

2009 HVAC

Heating & Air Conditioning - Service Information - Journey

DESCRIPTION

DESCRIPTION

A manual temperature control (MTC) single zone heating-A/C system, automatic temperature controlled (ATC) dual zone heating-A/C system, MTC tri-zone heating-A/C system and an ATC tri-zone heating-A/C system is available on this vehicle.

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.

FRONT HEATING AND A/C SYSTEM

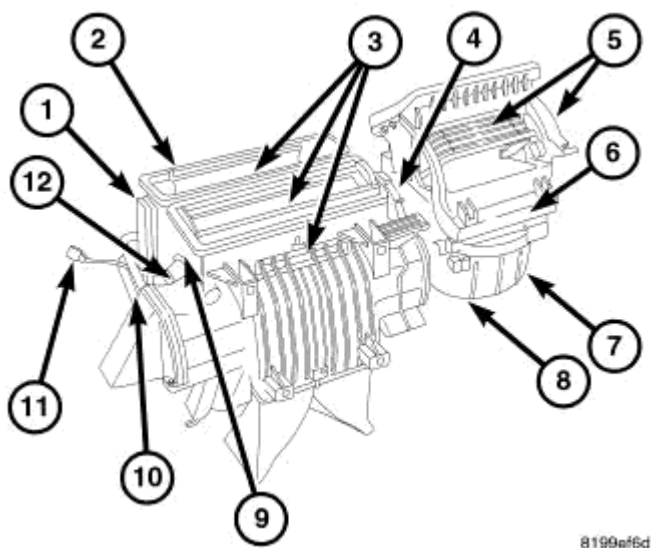


Fig. 1: HVAC Housing

Courtesy of CHRYSLER LLC

NOTE: Single zone HVAC shown. Dual zone similar.

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

- A/C evaporator (2)

- Mode-air doors (3)
- Mode door actuator (4)
- Recirculation-air door and actuator (5)
- Particulate air filter (when equipped) (6)
- Blower motor (7)
- Blower motor resistor or power module (depending on system application) (8)
- Blend door actuator(s) (9)
- Heater core (10)
- Evaporator temperature sensor (11)
- Blend-air door(s) (12)

NOTE: An electric positive temperature coefficient (PTC) heater is used on vehicles when equipped with the 2.0L 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 Heating and Air Conditioning/Cabin Heater/UNIT, Heater - Description.

Based upon the system mode selected, conditioned air can exit the front 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 HVAC air distribution housing and the floor outlets are located on each side of the distribution housing. Once the conditioned air exits the HVAC housing, it is further directed through molded plastic ducts to the various outlets within the vehicle interior. These outlets and their locations are as follows:

- **Defroster Outlet** - Two defroster outlets are located in the center of the instrument panel, 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, near the A-pillars.
- **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 on each side the floor panel center tunnel behind the instrument panel.
- **Rear Seat Floor Outlets** - There are two rear seat floor outlets, one located on each side of the floor panel near the front of each rear seat foot well.

REAR HEATING AND A/C SYSTEM

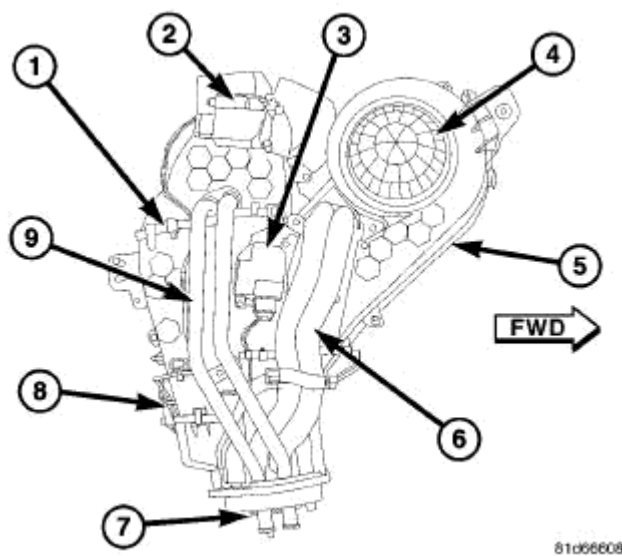


Fig. 2: Rear Heater AC Housing Description
 Courtesy of CHRYSLER LLC

The tr-zone heating-A/C systems are equipped with a rear heater-A/C housing (1) that combines A/C and heating capabilities into a single unit mounted within the passenger compartment behind the right quarter interior trim panel. The rear heater-A/C housing includes:

- Mode door and actuator (2)
- Blend door and actuator (3)
- Blower motor (4)
- Blower motor resistor or power module (5) (depending on control system)
- A/C evaporator (6)
- A/C expansion valve (7)
- Wire harness (8)
- Heater core (9)

Based upon the rear temperature selected, conditioned air can exit the rear heater-A/C housing through one or a combination of the two rear housing outlets: ceiling or floor. The ceiling outlet is located at the top rear of the housing and the floor outlet is located at the top front of the rear housing. Once the conditioned air exits the rear heater-A/C housing, it is further directed through molded plastic ducts to the outlets at the rear of the passenger compartment. These outlets and their locations are as follows:

- **Ceiling Outlets** - There are four ceiling outlets in the headliner. One located at each outboard side of the intermediate seat position and one located in front of each rear seat position.
- **Floor Outlet** - There is one floor outlet in the right quarter interior trim panel located behind the right rear door area.

OPERATION

OPERATION

The standard front and available rear heating-A/C systems used in this vehicle 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. In the available front dual zone system, separate blend-air doors are used to provide completely independent side-to-side temperature control of the discharge air. The temperature control(s) determines the discharge air temperature(s) by operating the blend door actuator(s), which move the blend-air door(s). This design allows almost immediate control of output air temperature(s).

FRONT SYSTEM

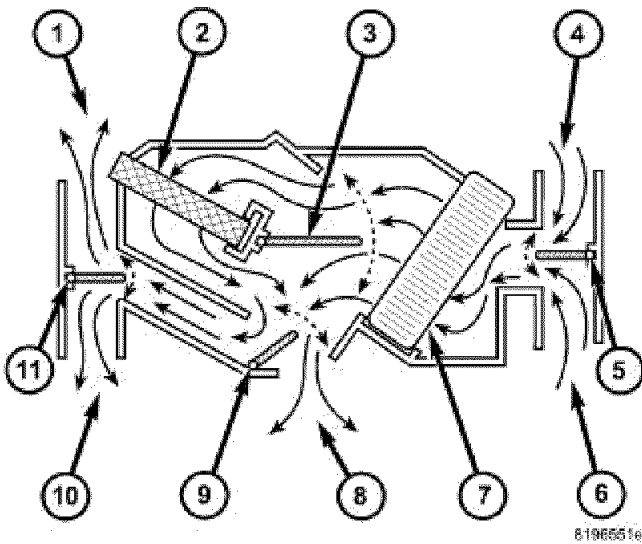


Fig. 3: Blend Air System Schematic

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(s) (3) with the temperature control(s) 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 use 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. It will automatically engage when the mode control is set in any Mix to Defrost position. This will remove heat and humidity from the air before it is directed through or around the heater core. The mode control on the A/C-heater control is used to direct the conditioned air to the selected system outlets.

The defroster outlets receive airflow from the HVAC housing through the molded plastic defroster duct, which is secured to the top of the instrument panel. The airflow from the defroster outlets 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 secured to the instrument panel support. The airflow from the side window demister outlets is directed by fixed vanes and cannot be adjusted. The demisters operate when the mode control is set in any Floor to Defrost position.

The instrument panel outlets receive airflow from the HVAC housing through a molded plastic center panel duct and two end panel ducts. The two end panel 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 or shut off the flow of air leaving the outlets.

The front and rear floor outlets receive airflow from the HVAC housing through the front and rear floor ducts which are secured to each side of the HVAC housing. The rear seat ducts direct airflow beneath the carpet to the outlets located near the front of each rear seat foot well. None of the floor outlets can 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.

The front A/C system is designed for use of non-CFC, R-134a refrigerant and uses an A/C expansion valve (TXV) to meter the flow of refrigerant to the A/C evaporator. To maintain minimum evaporator temperature and prevent evaporator freezing, an evaporator temperature sensor input is supplied to the A/C-heater control. In turn, the powertrain control module (PCM) cycles the A/C compressor clutch off and on as necessary to optimize A/C system performance and to protect the A/C system from evaporator freezing.

REAR SYSTEM

The rear heating-A/C system pulls interior air through the opening in the rear quarter interior trim panel and into the rear blower motor in the rear heater-A/C housing, then through the rear A/C evaporator. Air flow can be

directed either through or around the rear heater core by adjusting the blend-air door with either the front or the rear temperature control (depending on the front A/C-heater control setting). The air flow is then directed to the floor or ceiling outlets depending on the mode selected by the mode control. Air flow velocity can be adjusted with the blower speed control located on either the front A/C-heater control or the rear A/C-heater control (depending on the front A/C-heater control setting).

The headliner air outlets receive airflow from the rear heater-A/C housing through the molded plastic ceiling duct, which connects to the headliner duct and headliner air outlets. Airflow direction from the headliner air outlets can be adjusted to direct or shut off the flow of air leaving the outlets.

The rear floor outlet receives airflow from the rear heater-A/C housing through the molded plastic floor distribution duct, which connects to the rear floor outlet located in the rear quarter interior trim panel. The airflow from the rear floor outlet is directed by fixed vanes in the outlet and air flow direction cannot be adjusted. The rear floor outlet is integral to the rear quarter interior trim panel.

The rear A/C system is designed for use of non-CFC, R-134a refrigerant and uses an "H" valve-type thermal expansion valve (TXV) to meter the flow of refrigerant to the rear A/C evaporator.

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. Also the evaporator temperature sensor probe must be a minimum of 16° C (60° F) for this test as well.

A/C PERFORMANCE TEST

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may 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 can take two or more "reclaim" cycles to remove all of the refrigerant charge, depending on the equipment being used. 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 diagnostic trouble codes (DTCs) are found in the A/C-heater control or the powertrain control module (PCM) or engine control module (ECM) (depending on engine application) or the totally integrated power module (TIPM), go to 2. If any DTCs are found, repair as required, then proceed to 2.
2. Connect a tachometer and a manifold gauge set.

NOTE: The ambient air temperature of the vehicle and the location where the vehicle will be tested must be a minimum of 21° C (70° F) before performing this test. Also the evaporator temperature sensor must be a minimum of 18° C (65° F) for this test as well. Place the vehicle in the testing area until the temperature within the vehicle reaches a minimum of 18° C (65° F).

3. Operate the heating-A/C system under the following conditions.
 - Engine at normal operating temperature
 - Engine at normal idle speed
 - Door and windows closed
 - Transaxle in Park
 - A/C-heater controls set to Recirculation mode, 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 table
 - All panel outlet vanes open and positioned straight rearward
4. Insert a thermometer in the driver side center panel air outlet and operate the A/C system until the thermometer temperature stabilizes or a minimum of 5 minutes.

NOTE: This procedure requires the technician to know what the temperature and

relative humidity is at the time of the test. The temperature must be combined with the relative humidity to calculate the apparent ambient temperature, when the temperatures are above 21° C (70° F). Use the current ambient temperature and the relative humidity in your location. This information can be obtained from multiple sources, such as the internet or local news media.

- With the A/C compressor clutch engaged, compare the air temperature at the center panel outlet and the compressor discharge pressure (high side) to the A/C Performance Temperature and Pressure chart.

A/C PERFORMANCE TEMPERATURE AND PRESSURE

Ambient Air Temperature (Apparent)	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	9° C (48° F)	9° C (48° F)	12° C (54° F)	15° C (59° F)	24° C (75° F)
Air Temperature at Driver Side 2nd Row Headliner Outlet	10° C (50° F)	13° C (55° F)	15° C (59° F)	17° C (63° F)	24° C (75° F)
Suction Pressure at Service Port (Low Side)	138 to 310 kPa (20 to 45 psi)	138 to 345 kPa (20 to 50 psi)	207 to 365 kPa (30 to 55 psi)	207 to 414 kPa (30 to 60 psi)	241 to 448 kPa (35 to 65 psi)
Discharge Pressure at Service Port (High Side)	1034 to 1724 kPa (150 to 250 psi)	1379 to 2068 kPa (175 to 300 psi)	1551 to 2241 kPa (175 to 325 psi)	1724 to 2413 kPa (250 to 350 psi)	2068 to 2758 kPa (300 to 475 psi)

- If the air outlet temperature fails to meet the specifications in the A/C Performance Temperature and Pressure chart, or if the compressor discharge pressure is high, refer to the **A/C SYSTEM DIAGNOSIS** table.

A/C SYSTEM DIAGNOSIS

Condition	Possible Causes	Correction
Rapid A/C compressor clutch cycling with poor panel outlet temperatures (fixed displacement compressors only).	1. Low refrigerant system charge.	1. See <u>REFRIGERANT SYSTEM LEAKS</u> . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system, if required.
Equal low and high side pressures	1. No refrigerant in the refrigerant system.	1. See <u>REFRIGERANT SYSTEM LEAKS</u> . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system, if required.
	2. Inoperative A/C compressor or clutch (depending on compressor application).	2. See <u>COMPRESSOR, A/C</u> . Test the compressor and/or clutch and replace, if required.
	3. Improperly installed or inoperative evaporator temperature sensor.	3. See <u>SENSOR, Evaporator Temperature</u> . Correctly install or test the sensor and replace, if required.
	4. Improperly installed or inoperative A/C pressure transducer.	4. See <u>TRANSDUCER, A/C Pressure</u> . Test the transducer and replace, if required.
	5. Inoperative A/C-heater control, totally integrated power module (TIPM) or PCM/ECM (depending on engine application).	5. See the appropriate Electrical Diagnostic Procedures for testing of the A/C-heater control, TIPM or PCM/ECM. Test the module and replace, if required.
Normal refrigerant pressures, but A/C Performance Test air temperatures at center panel outlet are too high.	1. Excessive refrigerant oil in system.	1. See <u>REFRIGERANT OIL LEVEL</u> . Recover the refrigerant from the refrigerant system and inspect the refrigerant oil content. Restore the refrigerant oil to the proper level, if required.
	2. Blend door actuator(s) improperly installed or inoperative.	2. See <u>ACTUATOR, Blend Door, Front</u> . Inspect the actuator(s) for proper operation. Replace the actuator as required.
	3. Blend-air door(s) inoperative or sealing improperly.	3. See <u>HOUSING, HVAC</u> . Inspect the blend-air door(s) for proper operation and sealing. Repair if 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 <u>REFRIGERANT SYSTEM LEAKS</u> . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system, if required.
	2. Refrigerant flow through the A/C evaporator is restricted.	2. See <u>EVAPORATOR, A/C, Front</u> . Replace the restricted A/C evaporator, if required.

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

	3. Restricted refrigerant flow through the refrigerant lines.	3. See Plumbing, Front . Inspect the refrigerant lines for kinks, tight bends or improper routing. Correct the routing or replace the refrigerant line if required.
	4. Inoperative A/C compressor.	4. See COMPRESSOR, A/C . Replace the compressor, if required.
The low side pressure is normal or slightly high, and the high side pressure is too high.	1. Inoperative radiator cooling fan.	1. See COOLING . Test the radiator cooling fan and replace, if required.
	2. A/C condenser air flow restricted.	2. See CONDENSER, A/C . 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.
	3. Refrigerant flow through the A/C receiver/drier is restricted.	3. See DRIER, A/C Receiver . Replace the restricted A/C receiver/drier, if required.
	4. Restricted refrigerant flow through the refrigerant lines.	4. See Plumbing, Front . Inspect the refrigerant lines for kinks, tight bends or improper routing. Correct the routing or replace the refrigerant line if required.
	5. Refrigerant system overcharged.	5. See REFRIGERANT SYSTEM CHARGE . Recover the refrigerant from the refrigerant system. Charge the refrigerant system to the proper level, if required.
	6. Air in the refrigerant system.	6. See REFRIGERANT SYSTEM LEAKS . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system, if required.
	7. Engine overheating.	7. See COOLING . Test the engine cooling system and repair, if required.
The low side pressure is too high, and the high side pressure is too low.	1. Accessory drive belt slipping.	1. See COOLING . Inspect the accessory drive belt condition and tension. Replace the accessory drive belt or tensioner, if required.
	2. Inoperative A/C expansion valve.	2. See VALVE, A/C Expansion . Replace the valve, if required.
	3. Inoperative A/C compressor.	3. See COMPRESSOR, A/C . Replace the compressor, if 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

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

		the routing or replace the refrigerant line, if required.
2. Restricted refrigerant flow through the A/C expansion valve.	2. See VALVE, A/C Expansion . Replace the valve, if required.	
3. Restricted refrigerant flow through the A/C condenser.	3. See CONDENSER, A/C . Replace the restricted condenser, if required.	

HEATER PERFORMANCE

Before performing the following tests, see **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. Failure to follow this instruction may result in serious injury.

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 and from 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 Temperature		Minimum Floor Outlet Temperature	
Celsius	Fahrenheit	Celsius	Fahrenheit
16°	60°	54°	130°
21°	70°	56°	132°
26°	80°	57°	134°
32°	90°	58°	136°

See **COOLING** if the heater outlet air temperature is below the minimum specification. 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.

OBSTRUCTED COOLANT FLOW

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

- Low coolant level
- 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(s)
- Inoperative, obstructed or improperly installed blend-air door(s)

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(s)
- Inoperative, obstructed or improperly installed blend-air door(s)
- Improper engine coolant temperature

SPECIFICATIONS

A/C SYSTEM

Item	Description	Notes
A/C Compressor	Denso 6SEU16 Variable Displacement - 2.0L/2.4L 5-Passenger models	ND-8 PAG oil

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

	Denso 10SR15 Fixed Displacement - 2.7L/3.5L 5-Passenger models Denso 10SR17 Fixed Displacement - All 7-Passenger models	
Freeze-up Control	Evaporator temperature sensor	Input to A/C-heater control, HVAC housing mounted, sets compressor to destroke 2° C (36° F) below evaporator target temperature (minimum 5° C (41° F)) and activates compressor when within 1° C (34° F) of evaporator target temperature
Low psi Control	A/C pressure transducer	Input to PCM/ECM, discharge line mounted, sets compressor to destroke below 200 kPa (29 psi), activates compressor above 234 -262 kPa (34 - 38 psi)
High psi Control	A/C pressure transducer	Input to PCM/ECM, discharge line mounted - compressor to destroke above 3130 kPa (454 psi) and below 200 kPa (29 psi)
R-134a Refrigerant Charge Capacity	Front A/C Only - 0.624 kg (22 oz.) Front and Rear A/C - 0.907 kg (32 oz.)	Also see A/C Underhood Specification Label located in the engine compartment
A/C Clutch Coil Draw (10SR15 and 10SR17 Compressors)	3.2 - 3.3 amps	@ 12V ± 0.5V @ 21° C (70° F)
A/C Clutch Coil Resistance (10SR15 and 10SR17 Compressors)	3.6 ± 0.2 ohms	When measured across coil lead connector
A/C Clutch Air Gap (10SR15 and 10SR17 Compressors)	0.35 - 0.60 mm (0.014 - 0.024 in.)	-

FASTENER TORQUE

Description	N.m	Ft. Lbs.	In. Lbs.

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

All Screws NOT Listed Below	1.2	-	10
A/C Compressor to Engine Bolts	25	18	-
A/C Pressure Transducer	5.6	-	50
Front Air Distribution Housing Screws	2.2	-	20
Front A/C Expansion Valve Bolts	11	-	97
Front HVAC Actuator Mounting Screws	2	-	17
Front HVAC Housing to Dash Panel Nuts	4.5	-	40
Front Floor Duct to HVAC Housing Screw	2	-	17
Front Mode Door Actuator Bracket Screws	2	-	17
Instrument Panel Center Duct Screws	2.2	-	20
Heat Shield to Dash Panel Nuts	1	-	10
Liquid Refrigerant Lines to A/C Receiver/Drier Nut	20	15	-
Lower to Upper Suction line Nut	20	15	-
Rear A/C expansion Valve to Tapping Plate Bolts	11	-	97
Rear Heater-A/C Housing to Quarter Panel Bolts	3	-	27
Rear Seat Floor Duct to Floor Support Screw	2.2	-	20
Refrigerant Lines to A/C Compressor Nuts	20	15	-
Refrigerant Lines to A/C Condenser Nuts	20	15	-
Refrigerant Lines to Front Expansion Valve Nut	20	15	-
Refrigerant Lines to Rear Expansion Valve Nut	11	-	97
Refrigerant Lines to Underbody Refrigerant	23	17	-

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

Line Nut			
Seat Belt Retractor to D-Pillar Bolts	52	38.5	-
Upper Seat Belt Bracket to D-Pillar Bolts	52	38.5	-
Underbody and Extension Refrigerant Line Nuts	23	17	-

SPECIAL TOOLS

SPECIAL TOOLS

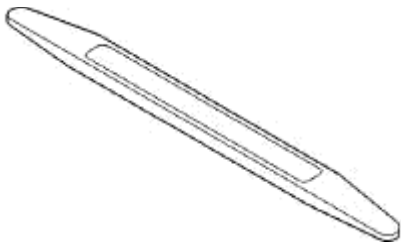


Fig. 4: Trim Stick C-4755
Courtesy of CHRYSLER LLC

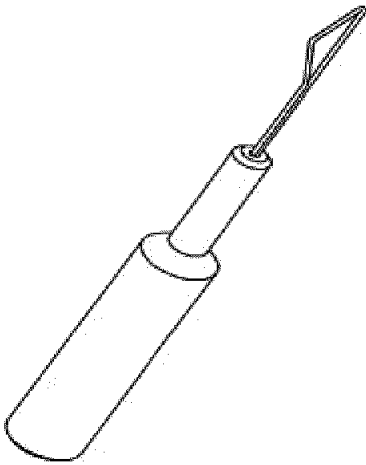


Fig. 5: Back Probe Tool 6801
Courtesy of CHRYSLER LLC

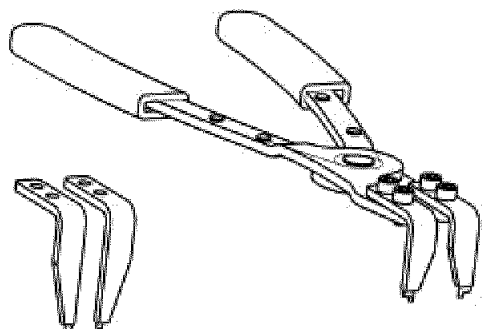


Fig. 6: Pliers, A/C Snap Ring 9764
Courtesy of CHRYSLER LLC

CONTROLS, FRONT

ACTUATOR, BLEND DOOR, FRONT

Description

DESCRIPTION

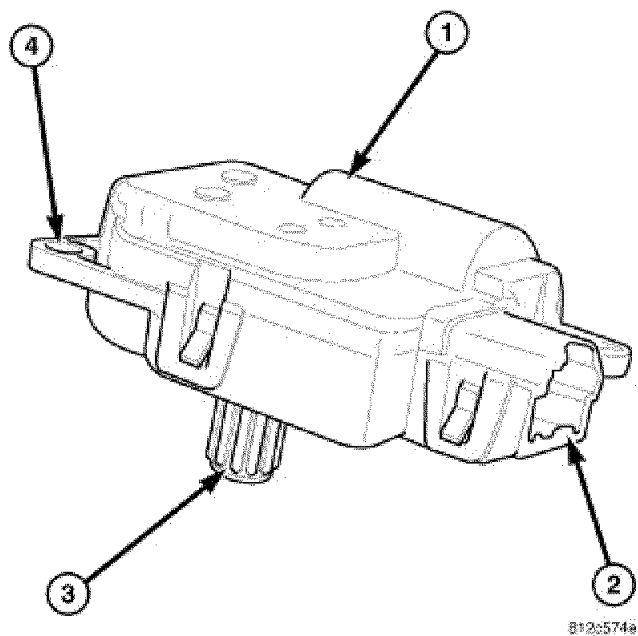


Fig. 7: Blend Door Actuators
Courtesy of CHRYSLER LLC

The blend door actuators (1) for the front heating-A/C system are reversible, 12-volt direct current (DC) servo motors. Models with the front single zone heating-A/C system have a single blend-air door, which is controlled by a single blend door actuator. Models with the front dual zone heating-A/C system have dual blend-air doors, which are controlled by two blend door actuators.

The blend door actuator for the single zone heating-A/C system is located on the driver side front HVAC air distribution housing. For the dual zone heating-A/C system, the same blend door actuator used for the single zone system becomes the driver side blend door actuator, which is mechanically connected to only the driver side blend-air door. A second separate blend door actuator is also located on the passenger side of the front air distribution housing which is mechanically connected to only the passenger side blend-air door.

The blend door actuators are contained within a black molded plastic housing with an integral wire connector receptacle (2). An output shaft with splines (3) connect the blend door actuators to the blend door linkage. Three integral mounting tabs (4) allow the actuators to be secured to the air distribution housing. The blend door actuators do not require mechanical indexing to the blend door linkage, as they are electronically calibrated by the A/C-heater control.

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

The blend door actuators are interchangeable with the actuators for the recirculation and mode-air doors.

Operation

OPERATION

The blend door actuators are connected to the A/C-heater control through the vehicle electrical system by a dedicated two-wire lead and connector. The blend door actuator(s) can move the blend-air door(s) 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(s) and the blend-air door(s). The A/C-heater control learns the blend-air door stop positions during the calibration procedure and will store a diagnostic trouble code(DTC) for any problems it detects in the blend door actuator circuits.

The blend door actuators are diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

REMOVAL

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 may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: The single zone heating-A/C system is equipped with a single blend door actuator. The dual zone system has two blend door actuators, one for the driver side blend-air door and one for the passenger side blend-air door.

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

SINGLE ZONE/DUAL ZONE LEFT SIDE

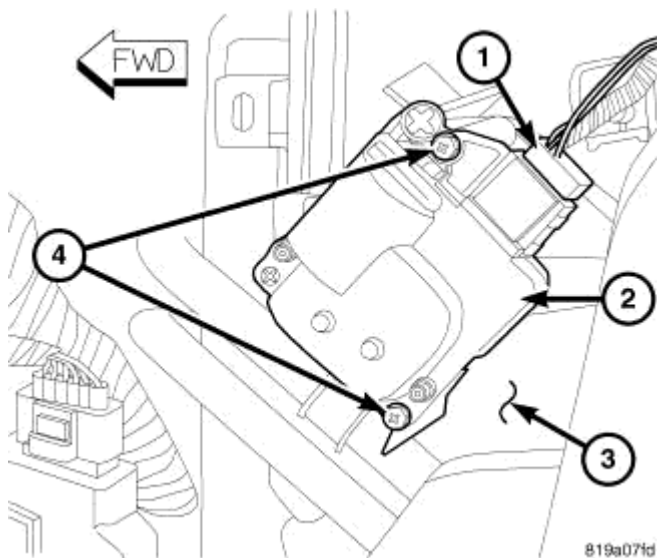
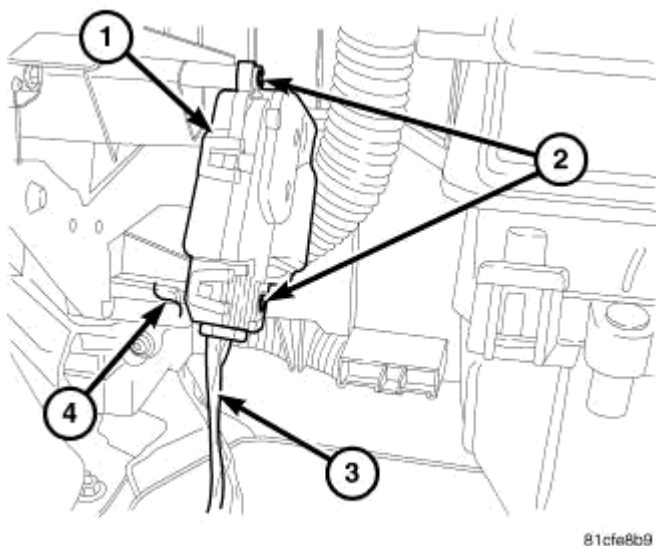


Fig. 8: Blend Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. On RHD models, if equipped, remove the silencer from underneath the passenger side of the instrument panel.
3. On RHD models, remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
4. Disconnect the wire harness connector (1) from the blend door actuator (2) located on the left side of the HVAC air distribution housing (3).
5. Remove the two screws (4) that secure the blend door actuator to the air distribution housing and remove the actuator.

DUAL ZONE RIGHT SIDE



81cfe8b9

Fig. 9: Blend Door Actuator Dual Zone Passenger
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. On LHD models, if equipped, remove the silencer from underneath the passenger side of the instrument panel.
3. On LHD models, remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
4. Remove the front floor distribution duct from the right side of the air distribution housing. See **Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Installation**.
5. Remove the screws (2) that secure the blend door actuator (1) to the right side of the air distribution housing (4) and remove the actuator from the housing.
6. Disconnect the wire harness connector (3) from the blend door actuator and remove the actuator from the vehicle.

Installation

INSTALLATION

NOTE: The single zone heating-A/C system is equipped with a single blend door actuator. The dual zone system has two blend door actuators, one for the driver side blend-air door and one for the passenger side blend-air door.

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

SINGLE ZONE/DUAL ZONE LEFT SIDE

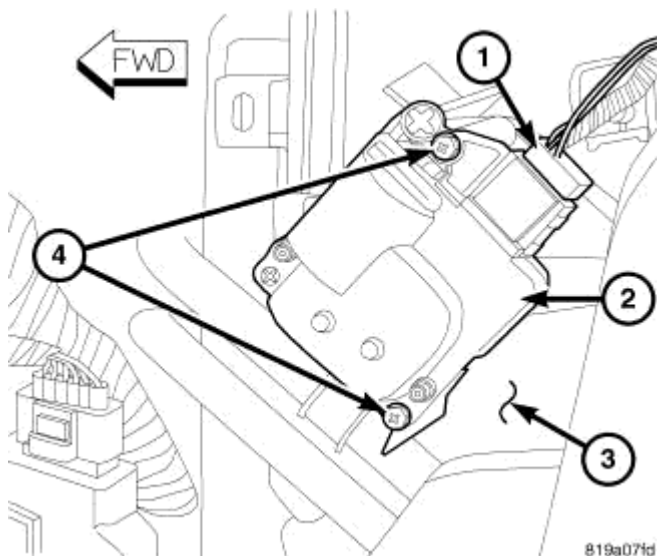
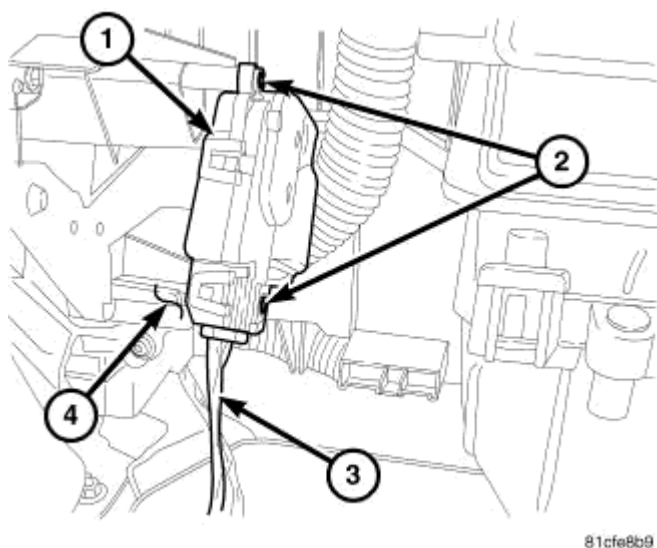


Fig. 10: Blend Door Actuator Removal/Installation

Courtesy of CHRYSLER LLC

1. Position the blend door actuator (2) onto the left side of the HVAC air distribution housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those in the blend air door linkage.
2. Install the two screws (4) that secure the blend door actuator to the air distribution housing. Tighten the screws to 2 N.m (17 in. lbs.).
3. Connect the wire harness connector (1) to the blend door actuator.
4. On RHD models, install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation** .
5. On RHD models, if equipped, install the silencer underneath the instrument panel.
6. Reconnect the negative battery cable.
7. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

DUAL ZONE RIGHT SIDE



81cfe8b9

Fig. 11: Blend Door Actuator Dual Zone Passenger

Courtesy of CHRYSLER LLC

1. Position the blend door actuator (1) to the right side of the HVAC air distribution housing (4) and connect the wire harness connector (3) to the actuator.
2. Install the blend door actuator onto the air distribution housing. If necessary, rotate the actuator slightly to align the splines on the actuator with the blend door linkage.
3. Install the two screws (2) that secure the blend door actuator to the air distribution housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
4. Install the right front floor distribution duct onto the air distribution housing. See **Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Installation**.
5. On LHD models, install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation** .
6. On LHD models, if equipped, install the silencer underneath the instrument panel.
7. Reconnect the negative battery cable.
8. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

ACTUATOR, MODE DOOR, FRONT

Description

DESCRIPTION

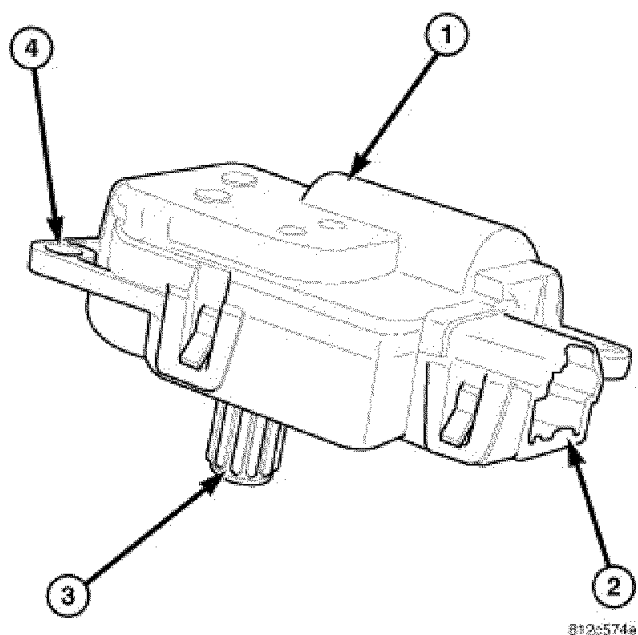


Fig. 12: Blend Door Actuators

Courtesy of CHRYSLER LLC

The mode door actuator (1) for the heating-A/C system is a reversible, 12-volt Direct Current (DC) servo motor, which is mechanically connected to the mode-air doors. The mode door actuator is located on the right side of the HVAC air distribution housing.

The mode door actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2). An output shaft with splines (3) connect it to mode door linkage and integral mounting tabs (4) allow the actuator to be secured to the air distribution housing. 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.

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

The mode door actuator is interchangeable with the actuators for the recirculation and blend-air doors.

Operation

OPERATION

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 instrument panel wire harness. The mode door actuator can move the mode-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 mode-air door will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the mode-air door moves in the opposite direction. Once the A/C-heater control makes the voltage to both connections high or both connections low, the mode-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 mode door actuator and the mode-air door. The A/C-heater control learns the mode-air door stop positions during the calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the mode door actuator circuits. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing**.

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

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

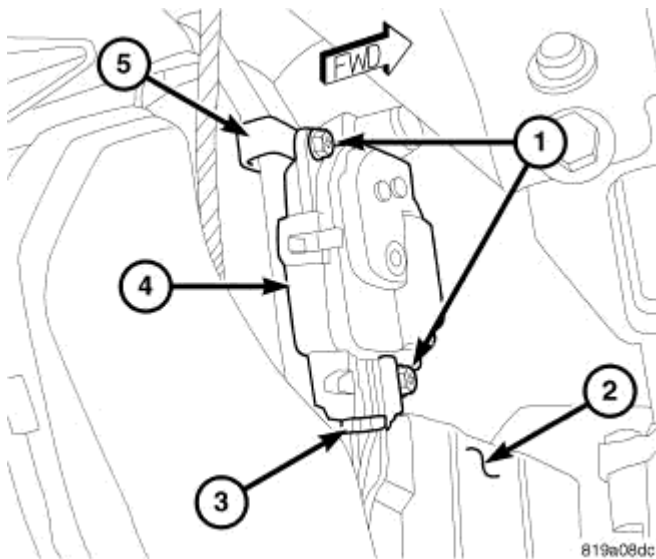


Fig. 13: Mode Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
3. Remove the screws (1) that secure the mode door actuator (4) to the bracket (5) located on the right side of the HVAC air distribution housing (2).
4. Disconnect the wire harness connector (3) from the mode door actuator and remove the actuator.

Installation

INSTALLATION

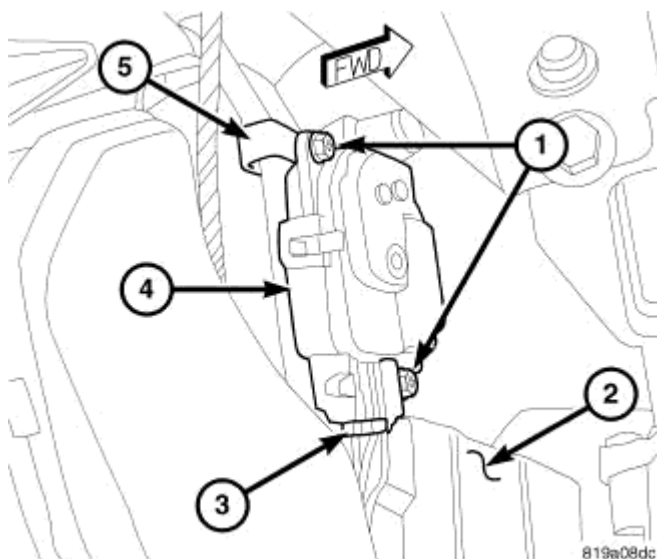


Fig. 14: Mode Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

1. Position the mode door actuator (4) onto the bracket (5) located on the right side of the HVAC air distribution housing (2). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those in the mode air door linkage.
2. Install the screws (1) that secure the mode door actuator to the air distribution housing. Tighten the screws to 2 N.m (17 in. lbs.).
3. Connect the wire harness connector (3) to the mode door actuator.
4. Install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation**.
5. Reconnect the negative battery cable.
6. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

ACTUATOR, RECIRCULATION DOOR

Description

DESCRIPTION

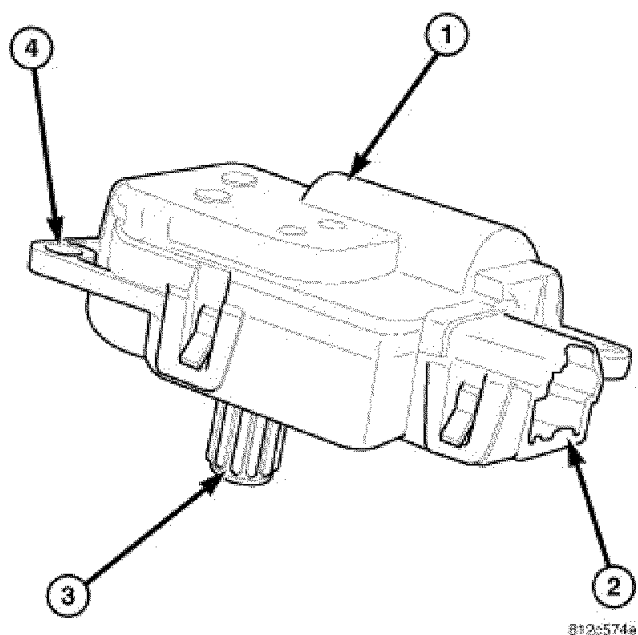


Fig. 15: Blend Door Actuators
Courtesy of CHRYSLER LLC

The recirculation door actuator (1) is a reversible, 12 volt direct current (DC) servo motor, which is connected directly to the pivot shaft lever of the recirculation-air door. The recirculation door actuator is located on the right side of the HVAC air inlet housing.

The recirculation door actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2), an output shaft with splines (3) connect it to the recirculation door and three integral mounting tabs (4) allow the actuator to be secured to the air inlet housing. 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.

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

The recirculation door actuator is interchangeable with the actuators for the blend and mode-air doors.

Operation

OPERATION

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 instrument panel 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. Once 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 calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the recirculation door actuator circuits. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: Illustration shown with instrument panel removed for clarity.

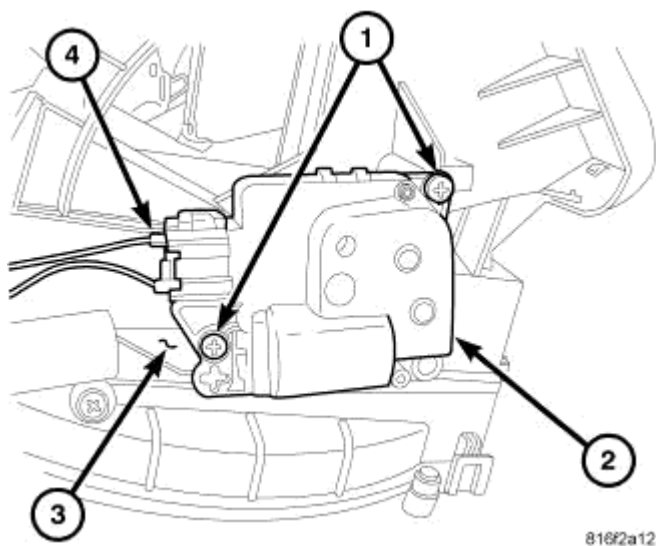


Fig. 16: Recirculation Door Actuator
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.

2. Remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
3. Reach through the glove box opening in the instrument panel and remove the screws (1) that secure the recirculation door actuator (2) to the right side of the HVAC air inlet housing (3).
4. Disconnect the wire harness connector (4) from the recirculation door actuator and remove the actuator.

Installation**INSTALLATION**

NOTE: Illustrations shown with instrument panel removed for clarity.

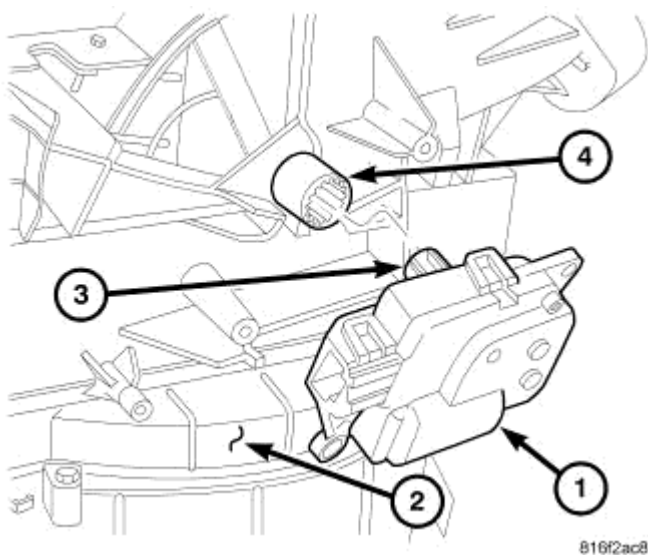


Fig. 17: Recirculation Door Actuator-Align
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the recirculation door actuator (1) to the right side of the HVAC air inlet housing (2).
2. Install the recirculation door actuator onto the air inlet housing. If necessary, rotate the actuator slightly to align the splines on the actuator output shaft (3) with those on the recirculation door pivot shaft adapter (4).

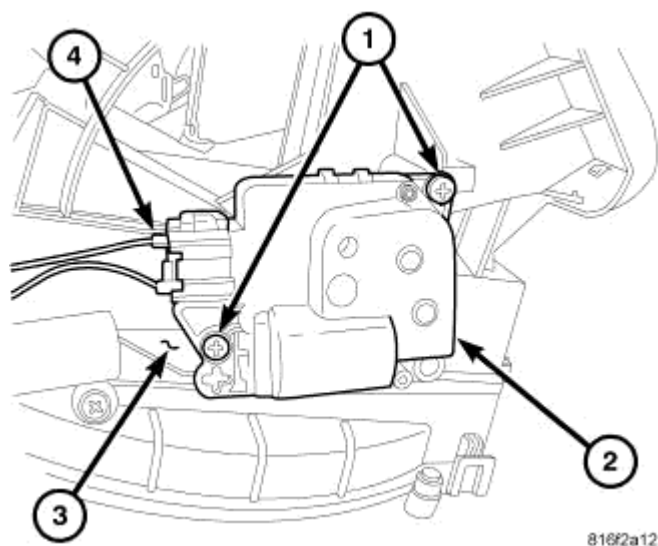


Fig. 18: Recirculation Door Actuator
Courtesy of CHRYSLER LLC

3. Install the screws (1) that secure the recirculation door actuator (2) to the air inlet housing (3). Tighten the screws to 2 N.m (17 in. lbs.).
4. Connect the instrument panel wire harness connector (4) to the recirculation door actuator.
5. Install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation**.
6. Reconnect the negative battery cable.
7. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

CONTROL, A/C AND HEATER, FRONT

Description

MANUAL TEMPERATURE CONTROL (MTC) SINGLE ZONE

The A/C-heater control for the front Manual Temperature Control (MTC) single zone system allows one temperature setting for the entire vehicle. All controls are identified by ISO graphic symbols.

The heating-A/C system uses a dedicated microprocessor to drive the electrically operated door actuators. This control provides the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle.

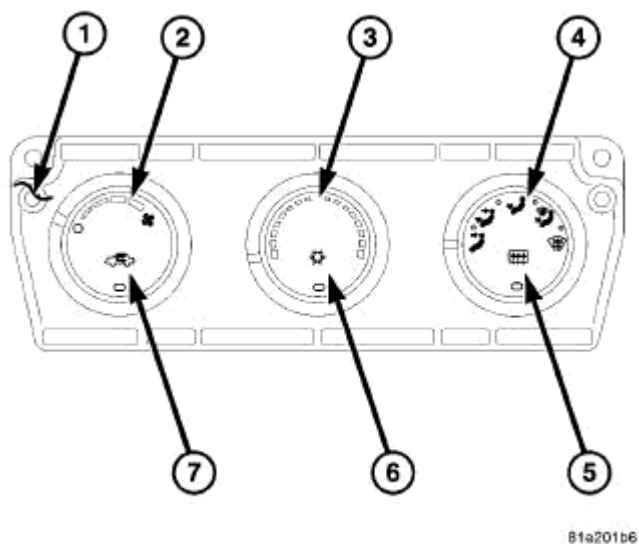


Fig. 19: Front Manual Temperature Control AC Heater Control
 Courtesy of CHRYSLER LLC

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

- a rotary control for blower motor speed selection, and to turn the blower motor off (2).
- a rotary control for temperature control of the discharged air (3).
- a rotary control for mode control of the discharged air (4).
- a push-button control with an indicator lamp to turn the rear window defogger system on and off (5).
- a push-button control with an indicator lamp to turn the A/C system on and off (6).
- a push-button control with an indicator lamp for recirculation control of the discharged air (7).

The A/C-heater control for the MTC heating and A/C system and is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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 calibration procedure to verify that the concern is not an air-door calibration issue. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

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

AUTOMATIC TEMPERATURE CONTROL (ATC) DUAL ZONE

The A/C-heater control for the Automatic Temperature Control (ATC) dual zone front heating-A/C system allows both the driver and the front seat passenger the ability to individually regulate air temperature for their side of the vehicle. An infrared sensor located in the overhead console detects thermal radiation emitted by the front seat occupants and their surroundings. Based on the sensor input, the system automatically adjusts the air temperature, airflow volume, airflow distribution and amount of inside air recirculation to maintain front seat occupant comfort, even under changing outside weather conditions. All controls are identified by ISO graphic

symbols.

The ATC dual zone heating-A/C system uses a dedicated microprocessor to automatically drive the electrically operated door actuators. The ATC A/C-heater control obtains vehicle speed, engine speed, engine coolant temperature, ambient temperature and refrigerant system pressure. The ATC A/C-heater control communicates with other electrical modules in the vehicle over the Controller Area Network (CAN) IHC bus.

This ATC system provides the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle and offers several manual override features such as fan speed, airflow distribution, defrost mode and when the outside air contains smoke, odors or high humidity, the interior air can be manually recirculated.

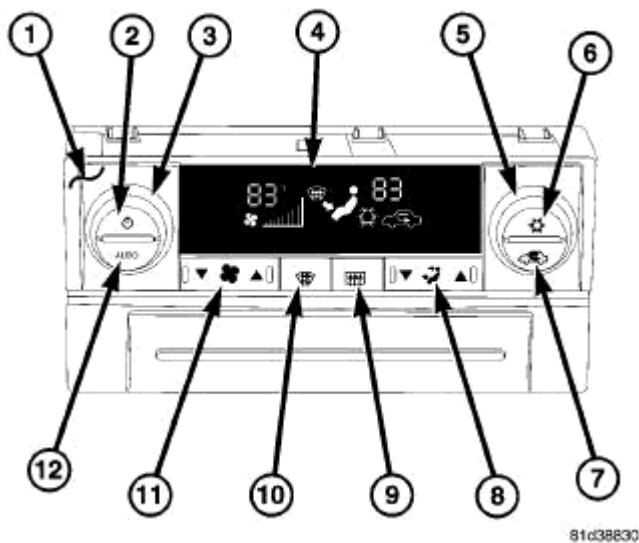


Fig. 20: Dual Zone Front ATC Control
 Courtesy of CHRYSLER LLC

The ATC dual zone A/C-heater control (1) is located in the instrument panel and contains:

- a push button on/off control which allows the heating-A/C system to be completely turned off (2). The Vacuum-Flourescent (VF) digital display (4) is blank when the heater-A/C system is off.
- two rotary temperature controls to select both driver and front seat passenger comfort temperatures from 15° to 29° C (60° to 85° F) (3 and 5). Comfort temperatures for each zone are shown in the VF digital display. If the set temperatures are 15° C (60° F) and is adjusted lower, the A/C-heater control will attempt to achieve the lowest temperature possible, but the display will show LO. If the set temperatures are 29° C (85° F) and is adjusted up, the A/C-heater control will attempt to achieve the highest temperature possible, but the display will show HIGH. Temperatures can be displayed in either Metric or Fahrenheit.
- a push button A/C on/off control (6). An ISO Snowflake symbol appears in the VF digital display when the A/C system is in operation, whether under manual or Auto mode.
- a push button air recirculation control to set the heating-A/C system to Recirculation mode (7). An ISO Recirculation symbol appears in the VF digital display when Recirculation mode is selected and when the

system exceeds 80 percent circulated air under Auto mode (due to high A/C demand).

- a rocker switch mode control that can override the Auto mode (8). An ISO mode symbol appears in the VF digital display to indicate the current mode setting when selected manually or by Auto mode.
- a push button rear window defogger on/off control (9). An indicator lamp illuminates in the control when selected. The indicator lamp illuminates in the control even with the heating-A/C system turned off.
- a push button front window defogger control (10). An indicator lamp illuminates in the control when selected manually and an ISO symbol appears in the VF digital display when selected by auto mode.
- a rocker switch fan speed control that can override the auto mode (11). A bar graph is shown in the VF digital display to indicate the selected or determined front fan speed (depending on manual or auto mode).
- a push button automatic mode control to set the heating-A/C system to auto mode (12). AUTO appears in the VF digital display when the system is in auto mode.
- illumination lamps for backlighting of the control.
- computer logic that remembers the settings of the controls when the ignition is turned off and retains those settings after a restart. If the heating-A/C system is off when the ignition is turned off, the system will be off when the engine is restarted.
- computer logic that provides variable air recirculation under high temperature and humidity conditions. Because recirculation is generally accompanied by increased fan noise, the proportion of recirculated to outside air, gradually approaches full recirculation over a broad temperature range.

The front A/C-heater control utilizes integrated circuitry and information carried on the CAN IHS bus to monitor many sensors and switch inputs throughout the vehicle. In response to those inputs, the internal circuitry and programming of the A/C-heater control allows it to control the electronic functions and features of the ATC heating-A/C system.

The inputs received by the A/C-heater control of the ATC heating-A/C system are as follows:

- Refrigerant Pressure
- Evaporator Temperature
- Engine Coolant Temperature
- Ambient Air Temperature
- Infrared Temperature Sensor
- Vehicle Speed

The messages broadcasted by the A/C-heater control of the ATC heating-A/C system are as follows:

- A/C Request
- A/C Select
- Rear Window Defogger (EBL) Request

The A/C-heater control for the ATC heating and A/C system is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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 calibration procedure to verify that the concern is not an air-door calibration issue. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

The A/C-heater control cannot be adjusted or repaired and must be replaced if inoperative or damaged. The illumination lamps for the A/C-heater control can be serviced separately.

MANUAL TEMPERATURE CONTROL (MTC) TRI ZONE

The A/C-heater controls for the Manual Temperature Control (MTC) tri-zone heating-A/C system allows the driver, front seat passenger and the intermediate seat passengers, the ability to individually regulate air temperature as well as fan speed for their portion of the vehicle. Primary controls for the rear heating-A/C system are located on the front A/C-heater control panel. All controls are identified by ISOgraphic symbols.

FRONT CONTROL PANEL

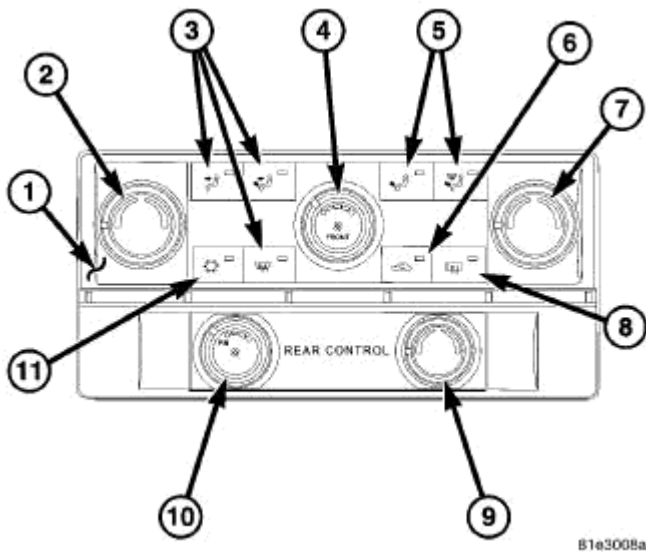


Fig. 21: Manual Temperature Control Tri Zone Front Control
Courtesy of CHRYSLER LLC

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

- three rotary temperature controls (2, 7 and 9) to select the separate temperatures for both of the front comfort zones and the rear comfort zone
- five push button mode controls (3 and 5) to select the position of the discharged air for the driver and front passenger comfort zones. An indicator lamp illuminates in each of the controls when selected.
- a rotary control knob for front fan speed selection and turning the heater-A/C system off (4).
- a push button air recirculation control (6). An indicator lamp illuminates in the control when selected.
- a push button rear window defogger on/off control (8). An indicator lamp illuminates in the control when selected. The rear window defogger system operates and the indicator lamp illuminates in the control

even when the heating-A/C system is turned off.

- a rotary control knob for rear fan speed selection and turning the rear heater-A/C system off (10). This control has a position for locking out the rear heater-A/C controls, allowing only the driver and front seat passenger control of the rear heating-A/C system.
- a push button A/C on/off control (11). An indicator lamp illuminates in the control when the A/C system is in operation.
- computer logic that remembers the settings of the A/C-heater control when the ignition is turned off, and retains those settings after a restart. If the heating-A/C system is off when the ignition is turned off, the system will be off when the engine is restarted.

The front A/C-heater control utilizes integrated circuitry and information carried on the Controller Area Network (CAN) IHS bus to monitor many sensors and switch inputs throughout the vehicle. In response to those inputs, the internal circuitry and programming of the A/C-heater control allows it to control the electronic functions and features of the MTC heating-A/C system.

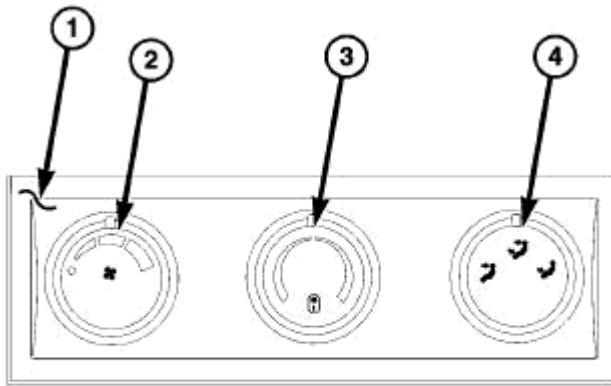
The front A/C-heater control is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

Prior to replacing an A/C-heater control, check for any Diagnostic Trouble Ccodes(DTCs) related to the heating-A/C system, and run the calibration procedure to verify that the concern is not an air-door calibration issue. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

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

REAR CONTROL PANEL

The rear MTC A/C-heater control is located in the headliner and allows intermediate seat passengers to adjust rear air distribution, temperature and blower motor speed when the rear heating-A/C system primary on/off control in the front A/C-heater control in the instrument panel is set to the on position and the rear heater-A/C controls are NOT locked out by the driver or front seat passenger.



81e30089

Fig. 22: Manual Temperature Control Tri Zone Rear Control
 Courtesy of CHRYSLER LLC

The rear A/C-heater control (1) contains:

- a rotary control knob for fan speed selection and turning the rear heating-A/C system on and off (2).
- a rotary control knob for temperature control of the rear discharged air (3). An indicator lamp illuminates in the control when the rear heater-A/C controls are locked out by the driver or front seat passenger.
- a rotary control knob for mode control of the rear discharged air (4).

The rear A/C-heater control is a slave potentiometer to the front A/C-heater control and cannot be adjusted or repaired and must be replaced if inoperative or damaged.

AUTOMATIC TEMPERATURE CONTROL (ATC) TRI ZONE

The A/C-heater controls for the Automatic Temperature Control (ATC) tri-zone heating-A/C system allows the driver, front seat passenger and the intermediate seat passengers the ability to individually regulate the air temperature for their portion of the vehicle automatically. Primary controls for the rear are located on the front A/C-heater control panel. All controls are identified by ISO graphic symbols.

FRONT CONTROL PANEL

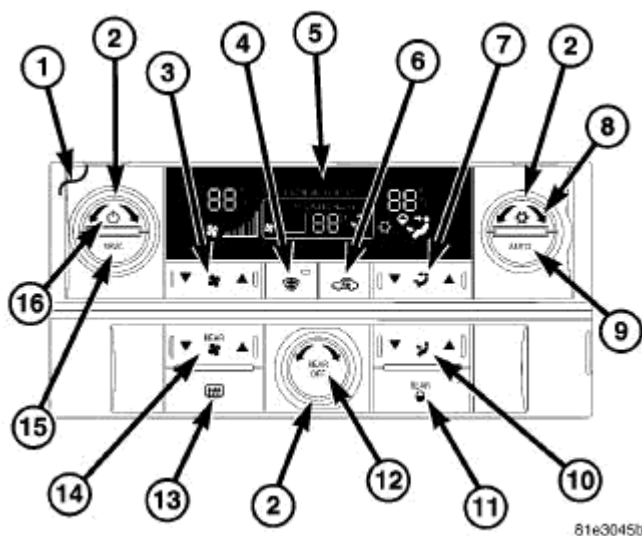


Fig. 23: ATC Tri Zone Front Control
 Courtesy of CHRYSLER LLC

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

- three rotary temperature controls (2) to select both of the front and the rear comfort temperatures from 15° to 29° C (60° to 85° F). Comfort temperatures for each zone are shown in the Vacuum-Flourescent (VF) digital display (5). If the set temperatures are 15° C (60° F) and is adjusted lower, the A/C-heater control will attempt to achieve the lowest temperature possible, but the display will show LO. If the set temperatures are 29° C (85° F) and is adjusted up, the A/C-heater control will attempt to achieve the highest temperature possible, but the display will show HIGH. Temperatures can be displayed in either Metric or Fahrenheit, which is selected from the overhead console.
- a rocker switch front fan speed control (3) that can override the Auto mode. A bar graph is shown in the VF digital display to indicate the selected or determined front fan speed (depending on manual or Auto mode).
- a push button front window defogger control (4). An indicator lamp illuminates in the control when selected manually and an ISO symbol appears in the VF digital display when selected by Auto mode.
- a push button air recirculation control (6). An indicator lamp illuminates in the control when selected manually and an ISO Recirculation symbol appears in the VF digital display when the system exceeds 80 percent circulated air under Auto mode due to high A/C demand.
- a rocker switch front mode control (7) that can override the Auto mode. An ISO mode symbol appears in the VF digital display to indicate the current mode setting when selected manually or by Auto mode.
- a push button A/C on/off control (8). An ISO Snowflake symbol appears in the VF digital display when the A/C system is in operation, whether under manual or Auto mode.
- a push button automatic mode control (9) to set the heating-A/C system to Auto mode. FRONT AUTO appears in the VF digital display when the system is in Auto mode.
- a rocker switch rear mode control (10) that can override the rear A/C-heater control and the Auto mode. An ISO mode symbol appears in the center portion of the VF display to show the current mode setting when selected manually or by Auto mode.

- a push button control that locks out the rear heater-A/C controls (11), allowing only the driver and front seat passenger control of the rear heating-A/C system. An indicator lamp illuminates in the control when selected.
- a push button on/off control (12) that turns the rear heating-A/C system completely off. The center portion of the VF display is blank when the rear heating-A/C system is off.
- a push button rear window defogger on/off control (13). An indicator lamp illuminates in the control when selected. The indicator lamp illuminates in the control even with the heating-A/C system turned off.
- a rocker switch rear fan speed control (14) that can override the rear A/C-heater control and the Auto mode. A bar graph is shown in the center portion of the VF digital display to indicate the selected or determined rear fan speed (depending on manual or Auto mode).
- a push button synchronize control (15) that synchronizes the temperature of all three of the comfort zones to the drivers selected temperature. SYNC appears in the VF digital display when the system is synchronized, whether under manual or Auto mode.
- a push button on/off control (16) which allows the heating-A/C system to be completely turned off. The display is blank when the heater-A/C system is off.
- illumination lamps for backlighting of the control.
- computer logic that remembers the settings of the controls when the ignition is turned off and retains those settings after a restart. If the system is off when the ignition is turned off it will be off when the engine is restarted, etc.
- computer logic that provides variable air recirculation under high temperature and humidity conditions. Because recirculation is generally accompanied by increased fan noise, the proportion of recirculated to outside air gradually approaches full recirculation over a broad temperature range.

The front A/C-heater control utilizes integrated circuitry and information carried on the Controller Area Network (CAN) IHS bus to monitor many sensors and switch inputs throughout the vehicle. In response to those inputs, the internal circuitry and programming of the A/C-heater control allows it to control the electronic functions and features of the ATC heating-A/C system.

The inputs received by the A/C-heater control of the ATC heating-A/C system are as follows:

- Refrigerant Pressure
- Evaporator Temperature
- Engine Coolant Temperature
- Ambient Air Temperature
- Infrared Temperature Sensor
- Vehicle Speed

The messages broadcast by the A/C-heater control of the ATC heating-A/C system are as follows:

- A/C Request
- A/C Select
- Rear Window Defogger (EBL) Request
- Heated Front Seat Requests

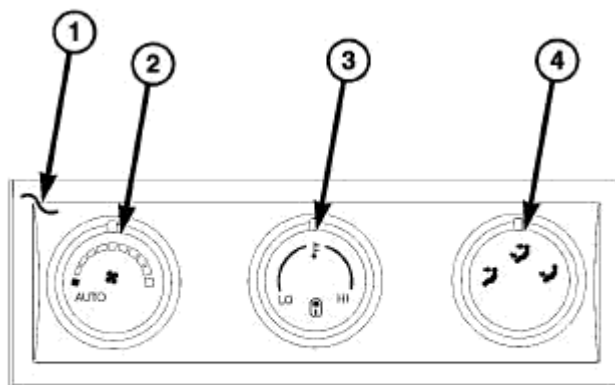
The front A/C-heater control is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

Prior to replacing an A/C-heater control, check for any Diagnostic Trouble Codes (DTCs) related to the heating-A/C systems and run the calibration procedure to verify that the concern is not an system calibration issue. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

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

REAR CONTROL PANEL

The rear A/C-heater control is located in the rear overhead console and allows intermediate seat passengers to adjust rear air distribution, temperature and blower motor speed when the rear heating-A/C system primary on/off control in the front A/C-heater control in the instrument panel is set to the on position and the rear heater-A/C controls are NOT locked out by the driver and front seat passenger.



81e3C45a

Fig. 24: ATC Tri Zone Rear Control
Courtesy of CHRYSLER LLC

The rear A/C-heater control (1) contains:

- a rotary control knob for fan speed selection and turning the rear heating-A/C system off or to Auto mode (2).
- a rotary control knob for temperature control of the rear discharged air (3). An indicator lamp illuminates in the control when the rear heater-A/C controls are locked out by the driver or front seat passenger.
- a rotary control knob for mode control of the rear discharged air (4).

The rear A/C-heater control is a slave potentiometer to the front A/C-heater control and cannot be repaired and must be replaced if inoperative or damaged.

Removal**REMOVAL**

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 may result in accidental airbag deployment and possible serious or fatal injury.

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

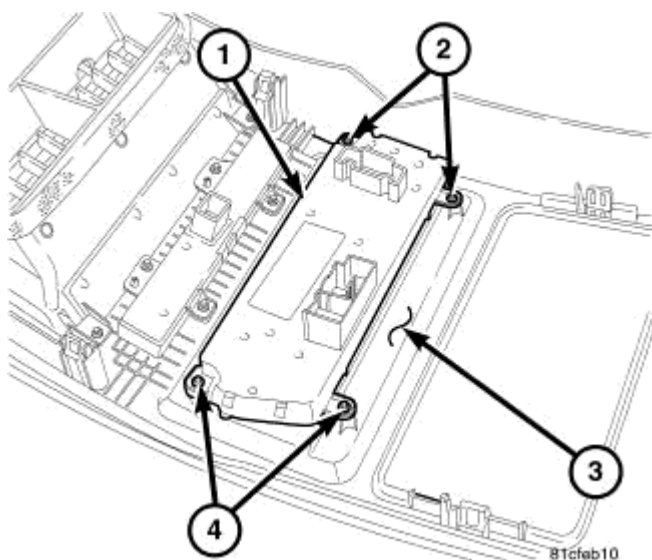


Fig. 25: AC Heater Control Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: MTC single zone A/C-heater control shown. Other A/C-heater controls similar.

1. Disconnect and isolate the negative battery cable.
2. Remove the center bezel (3) and place it on a workbench. Refer to **Body/Instrument Panel/BEZEL, Instrument Panel - Removal**.
3. Remove the screws (2 and 4) that secure the A/C-heater control (1) to the back of the center bezel and remove the control.

Installation**INSTALLATION**

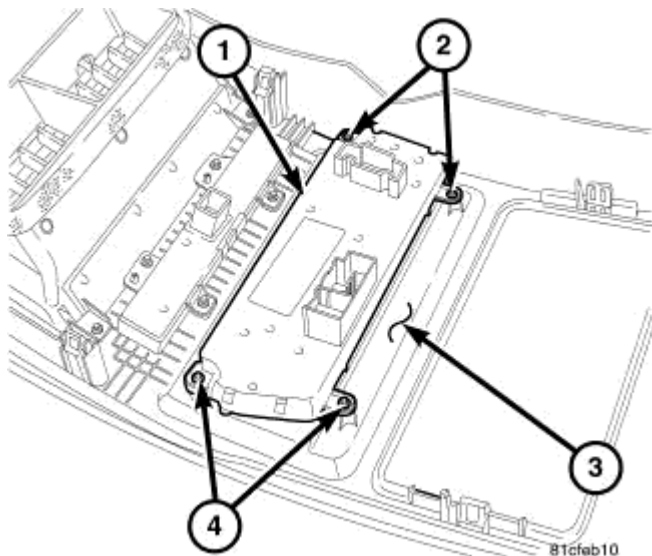


Fig. 26: AC Heater Control Removal/Installation

Courtesy of CHRYSLER LLC

NOTE: MTC single zone A/C-heater control shown. Other A/C-heater controls similar.

1. Position the A/C-heater control (1) onto the back of the center bezel (3).
2. Install the screws (2 and 4) that secure the A/C-heater control to the center bezel. Tighten the screws to 2 N.m (17 in. lbs.).
3. Install the center bezel. Refer to **Body/Instrument Panel/BEZEL, Instrument Panel - Installation**.
4. 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.

5. If required, initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

MODULE, POWER, FRONT BLOWER MOTOR

Description

DESCRIPTION

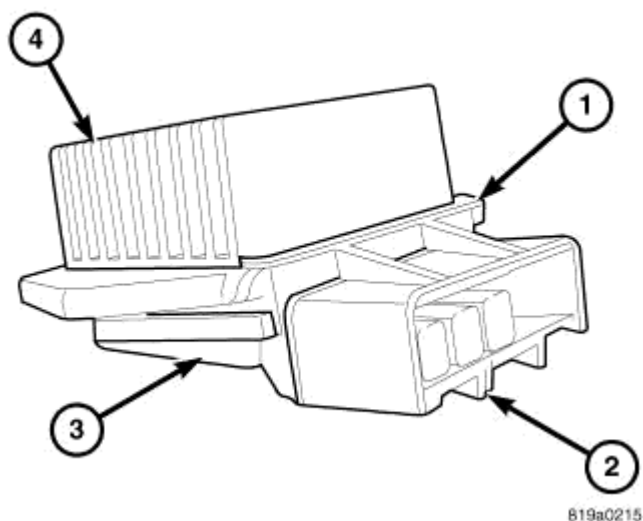


Fig. 27: Blower Mtr Pwr Module
Courtesy of CHRYSLER LLC

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 **Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - Description**.

The blower motor power module is mounted to the bottom of the HVAC housing, on the passenger side of the vehicle. 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 (3) and a finned aluminum heat sink (4). The blower motor power module is accessed for service from under the instrument panel.

Operation

OPERATION

The blower motor power module is connected to the vehicle electrical system through a dedicated lead and connector of the instrument panel wire harness. A second lead and connector of the instrument panel wire harness 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 **DTC-Based Diagnostics/HVAC - Diagnosis and Testing**.

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

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

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 may result in possible serious injury.

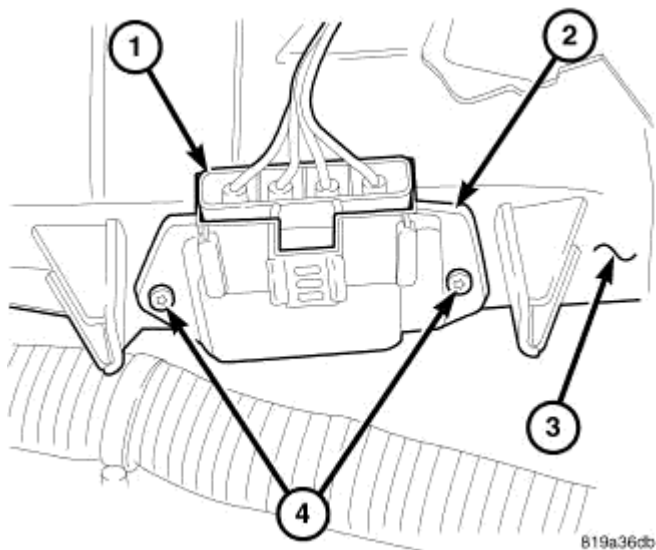


Fig. 28: Blower Motor Power Module

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 blower motor power module (2) located at the bottom of the HVAC housing (3) on the passenger side of the vehicle.
3. Remove the two screws (4) that secure the blower motor power module to the HVAC housing and remove the power module.

Installation

INSTALLATION

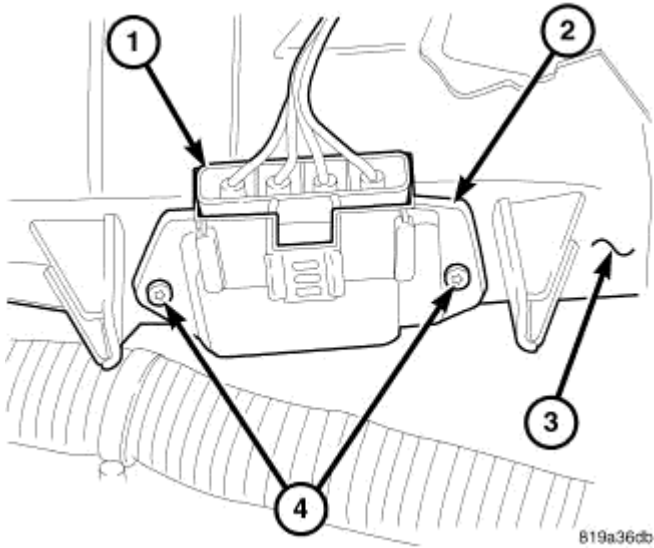


Fig. 29: Blower Motor Power Module
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the blower motor power module (2) into the bottom of the HVAC housing (3).
2. Install the two screws (4) 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 connector (1) to the blower motor power module.
4. Reconnect the negative battery cable.

RESISTOR, BLOWER MOTOR, FRONT

Description

DESCRIPTION

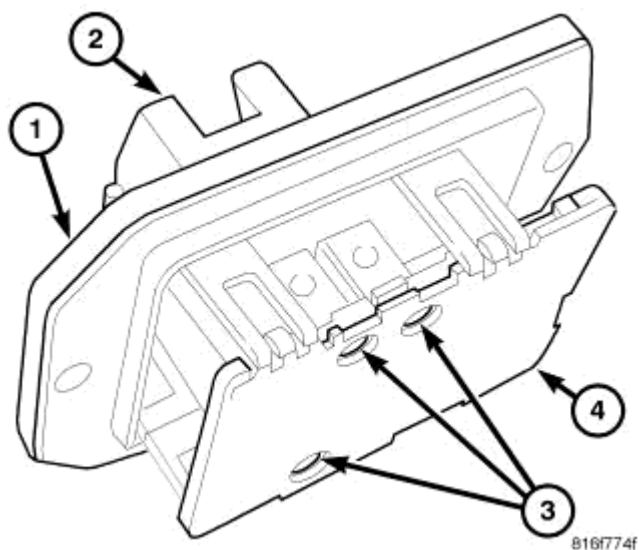


Fig. 30: Blower Motor Resistor - Description

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 **Heating and Air Conditioning/Controls/MODULE, Power - Description**.

The blower motor resistor is mounted to the bottom of the HVAC housing, on the passenger side of the vehicle. The blower motor resistor consists of a molded plastic mounting plate (1) with an integral wire connector receptacle (2). Concealed behind the mounting plate are resistors (3) located between a two-piece stamped steel base (4). The blower motor resistor is accessed for service from under the instrument panel.

Operation

OPERATION

The blower motor resistor is connected to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness. The blower motor resistor has three resistors, each of which will reduce the current flow through the blower motor to change the blower motor speed.

The blower motor control for the heating-A/C system directs the ground path for the blower motor through the correct resistor 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 resistors. Each higher speed selected with the blower motor control applies the blower motor ground path through fewer of the resistors, 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 inoperative or damaged.

Diagnosis and Testing

BLOWER MOTOR RESISTOR

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: See SYSTEM WIRING DIAGRAMS for circuit descriptions and diagrams. 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 Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - 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**REMOVAL**

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

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 may result in possible injury.

CAUTION: Do not operate the blower motor with the blower motor resistor removed from the circuit. Failure to take this precaution can result in vehicle damage.

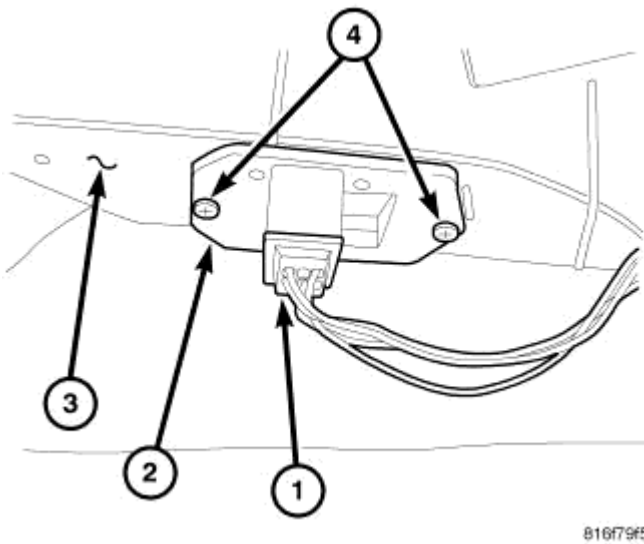


Fig. 31: Blower Motor Resistor
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector (1) from the blower motor resistor (2) located at the bottom of the HVAC housing (3) on the passenger side of the vehicle.
3. Remove the two screws (4) that secure the blower motor resistor to the HVAC housing and remove the resistor.

Installation

INSTALLATION

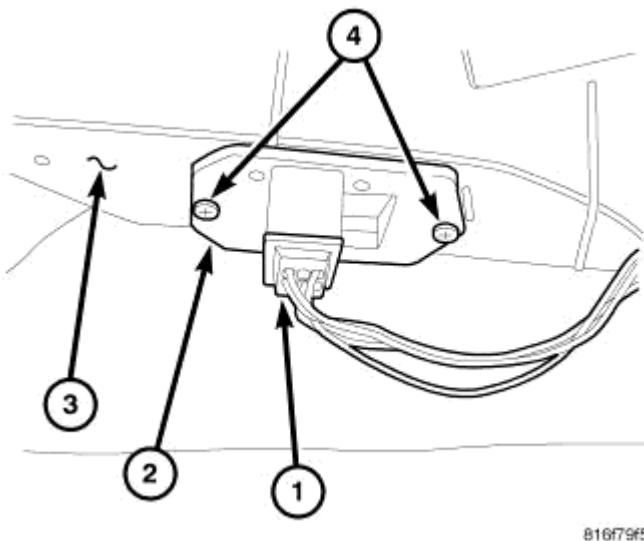


Fig. 32: Blower Motor Resistor
Courtesy of CHRYSLER LLC

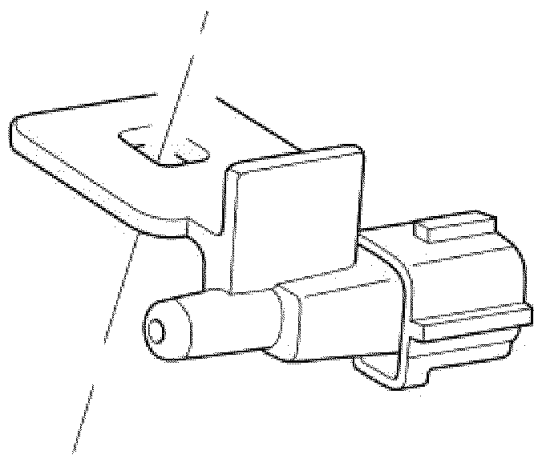
NOTE: LHD model shown. RHD model similar.

1. Position the blower motor resistor (2) onto the bottom of the HVAC housing (3).
2. Install the two screws (4) 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 (1) to the blower motor resistor.
4. Reconnect the negative battery cable.

SENSOR, AMBIENT TEMPERATURE

Description

DESCRIPTION



808c314f

Fig. 33: Identifying Ambient Air Temperature Sensor
Courtesy of CHRYSLER LLC

The ambient air temperature sensor is a variable resistor that monitors the air temperature outside of the vehicle. The ATC system uses the sensor data to maintain optimum cabin temperature levels. The ambient air temperature sensor is mounted inside the front fascia.

Operation

OPERATION

The ambient air temperature sensor is a variable resistor that operates on a 5-volt reference signal sent by the Totally Integrated Power Module (TIPM). The ambient air temperature sensor is connected to the TIPM through a two-wire lead and connector of the vehicle wire harness. The ambient air temperature sensor changes its internal resistance in response to changes in the outside air temperature, which either increases or decreases

the reference signal voltage read by the TIPM. The TIPM converts and broadcasts the sensor data over the Controller Area Network (CAN) IHS bus, where it is read by the ATC A/C-heater control, Powertrain Control Module (PCM) and other vehicle control modules.

The ambient air temperature sensor is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Diagnosis and Testing** .

The ambient air temperature sensor cannot be adjusted or repaired and must be replaced if inoperative or damaged.

SENSOR, EVAPORATOR TEMPERATURE

Description

DESCRIPTION

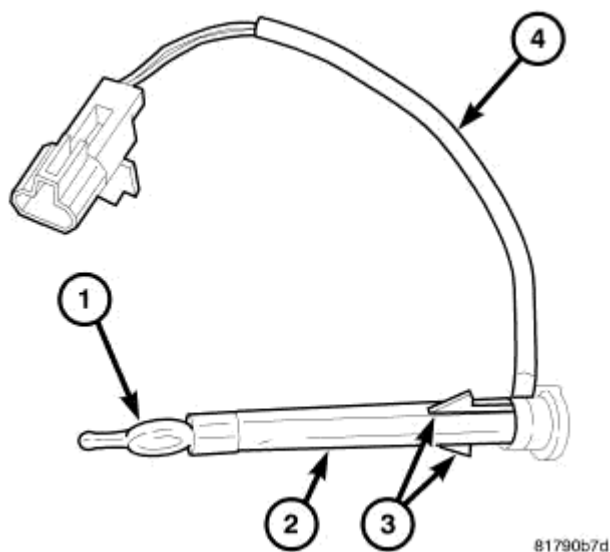


Fig. 34: Evaporator Temperature Sensor-Description
Courtesy of CHRYSLER LLC

The evaporator temperature sensor measures the temperature of the conditioned air downstream of the A/C evaporator. The evaporator temperature sensor is an electrical thermistor (1) mounted on the end of a molded plastic housing (2) that is inserted into the driver side of the HVAC housing near the coldest point of the A/C evaporator. The evaporator temperature sensor is retained in the HVAC housing by two integral retaining tabs (3) and is connected to the vehicle electrical system by use of a wire lead and connector (4) with two terminals.

Operation

OPERATION

The evaporator temperature sensor monitors the surface temperature of 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 adjust the compressor swash plate angle as necessary to optimize A/C system performance and to protect the A/C system from evaporator freezing. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Operation**.

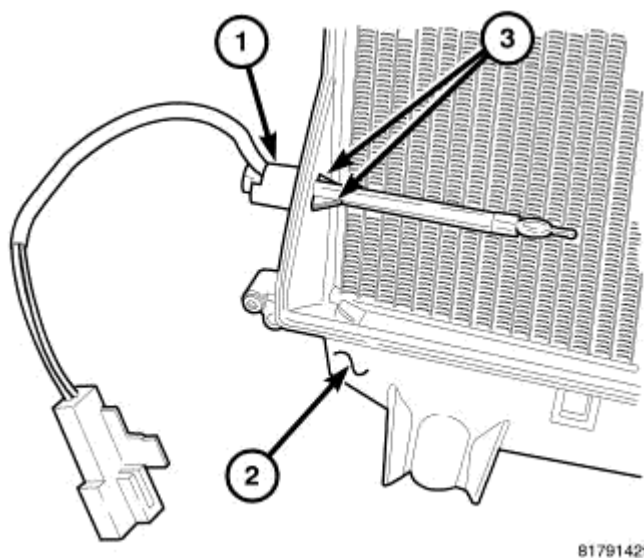
The evaporator temperature sensor is diagnosed using a scan tool.

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

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.



8179142f

Fig. 35: Evaporator Temperature Sensor-Install
Courtesy of CHRYSLER LLC

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

NOTE: It is not necessary to remove and disassemble the HVAC housing to service the evaporator temperature sensor. The evaporator temperature sensor can be removed for service from underneath the instrument panel.

1. Disconnect and isolate the negative battery cable.
2. Reach up under the driver side of the instrument panel and disconnect the electrical connector for the evaporator temperature sensor (1) from the instrument panel wire harness.
3. Using needle nose pliers, disengage the two retaining tabs (3) that secure the evaporator temperature sensor to the HVAC housing (2) by carefully pulling the sensor straight out of the side of the HVAC housing.
4. Route the electrical connector and wire lead of the evaporator temperature sensor out from under the heater core tubes and remove the sensor from the vehicle.

Installation

INSTALLATION

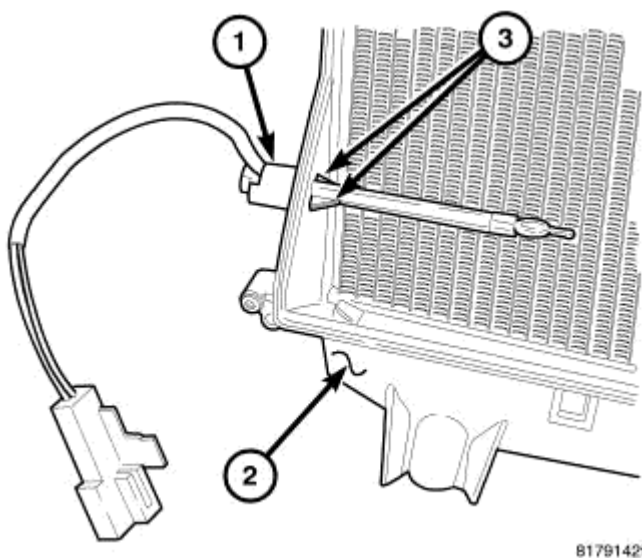


Fig. 36: Evaporator Temperature Sensor-Install
Courtesy of CHRYSLER LLC

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

1. Route the electrical connector and wire lead of the evaporator temperature sensor (1) under the heater core tubes located on the driver side of the HVAC housing (2).
2. Install the evaporator temperature sensor into the driver side of the HVAC housing. Make sure the retaining tabs (3) are fully engaged to the housing.
3. Connect the electrical connector for the evaporator temperature sensor to the instrument panel wire

harness.

4. Reconnect the negative battery cable.

SENSOR, INFRARED TEMPERATURE

Description

DESCRIPTION

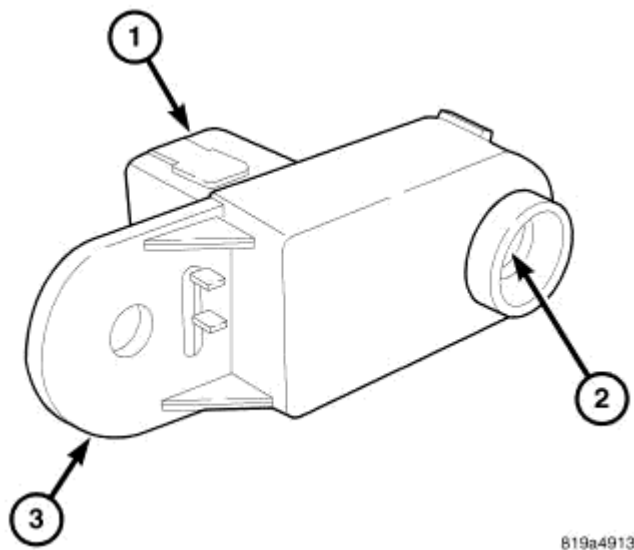


Fig. 37: Infrared Sensor

Courtesy of CHRYSLER LLC

The infrared temperature sensor is located in the overhead console and consists of an infrared transducer concealed behind a clear lens (2) in a molded plastic housing with an integral wire connector receptacle (1) and mounting tab (3).

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

Operation

OPERATION

The infrared sensor detects thermal radiation emitted by the driver and front passenger 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 levels. 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 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 circuits, and will store Diagnostic Trouble Codes (DTCs) for any problem it detects.

The infrared sensor is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing**.

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

Removal

REMOVAL

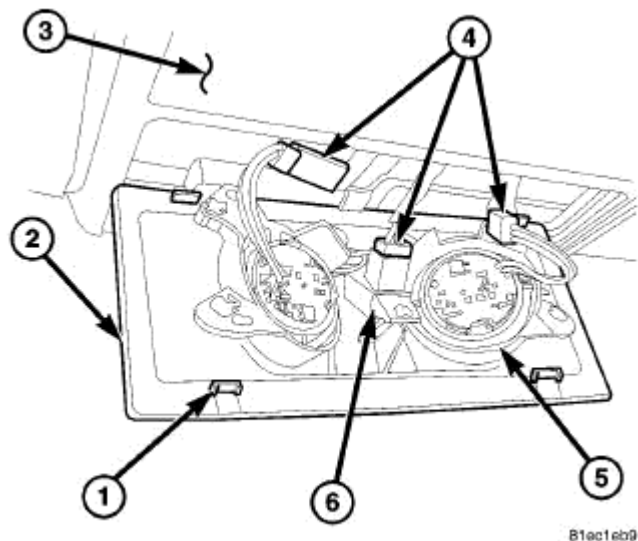


Fig. 38: Infrared Sensor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Using Trim Stick C-4755 or equivalent, carefully disengage the four retaining tabs (1) that secure the infrared sensor and overhead map/courtesy lamp bezel (2) to the overhead console (3).
3. Disconnect the wire harness connectors (4) from the two overhead map/courtesy lamps (5) and the infrared sensor (6) and remove the sensor, lamp and bezel assembly from the vehicle

Installation

INSTALLATION

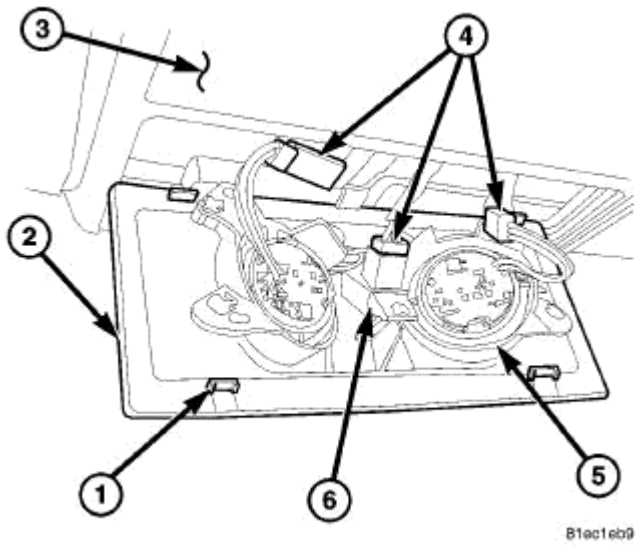


Fig. 39: Infrared Sensor

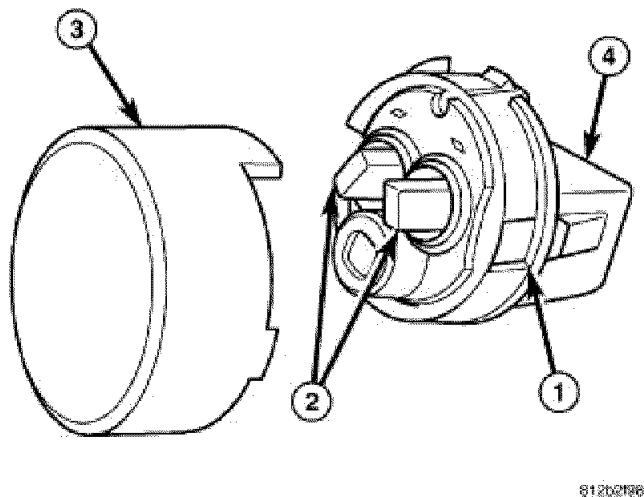
Courtesy of CHRYSLER LLC

1. Position the infrared sensor and overhead map/courtesy lamp bezel (2) to the overhead console (3).
2. Connect the wire harness connectors (4) to the two overhead map/courtesy lamps (5) and the infrared sensor (6).
3. Engage the four retaining tabs (1) that secure the infrared sensor and overhead map/courtesy lamp bezel to the overhead console. Make sure the retaining tabs are fully engaged.
4. Reconnect the negative battery cable.

SENSOR, SUN

Description

DESCRIPTION

**Fig. 40: Sensor-Sun**

Courtesy of CHRYSLER LLC

NOTE: Typical sun sensor assembly shown.

The automatic temperature control (ATC) heating-A/C system uses a sun sensor assembly (1) to measure sun light intensity. The sun sensor assembly incorporates two sun sensors (2) within a molded plastic case which is mounted to the instrument panel and a clear lens (3) that protrudes through the defroster grille. The wire harness receptacle (4) connects the sun sensors to the vehicle electrical system through a wire lead and connector of the instrument panel wire harness.

Operation

OPERATION

The ATC dual-zone heating-A/C system uses two sun sensors to balance the system in response to side-to-side variations in sun light intensity. Passengers in sun and shadow require different functional settings because they experience very different temperatures. The sun sensor assembly provides data to the A/C heater control to help determine proper mode and blend-air door positions and blower motor speeds. The sun sensors are not thermistor type sensors, but rather photo diodes. For this reason the sun sensors responds to sun light intensity rather than temperature. The sun sensor assembly is also used to sense day and night conditions for automatic headlight control, if equipped.

The sun sensor is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

Diagnosis and Testing

SUN SENSOR

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 may result in an accidental airbag deployment and possible serious or fatal injury.

The sun sensor assembly is located so that the sun rays will hit the sensors in the same way that it will hit the driver and the passenger. It is important that the area in front of the sun sensor assembly be unobstructed. Check for the following:

- Windshield wipers are properly adjusted.
- Defroster grille or sun sensor is properly installed. The sun sensor lens should protrude above the defroster grille.
- Any stickers on the windshield are not directly in front of the sun sensor.
- Any items laying on top of the instrument panel are not covering the sun sensor.

If the vehicle exhibits a lack of passenger comfort in sunny weather such as in the early afternoon, inspect the position of the sun sensor assembly. The sun sensor lens should protrude above the defroster grille to insure proper operation. If the sun sensor is not properly positioned, perform the following procedure:

1. Confirm that the defroster grille is properly installed. If not, repair as required.
2. Remove the defroster grille and verify that the sun sensor is properly installed to the instrument panel. See **Heating and Air Conditioning/Controls/SENSOR, Sun - Installation**.
3. Reinstall the defroster grille.

The A/C-heater control continually monitors the sun sensor circuits and will store diagnostic trouble codes (DTCs) for any problem it detects. The sun sensor can be tested in the vehicle with a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

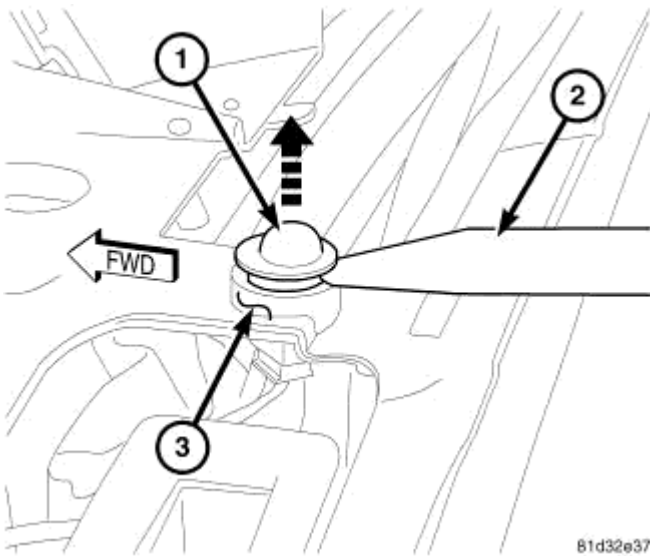


Fig. 41: Sun Sensor Remove
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the defroster grille. Refer to **Body/Instrument Panel/GRILLE, Defroster - Removal**.
3. Using Trim Stick C-4755 or equivalent (2), gently pry between both sides of the sun sensor assembly (1) and the instrument panel (3) to release the snap retainers that secure the sun sensor.

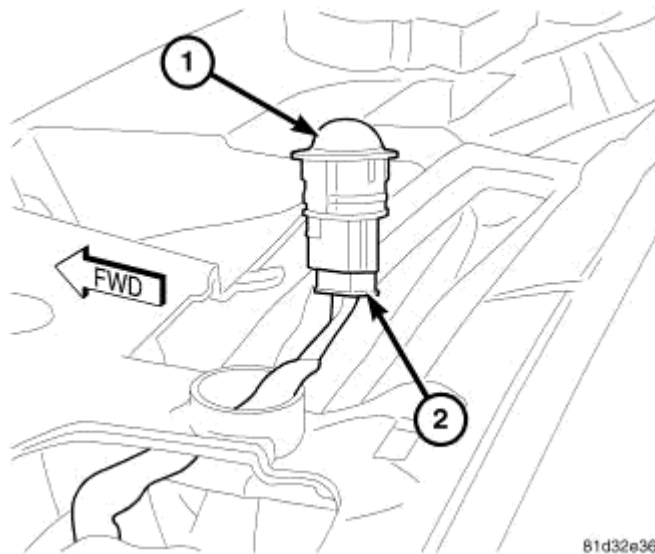


Fig. 42: Sun Sensor Wire Connector
Courtesy of CHRYSLER LLC

4. Disconnect the wire harness connector (2) from the sun sensor assembly (1) and remove the sensor.

Installation

INSTALLATION

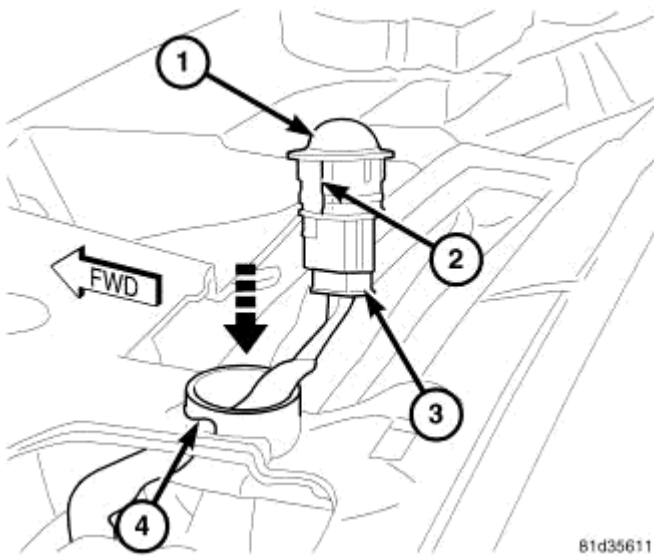


Fig. 43: Sun Sensor Install

Courtesy of CHRYSLER LLC

1. Position the sun sensor assembly (1) to the top of the instrument panel (4) and connect the wire harness connector (3).
2. Align the tab (2) on the sun sensor assembly with the opening in the instrument panel.
3. Gently push the sun sensor assembly into the instrument panel until the sensor snap retainers are securely engaged.
4. Install the defroster grille. Refer to **Body/Instrument Panel/GRILLE, Defroster - Installation** .
5. Reconnect the negative battery cable.

TRANSDUCER, A/C PRESSURE

Description

DESCRIPTION

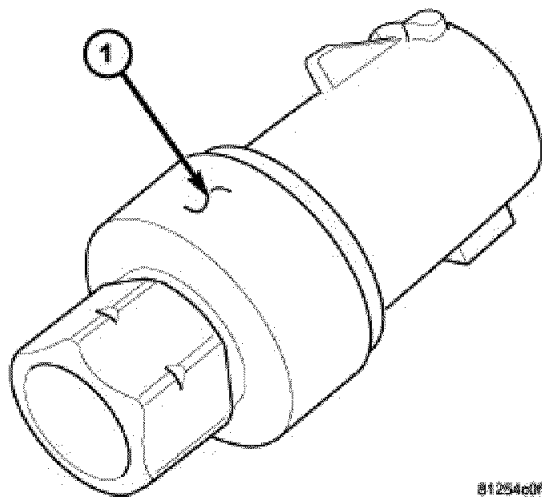


Fig. 44: A/C Pressure Transducer
Courtesy of CHRYSLER LLC

1 - A/C PRESSURE TRANSDUCER

The A/C pressure transducer (1) is a switch that is installed on a fitting located on the A/C liquid line at the right front corner of the engine compartment. An internally threaded fitting on the A/C pressure transducer connects it to the externally threaded Schrader-type fitting. A rubber O-ring seals the connection between the A/C pressure transducer and the A/C liquid line fitting. The A/C pressure transducer is connected to the vehicle electrical system by a molded plastic connector with three terminals.

Operation

OPERATION

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 discharge line. The internal resistance of the A/C pressure transducer changes in response to the pressures it monitors.

The Totally Integrated Power Module (TIPM) provides a five volt reference signal and a sensor ground to the A/C pressure transducer. The TIPM then monitors the output voltage of the transducer on a sensor return circuit to determine refrigerant pressure and sends a message to the Powertrain Control Module (PCM) or the Engine Control Module (ECM) (depending on engine application) over the CAN C BUS.

With 2.7L/3.5L 5-Passenger and all 7-Passenger models, the PCM is programmed to respond to this and other sensor inputs by controlling the operation of the swash plate within the A/C compressor and the radiator cooling fan to help optimize A/C system performance and to protect the system components from damage. The PCM adjusts the swash plate to nearly a zero degree angle (low compressor displacement) when high side pressure rises above 3130 kPa (454 psi) and readjusts the swash plate to a greater angle (higher compressor displacement) when high side pressure drops below 1999 kPa (290 psi). The A/C pressure transducer also

reduces the swash plate angle if the high side pressure drops below 200 kPa (29 psi) and will increase the swash plate angle when the high side pressure rises above 234 - 262 kPa (34 - 38 psi). When the refrigerant pressure rises above 1655 kPa (240 psi), the PCM will actuate the cooling fan.

With 2.0L/2.4L 5-Passenger models, A/C compressor clutch engagement is controlled by the PCM or 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-IHS bus to the 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 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.

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 **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Diagnosis and Testing** .

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See **Heating and Air Conditioning/Plumbing - Warning** and. See **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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

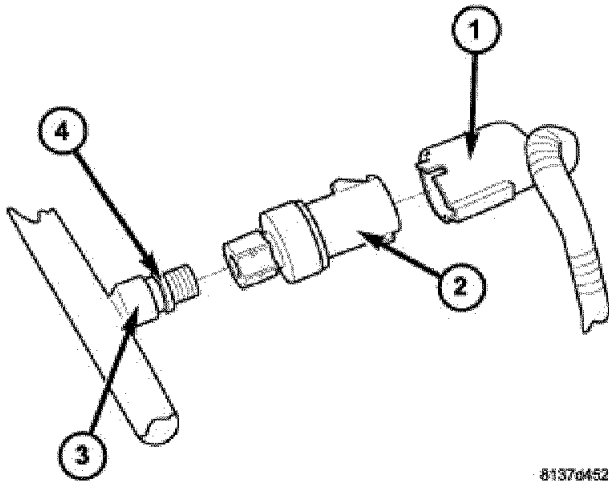


Fig. 45: Transducer-A/C pressure Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: Typical A/C pressure transducer shown.

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) at the right front corner of the engine compartment.
3. Remove the A/C pressure transducer from the A/C liquid line and remove and discard the O-ring seal (4).

Installation

INSTALLATION

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.

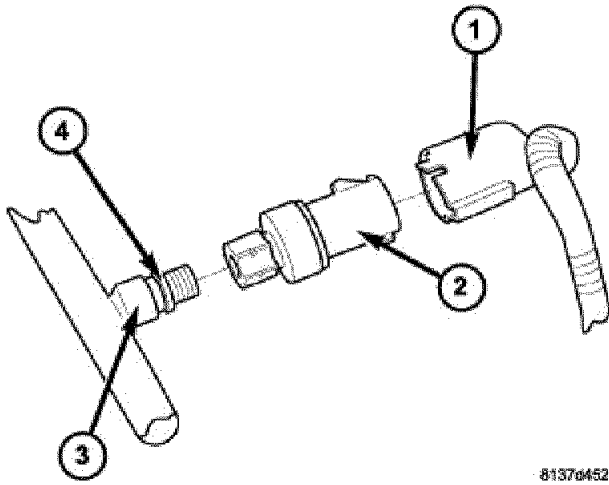


Fig. 46: Transducer-A/C pressure Removal/Installation
 Courtesy of CHRYSLER LLC

NOTE: Typical A/C pressure transducer shown.

1. Lubricate a new rubber O-ring seal (4) with clean refrigerant oil and install it onto the A/C liquid line (3).
2. Install the A/C pressure transducer (2) onto the A/C liquid line. Tighten the A/C pressure transducer to 5.6 N.m (50 in. lbs.).
3. Connect the wire harness connector (1) to the A/C pressure transducer.
4. Reconnect the negative battery cable.

CONTROLS, REAR

ACTUATOR, BLEND DOOR, REAR

Description

DESCRIPTION

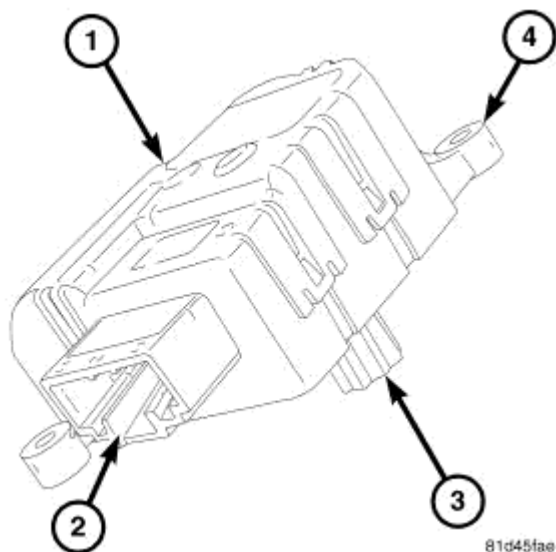


Fig. 47: Rear Actuator Description
Courtesy of CHRYSLER LLC

The blend door actuator (1) for the rear heating-A/C system is a reversible, 12 volt direct current (DC), servo motor. The rear blend door actuator is located on the outboard side of the rear heater-A/C housing.

The rear blend door actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2), an output shaft with splines (3) connect it to the rear blend-air door and three integral mounting tabs (4) allow the actuator to be secured to the rear heater-A/C housing. The blend door actuator does not require mechanical indexing to the blend door linkage, as it is electronically calibrated by the A/C-heater control.

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

The rear blend door actuator is interchangeable with the actuator for the rear mode-air door.

Operation

OPERATION

The rear 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 rear heater-A/C wire harness. The rear blend door actuator can move the rear 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 rear blend-air door will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the rear blend-air door moves in the opposite direction. When the front A/C-heater control makes the voltage to both connections high or both connections low, the rear blend-air door stops and will not move.

The front A/C-heater control uses a pulse-count positioning system to monitor the operation and relative position of the rear blend door actuator and the rear blend-air door. The front A/C-heater control learns the rear blend-air door stop positions during the calibration procedure and will store a diagnostic trouble code (DTC) for

any problems it detects in the rear blend door actuator circuits.

The rear blend door actuator is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

Removal

REMOVAL

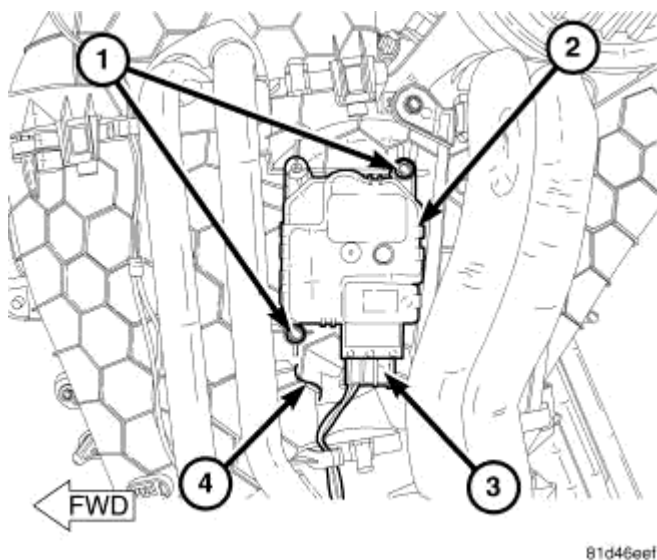
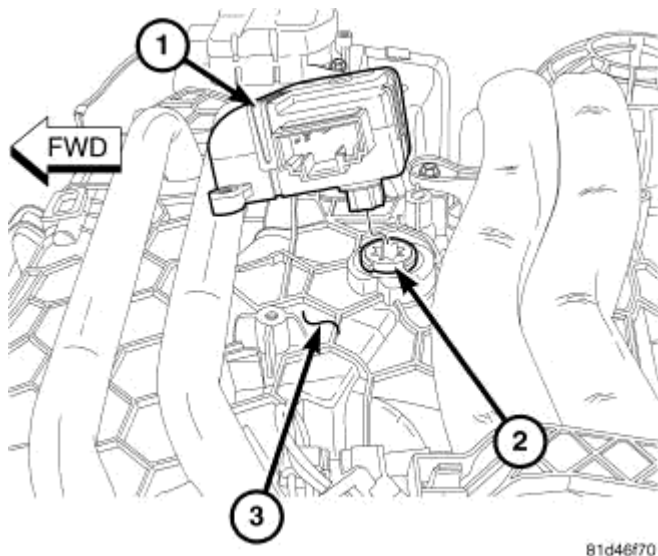


Fig. 48: Rear Blend Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove rear heater-A/C housing (4) and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal**.
3. Disconnect the wire harness connector (3) from the rear blend door actuator (2) located on the outboard side of the rear heater-A/C housing.
4. Remove the two screws (1) that secure the rear blend door actuator to the rear heater-A/C housing and remove the actuator.

Installation

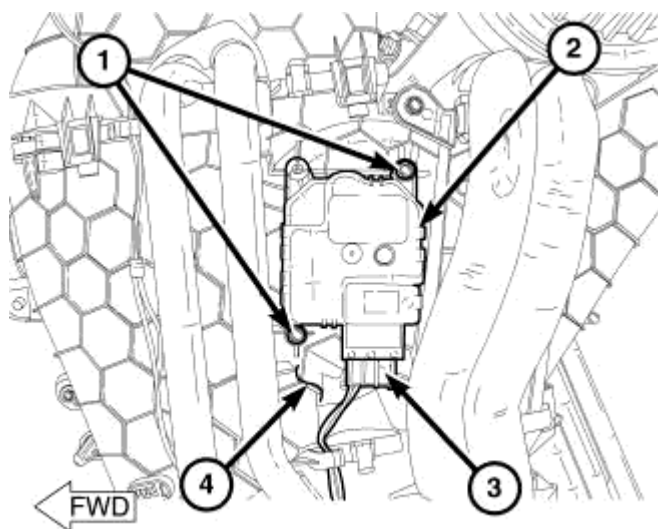
INSTALLATION



81d46f70

Fig. 49: Rear Blend Door Actuator Align
Courtesy of CHRYSLER LLC

1. Position the rear blend door actuator (1) onto the rear heater-A/C housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the rear blend-air door pivot shaft (2).



81d46eef

Fig. 50: Rear Blend Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

2. Install the two screws (1) that secure the rear blend door actuator (2) to the rear heater-A/C housing (4). Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the wire harness connector (3) to the rear blend door actuator.
4. Install the rear heater-A/C housing. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Installation**.

5. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

ACTUATOR, MODE DOOR, REAR

Description

DESCRIPTION

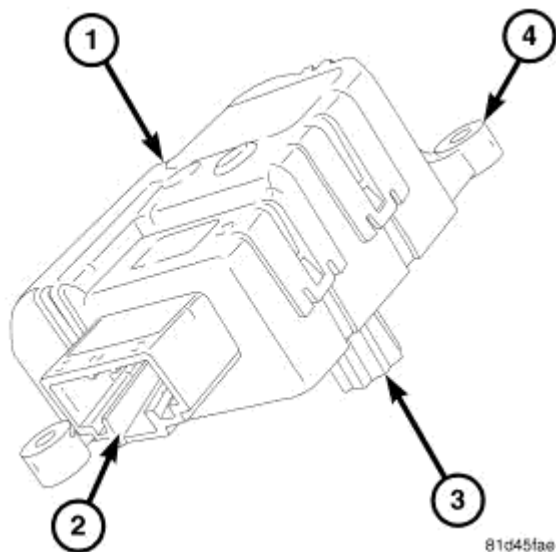


Fig. 51: Rear Actuator Description
Courtesy of CHRYSLER LLC

The mode door actuator (1) for the rear heater-A/C system is a reversible, 12 volt direct current (DC), servo motor. The rear mode door actuator is located on the outboard side of the rear heater-A/C housing.

The rear mode door actuator is contained within a black molded plastic housing with an integral wire connector receptacle (2), an output shaft with splines (3) connect it to the rear mode-air door and three integral mounting tabs (4) allow the actuator to be secured to the rear heater-A/C housing. The mode door actuator does not require mechanical indexing to the mode door linkage, as it is electronically calibrated by the A/C-heater control.

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

The rear mode door actuator is interchangeable with the actuator for the rear blend-air door.

Operation

OPERATION

The rear 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 rear heater-A/C wire harness. The rear mode door actuator can

move the rear mode-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 rear mode-air door will move in one direction. When the A/C-heater control reverses the polarity of the voltage to the motor, the rear mode-air door moves in the opposite direction. When the front A/C-heater control makes the voltage to both connections high or both connections low, the rear mode-air door stops and will not move.

The front A/C-heater control uses a pulse-count positioning system to monitor the operation and relative position of the rear mode door actuator and the rear mode-air door. The front A/C-heater control learns the rear mode-air door stop positions during the calibration procedure and will store a diagnostic trouble code (DTC) for any problems it detects in the rear mode door actuator circuits.

The rear mode door actuator is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

Removal

REMOVAL

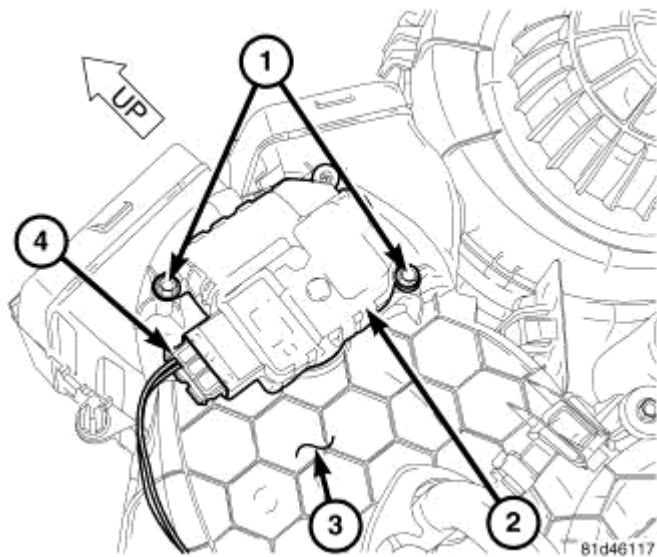


Fig. 52: Rear Housing Mode Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove rear heater-A/C housing (3) and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal**.
3. Disconnect the wire harness connector (4) from the rear mode door actuator (2) located on the outboard side of the rear heater-A/C housing.
4. Remove the two screws (1) that secure the rear mode door actuator to rear heater-A/C housing and remove the actuator.

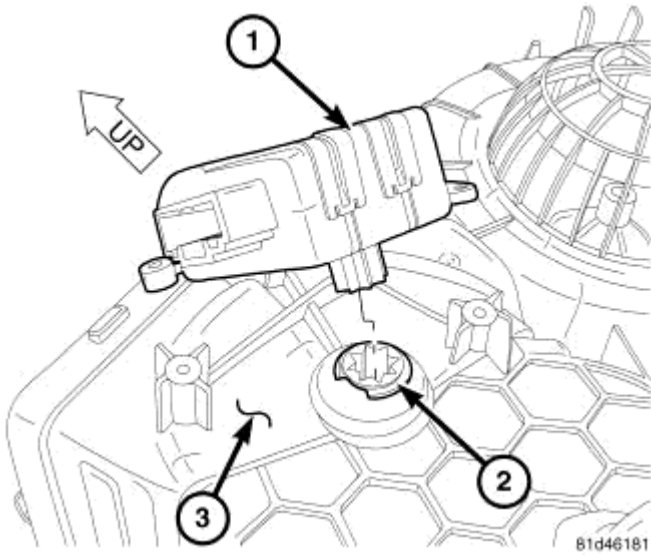
Installation**INSTALLATION**

Fig. 53: Rear Mode Door Actuator Align
Courtesy of CHRYSLER LLC

1. Position the rear mode door actuator (1) onto the rear heater-A/C housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the rear mode-air door pivot shaft (2).

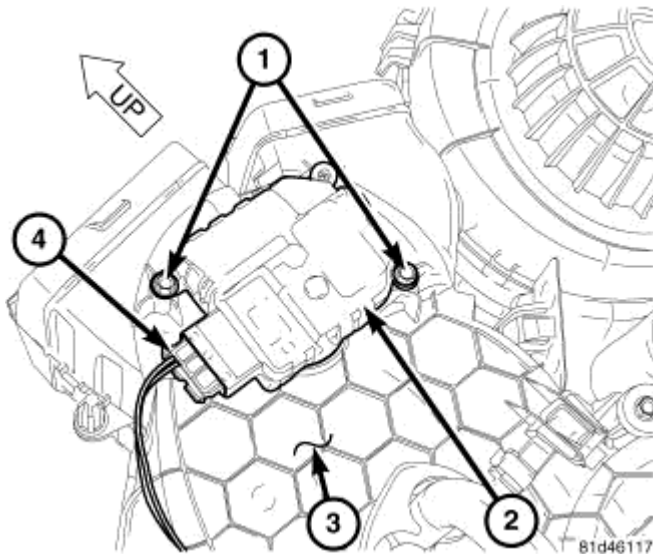


Fig. 54: Rear Housing Mode Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

2. Install the two screws (1) that secure the rear mode door actuator (2) to the rear heater-A/C housing (3). Tighten the screws to 1.2 N.m (10 in. lbs.).

3. Connect the wire harness connector (4) to the rear mode door actuator.
4. Install the rear heater-A/C housing. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Installation**.
5. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

CONTROL, A/C AND HEATER, REAR

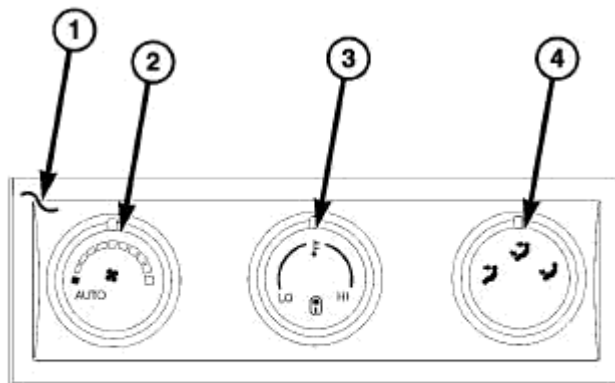
Description

DESCRIPTION

The A/C-heater controls allows the driver and front seat passenger and the intermediate seat passengers the ability to regulate air temperature as well as fan speed for the rear heating-A/C system and provides a floor outlet near the right rear door and upper air outlets at the ceiling. All controls are identified by ISO graphic symbols.

The primary controls for the rear heating-A/C system are located in the instrument panel. See **Heating and Air Conditioning/Controls/CONTROL, A/C and Heater - Description**.

The rear A/C-heater control is located in the headliner and allows intermediate seat passengers to adjust rear air distribution, temperature and blower motor speed when the rear heating-A/C system primary on/off control in the instrument panel is set to the on position and the rear heater-A/C controls are NOT locked out by the driver and front seat passenger.

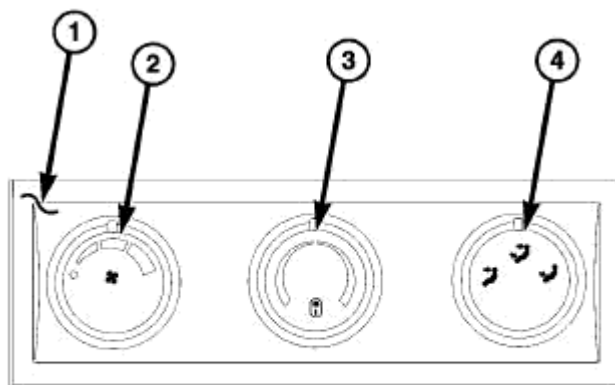


81e3045a

Fig. 55: ATC Tri Zone Rear Control
Courtesy of CHRYSLER LLC

The rear automatic temperature control (ATC) A/C-heater control (1) contains:

- a rotary control knob for fan speed selection and turning the rear heating-A/C system off or to Auto mode (2).
- a rotary control knob for temperature control of the rear discharged air (3). An indicator lamp illuminates in the control when the rear heater-A/C controls are locked out by the driver or front seat passenger.
- a rotary control knob for mode control of the rear discharged air (4).



81e30089

Fig. 56: Manual Temperature Control Tri Zone Rear Control

Courtesy of CHRYSLER LLC

The rear manual temperature control (MTC) A/C-heater control (1) contains:

- a rotary control knob for fan speed selection and turning the rear heating-A/C system on and off (2).
- a rotary control knob for temperature control of the rear discharged air (3). An indicator lamp illuminates in the control when the rear heater-A/C controls are locked out by the driver or front seat passenger.
- a rotary control knob for mode control of the rear discharged air (4).

The rear A/C-heater control is a slave potentiometer to the front A/C-heater control and is diagnosed using a scan tool (refer to **HEATING & AIR CONDITIONING (ATC) - ELECTRICAL DIAGNOSTICS** or **HEATING & AIR CONDITIONING (MTC) - ELECTRICAL DIAGNOSTICS**).

Prior to replacing an A/C-heater control, check for any diagnostic trouble codes (DTCs) related to the heating-A/C systems and run the calibration procedure to verify that the concern is not a system issue. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure** .

The rear A/C-heater control cannot be repaired must be replaced if inoperative or damaged. The illumination lamps are available for service replacement.

Removal

REMOVAL

NOTE: Take the proper precautions to protect the face of the rear A/C-heater control bezel from cosmetic damage during this service procedure.

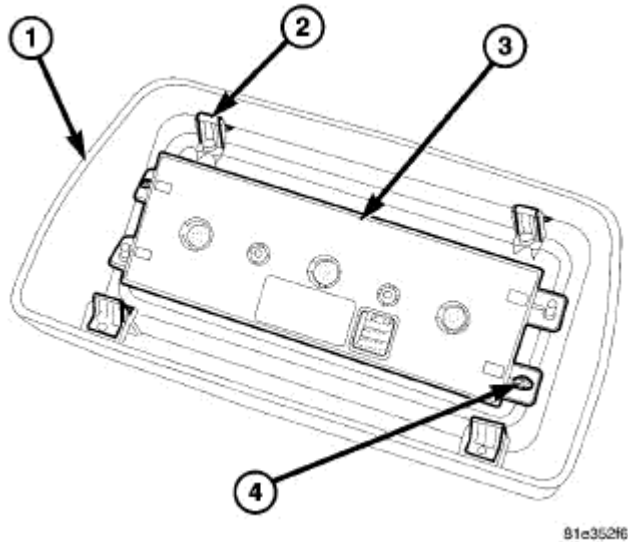


Fig. 57: Rear AC Heater Control Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the rear A/C-heater control (3) and bezel (1) as an assembly from the headliner by releasing the four metal retaining tabs (2) using Trim Stick C-4755 or equivalent.
3. Disconnect the wire harness connector from the back of the rear A/C-heater control and place the control and bezel assembly on a workbench.
4. Remove the two screws (4) that secure the rear A/C-heater control to the rear control bezel and remove the control from the bezel.

Installation**INSTALLATION**

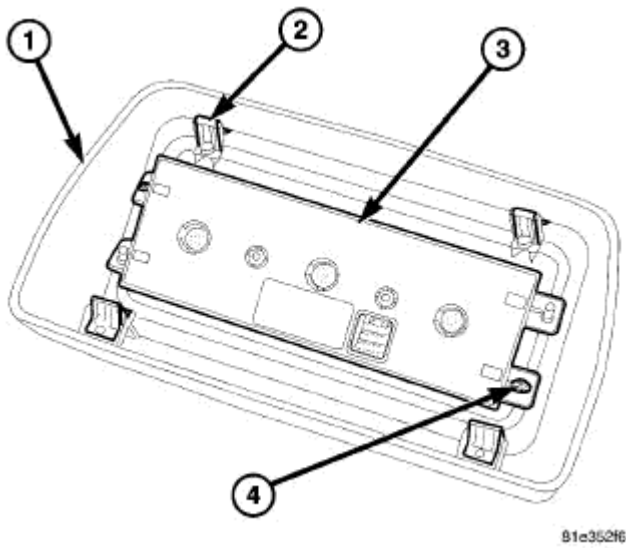


Fig. 58: Rear AC Heater Control Removal/Installation
 Courtesy of CHRYSLER LLC

1. Position the rear A/C-heater control (3) to the rear control bezel (1) and align the control to the two plastic guide posts on the back of the bezel.
2. Install the two screws (4) that secure the rear A/C-heater control to the rear control bezel. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the wire harness connector to the back of the rear A/C-heater control and install the bezel and control as an assembly to the headliner. Make sure the four metal retaining tabs (2) are fully engaged.
4. Reconnect the negative battery cable.
5. Initiate the Actuator Calibration function using a scan tool. Refer to **DTC-Based Diagnostics/HVAC - Standard Procedure**.

MODULE, POWER, REAR BLOWER MOTOR

Description

DESCRIPTION

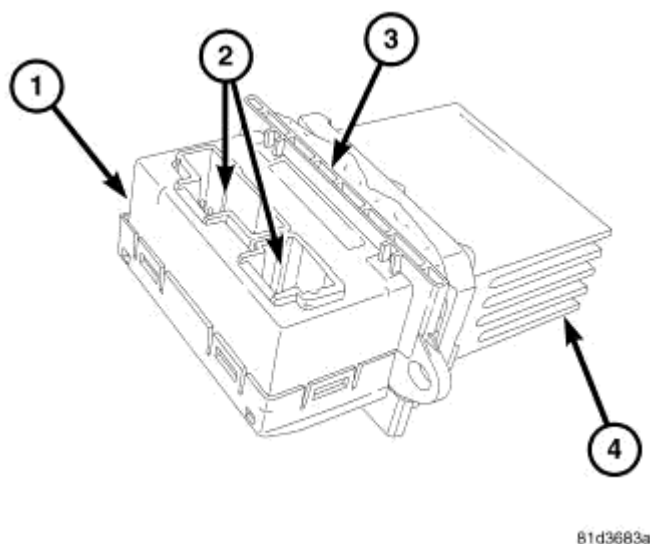


Fig. 59: Rear Blower Power Module Description
Courtesy of CHRYSLER LLC

A blower motor power module is used on this model when equipped with the automatic temperature control (ATC) rear heating-A/C system. Models equipped with the manual temperature control (MTC) rear heating-A/C system use a blower motor resistor, instead of the blower motor power module. See **Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - Description**.

The rear blower motor power module (1) is mounted to the inboard side of the rear heating-A/C housing, located on the right side of the vehicle. The rear blower motor power module consists of a molded plastic housing with two integral wire connector receptacles (2) for the power module electronic circuitry, a mounting plate (3) with a gasket and a finned aluminum heat sink (4).

The rear blower motor power module can be accessed for service without removing the rear heater-A/C housing.

Operation

OPERATION

The rear blower motor power module is connected to the vehicle electrical system through a dedicated lead and connector of the rear body wire harness. A second lead and connector of the wire harness is connected to the rear blower motor. The rear 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 rear 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 rear blower motor power module is diagnosed using a scan tool. Refer to **DTC-Based Diagnostics/HVAC**

- Diagnosis and Testing .

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

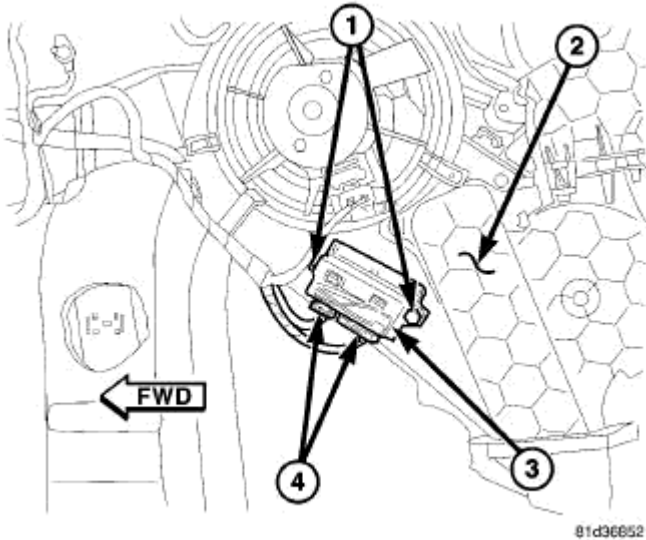
Removal**REMOVAL**

Fig. 60: Rear Blower Power Module Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove right rear quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Removal** .
3. Disconnect the two wire harness connectors (4) from the rear blower motor power module (3).
4. Remove the two screws (1) that secure the rear blower motor power module to the rear heater-A/C housing (2) and remove the module.

Installation**INSTALLATION**

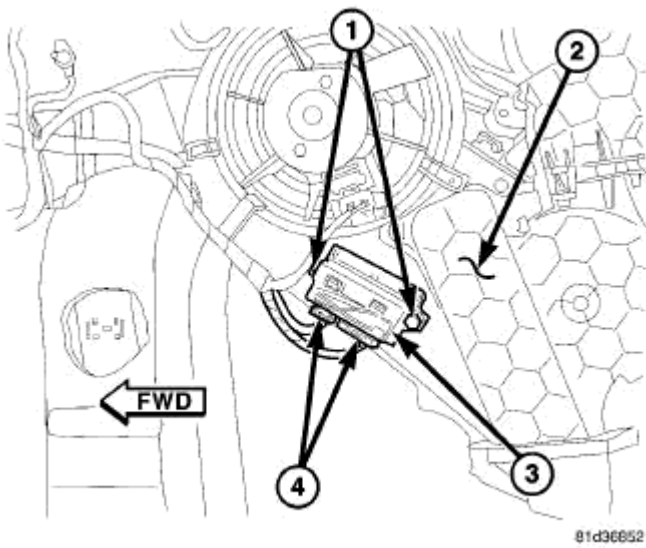


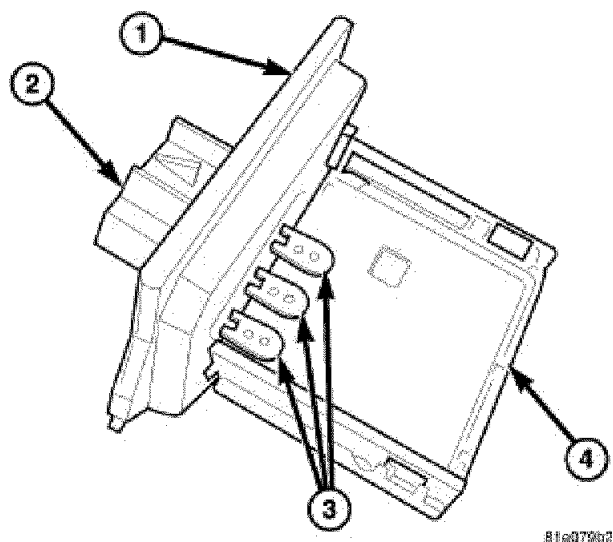
Fig. 61: Rear Blower Power Module Removal/Installation
 Courtesy of CHRYSLER LLC

1. Position the rear blower motor power module (3) onto the rear heater-A/C housing (2).
2. Install the two screws (1) that secure the rear blower motor power module to the rear heater-A/C housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the two wire harness connectors (4) to the rear blower motor power module.
4. Install the right rear quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Installation** .
5. Reconnect the negative battery cable.

RESISTOR, BLOWER MOTOR, REAR

Description

DESCRIPTION

**Fig. 62: Rear Blower Resistor**

Courtesy of CHRYSLER LLC

A blower motor resistor is used on this model when equipped with the manual temperature control (MTC) rear heating-A/C system. Models equipped with the automatic temperature control (ATC) rear heating-A/C system use a blower motor power module, instead of the blower motor resistor. See **Heating and Air Conditioning/Controls/MODULE, Power - Description**.

The rear blower motor resistor is mounted to the inboard side of the rear heating-A/C housing, located on the right side of the vehicle. The rear blower motor resistor consists of a molded plastic mounting plate (1) with an integral wire connector receptacle (2). Concealed behind the mounting plate are resistors (3) located between a two-piece stamped steel heat sink (4).

The rear blower motor resistor can be accessed for service without removing the rear heater-A/C housing.

Operation

OPERATION

The blower motor resistor for the rear heating-A/C system is connected to the vehicle electrical system through a dedicated wire lead and connector of the rear heater-A/C wire harness. The rear blower motor resistor has an electrical circuit board with three resistors, each of which will reduce the current flow through the rear blower motor to change the blower motor speed.

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

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

Diagnosis and Testing

REAR BLOWER MOTOR RESISTOR

NOTE: See SYSTEM WIRING DIAGRAMS for circuit descriptions and diagrams. 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 Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - 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 switch and the blower motor resistor or the blower motor as required. If not OK, replace the inoperative blower motor resistor.

Removal

REMOVAL

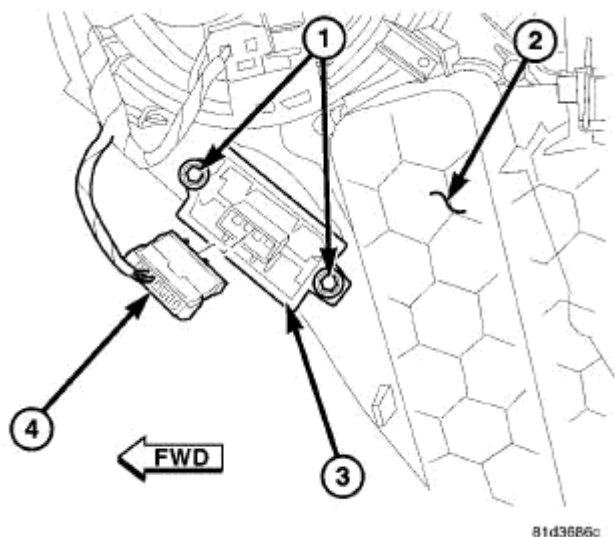


Fig. 63: Rear Blower Resistor Removal/Installation
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove right rear quarter trim panel. Refer to Body/Interior/PANEL, Quarter Trim - Removal.

3. Disconnect the wire harness connector (4) from the rear blower motor resistor (3).
4. Remove the two screws (1) that secure the rear blower motor resistor to the rear heater-A/C housing (2) and remove the resistor.

Installation

INSTALLATION

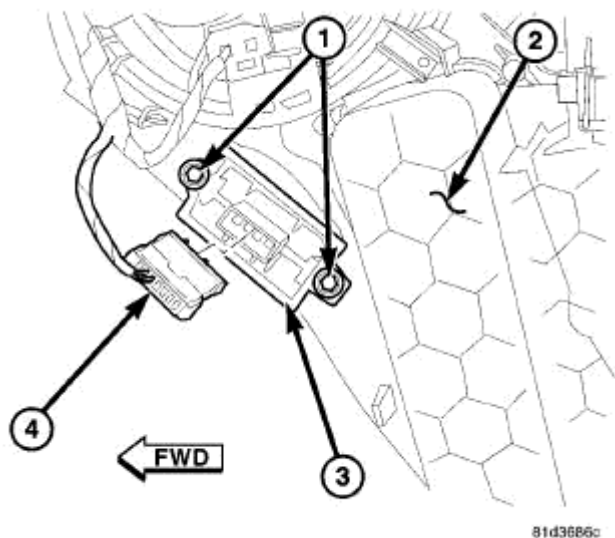


Fig. 64: Rear Blower Resistor Removal/Installation
Courtesy of CHRYSLER LLC

1. Position the rear blower motor resistor (3) onto the rear heater-A/C housing (2).
2. Install the two screws (1) that secure the rear blower motor resistor to the rear heater-A/C housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Connect the wire harness connector (4) to the rear blower motor resistor.
4. Install the right rear quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Installation**.
5. Reconnect the negative battery cable.

DISTRIBUTION, FRONT

DUCT, DEFROSTER

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

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

NOTE: LHD model shown. RHD model similar.

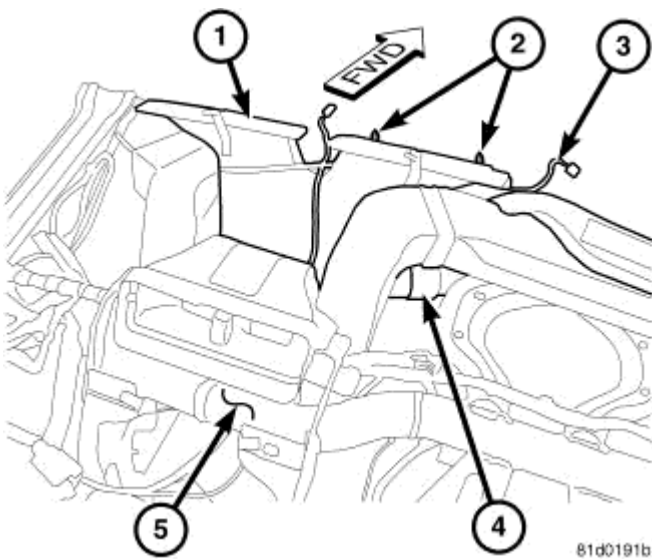


Fig. 65: Defroster Duct

Courtesy of CHRYSLER LLC

1. Remove the instrument panel and place it on a workbench. Refer to **Body/Instrument Panel/PANEL, Instrument - Removal**.
2. Remove the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Removal**.
3. Remove the cover from the instrument panel.
4. Remove the driver side outboard instrument panel and demister duct assembly. See **Heating and Air Conditioning/Distribution/DUCT, Instrument Panel - Removal**.
5. Disengage the two retaining clips (2) that secure the wire harness lead (3) to the top of the defroster duct (1).
6. Disconnect the defroster duct from the passenger side demister duct (4) and remove the defroster duct from the instrument panel support (5).

Installation

INSTALLATION

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

NOTE: LHD model shown. RHD model similar.

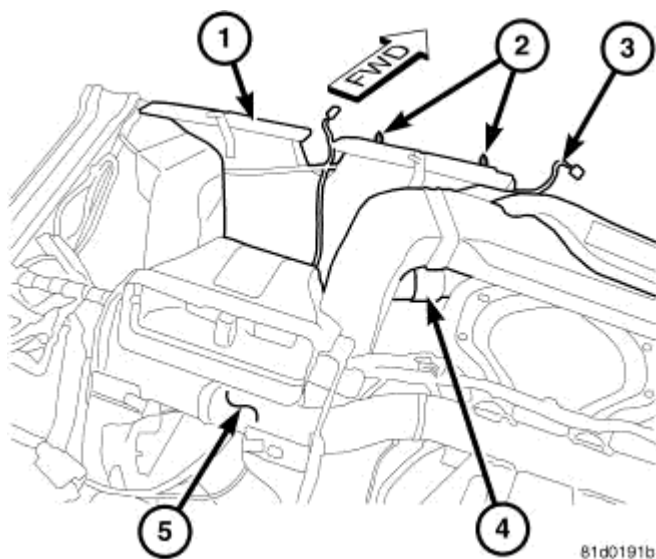


Fig. 66: Defroster Duct

Courtesy of CHRYSLER LLC

1. Position the defroster duct (1) to the top of the instrument panel support (5) and connect it to the passenger side demister duct (4).
2. Engage the two retaining clips (2) that secure the wire harness lead (3) to the top of the defroster duct.
3. Install the driver side instrument panel and demister duct assembly. See **Heating and Air Conditioning/Distribution/DUCT, Instrument Panel - Installation**.
4. Install the cover onto the instrument panel support.
5. Install the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Installation**.
6. Install the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Installation**.

DUCT, FLOOR DISTRIBUTION, FRONT

Removal

REMOVAL

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 serious or fatal injury.

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

RIGHT FRONT FLOOR DUCT

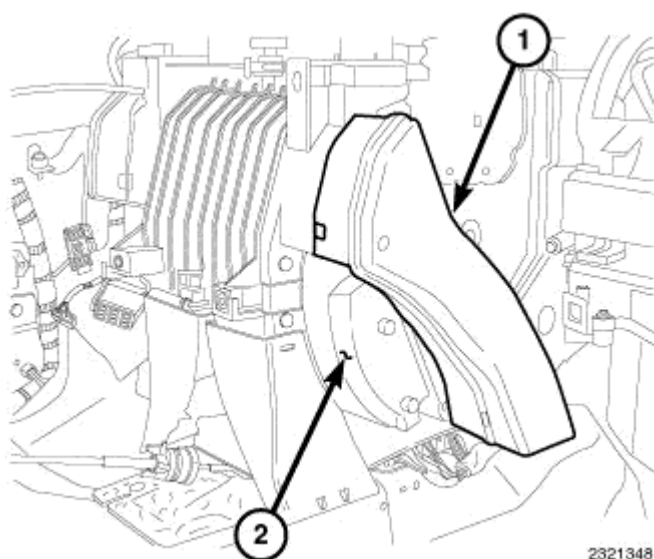
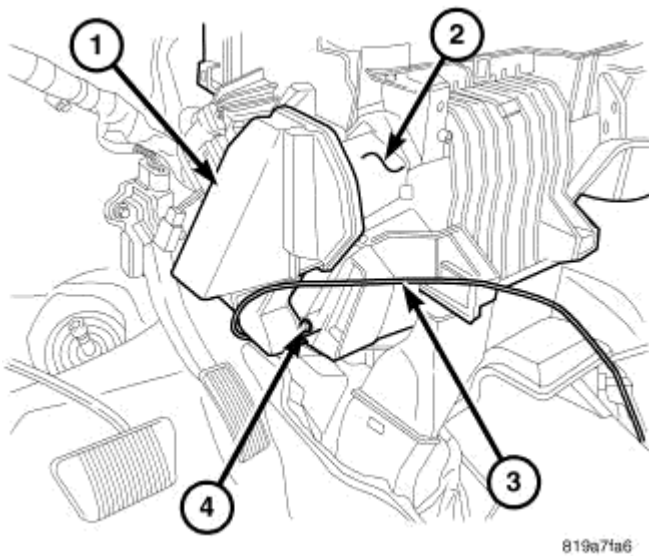


Fig. 67: Duct-Right Front Floor PM
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. On LHD models, remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
2. Disconnect the right floor duct (1) from the right side of the HVAC housing (2) and remove the duct.

LEFT FRONT FLOOR DUCT



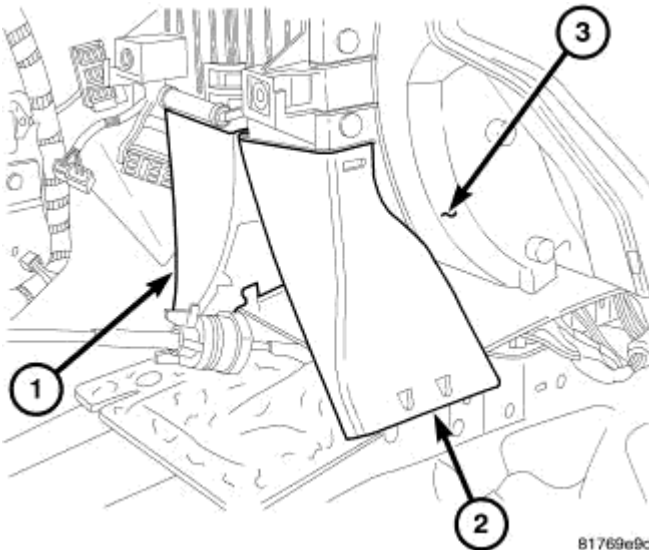
819a7fa6

Fig. 68: Duct-Left Front Floor
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. On RHD models, remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal**.
2. On LHD models, disconnect the shift interlock cable (3) from the left floor duct (1) and position the cable out of the way.
3. Remove the screw (4) that secures the left floor duct to the left side of the HVAC housing (2).
4. Disconnect the left floor duct from the HVAC housing and remove the duct.

REAR FLOOR DISTRIBUTION DUCTS



81769e9c

Fig. 69: Ducts-Rear Floor Distribution PM

Courtesy of CHRYSLER LLC

1. Remove the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Removal**.
2. Remove the rear seat floor ducts. Refer to **REAR SEAT FLOOR DUCTS**.
3. Disconnect the left rear floor distribution duct (1) and the right rear floor distribution duct (2) as required from the HVAC housing (3) and remove the duct(s).

REAR SEAT FLOOR DUCTS

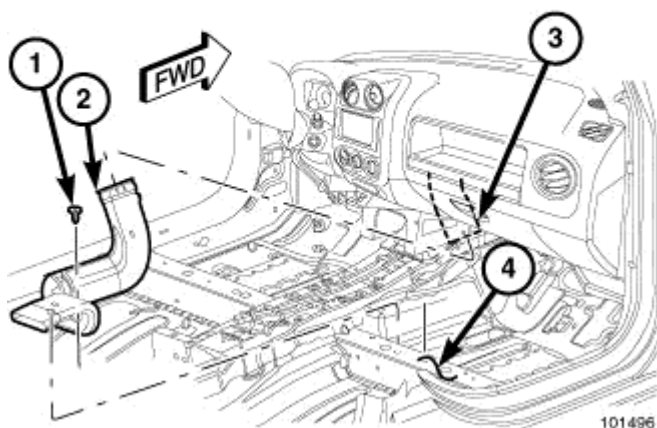


Fig. 70: Ducts-Rear Seat Floor PM

Courtesy of CHRYSLER LLC

NOTE: Right side rear floor duct shown. Left side duct similar.

1. Remove the center floor console. Refer to **Body/Interior/CONSOLE, Center - Removal**.
2. Remove the front seat from the side of the vehicle being serviced. Refer to **Body/Seats/SEAT - Removal**.
3. Pull the carpet back to gain access to the rear seat floor duct (2). Refer to **Body/Interior/CARPET - Removal**.
4. Remove the screw (1) and disengage the retainer that secures the rear seat floor duct to the floor support (4).
5. Disconnect the rear seat floor duct from the rear floor distribution duct (3) and remove the rear seat duct (s).

Installation

INSTALLATION

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

RIGHT FRONT FLOOR DUCT

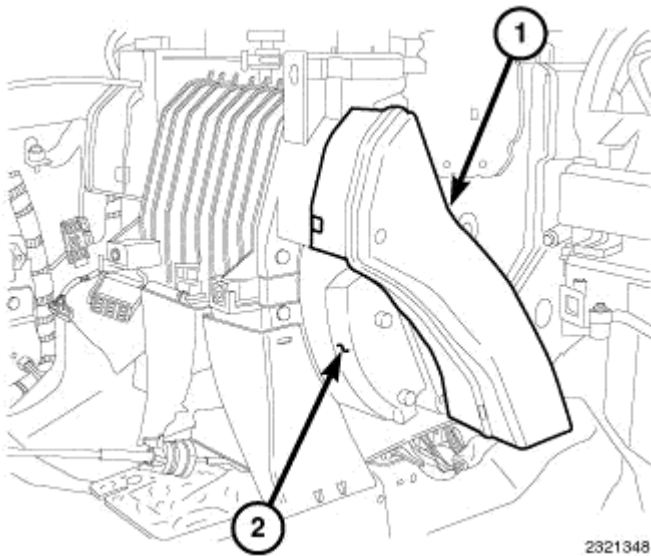


Fig. 71: Duct-Right Front Floor PM
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. Connect the right floor duct (1) to the right side of the HVAC housing (2). Make sure the duct is fully engaged to the housing.
2. On LHD models, install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation** .

LEFT FRONT FLOOR DUCT

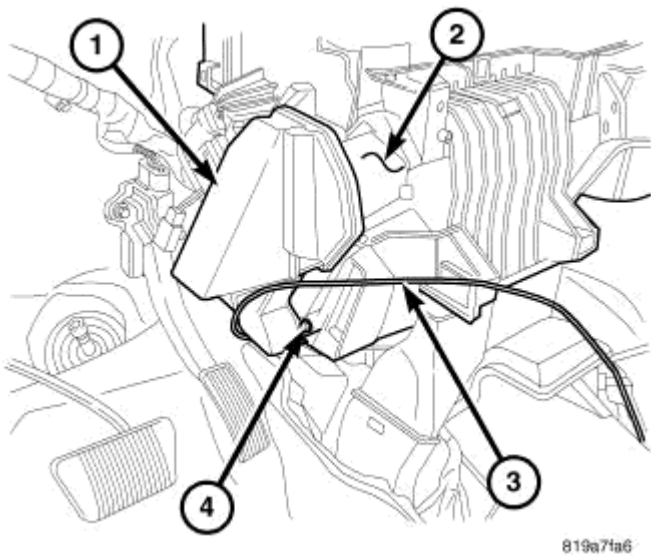


Fig. 72: Duct-Left Front Floor
Courtesv of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. Connect the left floor duct (1) to the left side of the HVAC housing (2). Make sure the duct is fully engaged to the housing.
2. Install the screw (4) that secures the left floor duct to the HVAC housing. Tighten the screw to 2 N.m (17 in. lbs.).
3. On LHD models, connect the shift interlock cable (3) to the left floor duct.
4. On RHD models, install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation** .

REAR FLOOR DISTRIBUTION DUCTS

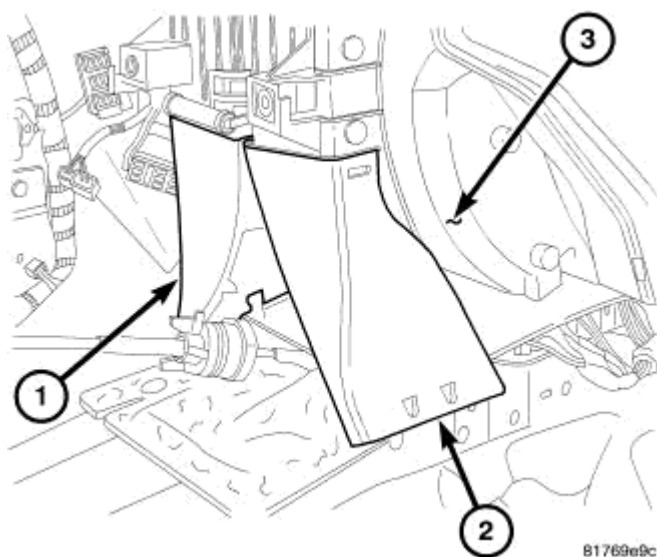


Fig. 73: Ducts-Rear Floor Distribution PM
Courtesy of CHRYSLER LLC

1. Connect the left rear floor distribution duct (1) and the right rear floor distribution duct (2) as required to the HVAC housing (3). Make sure the ducts are fully engaged to the housing.
2. Install the rear seat floor ducts. Refer to **REAR SEAT FLOOR DUCTS**.
3. Install the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Installation** .

REAR SEAT FLOOR DUCTS

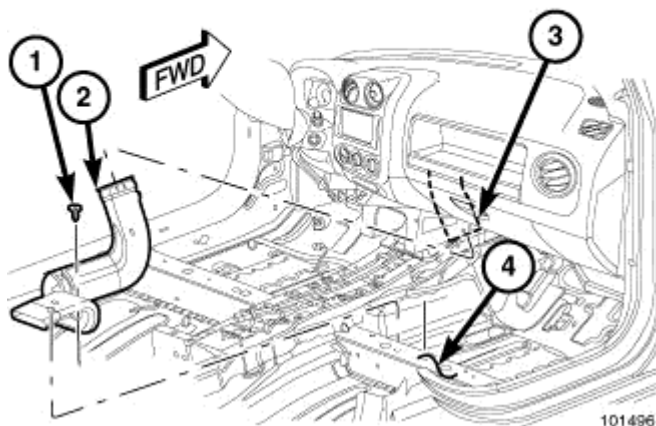


Fig. 74: Ducts-Rear Seat Floor PM

Courtesy of CHRYSLER LLC

NOTE: Right side rear floor duct shown. Left side duct similar.

1. Connect the rear seat floor duct (2) to the rear floor distribution duct (3). Make sure the ducts are fully engaged to each other.
2. Engage the retainer that secures the rear seat floor duct to the floor support (4) and install the retaining screw (1). Tighten the screw to 2.2 N.m (20 in. lbs.).
3. Reinstall the carpet. Refer to **Body/Interior/CARPET - Installation** .
4. Install the front seat to the side of the vehicle being serviced. Refer to **Body/Seats/SEAT - Installation** .
5. Install the center floor console. Refer to **Body/Interior/CONSOLE, Center - Installation** .

DUCT, INSTRUMENT PANEL

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: The left and right instrument panel ducts are serviced with the left and right demister ducts as an assembly.

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

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

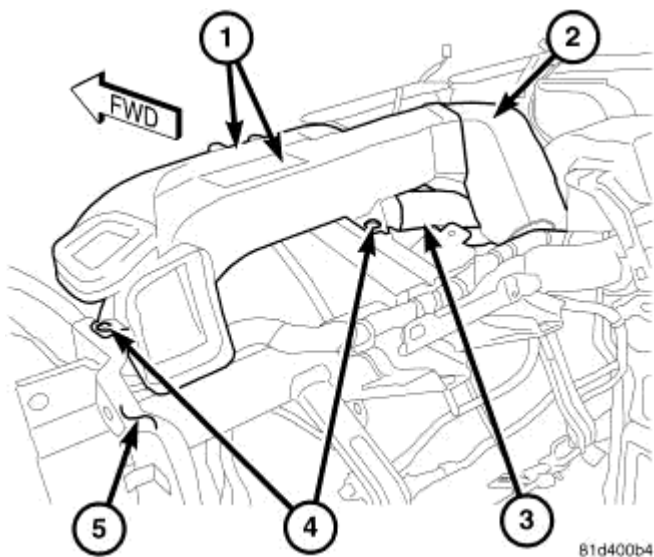
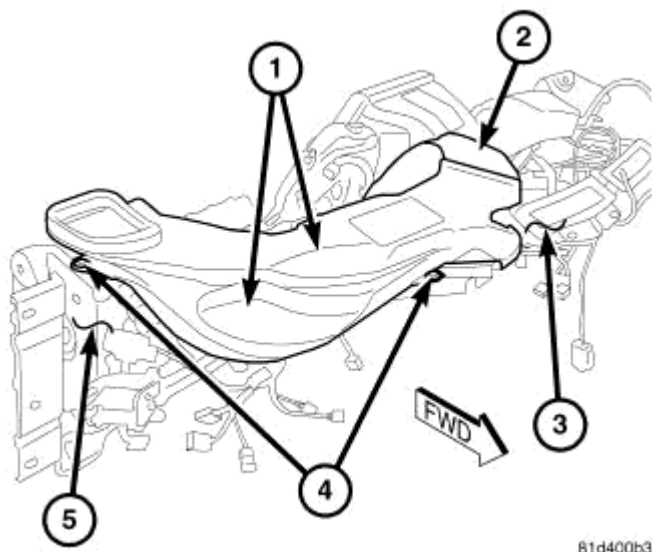


Fig. 75: Driver Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

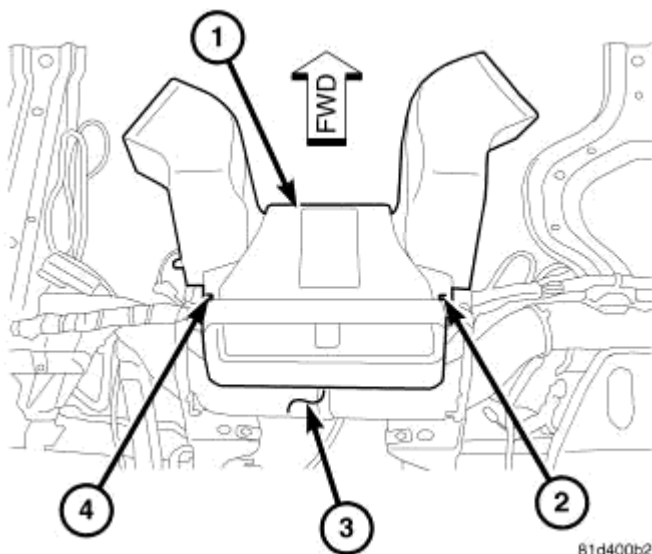
1. Remove the instrument panel and place it on a workbench. Refer to **Body/Instrument Panel/PANEL, Instrument - Removal**.
2. Remove the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Removal**.
3. Remove the cover from the instrument panel.
4. Remove the two push-pin retainers (4) that secure the driver side instrument panel and demister duct assembly (1) to the top of the instrument panel support (5).
5. Disconnect the driver side instrument panel and demister duct assembly from the instrument panel center duct (2) and the defroster duct (3) and remove the driver side instrument panel and demister duct assembly.



81d400b3

Fig. 76: Pass Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

6. Remove the two push-pin retainers (4) that secure the passenger side instrument panel and demister duct assembly (1) to the top of the instrument panel support (5).
7. Disconnect the passenger side instrument panel and demister duct assembly from the instrument panel center duct (2) and the defroster duct (3) and remove the passenger side instrument panel and demister duct assembly.



81d400b2

Fig. 77: Center Instrumental Panel Duct
Courtesy of CHRYSLER LLC

8. Remove the two screws (2 and 4) that secure the instrument panel center duct (1) to the instrument panel support (3) and remove the center duct.

Installation

INSTALLATION

- NOTE:** The left and right instrument panel ducts are serviced with the left and right demister ducts as an assembly.
- NOTE:** Take the proper precautions to protect the front face of the instrument panel from cosmetic damage while performing this procedure.
- NOTE:** LHD model shown in illustrations. RHD model similar.

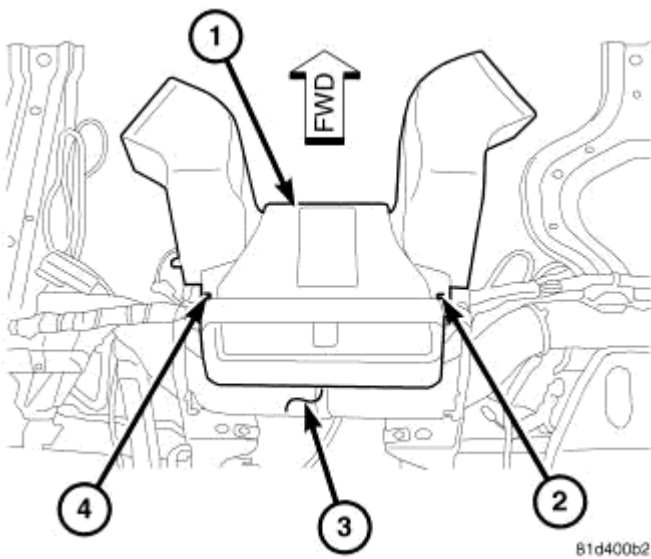


Fig. 78: Center Instrumental Panel Duct

Courtesy of CHRYSLER LLC

1. Position the instrument panel center duct (3) to the instrument panel support (4) and install the two retaining screws (2 and 4). Tighten the screws to 2.2 N.m (20 in. lbs.).

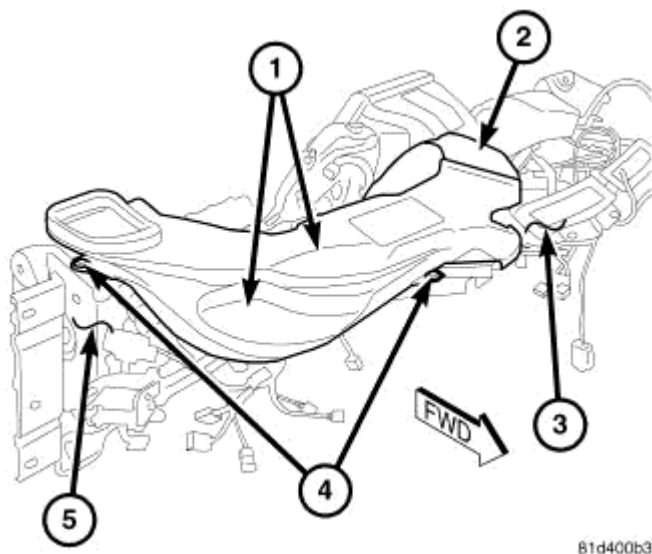


Fig. 79: Pass Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

2. Position the passenger side instrument panel and demister duct assembly (1) to the instrument panel support (5) and connect the instrument panel and demister duct assembly to the center duct (2) and to the defroster duct (3). Make sure the ducts are fully engaged.
3. Install the two push-pin retainers (4) that secure the passenger side instrument panel and demister duct assembly to the instrument panel support.

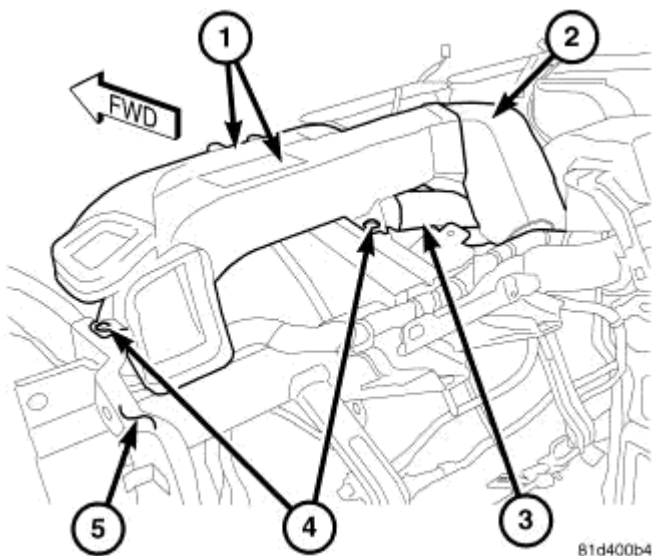


Fig. 80: Driver Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

4. Position the driver side instrument panel and demister duct assembly (1) to the instrument panel support (5) and connect the instrument panel and demister duct assembly to the center duct (2) and to the defroster duct (3). Make sure the ducts are fully engaged.

5. Install the two push-pin retainers (4) that secure the driver side instrument panel and demister duct assembly to the instrument panel support.
6. Install the cover onto the instrument panel.
7. Install the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Installation**.
8. Install the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Installation**.

DUCT, INSTRUMENT PANEL DEMISTER

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: The left and right demister ducts are serviced with the left and right instrument panel ducts as an assembly.

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

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

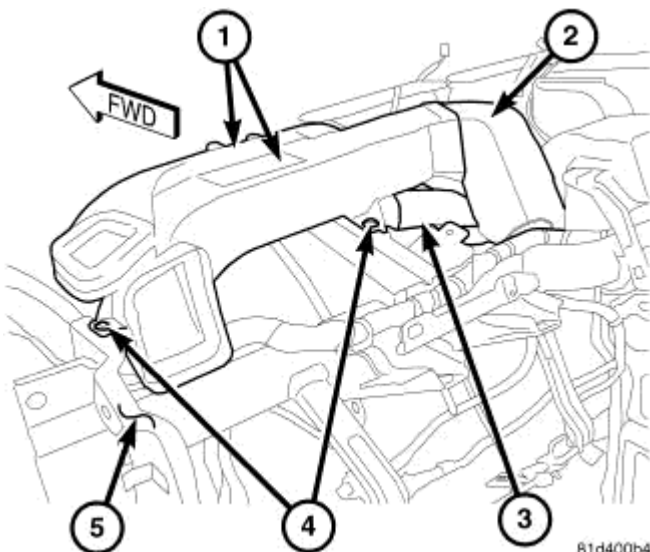


Fig. 81: Driver Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

1. Remove the instrument panel and place it on a workbench. Refer to **Body/Instrument Panel/PANEL, Instrument - Removal**.
2. Remove the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Removal**.
3. Remove the cover from the instrument panel.
4. Remove the two push-pin retainers (4) that secure the driver side instrument panel and demister duct assembly (1) to the top of the instrument panel support (5).
5. Disconnect the driver side instrument panel and demister duct assembly from the instrument panel center duct (2) and the defroster duct (3) and remove the driver side instrument panel and demister duct assembly.

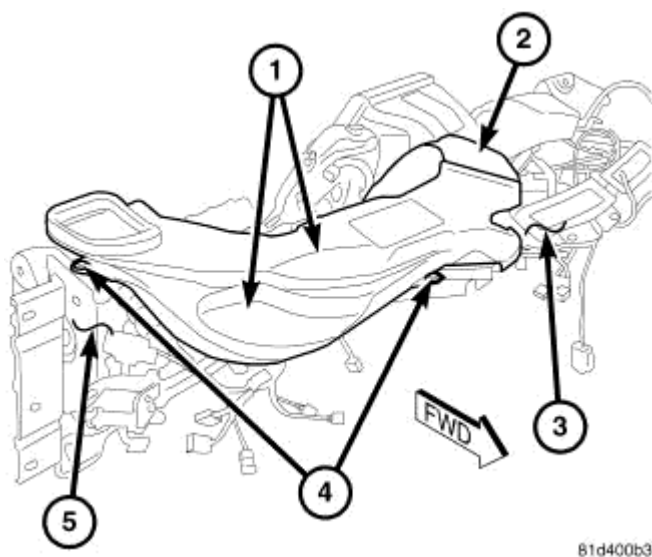


Fig. 82: Pass Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

6. Remove the two push-pin retainers (4) that secure the passenger side instrument panel and demister duct assembly (1) to the top of the instrument panel support (5).
7. Disconnect the passenger side instrument panel and demister duct assembly from the instrument panel center duct (2) and the defroster duct (3) and remove the passenger side instrument panel and demister duct assembly.

Installation

INSTALLATION

NOTE: The left and right demister ducts are serviced with the left and right instrument panel ducts as an assembly.

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

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

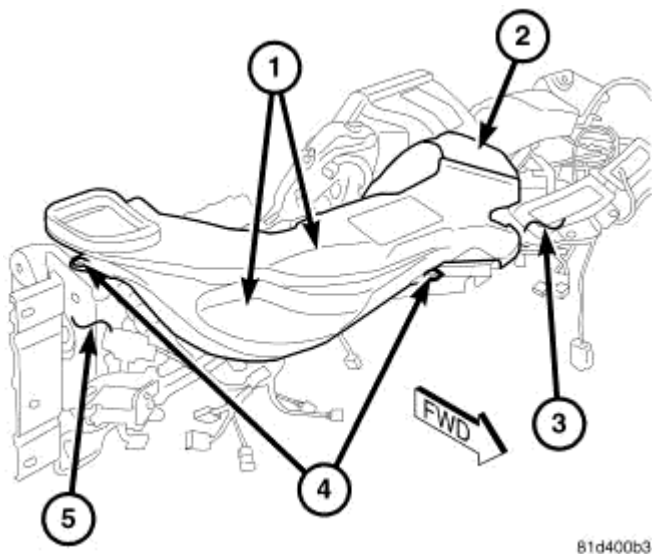


Fig. 83: Pass Instrumental Panel & Demister Duct
Courtesy of CHRYSLER LLC

1. Position the passenger side instrument panel and demister duct assembly (1) to the instrument panel support (5) and connect the instrument panel and demister duct assembly to the center duct (2) and to the defroster duct (3). Make sure the ducts are fully engaged.
2. Install the two push-pin retainers (4) that secure the passenger side instrument panel and demister duct assembly to the instrument panel support.

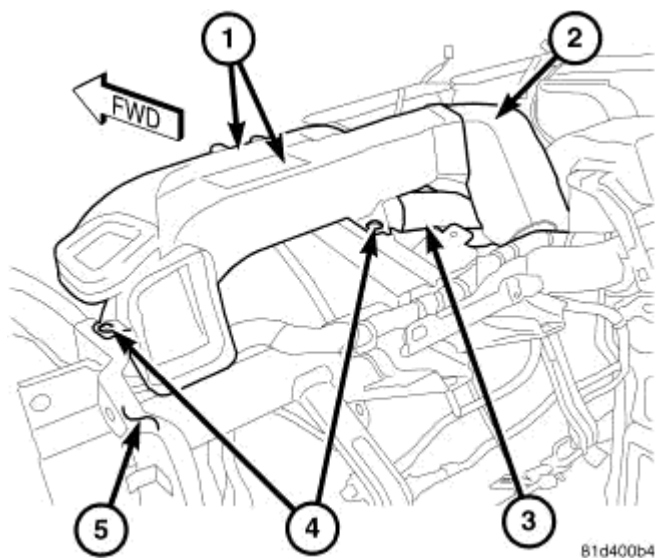


Fig. 84: Driver Instrumental Panel & Demister Duct

Courtesy of CHRYSLER LLC

3. Position the driver side instrument panel and demister duct assembly (1) to the instrument panel support (5) and connect the instrument panel and demister duct assembly to the center duct (2) and to the defroster duct (3). Make sure the ducts are fully engaged.
4. Install the two push-pin retainers (4) that secure the driver side instrument panel and demister duct assembly to the instrument panel support.
5. Install the cover onto the instrument panel.
6. Install the outboard instrument panel air outlets. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Installation**.
7. Install the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Installation**.

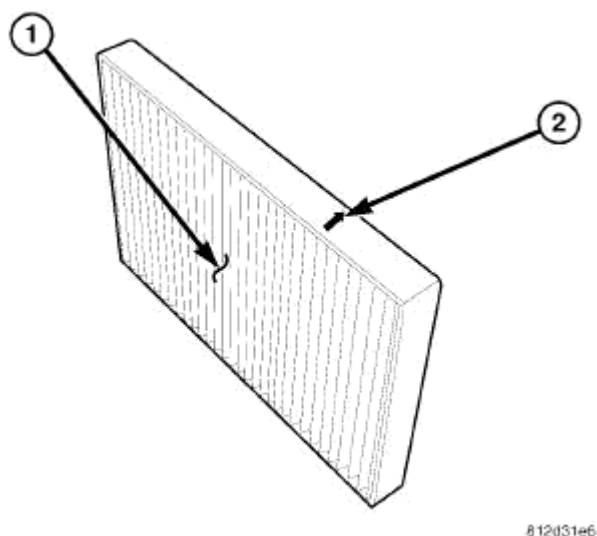
FILTER, PARTICULATE AIR**Description****DESCRIPTION**

Fig. 85: Filter-Particulate Air Description
Courtesy of CHRYSLER LLC

Some models are equipped with a particulate air filter (1) that helps purify the outside air entering the HVAC housing. The filter is mounted in the passenger compartment, behind the glove box bin.

The filter should be replaced at least once a year or every 24,000 km (15,000 miles) and checked if heating-A/C system performance seems lower than expected. The particulate air filter is labeled with an arrow (2) to indicate the direction of air flow through the filter.

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

WARNING: Always make sure the A/C-heater system is turned off and that the ignition switch is in the OFF position prior to servicing the particulate air filter. Never place fingers or other objects into the filter opening of the HVAC housing. Failure to follow this warning may result in serious injury.

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

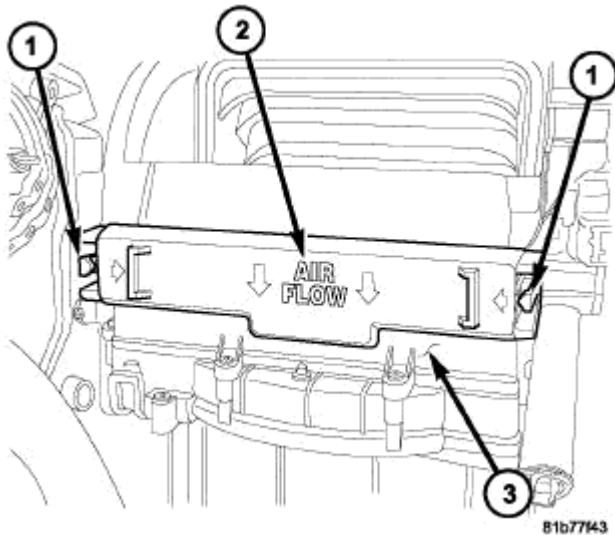


Fig. 86: Particulate Filter Cover Removal/Installation S1

Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. Remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal** .
2. Disengage the two retaining tabs (1) that secure the particulate air filter cover (2) to the passenger side of the HVAC housing (3) and remove the cover.

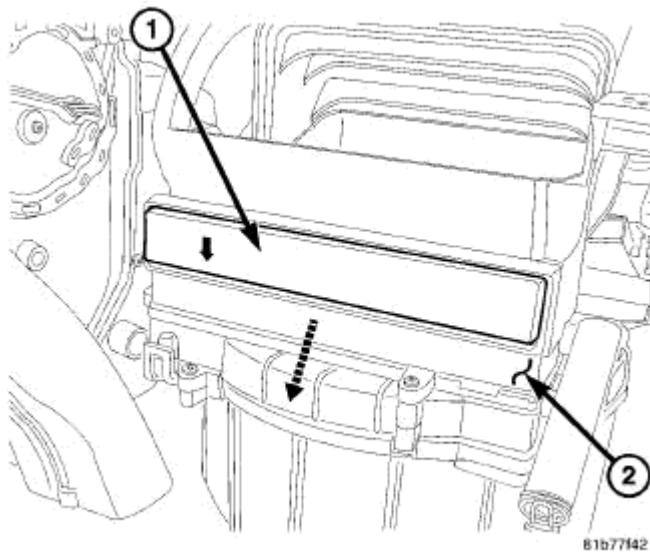


Fig. 87: Particulate Filter Removal S1
Courtesy of CHRYSLER LLC

3. Remove the particulate air filter (1) from the HVAC housing (2) by pulling the filter element straight out of the housing.

Installation

INSTALLATION

NOTE: The particulate air filter is labeled with an arrow to indicate air flow direction through the filter. Make sure to properly install the particulate air filter. Failure to properly install the filter will result in the need to replace the filter sooner than required by design.

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

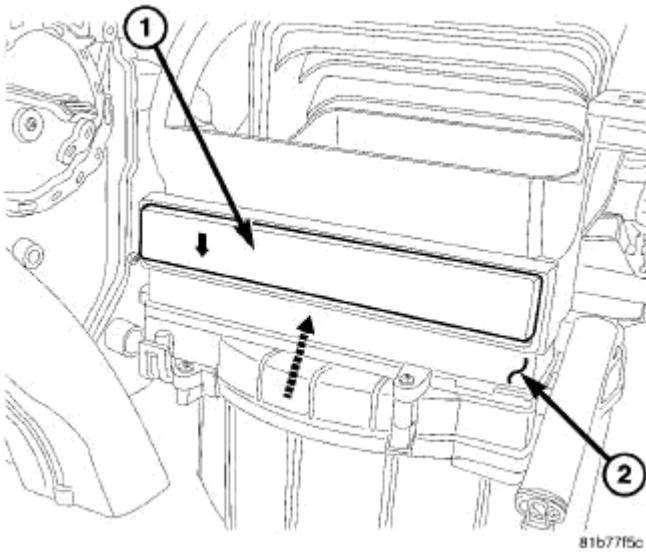


Fig. 88: Particulate Filter Install S1
Courtesy of CHRYSLER LLC

1. Install the particulate air filter (1) into the filter opening in the HVAC housing (2). Insert the particulate air filter directly into the housing with the arrow on the filter pointing to the floor.

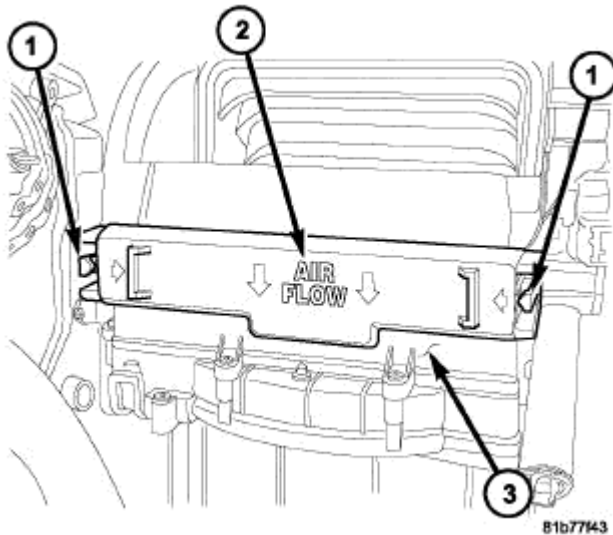


Fig. 89: Particulate Filter Cover Removal/Installation S1
Courtesy of CHRYSLER LLC

2. Position the particulate air filter cover (2) to the HVAC housing (3) and engage the two retaining tabs (1) that secure the cover to the housing. Make sure the retaining tabs are fully engaged.
3. Install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation**.

HOUSING, HVAC

Description

DESCRIPTION

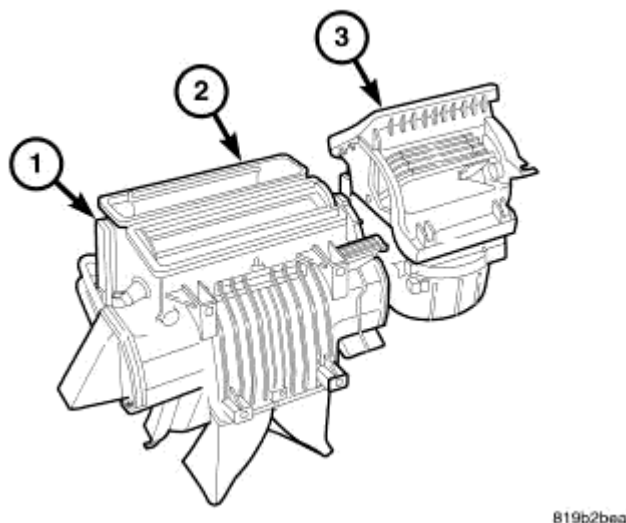


Fig. 90: HVAC housing assembly
Courtesy of CHRYSLER LLC

NOTE: LHD model shown RHD model similar.

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:

- **HVAC housing** - The HVAC housing (1) is mounted to the dash panel behind the instrument panel and contains the A/C evaporator. The HVAC housing consists of an upper and a lower housing that are attached together and has mounting provisions for the air inlet housing, blower motor and the air distribution housing.
- **Air distribution housing** - The air distribution housing (2) is mounted to the rear of the HVAC housing 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 and contains the recirculation-air door and actuator.

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 electric blend door actuator, which moves the blend-air door. This allows an almost immediate control of the output air temperature of the system. The electric mode door actuator

operates the mode-air door. The electric recirculation door actuator operates the recirculation-air door which closes off the fresh air intake into the HVAC housing and recirculates the air already inside the vehicle. 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 or power module (depending on application), which is located on the bottom of the HVAC housing. The actuators, resistor or power module and the blower motor are connected to the vehicle electrical system by the instrument panel wire harness.

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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

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

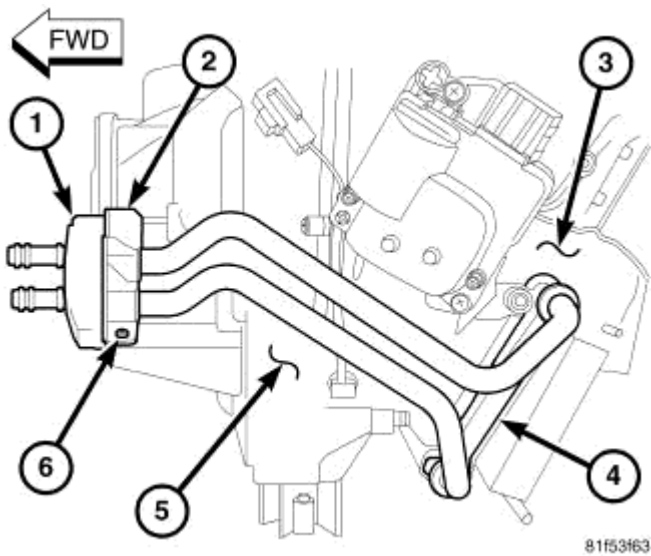


Fig. 91: Heater Core Removal/Installation

Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
2. Remove the floor distribution ducts from the HVAC housing assembly. See [Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Removal](#).

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

3. Remove the foam seal (1) from the flange (2) located on the front of the HVAC housing (5).
4. Remove the screw (6) that secures the flange to the HVAC housing and remove the flange.
5. On RHD models, remove the air distribution housing (3) from the HVAC housing. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#)
6. Carefully pull the heater core (4) out of the air distribution housing.

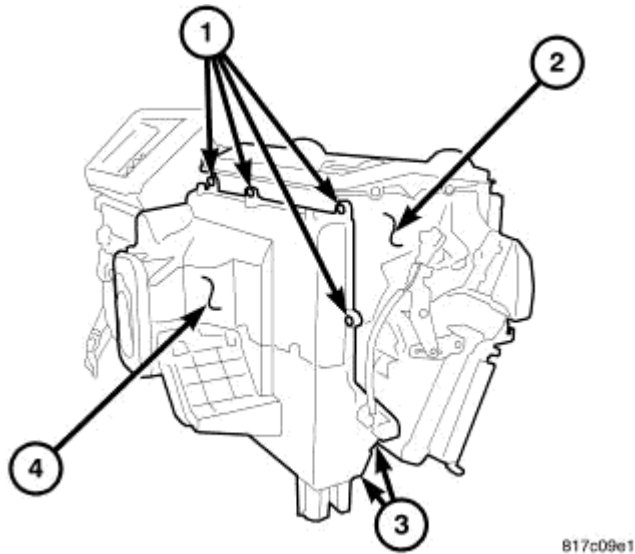


Fig. 92: Air Distribution Housing-Removal/Installation
Courtesy of CHRYSLER LLC

7. Remove the two metal retaining clips (3) that secure the bottom of air distribution housing (2) to the HVAC housing (4).
8. Remove the seven screws (1) that secure the air distribution housing to the rear of the HVAC housing.
9. Remove the air distribution housing from the rear of the HVAC housing.
10. If required, disassemble the air distribution housing. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Disassembly](#).

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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

NOTE: LHD model shown. RHD model similar.

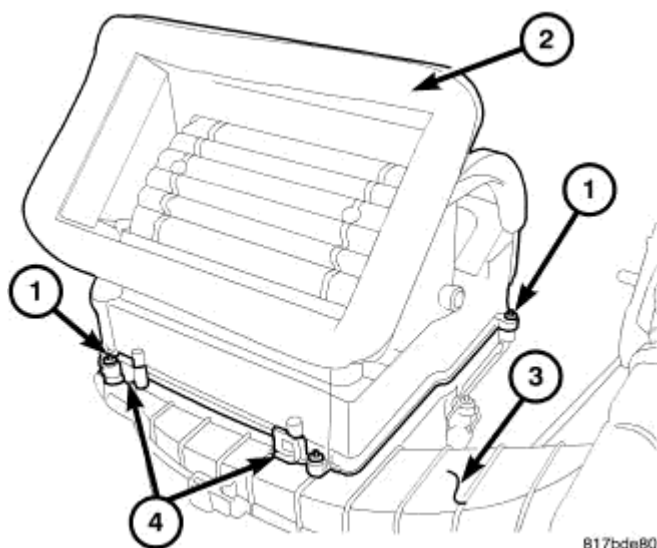


Fig. 93: Air Inlet Housing-Removal/Installation
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal.**
2. If equipped, remove the particulate air filter. See **Heating and Air Conditioning/Distribution/FILTER, Particulate Air - Removal.**
3. Remove the four screws (1) that secure the air inlet housing (2) to the top of the HVAC housing (3).
4. Disengage the two plastic retaining tabs (4) that secure the air inlet housing to the HVAC housing and remove the inlet housing from the HVAC housing.
5. If required, disassemble the air inlet housing. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Disassembly.**

SCREEN-AIR INLET

NOTE: LHD model shown. RHD model similar.

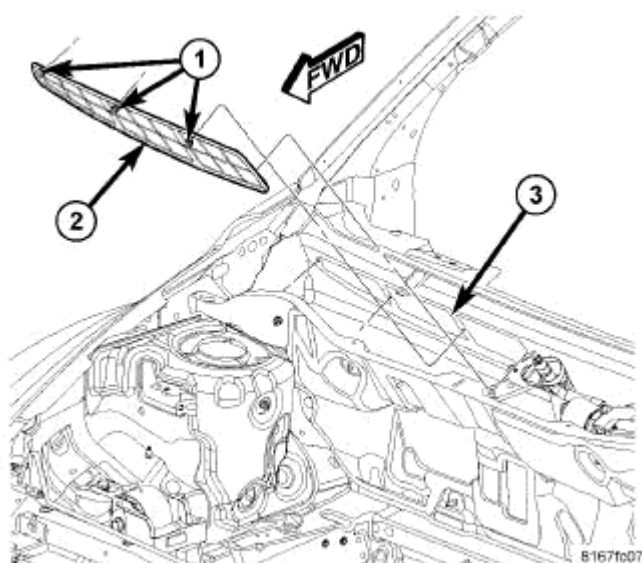


Fig. 94: Screen-HVAC Housing Air Inlet
Courtesy of CHRYSLER LLC

1. Remove the cowl grille screen. Refer to **Body/Exterior/COVER, Cowl Panel - Removal**.
2. Disengage the three push-in retainers (1) that secure the HVAC housing air inlet screen (2) to the cowl panel (3) and remove the screen.

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 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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See **Heating and Air Conditioning/Plumbing - Warning** and **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

NOTE: The HVAC housing must be removed from the vehicle and disassembled for service of the heater core, A/C evaporator, air intake housing and the mode-air and blend-air doors.

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

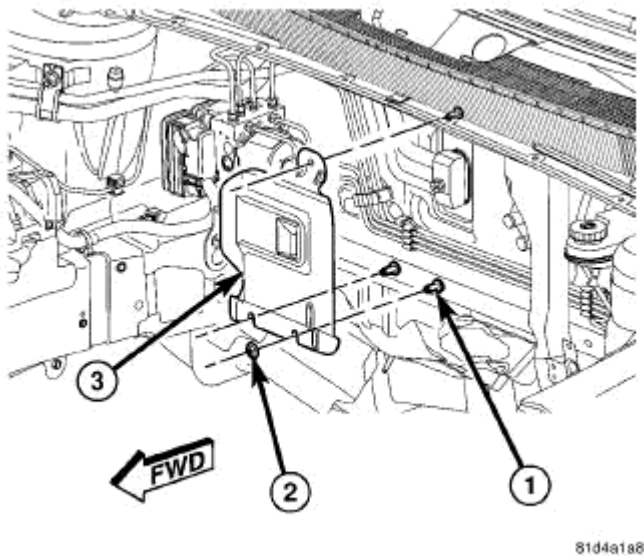
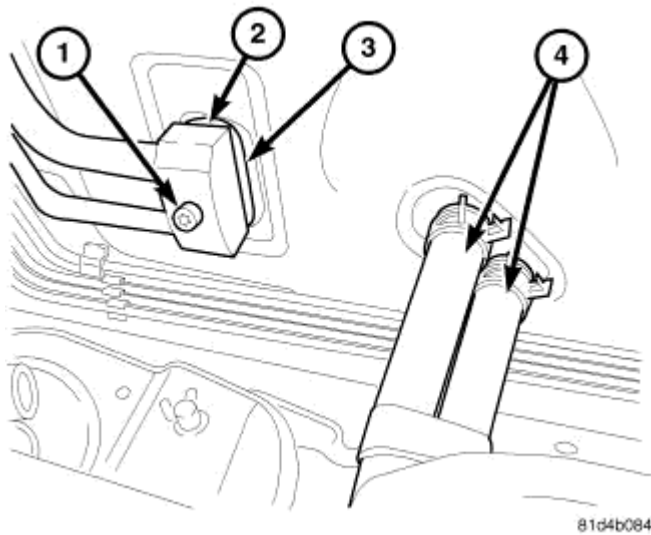


Fig. 95: Heat Shield - Unified Line
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
3. Partially drain the engine cooling system. Refer to **Cooling - Standard Procedure**.
4. If equipped with heat shield (3), remove the top nut (2) that secures the heat shield to the stud (1) located on the dash panel.

NOTE: Two slots are provided at the bottom of the heat shield to aid in heat shield removal, if equipped. Complete removal of the two bottom heat shield retaining nuts is not required.

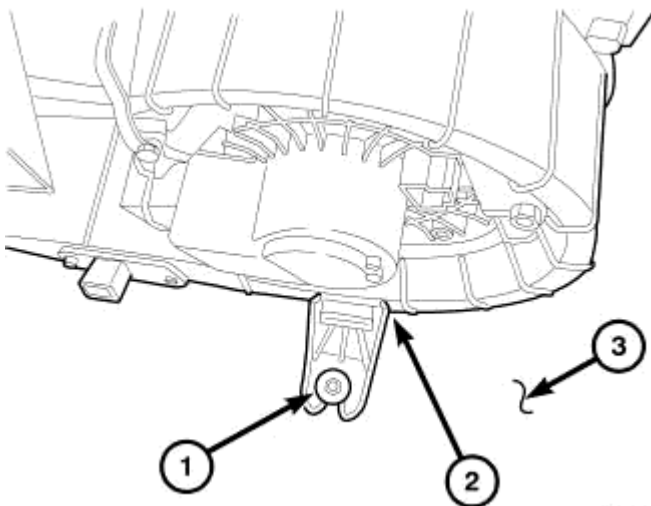
5. If equipped, reach behind the engine and remove the two bottom nuts that secure the heat shield to the studs located on the dash panel and remove the heat shield. Rotate and tilt the heat shield as required.



81c4b084

Fig. 96: Unified Liquid & Suction Line to Evaporator
Courtesy of CHRYSLER LLC

6. Remove the nut (1) that secures the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
7. Disconnect the A/C liquid and suction line assembly from the A/C evaporator and remove and discard the dual-plane seals.
8. Install plugs in, or tape over the opened refrigerant line fittings and the evaporator ports.
9. 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.



817b90a6

Fig. 97: HVAC Housing to Dash Panel Nut
Courtesy of CHRYSLER LLC

NOTE: Make sure to remove the five bolts that secure the HVAC housing to the

instrument panel support prior to removing the instrument panel from the vehicle.

10. Remove the instrument panel. Refer to Body/Instrument Panel/PANEL, Instrument - Removal.
11. Remove the rear floor ducts. See Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Removal.
12. Remove the condensation drain tube.
13. Remove the nut (1) that secures the passenger side of the HVAC housing (2) to 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.

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

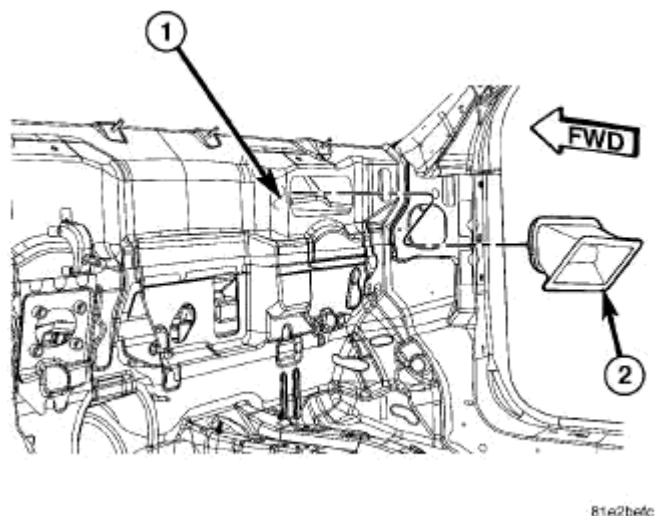


Fig. 98: Air Inlet Duct
Courtesy of CHRYSLER LLC

15. If required, remove the HVAC housing air inlet duct (2) from the passenger compartment side of the dash panel (1).

Disassembly

HOUSING-AIR DISTRIBUTION

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

NOTE: LHD model with A/C shown in illustrations. RHD and heater-only models similar.

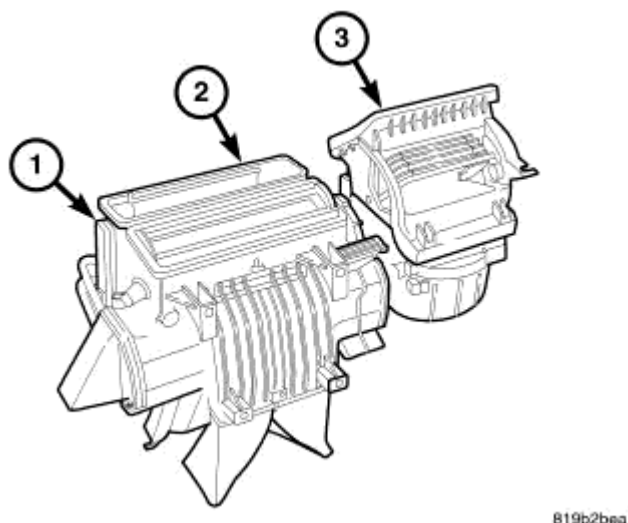


Fig. 99: HVAC housing assembly
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
2. Remove the air distribution housing (2) from the HVAC housing (1). See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
3. If equipped with the 2.0L diesel engine, remove the electric positive temperature coefficient (PTC) heater unit from the air distribution housing. See [Heating and Air Conditioning/Cabin Heater/UNIT, Heater - Removal](#).
4. Remove the heater core from the air distribution housing. See [Heating and Air Conditioning/Plumbing/CORE, Heater - Removal](#).

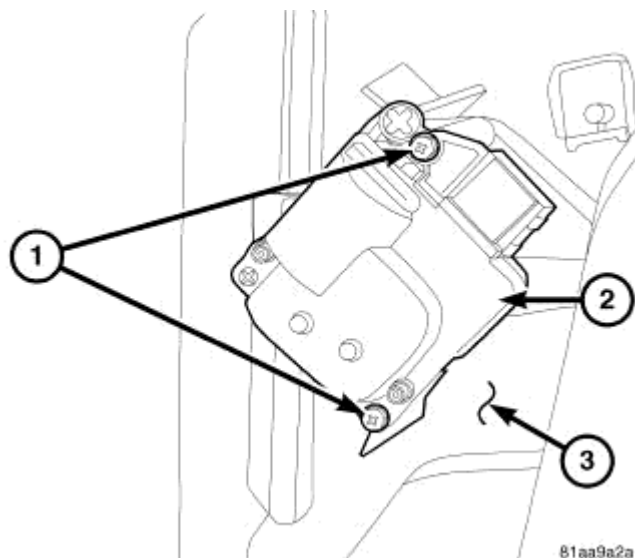


Fig. 100: Blend Door Actuator
Courtesy of CHRYSLER LLC

5. Remove the screws (1) that secure the blend door actuator (2) to the left side of the air distribution housing (3) and remove the actuator.
6. If equipped with dual zone system, remove the screws that secure the other blend door actuator to the right side of the air distribution housing and remove the actuator. See **Heating and Air Conditioning/Controls/ACTUATOR, Blend Door - Removal**.

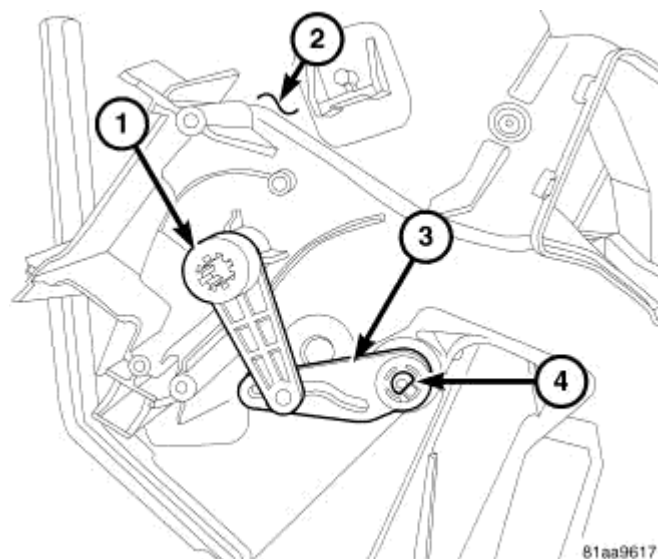


Fig. 101: Blend Door Levers
Courtesy of CHRYSLER LLC

7. Remove the blend door lever (1) from the left side of the air distribution housing (2).

NOTE: To remove the blend door pivot lever, disengage the retaining tab on the lever and pull the lever straight off the pivot shaft.

8. Remove the blend door pivot lever (3) from the end of the blend door pivot shaft (4).

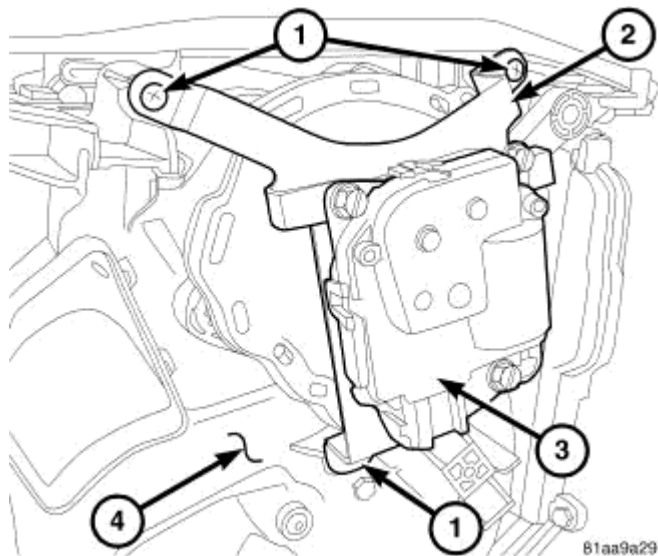


Fig. 102: Mode Door Actuator & Bracket

Courtesy of CHRYSLER LLC

NOTE: It is not necessary to remove the mode door actuator from the bracket when servicing the air distribution housing.

9. Remove the three screws (1) that secure the mode door actuator (2) and bracket (3) to the right side of the air distribution housing (4) and remove the actuator and bracket as an assembly.

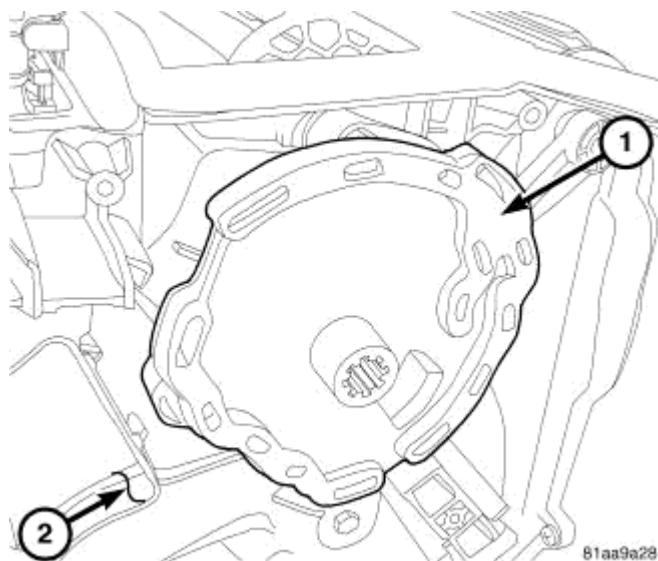


Fig. 103: Mode Door Cam

Courtesy of CHRYSLER LLC

10. Remove the mode door cam (1) from the right side of the air distribution housing (2).

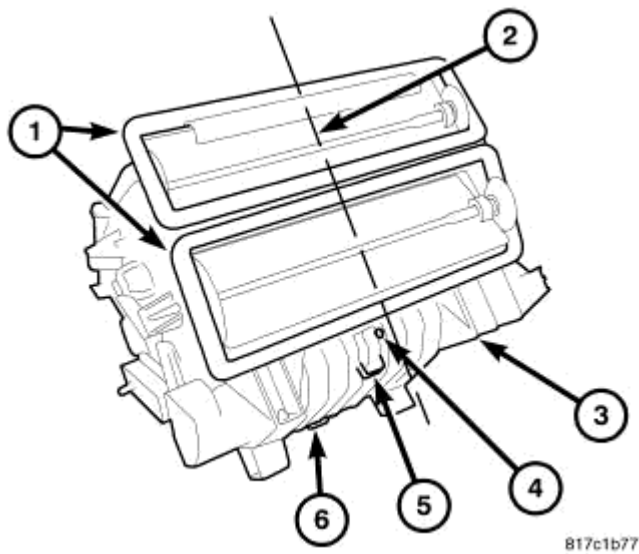


Fig. 104: Parting Line & Retainers
Courtesy of CHRYSLER LLC

NOTE: If any foam seal on the air distribution housing outlets is deformed or damaged, the seal must be replaced.

11. Carefully cut the two foam seals (1) along the parting line (2) of the two halves of the air distribution housing (3). If either seal is deformed or damaged, it must be replaced.
12. Remove the five screws (4) and one metal clip (5) that secure the two halves of the air distribution housing together.
13. Disengage the three plastic retaining tabs (6) that secure the two halves of the air distribution housing together and carefully separate the housing.

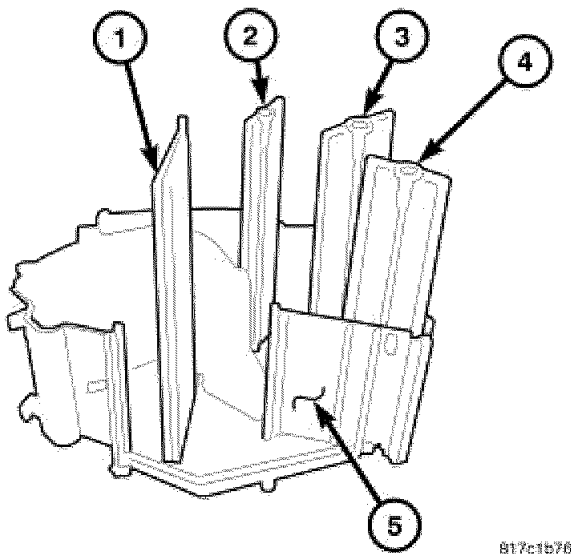


Fig. 105: Air Doors-Removal/Installation
Courtesy of CHRYSLER LLC

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

NOTE: If equipped with dual zone heating/A/C system, there are two blend-air doors that mate together at the centerline of the housing.

14. Disengage the air doors (1, 2, 3 and 4) from the door levers and remove the air doors from the air distribution housing (5).

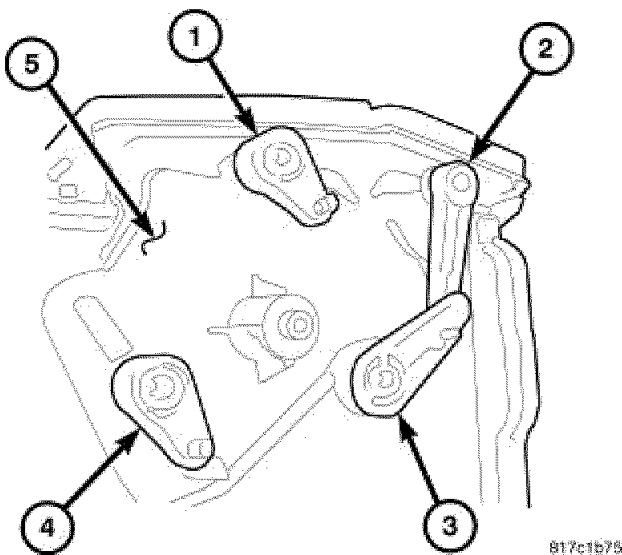


Fig. 106: Mode Door Levers-Removal/Installation
Courtesy of CHRYSLER LLC

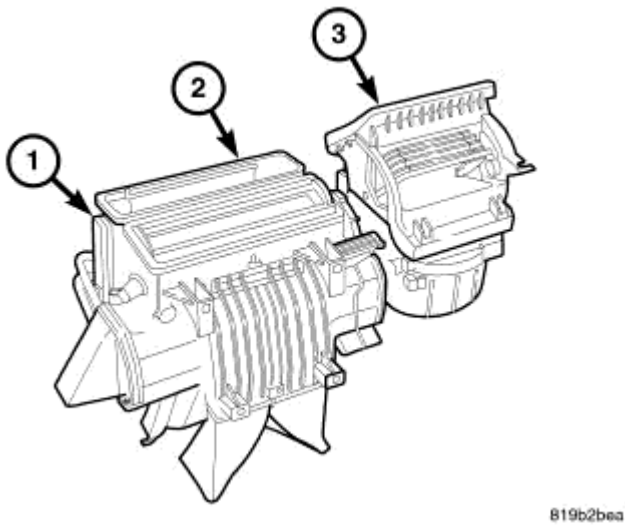
NOTE: To remove the door levers, disengage the retaining tabs on the inside of the air distribution housing and pull the levers straight out of the housing.

15. If required, remove the door levers (1, 2, 3 and 4) from the right side of the air distribution housing (5).

HOUSING-AIR INLET

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

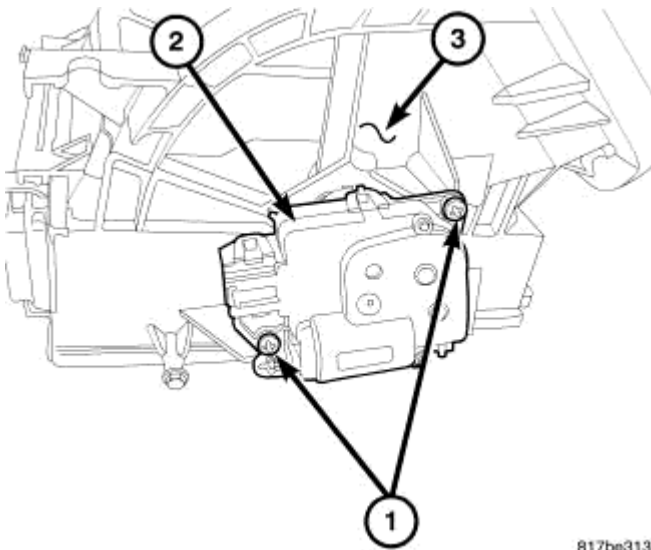
NOTE: LHD model shown in illustrations. RHD model similar.



819b2bea

Fig. 107: HVAC housing assembly
Courtesy of CHRYSLER LLC

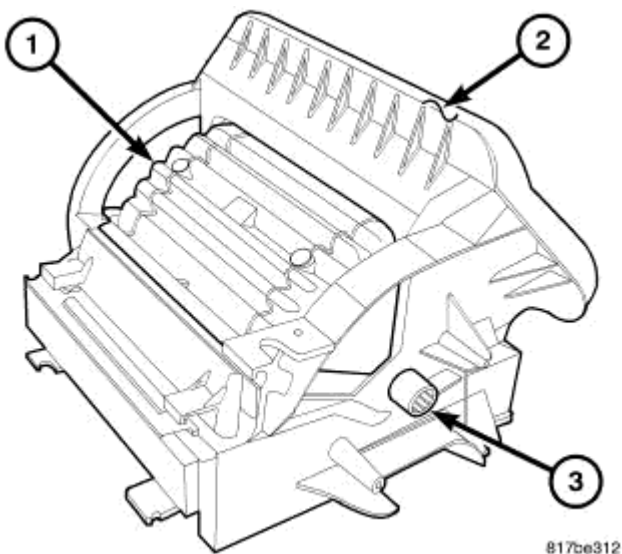
1. Remove the HVAC housing assembly and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal.**
2. Remove the air inlet housing (3) from the HVAC housing (1). See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal.**



817be313

Fig. 108: Recirculation Door Actuator-Removal/Installation
Courtesy of CHRYSLER LLC

3. Remove the two screws (1) that secure the recirculation door actuator (2) to the right side of the air inlet housing (3) and remove the actuator.



817be312

Fig. 109: Recirculation Air-Door & Pivot Shaft
Courtesy of CHRYSLER LLC

4. To remove the recirculation door pivot shaft adapter from the right end of the recirculation-air door, first carefully push down on the tab of the door lever pivot shaft adapter located inside of the air inlet housing, then pull the pivot shaft adapter straight out of the end of the recirculation-air door pivot shaft.

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

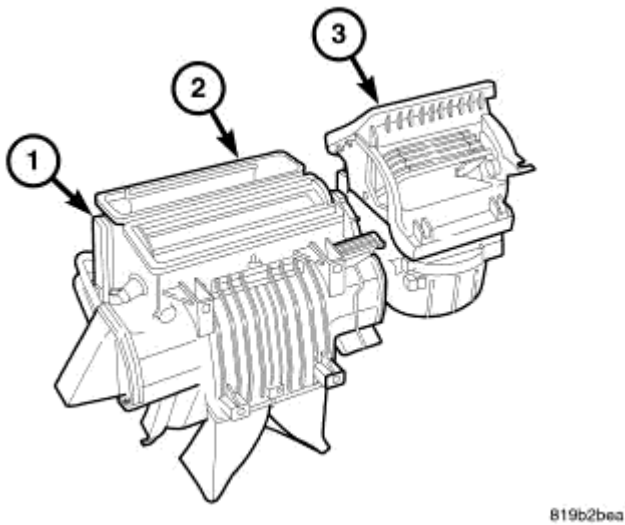
NOTE: If a rubber seal on the recirculation air-door is deformed or damaged, the air-door must be replaced.

5. Carefully pinch the two ends of the recirculation air-door together and remove the air-door from the air inlet housing. If the seal on the recirculation air-door is deformed or damaged, the air-door must be replaced.

HOUSING-HVAC

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

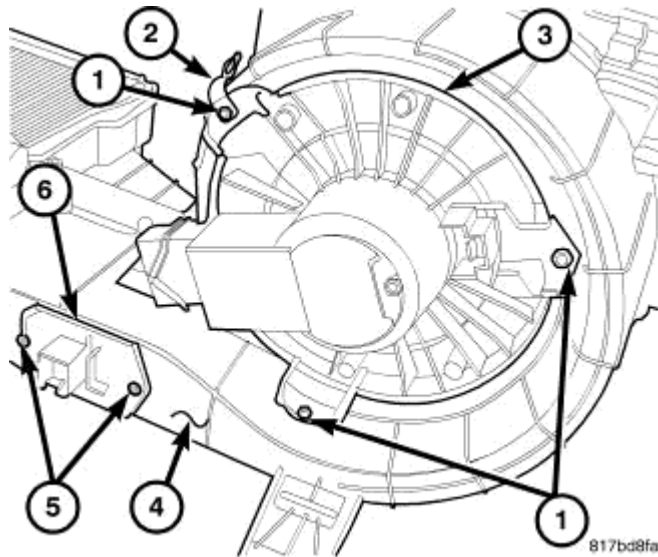
NOTE: LHD model shown in illustrations. RHD model similar.



819b2bea

Fig. 110: HVAC housing assembly
Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
2. Remove the air distribution housing (2) from the HVAC housing (1). See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
3. Remove the air inlet housing (3) from the HVAC housing. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).

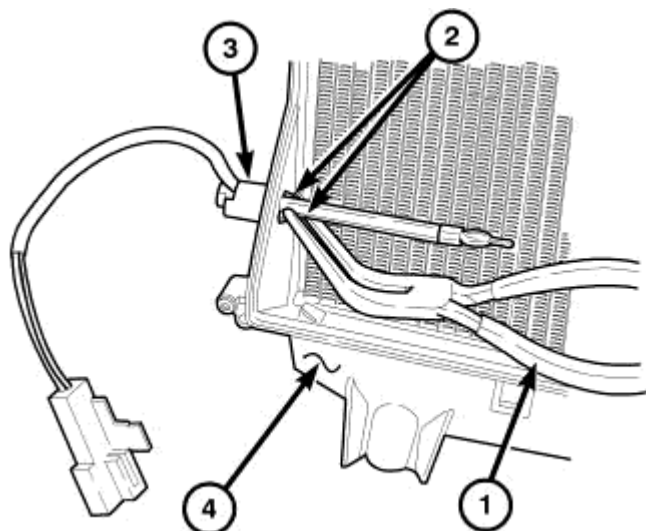


817bd8fa

Fig. 111: Blower Motor & Resistor
Courtesy of CHRYSLER LLC

NOTE: Manual temperature system shown. Automatic system similar.

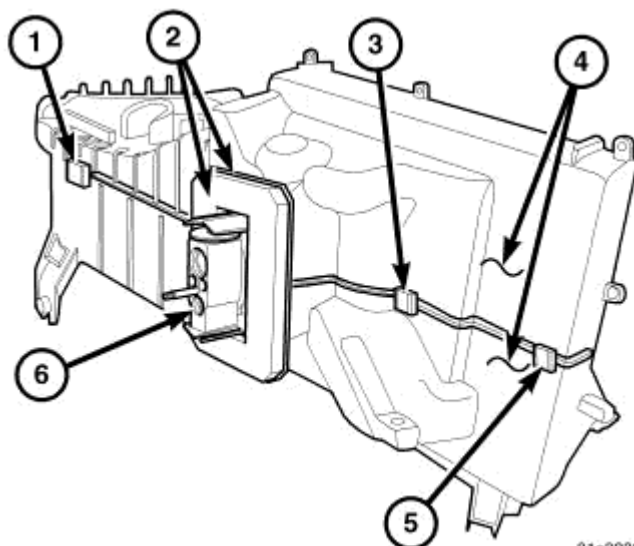
4. Remove the three screws (1) that secure the wire lead bracket (2) and the blower motor (3) to the bottom of the HVAC housing (4) and remove the blower motor and wire lead bracket.
5. Remove the two screws (5) that secure the blower motor resistor or power module (6) to the bottom of the HVAC housing and remove the resistor or power module.



81791408

Fig. 112: Evaporator Temperature Sensor-Removal
Courtesy of CHRYSLER LLC

6. Using needle nose pliers (1), disengage the two retaining tabs (2) that secure the evaporator temperature sensor (3) to the driver side of the HVAC housing (4) and remove the sensor.



81e3932c

Fig. 113: HVAC Housing-Separate
Courtesy of CHRYSLER LLC

NOTE: If the foam seal or plastic flange is deformed or damaged, it must be

replaced.

7. Remove the two bolts that secure the A/C expansion valve (6) to the A/C evaporator and remove the valve. See **Heating and Air Conditioning/Plumbing/VALVE, A/C Expansion - Removal**.
8. Remove and discard the O-ring seals and install plugs in, or tape over the opened expansion valve and evaporator tube ports.
9. Remove the foam seal and plastic flange (2) from the front of the two halves of the HVAC housing (4). Carefully release the four retaining tabs located at the back of the flange and pull the flange off of the evaporator tubes. If the seal or flange is deformed or damaged, it must be replaced.
10. Remove the nine screws (3) and three metal clips (5) that secure the two halves of the HVAC housing together.
11. Disengage the nine plastic retaining tabs (1) that secure the two halves of the HVAC housing together and separate the housing.

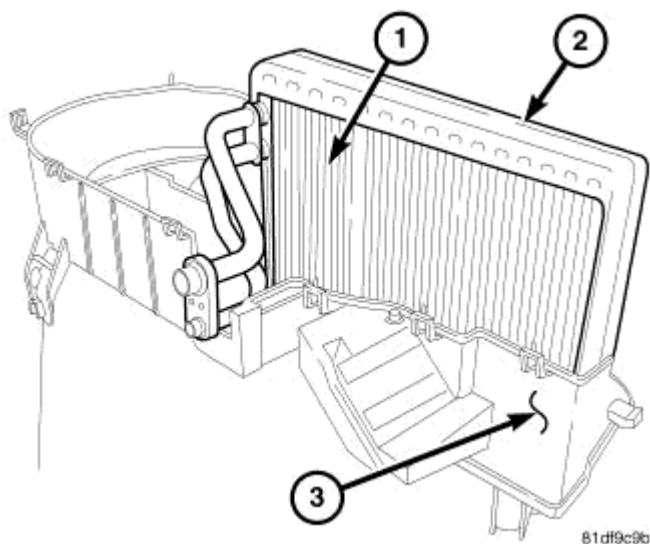


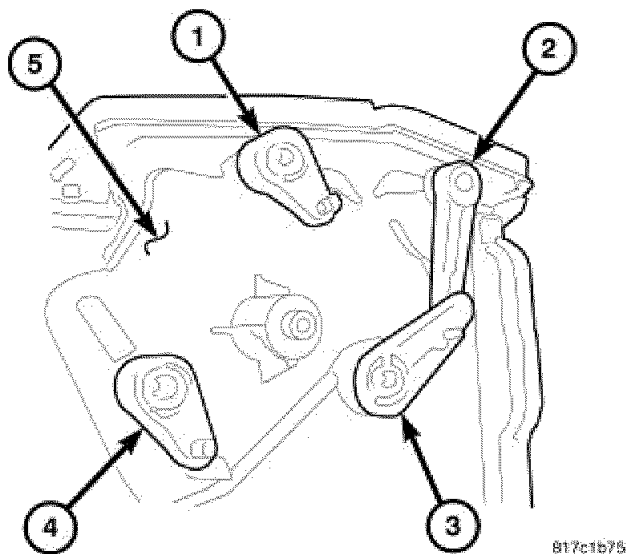
Fig. 114: Evaporator Removal/Installation
Courtesy of CHRYSLER LLC

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

Assembly

HOUSING-AIR DISTRIBUTION

NOTE: LHD model with A/C shown in illustrations. RHD and heater-only models similar.

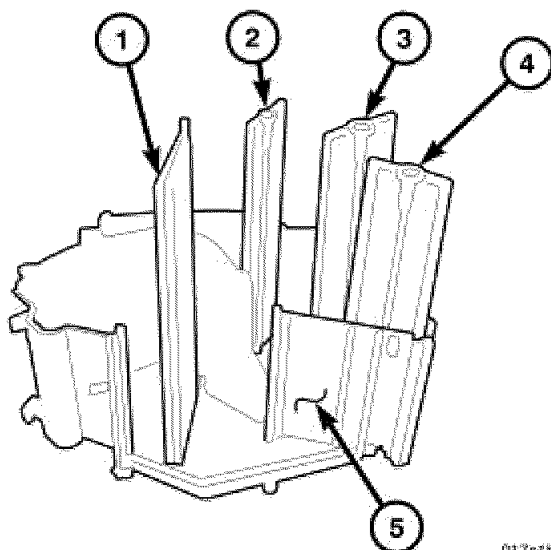


817c1b75

Fig. 115: Mode Door Levers-Removal/Installation

Courtesy of CHRYSLER LLC

1. If removed, install the four door levers (1, 2, 3 and 4) onto the right side of the air distribution housing (5). Make sure the lever retaining tabs are fully engaged to the housing.



817c1b76

Fig. 116: Air Doors-Removal/Installation

Courtesy of CHRYSLER LLC

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

NOTE: Properly position the air doors within the air distribution housing by first aligning the four door levers to the scribe lines located on the right outer side of the air distribution housing. Then, install the air doors onto the

door levers with the UP mark on each air door facing toward the top of the housing.

NOTE: If equipped with dual zone heating/A/C system, there are two blend-air doors that mate together at the centerline of the housing.

2. Align the four door levers to the scribe lines on the right outer side of the air distribution housing (5) and install the air door(s) (1, 2, 3 and 4) onto the door levers with the UP mark on each air door facing toward the top of the housing.

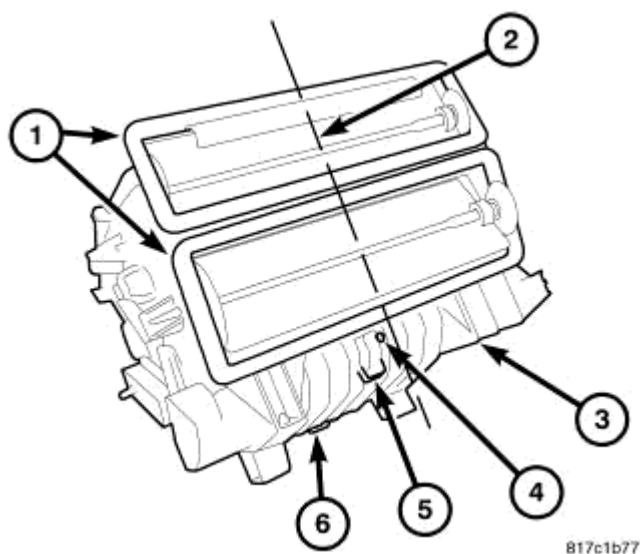


Fig. 117: Parting Line & Retainers
Courtesy of CHRYSLER LLC

3. Align the air door(s) with the pivot shaft hole(s) in the air distribution housing (3) and install the two halves of the housing together. Make sure the three plastic retaining tabs (6) are fully engaged.
4. Install the five screws (4) and one metal clip (5) that secure the two halves of the air distribution housing together. Tighten the screws to 2.2 N.m (20 in lbs.). Make sure the metal clip is fully engaged to the housing halves.

NOTE: If any foam seal on the air distribution housing outlets is deformed or damaged, the seal must be replaced.

5. Inspect the foam seals (1), especially at the parting line (2). If a foam seal is deformed or damaged, it must be replaced.

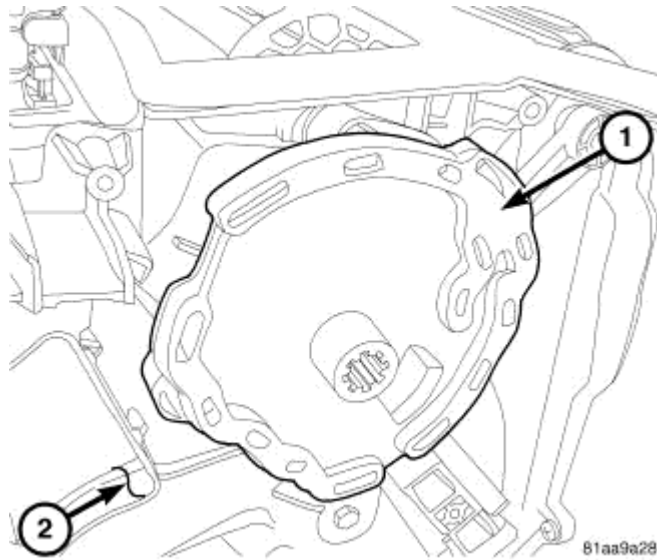


Fig. 118: Mode Door Cam
Courtesy of CHRYSLER LLC

NOTE: Align the pins on the mode door levers with the grooves in the back of the mode door cam prior to installation of the cam.

6. Align the mode door levers on the right side of the air distribution housing (2) to the mode door cam (1) and install the cam onto the housing. Make sure the levers are correctly engaged to the cam.

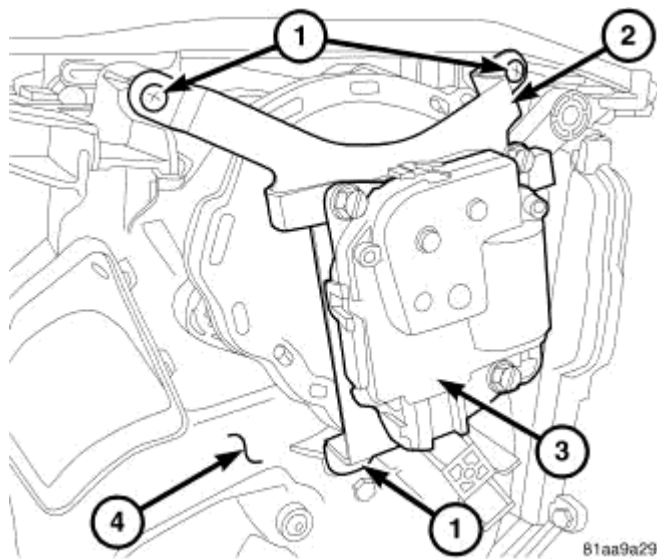


Fig. 119: Mode Door Actuator & Bracket
Courtesy of CHRYSLER LLC

7. Position the mode door actuator (2) and bracket (3) onto the right side of the HVAC air distribution housing (4). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those in the mode door cam.

8. Install the screws (1) that secure the mode door actuator bracket to the air distribution housing. Tighten the screws to 2 N.m (17 in. lbs.).

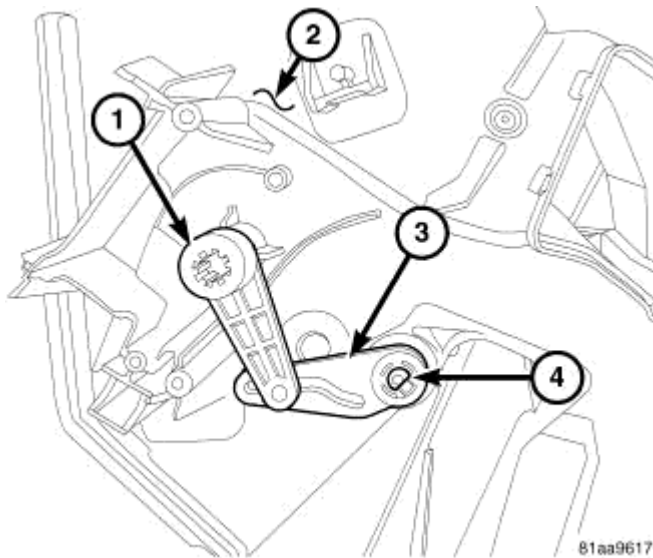


Fig. 120: Blend Door Levers
Courtesy of CHRYSLER LLC

9. Install the blend door pivot lever (3) onto the end of the blend door pivot shaft (4) located on the left side of the air distribution housing (2). Make sure the lever retaining tab is fully engaged to the pivot shaft.

NOTE: Align the pin on the blend door lever with the groove in the pivot lever prior to installation of the blend door lever.

10. Install the blend door lever (1) onto the air distribution housing. Make sure the levers are correctly aligned to each other.

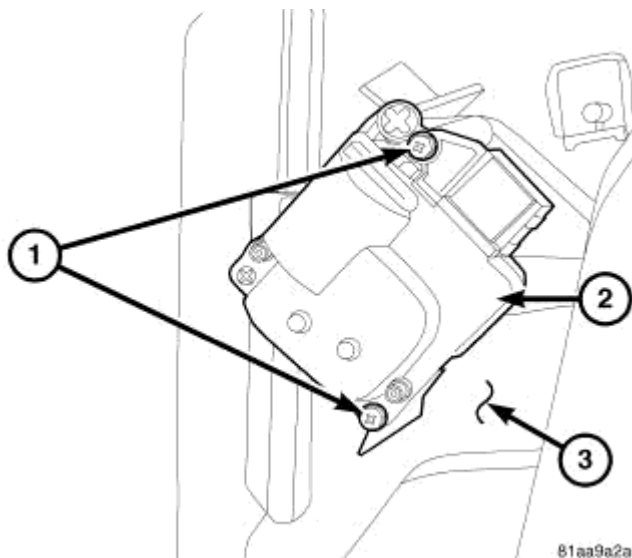
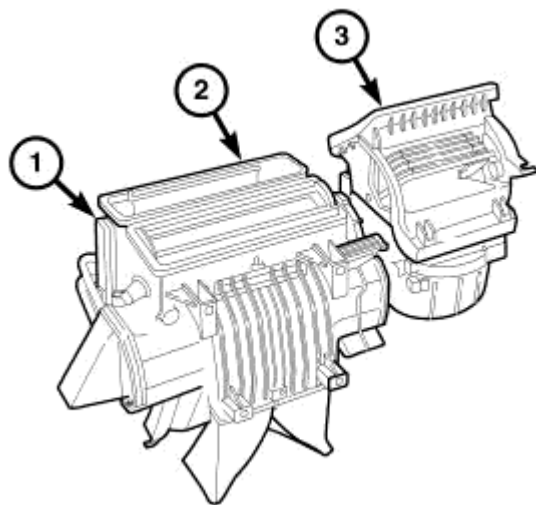


Fig. 121: Blend Door Actuator
Courtesy of CHRYSLER LLC

11. Position the blend door actuator (2) onto the left side of the air distribution housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those in the blend door lever.
12. Install the screws (1) that secure the blend door actuator to the air distribution housing. Tighten the screws to 2 N.m (17 in. lbs.).
13. If equipped with dual zone system, position the blend door actuator onto the right side of the air distribution housing and install the retaining screws. If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those in the blend door. Tighten the screws to 2 N.m (17 in. lbs.).



819b2bea

Fig. 122: HVAC housing assembly
Courtesy of CHRYSLER LLC

14. If equipped with the 2.0L diesel engine, install the electric positive temperature coefficient (PTC) heater unit into the air distribution housing (2). See Heating and Air Conditioning/Cabin Heater/UNIT, Heater - Installation.
15. Install the heater core into the air distribution housing. See Heating and Air Conditioning/Plumbing/CORE, Heater - Installation.
16. Install the air distribution housing onto the HVAC housing (1). See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.
17. Install the HVAC housing assembly. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.

HOUSING-AIR INLET

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

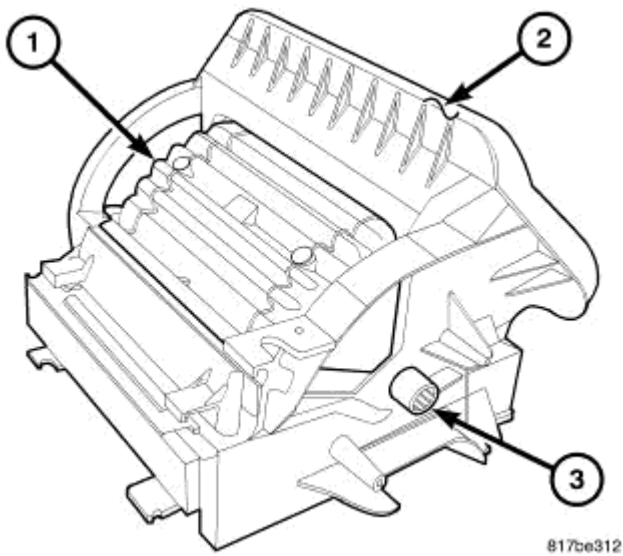


Fig. 123: Recirculation Air-Door & Pivot Shaft
Courtesy of CHRYSLER LLC

1. Carefully install the recirculation-air door (1) into the air inlet housing (2) by pinching the two ends of the air-door together and aligning the pivot shafts of the air-door to the pivot shaft holes in the air inlet housing.

NOTE: Install the recirculation door pivot shaft adapter by carefully pushing it straight into the end of the recirculation door pivot shaft.

2. Install the recirculation door pivot shaft adapter (3) into the right side pivot shaft of the recirculation air-door. Make sure the adapter is fully engaged to the pivot shaft.

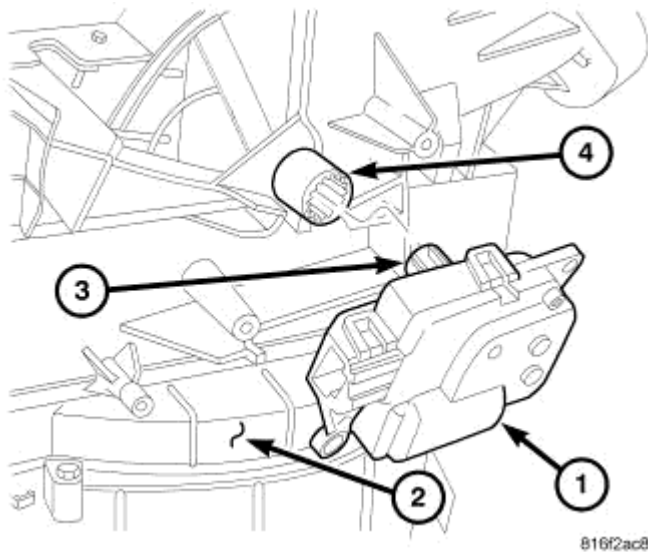
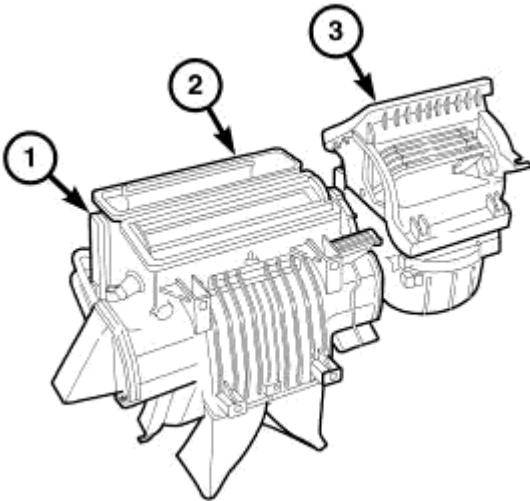


Fig. 124: Recirculation Door Actuator-Align
Courtesy of CHRYSLER LLC

3. Install the recirculation door actuator (1) onto the right side of the air inlet housing (2). If necessary, rotate the actuator slightly to align the splines of the actuator output shaft (3) with those on the recirculation door pivot shaft adapter (4).



819b2bea

Fig. 125: HVAC housing assembly
Courtesy of CHRYSLER LLC

4. Install the air inlet housing (3) onto the HVAC housing (1). See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation**.
5. Install the HVAC housing assembly. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation**.

HOUSING-HVAC

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

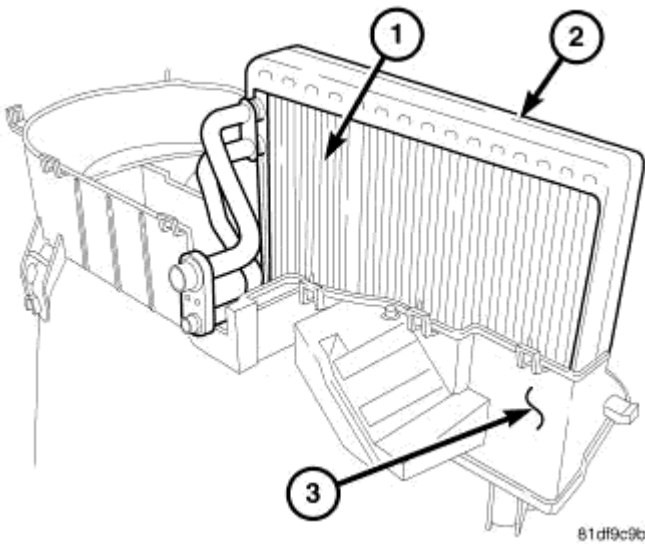


Fig. 126: Evaporator Removal/Installation

Courtesy of CHRYSLER LLC

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

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

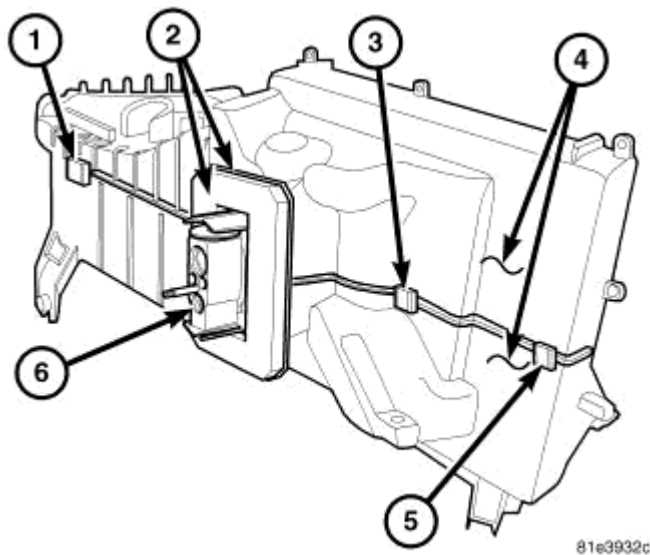


Fig. 127: HVAC Housing-Separate

Courtesy of CHRYSLER LLC

2. Install the two halves of the HVAC housing (4) together and engage the nine plastic retaining tabs (1). Make sure the retaining tabs are fully engaged.
3. Install the nine screws (3) and three metal clips (5) 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.

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

4. Install the plastic flange and foam seal (2) over the evaporator tubes and onto the front of the HVAC housing. Make sure the four flange retaining tabs are fully engaged to the housing.
5. Remove the tape or plugs from the expansion valve and evaporator ports.
6. Lubricate new O-ring seals with clean refrigerant oil and install them onto the evaporator tube fittings. Use only the specified O-ring seals 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. Install the A/C expansion valve (6) and the two retaining bolts. Tighten the bolts to 11 N.m (97 in. lbs.). See Heating and Air Conditioning/Plumbing/VALVE, A/C Expansion - Installation.

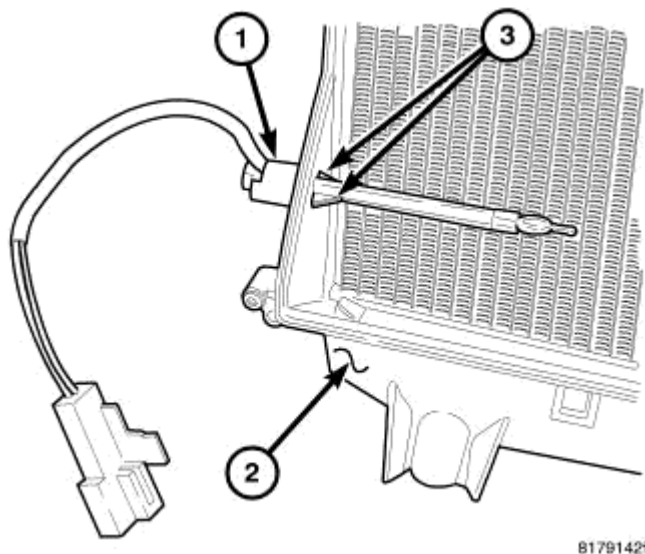


Fig. 128: Evaporator Temperature Sensor-Install
Courtesy of CHRYSLER LLC

8. Install the evaporator temperature sensor (1) into the driver side of the HVAC housing (2). Make sure the retaining tabs (3) are fully engaged to the housing.

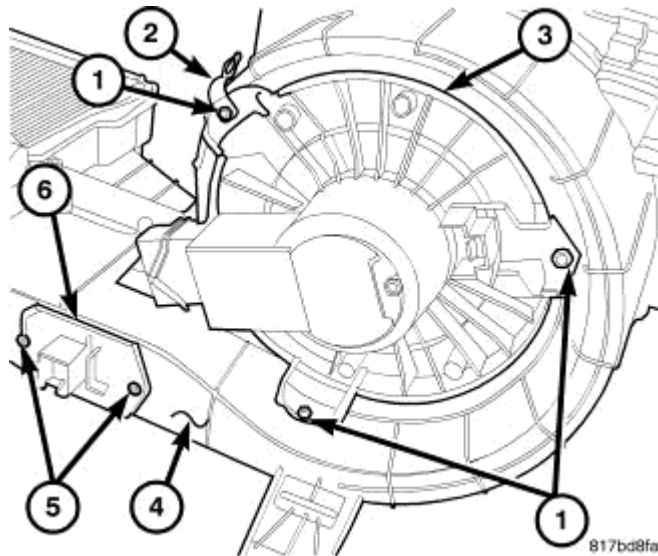


Fig. 129: Blower Motor & Resistor
Courtesy of CHRYSLER LLC

NOTE: Manual temperature system shown. Automatic system similar.

9. Position the blower motor (3) into the bottom of the HVAC housing (4).
10. Install the wire lead bracket (2) and the three screws (1) that secure the blower motor to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
11. Position the blower motor resistor or power module (6) into the HVAC housing.
12. Install the two screws (5) that secure the resistor or power module to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).

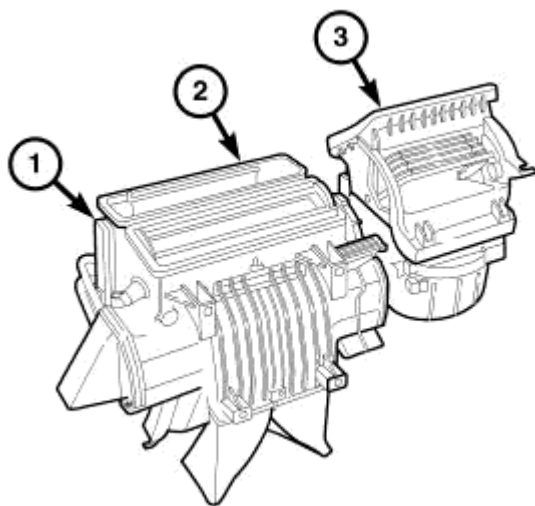


Fig. 130: HVAC housing assembly
Courtesy of CHRYSLER LLC

13. Install the air inlet housing (3) onto the HVAC housing (1). See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.
14. Install the air distribution housing (2) onto the HVAC housing. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.

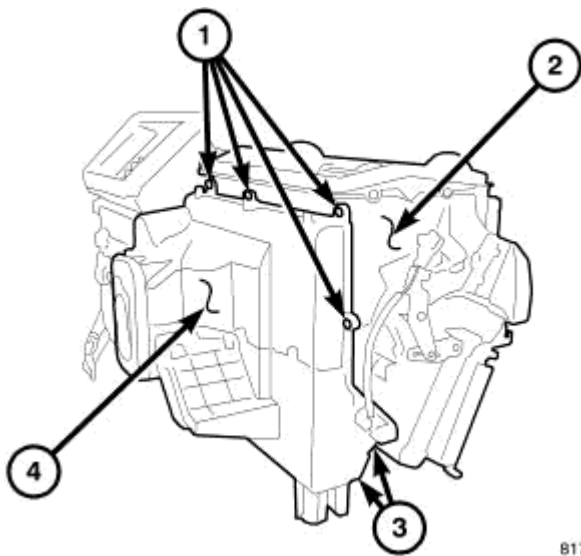
NOTE: If the heater core is being replaced, flush the cooling system. Refer to Cooling - Standard Procedure.

15. Install the HVAC housing assembly. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.

Installation

HOUSING-AIR DISTRIBUTION

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



817c09e1

Fig. 131: Air Distribution Housing-Removal/Installation

Courtesy of CHRYSLER LLC

1. Position the air distribution housing (2) onto the rear of the HVAC housing (4).
2. Install the two metal retaining clips (3) that secure the bottom of the air distribution housing to the HVAC housing.
3. Install the seven screws (1) that secure the air distribution housing to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).

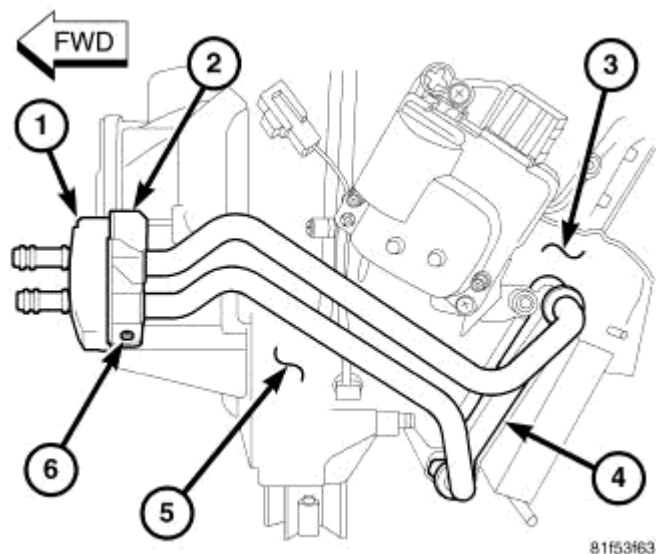


Fig. 132: Heater Core Removal/Installation

Courtesy of CHRYSLER LLC

4. Carefully install the heater core (4) into the side of the air distribution housing (3).
5. On RHD models, install the air distribution housing onto the HVAC housing (5). See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation**.
6. Install the flange (2) that secures the heater core tubes to the front of the HVAC housing.
7. Install the screw (6) that secures the flange to the HVAC housing. Tighten the screw to 1.2 N.m (10 in. lbs.).

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

8. Install the foam seal (1) onto the flange.
9. Install all of the floor distribution ducts onto the air distribution housing. See **Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Installation**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to **Cooling - Standard Procedure**.

10. Install the HVAC housing assembly. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation**.

HOUSING-AIR INLET

NOTE: LHD model shown. RHD model similar.

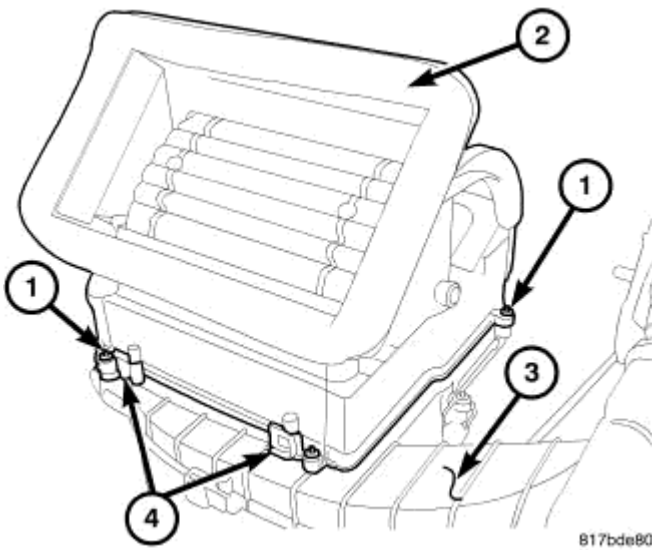


Fig. 133: Air Inlet Housing-Removal/Installation
Courtesy of CHRYSLER LLC

1. Install the air inlet housing (2) onto the top of the HVAC housing (3) and engage the two plastic retaining tabs (4). Make sure the retaining tabs are fully engaged.
2. Install the four screws (1) that secure the air inlet housing to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. If equipped, install the particulate air filter. See **Heating and Air Conditioning/Distribution/FILTER, Particulate Air - Installation.**
4. Install the HVAC housing assembly. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.**

SCREEN-AIR INLET

NOTE: LHD model shown. RHD model similar.

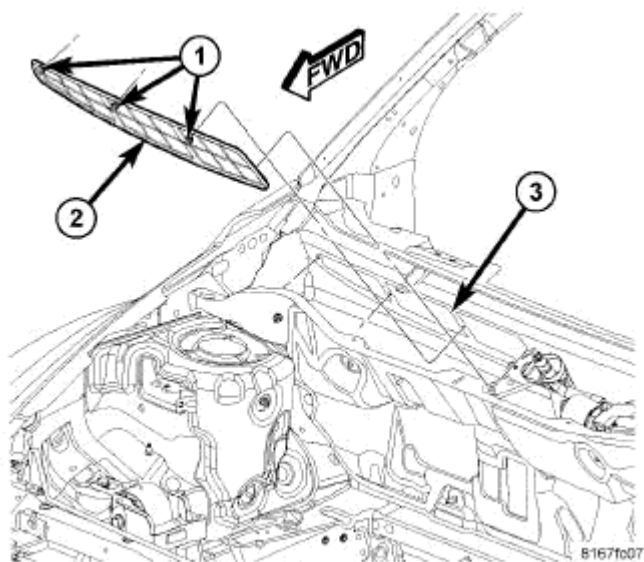


Fig. 134: Screen-HVAC Housing Air Inlet
Courtesy of CHRYSLER LLC

1. Position the HVAC housing air inlet screen (2) to the cowl panel (3) and fully engage the three push-in retainers (1) that secure the screen to the panel.
2. Install the cowl grille screen. Refer to **Body/Exterior/COVER, Cowl Panel - Installation** .

HOUSING-HVAC

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

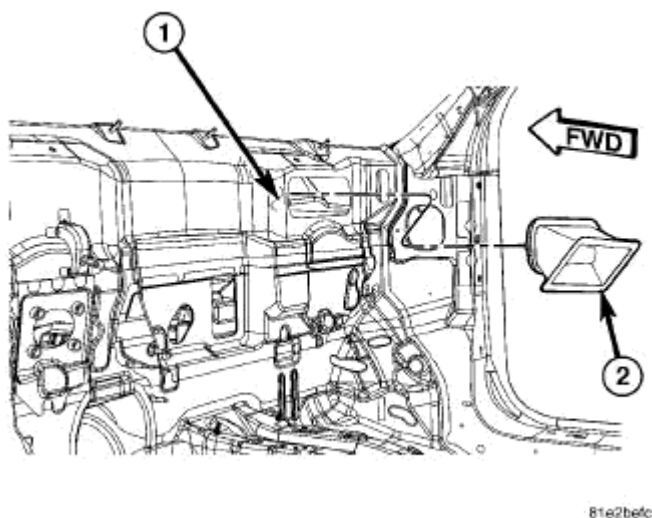


Fig. 135: Air Inlet Duct
Courtesy of CHRYSLER LLC

1. If removed, install the HVAC housing air inlet duct (2) onto the passenger compartment side of the dash panel (1). Make sure the foam seal is not missing or damaged and that the retaining tabs are fully engage to the dash panel.

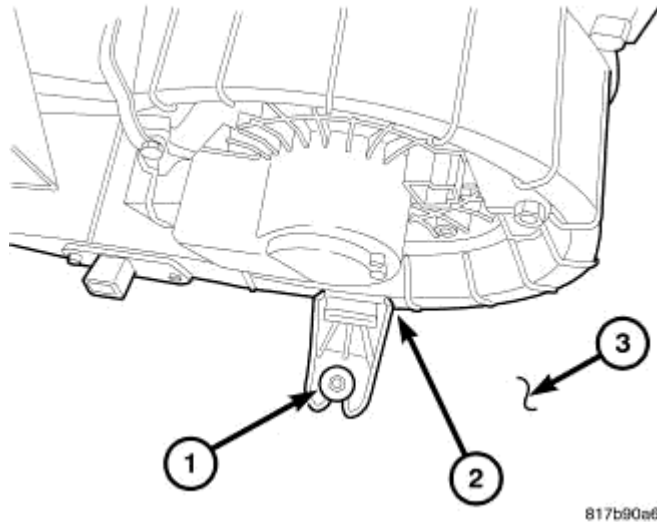


Fig. 136: HVAC Housing to Dash Panel Nut
Courtesy of CHRYSLER LLC

2. Position the HVAC housing assembly (2) to the dash panel (3). Be certain that the passenger side of the HVAC housing is correctly located over the dash panel mounting stud.
3. Install the nut (1) that secures the HVAC housing to the passenger compartment side of dash panel. Tighten the nut to 4.5 N.m (40 in. lbs.).
4. Install the condensation drain tube.
5. Install the rear floor ducts. See **Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Installation**.
6. Install the instrument panel. Refer to **Body/Instrument Panel/PANEL, Instrument - Installation**.

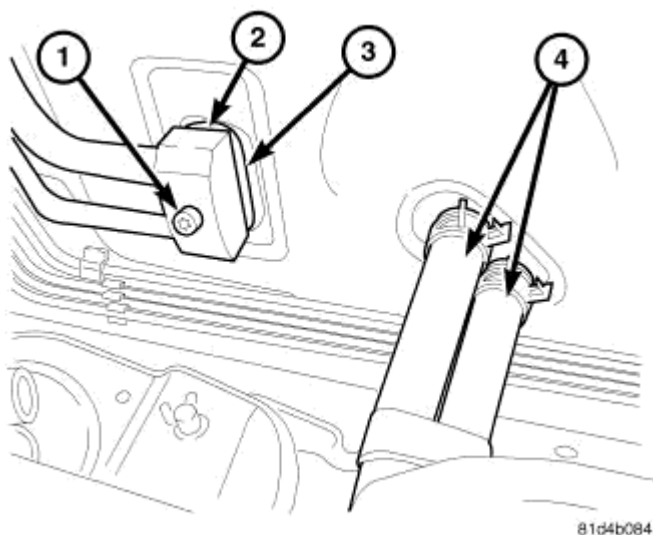


Fig. 137: Unified Liquid & Suction Line to Evaporator
Courtesy of CHRYSLER LLC

7. Remove the previously installed plugs or caps and connect the heater hoses (4) to the heater core tubes.
8. Remove the tape or plugs from the refrigerant line fittings and the expansion valve ports.
9. Lubricate the rubber O-ring seals 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.
10. Connect the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
11. Install the nut (1) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 20 N.m (15 ft. lbs.).

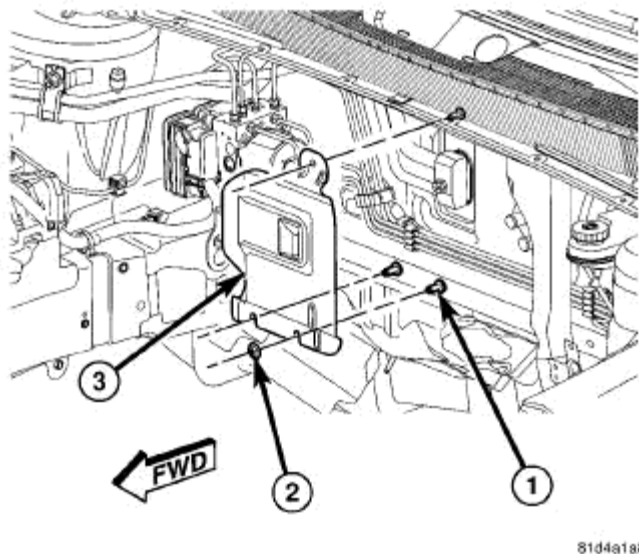


Fig. 138: Heat Shield - Unified Line
Courtesy of CHRYSLER LLC

12. If equipped, position the heat shield (3) onto the studs (1) located on the dash panel in the engine compartment and install the retaining nuts (2). Tighten the nuts to 1 N.m (10 in. lbs.).
13. Reconnect the negative battery cable.
14. If the heater core is being replaced, flush the cooling system. Refer to **Cooling - Standard Procedure**.
15. Refill the engine cooling system. Refer to **Cooling - Standard Procedure**.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

16. Evacuate and charge the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
17. Initiate the Actuator Calibration function using a scan tool. See **Heating and Air Conditioning - Diagnosis and Testing**.

MOTOR, BLOWER, FRONT

Description

DESCRIPTION

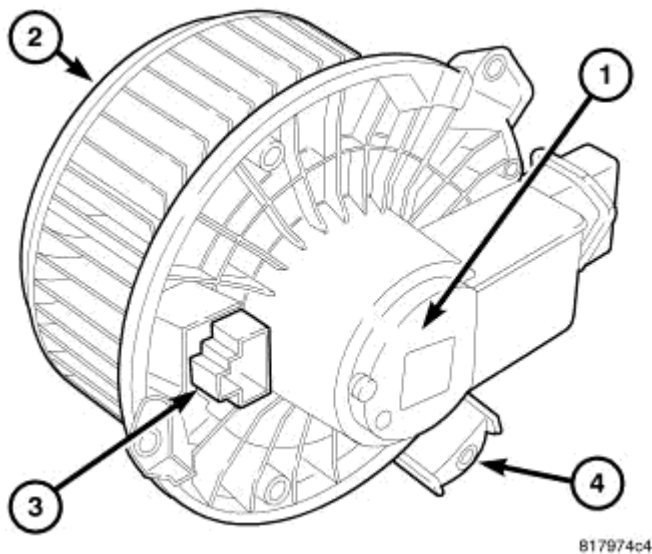


Fig. 139: Blower Motor-PM
Courtesy of CHRYSLER LLC

The blower motor (1) is used to control the velocity of air moving through the HVAC housing by spinning the blower wheel (2) within the HVAC air inlet housing at the selected speed.

The blower motor is a 12-volt, direct current (DC) motor mounted within a plastic housing with an integral wire harness connector (3) and three mounting tabs (4). The squirrel cage-type blower wheel is secured to the blower

motor shaft and is positioned within the air inlet housing on the passenger side of the HVAC housing.

Operation

OPERATION

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

On the Manual Temperature Control (MTC) heating-A/C system, blower motor speed is controlled by regulating the path to ground through the blower control switch and the blower motor resistor. With the Automatic Temperature Control (ATC) heating-A/C system, blower motor speed is controlled by an electronic blower motor power module, that uses a Pulse Width Modulated (PWM) input from the A/C-heater control and a feedback signal from the blower motor to regulate the blower motor ground path. On both systems, the blower motor receives battery current through the Totally Integrated Power Module (TIPM) whenever the ignition switch is in the Run position, and the blower motor control is in any position except Off.

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

NOTE: The blower motor is supplied with a 12 volt feed from the TIPM 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 **DTC-Based Diagnostics/HVAC - Diagnosis and Testing** .

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

Diagnosis and Testing

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. Failure to take the proper precautions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: The blower motor is supplied with a 12V feed from the TIPM whenever the ignition switch is in RUN. 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. See **SYSTEM WIRING DIAGRAMS** for circuit descriptions and 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

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

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.

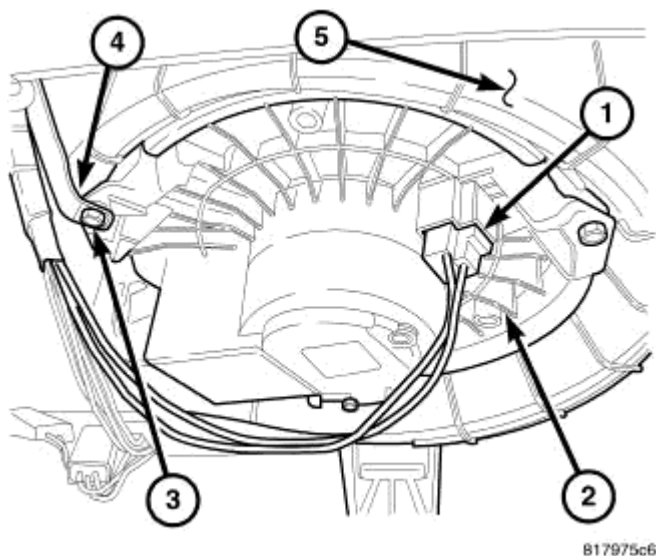


Fig. 140: Blower Motor-Removal/Installation

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.
3. From underneath the instrument panel, disengage the connector lock and disconnect the instrument panel wire harness connector (1) from the blower motor (2).
4. Remove the three screws (3) that secure the blower motor and the wire lead bracket (4) (if equipped) to the bottom of the HVAC housing (5) and remove the blower motor.

Installation

INSTALLATION

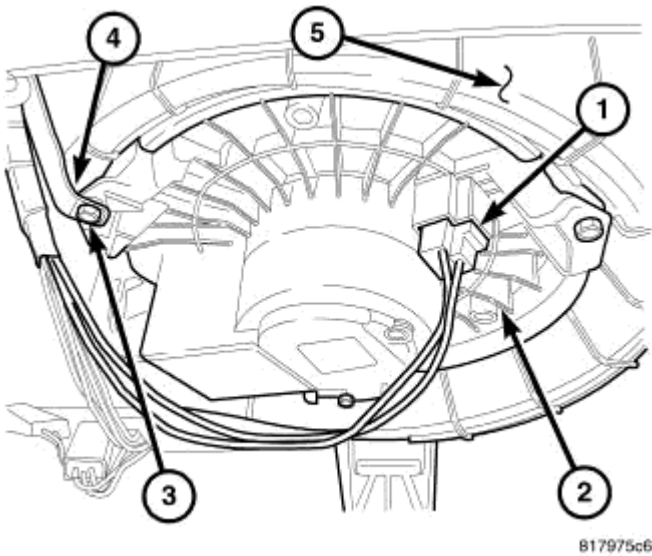


Fig. 141: Blower Motor-Removal/Installation

Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

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

OUTLET, AIR, FRONT

Description

DESCRIPTION

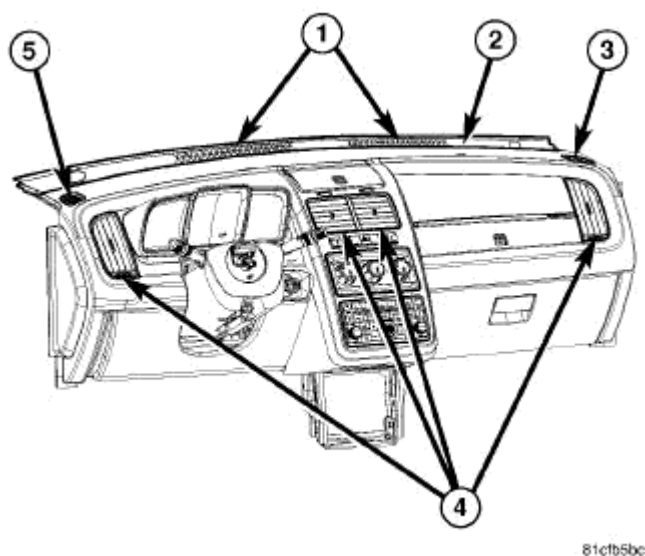


Fig. 142: Instrument Panel Outlets
 Courtesy of CHRYSLER LLC

There are two defroster air outlets (1) in the defroster grille (2) located at the top of the instrument panel. The airflow from the defroster outlets are directed by fixed vanes in the grille and cannot be adjusted. The defroster air outlets are not serviceable from the defroster grille.

There are two side window demister air outlets (3 and 5). One located on each end of the instrument panel. The airflow from the side window demister air outlets is directed by fixed vanes and cannot be adjusted. The side window demister air outlets can be serviced separately from the instrument panel.

There are four instrument panel air outlets (4). One air outlet is located near each outboard end of the instrument panel facing the rear of the vehicle and two air outlets are located at the top of the instrument panel center bezel. Each of the instrument panel air outlets contain movable vanes that can direct or shut off the flow of the conditioned air leaving the outlets. The instrument panel air outlets can be serviced separately from the instrument panel.

Some models with A/C are equipped with a cooled beverage storage bin located in the instrument panel. Vehicles so equipped have an outlet, which, when opened with the A/C on, allows cooled air to flow into the bin.

Removal

BEVERAGE COOLER

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 may result in accidental airbag deployment and possible serious or fatal injury.

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

OUTLET

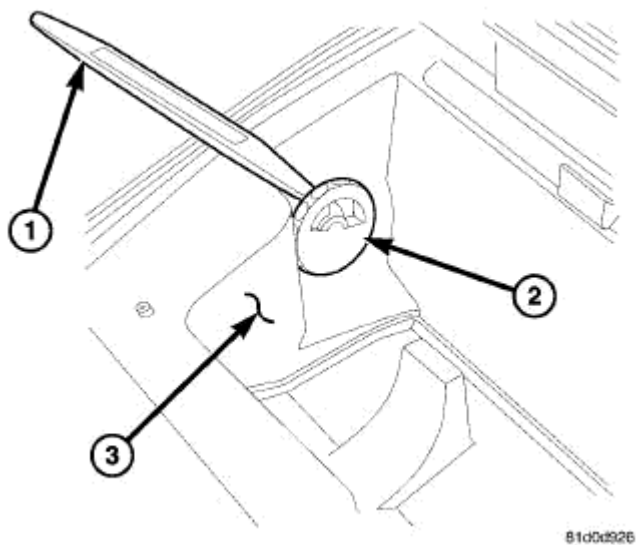


Fig. 143: Beverage Cooler Outlet
Courtesy of CHRYSLER LLC

1. Using Trim Stick C-4755 or equivalent (1), disengage the three retaining tabs that secure the beverage cooler outlet (2) to side of the glove box bin (3).

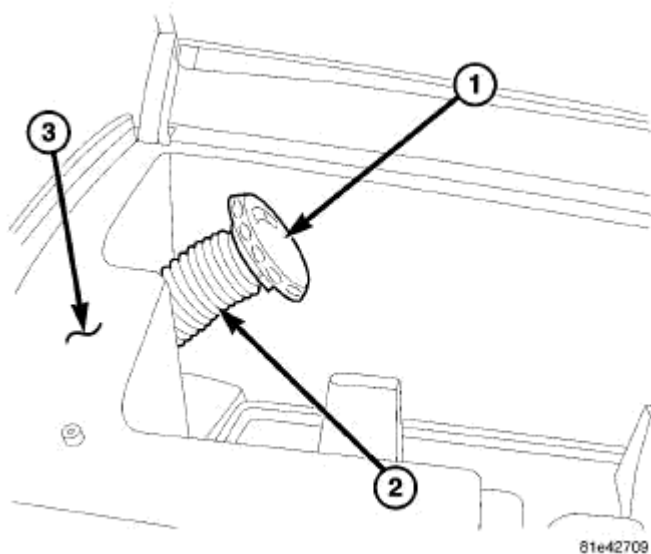


Fig. 144: Beverage Cooler Outlet & Hose
Courtesy of CHRYSLER LLC

NOTE: If the beverage cooler cold air supply hose becomes disconnected from the air beverage cooler outlet and falls back into the instrument panel during outlet removal, the beverage cooler bin may need to be removed from the instrument panel for outlet installation. Refer to Body/Instrument Panel/BIN, Instrument Panel - Removal .

- Carefully pull the beverage cooler outlet (1) away from side of the beverage cooler bin (3) and disconnect the cold air supply hose (2) from the outlet. Make sure the end of the cold air supply hose remains in the bin and does not fall back into the instrument panel.

COLD AIR SUPPLY HOSE

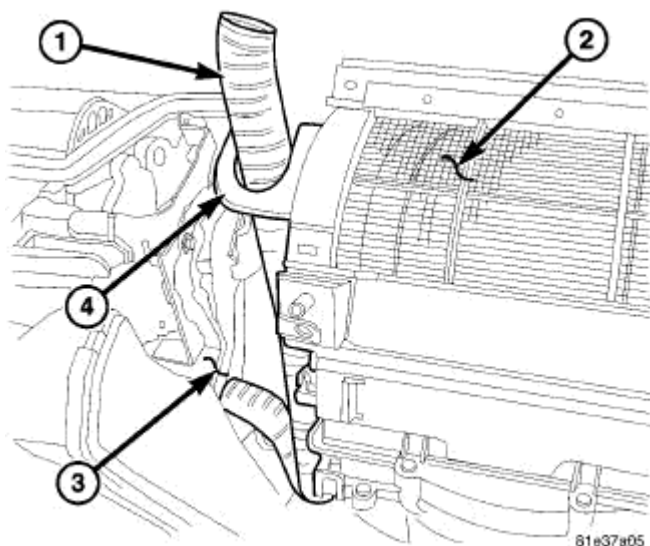


Fig. 145: Beverage Cooler Supply Hose
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

- Disconnect and isolate the negative battery cable.
- Remove the instrument panel center bezel. Refer to Body/Instrument Panel/BEZEL, Instrument Panel - Removal .
- Remove the outer passenger side instrument panel air outlet. See Heating and Air Conditioning/Distribution/OUTLET, Air - Removal.
- Remove the beverage cooler outlet. Refer to OUTLET.
- Remove the beverage cooler bin. Refer to Body/Instrument Panel/BIN, Instrument Panel - Removal .
- If equipped, remove the silencer trim panel out from underneath the passenger side of the instrument

panel. Refer to **Body/Instrument Panel/PANEL, Silencer - Removal** .

7. Remove the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Removal** .
8. Reach up underneath the instrument panel and disconnect the cold air supply hose (1) from the passenger side of the air distribution housing (3).
9. Working through the beverage cooler bin opening in the instrument panel, disengage the cold air supply hose from the bracket (4) located on the air inlet housing (2) and remove the hose. Note the routing of the hose and the instrument panel wiring for aid in reinstallation.

DEMISTER OUTLETS

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 may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: Right side air outlet shown. Left side outlet similar.

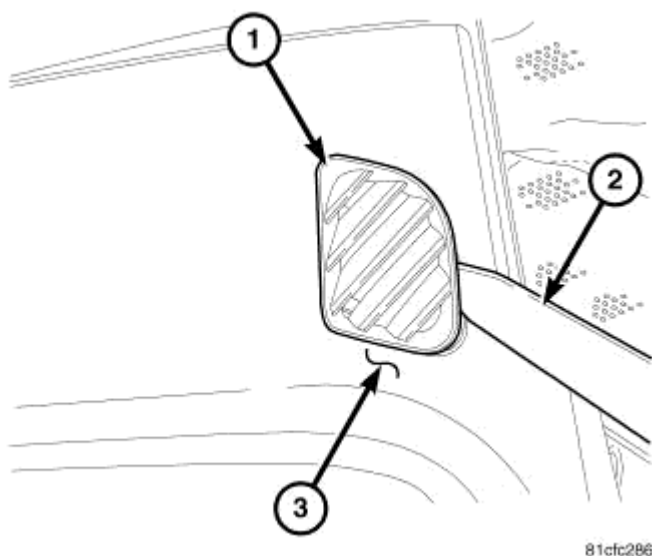


Fig. 146: Demister Outlet
Courtesy of CHRYSLER LLC

1. Using Trim Stick C-4755 or equivalent (2), carefully disengage the three retaining tabs that secure each demister air outlet (1) to the instrument panel cover (3) and remove the outlet.

AIR OUTLETS

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 may result in accidental airbag deployment and possible serious or fatal injury.

OUTBOARD OUTLETS

NOTE: Right side air outlet shown. Left side outlet similar.

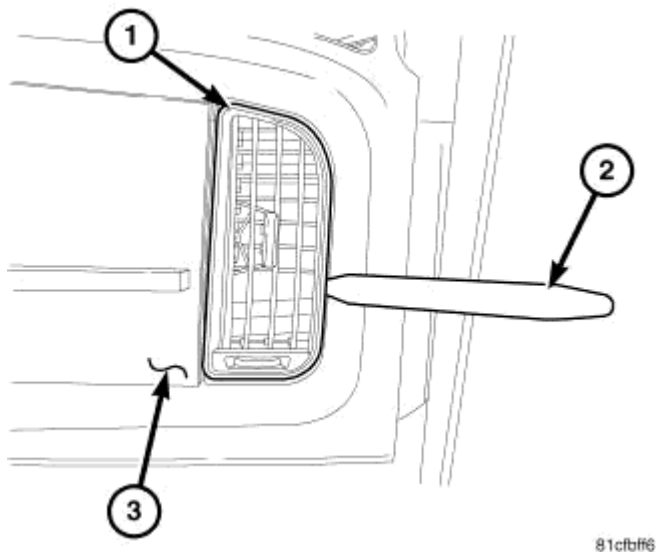


Fig. 147: Outboard Instrumental Panel Outlets

Courtesy of CHRYSLER LLC

1. Using trim stick C-4755 or equivalent (2), carefully disengage the four retaining tabs (two tabs on each side) that secure each air outlet (1) to the instrument panel cover (3) and remove the outlet.

CENTER OUTLETS

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

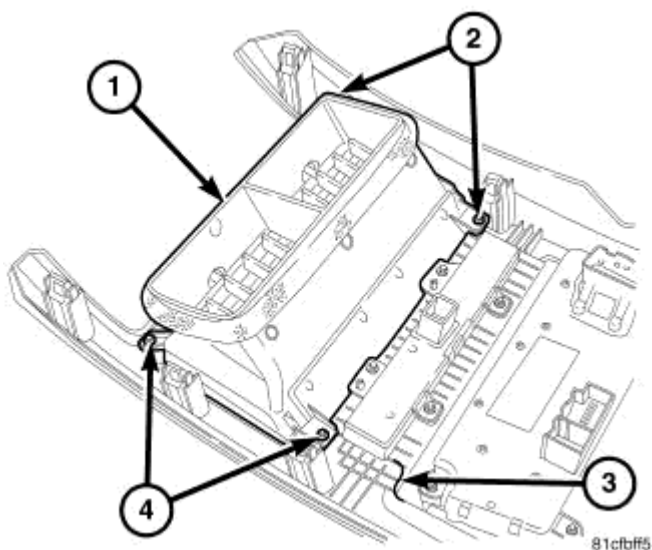


Fig. 148: Center Instrumental Panel Outlets

Courtesy of CHRYSLER LLC

1. Remove the center bezel (3) from the instrument panel and place it on a workbench. Refer to **Body/Instrument Panel/BEZEL, Instrument Panel - Removal**.
2. Remove the four screws (2 and 4) that secure the center instrument panel air outlets (1) to the center bezel and remove the outlets.

Installation

BEVERAGE COOLER

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

OUTLET

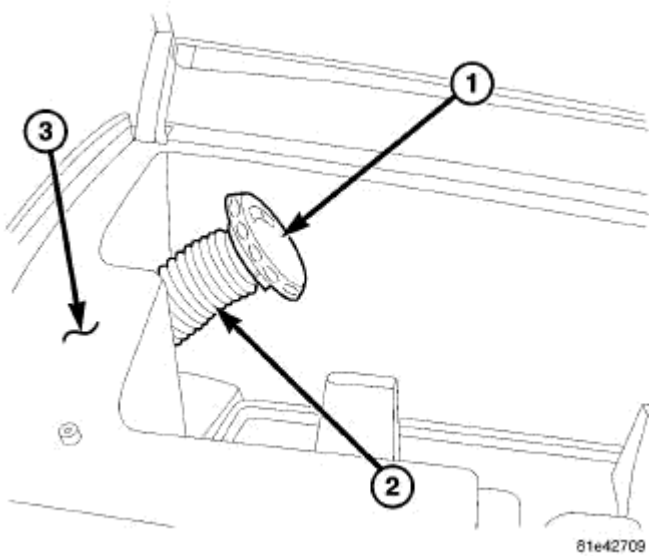


Fig. 149: Beverage Cooler Outlet & Hose
Courtesy of CHRYSLER LLC

NOTE: If the beverage cooler cold air supply hose falls back into the instrument panel during outlet installation, the beverage cooler bin may need to be removed from the instrument panel and the hose rerouted through the opening in the bin. Refer to Body/Instrument Panel/BIN, Instrument Panel - Removal .

1. Position the beverage cooler outlet (1) to the beverage cooler bin (3) and connect the cold air supply hose (2) to the outlet.

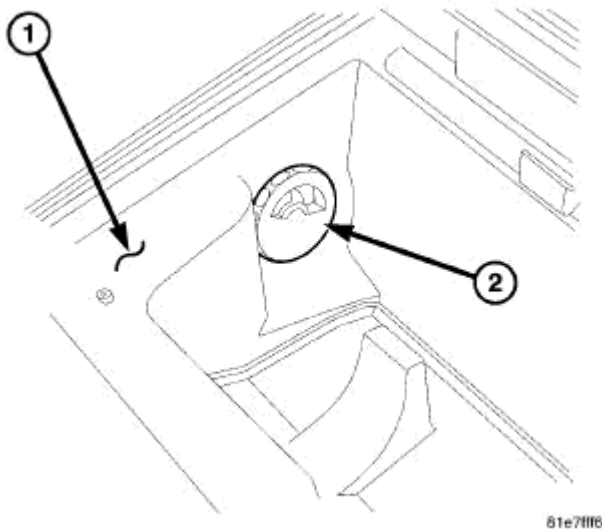


Fig. 150: Beverage Cooler Outlet Install
Courtesy of CHRYSLER LLC

2. Feed the cold air supply hose through the opening in the side of the beverage cooler bin (1) and align and install the beverage cooler outlet (2) onto the bin. Make sure the three retaining tabs on the outlet are fully engaged to the bin.

COLD AIR SUPPLY HOSE

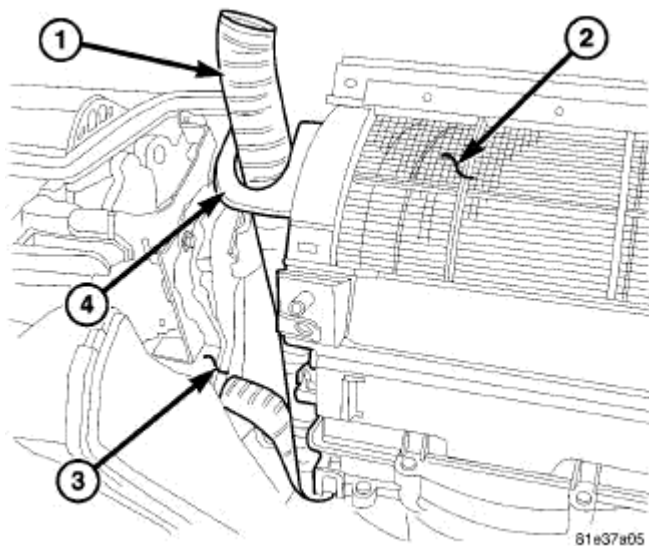


Fig. 151: Beverage Cooler Supply Hose
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. Working through the beverage cooler bin opening in the instrument panel, feed the cold air supply hose (1) into the instrument panel. Note the routing of the hose and the instrument panel wiring.
2. Reach up underneath the instrument panel and connect the cold air supply hose to the passenger side of the air distribution housing (3).
3. Working through the beverage cooler bin opening in the instrument panel, engage the cold air supply hose to the bracket (4) located on the air inlet housing (2).
4. Position the beverage cooler bin to the instrument panel and route the cold air supply hose through the beverage cooler outlet opening.
5. Install the beverage cooler bin. Refer to **Body/Instrument Panel/BIN, Instrument Panel - Installation**.
6. Install the beverage cooler outlet. Refer to **OUTLET**.
7. Install the instrument panel center bezel. Refer to **Body/Instrument Panel/BEZEL, Instrument Panel - Installation**.
8. Install the outer passenger side instrument panel air outlet. See **Heating and Air Conditioning/Distribution/OUTLET, Air - Installation**.
9. Install the glove box bin. Refer to **Body/Instrument Panel/GLOVE BOX, Instrument Panel - Installation**.

10. If equipped, install the silencer trim panel underneath the passenger side of the instrument panel. Refer to **Body/Instrument Panel/PANEL, Silencer - Installation**.
11. Reconnect the negative battery cable.

DEMISTER OUTLETS

NOTE: Right side demister outlet shown. Left side outlet similar.

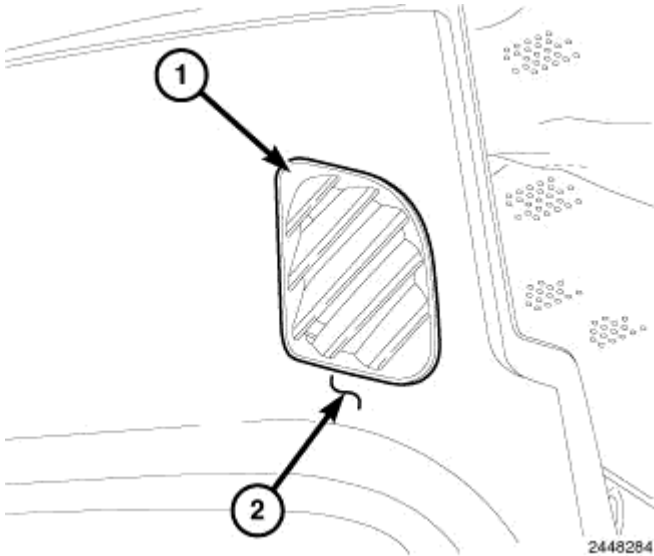


Fig. 152: Demister Outlet
Courtesy of CHRYSLER LLC

1. Position the demister air outlet (1) to the opening in the instrument panel cover (2) and engage the three retaining tabs. Make sure the retaining tabs are fully engaged.

AIR OUTLETS**OUTBOARD OUTLETS**

NOTE: Right side air outlet shown. Left side outlet similar.

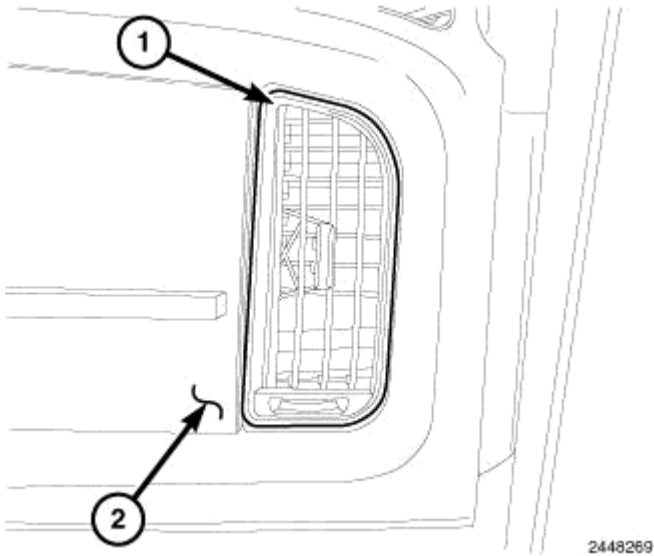


Fig. 153: Outboard Instrumental Panel Outlets

Courtesy of CHRYSLER LLC

1. Position the air outlet (1) to the opening in the instrument panel cover (2) and align the outlet to the instrument panel duct.

NOTE: Make sure that the air outlet(s) are properly aligned to the instrument panel duct(s).

2. Engage the four retaining tabs that secure each instrument panel outlet to the instrument panel cover. Make sure the retaining tabs are fully engaged.

CENTER OUTLETS

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

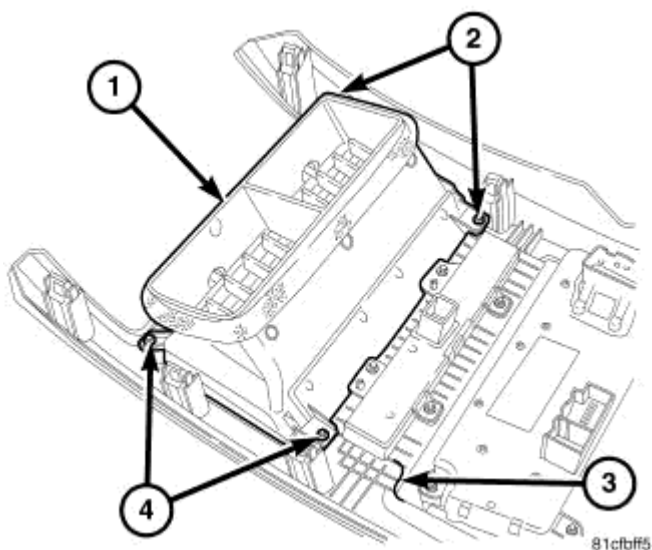


Fig. 154: Center Instrumental Panel Outlets

Courtesy of CHRYSLER LLC

1. Position the air outlets (1) to the back of the center bezel (3) and install the four retaining screws (2 and 4). Tighten the screws to 1.2 N.m (10 in. lbs.).

NOTE: Make sure that the air outlets are properly aligned to the instrument panel center duct.

2. Install the center bezel. Refer to [Body/Instrument Panel/BEZEL, Instrument Panel - Installation](#) .

DISTRIBUTION, REAR

DUCT, CEILING DISTRIBUTION

Removal

REMOVAL

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

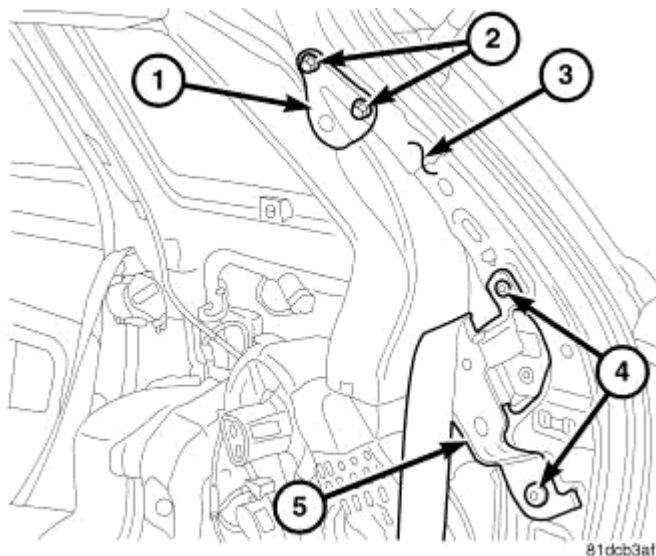


Fig. 155: D-Pillar Seat Belt Bracket
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the right D-pillar trim panel. Refer to **Body/Interior/PANEL, D-Pillar Trim - Removal**.
3. Remove right quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Removal**.
4. Remove the two bolts (2) that secure the upper seat belt bracket (1) to the right D-pillar (3) and remove the bracket.
5. Remove the two bolts (4) that secure the right seat belt retractor (5) to the right D-pillar and remove the retractor.

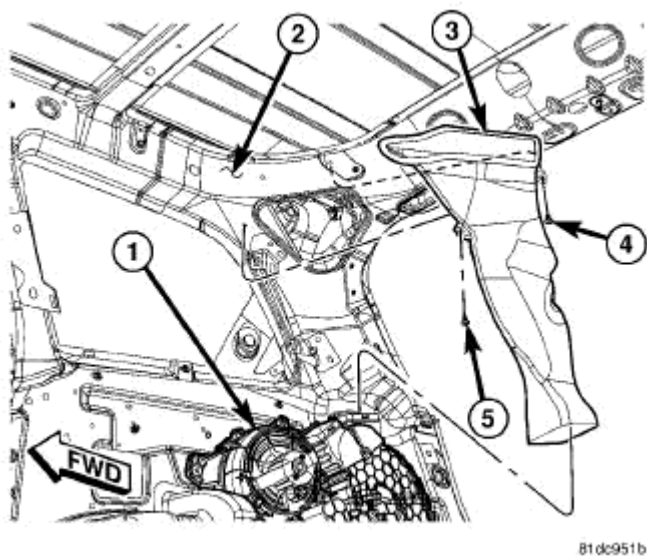


Fig. 156: Rear Ceiling Duct
Courtesy of CHRYSLER LLC

6. Remove the two retainers (4 and 5) that secure the rear ceiling distribution duct (3) to the right D-pillar (2).
7. Lift the rear ceiling distribution duct upward and disengage it from the rear heater-A/C housing (1).

CAUTION: Use care when removing the rear ceiling distribution duct from the heater-A/C housing to prevent damage to the molded plastic support brace located on the top of the housing outlet. Failure to follow this caution could result in part of, or all of the support brace falling into the rear housing, which may interfere with rear mode door operation.

8. Pull the bottom end of the rear ceiling distribution duct away from the rear heater-A/C housing and remove the duct.

Installation

INSTALLATION

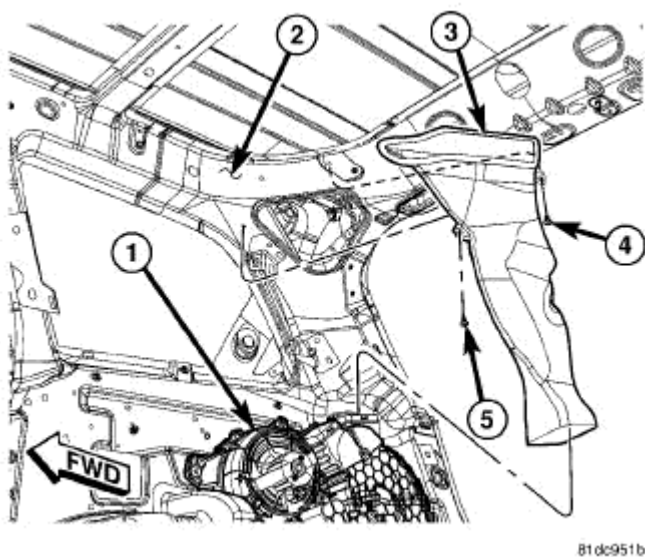


Fig. 157: Rear Ceiling Duct
Courtesy of CHRYSLER LLC

1. Position the rear ceiling distribution duct (3) to the right D-pillar (2).

CAUTION: Use care when installing the rear ceiling distribution duct onto the heater-A/C housing to prevent damage to the molded plastic support brace located on the top of the housing outlet. Failure to follow this caution could result in part of, or all of the support brace falling into the rear housing, which may interfere with rear mode door operation.

2. Install the rear ceiling distribution duct onto the top of the rear heater-A/C housing (1). Make sure the

duct is fully engaged to the housing.

3. Install the two retainers (4 and 5) that secure the rear ceiling distribution duct to the right D-pillar.

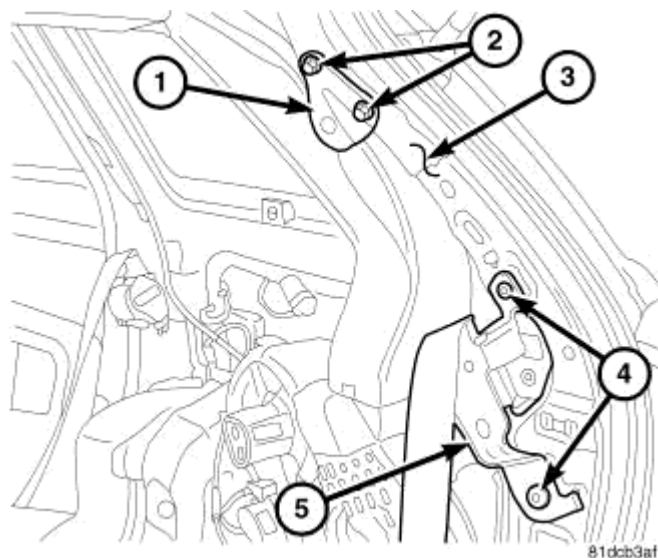


Fig. 158: D-Pillar Seat Belt Bracket
Courtesy of CHRYSLER LLC

4. Position the upper seat belt bracket (2) onto the D-pillar (3) and install the two retaining bolts (1). Tighten the bolts to 52 N.m (38.5 ft. lbs.).
5. Install the right seat belt retractor (5) and retaining bolts (4) onto the D-pillar. Tighten the bolts to 52 N.m (38.5 ft. lbs.).
6. Install the right quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Installation** .
7. Install the right D-pillar trim panel. Refer to **INSTALLATION** .
8. Reconnect the negative battery cable.

DUCT, FLOOR DISTRIBUTION, REAR

Removal

REMOVAL

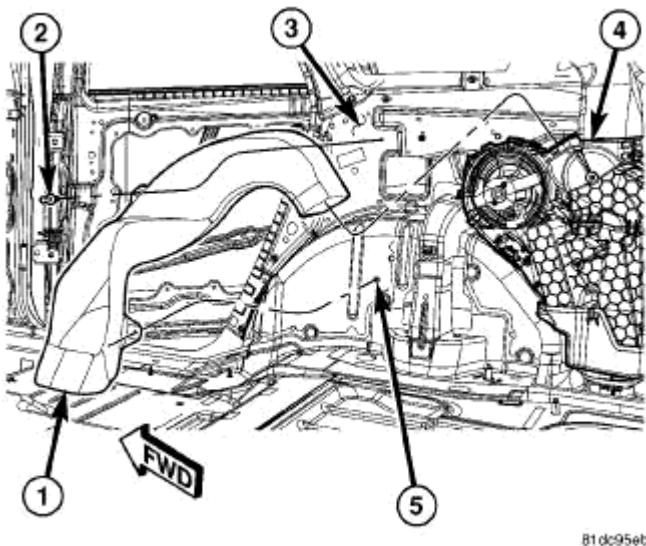


Fig. 159: Rear Floor Distribution Duct
Courtesy of CHRYSLER LLC

1. Remove right quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Removal**.
2. Remove the push-pin retainer (2) that secures the rear floor distribution duct (1) to the right inner quarter panel (3).
3. Disengage the rear floor distribution duct from the stud (5) located on the right inner quarter panel.
4. Disengage the rear floor distribution duct from the rear heater-A/C housing (4) and remove the duct.

Installation

INSTALLATION

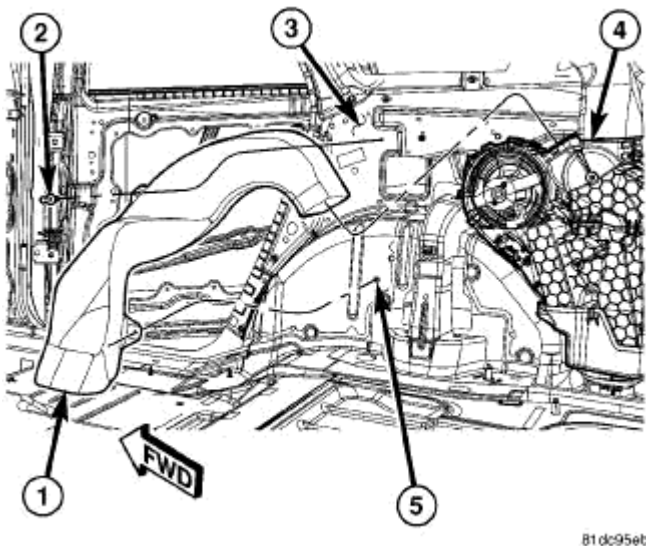


Fig. 160: Rear Floor Distribution Duct
 Courtesy of CHRYSLER LLC

1. Install the rear floor distribution duct (1) onto rear heater-A/C housing (4). Make sure the duct is fully engaged to the housing.
2. Engage the rear floor distribution duct to the stud (5) located on the right inner quarter panel (3).
3. Install the push-pin retainer (2) that secures the rear floor distribution duct to the right inner quarter panel.
4. Install the right quarter panel trim. Refer to **Body/Interior/PANEL, Quarter Trim - Installation**.

HOUSING, A/C AND HEATER

Description

DESCRIPTION

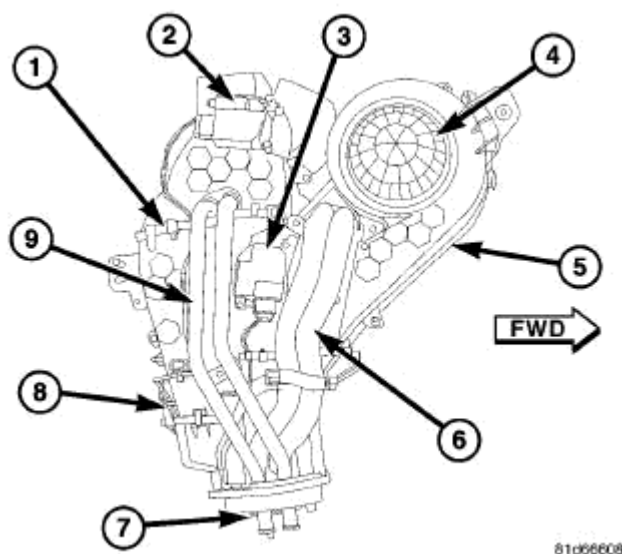


Fig. 161: Rear Heater AC Housing Description
 Courtesy of CHRYSLER LLC

Models with the rear heating-A/C system use a rear heater-A/C housing (1) that combines A/C and heating capabilities into a single unit mounted within the rear passenger compartment. The rear heating-A/C system is a blend-air type system. A blend-air door controls the amount of conditioned air that is allowed to flow through, or around, the heater core (9). The rear A/C system is designed for the use of a non-CFC, R-134a refrigerant and uses an A/C expansion valve (7) and A/C evaporator (6) 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 blend door actuator (3), which moves the blend-air door. This allows an almost immediate control of the output air temperature of the rear system. The mode control operates the mode door actuator (2) that positions the mode-air door to direct the flow of the conditioned air out the upper or lower air outlets, depending on the position selected. Both electric door actuators are connected to the vehicle electrical system by the rear heater-A/C wire harness (8). The rear blower motor (4) controls the velocity of air flowing through the rear heater-A/C housing by spinning the blower wheel within the rear housing at the selected speed by use of the rear blower

motor resistor or power module (5) (depending on manual or automatic control).

The rear heater-A/C housing must be removed from the vehicle for service of the mode door actuator and blend door actuator and it must be disassembled for service of the A/C evaporator and the heater core.

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See Heating and Air Conditioning/Plumbing - Warning and Heating and Air Conditioning/Plumbing - Caution. Failure to follow these instructions may result in serious or fatal injury.

NOTE: The rear heater-A/C housing must be removed from the vehicle for service of the mode door actuator and blend door actuator and it must be disassembled for service of the A/C evaporator and the heater core.

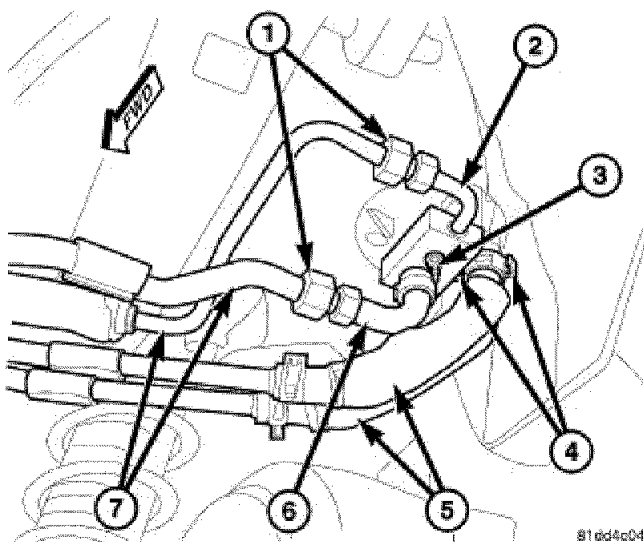


Fig. 162: Underbody Lines to Rear Housing
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Drain the engine cooling system. Refer to Cooling - Standard Procedure.
4. Raise and support the vehicle.

CAUTION: DO NOT apply excessive force on underbody heater lines or rear

heater tubes when disconnecting the connections. Excessive force may damage or deform the tubes and or lines, causing an engine coolant leak.

NOTE: Replacement of the rubber heater hose ends will be required if the rubber hoses are cut for removal.

5. Release the spring type hose clamps (4) and disconnect the underbody heater lines (5) from the rear heater core tubes located behind the right rear wheel housing.
6. Lower the underbody heater lines and drain any residual coolant from the lines into a suitable container.
7. Loosen the fitting nuts (1) that secure the underbody refrigerant lines (7) to the underbody refrigerant extension lines and sealing plate (2 and 6).
8. Disconnect the underbody refrigerant lines from underbody refrigerant extension lines and remove and discard the O-ring seals.
9. Remove the nut (3) that secures the underbody refrigerant extension lines and sealing plate to the rear A/C expansion valve.
10. Disconnect the extension lines and sealing plate from the rear A/C expansion valve and remove and discard the O-ring seals.
11. Install plugs in, or tape over the opened underbody refrigerant line fittings and rear expansion valve ports.

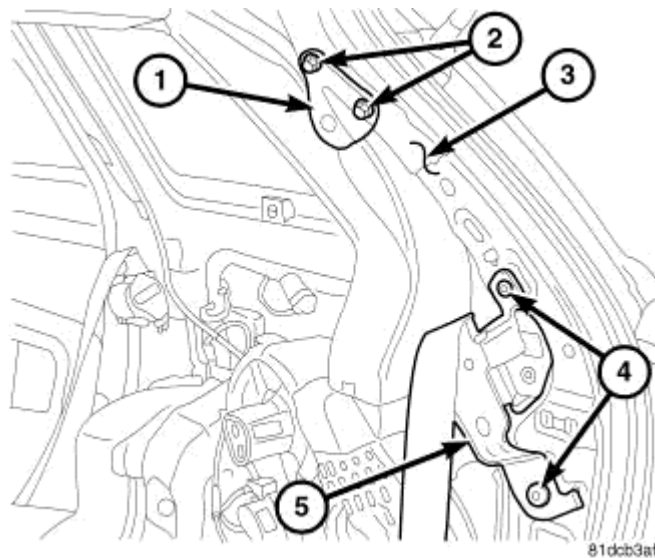


Fig. 163: D-Pillar Seat Belt Bracket
Courtesy of CHRYSLER LLC

12. Lower the vehicle.
13. Remove the right D-pillar trim panel. Refer to **Body/Interior/PANEL, D-Pillar Trim - Removal**.
14. Remove right quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Removal**.
15. Remove the two bolts (2) that secure the upper seat belt bracket (1) to the right D-pillar (3) and remove the bracket.

16. Remove the two bolts (4) that secure the right seat belt retractor (5) to the right D-pillar and remove the retractor.

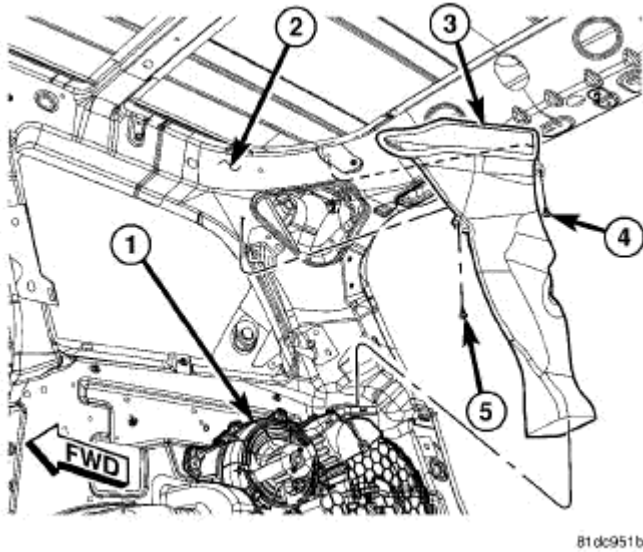
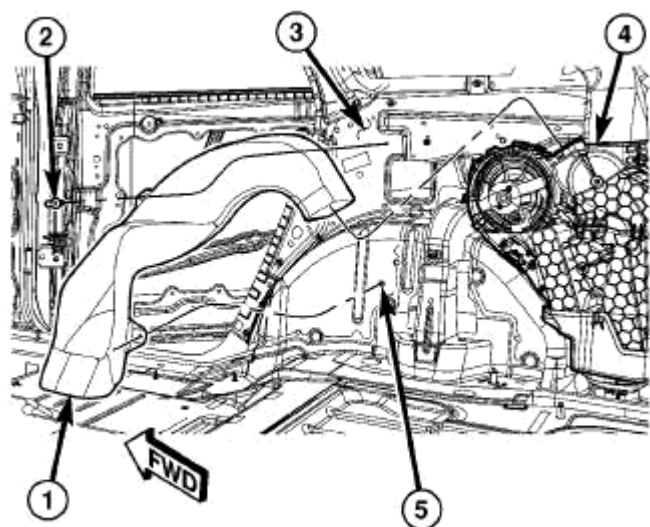


Fig. 164: Rear Ceiling Duct
Courtesy of CHRYSLER LLC

17. Remove the two retainers (4 and 5) that secure the rear ceiling distribution duct (3) to the right D-pillar (2).
18. Lift the rear ceiling distribution duct upward and disengage it from the rear heater-A/C housing (1).

CAUTION: Use care when removing the rear ceiling distribution duct from the heater-A/C housing to prevent damage to the molded plastic support brace located on the top of the housing outlet. Failure to follow this caution could result in part of, or all of the support brace falling into the rear housing, which may interfere with rear mode door operation.

19. Pull the bottom end of the rear ceiling distribution duct away from the rear heater-A/C housing and remove the duct.

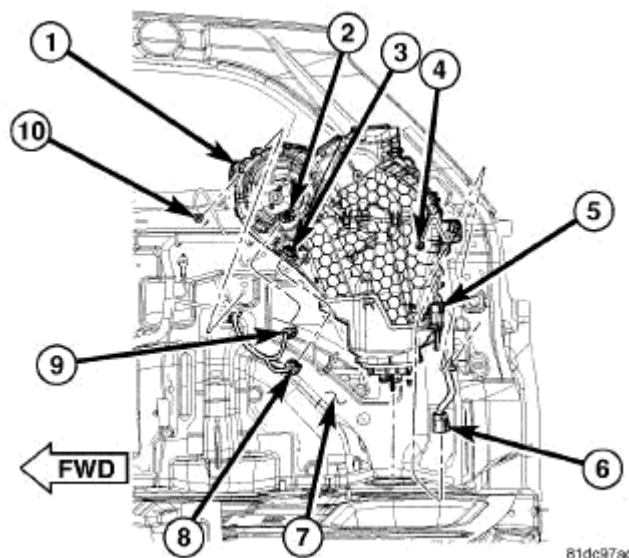


81dc95eb

Fig. 165: Rear Floor Distribution Duct

Courtesy of CHRYSLER LLC

20. Remove the push-pin retainer (2) that secures the rear floor distribution duct (1) to the right inner quarter panel (3).
21. Disengage the rear floor distribution duct from the stud (5) located on the right inner quarter panel.
22. Disengage the rear floor distribution duct from the rear heater-A/C housing (4) and remove the duct.



81dc97ac

Fig. 166: Rear Heater AC Housing Removal/Installation

Courtesy of CHRYSLER LLC

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

23. Disconnect the body wire harness connectors (8 and 9) from the rear blower motor (2) and the rear blower motor resistor or power module (3) (depending on control system).
24. Disconnect the body wire harness connector (6) from the rear heater-A/C wire harness connector (5).
25. Remove the two bolts (4 and 10) that secure the rear heater-A/C housing (1) to the right inner quarter panel (7) and remove the housing.

Disassembly

DISASSEMBLY

NOTE: The rear heater-A/C housing must be removed from the vehicle for service of the mode door actuator and blend door actuator and it must be disassembled for service of the A/C evaporator and the heater core. The blend-air door and mode-air door are only serviced with the respective housing.

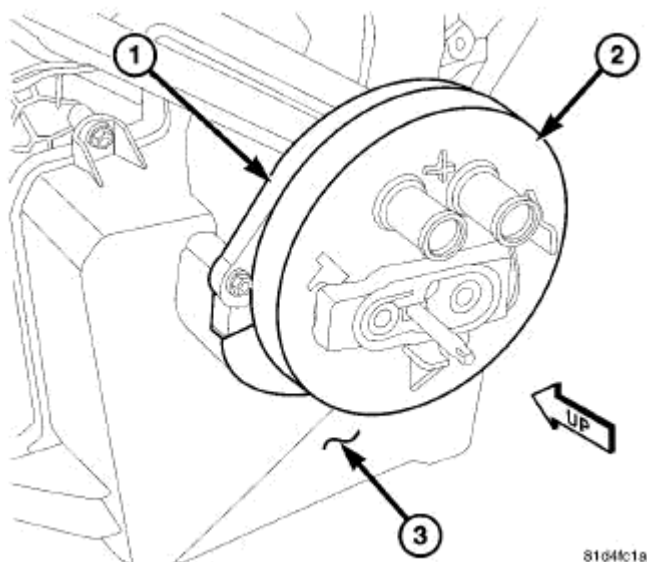


Fig. 167: Rear Housing Flange Seal 09
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the rear heater-A/C housing and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Removal](#).
3. Remove the rear blower motor resistor or power module (depending on application). See [Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - Removal](#) or. See [Heating and Air Conditioning/Controls/MODULE, Power - Removal](#).
4. Remove the rear blower motor. See [Heating and Air Conditioning/Distribution/MOTOR, Blower - Removal](#).
5. Remove the foam seal (2) from the flange (1) located at the bottom of the rear heater-A/C housing (3). If the foam seal is deformed or damaged, it must be replaced.

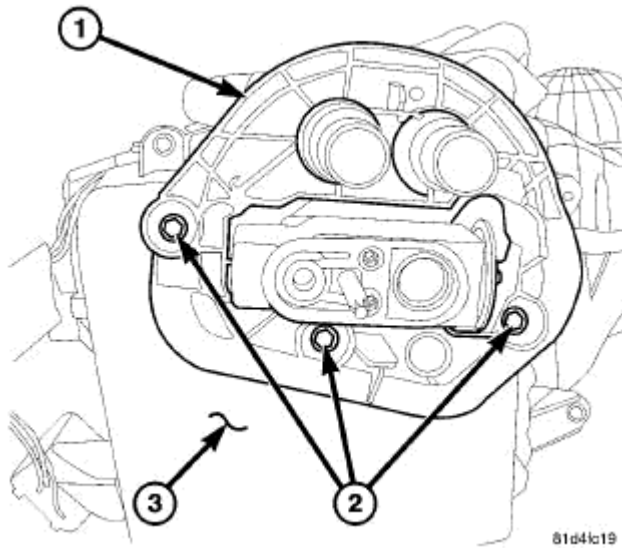


Fig. 168: Rear Housing Flange
Courtesy of CHRYSLER LLC

6. Remove the three screws (2) that secure the flange (1) to the bottom of the rear heater-A/C housing (3) and remove the flange.

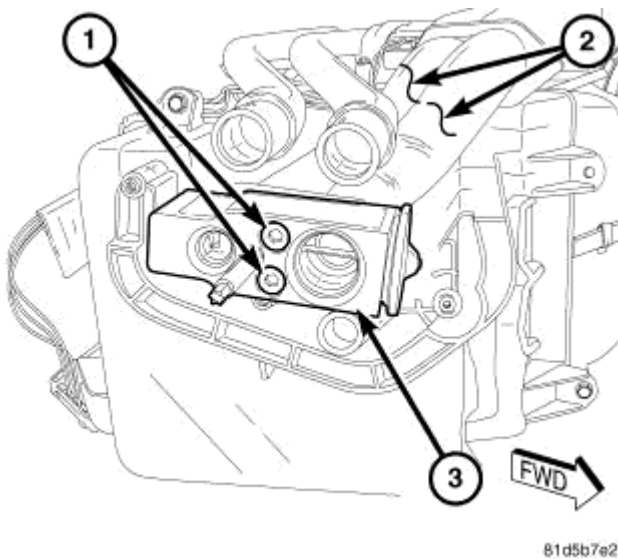
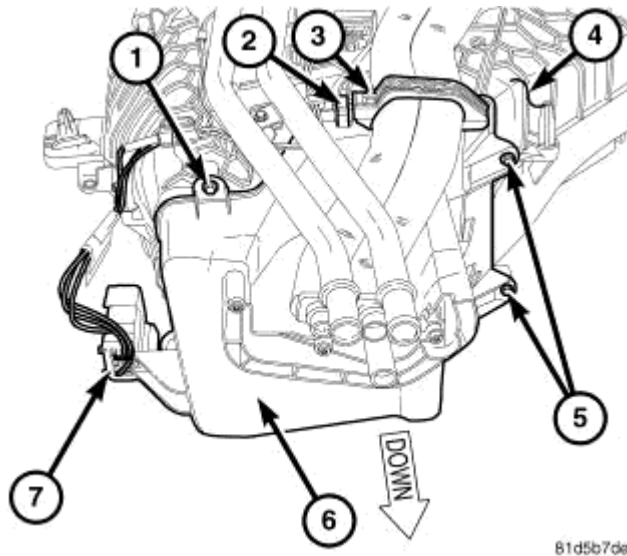


Fig. 169: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

7. Remove the two screws (1) that secure the rear expansion valve (3) to the tapping plate located on the end of the rear evaporator tubes (2) and remove the valve.
8. Remove and discard the O-ring seals and install plugs in, or tape over the opened evaporator tubes and expansion valve ports.

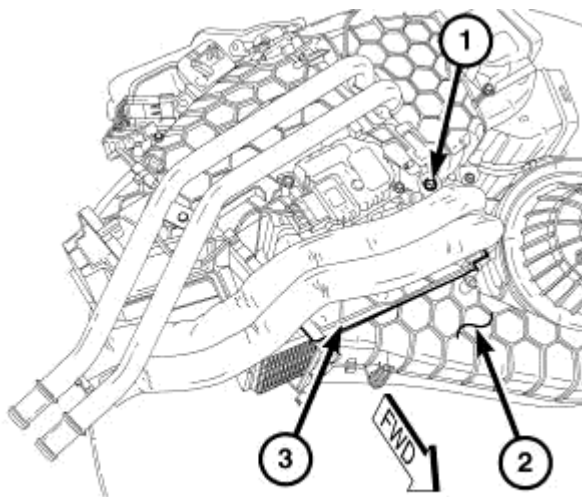


81d5b7de

Fig. 170: Lower Rear Housing Removal/Installation

Courtesy of CHRYSLER LLC

9. Remove the wire harness connector (7) from the lower rear heater-A/C housing (6).
10. Open the evaporator tube retaining bracket (3) located on the outboard side of the lower housing.
11. Remove the metal retaining clip (2) that secures the lower housing to the rear heater-A/C housing (4).
12. Remove the five screws (1 and 5) that secure the lower housing the rear heater-A/C housing and carefully remove the lower housing. Rotate and tilt the lower housing as necessary for removal.



81d5cb76

Fig. 171: Rear Evaporator Cover Removal/Installation

Courtesy of CHRYSLER LLC

13. Remove the screw (1) that secures the rear evaporator cover (3) to the outboard side of the rear heater-A/C housing (2) and remove the cover of the housing.

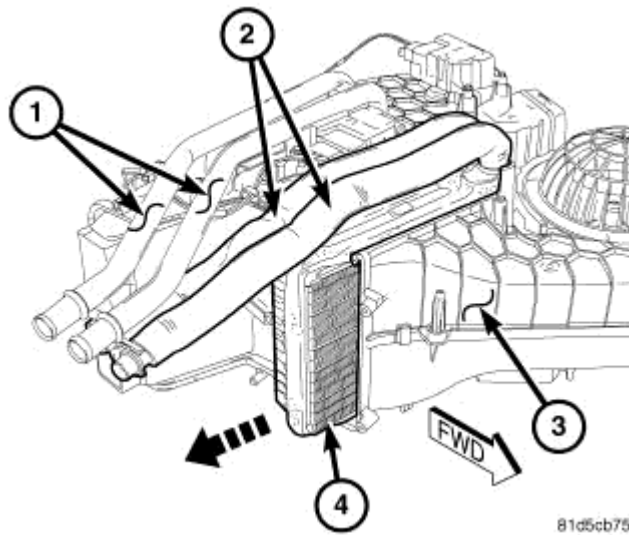


Fig. 172: Rear Evaporator Removal
Courtesy of CHRYSLER LLC

14. Carefully pull the rear A/C evaporator (4) out the bottom of the rear heater-A/C housing (3). Guide the evaporator tubes (2) past the heater core tubes (1). If the foam seals on the A/C evaporator are deformed or damaged, they must be replaced.

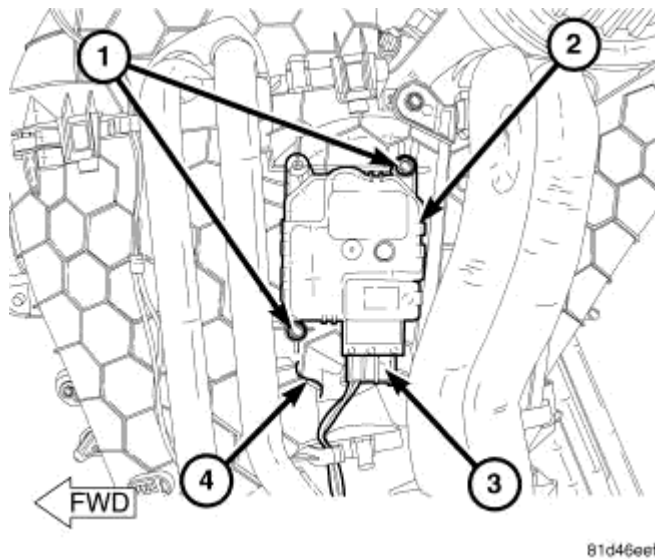


Fig. 173: Rear Blend Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

15. Disconnect the wire harness connector (3) from the rear blend door actuator (2) located on the outboard side of the rear heater-A/C housing (4).
16. Remove the two screws (1) that secure the rear blend door actuator to the rear heater-A/C housing and remove the actuator.

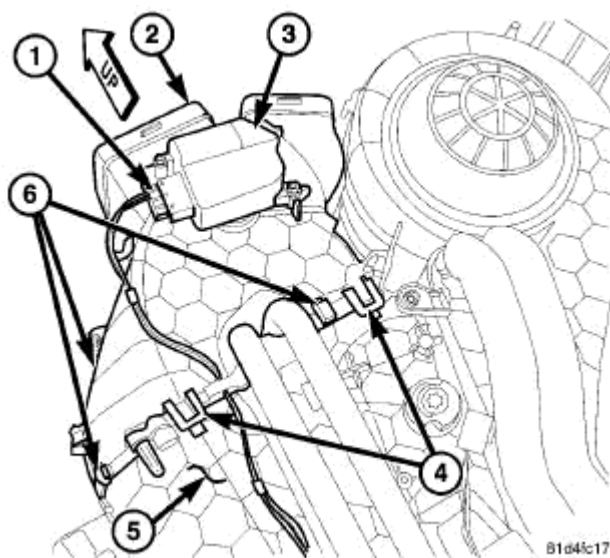


Fig. 174: Rear Distribution Housing Removal/Installation 09
Courtesy of CHRYSLER LLC

17. Disconnect the rear heater-A/C wire harness connector (1) from the rear mode door actuator (3) located on the outboard side of the rear heater-A/C distribution housing (2) and remove the wire harness from the rear heater-A/C housing (5).
18. Remove the three metal retaining clips (4) that secure the rear distribution housing to the rear heater-A/C housing.
19. Release the five plastic retaining tabs (4) that secure the rear distribution housing and rear heater-A/C housing together and separate the housings.
20. If required, remove the rear mode door actuator from the rear distribution housing. See **Heating and Air Conditioning/Controls/ACTUATOR, Mode Door - Removal**.

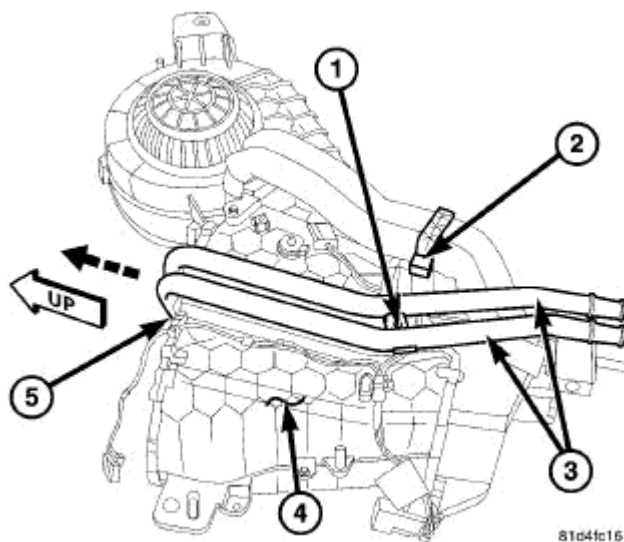


Fig. 175: Rear Heater Core Remove
Courtesy of CHRYSLER LLC

21. Remove the screw (1) that secures the rear heater core tubes (3) to the outboard side of the rear heater-A/C housing (4).
22. Pull the rear heater core (5) out of the top of the rear heater-A/C housing. If the foam seals on the heater core are deformed or damaged, they must be replaced.

Assembly

ASSEMBLY

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: If only the rear A/C evaporator 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 is required anytime a refrigerant line or expansion valve is disconnected. Failure to replace the rubber O-ring seals could result in a refrigerant system leak.

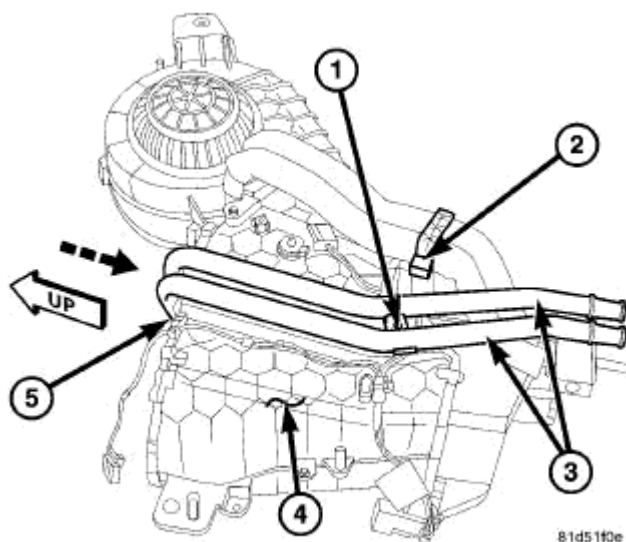


Fig. 176: Rear Heater Core Install
Courtesy of CHRYSLER LLC

1. Install the rear heater core (5) into the rear heater-A/C housing (4). Make sure that the foam seals are properly installed.
2. Install the screw (1) that secures the rear heater core tubes (3) to the outboard side of the rear heater-A/C housing. Tighten the screw to 1.2 N.m (10 in. lbs.).

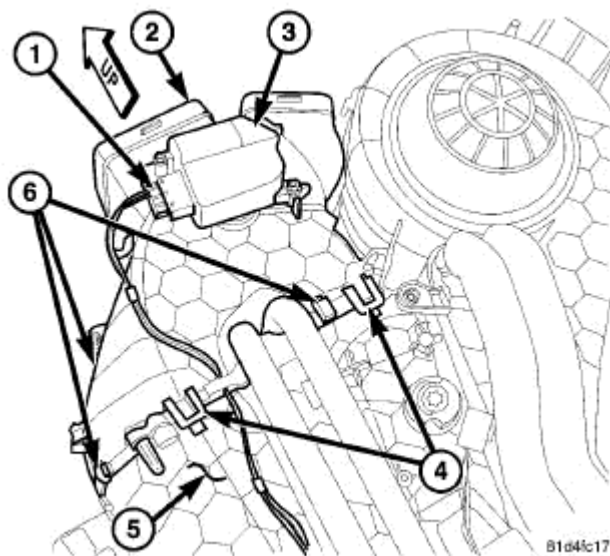


Fig. 177: Rear Distribution Housing Removal/Installation
Courtesy of CHRYSLER LLC

3. If removed, install the rear mode door actuator (3) to the rear heater-A/C distribution housing (2). See Heating and Air Conditioning/Controls/ACTUATOR, Mode Door - Installation.

4. Position the rear heater-A/C distribution housing to the rear heater-A/C housing (5) and engage the five plastic retaining tabs (4). Make sure the retaining tabs are fully engaged.
5. Install the three metal retaining clips (6) that secure the rear distribution housing to the rear heater-A/C housing.
6. Position the rear heater-A/C wire harness (1) to the rear heater-A/C distribution housing and connect it to the rear mode door actuator (3).

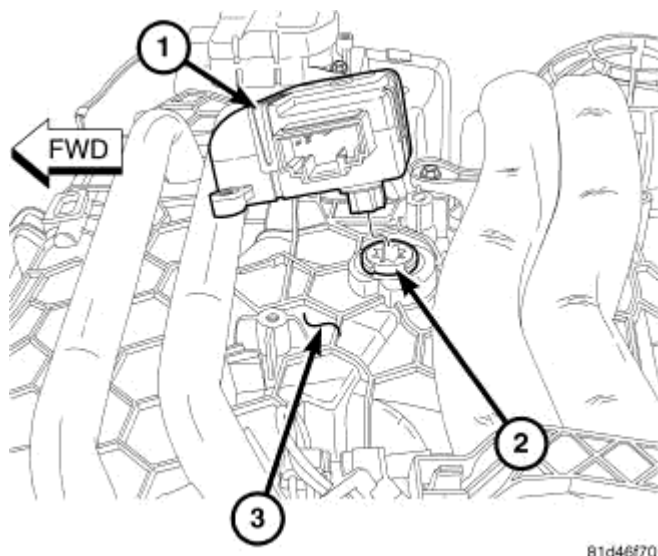


Fig. 178: Rear Blend Door Actuator Align
Courtesy of CHRYSLER LLC

7. Position the rear blend door actuator (1) onto the rear heater-A/C housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the rear blend-air door pivot shaft (2).

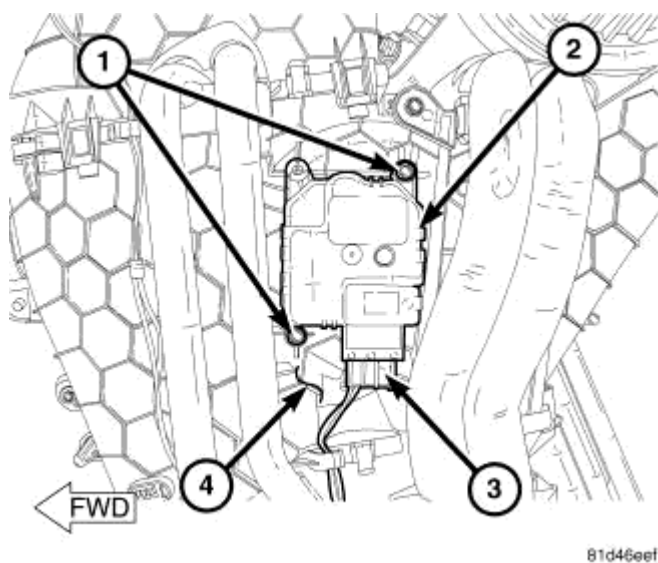


Fig. 179: Rear Blend Door Actuator Removal/Installation

Courtesy of CHRYSLER LLC

8. Install the two screws (1) that secure the rear blend door actuator (2) to the rear heater-A/C housing (4). Tighten the screws to 1.2 N.m (10 in. lbs.).
9. Connect the wire harness connector (3) to the rear blend door actuator.

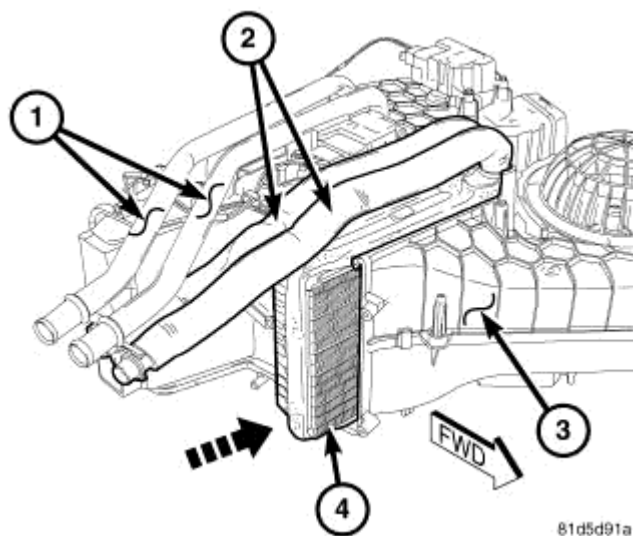


Fig. 180: Rear Evaporator Install
Courtesy of CHRYSLER LLC

10. Install the rear A/C evaporator (4) into the rear heater-A/C housing (3). Guide the evaporator tubes (2) past the rear heater core tubes (1). Make sure that the foam seals are properly installed on the evaporator.

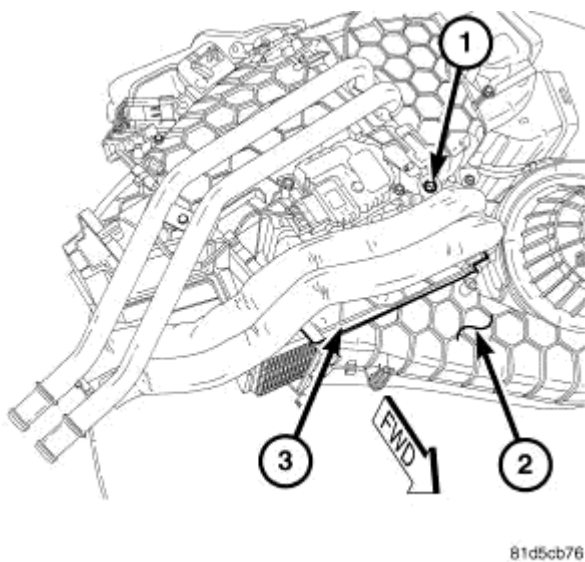


Fig. 181: Rear Evaporator Cover Removal/Installation
Courtesy of CHRYSLER LLC

11. Install the evaporator cover (3) onto the outboard side of the rear heater-A/C housing (2) and install the

retaining screw (1). Tighten the screw to 1.2 N.m (10 in. lbs.).

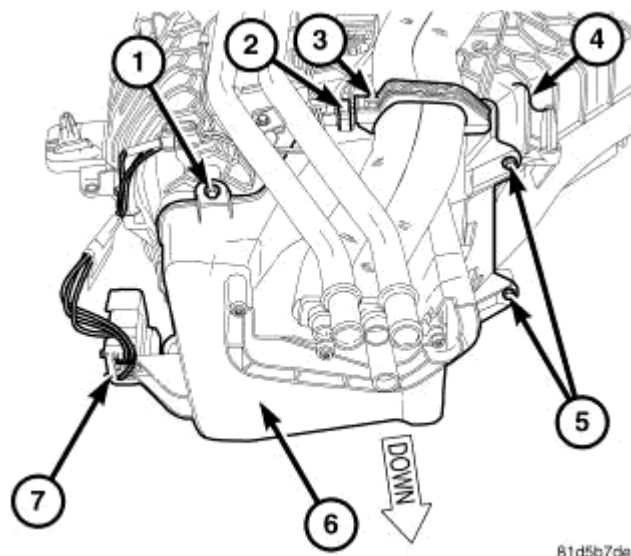


Fig. 182: Lower Rear Housing Removal/Installation
Courtesy of CHRYSLER LLC

12. Install the lower rear heater-A/C housing (6) onto the rear heater-A/C housing (4). Rotate and tilt the lower housing as necessary for installation.
13. Install the five screws (1 and 5) that secure the lower housing to the rear heater-A/C housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
14. Install the metal retaining clip (2) that secures the lower housing to the rear heater-A/C housing.
15. Close the evaporator tube retaining bracket (3). Make sure the bracket retainers are fully engaged.
16. Install the wire harness connector (7) onto the lower rear heater-A/C housing.

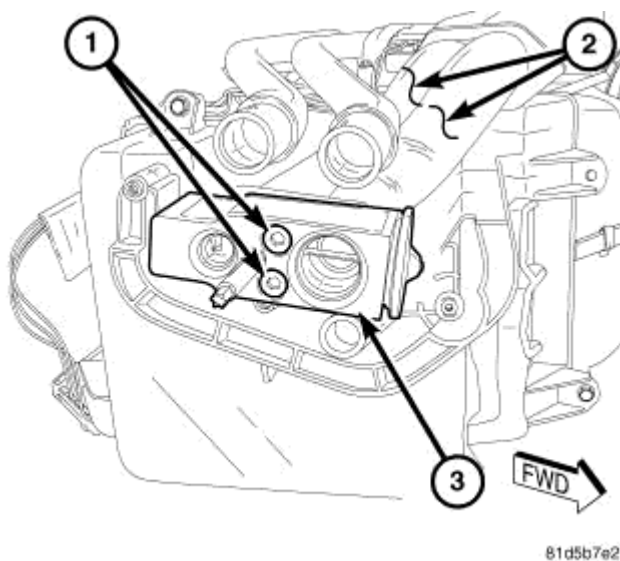


Fig. 183: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

17. Remove the tape or plugs from the rear evaporator tubes and expansion valve ports.
18. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the rear 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.
19. Install the rear A/C expansion valve (3) onto the tapping plate located on the end of the rear evaporator tubes (2)
20. Install two bolts (1) that secure the rear A/C expansion valve to the tapping plate. Tighten the bolts to 11 N.m (97 in. lbs.).

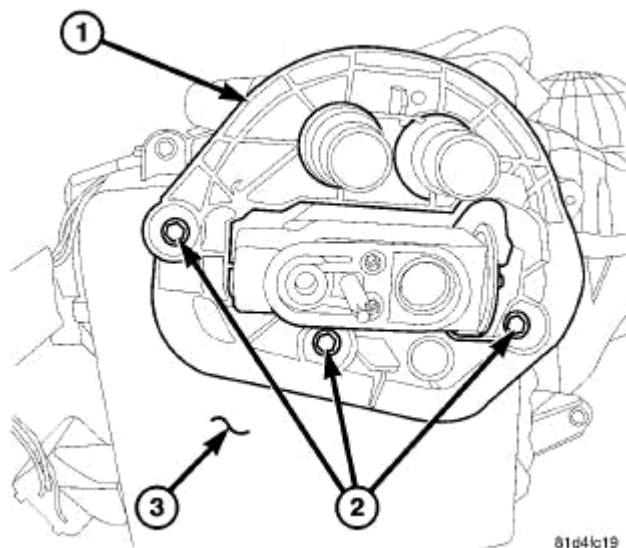


Fig. 184: Rear Housing Flange
Courtesy of CHRYSLER LLC

21. Position the flange (1) to the bottom of the rear heater-A/C housing (3) and install the three retaining screws (2). Tighten the screws to 1.2 N.m (10 in. lbs.).

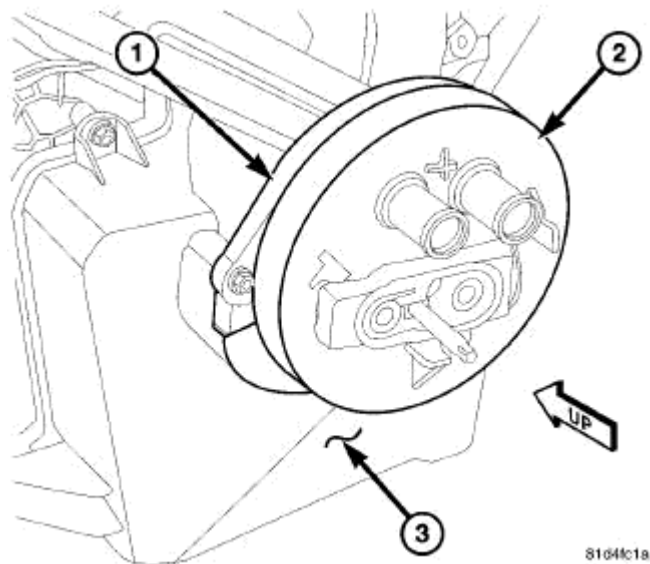


Fig. 185: Rear Housing Flange Seal
 Courtesy of CHRYSLER LLC

22. Install the foam seal (2) onto the flange (1) at the bottom of the rear heater-A/C housing (3). Make sure that the foam seal is properly installed.
23. Install the rear blower motor. See **Heating and Air Conditioning/Distribution/MOTOR, Blower - Installation**.
24. Install the rear blower motor resistor or power module (depending on application). See **Heating and Air Conditioning/Controls/RESISTOR, Blower Motor - Installation** or. See **Heating and Air Conditioning/Controls/MODULE, Power - Installation**.
25. Install the rear heater-A/C housing. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Installation**.
26. Reconnect the negative battery cable.
27. If the rear heater core is being replaced, flush the cooling system. Refer to **Cooling - Standard Procedure**.
28. If the rear A/C evaporator 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** to determine how much oil should be added to the refrigerant system. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

Installation

INSTALLATION

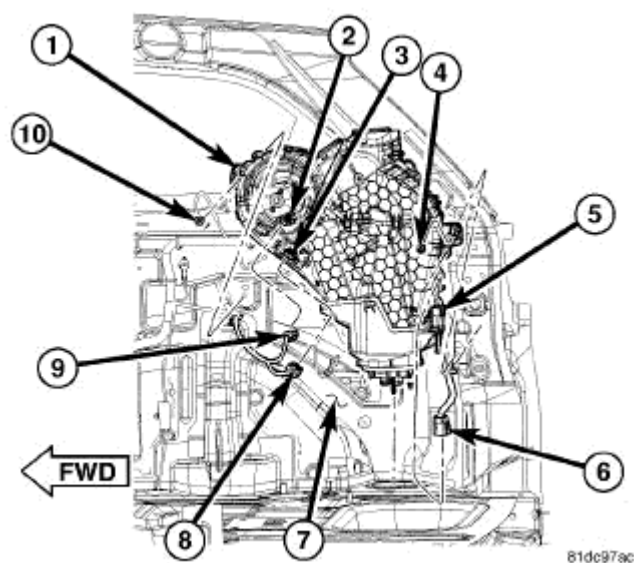
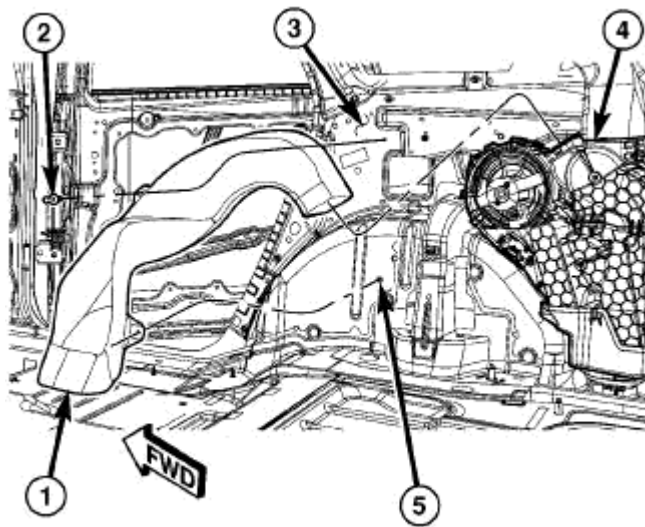


Fig. 186: Rear Heater AC Housing Removal/Installation
 Courtesy of CHRYSLER LLC

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

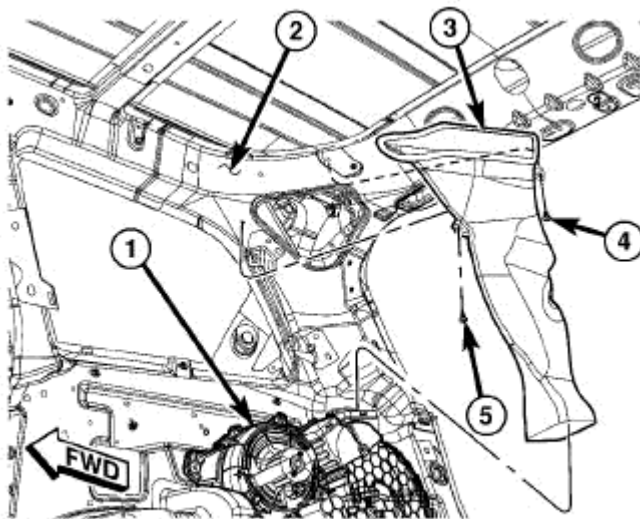
1. Position the rear heater-A/C housing (1) into the vehicle and align the guide pins on the housing to the holes in the right inner quarter panel (7).
2. Install the two bolts (4 and 10) that secure the rear heater-A/C housing to the right inner quarter panel. Tighten the bolts to 3 N.m (27 in. lbs.).
3. Connect the body wire harness connector (6) to the rear heater-A/C wire harness connector (5).
4. Connect the body wire harness connectors (8 and 9) to the rear blower motor (2) and the rear blower motor resistor or power module (3) (depending on control system).



81dc95eb

Fig. 187: Rear Floor Distribution Duct
Courtesy of CHRYSLER LLC

5. Install the rear floor distribution duct (1) onto rear heater-A/C housing (4). Make sure the duct is fully engaged to the housing.
6. Engage the rear floor distribution duct to the stud (5) located on the right inner quarter panel (3).
7. Install the push-pin retainer (2) that secures the rear floor distribution duct to the right inner quarter panel.



81dc951b

Fig. 188: Rear Ceiling Duct
Courtesy of CHRYSLER LLC

8. Position the rear ceiling distribution duct (3) to the right D-pillar (2).

CAUTION: Use care when installing the rear ceiling distribution duct onto the heater-A/C housing to prevent damage to the molded plastic support brace located on the top of the housing outlet. Failure to follow this caution could result in part of, or all of the support brace falling into the rear housing, which may interfere with rear mode door operation.

9. Install the rear ceiling distribution duct onto the top of the rear heater-A/C housing (1). Make sure the duct is fully engaged to the housing.
10. Install the two retainers (4 and 5) that secure the rear ceiling distribution duct to the right D-pillar.

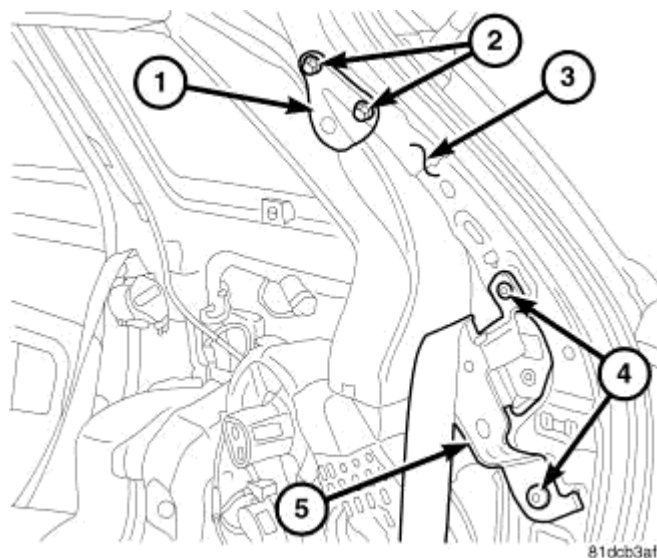


Fig. 189: D-Pillar Seat Belt Bracket
Courtesy of CHRYSLER LLC

11. Position the upper seat belt bracket (2) onto the D-pillar (3) and install the two retaining bolts (1). Tighten the bolts to 52 N.m (38.5 ft. lbs.).
12. Install the right seat belt retractor (5) and retaining bolts (4) onto the D-pillar. Tighten the bolts to 52 N.m (38.5 ft. lbs.).
13. Install the right quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Installation**.
14. Install the right D-pillar trim panel. Refer to **Body/Interior/PANEL, D-Pillar Trim - Installation**.

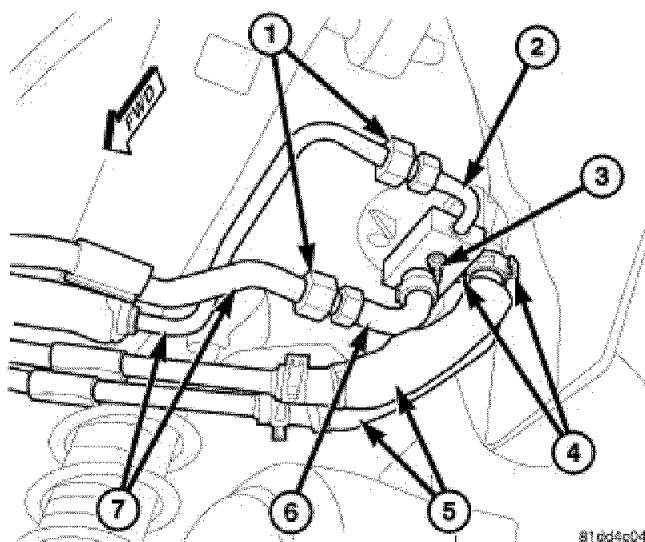


Fig. 190: Underbody Lines to Rear Housing
Courtesy of CHRYSLER LLC

15. Raise and support the vehicle.

CAUTION: DO NOT apply excessive force on underbody heater lines or rear heater tubes fittings when connecting the connections. Excessive force may damage or deform the tubes and or lines, causing an engine coolant leak.

NOTE: Replacement of the rubber heater hose ends will be required if the rubber hoses were cut for removal.

16. Remove the tape or plugs from all the opened refrigerant line fittings and the rear expansion valve ports.
17. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the underbody refrigerant extension line fittings. Use only the specified O-rings as they are made of a special material for the R-134a refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
18. Connect the underbody refrigerant extension lines and sealing plate (2 and 6) to the rear A/C expansion valve.
19. Loosely install the nut (3) that secures the extension lines and sealing plate to the rear A/C expansion valve.
20. Connect the underbody refrigerant lines (7) to the underbody refrigerant extension lines and tighten the fitting nuts (1) to 23 N.m (17 ft. lbs.).
21. Tighten the nut that secures the extension lines and sealing plate to the rear A/C expansion valve to 11 N.m (97 in. lbs.).
22. Connect the underbody heater lines (5) to the rear heater core tubes located behind the right rear wheel housing and engage the spring type hose clamps (4).

23. Lower the vehicle.
24. Reconnect the negative battery cable.
25. If the heater core is being replaced, flush the cooling system. Refer to Cooling - Standard Procedure.
26. Fill the engine cooling system. Refer to Cooling - Standard Procedure.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

27. Evacuate and charge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
28. Calibrate the A/C-heater control. Refer to DTC-Based Diagnostics/HVAC - Standard Procedure.

MOTOR, BLOWER, REAR

Description

DESCRIPTION

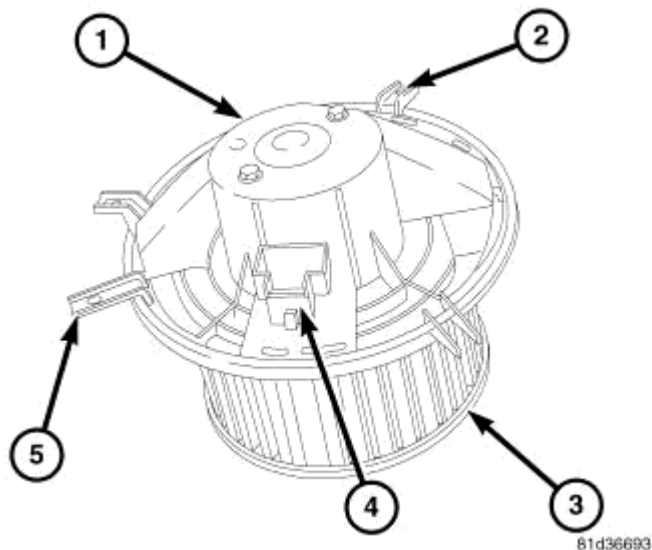


Fig. 191: Rear Blower

Courtesy of CHRYSLER LLC

The rear blower motor (1) is a 12-volt, direct current (DC) motor mounted within a plastic housing with an integral wire connector (4) and a squirrel cage-type blower wheel (3) that is secured to the blower motor shaft. Three integral mounting tabs (2) and a lock tab (5) secure the blower motor to the inboard side of the rear heater-A/C housing.

The rear blower motor can be accessed for service without removing the rear heater-A/C housing.

Operation

OPERATION

The rear blower motor is used to control the velocity of air moving through the rear heater-A/C housing by spinning the blower wheel within the heater-A/C housing at the selected speed.

The rear blower motor will only operate when the ignition switch is in ON and the rear blower motor switch located in the front accessory switch panel is ON. The rear blower motor receives a battery feed through the totally integrated power module (TIPM), whenever the ignition switch is in ON. See **Heating and Air Conditioning/Distribution/MOTOR, Blower - Diagnosis and Testing**.

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

Removal

REMOVAL

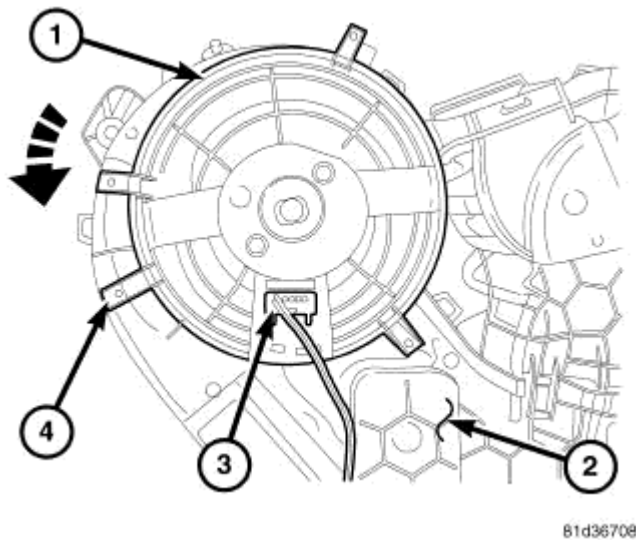


Fig. 192: Rear Blower Motor Remove
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove right rear quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Removal**.
3. Disconnect the wire harness connector (3) from the rear blower motor (1).
4. Disengage the locking tab (4) and remove the rear blower motor from the rear heater-A/C housing (2) by turning the blower motor counterclockwise.

Installation

INSTALLATION

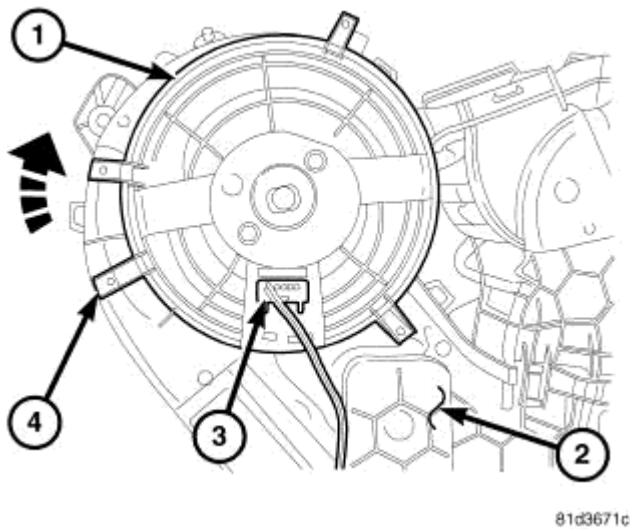


Fig. 193: Rear Blower Motor Install
Courtesy of CHRYSLER LLC

1. Position the rear blower motor (1) into the rear heater-A/C housing (2) and rotate the blower motor clockwise until the blower motor is fully engaged to the housing and the retaining tab (4) is in the locked position.
2. Connect the wire harness connector (3) to the rear blower motor.
3. Install the right rear quarter trim panel. Refer to **Body/Interior/PANEL, Quarter Trim - Installation**.
4. Reconnect the negative battery cable.

OUTLET, AIR, REAR

Removal

REMOVAL

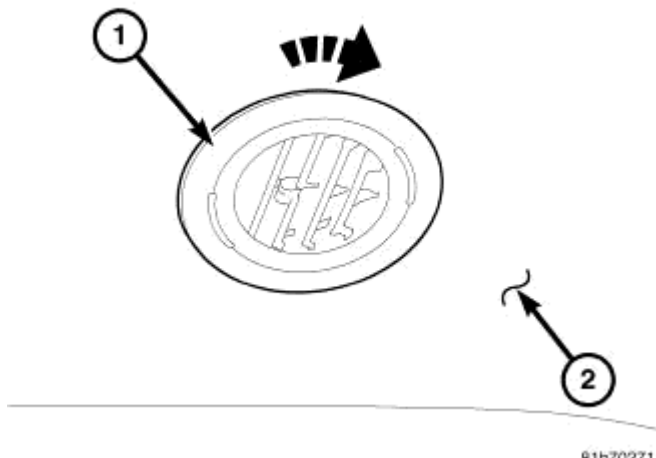


Fig. 194: Ceiling Air Outlet Removal RT
 Courtesy of CHRYSLER LLC

1. Rotate the air outlet (1) being serviced clockwise until the retaining tabs on the back of the outlet disengage from the headliner (2).
2. Remove the air outlet from the headliner.

Installation

INSTALLATION

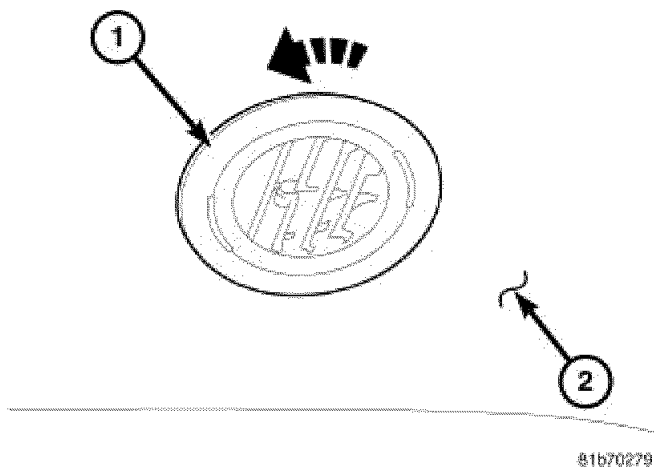


Fig. 195: Ceiling Air Outlet Install RT
 Courtesy of CHRYSLER LLC

1. Position the air outlet (1) being serviced to the opening in the headliner (2).
2. Rotate the air outlet counterclockwise until the retaining tabs on the back of the outlet are fully engaged to the headliner.

PLUMBING, FRONT

DESCRIPTION

DESCRIPTION

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 brazed 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

OPERATION

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 kPa (21 psi). 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. Chrysler LLC 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: 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 run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

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 Heating and Air Conditioning - Diagnosis and Testing.

Connect a suitable manifold gauge set and determine if the static A/C system pressure is above or below 345

kPa (50 psi). See **Heating and Air Conditioning/Plumbing - Standard Procedure**. 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 **Heating and Air Conditioning/Plumbing - Standard Procedure**. Determine if the system holds a vacuum for 15 minutes. If vacuum is held, a leak is probably not present. If system will not maintain vacuum level, proceed to 2.
2. Prepare and dispense 0.284 kilograms (10 ounces) of R-134a refrigerant into the evacuated refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure** and proceed to 1 of the System Low procedure.

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
 - Transaxle in Park or Neutral with the parking brake set (depending on application)
 - A/C-heater controls set to outside air, full cool, panel mode, high blower and with A/C compressor engaged

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 drain tube opening or an air outlet. A dye for R-134a is available to aid in leak detection. Use only Chrysler LLC approved refrigerant dye.

STANDARD PROCEDURE**REFRIGERANT SYSTEM SERVICE EQUIPMENT**

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See **Heating and Air Conditioning/Plumbing - Warning** and **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow these instructions may result in serious or fatal injury.

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 serious or fatal injury.

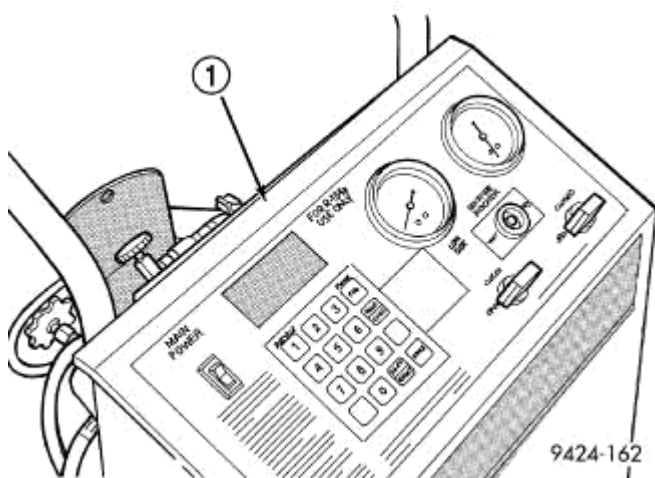


Fig. 196: Refrigerant Recovery/Recycling Station - Typical
Courtesy of CHRYSLER LLC

When servicing the A/C system, a R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2788 must be used (1). Per SAE standard J2788, refrigerant recovery stations must recover 95% of the refrigerant system within 30 minutes at 21.1 degrees C (70 degrees F) and be able to measure the amount of refrigerant removed from the system to an accuracy of 28 grams (1 oz.). When charging, the refrigerant recovery station must charge the system to an accuracy of 14 grams (0.5 oz.). 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.

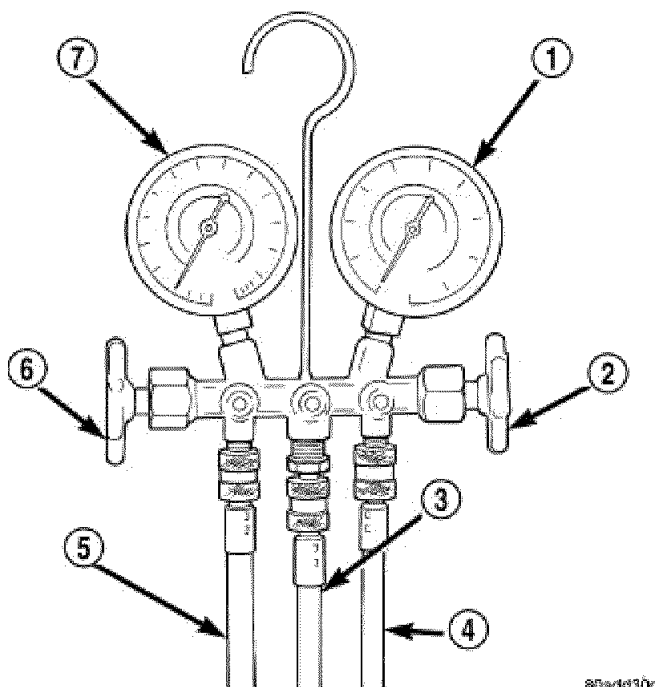


Fig. 197: Manifold Gauge Set - Typical
Courtesy of CHRYSLER LLC

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 A/C 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 dash panel.
- **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 right front strut tower.
- **RECOVERY/RECYCLING/EVACUATION/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 [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may result in serious or fatal injury.

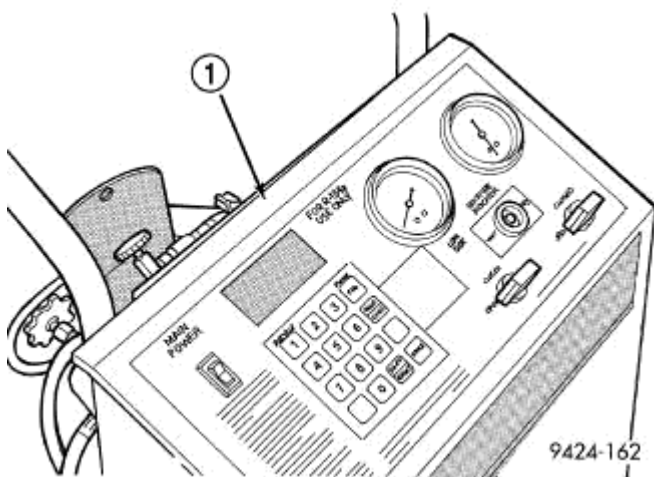


Fig. 198: Identifying R-134A Refrigerant Recovery/Recycling/Charging Station
Courtesy of CHRYSLER LLC

NOTE: If equipped with the rear heating-A/C system, use a heat gun to heat the underbody lines to help remove any trapped refrigerant from the rear A/C system.

When servicing the A/C system, a R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2788 must be used (1). Per SAE standard J2788, refrigerant recovery stations must recover 95% of the refrigerant system within 30 minutes at 21.1 degrees C (70 degrees F) and be able to measure the amount of refrigerant removed from the system to an accuracy of 28 grams (1 oz.). Refer to the operating instructions supplied by the equipment manufacturer for proper care and use of this equipment.

REFRIGERANT SYSTEM EVACUATE

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

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 Heating and Air Conditioning/Plumbing - Standard Procedure.
2. With the engine OFF, connect a suitable charging station, refrigerant recovery machine or a manifold gauge set with vacuum pump and refrigerant recovery equipment. See Heating and Air Conditioning/Plumbing - Standard Procedure. Do not operate the engine with a vacuum on the A/C system.
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 **Heating and Air Conditioning/Plumbing - Standard Procedure**.

REFRIGERANT SYSTEM CHARGE

WARNING: Review safety precautions and warnings in this part before performing this procedure. See **Heating and Air Conditioning/Plumbing - Warning** and. See **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow these instructions may result in serious or fatal injury.

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

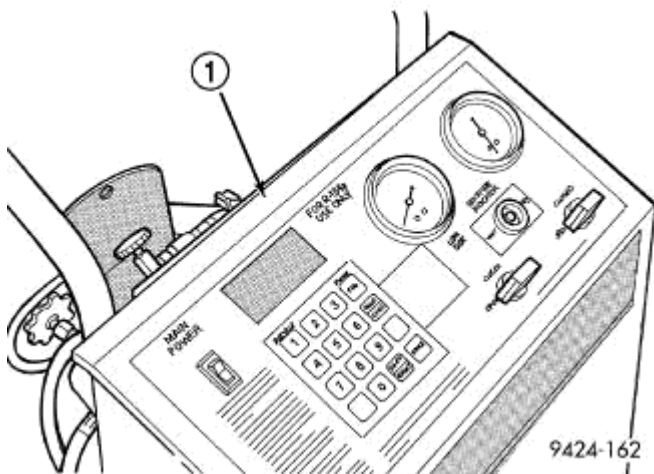


Fig. 199: Identifying R-134A Refrigerant Recovery/Recycling/Charging Station
Courtesy of CHRYSLER LLC

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 **Heating and Air Conditioning/Plumbing/REFRIGERANT - Specifications**.

When charging the A/C system, a R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2788 must be used (1). Per SAE standard J2788, refrigerant recovery stations must charge the system to an accuracy of 14 grams (0.5 oz.). 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. See the equipment manufacturer instructions for more information.

1. Evacuate the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
2. Connect a manifold gauge set or R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2788 to the refrigerant system.
3. Measure the proper amount of refrigerant 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.
4. Open both the suction and discharge valves, then open the charge valve to allow the heated refrigerant to flow into the system.
5. When the transfer of refrigerant has stopped, close both the suction and discharge valves.
6. 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 control circuit and repair as required.
7. Open the low-side valve to allow the remaining refrigerant to transfer to the refrigerant system.

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

8. Disconnect the charging station and manifold gauge set from the refrigerant system service ports.
9. Reinstall the caps onto the refrigerant system service ports.

COMPRESSOR, A/C

Description

FIXED DISPLACEMENT A/C COMPRESSOR

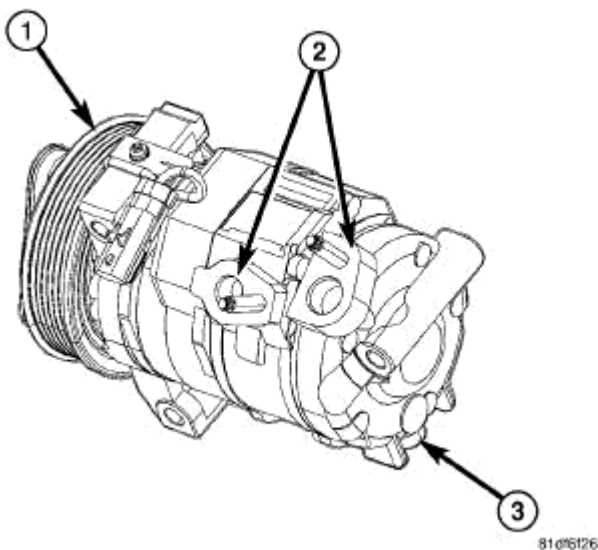


Fig. 200: Denso 10SR17 Compressor

Courtesy of CHRYSLER LLC

NOTE: Denso 10SR17 shown. Denso 10SR15 similar.

2.7L and 3.5L 5-Passenger models are equipped with the Denso 10SR15 A/C compressor. All 7-Passenger models are equipped with the Denso 10SR17 A/C compressor. Both A/C compressors are a fixed displacement, five double-acting piston, reciprocating swash plate-type compressor (1). Both compressors are clutch operated with suction and discharge ports (2) and have an integral high pressure relief valve (3) located near the rear of the compressor. The A/C compressor is secured to the engine with three bolts.

A label identifying the use of R-134a refrigerant and ND-8 PAG oil is located on each A/C compressor.

VARIABLE DISPLACEMENT A/C COMPRESSOR

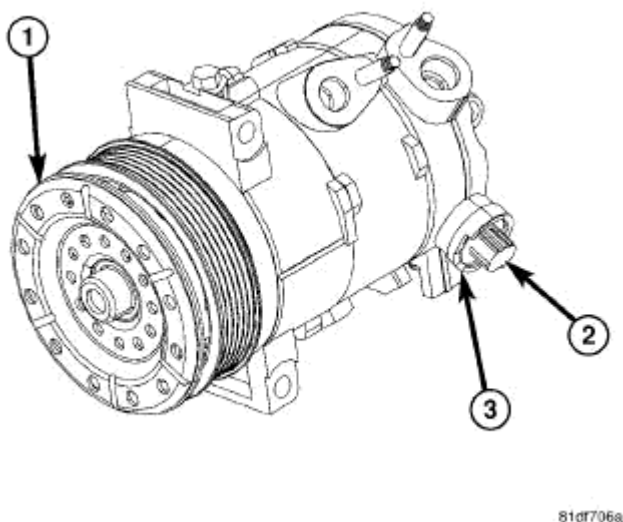


Fig. 201: Denso 6SEU16 Compressor
Courtesy of CHRYSLER LLC

2.0L and 2.4L 5-passenger models use a Denso 6SEU16 clutchless, variable displacement swashplate type A/C compressor (1). This A/C compressor has a total displacement of 160 cubic centimeters (9.7 cubic inches) and a control valve (2) and a high pressure relief valve (3) located on the back cover. The A/C compressor is secured to the engine with three bolts.

A label identifying the use of R-134a refrigerant and ND-8 PAG oil is located on the A/C compressor.

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

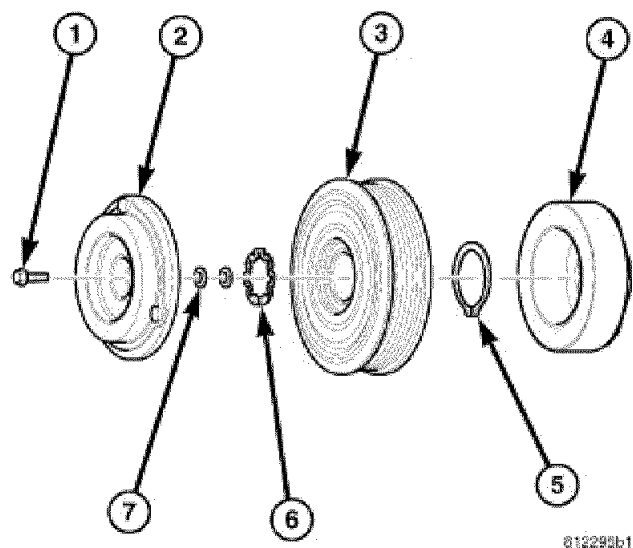


Fig. 202: A/C Compressor Clutch Components
Courtesy of CHRYSLER LLC

NOTE: Typical A/C clutch assembly shown.

The clutch assembly for the Denso 10SR15 and 10SR17 fixed displacement A/C compressors consists of a stationary electromagnetic A/C clutch field coil (4), pulley bearing and pulley assembly (3), clutch plate (2) and shims (7). 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 and the pulley bearing and pulley assembly are both retained on the nose of the A/C compressor with snap rings (5 and 6). The clutch plate is splined to the compressor shaft and secured with a bolt (1).

HUB AND PULLEY - VARIABLE DISPLACEMENT A/C COMPRESSOR

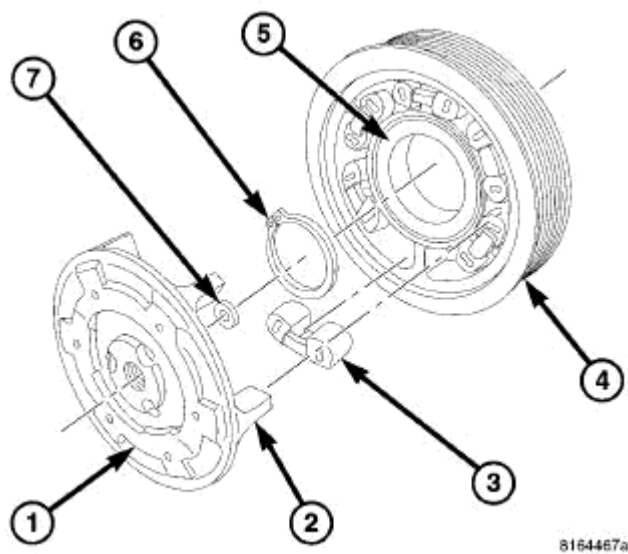


Fig. 203: A/C Compressor Hub & Pulley Assembly
Courtesy of CHRYSLER LLC

NOTE: Typical clutchless A/C compressor pulley and drive hub shown.

The non-servicable hub and pulley assembly for the Denso 6SEU16 variable displacement A/C compressor provides the means to drive the A/C compressor using the engine accessory drive belt. The hub and pulley assembly consists of an aluminum drive hub (1) with composite tabs (2) that are positioned between rubber dampeners (3), which are located inside of a composite pulley (4).

The A/C pulley has a bearing (5) which is retained to the nose of the A/C compressor with a snap ring (6). The drive hub and shim (7) are retained to the compressor shaft by use of left handed threads.

HIGH PRESSURE RELIEF VALVE

A high pressure relief valve is located on the compressor cylinder head at the rear of each A/C compressor. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Description**. 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.

Operation

FIXED DISPLACEMENT A/C COMPRESSOR

The Denso 10SR15 and 10SR17 fixed displacement A/C compressors are driven by the engine through an electric clutch, drive pulley and belt arrangement. These A/C compressors are lubricated by refrigerant oil that is circulated throughout the refrigerant system with the refrigerant.

The A/C compressors draw in low-pressure refrigerant vapor from the A/C evaporator through the suction port, then compresses the refrigerant into a high-pressure, high-temperature refrigerant vapor, which is 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 Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure. 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 Denso 10SR15 and 10SR17 fixed displacement A/C compressors 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 inoperative or damaged. If an internal failure of the A/C compressor has occurred, the A/C receiver/drier must also be replaced. See Heating and Air Conditioning/Plumbing/DRIER, A/C Receiver - Removal.

VARIABLE DISPLACEMENT A/C COMPRESSOR

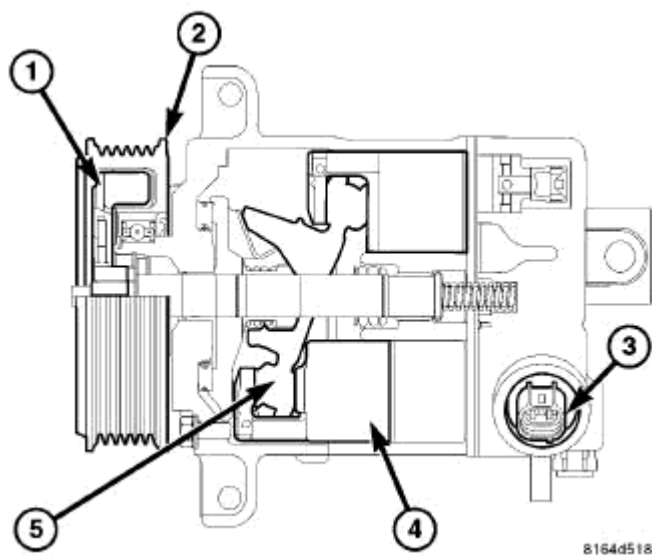


Fig. 204: 5SE12C Compressor-Operation

Courtesy of CHRYSLER LLC

NOTE: Typical variable displacement A/C compressor shown.

The Denso 6SEU16 A/C compressor is a variable displacement compressor (VDC) which is driven by the engine through a drive hub (1) and pulley (2). This A/C compressor does not require the use of an electromagnetic clutch, as the compressor uses an integral control solenoid (3) to reduce or increase the stroke of the five pistons (4) within the compressor by automatically adjusting the angle of the swashplate (5).

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. The A/C compressor is lubricated by refrigerant oil that is circulated throughout the refrigerant system with the refrigerant. See **Heating and Air**

Conditioning/Plumbing/OIL, Refrigerant - Description.

The A/C compressor is controlled by the powertrain control module (PCM) or engine control module (ECM), depending on engine application. The PCM/ECM calculates compressor displacement required by A/C system load and demand by monitoring vehicle speed, A/C high side pressure, engine speed, evaporator temperature, accelerator pedal position, ambient temperature and A/C-heater request signals. The PCM/ECM then sends a pulse width modulated (PWM) signal to the A/C compressor control solenoid to increase or decrease refrigerant flow through an orifice located within the compressor housing. The amount of refrigerant allowed to pass through the orifice in the compressor determines the head pressure which controls the angle of the swashplate, which in turn, determines the amount of compressor displacement. When there is no demand for A/C, the swashplate is adjusted to nearly a zero degree angle, which removes compressor torque drag from the engine.

This A/C compressor will reduce the displacement of the compressor based on ambient air temperature. For example; as the outside temperature falls from 27° C (80° F) to 19° C (66° F), the amount of refrigerant flow required through the A/C orifice valve to keep the A/C evaporator cool becomes less, and the swashplate is adjusted to a lower angle, which reduces compressor displacement. However, due to the lower outside air temperature, panel air outlet temperature will not noticeably change.

The A/C compressor control system is diagnosed using a scan tool. See **Heating and Air Conditioning - Diagnosis and Testing.**

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with a variable displacement A/C compressor. Failure to follow this caution will result in serious A/C compressor damage.

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.** 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.

NOTE: The compressor drive hub and the pulley and bearing assembly can not be serviced separately from the A/C compressor. In the event of drive hub or pulley and bearing assembly damage or failure, the A/C compressor, drive hub and pulley and bearing must be replaced as an assembly.

The A/C compressor cannot be adjusted or repaired and must be replaced if inoperative or damaged. If an internal failure of the A/C compressor has occurred, the A/C receiver/drier must also be replaced. See **Heating and Air Conditioning/Plumbing/DRIER, A/C Receiver - Description.**

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

The clutch components for the Denso 10SR15 and 10SR17 fixed displacement A/C compressor provide the means to engage and disengage the 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-IHS 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 **DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Diagnosis and Testing** .

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

HUB AND PULLEY - VARIABLE DISPLACEMENT A/C COMPRESSOR

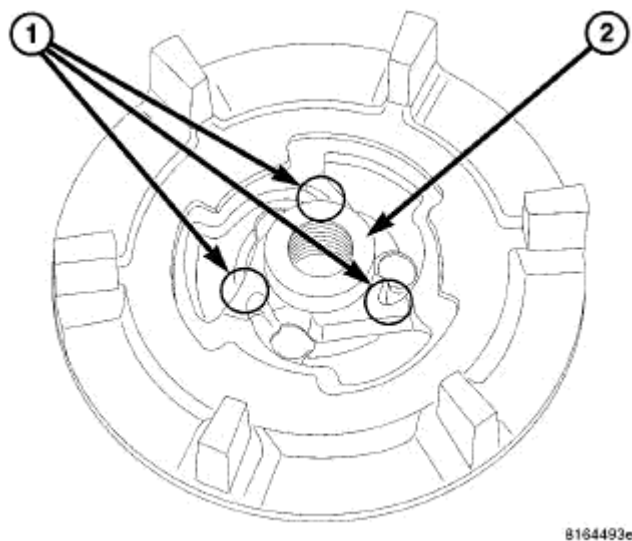


Fig. 205: A/C Compressor Hub
Courtesy of CHRYSLER LLC

NOTE: Typical clutchless compressor pulley drive hub shown.

The design of the Denso 6SEU16 variable displacement A/C compressor does not require the use of an electromagnetic clutch, as the compressor is controlled by an integral control valve that allows refrigerant to bypass within the compressor. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Description**.

The three bridges (1) located on compressor drive hub (2) are designed to break away in the event of compressor seizure. This action prevents damage to the serpentine accessory drive belt. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Inspection**.

NOTE: The compressor drive hub and the pulley and bearing assembly can not be serviced separately from the A/C compressor. In the event of drive hub or pulley and bearing assembly damage or failure, the A/C compressor, drive hub and pulley and bearing must be replaced as an assembly.

The compressor drive hub and the pulley and bearing assembly can not be serviced separately from the A/C compressor. The A/C compressor must be replaced if the drive hub or pulley and bearing assembly is worn or damaged.

HIGH PRESSURE RELIEF VALVE

The high pressure relief valve vents refrigerant from the A/C system when a discharge pressure of 3445 to 4135 kPa (500 to 600 psi) or above is reached. The high pressure relief valve closes with a minimum discharge pressure of 2756 kPa (400 psi) is reached.

The high pressure relief valve should not open when the A/C system is operating correctly. If the high pressure relief valve vents refrigerant, there is most likely a problem within the A/C refrigerant system. The high pressure relief valve vents only enough refrigerant to reduce the A/C system pressure, and then re-seats itself. If the high pressure relief valve vents refrigerant, see the A/C System Diagnosis chart. See **Heating and Air Conditioning - Diagnosis and Testing**.

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.

Diagnosis and Testing

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

The compressor clutch coil electrical circuit for the Denso 10SR15 and 10SR17 fixed displacement A/C compressors 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) (refer to **SYSTEM WIRING DIAGRAMS** for complete HVAC wiring diagrams). 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 PCM/ECM. If no diagnostic trouble codes (DTCs) are found, go to 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 **Heating and Air Conditioning - Diagnosis and Testing**. If the refrigerant charge level is OK, go to **COIL RESISTANCE TEST** and/or **COIL CURRENT DRAW TEST**. If the refrigerant charge level is not OK, adjust the refrigerant charge as required.

COIL RESISTANCE TEST

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 ohm meter and Back Probe Tool 6801 and measure the resistance of the clutch field coil at the field coil connector terminals.
4. Refer to the **A/C CLUTCH FIELD COIL SPECIFICATIONS** for the acceptable A/C clutch coil resistance. Specifications apply for a work area temperature of 21° C (70° F).
 - a. If the A/C clutch coil reading is below specifications, the coil is shorted and must be replaced.
 - b. If the A/C clutch coil reading is above specifications, the coil is open and must be replaced.

COIL CURRENT DRAW TEST

1. Verify the battery state of charge. Refer to **Electrical - Engine Systems/Battery System/BATTERY - Diagnosis and Testing**.
2. Connect an ammeter (0 to 10 ampere scale selected) in series with the clutch coil feed terminal using Back Probe Tool 6801. Connect a voltmeter (0 to 20 volt scale selected) to measure voltage across the battery and the clutch coil.
3. With the heater-A/C control in the A/C mode and the blower at low speed, start the engine and allow it to run at a normal idle speed.
4. The compressor clutch should engage immediately, and the clutch coil supply voltage should be within two volts of the battery voltage. If the coil supply voltage is OK, go to 5. If the coil supply voltage is not within two volts of battery voltage, test the clutch coil feed circuit for excessive voltage drop and repair as necessary.
5. Refer to the **A/C CLUTCH FIELD COIL SPECIFICATIONS** for the acceptable A/C clutch field coil current draw. Specifications apply for a work area temperature of 21° C (70° F). If voltage is more than 12.5 volts, add electrical loads by turning on electrical accessories until voltage reads below 12.5 volts.
 - a. If the compressor clutch coil current reading is zero, the coil is open and must be replaced.
 - b. If the compressor clutch coil current reading is above specifications, the coil is shorted and must be replaced.

A/C CLUTCH FIELD COIL SPECIFICATIONS

Coil Resistance	Current Draw
3.6 ± 0.2 ohms	3.2 - 3.3 amps @ 11.5 - 12.5 volts

A/C SYSTEM NOISE TESTING

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 bearing, may be caused by loose bolts, nuts, mounting brackets or a loose A/C compressor.

NOTE: The A/C compressor must be replaced if any unusual noise is heard from the

compressor itself.

1. Select a quiet area for testing. Duplicate the complaint conditions as much as possible. Turn the A/C system On and Off several times to clearly identify any compressor noise. Listen to the A/C compressor while it is operating at maximum and minimum displacement. 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. 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 2600 kPa (377 psi).

NOTE: 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 is operating at maximum displacement, which may not occur when the compressor is at minimum displacement.

2. Check the condition of the accessory drive belt. Refer to Cooling/Accessory Drive/BELT, Serpentine - Diagnosis and Testing.

NOTE: The A/C compressor must be replaced if the drive hub is broken or if the compressor shaft does not rotate smoothly.

3. Check the compressor hub and pulley and bearing assembly. Be certain that the hub and pulley are properly aligned and that the pulley bearing is mounted securely to the A/C compressor. See Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Inspection.

NOTE: The A/C compressor must be replaced if any debris or unusually discolored oil is found on the A/C compressor manifold.

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 Heating and Air Conditioning/Plumbing - Description.
5. Loosen all of the compressor mounting hardware and retighten.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

6. If the noise is from opening and closing of the high pressure relief valve, recover, evacuate and recharge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure. If the high pressure relief valve still does not seat properly, replace the A/C compressor. See Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Removal.
7. If the noise is from liquid refrigerant slugging in the A/C suction line, replace the A/C receiver/drier. See

Heating and Air Conditioning/Plumbing/DRIER, A/C Receiver - Removal, check the refrigerant oil level. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure** and the refrigerant system charge. See **Heating and Air Conditioning - Diagnosis and Testing**.

8. If a slugging condition still exists after replacing the A/C receiver/drier, then replace the A/C compressor. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Removal**.

Removal

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See **Heating and Air Conditioning/Plumbing - Warning** and **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

NOTE: The compressor clutch assembly 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.

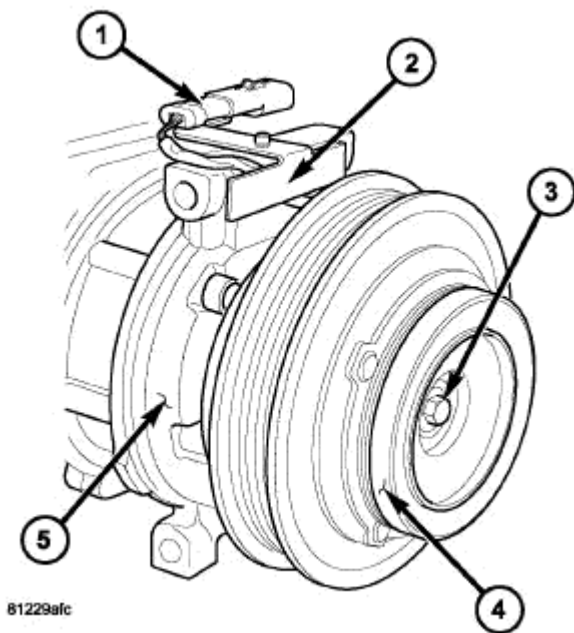


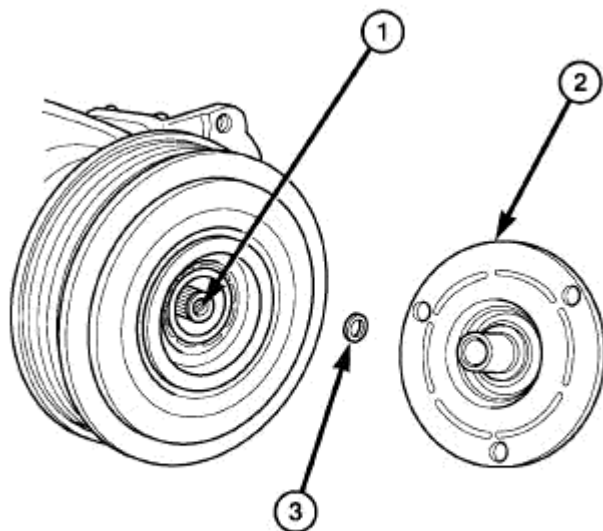
Fig. 206: A/C Compressor Shaft Bolt
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Raise and support the vehicle.

3. Remove the splash shield from the right side frame rail. Refer to **Body/Exterior/SHIELD, Splash - Removal**.
4. Remove the accessory drive belt. Refer to **Cooling/Accessory Drive/BELT, Serpentine - 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).

NOTE: Some models (depending on engine application) may require the A/C compressor to be removed from its installed location and repositioned to gain access to the compressor shaft bolt and/or pulley and field coil snap rings. However, the refrigerant system can still remain fully charged.

6. If necessary, remove the bolts that secure the A/C compressor to the engine and reposition the compressor to gain access to the shaft bolt and/or pulley and field coil snap rings. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Removal**.
7. Carefully remove the compressor clutch field coil connector and wire lead from the connector bracket (2).
8. Remove the compressor shaft bolt (3). A band-type oil filter wrench or a strap wrench may be used to hold the clutch plate (4) from rotating during bolt removal.



81229a/a

Fig. 207: Clutch Plate & Shim(s)
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.

9. 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).

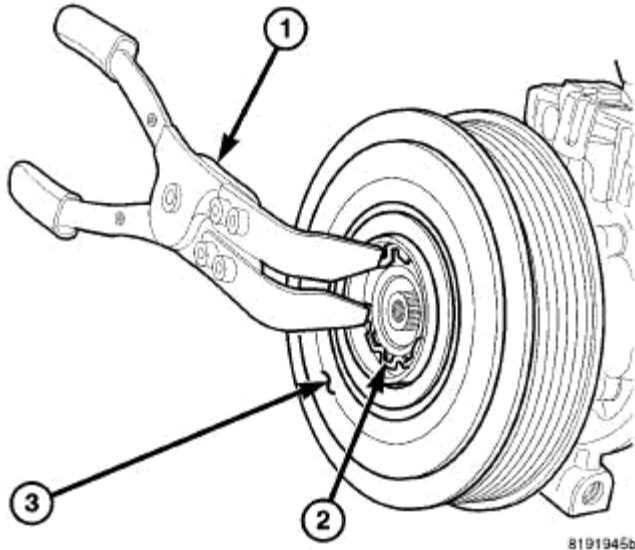


Fig. 208: Clutch Pulley & Snap Ring
Courtesy of CHRYSLER LLC

10. Using A/C 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 and remove the pulley and bearing assembly.

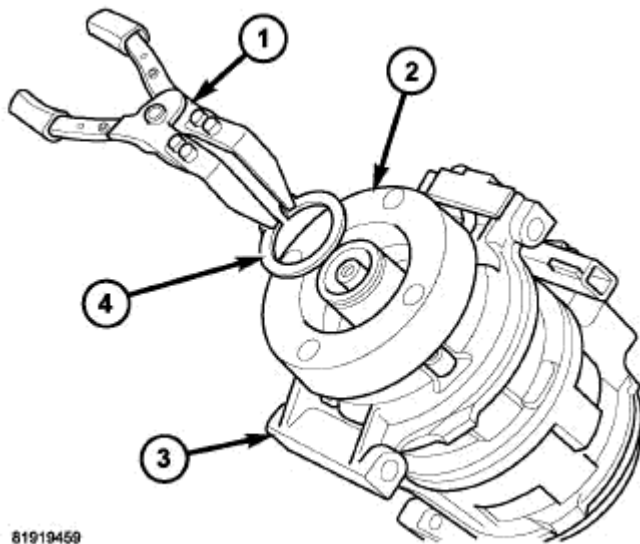


Fig. 209: Clutch Coil & Snap Ring

Courtesy of CHRYSLER LLC

11. Using A/C Snap Ring Pliers 9764 or equivalent (1), remove the snap ring (4) that secures the compressor clutch field coil (2) to the front of the A/C compressor (3) and remove the field coil.

A/C COMPRESSOR

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may result in possible serious or fatal injury.

NOTE: Variable displacement compressor shown in illustrations. Fixed displacement similar.

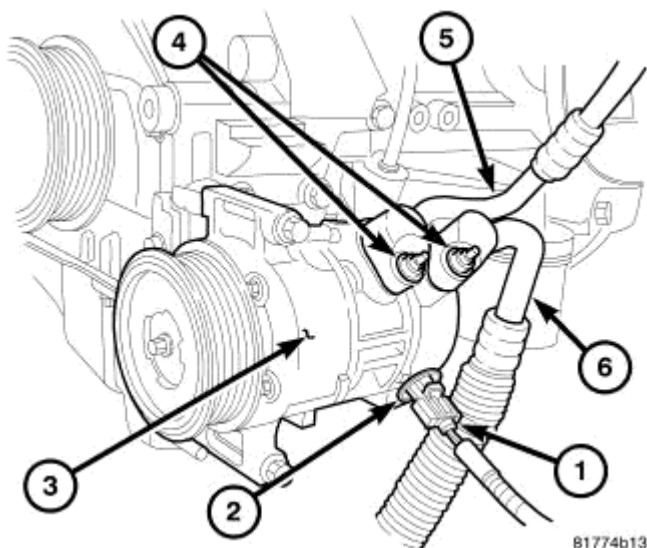


Fig. 210: A/C Compressor-Refrigerant Lines

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See [Heating and Air Conditioning/Plumbing - Standard Procedure](#).
3. Raise and support the vehicle.
4. Remove the splash shield from the right side frame rail. Refer to [Body/Exterior/SHIELD, Splash - Removal](#).
5. Remove the accessory drive belt. Refer to [Cooling/Accessory Drive/BELT, Serpentine - Removal](#).
6. Disconnect the engine wire harness (1) from the clutch coil or compressor control valve (2), depending on application.
7. Remove the nuts (4) that secure the A/C discharge line (5) and the A/C suction line (6) to the A/C

compressor (3).

8. Disconnect the A/C discharge and suction lines from the A/C compressor and remove and discard the O-ring seals and gaskets.

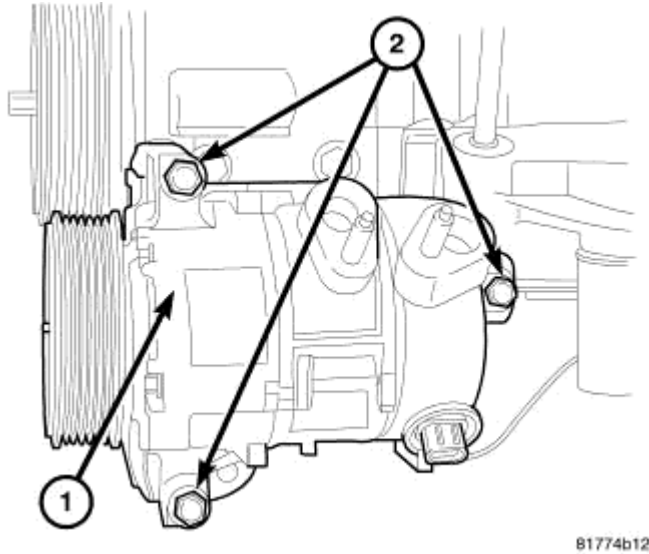
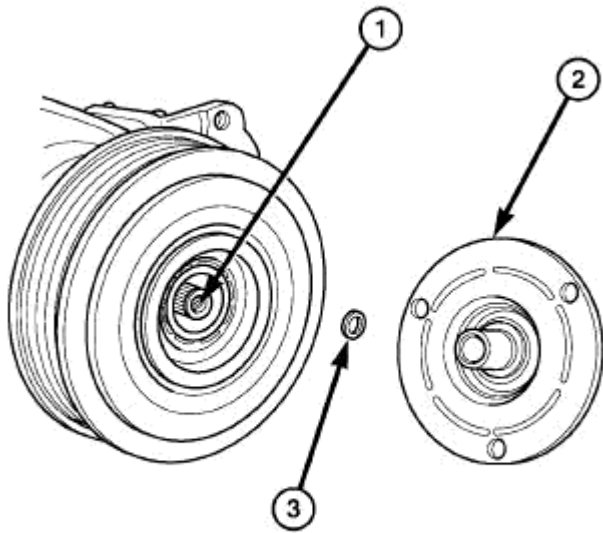


Fig. 211: A/C Compressor-Removal/Installation
Courtesy of CHRYSLER LLC

9. Support the A/C compressor (1) and remove the three bolts (2) that secure the compressor to the engine and remove the compressor.
10. Install plugs in, or tape over the opened refrigerant line fittings and compressor ports.

Inspection

CLUTCH INSPECTION - FIXED DISPLACEMENT A/C COMPRESSOR



81229afa

Fig. 212: 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 clutch plate if required.

HUB AND PULLEY INSPECTION - VARIABLE DISPLACEMENT A/C COMPRESSOR

NOTE: The compressor drive hub and the pulley and bearing assembly can not be serviced separately from the A/C compressor. In the event of drive hub or pulley and bearing assembly damage or failure, the A/C compressor, drive hub and pulley and bearing must be replaced as an assembly.

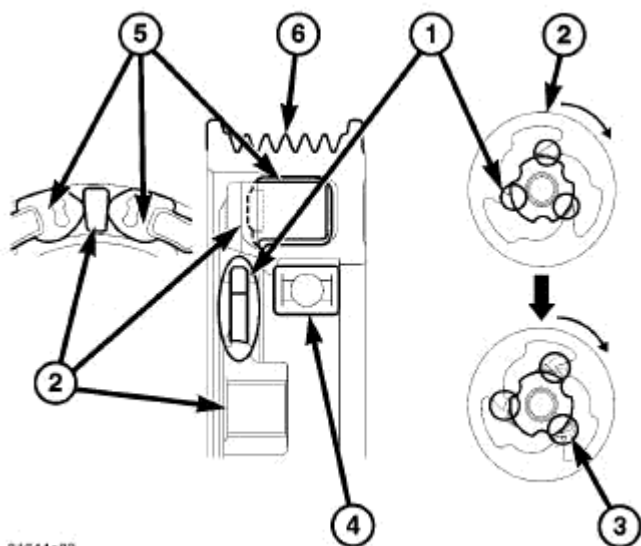


Fig. 213: Compressor Hub & Pulley Inspection
Courtesy of CHRYSLER LLC

NOTE: Typical clutchless compressor drive hub and pulley and bearing assembly shown.

The bridges (1) located on the non-servicable compressor hub (2) are designed to break away in the event of compressor seizure. Examine the bridges for separation or cracks (3). Damage to the bridges are an indication of excessive compressor torque, which is most likely caused by compressor failure.

Check the non-servicable pulley bearing (4) for roughness or excessive noise. Check the pulley dampeners (5) for excessive play which can be caused by deterioration or damage. Inspect the belt surfaces of the non-servicable pulley (4) for wear. If the pulley surfaces are oily, inspect the shaft and nose area of the A/C compressor for refrigerant oil. If refrigerant oil is found, the compressor shaft seal is leaking and the A/C compressor must be replaced.

Replace the A/C compressor if wear or damage is found to the drive hub or pulley and bearing assembly. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Removal**.

Installation

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

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

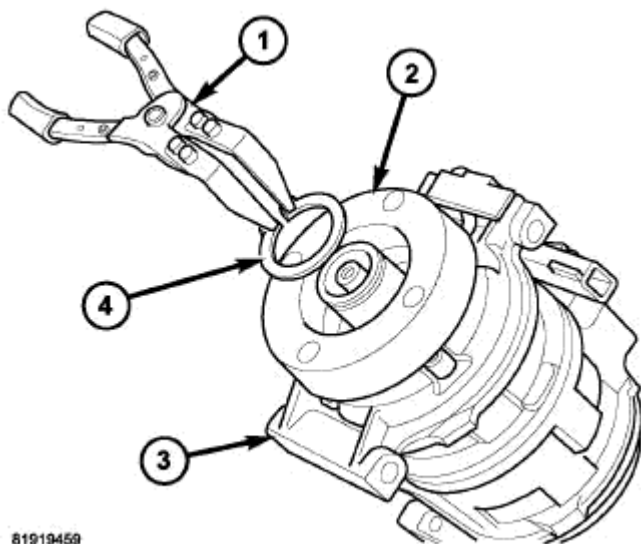


Fig. 214: Clutch Coil & Snap Ring
Courtesy of CHRYSLER LLC

1. Align the dowel pin on the back of the compressor clutch field coil (2) with the hole in the front of the A/C compressor (3) and position the field coil onto the compressor. Be certain that the compressor clutch field coil wire lead is properly routed so that it is not pinched between the A/C compressor and the field coil.

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 compressor clutch field coil to the A/C compressor. The bevel side of the snap ring must face outward and both snap ring eyelets must be oriented to the right or to the left of the field coil dowel pin location on the A/C compressor.

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

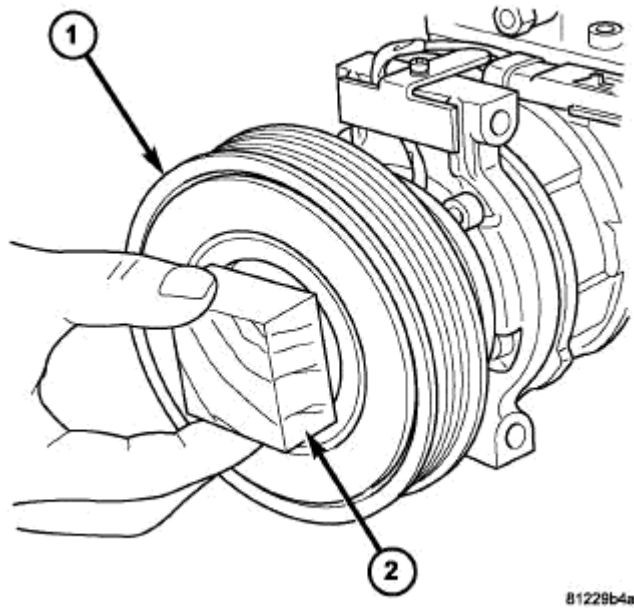


Fig. 215: Clutch Pulley - Installation
Courtesy of CHRYSLER LLC

CAUTION: Be certain to position the A/C clutch 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 A/C clutch will result.

3. 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.

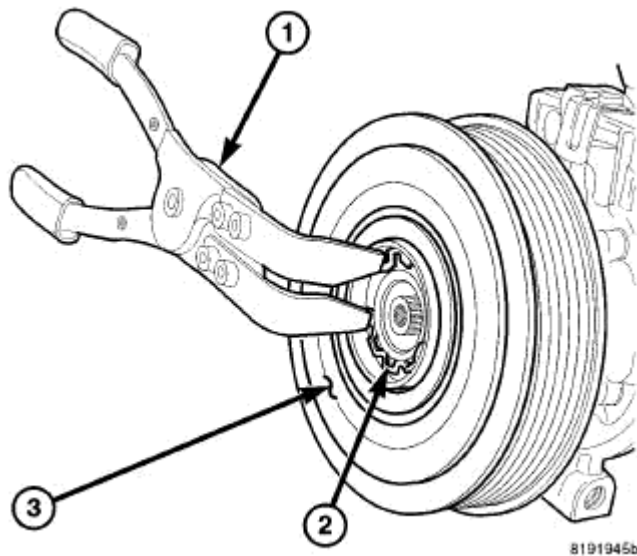


Fig. 216: Clutch Pulley & Snap Ring
Courtesy of CHRYSLER LLC

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.

4. Using A/C 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. Be certain that the snap ring is fully and properly seated in the groove.

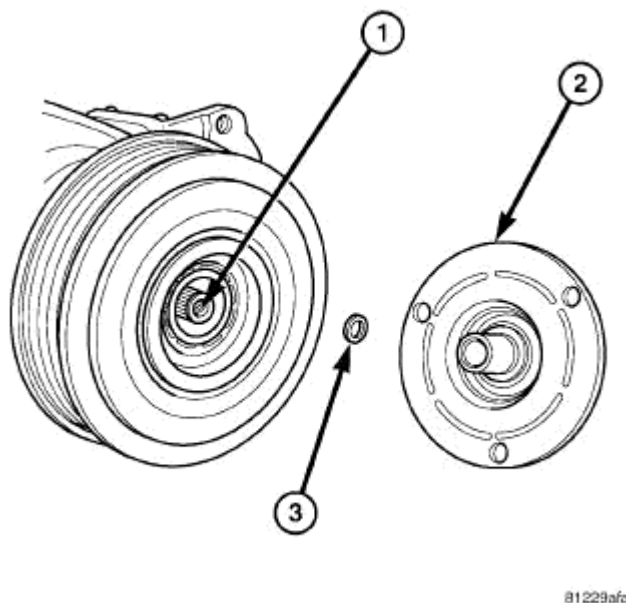


Fig. 217: Clutch Plate & Shim(s)
Courtesy of CHRYSLER LLC

5. 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 2.54 mm (0.010 in.) thick onto the compressor shaft.

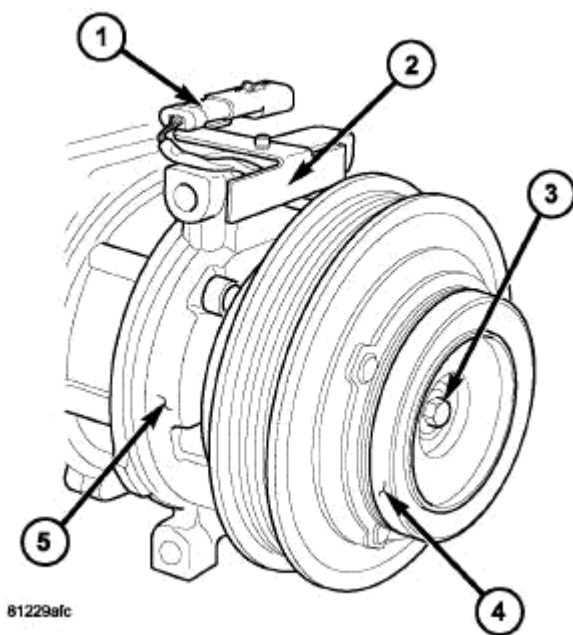


Fig. 218: A/C Compressor Shaft Bolt

Courtesy of CHRYSLER LLC

6. Install the clutch plate (4) onto the front of the A/C compressor (5).
7. Install the compressor shaft bolt (3). Tighten the bolt to 19 N.m (168 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.

8. 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 0.35 - 0.60 mm (0.014 - 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 coil wire lead is routed so that it is not pinched between the A/C compressor and the coil connector bracket.

9. Carefully route the compressor clutch field coil wire lead behind the connector bracket (2).
10. Install the compressor clutch field coil connector (1) onto the connector bracket.
11. Reinstall the A/C compressor onto the engine if removed for A/C clutch service. See Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Installation.
12. Connect the engine wire harness to the compressor clutch field coil connector.
13. Install the accessory drive belt. Refer to Cooling/Accessory Drive/BELT, Serpentine - Installation.
14. Install the splash shield onto the right side frame rail. Refer to Body/Exterior/SHIELD, Splash - Installation.
15. Lower the vehicle.
16. Reconnect the negative battery cable.

A/C COMPRESSOR

CAUTION: If the A/C compressor is being replaced, be certain to adjust the refrigerant system oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. See Heating and Air

Conditioning/Plumbing/DRIER, A/C Receiver - Removal. 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, see the **REFRIGERANT OIL CAPACITIES** to determine how much oil should be removed from the new A/C compressor. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure**.

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 may result in a refrigerant system leak.

NOTE: Variable displacement compressor shown in illustrations. Fixed displacement similar.

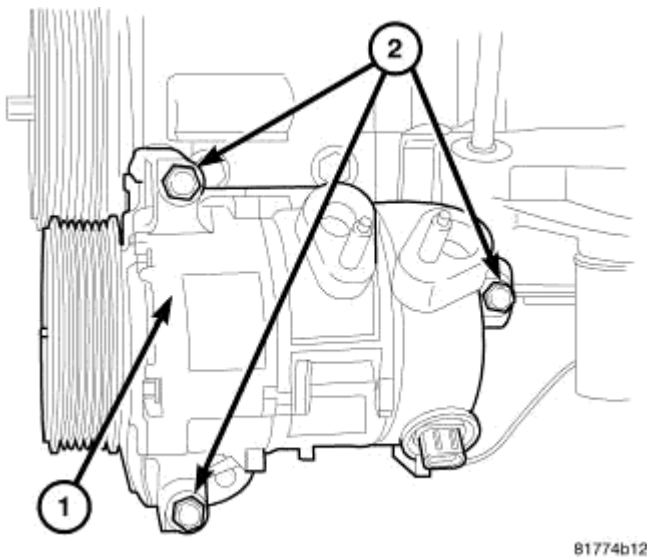


Fig. 219: A/C Compressor-Removal/Installation

Courtesy of CHRYSLER LLC

1. If the A/C compressor (1) is being replaced, refrigerant oil must first be drained from the new A/C compressor. When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** to determine how much oil should be added to the refrigerant system. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
2. Position the A/C compressor into the engine compartment.
3. Install the three bolts (2) that secure the A/C compressor to the engine. Tighten the bolts to 25 N.m (18 ft. lbs.).

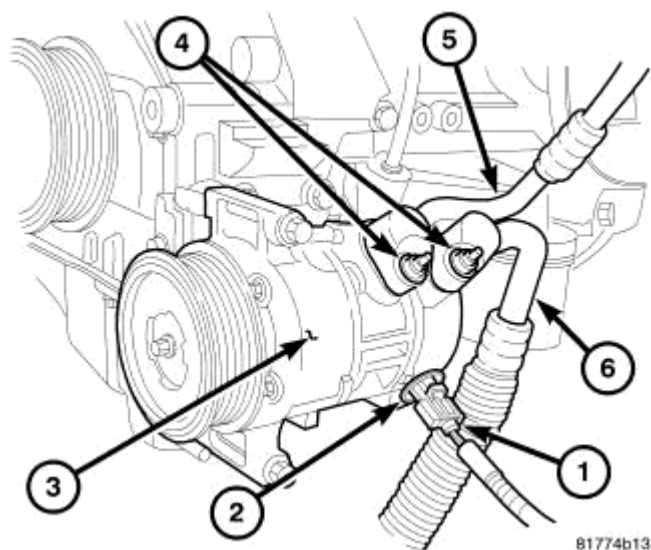


Fig. 220: A/C Compressor-Refrigerant Lines
Courtesy of CHRYSLER LLC

4. Remove the tape or plugs from the compressor ports and the refrigerant line fittings.
5. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets 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.
6. Connect the A/C discharge line (5) and the A/C suction line (6) to the A/C compressor (3).
7. Install the nuts (4) that secure the A/C suction and discharge lines to the A/C compressor. Tighten the nuts to 20 N.m (15 ft. lbs.).
8. Connect the engine wire harness (1) to the clutch coil or compressor control valve (2), depending on application.
9. Install the accessory drive belt. Refer to **Cooling/Accessory Drive/BELT, Serpentine - Installation**.
10. Install the splash shield onto the right side frame rail. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
11. Lower the vehicle.
12. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

13. Evacuate and charge the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.

CONDENSER, A/C

Description

DESCRIPTION

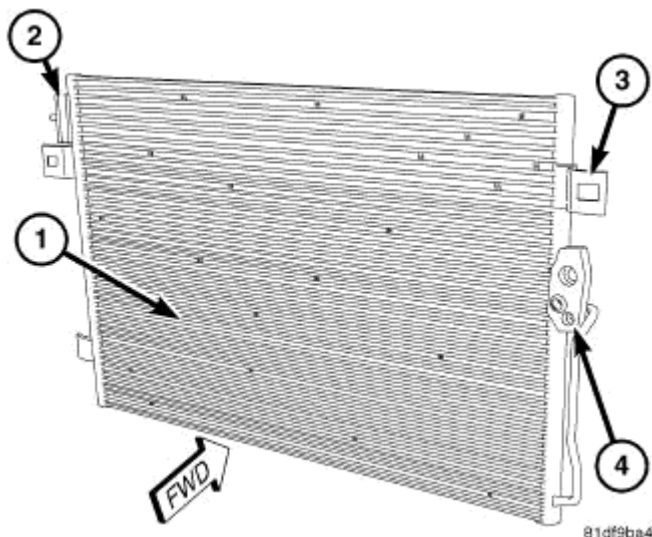


Fig. 221: Condenser Description
Courtesy of CHRYSLER LLC

NOTE: A/C condenser with automatic transmission cooler shown. A/C Condenser without cooler similar.

The A/C condenser (1) is located in the front of the engine compartment behind the grille. 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 tabs (3), a tapping block for the A/C discharge and liquid lines (4) and a tapping block for the integral automatic transmission cooler (2), when equipped with an automatic transaxle.

Operation**OPERATION**

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 disconnected from the A/C condenser.

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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.

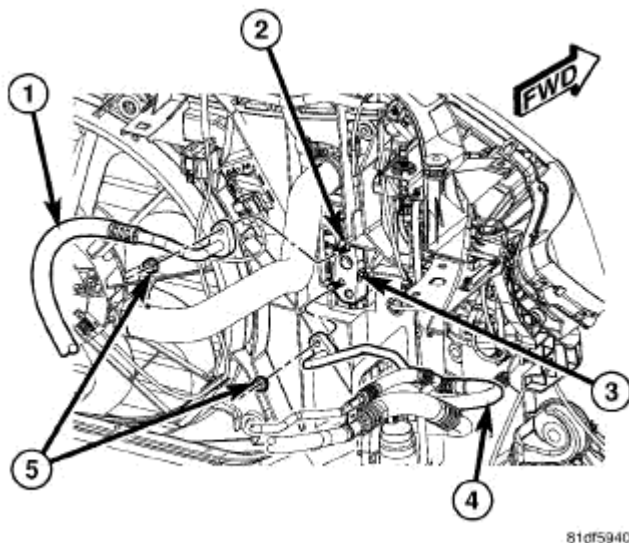
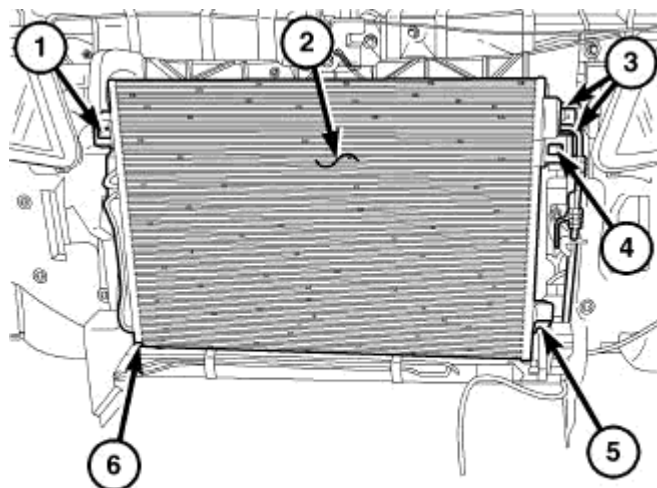


Fig. 222: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See [Heating and Air Conditioning/Plumbing -](#)

Standard Procedure.

3. Remove the nuts (5) that secure the A/C discharge line (1) and the A/C liquid line (4) to the tapping block (2) located on the right side of the A/C condenser.
4. Disconnect the A/C discharge and liquid lines from the tapping block and remove and discard the O-ring seals and gaskets.
5. Remove the bolt (3) that secures the tapping block to the right side of the radiator support.
6. Install plugs in, or tape over the opened refrigerant line fittings and condenser ports.



B1df9c0a

Fig. 223: Condenser Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: A/C condenser with automatic transmission cooler shown. A/C Condenser without cooler similar.

7. Remove the front fascia. Refer to **Frame and Bumpers/Bumpers/FASCIA, Front - Removal**.
8. Remove the front bumper reinforcement. Refer to **Frame and Bumpers/Bumpers/REINFORCEMENT, Bumper - Removal**.
9. If equipped, disconnect the automatic transmission cooler lines (3) from the left side of the A/C condenser (2). Refer to **Cooling - Standard Procedure**.
10. If equipped with the 2.0L diesel engine, remove the charge air cooler. Refer to **Engine/Turbocharger System/COOLER and HOSES, Charge Air - Removal**.
11. Disengage the two plastic retaining tabs (1 and 4) that secure the top mounting brackets of the A/C condenser to the radiator.
12. Lift the A/C condenser slightly upward to disengage the two lower mounting brackets (5 and 6) from the condenser and remove the condenser from the engine compartment.

Installation

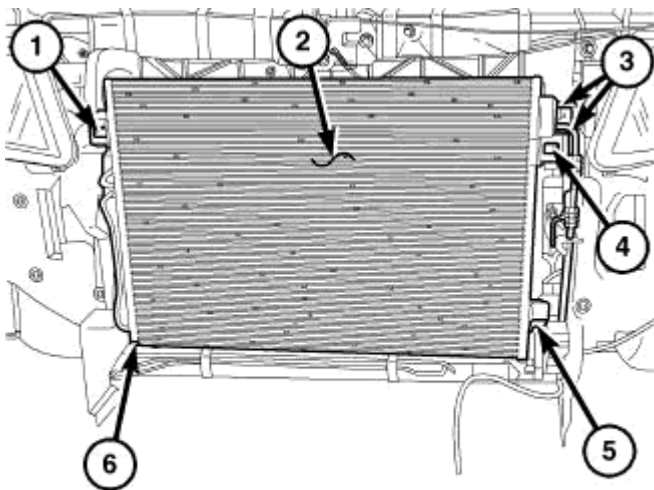
INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: If only the A/C condenser is being replaced, add 10 milliliters (0.3 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 disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.



81df9c0a

Fig. 224: Condenser Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: A/C condenser with automatic transmission cooler shown. A/C Condenser without cooler similar.

1. Position the A/C condenser (1) to the front of the engine compartment and engage the condenser to the two lower mounting brackets.
2. Engage the two plastic retaining tabs (1 and 4) that secure the top mounting brackets of the A/C condenser to the radiator. Make sure the retaining tabs are fully engaged.

3. If equipped, connect the automatic transmission cooler lines (2) to the left side of the A/C condenser. Refer to **Cooling - Standard Procedure**.
4. If equipped with the 2.0L diesel engine, install the charge air cooler. Refer to **Engine/Turbocharger System/COOLER and HOSES, Charge Air - Installation**.
5. Install the front bumper reinforcement. Refer to **Frame and Bumpers/Bumpers/REINFORCEMENT, Bumper - Installation**.
6. Install the front fascia. Refer to **Frame and Bumpers/Bumpers/FASCIA, Front - Installation**.

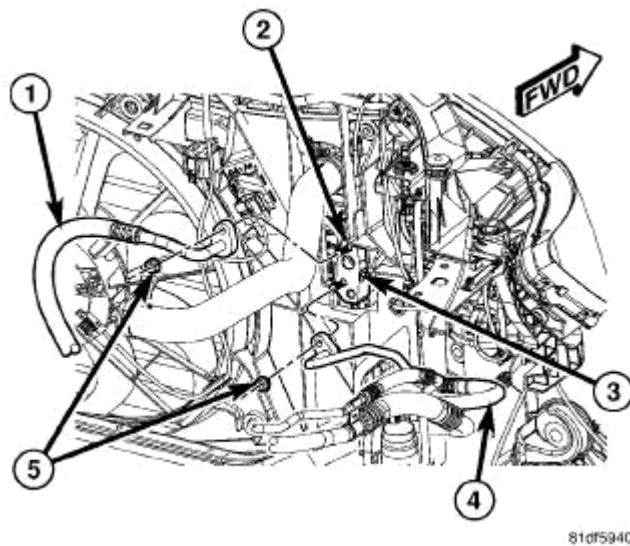


Fig. 225: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

7. Install the bolt (3) that secures the condenser tapping block (2) to the right side of the radiator support. Tighten the bolt securely.
8. Remove the tape or plug from the opened refrigerant line fittings and condenser ports.
9. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets 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.
10. Connect the A/C liquid line (4) and the A/C discharge line (1) to the tapping block and install the retaining nuts (5). Tighten the nuts to 20 N.m (15 ft. lbs.).
11. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

12. Evacuate the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**

13. If the A/C condenser is being replaced, add 10 milliliters (0.3 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the **REFRIGERANT OIL CAPACITIES** to determine how much oil should be added to the refrigerant system. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
14. Charge the A/C system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.

CORE, HEATER, FRONT

Description

DESCRIPTION

NOTE: LHD model shown. RHD model similar.

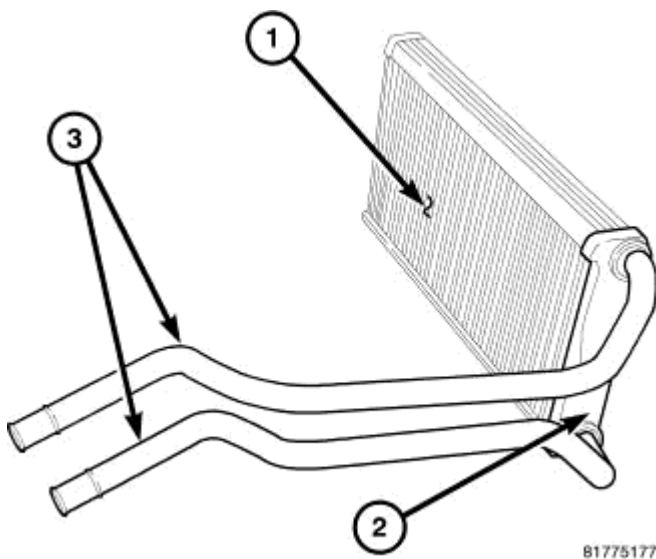


Fig. 226: Heater Core-Description

Courtesy of CHRYSLER LLC

The heater core (1) for the heating-A/C system is mounted within the HVAC air distribution housing, which is located behind the instrument panel. The heater core is a heat exchanger made of rows of tubes with fins and is positioned within the air distribution housing so that only the selected amount of air entering the housing passes through the heater core before it is distributed through the heating-A/C system ducts and outlets. One end of the heater core is fitted with a tank (2) that includes the fittings for the heater core tubes (3).

The heater core can only be serviced by removing the HVAC housing from the vehicle.

Operation

OPERATION

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

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

NOTE: The HVAC housing assembly must be removed from vehicle for service of the heater core.

NOTE: LHD model with A/C shown. RHD and heater-only models similar.

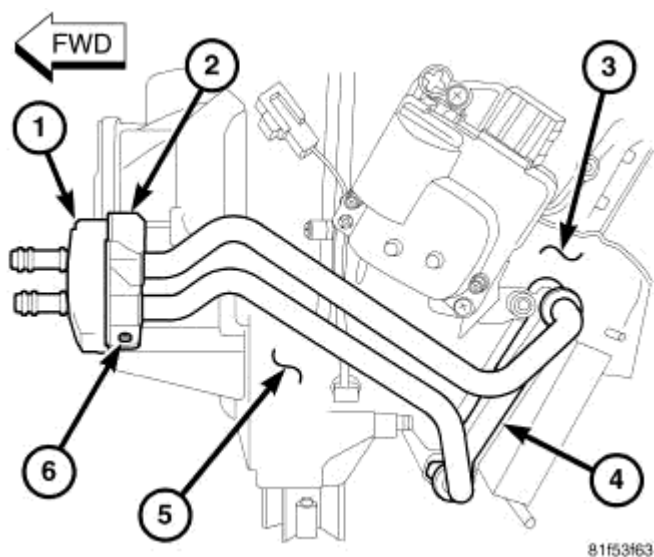


Fig. 227: Heater Core Removal/Installation

Courtesy of CHRYSLER LLC

1. Remove the HVAC housing assembly and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
2. Remove the left side front floor duct. See [Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Removal](#).

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

3. Remove the foam seal (1) from the flange (2) located on the front of the HVAC housing (5).
4. Remove the screw (6) that secures the flange to the front of the HVAC housing and remove the flange.
5. On RHD models, remove the air distribution housing from the HVAC housing. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal
6. Carefully pull the heater core (4) out of the driver side of the air distribution housing (3).

Installation

INSTALLATION

NOTE: LHD model with A/C shown. RHD and heater-only models similar.

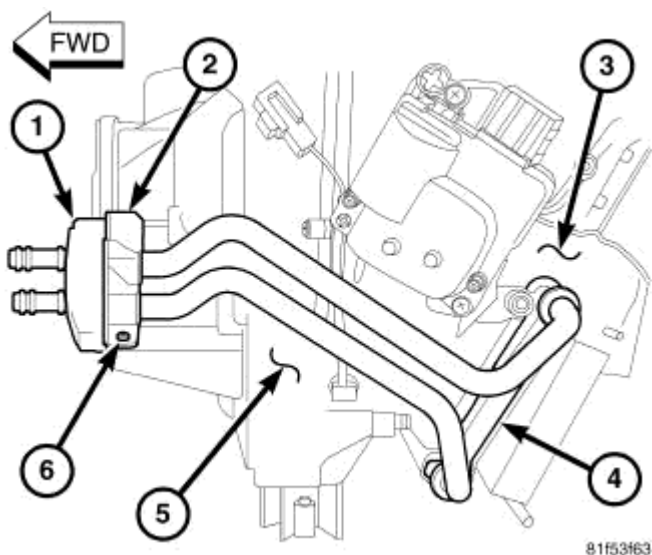


Fig. 228: Heater Core Removal/Installation

Courtesy of CHRYSLER LLC

1. Carefully install the heater core (4) into the side of the air distribution housing (3).
2. On RHD models, install the air distribution housing onto the HVAC housing (5). See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.
3. Install the flange (2) that secures the heater core tubes to the front of the HVAC housing.
4. Install the screw (6) that secures the flange to the HVAC housing. Tighten the screw to 1.2 N.m (10 in. lbs.).

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

5. Install the foam seal (1) onto the flange.

6. Install the left side front floor duct. See **Heating and Air Conditioning/Distribution/DUCT, Floor Distribution - Installation**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to **Cooling - Standard Procedure** .

7. Install the HVAC housing assembly. See **Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation**.

CORE, SERVICE PORT VALVE

Description

DESCRIPTION

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 high side service port is located on the A/C liquid line near the right front strut tower. The low side service port is located on the A/C suction line near the dash panel.

Both the high side and low side A/C service port valve cores are serviceable.

NOTE: The protective cap aids in service port sealing and helps 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

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See **Heating and Air Conditioning/Plumbing - Warning** and **Heating and Air Conditioning/Plumbing - Caution**. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

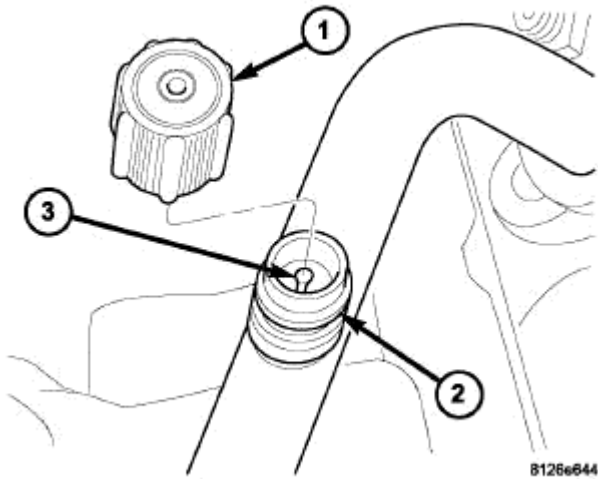


Fig. 229: Identifying A/C Service Port Components
Courtesy of CHRYSLER LLC

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 Heating and Air Conditioning/Plumbing - Standard Procedure.
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

INSTALLATION

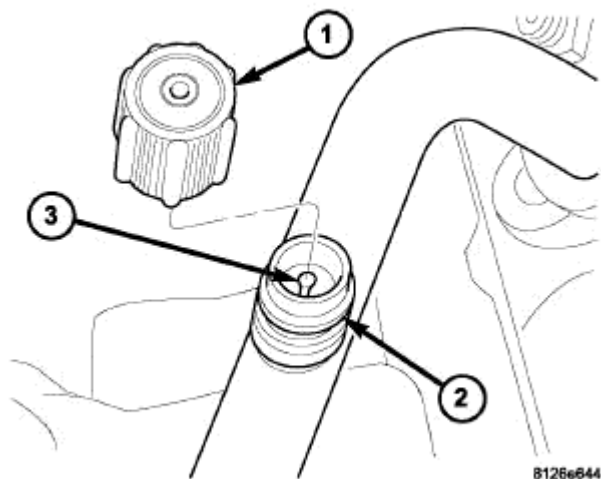


Fig. 230: Identifying A/C Service Port Components
Courtesy of CHRYSLER LLC

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).

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

4. Evacuate and charge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

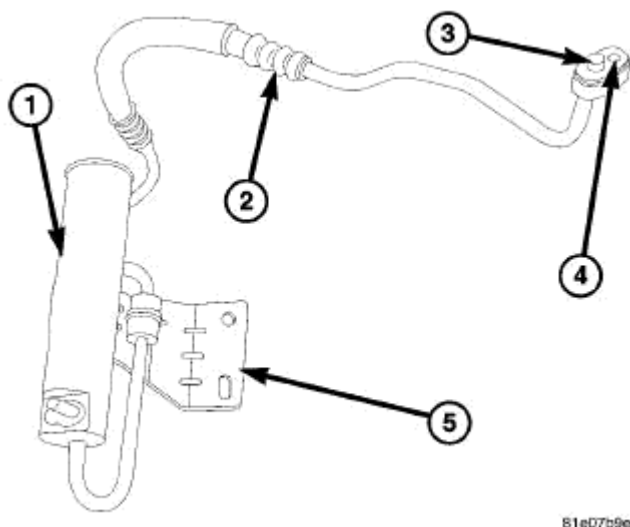
NOTE: The protective cap helps aid in service port sealing and helps protect the refrigerant system from contamination. Remember to always reinstall the protective cap onto the service port when refrigerant system service is complete.

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

DRIER, A/C RECEIVER

Description

DESCRIPTION



81e07c9e

Fig. 231: Receiver/Drier Description

Courtesy of CHRYSLER LLC

The A/C receiver/drier (1) stores unused refrigerant, filters the refrigerant, helps remove moisture from the refrigerant and retains any refrigerant vapor that may leave the A/C condenser until it becomes a liquid.

The A/C receiver/drier is installed on the high-side of the A/C system, below the engine compartment behind the right side of the front fascia and is connected to the right side of the A/C condenser by an integral refrigerant line (2). An integral mounting bracket (5) secures the A/C receiver/drier to the right front frame rail and the connections are sealed by use of rubber O-ring seals (3) and metal gaskets (4).

Operation

OPERATION

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 and gaskets. 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 disconnected.

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

REMOVAL

WARNING: Review safety precautions and warnings in this part before performing this procedure. See Heating and Air Conditioning/Plumbing - Warning and. See Heating and Air Conditioning/Plumbing - Caution. Failure to follow the warnings and cautions could result in possible serious or fatal injury.

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

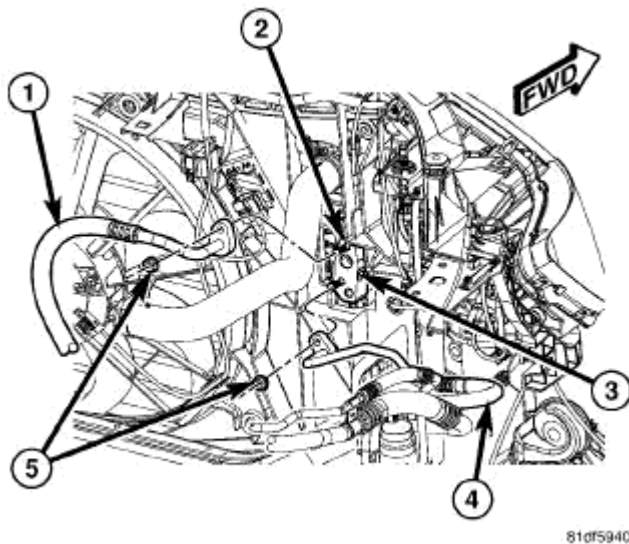


Fig. 232: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Remove the nut (5) that secures the A/C liquid line (4) to the tapping block (2) located on the right side of

the A/C condenser.

4. Disconnect the A/C liquid line from the tapping block and remove and discard the O-ring seal and gasket.
5. Install plugs in, or tape over the opened refrigerant line fitting and condenser port.

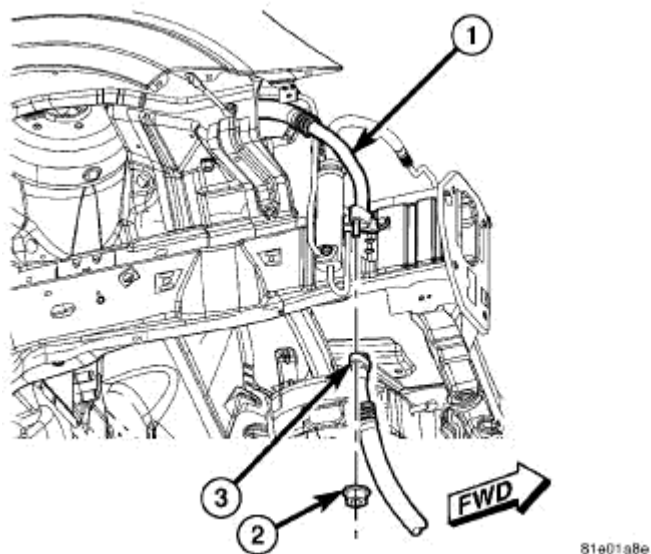


Fig. 233: Lower to Upper Suction Line
 Courtesy of CHRYSLER LLC

6. Raise and support the vehicle.
7. Position the front portion of the right front wheelhouse splash shield out of the way to gain access to the A/C receiver/drier. Refer to **Body/Exterior/SHIELD, Splash - Removal**.
8. Remove the nut (2) that secures the lower A/C suction line (3) to the upper A/C suction line (1).
9. Disconnect the lower A/C suction line to the upper A/C suction line and remove and discard the O-ring seal and gasket.

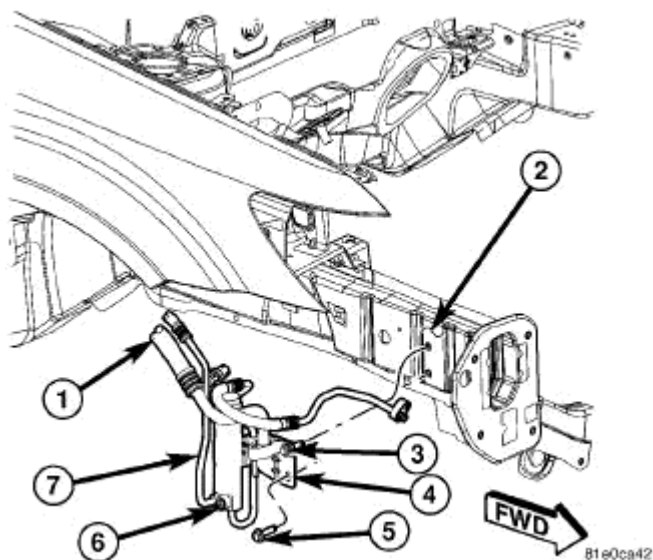


Fig. 234: Receiver/Drier Removal/Installation 09
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

10. Remove the bolt (3) that secures the rear section of the A/C suction line (1) to the right front frame rail (2) and position the suction line out of the way.
11. Remove the nut (6) that secures the rear section of the A/C liquid line (7) to the A/C receiver/drier (4).
12. Disconnect the rear section of the A/C liquid line from the A/C receiver/drier, remove and discard the O-ring seal and gasket and position the liquid line out of the way.
13. Remove the bolt (5) that secure the A/C receiver/drier to the right front frame rail and remove the receiver/drier.
14. Install plugs in, or tape over all of the opened refrigerant line fittings and the receiver/drier port.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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.

CAUTION: The A/C receiver/drier must be replaced if an internal failure of the A/C compressor has occurred. See Heating and Air Conditioning/Plumbing/DRIER, A/C Receiver - Removal. Failure to replace the A/C Receiver Drier can cause serious damage to the replacement A/C

compressor.

- NOTE:** If only the A/C receiver/drier 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:** When replacing multiple A/C system components, refer to the REFRIGERANT OIL CAPACITIES to determine how much oil should be added to the refrigerant system. See [Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure](#).
- 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.
- NOTE:** LHD model shown in illustrations. RHD model similar.

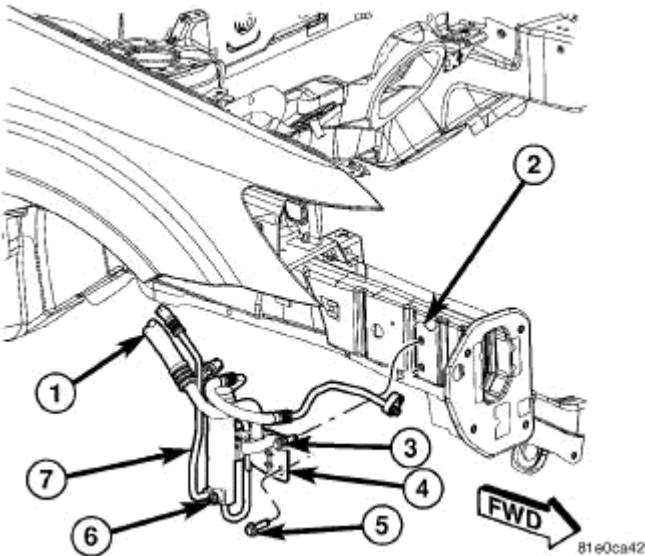


Fig. 235: Receiver/Drier Removal/Installation
Courtesy of CHRYSLER LLC

- NOTE:** Illustration shown with front fascia and headlamp removed for clarity.
1. Position the A/C receiver/drier (4) to the right front frame rail (2) and loosely install the lower retaining bolt (5).
 2. Install the bolt (3) that secures the upper portion of the A/C suction line (1) to the right front frame rail. Tighten both bolts securely.
 3. Remove the tape or plugs from the opened refrigerant line fittings and the receiver/drier port.

4. Lubricate new O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings. Use only the specified O-ring seals 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.
5. Connect the rear section of the A/C liquid line (7) to the A/C receiver/drier.
6. Install the nut (6) that secures the rear section of the A/C liquid line to the A/C receiver/drier. Tighten the nut to 20 N.m (15 ft. lbs.).

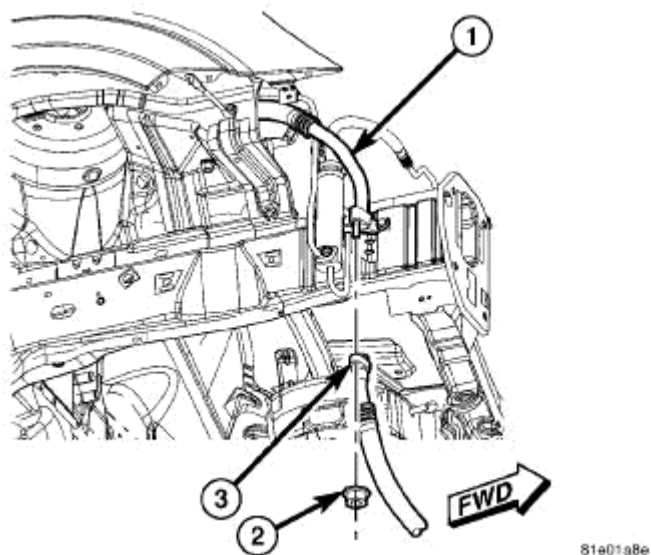


Fig. 236: Lower to Upper Suction Line
Courtesy of CHRYSLER LLC

7. Connect the lower portion of the A/C suction line (3) to the upper suction line (1)
8. Install the nut (2) that secures the lower portion of the A/C suction line to the upper suction line. Tighten the nut to 20 N.m (15 ft. lbs.).
9. Reposition the right front wheel house splash shield to the body. Refer to **Body/Exterior/SHIELD, Splash - Installation**.

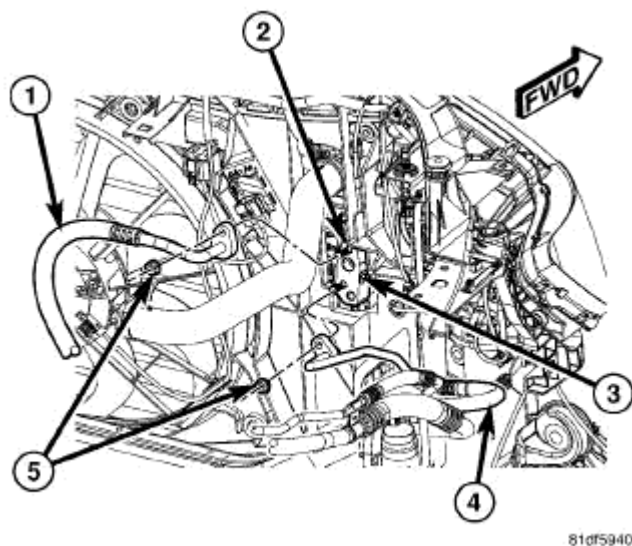


Fig. 237: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

10. Lower the vehicle.
11. Remove the tape or plug from the opened refrigerant line fitting and condenser ports.
12. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gaskets onto the refrigerant line fitting. 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.
13. Connect the A/C liquid line (4) to the tapping block (2) and install the retaining nut (5). Tighten the nut to 20 N.m (15 ft. lbs.).
14. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

15. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure
16. If the A/C condenser is being replaced, add 10 milliliters (0.3 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the **REFRIGERANT OIL CAPACITIES** to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
17. Charge the A/C system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

EVAPORATOR, A/C, FRONT

Description

DESCRIPTION

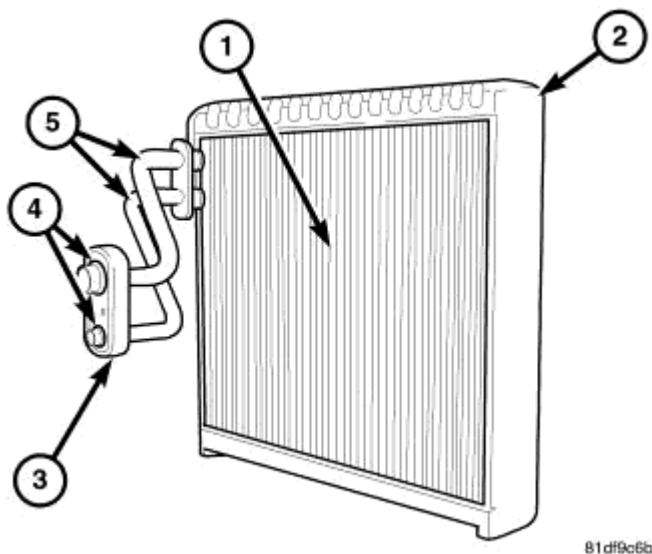


Fig. 238: Evaporator Description
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

The A/C evaporator (1) for the heating-A/C system is mounted in the HVAC housing, which is located behind the instrument panel. The A/C evaporator and its insulator (2) are positioned within the HVAC housing so that all air entering the housing must pass over the evaporator fins before it is distributed through the heating-A/C system ducts and outlets.

A tapping block (3) and O-ring seals (4) are used to connect and seal the A/C evaporator tubes (5) to the A/C expansion valve.

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

Operation**OPERATION**

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

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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

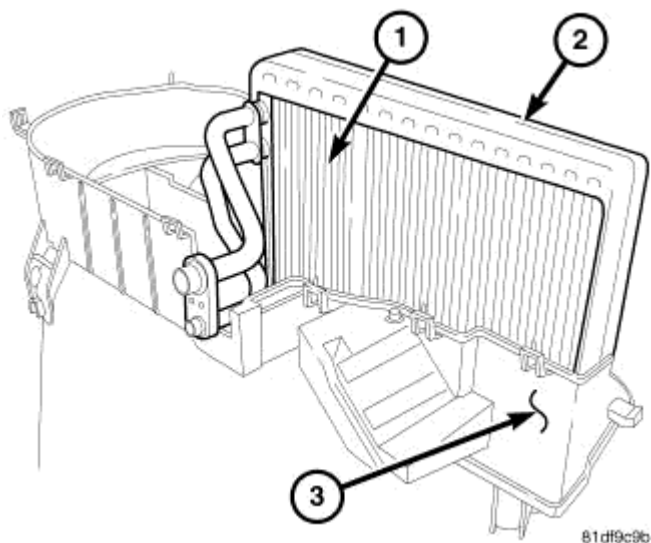


Fig. 239: Evaporator Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Remove the HVAC housing and place it on a workbench. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - Removal](#).
2. Disassemble the HVAC housing to gain access to the A/C evaporator. See [Heating and Air Conditioning/Distribution/HOUSING, HVAC - 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).

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: If only the A/C evaporator is being replaced, add 10 milliliters (0.3 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 disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: LHD model shown. RHD model similar.

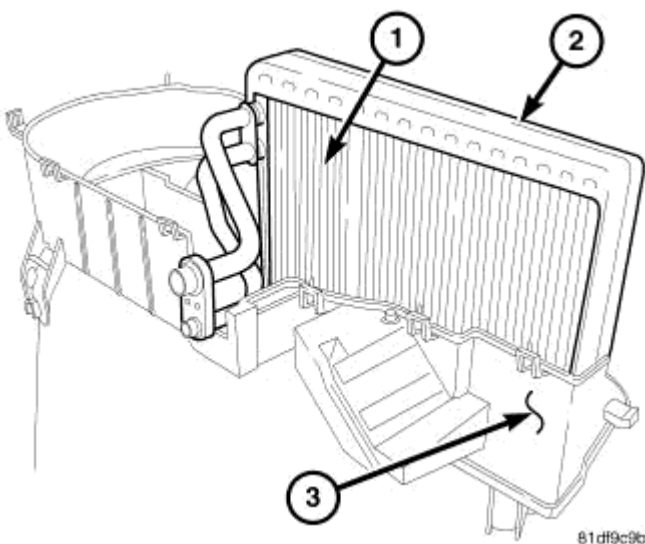


Fig. 240: Evaporator Removal/Installation
Courtesy of CHRYSLER LLC

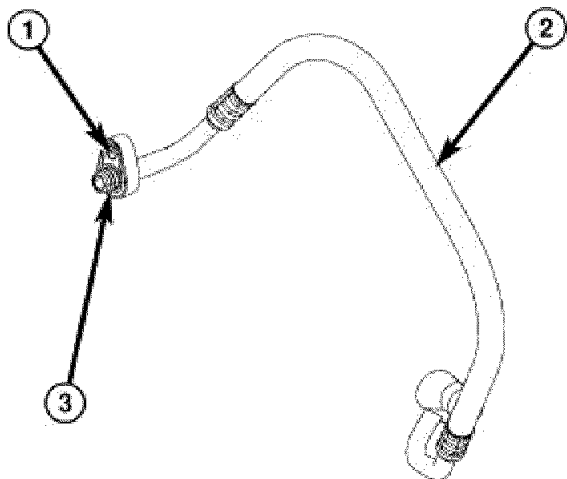
NOTE: Make sure that the foam insulator is properly positioned around the A/C evaporator and in the HVAC housing.

1. Carefully install the A/C evaporator (1) and foam insulator (2) into the lower half of the HVAC housing (3).
2. Assemble the HVAC housing. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Assembly.
3. Install the HVAC housing. See Heating and Air Conditioning/Distribution/HOUSING, HVAC - Installation.
4. If the A/C evaporator is being replaced, add 10 milliliters (0.3 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, refer to the REFRIGERANT OIL CAPACITIES to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

LINE, A/C DISCHARGE

Description

DESCRIPTION



8105163

Fig. 241: Discharge Line Description
Courtesy of CHRYSLER LLC

NOTE: 2.7L shown. Other engines similar.

The A/C discharge line (2) 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 disconnected. 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 (1) and rubber O-ring seals (3) used on the fittings. The O-ring seals 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 disconnected.

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See Heating and Air Conditioning/Plumbing - Warning and Heating and Air Conditioning/Plumbing - Caution. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

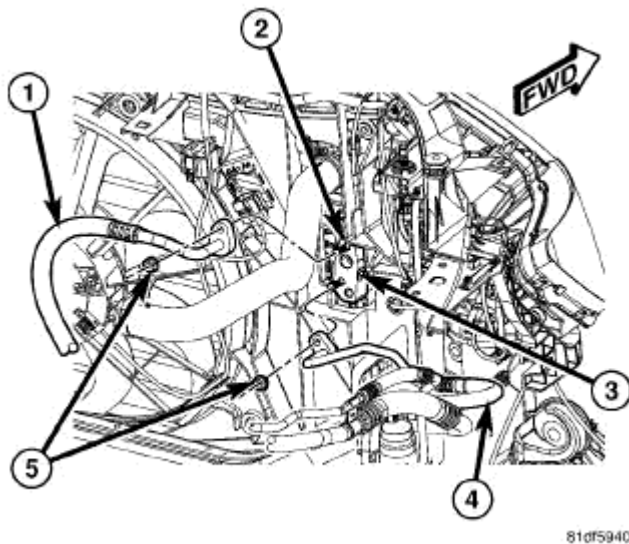


Fig. 242: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Remove the nut (5) that secures the A/C discharge line (1) to the condenser tapping block (2) located on the right side of the condenser.
4. Disconnect the A/C discharge line from the tapping block.

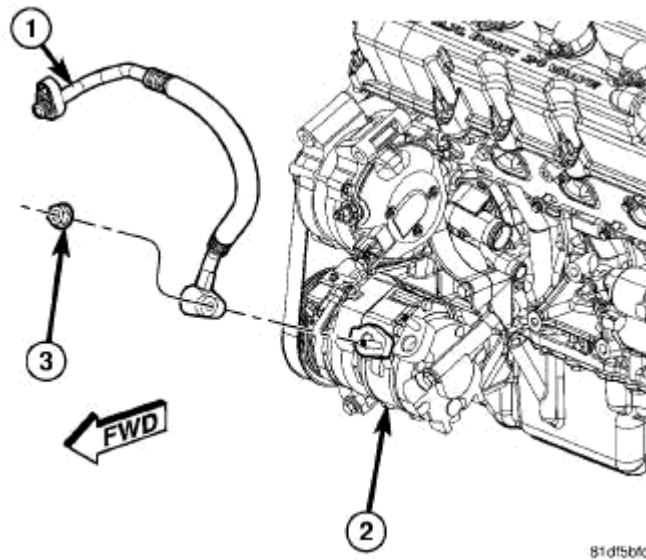


Fig. 243: Discharge Line to Compressor
Courtesy of CHRYSLER LLC

NOTE: 2.7L shown. Other engines similar.

5. Remove the nut (3) that secures the A/C discharge line (1) to the A/C compressor (2).
6. Disconnect the A/C discharge line from the A/C compressor and remove the discharge line from the engine compartment.
7. Remove and discard the O-ring seals and gaskets and install plugs in, or tape over the opened discharge line fittings and the compressor and condenser ports.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

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.

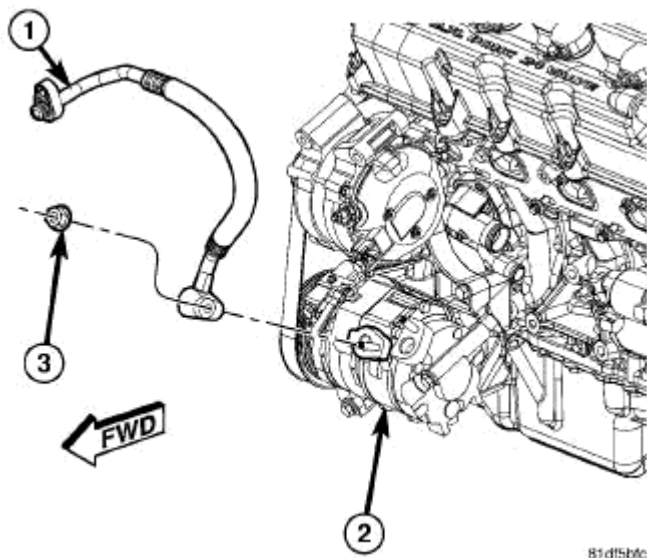


Fig. 244: Discharge Line to Compressor
Courtesy of CHRYSLER LLC

NOTE: 2.7L shown. Other engines similar.

1. Remove the tape or plugs from the opened discharge line fittings and the 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. Position the A/C discharge line (1) into the engine compartment and connect it to the A/C compressor (2).
4. Install the nut (3) that secures the A/C discharge line to the A/C compressor. Tighten the nut to 20 N.m (15 ft. lbs.).

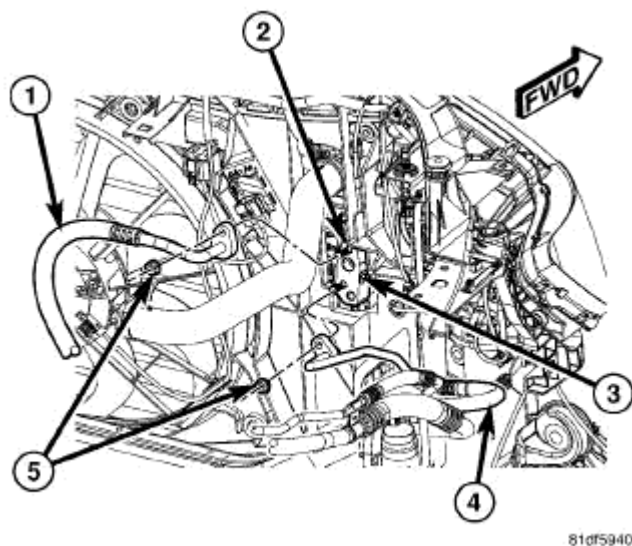


Fig. 245: Refrigerant Lines to Condenser Tapping Block
Courtesy of CHRYSLER LLC

5. Connect the A/C discharge line (1) to the condenser tapping block (2).
6. Install the nut (5) that secures the A/C discharge line to the tapping block. Tighten the nut to 20 N.m (15 ft. lbs.).
7. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

8. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
9. Adjust the refrigerant oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.
10. Charge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

LINE, A/C LIQUID

Description

DESCRIPTION

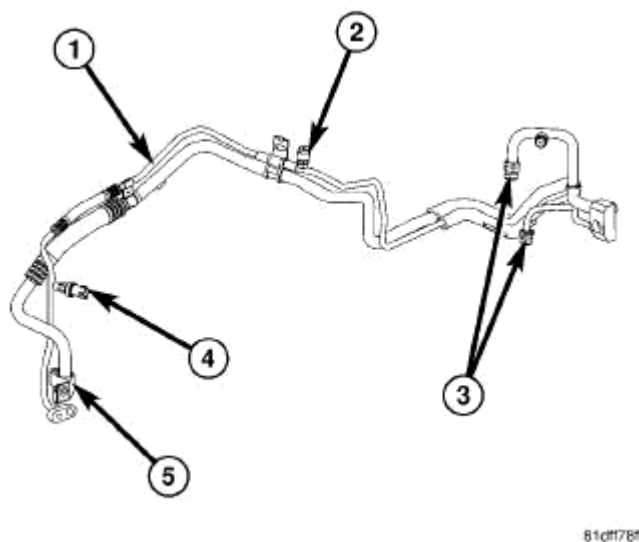


Fig. 246: Liquid/Suction Line Assembly with Rear A/C
 Courtesy of CHRYSLER LLC

NOTE: A/C liquid and suction line assembly with rear A/C shown. Front A/C only line assembly similar.

The A/C liquid line is serviced in two sections. The front section of the A/C liquid line is the refrigerant line that carries liquid refrigerant from the A/C condenser to the A/C receiver/drier and is only serviced as an assembly with receiver/drier. See **Heating and Air Conditioning/Plumbing/DRIER, A/C Receiver - Description**.

The rear section of the A/C liquid line (1) carries liquid refrigerant from the A/C receiver/drier to the A/C expansion valve and includes the high side service port (2) and a fitting for the A/C pressure transducer (4). The rear section of the A/C liquid line is only serviced as an assembly with the A/C suction line (5). When equipped with rear A/C, the A/C liquid and suction line assembly includes connections for the underbody refrigerant lines (3).

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 liquid and suction line assembly has no serviceable parts except for the metal gaskets, rubber O-ring seals and the service port valve cores. 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 liquid/suction line assembly is disconnected.

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

Removal

REMOVAL

WARNING: Review safety precautions and warnings in this part before performing this procedure. See Heating and Air Conditioning/Plumbing - Warning and. See Heating and Air Conditioning/Plumbing - Caution. Failure to follow the warnings and cautions could result in possible serious or fatal injury.

NOTE: The rear A/C liquid line is only serviced as an assembly with the upper A/C suction line.

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

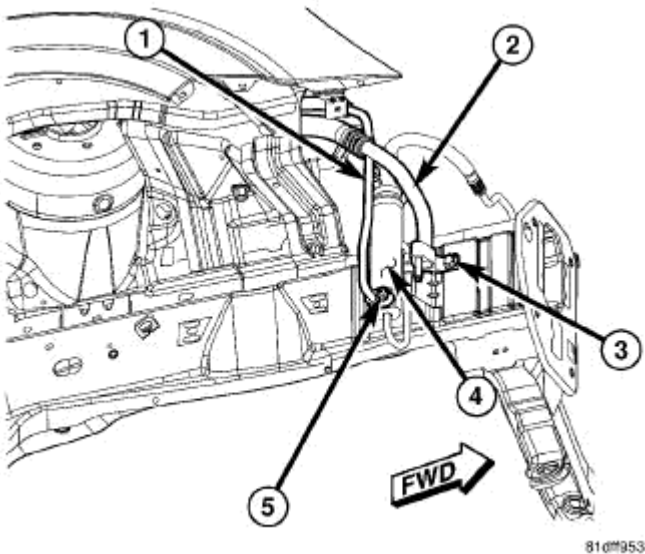


Fig. 247: Liquid Line to Receiver/Drier
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Raise and support the vehicle.
4. Position the front portion of the right front wheelhouse splash shield out of the way to gain access to the A/C receiver/drier. Refer to Body/Exterior/SHIELD, Splash - Removal.
5. Remove the nut (5) that secures the rear section of the A/C liquid line (1) to the A/C receiver/drier (4).
6. Disconnect the rear section of the A/C liquid line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.

7. Disconnect the lower portion of the A/C suction line from the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINE, A/C Suction - Removal**.
8. Remove the bolt (3) that secures the rear section of the A/C suction line (2) to the right front frame rail.

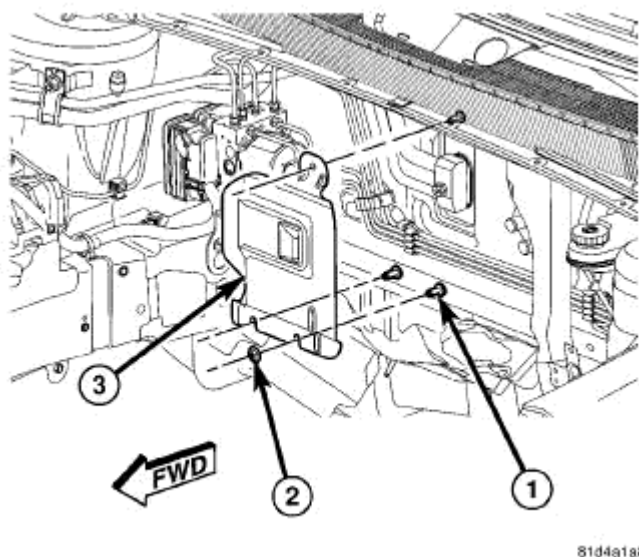
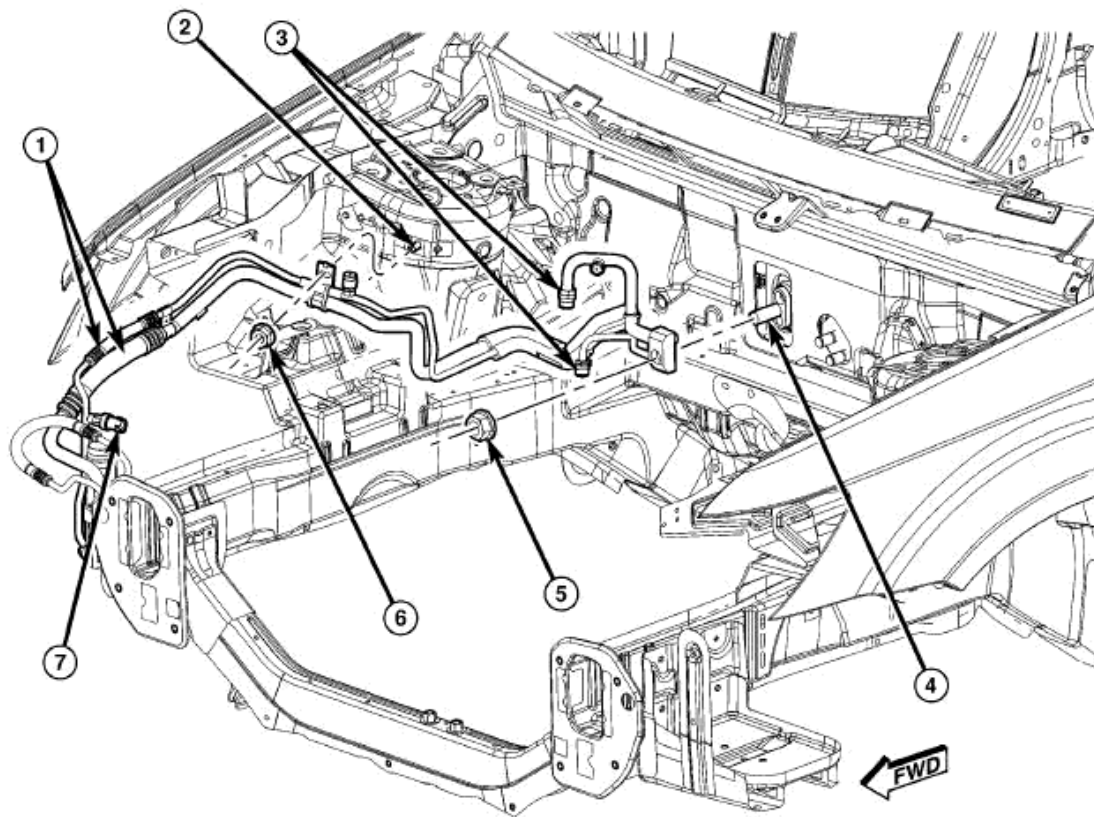


Fig. 248: Heat Shield - Unified Line
 Courtesy of CHRYSLER LLC

9. Lower the vehicle.
10. If equipped with heat shield (3), remove the top nut (2) that secures the heat shield to the stud (1) located on the dash panel.

NOTE: Two slots are provided at the bottom of the heat shield to aid in heat shield removal, if equipped. Complete removal of the two bottom heat shield retaining nuts is not required.

11. If equipped, reach behind the engine and remove the two bottom nuts that secure the heat shield to the studs located on the dash panel and remove the heat shield. Rotate and tilt the heat shield as required.



81a0047a

Fig. 249: Liquid & Suction Line Assembly Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: It is only necessary to position the engine coolant reservoir and the power steering fluid reservoir out of the way. Draining of the coolant and power steering fluid is not required.

12. Remove the engine coolant reservoir from the right side of the engine compartment and position it out of the way. Refer to **Cooling/Engine/BOTTLE, Coolant Recovery - Removal**.
13. Remove the power steering fluid reservoir from the right front strut tower and position it out of the way. Refer to **Steering/Pump/RESERVOIR, Power Steering Pump - Removal**.
14. If equipped with ABS, remove the ABS control module and pump assembly and position the brake lines out of the way as necessary. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation**.
15. Disconnect the wire harness connector from the A/C pressure transducer (7) located on the A/C liquid line and remove the transducer if required. See **Heating and Air Conditioning/Controls/TRANSDUCER, A/C Pressure - Removal**.
16. If equipped with rear A/C, disconnect the rear A/C extension lines from the fittings (3) located on the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINES, A/C Underbody - Removal**.

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

17. Remove the nut (6) that secures the refrigerant line retaining bracket to the stud (2) located on the right front strut tower.
18. Remove the nut (5) that secures the A/C liquid and suction line assembly (1) to the A/C expansion valve (4).
19. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve and remove and discard the O-ring seals.
20. Remove the A/C liquid and suction line assembly from the engine compartment.
21. Install plugs in, or tape over all of the opened refrigerant line fittings and the expansion valve and receiver/drier ports.

Installation

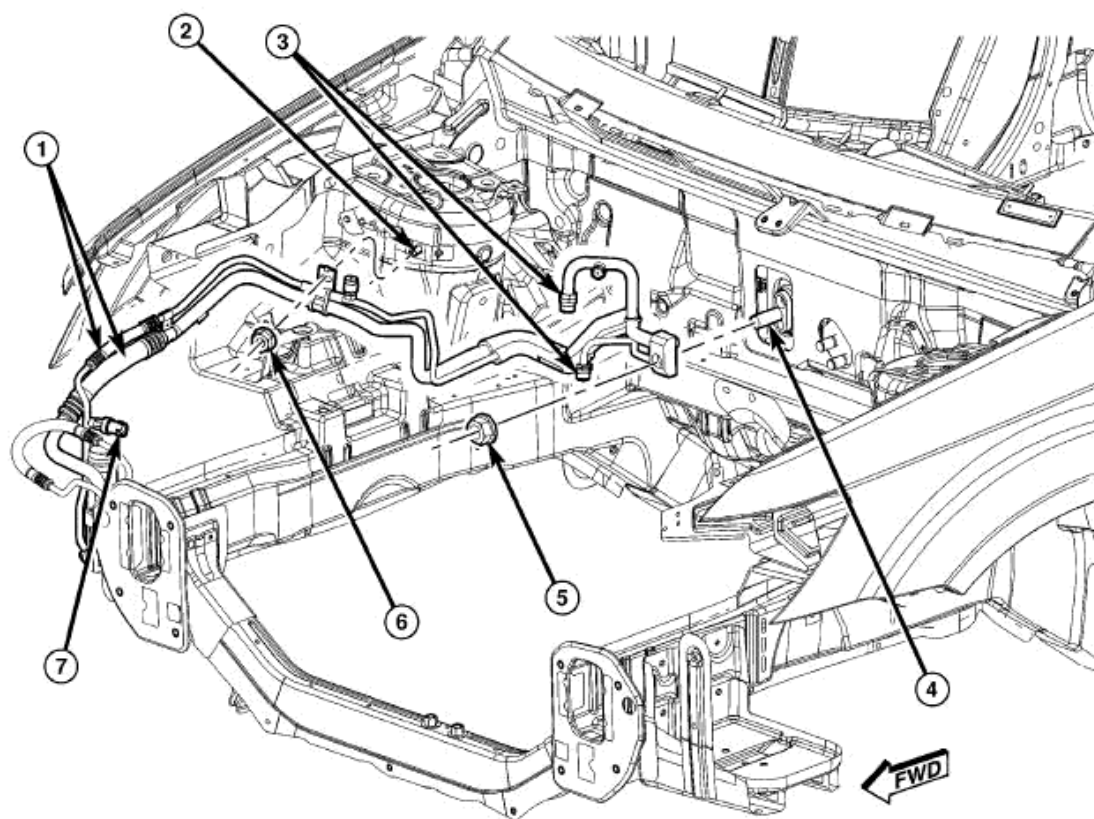
INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

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.

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



81e0047a

Fig. 250: Liquid & Suction Line Assembly Removal/Installation
 Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from all of the opened refrigerant line fittings and the expansion valve and receiver/drier ports.
2. Lubricate new rubber O-rings with clean refrigerant oil and install them and new gaskets 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.
3. Position the A/C liquid and suction line assembly (1) into the engine compartment.
4. Connect the A/C liquid and suction line assembly to the A/C expansion valve (4).

CAUTION: Use care when installing the A/C lines to the A/C expansion valve. Carefully align the tube ends with the valve prior to tightening the A/C line retaining nut or damage to the sealing rings and tube ends may occur.

5. Install the nut (5) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 20 N.m (15 ft. lbs.).
6. Install the nut (6) that secures the refrigerant line retaining bracket to the stud (2) located on the right

front strut tower. Tighten the nut securely.

7. If equipped with rear A/C, connect the rear A/C extension lines to the fittings (3) located on the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINES, A/C Underbody - Installation**.
8. If removed, lubricate a new rubber O-ring seal with clean refrigerant oil and install it onto the fitting for the A/C pressure transducer (7) located on the A/C liquid line and install the pressure transducer. Tighten the A/C pressure transducer to 5.6 N.m (50 in. lbs.).
9. Connect the wire harness connector to the A/C pressure transducer.
10. If equipped with ABS, install the ABS control module and pump assembly. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation**.
11. Install the power steering fluid reservoir. Refer to **Steering/Pump/RESERVOIR, Power Steering Pump - Installation**.
12. Install the engine coolant reservoir. Refer to **Cooling/Engine/BOTTLE, Coolant Recovery - Installation**.

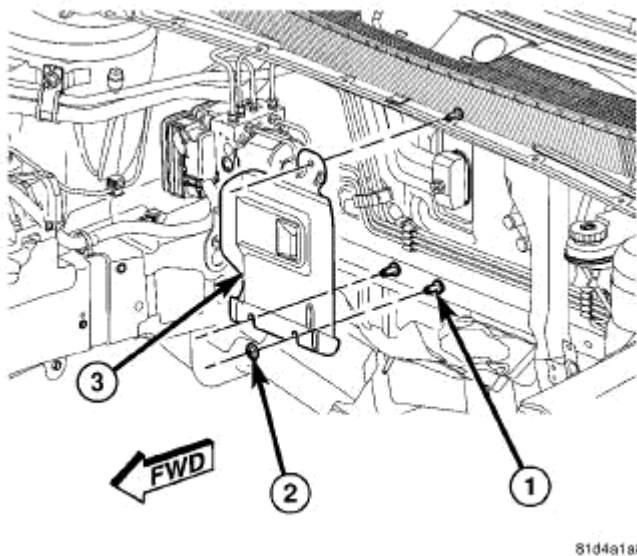


Fig. 251: Heat Shield - Unified Line
 Courtesy of CHRYSLER LLC

13. If equipped, position the heat shield (3) onto the three studs (1) located on the dash panel in the engine compartment and install the three retaining nuts (2). Tighten the nuts to 1 N.m (10 in. lbs.).

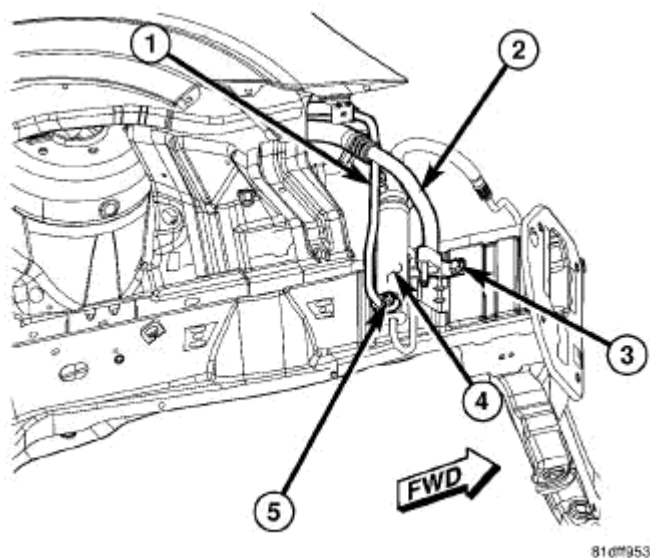


Fig. 252: Liquid Line to Receiver/Drier
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

14. Raise and support the vehicle.
15. Install the bolt (3) that secures the upper portion of the A/C suction line (2) to the right front frame rail. Tighten the bolt securely
16. Install the lower portion of the A/C suction line to the upper suction line. See **Heating and Air Conditioning/Plumbing/LINE, A/C Suction - Installation**.
17. Connect the rear section of the A/C liquid line (1) to the A/C receiver/drier (4).
18. Install the nut (5) that secures the rear section of the A/C liquid line (1) to the A/C receiver/drier (4). Tighten the nut to 20 N.m (15 ft. lbs.).
19. Reposition the right front wheel house splash shield to the body. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
20. Lower the vehicle.
21. Reconnect the negative battery cable.
22. If equipped with ABS, bleed the brake system. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation**.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

23. Evacuate the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
24. Adjust the refrigerant oil level. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant -**

Standard Procedure.

25. Charge the A/C system. See **Heating and Air Conditioning/Plumbing - Standard Procedure.**

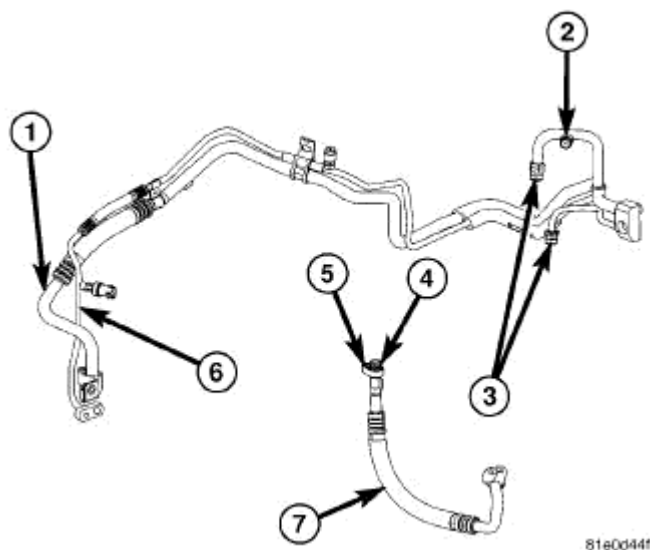
LINE, A/C SUCTION**Description****DESCRIPTION**

Fig. 253: Upper Suction/Liquid Line Assembly
Courtesy of CHRYSLER LLC

NOTE: A/C Suction line for 2.7L engine shown. Other engines similar.

The A/C suction line carries refrigerant from the A/C expansion valve to the A/C compressor and is serviced in two sections. The upper section of the A/C suction line (1) includes the low side service port (2) and is only serviced as an assembly with the rear A/C liquid line (6). When equipped with rear A/C, the A/C liquid and suction line assembly includes connections for the underbody refrigerant lines (3). The lower section of the A/C suction line (7) connects to the upper section of the suction line and the connections are sealed by use of metal gaskets (5) and rubber O-ring seals (4).

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 lower A/C suction line and the A/C liquid and suction line assembly has no serviceable parts except for the metal gaskets, rubber O-ring seals and the service port valve cores. 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 lower A/C suction line and/or the A/C liquid and suction line assembly is disconnected.

The lower A/C suction line and the A/C liquid and suction line assembly cannot be repaired and must be replaced if leaking or damaged.

Removal

REMOVAL

WARNING: Review safety precautions and warnings in this part before performing this procedure. See Heating and Air Conditioning/Plumbing - Warning and. See Heating and Air Conditioning/Plumbing - Caution. Failure to follow the warnings and cautions could result in possible serious or fatal injury.

NOTE: The A/C suction line is serviced in two sections.

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

Upper A/C Suction Line

NOTE: The upper portion of the A/C suction line is only serviced as an assembly with the rear A/C liquid line.

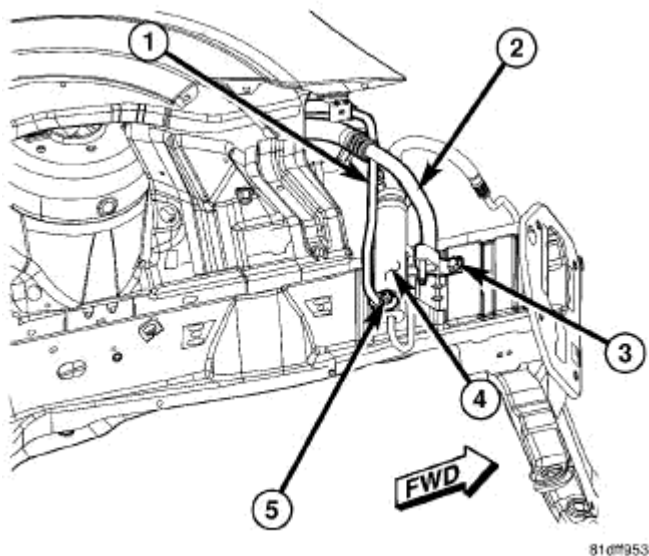


Fig. 254: Liquid Line to Receiver/Drier 09
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing -

Standard Procedure.

3. Raise and support the vehicle.
4. Position the front portion of the right front wheelhouse splash shield out of the way to gain access to the A/C receiver/drier. Refer to **Body/Exterior/SHIELD, Splash - Removal**.
5. Remove the nut (5) that secures the rear section of the A/C liquid line (1) to the A/C receiver/drier (4).
6. Disconnect the rear section of the A/C liquid line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.
7. Disconnect the lower portion of the A/C suction line from the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINE, A/C Suction - Removal**.
8. Remove the bolt (3) that secures the rear section of the A/C suction line (2) to the right front frame rail.

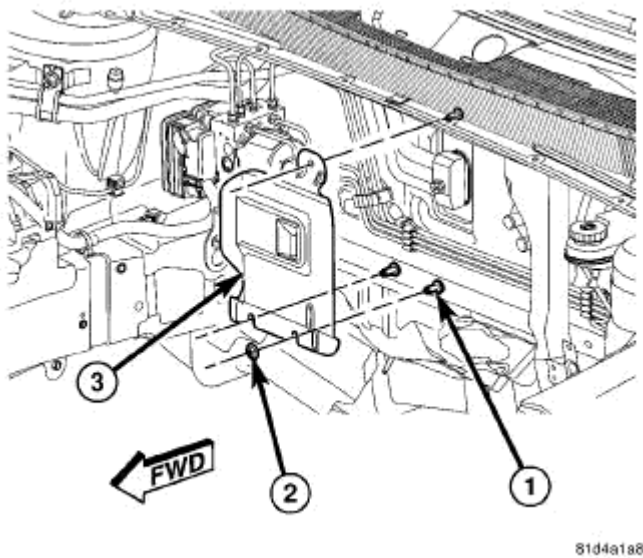
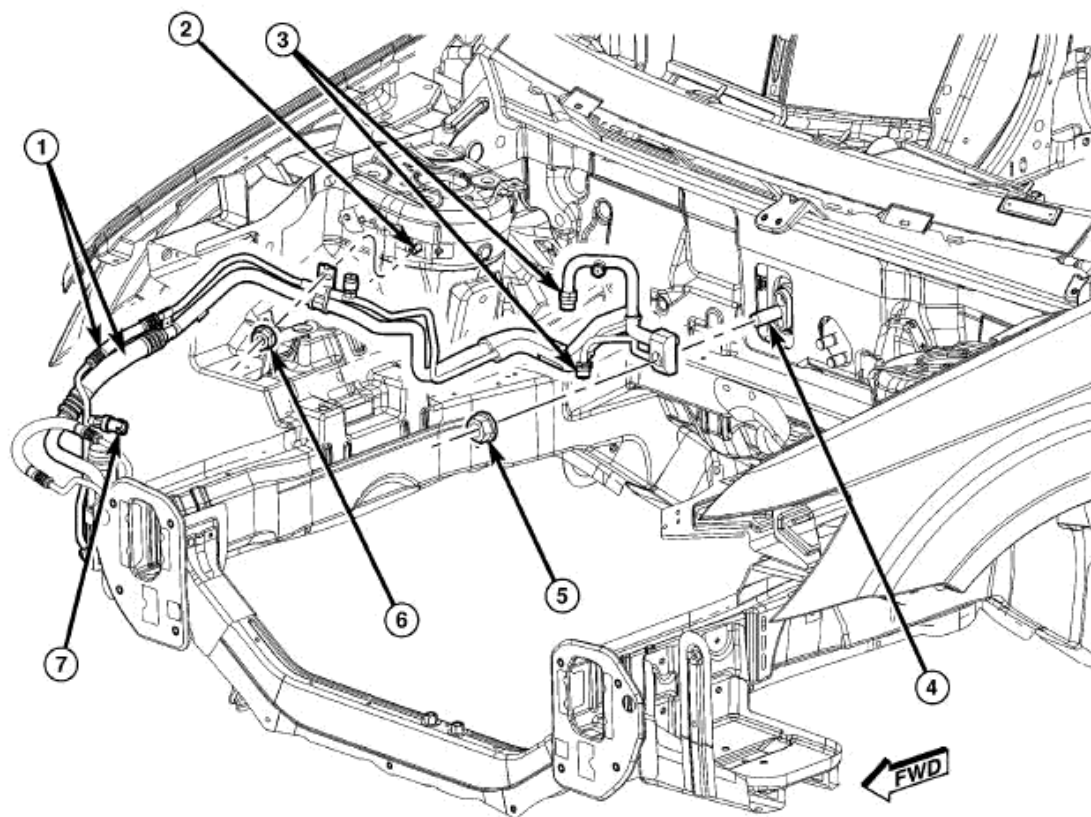


Fig. 255: Heat Shield - Unified Line
Courtesy of CHRYSLER LLC

9. Lower the vehicle.
10. If equipped with heat shield (3), remove the top nut (2) that secures the heat shield to the stud (1) located on the dash panel.

NOTE: Two slots are provided at the bottom of the heat shield to aid in heat shield removal, if equipped. Complete removal of the two bottom heat shield retaining nuts is not required.

11. If equipped, reach behind the engine and remove the two bottom nuts that secure the heat shield to the studs located on the dash panel and remove the heat shield. Rotate and tilt the heat shield as required.



81a0047a

Fig. 256: Liquid & Suction Line Assembly Removal/Installation
Courtesy of CHRYSLER LLC

NOTE: It is only necessary to position the engine coolant reservoir and the power steering fluid reservoir out of the way. Draining of the coolant and power steering fluid is not required.

12. Remove the engine coolant reservoir from the right side of the engine compartment and position it out of the way. Refer to **Cooling/Engine/BOTTLE, Coolant Recovery - Removal**.
13. Remove the power steering fluid reservoir from the right front strut tower and position it out of the way. Refer to **Steering/Pump/RESERVOIR, Power Steering Pump - Removal**.
14. If equipped with ABS, remove the ABS control module and pump assembly and position the brake lines out of the way as necessary. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation**.
15. Disconnect the wire harness connector from the A/C pressure transducer (7) located on the A/C liquid line and remove the transducer if required. See **Heating and Air Conditioning/Controls/TRANSDUCER, A/C Pressure - Removal**.
16. If equipped with rear A/C, disconnect the rear A/C extension lines from the fittings (3) located on the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINES, A/C Underbody - Removal**.

17. Remove the nut (6) that secures the refrigerant line retaining bracket to the stud (2) located on the right front strut tower.
18. Remove the nut (5) that secures the A/C liquid and suction line assembly (1) to the A/C expansion valve (4).
19. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve and remove and discard the O-ring seals.
20. Remove the A/C liquid and suction line assembly from the engine compartment.
21. Install plugs in, or tape over all of the opened refrigerant line fittings and the expansion valve and receiver/drier ports.

Lower A/C Suction Line

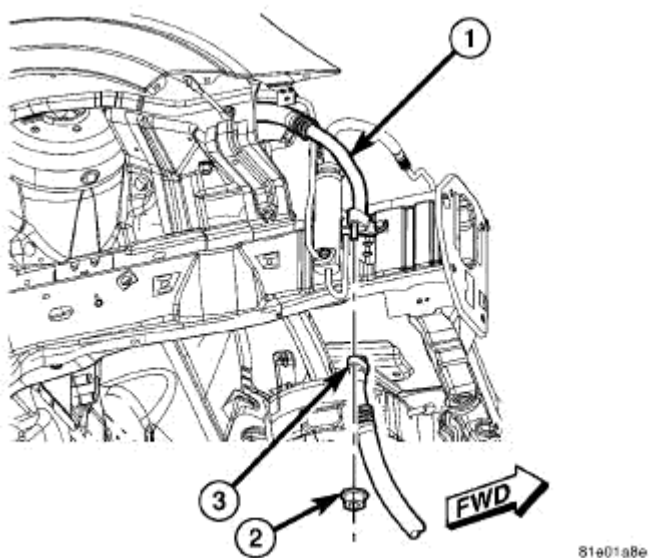


Fig. 257: Lower to Upper Suction Line
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Raise and support the vehicle.
4. Position the front portion of the right front wheelhouse splash shield out of the way to gain access to the A/C receiver/drier. Refer to Body/Exterior/SHIELD, Splash - Removal.
5. Remove the nut (2) that secures the lower A/C suction line (3) to the upper A/C suction line (1).
6. Disconnect the lower A/C suction line to the upper A/C suction line and remove and discard the O-ring seal and gasket.

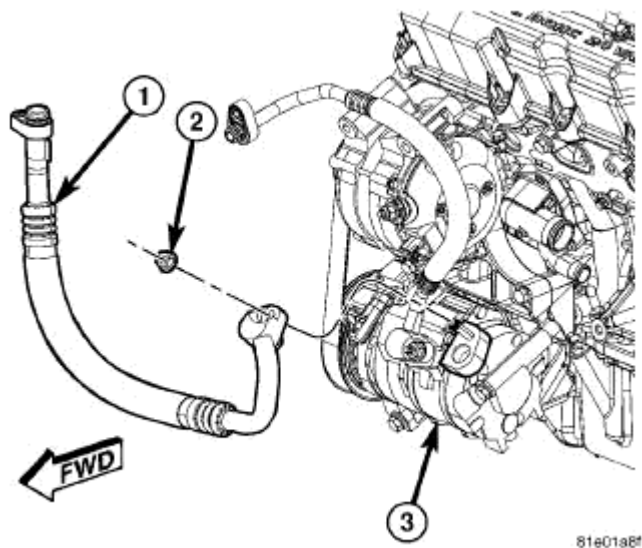


Fig. 258: Lower Suction Line to Compressor
Courtesy of CHRYSLER LLC

NOTE: 2.7L shown. Other engines similar.

7. Remove the nut (2) that secures the lower A/C suction line (1) to the A/C compressor (3).
8. Disconnect the lower A/C suction line from the A/C compressor and remove the lower line from the engine compartment.
9. Remove and discard the O-ring seals and gaskets and install plugs in, or tape over all the opened suction line fittings and the compressor port.

Installation

INSTALLATION

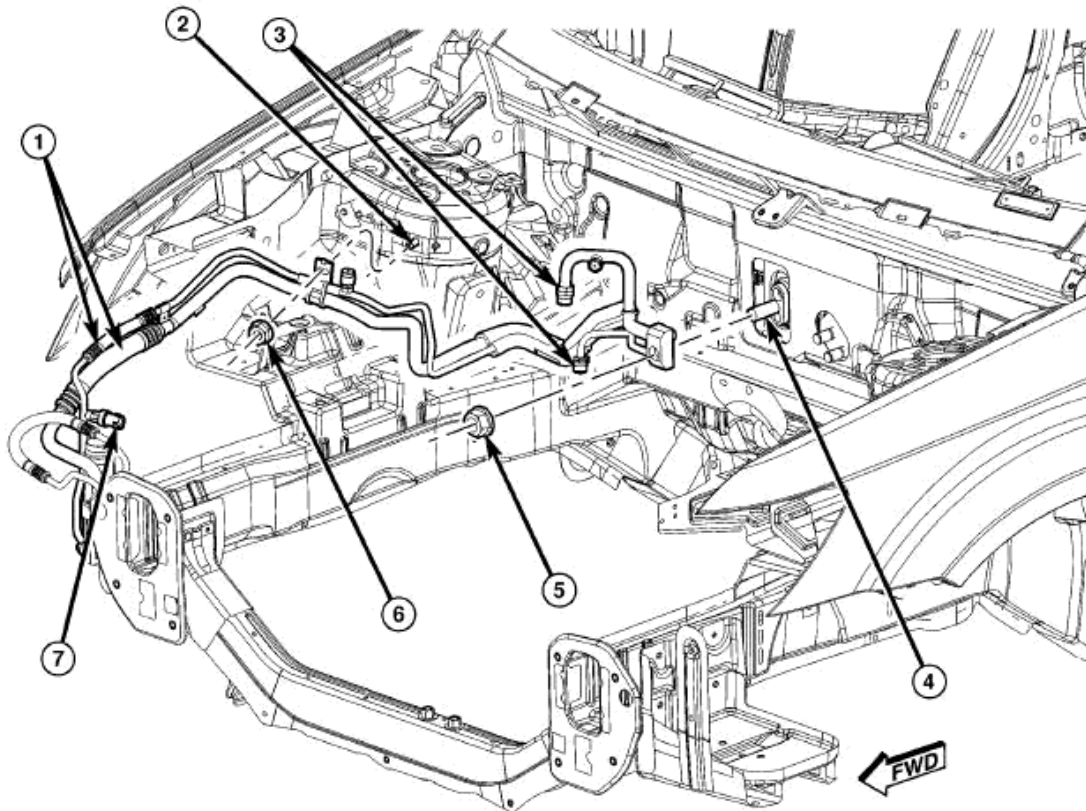
CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure. Failure to properly adjust the refrigerant oil level will prevent the A/C system from operating as designed and can cause serious A/C compressor damage.

NOTE: When replacing multiple A/C system components, refer to the REFRIGERANT OIL CAPACITIES to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

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.

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

Upper A/C Suction Line



81e0047a

Fig. 259: Liquid & Suction Line Assembly Removal/Installation
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from all of the opened refrigerant line fittings and the expansion valve and receiver/drier ports.
2. Lubricate new rubber O-rings with clean refrigerant oil and install them and new gaskets 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.
3. Position the A/C liquid and suction line assembly (1) into the engine compartment.
4. Connect the A/C liquid and suction line assembly to the A/C expansion valve (4).

CAUTION: Use care when installing the A/C lines to the A/C expansion valve. Carefully align the tube ends with the valve prior to tightening the A/C line retaining nut or damage to the sealing rings and tube ends may occur.

5. Install the nut (5) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 20 N.m (15 ft. lbs.).
6. Install the nut (6) that secures the refrigerant line retaining bracket to the stud (2) located on the right front strut tower. Tighten the nut securely.
7. If equipped with rear A/C, connect the rear A/C extension lines to the fittings (3) located on the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINES, A/C Underbody - Installation.**
8. If removed, lubricate a new rubber O-ring seal with clean refrigerant oil and install it onto the fitting for the A/C pressure transducer (7) located on the A/C liquid line and install the pressure transducer. Tighten the A/C pressure transducer to 5.6 N.m (50 in. lbs.).
9. Connect the wire harness connector to the A/C pressure transducer.
10. If equipped with ABS, install the ABS control module and pump assembly. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation .**
11. Install the power steering fluid reservoir. Refer to **Steering/Pump/RESERVOIR, Power Steering Pump - Installation .**
12. Install the engine coolant reservoir. Refer to **Cooling/Engine/BOTTLE, Coolant Recovery - Installation .**

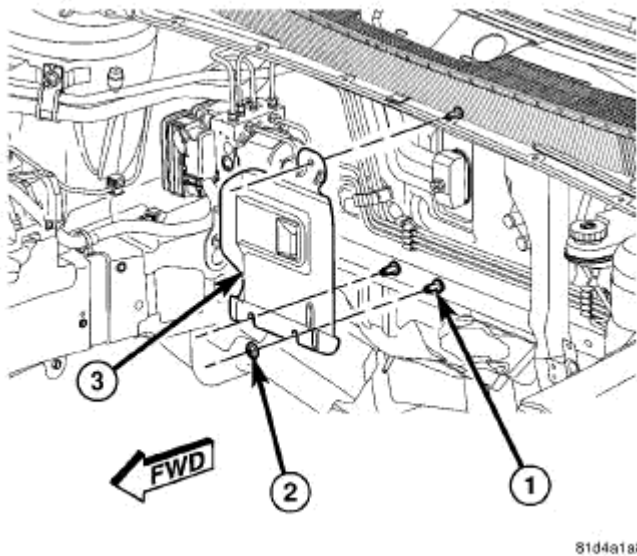


Fig. 260: Heat Shield - Unified Line
 Courtesy of CHRYSLER LLC

13. If equipped, position the heat shield (3) onto the three studs (1) located on the dash panel in the engine compartment and install the three retaining nuts (2). Tighten the nuts to 1 N.m (10 in. lbs.).

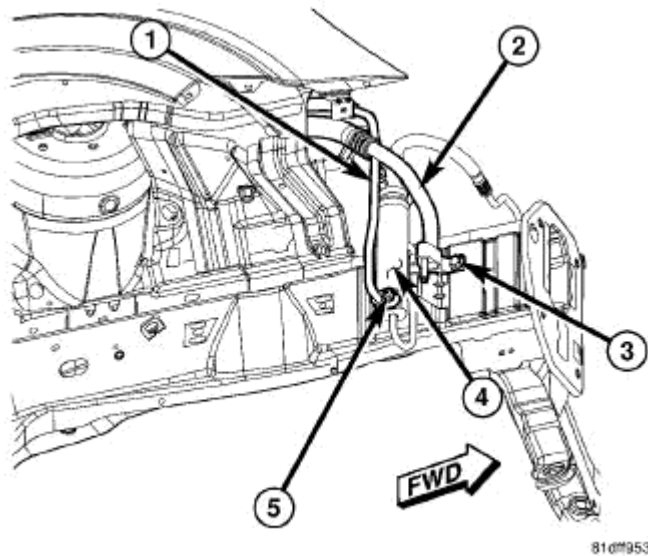


Fig. 261: Liquid Line to Receiver/Drier
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

14. Raise and support the vehicle.
15. Install the bolt (3) that secures the upper portion of the A/C suction line (2) to the right front frame rail. Tighten the bolt securely
16. Connect the lower portion of the A/C suction line to the A/C liquid and suction line assembly. See **Heating and Air Conditioning/Plumbing/LINE, A/C Suction - Installation**.
17. Connect the rear section of the A/C liquid line (1) to the A/C receiver/drier (4).
18. Install the nut (5) that secures the rear section of the A/C liquid line (1) to the A/C receiver/drier (4). Tighten the nut to 20 N.m (15 ft. lbs.).
19. Reposition the right front wheel house splash shield to the body. Refer to **Body/Exterior/SHIELD, Splash - Removal**.
20. Lower the vehicle.
21. Reconnect the negative battery cable.
22. If equipped with ABS, bleed the brake system. Refer to **Brakes/Hydraulic/Mechanical/INTEGRATED CONTROL UNIT (ICU) - Installation**.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

23. Evacuate the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
24. Adjust the refrigerant oil level. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant -**

Standard Procedure.

25. Charge the A/C system. See **Heating and Air Conditioning/Plumbing - Standard Procedure.**

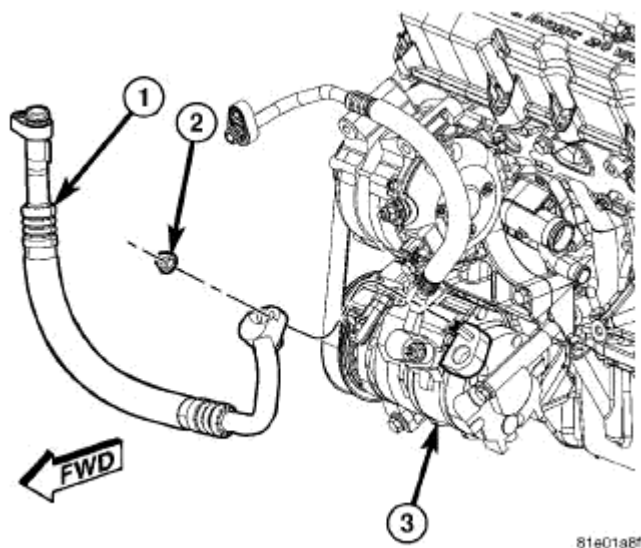
Lower A/C Suction Line

Fig. 262: Lower Suction Line to Compressor
Courtesy of CHRYSLER LLC

NOTE: 2.7L shown. Other engines similar.

1. Position the lower A/C suction line (1) into the engine compartment.
2. Remove the tape or plugs from the suction line fittings and the compressor port.
3. Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the suction 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 lower A/C suction line to the A/C compressor (3).
5. Install the nut (2) that secures the lower A/C suction line to the A/C compressor. Tighten the nut to 20 N.m (15 ft. lbs.).

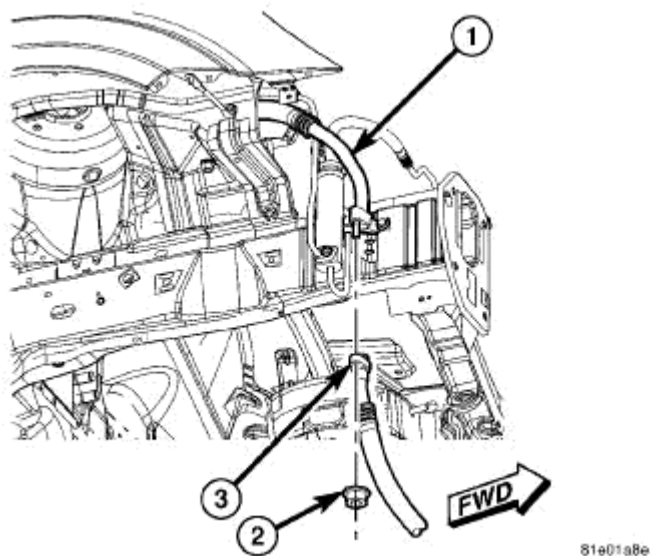


Fig. 263: Lower to Upper Suction Line
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with front fascia and headlamp removed for clarity.

6. Connect the lower portion of the A/C suction line (3) to the upper suction line (1)
7. Install the nut (2) that secures the lower portion of the A/C suction line to the upper suction line. Tighten the nut to 20 N.m (15 ft. lbs.).
8. Reposition the right front wheel house splash shield to the body. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
9. Lower the vehicle.
10. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

11. Evacuate the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
12. Adjust the refrigerant oil level. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure**.
13. Charge the A/C system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.

OIL, REFRIGERANT

Description

DESCRIPTION

The refrigerant oil used in R-134a refrigerant systems is a synthetic-based, polyalkylene 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 contain a different additive package. Always use only the type of refrigerant oil recommended for the A/C compressor in the vehicle.

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure. 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 is designed to use ND-8 PAG refrigerant oil. Use only this type of refrigerant oil in the refrigerant system.

Operation

OPERATION

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 receiver/drier, 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: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. Drain the refrigerant oil from the A/C compressor using the procedures described below. Failure to properly drain the refrigerant oil from the A/C compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

CAUTION: ND-8 PAG refrigerant oil is used in the A/C system. Only refrigerant oil of the same type should be used to service this R-134a A/C system. Do not use any other refrigerant oil. The refrigerant oil container should be kept tightly capped until it is ready for use and then tightly capped after use to prevent contamination from moisture and dirt. 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 amount of refrigerant oil being removed during the recovery process. This amount of refrigerant oil should always be added back into the refrigerant system. Refer to the reclaim/recycling equipment manufacturers instructions.

It will not be necessary to check the oil level within the A/C refrigerant system or to add oil, unless there has been an oil loss. A refrigerant 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 does 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 receiver/drier, A/C evaporator or A/C condenser is replaced. Refer to the **REFRIGERANT OIL CAPACITIES**.

The refrigerant oil level in a new A/C compressor must first be adjusted prior to compressor installation. Refer to the following **COMPRESSOR OIL DRAIN PROCEDURE - DENSO 6SEU16 VARIABLE DISPLACEMENT**.

REFRIGERANT OIL CAPACITIES

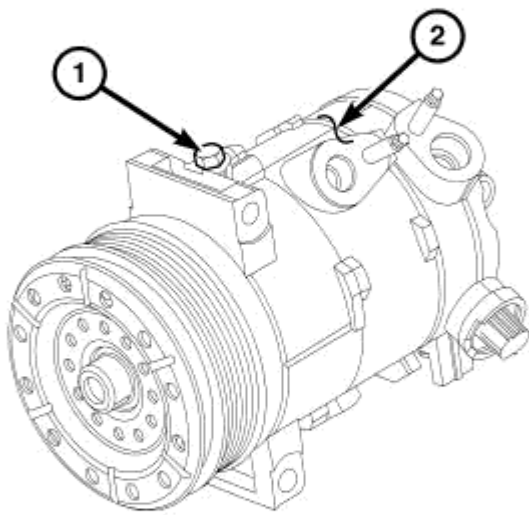
Component	ml.	oz.
Total System Fill	100	3.4
A/C Receiver/drier	30	1.0
A/C Condenser	10	0.3
A/C Evaporator	10	0.3
	50	1.7
A/C Compressor - Denso 6SEU16	(Refer to <u>COMPRESSOR OIL DRAIN PROCEDURE - DENSO 6SEU16 VARIABLE DISPLACEMENT</u>)	
A/C Compressor - Denso 10SR15 and 10SR17	Drain and measure the oil from the old compressor (Refer to <u>COMPRESSOR OIL DRAIN PROCEDURE - DENSO 10SR15 AND 10SR17 FIXED DISPLACEMENT</u>).	

COMPRESSOR OIL DRAIN PROCEDURE - DENSO 6SEU16 VARIABLE DISPLACEMENT

CAUTION: Be certain to adjust the refrigerant system oil level when replacing an A/C compressor. The refrigerant oil in the Denso 6SEU16 A/C compressor can

only be drained using the procedure described below. Failure to properly drain the refrigerant oil from the A/C compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

If the Denso 6SEU16 A/C compressor is being replaced, some refrigerant oil must first be drained from the replacement A/C compressor. The 6SEU16 A/C compressor is filled with 100 milliliters (3.4 oz.) from the factory. Drain 50 milliliters (1.7 oz.) of refrigerant oil from the replacement 6SEU16 compressor. Use the following procedure to drain and measure refrigerant oil from the Denso 6SEU16 A/C compressor.



81f559ce

Fig. 264: 6SEU16 Compressor Drain Plug JC
Courtesy of CHRYSLER LLC

1. Place the replacement A/C compressor (2) on a workbench and remove the drain plug (1).

CAUTION: The 6SEU16 A/C compressor is filled with 100 milliliters (3.4 oz.) from the factory. Drain 50 milliliters (1.7 oz.) of refrigerant oil from the new 6SEU16 compressor when replacing only the compressor.

NOTE: When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** to determine how much oil should be removed from the replacement A/C compressor (example: new 6SEU16 compressor and receiver/drier requires 80 ml. (2.7 oz.) of oil to be added to the system. 100 ml. (3.4 oz.) of oil is in replacement compressor. 100 ml. (3.4 oz.) minus 80 ml. (2.7 oz.) equals 20 ml. (0.7 oz.) oil to be drained from replacement compressor).

2. Position the replacement A/C compressor so that the refrigerant oil can drain out of the drain port into a suitable clean measured container. Hold the replacement A/C compressor in this position until the required amount of refrigerant oil is drained from the compressor.

CAUTION: Failure to properly adjust the refrigerant oil level prior to installation of a replacement compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

3. Reinstall the drain plug. Tighten the drain plug securely.
4. Install the replacement A/C compressor onto the engine. See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Installation**.

COMPRESSOR OIL DRAIN PROCEDURE - DENSO 10SR15 AND 10SR17 FIXED DISPLACEMENT

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 Denso 10SR15 and 10SR17 A/C compressors are filled with refrigerant oil from the factory. Use the following procedure to drain and measure refrigerant oil from the Denso 10SR15 and 10SR17 A/C compressors.

1. Position the original A/C compressor so that the refrigerant oil can drain out of the suction and discharge ports into a suitable clean measured container. Hold the original A/C compressor in this position until all of the refrigerant oil is drained from the compressor.
2. Drain all of the refrigerant oil from the replacement A/C compressor into a clean measured container.
3. Refill the replacement A/C compressor with the same amount of refrigerant oil that was drained out of the original compressor. Use only clean refrigerant oil of the type recommended for the A/C compressor in the vehicle.

CAUTION: Failure to properly adjust the refrigerant oil level prior to installation of a replacement compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

See **Heating and Air Conditioning/Plumbing/COMPRESSOR, A/C - Installation**.

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

REFRIGERANT

Description

DESCRIPTION

The refrigerant used in this air conditioning system is a HydroFluoroCarbon (HFC), type R-134a. Unlike R-12, which is a ChloroFluoroCarbon (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 **Heating and Air Conditioning/Plumbing - Standard Procedure**.

Operation

OPERATION

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 polyalkylene 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.

Specifications

REFRIGERANT CHARGE CAPACITY

REFRIGERANT CHARGE CAPACITY

Application	Capacity
Front A/C Only	0.624 kg (22 oz.)
Front and Rear A/C	0.907 kg (32 oz.)

VALVE, A/C EXPANSION

Description

DESCRIPTION

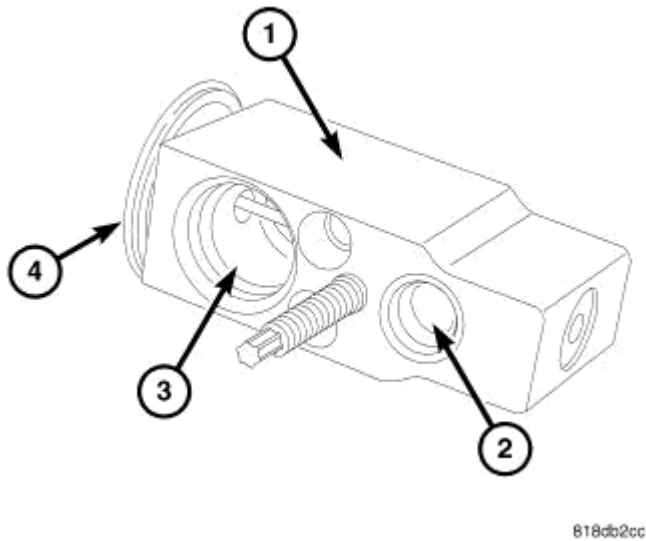


Fig. 265: A/C Expansion Valve Description KA
Courtesy of CHRYSLER LLC

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 in the engine compartment at the dash panel, between the A/C refrigerant lines and the A/C evaporator.

Operation

OPERATION

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, or if the expansion valve is removed. Failure to replace the rubber O-ring seals may 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

A/C EXPANSION VALVE

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

NOTE: The A/C expansion valve should only be tested following testing of the A/C compressor.

NOTE: Liquid CO² is required to test the A/C expansion valve. This material is available from most welding supply facilities. Liquid CO² 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 6. If not OK, replace the inoperative A/C expansion valve.

WARNING: Protect the skin and eyes from exposure to liquid CO² 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 CO² 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 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 [Heating and Air Conditioning - Diagnosis and Testing](#).

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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

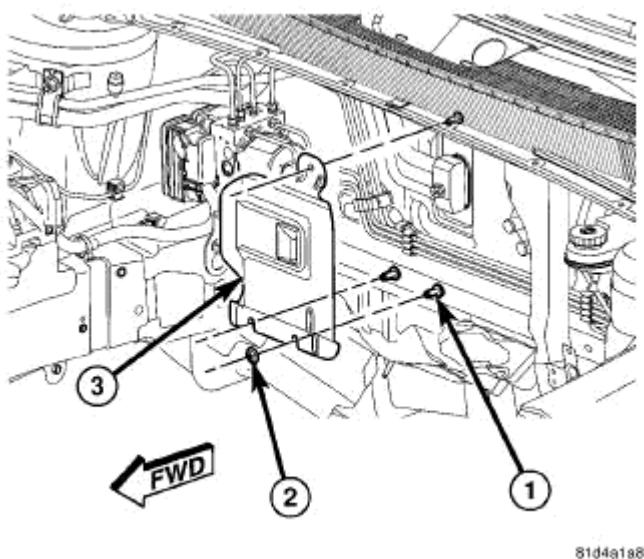
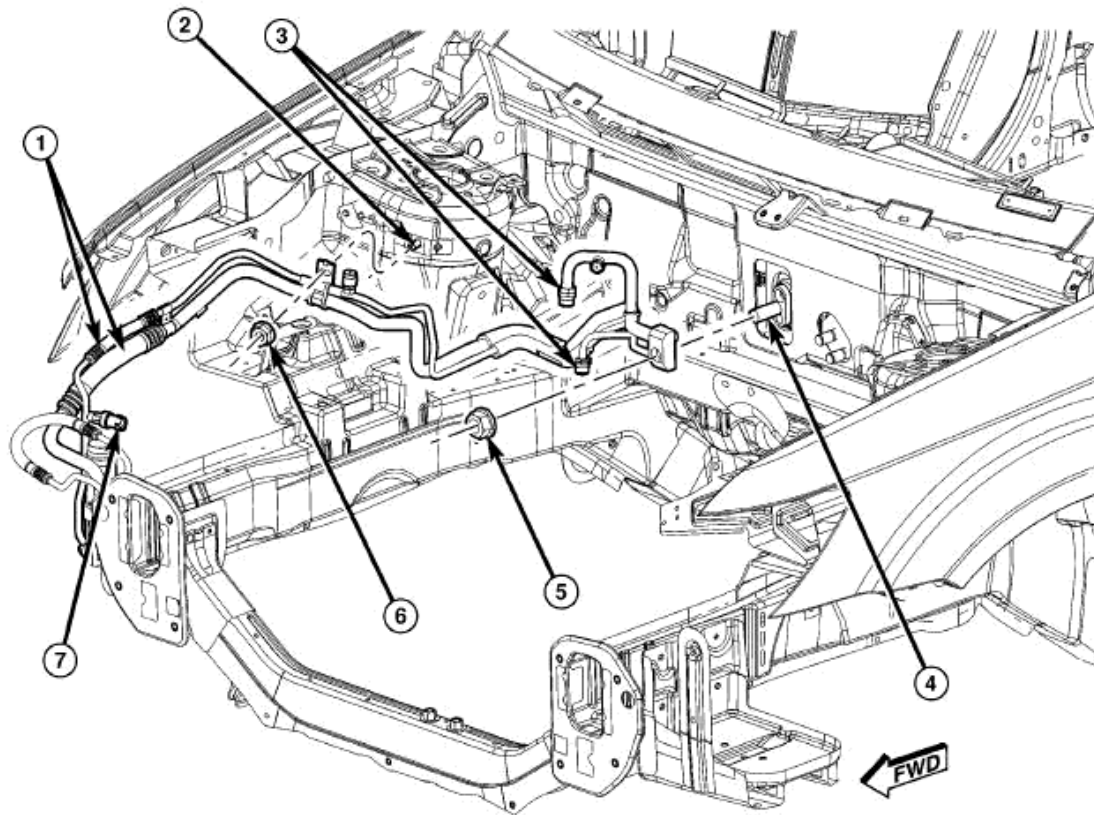


Fig. 266: Heat Shield - Unified Line
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See [Heating and Air Conditioning/Plumbing - Standard Procedure](#).
3. If equipped with heat shield (3), remove the top nut (2) that secures the heat shield to the stud (1) located on the dash panel.

NOTE: Two slots are provided at the bottom of the heat shield to aid in heat shield removal, if equipped. Complete removal of the two bottom heat shield retaining nuts is not required.

4. If equipped, reach behind the engine and remove the two bottom nuts that secure the heat shield to the studs located on the dash panel and remove the heat shield. Rotate and tilt the heat shield as required.



81a0047a

Fig. 267: Liquid & Suction Line Assembly Removal/Installation
Courtesy of CHRYSLER LLC

5. Remove the nut (6) that secures the A/C liquid and suction line assembly (1) to the stud (2) located on the right front shock tower.
6. Remove the nut (5) that secures the A/C liquid and suction line assembly to the A/C expansion valve (4).
7. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve, remove and discard the O-ring seals and position the refrigerant lines out of the way.

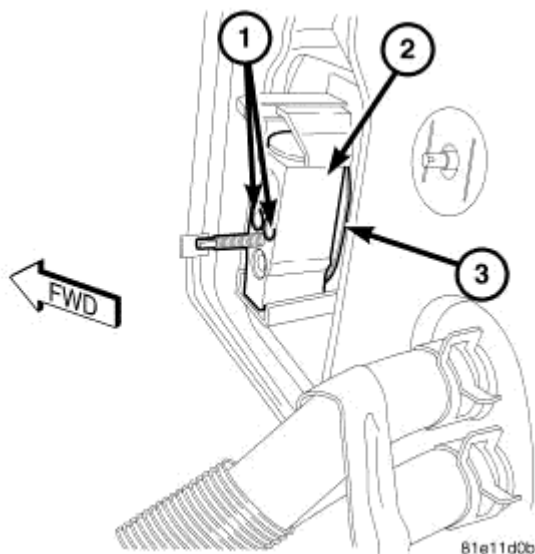


Fig. 268: Front Expansion Valve Removal/Installation
Courtesy of CHRYSLER LLC

8. Remove the two bolts (1) that secure the A/C expansion valve (2) to the evaporator tube tapping block (3).
9. Remove the A/C expansion valve from the tapping block and remove and discard the O-ring seals
10. Install plugs in, or tape over the opened refrigerant fittings and all expansion valve and evaporator tube ports.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime a refrigerant line is disconnected from the expansion valve, or if the expansion valve is removed. Failure to replace the rubber O-ring seals may result in a refrigerant system leak.

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

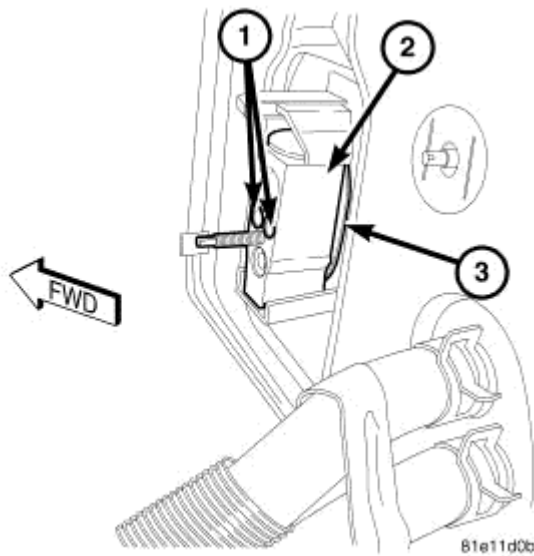
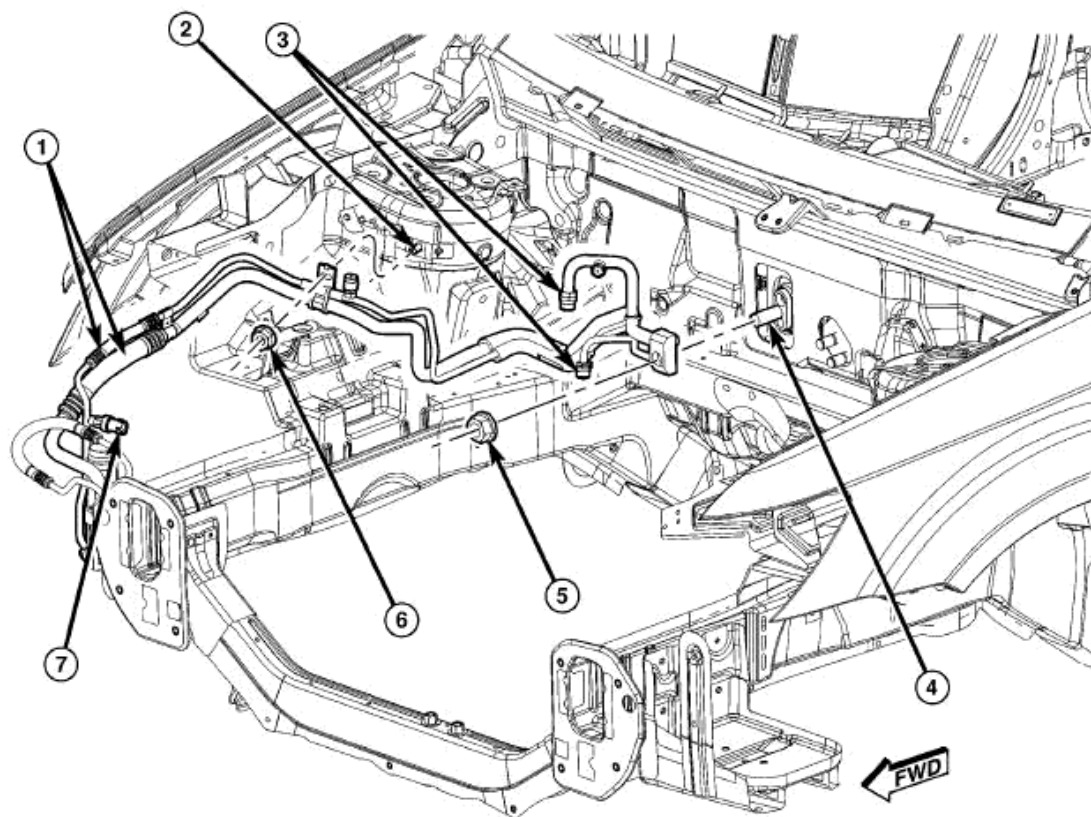


Fig. 269: Front Expansion Valve Removal/Installation
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant fittings and all expansion valve and evaporator 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-ring seals 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.).



81a0047a

Fig. 270: Liquid & Suction Line Assembly Removal/Installation
Courtesy of CHRYSLER LLC

5. Connect the A/C liquid and suction line assembly (1) to the A/C expansion valve (4).

CAUTION: Use care when installing the A/C lines to the A/C expansion valve. Carefully align the tube ends with the valve prior to tightening the A/C line retaining nut or damage to the sealing rings and tube ends may occur.

6. Install the nut (5) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 20 N.m (15 ft. lbs.).
7. Install the nut (6) that secures the refrigerant line retaining bracket to the stud (2) located on the right front strut tower. Tighten the nut securely.

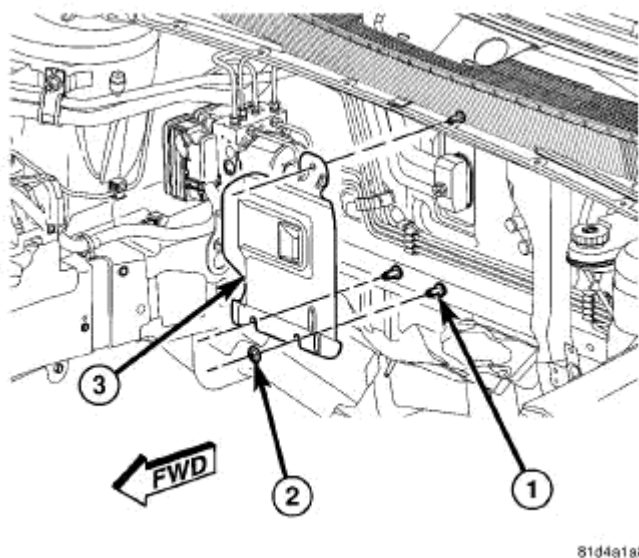


Fig. 271: Heat Shield - Unified Line
Courtesy of CHRYSLER LLC

8. If equipped, position the heat shield (3) onto the three studs (1) located on the dash panel in the engine compartment and install the three retaining nuts (2). Tighten the nuts to 1 N.m (10 in. lbs.).
9. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

10. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
11. Adjust the refrigerant oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.
12. Charge the A/C system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

PLUMBING, REAR

CORE, HEATER, REAR

Description

DESCRIPTION

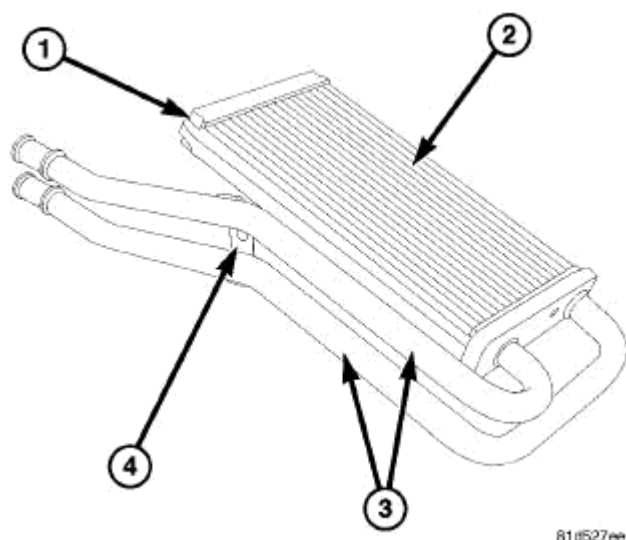


Fig. 272: Rear Heater Core Description
Courtesy of CHRYSLER LLC

The rear heater core (1) is located in the rear heater-A/C housing behind the right interior quarter trim panel. The rear heater core is a heat exchanger made of rows of tubes and fins (2). The heater core tubes (3) are permanently soldered to the heater core tank and are retained to the outboard side of the rear heater-A/C housing by use of an integral bracket (4) and screw.

The rear heater-A/C housing must be removed from the vehicle to service the rear heater core.

Operation

OPERATION

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

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may

result in serious or fatal injury.

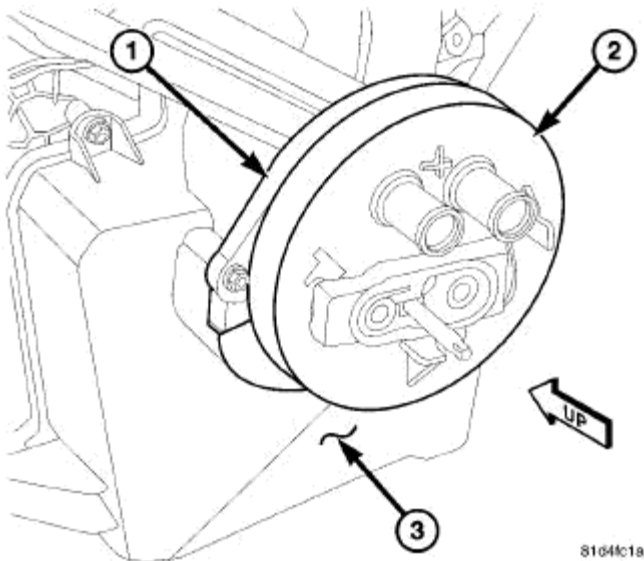


Fig. 273: Rear Housing Flange Seal
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the rear heater-A/C housing and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Removal**.
3. Remove the foam seal (2) from the flange (1) located at the bottom of the rear heater-A/C housing (3). If the foam seal is deformed or damaged, it must be replaced.

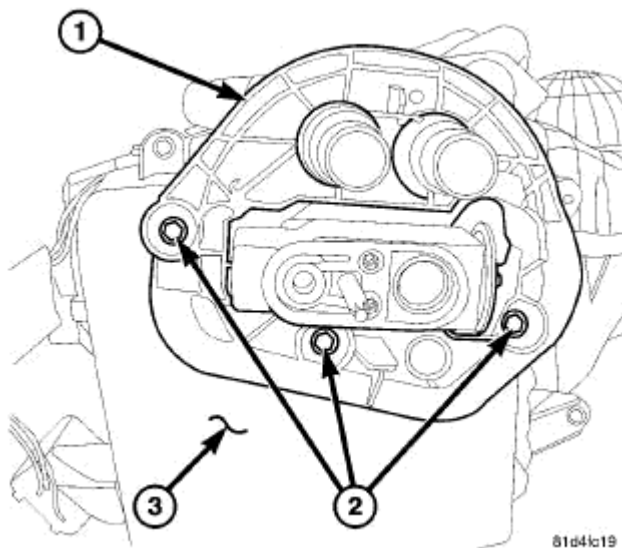


Fig. 274: Rear Housing Flange

Courtesy of CHRYSLER LLC

4. Remove the three screws (2) that secure the flange (1) to the bottom of the rear heater-A/C housing (3) and remove the flange.

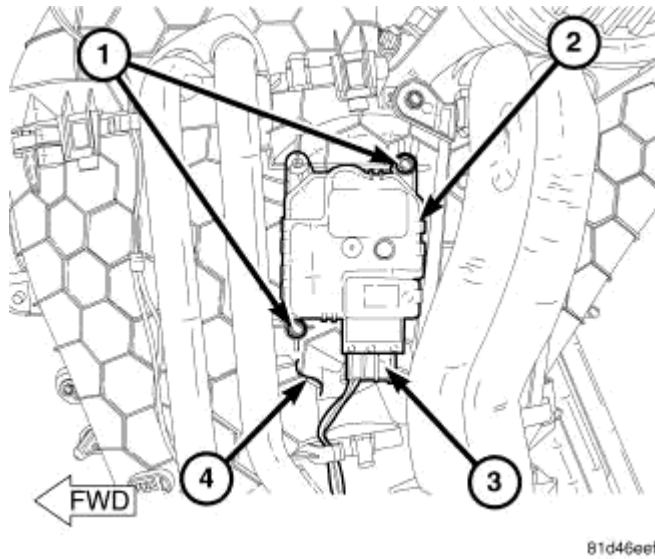


Fig. 275: Rear Blend Door Actuator Removal/Installation

Courtesy of CHRYSLER LLC

5. Disconnect the wire harness connector (3) from the rear blend door actuator (2) located on the outboard side of the rear heater-A/C housing (4).
6. Remove the two screws (1) that secure the rear blend door actuator to the rear heater-A/C housing and remove the actuator.

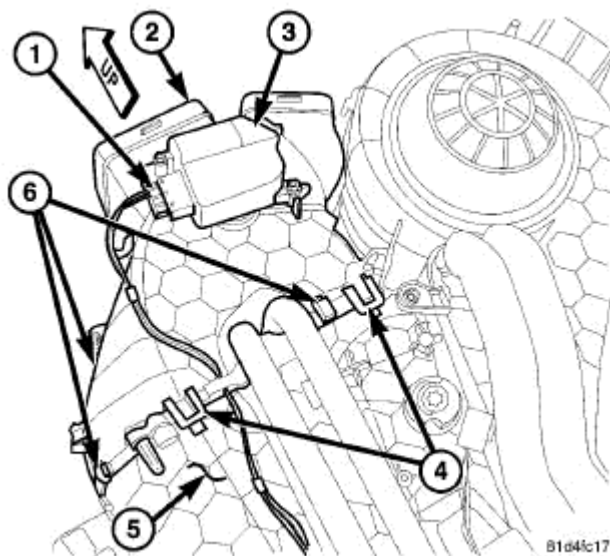
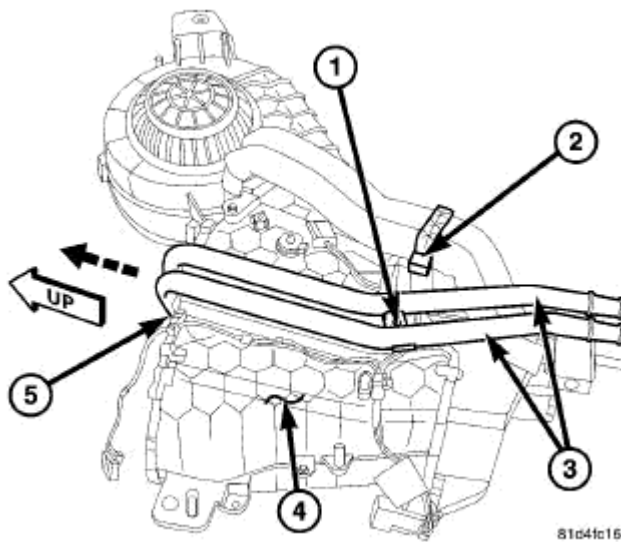


Fig. 276: Rear Distribution Housing Removal/Installation

Courtesy of CHRYSLER LLC

7. Disconnect the wire harness connector (1) from the rear mode door actuator (3) located on the outboard side of the rear heater-A/C distribution housing (2).
8. Remove the three metal retaining clips (4) that secure the rear distribution housing to the rear heater-A/C housing (5).
9. Release the five plastic retaining tabs (4) that secure the rear distribution housing and rear heater-A/C housing together and separate the housings.

**Fig. 277: Rear Heater Core Remove****Courtesy of CHRYSLER LLC**

10. Remove the screw (1) that secures the rear heater core tubes (3) to the outboard side of the rear heater-A/C housing (4).

CAUTION: To prevent damage to the plastic evaporator tube bracket, carefully guide the heater core tubes past the bracket during removal of the heater core.

11. Carefully pull the rear heater core (5) out of the top of the rear heater-A/C housing. Guide the heater core tubes past the plastic evaporator tube bracket (2). If the foam seals on the heater core are deformed or damaged, they must be replaced.

Installation**INSTALLATION**

CAUTION: To prevent damage to the plastic evaporator tube bracket, carefully guide the heater core tubes past the bracket during installation of the heater

core.

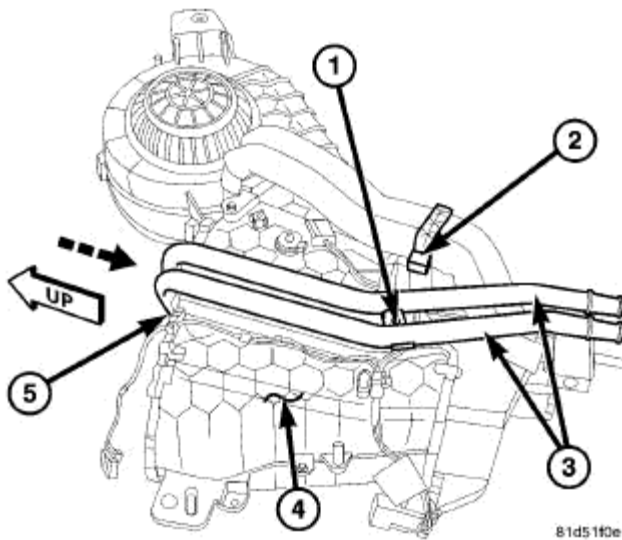


Fig. 278: Rear Heater Core Install
Courtesy of CHRYSLER LLC

1. Carefully install the rear heater core (5) into the rear heater-A/C housing (4). Guide the heater core tubes past the plastic evaporator tube bracket (2). Make sure that the foam seals are properly installed.
2. Install the screw (1) that secures the rear heater core tubes (3) to the outboard side of the rear heater-A/C housing. Tighten the screw to 1.2 N.m (10 in. lbs.).

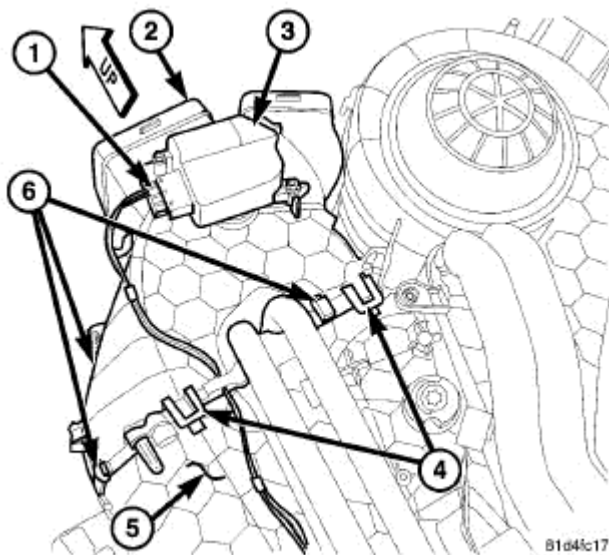


Fig. 279: Rear Distribution Housing Removal/Installation
Courtesy of CHRYSLER LLC

3. Position the rear heater-A/C distribution housing (2) to the rear heater-A/C housing (5) and engage the five plastic retaining tabs (4). Make sure the retaining tabs are fully engaged.
4. Install the three metal retaining clips (6) that secure the rear distribution housing to the rear heater-A/C housing.
5. Connect the wire harness connector (1) to the rear mode door actuator (3).

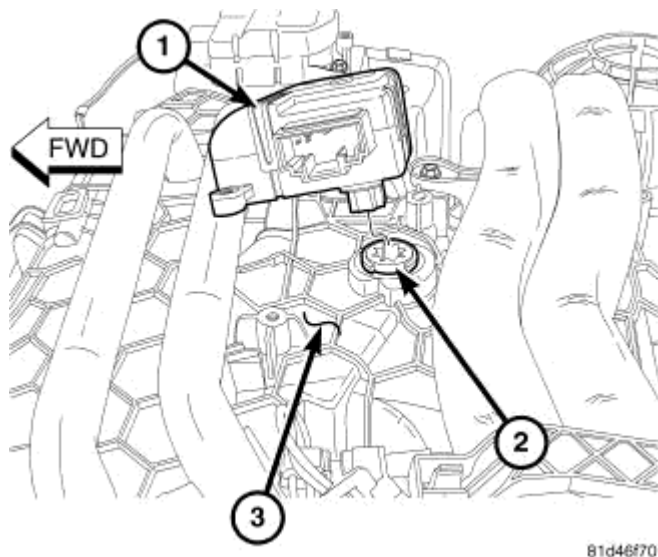


Fig. 280: Rear Blend Door Actuator Align
Courtesy of CHRYSLER LLC

6. Position the rear blend door actuator (1) onto the rear heater-A/C housing (3). If necessary, rotate the actuator slightly to align the splines on the actuator output shaft with those on the rear blend-air door pivot shaft (2).

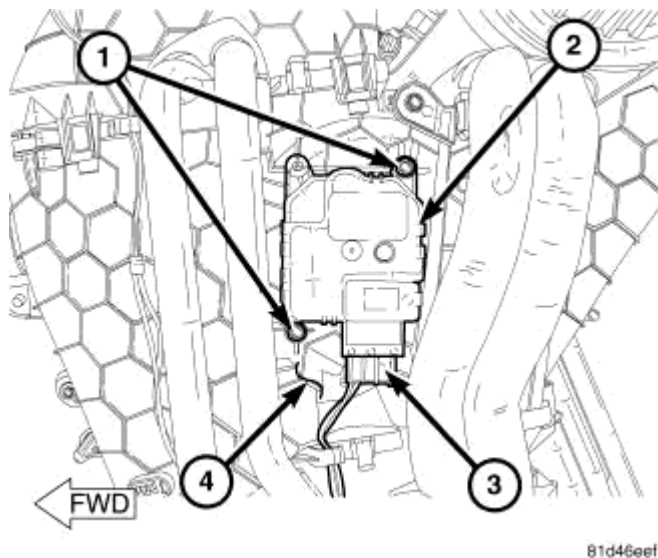


Fig. 281: Rear Blend Door Actuator Removal/Installation
Courtesy of CHRYSLER LLC

7. Install the two screws (1) that secure the rear blend door actuator (2) to the rear heater-A/C housing (4). Tighten the screws to 1.2 N.m (10 in. lbs.).
8. Connect the wire harness connector (3) to the rear blend door actuator.

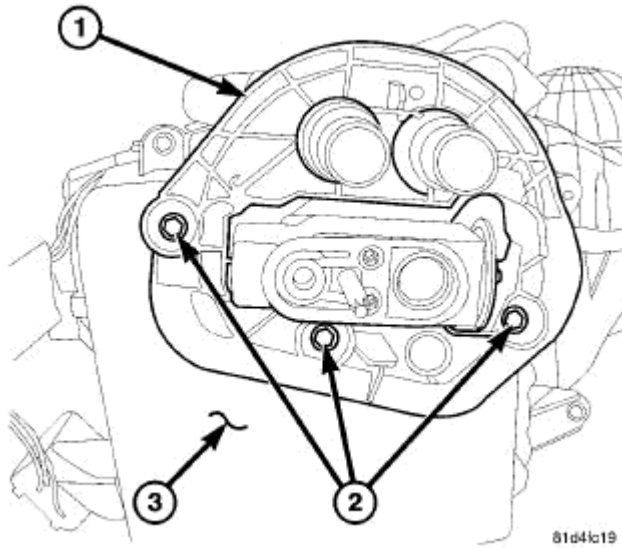


Fig. 282: Rear Housing Flange
Courtesy of CHRYSLER LLC

9. Position the flange (1) to the bottom of the rear heater-A/C housing (3) and install the three retaining screws (2). Tighten the screws to 1.2 N.m (10 in. lbs.).

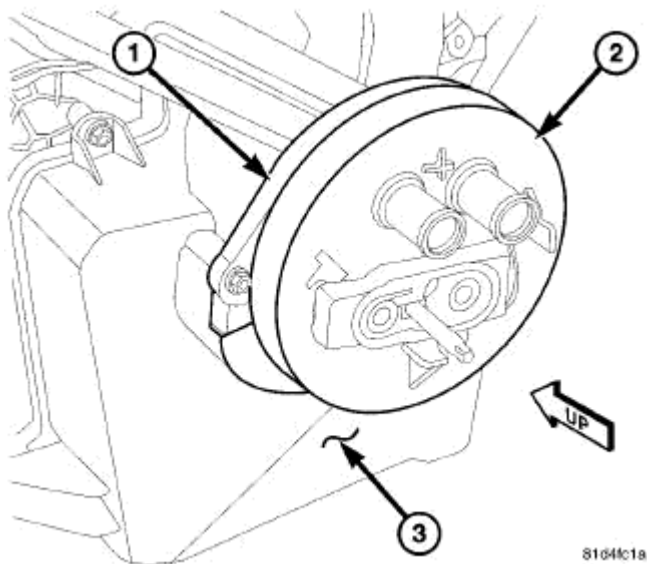


Fig. 283: Rear Housing Flange Seal
Courtesy of CHRYSLER LLC

10. Install the foam seal (2) onto the flange (1) at the bottom of the rear heater-A/C housing (3). Make sure that the foam seal is properly installed.
11. Install the rear heater-A/C housing. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Installation**.
12. Reconnect the negative battery cable.
13. If the rear heater core is being replaced, flush the cooling system. Refer to **Cooling - Standard Procedure**.
14. Refill the engine cooling system. Refer to **Cooling - Standard Procedure**.
15. Evacuate and charge the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.

EVAPORATOR, A/C

Description

DESCRIPTION

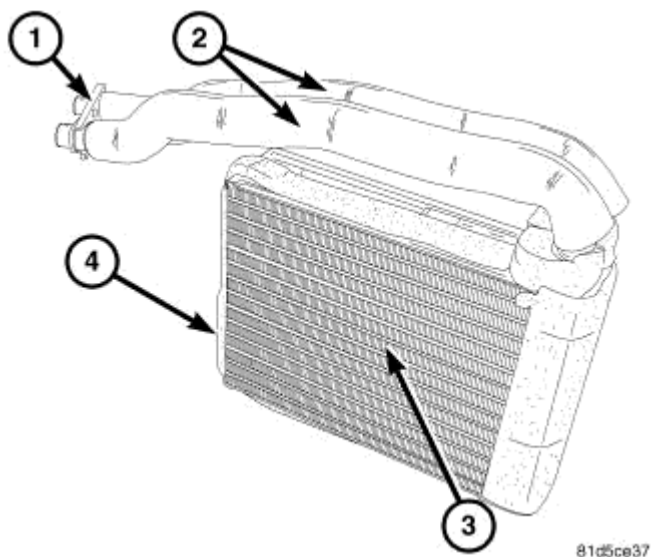


Fig. 284: Rear Evaporator Description
Courtesy of CHRYSLER LLC

The rear A/C evaporator (4) is located within the rear heater-A/C housing, behind the right interior quarter panel trim. The rear A/C evaporator is positioned in the rear heater-A/C housing so that all air entering the housing must pass over the evaporator fins (3) before it is distributed through the rear heating-A/C system ducts and outlets. However, air passing over the rear evaporator fins will only be conditioned when the A/C compressor is engaged and circulating refrigerant through the A/C evaporator.

The A/C expansion valve is connected and sealed to the A/C evaporator tubes (2) by use of rubber O-ring seals and a tapping plate (1).

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

Operation

OPERATION

Refrigerant enters the rear A/C evaporator from the rear A/C expansion valve as a low-temperature, low-pressure mixture of liquid and gas. As air flows over the fins of the rear 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 rear A/C evaporator.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime a refrigerant line or expansion valve is disconnected. Failure to replace the rubber O-ring seals 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 rear A/C expansion valve is removed from the rear A/C evaporator.

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may result in serious or fatal injury.

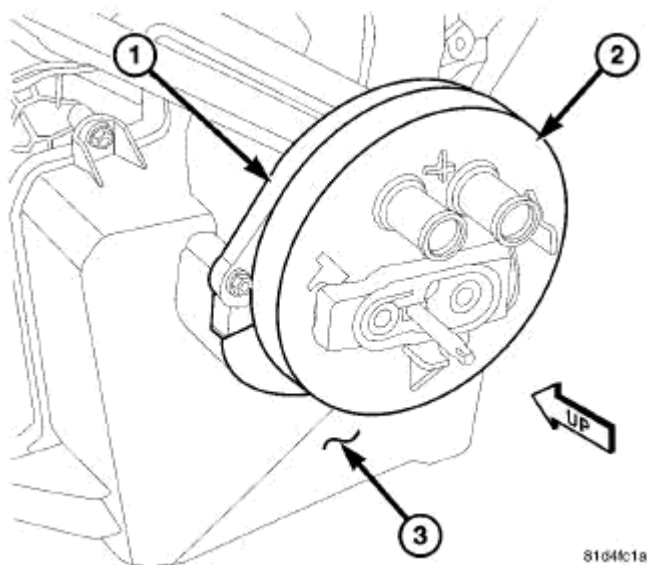
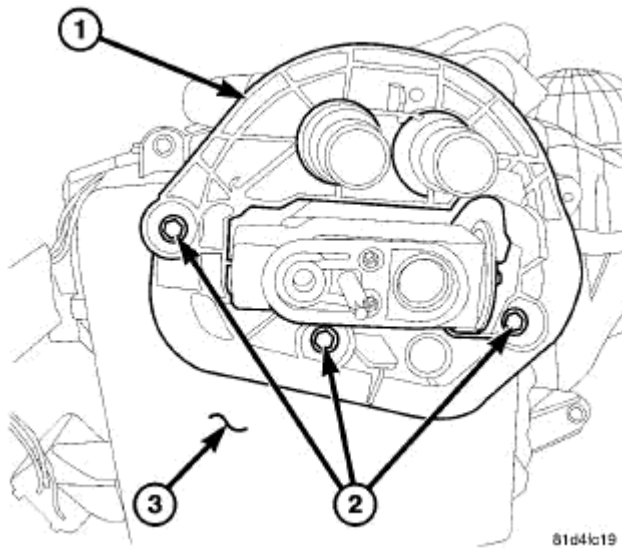


Fig. 285: Rear Housing Flange Seal

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the rear heater-A/C housing and place it on a workbench. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Removal**.
3. Remove the foam seal (2) from the flange (1) located at the bottom of the rear heater-A/C housing (3). If the foam seal is deformed or damaged, it must be replaced.

**Fig. 286: Rear Housing Flange**

Courtesy of CHRYSLER LLC

4. Remove the three screws (2) that secure the flange (1) to the bottom of the rear heater-A/C housing (3) and remove the flange.

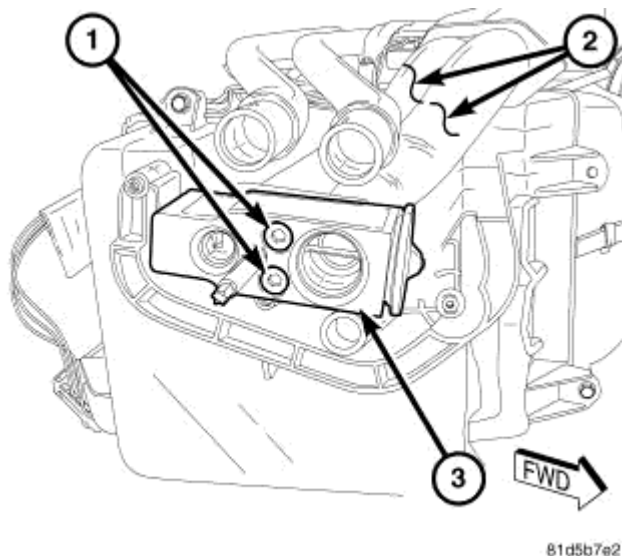


Fig. 287: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

5. Remove the two screws (1) that secure the rear expansion valve (3) to the tapping plate located on the end of the rear evaporator tubes (2) and remove the valve.
6. Remove and discard the O-ring seals and install plugs in, or tape over the opened evaporator tubes and expansion valve ports.

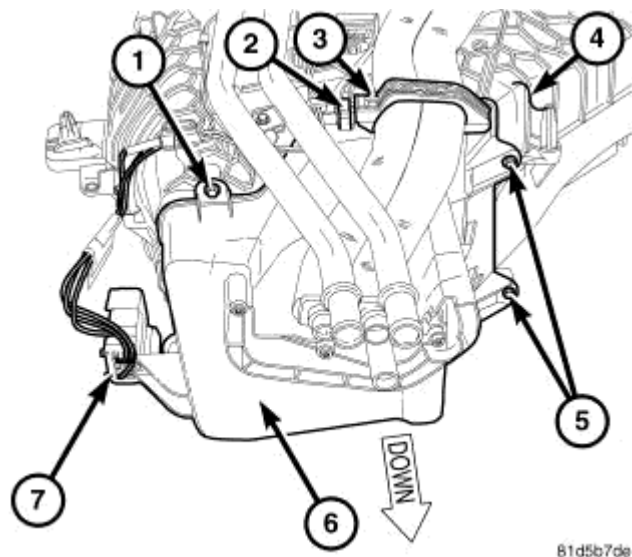
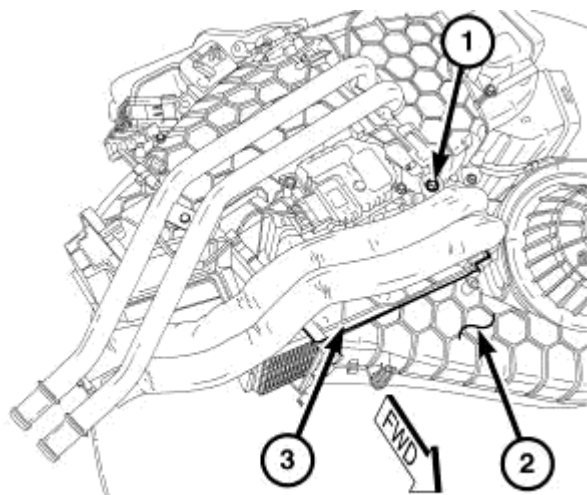


Fig. 288: Lower Rear Housing Removal/Installation
Courtesy of CHRYSLER LLC

7. Remove the wire harness connector (7) from the lower rear heater-A/C housing (6).
8. Open the evaporator tube retaining bracket (3) located on the outboard side of the lower housing.
9. Remove the metal retaining clip (2) that secures the lower housing to the rear heater-A/C housing (4).
10. Remove the five screws (1 and 5) that secure the lower housing the rear heater-A/C housing and carefully

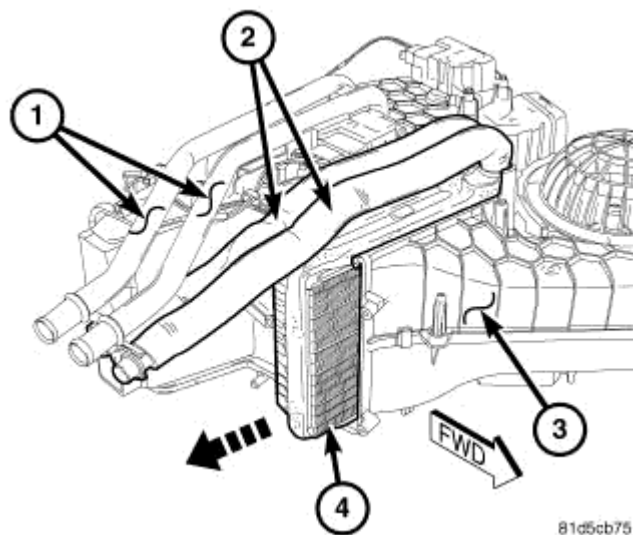
remove the lower housing. Rotate and tilt the lower housing as necessary for removal.



81d5cb76

Fig. 289: Rear Evaporator Cover Removal/Installation
Courtesy of CHRYSLER LLC

11. Remove the screw (1) that secures the rear evaporator cover (3) to the outboard side of the rear heater-A/C housing (2) and remove the cover of the housing.



81d5cb75

Fig. 290: Rear Evaporator Removal
Courtesy of CHRYSLER LLC

12. Carefully pull the rear A/C evaporator (4) out the bottom of the rear heater-A/C housing (3). Guide the evaporator tubes (2) past the heater core tubes (1). If the foam seals on the A/C evaporator are deformed or damaged, they must be replaced.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See [Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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](#) to determine how much oil should be added to the refrigerant system. See [Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure](#).

NOTE: If only the rear A/C evaporator 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 is required anytime a refrigerant line or expansion valve is disconnected. Failure to replace the rubber O-ring seals could result in a refrigerant system leak.

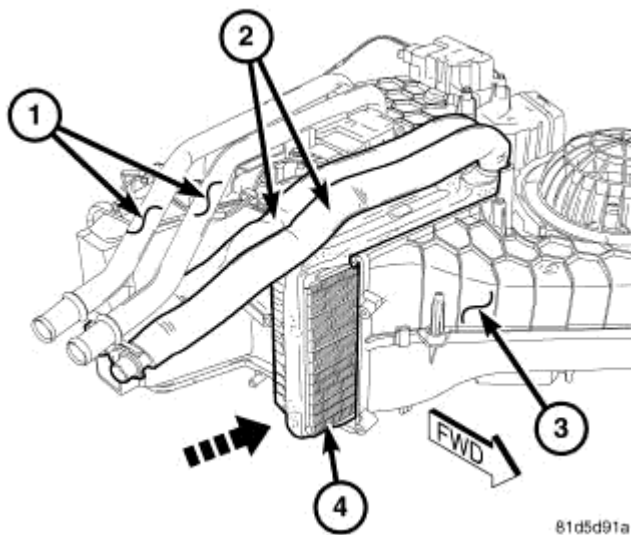
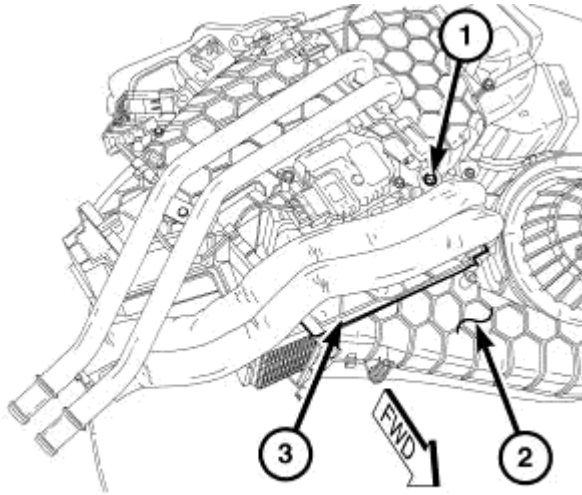


Fig. 291: Rear Evaporator Install
Courtesy of CHRYSLER LLC

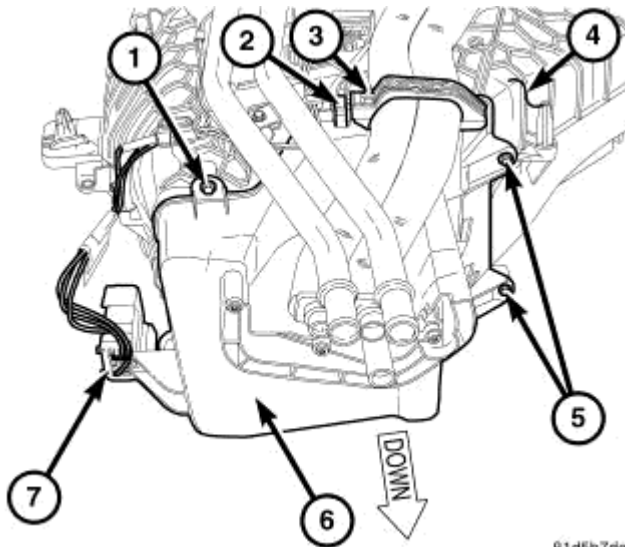
1. Install the rear A/C evaporator (4) into the rear heater-A/C housing (3). Guide the evaporator tubes (2) past the rear heater core tubes (1). Make sure that the foam seals are properly installed on the evaporator.



81d5cb76

Fig. 292: Rear Evaporator Cover Removal/Installation
Courtesy of CHRYSLER LLC

2. Install the evaporator cover (3) onto the outboard side of the rear heater-A/C housing (2) and install the retaining screw (1). Tighten the screw to 1.2 N.m (10 in. lbs.).

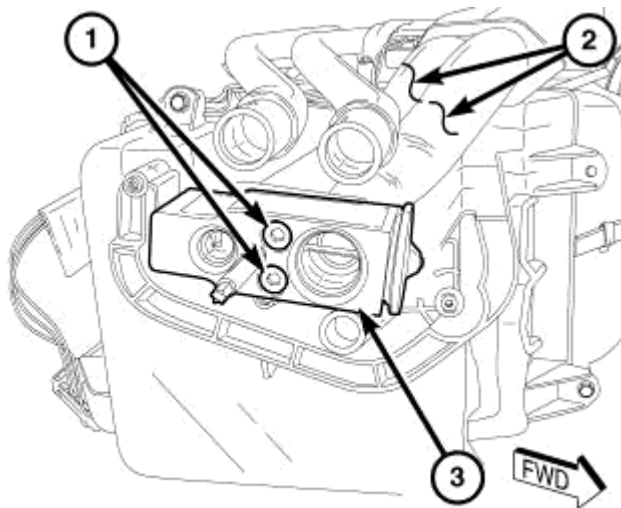


81d5b7de

Fig. 293: Lower Rear Housing Removal/Installation
Courtesy of CHRYSLER LLC

3. Install the lower rear heater-A/C housing (6) onto the rear heater-A/C housing (4). Rotate and tilt the lower housing as necessary for installation.
4. Install the five screws (1 and 5) that secure the lower housing to the rear heater-A/C housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
5. Install the metal retaining clip (2) that secures the lower housing to the rear heater-A/C housing.
6. Close the evaporator tube retaining bracket (3). Make sure the bracket retainers are fully engaged.

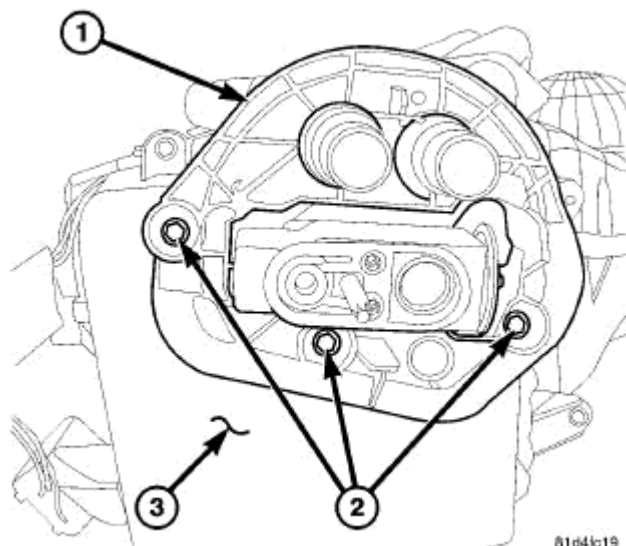
7. Install the wire harness connector (7) onto the lower rear heater-A/C housing.



81d5b7e2

Fig. 294: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

8. Remove the tape or plugs from the rear evaporator tubes and expansion valve ports.
9. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the rear 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.
10. Install the rear A/C expansion valve (3) onto the tapping plate located on the end of the rear evaporator tubes (2)
11. Install two bolts (1) that secure the rear A/C expansion valve to the tapping plate. Tighten the bolts to 11 N.m (97 in. lbs.).



81d4k19

Fig. 295: Rear Housing Flange
Courtesy of CHRYSLER LLC

12. Position the flange (1) to the bottom of the rear heater-A/C housing (3) and install the three retaining screws (2). Tighten the screws to 1.2 N.m (10 in. lbs.).

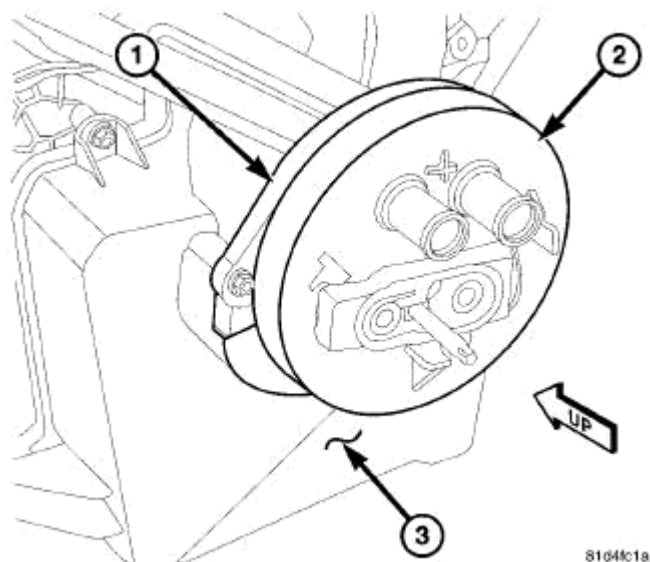


Fig. 296: Rear Housing Flange Seal
Courtesy of CHRYSLER LLC

13. Install the foam seal (2) onto the flange (1) at the bottom of the rear heater-A/C housing (3). Make sure that the foam seal is properly installed.
14. Install the rear heater-A/C housing. See **Heating and Air Conditioning/Distribution/HOUSING, A/C and Heater - Installation.**
15. Reconnect the negative battery cable.
16. If the rear A/C evaporator 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** to determine how much oil should be added to the refrigerant system. See **Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.** Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

LINES, A/C UNDERBODY

Description

DESCRIPTION

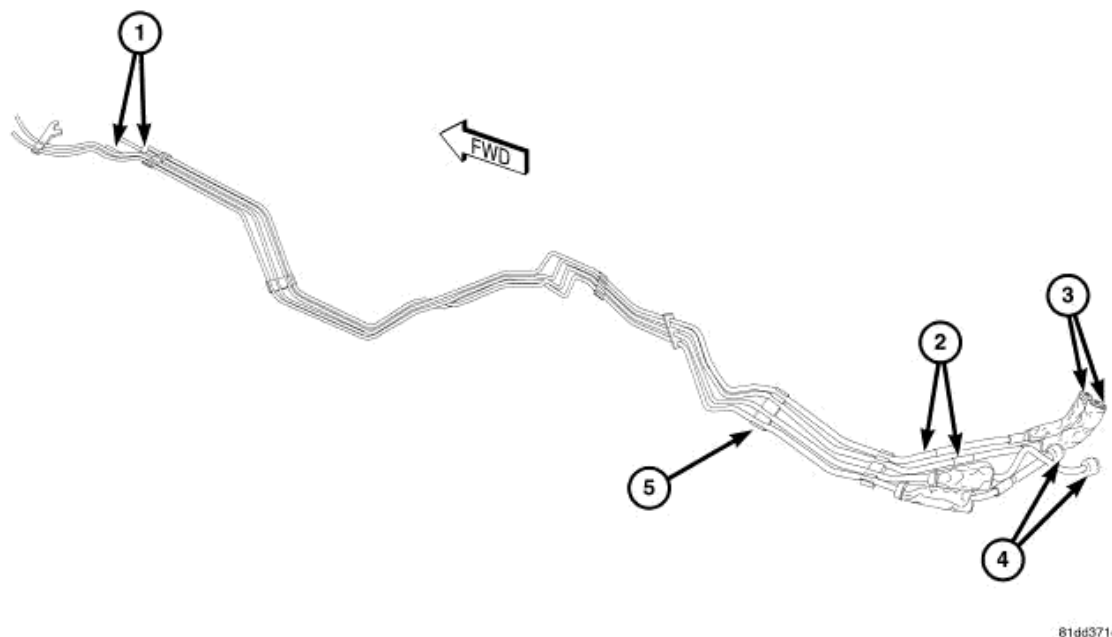


Fig. 297: Underbody Lines
Courtesy of CHRYSLER LLC

Models equipped with the rear heating-A/C system use metal lines attached to the vehicle underbody to carry refrigerant and engine coolant to and from the rear A/C evaporator and heater core. The underbody A/C lines (1) are connected to the front A/C suction and liquid lines and to the rear A/C expansion valve extension tubes using nut type fittings (4) and O-ring seals. The underbody heater lines (2) are connected to the front heater hoses and the rear heater core using spring type clamps (3). The underbody lines are retained to the vehicle by seven plastic mounting brackets (5).

NOTE: Replacement of the refrigerant line O-ring seals is required anytime an underbody refrigerant line is disconnected. Failure to replace the rubber O-ring seals may result in a refrigerant system leak.

The underbody lines have no serviceable parts except for the refrigerant line rubber O-ring seals and metal spring clamps. The O-ring seals used on the refrigerant line connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals must be replaced whenever the underbody refrigerant lines are disconnected.

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

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See Heating and Air

Conditioning/Plumbing - Warning and Heating and Air Conditioning/Plumbing - Caution. Failure to follow these instructions may result in serious or fatal injury.

NOTE: To prevent any contaminants from entering the rear heating-A/C system, make sure that the area around the underbody line connections is clean of any dirt or foreign residue prior to disconnecting the lines.

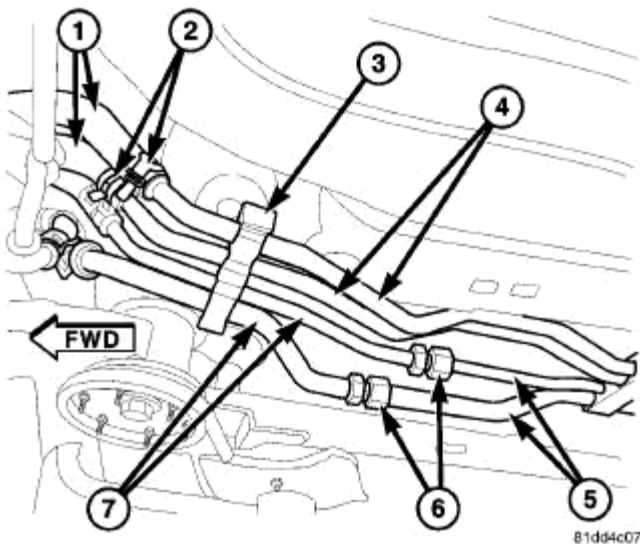


Fig. 298: Underbody Lines Front Connections
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
3. Drain the engine cooling system. Refer to Cooling - Standard Procedure.
4. Raise and support the vehicle.
5. Remove the rear section of the exhaust system. Refer to Exhaust System/PIPE, Exhaust - Removal.
6. Remove the exhaust heat shields as necessary to gain access to the underbody lines. Refer to Exhaust System/SHIELD, Heat - Description.

NOTE: Replacement of the front heater hoses will be required if the hose ends are cut for removal.

7. Release the spring type hose clamps (2) and disconnect the front heater hoses (1) from the underbody heater lines (4).
8. Loosen the fitting nuts (6) that secure the underbody refrigerant lines (5) to the front A/C liquid and suction lines (7).

9. Disconnect the front A/C liquid and suction lines from the underbody refrigerant lines and remove and discard the O-ring seals.
10. Disengage the front A/C liquid and suction lines from the front underbody refrigerant line bracket (3).

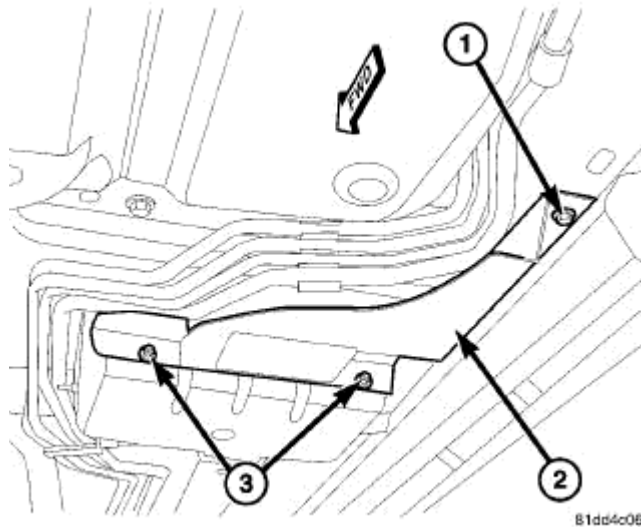


Fig. 299: Underbody Line Shield
Courtesy of CHRYSLER LLC

11. Remove the two nuts (3) and one screw (1) that secure the underbody line shield (2) to the vehicle underbody and remove the shield.

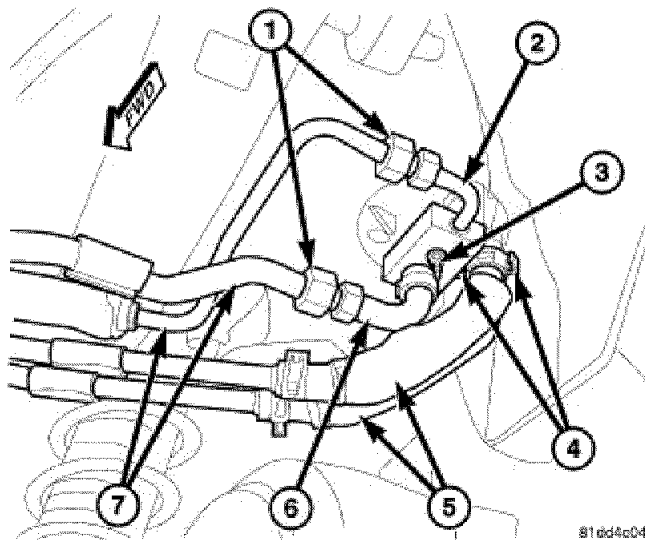


Fig. 300: Underbody Lines to Rear Housing
Courtesy of CHRYSLER LLC

CAUTION: DO NOT apply excessive force on underbody heater lines or rear heater tubes when disconnecting the connections. Excessive force may damage or deform the tubes and or lines, causing an engine coolant leak.

NOTE: Replacement of the rubber heater hose ends will be required if the rubber hoses are cut for removal.

12. Release the spring type hose clamps (4) and disconnect the underbody heater lines (5) from the rear heater core tubes located behind the right rear wheel housing.
13. Lower the underbody heater lines and drain any residual coolant from the lines into a suitable container.
14. Loosen the fitting nuts (1) that secure the underbody refrigerant lines (7) to the underbody refrigerant extension lines and sealing plate (2 and 6).
15. Disconnect the underbody refrigerant lines from underbody refrigerant extension lines and remove and discard the O-ring seals.
16. Remove the nut (3) that secures the underbody refrigerant extension lines and sealing plate to the rear A/C expansion valve.
17. Disconnect the extension lines and sealing plate from the rear A/C expansion valve and remove and discard the O-ring seals.

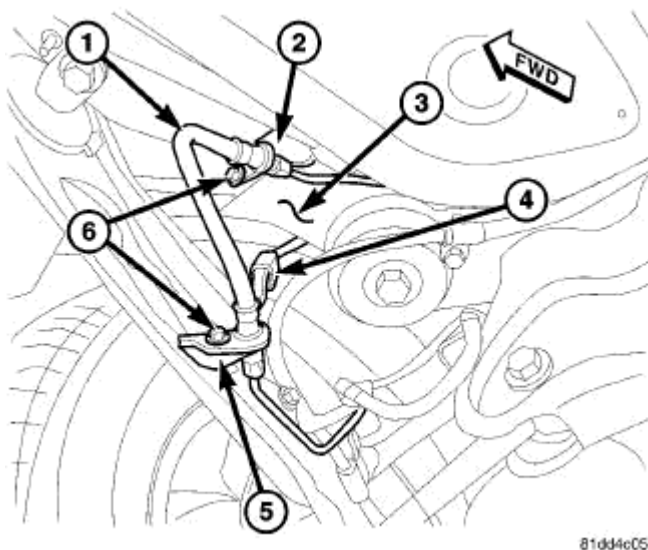
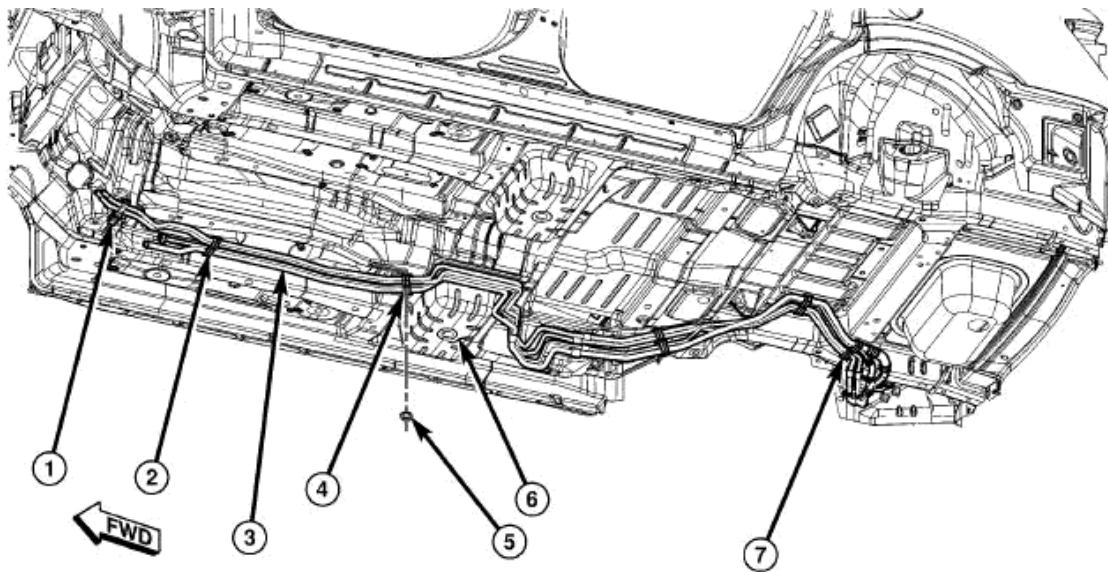


Fig. 301: Right Rear Brake Line Brackets & Wire Harness
Courtesy of CHRYSLER LLC

18. Disconnect the rear ABS wire harness lead and bracket (4) from the right side of the body (3) to gain clearance to partially lower the right side of the rear cradle.

NOTE: It is not necessary to disconnect the brake line to remove it from the brackets.

19. Remove the two bolts (6) that secure the right rear brake line (1) to the two brackets (2 and 5) and remove the brake line from the brackets to gain clearance to partially lower the right side of the rear cradle.



81dd4c03

Fig. 302: Underbody Line Brackets
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with rear body cradle removed for clarity.

20. Remove the lower right rear shock retaining bolt. Refer to **Rear Suspension/SHOCK ABSORBER, Suspension - Removal**.

WARNING: Be sure to properly support the rear cradle before removing the right side retaining bolts. Failure to follow this warning may result in serious or fatal injury.

21. Support the right side of the rear cradle with a suitable jack stand and remove the bolts that secure the right side of the cradle to the body. Refer to **Frame and Bumpers/Frame/CROSSMEMBER - Removal**.

CAUTION: Use care not to damage the ABS wire lead or the brake line when lowering the rear cradle for clearance.

22. Carefully lower the jack stand until the right side of the rear cradle (supported by the stand) is approximately 76-101 mm (3-4 in.) below the body. This will allow access to remove the underbody line assembly.
23. Remove the nut (5) that secures the underbody line bracket (4) to the stud located near the center of the underbody (6).

24. Disengage the remainder of the underbody line brackets (1, 2, and 7) from the studs located underneath the vehicle.
25. Rotate and tilt the underbody lines (3) as necessary and remove the lines from the vehicle.
26. Install plugs in, or tape over all the opened refrigerant line fittings and the rear expansion valve ports.

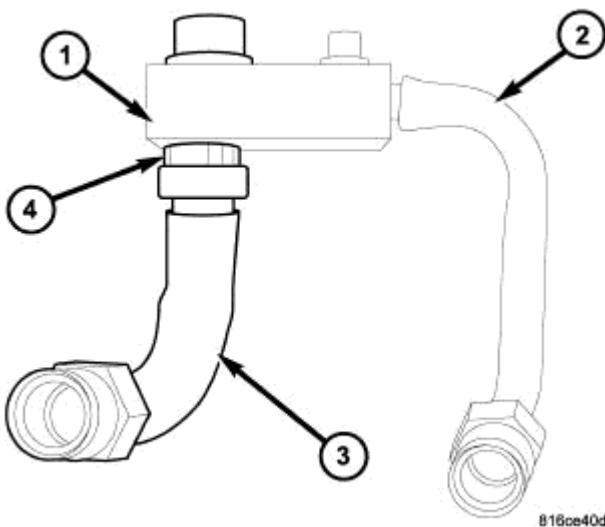


Fig. 303: Underbody Suction Extension Line
Courtesy of CHRYSLER LLC

27. If required, place the extension lines and sealing plate (1) on a workbench, remove the nylon retaining clip (4) that secures the suction extension line (3) to the sealing plate and remove the suction line from the sealing plate.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See [Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure](#).

NOTE: Replacement of the refrigerant line O-ring seals is required anytime an underbody refrigerant line is disconnected. Failure to replace the rubber O-ring

seals may result in a refrigerant system leak.

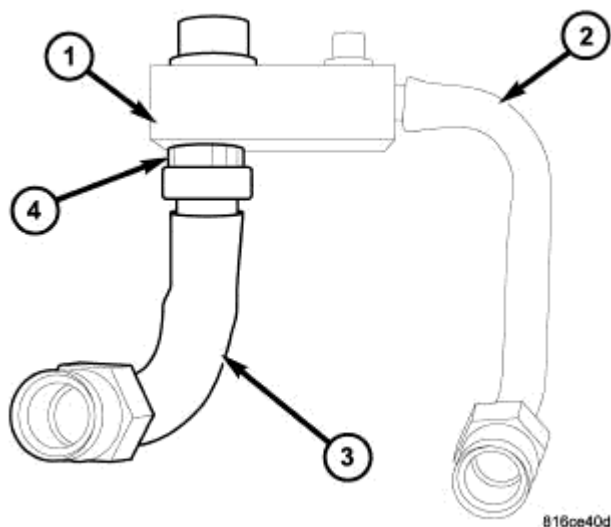


Fig. 304: Underbody Suction Extension Line
Courtesy of CHRYSLER LLC

1. If removed, install the suction extension line (3) into the sealing plate (1) and install the nylon retaining clip (4).

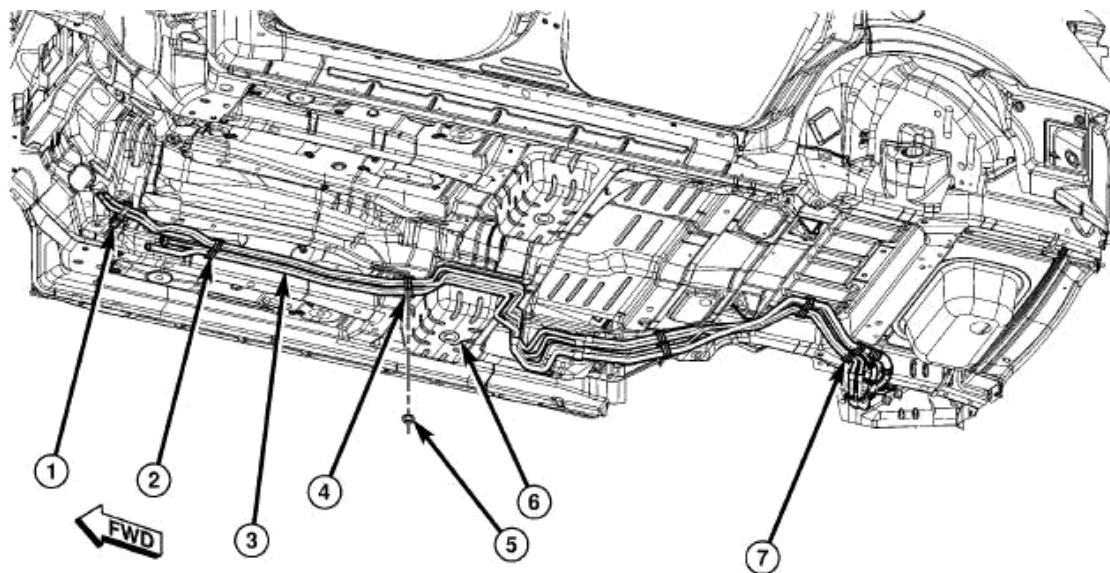


Fig. 305: Underbody Line Brackets
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with rear body cradle removed for clarity.

2. Position the underbody lines (3) and engage the underbody line brackets (1, 2, and 7) to the mounting studs located on the underbody (6). Rotate and tilt the underbody lines as necessary. Make sure the brackets are fully engaged to the studs.
3. Position the underbody line bracket (4) onto the mounting stud located near the center of the underbody and install the retaining nut (5). Tighten the nut securely.

CAUTION: Use care not to damage the ABS wire lead or the brake line when repositioning the rear cradle.

4. Carefully raise the jack stand until the right side of the rear cradle is positioned to the body.

WARNING: Be sure to properly support the rear cradle when installing the right side retaining bolts. Failure to follow this warning may result in serious or fatal injury.

5. Install the bolts that secure the right side of the cradle to the body and remove the jack stand. Refer to **Frame and Bumpers/Frame/CROSSMEMBER - Installation**.
6. Install the lower right rear shock retaining bolt. Refer to **Rear Suspension/SHOCK ABSORBER, Suspension - Installation**.

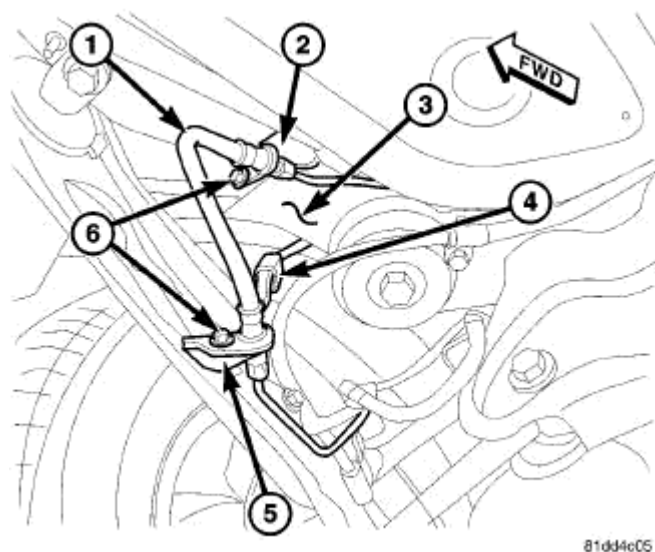


Fig. 306: Right Rear Brake Line Brackets & Wire Harness
Courtesy of CHRYSLER LLC

7. Connect the rear ABS wire harness lead and bracket (4) to the right side of the body (3).
8. Position the right rear brake line (1) onto the two brackets (2 and 5) and install the two retaining bolts (6). Tighten the bolts securely.

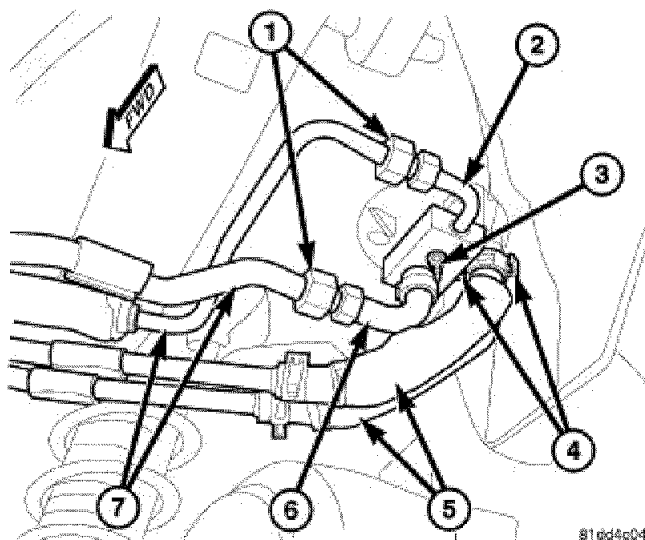


Fig. 307: Underbody Lines to Rear Housing
Courtesy of CHRYSLER LLC

CAUTION: DO NOT apply excessive force on underbody heater lines or rear heater tubes fittings when connecting the connections. Excessive force may damage or deform the tubes and or lines, causing an engine coolant leak.

NOTE: Replacement of the rubber heater hose ends will be required if the rubber hoses were cut for removal.

9. Remove the tape or plugs from all the opened refrigerant line fittings and the rear expansion valve ports.
10. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the underbody refrigerant extension line fittings. Use only the specified O-rings as they are made of a special material for the R-134a refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
11. Connect the underbody refrigerant extension lines and sealing plate (2 and 6) to the rear A/C expansion valve.
12. Loosely install the nut (3) that secures the extension lines and sealing plate to the rear A/C expansion valve.
13. Connect the underbody refrigerant lines (7) to the underbody refrigerant extension lines and tighten the fitting nuts (1) to 23 N.m (17 ft. lbs.).
14. Tighten the nut that secures the extension lines and sealing plate to the rear A/C expansion valve to 11 N.m (97 in. lbs.).
15. Connect the underbody heater lines (5) to the rear heater core tubes located behind the right rear wheel housing and engage the spring type hose clamps (4).

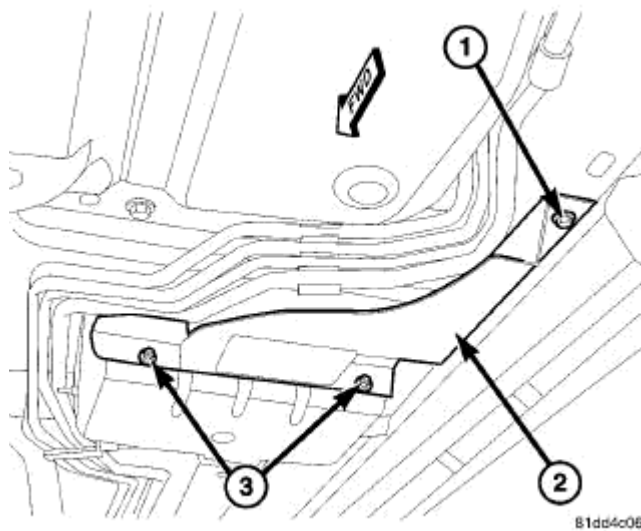


Fig. 308: Underbody Line Shield
Courtesy of CHRYSLER LLC

16. Position the underbody line shield (2) to the vehicle underbody and install the two nuts (3) and one screw (1). Tighten the fasteners securely.

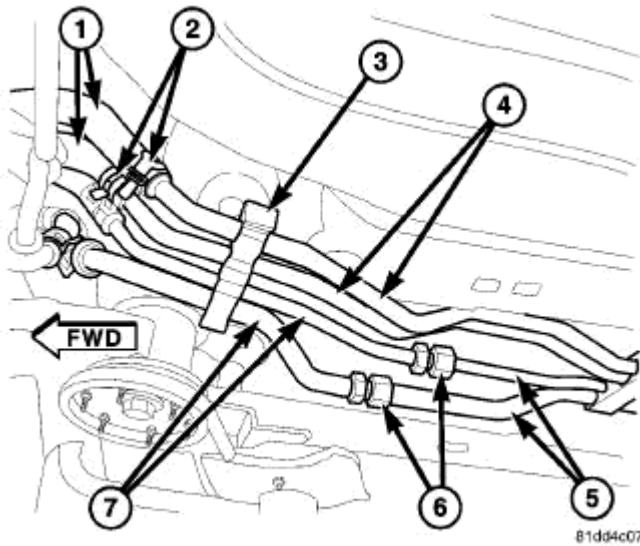


Fig. 309: Underbody Lines Front Connections
Courtesy of CHRYSLER LLC

17. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the underbody refrigerant line fittings. Use only the specified O-rings as they are made of a special material for the R-134a refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

18. Connect the front A/C liquid and suction lines (7) to the underbody refrigerant lines (5). Tighten the fitting nuts (6) to 23 N.m (17 ft. lbs.).
19. Position the front A/C liquid and suction lines into the front underbody refrigerant line bracket (3) and engage the bracket retainer.

NOTE: Replacement of the front heater hoses will be required if the hose ends were cut for removal.

20. Connect the front heater hoses (1) to the underbody heater lines (4) and engage the spring type hose clamps (2).
21. Install the exhaust heat shields as necessary.
22. Install the rear section of the exhaust system. Refer to Exhaust System/PIPE, Exhaust - Installation.
23. Lower the vehicle.
24. Reconnect the negative battery cable.
25. Fill the engine cooling system. Refer to Cooling - Standard Procedure.
26. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
27. Adjust the refrigerant oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.
28. Charge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

LINES, A/C UNDERBODY, EXTENSION

Description

DESCRIPTION

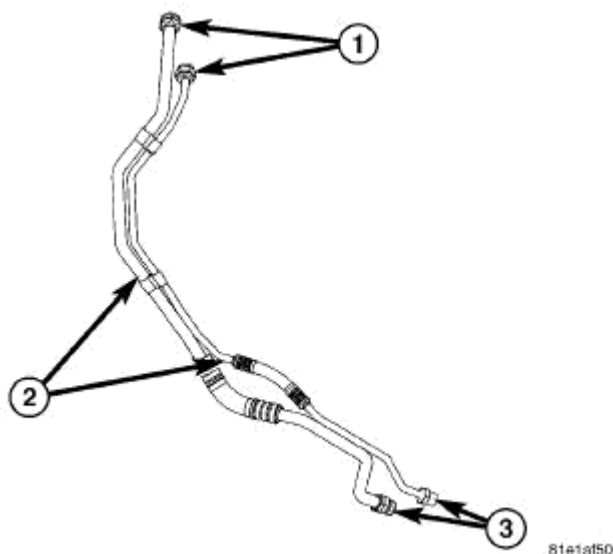


Fig. 310: Underbody A/C Extension Lines Description

Courtesy of CHRYSLER LLC

Models equipped with the rear heating-A/C system use metal lines attached to the vehicle underbody to carry refrigerant and engine coolant to and from the rear A/C evaporator and heater core. The underbody A/C lines are connected to the front A/C suction and liquid lines by use of underbody A/C extension lines (2). The underbody A/C extension lines are connected to the front and underbody refrigerant lines with nut type fittings (1 and 3) and O-ring seals.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime an underbody refrigerant line is disconnected. Failure to replace the rubber O-ring seals may result in a refrigerant system leak.

The underbody A/C extension lines have no serviceable parts except for the rubber O-ring seals. The O-ring seals used on the refrigerant line connections are made from a special type of rubber not affected by R-134a refrigerant. The O-ring seals must be replaced whenever the underbody refrigerant lines are disconnected.

The underbody A/C extension lines cannot be repaired and must be replaced if leaking or damaged.

Removal**REMOVAL**

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may result in serious or fatal injury.

NOTE: To prevent any contaminants from entering the rear heating-A/C system, make sure that the area around the underbody line connections is clean of any dirt or foreign residue prior to disconnecting the lines.

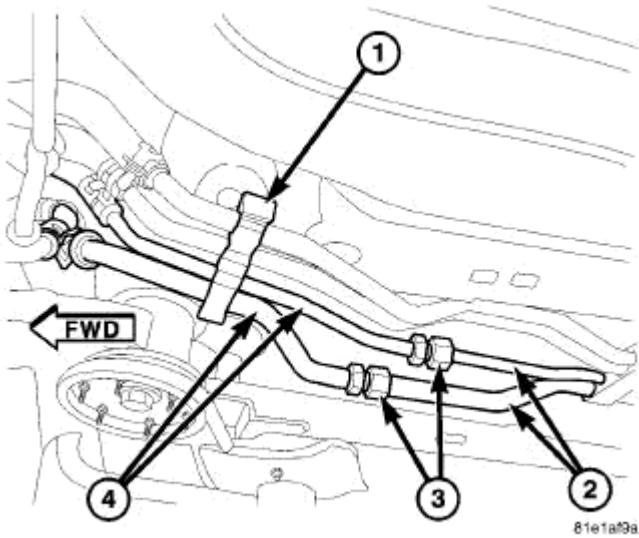


Fig. 311: Extension Lines-Underbody Connections

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. See **Heating and Air Conditioning/Plumbing - Standard Procedure**.
3. Raise and support the vehicle.
4. Disengage the underbody A/C extension lines (4) from the front underbody refrigerant line bracket (1).
5. Loosen the fitting nuts (3) that secure the underbody A/C extension lines to the underbody A/C liquid and suction lines (2).
6. Disconnect the underbody A/C extension lines from the underbody A/C liquid and suction lines and remove and discard the O-ring seals.
7. Install plugs in, or tape over the opened refrigerant line fittings.

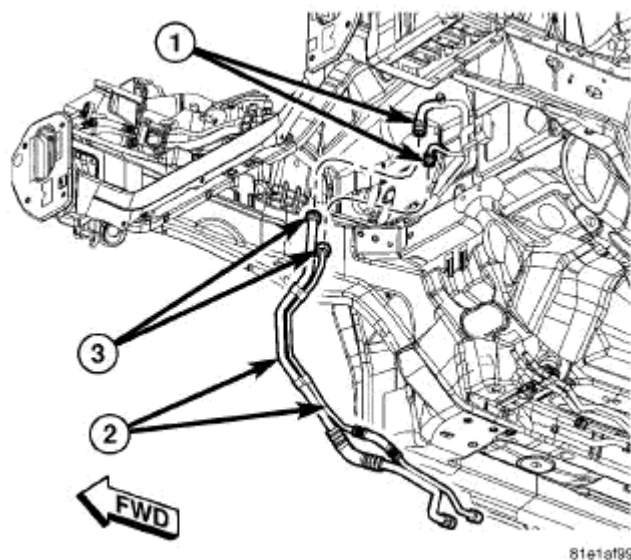


Fig. 312: Extension Lines-Upper Connections
Courtesy of CHRYSLER LLC

8. Lower the vehicle.
9. Loosen the fitting nuts (3) that secure the underbody A/C extension lines (2) to the front A/C liquid and suction lines (1).
10. Disconnect the underbody A/C extension lines from the front A/C liquid and suction lines and remove and discard the O-ring seals.
11. Rotate and tilt the underbody A/C extension lines as necessary and remove the lines from the vehicle.
12. Install plugs in, or tape over the opened refrigerant line fittings.

Installation

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime an underbody refrigerant line is disconnected. Failure to replace the rubber O-ring

seals may result in a refrigerant system leak.

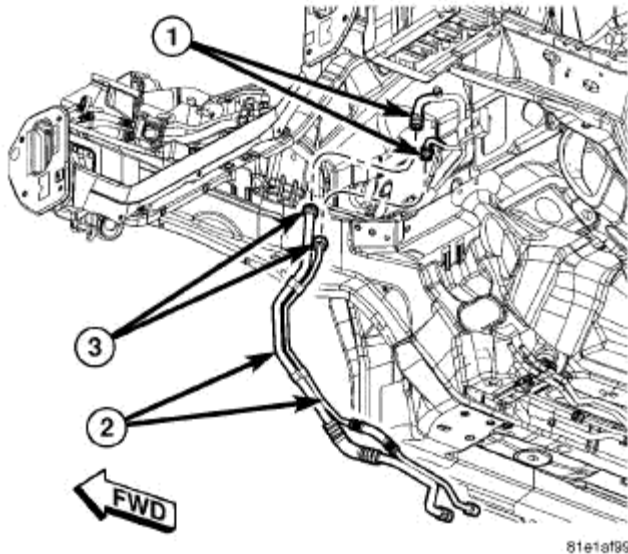


Fig. 313: Extension Lines-Upper Connections
Courtesy of CHRYSLER LLC

1. Remove the tape or plugs from the opened refrigerant extension line fittings.
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 refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Position the underbody A/C extension lines (2) into the engine compartment. Rotate and tilt the underbody A/C extension lines as necessary.
4. Connect the underbody A/C extension lines to the front A/C liquid and suction lines (1). Tighten the fitting nuts (3) to 23 N.m (17 ft. lbs.).

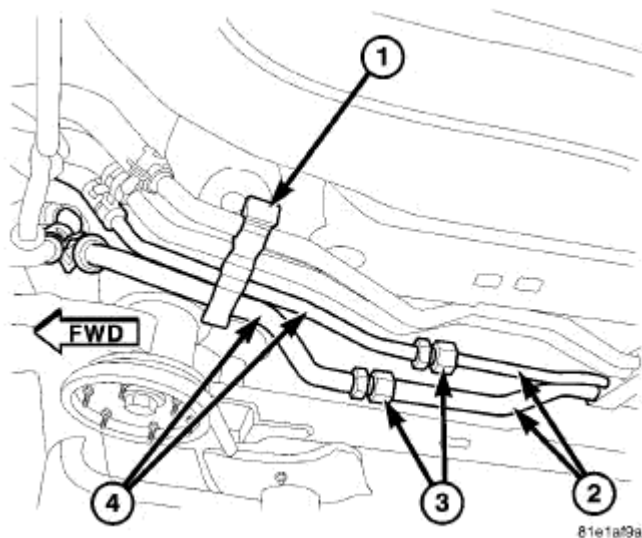


Fig. 314: Extension Lines-Underbody Connections
Courtesy of CHRYSLER LLC

5. Raise and support the vehicle.
6. Remove the tape or plugs from the opened underbody refrigerant line fittings.
7. 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 refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
8. Connect the underbody A/C extension lines (4) to the underbody A/C liquid and suction lines (2). Tighten the fitting nuts (3) to 23 N.m (17 ft. lbs.).
9. Position the underbody A/C extension lines into the front underbody refrigerant line bracket (1) and engage the bracket retainer.
10. Lower the vehicle.
11. Reconnect the negative battery cable.
12. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
13. Adjust the refrigerant oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.
14. Charge the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

VALVE, A/C EXPANSION

Description

DESCRIPTION

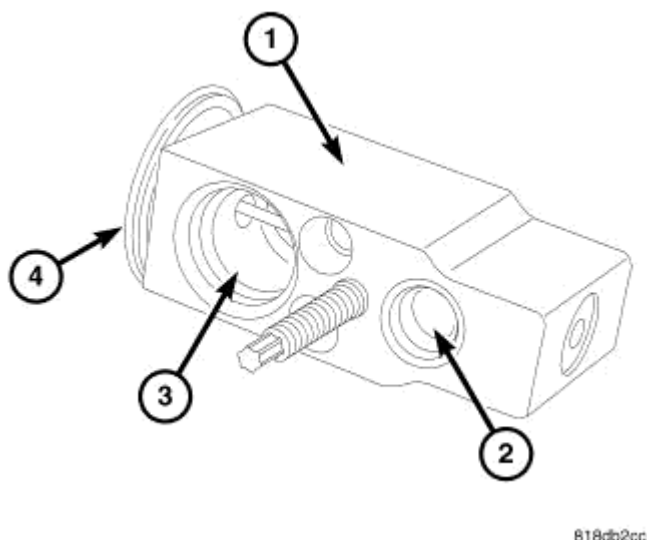


Fig. 315: A/C Expansion Valve Description KA
Courtesy of CHRYSLER LLC

The rear A/C expansion valve controls the amount of refrigerant entering the rear A/C evaporator. The rear 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 rear A/C expansion valve is located on the bottom of the rear heater-A/C housing, which extends through the rear floor panel behind the right rear wheel housing.

Operation

OPERATION

The rear A/C expansion valve controls the flow of high-pressure, low temperature liquid refrigerant entering the expansion valve and converts it into a low-pressure, low-temperature mixture of liquid and gas before it enters the rear A/C evaporator. To meet the vehicles A/C cooling requirements, a mechanical sensor is used in the rear A/C expansion valve to monitor the temperature and pressure of the refrigerant leaving the rear A/C evaporator and then adjust the inlet port orifice size to allow only the proper amount of refrigerant to enter the evaporator. Controlling the refrigerant flow through the rear A/C evaporator ensures that none of the refrigerant leaving the 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, or if the expansion valve is removed. Failure to replace the rubber O-ring seals may result in a refrigerant system leak.

The rear A/C expansion valve is factory calibrated and cannot be adjusted or repaired and must be replaced if inoperative or damaged. See **Heating and Air Conditioning/Plumbing/VALVE, A/C Expansion - Diagnosis and Testing**.

Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See [Heating and Air Conditioning/Plumbing - Warning](#) and [Heating and Air Conditioning/Plumbing - Caution](#). Failure to follow these instructions may result in serious or fatal injury.

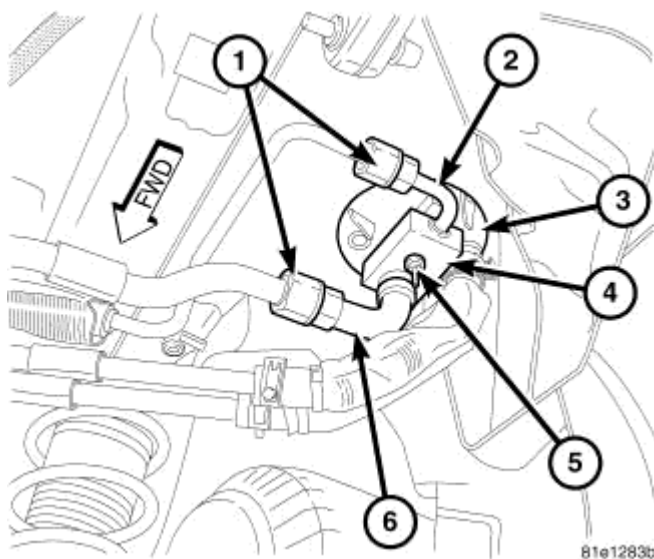
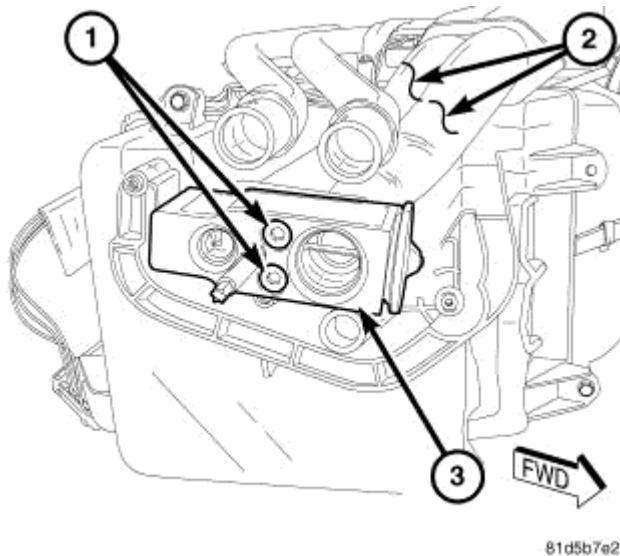


Fig. 316: Rear Underbody Refrigerant Extension Lines
Courtesy of CHRYSLER LLC

1. Recover the refrigerant from the refrigerant system. See [Heating and Air Conditioning/Plumbing - Standard Procedure](#).
2. Raise and support the vehicle.
3. Loosen the nuts (1) that secure the underbody refrigerant lines to the underbody refrigerant extension lines (2 and 6) located behind the right rear wheel housing.
4. Disconnect the underbody refrigerant lines from underbody refrigerant extension lines and remove and discard the O-ring seals.
5. Remove the nut (5) that secures the underbody refrigerant extension line sealing plate (4) to the rear A/C expansion valve (3).
6. Disconnect the underbody refrigerant extension lines and sealing plate from the rear A/C expansion valve and remove and discard the O-ring seals.



81d5b7e2

Fig. 317: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with rear heater-A/C housing removed from vehicle.

7. Remove the two bolts (1) that secure the rear A/C expansion valve (3) to the rear evaporator tubes (2), which extend through the rear floor panel behind the right rear wheel housing.
8. Remove the rear A/C expansion valve from the rear evaporator tubes and remove and discard the O-ring seals.
9. Install plugs in, or tape over all the opened underbody refrigerant line fittings and the rear evaporator and expansion valve ports.

Installation

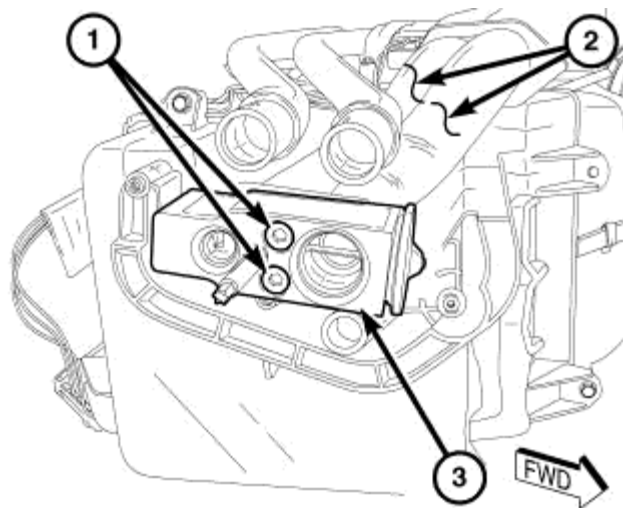
INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - 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 to determine how much oil should be added to the refrigerant system. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.

NOTE: Replacement of the refrigerant line O-ring seals is required anytime a refrigerant line is disconnected from the expansion valve, or if the expansion valve is removed. Failure to replace the rubber O-ring seals may result in a refrigerant

system leak.



81d5b7e2

Fig. 318: Rear Expansion Valve Removal/Installation Bench
Courtesy of CHRYSLER LLC

NOTE: Illustration shown with rear heater-A/C housing removed from vehicle.

1. Remove the tape or plugs from the opened underbody refrigerant line fittings and the rear evaporator and expansion valve ports.
2. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the rear 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 rear A/C expansion valve (3) onto the rear evaporator tubes (2) extending through the rear floor panel behind the right rear wheel housing.
4. Install two bolts (1) that secure the rear A/C expansion valve to the rear evaporator tubes. Tighten the bolts to 11 N.m (97 in. lbs.).

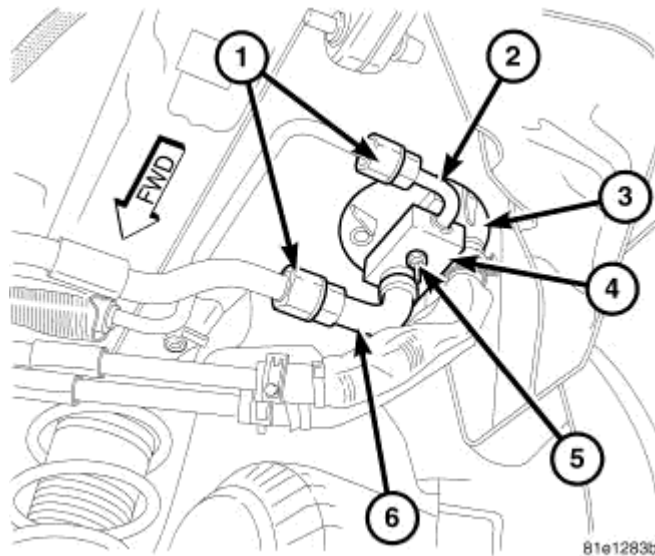


Fig. 319: Rear Underbody Refrigerant Extension Lines
Courtesy of CHRYSLER LLC

5. Lubricate new rubber O-ring seals with clean refrigerant oil and install them onto the underbody refrigerant extension line fittings. Use only the specified O-rings as they are made of a special material for the R-134a refrigerant system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

CAUTION: Use care when installing the underbody refrigerant extension lines to the rear A/C expansion valve. Carefully align the tube ends with the valve prior to tightening the sealing plate retaining nut or damage to the sealing rings and tube ends may occur.

6. Connect the underbody refrigerant extension lines (2 and 6) and the sealing plate (4) to the rear A/C expansion valve (2).
7. Loosely install the nut (5) that secures the extension lines and sealing plate to the rear A/C expansion valve.
8. Connect the underbody refrigerant lines to the underbody refrigerant extension lines and tighten the fitting nuts (1) to 23 N.m (17 ft. lbs.).
9. Tighten the nut that secures the extension lines and sealing plate to the rear A/C expansion valve to 11 N.m (97 in. lbs.).
10. Lower the vehicle.
11. Evacuate the refrigerant system. See Heating and Air Conditioning/Plumbing - Standard Procedure.
12. Adjust the refrigerant oil level. See Heating and Air Conditioning/Plumbing/OIL, Refrigerant - Standard Procedure.
13. Charge the A/C system. See Heating and Air Conditioning/Plumbing - Standard Procedure.

CABIN HEATER

RELAY, HEATER UNIT

Description

DESCRIPTION

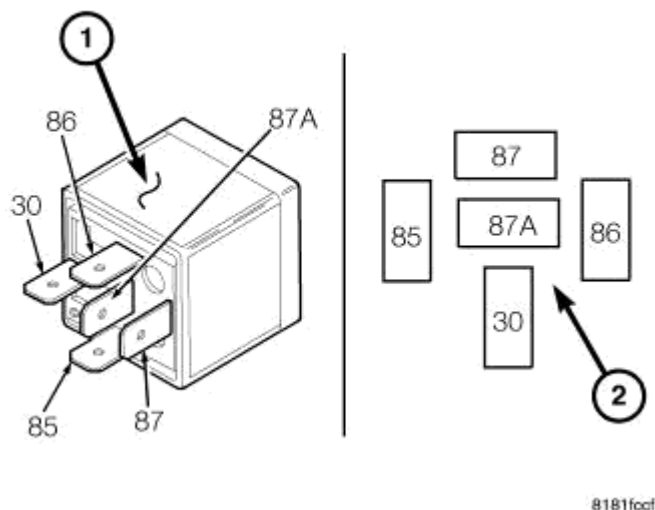


Fig. 320: Standard ISO-Type Relay
Courtesy of CHRYSLER LLC

Three relays (1) are used for the electric positive temperature coefficient (PTC) heater system when equipped with the 2.0L 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 three PTC relays are located in the diesel accessory fuse/relay block in the engine compartment.

Operation

OPERATION

The three 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. Refer to **SYSTEM WIRING DIAGRAMS** for inputs and outputs of the PTC relays.

The PTC relays cannot be repaired and must be replaced if inoperative or damaged. See **SYSTEM WIRING DIAGRAMS** for diagnosis and testing of the ISO-standard relays and for complete TIPM and HVAC wiring diagrams.

Removal

REMOVAL

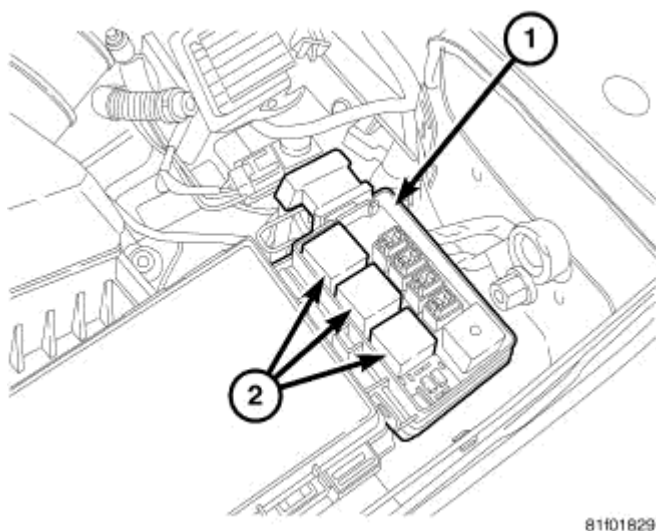


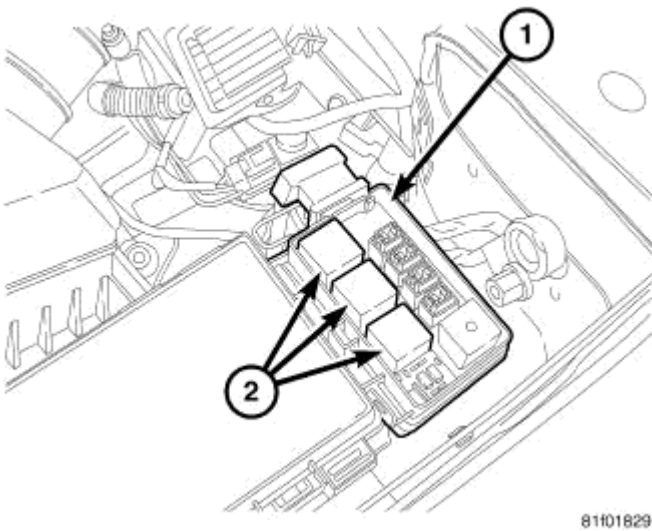
Fig. 321: Diesel Accessory Fuse/Relay Block
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. Remove the cover from the diesel accessory fuse/relay block (1) located near the left front strut tower.
3. Remove the positive temperature coefficient (PTC) relays (2) as necessary from the fuse/relay block.

Installation

INSTALLATION

**Fig. 322: Diesel Accessory Fuse/Relay Block**

Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Position the positive temperature coefficient (PTC) relays (2) as necessary into the proper receptacle of the diesel accessory fuse/relay block (1) located near the left front strut tower
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. Install the cover onto the diesel accessory fuse/relay block.
4. Reconnect the negative battery cable.

UNIT, HEATER**Description****DESCRIPTION**

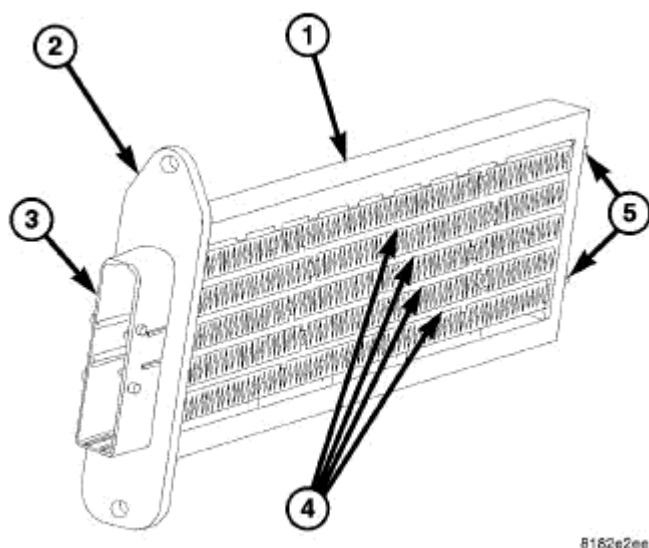


Fig. 323: Positive Temperature Coefficient Heater - Description
 Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

An electric positive temperature coefficient (PTC) heater unit (1) is used on vehicles when equipped with the 2.0L 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 three relays.

The PTC heater consists of a molded plastic mounting plate (2) with an integral wire connector receptacle (3). Concealed behind the mounting plate are heating elements with fins (4) that transfer the heat produced by the PTC heater to the conditioned air flowing within the air distribution housing. Two retaining tabs (5) are molded onto the opposite end of the heater unit to 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 under the left side of the instrument panel.

Operation

OPERATION

The positive temperature coefficient (PTC) heater unit dissipates 1 kW of electrical power through three heating elements. The PTC heater unit is split into three "banks". Each bank (element) 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 totally integrated power module (TIPM) operates three relays for the PTC heater unit. See **Heating and Air Conditioning/Cabin Heater/RELAY, Heater Unit - Description**.

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.

The PTC heater unit cannot be adjusted or repaired must be replaced if inoperative or damaged.

Diagnosis and Testing

POSITIVE TEMPERATURE COEFFICIENT (PTC) 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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

NOTE: See SYSTEM WIRING DIAGRAMS for circuit descriptions and diagrams. 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. See DTC-Based Diagnostics/HVAC - Standard Procedure .

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the PTC heater unit. See Heating and Air Conditioning/Cabin Heater/UNIT, Heater - 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, PTC relays and the TIPM. If NOT OK, replace the PTC heater unit.

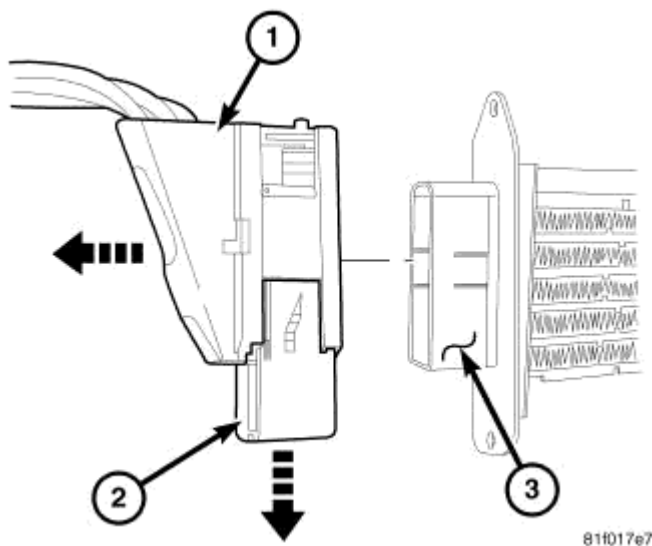
Removal

REMOVAL

WARNING: Refer to the applicable warnings and cautions for this system before performing the following operation. See Heating and Air Conditioning/Plumbing - Warning and Heating and Air Conditioning/Plumbing - Caution. Failure to follow the warnings and cautions may result in possible serious or fatal injury.

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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.



81f017e7

Fig. 324: Positive Temperature Coefficient Connector - Disconnect
Courtesy of CHRYSLER LLC

NOTE: PTC heater removed from distribution housing for clarity.

1. Disconnect and isolate the negative battery cable.

NOTE: To disconnect the wire harness connector from the heater unit, pull downward on the connector lock while pulling the connector away from the heater unit.

2. Disengage the wire connector lock (2) that secures the wire harness connector (1) to the positive temperature coefficient (PTC) heater unit (3) located on the left side of the HVAC air distribution housing and disconnect the connector from the heater.

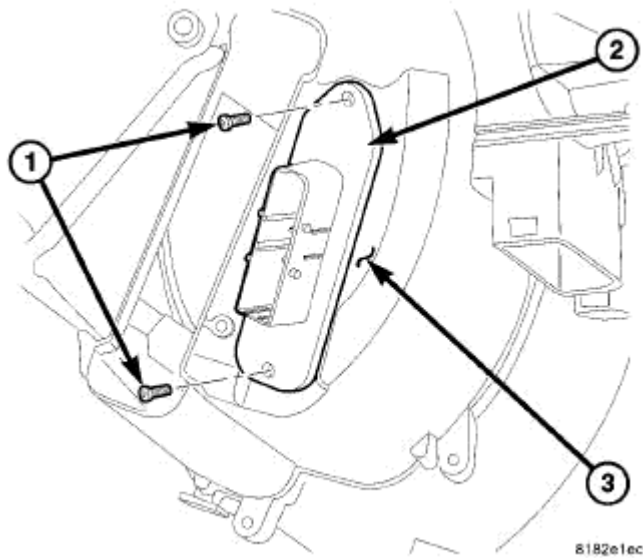


Fig. 325: PM/MK Positive Temperature Coefficient Heater Unit
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

3. Remove the two screws (1) that secure the PTC heater unit (2) to the left side of the HVAC air distribution housing (3).
4. Carefully remove the PTC heater unit from the air distribution housing by pulling it straight out of the housing.

Installation

INSTALLATION

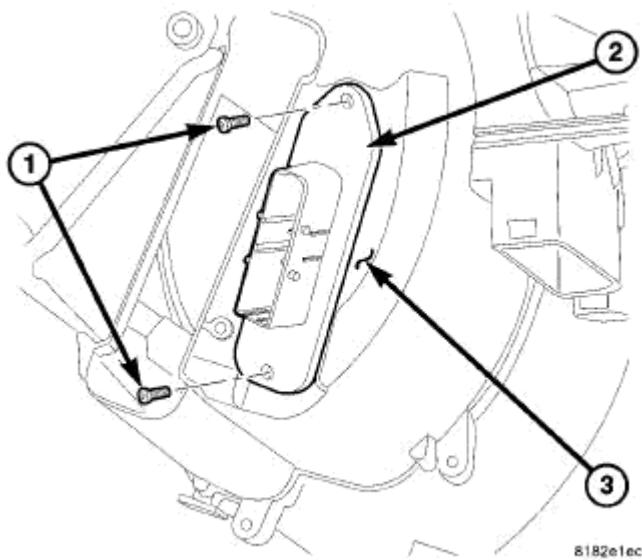


Fig. 326: PM/MK Positive Temperature Coefficient Heater Unit
Courtesy of CHRYSLER LLC

NOTE: LHD model shown. RHD model similar.

1. Carefully install the positive temperature coefficient (PTC) heater unit (2) into the left side of the HVAC 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.).

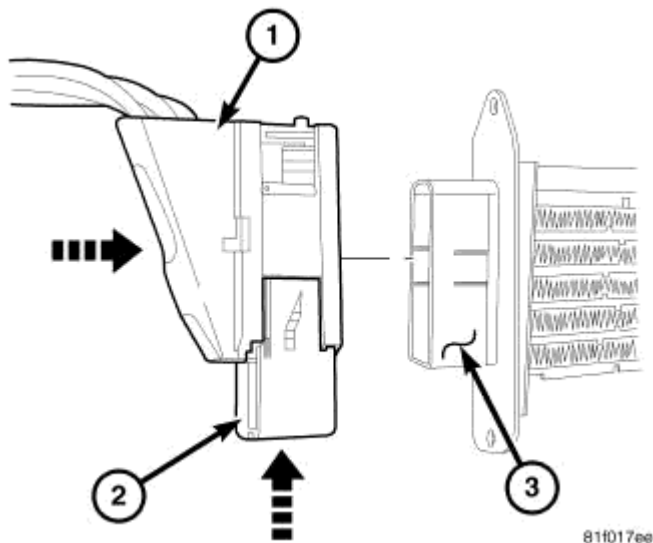


Fig. 327: Positive Temperature Coefficient Connector - Connect
Courtesy of CHRYSLER LLC

2009 Dodge Journey R/T

2009 HVAC Heating & Air Conditioning - Service Information - Journey

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 upward on the connector lock (2). Make sure the wire harness connector and lock are fully engaged.
4. Reconnect the negative battery cable.