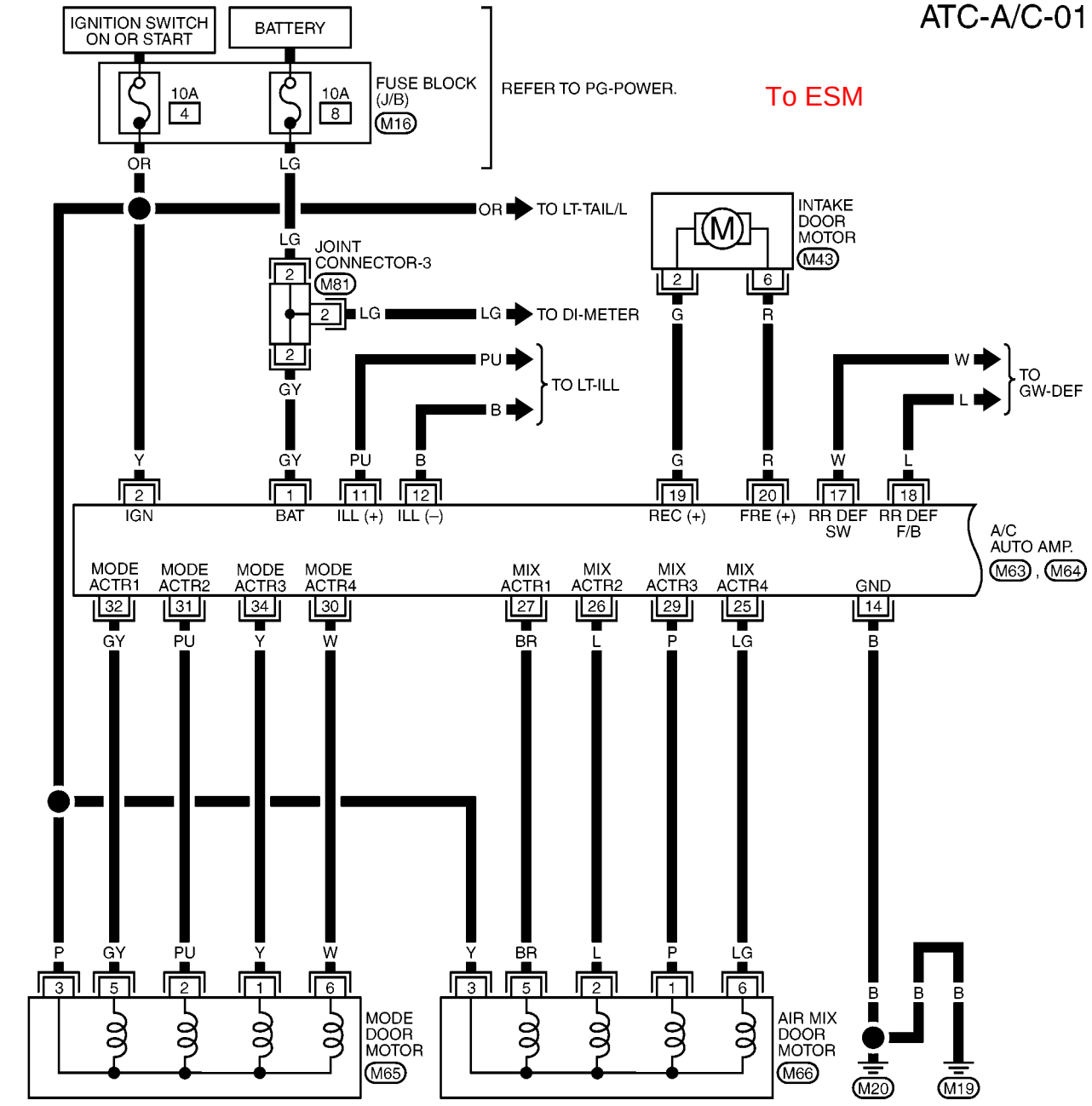
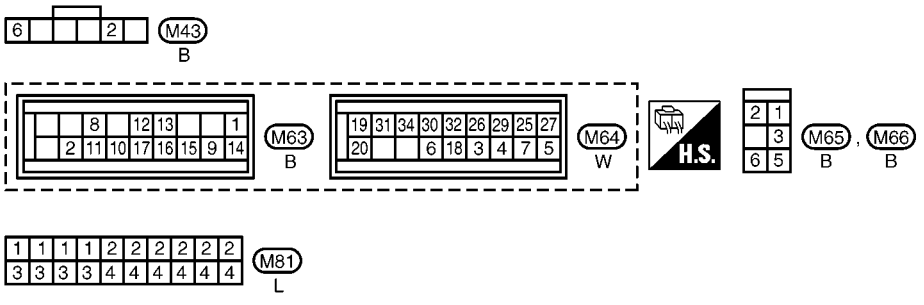
TROUBLE DIAGNOSIS

Wiring Diagram —A/C— CR Engine Models

ATC-A/C-01

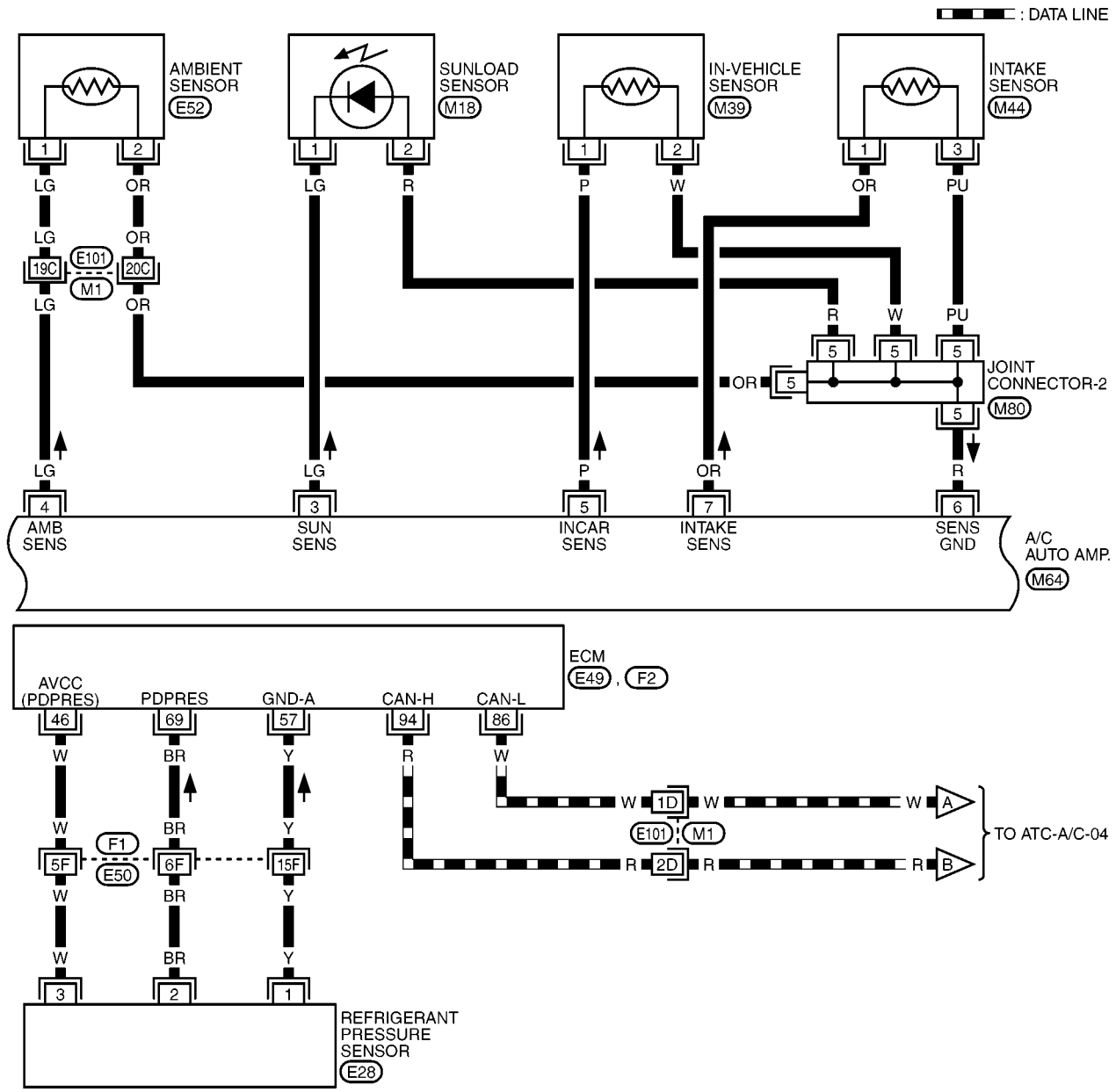


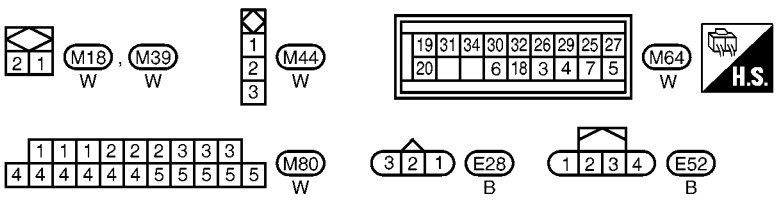


REFER TO THE FOLLOWING.
M16 -FUSE BLOCK-JUNCTION BOX (J/B)

MJWA0061E

ATC-A/C-02

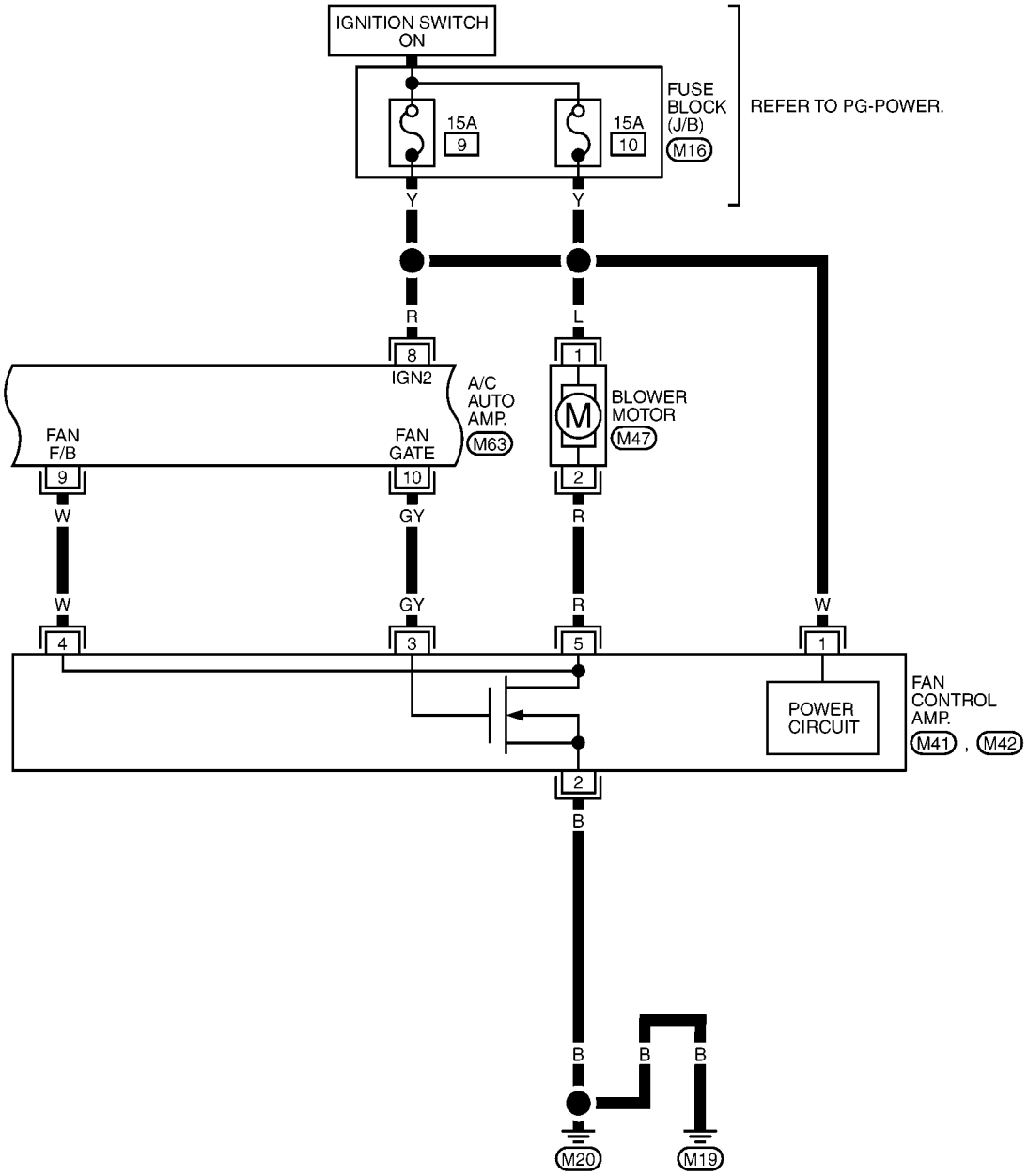


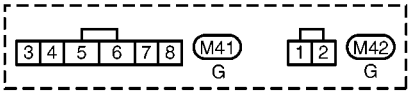


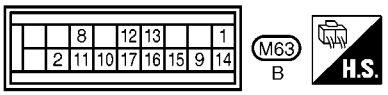
REFER TO THE FOLLOWING.
M1, F1 -SUPER MULTIPLE JUNCTION (SMJ)
E49, F2 -ELECTRICAL UNITS

MJWA0110E

ATC-A/C-03

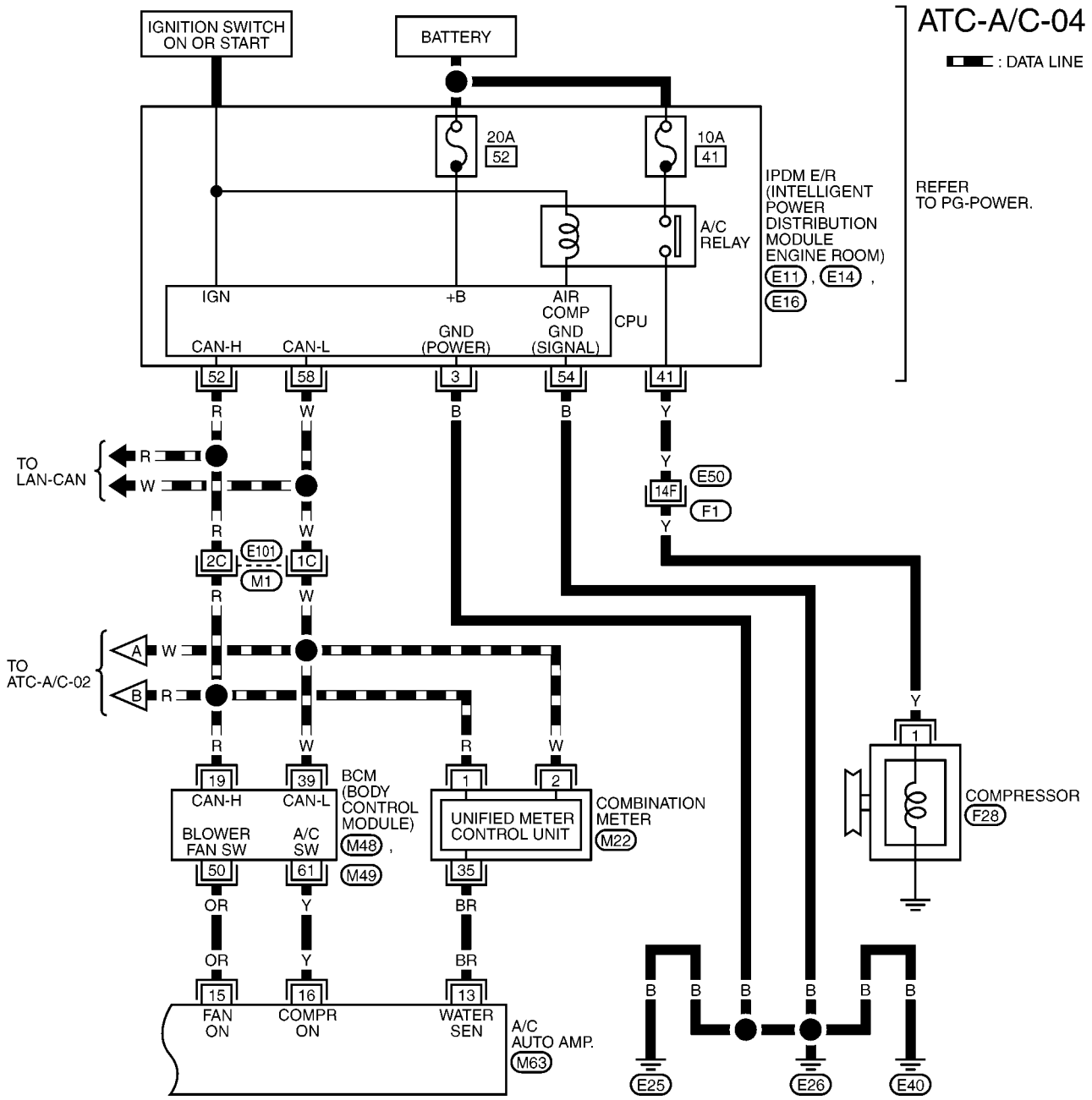


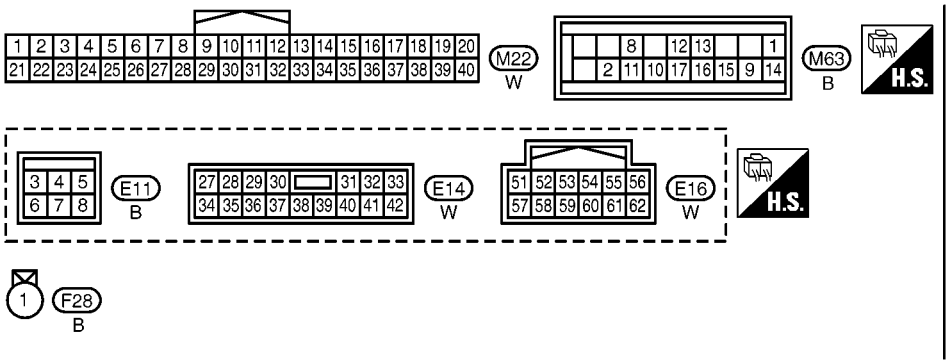




REFER TO THE FOLLOWING.
M16 -FUSE BLOCK-JUNCTION BOX (J/B)

MJWA0111E



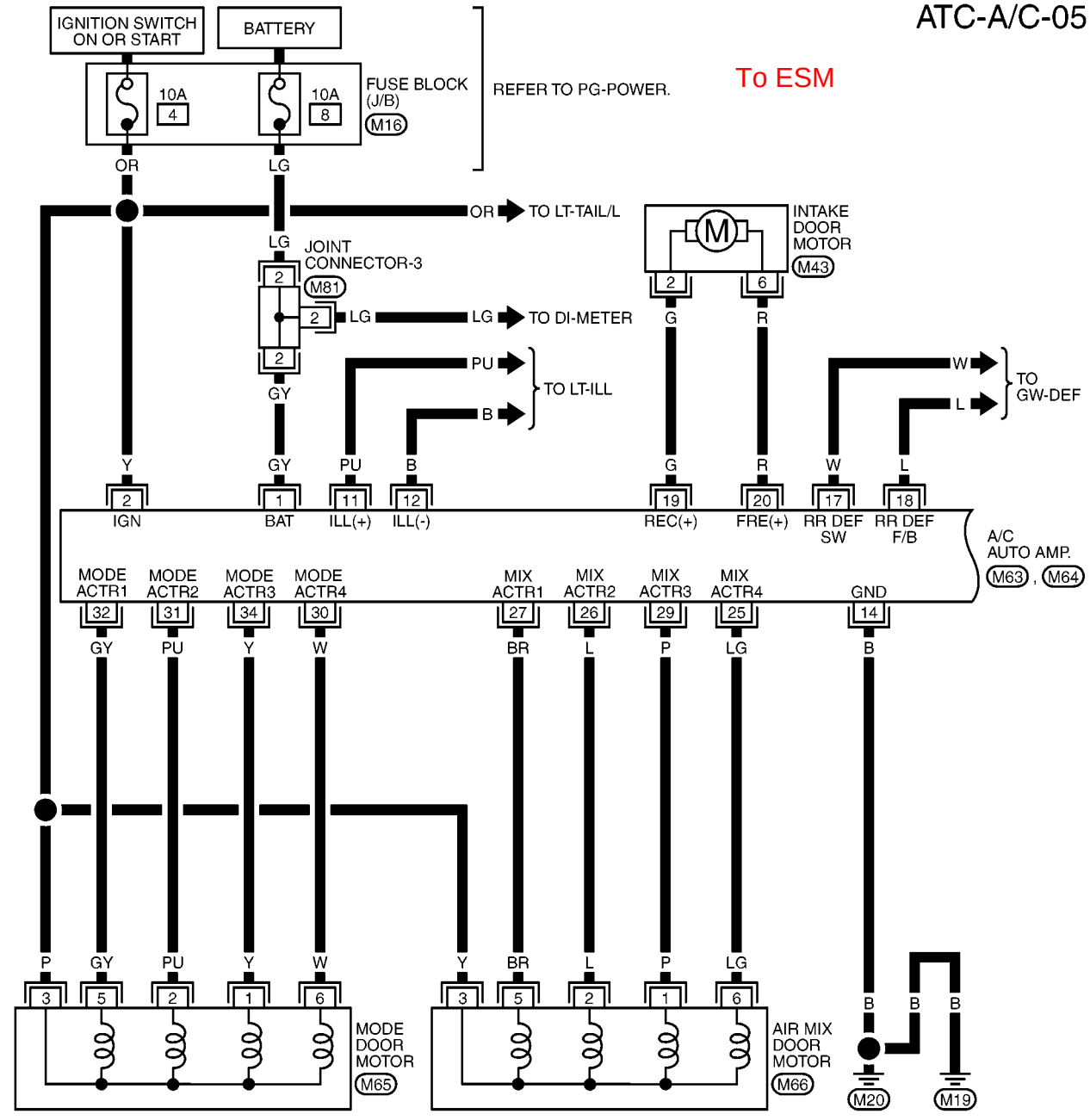


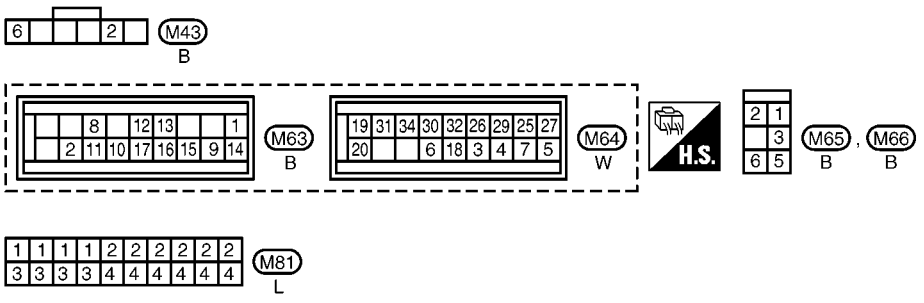
REFER TO THE FOLLOWING.
M1, F1 -SUPER MULTIPLE JUNCTION (SMJ)
M48, M49 -ELECTRICAL UNITS

MJWA0064E

Wiring Diagram —A/C— K9K Engine Models

ATC-A/C-05

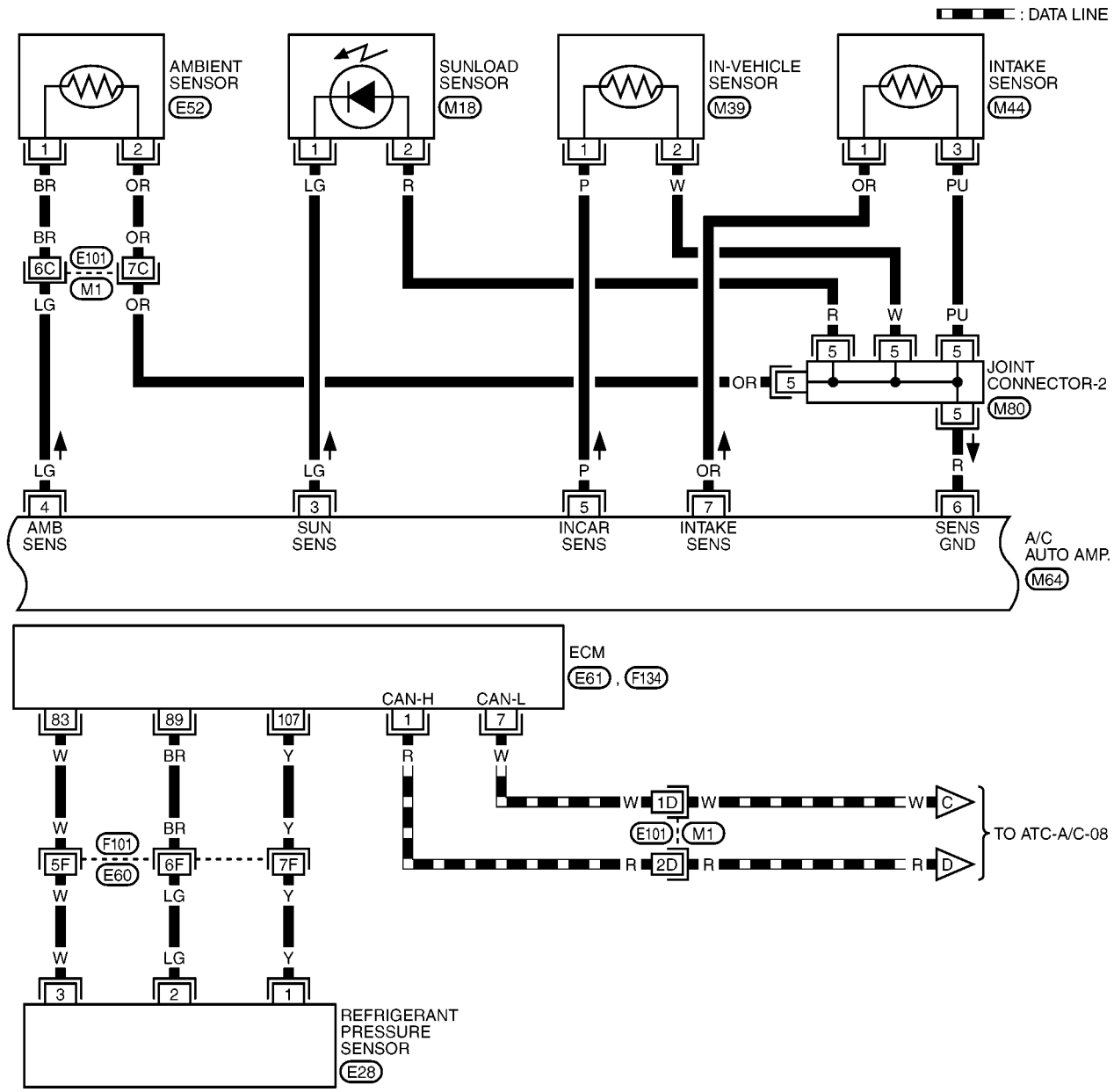


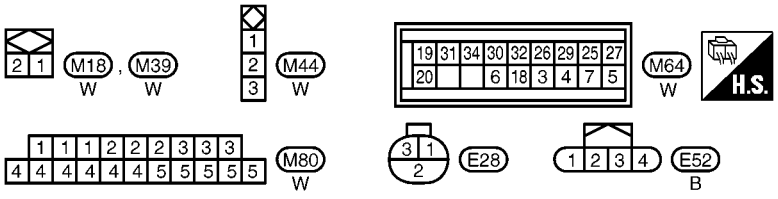


REFER TO THE FOLLOWING.
M16 -FUSE BLOCK-JUNCTION BOX (J/B)

MJWA0036E

ATC-A/C-06

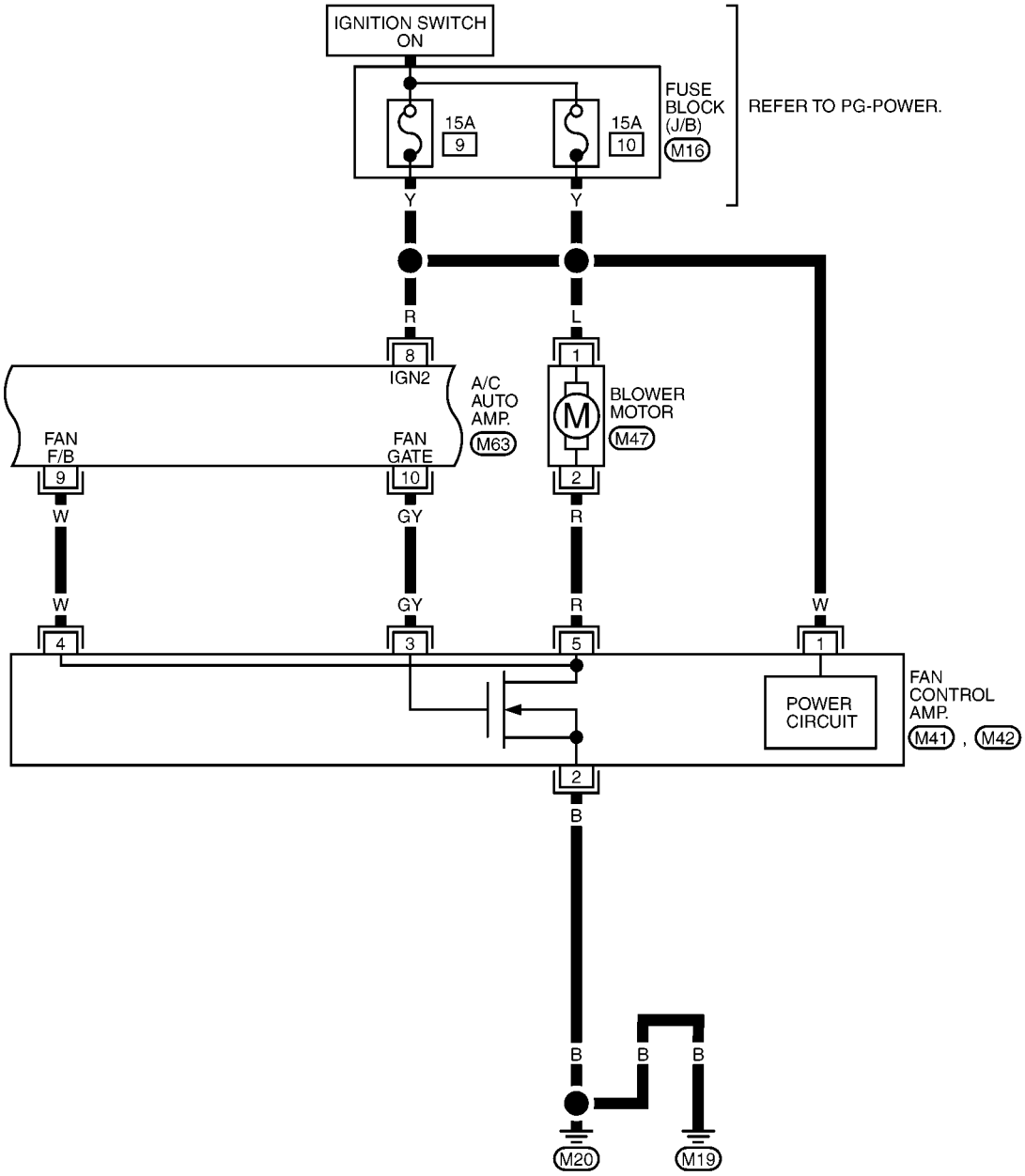


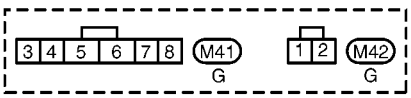


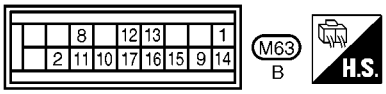
REFER TO THE FOLLOWING.
M1 , F101 -SUPER MULTIPLE JUNCTION (SMJ)
E61 , F134 -ELECTRICAL UNITS

MJWA0112E

ATC-A/C-07

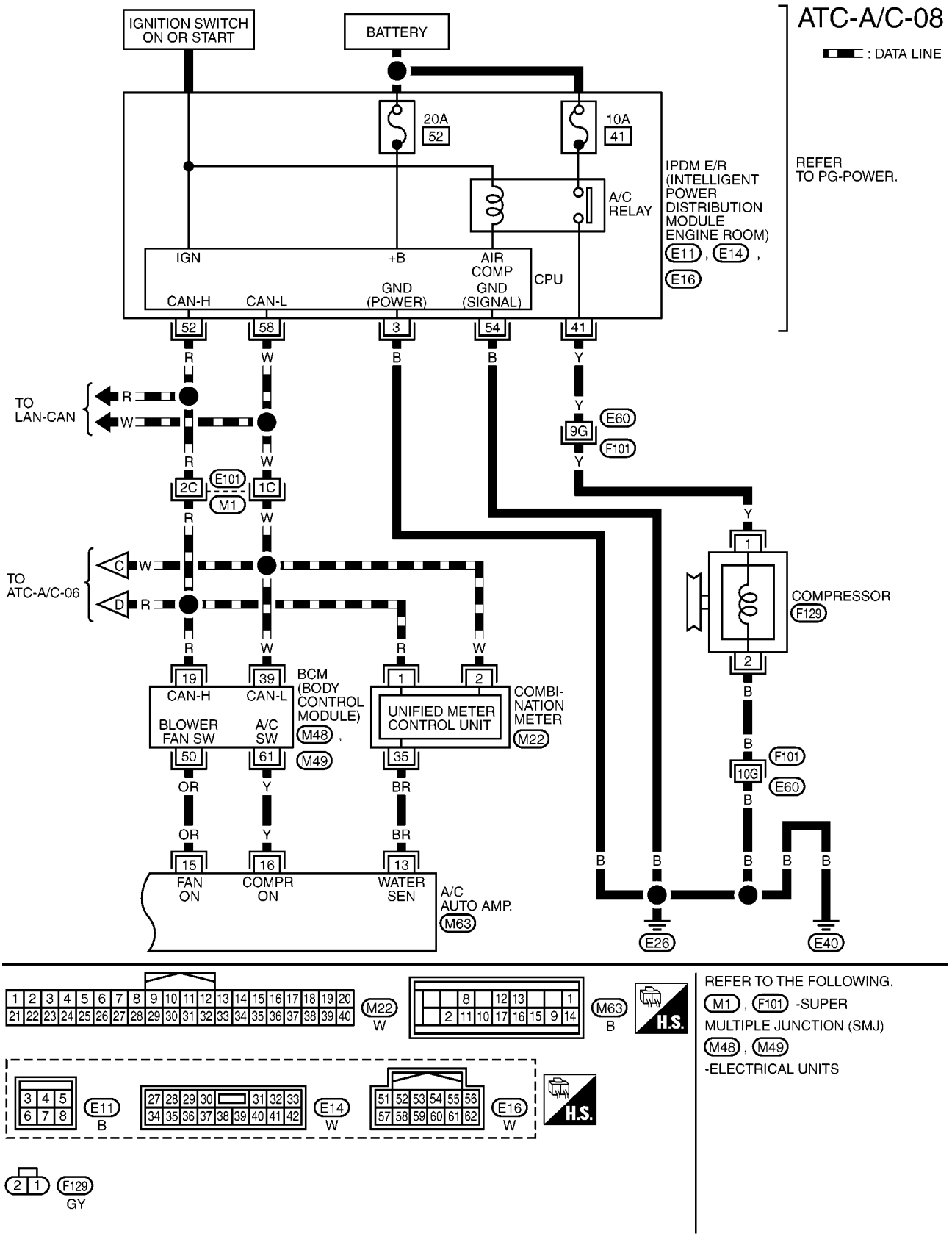






REFER TO THE FOLLOWING.
M16 -FUSE BLOCK-
JUNCTION BOX (J/B)

MJWA0113E


ATC-A/C-08
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
20A 52
10A 41
A/C RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E11, E14, E16
REFER TO PG-POWER.
IGN
+B
AIR COMP
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
52
58
3
54
41
R
W
B
B
Y
TO LAN-CAN
Y
9G
E60
F101
Y
E101
M1
2C
1C
TO ATC-A/C-06
C
D
COMPRESSOR F129
1
2
19
39
1
2
CAN-H
CAN-L
BLOWER FAN SW
A/C SW
BCM (BODY CONTROL MODULE) M48, M49
UNIFIED METER CONTROL UNIT
COMBI-NATION METER M22
50
61
35
OR
Y
BR
10G
F101
E60
15
16
13
FAN ON
COMPR ON
WATER SEN
A/C AUTO AMP. M63
E26
E40
M22 W
M63 B
H.S.
E11 B
E14 W
E16 W
F129 GY
REFER TO THE FOLLOWING.
M1, F101 -SUPER MULTIPLE JUNCTION (SMJ)
M48, M49
-ELECTRICAL UNITS

MJWA0039E

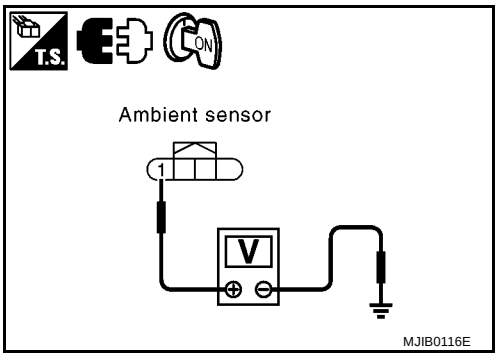
Ambient Sensor System

To ESM

1. CHECK POWER SUPPLY CIRCUIT

Disconnect ambient sensor connector, turn ignition switch ON, and check voltage between the terminal 1 and ground.

Connector terminal		Voltage
Ambient sensor	Ground	Approx. 5V
1		



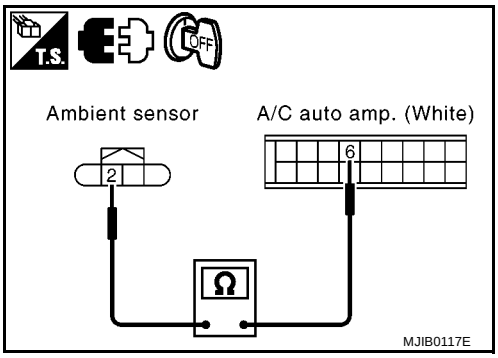
OK or NG

OK >> GO TO 2.
NG >> GO TO 4.

2. CHECK CIRCUIT CONTINUITY

1. Disconnect the A/C auto amp. connector.
2. Check continuity between ambient sensor terminal 2 and A/C auto amp. terminal 6.

Connector terminal		Continuity
Ambient sensor	A/C auto amp.	Yes
2	6	



Does continuity exist?

YES >> GO TO 3.
NO >> Repair harness or connector.

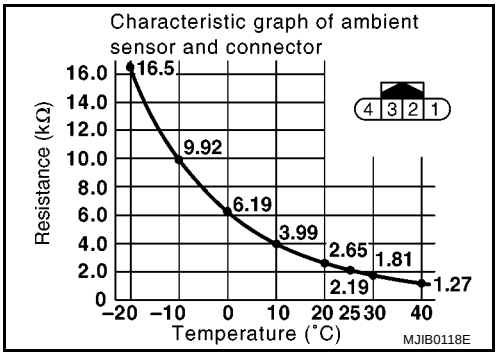
3. CHECK AMBIENT SENSOR

Check resistance between terminals 1 and 2 on ambient sensor.

OK or NG

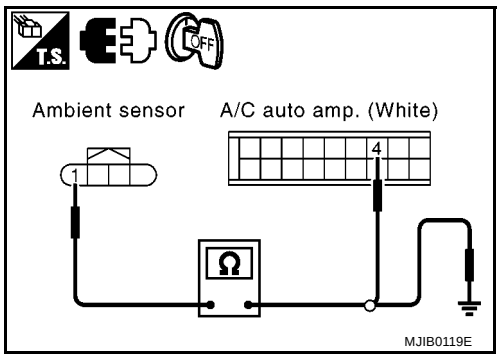
OK >> 1. Replace A/C auto amp.
2. Perform self-diagnosis step 2. Make sure result is normal. Refer to ATC-33, "Self-Diagnosis Function" on ESM.

NG >> 1. Replace ambient sensor.
2. Perform self-diagnosis step 2. Make sure result is normal. Refer to ATC-33, "Self-Diagnosis Function" on ESM.



4. CHECK CIRCUIT CONTINUITY

1. Disconnect the A/C auto amp. connector.
2. Check continuity between ambient sensor terminal 1 and A/C auto amp. terminal 4.



Connector terminal		Continuity
Ambient sensor	A/C auto amp.	Yes
1	4	

3. Check continuity between ambient sensor terminal 1 and ground.

Connector terminal		Continuity
Ambient sensor	Ground	None
1		

OK or NG

OK >> 1. Replace A/C auto amp.
2. Perform self-diagnosis step 2. Make sure result is normal. Refer to ATC-33, "Self-Diagnosis Function" on ESM.

NG >> Repair harness or connector.

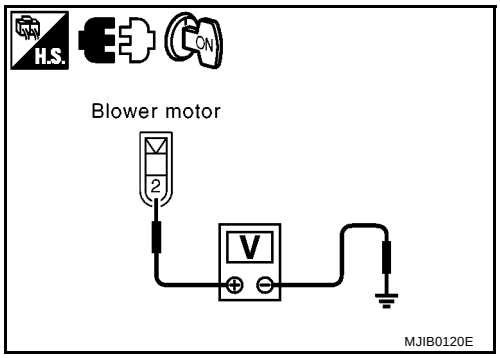
Blower Motor System

To ESM

Symptom: Operation malfunction of blower motor

1. CHECK POWER SUPPLY CIRCUIT (BLOWER MOTOR)

Turn ignition switch ON, and check voltage between blower motor terminal 2 and ground.



Connector terminal		Voltage
Blower motor	Ground	Battery voltage
2		

OK or NG

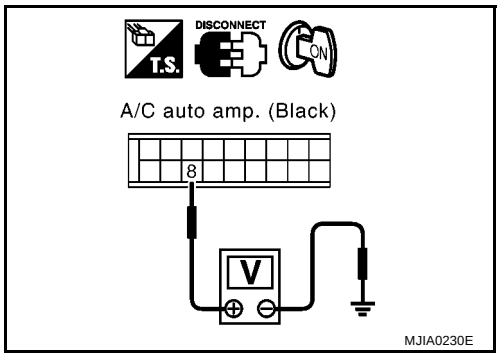
OK >> GO TO 2.

NG >> Check power supply circuit and 15A fuses [Nos. 9 and 10, located in the fuse block (J/B)]. Refer to PG-4, "POWER SUPPLY ROUTING" on ESM.

- If OK, check for open circuit in wiring harness. Repair or replace as necessary.
- If NG, replace fuse and check wiring harness for short circuit. Repair or replace as necessary.

2. CHECK POWER SUPPLY CIRCUIT (A/C AUTO AMP.)

1. Disconnect A/C auto amp. connector.
2. Turn ignition switch ON, and check voltage between A/C auto amp. terminal 8 and ground.



Connector terminal		Voltage
A/C auto amp.	Ground	Battery voltage
8		

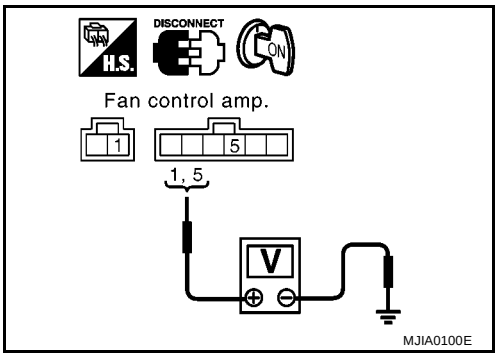
OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK POWER SUPPLY CIRCUIT (FAN CONTROL AMP.)

1. Disconnect the fan control amp. connector.
2. Turn ignition switch ON, and check voltage between fan control amp. terminal 1, 5 and ground.



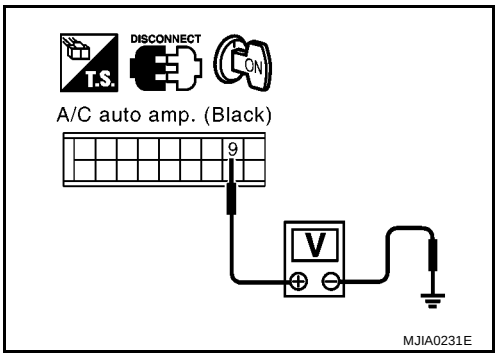
Connector terminal		Voltage
Fan control amp.	Ground	
1		Battery voltage
5		

OK or NG

OK >> GO TO 4.
NG >>
- Between terminal 1 and ground: Repair the harness or connector.
- Between terminal 5 and ground: GO TO 7.

4. CHECK BLOWER MOTOR FEEDBACK SIGNAL

Turn ignition switch ON, and check voltage between A/C auto amp. terminal 9 and ground.



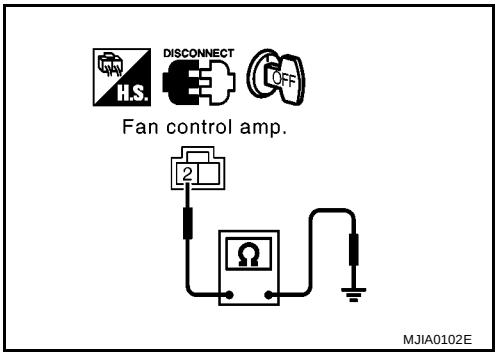
Connector terminal		Voltage
A/C auto amp.	Ground	Approx. 12V
9		

OK or NG

OK >> GO TO 5.
NG >> GO TO 9.

5. CHECK GROUND CIRCUIT

Check continuity between fan control amp. terminal 2 and ground.



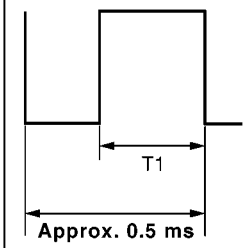
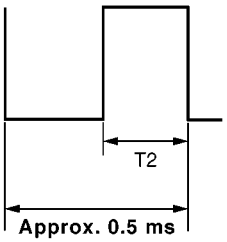
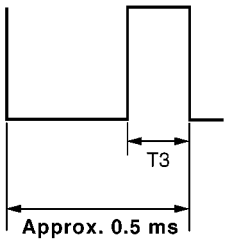
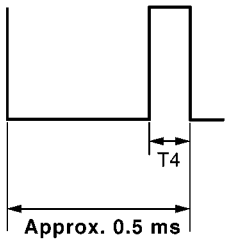
Connector terminal		Continuity
Fan control amp.	Ground	Yes
2		

Does continuity exist?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK 1: FAN CONTROL AMP. CONTROL SIGNAL

Check waveform between fan control amp. terminal 3 and ground.

Fan speed	First	Second	Third	Fourth
Terminal 3 (Oscilloscope)				
	T1: Approx. 0.37 ms Duty ratio: Approx. 27%	T2: Approx. 0.29 ms Duty ratio: Approx. 42%	T3: Approx. 0.19 ms Duty ratio: Approx. 62%	T4: Approx. 0.04 ms Duty ratio: Approx. 92%

NOTE: Duty ratio = $\frac{\text{Approx. 0.5 ms} - \text{Tx}}{\text{Approx. 0.5 ms}} \times 100\ (\%)$

MJIA0103E

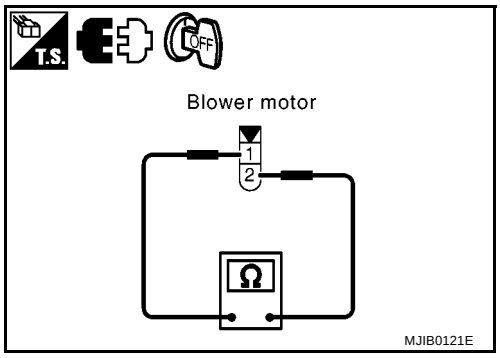
OK or NG

OK >> Replace the fan control amp.

NG >>
- Fan speed is stuck at speed 4: GO TO 11.
- Fan speed is stuck at speed 1: GO TO 12.

7. CHECK BLOWER MOTOR

1. Remove the blower motor.
2. Check continuity between blower motor terminal 1 and terminal 2.



Connector terminal		Continuity
Blower motor		Yes
1	2	

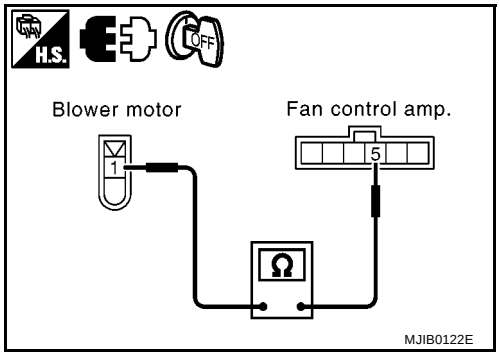
Does continuity exist?

YES >> GO TO 8.

NO >> Replace the blower motor.

8. CHECK CIRCUIT CONTINUITY

1. Disconnect the blower motor and fan control amp. connectors.
2. Check continuity between the blower motor terminal 1 and fan control amp. terminal 5.



Connector terminal		Continuity
Blower motor	Fan control amp.	
1	5	Yes

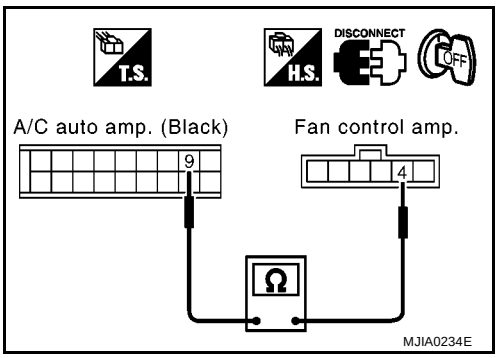
Does continuity exist?

YES >> End of trouble diagnosis

NO >> Repair harness or connector.

9. CHECK CIRCUIT CONTINUITY

1. Disconnect the fan control amp. and A/C auto amp. connectors.
2. Check continuity between fan control amp. terminal 4 and A/C auto amp. terminal 9.



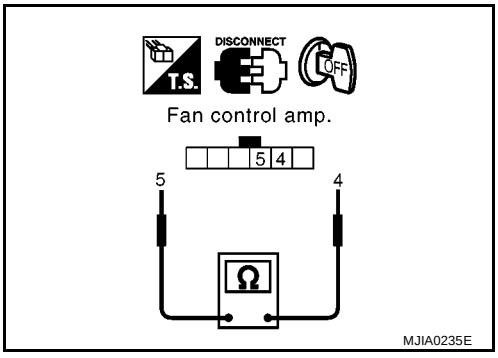
Connector terminal		Continuity
Fan control amp.	A/C auto amp.	
4	9	Yes

Does continuity exist?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK FAN CONTROL AMP.

Check continuity between fan control amp. terminals 4 and 5.



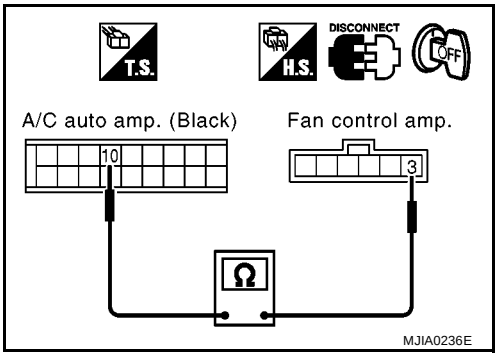
Connector terminal		Continuity
Fan control amp.		
4	5	Yes

Does continuity exist?

YES >> End of trouble diagnosis
NO >> Replace the fan control amp.

11. CHECK CIRCUIT CONTINUITY

1. Disconnect the fan control amp. and A/C auto amp. connectors.
2. Check continuity between fan control amp. terminal 3 and A/C auto amp. terminal 10.



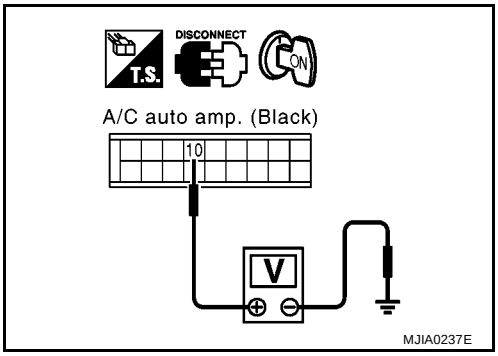
Connector terminal		Continuity
Fan control amp.	A/C auto amp.	
3	10	Yes

Does continuity exist?

YES >> Replace the fan control amp.
NO >> Repair harness or connector.

12. CHECK 2: FAN CONTROL AMP. CONTROL SIGNAL

1. Disconnect the A/C auto amp. connector.
2. Turn ignition switch ON, and check voltage between A/C auto amp. terminal 10 and ground.



Connector terminal		Condition	Voltage
A/C auto amp.	Ground	Fan speed : Speed 1 through Speed 3	Battery voltage
10			

OK or NG

OK >> Replace A/C auto amp.
NG >> Replace the fan control amp.