

2014 HVAC

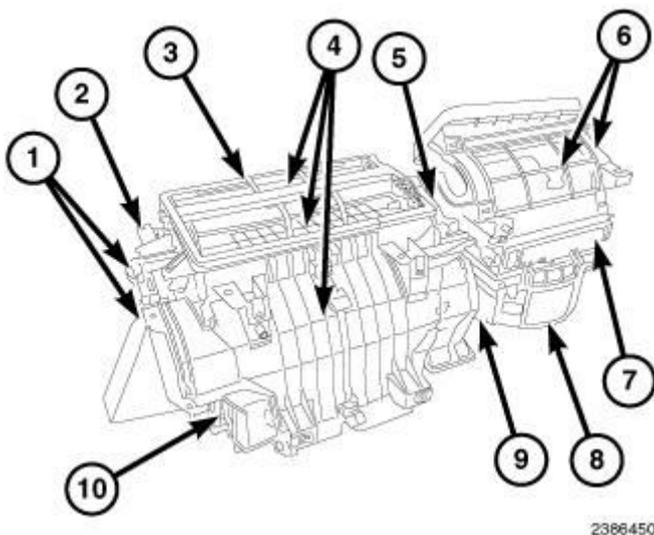
Heating & Air Conditioning - Service Information - Compass & Patriot

DESCRIPTION**DESCRIPTION**

An electronic Manual Temperature Control (MTC) single zone type heating-A/C system, electronic MTC heater-only system and an electronic Automatic Temperature Control (ATC) single zone type heating-A/C system are available on this model, depending on market.

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. See **ENGINE COOLING SYSTEM** for more information before opening or attempting any service to the engine cooling system.



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Fig. 1: HVAC Housing Components
 Courtesy of CHRYSLER GROUP, LLC

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. All vehicles are equipped with a common HVAC housing that includes the following.

- Blend-air door and actuator (1)
- Evaporator temperature sensor (2) (when A/C equipped)
- A/C evaporator (3) (when A/C equipped)
- Mode-air doors (4)
- Mode door actuator (5)
- Recirculation-air door and actuator (6) (when A/C equipped)
- Cabin air filter (7) (when equipped)
- Blower motor (8)
- Blower motor power module (9)
- Heater core (10)

On heater-only systems, the A/C evaporator is omitted from the HVAC housing and is replaced with an air restrictor plate.

NOTE: An electric positive temperature coefficient (PTC) heater is used on vehicles when equipped with the 2.2L 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. For more information. Refer to UNIT, HEATER, DESCRIPTION.

Based upon the system mode selected, conditioned air can exit the HVAC housing through one or a combination of the three main housing outlets: defrost, panel or floor. The defrost and panel outlets are located on the top of the 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** - A single large defroster outlet is 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 top

cover, near the belt line at 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.

OPERATION

OPERATION

The Manual Temperature Control (MTC) heating-A/C system, MTC heater-only system and the Automatic Temperature Control (ATC) heating-A/C system 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. The temperature control determines the discharge air temperature by operating the blend door actuator, which moves the blend-air door. This design allows almost immediate control of output air temperature.

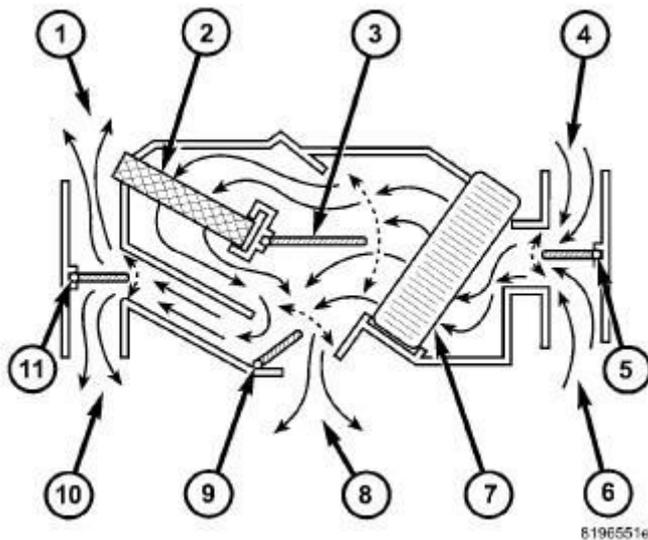


Fig. 2: Blend Air System Schematic
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical blend-air type HVAC system shown in illustration.

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. On models equipped with A/C, the air passes through the A/C evaporator (7). Air flow is then directed either through or around the heater core (2). This is done by adjusting the position of the blend-air door (3) with the temperature control located on the A/C-heater control in the instrument panel. Air flow is then directed out the floor outlet (8), instrument panel outlet (10) or the defroster outlet (1) in various combinations by adjusting the position of the mode-air doors (9 and 11) using the mode control located on the A/C-heater control. The mode control uses a control cable to operate the mode-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) located within the passenger compartment.

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 front and rear floor outlets receive airflow from the HVAC housing through the front and rear floor ducts. The front floor outlets are integral to the molded plastic front floor ducts, which are secured to each side of the HVAC housing. Two molded plastic rear seat ducts are attached to the two molded plastic rear floor ducts, which are secured to the rear 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.

The panel outlets receive airflow from the HVAC housing through the center air distribution duct and molded plastic panel outlet ducts. The airflow from each of

the panel outlets is adjustable. A thumbwheel located at the bottom of each panel outlet grille is used to adjust a center diffuser that changes the airflow direction, and a knob on the outer edge of each panel outlet grille opens or closes a shutter to turn airflow on or off through that outlet.

The defroster outlet receives 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 outlet is directed by fixed vanes in the defroster outlet grille and cannot be adjusted.

The side window demister outlets receive airflow from the HVAC housing through the defroster duct and molded plastic demister ducts. The airflow from the side window demister outlets is directed by fixed vanes in the demister outlet grilles and cannot be adjusted. The side window demister outlet grilles are integral to the instrument panel cover and direct air from the HVAC housing through the outlets on the top corners of the instrument panel. The demisters operate when the mode control is set in any Floor to Defrost position.

DIAGNOSIS AND TESTING

A/C PERFORMANCE

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

Humidity has an important bearing on the temperature of the air delivered to the interior of the vehicle. It is important to understand the effect that humidity has on the performance of the A/C system. When humidity is high, the A/C evaporator has to perform a double duty. It must lower the air temperature, and it must lower the temperature of the moisture in the air that condenses on the evaporator fins. Condensing the moisture in the air transfers heat energy into the evaporator fins and coils. This reduces the amount of heat the A/C evaporator

can absorb from the air. High humidity greatly reduces the ability of the A/C evaporator to lower the temperature of the air.

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

A/C PERFORMANCE TEST

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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 (DTCs) using a scan tool. If no DTCs are found in the Powertrain Control Module (PCM) or Engine Control Module (ECM) (depending on engine application), Gateway Module 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 or an A/C recycling/charging station.

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. Place the vehicle in the testing area until the temperature within the vehicle reaches a minimum of 21° C (70° F).

3. Operate the heating-A/C system under the following conditions.
 - Engine at idle and operating temperature
 - Doors or windows open
 - Transaxle in Park or Neutral with parking brake set (depending on transaxle application)
 - A/C-heater controls set to Recirculation mode (max-A/C), full cool, panel mode, high blower and A/C on.
4. Insert a thermometer in the driver side center panel air outlet and operate the vehicle a minimum of ten minutes to allow the thermometer temperature to stabilize.

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 ("feels like" 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.

5. Compare the air temperature at the center panel outlet and the A/C system pressures to the A/C Performance Temperature and Pressure chart.

A/C PERFORMANCE TEMPERATURE AND PRESSURE

Ambient 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	6 -15° C (42 - 59° F)	7 -18° C (45 - 64° F)	9 - 21° C (48 - 69° F)	11 - 22° C (52 - 72° F)	13 - 24° C (56 - 75° F)
A/C High Side Pressure	1034 - 1896 kPa (150 - 275 psi)	1207 - 2068 kPa (175 - 300 psi)	1379 - 2241 kPa (200 - 325 psi)	1551 - 2413 kPa (225 - 350 psi)	1724 - 2241 kPa (250 - 375 psi)
A/C Low Side Pressure	214 - 365 kPa (31 - 53 psi)	248 - 407 kPa (36 - 59 psi)	283 - 476 kPa (41 - 69 psi)	317 - 483 kPa (46 - 70 psi)	359 - 496 kPa (52 - 72 psi)

6. If the air outlet temperature or the A/C system pressures are not within specifications, see the **A/C SYSTEM DIAGNOSIS** table.

A/C SYSTEM DIAGNOSIS

Condition	Possible Causes	Correction
Equal refrigerant pressures	1. No refrigerant in the refrigerant system	1. See DIAGNOSIS AND TESTING - REFRIGERANT SYSTEM LEAKS . 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 COMPRESSOR, A/C . Test the compressor and/or clutch and replace if required.
	3. Improperly installed or inoperative A/C pressure transducer	3. See TRANSDUCER, A/C PRESSURE . Test the transducer and replace if required.
	4. Inoperative A/C-heater control, PCM/ECM	4. See DTC INDEX . Test the A/C-heater control, PCM/ECM (depending on engine

	(depending on engine application), Gateway Module or TIPM	application), Gateway Module and TIPM 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 STANDARD PROCEDURE - REFRIGERANT OIL LEVEL . 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 improperly installed or inoperative	2. See ACTUATOR, BLEND DOOR . Inspect the actuator for proper operation. Replace the actuator as required.
	3. Blend door inoperative or sealing improperly	3. See HOUSING, HVAC . Inspect the blend door 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 DIAGNOSIS AND TESTING - REFRIGERANT SYSTEM LEAKS . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system if required.
	2. Refrigerant flow through A/C evaporator is restricted	2. See EVAPORATOR, A/C . Replace the restricted A/C evaporator if required.
	3. Refrigerant flow through refrigerant lines is restricted	3. See PLUMBING . 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	4. See COMPRESSOR, A/C .

	compressor	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 ENGINE COOLING SYSTEM . 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 receiver/drier if required.
	4. Refrigerant flow through refrigerant lines is restricted	4. See PLUMBING . 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 DIAGNOSIS AND TESTING - REFRIGERANT SYSTEM LEAKS . Test the refrigerant system for leaks. Repair, evacuate and charge the refrigerant system if required.
	7. Engine overheating	7. See ENGINE COOLING SYSTEM . 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 ENGINE COOLING SYSTEM . 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 . Test the expansion valve and replace 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 PLUMBING . Inspect the refrigerant lines for kinks, tight bends or improper routing. Correct 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 . Test the expansion valve and replace 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 **ENGINE COOLING SYSTEM** 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°
27°	80°	57°	134°
32°	90°	58°	136°

See **ENGINE COOLING SYSTEM** 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
- Inoperative, obstructed or improperly installed blend-air door

TEMPERATURE CONTROL

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

- Inoperative A/C-heater control
- Inoperative blend door actuator
- Inoperative, obstructed or improperly installed blend-air door
- Improper engine coolant temperature

STANDARD PROCEDURE

STANDARD PROCEDURE - A/C EVAPORATOR CLEANING

Some vehicle operators may experience a musty odor from the A/C system, primarily at start up in hot and humid climates. This odor may be the result of microbial growth on the cooling coil. During normal A/C system operation, condensation forms in and around the A/C cooling coil. When airborne pollutants

mix with this condensation, bacteria and fungi growth begins and odor may result.

If the vehicle operator experiences a musty odor when operating the A/C system, perform the following procedure:

WARNING: Always use eye protection, rubber gloves and protective clothing when performing the following procedure. Avoid continuous breathing of vapors from evaporator coil cleaning and sealing fluids. Avoid contact with skin and eyes. Failure to follow these instruction may result in possible serious or fatal injury.

1. On models equipped with a cabin air filter, remove the filter and inspect for dirt and debris. Refer to **FILTER, CABIN AIR, REMOVAL**. Discard the used cabin filter if required.
2. Remove the cowl panel cover.
3. Clean any dirt and debris that may be present at the HVAC fresh air inlet screen and at the top of the cowl panel.
4. Install the cowl panel cover.
5. Raise and support the vehicle.
6. Inspect the evaporator drain hose or tube (depending on application) for foreign material that may be blocking the drain and repair as necessary.
7. Once drain operation has been verified;
 - when equipped with a rubber drain hose, temporarily pinch the drain hose closed using an appropriate pair of heater hose pliers.
 - when equipped with a solid plastic drain tube, obtain an appropriate size rubber or plastic cap or plug and temporarily cap or plug the drain tube.
8. Lower the vehicle.
9. Place a protective cover over the front passenger side floor and seat area.
10. Remove the blower motor. Refer to **MOTOR, BLOWER, REMOVAL**.
11. Remove the blower motor power module. Refer to **MODULE, POWER, BLOWER MOTOR, REMOVAL**.
12. Clean any dirt and debris that may be present inside the HVAC blower

motor housing and all readily accessible areas inside the HVAC housing. If necessary, use a vacuum with a small flexible hose, and take caution not to damage the evaporator core fins.

13. Using PSE Flex Spray Delivery Tool 534-62637 or equivalent, completely coat the entire surface of A/C evaporator with three bottles of Mopar® Cooling Coil Cleaner through the blower motor and power module or resistor openings. Be sure to use all of the coil cleaner in each container.
14. Allow the vehicle to sit for 30 minutes.
15. Raise and support the vehicle.

WARNING: Excess cooling coil cleaner will drain from the evaporator housing when the clamp, cap or plug is removed from the evaporator drain hose or tube. Always use eye protection, rubber gloves and protective clothing. Avoid continuous breathing of vapors from evaporator coil cleaning fluid. Avoid contact with skin and eyes. Failure to follow these instruction may result in possible serious or fatal injury.

16. Remove the previously installed clamp, cap or plug from the evaporator drain hose or tube and allow excess coil cleaner to drain from the HVAC housing.
17. Lower the vehicle.
18. Refill the three empty coil cleaner bottles with clean tap water.
19. Using PSE Flex Spray Delivery Tool 534-62637 or equivalent, completely rinse the entire surface of A/C evaporator with the three bottles of clean tap water through the blower motor and power module or resistor openings. Be sure to use all of the water in each container.
20. Install the blower motor. Refer to **MOTOR, BLOWER, INSTALLATION**.
21. Install the blower motor power module. Refer to **MODULE, POWER, BLOWER MOTOR, INSTALLATION**.
22. Disconnect the wire harness connector from the A/C compressor to disable compressor operation. Refer to **COMPRESSOR, A/C, REMOVAL**.

23. Start the engine
 24. Adjust all the windows so they are open approximately 8 mm (0.5 in.).
 25. Set the A/C-heater controls to the following:
 - air distribution to Panel and Recirculation mode
 - temperature to full heat
 26. Allow the vehicle to run for 20 minutes.
 27. Turn the engine off.
 28. Raise and support the vehicle.
 29. Inspect the evaporator drain hose or tube (depending on application) for foreign material that may have blocked the drain during evaporator coil cleaning and repair as necessary.
 30. Once drain operation has been verified;
 - when equipped with a rubber drain hose, temporarily pinch the drain hose closed using an appropriate pair of heater hose pliers.
 - when equipped with a solid plastic drain tube, obtain an appropriate size rubber or plastic cap or plug and temporarily cap or plug the drain tube.
 31. Lower the vehicle.
 32. Remove the blower motor. Refer to **MOTOR, BLOWER, REMOVAL**.
 33. Remove the blower motor power module. Refer to **MODULE, POWER, BLOWER MOTOR, REMOVAL**.
 34. Using PSE Flex Spray Delivery Tool 534-62637 or equivalent, completely coat the entire surface of A/C evaporator with one bottle of Mopar® Cooling Coil Coating through the blower motor and power module or resistor openings. Be sure to use all of the coil coating in the container.

NOTE: Be sure to thoroughly clean out the spray delivery tool with warm water once coil coating is complete to prevent damage to the tool.
 35. Refill the empty bottles with clean warm tap water and completely rinse out the PSE Flex Spray Delivery Tool 534-62637, or equivalent.
 36. Allow the vehicle to sit for 30 minutes.
 37. Install the blower motor. Refer to **MOTOR, BLOWER, INSTALLATION**.
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38. Install the blower motor power module. Refer to **MODULE, POWER, BLOWER MOTOR, INSTALLATION**.
39. Raise and support the vehicle.

WARNING: Excess cooling coil coating will drain from the evaporator housing when the clamp, cap or plug is removed from the evaporator drain hose or tube. Always use eye protection, rubber gloves and protective clothing. Avoid continuous breathing of vapors from evaporator coil sealing fluid. Avoid contact with skin and eyes. Failure to follow these instruction may result in possible serious or fatal injury.

40. Remove the previously installed clamp, cap or plug from the evaporator drain hose or tube and allow excess coil coating to drain from the HVAC housing.
41. Lower the vehicle.
42. Start the engine
43. Adjust all the windows so they are open approximately 8 mm (0.5 in.).
44. Set the A/C-heater controls to the following:
 - air distribution to Panel and Recirculation mode
 - temperature to full heat
45. Allow the vehicle to run for 20 minutes.
46. Turn vehicle off.
47. Remove protective cover from front passenger side floor and seat area.
48. On models equipped with a cabin air filter, install the filter. Refer to **FILTER, CABIN AIR, INSTALLATION**.
49. Connect the wire harness connector to the A/C compressor. Refer to **COMPRESSOR, A/C, INSTALLATION**.
50. Verify proper A/C-heater system operation.

SPECIFICATIONS

A/C SYSTEM

A/C SYSTEM SPECIFICATIONS

Item	Description	Notes
A/C Compressor	Denso 10SRE18 fixed displacement - All 2.2L Diesel engine models Denso 6SEU16 variable displacement - All Gasoline engine models	ND-8 PAG oil
A/C Clutch Air Gap (2.2L Diesel engine models)	0.35 - 0.60 mm (0.014 - 0.024 in.)	
A/C Clutch Coil Draw (2.2L Diesel engine models)	3.2 - 3.3 amps	@ 12V ± 0.5V @ 21° C (70° F)
A/C Clutch Coil Resistance (2.2L Diesel engine models)	3.6 ± 0.2 ohms	When measured across coil lead connector
Freeze-up Control	Evaporator temperature sensor	Input to A/C-heater control, HVAC housing mounted - sets compressor to destroke/disengage 2° C (36° F) below evaporator target temperature (minimum 5° C (41° F) and activates/engages compressor when within 1° C (34° F) of evaporator target temperature
High psi Control	A/C pressure transducer	Input to PCM/ECM, discharge line mounted - sets compressor to destroke/disengage above 3130 kPa (454 psi) and below 200 kPa (29 psi)
Low psi Control		Input to PCM/ECM, discharge line mounted - sets compressor

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	A/C pressure transducer	to destroke/disengage below 200 kPa (29 psi), activates/engages compressor above 234 -262 kPa (34 - 38 psi)
R-134a Refrigerant Charge Capacity	595 g (1.31 lbs.)	Also see A/C Underhood Specification Label located in the engine compartment

FASTENER TORQUE

FASTENER TORQUE SPECIFICATIONS

Description	N.m	Ft. Lbs.	In. Lbs.
All Screws NOT Listed Below	2	-	17
A/C Compressor to Engine Bolts	25	18	-
A/C Receiver/Drier to Frame Rail Bolts	15	11	-
A/C Expansion Valve to Evaporator Bolts	11	-	97
A/C Liquid Lines to A/C Receiver/Drier Nut/Bolt	5	-	44
A/C Suction Line Junction Block Nut	5	-	44
Air Distribution Housing Halves Screws	1.2	-	10
Air Distribution Housing to HVAC Housing Screws	1.2	-	10
Air Inlet Housing to HVAC Housing Screws	1.2	-	10
Blend Door Lever Screw	0.6	-	5
Blower Motor Screws	1.2	-	10
Center Duct Screws	2.2	-	20
Defroster Duct Support Screws	3	-	27

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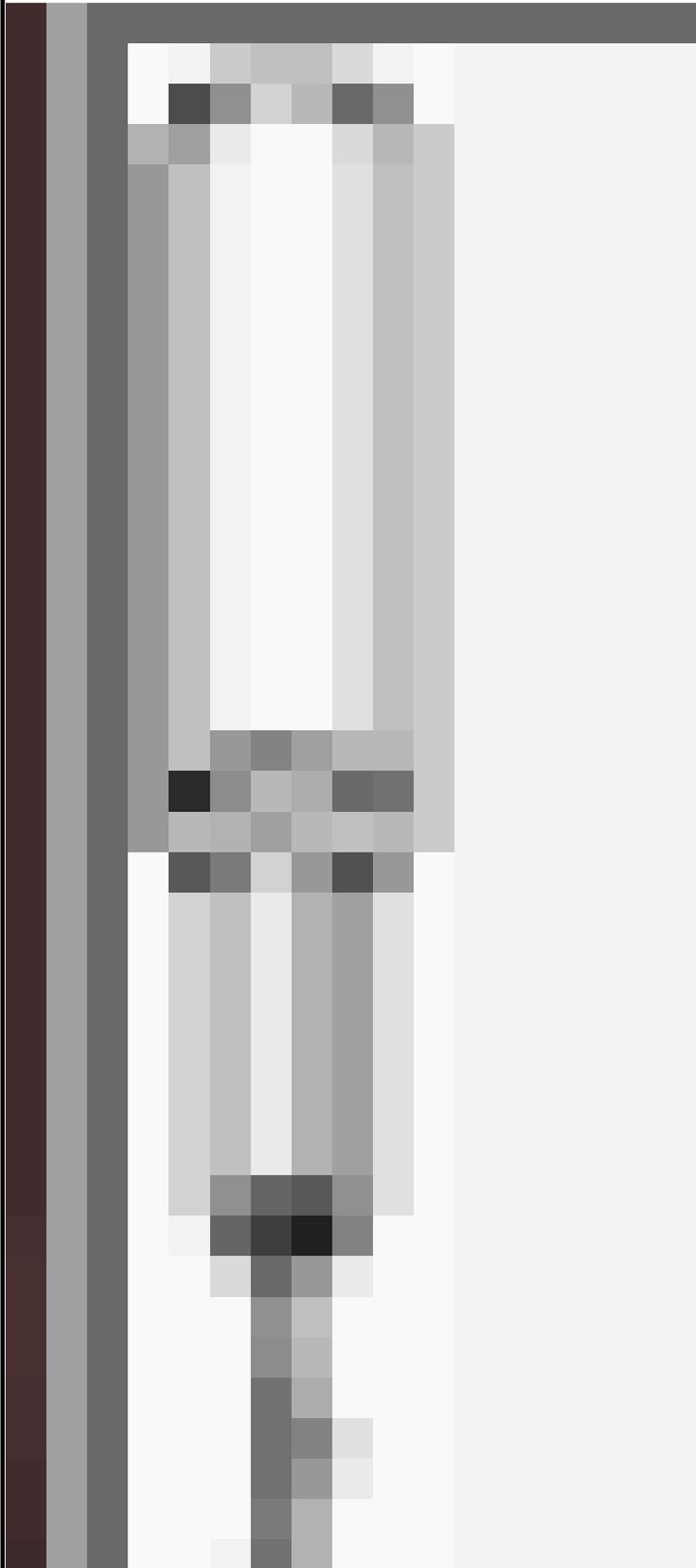
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Defroster Duct Screws	2.2	-	20
Demister Duct Screws	2.2	-	20
Flange to HVAC Housing Screw	1.2	-	10
Heat Shield to Dash Panel Nuts	1	-	10
HVAC Housing Halves Screws	1.2	-	10
HVAC Housing to Dash Panel Nut	4.5	-	40
Lower Condenser Bracket to Radiator Bolts	4.5	-	40
Mode Door Cam Screw	0.6	-	5
PTC Heater Unit to Housing Screws	1.2	-	10
Rear Seat Floor Duct Screw	2.2	-	20
Refrigerant Lines to A/C Expansion Valve Bolt	25	18	-
Refrigerant Lines to A/C Compressor Nuts	20	15	-
Refrigerant Lines to A/C Condenser Nuts	5	-	44
Refrigerant Line Bracket to Strut Tower Nut	4.5	-	40

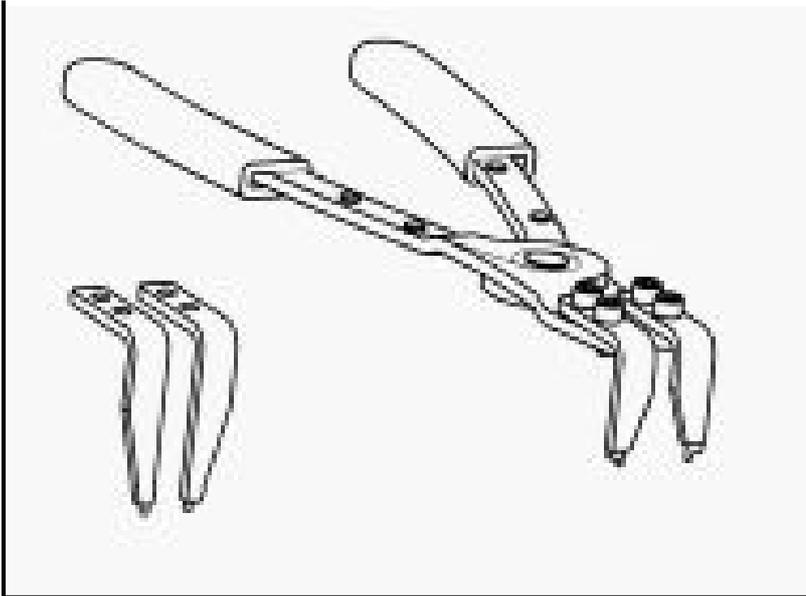
SPECIAL TOOLS

SPECIAL TOOLS

--	--



6801 - Terminal Probe
(Originally Shipped In Kit
Number(s) 10190.)



9764 - Pliers, A/C Snap Ring
(Originally Shipped In Kit
Number(s) 9909.)

CONTROLS

ACTUATOR, BLEND DOOR

DESCRIPTION

DESCRIPTION

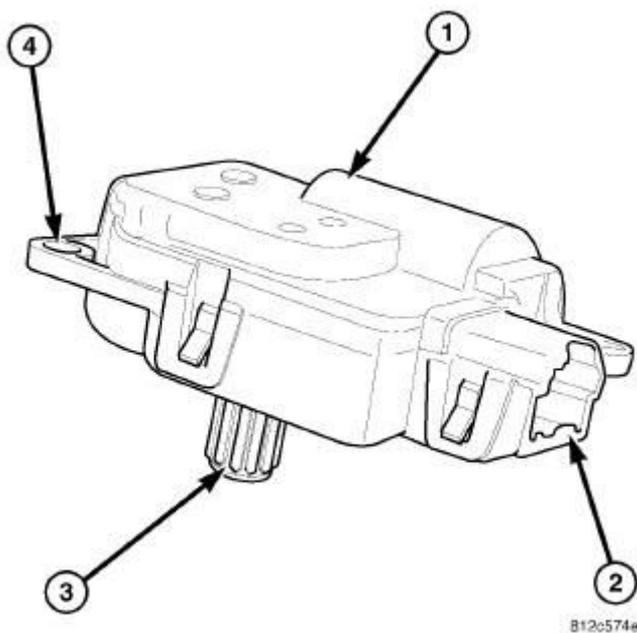


Fig. 3: Identifying Actuator Components
Courtesy of CHRYSLER GROUP, LLC

The blend 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 blend-air door. The blend door actuator is located on the left side of the HVAC air distribution housing.

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

The A/C-heater control must be recalibrated each time an actuator motor is replaced. Refer to **STANDARD PROCEDURE** .

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

OPERATION

OPERATION

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

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

The blend door actuator cannot be adjusted or 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 follow these instructions may result in accidental airbag deployment and possible serious or fatal injury.

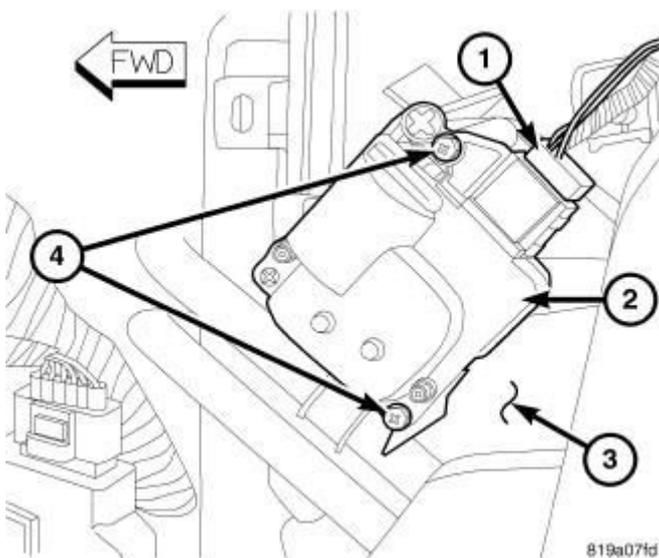


Fig. 4: Removing/Installing Blend Door Actuator
Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. On RHD models, remove the two push-pins and silencer panel from the passenger side of the instrument panel.
3. On RHD models, remove the glove box bin. Refer to **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.

INSTALLATION

INSTALLATION

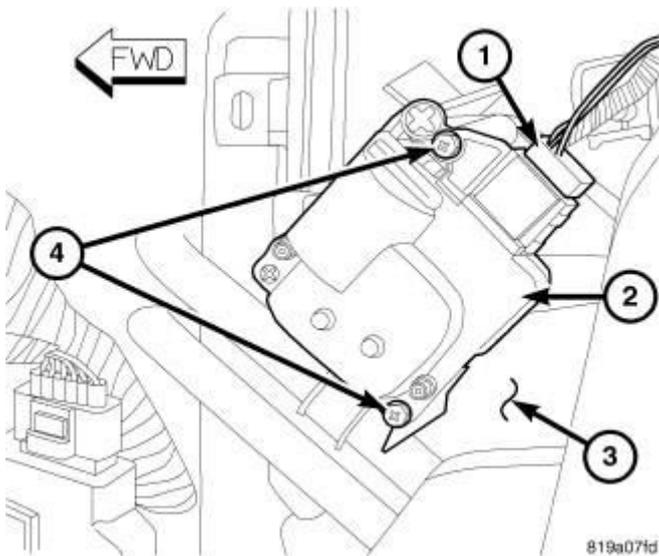


Fig. 5: Removing/Installing Blend Door Actuator
Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

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 **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION**.
5. On RHD models, install the silencer panel and two push-pins.
6. Reconnect the negative battery cable.
7. Initiate the Actuator Calibration function using a scan tool. Refer to **STANDARD PROCEDURE**.

ACTUATOR, MODE DOOR

DESCRIPTION

DESCRIPTION

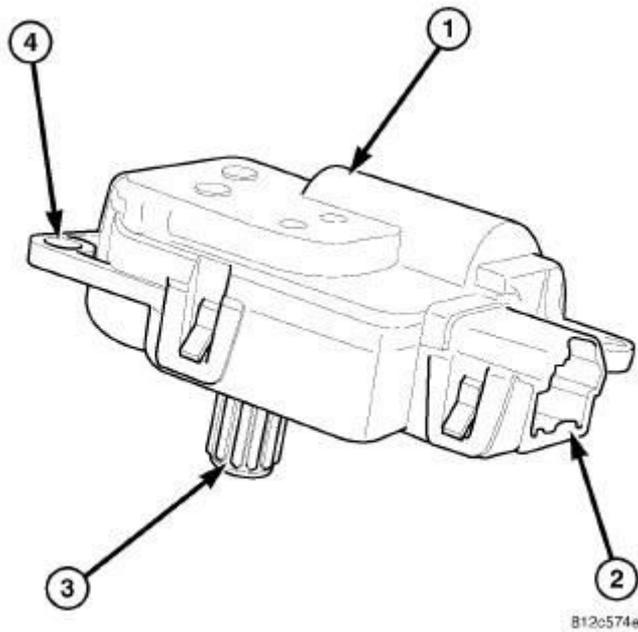


Fig. 6: Identifying Actuator Components
Courtesy of CHRYSLER GROUP, LLC

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 **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 **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.

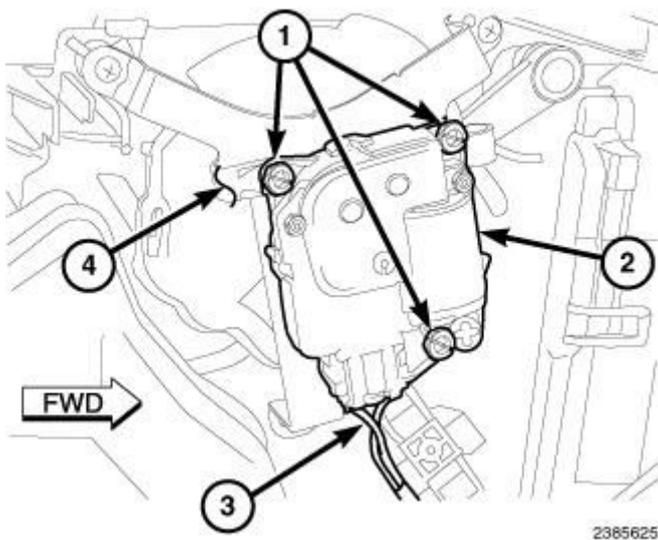


Fig. 7: Mode Door Actuator, Connector, Bracket & Screws
Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

1. Disconnect and isolate the negative battery cable.
2. On LHD models, remove the two push-pins and silencer panel from the passenger side of the instrument panel.
3. On LHD models, remove the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, REMOVAL**.
4. Remove the floor distribution duct from the right side of the HVAC air distribution housing. Refer to **DUCT, FLOOR DISTRIBUTION, REMOVAL**.
5. Remove the three screws (1) that secure the mode door actuator (2) to the bracket (4) located on the right side of the air distribution housing.
6. Disconnect the wire harness connector (3) from the mode door actuator and remove the actuator.

INSTALLATION

INSTALLATION

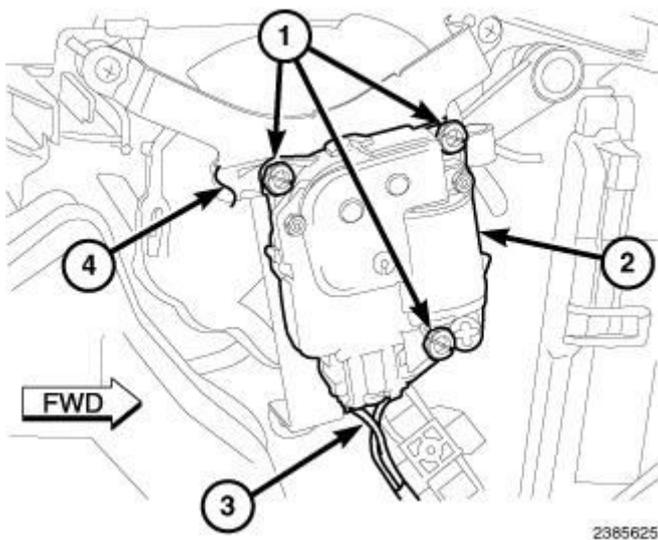


Fig. 8: Mode Door Actuator, Connector, Bracket & Screws
 Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

1. Position the mode door actuator (2) onto the bracket (4) located on the right side of the HVAC air distribution housing. 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 three 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 floor distribution duct onto the right side of the air distribution housing. Refer to **DUCT, FLOOR DISTRIBUTION, INSTALLATION**.
5. On LHD models, install the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION**.
6. On LHD models, install the silencer panel and two push-pins.
7. Reconnect the negative battery cable.
8. Initiate the Actuator Calibration function using a scan tool. Refer to **STANDARD PROCEDURE**.

ACTUATOR, RECIRCULATION DOOR

DESCRIPTION

DESCRIPTION

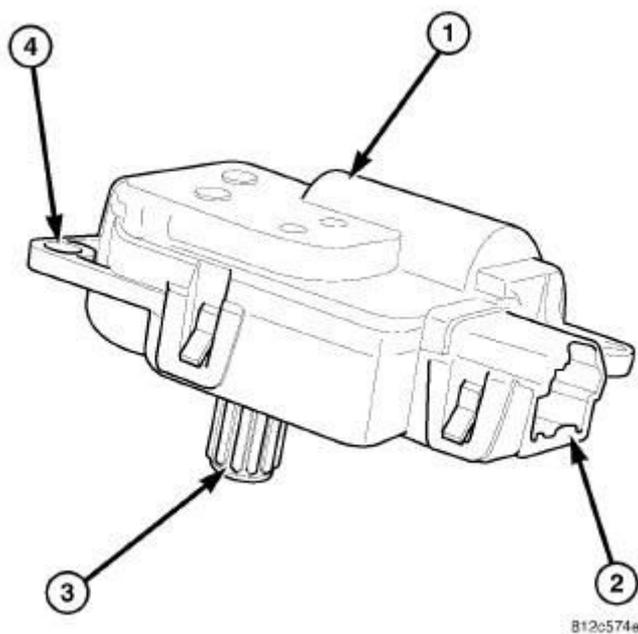


Fig. 9: Identifying Actuator Components
 Courtesy of CHRYSLER GROUP, LLC

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 **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 **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.

NOTE: LHD model shown in illustration, RHD model similar.

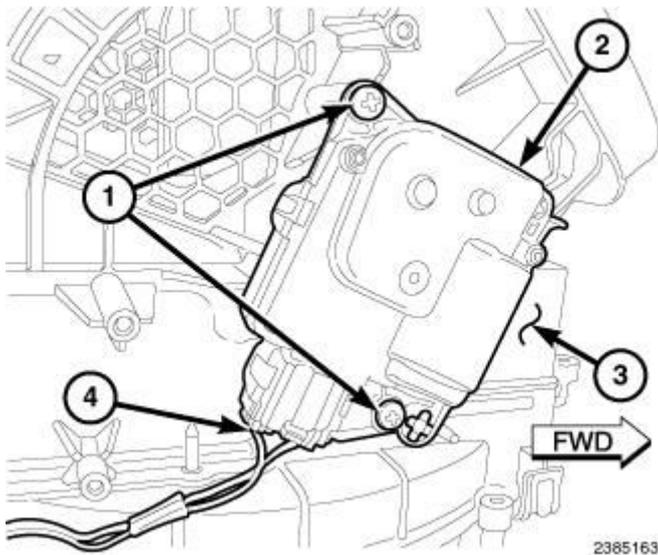


Fig. 10: Recirculation Door Actuator, HVAC Air Inlet Housing, Wire Harness Connector & Screws

Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the two push-pins and silencer panel from the passenger side of the instrument panel.
3. Remove the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, REMOVAL** .
4. Remove the two screws (1) that secure the recirculation door actuator (2) to the HVAC air inlet housing (3).
5. 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.

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

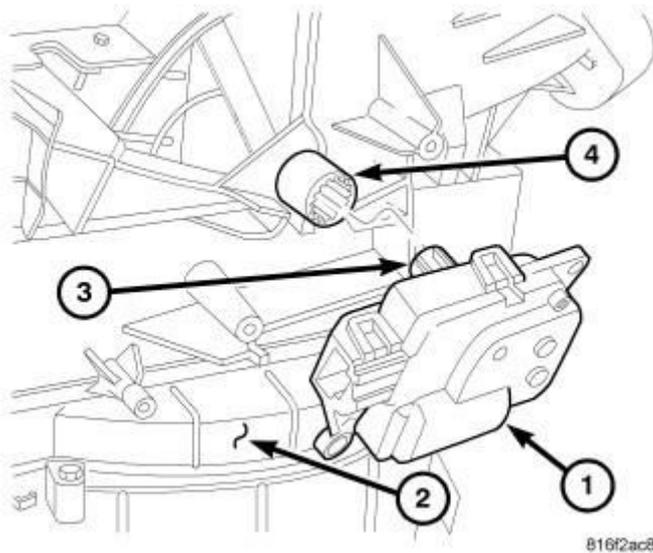


Fig. 11: Recirculation Door Actuator, HVAC Air Inlet Housing, Actuator Output Shaft & Recirculation Door Pivot Shaft Adapter
 Courtesy of CHRYSLER GROUP, LLC

1. Install the recirculation door actuator (1) onto the HVAC air inlet housing (2). 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).

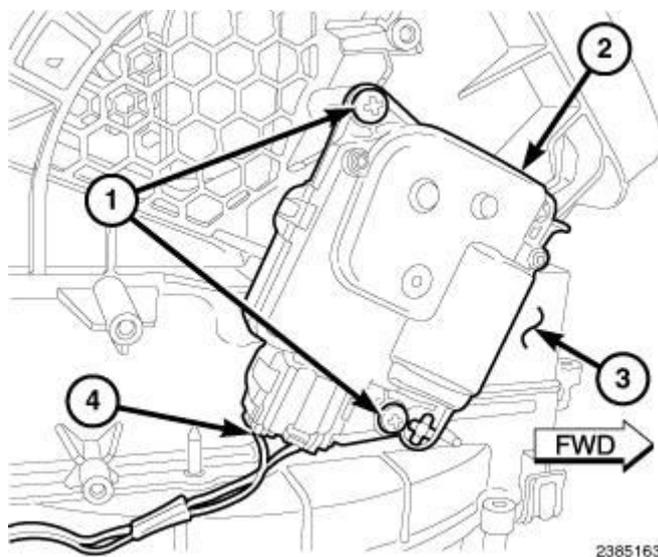


Fig. 12: Recirculation Door Actuator, HVAC Air Inlet Housing, Wire Harness Connector & Screws
 Courtesy of CHRYSLER GROUP, LLC

2. 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.).

3. Connect the wire harness connector (4) to the recirculation door actuator.
4. Install the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION**.
5. Install the silencer panel and two push-pins.
6. Reconnect the negative battery cable.

CONTROL, A/C AND HEATER

DESCRIPTION

AUTOMATIC TEMPERATURE CONTROL (ATC) SYSTEM

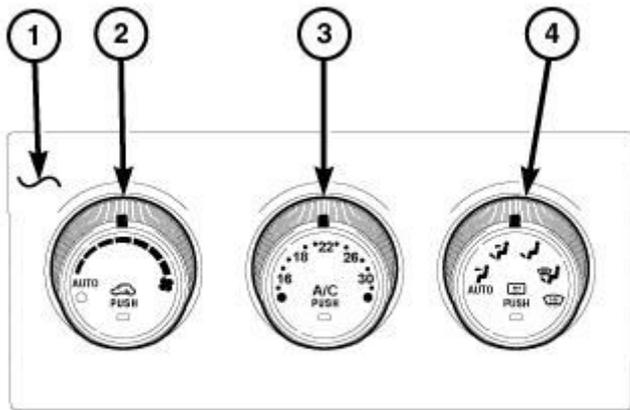


Fig. 13: ATC A/C Heater Control
 Courtesy of CHRYSLER GROUP, LLC

The Automatic Temperature Control (ATC) single zone heating-A/C system uses electrically operated controls. These controls provide the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle.

The A/C-heater control (1) for the ATC single zone system automatically maintains the interior comfort level desired by the vehicle operator. The ATC system uses an infrared sensor located in the front overhead console to measure the surface temperature of the driver and front seat passengers. Based on the sensor input, the ATC system automatically adjusts air temperature, airflow volume, airflow distribution and amount of inside air recirculation to maintain occupant comfort, even under changing outside weather conditions. All controls are identified by International Standardization Organization (ISO) graphic

symbols.

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

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

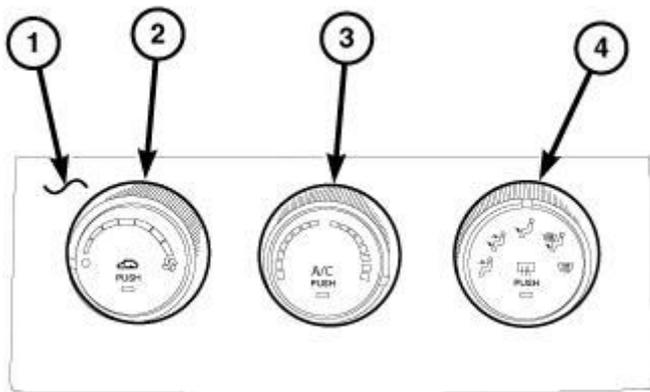
- a rotary control for manual and automatic blower motor speed selection and for turning the heating-A/C system on and off (2). This control also contains a push button function for recirculating the conditioned air. The control contains an indicator lamp that illuminates when the heating-A/C system is in recirculation mode.
- a rotary control for temperature control of the discharged air (3). This control also contains a push button function for manually turning the A/C system on and off. The control contains an indicator lamp that illuminates when the A/C system is in operation.
- a rotary control for manual and automatic mode control of the discharged air (4). This control also contains a push button function for turning the rear window defogger system on and off. The control contains an indicator lamp that illuminates when the rear window defogger system is in operation.

The ATC A/C-heater control obtains vehicle speed, engine speed, engine coolant temperature, ambient temperature and refrigerant system head pressure data and is diagnosed using a scan tool. Refer to **DIAGNOSIS AND TESTING** .

Prior to replacing the A/C-heater control, check for any Diagnostic Trouble Codes (DTCs) related to the heating-A/C system and run the Actuator Calibration function using a scan tool to verify that the concern is not an air door calibration issue. Refer to **STANDARD PROCEDURE** .

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

MANUAL TEMPERATURE CONTROL (MTC) SYSTEM



2428991

Fig. 14: A/C Heater Control
Courtesy of CHRYSLER GROUP, LLC

The Manual Temperature Control (MTC) single zone heating-A/C system uses electrically operated controls. These controls provide the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle.

The A/C-heater control (1) for the MTC single zone system allows one temperature setting for the entire vehicle. All controls are identified by International Standardization Organization (ISO) graphic symbols.

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

- a rotary control for fan speed selection and for turning the heating-A/C system on and off (2). This control also contains a push button function for recirculating the conditioned air. The control contains an indicator lamp that illuminates when the heating-A/C system is in recirculation mode.
- a rotary control for temperature control of the discharged air (3). This control also contains a push button function for turning the A/C system on and off. The control contains an indicator lamp that illuminates when the A/C system is in operation.
- a rotary control for mode control of the discharged air (4). This control also contains a push button function for turning the rear window defogger system on and off. The control contains an indicator lamp that illuminates when the rear window defogger system is in operation.

The MTC A/C-heater control is diagnosed using a scan tool. Refer to **DIAGNOSIS AND TESTING** .

Prior to replacing the A/C-heater control, check for any Diagnostic Trouble Codes (DTCs) related to the heating-A/C system and run the Actuator Calibration function using a scan tool to verify that the concern is not an air door calibration issue. Refer to **STANDARD PROCEDURE** .

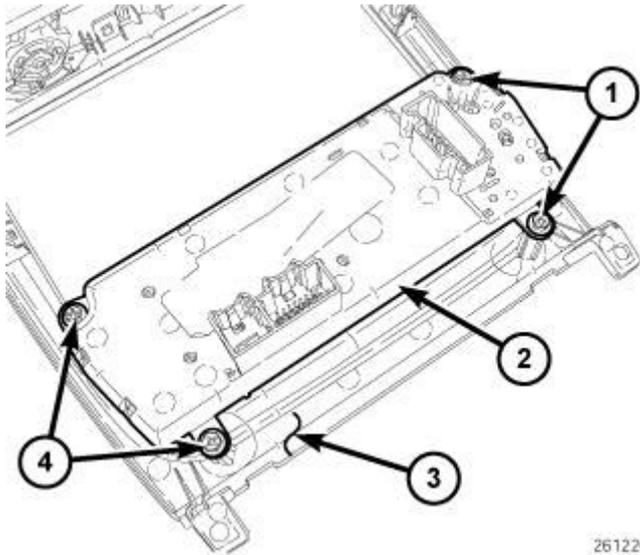
The A/C-heater control cannot be adjusted or repaired and must be replaced if inoperative or damaged.

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 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 center bezel from cosmetic damage while performing this procedure.



2612201

Fig. 15: A/C-Heater Control & Center Bezel With Four Screws
 Courtesy of CHRYSLER GROUP, LLC

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

1. Disconnect and isolate the negative battery cable.
2. Remove the instrument panel center bezel (3) and place it on a workbench. Refer to **BEZEL, INSTRUMENT PANEL, CENTER, REMOVAL**.
3. Remove the four screws (1 and 4) that secure the A/C-heater control (2) to the back of the center bezel and remove the control.

INSTALLATION

INSTALLATION

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

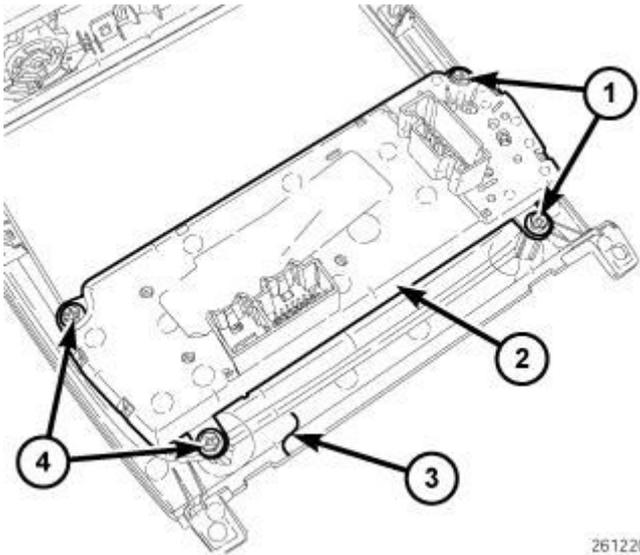


Fig. 16: A/C-Heater Control & Center Bezel With Four Screws
Courtesy of CHRYSLER GROUP, LLC

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

1. Position the A/C-heater control (2) onto the back of the center bezel (3).
2. Install the four screws (1 and 4) that secure the A/C-heater control to the bezel. Tighten the screws to 2 N.m (17 in. lbs.).
3. Install the center bezel. Refer to **BEZEL, INSTRUMENT PANEL, CENTER, INSTALLATION**.
4. Reconnect the negative battery cable.

NOTE: When installing a new A/C-heater control, or reinstalling the original control, the A/C-heater control will automatically run the Actuator Calibration function when the ignition switch is initially turned to ON. However, the Actuator Calibration function must be manually initiated using a scan tool if the A/C-heater control was previously installed in another vehicle.

5. If required, initiate the Actuator Calibration function using a scan tool. Refer to **STANDARD PROCEDURE**.

MODULE, POWER, BLOWER MOTOR

DESCRIPTION

DESCRIPTION

NOTE: ATC blower motor power module shown in illustration, MTC power module similar.

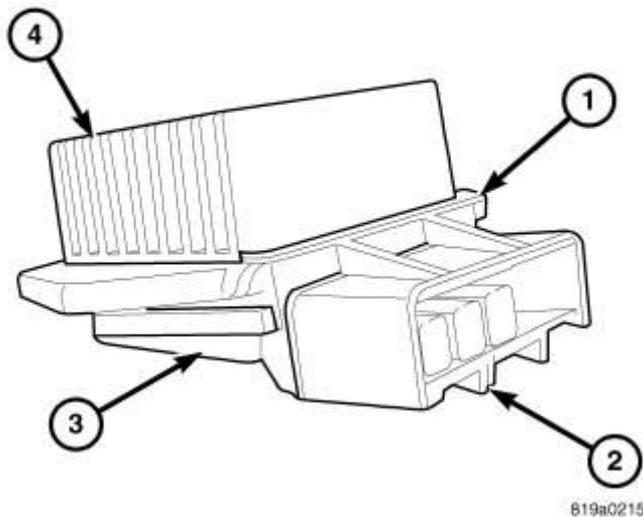


Fig. 17: Blower Motor Power Module
Courtesy of CHRYSLER GROUP, LLC

A blower motor power module is used on this model when equipped with either the Automatic Temperature Control (ATC) heating-A/C system, or the Manual Temperature Control (MTC) heating-A/C system.

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.

On the Automatic Temperature Control (ATC) system, the blower motor power module allows the microprocessor-based A/C-heater control to calculate and provide infinitely variable blower motor speeds based upon either manual blower switch input or the ATC programming.

On the Manual Temperature Control (ATC) system, the blower motor power module allows the microprocessor-based A/C-heater control to provide an infinite amount of blower motor speeds throughout its operating range, based upon blower switch input.

Both the ATC and MTC systems use a Pulse Width Modulated (PWM) circuit strategy. 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 **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 follow these instructions may result in possible serious injury.

NOTE: ATC blower motor power module shown in illustration, MTC power module similar.

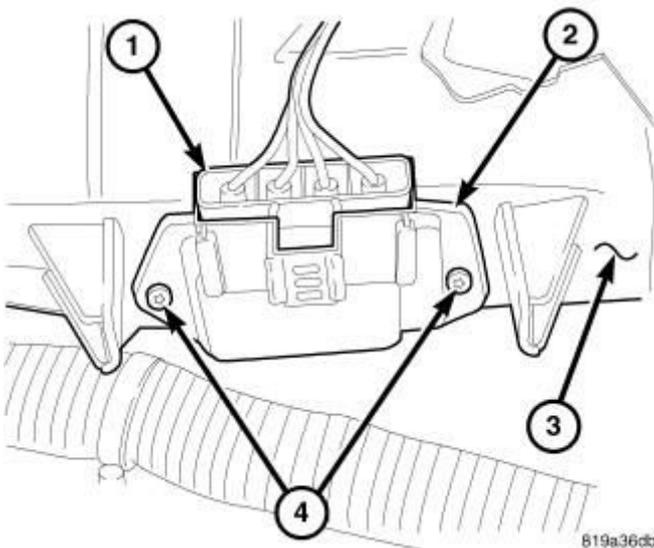


Fig. 18: Identifying Blower Motor Power Module
Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. If equipped, remove the two push-pins and silencer panel from the passenger side of the instrument panel.
3. Disconnect the wire harness connector (1) from the blower motor power module (2).
4. Remove the two screws (4) that secure the blower motor power module to the HVAC housing (3) and remove the power module.

INSTALLATION

INSTALLATION

NOTE: ATC blower motor power module shown in illustration, MTC power module similar.

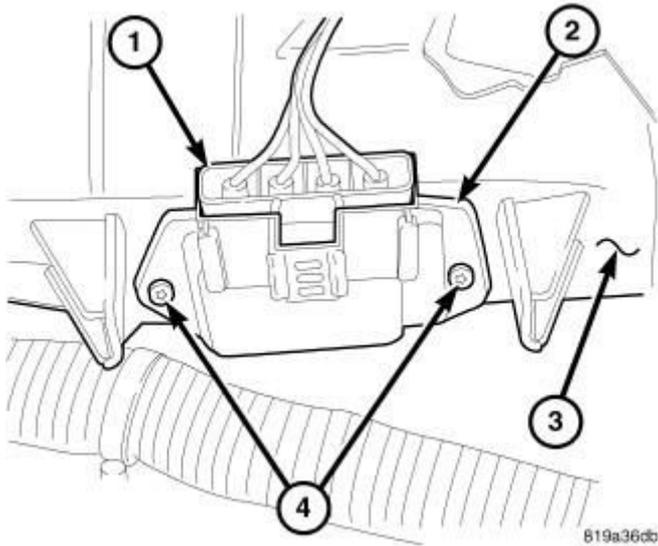


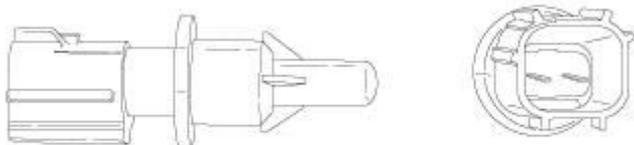
Fig. 19: Identifying Blower Motor Power Module
 Courtesy of CHRYSLER GROUP, LLC

1. Position the blower motor power module (2) into 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. If equipped, install the passenger side silencer panel and two push-pins.
5. Reconnect the negative battery cable.

SENSOR, AMBIENT TEMPERATURE

DESCRIPTION

DESCRIPTION



2107513

Fig. 20: Ambient Temperature Sensor
Courtesy of CHRYSLER GROUP, 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 passenger compartment temperature levels. The ambient air temperature sensor is mounted to the front bumper beam.

OPERATION

OPERATION

The ambient air temperature sensor is a variable resistor that operates on a five 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) bus, where it is read by the Automatic Temperature Control (ATC) A/C-heater control, Powertrain Control Module (PCM), Cabin Compartment Node (CCN) and other vehicle control modules.

The ambient air temperature sensor is diagnosed using a scan tool. Refer to **DTC INDEX** .

The ambient air temperature sensor cannot be adjusted or repaired and must be replaced if inoperative or damaged. Refer to **SENSOR, AMBIENT TEMPERATURE, REMOVAL** .

SENSOR, EVAPORATOR TEMPERATURE

DESCRIPTION

DESCRIPTION

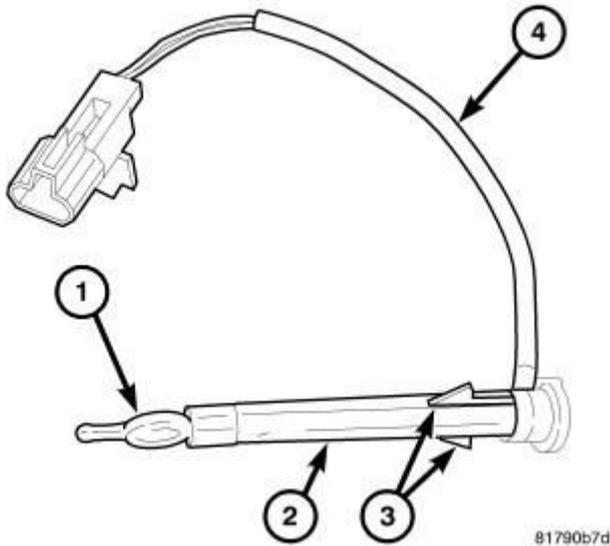


Fig. 21: Evaporator Temperature Sensor
Courtesy of CHRYSLER GROUP, LLC

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. Refer to **COMPRESSOR, A/C, OPERATION**.

The evaporator temperature sensor is diagnosed using a scan tool. Refer to **DIAGNOSIS AND TESTING**.

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.

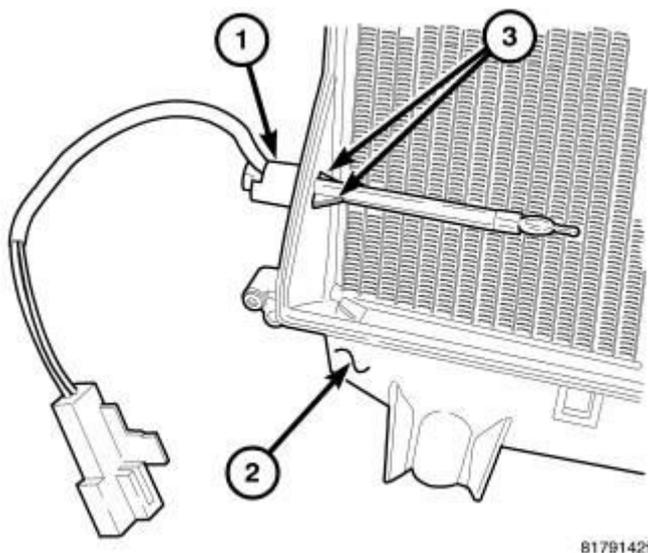


Fig. 22: Evaporator Temperature Sensor, HVAC Housing & Retaining Tabs

Courtesy of CHRYSLER GROUP, 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. Remove the evaporator temperature sensor electrical connector from the side of the HVAC housing (2).
4. Using needle nose pliers, carefully pull the evaporator temperature sensor straight out of the side of the HVAC housing.
5. 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.

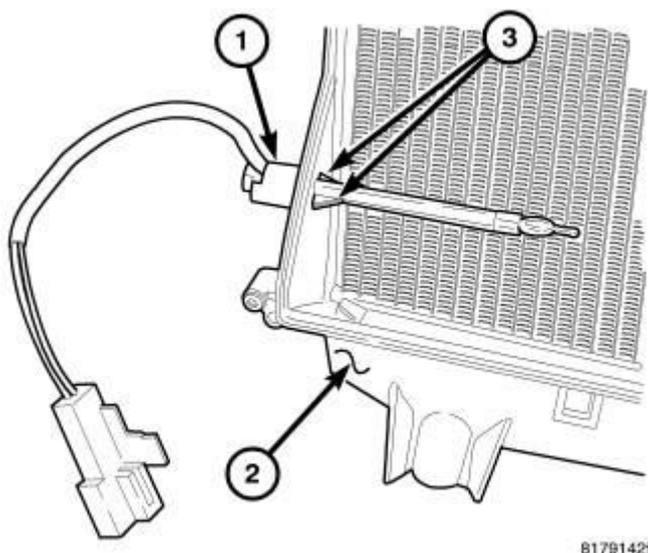
INSTALLATION**INSTALLATION**

Fig. 23: Evaporator Temperature Sensor, HVAC Housing & Retaining Tabs

Courtesy of CHRYSLER GROUP, 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.

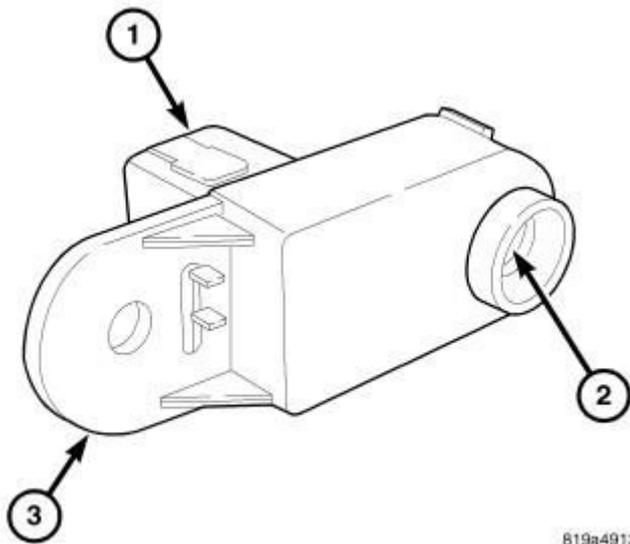
SENSOR, INFRARED TEMPERATURE**DESCRIPTION****DESCRIPTION**

Fig. 24: Infrared Sensor

Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical infrared temperature sensor shown in illustration.

The infrared temperature sensor consists of an infrared transducer concealed behind a clear lens (2) located in a molded plastic housing with an integral wire connector receptacle (1) and a 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 **DIAGNOSIS AND TESTING** .

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

REMOVAL

REMOVAL

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

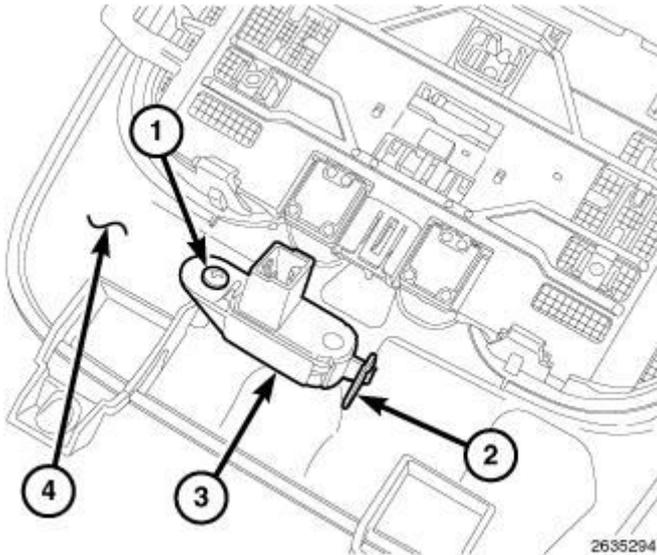


Fig. 25: Infrared Sensor, Overhead Console & Retaining Tabs
Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the overhead console (4) from the headliner and place it on a workbench.
3. Remove the screw (1) that secures the infrared sensor (3) to the back of the overhead console.
4. Disengage the infrared sensor from the retaining tabs (2) on the overhead console and remove the sensor.

INSTALLATION

INSTALLATION

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

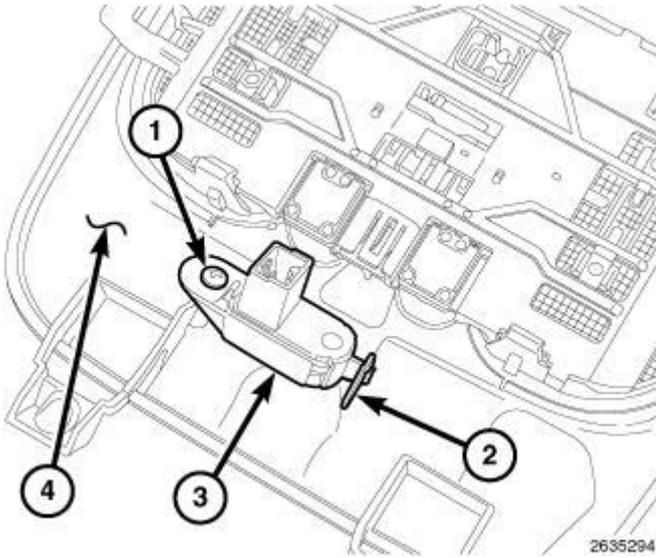


Fig. 26: Infrared Sensor, Overhead Console & Retaining Tabs
Courtesy of CHRYSLER GROUP, LLC

1. Position the infrared sensor (3) onto the back of the overhead console (4). Align the slot on the sensor with the retaining tabs (2) on the console.
2. Install the screw (1) that secures the infrared sensor to the overhead console. Tighten the screw to 1.2 N.m (10 in. lbs).
3. Install the overhead console. Make sure the retaining tabs are fully engaged to the headliner.
4. Reconnect the negative battery cable.

TRANSDUCER, A/C PRESSURE

DESCRIPTION

DESCRIPTION

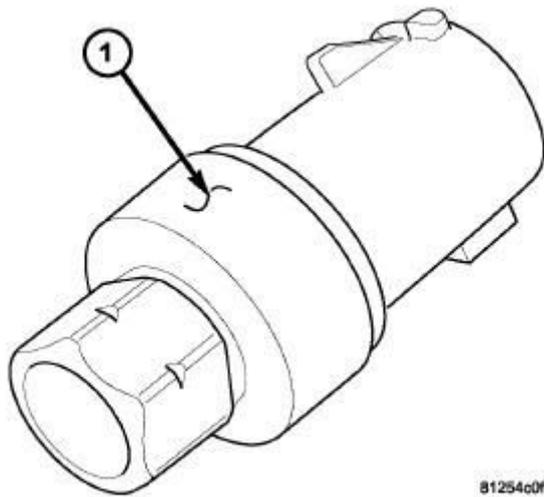


Fig. 27: A/C Pressure Transducer
Courtesy of CHRYSLER GROUP, LLC

The A/C pressure transducer (1) is a switch that is installed on a fitting located on the A/C discharge line. An internally threaded fitting on the A/C pressure transducer connects it to the externally threaded Schrader-type fitting on the A/C discharge line. A rubber O-ring seals the connection between the A/C pressure transducer and the discharge 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 Engine Control Module (ECM) (depending on engine application) over the Controller Area Network (CAN) C BUS. The PCM/ECM 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.

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 INDEX**.

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

REMOVAL

REMOVAL

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

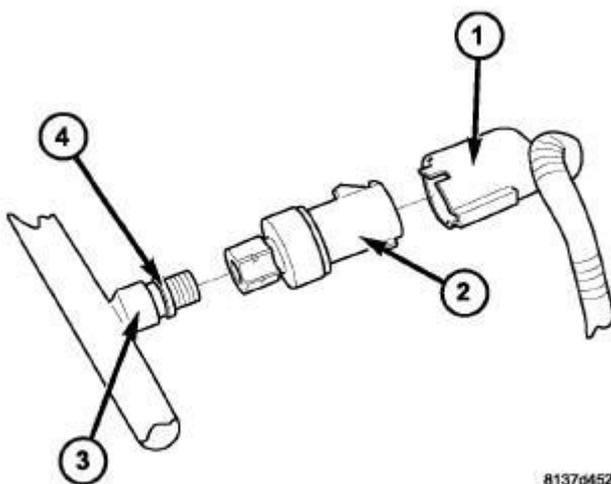


Fig. 28: A/C Pressure Transducer, Connector, Discharge Line & O-Ring
 Courtesy of CHRYSLER GROUP, LLC

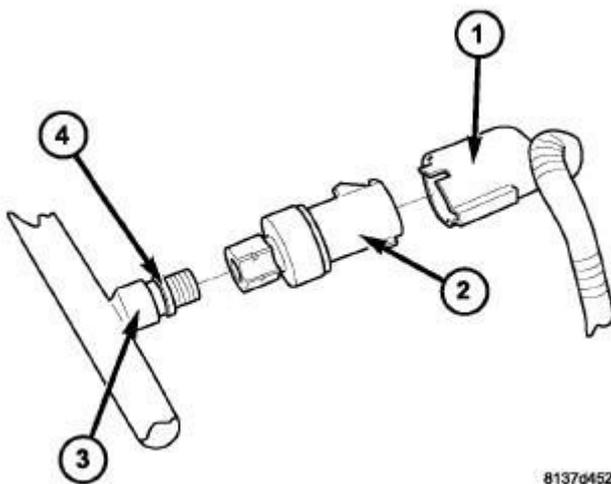
NOTE: Typical A/C pressure transducer shown in illustration.

1. Disconnect and isolate the negative battery cable.
2. Carefully pull the top of the fascia forward to gain access to the A/C pressure transducer (2). Refer to **FASCIA, FRONT, REMOVAL**.
3. Reach down through the opening between the A/C condenser and the front fascia and disconnect the wire harness connector (1) from the A/C pressure transducer located on the A/C discharge line (3).
4. Remove the A/C pressure transducer from the A/C discharge 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.



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Fig. 29: A/C Pressure Transducer, Connector, Discharge Line & O-Ring
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical A/C pressure transducer shown in illustration.

1. Lubricate a new rubber O-ring seal (4) with clean refrigerant oil and install it onto the A/C discharge line (3).
2. Install the A/C pressure transducer (2) onto the A/C discharge line. Tighten the A/C pressure transducer securely.
3. Connect the wire harness connector (1) to the A/C pressure transducer.
4. Reinstall the top of the front fascia. Refer to **FASCIA, FRONT, INSTALLATION**.
5. Reconnect the negative battery cable.

DISTRIBUTION

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: Illustration shown with instrument panel removed from vehicle for clarity.

NOTE: LHD model shown in illustration, RHD model similar.

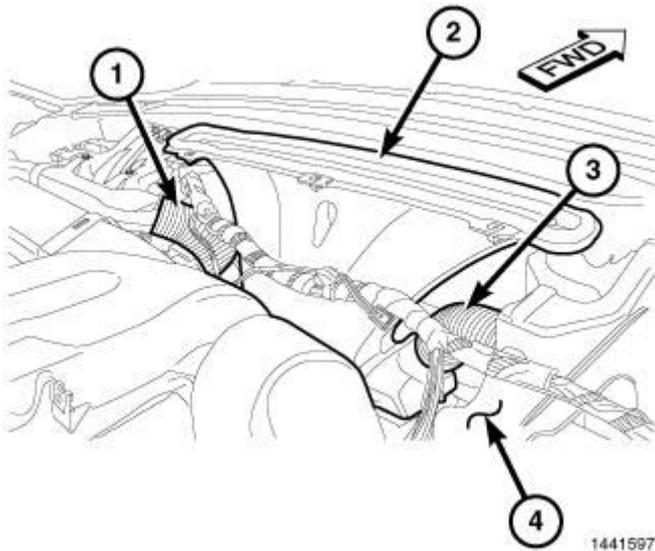


Fig. 30: Left & Right Demister Hoses, & Defroster Duct
Courtesy of CHRYSLER GROUP, LLC

1. Remove the upper and lower instrument panel cover. Refer to **COVER, INSTRUMENT PANEL, REMOVAL** .
2. Disconnect the left and right demister hoses (1 and 3) from the defroster duct (2) and position the hoses out of the way.
3. Remove the defroster duct from the top of the instrument panel (4).

INSTALLATION

INSTALLATION

NOTE: Illustration shown with instrument panel removed from vehicle for clarity.

NOTE: LHD model shown in illustration, RHD model similar.

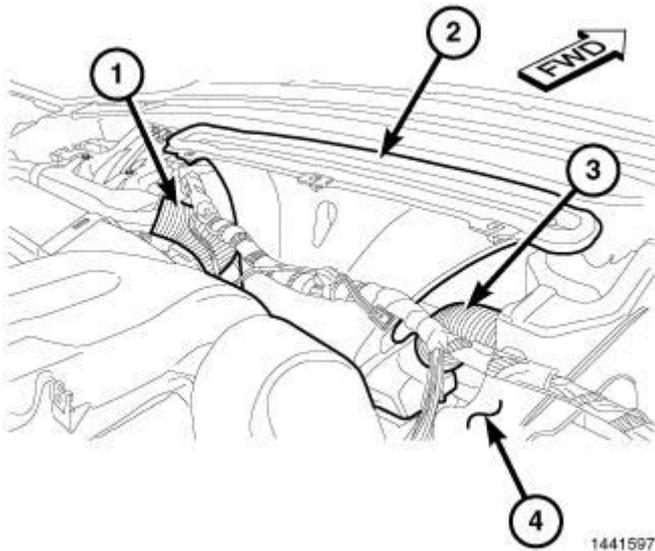


Fig. 31: Left & Right Demister Hoses, & Defroster Duct
 Courtesy of CHRYSLER GROUP, LLC

1. Position the defroster duct (2) into the top of the instrument panel (4).
2. Connect the left and right demister hoses (1 and 3) to the defroster duct.
3. Install the lower and upper instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, INSTALLATION** .

DUCT, FLOOR 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. 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 possible serious or fatal injury.

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

RIGHT FRONT FLOOR DUCT

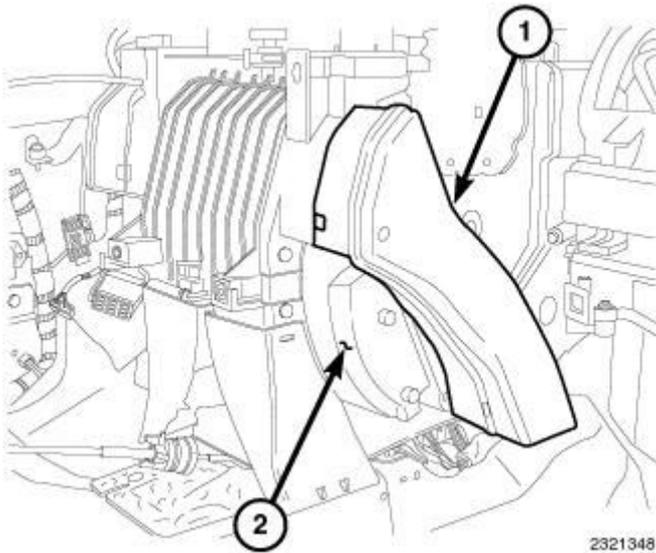


Fig. 32: Right Floor Duct & HVAC Housing
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. On LHD models, remove the glove box bin. Refer to **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

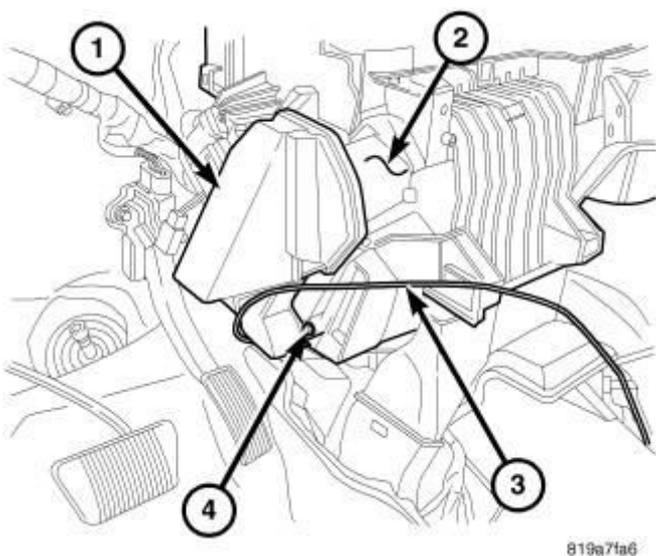


Fig. 33: Left Front Floor Duct, Shift Interlock Cable & Screw
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. On RHD models, remove the glove box bin. Refer to **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

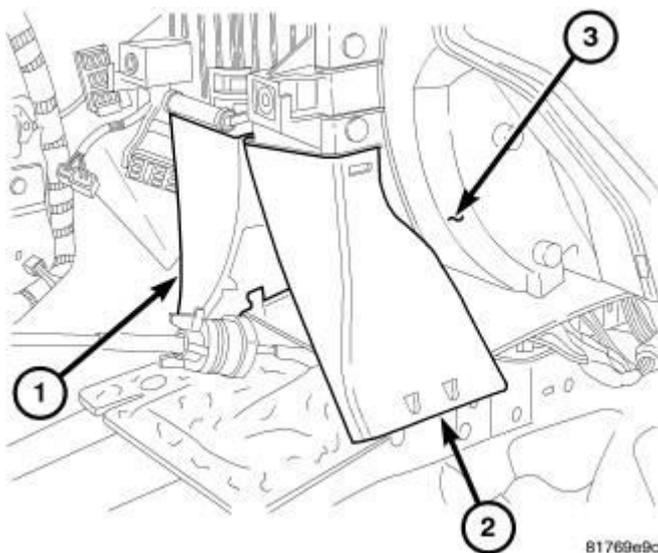


Fig. 34: Rear Floor Distribution Ducts
Courtesy of CHRYSLER GROUP, LLC

1. Remove the instrument panel. Refer to **PANEL, INSTRUMENT, REMOVAL** .
2. Remove the 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

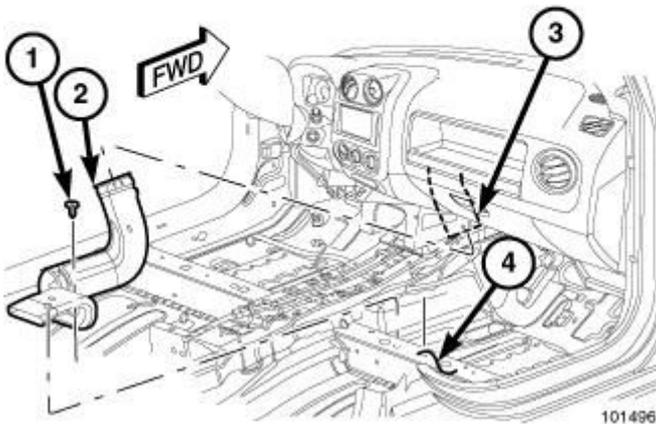


Fig. 35: Rear Seat Floor Ducts

Courtesy of CHRYSLER GROUP, LLC

NOTE: Right side rear floor duct shown in illustration, Left side duct similar.

1. Remove the center floor console. Refer to **HOUSING, SHIFTER, REMOVAL** .
2. Remove the front seat from the side of the vehicle being serviced. Refer to **SEAT, FRONT, REMOVAL** .
3. Pull the carpet back to gain access to the rear seat floor duct (2). Refer to **CARPET, PASSENGER, 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

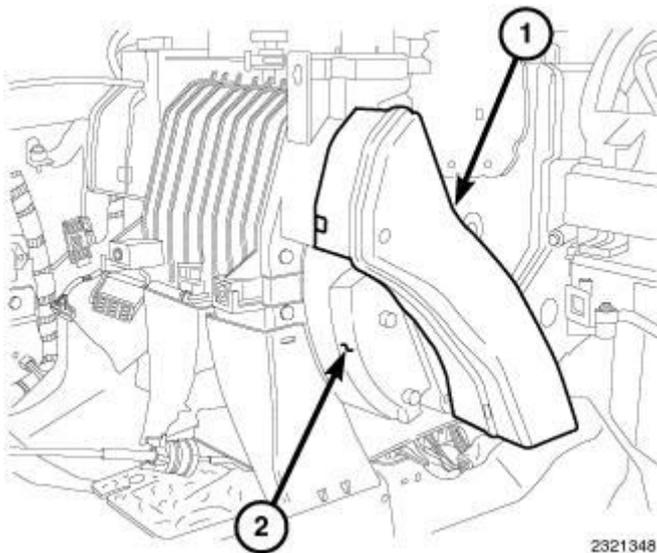


Fig. 36: Right Floor Duct & HVAC Housing
 Courtesy of CHRYSLER GROUP, LLC

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 **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION** .

LEFT FRONT FLOOR DUCT

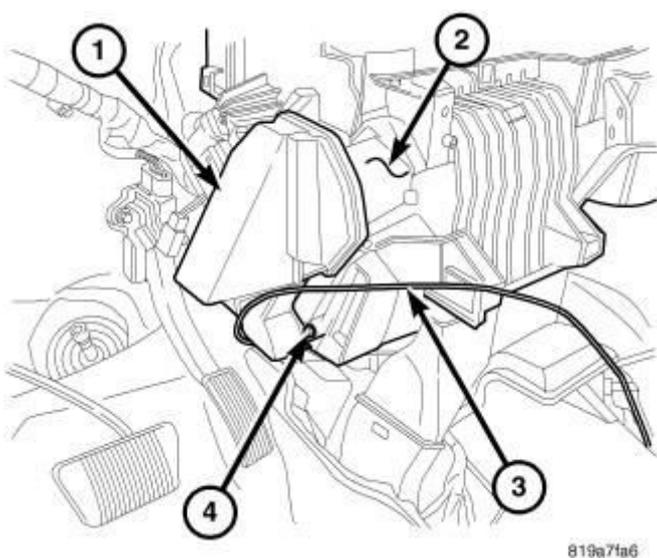


Fig. 37: Left Front Floor Duct, Shift Interlock Cable & Screw
 Courtesy of CHRYSLER GROUP, LLC

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 **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION** .

REAR FLOOR DISTRIBUTION DUCTS

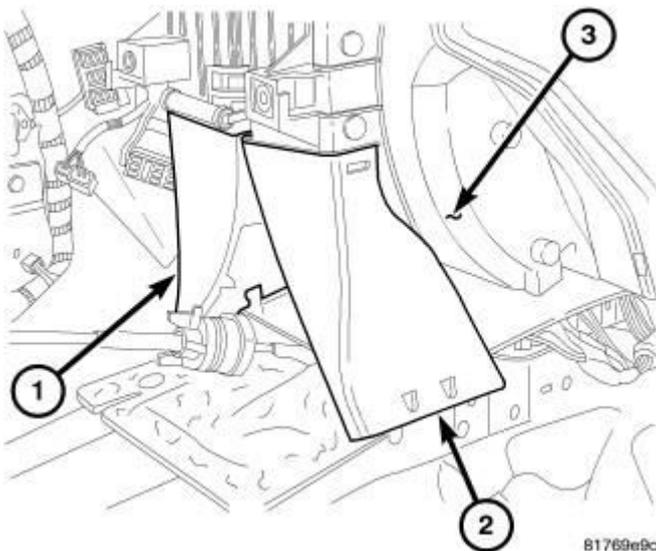


Fig. 38: Rear Floor Distribution Ducts
Courtesy of CHRYSLER GROUP, LLC

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.
3. Install the instrument panel. Refer to **PANEL, INSTRUMENT, INSTALLATION** .

REAR SEAT FLOOR DUCTS

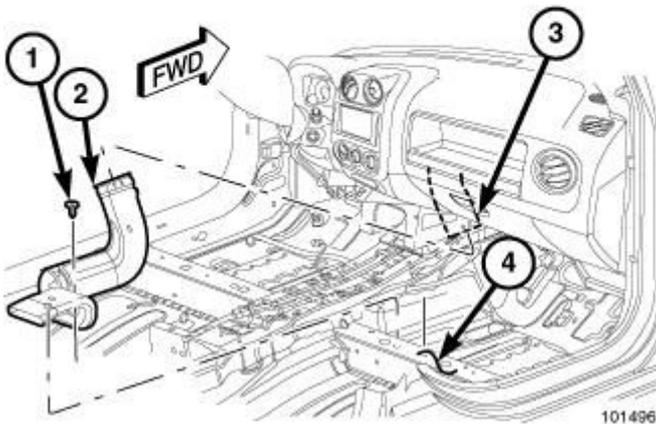


Fig. 39: Rear Seat Floor Ducts

Courtesy of CHRYSLER GROUP, LLC

NOTE: Right side rear floor duct shown in illustration, 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 **CARPET, PASSENGER, INSTALLATION** .
4. Install the front seat to the side of the vehicle being serviced. Refer to **SEAT, FRONT, INSTALLATION** .
5. Install the center floor console. Refer to **HOUSING, SHIFTER, 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: LHD model shown in illustrations, RHD model similar.

NOTE: The driver side instrument panel duct is serviced only as an assembly with the inner driver side demister duct.

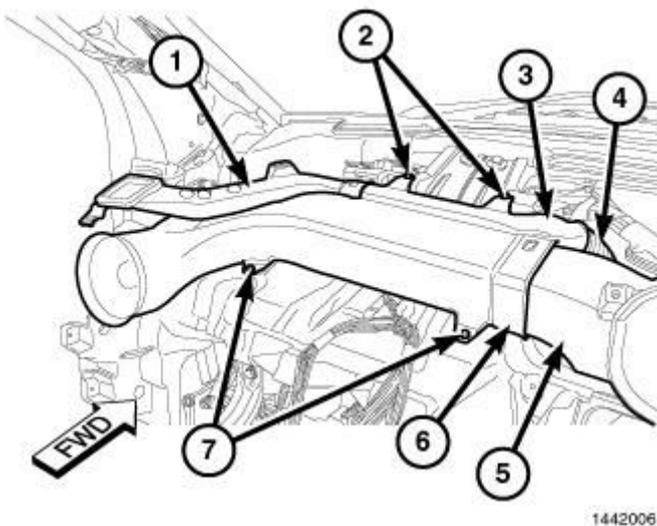


Fig. 40: Instrument Panel Duct
Courtesy of CHRYSLER GROUP, LLC

1. Remove the upper and lower instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, REMOVAL** .
2. Remove the four screws (2 and 7) that secure the driver side demister duct (3) and the instrument panel duct (6) to the instrument panel support.
3. Disconnect the driver side demister hose (4) from the demister duct.
4. Disconnect the driver side instrument panel duct from the passenger side instrument panel duct (5).
5. Remove the instrument panel and demister duct assembly from the instrument panel support.

6. If required, disconnect the outer demister duct (1) from the driver side demister duct.

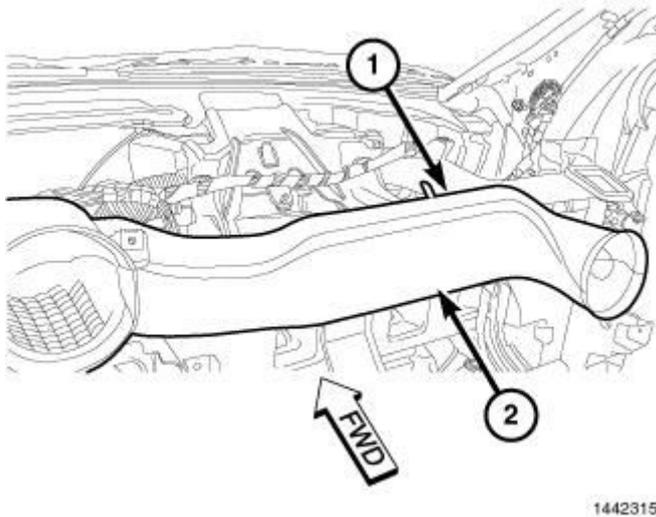


Fig. 41: Passenger Side Instrument Panel Duct
Courtesy of CHRYSLER GROUP, LLC

7. Remove the screw (1) that secures the passenger side instrument panel duct (2) to the instrument panel support.
8. Remove the passenger side instrument panel duct from the instrument panel support.

INSTALLATION

INSTALLATION

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

NOTE: The driver side instrument panel duct is serviced only as an assembly with the inner driver side demister duct.

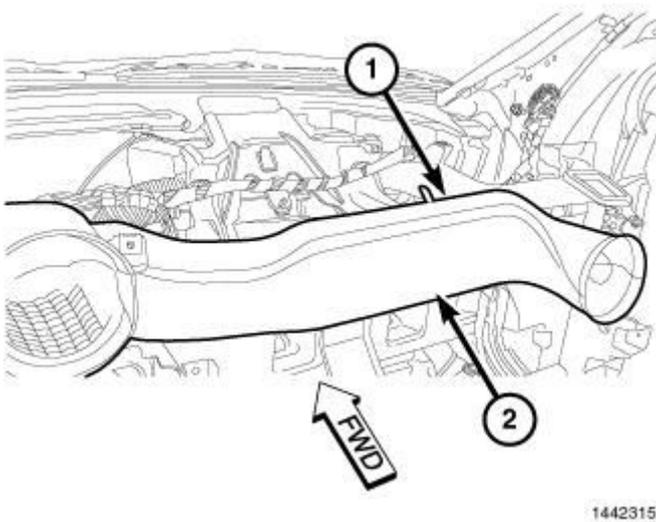


Fig. 42: Passenger Side Instrument Panel Duct
 Courtesy of CHRYSLER GROUP, LLC

1. Position the passenger side instrument panel duct (2) onto the top of the instrument panel support.
2. Install the screw (1) that secures the passenger side instrument panel duct to the instrument panel support. Tighten the screw to 2.2 N.m (20 in. lbs.).

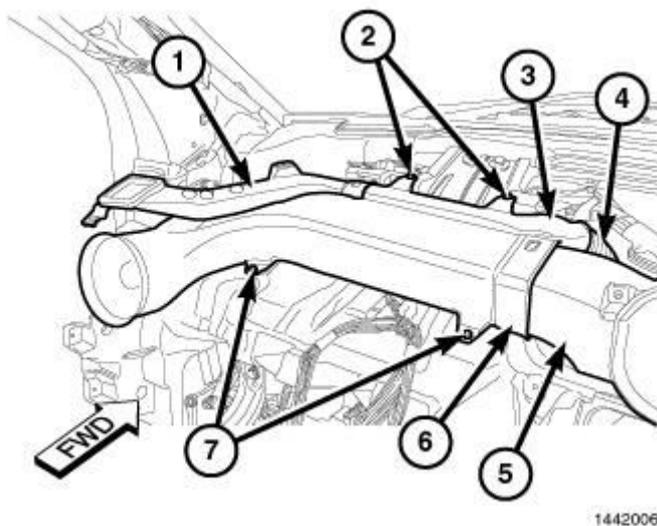


Fig. 43: Instrument Panel Duct
 Courtesy of CHRYSLER GROUP, LLC

3. If removed, connect the outer demister duct (1) to the driver side demister duct (3).
4. Position the driver side instrument panel duct (6) and demister duct to the instrument panel support and connect the driver side instrument panel duct

to the passenger side instrument panel duct (5). Make sure the ducts are fully engaged to each other.

5. Connect the demister hose (4) to the driver side demister duct. Make sure the hose is fully engaged to the duct.
6. Install the four screws (2 and 7) that secure driver side instrument panel duct and demister duct to the instrument panel support. Tighten the screws to 2.2 N.m (20 in. lbs.).
7. Install the lower and upper instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, 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: LHD model shown in illustrations, RHD model similar.

DRIVER SIDE

NOTE: The inner driver side demister duct is serviced only as an assembly with the driver side instrument panel duct.

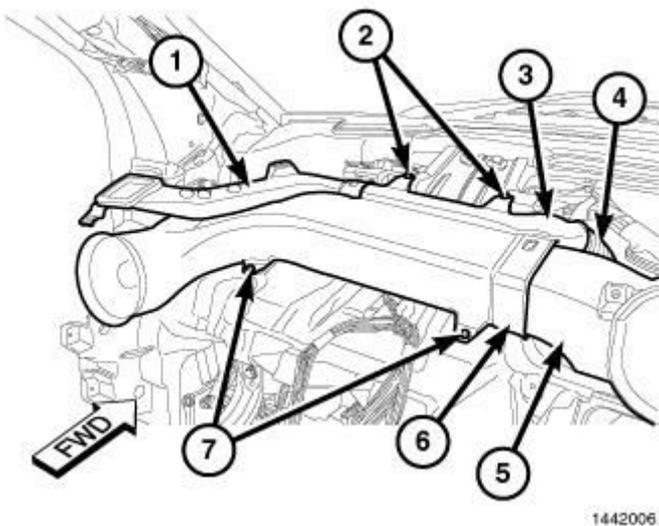


Fig. 44: Instrument Panel Duct
Courtesy of CHRYSLER GROUP, LLC

1. Remove the upper and lower instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, REMOVAL** .
2. Remove the four screws (2 and 7) that secure the driver side demister duct (3) and the instrument panel duct (6) to the instrument panel support.
3. Disconnect the driver side demister hose (4) from the demister duct.
4. Disconnect the driver side instrument panel duct from the passenger side instrument panel duct (5).
5. Remove the instrument panel and demister duct assembly from the instrument panel support.
6. If required, disconnect the outer demister duct (1) from the driver side demister duct.

PASSENGER SIDE

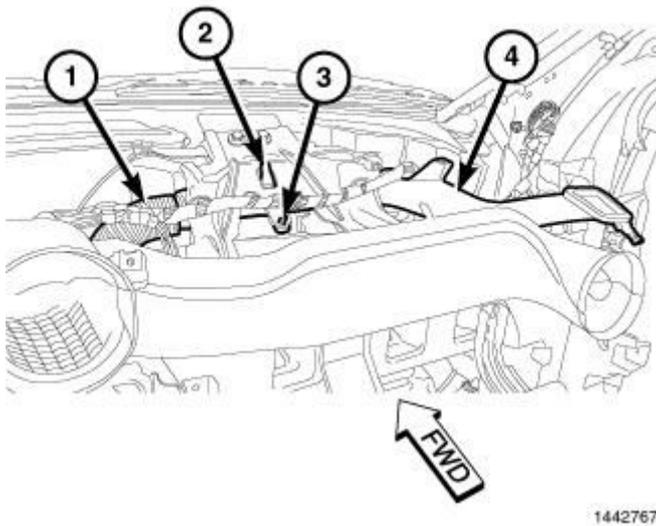


Fig. 45: Passenger Side Demister Duct
Courtesy of CHRYSLER GROUP, LLC

1. Remove the upper and lower instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, REMOVAL** .
2. Disconnect the demister hose (1) from the passenger side demister duct (4).
3. Disengage the push-pin type fastener (3) that secures the passenger side demister duct to the instrument panel support.
4. Disengage the demister duct retaining tab (2) from the instrument panel support and remove the passenger side demister duct.

INSTALLATION

INSTALLATION

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

DRIVER SIDE

NOTE: The inner driver side demister duct is serviced only as an assembly with the driver side instrument panel duct.

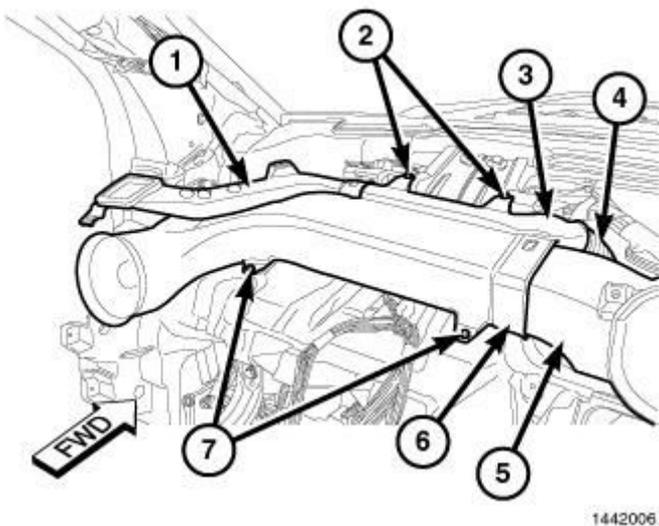


Fig. 46: Instrument Panel Duct
 Courtesy of CHRYSLER GROUP, LLC

1. If removed, connect the outer demister duct (1) to the driver side demister duct (3).
2. Position the driver side instrument panel duct (6) and demister duct to the instrument panel support and connect the driver side instrument panel duct to the passenger side instrument panel duct (5). Make sure the ducts are fully engaged to each other.
3. Connect the demister hose (4) to the driver side demister duct. Make sure the hose is fully engaged to the duct.
4. Install the four screws (2 and 7) that secure driver side instrument panel duct and demister duct to the instrument panel support. Tighten the screws to 2.2 N.m (20 in. lbs.).
5. Install the lower and upper instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, INSTALLATION** .

PASSENGER SIDE

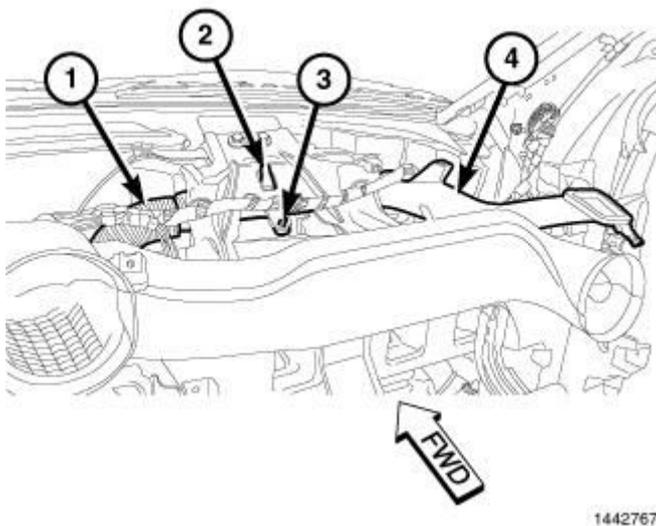


Fig. 47: Passenger Side Demister Duct
Courtesy of CHRYSLER GROUP, LLC

1. Position the passenger side demister duct (4) behind the instrument panel support. Rotate and tilt the duct as required.
2. Engage the demister duct retaining tab (2) to the instrument panel support.
3. Engage the push-pin type fastener (3) to the instrument panel support.
4. Connect the demister hose (1) to the demister duct. Make sure the hose is fully engaged to the duct.
5. Install the lower and upper instrument panel covers. Refer to **COVER, INSTRUMENT PANEL, INSTALLATION** .

FILTER, CABIN AIR

DESCRIPTION

DESCRIPTION

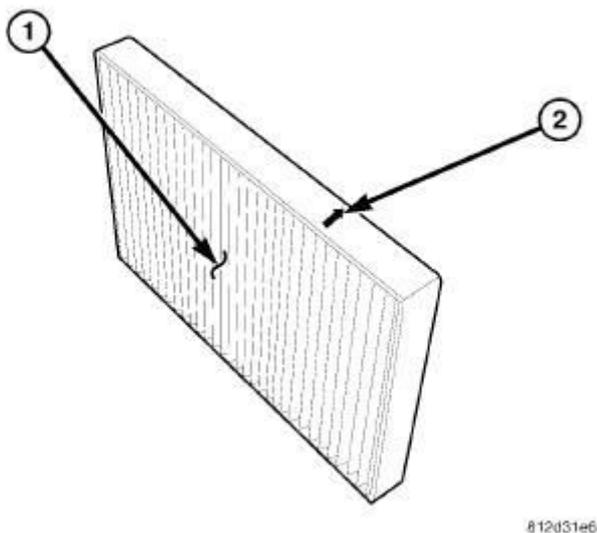


Fig. 48: Cabin Air Filter
Courtesy of CHRYSLER GROUP, LLC

Some models are equipped with a cabin 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 cabin 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 cabin 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.

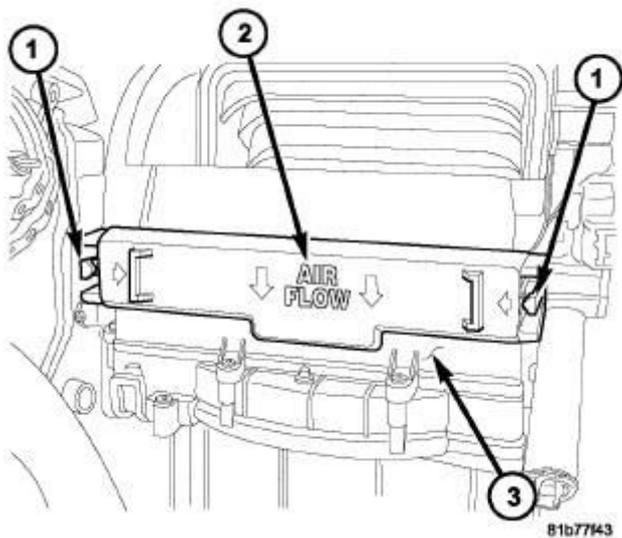


Fig. 49: Removing/Installing Cabin Air Filter Cover
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with instrument panel removed for clarity.

1. Remove the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, REMOVAL** .
2. Disengage the two retaining tabs (1) that secure the cabin air filter cover (2) to the passenger side of the HVAC housing (3) and remove the cover.

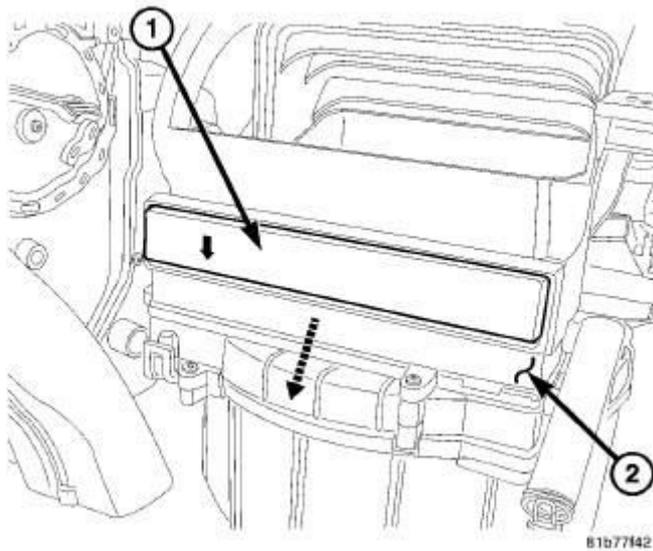


Fig. 50: Cabin Air Filter & HVAC Housing
Courtesy of CHRYSLER GROUP, LLC

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

INSTALLATION

INSTALLATION

NOTE: The cabin air filter is labeled with an arrow to indicate air flow direction through the filter. Make sure to properly install the cabin 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.

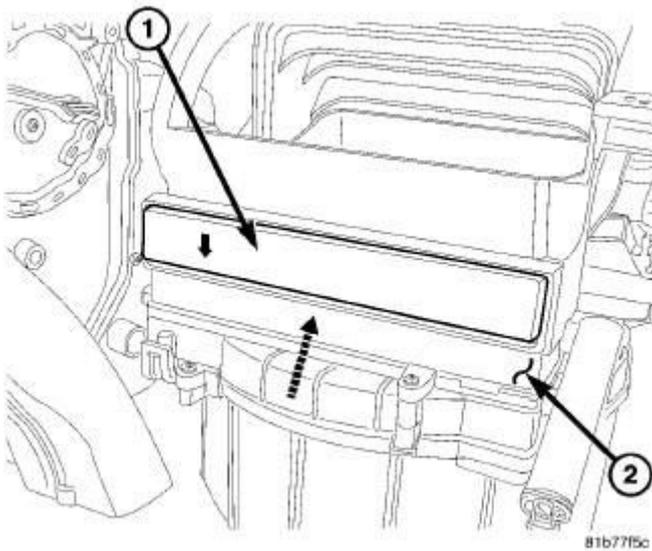


Fig. 51: Installing Cabin Air Filter
Courtesy of CHRYSLER GROUP, LLC

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

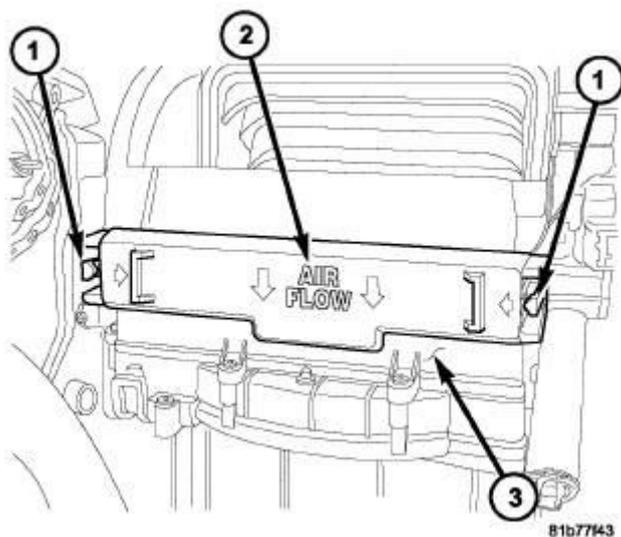


Fig. 52: Removing/Installing Cabin Air Filter Cover
Courtesy of CHRYSLER GROUP, LLC

2. Position the cabin 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.

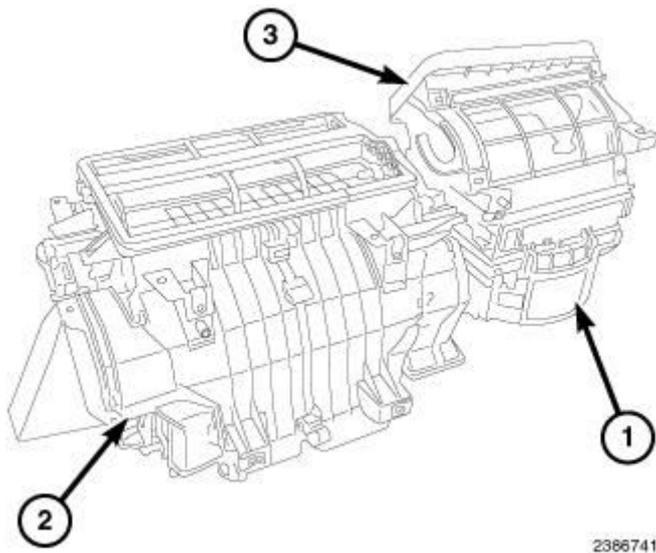
3. Install the glove box bin. Refer to **GLOVE BOX, INSTRUMENT PANEL, INSTALLATION** .

HOUSING, HVAC

DESCRIPTION

DESCRIPTION

NOTE: LHD model shown, RHD model similar.



2386741

Fig. 53: HVAC Housing, Air Inlet Housing & Air Distribution Housing
 Courtesy of CHRYSLER GROUP, LLC

All models use a common HVAC housing assembly. The HVAC housing assembly is mounted within the passenger compartment and 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, when equipped with A/C. The HVAC housing consists of an upper and a lower housing that are attached together and has mounting provisions for the air inlet housing, air distribution housing, blower motor and blower motor resistor or power module (depending on application).
- **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. When equipped with A/C, the air inlet housing contains the recirculation-air door and recirculation door 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. The discharge air temperature is controlled by an 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 doors, which direct the flow of the conditioned air out the various air outlets, depending on the mode selected. 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 a blower motor resistor or power module (depending on application). When equipped with A/C, an electric recirculation door actuator operates the recirculation-air door, which closes off the fresh air intake and recirculates the air already inside the vehicle. The electric door actuators, blower motor resistor or power module (depending on application) 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: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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.

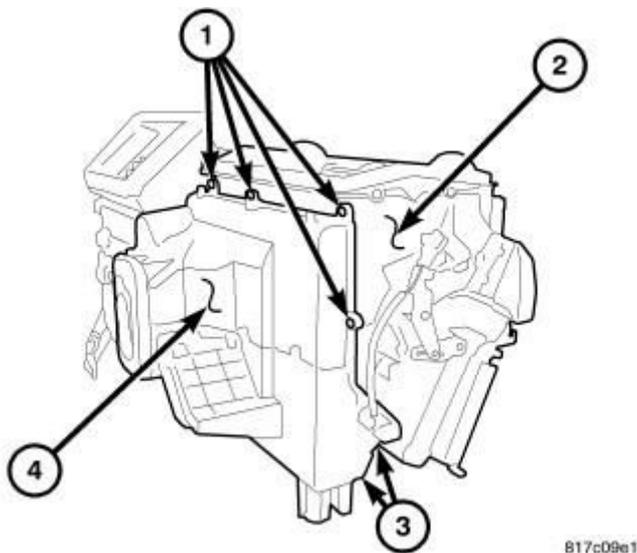


Fig. 54: Air Distribution Housing, Clips & Screws
Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. Remove the floor distribution ducts. Refer to **DUCT, FLOOR DISTRIBUTION, REMOVAL**.
3. Remove the heater core. Refer to **CORE, HEATER, REMOVAL**.

4. Remove the two metal retaining clips (3) that secure the bottom of air distribution housing (2) to the HVAC housing (4).
5. Remove the six screws (1) that secure the air distribution housing to the rear of the HVAC housing.
6. Carefully disengage the one plastic retaining clip that secures the right side of the air distribution housing to the HVAC housing.
7. Remove the air distribution housing from the rear of the HVAC housing.
8. If required, disassemble the air distribution housing. Refer to **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: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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 illustration, RHD model similar.

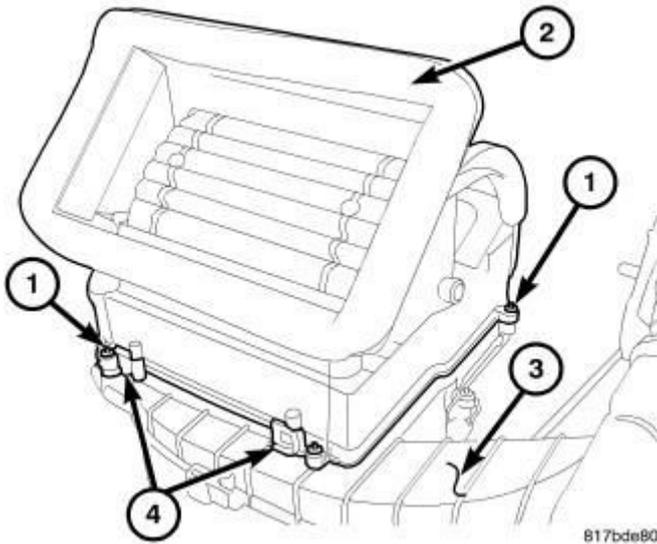


Fig. 55: Air Inlet Housing, HVAC Housing, Tabs & Screws
Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. If equipped, remove the cabin air filter. Refer to **FILTER, CABIN 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. Refer to **HOUSING, HVAC, DISASSEMBLY**.

HOUSING-HVAC

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

or fatal injury.

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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.

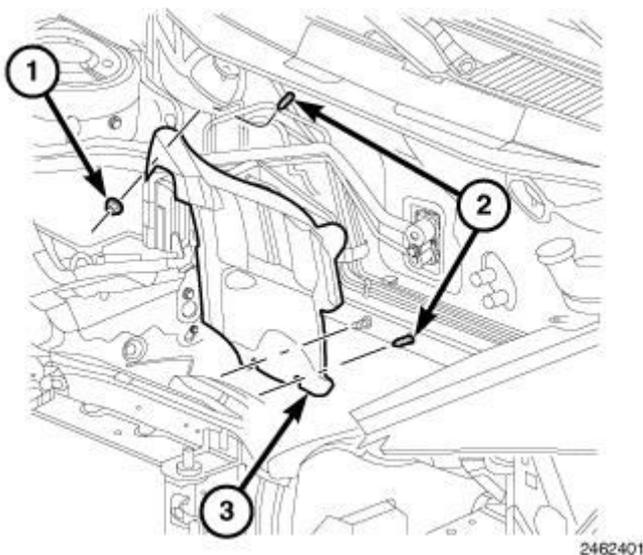


Fig. 56: Heat Shield

Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Partially drain the engine cooling system. Refer to **STANDARD PROCEDURE**.
4. Remove the nuts (1) that secure the heat shield (3) to the studs (2) located on the dash panel in the engine compartment and remove the heat shield.

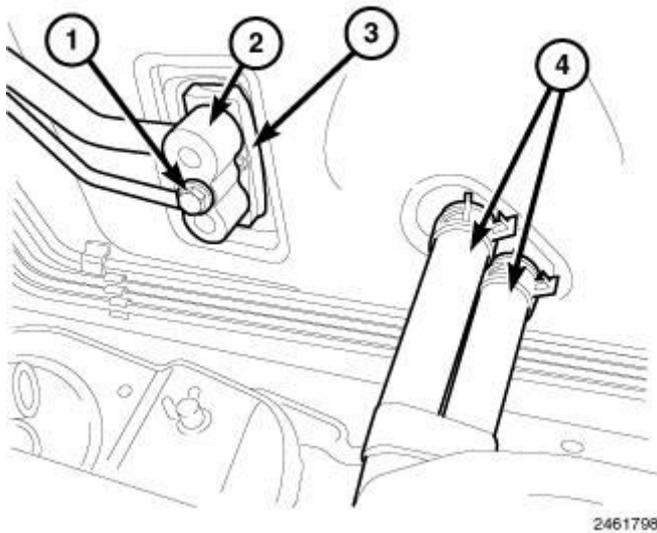


Fig. 57: A/C Liquid/Suction Line Assembly & Bolts
 Courtesy of CHRYSLER GROUP, LLC

5. Remove the bolt (1) that secures the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
6. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve and remove and discard the O-ring seals.
7. Install plugs in, or tape over the opened refrigerant line fittings and the expansion valve ports.
8. Disconnect the heater hoses (4) from the heater core tubes.
9. Install plugs in, or tape over the opened heater core tubes to prevent coolant spillage during housing removal.

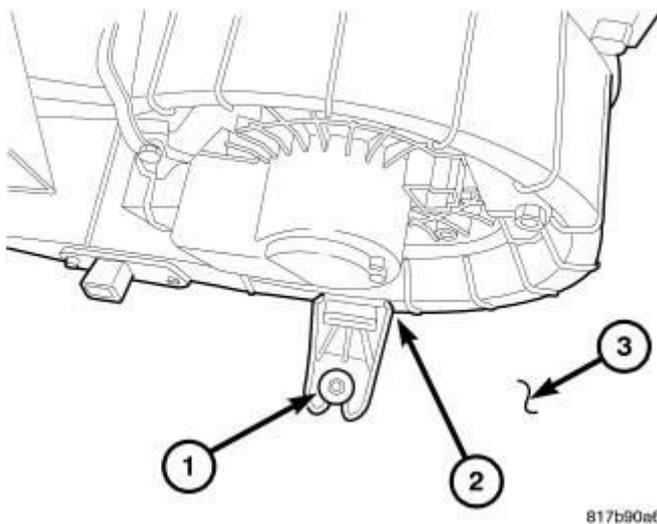


Fig. 58: HVAC Housing To Dash Panel Nut

Courtesy of CHRYSLER GROUP, 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 PANEL, INSTRUMENT, REMOVAL.
11. Remove the rear floor ducts. Refer to DUCT, FLOOR DISTRIBUTION, REMOVAL.
12. Remove the condensation drain tube. Refer to TUBE, CONDENSATION DRAIN, REMOVAL.
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.

SCREEN-AIR INLET

NOTE: LHD model shown in illustration, RHD model similar.

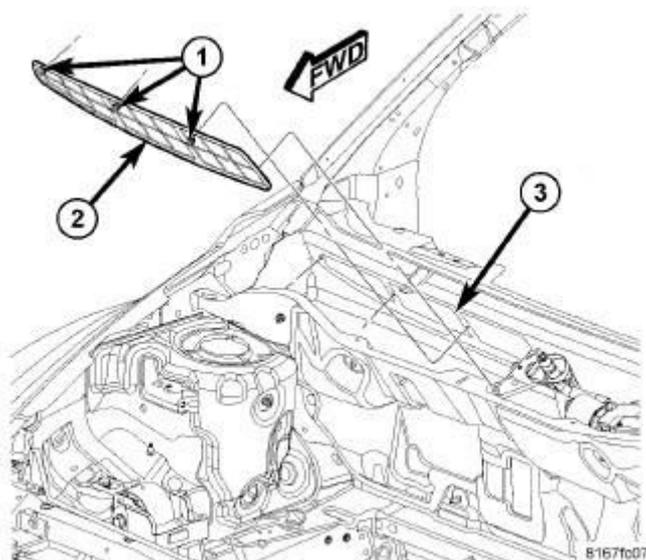


Fig. 59: HVAC Housing Air Inlet Screen, Cowl Panel & Push-In Retainers Courtesy of CHRYSLER GROUP, LLC

1. Remove the cowl grille screen. Refer to **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.

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.

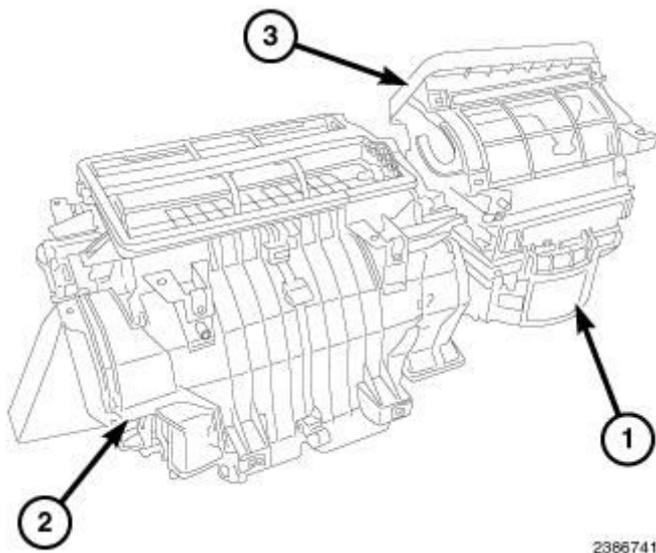


Fig. 60: HVAC Housing, Air Inlet Housing & Air Distribution Housing Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. Remove the air distribution housing (2) from the HVAC housing (1). Refer to **HOUSING, HVAC, REMOVAL**.
3. If equipped with the 2.2L diesel engine, remove the electric Positive Temperature Coefficient (PTC) heater unit from the air distribution housing.

Refer to **UNIT, HEATER, REMOVAL**.

4. Remove the heater core from the air distribution housing. Refer to **CORE, HEATER, REMOVAL**.

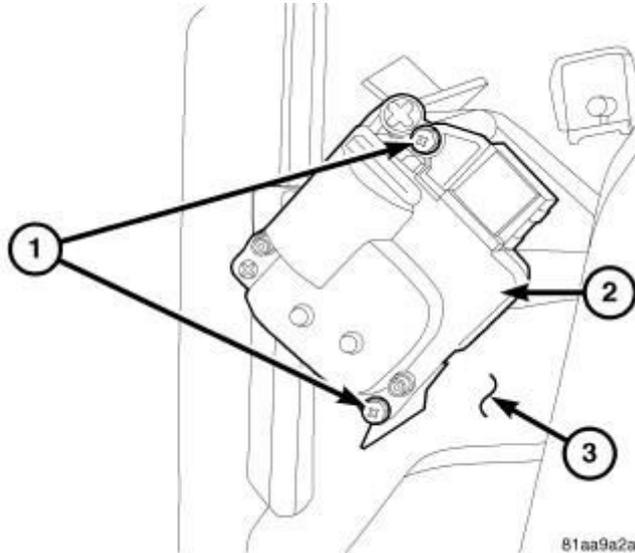


Fig. 61: Blend Door Actuator & Screws
Courtesy of CHRYSLER GROUP, LLC

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. Refer to **ACTUATOR, BLEND DOOR, REMOVAL**.

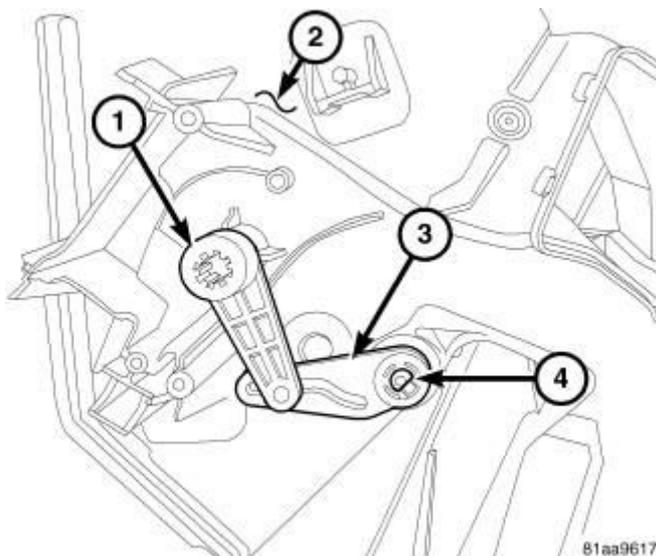


Fig. 62: Blend Door Levers

Courtesy of CHRYSLER GROUP, 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).

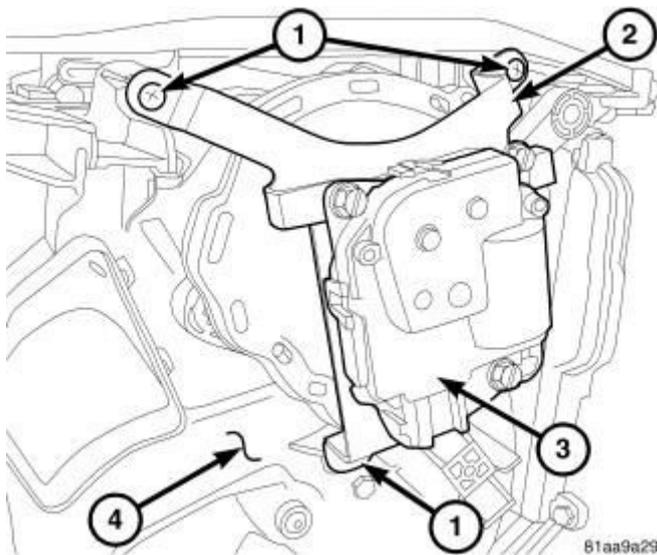


Fig. 63: Mode Door Actuator & Bracket
Courtesy of CHRYSLER GROUP, LLC

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.

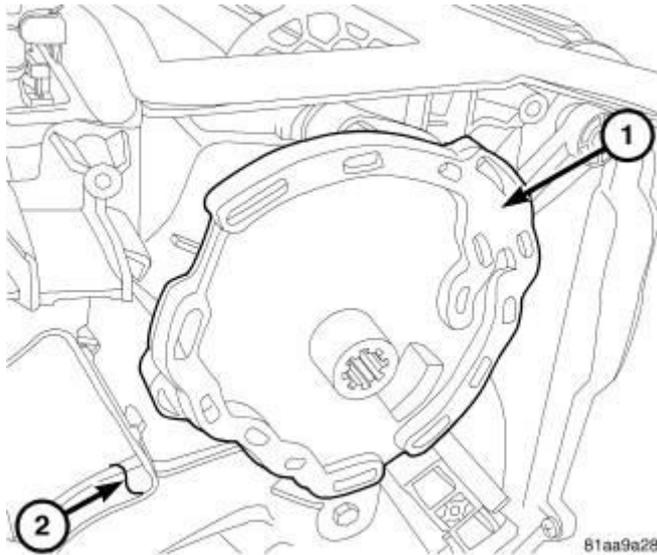


Fig. 64: Mode Door Cam
 Courtesy of CHRYSLER GROUP, LLC

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

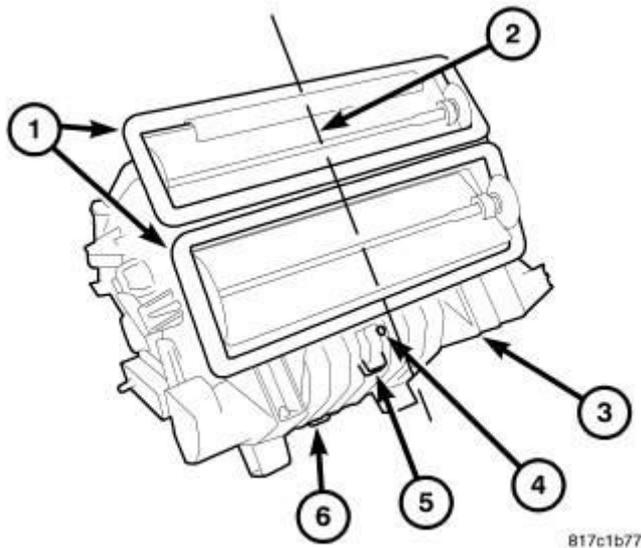


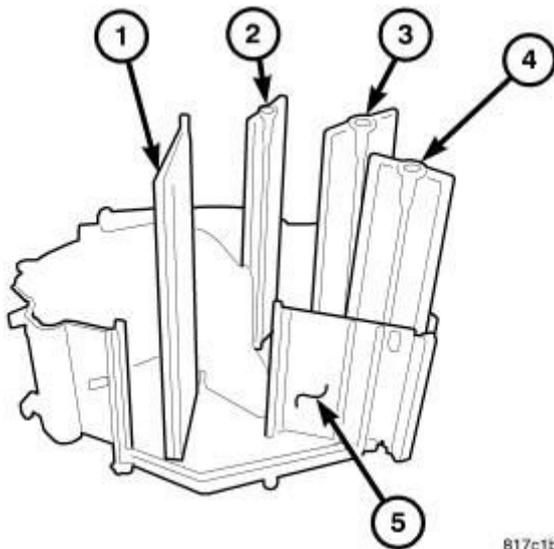
Fig. 65: Parting Line And Retainers
 Courtesy of CHRYSLER GROUP, LLC

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.

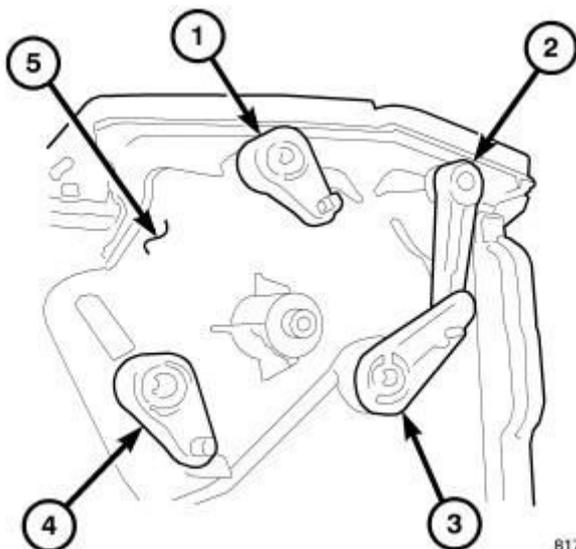


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Fig. 66: Air Distribution Housing & Air Doors
Courtesy of CHRYSLER GROUP, LLC

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

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



817c1b75

Fig. 67: Mode Door Levers
 Courtesy of CHRYSLER GROUP, LLC

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

- Remove the four mode 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 with A/C shown in illustrations, RHD models similar.

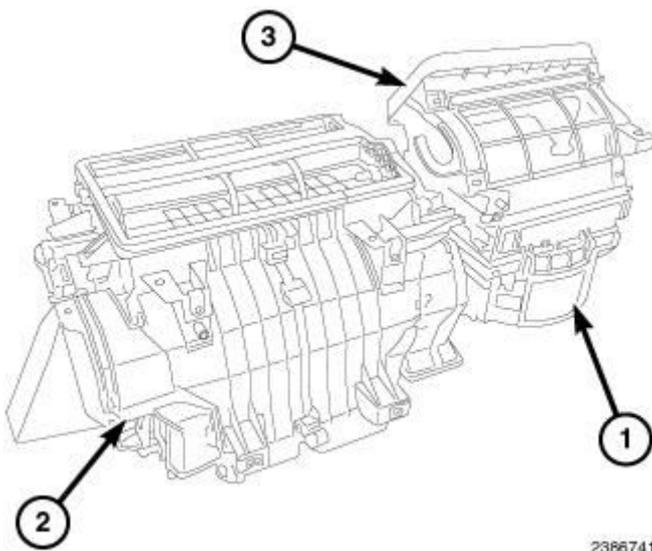


Fig. 68: HVAC Housing, Air Inlet Housing & Air Distribution Housing
 Courtesy of CHRYSLER GROUP, LLC

- Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
- Remove the air inlet housing (3) from the HVAC housing (1). Refer to **HOUSING, HVAC, REMOVAL**.

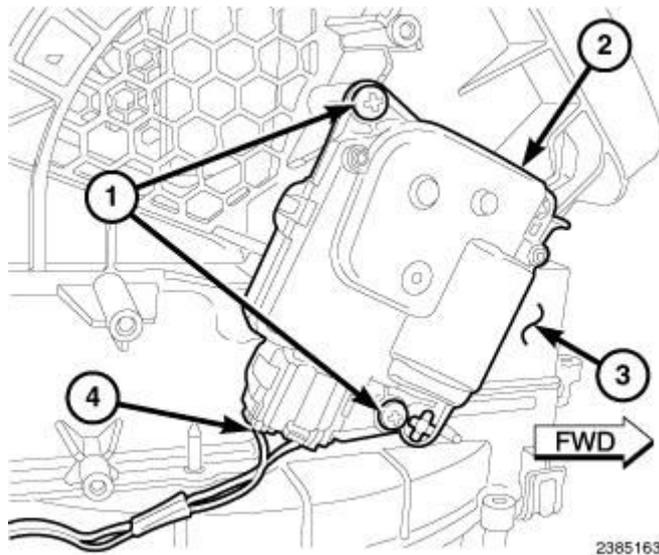


Fig. 69: Recirculation Door Actuator, HVAC Air Inlet Housing, Wire Harness Connector & Screws
Courtesy of CHRYSLER GROUP, LLC

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.

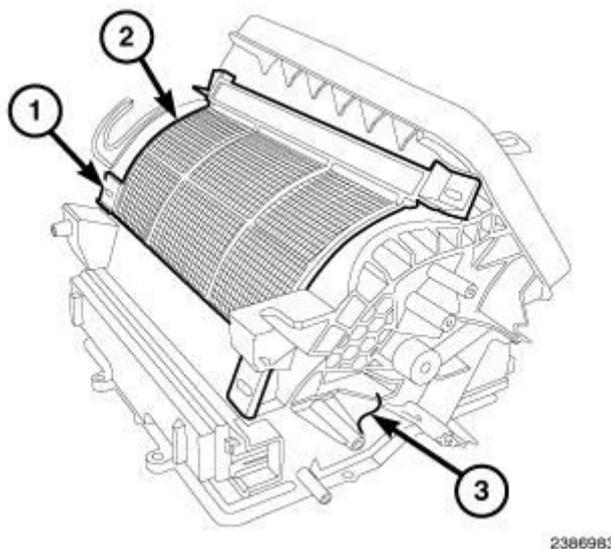
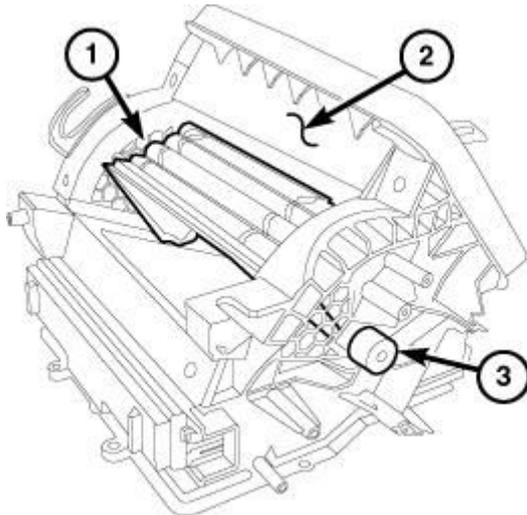


Fig. 70: Recirculation Air Screen & Air Inlet Housing
Courtesy of CHRYSLER GROUP, LLC

4. Carefully disengage the retaining tab (1) at each corner of the recirc air screen (2) and remove the screen from the air inlet housing (3).



2387006

Fig. 71: Recirculation-Air Door, Air Inlet Housing & Recirculation Door Pivot Shaft Adapter

Courtesy of CHRYSLER GROUP, LLC

5. To remove the recirculation door pivot shaft adapter (3) from the right end of the recirculation-air door (1), first carefully push down on the tab of the door lever pivot shaft adapter located inside of the air inlet housing (2), 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.

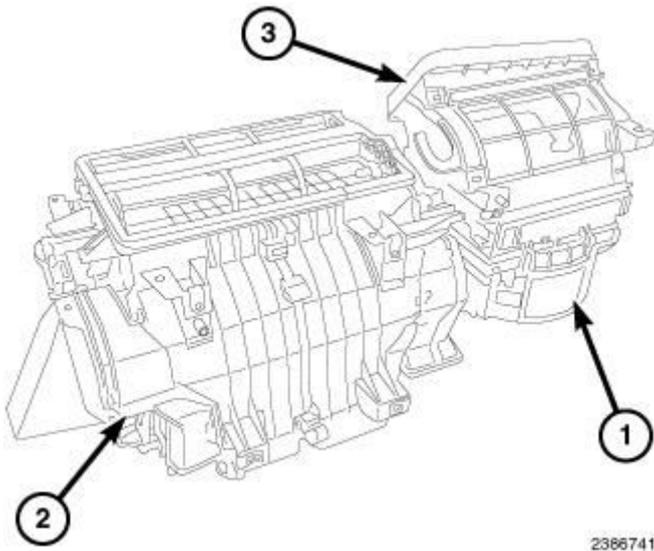
NOTE: If a rubber seal on the recirculation air-door is deformed or damaged, the air-door must be replaced.

6. 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.

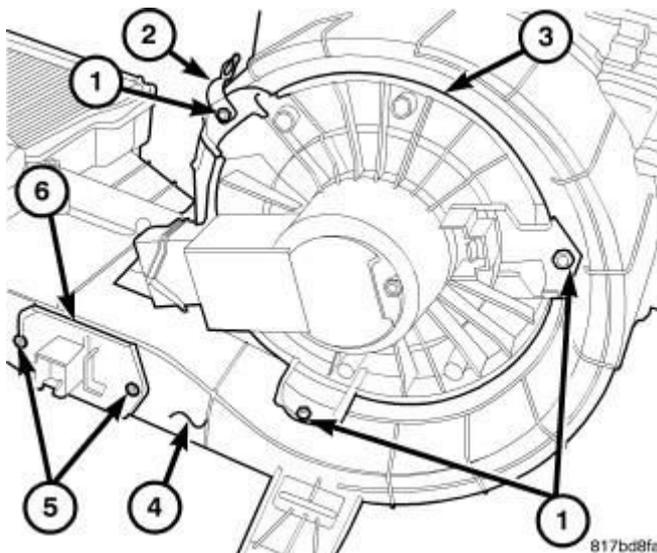
NOTE: LHD model with A/C shown in illustrations, RHD and heater-only models similar.



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Fig. 72: HVAC Housing, Air Inlet Housing & Air Distribution Housing
 Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. Remove the air distribution housing (2) from the HVAC housing (1). Refer to **HOUSING, HVAC, REMOVAL**.
3. Remove the air inlet housing (3) from the HVAC housing. Refer to **HOUSING, HVAC, REMOVAL**.



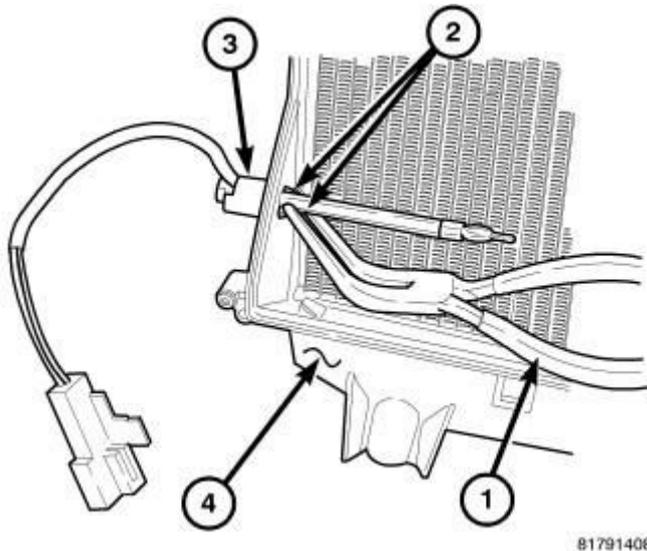
817bd8fa

Fig. 73: Blower Motor And Resistor
 Courtesy of CHRYSLER GROUP, LLC

4. Remove the three screws (1) that secure the blower motor (3) and the wire lead bracket (2), if equipped, to the bottom of the HVAC housing (4) and

remove the blower motor.

- Remove the two screws (5) that secure the blower motor resistor or power module (6), depending on application, to the bottom of the HVAC housing and remove the resistor or module.

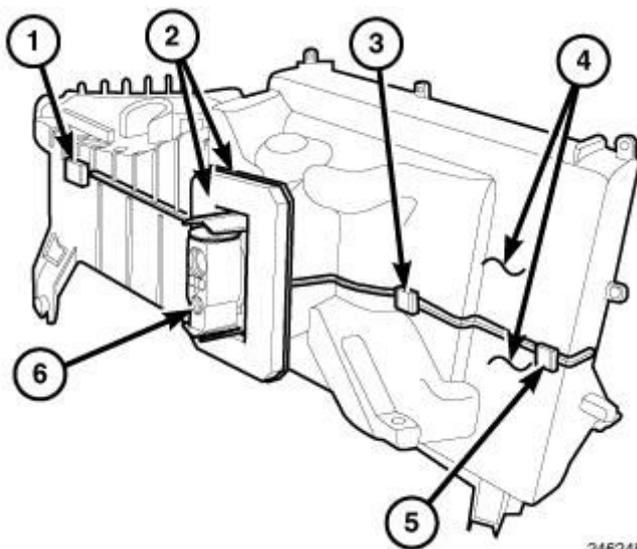


81791408

Fig. 74: Evaporator Temperature Sensor, HVAC Housing, Tabs & Needle Nose Pliers

Courtesy of CHRYSLER GROUP, LLC

- 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.



2462486

Fig. 75: Foam Seal And Plastic Flange, HVAC Housing, A/C Expansion Valve, Six Screws & Three Metal Clips

Courtesy of CHRYSLER GROUP, 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. Refer to 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 any residual sealer from the flange area at the front of the two halves of the HVAC housing.
11. Remove the six screws (3) and three metal clips (5) that secure the two halves of the HVAC housing together.
12. Disengage the eight plastic retaining tabs (1) that secure the two halves of the HVAC housing together and separate the housing.

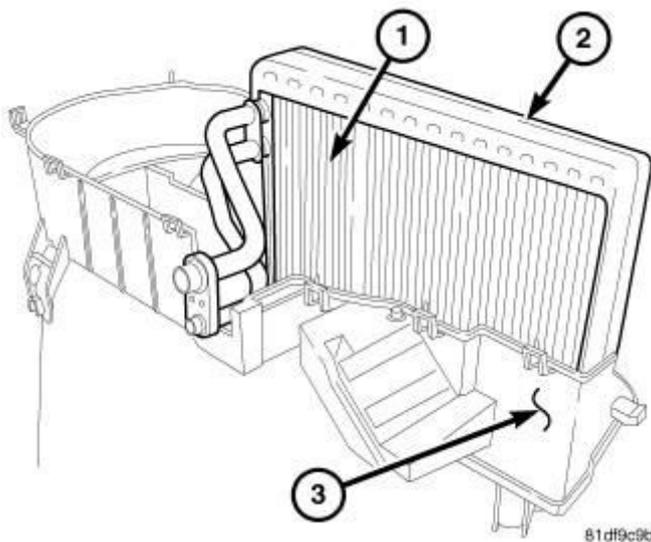


Fig. 76: A/C Evaporator, Foam Insulator & Lower Half Of HVAC Housing

Courtesy of CHRYSLER GROUP, LLC

NOTE: If the foam insulator around the A/C evaporator is

deformed or damaged, the insulator must be replaced.

- 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.

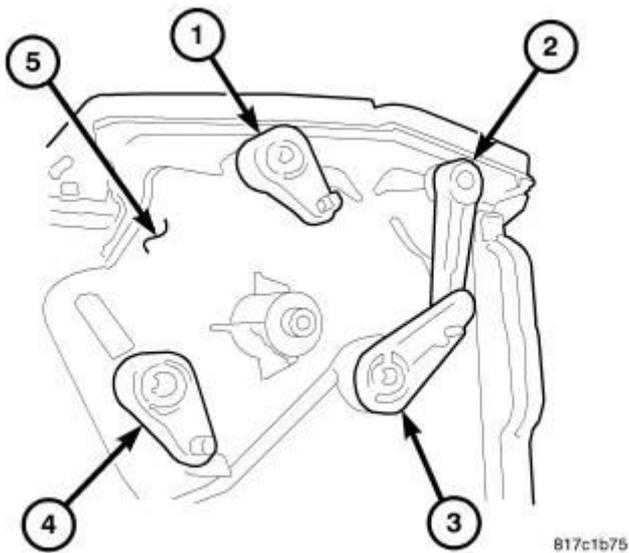
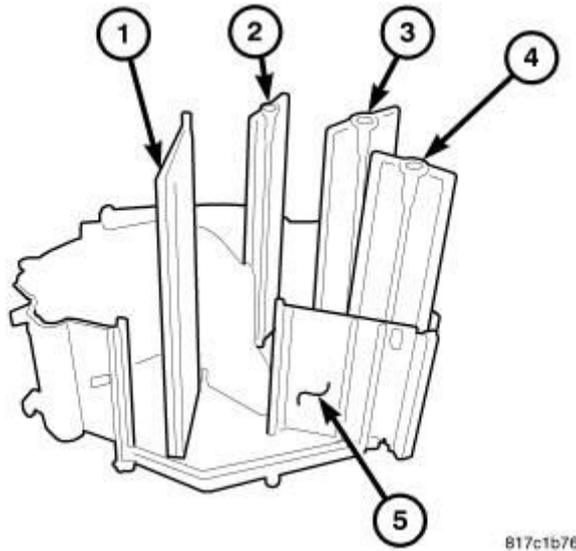


Fig. 77: Mode Door Levers
Courtesy of CHRYSLER GROUP, LLC

- Install the four mode 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.



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Fig. 78: Air Distribution Housing & Air Doors
Courtesy of CHRYSLER GROUP, LLC

NOTE: Properly position the air doors within the air distribution housing by first aligning the four mode door levers to the scribe lines located on the right outer side of the air distribution housing. Then, install the air doors onto the mode door levers with the UP mark on each air door facing toward the top of the housing.

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

2. Align the four mode 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 mode door levers with the UP mark on each air door facing toward the top of the housing.

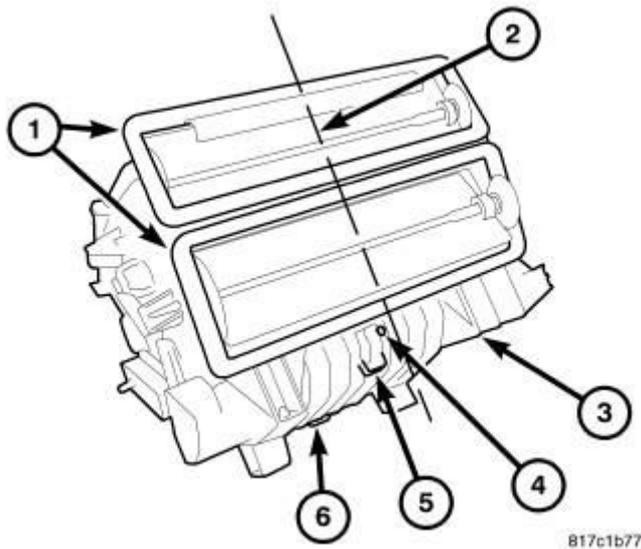


Fig. 79: Parting Line And Retainers
Courtesy of CHRYSLER GROUP, LLC

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.

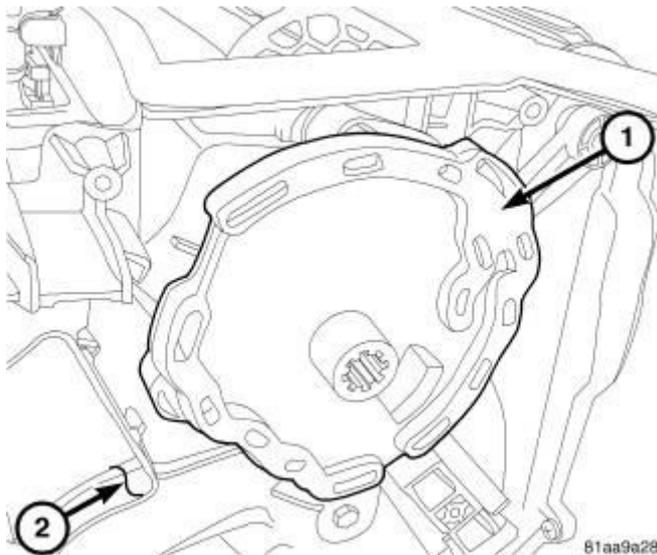


Fig. 80: Mode Door Cam
 Courtesy of CHRYSLER GROUP, LLC

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.

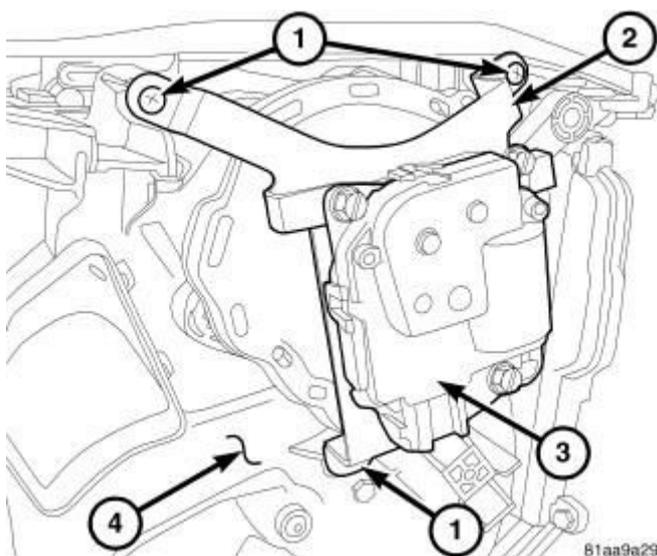


Fig. 81: Mode Door Actuator & Bracket
 Courtesy of CHRYSLER GROUP, LLC

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.).

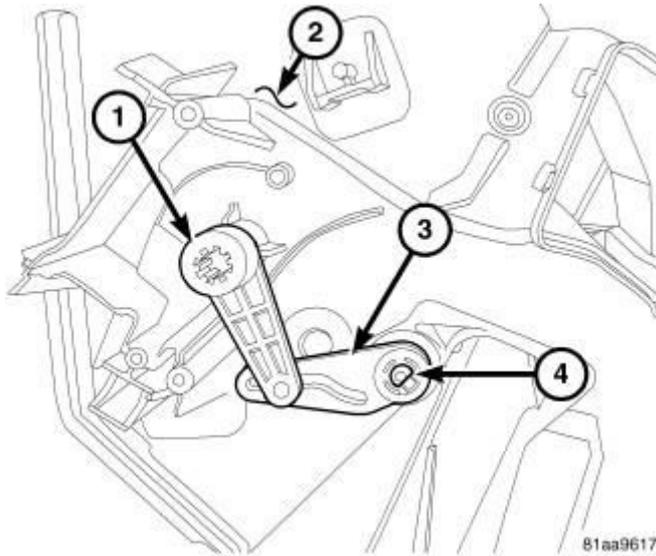


Fig. 82: Blend Door Levers
Courtesy of CHRYSLER GROUP, LLC

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.

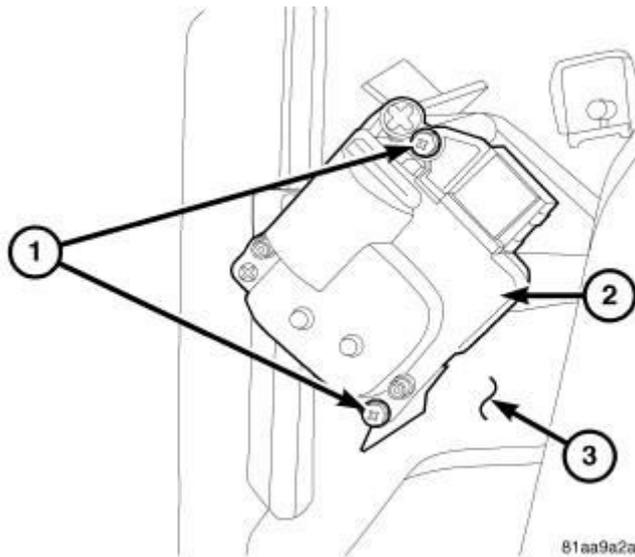


Fig. 83: Blend Door Actuator & Screws
 Courtesy of CHRYSLER GROUP, LLC

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.).

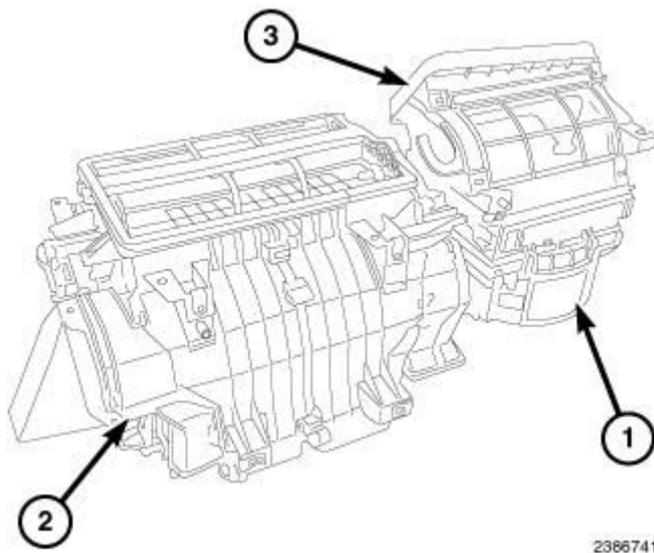


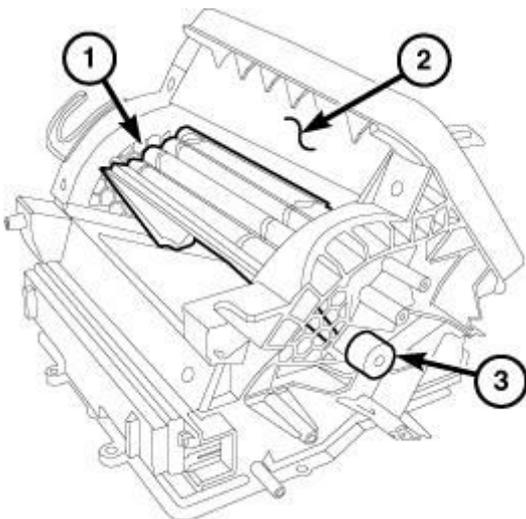
Fig. 84: HVAC Housing, Air Inlet Housing & Air Distribution Housing

Courtesy of CHRYSLER GROUP, LLC

14. If equipped with the 2.2L diesel engine, install the electric Positive Temperature Coefficient (PTC) heater unit into the air distribution housing. Refer to **UNIT, HEATER, INSTALLATION**.
15. Install the heater core into the air distribution housing (2). Refer to **CORE, HEATER, INSTALLATION**.
16. Install the air distribution housing onto the HVAC housing (1). Refer to **HOUSING, HVAC, INSTALLATION**.
17. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

HOUSING-AIR INLET

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



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Fig. 85: Recirculation-Air Door, Air Inlet Housing & Recirculation Door Pivot Shaft Adapter

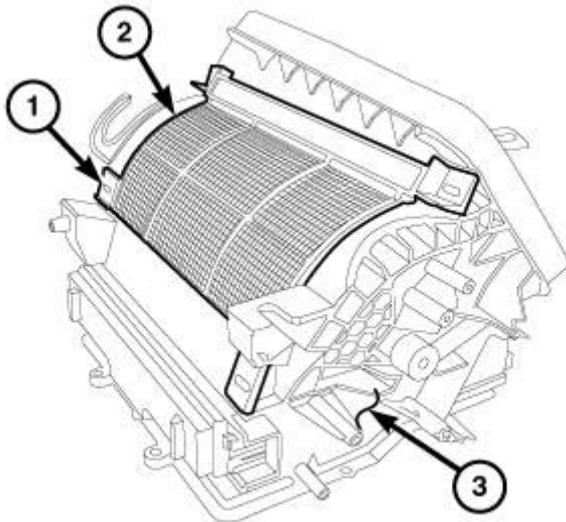
Courtesy of CHRYSLER GROUP, LLC

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.

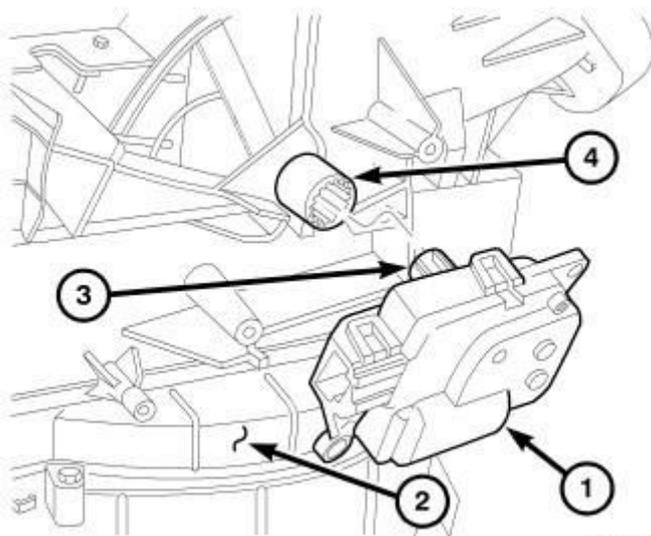
2. Install the recirculation door pivot shaft adapter (3) into the right side pivot shaft of the recirculation air-door. Make sure the adapter is fully engaged to the pivot shaft.



2386983

Fig. 86: Recirculation Air Screen & Air Inlet Housing
 Courtesy of CHRYSLER GROUP, LLC

3. Position the recirc air screen (2) to the air inlet housing (3) and engage the retaining tab (1) at each corner of the screen. Make sure the retaining tabs are fully engaged to the housing.



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Fig. 87: Recirculation Door Actuator, HVAC Air Inlet Housing, Actuator Output Shaft & Recirculation Door Pivot Shaft Adapter

Courtesy of CHRYSLER GROUP, LLC

4. Position the recirculation door actuator (1) to the right side of the HVAC air inlet housing (2).
5. 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).

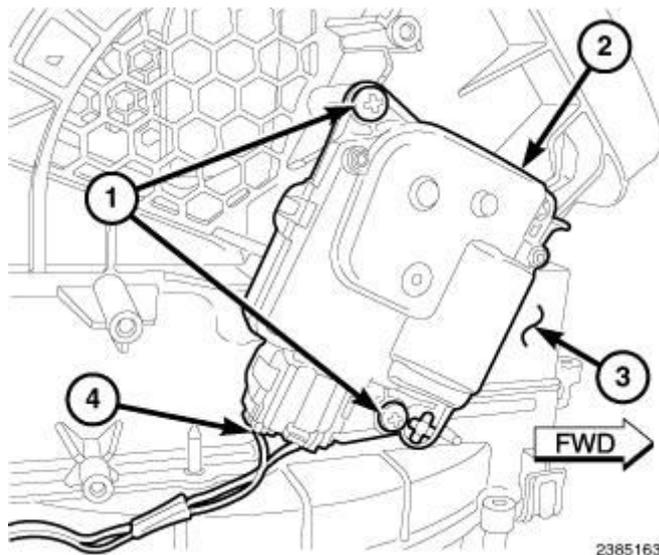


Fig. 88: Recirculation Door Actuator, HVAC Air Inlet Housing, Wire Harness Connector & Screws

Courtesy of CHRYSLER GROUP, LLC

6. 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.).

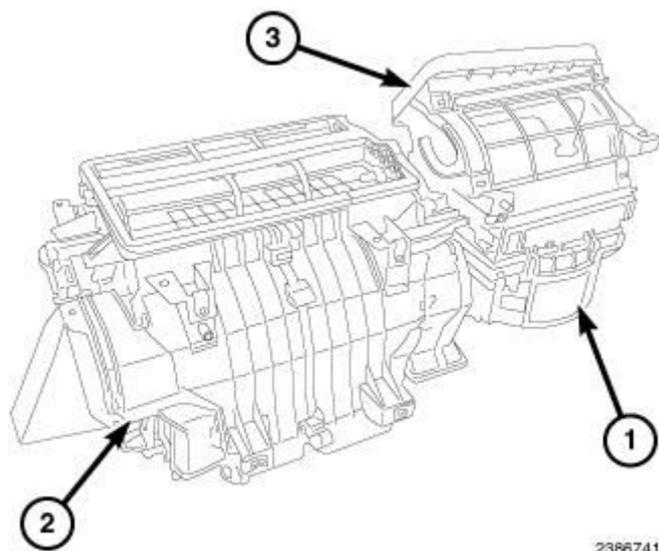


Fig. 89: HVAC Housing, Air Inlet Housing & Air Distribution Housing
Courtesy of CHRYSLER GROUP, LLC

7. Install the air inlet housing (3) onto the HVAC housing (1). Refer to **HOUSING, HVAC, INSTALLATION**.
8. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

HOUSING-HVAC

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

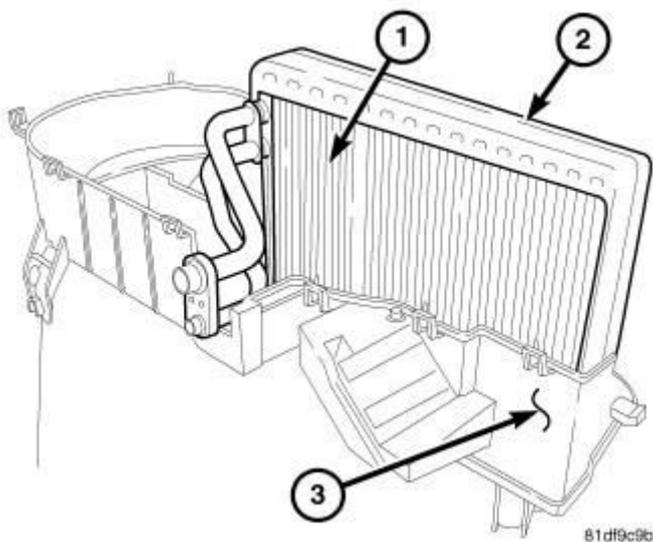


Fig. 90: A/C Evaporator, Foam Insulator & Lower Half Of HVAC Housing
Courtesy of CHRYSLER GROUP, LLC

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).

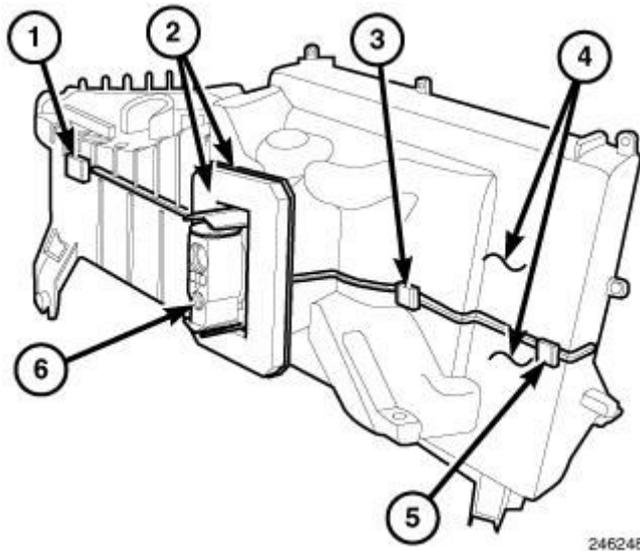


Fig. 91: Foam Seal And Plastic Flange, HVAC Housing, A/C Expansion Valve, Six Screws & Three Metal Clips
 Courtesy of CHRYSLER GROUP, LLC

2. Install the two halves of the HVAC housing (4) together and engage the eight plastic retaining tabs (1). Make sure the retaining tabs are fully engaged.
3. Install the six 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.
4. Install a bead of silicone sealer around the flange area at the front of the HVAC housing.

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

5. 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.
6. Remove the tape or plugs from the expansion valve and evaporator ports.
7. 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.
8. Install the A/C expansion valve (6) and the two retaining bolts. Tighten the bolts to 11 N.m (97 in. lbs.). Refer to **VALVE, A/C EXPANSION,**

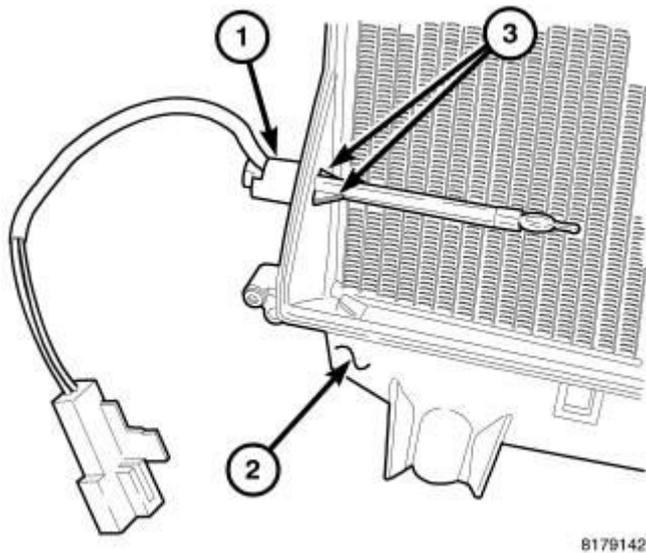
INSTALLATION.

Fig. 92: Evaporator Temperature Sensor, HVAC Housing & Retaining Tabs

Courtesy of CHRYSLER GROUP, LLC

9. 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.

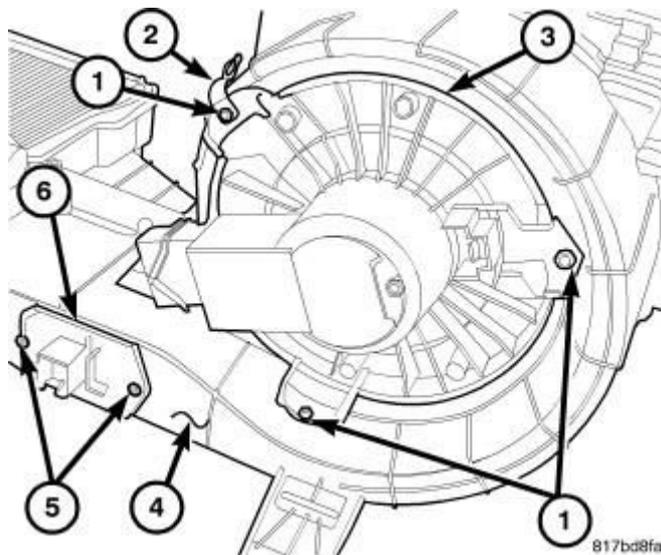


Fig. 93: Blower Motor And Resistor
Courtesy of CHRYSLER GROUP, LLC

10. Position the blower motor (3) into the bottom of the HVAC housing (4).
11. Install the wire lead bracket (2), if equipped, 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.).

12. Position the blower motor resistor or power module (6), depending on application, into the HVAC housing.
13. Install the two screws (5) that secure the blower motor resistor or power module to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).

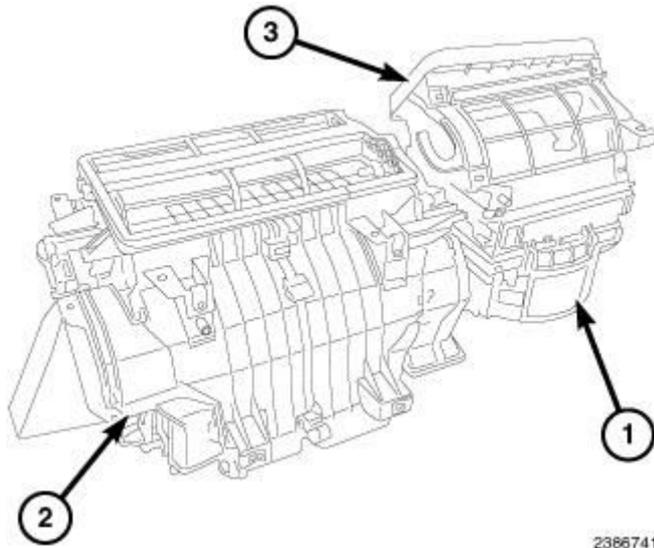


Fig. 94: HVAC Housing, Air Inlet Housing & Air Distribution Housing
Courtesy of CHRYSLER GROUP, LLC

14. Install the air inlet housing (3) onto the HVAC housing (1). Refer to **HOUSING, HVAC, INSTALLATION**.
15. Install the air distribution housing (2) onto the HVAC housing. Refer to **HOUSING, HVAC, INSTALLATION**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to **STANDARD PROCEDURE** .

16. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

INSTALLATION

HOUSING-AIR DISTRIBUTION

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

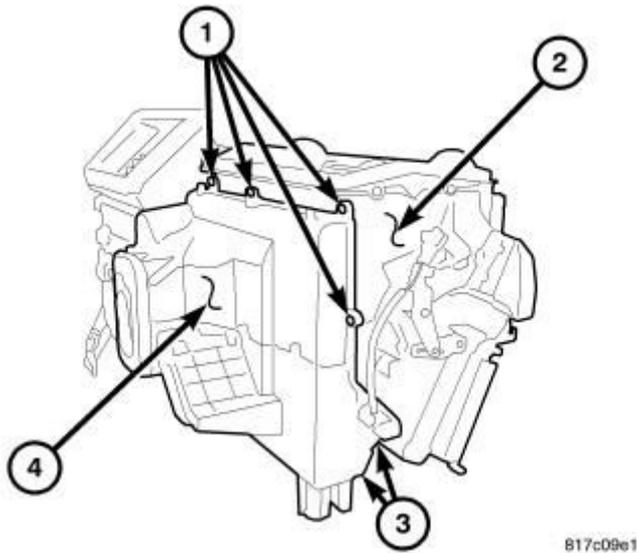


Fig. 95: Air Distribution Housing, Clips & Screws
 Courtesy of CHRYSLER GROUP, LLC

1. Position the air distribution housing (2) onto the rear of the HVAC housing (4) and engage the one plastic retaining clip.
2. Install the six screws (1) that secure the air distribution housing to the HVAC housing. Tighten the screws to 1.2 N.m (10 in. lbs.).
3. Install the two metal retaining clips (3) that secure the bottom of the air distribution housing to the HVAC housing.
4. Install the heater core. Refer to **CORE, HEATER, INSTALLATION**.
5. Install the floor distribution ducts. Refer to **DUCT, FLOOR DISTRIBUTION, INSTALLATION**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to **STANDARD PROCEDURE** .

6. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

HOUSING-AIR INLET

NOTE: LHD model shown in illustration, RHD model similar.

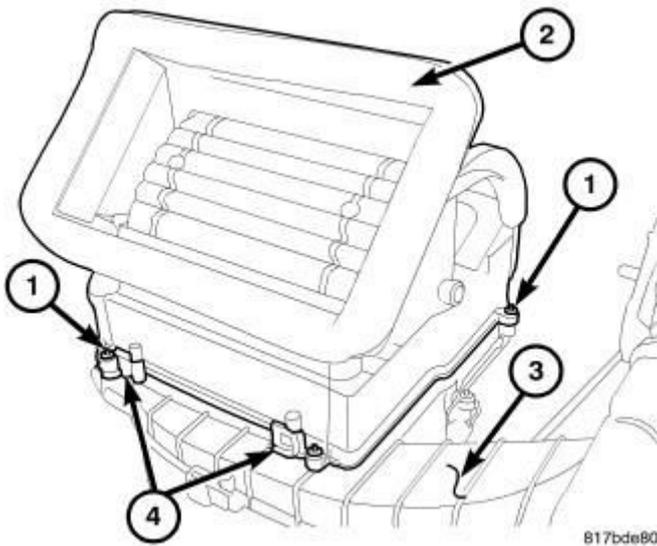


Fig. 96: Air Inlet Housing, HVAC Housing, Tabs & Screws
Courtesy of CHRYSLER GROUP, LLC

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 cabin air filter. Refer to **FILTER, CABIN AIR, INSTALLATION**.
4. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

HOUSING - HVAC

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

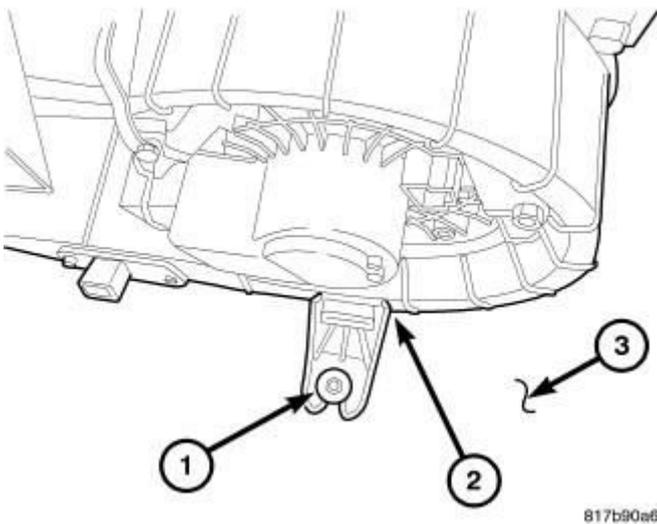


Fig. 97: HVAC Housing To Dash Panel Nut
Courtesy of CHRYSLER GROUP, LLC

1. 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.
2. 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.).
3. Install the condensation drain tube. Refer to **TUBE, CONDENSATION DRAIN, INSTALLATION**.
4. Install the rear floor ducts. Refer to **DUCT, FLOOR DISTRIBUTION, INSTALLATION**.
5. Install the instrument panel. Refer to **PANEL, INSTRUMENT, INSTALLATION**.

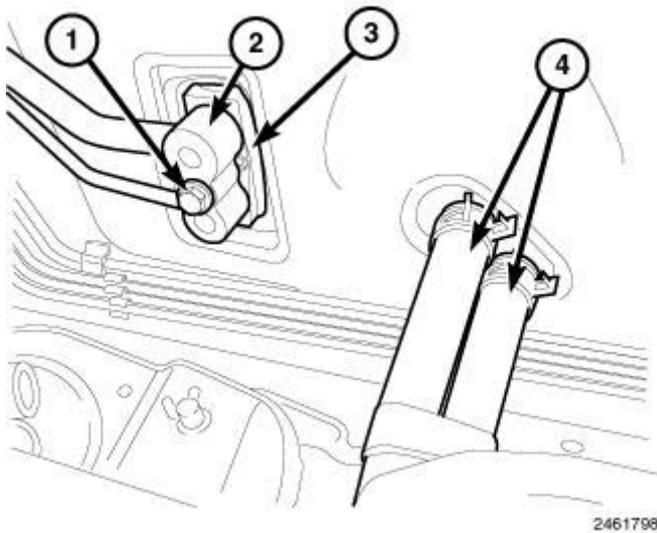


Fig. 98: A/C Liquid/Suction Line Assembly & Bolts
Courtesy of CHRYSLER GROUP, LLC

6. Remove the previously installed plugs or caps and connect the heater hoses (4) to the heater core tubes.
7. Remove the tape or plugs from the refrigerant line fittings and the expansion valve ports.
8. Lubricate new rubber O-rings seals with clean refrigerant oil and them onto the liquid and suction line fittings. Use only the specified O-ring seals as they are made of special materials compatible to the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
9. Connect the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
10. Install the bolt (1) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the nut to 25 N.m (18 ft. lbs.).

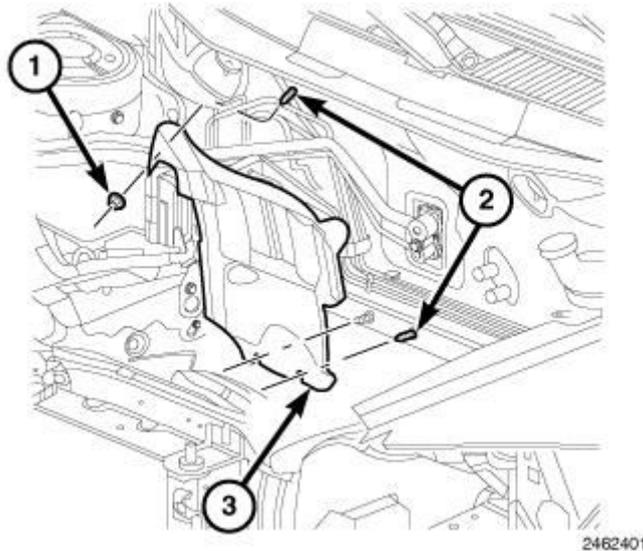


Fig. 99: Heat Shield

Courtesy of CHRYSLER GROUP, LLC

11. Position the heat shield (3) onto the studs (2) located on the dash panel in the engine compartment.
12. Install the nuts (1) that secure the heat shield to the dash panel. 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 **STANDARD PROCEDURE** .
15. Refill the engine cooling system. Refer to **STANDARD PROCEDURE** .
16. Evacuate and charge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

SCREEN-AIR INLET

NOTE: LHD model shown in illustration, RHD model similar.

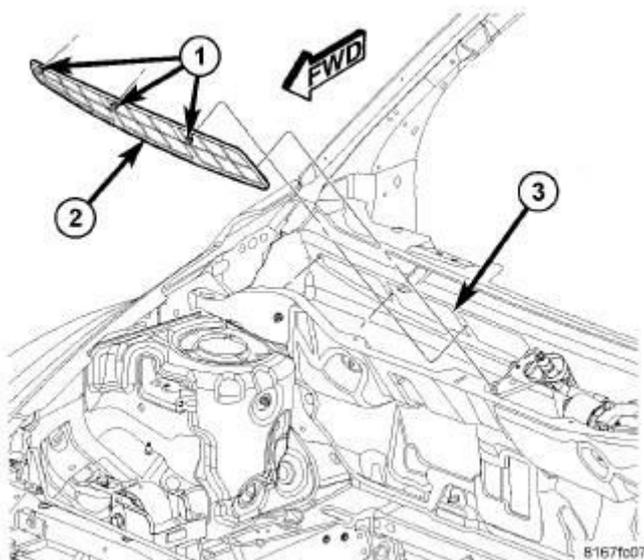


Fig. 100: HVAC Housing Air Inlet Screen, Cowl Panel & Push-In Retainers
 Courtesy of CHRYSLER GROUP, LLC

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 **COVER, COWL PANEL, INSTALLATION** .

MOTOR, BLOWER

DESCRIPTION

DESCRIPTION

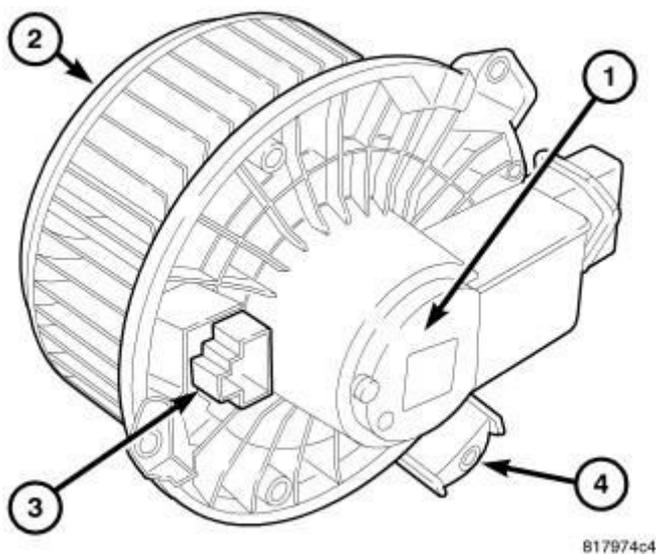


Fig. 101: Blower Motor, Blower Wheel, Harness Connector & Mounting

Tabs

Courtesy of CHRYSLER GROUP, 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.

Both the Manual Temperature Control (MTC) heating-A/C system and the Automatic Temperature Control (ATC) heating-A/C system have an electronic blower motor power module to control blower motor speed. The power module 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 and is diagnosed using a scan tool. Refer to **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

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 and 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.

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 appropriate Wiring Information for circuit descriptions and diagrams.

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

OPERATION

Possible causes of an inoperative blower motor include:

- Open fuse
- Inoperative blower motor power module
- Inoperative A/C-heater control
- Inoperative blower motor
- Inoperative blower motor circuit wiring or wire harness connectors

REMOVAL

REMOVAL

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.

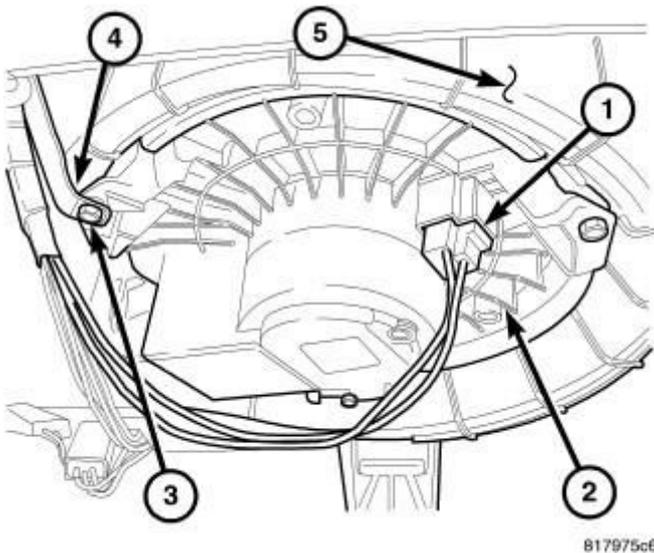


Fig. 102: Blower Motor, Bracket, Connector, Screws & HVAC Housing
Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, 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).

- 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

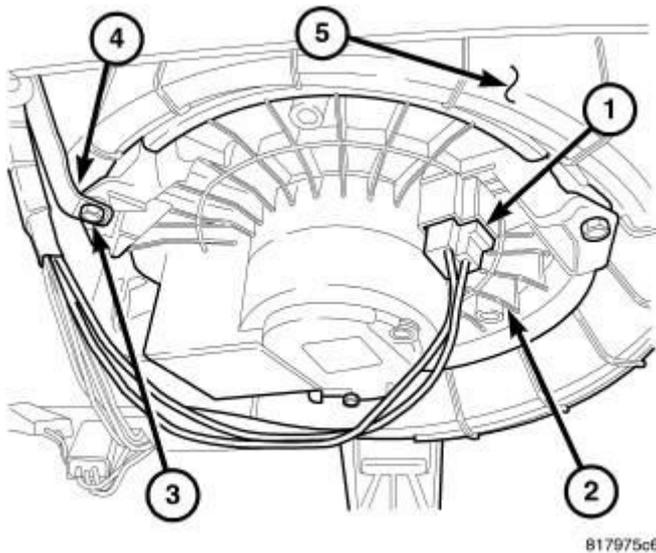


Fig. 103: Blower Motor, Bracket, Connector, Screws & HVAC Housing
 Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

- Position the blower motor (2) into the bottom of the HVAC housing (5).
- 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.).
- Connect the instrument panel wire harness connector (1) to the blower motor and engage the connector lock.
- If equipped, install the silencer below the passenger side of the instrument panel.
- Reconnect the negative battery cable.

OUTLET, AIR

REMOVAL

REMOVAL

NOTE: Driver side air outlet shown in illustration, Other outlets similar.

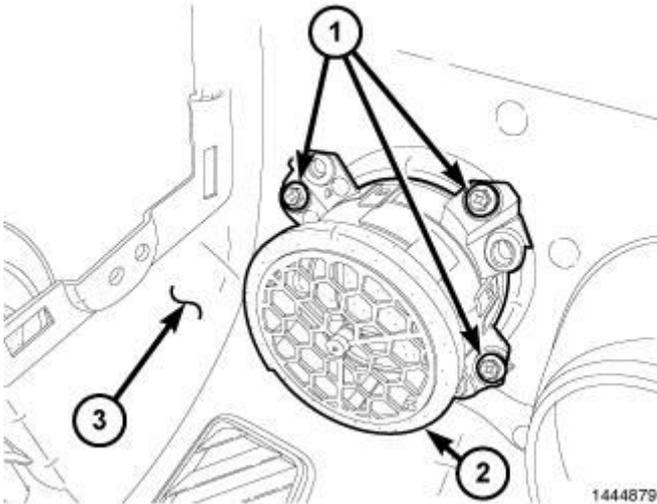


Fig. 104: Air Outlet & Screws
Courtesy of CHRYSLER GROUP, LLC

1. Depending on the air outlet being serviced, remove the instrument panel center bezel or the upper instrument panel cover. Refer to **BEZEL, INSTRUMENT PANEL, CENTER, REMOVAL** or **COVER, INSTRUMENT PANEL, REMOVAL**.

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

2. Remove the three screws (1) that secure the air outlet (2) to the bezel or cover (3) and remove the outlet.

INSTALLATION

INSTALLATION

NOTE: Driver side air outlet shown in illustration, Other outlets similar.

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

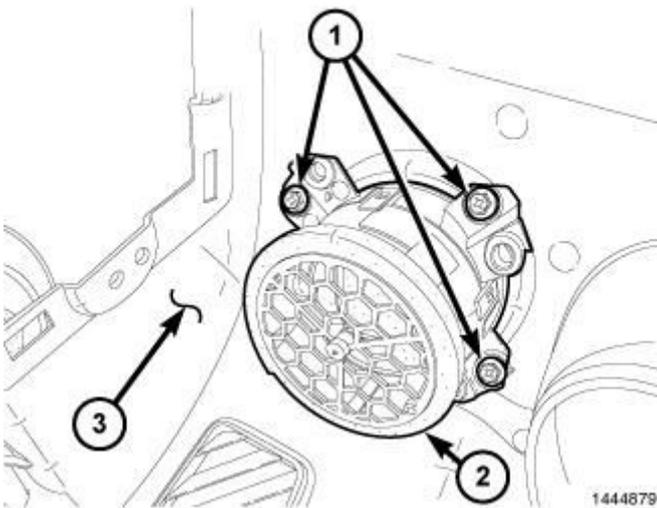


Fig. 105: Air Outlet & Screws
Courtesy of CHRYSLER GROUP, LLC

1. Position the air outlet (2) onto the bezel or cover (3).
2. Install the three screws (1) that secure the air outlet. Tighten the screws to 2 N.m (17 in. lbs.).
3. Depending on the outlet being serviced, install the upper instrument panel cover or the instrument panel center bezel. Refer to **COVER, INSTRUMENT PANEL, INSTALLATION** or **BEZEL, INSTRUMENT PANEL, CENTER, INSTALLATION** .

PLUMBING

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 when equipped with a variable displacement compressor. Failure to follow these instructions 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

DIAGNOSIS AND TESTING - REFRIGERANT SYSTEM LEAKS

WARNING: Review the safety precautions and warnings in this Service Information before performing this procedure. Failure to follow these instructions may result in serious injury or death.

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: Use extreme care when working around a running engine. Keep hands and fingers clear of the radiator fan, accessory drive belt and all other moving components. Keep away when wearing loose clothing, jewelry or long hair that is not properly secured. Underhood components may become hot to the touch. Be careful not to come into contact with hot engine, A/C and engine cooling system components. Failure to follow these instructions may result in serious or fatal injury.

NOTE: Always conduct the A/C PERFORMANCE Test prior to searching for an A/C refrigerant leak. Refer to DIAGNOSIS AND TESTING.

NOTE: The A/C system in this vehicle comes equipped from the factory with fluorescent refrigerant leak detection dye installed in the refrigerant system.

When searching for a refrigerant leak in the A/C system, use an Ultra Violet (UV) light and an electronic leak detector that is designed for refrigerant used on this vehicle. It is important to use only high-quality refrigerant leak detection equipment to properly locate refrigerant system leaks, such as the equipment

listed in the teamPSE Service Equipment Catalog. When the use of additional leak detection dye is required, use only Chrysler LLC approved refrigerant leak detection dye, available through Mopar®.

LEAK TEST

1. Begin searching for refrigerant leaks using a high quality UV light to detect the fluorescent refrigerant leak detection dye.
 - Inspect all connections, plumbing fittings, brazed joints, hoses, hose crimps, service ports, compressor housing, pressure relief valve and A/C condenser for dye
 - Inspect the evaporator drain tube and condensate for presence of dye, which indicates a leak from the A/C evaporator
 - If equipped with rear A/C, inspect the underbody refrigerant lines, fittings, rear evaporator drain tube and condensate for presence of dye, which indicates a leak from the rear evaporator
 - If no leaks are found using a UV light, proceed to 2 2.
2. If a leak is not found with the leak detection dye, operate the heating and A/C system with the engine at idle under the following conditions for at least 15 minutes, then proceed to 3 3.
 - Doors or windows open
 - Transmission in Park or Neutral with the parking brake set (depending on transmission application)
 - A/C and heater controls set to outside air, full cool, panel mode, high blower and A/C compressor engaged (If the A/C compressor does not engage, go to **LOW OR EMPTY REFRIGERANT SYSTEM**.)
 - If equipped with rear A/C, set rear controls to full cool and high blower
3. Shut the vehicle off and wait at least 5 minutes.
4. Insert the leak detector into the evaporator drain tube and the instrument panel air outlets, to check for evaporator leaks. Check the evaporator tubes at the A/C expansion valve, for leaks not visible behind the expansion valve. Check around the front of the A/C compressor, for compressor shaft seal leaks. Check between the A/C condenser and radiator for condenser leaks not previously visible.
5. If equipped with rear A/C, insert the leak detector into the rear evaporator drain tube and rear air outlets. Check the underbody A/C lines and fittings, evaporator tubes and rear A/C expansion valve.

LOW OR EMPTY REFRIGERANT SYSTEM

NOTE: This procedure should only be done after an A/C Performance Test has been conducted and a refrigerant system leak has NOT been found using the factory installed leak detection dye.

Do the following if the A/C compressor will not engage and a refrigerant leak in the A/C system is suspected, but cannot be found using the factory installed leak detection dye.

1. Recover, evacuate and recharge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
2. Operate the heating and A/C system with the engine at idle under the following conditions for at least 15 minutes.
 - Doors or windows open
 - Transmission in Park or Neutral with the parking brake set (depending on transmission application)
 - A/C and heater controls set to outside air, full cool, panel mode, high blower and A/C compressor engaged
 - If equipped with rear A/C, set rear controls to full cool and high blower
3. Shut the vehicle off and return to. Refer to **LEAK TEST**.

STANDARD PROCEDURE

REFRIGERANT SYSTEM RECOVERY

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

CAUTION: Various aftermarket manufacturers produce A/C system sealants that are designed to stop A/C refrigerant system leaks. The use of A/C system sealants may result in damage to A/C refrigerant recovery/evacuation/recharging equipment and/or the vehicle A/C system and are not recommended for use by Chrysler LLC.

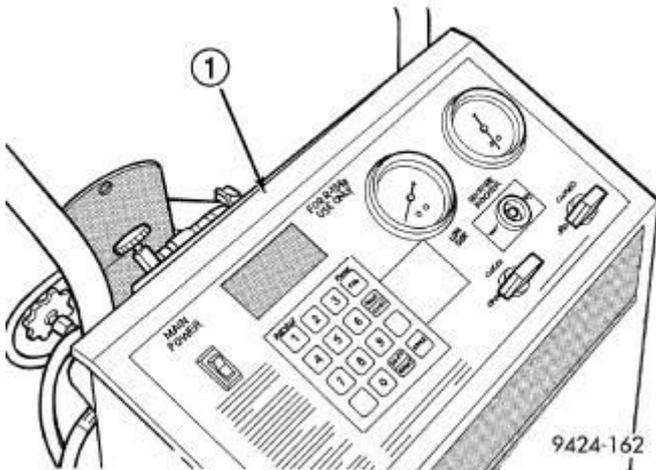


Fig. 106: Identifying R-134a Refrigerant Recovery/Recycling/Charging Station

Courtesy of CHRYSLER GROUP, LLC

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

NOTE: A/C system should be tested prior to refrigerant recovery if the use of A/C system sealants are suspected. These sealants have the potential to clog refrigerant recovery equipment and cause vehicle A/C component damage. Various tool manufacturers make tool kits that detect A/C system sealants. See the operating instructions supplied by the equipment manufacturer for proper care and use of this equipment.

If sealants are detected in an A/C system, the system 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 void the warranty for the A/C system.

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. Refer to **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. Refer to **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. Refer to **PLUMBING, STANDARD PROCEDURE**.

REFRIGERANT SYSTEM CHARGE

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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

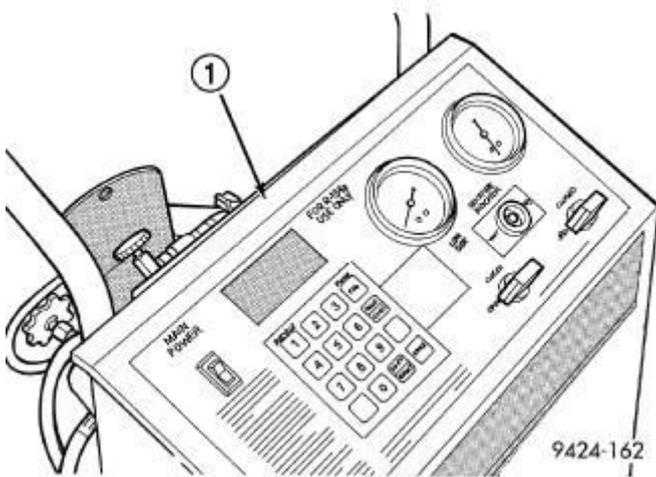


Fig. 107: Identifying R-134a Refrigerant Recovery/Recycling/Charging Station

Courtesy of CHRYSLER GROUP, 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.

Use an R-134a refrigerant recovery/recycling/charging station (1) that meets SAE Standard J2788 to charge the refrigerant system with R-134a refrigerant.

See 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. Refer to **PLUMBING, STANDARD PROCEDURE**.
2. A manifold gauge set and an R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2788 should be connected to the refrigerant system.
3. Measure the proper amount of refrigerant and heat it to 52° C (125° F) with the charging station. Refer to **REFRIGERANT, SPECIFICATIONS**. 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 operating and the blower motor is running at its lowest speed setting. Run the engine at a steady high idle (about 1400 RPM).
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 may 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

COMPRESSOR, A/C - FIXED DISPLACEMENT

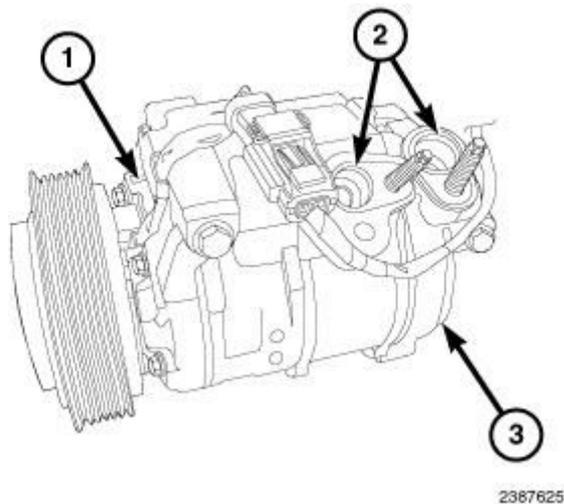


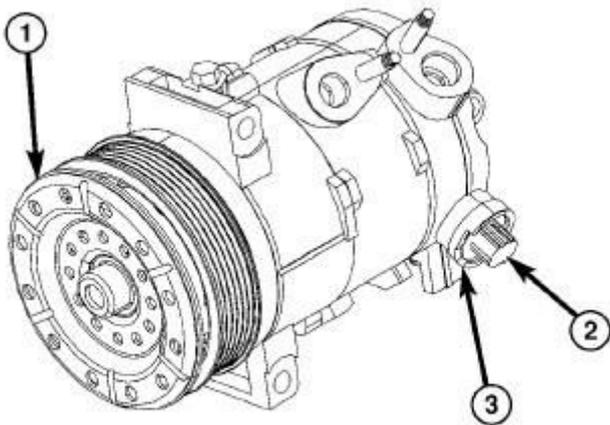
Fig. 108: A/C Compressor -Typical
Courtesy of CHRYSLER GROUP, LLC

2.2L Diesel models are equipped with a clutch operated Denso 10SRE18 A/C compressor (1) with a fixed displacement of 180 cubic centimeters (11 cubic inches). This A/C compressor is a reciprocating, swash plate-type compressor with five double-acting pistons. The A/C compressor has the suction and discharge ports (2) and the 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 the A/C compressor.

COMPRESSOR, A/C - VARIABLE DISPLACEMENT



81df706a

**Fig. 109: A/C Compressor, Control Valve & High Pressure Relief Valve
Courtesy of CHRYSLER GROUP, LLC**

All gasoline engine 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 has a control valve (2) and 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

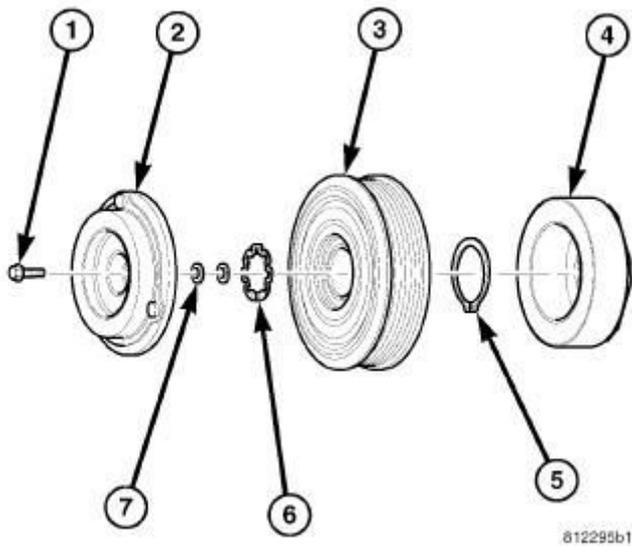


Fig. 110: A/C Compressor Clutch Components
 Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical A/C clutch assembly shown in illustration.

On 2.2L diesel engine equipped models, the clutch assembly for the Denso fixed displacement A/C compressor consists of a stationary electromagnetic A/C clutch 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 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

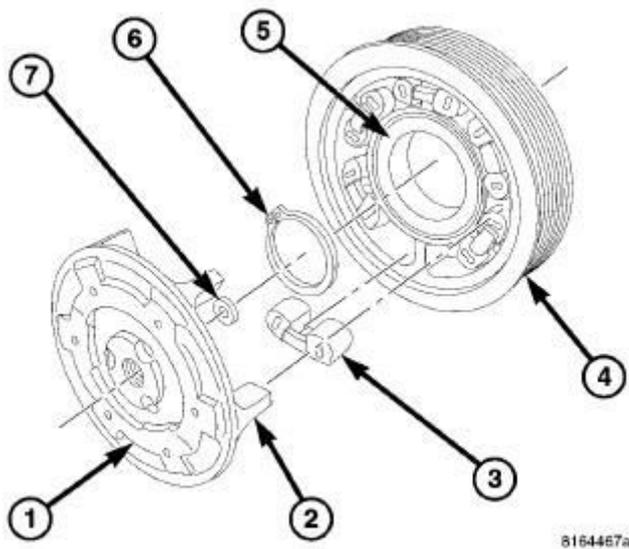


Fig. 111: A/C Compressor Hub And Pulley Assembly
 Courtesy of CHRYSLER GROUP, LLC

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

On all gasoline engine equipped models, 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) that 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. Refer to **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

COMPRESSOR, A/C - FIXED DISPLACEMENT

On 2.2L diesel engine equipped models, the Denso fixed displacement A/C compressor is driven by the engine through an electric clutch, drive pulley and belt arrangement. This A/C compressor is lubricated by refrigerant oil that is circulated throughout the refrigerant system with the refrigerant.

The A/C compressor draws in low-pressure refrigerant vapor from the A/C evaporator through the suction port, then compresses the refrigerant into a high-pressure, high-temperature refrigerant vapor that 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. 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 fixed displacement A/C compressor cannot be repaired and must be replaced if inoperative or damaged. The compressor clutch, pulley and bearing assembly, and clutch coil are available for service if inoperative or damaged. If an internal failure of the A/C compressor has occurred, the A/C condenser/receiver/drier assembly must also be replaced. Refer to **CONDENSER, A/C, REMOVAL**.

COMPRESSOR, A/C - VARIABLE DISPLACEMENT

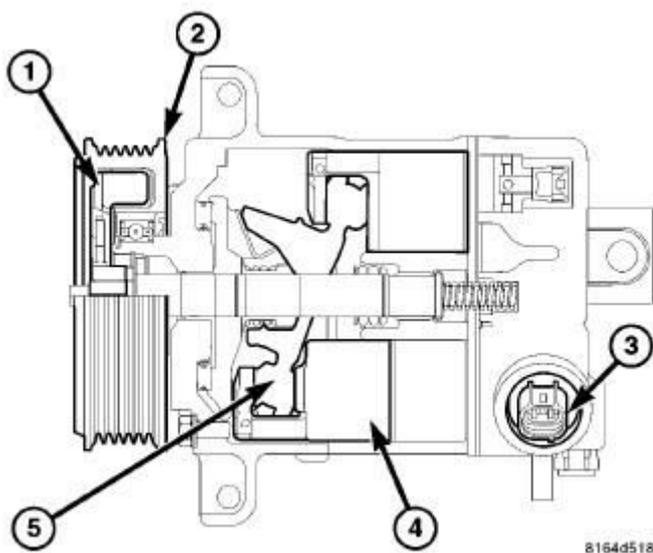


Fig. 112: Cut Away View Of Denso 6SEU16 A/C Compressor
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical variable displacement A/C compressor shown in illustration.

The Denso 6SEU16 A/C compressor used on all gasoline engine equipped models, is a variable displacement compressor (VDC) that 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.

The A/C compressor is controlled by the Powertrain Control Module (PCM). The PCM 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 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. Refer to

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. 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 condenser/receiver/drier assembly must also be replaced. Refer to **CONDENSER, A/C, REMOVAL**.

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

On 2.2L diesel engine equipped models, the clutch components for the Denso 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 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 Engine Control Module (ECM). 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 ECM, which determines if operating conditions are correct for A/C clutch engagement. When all operating conditions have been met, the ECM sends a signal on a dedicated hardwired 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 coil.

The A/C clutch control system is diagnosed using a scan tool.

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

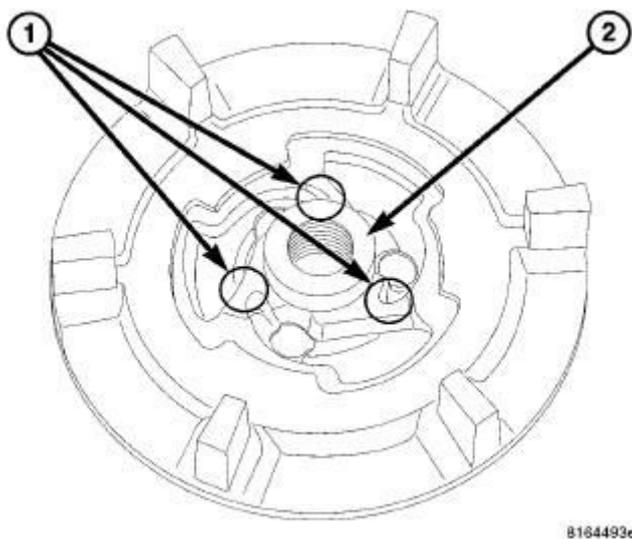


Fig. 113: A/C Compressor Hub
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical clutchless compressor pulley drive hub shown in illustration.

The design of the Denso 6SEU16 variable displacement A/C compressor used on all gasoline engine equipped models, 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. Refer to **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. Refer to **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. Refer to **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 fixed displacement A/C compressor used on 2.2L diesel engine equipped models, is controlled by the Engine Control Module (ECM) through the Totally Integrated Power Module (TIPM) (see appropriate Wiring Information for complete HVAC wiring

diagrams). Begin testing of a suspected compressor clutch coil problem by performing the preliminary checks.

COIL RESISTANCE TEST

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the A/C clutch coil connector.
3. Use an ohm meter and Back Probe Tool (special tool #6801, Terminal Probe) and measure the resistance of the clutch coil at the coil connector terminals.
4. See the **A/C CLUTCH COIL SPECIFICATIONS** chart 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 **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 (special tool #6801, Terminal Probe). 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 Step 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. See the **A/C CLUTCH COIL SPECIFICATIONS** chart for the acceptable A/C clutch 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 COIL SPECIFICATIONS

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

PRELIMINARY CHECKS

1. Using a scan tool, check for Diagnostic Trouble Codes (DTCs) in the A/C-heater control, TIPM and ECM. If no DTCs are found, go to step 2. If any DTCs are found, repair as required.
2. If the A/C compressor clutch still will not engage, verify the refrigerant charge level. Refer to **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.

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. On variable displacement compressors, listen to the A/C compressor while it is operating at maximum and minimum displacement. On fixed displacement compressors, listen to the compressor while the A/C clutch cycles on and off. 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 a variable displacement A/C compressor is operating at maximum displacement, which may not occur when the compressor is at minimum displacement, or when a fixed displacement compressor clutch is engaged.

2. Check the condition of the accessory drive belt. Refer to **BELT, SERPENTINE, DIAGNOSIS AND TESTING** .

NOTE: On variable displacement A/C compressors, the compressor must be replaced if the drive hub is broken or if the compressor shaft does not rotate smoothly.

3. When equipped with a variable displacement A/C compressor, 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. Refer to **COMPRESSOR, A/C, INSPECTION**.
4. When equipped with a fixed displacement A/C compressor, check the compressor clutch retainer. Be certain that the clutch coil is mounted securely to the compressor, and that the clutch plate and pulley are properly aligned and have the correct air gap. Refer to **COMPRESSOR, A/C, INSTALLATION**.

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

5. 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.

6. Loosen all of the compressor mounting hardware and retighten. Refer to **COMPRESSOR, A/C, REMOVAL**.

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.

7. If the noise is from opening and closing of the high pressure relief valve, recover, evacuate and recharge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**. If the high pressure relief valve still does not seat properly, replace the A/C compressor. Refer to **COMPRESSOR, A/C, REMOVAL**.
8. If the noise is from liquid refrigerant slugging in the A/C suction line, check the refrigerant system charge. Refer to **DIAGNOSIS AND TESTING**. If the refrigerant charge is OK, replace the A/C receiver/drier and check the refrigerant oil level. Refer to **DRIER, A/C RECEIVER, REMOVAL and OIL, REFRIGERANT, STANDARD PROCEDURE**.
9. If a slugging condition still exists after replacing the A/C receiver/drier, then replace the A/C compressor. Refer to **COMPRESSOR, A/C, REMOVAL**.

REMOVAL

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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

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

illustrations.

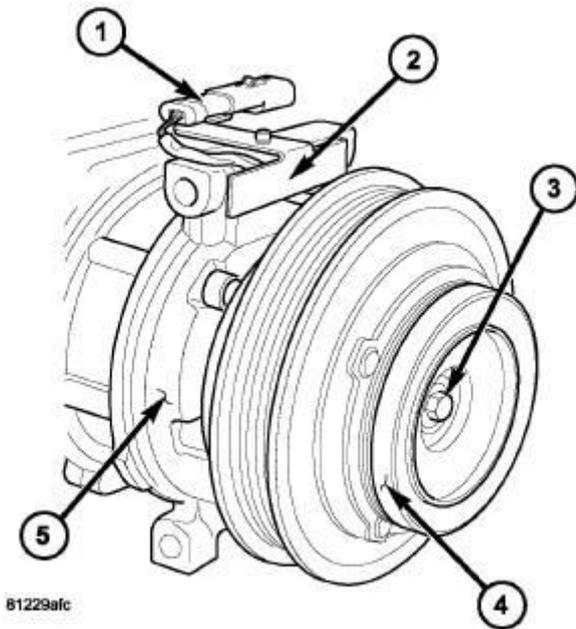


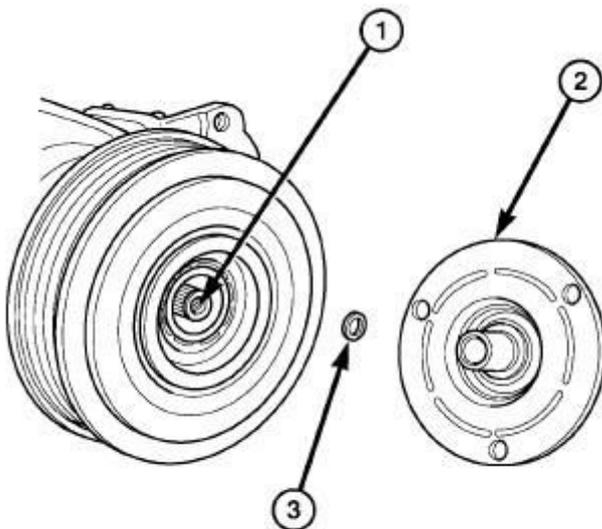
Fig. 114: Locating A/C Compressor Shaft Bolt
 Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the accessory drive belt. Refer to **BELT, SERPENTINE, REMOVAL**.
3. Disconnect the engine wire harness from the compressor clutch coil connector (1) located on the top of the A/C compressor (5).

NOTE: Some models (depending on 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.

4. 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 clutch coil snap rings. Refer to **COMPRESSOR, A/C, REMOVAL**.
5. Carefully remove the compressor clutch coil connector and wire lead from the connector bracket (2).

6. 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.



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Fig. 115: Identifying Compressor Shaft, Clutch Plate & Shim
Courtesy of CHRYSLER GROUP, 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.

7. 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).

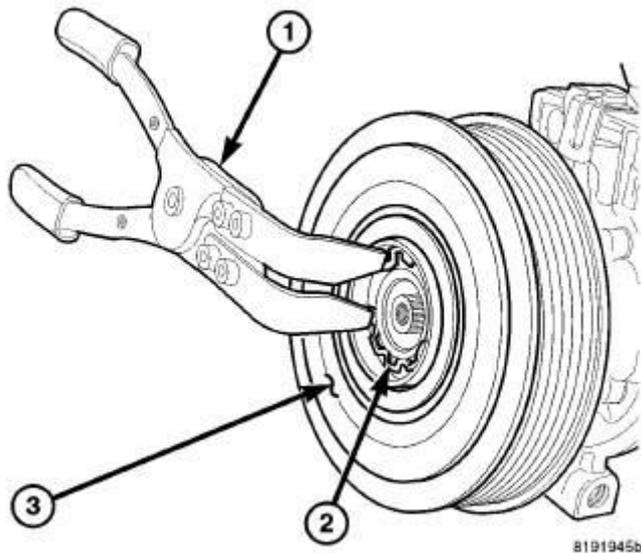


Fig. 116: Clutch Pulley & Snap Ring
 Courtesy of CHRYSLER GROUP, LLC

8. Using A/C Snap Ring Pliers (special tool #9764, Pliers, A/C Snap Ring) (1) or equivalent, 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.

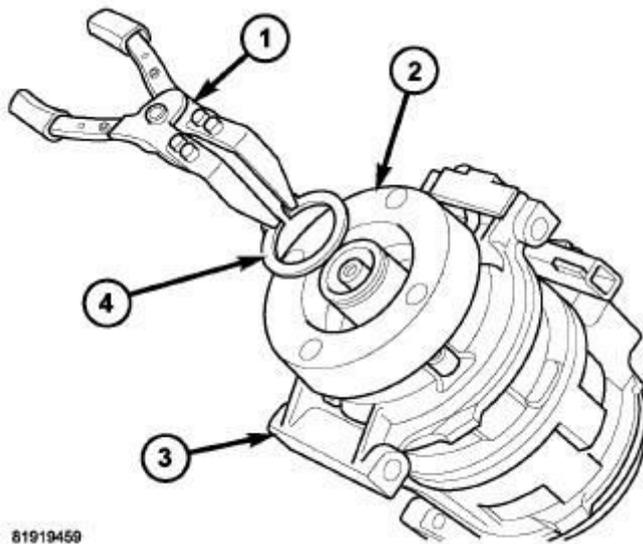


Fig. 117: Clutch Coil And Snap Ring
 Courtesy of CHRYSLER GROUP, LLC

9. Using A/C Snap Ring Pliers (special tool #9764, Pliers, A/C Snap Ring) (1) or equivalent, remove the snap ring (4) that secures the compressor clutch

coil (2) to the front of the A/C compressor (3) and remove the coil.

COMPRESSOR, A/C

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

NOTE: Gasoline engine model shown in illustrations, Diesel engine model similar.

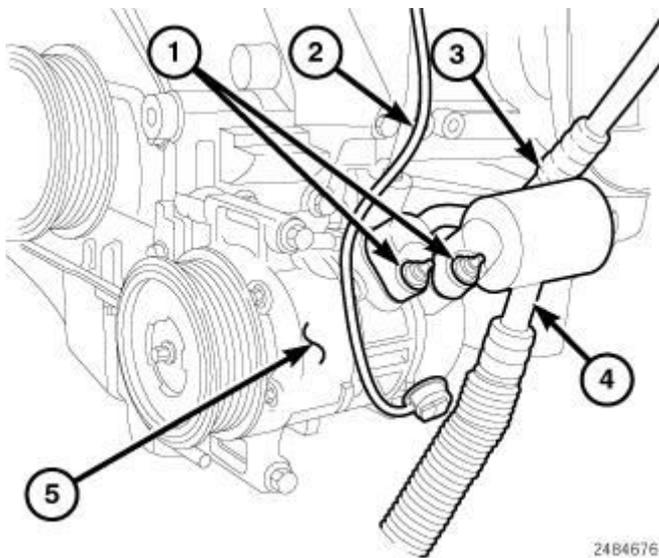
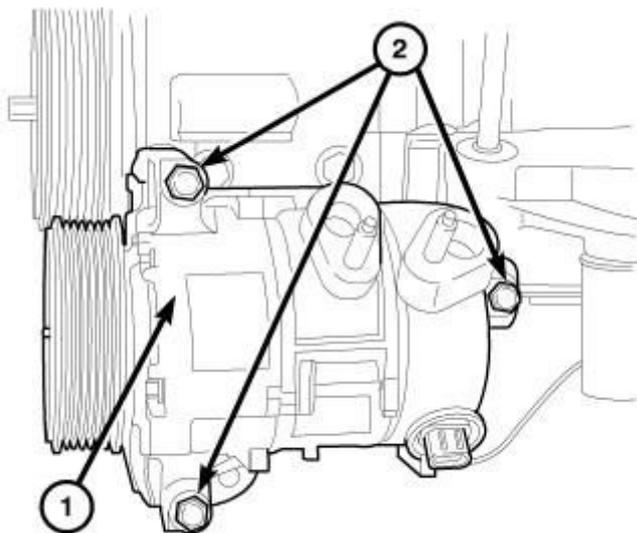


Fig. 118: A/C Compressor-Refrigerant Lines
Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. On gasoline engine models;
 - a. raise and support the vehicle.
 - b. remove the right front wheel. Refer to **REMOVAL** .
 - c. position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
 - d. remove the drive belt splash shield.
4. Remove the accessory drive belt. Refer to **BELT, SERPENTINE**,

REMOVAL .

5. Disconnect the compressor control valve wire lead (2) or clutch coil lead, depending on engine application, from the engine wire harness.
6. Remove the nuts (1) that secure the A/C discharge line (3) and the A/C suction line (4) to the A/C compressor (5).
7. Disconnect the A/C discharge and suction lines from the A/C compressor and remove and discard the O-ring seals and gaskets.

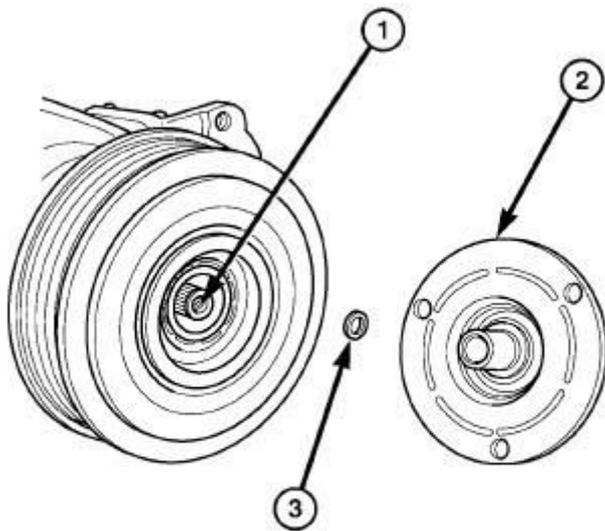


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Fig. 119: Removing/Installing A/C Compressor
Courtesy of CHRYSLER GROUP, LLC

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

INSPECTION**CLUTCH INSPECTION - FIXED DISPLACEMENT A/C COMPRESSOR**



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Fig. 120: Identifying Compressor Shaft, Clutch Plate & Shim
Courtesy of CHRYSLER GROUP, LLC

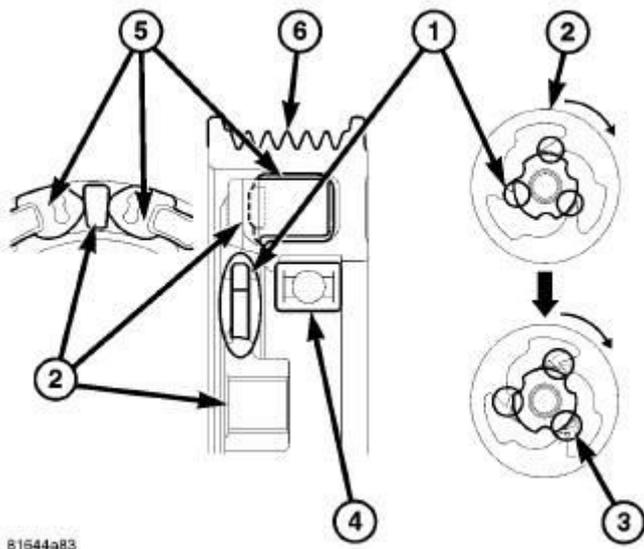
Examine the friction surfaces of the pulley and the clutch plate (2) for wear. The pulley and clutch plate should be replaced if there is excessive wear or scoring.

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.



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Fig. 121: Compressor Hub & Pulley Inspection
 Courtesy of CHRYSLER GROUP, LLC

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

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. Refer to **COMPRESSOR, A/C, REMOVAL**.

INSTALLATION

CLUTCH - FIXED DISPLACEMENT A/C COMPRESSOR

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

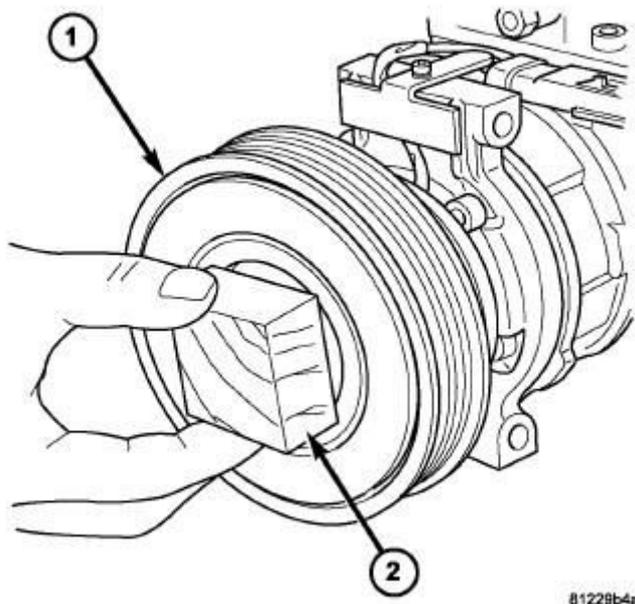


Fig. 123: Identifying Pulley & Bearing Assembly
Courtesy of CHRYSLER GROUP, LLC

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.

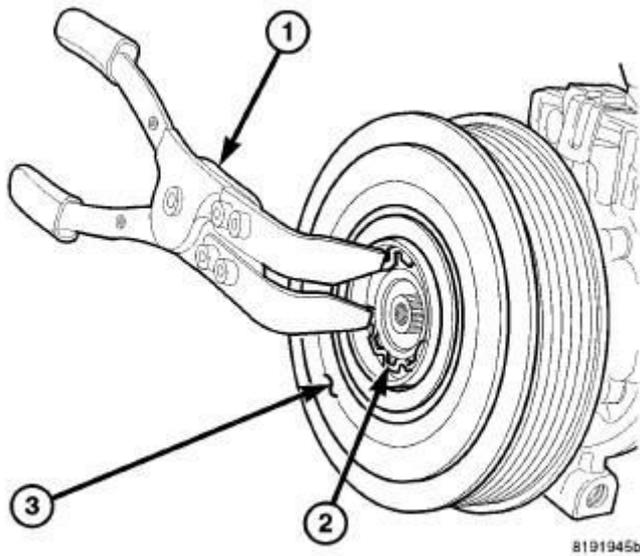
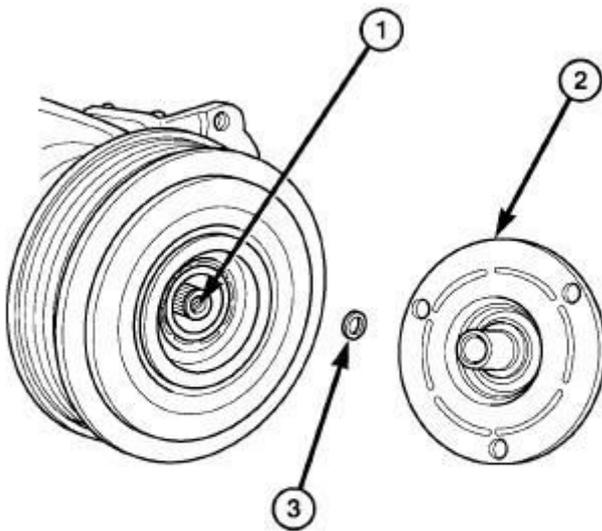


Fig. 124: Clutch Pulley & Snap Ring
Courtesy of CHRYSLER GROUP, LLC

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.

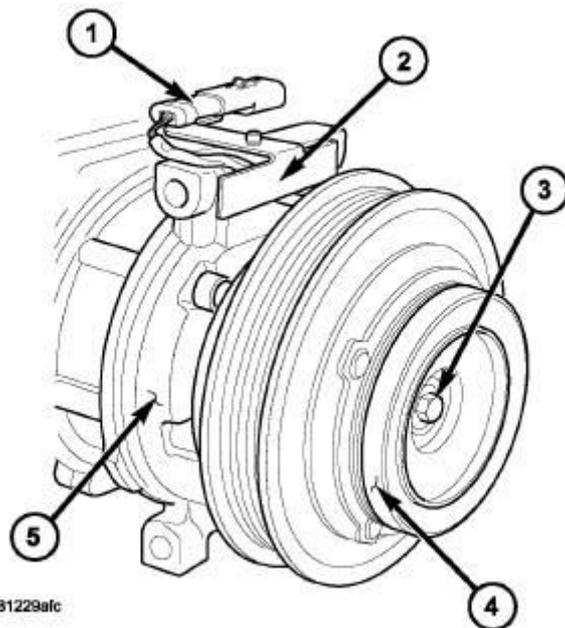
4. Using A/C Snap Ring Pliers (special tool #9764, Pliers, A/C Snap Ring) (1) or equivalent, install the snap ring (2) that secures the pulley and bearing assembly (3) to the front of the A/C compressor. Be certain that the snap ring is fully and properly seated in the groove.



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Fig. 125: Identifying Compressor Shaft, Clutch Plate & Shim
 Courtesy of CHRYSLER GROUP, 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.



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Fig. 126: Locating A/C Compressor Shaft Bolt

Courtesy of CHRYSLER GROUP, 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 coil wire lead behind the connector bracket (2).
10. Install the compressor clutch coil connector (1) onto the connector bracket.
11. Reinstall the A/C compressor onto the engine if removed for A/C clutch service. Refer to **COMPRESSOR, A/C, INSTALLATION**.
12. Connect the engine wire harness to the compressor clutch coil connector.
13. Install the accessory drive belt. Refer to **BELT, SERPENTINE, INSTALLATION**.
14. Reconnect the negative battery cable.

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

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

CAUTION: On late model year gasoline engine equipped vehicles with automatic transaxle, the A/C condenser/receiver/drier assembly must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C condenser/receiver/drier assembly can cause serious damage to the replacement A/C compressor.

NOTE: When replacing multiple A/C system components, see the REFRIGERANT OIL CAPACITIES chart to determine how much oil should be removed from the new A/C compressor. Refer to 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: Gasoline engine model shown in illustrations, Diesel engine model similar.

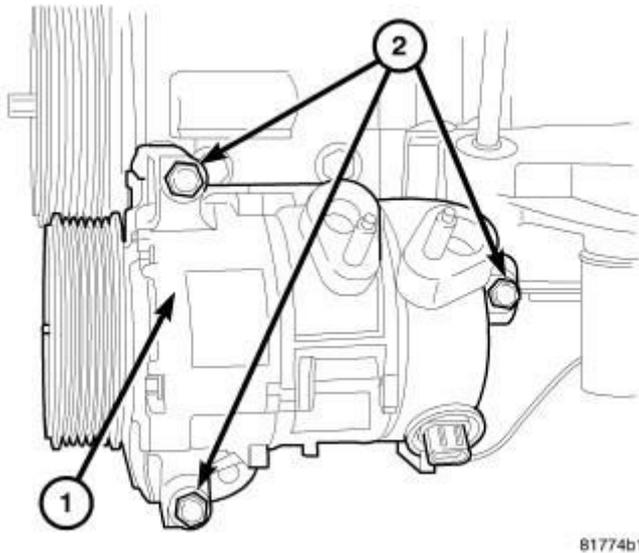


Fig. 127: Removing/Installing A/C Compressor
 Courtesy of CHRYSLER GROUP, LLC

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** chart to determine how much oil should be added to the refrigerant system. Refer to **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.).

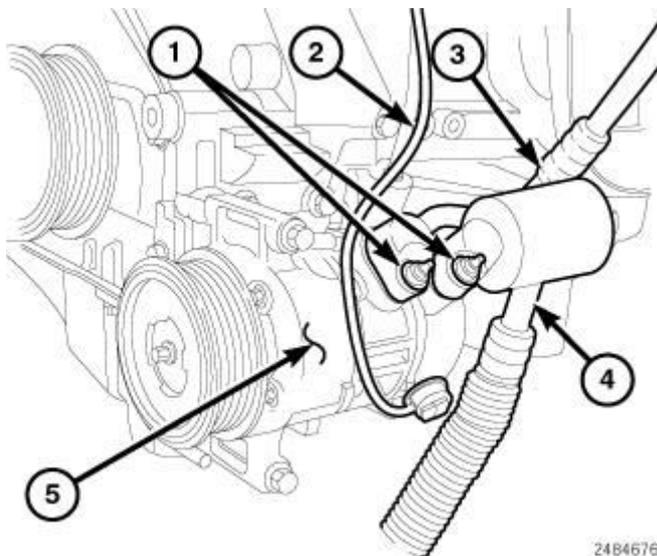


Fig. 128: A/C Compressor-Refrigerant Lines

Courtesy of CHRYSLER GROUP, 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 (3) and the A/C suction line (4) to the A/C compressor (5).
7. Install the nuts (1) 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 compressor control valve wire lead (2) or clutch coil lead, depending on application, to the engine wire harness.
9. Install the accessory drive belt. Refer to **BELT, SERPENTINE, INSTALLATION** .
10. On gasoline engine models;
 - a. install the drive belt splash shield.
 - b. reposition the front portion of the right front wheelhouse splash shield. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
 - c. install the right front wheel. Refer to **INSTALLATION** .
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.

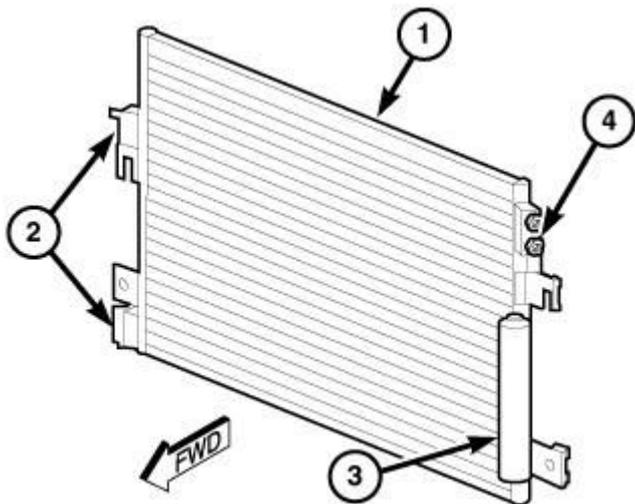
12. Evacuate and charge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

CONDENSER, A/C

DESCRIPTION

DESCRIPTION

NOTE: A/C condenser for late model year gasoline engine with automatic transaxle shown in illustration, Other models similar.



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Fig. 129: A/C Condenser
Courtesy of CHRYSLER GROUP, LLC

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

The A/C condenser has tapping blocks for the A/C refrigerant lines (2) and the integral automatic transmission cooler (4), when equipped.

Early model year gasoline engine equipped vehicles with automatic transaxle have the A/C receiver/drier mounted to the right front frame rail. Refer to **DRIER, A/C RECEIVER, DESCRIPTION**. Late model year gasoline engine equipped vehicles with automatic transaxle have the A/C receiver/drier (3) mounted to the left end of the A/C condenser.

CAUTION: On late model year gasoline engine equipped vehicles with automatic transaxle, the A/C condenser/receiver/drier assembly must be

replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C condenser/receiver/drier assembly can cause serious damage to the replacement A/C compressor.

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: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or

death.

CAUTION: On late model year gasoline engine equipped vehicles with automatic transaxle, the A/C condenser/receiver/drier assembly must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C condenser/receiver/drier assembly can cause serious damage to the replacement A/C compressor.

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.

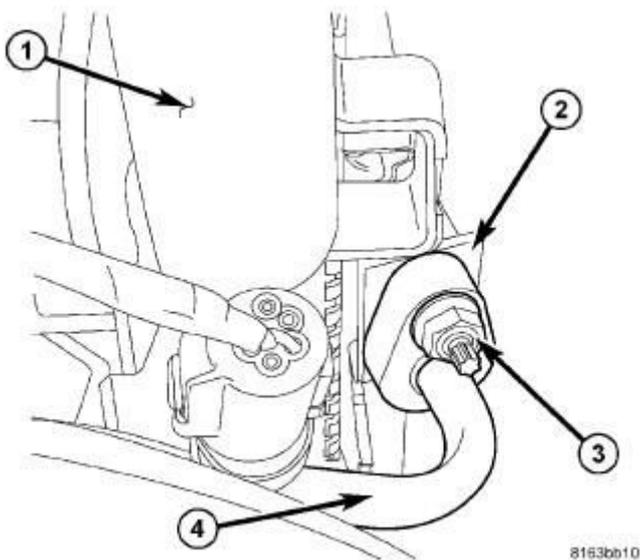


Fig. 130: Discharge Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

3. If equipped with the 2.2L diesel engine, remove the front fascia. Refer to **FASCIA, FRONT, REMOVAL** .
4. If equipped with a gasoline engine, remove the upper radiator support and position it out of the way. Refer to **PANEL, CLOSURE, UPPER, REMOVAL** .
5. On gasoline engine equipped models, carefully push the radiator (1) slightly rearward to gain access to the A/C condenser (2).
6. Remove the nut (3) that secures the A/C discharge line (4) to the right side of the A/C condenser and remove and discard the O-ring seal and gasket.
7. Install plugs in, or tape over the opened discharge line fitting and the condenser inlet port.

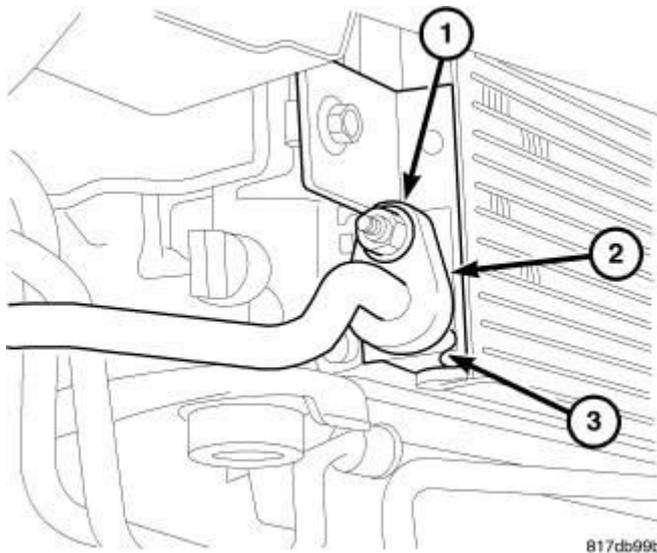


Fig. 131: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

8. Raise and support the vehicle.

NOTE: On gasoline engine equipped models, reach up through the opening in the bottom of the front fascia located in the right front corner of the vehicle to gain access to the A/C liquid line.

9. Remove the nut (1) that secures the A/C liquid line (2) to the right side of

the A/C condenser (3).

10. Disconnect the A/C liquid line from the A/C condenser and remove and discard the O-ring seal and gasket.
11. Install plugs in, or tape over the opened liquid line fitting and the condenser outlet port.

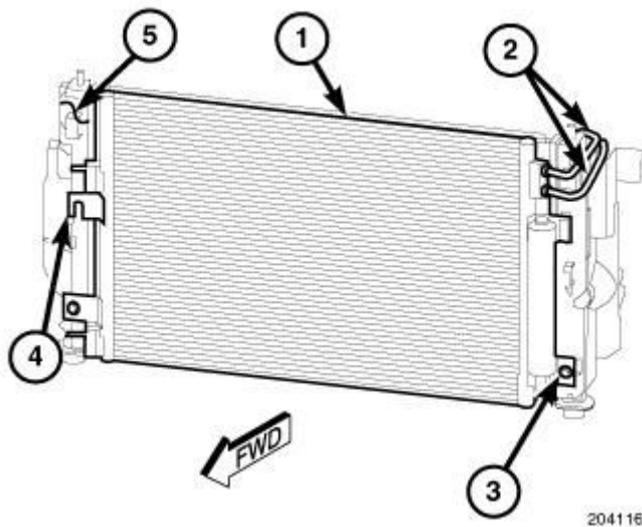


Fig. 132: Identifying A/C Condenser, Radiator & Upper Condenser Brackets

Courtesy of CHRYSLER GROUP, LLC

NOTE: A/C condenser for late model year gasoline engine with automatic transaxle shown in illustration, Other models similar.

NOTE: Illustration shown with front fascia and diesel engine charge air cooler (CAC) (when equipped) removed for clarity.

12. Remove the two bolts (3) that secure the lower condenser brackets to the radiator (5).
13. Lower the vehicle.
14. If equipped, disconnect the automatic transmission cooler lines (2) from the left side of the A/C condenser (1). Refer to **TUBES AND HOSES, TRANSMISSION OIL COOLER, STANDARD PROCEDURE** .
15. If equipped with the 2.2L diesel engine, remove the charge air cooler (CAC).

- Carefully lift the A/C condenser straight up and disengage the two upper condenser brackets (4) from the radiator 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. 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: On late model year gasoline engine equipped vehicles with automatic transaxle, the A/C condenser/receiver/drier assembly must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C condenser/receiver/drier assembly can cause serious damage to the replacement A/C compressor.

NOTE: If the A/C condenser is being replaced, add 10 milliliters (0.3 fluid ounce) of refrigerant oil to the refrigerant system. If the A/C condenser is equipped with an A/C receiver/drier, be sure to add an addition 30 milliliters (1.0 fluid ounce) of refrigerant oil. When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**. 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.

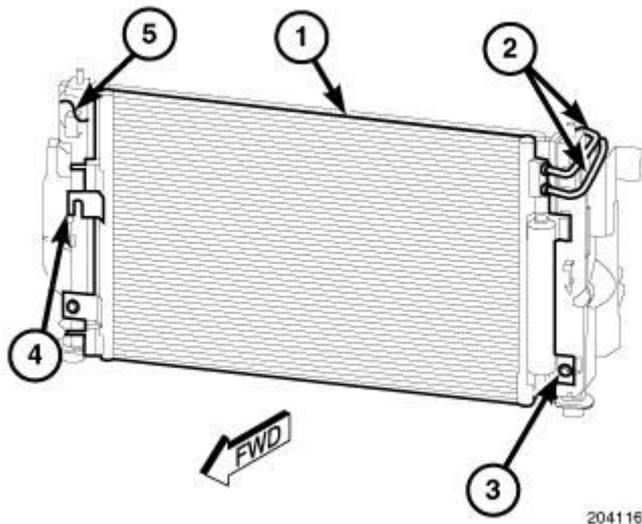


Fig. 133: Identifying A/C Condenser, Radiator & Upper Condenser Brackets

Courtesy of CHRYSLER GROUP, LLC

NOTE: A/C condenser for late model year gasoline engine with automatic transaxle shown in illustration, Other models similar.

NOTE: Illustration shown with front fascia and diesel engine charge air cooler (CAC) (when equipped) removed for clarity.

1. Carefully lower the A/C condenser (1) straight down in front of the radiator (5) and engage the upper condenser brackets (4) to the radiator.
2. If equipped with the 2.2L diesel engine, install the charge air cooler (CAC).
3. If equipped, connect the automatic transmission cooler lines (2) to the left side of the A/C condenser. Refer to **TUBES AND HOSES, TRANSMISSION OIL COOLER, STANDARD PROCEDURE** .
4. Raise and support the vehicle.
5. Install the two bolts (3) that secure the lower condenser brackets to the radiator. Tighten the bolts to 4.5 N.m (40 in. lbs.).

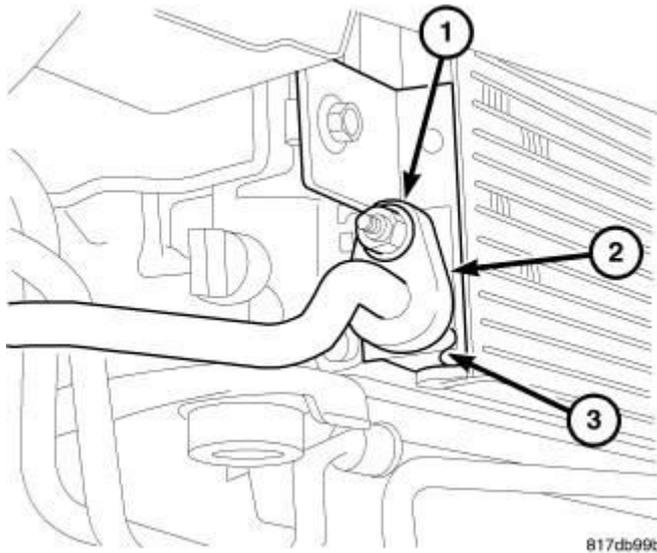


Fig. 134: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

NOTE: On gasoline engine equipped models, reach up through the opening in the bottom of the front fascia located in the right front corner of the vehicle to gain access to the A/C liquid line.

6. Remove the tape or plug from the liquid line fitting and the condenser outlet port.
7. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the liquid line fitting. Use only the specified O-ring as it is 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.
8. Connect the A/C liquid line (2) to the A/C condenser (3) and install the retaining nut (1). Tighten the nut to 5 N.m (44 in. lbs.).

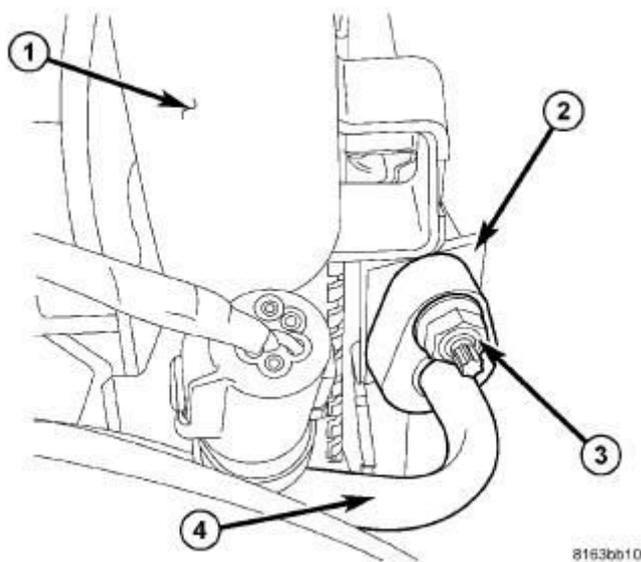


Fig. 135: Discharge Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

9. Lower the vehicle.
10. Remove the tape or plug from the discharge line fitting and the condenser inlet port.
11. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the discharge line fitting. Use only the specified O-ring as it is 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.
12. On gasoline engine equipped models, carefully push the radiator (1) slightly rearward to gain access to the A/C condenser (2).
13. Connect the A/C discharge line (4) to the A/C condenser and install the retaining nut (3). Tighten the nut to 5 N.m (44 in. lbs.).
14. If equipped with a gasoline engine, reposition and install the upper radiator support. Refer to **PANEL, CLOSURE, UPPER, INSTALLATION** .
15. If equipped with the 2.2L diesel engine, install the front fascia. Refer to **FASCIA, FRONT, INSTALLATION** .
16. 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. Failure to follow this caution will

result in serious A/C compressor damage.

17. Evacuate the refrigerant system Refer to **PLUMBING, STANDARD PROCEDURE**.
18. If the A/C condenser is being replaced, add 10 milliliters (0.3 fluid ounce) of refrigerant oil to the refrigerant system. If the A/C condenser is equipped with an A/C receiver/drier, be sure to add an addition 30 milliliters (1.0 fluid ounce) of refrigerant oil. When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
19. Charge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

CORE, HEATER

DESCRIPTION

DESCRIPTION

NOTE: LHD model shown in illustration, RHD model similar.

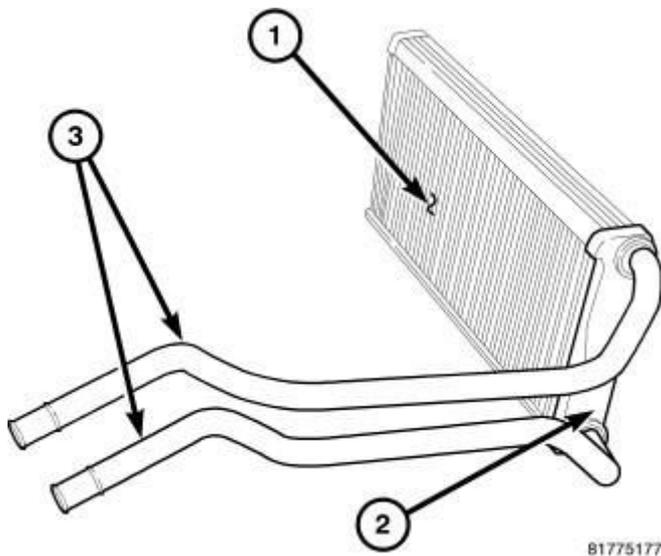


Fig. 136: Heater Core
Courtesy of CHRYSLER GROUP, LLC

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: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

NOTE: The HVAC housing assembly must be removed from vehicle for service of the heater core.

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

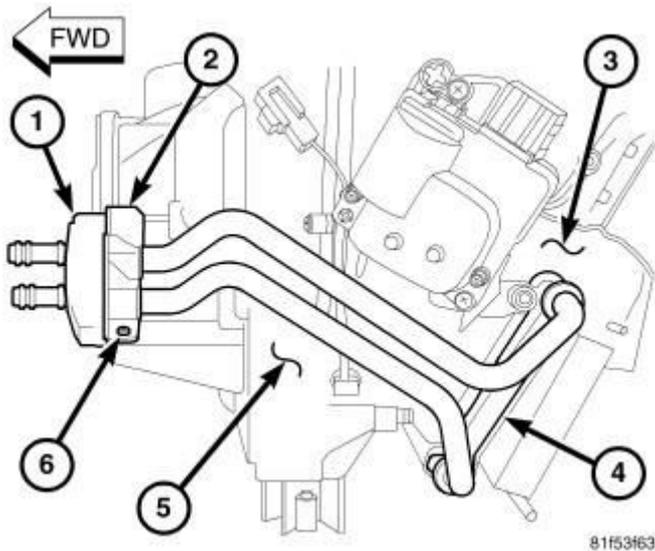


Fig. 137: Foam Seal, Flange, Air Distribution Housing, Heater Core, HVAC Housing & Screw

Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. Remove the left side front floor duct. Refer to **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 Refer to **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 in illustration, RHD and heater-only models similar.

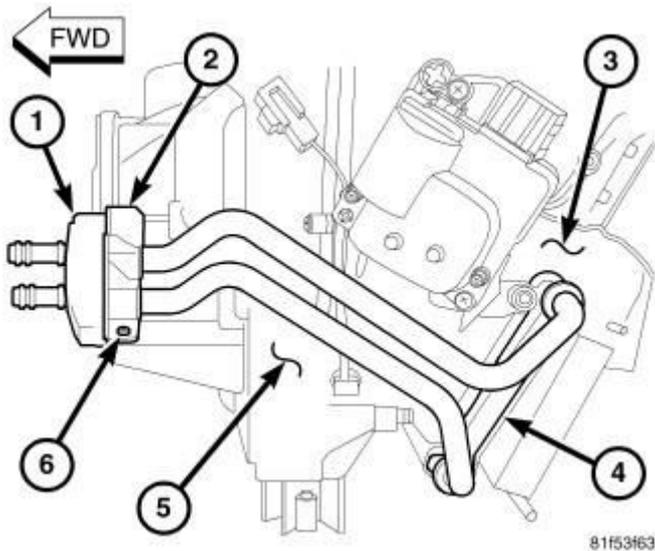


Fig. 138: Foam Seal, Flange, Air Distribution Housing, Heater Core, HVAC Housing & Screw

Courtesy of CHRYSLER GROUP, 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). Refer to **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. Refer to **DUCT, FLOOR DISTRIBUTION, INSTALLATION**.

NOTE: If the heater core is being replaced, flush the cooling system. Refer to **STANDARD PROCEDURE** .

7. Install the HVAC housing assembly. Refer to **HOUSING, HVAC, INSTALLATION**.

CORE, SERVICE PORT VALVE

DESCRIPTION

DESCRIPTION

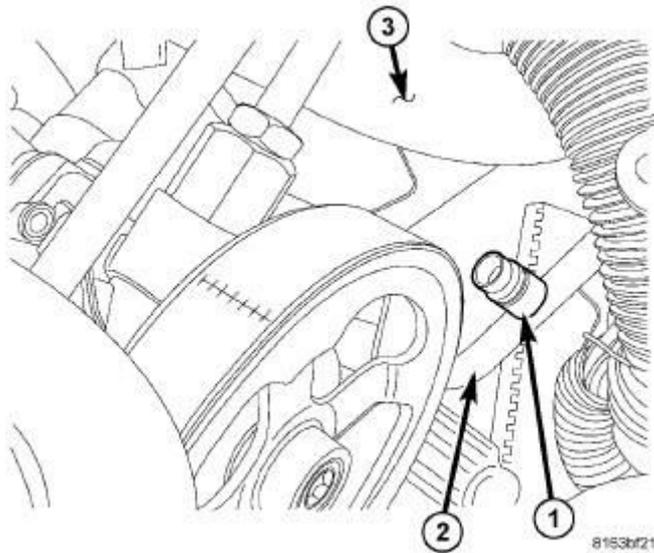


Fig. 139: High Side Service Port
Courtesy of CHRYSLER GROUP, LLC

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 (1) is located on the A/C discharge line (2) in front of the engine, below the upper radiator hose (3).

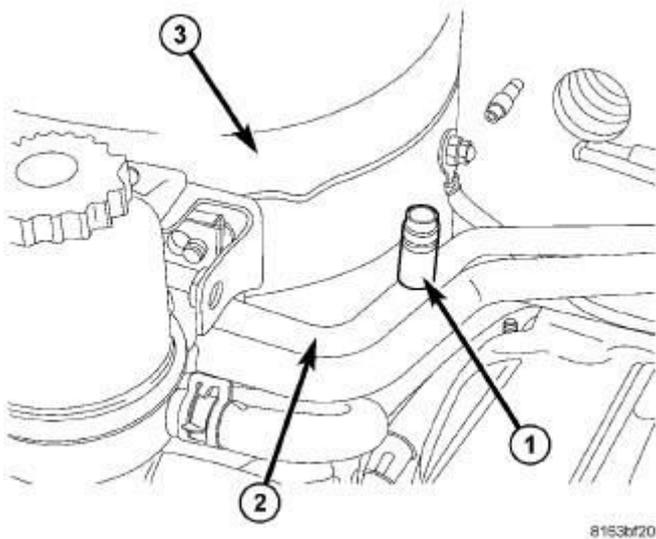


Fig. 140: Low Side Service Port
Courtesy of CHRYSLER GROUP, LLC

The low side service port (1) is located on the A/C liquid line (2) near the right front strut tower (3). 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 cap onto the service port 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 components.

REMOVAL

REMOVAL

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

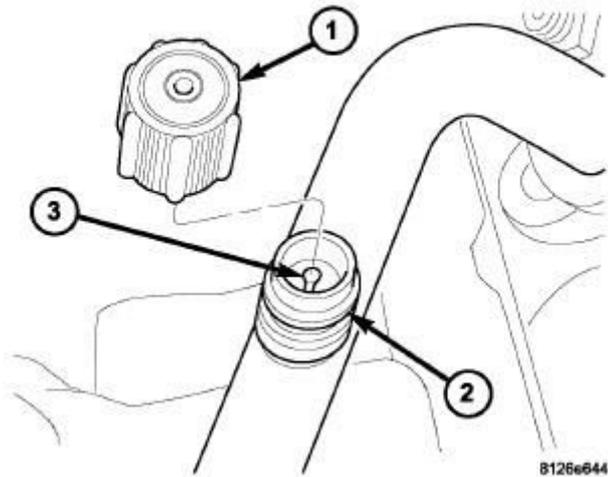


Fig. 141: Identifying A/C Service Port Components
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical A/C service port shown in illustration.

1. Remove the protective cap (1) from the service port (2).
2. Recover the refrigerant from the refrigerant system. Refer to **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

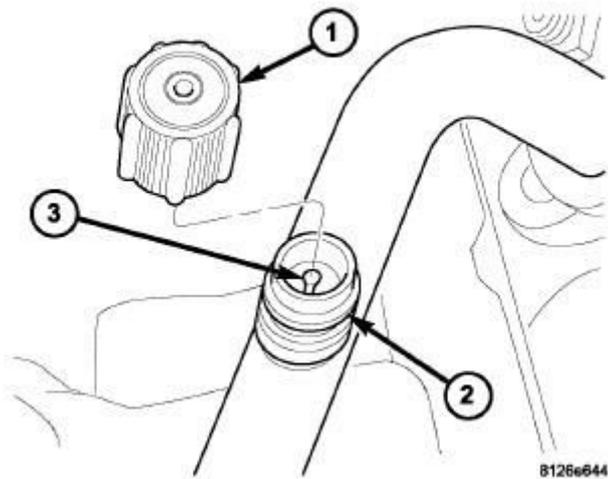


Fig. 142: Identifying A/C Service Port Components
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical A/C service port shown in illustration.

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. Failure to follow this caution will result in serious A/C compressor damage.

4. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD**

PROCEDURE.

- Charge the refrigerant system. Refer to **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.

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

DRIER, A/C RECEIVER**DESCRIPTION****DESCRIPTION**

The A/C receiver/drier is part of the high-side of the A/C system. The A/C receiver/drier stores any unused refrigerant, filters and 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 located on the right front frame rail or on the A/C condenser, depending on engine and transaxle application.

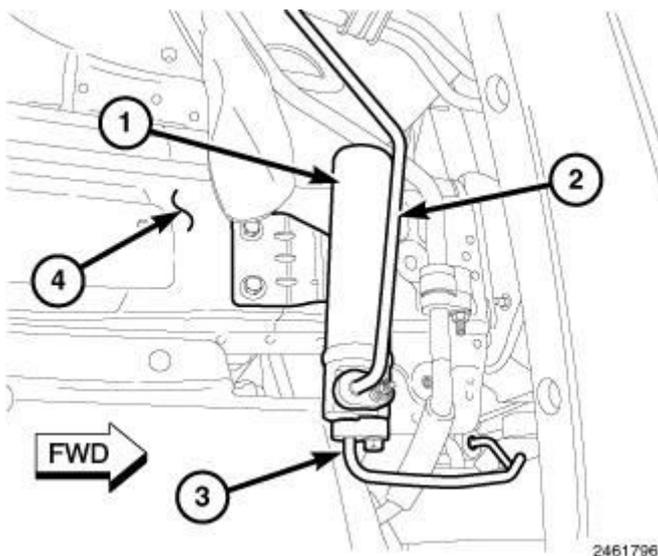


Fig. 143: Identifying A/C Receiver/Drier, A/C Liquid Line & Right Front Frame Rail

Courtesy of CHRYSLER GROUP, LLC

On all early model vehicles, the A/C receiver/drier (1) is mounted to the right front frame rail (4). On late model vehicles, only the gasoline and diesel engine models with manual or Constant Velocity Transaxle (CVT) have the A/C receiver/drier mounted to the frame rail. Late model gasoline engine equipped vehicles with automatic transaxle have the A/C receiver/drier mounted to the A/C condenser.

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

The A/C liquid line (2) and jumper line (3) are attached to the A/C receiver/drier and the connections are sealed by use of metal gaskets with rubber O-ring seals.

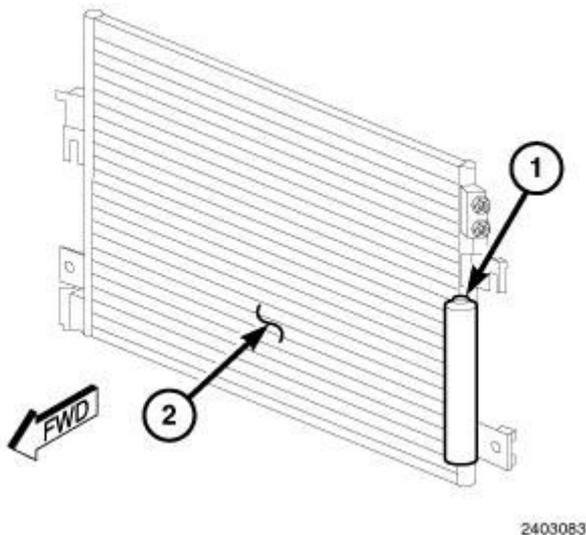


Fig. 144: A/C Receiver/Drier & Condenser
Courtesy of CHRYSLER GROUP, LLC

On late model gasoline engine equipped vehicles with automatic transaxle, the A/C receiver/drier (1) is mounted to the left end of the A/C condenser (2) and must be replaced with the condenser as an assembly.

CAUTION: On late model year gasoline engine equipped vehicles with automatic transaxle, the A/C condenser/receiver/drier assembly must be replaced if an internal failure of the A/C

compressor has occurred. Failure to replace the A/C condenser/receiver/drier assembly can cause serious damage to the replacement A/C compressor.

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 the safety precautions and warnings in this Service Information before performing this procedure. Failure to follow these instructions may result in serious injury or death.

NOTE: LHD model shown in illustration, RHD model similar.

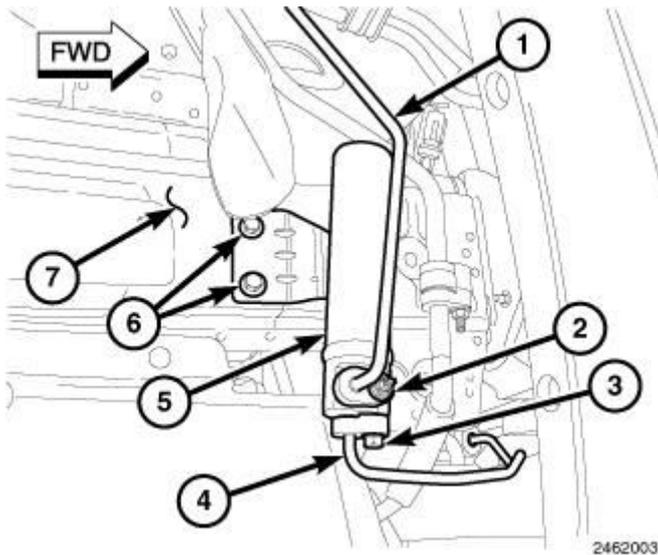


Fig. 145: Identifying A/C Receiver/Drier, Right Front Frame Rail & Retaining Bolts

Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Raise and support the vehicle.
4. Remove the right front wheel. Refer to **REMOVAL** .
5. Position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
6. Remove the nut (2) that secures the A/C refrigerant line (1) to the A/C receiver/drier (5).
7. Disconnect the A/C liquid line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.
8. Remove the bolt (3) that secures the liquid jumper line (4) to the A/C receiver/drier.
9. Disconnect the jumper line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.
10. Remove the A/C suction line from the plastic bracket located on the A/C receiver/drier.
11. Remove the two bolts (6) that secure the A/C receiver/drier to the right front frame rail (7) and remove the receiver/drier.

12. Install plugs in, or tape over the opened refrigerant line fittings and receiver/drier ports.

INSTALLATION

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. 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: 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, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **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 illustration, RHD model similar.

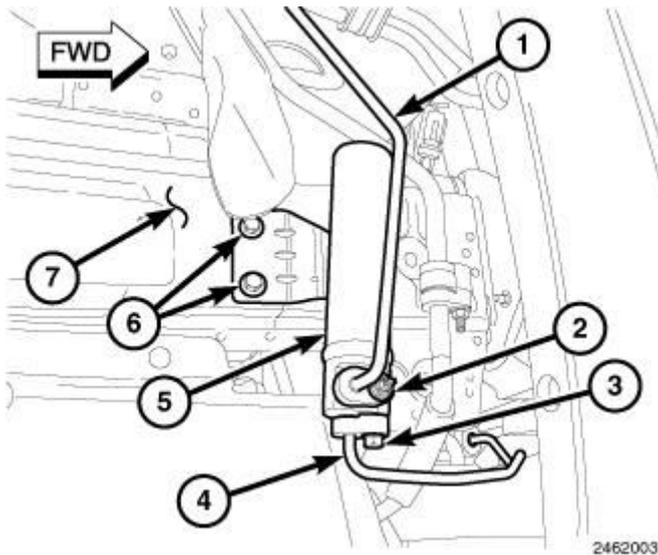


Fig. 146: Identifying A/C Receiver/Drier, Right Front Frame Rail & Retaining Bolts

Courtesy of CHRYSLER GROUP, LLC

1. Position the A/C receiver/drier (5) to the right front frame rail (7) and install the retaining bolts (6). Tighten the bolts to 15 N.m (11 ft. lbs.).
2. Install the A/C suction line into the plastic bracket on the A/C receiver/drier.
3. Remove the tape or plugs from the refrigerant line fittings and the receiver/drier ports.
4. Lubricate new O-ring seals and gaskets with clean refrigerant oil and install them onto the refrigerant line fittings. Use only the specified O-ring seals and gaskets 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 A/C liquid line (1) to the A/C receiver/drier and install the retaining nut (2). Tighten the nut to 5 N.m (44 in. lbs.).
6. Connect the liquid jumper line (4) to the A/C receiver/drier and install the retaining bolt (3). Tighten the bolt to 5 N.m (44 in. lbs.).
7. Reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
8. Install the right front wheel. Refer to **INSTALLATION** .
9. Lower the vehicle.
10. Reconnect the negative battery cable.

CAUTION: Do NOT run the engine with a vacuum pump in

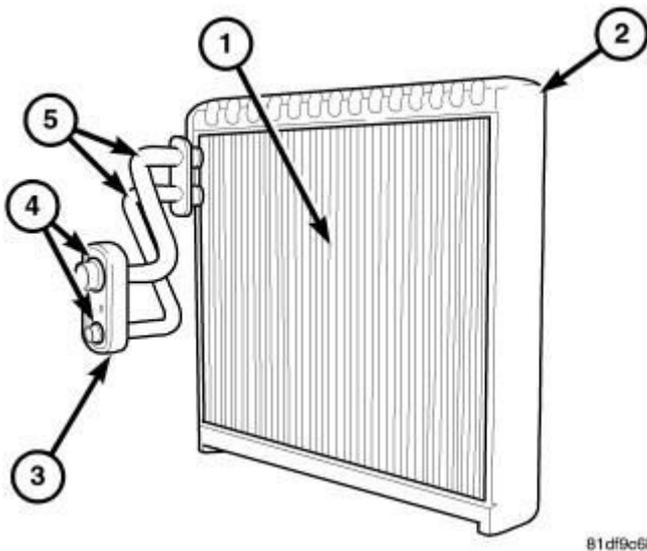
operation or with a vacuum present within the A/C system when equipped with the Denso 6SEU16 variable displacement compressor. Failure to follow this caution will result in serious A/C compressor damage.

11. Evacuate the refrigerant system Refer to **PLUMBING, STANDARD PROCEDURE**.
12. If the A/C receiver drier is being replaced, add 30 milliliters (1.0 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
13. Charge the A/C system. Refer to **PLUMBING, STANDARD PROCEDURE**.

EVAPORATOR, A/C

DESCRIPTION

DESCRIPTION



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Fig. 147: A/C Evaporator, Insulator, Tapping Block, O-Ring Seals & A/C Evaporator Tubes

Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, 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 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

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

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

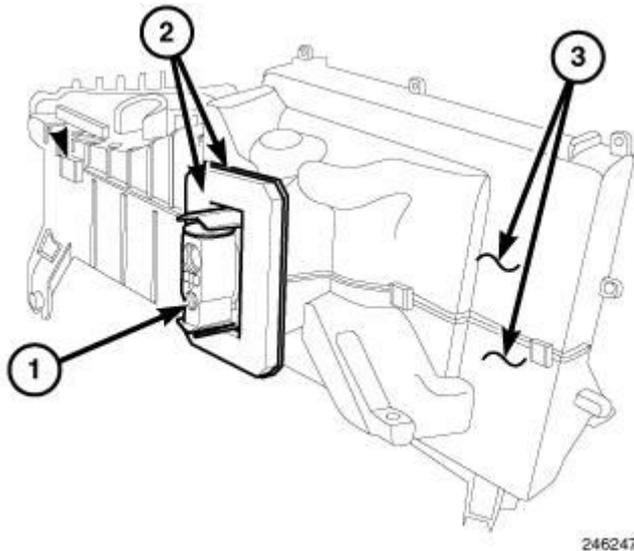


Fig. 148: A/C Expansion Valve, Foam Seal, Plastic Flange & HVAC Housing
Courtesy of CHRYSLER GROUP, LLC

1. Remove the HVAC housing assembly and place it on a workbench. Refer to **HOUSING, HVAC, REMOVAL**.
2. Remove the two bolts that secure the A/C expansion valve (1) to the A/C evaporator and remove the valve. Refer to **VALVE, A/C EXPANSION, REMOVAL**.
3. Remove and discard the O-ring seals and install plugs in, or tape over the opened expansion valve and evaporator tube ports.

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

4. Remove the foam seal and plastic flange (2) from the front of the two halves of the HVAC housing (3). 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.
5. Remove any residual sealer from the flange area at the front of the two halves of the HVAC housing.

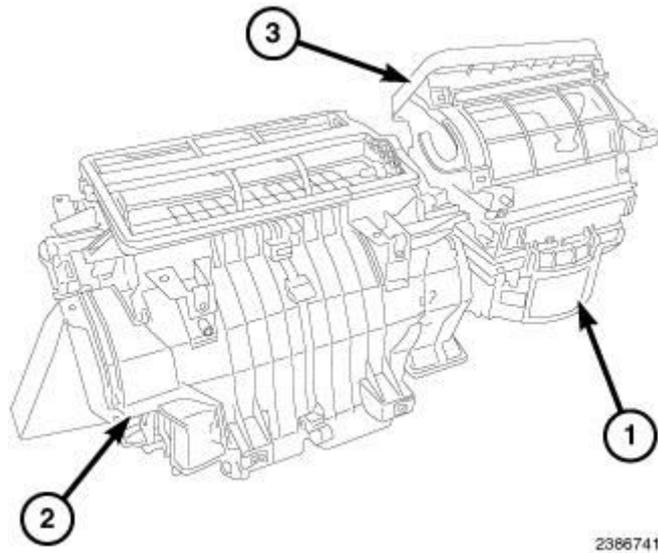


Fig. 149: HVAC Housing, Air Inlet Housing & Air Distribution Housing
Courtesy of CHRYSLER GROUP, LLC

6. Remove the air distribution housing (2) from the HVAC housing (1). Refer to **HOUSING, HVAC, REMOVAL**.

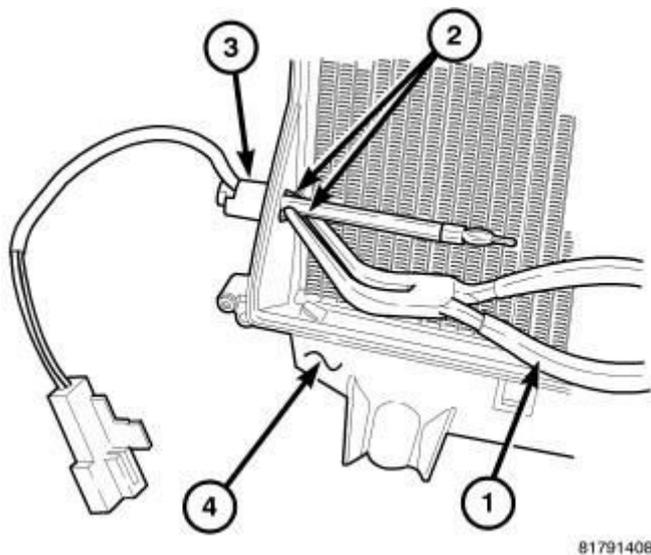


Fig. 150: Evaporator Temperature Sensor, HVAC Housing, Tabs & Needle Nose Pliers
Courtesy of CHRYSLER GROUP, LLC

7. 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.

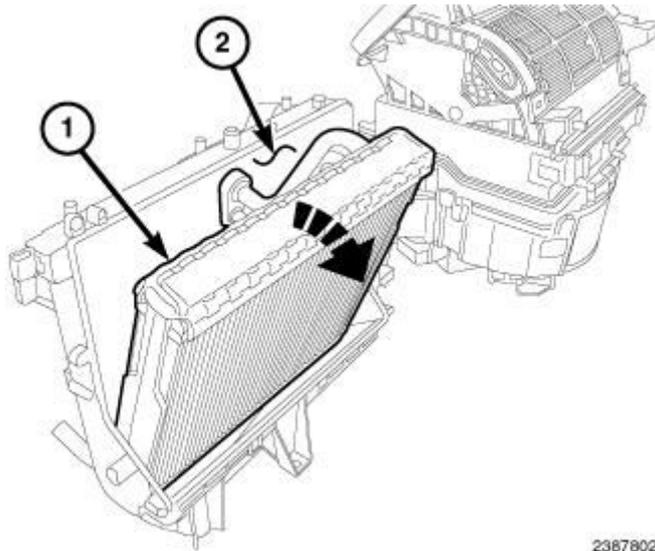


Fig. 151: A/C Evaporator & HVAC Housing
Courtesy of CHRYSLER GROUP, LLC

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

- Carefully tip the top of the A/C evaporator (1) rearward and remove the evaporator from the back of the HVAC housing (2).

INSTALLATION

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. 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.

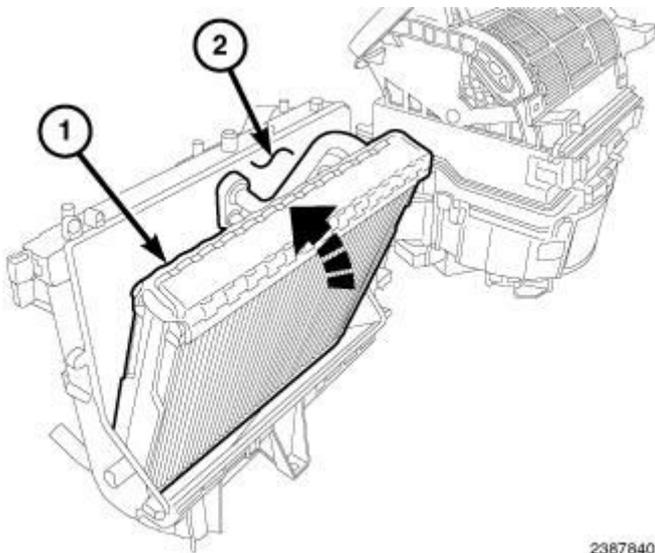
NOTE: When replacing multiple A/C system components, see the REFRIGERANT OIL CAPACITIES chart to determine how much oil should be added to the refrigerant system. Refer to OIL, REFRIGERANT, STANDARD PROCEDURE.

NOTE: If only the A/C evaporator is being replaced, add 20 milliliters (0.7 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 in illustrations, RHD model similar.



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Fig. 152: A/C Evaporator & HVAC Housing
Courtesy of CHRYSLER GROUP, 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) into the HVAC housing (2).

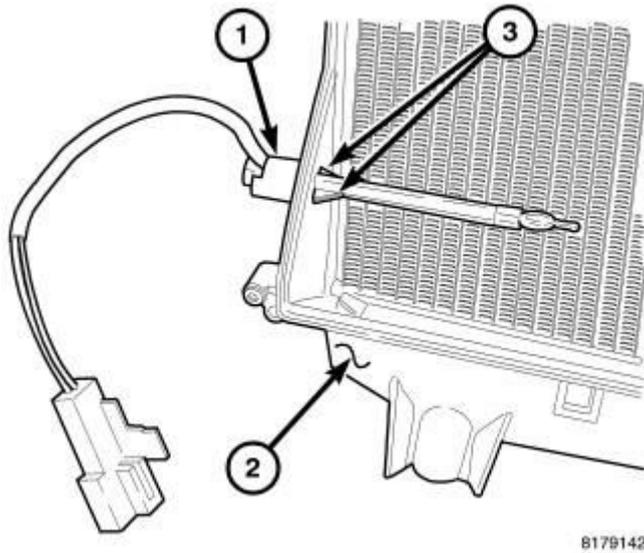


Fig. 153: Evaporator Temperature Sensor, HVAC Housing & Retaining Tabs

Courtesy of CHRYSLER GROUP, LLC

2. 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.

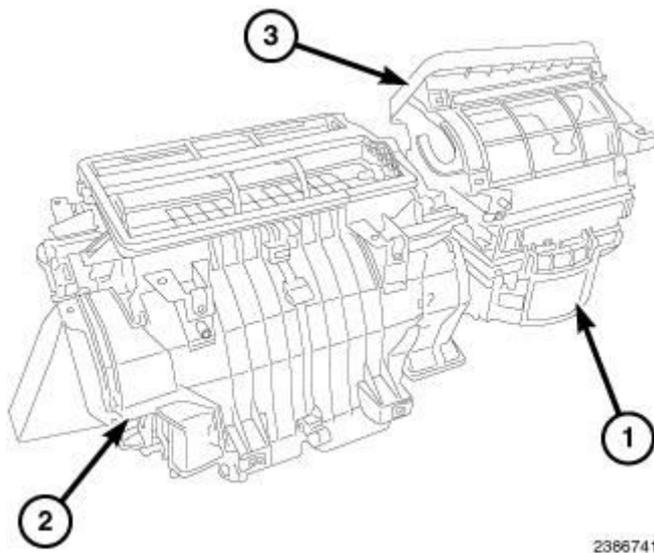


Fig. 154: HVAC Housing, Air Inlet Housing & Air Distribution Housing
 Courtesy of CHRYSLER GROUP, LLC

3. Install the air distribution housing (2) onto the HVAC housing (1). Refer to **HOUSING, HVAC, INSTALLATION**.

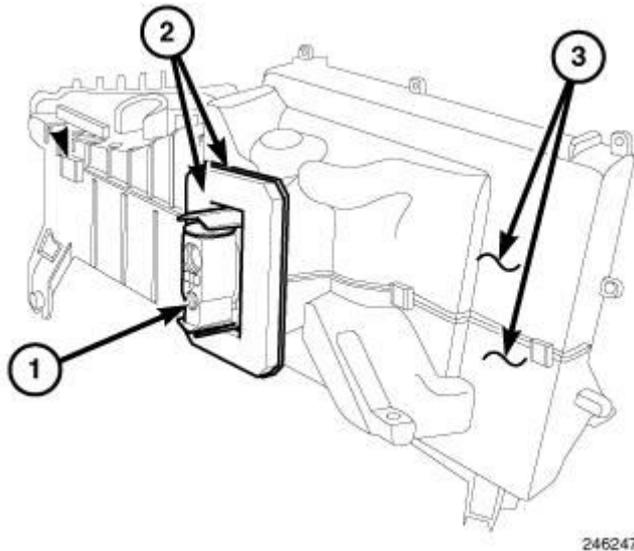


Fig. 155: A/C Expansion Valve, Foam Seal, Plastic Flange & HVAC Housing

Courtesy of CHRYSLER GROUP, LLC

4. Install a bead of silicone sealer around the flange area at the front of the HVAC housing (3).

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

5. 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.
6. Remove the tape or plugs from the expansion valve and evaporator ports.
7. 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.
8. Install the A/C expansion valve (1) and the two retaining bolts. Tighten the bolts to 11 N.m (97 in. lbs.). Refer to **VALVE, A/C EXPANSION, INSTALLATION**.
9. Install the HVAC housing. Refer to **HOUSING, HVAC, INSTALLATION**.
10. If the A/C evaporator is being replaced, add 20 milliliters (0.7 fluid ounce) of refrigerant oil to the refrigerant system. When replacing multiple A/C system components, see the **REFRIGERANT OIL CAPACITIES** chart to

determine how much oil should be added to the refrigerant system. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.

LINE, A/C DISCHARGE

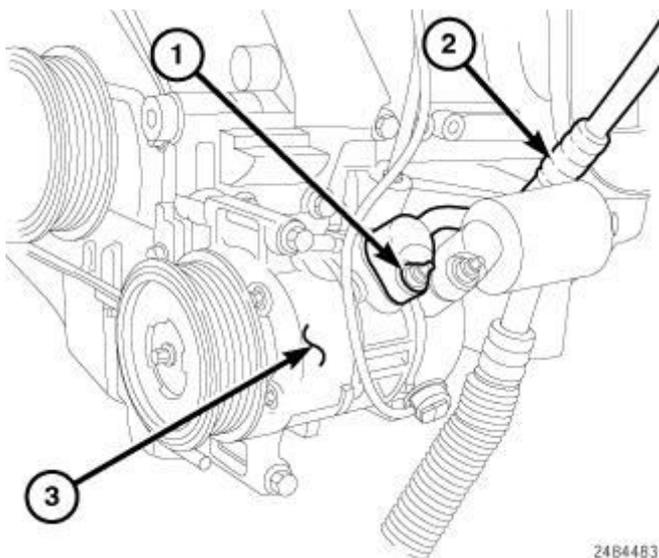
REMOVAL

REMOVAL

WARNING: Review the safety precautions and warnings in this Service Information before performing this procedure. Failure to follow these instructions may result in serious injury or death.

CAUTION: If replacing the A/C discharge line, be sure to use the discharge line designed for the A/C compressor in the vehicle. Failure to use the correct A/C discharge line may result in possible discharge line or compressor damage.

NOTE: It is not necessary to remove the front fascia for A/C discharge line service.



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Fig. 156: A/C Discharge Line-Compressor
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical engine shown in illustration.

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. On gasoline engine equipped models, raise and support the vehicle.
4. Remove the nut (1) that secures the A/C discharge line (2) to the A/C compressor (3).
5. Disconnect the A/C discharge line from the A/C compressor and remove and discard the O-ring seal and gasket.
6. Install plugs in, or tape over the opened discharge line fitting and the compressor port.

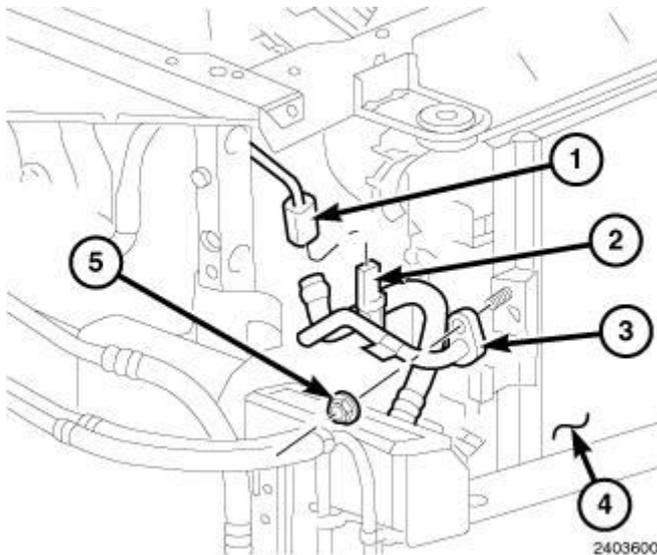


Fig. 157: A/C Discharge Line-Condenser
 Courtesy of CHRYSLER GROUP, LLC

7. On gasoline engine equipped models, partially lower the vehicle.
8. On all models remove the upper radiator closure panel and carefully pull the top of the fascia forward to gain access to the A/C discharge line (3). Refer to **PANEL, CLOSURE, UPPER, REMOVAL**.
9. Reach down through the opening between the radiator and the front fascia and disconnect the wire harness connector (1) from the A/C pressure transducer (2).
10. Remove the nut (5) that secures the A/C discharge line to the right side of the A/C condenser (4).

11. Disconnect the A/C discharge line from the A/C condenser and remove and discard the O-ring seal and gasket.
12. Install plugs in, or tape over the discharge line fitting and the condenser port.
13. If necessary, remove the A/C pressure transducer from the A/C discharge line.

INSTALLATION

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. 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: If replacing the A/C discharge line, be sure to use the discharge line designed for the A/C compressor in the vehicle. Failure to use the correct A/C discharge line may result in possible discharge line or compressor damage.

NOTE: When replacing multiple A/C system components, see the REFRIGERANT OIL CAPACITIES chart to determine how much oil should be added to the refrigerant system. Refer to 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.

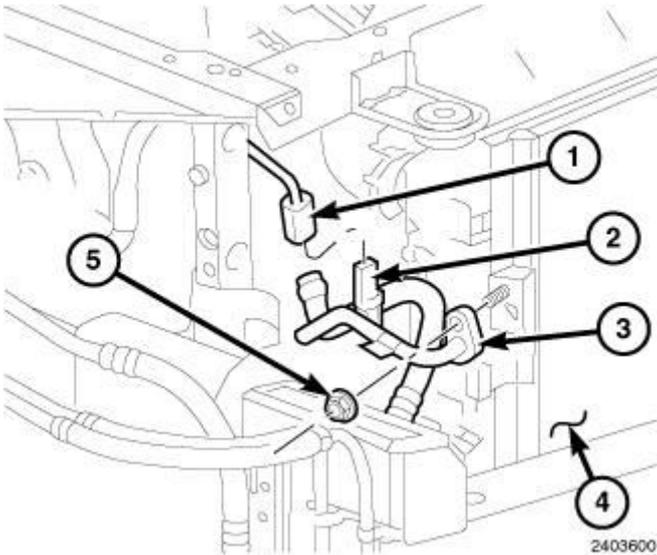


Fig. 158: A/C Discharge Line-Condenser
Courtesy of CHRYSLER GROUP, LLC

1. If removed, install the A/C pressure transducer (2) onto the A/C discharge line (3). Tighten the A/C pressure transducer securely.
2. Position the A/C discharge line into the engine compartment.
3. Remove the tape or plugs from the discharge line fitting and the condenser port.
4. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the discharge line fitting. Use only the specified O-ring as it is 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. Reach down through the opening between the radiator and the front fascia and connect the A/C discharge line to the A/C condenser (4).
6. Install the nut (5) that secures the A/C discharge line to the A/C condenser. Tighten the nut to 5 N.m (44 in. lbs.).
7. Connect the wire harness connector (1) to the A/C pressure transducer.
8. Install the upper radiator closure panel. Refer to **PANEL, CLOSURE, UPPER, INSTALLATION** .

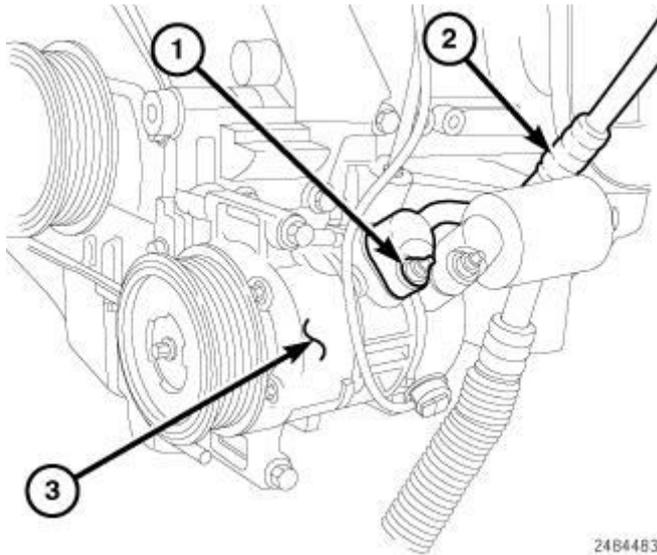


Fig. 159: A/C Discharge Line-Compressor
Courtesy of CHRYSLER GROUP, LLC

NOTE: Typical engine shown in illustration.

9. On gasoline engine equipped models, raise and support the vehicle.
10. Remove the tape or plugs from the discharge line fitting and the compressor port.
11. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the discharge line fitting. Use only the specified O-ring as it is 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.
12. Connect the A/C discharge line (2) to the A/C compressor (3).
13. Install the nut (1) that secures the A/C discharge line to the A/C compressor. Tighten the nut to 20 N.m (15 ft. lbs.).
14. On gasoline engine equipped models, lower the vehicle.
15. 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.

16. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
17. Adjust the refrigerant oil level. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.
18. Charge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

LINE, A/C LIQUID

REMOVAL

REMOVAL

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

NOTE: Gasoline engine model shown in illustrations, Diesel engine model similar.

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

LIQUID AND SUCTION LINE ASSEMBLY

NOTE: The A/C liquid line is serviced as an assembly with the rear portion of the A/C suction line.

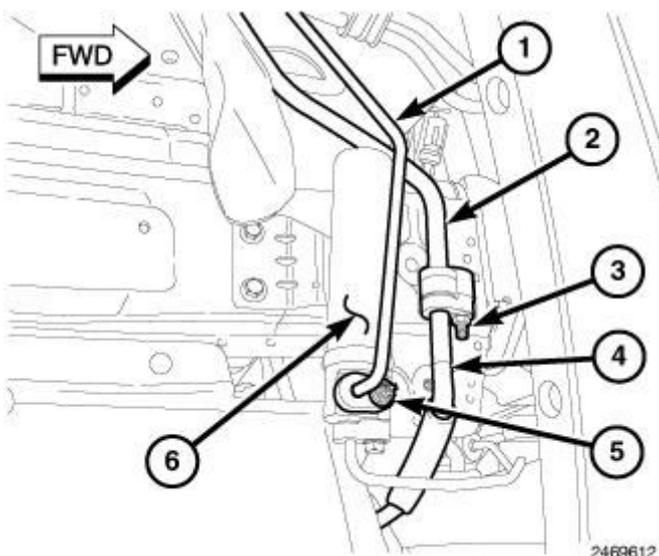


Fig. 160: Identifying A/C Receiver/Drier
Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Raise and support the vehicle.
4. Remove the right front wheel. Refer to **REMOVAL** .
5. Position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
6. Remove the nut (3) that secures the front portion of the A/C suction line (4) to the rear portion of the A/C suction line (2).
7. Disconnect the A/C suction lines and remove and discard the O-ring seal and gasket.
8. On all models, except late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. disconnect the A/C suction line from the plastic bracket located on the A/C receiver/drier (6).
 - b. remove the nut (5) that secures the A/C liquid line (1) to the A/C receiver/drier.
 - c. disconnect the A/C liquid line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.

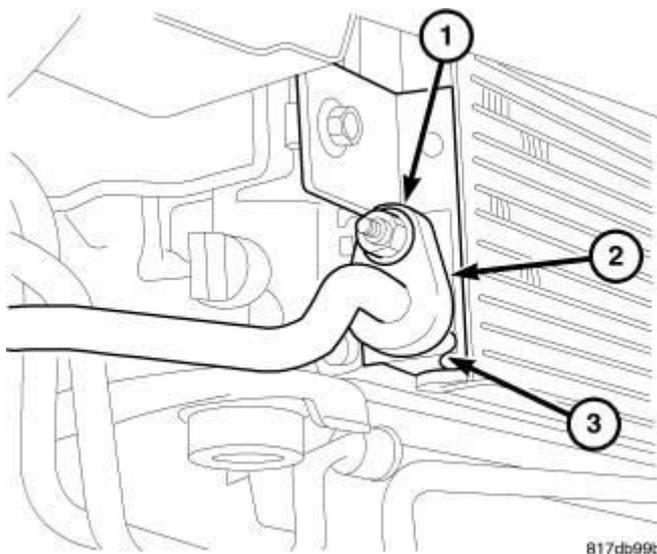


Fig. 161: Liquid Line To Condenser

Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

9. On late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the A/C suction line bracket from the frame rail.
 - b. remove the nut (1) that secures the A/C liquid line (2) to the A/C condenser (3).
 - c. disconnect the A/C liquid line from the A/C condenser and remove and discard the O-ring seal and gasket.

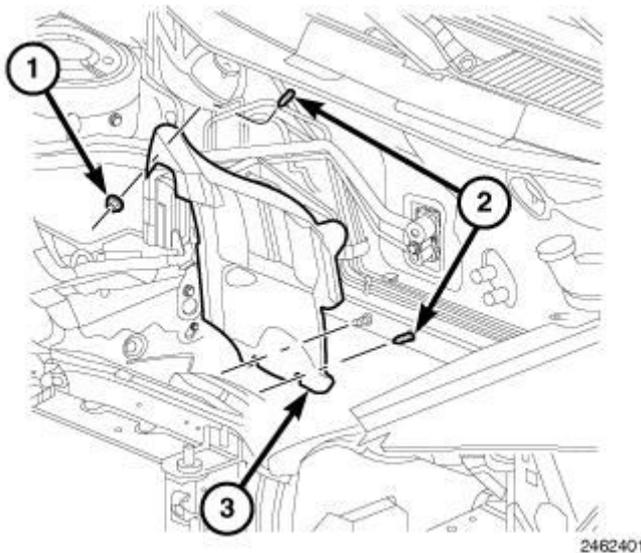


Fig. 162: Heat Shield

Courtesy of CHRYSLER GROUP, LLC

10. On all models, partially lower the vehicle.
11. Remove the nuts (1) that secure the heat shield (3) to the studs (2) located on the dash panel in the engine compartment and remove the heat shield.

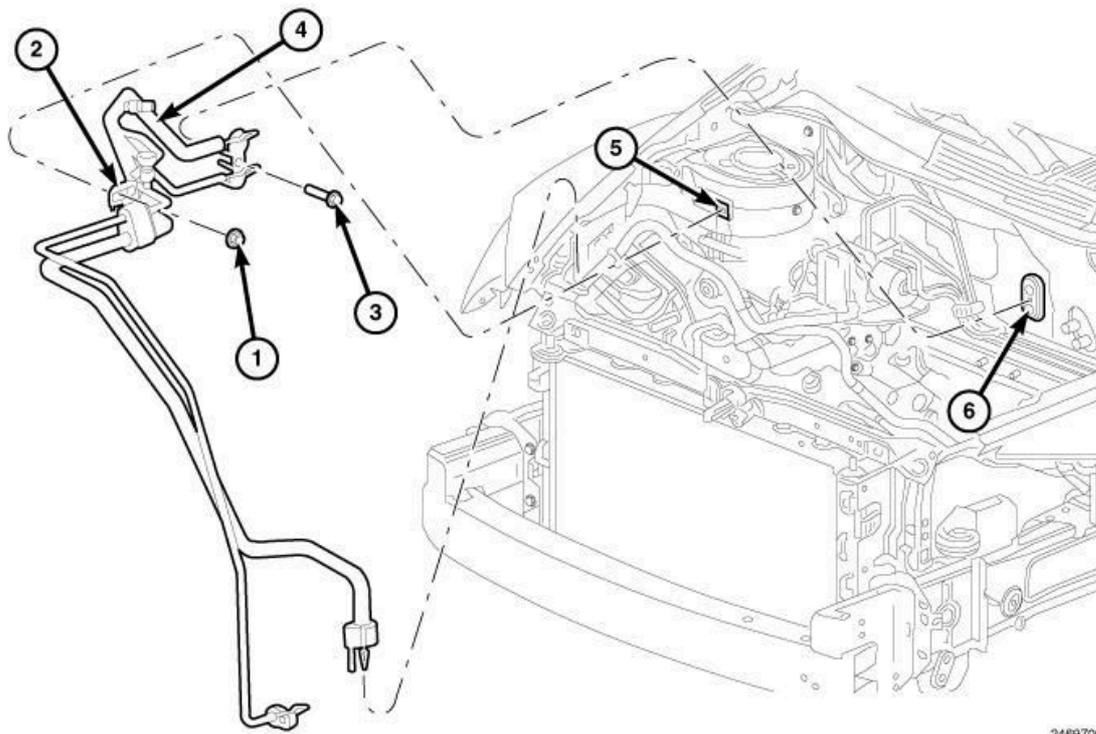


Fig. 163: A/C Liquid And Suction Line Assembly
 Courtesy of CHRYSLER GROUP, LLC

NOTE: It is only necessary to position the windshield washer reservoir, power steering fluid reservoir and engine coolant reservoir out of the way. Draining of the washer fluid, power steering fluid and engine coolant is not required.

12. Position the windshield washer reservoir, power steering reservoir and the engine coolant reservoir out of the way.
13. Remove the nut (1) that secures the refrigerant line retaining bracket (2) to the right front strut tower (5).
14. On RHD models, disengage the retainers that secure the power brake booster vacuum supply hose to the dash panel and position the vacuum line out of the way.
15. Remove the bolt (3) that secures the A/C liquid and suction line assembly (4) to the A/C expansion valve (6).
16. Disconnect the A/C liquid and suction line assembly from the A/C expansion valve and remove and discard the O-ring seals.
17. Remove the A/C liquid and suction line assembly from the engine

compartment.

18. Install plugs in, or tape over all the opened refrigerant line fittings, expansion valve and receiver/drier or condenser ports, as required.

FRONT JUMPER LINE

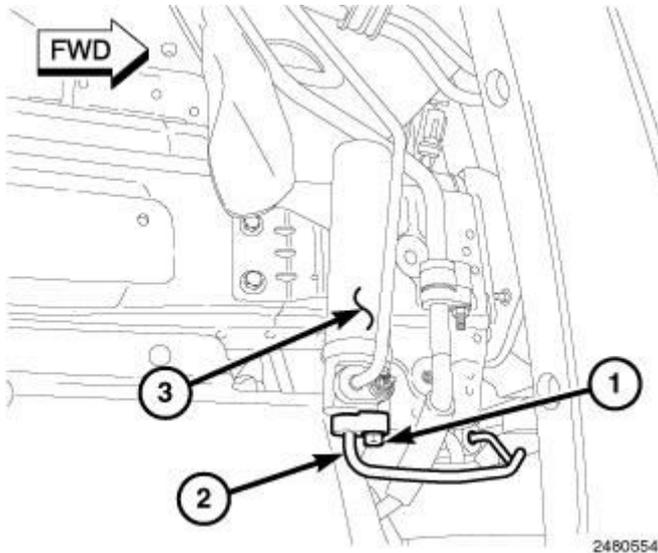


Fig. 164: Identifying A/C Receiver/Drier & Retaining Bolt
 Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Raise and support the vehicle.
4. Remove the right front wheel. Refer to **REMOVAL** .
5. Position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
6. Remove the bolt (1) that secures the liquid jumper line (2) to the A/C receiver/drier (3).
7. Disconnect the jumper line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.

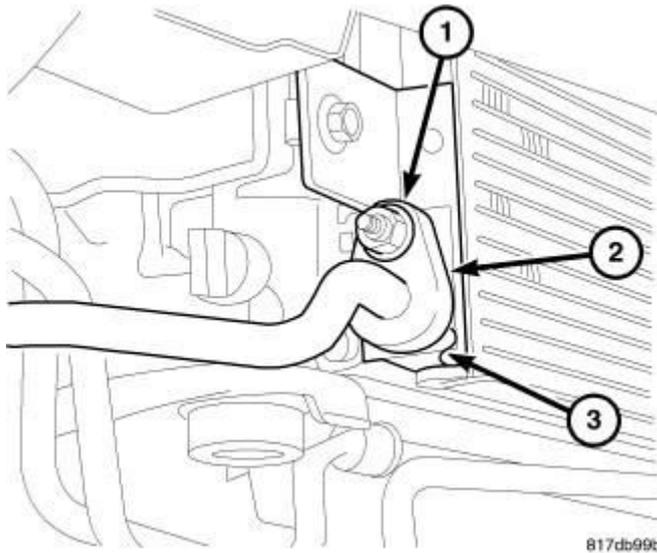


Fig. 165: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

8. Remove the nut (1) that secures the liquid jumper line (2) to the A/C condenser (3)
9. Disconnect the jumper line from the A/C condenser and remove and discard the O-ring seal and gasket.
10. Install plugs in, or tape over the opened jumper line fittings and the receiver/drier and condenser ports.

INSTALLATION

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. 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, see the REFRIGERANT OIL CAPACITIES chart to determine how much oil should be added to the refrigerant system. Refer to 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: Gasoline engine model shown in illustrations, Diesel engine model similar.

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

LIQUID AND SUCTION LINE ASSEMBLY

NOTE: The A/C liquid line is serviced as an assembly with the rear portion of the A/C suction line.

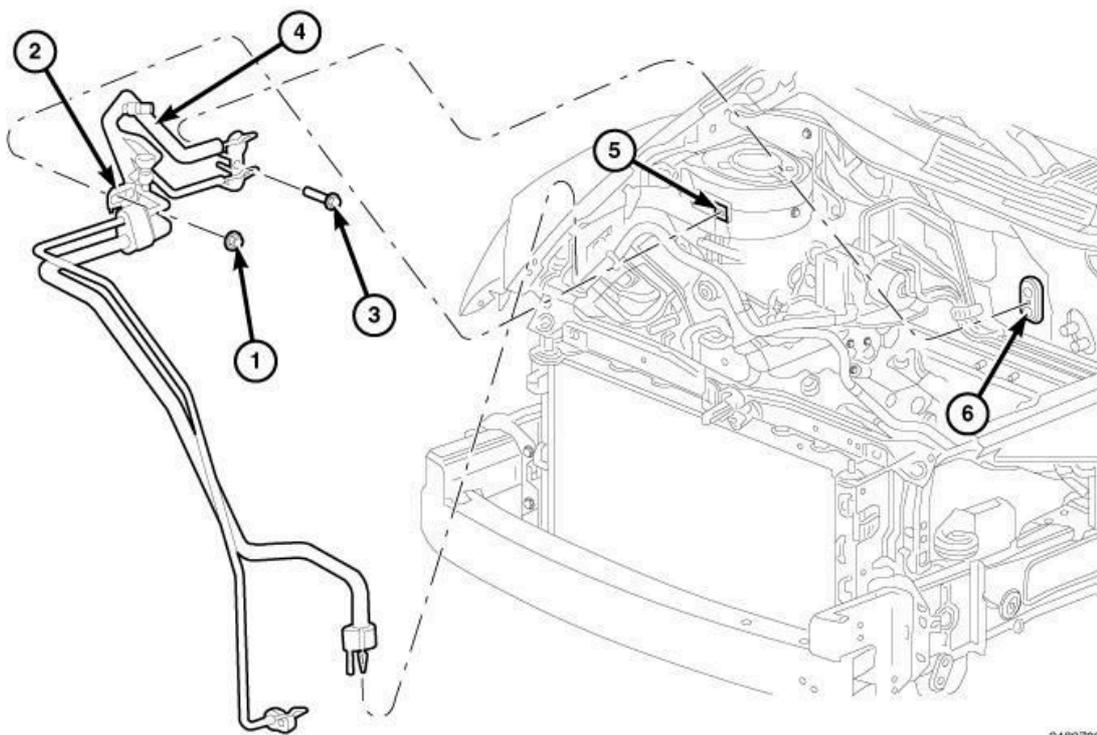


Fig. 166: A/C Liquid And Suction Line Assembly
Courtesy of CHRYSLER GROUP, LLC

1. Position the A/C liquid and suction line assembly (4) into the engine compartment.
2. Remove the tape or plugs from the refrigerant line fittings and the expansion

valve ports.

3. Lubricate new 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.
4. Connect the A/C liquid and suction line assembly to the A/C expansion valve (6).
5. Install the bolt (3) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the bolt to 20 N.m (15 ft. lbs.).
6. On RHD models, engage the retainers that secure the power brake booster vacuum supply hose to the dash panel.
7. Install the nut (1) that secures the refrigerant line bracket (2) to the right front strut tower (5). Tighten the nut to 4.5 N.m (40 in. lbs.).
8. Install the windshield washer reservoir, power steering fluid reservoir and the engine coolant reservoir.

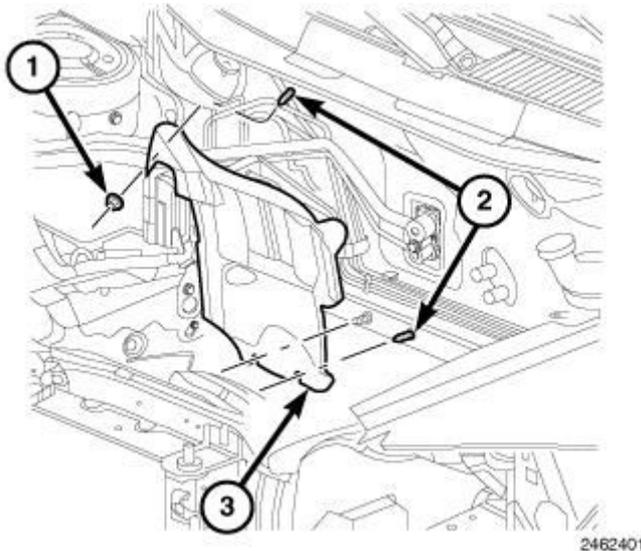


Fig. 167: Heat Shield

Courtesy of CHRYSLER GROUP, LLC

9. Position the heat shield (3) onto the studs (2) located on the dash panel in the engine compartment.
10. Install the three nuts (1) that secure the heat shield to the dash panel. Tighten the nuts to 1 N.m (10 in. lbs.).
11. On all models, raise and support the vehicle.

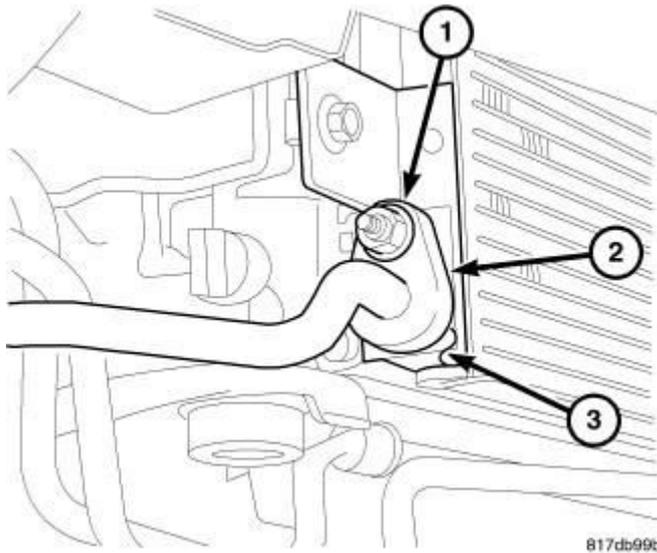


Fig. 168: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

12. On late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the tape or plugs from the liquid line fitting and the condenser port.
 - b. lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the liquid line fitting. Use only the specified O-ring as it is 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.
 - c. connect the A/C liquid line (2) to the A/C condenser (3) and install the retaining nut (1). Tighten the nut to 5 N.m (44 in. lbs.).

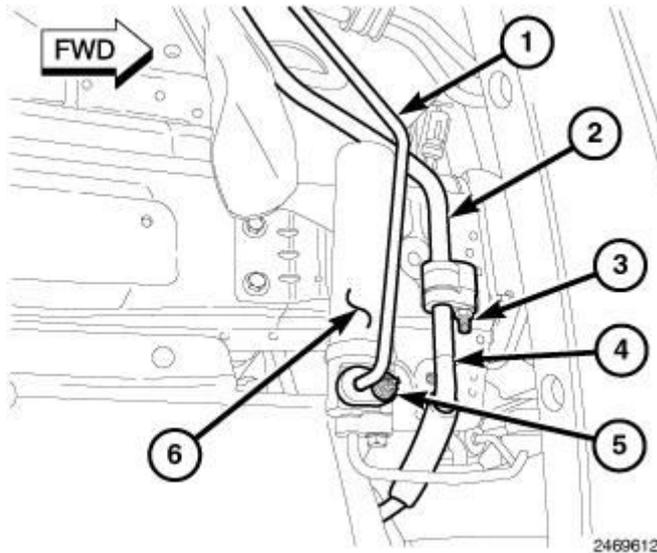


Fig. 169: Identifying A/C Receiver/Drier
Courtesy of CHRYSLER GROUP, LLC

13. Remove the tape or plugs from the suction line fittings.
14. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and new gasket onto the suction line fittings. Use only the specified O-ring as it is 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.
15. Connect the front portion of the A/C suction line (4) to the rear portion of the A/C suction line (2) and install the retaining nut (3). Tighten the nut to 5 N.m (44 in. lbs.).
16. Install the A/C suction line into the plastic bracket on the A/C receiver/drier (6), or install the suction line retaining bracket to the right front frame rail, depending on engine and transaxle application.
17. On all models, except late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the tape or plugs from the liquid line fitting and the receiver/drier port.
 - b. lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the liquid line fitting. Use only the specified O-ring as it is 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.
 - c. connect the A/C liquid line (1) to the A/C receiver/drier (6) and install

the retaining nut (5). Tighten the nut to 5 N.m (44 in. lbs.).

- d. On all models;
 - e. reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
 - f. install the right front wheel. Refer to **INSTALLATION** .
 - g. Lower the vehicle.
18. 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. Failure to follow this caution will result in serious A/C compressor damage.

19. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
20. Adjust the refrigerant oil level. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.
21. Charge the A/C system. Refer to **PLUMBING, STANDARD PROCEDURE**.

FRONT JUMPER LINE

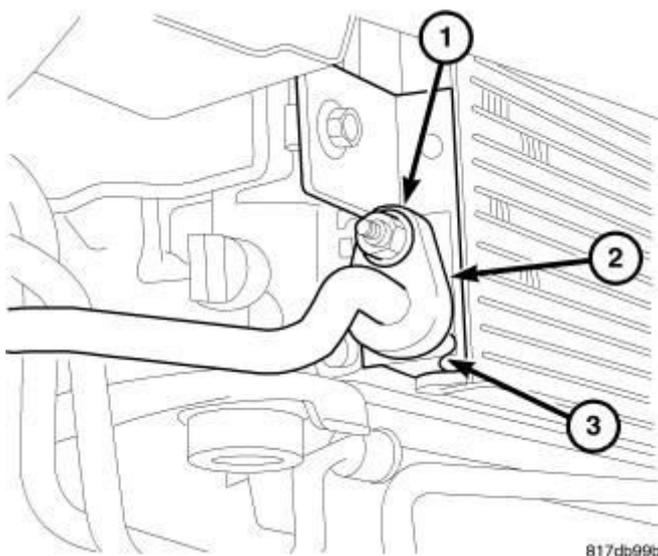


Fig. 170: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

1. Remove the tape or plugs from the jumper line fitting and the condenser port.
2. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the jumper line fitting. Use only the specified O-ring as it is made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
3. Connect the liquid jumper line (2) to the A/C condenser (3) and install the retaining nut (1). Tighten the nut to 5 N.m (44 in. lbs.).

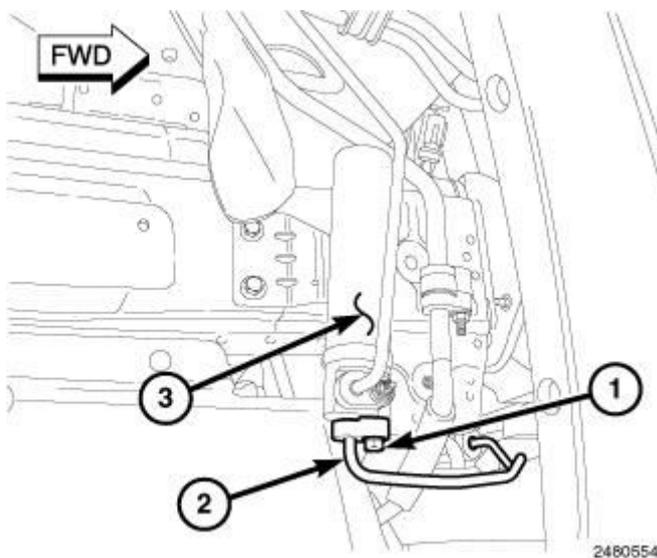


Fig. 171: Identifying A/C Receiver/Drier & Retaining Bolt
 Courtesy of CHRYSLER GROUP, LLC

4. Remove the tape or plug from the jumper line fitting and receiver/drier port.
5. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and new gasket onto the jumper line fitting. Use only the specified O-ring as it is 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 liquid jumper line (2) to the A/C receiver/drier (3) and install the retaining bolt (3). Tighten the bolt to 5 N.m (44 in. lbs.).
7. Reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
8. install the right front wheel. Refer to **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. Failure to follow this caution will result in serious A/C compressor damage.

11. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
12. Adjust the refrigerant oil level. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.
13. Charge the A/C system. Refer to **PLUMBING, STANDARD PROCEDURE**.

LINE, A/C SUCTION

REMOVAL

REMOVAL

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

NOTE: Gasoline engine model shown in illustrations, Diesel engine model similar.

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

SUCTION AND LIQUID LINE ASSEMBLY

NOTE: The rear portion of the A/C suction line is serviced as an assembly with the A/C liquid line.

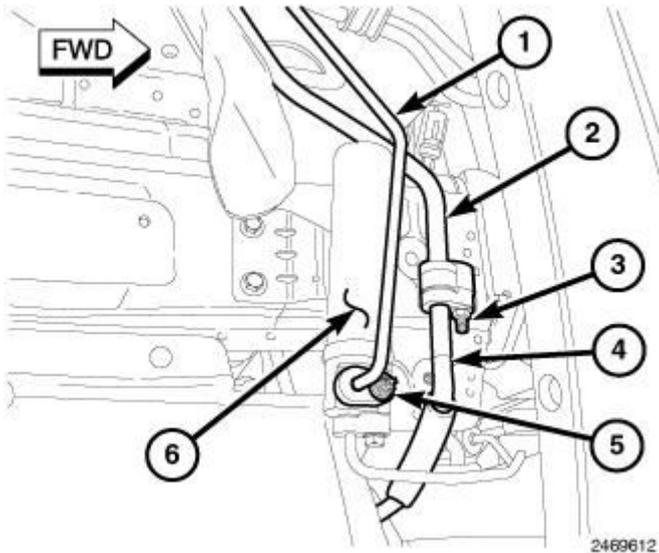


Fig. 172: Identifying A/C Receiver/Drier
 Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Raise and support the vehicle.
4. Remove the right front wheel. Refer to **REMOVAL** .
5. Position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
6. Remove the nut (3) that secures the front portion of the A/C suction line (4) to the rear portion of the A/C suction line (2).
7. Disconnect the A/C suction lines and remove and discard the O-ring seal and gasket.
8. On all models, except late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. disconnect the A/C suction line from the plastic bracket located on the A/C receiver/drier (6).
 - b. remove the nut (5) that secures the A/C liquid line (1) to the A/C receiver/drier.
 - c. disconnect the A/C liquid line from the A/C receiver/drier and remove and discard the O-ring seal and gasket.

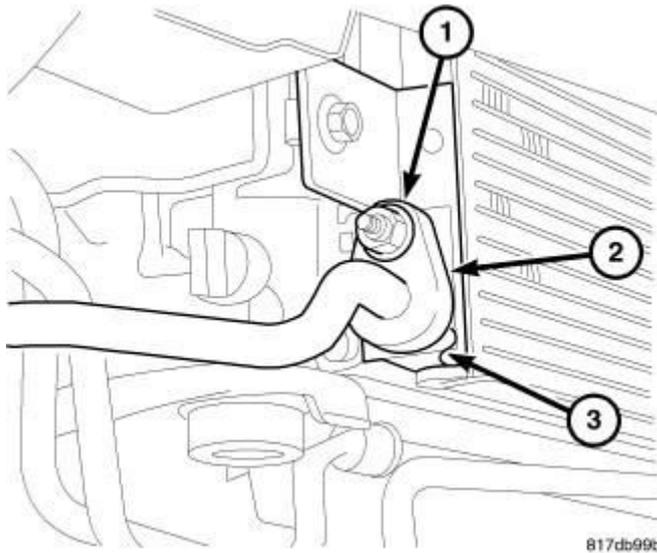


Fig. 173: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for clarity.

9. On late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the A/C suction line bracket from the frame rail.
 - b. remove the nut (1) that secures the A/C liquid line (2) to the A/C condenser (3).
 - c. disconnect the A/C liquid line from the A/C condenser and remove and discard the O-ring seal and gasket.

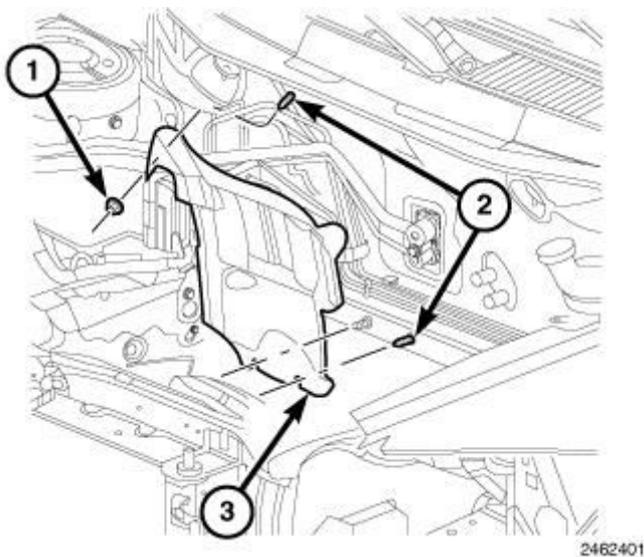
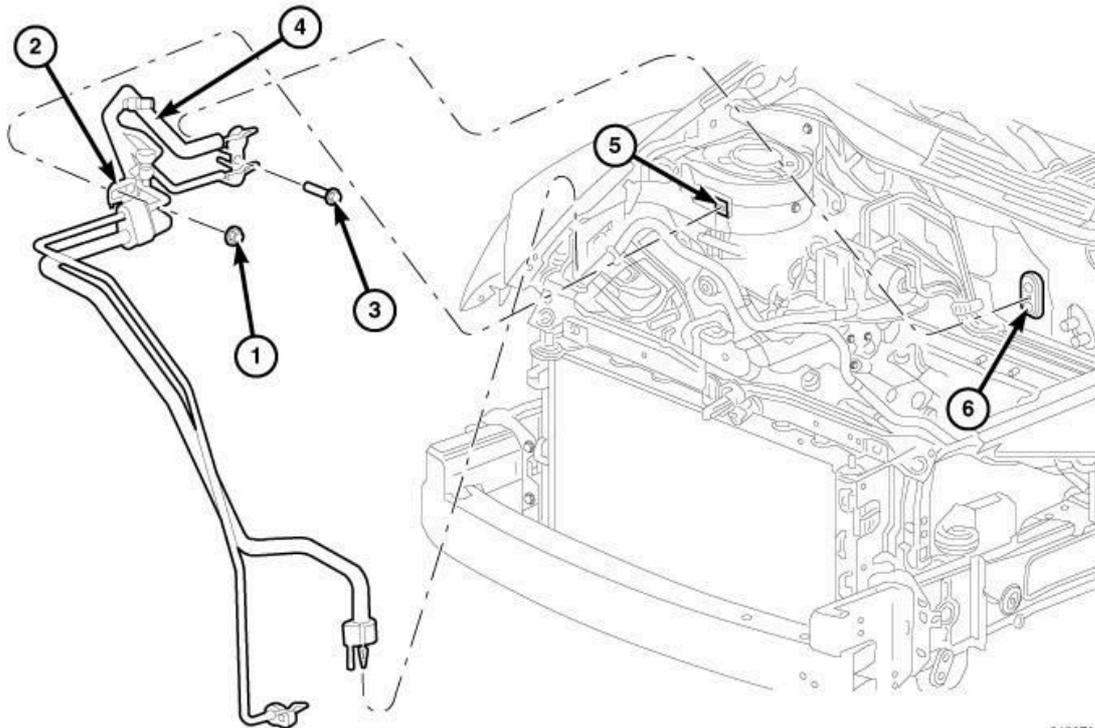


Fig. 174: Heat Shield

Courtesy of CHRYSLER GROUP, LLC

10. On all models, partially lower the vehicle.
11. Remove the nuts (1) that secure the heat shield (3) to the studs (2) located on the dash panel in the engine compartment and remove the heat shield.



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Fig. 175: A/C Liquid And Suction Line Assembly

Courtesy of CHRYSLER GROUP, LLC

NOTE: It is only necessary to position the windshield washer reservoir, power steering fluid reservoir and engine coolant reservoir out of the way. Draining of the washer fluid, power steering fluid and engine coolant is not required.

12. Position the windshield washer reservoir, power steering reservoir and the engine coolant reservoir out of the way.
13. Remove the nut (1) that secures the refrigerant line retaining bracket (2) to the right front strut tower (5).
14. On RHD models, disengage the retainers that secure the power brake booster vacuum supply hose to the dash panel and position the vacuum line

out of the way.

15. Remove the bolt (3) that secures the A/C suction and liquid line assembly (4) to the A/C expansion valve (6).
16. Disconnect the A/C suction and liquid line assembly from the A/C expansion valve and remove and discard the O-ring seals.
17. Remove the A/C suction and liquid line assembly from the engine compartment.
18. Install plugs in, or tape over all the opened refrigerant line fittings, expansion valve and receiver/drier or condenser ports, as required.

FRONT SUCTION LINE

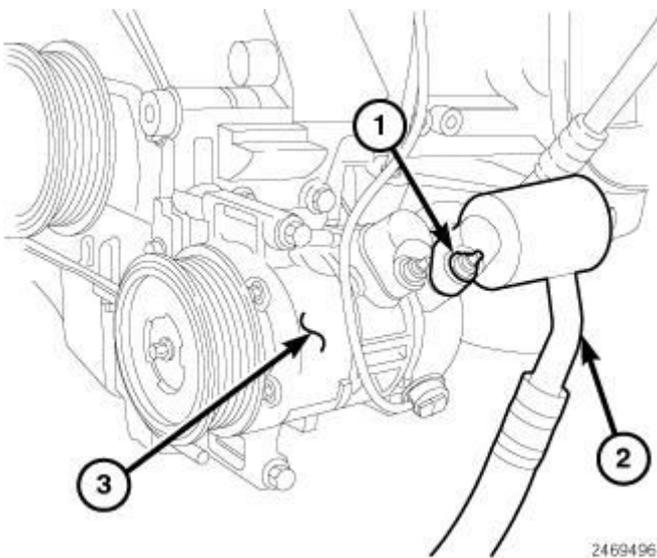
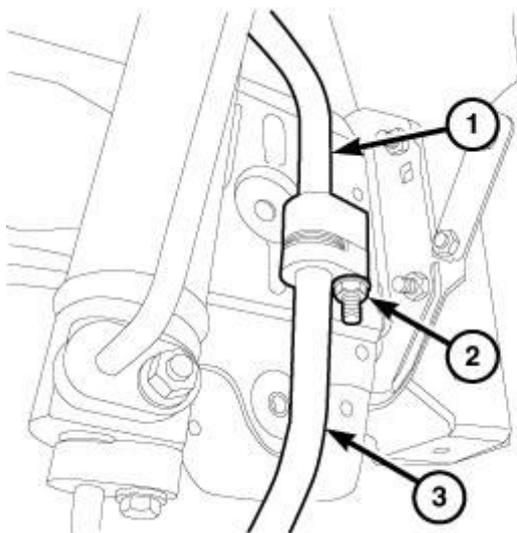


Fig. 176: Lower Suction Line-Compressor
 Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. On diesel engine models, remove the bolt that secures the right front impact sensor to the radiator support and position the sensor out of the way for clearance. Refer to **SENSOR, IMPACT, REMOVAL** .
4. On gasoline engine models;
 - a. raise and support the vehicle.
 - b. remove the right front wheel. Refer to **REMOVAL** .
 - c. position the front portion of the right front wheelhouse splash shield out

of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .

- d. remove the drive belt splash shield to gain access to the A/C suction line (2).
5. Remove the nut (1) that secures the A/C suction line to the A/C compressor (3).
6. Disconnect the A/C suction line from the A/C compressor.



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Fig. 177: Identifying A/C Suction Line & Retaining Nut
Courtesy of CHRYSLER GROUP, LLC

7. On diesel engine models;
 - a. raise and support the vehicle.
 - b. remove the right front wheel. Refer to **REMOVAL** .
 - c. position the front portion of the right front wheelhouse splash shield out of the way. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
8. Remove the nut (2) that secures the front portion of the A/C suction line (3) to the rear portion of the A/C suction line (1) and disconnect the lines.
9. Remove the front portion of the A/C suction line from the engine compartment and remove and discard the O-ring seals and gaskets.
10. Install plugs in, or tape over the opened suction line fittings and compressor port.

INSTALLATION

INSTALLATION

CAUTION: Be certain to adjust the refrigerant oil level when servicing the A/C refrigerant system. 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, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.

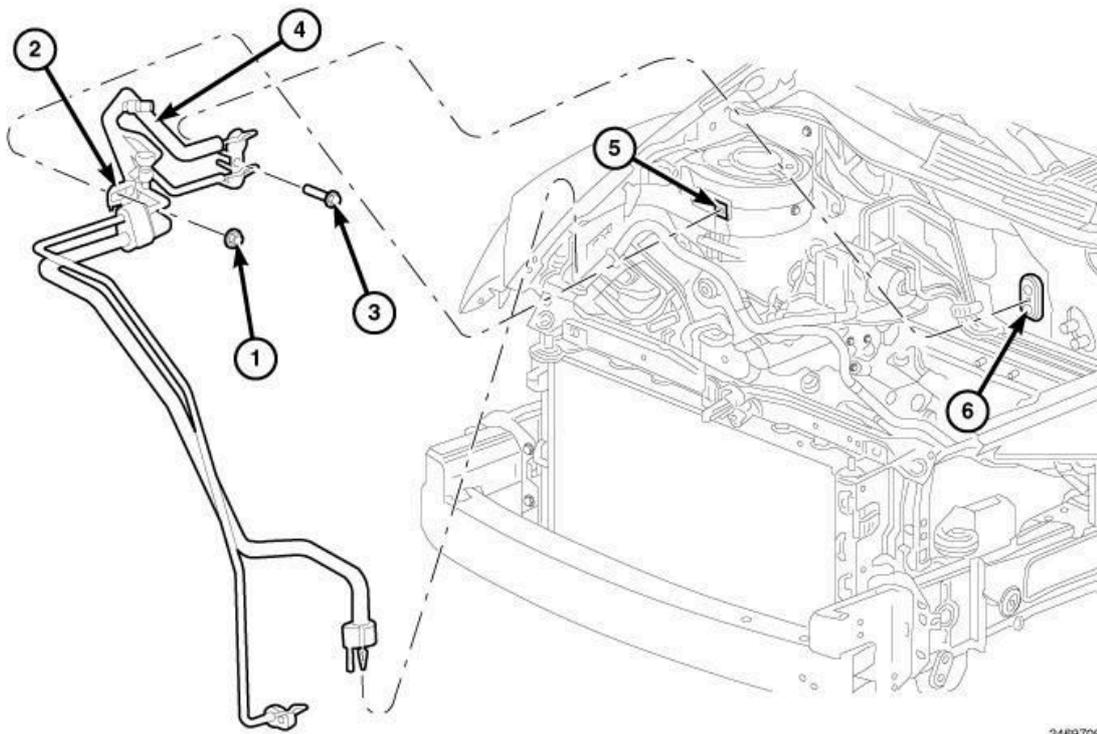
NOTE: Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is disconnected. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

NOTE: Gasoline engine model shown in illustrations, Diesel engine model similar.

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

SUCTION AND LIQUID LINE ASSEMBLY

NOTE: The rear portion of the A/C suction line is serviced as an assembly with the A/C liquid line.



2489709

Fig. 178: A/C Liquid And Suction Line Assembly
 Courtesy of CHRYSLER GROUP, LLC

1. Position the A/C suction and liquid line assembly (4) into the engine compartment.
2. Remove the tape or plugs from the refrigerant line fittings and the expansion valve ports.
3. Lubricate new 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.
4. Connect the A/C suction and liquid line assembly to the A/C expansion valve (6).
5. Install the bolt (3) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the bolt to 20 N.m (15 ft. lbs.).
6. On RHD models, engage the retainers that secure the power brake booster vacuum supply hose to the dash panel.
7. Install the nut (1) that secures the refrigerant line bracket (2) to the right front strut tower (5). Tighten the nut to 4.5 N.m (40 in. lbs.).
8. Install the windshield washer reservoir, power steering fluid reservoir and

the engine coolant reservoir.

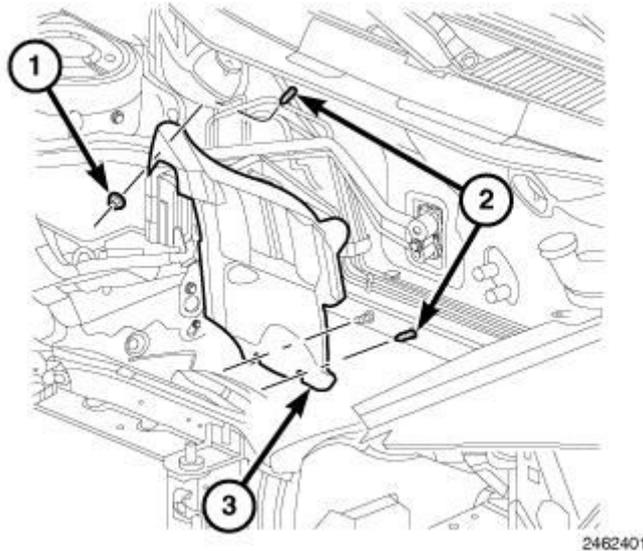


Fig. 179: Heat Shield
Courtesy of CHRYSLER GROUP, LLC

9. Position the heat shield (3) onto the studs (2) located on the dash panel in the engine compartment.
10. Install the three nuts (1) that secure the heat shield to the dash panel. Tighten the nuts to 1 N.m (10 in. lbs.).
11. On all models, raise and support the vehicle.

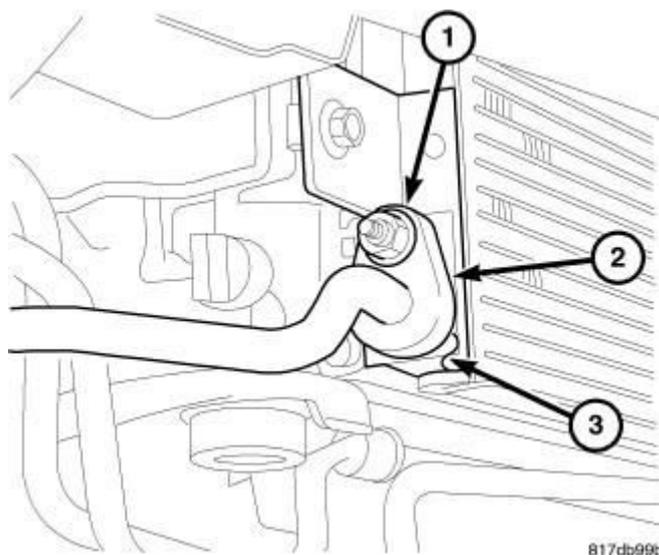


Fig. 180: Liquid Line To Condenser
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with front fascia removed for

clarity.

12. On late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the tape or plugs from the liquid line fitting and the condenser port.
 - b. lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the liquid line fitting. Use only the specified O-ring as it is 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.
 - c. connect the A/C liquid line (2) to the A/C condenser (3) and install the retaining nut (1). Tighten the nut to 5 N.m (44 in. lbs.).

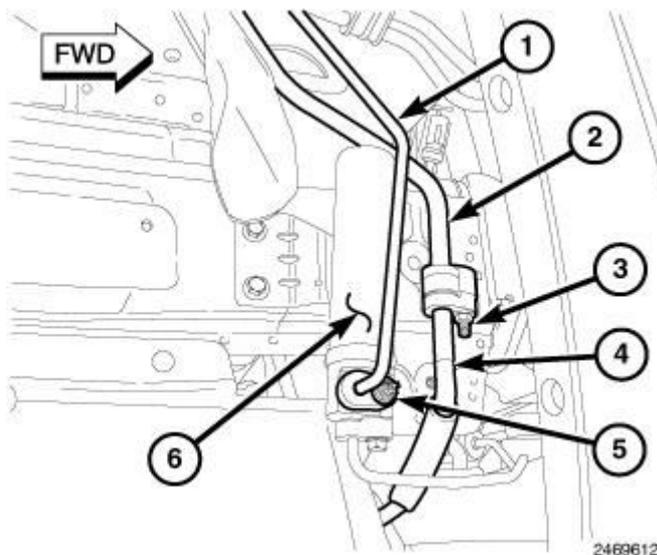


Fig. 181: Identifying A/C Receiver/Drier
Courtesy of CHRYSLER GROUP, LLC

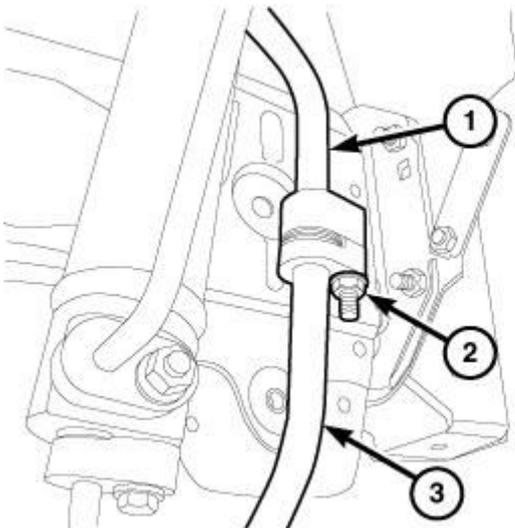
13. Remove the tape or plugs from the suction line fittings.
14. Lubricate a new rubber O-ring seal with clean refrigerant oil and install it and new gasket onto the suction line fittings. Use only the specified O-ring as it is made of a special material for the R-134a system. Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
15. Connect the front portion of the A/C suction line (4) to the rear portion of the A/C suction line (2) and install the retaining nut (3). Tighten the nut to 5 N.m (44 in. lbs.).

16. Install the A/C suction line into the plastic bracket on the A/C receiver/drier (6), or install the suction line retaining bracket to the right front frame rail, depending on engine and transaxle application.
17. On all models, except late model year vehicles equipped with a gasoline engine and four speed automatic transaxle;
 - a. remove the tape or plugs from the liquid line fitting and the receiver/drier port.
 - b. lubricate a new rubber O-ring seal with clean refrigerant oil and install it and a new gasket onto the liquid line fitting. Use only the specified O-ring as it is 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.
 - c. connect the A/C liquid line (1) to the A/C receiver/drier (6) and install the retaining nut (5). Tighten the nut to 5 N.m (44 in. lbs.).
 - d. On all models;
 - e. reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
 - f. install the right front wheel. Refer to **INSTALLATION** .
 - g. Lower the vehicle.
18. 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. Failure to follow this caution will result in serious A/C compressor damage.

19. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
20. Adjust the refrigerant oil level. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.
21. Charge the A/C system. Refer to **PLUMBING, STANDARD PROCEDURE**.

FRONT SUCTION LINE



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Fig. 182: Identifying A/C Suction Line & Retaining Nut
Courtesy of CHRYSLER GROUP, LLC

1. Remove the tape or plugs from the suction line fittings and compressor port.
2. Lubricate a 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-ring as it is 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 front portion of the A/C suction line (3) into the engine compartment.
4. Connect the front portion of the A/C suction line to the rear portion of the A/C suction line (1) and install the retaining nut (2). Tighten the nut to 5 N.m (44 in. lbs.).
5. On diesel engine models;
 - a. reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
 - b. install the right front wheel. Refer to **INSTALLATION** .
 - c. Lower the vehicle.

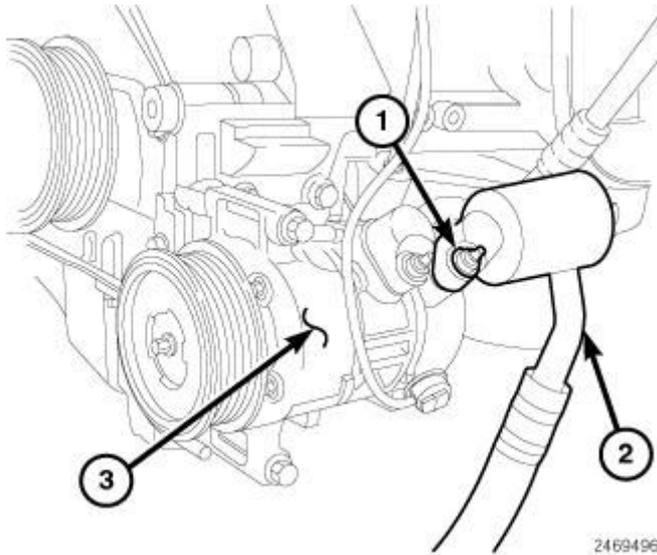


Fig. 183: Lower Suction Line-Compressor
 Courtesy of CHRYSLER GROUP, LLC

6. Connect the A/C suction line (2) to the A/C compressor (3).
7. Install the nut (1) that secures the A/C suction line to the A/C compressor. Tighten the nut to 20 N.m (15 ft. lbs.).
8. On gasoline engine models;
 - a. install the drive belt splash shield.
 - b. reposition the right front wheel house splash shield to the body. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
 - c. install the right front wheel. Refer to **INSTALLATION** .
 - d. Lower the vehicle.
9. On diesel engine models, install the right front impact sensor onto the radiator support. Refer to **SENSOR, IMPACT, INSTALLATION** .
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. Failure to follow this caution will result in serious A/C compressor damage.

11. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
12. Adjust the refrigerant oil level. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.

13. Charge the A/C system. Refer to **PLUMBING, STANDARD PROCEDURE**.

OIL, REFRIGERANT

STANDARD PROCEDURE

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 occur, add 30 milliliters (1 fluid ounce) of the recommended refrigerant oil to the refrigerant system after the repair has been made. Refrigerant oil loss will be evident at the leak point by the presence of a wet, shiny surface around the leak.

Refrigerant oil must be added when an A/C condenser, A/C receiver/drier or A/C evaporator is replaced. See the **REFRIGERANT OIL CAPACITIES** chart.

The refrigerant oil level in a new A/C compressor must first be adjusted to the proper amount prior to compressor installation. See the **COMPRESSOR OIL DRAIN PROCEDURE - FIXED DISPLACEMENT** or **COMPRESSOR OIL DRAIN PROCEDURE - 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
A/C Compressor - Denso 6SEU16 Variable Displacement	50	1.7
	(See <u>COMPRESSOR OIL DRAIN PROCEDURE - VARIABLE DISPLACEMENT</u>)	

A/C Compressor - Denso
10SRE18 Fixed
Displacement

Drain and measure the oil from the old compressor (See **COMPRESSOR OIL DRAIN PROCEDURE - FIXED DISPLACEMENT**).

COMPRESSOR OIL DRAIN PROCEDURE - 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 10SRE18 A/C compressor is filled with refrigerant oil from the factory. Use the following procedure to drain and measure refrigerant oil from the 10SRE18 A/C compressor.

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.

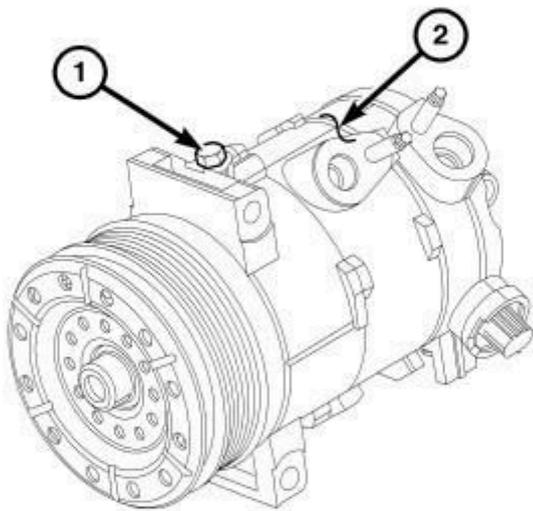
CAUTION: Failure to properly adjust the refrigerant oil level prior to installation of a replacement compressor can prevent the A/C system from operating as designed and cause serious compressor damage.

4. Install the replacement A/C compressor onto the engine. Refer to **COMPRESSOR, A/C, INSTALLATION**.

COMPRESSOR OIL DRAIN PROCEDURE - 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 6SEU16 A/C compressor.



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Fig. 184: A/C Compressor & Drain Plug
Courtesy of CHRYSLER GROUP, 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** chart 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.) of 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. Refer to **COMPRESSOR, A/C, INSTALLATION**.

REFRIGERANT

SPECIFICATIONS

SPECIFICATIONS

REFRIGERANT CHARGE CAPACITY

Application	Capacity
All models	595 g (1.31 lbs.)

TUBE, CONDENSATION DRAIN

REMOVAL

REMOVAL

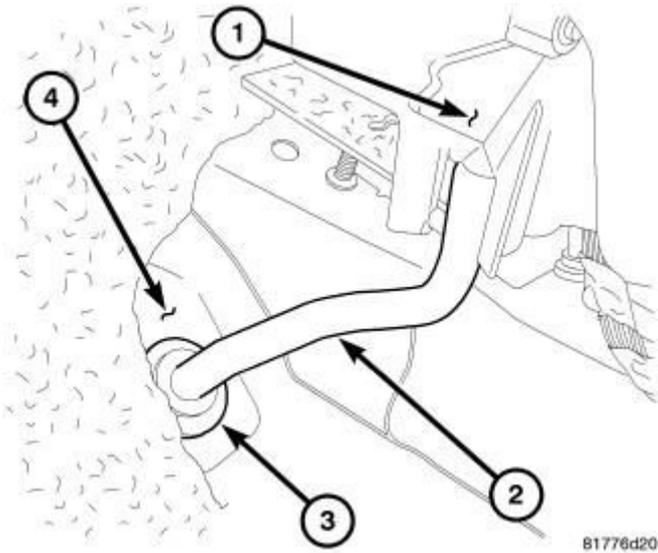


Fig. 185: Condensation Drain Tube
Courtesy of CHRYSLER GROUP, LLC

1. Pull back the floor carpet to gain access to the condensation drain tube (2) located on the left side of the vehicle at the front right of the foot well. Refer to **CARPET, PASSENGER, REMOVAL** .
2. Disconnect the condensation drain tube from the bottom of the HVAC housing (1).
3. Remove the condensate drain tube from the rubber grommet (3) in the front floor panel (4).
4. If required, remove the rubber grommet from the floor panel.

INSTALLATION

INSTALLATION

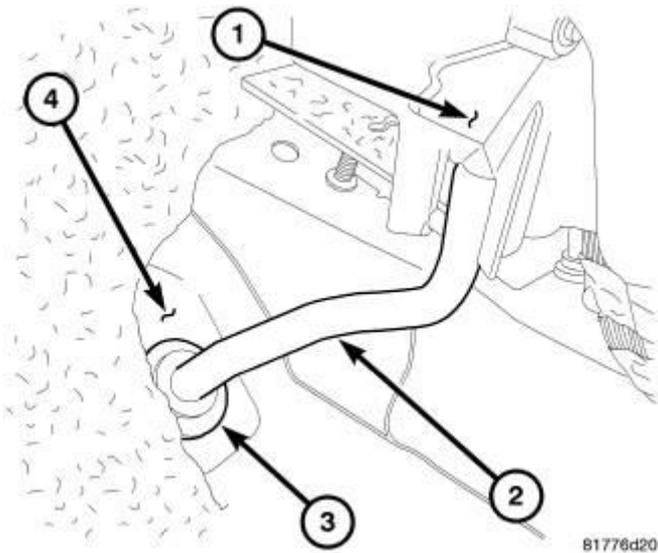


Fig. 186: Condensation Drain Tube
Courtesy of CHRYSLER GROUP, LLC

1. If removed, install the rubber grommet (3) onto the driver side front floor panel (4). Make sure the grommet is fully engaged to the floor panel.
2. Connect the condensation drain tube (2) onto the drain port located on the bottom of the HVAC housing (1).
3. Install the condensation drain tube into the rubber grommet.
4. Reinstall the floor carpet. Refer to **CARPET, PASSENGER, INSTALLATION** .

VALVE, A/C EXPANSION

DESCRIPTION

DESCRIPTION

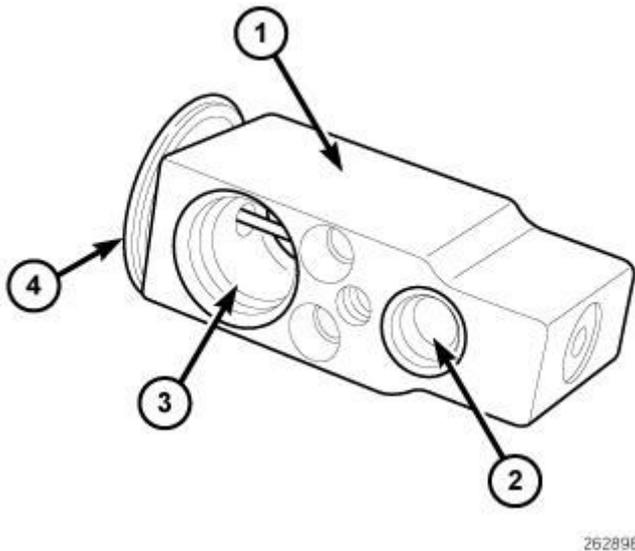


Fig. 187: A/C Expansion Valve
Courtesy of CHRYSLER GROUP, LLC

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

DIAGNOSIS AND TESTING - A/C EXPANSION VALVE

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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. Refer to **PLUMBING, STANDARD PROCEDURE**.
2. Verify the refrigerant system charge level by conducting the A/C Performance Test. Refer to **DIAGNOSIS AND TESTING**.
3. Close all doors, windows and vents to the passenger compartment.
4. 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.
5. 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.

6. 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 7. 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.

7. 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 8. If not OK, replace the inoperative A/C expansion valve. Refer to VALVE, A/C EXPANSION, REMOVAL.
8. Allow the A/C expansion valve 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. Refer to VALVE, A/C EXPANSION, REMOVAL.

REMOVAL

REMOVAL

WARNING: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

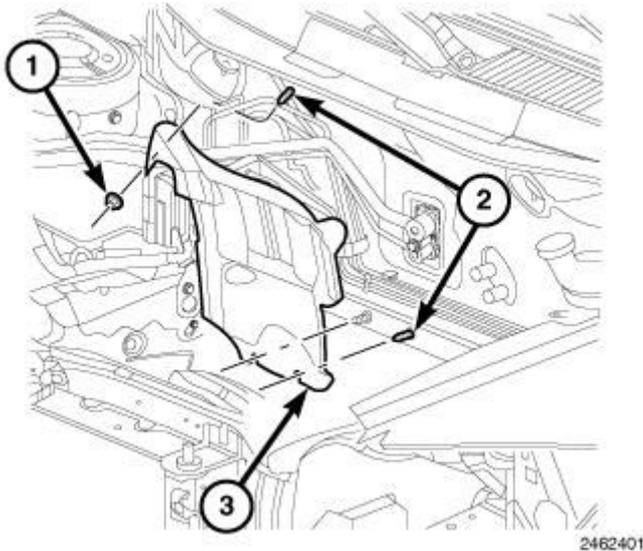


Fig. 188: Heat Shield
 Courtesy of CHRYSLER GROUP, LLC

1. Disconnect and isolate the negative battery cable.
2. Recover the refrigerant from the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
3. Remove the nuts (1) that secure the heat shield (3) to the studs (2) located on the dash panel in the engine compartment and remove the heat shield.

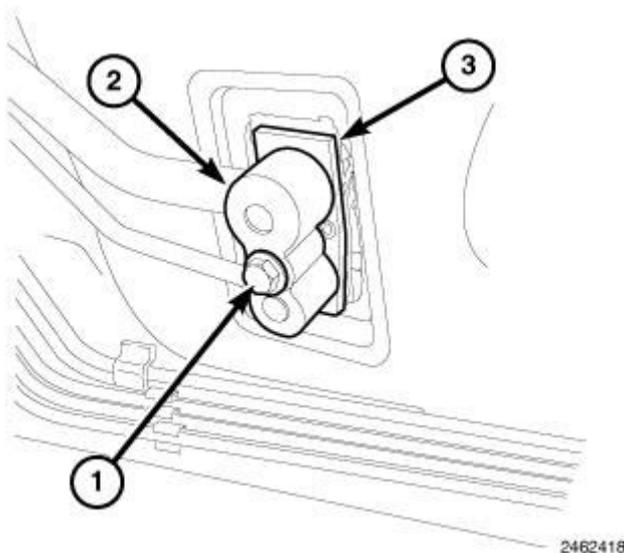


Fig. 189: Refrigerant Lines To Evaporator Bolt
 Courtesy of CHRYSLER GROUP, LLC

4. Remove the bolt (1) that secures the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
5. Disconnect the A/C liquid and suction line assembly from the A/C

expansion valve and remove and discard the O-ring seals.

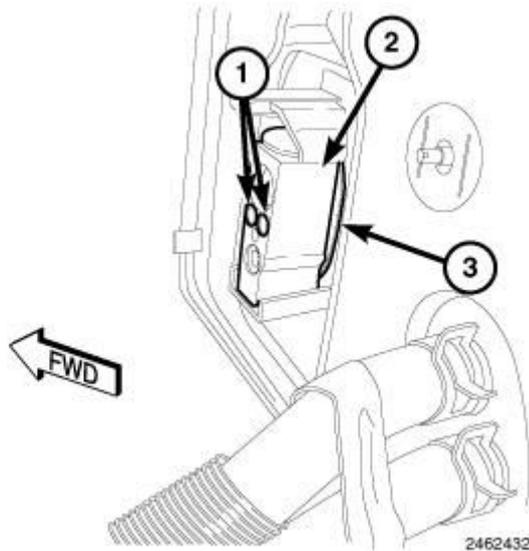


Fig. 190: Front Expansion Valve
Courtesy of CHRYSLER GROUP, LLC

6. Remove the two bolts (1) that secure the A/C expansion valve (2) to the evaporator tube tapping block (3).
7. Remove the A/C expansion valve from the tapping block and remove and discard the O-ring seals
8. 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. 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, see the **REFRIGERANT OIL CAPACITIES** chart to determine how much oil should be added to the refrigerant system. Refer to **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.

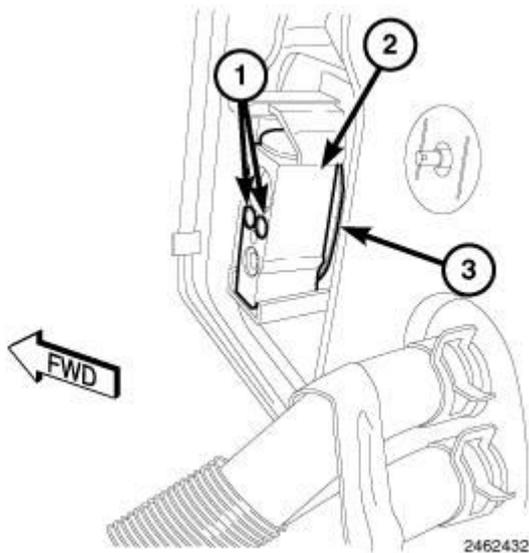


Fig. 191: Front Expansion Valve
Courtesy of CHRYSLER GROUP, LLC

1. Remove the tape or plugs from the opened refrigerant line 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.).

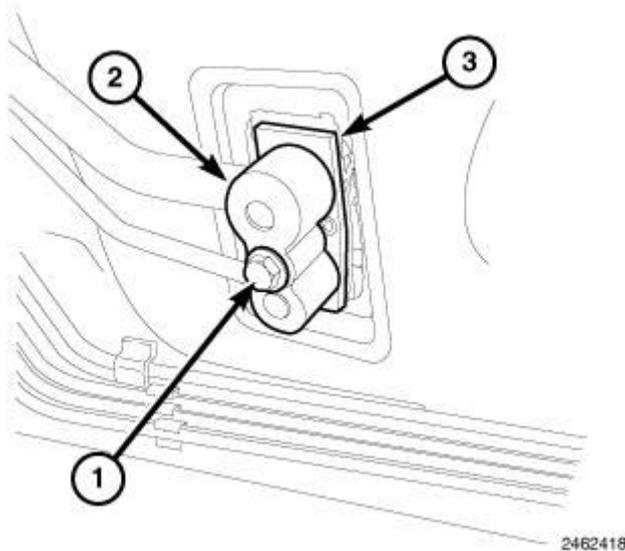


Fig. 192: Refrigerant Lines To Evaporator Bolt
 Courtesy of CHRYSLER GROUP, LLC

5. Connect the A/C liquid and suction line assembly (2) to the A/C expansion valve (3).
6. Install the bolt (1) that secures the A/C liquid and suction line assembly to the A/C expansion valve. Tighten the bolt to 25 N.m (18 ft. lbs.).

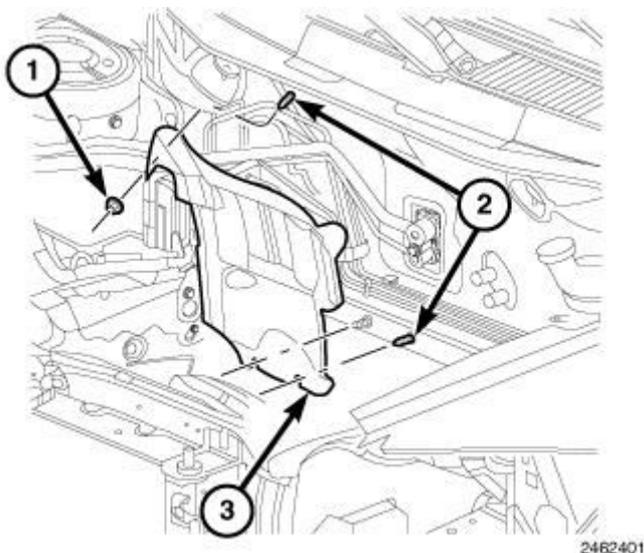


Fig. 193: Heat Shield
 Courtesy of CHRYSLER GROUP, LLC

7. Position the heat shield (3) onto the studs (2) located on the dash panel in the engine compartment.
8. Install the nuts (1) that secure the heat shield to the dash panel. Tighten the nuts to 1 N.m (10 in. lbs.).

9. Reconnect the negative battery cable.
10. Evacuate the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.
11. Adjust the refrigerant oil level, if required. Refer to **OIL, REFRIGERANT, STANDARD PROCEDURE**.
12. Charge the refrigerant system. Refer to **PLUMBING, STANDARD PROCEDURE**.

CABIN HEATER

RELAY, HEATER UNIT

DESCRIPTION

DESCRIPTION

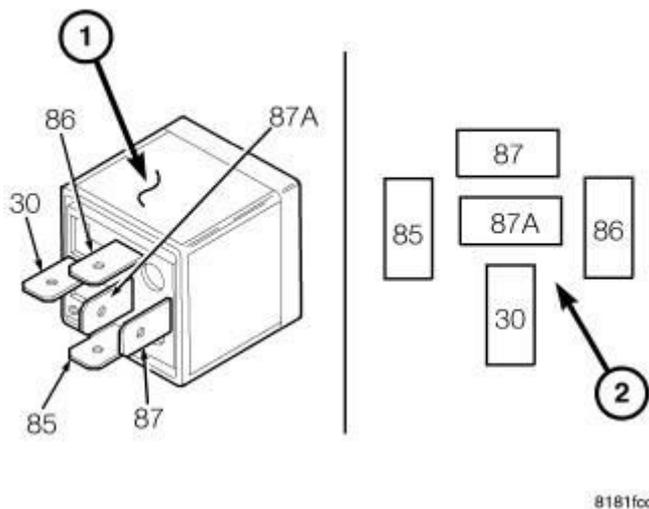


Fig. 194: Standard ISO-Type Relay
Courtesy of CHRYSLER GROUP, LLC

Two relays (1) are used for the electric Positive Temperature Coefficient (PTC) heater system when equipped with the 2.2L diesel engine. The relays are International Standards Organization (ISO)-type relays. Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal functions and patterns (2). The PTC relays are electromechanical devices that switch fused battery current directly to the heating elements of the PTC heater unit. The PTC relays are energized by control circuits of the Totally Integrated Power Module (TIPM).

The two PTC relays are located below the left front fender in the diesel accessory fuse/relay block.

REMOVAL**REMOVAL**

NOTE: LHD model shown in illustration, RHD model similar.

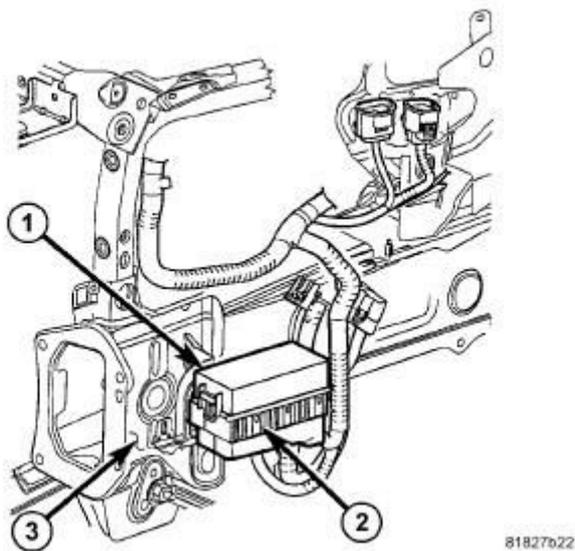


Fig. 195: Diesel Accessory Fuse/Relay Block
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with left front fender removed for clarity.

1. Disconnect and isolate the negative battery cable.
2. Remove the left front wheelhouse splash shield. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, REMOVAL** .
3. Open the cover (1) of the diesel accessory fuse/relay block (2) located on the left front frame rail (3).
4. Remove the positive temperature coefficient (PTC) relays as necessary from the fuse/relay block.

INSTALLATION**INSTALLATION**

NOTE: LHD model shown in illustration, RHD model similar.

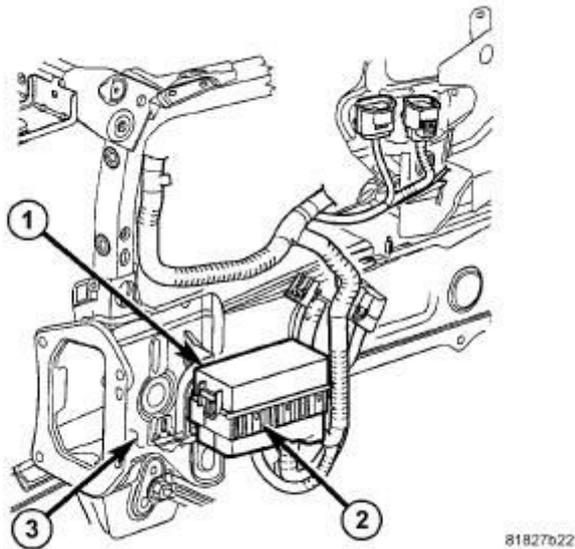


Fig. 196: Diesel Accessory Fuse/Relay Block
Courtesy of CHRYSLER GROUP, LLC

NOTE: Illustration shown with left front fender removed for clarity.

1. Position the positive temperature coefficient (PTC) relays as necessary into the proper receptacle of the diesel accessory fuse/relay block (2) located on the left front frame rail (3).
2. Align the PTC relay terminals with the terminal cavities in the fuse/relay block and push down firmly on each relay until the terminals are fully seated.
3. Close the cover (1) of the diesel accessory fuse/relay block.
4. Install the left front wheel house splash shield. Refer to **SHIELD, SPLASH, FRONT WHEELHOUSE, INSTALLATION** .
5. Reconnect the negative battery cable.

UNIT, HEATER

DESCRIPTION

DESCRIPTION

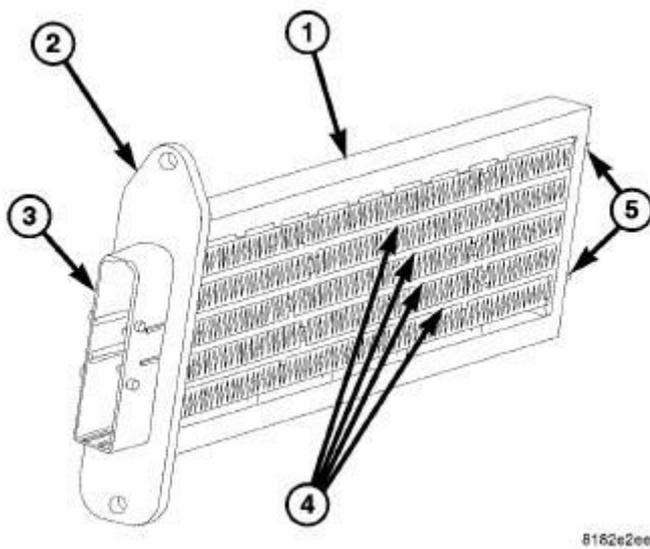


Fig. 197: PTC Heater Assembly
 Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

An electric Positive Temperature Coefficient (PTC) heater unit (1) is used on vehicles when equipped with the 2.2L diesel engine. The PTC heater unit aids in passenger compartment heating by compensating for the lower engine coolant temperatures produced by the diesel engine. The PTC heater unit is mounted in the HVAC air distribution housing, downstream of the heater core and is controlled by the diesel Engine Control Module (ECM) and the Totally Integrated Power Module (TIPM) through two relays in diesel accessory fuse/relay block located below the left front fender.

The PTC heater consists of a molded plastic mounting plate (2) with an integral wire connector receptacle (3). Concealed behind the mounting plate are four heating elements with fins (4) that transfer the heat produced by the PTC heater to the conditioned air flowing within the air distribution housing. 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 by removing the instrument panel.

OPERATION

OPERATION

The Positive Temperature Coefficient (PTC) heater unit dissipates 1 kW of electrical power through four heating bars. The Engine Control Module (ECM) and the Totally Integrated Power module (TIPM) operate the two relays for the PTC heater unit. The PTC heater unit is split into two "banks". Each bank is driven separately based on alternator load. This allows for lower in-rush current and optimum battery charging. After a bank has been turned on, another bank can only be turned on 10 seconds after the previous. On average, the PTC banks are not switched more than 25 times for each vehicle start. The electrical power output is between 900-1050 W.

The control system for the PTC heater unit is diagnosed using a scan tool. Prior to replacing a PTC heater unit, check for any Diagnostic Trouble Codes (DTCs) related to the ECM, TIPM and heating-A/C system. See the appropriate Diagnostic Information.

The PTC heater unit cannot be adjusted or repaired and must be replaced if inoperative or damaged.

DIAGNOSIS AND TESTING

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 appropriate Wiring Information 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. Repair as necessary.

1. Disconnect and isolate the negative battery cable.
2. Disconnect the wire harness connector from the PTC heater unit. Refer to **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: Review the warnings and cautions for this system before performing the procedure. Failure to follow these instructions may result in serious injury or death.

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.

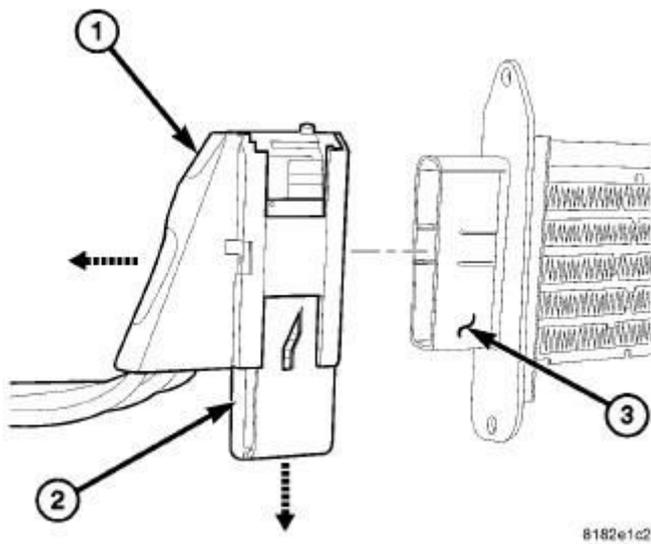


Fig. 198: Identifying PTC Heater Connector
Courtesy of CHRYSLER GROUP, LLC

NOTE: PTC heater shown in illustration removed from distribution housing for clarity.

1. Disconnect and isolate the negative battery cable.
2. Remove the instrument panel. Refer to **PANEL, INSTRUMENT, REMOVAL**.

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.

3. 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.

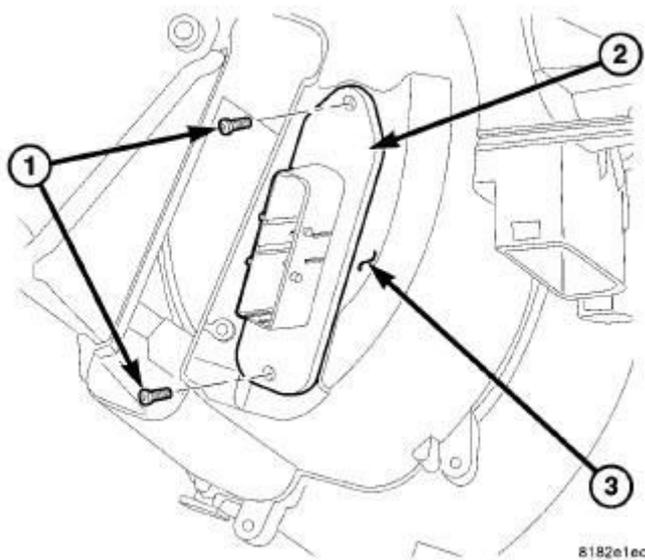


Fig. 199: PTC Heater Unit
Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, RHD model similar.

4. Remove the two screws (1) that secure the PTC heater unit (2) to the left side of the HVAC air distribution housing (3).
5. Carefully remove the PTC heater unit from the air distribution housing by pulling it straight out of the housing.

INSTALLATION

INSTALLATION

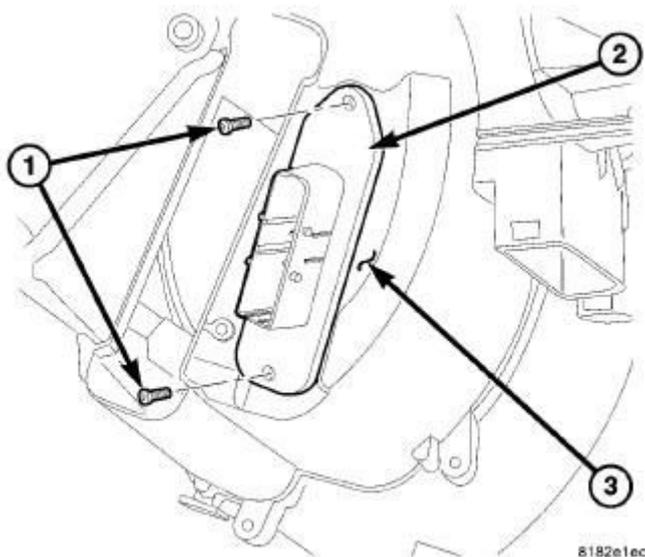


Fig. 200: PTC Heater Unit
 Courtesy of CHRYSLER GROUP, LLC

NOTE: LHD model shown in illustration, 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.).

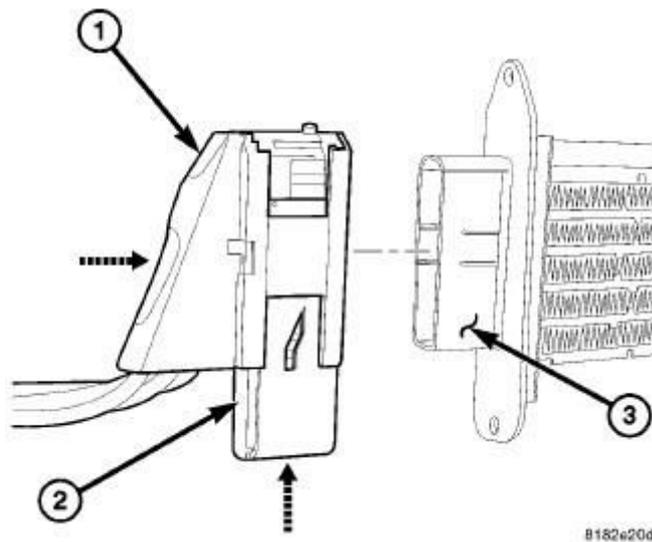


Fig. 201: Identifying PTC Heater Connector
 Courtesy of CHRYSLER GROUP, LLC

NOTE: PTC heater shown in illustration 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. Install the instrument panel. Refer to **PANEL, INSTRUMENT, INSTALLATION**.
5. Reconnect the negative battery cable.