

HEATER SYSTEM

1993 Mitsubishi Montero

1993 HEATER SYSTEMS
Chrysler Motors/Mitsubishi

Mitsubishi; Montero

DESCRIPTION

Heater assembly is located in passenger compartment. A heater control valve is used to regulate coolant flow and heat output. Heater assembly contains heater core, heater control valve, air ducts, blower motor and intake ducts. See Fig. 1. Heater systems are blend-air type.

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAGS article in ACCESSORIES & ELECTRICAL section.

OPERATION

Heater and fresh air operations are controlled by control knobs and/or levers, which regulate airflow source, temperature setting, airflow direction and blower speed.

AIR SELECTOR LEVER

This lever is used to select source of airflow. With lever at fresh air setting, outside air is allowed to enter and/or pass through heater. With lever at recirculated air setting, air is recirculated inside passenger compartment.

BLOWER SWITCH

The blower switch controls fan speeds to regulate amount of airflow. Fan speed increases as switch is turned/moved to the right.

COOL AIR BY-PASS KNOB

Montero

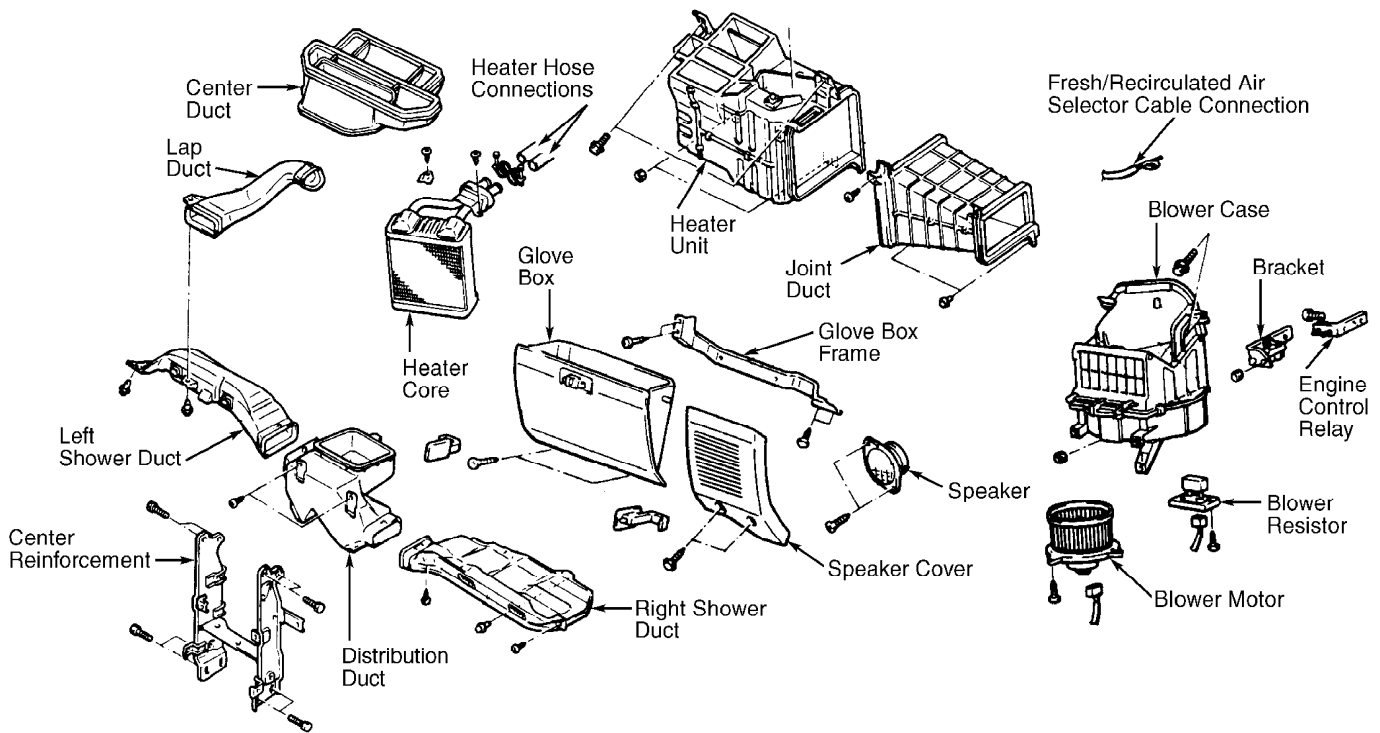
With heater in floor, defrost/floor or defrost mode, turning knob to the left allows cool air to enter passenger compartment through center vent.

MODE SELECTOR KNOB/LEVER

Depending on position selected, airflow can be directed to different areas of passenger compartment. Airflow selection capabilities include individual areas or a combination of windshield, upper body, knee and/or foot area.

TEMPERATURE CONTROL LEVER/KNOB

Temperature level is selected by moving lever or turning knob left or right. The temperature control cable opens and closes heater control valve, which determines heat output. Highest heat setting is attained when lever/knob is at right most position. With temperature lever/knob at cool setting, ambient air is used for ventilating.



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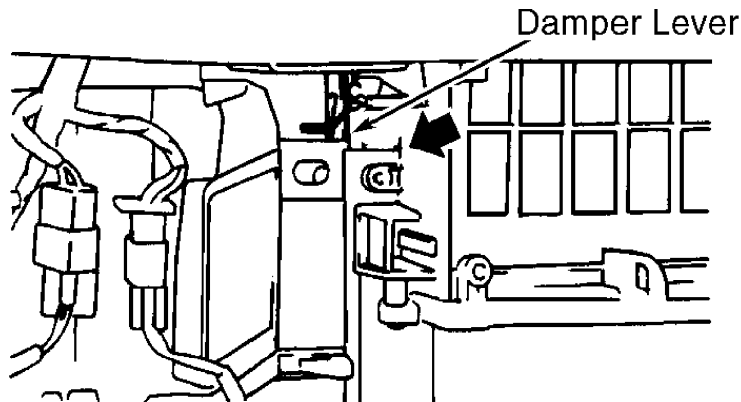
Fig. 1: Exploded View Of Heater System Components (Montero)
 Courtesy of Mitsubishi Motor Sales of America.

ADJUSTMENTS

FRESH/RECIRCULATED AIR SELECTOR CABLE

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Place air selector lever at recirculated air setting. Press damper lever inward, in direction of arrow. See Fig. 2. Connect inner wire of fresh/recirculated air selector cable to damper lever. Secure outer wire of selector cable with clip.



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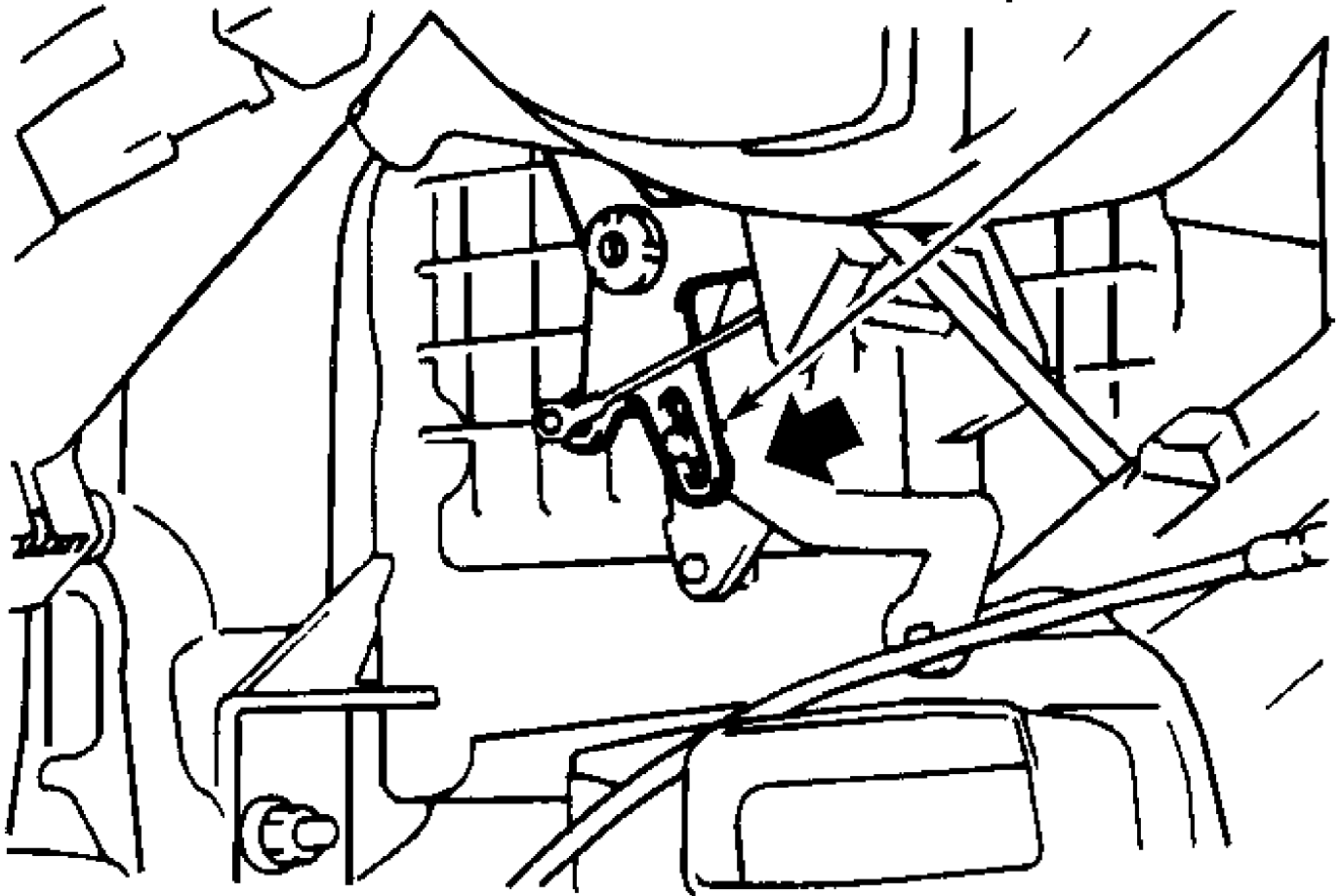
Fig. 2: Adjusting Fresh/Recirculated Air Selector Cable (Montero)
 Courtesy of Mitsubishi Motor Sales of America.

MODE SELECTOR CABLE

Montero

Place mode selector knob at defrost setting. Press damper lever inward, in direction of arrow. See Fig. 3. Connect inner cable of mode selector cable to damper lever. Secure outer wire of selector cable with clip.

Damper Lever



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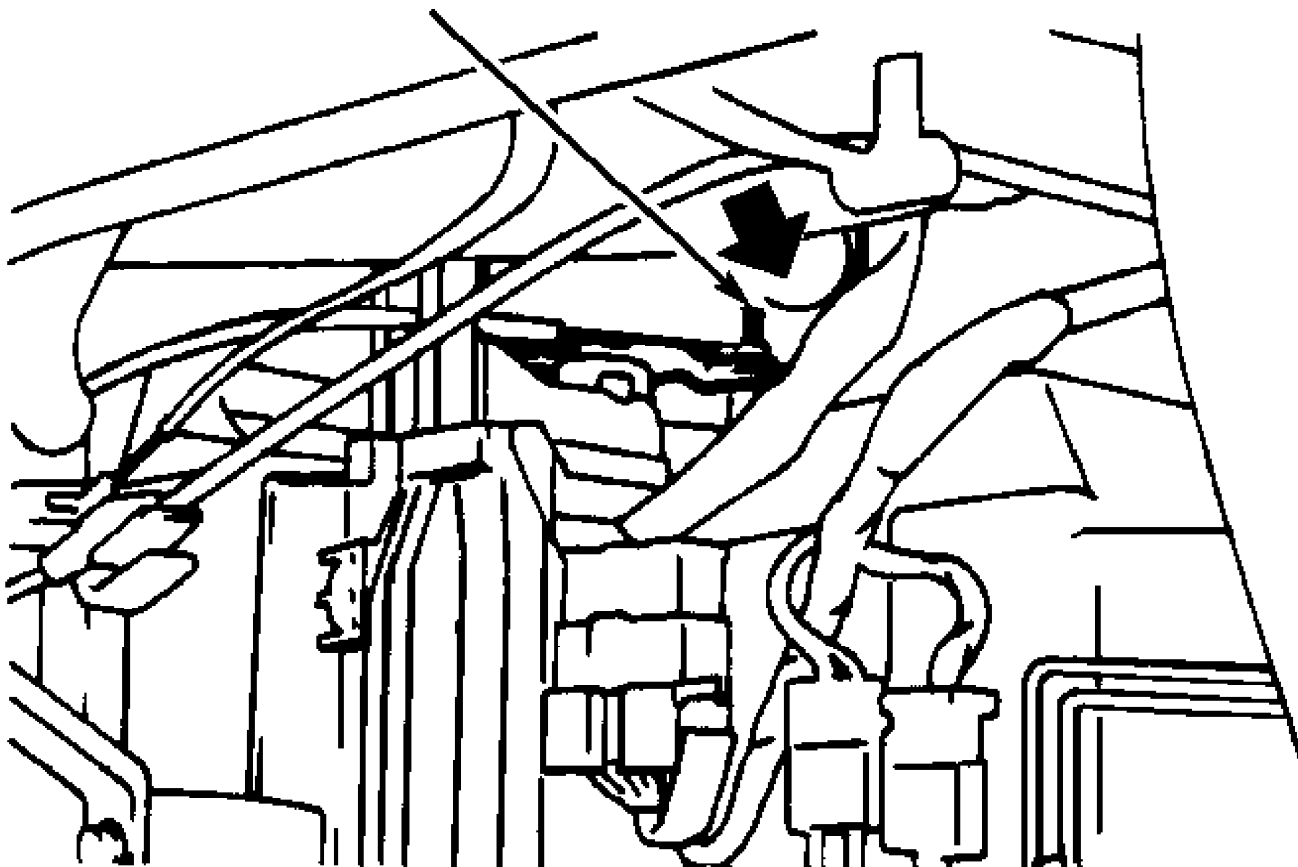
Fig. 3: Adjusting Mode Selector Cable (Montero)
Courtesy of Mitsubishi Motor Sales of America.

TEMPERATURE CONTROL CABLE

Montero

Move temperature control knob to the extreme right position. Press blend-air damper lever completely downward, in direction of arrow. See Fig. 4. Connect inner wire of temperature control cable to damper lever. Secure outer wire of control cable with clip.

Blend-Air Damper Lever



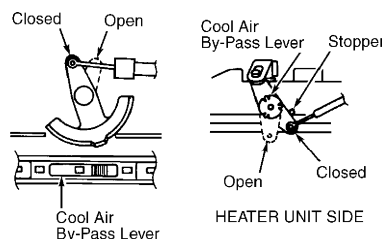
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Fig. 4: Adjusting Temperature Control Cable (Montero)
Courtesy of Mitsubishi Motor Sales of America.

VENTILATION CONTROL CABLE

Montero

Turn cool air by-pass knob all the way to the right (closed position). See Fig. 5. Move cool air by-pass lever to the closed position. Lever should slightly touch stopper. Connect ventilation control cable, and secure with clip.



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Fig. 5: Adjusting Ventilation Control Cable (Montero)
Courtesy of Mitsubishi Motor Sales of America.

TROUBLE SHOOTING

INSUFFICIENT HEAT

Obstructed floor outlets or heater hoses. Bound or improperly adjusted dampers. Improperly adjusted control cable. Plugged heater core.

NO VENTILATION

Improper damper adjustment. Incorrect mode selector cable installation. Improper duct connection.

TESTING

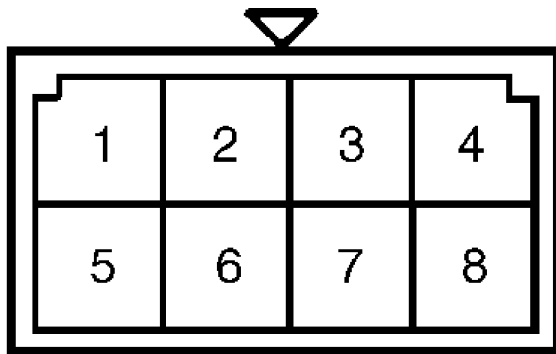
WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAGS article in ACCESSORIES & ELECTRICAL section.

BLOWER SWITCH

Operate switch, and check continuity between indicated terminals using ohmmeter. See BLOWER SWITCH CONTINUITY table. See Fig. 6.

BLOWER SWITCH CONTINUITY TABLE

Switch Position	Continuity Between Terminal No.
Low	1 & 8, 3 & 5
Medium-Low	1 & 8, 5 & 6
Medium-High	1 & 4, 1 & 8, 2 & 5
High	1 & 4, 1 & 8, 5 & 7



COMPONENT SIDE VIEW

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Fig. 6: Identifying Blower Switch Connector Terminals
Courtesy of Mitsubishi Motor Sales of America.

BLOWER MOTOR

Disconnect blower motor connector. Connect battery directly to blower motor terminals. Ensure blower motor operates smoothly. Reverse polarity, and ensure blower motor operates smoothly in the reverse direction. Replace blower motor if it does not function as specified.

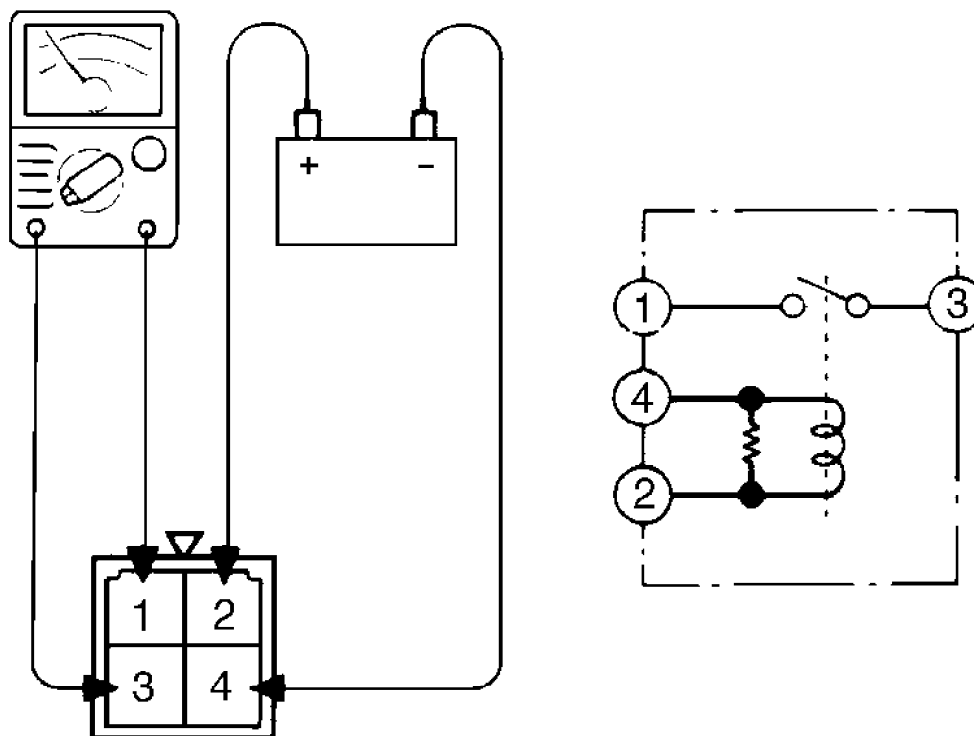
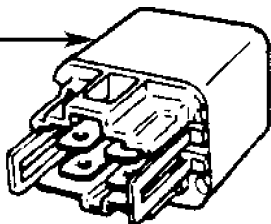
BLOWER MOTOR RELAY

Montero

1) Remove blower motor relay from junction block. Using ohmmeter, check continuity between terminals No. 1 and 3. See Fig. 7. Continuity should not be present.

2) Check continuity between terminals No. 2 and 4. Ensure continuity is present. Connect 12-volt battery to terminals No. 2 and 4. See Fig. 7. Ensure continuity exists between terminals No. 1 and 3 with voltage applied. If continuity is not as specified, replace relay.

Blower Motor Relay



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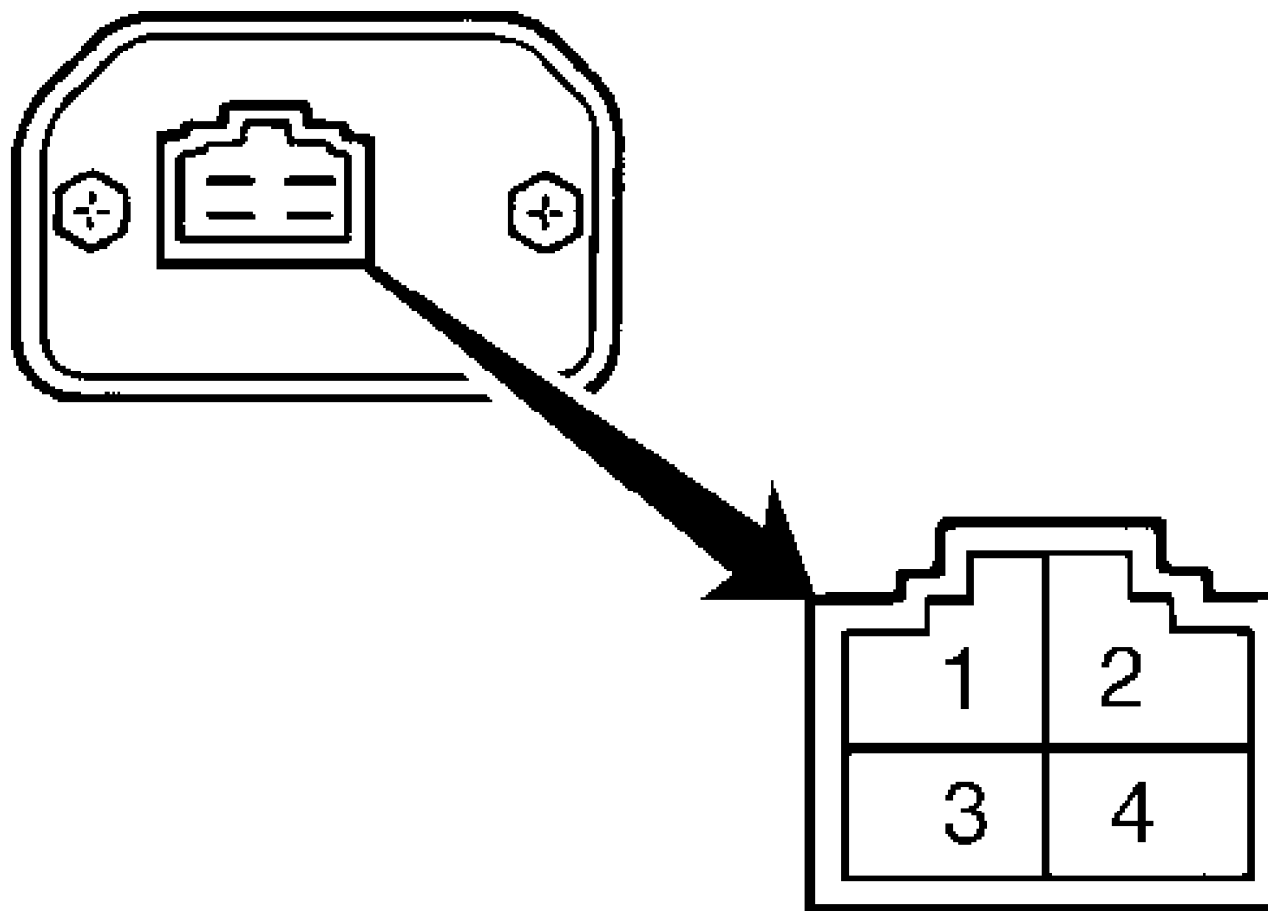
Fig. 7: Identifying Blower Relay Terminals (Montero)
Courtesy of Mitsubishi Motor Sales of America.

BLOWER MOTOR RESISTOR

Disconnect harness connector from resistor, located in blower assembly. See Fig. 1. Using ohmmeter, check resistance between indicated terminals. See BLOWER MOTOR RESISTOR RESISTANCE table. See Fig. 8. If resistance is not as specified, replace resistor.

BLOWER MOTOR RESISTOR RESISTANCE TABLE

Terminal No.	Ohms
Montero	
1 & 2	0.88-1.02
2 & 3	0.31-0.35
2 & 4	1.82-2.10



COMPONENT SIDE VIEW

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Fig. 8: Identifying Blower Motor Resistor Terminals (Montero)
Courtesy of Mitsubishi Motor Sales of America.

REMOVAL & INSTALLATION

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HEATER UNIT & HEATER CORE

Removal (Montero)

1) Move temperature control lever to warm setting. Drain coolant from vehicle. Disconnect heater hoses from heater unit. See Fig. 1.

NOTE: On A/T models, when removing front floor console, set A/T selector lever in "L" position.

2) Remove front and rear floor consoles. Remove hood release handle. Remove fuel door release handle. Remove instrument panel undercover and speaker covers. Remove glove box door stop and glove box. Remove heater control panel cover. Remove heater control panel and radio. Remove plug from instrument cluster cover. Remove instrument cluster cover and instrument cluster.

3) Disconnect speedometer cable at transmission. Remove lock of speedometer cable adapter from instrument panel. Pull cable slightly toward vehicle's interior, and remove cable adapter. Remove steering column cover. Remove clock or plug. Remove side defroster covers. Remove side mirror control switch.

4) Remove front speakers. Remove rheostat, rear wiper/washer switch, and door lock switch. Disconnect ventilation control cable and harness connector. Remove steering column bolts and instrument panel.

5) Remove shower ducts, lap duct, joint duct and center duct. See Fig. 1. Remove center reinforcement. Remove heater unit. Remove distribution duct. Remove heater core.

Installation (Montero)

Install heater core, distribution duct, heater unit and center reinforcement. Install remaining ducts in reverse order of removal. Install instrument panel. Tighten steering column bolts to 16 ft. lbs. (22 N.m). Install and adjust ventilation control cable. See ADJUSTMENTS. To complete installation, reverse removal procedure.

HEATER CONTROL PANEL

Removal & Installation (Montero)

1) Remove glove box door stops. Disconnect fresh/recirculated air selector cable and temperature control cable. Remove knee protector. Remove lap duct and left shower duct. See Fig. 1. Disconnect mode selector wire.

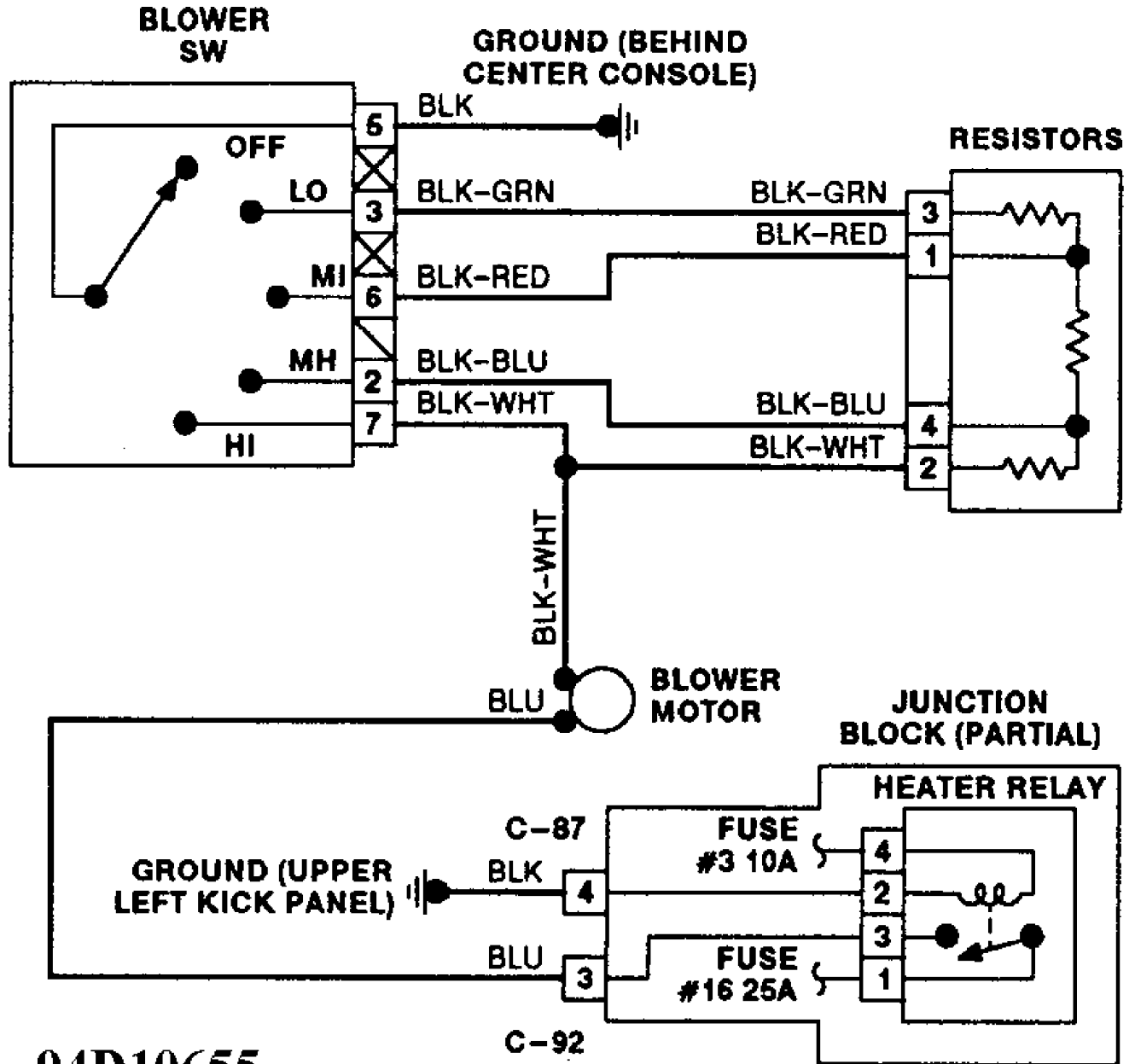
2) Remove heater control panel cover and panel. Remove heater control panel bezel and knobs. Remove blower switch. Using a screwdriver, remove wire clip. Remove heater control cables from heater control panel. To install, reverse removal procedure. Adjust heater control cables while installing. See ADJUSTMENTS.

BLOWER ASSEMBLY

Removal & Installation (Montero)

Remove glove box, speaker cover and speaker. See Fig. 1. Remove glove box frame. Disconnect right shower duct. Remove engine control relay and bracket. Disconnect fresh/recirculated air selector cable and joint duct. Remove blower assembly. To install, reverse removal procedure. Adjust air selector cable. See ADJUSTMENTS.

WIRING DIAGRAMS



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Fig. 9: Heater System Wiring Diagram (Montero)