

HEATER & AIR CONDITIONER

SECTION **HA**

MODIFICATION NOTICE:

- For Europe, SR20DE engine has been added.
- An ambient air temperature switch is added (For Europe SR20DE engine).
- The wiring diagram has been changed.

CONTENTS

DESCRIPTION	2	SERVICE PROCEDURES	21
Ambient Air Temperature Switch (For Europe SR20DE engine)	2	Refrigerant Lines	21
TROUBLE DIAGNOSES	3	SERVICE DATA AND SPECIFICATIONS (SDS)	22
Circuit Diagram — Air Conditioner	3	General Specifications	22
Wiring Diagram — A/C —	5	Inspection and Adjustment	22
Diagnostic Procedure 3	17		

When you read wiring diagrams:

- Read GI section, “HOW TO READ WIRING DIAGRAMS”.
- See EL section, “POWER SUPPLY ROUTING” for power distribution circuit.

When you perform trouble diagnoses, read GI section, “HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES” and “HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT”.

HA

DESCRIPTION

Ambient Air Temperature Switch (For Europe SR20DE engine)

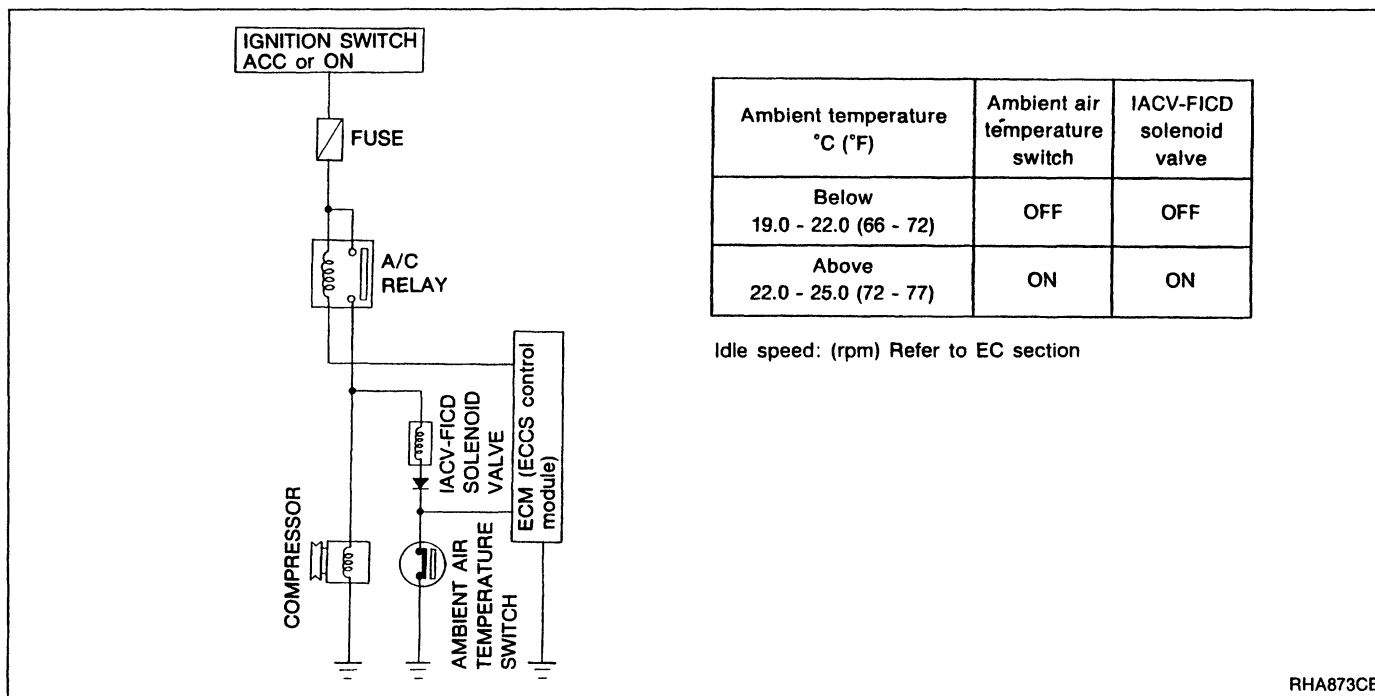
OPERATION

When the air conditioner is OFF, the ECM (ECCS control module) detects the load applied to the engine, and controls the IACV-AAC valve to adjust the engine idling speed to the appropriate rpm by supplying additional air from the IACV-AAC valve.

When the air conditioner is ON (A/C relay is ON), and when the ambient air temperature switch is ON (this switch turns ON automatically when the ambient temperature rises to approx. 23.5°C (74°F) or higher), the IACV-FICD solenoid valve is energized and additional air is supplied to the engine.

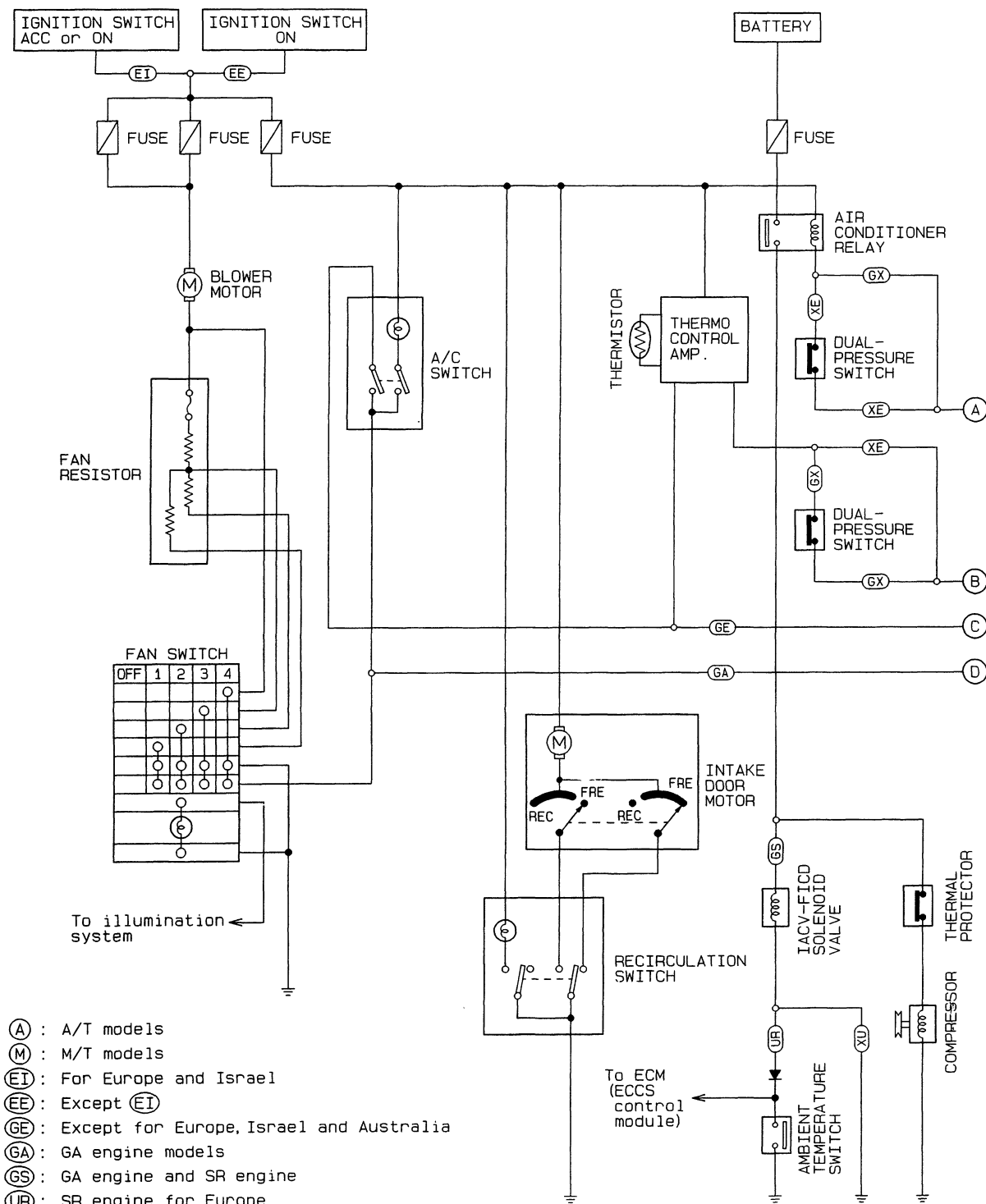
If the appropriate engine speed is not reached, the IACV-AAC valve supplies the additional air required to increase the engine rpm.

If the ambient air temperature switch is OFF (this switch turns OFF when the ambient temperature is below 20.5°C (69°F) even when the air conditioner is ON (A/C relay is ON), the IACV-FICD solenoid valve is deenergized, and the idling speed is controlled so that the appropriate rpm can be achieved by operation of the IACV-AAC valve only.



TROUBLE DIAGNOSES

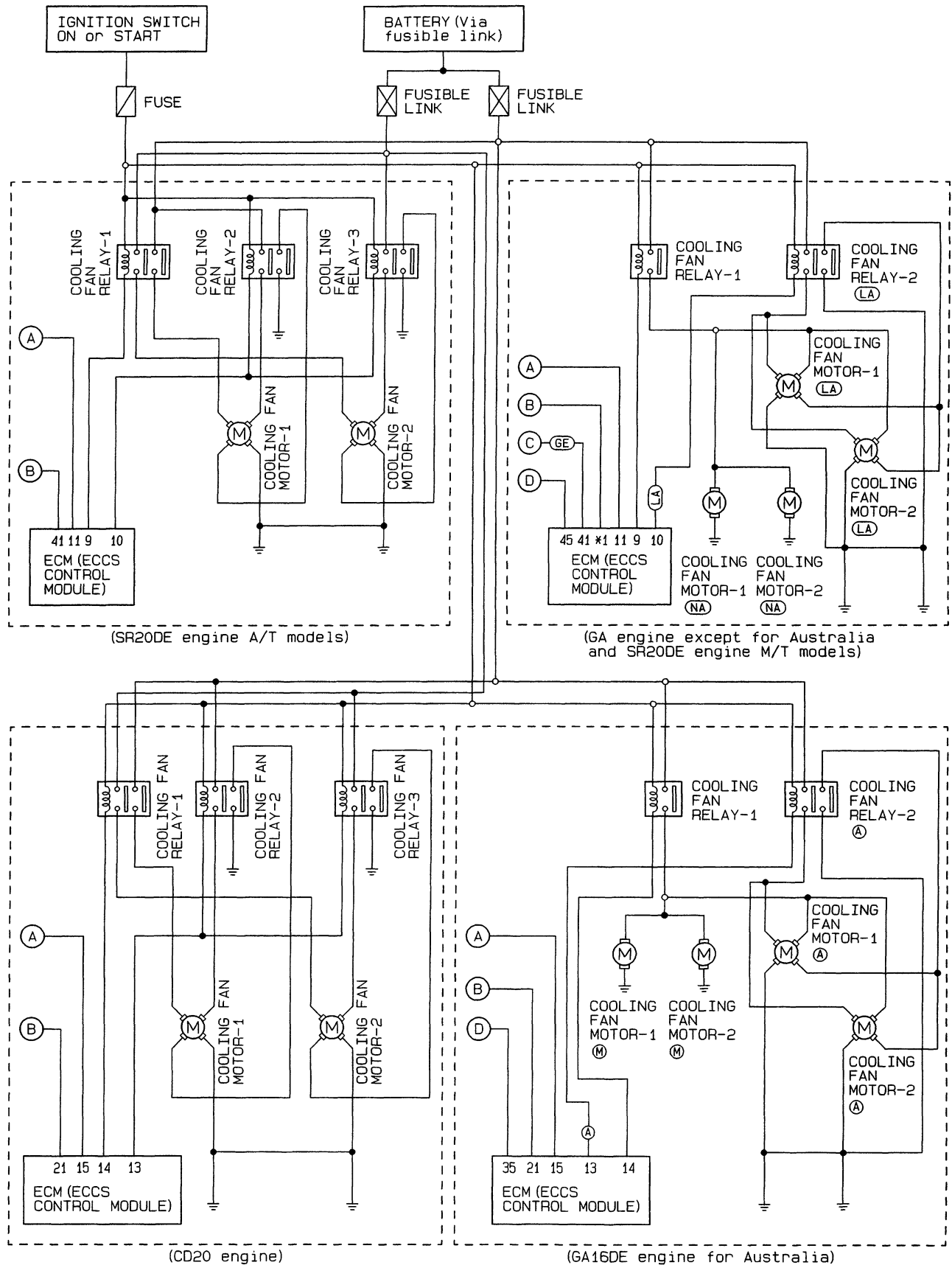
Circuit Diagram — Air Conditioner



HA

TROUBLE DIAGNOSES

Circuit Diagram — Air Conditioner (Cont'd)



Wiring Diagram — A/C —

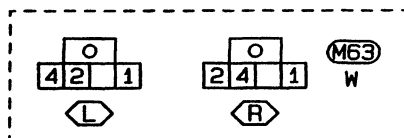
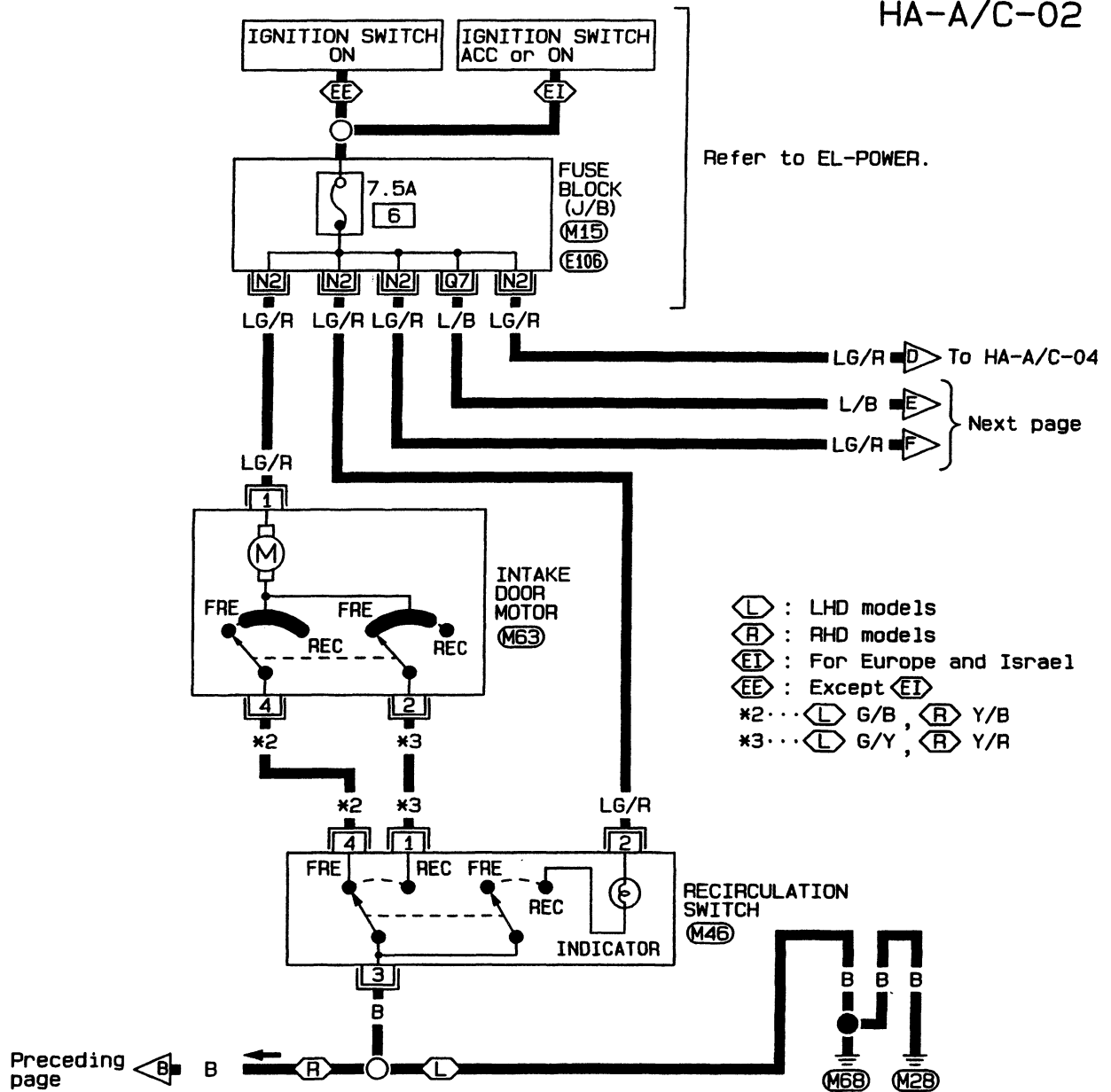
(L) : LHD models
 (R) : RHD models
 (EI) : For Europe and Israel
 (EE) : Except (EI)
 *1... (L) G/Y, (R) LG/B



TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

HA-A/C-02



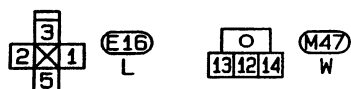
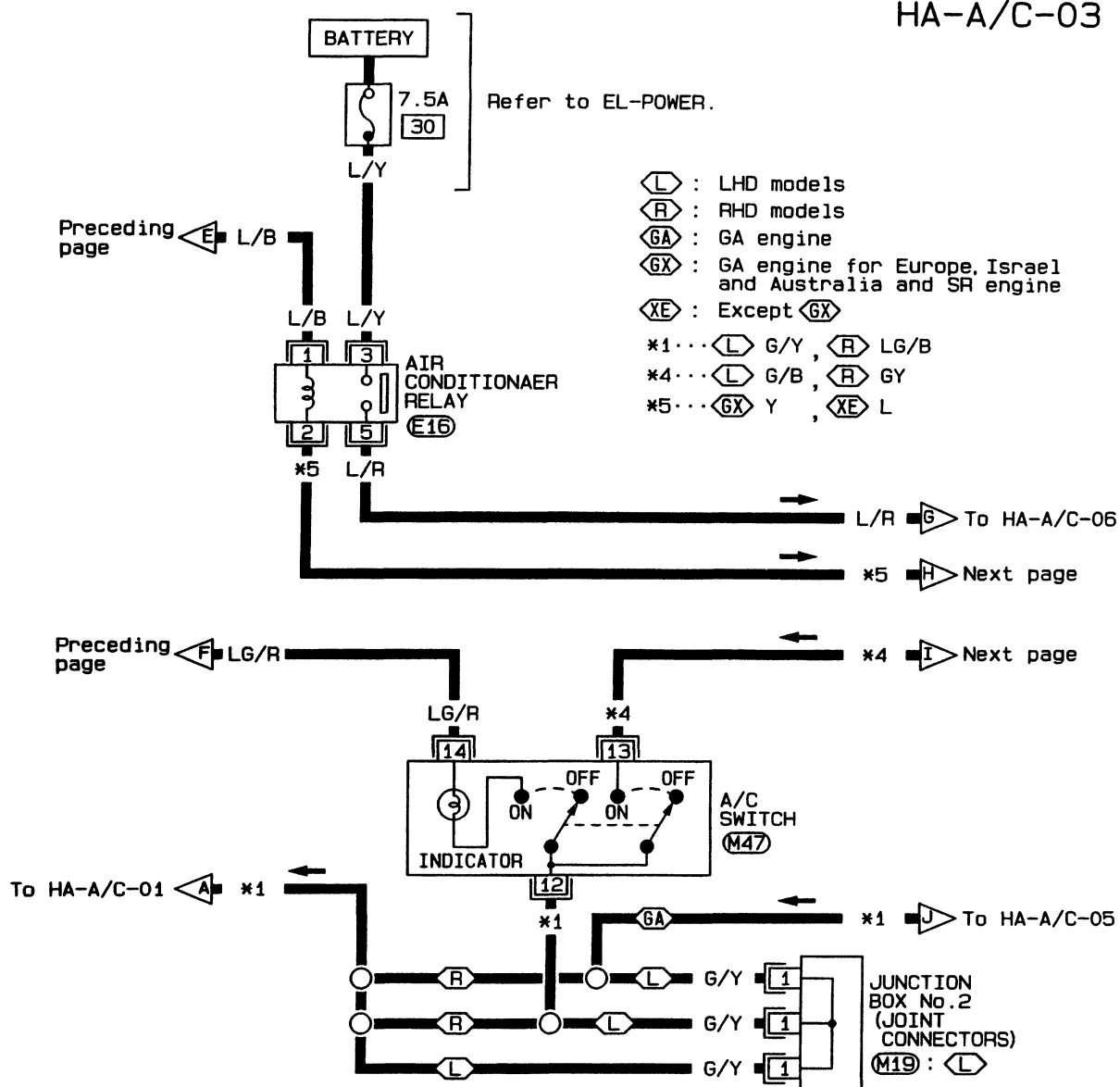
Refer to last page (Foldout page).

(M15), (E106)

TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

HA-A/C-03

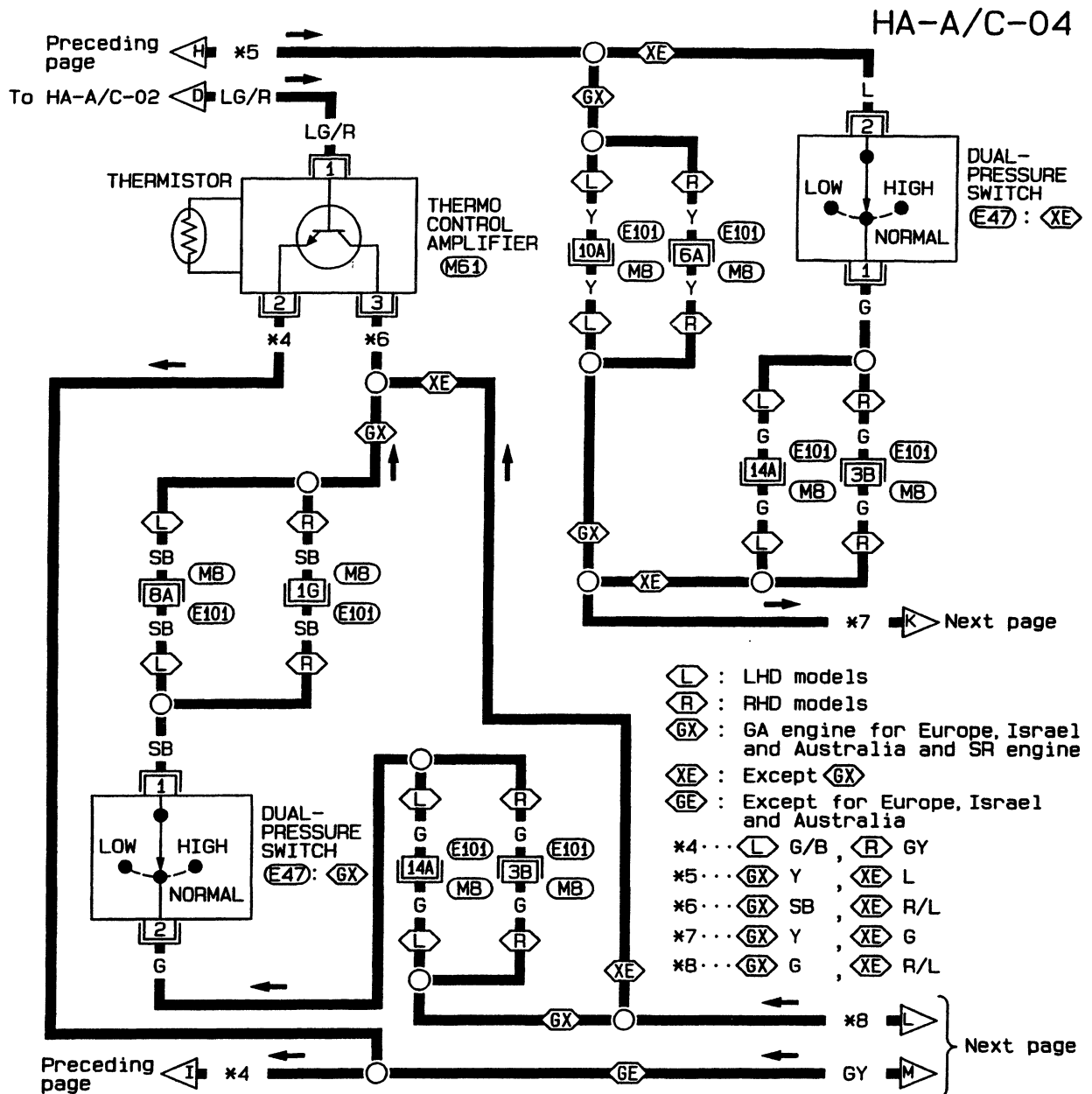


Refer to last page (Foldout page).

(M19)

HA

Wiring Diagram — A/C — (Cont'd)








Refer to last page
(Foldout page) .

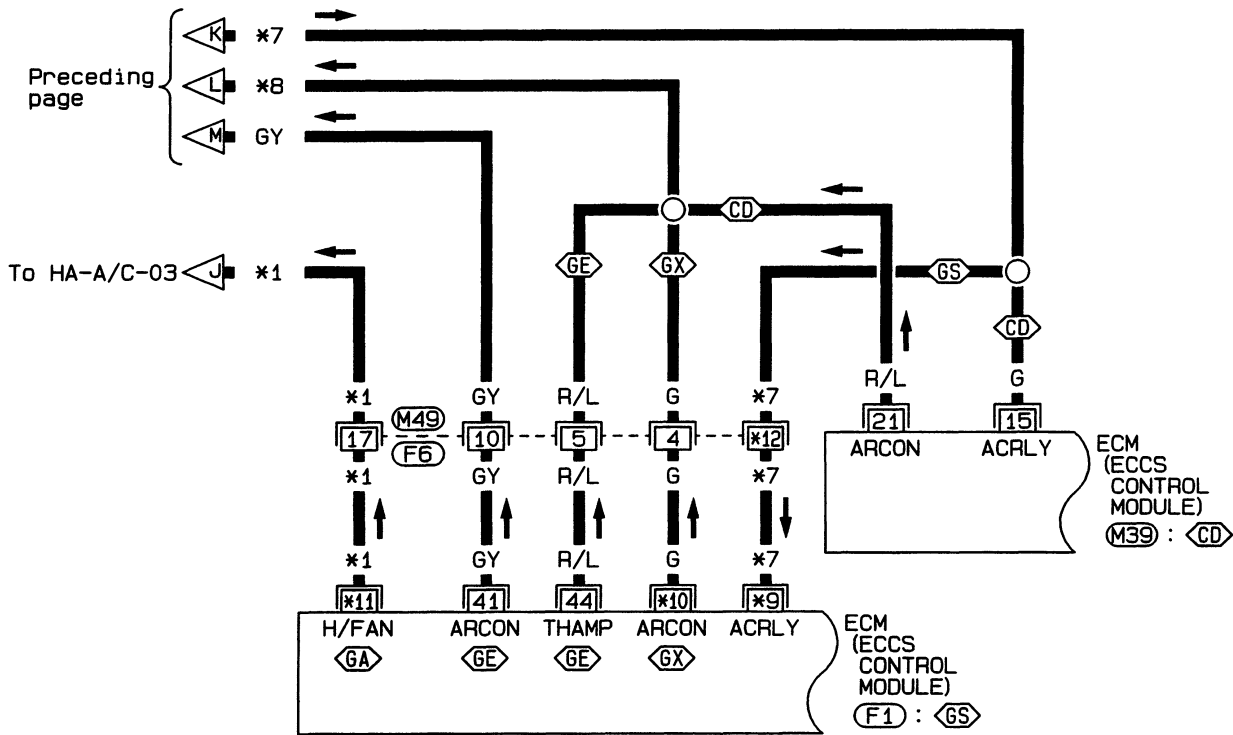
MB E101

TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

HA-A/C-05

- | | |
|--|-----------------------------------|
| L : LHD models | *1... L G/Y, R LG/B |
| R : RHD models | *7... GX Y, XE G |
| GA : GA engine | *8... GX G, XE R/L |
| CD : CD engine | *9... EA 11, AG 15 |
| AG : GA engine for Australia | *10... EA 41, AG 21 |
| EA : Except AG | *11... EA 45, AG 35 |
| GS : GA engine and SR engine | *12... GX 5, XE 4 |
| GE : Except for Europe, Israel and Australia | |
| GX : GA engine for Europe, Israel and Australia and SR engine | |
| XE : Except GX | |



1	2	3	4	5	6	7	8	M49
9	10	11	12	13	14	15	16	W

Refer to last page
(Foldout page).

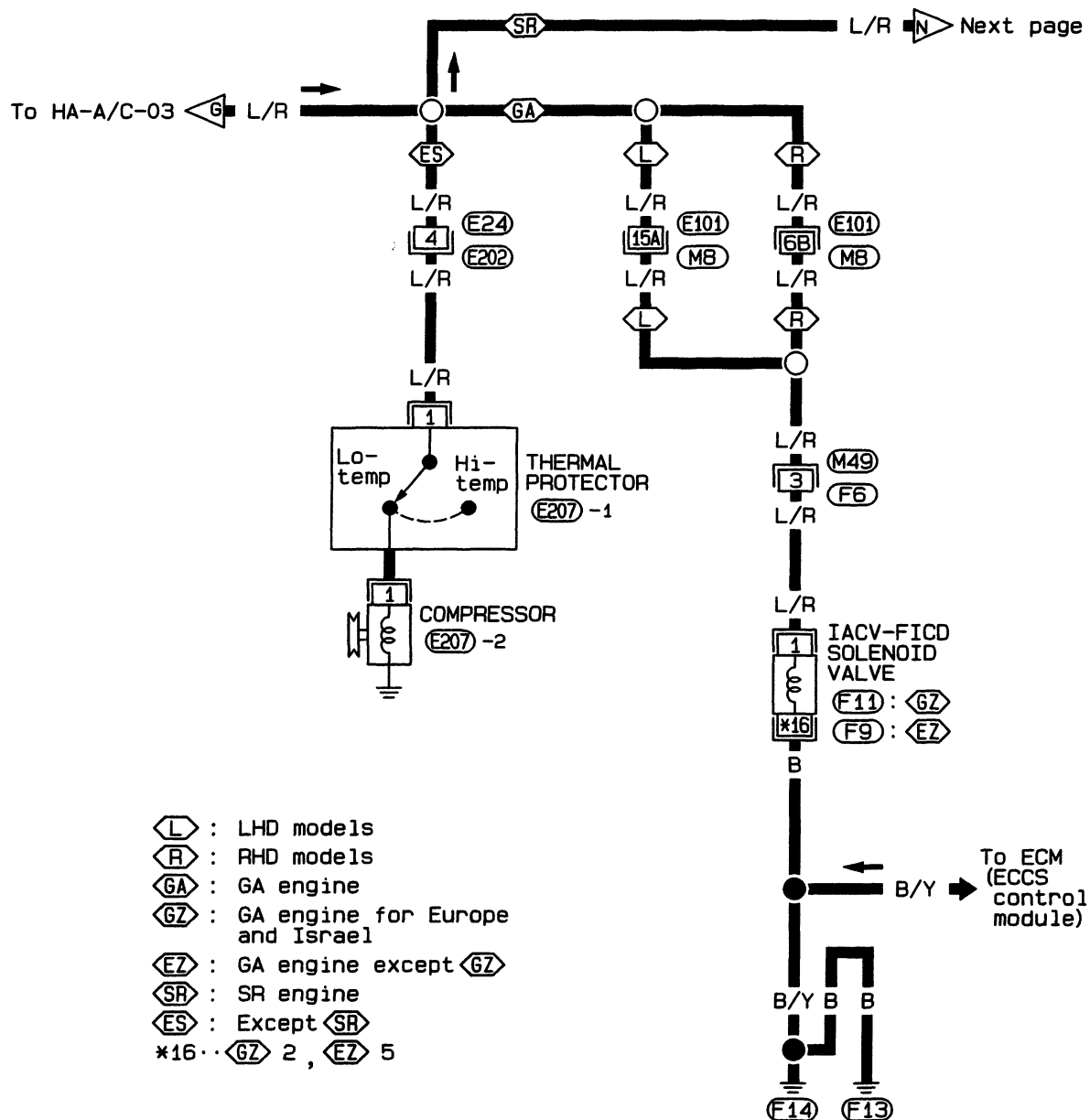
HA

(F1)

(M39)

Wiring Diagram — A/C — (Cont'd)

HA-A/C-06



- L** : LHD models
R : RHD models
GA : GA engine
GZ : GA engine for Europe and Israel
EZ : GA engine except **GZ**
SR : SR engine
ES : Except **SR**
 *16- **GZ** 2, **EZ** 5



(E202)
B



(E207)-1, (E207)-2
B B



(F11)
PU



F9
BR



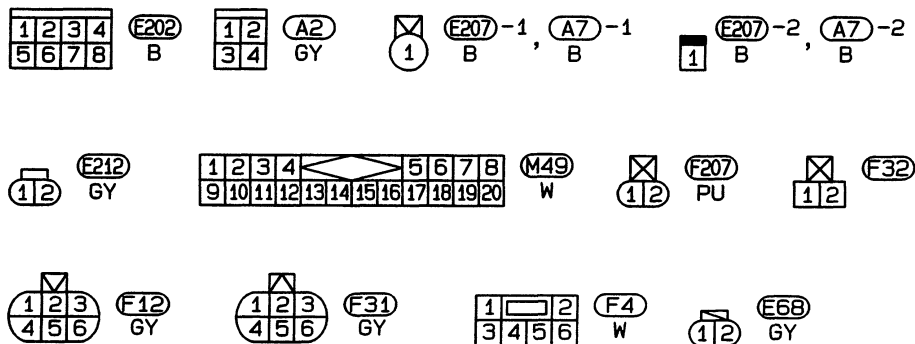
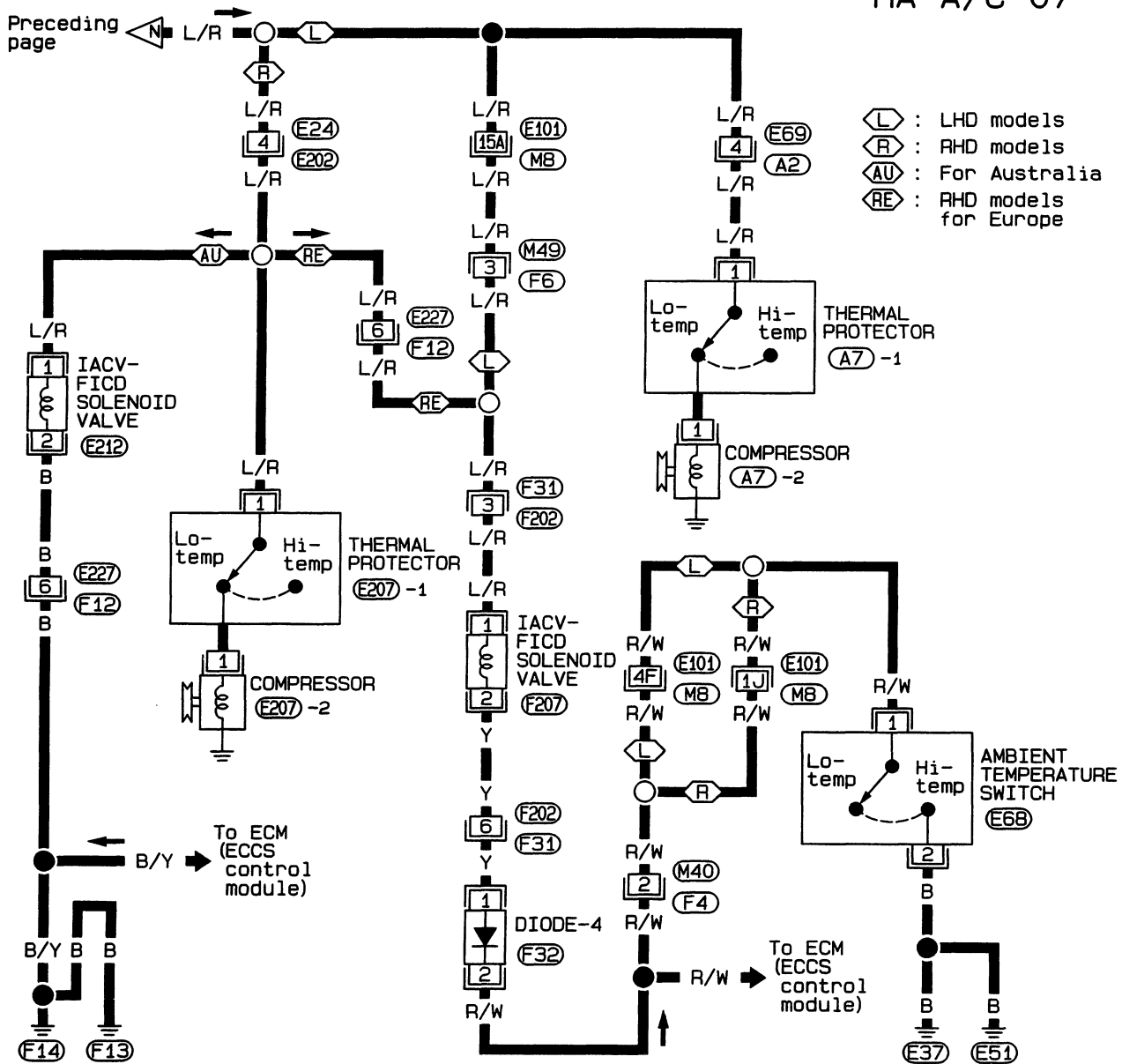
M49
W

Refer to last page
(Foldout page) .

MB E101

Wiring Diagram — A/C — (Cont'd)

HA-A/C-07



Refer to last page
(Foldout page) .

(MB) (E101)

HA

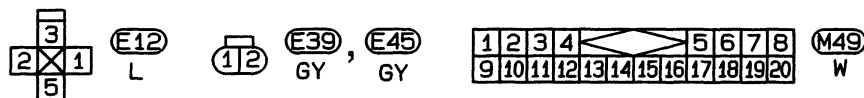
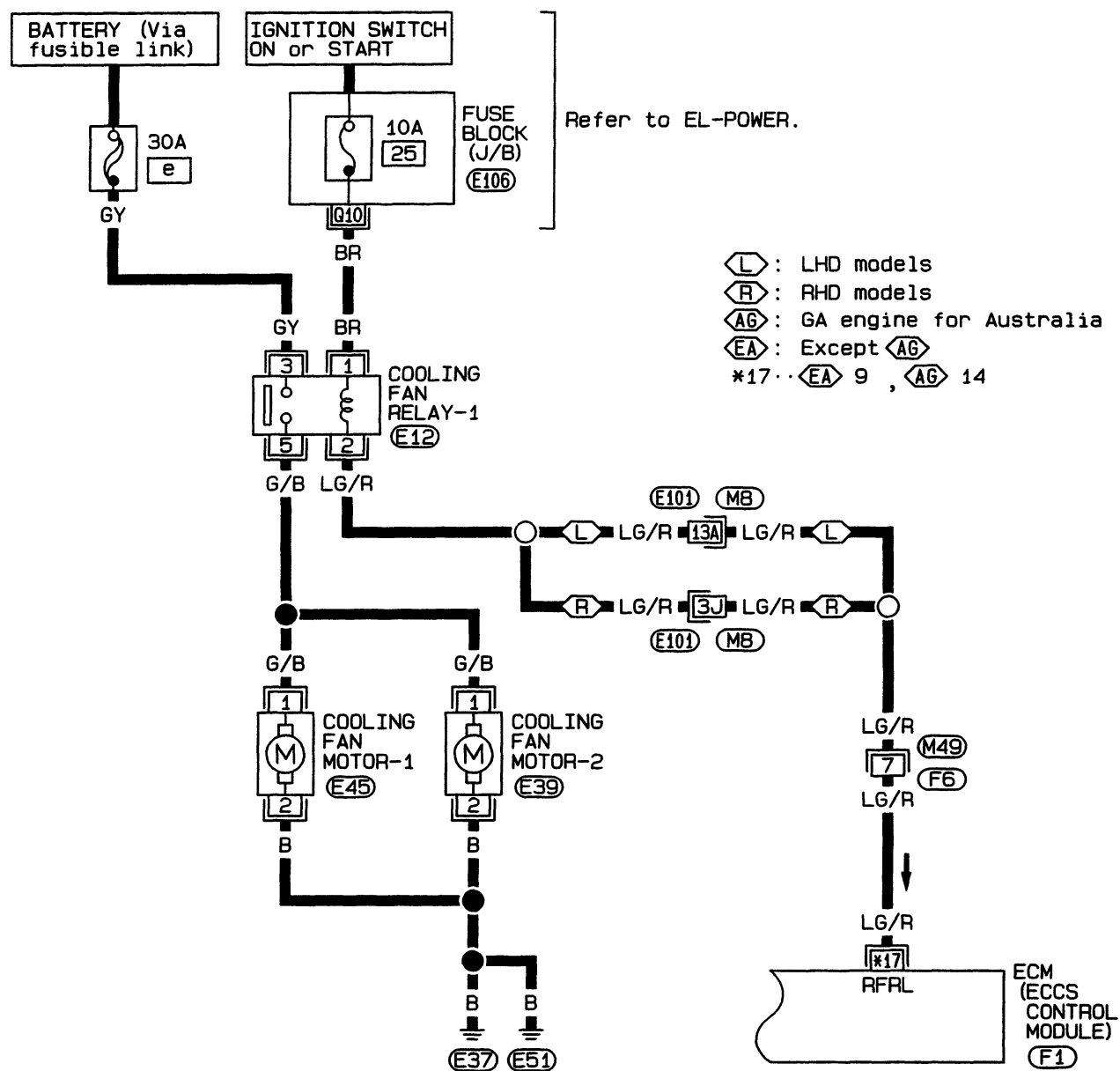
TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

COOLING FAN CONTROL

SR20DE engine M/T models, GA engine M/T models, GA engine A/T models — except for Australia

HA-A/C-08



Refer to last page (Foldout page).

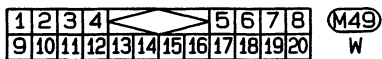
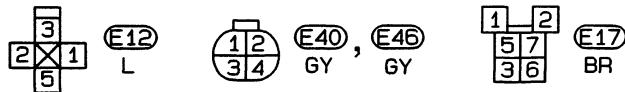
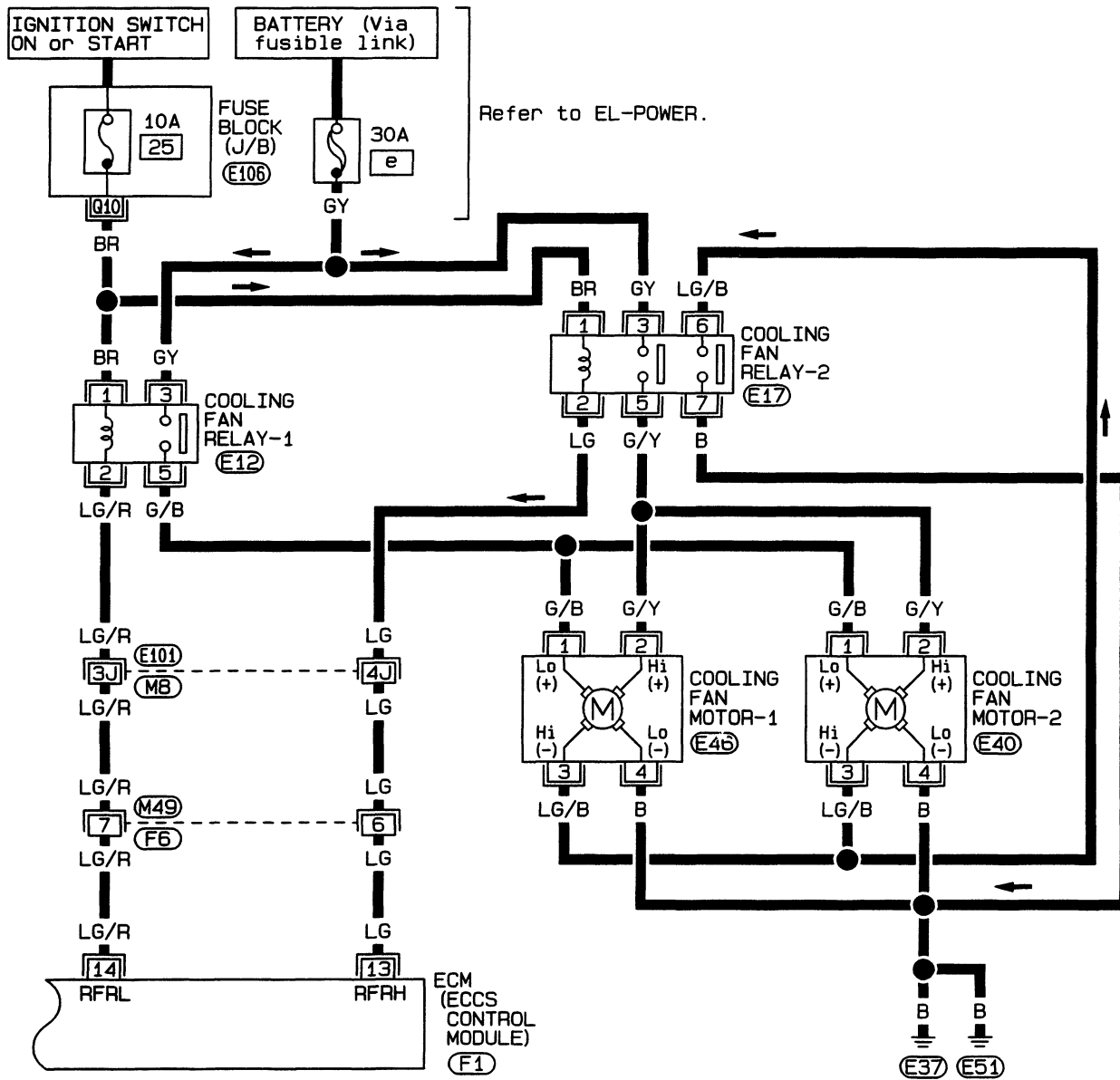
(MB), (E101)
 (E106)
 (F1)

TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

GA engine A/T models — for Australia

HA-A/C-09



Refer to last page (Foldout page).

(MB), (E101)

(E106)

(F1)

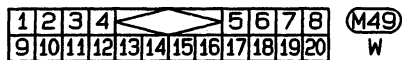
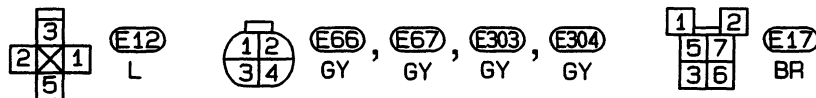
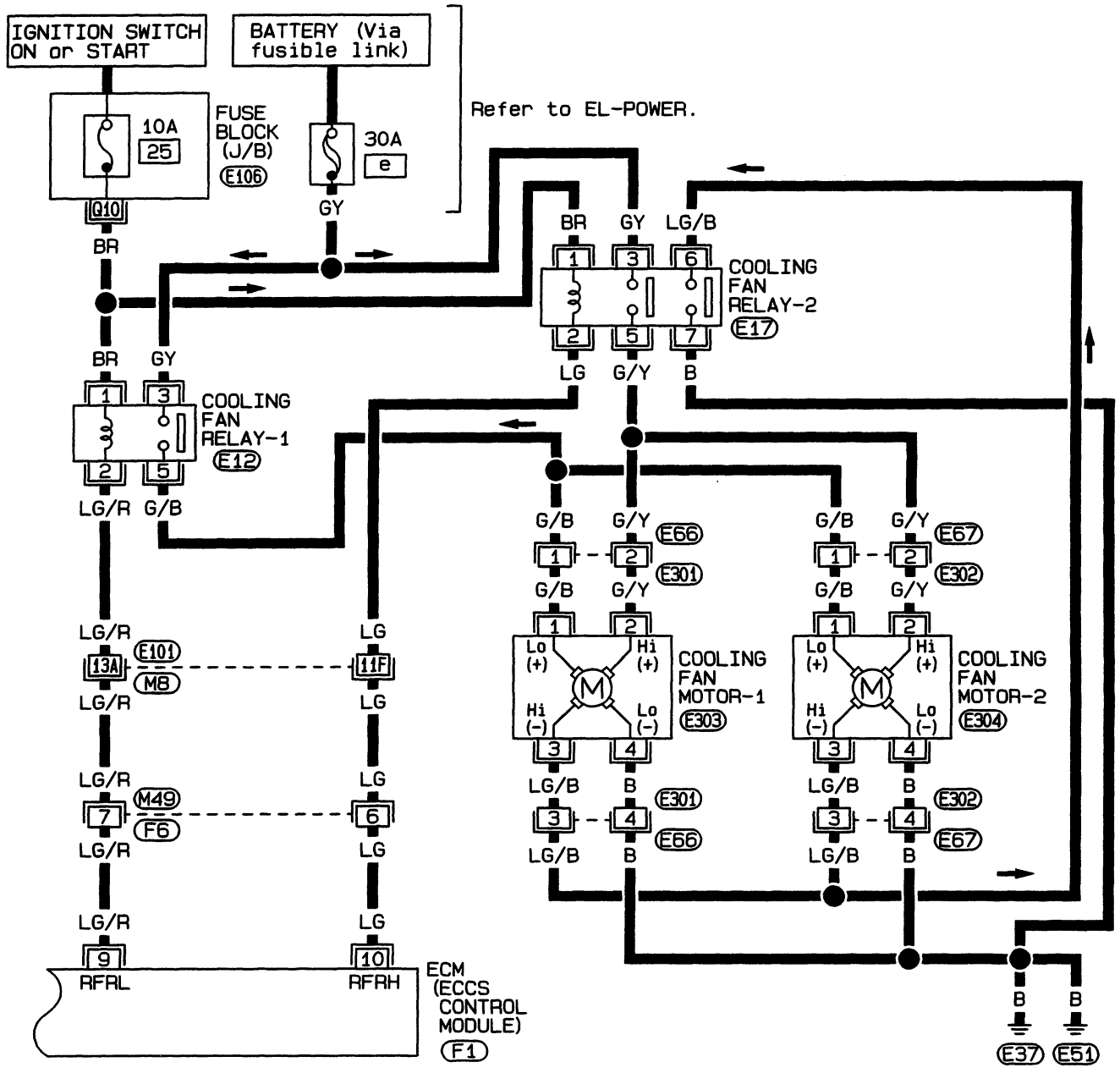
HA

TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

GA engine A/T models — for Europe LHD without daytime light system (with dealer installed towing kit)

HA-A/C-10



Refer to last page (Foldout page).

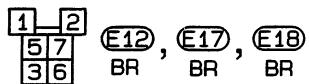
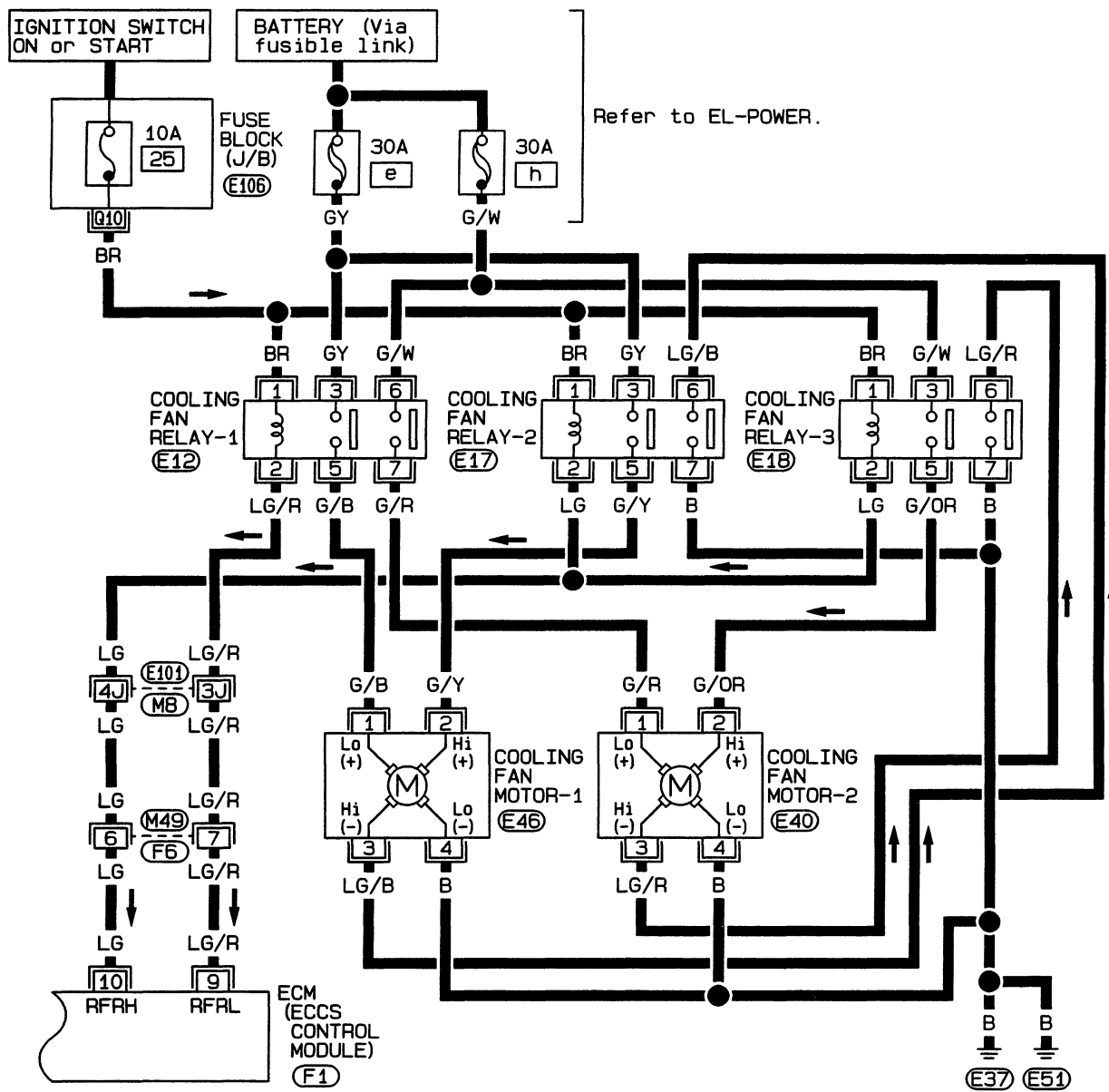
(MB), (E101)
(E106)
(F1)

TROUBLE DIAGNOSES

Wiring Diagram — A/C — (Cont'd)

SR20DE engine A/T models

HA-A/C-11



Refer to last page
(Foldout page).

(MB), (E101)

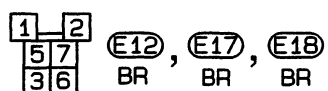
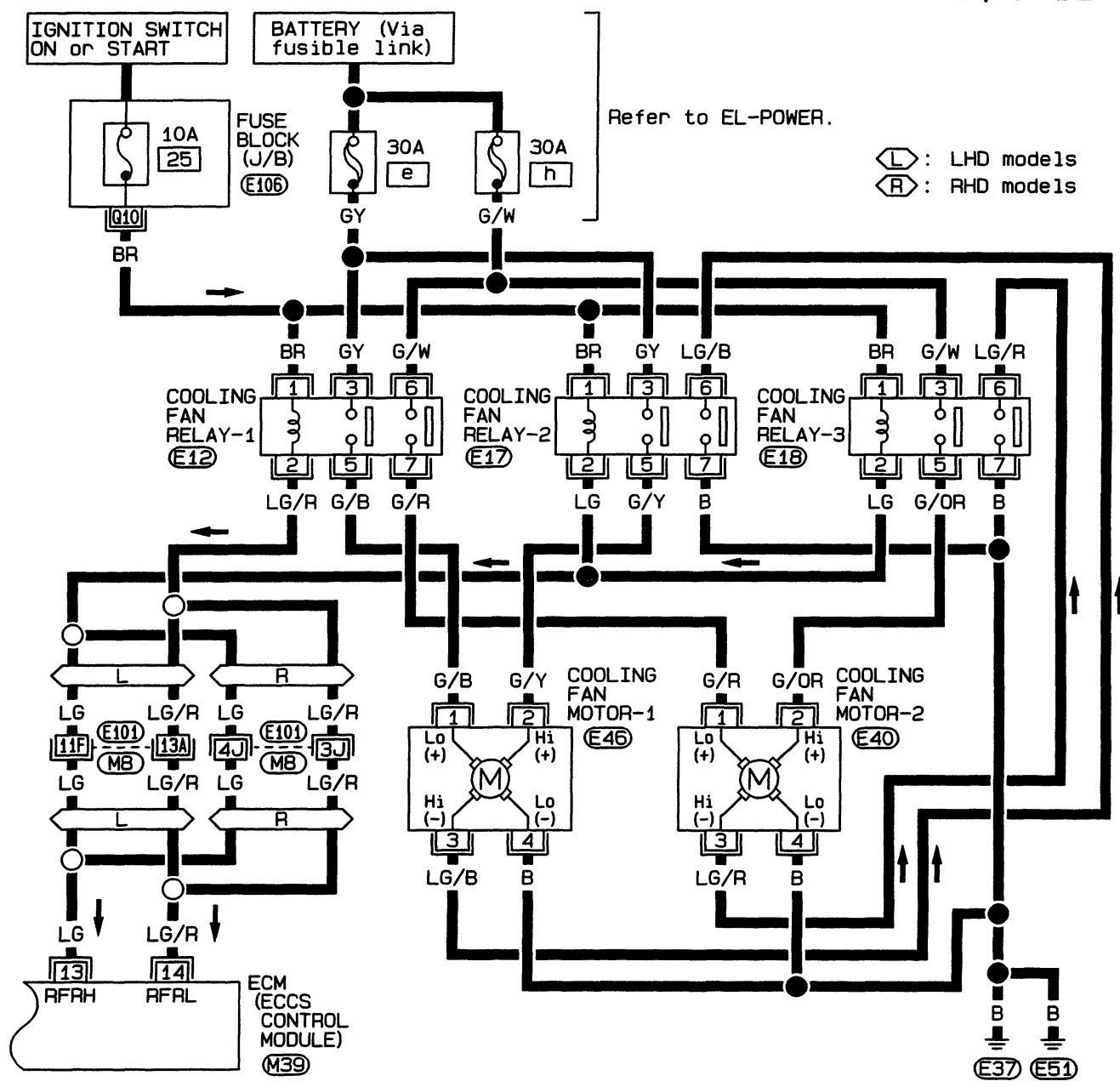
(E106)

(F1)

Wiring Diagram — A/C — (Cont'd)

CD20 engine models

HA-A/C-12



Refer to last page
(Foldout page) .

MB E101

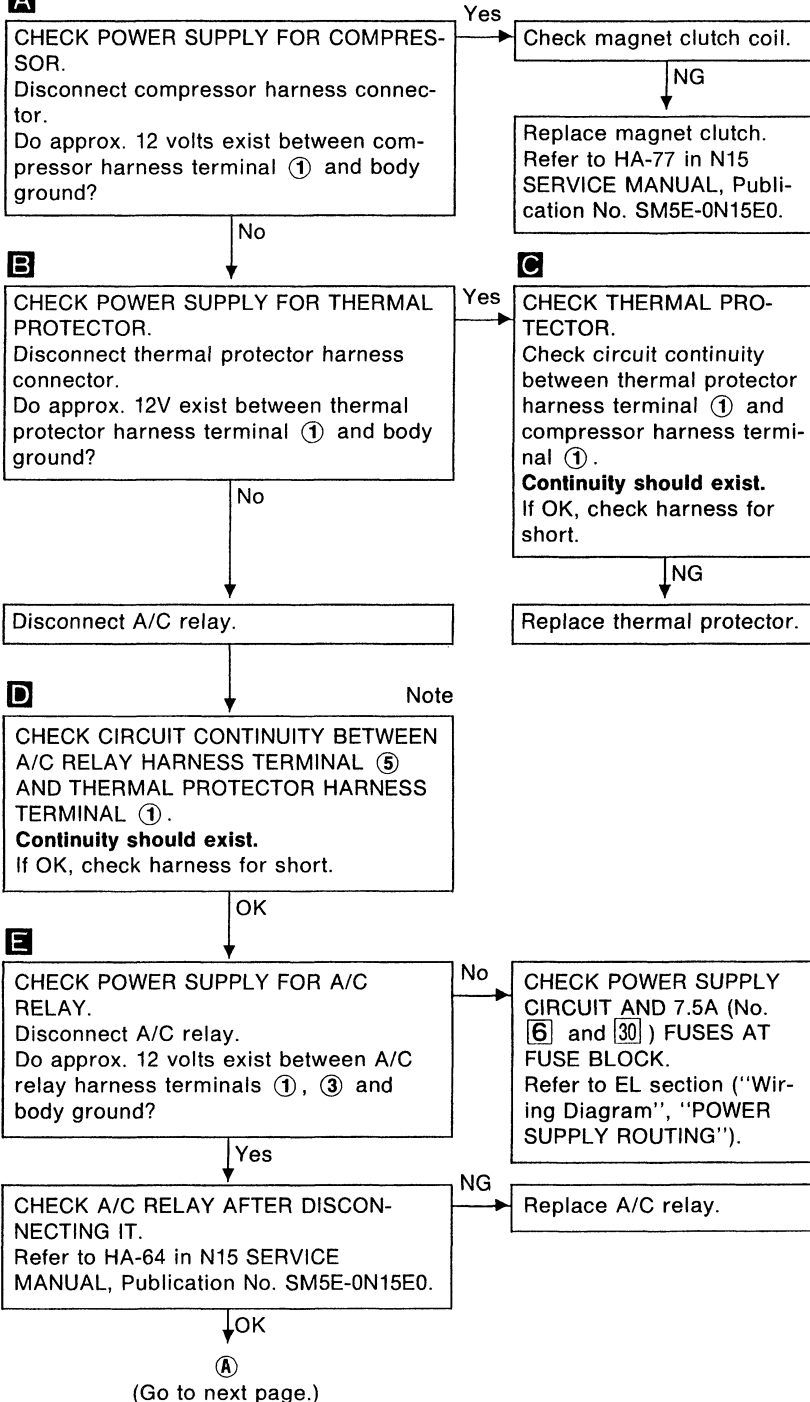
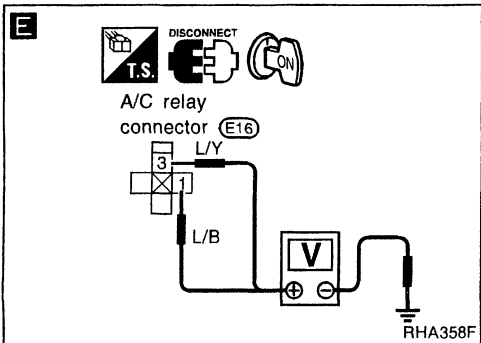
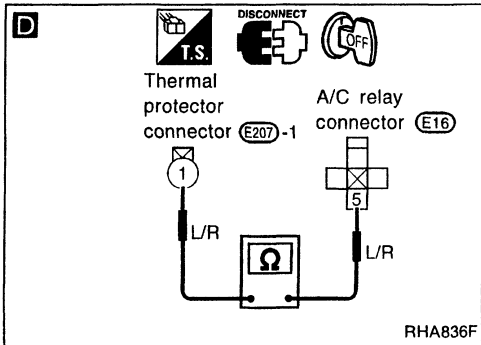
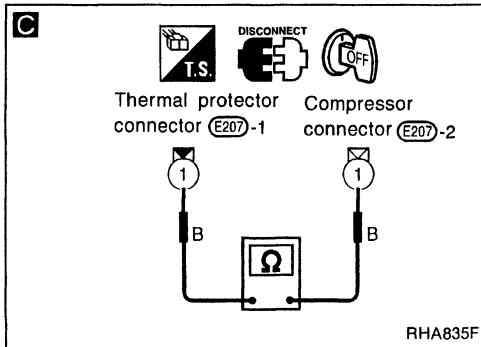
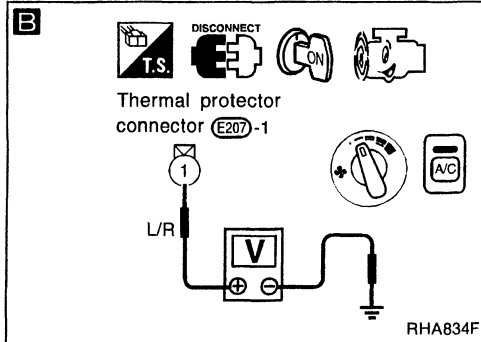
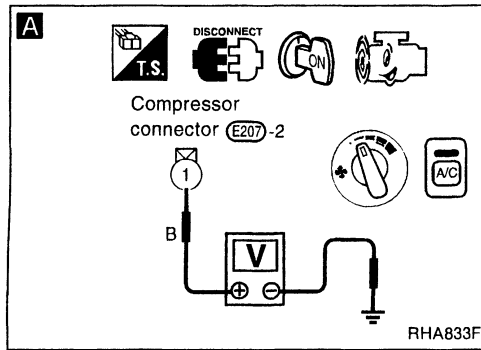
E106

M39

Diagnostic Procedure 3

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

- Perform **PRELIMINARY CHECK 1** before referring to the following flow chart.

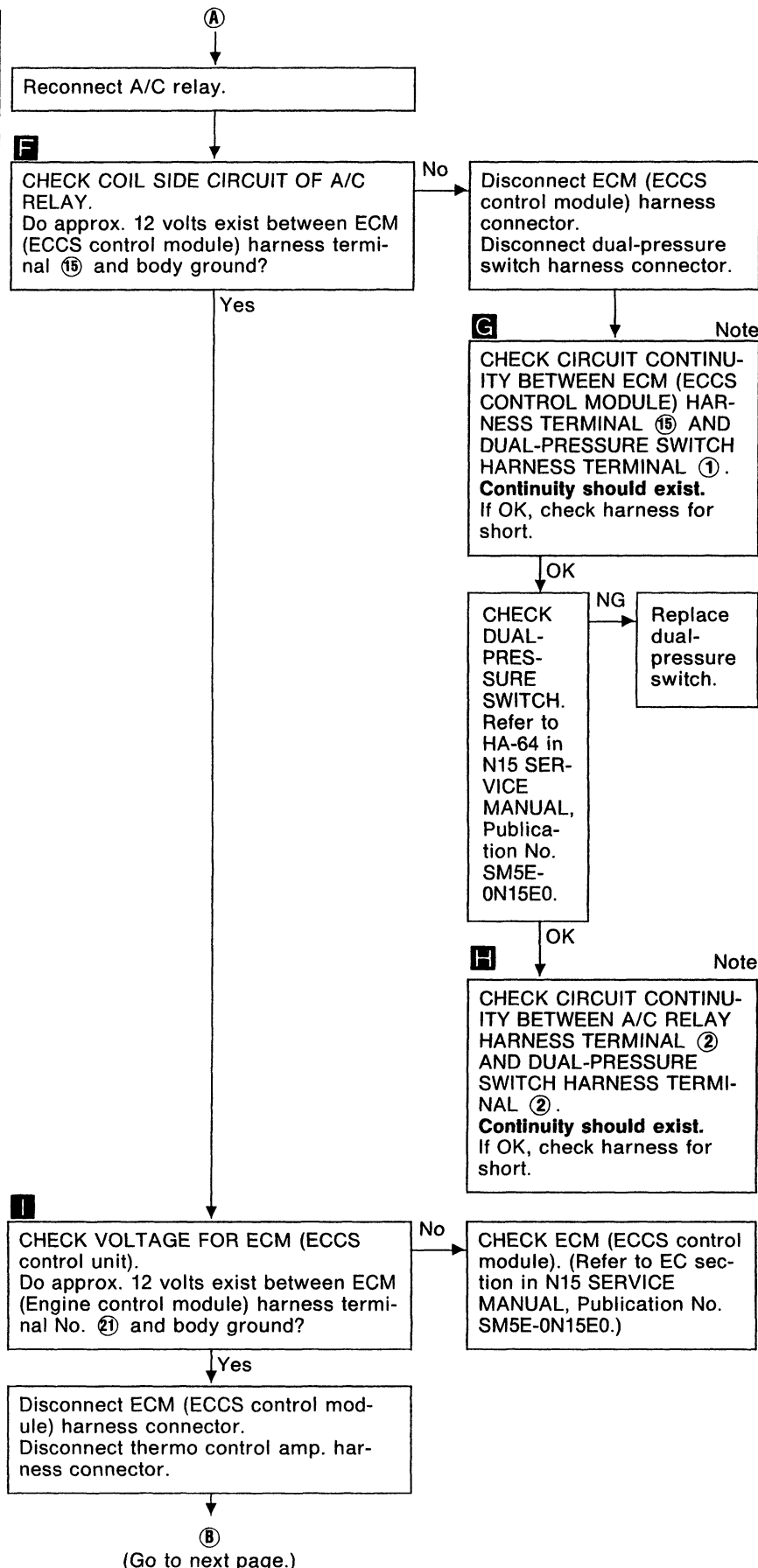
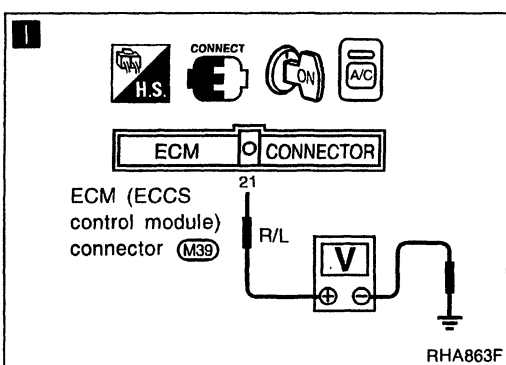
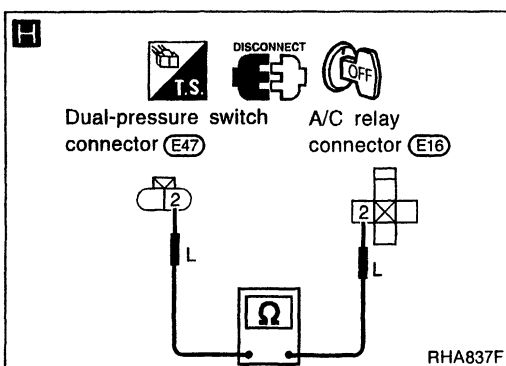
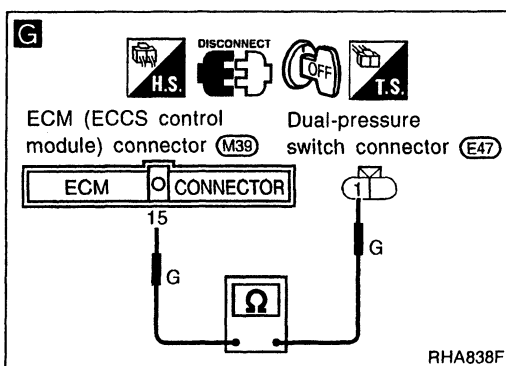
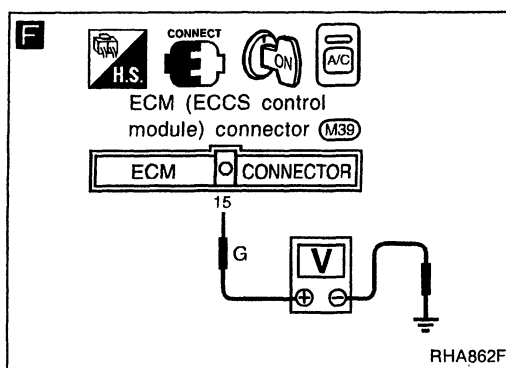


Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

HA

TROUBLE DIAGNOSES

Diagnostic Procedure 3 (Cont'd)

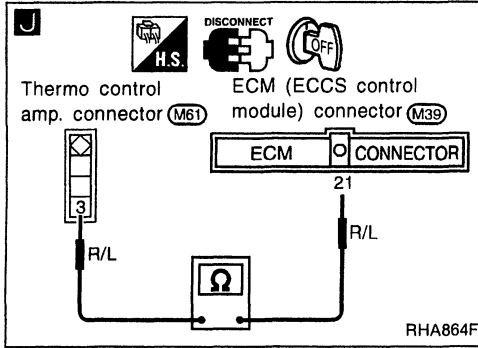


Note:

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

TROUBLE DIAGNOSES

Diagnostic Procedure 3 (Cont'd)



J

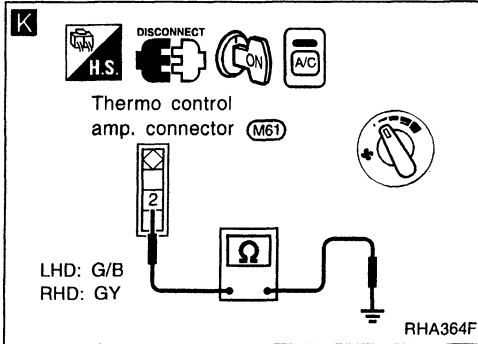
Note

CHECK CIRCUIT CONTINUITY BETWEEN ECM (ECCS CONTROL MODULE) HARNESS TERMINAL ②① AND THERMO CONTROL AMP. HARNESS TERMINAL ③.

Continuity should exist.
If OK, check harness for short.

OK

Reconnect thermo control amp. harness connector.



Note

CHECK POWER SUPPLY FOR THERMO CONTROL AMP.
Refer to HA-49 in N15 SERVICE MANUAL, Publication No. SM5E-0N15E0.

K

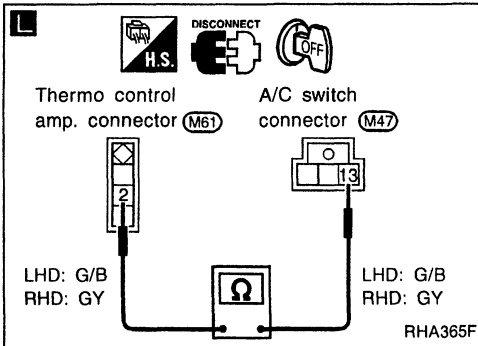
CHECK BODY GROUND CIRCUIT FOR THERMO CONTROL AMP.
Disconnect thermo control amp. harness connector.
Does continuity exist between thermo control amp. harness terminal ② and body ground?

Yes

Replace thermo control amp.

No

Disconnect A/C switch harness connector.



L

Note

CHECK CIRCUIT CONTINUITY BETWEEN THERMO CONTROL AMP. HARNESS TERMINAL ② AND A/C SWITCH HARNESS TERMINAL ⑬.

Continuity should exist.
If OK, check harness for short.

OK

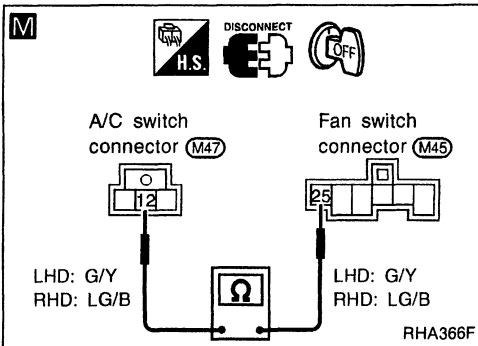
CHECK A/C SWITCH.
Refer to HA-63 in N15 SERVICE MANUAL, Publication No. SM5E-0N15E0.

NG

Replace A/C switch.

OK

Disconnect fan switch harness connector.



M

Note

CHECK CIRCUIT CONTINUITY BETWEEN A/C SWITCH HARNESS TERMINAL ⑫ AND FAN SWITCH HARNESS TERMINAL ⑫⑤.

Continuity should exist.
If OK, check harness for short.

OK

(Go to next page.)

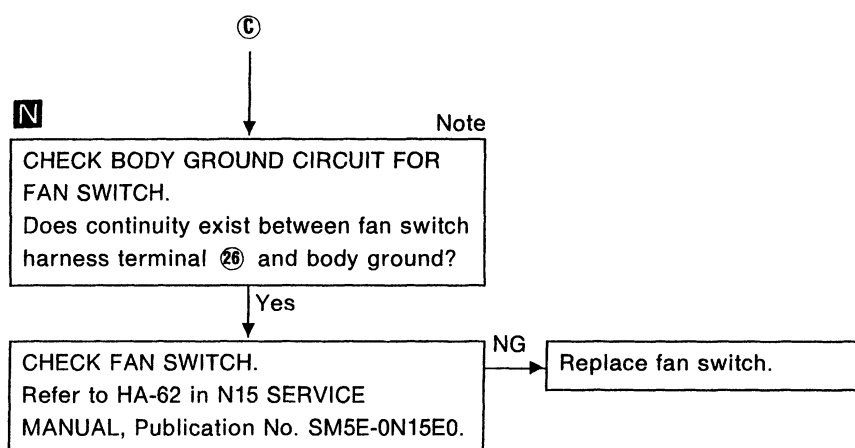
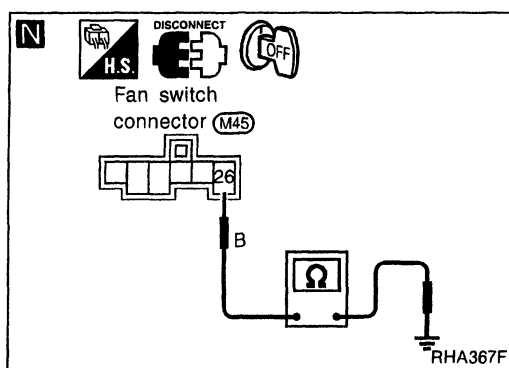
Note:

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

HA

TROUBLE DIAGNOSES

Diagnostic Procedure 3 (Cont'd)



Note:

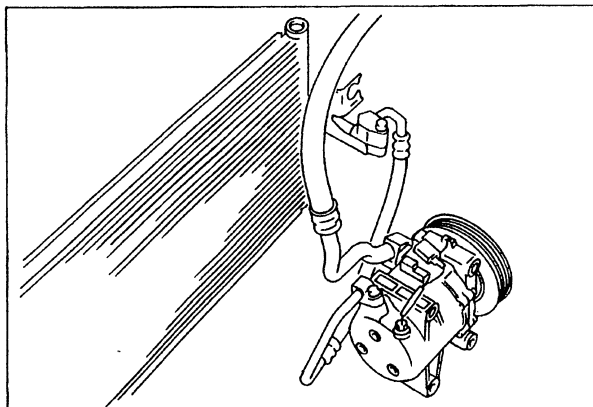
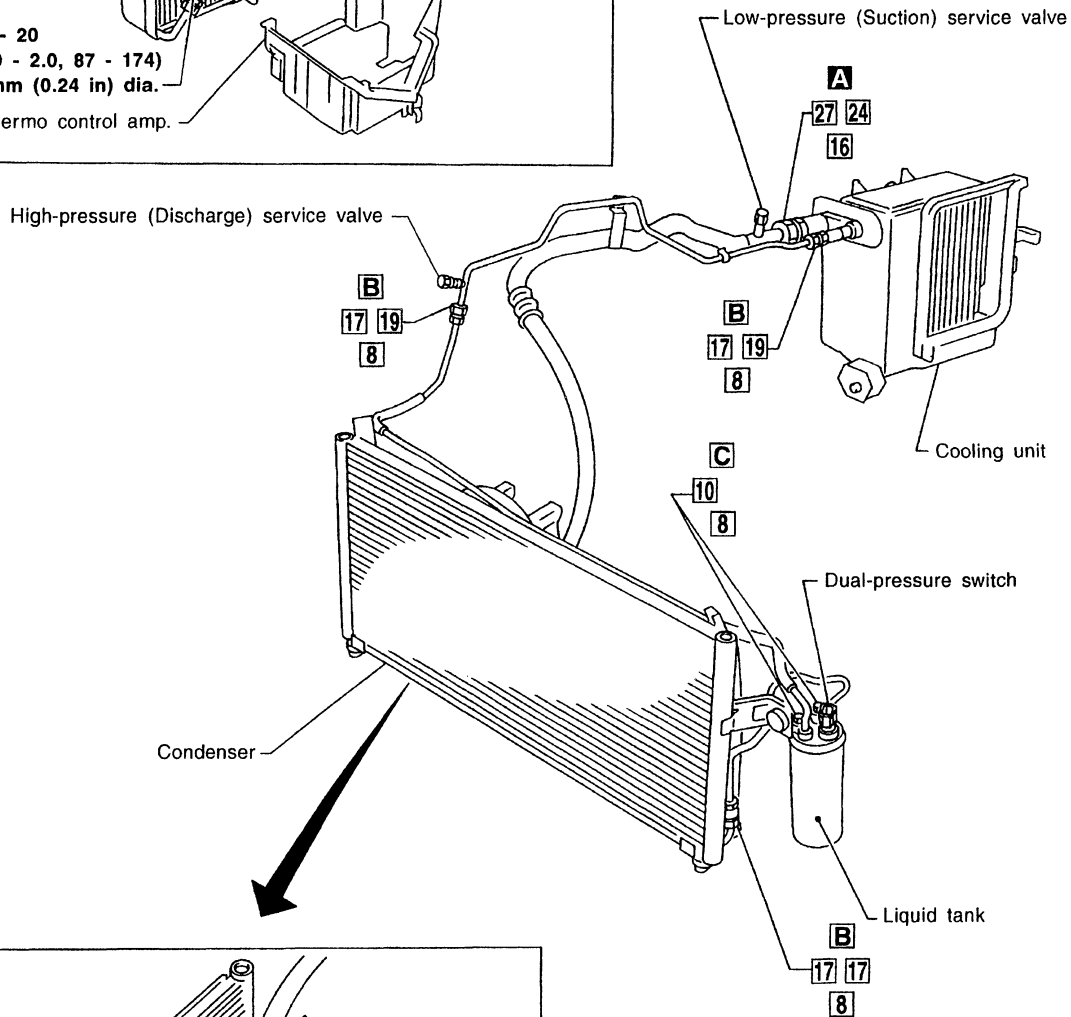
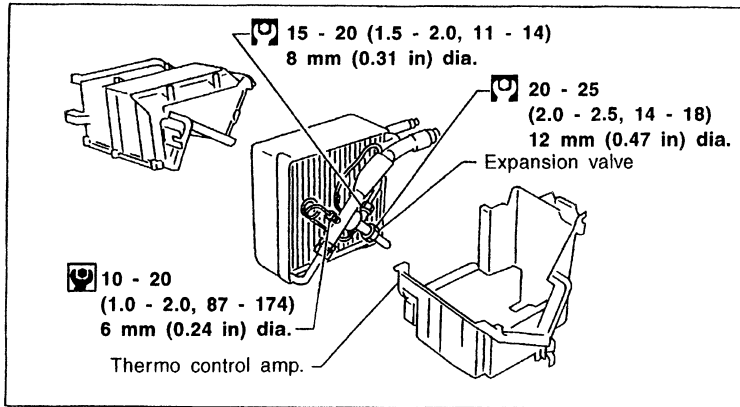
If the result is NG or No after checking circuit continuity, repair harness or connector.

SERVICE PROCEDURES

Refrigerant Lines

SR ENGINE LHD MODEL

SEC. 271•274•276



- (Tightening torque)
- (Wrench size)
- (O-ring size)
- ⊙ : N•m (kg-m, ft-lb)
- A** : 25 - 34 (2.5 - 3.5, 18 - 25)
- ⊙ : N•m (kg-m, in-lb)
- B** : 10 - 20 (1.0 - 2.0, 87 - 174)
- C** : 8 - 11 (0.8 - 1.1, 69 - 95)

HA

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

COMPRESSOR

Model	SR20DE engine	GA14DE engine	GA15DE, GA16DE and CD20 engines
	CALSONIC make CR-14	ZEXEL make DKV-14D	ZEXEL make DKV-11D
Type	Vane rotary		
Displacement cm ³ (cu in)/Rev	144 (8.79)	140 (8.54)	110 (6.71)
Direction of rotation	Clockwise (Viewed from drive end)		
Drive belt	GA engine model: Poly V SR engine model: Poly V CD engine model: Type A		

LUBRICANT

Model	ZEXEL make DKV-11D DKV-14D	CALSONIC make CR-14
Name	Nissan A/C System Oil Type R	
Part number	KLH00-PAGR0	
Capacity ml (Imp fl oz)		
Total in system	200 (7.0)	180 (6.3)
Compressor (Service parts) charging amount	200 (7.0)	180 (6.3)

REFRIGERANT

Type	HFC-134a
Capacity kg (lb)	
RHD models (With GA or CD engine)	0.45 - 0.55 (0.99 - 1.21)
SR20DE engine	0.50 - 0.60 (1.10 - 1.32)
LHD models (With GA or CD engine)	0.60 - 0.70 (1.32 - 1.54)

Inspection and Adjustment

ENGINE IDLING SPEED

When A/C is ON
Refer to EC section.

BELT TENSION

Refer to Checking Drive Belts (MA section).

COMPRESSOR

Model	DKV-11D, DKV-14D and CR-14
Clutch disc-to-pulley clearance mm (in)	0.3 - 0.6 (0.012 - 0.024)