bore x stroke mm (in)	38.0 x 24.7 (1.50 x 0.972)	—
Direction of rotation	Clockwise (Viewed from drive belt)	
Drive belt	Type A	

LUBRICANT

	Except VG engine models	VG engine models
Model	ZEXEL VALEO CLIMATE CONTROL make DKS-17CH	ZEXEL VALEO CLIMATE CONTROL make DKV-14C
Type	KLH00-PAGS0	KLH00-PAGR0
Capacity ml (Imp fl oz)	Total in system	200 (7.0)
	Compressor (Service parts) charging amount	200 (7.0)

Inspection and Adjustment

REFRIGERANT

	YD engine for Europe	Except YD engine for Europe and VG engine models	VG engine models
Type	HFC-134a (R-134a)		
Capacity kg (lb)	0.55 (1.21)	0.65 (1.43)	0.60 (1.32)

ENGINE IDLING SPEED (When A/C is ON)

- Refer to EC section.

BELT TENSION

- Refer to MA section ("Checking Drive Belts").