2007 HVAC

Heating & Air Conditioning - Service Information - Nitro

HVAC - SERVICE INFORMATION

DESCRIPTION

HEATER AND AIR CONDITIONER SYSTEM

A manual temperature control (MTC) single zone type heating-A/C system or an automatic temperature controlled (ATC) single zone type heating-A/C system is available on this model.

To maintain the performance level of the heating, ventilation and air conditioning (HVAC) system, the engine cooling system must be properly maintained. The use of a bug screen is not recommended. Any obstructions in front of the radiator or A/C condenser will reduce the performance of the A/C and engine cooling systems.

The engine cooling system includes the radiator, thermostat, radiator hoses and the engine coolant pump. Refer to **COOLING** for more information before opening or attempting any service to the engine cooling system.

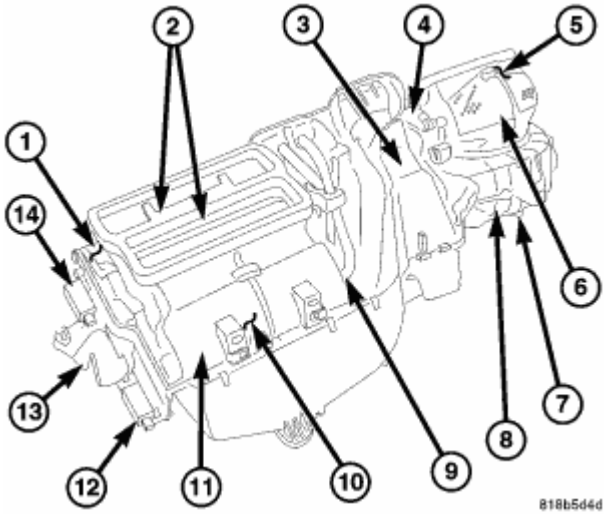


Fig. 1: HVAC Housing Assembly
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

All vehicles are equipped with a common heater, ventilation and air conditioning (HVAC) housing assembly (1). The heating-A/C system combines A/C, heating, and ventilating capabilities in a single HVAC housing mounted within the passenger compartment behind the instrument panel. The HVAC housing assembly includes:

Mode-air doors (2)
A/C evaporator (3)

Recirculation door actuator (4)
Air inlet housing (5)
Recirculation-air door (6)
Blower motor (7)
Blower motor resistor (8)
Heater core (9)
Air distribution housing (10)
Blend-air door (11)
Blend door actuator (12
Floor distribution ducts (13)
Mode door actuator (14)

NOTE: An electric positive temperature coefficient (PTC) heater is used on vehicles when equipped with the 2.8L diesel engine. The PTC heater unit compensates for the lower engine coolant temperatures produced by the diesel engine. The PTC heater unit is mounted in the HVAC air distribution housing, downstream of the heater core. See DESCRIPTION for more information.

Based upon the mode selected, conditioned air can exit the HVAC housing through one or a combination of the three main housing outlets: defrost, panel or floor. The defrost and panel outlets are located on the top of the housing and the floor outlets are located on each side of the housing. Once the conditioned air exits the HVAC housing, it is further directed through molded plastic ducts to the outlets within the vehicle interior. These outlets and their locations are as follows:

Defroster Outlet - Dual defroster outlets are located in the center of the instrument panel top cover, near the base of the windshield.

Side Window Demister Outlets - There are two side window demister outlets, one is located at each outboard end of the instrument panel and are integral to the instrument panel air outlets.

Panel Outlets - There are four panel outlets in the instrument panel, one located near each outboard end of the instrument panel facing the rear of the vehicle and two located near the top of the instrument panel center bezel.

Front Floor Outlets - There are two front floor outlets, one located above each side of the center of the floor panel near the dash panel.

Rear Floor Outlets - There are two rear floor outlets, one located on each side of the floor console near the rear of each front seat.

OPERATION

HEATER AND AIR CONDITIONER SYSTEM

Both the manual temperature control (MTC) and the automatic temperature controlled (ATC) heating-A/C systems are blend-air type systems. In a blend-air system, a blend-air door controls the amount of conditioned air that is allowed to flow through, or around the heater core. This design allows almost immediate control of

output air temperature.

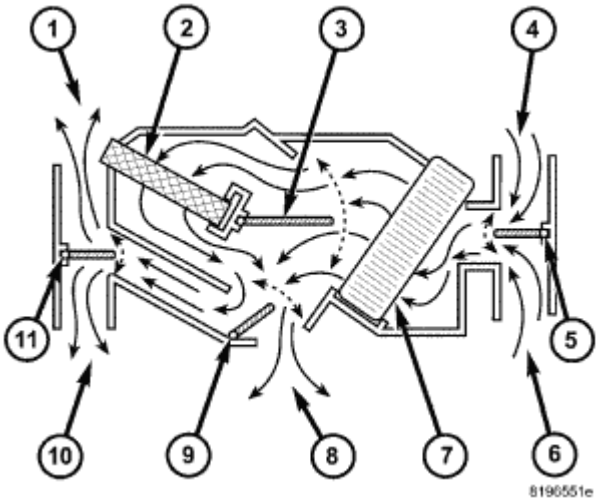


Fig. 2: Blend Air System Schematic
Courtesy of CHRYSLER LLC

NOTE: Typical blend-air type HVAC system shown.

The heating-A/C system pulls outside (ambient) air through the fresh air intake (4) located at the cowl panel at the base of the windshield and into the air inlet housing above the heating, ventilation and air conditioning (HVAC) housing and passes through the A/C evaporator (7). Air flow is then directed either through or around the heater core (2). This is done by adjusting the position of the blend-air door (3) with the temperature control located on the A/C-heater control in the instrument panel. Air flow is then directed out the floor outlet (8), instrument panel outlet (10) or the defroster outlet (1) in various combinations by adjusting the position of the mode-air doors (9 and 11) using the mode control located on the A/C-heater control. The temperature and mode control uses electrical actuators to operate the air doors.

The velocity of the air flow out of the outlets can be adjusted with the blower speed control located on the A/C-heater control.

The fresh air intake can be shut off by pressing the Recirculation button on the A/C-heater control. This will operate the electrically actuated recirculation-air door (5), which closes off the fresh air intake. With the fresh air intake closed, the conditioned air within the vehicle is pulled back into the HVAC housing through the recirculation air intake (6).

The A/C compressor can be engaged by pressing the A/C (snowflake) button on the A/C-heater control when the mode control is set in any floor to instrument panel position. The A/C compressor will automatically engage when the mode control is set in any Mix to Defrost position. This is done to help reduce fogging of the front windows by removing humidity from the conditioned air prior to it coming into contact with the windows.

The defroster outlet receives airflow from the HVAC housing through the molded plastic defroster duct. The airflow from the defroster outlet is directed by fixed vanes in the defroster outlet grille and cannot be adjusted.

The side window demister outlets receive airflow from the HVAC housing through the defroster duct and molded plastic demister ducts which are integral to the instrument panel. The airflow from the side window demister outlets is directed by fixed vanes in the demister outlet grilles and cannot be adjusted. The demisters direct air from the HVAC housing through the outlets located on the top corners of the instrument panel. The demisters operate when the mode control is positioned in the floor-defrost and defrost-only settings. Some air may be noticeable from the demister outlets when the mode control is in the bi-level to floor positions.

The panel outlets receive airflow from the HVAC housing through the center panel duct and the two molded plastic panel ducts, which are integral to the instrument panel. The two end ducts direct airflow to the left and right instrument panel outlets, while the center panel duct directs airflow to the two center panel outlets. Each of these outlets can be individually adjusted to direct the flow of air.

The floor outlets receive airflow from the HVAC housing through the floor distribution ducts. The front floor outlets are integral to the molded plastic floor ducts, which are secured to the sides of the HVAC housing. The floor outlets cannot be adjusted.

NOTE: It is important to keep the air intake opening clear of debris. Leaf particles and other debris that is small enough to pass through the cowl opening screen can accumulate within the HVAC housing. The closed, warm, damp and dark environment created within the housing is ideal for the growth of certain molds, mildews and other fungi. Any accumulation of decaying plant matter provides an additional food source for fungal spores, which enter the housing with the fresh intake-air. Excess debris, as well as objectionable odors created by decaying plant matter and growing fungi can be discharged into the passenger compartment during heater-A/C operation if the air intake opening is not kept clear of debris.

This A/C system uses an A/C expansion valve to meter the flow of refrigerant to the A/C evaporator. The A/C evaporator cools and dehumidifies the incoming air prior to blending it with the heated air. To maintain minimum evaporator temperatures and prevent evaporator freezing, an evaporator temperature sensor is used. The sensor is located downstream of the evaporator and supplies an evaporator temperature signal to the A/C-heater control.

DIAGNOSIS AND TESTING

A/C PERFORMANCE

The A/C system is designed to provide the passenger compartment with low temperature and low humidity air. The A/C evaporator, located in the HVAC housing is cooled to temperatures near the freezing point. As warm damp air passes over the fins of the A/C evaporator, the air transfers its heat to the refrigerant in the evaporator coils and the moisture in the air condenses on the evaporator fins. During periods of high heat and humidity, an A/C system will be more effective in the Recirculation mode (max-A/C). With the system in the Recirculation mode, only air from the passenger compartment passes through the A/C evaporator. As the passenger compartment air dehumidifies, the A/C system performance levels rise.

Humidity has an important bearing on the temperature of the air delivered to the interior of the vehicle. It is important to understand the effect that humidity has on the performance of the A/C system. When humidity is

high, the A/C evaporator has to perform a double duty. It must lower the air temperature, and it must lower the temperature of the moisture in the air that condenses on the evaporator fins. Condensing the moisture in the air transfers heat energy into the evaporator fins and coils. This reduces the amount of heat the A/C evaporator can absorb from the air. High humidity greatly reduces the ability of the A/C evaporator to lower the temperature of the air.

However, evaporator capacity used to reduce the amount of moisture in the air is not wasted. Wringing some of the moisture out of the air entering the vehicle adds to the comfort of the passengers. Although, an owner may expect too much from their A/C system on humid days. A performance test is the best way to determine whether the system is performing up to design standards. This test also provides valuable clues as to the possible cause of trouble with the A/C system. The ambient air temperature in the location where the vehicle will be tested must be a minimum of 21°C (70°F) for this test.

A/C PERFORMANCE TEST

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible serious or fatal injury.

CAUTION: The use of an A/C recycling/charging station for purposes of determining the actual charge level of an A/C system is not recommend. Service recycling/charging stations do not reflect the correct amount of refrigerant charge in the A/C system after a single "reclaim" cycle. Tests have shown that it takes up to 3 or 4 "reclaim" cycles to remove all of the refrigerant charge. Use only the following procedure for determining the proper charge level.

NOTE: When connecting the service equipment coupling to the line fitting, verify that the valve of the coupling is fully closed. This will reduce the amount of effort required to make the connection.

1. Check for diagnostic trouble codes using a scan tool. If no DTCs are found in the powertrain control module (PCM) or engine control module (ECM), depending on engine application, go to step 2
2. Connect a tachometer and a manifold gauge set or an A/C recycling/charging station.
3. Operate the heating-A/C system under the following conditions.

   Engine at 1,000 RPM at operating temperature

   Door or windows open

   Transmission in Park or Neutral with parking brake set (depending on transmission application)

   A/C-heater controls set to Recirculation mode (max-A/C), full cool, panel mode, high blower and with A/C compressor engaged. If the A/C compressor does not engage, see the A/C System Diagnosis chart.
4. Insert a thermometer in the driver side center panel air outlet and operate the vehicle a minimum of ten minutes to allow the thermometer temperature to stabilize.

5. With the A/C compressor clutch engaged, compare the air temperature at the center panel outlet and the A/C compressor discharge pressure (high side) to the A/C Performance Temperature and Pressure chart. The compressor clutch may cycle, depending upon the ambient temperature and humidity. If the clutch cycles, use the readings obtained before the clutch disengaged.

A/C PERFORMANCE TEMPERATURE AND PRESSURE

Ambient Air Temperature	21°C (70°F)	27°C (80°F)	32°C (90°F)	38°C (100°F)	43°C (110°F)
Air Temperature at Center Panel Outlet	7°C (45°F)	7°C (45°F)	13°C (55°F)	13°C (55°F)	18°C (64°F)
Compressor Inlet Pressure at Service Port (Low Side)	138 to 207 kPa (20 to 30 psi)	172 to 241 kPa (25 to 35 psi)	207 to 276 kPa (30 to 40 psi)	241 to 310 kPa (35 to 45 psi)	276 to 345 kPa (40 to 50 psi)
Condenser Outlet Pressure at Service Port (High Side)	1034 to 1724 kPa (150 to 250 psi)	1379 to 2068 kPa (200 to 300 psi)	1724 to 2413 kPa (250 to 350 psi)	1999 to 2689 kPa (290 to 390 psi)	2413 to 2965 kPa (350 to 430 psi)

6. If the air outlet temperature fails to meet the specifications in the A/C Performance Temperature and Pressure chart, or if the A/C compressor discharge pressure is high, refer to the A/C System Diagnosis chart.

A/C SYSTEM DIAGNOSIS

Condition	Possible Causes	Correction
Rapid A/C clutch cycling (ten or more cycles per minute).	1. Low refrigerant system charge.	1. See **REFRIGERANT SYSTEM LEAKS**. Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system as required.
Equal pressures, but the A/C clutch does not engage.	1. No refrigerant in the refrigerant system.	1. See **REFRIGERANT SYSTEM LEAKS**. Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system as required.
	2. Open fuse.	2. Check the fuses in the power distribution center and the junction block. Repair the shorted circuit or component and replace the fuses as required.
	3. Inoperative A/C clutch field coil.	3. See A/C Compressor Clutch in this group. Test the A/C clutch field coil and replace as required.
	4. Inoperative A/C clutch relay.	4. See **CLUTCH-A/C COMPRESSOR** . Test the A/C clutch relay and relay circuits. Repair the circuits or replace the relay as required.
	5. Improperly installed or	5. See **TRANSDUCER-A/C PRESSURE**.

	inoperative A/C pressure transducer.	Test the A/C pressure transducer and tighten or replace as required.
	6. Inoperative evaporator temperature sensor.	6. See **SENSOR-EVAPORATOR TEMPERATURE** . Test the evaporator temperature sensor and replace as required.
	7. Inoperative powertrain control module (PCM) or engine control module (ECM), depending on engine application.	7. Refer to the proper Diagnostic article for testing of the PCM or ECM. Test the PCM or ECM and replace as required.
Normal pressures, but A/C Performance Test air temperatures at center panel outlet are too high.	1. Excessive refrigerant oil in system.	1. See **REFRIGERANT OIL LEVEL** . Recover the refrigerant from the refrigerant system and inspect the refrigerant oil content. Restore the refrigerant oil to the proper level as required.
	2. Blend door actuator improperly installed or inoperative.	2. See **ACTUATOR-BLEND DOOR** . Inspect the actuator for proper operation and replace as required.
	3. Blend-air door inoperative or sealing improperly.	3. See **HOUSING-HVAC** . Inspect the blend-air door for proper operation and sealing and correct as required.
The low side pressure is normal or slightly low, and the high side pressure is too low.	1. Low refrigerant system charge.	1. See **REFRIGERANT SYSTEM LEAKS** . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system as required.
	2. Refrigerant flow through the A/C accumulator is restricted.	2. See **EVAPORATOR-A/C** . Replace the restricted accumulator as required.
	3. Refrigerant flow through the A/C evaporator is restricted.	3. See **EVAPORATOR-A/C** . Replace the restricted A/C evaporator as required.
	4. Inoperative A/C compressor.	4. See **COMPRESSOR-A/C** . Replace the A/C compressor as required.
The low side pressure is normal or slightly high, and the high side pressure is too high.	1. A/C Condenser air flow restricted.	1. Check the A/C condenser for damaged fins, foreign objects obstructing air flow through the condenser fins, and missing or improperly installed air seals. Clean, repair, or replace components as required.
	2. Inoperative radiator cooling fan.	2. Test the radiator cooling fan and replace as required. Refer to Group 7.
	3. Refrigerant system overcharged.	3. See **REFRIGERANT SYSTEM CHARGE** . Recover the refrigerant from the refrigerant system. Charge the refrigerant system to the proper level as required.
	4. Air in the refrigerant	4. See **REFRIGERANT SYSTEM LEAKS**

	system.	to test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system as required.
	5. Engine overheating.	5. Test the engine cooling system and repair, if required. Refer to **COOLING** .
The low side pressure is too high, and the high side pressure is too low.	1. Accessory drive belt slipping.	1. Inspect the accessory drive belt condition and tension. Replace the accessory drive belt and/or tensioner as required. Refer to **COOLING** .
	2. Inoperative A/C expansion valve.	2. See **VALVE-A/C EXPANSION** . Test the expansion valve and replace as required.
	3. Inoperative A/C compressor.	3. See **COMPRESSOR-A/C** . Replace the A/C compressor as required.
The low side pressure is too low, and the high side pressure is too high.	1. Restricted refrigerant flow through the refrigerant lines.	1. See **LINE-A/C LIQUID**, **LINE-A/C SUCTION** and **LINE-A/C DISCHARGE**. Inspect the refrigerant lines for kinks, tight bends or improper routing. Correct the routing or replace the refrigerant line as required.
	2. Restricted refrigerant flow through the A/C expansion valve.	2. See **VALVE-A/C EXPANSION** . Test the expansion valve and replace as required.
	3. Restricted refrigerant flow through the A/C condenser.	3. See **CONDENSER-A/C** . Replace the restricted condenser as required.

HEATER PERFORMANCE

Before performing the following tests, refer to **COOLING** for the procedures to check the engine coolant level and flow, engine coolant reserve/recovery system operation, accessory drive belt condition and tension, radiator air flow and the fan drive operation.

WARNING: Do not remove radiator cap when engine is hot, personal injury can result.

If vehicle has been run recently, wait 15 minutes before removing the radiator cap. Place a rag over the cap and turn it to the first safety stop. Allow pressure to escape through the overflow tube. When the system pressure stabilizes, remove the cap completely.

MAXIMUM HEATER OUTPUT

Engine coolant is delivered to the heater core through two heater hoses. With the engine idling at normal operating temperature, set the temperature control to the full hot position, the mode control to the floor position, and the blower motor control to the highest speed position. Using a test thermometer, check the temperature of the air being discharged at the front floor outlets. Compare the test thermometer reading to the Heater Temperature Reference chart.

HEATER TEMPERATURE REFERENCE

Ambient Air Temperature	16°C (60°F)	21°C (70°F)	26°C (80°F)	32°C (90°F)
Minimum Air Temperature at Floor Outlet	52°C (125°F)	56°C (133°F)	59°C (139°F)	62°C (144°F)

If the heater outlet air temperature is below the minimum specification, refer to **COOLING** . Both of the heater hoses should be hot to the touch. The coolant return heater hose should be slightly cooler than the coolant supply heater hose. If the return hose is much cooler than the supply hose, locate and repair the engine coolant flow obstruction in the cooling system (refer to **COOLING** for more information).

OBSTRUCTED COOLANT FLOW

Possible locations or causes of obstructed coolant flow are as follows:

- Inoperative water pump.
- Inoperative thermostat.
- Pinched or kinked heater hoses.
- Improper heater hose routing.
- Plugged heater hoses or supply and return ports at the cooling system connections.
- Plugged heater core.

If proper coolant flow through the cooling system is verified, and heater outlet air temperature is low, a mechanical problem may exist.

MECHANICAL PROBLEMS

Possible causes of insufficient heat due to mechanical problems are as follows:

- Obstructed cowl air intake.
- Obstructed heater system outlets.
- Inoperative engine thermostat.
- Inoperative blower motor system.
- Inoperative A/C-heater control.
- Inoperative blend door actuator.
- Inoperative, obstructed or improperly installed blend-air door.

TEMPERATURE CONTROL

If the heater outlet air temperature cannot be adjusted with the temperature control on the A/C-heater control, the following could require service:

- Inoperative A/C-heater control.
- Inoperative blend door actuator.

Inoperative, obstructed or improperly installed blend-air door.
Inoperative related wiring harness or connectors.
Improper engine coolant temperature.

SPECIFICATIONS

A/C SYSTEM

Item	Description	Notes
A/C Compressor	Zexel DKS-17DS (2.8L/4.0L engines)	VC-46 PAG oil
	Visteon HS-18 (3.7L engine)	VC-46 PAG oil
Freeze-up Control	Evaporator temperature sensor	Input to A/C-heater control. HVAC housing mounted.
Pressure Control	A/C pressure transducer	Input to PCM/ECM. A/C liquid line mounted. Cycles clutch off if refrigerant pressure falls below 206 kPa (30 psi) or rises above 2971 kPa (431 psi)
R-134a Refrigerant Charge Capacity	0.510 kg (1.12 lbs.)	Also see A/C Underhood Specification Label located in the engine compartment.
A/C Clutch Coil Draw	3.3 amps @ 12V ± 0.5V @ 25°C (77°F)	2.8L and 4.0L engines. A/C clutch field coil resistance when measured across coil lead connector is 4.02 ± 0.2 ohms @ 25°C (77°F).
	3.1 - 4 amps @ 12V ± 0.5V @ 21° C (70°F)	3.7L engine.
A/C Clutch Air Gap	0.30 - 0.60 mm (0.012 - 0.024 in.)	2.8L and 4.0L engines.
	0.35 - 0.65 mm (0.014 - 0.025 in.)	3.7L engine.

FASTENER TORQUE

Description	N.m	Ft. Lbs.	In. Lbs.
All Screws NOT Listed Below	1.2	-	10
A/C Compressor Bolts (2.8L and 4.0L Engines)	28	21	-
A/C Compressor Rear Bolts (3.7L Engine)	55	-	41
A/C Compressor Front Inboard Bolt (3.7L Engine)	40	-	30

A/C Compressor Front Outboard Bolt (3.7L Engine)	55	-	41
A/C Compressor Bracket to Front Cover Bolt (3.7L Engine)	40	-	30
A/C Compressor Field Coil Connector Bracket Screw (3.7L Engine)	4.3	-	38
A/C Compressor Clutch Hub Bolt (2.8L and 4.0L Engines)	15	-	133
A/C Compressor Clutch Hub Bolt (3.7L Engine)	20	-	177
A/C Condenser to Radiator Bolt	5	-	44
A/C Expansion Valve to Evaporator Tube Tapping Block Bolts	11	-	97
Discharge Line to A/C Condenser Nut	22.5	-	200
HVAC Housing to Engine Side of Dash Panel Nut	4.5	-	40
HVAC Housing to Passenger Side of Dash Panel Nuts	4.5	-	40
Suction Line Brackets to Engine Nuts (LHD 2.8L model)	4.5	-	40
Receiver/drier to A/C Condenser Bolt	22	16	-
Refrigerant Lines to A/C Expansion Valve Nut	23	17	-
Refrigerant Lines to A/C Compressor Nuts	12	-	105

SPECIAL TOOLS

HEATING-A/C SYSTEM

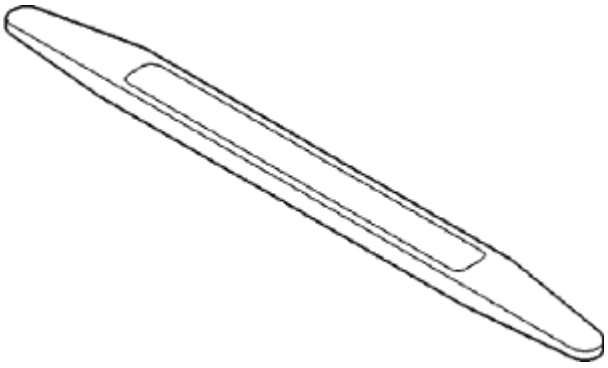


Fig. 3: Trim Stick C-4755
Courtesy of CHRYSLER LLC

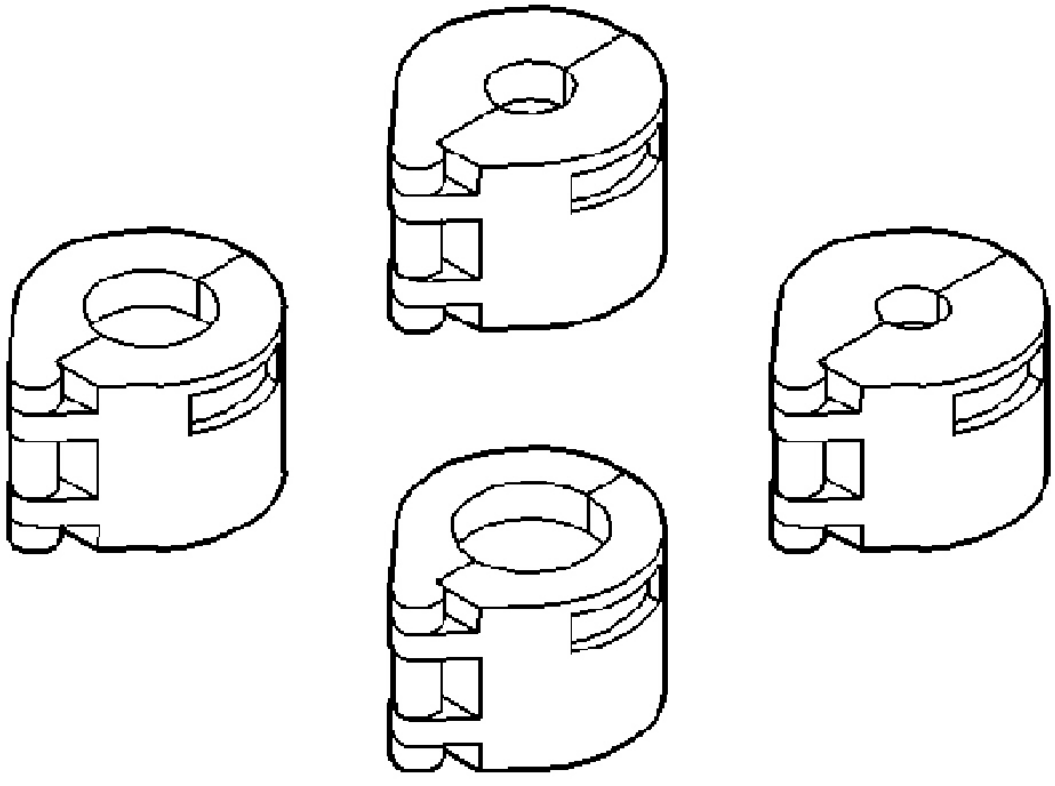


Fig. 4: A/C Line Disconnect Tools 7193
Courtesy of CHRYSLER LLC

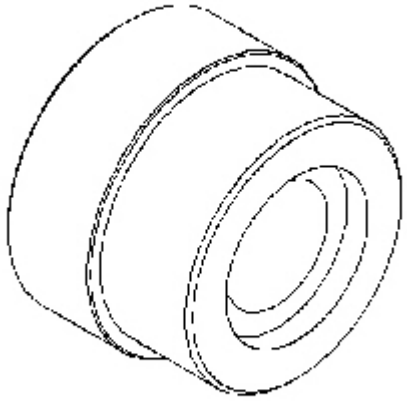


Fig. 5: Compressor Field Coil Installer 9352
Courtesy of CHRYSLER LLC

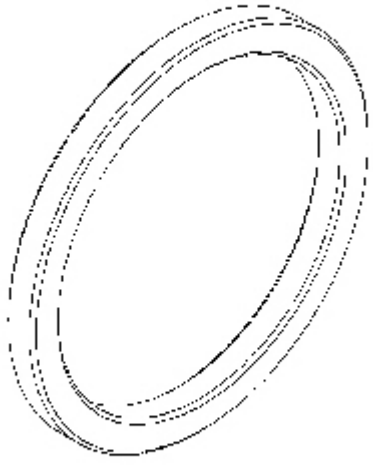


Fig. 6: Compressor Field Coil Installer Spacer 9353
Courtesy of CHRYSLER LLC

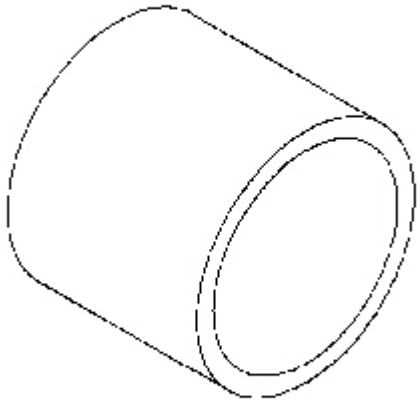


Fig. 7: Compressor Field Coil Remover 9354
Courtesy of CHRYSLER LLC

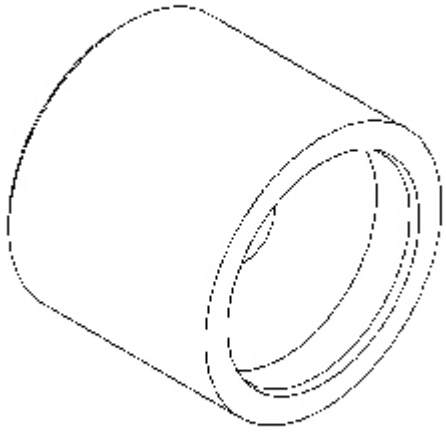


Fig. 8: Clutch Pulley Installer 9355
Courtesy of CHRYSLER LLC

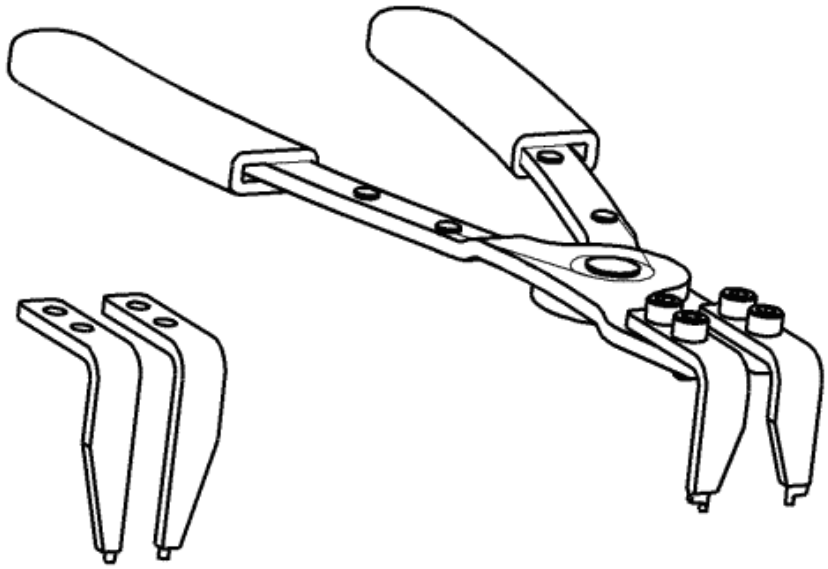


Fig. 9: Snap Ring Pliers 9764
Courtesy of CHRYSLER LLC

CONTROLS

ACTUATOR-BLEND DOOR

DESCRIPTION

ACTUATOR-BLEND DOOR

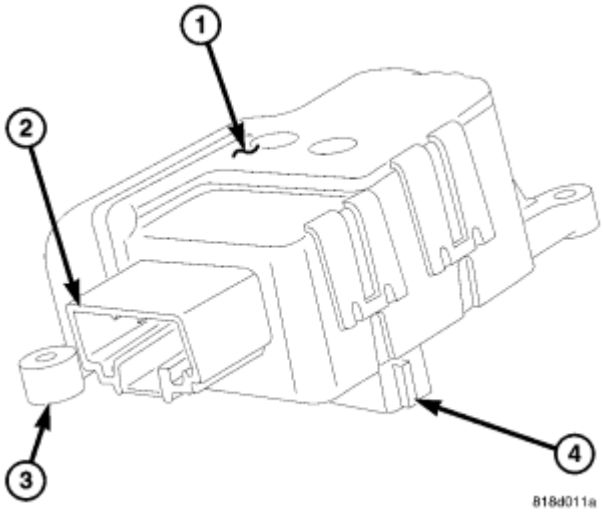


Fig. 10: Identifying Blend Door Actuator, Integral Wire Connector Receptacle, Integral Mounting Tabs & Output Shaft
Courtesy of CHRYSLER LLC

The heating-A/C system uses a reversible, 12-volt direct current (DC) servo motor which mechanically positions the blend-air door. The blend door actuator (1) is located on the driver side of the HVAC housing.

The blend door actuator is interchangeable with the actuators for the mode-air doors and the recirculation-air door. Each actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2) and integral mounting tabs (3) that allow the actuator to be secured to the HVAC housing. The blend door actuator output shaft (4) is connected to the linkage that drives the blend-air door. The blend door actuator does not require mechanical indexing to the blend-air door, as it is electronically calibrated by the A/C-heater control.

OPERATION

ACTUATOR-BLEND DOOR

The blend door actuator is connected to the A/C-heater control through the vehicle electrical system by a dedicated two-wire lead and connector of the HVAC wire harness. The blend door actuator can move the blend-air door in two directions. When the A/C-heater control pulls the voltage on one side of the motor connection high and the other connection low, the blend-air door will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the blend-air door moves in the opposite direction. When the A/C-heater control makes the voltage to both connections high or both connections low, the blend-air door stops and will not move.

The A/C-heater control uses a pulse-count positioning system to monitor the operation and relative position of the blend door actuator and the blend-air door. The A/C-heater control learns the blend-air door stop positions during the actuator calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the blend door actuator circuits (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The blend door actuator cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

REMOVAL

ACTUATOR-BLEND DOOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

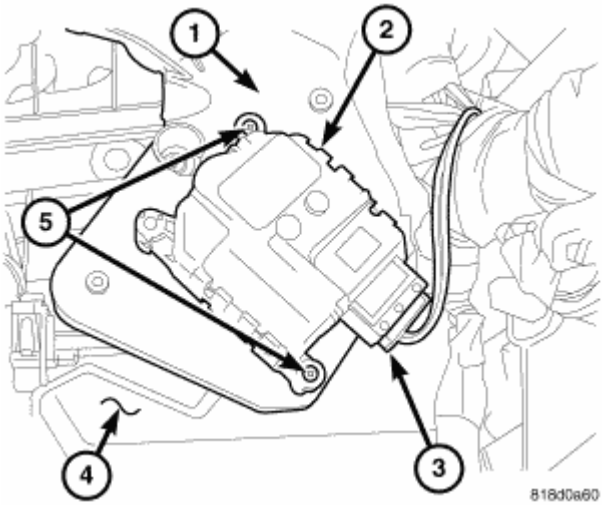


Fig. 11: Identifying Actuator Mounting Bracket, Blend Door Actuator, Wire Harness Connector, Air Distribution Housing & Screws
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. If equipped, remove the silencer from below the driver side of the instrument panel. Refer to **REMOVAL** .
3. Disconnect the wire harness connector (3) from the blend door actuator (2) located on the driver side of the air distribution housing (4).
4. Remove the two screws (5) that secure the blend door actuator to the actuator mounting bracket (1) and remove the actuator.

INSTALLATION

ACTUATOR-BLEND DOOR

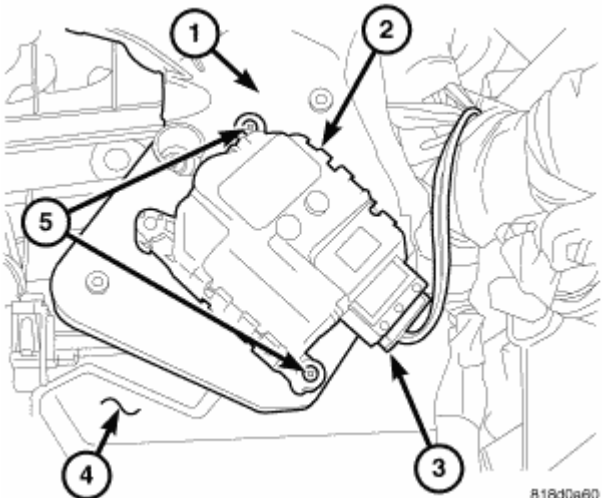


Fig. 12: Identifying Actuator Mounting Bracket, Blend Door Actuator, Wire Harness Connector, Air Distribution Housing & Screws
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the blend door actuator (4) to the actuator mounting bracket (1) located on the driver side of the air distribution housing (4). Make sure the actuator output shaft is properly aligned to the door linkage. If necessary, rotate the actuator slightly to align the splines on the output shaft with those in the door linkage.
2. Install the two screws (5) that secure the blend door actuator to the actuator mounting bracket. Tighten the screws to 1.2 N.m (10 in lbs.).
3. Connect the wire harness connector (3) to the blend door actuator.
4. If equipped, install the silencer below the driver side of the instrument panel. Refer to **INSTALLATION** .
5. Reconnect the negative battery cable.
6. Initiate the Actuator Calibration function using a scan tool. See ***HVAC SYSTEM TEST** .

ACTUATOR-MODE DOOR

DESCRIPTION

ACTUATOR-MODE DOOR

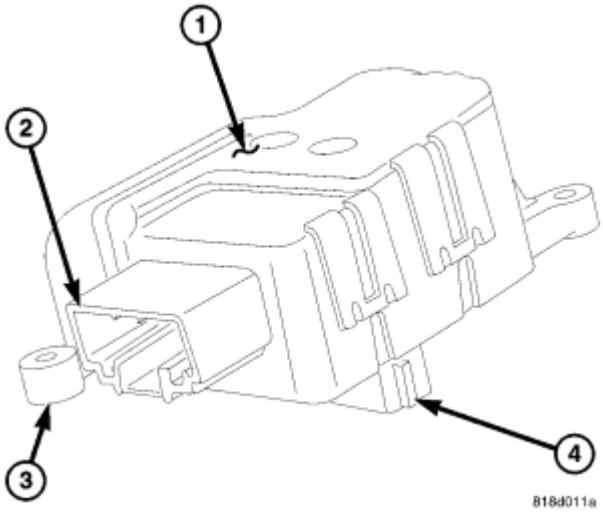


Fig. 13: Identifying Blend Door Actuator, Integral Wire Connector Receptacle, Integral Mounting Tabs & Output Shaft
Courtesy of CHRYSLER LLC

The heating-A/C system uses a reversible, 12-volt direct current (DC) servo motor which mechanically positions the mode-air door. The mode door actuator (1) is located on the driver side of the HVAC housing.

The mode door actuator is interchangeable with the actuators for the blend-air door and the recirculation-air door. Each actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2) and integral mounting tabs (3) that allow the actuator to be secured to the HVAC housing. The mode door actuator output shaft (4) is connected to the linkage that drives the mode-air door. The mode door actuator does not require mechanical indexing to the mode-air doors, as it is electronically calibrated by the A/C-heater control.

OPERATION

ACTUATOR-MODE DOOR

The mode door actuator is connected to the A/C-heater control through the vehicle electrical system by a dedicated two-wire lead and connector of the HVAC wire harness. The mode door actuator can move the floor, defrost/demist and the panel-air doors in two directions. When the A/C-heater control pulls the voltage on one side of the motor connection high and the other connection low, the mode-air doors will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the mode-air doors moves in the opposite direction. When the A/C-heater control makes the voltage to both connections high or both connections low, the mode-air doors stop and will not move.

The A/C-heater control uses a pulse-count positioning system to monitor the operation and relative position of the mode door actuator and the mode-air doors. The A/C-heater control learns the mode-air doors stop position during the actuator calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the mode door actuator circuits (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The mode door actuator cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

REMOVAL

ACTUATOR-MODE DOOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

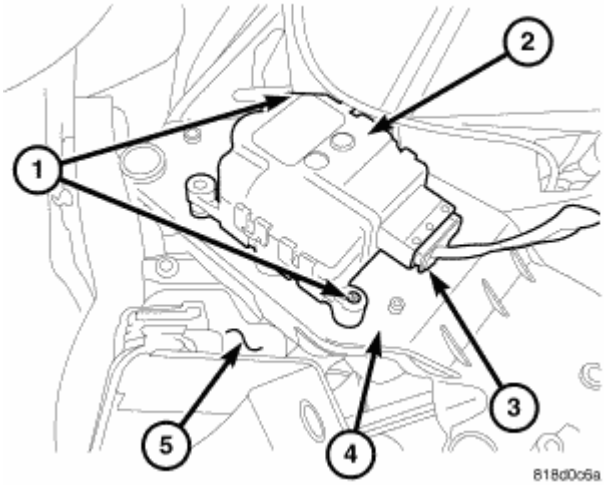


Fig. 14: Identifying Screws, Mode Door Actuator, Wire Harness Connector, Actuator Mounting Bracket & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. If equipped, remove the silencer from below the driver side of the instrument panel. Refer to **REMOVAL** .
3. Disconnect the wire harness connector (3) from the mode door actuator (2) located on the driver side of the air distribution housing (5).
4. Remove the two screws (1) that secure the mode door actuator to the actuator mounting bracket (4) and remove the actuator.

INSTALLATION

ACTUATOR-MODE DOOR

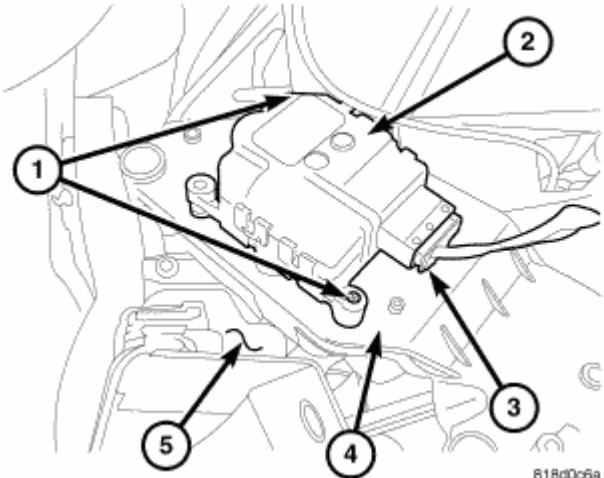


Fig. 15: Identifying Screws, Mode Door Actuator, Wire Harness Connector, Actuator Mounting Bracket & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the mode door actuator (2) to the actuator mounting bracket (4) located on the driver side of the air distribution housing (5). Make sure the actuator output shaft is properly aligned to the door linkage. If necessary, rotate the actuator slightly to align the splines on the output shaft with those in the mode door linkage
2. Install the two screws (1) that secure the mode door actuator to the actuator mounting bracket. Tighten the screws to 1.2 N.m (10 in lbs.).
3. Connect the wire harness connector (3) to the mode door actuator.
4. If equipped, install the silencer below the driver side of the instrument panel. Refer to **INSTALLATION** .
5. Reconnect the negative battery cable.
6. Initiate the Actuator Calibration function using a scan tool. See ***HVAC SYSTEM TEST** .

ACTUATOR-RECIRCULATION DOOR

DESCRIPTION

ACTUATOR-RECIRCULATION DOOR

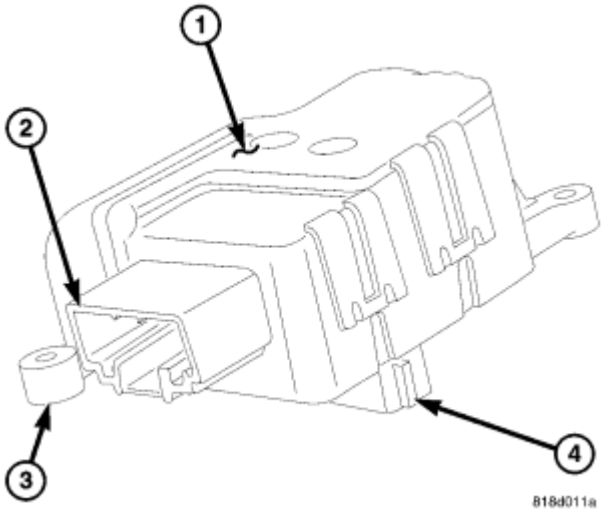


Fig. 16: Identifying Blend Door Actuator, Integral Wire Connector Receptacle, Integral Mounting Tabs & Output Shaft
Courtesy of CHRYSLER LLC

The heating-A/C system uses a reversible, 12-volt direct current (DC) servo motor which mechanically positions the recirculation-air door. The recirculation door actuator (1) is located on the side of the HVAC air inlet housing.

The recirculation door actuator is interchangeable with the actuators for the blend-air door and the mode-air door. Each actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2) and integral mounting tabs (3) that allow the actuator to be secured to the HVAC housing. The recirculation door actuator output shaft (4) is directly connected to the pivot shaft lever of the recirculation-air door. The recirculation door actuator does not require mechanical indexing to the recirculation-air door, as it is electronically calibrated by the A/C-heater control.

OPERATION

ACTUATOR-RECIRCULATION DOOR

The recirculation door actuator is connected to the A/C-heater control through the vehicle electrical system by a dedicated two-wire lead and connector of the HVAC wire harness. The recirculation door actuator can move the recirculation-air door in two directions. When the A/C-heater control pulls the voltage on one side of the motor connection high and the other connection low, the recirculation-air door will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the recirculation-air door moves in the opposite direction. When the A/C-heater control makes the voltage to both connections high or both connections low, the recirculation-air door stops and will not move.

The A/C-heater control uses a pulse-count positioning system to monitor the operation and relative position of the recirculation door actuator and the recirculation-air door. The A/C-heater control learns the recirculation-air door stop positions during the actuator calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the recirculation door actuator circuits (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The recirculation door actuator cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

REMOVAL

ACTUATOR-RECIRCULATION DOOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

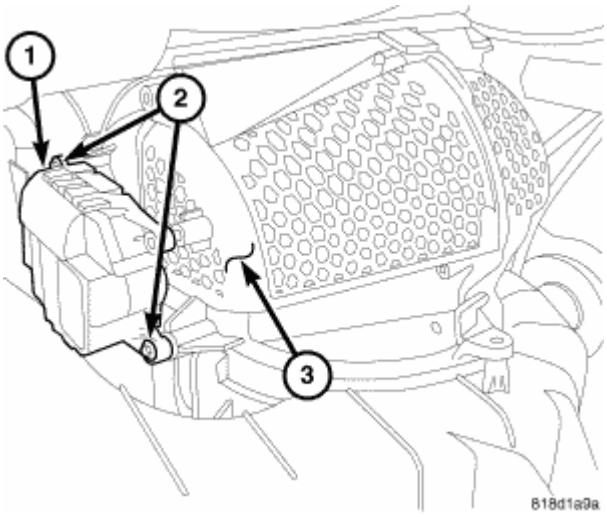


Fig. 17: Recirculation Door Actuator, Screws & Air Inlet Housing
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. On LHD models, remove the glove box bin. Refer to **REMOVAL** .
3. On RHD models, remove the instrument panel. Refer to **REMOVAL** .
4. Remove the two screws (2) that secure the recirculation door actuator (1) to the air inlet housing (3).
5. Disconnect the wire harness connector from the recirculation door actuator and remove the actuator from the vehicle.

INSTALLATION

ACTUATOR-RECIRCULATION DOOR

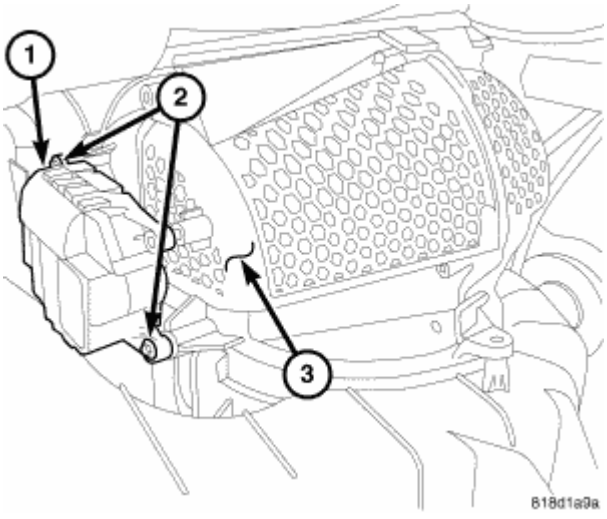


Fig. 18: Recirculation Door Actuator, Screws & Air Inlet Housing

Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Connect the wire harness connector to the recirculation door actuator (1).
2. Position the recirculation door actuator to the side of the air inlet housing (3). Make sure the actuator output shaft is properly aligned to the recirculation door pivot shaft. If necessary, rotate the actuator slightly to engage the splines on the output shaft with those in the pivot shaft.
3. Install the two screws (2) that secure the recirculation door actuator to the air inlet housing. Tighten the screws to 1.2 N.m (10 in lbs.).
4. On RHD models, install the instrument panel. Refer to **INSTALLATION** .
5. On LHD models, install the glove box bin. Refer to **INSTALLATION** .
6. Reconnect the negative battery cable.
7. Initiate the Actuator Calibration function using a scan tool. See ***HVAC SYSTEM TEST** .

CLUTCH-A/C COMPRESSOR

DESCRIPTION

CLUTCH-A/C COMPRESSOR

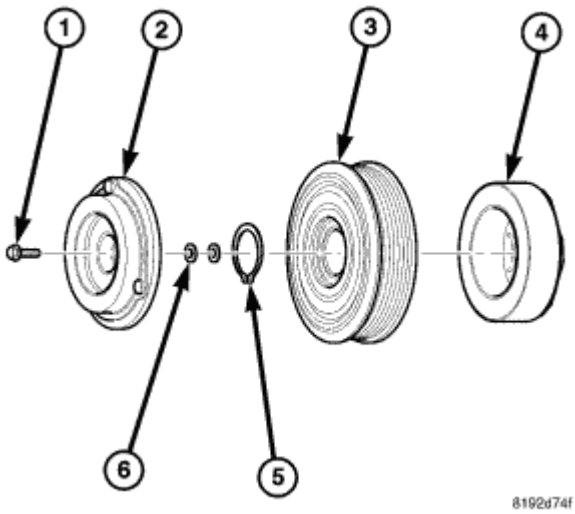


Fig. 19: Bolt, Clutch Plate, Pulley Assembly, Stationary Electromagnetic Field Coil, Snap Ring & Shims
Courtesy of CHRYSLER LLC

The A/C system on models equipped with the 2.8L and 4.0L engine use a Zexel DKS-17DS A/C compressor. The clutch assembly for this A/C compressor consists of a stationary electromagnetic field coil (4), bearing and pulley assembly (3), shims (6), and a clutch plate (2) that is splined to the compressor shaft and secured by a bolt (1). These components provide the means to engage and disengage the A/C compressor from the engine accessory drive belt.

The A/C clutch field coil is pressed onto the front of this A/C compressor and cannot be serviced separately

from the compressor. The A/C clutch bearing and pulley assembly is retained to the front of the compressor by a snap ring (5) and can be serviced separately.

CLUTCH-A/C COMPRESSOR

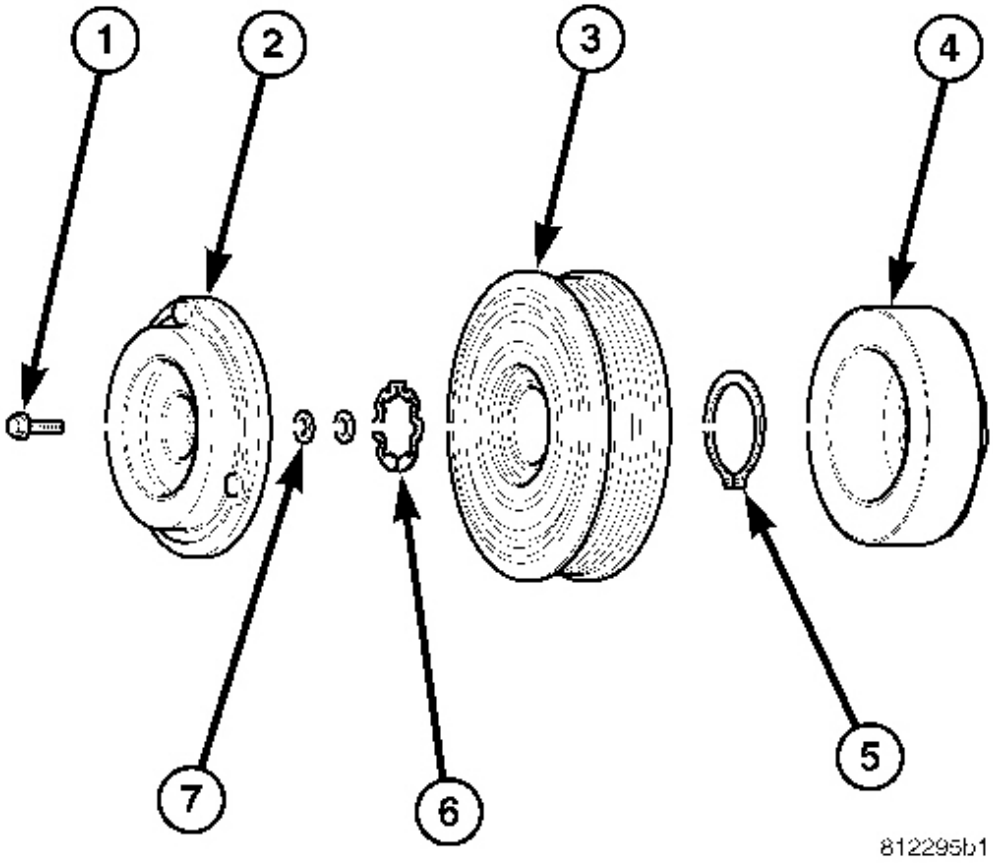


Fig. 20: Bolt, Clutch Plate, Pulley Assembly, Stationary Electromagnetic Field Coil, Snap Ring & Shims
Courtesy of CHRYSLER LLC

The A/C system on models equipped with the 3.7L engine use the Visteon HS-18 A/C compressor. The clutch assembly for this A/C compressor consists of a stationary electromagnetic field coil (4), bearing and pulley assembly (3), shims (7), and a clutch plate (2) that is splined to the compressor shaft and secured by a bolt (1). These components provide the means to engage and disengage the A/C compressor from the engine accessory drive belt.

The A/C clutch field coil is pressed onto the front of this A/C compressor and retained with a snap ring (6). The

A/C clutch bearing and pulley assembly is also retained to the front of this compressor by a snap ring (5). Both the A/C clutch bearing and pulley assembly and the field coil can be serviced separately.

OPERATION

CLUTCH-A/C COMPRESSOR

The A/C compressor clutch components provide the means to engage and disengage the A/C compressor from the engine accessory drive belt. When the electromagnetic A/C clutch field coil is energized, it magnetically draws the clutch plate into contact with the clutch pulley and drives the compressor shaft. When the coil is not energized, the pulley freewheels on the clutch hub bearing, which is part of the pulley assembly.

A/C compressor clutch engagement is controlled by the powertrain control module (PCM) or the engine control module (ECM), depending on engine application. When the A/C-heater control is set to any A/C position, it sends a request signal on the CAN-B bus to the totally integrated power module (TIPM), which then transfers the request on the CAN-C Bus to the PCM/ECM, which determines if operating conditions are correct for A/C clutch engagement. When all operating conditions have been met, the PCM/ECM sends a signal on a dedicated hard-wired circuit back to the totally integrated power module (TIPM) to energize the internal A/C clutch high side driver. When energized, the A/C clutch high side driver provides battery current to the A/C clutch field coil.

The A/C clutch control system is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** and to appropriate Engine ELECTRICAL DIAGNOSTICS article for more information).

The A/C compressor clutch components cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

DIAGNOSIS AND TESTING

CLUTCH-A/C COMPRESSOR

The A/C compressor clutch coil electrical circuit is controlled by the powertrain control module (PCM) or the engine control module (ECM) (depending on engine application) through the totally integrated power module (TIPM). See **OPERATION**. Begin testing of a suspected compressor clutch coil problem by performing the preliminary checks.

PRELIMINARY CHECKS

1. Using a scan tool, check for diagnostic trouble codes (DTCs) in the A/C-heater control, TIPM and the PCM/ECM. If no DTCs are found, go to step 2. If any DTCs are found, repair as required.
2. If the A/C compressor clutch still will not engage, verify the refrigerant charge level. See **REFRIGERANT SYSTEM LEAKS**. If the refrigerant charge level is OK, go to step 3. If the refrigerant charge level is not OK, adjust the refrigerant charge as required.
3. If the A/C compressor clutch still will not engage, disconnect the wire harness connector from the A/C pressure transducer and check for battery current at the connector with the engine running and the A/C-heater control set to the A/C mode. If OK, go to step **COIL CURRENT DRAW TEST**, and/or step **COIL RESISTANCE TEST - 2.8L AND 4.0L ENGINES ONLY**.

COIL CURRENT DRAW TEST

1. Verify the battery state of charge. Refer to **DIAGNOSIS AND TESTING** .
2. Connect an ammeter (0 to 10 ampere scale selected) in series with the clutch field coil feed terminal. Connect a voltmeter (0 to 20 volt scale selected) to measure voltage across the battery and the clutch coil.
3. With the A/C-heater control in the A/C mode and the blower motor at low speed, start the engine and allow it to run at a normal idle speed.
4. The A/C clutch should engage immediately, and the clutch field coil supply voltage should be within two volts of the battery voltage. If the field coil supply voltage is OK, go to step 5. If the field coil supply voltage is not within two volts of battery voltage, test the clutch field coil feed circuit for excessive voltage drop and repair as necessary.
5. Refer to the following A/C Clutch Field Coil Specifications chart for the acceptable A/C clutch field coil current draw. If voltage is more than 12.5 volts, add electrical loads by turning on electrical accessories until voltage reads below 12.5 volts.
    - If the A/C clutch field coil current reading is zero, the coil is open and must be replaced.
    - If the A/C clutch field coil current reading is above specifications, the coil is shorted and must be replaced.

COIL RESISTANCE TEST - 2.8L AND 4.0L ENGINES ONLY

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the A/C clutch field coil connector.
3. Use an ohmmeter and measure the resistance of the clutch field coil at the field coil connector terminals.
4. Refer to the following A/C Clutch Field Coil Specifications chart for the acceptable A/C clutch coil resistance.
    - If the A/C clutch coil resistance reading is above specifications, the coil is shorted and must be replaced.
    - If the A/C clutch coil resistance reading is below specifications, the coil is open and must be replaced.

A/C CLUTCH FIELD COIL SPECIFICATIONS

A/C Compressor	Current Draw	Coil Resistance
Zexel DKS-17DS (2.8L/4.0L engines)	3.3 amps @ 12V ± 0.5V @ 25°C (77°F)	4.02 ± 0.2 ohms @ 25°C (77°F)
Visteon HS-18 (3.7L engine)	3.1 - 4 amps @ 12V ± 0.5V @ 21° C (70°F)	Not applicable

STANDARD PROCEDURE

CLUTCH-A/C COMPRESSOR

NOTE: The A/C clutch can be serviced in the vehicle. The refrigerant system can remain fully-charged during compressor clutch, pulley and bearing assembly, or coil replacement.

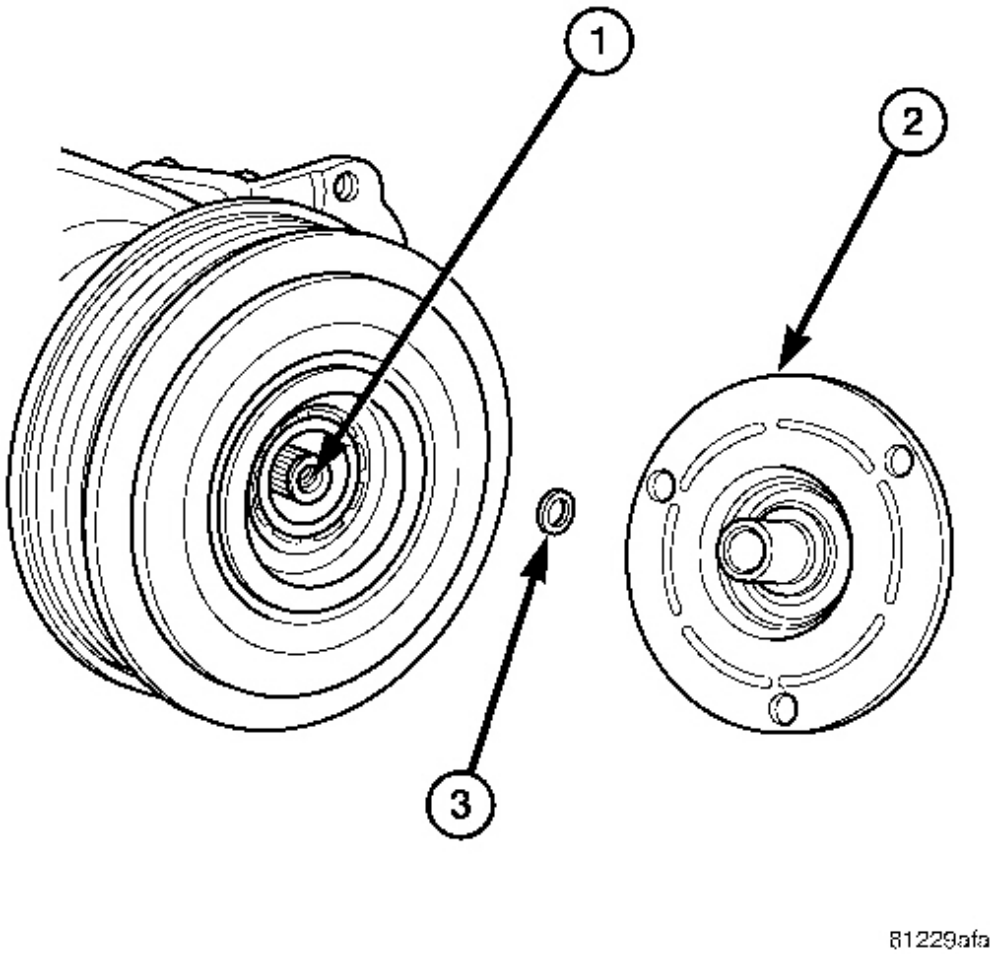


Fig. 21: Identifying Compressor Shaft, Clutch Plate & Shim
Courtesy of CHRYSLER LLC

Examine the friction surfaces of the pulley and the clutch plate (2) for wear. The pulley and clutch plate should be replaced if there is excessive wear or scoring.

If the friction surfaces are oily, inspect the shaft and nose area of the A/C compressor (1) for refrigerant oil. If refrigerant oil is found, the compressor shaft seal is leaking and the A/C compressor must be replaced.

Check the pulley bearing for roughness or excessive leakage of grease. Replace the pulley and bearing assembly, if required.

CLUTCH-A/C COMPRESSOR

After a new A/C compressor clutch has been installed, cycle the compressor clutch approximately 20 times (5 seconds on, then 5 seconds off). During this procedure, set the A/C-heater controls to the A/C Recirculation Mode, the blower motor in the highest speed position, and the engine speed at 1500 to 2000 RPM. This procedure (burnishing) will seat the opposing friction surfaces and provide a higher compressor clutch torque capability.

REMOVAL

CLUTCH-A/C COMPRESSOR

NOTE: The compressor clutch plate and pulley and bearing assembly and can be serviced with the refrigerant system fully-charged and with the A/C compressor installed on the engine.

NOTE: Typical A/C compressor and clutch assembly shown in illustrations.

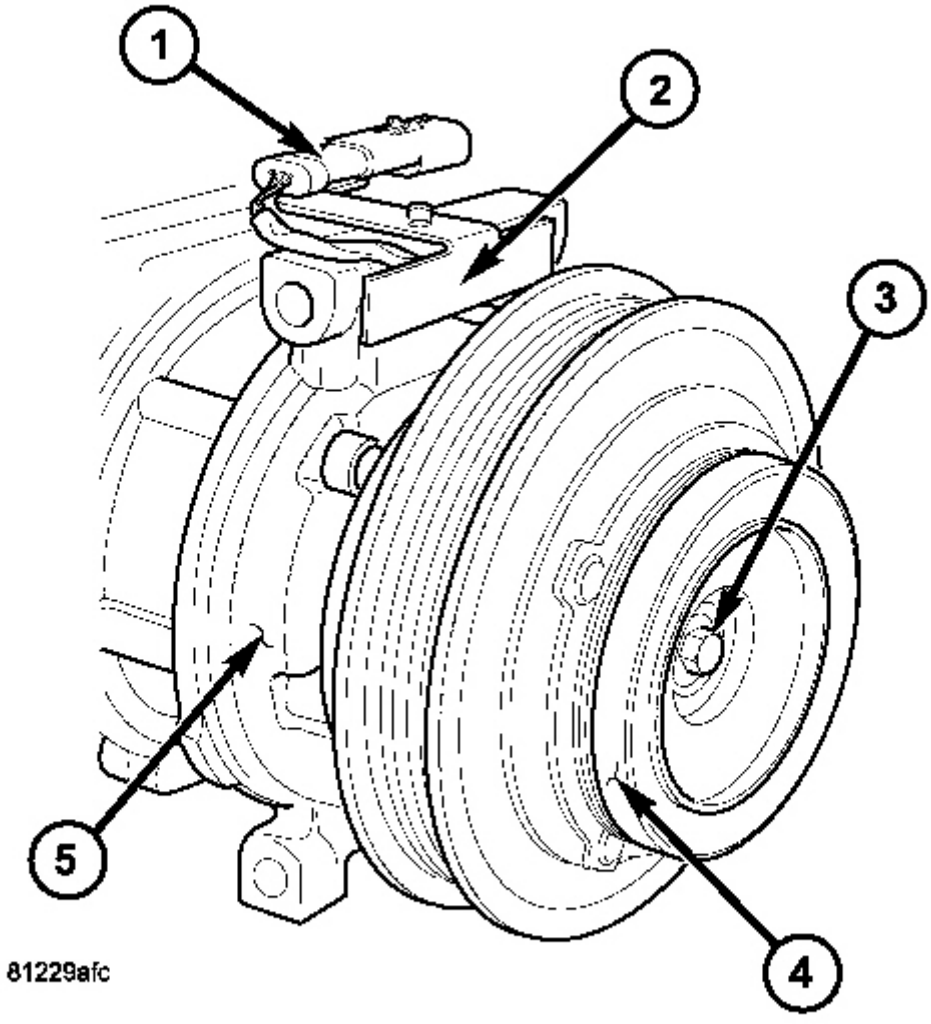


Fig. 22: Compressor Clutch Field Coil Connector, Connector Bracket, Compressor Shaft Bolt, Clutch Plate & A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the coolant recovery container from the front of the engine compartment. Refer to **REMOVAL** .
3. Remove the radiator fan and shroud assembly. Refer to **REMOVAL** .
4. Remove the accessory drive belt. Refer to **REMOVAL** .
5. Disconnect the engine wire harness from the compressor clutch field coil connector (1) located on the top

of the A/C compressor (5).

6. Remove the screw that secures the connector bracket (2) to the A/C compressor and position the bracket and wire lead out of the way.

NOTE: A band-type oil filter wrench or a strap wrench may be used to hold the clutch plate from turning during compressor shaft bolt removal.

7. Hold the clutch plate (4) from turning and remove the compressor shaft bolt (3).

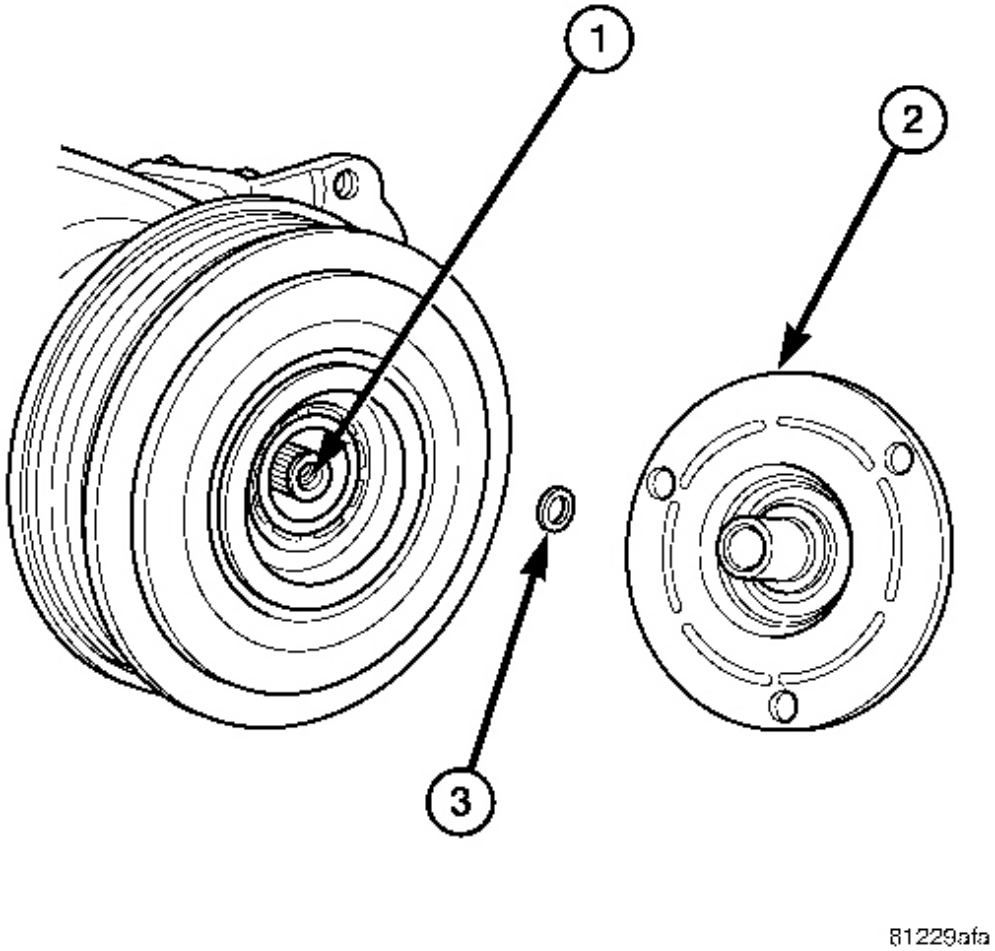


Fig. 23: Identifying Compressor Shaft, Clutch Plate & Shim
Courtesy of CHRYSLER LLC

CAUTION: Do not pry between the clutch plate and the pulley and bearing assembly to remove the clutch plate from the compressor shaft as this may damage the clutch plate.

NOTE: Use care not to lose any clutch shim(s) during removal of the clutch plate, as they may be reused during the clutch plate installation process.

8. Tap the clutch plate (2) lightly with a plastic mallet to release it from the splines on the compressor shaft (1) and remove the clutch plate and shim(s) (3).

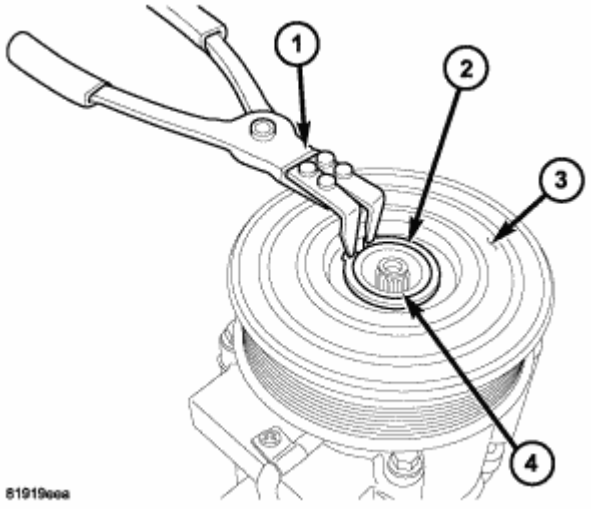


Fig. 24: Using Snap Ring Pliers 9764 Or Equivalent To Remove/Install Snap Ring That Secures Pulley And Bearing Assembly To Front Of A/C Compressor
Courtesy of CHRYSLER LLC

NOTE: The pulley and bearing assembly can be removed from the compressor by hand or, if required, with a two jaw puller.

9. Using Snap Ring Pliers 9764 or equivalent (1), remove the snap ring (2) that secures the pulley and bearing assembly (3) to the front of the A/C compressor (4).
10. Remove the pulley and bearing assembly from the front of the A/C compressor. If required, install a two jaw puller and turn the puller center-bolt clockwise until the pulley and bearing assembly is completely removed.

CLUTCH-A/C COMPRESSOR

NOTE: The compressor clutch assembly can be serviced with the refrigerant system fully-charged.

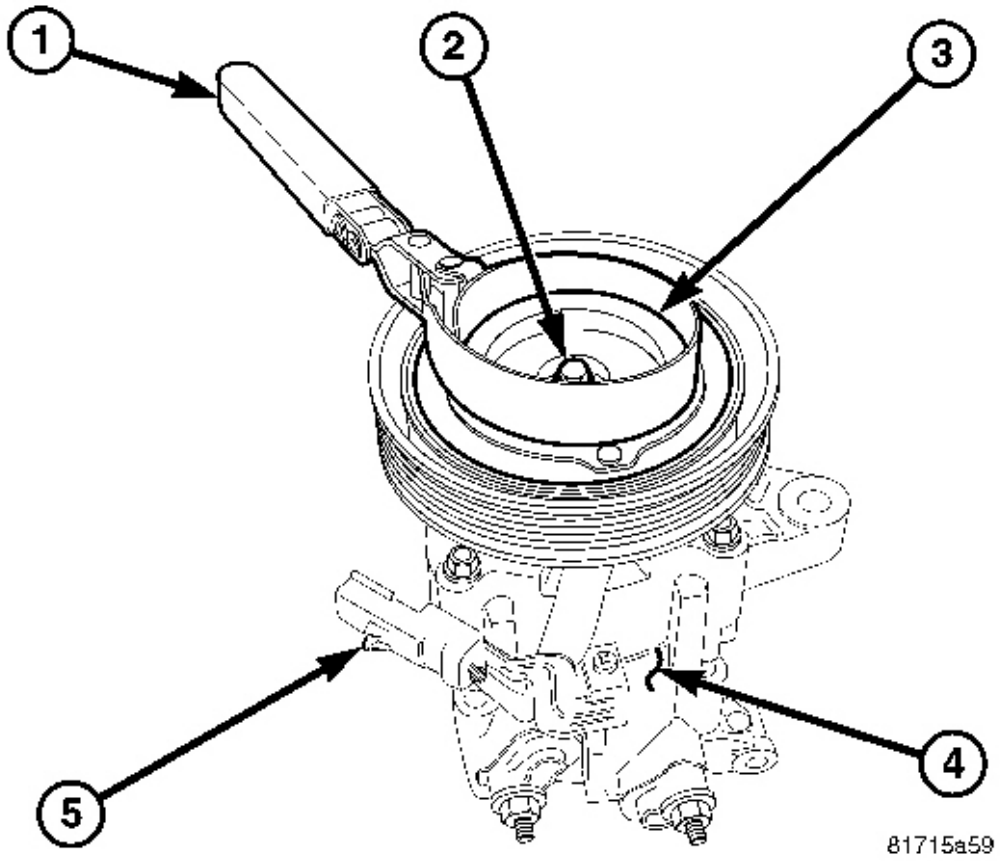


Fig. 25: Strap Wrench, Bolt, Clutch Plate, A/C Compressor & Clutch Field Coil Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate negative battery cable.
2. Remove the accessory drive belt. Refer to **REMOVAL** .
3. Disconnect the engine wire harness from the clutch field coil connector (5)
4. Remove the bolts that secure the A/C compressor (4) to the mounting bracket. See **REMOVAL**.
5. Remove the A/C compressor from the mounting bracket and support the compressor while servicing the clutch.
6. Using a strap wrench (1), remove the bolt (2) that secures the clutch plate (3) to the compressor shaft.

NOTE: The clutch plate can be removed from the compressor shaft by hand or, if required, pressed off with an 8 x 1.25 mm bolt.

NOTE: Clutch plate shim(s) may remain inside the hub of the clutch plate. Be sure to remove all of the shims from inside the hub or from the end of the compressor shaft.

7. Remove the clutch plate and shim(s) from the A/C compressor. If required, install a 8 x 1.25 mm bolt into the center of the clutch plate and turn the bolt clockwise until the clutch plate is completely removed from the A/C compressor.

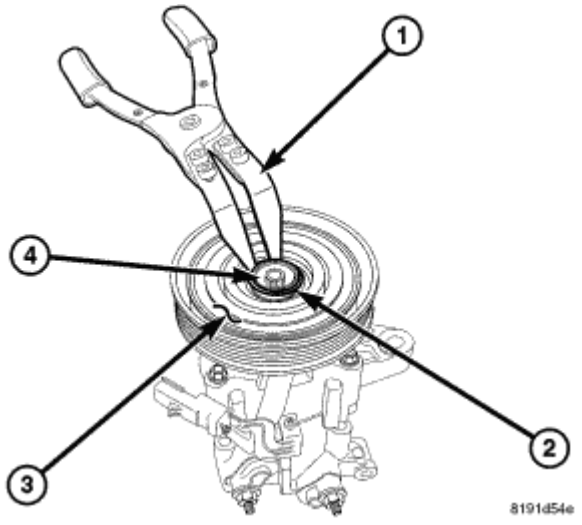


Fig. 26: Using Snap Ring Pliers To Remove/Install Snap Ring That Secures Pulley And Bearing Assembly To Front Of A/C Compressor
Courtesy of CHRYSLER LLC

8. Using snap ring pliers (Special Tool 9764 or equivalent) (1), remove the snap ring (2) that secures the pulley and bearing assembly (3) to the front of the A/C compressor (4).

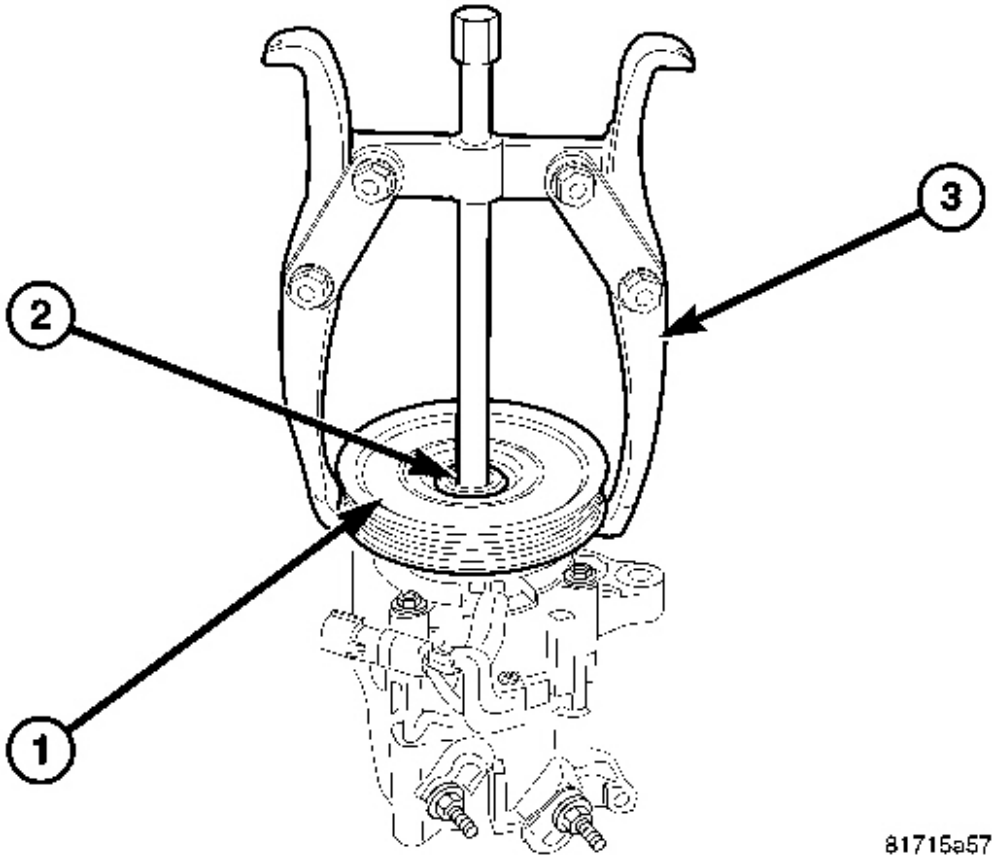


Fig. 27: Bearing Assembly, A/C Compressor & Jaw Puller
Courtesy of CHRYSLER LLC

NOTE: The pulley and bearing assembly can be removed from the compressor by hand or, if required, with a two jaw puller.

9. Remove the pulley and bearing assembly (1) from the front of the A/C compressor (2). If required, install a two jaw puller (3) and turn the puller center-bolt clockwise until the pulley and bearing assembly is completely removed.

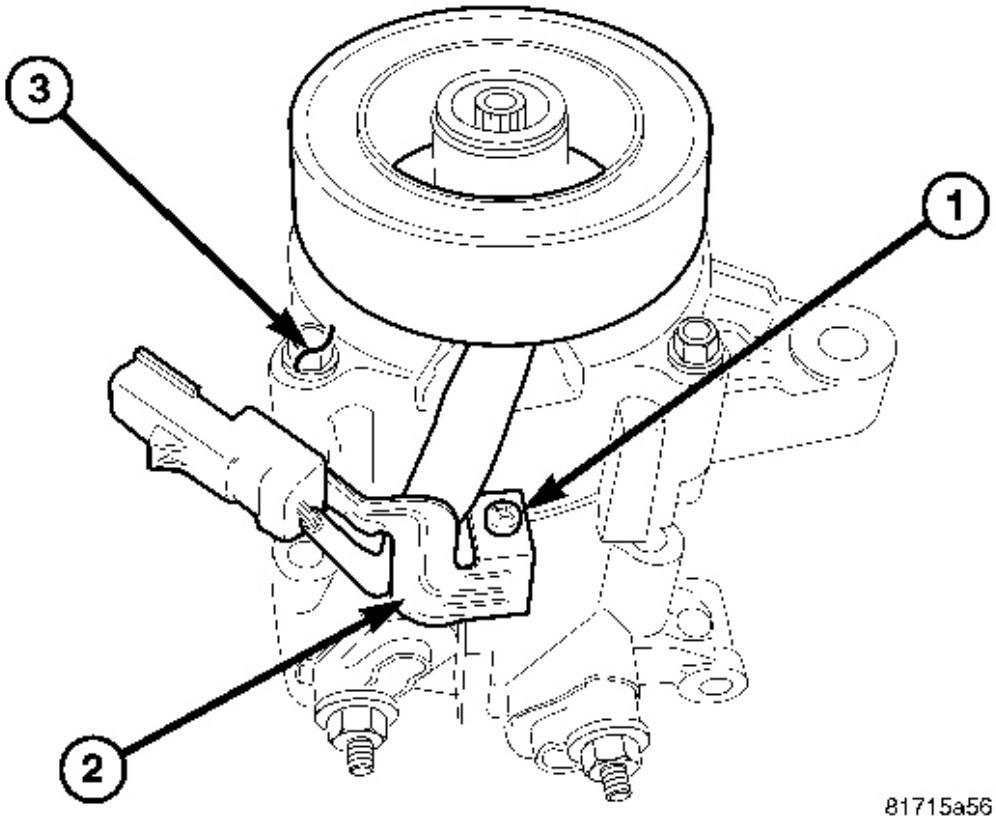


Fig. 28: Screw, Clutch Field Coil Wire Lead Bracket & A/C Compressor
Courtesy of CHRYSLER LLC

10. Remove the screw (1) that secures the clutch field coil wire lead bracket (2) to the A/C compressor (3).

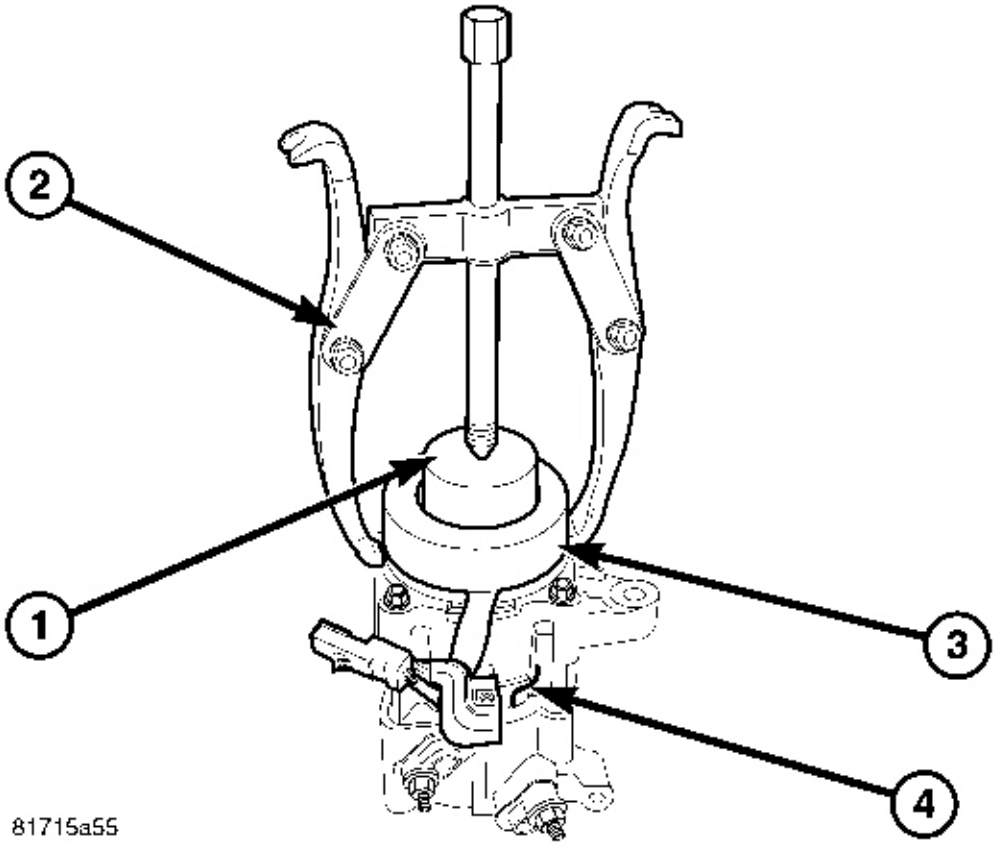


Fig. 29: Using Compressor Field Coil Remover And Two Jaw Puller To Remove Clutch Field Coil From Front Of A/C Compressor
Courtesy of CHRYSLER LLC

11. Using compressor field coil remover (Special Tool 9354 in Kit 9349) (1) and a two jaw puller (2), remove the clutch field coil (3) from the front of the A/C compressor (4).

INSTALLATION

CLUTCH-A/C COMPRESSOR

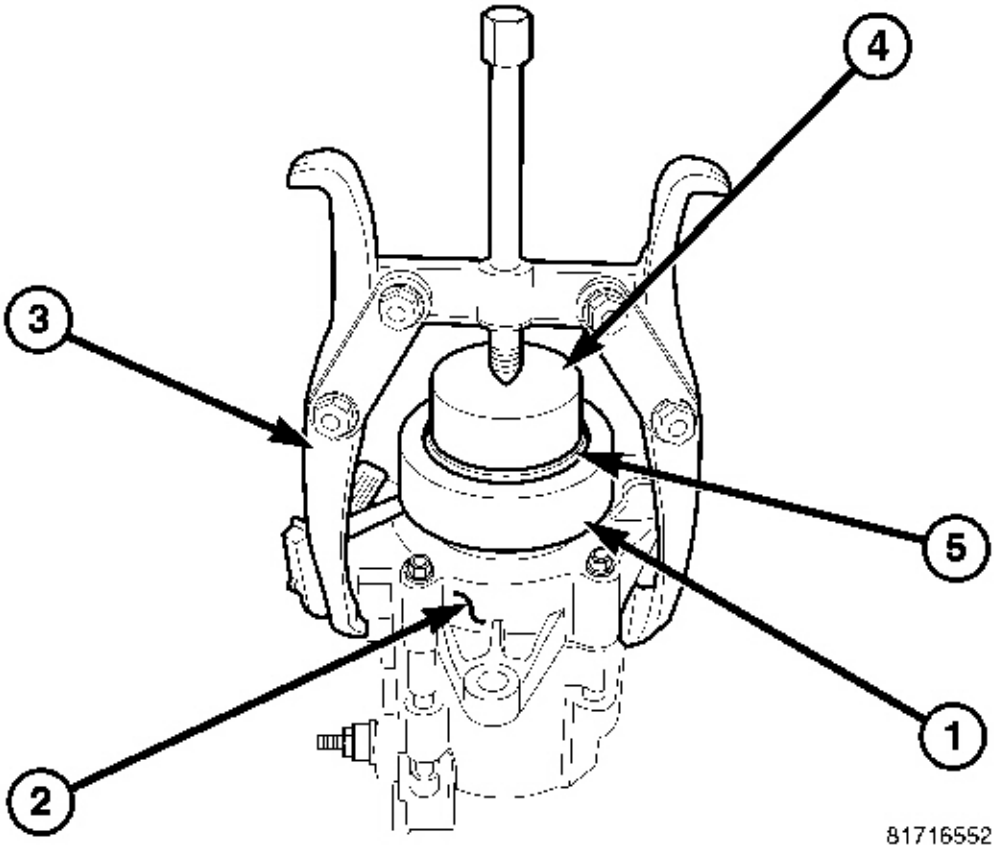


Fig. 30: A/C Clutch Field Coil, A/C Compressor, Jaw Puller, Compressor Field Coil Installer & Compressor Field Coil Installer Spacer
Courtesy of CHRYSLER LLC

1. Position the A/C clutch field coil (1) squarely onto the front of the A/C compressor (2).

CAUTION: Position the A/C clutch field coil so that the coil positioning tabs and the wire harness lead are oriented in the correct direction. Failure to correctly position the field coil on the A/C compressor will result in field coil damage.

2. Align the field coil positioning tabs to the recessed area at the front of the A/C compressor and install the clutch field coil onto the compressor using a two jaw puller (3), compressor field coil installer (Special Tool 9352 in Kit 9349) (4) and the compressor field coil installer spacer (Special Tool 9353 in Kit 9349) (5).

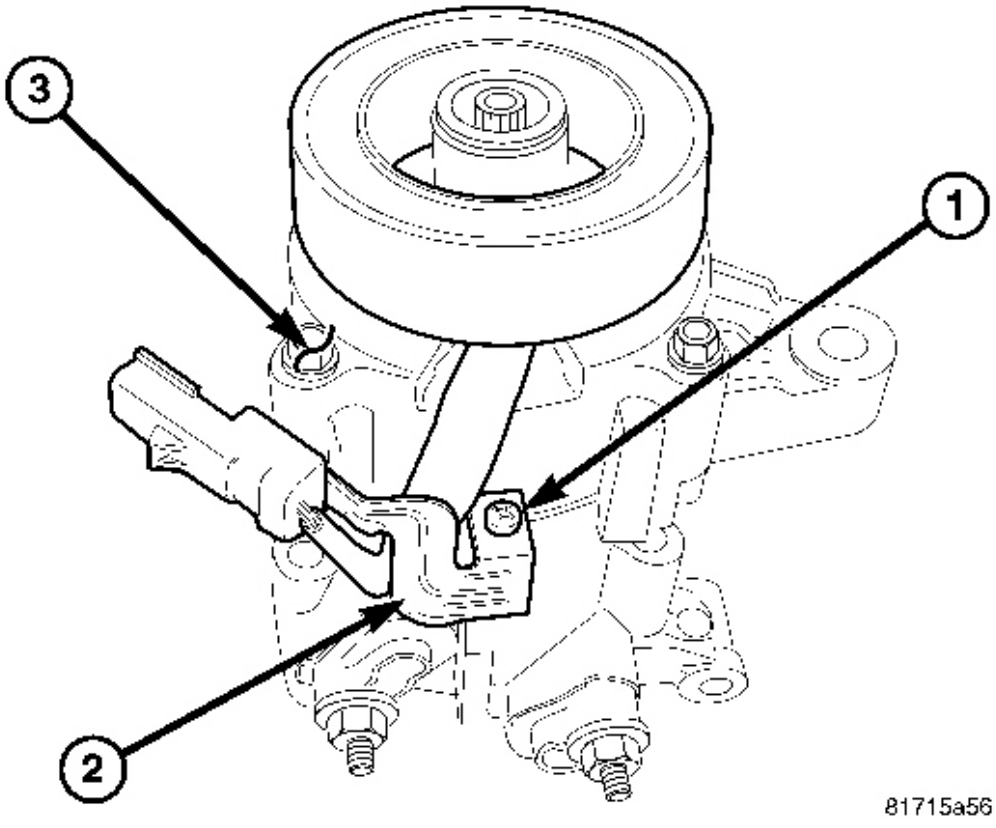


Fig. 31: Screw, Clutch Field Coil Wire Lead Bracket & A/C Compressor
Courtesy of CHRYSLER LLC

3. Position the clutch field coil wire lead and bracket (2) to the A/C compressor (3) and install the screw (1) that secures the bracket to the compressor. Tighten the screw to 4 N.m (35 in. lbs.).

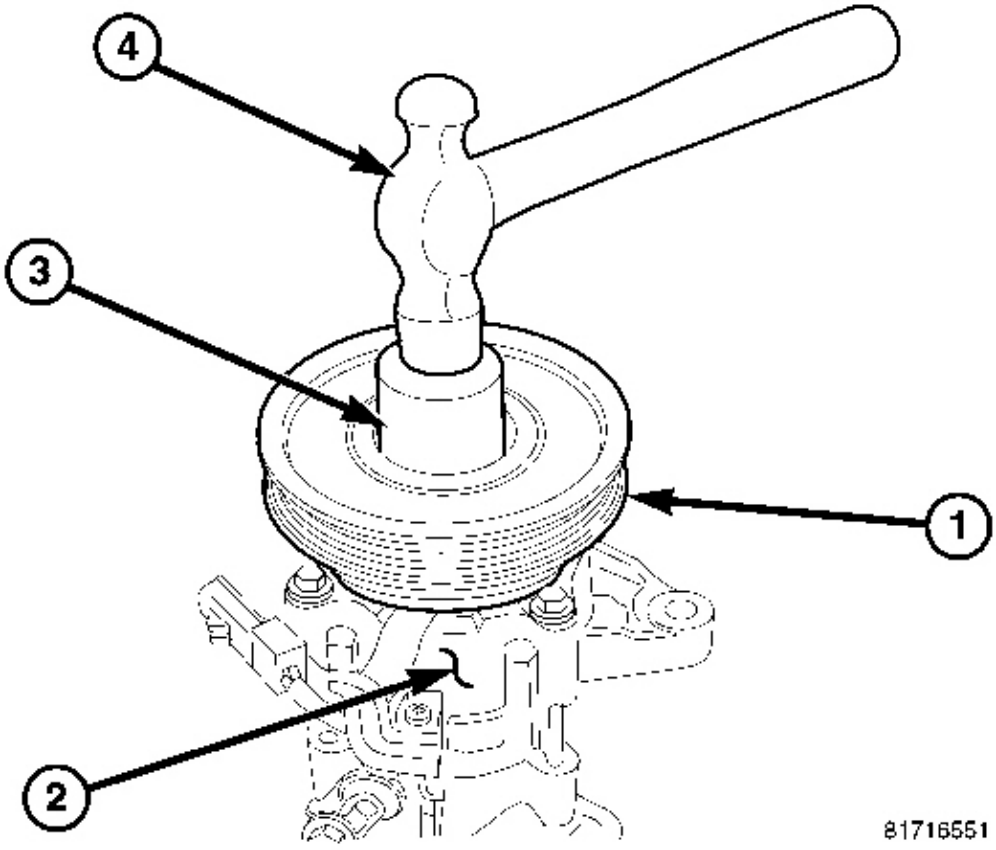


Fig. 32: Using Clutch Pulley Installer And Hammer To Install Pulley And Bearing Assembly Onto Front Of A/C Compressor
Courtesy of CHRYSLER LLC

4. Align the pulley and bearing assembly (1) squarely onto the front of the A/C compressor (2).

NOTE: A distinct change of sound during the clutch pulley tapping process indicates that the pulley and bearing assembly has bottomed out against the compressor housing.

5. Using clutch pulley installer (Special Tool 9355 in Kit 9349) (3) and a hammer (4), install the pulley and bearing assembly onto the front of the A/C compressor. Tap the installer with a hammer until the pulley and bearing assembly has bottomed against the compressor housing.

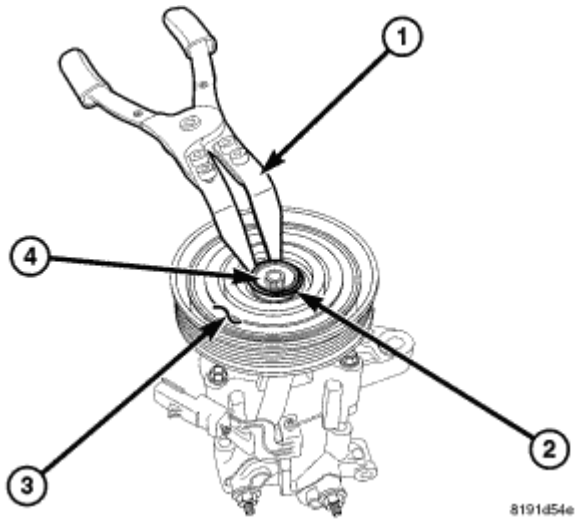


Fig. 33: Using Snap Ring Pliers To Remove/Install Snap Ring That Secures Pulley And Bearing Assembly To Front Of A/C Compressor
Courtesy of CHRYSLER LLC

CAUTION: If the snap ring is not fully seated in the groove it will vibrate out, resulting in clutch failure and severe damage to the A/C compressor.

NOTE: Install the snap ring with the beveled side of the snap ring facing outward.

6. Using snap ring pliers (Special Tool 9764 or equivalent) (1), install the snap ring (2) that secures the pulley and bearing assembly (3) to the front of the A/C compressor (4). Make sure the snap ring is properly seated in the groove.

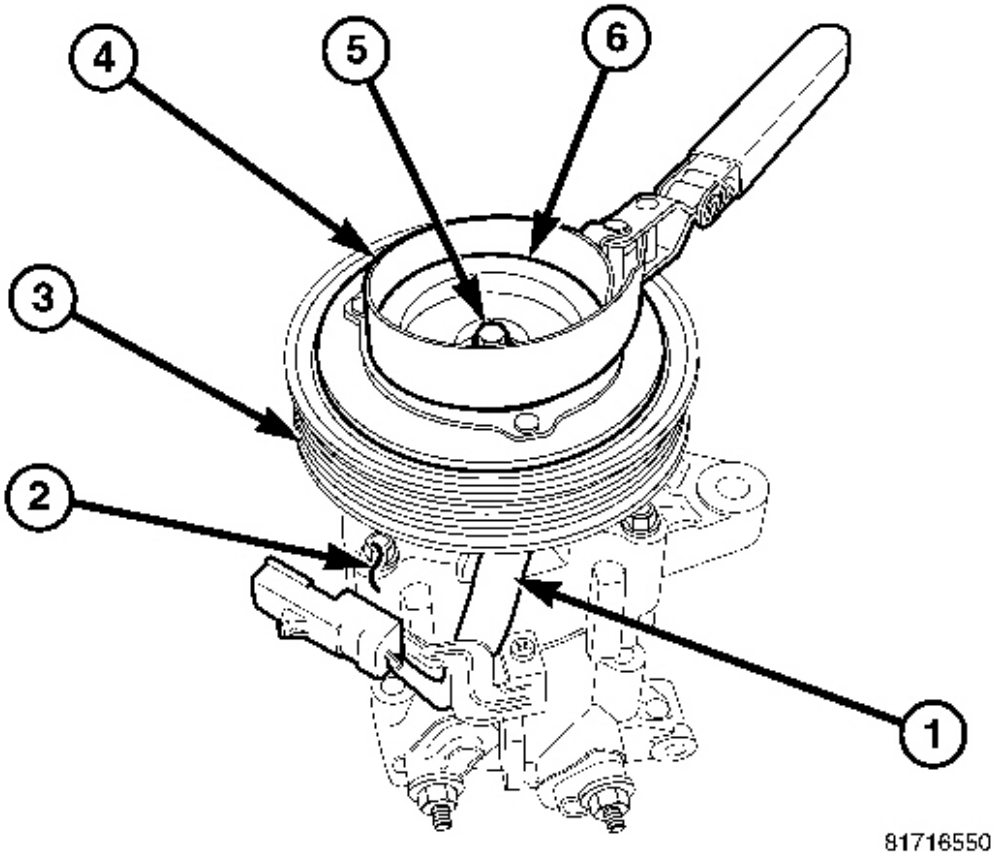


Fig. 34: Using Strap Wrench To Install Bolt That Secures Clutch Plate To A/C Compressor
Courtesy of CHRYSLER LLC

7. Verify that there is adequate clearance for the clutch field coil wire lead (1) between the housing of the A/C compressor (2) and the pulley and bearing assembly (3).

NOTE: When installing an original or a new clutch assembly, try the original shims first. When installing a clutch onto a compressor that previously did not have a clutch, use the 1.0, 0.50 and 0.13 millimeter (0.040, 0.020 and 0.005 inch) shims from the clutch hardware package which is provided with the new clutch.

8. Install the clutch shims onto the compressor shaft.
9. Using a strap wrench (4), install the bolt (5) that secures the clutch plate (6) to the A/C compressor. Hold the clutch plate stationary with the strap wrench and tighten the bolt to 15 N.m (133 in. lbs.).

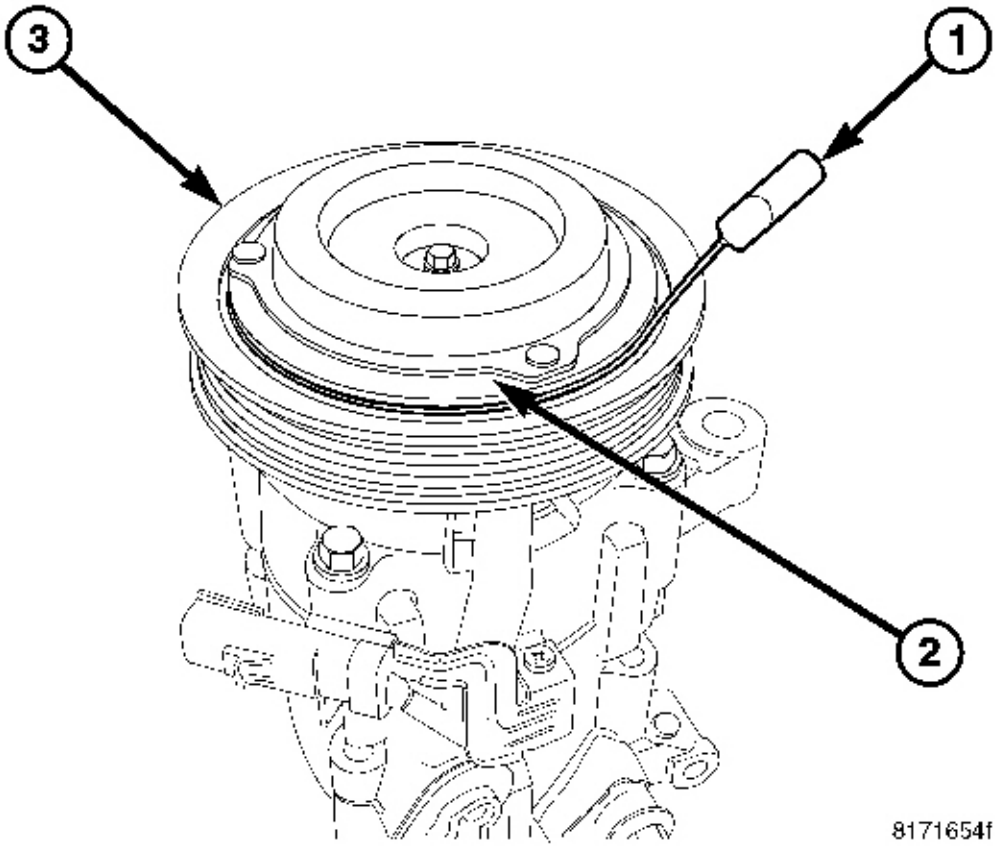


Fig. 35: Wire Gauges, Clutch Plate & Bearing Assembly
Courtesy of CHRYSLER LLC

10. Using 90° wire gauges (1), check the air gap between the clutch plate (2) and the pulley and bearing assembly (3). If the air gap is not between 0.35 to 0.65 millimeter (0.014 to 0.025 inch), add or subtract shims as required.
11. Position the A/C compressor onto the mounting bracket.
12. Install the bolts that secure the A/C compressor to the mounting bracket. See **INSTALLATION**.
13. Connect the engine wire harness to the compressor clutch field coil connector.
14. Install the accessory drive belt (Refer to **INSTALLATION**).
15. Reconnect the negative battery cable.
16. Perform the Clutch Break-in Procedure. See **STANDARD PROCEDURE**.

CLUTCH-A/C COMPRESSOR

NOTE: Typical A/C compressor and clutch assembly shown in illustrations.

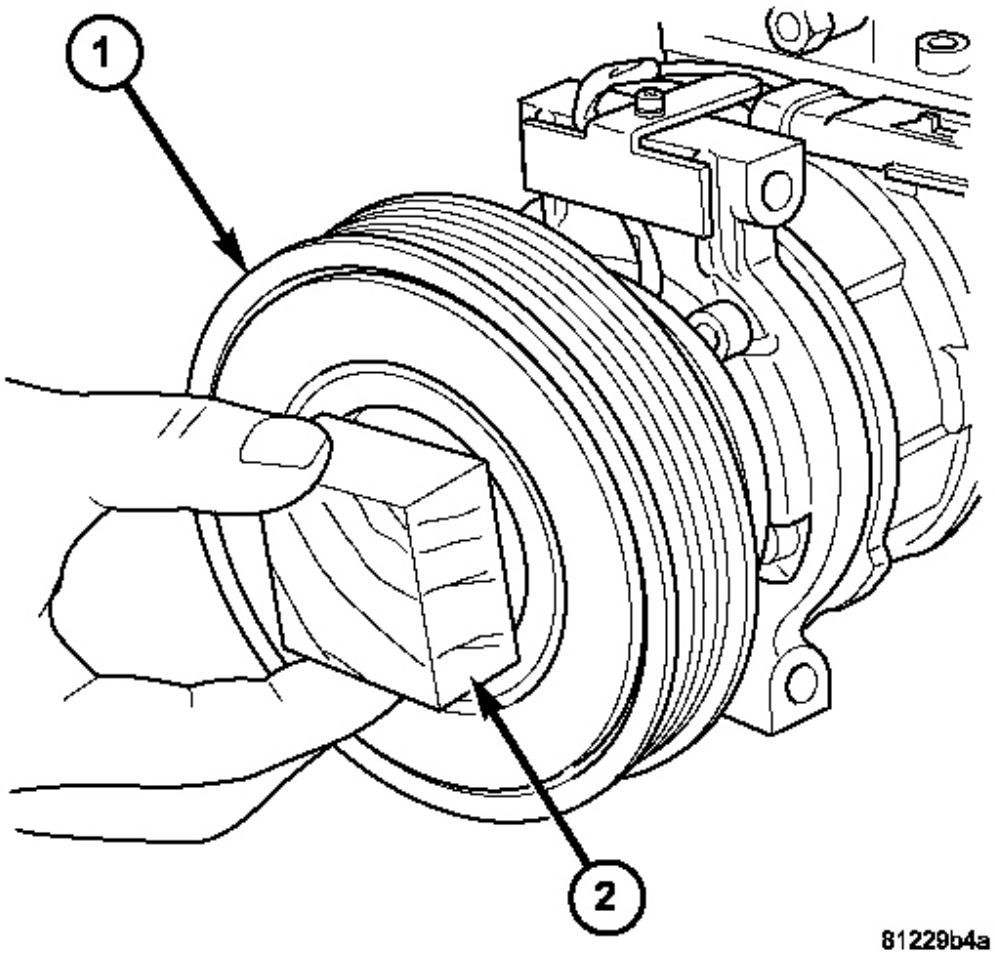


Fig. 36: Installing Pulley And Bearing Assembly Onto Front Of A/C Compressor
Courtesy of CHRYSLER LLC

CAUTION: Be certain to position the compressor clutch field coil wire lead so that it is not damaged during A/C compressor pulley and bearing installation.

CAUTION: When installing the pulley and bearing assembly, DO NOT mar the friction surfaces of the pulley or premature failure of the clutch will result.

1. Install the pulley and bearing assembly (1) onto the front of the A/C compressor. If necessary, tap the pulley gently with a block of wood (2) placed on the pulley friction surface.

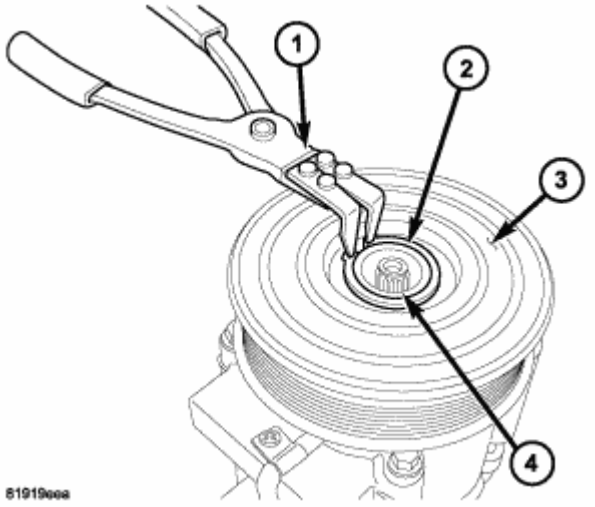


Fig. 37: Using Snap Ring Pliers 9764 Or Equivalent To Remove/Install Snap Ring That Secures Pulley And Bearing Assembly To Front Of A/C Compressor
Courtesy of CHRYSLER LLC

CAUTION: The snap ring must be fully and properly seated in the groove or it will vibrate out, resulting in a clutch failure and severe damage to the A/C compressor.

NOTE: A new snap ring must be used to secure the pulley and bearing assembly to the A/C compressor. The bevel side of the snap ring must face outward.

2. Using Snap Ring Pliers 9764 or equivalent (1), install the snap ring (2) that secures the pulley and bearing assembly (3) to the front of the A/C compressor (4). Be certain that the snap ring is fully and properly seated in the groove.

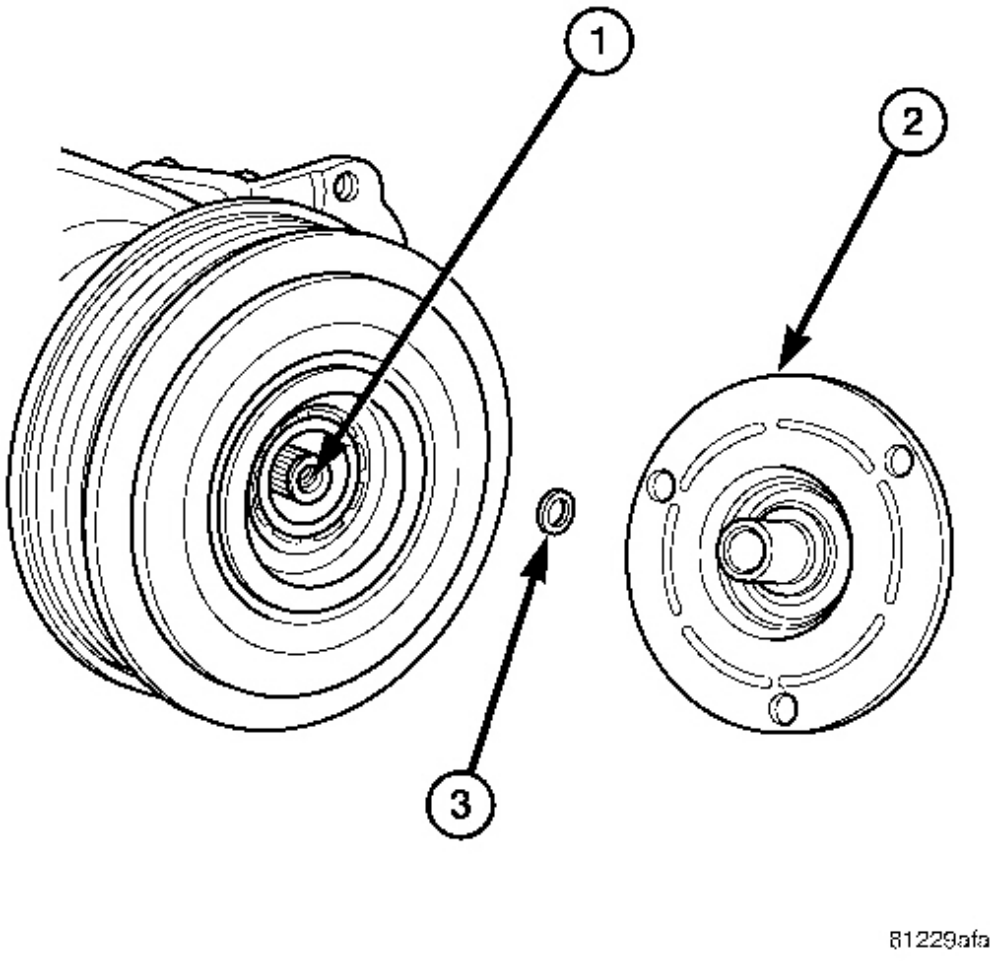


Fig. 38: Identifying Compressor Shaft, Clutch Plate & Shim
Courtesy of CHRYSLER LLC

3. If the original clutch plate (2) and pulley and bearing assembly are to be reused, reinstall the original shim (s) (3) onto the compressor shaft (1). If a new clutch plate and pulley and bearing assembly are being used, install a trial stack of shims 1.50 mm (0.059 in.) thick onto the compressor shaft.

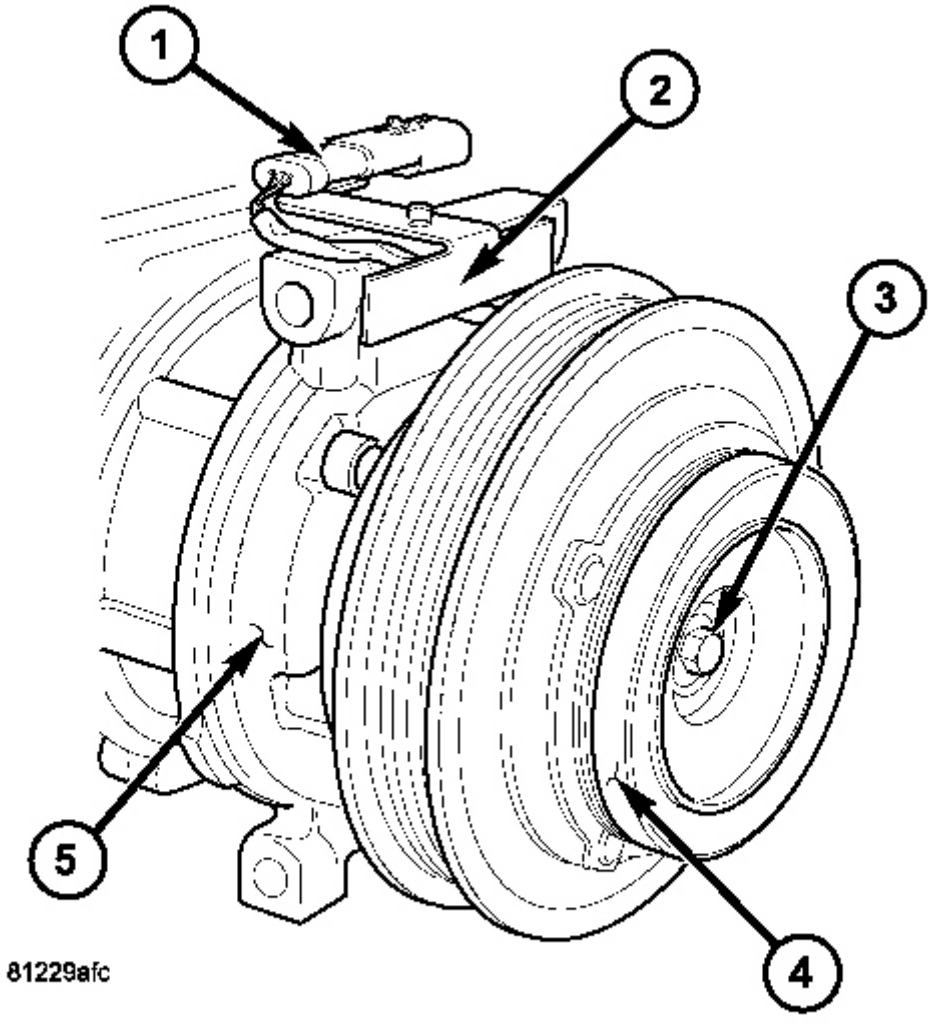


Fig. 39: Compressor Clutch Field Coil Connector, Connector Bracket, Compressor Shaft Bolt, Clutch Plate & A/C Compressor
Courtesy of CHRYSLER LLC

4. Install the clutch plate (4) onto the front of the A/C compressor (5).
5. Install the compressor shaft bolt (3). Tighten the bolt to 20 N.m (177 in. lbs.).

NOTE: The shims may compress after tightening the shaft bolt. Check the air gap in four or more places to verify the air gap is correct. Spin the pulley before performing a final check of the air gap.

NOTE: On models with the clutch plate recessed into the pulley, use a 90° wire gap gauge to measure the clutch air gap. On other models, use a blade type feeler gauge to measure the air gap.

6. With the clutch plate assembled tight against the shim(s), measure the air gap between the clutch plate and the pulley and bearing assembly. The air gap should be between 0.30 - 0.60 mm (0.012 - 0.024 in.). If the air gap is not between specifications, add or subtract shims as needed until the correct air gap is obtained.

CAUTION: Be certain that the compressor clutch field coil wire lead is routed so that it is not pinched between the A/C compressor and the field coil connector bracket.

7. Carefully route the compressor clutch field coil wire lead and install the connector bracket (2) and retaining screw onto the A/C compressor. Tighten the screw to 4.3 N.m (38 in. lbs.).
8. Connect the engine wire harness to the (1).
9. Install the accessory drive belt. Refer to **INSTALLATION** .
10. Install the radiator and fan shroud assembly. Refer to **INSTALLATION** .
11. Install the coolant recovery container. Refer to **REMOVAL** .
12. Reconnect the negative battery cable.

CONTROL-A/C HEATER

DESCRIPTION

CONTROL-A/C HEATER

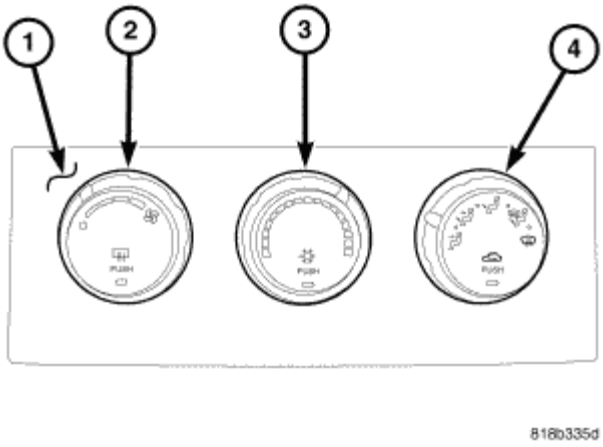


Fig. 40: A/C Heater Control
Courtesy of CHRYSLER LLC

The A/C-heater control (1) for the manual temperature control (MTC) single zone heating-A/C system allows

one temperature setting for the entire vehicle. All controls are identified by ISO graphic symbols.

The A/C-heater control and integral computer is located in the instrument panel and contains:

A rotary control for fan speed selection and for turning the heating-A/C system on and off (2). This control which also contains a push button function for turning the rear window defogger system on and off. The control contains an indicator lamp that illuminates when the rear window defogger system is in operation.

A rotary control for temperature control of the discharged air (3). This control also contains a push button function for turning the A/C system on and off. The control contains an indicator lamp that illuminates when the A/C system is in operation.

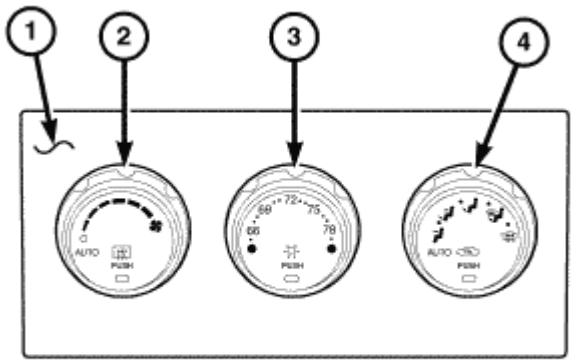
A rotary control for mode control of the discharged air (4). This control also contains a push button function for recirculating the conditioned air. The control contains an indicator lamp that illuminates when the heating-A/C system is in recirculation mode.

The A/C-heater control for this heating and A/C system is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

Prior to replacing an A/C-heater control, check for any diagnostic trouble codes (DTCs) related to the heating-A/C system and run the Actuator Calibration function using a scan tool to verify that the concern is not a system issue. See ***HVAC SYSTEM TEST** .

The A/C-heater control cannot be adjusted or repaired and must be replaced if inoperative or damaged.

AUTOMATIC SINGLE ZONE



81b868c3

Fig. 41: A/C-Heater Control
Courtesy of CHRYSLER LLC

The A/C-heater control for the automatic temperature control (ATC) single zone system maintains the interior comfort level desired by the vehicle operator. This is accomplished by use of infrared sensors located in the front overhead console and at the left rear of the headliner that measure the surface temperature of the driver

and front and rear seat passengers. Based on the sensors input, the system automatically adjusts the air temperature, airflow volume, airflow distribution and amount of inside air recirculation to maintain occupant comfort, even under changing outside weather conditions. All controls are identified by ISO graphic symbols.

This ATC system offers several manual override features such as fan speed, airflow distribution and when the outside air contains smoke, odors, high humidity, or if rapid cooling is desired, the interior conditioned air can be recirculated within the vehicle.

The heating-A/C system uses electrically operated controls. These controls provide the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle.

The A/C-heater control and integral computer (1) is located in the instrument panel and contains:

A rotary control for manual and automatic blower motor speed selection and for turning the heating-A/C system on and off (2). This control also contains a push button function for turning the rear window defogger system on and off. The control contains an indicator lamp that illuminates when the rear window defogger system is in operation.

A rotary control for temperature control of the discharged air (3). This control also contains a push button function for manually turning the A/C system on and off. The control contains an indicator lamp that illuminates when the A/C system is in operation.

A rotary control for manual and automatic mode control of the discharged air (4). This control also contains a push button function for recirculating the conditioned air. The control contains an indicator lamp that illuminates when the heating-A/C system is in recirculation mode.

The A/C-heater control for the ATC heating and A/C system obtains vehicle speed, engine speed, engine coolant temperature, ambient temperature and refrigerant system head pressure data from the CAN-IHS bus and is diagnosed using a scan tool (refer to 24 - HVAC Electrical Diagnostics for more information).

Prior to replacing an A/C-heater control, check for any diagnostic trouble codes (DTCs) related to the heating-A/C system and run the Actuator Calibration function using a scan tool to verify that the concern is not a system issue. See ***HVAC SYSTEM TEST** .

The A/C-heater control cannot be adjusted or repaired and must be replaced if inoperative or damaged.

REMOVAL

CONTROL-A/C HEATER

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

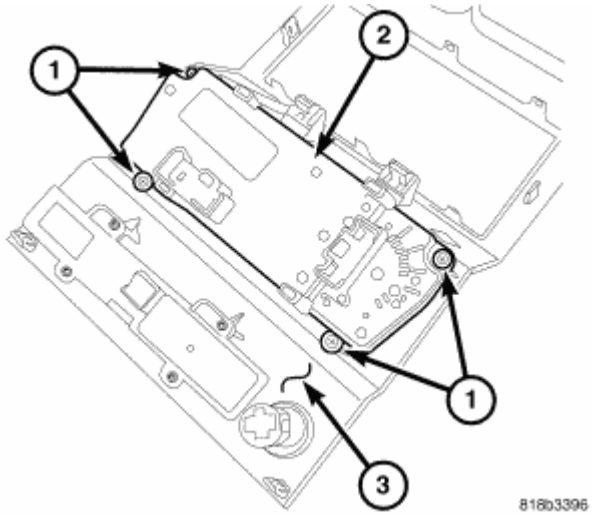


Fig. 42: Removing/Installing Four Screws That Secure A/C-Heater Control To Instrument Panel Center Bezel
Courtesy of CHRYSLER LLC

NOTE: MTC A/C-heater control shown. ATC control similar.

1. Disconnect and isolate the negative battery cable.
2. Remove the center bezel from the instrument panel and place it on a workbench. Refer to **REMOVAL** .
3. Remove the four screws (1) that secure the A/C-heater control (2) to the instrument panel center bezel (3) and remove the control.

INSTALLATION

CONTROL-A/C HEATER

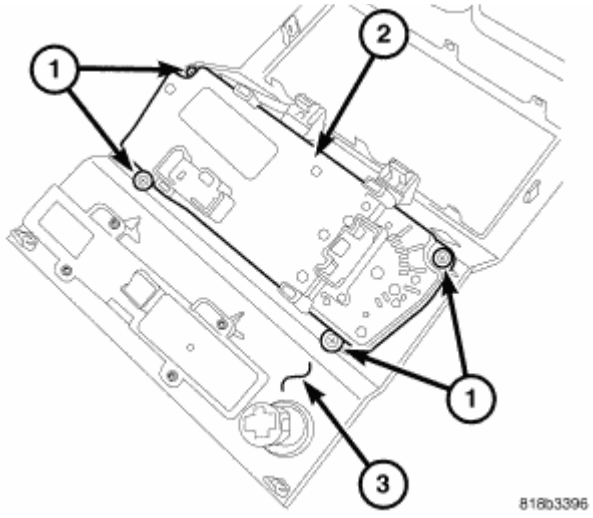


Fig. 43: Removing/Installing Four Screws That Secure A/C-Heater Control To Instrument Panel Center Bezel
Courtesy of CHRYSLER LLC

NOTE: MTC A/C-heater control shown. ATC control similar.

1. Install the A/C-heater control (2) onto the back of the instrument panel center bezel (3).
2. Install the four screws (1) that secure the A/C-heater control to the center bezel. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Position the center bezel to the instrument panel and connect the wire harness connectors to the back of the A/C-heater control.
4. Connect the wire harness connectors to the accessory switches and install the center bezel. Refer to **INSTALLATION** .
5. Reconnect the negative battery cable.

NOTE: The A/C-heater control will automatically perform the Actuator Calibration function when the ignition is initially turned on when installing a new control or when reinstalling the original control. However, the Actuator Calibration function must be manually initiated using a scan tool if the A/C-heater control has been previously installed in another vehicle (refer to HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS for more information).

6. If required, initiate the Actuator Calibration function using a scan tool. See ***HVAC SYSTEM TEST** .

MODULE-POWER-BLOWER MOTOR

DESCRIPTION

DESCRIPTION

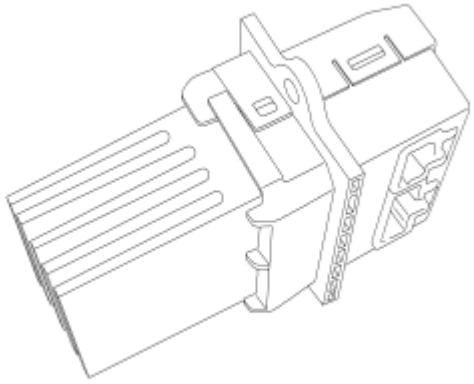


Fig. 44: Power-Blower Motor Module
Courtesy of CHRYSLER LLC

A blower motor power module is used on this model when equipped with the automatic temperature control

(ATC) heating-A/C system. Models equipped with the manual temperature control (MTC) heating-A/C system use a blower motor resistor, instead of the blower motor power module. See **DESCRIPTION**.

The blower motor power module is mounted to the rear of the HVAC housing, directly behind the glove box. The blower motor power module consists of a molded plastic mounting plate (1) with an integral connector receptacle (2). Concealed behind the mounting plate is the power module electronic circuitry and a finned aluminum heat sink (3). The blower motor power module is accessed for service from under the instrument panel.

The blower motor power module is accessed for service through the glove box opening.

OPERATION

MODULE-POWER-BLOWER MOTOR

The blower motor power module is connected to the vehicle electrical system through a dedicated lead and connector. A second lead and connector is connected to the blower motor. The blower motor power module allows the microprocessor-based automatic temperature control (ATC) A/C-heater control to calculate and provide infinitely variable blower motor speeds based upon either manual blower switch input or the ATC programming using a pulse width modulated (PWM) circuit strategy.

The PWM voltage is applied to a comparator circuit which compares the PWM signal voltage to the blower motor feedback voltage. The resulting output drives the power module circuitry, which provides a linear output voltage to change or maintain the desired blower speed.

The blower motor power module is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The blower motor power module cannot be adjusted or repaired must be replaced if inoperative or damaged.

REMOVAL

MODULE-POWER-BLOWER MOTOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

WARNING: The heat sink for the blower motor power module may get very hot during normal operation. If the blower motor was turned on prior to servicing the blower motor power module, wait five minutes to allow the heat sink to cool before performing diagnosis or service. Failure to take this precaution can result in possible personal injury.

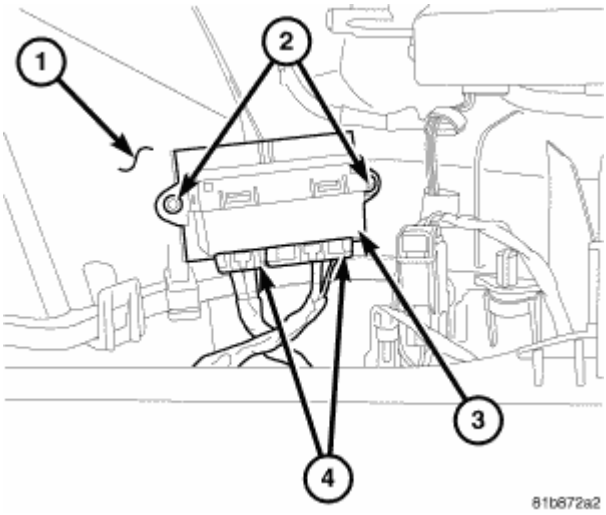


Fig. 45: HVAC Housing, Screws, Blower Motor Power Module & Wire Harness Connectors
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Lower the glove box door.
3. Disconnect the two wire harness connectors (4) from the blower motor power module (3).
4. Remove the two screws (2) that secure the blower motor power module to the HVAC housing (1) and remove the power module.

INSTALLATION

MODULE-POWER-BLOWER MOTOR

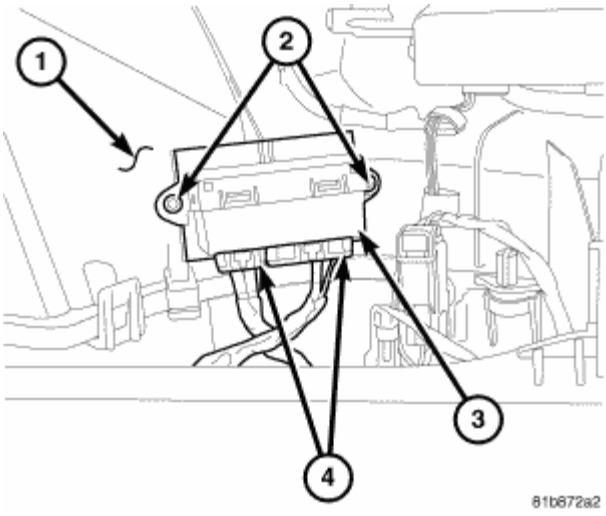


Fig. 46: HVAC Housing, Screws, Blower Motor Power Module & Wire Harness Connectors
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the blower motor power module (3) into the HVAC housing (1).
2. Install the two screws (2) that secure the blower motor power module to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the wire harness connectors (4) to the blower motor power module.
4. Close the glove box door.
5. Reconnect the negative battery cable.

RESISTOR-BLOWER MOTOR

DESCRIPTION

RESISTOR-BLOWER MOTOR

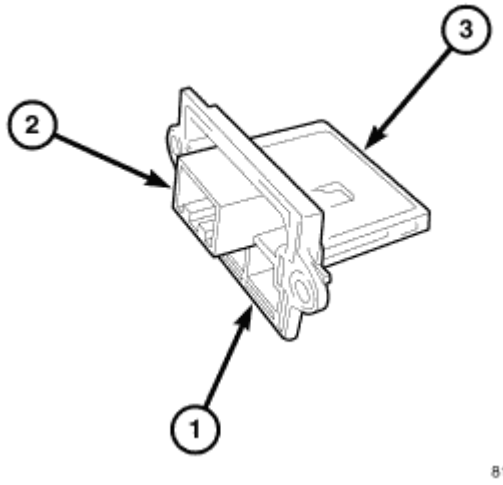


Fig. 47: Mounting Plate, Integral Wire Connector Receptacle & Metal Housing
Courtesy of CHRYSLER LLC

A blower motor resistor is used on vehicles equipped with the manual temperature control (MTC) heating-A/C system. Vehicles equipped with the automatic temperature control (ATC) heating-A/C system use a blower motor power module, instead of the blower motor resistor. See **DESCRIPTION**.

The blower motor resistor is mounted to the rear of the HVAC housing, directly behind the glove box. The blower motor resistor consists of a molded plastic mounting plate (1) with an integral wire connector receptacle (2). Concealed behind the mounting plate is the resistor circuit board located within a metal housing (3).

The blower motor resistor is accessed for service through the glove box opening.

OPERATION

RESISTOR-BLOWER MOTOR

The blower motor resistor is connected to the vehicle electrical system through a dedicated wire lead and connector of the HVAC wire harness. The blower motor resistor has multiple resistor circuits, each of which will reduce the current flow through the blower motor to change the blower motor speed.

The blower motor control in the MTC heating-A/C system directs the ground path for the blower motor through the correct resistor circuit to obtain the selected speed. With the blower motor control in the lowest speed position, the ground path for the blower motor is applied through all of the resistor circuits. Each higher speed selected with the blower motor control applies the blower motor ground path through fewer of the resistor circuits, increasing the blower motor speed. When the blower motor control is in the highest speed position, the blower motor resistor is bypassed and the blower motor receives a direct path to ground.

The blower motor resistor cannot be adjusted or repaired and it must be replaced if found inoperative or damaged.

DIAGNOSIS AND TESTING

RESISTOR-BLOWER MOTOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

NOTE: For circuit descriptions and diagrams, refer to WIRING DIAGRAM INFORMATION . The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the blower motor resistor. See **REMOVAL**.
3. Using an ohmmeter, check for continuity between all of the blower motor resistor terminals. In each case there should be continuity. If OK, repair the wire harness circuits between the blower motor speed control and the blower motor resistor or blower motor as required. If not OK, replace the inoperative blower motor resistor.

REMOVAL

RESISTOR-BLOWER MOTOR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for

the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

WARNING: The blower motor resistor may get very hot during normal operation. If the blower motor was turned on prior to servicing the blower motor resistor, wait five minutes to allow the blower motor resistors to cool before performing diagnosis or service. Failure to take this precaution can result in possible personal injury.

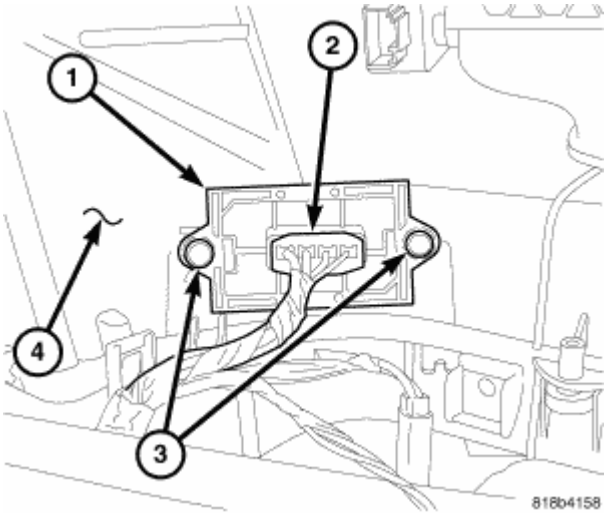


Fig. 48: Blower Motor Resistor, Wire Harness Connector, Screws & HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: Typical resistor shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Lower the glove box door.
3. Disconnect the wire harness connector (2) from the blower motor resistor (1).
4. Remove the two screws (3) that secure the blower motor resistor to the HVAC housing (4) and remove the resistor.

INSTALLATION

RESISTOR-BLOWER MOTOR

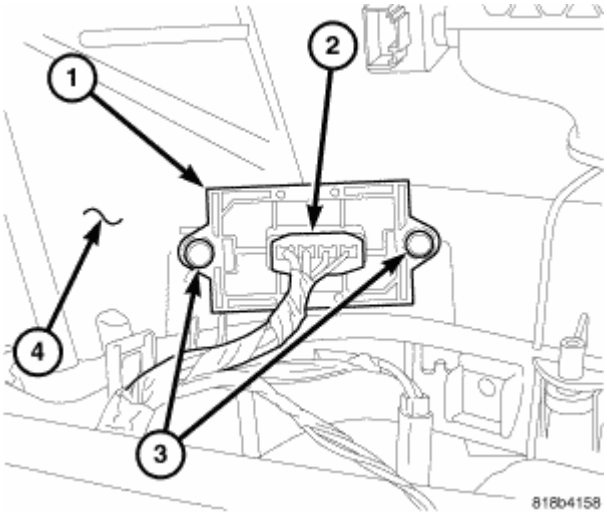


Fig. 49: Blower Motor Resistor, Wire Harness Connector, Screws & HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: Typical resistor shown. RHD model similar.

1. Position the blower motor resistor (1) into the HVAC housing (4).
2. Install the two screws (3) that secure the blower motor resistor to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the wire harness connector (2) to the blower motor resistor.
4. Close the glove box door.
5. Reconnect the negative battery cable.

SENSOR-EVAPORATOR TEMPERATURE

DESCRIPTION

SENSOR-EVAPORATOR TEMPERATURE

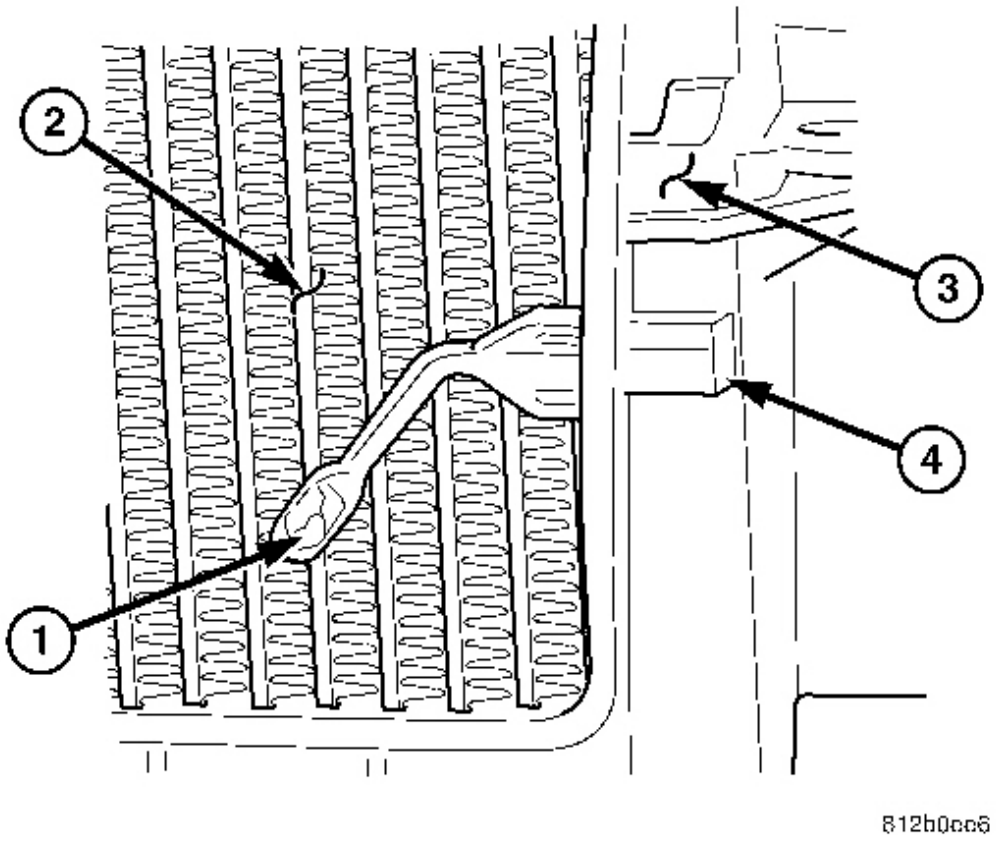


Fig. 50: Evaporator Temperature Sensor, A/C Evaporator, HVAC Housing & Connector Receptacle
Courtesy of CHRYSLER LLC

NOTE: Typical evaporator temperature sensor shown.

The evaporator temperature sensor (1) measures the temperature of the conditioned air downstream of the A/C evaporator (2). The evaporator temperature sensor is an electrical thermistor within a molded plastic case that is inserted into rear the HVAC housing (3) near the coldest point of the A/C evaporator. Two terminals within the connector receptacle (4) connect the sensor to the vehicle electrical system through a wire lead and connector of the instrument panel wire harness.

The external location of the evaporator temperature sensor allows the sensor to be removed or installed without disturbing the refrigerant in the A/C system.

OPERATION

SENSOR-EVAPORATOR TEMPERATURE

The evaporator temperature sensor monitors the temperature of the conditioned air downstream of the A/C evaporator and supplies an input signal to the A/C-heater control. The A/C-heater control uses the evaporator temperature sensor input signal to optimize A/C system performance and to protect the A/C system from evaporator freezing. The evaporator temperature sensor will change its internal resistance in response to the temperatures it monitors and is connected to the A/C-heater control through sensor ground circuit and a 5-volt reference signal circuit. As the temperature of the A/C evaporator decreases, the internal resistance of the evaporator temperature sensor decreases.

The A/C-heater control uses the monitored voltage reading as an indication of evaporator temperature. The A/C-heater control is programmed to respond to this input by requesting the powertrain control module (PCM) or the engine control module (ECM) (depending on engine application) to cycle the A/C compressor clutch as necessary to optimize A/C system performance and to protect the A/C system from evaporator freezing.

The evaporator temperature sensor is diagnosed using a scan tool. See **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information.

The evaporator temperature sensor cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

REMOVAL

SENSOR-EVAPORATOR TEMPERATURE

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

NOTE: Illustration shown with instrument panel removed for clarity.

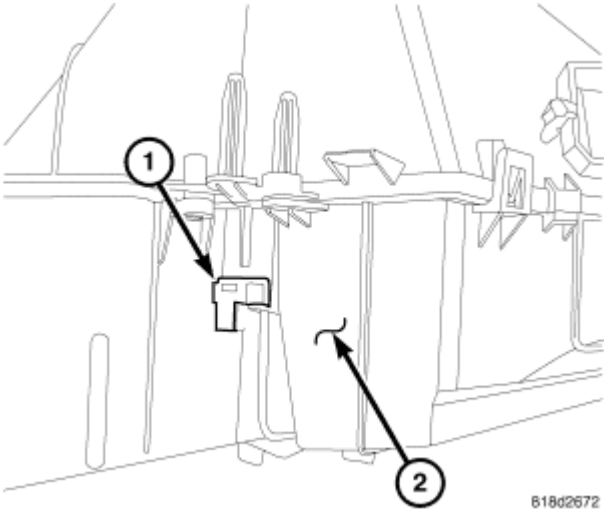


Fig. 51: Removing/Installing Evaporator Temperature Sensor From Front Of HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Partially remove the instrument panel to gain access to the evaporator temperature sensor (1) located in the rear of the HVAC housing (2), near the bottom of the instrument panel on the passenger side. Refer to **REMOVAL** .
3. Disconnect the instrument panel wire harness connector from the evaporator temperature sensor and remove the sensor from the HVAC housing.

INSTALLATION

SENSOR-EVAPORATOR TEMPERATURE

NOTE: Illustration shown with instrument panel removed for clarity.

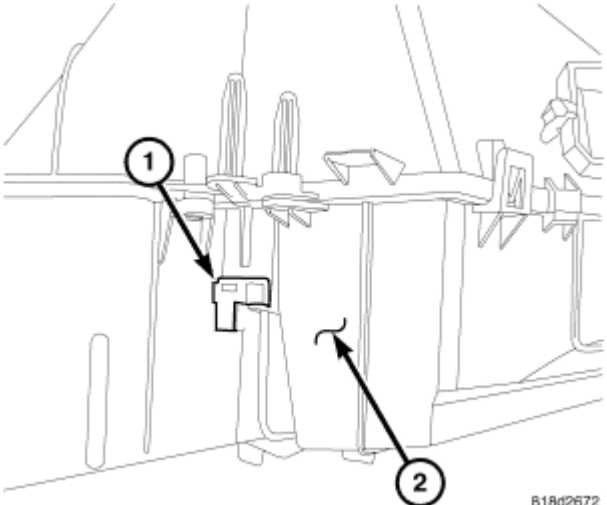


Fig. 52: Removing/Installing Evaporator Temperature Sensor From Front Of HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Install the evaporator temperature sensor (1) into rear of the HVAC housing (2) and connect the instrument panel wire harness connector.
2. Install the instrument panel. Refer to **INSTALLATION** .
3. Reconnect the negative battery cable.

SENSOR-INFRARED

DESCRIPTION

SENSOR-INFRARED

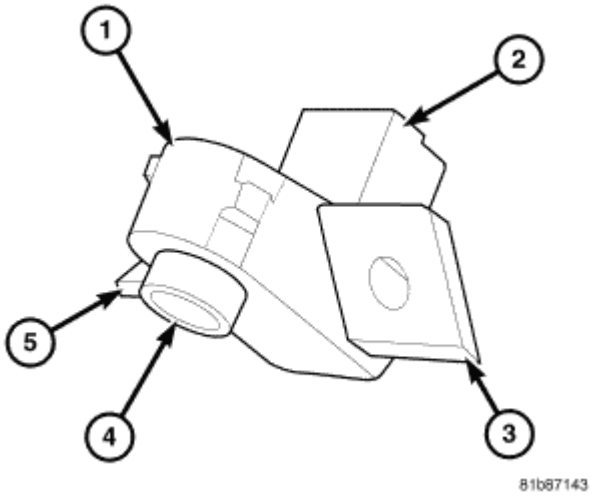


Fig. 53: Infrared Temperature Sensor, Integral Wire Connector Receptacle, Alignment Tabs & Clear Lens
Courtesy of CHRYSLER LLC

The infrared temperature sensor (1) consists of an infrared transducer concealed behind a clear lens (4) located in a molded plastic housing with an integral wire connector receptacle (2) and mounting and alignment tabs (3 and 5).

The infrared sensor is used only on models equipped with the automatic temperature control (ATC) heating-A/C system.

OPERATION

SENSOR-INFRARED

The infrared sensor detects thermal radiation emitted by the driver and front seat occupants and surroundings

and converts its data into a linear pulse width modulated (PWM) output signal which is read by the automatic temperature control (ATC) A/C-heater control. The ATC A/C-heater control uses the infrared sensor data as one of the inputs necessary to automatically control the interior cabin temperature level. By using thermal radiation (surface temperature) measurement, rather than an air temperature measurement, the ATC heating-A/C system is able to adjust itself to the comfort level as perceived by the front seat occupants. This allows the ATC system to compensate for other ambient conditions affecting comfort levels, such as solar heat gain or evaporative heat loss.

The ATC system logic responds to the infrared sensor message by calculating and adjusting the air flow temperature and air flow rate needed to properly obtain and maintain the selected comfort level temperature of the occupants. The A/C-heater control continually monitors the infrared sensor circuit, and will store diagnostic trouble codes (DTCs) for any problem it detects.

The infrared sensor is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The infrared sensor cannot be adjusted or repaired and must be replaced if inoperative or damaged.

REMOVAL

SENSOR-INFRARED

NOTE: Take the proper precautions to protect the front face of the overhead console from cosmetic damage while performing this procedure.

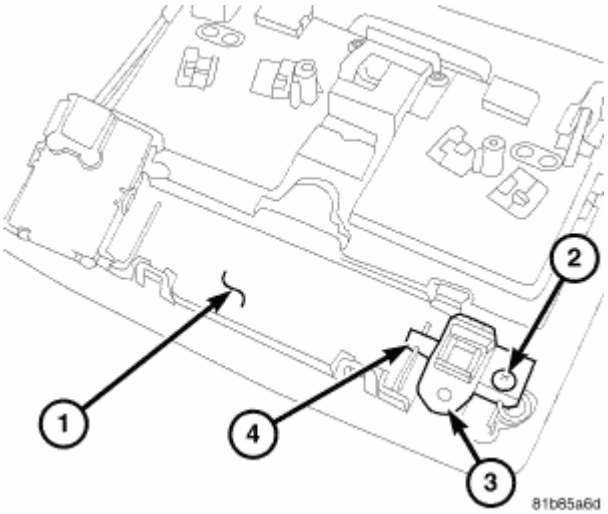


Fig. 54: Overhead Console, Screw, Infrared Sensor & Tab
Courtesy of CHRYSLER LLC

NOTE: Typical overhead console shown.

1. Disconnect and isolate the negative battery cable.
2. Remove the overhead console (1) from the headliner and place it on a workbench (refer to **REMOVAL**).

3. Remove the screw (2) that secures the infrared sensor (3) to the back of the overhead console and remove the sensor.

INSTALLATION

SENSOR-INFRARED

NOTE: Take the proper precautions to protect the front face of the overhead console from cosmetic damage while performing this procedure.

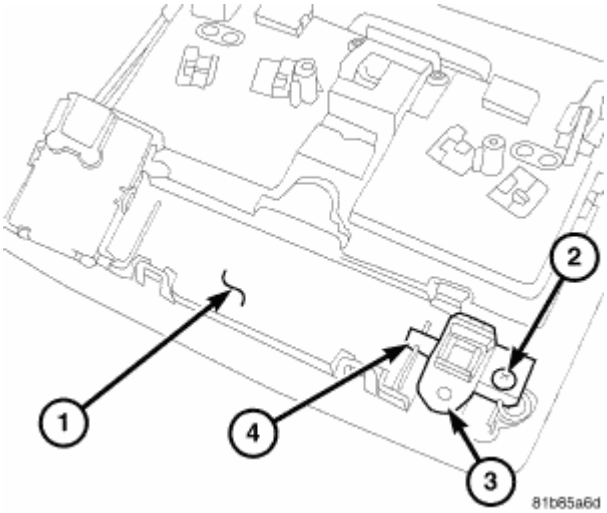


Fig. 55: Overhead Console, Screw, Infrared Sensor & Tab
Courtesy of CHRYSLER LLC

NOTE: Typical overhead console shown.

1. Position the infrared sensor (3) onto the back of the overhead console (1). Align the tab (4) on the sensor with the slot in the console.
2. Install the screw (2) that secures the infrared sensor(s) to the overhead console. Tighten the screw to 1.2 N.m (10 in. lbs).
3. Install the overhead console (refer to **INSTALLATION**).
4. Reconnect the negative battery cable.

TRANSDUCER-A/C PRESSURE

DESCRIPTION

TRANSDUCER-A/C PRESSURE

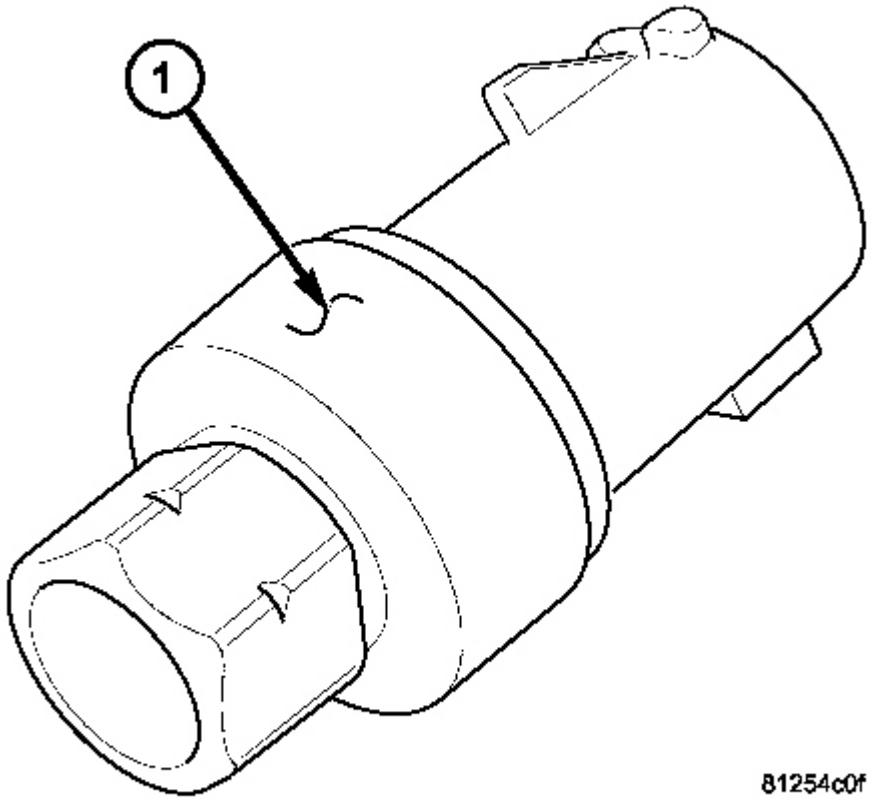


Fig. 56: A/C Pressure Transducer
Courtesy of CHRYSLER LLC

The A/C pressure transducer (1) sends a signal to the powertrain control module (PCM) which controls both A/C compressor clutch engagement/disengagement and electric cooling fan operation. The A/C pressure transducer is mounted on a fitting located on the A/C liquid line near the dash panel. The PCM will disengage the A/C compressor clutch when high side pressure rises above 2971 kPa (431 psi) or fall below 206 kPa (30 psi).

The fitting for the A/C pressure transducer on the A/C liquid line is equipped with an O-ring seal and contains a Schrader-type valve to allow the transducer to be serviced without discharging the refrigerant system.

OPERATION

TRANSDUCER-A/C PRESSURE

The A/C pressure transducer monitors the pressures in the high side of the refrigerant system through its

connection to a fitting on the A/C liquid line. The A/C pressure transducer will change its internal resistance in response to the pressures it monitors. The powertrain control module (PCM) or the engine control module (ECM) (depending on engine application) provides a five volt reference signal and a sensor ground to the A/C pressure transducer, then monitors the output voltage of the A/C pressure transducer on a sensor return circuit to determine refrigerant pressure. The PCM/ECM is programmed to respond to the A/C pressure transducer and other sensor inputs by controlling the operation of the A/C compressor clutch and the radiator cooling fan to help optimize A/C system performance and to protect the system components from damage. The PCM/ECM will disengage the A/C compressor clutch when high side pressure rises above 2971 kPa (431 psi) or fall below 206 kPa (30 psi). The A/C pressure transducer input to the PCM/ECM also prevents the A/C compressor clutch from engaging when ambient temperatures are below about 10°C (50°F) due to the pressure/temperature relationship of the refrigerant.

A Schrader-type valve in the A/C discharge line fitting permits the A/C pressure transducer to be removed or installed without disturbing the refrigerant in the A/C system.

The A/C pressure transducer is diagnosed using a scan tool (refer to appropriate Engine ELECTRICAL DIAGNOSTICS article for more information).

The A/C pressure transducer cannot be adjusted or repaired and it must be replaced if found inoperative or damaged.

DIAGNOSIS AND TESTING

TRANSDUCER-A/C PRESSURE

The A/C pressure transducer is tested using a scan tool (refer to appropriate Engine ELECTRICAL DIAGNOSTICS article for more information). Before testing the A/C pressure transducer, be certain that the transducer wire harness connection is clean of corrosion and properly connected. For the A/C to operate, an A/C pressure transducer voltage reading between 0.451 and 4.519 volts is required. Voltages outside this range indicate a low or high refrigerant system pressure condition to the powertrain control module (PCM). The PCM is programmed to respond to a low or high refrigerant system pressure by suppressing operation of the A/C compressor. Refer to the A/C Pressure Transducer Voltage chart for the possible conditions indicated by the transducer voltage reading.

A/C PRESSURE TRANSDUCER VOLTAGE

Voltage	Possible Indication
0.0	1. No sensor supply voltage from PCM. 2. Shorted sensor circuit. 3. Inoperative transducer.
0.150 TO 0.450	1. Ambient temperature below 10°C (50°F). 2. Low refrigerant system pressure.
0.451 TO 4.519	1. Normal refrigerant system pressure.
4.520 TO 4.850	1. High refrigerant system pressure.
5.0	1. Open sensor circuit. 2. Inoperative transducer.

REMOVAL

TRANSDUCER-A/C PRESSURE

NOTE: It is not necessary to discharge the refrigerant system to replace the A/C pressure transducer.

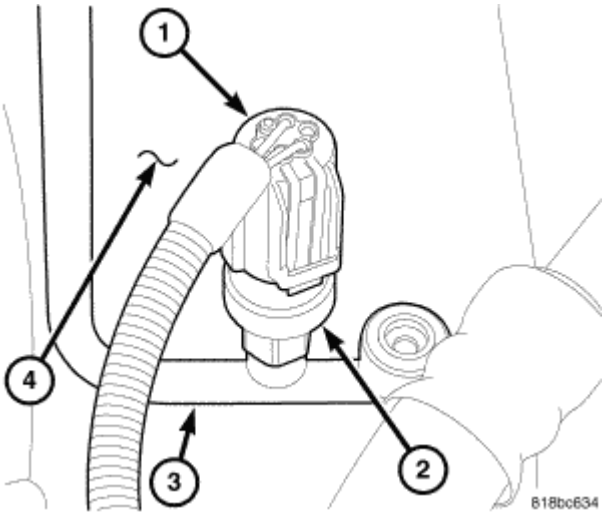


Fig. 57: Wire Harness Connector, A/C Pressure Transducer, A/C Liquid Line & Dash Panel
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector (1) from the A/C pressure transducer (2) located on the A/C liquid line (3) near the dash panel (4) in the engine compartment.
3. Remove the A/C pressure transducer from the A/C liquid line and remove and discard the O-ring seal.

INSTALLATION

TRANSDUCER-A/C PRESSURE

NOTE: Use only the specified O-ring as it is made of special material for R-134a. Use only refrigerant oil of the type required for the A/C compressor.

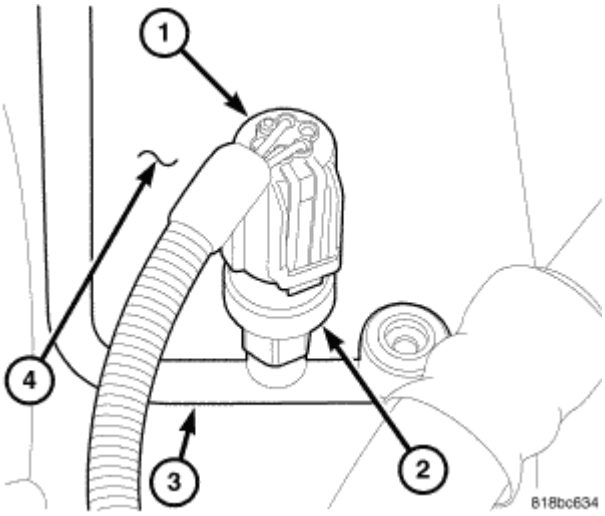


Fig. 58: Wire Harness Connector, A/C Pressure Transducer, A/C Liquid Line & Dash Panel
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it onto the A/C pressure transducer fitting.
2. Install the A/C pressure transducer (2) onto the A/C liquid line (3) near the dash panel (4). Hand-tightened the transducer securely.
3. Connect the wire harness connector (1) to the A/C pressure transducer.
4. Reconnect the negative battery cable.

DISTRIBUTION

DUCT-CENTER INSTRUMENT PANEL

REMOVAL

DUCT-CENTER INSTRUMENT PANEL

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in an accidental airbag deployment and possible personal injury or death.

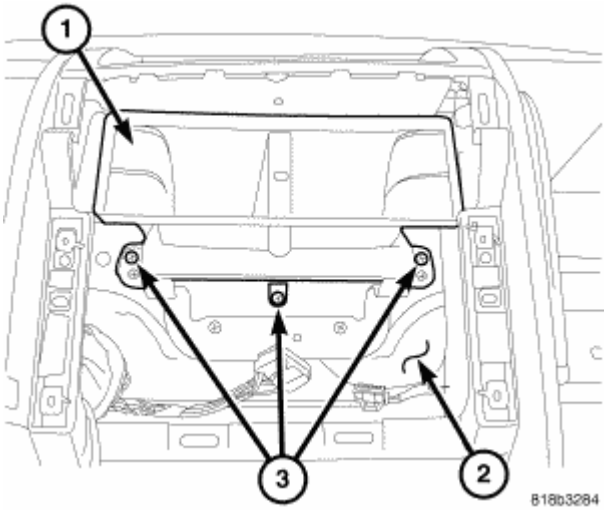


Fig. 59: Instrument Panel, Screws & Center Instrument Panel Duct
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the radio from the instrument panel. Refer to **REMOVAL** .
3. Reach through the opening in the instrument panel (2) and remove the three screws (3) that secure the center instrument panel duct (1) to the instrument panel.
4. Rotate the center instrument panel duct as necessary and remove the duct.

INSTALLATION

DUCT-CENTER INSTRUMENT PANEL

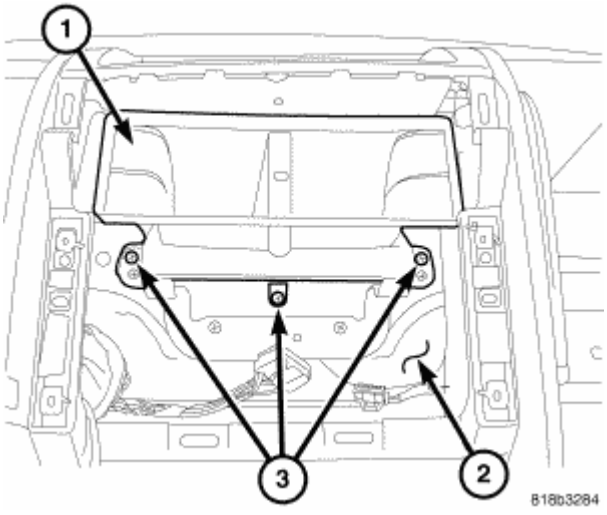


Fig. 60: Instrument Panel, Screws & Center Instrument Panel Duct
Courtesy of CHRYSLER LLC

1. Rotate the center instrument panel duct as necessary to position the duct into the instrument panel.
2. Install the three screws (3) that secure the center instrument panel duct (1) to the instrument panel.

Tighten the screws to 1.2 N.m (10 in. lbs.).

3. Install the radio. Refer to **INSTALLATION** .
4. Reconnect the negative battery cable.

DUCT-DEFROSTER

REMOVAL

DUCT-DEFROSTER

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in an accidental airbag deployment and possible personal injury or death.

NOTE: Take the proper precautions to protect the front face of the instrument panel from cosmetic damage during this service procedure.

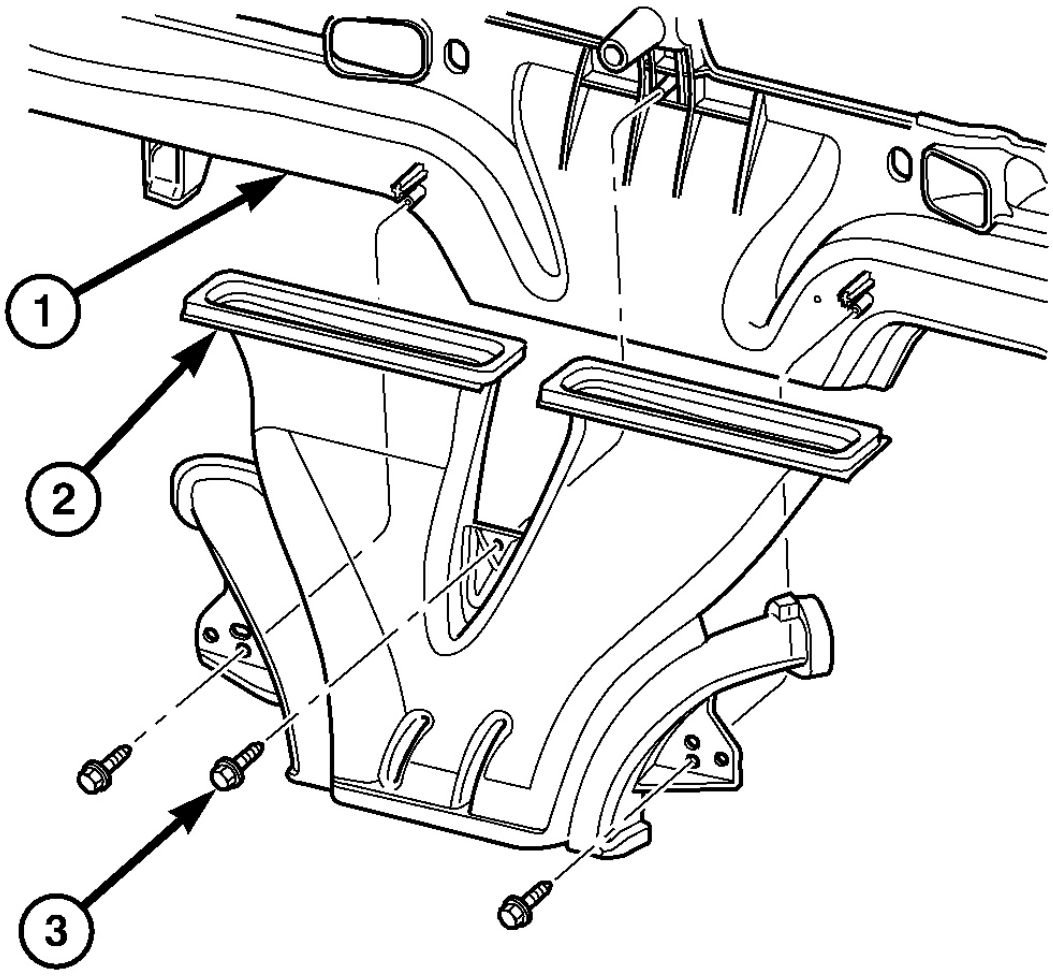


Fig. 61: Removing/Installing Screws That Secure Defroster Duct To Instrument Panel And Duct
Courtesy of CHRYSLER LLC

1. Remove the instrument panel and place it on a workbench. Refer to **REMOVAL** .
2. Remove the three screws (3) that secure the defroster duct (2) to the instrument panel (1) and remove the duct.

INSTALLATION

DUCT-DEFROSTER

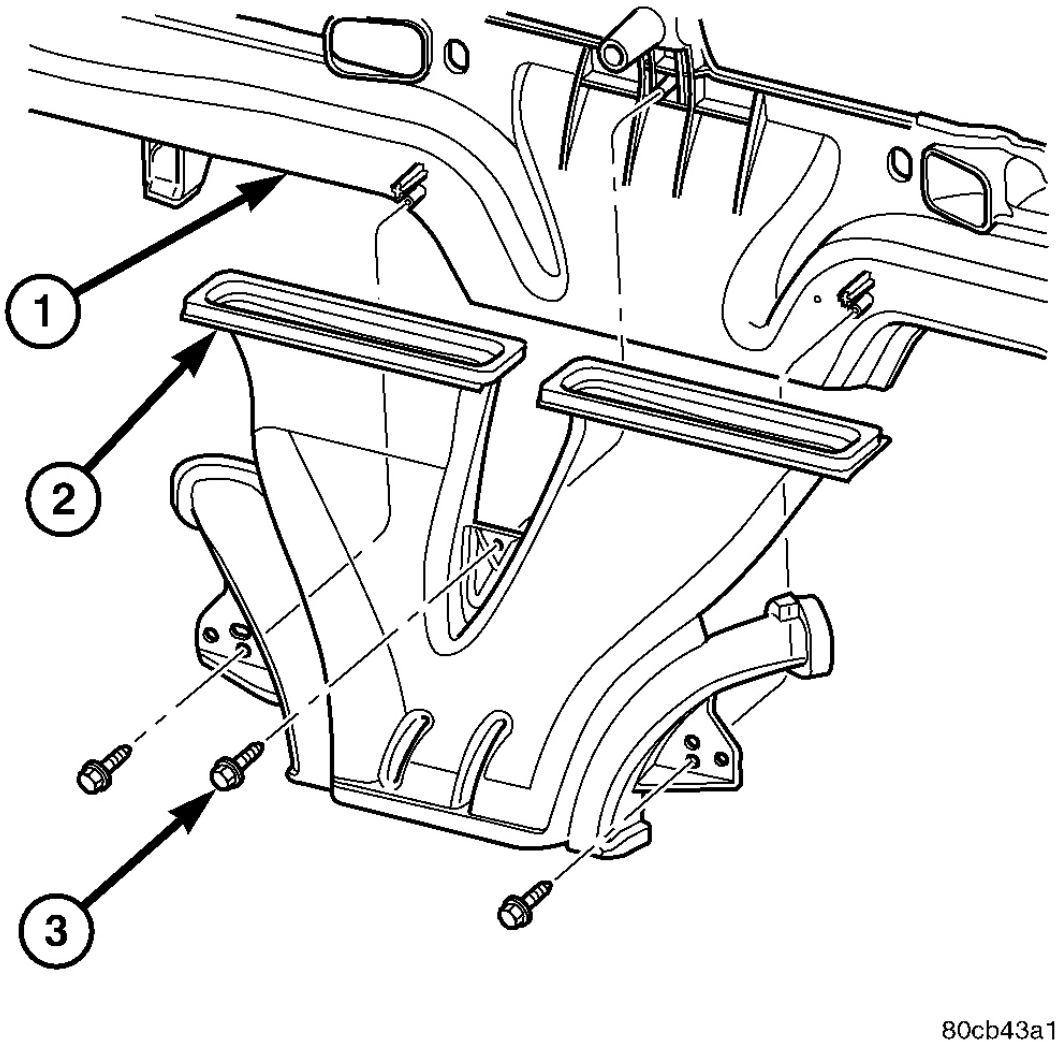


Fig. 62: Removing/Installing Screws That Secure Defroster Duct To Instrument Panel And Duct
Courtesy of CHRYSLER LLC

1. Position the defroster duct (2) into the instrument panel (1).
2. Install the three screws (3) that secure the defroster duct to the instrument panel. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Install the instrument panel. Refer to **INSTALLATION** .

DUCT-FLOOR DISTRIBUTION

REMOVAL

DUCT-FLOOR DISTRIBUTION

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

DRIVER SIDE

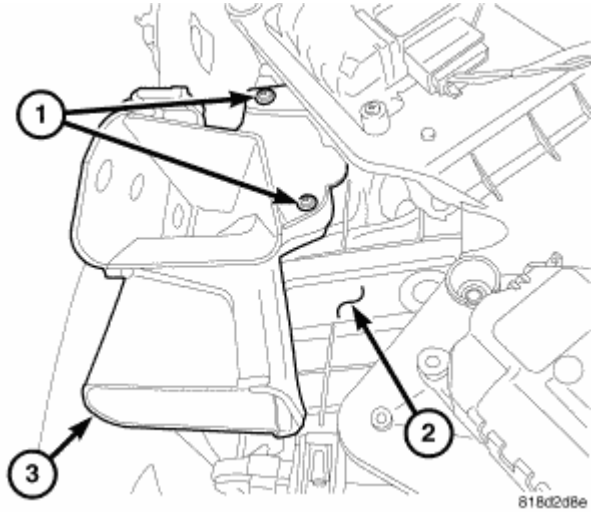


Fig. 63: Removing/Installing Screws That Secure Driver Side Front Floor Duct To Driver Side Of Air Distribution Housing And Duct
Courtesy of CHRYSLER LLC

1. If equipped, remove the silencer from below the driver side of the instrument panel. Refer to **REMOVAL** .
2. Remove the two screws (1) that secure the driver side front floor duct (3) to the driver side of the air distribution housing (2) and remove the duct.

PASSENGER SIDE

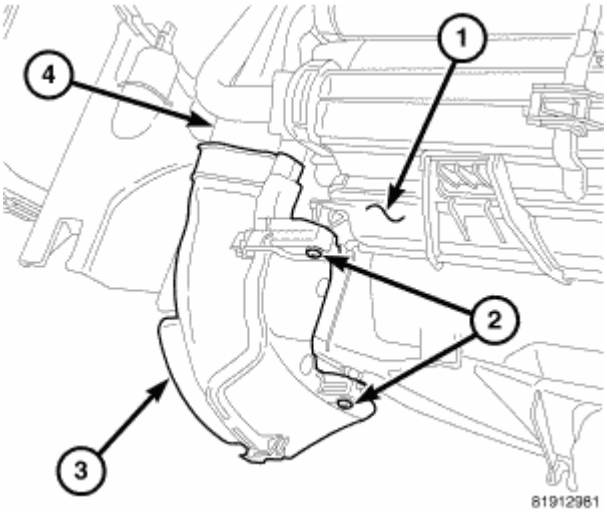


Fig. 64: HVAC Housing, Screws, Lower Front Passenger Side Floor Duct & Upper Front Passenger Side Floor Duct
Courtesy of CHRYSLER LLC

1. Remove the HVAC Housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the two screws (2) that secure the lower front passenger side floor duct (3) to the bottom of the HVAC housing (1).
3. Disconnect the lower front passenger side floor duct from the upper front passenger side floor duct (4) and remove the lower duct.

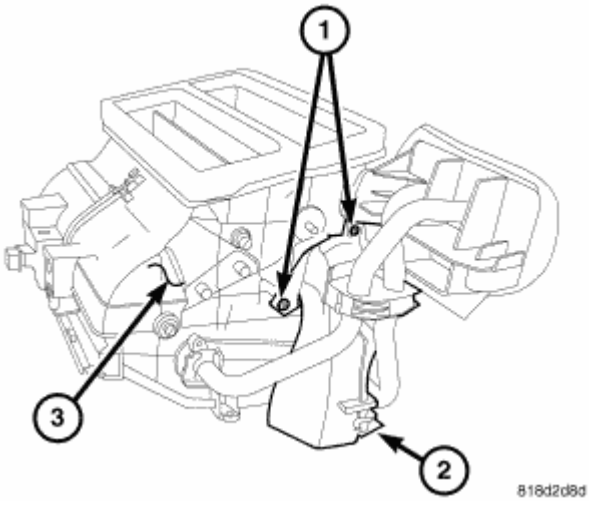


Fig. 65: Removing/Installing Two Screws That Secure Upper Front Passenger Side Floor Duct To Passenger Side Of Air Distribution Housing And Upper Duct
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with air distribution housing removed from HVAC housing for clarity.

4. Remove the two screws (1) that secure the upper front passenger side floor duct to the passenger side of the air distribution housing (3) and remove the upper duct.

INSTALLATION

DUCT-FLOOR DISTRIBUTION

NOTE: LHD model shown in illustrations. RHD model similar.

DRIVER SIDE

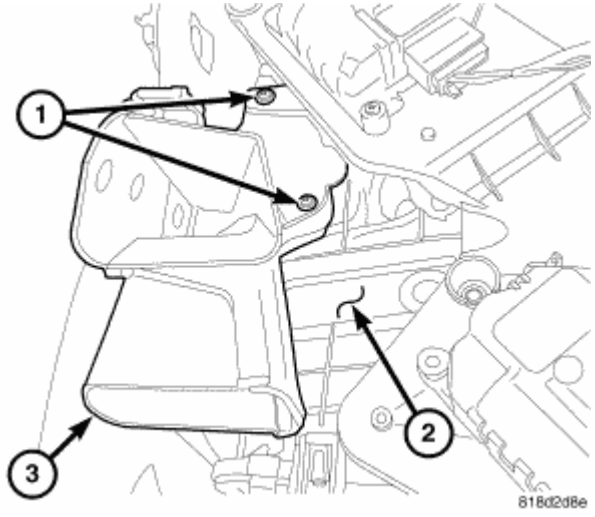


Fig. 66: Removing/Installing Screws That Secure Driver Side Front Floor Duct To Driver Side Of Air Distribution Housing And Duct
Courtesy of CHRYSLER LLC

1. Install the driver side front floor duct (3) to the driver side of the air distribution housing (2) and install the two retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).
2. If equipped, install the silencer below the driver side of the instrument panel. Refer to **INSTALLATION** .

PASSENGER SIDE

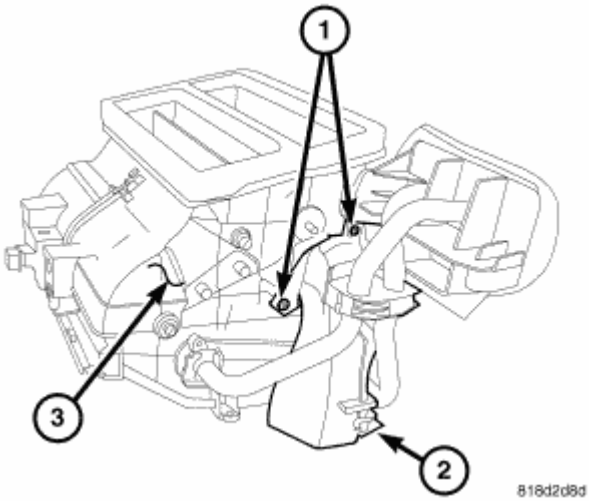


Fig. 67: Removing/Installing Two Screws That Secure Upper Front Passenger Side Floor Duct To Passenger Side Of Air Distribution Housing And Upper Duct
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with air distribution housing removed from HVAC housing for clarity.

1. Install the upper front passenger side floor duct (2) to the passenger side of the air distribution housing (3) and install the two retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).

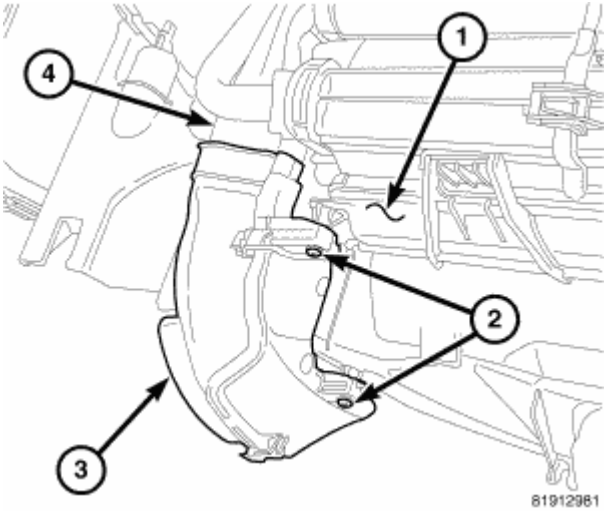


Fig. 68: HVAC Housing, Screws, Lower Front Passenger Side Floor Duct & Upper Front Passenger Side Floor Duct
Courtesy of CHRYSLER LLC

2. Connect the lower front passenger side floor duct (3) to the upper front passenger side floor duct (4).
3. Install the two screws (2) that secure the lower front passenger side floor duct to the bottom of the HVAC housing (1). Tighten the screws to 1.2 N.m (10 in lbs.).

4. Install the HVAC housing assembly. See **INSTALLATION**.

DUCT-REAR FLOOR HEAT

REMOVAL

DUCT-REAR FLOOR HEAT

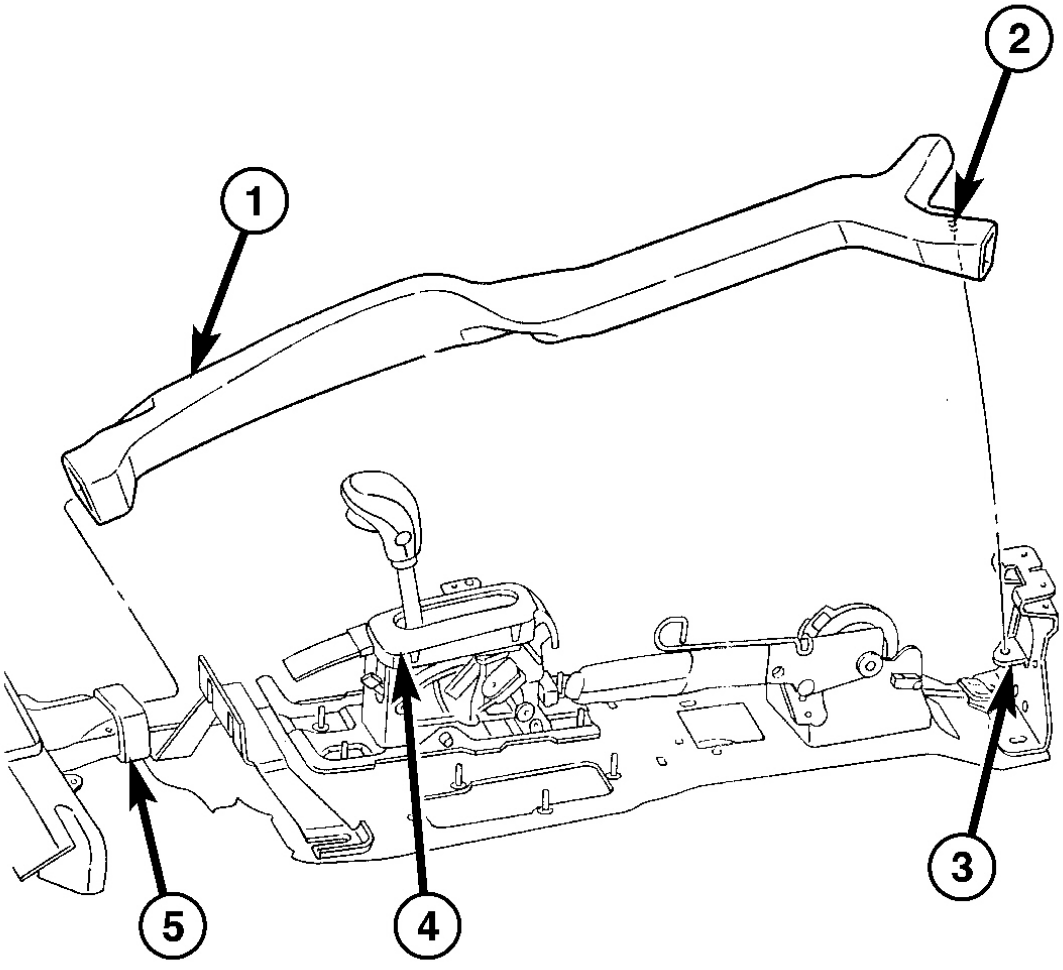


Fig. 69: Rear Floor Heat Duct, Push-Pin Retainer, Floor Console Bracket, Gear Shift Lever Assembly & Floor Distribution Duct
Courtesy of CHRYSLER LLC

NOTE: Typical rear floor heat duct shown.

1. Remove the floor console. Refer to **REMOVAL** .
2. Remove the push-pin retainer (2) that secures the rear floor heat duct (1) to the floor console bracket (3) located behind the gear shift lever assembly (4).
3. Disconnect the rear floor heat duct from the floor distribution duct (5).
4. Remove the rear floor heat duct from the vehicle.

INSTALLATION

DUCT-REAR FLOOR HEAT

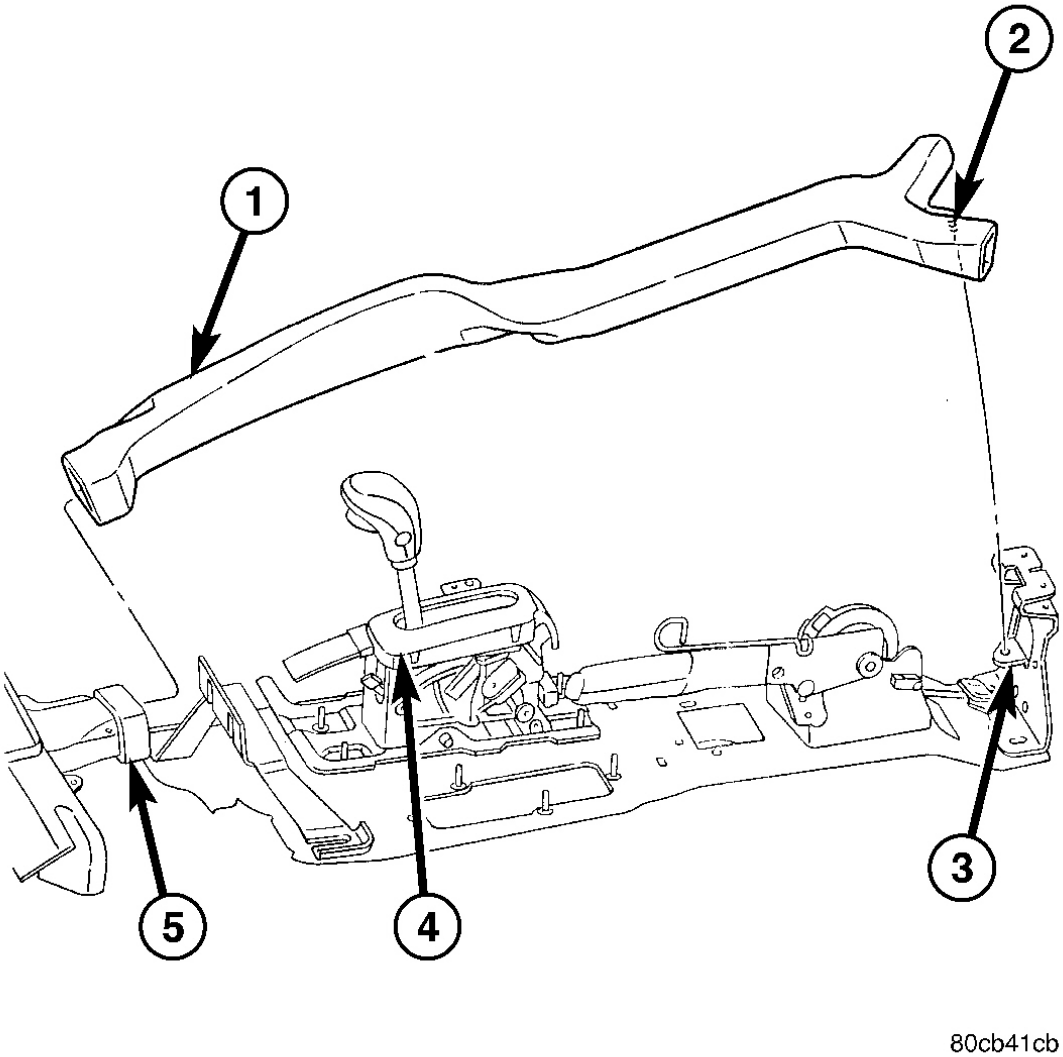


Fig. 70: Rear Floor Heat Duct, Push-Pin Retainer, Floor Console Bracket, Gear Shift Lever Assembly & Floor Distribution Duct
Courtesy of CHRYSLER LLC

NOTE: Typical rear floor heat duct shown.

1. Position the rear floor heat duct (1) into the vehicle.
2. Connect the rear floor heat duct to the floor distribution duct (5) located in front of the gear shift lever assembly (4).
3. Install the push-pin retainer (2) that secures the rear floor heat duct to the floor console bracket (3).
4. Install the floor console. Refer to **INSTALLATION** .

HOUSING-HVAC

DESCRIPTION

HOUSING-HVAC

NOTE: LHD model shown. RHD model similar.

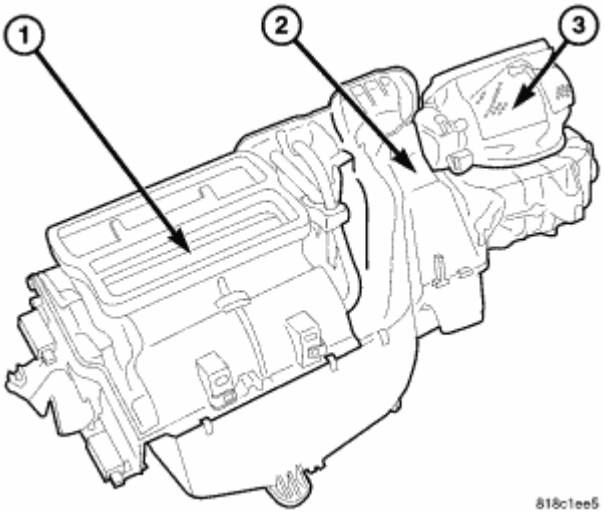


Fig. 71: Air Distribution Housing, HVAC Housing & Air Inlet Housing
Courtesy of CHRYSLER LLC

All models are equipped with a common HVAC housing assembly that combines A/C and heating capabilities into a single unit mounted within the passenger compartment. The HVAC housing assembly consists of three separate housings:

Air distribution housing - The air distribution housing (1) is mounted to the top of the HVAC housing (2) and contains the heater core, blend-air and mode-air doors and door linkage.

Air inlet housing - The air inlet housing (3) is mounted to the passenger side end of the HVAC housing. The air inlet housing contains the recirculation-air door and actuator.

HVAC housing - The HVAC housing is mounted to the dash panel behind the instrument panel and contains the A/C evaporator. The HVAC housing consists of a upper and a lower housing that are attached together and has mounting provisions for the air inlet housing, air distribution housing, blower motor and blower motor resistor.

The heating-A/C system is a blend-air type system. The blend-air door controls the amount of conditioned air that is allowed to flow through, or around, the heater core.

The A/C system is designed for the use of a non-CFC, R-134a refrigerant and uses an A/C evaporator to cool and dehumidify the incoming air prior to blending it with the heated air. A temperature control determines the discharge air temperature by operating the temperature control cable, which moves the blend-air door. This allows an almost immediate control of the output air temperature of the system. The mode door cable operates the mode-air doors which direct the flow of the conditioned air out the various air outlets, depending on the mode selected. The recirculation door actuator operates the recirculation-air door which closes off the fresh air intake and recirculates the air already inside the vehicle. The electric recirculation door actuator and the blower motor are connected to the vehicle electrical system by the instrument panel wire harness. The blower motor controls the velocity of air flowing through the HVAC housing assembly by spinning the blower wheel within the HVAC housing at the selected speed by use of the blower motor resistor, which is located in the dash panel in the engine compartment.

The air distribution housing must be removed from the HVAC housing and disassembled for service of the blend-air and mode-air doors. The air inlet housing must be removed from HVAC housing and disassembled for service of the recirculation-air door. The HVAC housing must be removed from the vehicle and disassembled for service of the A/C evaporator.

REMOVAL

HOUSING-AIR DISTRIBUTION

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The air distribution housing must be removed from the HVAC housing and disassembled for service of the heater core and the blend-air and mode-air doors.

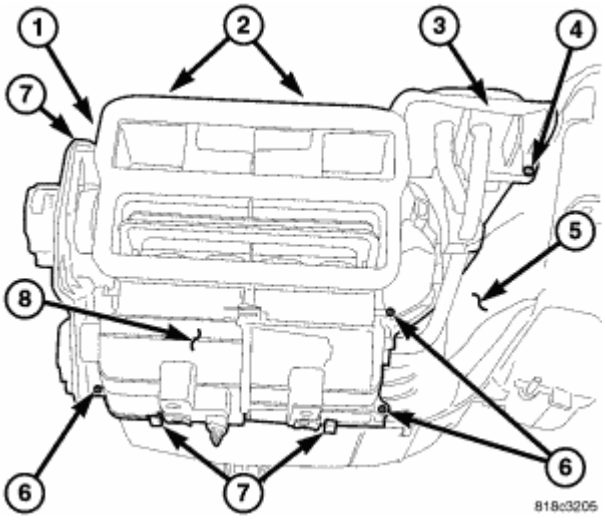


Fig. 72: Air Distribution Housing Remove/Install Components
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the screw (4) that secures the heater core tube flange (3) to the top of the HVAC housing (5).
3. Remove the three screws (6) and three metal clips (7) that secure the air distribution housing (8) to the top of the HVAC housing.
4. Disengage the plastic retaining tab (1) that secures the front driver side of the air distribution housing to the top of the HVAC housing.
5. Tip the rear of the air distribution housing slightly upward to disengage the two plastic retaining tabs (2) that secure the front of the distribution housing to the HVAC housing and remove the distribution housing.
6. If required, disassemble the air distribution housing. See **DISASSEMBLY**.

SCREEN-AIR INLET

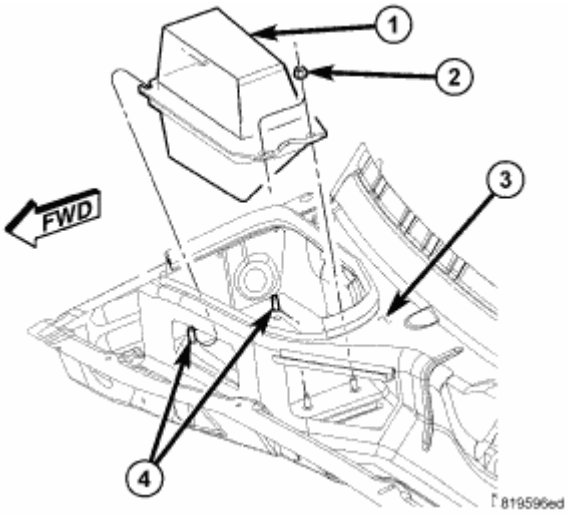


Fig. 73: Air Inlet Screen, Nuts, Cowl Panel & Retaining Studs
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Remove the cowl grille. Refer to **REMOVAL** .
2. Remove the two nuts (2) that secure the air inlet screen (1) to the cowl panel (3).
3. Slide the air inlet screen inward to disengage the screen from the two retaining studs (4) and pull the screen straight up to remove it from the cowl.

HOUSING-AIR INLET

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The air inlet housing must be removed from HVAC housing and disassembled for service of the recirculation-air door on all models.

NOTE: On RHD models, the air inlet housing must be removed from HVAC housing for service of the recirculation door actuator.

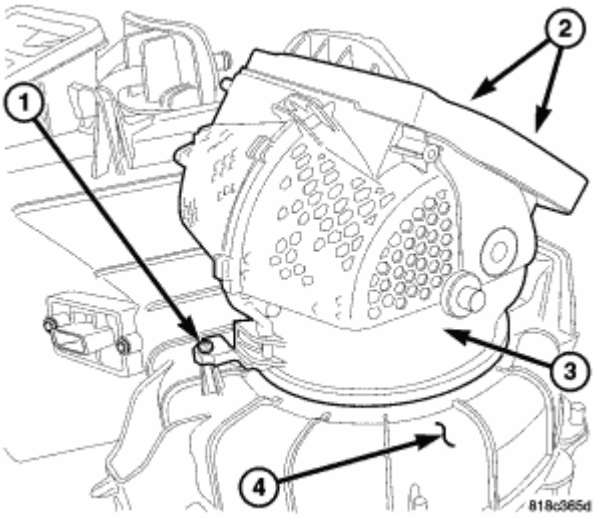


Fig. 74: Screw, Plastic Retaining Tabs, Air Inlet Housing & HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: Typical housing shown. RHD model similar.

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the screw (1) that helps secure the rear of the air inlet housing (3) to the top of the HVAC housing (4).
3. Carefully pull the rear of the air inlet housing upward to release the inlet housing from the top of the HVAC housing and disengage the inlet housing from the two plastic retaining tabs (2) located at the front of the HVAC housing and remove the inlet housing.
4. If required, disassemble the air inlet housing. See **DISASSEMBLY**.

HOUSING-HVAC

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in an accidental airbag deployment and possible personal injury or death.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The HVAC housing must be removed from the vehicle and disassembled for service of the A/C evaporator.

NOTE: LHD model shown in illustrations. RHD model similar.

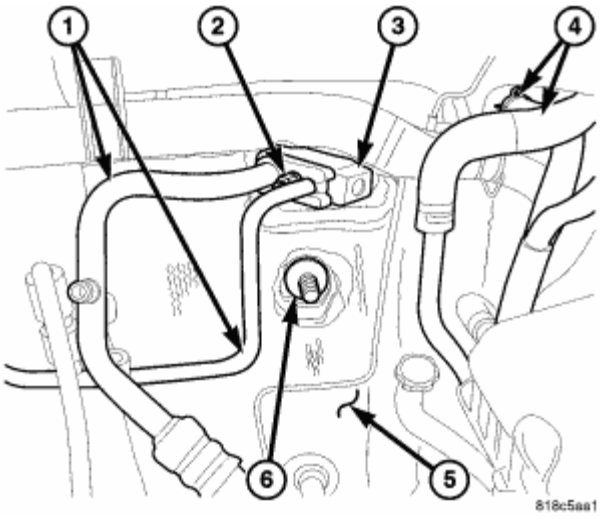


Fig. 75: Suction Line Assembly, Nuts, A/C Expansion Valve, Heater Hoses & Dash Panel
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Partially drain the engine cooling system (refer to **DRAINING**).
4. Remove the nut (2) that secures the A/C liquid and suction line assembly (1) to the A/C expansion valve (3).
5. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve and remove and discard the O-ring seals.
6. Install plugs in, or tape over the opened refrigerant line fittings and the expansion valve ports.
7. Disconnect the heater hoses (4) from the heater core tubes. Install plugs in, or tape over the opened heater core tubes to prevent coolant spillage during housing removal.
8. Remove the nut (6) that secures the HVAC housing assembly to the engine compartment side of the dash panel (5).

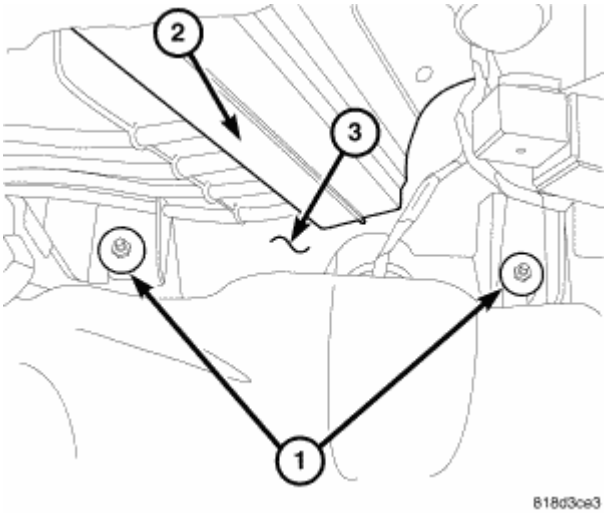


Fig. 76: Removing/Installing Nuts That Secure HVAC Housing Assembly To Passenger Side Of Dash Panel
Courtesy of CHRYSLER LLC

9. Remove the instrument panel. Refer to **REMOVAL** .
10. Remove the rear floor duct. See **REMOVAL**.
11. Remove the two nuts (1) that secure the HVAC housing assembly (2) to the passenger side of the dash panel (3).

NOTE: Use care to ensure that the interior is covered in case of loss of residual fluids from the heater and evaporator cores.

12. Pull the HVAC housing assembly rearward and remove the housing from the passenger compartment.

DISASSEMBLY

HOUSING-AIR DISTRIBUTION

WARNING: The heater core tubes are not serviced separately from the heater core. The heater core tubes should not be repositioned, loosened or removed from the heater core. Failure to follow this warning could result in a coolant leak and possible personal injury or death.

NOTE: The air distribution housing must be removed from the HVAC housing and disassembled for service of the heater core and the mode-air and blend-air doors.

NOTE: LHD model shown in illustrations. RHD model similar.

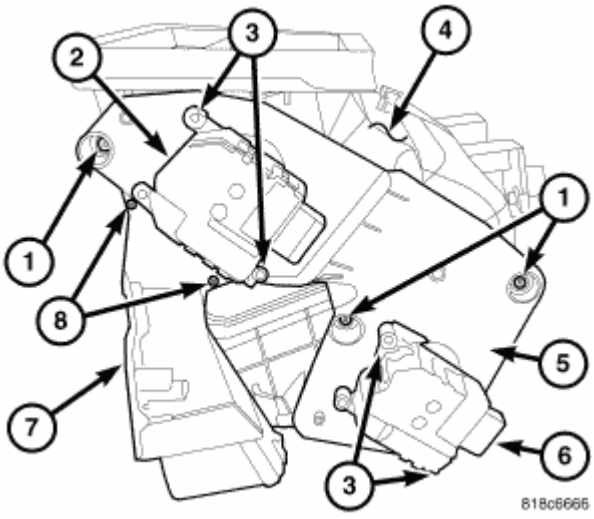


Fig. 77: HVAC Housing Assembly
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the air distribution housing (4) from the HVAC housing. See **REMOVAL**.
3. Remove the screws (3) that secure the mode door actuator (2) and the blend door actuator (6) to the actuator mounting bracket (5) located on the driver side of the air distribution housing and remove the actuators.
4. Remove the three screws (1) that secure the actuator mounting bracket to the air distribution housing and remove the bracket.
5. Remove the two screws (8) that secure the driver side front floor duct (7) to the air distribution housing and remove the duct

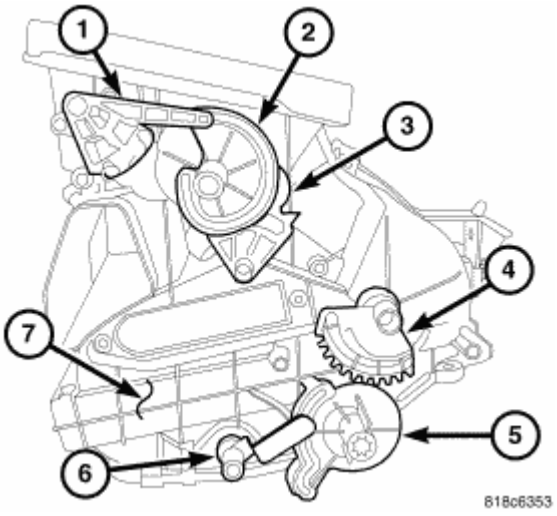


Fig. 78: Removing/Installing Defrost Door Lever/Gear Assembly, Mode Door Cam, Panel Door Gear, Blend Door Gear, Blend Door Lever And Blend Door Cam From Driver Side Of Air Distribution Housing
Courtesy of CHRYSLER LLC

6. Remove the defrost door lever and gear assembly (1), mode door cam (2), panel door gear (3), blend door gear (4), blend door lever (6) and the blend door cam (5) from the driver side of the air distribution housing (7).
7. If equipped with the 2.8L diesel engine, remove the electric positive temperature coefficient (PTC) heater unit from the air distribution housing. See **REMOVAL**.

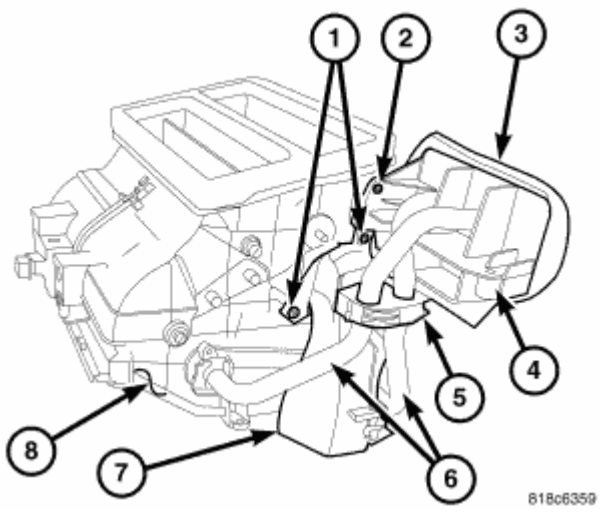


Fig. 79: Air Distribution Housing Assembly
Courtesy of CHRYSLER LLC

8. Remove the two screws (1) that secure the upper front passenger side floor duct (7) to the passenger side of the air distribution housing (8) and remove the duct.

NOTE: If the foam seal for the heater core tube flange is deformed or damaged, it must be replaced.

9. Carefully remove the foam seal (3) from the heater core tube flange (4). If the seal is deformed or damaged, it must be replaced.
10. Remove the screw (2) that secures the heater core tube flange to the air distribution housing.
11. Disengage the plastic retainer (5) from around the heater core tubes (6) and remove the flange.

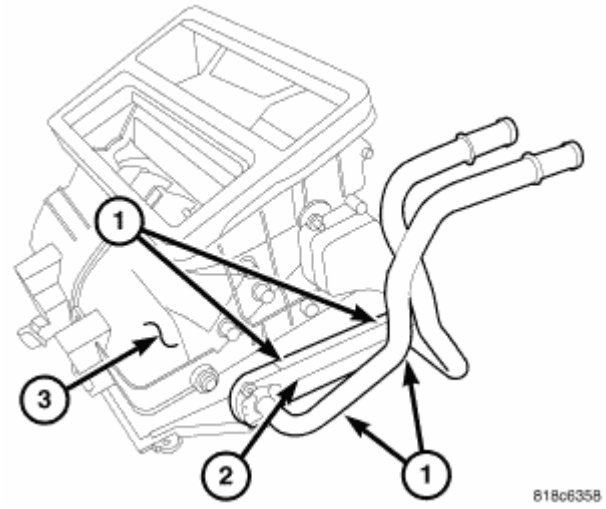


Fig. 80: Plastic Retaining Tabs, Heater Core & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the foam insulator around the heater core is deformed or damaged, the insulator must be replaced.

12. Disengage the four plastic retaining tabs (1) that secure the heater core (2) to the passenger side of the air distribution housing (3) and carefully remove the heater core from the housing.

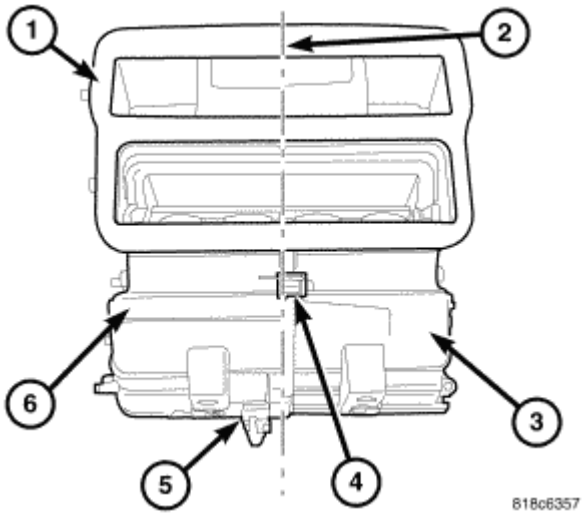


Fig. 81: Foam Seal, Parting Line, Air Distribution Housing, Parting Line, Plastic Retaining Tabs & Screw
Courtesy of CHRYSLER LLC

13. Carefully cut the foam seal (1) along the parting line (2) of the two halves of the air distribution housing (3 and 6). If the seal is deformed or damaged, it must be replaced.
14. Remove the screw (5) that secures the two halves of the air distribution housing together located on the bottom of the housing, near the center.

15. Disengage the four plastic retaining tabs (4) and carefully separate the two halves of the air distribution housing.

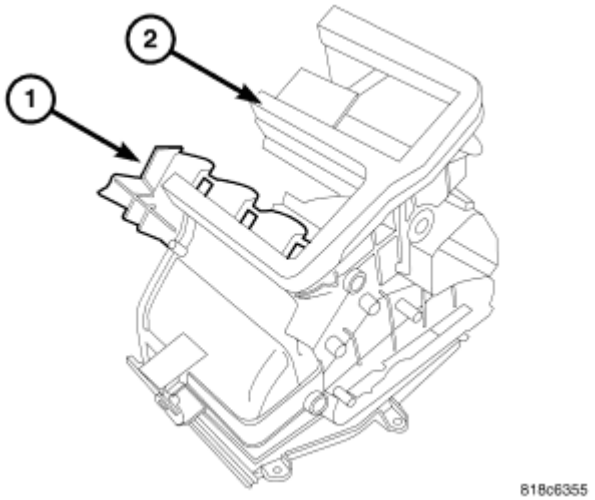


Fig. 82: Air Deflector Vane Assembly & Air Distribution Housing
Courtesy of CHRYSLER LLC

16. Remove the air deflector vane assembly (1) from the passenger side of the air distribution housing (2). Disengage the two plastic retaining tabs (1) and slide the vane straight out of the housing.

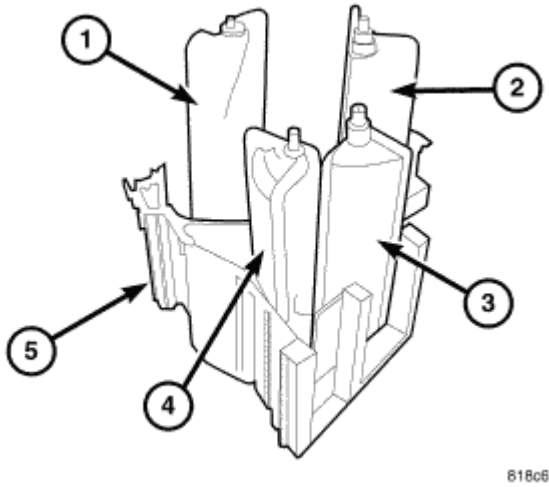


Fig. 83: Removing/Installing Floor-Air Door, Blend-Air Door, Panel-Air Door And Defrost-Air Door From Driver Side Of Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the seal on any air door is deformed or damaged, that air door must be replaced.

17. Remove the floor-air door (1), blend-air door (2), panel-air door (3) and the defrost-air door (4) from the driver side of the air distribution housing (5) as required.

HOUSING-HVAC

NOTE: The HVAC housing must be removed from the vehicle and disassembled for service of the A/C evaporator.

NOTE: LHD model shown in illustrations. RHD model similar.

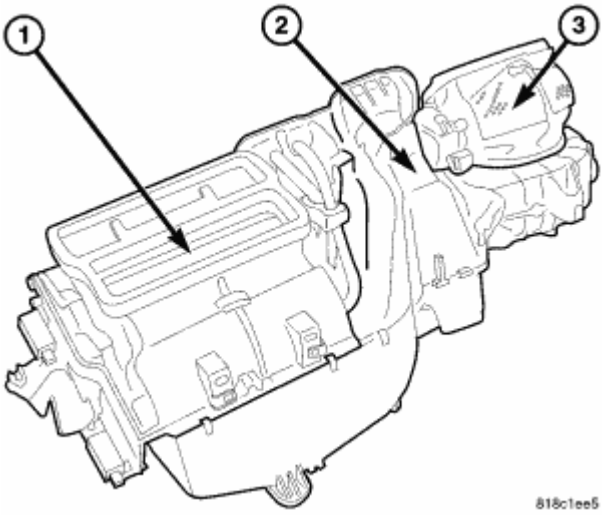


Fig. 84: Air Distribution Housing, HVAC Housing & Air Inlet Housing
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the air distribution housing (1) from the HVAC housing (2). See **REMOVAL**.
3. Remove the air inlet housing (3) from the HVAC housing. See **REMOVAL**.
4. Remove the passenger side lower front floor duct. See **REMOVAL**.

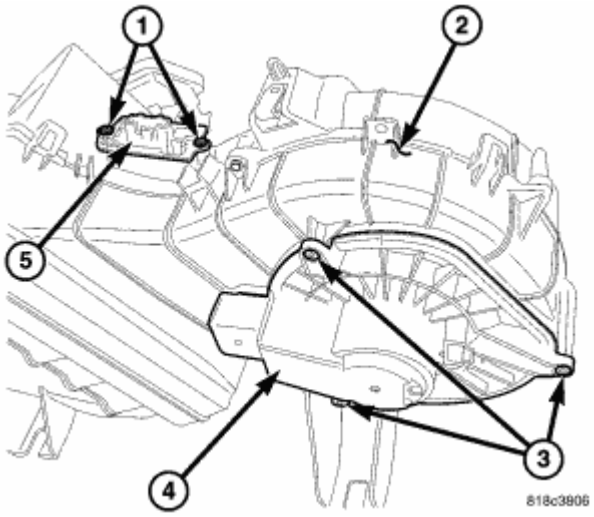


Fig. 85: Screws, HVAC Housing, Blower Motor & Blower Motor Resistor
Courtesy of CHRYSLER LLC

5. Remove the two screws (1) that secure the blower motor resistor (5) to the rear of the HVAC housing (2) and remove the resistor.
6. Remove the three screws (3) that secure the blower motor (4) to the bottom of the HVAC housing and remove the blower motor.

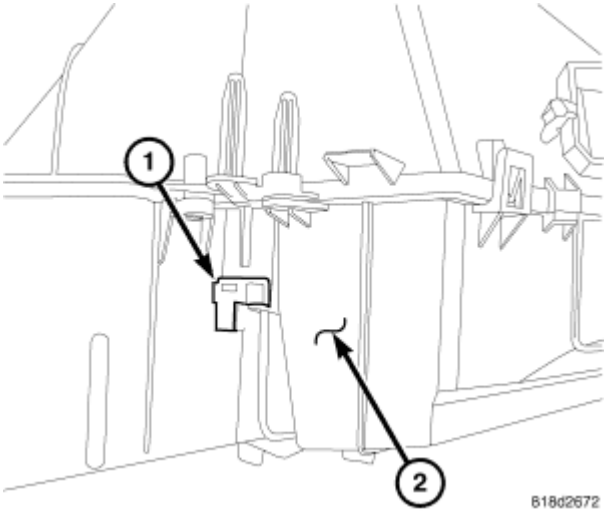


Fig. 86: Removing/Installing Evaporator Temperature Sensor From Front Of HVAC Housing
Courtesy of CHRYSLER LLC

7. Remove the evaporator temperature sensor (1) from the front of the HVAC housing (2).

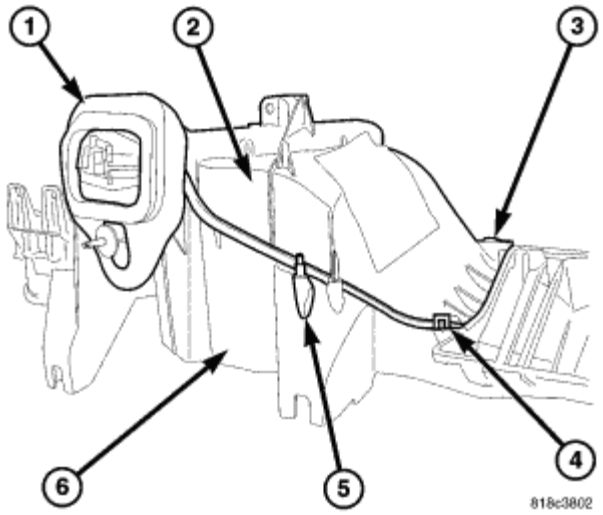


Fig. 87: Foam Seal, HVAC Housing, Screws, Plastic Retaining Tabs & Metal Clips
Courtesy of CHRYSLER LLC

NOTE: If the foam seal for the flange is deformed or damaged, it must be replaced.

8. Carefully remove the foam seal (1) from the front of the two halves of the HVAC housing (2 and 6). If

the seal is deformed or damaged, it must be replaced.

NOTE: Be sure to remove the screws that secure the two halves of the HVAC housing together located at the bottom of the HVAC housing.

9. Remove the seven screws (5) and two metal clips (3) that secure the two halves of the HVAC housing together.
10. Disengage the four plastic retaining tabs (4) that secure the two halves of the HVAC housing together and separate the housing halves.

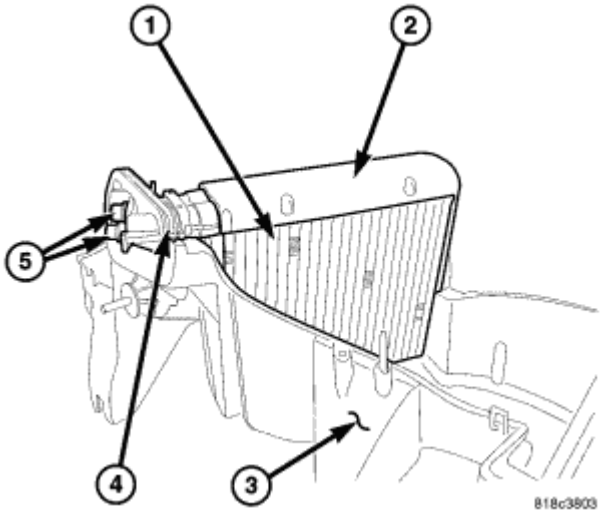


Fig. 88: A/C Evaporator, Foam Insulator, HVAC Housing, Rubber Seal & Tapping Block
Courtesy of CHRYSLER LLC

NOTE: If the foam insulator around the A/C evaporator is deformed or damaged, the insulator must be replaced.

11. Carefully lift the A/C evaporator (1) and the foam insulator (2) out of the lower half of the HVAC housing (3).

NOTE: If the rubber seal around the evaporator tubes and tapping block is deformed or damaged, the seal must be replaced.

12. If required, remove the rubber seal (4) from around the evaporator tubes and tapping block (5).

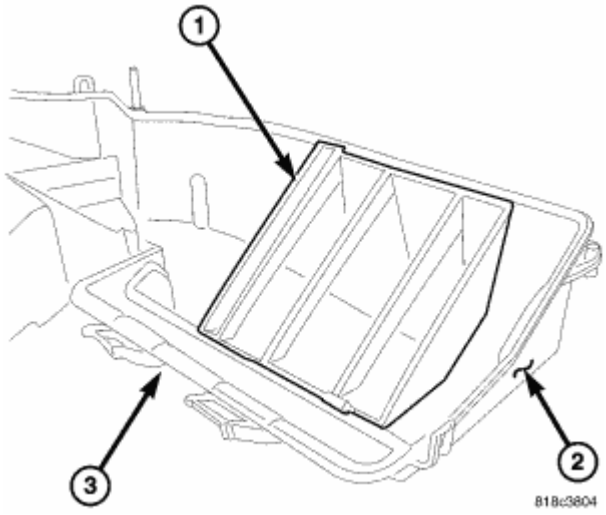


Fig. 89: Air Deflector Vane, HVAC Housing & Foam Seal
Courtesy of CHRYSLER LLC

13. Disengage the retainers that secure the air deflector vane (1) to the lower half of the HVAC housing (2) and remove the deflector vane.
14. If required, remove the foam seal (3) from around the condensate drain located at the bottom of the HVAC housing.

HOUSING-AIR INLET

NOTE: The air inlet housing must be removed from HVAC housing and disassembled for service of the recirculation-air door.

NOTE: LHD model shown in illustrations. RHD model similar.

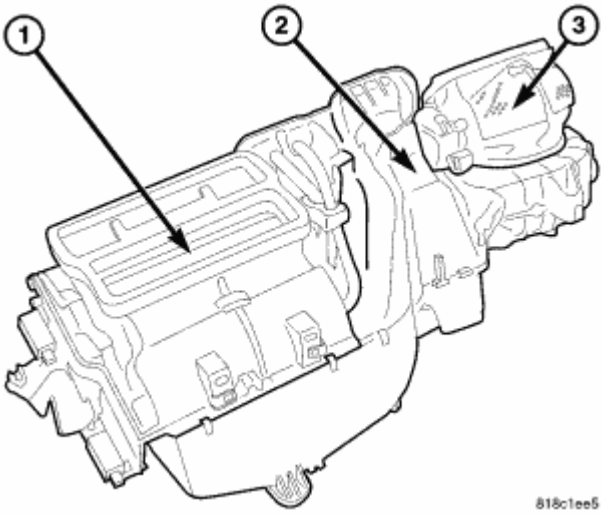


Fig. 90: Air Distribution Housing, HVAC Housing & Air Inlet Housing
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the air inlet housing (3) from the HVAC housing (2). See **REMOVAL**.

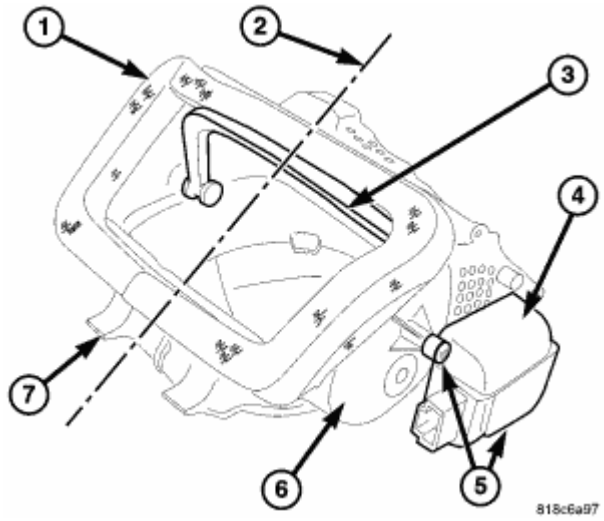


Fig. 91: Foam Seal, Parting Line, Recirculation-Air Door, Recirculation Door Actuator, Screws & Air Inlet Housing
Courtesy of CHRYSLER LLC

NOTE: If the foam seal on top of the air inlet housing is deformed or damaged, it must be replaced.

3. Carefully cut the foam seal (1) along the parting line (2) of the two halves of the air inlet housing (6 and 7). If the seal is deformed or damaged, it must be replaced.
4. Remove the two screws (5) that secure the recirculation door actuator (4) to the air inlet housing and remove the actuator.

NOTE: If a rubber seal on the recirculation air-door is deformed or damaged, the air-door must be replaced.

5. Carefully disengage the three plastic retaining tabs that secure the two halves of the air inlet housing together and remove the recirculation-air door (3) from the inlet housing. If the seal on the recirculation-air door is deformed or damaged, the air-door must be replaced.

ASSEMBLY

HOUSING-AIR INLET

NOTE: LHD model shown in illustrations. RHD model similar.

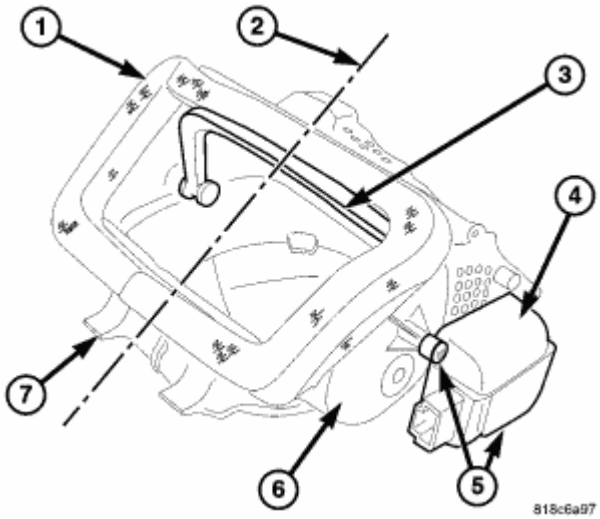


Fig. 92: Foam Seal, Parting Line, Recirculation-Air Door, Recirculation Door Actuator, Screws & Air Inlet Housing
Courtesy of CHRYSLER LLC

NOTE: If a rubber seal on the recirculation air-door is deformed or damaged, the air-door must be replaced.

1. Install the recirculation-air door (3) into the two halves of the air inlet housing (6 and 7). Align the air door pivot shaft with the holes in the housing halves.
2. Carefully install the two halves of the air inlet housing together and engage the three plastic retaining tabs. Make sure the retaining tabs are fully engaged.
3. Position the recirculation door actuator (4) to the air inlet housing. Make sure the actuator output shaft is properly aligned to the recirculation door pivot shaft. If necessary, rotate the actuator slightly to engage the splines on the output shaft with those in the pivot shaft.
4. Install the two screws (5) that secure the recirculation door actuator to the air inlet housing. Tighten the screws to 1.2 N.m (10 in lbs.).

NOTE: If the foam seal on top of the air inlet housing is deformed or damaged, it must be replaced.

5. Inspect the foam seal (1), especially along the parting line (2) of the two halves of the air inlet housing. Replace the seal if it is deformed or damaged.

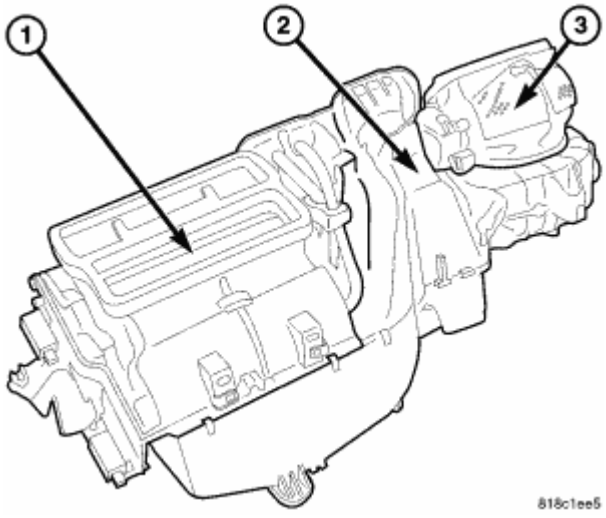


Fig. 93: Air Distribution Housing, HVAC Housing & Air Inlet Housing
Courtesy of CHRYSLER LLC

6. Install the air inlet housing (3) onto the HVAC housing (2). See **INSTALLATION**.
7. Install the HVAC housing assembly. See **INSTALLATION**.

HOUSING-HVAC

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: If the A/C evaporator is being replaced, add 60 milliliters (2 fluid ounces) of refrigerant oil to the refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

NOTE: LHD model shown in illustrations. RHD model similar.

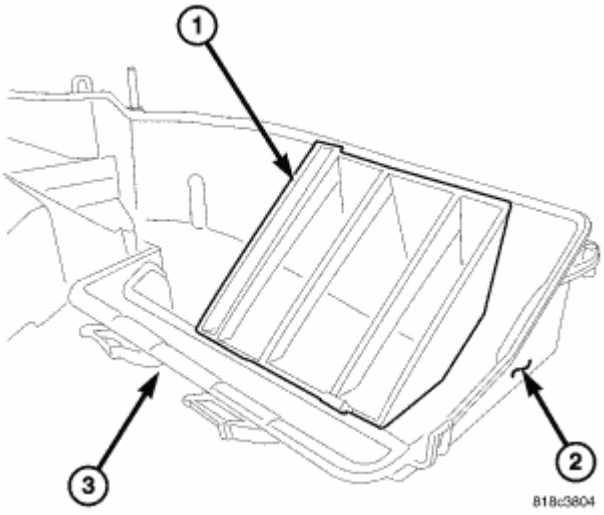


Fig. 94: Air Deflector Vane, HVAC Housing & Foam Seal
Courtesy of CHRYSLER LLC

1. If removed, install the foam seal (3) onto the condensate drain located at the bottom of the HVAC housing (2).
2. Install the air deflector vane (1) into the lower half of the HVAC housing. Make sure the retainers are fully engaged.

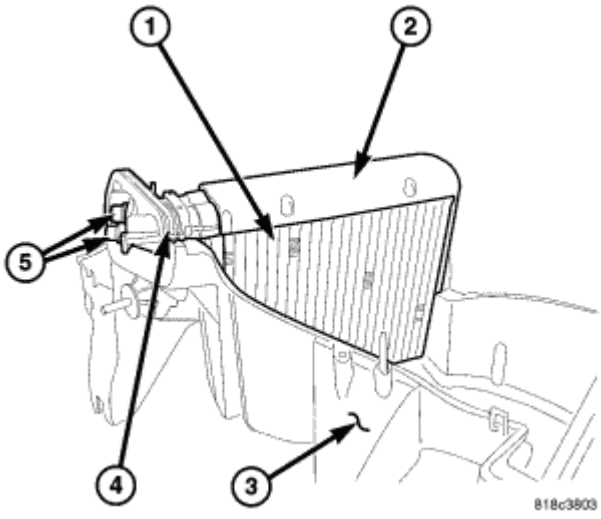


Fig. 95: A/C Evaporator, Foam Insulator, HVAC Housing, Rubber Seal & Tapping Block
Courtesy of CHRYSLER LLC

NOTE: Make sure the rubber seal for the evaporator tubes and tapping block is properly positioned in the HVAC housing opening.

3. If removed, install the rubber seal (4) over the evaporator tubes and tapping block (5).

NOTE: Make sure that the foam insulator around the A/C evaporator is properly

positioned within the HVAC housing.

4. Carefully install the A/C evaporator (1) and foam insulator (2) into the lower half of the HVAC housing (3).

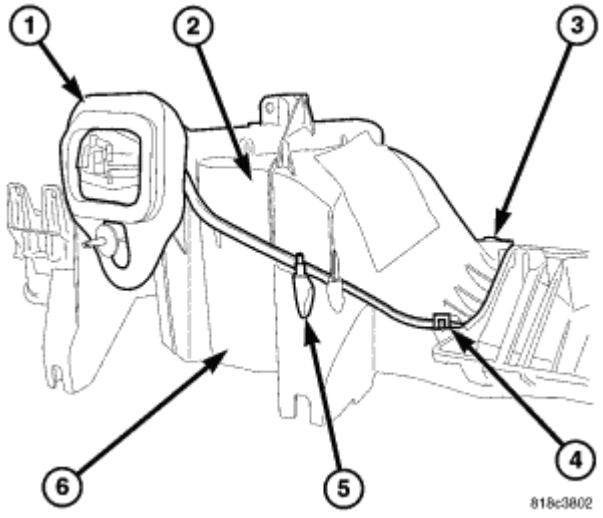


Fig. 96: Foam Seal, HVAC Housing, Screws, Plastic Retaining Tabs & Metal Clips
Courtesy of CHRYSLER LLC

5. Install the two halves of the HVAC housing (2 and 6) together and engage the four plastic retaining tabs (4). Make sure the retaining tabs are fully engaged.

NOTE: Be sure to install the screws that secure the two halves of the HVAC housing together located at the bottom of the HVAC housing.

6. Install the seven screws (5) and two metal clips (3) that secure the two halves of the HVAC housing together. Tighten the screws to 1.2 N.m (10 in lbs.). Make sure the metal clips are fully engaged to the housing halves.
7. Install the foam seal (1) onto the front of the two HVAC housing halves.

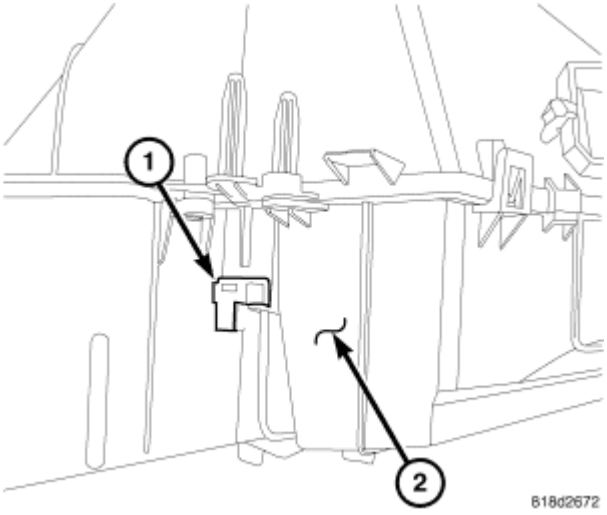


Fig. 97: Removing/Installing Evaporator Temperature Sensor From Front Of HVAC Housing
Courtesy of CHRYSLER LLC

8. Install the evaporator temperature sensor (1) into the front of the HVAC housing (2). Make sure the sensor is fully engaged to the housing.

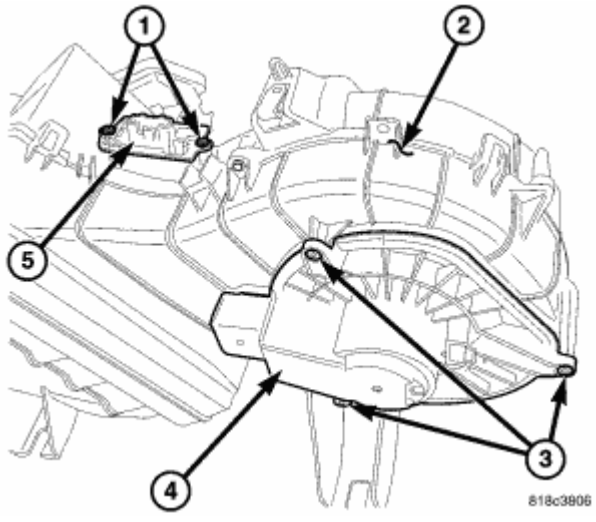


Fig. 98: Screws, HVAC Housing, Blower Motor & Blower Motor Resistor
Courtesy of CHRYSLER LLC

9. Position the blower motor (4) into the bottom of the HVAC housing (2) and install the three retaining screws (3). Tighten the screws to 1.2 N.m (10 in. lbs.).
10. Position the blower motor resistor (5) into the HVAC housing and install the two retaining screws (1). Tighten the screws to 1.2 N.m (10 in. lbs.).

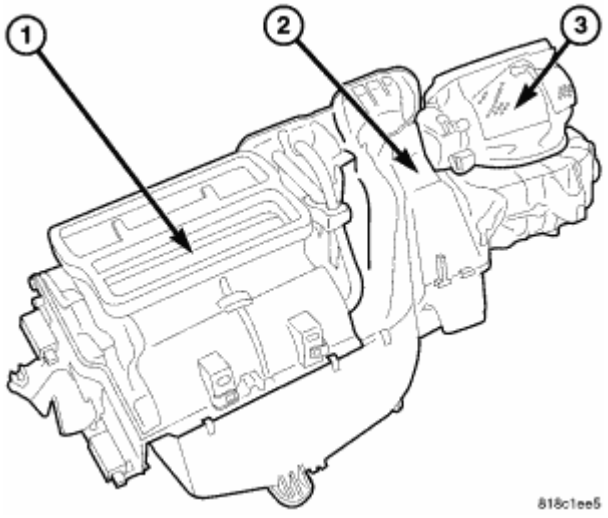


Fig. 99: Air Distribution Housing, HVAC Housing & Air Inlet Housing
Courtesy of CHRYSLER LLC

11. Install the air inlet housing (3) onto the HVAC housing (2). See **INSTALLATION**.
12. Install the air distribution housing (1) onto the HVAC housing. See **INSTALLATION**.
13. Install the passenger side lower front floor duct. See **INSTALLATION**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to CLEANING/REVERSE FLUSHING .

14. Install the HVAC housing assembly. See **INSTALLATION**.
15. If the A/C evaporator is being replaced, add 60 milliliters (2 fluid ounces) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See **REFRIGERANT OIL LEVEL**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

HOUSING-AIR DISTRIBUTION

WARNING: The heater core tubes are not serviced separately from the heater core. The heater core tubes should not be repositioned, loosened or removed from the heater core. Failure to follow this warning could result in a coolant leak and possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

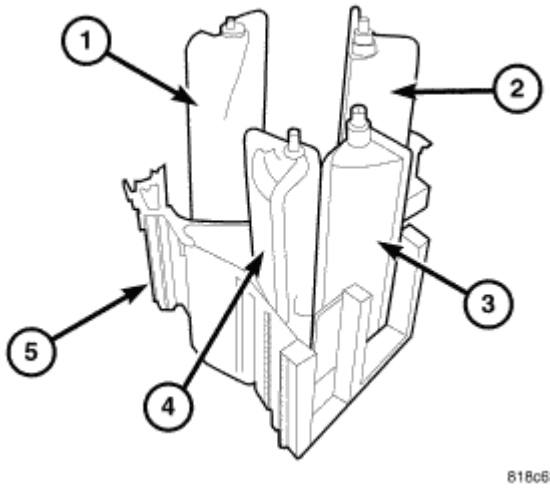


Fig. 100: Removing/Installing Floor-Air Door, Blend-Air Door, Panel-Air Door And Defrost-Air Door From Driver Side Of Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the seal on any air door is deformed or damaged, that air door must be replaced.

1. Install the floor-air door (1), blend-air door (2), panel-air door (3) and the defrost-air door (4) into the driver side of the air distribution housing (5) as required. Align the air door pivot shafts with the holes in the housing.

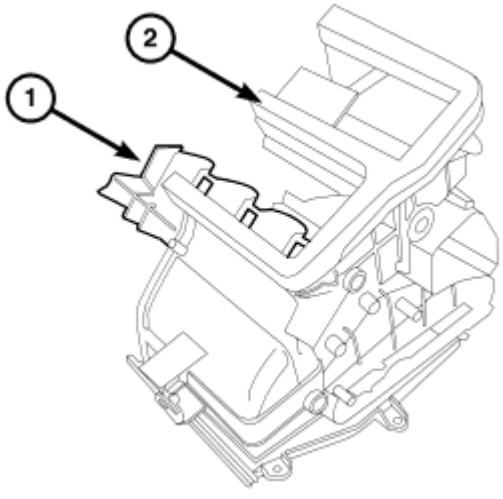


Fig. 101: Air Deflector Vane Assembly & Air Distribution Housing
Courtesy of CHRYSLER LLC

2. Install the air deflector vane assembly (1) into the passenger side of the air distribution housing (2). Slide the vane assembly into the track in the housing and engage the two plastic retaining tabs. Make sure the retaining tabs are fully engaged.

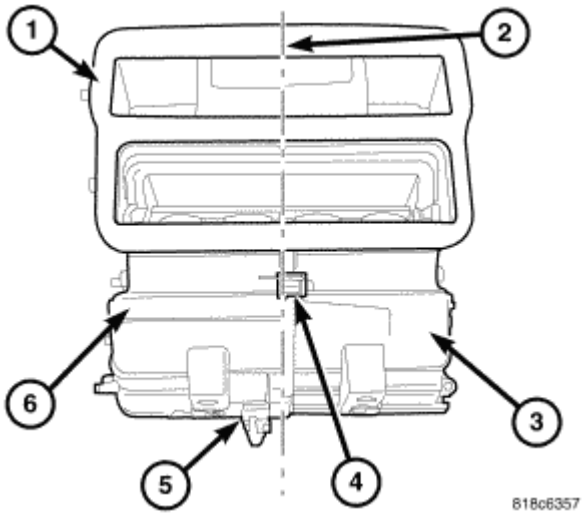


Fig. 102: Foam Seal, Parting Line, Air Distribution Housing, Parting Line, Plastic Retaining Tabs & Screw
Courtesy of CHRYSLER LLC

3. Align the air door pivot shafts with the holes in the passenger side of the air distribution housing (3) and carefully install passenger side of the air distribution housing (1) onto the driver side of the housing.
4. Engage the four plastic retaining tabs (4) that secure the two halves of the air distribution housing together. Make sure the retaining tabs are fully engaged.
5. Install the retaining screw (5) that secures the two halves of the air distribution housing together at the bottom of the housing, near the center. Tighten the screw to 1.2 N.m (10 in lbs.).

NOTE: If the foam seal on top of the air distribution housing is deformed or damaged, it must be replaced.

6. Inspect the foam seal (1), especially along the parting line (2) of the two halves of the air distribution housing. Replace the seal if it is deformed or damaged.

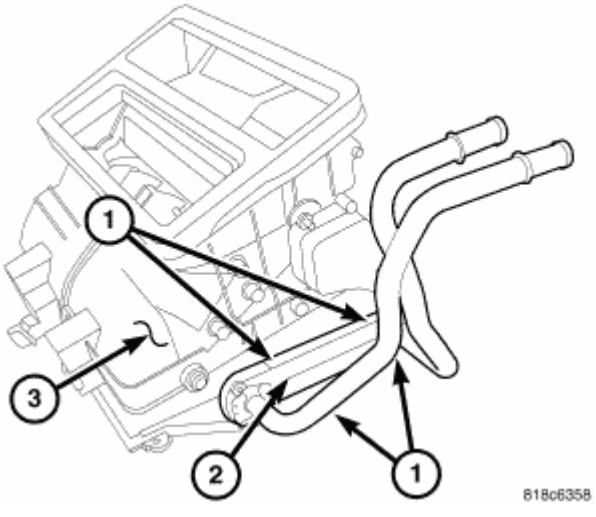


Fig. 103: Plastic Retaining Tabs, Heater Core & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the foam insulator around the heater core is deformed or damaged, the insulator must be replaced.

7. Carefully install the heater core (2) into the passenger side of the air distribution housing (3) and engage the four plastic retainer tabs (1) that secure the heater core to the housing. Make sure the retaining tabs are fully engaged.

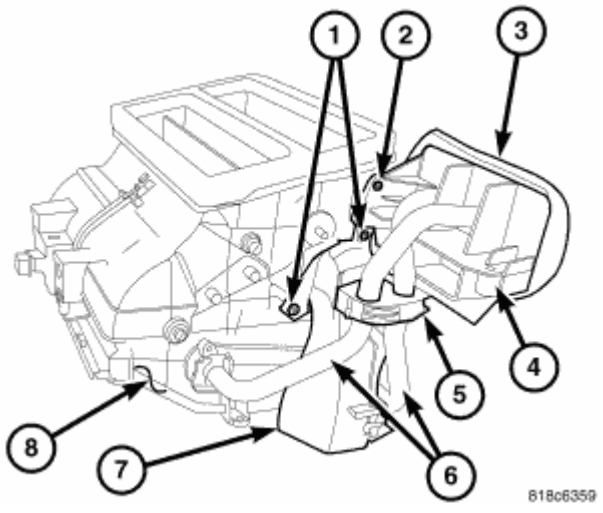


Fig. 104: Air Distribution Housing Assembly
Courtesy of CHRYSLER LLC

8. Position the heater core tube flange (4) over the heater core tubes (6) and onto the to the passenger side of the air distribution housing (8).
9. Engage the plastic retainer (5) around the heater core tubes. Make sure the retainer is fully engaged.
10. Install the screw (2) that secures the heater core tube flange to the air distribution housing. Tighten the screw to 1.2 N.m (10 in lbs.).
11. Install the upper front passenger side floor duct (7) onto the air distribution housing and install the two retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).

NOTE: If the foam seal for the heater core tube flange is deformed or damaged, it must be replaced.

12. Install the foam seal (3) onto the heater core tube flange.

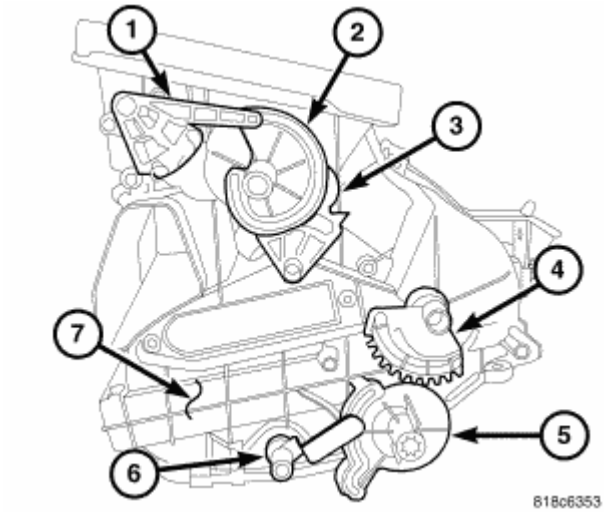


Fig. 105: Removing/Installing Defrost Door Lever/Gear Assembly, Mode Door Cam, Panel Door Gear, Blend Door Gear, Blend Door Lever And Blend Door Cam From Driver Side Of Air Distribution Housing
Courtesy of CHRYSLER LLC

13. If equipped with the 2.8L diesel engine, install the electric positive temperature coefficient (PTC) heater unit. See **INSTALLATION**.
14. Install the blend door cam (5), blend door lever (6), blend door gear (4), panel door gear (3), mode door cam (2), and the defrost door lever and gear assembly (1) onto the driver side of the air distribution housing (7).

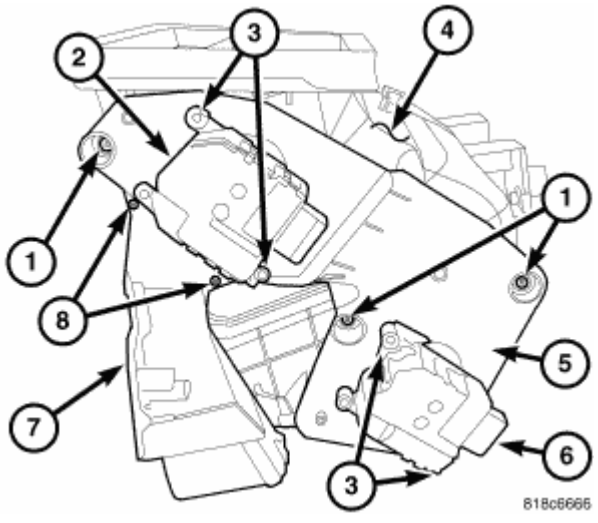


Fig. 106: HVAC Housing Assembly
Courtesy of CHRYSLER LLC

15. Install the driver side front floor duct (7) onto the driver side of the air distribution housing (4) and install the two retaining screws (8). Tighten the screws to 1.2 N.m (10 in lbs.).
16. Position the actuator mounting bracket (5) onto the air distribution housing and install the three retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).

17. Position the mode door actuator (2) and the blend door actuator (6) onto the actuator mounting bracket. If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the door linkage.
18. Install the screws (3) that secure the mode and blend door actuators to the actuator mounting bracket. Tighten the screws to 1.2 N.m (10 in lbs.).
19. Install the air distribution housing onto the HVAC housing. See **INSTALLATION**.
20. Install the HVAC housing assembly. See **INSTALLATION**.

INSTALLATION

SCREEN-AIR INLET

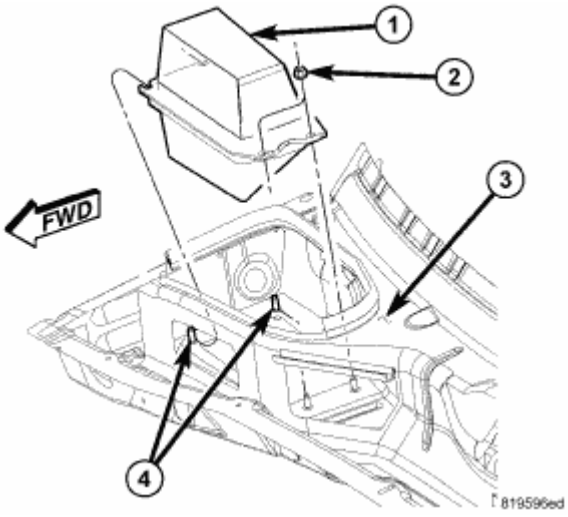


Fig. 107: Air Inlet Screen, Nuts, Cowl Panel & Retaining Studs
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the air inlet screen (1) into the cowl panel (3) and fully engage the screen onto the two retaining studs (4).
2. Install the air inlet screen onto the cowl panel and install the two retaining nuts (4). Tighten the nuts to 2.3 N.m (20 in. lbs.).
3. Install the cowl grille. Refer to **INSTALLATION** .

HOUSING-AIR DISTRIBUTION

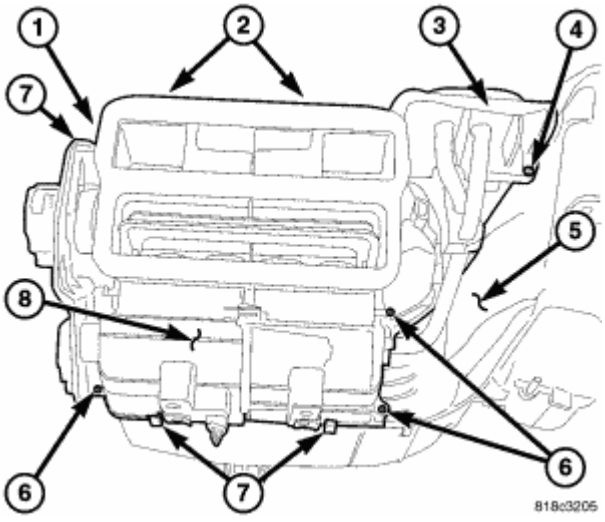


Fig. 108: Air Distribution Housing Remove/Install Components
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the air distribution housing (8) onto the top of the HVAC housing (5) and engage the two plastic retaining tabs (2) that secure the front of the distribution housing to the HVAC housing.
2. Engage the plastic retaining tab (1) that secures the front driver side of the air distribution housing to the HVAC housing. Make sure the passenger side floor ducts are properly connected to each other.
3. Install the three metal retaining clips (7) and three screws (6) that secure the air distribution housing to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).

   NOTE: If the foam seal for the heater core tube flange is deformed or damaged, it must be replaced.

4. Install the screw (4) that secures the heater core tube flange (3) to the top of the HVAC housing. Tighten the screw to 1.2 N.m (10 in. lbs.).

   NOTE: If the heater core is being replaced, flush the cooling system. Refer to CLEANING/REVERSE FLUSHING .

5. Install the HVAC housing assembly. See **INSTALLATION**.

HOUSING-HVAC

NOTE: LHD model shown in illustrations. RHD model similar.

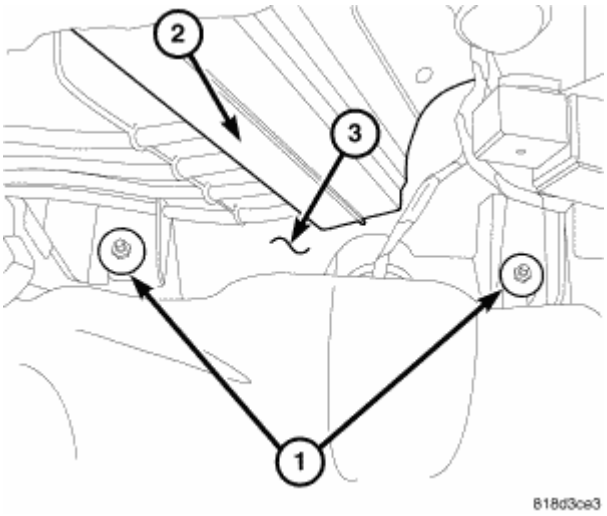


Fig. 109: Removing/Installing Nuts That Secure HVAC Housing Assembly To Passenger Side Of Dash Panel
Courtesy of CHRYSLER LLC

1. Position the HVAC housing assembly (2) to the passenger side of the dash panel (3). Be certain that the housing is correctly located over the two dash panel mounting studs.
2. Install the two nuts (1) that secure the HVAC housing assembly to the dash panel. Tighten the nuts to 4.5 N.m (40 in. lbs.).
3. Install the rear floor duct. See **INSTALLATION**.
4. Install the instrument panel. Refer to **INSTALLATION** .

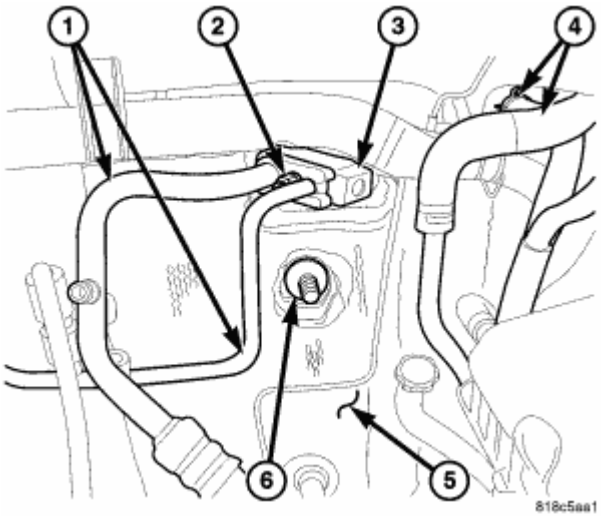


Fig. 110: Suction Line Assembly, Nuts, A/C Expansion Valve, Heater Hoses & Dash Panel
Courtesy of CHRYSLER LLC

5. Install the nut (6) that secures the HVAC housing assembly to the engine compartment side of the dash panel (5). Tighten the nut to 4.5 N.m (40 in. lbs.).
6. Remove the previously installed plugs or caps and connect the heater hoses (4) to the heater core tubes.

7. Remove the tape or plugs from the refrigerant line fittings and the expansion valve ports.
8. Lubricate new rubber O-rings with clean refrigerant oil and install them onto the liquid and suction line fittings. Use only the specified O-ring seals as they are made of special materials compatible to the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
9. Connect the A/C liquid and suction line assembly (1) to the A/C expansion valve (3).
10. Install the nut (2) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 23 N.m (17 ft. lbs.).
11. Reconnect the negative battery cable.
12. If the heater core is being replaced, flush the cooling system. Refer to **STANDARD PROCEDURE** .
13. Refill the engine cooling system. Refer to **STANDARD PROCEDURE** .
14. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
15. Charge the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
16. Initiate the Actuator Calibration function using a scan tool. See ***HVAC SYSTEM TEST** .

HOUSING-AIR INLET

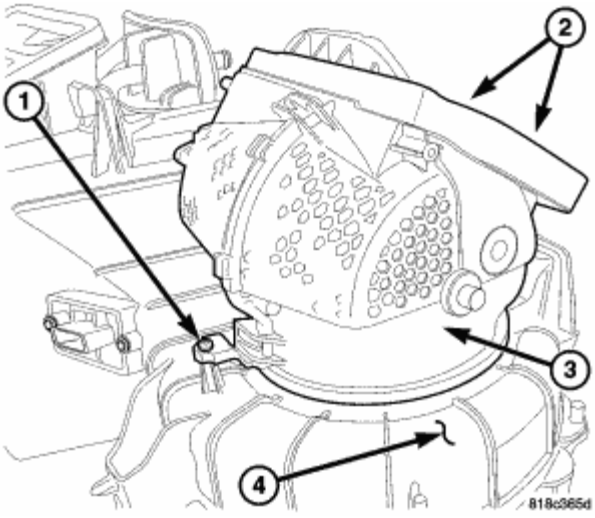


Fig. 111: Screw, Plastic Retaining Tabs, Air Inlet Housing & HVAC Housing
Courtesy of CHRYSLER LLC

NOTE: Typical housing shown. RHD model similar.

1. Position the air inlet housing (3) to the top of the HVAC housing (4) and engage the front of the inlet housing to the two plastic retaining tabs (2) located on the top of the HVAC housing.
2. Firmly push down on the rear of the air inlet housing and engage the inlet housing to the HVAC housing. Make sure the two housings are fully engaged to each other.
3. Install the screw (1) that helps secure the rear of the air inlet housing to the HVAC housing. Tighten the screw to 1.2 N.m (10 in. lbs.).
4. Install the HVAC housing assembly. See **INSTALLATION**.

MOTOR-BLOWER

DESCRIPTION

MOTOR-BLOWER

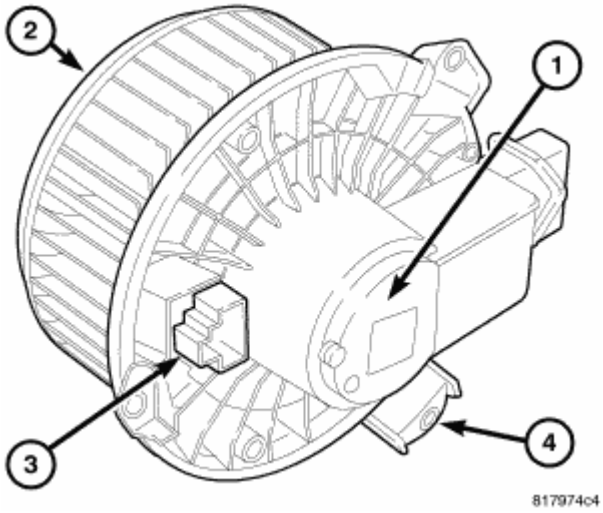


Fig. 112: Blower Motor, Squirrel Cage-Type Blower Wheel, Integral Wire Harness Connector & Integral Mounting Tabs
Courtesy of CHRYSLER LLC

NOTE: Typical blower motor shown,

The blower motor (1) is a 12-volt, direct current (DC) motor mounted within a plastic housing with three integral mounting tabs (4), an integral wire harness connector (3) and a squirrel cage-type blower wheel (2) that is secured to the blower motor shaft. The blower motor wheel is positioned within the HVAC air inlet housing, which is mounted to the passenger side end of the HVAC housing.

The blower motor can be accessed for service from underneath the instrument panel.

OPERATION

MOTOR-BLOWER

The blower motor is used to control the velocity of air moving through the HVAC housing by spinning the blower wheel within the HVAC air inlet housing at the selected speed.

The blower motor will operate whenever the ignition switch is in the Run position and the blower motor control is in any position except Off. The blower motor receives battery current through the totally integrated power module (TIPM) whenever the ignition switch is in the Run position.

Blower motor speed is controlled by regulating the ground path through or around the blower motor resistor and through the blower motor control located within the A/C-heater control.

The blower motor can be accessed for service from underneath the instrument panel.

NOTE: The blower motor is supplied with a 12V feed from the TIPM, through the blower motor resistor, whenever the ignition switch is in the RUN position. Due to an open circuit condition within the blower motor control switch the TIPM is UNABLE to detect an OPEN circuit for the blower motor.

The blower motor control system is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The blower motor and blower motor wheel are factory balanced as an assembly and cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

DIAGNOSIS AND TESTING

MOTOR-BLOWER

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

NOTE: The blower motor is supplied with a 12V feed from the TIPM, through the blower motor resistor, whenever the ignition switch is in the RUN position. Due to an open circuit condition within the blower motor control switch the TIPM is UNABLE to detect an OPEN circuit for the blower motor.

To determine if an open condition exists within the blower motor circuit wiring, it is necessary to disconnect the negative battery cable and check for continuity within the blower motor circuits using an ohmmeter. For circuit descriptions and diagrams, refer to Air Conditioning/Heater in **SYSTEM WIRING DIAGRAMS** .

OPERATION

Possible causes of an inoperative blower motor include:

- Open fuse
- Inoperative blower motor resistor
- Inoperative blower motor switch
- Inoperative blower motor
- Inoperative blower motor circuit wiring or wire harness connectors

NOISE

To determine if the blower motor is the source of the noise, simply switch the blower motor from Off to On. To

verify that the blower motor is the source of the noise, unplug the blower motor wire harness connector and operate the heater-A/C system. If the noise goes away, possible causes include:

- Foreign material on fresh air inlet screen
- Foreign material in blower wheel
- Foreign material in HVAC housing
- Improper blower motor mounting
- Deformed or damaged blower wheel
- Worn blower motor bearings or brushes

VIBRATION

Possible causes of a blower motor vibration include:

- Improper blower motor mounting
- Foreign material in blower wheel
- Deformed or damaged blower wheel
- Worn blower motor bearings

REMOVAL

MOTOR-BLOWER

NOTE: The blower motor is located on the bottom of the passenger side of the HVAC housing. The blower motor can be removed from the vehicle without having to remove the HVAC housing.

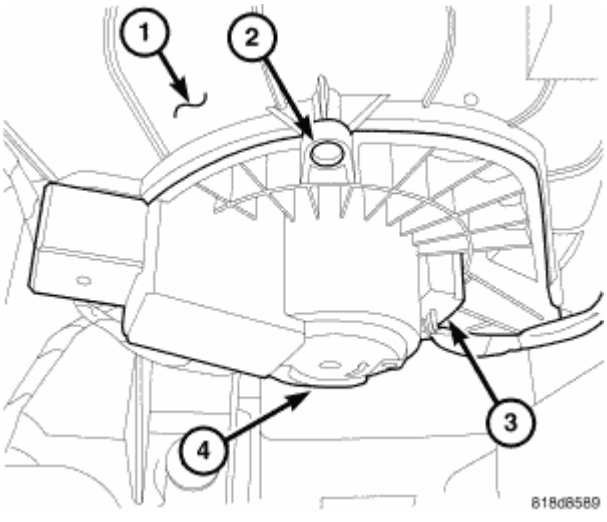


Fig. 113: HVAC Housing, Screws, Instrument Panel Wire Harness Connector & Blower Motor
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. If equipped, remove the silencer from below the passenger side of the instrument panel. Refer to **REMOVAL** .
3. From underneath the instrument panel, disconnect the instrument panel wire harness connector (3) from the blower motor (4).
4. Remove the three screws (2) that secure the blower motor to the bottom of the HVAC housing (1) and remove the blower motor.

INSTALLATION

MOTOR-BLOWER

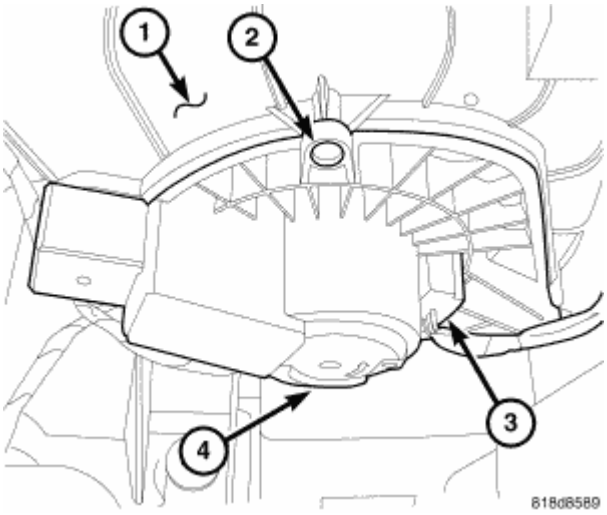


Fig. 114: HVAC Housing, Screws, Instrument Panel Wire Harness Connector & Blower Motor
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the blower motor (4) into the bottom of the HVAC housing (1).
2. Install the three screws (2) that secure the blower motor to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the instrument panel wire harness connector (3) to the blower motor.
4. If equipped, install the silencer below the passenger side of the instrument panel. Refer to **INSTALLATION** .
5. Reconnect the negative battery cable.

OUTLET-AIR

DESCRIPTION

OUTLET-AIR

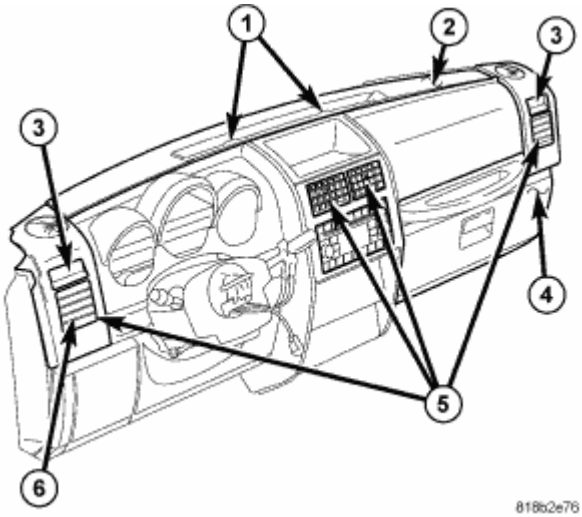


Fig. 115: Defroster Air Outlets, Instrument Panel Top Cover, Side Window Demister Air Outlets, Instrument Panel & Instrument Panel Air Outlets
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

There are two defroster air outlets (1) located in the instrument panel top cover (2). The airflow from the defroster outlets is directed by fixed vanes and cannot be adjusted. The defroster air outlets are not serviceable from the instrument panel top cover. Refer to **REMOVAL** .

There are two side window demister air outlets (3). One located at each end of the instrument panel (4) near the A-pillars. The airflow from the side window demister air outlets is directed by fixed vanes and cannot be adjusted. The side window demister air outlets are integral to the left and right side instrument panel air outlets and cannot be serviced separately. See **REMOVAL**.

There are four instrument panel air outlets (5). One air outlet is located near each outboard end of the instrument panel facing the rear of the vehicle and the other two outlets are located near the top of the instrument panel center bezel. The left and right side instrument panel air outlets are serviced separately. See **REMOVAL**. The instrument panel air outlets located at the center of the instrument panel are integral to the instrument panel center bezel and cannot be serviced separately . Refer to **REMOVAL** . Each of the instrument panel air outlets contain an air outlet grille (6) that is used to direct or shut off the flow of the conditioned air leaving the instrument panel and cannot be serviced separately from the outlets.

REMOVAL

OUTLET-AIR

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for

the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in an accidental airbag deployment and possible personal injury or death.

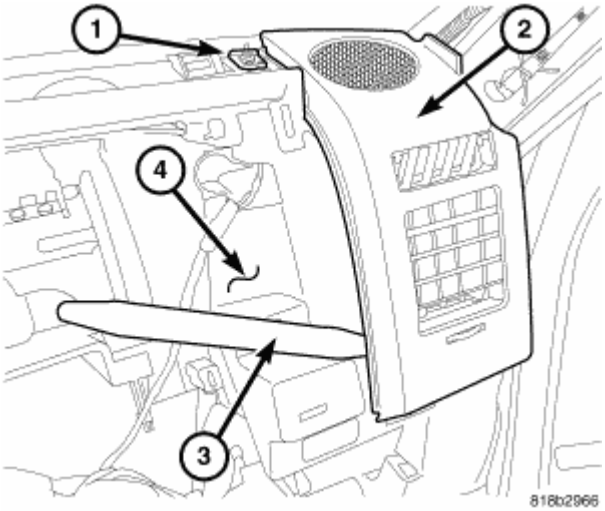


Fig. 116: Screw, Air Outlet, Trim Stick C-4755 & Instrument Panel
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the defroster grille. Refer to **REMOVAL** .
3. Depending on the air outlet being serviced, remove the instrument cluster bezel or passenger side air bag. Refer to **REMOVAL** for Cluster Bezel, or **REMOVAL** for Passenger Airbag.
4. Remove the A-pillar trim molding from the side of the vehicle being serviced. Refer to **REMOVAL** .
5. Remove the screw (1) that secures the top of the air outlet (2) to the instrument panel (4).
6. Using a trim stick C-4755 or equivalent (3), gently pry the lower portion of the air outlet rearward to disengage the two metal retaining clips from the instrument panel and remove the outlet.
7. If required, carefully disengage the plastic retaining tabs that secure the air outlet grille to the back of air outlet and remove the grille from the outlet.

INSTALLATION

OUTLET-AIR

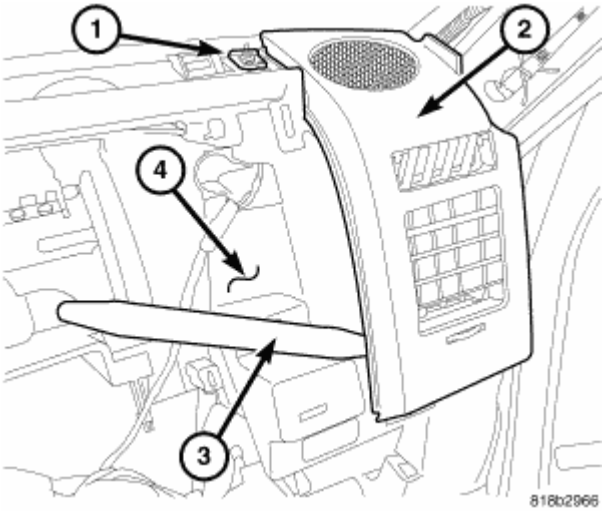


Fig. 117: Screw, Air Outlet, Trim Stick C-4755 & Instrument Panel
Courtesy of CHRYSLER LLC

1. If removed, carefully install the air outlet grille onto the back of air outlet and engage the plastic retaining tabs that secure grille to the outlet. Make sure the retaining tabs are fully engaged.
2. Position the instrument panel air outlet(s) to the instrument panel and engage the two metal retaining clips to the instrument panel. Make sure the retainers are fully engaged.
3. Install the screw (1) that secures the top of the air outlet (2) to the instrument panel (4). Tighten the screw to 1.2 N.m (10 in. lbs.).
4. Install the A-pillar trim molding(s). Refer to **INSTALLATION** .
5. Depending on the air outlet being serviced, install the instrument cluster bezel or passenger side air bag. Refer to **INSTALLATION** for Cluster Bezel, or **INSTALLATION** for Passenger Airbag.
6. Install the defroster grille. Refer to **INSTALLATION** .
7. Reconnect the negative battery cable.

PLUMBING

DESCRIPTION

REFRIGERANT LINES

The A/C refrigerant lines and hoses are used to carry the refrigerant between the various A/C system components. The refrigerant lines and hoses for the R-134a A/C system consist of a barrier-hose design with a nylon tube sandwiched between rubber layers. The nylon tube helps to contain the R-134a refrigerant, which has a small molecular structure. The ends of the refrigerant lines are made from lightweight aluminum and braze-less fittings.

Any kinks or sharp bends in the refrigerant lines and hoses will reduce the capacity of the entire A/C system and can reduce the flow of refrigerant within the system.

OPERATION

REFRIGERANT LINES

High pressures are produced in a refrigerant system when the A/C compressor is operating. Extreme care must be exercised to make sure that each of the refrigerant system connections is pressure-tight and leak free. It is a good practice to inspect all flexible hose refrigerant lines at least once a year to make sure they are in good condition and properly routed.

Depending on vehicle, model and market application, refrigerant lines are connected to each other or other A/C system components with block-type or quick-connect type fittings. To ensure the integrity of the refrigerant system, O-rings and/or gaskets may be used to seal the refrigerant system connections.

The refrigerant lines and hoses cannot be repaired and must be replaced if leaking or damaged.

WARNING

WARNING

WARNING: The A/C system contains refrigerant under high pressure. Repairs should only be performed by qualified service personnel. Serious or fatal injury may result from improper service procedures.

WARNING: Avoid breathing the refrigerant and refrigerant oil vapor or mist. Exposure may irritate the eyes, nose, and/or throat. Wear eye protection when servicing the A/C refrigerant system. Serious eye injury can result from direct contact with the refrigerant. If eye contact occurs, seek medical attention immediately.

WARNING: Do not expose the refrigerant to open flame. Poisonous gas is created when refrigerant is burned. An electronic leak detector is recommended. Serious or fatal injury may result from improper service procedures.

WARNING: If accidental A/C system discharge occurs, ventilate the work area before resuming service. Large amounts of refrigerant released in a closed work area will displace the oxygen and cause suffocation and serious or fatal injury.

WARNING: The evaporation rate of R-134a refrigerant at average temperature and altitude is extremely high. As a result, anything that comes in contact with the refrigerant will freeze. Always protect the skin or delicate objects from direct contact with the refrigerant.

WARNING: The R-134a service equipment or the vehicle refrigerant system should not be pressure tested or leak tested with compressed air. Some mixtures of air and R-134a have been shown to be combustible at elevated pressures. These mixtures are potentially dangerous, and may result in

fire or explosion causing property damage and serious or fatal injury.

WARNING: The engine cooling system is designed to develop internal pressures up to 145 kilopascals (21 pounds per square inch). Do not remove or loosen the coolant pressure cap, cylinder block drain plugs, radiator drain, radiator hoses, heater hoses, or hose clamps while the engine cooling system is hot and under pressure. Allow the vehicle to cool for a minimum of 15 minutes before opening the cooling system for service. Failure to observe this warning can result in serious burns from the heated engine coolant.

CAUTION

CAUTION

CAUTION: Never add R-12 to a refrigerant system designed to use R-134a. Do not use R-12 equipment or parts on an R-134a A/C system. These refrigerants are not compatible and damage to the A/C system will result.

CAUTION: Never use R-12 refrigerant oil in an A/C system designed to use R-134a refrigerant oil. These refrigerant oils are not compatible and damage to the A/C system will result.

CAUTION: The use of A/C system sealers may result in damage to A/C refrigerant recovery/evacuation/recharging equipment and/or A/C system. Many federal, state/provincial and local regulations prohibit the recharge of A/C systems with known leaks. DaimlerChrysler recommends the detection of A/C system leaks through the use of approved leak detectors and fluorescent leak detection dyes. Vehicles found with A/C system sealers should be treated as contaminated and replacement of the entire A/C refrigerant system is recommended. A/C systems found to be contaminated with A/C system sealers, A/C stop-leak products or seal conditioners voids the warranty for the A/C system.

CAUTION: Recover the refrigerant before opening any fitting or connection. Open the fittings with caution, even after the system has been discharged. Never open or loosen a connection before recovering the refrigerant.

CAUTION: If equipped, do not remove the secondary retention clip from any spring-lock coupler connection while the refrigerant system is under pressure. Recover the refrigerant before removing the secondary retention clip. Open the fittings with caution, even after the system has been discharged. Never open or loosen a connection before recovering the refrigerant.

CAUTION: The internal parts of the A/C system will remain stable as long as

moisture-free refrigerant and refrigerant oil is used. Abnormal amounts of dirt, moisture or air can upset the chemical stability. This may cause operational troubles or even serious damage if present in more than very small quantities. Before disconnecting a component, clean the outside of the fittings thoroughly to prevent contamination from entering the refrigerant system. Keep service tools and the work area clean. Do not open the refrigerant system or uncap a replacement component until you are ready to service the system. Immediately after disconnecting a component from the refrigerant system, seal the open fittings with a cap or plug. This will prevent contamination from entering the A/C system.

CAUTION: Refrigerant oil will absorb moisture from the atmosphere if left uncapped. Do not open a container of refrigerant oil until you are ready to use it. Replace the cap on the oil container immediately after using. Store refrigerant oil only in a clean, airtight, and moisture-free container.

CAUTION: Do not overcharge the refrigerant system. Overcharging will cause excessive compressor head pressure and can cause compressor noise and A/C system failure.

DIAGNOSIS AND TESTING

REFRIGERANT SYSTEM LEAKS

WARNING: R-134a service equipment or vehicle A/C system should not be pressure tested or leak tested with compressed air. Mixture of air and R-134a can be combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing property damage and possible serious or fatal injury.

Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved service equipment meeting SAE requirements to discharge an R-134a system. If accidental system discharge occurs, ventilate work area before resuming service.

NOTE: If the A/C system refrigerant charge is empty or low, a leak in the A/C system is likely. Visually inspect all A/C lines, fittings and components for an oily residue. Oil residue can be an indicator of an A/C system leak location.

NOTE: The only way to correctly determine if the A/C system is fully charged with refrigerant to perform the A/C Performance Test. See A/C PERFORMANCE.

Connect a suitable manifold gauge set and determine if the static A/C system pressure is above or below 345 kPa (50 psi). See **REFRIGERANT SYSTEM SERVICE EQUIPMENT**. If less than 345 kPa (50 psi), proceed to **SYSTEM EMPTY**. If greater than 345 kPa (50 psi), go to **SYSTEM LOW**.

SYSTEM EMPTY

1. Evacuate the refrigerant system to the lowest degree of vacuum possible (approximately -88 kPa (- 26 in. Hg) or greater vacuum). See **REFRIGERANT SYSTEM EVACUATE**. Determine if the system holds a vacuum for 15 minutes. If the refrigerant system will not maintain vacuum level, proceed to step 2. If vacuum is held, a leak is probably not present.
2. Prepare and dispense 0.284 kilograms (10 ounces) of R-134a refrigerant into the evacuated refrigerant system. See **REFRIGERANT SYSTEM CHARGE**, and proceed to **SYSTEM LOW** .

SYSTEM LOW

1. Position the vehicle in a wind-free work area. This will aid in detecting small leaks.
2. Operate the heating-A/C system with the engine at idle under the following conditions for at least 5 minutes.

   Doors or windows open

   Transmission in Park or Neutral with the parking brake set (depending on transmission application)

   A/C compressor engaged with A/C-heater controls set to Recirculation mode (max-A/C), full cool, panel mode and high speed blower.

   CAUTION: A leak detector only designed for R-12 refrigerant will not detect leaks in an R-134a refrigerant system.

3. Shut the vehicle Off and wait 2-7 minutes. Then use an electronic leak detector that is designed to detect R-134a refrigerant and search for leaks. Fittings, lines or components that appear to be oily usually indicate a refrigerant leak. To inspect the A/C evaporator for leaks, insert the leak detector probe into the passenger side floor duct. A dye for R-134a is available to aid in leak detection. Use only Chrysler approved refrigerant dye.

STANDARD PROCEDURE

REFRIGERANT SYSTEM EVACUATE

NOTE: Special effort must be used to prevent moisture from entering the A/C system oil. Moisture in the oil is very difficult to remove and will cause a reliability problem with the A/C compressor.

If an A/C compressor designed to use R-134a refrigerant is left open to the atmosphere for an extended period of time. It is recommended that the refrigerant oil be drained and replaced with new oil or a new A/C compressor be used. This will eliminate the possibility of contaminating the refrigerant system.

If the refrigerant system has been open to the atmosphere, it must be evacuated before the system can be filled. Moisture and air mixed with the refrigerant will raise the compressor head pressure above acceptable operating levels. This will reduce the performance of the A/C system and damage the A/C compressor. Moisture will boil at near room temperature when exposed to vacuum. To evacuate the refrigerant system:

NOTE: When connecting the service equipment coupling to the line fitting, verify that the valve of the coupling is fully closed. This will reduce the amount of effort required to make the connection.

1. Recover the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
2. Connect a suitable charging station, refrigerant recovery machine or a manifold gauge set with vacuum pump and refrigerant recovery equipment. See **REFRIGERANT SYSTEM SERVICE EQUIPMENT**.
3. Open the suction and discharge valves and start the vacuum pump. The vacuum pump should run a minimum of 45 minutes prior to charge to eliminate all moisture in system. When the suction gauge reads to the lowest degree of vacuum possible (approximately -88 kPa (- 26 in. Hg) or greater) for 30 minutes, close all valves and turn off vacuum pump. If the system fails to reach specified vacuum, the refrigerant system likely has a leak that must be corrected. If the refrigerant system maintains specified vacuum for at least 30 minutes, start the vacuum pump, open the suction and discharge valves. Then allow the system to evacuate an additional 10 minutes.
4. Close all valves. Turn off and disconnect the vacuum pump.
5. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

REFRIGERANT SYSTEM SERVICE EQUIPMENT

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

WARNING: Eye protection must be worn when servicing an air conditioning refrigerant system. Turn off (rotate clockwise) all valves on the equipment being used, before connecting to or disconnecting from the refrigerant system. Failure to observe these warnings may result in personal injury or death.

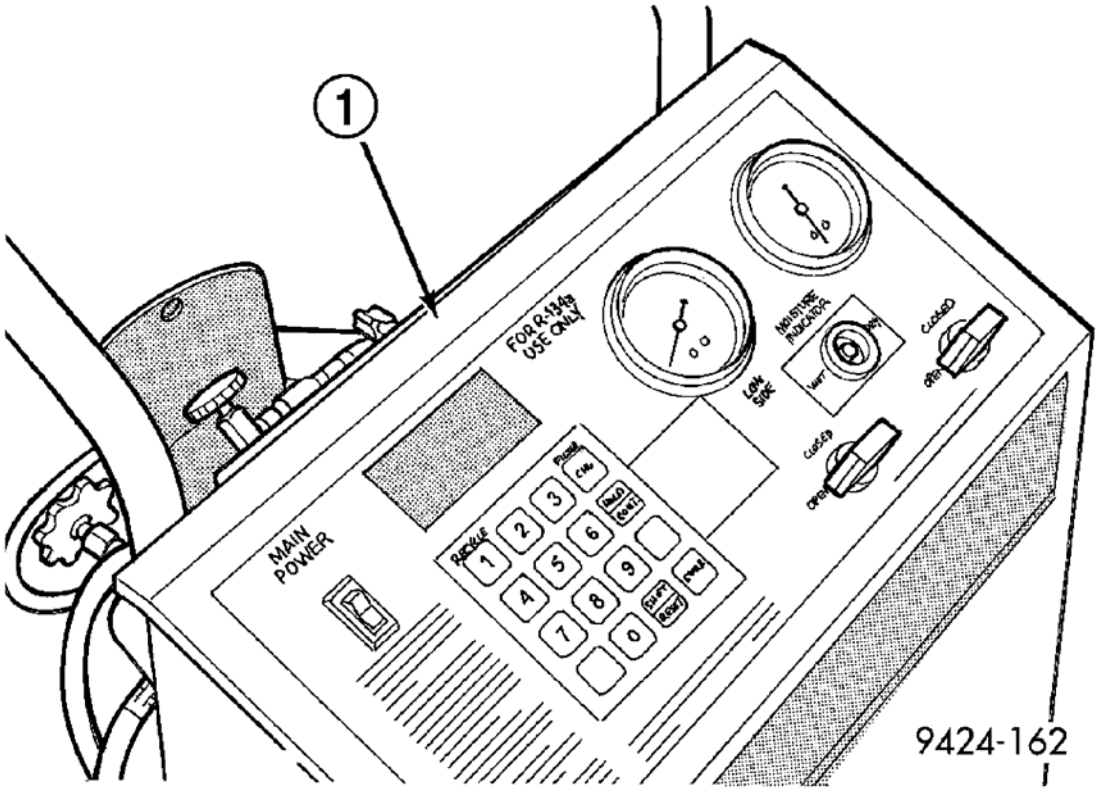


Fig. 118: R-134a Refrigerant Recovery/Recycling/Charging Station
Courtesy of CHRYSLER LLC

When servicing the A/C system, a R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2210 must be used (1). Contact an automotive service equipment supplier for refrigerant recovery/recycling/charging equipment. Refer to the operating instructions supplied by the equipment manufacturer for proper care and use of this equipment.

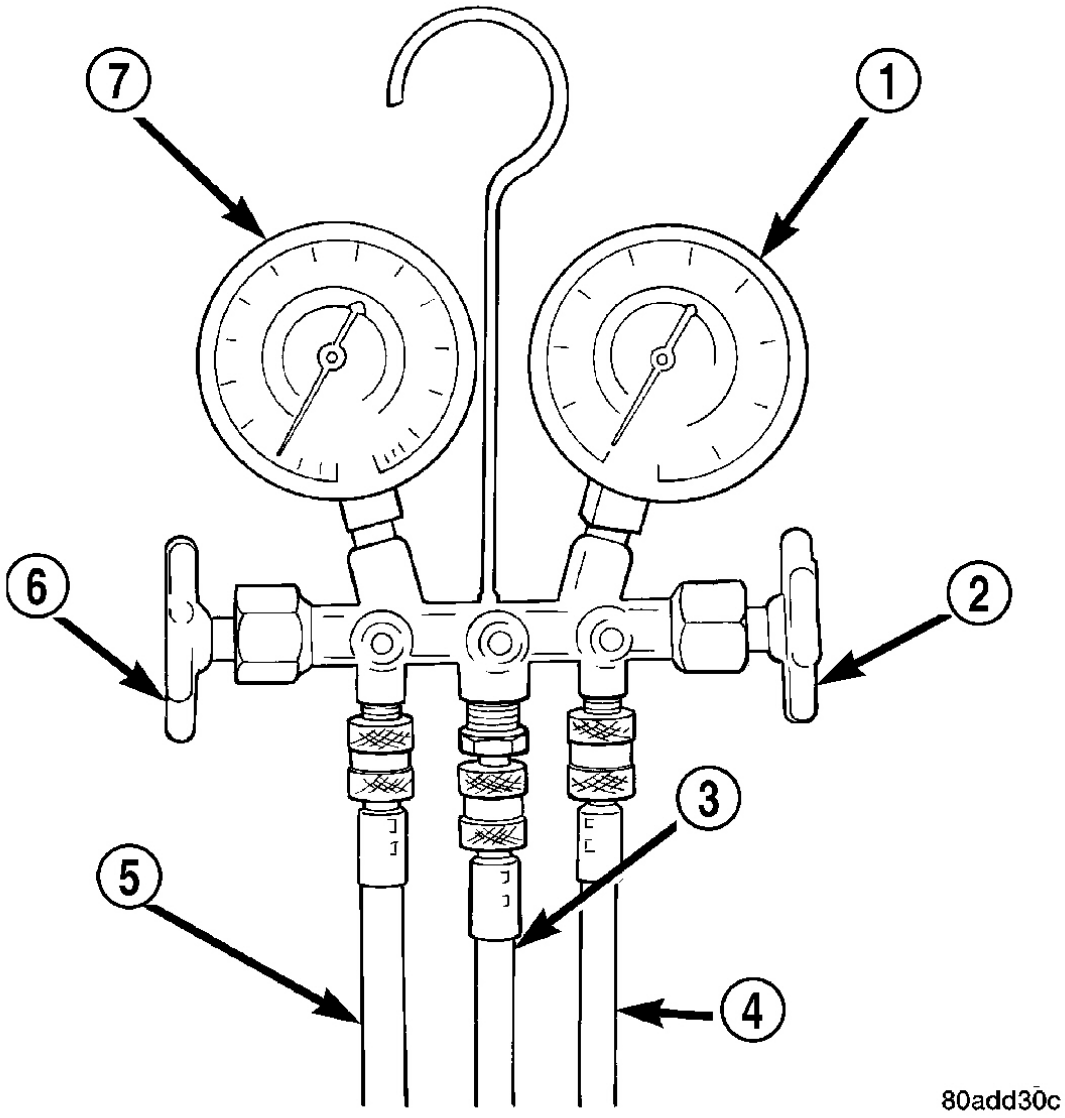


Fig. 119: Manifold Gauge Set
Courtesy of CHRYSLER LLC

A manifold gauge set (1) may be needed with some recovery/recycling/charging equipment. The manifold gauge set should have manual shut-off valves (2 and 6), or automatic back-flow valves located at the service port connector end of the manifold gauge set hoses (4 and 5). This will prevent refrigerant from being released into the atmosphere.

MANIFOLD GAUGE SET CONNECTIONS

CAUTION: Do not use an R-12 manifold gauge set on an R-134a system. The refrigerants are not compatible and system damage will result.

LOW PRESSURE GAUGE HOSE - The low pressure hose (Blue with Black stripe) attaches to the low-side service port. This port is located on the A/C suction line near the rear of the engine compartment.

HIGH PRESSURE GAUGE HOSE - The high pressure hose (Red with Black stripe) attaches to the high-side service port. This port is located on the A/C liquid line near the front of the engine compartment.

RECOVERY, RECYCLING, EVACUATION AND CHARGING HOSE - The center manifold hose (Yellow, or White, with Black stripe) is used to recover, evacuate, and charge the refrigerant system. When the low or high pressure valves on the manifold gauge set are opened, the refrigerant in the system will escape through this hose.

REFRIGERANT SYSTEM RECOVERY

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions may result in serious or fatal injury.

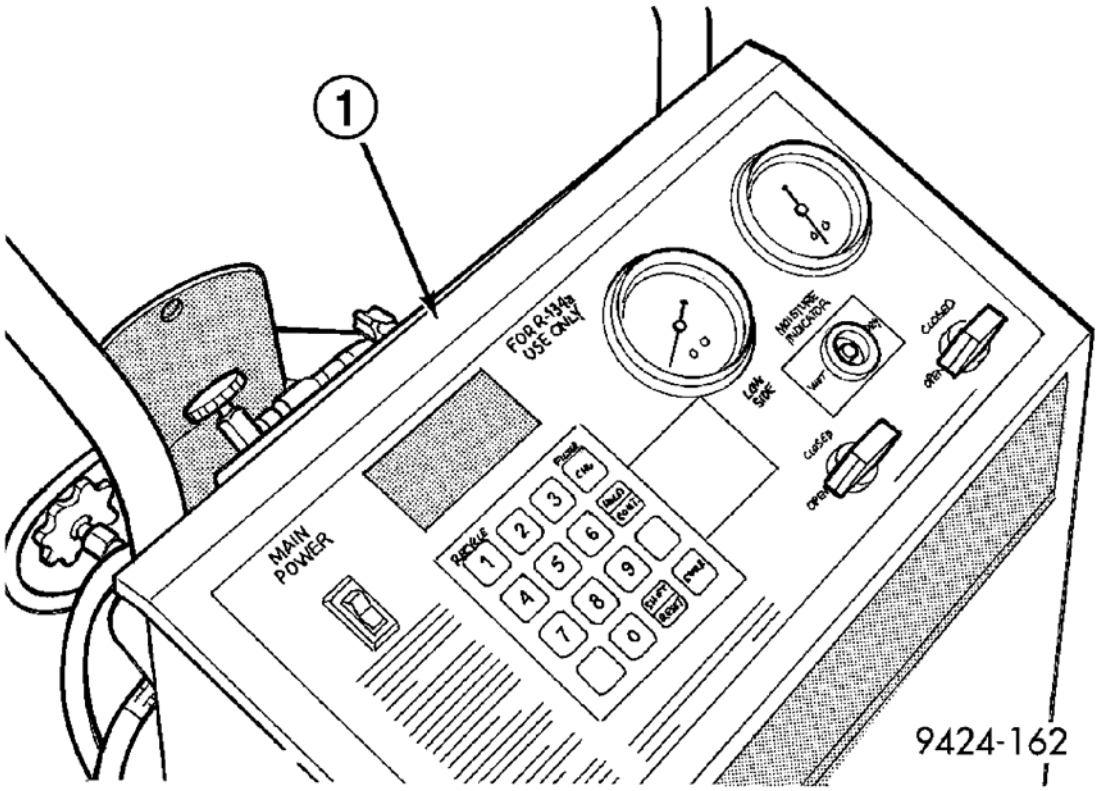


Fig. 120: R-134a Refrigerant Recovery/Recycling/Charging Station
Courtesy of CHRYSLER LLC

An R-134a refrigerant recovery/recycling/charging station (1) that meets SAE standard J2210 must be used to

recover the refrigerant from the R-134a refrigerant system. Refer to the operating instructions supplied by the equipment manufacturer for the proper care and use of this equipment.

REFRIGERANT SYSTEM CHARGE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The Underhood HVAC Specification Label contains the refrigerant fill specification of the vehicle being serviced.

After all refrigerant system leaks have been repaired and the refrigerant system has been evacuated, a refrigerant charge can be injected into the system. See **REFRIGERANT CHARGE LEVEL** or the Underhood HVAC Specification Label for the proper amount of the refrigerant charge.

An R-134a refrigerant recovery/recycling/charging station that meets SAE Standard J2210 must be used to charge the refrigerant system with R-134a refrigerant. Refer to the operating instructions supplied by the equipment manufacturer for proper care and use of this equipment.

CHARGING PROCEDURE

CAUTION: A small amount of refrigerant oil is removed from the A/C system each time the refrigerant system is recovered and evacuated. Before charging the A/C system, you MUST replenish any oil lost during the recovery process. Refer the equipment manufacturer instructions for more information.

1. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
2. Connect an R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2210 to the refrigerant system.
3. Refer to **SPECIFICATIONS** or the Underhood HVAC Specification Label for the proper amount of the refrigerant charge.
4. Measure the proper amount of refrigerant charge and heat it to 52°C (125°F) with the charging station. See the operating instructions supplied by the equipment manufacturer for proper use of this equipment.
5. Open both the suction and discharge valves, then open the charge valve to allow the heated refrigerant to flow into the system.
6. When the transfer of refrigerant has stopped, close both the suction and discharge valves.
7. If all of the refrigerant charge did not transfer from the dispensing device, open all of the windows in the vehicle and set the heating-A/C system controls so that the A/C compressor is engaged and the blower motor is operating at its lowest speed setting. Run the engine at a steady high idle (about 1400 RPM). If the A/C compressor does not engage, test the compressor clutch circuits and repair as required.

WARNING: Take care not to open the discharge (high pressure) valve at this time. Failure to follow this warning may result in serious or fatal injury.

8. Open the low-side valve to allow the remaining refrigerant to transfer to the refrigerant system.
9. Disconnect the charging station from the refrigerant system service ports.
10. Reinstall the caps onto the refrigerant system service ports.

COMPRESSOR-A/C

DESCRIPTION

COMPRESSOR-A/C

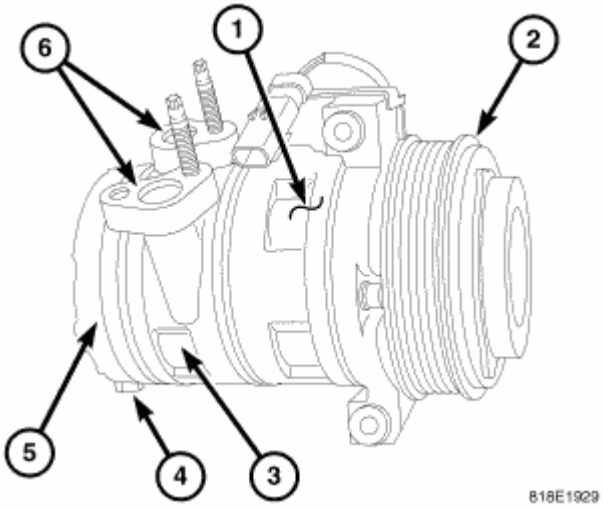


Fig. 121: A/C Compressor Components
Courtesy of CHRYSLER LLC

The A/C system on models equipped with the 2.8L and 4.0L engine use a Zexel DKS-17DS A/C compressor (1). This A/C compressor is a ten cylinder, double-acting swash plate-type compressor that uses an electrically operated clutch (2) to engage and disengage the A/C compressor from the engine accessory drive belt.

The DKS-17DS A/C compressor has a fixed displacement of 175.5 cubic centimeters (10.7 cubic inches) and has the suction and discharge ports (6) located on the compressor cylinder block (3). This A/C compressor also has an integral high pressure relief valve (4) located on the cylinder head (5) and a label which identifies the use of R-134a refrigerant.

VALVE-HIGH PRESSURE RELIEF-A/C COMPRESSOR

A high pressure relief valve is located on the A/C compressor. This mechanical valve is designed to vent refrigerant from the A/C system to protect against damage to the A/C compressor and other A/C system components, caused by condenser air flow restriction or an overcharge of refrigerant.

COMPRESSOR-A/C

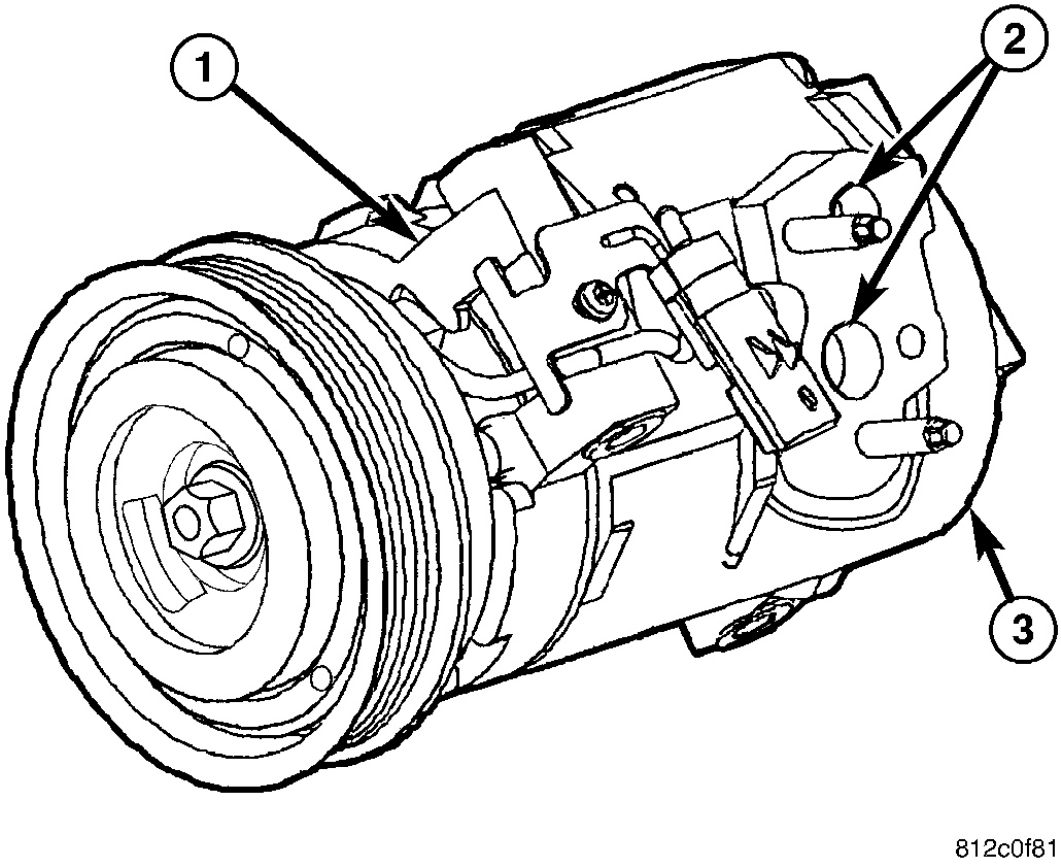


Fig. 122: A/C Compressor, Discharge Ports & Compressor Cylinder Head
Courtesy of CHRYSLER LLC

The A/C system on models equipped with the 3.7L engine use a Visteon HS-18 A/C compressor (1). This A/C compressor is a 10 cylinder reciprocating swash plate-type compressor that uses an electrically operated clutch to engage and disengage the A/C compressor from the engine accessory drive belt.

The HS-18 A/C compressor has a fixed displacement of 180 cubic centimeters (10.9 cubic inches) and has the suction and discharge ports (2) located on the compressor cylinder head (3) at the rear of the compressor and a label which identifies the use of R-134a refrigerant.

OPERATION

VALVE-HIGH PRESSURE RELIEF-A/C COMPRESSOR

The high pressure relief valve vents refrigerant from the A/C system when a discharge pressure of 3430 to 3930 kPa (497 to 570 psi) or above is reached. The high pressure relief valve closes with a minimum discharge pressure of 2990 kPa (4370 psi) is reached.

The high pressure relief valve vents only enough refrigerant to reduce the A/C system pressure, and then re-seats itself. The majority of the refrigerant is conserved in the A/C system. If the high pressure relief valve vents refrigerant, it does not mean the valve is faulty.

The high pressure relief valve is factory-calibrated and cannot be adjusted or repaired, and must not be removed or otherwise disturbed. The valve is only serviced as a part of the A/C compressor.

COMPRESSOR-A/C

The A/C compressor is driven by the engine through an electric clutch, drive pulley and belt arrangement. The A/C compressor is lubricated by refrigerant oil that is circulated throughout the refrigerant system with the refrigerant.

The A/C compressor draws in low-pressure refrigerant vapor from the A/C evaporator through its suction port. It then compresses the refrigerant into a high-pressure, high-temperature refrigerant vapor, which is then pumped to the A/C condenser through the compressor discharge port.

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level can prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C receiver/drier can cause serious damage to the replacement A/C compressor.

The A/C compressor cannot be repaired and must be replaced if inoperative or damaged. The compressor clutch, pulley and bearing assembly, and clutch field coil are available for service. If an internal failure of the A/C compressor has occurred, the A/C receiver/drier must also be replaced. See **REMOVAL**.

DIAGNOSIS AND TESTING

COMPRESSOR-A/C

When investigating an A/C system related noise, you must first know the conditions under which the noise occurs. These conditions include: weather, vehicle speed, transmission in gear or neutral, engine speed, engine temperature, and any other special conditions. Noises that develop during A/C operation can often be misleading. For example: What sounds like a failed front engine bearing or connecting rod, may be caused by loose bolts, nuts, mounting brackets or a loose compressor clutch assembly.

Drive belts are speed sensitive. At different engine speeds and depending upon drive belt tension, drive belts can develop noises that are mistaken for an A/C compressor noise. Improper drive belt tension can cause a misleading noise when the compressor clutch is engaged, which may not occur when the compressor clutch is disengaged. Check the accessory drive belt condition and tension as described in Cooling before beginning this procedure.

1. Select a quiet area for testing. Duplicate the complaint conditions as much as possible. Turn the A/C

compressor On and Off several times to clearly identify the compressor noise. Listen to the A/C compressor while the clutch is engaged and disengaged. Probe the A/C compressor with an engine stethoscope or a long screwdriver with the handle held to your ear to better localize the source of the noise.

2. Loosen all of the compressor mounting hardware and retighten. Check the compressor clutch retainer. Be certain that the clutch field coil is mounted securely to the A/C compressor, and that the clutch plate and pulley are properly aligned and have the correct air gap.
3. To duplicate high-ambient temperature conditions (high head pressure), restrict the air flow through the A/C condenser. Install a manifold gauge set or a scan tool to be certain that the discharge pressure does not exceed 2760 kPa (400 psi).
4. Check the refrigerant system plumbing for incorrect routing, rubbing or interference, which can cause unusual noises. Also check the refrigerant lines and hoses for kinks or sharp bends that will restrict refrigerant flow, which can cause noises. See **REFRIGERANT LINES**.
5. If the noise is from opening and closing of the high pressure relief valve, recover, evacuate and recharge the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**, and **REFRIGERANT SYSTEM EVACUATE** .
6. If the high pressure relief valve still does not seat properly, replace the A/C compressor. See **REMOVAL**.

REMOVAL

2.8L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The A/C compressor can be removed from the engine and repositioned without disconnecting the refrigerant lines or discharging the refrigerant system. Discharging is not necessary if servicing the A/C clutch or various engine components.

NOTE: LHD model shown in illustrations. RHD model similar.

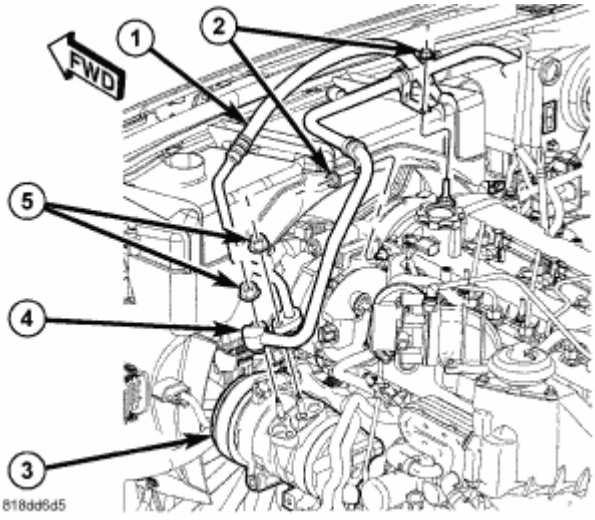


Fig. 123: Refrigerant Line System
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing. Refer to **REMOVAL** .
4. Remove the air inlet tube from the throttle body and the charge air cooler.
5. Remove the battery. Refer to **REMOVAL** .
6. Remove the radiator fan and fan shroud. Refer to **REMOVAL** .
7. Remove the accessory drive belt. Refer to **REMOVAL** .
8. Remove the generator. Refer to **REMOVAL** .
9. On LHD models, remove the two nuts (2) that secure the A/C suction line (4) to the top of the engine.
10. Remove the nuts (5) that secures the A/C suction line and A/C discharge line (1) to the A/C compressor (3).
11. Disconnect the A/C suction and discharge lines from the A/C compressor and remove and discard the O-ring seals and gaskets.

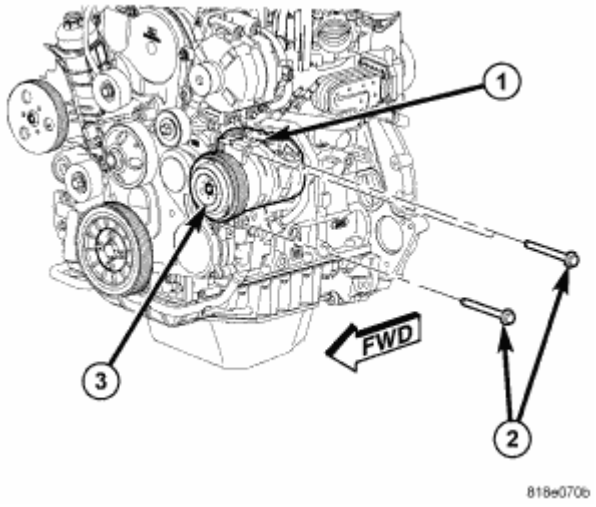


Fig. 124: A/C Clutch Field Coil Connector, Bolts & A/C Compressor
Courtesy of CHRYSLER LLC

12. Disconnect the engine wire harness from the A/C clutch field coil connector (1).
13. Support the A/C compressor (3) and remove the three bolts (2) that secure the compressor to the engine.
14. Remove the A/C compressor from the engine compartment.
15. Install plugs in, or tape over the opened refrigerant line fittings and the compressor ports.

4.0L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible serious or fatal injury.

NOTE: The A/C compressor can be removed from the engine and repositioned without disconnecting the refrigerant lines or discharging the refrigerant system. Discharging is not necessary if servicing the A/C clutch or various engine components.

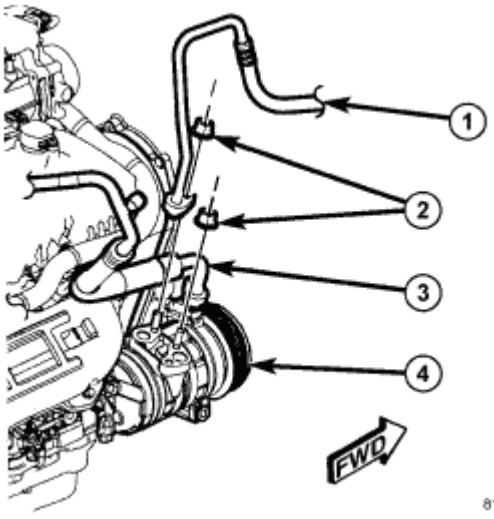


Fig. 125: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the accessory drive belt. Refer to **REMOVAL** .
5. Remove the nuts (2) that secure the A/C discharge line (1) and the A/C suction line (3) to the A/C compressor (4).
6. Disconnect the A/C discharge and suction lines from the A/C compressor and remove and discard the O-ring seals and gaskets.
7. Install plugs in, or tape over the opened refrigerant line fittings and the compressor ports.

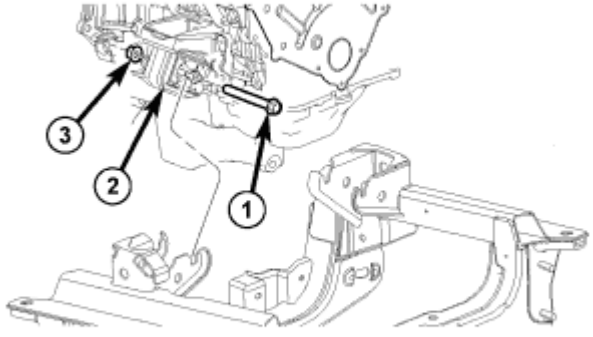


Fig. 126: Removing/Installing Nut From Through Bolt On Right Side Engine Mount
Courtesy of CHRYSLER LLC

8. Raise and support the vehicle.
9. Remove the nut (3) from the through bolt (1) on the right side engine mount (3).

CAUTION: Do not completely remove the right side motor mount through bolt when performing this procedure. The bolt supports the engine at the lower mount and removal of the bolt will allow the engine to sit further down in the frame, which may cause possible damage to the engine and various other components.

10. Support the engine with a suitable jack and partially remove the through bolt to allow the right side of the engine to be raised off of the motor mount.

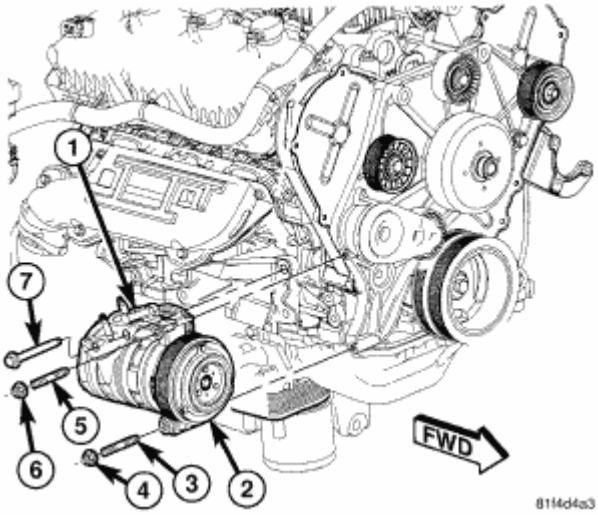


Fig. 127: Removing/Installing A/C Compressor
Courtesy of CHRYSLER LLC

11. Remove the jack stand and lower the vehicle.
12. Disconnect the engine wire harness from the A/C clutch field coil connector (1).

CAUTION: Use care when raising the engine when performing this procedure. Be sure to protect the bottom of the engine and various other components from damage.

13. Using a suitable floor jack and a block of wood under the oil pan to protect from damage, raise the right side of the engine to gain access to remove the stud (3) that secures the lower front of the A/C compressor (2) to the accessory drive belt bracket.
14. Remove the nut (4) and stud that secures the lower front of the A/C compressor to the accessory drive belt bracket.
15. Remove the bolt (7) that secures the rear of the A/C compressor to the engine.

16. Support the A/C compressor and remove the nut (6) and stud (5) that secures the upper front of the A/C compressor to the accessory drive belt bracket and remove the compressor.

3.7L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The A/C compressor can be removed from the engine and repositioned without disconnecting the refrigerant lines or discharging the refrigerant system. Discharging is not necessary if servicing the A/C clutch or various engine components.

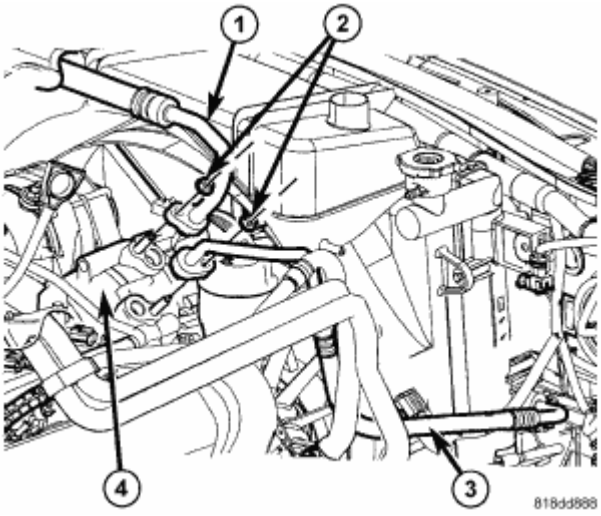


Fig. 128: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** or 4.0L - SERVICE INFORMATION).
4. Remove the accessory drive belt. Refer to **REMOVAL** .
5. Remove the nuts (2) that secure the A/C suction line (1) and A/C discharge line (3) to the A/C compressor (4).
6. Disconnect the A/C suction and discharge lines from the A/C compressor and remove and discard the O-ring seals and gaskets.

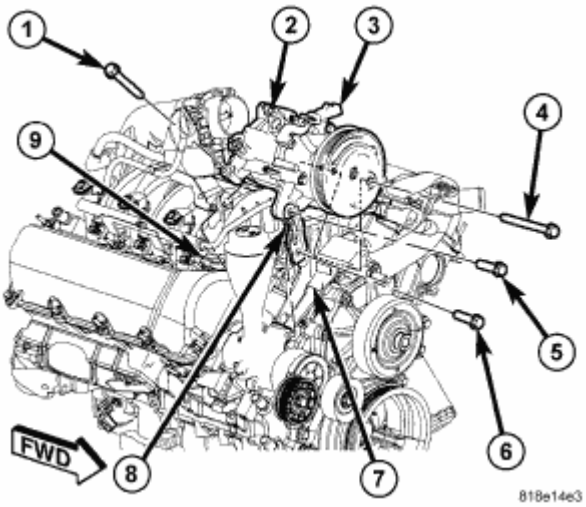


Fig. 129: A/C Compressor Components
Courtesy of CHRYSLER LLC

7. Disconnect the engine wire harness from the A/C clutch field coil connector (3).
8. Loosen the bolt (6) that secures the compressor bracket (8) to the engine front cover (7).
9. Remove the bolt (1) that secures the A/C compressor (2) to the intake manifold (9).
10. Remove the two bolts (4 and 5) that secure the A/C compressor to the front of the engine.
11. Remove the A/C compressor from the engine and install plugs in, or tape over the opened refrigerant line fittings and the compressor ports.

INSTALLATION

3.7L ENGINE

CAUTION: If the A/C compressor is being replaced, be certain to adjust the refrigerant system oil level. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C receiver/drier can cause serious damage to the replacement A/C compressor.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be removed from the new A/C compressor. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

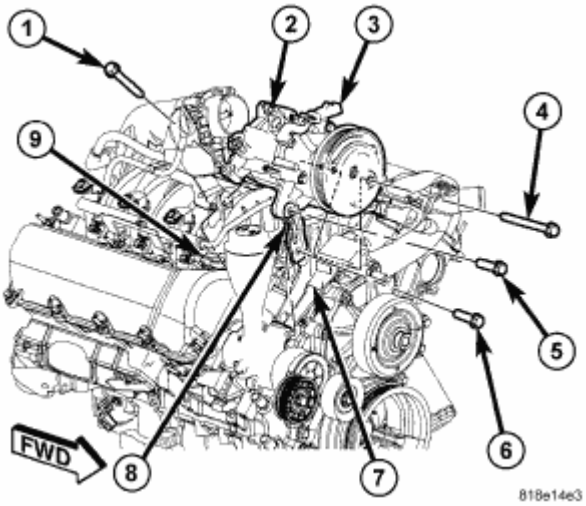


Fig. 130: A/C Compressor Components
Courtesy of CHRYSLER LLC

1. If the A/C compressor (2) is being replaced, the refrigerant oil in the old compressor must be first drained and measured. Then the oil in the new A/C compressor must be drained. Finally, the new compressor must be refilled with the same amount of new refrigerant oil that was drained out of the old compressor. See **REFRIGERANT OIL LEVEL** for more information. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
2. Position the A/C compressor to the intake manifold (9) and the engine front cover (7).
3. Install and hand tighten the three compressor retaining bolts (1, 4 and 5).
4. Tighten the bolts in the following sequence:
   - The rear bolt (1) to 55 N.m (41 ft. lbs.).
   - The front inboard bolt (5) to 40 N.m (30 ft. lbs.).
   - The front outboard bolt (4) to 55 N.m (41 ft. lbs.).
5. Tighten the bolt (6) that secures the compressor bracket (8) to the engine front cover to 40 N.m (30 ft. lbs.).
6. Connect the engine wire harness to the A/C clutch field coil connector (3).

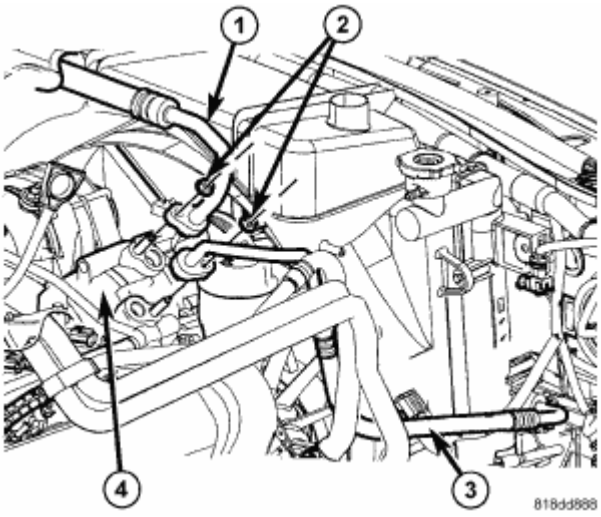


Fig. 131: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C Compressor
Courtesy of CHRYSLER LLC

7. Remove the tape or plugs from the opened refrigerant line fittings and the compressor ports.
8. Lubricate new O-ring seals with clean refrigerant oil and install them and new gaskets on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
9. Connect the A/C suction line (1) and the A/C discharge line (3) to the A/C compressor (4).
10. Install the nuts (2) that secure the A/C suction and discharge lines to the A/C compressor. Tighten the nuts to 12 N.m (105 in. lbs.).
11. Install the accessory drive belt. Refer to **INSTALLATION** .
12. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
13. Reconnect the negative battery cable.
14. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
15. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

4.0L ENGINE

CAUTION: If the A/C compressor is being replaced, be certain to adjust the refrigerant system oil level. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C receiver/drier can cause serious damage to the replacement A/C compressor.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil

Capacities chart to determine how much oil should be removed from the new A/C compressor. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

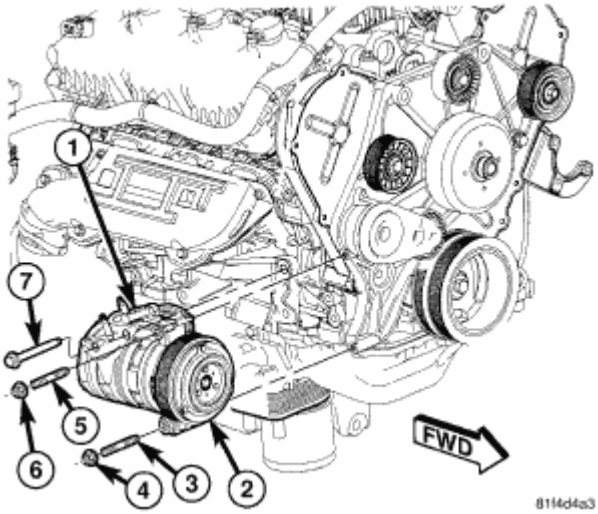


Fig. 132: Removing/Installing A/C Compressor
Courtesy of CHRYSLER LLC

1. If the A/C compressor (2) is being replaced, the refrigerant oil in the old compressor must be first drained and measured. Then the oil in the new A/C compressor must be drained. Finally, the new compressor must be refilled with the same amount of new refrigerant oil that was drained out of the old compressor. See **REFRIGERANT OIL LEVEL** for more information. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

CAUTION: Use care when raising the engine when performing this procedure. Be sure to protect the bottom of the engine and various other components from damage.

2. Using a suitable floor jack and a block of wood under the oil pan to protect from damage, raise the right side of the engine until the stud (3) that secures the lower front of the A/C compressor to the accessory drive belt bracket can be installed.
3. Install the stud that secures the lower front of the A/C compressor to the accessory drive belt bracket. Tighten the stud securely.
4. Install the stud (5) that secures the upper front of the compressor to the accessory drive belt bracket. Tighten the stud securely.
5. Loosely install the nuts (4 and 6) that secure the front of the A/C compressor to the accessory drive belt bracket.

6. Loosely install the bolt (7) that secures the rear of the A/C compressor to the engine.
7. Tighten each of the compressor fasteners to 28 N.m (21 ft. lbs.) using the following sequence:
   - The upper nut at front of compressor.
   - The lower nut at front of compressor.
   - The bolt at the rear of compressor.
8. Lower the right side of the engine and remove the jack and wood block.
9. Connect the engine wire harness to the A/C clutch field coil connector (1).
10. Lower the engine and remove the floor jack.

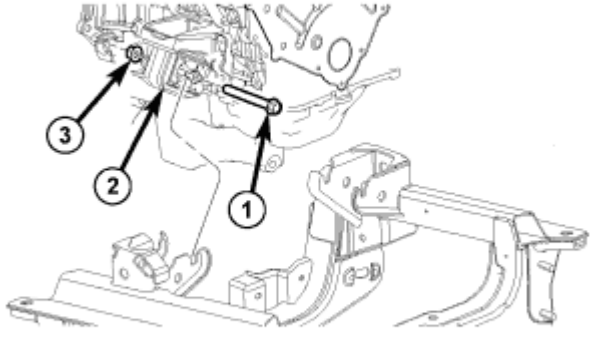


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Fig. 133: Removing/Installing Nut From Through Bolt On Right Side Engine Mount
Courtesy of CHRYSLER LLC

11. Raise and support the vehicle.
12. Support the engine with a suitable jack and install the through bolt (1) and nut (3) to the right side engine mount (3). Tighten the nut to 101 N.m (75 ft. lbs.).

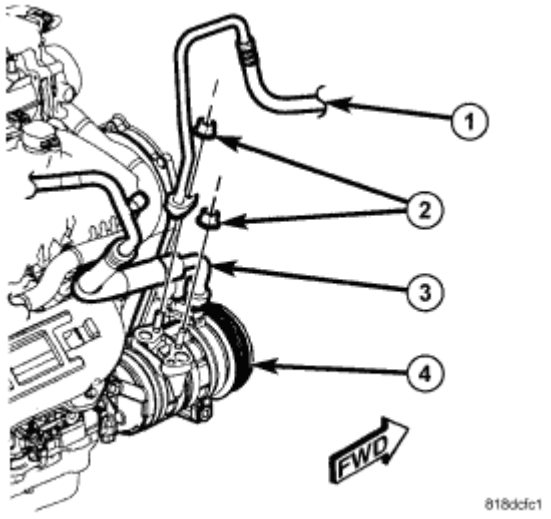

Fig. 134: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

13. Remove the jack stand and lower the vehicle.
14. Remove the tape or plugs from the opened refrigerant line fittings and the compressor ports.
15. Lubricate new O-ring seals with clean refrigerant oil and install them and new gaskets on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
16. Connect the A/C discharge line (1) and the A/C suction line (3) to the A/C compressor (4).
17. Install the nuts (2) that secure the A/C discharge and suction lines to the A/C compressor. Tighten the nuts to 12 N.m (105 in. lbs.).
18. Install the accessory drive belt. Refer to **INSTALLATION** .
19. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
20. Reconnect the negative battery cable.
21. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
22. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

2.8L ENGINE

CAUTION: If the A/C compressor is being replaced, be certain to adjust the refrigerant system oil level. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C receiver/drier can cause serious damage to the replacement A/C compressor.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be removed from the new A/C compressor. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: LHD model shown in illustrations. RHD model similar.

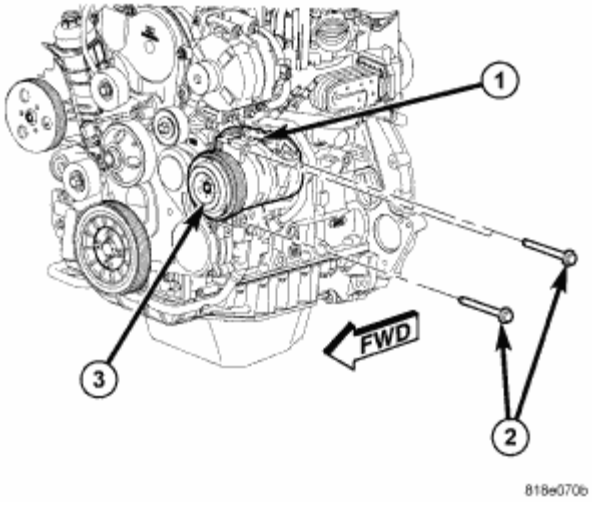

Fig. 135: A/C Clutch Field Coil Connector, Bolts & A/C Compressor
Courtesy of CHRYSLER LLC

1. If the A/C compressor (3) is being replaced, the refrigerant oil in the old compressor must be first drained and measured. Then the oil in the new A/C compressor must be drained. Finally, the new compressor must be refilled with the same amount of new refrigerant oil that was drained out of the old compressor. See **REFRIGERANT OIL LEVEL** for more information. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
2. Position the A/C compressor onto the engine.
3. Install the three bolts (2) that secure the A/C compressor to the engine. Tighten the bolts to 28 N.m (21 ft. lbs.).
4. Connect the engine wire harness to the A/C clutch field coil connector (1).

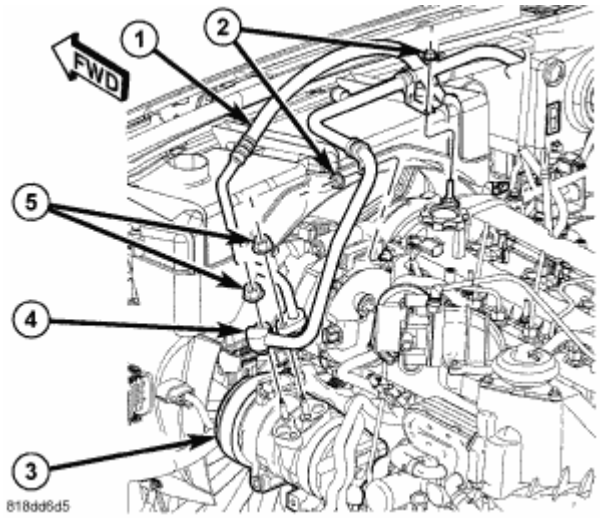

Fig. 136: Refrigerant Line System
Courtesy of CHRYSLER LLC

5. Remove the tape or plugs from the opened refrigerant line fittings and the compressor ports.
6. Lubricate new O-ring seals with clean refrigerant oil and install them and new gaskets on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
7. Connect the A/C suction line (4) and A/C discharge line (1) to the A/C compressor (3).
8. Install the nuts (5) that secure the A/C suction and discharge lines to the A/C compressor. Tighten the nuts to 12 N.m (105 in. lbs.).
9. On LHD models, install the two nuts (2) that secure the A/C suction line to the top of the engine. Tighten the nuts to 4.5 N.m (40 in. lbs.).
10. Install the generator. Refer to **INSTALLATION** .
11. Install the accessory drive belt. Refer to **INSTALLATION** .
12. Install the radiator fan and fan shroud. Refer to **INSTALLATION** .
13. Install the battery. Refer to **INSTALLATION** .
14. Install the air inlet tube to the throttle body and the charge air cooler. Tighten the clamps securely.
15. Install the air cleaner housing. Refer to **INSTALLATION** .
16. Reconnect the negative battery cable.
17. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
18. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

CONDENSER-A/C

DESCRIPTION

CONDENSER-A/C

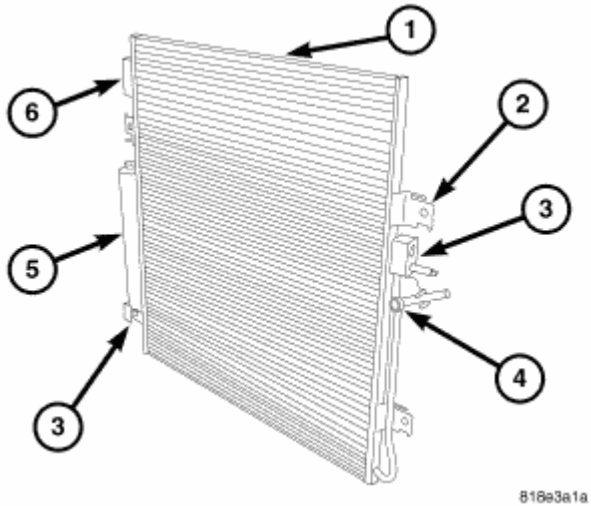

Fig. 137: A/C Condenser Components
Courtesy of CHRYSLER LLC

The A/C condenser (1) is located in the front of the engine compartment behind the front fascia. The A/C condenser is a heat exchanger that allows the high-pressure refrigerant gas being discharged by the A/C compressor to give up its heat to the air passing over the condenser fins, which causes the refrigerant to cool and change to a liquid state.

The A/C condenser is equipped with mounting provisions (2) to attach it to the radiator and has tapping blocks (3) for the A/C discharge line and for the receiver/drier (5). A spring lock coupler is used on the condenser outlet tube (4) for the A/C liquid line connection. See **DESCRIPTION** for more information.

On automatic transmission equipped vehicles, the A/C condenser is also equipped with an integral automatic transmission cooler (6).

OPERATION

CONDENSER-A/C

When air passes through the fins of the A/C condenser, the high-pressure refrigerant gas within the A/C condenser gives up its heat. The refrigerant then condenses as it leaves the A/C condenser and becomes a high-pressure liquid. The volume of air flowing over the condenser fins is critical to the proper cooling performance of the A/C system. Therefore, it is important that there are no objects placed in front of the radiator grille openings at the front of the vehicle or foreign material on the condenser fins that might obstruct proper air flow. Also, any factory-installed air seals or shrouds must be properly reinstalled following radiator or A/C condenser service.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C condenser has no serviceable parts. The O-ring seals used on the connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals and gaskets must be replaced whenever a

refrigerant line is removed from the A/C condenser.

The A/C condenser cannot be repaired and must be replaced if leaking or damaged.

REMOVAL

CONDENSER-A/C

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

CAUTION: Before removing the A/C condenser, note the location of each of the radiator/condenser air seals. These air seals are used to direct air through the A/C condenser and radiator. The air seals must be reinstalled in their proper locations in order for the A/C and engine cooling systems to perform as designed.

NOTE: LHD model shown in illustrations. RHD model similar.

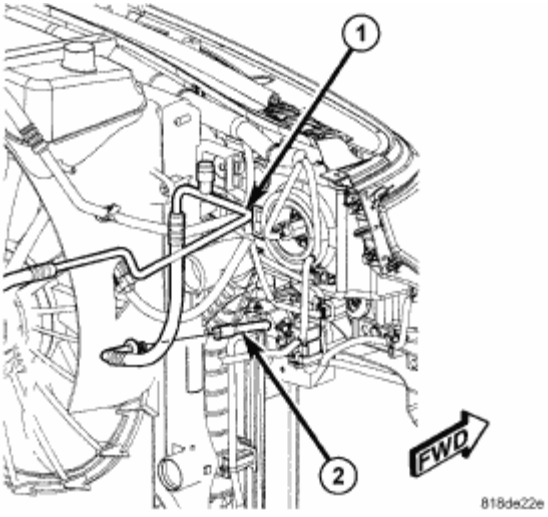

Fig. 138: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the engine air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the secondary retaining clip and using the proper A/C line disconnect tool (Special Tool Kit 7193 or equivalent), disconnect the A/C liquid line (1) from the condenser tube (2). See **REMOVAL**.

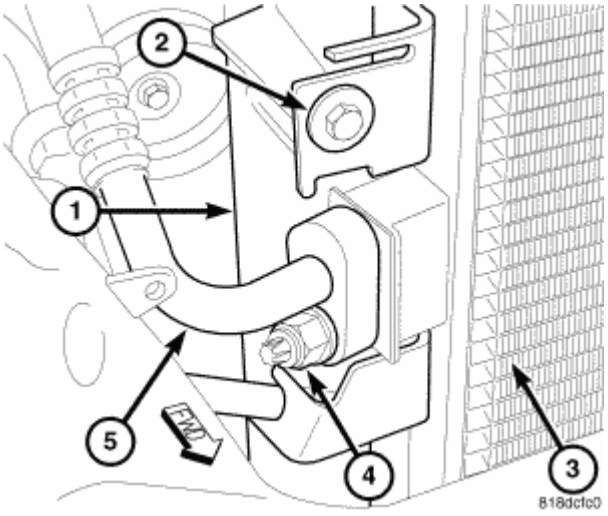

Fig. 139: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

NOTE: Upper condenser retaining bracket and bolt shown. Lower retaining bracket and bolt similar.

5. Remove the grille. Refer to **REMOVAL** .
6. If equipped with an automatic transmission, disconnect the transmission cooler lines from the transmission cooler portion of the A/C condenser. Refer to **REMOVAL** .
7. Position the right side condenser air seal out of the way to gain access to the discharge line fitting and the lower condenser retaining bolt.

NOTE: Rotate and tilt the A/C discharge line as necessary to disconnect it from the A/C condenser.

8. Remove the nut (4) that secures the A/C discharge line (5) to the A/C condenser (3) and disconnect the discharge line.
9. Remove the two bolts (2) that secure the A/C condenser to the right side of the radiator (1).
10. Carefully lift the A/C condenser straight up to disengage the condenser mounting brackets from the radiator and remove the condenser from the vehicle.
11. If required, remove the A/C receiver/drier from the A/C condenser. See **REMOVAL**.
12. Remove and discard the O-ring seals and gasket and install plugs in, or tape over the opened refrigerant line fittings and the condenser and receiver/drier ports.

INSTALLATION

CONDENSER-A/C

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly

adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The radiator/condenser air seals must be reinstalled in their proper locations in order for the A/C and engine cooling systems to perform as designed.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: If only the A/C condenser is being replaced, add 30 milliliters (1 fluid ounce) of refrigerant oil to the refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: LHD model shown in illustrations. RHD model similar.

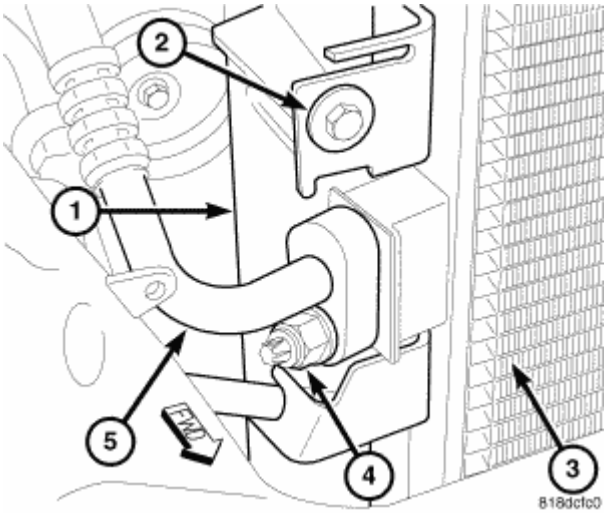

Fig. 140: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

NOTE: Upper condenser retaining bracket and bolt shown. Lower retaining bracket and bolt similar.

1. Remove the tape or plugs from the opened refrigerant line fittings and the receiver/drier and condenser ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and a new gasket onto the

refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

3. If removed, install the A/C receiver/drier onto the A/C condenser (3). See **INSTALLATION**.
4. Position the A/C condenser into the engine compartment and install it onto the condenser mounting brackets.
5. Install the two bolts (2) that secure the A/C condenser to the right side of the radiator (1). Tighten the bolts to 5 N.m (44 in. lbs.).

NOTE: Rotate and tilt the A/C discharge line as necessary to connect it to the A/C condenser.

6. Connect the A/C discharge line (5) to the A/C condenser and install the retaining nut (4). Tighten the nut to 22.5 N.m (200 in. lbs.).
7. Reposition the right side condenser air seal.
8. If equipped with an automatic transmission, connect the transmission cooler lines to the transmission cooler portion of the A/C condenser. Refer to **INSTALLATION** .
9. Install the grille. Refer to **INSTALLATION** .

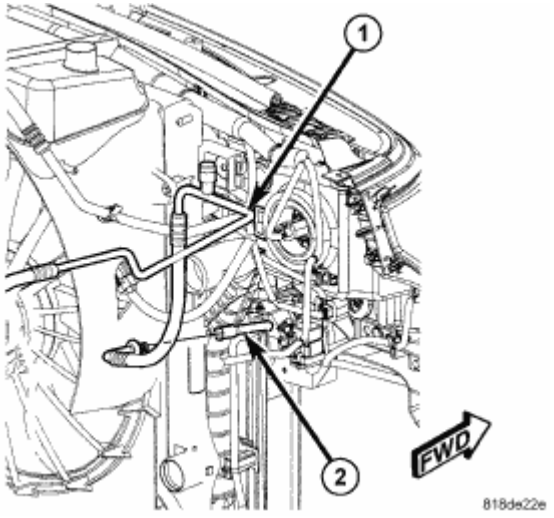

Fig. 141: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

10. Connect the A/C liquid line (1) to the condenser tube (2) and install the secondary retaining clip. See **INSTALLATION**.
11. Install the engine air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for **4.0L - SERVICE INFORMATION**).
12. Reconnect the negative battery cable.
13. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
14. If the A/C condenser is being replaced, add 30 milliliters (1 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See

REFRIGERANT OIL LEVEL. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

15. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

CORE-HEATER

DESCRIPTION

CORE-HEATER

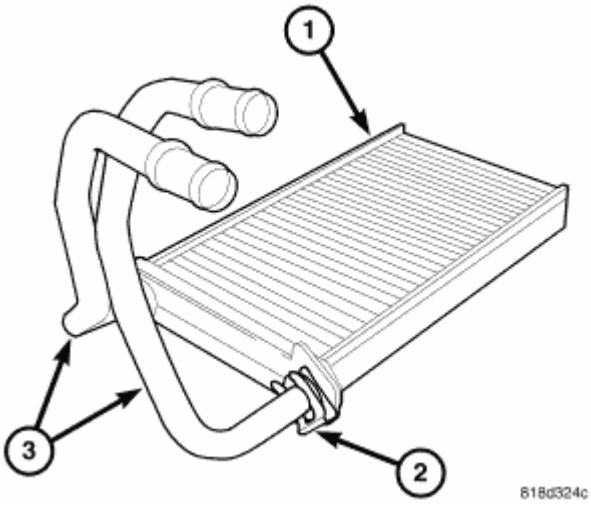

Fig. 142: Heater Core, Metal Retaining Clamps & Heater Core Tubes
Courtesy of CHRYSLER LLC

The heater core (1) is mounted into the HVAC air distribution housing, located behind the instrument panel. The heater core is a heat exchanger made of rows of tubes and fins. The heater core is secured to the air distribution housing by four plastic retaining tabs. The heater core tubes (3) are attached to the heater core by use of metal retaining clamps (2) and rubber O-ring seals.

The heater core tubes are not serviced separately from the heater core. The air distribution housing must be removed from the vehicle to service the heater core.

OPERATION

CORE-HEATER

Engine coolant is circulated through the heater hoses to the heater core at all times. As the coolant flows through the heater core, heat is removed from the engine and is transferred to the heater core tubes and fins. Air directed through the heater core picks up the heat from the heater core fins. The blend-air door allows control of the heater output air temperature by regulating the amount of air flowing through the heater core. The blower motor speed controls the volume of air flowing through the HVAC housing.

The heater core cannot be repaired and it must be replaced if inoperative, leaking or damaged.

REMOVAL

CORE-HEATER

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

WARNING: The heater core tubes are not serviced separately from the heater core. The heater core tubes should not be repositioned, loosened or removed from the heater core. Failure to follow this warning could result in a coolant leak and possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

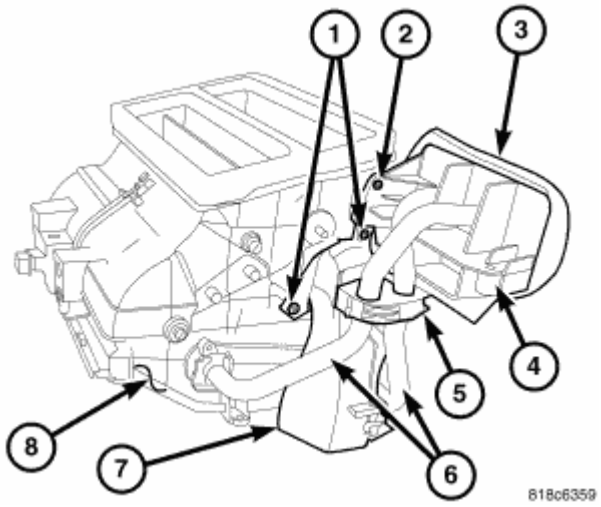

Fig. 143: Air Distribution Housing Assembly
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Remove the air distribution housing from the HVAC housing. See **REMOVAL**.
3. Remove the two screws (1) that secure the upper front passenger side floor duct (7) to the passenger side of the air distribution housing (8) and remove the duct.

NOTE: If the foam seal for the heater core tube flange is deformed or damaged, it must be replaced.

4. Carefully remove the foam seal (4) from the heater core tube flange (5). If the seal is deformed or damaged, it must be replaced.
5. Remove the screw (2) that secures the heater core tube flange to the air distribution housing.
6. Disengage the plastic retainer (5) from around the heater core tubes (6) and remove the flange.

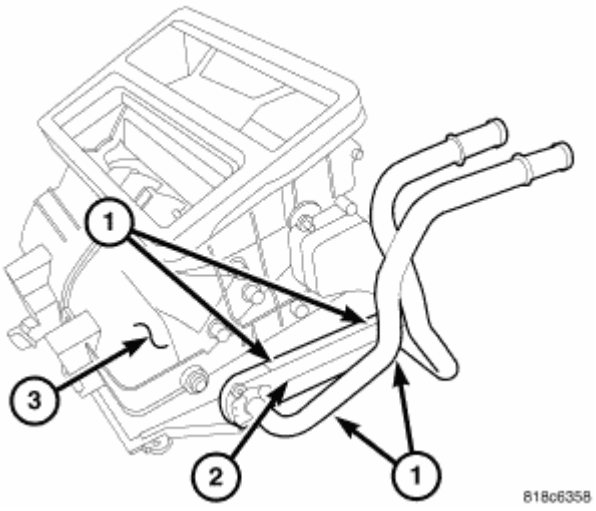

Fig. 144: Plastic Retaining Tabs, Heater Core & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the foam insulator around the heater core is deformed or damaged, the insulator must be replaced.

7. Disengage the four plastic retaining tabs (1) that secure the heater core (2) to the passenger side of the air distribution housing (3) and carefully remove the heater core from the housing.

INSTALLATION

CORE-HEATER

WARNING: The heater core tubes are not serviced separately from the heater core. The heater core tubes should not be repositioned, loosened or removed from the heater core. Failure to follow this warning could result in a coolant leak and possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

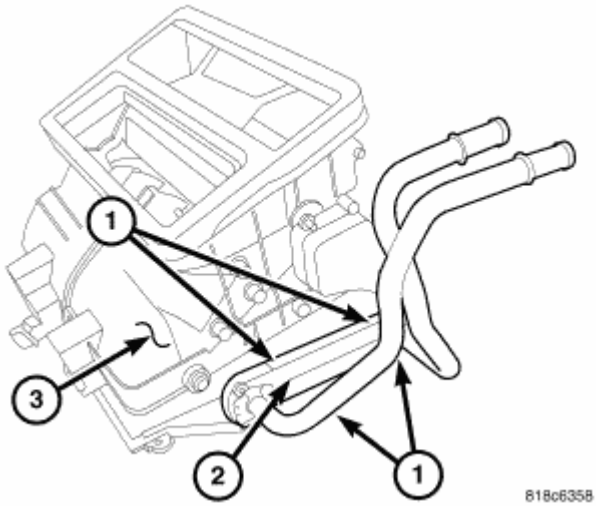

Fig. 145: Plastic Retaining Tabs, Heater Core & Air Distribution Housing
Courtesy of CHRYSLER LLC

NOTE: If the foam insulator around the heater core is deformed or damaged, the insulator must be replaced.

1. Carefully install the heater core (2) into the passenger side of the air distribution housing (3) and engage the four plastic retainer tabs (1) that secure the heater core to the housing. Make sure the retaining tabs are fully engaged.

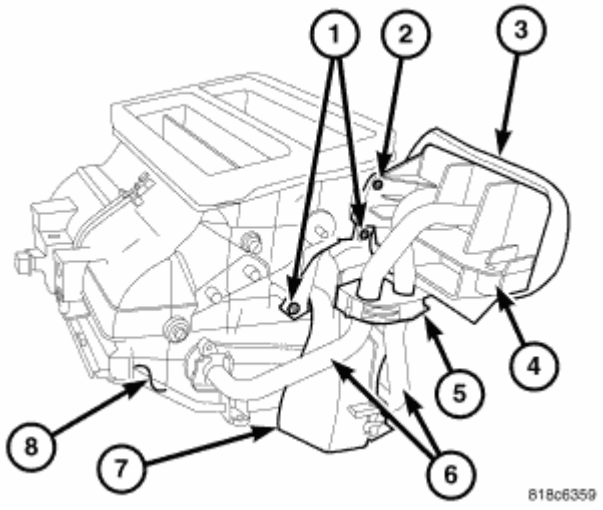

Fig. 146: Air Distribution Housing Assembly
Courtesy of CHRYSLER LLC

2. Position the heater core tube flange (4) over the heater core tubes (6) and onto the to the passenger side of the air distribution housing (8).
3. Engage the plastic retainer (5) around the heater core tubes. Make sure the retainer is fully engaged around the tubes.

4. Install the screw (2) that secure the heater core tube flange to the air distribution housing. Tighten the screws to 1.2 N.m (10 in lbs.).
5. Install the upper front passenger side floor duct (7) onto the air distribution housing and install the two retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).

NOTE: If the foam seal for the heater core tube flange is deformed or damaged, it must be replaced.

6. Install the foam seal (3) onto the heater core tube flange.
7. Install the air distribution housing onto the HVAC housing. See **INSTALLATION**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to CLEANING/REVERSE FLUSHING .

8. Install the HVAC housing assembly. See **INSTALLATION**.

CORE-VALVE-SERVICE PORT

DESCRIPTION

CORE-VALVE-SERVICE PORT

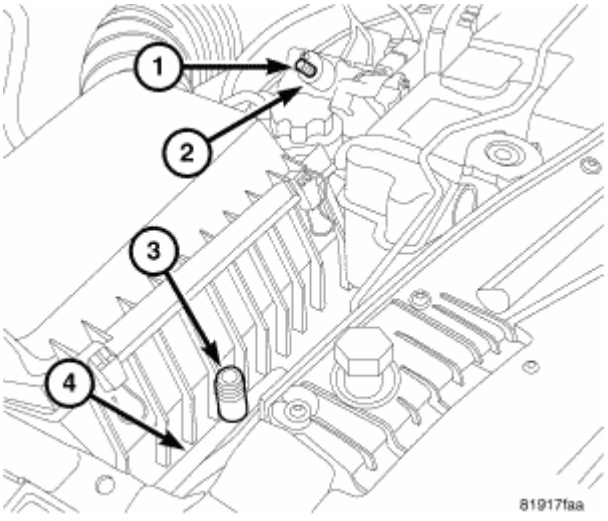

Fig. 147: Low-Side Service Port, A/C Suction Line, High-Side Service Port & A/C Liquid Line
Courtesy of CHRYSLER LLC

NOTE: 3.7L LHD model shown. 2.8L , 4.0L and RHD models similar.

Refrigerant system service ports are used to recover, recycle, evacuate, charge and test the A/C refrigerant system. Unique sizes are used on the two service ports for the R-134a refrigerant system to ensure the system is not accidentally contaminated with R-12 refrigerant or by service equipment used for R-12 refrigerant.

The low-side service port (1) is located on the A/C suction line (2) at either the rear of the engine compartment or near the A/C compressor, depending on engine and market. The high-side service port (3) is located on the A/C liquid line (4) near the front of the engine compartment. Both the high-side and low-side A/C service port valve cores are serviceable.

NOTE: The protective cap aids in sealing the service port and helps to protect the refrigerant system from contamination. Remember to always reinstall the protective caps onto the service ports when refrigerant system service is complete.

Each of the service ports has a threaded plastic protective cap installed over it from the factory. The service port caps are serviceable items.

REMOVAL

CORE-VALVE-SERVICE PORT

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions may result in serious or fatal injury.

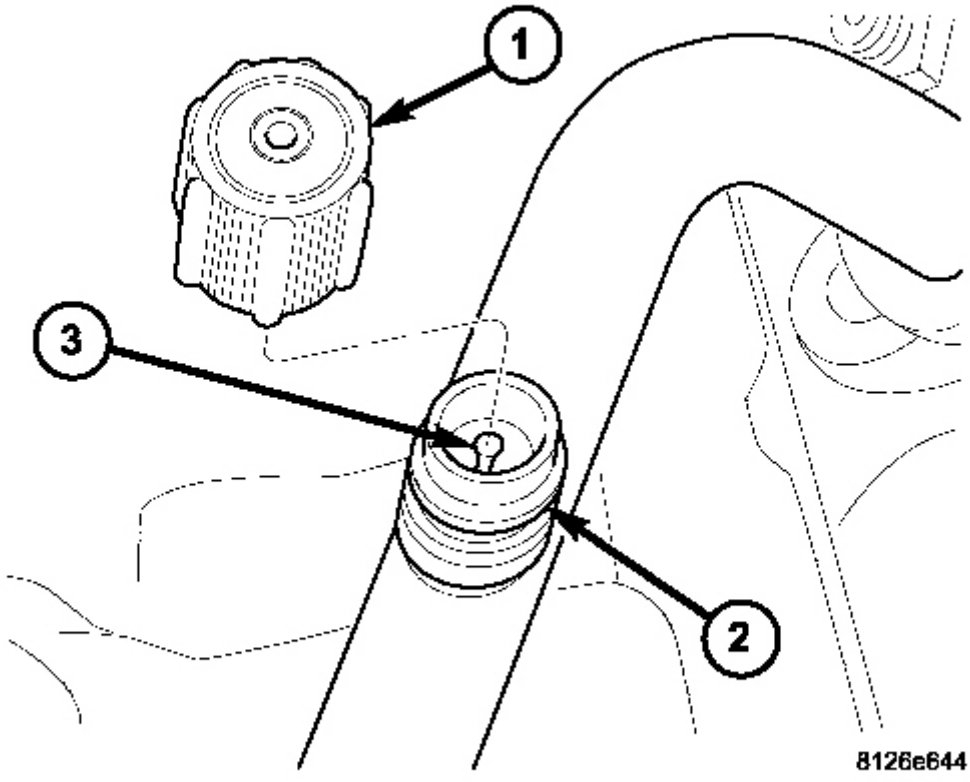

Fig. 148: Protective Cap, Service Port & Valve Core
Courtesy of CHRYSLER LLC

NOTE: Typical A/C service port shown.

1. Remove the protective cap (1) from the service port (2).
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Using a Schrader-type valve core tool, remove the valve core (3) from the service port.
4. Install a plug in, or tape over the opened service port(s).

INSTALLATION

CORE-VALVE-SERVICE PORT

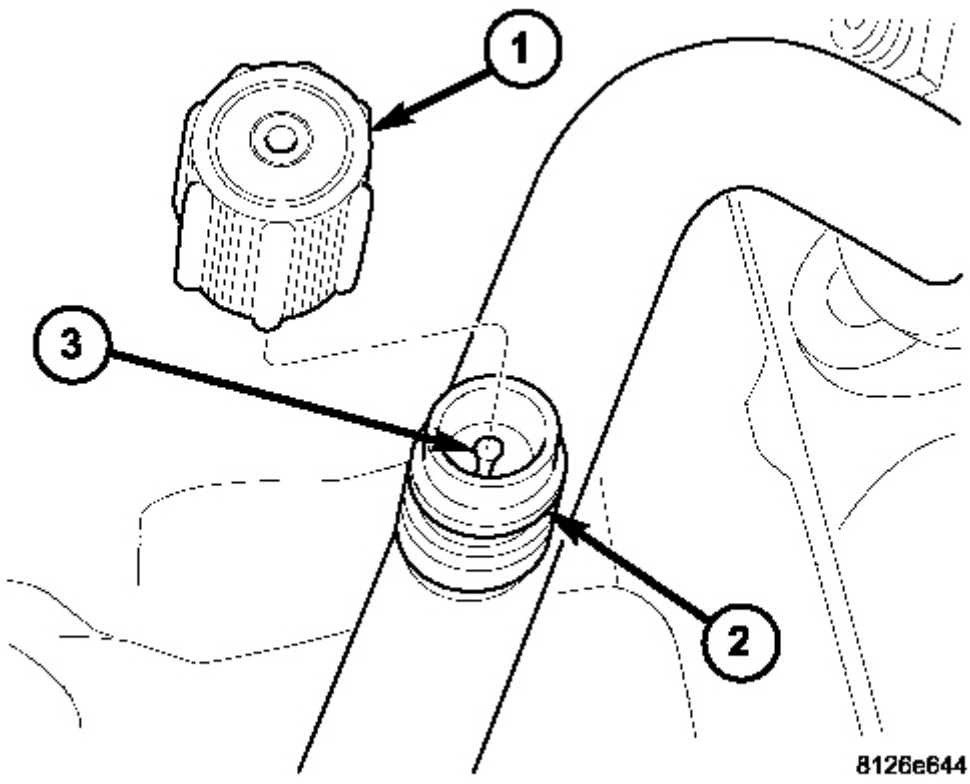

Fig. 149: Protective Cap, Service Port & Valve Core
Courtesy of CHRYSLER LLC

NOTE: Typical A/C service port shown.

1. Lubricate the valve core (3) with clean refrigerant oil prior to installation. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
2. Remove the tape or plug from the service port (2).

CAUTION: A valve core that is not fully seated in the A/C service port can result in damage to the valve during refrigerant system evacuation and charge. Such damage may result in a loss of system refrigerant while uncoupling the charge adapters.

3. Using a Schrader-type valve core tool, install and tighten the valve core into the service port(s).
4. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.

5. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

NOTE: The protective cap helps aid in service port sealing and helps protect the refrigerant system from contamination. Remember to always reinstall the protective cap onto the service port when refrigerant system service is complete.

6. Install the protective cap (1) onto the service port.

COUPLER-REFRIGERANT LINE

DESCRIPTION

COUPLER- REFRIGERANT LINE

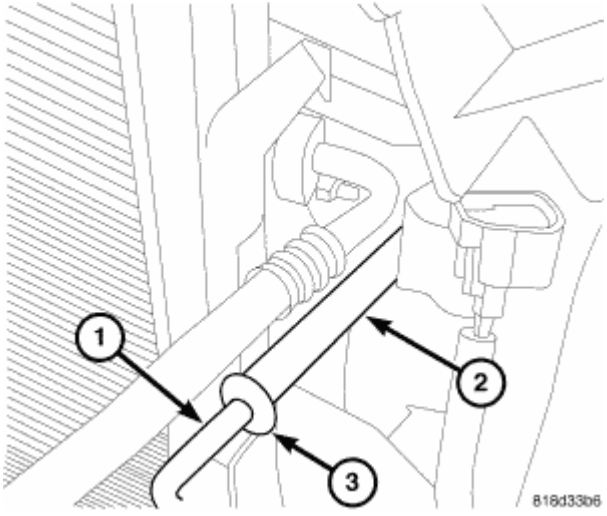

Fig. 150: A/C Liquid Line, A/C Condenser Outlet Tube & Spring-Lock Type Refrigerant Line Coupler
Courtesy of CHRYSLER LLC

The A/C liquid line (1) is attached to the A/C condenser outlet tube (2) by use of a spring-lock type refrigerant line coupler (3). A secondary retaining clip is installed over the connected coupler for added protection.

The spring-lock refrigerant line coupler requires a special disconnect tool for disengaging the two coupler halves.

OPERATION

COUPLER- REFRIGERANT LINE

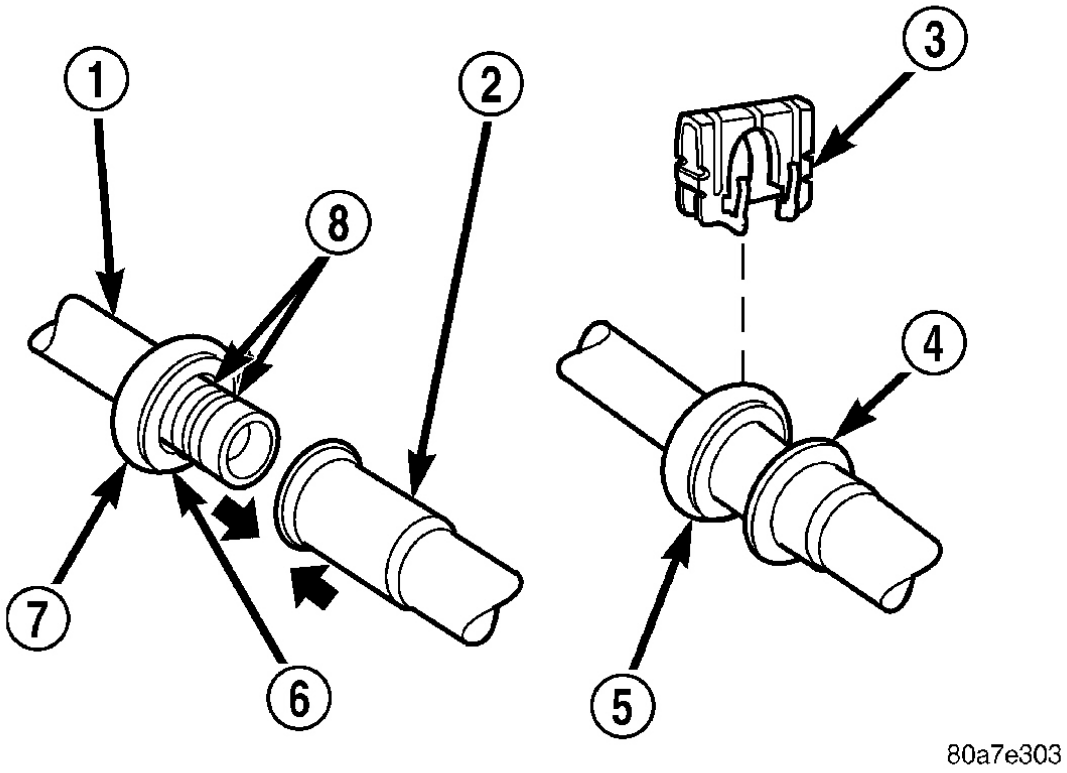

Fig. 151: Refrigerant Line Coupler Components
Courtesy of CHRYSLER LLC

The spring-lock type refrigerant line coupler is held together by a garter spring (6) inside a circular cage (7) on the male half of the fitting (1). When the two coupler halves are connected, the flared end of the female fitting (2) slips behind the garter spring inside the cage on the male fitting. The garter spring and cage prevent the flared end of the female fitting from pulling out of the cage. Some applications use a connection indicator ring (4) to help indicate when the two coupler halves are fully connected.

O-rings (8) are used to seal the coupler connections. These O-rings are compatible with R-134a refrigerant and must be replaced with O-rings made of the same material.

A secondary retaining clip (3) is installed over the connected coupler (5) for added protection.

REMOVAL

COUPLER- REFRIGERANT LINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

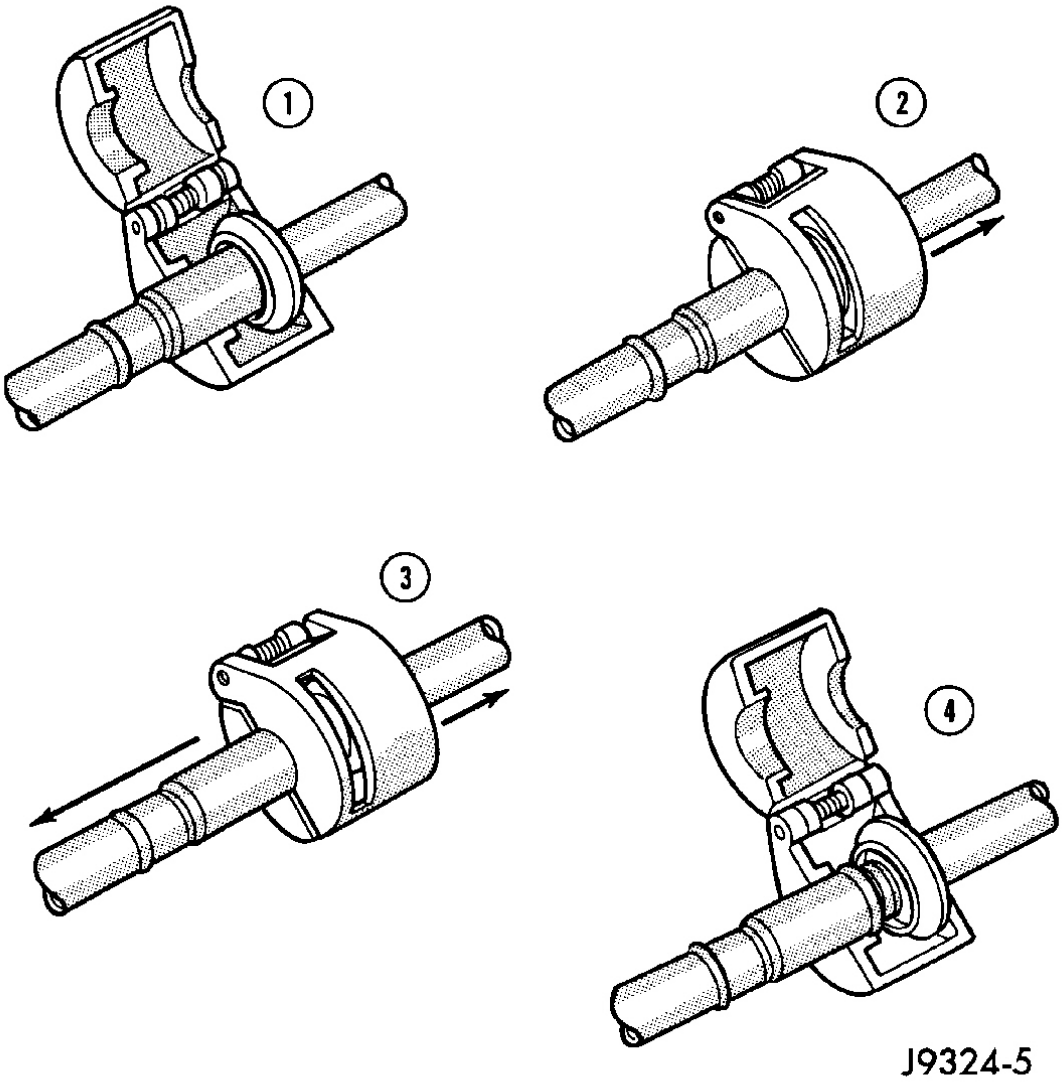

Fig. 152: Coupler Cage, Coupler, Garter Spring & Refrigerant Line Coupler
Courtesy of CHRYSLER LLC

1. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
2. Remove the secondary retaining clip from the spring-lock type refrigerant line coupler.
3. Fit the proper size A/C line disconnect tool (Special Tool Kit 7193 or equivalent) over the coupler cage (1).
4. Close the two halves of the A/C line disconnect tool around the coupler (2).

NOTE: The garter spring may not release if the A/C line disconnect tool is cocked while pushing it into the coupler cage opening.

5. Push the A/C line disconnect tool into the open side of the coupler cage to expand the garter spring (3). Once the garter spring is expanded, pull on the refrigerant line attached to the female half of the coupler until the flange on the female fitting is separated from the garter spring and cage on the male fitting.
6. Open and remove the A/C line disconnect tool from the refrigerant line coupler (4).

INSTALLATION

COUPLER- REFRIGERANT LINE

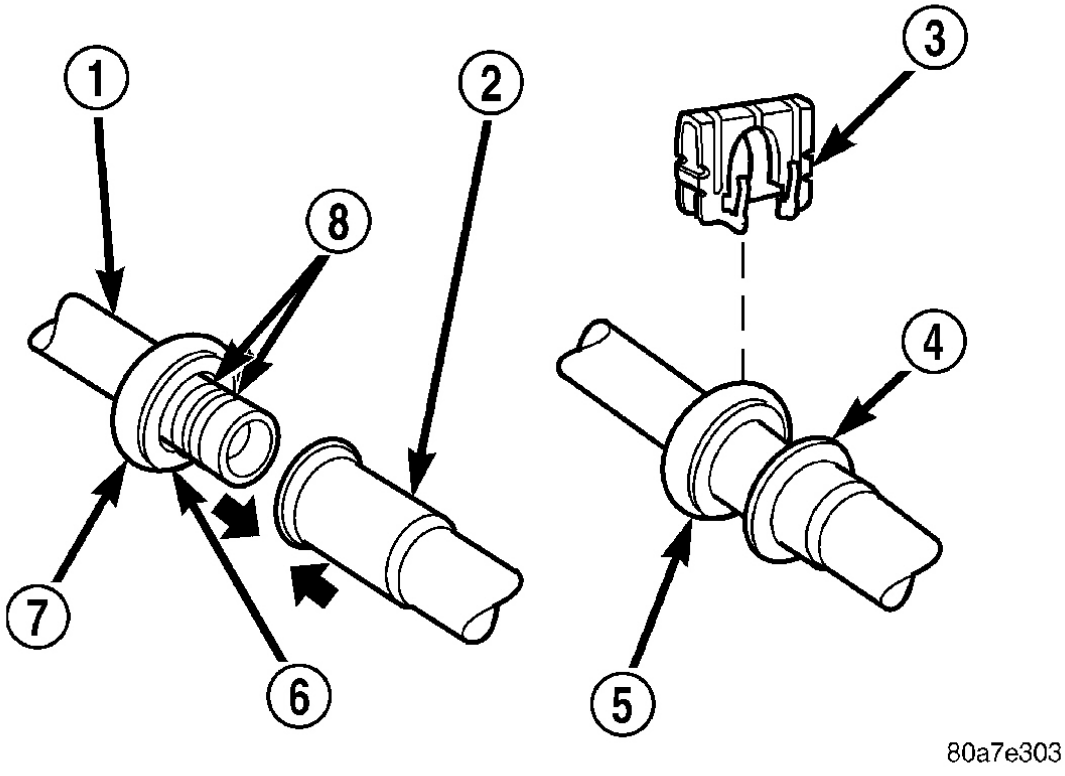

Fig. 153: Refrigerant Line Coupler Components
Courtesy of CHRYSLER LLC

1. Clean any dirt or foreign material from the spring-lock type refrigerant line coupler.
2. Check to make sure that the garter spring (6) is located within the cage (7) of the male half of the refrigerant line coupler (1), and that the garter spring is not damaged.
    - If the garter spring is missing, install a new spring by pushing it into the coupler cage opening.
    - If the garter spring is damaged, remove it from the coupler cage with a small hook (DO NOT use a screwdriver) and install a new garter spring.

CAUTION: Use only the specified O-rings as they are made of a special material

for the R-134a system. The use of any other O-rings may allow the connection to leak.

3. Install new O-rings (8) on the male half of the refrigerant line coupler.
4. Lubricate the O-rings, and the inside of the female half of the refrigerant line coupler (2) with clean R-134a refrigerant oil. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
5. Position the female half of the coupler over the male half of the coupler.
6. Push together firmly on the two halves of the refrigerant line coupler until the garter spring in the cage on the male half of the coupler snaps over the flanged end on the female half of the coupler.
7. Make sure that the refrigerant line coupler is fully engaged by firmly pulling the refrigerant lines away from each other on both sides of the coupler.
8. Install the secondary retaining clip (3) over connected coupler cage (5).
9. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
10. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

EVAPORATOR-A/C

DESCRIPTION

EVAPORATOR-A/C

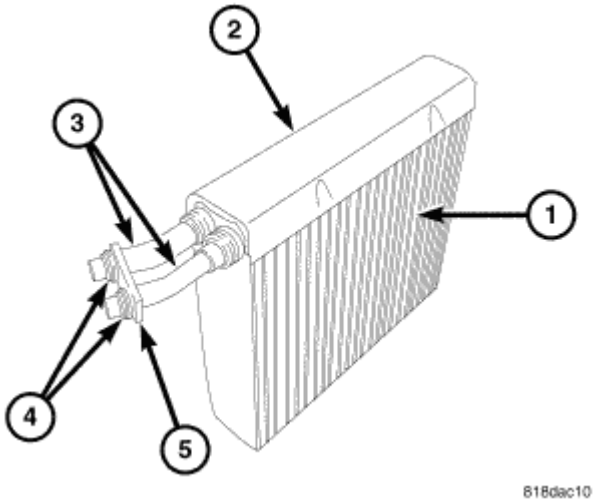

Fig. 154: A/C Evaporator Assembly
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

The A/C evaporator (1) and its insulator (2) for the heating-A/C system is located within the HVAC housing, behind the instrument panel. The A/C evaporator is positioned in the HVAC housing so that all air entering the housing must pass over the evaporator fins before it is distributed through the heater core and heating-A/C system ducts and outlets. However, air passing over the evaporator fins will only be conditioned when the A/C

compressor is engaged and circulating refrigerant through the A/C evaporator.

The A/C evaporator tubes (3) are connected and sealed to the A/C expansion valve by use of rubber O-rings (4) and a tapping block (5).

The A/C evaporator can only be serviced by removing and disassembling the HVAC housing.

OPERATION

EVAPORATOR-A/C

Refrigerant enters the A/C evaporator from the A/C expansion valve as a low-temperature, low-pressure mixture of liquid and gas. As air flows over the fins of the A/C evaporator, the humidity in the air condenses on the fins, and the heat from the air is absorbed by the refrigerant. Heat absorption causes the refrigerant to boil and vaporize. The refrigerant becomes a low-pressure gas when it leaves the A/C evaporator.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line or expansion valve is disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C evaporator has no serviceable parts except for the O-ring seals. The O-ring seals used on the connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals must be replaced whenever the A/C expansion valve is removed from the A/C evaporator.

The A/C evaporator cannot be repaired and must be replaced if leaking or damaged.

REMOVAL

EVAPORATOR-A/C

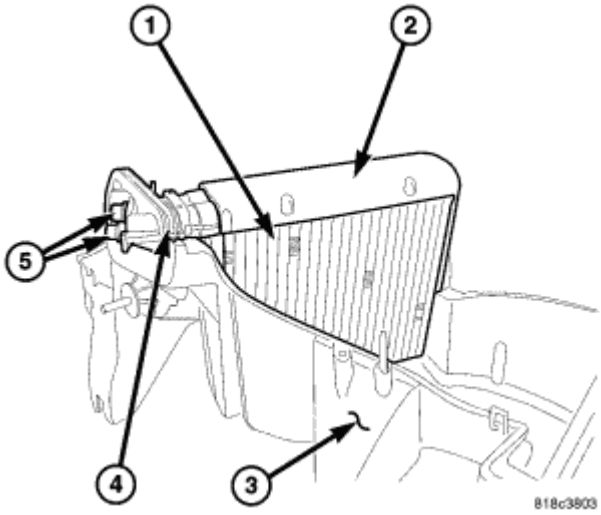

Fig. 155: A/C Evaporator, Foam Insulator, HVAC Housing, Rubber Seal & Tapping Block
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Remove the HVAC housing assembly and place it on a workbench. See **REMOVAL**.
2. Disassemble the HVAC housing. See **DISASSEMBLY**.

NOTE: If the foam insulator around the A/C evaporator is deformed or damaged, the insulator must be replaced.

3. Carefully lift the A/C evaporator (1) and the foam insulator (2) out of the lower half of the HVAC housing (3).

NOTE: If the rubber seal around the evaporator tubes and tapping block is deformed or damaged, the seal must be replaced.

4. If required, remove the rubber seal (4) from around the evaporator tubes and tapping block (5).

INSTALLATION

EVAPORATOR-A/C

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: If only the A/C evaporator is being replaced, add 60 milliliters (2 fluid ounces) of refrigerant oil to the refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

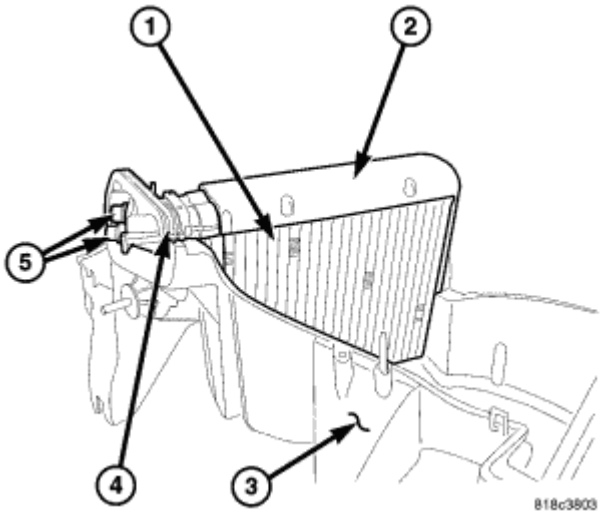

Fig. 156: A/C Evaporator, Foam Insulator, HVAC Housing, Rubber Seal & Tapping Block
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

NOTE: Make sure the rubber seal for the evaporator tubes and tapping block is properly positioned in the HVAC housing opening.

1. If removed, install the rubber seal (4) over the evaporator tubes and tapping block (5).

   NOTE: Make sure that the foam insulator around the A/C evaporator is properly positioned within the HVAC housing.

2. Carefully install the A/C evaporator (1) and foam insulator (2) into the lower half of the HVAC housing (3).
3. Assemble the HVAC housing. See **ASSEMBLY**.
4. Install the HVAC housing assembly. See **INSTALLATION**.
5. If the A/C evaporator is being replaced, add 60 milliliters (2 fluid ounces) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See **REFRIGERANT OIL LEVEL**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

LINE-A/C DISCHARGE

DESCRIPTION

LINE-A/C DISCHARGE

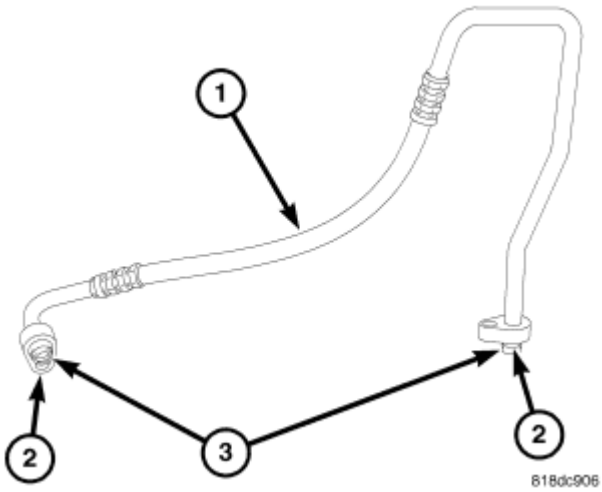

Fig. 157: A/C Discharge Line, Metal Gaskets & Rubber O-Ring Seals
Courtesy of CHRYSLER LLC

NOTE: 4.0L LHD model shown. Other models similar.

The A/C discharge line (1) is the refrigerant line that carries refrigerant from the A/C compressor to the A/C condenser.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C discharge line has no serviceable parts except for the metal gaskets (2) and rubber O-ring seals (3). The O-ring seals used on the connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals and gaskets must be replaced whenever the A/C discharge line is removed and installed.

The A/C discharge line cannot be repaired and must be replaced if leaking or damaged.

REMOVAL

2.8L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

CAUTION: Before removing the A/C discharge line, note the location of the right side condenser air seal. This air seal is to direct air through the A/C condenser and radiator. The air sealsmust be reinstalled in its proper location in order for the A/C and engine cooling systems to perform as designed.

NOTE: LHD model shown in illustrations. RHD model similar.

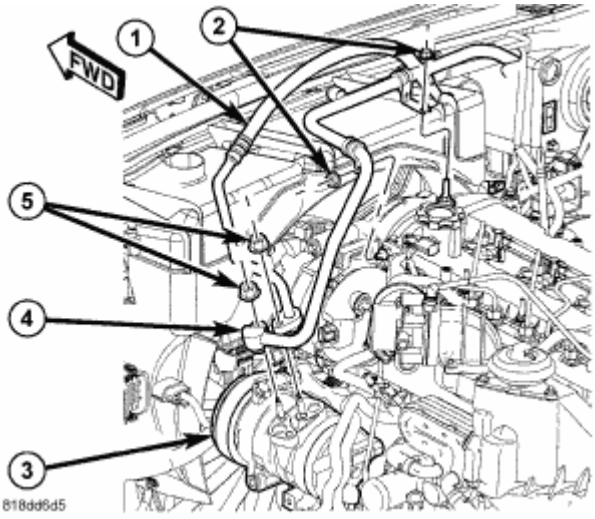

Fig. 158: Refrigerant Line System
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing. Refer to **REMOVAL** .
4. Remove the air inlet tube from the throttle body and position it out of the way.
5. Remove the battery for clearance. Refer to **REMOVAL** .
6. Remove the nut (5) that secures the A/C discharge line (1) to the A/C compressor (3).
7. Disconnect the A/C discharge line from the A/C compressor and remove and discard the O-ring seal and gasket.
8. Disengage the A/C discharge line from the plastic retaining clip located on the right side of the fan shroud.

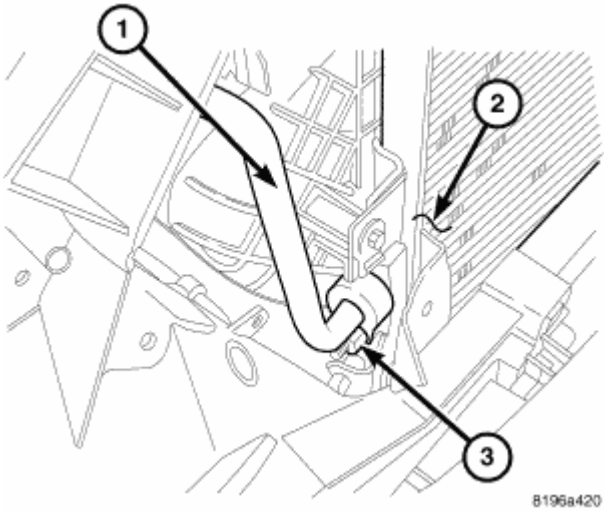

Fig. 159: Removing/Installing Nut That Secures A/C Discharge Line To A/C Condenser
Courtesy of CHRYSLER LLC

9. Remove the grille. Refer to **REMOVAL** .
10. Position the right side condenser air seal out of the way to gain access to the discharge line fitting.
11. Remove the nut (3) that secures the A/C discharge line (1) to the A/C condenser (2).

NOTE: Rotate and tilt the A/C discharge line as necessary to disconnect it from the A/C condenser.

12. Disconnect the A/C discharge line from the condenser and remove and discard the O-ring seal and gasket.
13. Remove the A/C discharge line from the engine compartment and install plugs in, or tape over the opened discharge line fittings and the compressor and condenser ports.

4.0L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

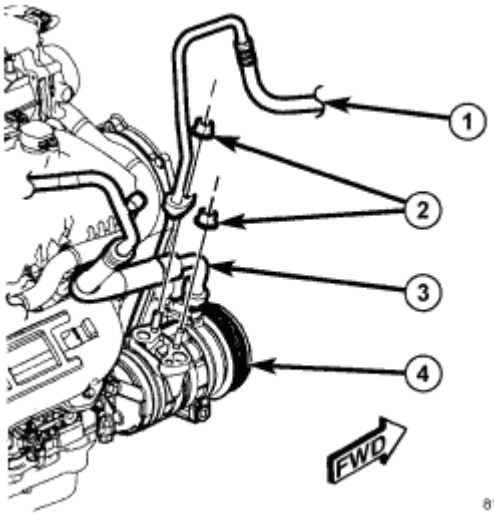

Fig. 160: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the nut (2) that secures the A/C discharge line (1) to the A/C compressor (4).
5. Disconnect the A/C discharge line from the A/C compressor and remove and discard the O-ring seal and

gasket.

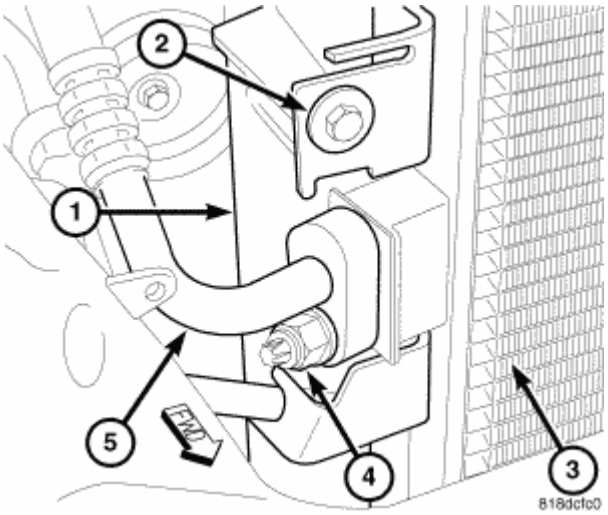

Fig. 161: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

6. Remove the grille. Refer to **REMOVAL** .
7. Remove the nut (4) that secures the A/C discharge line (5) to the A/C condenser (3).
8. Remove the bolt (2) that secures the A/C condenser to the right side of the radiator (1).
9. For clearance, position the A/C condenser toward the left side of the vehicle and then disconnect the A/C discharge line from the condenser.
10. Remove and discard the O-ring seal and gasket from the discharge line fitting.
11. Remove the A/C discharge line from the engine compartment and install plugs in, or tape over the opened discharge line fittings and the compressor and condenser ports.

3.7L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

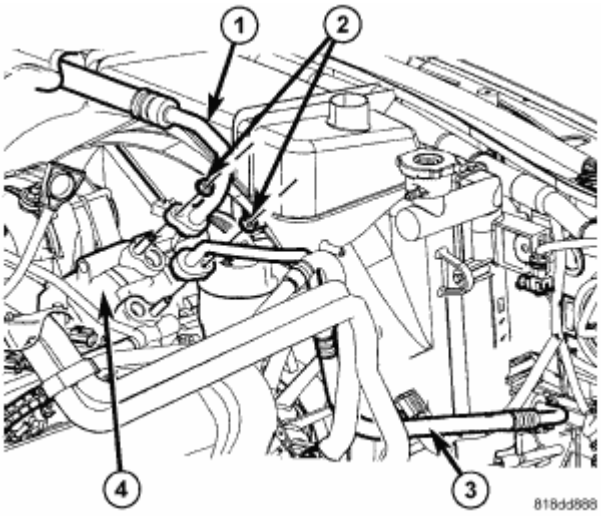

Fig. 162: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the nut (2) that secures the A/C discharge line (3) to the A/C compressor (4).
5. Disconnect the A/C discharge line from the A/C compressor and remove and discard the O-ring seal and gasket.

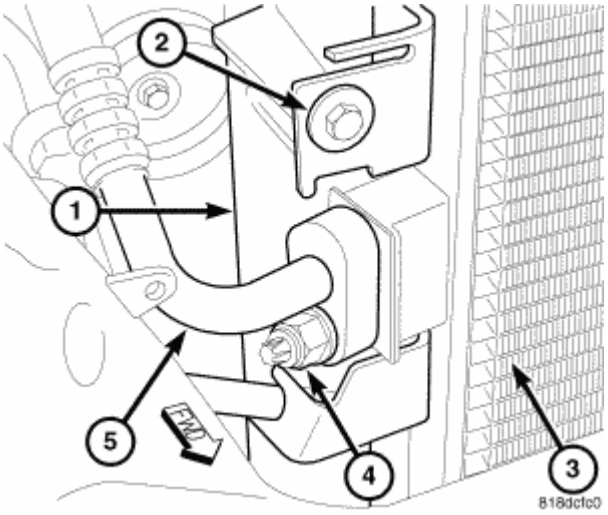

Fig. 163: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

6. Remove the grille. Refer to **REMOVAL** .
7. Remove the nut (4) that secures the A/C discharge line (5) to the A/C condenser (3).

8. Remove the bolt (2) that secures the A/C condenser to the right side of the radiator (1).
9. For clearance, position the A/C condenser toward the left side of the vehicle and then disconnect the A/C discharge line from the condenser.
10. Remove and discard the O-ring seal and gasket from the discharge line fitting.
11. Remove the A/C discharge line from the engine compartment and install plugs in, or tape over the opened discharge line fittings and the compressor and condenser ports.

INSTALLATION

3.7L ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

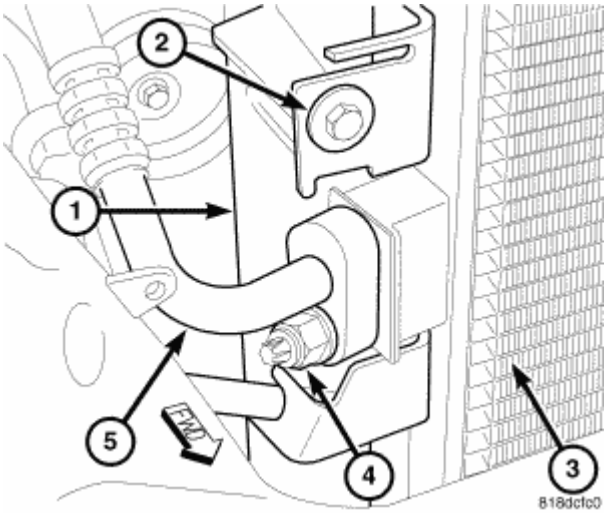

Fig. 164: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened discharge line fittings and compressor and condenser ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the discharge line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

3. For clearance, position the A/C condenser (3) toward the left side of the vehicle.
4. Connect the A/C discharge line (5) to the A/C condenser and install the retaining nut (4) hand tight.
5. Reposition the A/C condenser and install the bolt (2) that secures the condenser to the right side of the radiator (1). Tighten the bolt to 5 N.m (44 in. lbs.).
6. Tighten the nut that secures the A/C discharge line to the A/C condenser to 22.5 N.m (200 in. lbs.).
7. Install the grille. Refer to **INSTALLATION** .

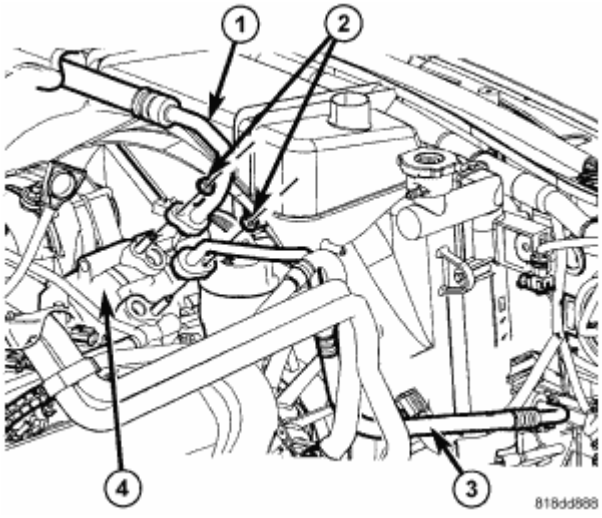

Fig. 165: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C Compressor
Courtesy of CHRYSLER LLC

8. Connect the A/C discharge line (3) to the A/C compressor (4).
9. Install the nut (2) that secures the A/C discharge line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
10. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
11. Reconnect the negative battery cable.
12. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
13. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
14. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

4.0L ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil

Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

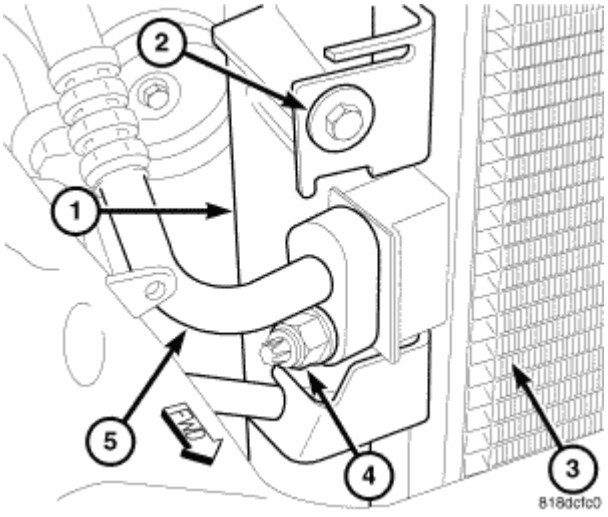

Fig. 166: Radiator, Bolts, A/C Condenser, Nut & A/C Discharge Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened discharge line fittings and compressor and condenser ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the discharge line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. For clearance, position the A/C condenser (3) toward the left side of the vehicle.
4. Connect the A/C discharge line (5) to the A/C condenser and install the retaining nut (4) hand tight.
5. Reposition the A/C condenser and install the bolt (2) that secures the condenser to the right side of the radiator (1). Tighten the bolt to 5 N.m (44 in. lbs.).
6. Tighten the nut that secures the A/C discharge line to the A/C condenser to 22.5 N.m (200 in. lbs.).
7. Install the grille. Refer to **INSTALLATION** .

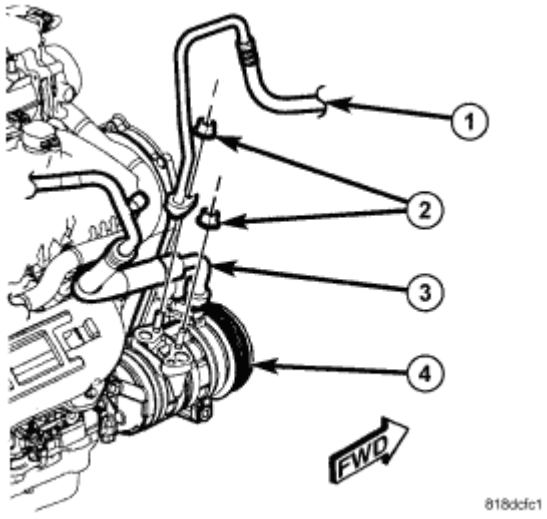

Fig. 167: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

8. Connect the A/C discharge line (1) to the A/C compressor (4).
9. Install the nut (2) that secures the A/C discharge line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
10. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
11. Reconnect the negative battery cable.
12. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
13. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
14. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

2.8L ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See STANDARD PROCEDURE. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: LHD model shown in illustrations. RHD model similar.

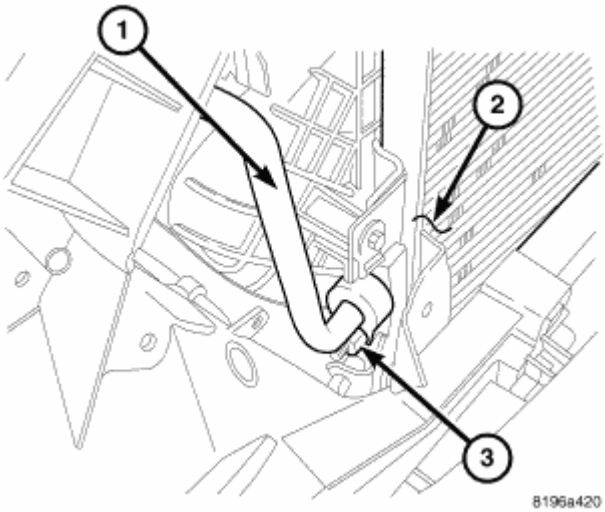

Fig. 168: Removing/Installing Nut That Secures A/C Discharge Line To A/C Condenser
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened discharge line fittings and compressor and condenser ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the discharge line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

NOTE: Rotate and tilt the A/C discharge line as necessary to connect it from the A/C condenser.

3. Position the A/C discharge line (1) into the engine compartment and connect it to the A/C condenser (2).
4. Install the nut (3) that secures the A/C discharge line to the A/C condenser. Tighten the nut to 22.5 N.m (200 in. lbs.).
5. Engage the A/C discharge line into the plastic retaining clip located on the right side of the fan shroud.
6. Install the grille. Refer to **INSTALLATION** .

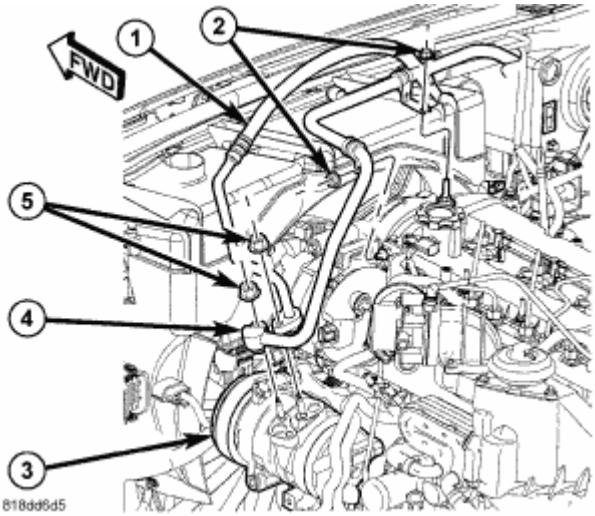

Fig. 169: Refrigerant Line System
Courtesy of CHRYSLER LLC

7. Connect the A/C discharge line (1) to the A/C compressor (4).
8. Install the nut (5) that secures the A/C discharge line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
9. Install the battery. Refer to **INSTALLATION** .
10. Install the air inlet tube to the throttle body. Tighten the clamp securely.
11. Install the air cleaner housing. Refer to **INSTALLATION** .
12. Reconnect the negative battery cable.
13. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
14. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
15. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

LINE-A/C LIQUID

DESCRIPTION

LINE-A/C LIQUID

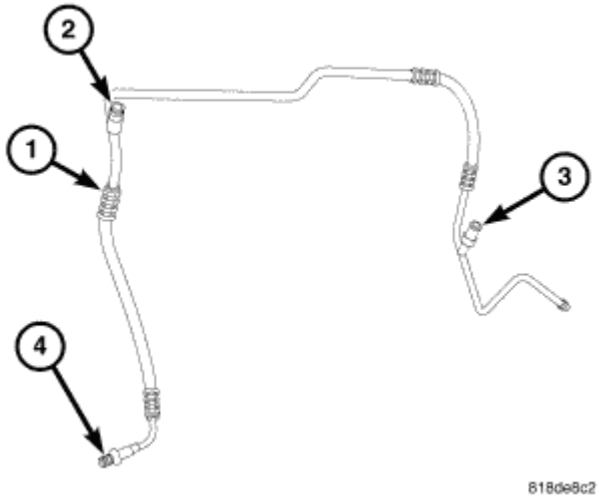

Fig. 170: A/C Liquid Line, High-Side Service Port, A/C Pressure Transducer & Condenser Outlet Tube Connection
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

The A/C liquid line (1) is the refrigerant line that carries refrigerant from the A/C condenser to the A/C expansion valve. The A/C liquid line contains the high-side service port (2), a fitting for the A/C pressure transducer (3) and uses a spring lock coupler at the condenser outlet tube connection (4). On LHD models, the A/C liquid line is serviced only as an assembly. On RHD models, the A/C liquid line is serviced in two sections and uses a spring lock coupler to connect the two sections together.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C liquid line has no serviceable parts except for the rubber O-ring seals, high-side service port valve and its protective cap and the plastic retainer clips. The O-ring seals used on the connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals must be replaced whenever the A/C liquid line is removed and installed.

The A/C liquid line cannot be repaired and must be replaced if leaking or damaged.

REMOVAL

RHD MODEL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

FRONT SECTION

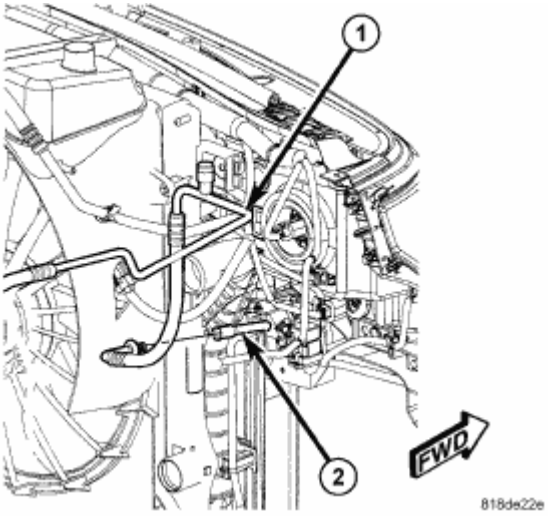

Fig. 171: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **STANDARD PROCEDURE**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the secondary retaining clip and using the proper A/C line disconnect tool, disconnect the A/C liquid line (1) from the condenser tube (2). See **REMOVAL**.

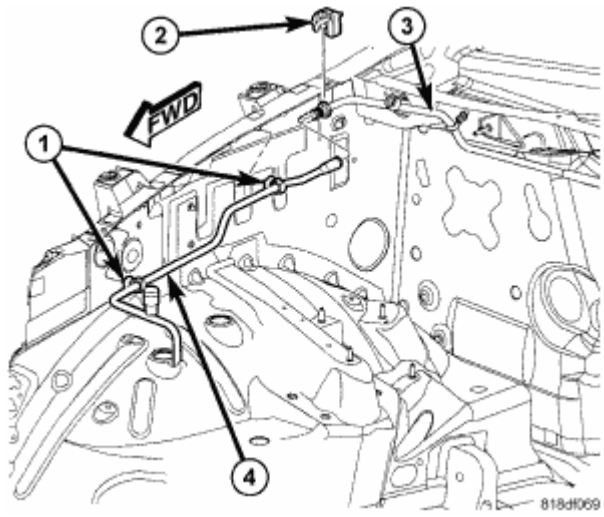

Fig. 172: Retaining Clips, Secondary Retaining Clip, A/C Liquid Line & A/C Liquid Line
Courtesy of CHRYSLER LLC

5. Disengage the front section of the A/C liquid line (4) from the two retaining clips (1) located on the right inner fender.
6. Remove the secondary retaining clip (2) and using the proper A/C line disconnect tool, disconnect the front section of the A/C liquid line from the rear section of the A/C liquid line (3). See **REMOVAL**.
7. Remove the front section of the A/C liquid line from the engine compartment and remove and discard the O-ring seals and install plugs in, or tape over the opened refrigerant line fittings and the condenser tube.

REAR SECTION

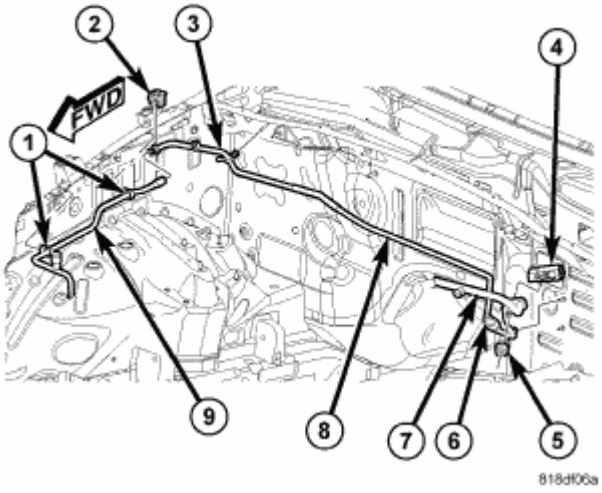

Fig. 173: Removing/Installing RHD Liquid Lines - Rear Section
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.

3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the two nuts that secure the engine coolant reservoir to the dash panel and position the reservoir out of the way.
5. Disconnect the wire harness connector from the A/C pressure transducer (6) located on the rear section of the A/C liquid line (8) near the A/C expansion valve (4) and if required, remove the A/C pressure transducer from the A/C liquid line. See **REMOVAL** for more information.
6. Remove the nut (5) that secures the A/C suction line (7) and the rear section of the A/C liquid line to the A/C expansion valve and disconnect the lines from the valve.
7. Disengage the A/C liquid line from the retaining clips (3) located on the dash panel and the brake lines near the brake booster.
8. Separate the A/C liquid line from the A/C suction line and disengage the A/C liquid line from the two retaining clips (1) located on the right inner fender.
9. Remove the secondary retaining clip (2) and using the proper A/C line disconnect tool (Special Tool Kit 7193 or equivalent), disconnect the rear section of the A/C liquid line from the front section of the liquid line (9). See **REMOVAL**.
10. Remove the rear section of the A/C liquid line from out of the right side of the engine compartment and remove and discard the O-ring seals and install plugs in, or tape over the opened refrigerant line fittings and the expansion valve ports.

LHD MODEL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

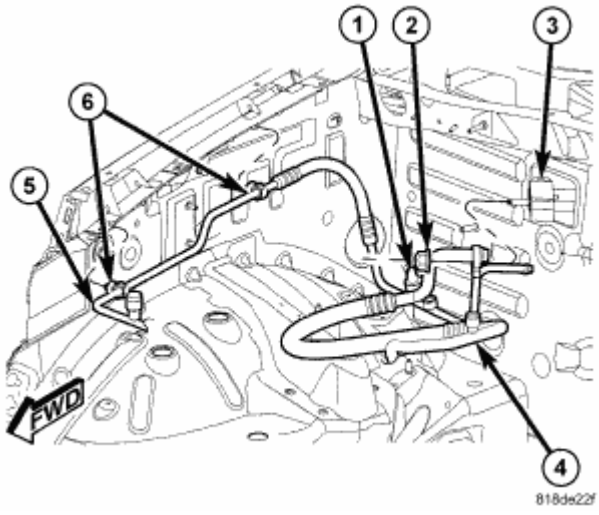

Fig. 174: Removing/Installing LHD Liquid Line
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to**REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Disconnect the wire harness connector from the A/C pressure transducer (1) located on the A/C liquid line (5) near the A/C expansion valve (3) and if required, remove the A/C pressure transducer from the A/C liquid line. See **REMOVAL**.
5. Remove the nut (2) that secures the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3) and disconnect the lines from the valve.
6. Separate the A/C liquid line from the A/C suction line and disengage the A/C liquid line from the two retaining clips (6) located on the right inner fender.

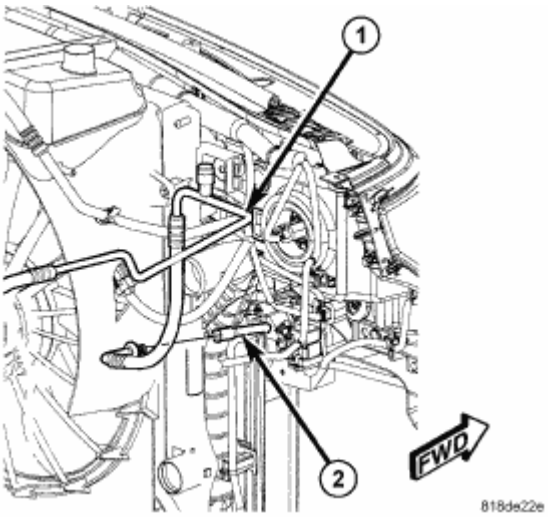

Fig. 175: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

7. Remove the secondary retaining clip and using the proper A/C line disconnect tool (Special Tool Kit 7193 or equivalent), disconnect the A/C liquid line (1) from the condenser tube (2). See **REMOVAL**.
8. Remove the A/C liquid line from the engine compartment and remove and discard the O-ring seals and install plugs in, or tape over the opened refrigerant line fittings and the condenser and expansion valve ports.

INSTALLATION

LHD MODELS

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

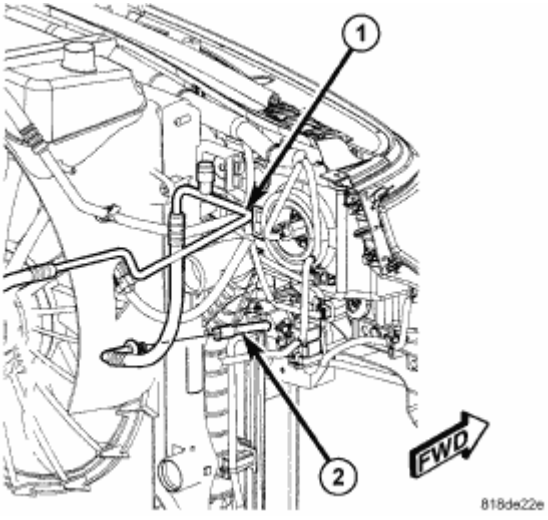

Fig. 176: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the condenser and expansion valve ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Connect the A/C liquid line (1) to the condenser tube (2) and install the secondary retaining clip. See **INSTALLATION**.

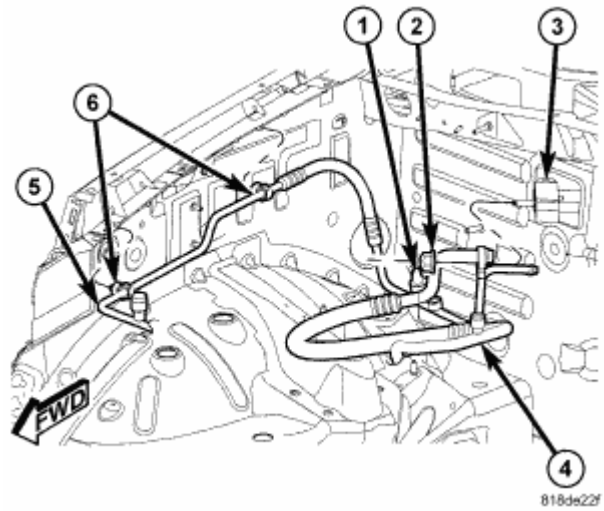

Fig. 177: Removing/Installing LHD Liquid Line
Courtesy of CHRYSLER LLC

4. Install the A/C liquid line (5) into the two retaining clips (6) located on the right inner fender.
5. Connect the A/C liquid line to the A/C suction line (4).
6. Connect the A/C liquid and suction lines to the A/C expansion valve (3) and install the retaining nut (2). Tighten the nut to 23 N.m (17 ft. lbs.).
7. If removed, install the A/C pressure transducer (1) onto A/C liquid line and connect the wire harness connector to the transducer. See **INSTALLATION** for more information.
8. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
9. Reconnect the negative battery cable.
10. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
11. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
12. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

RHD MODEL

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

FRONT SECTION

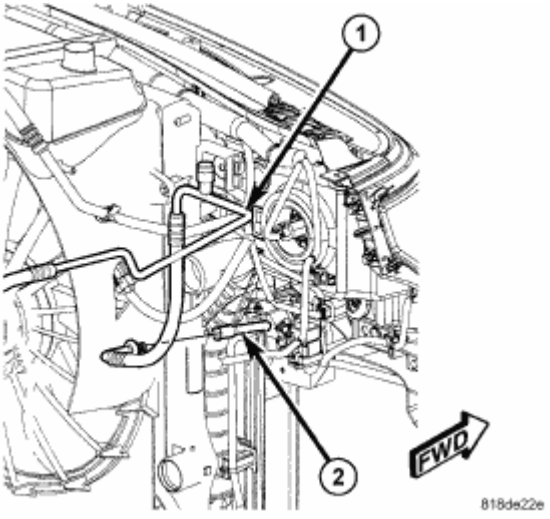

Fig. 178: A/C Liquid Line & Condenser Tube
Courtesy of CHRYSLER LLC

1. Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See **REFRIGERANT OIL LEVEL**.
2. Remove the tape or plugs from the opened refrigerant line fittings and the condenser tube port.
3. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
4. Connect the A/C liquid line (1) to the condenser tube (2) and install the secondary retaining clip. See **INSTALLATION**.

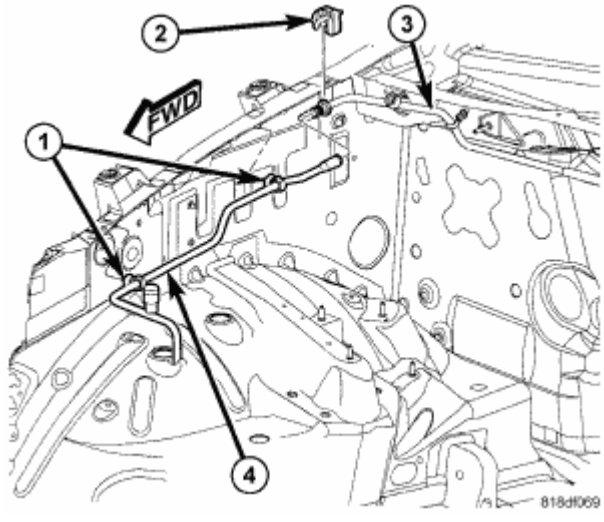

Fig. 179: Retaining Clips, Secondary Retaining Clip, A/C Liquid Line & A/C Liquid Line
Courtesy of CHRYSLER LLC

5. Connect the front section of the A/C liquid line (4) to the rear section of the A/C liquid line (3) and install

the secondary retaining clip (2). See **INSTALLATION**.

6. Engage the A/C liquid line to the two retaining clips (1) located on the right inner fender.
7. Install the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
8. Reconnect the negative battery cable.
9. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
10. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

REAR SECTION

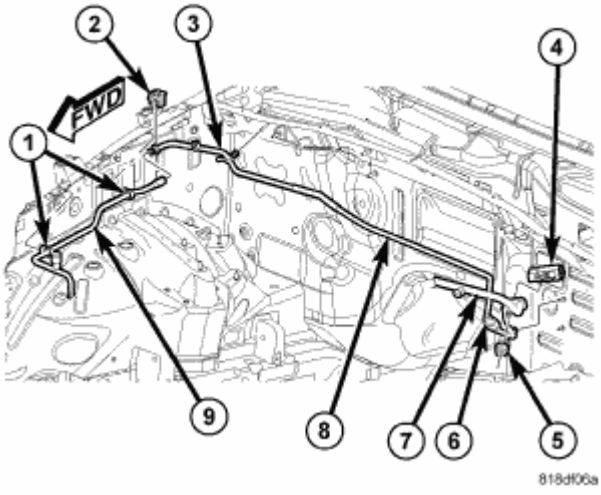

Fig. 180: Removing/Installing RHD Liquid Lines - Rear Section
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the expansion valve ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Position the rear section of the A/C liquid line (8) into the engine compartment from the right side of the vehicle. Be sure to route the liquid line behind the diesel engine fuel filter.
4. Connect the rear section of the A/C liquid line (8) to the A/C suction line (7).
5. Connect the A/C liquid and suction lines to the A/C expansion valve (4) and install the retaining nut (5). Tighten the nut to 23 N.m (17 ft. lbs.).
6. If removed, install the A/C pressure transducer (6) onto A/C liquid line and connect the wire harness connector to the transducer. See **INSTALLATION** for more information.
7. Engage the A/C liquid line to the retaining clips (3) located on the dash panel and the brake lines near the brake booster.
8. Connect the front section of the A/C liquid line (9) to the rear section of the A/C liquid line and install the secondary retaining clip (2). See **INSTALLATION**.
9. Engage the A/C liquid line to the two retaining clips (1) located on the right inner fender.

10. Reposition the engine coolant reservoir to the dash panel and install the two retaining nuts. Tighten the nuts securely.
11. Install the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
12. Reconnect the negative battery cable.
13. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
14. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
15. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

LINE-A/C SUCTION

DESCRIPTION

LINE-A/C SUCTION

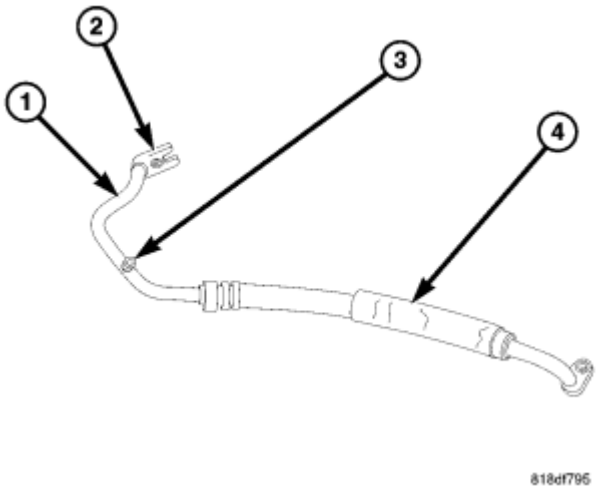

Fig. 181: A/C Suction Line, Tapping Plate, Low-Side Service Port & Heat Shield
Courtesy of CHRYSLER LLC

NOTE: 4.0L engine shown. Other engines similar.

The A/C suction line (1) is the refrigerant line that carries refrigerant from the A/C evaporator to the A/C compressor. The A/C suction line and is secured to the A/C expansion valve by a tapping plate (2) and contains the low-side service port (3) and a heat shield (4), depending on engine application.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C suction line has no serviceable parts except for the rubber O-ring seals, metal gasket and the low-side service port valve and its protective cap. The O-ring seals used on the connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals and gasket must be replaced whenever the A/C

suction line is removed and installed.

The A/C suction line cannot be repaired and must be replaced if leaking or damaged.

REMOVAL

2.8L LHD ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

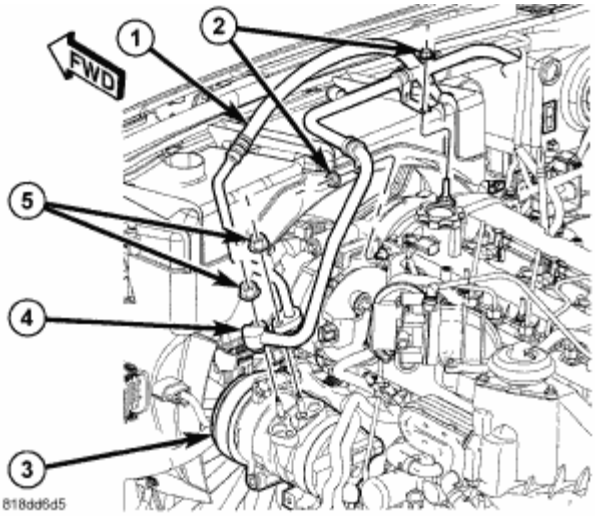

Fig. 182: Refrigerant Line System
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing. Refer to **REMOVAL** .
4. Remove the air inlet tube from the throttle body and position it out of the way.
5. Remove the battery for clearance. Refer to **REMOVAL** .
6. Remove the nut (5) that secures the A/C suction line (4) to the A/C compressor (3).
7. Disconnect the A/C suction line from the A/C compressor and remove and discard the O-ring seal and gasket.
8. Remove the two nuts (2) that secure the A/C suction line to the top of the engine.

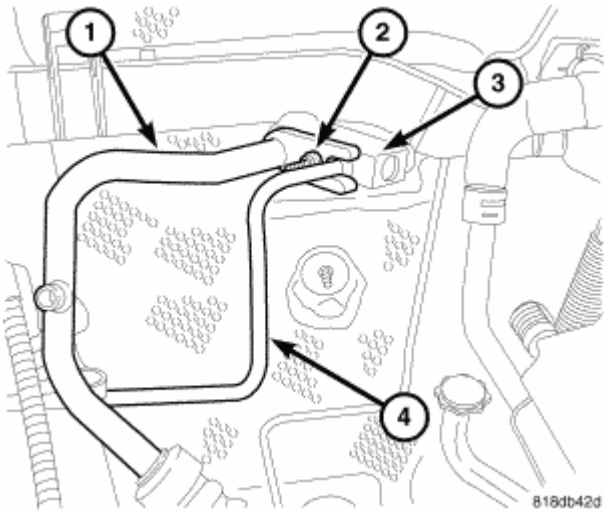

Fig. 183: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

9. Remove the nut (2) that secures the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3) and disconnect the lines from the valve.
10. Separate the A/C liquid line from the A/C suction line and remove the suction line from the engine compartment.
11. Install plugs in, or tape over the opened refrigerant line fittings and the compressor and expansion valve ports.

2.8L RHD ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

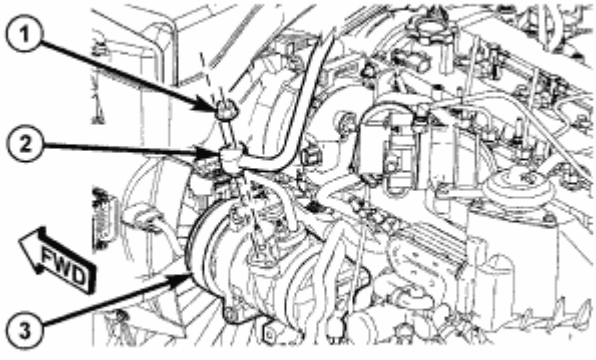

Fig. 184: Nut, A/C Suction Line & A/C Compressor

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air inlet tube from the throttle body and position it out of the way.
4. Remove the battery for clearance. Refer to **REMOVAL** .
5. Remove the nut (1) that secures the A/C suction line (2) to the A/C compressor (3).
6. Disconnect the A/C suction line from the A/C compressor and remove and discard the O-ring seal and gasket.

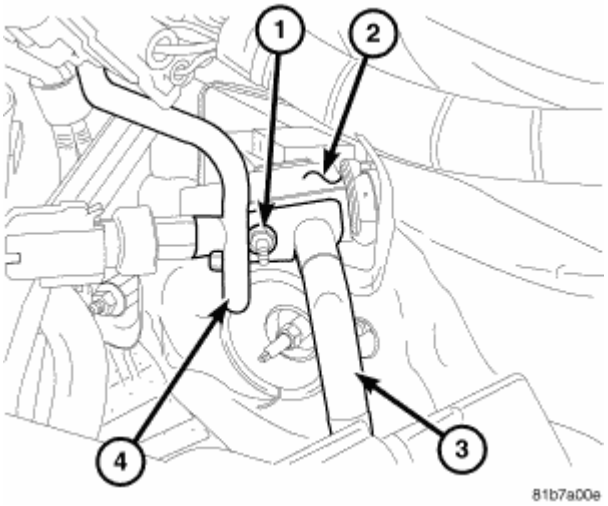

Fig. 185: Nut, A/C Expansion Valve, A/C Suction Line & A/C Liquid Line
Courtesy of CHRYSLER LLC

7. Remove the nut (1) that secures the A/C suction line (3) and the A/C liquid line (4) to the A/C expansion valve (2) and disconnect the lines from the valve.
8. Separate the A/C liquid line from the A/C suction line and remove the suction line from the engine compartment.
9. Install plugs in, or tape over the opened refrigerant line fittings and the compressor and expansion valve ports.

3.7L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

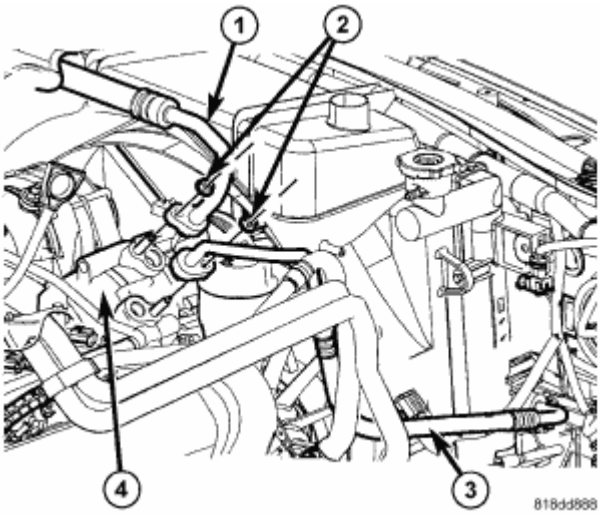

Fig. 186: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
4. Remove the nut (2) that secures the A/C suction line (1) to the A/C compressor (4).
5. Disconnect the A/C suction line from the A/C compressor and remove and discard the O-ring seal and gasket.

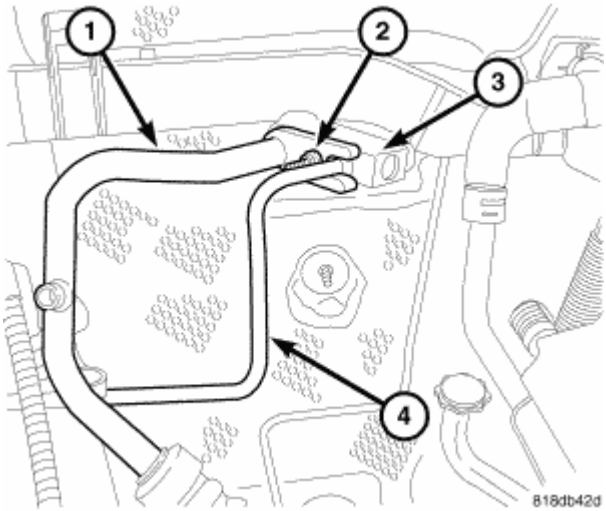

Fig. 187: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

6. Remove the nut (2) that secures the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3) and disconnect the lines from the valve.

7. Separate the A/C liquid line from the A/C suction line and remove the suction line from the engine compartment.
8. Install plugs in, or tape over the opened refrigerant line fittings and the compressor and expansion valve ports.

4.0L ENGINE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

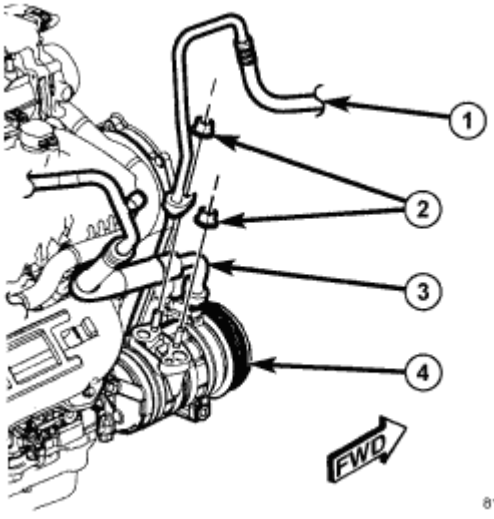

Fig. 188: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFOMATION).
4. Remove the nut (2) that secures the A/C suction line (3) to the A/C compressor (4).
5. Disconnect the A/C suction line from the A/C compressor and remove and discard the O-ring seal and gasket.

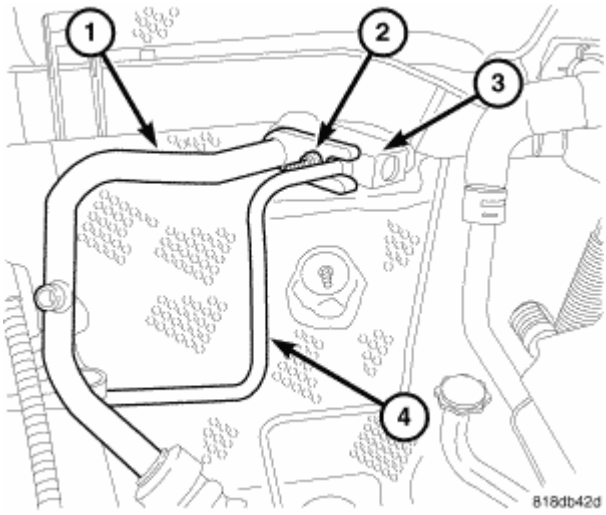

Fig. 189: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

6. Remove the nut (2) that secures the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3) and disconnect the lines from the valve.
7. Separate the A/C liquid line from the A/C suction line and remove the suction line from the engine compartment.
8. Install plugs in, or tape over the opened refrigerant line fittings and the compressor and expansion valve ports.

INSTALLATION

4.0L ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

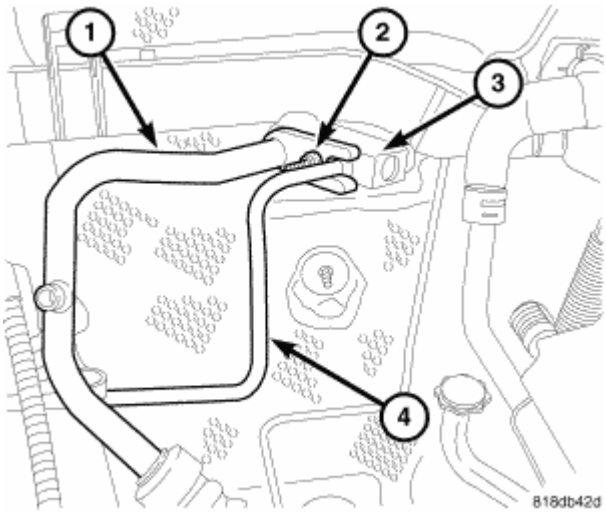

Fig. 190: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the compressor and expansion valve ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them and a new gasket on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Connect the A/C liquid line (4) to the A/C suction line (1).
4. Connect the A/C liquid and suction lines to the A/C expansion valve (3) and install the retaining nut (2). Tighten the nut to 23 N.m (17 ft. lbs.).

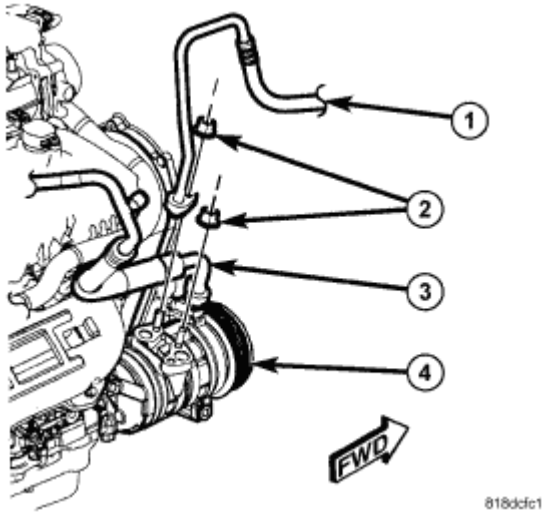

Fig. 191: A/C Discharge Line, Nuts, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

5. Connect the A/C suction line (3) to the A/C compressor (4).
6. Install the nut (2) that secures the A/C suction line to the A/C compressor. Tighten the nut to 12 N.m (105

in. lbs.).

7. Install the air cleaner housing (refer to **INSTALLATION** for 3.7L - SERVICE INFORMATION or **INSTALLATION** for 4.0L - SERVICE INFORMATION).
8. Reconnect the negative battery cable.
9. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
10. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
11. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

2.8L RHD ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

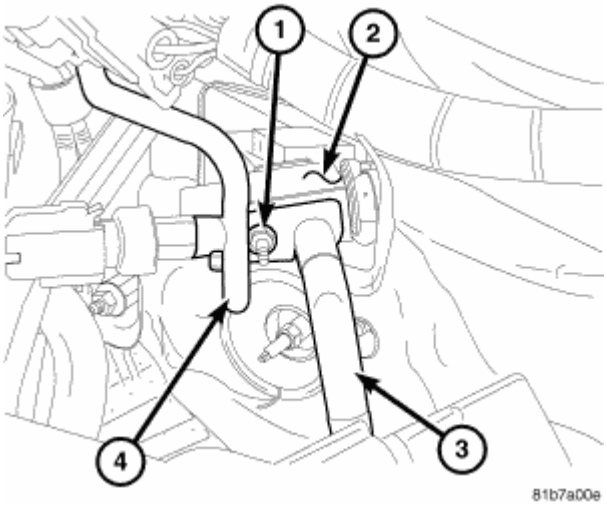

Fig. 192: Nut, A/C Expansion Valve, A/C Suction Line & A/C Liquid Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the compressor and expansion valve ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them and a new gasket on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system.

Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

3. Connect the A/C liquid line (4) to the A/C suction line (3).
4. Connect the A/C liquid and suction lines to the A/C expansion valve (2) and install the retaining nut (1). Tighten the nut to 23 N.m (17 ft. lbs.).

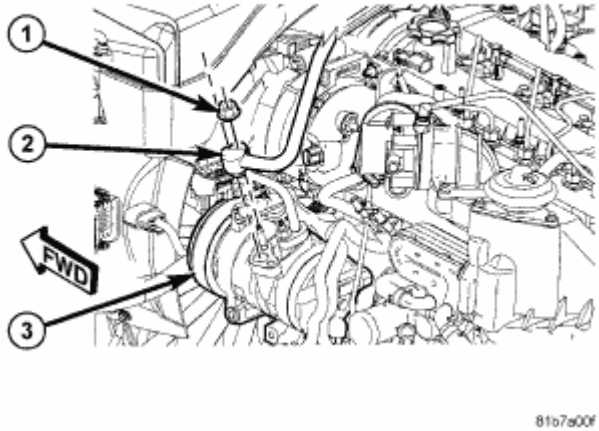

Fig. 193: Nut, A/C Suction Line & A/C Compressor
Courtesy of CHRYSLER LLC

5. Connect the A/C suction line (2) to the A/C compressor (3).
6. Install the nut (1) that secures the A/C suction line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
7. Install the battery. Refer to **INSTALLATION** .
8. Install the air inlet tube to the throttle body. Tighten the clamp securely.
9. Reconnect the negative battery cable.
10. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
11. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
12. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

3.7L ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

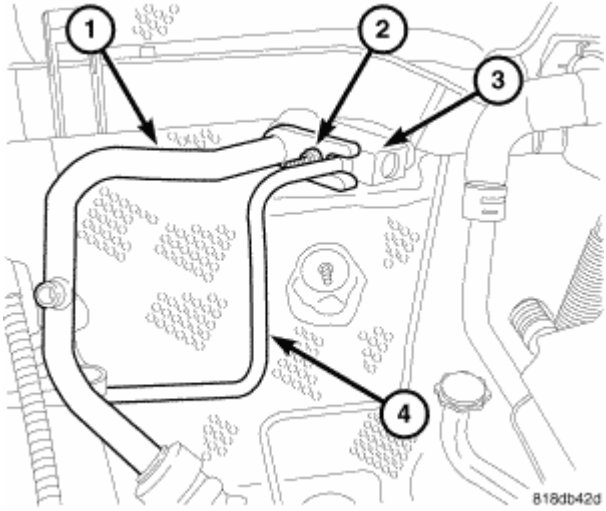

Fig. 194: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the compressor and expansion valve ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them and a new gasket on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Connect the A/C liquid line (4) to the A/C suction line (1).
4. Connect the A/C liquid and suction lines to the A/C expansion valve (3) and install the retaining nut (2). Tighten the nut to 23 N.m (17 ft. lbs.).

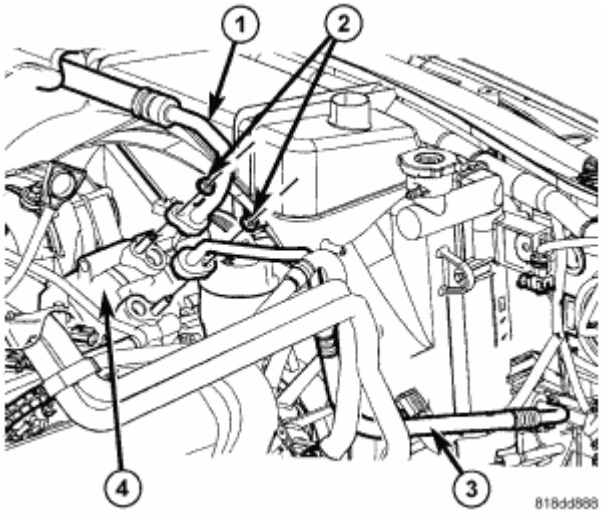

Fig. 195: Removing/Installing Nuts That Secure A/C Suction Line And A/C Discharge Line To A/C

Compressor
Courtesy of CHRYSLER LLC

5. Connect the A/C suction line (1) to the A/C compressor (4).
6. Install the nut (2) that secures the A/C suction line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
7. Install the air cleaner housing (refer to **REMOVAL** for 3.7L - SERVICE INFORMATION or **REMOVAL** for 4.0L - SERVICE INFORMATION).
8. Reconnect the negative battery cable.
9. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
10. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
11. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

2.8L LHD ENGINE

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

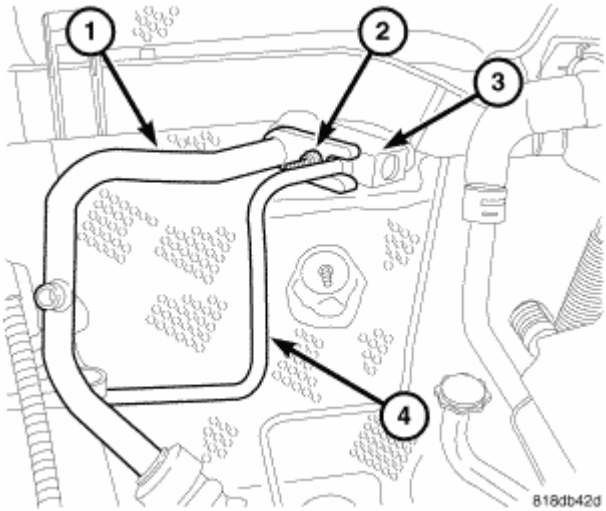

Fig. 196: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line fittings and the compressor and expansion valve ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them and a new gasket on the refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Connect the A/C liquid line (4) to the A/C suction line (1).
4. Connect the A/C liquid and suction lines to the A/C expansion valve (3) and install the retaining nut (2). Tighten the nut to 23 N.m (17 ft. lbs.).

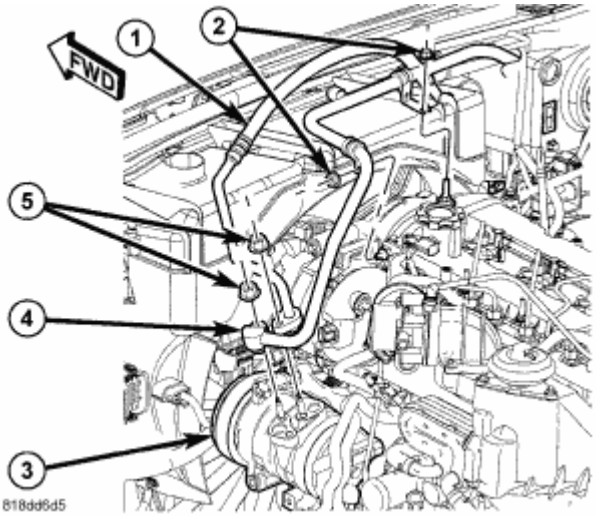

Fig. 197: Refrigerant Line System
Courtesy of CHRYSLER LLC

5. Connect the A/C suction line (4) to the A/C compressor (3).
6. Install the nut (5) that secures the A/C suction line to the A/C compressor. Tighten the nut to 12 N.m (105 in. lbs.).
7. Install the two nuts (2) that secure the A/C suction line to the top of the engine. Tighten the nuts to 4.5 N.m (40 in. lbs.).
8. Install the battery. Refer to **INSTALLATION** .
9. Install the air inlet tube to the throttle body. Tighten the clamp securely.
10. Install the air cleaner housing. Refer to **INSTALLATION** .
11. Reconnect the negative battery cable.
12. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
13. Adjust the refrigerant oil level. See **REFRIGERANT OIL LEVEL**.
14. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

OIL-A/C REFRIGERANT

DESCRIPTION

OIL-A/C REFRIGERANT

The refrigerant oil used in R-134a refrigerant systems is a synthetic-based, Poly Alkylene Glycol (PAG), wax-free lubricant. Mineral-based R-12 refrigerant oils are not compatible with PAG oils, and should never be introduced to an R-134a refrigerant system.

There are different PAG oils available, and each contains a different additive package. Use **only** refrigerant oil of the same type as recommended to service the refrigerant system (**always refer to the specification tag** included with the replacement A/C compressor or the A/C Underhood Specification Label located in the engine compartment).

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level can prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

The A/C compressors used in this vehicle are designed to use VC-46 PAG refrigerant oil. Use only this type of refrigerant oil when servicing the A/C compressor.

OPERATION

OIL-A/C REFRIGERANT

After performing any refrigerant recovery or recycling operation, always replenish the refrigerant system with the same amount of the recommended refrigerant oil as was removed. Too little refrigerant oil can cause A/C compressor damage, and too much can reduce A/C system performance.

PAG refrigerant oil is more hygroscopic than mineral oil, and will absorb any moisture it comes into contact with, even moisture in the air. The PAG oil container should always be kept tightly capped until it is ready to be used. After use, recap the oil container immediately to prevent moisture contamination.

STANDARD PROCEDURE

REFRIGERANT OIL LEVEL

When an A/C system is assembled at the factory, all components except the A/C compressor are refrigerant oil free. After the refrigerant system has been charged and operated, the refrigerant oil in the A/C compressor is dispersed throughout the refrigerant system. The A/C accumulator, A/C evaporator, A/C condenser and the A/C compressor will each retain a significant amount of the needed refrigerant oil.

It is important to have the correct amount of refrigerant oil in the A/C system. This ensures proper lubrication of the A/C compressor. Too little oil will result in damage to the A/C compressor, while too much oil will reduce the cooling capacity of the A/C system and consequently result in higher discharge air temperatures.

CAUTION: The A/C compressors in this vehicle are designed to use VC-46 PAG refrigerant oil. Use only VC-46 PAG refrigerant oil or severe damage to the A/C system may occur. Always refer to the A/C Underhood Specification Label for correct oil designation. The oil container should be kept tightly capped until it is ready for use and then tightly capped after use to prevent

contamination from dirt and moisture. Refrigerant oil will quickly absorb any moisture it comes in contact with, therefore, special effort must be used to keep all R-134a system components moisture-free. Moisture in the refrigerant oil is very difficult to remove and will cause a reliability problem with the A/C compressor.

NOTE: Most reclaim/recycling equipment will measure the lubricant being removed during recovery. This amount of lubricant should be added back into the system. Refer to the reclaim/recycling equipment manufacturers instructions.

It will not be necessary to check the oil level in the A/C compressor or to add oil, unless there has been an oil loss. An oil loss may occur due to component replacement, or a rupture or leak from a refrigerant line, connector fitting, component or component seal. If a leak occurs, add 30 milliliters (1 fluid ounce) of the recommended refrigerant oil to the refrigerant system after the repair has been made. Refrigerant oil loss will be evident at the leak point by the presence of a wet, shiny surface around the leak.

Refrigerant oil must be added when an A/C condenser, A/C evaporator or A/C receiver/drier is replaced. See the Refrigerant Oil Capacities chart.

The refrigerant oil level in a new A/C compressor must first be adjusted prior to compressor installation. Refer to step **COMPRESSOR OIL DRAIN PROCEDURE**.

REFRIGERANT OIL CAPACITIES

Component	ml	oz
Total System Fill	150	5
A/C Condenser	30	1
A/C Evaporator	60	2
A/C Receiver/drier	30	1
A/C Compressor	Drain and measure the oil from the old compressor. Refer to **COMPRESSOR OIL DRAIN PROCEDURE**.	

COMPRESSOR OIL DRAIN PROCEDURE

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. Failure to properly drain and measure the refrigerant oil from the A/C compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

The A/C compressor is filled with refrigerant oil from the factory. Use the following procedure to drain and measure refrigerant oil from the A/C compressor.

1. Drain all of the refrigerant oil from the old A/C compressor into a clean measured container.
2. Drain all of the refrigerant oil from the new A/C compressor into a clean measured container.
3. Refill the new A/C compressor with the same amount of refrigerant oil that was drained out of the old compressor. Use only clean refrigerant oil of the type recommended for the A/C compressor in the

vehicle.

4. Install the new A/C compressor onto the engine. See **INSTALLATION**.

RECEIVER/DRIER-A/C

DESCRIPTION

RECEIVER/DRIER-A/C

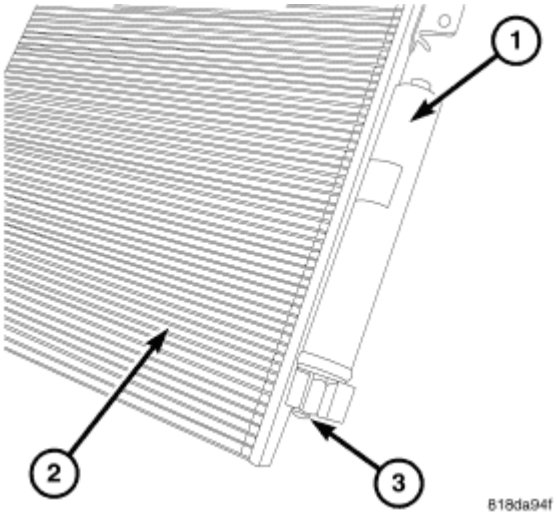

Fig. 198: A/C Receiver/Drier, Left Side A/C Condenser & Bolt
Courtesy of CHRYSLER LLC

The A/C receiver/drier (1) stores unnecessary refrigerant, filters the refrigerant, helps remove moisture from the refrigerant and retains any refrigerant vapor that may leave the A/C condenser (2) until it becomes a liquid. The A/C receiver/drier is installed on the high-side of the A/C system and is connected directly to the left end of the A/C condenser by a bolt (3). The A/C receiver/drier can be serviced separately from the A/C condenser.

OPERATION

RECEIVER/DRIER-A/C

The A/C receiver/drier performs a filtering action to prevent foreign material in the refrigerant from contaminating the A/C expansion valve. Refrigerant enters the A/C receiver/drier as a high-pressure, low temperature liquid. Desiccant inside the A/C receiver/drier absorbs any moisture which may have entered and become trapped within the refrigerant system. In addition, during periods of high demand operation of the A/C system, the A/C receiver/drier acts as a reservoir to store surplus refrigerant.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

The A/C receiver/drier has no serviceable parts except for the O-ring seals, gaskets and the high side service port valve and cap. The O-ring seals used on the connections are made from a special type of rubber not

affected by R-134a refrigerant. The O-ring seals and gaskets must be replaced whenever the A/C receiver/drier is removed.

The A/C receiver/drier cannot be repaired and must be replaced if leaking or damaged, or if an internal failure of the A/C compressor has occurred.

REMOVAL

RECEIVER/DRIER-A/C

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

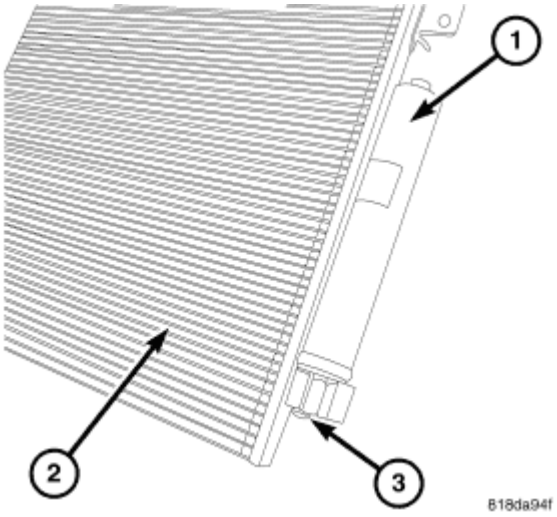

Fig. 199: A/C Receiver/Drier, Left Side A/C Condenser & Bolt
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with A/C condenser removed from vehicle for clarity.

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **REFRIGERANT SYSTEM RECOVERY**.
3. Remove the grille. Refer to **REMOVAL** .
4. Remove the air seal from the left side of the cooling module assembly.
5. Reach through the opening at the bottom of the front fascia and remove the bolt (3) that secures the A/C receiver/drier (1) to the left side A/C condenser (2).
6. Disconnect the A/C receiver/drier from the A/C condenser and remove and discard the O-ring seals.
7. Install plugs in, or tape over the opened receiver/drier fittings and the condenser ports.

INSTALLATION

RECEIVER/DRIER-A/C

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See REFRIGERANT OIL LEVEL. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

CAUTION: The receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the receiver/drier can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See REFRIGERANT OIL LEVEL.

NOTE: If only the receiver/drier is being replaced, add 30 milliliters (1 fluid ounce) of refrigerant oil to the refrigerant system. Use only the refrigerant oil of the type recommended for the A/C compressor in the vehicle.

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

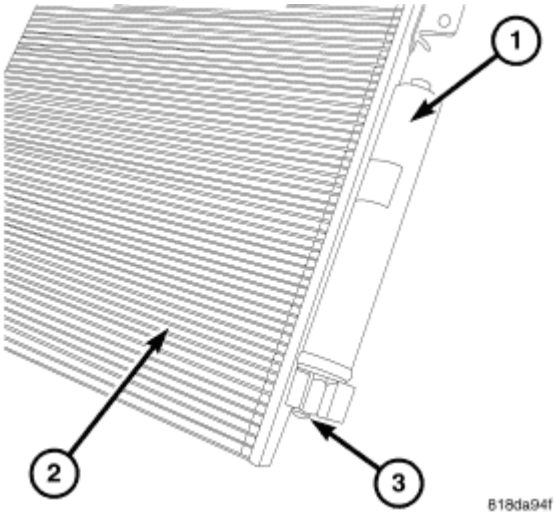

Fig. 200: A/C Receiver/Drier, Left Side A/C Condenser & Bolt
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with A/C condenser removed from vehicle for clarity.

1. Remove the tape or plugs from the receiver/drier fittings and the condenser ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them onto the receiver/drier fittings. Use

only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

3. Connect the A/C receiver/drier (1) to the left end of the A/C condenser (2).
4. Install the bolt (3) that secures the A/C receiver/drier to the A/C condenser. Tighten the bolt to 22 N.m (16 ft. lbs.).
5. Install the air seal onto the left side of the cooling module assembly.
6. Install the grille. Refer to **INSTALLATION** .
7. Reconnect the negative battery cable.
8. Evacuate the refrigerant system. See **REFRIGERANT SYSTEM EVACUATE**.
9. If the A/C receiver/drier is being replaced, add 30 milliliters (1.0 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the Refrigerant Oil Capacities chart to determine how much oil should be added to the refrigerant system. See **REFRIGERANT OIL LEVEL**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
10. Charge the refrigerant system. See **REFRIGERANT SYSTEM CHARGE**.

REFRIGERANT-A/C

DESCRIPTION

REFRIGERANT-A/C

The refrigerant used in this air conditioning system is a Hydro Fluoro Carbon (HFC), type R-134a. Unlike R-12, which is a Chloro Fluoro Carbon (CFC), R-134a refrigerant does not contain ozone-depleting chlorine. R-134a refrigerant is a non-toxic, non-flammable, clear, and colorless liquefied gas.

Even though R-134a does not contain chlorine, it must be reclaimed and recycled just like CFC-type refrigerants. This is because R-134a is a greenhouse gas and can contribute to global warming. See **REFRIGERANT SYSTEM RECOVERY** for more information.

OPERATION

REFRIGERANT-A/C

R-134a refrigerant is not compatible with R-12 refrigerant in an A/C system. Even a small amount of R-12 refrigerant added to an R-134a refrigerant system will cause A/C compressor failure, refrigerant oil sludge or poor A/C system performance. In addition, the poly alkylene glycol (PAG) synthetic refrigerant oils used in an R-134a refrigerant system are not compatible with the mineral-based refrigerant oils used in an R-12 refrigerant system.

R-134a refrigerant system service ports, service tool couplers and refrigerant dispensing bottles have all been designed with unique fittings to ensure that an R-134a refrigerant system is not accidentally contaminated with the wrong refrigerant (R-12). There are also labels posted in the engine compartment of the vehicle and on the A/C compressor to identify that the A/C system is equipped with R-134a refrigerant.

STANDARD PROCEDURE

REFRIGERANT CHARGE LEVEL

All models	0.510 kg (1.12 lbs.)

VALVE-A/C EXPANSION

DESCRIPTION

VALVE-A/C EXPANSION

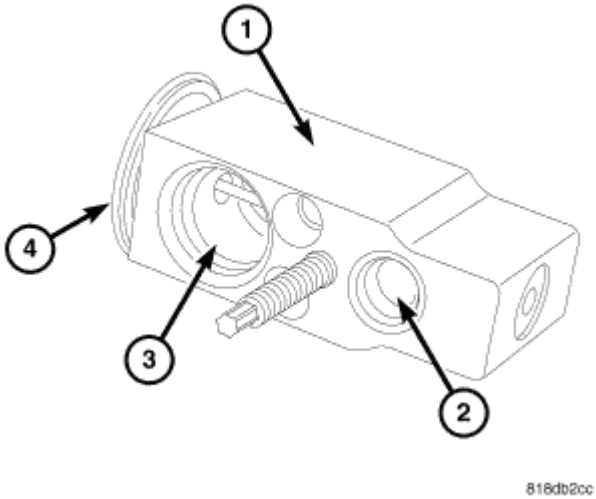

Fig. 201: Aluminum H-Valve Type Body, Inlet Port, Outlet Port & Integral Thermal Sensor
Courtesy of CHRYSLER LLC

The A/C expansion valve controls the amount of refrigerant entering the A/C evaporator. The A/C expansion valve is of a thermostatic expansion valve (TXV) design and consists of an aluminum H-valve type body (1) with an inlet port (2), outlet port (3) and an integral thermal sensor (4).

The A/C expansion valve is located between the A/C refrigerant lines and the A/C evaporator in the engine compartment.

OPERATION

VALVE-A/C EXPANSION

The A/C expansion valve controls the high-pressure, low temperature liquid refrigerant from the A/C liquid line and converts it into a low-pressure, low-temperature mixture of liquid and gas before it enters the A/C evaporator. A mechanical sensor in the A/C expansion valve monitors the temperature and pressure of the refrigerant leaving the A/C evaporator through the A/C suction line, and adjusts the orifice size at the liquid line port to let the proper amount of refrigerant into the evaporator to meet the vehicle A/C cooling requirements. Controlling the refrigerant flow through the A/C evaporator ensures that none of the refrigerant leaving the A/C evaporator is still in a liquid state, which could damage the A/C compressor.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime a refrigerant

line is disconnected from the expansion valve. Failure to replace the rubber O-ring seals could result in a refrigerant system leak.

The A/C expansion valve is factory calibrated and cannot be adjusted or repaired and must be replaced if inoperative or damaged.

DIAGNOSIS AND TESTING

VALVE-A/C EXPANSION

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: The A/C expansion valve should only be tested following testing of the A/C compressor.

NOTE: Liquid CO^2 is required to test the A/C expansion valve. This material is available from most welding supply facilities. Liquid CO^2 is also available from companies which service and sell fire extinguishers.

When testing the A/C expansion valve, the work area and the vehicle temperature must be 21° to 27°C (70° to 85°F). To test the expansion valve:

1. Connect a charging station or manifold gauge set to the refrigerant system service ports. Verify the refrigerant charge level.
2. Close all doors, windows and vents to the passenger compartment.
3. Set the A/C-heater controls so that the A/C compressor is operating, the temperature control is in the highest temperature position, the mode-air doors is directing air output to the floor and the blower motor operating is operating at the highest speed.
4. Start the engine and allow it to idle. After the engine has reached normal operating temperature, allow the passenger compartment to heat up. This will create the need for maximum refrigerant flow into the A/C evaporator.
5. If the refrigerant charge is sufficient, the discharge (high pressure) gauge should read 827 kPa to 1655 kPa (120 psi to 240 psi). The suction (low pressure) gauge should read 207 kPa to 345 kPa (30 psi to 50 psi). If OK, go to step 6. If not OK, replace the inoperative A/C expansion valve.

   WARNING: Protect the skin and eyes from exposure to liquid CO & amp;sup2; or personal injury can result.

6. If the suction (low pressure) gauge reads within the specified range, freeze the A/C expansion valve for 30 seconds using liquid CO & amp;sup2; or another suitable super-cold material.**Do not spray R-134a or R-12 refrigerant on the A/C expansion valve for this test.** The suction (low pressure) gauge reading

should drop by 69 kPa (10 psi). If OK, go to step 7. If not OK, replace the inoperative A/C expansion valve.

7. Allow the expansion valve control head to thaw. The suction (low pressure) gauge reading should stabilize at 207 kPa to 345 kPa (30 psi to 50 psi). If not OK, replace the inoperative A/C expansion valve.
8. When expansion valve testing is complete, test the overall A/C system performance. See **A/C PERFORMANCE TEST**.

REMOVAL

VALVE-A/C EXPANSION

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See WARNING, and CAUTION. Failure to follow the warnings and cautions could result in possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

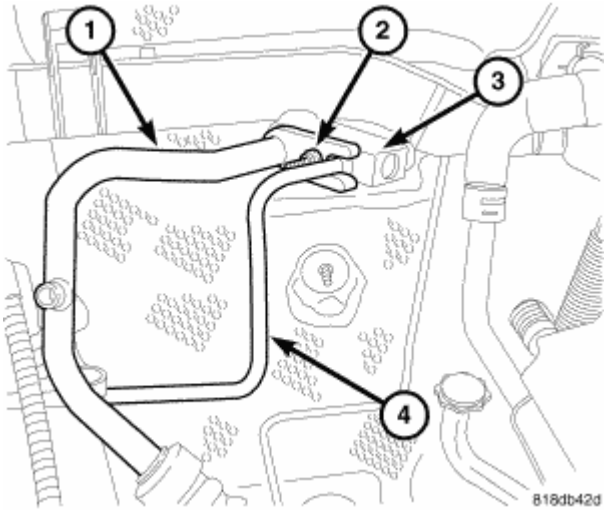

Fig. 202: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

1. Recover the refrigerant from the refrigerant system. See **STANDARD PROCEDURE**.
2. Disconnect and isolate the negative battery cable.
3. Remove the nut (2) that secures the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3).
4. Disconnect the A/C suction and liquid lines from the A/C expansion valve, remove and discard the O-ring seals and position the refrigerant lines out of the way.

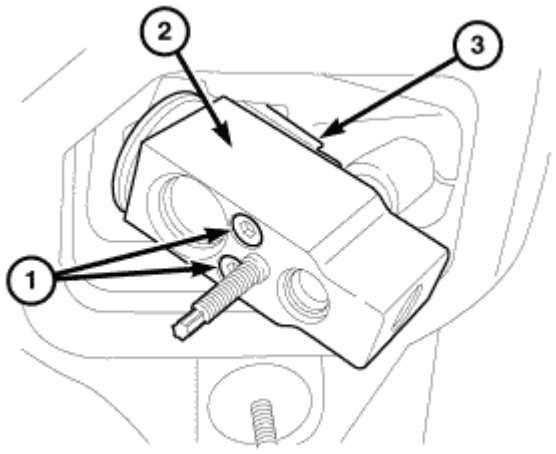

Fig. 203: Bolts, A/C Expansion Valve & Evaporator Tube Tapping Block
Courtesy of CHRYSLER LLC

5. Remove the two bolts (1) that secure the A/C expansion valve (2) to the evaporator tube tapping block (3).
6. Remove the A/C expansion valve from the evaporator tube tapping block and remove and discard the O-ring seals.
7. Install plugs in, or tape over the opened refrigerant line and evaporator tube fittings and all expansion valve ports.

INSTALLATION

VALVE-A/C EXPANSION

NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: LHD model shown in illustrations. RHD model similar.

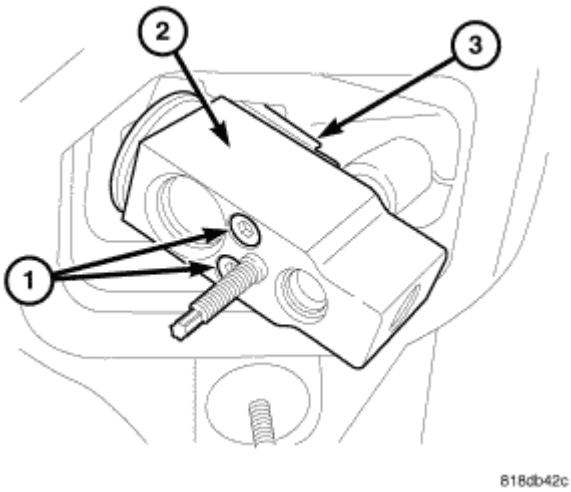

Fig. 204: Bolts, A/C Expansion Valve & Evaporator Tube Tapping Block
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant line and evaporator tube fittings and all of the expansion valve ports.
2. Lubricate new O-ring seals with clean refrigerant oil and install them onto the refrigerant line and evaporator tube fittings. Use only the specified O-rings as they are made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Install the A/C expansion valve (2) onto the evaporator tube tapping block (3).
4. Install the two bolts (1) that secure the A/C expansion valve to the evaporator tube tapping block. Tighten the bolts to 11 N.m (97 in. lbs.).

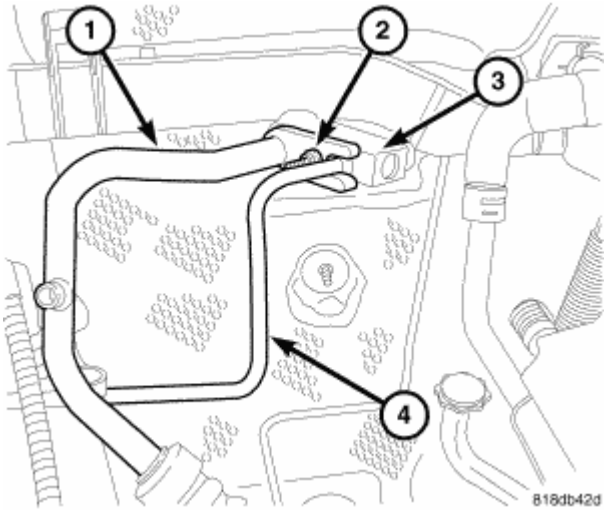

Fig. 205: A/C Suction Line, Nut, A/C Expansion Valve & A/C Liquid Line
Courtesy of CHRYSLER LLC

5. Connect the A/C suction line (1) and the A/C liquid line (4) to the A/C expansion valve (3).
6. Install the nut (2) that secures the A/C suction and liquid lines to the A/C expansion valve. Tighten the

nut to 23 N.m (17 ft. lbs.).

7. Reconnect the negative battery cable.
8. Evacuate the refrigerant system. See **STANDARD PROCEDURE**.
9. Recharge the refrigerant system. See **STANDARD PROCEDURE**.

HEATER-CABIN

HEATER UNIT

DESCRIPTION

HEATER UNIT

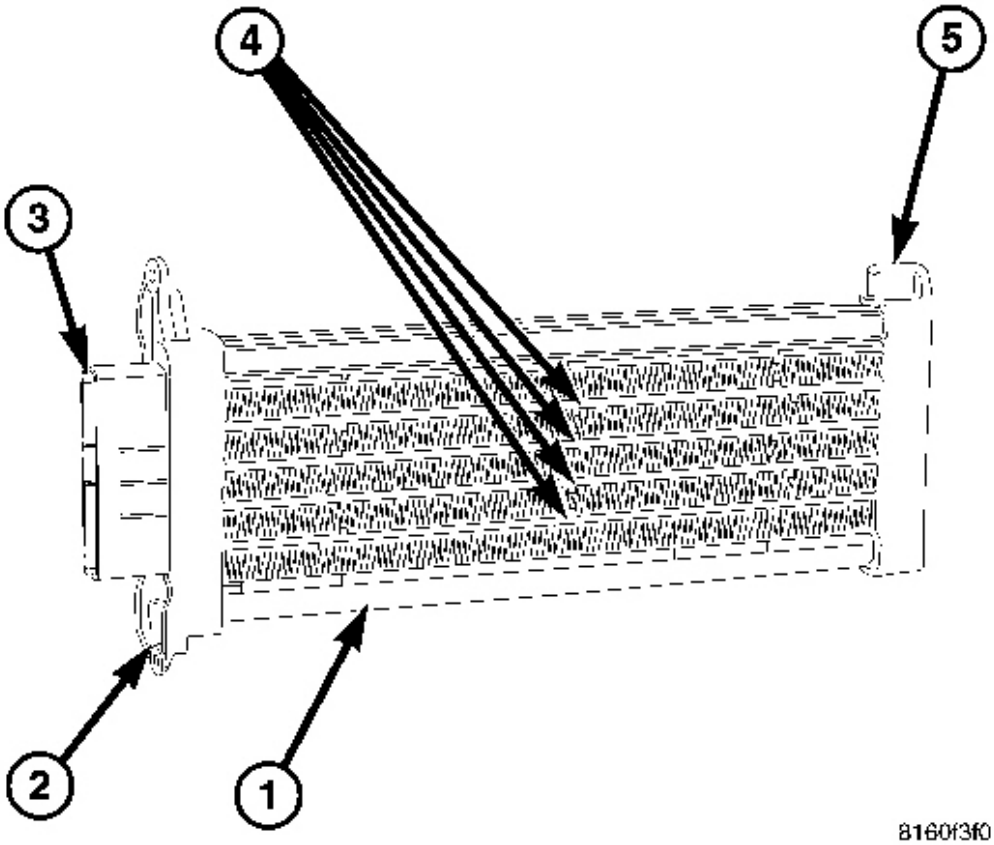

Fig. 206: (PTC) Heater Unit, Mounting Plate, Integral Wire Connector Receptacle, Fins & Positioning Tab

Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

An electric positive temperature coefficient (PTC) heater unit (1) is used on vehicles when equipped with the 2.8L diesel engine. The PTC heater unit aids in passenger compartment heating by compensating for the lower engine coolant temperatures produced by the diesel engine. The PTC heater unit is mounted in the HVAC air distribution housing, downstream of the heater core and is controlled by the diesel engine control module (ECM) and the totally integrated power module (TIPM) through two relays in diesel accessory fuse/relay block located below the left front fender.

The PTC heater consists of a molded plastic mounting plate (2) with an integral wire connector receptacle (3). Concealed behind the mounting plate are four heating elements with fins (4) that transfer the heat produced by the PTC heater to the conditioned air flowing within the air distribution housing. A positioning tab (5) is molded onto the end of the heater unit to help support the heater unit inside the air distribution housing. The PTC heater unit is connected to the vehicle electrical system through the instrument panel wire harness.

The PTC heater unit is accessed for service from underneath the instrument panel.

OPERATION

HEATER UNIT

The positive temperature coefficient (PTC) heater unit dissipates 1 kW of electrical power through 4 heating bars. The totally integrated power module (TIPM) operates the two relays for the PTC heater unit. The PTC heater unit is split into two "banks". Each bank is driven separately based on alternator load. This allows for lower in-rush current and optimum battery charging. After a bank has been turned on, another bank can only be turned on 10 seconds after the previous. On average, the PTC banks are not switched more than 25 times for each vehicle start. Electrical power output is between 900-1050 W.

The control system for the PTC heater unit is diagnosed using a scan tool. Prior to replacing a PTC heater unit, check for any diagnostic trouble codes (DTCs) related to the ECM, TIPM and heating-A/C system (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

The PTC heater unit cannot be adjusted or repaired and, if faulty or damaged it must be replaced.

DIAGNOSIS AND TESTING

HEATER UNIT

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible serious or fatal injury.

NOTE: For circuit descriptions and diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

Prior to replacing the positive temperature coefficient (PTC) heater unit, check for any diagnostic trouble codes (DTCs) related to the engine control module (ECM), totally integrated power module (TIPM) and the heating-A/C system and repair as necessary (refer to **HEATING & AIR CONDITIONING - ELECTRICAL DIAGNOSTICS** for more information).

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the PTC heater unit. See **REMOVAL**.
3. Using an ohmmeter, check for continuity between all of the PTC heater unit terminals. In each case there should be continuity. If OK, repair the wire harness circuits between the PTC heater unit and the TIPM. If NOT OK, replace the PTC heater unit.

REMOVAL

HEATER UNIT

WARNING: Disable the airbag system before attempting any steering wheel, steering column, or instrument panel component diagnosis or service. Disconnect and isolate the negative battery (ground) cable, then wait two minutes for the airbag system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the airbag system. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury or death.

NOTE: LHD model shown in illustrations. RHD model similar.

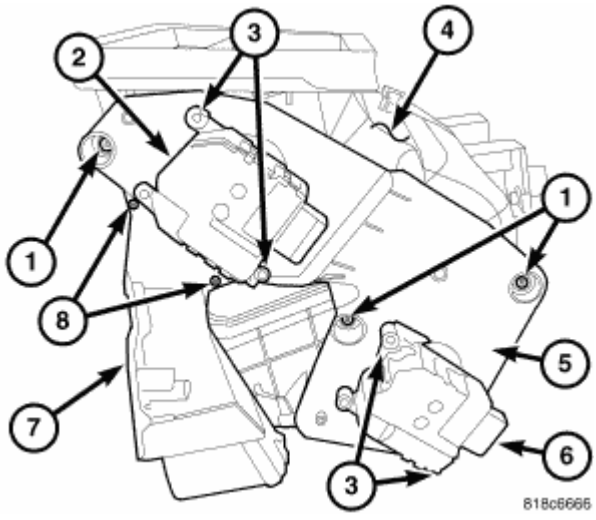

Fig. 207: HVAC Housing Assembly
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. If equipped, remove the silencer from below the driver side of the instrument panel. Refer to **REMOVAL** .
3. Disconnect the wire harness connector from the mode door actuator (2) and the blend door actuator (6) located on the driver side of the air distribution housing. See **REMOVAL** for more information.
4. Carefully disengage the retaining tabs (3) that secure the mode door actuator and the blend door actuator to the actuator mounting bracket (5) and remove the actuators.
5. Remove the three screws (1) that secure the actuator mounting bracket to the air distribution housing and remove the bracket.
6. Remove the screw (8) that secures the driver side front floor duct (7) to the air distribution housing and remove the duct

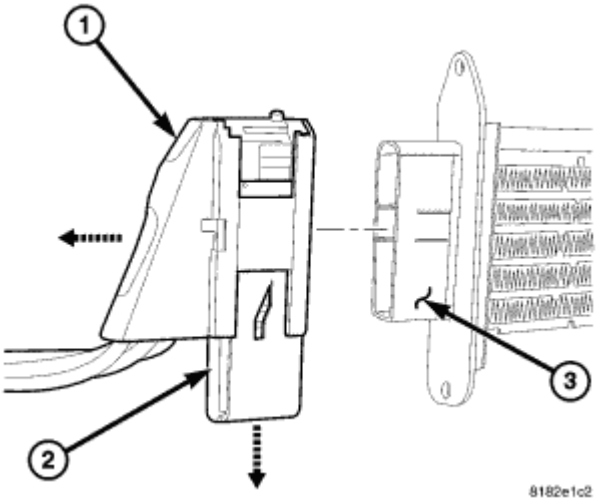

Fig. 208: Wire Harness Connector, Wire Connector Lock & Positive Temperature Coefficient (PTC) Heater Unit
Courtesy of CHRYSLER LLC

NOTE: PTC heater shown removed from distribution housing for clarity.

NOTE: To disconnect the wire harness connector from the PTC heater, disengage the connector lock while pulling the connector away from the heater unit.

7. Disengage the wire connector lock (2) that secures the wire harness connector (1) to the positive temperature coefficient (PTC) heater unit (3) and disconnect the connector from the heater.

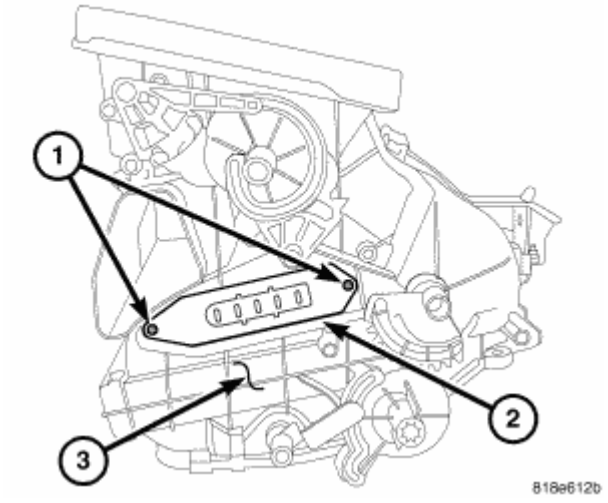

Fig. 209: Removing/Installing Screws That Secure PTC Heater Unit To Air Distribution Housing
Courtesy of CHRYSLER LLC

8. Remove the two screws (1) that secure the PTC heater unit (2) to the air distribution housing (3).
9. Carefully pull the PTC heater unit straight out of the air distribution housing.

INSTALLATION

HEATER UNIT

NOTE: LHD model shown. RHD model similar.

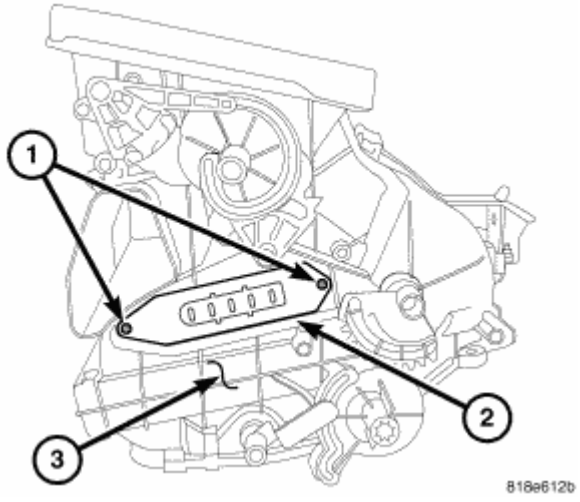

Fig. 210: Removing/Installing Screws That Secure PTC Heater Unit To Air Distribution Housing
Courtesy of CHRYSLER LLC

1. Carefully install the positive temperature coefficient (PTC) heater unit (2) into the driver side of the air distribution housing (3). Make sure to position the two locator tabs on the end of the heater unit into the molded locator indentations on the right side of the air distribution housing.

2. Install the two screws (1) that secure the PTC heater unit to the air distribution housing. Tighten the screws to 1.2 N.m (10 in. lbs.).

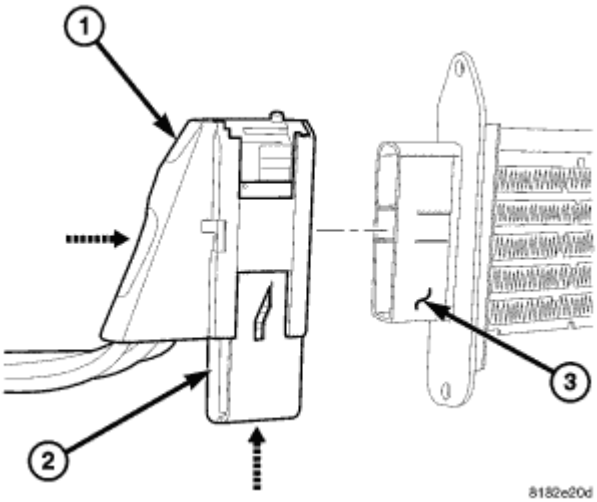

Fig. 211: Connecting Wire Harness Connector To PTC Heater Unit While Pushing Inward On Connector Lock
Courtesy of CHRYSLER LLC

NOTE: PTC heater shown removed from distribution housing for clarity.

3. Connect the wire harness connector (1) to the PTC heater unit (3) while pushing inward on the connector lock (2). Make sure the wire harness connector and lock are fully engaged.

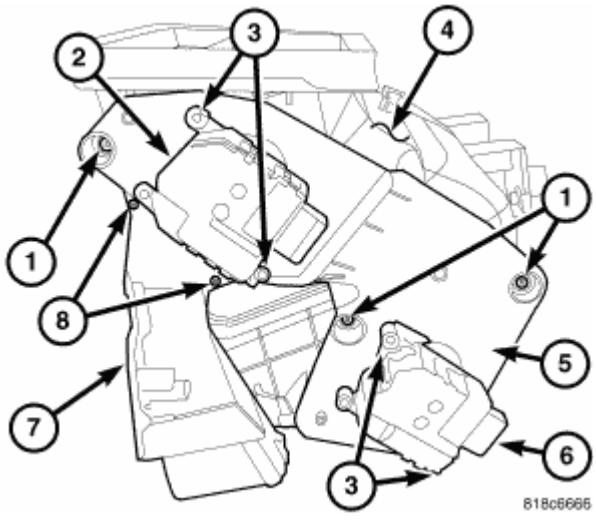

Fig. 212: HVAC Housing Assembly
Courtesy of CHRYSLER LLC

4. Install the driver side front floor duct (7) onto the driver side of the air distribution housing (4) and install the retaining screw (8). Tighten the screw to 1.2 N.m (10 in lbs.).

5. Position the actuator mounting bracket (5) onto the air distribution housing and install the three retaining screws (1). Tighten the screws to 1.2 N.m (10 in lbs.).
6. Position the mode door actuator (2) and the blend door actuator (6) onto the actuator mounting bracket. If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the door linkage.

NOTE: If the retaining tabs on the actuator mounting bracket become broken during service, the alignment pins on the bracket bosses can be removed and screws can be used to retain the actuator to the bracket. Once the alignment pins are removed, pre-made holes can be found the center of the bosses, exactly where the pins were. This assures correct actuator alignment to the bracket. Use care not to overtighten the screws and damage the bosses.

7. Engage the retaining tabs (3) that secure the mode and blend door actuators to the actuator mounting bracket. Make sure the retaining tabs are fully engaged.
8. Connect the wire harness connector to the mode and blend door actuators.
9. If equipped, install the silencer below the driver side of the instrument panel. Refer to **INSTALLATION** .
10. Reconnect the negative battery cable.

RELAY-HEATER UNIT

DESCRIPTION

RELAY-HEATER UNIT

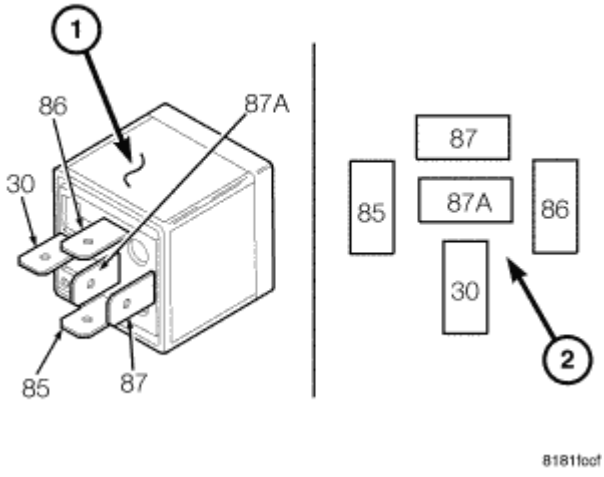

Fig. 213: Heater Unit Relay
Courtesy of CHRYSLER LLC

Two relays (1) are used for the electric positive temperature coefficient (PTC) heater system when equipped

with the 2.8L diesel engine. The relays are International Standards Organization (ISO)-type relays. Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal functions and patterns (2). The PTC relays are electromechanical devices that switch fused battery current directly to the heating elements of the PTC heater unit. The PTC relays are energized by control circuits of the totally integrated power module (TIPM).

The two PTC relays are located in the diesel accessory fuse/relay block at the right front corner of the engine compartment.

OPERATION

RELAY-HEATER UNIT

The two ISO-standard relays (1) used for the electric positive temperature coefficient (PTC) heater system are electromechanical switches that use a low current ASD power input to control the high current fused battery power output to the PTC heater unit. On each relay, the movable, common feed relay contact is held against the fixed, normally closed relay contact by spring pressure. When the electromagnetic relay coil is energized, it draws the movable common feed relay contact away from the fixed, normally closed relay contact and, holds it against the fixed, normally open relay contact. This action allows high current to flow to one or more of the heating elements of the PTC heater.

When the relay coil is de-energized, spring pressure returns the movable relay contact back against the fixed, normally closed contact point. The resistor or diode is connected in parallel with the relay coil, and helps to dissipate voltage spikes and electromagnetic interference that can be generated as the electromagnetic field of the relay coil collapses.

The terminals for the PTC relays are connected to the vehicle electrical system through receptacles in the diesel accessory fuse/relay block. The inputs and outputs of the PTC relays include:

- Terminals (30) receive battery current through a fusible link at all times.
- Terminals (85) are connected to a ground circuit.
- Terminals (86) are connected to control circuits of the totally integrated power module (TIPM).
- Terminals (87) provide fused battery current to the PTC heating elements through the PTC relays only when the PTC relay coil is energized.
- Terminals (87A) are not connected to any circuit in this application, but provide battery current output only when the PTC relay coil is de-energized.

The two PTC relays cannot be repaired and, if faulty or damaged they must be replaced. Refer to the appropriate wiring information for diagnosis and testing of the ISO-standard relays and for complete TIPM and HVAC wiring diagrams.

REMOVAL

RELAY-HEATER UNIT

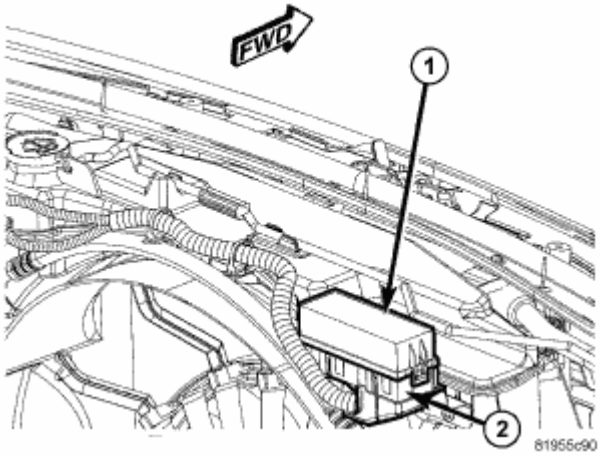

Fig. 214: Cover & Diesel Accessory Fuse/Relay Block
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Open the cover (1) of the diesel accessory fuse/relay block (2) located at the right front of the engine compartment.
3. Remove the positive temperature coefficient (PTC) relays as necessary from the fuse/relay block.

INSTALLATION

RELAY-HEATER UNIT

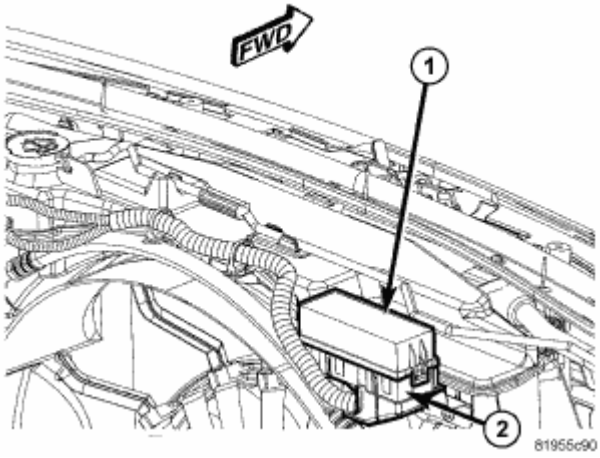

Fig. 215: Cover & Diesel Accessory Fuse/Relay Block
Courtesy of CHRYSLER LLC

1. Position the positive temperature coefficient (PTC) relays as necessary into the proper receptacle of the diesel accessory fuse/relay block (2) located at the right front of the engine compartment.
2. Align the PTC relay terminals with the terminal cavities in the fuse/relay block and push down firmly on

each relay until the terminals are fully seated.

3. Close the cover (1) of the diesel accessory fuse/relay block.
4. Reconnect the negative battery cable.