# HEATER, VENTILATION & AIR CONDITIONING (HVAC)

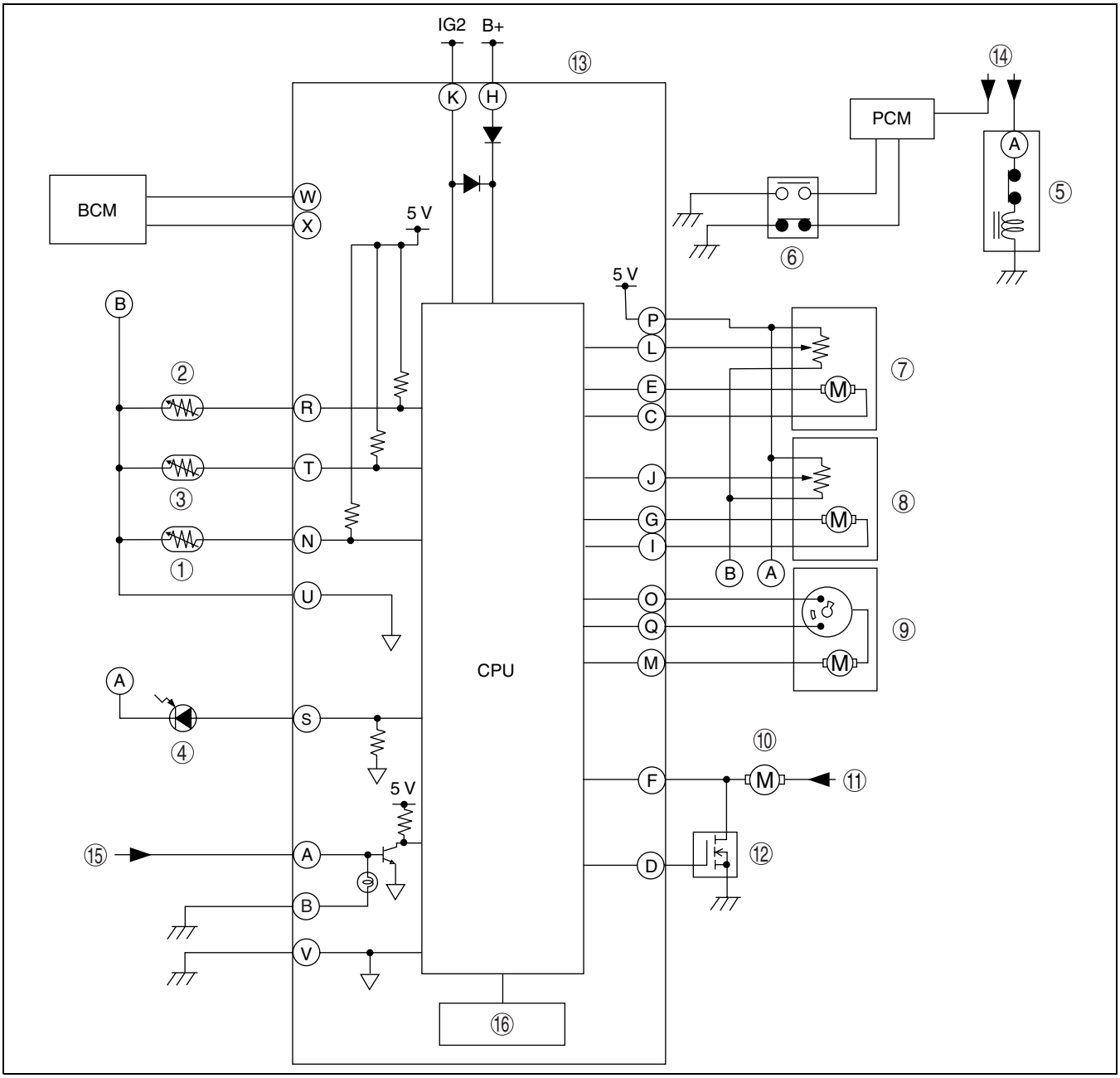
**07** SECTION



## 07–02 ON-BOARD DIAGNOSTIC

## HVAC SYSTEM WIRING DIAGRAM

DPE070200000W14




DPE740ZT1101

| | |
|---|---|
| 1 | Ambient temperature sensor |
| 2 | Cabin temperature sensor |
| 3 | Evaporator temperature sensor |
| 4 | Solar radiation sensor |
| 5 | Magnetic clutch |
| 6 | Refrigerant pressure switch |
| 7 | Air mix actuator |
| 8 | Airflow mode actuator |

| | |
|---|---|
| 9 | Air intake actuator |
| 10 | Blower motor |
| 11 | Blower relay |
| 12 | Power MOS FET |
| 13 | Climate control unit |
| 14 | A/C relay |
| 15 | TNS relay |
| 16 | Each switch |

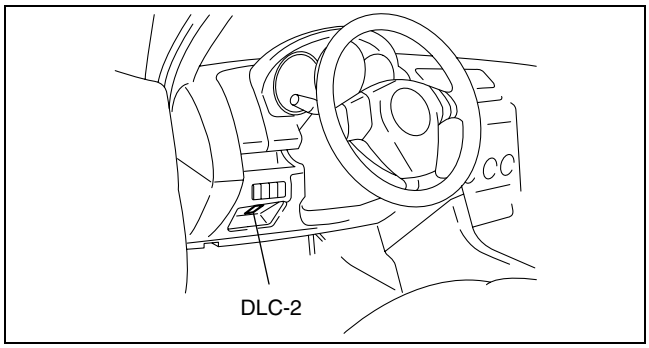
## DTC INSPECTION

DPE070200000W01

1. Connect the WDS or equivalent to the DLC-2.
2. Shine a **60 W** incandescent light from a distance of **approx. 100 mm {3.9 in}** directly onto the solar radiation sensor.

   **Note**
   - If incandescent light is not shone on the solar radiation sensor, the climate control unit determines a malfunction and indicates DTC “B1260, B1261”.

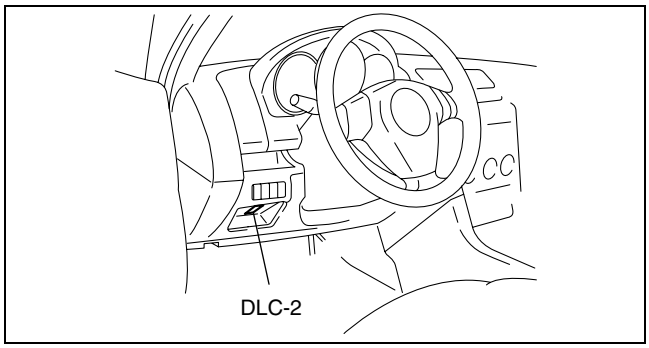
3. Verify if any DTCs are displayed.
   - If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection.
4. After completion of repairs, clear all DTCs from memory. (See 07–02–3 After Repair Procedure.)




DPE102ZW2001

## After Repair Procedure

1. Connect the WDS or equivalent to the DLC-2.
2. Using the WDS or equivalent, clear DTCs from the PCM memory.
3. Turn the ignition switch off.
4. Perform the DTC inspection again and verify that no DTCs are displayed.




DPE102ZW2001

## DTC Table

| DTC | System malfunction location |
|---|---|
| B1251 | Cabin temperature sensor (Open circuit) |
| B1253 | Cabin temperature sensor (GND short) |
| B1255 | Ambient temperature sensor (Open short) |
| B1257 | Ambient temperature sensor (GND short) |
| B1260 | Solar radiation sensor (Battery short) |
| B1261 | Solar radiation sensor (GND short) |
| B1274 | Airflow mode actuator (potentiometer) (Battery short) |
| B1275 | Airflow mode actuator (potentiometer) (GND short) |
| B1282 | Air mix actuator (potentiometer) (Battery short) |
| B1283 | Air mix actuator (potentiometer) (GND short) |
| B1947 | Evaporator temperature sensor (GND short) |
| B2014 | Evaporator temperature sensor (Open circuit) |
| B2832 | Airflow mode actuator (motor lock) |
| B2834 | Air mix actuator (motor lock) |
| U0140 | CAN communication system (Reception error in signal from BCM) |
| U0155 | CAN communication system (Reception error in signal from (ICM) (MEC)) |
| U0516 | CAN communication system (BUS OFF error) |

## DTC Table (Water Heater System)

| DTC | System malfunction location |
|---|---|
| B1004 | Glow plug malfunction: short to battery or transistor failure |
| B1005 | Fuel pump malfunction: short to battery or transistor failure |
| B1006 | Fuel level to low to start the heater |
| B1007 | Coolant pump malfunction: short to battery or transistor failure |
| B1008 | Blower fan malfunction: short to battery |

| DTC | System malfunction location |
|---|---|
| B1317 | Input voltage high |
| B1318 | Input voltage low |
| B1342 | Malfunction in water heater unit |
| B2207 | ECU ROM checksum error |
| B2449 | Glow plug circuit short to ground |
| B2450 | Glow plug circuit open |
| B2451 | Fuel pump circuit short to ground |
| B2452 | Fuel pump circuit open |
| B2453 | Blower fan circuit short to ground |
| B2454 | Blower fan circuit open |
| B2455 | Blower fan out of range (electromotive force not present) |
| B2456 | Coolant sensor short |
| B2457 | Coolant sensor interrupted |
| B2458 | Overheat sensor short |
| B2459 | Overheat sensor interrupted |
| B2460 | Flame sensor short |
| B2461 | Flame sensor interrupted |
| B2462 | Flame off from max. power |
| B2463 | Overheat |
| B2464 | Start time exceeded |
| B2465 | Start counter overrun/system locked |
| B2466 | Overheat counter overrun/system locked |
| B2467 | Aux. heater cool down time exceeded |
| B2468 | Coolant pump short to ground |
| B2469 | Coolant pump interrupted |

* : If a DTC not listed above is detected, there is a water heater malfunction, and the water heater must be replaced.

**PID/DATA Monitor and Record**

| PID Name (Definition) | Unit/ Condition | Condition/Specification (Reference) | Action | Water Heater Unit terminal |
|---|---|---|---|---|
| CCNTFFH (Continuous Codes) | – | • DTC is detected: 1—255<br>• DTC is not detected: 0 | Perform inspection using appropriate DTC. | – |
| VOLT_MDL (Control Module Voltage) | V | • Ignition switch ON: B+ | Inspect water heater unit power supply terminal. | A |
| HEATER (Heater Status) | Inactive/ Active | • Water heater unit is not operating: Inactive<br>• Water heater unit is operating: Active | – | – |
| FAN (Fan Control) | On/Off | • Blower fan is not operating: 0%<br>• Blower fan is operating: 0—100% | – | – |
| GLOW (Glow plug) | On/Off | • Water heater unit is not operating: Off<br>• Water heater unit is operating: On | – | – |
| FUEL_PMP (Fuel pump) | On/Off | • Water heater unit is not operating: Off<br>• Water heater unit is operating: On | – | – |

**Simulation Test Item Table**

| Item | Operating part | Condition | Operation |
|---|---|---|---|
| MIX_ACT | Air mix actuator | Operate the ON/OFF and verify the operation sound. | On/Off |
| REC/FRESH | REC/FRESH switch | Operate the ON/OFF and verify the operation sound. | On/Off |
| DISPLAY | Information display | Verify that it is displayed correctly. | On/Off |
| BLOWER | Blower motor | Operate the ON/OFF and verify the operation sound. | On/Off |
| MODE_ACT | Airflow mode actuator | Operate the ON/OFF and verify the operation sound. | On/Off |

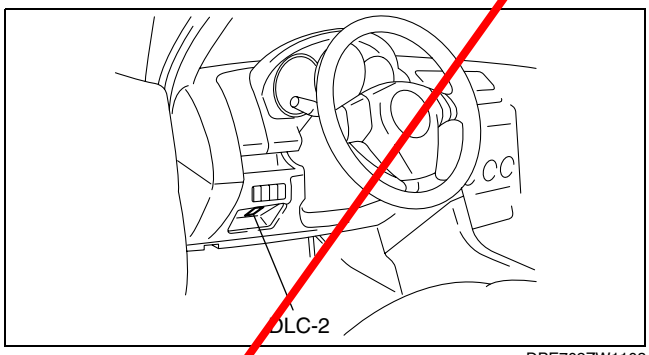
**Start Heater**

**Note**

- If the heater is operated for the specified period of time, it stops automatically. After that, the floor fan

operates for several minutes.

1. Verify that the engine coolant temperature is low.
2. Start the engine.
3. Connect the WDS or equivalent to the DLC-2.
4. Select “Electrical” from the menu.
5. Select “Supplemental Heater”.
6. Select “FFH”.
7. Select “FFH Start Heater Utility” and perform procedure according to the directions on the WDS or equivalent screen.




DPE702ZW1103

### DTC B1004, B2449, B2450

DPE070200000W18

| | | |
|---|---|---|
| DTC | B1004 | **Glow plug malfunction: short to battery or transistor failure** |
| | B2449 | **Glow plug circuit short to ground** |
| | B2450 | **Glow plug circuit open** |
| **DETECTION CONDITION** | | • CPU detects malfunction in glow plug circuit |
| **POSSIBLE CAUSE** | | • Water heater unit malfunction |

**Diagnostic procedure**

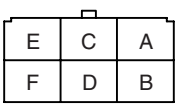
| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT WATER HEATER UNIT**<br>• Replace the water heater unit. (See 07–40–34 WATER HEATER UNIT REMOVAL/ INSTALLATION [MZR-CD (RF Turbo)].)<br>• Perform the Combustion Test.<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

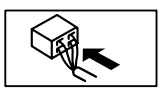
### DTC B1005, B1006, B2451, B2452

DPE070200000W22

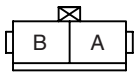
| | | |
|---|---|---|
| DTC | B1005 | **Fuel pump malfunction: short to battery or transistor failure** |
| | B1006 | **Fuel level to low to start the heater** |
| | B2451 | **Fuel pump (water heater system) circuit short to ground** |
| | B2452 | **Fuel pump (water heater system) circuit open** |
| **DETECTION CONDITION** | | • CPU detects malfunction in fuel pump (water heater system) circuit |
| **POSSIBLE CAUSE** | | • Fuel pump (water heater system) malfunction<br>• Water heater unit malfunction<br>• Short to ground between water heater unit terminal B and fuel pump (water heater system) terminal A<br>• Open circuit between water heater unit terminal B and fuel pump (water heater system) terminal A<br>• Open circuit between fuel pump (water heater system) terminal B and GND<br>• Battery malfunction |

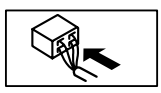
WATER HEATER UNIT CONNECTOR



FUEL PUMP (WATER HEATER SYSTEM) CONNECTOR



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**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT WIRING HARNESS BETWEEN WATER HEATER UNIT AND FUEL PUMP (WATER HEATER SYSTEM) FOR CONTINUITY**<br>• Start engine.<br>• Is voltage at fuel pump (water heater system) connector terminal A **approx. 12 V**? | Yes | Go to next step |
| | | No | Repair wiring harness. |
| 2 | **INSPECT FUEL PUMP (WATER HEATER SYSTEM)**<br>• Inspect fuel pump (water heater system). (See 07–40–35 FUEL PUMP (WATER HEATER SYSTEM) INSPECTION [MZR-CD (RF Turbo)].)<br>• Is fuel pump (water heater system) okay? | Yes | Go to next step |
| | | No | Replace fuel pump (water heater system). (See 07–40–35 FUEL PUMP (WATER HEATER SYSTEM) REMOVAL/INSTALLATION [MZR-CD (RF TURBO)].) |
| 3 | **INSPECT WIRING HARNESS BETWEEN FUEL PUMP (WATER HEATER SYSTEM) AND GROUND FOR CONTINUITY**<br>• Is there continuity fuel pump (water heater system) connector terminal B and ground? | Yes | Go to next step |
| | | No | Repair wiring harness. |
| 4 | **INSPECT WATER HEATER UNIT**<br>• Clear the DTC.<br>• Perform the KOEO Self Test.<br>• Is the same DTC present? | Yes | Replace the water heater unit. (See 07–40–34 WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].) |
| | | No | Go to the next step. |
| 5 | **VERIFY AFTER REPAIR PROCEDURE**<br>• Perform after repair procedure. (See 07–02–3 DTC INSPECTION.)<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

**DTC B1008, B2453, B2454, B2455**

DPE070200000W20

| | | |
|---|---|---|
| **DTC** | **B1008** | **Blower fan malfunction: short to battery** |
| | **B2453** | **Blower fan circuit short to ground** |
| | **B2454** | **Blower fan circuit open** |
| | **B2455** | **Blower fan out of range (electromotive force not present)** |
| **DETECTION CONDITION** | | • CPU detects Malfunction in blower fan circuit |
| **POSSIBLE CAUSE** | | • Water heater unit malfunction |

**Diagnostic procedure**

| ACTION |
|---|
| • Replace water heater unit.<br>(See 07–40–34 WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF Turbo)]) |

**DTC B1251, B1253**

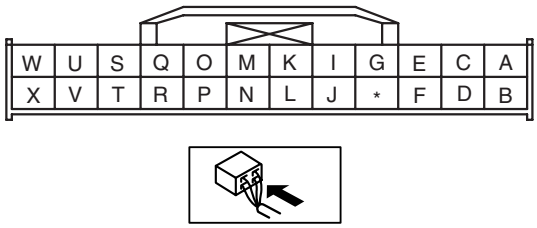
DPE070200000W03

| | |
|---|---|
| **DTC B1251, B1253** | **Cabin temperature sensor system** |
| **POSSIBLE CAUSE** | • Cabin temperature sensor malfunction<br>• Open or short circuit in wiring harness between climate control unit and cabin temperature sensor |

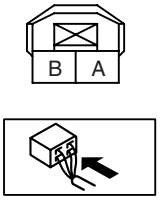
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the cabin temperature sensor. (See 07–40–30 CABIN TEMPERATURE SENSOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the cabin temperature sensor. (See 07–40–29 CABIN TEMPERATURE SENSOR REMOVAL/ INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the cabin temperature sensor connector.<br>• Is there an open circuit in the wiring harness between the following terminals of the climate control unit and the cabin temperature sensor?<br>— R—B<br>— U—A | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal R and cabin temperature sensor terminal B? | Yes | Repair the wiring harness. |
| | | No | Connect the climate control unit connector, then go to the next step. |
| 4 | • Turn the ignition switch to the ON position.<br>• Inspect the voltage at the following climate control unit terminal (wiring harness-side).<br>— Terminal R (cabin temperature sensor input signal)<br>• Is the voltage normal? (**Approx. 5 V**) | Yes | The system is normal at present. (Clear the malfunction from the memory.) |
| | | No | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |

CLIMATE CONTROL UNIT CONNECTOR




CABIN TEMPERATURE SENSOR CONNECTOR




**DTC B1251, B1253, B1255, B1257, B1274, B1275, B1282, B1283, B1947, B2014 (MULTIPLE DTCS INDICATED)**

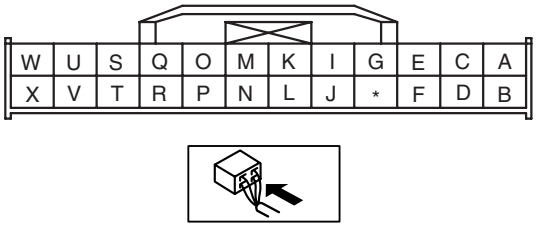
DPE070200000W04

| | |
|---|---|
| **DTC B1251, B1253, B1255, B1257, B1947, B2014, B1282, B1283, B1274, B1275** | **Climate control unit (+5 V power supply or sensor ground) system** |
| **POSSIBLE CAUSE** | • Open circuit in wiring harnesses between climate control unit and each temperature sensor, air mix actuator, or airflow mode actuator |

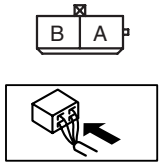
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Disconnect the climate control unit connector and the evaporator temperature sensor connector.<br>• Is there an open circuit in the wiring harness between climate control unit terminal U and evaporator temperature sensor terminal A? | Yes | Repair the wiring harness. |
| | | No | Inspect the connection of the climate control unit. |

CLIMATE CONTROL UNIT CONNECTOR




EVAPORATOR TEMPERATURE SENSOR CONNECTOR




**DTC B1255, B1257**

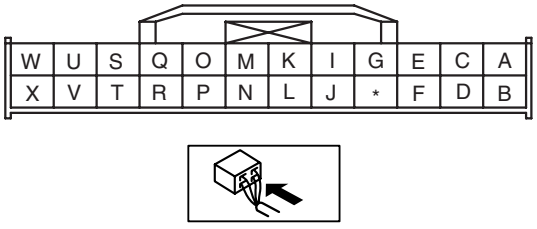
DPE070200000W13

| DTC B1255, B1257 | Ambient temperature sensor system |
|---|---|
| POSSIBLE CAUSE | • Ambient temperature sensor malfunction<br>• Open or short circuit in wiring harness between climate control unit and ambient temperature sensor |

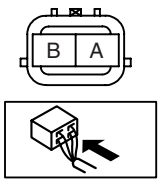
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the ambient temperature sensor. (See 07–40–29 AMBIENT TEMPERATURE SENSOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the ambient temperature sensor. (See 07–40–29 AMBIENT TEMPERATURE SENSOR REMOVAL/INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the ambient temperature sensor connector.<br>• Is there an open circuit in the wiring harness between the following terminals of the climate control unit and the ambient temperature sensor?<br>— N—B<br>— U—A | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal N and ambient temperature sensor terminal B? | Yes | Repair the wiring harness. |
| | | No | Connect the climate control unit connector, then go to the next step. |
| 4 | • Turn the ignition switch to the ON position.<br>• Inspect the voltage at the following climate control unit terminal (wiring harness-side).<br>— Terminal N (ambient temperature sensor input signal)<br>• Is the voltage normal? (**Approx. 5 V**) | Yes | The system is normal at present. (Clear the past malfunction from the memory.) |
| | | No | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |

CLIMATE CONTROL UNIT CONNECTOR




AMBIENT TEMPERATURE SENSOR CONNECTOR



### DTC B1260, B1261

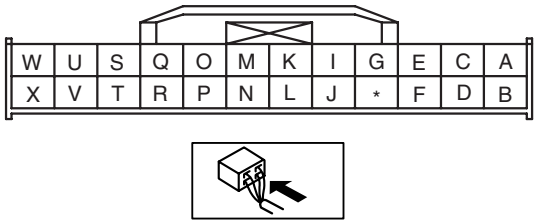
DPE070200000W06

| DTC B1260, B1261 | Solar radiation sensor system |
|---|---|
| POSSIBLE CAUSE | • Solar radiation sensor malfunction<br>• Open or short circuit in wiring harness between climate control unit and solar radiation sensor |

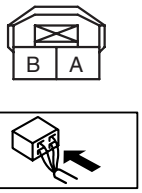
### Diagnostic Procedure

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the solar radiation sensor. (See 07–40–28 SOLAR RADIATION SENSOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the solar radiation sensor. (See 07–40–28 SOLAR RADIATION SENSOR REMOVAL/ INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the solar radiation sensor connector.<br>• Is there continuity between the following terminals of the climate control unit and the solar radiation sensor?<br>— S—B<br>— P—A | Yes | Go to the next step. |
| | | No | Repair the wiring harness. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal S and solar radiation sensor terminal B? | Yes | Repair the wiring harness. |
| | | No | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |

CLIMATE CONTROL UNIT CONNECTOR




SOLAR RADIATION SENSOR CONNECTOR



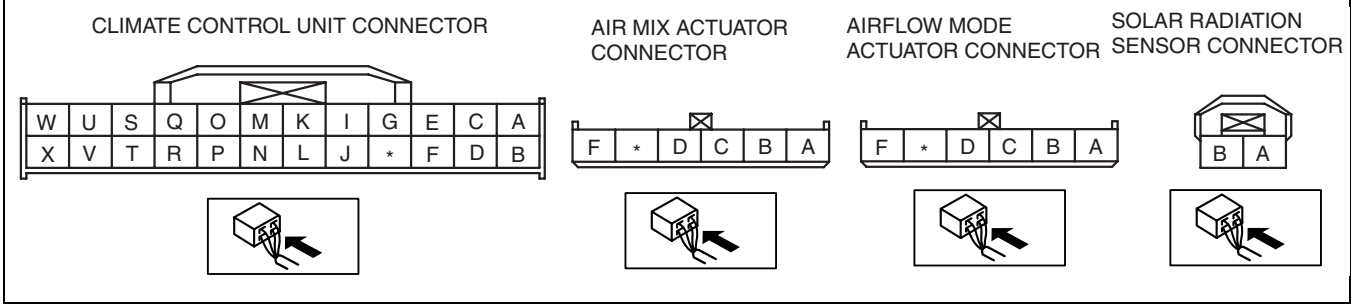

### DTC B1260, B1261, B1274, B1275, B1282, B1283 (MULTIPLE DTCS INDICATED)

DPE070200000W07

| DTC B1260, B1261, B1282, B1283, B1274, B1275 | Climate control unit (+5 V power supply) system |
|---|---|
| POSSIBLE CAUSE | • Open or short circuit in wiring harnesses between climate control unit and solar radiation sensor, air mix actuator, or airflow mode actuator |

**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Disconnect the climate control unit connector and the airflow mode actuator connector.<br>• Is there an open circuit in the wiring harness between climate control unit terminal P and airflow mode actuator terminal A? | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 2 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal P and airflow mode actuator terminal A? | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal P and air mix actuator terminal A? | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 4 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal P and solar radiation sensor terminal A? | Yes | Repair the wiring harness. |
| | | No | The system is normal at present. (Clear the malfunction from the memory.) |




**DTC B1274, B1275**

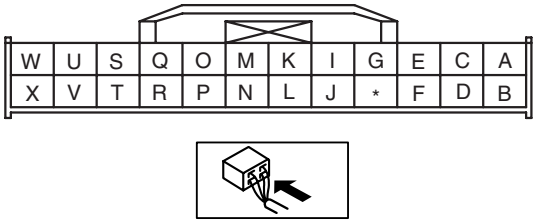
DPE070200000W08

| DTC B1274, B1275 | Airflow mode actuator (potentiometer) system |
|---|---|
| POSSIBLE CAUSE | • Airflow mode actuator malfunction<br>• Open circuit in wiring harness between climate control unit and airflow mode actuator<br>• Short circuit in wiring harness between climate control unit (terminal L) and air mix actuator (terminal C) |

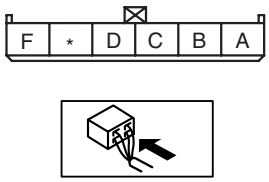
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the airflow mode actuator. (See 07–40–9 AIRFLOW MODE ACTUATOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the airflow mode actuator. (See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/ INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the airflow mode actuator connector.<br>• Is there an open circuit in the wiring harness between the following terminals of the climate control unit and the airflow mode actuator?<br>— P—A<br>— J—C<br>— U—B | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal J and airflow mode actuator terminal C? | Yes | Repair the wiring harness. |
| | | No | The system is normal at present. (Clear the malfunction from the memory.) |

CLIMATE CONTROL UNIT CONNECTOR




AIRFLOW MODE ACTUATOR CONNECTOR




**DTC B1282, B1283**

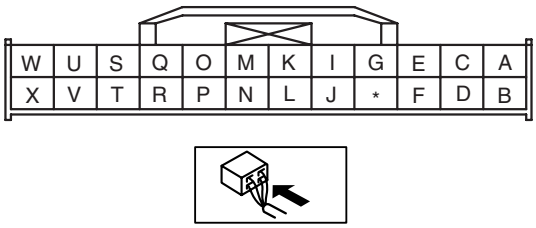
DPE070200000W09

| DTC B1282, B1283 | **Air mix actuator (potentiometer) system** |
|---|---|
| POSSIBLE CAUSE | • Air mix actuator malfunction<br>• Open circuit in wiring harness between climate control unit and air mix actuator<br>• Short circuit in wiring harness between climate control unit (terminal L) and air mix actuator (terminal C) |

**Diagnostic Procedure**

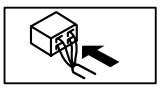
| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the air mix actuator. (See 07–40–8 AIR MIX ACTUATOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the air mix actuator. (See 07–40–7 AIR MIX ACTUATOR REMOVAL/INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the air mix actuator connector.<br>• Is there an open circuit in the wiring harness between the following terminals of the climate control unit and the air mix actuator?<br>— P—A<br>— L—C<br>— U—B | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal L and air mix actuator terminal C? | Yes | Repair the wiring harness. |
| | | No | The system is normal at present. (Clear the malfunction from the memory.) |

CLIMATE CONTROL UNIT CONNECTOR






AIR MIX ACTUATOR CONNECTOR

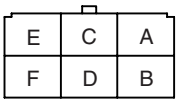



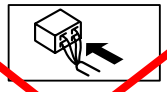
**DTC B1317**

DPE0702000000W15

| DTC B1317 | Input voltage high |
|---|---|
| DETECTION CONDITION | • Voltage detected at water heater unit terminals E is **more than 16 V**. |
| POSSIBLE CAUSE | • Short to power circuit between the generator and PCM<br>• Generator malfunction<br>• Battery malfunction |

WATER HEATER UNIT CONNECTOR



**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT BATTERY VOLTAGE**<br>• Measure battery voltage.<br>• Is voltage **less than 16 V**? | Yes | Go to next step. |
| | | No | Inspect charging system. |
| 2 | **INSPECT WATER HEATER UNIT**<br>• Clear the DTC.<br>• Perform the KOEO Self Test.<br>• Is the same DTC present? | Yes | Replace the water heater unit. (See 07–40–34 WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF Turbo)]) |
| | | No | Go to the next step. |
| 3 | **VERIFY AFTER REPAIR PROCEDURE**<br>• Perform the after repair procedure. (See 07–02–3 DTC INSPECTION.)<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

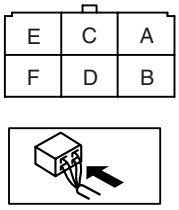
**DTC B1318**

DPE0702000000W16

| DTC B1318 | Input voltage low |
|---|---|

| | |
|---|---|
| **DETECTION CONDITION** | • Voltage detected at water heater unit terminals E is **less than 9 V**. |
| **POSSIBLE CAUSE** | • Generator malfunction<br>• Battery malfunction |

WATER HEATER UNIT CONNECTOR




**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT BATTERY VOLTAGE**<br>• Measure battery voltage.<br>• Is voltage **more than 9 V**? | Yes | Go to next step. |
| | | No | Battery is weak.<br>• Inspect charging system. |
| 2 | **INSPECT WIRING HARNESS BETWEEN W.HEAT 40 A FUSE AND WATER HEATER UNIT**<br>• Turn ignition switch to ON position.<br>• Measure voltage at water heater unit connector terminal A.<br>• Is voltage **more than 9 V**? | Yes | Go to next step. |
| | | No | Repair wiring harness. |
| 3 | **INSPECT WATER HEATER UNIT**<br>• Clear the DTC.<br>• Perform the KOEO Self Test.<br>• Is the same DTC present? | Yes | Replace the water heater unit.<br>(See 07–40–34 WATER HEATER UNIT REMOVAL/ INSTALLATION [MZR-CD (RF Turbo)]) |
| | | No | Go to the next step. |
| 4 | **VERIFY AFTER REPAIR PROCEDURE**<br>• Perform the after repair procedure. (See 07–02–3 DTC INSPECTION.)<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

**DTC B1342, B2207, B2463, B2464, B2465, B2466, B2467, B2537, B2538, B2547**

DPE070200000W17

| | | |
|---|---|---|
| **DTC** | **B1342** | **Malfunction in water heater unit** |
| | **B2207** | **ECU ROM checksum error** |
| | **B2463** | **Overheat** |
| | **B2464** | **Start time exceeded** |
| | **B2465** | **Start counter overrun/system locked** |
| | **B2466** | **Overheat counter overrun/system locked** |
| | **B2467** | **AUX. heater cool down time exceeded** |
| | **B2537** | **Water heater system does not start** |
| | **B2538** | **Unstable flame** |
| | **B2547** | **Flame prior to operation** |
| **DETECTION CONDITION** | | • CPU detects malfunction in water heater unit |
| **POSSIBLE CAUSE** | | • Water heater unit malfunction<br>— CPU malfunction<br>— Glow plug malfunction<br>— Flame detection sensor malfunction |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT WATER HEATER UNIT**<br>• Replace the water heater unit. (See 07–40–34 WATER HEATER UNIT REMOVAL/ INSTALLATION [MZR-CD (RF Turbo)])<br>• Perform the Combustion Test.<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

**DTC B1947, B2014**

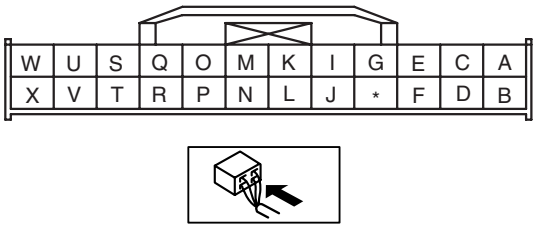
DPE070200000W10

| DTC B1947, B2014 | Evaporator temperature sensor system |
|---|---|
| POSSIBLE CAUSE | • Evaporator temperature sensor malfunction<br>• Open or short circuit in wiring harness between climate control unit and evaporator temperature sensor |

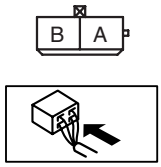
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Inspect the evaporator temperature sensor. (See 07–40–31 EVAPORATOR TEMPERATURE SENSOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the evaporator temperature sensor. (See 07–40–31 EVAPORATOR TEMPERATURE SENSOR REMOVAL/INSTALLATION.) |
| 2 | • Disconnect the climate control unit connector and the evaporator temperature sensor connector.<br>• Is there an open circuit in the wiring harness between the following terminals of the climate control unit and the evaporator temperature sensor?<br>— T—B<br>— U—A | Yes | Repair the wiring harness. |
| | | No | Go to the next step. |
| 3 | • Is there a short circuit to ground in the wiring harness between climate control unit terminal T and evaporator temperature sensor terminal B? | Yes | Repair the wiring harness. |
| | | No | Connect the climate control unit connector, then go to the next step. |
| 4 | • Turn the ignition switch to the ON position.<br>• Inspect the voltage at the following climate control unit terminal (wiring harness-side).<br>— Terminal T (evaporator temperature sensor input signal)<br>• Is the voltage normal? (**Approx. 5 V**) | Yes | The system is normal at present. (Clear the malfunction from the memory.) |
| | | No | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |

CLIMATE CONTROL UNIT CONNECTOR




EVAPORATOR TEMPERATURE SENSOR CONNECTOR




**DTC B2456, B2457, B2458, B2459, B2460, B2461, B2462**

DPE070200000W21

| | | |
|---|---|---|
| DTC | B2456 | Coolant sensor short |
| | B2457 | Coolant sensor interrupted |
| | B2458 | Overheat sensor short |
| | B2459 | Overheat sensor interrupted |
| | B2460 | Flame sensor short |
| | B2461 | Flame sensor interrupted |
| | B2462 | Flame off from max. power |
| DETECTION CONDITION | | • CPU detects malfunction in sensor (water heater unit) |

| | | |
|---|---|---|
| DTC | B2456 | Coolant sensor short |
| | B2457 | Coolant sensor interrupted |
| | B2458 | Overheat sensor short |
| | B2459 | Overheat sensor interrupted |
| | B2460 | Flame sensor short |
| | B2461 | Flame sensor interrupted |
| | B2462 | Flame off from max. power |
| POSSIBLE CAUSE | • Water heater unit malfunction | |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT WATER HEATER UNIT**<br>• Replace the water heater unit. (See 07–40–34 WATER HEATER UNIT REMOVAL/ INSTALLATION [MZR-CD (RF Turbo)])<br>• Perform the Combustion Test.<br>• Are any DTCs present? | Yes | Go to the applicable DTC troubleshooting. |
| | | No | Troubleshooting completed. |

## DTC B2832

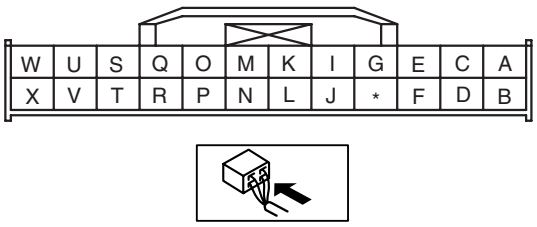
DPE070200000W11

| DTC B2832 | Airflow mode actuator (motor lock) system |
|---|---|
| POSSIBLE CAUSE | • Airflow mode actuator malfunction<br>• A/C unit (airflow mode link and airflow mode crank) malfunction<br>• Open or short circuit in wiring harness between climate control unit and airflow mode actuator |

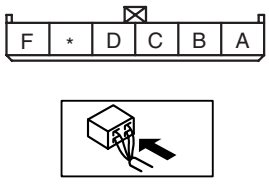
**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Disconnect the airflow mode actuator connector.<br>• Connect battery positive voltage to airflow mode actuator terminal D (or terminal F) and terminal F (or terminal D) to ground.<br>• Does the airflow mode actuator operate? | Yes | Connect the connector, then go to Step 3. |
| | | No | Go to the next step. |
| 2 | • Remove the airflow mode actuator.<br>• Operate the airflow mode main link manually.<br>• Does the airflow mode main link operate smoothly? | Yes | Replace the airflow mode actuator. (See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/ INSTALLATION.) |
| | | No | Replace the airflow mode main link, airflow mode sub link, and the airflow mode crank. |
| 3 | • Disconnect the climate control unit connector.<br>• Connect battery positive voltage to climate control unit terminal I (or terminal G) and terminal G (or terminal I) to ground.<br>• Does the airflow mode actuator operate? | Yes | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |
| | | No | Repair the wiring harness. |

CLIMATE CONTROL UNIT CONNECTOR




AIRFLOW MODE ACTUATOR CONNECTOR




## DTC B2834

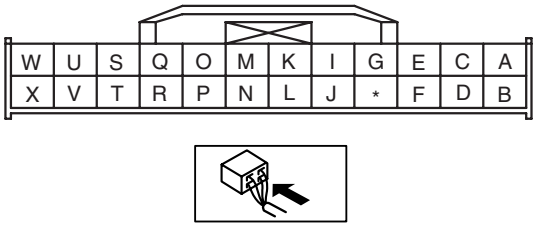
DPE070200000W12

| DTC B2834 | Air mix actuator (motor lock) system |
|---|---|
| POSSIBLE CAUSE | • Air mix actuator malfunction<br>• A/C unit (air mix link and air mix crank) malfunction<br>• Open or short circuit in wiring harness between climate control unit and air mix actuator |

**Diagnostic Procedure**

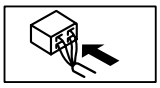
| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | • Disconnect the air mix actuator connector.<br>• Connect battery positive voltage to air mix actuator terminal F (or terminal D) and terminal D (or terminal F) to ground.<br>• Does the air mix actuator operate? | Yes | Connect the connector, then go to Step 3. |
| | | No | Go to the next step. |
| 2 | • Remove the air mix actuator.<br>• Operate the air mix link manually.<br>• Does the air mix link operate smoothly? | Yes | Replace the air mix actuator. (See 07–40–7 AIR MIX ACTUATOR REMOVAL/INSTALLATION.) |
| | | No | Replace the air mix link and the air mix crank. |
| 3 | • Disconnect the climate control unit connector.<br>• Connect battery positive voltage to climate control unit terminal E (or terminal C) and terminal C (or terminal E) to ground.<br>• Does the air mix actuator operate? | Yes | Inspect the connection of the climate control unit connector. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |
| | | No | Repair the wiring harness. |

CLIMATE CONTROL UNIT CONNECTOR






AIR MIX ACTUATOR CONNECTOR

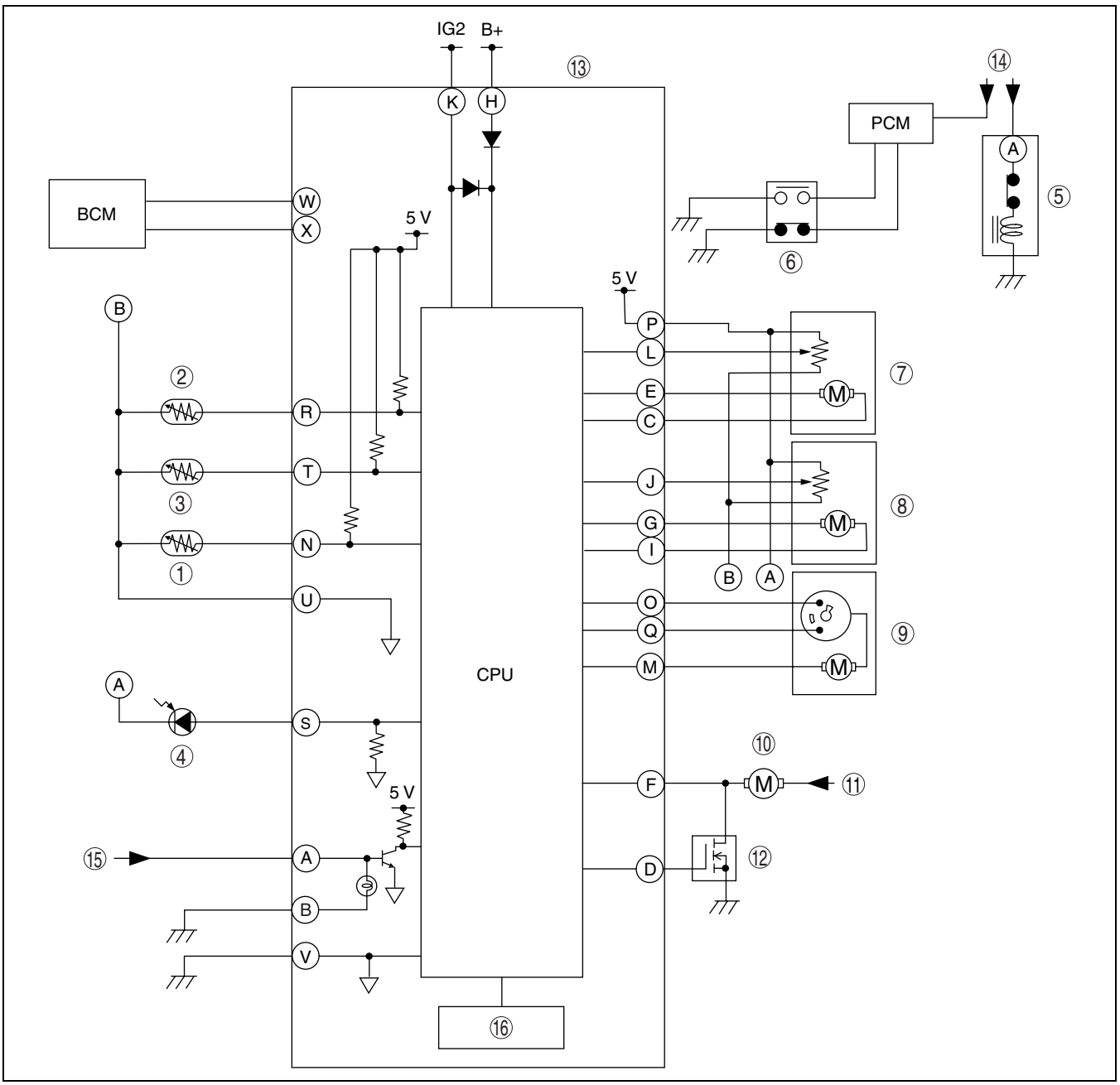
# 07–03 SYMPTOM TROUBLESHOOTING



## HVAC SYSTEM WIRING DIAGRAM

DPE070300000W12

**Full-auto air conditioner**

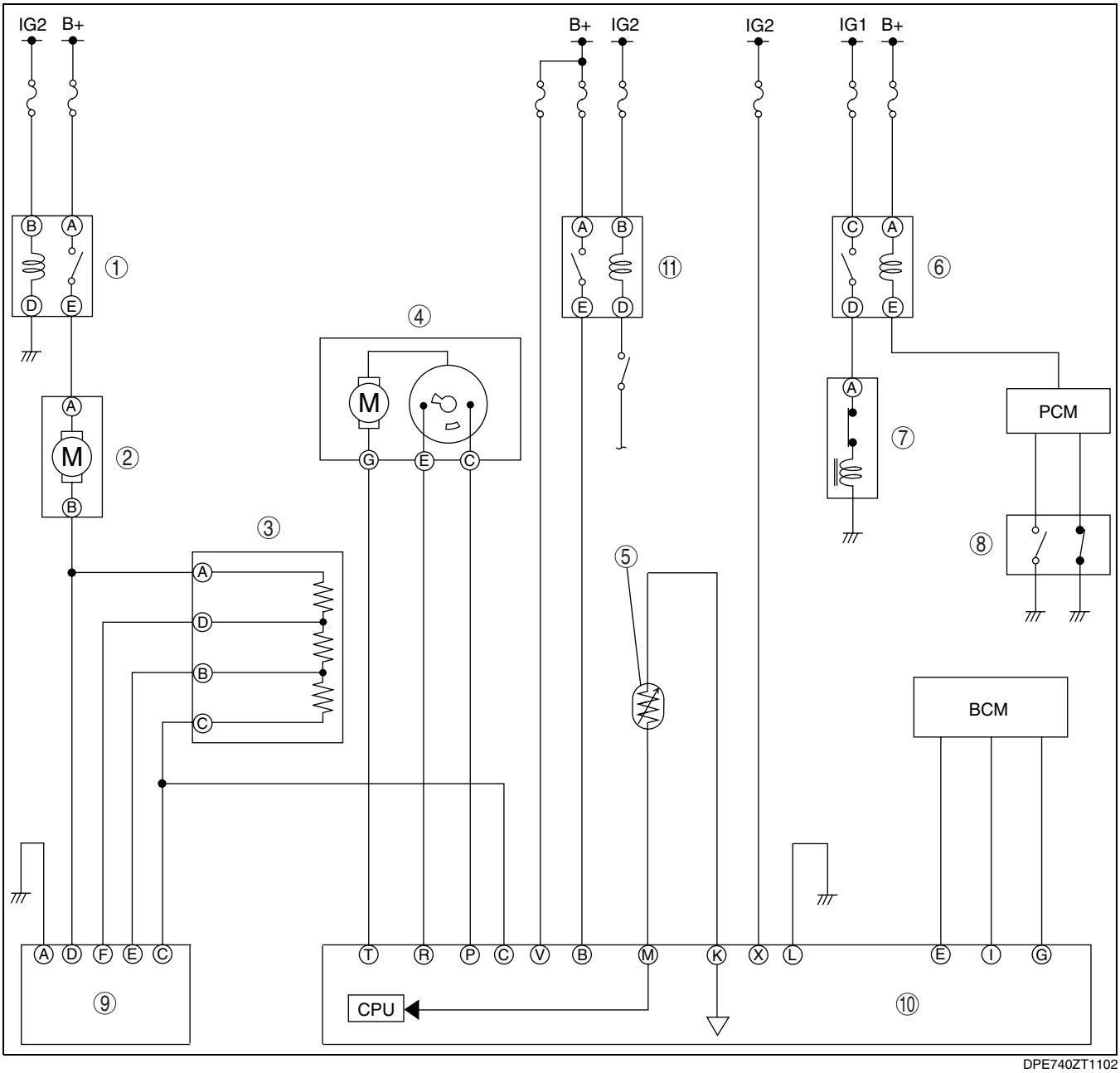



DPE740ZT1101

| | |
|---|---|
| 1 | Ambient temperature sensor |
| 2 | Cabin temperature sensor |

| | |
|---|---|
| 3 | Evaporator temperature sensor |
| 4 | Solar radiation sensor |
| 5 | Magnetic clutch |
| 6 | Refrigerant pressure switch |
| 7 | Air mix actuator |
| 8 | Airflow mode actuator |
| 9 | Air intake actuator |
| 10 | Blower motor |
| 11 | Blower relay |
| 12 | Power MOS FET |
| 13 | Climate control unit |
| 14 | A/C relay |
| 15 | TNS relay |
| 16 | Each switch |

**Manual air conditioner**




DPE740ZT1102

| | |
|---|---|
| 1 | Blower relay |
| 2 | Blower motor |

| | |
|---|---|
| 3 | Resistor |
| 4 | Air intake actuator |

| | |
|---|---|
| 5 | Evaporator temperature sensor |
| 6 | A/C relay |
| 7 | Magnetic clutch |
| 8 | Refrigerant pressure switch |
| 9 | Fan switch |
| 10 | Climate control unit |
| 11 | TNS relay |

## FOREWORD

DPE070300000W01

- The areas for inspection (steps) are given according to various circuit malfunctions. Use the following chart to verify the symptoms of the trouble in order to diagnose the appropriate area.

## TROUBLESHOOTING INDEX

DPE070300000W02

| No. | TROUBLESHOOTING ITEM | DESCRIPTION |
|---|---|---|
| 1 | Insufficient air (or no air) blown from vents | • Problem with each vent and/or duct<br>• Airflow mode does not change |
| 2 | Amount of air blown from vents does not change. (Full-auto air conditioner) | • Malfunction in blower system |
| 3 | Amount of air blown from vents does not change. (Manual air conditioner) | • Malfunction in blower system |
| 4 | Air intake mode does not change. | • Air intake mode does not change when switching REC/FRESH mode. |
| 5 | No temperature control with climate control unit | • Malfunction in A/C unit and/or climate control unit air mix system |
| 6 | Windshield fogged. | • A/C compressor does not operate while airflow mode is in DEFROSTER or HEAT/DEF modes.<br>• Air intake mode does not change to FRESH while airflow mode is in DEFROSTER or HEAT/DEF modes. |
| 7 | Air from vents not cold enough | • Magnetic clutch operates but A/C system malfunctions. |
| 8 | No cool air | • Magnetic clutch does not operate. |
| 9 | Noise while operating A/C system | • Noise from magnetic clutch, A/C compressor, hose or refrigerant line |

## NO.1 INSUFFICIENT AIR (OR NO AIR) BLOWN FROM VENTS

DPE070300000W03

| 1 | Insufficient air (or no air) blown from vents |
|---|---|
| DESCRIPTION | • Problem with each vent and/or duct.<br>• Airflow mode does not change. |
| POSSIBLE CAUSE | • Malfunction in airflow mode actuator<br>• Malfunction in VENT mode system<br>• Malfunction in HEAT mode system<br>• Malfunction in DEFROSTER mode system |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT AIRFLOW MODE ACTUATOR**<br>• Inspect airflow mode actuator.<br>• Is it okay? | Yes | Go to the next step. |
| | | No | Repair or replace malfunctioning part in accordance with inspection result. |
| 2 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN VENT MODE OR OTHER MODES**<br>• Does air blow out when in the VENT mode? | Yes | Go to Step 5. |
| | | No | Go to the next step. |
| 3 | **INSPECT VENT**<br>• Is the vent clogged? | Yes | Remove obstruction, then go to Step 9. |
| | | No | Go to the next step. |
| 4 | **VERIFY THAT DUCT IN DASHBOARD IS INSTALLED**<br>• Is the duct in the dashboard properly installed? | Yes | Inspect the duct for clogging, deformation and air leakage, then go to Step 9. |
| | | No | Install the duct securely in the proper position, then go to Step 9. |
| 5 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN HEAT MODE OR DEFROSTER MODE**<br>• Does air blow out when in the HEAT mode? | Yes | Go to the next step. |
| | | No | Inspect the vent for clogging, then go to Step 9. |
| 6 | **INSPECT DEFROSTER MODE**<br>• Does air blow out when in the DEFROSTER mode? | Yes | Operation is normal. Recheck malfunction symptoms. |
| | | No | Go to the next step. |
| 7 | **INSPECT VENT**<br>• Is the vent clogged? | Yes | Remove obstruction, then go to Step 9. |
| | | No | Go to the next step. |
| 8 | **VERIFY THAT DEFROSTER DUCT IS INSTALLED**<br>• Is the defroster duct properly installed? | Yes | Inspect the duct for clogging, deformation, and air leakage, then go to the next step. |
| | | No | Install the duct securely in proper position, then go to the next step. |
| 9 | **CONFIRM THAT MALFUNCTION SYMPTOM DOES NOT RECUR AFTER REPAIR**<br>• Does air blow out? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

### NO.2 AMOUNT OF AIR BLOWN FROM VENTS DOES NOT CHANGE

DPE070300000W04

**Full-auto Air Conditioner**

| 2 | **Amount of air blown from vents does not change.** |
|---|---|
| **DESCRIPTION** | • Malfunction in blower system |
| **POSSIBLE CAUSE** | • A/C unit malfunction<br>• Blower motor malfunction<br>• Malfunction in power MOS FET system<br>• Climate control unit malfunction |

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, inspect make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT HEATER BLOWER 40 A FUSE**<br>• Inspect the HEATER BLOWER 40 A fuse.<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the fuse, then go to Step 15. If the fuse burns out immediately, go to the next step. |
| 2 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C UNIT OR ELSEWHERE**<br>• Turn the ignition switch to the ON position.<br>• Turn the fan switch to ON position.<br>• Recirculate air inside the vehicle.<br>• Does the blower motor rotate smoothly? | Yes | Go to Step 4. |
| | | No | Go to the next step. |
| 3 | **INSPECT A/C UNIT INTAKE VENT**<br>• Is A/C unit intake vent clogged? | Yes | Remove obstruction, then go to Step 15. |
| | | No | Inspect if there are any obstruction in the A/C unit passage, then go to Step 15. |
| 4* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN BLOWER RELAY SYSTEM OR POWER MOS FET SYSTEM**<br>• Turn the ignition switch to ON position.<br>• Turn the fan switch to OFF position.<br>• Measure the voltage at the following blower motor terminal.<br>— Terminal B (blower motor operation signal)<br>• Is voltage **approx. 12 V**? | Yes | Go to Step 8. |
| | | No | Go to the next step. |
| 5* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN FUSE BLOCK AND BLOWER RELAY) OR ELSEWHERE**<br>• Measure the voltage at the following blower relay terminals.<br>— Terminal B (IG2 signal)<br>— Terminal A (B+ signal)<br>• Is the voltage **approx. 12 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the blower relay and HEATER BLOWER 40 A fuse, then go to Step 15. |
| 6* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN BLOWER RELAY AND GROUND) OR ELSEWHERE**<br>• Measure the voltage at the following blower relay terminal.<br>— Terminal D (GND signal)<br>• Is the voltage **approx. 0 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the blower relay and ground, then go to Step 15. |
| 7* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN BLOWER RELAY AND BLOWER MOTOR) OR BLOWER RELAY**<br>• Measure the voltage at the following blower relay terminal.<br>— Terminal E (blower motor operation signal)<br>• Is the voltage **approx. 12 V**? | Yes | Repair the wiring harness between the blower relay and blower motor, then go to Step 15. |
| | | No | Replace the blower relay, then go to Step 15. |
| 8* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN BLOWER MOTOR OR ELSEWHERE**<br>• Measure the voltage at the following blower motor terminal.<br>— Terminal B (blower motor operation signal)<br>• Is the voltage **approx. 12 V**? | Yes | Go to the next step. |
| | | No | Inspect the blower motor, then go to Step 15. |
| 9* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN BLOWER MOTOR AND POWER MOS FET) OR ELSEWHERE**<br>• Measure the voltage at the following terminal of power MOS FET.<br>— Terminal C (blower motor operation signal)<br>• Is voltage **approx. 12 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the blower motor and power MOS FET, then go to Step 15. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 10* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN POWER MOS FET AND GROUND) OR ELSEWHERE**<br>• Measure the voltage at the following power MOS FET terminal.<br>— Terminal A (blower motor operation signal)<br>• Is the voltage **approx. 0 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the power MOS FET and ground, then go to Step 15. |
| 11 | **INSPECT A/C UNIT**<br>• Inspect the fan in A/C unit.<br>— Is the fan free of interference with the A/C unit case?<br>— Is the fan free of foreign material and obstruction?<br>• Is the fan normal? | Yes | Go to the next step. |
| | | No | Remove obstruction, repair or replace the fan and A/C unit case, then go to Step 15. |
| 12* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN POWER MOS FET OR ELSEWHERE**<br>• Disconnect power MOS FET connector.<br>• Turn the fun switch to 1st position from off.<br>• Measure the voltage at the following power MOS FET terminal.<br>— Terminal B (blower motor control signal)<br>• Is voltage **approx. 10 V**? | Yes | Replace the power MOS FET, then go to Step 15. |
| | | No | Go to the next step. |
| 13* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN POWER MOS FET AND CLIMATE CONTROL UNIT) OR ELSEWHERE**<br>• Turn the ignition switch to the LOCK position.<br>• Disconnect climate control unit connector.<br>• Inspect for continuity at the following terminals between the power MOS FET and climate control unit.<br>— Terminal B—F (blower motor control signal)<br>— Terminal C—D (blower motor feedback signal)<br>• Is there continuity? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the power MOS FET and climate control unit, then go to Step 15. |
| 14* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR WIRING HARNESS (SHORT TO GROUND IN WIRING HARNESS BETWEEN POWER MOS FET AND CLIMATE CONTROL UNIT)**<br>• Inspect for continuity at the following terminal between the power MOS FET and ground.<br>— Terminal A (blower motor control signal)— ground<br>• Is there continuity? | Yes | Repair the wiring harness between the power MOS FET and ground, then go to the next step. |
| | | No | Replace the climate control unit, then go to the next step. |
| 15 | **CONFIRM THAT MALFUNCTION SYMPTOM DOES NOT RECUR AFTER REPAIR**<br>• Is air discharged from vent? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

### NO.3 AMOUNT OF AIR BLOWN FROM VENTS DOES NOT CHANGE

DPE070300000W05

**Manual Air Conditioner**

| 3 | **Amount of air blown from vents does not change.** |
|---|---|
| **DESCRIPTION** | • Malfunction in blower system |
| **POSSIBLE CAUSE** | • Blower relay, blower motor, resistor, fan switch malfunction<br>• A/C unit malfunction |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT BLOWER SYSTEM**<br>• Inspect the following systems and electrical parts.<br>— Blower relay<br>— Blower motor<br>— Resistor<br>— Fan switch<br>— Related wiring harnesses<br>• Are they normal? | Yes | Go to the next step. |
| | | No | Repair or replace the malfunctioning part, then go to Step 5. |
| 2 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C UNIT OR ELSEWHERE**<br>• Turn the ignition switch to the ON position.<br>• Turn the fan switch on.<br>• Recirculate air inside the vehicle.<br>• Does the blower motor rotate smoothly? | Yes | Go to Step 4. |
| | | No | Go to the next step. |
| 3 | **INSPECT A/C UNIT**<br>• Inspect blower motor.<br>— Is the fan free of interference from the A/C unit case?<br>— Is the fan free of foreign material and obstructions?<br>• Is the fan normal? | Yes | Go to the next step. |
| | | No | Remove obstruction, repair or replace the fan and A/C unit case, then go to Step 5. |
| 4 | **INSPECT A/C UNIT INTAKE VENT**<br>• Is the A/C unit intake vent clogged? | Yes | Remove obstruction, then go to the next step. |
| | | No | Inspect if there are any obstructions in the A/C unit passage, then go to the next step. |
| 5 | **VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR**<br>• Does air blow out? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

## NO.4 AIR INTAKE MODE DOES NOT CHANGE

DPE070300000W06

| 4 | **Air intake mode does not change.** |
|---|---|
| **DESCRIPTION** | • Air intake mode does not change when switching REC/FRESH mode. |
| **POSSIBLE CAUSE** | • Air intake actuator malfunction<br>• Air intake door malfunction |

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, inspect to make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT AIR INTAKE ACTUATOR**<br>(Auto A/C<br>• Inspect the following items using WDS or equivalent simulation function.<br>— MIX-ACT (Air intake actuation)<br>• Is it okay?<br>(Manual A/C)<br>• Inspect air intake actuator.<br>• Is it okay? | Yes | Go to the next step. |
| | | No | Replace the air intake actuator, then go to Step 9. |
| 2* | **INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR, WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE**<br>• Turn the ignition switch to the ON position.<br>• Measure the voltages at the following climate control unit terminals.<br>— Terminal O (24-pin, FRESH motor drive signal)<br>— Terminal Q (24-pin, RECIRCULATE motor drive signal)<br>(See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].)<br>• Are voltages normal? | Yes | Go to the next step. |
| | | No | Go to Step 4. |
| 3* | **INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR)**<br>• Measure the voltages at the following air intake actuator terminals.<br>— Terminal E (FRESH motor drive signal)<br>— Terminal C (RECIRCULATE motor drive signal)<br>• Are voltages as shown below?<br>— Terminal E: **approx. 0.5 V** during RECIRCULATE and **approx. 10 V** during FRESH<br>— Terminal C: **approx. 10 V** during RECIRCULATE and **approx. 0.5 V** during FRESH | Yes | Go to Step 7. |
| | | No | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9. |
| 4 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN AIR INTAKE ACTUATOR OR ELSEWHERE**<br>• Disconnect the air intake actuator connector.<br>• Measure the voltages at the following climate control unit terminals.<br>— Terminal O (FRESH motor drive signal)<br>— Terminal Q (RECIRCULATE motor drive signal)<br>(See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].)<br>• Are voltages normal? | Yes | Inspect the air intake actuator, then go to Step 9. |
| | | No | Go to the next step. |
| 5 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE**<br>• Disconnect the climate control unit connector.<br>• Measure the voltages at the following climate control unit terminals.<br>— Terminal O (FRESH motor drive signal)<br>— Terminal Q (RECIRCULATE motor drive signal)<br>• Are voltages **approx. 0 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 6 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GROUND BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE**<br>• Turn the ignition switch to the LOCK position.<br>• Inspect for continuity at the following terminals between the climate control unit and ground.<br>— Terminal O (FRESH motor drive signal)<br>— Terminal Q (RECIRCULATE motor drive signal)<br>• Is there continuity? | Yes | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9. |
| | | No | Go to the next step. |
| 7 | **INSPECT AIR INTAKE LINK**<br>• Inspect the air intake links.<br>— Is there grease on link?<br>— Are the links securely and properly installed?<br>— Are the links free of obstructions and hindrances?<br>• Are the above items normal? | Yes | Go to the next step. |
| | | No | Apply grease to the links. If any the links are damaged, replace the air intake actuator, then go to Step 9. |
| 8 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR AIR INTAKE DOOR**<br>• Inspect the A/C unit air intake door.<br>— Is the door free of obstructions, cracks, and damage?<br>— Are the doors securely and properly installed?<br>• Are the above items normal? | Yes | Replace the climate control unit, then go to the next step. |
| | | No | Remove obstruction, or install the doors in the proper position. If any doors are cracked or damaged, replace them, then go to the next step. |
| 9 | **CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECUR AFTER REPAIR**<br>• Does the air intake mode change smoothly? | Yes | Troubleshooting completed. Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

### NO.5 NO TEMPERATURE CONTROL WITH CLIMATE CONTROL UNIT

DPE070300000W07

| 5 | No temperature control with climate control unit |
|---|---|
| **DESCRIPTION** | • Malfunction in A/C unit and/or climate control unit air intake system |
| **POSSIBLE CAUSE** | • A/C unit air intake link, air intake crank, air intake rod, air intake wire, wire clamp malfunction<br>• Climate control unit rack-and-pinion, air intake wire malfunction<br>• A/C unit air intake door malfunction<br>• Heater piping malfunction |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT COOLANT TEMPERATURE**<br>• Is the coolant sufficiently warmed up? | Yes | Go to the next step. |
| | | No | Warm up the engine, then go to Step 8. |
| 2 | **INSPECT A/C UNIT AIR INTAKE SYSTEM**<br>• Inspect the A/C unit air intake links, air intake cranks, air intake rods, air intake actuator, and wire clamp.<br>— Is there grease on links and cranks?<br>— Are links, cranks, and rods securely installed in their proper positions?<br>— Is wire clamp free of deformation?<br>• Are the above items normal? | Yes | Go to the next step. |
| | | No | Apply grease or install the links, cranks, and rods securely in their proper positions, repair or replace the air intake actuator or wire clamp, then go to Step 8. |
| 3 | **VERIFY THAT AIR INTAKE WIRE FROM A/C UNIT IS POSITIONED SECURELY AND CORRECTLY (IF AVAILABLE)**<br>• Is the air intake wire securely installed in the correct position in relation to the A/C unit air intake links? | Yes | Go to the next step. |
| | | No | Adjust the air intake wire or install securely in the correct position, then go to Step 8. |
| 4 | **INSPECT CLIMATE CONTROL UNIT**<br>• Inspect the climate control unit.<br>• Is the climate control unit normal? | Yes | Go to the next step. |
| | | No | Repair or replace the climate control unit, then go to Step 8. |
| 5 | **INSPECT A/C UNIT**<br>• Is there any foreign material or obstruction in the A/C unit air intake doors? | Yes | Remove obstruction, then go to Step 8. |
| | | No | Go to the next step. |
| 6 | **INSPECT A/C UNIT AIR INTAKE DOOR**<br>• Is the A/C unit air intake door securely and properly installed? | Yes | Inspect the air intake door for cracks or damage, then go to the next step. |
| | | No | Install the air intake door securely in the proper position, then go to the next step. |
| 7 | **INSPECT HEATER LINE**<br>• Inspect the heater lines.<br>— Is the heater piping free of damage and cracks?<br>— Are the heater piping connections free of engine coolant leakage?<br>— Are the heater piping connections securely tightened?<br>— Are the heater piping installation points on A/C unit free of engine coolant leakage?<br>• Are the above items normal? | Yes | Operation is normal. Recheck malfunction symptoms. |
| | | No | If heater piping connections are loose, tighten the connections to the specified torque.<br>Repair or replace the heater piping, then go to the next step. |
| 8 | **VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR**<br>• Does the unit operate in every temperature setting? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

**NO.6 WINDSHIELD FOGGED**

DPE070300000W08

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while doing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, inspect to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

| 6 | **Windshield fogged.** |
|---|---|
| **DESCRIPTION** | • A/C compressor does not operate while airflow mode is in DEFROSTER or HEAT/DEF modes.<br>• Air intake mode does not change to FRESH while airflow mode is in DEFROSTER or HEAT/DEF modes. |
| **POSSIBLE CAUSE** | • Climate control unit (B+ signal) system malfunction<br>• Air intake actuator malfunction<br>• Climate control unit (RECIRCULATE, FRESH signal) system malfunction<br>• A/C unit air intake door malfunction |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **COOL AIR BLOW OUT INSPECTION**<br>• When both the A/C and fan switch in the climate control unit are on, does cool air blow out from the front vent? | Yes | Go to the next step. |
| | | No | Go to Step 1 of troubleshooting index No.8. |
| 2 | **INSPECT CLIMATE CONTROL UNIT POWER SUPPLY FUSE FOR B+ SIGNAL**<br>• Is the climate control unit power supply fuse for B+ signal normal? | Yes | Go to the next step. |
| | | No | Inspect for a short to ground on blown fuse circuit.<br>• Repair or replace if necessary. Install appropriate amperage fuse. |
| 3 | **INSPECT AIR INTAKE ACTUATOR**<br>• Inspect the air intake actuator.<br>— Is there grease on the link?<br>— Is the link securely and properly positioned?<br>— Is the link free of obstructions?<br>• Are the above items normal? | Yes | Go to the next step. |
| | | No | Apply grease or install the link properly and securely, remove obstruction, then go to Step 14. |
| *4 | **INSPECT WIRING HARNESS BETWEEN FUSE BLOCK AND CLIMATE CONTROL UNIT FOR CONTINUITY**<br>• Disconnect the climate control unit connector (24-pin).<br>• Turn the ignition switch to the ON position.<br>• Measure the voltage at climate control unit terminal H (B+ signal).<br>• Is the voltage **approx. 12 V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the fuse block and climate control unit, then go to Step 14. |
| *5 | **INSPECT WIRING HARNESS BETWEEN CLIMATE CONTROL UNIT AND GROUND FOR VOLTAGE**<br>• Measure the voltage at climate control unit terminal V (Ground).<br>• Is the voltage **approx. 0V**? | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the climate control unit and ground, then go to Step 14. |
| 6 | **VERIFY WHETHER MALFUNCTION IS IN A/C UNIT AIR INTAKE DOOR OR ELSEWHERE**<br>• Turn the ignition switch to the LOCK position.<br>• Connect the climate control unit connector (24-pin).<br>• Remove the air intake actuator.<br>• Turn the ignition switch to the ON position.<br>• Set the fan switch to 4th position.<br>• Does the air intake mode (RECIRCULATE, FRESH) change smoothly when the air intake link is operated by hand? | Yes | Go to the next step. |
| | | No | Go to Step 12. |
| 7 | **INSPECT AIR INTAKE ACTUATOR**<br>• Inspect the air intake actuator. (See 07–40–6 AIR INTAKE ACTUATOR INSPECTION.)<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the air intake actuator, go to Step 14. |
| 8 | **INSPECT AIR INTAKE SELECTOR SWITCH AND DEFROSTER SWITCH IN CLIMATE CONTROL UNIT**<br>• Measure the voltage at climate control unit connector (24-pin) terminals O and Q.<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Replace the climate control unit, then go to Step 14. |
| *9 | **INSPECT WIRING HARNESS BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR FOR CONTINUITY**<br>• Turn the ignition switch to the LOCK position.<br>• Is there continuity between the following climate control unit terminals and air intake actuator terminals?<br>— Terminal E —Terminal O (FRESH signal)<br>— Terminal C —Terminal Q (RECIRCULATE signal) | Yes | Go to the next step. |
| | | No | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 14. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| *10 | **INSPECT WIRING HARNESS BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR FOR SHORT TO GROUND**<br>• Is there continuity between the following climate control unit terminals and ground?<br>— Terminal O (FRESH signal)<br>— Terminal Q (RECIRCULATE signal) | Yes | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 14. |
| | | No | Go to the next step. |
| *11 | **INSPECT WIRING HARNESS BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR FOR SHORT TO B+**<br>• Turn the ignition switch to the ON position<br>• Measure the voltage at the following climate control unit terminals.<br>— Terminal O (FRESH signal)<br>— Terminal Q (RECIRCULATE signal)<br>• Is the voltage **approx. 12 V**? | Yes | Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 14. |
| | | No | Replace the climate control unit, then go to Step 14. |
| 12 | **INSPECT A/C UNIT AIR INTAKE DOOR**<br>• Is there any foreign material or obstruction in the A/C unit air intake door? | Yes | Remove obstruction, then go to Step 14. |
| | | No | Go to the next step. |
| 13 | **VERIFY THAT A/C UNIT AIR INTAKE DOOR IS POSITIONED SECURELY AND PROPERLY**<br>• Is the A/C unit air intake door securely and properly positioned? | Yes | Inspect the air intake door for cracks or damage, then go to the next step. |
| | | No | Install the air intake door securely in the proper position, then go to the next step. |
| 14 | **VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR**<br>• Does the malfunction disappear? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

### NO.7 AIR FROM VENTS NOT COLD ENOUGH

DPE070300000W09

| 7 | **Air from vents not cold enough.** |
|---|---|
| **DESCRIPTION** | • Magnetic clutch operates but A/C system malfunctions. |
| **POSSIBLE CAUSE** | • Drive belt malfunction<br>• A/C unit or condenser malfunction<br>• Receiver/drier or expansion valve malfunction (valve closes too much)<br>• Malfunction in refrigerant lines<br>• A/C compressor system malfunction, insufficient compressor oil<br>• Over filling of compressor oil, malfunction in expansion valve or A/C unit air mix link system |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT DRIVE BELT**<br>• Inspect the drive belt. (See 01–10A–2 DRIVE BELT INSPECTION [L8, LF].) ~~(See 01–10B–3 DRIVE BELT INSPECTION [MZR-CD (RF Turbo)].)~~<br>• Is it normal? | Yes | Go to the next step. |
| | | No | Adjust or replace the drive belt, then go to Step 20. (See 01–10A–3 DRIVE BELT REPLACEMENT [L8, LF].) ~~(See 01–10B–3 DRIVE BELT REPLACEMENT [MZR-CD (RF Turbo)].)~~ |
| 2 | **INSPECT REFRIGERANT SYSTEM PERFORMANCE**<br>• Perform refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)<br>• Is the operation normal? | Yes | Operation is normal. (Recheck malfunction symptoms.) |
| | | No | Go to the next step. |
| 3 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C UNIT INTAKE AND CONDENSER OR ELSEWHERE**<br>• Are the refrigerant high-pressure and low-pressure values both high? | Yes | Go to the next step. |
| | | No | Go to Step 6. |
| 4 | **INSPECT A/C UNIT INTAKE**<br>• Is the A/C unit intake clogged? | Yes | Remove obstruction, then go to Step 20. (If air does not reach the evaporator in the A/C unit, heat exchange does not occur and refrigerant pressure becomes high. Therefore, removal of obstruction is necessary.) |
| | | No | Go to the next step. |
| 5 | **INSPECT CONDENSER**<br>• Inspect the condenser. (See 07–11–28 CONDENSER INSPECTION.)<br>• Is it normal? | Yes | Adjust refrigerant to the specified amount, then go to Step 20. (Excessive amount of refrigerant.) |
| | | No | Replace the condenser, or repair and clean the condenser fins, then go to Step 20. |
| 6 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE, RECEIVER/DRIER AND REFRIGERANT LINES OR ELSEWHERE**<br>• Are the refrigerant high-pressure and low-pressure values low? | Yes | Go to the next step. |
| | | No | Go to Step 14. |
| 7 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE AND RECEIVER/ DRIER OR ELSEWHERE**<br>• Immediately after the A/C compressor operates, does the refrigerant high-pressure value momentarily rise to correct value, then fall and stay below it? (Is there negative pressure on low-pressure side?) | Yes | Go to the next step. |
| | | No | Go to Step 10. |
| 8 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE OR RECEIVER/ DRIER**<br>• Turn the A/C switch off and let the air conditioner stop for **10 min**.<br>• Start the engine.<br>• Turn the both A/C switch and fan switch on.<br>• Does the malfunction occur after the A/C compressor turns on? | Yes | Go to the next step. |
| | | No | Replace the condenser and vacuum the refrigerant line **more than 30 min** by the vacuum pump, add refrigerant to the specified level, then go to Step 20. (Since water has intermixed in the receiver/drier and it is saturated, replacement is necessary.) |
| 9 | **VERIFY THAT EXPANSION VALVE HEAT-SENSING TUBE WITHIN A/C UNIT IS POSITIONED SECURELY AND CORRECTLY**<br>• Is the expansion valve heat-sensing tube in the A/C unit securely installed in the proper position? | Yes | Replace the expansion valve, then go to Step 20. (Since the valve closes too much, replacement is necessary.) |
| | | No | Install the heat-sensing tube securely in the proper position, then go to Step 20. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 10 | **INSPECT REFRIGERANT LINE**<br>• Inspect the refrigerant lines.<br>— Is the piping free of damage and cracks?<br>— Are the piping connections free of oil grime? (Visual inspection)<br>— Are the piping connections free of gas leakage?<br>— Are the piping installation points on the condenser free of gas leakage?<br>— Are the piping installation points on the receiver/drier free of gas leakage?<br>— Are the piping installation points on the A/C compressor free of gas leakage?<br>— Are the piping installation points on the A/C unit free of gas leakage?<br>— Perform gas leakage inspection using a gas leak tester.<br>• Are the above items normal? | Yes | Go to the next step. |
| | | No | If the piping or A/C component (s) are damaged or cracked, replace them.<br>Then go to Step 20.<br>If there is no damage, go to Step 13. |
| 11 | **INSPECT EVAPORATOR PIPING CONNECTION IN A/C UNIT FOR GAS LEAKAGE**<br>• Are piping the connections for the evaporator in the A/C unit free of gas leakage? | Yes | If the vane makes a noise, add **10 ml {10 cc, 0.34 fl oz}** of compressor oil to the A/C compressor. Verify that the noise is no longer heard.<br>Adjust refrigerant to the specified amount, then go to Step 20. |
| | | No | If the piping is damaged or cracked, replace it.<br>Then go to Step 20.<br>If there is no damage, go to the next step. |
| 12 | **INSPECT EVAPORATOR PIPING CONNECTION IN A/C UNIT FOR LOOSE**<br>• Are the piping connections for the evaporator in the A/C unit loose? | Yes | Tighten the connections to the specified torque, adjust both compressor oil and refrigerant to the specified amount, then go to Step 20. |
| | | No | If the vane makes a noise, add **10 ml {10 cc, 0.34 fl oz}** of compressor oil to the A/C compressor. Verify that the noise is no longer heard.<br>Replace the O-ring on piping, adjust refrigerant to the specified amount, then go to Step 20. |
| 13 | **INSPECT PIPING CONNECTION FOR LOOSE**<br>• Are the piping connections loose? | Yes | Tighten the connections to the specified torque, adjust both compressor oil and refrigerant to the specified amount, then go to Step 20. |
| | | No | If the vane makes a noise, add **10 ml {10 cc, 0.34 fl oz}** of compressor oil to the A/C compressor. Verify that the noise is no longer heard.<br>Replace O-ring on piping, adjust refrigerant to specified amount, then go to Step 20. |
| 14 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE, AIR MIX ACTUATOR AND COMPRESSOR OIL OR ELSEWHERE**<br>• Does the refrigerant high-pressure value hardly increase? | Yes | Go to the next step. (Pressure hardly increases.) |
| | | No | Go to Step 17. |
| 15 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN COMPRESSOR OIL AMOUNT AND A/C COMPRESSOR OR ELSEWHERE**<br>• When the engine is racing, does the high-pressure value increase? | Yes | Return to Step 3. |
| | | No | Go to the next step. |
| 16 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN COMPRESSOR OIL AMOUNT OR A/C COMPRESSOR**<br>• After compressor oil is replenished each **10 ml {10 cc, 0.34 fl oz}**, does high-pressure value increase? | Yes | Troubleshooting completed. (Explain to customer that cause was insufficient compressor oil.) |
| | | No | Replace the A/C compressor, then go to Step 20. (Cause is defective A/C compressor.) |
| 17 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE OR ELSEWHERE**<br>• Is only refrigerant low-pressure value high? | Yes | Go to Step 19. |
| | | No | Go to the next step. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 18 | **VERIFY THAT AIR MIX IS INSTALLED SECURELY AND PROPERLY**<br>• Are the A/C unit air mix links, air mix cranks, and air mix rods securely and properly installed? | Yes | Set the fan switch to 4th position.<br>Turn the A/C switch on.<br>Set FRESH mode.<br>Set temperature control to MAX COLD.<br>Set VENT mode.<br>(1)Start and run the engine at **1,500 rpm** for **10 min**.<br>(2)Run the engine at idle for **1 min**.<br>(3)Within **12 s**, idle → **4,000 rpm** → idle. Perform cycle **5 times**.<br>(4) Run the engine at idle for **30 s**.<br>(5)Drain the compressor oil completely from the A/C compressor and verify the amount.<br>• If there is **approx. 90 ml {90 cc, 3.0 fl oz}** of compressor oil, go to Step 20.<br>• If there is **more than 90 ml {90 cc, 3.0 fl oz}** of compressor oil, remove surplus oil and fill the A/C compressor with **90 ml {90 cc, 3.0 fl oz}** of compressor oil. Repeat Steps (1) to (5).<br>(Cause is excessive amount of compressor oil.) |
| | | No | Repair or install the links, cranks and rods securely in the proper position, then go to Step 20. |
| 19 | **VERIFY THAT EXPANSION VALVE HEAT-SENSING TUBE WITHIN A/C UNIT IS POSITIONED SECURELY AND CORRECTLY**<br>• Is the expansion valve heat-sensing tube in the A/C unit securely installed in the proper position? | Yes | Replace the expansion valve, then go to the next step.<br>(Since the valve opens too much, replacement is necessary.) |
| | | No | Install the heat-sensing tube securely in the proper position, then go to the next step. |
| 20 | **VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR**<br>• Does cool air blow out? (Are results of refrigerant system performance test normal?) | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs. |

### NO.8 NO COOL AIR

DPE070300000W10

| 8 | No cool air |
|---|---|
| **DESCRIPTION** | • Magnetic clutch does not operate. |
| **POSSIBLE CAUSE** | • Malfunction in PCM A/C cut control system<br>• Malfunction in climate control unit<br>• Malfunction in refrigerant pressure switch<br>• Malfunction in PCM (A/C signal)<br>• Malfunction in PCM (IG1 signal)<br>• Malfunction in A/C compressor<br>• Malfunction in A/C relay<br>• Malfunction in evaporator temperature sensor<br>• Malfunction in BCM unit<br>• Malfunction in CAN communication |

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **INSPECT AIR BLOW OUT**<br>• Does air blow out? | Yes | Go to the next step. |
| | | No | Go to Step 1 of troubleshooting indexes No.1 and 2. |
| 2 | **INSPECT A/C COMPRESSOR OPERATION**<br>• Start engine.<br>• Turn A/C switch and fan switch on.<br>• Does A/C compressor operate? | Yes | Go to Step 1 of troubleshooting index No.7. |
| | | No | Go to the next step. |
| 3 | **INSPECT FOR DTC IN PCM**<br>• Inspect for DTCs related to the PCM on-board diagnostic system.<br>• Are any DTCs displayed? | Yes | Go to appropriate inspection procedure. |
| | | No | (Auto A/C)<br>Go to the next step.<br>(Manual A/C)<br>Go to Step 5. |
| 4 | **COMFIRM DTC U0073, U0140, U0166 AND U2516 USING WDS OR EQUIVALENT**<br>• Retrieve DTC from EATC and BCM.<br>• Are DTCs (U0073, U0140, U0166, U2516) retrieved? | Yes | Network communication, for related system is malfunction.<br>Go to appropriate inspection procedure. |
| | | No | Go to Step 6. |
| 5 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR ELSEWHERE**<br>• Does cool air blow out when terminal E of climate control unit connector (24-pin, A/C signal) is grounded? | Yes | Replace climate control unit, then go to Step 18. |
| | | No | Release short, then go to the next step. |
| 6* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C SIGNAL CIRCUIT (BETWEEN REFRIGERANT PRESSURE SWITCH AND PCM) OR ELSEWHERE**<br>• Test voltage at following terminal of refrigerant pressure switch.<br>— Terminal B (A/C signal)<br>• Is voltage **approx. 12 V**? | Yes | Go to Step 8. |
| | | No | Go to the next step. |
| 7* | **INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (BETWEEN REFRIGERANT PRESSURE SWITCH AND PCM) OR PCM**<br>• Test voltage at A/C signal terminal of PCM.<br>• Is voltage **approx. 12 V**? | Yes | Repair wiring harness between PCM and refrigerant pressure switch, then go to Step 18. |
| | | No | Inspect PCM, then go to Step 18. |
| 8 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN REFRIGERANT PRESSURE SWITCH, REFRIGERANT AMOUNT, OR ELSEWHERE**<br>• Does cool air blow out when terminals A and B of refrigerant pressure switch connector are shorted? | Yes | Go to Step 10. |
| | | No | (Auto A/C)<br>Go to Step 11.<br>(Manual A/C)<br>Go to the next step. |
| 9* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN REFRIGERANT PRESSURE SWITCH AND CLIMATE CONTROL UNIT) OR ELSEWHERE**<br>• Test voltage at following terminal of climate control unit.<br>— Terminal E (24-pin, A/C signal)<br>• Is voltage **approx. 12 V**? | Yes | Go to Step 10. |
| | | No | Repair wiring harness between refrigerant pressure switch and climate control unit, then go to Step 18. |
| 10 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN REFRIGERANT PRESSURE SWITCH OR REFRIGERANT AMOUNT**<br>• Inspect refrigerant pressure switch.<br>• Is it okay? | Yes | If refrigerant amount is empty, replace condenser, vaccum refrigerant line **more than 30 min** by vacuum pump, and add refrigerant to specified level, then go to Step 18. |
| | | No | Replace refrigerant pressure switch, then go to Step 18. |
| 11 | **INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN A/C CONTROL SIGNAL CIRCUIT (BETWEEN A/C RELAY AND PCM) OR ELSEWHERE**<br>• Does cool air blow out when terminal E of A/C relay connector (A/C control signal) is grounded? | Yes | Release short, then go to the next step. |
| | | No | Go to Step 13. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 12* | **INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN PCM OR WIRING HARNESS (BETWEEN A/C RELAY AND PCM)**<br>• Test voltage at the A/C relay control signal terminal of PCM.<br>• Is voltage **approx. 12 V**? | Yes | Inspect PCM, then go to Step 18. |
| | | No | Repair wiring harness between A/C relay and PCM, then go to Step 18. |
| 13* | **INSPECT TO SEE WHETHER MALFUNCTION IS IN MAGNETIC CLUTCH OR ELSEWHERE**<br>• Test voltage at the following terminal of magnetic clutch thermal protector.<br>— Terminal A (magnetic clutch operation signal)<br>• Is voltage **approx. 12 V**? | Yes | Inspect magnetic clutch, then go to Step 18. |
| | | No | Go to the next step. |
| 14 | **INSPECT FUSE**<br>• Are A/C relay power supply fuses okay? | Yes | Go to the next step. |
| | | No | Replace fuse, then go to Step 18. If fuse burns out immediately, go to the next step. |
| 15 | **INSPECT WIRING HARNESS BETWEEN FUSE BLOCK AND A/C RELAY FOR LACK OF CONTINUITY**<br>• Test voltages at following terminals of A/C relay.<br>— Terminal A (A/C relay control signal)<br>— Terminal C (A/C control signal)<br>• Are voltages **approx. 12 V**? | Yes | Go to the next step. |
| | | No | Repair wiring harness between fuse block and A/C relay, then go to Step 18. |
| 16 | **INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C RELAY OR WIRING HARNESS (BETWEEN A/C RELAY AND MAGNETIC CLUTCH) AND EVAPORATOR TEMPERATURE SENSOR**<br>• Test voltage at the following terminal of A/C relay.<br>— Terminal D (magnetic clutch operation signal)<br>• Is voltage **approx. 12 V**? | Yes | Inspect wiring harness between A/C relay and magnetic clutch.<br>• If above wiring harness is OK, go to the next step.<br>• If above wiring harness malfunctions, repair wiring harness, then go to Step 18. |
| | | No | Replace A/C relay, then go to Step 18. |
| 17 | **INSPECT EVAPORATOR TEMPERATURE SENSOR**<br>• Inspect evaporator temperature sensor.<br>• Is it okay? | Yes | Go to the next step. |
| | | No | Replace evaporator temperature sensor, then go to the next step. |
| 18 | **CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECUR AFTER REPAIR**<br>• Does cool air blow out? (Are the results of refrigerant system performance test okay?) | Yes | Troubleshooting completed. Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if malfunction recurs. |

## NO.9 NOISE WHILE OPERATING A/C SYSTEM

DPE070300000W11

| 9 | **Noise while operating A/C system.** |
|---|---|
| **DESCRIPTION** | • Noise from magnetic clutch, A/C compressor, hose or refrigerant line. |
| **POSSIBLE CAUSE** | • Magnetic clutch operation noise<br>• A/C compressor vane noise<br>• A/C compressor slippage noise<br>• Hose or refrigerant line interference noise |

**Diagnostic procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **CHECK A/C COMPRESSOR VANE NOISE**<br>• Is there a jingling, popping, beeping, or buzzing sound (A/C compressor vane noise)? | Yes | Go to Step 5. |
| | | No | Go to the next step. |
| 2 | **INSPECT A/C COMPRESSOR SLIPPAGE NOISE**<br>• Is there a squeaking or whirling sound (A/C compressor slippage noise)? | Yes | Go to Step 14. |
| | | No | Go to the next step. |
| 3 | **INSPECT A/C COMPRESSOR INTERFERENCE NOISE**<br>• Is there a rattling or vibrating sound (interference noise)? | Yes | Go to Step 18. |
| | | No | Go to the next step. |
| 4 | **INSPECT MAGNETIC CLUTCH OPERATION NOISE**<br>• Is there a clicking sound (magnetic clutch operation noise)? | Yes | Adjust clearance between pressure plate of magnetic clutch and A/C compressor pulley, then go to Step 19.<br>(See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT ~~[LF, L8].) (See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [MZR-CD (RF Turbo)].~~) |
| | | No | Condition is normal. (Recheck malfunction symptoms.) |
| 5 | **INSPECT A/C COMPRESSOR NOISE TIME**<br>• Is noise heard continuously for **more than 3 s** after A/C compressor comes on? | Yes | Go to the next step. |
| | | No | Condition is normal. (Noise occurs for **2—3 s** immediately after A/C compressor turns on.) |
| 6 | **INSPECT IDLE SPEED**<br>• Inspect idle speed.<br>(See 01–10A–30 ENGINE TUNE-UP ~~[L8, LF].) (See 01–10B–30 ENGINE TUNE-UP [MZR-CD (RF Turbo)].~~)<br>• Is it okay? | Yes | Go to the next step. |
| | | No | Follow the repair instruction described in section 01, then go to Step 19. |
| 7 | **INSPECT REFRIGERANT AMOUNT**<br>• Inspect refrigerant amount.<br>• Is it okay? | Yes | Go to Step 10. |
| | | No | Go to the next step. |
| 8 | **INSPECT REFRIGERANT LINES**<br>• Inspect refrigerant lines.<br>— Is piping free of damage and cracks?<br>— Are piping connections free of oil grime? (Visual inspection)<br>— Are piping connections free of gas leakage?<br>— Are piping installation points on condenser free of gas leakage?<br>— Are piping installation points on receiver/drier free of gas leakage?<br>— Are piping installation points on A/C compressor free of gas leakage?<br>— Are piping installation points on A/C unit free of gas leakage<br>— Perform gas leak inspection using gas leak tester.<br>• Are above items okay? | Yes | Go to the next step. |
| | | No | If piping or A/C component(s) is damaged or cracked, replace then go to Step 19.<br>If there is gas leakage, repair or replace connection and replace condenser*, then go to Step 19. |
| 9 | **INSPECT EVAPORATOR PIPING CONNECTIONS IN A/C UNIT FOR GAS LEAKAGE**<br>• Are piping connections for evaporator in A/C unit free of gas leakage? | Yes | Adjust refrigerant amount to specified level, then go to Step 19. |
| | | No | If piping is damaged or cracked, replace then go to Step 19.<br>If there is gas leakage, repair or replace connection and replace condenser*, then go to Step 19. |
| 10 | **CHECK TO SEE WHETHER MALFUNCTION IS IN COMPRESSOR OIL OR ELSEWHERE**<br>• Add **20 ml {20 cc, 0.8 fl oz}** of compressor oil.<br>• Is noise heard when racing engine? | Yes | Go to the next step. |
| | | No | Troubleshooting completed.<br>Explain repair to customer. |
| 11 | **CHECK TO SEE WHETHER MALFUNCTION IS IN A/C COMPRESSOR OR ELSEWHERE**<br>• Drain compressor oil.<br>• Is it contaminated with metal particles? | Yes | Go to the next step. |
| | | No | Replace A/C compressor, then go to Step 19. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 12 | **CHECK TO SEE WHETHER MALFUNCTION IS SOMEWHERE IN A/C SYSTEM OR ELSEWHERE**<br>• Is compressor oil whitish and mixed with water? | Yes | Replace entire A/C system (excluding heater), then go to Step 19. |
| | | No | Go to the next step. |
| 13 | **INSPECT A/C COMPRESSOR OIL**<br>• Is compressor oil darker than normal and contaminated with aluminum chips? | Yes | Replace A/C compressor and condenser, then go to Step 19. (Since A/C compressor may be worn and receiver/drier may be clogged, replacement of receiver/drier is necessary.) |
| | | No | Condition is normal. Recheck malfunction symptoms. |
| 14 | **CHECK TO SEE WHETHER MALFUNCTION IS IN A/C COMPRESSOR OR ELSEWHERE**<br>• Is noise heard immediately after A/C compressor is stopped? | Yes | Replace A/C compressor, then go to Step 19. (A/C compressor discharge valve left open) |
| | | No | Go to the next step. |
| 15 | **INSPECT DRIVE BELT**<br>• Inspect drive belt. (See 01–10A–2 DRIVE BELT INSPECTION [L8, LF].) (See 01–10B–3 DRIVE BELT INSPECTION [MZR-CD (RF Turbo)].)<br>• Is it okay? | Yes | Go to the next step. |
| | | No | Adjust or replace drive belt, then go to Step 19. |
| 16 | **INSPECT DRIVE BELT CONDITION**<br>• Is drive belt worn?<br>• Does it have foreign material imbedded in it, or have oil on it? | Yes | Remove obstruction, remove oil, or replace drive belt, then go to Step 19. |
| | | No | Go to the next step. |
| 17 | **INSPECT MAGNETIC CLUTCH**<br>• Inspect magnetic clutch. (See 07–40–27 MAGNETIC CLUTCH INSPECTION [LF, L8].) (See 07–40–28 MAGNETIC CLUTCH INSPECTION [MZR-CD (RF Turbo)].)<br>• Is it okay? | Yes | Replace A/C compressor (excluding pressure plate, A/C compressor pulley, and stator), then go to Step 19. |
| | | No | Replace magnetic clutch, then go to Step 19. |
| 18 | **CHECK TO SEE WHETHER MALFUNCTION IS IN A/C COMPRESSOR OR REFRIGERANT LINES**<br>• Is noise emitted from A/C compressor? | Yes | Visually inspect A/C compressor, replace appropriate parts if necessary, then go to the next step. |
| | | No | If noise is due to refrigerant lines, repair detached or missing clips, tighten loose bolts, then go to the next step. |
| 19 | **VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR**<br>• Has A/C compressor noise stopped? | Yes | Troubleshooting completed.<br>Explain repairs to customer. |
| | | No | Recheck malfunction symptoms, then repeat from Step 1 if malfunction recurs. |

* : If there is gas leakage, air enters into the A/C system. The desiccant within the receiver/drier absorbs the moisture from the air and becomes saturated. If the A/C system is used in this condition, the inside of the A/C compressor will begin to rust due to this moisture, which may cause lock up or noise to occur. Therefore, replacement of the receiver/drier is necessary.

# 07–10 REFRIGERANT SYSTEM



## REFRIGERANT SYSTEM SERVICE WARNINGS

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**Handling Refrigerant**

- **Avoid breathing air conditioning refrigerant or lubricant vapor. Exposure may irritate eyes, nose and throat. Also, due to environmental concerns, we urge use of recovery/recycling/recharging equipment when draining R-134a from the air conditioning system. If accidental system discharge occurs, ventilate work area before resuming service.**
- **Do not perform pressure test or leak test for R-134a service equipment and/or vehicle air conditioning system using compressed air. Some mixtures of air and R-134a have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.**
- **Do not allow the refrigerant to leak near fire or any kind of heat. A poisonous gas may be generated if the refrigerant gas contacts fire or heat such as from cigarettes and heaters. When carrying out any operation that can cause refrigerant leakage, extinguish or remove the above-mentioned heat sources and maintain adequate ventilation.**
- **Handling liquid refrigerant is dangerous. A drop of it on the skin can result in localized frostbite. When handling the refrigerant, wear gloves and safety goggles. If refrigerant splashes into the eyes, immediately wash them with clean water and consult a doctor.**

**Storing Refrigerant**

- **The refrigerant container is highly pressurized. If it is subjected to high heat, it could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Store the refrigerant at temperatures below 40 °C {104 °F}.**

## REFRIGERANT SYSTEM SERVICE CAUTIONS

DPE071000000W02

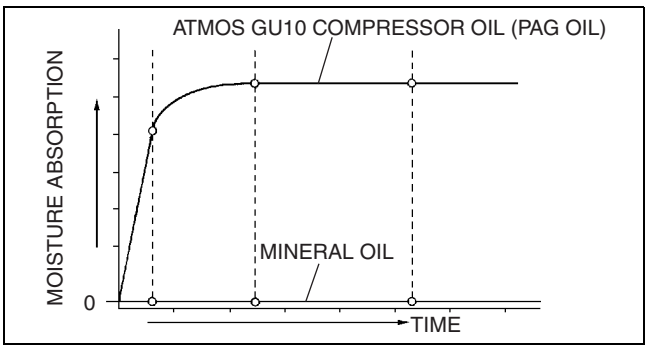
**Handling Insufficient Refrigerant Level**

- **If an insufficient refrigerant level is detected at troubleshooting, do not charge (add) the refrigerant. Because an accurate amount of refrigerant cannot be determined from the pressure indicated on the manifold gauge, never charge the refrigerant. If there is too much or too little refrigerant from the refilling, there may be secondary problems such as damage to the refrigerant cycle parts, or a decrease of cooling performance. Therefore, if it is determined that the refrigerant level is insufficient, completely remove refrigerant from the refrigerant cycle and refill with refrigerant to the specified amount.**

**Handling Compressor Oil**

- **Use only ATMOS GU10 compressor oil for this vehicle. Using a PAG oil other than ATMOS GU10 compressor oil can damage the A/C compressor.**
- **Do not spill ATMOS GU10 compressor oil on the vehicle. A drop of compressor oil on the vehicle surface can eat away at the paint. If oil gets on the vehicle, wipe it off immediately.**
- **ATMOS GU10 compressor oil (PAG oil) has a higher moisture absorption efficiency than the previously used mineral oil. If moisture mixes with the compressor oil, the refrigerant system could be damaged. Therefore, install caps immediately after using the compressor oil or removing refrigerant system parts to prevent moisture absorption.**

- **If the refrigerant gas is completely discharged from the system for reasons such as a malfunction during A/C operation, repair or replace the malfunctioning part, charge the refrigerant to the specified amount and always add 60 ml {60 cc, 2.03 fl oz} of compressor. If the compressor oil is not adequately replenished, the A/C compressor may quickly deteriorate, abnormal noise may develop, cooling performance may be affected or, in the worst case, the A/C compressor may seize.**



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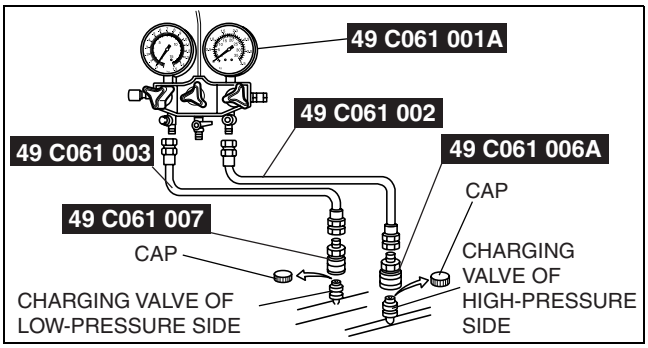
### REFRIGERANT SYSTEM GENERAL PROCEDURES

DPE071000000W04

1. Fully close the valves of the **SST** (49 C061 001A).
2. Connect the **SSTs** (49 C061 002, 49 C061 003) to the high- and low-pressure side joints of the **SST** (49 C061 001A).
3. Connect the **SSTs** (49 C061 006A, 49 C061 007) to the ends of the **SSTs** (49 C061 002, 49 C061 003).
4. Connect the **SSTs** (49 C061 006A, 49 C061 007) to the charging valves.



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### REFRIGERANT CHARGING

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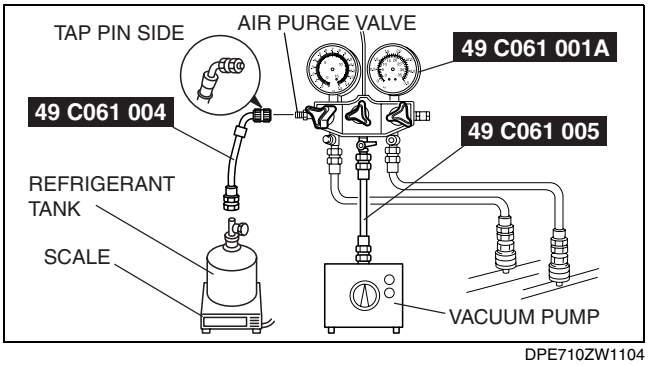
**Caution**
- **Do not exceed the specification when charging the system with refrigerant. Doing so will decrease the efficiency of the air conditioner or damage the refrigeration cycle parts.**

**Charging Recycled R-134a Refrigerant**
1. Connect an R-134a recovery/recycling/recharging device to the vehicle and follow the device manufacturer's instructions.

**Charging Preparation**
1. Install the **SSTs** (49 C061 0A0B).
2. Connect the tap pin side of the **SST** (49 C061 004) to the air purge valve of the **SST** (49 C061 001A).
3. Connect the **SST** (49 C061 005) to the center joint of the **SST** (49 C061 001A).
4. Connect the **SST** (49 C061 005) to the vacuum pump.
5. Connect the **SST** (49 C061 004) to the refrigerant tank.
6. Place the refrigerant tank on the scale.

**Regular amount of refrigerant (approx. quantity)**
**500 g {17.65 oz}**



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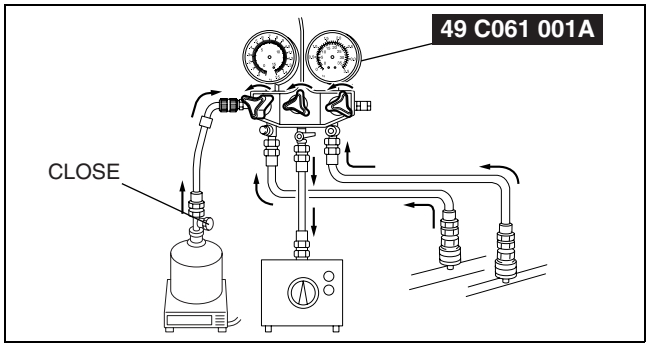
**Evacuation**
1. Open all the valves of the **SST** (49 C061 001A).

**Caution**
- **Close the SST (49 C061 001A) valve immediately after stopping the vacuum pump. If the valve is left open, the vacuum pump oil will flow back into the refrigeration cycle and cause a decrease in the efficiency of the air conditioner.**

2. Start the vacuum pump and let it operate for **15 min**.



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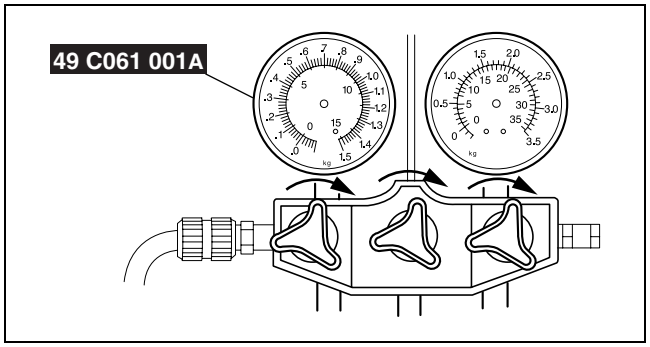
3. Verify that high- and low-pressure side readings of the **SST** (49 C061 001A) are at **–101 kPa {–760 mmHg, –29.9 inHg}**. Close each valve of the **SST** (49 C061 001A).



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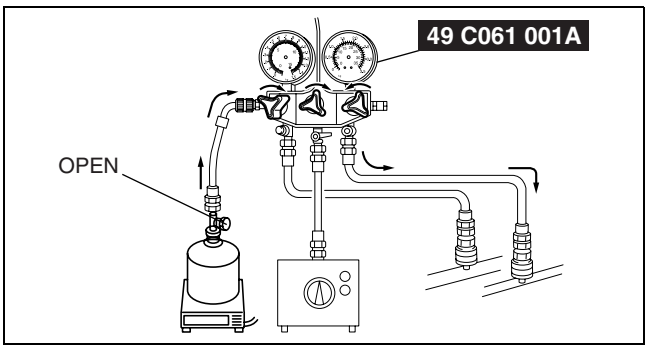
**Airtightness Check**
1. Stop the vacuum pump and wait for **5 min**.
2. Check the high- and low-pressure side readings of the **SST** (49 C061 001A).
   - If the reading has changed, inspect for leakage and go to Evacuation. (See 07–10–2 Evacuation.)
   - If the reading has not changed, go to Charging New R-134a Refrigerant. (See 07–10–3 Charging New R-134a Refrigerant.)

**Charging New R-134a Refrigerant**
1. Open the valve of the refrigerant tank.
2. Weigh the refrigerant tank to charge the suitable amount of refrigerant.

**Warning**
- **If the refrigerant system is charged with a large amount of refrigerant when inspecting for gas leakage, and if any leakage should occur, the refrigerant will be released into the atmosphere. In order to prevent the accidental release of refrigerant which can destroy the ozone layer in the stratosphere, follow the proper procedures and charge with only a small amount of refrigerant when inspecting for gas leakage.**
- **If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**

**Caution**
- **Always being charging of refrigerant from the high-pressure side. If changing is begun from the low-pressure side, the vanes of the A/C compressor will not be released and abnormal noise may result.**

3. Open the high-pressure side valve of the **SST** (49 C061 001A).



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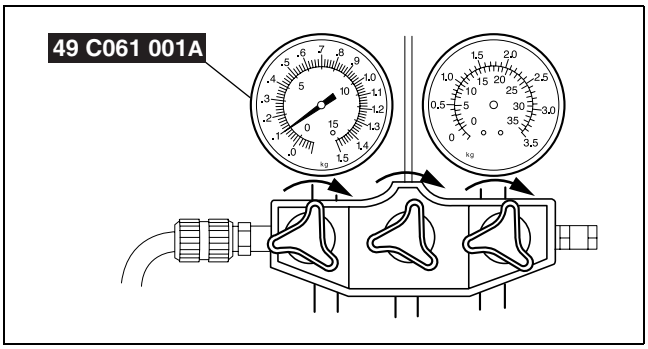
4. When the low-pressure side reading increases to **0.098 MPa {1.0 kgf/cm$^2$, 14 psi}**, close the high-pressure side valve of the **SST** (49 C061 001A).
5. Inspect for leakage from the cooler pipe/hose connections using the **SST** (49 C061 013).
   - If there is no leakage, go to Step 7.
   - If leakage is found at a loose joint, tighten the joint, then go to the next step.
6. Inspect for leakage again.
   - If there is no leakage after tightening the joint, go to the next step.
   - If there is still a leakage at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from evacuation.



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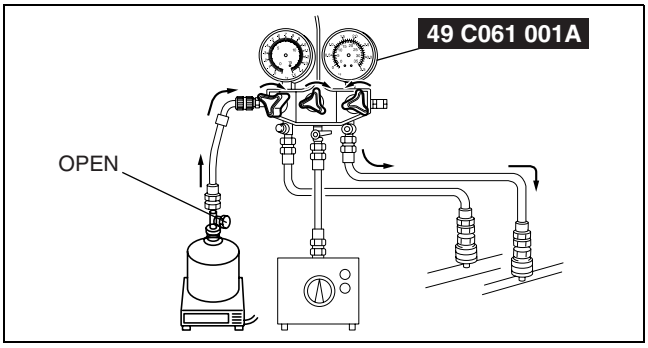
**Warning**
- **If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**

7. Open the high-pressure side valve of the **SST** (49 C061 001A) and charge with refrigerant until the weight of refrigerant tank has decreased **250 g {8.83 oz}** from the amount in Step 2.



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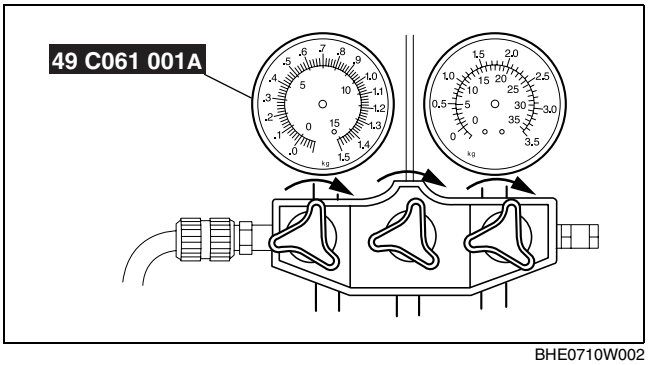
8. Close the low-pressure side valve of the **SST** (49 C061 001A).

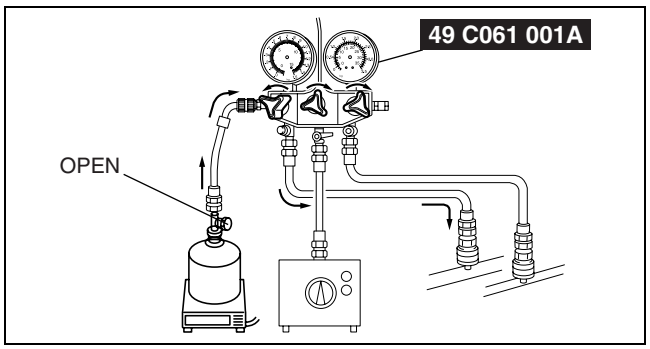
**Warning**
- **If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**



BHE0710W002

9. Start the engine and actuate the A/C compressor.

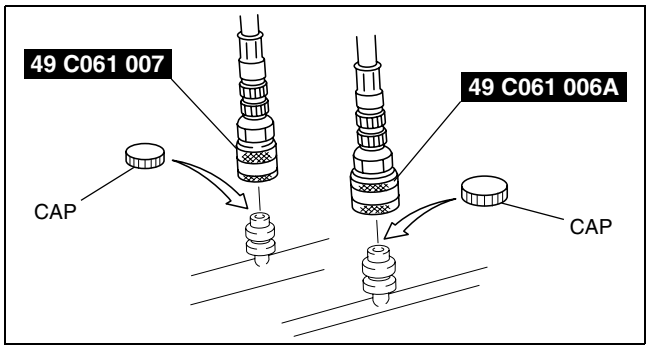
10. Open the low-pressure side valve of the **SST** (49 C061 001A) and charge with refrigerant until the weight of the refrigerant tank has decreased regular amount from the amount in Step 2.
11. Close the low-pressure side valve of the **SST** (49 C061 001A) and the valve of the refrigerant tank.
12. Stop the engine and A/C compressor.



DPE710ZW1107

**Leak Test**

1. Inspect for leakage using the **SST** (49 C061 013).
   - If there is no leakage, go to Step 3.
   - If leakage is found at a loose joint, tighten the joint, then go to the next step.
2. Inspect for leakage again.
   - If there is no leakage after tightening the joint, go to the next step.
   - If there is still leakage at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from evacuation.
3. Disconnect the **SSTs** (49 C061 006A, 49 C061 007) from the charging valves.
4. Install the caps to the charging valves.



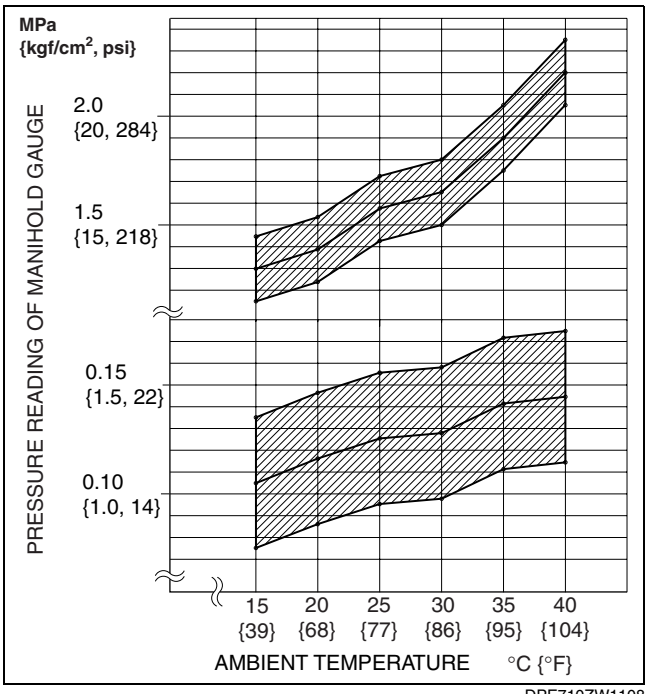
B3E0710W002

**REFRIGERANT PRESSURE CHECK**

DPE071078834W03

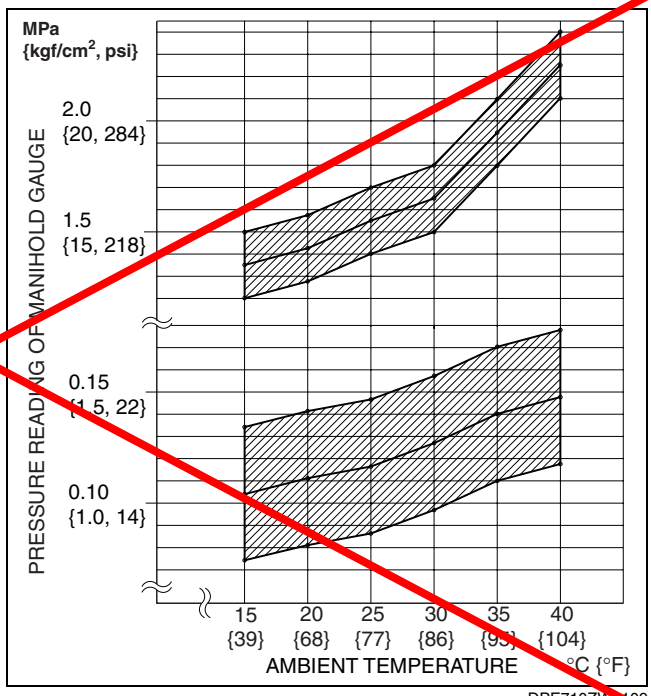
1. Install the **SSTs** (49 C061 0A0B). (See 07–10–2 REFRIGERANT SYSTEM GENERAL PROCEDURES.)
2. Start the engine and after it is warmed up, run it at a constant **1,500 rpm**.
3. Set the fan speed MAX HI.
4. Turn the A/C switch on.
5. Set to RECIRCULATE mode.
6. Set the temperature control to MAX COLD.
7. Set to VENT mode.
8. Close all the doors and all the windows.
9. Measure the ambient temperature and high- and low- pressure side reading of the **SST** (49 C061 001A).
10. Verify that the intersection of the pressure reading of the **SST** (49 C061 001A) and ambient temperature is in the shaded zone.
    - If there is any malfunction, inspect the refrigerant system according to the troubleshooting chart.

~~LF-T8~~




DPE710ZW1108

~~MZR-CD (RF Turbo)~~

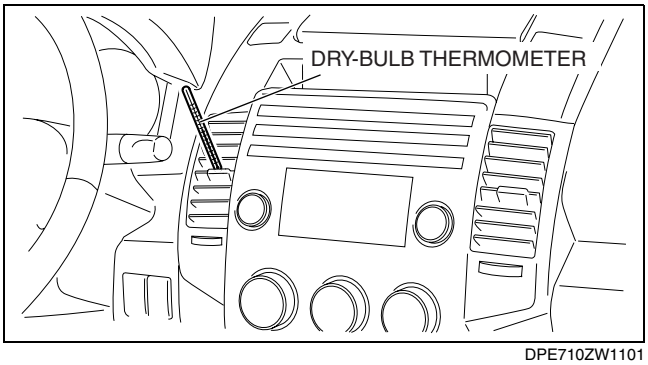



DPE710ZW1109

## REFRIGERANT SYSTEM PERFORMANCE TEST

DPE071078834W05

1. Inspect the refrigerant pressure. (See 07–10–5 REFRIGERANT PRESSURE CHECK.)
2. Place a dry-bulb thermometer in the driver-side center ventilator outlet.
3. Start the engine and after it is warmed up, run it at a constant **1,500 rpm**.
4. Set the fan speed to MAX HI.
5. Turn the A/C switch on.
6. Set to RECIRCULATE mode.
7. Set the temperature control to MAX COLD.
8. Set to VENT mode.
9. Close all the doors and windows.
10. Wait until the air conditioner output temperature stabilizes.



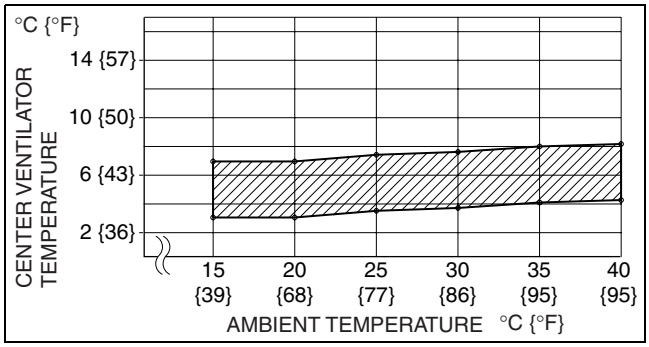

DPE710ZW1101

**Stabilized condition**

- The A/C compressor repeatedly turns on and off at regular intervals.

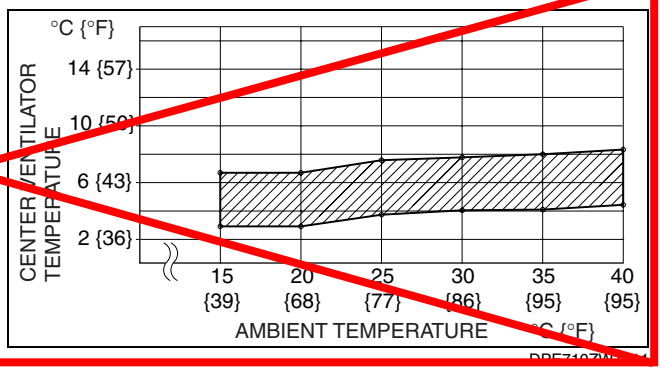
11. After the blower air is stabilized, read the dry-bulb thermometer.
12. Verify the ambient temperature.
13. Verify that the temperature reading is in the shaded zone.
    - If the there is any malfunction, inspect the refrigerant system according to the troubleshooting chart.

**LF-Z8**




DPE710ZW1110

**MZR-CD (RF Turbo)**




## REFRIGERANT RECOVERY

DPE071078834W04

1. Connect an R-134a recovery/recycling/recharging device to the vehicle and follow the device manufacturer's instructions.

# 07–11 BASIC SYSTEM

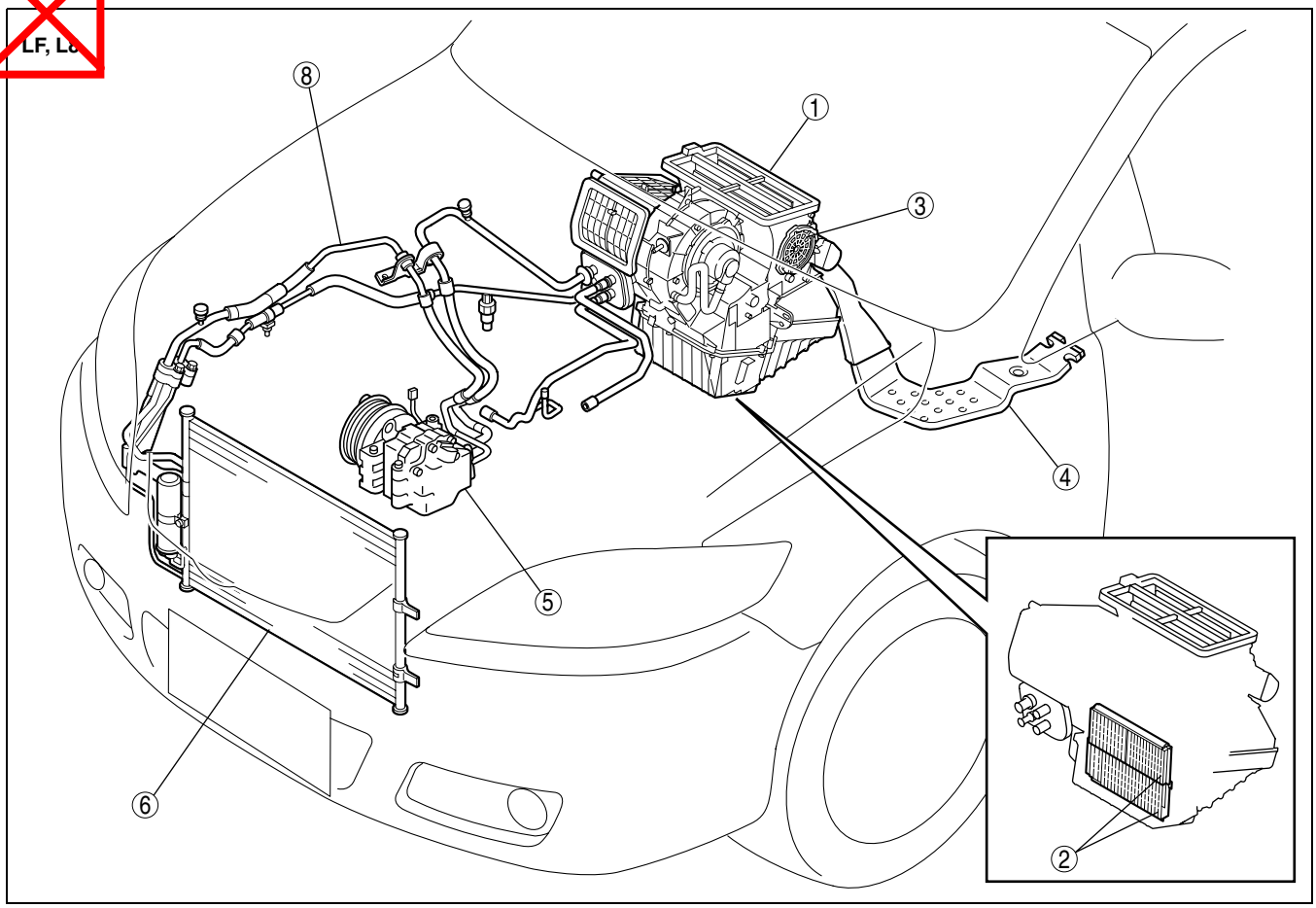


## HVAC BASIC SYSTEM LOCATION INDEX

L.H.D.

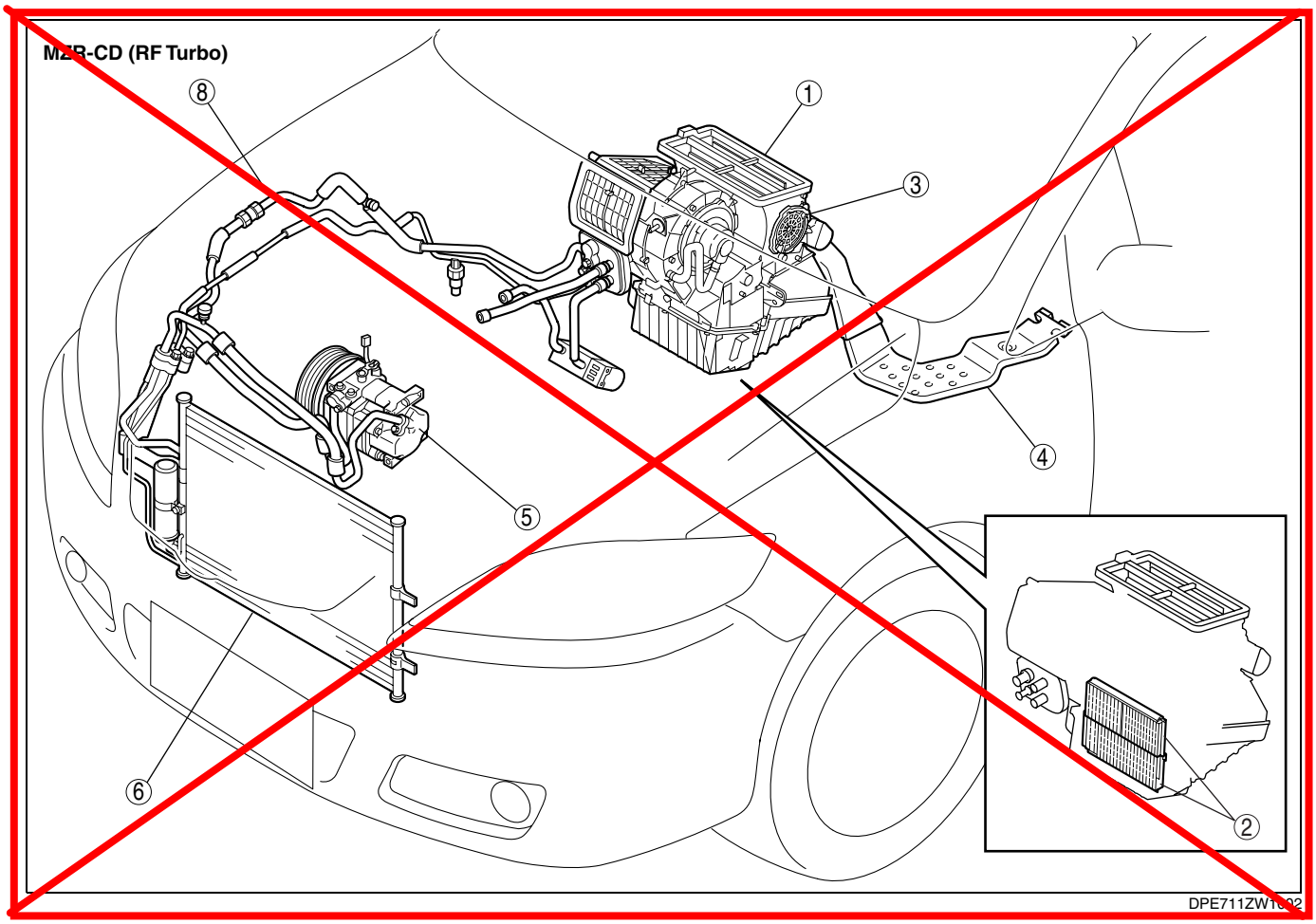
LF, L8

DPE071100000W01



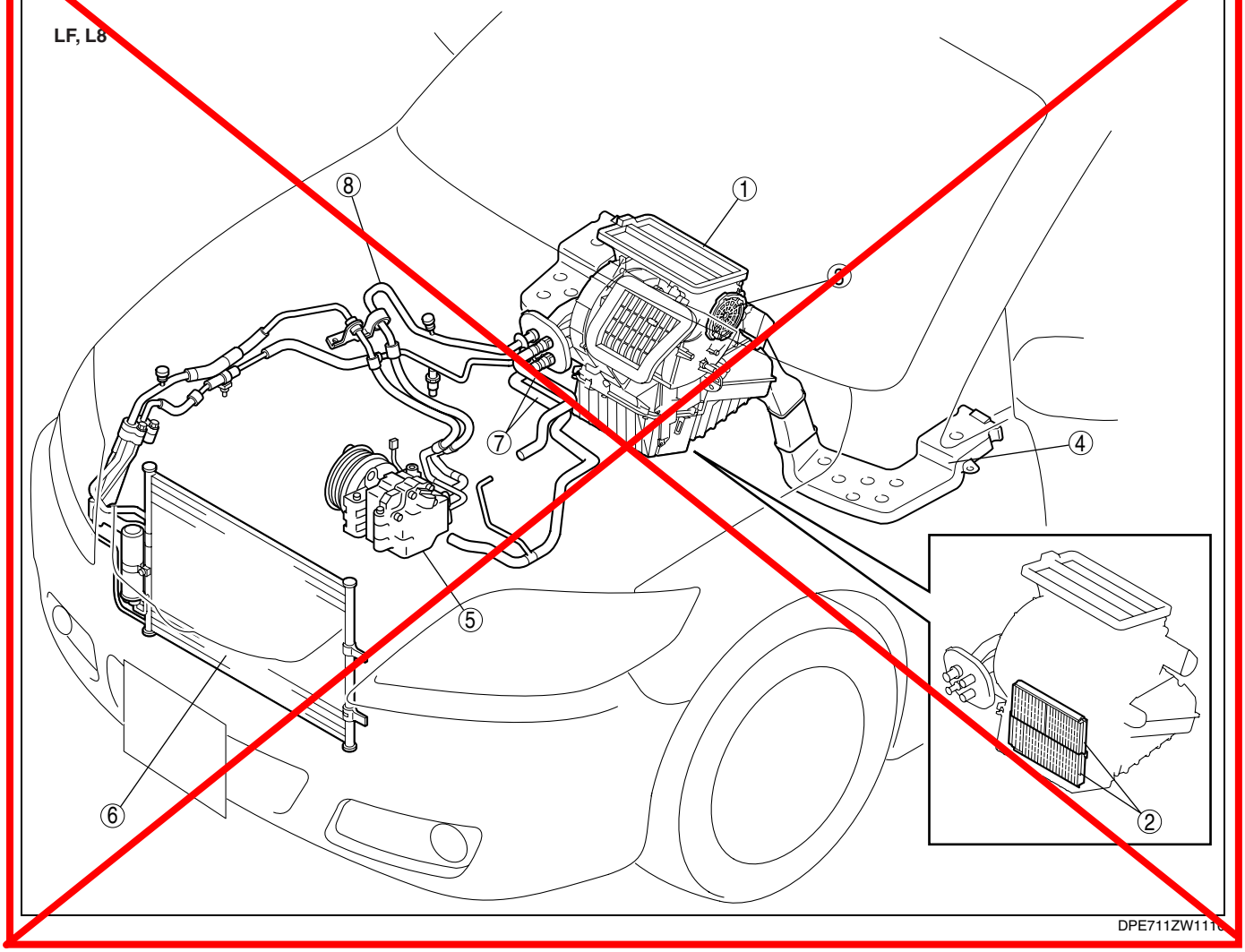

DPE711ZW1001

07

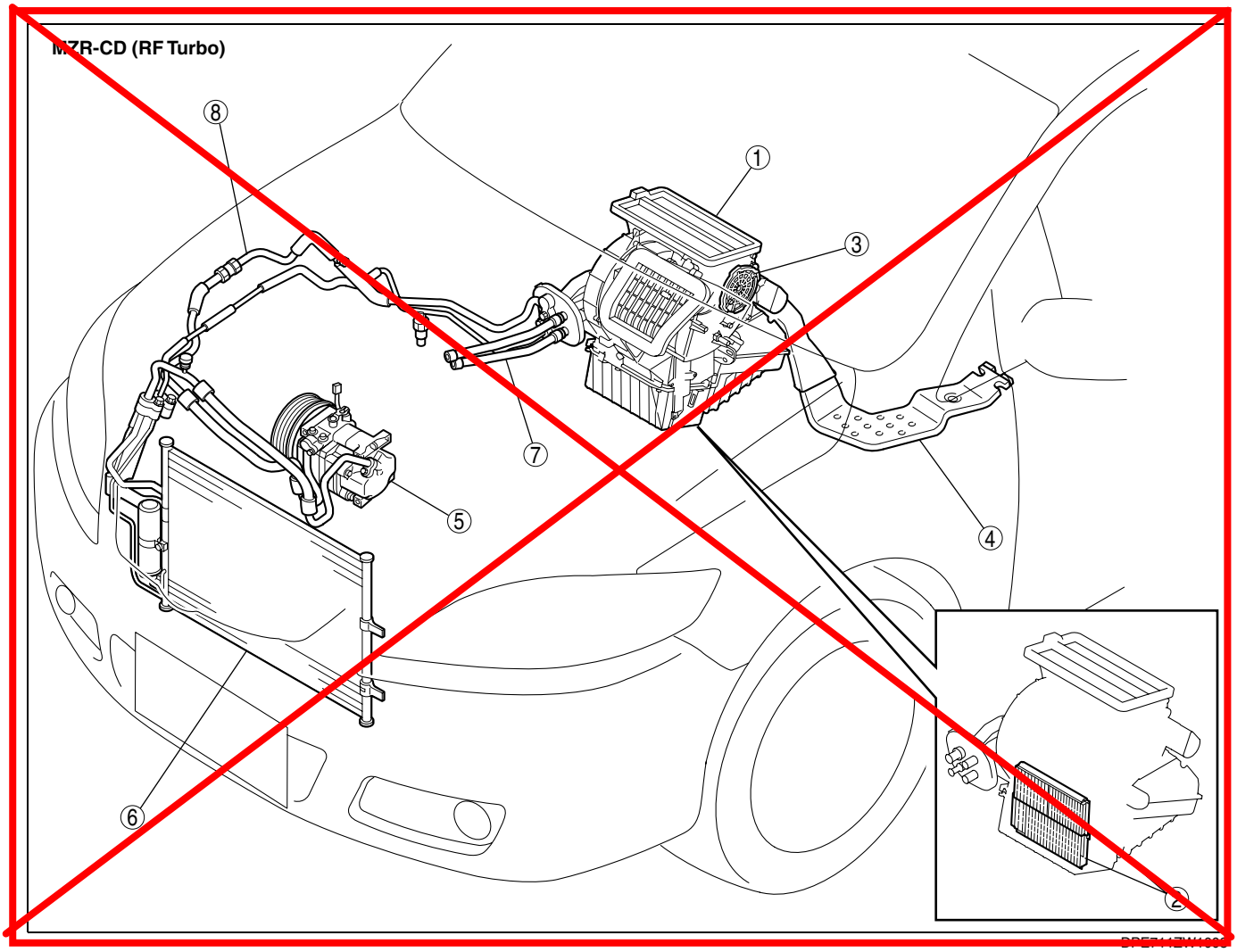

MZR-CD (RF Turbo)
8
1
3
4
5
6
2
DPE711ZW1002

R.H.D.

LF, L8




DPE711ZW111C




| | |
|---|---|
| 1 | A/C unit<br>(See 07–11–4 A/C UNIT REMOVAL/INSTALLATION.)<br>(See 07–11–7 A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (LF, L8)].)<br>(See 07–11–10 A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (MZR-CD (RF Turbo))].)<br>(See 07–11–14 A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (LF, L8)].)<br>(See 07–11–17 A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (MZR-CD (RF Turbo))].)<br>(See 07–11–21 EXPANSION VALVE REMOVAL/INSTALLATION.)<br>(See 07–11–22 EVAPORATOR INSPECTION.)<br>(See 07–11–22 HEATER CORE INSPECTION.) |
| 2 | Air filter<br>(See 07–11–20 AIR FILTER REMOVAL/INSTALLATION.)<br>(See 07–11–21 AIR FILTER INSPECTION.) |
| 3 | Airflow mode main link<br>(See 07–11–23 AIRFLOW MODE MAIN LINK REMOVAL/INSTALLATION.) |
| 4 | Rear heat duct<br>(See 07–11–24 REAR HEAT DUCT REMOVAL/INSTALLATION.) |
| 5 | A/C compressor<br>(See 07–11–25 A/C COMPRESSOR REMOVAL/INSTALLATION [LF, L8].)<br>(See 07–11–27 A/C COMPRESSOR REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].) |
| 6 | Condenser<br>(See 07–11–27 CONDENSER REMOVAL/INSTALLATION.)<br>(See 07–11–28 CONDENSER INSPECTION.) |
| 7 | Heater hose |
| 8 | Refrigerant line<br>(See 07–11–29 REFRIGERANT LINES REMOVAL/INSTALLATION [LF, L8].)<br>(See 07–11–32 REFRIGERANT LINES REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].) |

## A/C UNIT REMOVAL/INSTALLATION

DPE071161132W01

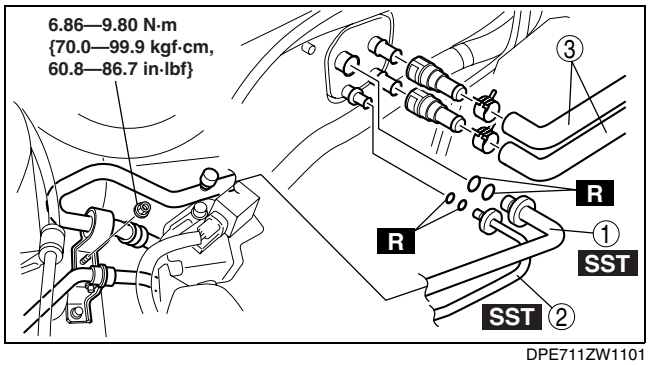
1. Disconnect the negative battery cable.

2. Discharge the refrigerant. (See 07–10–2 REFRIGERANT CHARGING.)
3. Drain the engine coolant. (See 01–12A–3 ENGINE COOLANT REPLACEMENT [L8, LF].) (See 01–12B–3 ENGINE COOLANT REPLACEMENT [MZR-CD (RF Turbo)].)
4. Disconnect from the A/C unit in the order indicated in the table.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

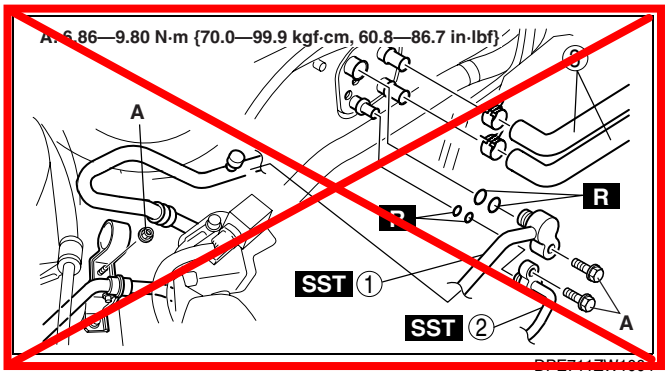
**LF, L8**




DPE711ZW1101

**MZR-CD (RF Turbo)**

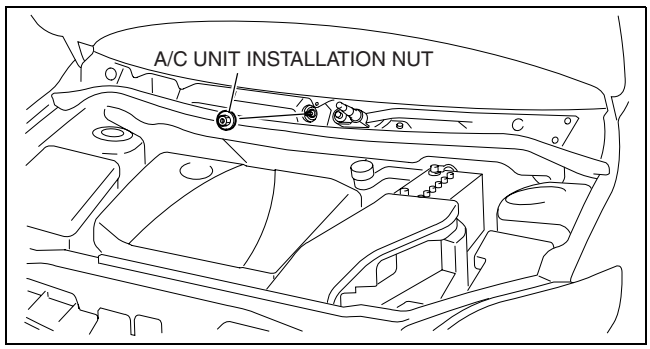
| | |
|---|---|
| 1 | Cooler hose (LO) (LF, L8), cooler pipe No.2 (MZR-CD (RF Turbo)) (See 07–11–30 Refrigerant Line Removal Note.) (See 07–11–31 Refrigerant Line Installation Note.) |
| 2 | Cooler pipe No.1 (See 07–11–30 Refrigerant Line Removal Note.) (See 07–11–31 Refrigerant Line Installation Note.) |
| 3 | Heater hose |




5. Remove the following parts:
   (1) Front doors (See 09–11–2 FRONT DOOR REMOVAL/INSTALLATION.)
   (2) Front scuff plate inner (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (3) Front side trim (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (4) Side panel (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (5) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (6) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (7) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (8) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (9) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   (10) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
   (11) Center panel module (vehicles with audio unit) (See 09–20–6 CENTER PANEL MODULE REMOVAL/INSTALLATION.)
   (12) Center panel (vehicles without audio unit) (See 09–17–15 CENTER PANEL REMOVAL/INSTALLATION.)
   (13) Driver-side air bag module (See 08–10–5 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION.)
   (14) Meter hood (See 09–17–7 METER HOOD REMOVAL/INSTALLATION.)
   (15) Lower column cover (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)
   (16) Instrument cluster (See 09–22–1 INSTRUMENT CLUSTER REMOVAL/INSTALLATION.)
   (17) Steering shaft (See 06-14–7 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)
   (18) A-pillar trim (See 09–17–15 A-PILLAR TRIM REMOVAL/INSTALLATION.)
   (19) Air mix wire (Manual air conditioner)
   (20) Airflow mode wire (Manual air conditioner)
   (21) Climate control unit (See 07–40–35 CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].) (See 07–40–36 CLIMATE CONTROL UNIT REMOVAL [MANUAL AIR CONDITIONER].) (See 07–40–37 CLIMATE CONTROL UNIT INSTALLATION [MANUAL AIR CONDITIONER].)
   (22) Windshield wiper arm and blade (See 09–19–3 WINDSHIELD WIPER ARM AND BLADE REMOVAL/

INSTALLATION.)
(23)Cowl grille (See 09–16–2 COWL GRILLE REMOVAL/INSTALLATION.)
(24)Cowl panel (See 09–10–11 COWL PANEL REMOVAL/INSTALLATION.)
(25)Engine cover (MZR-CD (RF Turbo)

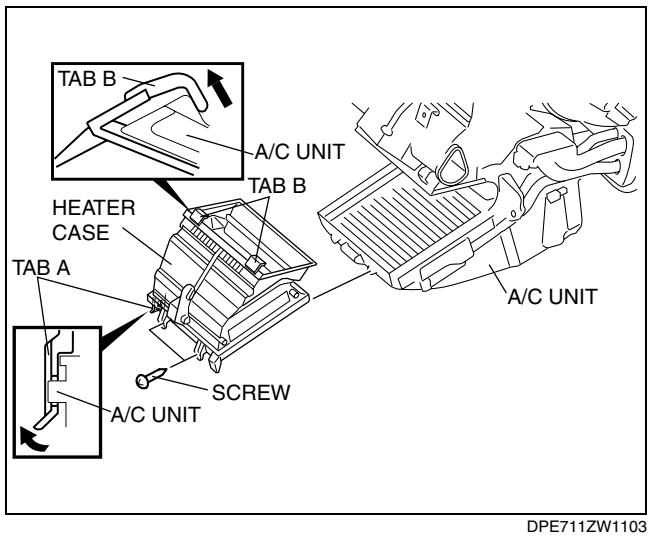
6. Remove the A/C unit installation nut from the engine compartment, then remove the A/C unit. (See 07–11–6 A/C Unit Installation Nut Removal Note.)
7. Remove the rear heat duct (1). (See 07–11–24 REAR HEAT DUCT REMOVAL/INSTALLATION.)
8. Disconnect the drain hose connected to the A/C unit.
9. Remove the dashboard with A/C unit. (See 09–17–4 DASHBOARD REMOVAL/INSTALLATION.)



DPE711ZW1102

**Caution**
- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

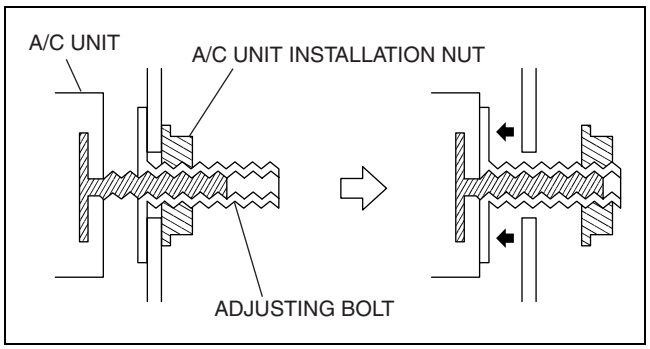
10. Disconnect the following connectors:
    — Blower motor connector
    — Power MOS FET connector (Full-auto air conditioner)
    — Evaporator temperature sensor connector
    — Air intake actuator connector
    — Air mix actuator connector (Full-auto air conditioner)
    — Airflow mode actuator connector (Full-auto air conditioner)
    — Resistor connector. (Manual air conditioner)
11. Remove the heater case.
    1. Remove the screws.
    2. Pull up tab A in the direction shown by the arrow in the figure and remove it from the A/C unit.
    3. Pull up tabs B in the direction shown by the arrow in the figure and remove it from the A/C unit.
12. Remove the front heat ducts.
13. Remove the nuts and bolts for installing the A/C unit to the dashboard.
14. Remove the A/C unit.



DPE711ZW1103

**A/C Unit Installation Nut Removal Note**

**Note**
- If the adjusting bolt rotates when removing the A/C unit nut, keep rotating the nut. The adjusting bolt stops rotating when it contacts the A/C unit and the nut can be removed.



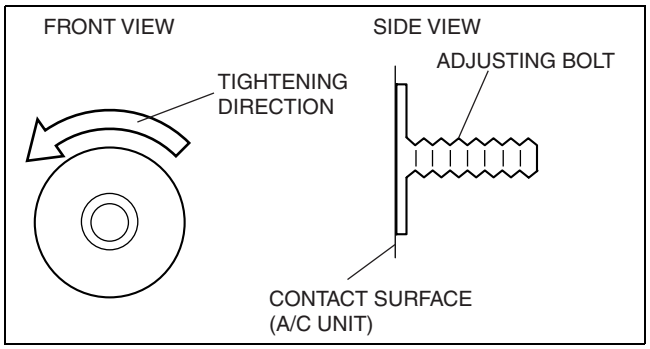
DPE711ZW1104

**A/C Unit Installation Note**

1. When replacing the A/C unit or evaporator, add compressor oil to the refrigerant cycle.

   **Supplemental oil amount (approx. quantity)**
   **25 ml {25 cc, 0.8 fl oz}**

2. Tighten the A/C unit adjusting bolt until it lightly touches the A/C unit.



DPE711ZW1105

**A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (LF, L8)]**

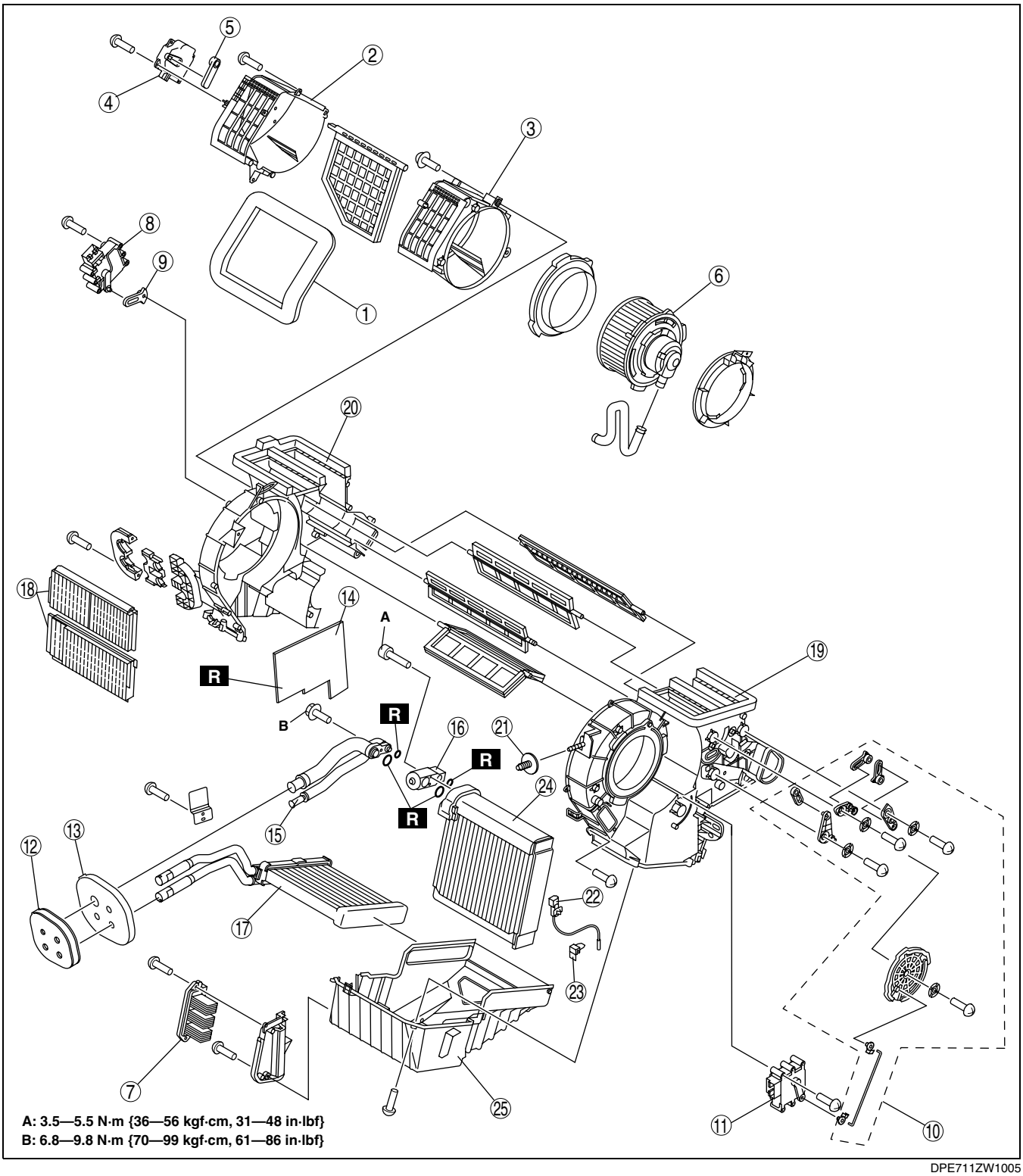
DPE071161132W03

1. Disassemble in the order indicated in the table.

   **Caution**
   - **If a non-specified grease is used, it may result in abnormal noise or improper operation of the links. Apply only the specified grease to each link.**

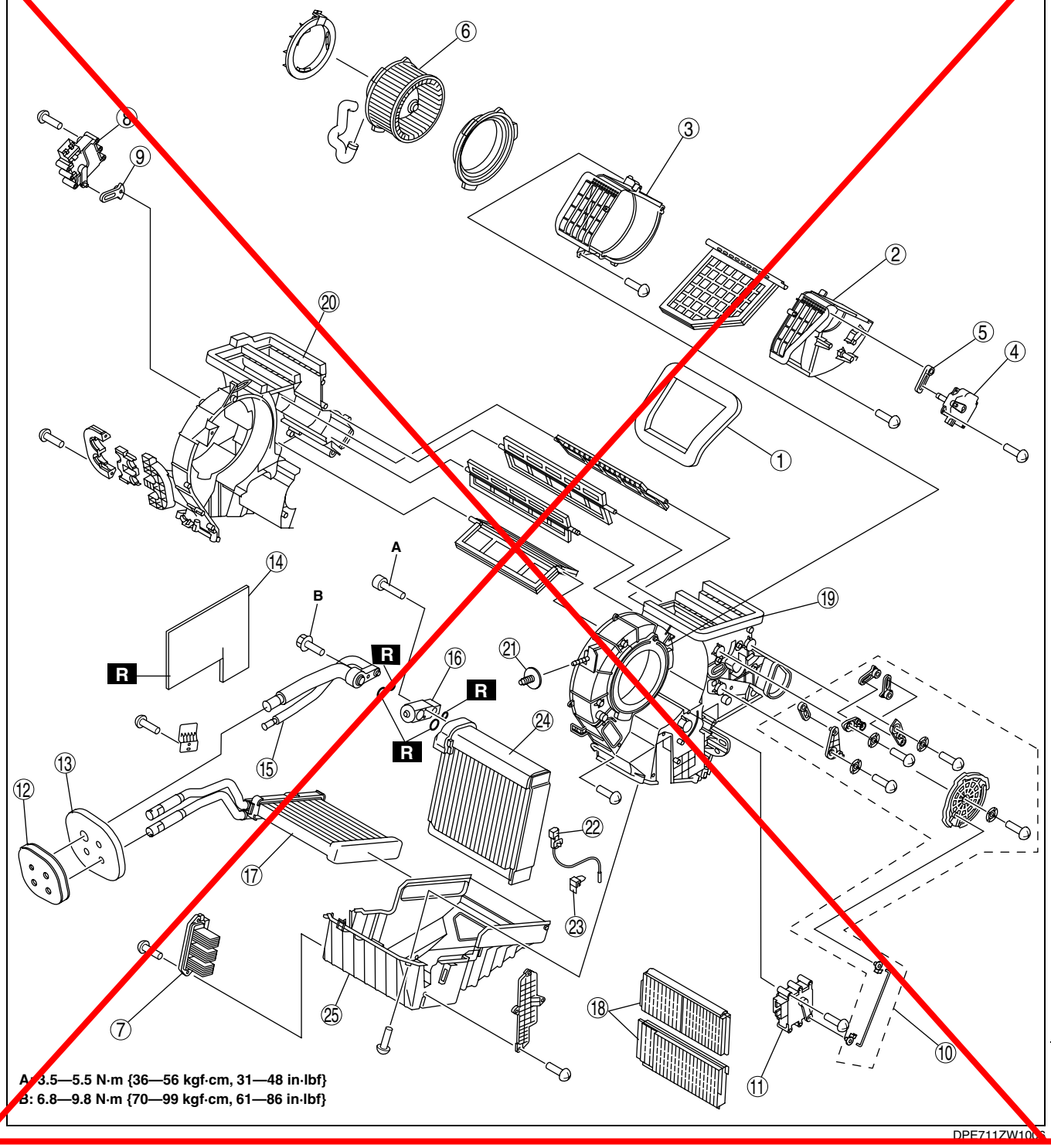
2. Assemble in the reverse order of disassembly.

~~L.H.D.~~




DPE711ZW1005

R.H.D.



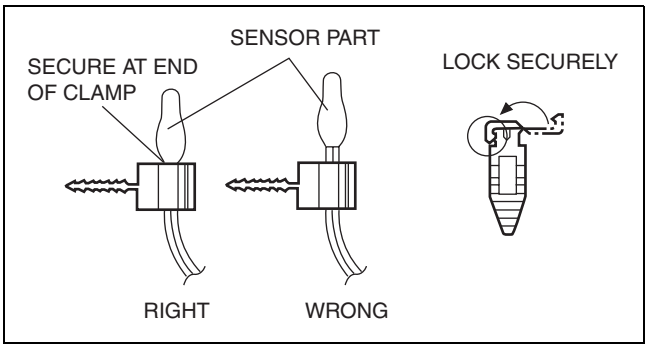

| | |
|---|---|
| 1 | Adhesive polyurethane (1) |
| 2 | Blower case (1) |
| 3 | Blower case (2) |
| 4 | Air intake actuator |
| 5 | Air intake link set |
| 6 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.) |
| 7 | Power MOS FET |
| 8 | Air mix actuator |

| | |
|---|---|
| 9 | Air mix link set |
| 10 | Airflow mode link set |
| 11 | Airflow mode actuator |
| 12 | Polyurethane foam |
| 13 | Adhesive polyurethane (2) |
| 14 | Adhesive polyurethane (3)<br>(~~See 07–11–13~~ Adhesive Polyurethane Assembly Note.) |
| 15 | Evaporator pipe |
| 16 | Expansion valve |
| 17 | Heater core |

| | |
|---|---|
| 18 | Air filter |
| 19 | A/C case (1) |
| 20 | A/C case (2) |
| 21 | Adjusting bolt<br>(See 07–11–7 A/C Unit Installation Note.) |
| 22 | Evaporator temperature sensor<br>(See 07–11–10 Evaporator Temperature Sensor Assembly Note.) |
| 23 | Sensor clamp<br>(See 07–11–10 Sensor Clamp Assembly Note.) |
| 24 | Evaporator |
| 25 | A/C case (3) |

**Sensor Clamp Assembly Note**

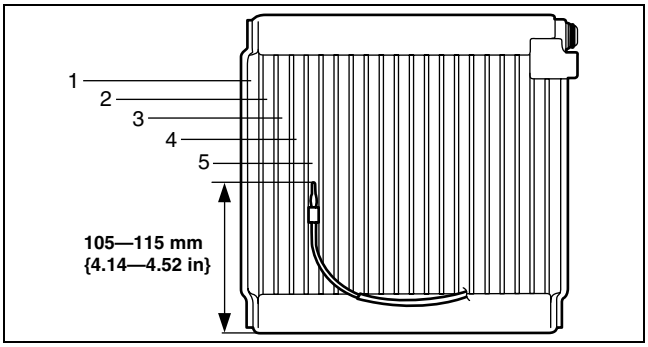
1. Attach the sensor clamp as shown in the figure.




B3E0711W010

**Evaporator Temperature Sensor Assembly Note**

1. Assemble the evaporator temperature sensor as shown in the figure.




B3E0711W009

**A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (MZR-CD (RF TURBO))]**

DPE071161132W04

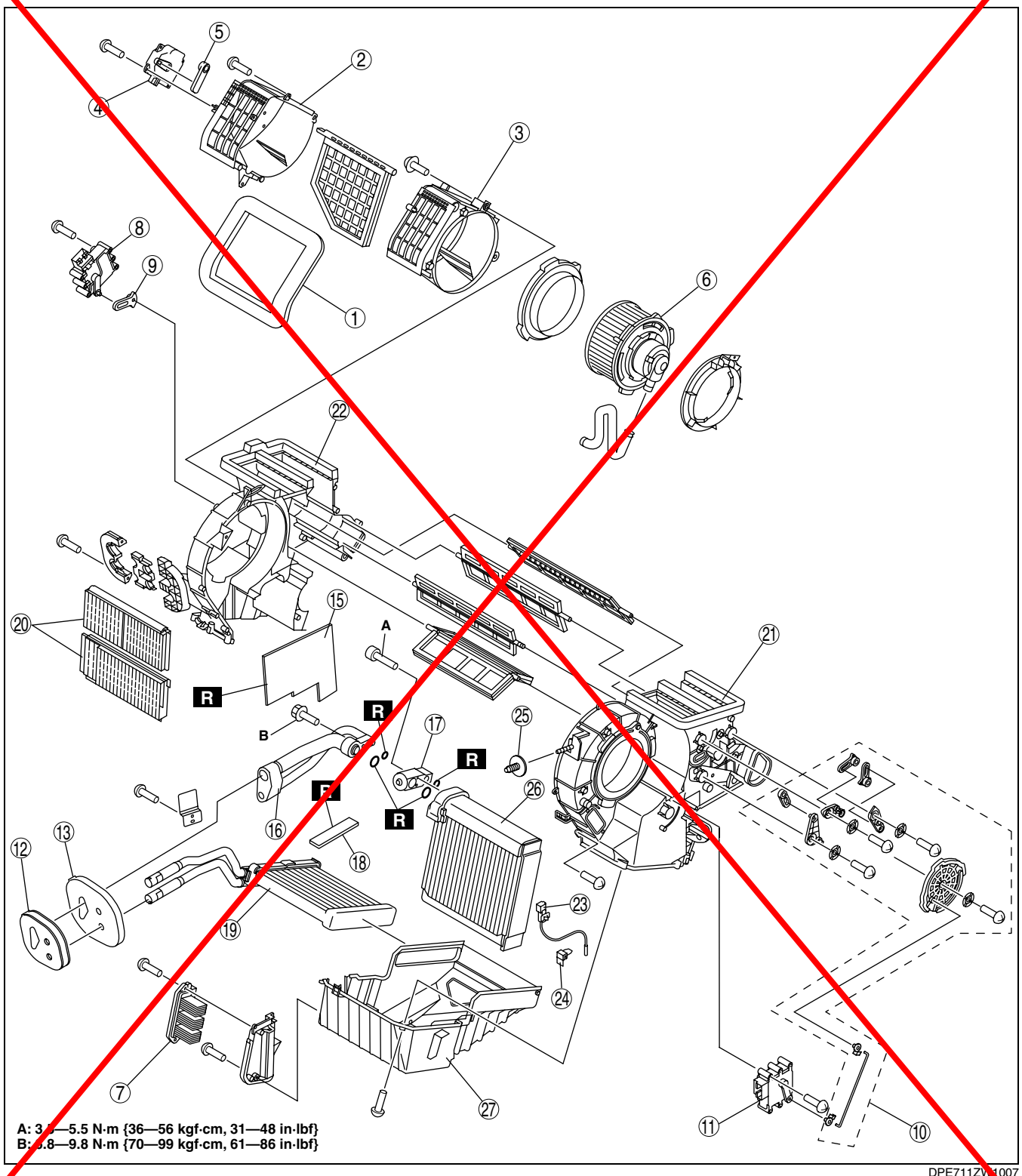
1. Disassemble in the order indicated in the table.

**Caution**

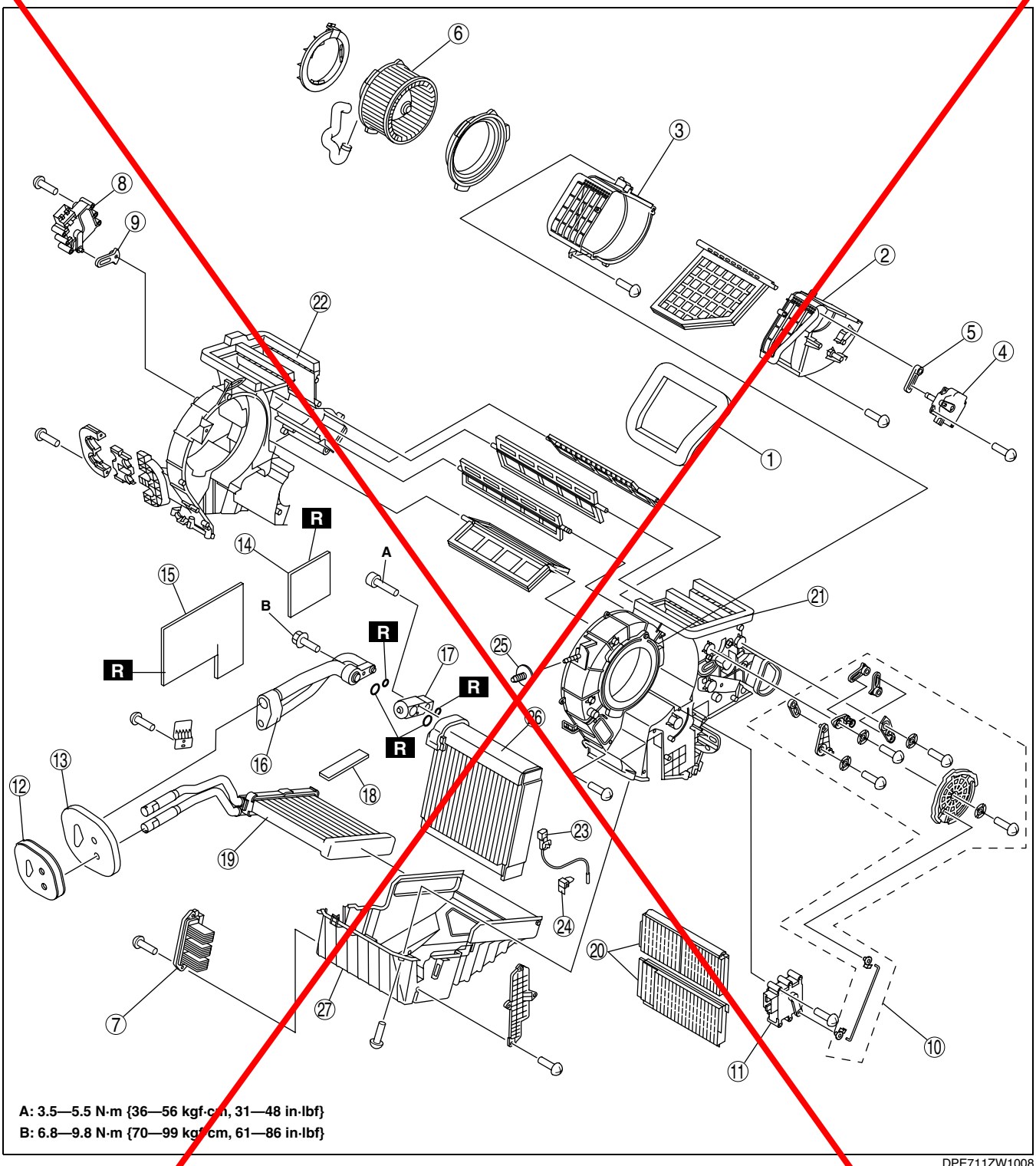
- **If a non-specified grease is used, it may result in abnormal noise or improper operation of the links. Apply only the specified grease to each link.**

2. Assemble in the reverse order of disassembly.

L.H.D.


A: 3.0—5.5 N·m {36—56 kgf·cm, 31—48 in·lbf}
B: 6.8—9.8 N·m {70—99 kgf·cm, 61—86 in·lbf}
DPE711ZW1007

R.H.D.




DPE711ZW1008

| | |
|---|---|
| 1 | Adhesive polyurethane (1) |
| 2 | Blower case (1) |
| 3 | Blower case (2) |
| 4 | Air intake actuator |
| 5 | Air intake link set |
| 6 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.) |
| 7 | Power MOS FET |

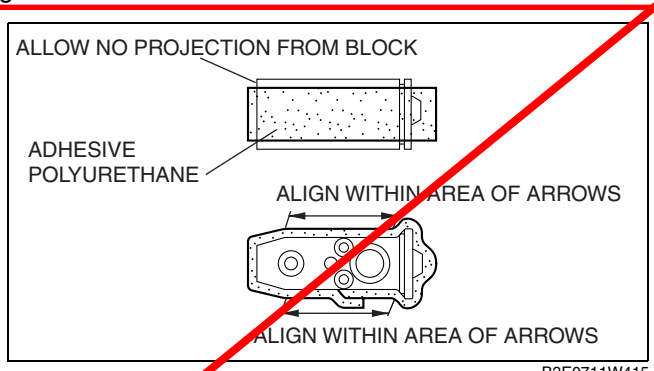
| | |
|---|---|
| 8 | Air mix actuator |
| 9 | Air mix link set |
| 10 | Airflow mode link set |
| 11 | Airflow mode actuator |
| 12 | Polyurethane foam |
| 13 | Adhesive polyurethane (2) |
| 14 | Adhesive polyurethane (4) (R.H.D.)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |

| | |
|---|---|
| 15 | Adhesive polyurethane (3)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 16 | Evaporator pipe |
| 17 | Expansion valve |
| 18 | Adhesive polyurethane (5)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 19 | Heater core |
| 20 | Air filter |
| 21 | A/C case (1) |
| 22 | A/C case (2) |
| 23 | Evaporator temperature sensor<br>(See 07–11–10 Evaporator Temperature Sensor Assembly Note.) |
| 24 | Sensor clamp<br>(See 07–11–10 Sensor Clamp Assembly Note.) |
| 25 | Adjusting bolt<br>(See 07–11–7 A/C Unit Installation Note.) |
| 26 | Evaporator |
| 27 | A/C case (3) |

**Adhesive Polyurethane Assembly Note**

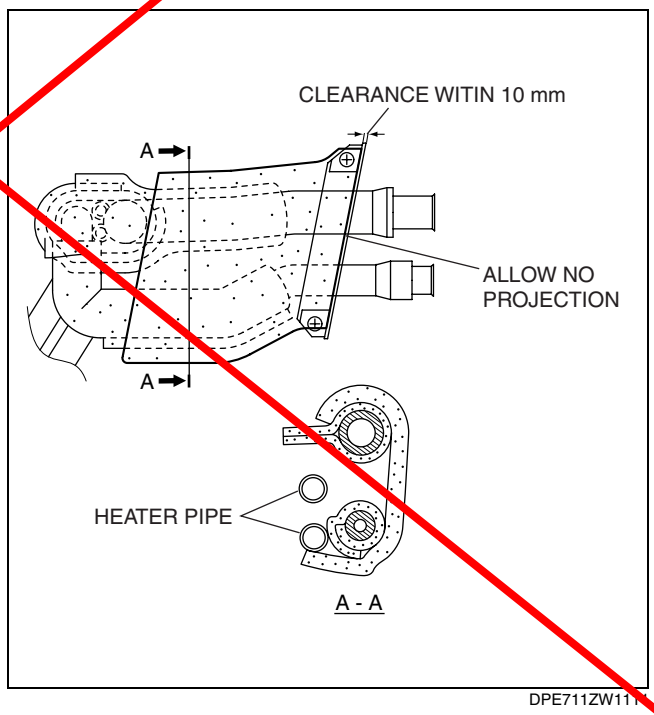
1. Assemble the adhesive polyurethane as shown in the figure.

**Adhesive polyurethane (5)**




B3E0711W415

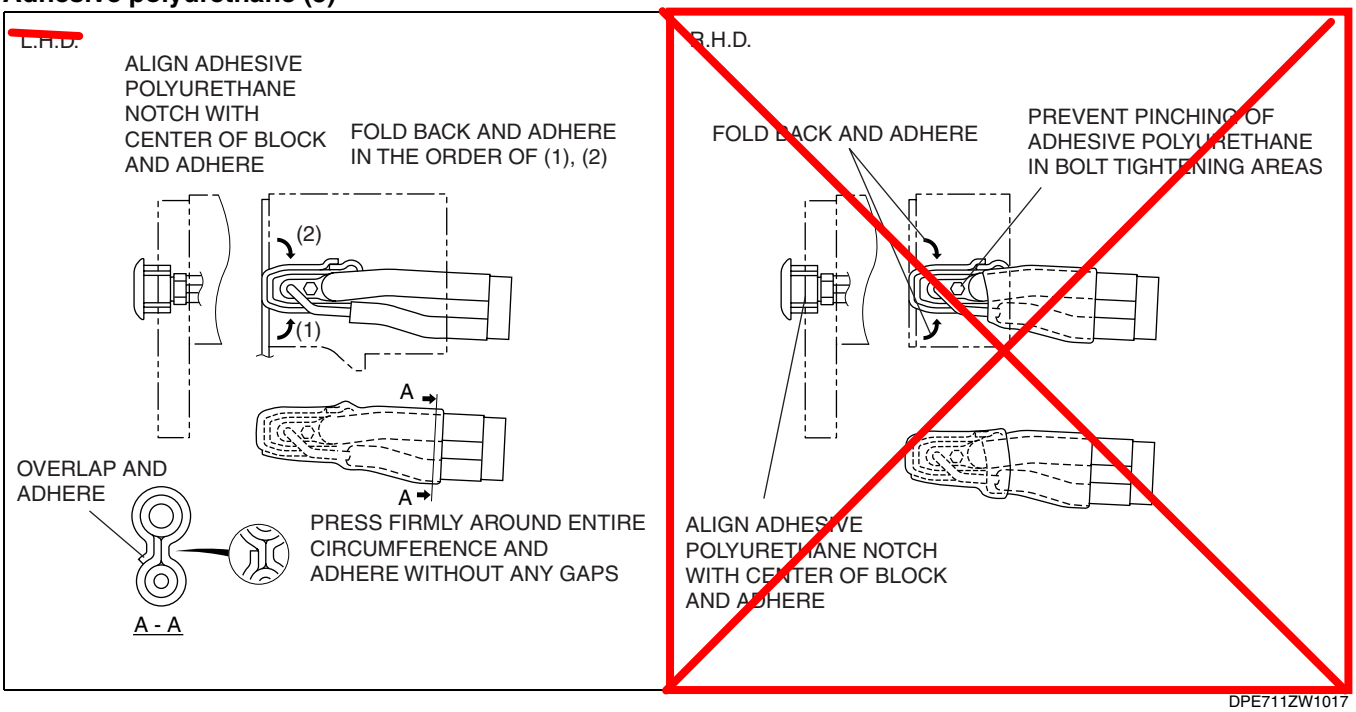
**Adhesive polyurethane (4)**




DPE711ZW111

07

**Adhesive polyurethane (3)**




DPE711ZW1017

**A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (LF, L8)]**

DPE071161132W05

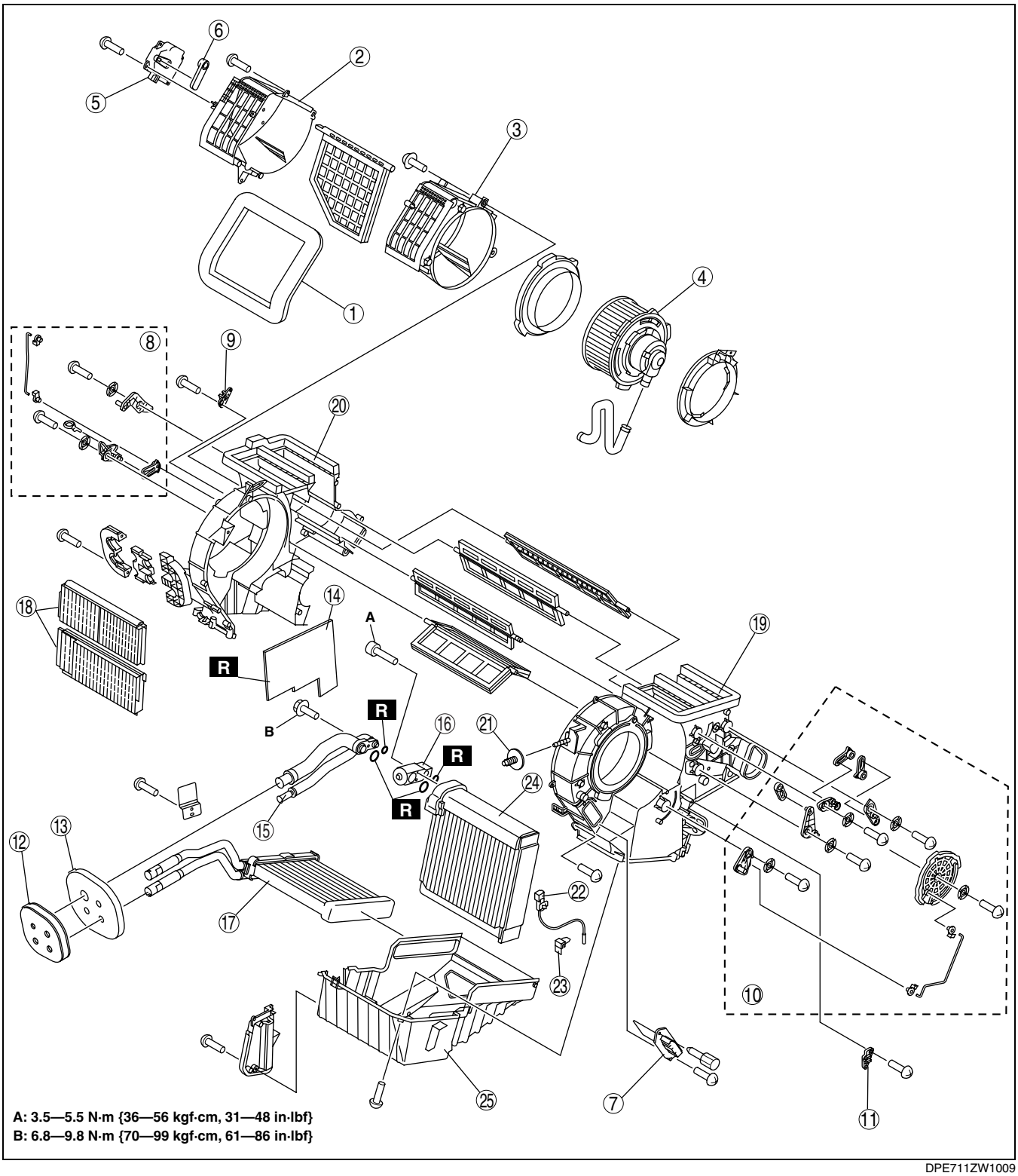
1. Disassemble in the order indicated in the table.

**Caution**

- **If a non-specified grease is used, it may result in abnormal noise or improper operation of the links. Apply only the specified grease to each link.**

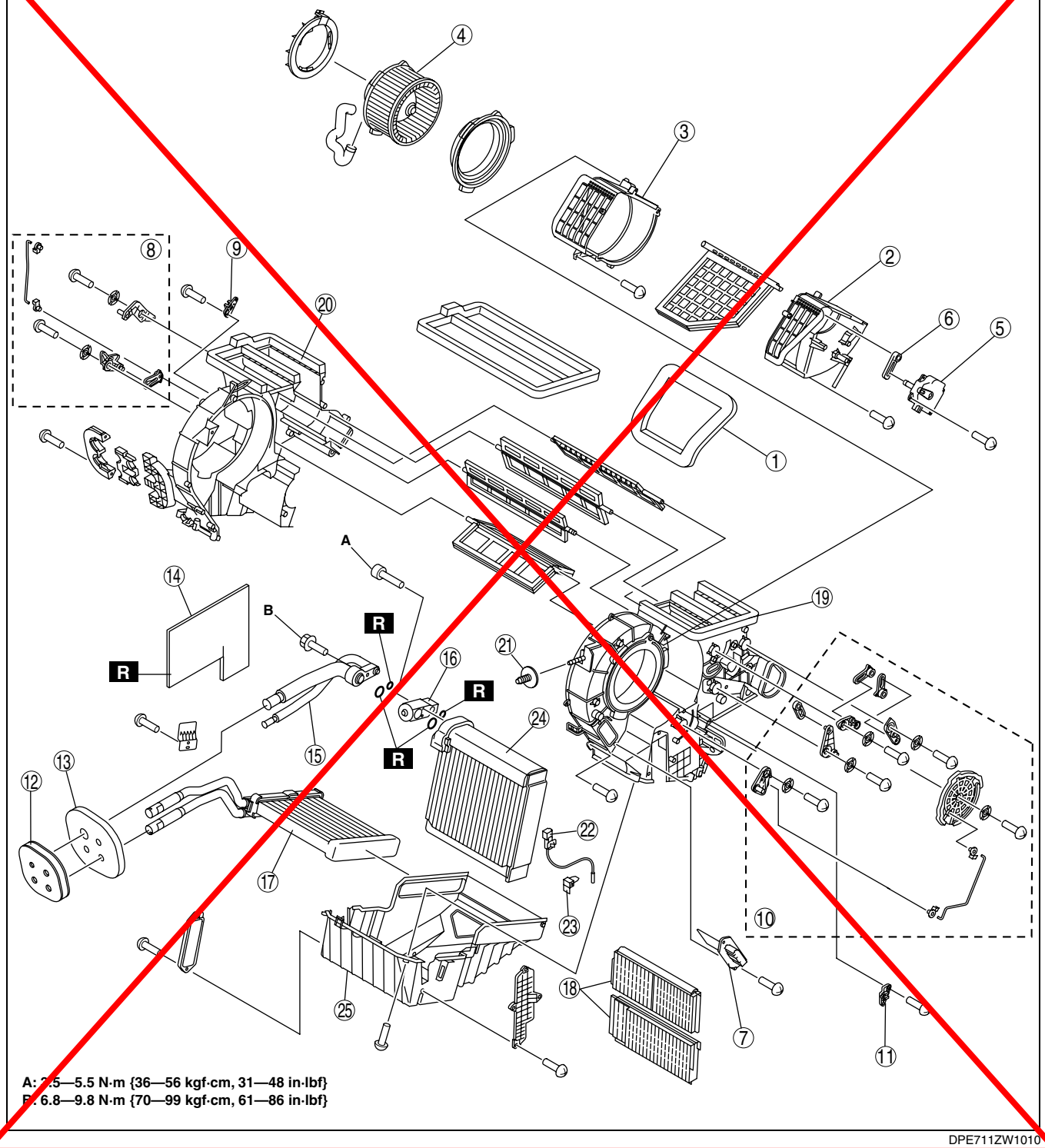
2. Assemble in the reverse order of disassembly.

~~L.H.D.~~




DPE711ZW1009

R.H.D.




| | |
|---|---|
| 1 | Adhesive polyurethane (1) |
| 2 | Blower case (1) |
| 3 | Blower case (2) |
| 4 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.) |
| 5 | Air intake actuator |
| 6 | Air intake link set |
| 7 | Resistor |
| 8 | Air mix link set |

| | |
|---|---|
| 9 | Wire clamp |
| 10 | Airflow mode link set |
| 11 | Wire clamp |
| 12 | Polyurethane foam |
| 13 | Adhesive polyurethane (2) |
| 14 | Adhesive polyurethane (3)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 15 | Evaporator pipe |
| 16 | Expansion valve |

| | |
|---|---|
| 17 | Heater core |
| 18 | Air filter |
| 19 | A/C case (1) |
| 20 | A/C case (2) |
| 21 | Adjusting bolt<br>(See 07–11–7 A/C Unit Installation Note.) |
| 22 | Evaporator temperature sensor<br>(See 07–11–10 Evaporator Temperature Sensor Assembly Note.) |
| 23 | Sensor clamp<br>(See 07–11–10 Sensor Clamp Assembly Note.) |
| 24 | Evaporator |
| 25 | A/C case (3) |

**A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (MZR-CD (RF TURBO))]**

DPE071161132W05

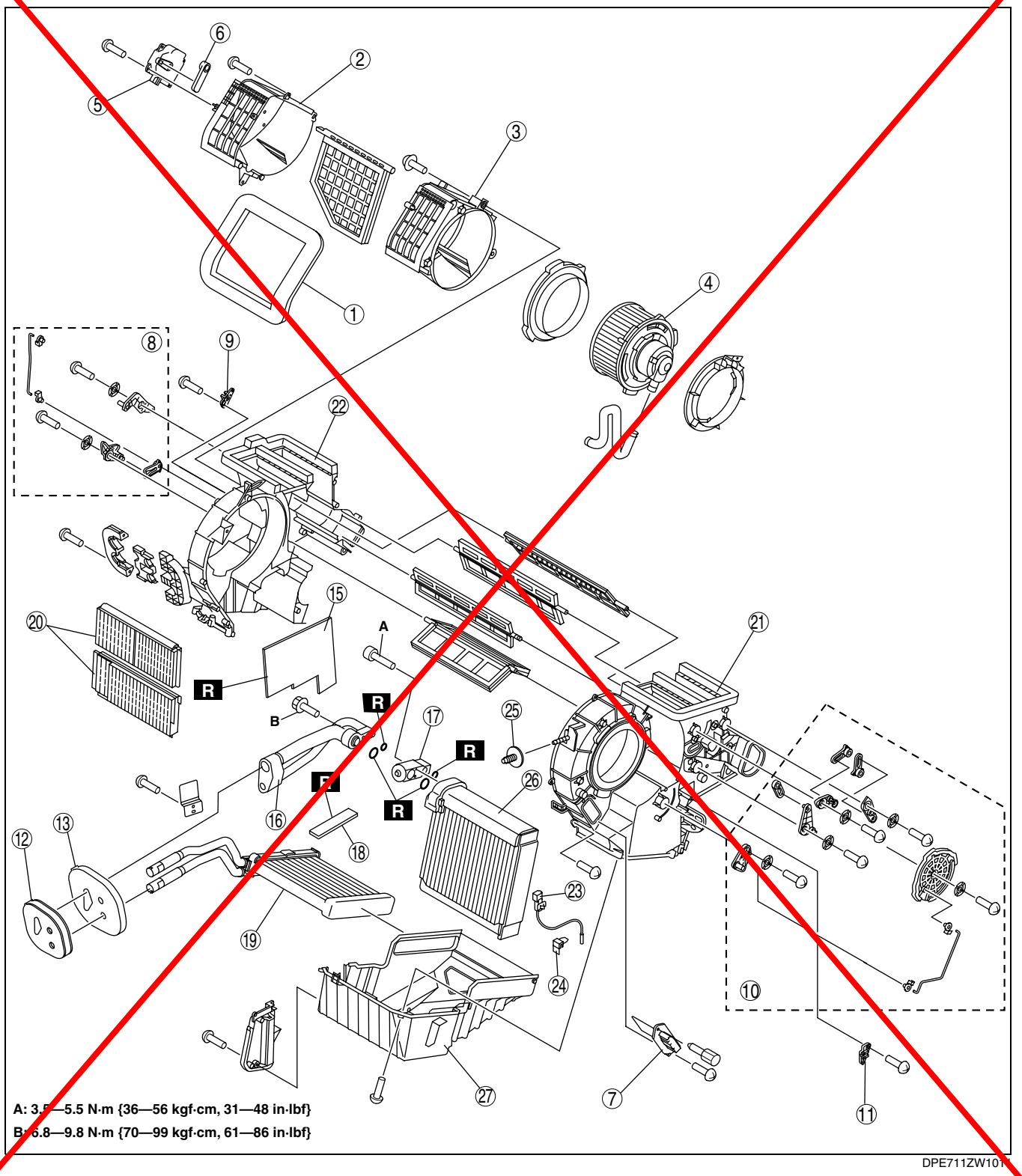
1. Disassemble in the order indicated in the table.

**Caution**

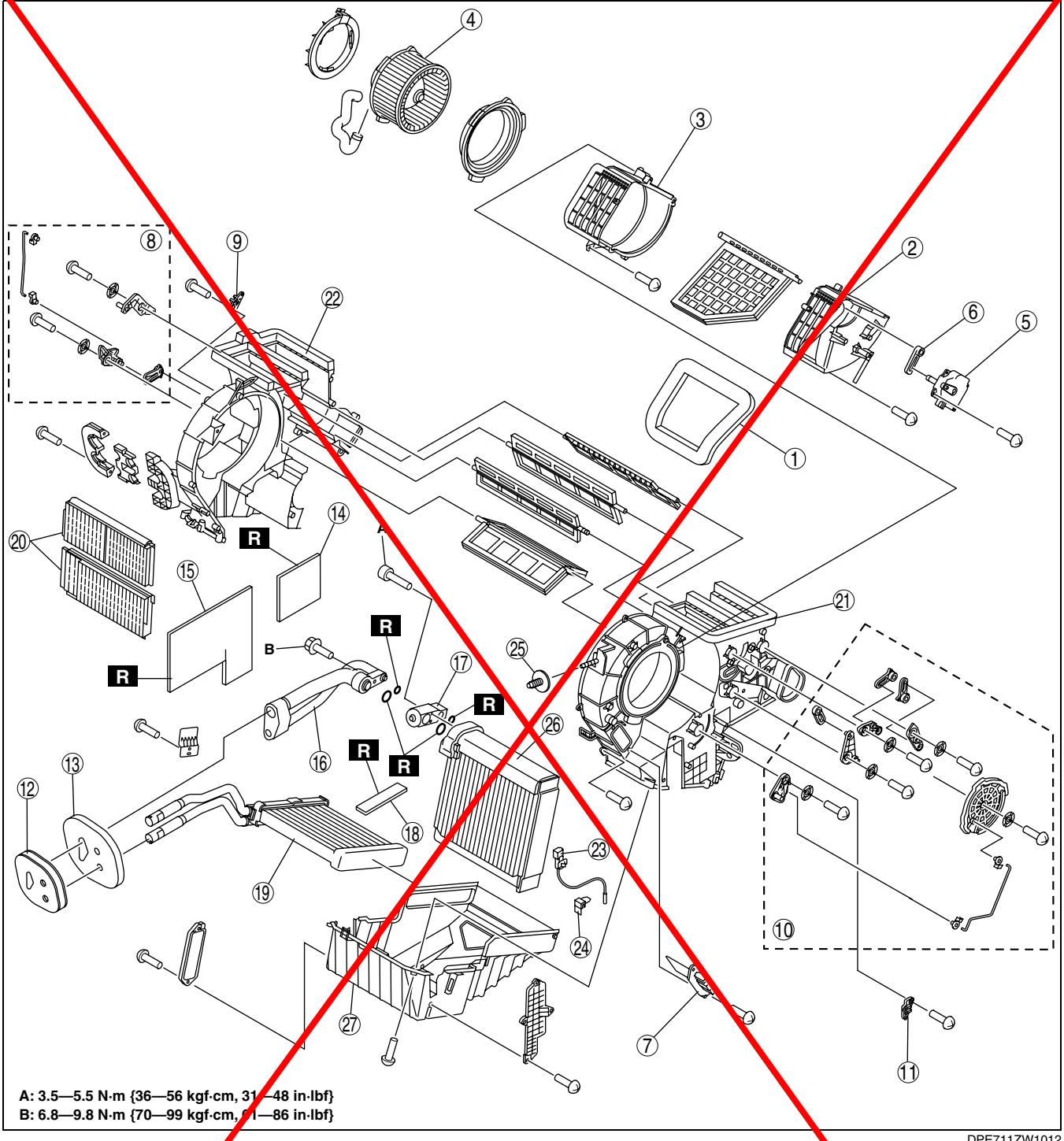
- **If a non-specified grease is used, it may result in abnormal noise or improper operation of the links. Apply only the specified grease to each link.**

2. Assemble in the reverse order of disassembly.

L.H.D.


A: 3.5—5.5 N·m {36—56 kgf·cm, 31—48 in·lbf}
B: 6.8—9.8 N·m {70—99 kgf·cm, 61—86 in·lbf}
DPE711ZW101

R.H.D.




DPE711ZW1012

| | |
|---|---|
| 1 | Adhesive polyurethane (1) |
| 2 | Blower case (1) |
| 3 | Blower case (2) |
| 4 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.) |
| 5 | Air intake actuator |
| 6 | Air intake link set |
| 7 | Resistor |
| 8 | Air mix link set |
| 9 | Wire clamp |

| | |
|---|---|
| 10 | Airflow mode link set |
| 11 | Wire clamp |
| 12 | Polyurethane foam |
| 13 | Adhesive polyurethane (2) |
| 14 | Adhesive polyurethane (4) (R.H.D.)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 15 | Adhesive polyurethane (3)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 16 | Evaporator pipe |
| 17 | Expansion valve |

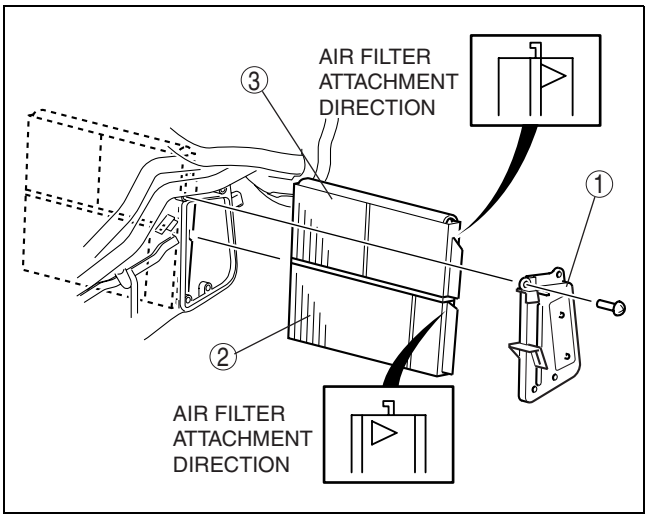
| | |
|---|---|
| 18 | Adhesive polyurethane (5)<br>(See 07–11–13 Adhesive Polyurethane Assembly Note.) |
| 19 | Heater core |
| 20 | Air filter |
| 21 | A/C case (1) |
| 22 | A/C case (2) |
| 23 | Evaporator temperature sensor<br>(See 07–11–10 Evaporator Temperature Sensor Assembly Note.) |
| 24 | Sensor clamp<br>(See 07–11–10 Sensor Clamp Assembly Note.) |
| 25 | Adjusting bolt<br>(See 07–11–7 A/C Unit Installation Note.) |
| 26 | Evaporator |
| 27 | A/C case (3) |

## AIR FILTER REMOVAL/INSTALLATION

DPE071161142W01

1. Disconnect the negative battery cable.
2. Remove the under cover.
3. Partially open the floor mat and slide the BCM bracket. (R.H.D.)
4. Disconnect the evaporator temperature sensor connector. (L.H.D.)
5. Disconnect the power MOS FET connector. (L.H.D. Full-auto air conditioner)
6. Remove in the order indicated in the table.

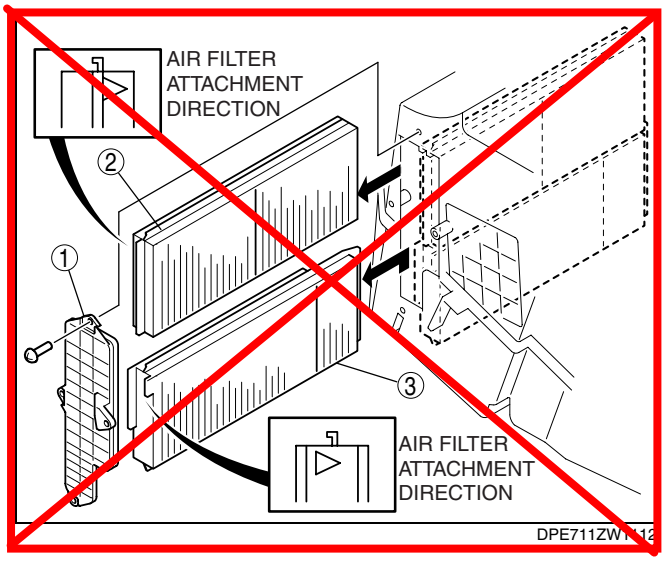
**L.H.D.**




B3E0711W401

**R.H.D.**

| | |
|---|---|
| 1 | Air filter cover |
| 2 | Air filter (1) (L.H.D.), (2) (R.H.D.) |
| 3 | Air filter (2) (L.H.D.), (1) (R.H.D.) |




DPE711ZW1112

7. Install in the reverse order of removal.

## AIR FILTER INSPECTION

DPE071161142W03

1. Verify that there is no damage, excessive dirt, or abnormal odor on the air filter.
   - If there is any malfunction, replace the air filter.

**Note**
- The air filter cannot be reused by cleaning it with water or compressed air.

## EXPANSION VALVE REMOVAL/INSTALLATION

DPE071161014W01

1. Disconnect the negative battery cable.
2. Discharge the refrigerant from the system. (See 07–10–7 REFRIGERANT RECOVERY.) (See 07–10–2 REFRIGERANT CHARGING.)

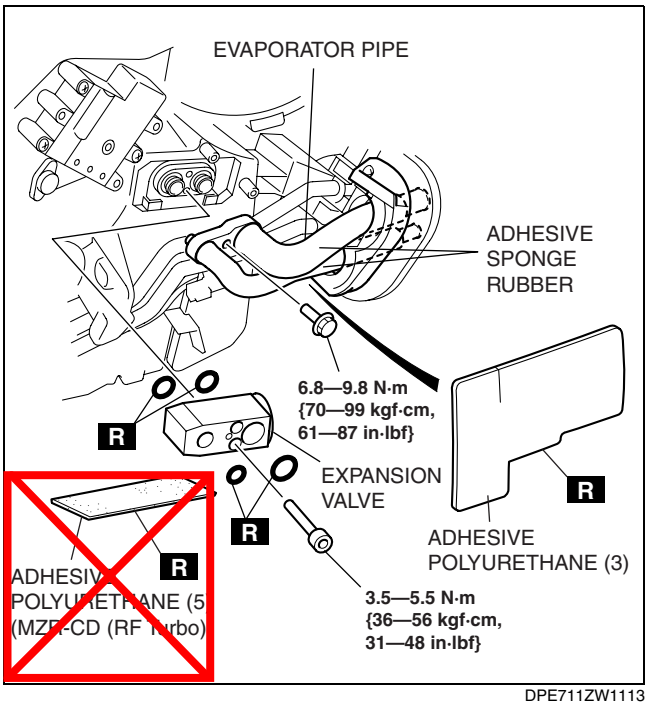
**Caution**
- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

3. Remove the engine cover. (MZR-CD (RF Turbo))
4. Disconnect the cooler hose (LO) (LF, L8) or cooler pipe No.2 (MZR-CD (RF Turbo)) and cooler pipe No.1. Do not allow compressor oil to spill. (See 07–11–29 REFRIGERANT LINES REMOVAL/INSTALLATION [LF, L8].) (See 07–11–32 REFRIGERANT LINES REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)
5. Remove the following parts:
   (1) Front scuff plate inner (RH) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (2) Front side trim (RH) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (3) Side panel (RH) (L.H.D.) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (4) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (5) Shift lever component (MTX) (See 05–18–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (6) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (7) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (8) Glove compartment (L.H.D.) (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.) (L.H.D.)
   (9) Lower panel (R.H.D.) (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.) (R.H.D.)
6. Remove the adhesive polyurethane covering the evaporator pipe.

**Caution**
- **Being careful not to damage the adhesive sponge rubber, remove adhesive polyurethane completely.**

7. Remove the bolt and shift the evaporator pipe. Do not allow compressor oil to spill.
8. Remove the expansion valve. Do not allow compressor oil to spill.

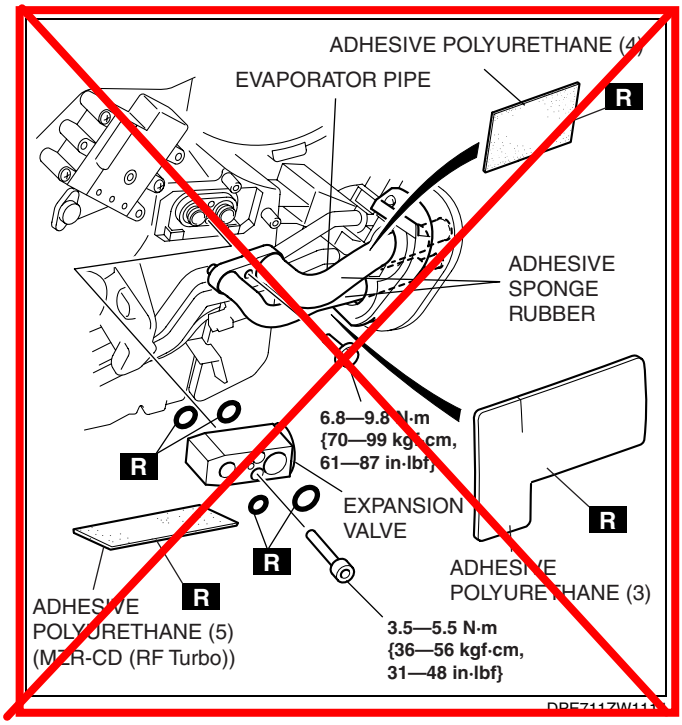
~~LF, L8, MZR-CD (RF Turbo) (L.H.D.)~~




DPE711ZW1113

~~MZR-CD (RF Turbo) (R.H.D.)~~

9. Install in the reverse order of removal.
10. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)




## EVAPORATOR INSPECTION

DPE071161810W01

1. Inspect the evaporator for damage, cracks, and oil leakage.
   - If there is any malfunction, replace the evaporator.
2. Visually inspect the fins for bending.
   - If there is any bending, use the end of a flathead screwdriver to straighten the fins.

## HEATER CORE INSPECTION

DPE071161910W01

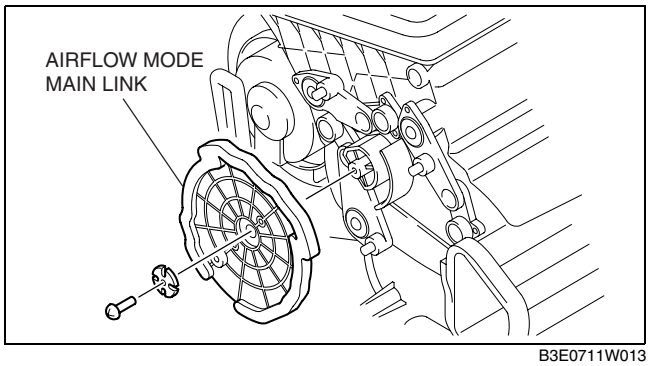
1. Inspect the heater core for damage, cracks, and water leakage.
   - If there is any malfunction, replace the heater core.
2. Visually inspect the fins for bending.
   - If there is any bending, use the end of a flathead screwdriver to straighten the fins.
3. Visually inspect the heater hose for deformation.
   - Repair with pliers if there is deformation. If there is any malfunction, replace the heater core.

## AIRFLOW MODE MAIN LINK REMOVAL/INSTALLATION

DPE071161030W01

**L.H.D.**

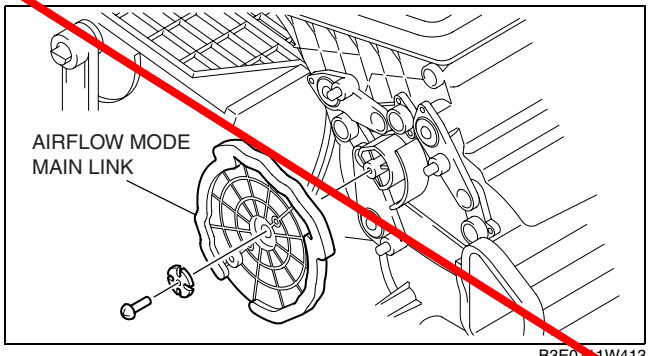
1. Disconnect the negative battery cable.
2. Removal the following parts.
   (1) Side wall. (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (3) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
3. Detach the bonnet release lever from the lower panel. (See09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
4. Remove the front scuff plate (LH). (See09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
5. Remove the front side trim (LH). (See09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
6. Remove the lower panel. (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
7. Remove the column cover (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)
8. Remove the front heat duct (LH).
9. Remove the airflow mode rod (1).
10. Remove the airflow mode actuator. (full-auto air conditioner) (See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/INSTALLATION.)
11. Remove the airflow mode main link.
12. Install in the reverse order of removal.
13. Adjust the airflow mode wire. (See 07–40–40 CLIMATE CONTROL UNIT WIRE ADJUSTMENT.)




B3E0711W013

**R.H.D.**

1. Disconnect the negative battery cable.
2. Removal the following parts.
   (1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (3) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (5) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (6) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (8) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
3. Remove the airflow mode rod (1).
4. Remove the air mix actuator. (full-auto air conditioner)
5. Remove the airflow mode main rink.
6. Install in the reverse order of removal.
7. Adjust the airflow mode wire. (See 07–40–40 CLIMATE CONTROL UNIT WIRE ADJUSTMENT.)

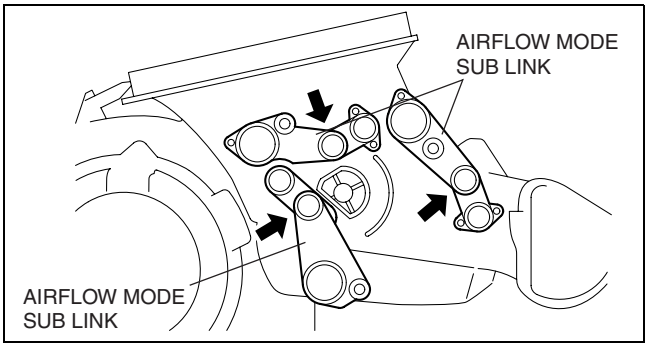



B3E071W413

**Airflow Mode Main Link Installation Note**

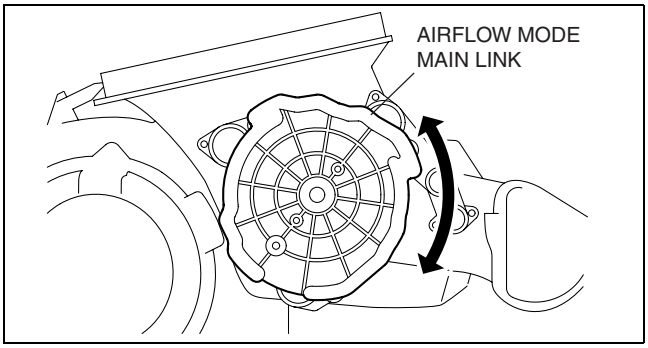
**Caution**
- **Apply only the specified grease to links. Otherwise abnormal noise or improper operation may result.**

1. Push and hold each airflow mode sub link in the direction of the arrow.
2. Set the airflow mode main link to the A/C unit as shown in the figure.
3. Press the airflow mode main link lightly to the A/C unit it in the direction shown by the arrow, then set the projections of each airflow mode sub link into the grooves of the airflow mode main link.



B3E0711W014

4. Rotate airflow mode main link and verify that each mode is accessed properly.



B3E0711W015

**REAR HEAT DUCT REMOVAL/INSTALLATION**

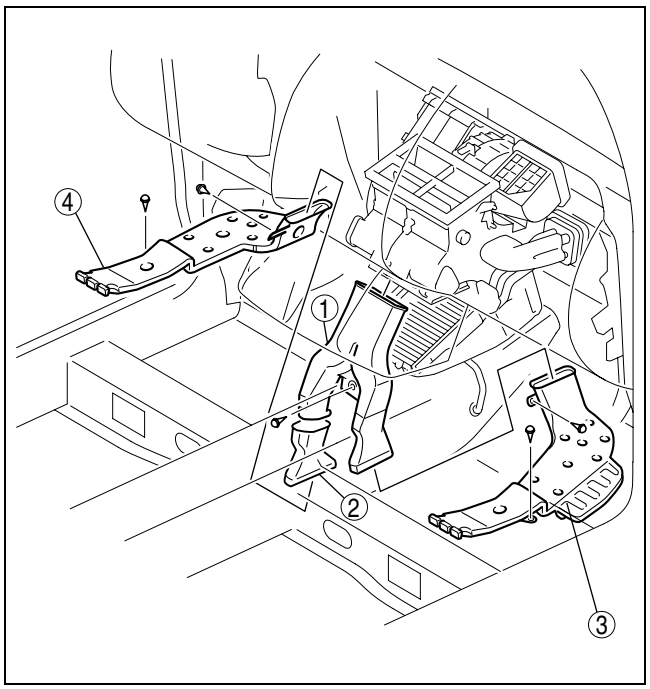
DPE071161273W01

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Front seat (See 09–13–1 FRONT SEAT REMOVAL/INSTALLATION.)
   (2) Center console (See 09–17–14 CENTER CONSOLE REMOVAL/INSTALLATION.)
   (3) Front scuff plate inner (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (4) Front side trim (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (5) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (6) ~~Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)~~
   (7) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (8) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (9) Dust cover (See 06-14–7 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)
3. Partially open the floor mat. (See 09–17–23 FLOOR COVERING REMOVAL/INSTALLATION.)

4. Remove in the order indicated in the table.

| | |
|---|---|
| 1 | Rear heat duct (1) |
| 2 | Rear heat duct (2) |
| 3 | Rear heat duct (3) |
| 4 | Rear heat duct (4) |

5. Install in the reverse order of removal.




DPE711ZW1013

**A/C COMPRESSOR REMOVAL/INSTALLATION ~~[LF, L3]~~**

DPE071161450W02

1. Disconnect the negative battery cable.
2. Discharge the refrigerant. (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the splash shield.
4. Remove the A/C drive belt. (See 01–10A–3 DRIVE BELT REPLACEMENT ~~[L3, LF]~~.)
5. Detach the two wiring harness clamps.
6. Disconnect the magnetic clutch connector.
7. Remove the A/C compressor protector.
8. Disconnect the cooler hose (LO) and cooler hose (HI). Do not allow remaining compressor oil in the refrigerant line to spill. (See 07–11–30 Refrigerant Line Removal Note.) (See 07–11–31 Refrigerant Line Installation Note.)

**Caution**

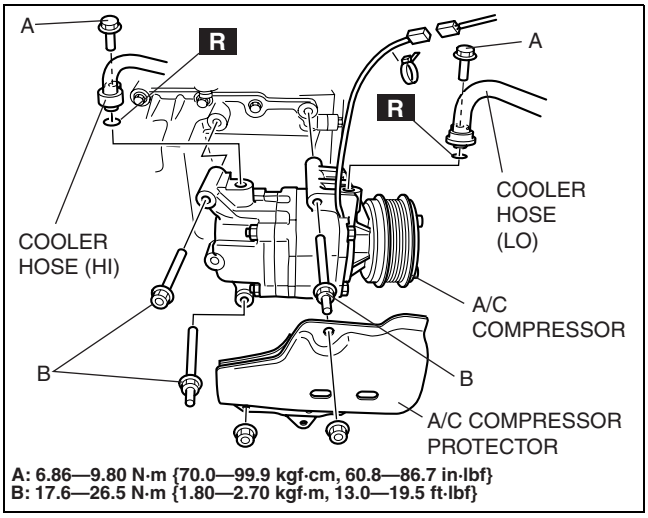
- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

9. Remove the compressor protector.
10. Remove in the A/C compressor. Do not allow remaining compressor oil in the A/C compressor to spill.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

11. Install in the reverse order of removal.
12. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)




DPE711ZW1107

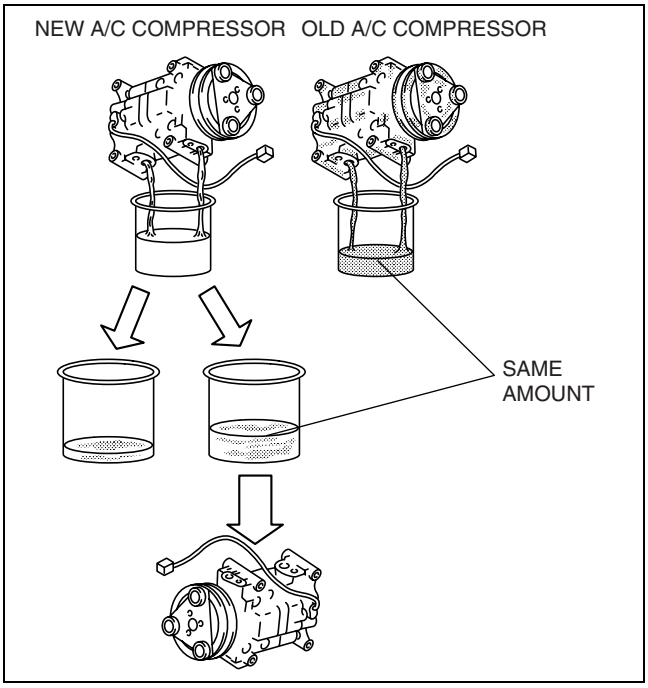
**A/C Compressor Installation Note**

**Caution**
- **Due to the high moisture-absorption characteristics of the compressor oil, it may absorb moisture if left over a long period of time thereby negatively affecting A/C operation. Drain the compressor oil and refill within 10 min. of each other.**

1. Rotate new A/C compressor shaft six to eight revolutions while collecting refrigerant oil in a clean measuring device. Use this refrigerant oil to refill new compressor. Do not allow refrigerant oil to become contaminated.
2. Rotate old A/C compressor shaft six to eight revolutions while collecting refrigerant oil in a separate, clean measuring device.
3. Compare those oil amounts. The amount of the oil drained from the new A/C compressor should be greater than the old one.
4. Pour the same amount oil of drained from the old A/C compressor back into the new A/C compressor.

**A/C compressor oil type**
- **ATMOS GU10**

**A/C compressor oil sealed volume (approx. quantity)**
- **150 ml {150 cc, 5.07 fl oz}**




DPE711ZW1106

## A/C COMPRESSOR REMOVAL/INSTALLATION [MZR-CD (RF TURBO)]

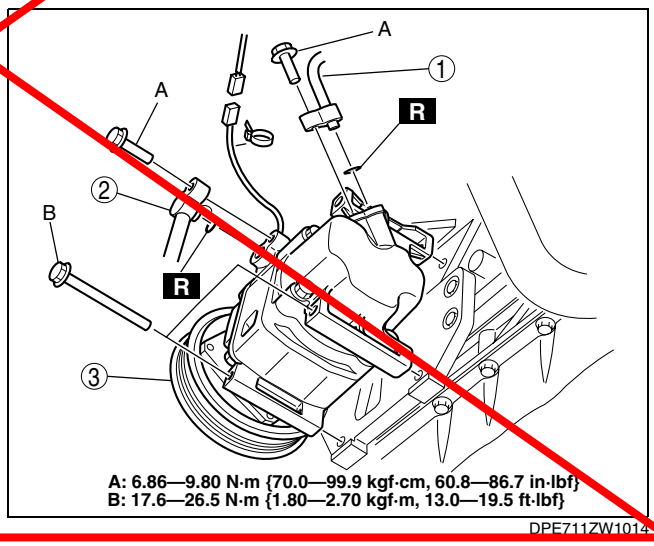
DPE071161450W03

1. Disconnect the negative battery cable.
2. Discharge the refrigerant. (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the splash shield.
4. Remove the drive belt. (See 01–10B–3 DRIVE BELT REPLACEMENT [MZR-CD (RF Turbo)].)
5. Detach the wiring harness clamp and disconnect the magnetic clutch connector.
6. Remove in the order indicated in the table. Do not allow remaining compressor oil in the refrigerant line and A/C compressor to spill.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

| | |
|---|---|
| 1 | Cooler hose (HI)<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |
| 2 | Cooler hose (LO)<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |
| 3 | A/C compressor<br>(See 07–11–26 A/C Compressor Installation Note.) |




DPE711ZW1014

7. Install in the reverse order of removal.
8. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)

## CONDENSER REMOVAL/INSTALLATION

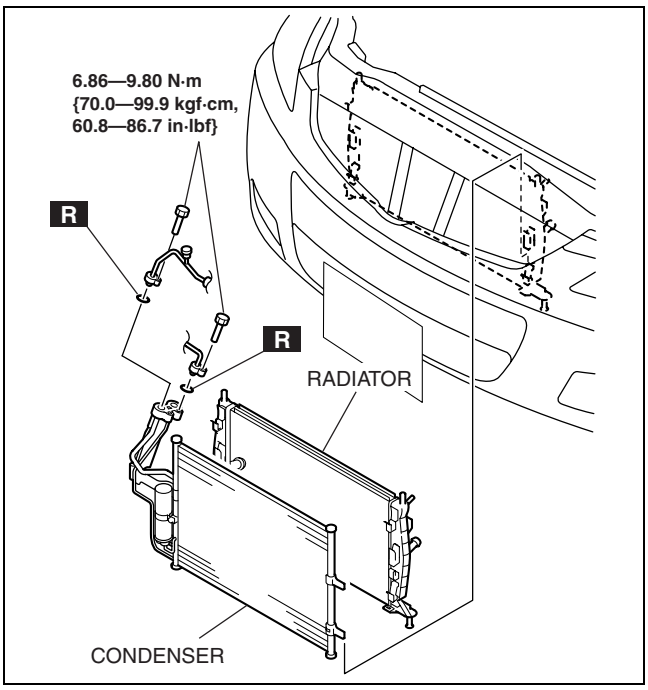
DPE071161480W01

1. Disconnect the negative battery cable.
2. Discharge the refrigerant. (See 07–10–2 REFRIGERANT CHARGING.)
3. Drain the engine coolant. (See 01–12A–3 ENGINE COOLANT REPLACEMENT [L8, LF].) (See 01–12B–3 ENGINE COOLANT REPLACEMENT [MZR-CD (RF Turbo)].)
4. Remove the battery cover. (LF, L8)
5. Remove the battery air duct. (LF, L8)
6. Remove the splash shield.
7. Remove the radiator grill (normal bumper), front bumper (sports bumper).
8. Remove the radiator upper mount.
9. Remove the rubber plate between radiator and shroud.
10. Disconnect the cooler hose (HI) and cooler pipe No.1. Do not allow remaining compressor oil in the refrigerant line to spill.
11. Remove the cooling fan.
12. Disconnect the water hose from radiator.
13. Remove the radiator with the condenser installed. (See 01–12A–6 RADIATOR REMOVAL/INSTALLATION [L8, LF].) (See 01–12B–6 RADIATOR REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)
14. Release the radiator hook and pull the condenser up, being careful not to allow remaining compressor oil in the condenser to spill. (See 07–11–28 Condenser Installation Note.)

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.**

15. Install in the reverse order of removal.
16. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)




DPE711ZW1108

**Condenser Installation Note**

1. After replacing the condenser, add compressor oil to the refrigeration cycle.

**Supplemental oil amount (approx. quantity)**
**20 ml {20 cc, 0.7 fl oz}**

## CONDENSER INSPECTION

DPE071161480W03

1. Inspect the condenser for cracks, damage, and oil leakage.
   - If there is any malfunction, replace the condenser.
2. Visually inspect the fins for clogging of foreign material.
   - If any fins are clogged, remove the foreign material.
3. Visually inspect the fins for bending.
   - If there is any bending, use the end of a flathead screwdriver to straighten fins.

## RECEIVER/DRIER REMOVAL/INSTALLATION

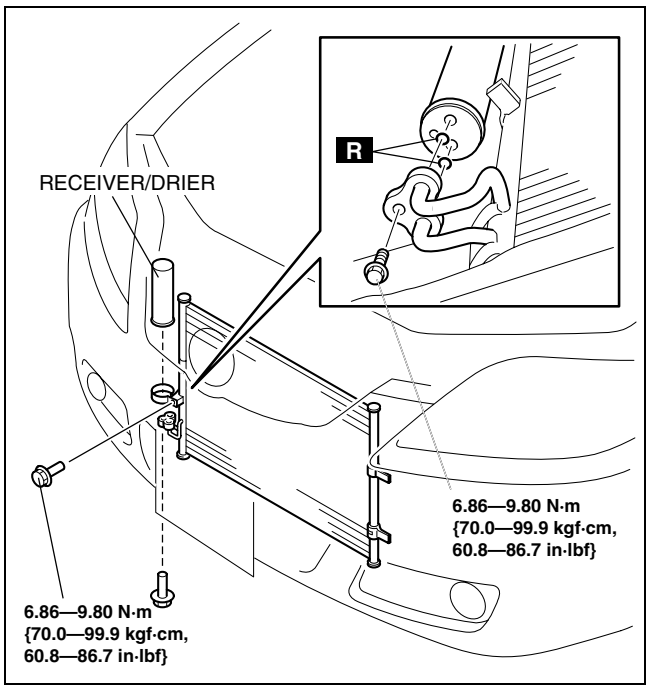
DPE071161501W01

1. Disconnect the negative battery cable.
2. Discharge the refrigerant from the system. (See 07–10–7 REFRIGERANT RECOVERY.) (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the under cover.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

4. Remove the receiver/drier. Do not allow compressor oil to spill.
5. Install in the reverse order of removal.
6. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)




DPE711ZW1109

**REFRIGERANT LINES REMOVAL/INSTALLATION ~~[LF, L8]~~**

DPE071161460W01

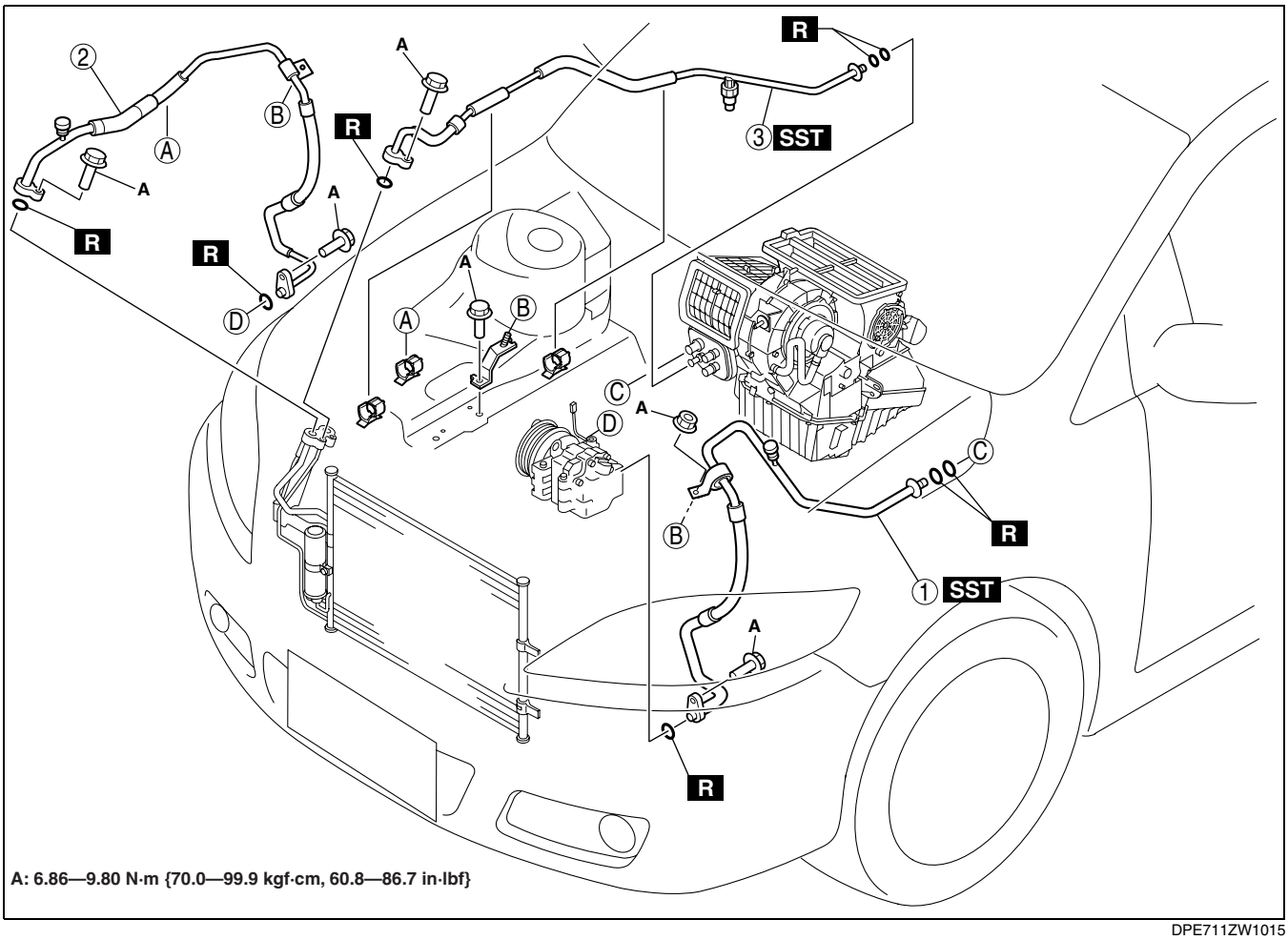
1. Disconnect the negative battery cable.
2. Discharge the refrigerant from the system. (See 07–10–7 REFRIGERANT RECOVERY.) (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the coolant reserve tank. (See 01–12A–5 COOLANT RESERVE TANK REMOVAL/INSTALLATION ~~[L8, LF]~~.)
4. Remove the splash shield.
5. Remove in the order indicated in the table. Do not allow compressor oil to spill.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

6. Install in the reverse order of removal.

7. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)



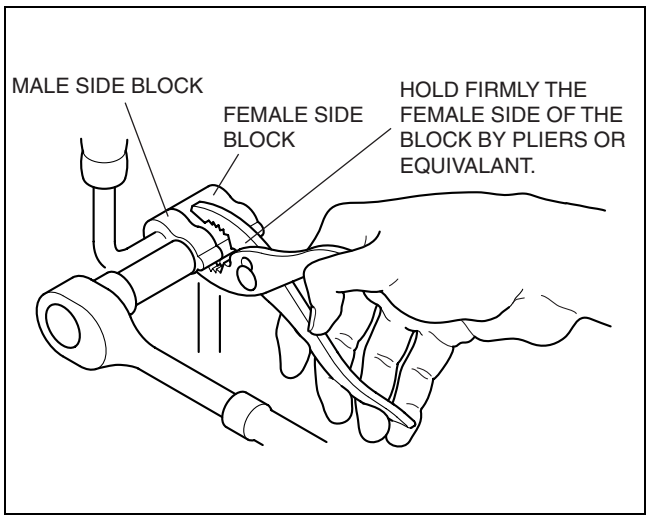

DPE711ZW1015

| | |
|---|---|
| 1 | Cooler hose (LO)<br>(See 07–11–30 Refrigerant Line Removal Note.)<br>(See 07–11–31 Refrigerant Line Installation Note.) |
| 2 | Cooler hose (HI)<br>(See 07–11–30 Refrigerant Line Removal Note.)<br>(See 07–11–31 Refrigerant Line Installation Note.) |

| | |
|---|---|
| 3 | Cooler pipe No.1<br>(See 07–11–30 Refrigerant Line Removal Note.)<br>(See 07–11–31 Refrigerant Line Installation Note.) |

**Refrigerant Line Removal Note**
**Block joint type**

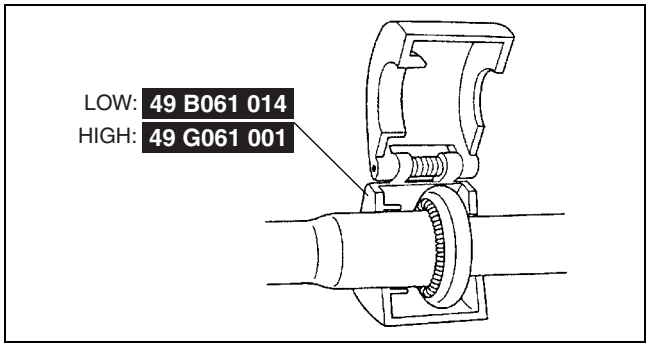
1. Disconnect the block joint type pipes by grasping female side of the block with pliers or similar tool and holding firmly, then remove the connection bolt or nut.




B3E0711W024

**Spring-lock coupling type ~~(LF, L8)~~**

1. Set the **SST**.

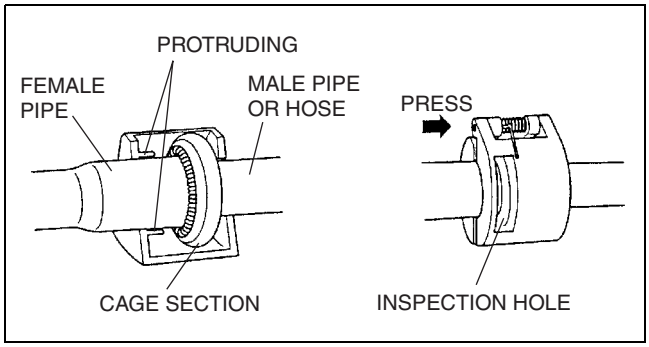



ADA8516W022

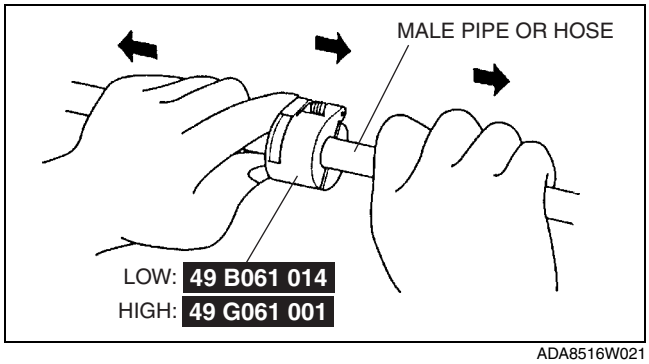
2. While looking through the inspection hole of the **SST**, insert the protruding part of the **SST** until it makes contact with the cage section.
3. Use the **SST** to disconnect the male pipe or hose from the female by pulling the male pipe or hose.

**Note**

- The male pipe or hose can be disconnected easily from the female pipe by pulling from the male pipe or hose while maintaining the pressure of the protruding part of the **SST**.




A6E8516W015



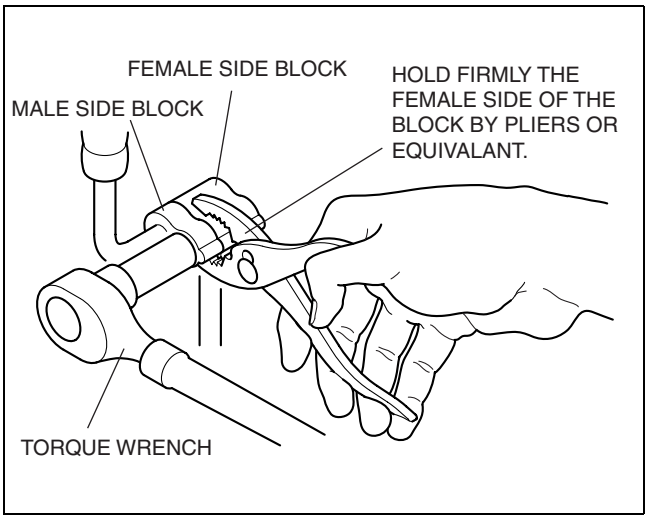

ADA8516W021

**Refrigerant Line Installation Note**

1. Apply compressor oil to the O-rings and connect the joints.
2. Tighten the joints.

**Block joint type**

1. Tighten the bolt of joint by hand.
2. Connect the block joint type pipes by grasping the female side of the block with pliers or similar tool and holding firmly, then tighten the connection bolt or nut with a torque wrench.



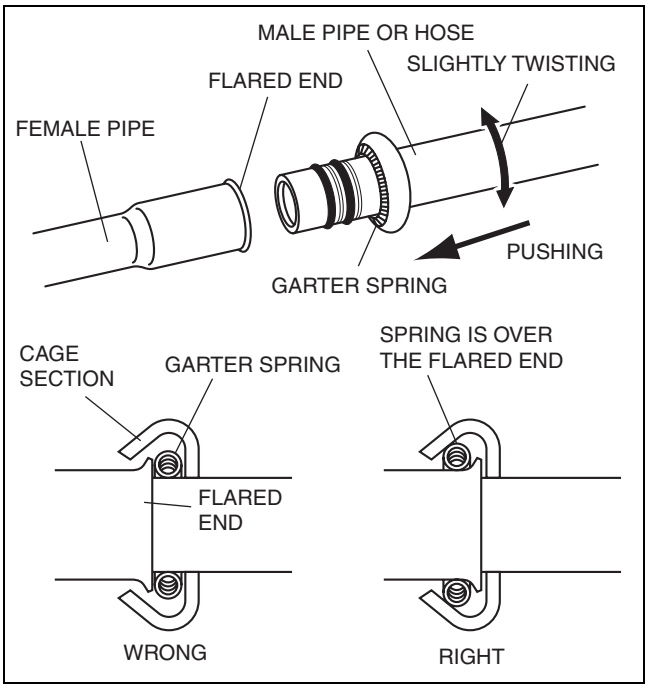

B3E0711W023

**Spring-lock coupling type**

1. Connect the male pipe or hose by twisting it onto female pipe until the garter spring at the male pipe or hose is over the flared end of female pipe.

**Note**

- When the male pipe or hose is replaced, the indicator ring comes out after connecting to indicate that it is locked.




C3U0711W011

**REFRIGERANT LINES REMOVAL/INSTALLATION [MZR-CD (RF TURBO)]**

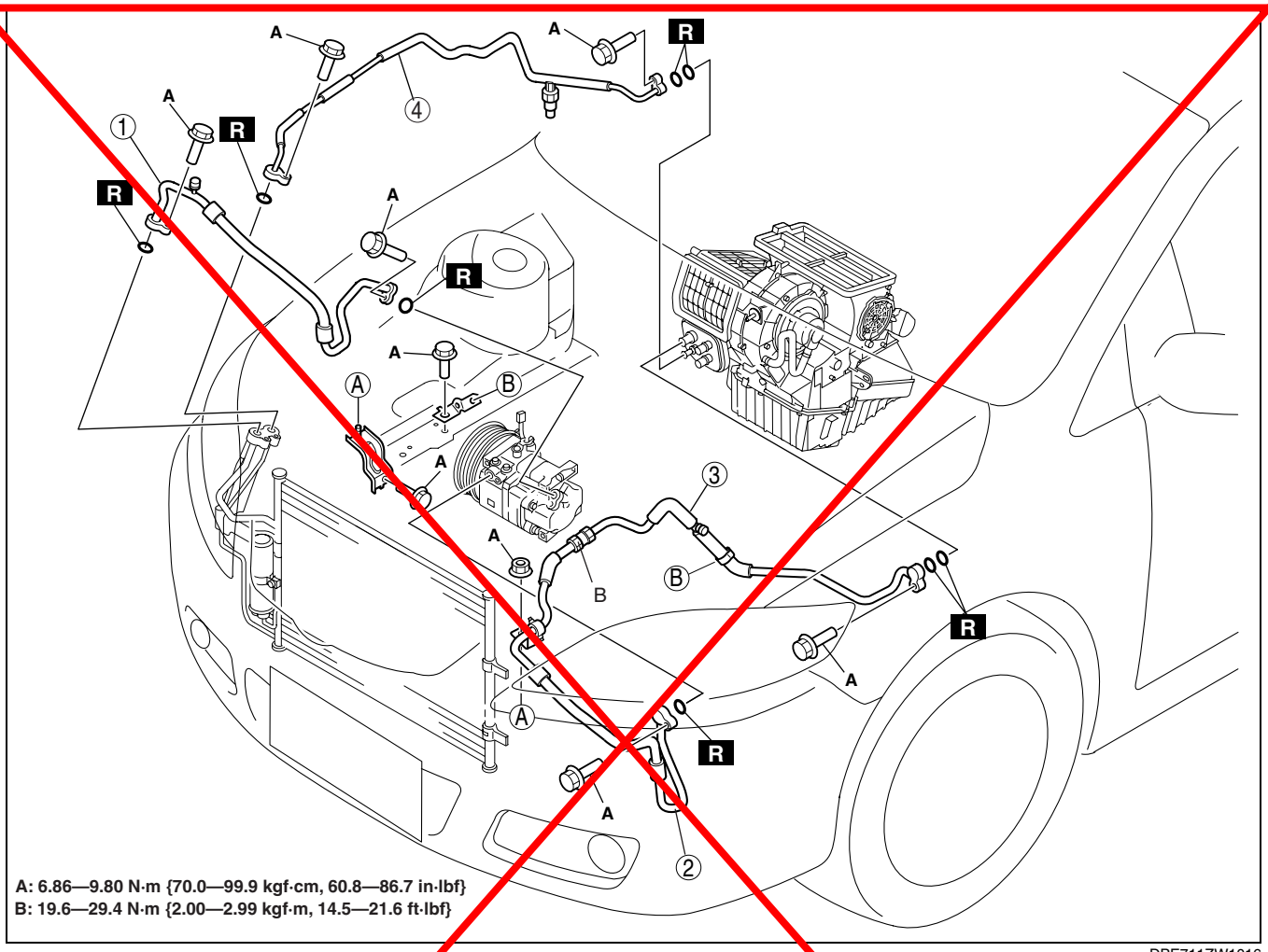
DPE071161460W03

1. Disconnect the negative battery cable.
2. Discharge the refrigerant from the system. (See 07–10–7 REFRIGERANT RECOVERY.) (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the coolant reserve tank. (See 01–12B–5 COOLANT RESERVE TANK REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)
4. Remove the fuel filter. (L.H.D.)
5. Remove the splash shield.
6. Remove in the order indicated in the table. Do not allow compressor oil to spill.

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

7. Install in the reverse order of removal.
8. Perform the refrigerant system performance test. (See 07–10–6 REFRIGERANT SYSTEM PERFORMANCE TEST.)




**A: 6.86—9.80 N·m {70.0—99.9 kgf·cm, 60.8—86.7 in·lbf}**
**B: 19.6—29.4 N·m {2.00—2.99 kgf·m, 14.5—21.6 ft·lbf}**

DPE711ZW1016

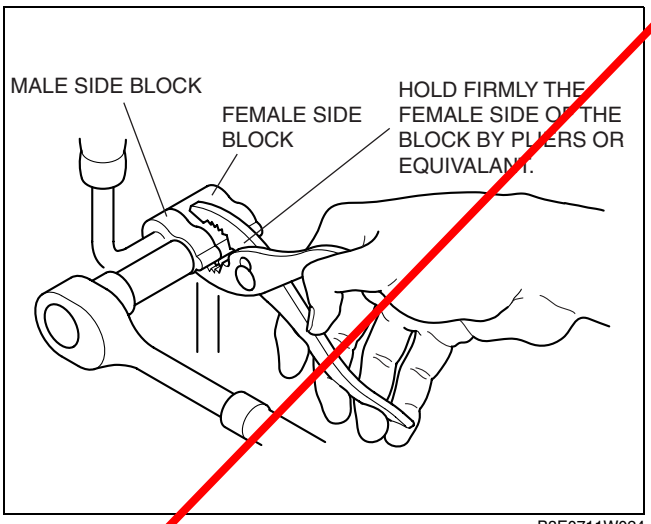
| | |
|---|---|
| 1 | Cooler hose (HI)<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |
| 2 | Cooler hose (LO)<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |
| 3 | Cooler pipe No.2<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |
| 4 | Cooler pipe No.1<br>(See 07–11–33 Refrigerant Line Removal Note.)<br>(See 07–11–34 Refrigerant Line Installation Note.) |

**Refrigerant Line Removal Note**
**Nut joint type**

1. Loose the nut using two spanners and remove the pipe.

**Block joint type**

1. Disconnect the block joint type pipes by grasping female side of the block with pliers or similar tool and holding firmly, then remove the connection bolt or nut.



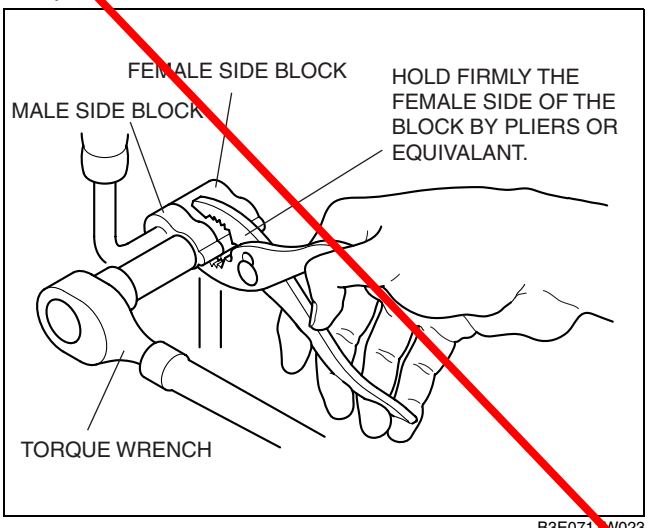
B3E0711W024

**Refrigerant Line Installation Note**

1. Apply compressor oil to the O-rings and connect the joints.
2. Tighten the joints.

**Nut or Block joint type**

1. Temporarily tighten the nut or bolt at the connection as much as possible by hand.
2. Tighten to the specified torque using a torque wrench. Tighten the nut joint using a double spanner.
   - Connect the block joints by grasping the female side of the block with pliers or similar tool and holding firmly, then tighten the connection bolt or nut using a torque wrench.



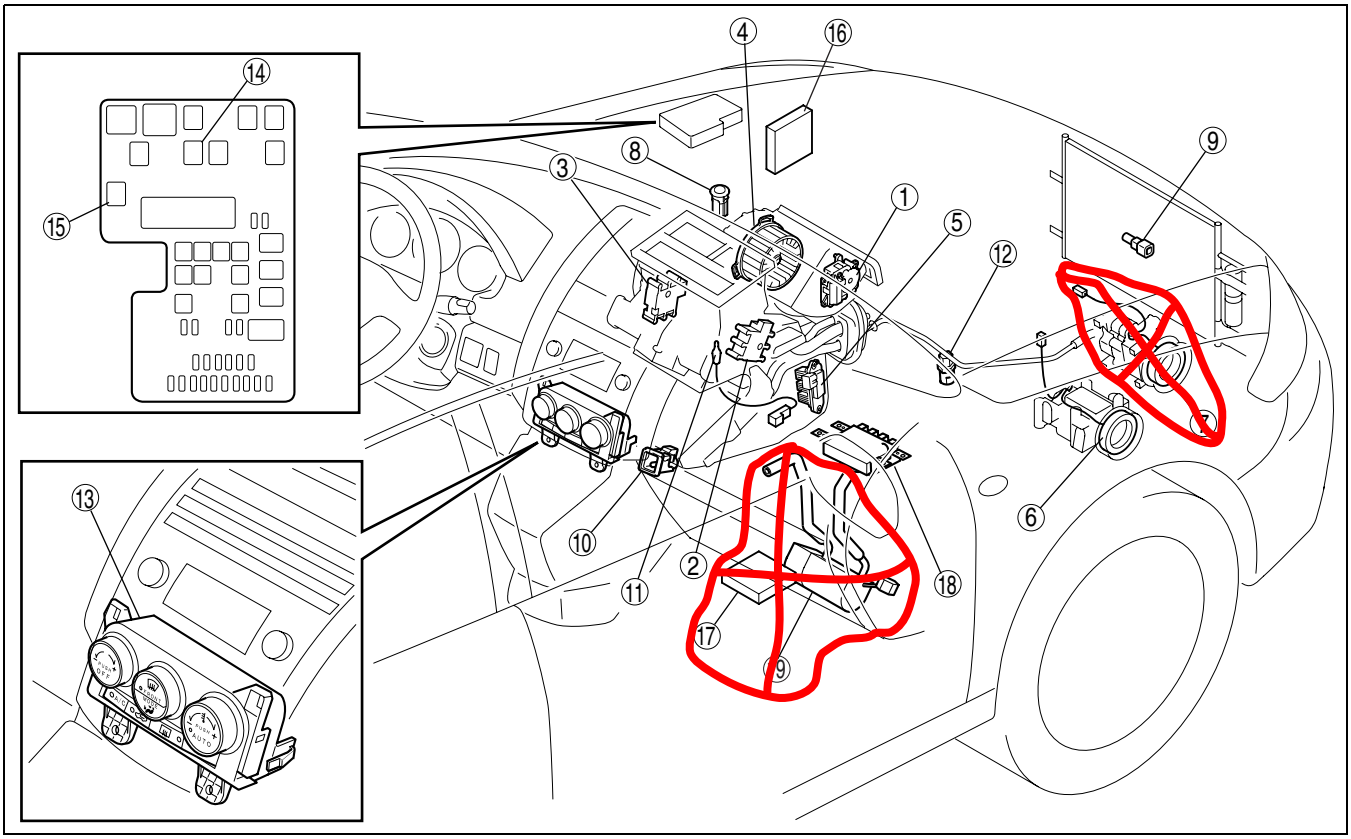
B3E0711W023

# 07–40 CONTROL SYSTEM

## HVAC CONTROL SYSTEM LOCATION INDEX [FULL-AUTO AIR CONDITIONER]

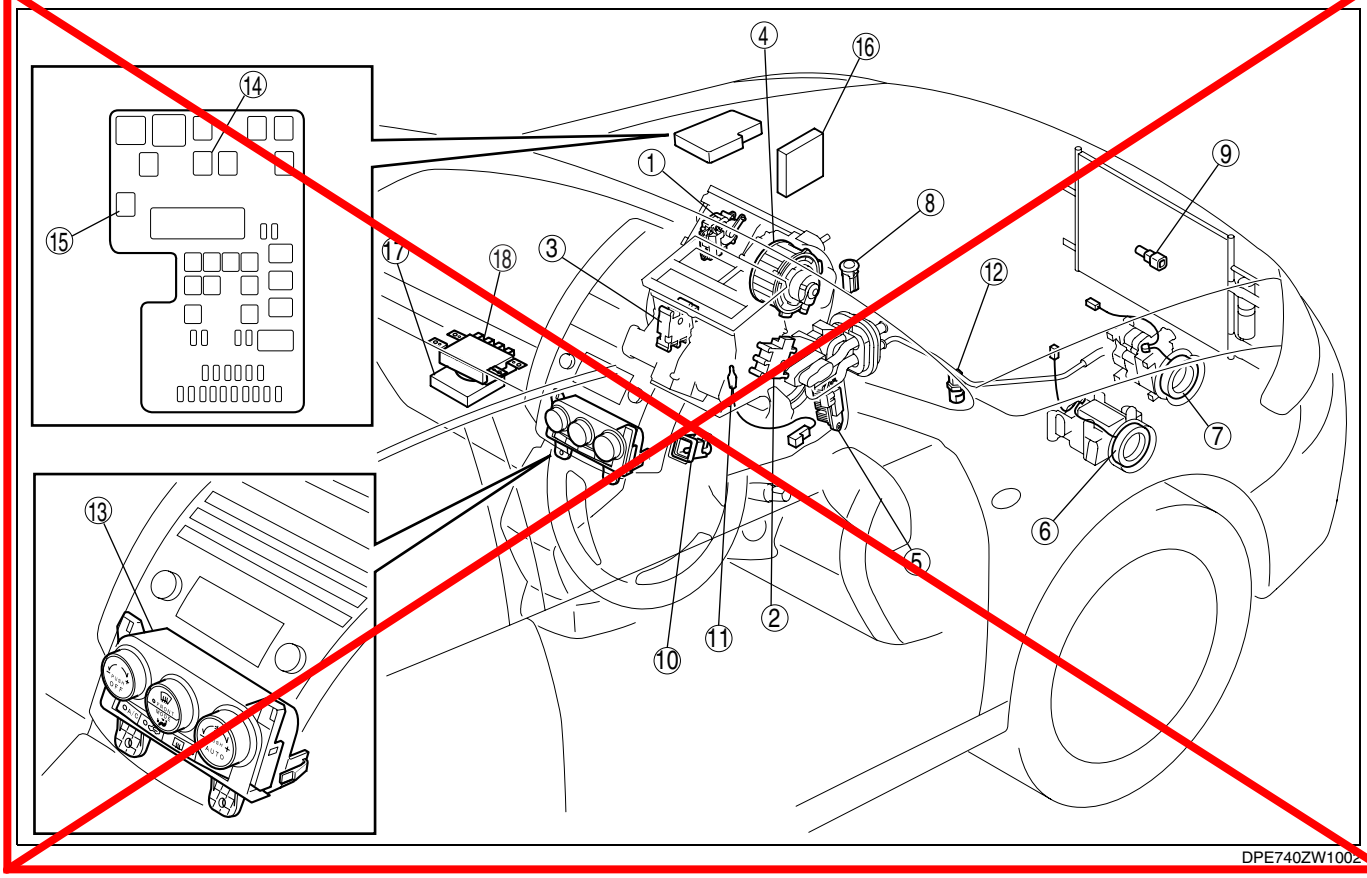
DPE074000000W01

L.H.D.




DPE740ZW1001

R.H.D.




DPE740ZW1002

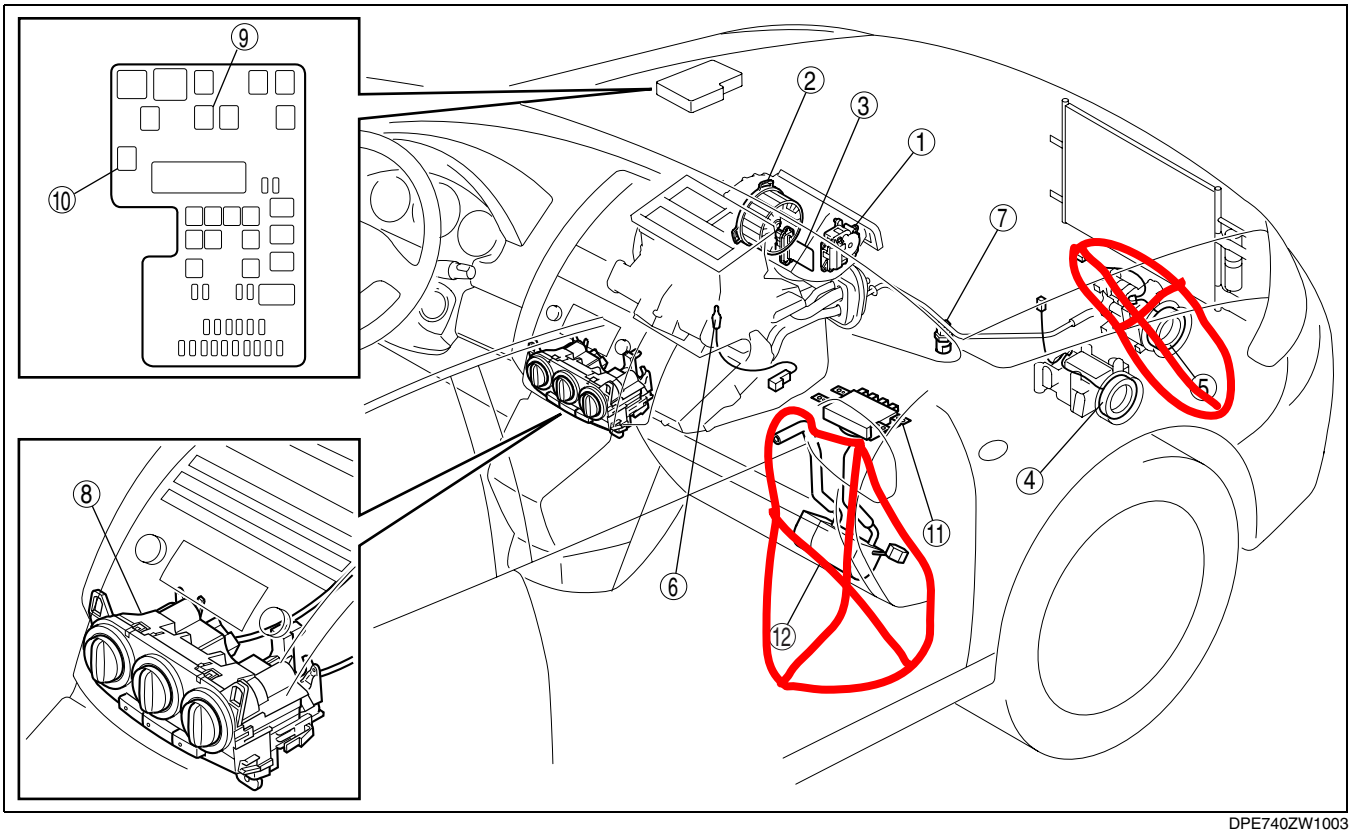
| | |
|---|---|
| 1 | Air intake actuator<br>(See 07–40–5 AIR INTAKE ACTUATOR REMOVAL/INSTALLATION.)<br>(See 07–40–6 AIR INTAKE ACTUATOR INSPECTION.) |
| 2 | Air mix actuator<br>(See 07–40–7 AIR MIX ACTUATOR REMOVAL/INSTALLATION.)<br>(See 07–40–8 AIR MIX ACTUATOR INSPECTION.) |
| 3 | Airflow mode actuator<br>(See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/INSTALLATION.)<br>(See 07–40–9 AIRFLOW MODE ACTUATOR INSPECTION.) |
| 4 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.)<br>(See 07–40–20 BLOWER MOTOR INSPECTION.) |
| 5 | Power MOS FET<br>(See 07–40–21 POWER MOS FET REMOVAL/INSTALLATION.)<br>(See 07–40–21 POWER MOS FET INSPECTION.) |
| 6 | Magnetic clutch ~~(LF, L8)~~<br>(See 07–40–24 MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY ~~[LF, L8]~~.)<br>(See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT ~~[LF, L8]~~.)<br>(See 07–40–27 MAGNETIC CLUTCH INSPECTION ~~[LF, L8]~~.) |
| 7 | ~~Magnetic clutch (MZR-CD (RF Turbo))~~<br>~~(See 07–40–25 MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY [MZR-CD (RF Turbo)].)~~<br>~~(See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [MZR-CD (RF Turbo)].)~~<br>~~(See 07–40–28 MAGNETIC CLUTCH INSPECTION [MZR-CD (RF Turbo)].)~~ |
| 8 | Solar radiation sensor<br>(See 07–40–28 SOLAR RADIATION SENSOR REMOVAL/INSTALLATION.)<br>(See 07–40–28 SOLAR RADIATION SENSOR INSPECTION.) |

| | |
|---|---|
| 9 | Ambient temperature sensor<br>(See 07–40–29 AMBIENT TEMPERATURE SENSOR REMOVAL/INSTALLATION.)<br>(See 07–40–29 AMBIENT TEMPERATURE SENSOR INSPECTION.) |
| 10 | Cabin temperature sensor<br>(See 07–40–29 CABIN TEMPERATURE SENSOR REMOVAL/INSTALLATION.)<br>(See 07–40–30 CABIN TEMPERATURE SENSOR INSPECTION.) |
| 11 | Evaporator temperature sensor<br>(See 07–40–31 EVAPORATOR TEMPERATURE SENSOR REMOVAL/INSTALLATION.)<br>(See 07–40–31 EVAPORATOR TEMPERATURE SENSOR INSPECTION.) |
| 12 | Refrigerant pressure switch<br>(See 07–40–32 REFRIGERANT PRESSURE SWITCH REMOVAL/INSTALLATION.)<br>(See 07–40–33 REFRIGERANT PRESSURE SWITCH INSPECTION.) |
| 13 | Climate control unit<br>(See 07–40–35 CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].)<br>(See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) |
| 14 | A/C relay<br>(See 09–21–3 RELAY INSPECTION.) |
| 15 | Blower relay<br>(See 09–21–3 RELAY INSPECTION.) |
| 16 | PCM ~~(LF, L8)~~<br>(See 01–40A–7 PCM INSPECTION ~~[L8, LF]~~.) |
| 17 | ~~PCM (MZR-CD (RF Turbo))~~<br>~~(See 01–40B–10 PCM INSPECTION [MZR-CD (RF Turbo)].)~~ |
| 18 | BCM<br>(See 09–40–1 BODY CONTROL MODULE (BCM) REMOVAL/INSTALLATION.)<br>(See 09–40–1 BODY CONTROL MODULE (BCM) INSPECTION.) |
| 19 | ~~Water heater unit (MZR-CD (RF Turbo))~~<br>~~(See 07–40–34 WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)~~ |

## HVAC CONTROL SYSTEM LOCATION INDEX [MANUAL AIR CONDITIONER]

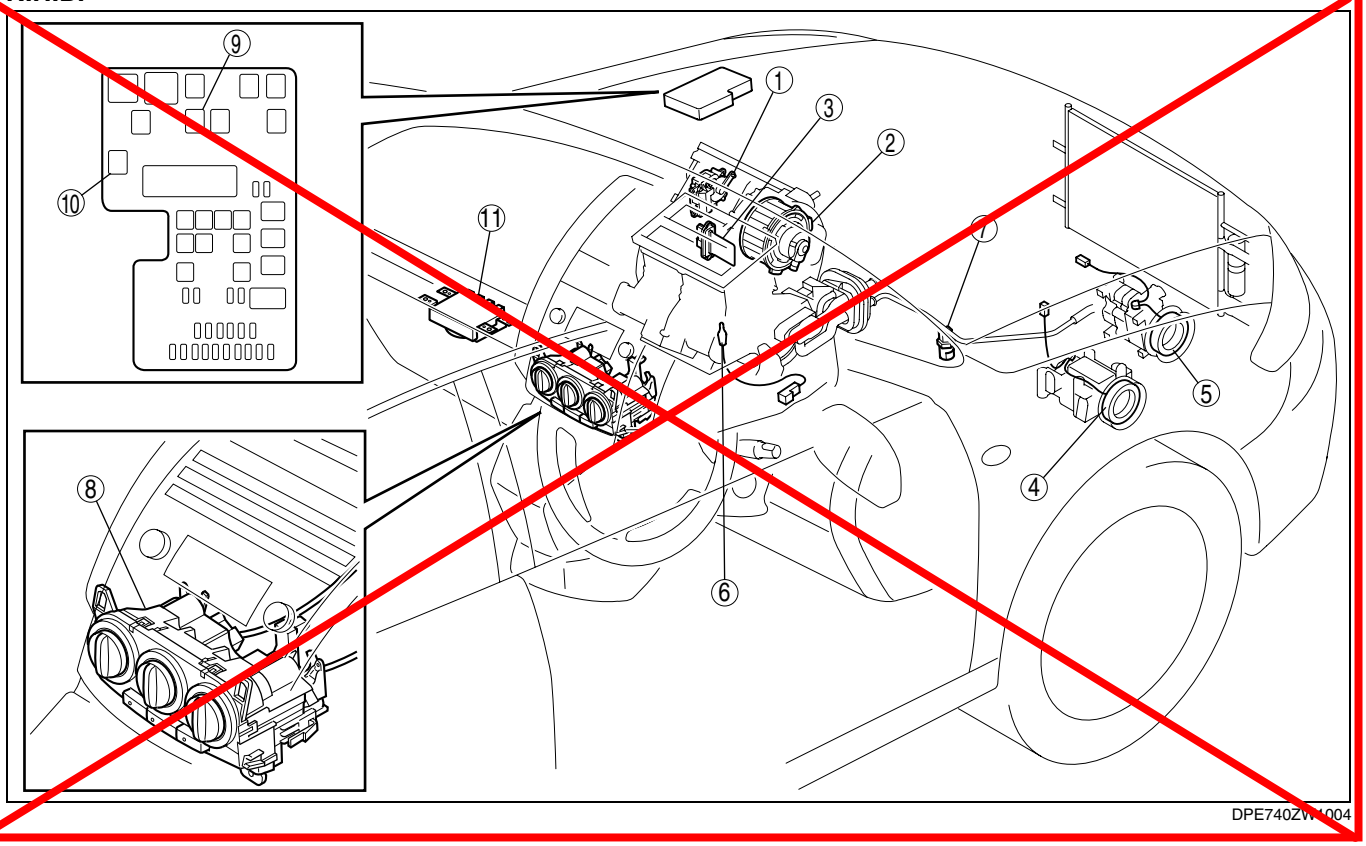
DPE074000000W03

L.H.D.




DPE740ZW1003

R.H.D.




DPE740ZW1004

| | |
|---|---|
| 1 | Air intake actuator<br>(See 07–40–5 AIR INTAKE ACTUATOR REMOVAL/INSTALLATION.)<br>(See 07–40–6 AIR INTAKE ACTUATOR INSPECTION.) |
| 2 | Blower motor<br>(See 07–40–10 BLOWER MOTOR REMOVAL.)<br>(See 07–40–16 BLOWER MOTOR INSTALLATION.)<br>(See 07–40–20 BLOWER MOTOR INSPECTION.) |
| 3 | Resistor<br>(See 07–40–22 RESISTOR REMOVAL/INSTALLATION.)<br>(See 07–40–23 RESISTOR INSPECTION.) |
| 4 | Magnetic clutch (LF, L8)<br>(See 07–40–24 MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY [LF, L8].)<br>(See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [LF, L8].)<br>(See 07–40–27 MAGNETIC CLUTCH INSPECTION [LF, L8].) |
| 5 | Magnetic clutch (MZR-CD (RF Turbo))<br>(See 07–40–25 MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY [MZR-CD (RF Turbo)].)<br>(See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [MZR-CD (RF Turbo)].)<br>(See 07–40–28 MAGNETIC CLUTCH INSPECTION [MZR-CD (RF Turbo)].) |

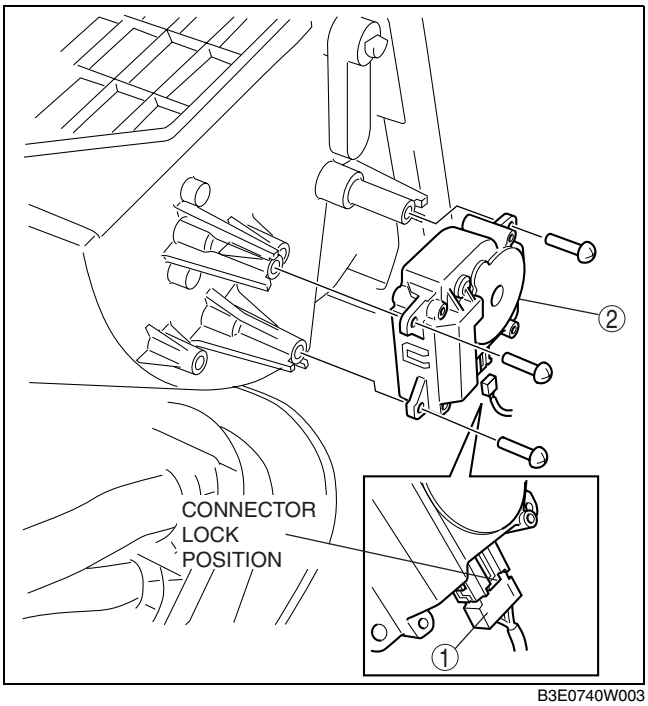
| | |
|---|---|
| 6 | Evaporator temperature sensor<br>(See 07–40–31 EVAPORATOR TEMPERATURE SENSOR REMOVAL/INSTALLATION.)<br>(See 07–40–31 EVAPORATOR TEMPERATURE SENSOR INSPECTION.) |
| 7 | Refrigerant pressure switch<br>(See 07–40–32 REFRIGERANT PRESSURE SWITCH REMOVAL/INSTALLATION.)<br>(See 07–40–33 REFRIGERANT PRESSURE SWITCH INSPECTION.) |
| 8 | Climate control unit<br>(See 07–40–36 CLIMATE CONTROL UNIT REMOVAL [MANUAL AIR CONDITIONER].)<br>(See 07–40–37 CLIMATE CONTROL UNIT INSTALLATION [MANUAL AIR CONDITIONER].)<br>(See 07–40–38 CLIMATE CONTROL UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER].)<br>(See 07–40–44 CLIMATE CONTROL UNIT INSPECTION [MANUAL AIR CONDITIONER].) |
| 9 | A/C relay<br>(See 09–21–3 RELAY INSPECTION.) |
| 10 | Blower relay<br>(See 09–21–3 RELAY INSPECTION.) |
| 11 | BCM<br>(See 09–40–1 BODY CONTROL MODULE (BCM) REMOVAL/INSTALLATION.)<br>(See 09–40–1 BODY CONTROL MODULE (BCM) INSPECTION.) |
| 12 | Water heater unit (MZR-CD (RF Turbo))<br>(See 07–40–34 WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].) |

## AIR INTAKE ACTUATOR REMOVAL/INSTALLATION

DPE074061060W01

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (3) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (5) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (6) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (8) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   (9) Car-navigation unit (See 09–20–8 CAR-NAVIGATION UNIT REMOVAL/INSTALLATION.)
3. Slide the blower case to the position shown in the figure. (See 07–40–10 BLOWER MOTOR REMOVAL.) (R.H.D.)
4. Remove in the order indicated in the table.

~~L.H.D.~~

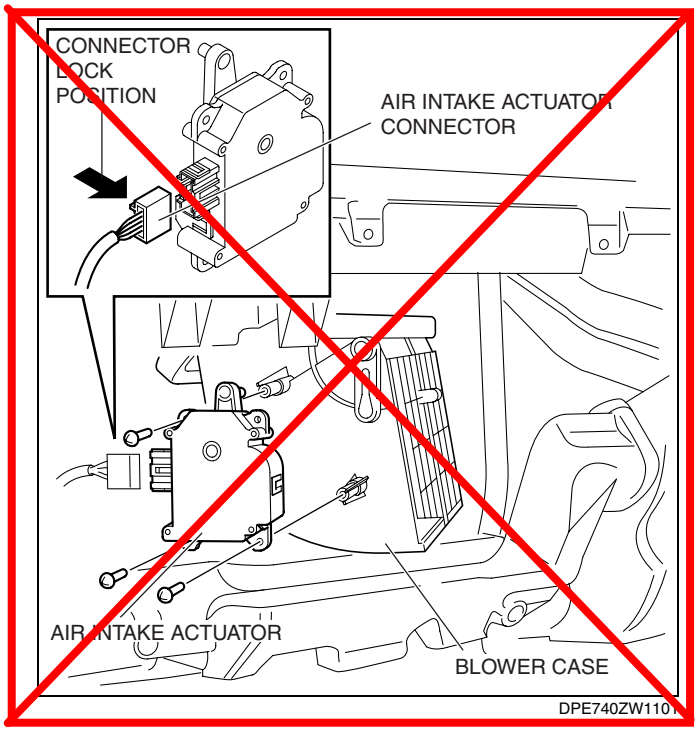



B3E0740W003

~~R.H.D.~~

| | |
|---|---|
| 1 | Air intake actuator connector |
| 2 | Air intake actuator |

5. Install in the reverse order of removal.



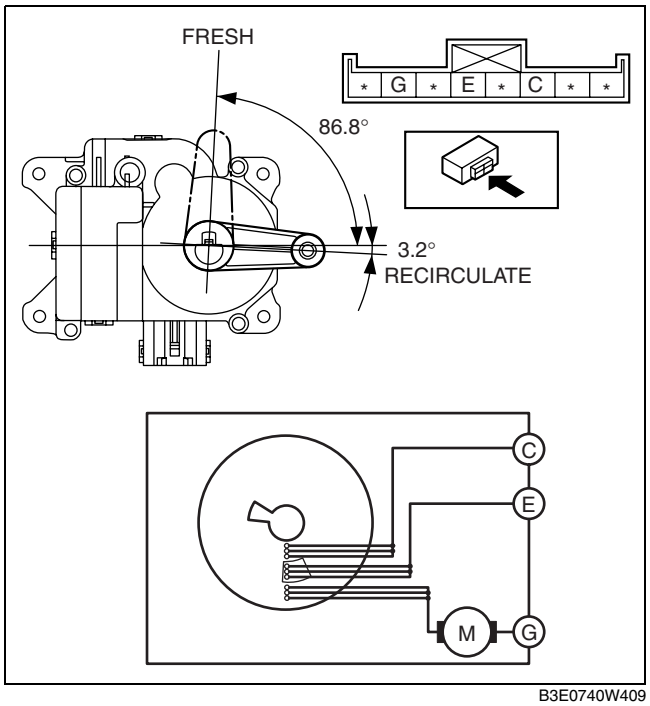

DPE740ZW1101

**AIR INTAKE ACTUATOR INSPECTION**

DPE074061060W02

1. Connect battery positive voltage to air intake actuator terminal C (or G), connect terminal G (or E) to ground, and then verify that the air intake actuator operates as shown in the table.
   - If the operation condition is not normal, replace the air intake actuator.

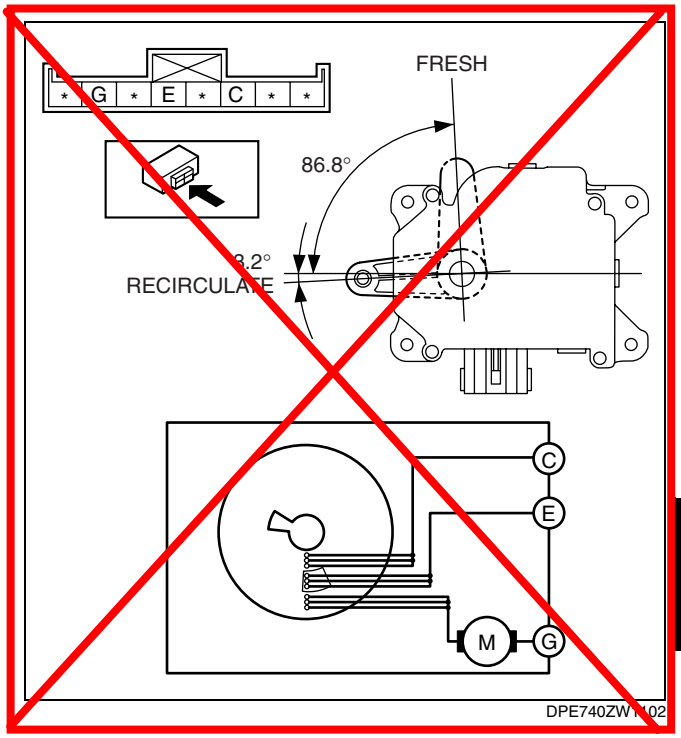
~~L.H.D.~~




B3E0740W409

~~R.H.D.~~

| Terminal | | | Air intake actuator operation |
|---|---|---|---|
| C | E | G | |
| B+ | – | Ground | FRESH→RECIRCULATE |
| – | Ground | B+ | RECIRCULATE→FRESH |




DPE740ZW102

### AIR MIX ACTUATOR REMOVAL/INSTALLATION

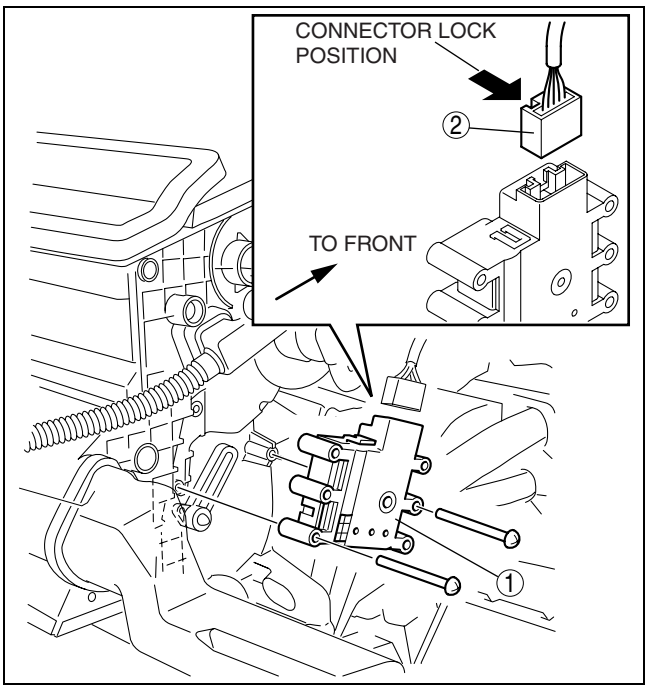
DPE074061415W01

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Side wall ~~(L.H.D.)~~ (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Front console ~~(L.H.D.)~~ (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (3) Front scuff plate inner (passenger's side) ~~(L.H.D.)~~ (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (4) Front side trim (passenger's side) ~~(L.H.D.)~~ (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (5) Side panel. (passenger's side) ~~(L.H.D.)~~ (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (6) Glove compartment ~~(L.H.D.)~~ (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   ~~(7) Column cover (R.H.D.) (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)~~
   ~~(8) Front heat duct (driver's side) (R.H.D.)~~

3. Remove in the order indicated in the table.

| | |
|---|---|
| 1 | air mix actuator |
| 2 | Air mix actuator connector |

4. Install in the reverse order of removal.




DPE740ZW1103

**AIR MIX ACTUATOR INSPECTION**

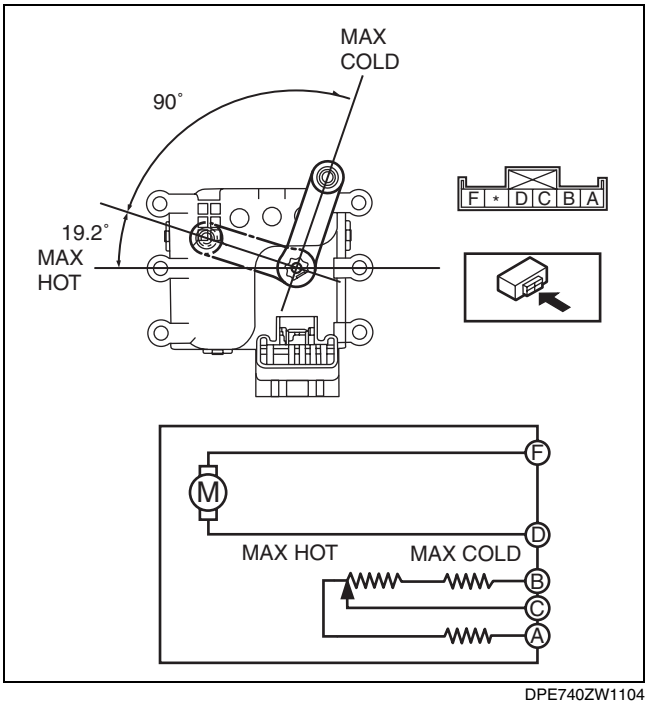
DPE074061415W03

**Caution**
- **If the lever position exceeds the operation range shown in the figure, the circuit in the actuator could be damaged. Always perform an actuator operation inspection with the lever movement within the range shown in the figure.**

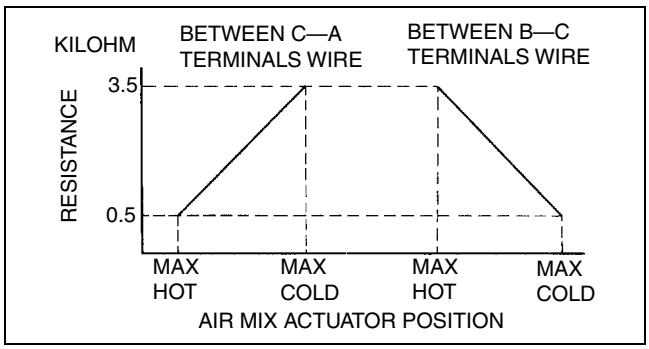
1. Connect battery positive voltage to air mix actuator terminal D (or F), connect terminal F (or D) to ground, and then verify that the air mix actuator operates as shown in the table.
   - If the operation condition is not normal, replace the air mix actuator.

| Terminal | | Air mix actuator operation |
|---|---|---|
| D | F | |
| B+ | Ground | HOT→COLD |
| Ground | B+ | COLD→HOT |

2. Verify that the resistance between terminals B and C, and C and A matches the air mix actuator operation as shown in the graph.
   - If the operation condition and resistance are not normal, replace the air mix actuator.




DPE740ZW1104




B3E0740W007

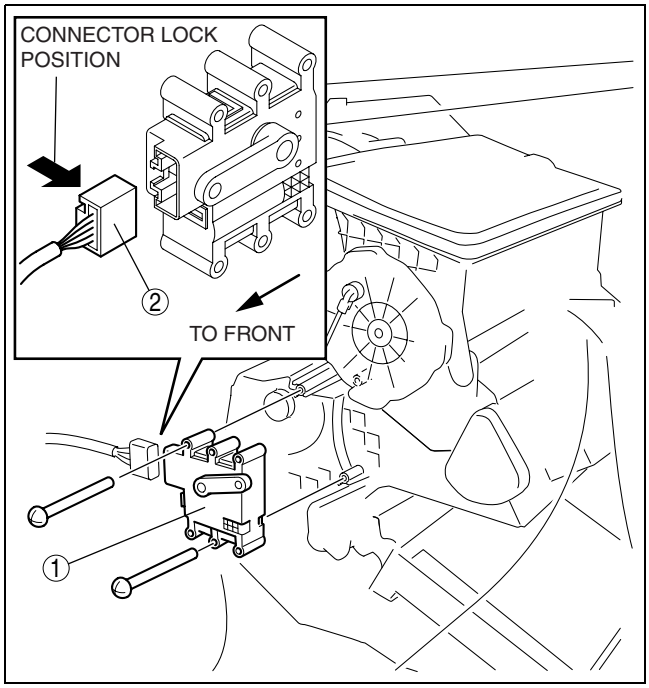
## AIRFLOW MODE ACTUATOR REMOVAL/INSTALLATION

DPE074061070W01

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Side wall (R.H.D.) (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Front console (R.H.D.) (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (3) Front scuff plate inner (passenger's side) (R.H.D.) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (4) Front side trim (passenger's side) (R.H.D.) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (5) Side panel (passenger's side) (R.H.D.) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (6) Glove compartment (R.H.D.) (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   (7) Column cover (L.H.D.) (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)
   (8) Front heat duct (driver's side) (L.H.D.)
3. Remove in the order indicated in the table.

| | |
|---|---|
| 1 | Airflow mode actuator |
| 2 | Airflow mode actuator connector |

4. Install in the reverse order of removal.




DPE740ZW1105

## AIRFLOW MODE ACTUATOR INSPECTION

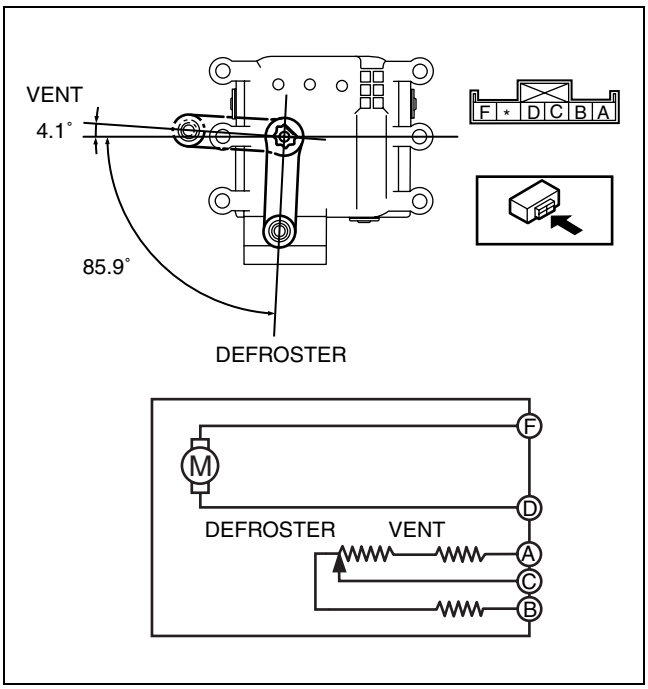
DPE074061070W03

**Caution**
- **If the lever position exceeds the operation range shown in the figure, the circuit in the actuator could be damaged. Always perform an actuator operation inspection with the lever movement within the range shown in the figure.**

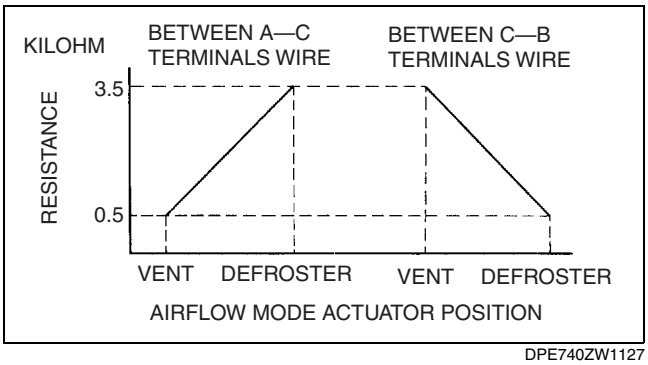
1. Connect battery positive voltage to airflow mode actuator terminal D (or F), connect terminal F (or D) to ground, and then verify that the airflow mode actuator operates as shown in the table.
   - If the operation condition is not normal, replace the airflow mode actuator.

| Terminal | | Airflow mode actuator operation |
|---|---|---|
| D | F | |
| B+ | Ground | VENT → DEFROSTER |
| Ground | B+ | DEFROSTER → VENT |

2. Verify that the resistance between terminals A and C, and C and B matches the airflow mode actuator operation as shown in the graph.
   - If the operation condition and resistance are not normal, replace the airflow mode actuator.




DPE740ZW1106



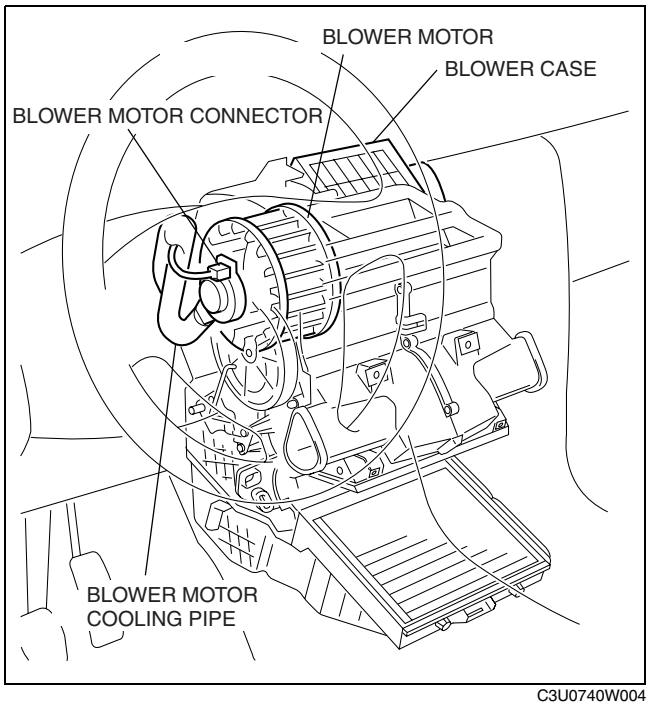

DPE740ZW1127

**BLOWER MOTOR REMOVAL**

DPE074061020W01

**Note**
- The blower motor is located on the A/C unit as shown in the figure.

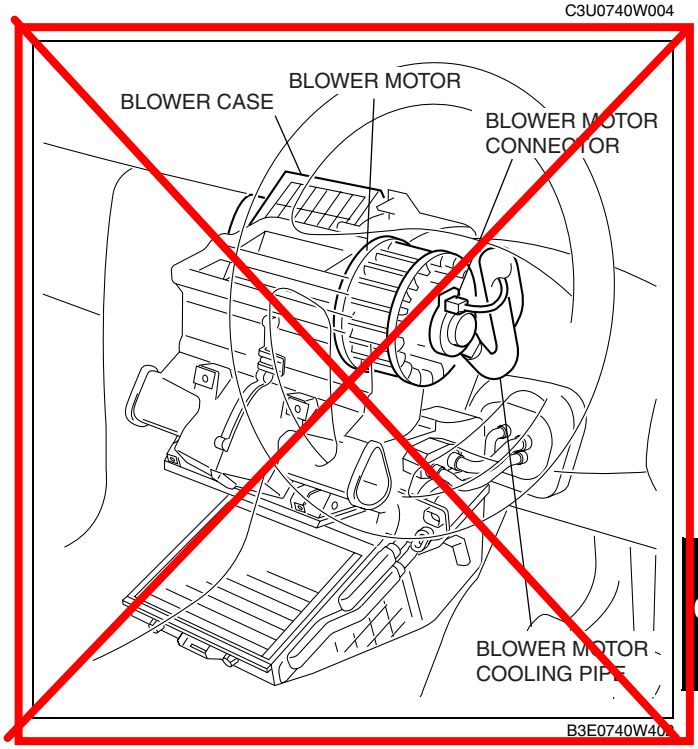
~~L.H.D.~~




C3U0740W004

~~R.H.D.~~

1. Set the air intake mode to FRESH.
2. Disconnect the negative battery cable.
3. Remove the following parts:
   (1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   ~~(3) Shift lever component (MTX) (See 05–18–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)~~
   (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (5) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (6) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (8) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   ~~(9) Car navigation unit (See 09–20–8 CAR NAVIGATION UNIT REMOVAL/INSTALLATION.)~~
   (10) Bonnet release lever (See 09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
   (11) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
   (12) Airflow mode actuator ~~(L.H.D.)~~ (See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/INSTALLATION.)
4. Remove the BCM wiring harness grommets.
5. ~~Set the car navigation unit wiring harness out of the way to secure the operation space.~~
6. ~~Disconnect the airflow mode main link side airflow mode rod. (R.H.D.)~~
7. Remove the screws shown in the figure and slide the blower case.



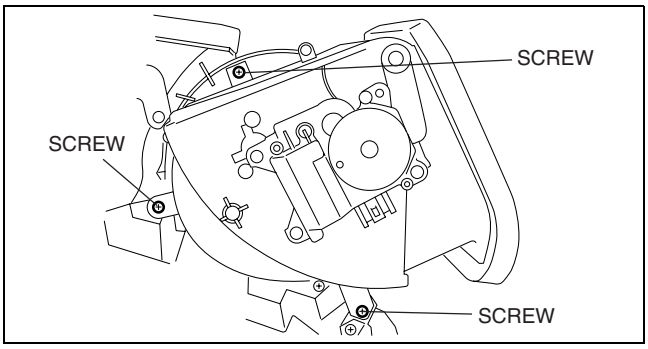

B3E0740W40

**Caution**

- **Slide the blower case while pressing the dashboard insulator, otherwise the blower case could be damaged.**

07

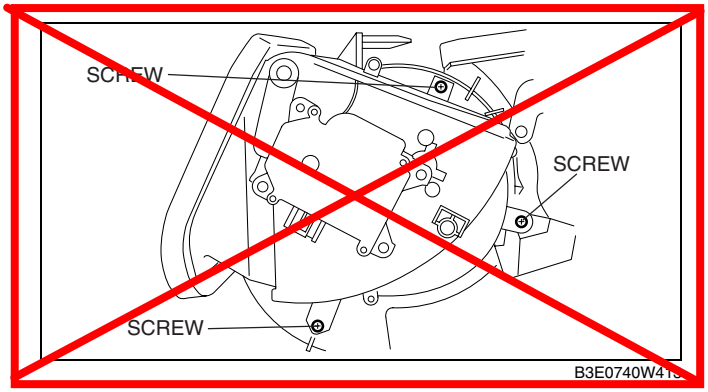
L.H.D.



B3E0740W012

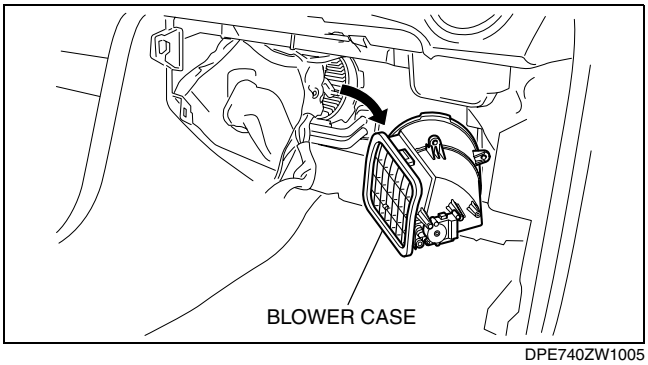
R.H.D.

8. Disconnect the air intake actuator connector.
9. Remove the blower case shown in the figure.



B3E0740W413

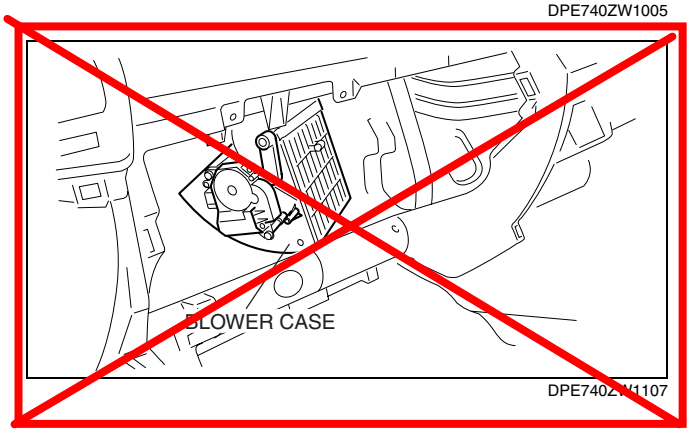
L.H.D.



DPE740ZW1005

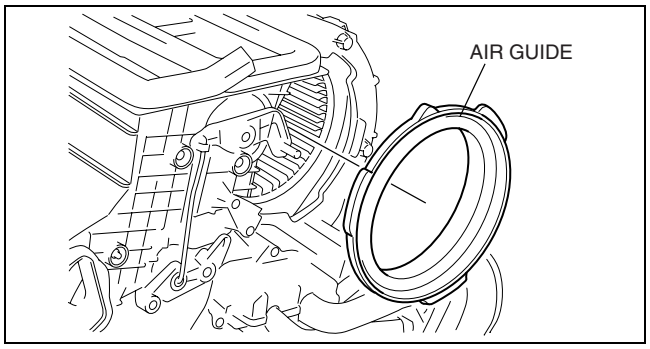
R.H.D.

10. Remove the air guide.



DPE740ZW1107

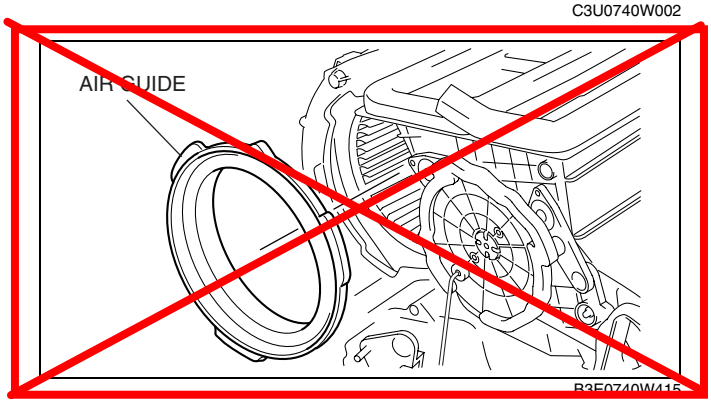
~~L.H.D.~~




C3U0740W002

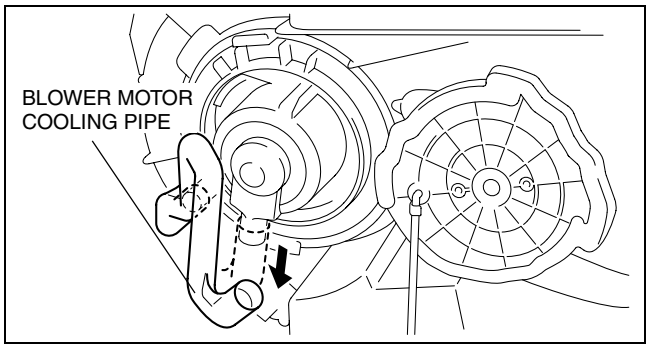
~~R.H.D.~~

11. Install the **SST (49 B061 015)** to the blower motor. (See 07–40–14 SST Installation Note.)
12. Disconnect the blower motor cooling pipe connected to the blower motor.




B3E0740W415

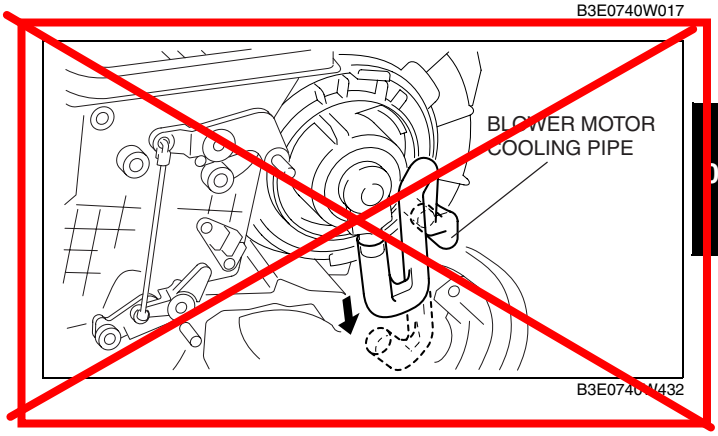
~~L.H.D.~~




B3E0740W017

~~R.H.D.~~

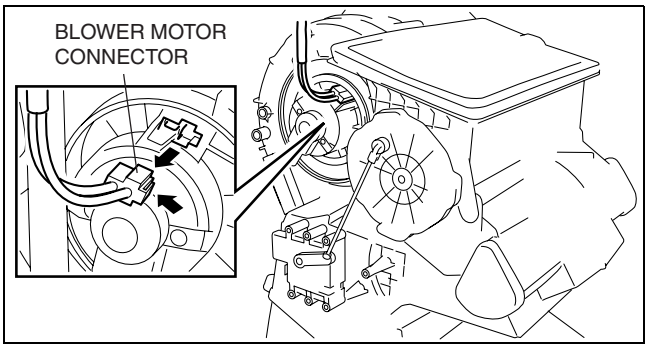
13. Disconnect the blower motor connector as shown in the figure.




B3E0740W432

07

~~L.H.D.~~



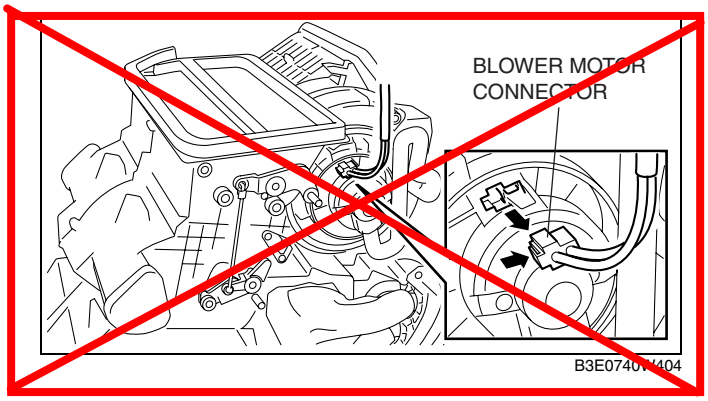
B3E0740W433

~~R.H.D.~~

14. Remove the blower motor cover. (See 07–40–15 Blower Motor Cover Removal Note.)

**Caution**
- **When the blower motor cover is removed, the blower motor could fall in the A/C unit case causing the sirocco fan to be damaged. Therefore another person must hold the blower motor at the installation position.**

15. Remove the blower motor by pulling it out. (See 07–40–15 Blower Motor Removal Note.)

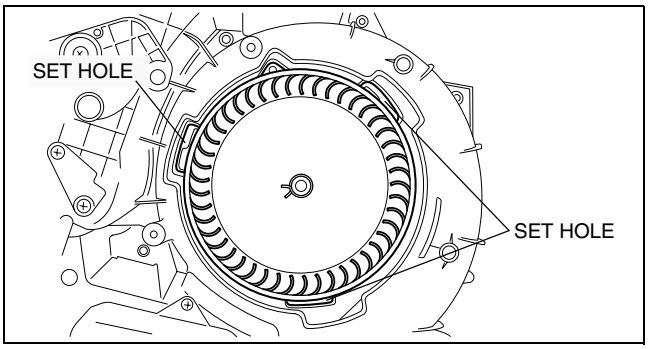


B3E0740W404

**SST Installation Note**

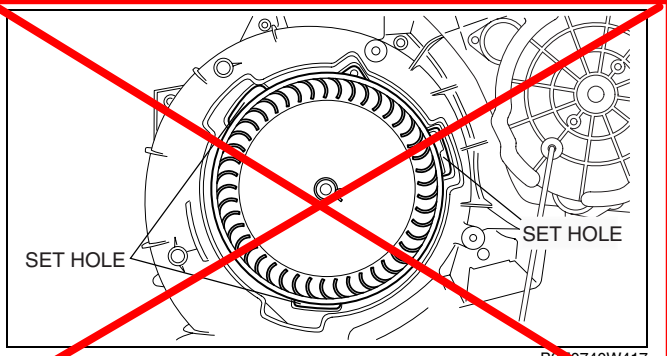
1. Align the **SST** guide with the sirocco fan clip position and press the **SST** tabs **(3)** into the three set holes on the blower motor until they are inserted.

~~L.H.D.~~

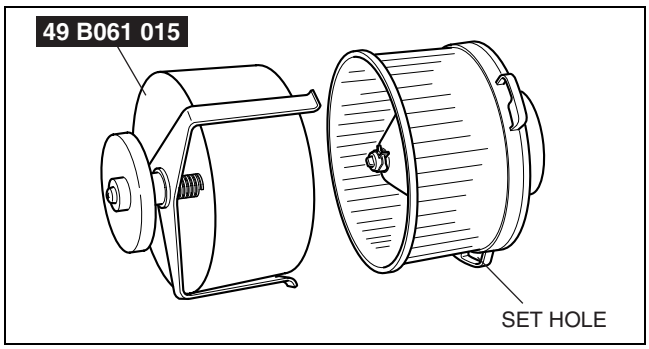


B3E0740W015

~~R.H.D.~~

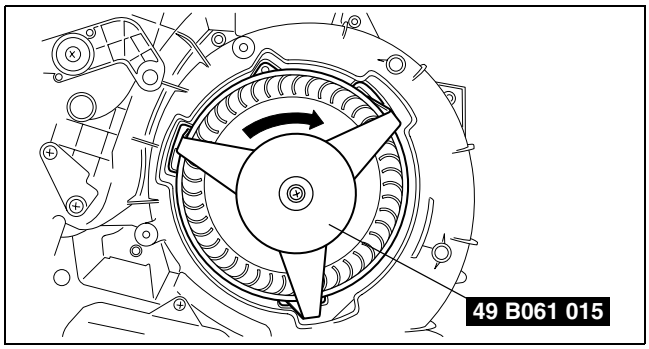


B3E0740W417



DPE740ZW1108

2. Rotate the **SST (49 B061 015)** clockwise to lock the **SST** and blower motor.

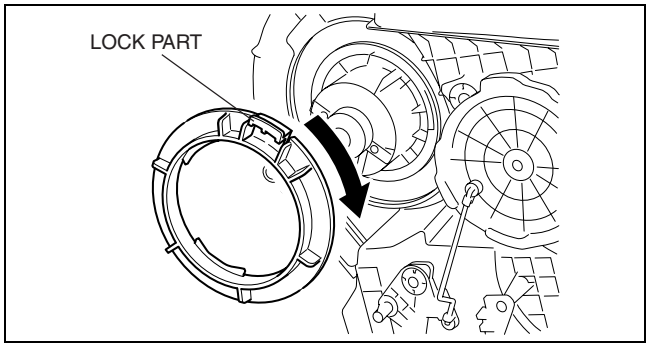


B3E0740W016

**Blower Motor Cover Removal Note**

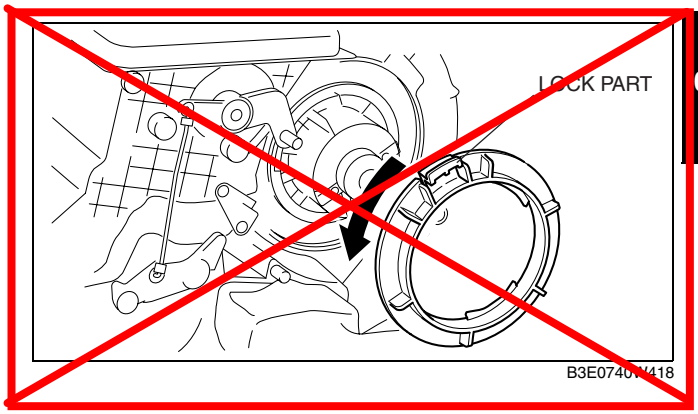
1. Pull the lock on the top of the blower motor cover and rotate the blower motor cover .

~~L.H.D.~~



B3E0740W018

~~R.H.D.~~



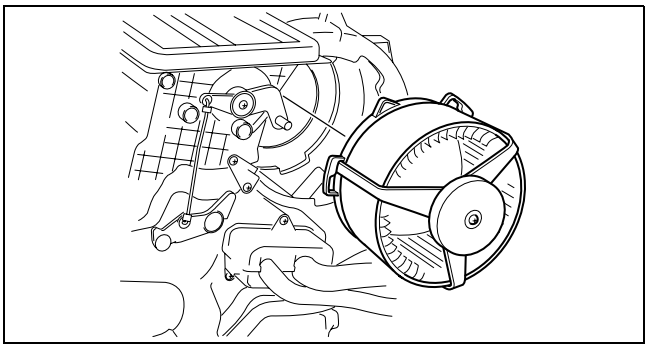
B3E0740W418

**Blower Motor Removal Note**

**Caution**

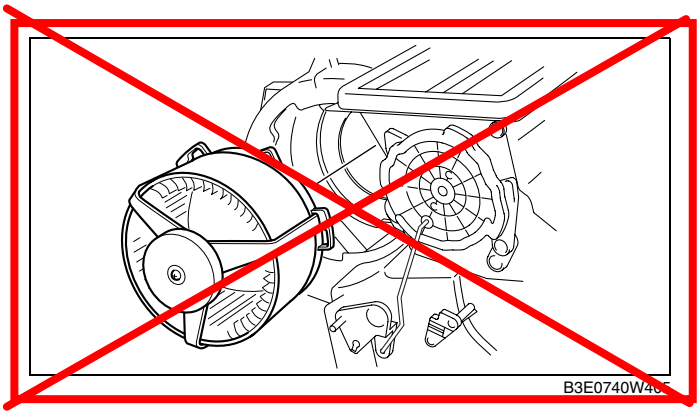
- **To prevent damage to the sirocco fan, pull the blower motor out being careful that the blower motor does not interfere with the A/C unit.**

~~L.H.D.~~



B3E0740W019

~~R.H.D.~~



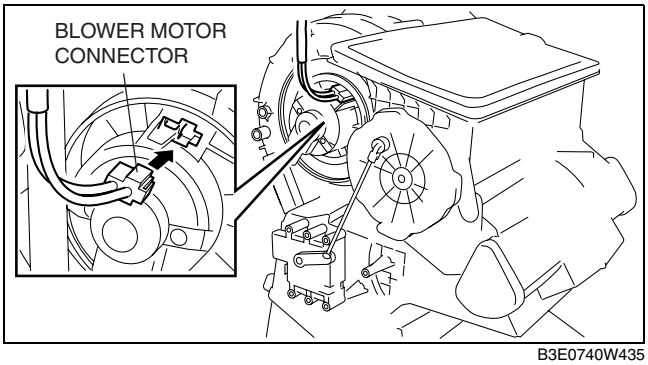
B3E0740W4

**BLOWER MOTOR INSTALLATION**

DPE074061020W02

1. Install the **SST** to the blower motor. (See 07–40–14 SST Installation Note.)
2. Install the blower motor with the **SST (49 B061 015)** installed, to the A/C unit. (See 07–40–17 Blower Motor Installation Note.)
3. Install the blower motor cover from the driver's side. (See 07–40–18 Blower Motor Cover Installation Note.)
4. Connect the blower motor connector as shown in the figure.

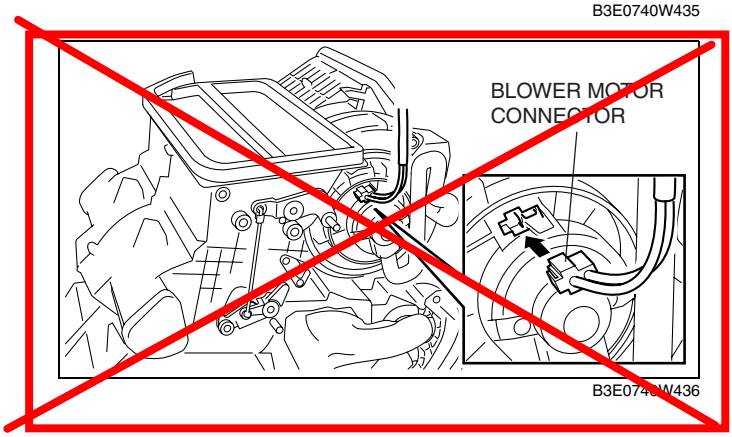
~~L.H.D.~~




B3E0740W435

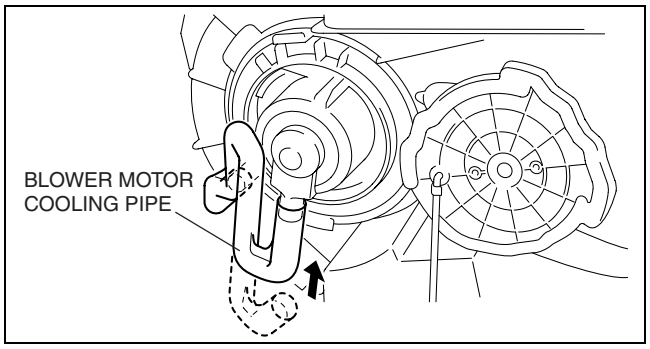
~~R.H.D.~~

5. Install the blower motor cooling pipe.



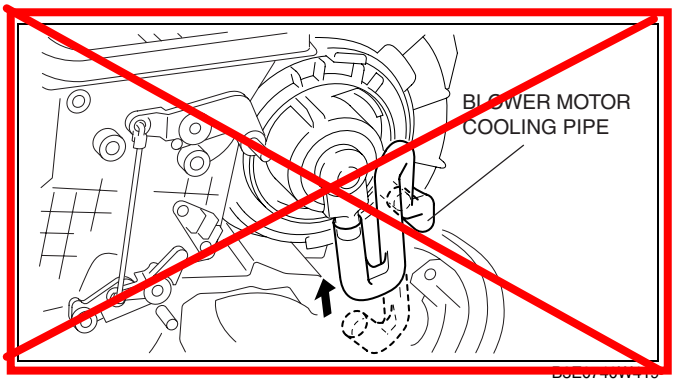

B3E0740W436

~~L.H.D.~~




B3E0740W024

~~R.H.D.~~



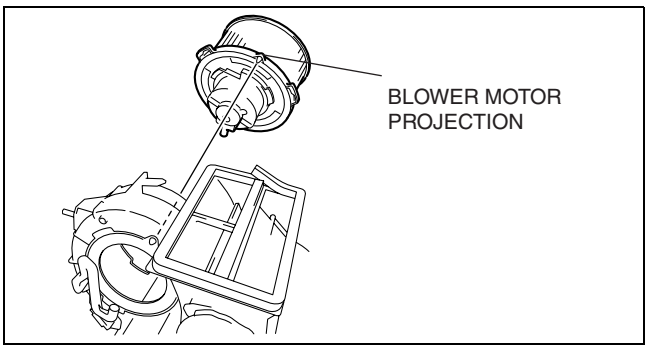

6. Remove the **SST (49 B061 015)** from the blower motor.
7. Install the air guide.

**Caution**
- **Install the blower case while pressing the dashboard insulator, otherwise the blower case could be damaged.**

8. Temporatily install the blower case.
9. Connect the air intake actuator connector.
10. Install the blower case.
11. ~~Install the airflow mode rod. (R.H.D.)~~
12. Install the following parts:
    (1) Airflow mode actuator ~~(L.H.D.)~~ (See 07–40–9 AIRFLOW MODE ACTUATOR REMOVAL/INSTALLATION.)
    (2) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
    (3) Bonnet release lever (See 09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
    (4) BCM harness grommet
    ~~(5) Car-navigation unit (See 09–20–8 CAR-NAVIGATION UNIT REMOVAL/INSTALLATION.)~~
    (6) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
    (7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
    (8) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
    (9) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
    (10) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
    ~~(11) Shift lever component (MTX) (See 05–18–4 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)~~
    (12) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
    (13) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)

**Blower Motor Installation Note**
1. Position the blower motor projection upward and install the blower motor to the A/C unit.

**Caution**
- **To prevent damage to the sirocco fan, install the blower motor being careful that the blower motor does not interfere with the A/C unit. Also, another person must hold the blower motor at the installation position.**

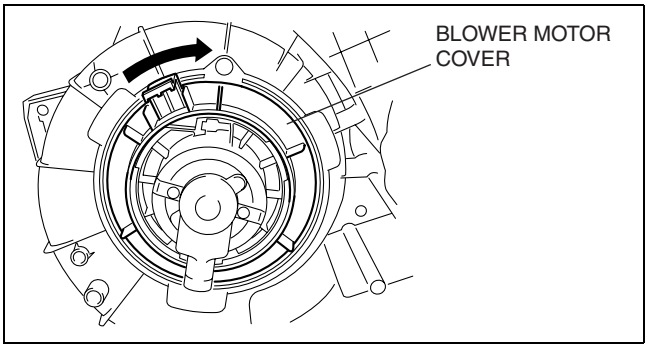


B3E0740W022

**Blower Motor Cover Installation Note**

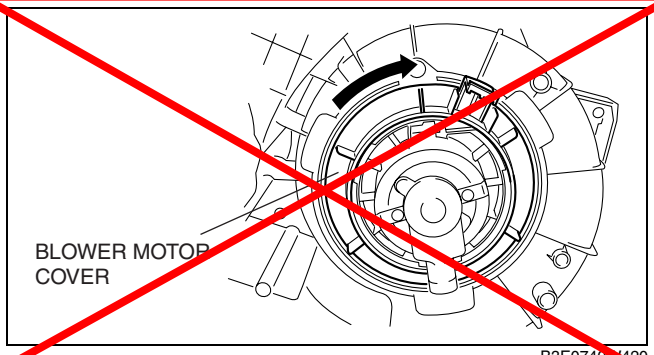
1. To install, rotate the blower motor cover until a click is heard.

~~L.H.D.~~



B3E0740W023

~~R.H.D.~~



B3E0740W420

**Blower Case Installation Note**

1. If not replacing the blower case, replace the adhesive polyurethane on the fresh-air inlet of the blower case.

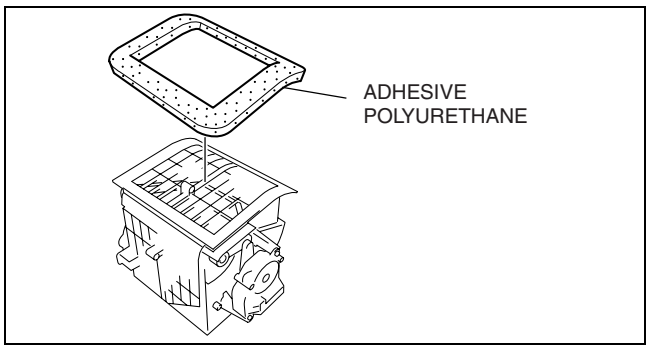
**Caution**

- **To adhere new polyurethane properly, be sure to remove the adhesive agent and adhesive polyurethane completely.**

**Note**

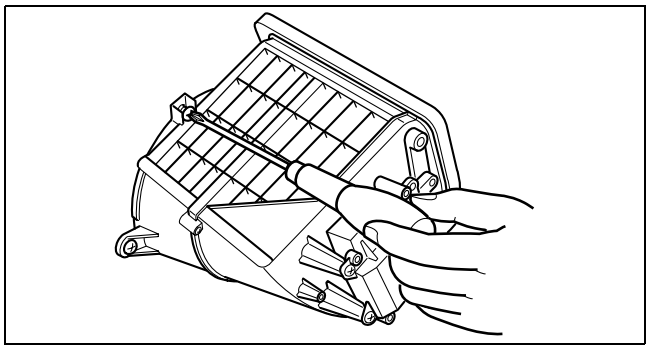
- If the blower case is removed or installed, the adhesive polyurethane can be damaged. Damaged adhesive polyurethane could cause abnormal noise or other malfunctions, therefore replace it.

2. Insert the screw into the blower case.




B3E0740W025

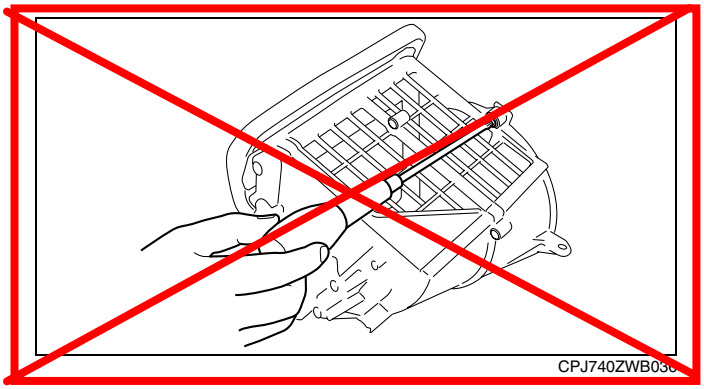
~~L.H.D.~~



DPE740ZW1006

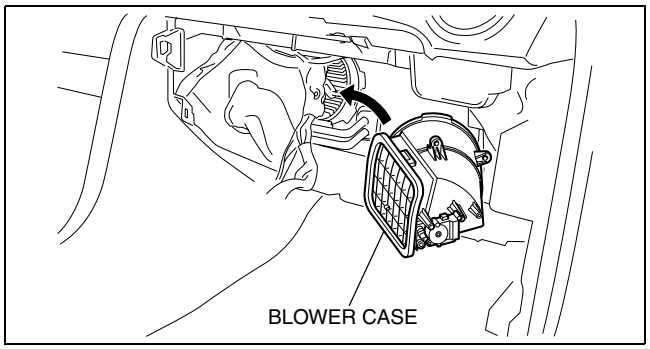
~~R.H.D.~~

3. Insert the blower case in the direction shown in the figure.



CPJ740ZWB030

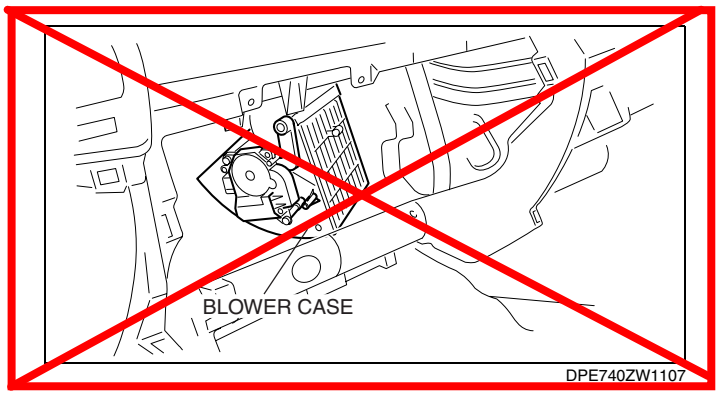
~~L.H.D.~~



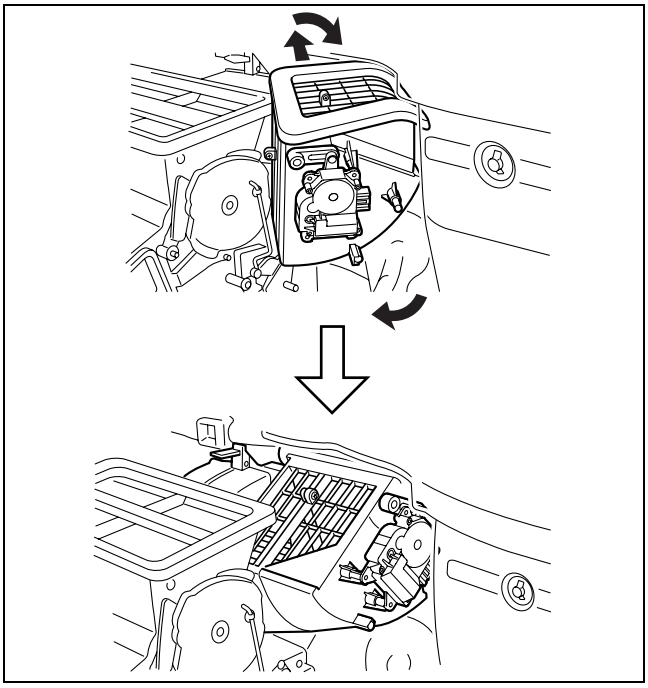

DPE740ZW1128

~~R.H.D.~~

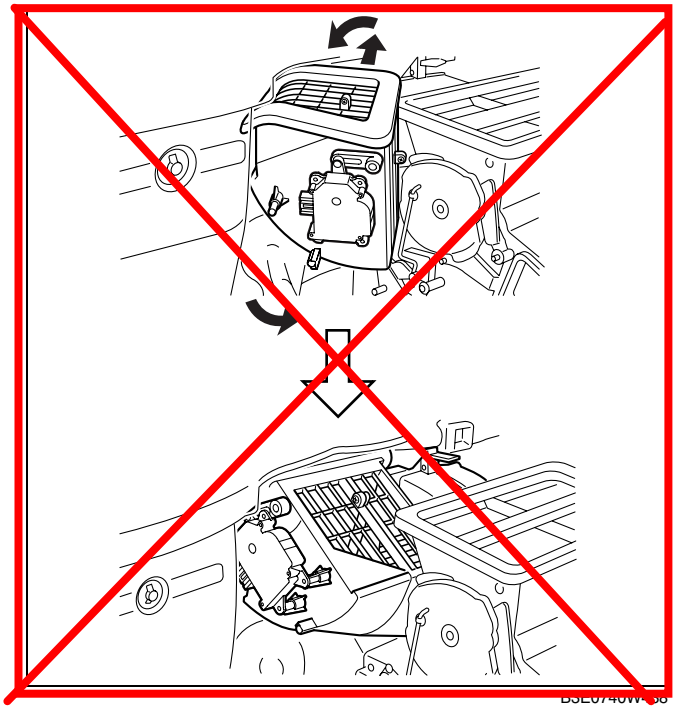
4. Insert and rotating it in the directions of the arrows shown in the figure.




~~L.H.D.~~




~~R.H.D.~~



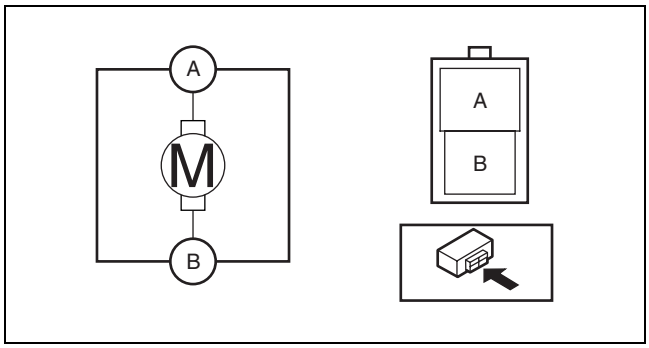
**BLOWER MOTOR INSPECTION**

DPE074061020W03

Connect battery positive voltage to blower motor terminal A, connect terminal B to ground, and then verify its

operation.

- If there is any malfunction, replace the blower motor.



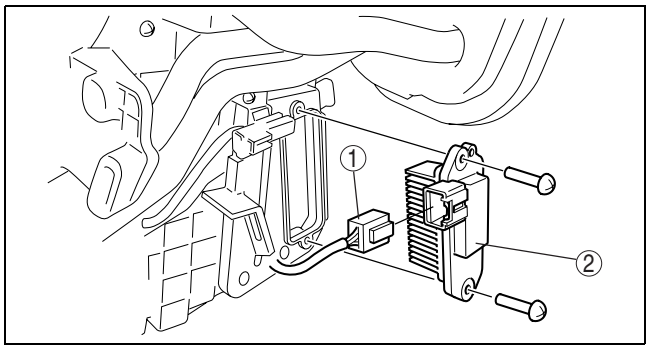

ADJ8540W108

### POWER MOS FET REMOVAL/INSTALLATION

DPE074000116W01

1. Disconnect the negative battery cable.
2. Remove the side wall. (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
3. Remove the under cover. ~~(L.H.D.)~~
4. Remove in the order indicated in the table.

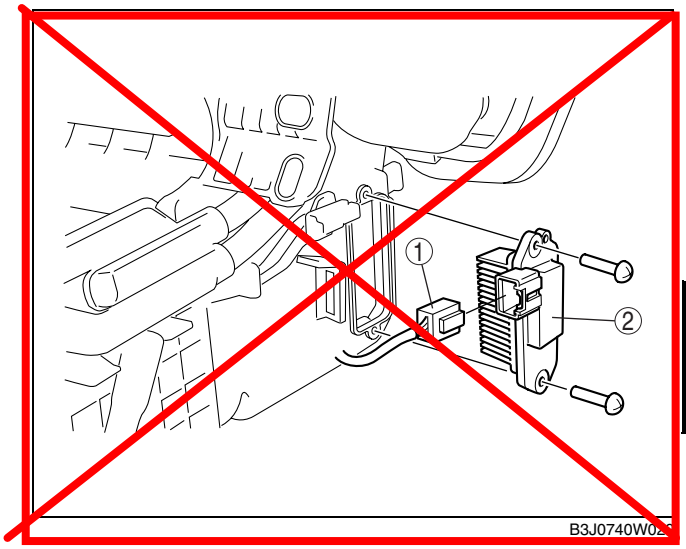
~~L.H.D.~~




B3E0740W027

~~R.H.D.~~

| | |
|---|---|
| 1 | Power MOS FET connector |
| 2 | Power MOS FET |




B3J0740W02

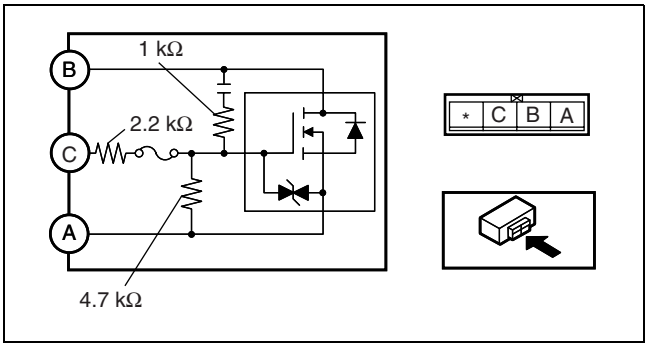
5. Install in the reverse order of removal.

### POWER MOS FET INSPECTION

DPE074000116W02

1. Verify that the continuity between the power MOS FET terminals is as indicated in the table.
   - If there is any malfunction, replace the power MOS FET.
   - If the blower motor operation is not normal even though no malfunction can be verified, inspect the climate control unit. (See 07–40–40 CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].)

| Tester lead | | Resistance (kilohm) |
|---|---|---|
| + | - | |
| A | B | ∞ |
| A | C | 6.9 |
| B | A | Continuity detected |
| B | C | Continuity detected |
| C | A | 6.9 |
| C | B | ∞ |



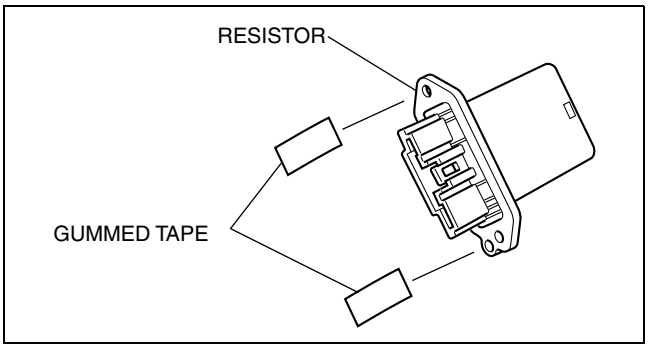

CPJ740ZWB110

## RESISTOR REMOVAL/INSTALLATION

DPE074061015W01

**L.H.D.**

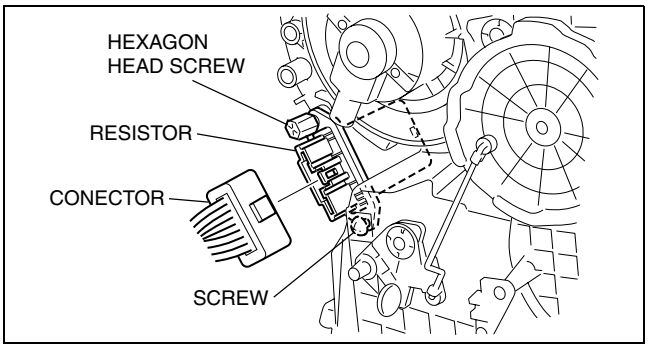
1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Front scuff plate inner (driver's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (2) Front side trim (driver's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (3) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (4) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (5) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (6) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (7) Bonnet release lever (See 09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
   (8) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
3. Disconnect the blower motor cooling pipe connected to the blower motor.
4. Disconnect the resistor connector.
5. Remove the resistor.
6. Affix the gummed tape to the thread hole area as shown in the figure. (Do not wrap the gummed tape around the backside of the resistor.)




DPE740ZW1007

7. Stick the screw into the thread hole.
8. Set the resistor to the A/C unit and temporarily tighten the hexagon head screw.

**Caution**
- **While setting the resistor, be careful not to damage the pattern surface. Otherwise it could cause a resistor operation malfunction.**



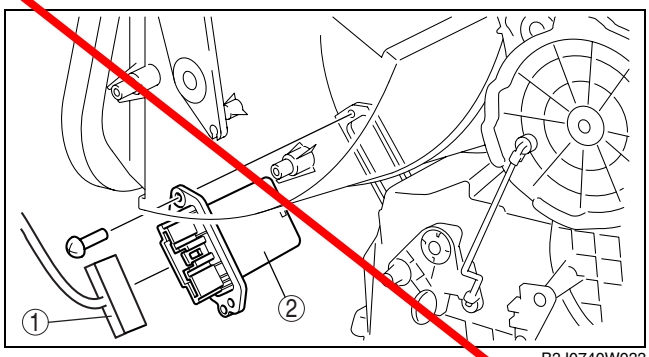

DPE740ZW1008

9. Tighten the lower screw.
10. Tighten the hexagon head screw.
11. Connect the resistor connector.
12. Connect the blower motor cooling pipe.
13. Install the following parts:
    (1) Accelerator pedal
    (2) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
    (3) Bonnet release lever (See 09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
    (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
    (5) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
    (6) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/

INSTALLATION.)
(7) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
(8) Front side trim (driver's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
(9) Front scuff plate inner (driver's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
14. Connect the negative battery cable.

**R.H.D.**
1. Disconnect the negative battery cable.
2. Remove the following parts:
(1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
(2) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
(3) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
(4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
(5) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
(6) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
(7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
(8) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
3. Remove in the order indicated in the table.

**Caution**
- **While setting the resistor, be careful not to damage the pattern surface. Otherwise it could cause a resistor operation malfunction.**



B3J0740W033

| | |
|---|---|
| 1 | Resister connector |
| 2 | Resister |

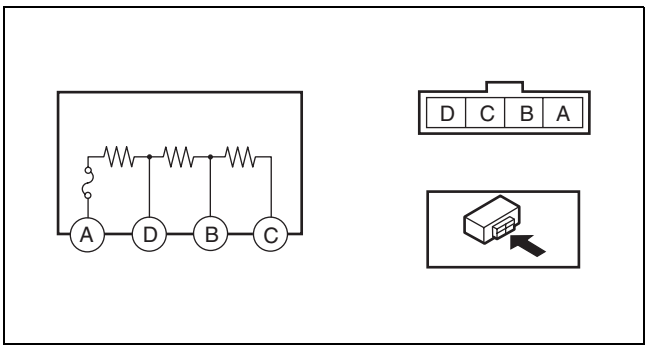
4. Install in the reverse order of removal.

## RESISTOR INSPECTION

DPE074061015W02

1. Verify that the resistance between the resistor terminals is as shown in the table.
- If there is any malfunction, replace the resistor.

| Terminal | Resistance (ohm) |
|---|---|
| A—D | 0.27—0.30 |
| A—B | 0.77—0.87 |
| A—C | 3.05—3.49 |



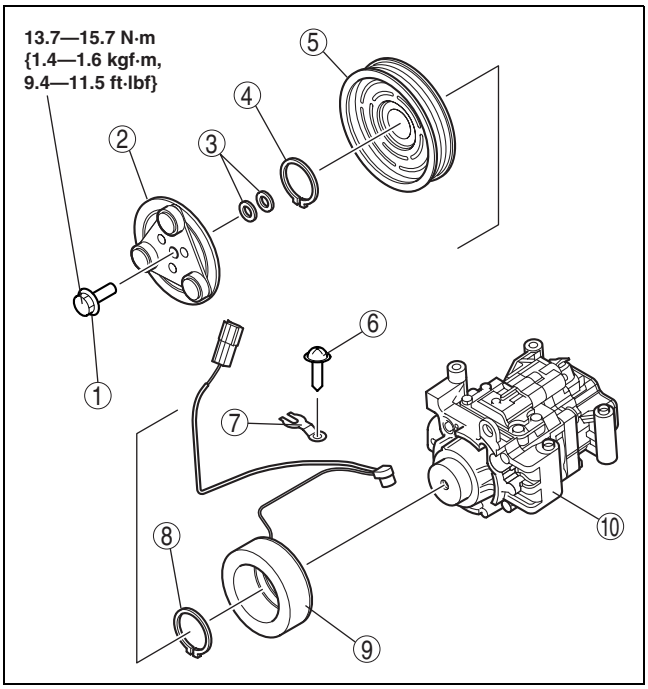

B3E0740W030

## MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY [LF, L8]

DPE074061010W02

1. Disassemble in the order indicated in the table.

| | |
|---|---|
| 1 | Bolt<br>(See 07–40–25 Bolt Removal/Installation Note.) |
| 2 | Pressure plate |
| 3 | Shim |
| 4 | Snap ring<br>(See 07–40–26 Snap Ring Installation Note.) |
| 5 | A/C compressor pulley |
| 6 | Screw<br>(See 07–40–25 Screw Installation Note.) |
| 7 | Clamp<br>(See 07–40–26 Clamp Installation Note.) |
| 8 | Snap ring<br>(See 07–40–26 Snap Ring Installation Note.) |
| 9 | Stator and thermal protector<br>(See 07–40–25 Stator and Thermal Protector Removal Note.)<br>(See 07–40–25 Stator and Thermal Protector Installation Note.) |
| 10 | A/C compressor body |




DPE740ZW1133

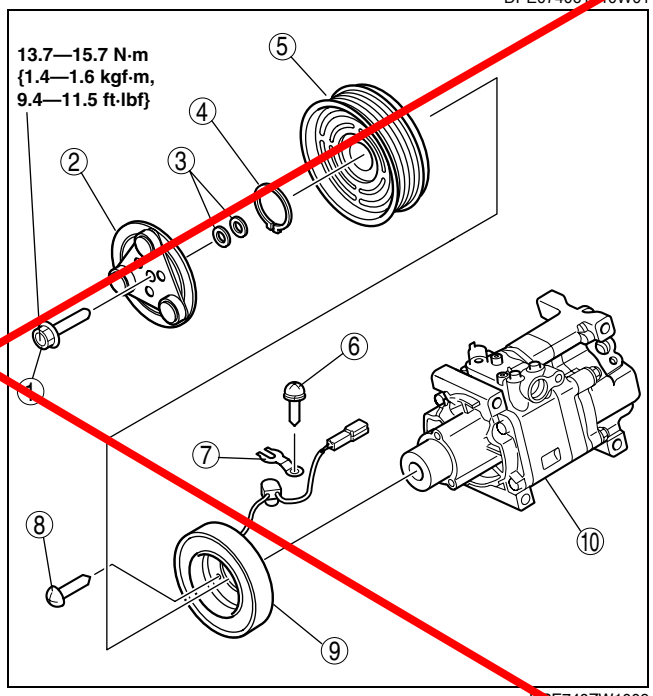
2. Assemble in the reverse order of disassembly.
3. Adjust the magnetic clutch clearance. (See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [LF, L8].)

## MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY [MZR-CD (RF TURBO)]

1. Disassemble in the order indicated in the table.

| | |
|---|---|
| 1 | Bolt<br>(See 07–40–25 Bolt Removal/Installation Note.) |
| 2 | Pressure plate |
| 3 | Shim |
| 4 | Snap ring<br>(See 07–40–26 Snap Ring Installation Note.) |
| 5 | A/C compressor pulley |
| 6 | Screw<br>(See 07–40–25 Screw Installation Note.) |
| 7 | Clamp<br>(See 07–40–26 Clamp Installation Note.) |
| 8 | Screw<br>(See 07–40–25 Screw Installation Note.) |
| 9 | Stator and thermal protector<br>(See 07–40–25 Stator and Thermal Protector Removal Note.)<br>(See 07–40–25 Stator and Thermal Protector Installation Note.) |
| 10 | A/C compressor body |

2. Assemble in the reverse order of disassembly.
3. Adjust the magnetic clutch clearance. (See 07–40–26 MAGNETIC CLUTCH ADJUSTMENT [MZR-CD (RF Turbo)].)

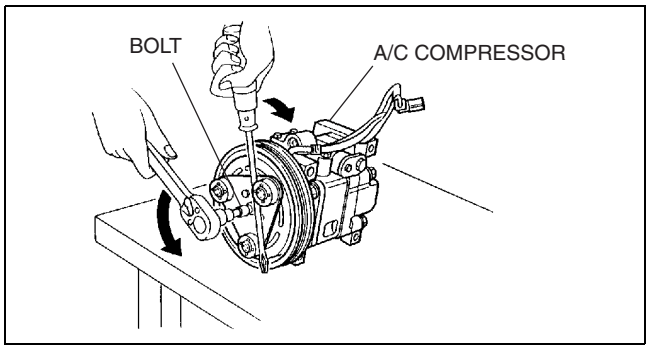


DPE0740610W01

DPE740ZW1009

### Bolt Removal/Installation Note

1. When removing or installing the bolt, hold the pressure plate in place as shown in the figure.
2. When installing a new A/C compressor body, replace the recommended bolt.



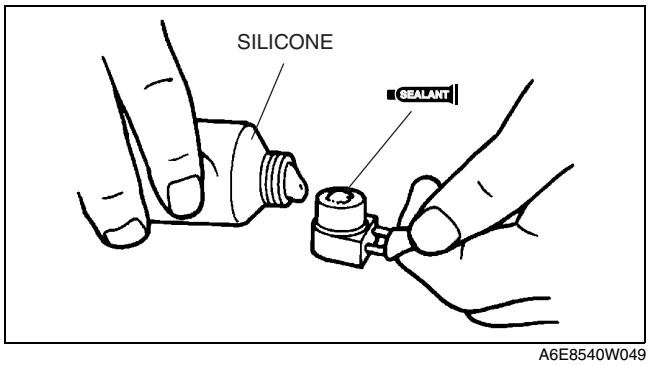
A6E8540W048

### Stator and Thermal Protector Removal Note

1. After removing the stator and thermal protector, completely remove the silicone adhering to the A/C compressor side.

### Stator and Thermal Protector Installation Note

1. Apply **approx. 1 g {0.04 oz}** of silicone (Shin-Etsu Silicone KE-347W or similar) to the contact surface of the thermal protector, then thoroughly install it onto the A/C compressor, leaving no gaps.



A6E8540W049

### Screw Installation Note

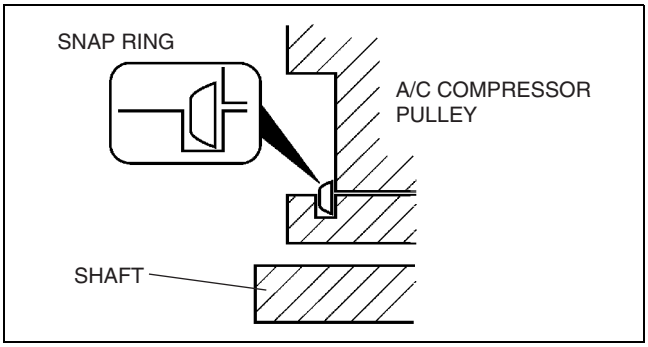
1. When installing a new stator and thermal protector, replace the screw.

**Clamp Installation Note**

1. When installing a new stator and thermal protector, replace the clamp.

**Snap Ring Installation Note**

1. When installing a new pressure plate, A/C compressor pulley, stator, or A/C compressor body, replace the snap ring.



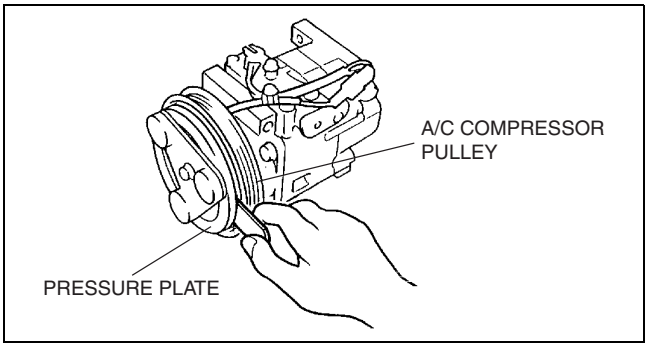

A6E8540W050

**MAGNETIC CLUTCH ADJUSTMENT ~~[LF, L3]~~**

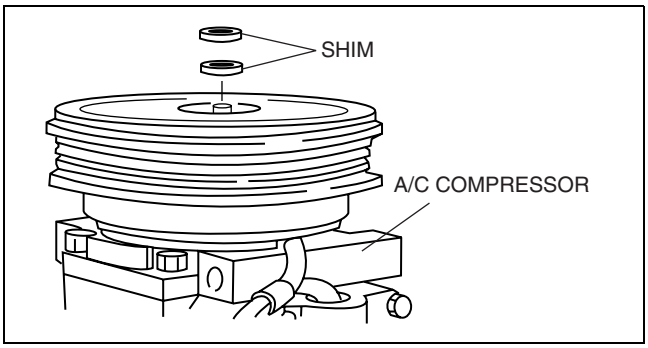
DPE074061010W04

1. Measure the clearance around the entire circumference between the pressure plate and A/C compressor pulley using a thickness gauge.
2. Verify that the clearance.
   - If not within the specification, remove the pressure plate and adjust the clearance by changing the shim (**0.2 mm {0.008 in}, 0.5 mm {0.02 in}**) or the number of shims.

**Magnetic clutch clearance**
**0.3—0.5 mm {0.012—0.019 in}**




A6E8540W051

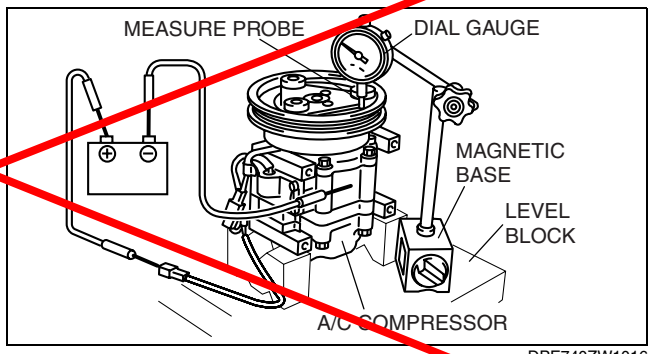



DPE740ZW1109

~~**MAGNETIC CLUTCH ADJUSTMENT [MZR-CD (RF-TURBO)]**~~

~~DPE074061010W05~~

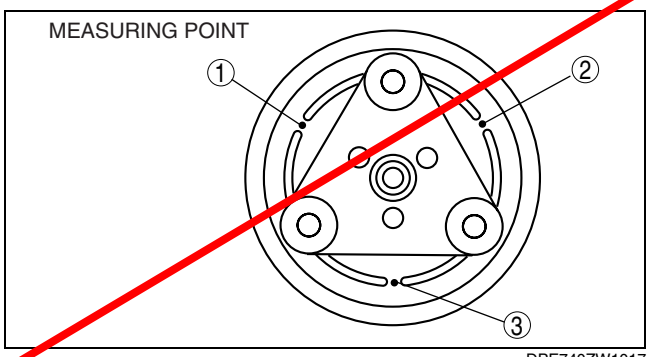
1. ~~Set the A/C compressor on a level block.~~
2. ~~Turn on the magnetic clutch by connecting the battery positive voltage to the magnetic clutch connector terminal and ground to the A/C compressor body.~~
3. ~~Fix a dial gauge on a magnetic base and sent the measuring probe onto point A on the pressure plate surface.~~



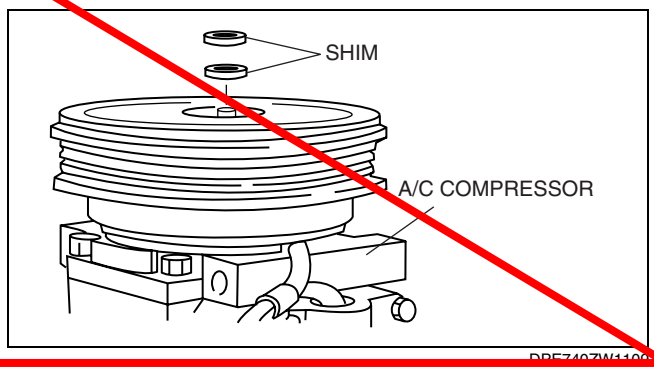

~~DPE740ZW1016~~

4. Turn off the magnetic clutch by disconnecting the ground from the A/C compressor body, then measure the dial gauge readings.
5. Measure the clearance for points B and C on the pressure plate surface by repeating the above Step 2 through 4.
6. Verify that the clearance.
   - If not within the specification, remove the pressure plate and adjust the clearance by changing the shim (**0.2 mm {0.008 in}, 0.5 mm {0.02 in}**) or the number of shims.

**Magnetic clutch clearance**
**0.3—0.5 mm {0.012—0.019 in}**



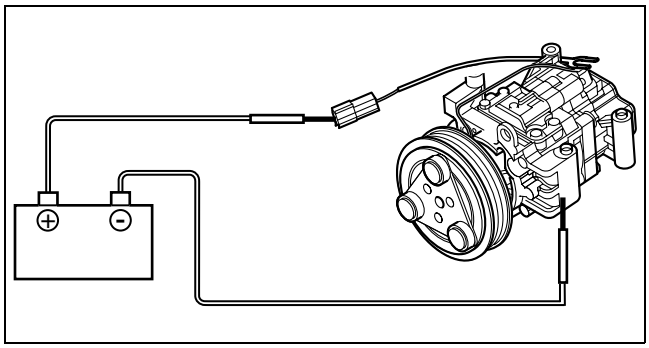
DPE740ZW1017



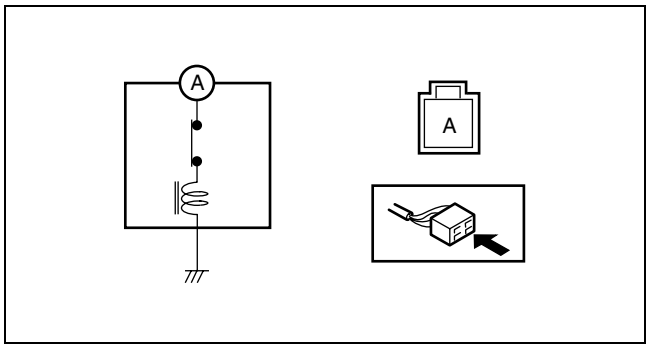

### MAGNETIC CLUTCH INSPECTION [LF, L8]

DPE074061010W07

1. Connect battery positive voltage to magnetic clutch terminal A and the A/C compressor body to ground.


B3E0740W064

2. Verify that the magnetic clutch operates.
   - If there is any malfunction, replace the stator and thermal protector.



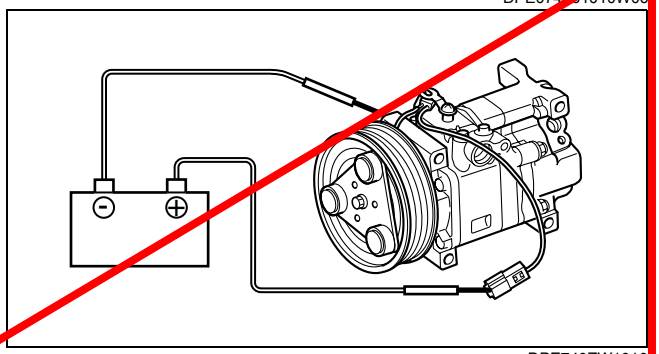
B3E0740W034

07

## MAGNETIC CLUTCH INSPECTION [MZR-CD (RF TURBO)]

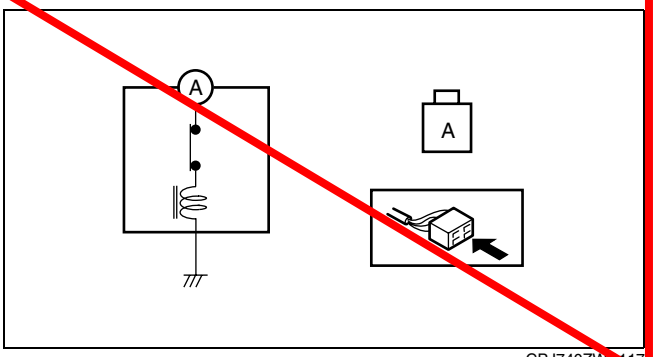
DPE074061010W06

1. Connect battery positive voltage to magnetic clutch terminal A and the A/C compressor body to ground.



DPE740ZW1010

2. Verify that the magnetic clutch operates.
   - If there is any malfunction, replace the stator and thermal protector.




CPJ740ZWB117

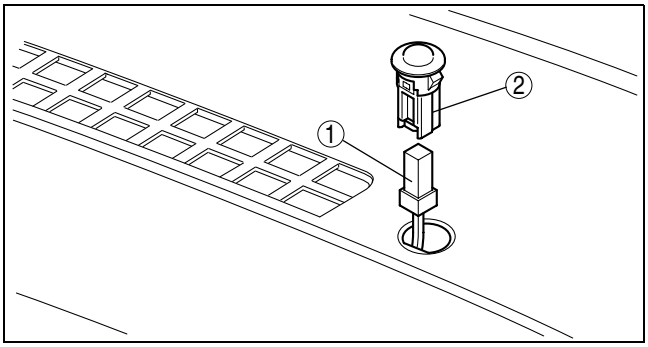
## SOLAR RADIATION SENSOR REMOVAL/INSTALLATION

DPE074061751W01

1. Disconnect the negative battery cable.
2. Pry the solar radiation sensor from the dashboard using a flathead screwdriver wrapped with protective tape.
3. Remove in the order indicated in the table.

**Caution**
- **After the solar radiation sensor removal, the sensor connector could fall in the dashboard making the installation difficult. Therefore, hold the rooted end of the sensor connector using a clip or similar tool to prevent it from falling.**

| | |
|---|---|
| 1 | Solar radiation sensor connector |
| 2 | Solar radiation sensor |



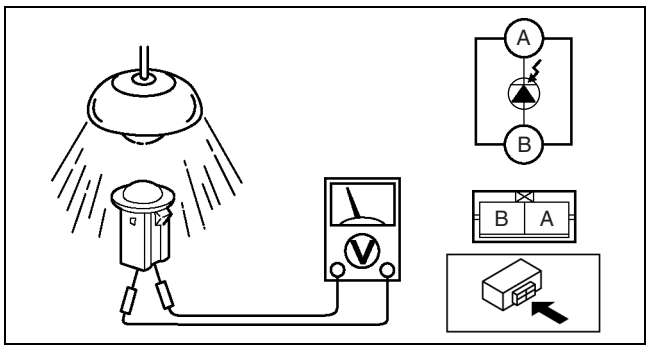

CPJ740ZWB007

4. Install in the reverse order of removal.

## SOLAR RADIATION SENSOR INSPECTION

DPE074061751W02

1. Shine an incandescent light (**approx. 60 W**) directly on the solar radiation sensor from **approx. 100 mm {3.9 in}**.
2. Using a tester, connect the positive (+) lead to solar radiation sensor terminal A, the negative (-) lead to terminal B and verify that the output voltage is **approx. 0.45 V**.
   - If the voltage is not normal, replace the solar radiation sensor.




B3E0740W062

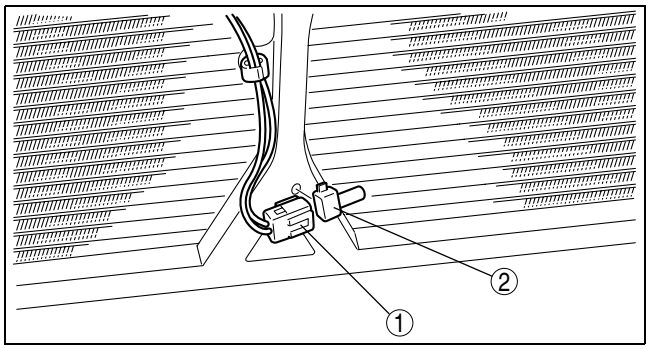
## AMBIENT TEMPERATURE SENSOR REMOVAL/INSTALLATION

DPE074061764W01

1. Disconnect the negative battery cable.
2. Remove the radiator grille. (normal bumper)
3. Remove the under cover. (sport bumper)
4. Remove in the order indicated in the table.

| | |
|---|---|
| 1 | Ambient temperature sensor connector |
| 2 | Ambient temperature sensor |

5. Install in the reverse order of removal.

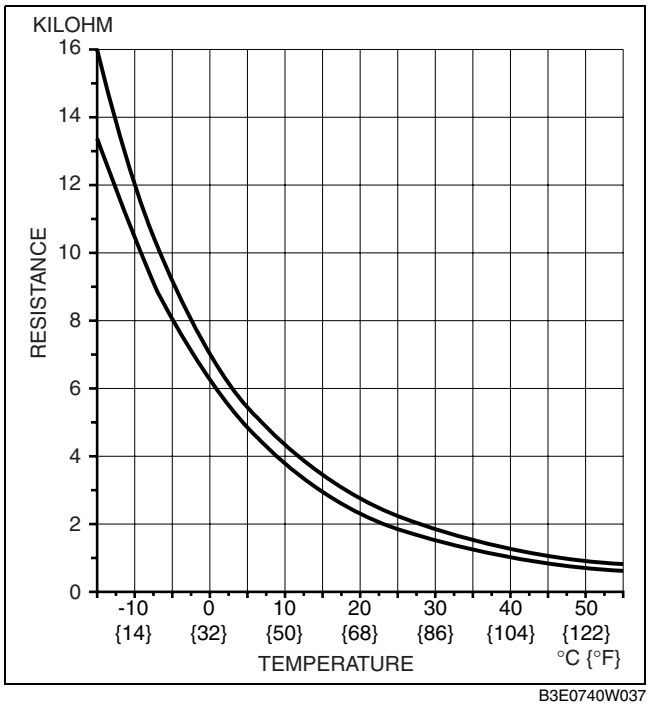



CPJ740ZWB008

## AMBIENT TEMPERATURE SENSOR INSPECTION

DPE074061764W02

1. Measure the temperature around the ambient temperature sensor and measure the resistance between the ambient temperature sensor terminal.
   - If the characteristics of the ambient temperature sensor are not as shown in the graph, replace the ambient temperature sensor.




B3E0740W037

## CABIN TEMPERATURE SENSOR REMOVAL/INSTALLATION

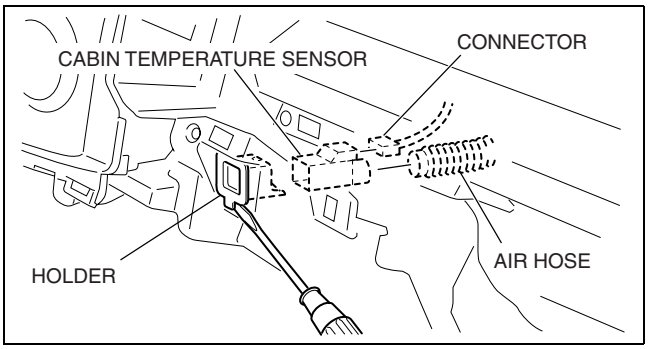
DPE074061758W01

1. Disconnect the negative battery cable.
2. Remove the following parts: ~~(L.H.D.)~~
   (1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   ~~(2) Shift lever component (MTX) (See 05–13–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/~~

07

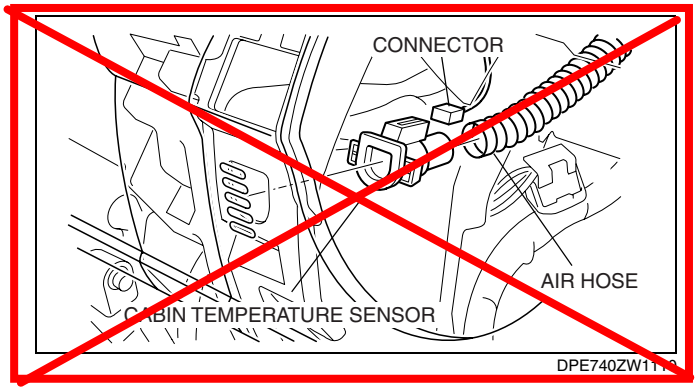
~~INSTALLATION.)~~
(3) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
(4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
(5) Front scuff plate inner (passenger's side) (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
(6) Front side trim (passenger's side) (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
(7) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
(8) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
~~3. Remove the column cover. (R.H.D.) (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)~~
4. Remove the air hose.
5. Disconnect the cabin temperature sensor connector.
6. Insert a tape-wrapped flathead screwdriver into the convex part of the cabin temperature sensor and pry it to remove the cabin temperature sensor together with cabin temperature sensor holder. (L.H.D.)
7. Remove the cabin temperature sensor.

~~L.H.D.~~



DPE740ZW1011

~~R.H.D.~~
8. Install in the reverse order of removal.

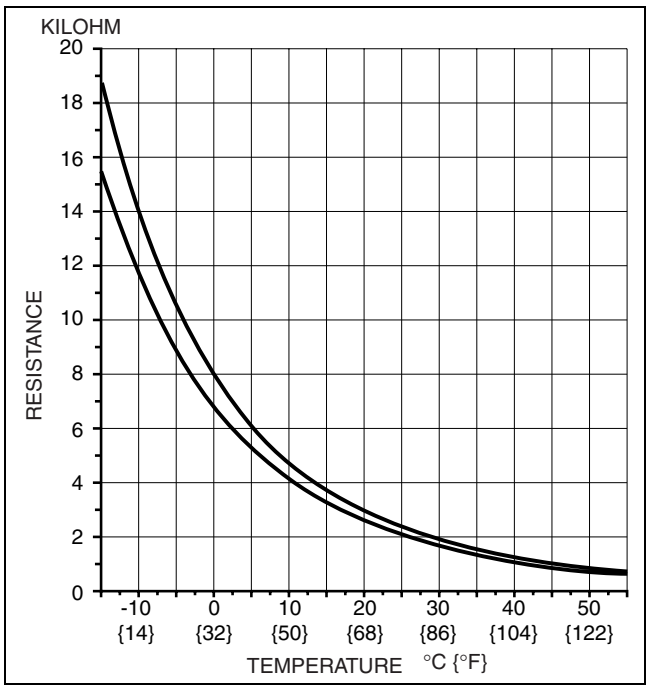


DPE740ZW1112

**CABIN TEMPERATURE SENSOR INSPECTION**

DPE074061758W02

1. Measure the temperature around the cabin temperature sensor and measure the resistance between cabin temperature sensor terminals A and B.
   - If the characteristics of the cabin temperature sensor are not as shown in the graph, replace the cabin temperature sensor.




DPE740ZW1111

## EVAPORATOR TEMPERATURE SENSOR REMOVAL/INSTALLATION

DPE074061022W01

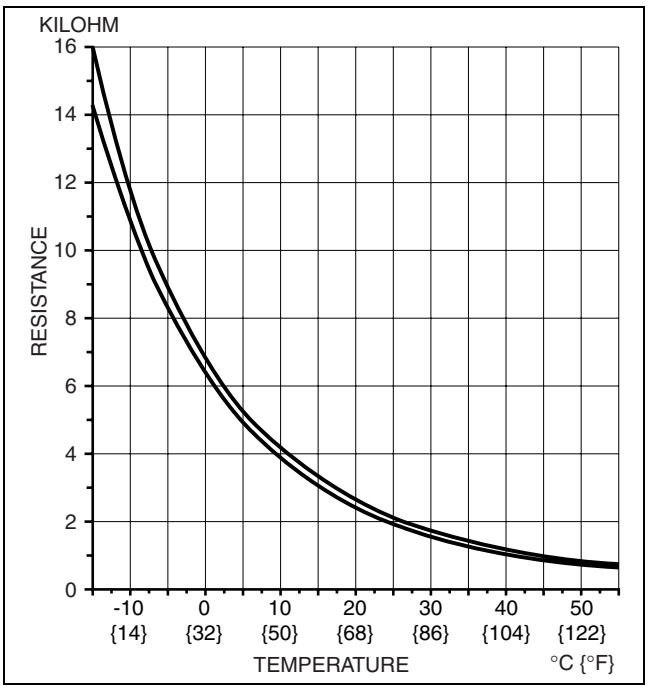
1. Remove the evaporator temperature sensor from the A/C unit. (See 07–11–7 A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (LF, L8)].) (See 07–11–10 A/C UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER (MZR-CD (RF-Turbo))].) (See 07–11–14 A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (LF, L8)].) (See 07–11–17 A/C UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER (MZR-CD (RF-Turbo))].)

## EVAPORATOR TEMPERATURE SENSOR INSPECTION

DPE074061022W02

**Note**
- Inspect the evaporator temperature sensor when it is installed to the A/C unit.

1. Set the fan speed MAX HI.
2. Set the temperature control at MAX COLD.
3. Set the RECIRCULATE mode.
4. Turn the A/C switch off.
5. Close all doors and windows.
6. Wait for **5 min**.
7. Disconnect the evaporator temperature sensor connector.
8. Measure the temperature at the blower inlet.
9. Measure the resistance between the evaporator temperature sensor terminals.
   - If the resistance is not as shown in the graph, replace the evaporator temperature sensor.




B3E0740W041

**REFRIGERANT PRESSURE SWITCH REMOVAL/INSTALLATION**

DPE074061503W01

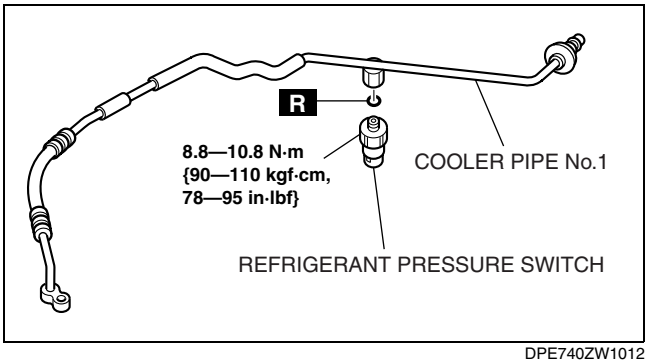
1. Disconnect the negative battery cable.
2. Discharge the refrigerant from the system. (See 07–10–7 REFRIGERANT RECOVERY.) (See 07–10–2 REFRIGERANT CHARGING.)
3. Remove the clip and bracket.
4. Disconnect the refrigerant pressure switch connector.
5. Remove the cooler pipe No.1. Do not allow compressor oil to spill. (See 07–11–29 REFRIGERANT LINES REMOVAL/INSTALLATION [LF, L8].) (See 07–11–32 REFRIGERANT LINES REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)

**Caution**

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

6. Loosen the refrigerant pressure switch using two spanners.
7. Remove in the order indicated in the table.

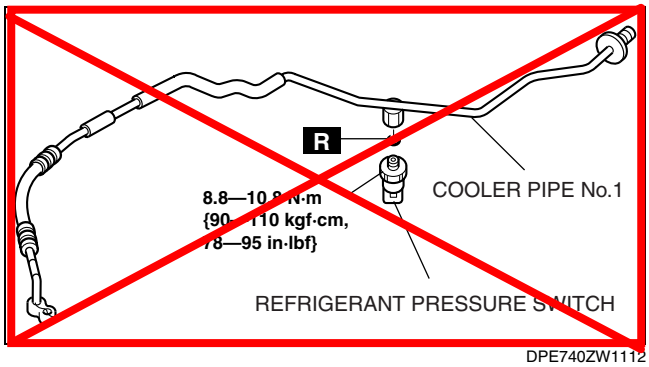
L.H.D.




DPE740ZW1012

~~R.H.D.~~

8. Install in the reverse order of removal.
9. Perform the refrigerant system performance test.




DPE740ZW1112

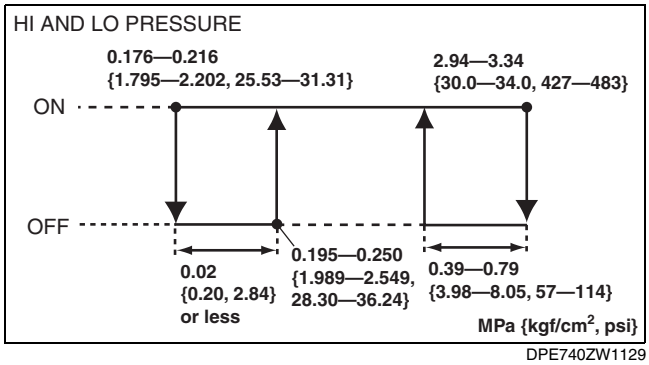
**Refrigerant Pressure Switch Installation Note**

1. Apply compressor oil to O-ring and connect the joint.

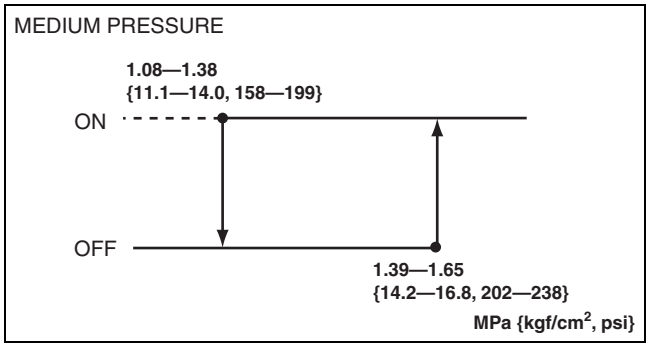
## REFRIGERANT PRESSURE SWITCH INSPECTION

DPE074061503W03

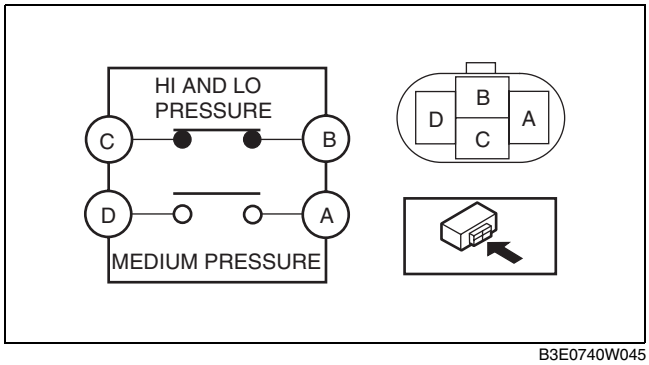
1. Install the **SST** (gas charging set).
2. Disconnect the refrigerant pressure switch connector.
3. Verify the high-pressure side reading of the **SST** (manifold gauge) and continuity between the refrigerant pressure switch terminals.
   - If there is any malfunction, replace the refrigerant pressure switch.




DPE740ZW1129




B3E0740W044




B3E0740W045

07

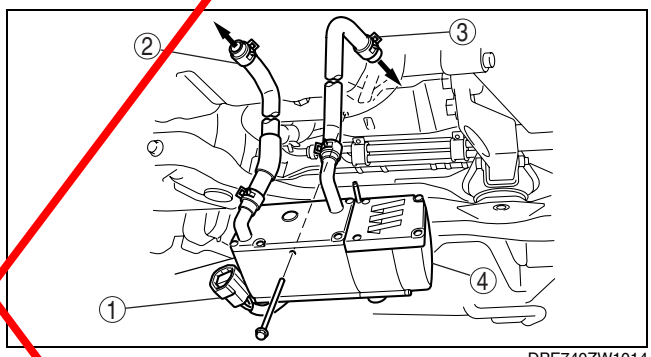
## WATER HEATER UNIT REMOVAL/INSTALLATION [MZR-CD (RF TURBO)]

DPE074000170W0

**Caution**

- **If the negative battery cable is disconnected during the purge cycle of the water heater unit, the gas in the unit may not be properly scavenged, causing white smoke (unburnt gas) to emit from the exhaust pipe. Before disconnecting the negative battery cable, verify that the water heater unit is not operating (no blower fan operation noise).**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove the under cover.
4. Remove the oxidation catalytic converter. (See 01–15B–1 EXHAUST SYSTEM REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)
5. Remove the front pipe bracket.
6. Remove the engine cover.
7. Remove the exhaust manifold insulator (upper).
8. Remove the exhaust pipe. (See 01–15B–1 EXHAUST SYSTEM REMOVAL/INSTALLATION [MZR-CD (RF Turbo)].)
9. Disconnect the air intake hose.
10. Remove the bolts.
11. Disconnect the fuel hose.
12. Remove in the order indicated in the table.




DPE740ZW1014

| | |
|---|---|
| 1 | Connector |
| 2 | Heater hose No.1 |
| 3 | Heater hose No.3 |
| 4 | Water heater unit |

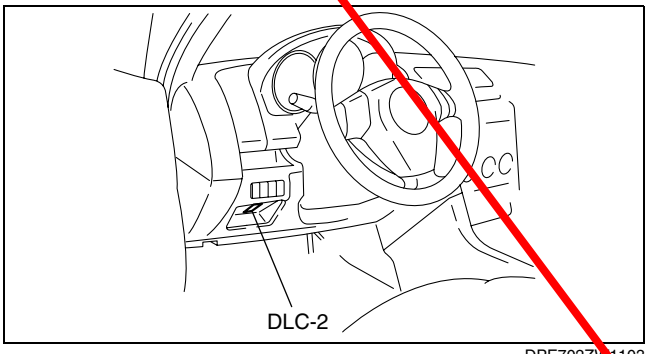
13. Install in the reverse order of removal.
14. Refill the engine coolant.
15. Perform water heater system initial setting. (See 07–40–34 WATER HEATER SYSTEM INITIAL SETTING [MZR-CD (RF Turbo)].)

## WATER HEATER SYSTEM INITIAL SETTING [MZR-CD (RF TURBO)]

DPE074000170W02

**Unlock Utility**

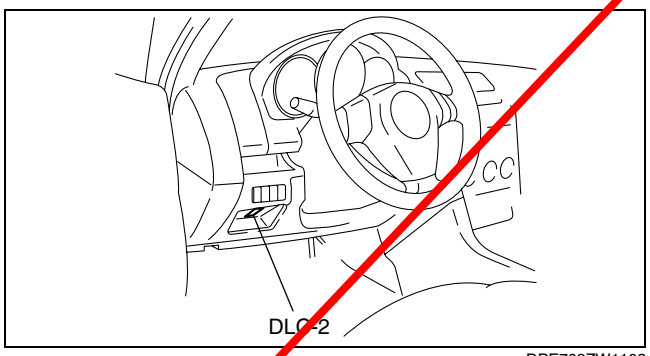
1. Connect the WDS or equivalent to the DLC-2.
2. Select “Electrical” from the menu.
3. Select “Supplemental Heater”.
4. Select “FFH”.
5. Select “FFH Unlock Utility” and perform procedure according to the directions on the WDS or equivalent screen.




DPE702ZW1103

**Selftest and Prefilling Utility**

1. Connect the WDS or equivalent to the DLC-2.
2. Select “Electrical” from the menu.
3. Select “Supplemental Heater”.
4. Select “FFH”.
5. Select “FFH SelfTest and Prefill Utility” and perform procedure according to the directions on the WDS or equivalent screen.

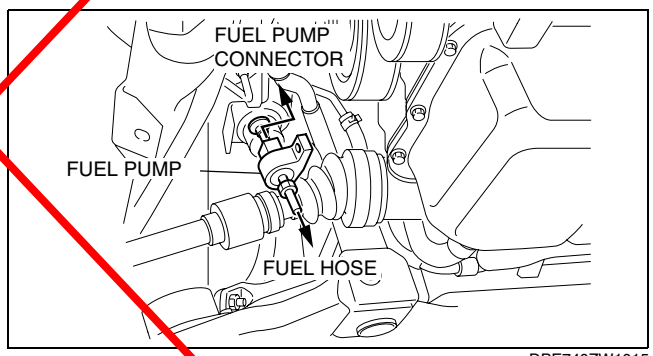



DPE702ZW1103

## FUEL PUMP (WATER HEATER SYSTEM) REMOVAL/INSTALLATION [MZR-CD (RF TURBO)]

DPE074013350W02

1. Disconnect the negative battery cable.
2. Remove the under cover.
3. Disconnect the fuel hose.
4. Slide the water heater unit to the left.
5. Disconnect the fuel pump connector.
6. Remove the fuel pump.
7. Install in the reverse order of removal.
8. Perform water heater system initial setting. (See 07–40–34 WATER HEATER SYSTEM INITIAL SETTING [MZR-CD (RF Turbo)].)

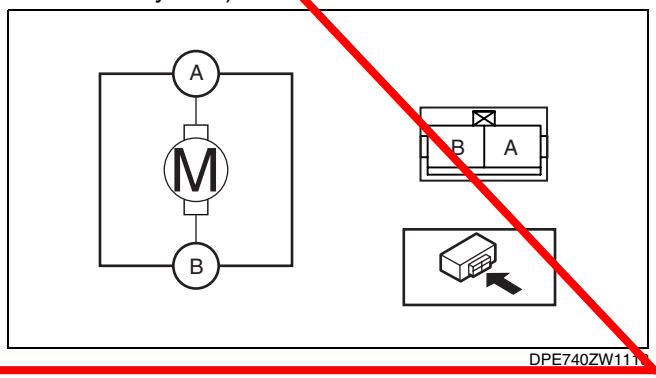



DPE740ZW1015

## FUEL PUMP (WATER HEATER SYSTEM) INSPECTION [MZR-CD (RF TURBO)]

DPE074013350W01

1. Inspect for continuity between fuel pump terminal A and B using a tester.
   - If there is any malfunction, replace the fuel pump (water heater system).



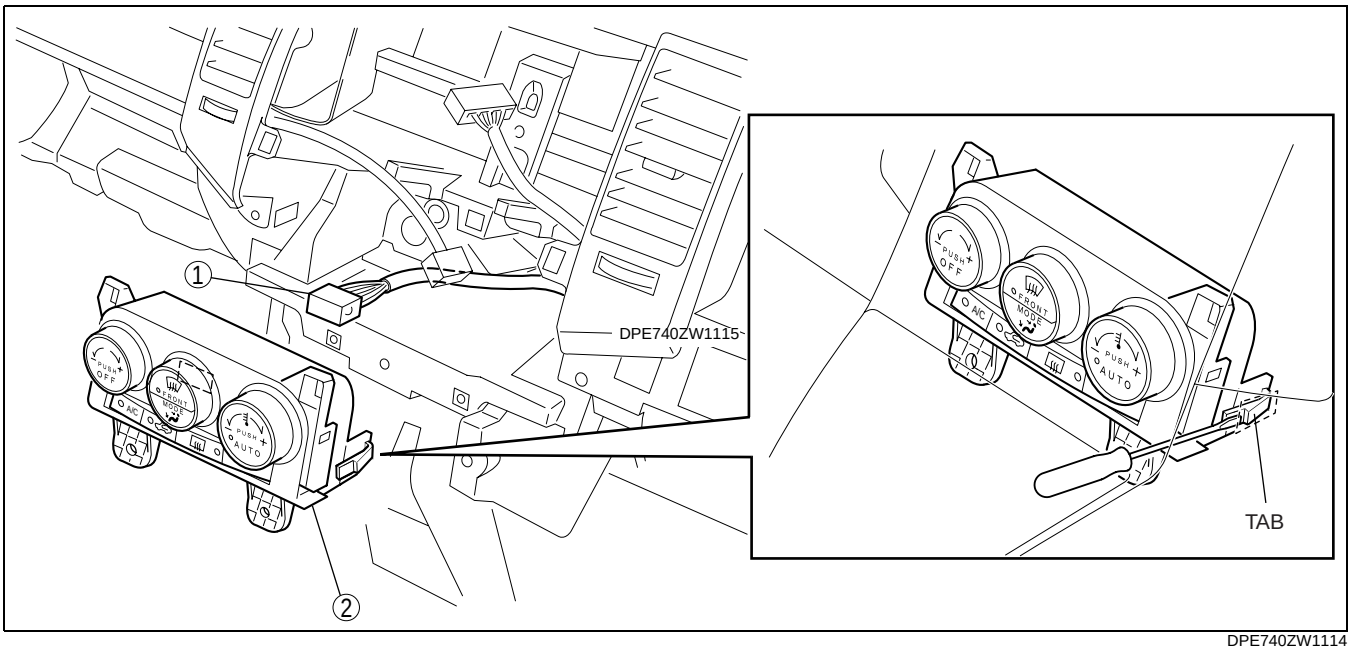

DPE740ZW1116

## CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER]

DPE074061190W01

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (2) Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)
   (3) Selector lever component (ATX) (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (4) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (5) Center panel module. (See 09–20–6 CENTER PANEL MODULE REMOVAL/INSTALLATION.)

3. Release the left and right tabs and remove as shown in the figure.




DPE740ZW1114

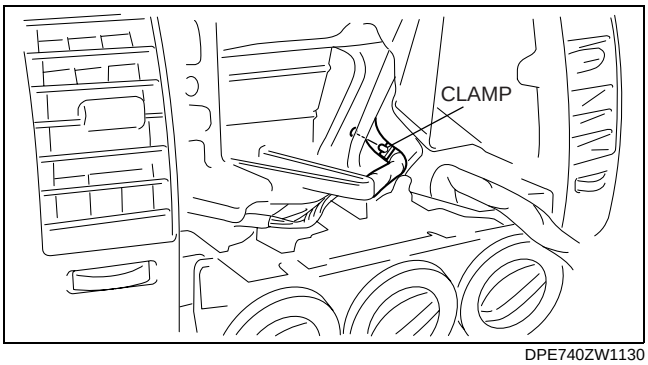
| | |
|---|---|
| 1 | Climate control unit connector |
| 2 | Climate control unit |

4. Install in the reverse order of removal.

**CLIMATE CONTROL UNIT REMOVAL [MANUAL AIR CONDITIONER]**

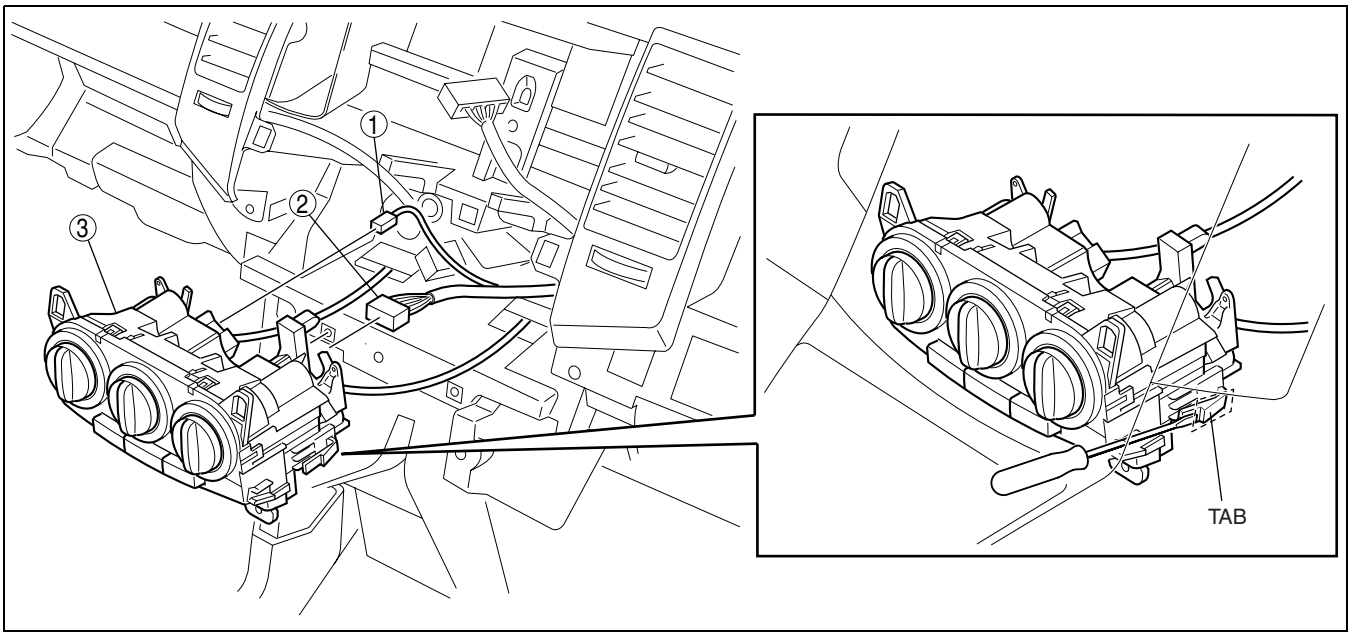
DPE074061190W02

1. Disconnect the negative battery cable.
2. Remove the following parts:
   (1) Front scuff plate inner (See 09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)
   (2) Front side trim (See 09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
   (3) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
   (4) ~~Shift lever component (MTX) (See 05–16–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)~~
   (5) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
   (6) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
   (7) Bonnet release lever (See 09–14A–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
   (8) Lower panel (See 09–17–8 LOWER PANEL REMOVAL/INSTALLATION.)
   (9) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (10) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/INSTALLATION.)
   (11) Column cover (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)
3. Remove the clamp.
4. Remove the center panel module. (See 09–20–7 CENTER PANEL MODULE REMOVAL/INSTALLATION.)
5. Remove the wire clamp with air mix wire and airflow mode wire from the A/C unit.




DPE740ZW1130

6. Release the left and right tabs and remove in the order indicated in the table.

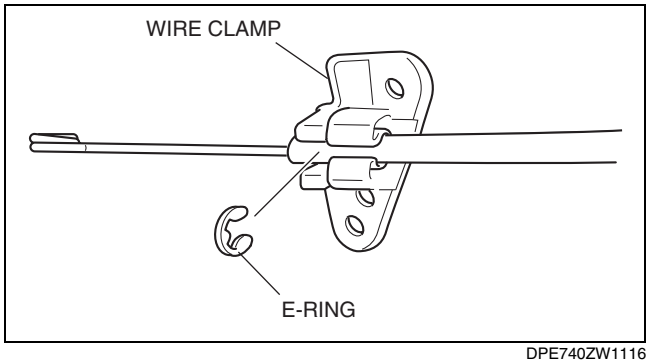



DPE740ZW1115

| | |
|---|---|
| 1 | Fan switch connector |
| 2 | Climate control unit connector |
| 3 | Climate control unit |

**Wire Removal Note**

1. Remove the E-ring from wire clamp.
2. Slide the wire clamp in the direction shown in the figure and remove it.

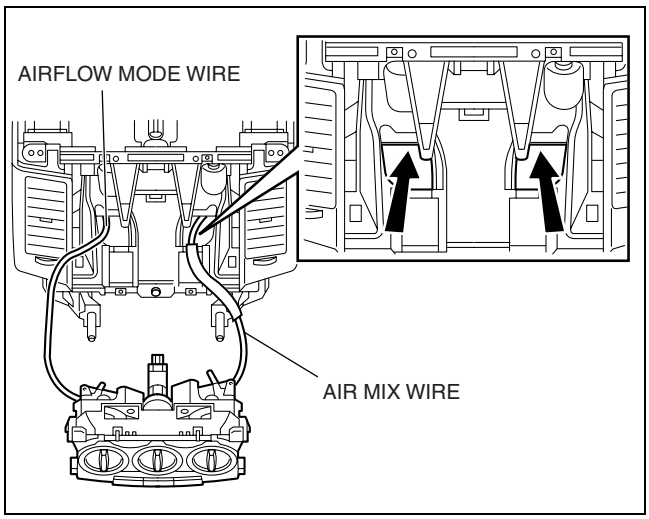



DPE740ZW1116

**CLIMATE CONTROL UNIT INSTALLATION [MANUAL AIR CONDITIONER]**

DPE074061190W03

1. Install the wire clamp to A/C unit.
2. Install E-ring to each wire. (See 07–40–38 E-ring Installation Note.)
3. Pass each wire through the following routes and connect to A/C unit.
4. Connect the climate control unit connector, fan switch connector.
5. Install the climate control unit.
6. Connect each wire to A/C unit.
7. Install the center panel module. (See 09–20–6 CENTER PANEL MODULE REMOVAL/ INSTALLATION.)
8. Install the following parts:
   (1) Column cover (See 09–17–7 COLUMN COVER REMOVAL/INSTALLATION.)
   (2) Glove compartment (See 09–17–7 GLOVE COMPARTMENT REMOVAL/ INSTALLATION.)
   (3) Side panel. (passenger's side) (See 09–17–11 SIDE PANEL REMOVAL/INSTALLATION.)
   (4) Lower panel (See 09–17–8 LOWER PANEL



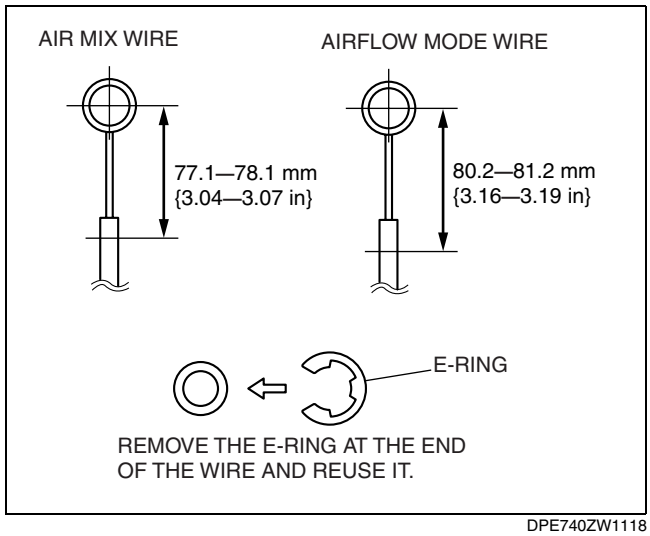

DPE740ZW1117

REMOVAL/INSTALLATION.)
(5) Bonnet release lever (See 09–14–5 BONNET LATCH AND RELEASE LEVER REMOVAL/INSTALLATION.)
(6) Front console (See 09–17–13 FRONT CONSOLE REMOVAL/INSTALLATION.)
(7) Selector lever component ~~(ATX)~~ (See 05–18–5 SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.)
~~(8) Shift lever component (MTX) (See 05–19–1 MANUAL TRANSAXLE SHIFT MECHANISM REMOVAL/INSTALLATION.)~~
(9) Side wall (See 09–17–11 SIDE WALL REMOVAL/INSTALLATION.)
(10) Front side trim (See09–17–15 FRONT SIDE TRIM REMOVAL/INSTALLATION.)
(11) Front scuff plate (See09–17–19 FRONT SCUFF PLATE REMOVAL/INSTALLATION.)

9. Connect the negative battery cable.

**E-ring Installation Note**

1. Install the wires as shown in the figure.




DPE740ZW1118

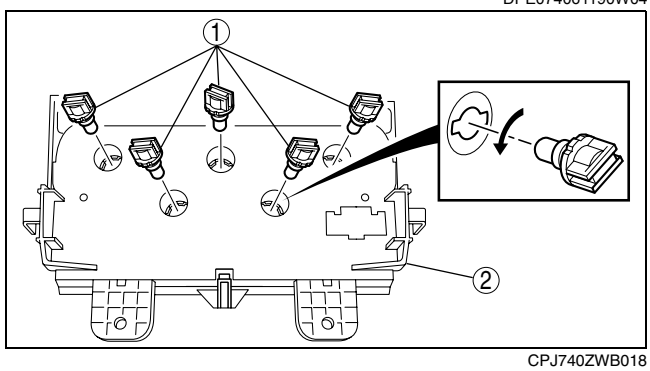
**CLIMATE CONTROL UNIT DISASSEMBLY/ASSEMBLY [FULL-AUTO AIR CONDITIONER]**

DPE074061190W04

1. Disassemble in the order indicated in the table.

| | |
|---|---|
| 1 | Bulb |
| 2 | Body |

2. Assemble in the reverse order of disassembly.



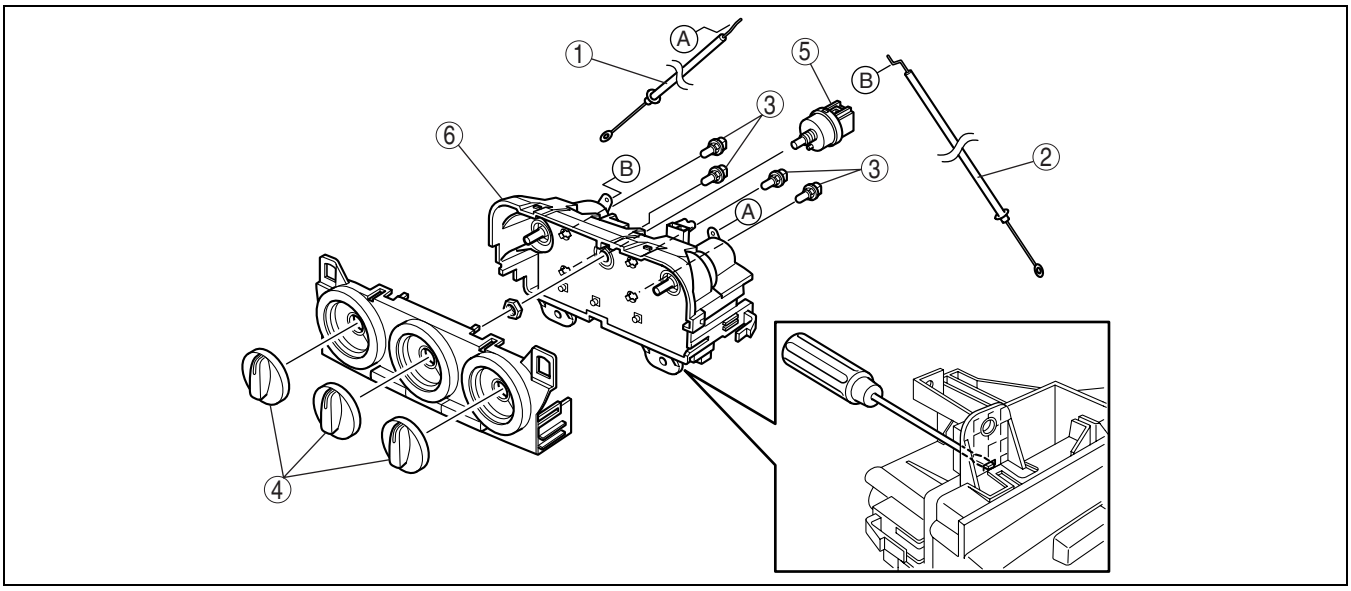

CPJ740ZWB018

**CLIMATE CONTROL UNIT DISASSEMBLY/ASSEMBLY [MANUAL AIR CONDITIONER]**

DPE074061190W05

1. Set the airflow mode selector dial at defroster.
2. Set the temperature control dial at MAX COLD.

3. Disassemble in the order indicated in the table.



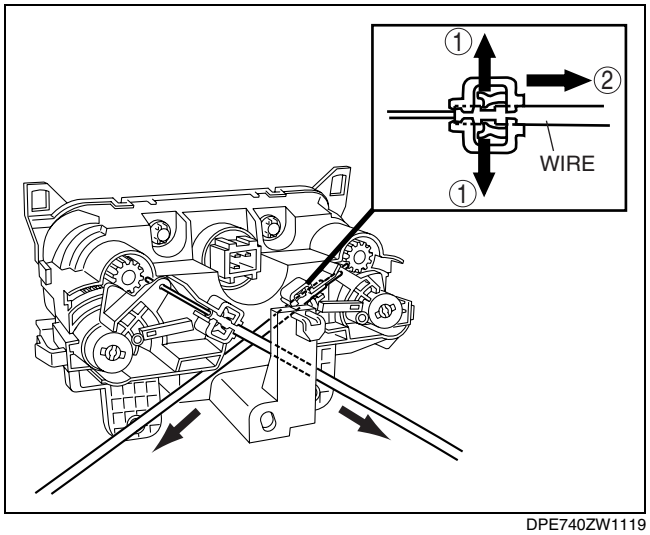

CPJ740ZWB019

| | |
|---|---|
| 1 | Airflow mode wire<br>(See 07–40–39 Wire Disassembly Note.)<br>(See 07–40–40 Wire Assembly Note.) |
| 2 | Air mix wire<br>(See 07–40–39 Wire Disassembly Note.)<br>(See 07–40–40 Wire Assembly Note.) |
| 3 | Illumination bulb |
| 4 | Knob |
| 5 | Fan switch |
| 6 | Body |

4. Assemble in the reverse order of disassembly.

**Wire Disassembly Note**

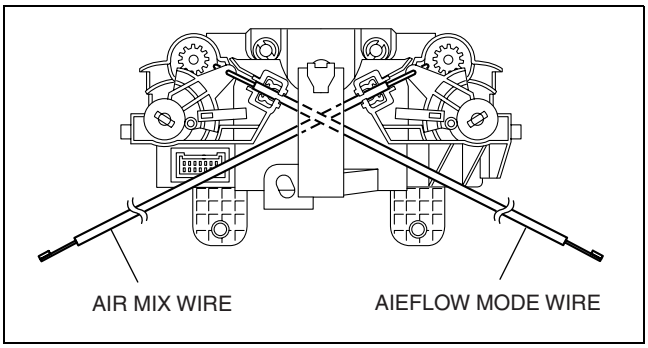
1. Disassemble the wires as shown in the figure.




DPE740ZW1119

**Wire Assembly Note**

1. Assemble the wires at the positions shown in the figure.




DPE740ZW1120

**CLIMATE CONTROL UNIT WIRE ADJUSTMENT**

DPE074061190W06

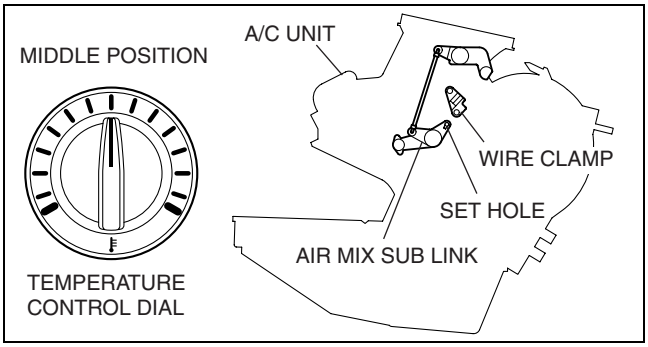
**Air Mix Wire**

1. Set the temperature control dial at middle position (MAX HOT—MAX COLD).

**Caution**

- **If the air mix wire is set without first fixing the air mix link position, it is possible that the air mix door cannot be switched normally.**

2. Install the wire clamp as it was originally installed.
3. Connect the air mix wire to air mix link.
4. Clamp the air mix wire to wire clamp.
5. Verify that the temperature control dial can move its full stroke.




DPE740ZW1131

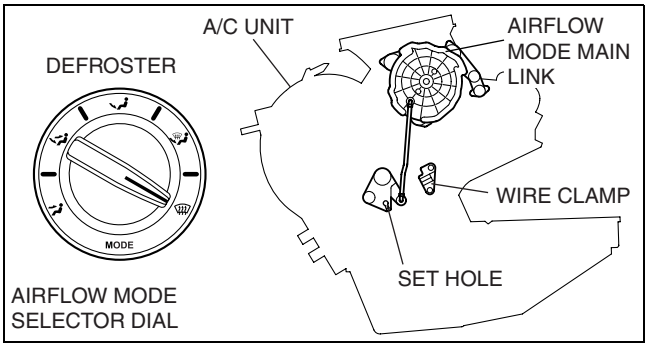
**Airflow Mode Wire**

1. Set the airflow mode selector dial at defroster.

**Caution**

- **If the airflow mode wire is set without first fixing the airflow mode main link position, it is possible that the airflow mode door cannot be switched normally.**

2. Install the wire clamp as it was originally installed.
3. Connect the airflow mode wire to airflow mode main link.
4. Clamp the airflow mode wire to wire clamp.
5. Verify that the airflow mode selector dial can move its full stroke.




DPE740ZW1132

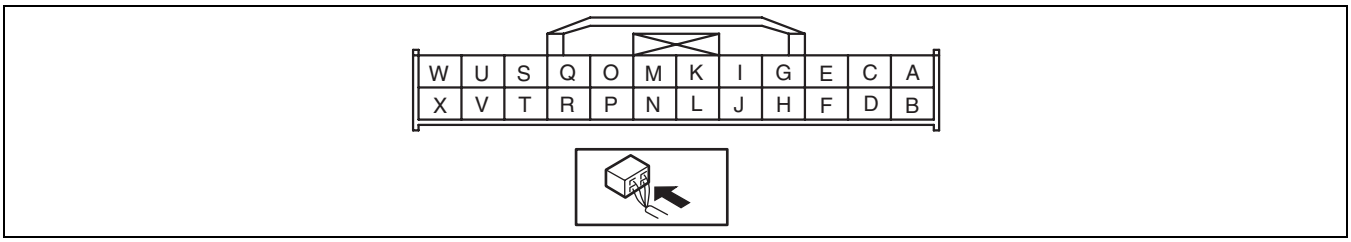
**CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER]**

DPE074061190W07

1. Install the audio.
2. Connect the climate control unit.
3. Turn the ignition switch to the ON position.
4. Connect the negative (-) lead of the tester to body ground.
5. By inserting the positive (+) lead of the tester into each climate control unit terminal, measure the voltage according to the terminal voltage table.
   - If there is any malfunction, inspect the parts under “Inspection item (s)”.
     — If the parts under “Inspection item (s)” are found to be normal (except for terminal F), replace the

climate control unit.
— For terminal F, first try replacing the power MOS FET. If there is still any malfunction, replace the climate control unit.

**Terminal Voltage Table (Reference)**




B3E0740W055

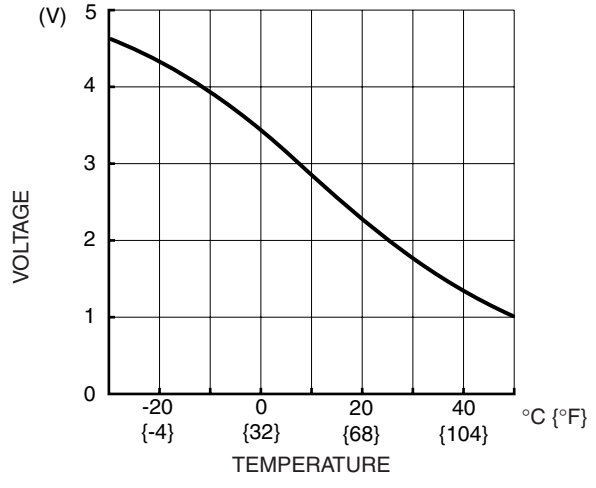
| Terminal | Signal name | Connected to | Measurement condition | Voltage (V) | Inspection item (s) |
|---|---|---|---|---|---|
| A | TNS signal | BCM | Headlight switch OFF | 1.0 or less | • Wiring harness: short circuit (Climate control unit—BCM: A—4C)<br>• BCM<br>• Headlight switch |
| | | | Headlight switch ON | B+ | • Wiring harness: continuity, short circuit (Climate control unit—BCM: A—4C)<br>• BCM<br>• Headlight switch |
| B | Panel light control | Instrument cluster | Headlight switch ON and panel light control switch at max. illumination | 1.0 or less | • Wiring harness: continuity (Climate control unit—instrument cluster: B—1F)<br>• Instrument cluster |
| | | | Headlight switch ON and panel light control switch at min. illumination | 12 | • Wiring harness: short circuit (Climate control unit—instrument cluster: B—1F) |
| C | Motor operation | Air mix actuator | Moving towards COLD | 12 | • Wiring harness: continuity, short circuit (Climate control unit—air mix actuator: C—D, E—F)<br>• Air mix actuator |
| | | | Moving towards HOT | 1.0 or less | |
| D | Blower fan speed control | Power MOS FET | Fan stopped | 1.0 or less | • Climate control unit: terminal voltage (F) |
| | | | Fan: manual LO | 2.9 | |
| | | | Fan: manual HI | 9.7 | |
| E | Motor operation | Air mix actuator | Moving towards COLD | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit—air mix actuator: E—F, C—D)<br>• Air mix actuator |
| | | | Moving towards HOT | 12 | |
| F | Blower motor feedback | • Blower motor<br>• Power MOS FET | Fan stopped | B+ | 1. Wiring harness: continuity, short circuit (Climate control unit—blower motor: F—B) (Climate control unit—power MOS FET: F—B, D—C) (Blower motor—blower relay: A—D) (Blower relay—fuse: A—BLOWER 40 A)<br>2. Wiring harness: continuity (Power MOS FET—body ground: A—GND) (Blower relay—body ground: —GND)<br>3. Power MOS FET<br>4. Blower motor<br>5. Blower relay<br>6. BLOWER 40 A fuse<br>7. Power MOS FET replacement |
| | | | Fan: manual LO | 9.8 | |
| | | | Fan: manual HI | 0.4 | |
| G | Motor operation | Airflow mode actuator | Switched to DEFROSTER | 12 | • Wiring harness: continuity, short circuit (Climate control unit—airflow mode actuator: G—D, I—F)<br>• Airflow mode actuator |
| | | | Switched to VENT | 1.0 or less | |
| H | B+ | ROOM 15 A fuse | Under any condition | B+ | • Wiring harness: continuity, short circuit (Climate control unit— fuse: H—ROOM 15 A)<br>• ROOM 15 A fuse |

07

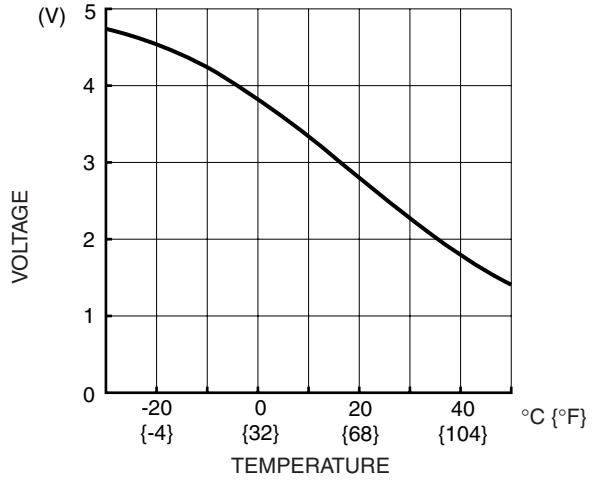
| Terminal | Signal name | Connected to | Measurement condition | Voltage (V) | Inspection item (s) |
|---|---|---|---|---|---|
| I | Motor operation | Airflow mode actuator | Switched to DEFROSTER | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit—airflow mode actuator: I—F, G—D)<br>• Airflow mode actuator |
| | | | Switched to VENT | 12 | |
| J | Potentiometer input | Airflow mode actuator | VENT | 4.5 | • Wiring harness: continuity, short circuit (Climate control unit—airflow mode actuator: J—C)<br>• Airflow mode actuator<br>• Climate control unit: terminal voltage (P) |
| | | | BI-LEVEL | 3.6 | |
| | | | HEAT | 2.6 | |
| | | | HEAT/DEF | 1.7 | |
| | | | DEFROSTER | 0.7 | |
| K | IG2 | A/C 10 A fuse | IG SW ON | B+ | • Wiring harness: continuity, short circuit (Climate control unit— fuse: K—A/C 10 A)<br>• A/C 10 A fuse |
| | | | IG SW LOCK | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit— fuse: K—A/C 10 A) |
| L | Potentiometer input | Air mix actuator | Set temperature at MAX COLD | 0.7 | • Wiring harness: continuity, short circuit (Climate control unit—air mix actuator: L—C)<br>• Air mix actuator<br>• Climate control unit: terminal voltage (P) |
| | | | Set temperature at MAX HOT | 4.5 | |
| M | Motor operation | Air intake actuator | Switched to RECIRCULATE | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: M—G, O—E, Q—C)<br>• Air intake actuator |
| | | | Switched to FRESH | 12 | |
| N | Ambient temperature sensor input | Ambient temperature sensor | Compared with temperature detected by ambient temperature sensor | Refer to graph 1 | • Wiring harness: continuity (Climate control unit—ambient temperature sensor: U—A, N—B)<br>• Wiring harness: short circuit (Climate control unit—ambient temperature sensor: N—B)<br>• Ambient temperature sensor<br>• Climate control unit: terminal voltage (K, V) |
| O | Motor operation | Air intake actuator | Switched to RECIRCULATE | 12 | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: M—G, O—E)<br>• Air intake actuator |
| | | | Switched to FRESH | 1.0 or less | |
| P | +5 V | • Air mix actuator<br>• Airflow mode actuator<br>• Solar radiation sensor | IG SW ON | 5.2 | • Wiring harness: short circuit (Climate control unit—air mix actuator, airflow mode actuator, solar radiation sensor: P—A, A, A)<br>• Air mix actuator<br>• Airflow mode actuator<br>• Solar radiation sensor<br>• Climate control unit: terminal voltage (K, V) |
| | | | IG SW LOCK | 0 | • Climate control unit replacement |
| Q | Motor operation | Air intake actuator | Switched to RECIRCULATE | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: Q—C, M—G)<br>• Air intake actuator |
| | | | Switched to FRESH | 12 | |
| R | Cabin temperature sensor input | Cabin temperature sensor | Compared with temperature detected by cabin temperature sensor | Refer to graph 2 | • Wiring harness: continuity (Climate control unit—cabin temperature sensor: R—B, U—A)<br>• Wiring harness: short circuit (Climate control unit—cabin temperature sensor: R—B)<br>• Cabin temperature sensor<br>• Climate control unit: terminal voltage (K, V) |

| Terminal | Signal name | Connected to | Measurement condition | Voltage (V) | Inspection item (s) |
|---|---|---|---|---|---|
| S | Solar radiation sensor input | Solar radiation sensor | Incandescent light (**approx. 60 W**) shined directly on the solar radiation sensor from a distance of **approx. 100 mm {3.9 in}** | 4.0 | • Wiring harness: continuity (Climate control unit—solar radiation sensor: S—B, P—A)<br>• Climate control unit: terminal voltage (P)<br>• Solar radiation sensor |
| | | | Blocking light to solar radiation sensor | 1.0 or less | |
| T | Evaporator temperature sensor input | Evaporator temperature sensor | Compared with temperature detected by evaporator temperature sensor | Refer to graph 3 | • Wiring harness: continuity (Climate control unit—evaporator temperature sensor: T—B, U—A)<br>• Wiring harness: short circuit (Climate control unit—evaporator temperature sensor: T—B)<br>• Evaporator temperature sensor<br>• Climate control unit: terminal voltage (K, V) |
| U | Sensor GND | • Ambient temperature sensor<br>• Cabin temperature sensor<br>• Evaporator temperature sensor<br>• Air mix actuator<br>• Airflow mode actuator | Under any condition | 1.0 or less | • Climate control unit: terminal voltage (V) |
| V | GND | Body ground | Under any condition | 1.0 or less | • Wiring harness: continuity (Climate control unit—GND: V—GND) |
| W | Signal | — | — | — | — |
| X | Signal | — | — | — | — |

GRAPH 1 (AMBIENT TEMPERATURE SENSOR)




GRAPH 2 (CABIN TEMPERATURE SENSOR)

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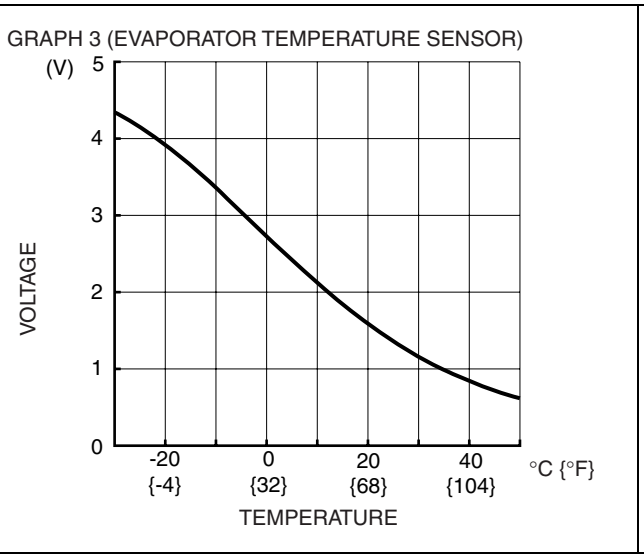


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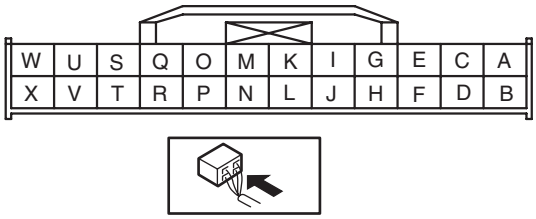
**CLIMATE CONTROL UNIT INSPECTION [MANUAL AIR CONDITIONER]**

DPE074061190W09

1. Connect the climate control unit connector.
2. Turn the ignition switch to the ON position.
3. Connect the negative (-) lead of the tester to body ground.
4. By inserting the positive (+) lead of the tester into each climate control unit terminal, measure the voltage according to the terminal voltage table.
   - If there is any malfunction, inspect the parts under “Inspection item (s)”.
     — If the parts under “Inspection item (s)” are found to be normal, replace the climate control unit.

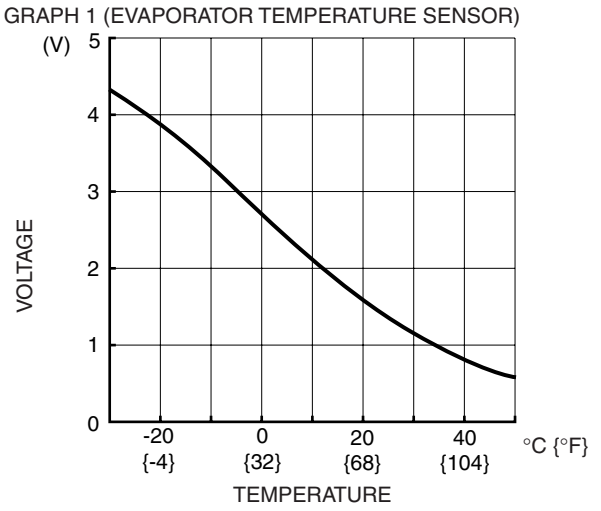
**Terminal Voltage Table (Reference)**




B3E0740W058

| Terminal | Signal name | Connected to | Measurement condition | Voltage (V) | Inspection item (s) |
|---|---|---|---|---|---|
| A | — | — | — | — | — |
| B | TNS signal | BCM | Headlight switch OFF | 1.0 or less | • Wiring harness: short circuit (Climate control unit—BCM: B—4C)<br>• BCM<br>• Headlight switch |
| | | | Headlight switch ON | B+ | • Wiring harness: continuity, short circuit (Climate control unit—BCM: B—4C)<br>• BCM<br>• Headlight switch |
| C | FAN ON/ OFF | Fan switch | FAN switch ON | 1.0 or less | • Wiring harness: continuity (Climate control unit—fan switch: C—C)<br>• Fan switch |
| | | | FAN switch OFF | 12 | • Wiring harness: continuity (Climate control unit—fan switch: C—C)<br>• Climate control unit: terminal voltage (X)<br>• Fan switch |
| D | — | — | — | — | — |
| E | A/C | BCM | A/C switch ON, fan switch at 1st | 1.0 or less | • Wiring harness: continuity (Climate control unit—BCM: E—3S)<br>• BCM |
| | | | A/C switch OFF | B+ | • Wiring harness: continuity, short circuit (Climate control unit—BCM: E—3S) |

| Terminal | Signal name | Connected to | Measurement condition | Voltage (V) | Inspection item (s) |
|---|---|---|---|---|---|
| F | Panel light control | Instrument cluster | Headlight switch ON and panel light control switch at max. illumination | 1.0 or less | • Wiring harness: continuity (Climate control unit—instrument cluster: F—1F)<br>• Instrument cluster |
| | | | Headlight switch ON and panel light control switch at min. illumination | 12 | • Wiring harness: short circuit (Climate control unit—instrument cluster: F—1F) |
| G | Rear window defroster switch indicator light | BCM | Rear window defroster switch ONt | 1.0 or less | • Wiring harness: continuity (Climate control unit—BCM: G—3P)<br>• BCM |
| | | | Rear window defroster switch OFF | B+ | • Wiring harness: short circuit (Climate control unit—BCM: G—3P)<br>• BCM |
| H | — | — | — | — | — |
| I | Rear window defroster switch | BCM | Rear window defroster switch ONt | 1.0 or more → 5.04 | • Wiring harness: continuity, short circuit (Climate control unit—BCM: I—3V)<br>• Climate control unit: terminal voltage (L)<br>• BCM |
| | | | Rear window defroster switch OFF | | |
| J | — | — | — | — | — |
| K | Sensor GND | Evaporator temperature sensor | Under any condition | 1.0 or less | • Climate control unit: terminal voltage (L) |
| L | GND | Body ground | Under any condition | 1.0 or less | • Wiring harness: continuity (Climate control unit—GND: L—GND) |
| M | Evaporator temperature sensor input | Evaporator temperature sensor | Compared with temperature detected by evaporator temperature sensor | Refer to graph 1 | • Wiring harness: continuity (Climate control unit—evaporator temperature sensor: M—B, K—A)<br>• Wiring harness: short circuit (Climate control unit—evaporator temperature sensor: M—B)<br>• Evaporator temperature sensor<br>• Climate control unit: terminal voltage (L, X) |
| N | — | — | — | — | — |
| O | — | — | — | — | — |
| P | Motor operation | Air intake actuator | Switched to RECIRCULATE | 10.9 | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: P—C, T—G)<br>• Air intake actuator |
| | | | Switched to FRESH | 1.41 | |
| Q | — | — | — | — | — |
| R | Motor operation | Air intake actuator | Switched to RECIRCULATE | 9.90 | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: T—G, R—E)<br>• Air intake actuator |
| | | | Switched to FRESH | 1.39 | |
| S | — | — | — | — | — |
| T | Motor operation | Air intake actuator | Switched to RECIRCULATE | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit—air intake actuator: T—G, R—E, P—C)<br>• Air intake actuator |
| | | | Switched to FRESH | 10.63 | |
| U | — | — | — | — | — |
| V | B+ | ROOM 15 A fuse | Under any condition | B+ | • Wiring harness: continuity, short circuit (Climate control unit— fuse: V—ROOM 15 A)<br>• ROOM 15 A fuse |
| W | — | — | — | — | — |
| X | IG2 | A/C 10 A fuse | IG SW ON | B+ | • Wiring harness: continuity, short circuit (Climate control unit— fuse: X—A/C 10 A)<br>• A/C 10 A fuse |
| | | | IG SW LOCK | 1.0 or less | • Wiring harness: continuity, short circuit (Climate control unit— fuse: X—A/C 10 A) |

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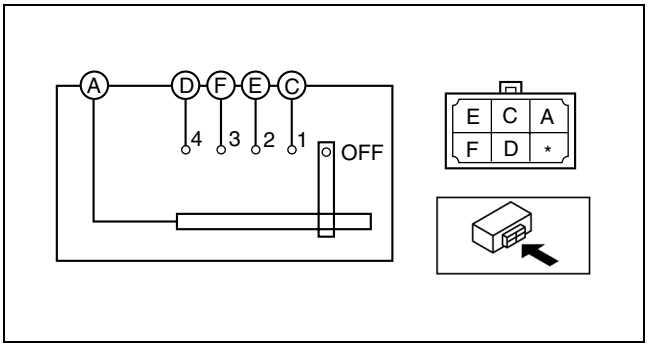
**FAN SWITCH INSPECTION**

DPE074061050W01

1. Remove the climate control unit.
2. Verify that the continuity between the fan switch terminals is as indicated in the table.
   - If there is any malfunction, replace the fan switch.




DPE740ZW1125

○—○: Continuity

| Switch position | Terminal | | | | |
|---|---|---|---|---|---|
| | A | C | D | E | F |
| 0 | | | | | |
| 1 | ○ | ○ | | | |
| 2 | ○ | | | ○ | |
| 3 | ○ | | | | ○ |
| 4 | ○ | | ○ | | |

DPE740ZW1126

# 07–50 TECHNICAL DATA



## HVAC TECHNICAL DATA

DPE075000000W01

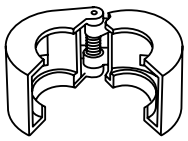
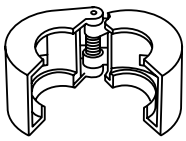
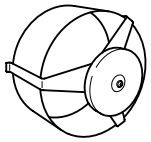
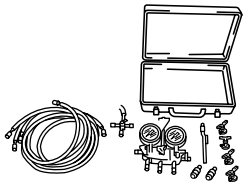
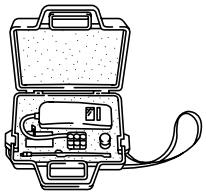
| Item | | | Specification |
|---|---|---|---|
| **REFRIGERANT SYSTEM** | | | |
| Refrigerant | Type | | R-134a |
| | Regular amount (approx. quantity) (g {oz}) | | 500 {17.65} |
| **BASIC SYSTEM** | | | |
| A/C compressor | Lubrication oil | Type | ATMOS GU10 |
| | | Sealed volume (approx. quantity) (ml {cc, fl oz}) | 150 {150, 5.07} |
| **CONTROL SYSTEM** | | | |
| A/C compressor | Magnetic clutch clearance (mm {in}) | | 0.30—0.50 {0.012—0.019} |

# 07–60 SERVICE TOOLS



## HEATER, VENTILATION & AIR CONDITIONING (HVAC) SST

DPE076000000W01

| | | |
|---|---|---|
| 49 B061 014<br>Spring Lock Coupling Disconnect Tool<br>  | 49 G061 001<br>Spring Lock Coupling Disconnect Tool<br>  | 49 B061 015<br>Holder<br>  |
| 49 C061 0A0B<br>Gas Charge Set<br>  | 49 C061 013<br>Gas Leak Tester<br>  | WDS<br>  |