

GROUP 55

HEATER, AIR CONDITIONER AND VENTILATION

GENERAL

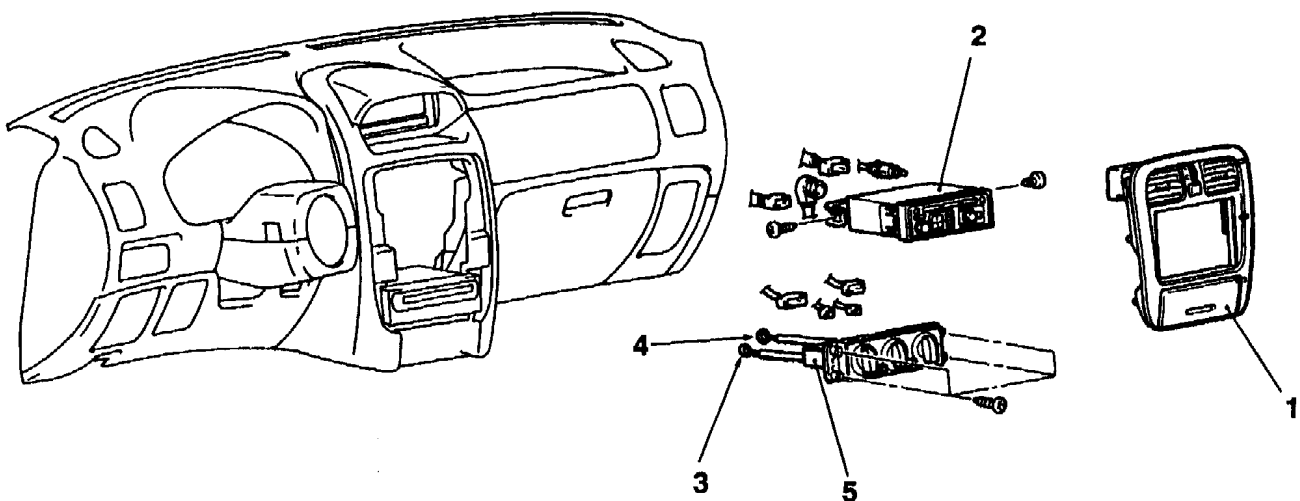
OUTLINE CHANGES

- The service procedure has been revised due to the change in the heater control <Vehicles with manual air conditioner>.
- The service procedure has been revised due to the change in the air control panel and ECU assembly <Vehicles with fully automatic air conditioner>

MANUAL AIR CONDITIONER

HEATER CONTROL ASSEMBLY

REMOVAL AND INSTALLATION

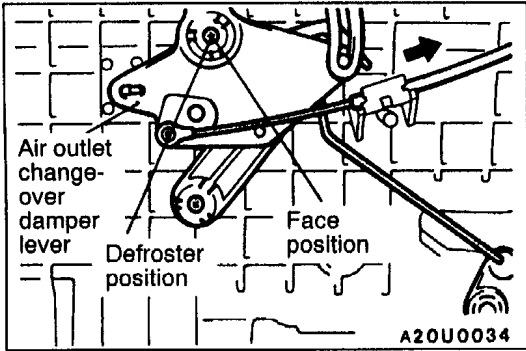


AX0102BN

Removal steps

1. Center panel assembly
(Refer to GROUP 52A – Floor Console.)
2. Radio and tape player

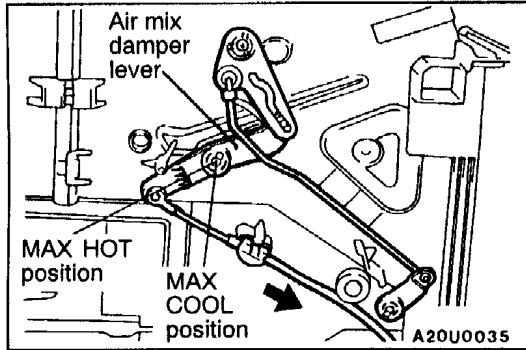
- | | |
|-----|--|
| ▶B◀ | 3. Air mix damper cable connection |
| ▶A◀ | 4. Air outlet changeover damper cable connection |
| | 5. Heater control assembly |



INSTALLATION SERVICE POINTS

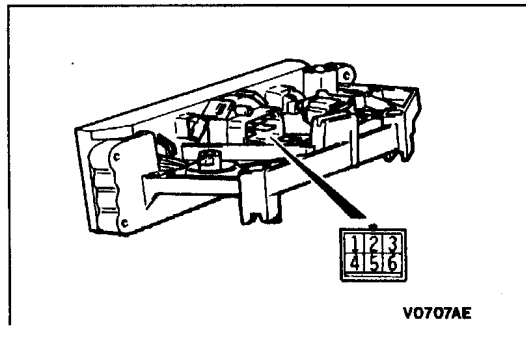
AIR OUTLET CHANGEOVER DAMPER CABLE CONNECTION

1. Set the air outlet changeover control knob on the heater control assembly to the DEF position.
2. Set the air outlet changeover damper lever of the heater unit to the DEF position and install the cable to the lever pin.
3. Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with the clip.



AIR MIX DAMPER CABLE CONNECTION

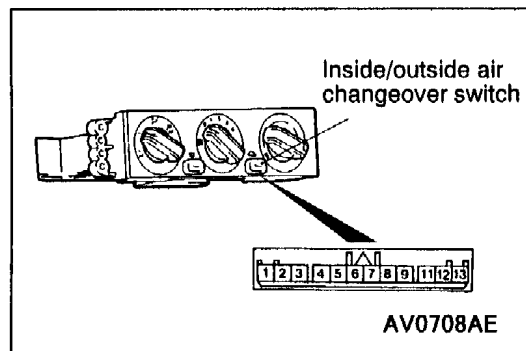
1. Set the temperature control knob on the heater control assembly to the MAX HOT position.
2. Set the air mix damper lever of the heater unit to the MAX HOT position as shown in the illustration, and then connect the cable to the lever pin.
3. Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with the clip.



INSPECTION

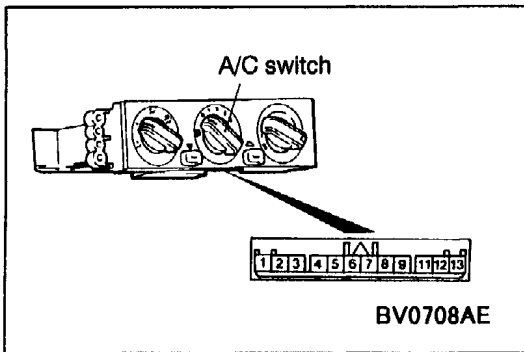
BLOWER SWITCH CONTINUITY CHECK

| Switch position | Terminal No. | | | | | |
|-----------------|--------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| OFF | | | | | | |
| ● (LO) | | | ○ | — | ○ | |
| ● (ML) | ○ | — | ○ | | | |
| ● (MH) | | | ○ | — | — | ○ |
| ● (HI) | | | ○ | — | ○ | |



INSIDE/OUTSIDE AIR CHANGEOVER SWITCH CONTINUITY CHECK

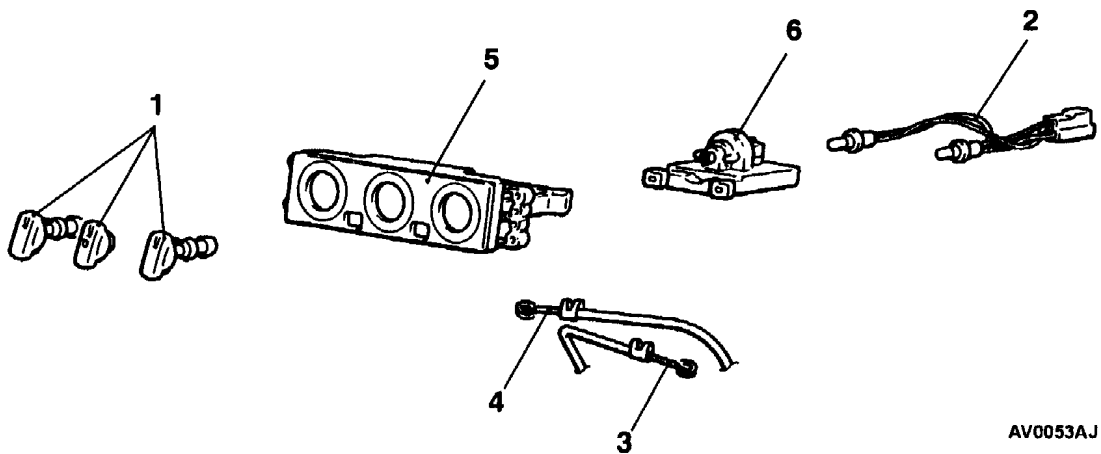
| Switch position | Terminal No. | | | | | | |
|-----------------|--------------|---|---|-----|---|---|-----|
| | 1 | 2 | 3 | IND | 4 | 8 | 9 |
| RECIRC | | | ○ | ⊕ | ○ | | ⊕ |
| FRESH | ○ | | ○ | | | | ILL |



A/C SWITCH CONTINUITY CHECK

| Switch position | Terminal No. | | | | | |
|-----------------|--------------|-----|---|---|---|-----|
| | 5 | IND | 6 | 7 | 8 | 9 |
| OFF | | | | | | ⊕ |
| ON | ○ | ⊕ | | ○ | | ILL |

DISASSEMBLY AND REASSEMBLY



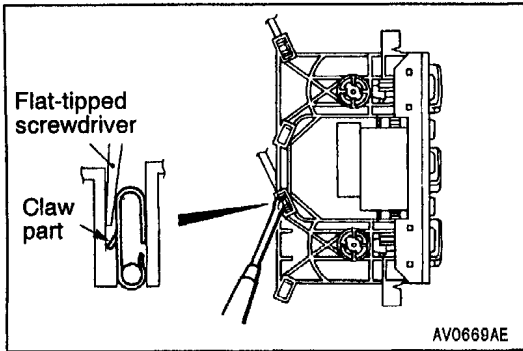
AV0053AJ

Disassembly steps

1. Knob assembly
2. Bulb harness
3. Air outlet changeover damper cable



4. Air mix damper cable
5. Heater control panel
6. Blower switch assembly



DISASSEMBLY SERVICE POINT

**◀A▶ AIR OUTLET CHANGEOVER DAMPER
CABLE/AIR MIX DAMPER CABLE REMOVAL**

Insert a flat-tipped screwdriver into the control base clip from inner side, and then remove the cable by lifting the claw part of the clip.

FULLY AUTOMATIC AIR CONDITIONER**TROUBLESHOOTING****CHECK AT THE A/C-ECU TERMINALS****A/C-ECU**

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

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

| | | | | | |
|----|----|----|----|----|----|
| 41 | 42 | 43 | 44 | 45 | 46 |
| 47 | 48 | 49 | 50 | 51 | 52 |

V0715AE

| Terminal No. | Check item | Check condition | Normal condition |
|--------------|--|--|----------------------|
| 1 | Sensor power supply | At all times | 5 V |
| 2 | Outside air temperature sensor input | When sensor section temperature is 25°C (1.7 kΩ) | 1.9 V |
| 3 | Heater water temperature sensor input | When sensor section temperature is 25°C (5 kΩ) | 2.8 V |
| 4 | Air mix damper motor potentiometer input | When damper is moved to MAX. HOT position | 0.7 – 1.3 V |
| 5 | Illumination power supply | Lighting switch: ON | System voltage |
| 6 | IG2 power supply | Ignition switch: ON | System voltage |
| 7 | ACC power supply | Ignition switch: ON | System voltage |
| 8 | Back-up power supply | At all times | System voltage |
| 9 | Sensor earth | At all times | 0 V |
| 10 | Air thermo sensor input | When sensor section temperature is 25°C (1.5 kΩ) | 2.2 V |
| 11 | Photo sensor (+) | At 800 kcal/m ² -h | 1 V |
| 12 | Air outlet changeover damper potentiometer | Set to DEF. position. | 0.7 – 1.3 V |
| 13 | Diagnosis input | Ignition switch: ON | 0 V |
| 15 | Illumination earth | At all times | Continuity |
| 16 | Earth | At all times | Continuity |
| 21 | Air mix damper motor (MAX. COOL) | Set to MAX. COOL position. | 10 V |
| | | Set to MAX. HOT position. | Weak voltage (0.5 V) |
| 22 | Air outlet changeover damper motor (FACE) | Set to FACE position. | 10 V |
| | | Set to DEF. position. | Weak voltage (0.5 V) |

| Terminal No. | Check item | Check condition | Normal condition |
|--------------|--|---|--|
| 23 | Inside/outside air changeover damper motor (Inside air) | Set to inside air position. | Weak voltage (0.5 V) |
| | | Set to outside air position. | 10 V (When the motor is stopped) |
| 24 | Inside/outside air changeover damper motor (Outside air) | Set to inside air position. | 10 V (When the motor is stopped) |
| | | Set to outside air position. | Weak voltage (0.5 V) |
| 25 | A/C output | When A/C is OFF | 0 V |
| | | When A/C is ON | System voltage |
| 26 | - | - | - |
| 27 | Engine-ECU output | When air mix damper is at MAX. COOL position (Compressor: ON, Inside air temperature: 31°C or more) | 0 V |
| | | When air mix damper is at MAX. HOT position (Compressor: OFF, Inside air temperature: 29°C or more) | System voltage |
| 30 | Blower pulse controller output | Air volume adjusting dial: LO - HI | 3.5 - 0 V (Effective value at alternative current) |
| 31 | Air mix damper motor (MAX. HOT) | Set to MAX. COOL position. | Weak voltage (0.5 V) |
| | | Set to MAX. HOT position. | 10 V |
| 32 | Air outlet changeover damper motor (DEF.) | Set to FACE position. | Weak voltage 0.5 V |
| | | Set to DEF. position. | 10 V |
| 34 | Front blower relay | When front A/C is OFF | System voltage |
| | | When front A/C is ON | 0 V |
| 35 | Rear defogger | When rear defogger switch is ON | 1.5 V or less |
| | | When rear defogger switch is OFF | System voltage |
| 38 | - | - | - |
| 39 | Diagnosis data output | When ignition switch is ON | Voltmeter fluctuates between 0 and 12 V. |
| 41 | Rear power transistor collector output | When rear cooler is ON | 0 - 10 V |
| 42 | Rear balancer solenoid valve | When rear cooler is OFF | System voltage |

| Terminal No. | Check item | Check condition | Normal condition |
|--------------|--|---|------------------|
| 44 | Rear A/C air volume adjusting dial switch input (HI) | When air volume adjusting dial is at HI. | 0 V |
| 45 | Rear A/C air volume adjusting dial switch input (LO) | When air volume adjusting dial is at LO. | 0 V |
| 46 | Rear balancer input | Set the temperature dial to "+4" position. | 1 V |
| | | Set the temperature dial to "-4" position. | 4 V |
| 47 | Rear power transistor base output | When rear cooler is ON | 0.5 - 7 V |
| 48 | Rear cooler relay | When rear cooler is OFF | System voltage |
| | | When rear cooler is ON | 0 V |
| 50 | Rear A/C air volume adjusting dial switch input (AUTO) | Set air volume adjusting dial to "AUTO" position. | 0 V |
| 51 | Rear A/C air volume adjusting dial switch input (ME) | Set air volume adjusting dial to "ME" position. | 0 V |
| 52 | Air thermo sensor input | When sensor section temperature is 25°C (1.7 kΩ) | 2.2 V |