

# TROUBLE DIAGNOSIS

## SYSTEM DESCRIPTION

The front air control controls compressor operation based on ambient and intake temperature and a signal from ECM.

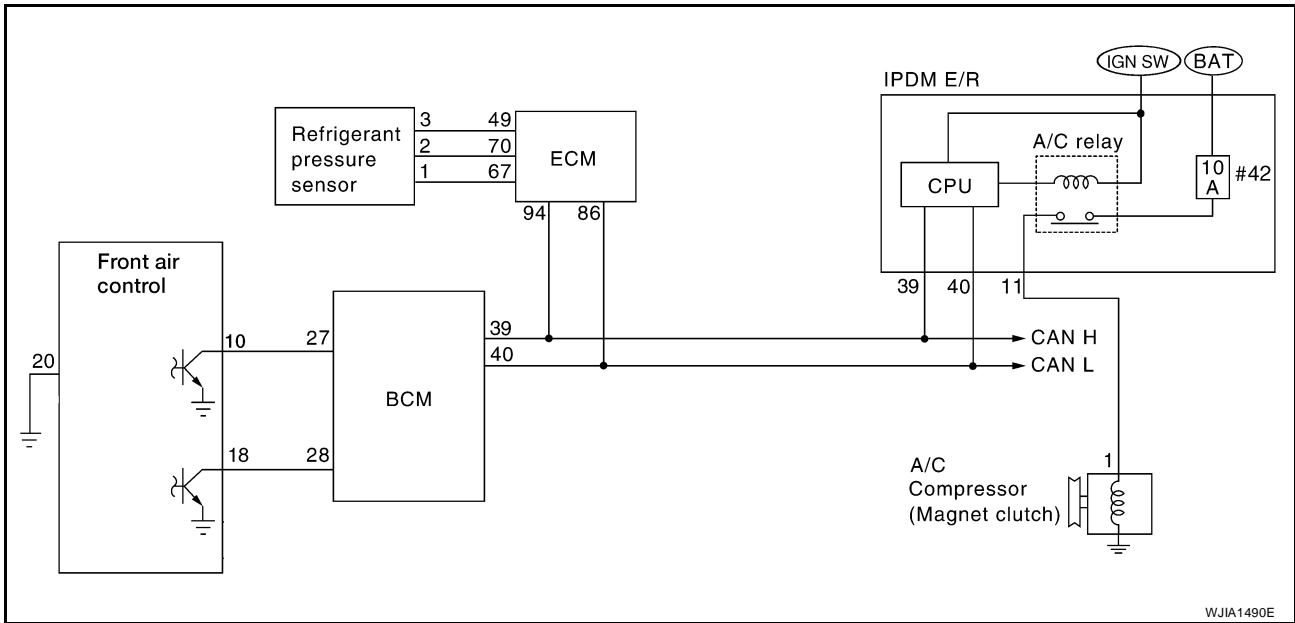
### Low Temperature Protection Control

The front air control will turn the compressor ON or OFF as determined by a signal detected by the intake sensor and the ambient sensor.

When intake air temperature is higher than 3.5° C (38.3° F), the compressor turns ON. The compressor turns OFF when intake air temperature is lower than 2.5° C (36.5° F).

### DIAGNOSTIC PROCEDURE FOR MAGNET CLUTCH

SYMPTOM: Magnet clutch does not engage when A/C switch is ON.



## 1. PERFORM AUTO ACTIVE TEST

Refer to [PG-22, "Auto Active Test"](#).

Does magnet clutch operate?

YES or NO

YES >> ●  WITH CONSULT-II  
GO TO 2.

●  WITHOUT CONSULT-II  
GO TO 8.

NO >> Check 10A fuse (No. 42, located in IPDM E/R), and GO TO 12.

## 2. CHECK BCM INPUT (A/C COMPRESSOR ON) SIGNAL

Check A/C compressor ON/OFF signal. Refer to [MTC-28, "CONSULT-II Function \(BCM\)"](#).

**A/C SW ON : COMP ON SIG ON**

**A/C SW OFF : COMP ON SIG OFF**

OK or NG

OK >> GO TO 3.

NG >> GO TO 8.

DATA MONITOR			
MONITOR			
FAN ON SIG	ON		
COMP ON SIG	ON		
IGN ON SW	ON		
RECORD			
MODE	BACK	LIGHT	COPY

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## 3. CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to [EC-691, "REFRIGERANT PRESSURE SENSOR"](#)

OK or NG

OK >> GO TO 4.

NG >> Replace refrigerant pressure sensor. Refer to [MTC-106, "Removal and Installation for Refrigerant Pressure Sensor"](#).

## 4. CHECK BCM INPUT (FAN ON) SIGNAL

Check FAN ON/OFF signal. Refer to [MTC-28, "CONSULT-II Function \(BCM\)"](#).

**BLOWER CONTROL DIAL : FAN ON SIG ON**  
**ON**

**BLOWER CONTROL DIAL : FAN ON SIG OFF**  
**OFF**

OK or NG

OK >> GO TO 7.

NG >> GO TO 5.

DATA MONITOR			
MONITOR			
FAN ON SIG	ON		
COMP ON SIG	ON		
IGN ON SW	ON		
		RECORD	
MODE	BACK	LIGHT	COPY

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## 5. CHECK CIRCUIT CONTINUITY BETWEEN BCM AND FRONT AIR CONTROL

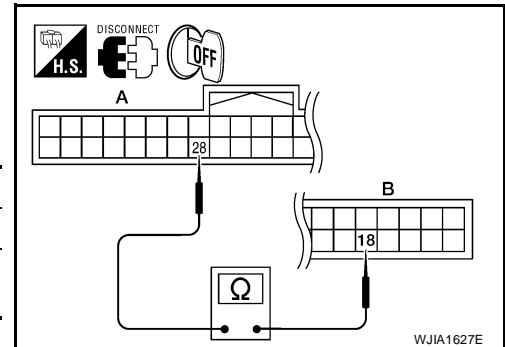
1. Turn ignition switch OFF.
2. Disconnect BCM connector and front air control connector.
3. Check continuity between BCM harness connector M18 terminal 28 and front air control harness connector M49 terminal 18.

A		B		Continuity
Connector	Terminal	Connector	Terminal	
BCM: M18	28	Front air control: M49	18	Yes

OK or NG

OK >> GO TO 6.

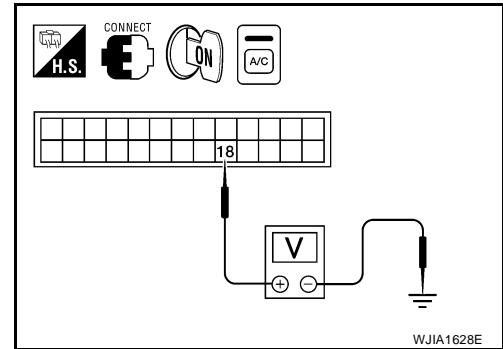
NG >> Repair harness or connector.



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## 6. CHECK VOLTAGE FOR FRONT AIR CONTROL (FAN ON SIGNAL)

1. Reconnect BCM connector and front air control connector.
2. Turn ignition switch ON.
3. Turn A/C switch ON.
4. Check voltage between front air control harness connector M49 terminal 18 and ground.



Terminals		(-)	Condition	Voltage (Approx.)
(+)	Terminal No.			
Front air control connector				
M49	18	Ground	A/C switch: ON Blower motor operates	0V
			A/C switch: OFF	5V

### OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#) .
- NG-1 >> If the voltage is approx. 5V when blower motor is ON, replace front air control. Refer to [MTC-82, "CONTROL UNIT"](#) .
- NG-2 >> If the voltage is approx. 0V when blower motor is OFF, replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#) .

## 7. CHECK CAN COMMUNICATION

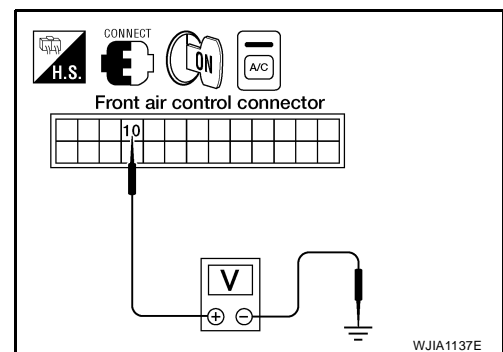
Check CAN communication. Refer to [LAN-24, "CAN COMMUNICATION"](#) .

### OK or NG

- OK >> Inspection End.
- NG >> Repair or replace malfunctioning part(s).

## 8. CHECK VOLTAGE FOR FRONT AIR CONTROL (A/C COMPRESSOR ON SIGNAL)

1. Reconnect BCM connector and front air control connector.
2. Turn ignition switch ON.
3. Check voltage between front air control harness connector M49 terminal 10 and ground.



Terminals		(-)	Condition	Voltage (Approx.)
(+)	Terminal No.			
Front air control connector				
M49	10	Ground	A/C switch: ON	0V
			A/C switch: OFF	Battery voltage

### OK or NG

- OK >> GO TO 9.
- NG-1 >> If the voltage is approx. 5V when A/C switch is ON, replace front air control. Refer to [MTC-82, "CONTROL UNIT"](#) .
- NG-2 >> If the voltage is approx. 0V when A/C switch is OFF, replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#) .

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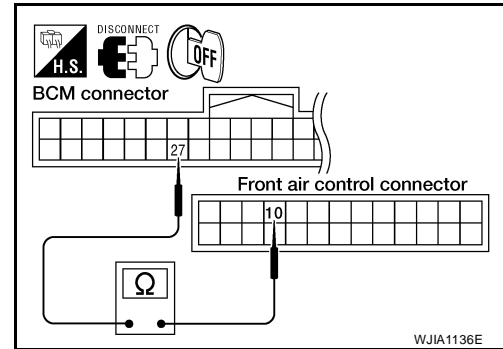
## 9. CHECK CIRCUIT CONTINUITY BETWEEN BCM AND FRONT AIR CONTROL

1. Disconnect BCM connector and front air control connector.
2. Check continuity between BCM harness connector M18 terminal 27 and front air control harness connector M49 terminal 10.

**27 - 10** : Continuity should exist.

OK or NG

- OK >> GO TO 10.  
NG >> Repair harness or connector.



## 10. CHECK INTAKE SENSOR CIRCUITS

Check intake sensor. Refer to [MTC-80, "Intake Sensor Circuit"](#).

OK or NG

- OK >> GO TO 11.  
NG >> Replace intake sensor. Refer to [MTC-83, "INTAKE SENSOR"](#).

## 11. CHECK CAN COMMUNICATION

Check CAN communication. Refer to [LAN-24, "CAN COMMUNICATION"](#).

OK or NG

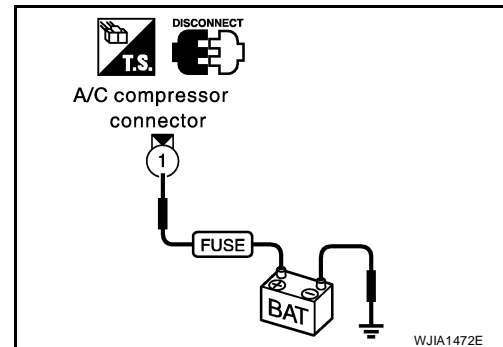
- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).  
NG >> Repair or replace malfunctioning part(s).

## 12. CHECK MAGNET CLUTCH CIRCUIT

Check for operation sound when applying battery voltage to terminal.

OK or NG

- OK >> GO TO 13.  
NG >> Replace magnet clutch. Refer to [MTC-102, "Removal and Installation for Compressor Clutch"](#).



## 13. CHECK CIRCUIT CONTINUITY BETWEEN IPDM E/R AND A/C COMPRESSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and A/C compressor (magnet clutch) connector.
3. Check continuity between IPDM E/R harness connector E119 terminal 11 and A/C compressor harness connector F3 terminal 1.

**11 - 1** : Continuity should exist.

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-29, "Removal and Installation of IPDM E/R"](#).  
NG >> Repair harness or connector.

