MAINTENANCE AND REPAIR

ON–VEHICLE SERVICE

GENERAL A/C SYSTEM SERVICE PROCEDURES

O–RING REPLACEMENT

Important : Even though O–rings may look identical, it is extremely important that only recommended service replacement air conditioning (A/C) O–rings be used or excessive leakage of refrigerant may occur.

Important : Always slip the O–ring onto the flange tube to ensure proper locating and sealing.

Install new Daewoo–approved service replacement A/C O–rings whenever a joint or a fitting is disassembled, except when the O–rings are provided on new components.

When replacing O–rings on an A/C component or a joint connection, the fitting design should be identified to ensure installation of the correct air conditioning service replacement O–ring. Some joint connections and components will implement a ”captured” O–ring design fitting that uses a groove to retain the O–ring. Others do not have a groove and use a ”non–captured” or ”standard” O–ring. Assembly and tightening procedures are the same for both designs, but the O–rings are different.

Notice : Before installation, verify that both O–rings and fittings have not been nicked or deformed. Deformed or nicked parts must be replaced. Failure to use the proper service replacement parts and procedures may result in excessive refrigerant leakage.

HANDLING REFRIGERANT

CAUTION : Always work in a well –ventilated area and avoid breathing any refrigerant fumes. If you have difficulty breathing, seek medical attention immediately. If refrigerant comes in contact with any part of your body, flush the exposed area with water. If a rash or pain develops, seek medical attention.

Air conditioning systems contain refrigerant. This is a chemical mixture which requires special handling procedures to avoid personal injury.

Always wear goggles and wrap a clean cloth around the fittings, the valves and the connections when performing work that involves opening the refrigerant system. Do not weld or steam clean on or near any vehicle–installed air conditioning lines or components.

All refrigerant drums are shipped with a heavy metal screw cap. The purpose of the cap is to protect the valve and the safety plug from damage. It is good practice to replace the cap after each use of the drum.

If it is necessary to transport or carry any container of refrigerant in a vehicle, do not carry it in the passenger compartment.

HANDLING OF REFRIGERANT LINES AND FITTINGS

Notice : Using too low or too high torque when tightening a fitting can result in loose joints or deformed joint parts. Both conditions can result in refrigerant leakage.

- Keep all metal tubing lines free of dents or kinks. Any line restrictions will cause the loss of system capacity.
- Never bend a flexible hose line to a radius of less than four times the diameter of the hose.
- Never allow a flexible hose line to come within 65 mm (2–1/2 inches) of the exhaust manifold.
- Inspect flexible hose lines regularly for leaks or brittleness.
- Replace flexible hose lines with new lines if signs of deterioration or leaking are found.
- Discharge the refrigeration system of all refrigerant before disconnecting any fitting in the refrigeration system.
- Proceed very cautiously regardless of the gauge readings.

CAUTION : Keep your face and your hands away from the fitting so that you will not be injured if liquid refrigerant happens to be in the line.

- Open the fittings very slowly.
- If pressure is noticed when loosening a fitting, allow the pressure to bleed off as described under ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
- Cap or tape any refrigerant line immediately after it is opened. This will prevent the entrance of moisture and dirt, which can cause internal compressor wear or plugged lines in the condenser, the evaporator core, the expansion valve, or the compressor inlet screens.

Important : Use two proper wrenches to connect the Oring fittings.

- Back up the opposing fitting to prevent distortion of the connecting lines or the components.
- Back up both the swagged fitting on the flexible hose connections and the coupling to which it is attached with two wrenches to prevent turning the fitting and damaging the ground seat.
- Keep the O–rings and the seats in perfect condition. A burr or a piece of dirt may cause a refrigerant leak.
- Dip the new O–rings in clean polyalkaline glycol refrigerant oil before installation.

MAINTAINING CHEMICAL STABILITY IN THE REFRIGERATION SYSTEM

The efficient operation and the life of the air conditioning (A/C) system is dependent upon the chemical stability of the refrigeration system. When foreign materials, such as

dirt, air, or moisture, contaminate the refrigeration system, they will change the stability of the refrigerant and the polyalkaline glycol (PAG) compressor oil. They will also affect the pressure–temperature relationship, reduce efficient operation, and can possibly cause interior corrosion and abnormal wear of moving parts.

Observe the following practices to ensure chemical stability in the system:

- Wipe away dirt or oil at and near any connection before opening that connection. This will reduce the chance of dirt entering the system.
- Cap, plug, or tape both sides of a connection as soon as possible after opening the connection. This will prevent the entry of dirt, foreign material, and moisture.
- Keep all tools clean and dry, including the manifold gauge set and all replacement parts.
- Use a clean and dry transfer device and container to add polyalkaline glycol refrigerant oil. This will ensure that the oil remains as moisture–free as possible. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
- Have everything ready to perform all operations quickly when opening an A/C system. Do not leave the A/C system open any longer than necessary.
- Evacuate and recharge any A/C system that has been opened. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.

All service parts are dehydrated and sealed before shipping. They should remain sealed until just before making connections. All the parts should be at room temperature before uncapping. This prevents condensation of moisture from the air from entering the system. Reseal all parts as soon as possible.

DISCHARGING, ADDING OIL, EVACUATING, AND CHARGING PROCEDURES FOR A/C SYSTEM

CAUTION : Use only refillable refrigerant tanks that are authorized for the charging station being used. The use of other tanks may cause personal injury or void the warranty. Refer to the manufacturer’s instructions for the charging station.

CAUTION : To avoid personal injury, always wear goggles and gloves when performing work that involves opening the refrigeration system.

A charging station discharges, evacuates, and recharges an air–conditioning (A/C) system with one hookup. Filtering the refrigerant during the recovery cycle together with filtering during the evacuation cycle ensures a supply of clean, dry refrigerant for A/C system charging.

- Never use the R–134a charging station on a system charged with R–12. The refrigerants and the oils from each system are not compatible with those from the other system and must never be mixed, even in the smallest amount. Mixing refrigerant residue will damage the equipment.
- Never use adapters which convert from one size fitting to another. Such use allows contamination, which may cause system failure.

Charging Station Setup and Maintenance

There are many charging stations available. All perform the various tasks required to discharge the system and recover refrigerant, evacuate the system, add a measured amount of oil, and recharge an A/C system with a measured amount of refrigerant. Refer to the manufacturer’s instructions for all initial setup procedures and all maintenance procedures.

Control Panel Functions

A charging station will have controls and indicators to allow the operator to control and monitor the operation in progress. Refer to the manufacturer’s instructions for details. These can be expected to include the following:

1. Main Power Switch:
   - Supplies electrical power to the control panel.
2. Display:
   - Shows the time programmed for vacuum.
   - Shows the weight of the refrigerant programmed for recharging.
   - Refer to the manufacturer’s instructions for detailed programming information.
3. Low–Side Manifold Gauge:
   - Shows the system’s low–side pressure.
4. High–Side Manifold Gauge:
   - Shows the system’s high–side pressure.
5. Control Panel:
   - Controls the various operating functions.
6. Low–Side Valve:
   - Connects the low–side of the A/C system to the unit.
7. Moisture Indicator:
   - Shows whether the refrigerant is wet or dry.
8. High–Side Valve:
   - Connects the high side of the A/C system to the unit.

Refrigerant Recovery

Important : Use only a refrigerant tank that is designed for the charging station in use. The unit’s overfill limi–tation mechanism is calibrated specifically for use with this tank. The tank’s valves are also manufactured specifically for this unit.

1. Attach the high–side hose with the quick disconnect coupler to the high–side fitting of the vehicle’s A/C system.

2. Open the coupler valve.
3. Attach the low–side hose with the quick disconnect coupler to the low–side fitting of the vehicle's A/C system.
4. Open the coupler valve.
5. Check the high–side and the low–side gauges on the unit's control panel to ensure that the A/C system has pressure. If there is no pressure, there is no refrigerant in the system to recover.

Important : If there is no refrigerant in the system, do not continue with the recovery operation which would, under this condition, draw air into the recovery tank.

6. Open both the high–side and the low–side valves.
7. Open the gas and the liquid valves on the tank.
8. Drain any oil that may be in the oil separator.
9. Close the oil drain valve.
10. Wait 5 minutes, then check the control panel low-side gauge. If the A/C has maintained vacuum, the recovery is complete. Plug the unit into the proper voltage outlet.
11. Turn on the main power switch.

Notice : Never reuse refrigerant oil. Damage to the A/C system may result from such reuse. Dispose of the refrigerant oil properly.

12. Begin the recovery process. Refer to the manufacturer's instructions for the charging station in use.

Important : Some A/C system polyalkaline glycol (PAG) lubricating oil may be removed with the refrigerant during recovery. The amount of oil removed varies. A charging station separates the oil from the refrigerant and provides a means of determining how much oil was removed. Replace the same amount of oil when recharging the system. Refer to the manufacturer's instructions for the charging station in use.

13. Wait 5 minutes, then check the control panel low-side gauge. If the A/C has maintained vacuum, the recovery is complete.
14. If the low–side gauge pressure rises above zero, there is more refrigerant in the system. Recover the additional refrigerant. Repeat this step until the system maintains vacuum for 2 minutes.

Important : If the control indicator shows that the refrigerant tank is full during the recovery process and the unit shuts off, install an empty unit tank to store the refrigerant needed for steps later in the procedure. Do not use any other type of tank.

Evacuation

The unit tank must contain a sufficient amount of R–134a refrigerant for charging. Check the amount of refrigerant in the tank. If there is less than 3.6 kg (8 pounds) of refrigerant, add new refrigerant to the tank. Refer to the manufacturer's instructions for adding refrigerant.

1. Verify that the high–side and the low–side hoses are connected to the A/C system. Open both the highside and the low–side valves on the unit's control panel.
2. Open both the gas and the liquid valves on the tank.

Important : Refer to the manufacturer's instructions for the charging station in use. It is necessary to evacuate the system before recharging it with new or recycled refrigerant.

3. Start the vacuum pump and begin the evacuation process. Non–condensable gases (mostly air) are vented from the tank automatically during the recycling process. The pressure being released may be heard.
4. Check for leaks in the system. Refer to the manufacturer's instructions for the charging station in use.

Important : Change the vacuum pump oil frequently. Refer to the manufacturer's instructions for the charging station in use.

A/C System Oil Charge Replenishing

Any oil removed from the A/C system during the recovery process must be replenished at this time.

1. Use the correct graduated bottle of PAG oil for the R–134a system.

- Keep the oil bottles tightly capped at all times to protect the oil from moisture and contamination.
- An A/C system vacuum is needed for this operation. Never open the oil injection valve while there is positive pressure in the A/C system. This will result in oil blowback through the bottle vent.
- Never let the oil level drop below the pickup tube while charging or replenishing the system, as this will allow air into the A/C system.

5. Refer to the manufacturer's instructions for the charging station in use. Add the proper amount of PAG oil to the system.
6. Close the valve when the required oil charge has been pulled into the system.

Charging

Important : Evacuate the A/C system before charging.

1. Close the low–side valve on the control panel.
2. Open the high–side valve on the control panel.
3. Refer to the manufacturer's instructions for the charging station in use.
4. Enter the amount of refrigerant needed to charge the A/C, making sure to use the correct system of measurement, i.e. kilogram (kg) or pound (lb).
5. Begin the charging process.

Successful Transfer Complete

1. Close the high–side valve on the unit's control panel. Both valves should be closed.
2. Start the vehicle and the A/C system.
3. Let the engine run until the readings on the high–side gauge and the low–side gauge stabilize.
4. Compare the readings to the system specifications.
5. Check the evaporator outlet temperature to ensure that the A/C system is operating within the system specifications.

6. Keep the A/C running.
7. Close the high–side coupler valve.
8. Disconnect the high–side hose from the vehicle.
9. Plug the unit into the proper voltage outlet.
10. Close the low–side coupler valve.
11. Disconnect the low–side hose from the vehicle.

Unsuccessful Transfer

Sometimes the total charge does not transfer into the A/C system. There are two reasons why this may occur:

1. The pressure in the unit's tank and the pressure in the A/C system are roughly equal.
   - This will cause the transfer to proceed too slowly.
   - Refer to the manufacturer's instructions for the charging station in use.
2. There was not enough refrigerant in the unit's tank to transfer the full charge.
   - It is necessary to recover the partial charge of refrigerant from the vehicle and then evacuate the A/C system and charge it again.
   - Refer to the manufacturer's instructions for the charging station in use.

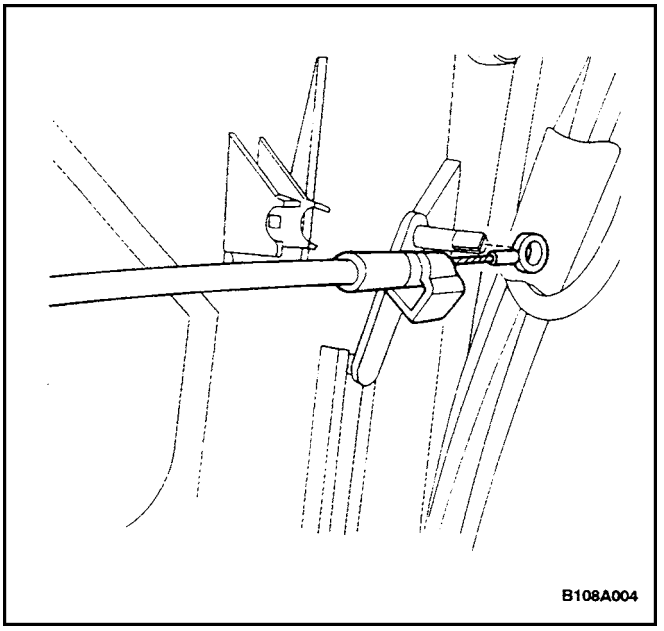
SERVICEABLE COMPONENTS

TEMPERATURE CABLE ADJUSTMENT

Because the cable and the cable housings have fixed lengths, it is impossible to make a temperature cable adjustment.

The heater/air distributor case linkage also cannot be adjusted.

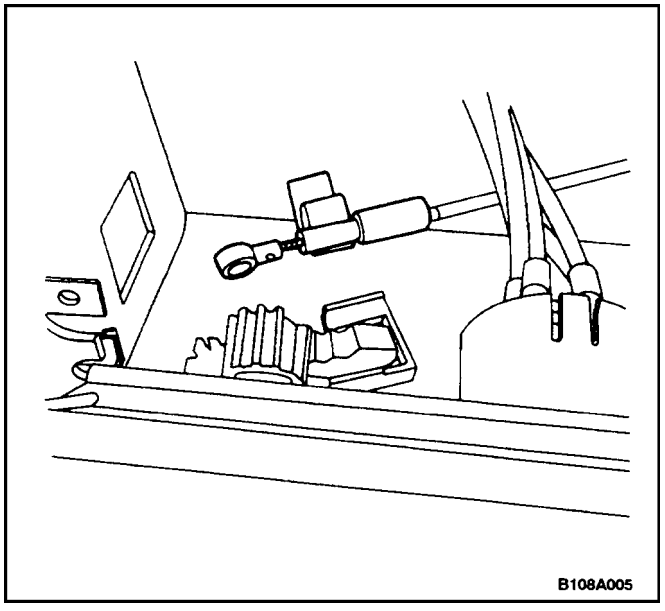
If a malfunction is suspected, verify the proper operation of the controller and the mechanical doors for the heater/air distributor case assembly.



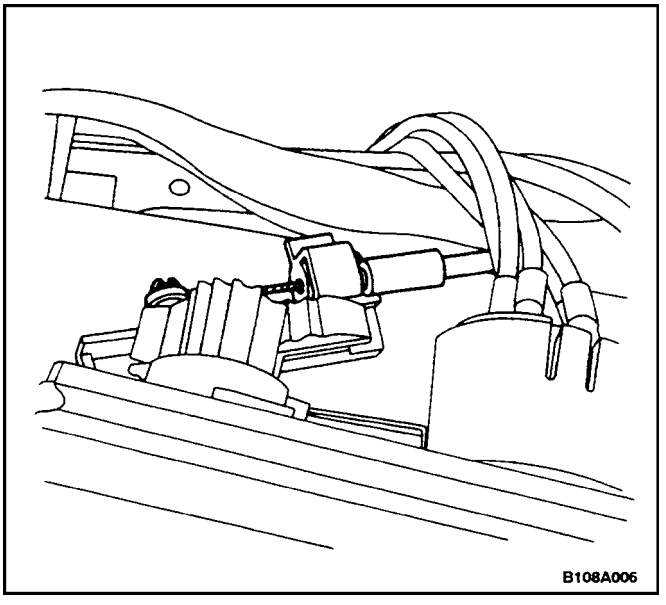
TEMPERATURE CONTROL CABLE

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information.*
3. Slide the cable eyelet off the post on the temperature door lever.
4. Disconnect the cable retainer from the blower housing.

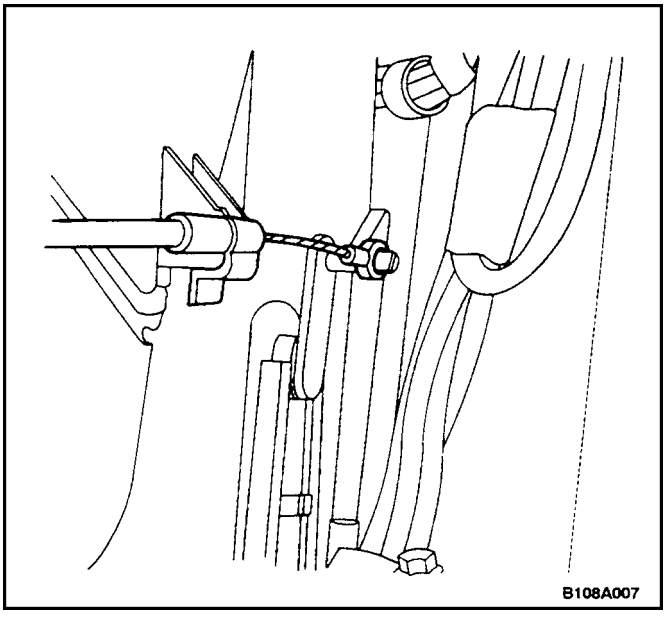


5. Remove the audio system trim plate. Refer to *Section 9F, Audio Systems.*
6. Remove the four controller retaining screws.
7. Pull out the controller to provide clearance for removal of the temperature control cable.
8. Disconnect the temperature control cable eyelet from the post on the controller.
9. Snap the cable housing connector out of the slide position on the controller.



Installation Procedure

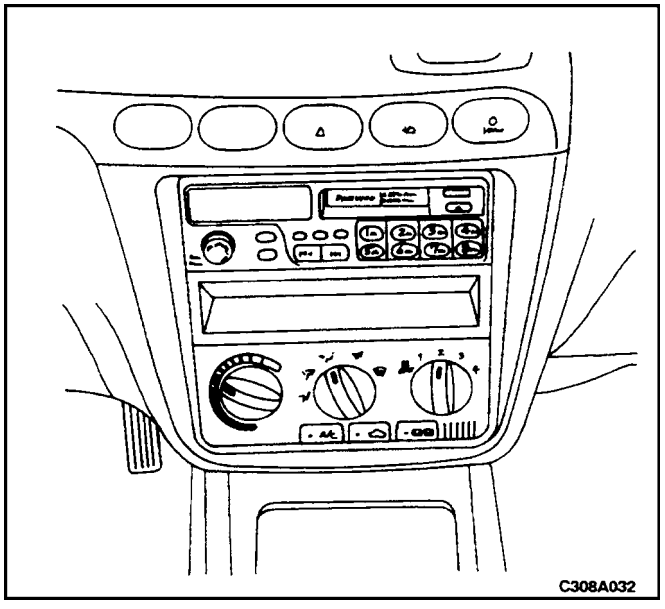
1. Install the temperature control cable eyelet to the post on the controller.
2. Snap the cable housing connector to the slide position on the controller.



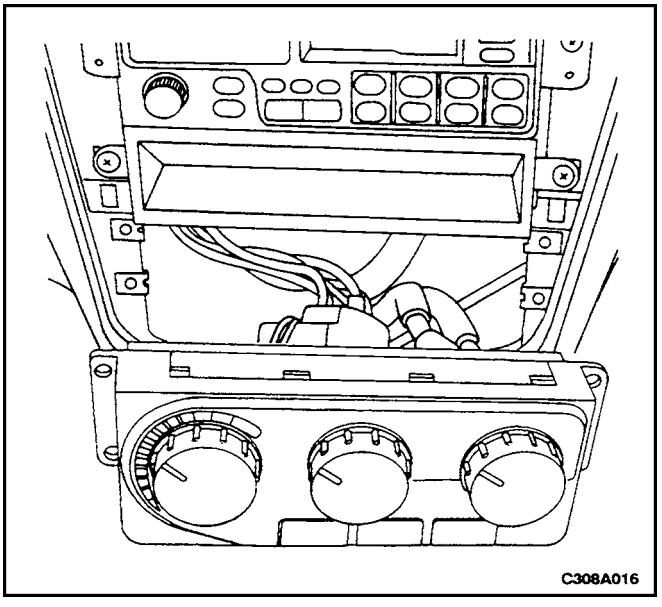
3. Gently insert the controller into position on the center console.
4. Install the four controller retaining screws.

   Tighten

   Tighten the controller retaining screws to 4 N•m (35 lb–in).
5. Install the temperature control cable eyelet to the post on the temperature door lever.
6. Snap the cable retainer to the blower housing.



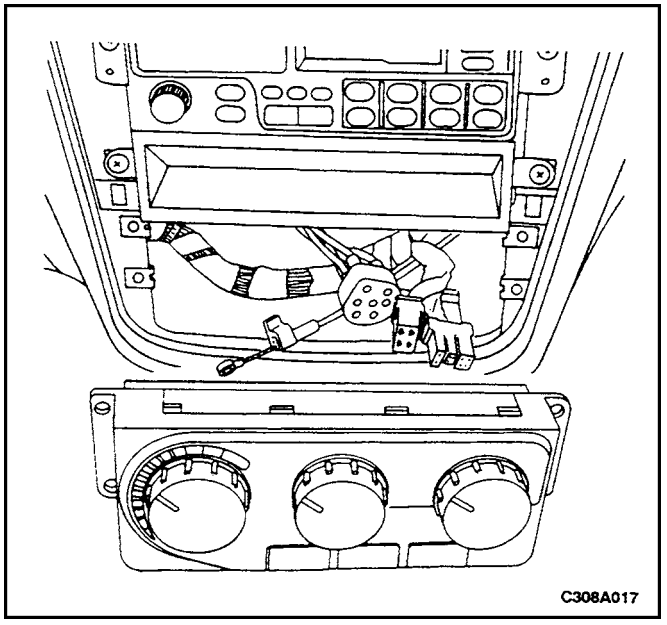
7. Move the temperature control to verify the smooth operation and function of the door and the cable.
8. Install the audio system trim plate. Refer to *9F, Audio Systems.*
9. Connect the negative battery cable.
10. Operate the heating and cooling systems to verify proper function.
11. Install the glove box. Refer to *Section 9E, Instrumentation/Driver Information.*



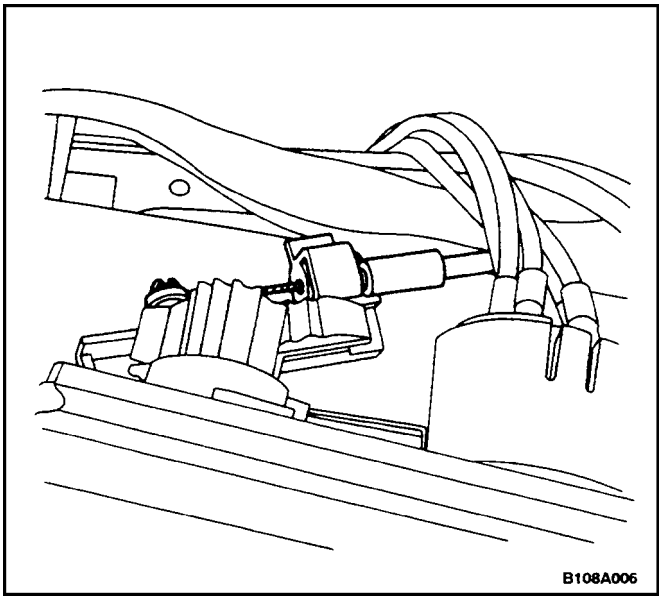
CONTROL ASSEMBLY

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the audio system trim plate. Refer to *Section 9F, Audio Systems.*
3. Remove the four controller retaining screws.
4. Pull out the controller to provide clearance for removal of the temperature control cable.

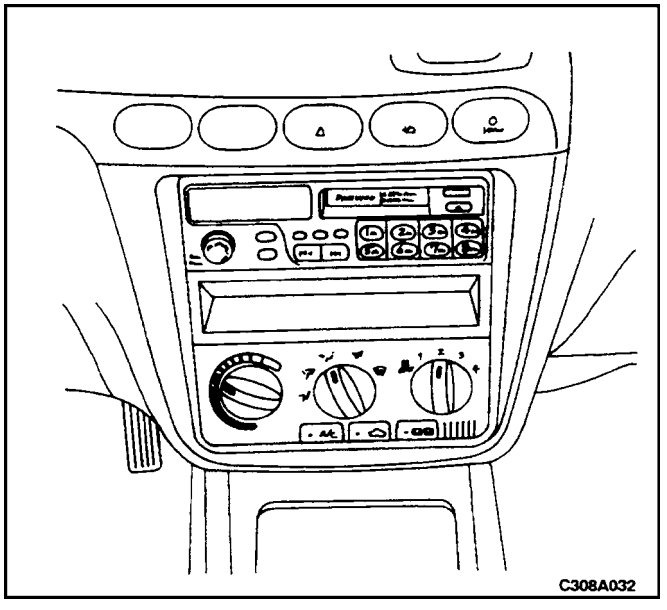


5. Disconnect the temperature control cable by gently prying the cable eyelet from the post on the controller. Unsnap the cable housing from the mechanical slide. Note the location of the cable and the housing for ease of installation.
6. Disconnect the electrical connectors.
7. Remove the vacuum hose connection block from the mode control switch.



Installation Procedure

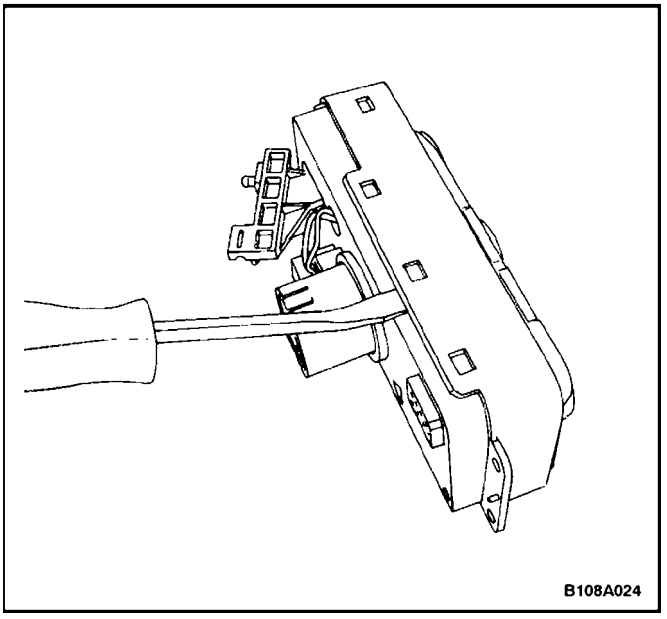
1. Connect the vacuum hose connection block to the mode control switch.
2. Press the cable end eyelet onto the post on the controller.
3. Attach the mechanical cable housing to its original control position.
4. Connect the electrical connectors to the sockets on the back of the controller.

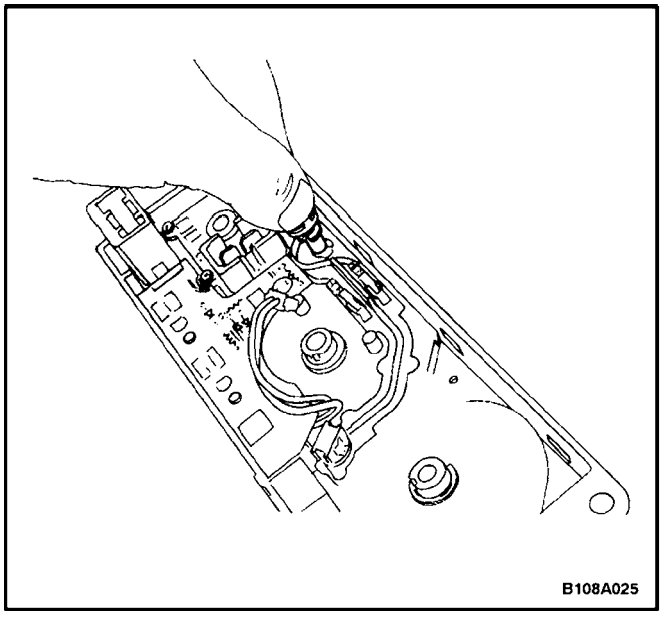


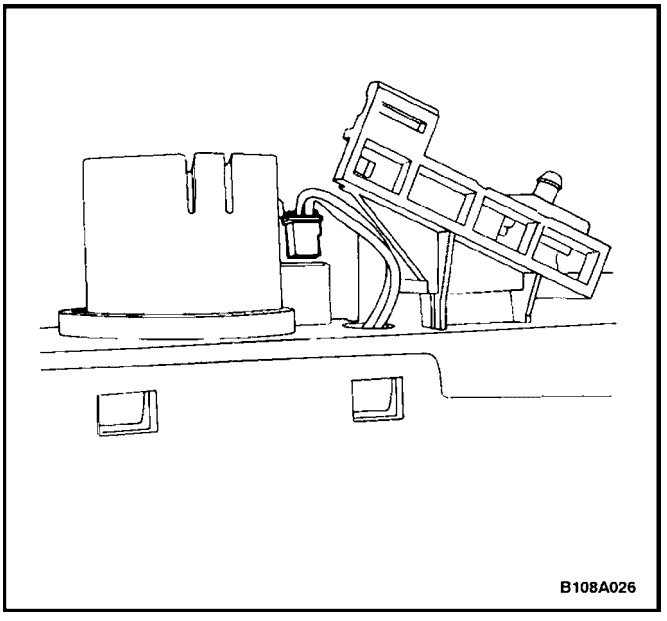
5. Gently insert the controller into position on the center console.
6. Install the retaining screws.

   Tighten

   Tighten the controller retaining screws to 4 N•m (35 lb–in).
7. Connect the negative battery cable.
8. Confirm the proper operation of the controller by moving it through all of the controller's possible functioning positions.
9. Install the audio system trim plate. Refer to *Section 9F, Audio Systems.*







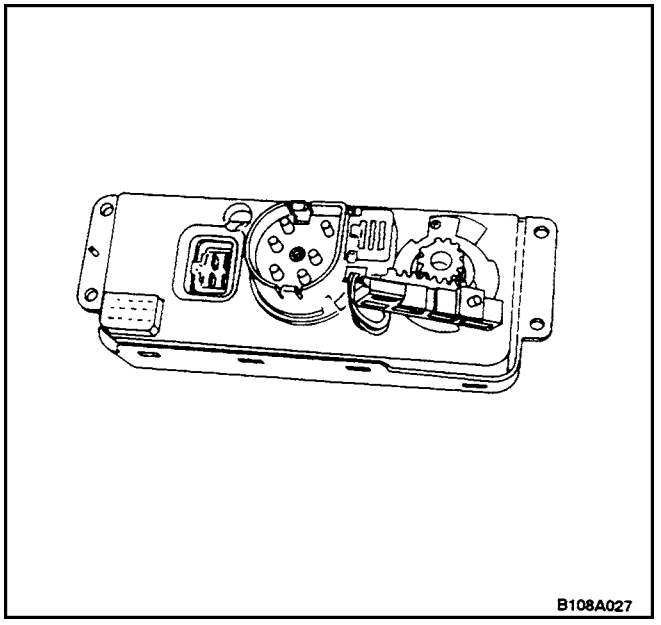
CONTROL ASSEMBLY KNOB LIGHTING

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the heating and ventilation system control assembly. Refer to ”Control Assembly” in this section
3. Disconnect the small connector to the vacuum control switch on the rear of the assembly case.
4. Separate the control assembly case halves.
5. Turn the bulb holder to the left and pull out the bulb.

Installation Procedure

1. Install the bulb into the holder and turn the bulb to the right.
2. Install the control assembly case halves.
   - Pass the connector for the vacuum switch through the hole in the rear assembly case part.
   - Be sure to align the flats on mating control shafts of the two case halves.
3. Install the connector into the vacuum control switch.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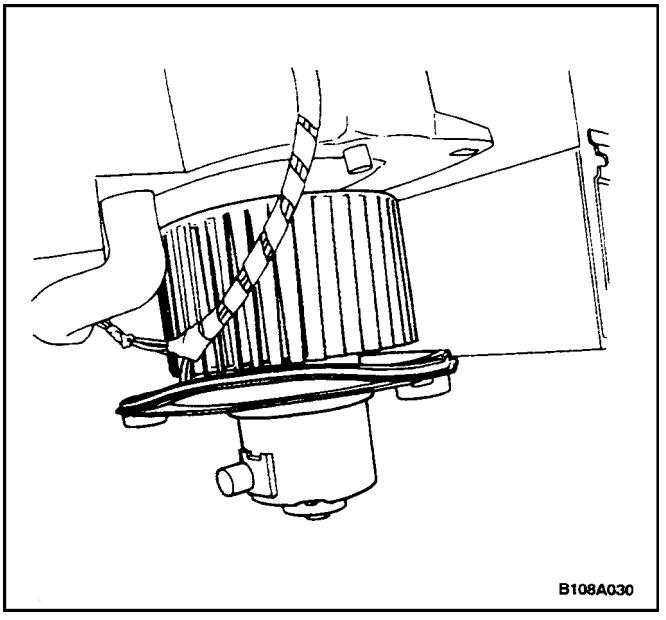
4. Install the control assembly. Refer to ”Control Assembly” in this section.
5. Connect the negative battery cable.
6. Check the knob light for proper operation.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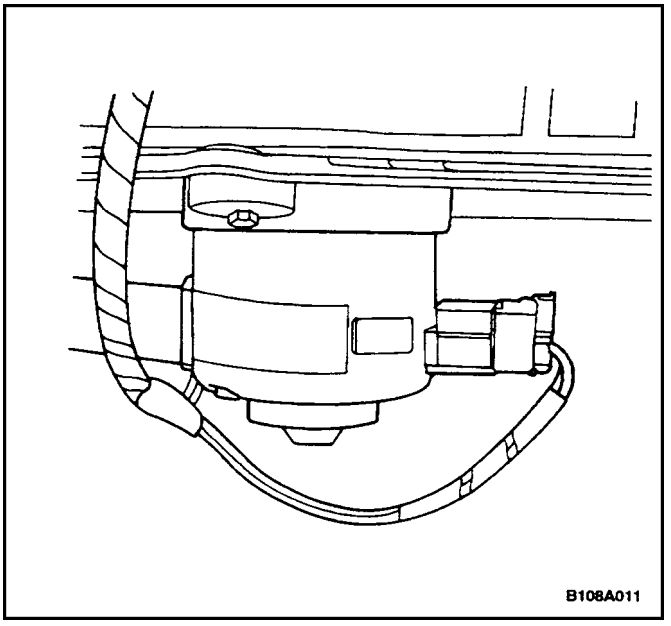
BLOWER MOTOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to *9E, Instrumentation/Driver Information.*
3. Remove the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information.*
4. Disconnect the blower motor electrical connector.
5. Remove the blower motor cooling hose.
6. Remove the screws that secure the motor to the heater/air distributor case.
7. Remove the motor, the seal, and the shock mount pads from the heater/air distributor case by gently pulling the motor straight down and out.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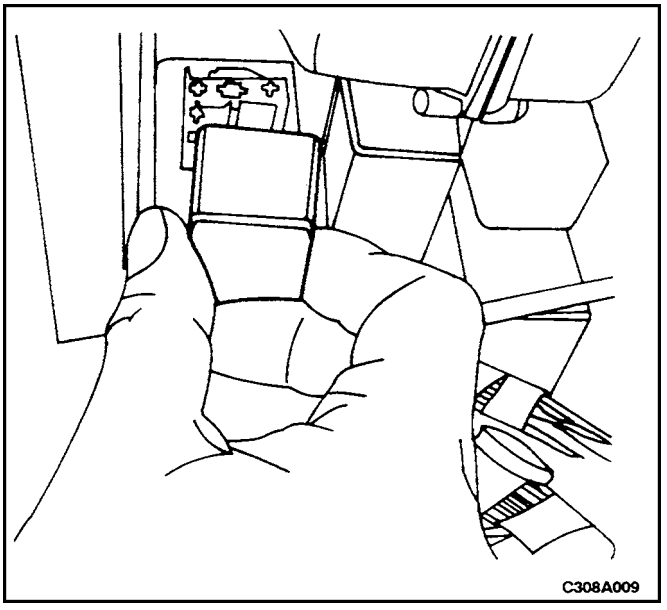
Installation Procedure

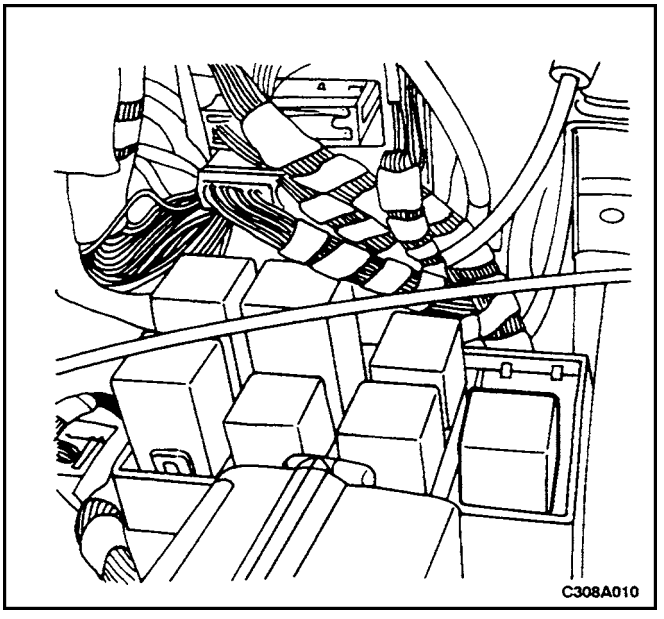
1. Install the blower motor and the seal with the shock mount pads in the heater/air distributor case. Hold the blower motor in position.
2. Install the screws to secure the blower motor to the heater/air distributor case.

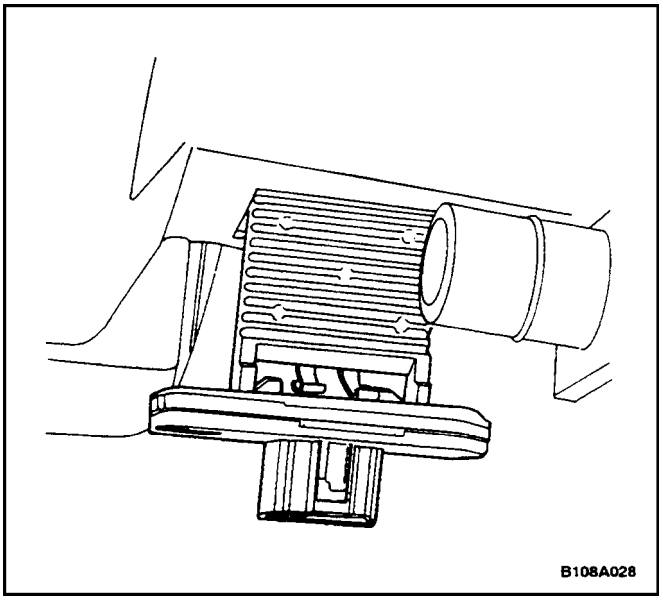
Tighten

Tighten the blower motor–to–heater/air distributor case screws to 6 N•m (53 lb–in).

3. Install the blower motor cooling hose.
4. Connect the blower motor electrical connector.
5. Connect the negative battery cable.
6. Confirm that the blower motor operates properly.
7. Replace the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information.*
8. Replace the glove box. Refer to *Section 9E, Instrumentation/Driver Information.*







HIGH–BLOWER RELAY

Removal Procedure

1. Disconnect the negative battery cable.
2. Locate the relay box under the instrument panel on the left side.
3. Pull out the high–blower relay at the front of the relay box.

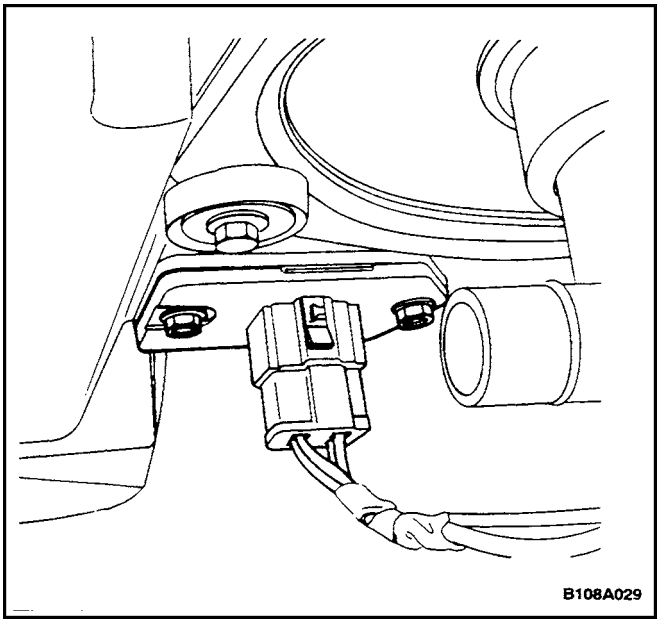
Installation Procedure

1. Align the high–blower relay contacts with the relay terminal slots.
2. Push the relay firmly into base. The relay must be seated and flush with the base edge.
3. Connect the negative battery cable.

BLOWER RESISTOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information.*
3. Remove the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information.*
4. Disconnect the electrical connector at the resistor.
5. Remove the mount screws from the resistor.
6. Remove the resistor from the heater/air distributor case by gently pulling the resistor downward.

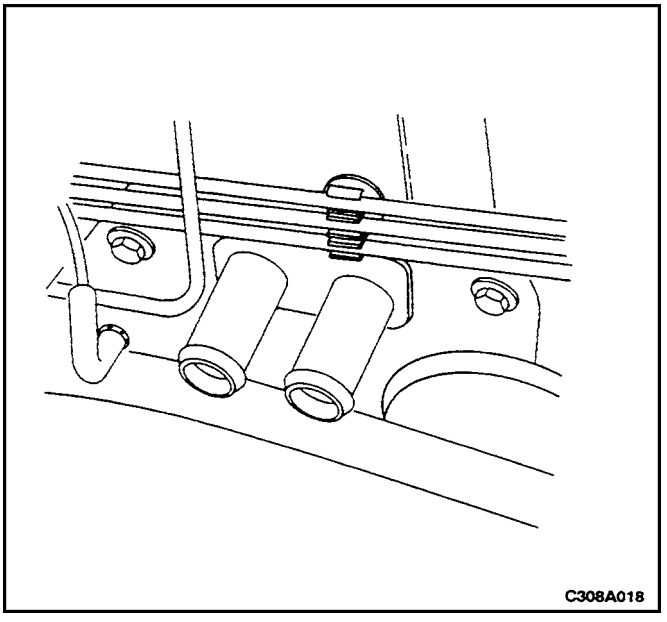


Installation Procedure

1. Install the new resistor into the heater/air distributor case with the screws.

   Tighten

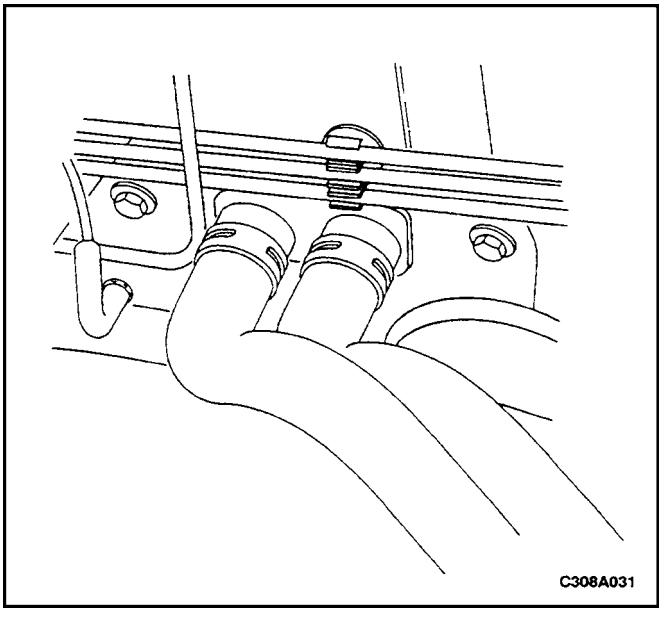
   Tighten the blower motor resistor screws to 6 N•m (53 lb–in).
2. Connect the electrical connector at the resistor.
3. Connect the negative battery cable.
4. Confirm the proper performance of the blower.
5. Replace the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information.*
6. Replace the glove box. Refer to *Section 9E, Instrumentation/Driver Information.*



HEATER HOSES

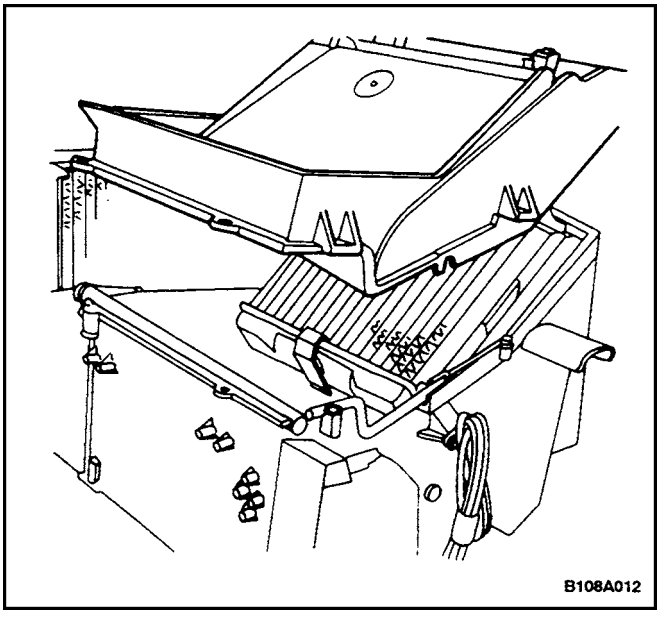
Removal Procedure

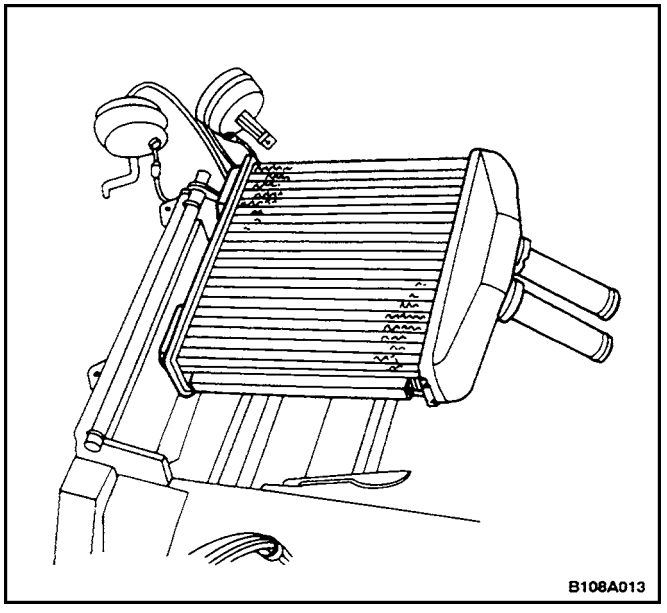
1. Partially drain the cooling system.
2. Raise and suitably support the vehicle.
3. Compress and slide rearward the two heater hose spring clamps at the bulkhead.
4. Gently twist the hose from the left to the right and back again to loosen the bond between the hose and the tube.
5. Remove the end of the hose from the tube.
6. Repeat Steps 3 and 4 with the other hose.
7. Compress the heater hose spring clamp on the inlet coolant line and slide the clamp rearward.
8. Remove the heater hose from the vehicle.
9. Compress the heater hose spring clamp at the connection below the intake manifold and slide the clamp rearward.
10. Remove the heater hose from the vehicle.

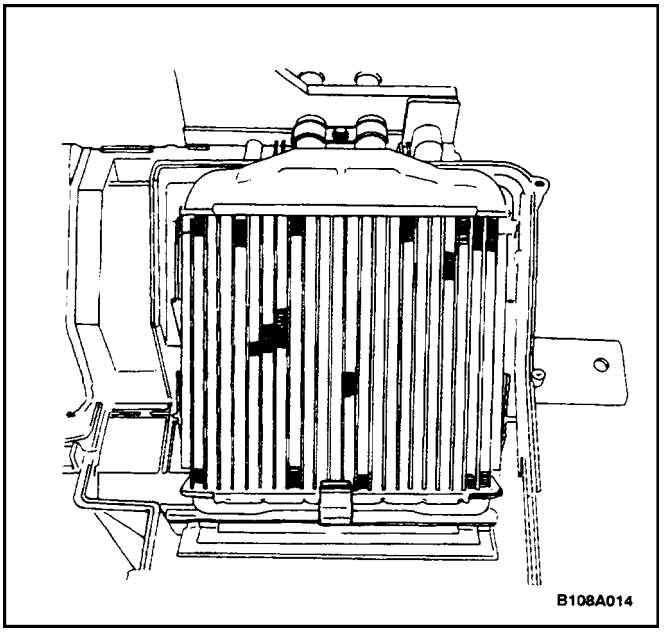


Installation Procedure

1. Install the left heater hose to the coolant inlet line fitting. Slide the end of the heater hose over the coolant fitting until the hose is seated.
2. Install the right heater hose to the fitting below the intake manifold. Slide the end of the heater hose over the fitting until it is seated.
3. Install and seat the other end of each heater hose.
4. Compress and slide the spring clamps into position on the heater hoses and release the tension.
5. Fill the cooling system.
6. Check the hoses for leaks.
7. Lower the vehicle.







HEATER CORE

Removal Procedure

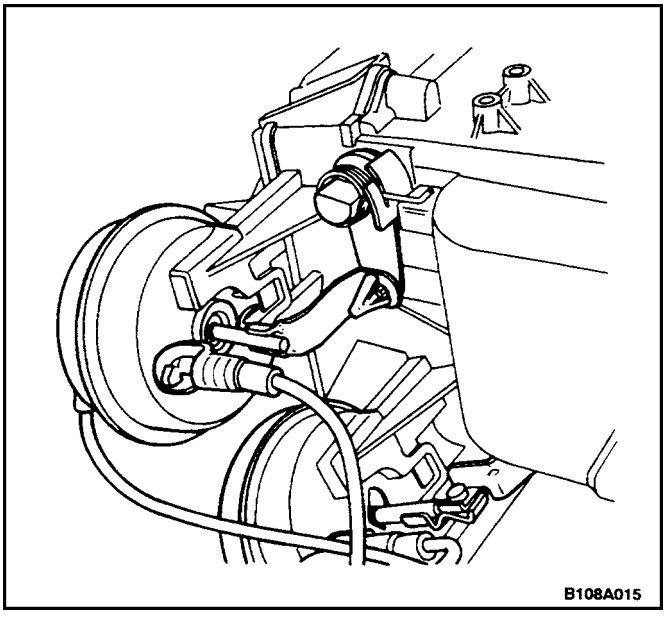
1. Disconnect the negative battery cable.
2. Remove the instrument panel from the vehicle. Refer to *Section 9E, Instrumentation/Driver Information.*
3. Remove the heater/air distributor case from the vehicle. Refer to ”Heater/Air Distributor Case Assembly” in this section.
4. Disconnect the vacuum actuators from the vent/floor door and the defroster door.
5. Remove the vacuum actuators from the heater/air distributor case.
6. Remove the screws that secure the heater core cover to the heater/air distributor case assembly.
7. Slowly separate the lower heater core cover from the rest of the assembly.
8. Remove the screw and the bracket clamp that secure the heater core lines to the case.
9. Remove the spring clamp that secures the heater core body to the case.
10. Remove the heater core from the case.

Installation Procedure

1. Install the heater core into the case.
2. Secure the heater core lines to the case with the retaining bracket clamp and the screw.

   Tighten

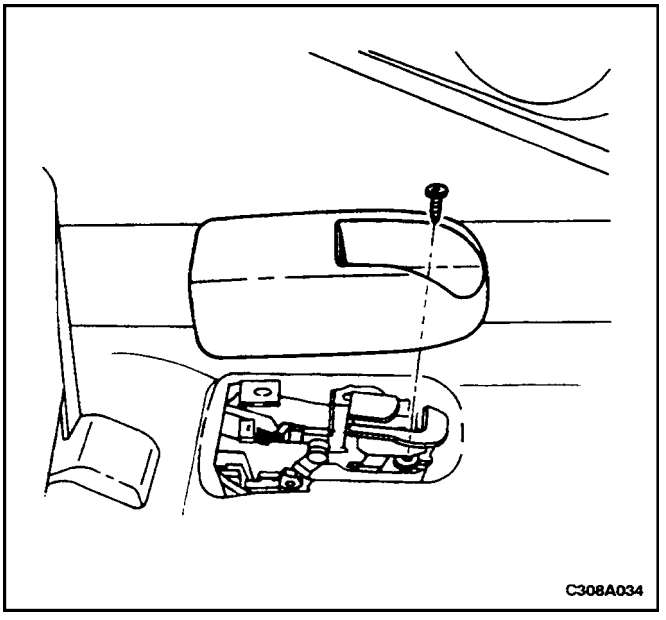
   Tighten the heater core retaining bracket screw to 3N•m (26lb–in).
3. Install the heater core body with the retaining spring clamp.



4. Install the heater core cover.
5. Install and tighten the screws that secure the heater core cover to the heater/air distributor case assembly.

   Tighten

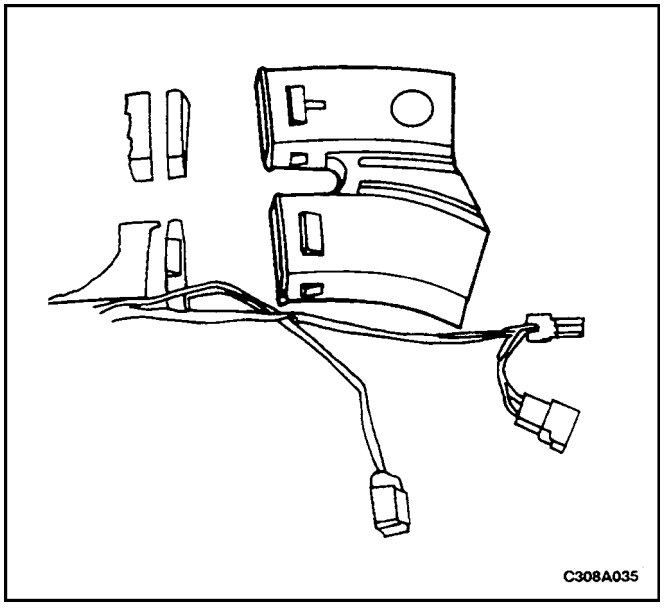
   Tighten the heater core cover screws to 3N•m (26lbin).
6. Install the actuators for the vent/floor and the defroster doors.
7. Install the heater/air distributor case. Refer to ”Heater/Air Distributor Case Assembly” in this section.
8. Install the instrument panel. Refer to *Section 9E, Instrumentation/Driver Information.*
9. Fill the cooling system.
10. Connect the negative battery cable.



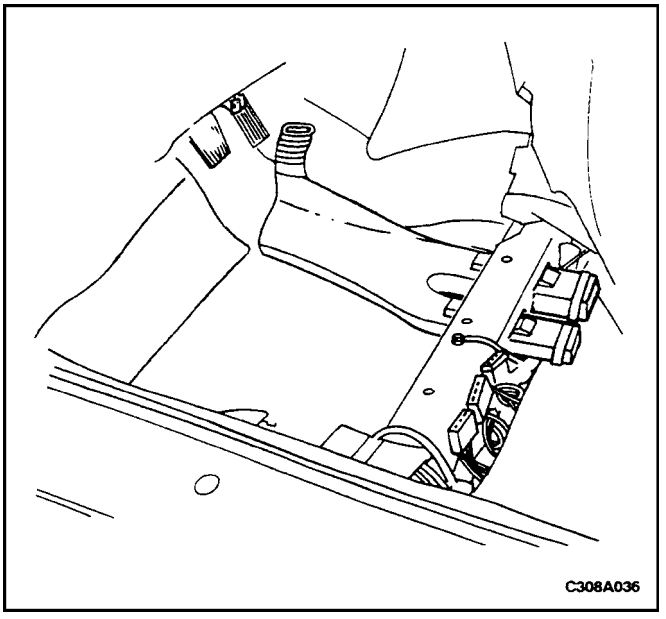
REAR HEATING DUCT

Removal Procedure

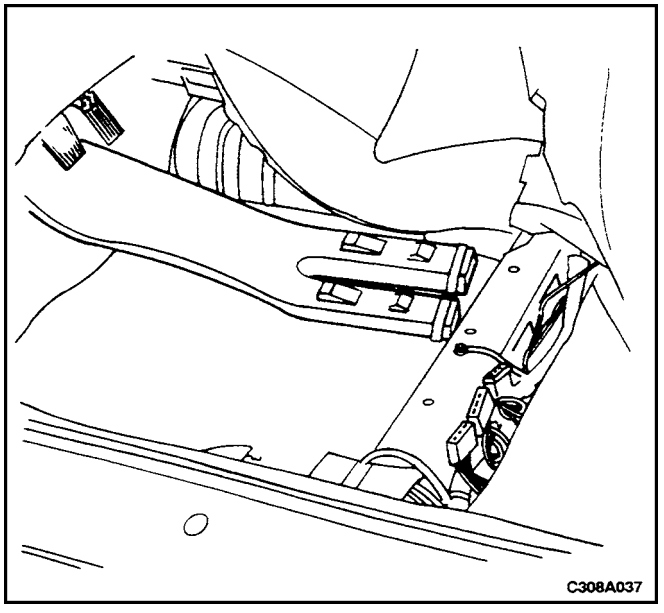
1. Remove the front seat. Refer to *Section 9H, Seats.*
2. If working on the driver’s side of the vehicle, remove the trim that covers the remote release handles for the fuel door and the rear deck lid, then remove the release handles.
3. Remove the front rocker trim plate. Refer to *Section 9G, Front Interior Trim.*



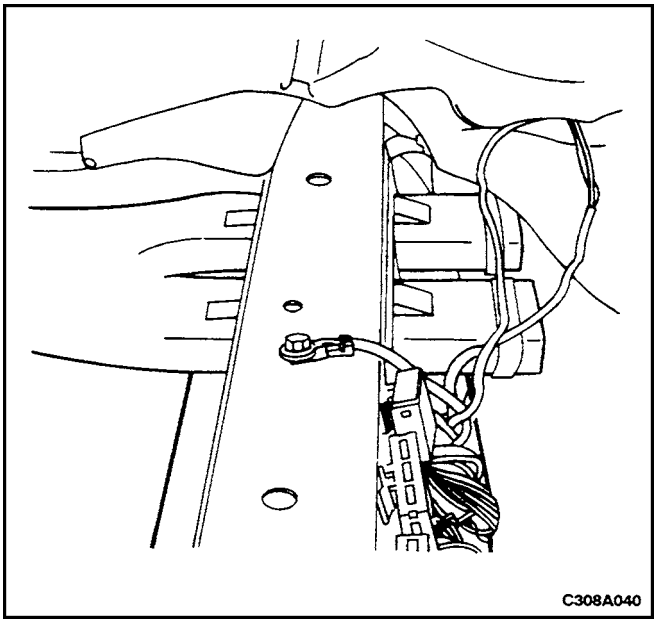
4. Remove the kick panel. Refer to *Section 9G, Interior Trim.*
5. Remove the rear heating duct outlet extension.



6. Roll the carpet away from the door and the bulkhead, toward the center of the vehicle.
7. Roll the carpet pad toward the center of the vehicle. Uncover the entire heating duct, including the coupling to the air distributor case.

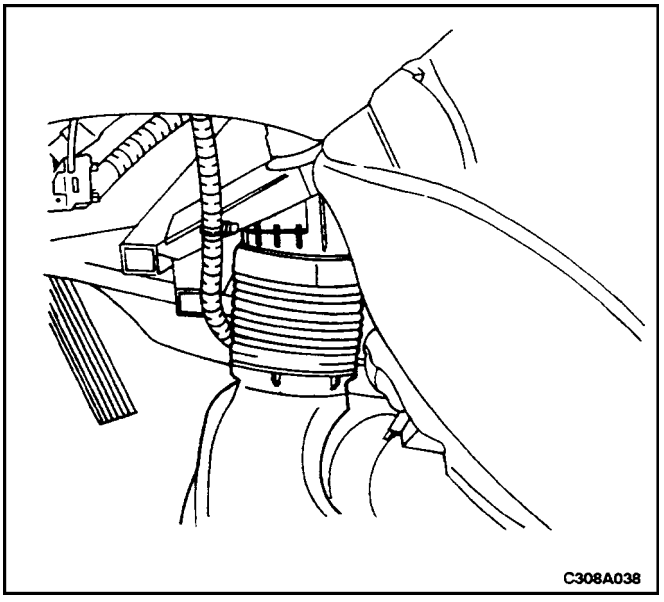


8. Compress and disengage the coupling from the air distributor case.
9. Move the front end of the rear heating duct away from the center of the vehicle.
10. Slide the rear heating duct forward to remove the duct outlets from the openings in the crossmember.
11. Remove the rear heating duct from the vehicle.

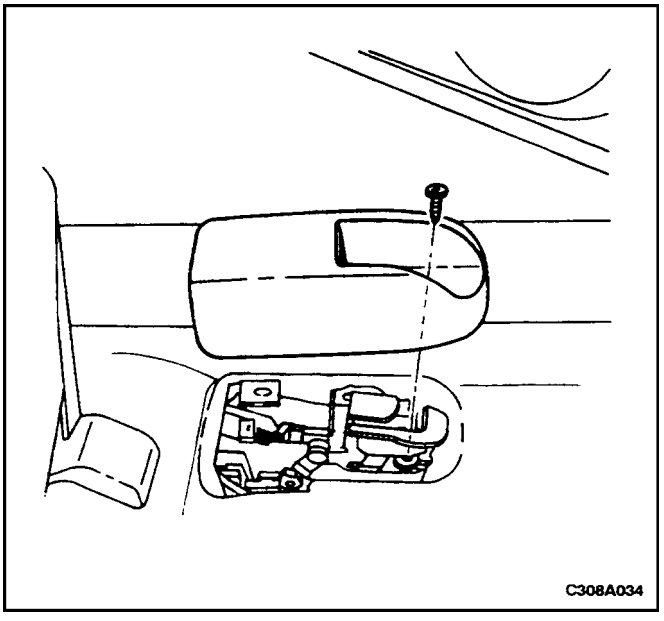


Installation Procedure

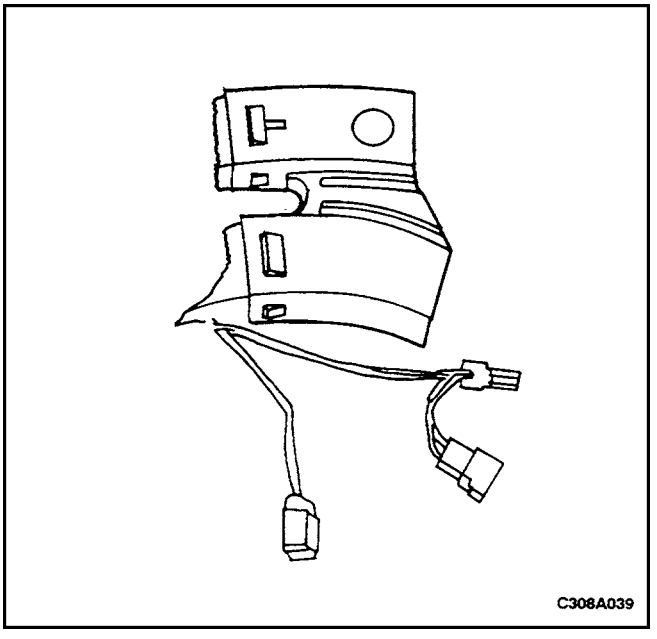
1. Insert the rear heating duct outlets into the holes in the crossmember. Push the duct outlets through the holes until they latch into place.



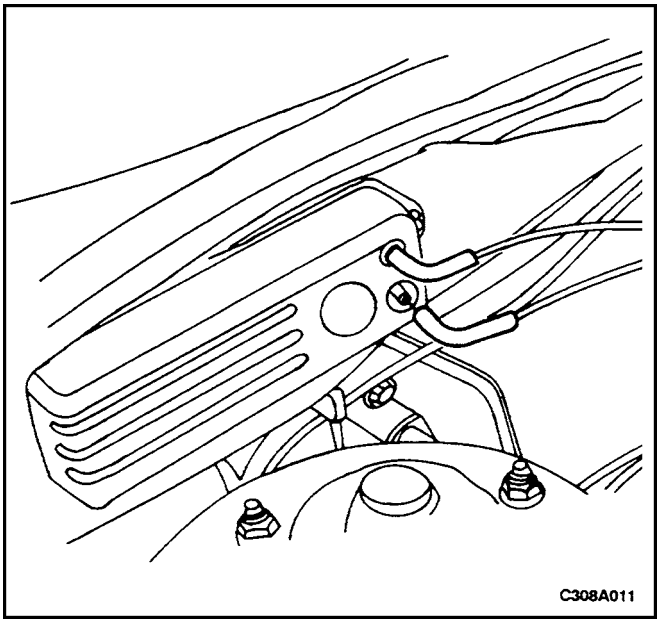
2. Place the air distributor case coupling onto the rear heating duct inlet.
3. Compress the coupling and maneuver the front end of the duct under the outlet of the air distributor case until the other end of the coupling can engage onto that outlet. The duct should be against the vehicle central tunnel. The coupling should completely surround the air distributor case outlet and the rear heating duct inlet.

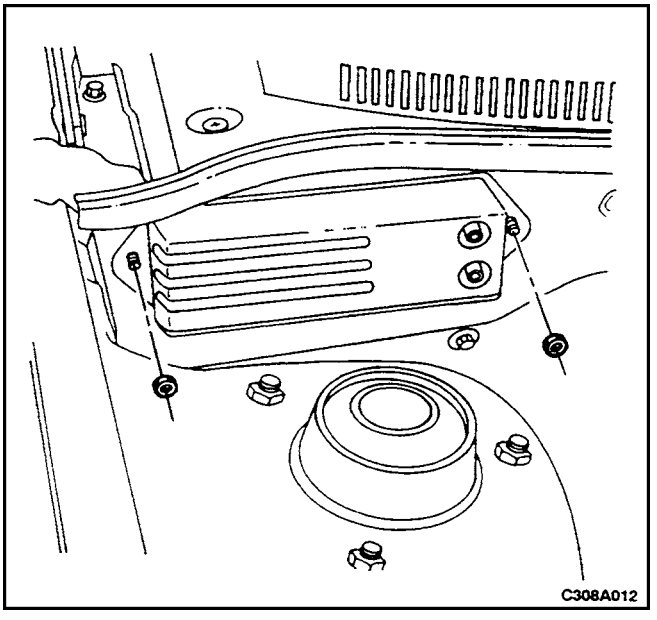


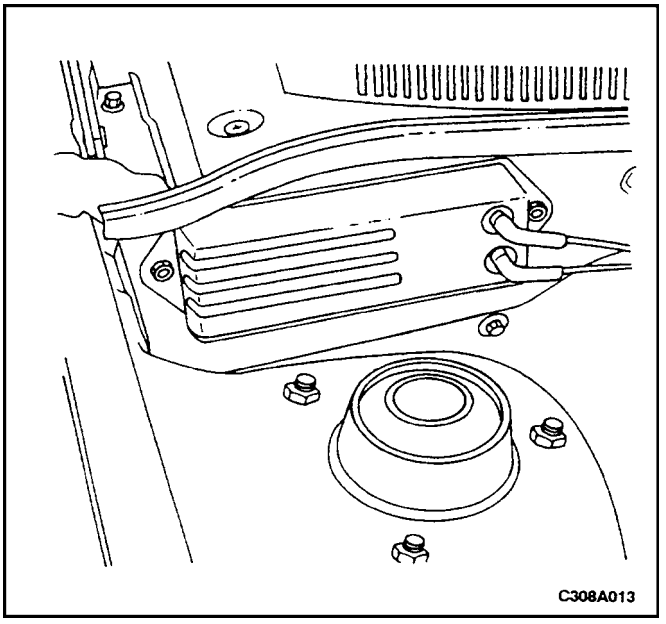
4. Replace the carpet pad over the floor.
5. Replace the carpet over the floor.
6. Pass any electrical connectors through the opening and maneuver the opening over the rear heating duct outlets so they are exposed.
7. Smooth the carpeting and tuck the edges into place at the door opening in the kick panel area.
8. If working on the driver's side of the vehicle, smooth the carpeting and tuck the edges into place in the area around the remote release handles for the rear deck lid and the fuel door. Then replace the cover over the remote release handles.



9. Replace the kick panel. Refer to *Section 9G, Interior Trim.*
10. Replace the rocker trim plate. Refer to *Section 9G, Interior Trim.*
11. Replace the rear heating duct outlet extension.
12. Replace the front seat. Refer to *Section 9H, Seats.*







HVAC CONTROL VACUUM TANK

Removal

1. Disconnect the vacuum hoses that connect to the intake manifold and to the mode control switch.
2. Remove the nuts that secure the vacuum tank to the bulkhead.
3. Remove the vacuum tank from the bulkhead.

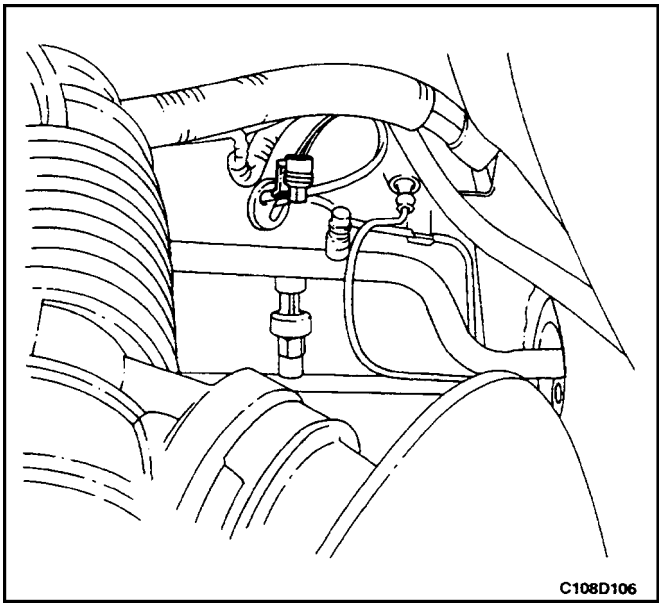
Installation

1. Place the vacuum tank against the bulkhead over the mounting studs.
2. Secure the tank with the mounting nuts.

   ### Tighten

   Tighten the vacuum tank mounting nuts to 4 N•m (35 lb–in).
3. Install the vacuum hoses.

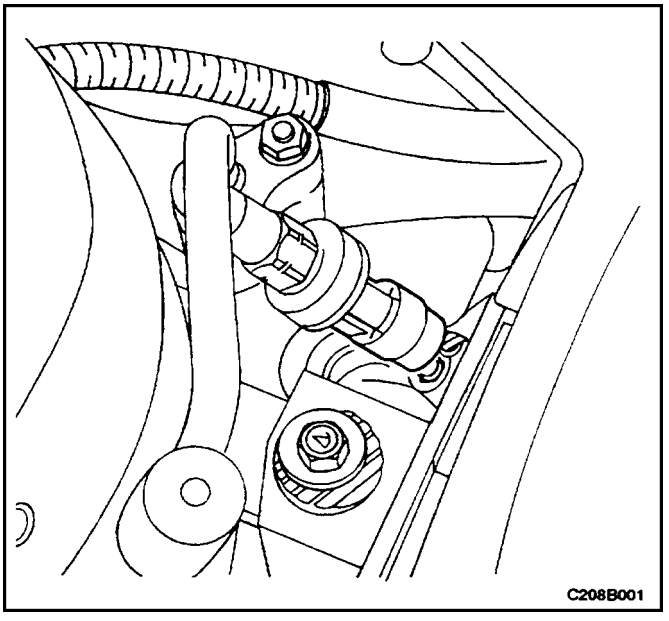
Important : The line to the intake manifold goes onto the bottom port, marked S. There is a check valve to maintain the vacuum for heater control during temporary losses of vacuum in the intake manifold. If the connections are reversed, the controls will not function properly.



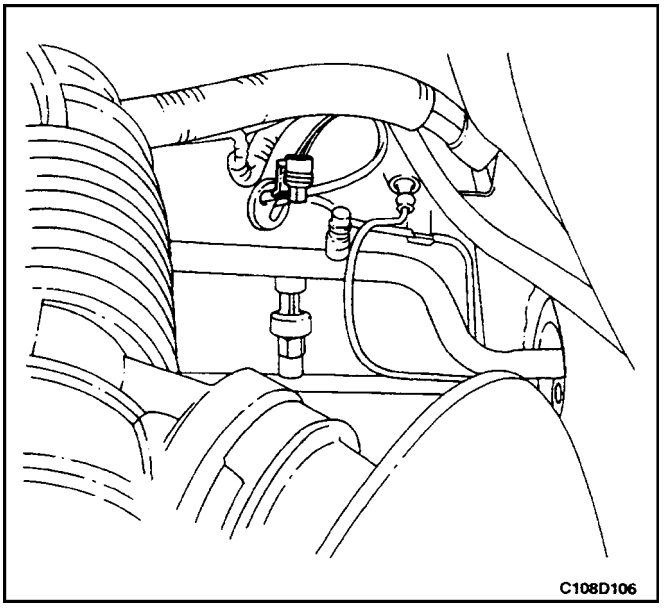
A/C PRESSURE TRANSDUCER

Removal Procedure

1. Disconnect the negative battery cable.
2. Release the connector lock and pull the transducer wire connector out.



3. Remove the transducer with a wrench.
4. Discard the O–ring seal.

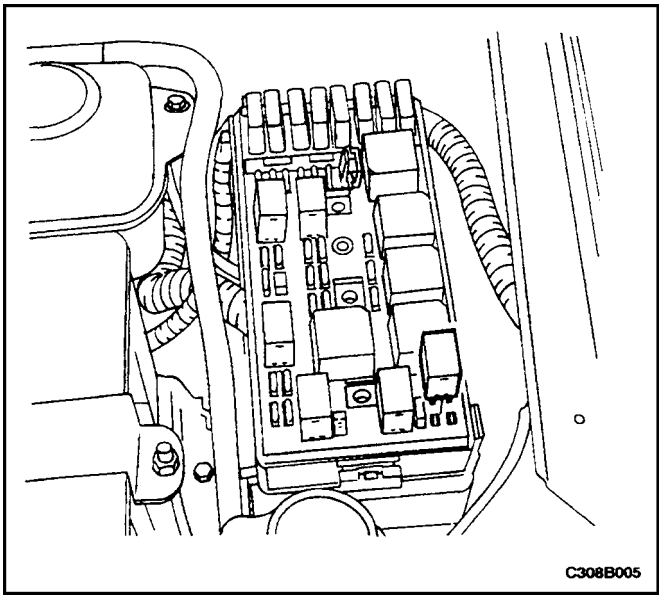


Installation Procedure

1. Install the new O–ring seal on the transducer.
2. Install the pressure transducer.

   Tighten

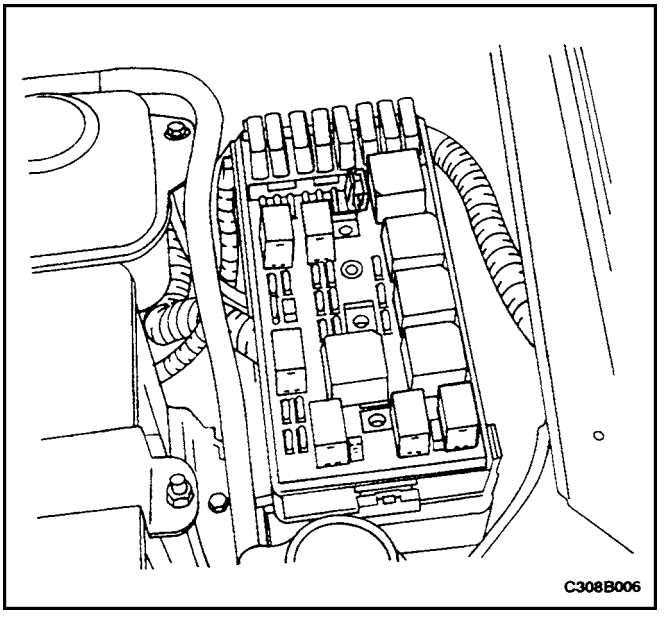
   Tighten the pressure transducer to 10 N•m (89 lb–in).
3. Connect the wire connector.
4. Connect the negative battery cable.



A/C COMPRESSOR RELAY

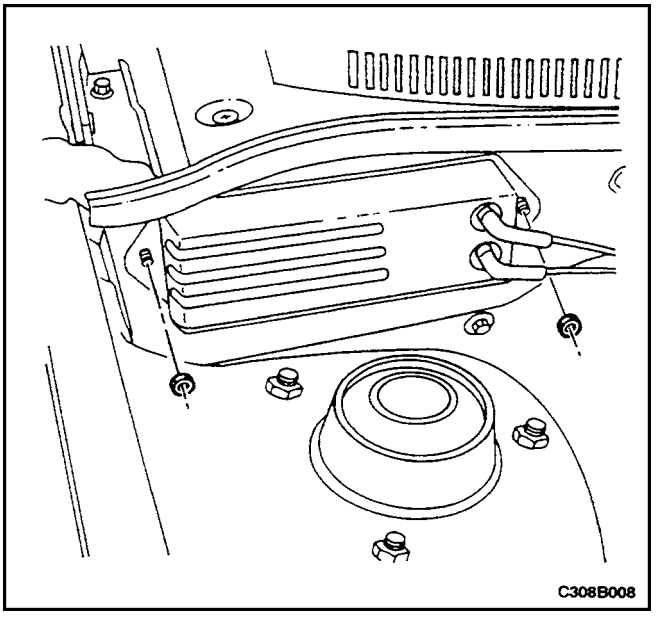
Removal Procedure

1. Disconnect the negative battery cable.
2. Pull the relay straight up and out from its location in the engine fuse block at the left front corner.



Installation Procedure

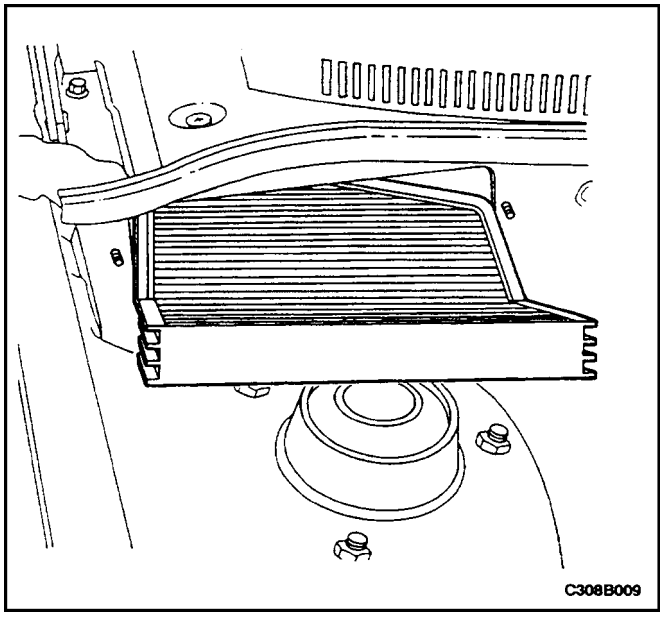
1. Align the relay terminal contacts with the base receptacle.
2. Push the relay into the base until it is seated.
3. Connect the negative battery cable.



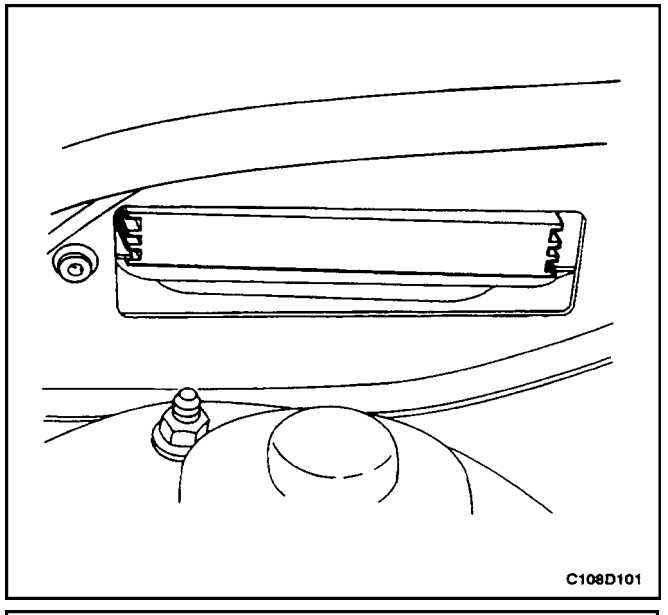
AIR FILTER

Removal

1. Remove the two nuts that secure the vacuum tank to the bulkhead.



2. Set the vacuum tank aside.
3. Pull the filter out of the cavity in the bulkhead.

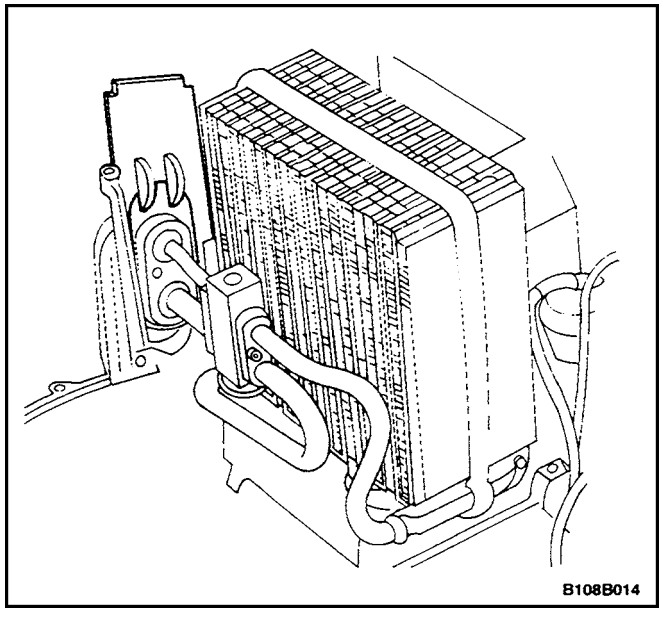


Installation

1. Install the filter into its cavity in the bulkhead.
   - Align the fins on the plastic frame of the filter with the grove in the holder before attempting to insert the filter into place.
2. Hold the vacuum tank in place over its mounting studs on the bulkhead.
3. Install the nuts to secure the vacuum tank to the bulkhead.

Tighten

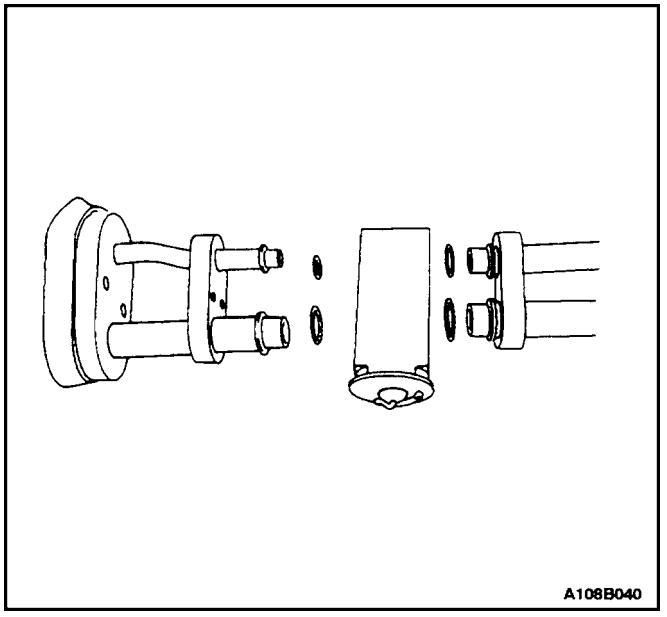
Tighten the vacuum tank–to–bulkhead nuts to 4 N•m (35 lb–in).



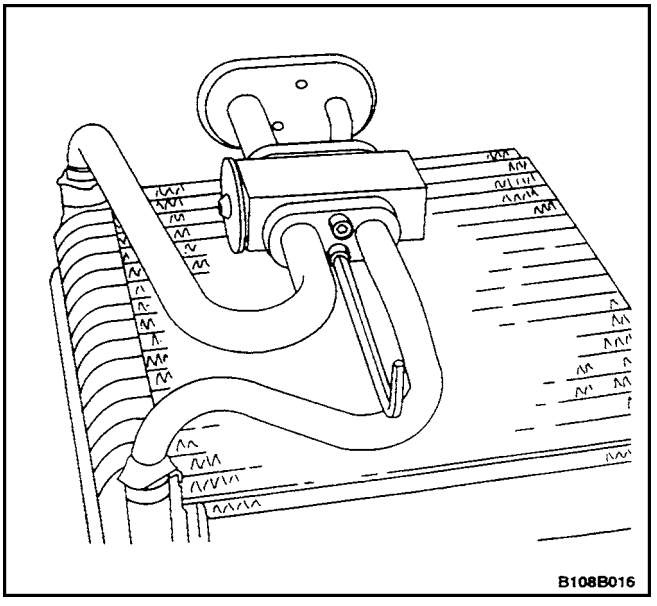
A/C EXPANSION VALVE

Removal Procedure

1. Remove the heater/air distributor case assembly. Refer to ”Heater/Air Distributor Case Assembly” in this section.
2. Remove the screws that secure the evaporator case halves.
3. Remove the evaporator core case cover.
4. Slide the evaporator flange support plate upward to facilitate removal of the evaporator.



5. Remove the evaporator from the case.
6. Remove the expansion valve bolts.
7. Remove the expansion valve.
8. Remove the O–rings from the evaporator lines and the air conditioning (A/C) lines.

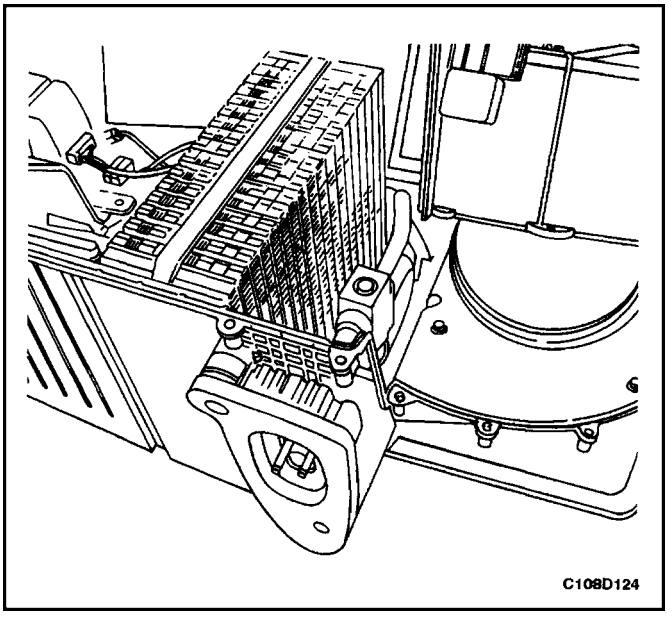


Installation Procedure

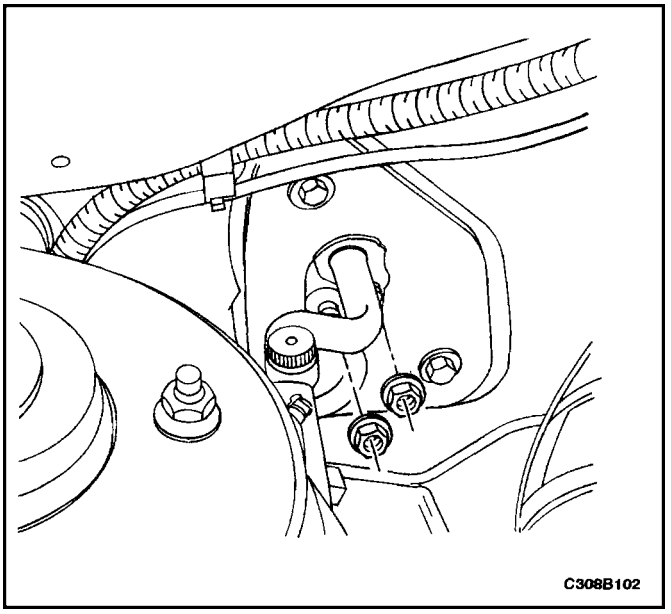
1. Clean the O–ring surface areas of dirt or contami–nation.
2. Install new O–rings on the evaporator lines and the A/C lines.
3. Install a new expansion valve onto the evaporator lines.
4. Insert the expansion valve bolts through the expan-sion valve into the mounting surface of the evapo-rator flange.

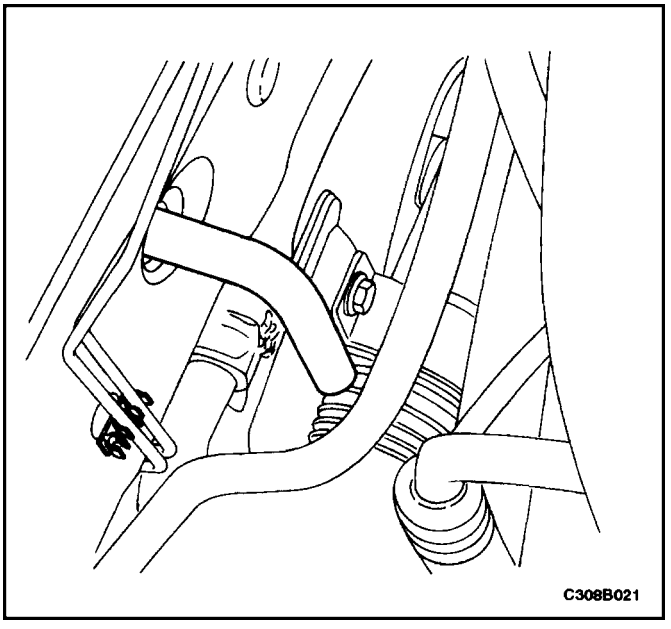
Tighten

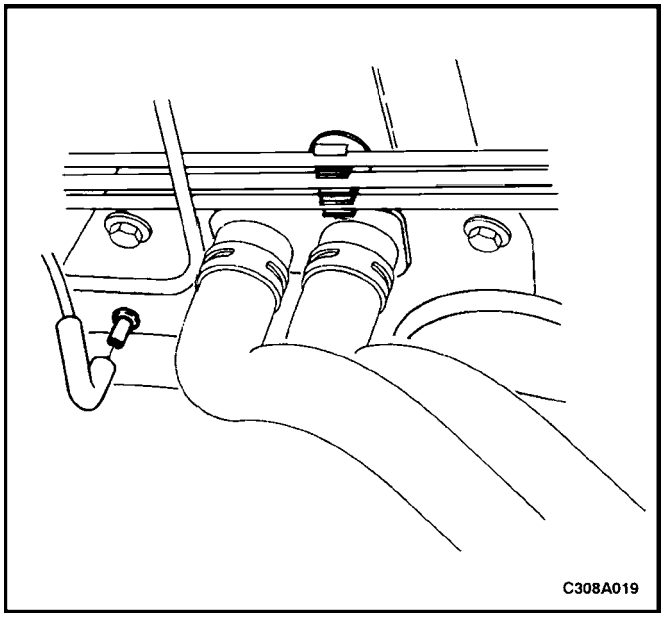
Tighten the expansion valve bolts to 10 N•m (89 lb–in).



5. Install the evaporator core into the case. Center the evaporator flange in the case opening.
6. Install the evaporatorcore case coverwith the screws.
7. Install the heater/air distributor case. Refer to ”Heater/Air Distributor Case” in this section.
8. Connect the negative battery cable.
9. Evacuate and recharge the A/C system.”Discharg-ing, Adding Oil, Evacuating, and Charging Proce-dures for A/C System” in this section.



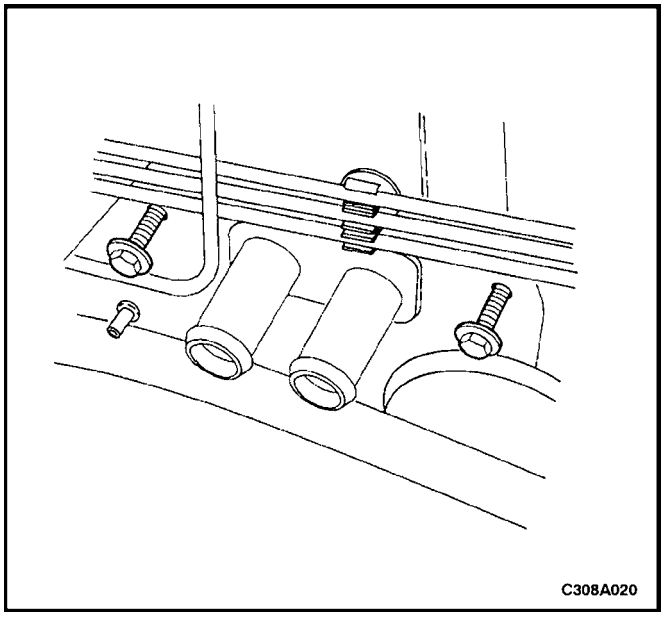




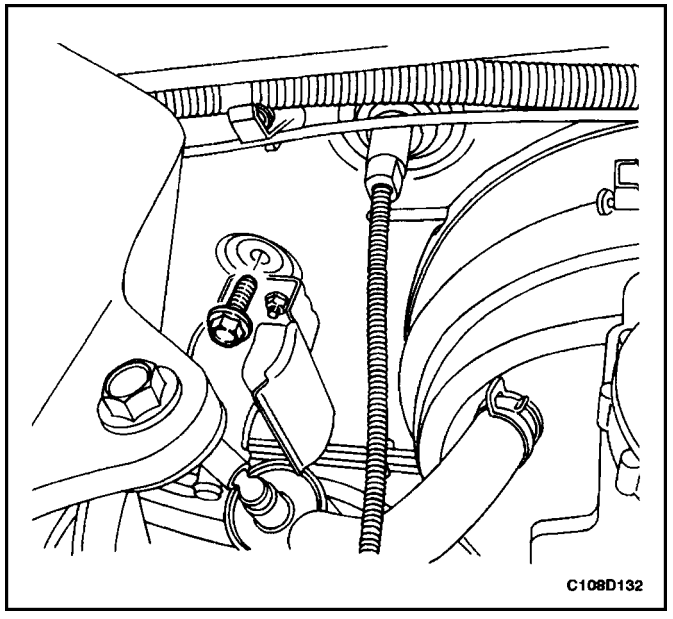
HEATER/AIR DISTRIBUTOR CASE ASSEMBLY

Removal Procedure

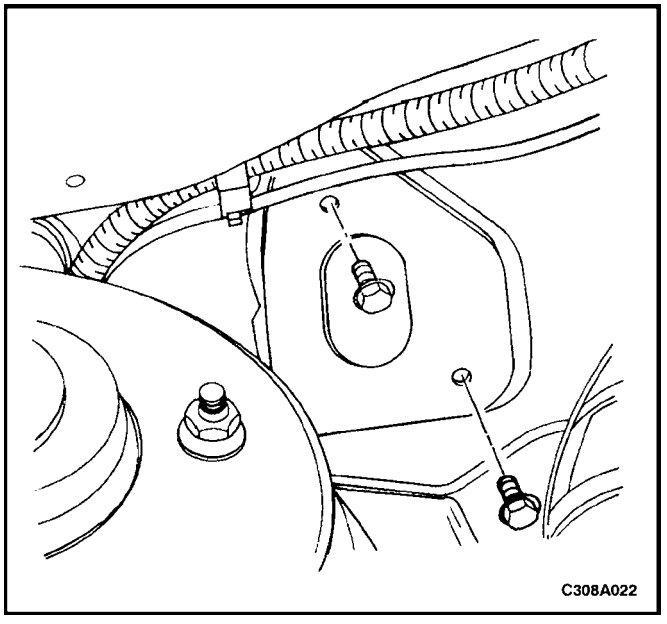
1. Disconnect the negative battery cable.
2. Recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the nuts that secure the air conditioning (A/C) suction hose and liquid evaporator pipe blocks at the bulkhead.
4. Loosen the A/C suction hose clamp bolt. Loosen the liquid evaporator pipe clamp bolt.
5. Loosen the A/C suction hose and the liquid evaporator pipe clamps to allow movement of the tubes.
6. Pull the A/C suction hose and liquid evaporator pipe from the evaporator inlet.
7. Remove the evaporator drain hose.
8. Remove the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information.*
9. Twist the vacuum hose connection and remove it from beside the heater hoses.



10. Compress the heater hose clamps at the bulkhead and slide the clamps toward the engine.
11. Remove the two heater hoses from the core pipes at the bulkhead.
12. Remove the screws that secure the heater/air distributor case assembly to the bulkhead on either side of the heaterhoses.



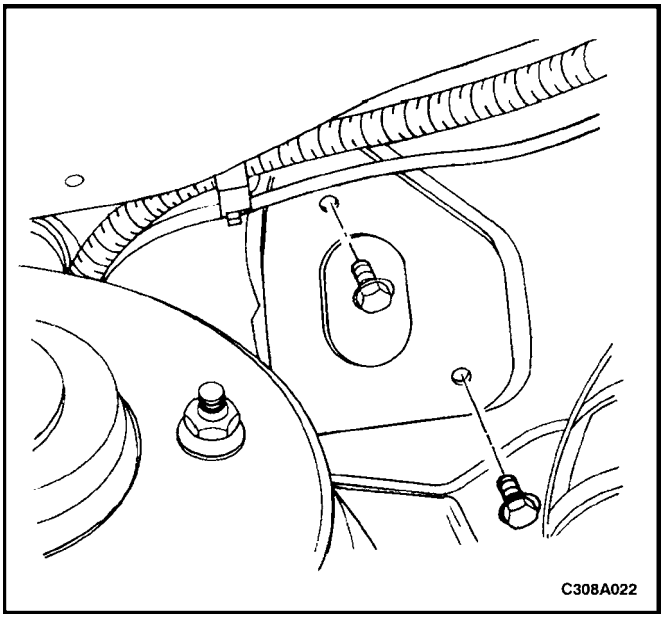
13. Remove the heater/air distributor case screw from above the fuel filter on the engine compartment side of the bulkhead.

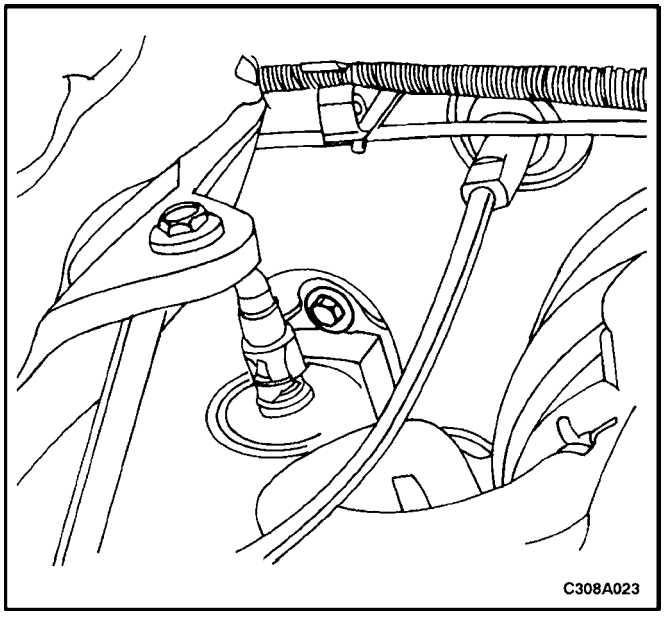


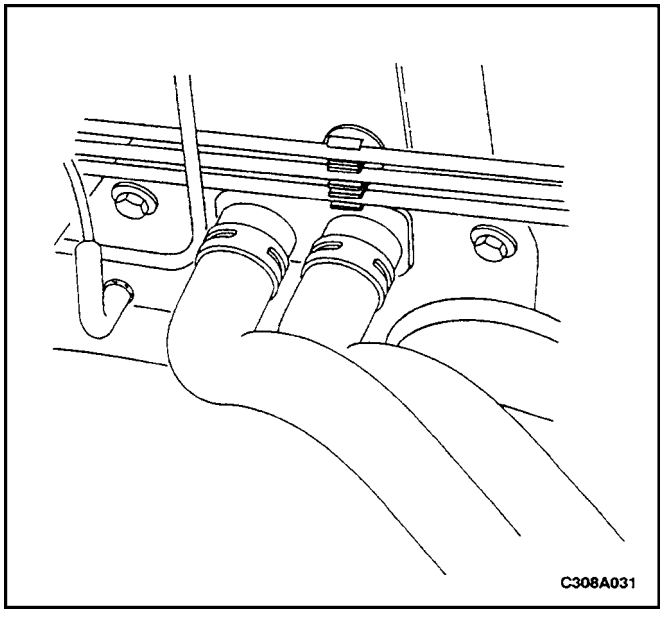
14. Have an assistant support the heater/air distributor case from inside the vehicle.
15. Remove the heater/air distributor case screws from the connecting block mount on the engine compartment side of the bulkhead. The heater/air distributor case assembly will start to drop.

Notice : To avoid damaging the heater core pipes, move the heater/air distributor case assembly straight away from the vehicle until the pipes are free from their openings in the bulkhead.

16. Remove the heater/air distributor case assembly.







Installation Procedure

1. Position the heater/air distributor case assembly in the vehicle.

Notice : To avoid damaging the vehicle, make sure the heater core pipes do not contact the bulkhead opening.

2. Slowly raise the heater/air distributor case assembly into position against the bulkhead and hold it there while the screws are installed and tightened from the engine side of the bulkhead.
3. Install the heater/air distributor case assembly screws at the connecting block mount on the engine compartment side of the bulkhead.

Tighten

Tighten the heater/air distributor case assembly screws to 8 N•m (71 lb–in).

4. Align and install the heater/air distributor case assembly screw above the fuel filter.

Tighten

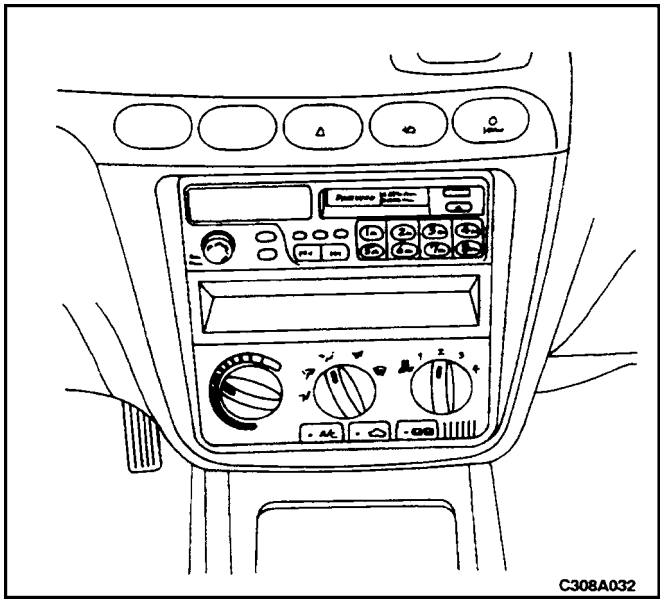
Tighten the heater/air distributor case assembly screw to 8 N•m (71 lb–in).

5. Replace the fuel filter into its mounting clamp.
6. Install the heater/air distributor case assembly screws on either side of the heater core pipes.

Tighten

Tighten the heater/air distributor case assembly screws to 8 N•m (71 lb–in).

7. Install the two heater hoses.
8. Slide the heater hose clamps into position.
9. Install the vacuum hose.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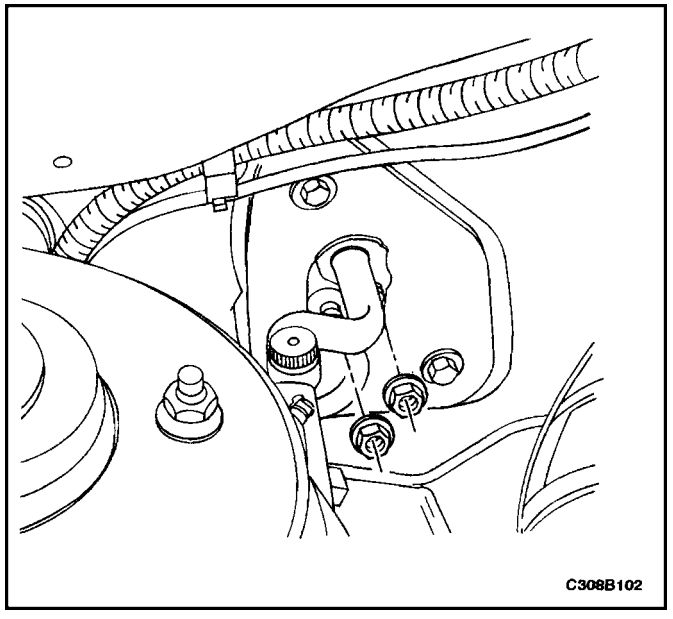
10. Install the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information.*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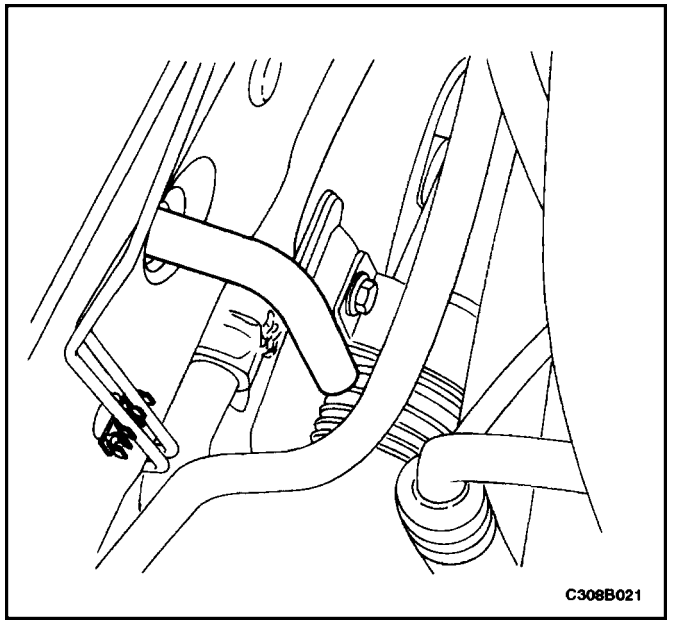
11. Install two new O–rings onto the A/C suction hose and the liquid evaporator pipe at the bulkhead in the engine compartment.

Important : Do not try to verify the operation of the system until you have installed and recharged the A/C system.

12. Install the heater/air distributor case into the vehicle. *Section 7B, Heating and Ventilation System.*
13. Install the A/C suction hose and the liquid evaporator pipes onto the evaporator flange connecting block studs.
14. Secure the liquid evaporator pipe and the suction hose to the evaporator flange with the nuts.

    Tighten

    Tighten the suction hose connecting block retaining nuts to 10 N•m (89 lb–in).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15. Install the A/C suction hose clamp with the bolt.

    Tighten

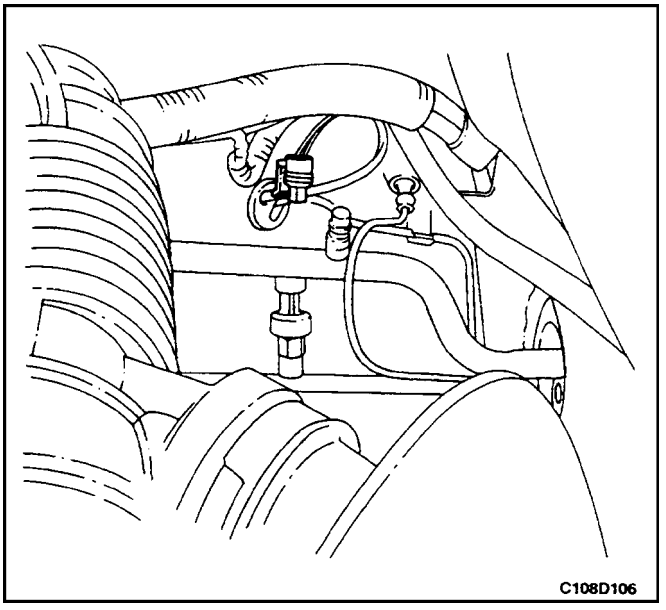
    Tighten the suction hose clamp bolt to 10 N•m (89 lbin).

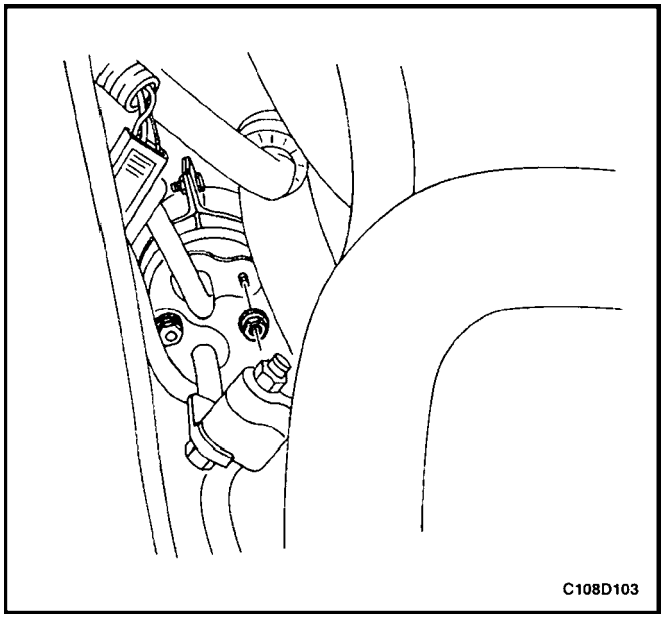
16. Install the liquid evaporator pipe clamp with the bolt.

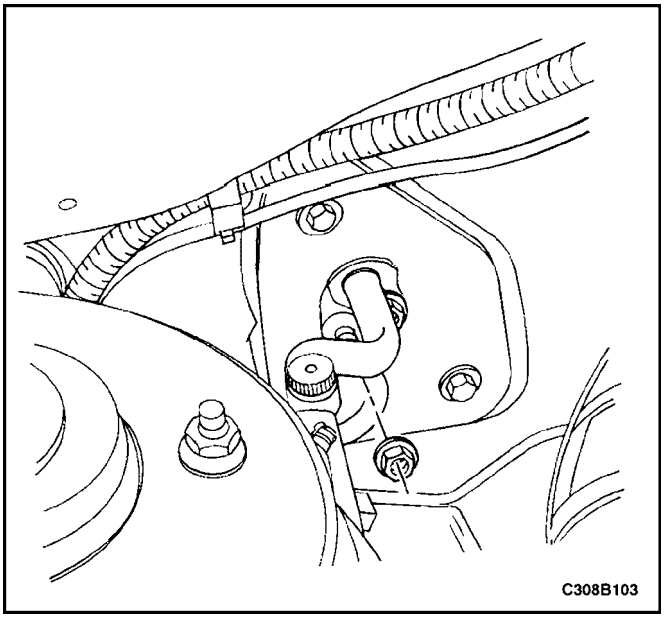
    Tighten

    Tighten the liquid evaporator pipe clamp bolt to 4 N•m (35 lb–in).

17. Install the evaporator drain hose.
18. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
19. Operate the HVAC control to verify the proper function of the heating and the cooling systems.







A/C HIGH–PRESSURE PIPE LINE

Removal Procedure

1. Disconnect the negative battery cable.
2. Recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the air cleaner housing assembly mounting bolts and the air cleaner housing assembly.
4. Disconnect the electrical connector at the pressure transducer.
5. Remove the bolts which secure the clamps that hold the high–pressure pipe to the vehicle.
6. Remove the high–pressure pipe–to–evaporator flange connecting block retaining nut.
7. Cap the high–pressure pipe opening.
8. Remove the high–pressure pipe–to–receiver–dryer connecting block retaining nut.
9. Remove the high–pressure pipe from the vehicle.
10. Cap the opening at the receiver–dryer to prevent contamination.

Installation Procedure

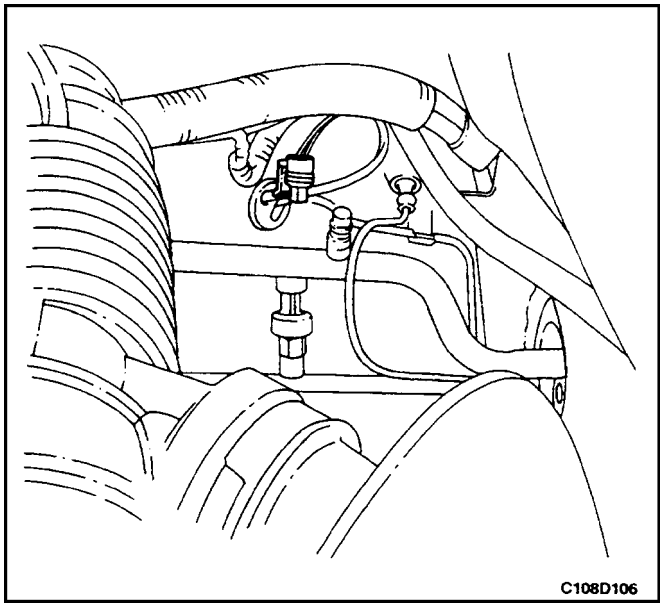
1. Position the high–pressure pipe into the vehicle.
2. Install a new O–ring on the pipe at the receiver–dryer.
3. Install the high–pressure pipe–to–receiver–dryer connecting block nut.

   Tighten

   Tighten the high–pressure pipe–to–receiver–dryer connecting block nut to 10 N•m (89 lb–in).
4. Install the the high–pressure pipe–to–evaporator flange connecting block nut.

   Tighten

   Tighten the high–pressure pipe–to–evaporator flange connecting block nut to 10 N•m (89 lb–in).



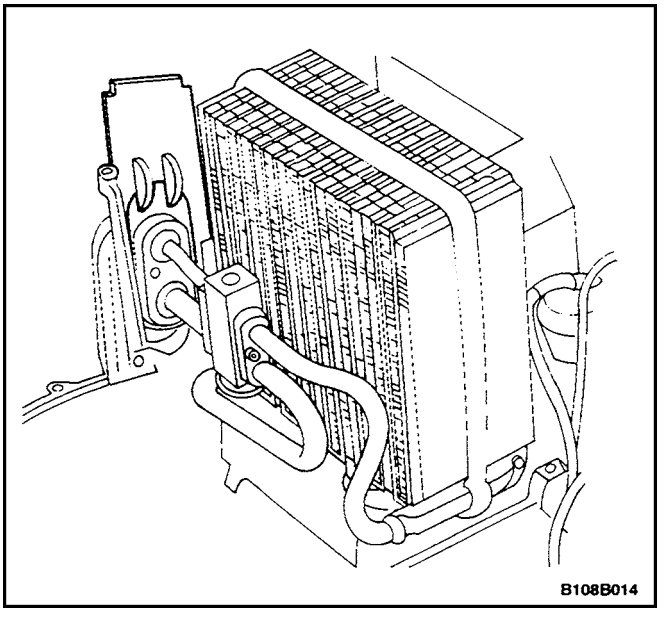
5. Install the bolts which secure the clamps that hold the high–pressure pipe to the vehicle.

   Tighten

   Tighten the clamp bolts to 4 N•m (35 lb–in).
6. Connect the electrical connector to the pressure transducer.
7. Install the air cleaner housing assembly with the retaining bolts.

   Tighten

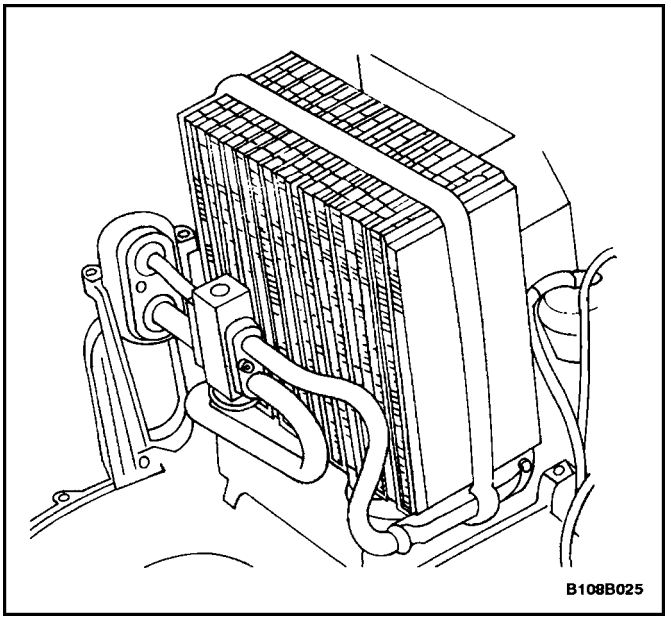
   Tighten the air cleaner housing assembly retaining bolts to 12 N•m (106 lb–in).
8. Connect the negative battery cable.
9. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.



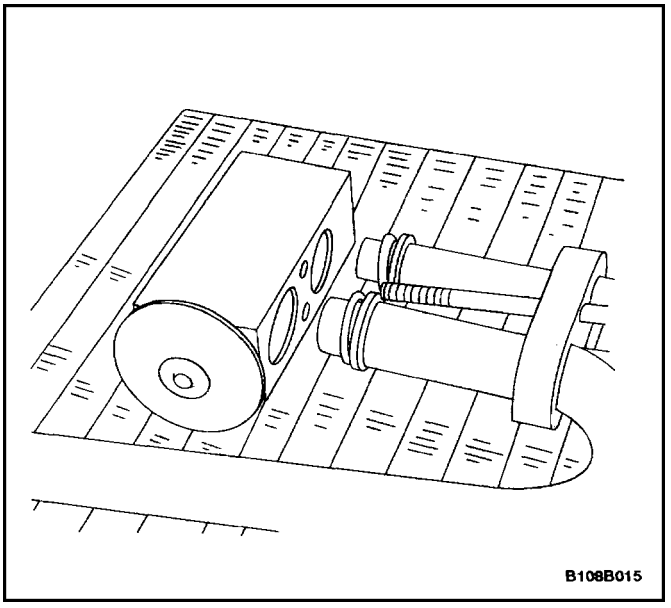
EVAPORATOR CORE

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information.*
3. Remove the heater/air distributor case assembly. Refer to ”Heater/Air Distributor Case” in this section.
4. Remove the screws that secure the evaporator case halves.
5. Remove the evaporator core case cover.
6. Slide the evaporator flange support plate upward to facilitate removal of the evaporator.

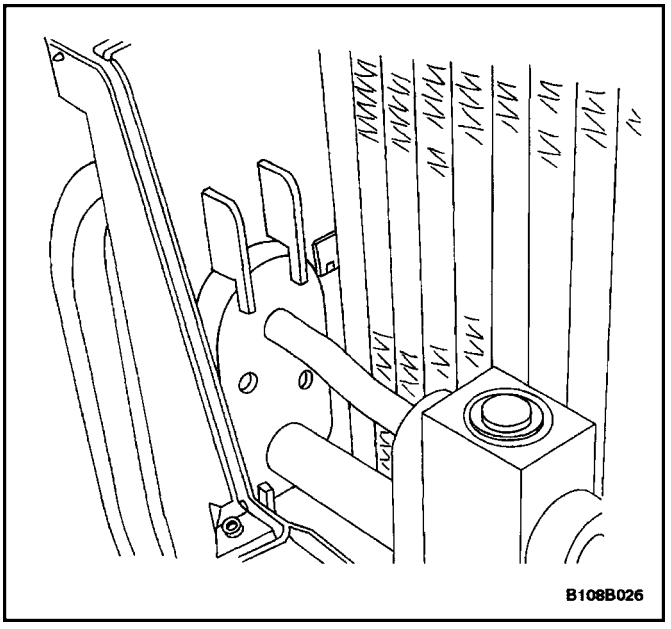


7. Remove the evaporator core from the case.
8. Remove the air conditioning (A/C) expansion valve. Refer to ”A/C Expansion Valve” in this section.

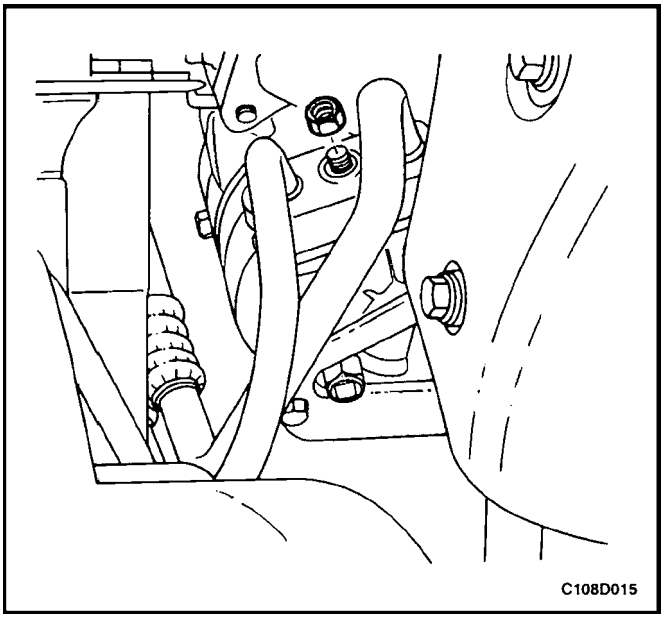


Installation Procedure

1. Install the O–rings onto the evaporator tubes.
2. Install the A/C expansion valve. Refer to ”A/C Expansion Valve” in this section.



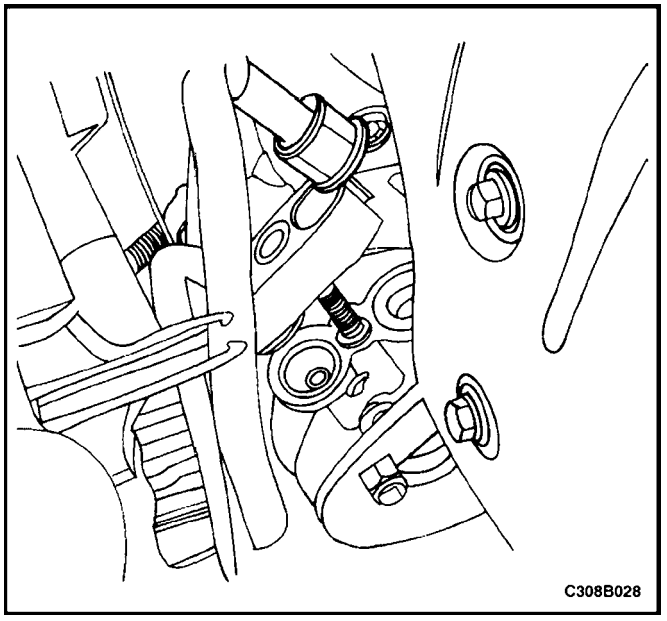
3. Install the evaporator core into the case. Center the evaporator flange in the case opening.
4. Assemble the evaporator case halves with the screws.
5. Install the heater/air distributor case. Refer to ”Heater/Air Distributor Case” in this section.
6. Install the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information.*
7. Connect the negative battery cable.
8. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.

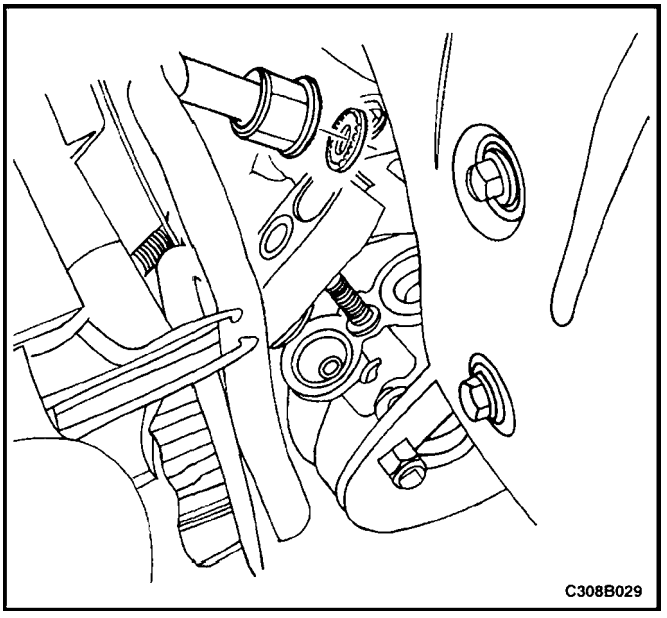


A/C SUCTION HOSE ASSEMBLY

Removal Procedure

1. Disconnect the negative battery cable.
2. Discharge and recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the air cleaner housing assembly mounting screws.
4. Remove the air cleaner housing.
5. Remove the retaining nut from the hose connecting block and disconnect the air conditioning (A/C) hose assembly connector block at the top rear of the compressor. Discard the sealing washers.
6. Cap all of the openings to prevent contamination.





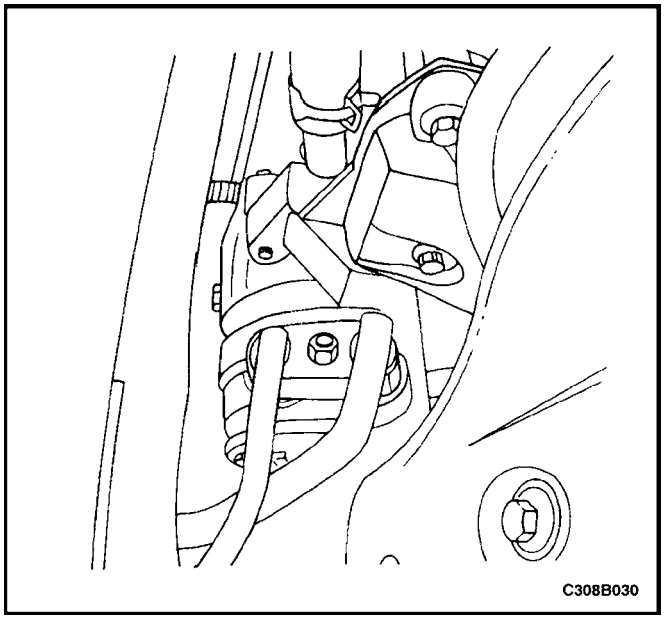
7. Remove the suction hose support clamp bolt and the clamp along the left side of the engine compartment fender well.
8. Remove the suction hose support clamp nut and the clamp on the left side strut tower.
9. Remove the evaporator flange connecting block retaining nut and disconnect the A/C suction hose at the bulkhead evaporator flange connecting block. Discard the O–ring seal.
10. Remove the A/C suction hose.
11. Cap the opening to the evaporator flange to prevent contamination.

Installation Procedure

1. Install a new O–ring seal onto the suction hose end at the evaporator flange.
2. Position the hose assembly and the support clamp in place in the vehicle.
3. Insert the suction hose end into the evaporator flange.
4. Install the evaporator flange connecting block retaining nuts.

   ### Tighten

   Tighten the suction hose connecting block retaining nuts to 10 N•m (89 lb–in).
5. Install new sealing washers onto the pilots of the suction/discharge block fitting. The washers must be seated against the surface of the block fitting.



6. Mate the discharge hose connecting block to the compressor. Hold it in place while tightening the retaining nut.

   Tighten

   Tighten the discharge hose connecting block–tocompressor retaining nut to 33 N•m(24 lb–ft).
7. Install the suction hose support clamp on the left-side strut tower and tighten the support clamp retaining nut.

   Tighten

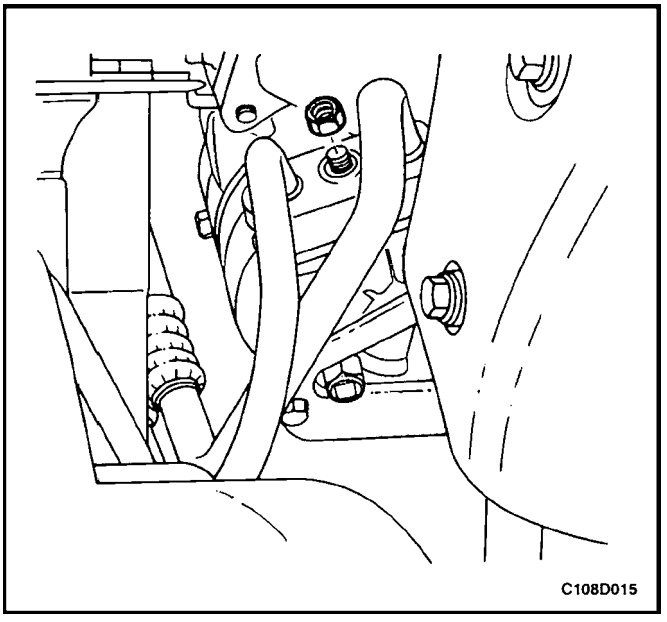
   Tighten the suction hose support clamp retaining nut to 5 N•m (44 lb–in).
8. Install the suction hose support clamp along the left side of the engine compartment fender well.

   Tighten

   Tighten the suction hose support clamp retaining bolt to 5 N•m (44 lb–in).
9. Install the air cleaner housing assembly.
   - Seat the housing in its place with the pickup tube in the hole provided.
   - Install the bolts that secure the housing.

   Tighten

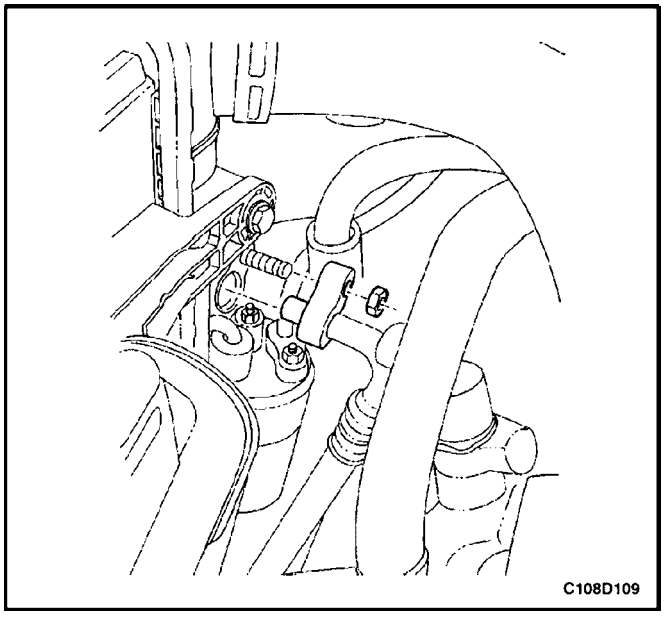
   Tighten the air cleaner housing assembly retaining bolts to 12 N•m (106 lb–in).
10. Connect the negative battery cable.
11. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.



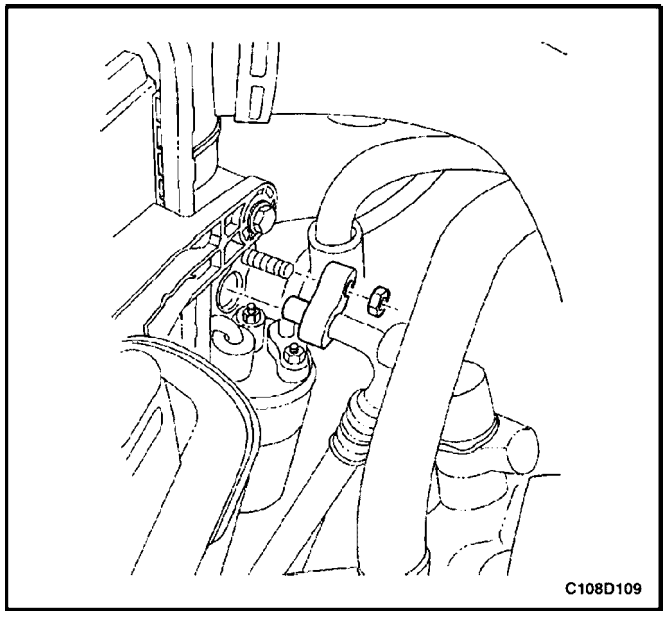
A/C DISCHARGE HOSE – COMPRESSOR TO CONDENSER

Removal Procedure

1. Disconnect the negative battery cable.
2. Recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the nut at the compressor hose connecting block.



4. Remove the nut at the condenser connecting block.
5. Remove the hose from the vehicle.

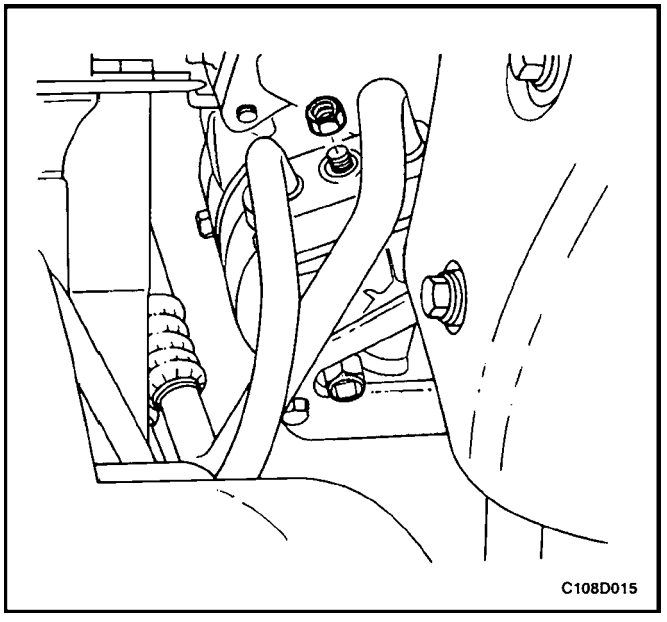


Installation Procedure

1. Install new sealing washers at the compressor connecting block end and a new O–ring at the condenser connecting block end.
2. Position the hose into the vehicle, and install the nut at the condenser connecting block.

   Tighten

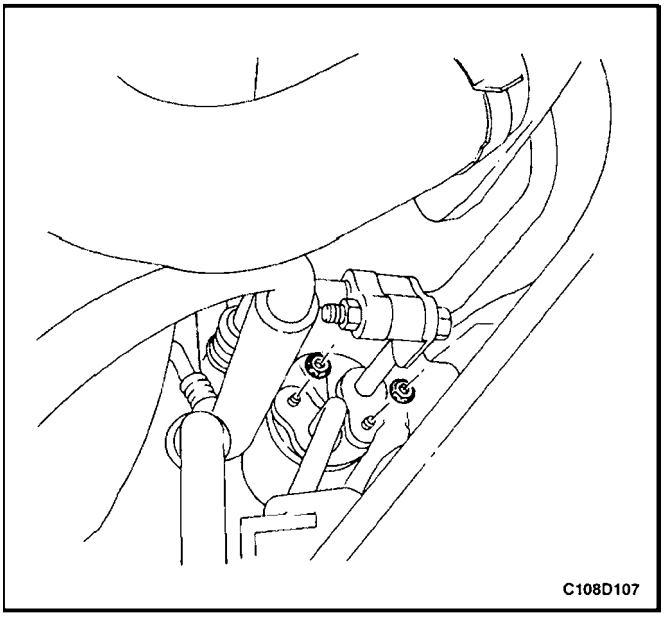
   Tighten the discharge hose connecting block–to–condenser retaining nut to 16 N•m (12 lb–ft).



3. Mate the hose connecting the connecting block to the compressor, and install the retaining nut.

   Tighten

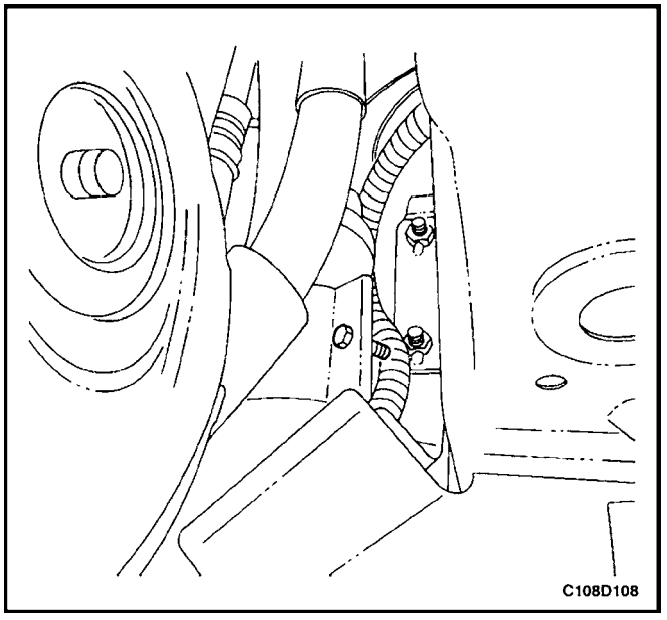
   Tighten the discharge hose connecting block–to–compressor retaining nut to 33 N•m (24 lb–ft).
4. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
5. Connect the negative battery cable.



RECEIVER–DRYER

Removal Procedure

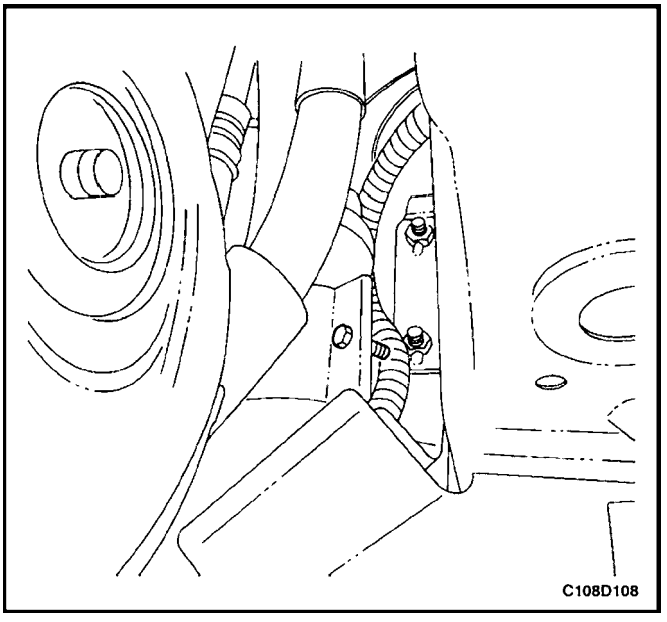
1. Disconnect the negative battery cable.
2. Discharge and recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the high–pressure pipe–to–receiver–dryer connecting block nut and remove the pipe from the receiver–dryer.
4. Remove the receiver–dryer–to–condenser pipe nut.



5. Loosen the bolt that secures the receiver–dryer band clamp.

Notice : Hold the receiver–dryer–to–condenser pipe to support it so that the pipe is not damaged while being removed from the receiver–dryer.

6. Remove the receiver–dryer by sliding it down and out of the band clamp.
7. Cap all open connections to prevent contamination.
8. Drain the oil from the receiver–dryer into a graduated container. Record the amount of oil drained.
9. Discard the used oil.



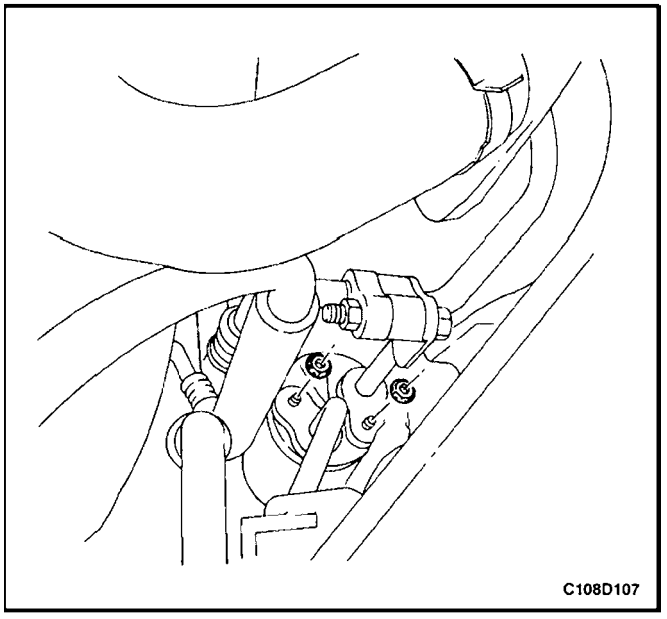
Installation Procedure

Important : Do not uncap the new receiver–dryer until just prior to installation.

1. Add the new oil to the new receiver–dryer. Use the exact amount of oil that was drained from the old receiver– dryer.
2. Install new O–rings onto the two pipes that connect to the receiver–dryer.
3. Install the receiver–dryer into the band clamp. Support the receiver–dryer–to–condenser pipe while pushing the receiver–dryer upward until the pipe is fully installed.
4. Tighten the bolt on the band clamp.

Tighten

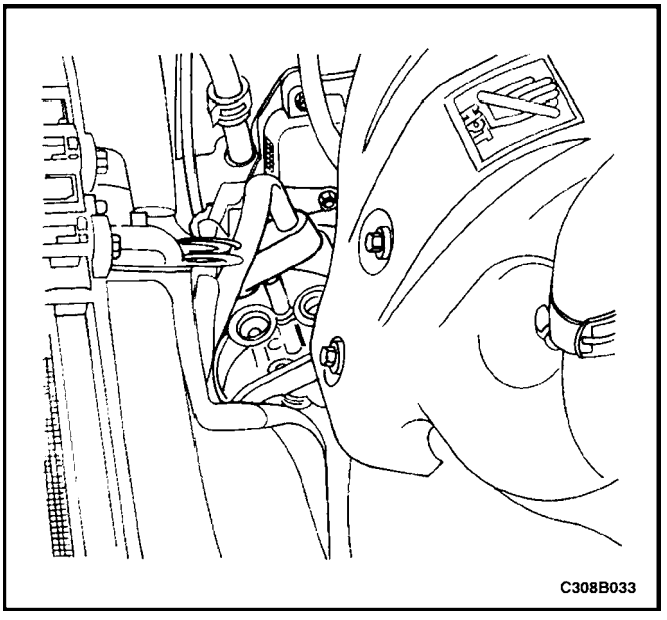
Tighten the band clamp bolt to 5 N•m (44 lb–in).



5. Install the high–pressure pipe into the receiver–dryer.
6. Install the high–pressure pipe–to–receiver–dryer connecting block nut.

   Tighten

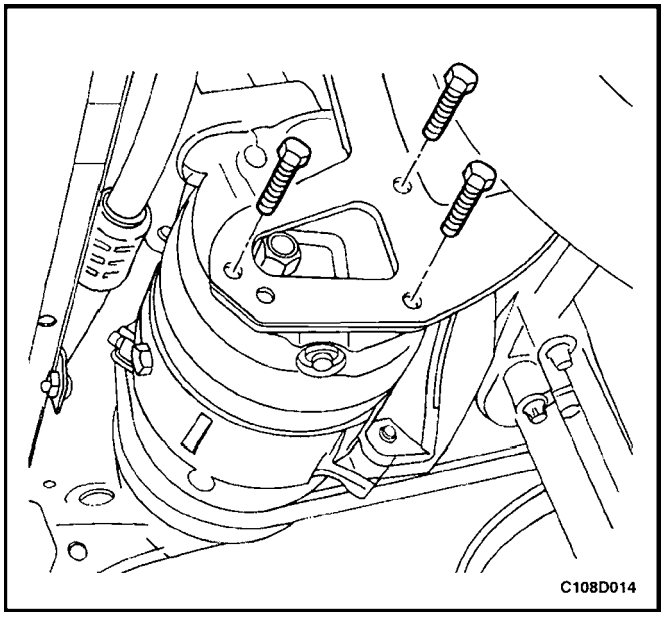
   Tighten the high–pressure pipe–to–receiver–dryer conecting block nut to 10 N•m (89 lb–in) and the receiver–dryer– to–condenser pipe nut to 14 N•m (10 lb–ft).
7. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.



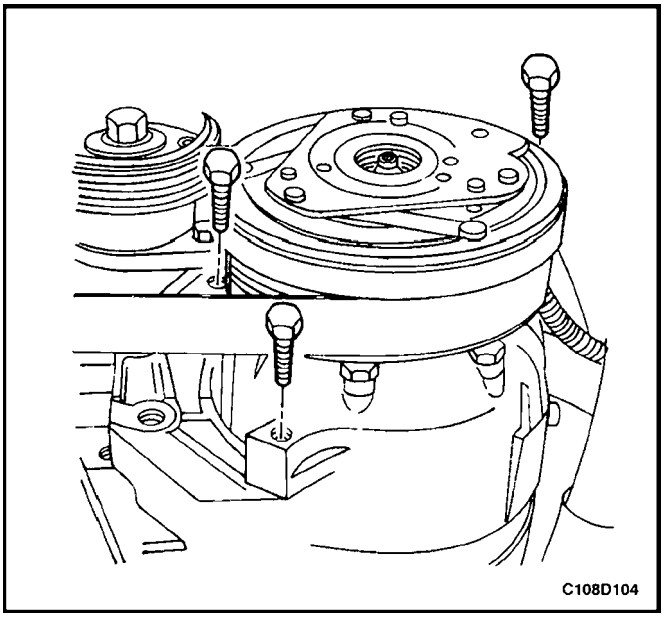
COMPRESSOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Discharge and recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the discharge hose mounting nut.
4. Lift the discharge hose mounting block and the suction hose from the compressor.



5. Raise and suitably support the vehicle.
6. Disconnect the electrical connector at the compressor.
7. Remove the drive belt and the idler pulley. Refer to *Section 6B, Power Steering Pump.*
8. Remove the front and the rear compressor–to–bracket bolts.
9. Remove the compressor.
10. Drain the oil from the compressor into a container.
    - Remove the crankcase drain plug and drain the oil from the opening.
    - Drain the oil from the suction port and the discharge port, making sure that all the oil is removed.
    - Measure the amount of the oil that is drained. Discard the used oil..



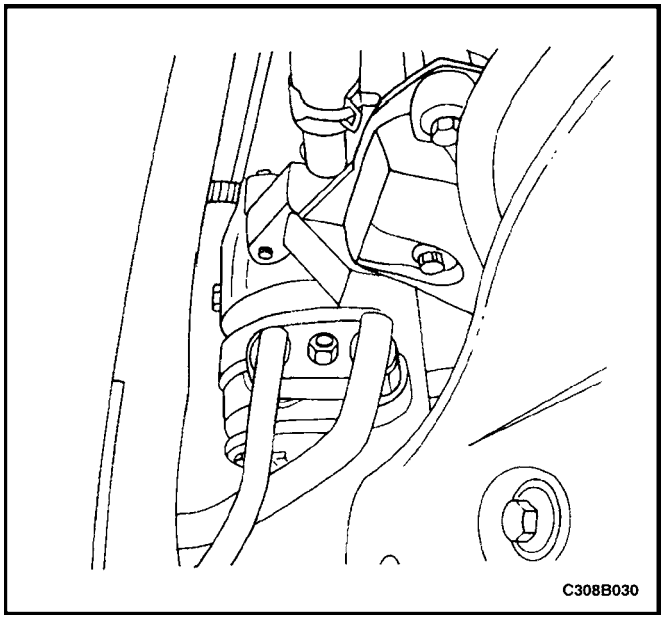
Installation Procedure

1. Add oil to the new compressor. Use the exact amount of oil that was drained from the old compressor.
2. Install the compressor.
3. Install the compressor–to–bracket mounting bolts.

   Tighten

   Tighten the front compressor–to–bracket mounting bolts to 35 N•m (26 lb–ft).

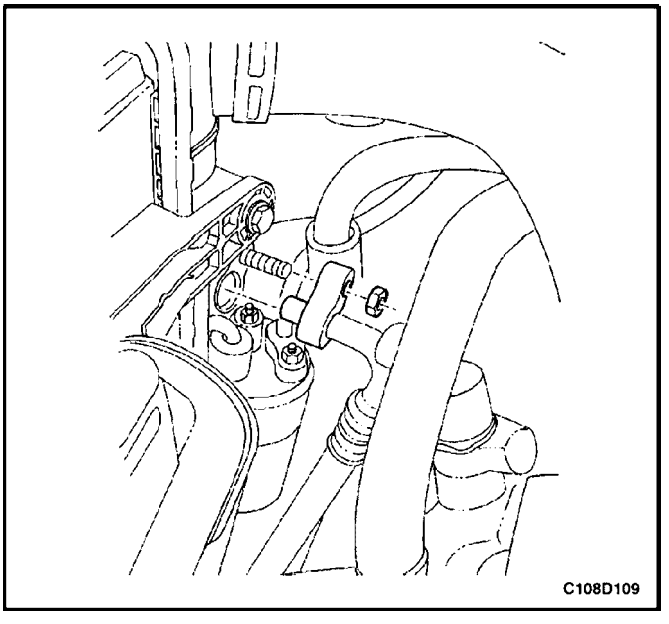
   Tighten the rear compressor–to–bracket mounting bolts to 20 N•m (15 lb–ft).
4. Install the idler pulley and the serpentine accessory drive belt. Refer to *Section 6B, Power Steering Pump.*



5. Install new sealing washers to the suction hose and the discharge hose mounting.
6. Connect the electrical connector at the compressor.
7. Lower the vehicle.
8. Place the suction hose into its cavity in the compressor and install the discharge hose mounting block to clamp it into place. Hold this all together while tightening the retaining nut.

   Tighten

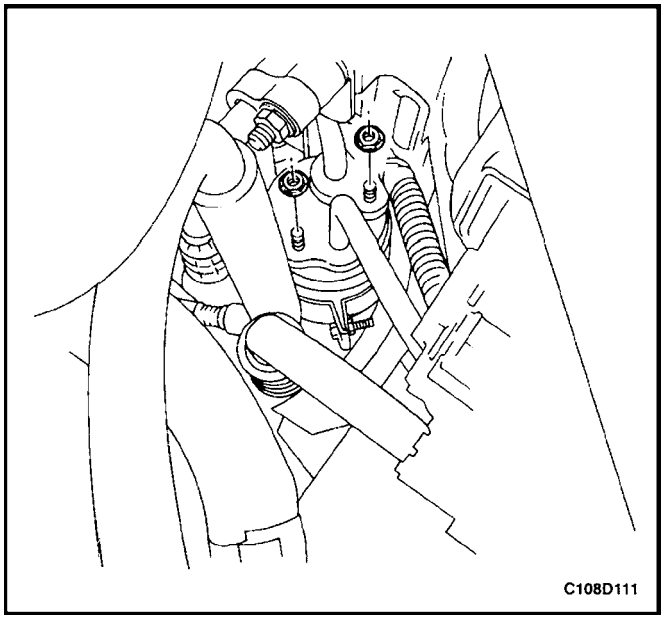
   Tighten the discharge hose connecting block–to compressor retaining nut to 33 N•m (24 lb–ft).
9. Connect the negative battery cable.
10. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.



CONDENSER

Removal Procedure

1. Disconnect the negative battery cable.
2. Discharge and recover the refrigerant. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
3. Remove the radiator. Refer to *Section 1D, Engine Cooling.*
4. Remove the discharge hose connecting block–to–condenser retaining nut.
5. Remove the hose from the condenser.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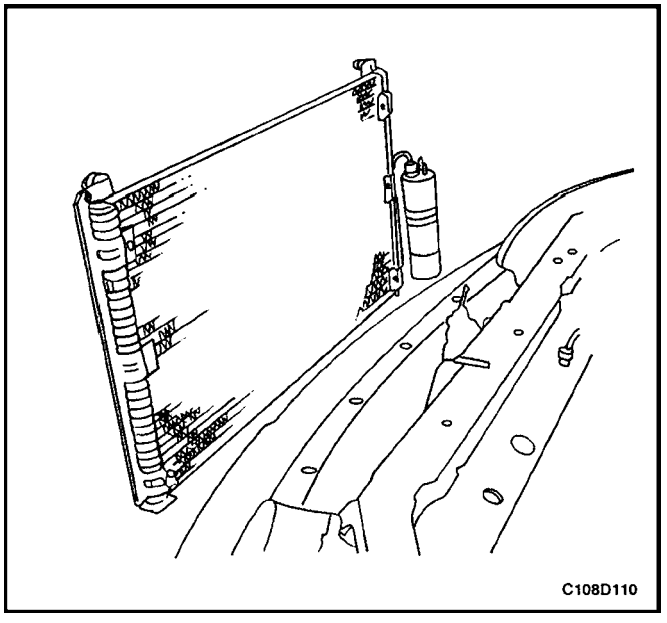
6. Remove the high–pressure pipe–to–receiver–dryer connecting block nut.
7. Remove the pipe from the receiver–dryer.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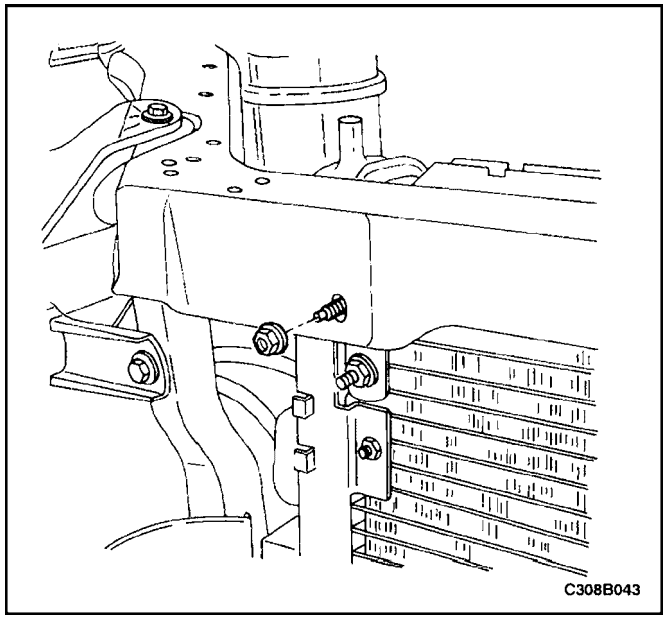
8. Remove the upper condenser mount nuts.
9. Tilt the condenser to the rear, away from the radiator mount support.
10. Lift the condenser up and out of the engine compartment.
11. Cap all the open lines and the fittings to prevent contamination.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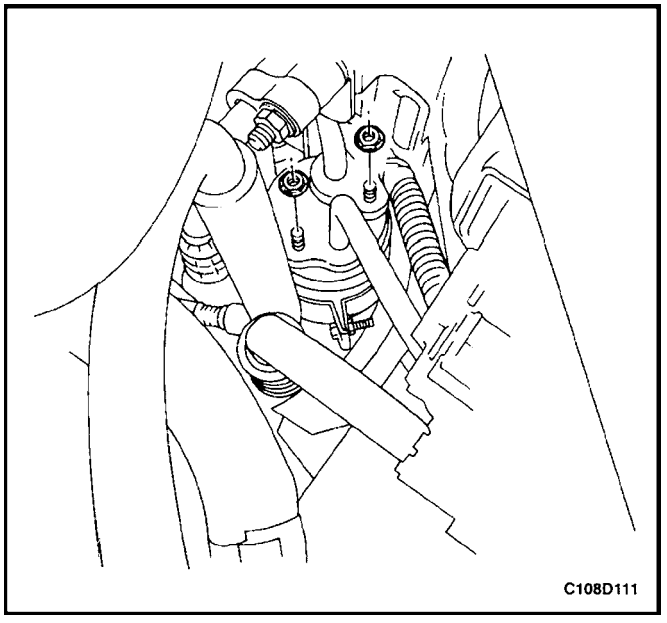
Installation Procedure

1. Make sure the condenser rubber mounts are in place.
2. Install the condenser into the vehicle. The lower mount shock protectors must fit into the holes provided.
3. Move the condenser forward into the radiator support mount holes.
4. Install the upper condenser mount nuts and the washers.

Tighten

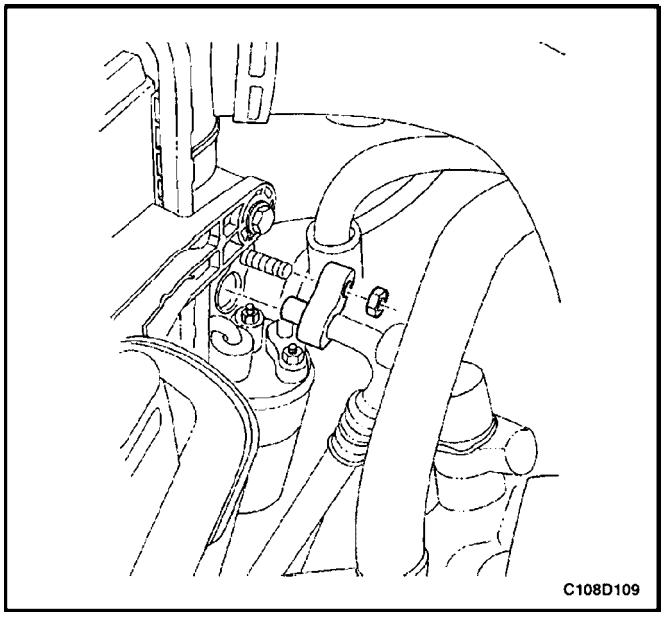
Tighten the upper condenser mount nuts to 4 N•m (35 lb–in).



5. Install a new O–ring onto the high–pressure pipe mounting block fitting on the receiver–dryer.
6. Install the high–pressure pipe into the receiver–dryer.
7. Install the high–pressure pipe–to–receiver–dryer connecting block nut.

Tighten

Tighten the high–pressure pipe–to receiver–dryer connecting block nut to 10 N•m (89 lb–in).



8. Install a new O–ring onto the discharge hose connecting block fitting.
9. Install the discharge hose fitting into the condenser.
10. Install the discharge hose connecting block–to–condenser retaining nut at the condenser connecting block.

Tighten

Tighten the discharge hose connecting block–to–condenser retaining nut to 16 N•m (12 lb–ft).

11. Install the radiator. Refer to *Section 1D, Engine Cooling.*
12. Evacuate and recharge the A/C system. Refer to ”Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System” in this section.
13. Connect the negative battery cable.
14. Operate the HVAC control to verify the proper function of the heating and cooling systems.