

2004 Cadillac SRX

2004 HVAC Heating, Ventilation & Air Conditioning - SRX

2004 HVAC

Heating, Ventilation & Air Conditioning - SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
A/C Compressor Mounting Bolt	25 N.m	18 lb ft
Air Inlet Assembly Lower Bolt	9 N.m	80 lb in
Air Inlet Assembly Upper Bolts	9 N.m	80 lb in
Air Outlet Duct Screws	2 N.m	17 lb in
Auxiliary Evaporator Inlet Line to Auxiliary Evaporator Core Nut	6 N.m	53 lb in
Auxiliary Evaporator Outlet Line to Auxiliary Evaporator Core Nut	6 N.m	53 lb in
Auxiliary HVAC Module Case Screws	1 N.m	9 lb in
Auxiliary HVAC Module Mounting Bolts	7 N.m	62 lb in
Auxiliary TXV Assembly to Auxiliary Evaporator Bolts	3.5 N.m	31 lb in
Blower Motor Mounting Screws	1.5 N.m	13 lb in
Compressor Discharge Hose Bolt	9 N.m	80 lb in
Compressor Suction Hose Bolt	9 N.m	80 lb in
Condenser Discharge Hose Bolt	9 N.m	80 lb in
Condenser Inlet Hose Bolt	9 N.m	80 lb in
Condenser Mounting Bolts	5.4 N.m	48 lb in
Desiccant Bag Plug	2.9 N.m	26 lb in
Heater Hose Bracket Nut	9 N.m	80 lb in
HVAC Module Mounting Nuts	9 N.m	80 lb in
HVAC Module Screws	1 N.m	9 lb in
Suction Line Bracket Screw	2 N.m	18 lb in
Suction Line Bracket Screw with Rear Air (C57)	6 N.m	53 lb in
Refrigerant Pressure Sensor	9.8 N.m	87 lb in
TXV Bolts	3.5 N.m	31 lb in

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REFRIGERANT SYSTEM CAPACITIES

Refrigerant System Capacities

Application	Specification	
	Metric	English
PAG Oil GM P/N 12378526 for United States PAG Oil GM P/N 88900060 for Canada		
Compressor Replacement		
The Denso 10S20 service compressor is precharged with the specified amount of PAG oil.	180 ml ¹	6.09 oz ¹
Auxiliary Evaporator	40 ml ¹	1.35 oz ¹
Condenser Replacement	40 ml ¹	1.35 oz ¹
Desiccant Bag Replacement	10 ml ¹	0.34 oz ¹
Evaporator Replacement	40 ml ¹	1.35 oz ¹
Refrigerant Line Replacement	10 ml ¹	0.34 oz ¹
Total System PAG Oil Capacity	180 ml	6.09 oz
R-134a		
Refrigerant Charge	0.57 kg	1.26 lb
Refrigerant Charge with Rear A/C (C57)	0.80 kg	1.76 lb
¹ If more than the specified amount of PAG oil was drained from a component, add the equal amount of oil drained.		

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - HEATING, VENTILATION AND AIR CONDITIONING

The Heating, Ventilation and Air Conditioning (HVAC) system is divided into 2 sections. The first, Heating, Ventilation and Air Conditioning, has all procedures that pertain to a HVAC component or function that are not specifically associated with an automatic control system. The second, HVAC Systems-Automatic, has all the procedures specific to the automatic control system.

Begin the system diagnosis with the **Diagnostic System Check - HVAC Systems - Automatic** in HVAC Systems-Automatic.

The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system.
- The ability of the control modules to communicate through the class 2 serial data circuit.

The use of the Diagnostic System Check will identify and lead the technician to the correct diagnostic procedure.

Review the Description and Operation information to help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. The HVAC Description and Operation information is divided into:

- **Air Delivery Description and Operation** in HVAC Systems-Automatic
- **Air Temperature Description and Operation** in HVAC Systems-Automatic

The Air Delivery Description and Operation contains the following topics:

- Air Speed
- Air Distribution

The Air Temperature Description and Operation contains the following topics:

- Heater Mode
- A/C Mode
- A/C Cycle

LEAK TESTING

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.
- **J 41447** Leak Detection Dye. See **Special Tools and Equipment**.
- **J 42220** Leak Detection Lamp. See **Special Tools and Equipment**.
- **J 43872** Fluorescent Dye Cleaner. See **Special Tools and Equipment**.
- **J 46297** A/C Dye Injector Kit. See **Special Tools and Equipment**.
- **J 46297-12** Replacement Dye Cartridges. See **Special Tools and Equipment**.

Refrigerant Leak Testing

IMPORTANT: General Motors vehicles are now manufactured with fluorescent dye installed directly into the air conditioning (A/C) system.

The fluorescent dye mixes and flows with the polyalkylene glycol (PAG) oil throughout the refrigerant system.

Verifying some passive leaks may require using the **J 39400-A** , even though the A/C system contains fluorescent dye. See **Special Tools and Equipment**.

The only time that adding additional fluorescent dye is required is after flushing the A/C system.

Fluorescent Leak Detector

Fluorescent dye will assist in locating any leaks in the A/C system.

IMPORTANT: PAG oil is water soluble.

- Condensation on the evaporator core or the refrigerant lines may wash the PAG oil and fluorescent dye away from the actual leak. Condensation may also carry dye through the HVAC module drain.
- Leaks in the A/C system will be indicated in a light green or yellow color when using the leak detection lamp.

Use the leak detection lamp in the following areas:

- All fittings or connections that use seal washers or O-rings
- All of the A/C components
- The A/C compressor shaft seal
- The A/C hoses and pressure switches
- The HVAC module drain tube, if the evaporator core is suspected of leaking
- The service port sealing caps

The sealing cap is the primary seal for the service ports.

- Follow the instructions supplied with the **J 42220** . See **Special Tools and Equipment**.
- To prevent false diagnosis in the future, thoroughly clean the residual dye from any area where leaks were found. Use a rag and the approved **J 43872** . See **Special Tools and Equipment**.

Fluorescent Dye Injection

IMPORTANT: Use only fluorescent dye approved by General Motors.

- J 41447 can be poured directly into a removed A/C component. See Special Tools and Equipment.
- J 46297-12 is injected into the low side port using J 46297 . See Special Tools and Equipment.
- Not all of the fluorescent dyes are compatible with PAG oil. Some types of dye decrease the oil viscosity or may chemically react with the oil.
- R-134A leak detection dye requires time to work. Depending upon the leak rate, a leak may not become visible for between 15 minutes and 7 days.

IMPORTANT: Do NOT overcharge the A/C system with dye. Use only one 7.39 ml (0.25 oz) charge.

- To prevent false diagnosis, thoroughly clean any residual dye from the service port with a rag and the approved fluorescent dye cleaner J 43872 . See Special Tools and Equipment.

Halogen Leak Detector

CAUTION: Do not operate the detector in a combustible atmosphere since its sensor operates at high temperatures or personal injury and/or damage to the equipment may result.

Ensure that the vehicle has at least 0.45 kg (1 lb) of refrigerant in the A/C refrigeration system in order to perform a leak test. Refer to Refrigerant Recovery and Recharging for recharging the A/C system.

IMPORTANT: Halogen leak detectors are sensitive to the following items:

- Windshield washing solutions
- Many solvents and cleaners
- Some adhesives used in the vehicle

Clean and dry all surfaces in order to prevent a false warning. Liquids will damage the detector.

IMPORTANT: Follow a continuous path in order to ensure that you will not miss any possible leaks. Test all areas of the system for leaks.

Follow the instructions supplied with the **J 39400-A** . See **Special Tools and Equipment**.

AIR CONDITIONING (A/C) SYSTEM PERFORMANCE TEST (LH2 - STANDARD COOLING)

Test Description

This test measures the operating efficiency of the A/C system under the following conditions:

- The current ambient air temperature
- The current relative humidity
- The high side pressure of the A/C system
- The low side pressure of the A/C system
- The temperature of the air being discharged into the passenger compartment

The numbers below refer to the step numbers on the diagnostic table.

1: This step determines if the A/C system has at least the minimum refrigerant charge required to operate the system without damage.

2: This step measures the performance of the A/C system.

3: This step is to allow for vehicle variations as well as high ambient temperatures.

Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)

Step	Action	Values	Yes	No
IMPORTANT: • The ambient air temperature must be at least 16°C (60°F). • Do not induce additional air flow across the front of the vehicle during the test. • If you were sent here from a DTC diagnostic table, clear the DTC upon completion of this test.				
	1. Park the vehicle inside or in the shade. 2. Open the windows in order to ventilate the interior of the vehicle. 3. If the A/C system was operating, allow the A/C system to equalize for about 5 minutes.	More than 16°C (60° F) - 345 kPa (50 psi) More than		

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1	4. Turn OFF the ignition. 5. Install the J 43600 ACR 2000 Air Conditioning Service Center. See <u>Special Tools and Equipment</u>. 6. Record the ambient air temperature displayed on the J 43600 . See <u>Special Tools and Equipment</u>. 7. Record the low and high side STATIC pressure readings. Are both the low side and high side pressures above the specified value?	24°C (75° F) - 483 kPa (70 psi) More than 33°C (90° F) - 690 kPa (100 psi)	Go to Step 2	Go to <u>Leak Testing</u>
	IMPORTANT: Record the relative humidity and the ambient air temperature at the time of the test. 1. Close the vehicle doors and windows. 2. Open the driver's door window 12.7-15.2 cm (5-6 inches). 3. Select the following HVAC control settings: • The A/C is ON • The maximum blower speed • The maximum blower speed selected on the auxiliary blower controls • Recirculation mode • The Face mode • The coldest temperature setting • Passenger setting is OFF • All A/C outlets are OPEN 4. Install the temperature probes of the J 43600 in the left and right center A/C air outlets. See <u>Special Tools</u>			

2	<u>and Equipment.</u> 5. Apply the parking brake. 6. Place the transaxle/transmission in the following position: PARK. 7. Start the engine. 8. Operate the A/C system for 5 minutes. 9. Inspect A/C components for the following conditions: • Abnormal frost areas • Unusual noises IMPORTANT: Make sure that the compressor is engaged when taking the data. Press the RESET button, before using the print function of the J 43600 . See <u>Special Tools and Equipment.</u> 10. Print the following information: • The outlet air temperatures • The low-side pressure • The high-side pressure 11. Compare the low and high side pressures and the output temperatures to the A/C Performance Table. Does all the data recorded fall within the specified ranges of the A/C Performance Table?	-		
	If the pressures and temperatures recorded do not fall within the specified ranges of the A/C Performance Table: 1. Continue to operate the A/C system for an additional 5 minutes. 2. RESET the J 43600 and record the		Go to Step 8	Go to Step 3

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3	pressures and temperatures again. See <u>Special Tools and Equipment</u>. 3. Compare the low and high side pressures and the output temperature to the A/C Performance Table. Does all the data recorded fall within the specified ranges?	-	Go to Step 8	Go to Step 4
4	Do the high and low side pressures fall within the specified ranges, but the outlet temperatures do not?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone A</u>	Go to Step 5
5	Is the low side pressure greater than the specified range, but the high side pressure within or less than the specified range?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone B</u>	Go to Step 6
6	Are the low and high side pressures both greater than the specified ranges?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone C</u>	Go to Step 7
7	Is the high side pressure greater than or within the specified range, but the low side pressure is less than the specified range?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone D</u>	Go to Step 8
8	Operate the system in order to verify the test results. Did you find the same results?	-		Go to <u>Symptoms - HVAC Systems - Automatic</u> in HVAC

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			System OK	Systems-Automatic
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A/C Performance Table - With Rear A/C

Ambient Temperature	Relative Humidity	Low Side Service Port Pressure	High Side Service Port Pressure	Maximum Left Center Discharge Air Temperature	Maximum Left Side Rear Discharge Air Temperature
13-18°C (55-65°F)	0-100%	201-271 kPa (29-39 psi)	1448-1689 kPa (210-245 psi)	14°C (57°F)	16°C (61°F)
19-24°C (66-75°F)	Less than 40%	212-293 kPa (30-42 psi)	1489-1758 kPa (216-255 psi)	15°C (59°F)	17°C (63°F)
	Greater than 40%	224-299 kPa (32-43 psi)	1420-1591 kPa (206-231 psi)	16°C (61°F)	17°C (63°F)
25-29°C (76-85°F)	Less than 35%	248-316 kPa (36-45 psi)	1420-1655 kPa (206-240 psi)	17°C (63°F)	19°C (66°F)
	35-60%	248-316 kPa (36-45 psi)	1475-1661 kPa (214-241 psi)	17°C (63°F)	19°C (66°F)
	Greater than 60%	248-316 kPa (36-45 psi)	1386-1641 kPa (201-238 psi)	17°C (63°F)	19°C (66°F)
30-35°C (86-95°F)	Less than 30%	277-348 kPa (40-50 psi)	1565-1851 kPa (227-269 psi)	20°C (68°F)	21°C (70°F)
	30-50%	277-342 kPa (40-49 psi)	1631-1741 kPa (237-253 psi)	20°C (68°F)	21°C (70°F)
	Greater than 50%	276-333 kPa (39-48 psi)	1581-1772 kPa (229-257 psi)	19°C (66°F)	20°C (68°F)
	Less than 20%	316-384 kPa (45-55 psi)	1871-2061 kPa (271-299 psi)	23°C (73°F)	24°C (75°F)

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36-41°C (96-105°F)	20-40%	304-373 kPa (44-53 psi)	psi) 1786-1931 kPa (259-280 psi)	22°C (72°F)	23°C (73°F)
	Greater than 40%	304-362 kPa (44-52 psi)	1669-1827 kPa (242-265 psi)	22°C (72°F)	23°C (73°F)
42-46°C (106-115°F)	Less than 20%	348-412 kPa (50-59 psi)	2051-2234 kPa (298-324 psi)	25°C (77°F)	26°C (79°F)
	Greater than 20%	342-396 kPa (49-57 psi)	1855-2096 kPa (269-304 psi)	24°C (75°F)	25°C (77°F)
47-49°C (116-120°F)	Less than 30%	373-420 kPa (53-60 psi)	2213-2489 kPa (321-361 psi)	26°C (79°F)	27°C (81°F)

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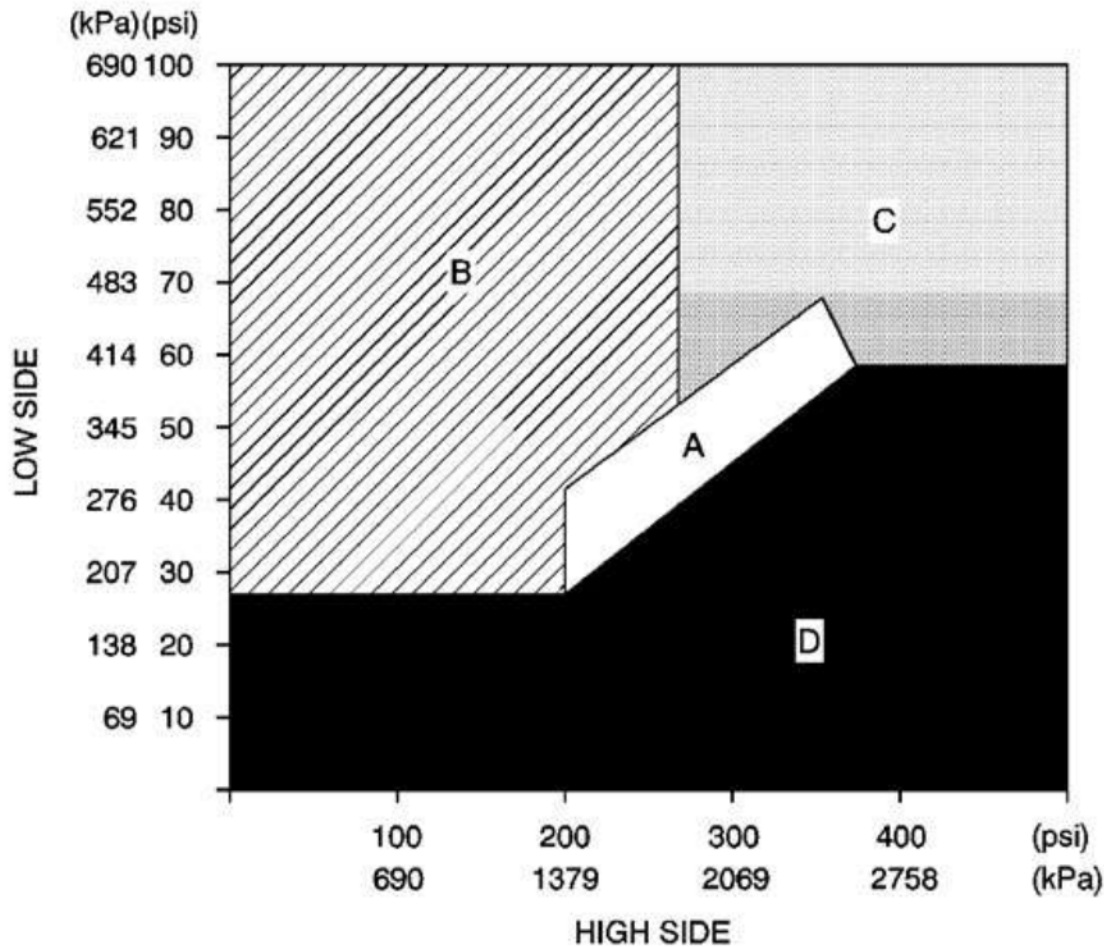


Fig. 1: A/C System Pressure - Zone Classification

Courtesy of GENERAL MOTORS CORP.

AIR CONDITIONING (A/C) SYSTEM PERFORMANCE TEST (LH2 - HEAVY DUTY COOLING) COOLING)

Test Description

This test measures the operating efficiency of the A/C system under the following conditions:

- The current ambient air temperature
- The current relative humidity
- The high side pressure of the A/C system
- The low side pressure of the A/C system
- The temperature of the air being discharged into the passenger compartment

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The numbers below refer to the step numbers on the diagnostic table.

- 1:** This step determines if the A/C system has at least the minimum refrigerant charge required to operate the system without damage.
- 2:** This step measures the performance of the A/C system.
- 3:** This step is to allow for vehicle variations as well as high ambient temperatures.

Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)

Step	Action	Values	Yes	No
IMPORTANT: - The ambient air temperature must be at least 16°C (60°F). - Do not induce additional air flow across the front of the vehicle during the test. - If you were sent here from a DTC diagnostic table, clear the DTC upon completion of this test.				
1	- Park the vehicle inside or in the shade. - Open the windows in order to ventilate the interior of the vehicle. - If the A/C system was operating, allow the A/C system to equalize for about 5 minutes. - Turn OFF the ignition. - Install the J 43600 ACR 2000 Air Conditioning Service Center. See <u>Special Tools and Equipment</u>. - Record the ambient air temperature displayed on the J 43600 . See <u>Special Tools and Equipment</u>. - Record the low and high side STATIC pressure readings. Are both the low side and high side pressures above the specified value?	More than 16°C (60° F) - 345 kPa (50 psi) More than 24°C (75° F) - 483 kPa (70 psi) More than 33°C (90° F) - 690 kPa (100 psi)	Go to Step 2	Go to <u>Leak Testing</u>
	IMPORTANT: Record the relative humidity and the ambient air temperature at the time of the test.			

2

1. Close the vehicle doors and windows.
2. Open the driver's door window 12.7-15.2 cm (5-6 inches).
3. Select the following HVAC control settings:
 - The A/C is ON
 - The maximum blower speed
 - The maximum blower speed selected on the auxiliary blower controls
 - Recirculation mode
 - The Face mode
 - The coldest temperature setting
 - Passenger setting is OFF
 - All A/C outlets are OPEN
4. Install the temperature probes of the **J 43600** in the left and right center A/C air outlets. See **Special Tools and Equipment**.
5. Apply the parking brake.
6. Place the transaxle/transmission in the following position: PARK.
7. Start the engine.
8. Operate the A/C system for 5 minutes.
9. Inspect A/C components for the following conditions:
 - Abnormal frost areas
 - Unusual noises

IMPORTANT:

Make sure that the compressor is engaged when taking the data.

Press the **RESET** button, before using the print function of the J 43600 . See

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	<u>Special Tools and Equipment.</u> 10. Print the following information: • The outlet air temperatures • The low-side pressure • The high-side pressure 11. Compare the low and high side pressures and the output temperatures to the A/C Performance Table. Does all the data recorded fall within the specified ranges of the A/C Performance Table?			
			Go to Step 8	Go to Step 3
3	If the pressures and temperatures recorded do not fall within the specified ranges of the A/C Performance Table: 1. Continue to operate the A/C system for an additional 5 minutes. 2. RESET the J 43600 and record the pressures and temperatures again. See <u>Special Tools and Equipment.</u> 3. Compare the low and high side pressures and the output temperature to the A/C Performance Table. Does all the data recorded fall within the specified ranges?	-		
			Go to Step 8	Go to Step 4
4	Do the high and low side pressures fall within the specified ranges, but the outlet temperatures do not?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone A</u>	Go to Step 5
	Is the low side pressure greater than the specified range, but the high side pressure		Go to <u>Air Conditioning</u>	

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5	within or less than the specified range?	-	<u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone B</u>	Go to Step 6
6	Are the low and high side pressures both greater than the specified ranges?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone C</u>	Go to Step 7
7	Is the high side pressure greater than or within the specified range, but the low side pressure is less than the specified range?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone D</u>	Go to Step 8
8	Operate the system in order to verify the test results. Did you find the same results?	-	System OK	Go to <u>Symptoms -</u> <u>HVAC</u> <u>Systems -</u> <u>Automatic</u> in HVAC Systems- Automatic

A/C Performance Table - With Rear A/C

Ambient Temperature	Relative Humidity	Low Side Service Port Pressure	High Side Service Port Pressure	Maximum Left Center Discharge Air Temperature	Maximum Left Side Rear Discharge Air Temperature
13-18°C (55-65°F)	0-100%	150-291 kPa (22-42 psi)	861-1491 kPa (125-216 psi)	15°C (59°F)	17°C (63°F)
19-24°C (66-75°F)	Less than 40%	150-277 kPa (22-40 psi)	951-1571 kPa (138-228 psi)	15°C (59°F)	17°C (63°F)
	Greater than 40%	191-334 kPa (26-46 psi)	1151-1791 kPa (167-260 psi)	17°C (63°F)	19°C (66°F)

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25-29°C (76-85°F)	Less than 35%	201-309 kPa (29-45 psi)	1351-1831 kPa (196-266 psi)	15°C (59°F)	17°C (63°F)
	35-60%	229-326 kPa (33-47 psi)	1461-1911 kPa (212-277 psi)	16°C (61°F)	18°C (64°F)
	Greater than 60%	245-361 kPa (36-52 psi)	1551-2051 kPa (225-298 psi)	19°C (66°F)	21°C (70°F)
30-35°C (86-95°F)	Less than 30%	245-351 kPa (36-51 psi)	1661-2161 kPa (241-313 psi)	18°C (64°F)	20°C (68°F)
	30-50%	263-369 kPa (38-54 psi)	1731-2242 kPa (251-325 psi)	19°C (66°F)	21°C (70°F)
	Greater than 50%	291-395 kPa (42-57 psi)	1831-2352 kPa (266-341 psi)	21°C (70°F)	23°C (73°F)
36-41°C (96-105°F)	Less than 20%	294-395 kPa (43-57 psi)	2011-2492 kPa (292-361 psi)	22°C (72°F)	24°C (75°F)
	20-40%	303-405 kPa (44-59 psi)	2051-2552 kPa (298-370 psi)	22°C (72°F)	24°C (75°F)
	Greater than 40%	320-416 kPa (46-60 psi)	2121-2602 kPa (308-377 psi)	23°C (73°F)	25°C (77°F)
42-46°C (106-115°F)	Less than 20%	349-437 kPa (51-63 psi)	2382-2827 kPa (345-410 psi)	25°C (77°F)	28°C (82°F)
	Greater than 20%	349-443 kPa (51-64 psi)	2412-2861 kPa (350-415 psi)	25°C (77°F)	27°C (81°F)
47-49°C (116-120°F)	Less than 30%	397-465 kPa (58-67 psi)	2620-2861 kPa (380-415 psi)	27°C (81°F)	29°C (84°F)

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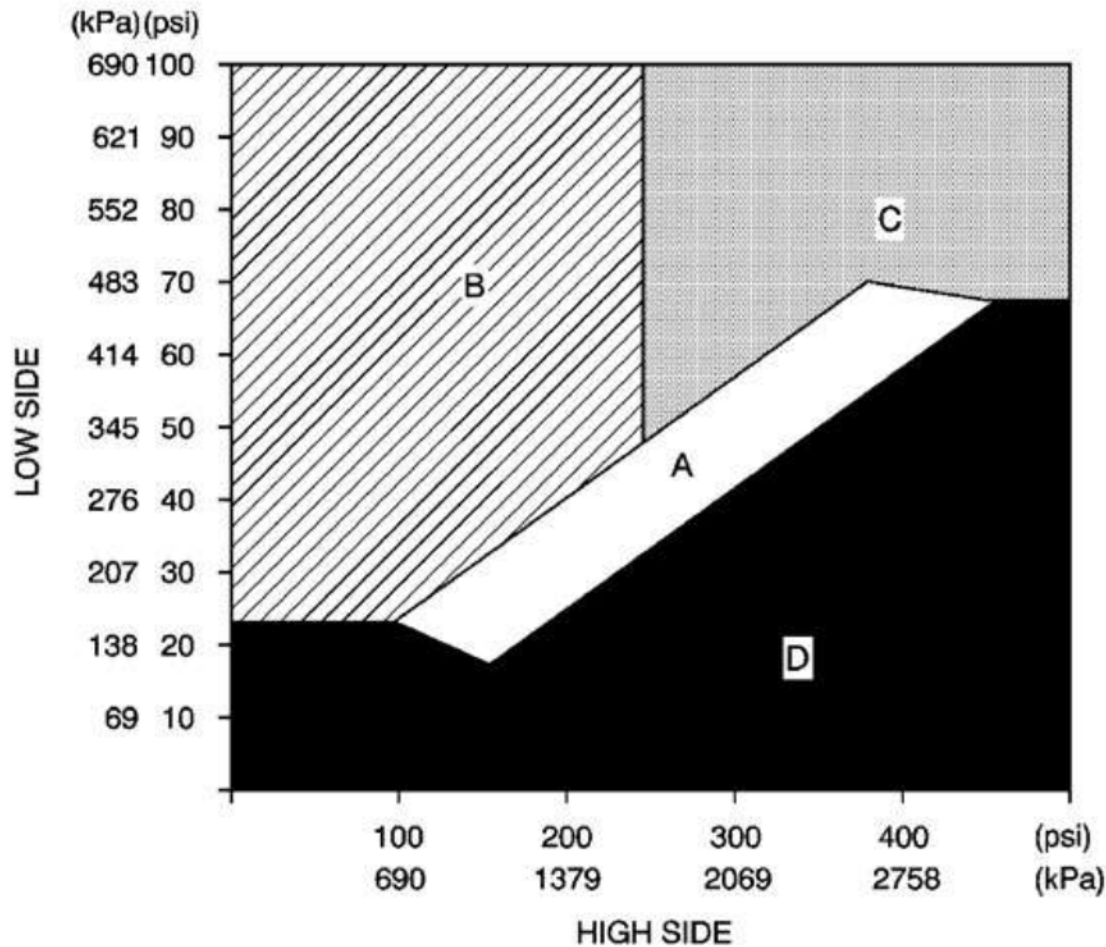


Fig. 2: A/C System Pressure - Zone Classification
Courtesy of GENERAL MOTORS CORP.

AIR CONDITIONING (A/C) SYSTEM PERFORMANCE TEST (LY7 - W/O C57 - STANDARD COOLING)

Test Description

This test measures the operating efficiency of the A/C system under the following conditions:

- The current ambient air temperature
- The current relative humidity
- The high side pressure of the A/C system
- The low side pressure of the A/C system
- The temperature of the air being discharged into the passenger compartment

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The numbers below refer to the step numbers on the diagnostic table.

- 1:** This step determines if the A/C system has at least the minimum refrigerant charge required to operate the system without damage.
- 2:** This step measures the performance of the A/C system.
- 3:** This step is to allow for vehicle variations as well as high ambient temperatures.

Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)

Step	Action	Values	Yes	No
IMPORTANT: - The ambient air temperature must be at least 16°C (60°F). - Do not induce additional air flow across the front of the vehicle during the test. - If you were sent here from a DTC diagnostic table, clear the DTC upon completion of this test.				
1	- Park the vehicle inside or in the shade. - Open the windows in order to ventilate the interior of the vehicle. - If the A/C system was operating, allow the A/C system to equalize for about 5 minutes. - Turn OFF the ignition. - Install the J 43600 ACR 2000 Air Conditioning Service Center. See Special Tools and Equipment. - Record the ambient air temperature displayed on the J 43600. See Special Tools and Equipment. - Record the low and high side STATIC pressure readings. Are both the low side and high side pressures above the specified value?	More than 16°C (60°F) - 345 kPa (50 psi) More than 24°C (75°F) - 483 kPa (70 psi) More than 33°C (90°F) - 690 kPa (100 psi)	Go to Step 2	Go to Leak Testing
	IMPORTANT: Record the relative humidity and the ambient air temperature at the time of the test.			

2

1. Close the vehicle doors and windows.
2. Open the driver's door window 12.7-15.2 cm (5-6 inches).
3. Select the following HVAC control settings:
 - The A/C is ON
 - The maximum blower speed
 - The maximum blower speed selected on the auxiliary blower controls
 - Recirculation mode
 - The Face mode
 - The coldest temperature setting
 - Passenger setting is OFF
 - All A/C outlets are OPEN
4. Install the temperature probes of the **J 43600** in the left and right center A/C air outlets. See **Special Tools and Equipment**.
5. Apply the parking brake.
6. Place the transaxle/transmission in the following position: PARK.
7. Start the engine.
8. Operate the A/C system for 5 minutes.
9. Inspect A/C components for the following conditions:
 - Abnormal frost areas
 - Unusual noises

IMPORTANT:

Make sure that the compressor is engaged when taking the data.

Press the **RESET** button, before using the print function of the J 43600 . See

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	<u>Special Tools and Equipment.</u> 10. Print the following information: • The outlet air temperatures • The low-side pressure • The high-side pressure 11. Compare the low and high side pressures and the output temperatures to the A/C Performance Table. Does all the data recorded fall within the specified ranges of the A/C Performance Table?			
			Go to Step 8	Go to Step 3
3	If the pressures and temperatures recorded do not fall within the specified ranges of the A/C Performance Table: 1. Continue to operate the A/C system for an additional 5 minutes. 2. RESET the J 43600 and record the pressures and temperatures again. See <u>Special Tools and Equipment.</u> 3. Compare the low and high side pressures and the output temperature to the A/C Performance Table. Does all the data recorded fall within the specified ranges?	-		
			Go to Step 8	Go to Step 4
4	Do the high and low side pressures fall within the specified ranges, but the outlet temperatures do not?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone A</u>	Go to Step 5
	Is the low side pressure greater than the specified range, but the high side pressure		Go to <u>Air Conditioning</u>	

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5	within or less than the specified range?	-	<u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone B</u>	Go to Step 6
6	Are the low and high side pressures both greater than the specified ranges?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone C</u>	Go to Step 7
7	Is the high side pressure greater than or within the specified range, but the low side pressure is less than the specified range?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone D</u>	Go to Step 8
8	Operate the system in order to verify the test results. Did you find the same results?	-	System OK	Go to <u>Symptoms -</u> <u>HVAC</u> <u>Systems -</u> <u>Automatic</u> in HVAC Systems- Automatic

A/C Performance Table

Ambient Temperature	Relative Humidity	Low Side Service Port Pressure	High Side Service Port Pressure	Maximum Left Center Discharge Air Temperature
13-18°C (55-65° F)	0-100%	150-186 kPa (22-27 psi)	640-1071 kPa (93-155 psi)	10°C (50°F)
19-24°C (66-75° F)	Less than 40%	150-191 kPa (22-28 psi)	710-1131 kPa (103-164 psi)	10°C (50°F)
	Greater than 40%	150-223 kPa (22-32 psi)	831-1291 kPa (120-187 psi)	13°C (55°F)
	Less than 35%	150-213 kPa (22-31 psi)	961-1301 kPa (139-189 psi)	13°C (55°F)

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25-29°C (76-85°F)	35-60%	150-223 kPa (22-32 psi)	1207-1503 kPa (175-218 psi)	14°C (57°F)
	Greater than 60%	159-2450 kPa (23-36 psi)	1276-1600 kPa (185-232 psi)	16°C (61°F)
30-35°C (86-95°F)	Less than 30%	159-241 kPa (23-35 psi)	1151-1511 kPa (167-219 psi)	16°C (61°F)
	30-50%	169-253 kPa (25-37 psi)	1201-1571 kPa (174-228 psi)	17°C (63°F)
	Greater than 50%	183-271 kPa (27-39 psi)	1551-1793 kPa (225-260 psi)	19°C (66°F)
36-41°C (96-105°F)	Less than 20%	183-271 kPa (27-39 psi)	1361-1701 kPa (197-247 psi)	19°C (66°F)
	20-40%	191-277 kPa (28-40 psi)	1391-1761 kPa (202-255 psi)	20°C (68°F)
	Greater than 40%	207-288 kPa (30-42 psi)	1461-1831 kPa (212-266 psi)	21°C (70°F)
42-46°C (106-115°F)	Less than 20%	223-294 kPa (32-43 psi)	1591-1891 kPa (231-274 psi)	21°C (70°F)
	Greater than 20%	227-302 kPa (33-44 psi)	1621-1951 kPa (235-283 psi)	23°C (73°F)
47-49°C (116-120°F)	Below 30%	253-314 kPa (37-46 psi)	1811-2031 kPa (263-295 psi)	24°C (75°F)

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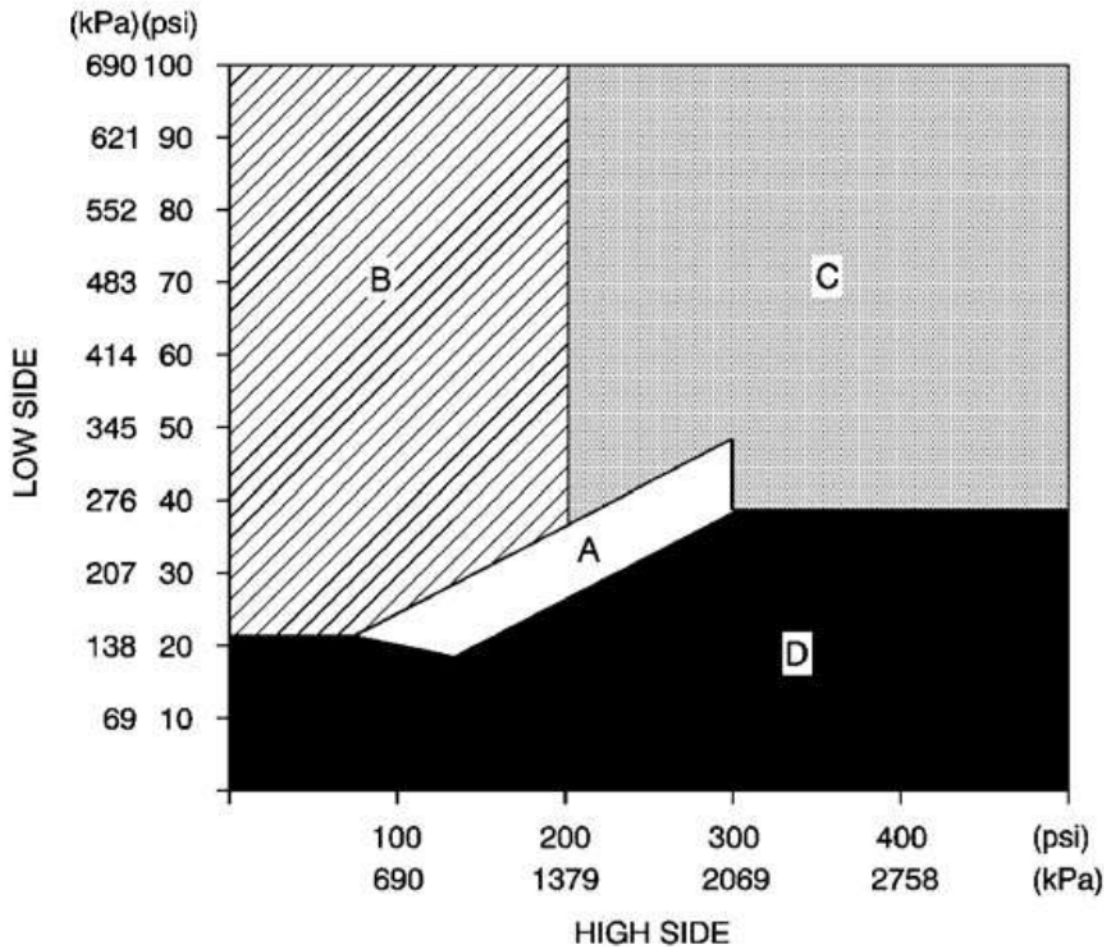


Fig. 3: A/C System Pressure - Zone Classification
Courtesy of GENERAL MOTORS CORP.

AIR CONDITIONING (A/C) SYSTEM PERFORMANCE TEST (LY7 - W/ C57 - STANDARD COOLING)

Test Description

This test measures the operating efficiency of the A/C system under the following conditions:

- The current ambient air temperature
- The current relative humidity
- The high side pressure of the A/C system
- The low side pressure of the A/C system
- The temperature of the air being discharged into the passenger compartment

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The numbers below refer to the step numbers on the diagnostic table.

- 1:** This step determines if the A/C system has at least the minimum refrigerant charge required to operate the system without damage.
- 2:** This step measures the performance of the A/C system.
- 3:** This step is to allow for vehicle variations as well as high ambient temperatures.

Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)

Step	Action	Values	Yes	No
IMPORTANT: - The ambient air temperature must be at least 16°C (60°F). - Do not induce additional air flow across the front of the vehicle during the test. - If you were sent here from a DTC diagnostic table, clear the DTC upon completion of this test.				
1	1. Park the vehicle inside or in the shade. 2. Open the windows in order to ventilate the interior of the vehicle. 3. If the A/C system was operating, allow the A/C system to equalize for about 5 minutes. 4. Turn OFF the ignition. 5. Install the J 43600 ACR 2000 Air Conditioning Service Center. See <u>Special Tools and Equipment</u> . 6. Record the ambient air temperature displayed on the J 43600 . See <u>Special Tools and Equipment</u> . 7. Record the low and high side STATIC pressure readings. Are both the low side and high side pressures above the specified value?	More than 16°C (60° F) - 345 kPa (50 psi) More than 24°C (75° F) - 483 kPa (70 psi) More than 33°C (90° F) - 690 kPa (100 psi)	Go to Step 2	Go to <u>Leak Testing</u>
	IMPORTANT: Record the relative humidity and the ambient air temperature at the time of the test.			

2

1. Close the vehicle doors and windows.
2. Open the driver door window 12.7-15.2 cm (5-6 inches).
3. Select the following HVAC control settings:
 - The A/C is ON.
 - The maximum blower speed
 - The maximum blower speed selected on the auxiliary blower controls
 - Recirculation mode
 - The Face mode
 - The coldest temperature setting
 - Passenger setting is OFF.
 - All A/C outlets are OPEN.
4. Install the temperature probes of the **J 43600** in the left and right center A/C air outlets. See **Special Tools and Equipment**.
5. Apply the parking brake.
6. Place the transaxle/transmission in PARK.
7. Start the engine.
8. Operate the A/C system for 5 minutes.
9. Inspect A/C components for the following conditions:
 - Abnormal frost areas
 - Unusual noises

IMPORTANT:

Make sure that the compressor is engaged when taking the data.

Press the **RESET** button, before using the print function of the J 43600 . See

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	<u>Special Tools and Equipment.</u> 10. Print the following information: • The outlet air temperatures • The low-side pressure • The high-side pressure 11. Compare the low and high side pressures and the output temperatures to the A/C Performance Table. Does all the data recorded fall within the specified ranges of the A/C Performance Table?			
3	If the pressures and temperatures recorded do not fall within the specified ranges of the A/C Performance Table: 1. Continue to operate the A/C system for an additional 5 minutes. 2. RESET the J 43600 and record the pressures and temperatures again. See <u>Special Tools and Equipment.</u> 3. Compare the low and high side pressures and the output temperature to the A/C Performance Table. Does all the data recorded fall within the specified ranges?	-	Go to Step 8	Go to Step 3
4	Do the high and low side pressures fall within the specified ranges, but the outlet temperatures do not?	-	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone A</u>	Go to Step 5
	Is the low side pressure greater than the specified range, but the high side pressure		Go to <u>Air Conditioning</u>	

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5	within or less than the specified range?	-	<u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone B</u>	Go to Step 6
6	Are the low and high side pressures both greater than the specified ranges?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone C</u>	Go to Step 7
7	Is the high side pressure greater than or within the specified range, but the low side pressure is less than the specified range?	-	Go to <u>Air</u> <u>Conditioning</u> <u>(A/C)</u> <u>Diagnostics -</u> <u>Pressure</u> <u>Zone D</u>	Go to Step 8
8	Operate the system in order to verify the test results. Did you find the same results?	-		Go to <u>Symptoms -</u> <u>HVAC</u> <u>Systems -</u> <u>Automatic</u> in HVAC Systems- Automatic System OK

A/C Performance Table - With Rear A/C

Ambient Temperature	Relative Humidity	Low Side Service Port Pressure	High Side Service Port Pressure	Maximum Left Center Discharge Air Temperature	Maximum Left Rear Discharge Air Temperature
13-18°C (55-65°F)	0-100%	180-226 kPa (26-33 psi)	1181-1451 kPa (171-210 psi)	12°C (54°F)	12°C (54°F)
19-24°C (66-75°F)	Less than 40%	199-263 kPa (29-38 psi)	1261-1531 kPa (183-222 psi)	14°C (57°F)	15°C (59°F)
	Greater than 40%	199-258 kPa (29-37 psi)	1311-1551 kPa (190-225 psi)	14°C (57°F)	15°C (59°F)

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25-29°C (76-85°F)	Less than 35%	226-283 kPa (33-41 psi)	1451-1661 kPa (210-241 psi)	16°C (61°F)	17°C (63°F)
	35-60%	222-310 kPa (32-45 psi)	1451-1793 kPa (210-260 psi)	16°C (61°F)	17°C (63°F)
	Greater than 60%	222-274 kPa (32-40 psi)	1379-1631 kPa (200-237 psi)	16°C (61°F)	17°C (63°F)
30-35°C (86-95°F)	Less than 30%	234-310 kPa (34-45 psi)	1601-1831 kPa (232-266 psi)	19°C (66°F)	19°C (66°F)
	30-50%	240-303 kPa (35-44 psi)	1591-1793 kPa (231-260 psi)	19°C (66°F)	19°C (66°F)
	Greater than 50%	240-297 kPa (35-43 psi)	1482-1731 kPa (215-251 psi)	19°C (66°F)	197°C (66°F)
36-41°C (96-105°F)	Less than 20%	274-337 kPa (40-49 psi)	1793-2021 kPa (260-293 psi)	21°C (70°F)	22°C (72°F)
	20-40%	266-329 kPa (39-48 psi)	1771-1961 kPa (257-284 psi)	21°C (70°F)	22°C (72°F)
	Greater than 40%	266-321 kPa (39-47 psi)	1731-1965 kPa (251-285 psi)	21°C (70°F)	22°C (72°F)
42-46°C (106-115°F)	Less than 20%	303-358 kPa (44-52 psi)	1981-2171 kPa (287-315 psi)	23°C (73°F)	24°C (75°F)
	Greater than 20%	297-348 kPa (43-51 psi)	1941-2081 kPa (282-302 psi)	23°C (73°F)	24°C (75°F)
47-49°C (116-120°F)	Below 30%	318-366 kPa (46-53 psi)	2137-2427 kPa (310-352 psi)	25°C (77°F)	25°C (77°F)

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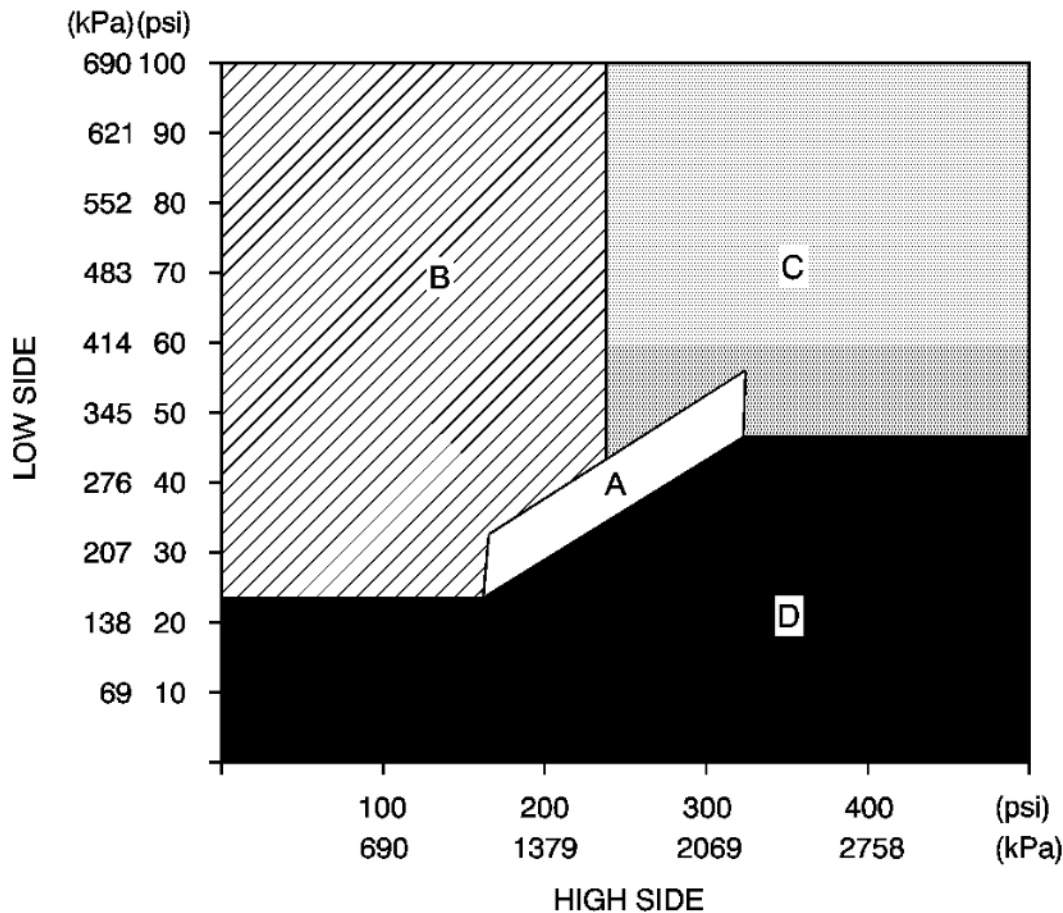


Fig. 4: A/C System Pressure - Zone Classification

Courtesy of GENERAL MOTORS CORP.

AIR CONDITIONING (A/C) DIAGNOSTICS - PRESSURE ZONE A

Air Conditioning (A/C) Diagnostics - Pressure Zone A

Step	Action	Yes	No
DEFINITION: The high and low side pressures may be normal or slightly less than normal.			
• Air Delivery Concern • Slight Refrigerant Under Charge • Refrigerant Contamination			
	Were you sent here from the A/C System Performance Test?		Go to Air Conditioning

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1			<u>(A/C) System Performance Test (LH2 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
2	Did the customer mention that the A/C system output temperatures are good at first, but then turn warm during extended drives?	Go to Step 2	
3	Increase engine speed to 1,500 RPM. During extended operation of the A/C system, does the low side pressure decrease?	Go to Step 3	Go to Step 4
	Refer to the pressures recorded during the A/C system performance test. CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. Inspect for the following conditions:	Go to <u>Air Conditioning (A/C) Diagnostics - Pressure Zone D</u>	Go to Step 4

4	• The high side pressure is slightly greater than the specified pressure ranges in the A/C System performance Table but still near Zone A on the A/C Pressure-Zone Classification Chart. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. • The discharge line is hot. • The suction line is cool. Do the listed conditions exist?	Go to Step 7	Go to Step 5
5	Refer to the pressures recorded during the A/C system performance test. Inspect for the following conditions: • The low side pressure is slightly lower than the specified pressure ranges but still near Zone A on the A/C Pressure-Zone Classification Chart. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>.		

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	<u>Performance Test (LY7 - w/ C57 - Standard Cooling).</u> • The discharge line is warm-to-hot. • The suction line is cool-to-warm. Do the listed conditions exist?	Go to Step 6	Go to <u>Too Hot in Vehicle</u> in HVAC Systems - Automatic
6	The A/C system may be undercharged. 1. Leak test the A/C system. Refer to <u>Leak Testing</u>. 2. Evacuate and Recharge the A/C system to specifications. Refer to <u>Refrigerant Recovery and Recharging</u>. Is the repair complete?	Go to Step 11	-
7	The A/C system may be contaminated. View the J 43600 ACR 2000 Air Conditioning Service Center information screen for detection of foreign gases in the A/C system. See <u>Special Tools and Equipment</u>. Do foreign gases exist?	Go to Step 8	Go to Step 9
8	1. Evacuate the A/C system to a scavenging tank. Refer to <u>Refrigerant Recovery and Recharging</u>. 2. Recharge the A/C system to specifications. Is the repair complete?	Go to Step 11	-
	The A/C system may contain too much moisture or air. 1. Evacuate and recharge the A/C system to specifications. Refer to <u>Refrigerant Recovery and Recharging</u>. 2. Operate the A/C system and inspect the panel outlet air temperatures. Refer to		

9	<u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. Are the panel outlet temperatures within the specified ranges of the A/C Performance Test Table?	Go to Step 11	Go to Step 10
10	- Record the low and high side pressures and the I/P panel outlet air temperature. - Compare the panel outlet temperatures and pressure to those listed in the A/C System Performance Chart. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. Are the high and low side pressures and I/P panel outlet temperatures within specifications?		Go to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>.

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		Go to Step 11	C57 - Standard Cooling
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Symptoms - HVAC Systems - Automatic in HVAC Systems - Automatic

AIR CONDITIONING (A/C) DIAGNOSTICS - PRESSURE ZONE B

Air Conditioning (A/C) Diagnostics - Pressure Zone B

Step	Action	Value	Yes	No
DEFINITION: The low side pressure is higher than normal and the high side pressure is lower than normal. - Malfunctioning A/C Compressor - Refrigerant Under Charge				
1	Were you sent here from the A/C System Performance Test?	-		Go to Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling) or

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				<u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
			Go to Step 2	
2	Refer to the pressures recorded during the A/C System Performance Test. Inspect for the following conditions: CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. - The low side pressure is greater than the specified pressure range of the A/C Performance Table. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. - The high side pressure is less than the specified pressure range of the A/C Performance Table. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air</u>	-		

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	<u>Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. • The low side refrigerant line at the compressor feels cool-to-cold. • The high side refrigerant line at the compressor feels warm-to-hot.			
	Do the listed conditions exist?		Go to Step 3	Go to Step 7
3	The A/C system may be undercharged or have compressor or expansion valve problems. 1. Leak test the A/C system. Refer to <u>Leak Testing</u>. 2. Note any potential leaks for later repair. 3. Recover the refrigerant charge from the vehicle. Refer to <u>Refrigerant Recovery and Recharging</u>. 4. Record the weight of the recovered refrigerant.	Standard AC 0.57 kg (1.26 lbs) Rear AC (C57) 0.80 kg (1.76 lbs)		
	Is the recovered amount below the specified values?		Go to Step 4	Go to Step 6
4	The system is low on refrigerant charge. 1. Repair any leaks noted in step 3 above. 2. Evacuate and Recharge the A/C system to specifications. Refer to <u>Refrigerant Recovery and Recharging</u>.	-		-

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	Is the repair complete?		Go to Step 5	
5	1. Record the low and the high side pressures and the I/P panel outlet temperatures. Refer to step 2 of the Air Conditioning (A/C) System Performance Test. 2. Compare the panel outlet temperatures and pressures to those listed in the A/C System Performance Chart. Are the high and low side pressures and I/P panel outlet temperatures within specification?	-	System OK	Go to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
	The thermal expansion valve needs to be replaced. 1. Replace the thermal expansion valve. Refer to <u>Thermal Expansion Valve Replacement</u>. 2. Repair any leaks noted in step 3			

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6	above. 3. Evacuate and recharge the A/C system to specifications. Refer to <u>Refrigerant Recovery and Recharging</u>.	-	-
	Is the repair complete?		Go to Step 5
7	Refer to the pressures recorded during the A/C System Performance Test. Inspect for the following conditions: CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. - The low side pressure is greater than the specified pressure range of the A/C Performance Table. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. - The high side pressure is less than the specified pressure range of the A/C Performance Table. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy</u>	-	Go to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning</u>

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	<u>Duty Cooling</u>) or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. • The low side refrigerant line at the compressor feels warm. • The high side refrigerant line at the compressor feels warm to hot. Do the listed conditions exist?			<u>(A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
8	The system could be low charged or there could be a problem with the A/C compressor. 1. Verify that the compressor is engaging properly. 2. Verify that the A/C system performance data was taken with the compressor clutch engaged for more than 10 seconds. 3. Raise the engine RPM to 1,200. 4. Record the low and high side pressures and the I/P panel outlet temperatures. Refer to step 2 of the Air Conditioning (A/C) System Performance Test. 5. Compare the panel outlet temperatures and pressures to those listed in the A/C System Performance Chart. Are the high and low side pressures and I/P panel outlet temperatures within	-	Go to Step 8	

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	specification?		Go to Step 3	Go to Step 9
9	With the engine speed raised to over 2,000 RPM and the A/C compressor clutch engaged, listen for any unusual compressor noises. Any unusual noises heard?	-	Go to Step 3	Go to Step 10
10	1. Replace the A/C compressor. Refer to <u>Compressor Replacement (LH2 - Standard Cooling)</u> or <u>Compressor Replacement (LH2 - Heavy Duty Cooling)</u> or <u>Compressor Replacement (LY7)</u> . 2. Evacuate and recharge the A/C system. Refer to <u>Refrigerant Recovery and Recharging</u> . Is the repair complete?	-	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you find and correct the condition?	-	System OK	Go to <u>Symptoms - HVAC Systems - Automatic</u> in HVAC Systems - Automatic

AIR CONDITIONING (A/C) DIAGNOSTICS - PRESSURE ZONE C

Air Conditioning (A/C) Diagnostics - Pressure Zone C

Step	Action	Yes	No
DEFINITION: The low and the high side pressures are both higher than normal. • Restricted Condenser Air Flow • Cooling Fan Malfunction • Expansion Device Malfunction			
	Were you sent here from the A/C System Performance Test?		Go to <u>Air Conditioning (A/C) System</u>

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1			<u>Performance Test (LH2 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
2	1. Start the engine. 2. Make sure that the A/C is ON. 3. Inspect for proper cooling fan operation. Refer to <u>Cooling System Description and Operation</u> in Engine Cooling. Are the cooling fans ON and operating properly?	Go to Step 2	
		Go to Step 3	Go to Step 5
3	Visually inspect for the following conditions: • Damaged condenser cooling fins • Missing or misaligned air baffles • Restricted front end air flow		
	Do any of these conditions exist?	Go to Step 4	Go to Step 6

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4	Repair the air flow restriction. Is the repair complete?	Go to Step 7	-
5	Repair the fault to the cooling fan operation. Refer to Cooling Fan Inoperative in Engine Cooling. Is the repair complete?	Go to Step 7	-
6	Air is in the refrigerant system, or the system is overcharged. Refer to the view screen on J 43600 ACR 2000 Air Conditioning Service Center for foreign gas content in the refrigerant. See Special Tools and Equipment . Recover and recharge the A/C system. Refer to Refrigerant Recovery and Recharging . Is the repair complete?	Go to Step 7	-
7	- Record the low and high side pressures and the I/P panel outlet air temperature after you have performed the repairs. - Compare the pressures and the panel outlet temperature to those listed in the A/C Performance Chart. Refer to Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling). Are the readings within the specified ranges listed in the A/C Performance table?	Go to Step 8	Go to Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling) or Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)

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8	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to <u>Symptoms</u> - <u>HVAC Systems</u> - <u>Automatic</u> in HVAC Systems - Automatic
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AIR CONDITIONING (A/C) DIAGNOSTICS - PRESSURE ZONE D

Air Conditioning (A/C) Diagnostics - Pressure Zone D

Step	Action	Value	Yes	No
DEFINITION: The low side pressure is lower than normal and the high side pressure is higher than normal. • A restriction in the A/C system. • Debris in the system.				
1	Were you sent here from the A/C System Performance Test?	-		Go to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning</u>

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				(A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)
			Go to Step 2	
2	CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. Feel the liquid line at the front of dash. Is the liquid line cold at the front of dash?	-	Go to Step 3	Go to Step 8
3	Feel along the surface of the liquid line between the condenser and the front of dash. Did you detect an abrupt drop in temperature along the surface?	-	Go to Step 5	Go to Step 4
4	Feel along the surfaces of the following low side components: • The evaporator outlet tube between the front of dash and the compressor suction hose • The compressor suction hose to the compressor. Did you feel an abrupt temperature change along the surfaces of any of the listed components?	-	Go to Step 5	Go to Step 6
5	1. Recover the refrigerant. Refer to <u>Refrigerant Recovery and Recharging</u> . 2. Remove the restriction from the component, or replace the component which produced an abrupt temperature drop. 3. Recharge the A/C system. Refer to <u>Refrigerant Recovery and</u>	-		-

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	<u>Recharging.</u>		Go to Step 13	
	Is the repair complete?			
6	The system may be low charged. 1. Recover the refrigerant. Refer to <u>Refrigerant Recovery and Recharging.</u> 2. Record the weight of the recovered refrigerant. Is the weight of the recovered refrigerant charge less than the specified value?	Standard AC 0.57 kg (1.26 lbs) With Rear AC (C57) 0.80 kg (1.76 lbs)		
			Go to Step 7	Go to Step 10
7	The expansion device may be restricted or failed. 1. Remove the expansion device. Refer to <u>Thermal Expansion Valve Replacement.</u> 2. Check the expansion device for a large amount residue at the inlet. Did you notice a residue at the inlet to the expansion device?	-		
			Go to Step 8	Go to Step 11
8	The desiccant bag in the receiver portion of the condenser may have failed. 1. Remove the desiccant bag from the condenser. Refer to <u>Desiccant Bag Replacement.</u> 2. Check to see if the bag was broken. Was the bag broken or leaking?	-		
			Go to Step 9	Go to Step 12
	1. Flush the A/C system. Refer to <u>Flushing (w/o Auxiliary A/C)</u> or <u>Flushing (w/Auxiliary A/C).</u>			

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9	2. Replace the condenser. Refer to <u>Condenser Replacement (Heavy Duty Cooling)</u> or <u>Condenser Replacement (Standard Cooling)</u>. 3. Replace the A/C system. Refer to <u>Refrigerant Recovery and Recharging</u>. Are the repairs complete?	-	-	Go to Step 13
10	1. Leak test the system. Refer to <u>Leak Testing</u>. 2. Repair any leaks found. 3. Recharge the A/C system. Refer to <u>Refrigerant Recovery and Recharging</u>. Are the repairs complete?	-	-	Go to Step 13
11	1. Replace the expansion device. 2. Recharge the A/C system. Refer to <u>Refrigerant Recovery and Recharging</u>. Are the repairs complete?	-	-	Go to Step 13
12	1. Replace the desiccant bag with a new unit. 2. Replace the expansion device. 3. Recharge the A/C system. Refer to <u>Refrigerant Recovery and Recharging</u>. Are the repairs complete?	-	-	Go to Step 13
	1. Record the low and the high side pressures and the panel outlet air temperature. 2. Compare the pressures and the panel outlet temperature to those listed in the A/C Performance Table. Refer to			Go to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard</u>

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13	<u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>. Are the readings within the specified ranges as shown on the A/C performance Table?	-	Go to Step 14	<u>Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u>
14	Operate the system in order to verify the repair. Did you find and correct the condition?	-	System OK	Go to <u>Symptoms - HVAC Systems - Automatic</u> in HVAC Systems - Automatic

HEATING PERFORMANCE DIAGNOSTIC

Heating Performance Diagnostic

Step	Action	Yes	No
DEFINITION: Heating system performance.			
	Were you sent here from Symptoms or another		Go to Symptoms

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1	diagnostic table?	Go to Step 2	- HVAC Systems - Automatic in HVAC Systems - Automatic
2	1. Start the engine. 2. Allow the engine to idle. Does the engine reach a normal operating temperature?	Go to Step 3	Go to Step 9
3	CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. 1. Select the FLOOR mode. 2. Select the minimum blower speed. 3. Select the warmest temperature setting. 4. Feel the temperature of the inlet and outlet heater hoses at the heater core. Does the inlet heater hose feel warmer than the outlet heater hose?	Go to Step 7	Go to Step 4
4	1. Install a thermometer into the center I/P PANEL air outlet. 2. Secure a thermometer to the heater core outlet hose. 3. Select the PANEL mode. 4. Select the maximum blower speed. 5. Select the warmest temperature setting. 6. Record the temperature at the following locations: • The center I/P PANEL air outlet • The heater core outlet hose 7. Compare the recorded temperatures. Are the two temperature readings about equal?	Go to Step 5	Go to Step 6

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5	- Inspect and repair the following areas of the vehicle for cold air leaks: - The cowl - The recirculation door - The HVAC module case - Perform the necessary repairs. Are the repairs complete?	Go to Step 10	-
6	- Inspect the temperature door operation. Refer to <u>Diagnostic System Check - HVAC Systems - Automatic</u> in HVAC Systems - Automatic. - Perform any necessary repairs. Are the repairs complete?	Go to Step 10	-
7	- Turn OFF the engine. - Backflush the heater core. - Start the engine. - Select the FLOOR mode. - Select the minimum blower speed. - Select the warmest temperature setting. - Feel the temperature of the inlet and outlet heater hoses at the heater core. Does the inlet heater hose feel warmer than the outlet heater hose?	Go to Step 8	Go to Step 10
8	Replace the heater core. Refer to <u>Heater Core Replacement</u>. Is the repair complete?	Go to Step 10	-
9	Repair the low engine temperature concern. Refer to <u>Engine Fails To Reach Normal Operating Temperature</u> in Engine Cooling. Is the repair complete?	Go to Step 10	-
10	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2

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DEFROSTING INSUFFICIENT

Defrosting Insufficient

Step	Action	Yes	No
DEFINITION: Time required to defrost the windshield is longer than normal.			
1	Were you sent here from Symptoms or another diagnostic table?	Go to Step 2	Go to Symptoms - HVAC Systems - Automatic in HVAC Systems - Automatic
2	1. Start the engine. 2. Select the DEFROST mode. 3. Select the maximum blower speed. Does sufficient air flow from the defroster outlets?	Go to Step 3	Go to Step 10
3	Measure the engine operating temperature. Does engine reach a normal operating temperature?	Go to Step 4	Go to Step 8
4	1. Select the minimum blower speed. 2. Select the maximum temperature setting. CAUTION: Refer to <u>Moving Parts and Hot Surfaces Caution</u> in Cautions and Notices. 3. Feel the temperature of the inlet and outlet hoses at the heater core. Does the inlet hose feel warmer than the outlet hose?	Go to Step 11	Go to Step 5
5	Test the operation of the A/C compressor clutch. Does the A/C compressor clutch engage?	Go to Step 7	Go to Step 6
6	Repair the A/C compressor clutch. Refer to <u>HVAC Compressor Clutch Does Not Engage</u> in HVAC Systems - Automatic.		

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	Is the repair complete?	Go to Step 14	-
7	Perform the A/C system performance test. Refer to <u>Air Conditioning (A/C) System Performance Test (LH2 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LH2 - Heavy Duty Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/o C57 - Standard Cooling)</u> or <u>Air Conditioning (A/C) System Performance Test (LY7 - w/ C57 - Standard Cooling)</u> . Is the A/C system operating within the specifications?	Go to Step 9	Go to Step 12
8	Repair the low engine temperature concern. Refer to <u>Engine Fails To Reach Normal Operating Temperature</u> in Engine Cooling. Is the repair complete?	Go to Step 14	-
9	Inspect for correct operation of the recirculation door. Is the recirculation door operating correctly?	Go to Step 14	Go to Step 13
10	Repair the air delivery concern. Refer to <u>Air Delivery Improper</u> in HVAC Systems - Automatic. Is the repair complete?	Go to Step 14	-
11	Repair the heating concern. Refer to <u>Heating Performance Diagnostic</u> . Is the repair complete?	Go to Step 14	-
12	Repair the A/C performance concern. Refer to <u>Symptoms - HVAC Systems - Automatic</u> in HVAC Systems - Automatic. Is the repair complete?	Go to Step 14	-
13	Repair the recirculation door concern. Refer to <u>Air Recirculation Malfunction</u> in HVAC Systems - Automatic. Is the repair complete?	Go to Step 14	-
14	Operate the system in order to verify the repair. Did you find and correct the problem?	System OK	Go to Step 2

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NOISE DIAGNOSIS - AUXILIARY BLOWER MOTOR

Noise Diagnosis - Auxiliary Blower Motor

Step	Action	Yes	No
DEFINITION: Noise originating from the auxiliary blower motor.			
1	Were you sent here from Symptoms or another diagnostic table?	Go to Step 2	Go to <u>Diagnostic System Check - HVAC Systems - Automatic</u> in HVAC Systems - Automatic
2	1. Sit inside the vehicle. 2. Close the vehicle doors and windows. 3. Turn ON the ignition, with the engine OFF. 4. Cycle the auxiliary blower motor through all of the speeds in order to determine where and when the noise occurs. Is a noise evident during auxiliary blower operation?	Go to Step 3	Go to Step 12
3	Inspect for excessive vibration at each auxiliary blower motor speed by feeling the auxiliary blower case. Is excess vibration present?	Go to Step 5	Go to Step 4
4	Listen to the auxiliary blower motor at each blower speed. Is the auxiliary blower motor making a squeaking or chirping noise?	Go to Step 10	Go to Step 12
5	Inspect the blower motor and the blower motor housing for proper installation. Is the blower motor or the blower motor housing touching the vehicles body and causing the vibration?	Go to Step 9	Go to Step 6
	1. Remove the auxiliary blower motor. Refer to <u>Blower Motor Replacement - Auxiliary</u>. 2. Inspect the auxiliary blower motor		

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6	impeller for deposits of foreign material. 3. Inspect the auxiliary blower motor for deposits of foreign material. Did you find foreign material on the auxiliary blower motor?	Go to Step 8	Go to Step 7
7	Inspect the auxiliary blower motor for the following conditions: 1. Cracked blades 2. A loose impeller retainer 3. Improper impeller alignment Did you find any of these conditions?	Go to Step 9	Go to Step 11
8	Remove the foreign material. Is the action complete?	Go to Step 11	-
9	Install the component so there is no contact with the vehicles body. Is the action complete?	Go to Step 12	-
10	Replace the auxiliary blower motor. Refer to <u>Blower Motor Replacement - Auxiliary.</u> Is the repair complete?	Go to Step 12	-
11	Install the auxiliary blower motor. Refer to <u>Blower Motor Replacement - Auxiliary.</u> Is the action complete?	Go to Step 12	-
12	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2

NOISE DIAGNOSIS - BLOWER MOTOR

Noise Diagnosis - Blower Motor

Step	Action	Yes	No
DEFINITION: Noise originating from the blower motor.			
1	Were you sent here from Symptoms or another diagnostic table?		Go to <u>Symptoms - HVAC Systems - Automatic</u> in

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		Go to Step 2	HVAC Systems - Automatic
2	Inspect the air inlet grille for debris. Is debris present?	Go to Step 8	Go to Step 3
3	1. Sit inside the vehicle. 2. Close the vehicle doors and windows. 3. Turn ON the ignition, with the engine OFF. 4. Cycle the blower motor through all of the speeds and modes in order to determine where and when the noise occurs. Is a noise evident during the blower operation?	Go to Step 4	Go to Step 11
4	Inspect for excessive vibration at each blower motor speed by feeling the blower case. Is excess vibration present?	Go to Step 6	Go to Step 5
5	Listen to the blower motor at each speed. Is the blower motor making a squeaking or chirping noise?	Go to Step 9	Go to Step 11
6	1. Remove the blower motor. Refer to <u>Blower Motor Replacement</u>. 2. Inspect the blower motor impeller for deposits of foreign material. 3. Inspect the blower motor for deposits of foreign material. Did you find any foreign material on the blower motor or blower motor impeller?	Go to Step 8	Go to Step 7
7	Inspect the blower motor for the following conditions: • Cracked blades • A loose impeller retainer • Improper impeller alignment Did you find any of these conditions?	Go to Step 9	Go to Step 10

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8	Remove the foreign material. Is the action complete?	Go to Step 10	-
9	Replace the blower motor. Refer to <u>Blower Motor Replacement</u> . Is the repair complete?	Go to Step 11	-
10	Install the blower motor. Refer to <u>Blower Motor Replacement</u> . Is the action complete?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2

NOISE DIAGNOSIS - AIR CONDITIONING (A/C) SYSTEM

Noise Diagnosis - Air Conditioning (A/C) System

Step	Action	Yes	No
DEFINITION: Noise Originating from the A/C compressor, drive belt or the A/C lines.			
1	Were you sent here from HVAC Symptoms or another diagnostic table?	Go to Step 2	Go to <u>Diagnostic System Check - HVAC Systems - Automatic</u> in HVAC Systems - Automatic
2	- A/C system noises can be generally categorized into three areas: - Screeching, squealing, or chirping noises - Moaning noises - Vibration/rattle noises - Start the engine. - Ensure that the front and rear A/C is ON. Do you hear a screeching, squealing noise when you engage the A/C?	Go to Step 3	Go to Step 9
3	With the engine OFF, inspect the drive belt for excessive wear. Refer to <u>Drive Belt Excessive Wear Diagnosis</u> in Engine Mechanical - 3.6L or <u>Drive Belt Excessive Wear Diagnosis</u> in		

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	Engine Mechanical - 4.6L. Is the drive belt excessively worn?	Go to Step 18	Go to Step 4
4	Inspect the drive belt tension. Refer to <u>Drive Belt Tensioner Diagnosis</u> in Engine Mechanical - 3.6L or <u>Drive Belt Tensioner Diagnosis</u> in Engine Mechanical - 4.6L. Is the drive belt tension correct?	Go to Step 19	Go to Step 5
5	Inspect the drive belt for excessive oil coverage. Is the drive belt covered with oil?	Go to Step 17	Go to Step 6
6	1. Start the engine. 2. Ensure that the front and rear A/C is ON. 3. Inspect the compressor and the clutch. Is the compressor locked up?	Go to Step 23	Go to Step 7
7	Is the A/C compressor clutch slipping?	Go to Step 23	Go to Step 8
8	Using a stethoscope, listen to the A/C compressor for any abnormal noises. Is the compressor causing an abnormal noise?	Go to Step 15	Go to Step 10
9	Does a moaning noise exist when the A/C clutch is engaged?	Go to Step 10	Go to Step 12
10	Listen to the A/C compressor components and mounting for noise concerns using a stethoscope. Are any of these components loose, damaged or excessively worn?	Go to Step 20	Go to Step 11
11	1. Start the engine. 2. Engage the A/C compressor clutch. 3. Using a stethoscope, move around the entire refrigerant plumbing system, listening for any abnormal noises caused by component ground-out. Are any of the A/C components grounding out and causing a noise?	Go to Step 22	Go to Step 13
12	Does a vibration or rattle noise exist when the A/C clutch is engaged?	Go to Step 13	Go to Step 14
13	Does the noise stop when the A/C clutch is disengaged?	Go to Step 15	Go to Step 14

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14	1. Idle the engine in PARK with the A/C compressor clutch engaged. 2. Using a stethoscope, move around the entire A/C system listening for any abnormal noises caused by a component. Do any of the A/C components cause an abnormal noise?	Go to Step 21	Go to Step 24
15	Verify that the A/C system is properly charged. Refer to <u>Refrigerant System Capacities</u>. Is the A/C system properly charged?	Go to Step 24	Go to Step 16
16	Recharge the A/C system to specification. Refer to <u>Refrigerant Recovery and Recharging</u>. Is the abnormal compressor noise still present?	Go to Step 24	Go to Step 25
17	Repair the oil leak. Refer to the appropriate repair procedure in Engine Mechanical. Is the repair complete?	Go to Step 25	-
18	Replace the drive belt. Refer to <u>Drive Belt Replacement - Power Steering and Air Conditioning</u> in Engine Mechanical - 3.6L or <u>Drive Belt Replacement - Air Conditioning, Power Steering and Water Pump</u> in Engine Mechanical - 4.6L. Is the replacement complete?	Go to Step 25	-
19	Replace the drive belt tensioner. Refer to <u>Drive Belt Tensioner Replacement - Power Steering and Air Conditioning</u> in Engine Mechanical - 3.6L or <u>Drive Belt Tensioner Replacement - Air Conditioning, Power Steering and Water Pump</u> in Engine Mechanical - 4.6L. Is the replacement complete?	Go to Step 25	-
20	Repair or replace the A/C compressor mounting component. Is the repair complete?	Go to Step 25	-
21	Repair or replace the component which is causing the moaning concern as needed. Is the repair complete?	Go to Step 25	-

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22	Correctly route or insulate the A/C component. Is the repair complete?	Go to Step 25	-
23	Replace the A/C compressor. Refer to <u>Compressor Replacement (LH2 - Standard Cooling)</u> or <u>Compressor Replacement (LH2 - Heavy Duty Cooling)</u> or <u>Compressor Replacement (LY7)</u> . Is the replacement complete?	Go to Step 25	-
24	The concern may be caused by an engine related component. Refer to <u>Drive Belt Vibration Diagnosis</u> in Engine Mechanical - 3.6L or <u>Drive Belt Vibration Diagnosis</u> in Engine Mechanical - 4.6L. Did you find and correct the condition?	Go to Step 25	-
25	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2

NOISE DIAGNOSIS - HVAC MODULE

Noise Diagnosis - HVAC Module

Step	Action	Yes	No
DEFINITION: Noise originating from the HVAC module.			
1	Were you sent here from Symptoms or another diagnostic table?	Go to Step 2	Go to <u>Symptoms - HVAC Systems - Automatic</u> in HVAC Systems - Automatic
2	- Start the engine. - Cycle through all of the following: - Blower motor speeds - HVAC modes - Temperature control settings - Determine the type of noise: - Scrape, pop - Tick/click, chirp or groaning - Air rush/whistle		

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	Is a scrape or pop noise evident when selecting modes or temperature settings?	Go to Step 6	Go to Step 3
3	Is a tick/click, chirping, groaning or scraping noise present, but decreases as blower motor speed is decreased?	Go to Step 6	Go to Step 4
4	Is an air rush/whistle noise evident in all modes but not all temperature settings?	Go to Step 6	Go to Step 5
5	Is an air rush/whistle noise evident only in defrost or floor mode?	Go to Step 6	Go to Step 6
6	Remove the instrument panel (I/P) carrier. Refer to <u>Instrument Panel (I/P) Retainer Replacement</u> in Instrument Panel, Gages, and Console. Is the action complete?	Go to Step 7	-
7	- Inspect the air flow doors for proper operation. - Inspect the ducts for obstructions or foreign materials. Were any of these conditions found?	Go to Step 10	Go to Step 8
8	Inspect the mode and temperature doors and seals for warping or cracking. Are the doors in normal condition?	Go to Step 11	Go to Step 9
9	Replace the appropriate door and/or seals. Is the repair complete?	Go to Step 11	-
10	Remove any obstructions or foreign material found. Is the action complete?	Go to Step 11	-
11	Install the I/P carrier. Refer to <u>Instrument Panel (I/P) Retainer Replacement</u> in Instrument Panel, Gages and Console. Is the action complete?	Go to Step 12	-
12	Operate the system to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2

ODOR DIAGNOSIS

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Odor Diagnosis

Step	Action	Yes	No
DEFINITION: Odor originating or noticed through the HVAC system.			
1	Were you sent here from Symptoms or another diagnostic table?	Go to Step 2	Go to Symptoms - HVAC Systems - Automatic in HVAC Systems - Automatic
2	1. Sit inside the vehicle. 2. Close all of the doors and windows. 3. Start the engine. 4. Allow the engine idle at normal operating temperature. 5. Select the maximum blower speed. 6. Select the PANEL air outlet mode. 7. Select the coldest temperature setting. 8. Cycle through all of the blower speeds, modes and temperatures to define what type of odor is present. • Musty smell • Coolant smell • Oil smell Does the odor have a musty smell?	Go to Step 3	Go to Step 8
3	Inspect the HVAC filter and the air inlet grille for debris. Refer to Passenger Compartment Air Filter Replacement. Is debris present?	Go to Step 4	Go to Step 5
4	Remove any debris. Is the action complete?	Go to Step 15	-
5	Inspect for wet carpeting. Is the carpet wet?	Go to Step 6	Go to Step 8
6	Inspect for the following conditions: • Water leaks around the windshield • Blockage of the HVAC module drain		

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	Leaks around the door seals		
	Is a leak present?	Go to Step 7	Go to Step 15
7	Repair the leak as necessary. Is the repair complete?	Go to Step 15	-
8	Does the odor have a coolant smell?	Go to Step 9	Go to Step 12
9	Inspect the cooling system for leaks. Refer to Loss of Coolant in Engine Cooling. Is a leak present?	Go to Step 10	Go to Step 12
10	Inspect for coolant leaking inside the vehicle or for a film build-up on the windshield. Is the condition present?	Go to Step 11	Go to Step 15
11	Replace the heater core. Refer to Heater Core Replacement . Is the repair complete?	Go to Step 15	-
12	Does the odor have an oily smell?	Go to Step 13	Go to Step 15
13	1. Inspect the engine compartment for any leaks. Refer to the following procedures: Oil Leak Diagnosis in Engine Mechanical - 3.6L or Oil Leak Diagnosis in Engine Mechanical - 4.6L. Fluid Leak Diagnosis in Automatic Transmission - 5L40-E or Fluid Leak Diagnosis in Automatic Transmission - 5L50-E. Power Steering Fluid Leaks in Power Steering System. 2. Repair any oil leaks. Is the repair complete?	Go to Step 15	-
14	A musty odor can be caused by mold or mildew build-up on the evaporator or the heater core or inside of the HVAC module. Refer to Odor Correction . Is the action complete?	Go to Step 15	-

15	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 2
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REPAIR INSTRUCTIONS

ODOR CORRECTION

Eliminating Air Conditioning Odor

Odors may be emitted from the air conditioning system primarily at start up in hot, humid climates. The following conditions may cause the odor:

- Debris is present in the HVAC module.
- Microbial growth on the evaporator core

When the blower motor fan is turned on, the microbial growth may release an unpleasant musty odor into the passenger compartment. To remove odors of this type, the microbial growth must be eliminated. Perform the following procedure:

Deodorize the evaporator core using Deodorizing Aerosol Kit.

Perform the following steps in order to deodorize the A/C system:

1. Ensure that the plenum that draws outside air into the HVAC module is clear of debris.
2. Disable the A/C compressor clutch operation by disconnecting the clutch coil electrical connector.
3. Dry the evaporator core by performing the following steps:
 1. Start the engine.
 2. Select the maximum temperature setting.
 3. Select the recirculation mode.
 4. Run the blower motor on high for 10 minutes.
4. Locate an area in the air conditioning duct between the blower motor and the evaporator core downstream of the blower motor.
5. Drill a 3.175 mm (0.125 in) hole where the hole will not interfere with or damage the following components:
 - The blower motor
 - The evaporator core

- Any other operating part the of system
6. Wear safety goggles and latex gloves in order to perform the following actions:
 1. Select the maximum blower speed.
 2. Insert the deodorizer extension tube into the hole to the mark on the extension tube.
 3. Use short spray bursts and vary the direction of spray for a 2-3 minute period of time.
 7. Shut the engine OFF. Allow the vehicle to sit for 3-5 minutes.
 8. Seal the 3.175 mm (0.125 in) hole with body sealer or RTV gasket compound.
 9. Start the engine.
 10. Operate the blower motor on high for 15-20 minutes to dry.
 11. Reconnect the A/C compressor clutch coil electrical connector.
 12. Verify proper clutch operation.
 13. Using the scan tool enable the afterblow. Refer to Afterblow Enable Procedure in HVAC Automatic.

REFRIGERANT RECOVERY AND RECHARGING

Tools Required

- **J 43600** ACR 2000 Air Conditioning Service Center. See Special Tools and Equipment.
- **J 45037** A/C Oil Injector. See Special Tools and Equipment.

CAUTION: Avoid breathing the A/C Refrigerant 134a (R-134a) and the lubricant vapor or the mist. Exposure may irritate the eyes, nose, and throat. Work in a well ventilated area. In order to remove R-134a from the A/C system, use service equipment that is certified to meet the requirements of SAE J 2210 (R-134a recycling equipment). If an accidental system discharge occurs, ventilate the work area before continuing service. Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

CAUTION: For personal protection, goggles and gloves should be worn and a clean cloth wrapped around fittings, valves, and connections when doing work that includes opening the refrigerant system. If R-134a comes in contact with any part of the body severe frostbite and personal injury can result. The exposed area should be flushed immediately with cold water

and prompt medical help should be obtained.

- NOTE:** R-134a is the only approved refrigerant for use in this vehicle. The use of any other refrigerant may result in poor system performance or component failure.
- NOTE:** To avoid system damage use only R-134a dedicated tools when servicing the A/C system.
- NOTE:** Use only Polyalkylene Glycol Synthetic Refrigerant Oil (PAG) for internal circulation through the R-134a A/C system and only 525 viscosity mineral oil on fitting threads and O-rings. If lubricants other than those specified are used, compressor failure and/or fitting seizure may result.
- NOTE:** R-12 refrigerant and R-134a refrigerant must never be mixed, even in the smallest of amounts, as they are incompatible with each other. If the refrigerants are mixed, compressor failure is likely to occur. Refer to the manufacturer instructions included with the service equipment before servicing.

The **J 43600** is a complete air conditioning service center for R-134a. See **Special Tools and Equipment**. The ACR 2000 recovers, recycles, evacuates and recharges A/C refrigerant quickly, accurately and automatically. The unit has a display screen that contains the function controls and displays prompts that will lead the technician through the recover, recycle, evacuate and recharge operations. R-134a is recovered into and charged out of an internal storage vessel. The ACR 2000 automatically replenishes this vessel from an external source tank in order to maintain a constant 5.45-6.82 kg (12-15 lbs) of A/C refrigerant.

The ACR 2000 has a built in A/C refrigerant identifier that will test for contamination, prior to recovery and will notify the technician if there are foreign gases present in the A/C system. If foreign gases are present, the ACR 2000 will not recover the refrigerant from the A/C system.

The ACR 2000 also features automatic air purge, single pass recycling and an automatic oil drain.

Refer to the **J 43600** ACR 2000 manual for operation and setup instruction. See **Special Tools and Equipment**. Always recharge the A/C System with the proper amount of R-134a. Refer to **Refrigerant System Capacities** for the correct amount.

A/C Refrigerant System Oil Charge Replenishing

If oil was removed from the A/C system during the recovery process or due to component replacement, the oil must be replenished. Oil can be injected into a charged system using **J 45037**. See **Special Tools and Equipment**. For the proper quantities of oil to add to the A/C refrigerant system, refer to **Refrigerant System Capacities**.

FLUSHING (W/O AUXILIARY A/C)**Tools Required**

- **J 41447** R-134A - A/C Tracer Dye - Box of 24. See **Special Tools and Equipment**.
- **J 42220** Universal 12V Leak Detection Lamp. See **Special Tools and Equipment**.
- **J 43600** ACR 2000 Air Conditioning Service Center. See **Special Tools and Equipment**.
- **J 45268** A/C Flush Adapter Kit. See **Special Tools and Equipment**.

IMPORTANT: Flushing is not intended to remove metal from the A/C system.

Flushing is intended to remove the following:

- Contaminated polyalkylene glycol (PAG) oil
- Desiccant, following a desiccant bag failure
- Overcharge of PAG oil
- Refrigerant contamination

Forward Flushing Setup

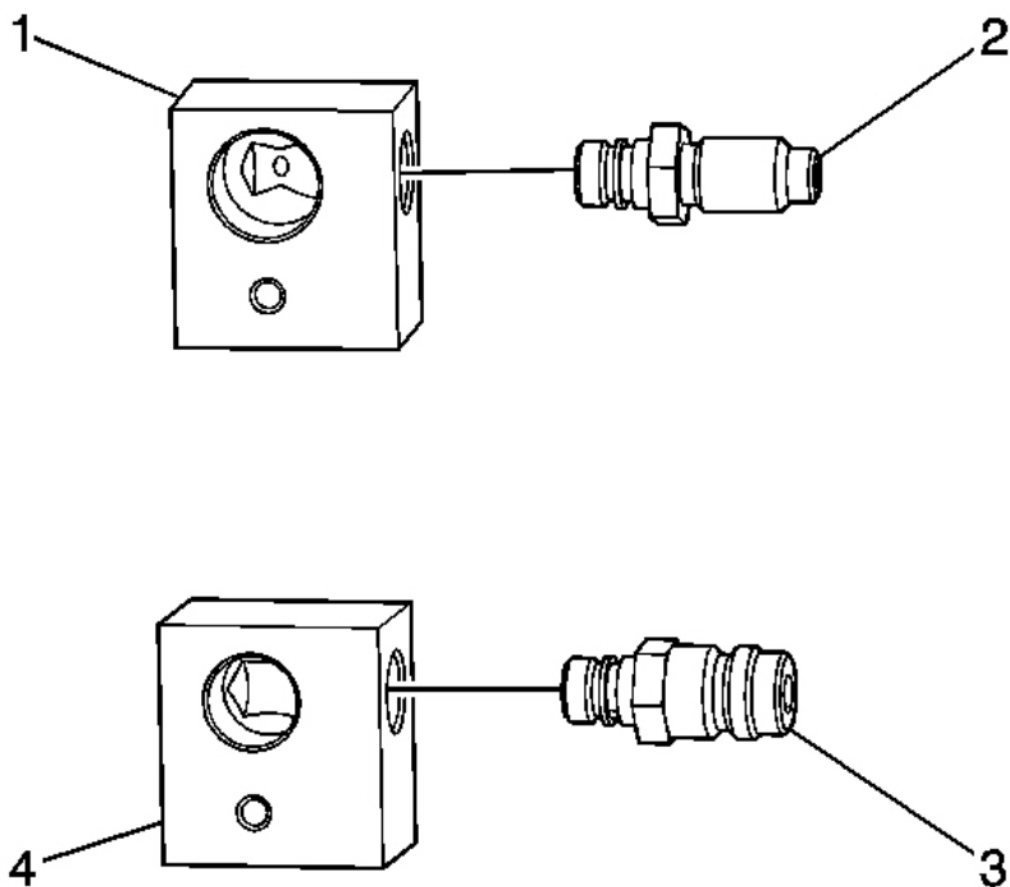


Fig. 5: Forward Flushing Setup

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Forward flow refrigerant flushing is recommended for contaminated refrigerant or PAG oil.

IMPORTANT: Inspect and lubricate the J 45268 fitting O-rings. See Special Tools and Equipment. Refer to O-Ring Replacement.

1. Install the J 45268-7 (2) onto the suction line adapter block J 45268-13 (1).
2. Install the J 45268-8 (3) onto the discharge line adapter block J 45268-12 (4).

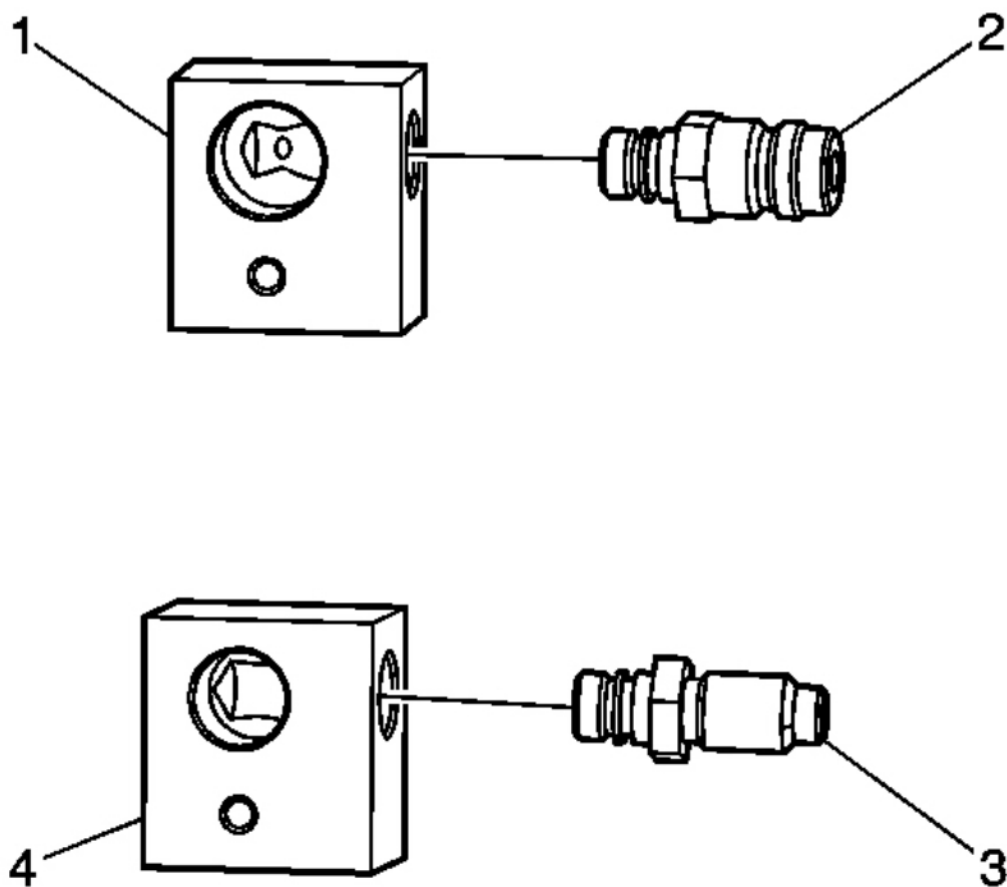


Fig. 6: Reverse Flushing Setup

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Reverse flow refrigerant flush is recommended for desiccant bag failure. Replace the condenser/receiver dehydrator assembly when the A/C flush is complete and perform the following procedure:

IMPORTANT: Inspect and lubricate the J 45268 fitting O-rings. See Special Tools and Equipment. Refer to O-Ring Replacement.

1. Install the J 45268-8 (2) onto the suction line adapter block J 45268-13 (1).

2. Install the J 45268-7 (3) onto the discharge line adapter block J 45268-12 (4).

Flush Procedure

IMPORTANT: Warmer engine or ambient temperatures decreases the refrigerant recovery time during the A/C flush procedure.

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.

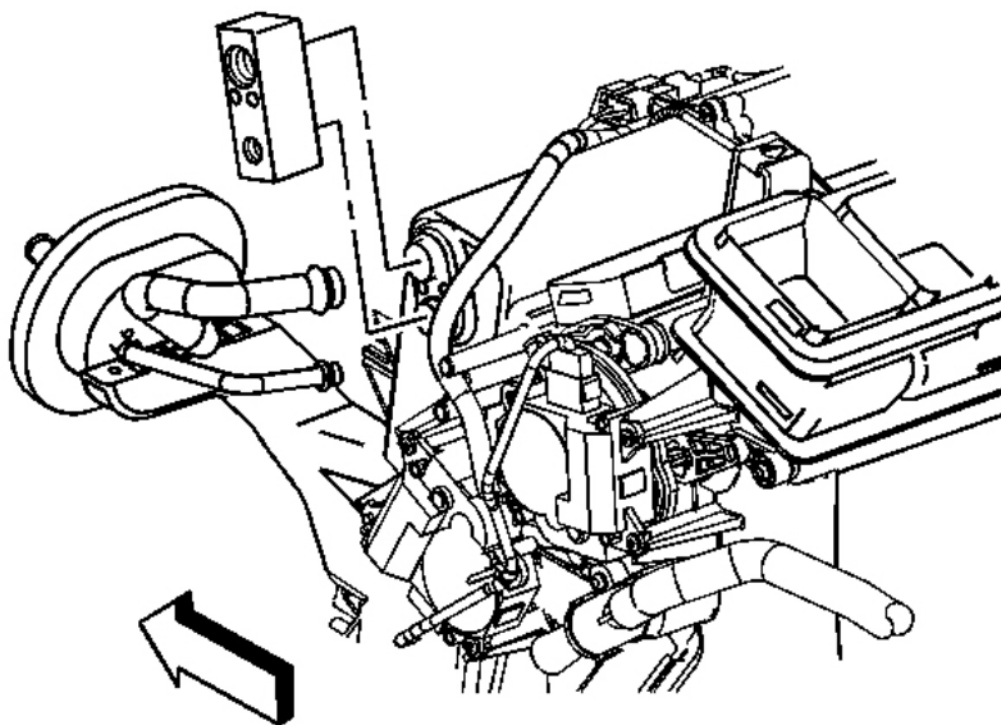


Fig. 7: View Of TXV

Courtesy of GENERAL MOTORS CORP.

2. Remove the thermal expansion valve (TXV). Refer to Thermal Expansion Valve Replacement.
3. Install new O-rings onto the evaporator core and A/C lines. Refer to O-Ring Replacement.
4. Install the A/C lines into J 45268-110.

5. Install J 45268-110 onto the evaporator core.
6. Install the TXV line bracket.

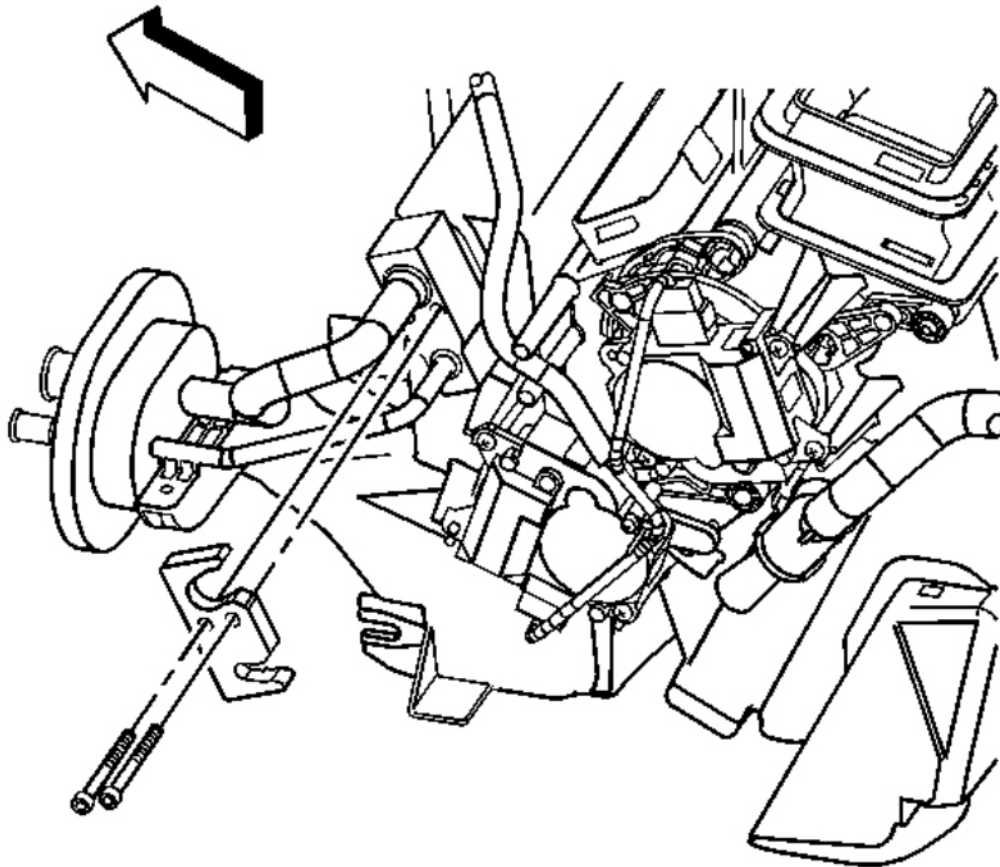


Fig. 8: View Of TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

7. Install TXV mounting bolts.

Tighten: Tighten the bolts to 3.5 N.m (31 lb in).

8. Remove the A/C compressor. Refer to **Compressor Replacement (LH2 - Standard Cooling)** or **Compressor Replacement (LH2 - Heavy Duty Cooling)** or **Compressor Replacement (LY7)**.

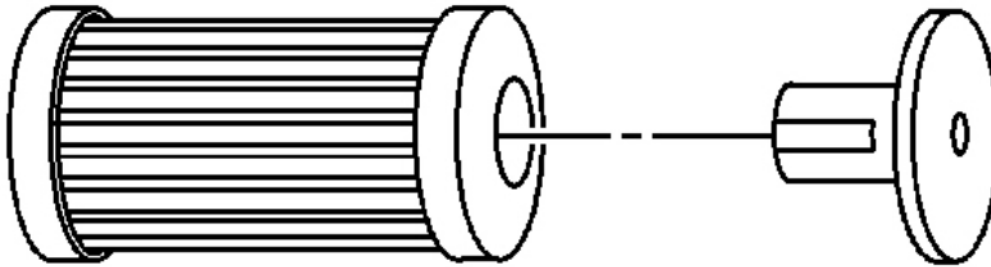


Fig. 9: View Of A/C Filter And Check Valve
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The filter inside J 45268-1 is serviceable. Remove and discard the check valve from the filter.

9. Service the filter with ACDelco P/N GF 470, before each flush.

IMPORTANT: Install new O-rings onto the A/C discharge and suction lines.
Refer to O-Ring Replacement.

10. Install the J 45268-13 to the A/C suction line.
11. Install the J 45268-12 to the A/C discharge line.

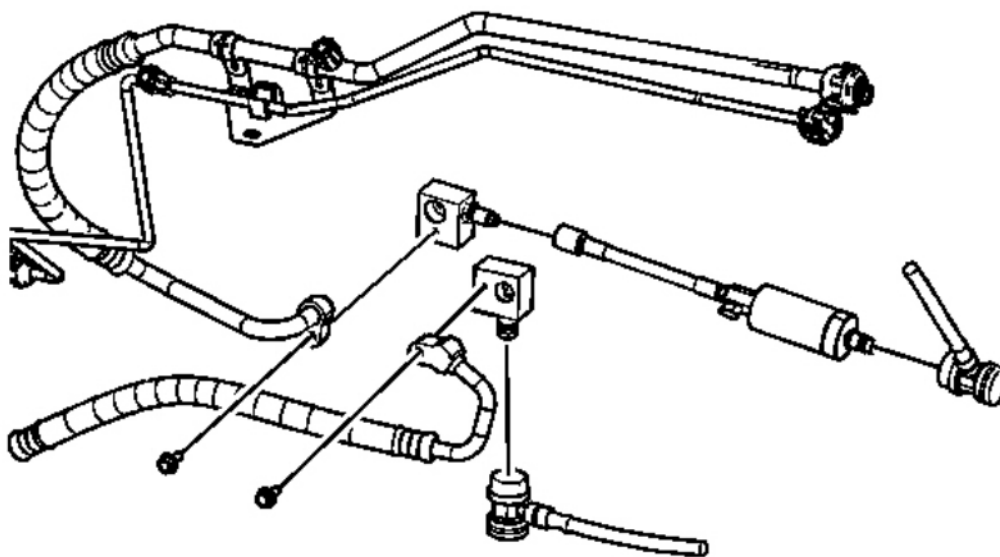


Fig. 10: View Of HVAC Hoses
Courtesy of GENERAL MOTORS CORP.

12. Connect the J 45268-1 flush filter to the J 45268-7 flush fitting.
13. Connect the blue hose from the **J 43600** to J 45268-1 flush filter adapter. See **Special Tools and Equipment**.
14. Connect the red hose from the **J 43600** to J 45268-8 flush fitting. See **Special Tools and Equipment**.

IMPORTANT: Close the valve on the external refrigerant tank, before starting the flush process.

15. Flush the A/C system. Follow the instructions supplied with the **J 43600** . See **Special Tools and Equipment**.
16. Disconnect the red hose from the **J 43600** to J 45268-8 flush fitting. See **Special Tools and Equipment**.
17. Disconnect the blue hose from the **J 43600** to J 45268-1 flush filter adapter. See **Special Tools and Equipment**.
18. Disconnect the J 45268-1 flush filter from the J 45268-7 flush fitting.

19. Remove the J 45268-12 from the A/C discharge line.
20. Remove the J 45268-13 from the A/C suction line.

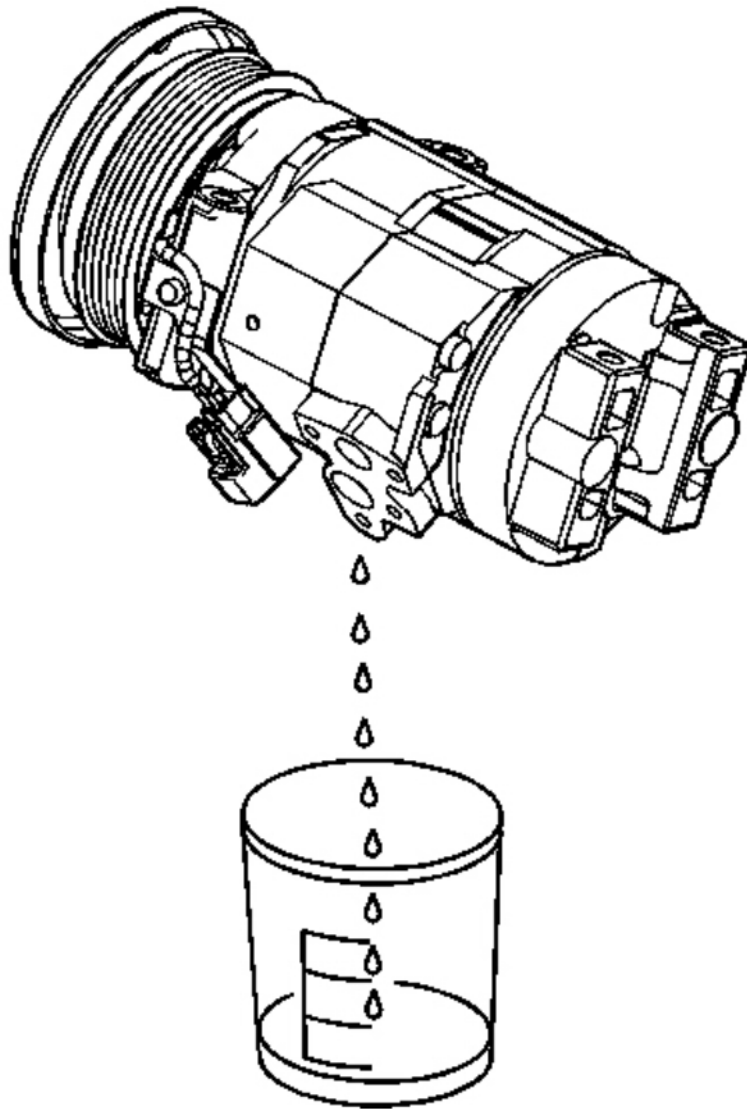


Fig. 11: Flushing A/C System
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Flushing will remove all the PAG oil from the A/C system. The A/C system must be replenished with the correct amount of PAG oil.

21. If you will reinstall the removed A/C compressor, perform the following procedure:

1. Drain the PAG oil from the A/C compressor. Rotate the compressor input shaft to assist in draining the PAG oil from the compressor.

IMPORTANT: Rotating the compressor hub assembly when adding PAG oil to the A/C compressor suction port will draw the PAG oil into the crankcase chamber and prevent overflow.

2. Add the total system capacity of PAG oil into the suction port of the A/C compressor while slowly rotating the A/C compressor hub assembly. Refer to Refrigerant System Capacities.

IMPORTANT: Flushing will remove the fluorescent leak detection dye from the A/C system.

3. Add one bottle of **J 41447** directly into the suction port of the A/C compressor while slowly rotating the A/C compressor hub assembly. See Special Tools and Equipment.

IMPORTANT: A new service compressor is shipped with a full charge of PAG oil. Refer to Refrigerant System Capacities.

22. Install the A/C compressor. Refer to Compressor Replacement (LH2 - Standard Cooling) or Compressor Replacement (LH2 - Heavy Duty Cooling) or Compressor Replacement (LY7).
23. Remove the TXV mounting bolts.

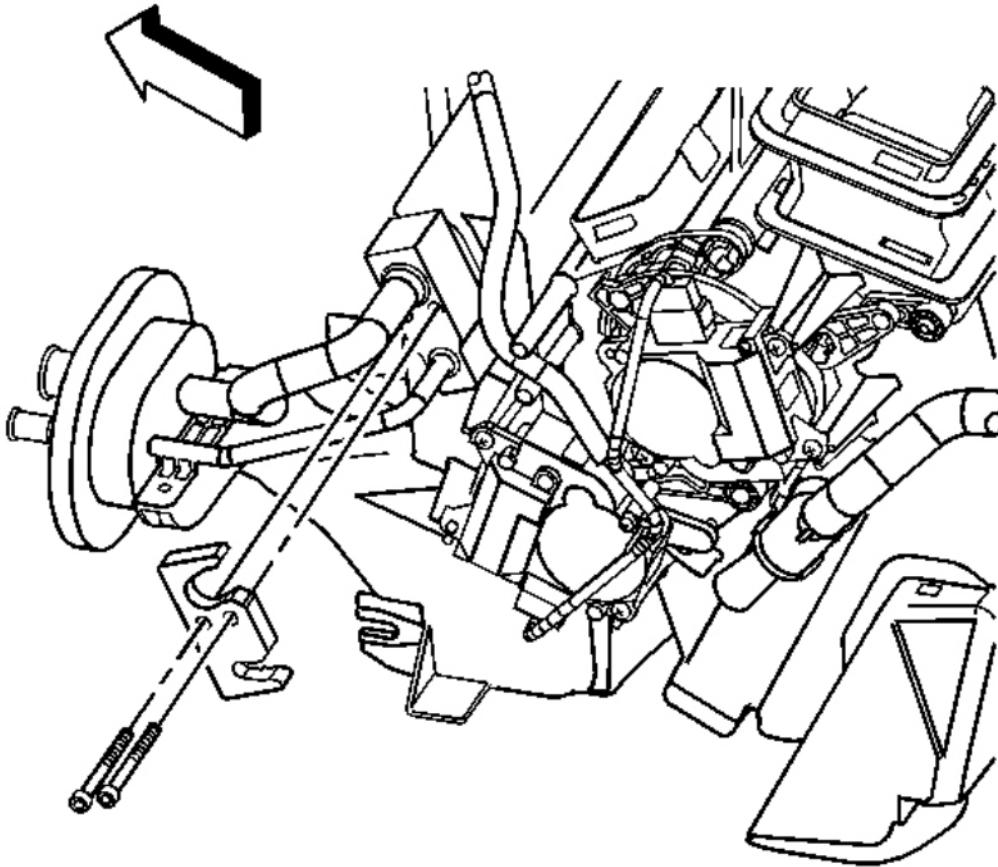


Fig. 12: View Of TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

24. Remove the TXV line bracket.
25. Remove J 45268-110 from the evaporator core.

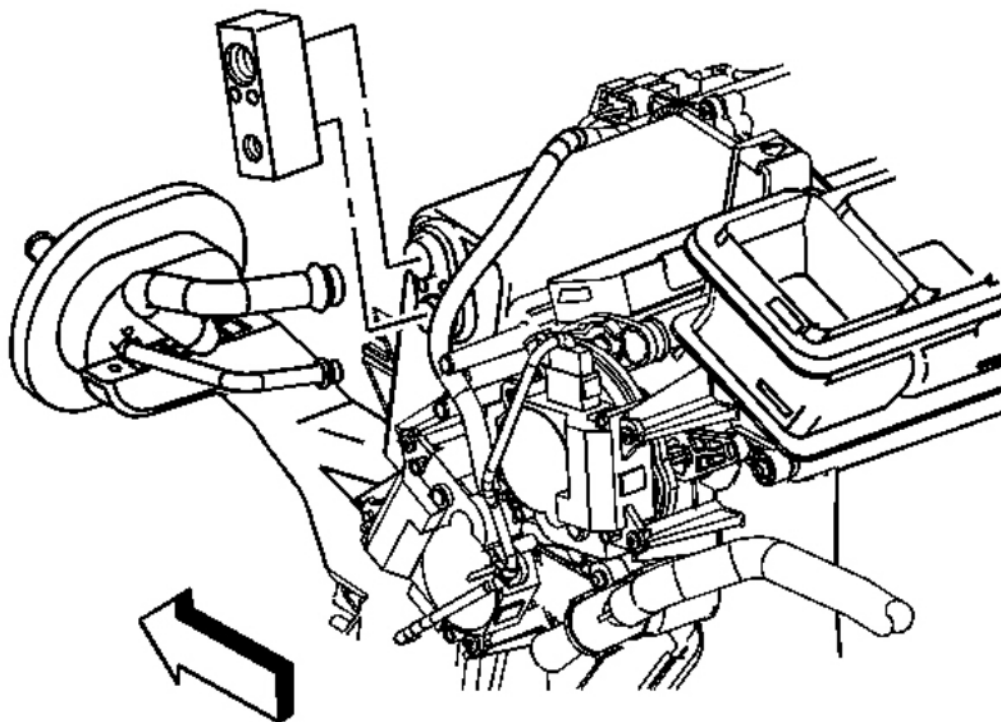


Fig. 13: View Of TXV

Courtesy of GENERAL MOTORS CORP.

26. Remove the A/C lines from J 45268-110.
27. Inspect the TXV for debris. Clean or replace as needed.
28. Replace the desiccant bag. Refer to **Desiccant Bag Replacement**.
29. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
30. Leak test the fittings using J 42220 . See **Special Tools and Equipment**.

FLUSHING (W/AUXILIARY A/C)

Tools Required

- J 41447 R-134A - A/C Tracer Dye - Box of 24. See **Special Tools and Equipment**.
- J 42220 Universal 12V Leak Detection Lamp. See **Special Tools and Equipment**.
- J 43600 ACR 2000 Air Conditioning Service Center. See **Special Tools and Equipment**.

- **J 45268** A/C Flush Adapter Kit. See **Special Tools and Equipment**.

**IMPORTANT: Vehicles with auxiliary A/C must flush both the front and auxiliary A/C System to adequately flush the entire A/C System.
Flushing is not intended to remove metal from the A/C System.**

Flushing is intended to remove the following:

- Contaminated polyalkylene glycol (PAG) oil
- Desiccant, following a desiccant bag failure
- Overcharge of PAG oil
- Refrigerant contamination

Forward Flushing Setup

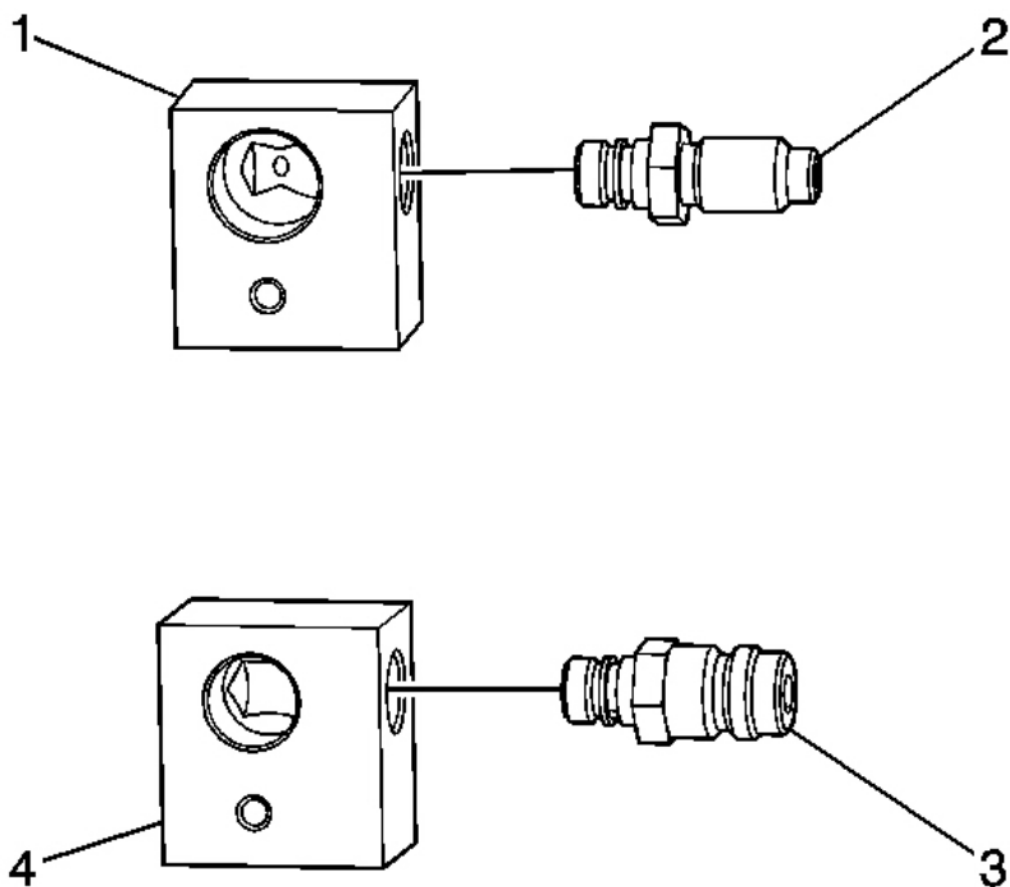


Fig. 14: Forward Flushing Setup

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Forward flow refrigerant flushing is recommended for contaminated refrigerant or PAG oil.

IMPORTANT: Inspect and lubricate the J 45268 fitting O-rings. See Special Tools and Equipment. Refer to O-Ring Replacement.

1. Install the J 45268-7 (2) onto the suction line adapter block J 45268-13 (1).
2. Install the J 45268-8 (3) onto the discharge line adapter block J 45268-12 (4).

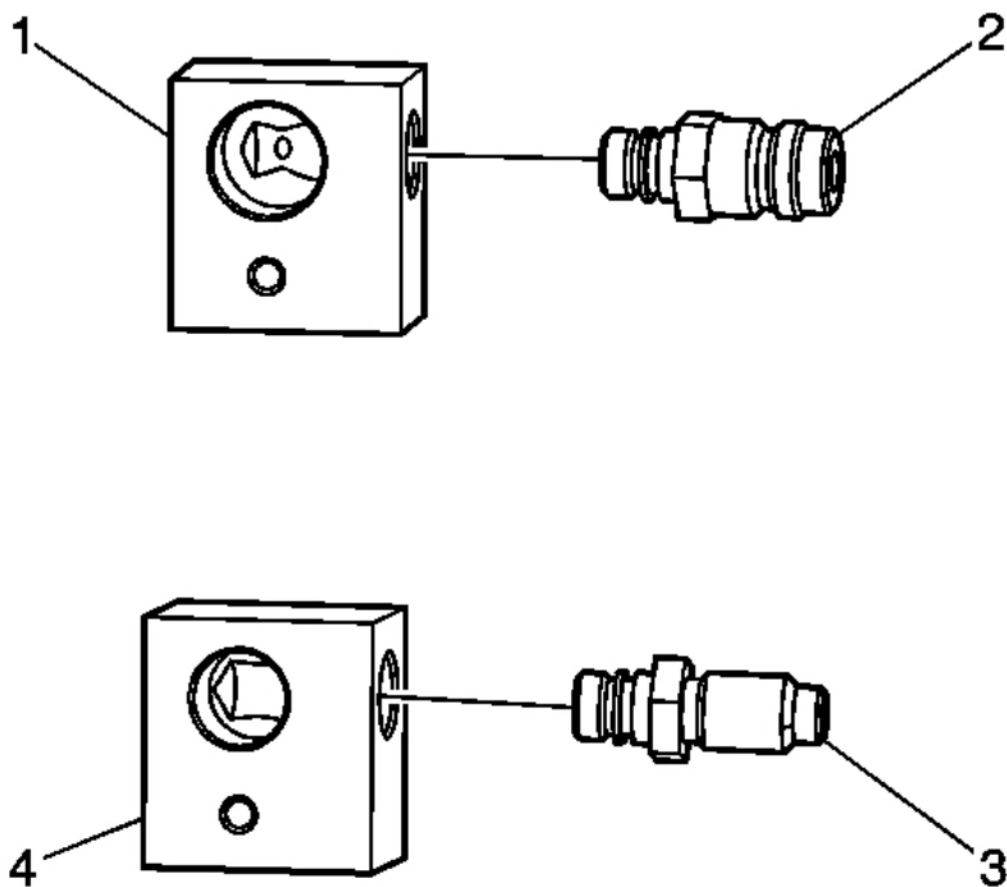


Fig. 15: Reverse Flushing Setup

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Reverse flow refrigerant flush is recommended for desiccant bag failure. Replace the condenser/receiver dehydrator assembly when the A/C flush is complete and perform the following procedure:

IMPORTANT: Inspect and lubricate the J 45268 fitting O-rings. See Special Tools and Equipment. Refer to O-Ring Replacement.

1. Install the J 45268-8 (2) onto the suction line adapter block J 45268-13 (1).

2. Install the J 45268-7 (3) onto the discharge line adapter block J 45268-12 (4).

Flush Procedure - Front System

IMPORTANT: Warmer engine or ambient temperatures decreases the refrigerant recovery time during the A/C flush procedure.

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.

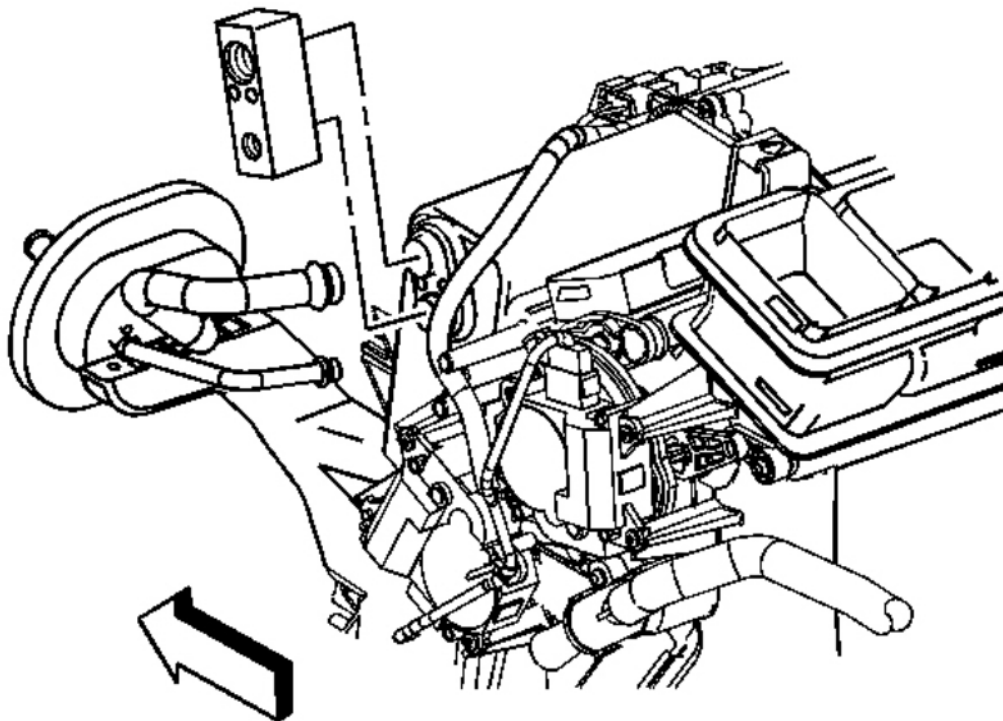


Fig. 16: View Of TXV

Courtesy of GENERAL MOTORS CORP.

2. Remove the front thermal expansion valve (TXV). Refer to Thermal Expansion Valve Replacement.
3. Inspect the O-rings on the evaporator core and A/C lines and replace as necessary. Refer to O-Ring Replacement.

4. Install the A/C lines into J 45268-110.
5. Install J 45268-110 onto the evaporator core.
6. Install the TXV line bracket.

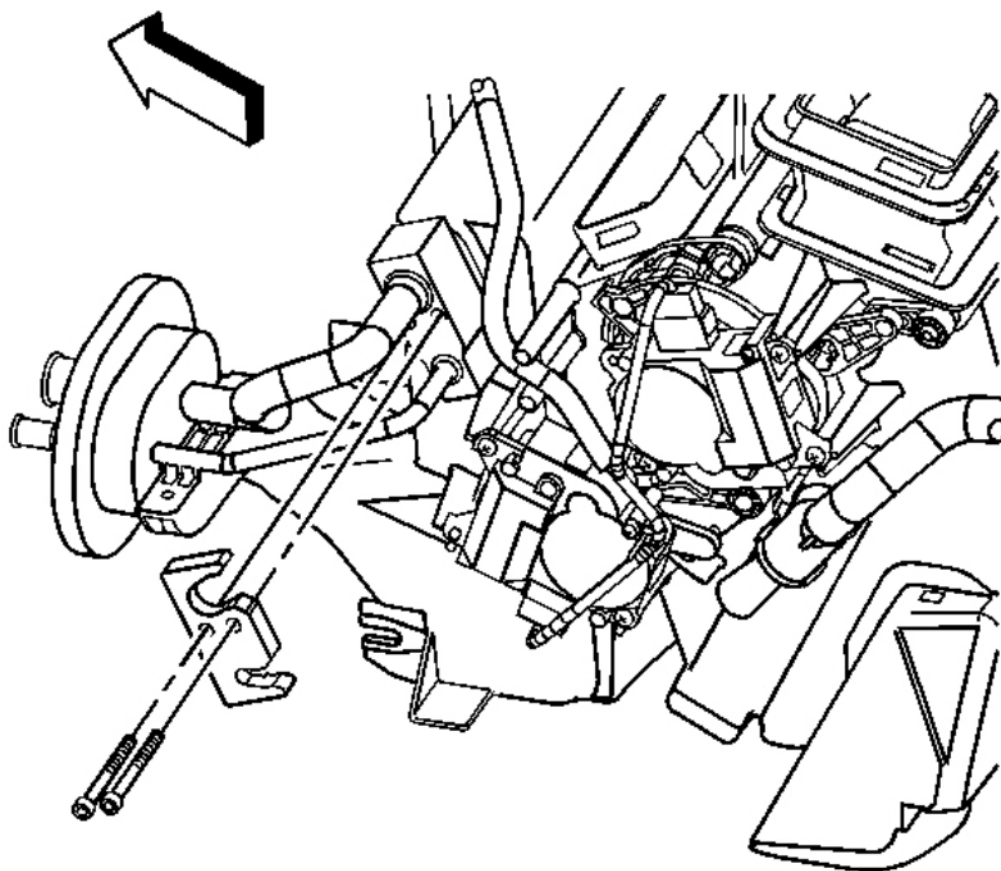


Fig. 17: View Of TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

7. Install TXV mounting bolts.

Tighten: Tighten the bolts to 3.5 N.m (31 lb in).

8. Remove the A/C compressor. Refer to Compressor Replacement (LH2 - Standard Cooling) or Compressor Replacement (LH2 - Heavy Duty Cooling) or Compressor

Replacement (LY7).

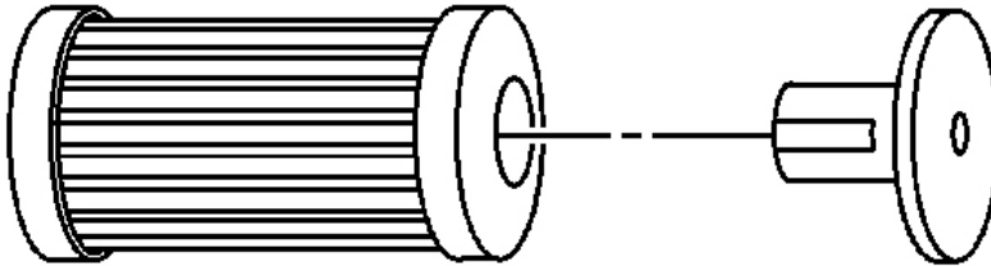


Fig. 18: View Of A/C Filter And Check Valve
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The filter inside J 45268-1 is serviceable. Remove and discard the check valve from the filter.

9. Service the filter with ACDelco P/N GF 470, before each flush.

IMPORTANT: Arrange the J 45268-7 flush fitting and J 45268-8 flush fitting in the forward flushing setup.

10. Inspect the O-rings on the A/C discharge and suction lines and replace as necessary. Refer to **O-Ring Replacement**
11. Install the J 45268-13 to the A/C suction line.
12. Install the J 45268-12 to the A/C discharge line.

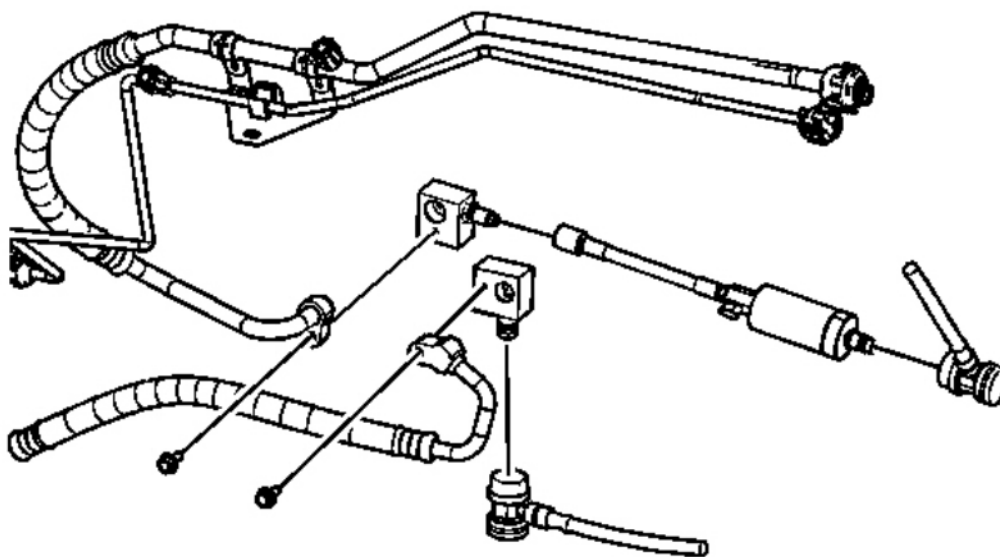


Fig. 19: View Of HVAC Hoses

Courtesy of GENERAL MOTORS CORP.

13. Connect the J 45268-1 flush filter to the J 45268-7 flush fitting.
14. Connect the blue hose from the **J 43600** to J 45268-1 flush filter adapter. See **Special Tools and Equipment**.
15. Connect the red hose from the **J 43600** to J 45268-8 flush fitting. See **Special Tools and Equipment**.

IMPORTANT: Close the valve on the external refrigerant tank, before starting the flush process.

16. Flush the A/C system. Follow the instructions supplied with the **J 43600** . See **Special Tools and Equipment**.
17. Remove the front TXV mounting bolts.

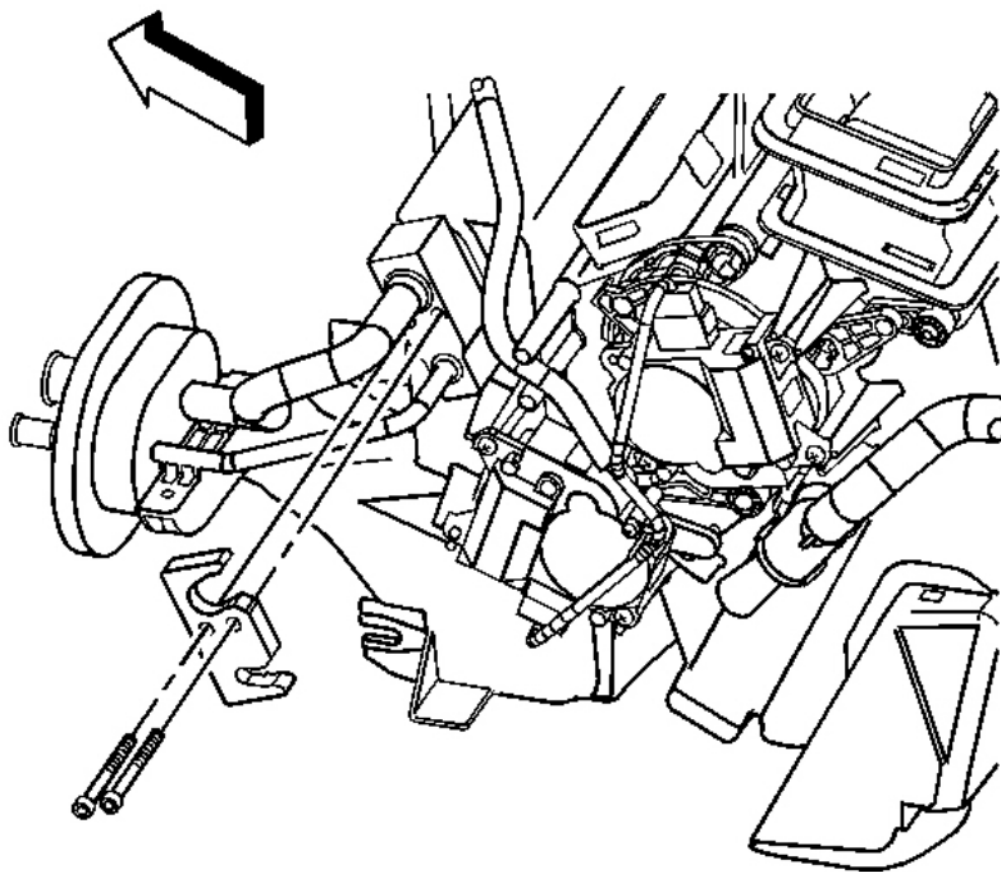


Fig. 20: View Of TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

18. Remove the front TXV line bracket.
19. Remove J 45268-110 from the evaporator core.

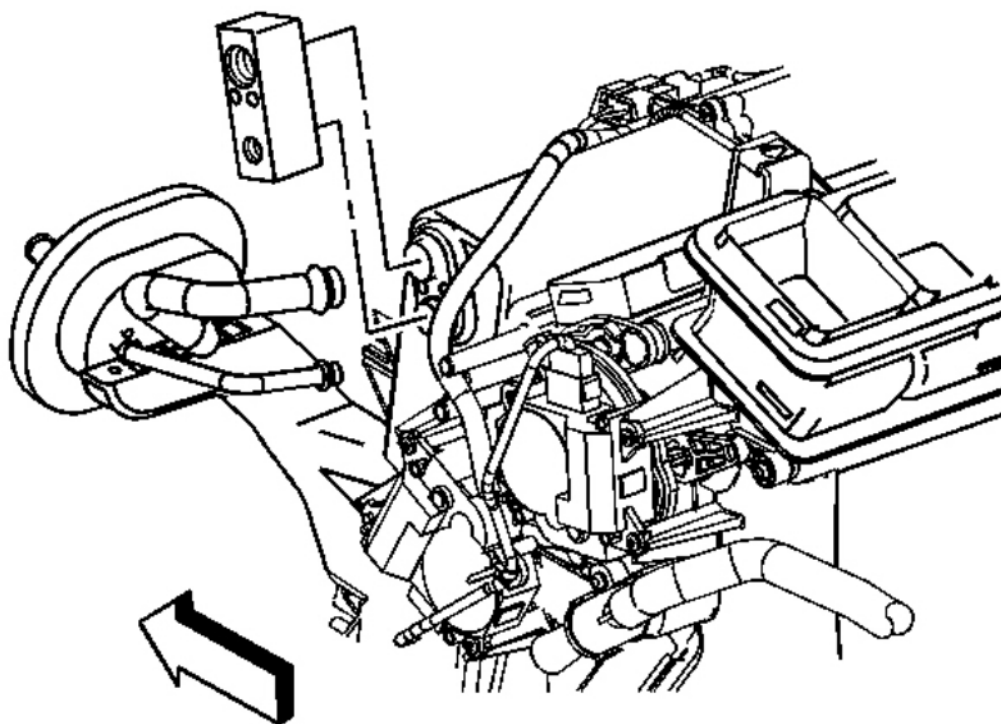


Fig. 21: View Of TXV

Courtesy of GENERAL MOTORS CORP.

20. Remove the A/C lines from J 45268-110.
21. Inspect the TXV for debris. Clean or replace as needed.

IMPORTANT: Do not install the instrument panel (I/P) until after the forward flushing of the auxiliary system procedure is completed.

22. Install the TXV. Refer to Thermal Expansion Valve Replacement.

Flush Procedure - Auxiliary A/C System

1. Remove the auxiliary TXV. Refer to Thermal Expansion Valve Replacement - Auxiliary.
2. Install the J 45268-111 in place of the auxiliary TXV.

3. Install auxiliary TXV assembly onto the evaporator core.
4. Install auxiliary TXV mounting bolts.

Tighten: Tighten the bolts to 3.5 N.m (31 lb in).

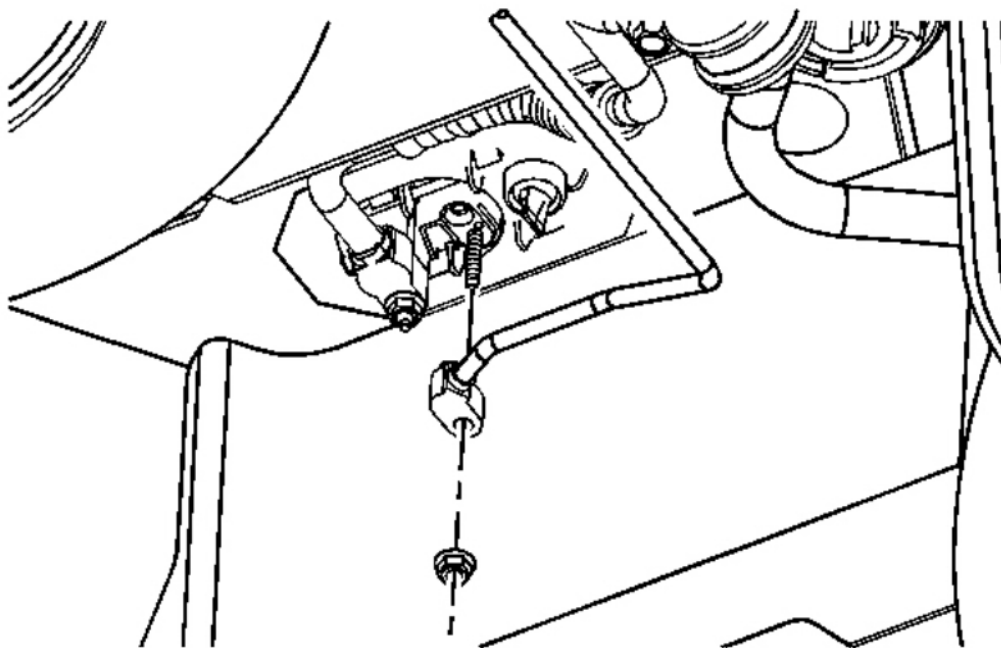


Fig. 22: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: It is not necessary to reinstall the auxiliary evaporator core into the auxiliary HVAC module prior to flushing.

5. Connect the auxiliary evaporator core inlet line to the auxiliary evaporator core.

Tighten: Tighten the nut to 9 N.m (80 lb in).

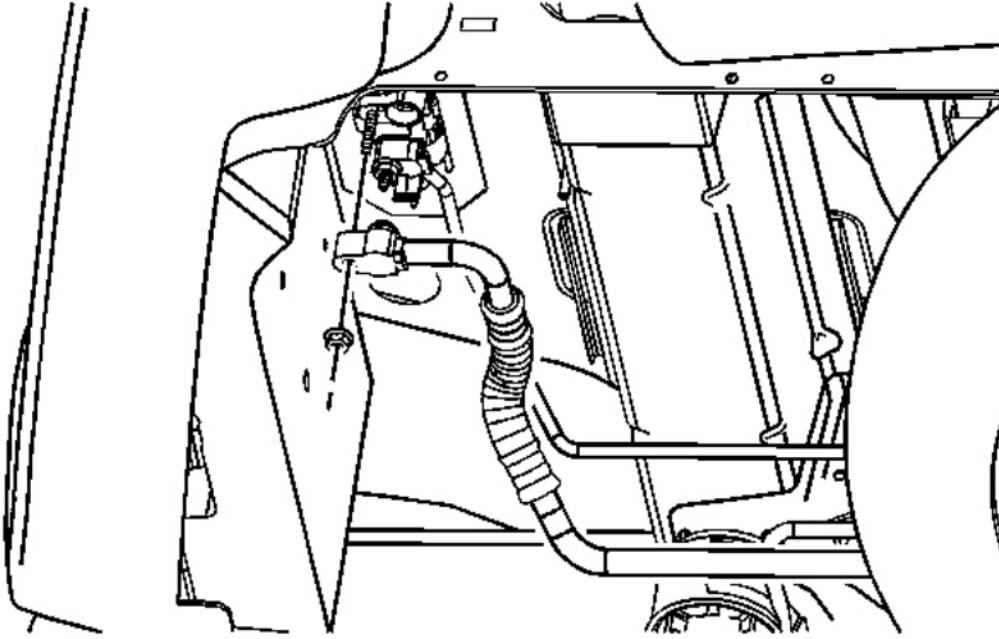


Fig. 23: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

6. Connect the auxiliary evaporator core outlet line to the auxiliary evaporator core.

Tighten: Tighten the nut to 9 N.m (80 lb in).

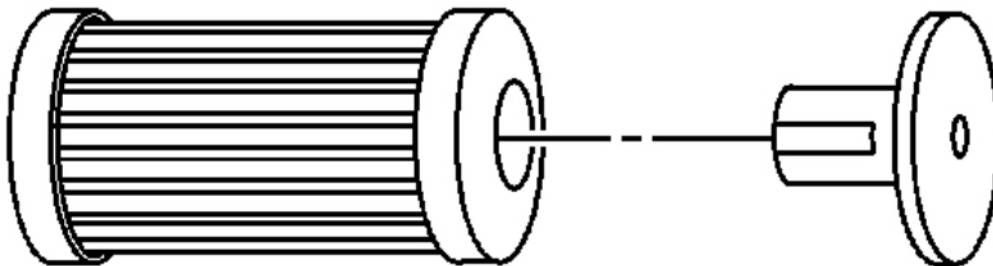


Fig. 24: View Of A/C Filter And Check Valve
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The filter inside J 45268-1 is serviceable. Remove and discard the check valve from the filter.

7. Service the filter with ACDelco P/N GF 470, before each flush.

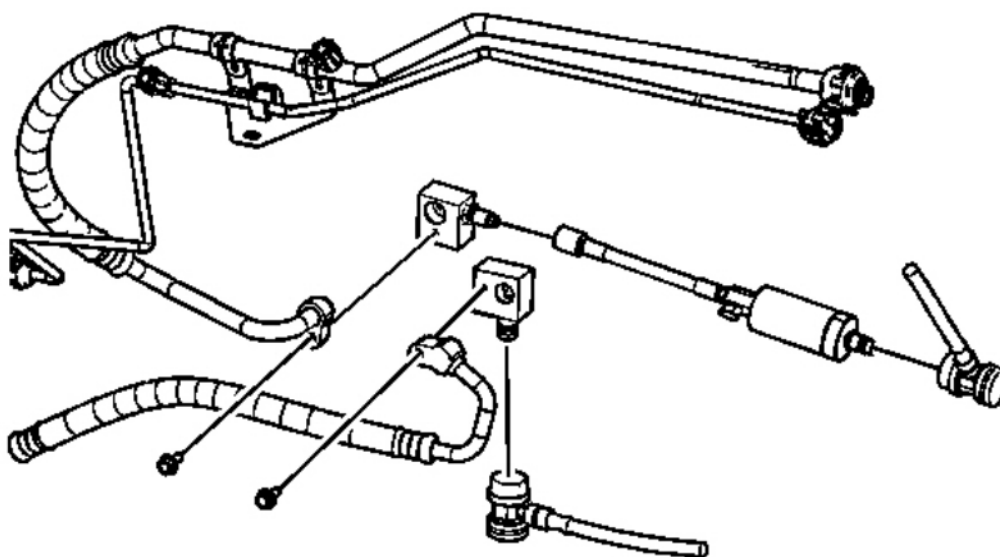


Fig. 25: View Of HVAC Hoses
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Close the valve on the external refrigerant tank, before starting the flush process.

8. Flush the auxiliary A/C System. Follow the instructions supplied with the J 43600 . See **Special Tools and Equipment**.
9. Disconnect the red hose from the J 43600 to J 45268-8 flush fitting. See **Special Tools and Equipment**.
10. Disconnect the blue hose from the J 43600 to J 45268-1 flush filter adapter. See **Special Tools and Equipment**.

11. Disconnect the J 45268-1 flush filter from the J 45268-7 flush fitting.
12. Remove the J 45268-12 from the A/C discharge line.
13. Remove the J 45268-13 from the A/C suction line.

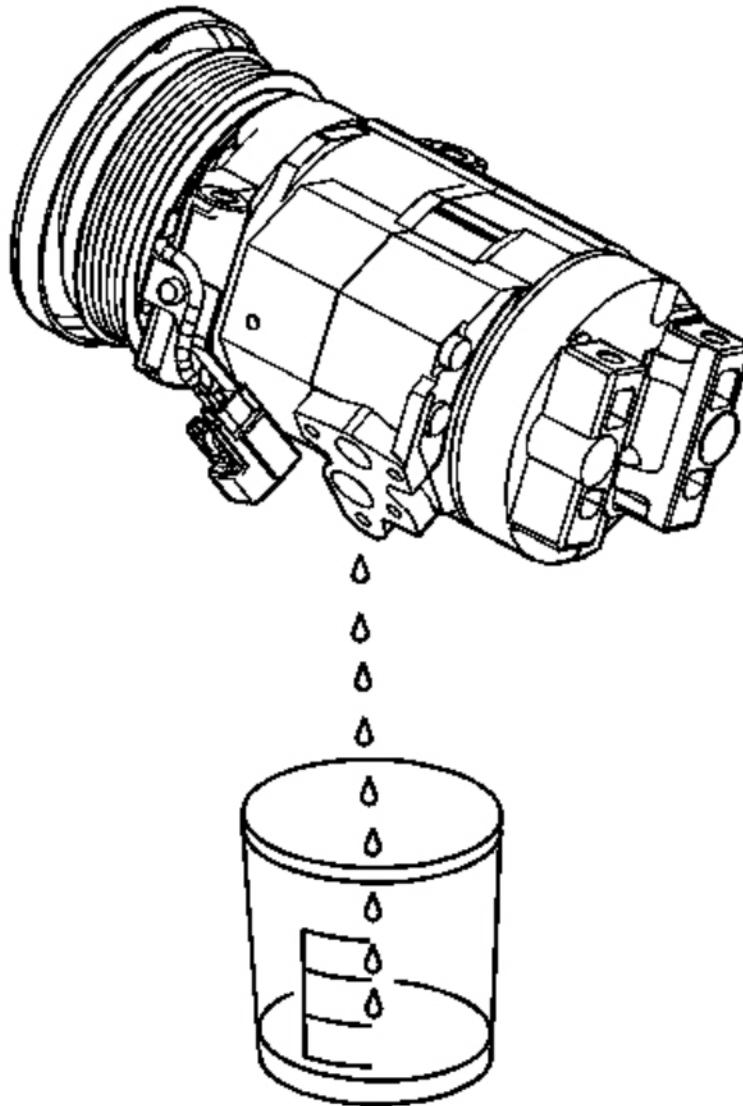


Fig. 26: Flushing A/C System
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Flushing will remove all the PAG oil from the A/C system. The A/C System must be replenished with the correct amount of PAG oil.

14. If you will reinstall the removed A/C compressor, perform the following procedure:

1. Drain the PAG oil from the A/C compressor. Rotate the compressor input shaft to assist in draining the PAG oil from the compressor.

IMPORTANT: Rotating the compressor hub assembly when adding PAG oil to the A/C compressor suction port will draw the PAG oil into the crankcase chamber and prevent overflow.

2. Add the total system capacity of PAG oil into the suction port of the A/C compressor while slowly rotating the A/C compressor hub assembly. Refer to Refrigerant System Capacities.

IMPORTANT: Flushing will remove the fluorescent leak detection dye from the A/C system.

3. Add one bottle of J 41447 fluorescent dye directly into the A/C compressor suction port while slowly rotating the A/C compressor hub assembly.

IMPORTANT: A new service compressor is shipped with a full charge of PAG oil. Refer to Refrigerant System Capacities.

15. Install the A/C compressor. Refer to Compressor Replacement (LH2 - Standard Cooling) or Compressor Replacement (LH2 - Heavy Duty Cooling) or Compressor Replacement (LY7).
16. Remove the auxiliary evaporator core outlet line to auxiliary evaporator core nut.

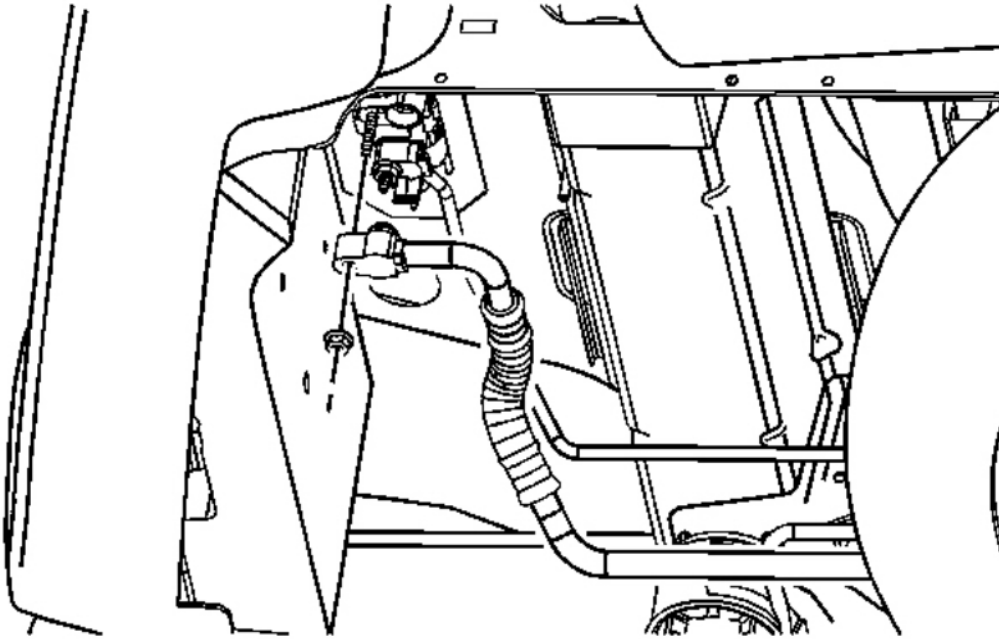


Fig. 27: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

17. Disconnect the auxiliary evaporator core outlet line from the auxiliary evaporator core.
18. Remove the auxiliary evaporator core inlet line to auxiliary evaporator core nut.

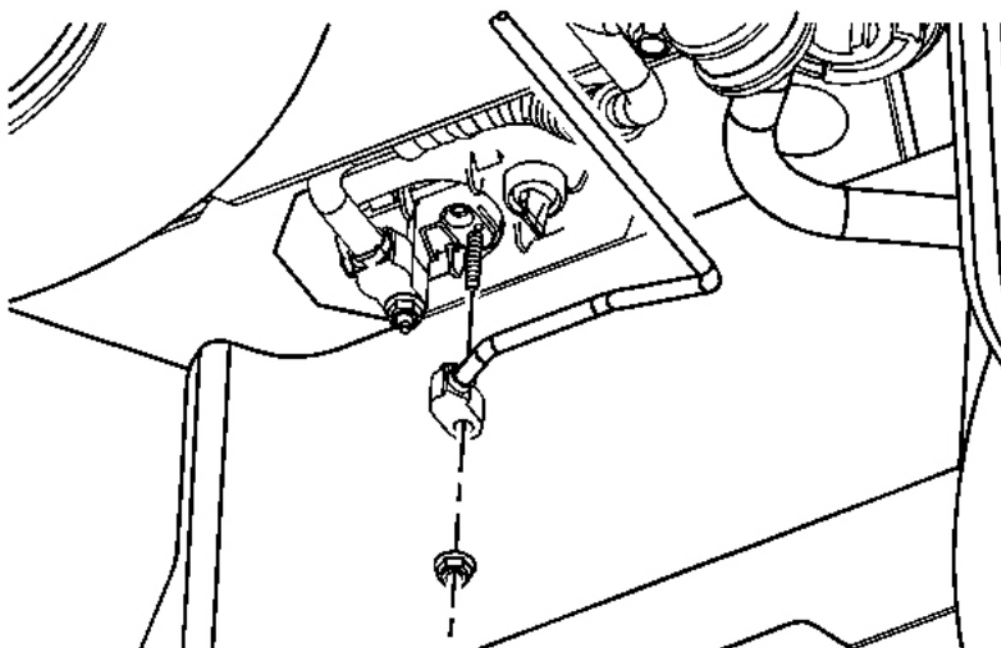


Fig. 28: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

19. Disconnect the auxiliary evaporator core inlet line to the auxiliary evaporator core.

Tighten: Tighten the nut to 9 N.m (80 lb in).

20. Remove the auxiliary TXV assembly mounting bolts.
21. Remove the auxiliary TXV assembly.
22. Remove J 45268-111 from the auxiliary TXV assembly.
23. Inspect the auxiliary TXV for debris. Clean or replace as necessary.
24. Install the auxiliary TXV and auxiliary HVAC module back into the vehicle. Refer to **Thermal Expansion Valve Replacement - Auxiliary.**

IMPORTANT: Debris may form at the front TXV when flushing the auxiliary A/C System. It is necessary to remove and inspect the TXV to maintain optimal A/C System performance.

25. Remove and inspect the front TXV assembly for debris. Refer to **Thermal Expansion Valve Replacement**.

Clean or replace as necessary.

26. Install the front TXV. Refer to **Thermal Expansion Valve Replacement**.
27. Replace the desiccant bag. Refer to **Desiccant Bag Replacement**.
28. Evacuate and recharge the A/C System. Refer to **Refrigerant Recovery and Recharging**.
29. Leak test the fittings using **J 42220** . See **Special Tools and Equipment**.

COMPRESSOR OIL BALANCING

Draining

IMPORTANT: Drain and measure as much of the refrigerant oil as possible from the removed compressor.

1. Drain the oil from both the suction and discharge ports of the removed compressor into a clean, graduated container.

Rotate the compressor shaft to assist in draining the compressor.

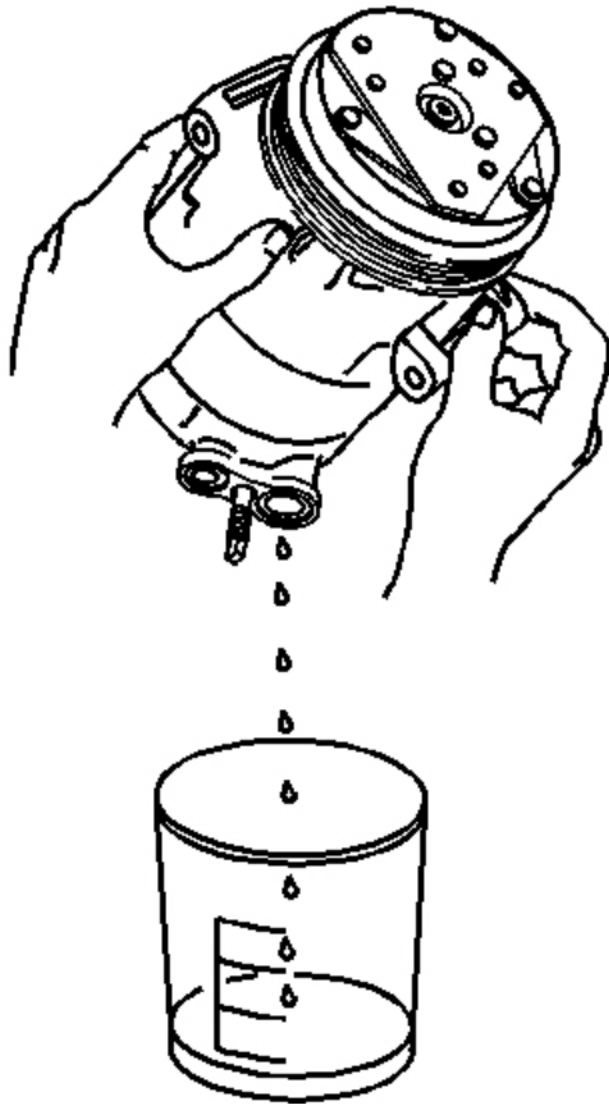


Fig. 29: Draining A/C Refrigerant Oil From Compressor
Courtesy of GENERAL MOTORS CORP.

2. Measure and record the amount of oil drained from the removed compressor.

This measurement will be used during installation of the replacement compressor.

2004 Cadillac SRX

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3. Properly discard the used refrigerant oil.

Balancing

IMPORTANT: The refrigerant oil in the A/C system must be balanced during compressor replacement.

1. The replacement compressor is shipped with the total system capacity of refrigerant oil.

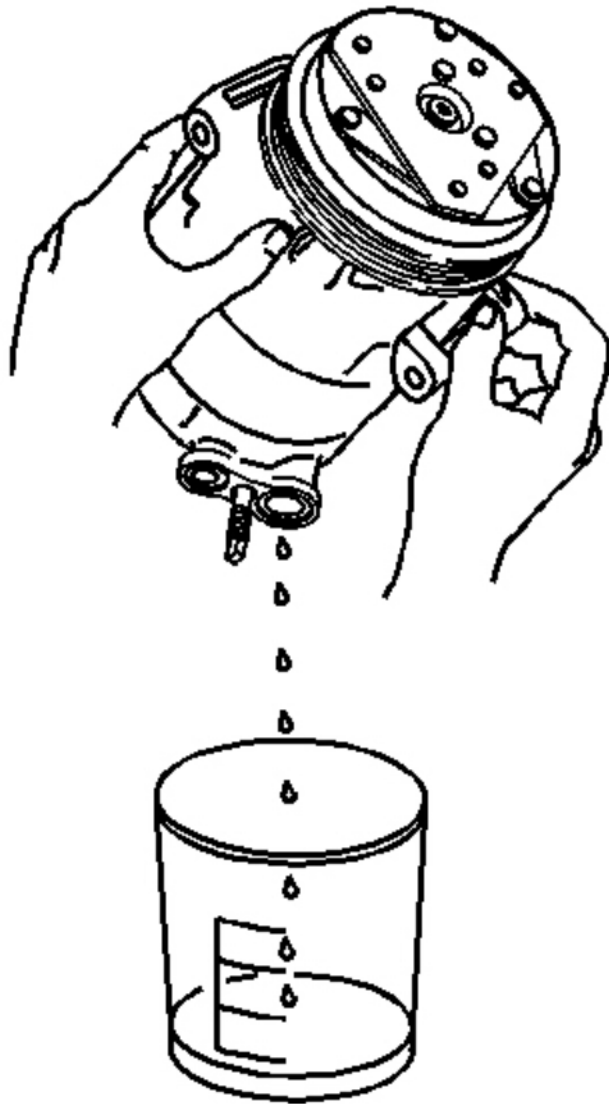


Fig. 30: Draining A/C Refrigerant Oil From Compressor
Courtesy of GENERAL MOTORS CORP.

2. Before installing the compressor, the refrigerant oil will have to be partially drained:
 1. Refer to the amount of refrigerant oil recorded during the compressor removal.
 2. Subtract the amount recorded from the total system capacity. Refer to **Refrigerant**

System Capacities.

The difference between the total system capacity and the recorded amount is the calculated amount to be drained from the replacement compressor.

3. Drain the calculated amount of refrigerant oil from the replacement compressor.

COMPRESSOR REPLACEMENT (LH2 - STANDARD COOLING)**Tools Required**

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment.**

Removal Procedure

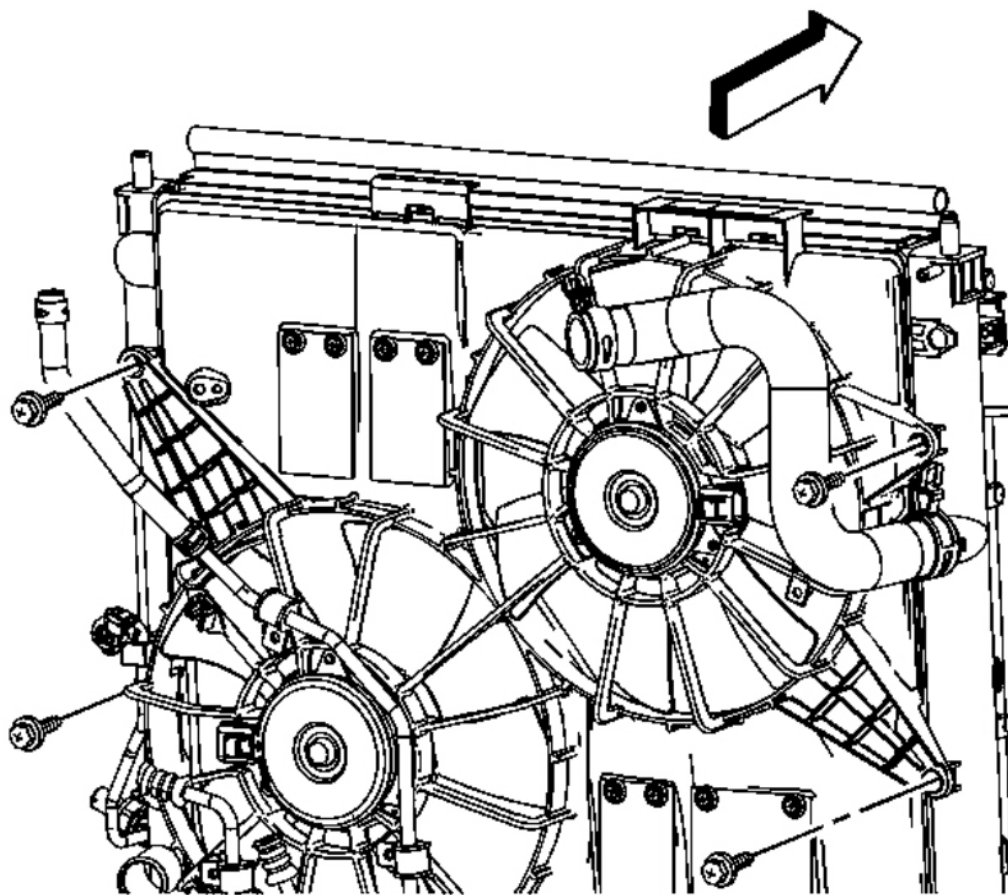


Fig. 31: View Of Cooling Fan Shroud-To-Radiator Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L.
3. Remove the drive belt. Refer to **Drive Belt Replacement - Air Conditioning, Power Steering and Water Pump** in Engine Mechanical - 4.6L.
4. Disconnect the cooling fan electrical connectors.
5. Disengage the surge tank inlet hose from the retaining features on the cooling fan shroud and reposition aside.
6. Remove the cooling fan shroud to radiator retaining bolts.

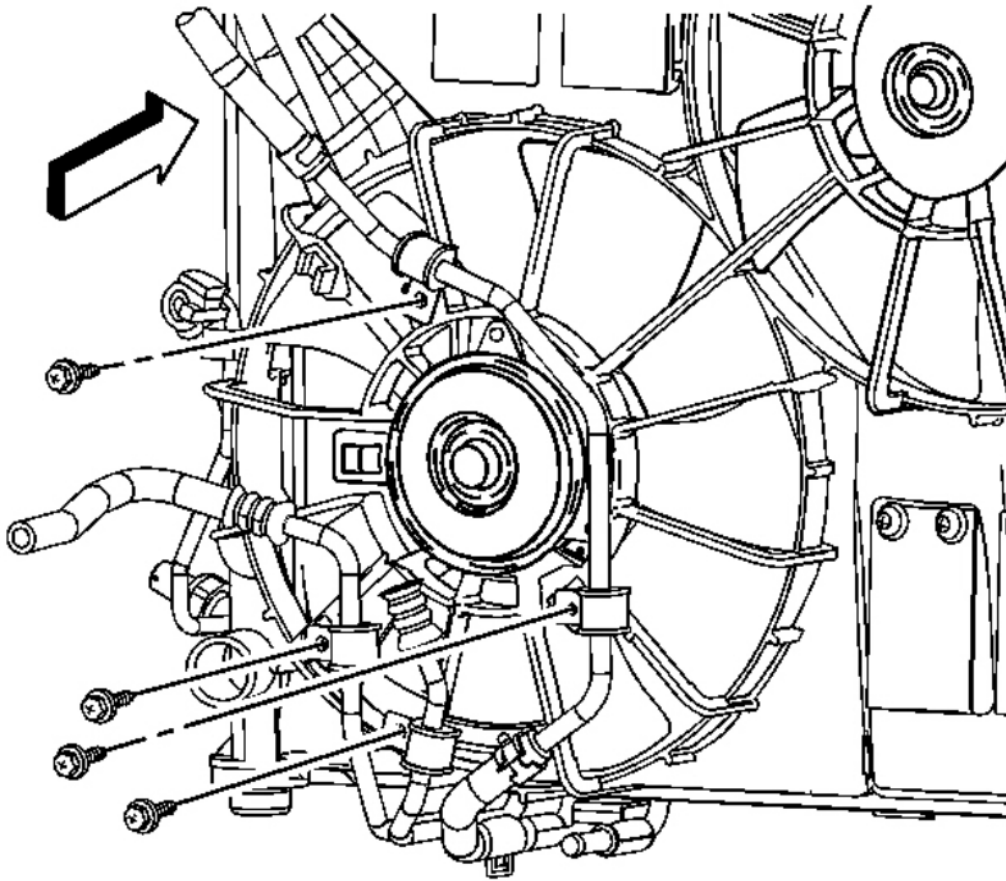


Fig. 32: View Of Power Steering Line-To-Cooling Fan Shroud Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove power steering line to cooling fan shroud retaining bolts.
8. Disconnect the A/C line from the cooling fan shroud retainer clip.
9. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

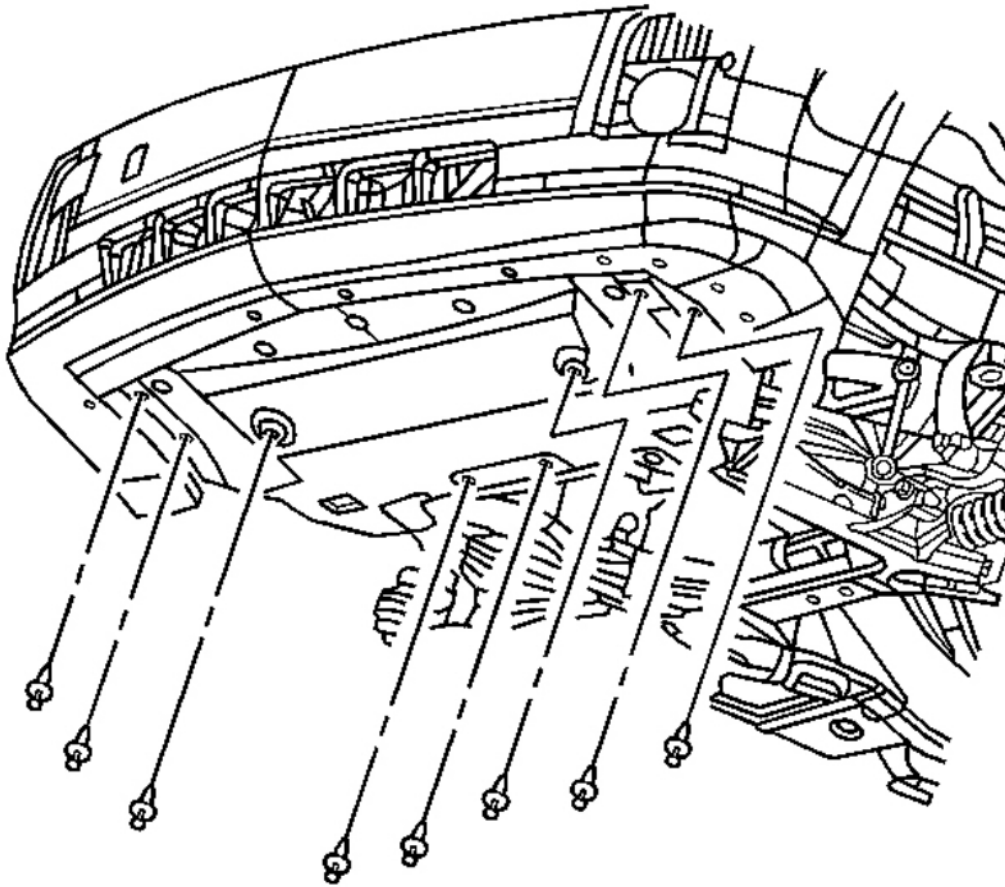


Fig. 33: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

10. Remove the front air deflector retainers.
11. Remove the front air deflector.

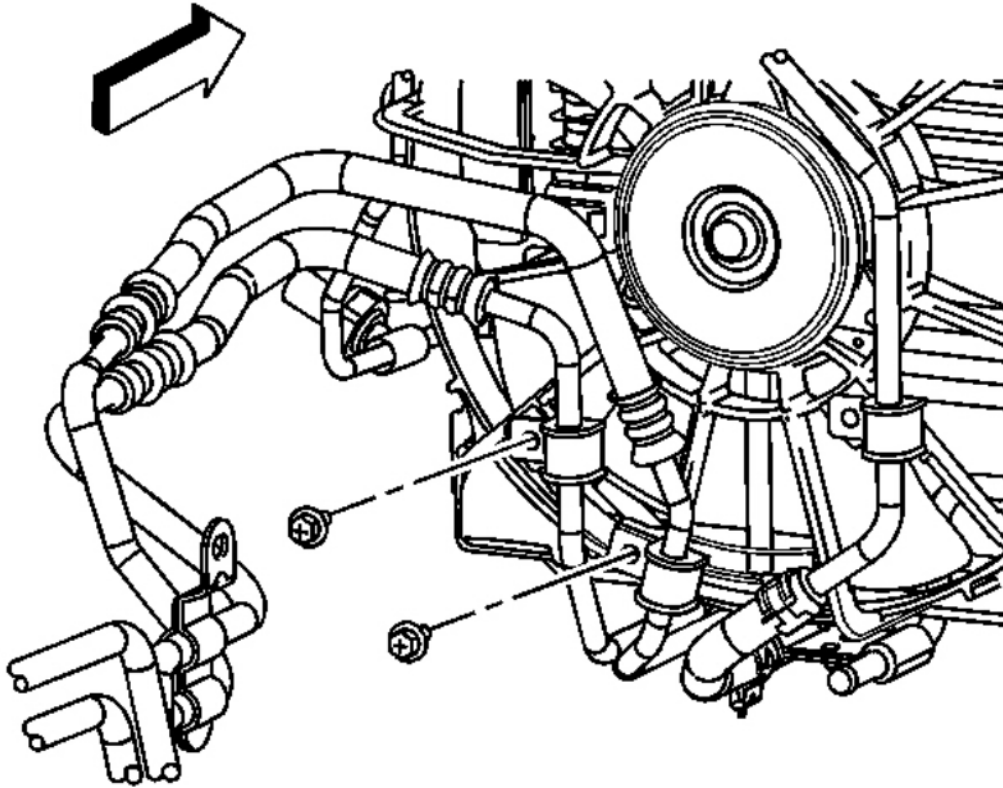


Fig. 34: View Of Transmission Oil Cooler Lines-To-Cooling Fan Shroud Retaining Bolts

Courtesy of GENERAL MOTORS CORP.

12. Disconnect the engine wiring harness from the engine frame and reposition.
13. Remove the transmission oil cooler lines to cooling fan shroud retaining bolts.

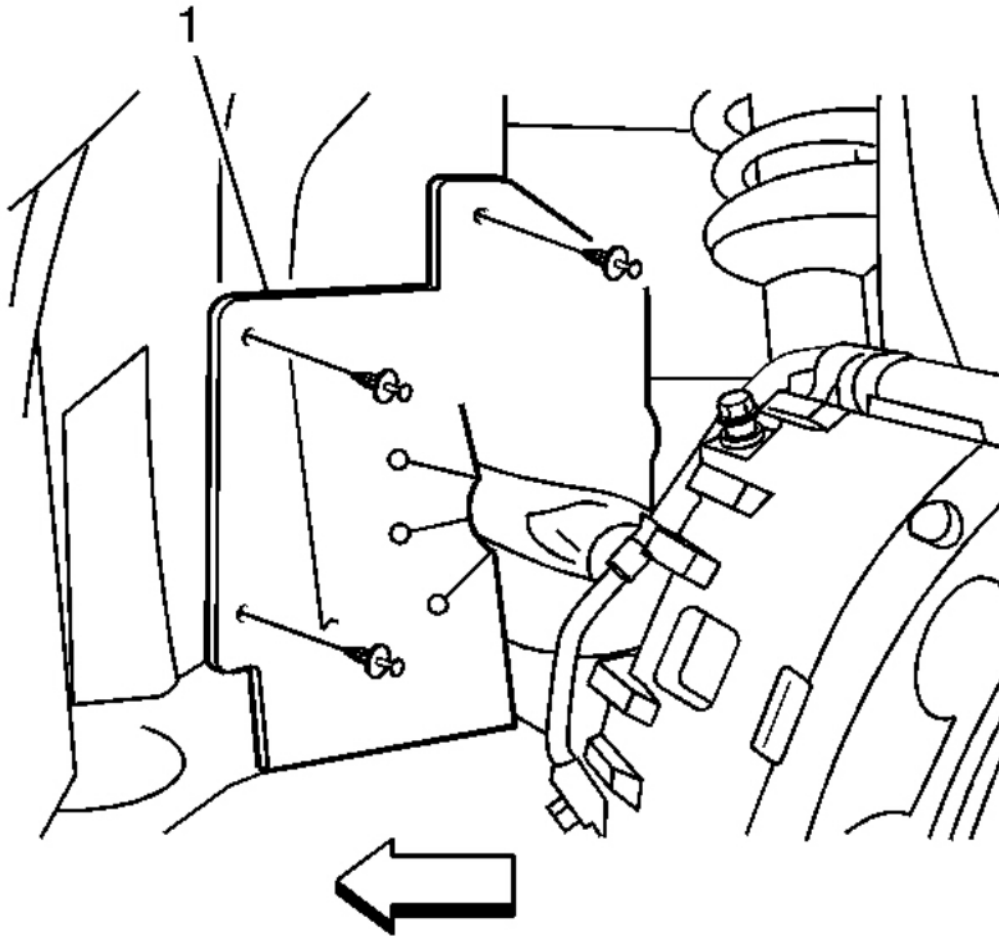


Fig. 35: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

14. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
15. Remove the LH front splash shield retainers.
16. Remove the LH front splash shield (1).

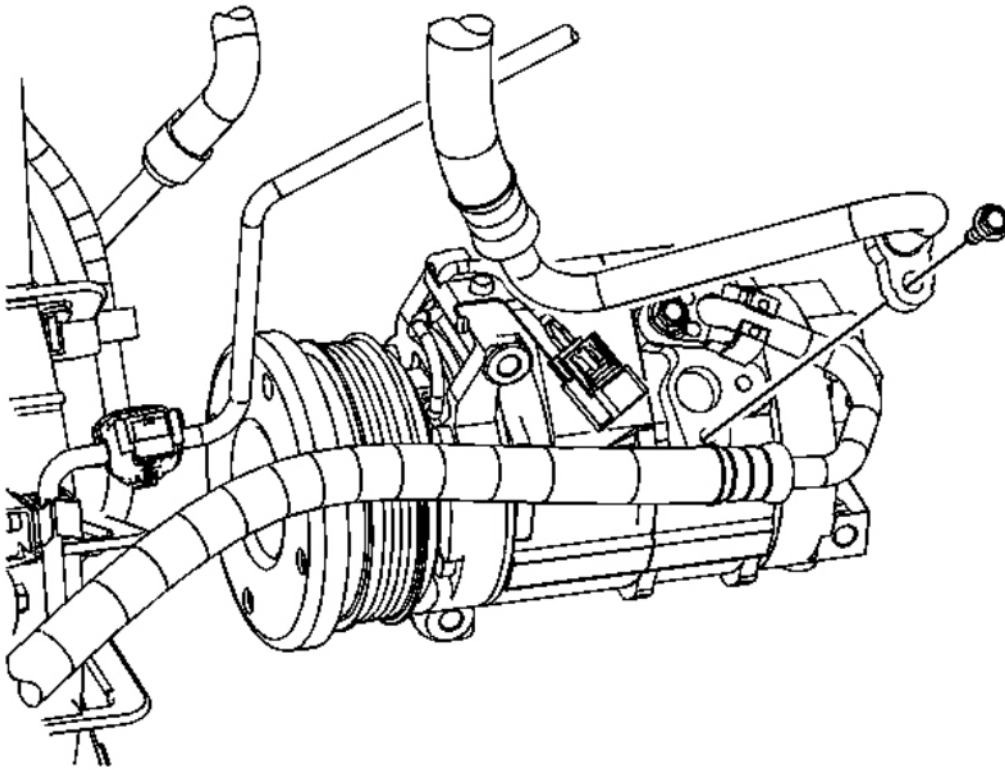


Fig. 36: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

17. Remove the suction line bolt from the A/C compressor.
18. Disconnect the suction line from the A/C compressor.
19. Remove and discard the O-ring.

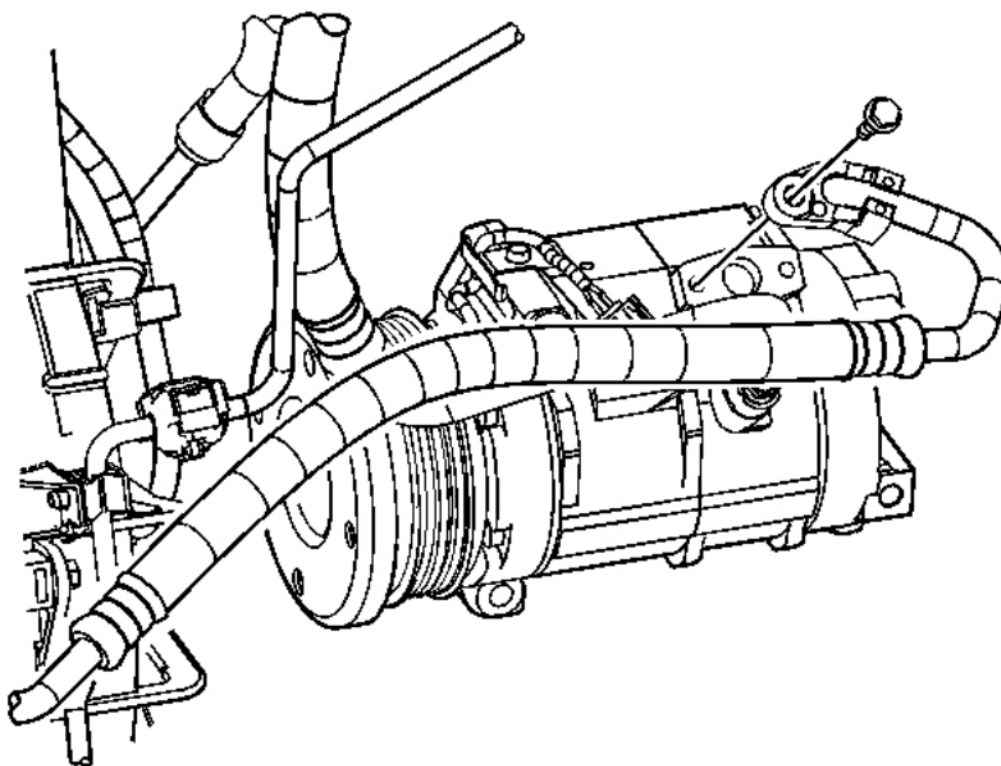


Fig. 37: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

20. Remove the discharge line bolt from the A/C compressor.
21. Disconnect the discharge line from the A/C compressor.
22. Remove and discard the O-ring.
23. Disconnect the A/C compressor electrical connector.
24. Remove the engine oil filter. Refer to **Engine Oil and Oil Filter Replacement** in Engine Mechanical - 4.6L.
25. Remove the A/C compressor mounting bolts.

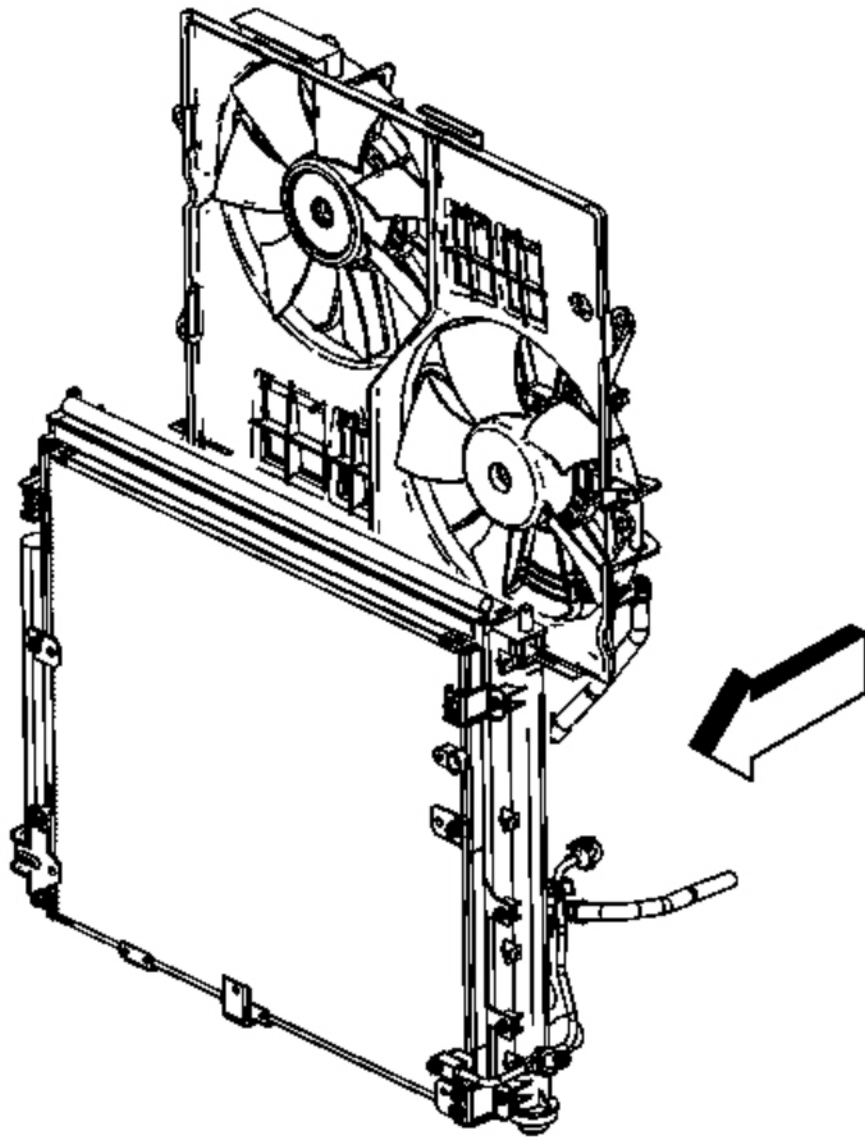


Fig. 38: View Of Cooling Fan Assembly
Courtesy of GENERAL MOTORS CORP.

26. Lower the vehicle.
27. Remove the cooling fan assembly.
28. Remove the A/C compressor.

29. Replace the desiccant bag if the following conditions exist. Refer to **Desiccant Bag Replacement**.

- Color of PAG oil is brown or black
- Presence of foreign substances

IMPORTANT: Replacement A/C compressors are charged with PAG oil. Refer to Refrigerant System Capacities.

30. If replacing the A/C compressor, balance the compressor. Refer to **Compressor Oil Balancing**.

Installation Procedure

1. Install the A/C compressor.

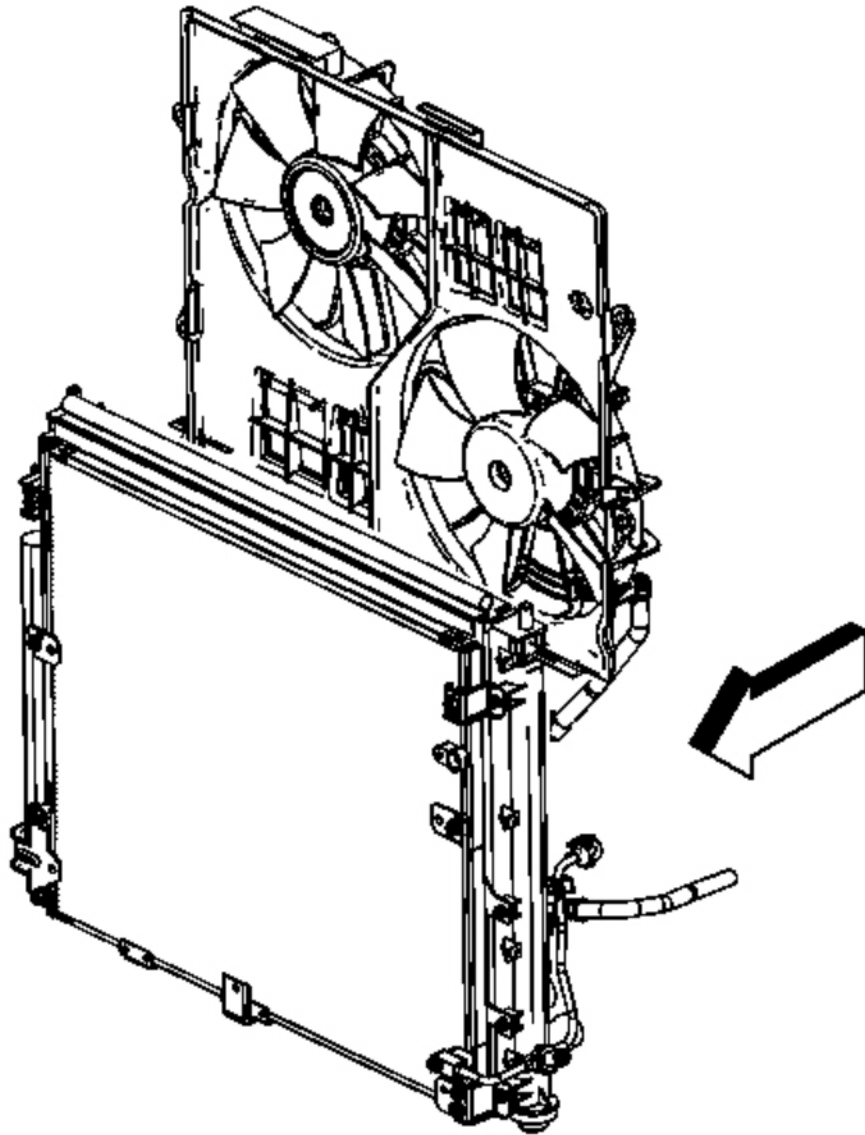


Fig. 39: View Of Cooling Fan Assembly
Courtesy of GENERAL MOTORS CORP.

2. Install the cooling fan assembly.
3. Raise the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

IMPORTANT: Do not tighten the A/C compressor mounting bolts until all bolts are thoroughly started.

4. Install the A/C compressor mounting bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

5. Install the engine oil filter. Refer to Engine Oil and Oil Filter Replacement in Engine Mechanical - 4.6L.
6. Connect the A/C compressor electrical connector.

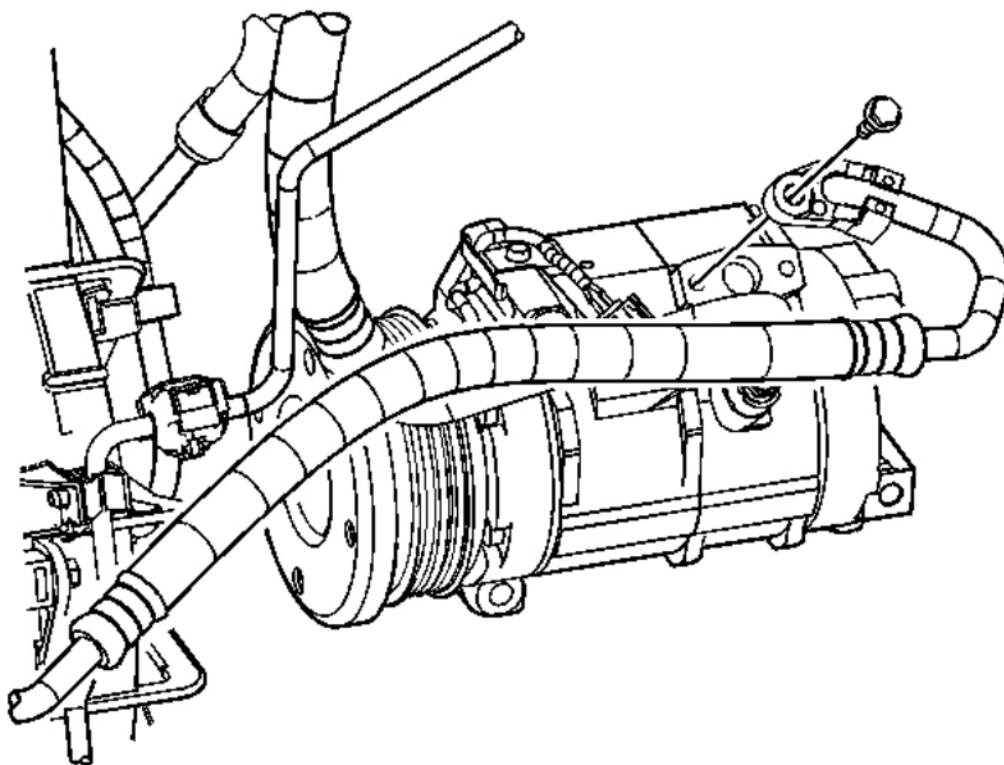


Fig. 40: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

7. Install a new O-ring to the discharge line. Refer to **O-Ring Replacement**.
8. Connect the discharge line to the A/C compressor.
9. Install the discharge line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

10. Install a new O-ring to the suction line. Refer to **O-Ring Replacement**.

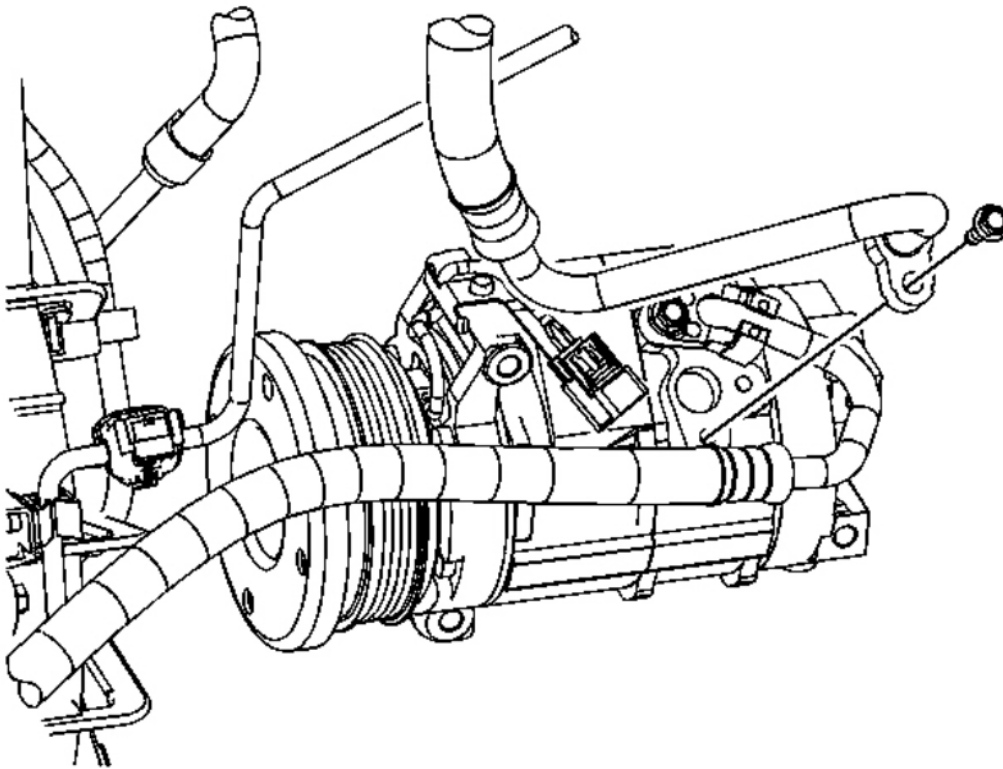


Fig. 41: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

11. Connect the suction line to the A/C compressor.
12. Install the suction line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

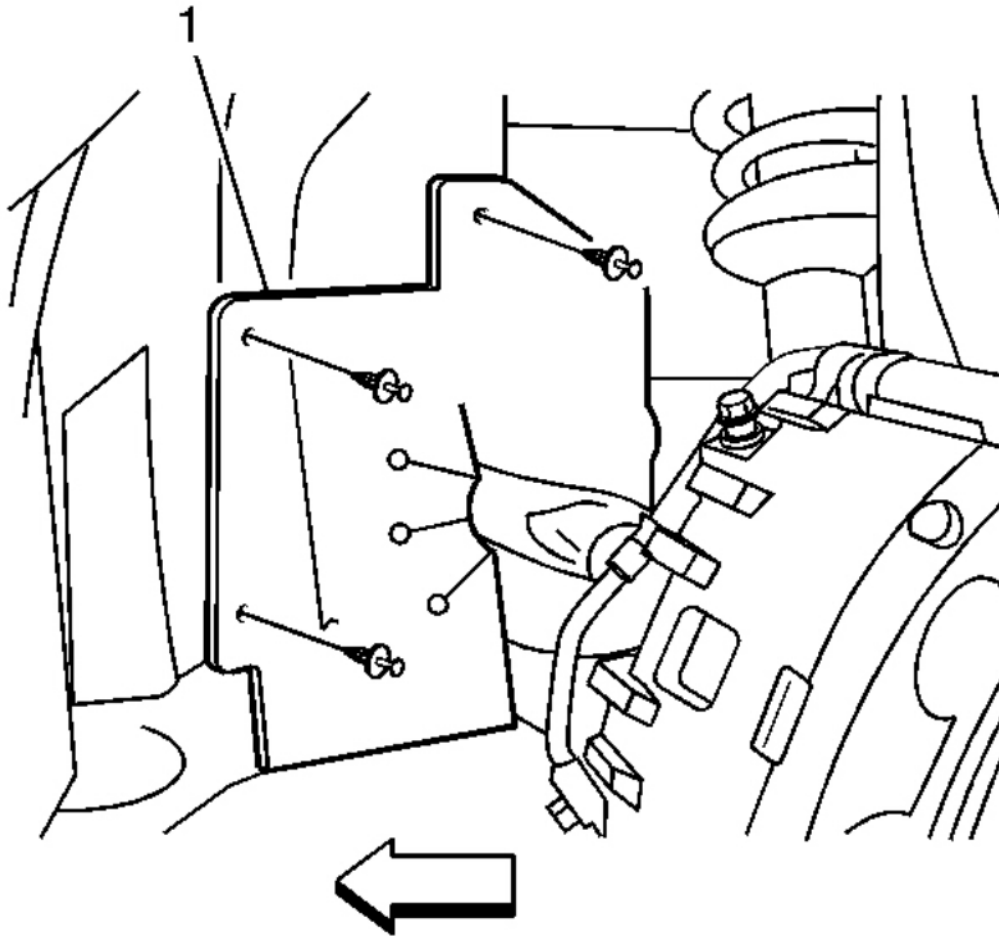


Fig. 42: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

13. Install the LH front splash shield (1).
14. Install the LH front splash shield retainers.
15. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

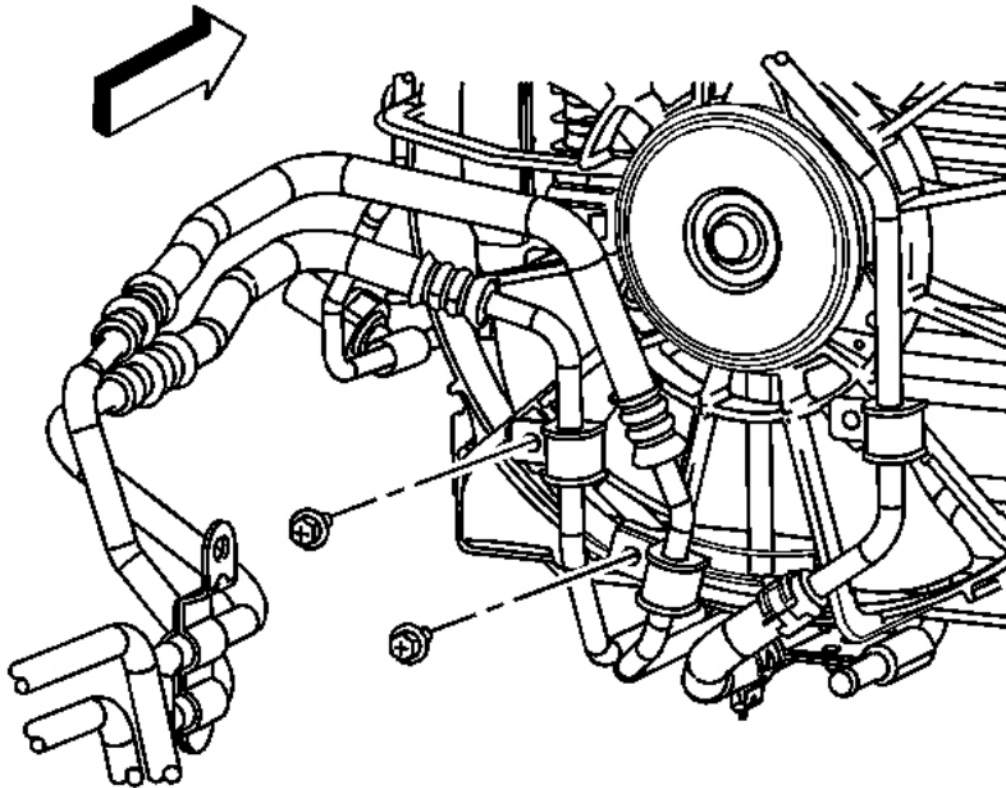


Fig. 43: View Of Transmission Oil Cooler Lines-To-Cooling Fan Shroud Retaining Bolts

Courtesy of GENERAL MOTORS CORP.

16. Install the transmission oil cooler lines to cooling fan shroud retaining bolts.

Tighten: Tighten the bolts to 6.5 N.m (58 lb in).

17. Connect the engine wiring harness to the engine frame.

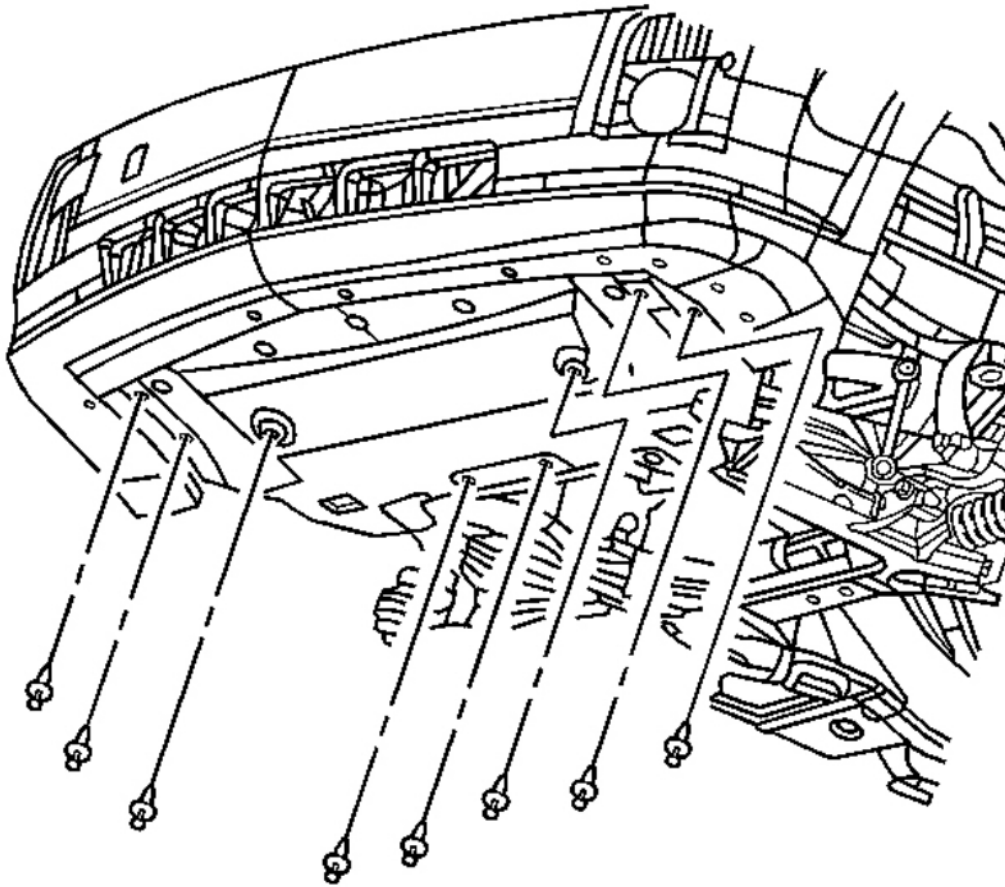


Fig. 44: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

18. Install the front air deflector.
19. Install the front air deflector retainers.
20. Lower the vehicle.
21. Connect the A/C line to the cooling fan shroud retainer clip.

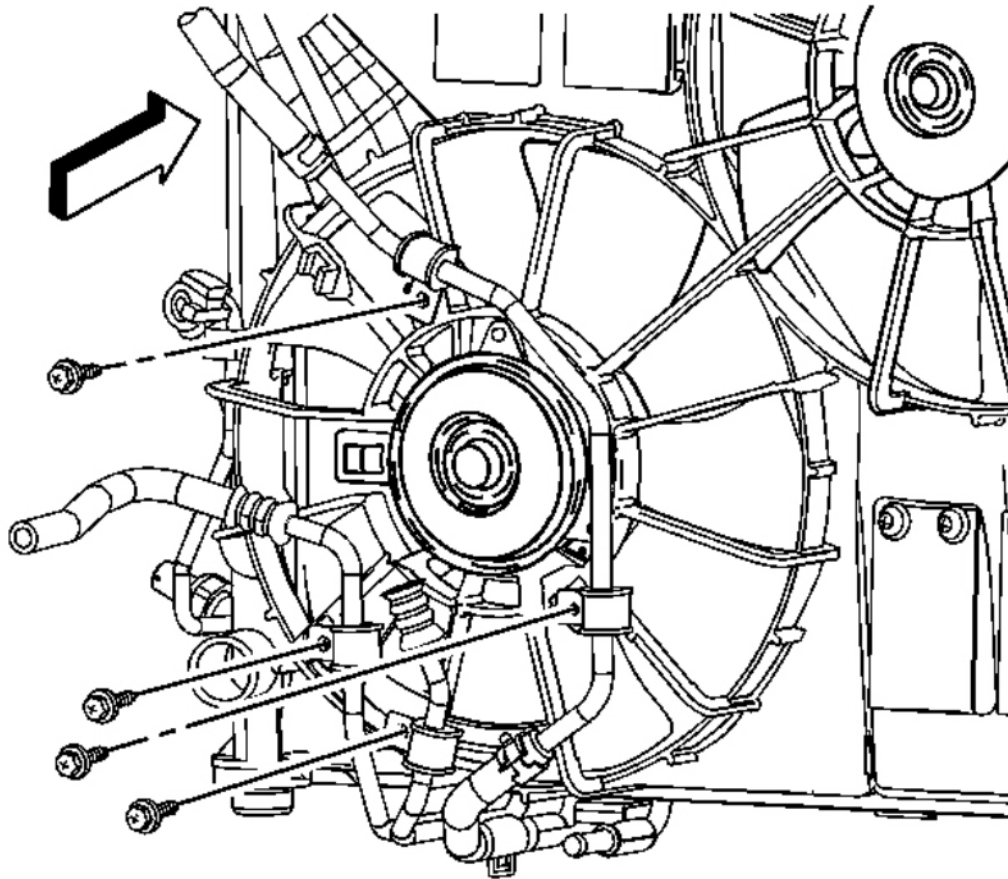


Fig. 45: View Of Power Steering Line-To-Cooling Fan Shroud Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

22. Install power steering line to cooling fan shroud retaining bolts.

Tighten: Tighten the bolts to 6.5 N.m (58 lb in).

23. Install the cooling fan shroud to radiator retaining bolts.

Tighten: Tighten the bolts to 6.5 N.m (58 lb in).

24. Connect the cooling fan electrical connectors.

25. Engage the surge tank inlet hose to the retaining features on the cooling fan shroud.

26. Install the drive belt. Refer to **Drive Belt Replacement - Air Conditioning, Power Steering and Water Pump** in Engine Mechanical - 4.6L.

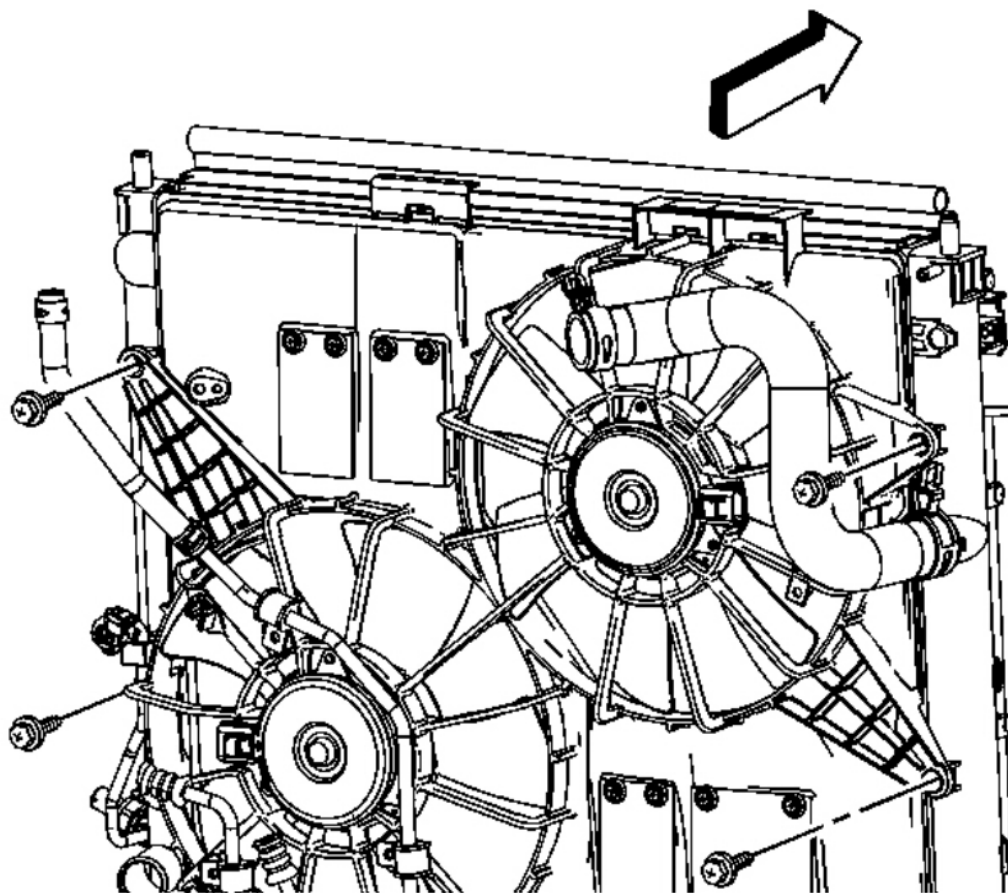


Fig. 46: View Of Cooling Fan Shroud-To-Radiator Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

27. Install the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L.
28. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
29. Leak test the fittings of the component using the J 39400-A . See **Special Tools and Equipment**.

COMPRESSOR REPLACEMENT (LH2 - HEAVY DUTY COOLING)

Tools Required

- J 39400-A Halogen Leak Detector. See Special Tools and Equipment.
- J 41240-5A Fan Clutch Wrench

Removal Procedure

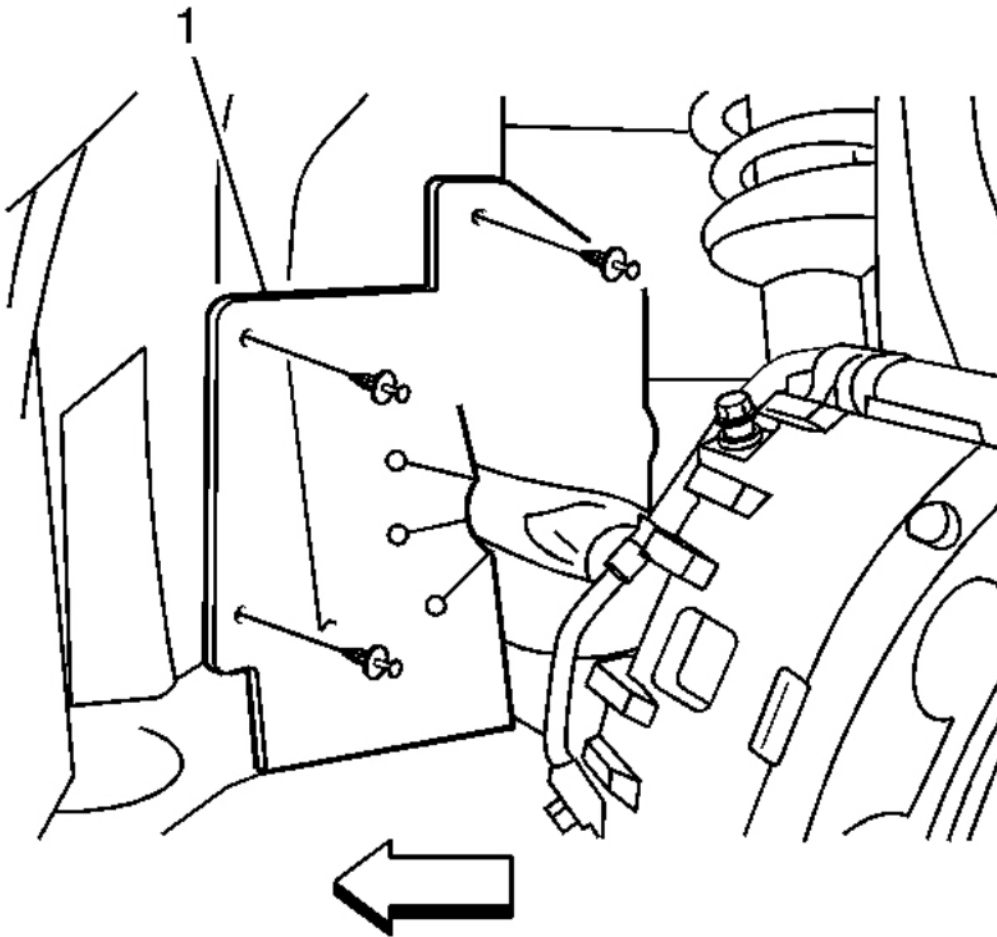


Fig. 47: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

2004 Cadillac SRX

2004 HVAC Heating, Ventilation & Air Conditioning - SRX

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L.
3. Remove the drive belt tensioner. Refer to **Drive Belt Tensioner Replacement - Air Conditioning, Power Steering and Water Pump** in Engine Mechanical - 4.6L.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
5. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
6. Remove the LH front splash shield retainers.
7. Remove the LH front splash shield (1).

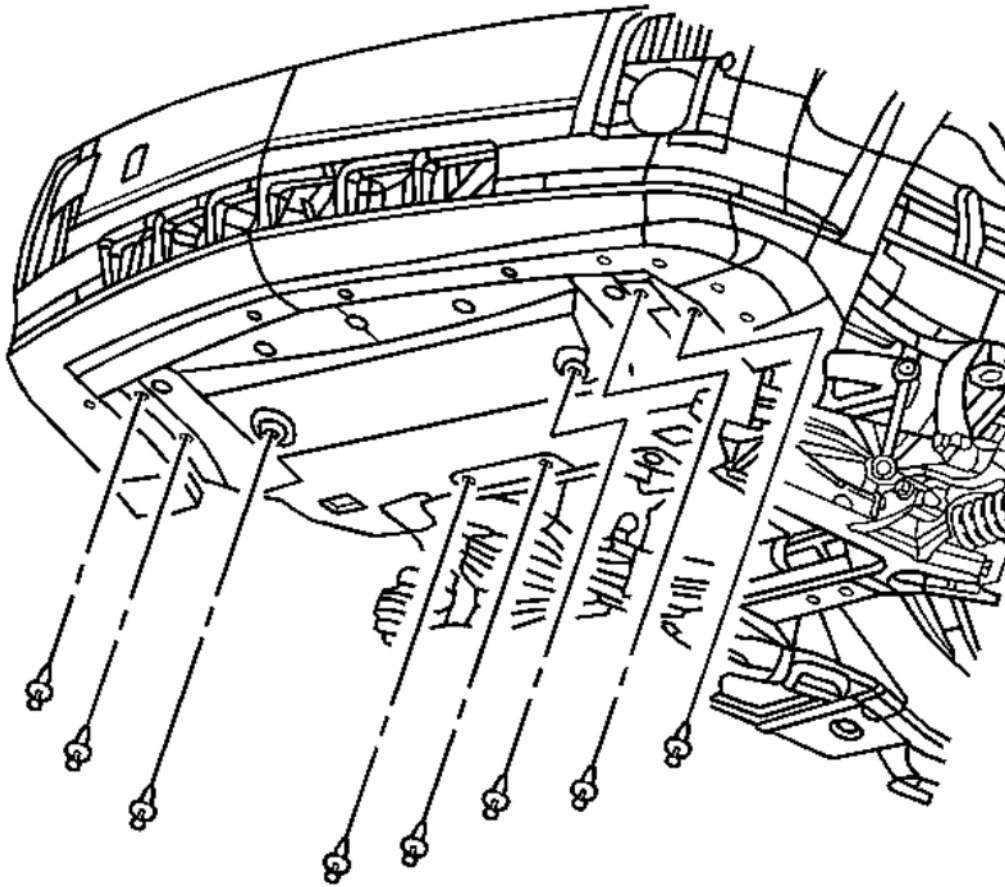


Fig. 48: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

8. Remove the front air deflector retainers.
9. Remove the front air deflector.

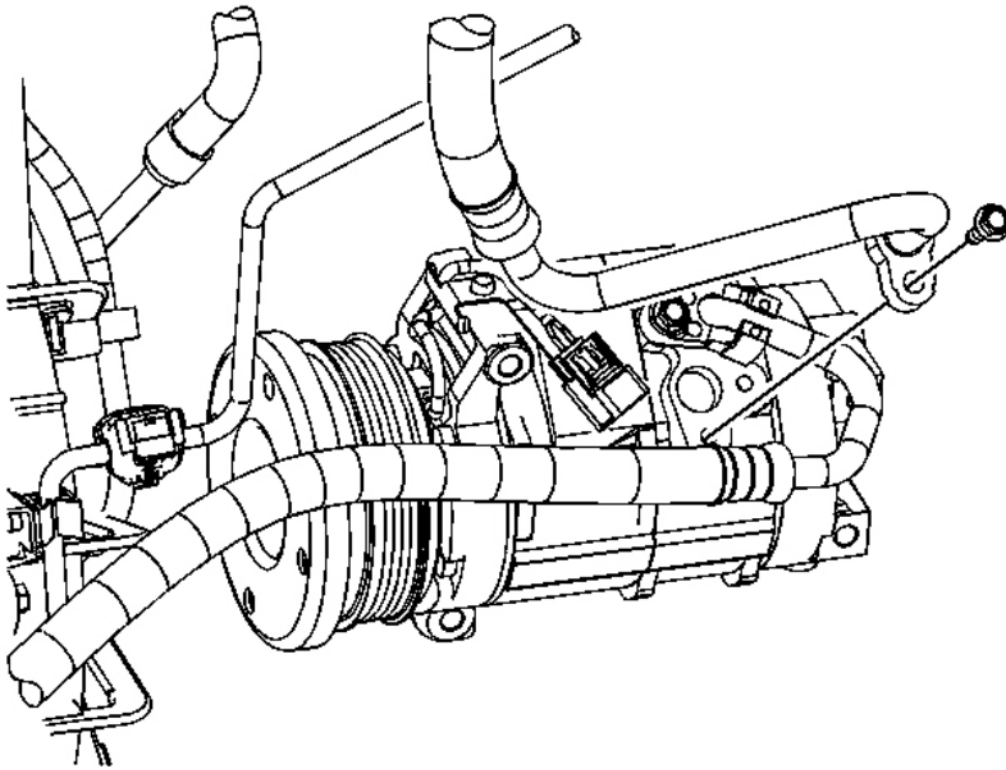


Fig. 49: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

10. Remove the suction line bolt from the A/C compressor.
11. Disconnect the suction line from the A/C compressor.
12. Remove and discard the O-ring.

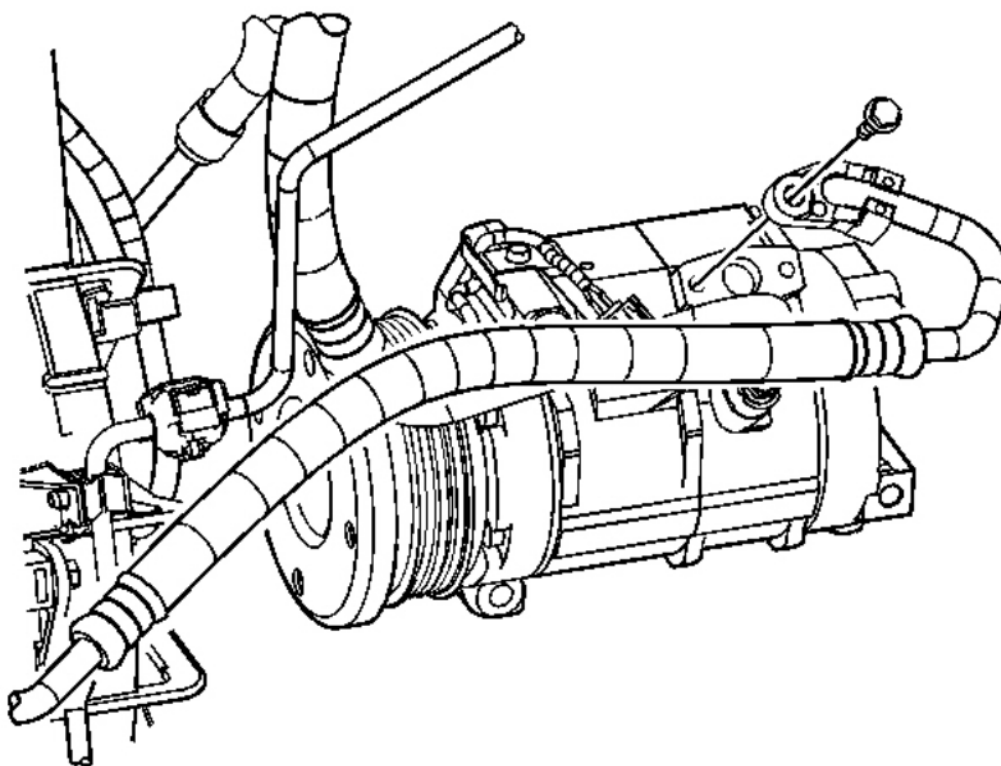


Fig. 50: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

13. Remove the discharge line bolt from the A/C compressor.
14. Disconnect the discharge line from the A/C compressor.
15. Remove and discard the O-ring.
16. Disconnect the A/C compressor electrical connector.
17. Remove the engine oil filter. Refer to **Engine Oil and Oil Filter Replacement** in Engine Mechanical - 4.6L.
18. Remove the A/C compressor mounting bolts.
19. Lower the vehicle.

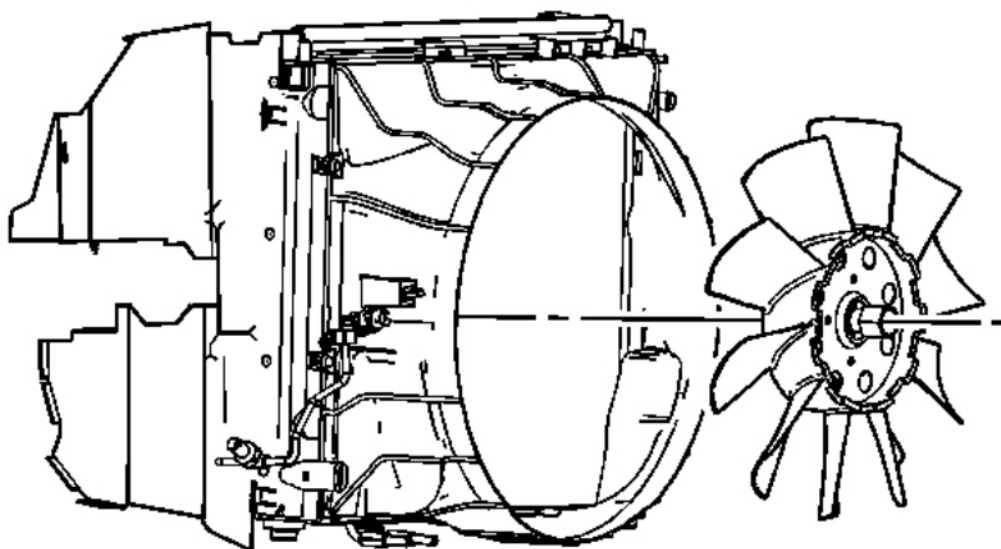


Fig. 51: View Of Fan

Courtesy of GENERAL MOTORS CORP.

20. Loosen the fan nut from the crank adapter shaft using J 41240-5A .

IMPORTANT: Do not attempt to remove the fan from the vehicle. The fan should be gently repositioned aside to allow for adequate clearance during the A/C compressor replacement.

21. Disconnect the fan from the crank adapter shaft and gently reposition the fan aside.
22. Remove the A/C compressor.
23. Replace the desiccant bag if the following conditions exist. Refer to **Desiccant Bag Replacement**.
- Color of PAG oil is brown or black
 - Presence of foreign substances

IMPORTANT: Replacement A/C compressors are charged with PAG oil. Refer to **Refrigerant System Capacities**.

24. If replacing the A/C compressor, balance the compressor. Refer to **Compressor Oil**

Balancing.

Installation Procedure

1. Install the A/C compressor.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Connect the fan from the crank adapter shaft.

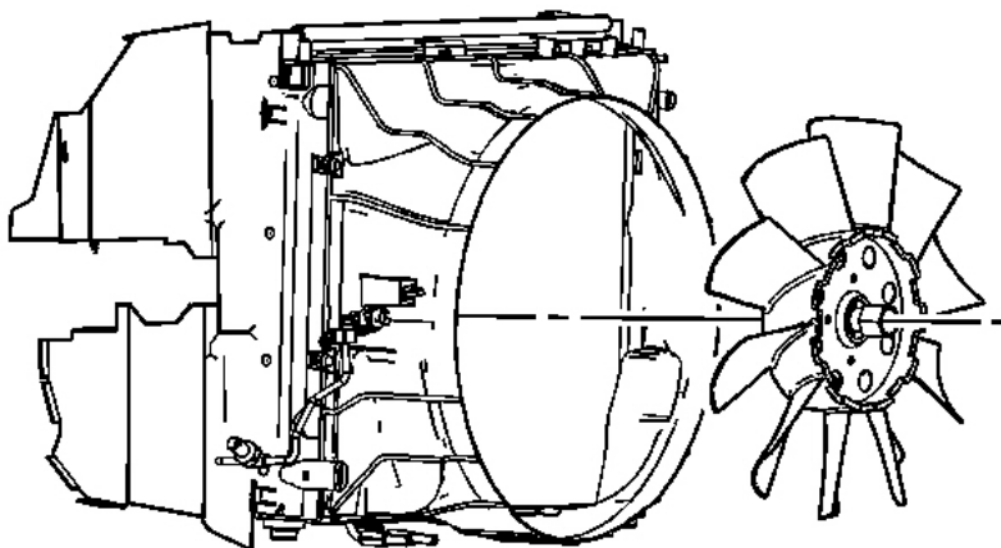


Fig. 52: View Of Fan

Courtesy of GENERAL MOTORS CORP.

3. Tighten the fan nut to the crank adapter shaft using J 41240-5A .

Tighten: Tighten the nut to 100 N.m (74 lb ft).

4. Raise the vehicle.

IMPORTANT: Do not tighten the A/C compressor mounting bolts until all bolts are thoroughly started.

5. Install the A/C compressor mounting bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

6. Install the engine oil filter. Refer to **Engine Oil and Oil Filter Replacement** in Engine Mechanical - 4.6L.
7. Connect the A/C compressor electrical connector.

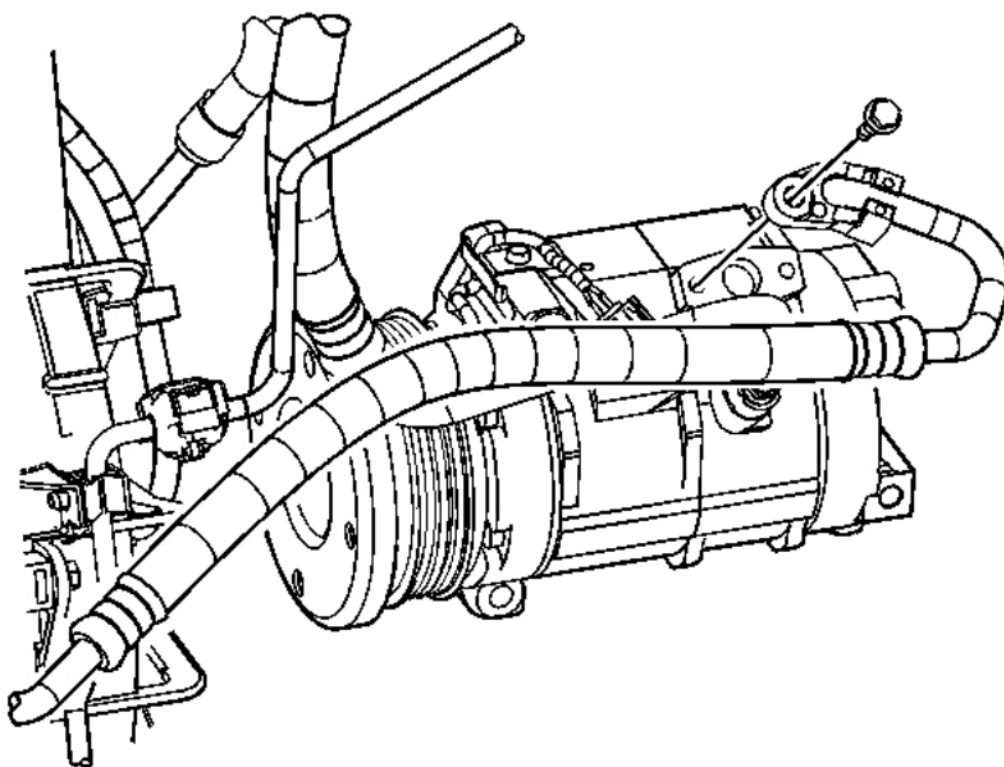


Fig. 53: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

8. Install a new O-ring to the discharge line. Refer to **O-Ring Replacement**.
9. Connect the discharge line to the A/C compressor.
10. Install the discharge line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

11. Install a new O-ring to the suction line. Refer to **O-Ring Replacement**.

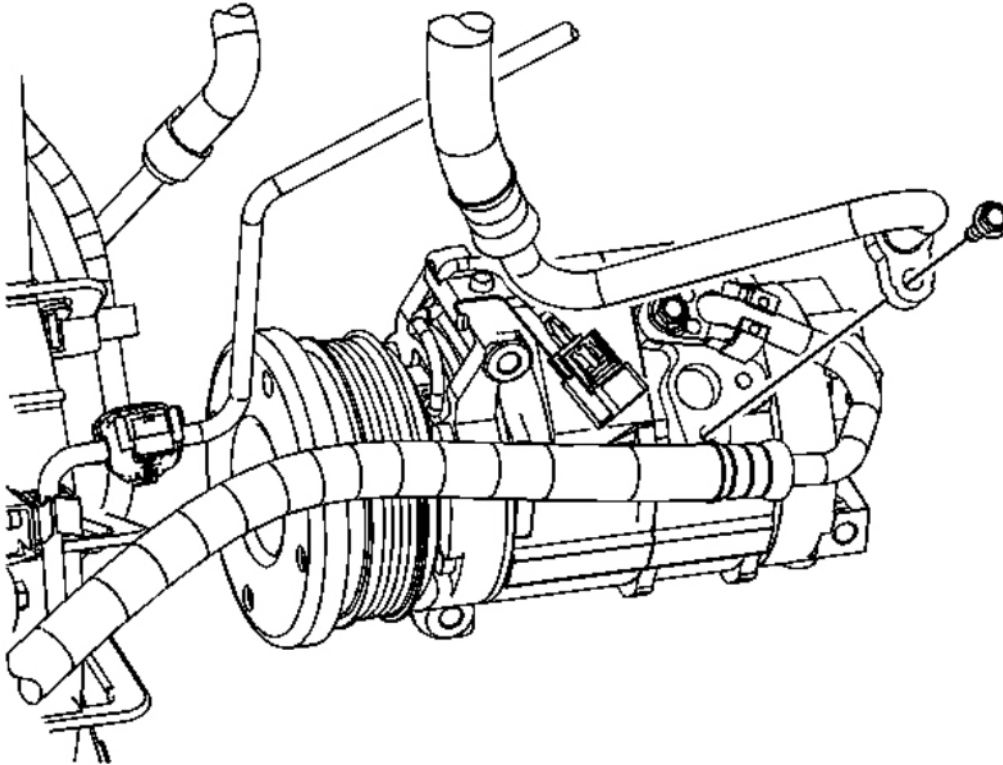


Fig. 54: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

12. Connect the suction line to the A/C compressor.
13. Install the suction line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

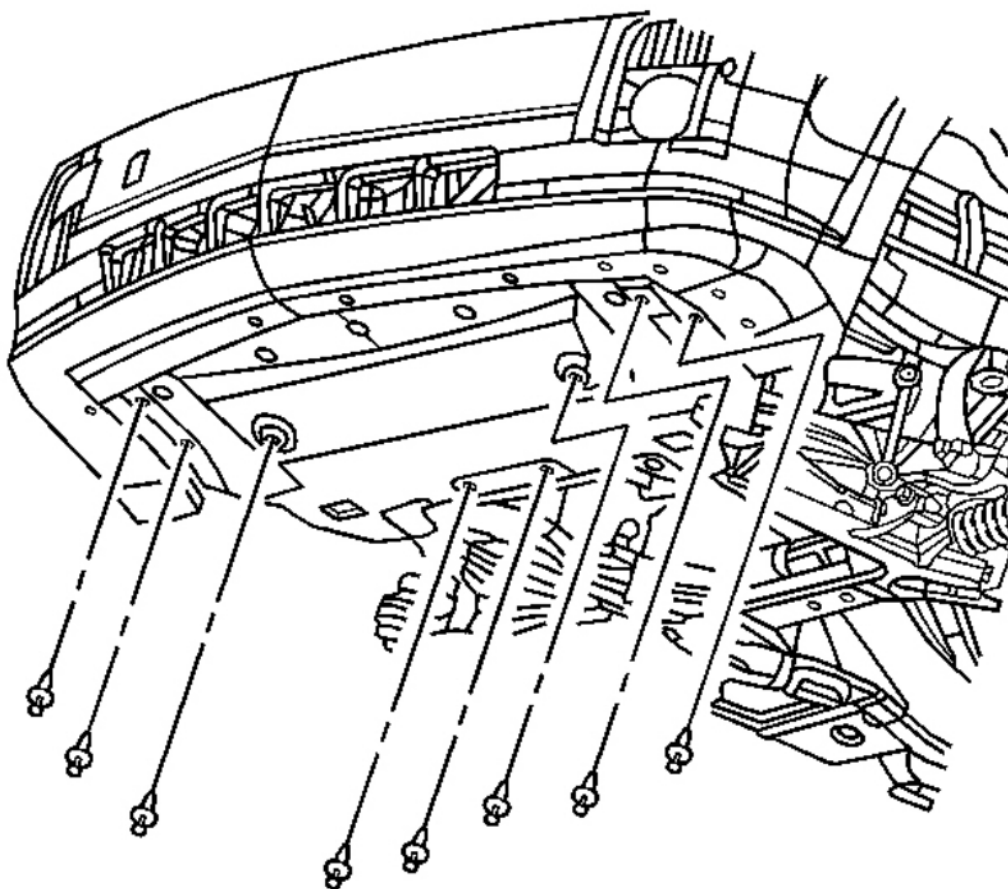


Fig. 55: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

14. Install the front air deflector.
15. Install the front air deflector retainers.
16. Install the LH front splash shield (1).
17. Install the LH front splash shield retainers.
18. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
19. Lower the vehicle.
20. Install the drive tensioner. Refer to **Drive Belt Tensioner Replacement - Air Conditioning, Power Steering and Water Pump** in Engine Mechanical - 4.6L.

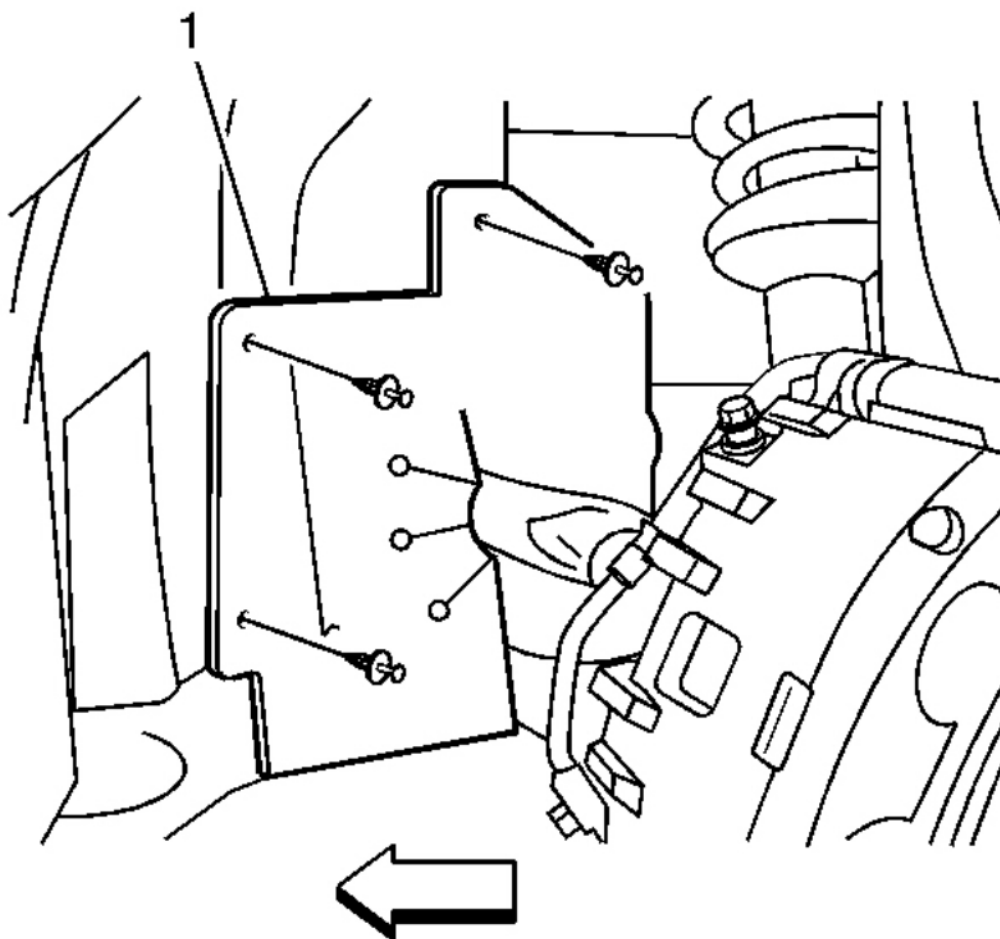


Fig. 56: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

21. Install the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L.
22. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
23. Leak test the fittings of the component using the J 39400-A . See **Special Tools and Equipment**.

COMPRESSOR REPLACEMENT (LY7)

Tools Required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner outlet duct. Refer to **Air Cleaner Intake Duct Replacement** in Engine Controls - 3.6L.

IMPORTANT: It is not necessary to completely remove the power steering and A/C compressor drive belt.

3. Disconnect the drive belt from the A/C compressor. Refer to **Drive Belt Replacement - Power Steering and Air Conditioning** in Engine Mechanical - 3.6L.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

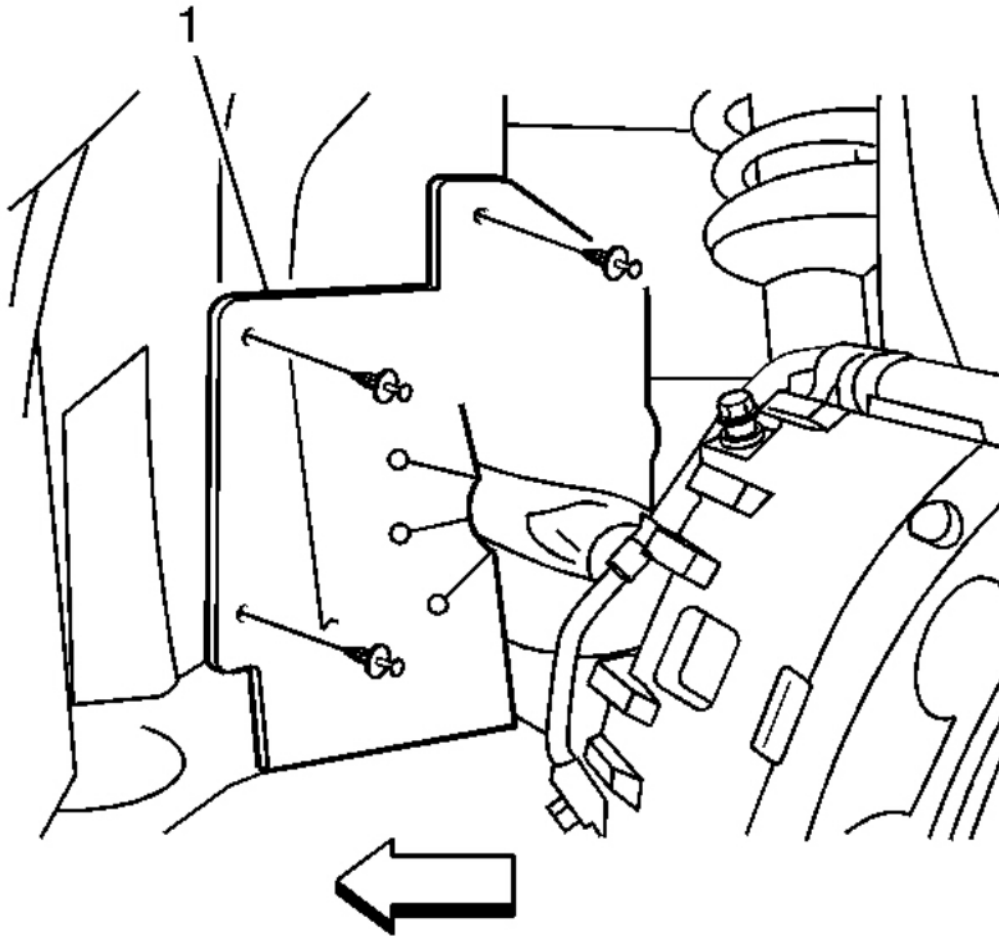


Fig. 57: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

5. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
6. Remove the LH front splash shield retainers.
7. Remove the LH front splash shield (1).

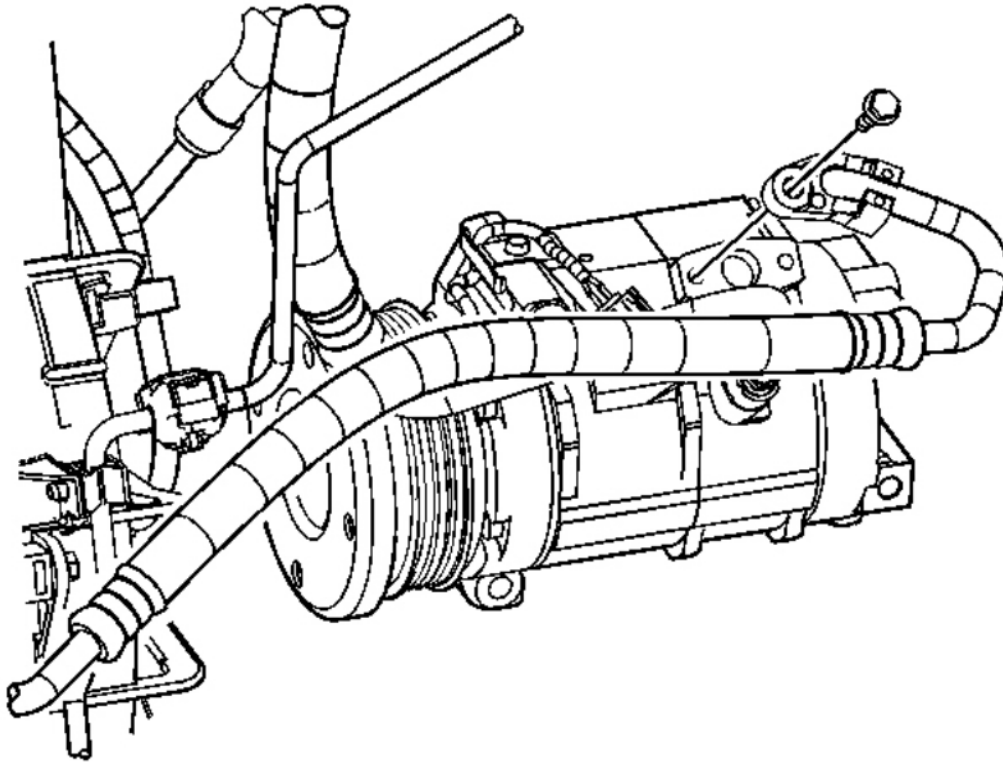


Fig. 58: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the discharge line bolt from the A/C compressor.
9. Disconnect the discharge line from the A/C compressor.
10. Remove and discard the O-ring.

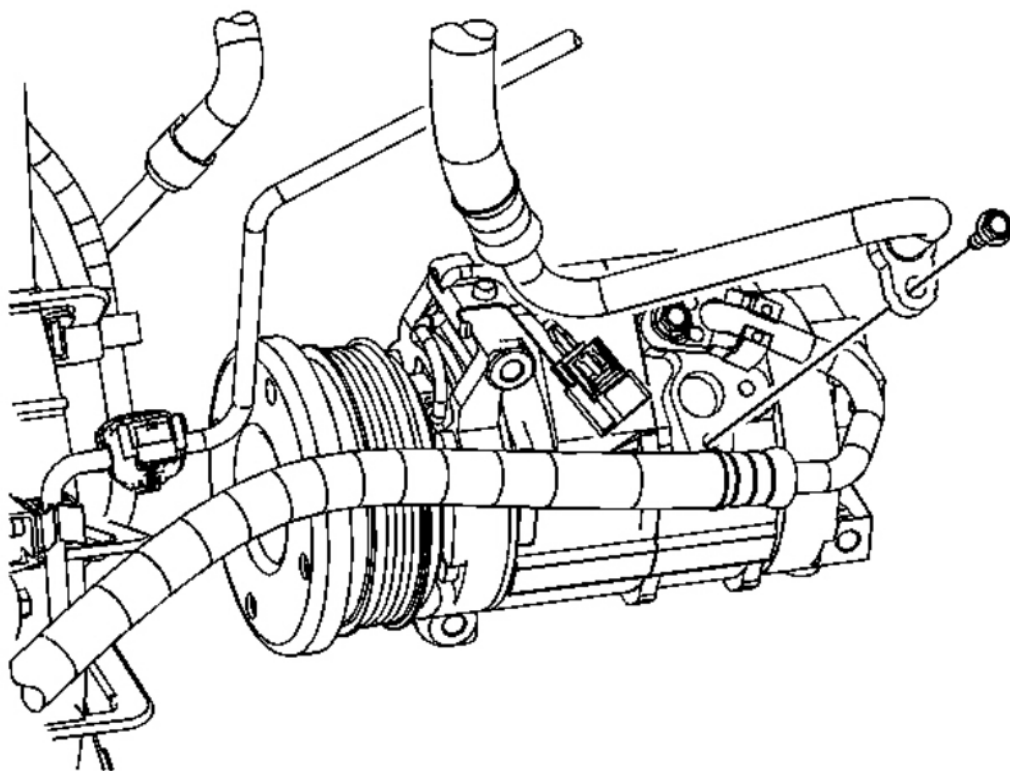


Fig. 59: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

11. Remove the suction line bolt from the A/C compressor.
12. Disconnect the suction line from the A/C compressor.
13. Remove and discard the O-ring.
14. Disconnect the A/C compressor electrical connector.
15. Remove the A/C compressor mounting bolts.
16. Remove the A/C compressor.
17. Replace the desiccant bag if the following conditions exist. Refer to **Desiccant Bag Replacement**.
 - Color of PAG oil is brown or black
 - Presence of foreign substances
18. Lower the vehicle.

IMPORTANT: Replacement A/C compressors are charged with PAG oil. Refer to Refrigerant System Capacities.

19. If replacing the A/C compressor, balance the compressor. Refer to Compressor Oil Balancing.

Installation Procedure

1. Install the A/C compressor.
2. Raise the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

IMPORTANT: Do not tighten the A/C compressor mounting bolts until all bolts are thoroughly started.

3. Install the A/C compressor mounting bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

4. Connect the A/C compressor electrical connector.

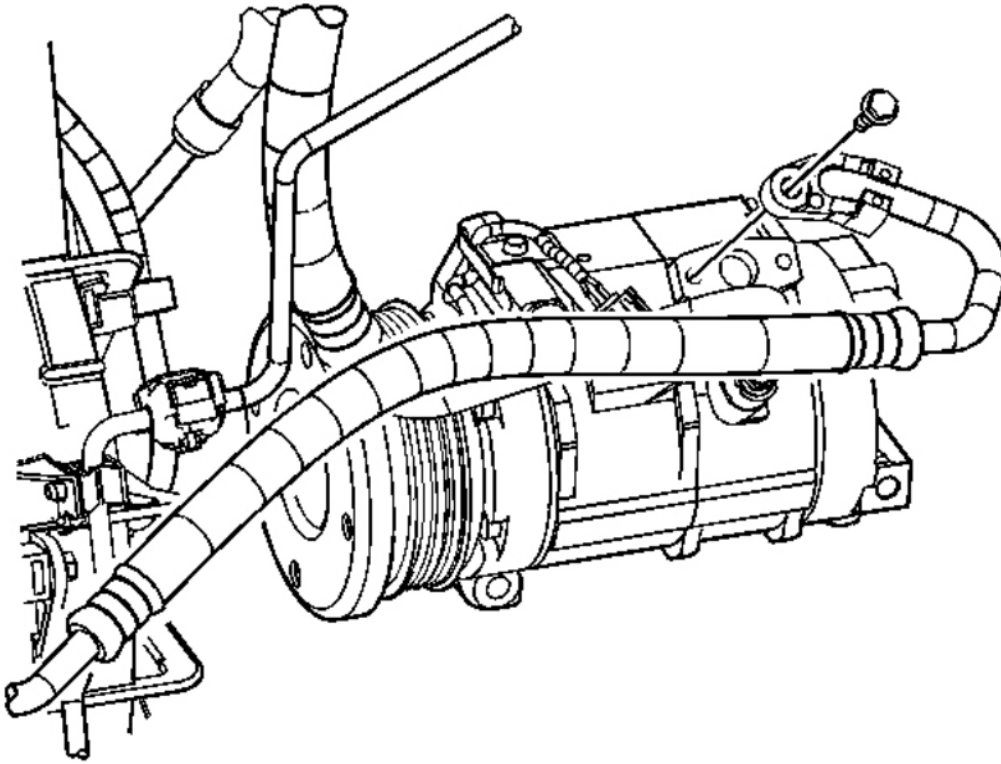


Fig. 60: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

5. Install a new O-ring to the discharge line. Refer to **O-Ring Replacement**.
6. Connect the discharge line to the A/C compressor.
7. Install the discharge line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

8. Install a new O-ring to the suction line. Refer to **O-Ring Replacement**.

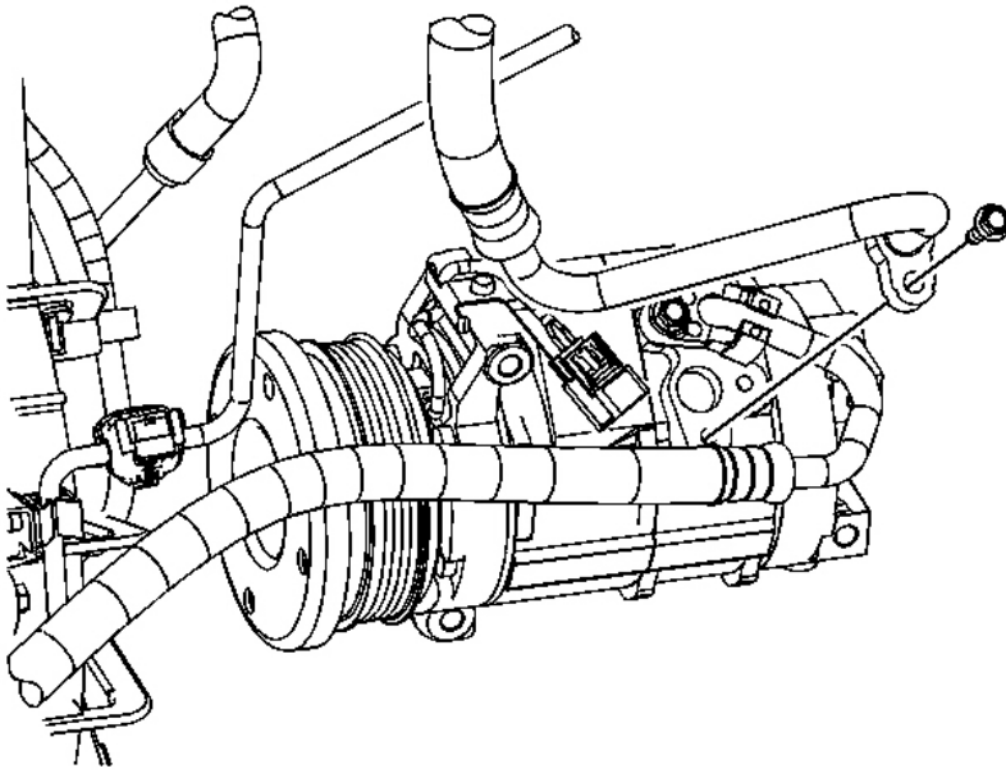


Fig. 61: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

9. Connect the suction line to the A/C compressor.
10. Install the suction line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

11. Install the LH front splash shield (1).
12. Install the LH front splash shield retainers.
13. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

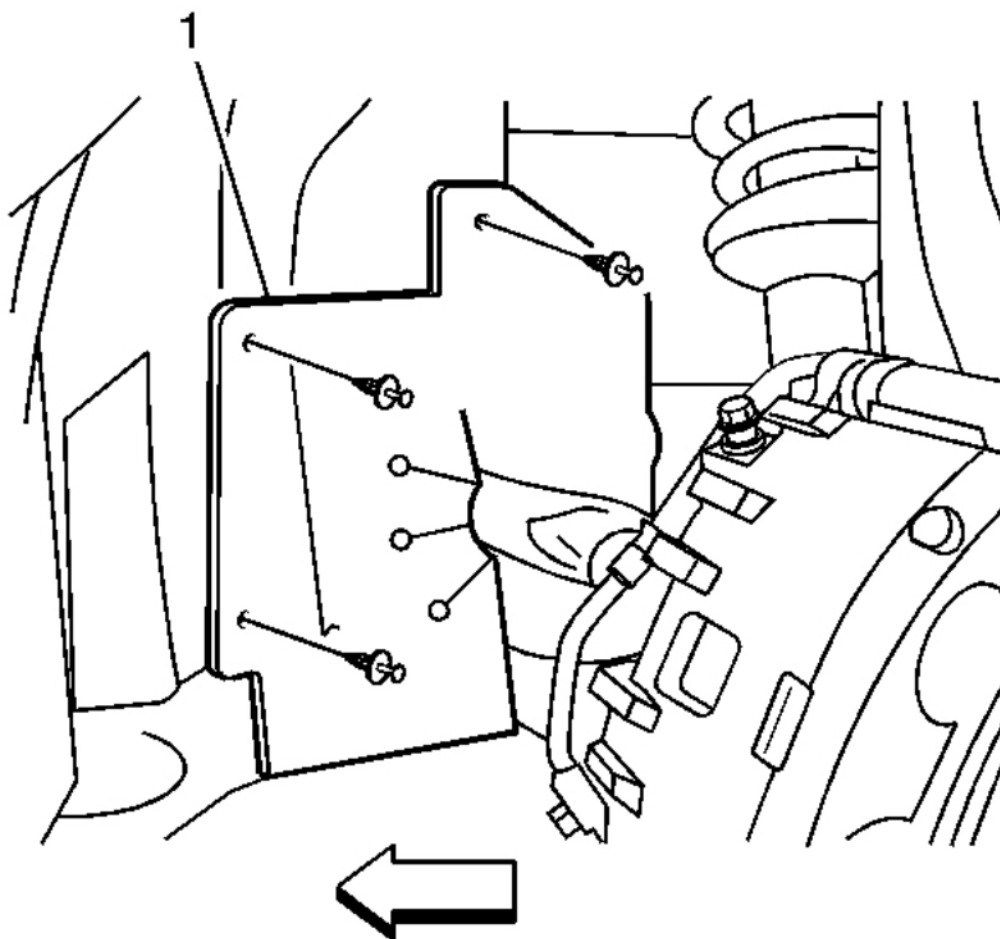


Fig. 62: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

14. Lower the vehicle.
15. Connect the drive belt to the A/C compressor. Refer to **Drive Belt Replacement - Power Steering and Air Conditioning** in Engine Mechanical - 3.6L.
16. Install the air cleaner outlet duct. Refer to **Air Cleaner Intake Duct Replacement** in Engine Controls - 3.6L.
17. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
18. Leak test the fittings of the component using the J 39400-A . See **Special Tools and Equipment**.

O-RING REPLACEMENT

Removal Procedure

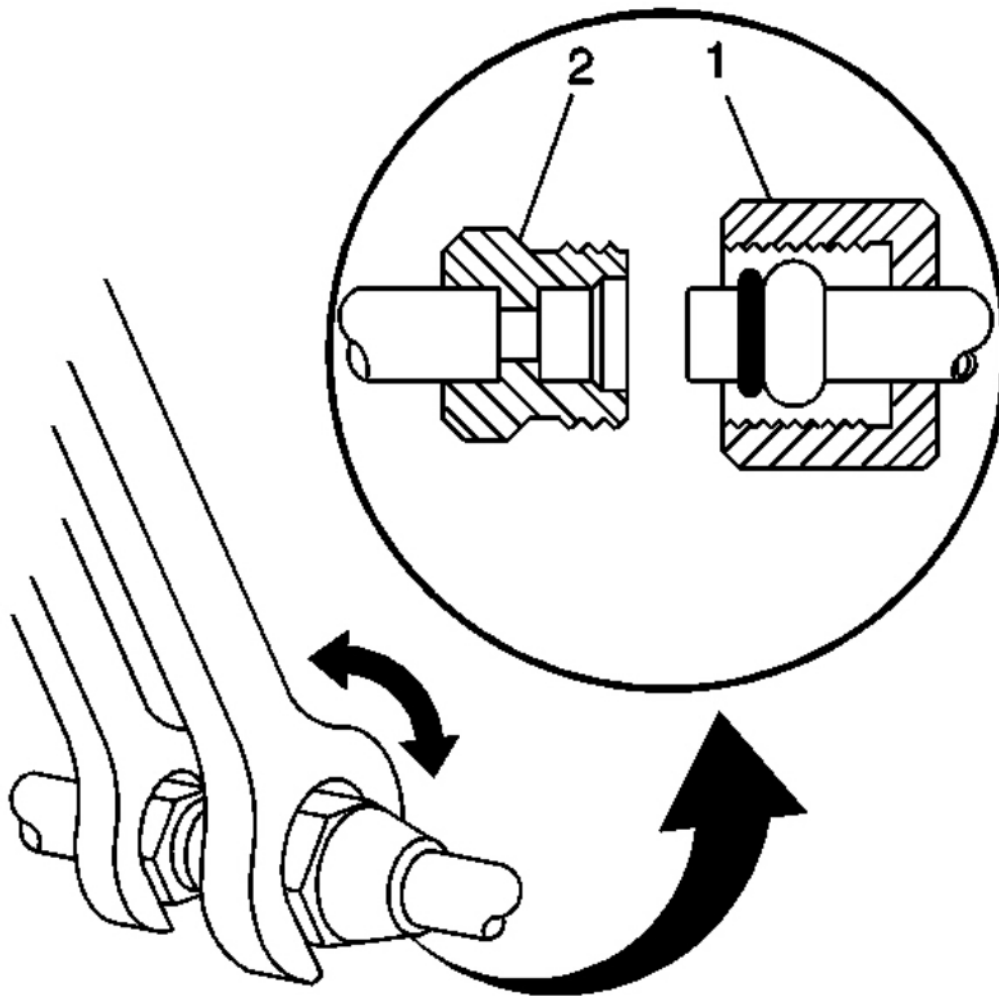


Fig. 63: Disassembling/Reassembling A/C Line Fittings
Courtesy of GENERAL MOTORS CORP.

1. Disassemble the A/C refrigerant components. Refer to the appropriate repair procedure
 - For compression style fittings use a back up wrench on the fitting (2) and loosen the fitting nut (1).

- For banjo style fittings remove the bolt retaining the banjo type fitting.
- 2. Remove the O-ring seal from the A/C refrigerant component.
- 3. Inspect the O-ring seal for signs of damage to help determine the root cause of the failure.
- 4. Inspect the A/C refrigerant components for damage or burrs. Repair if necessary.

IMPORTANT: Cap or tape the open A/C refrigerant components immediately to prevent system contamination.

- 5. Cap or tape the A/C refrigerant components.
- 6. Discard the O-ring seal.

Installation Procedure

- 1. Inspect the new O-ring seal for any sign or cracks, cuts, or damage. Replace if necessary.
- 2. Remove the cap or tape from the A/C refrigerant components.
- 3. Using a lint-free clean, dry cloth, carefully clean the sealing surfaces of the A/C refrigerant components.

IMPORTANT: DO NOT allow any of the mineral base 525 viscosity refrigerant oil on the new O-ring seal to enter the refrigerant system.

- 4. Lightly coat the new O-ring seal with mineral base 525 viscosity refrigerant oil.

IMPORTANT: DO NOT reuse O-ring seals.

- 5. Carefully slide the new O-ring seal onto the A/C refrigerant component.

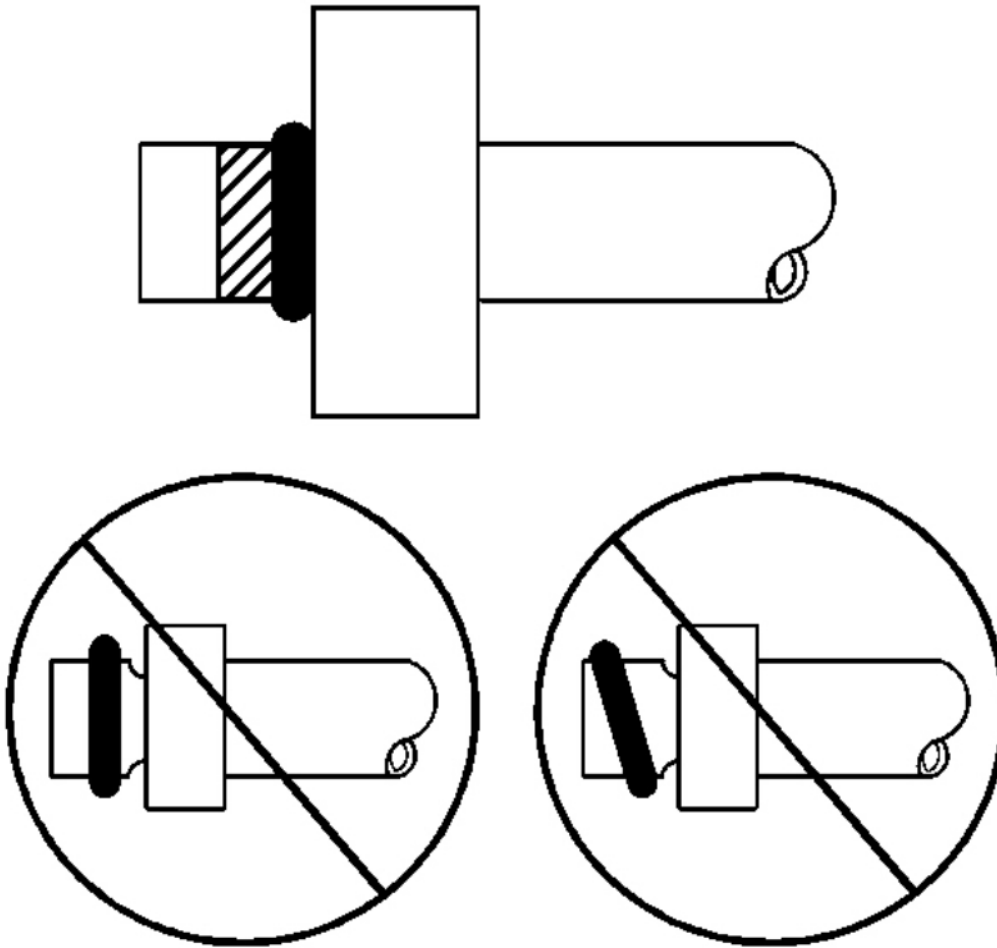


Fig. 64: Identifying Proper Seating Of A/C Refrigerant O-Ring
Courtesy of GENERAL MOTORS CORP.

6. The O-ring seal must be fully seated.

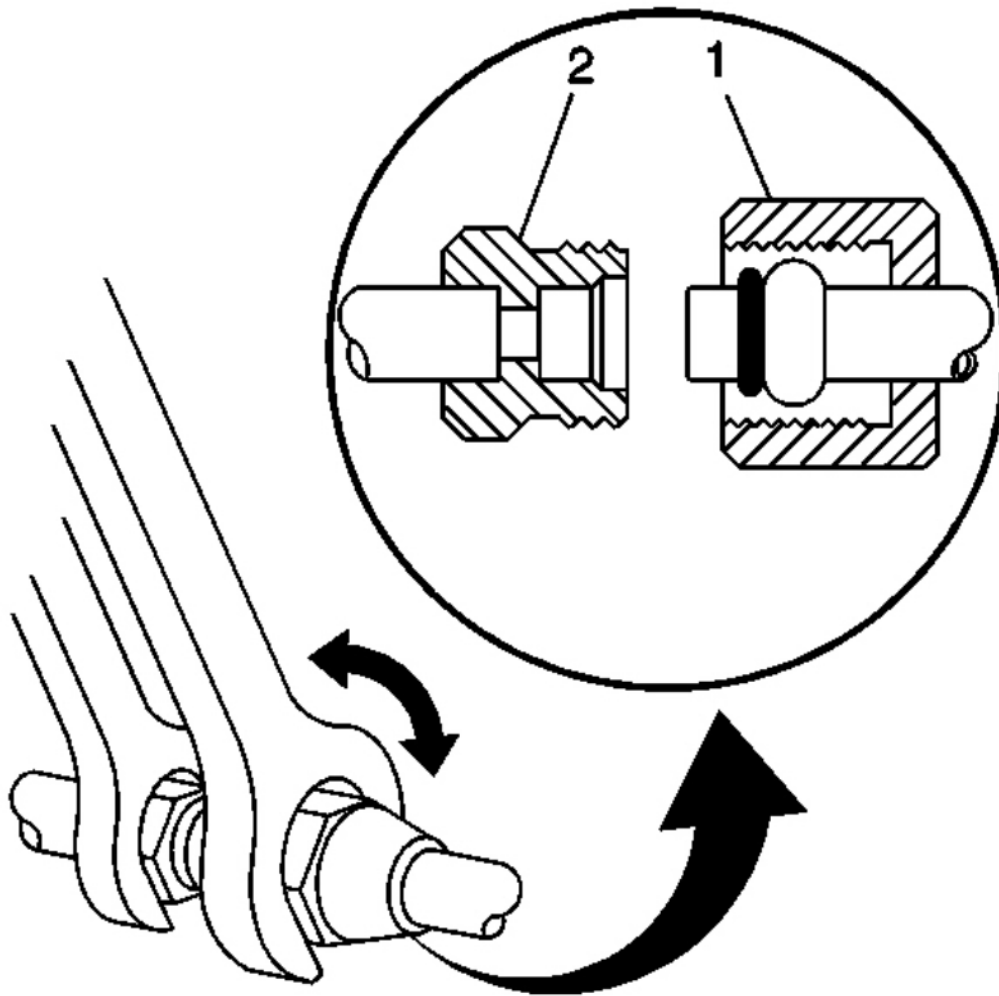


Fig. 65: Disassembling/Reassembling A/C Line Fittings
Courtesy of GENERAL MOTORS CORP.

7. Assemble the A/C components.

Refer to the appropriate repair procedure.

- For compression style fittings use a back up wrench on the fitting (2) and tighten the fitting nut (1) to specification.
- For banjo style fittings install the bolt retaining the banjo type fitting and tighten to

specification.

A/C LINE/TUBE CONNECTOR REMOVAL/REPLACEMENT

Tools Required

- **J 39400-A** Halogen Leak Detector. See Special Tools and Equipment.
- **J 45689** A/C Quick Joint Tool. See Special Tools and Equipment.

Removal Procedure

1. Recover the refrigerant from the A/C system. Refer to Refrigerant Recovery and Recharging.

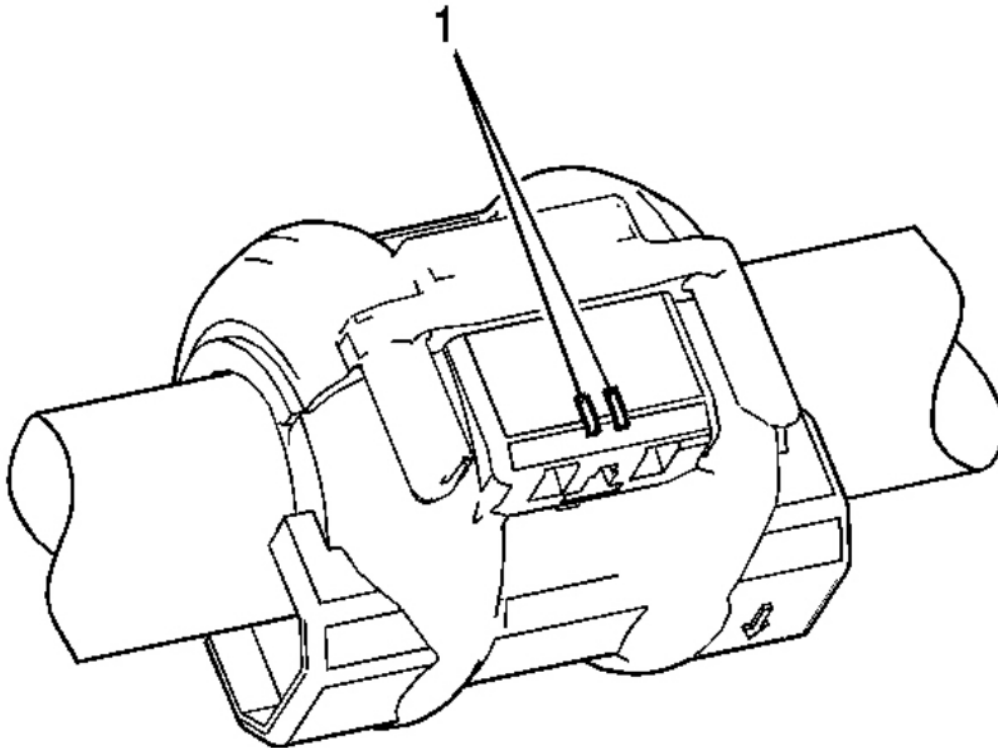


Fig. 66: Locating A/C Quick Connect Fitting Locking Tab Access Slots
Courtesy of GENERAL MOTORS CORP.

2. Locate the A/C quick connect fitting locking tab access slots (1).

IMPORTANT: The J 45689 should be parallel with the quick connect fitting.
See Special Tools and Equipment.

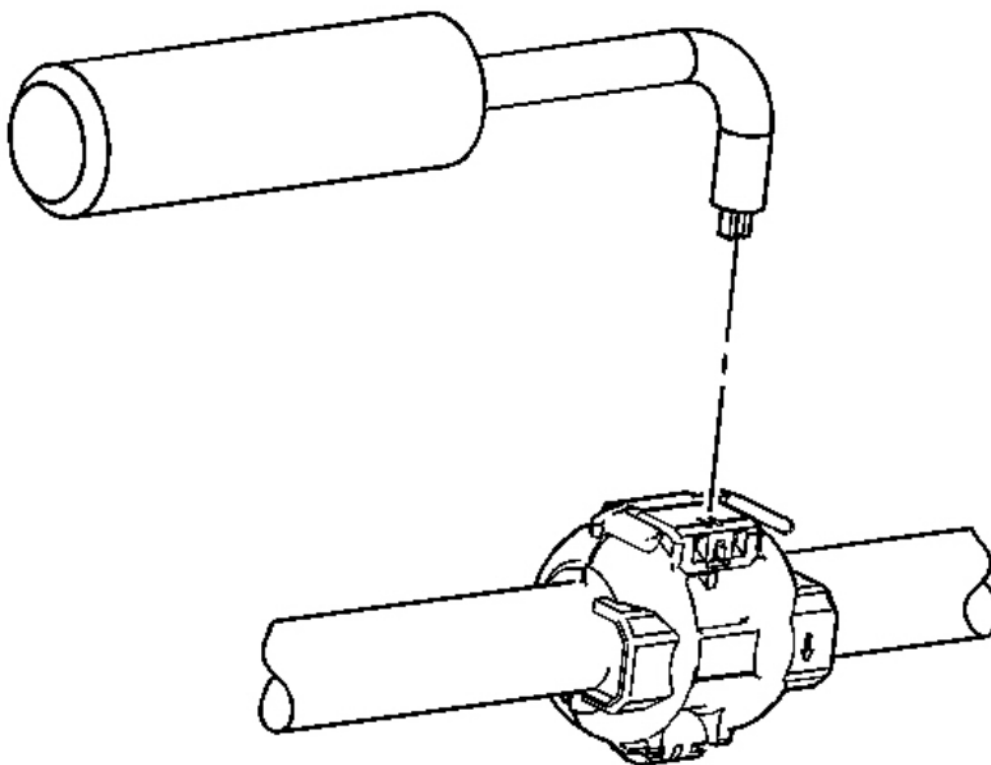


Fig. 67: Inserting J 45689 Into Locking Tab Access Slots
Courtesy of GENERAL MOTORS CORP.

3. Carefully insert J 45689 into the locking tab access slots. See Special Tools and Equipment.
4. Gently press down on the locking tab until the quick connect fitting locking tab releases.

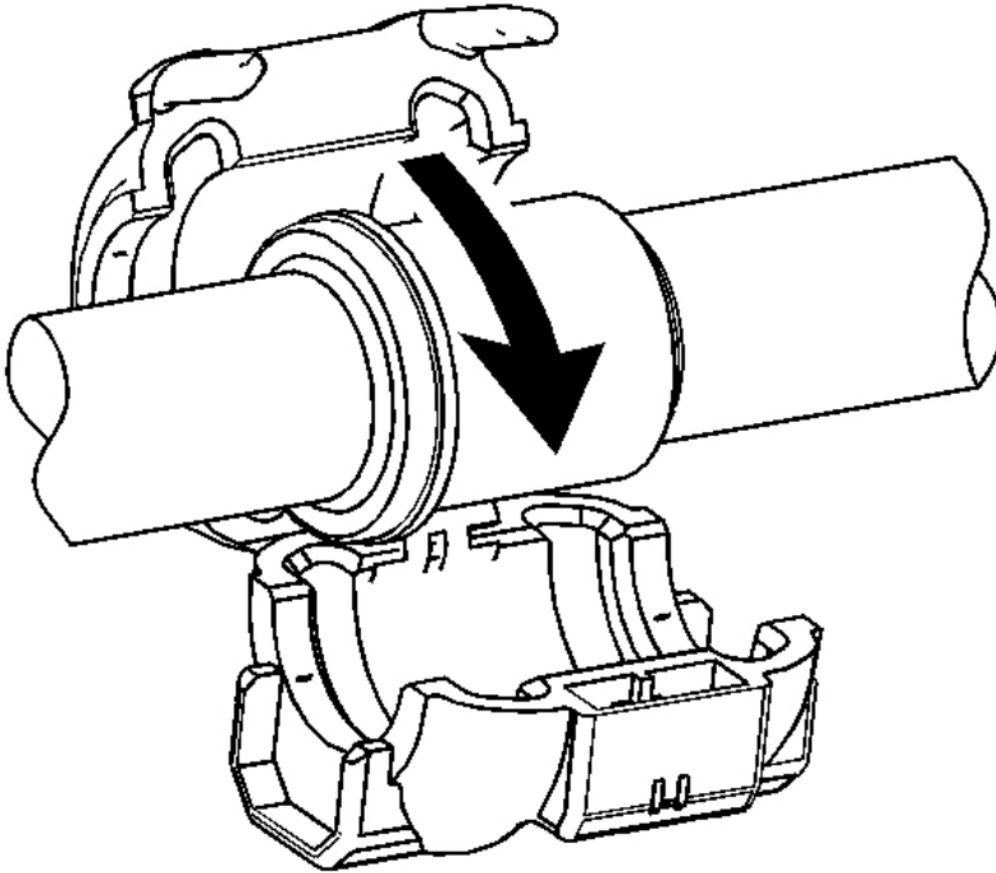


Fig. 68: Removing Quick Connect Fitting From A/C Refrigerant Component
Courtesy of GENERAL MOTORS CORP.

5. Open and remove the quick connect fitting from the A/C refrigerant component.

Installation Procedure

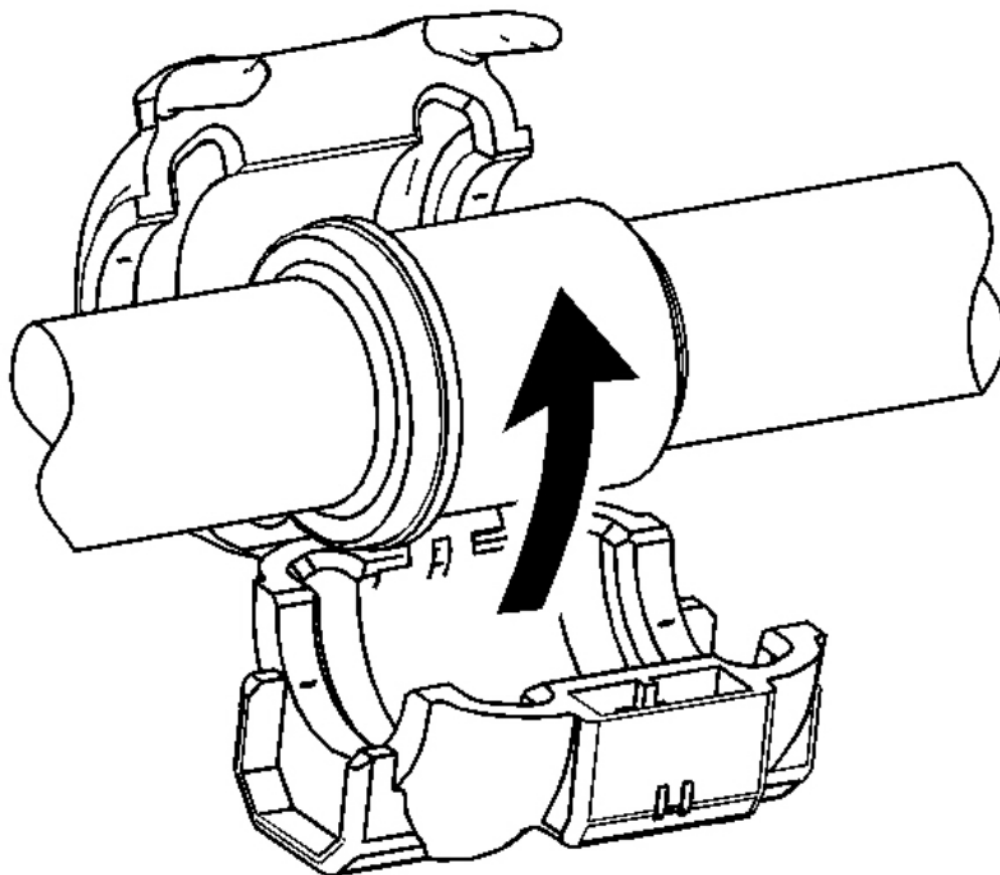


Fig. 69: Installing Quick Connect Fitting To A/C Refrigerant Component
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Inspect the A/C quick connect fitting locking tab for damage or wear. Replace the A/C quick connect fitting if any conditions exist.

1. Install the A/C quick connect fitting to the A/C refrigerant component.

IMPORTANT: Ensure that the A/C quick connect fitting is latched securely to the A/C refrigerant component.

2. Close the A/C quick connect fitting.

3. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
4. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

CONDENSER TUBE REPLACEMENT

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.
- **J 45689** A/C Quick Connect Joint Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner intake duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L or **Air Cleaner Intake Duct Replacement** in Engine Controls - 3.6L.
3. Remove the quick connect fitting at the condenser tube. Refer to **A/C Line/Tube Connector Removal/Replacement**.

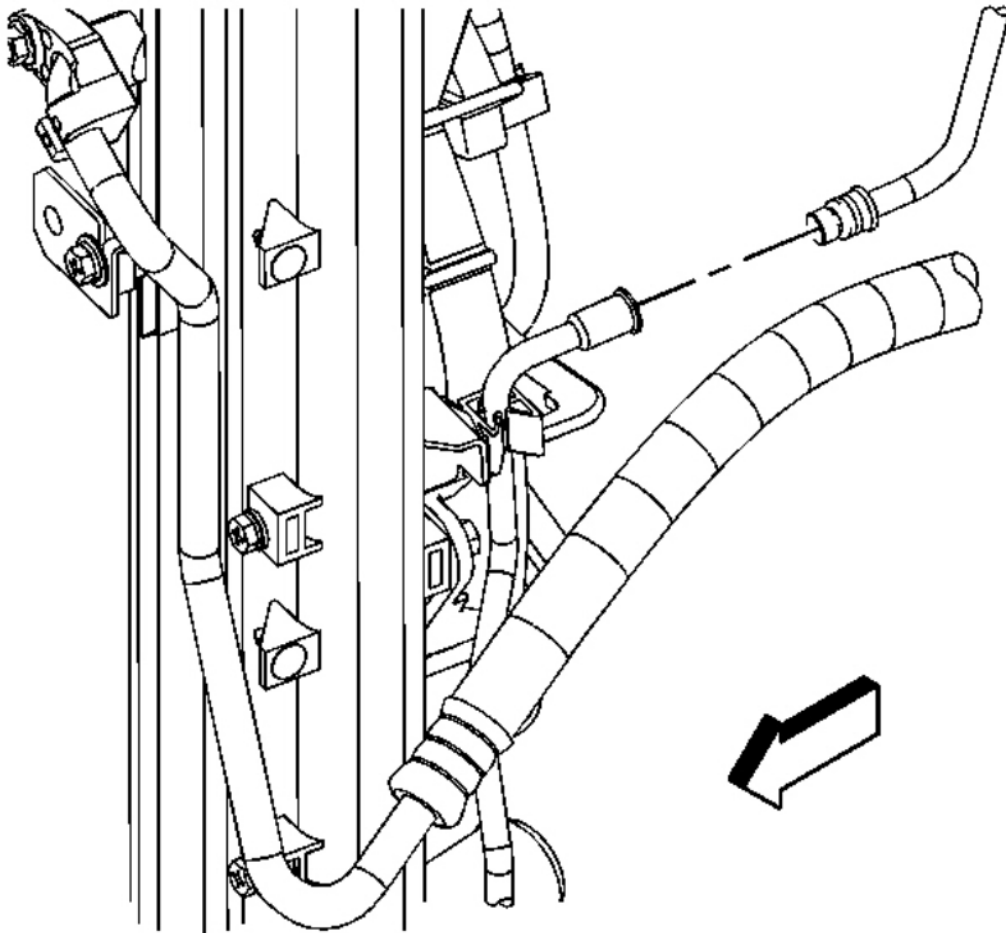


Fig. 70: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the condenser tube from the radiator mounting clip.
5. Disconnect the condenser tube from the A/C liquid line.
6. Remove and discard the O-rings on the A/C liquid line.

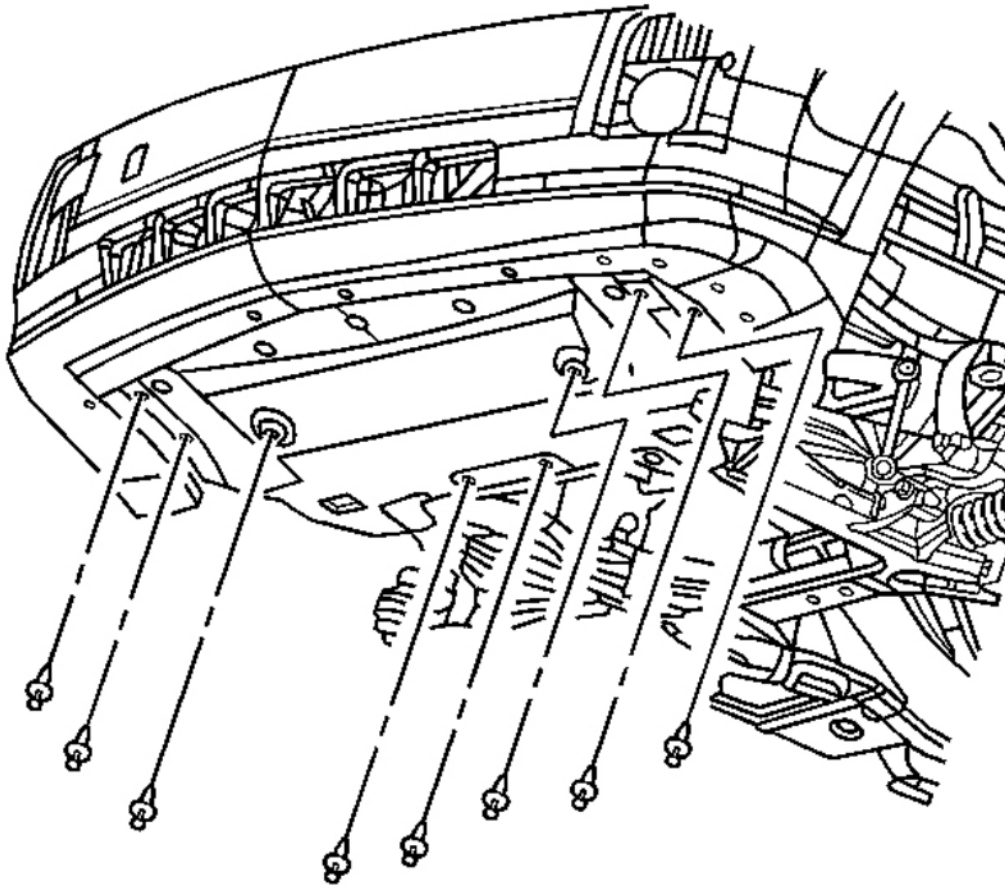


Fig. 71: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

7. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
8. Remove the front air deflector retainers.
9. Remove the front air deflector.

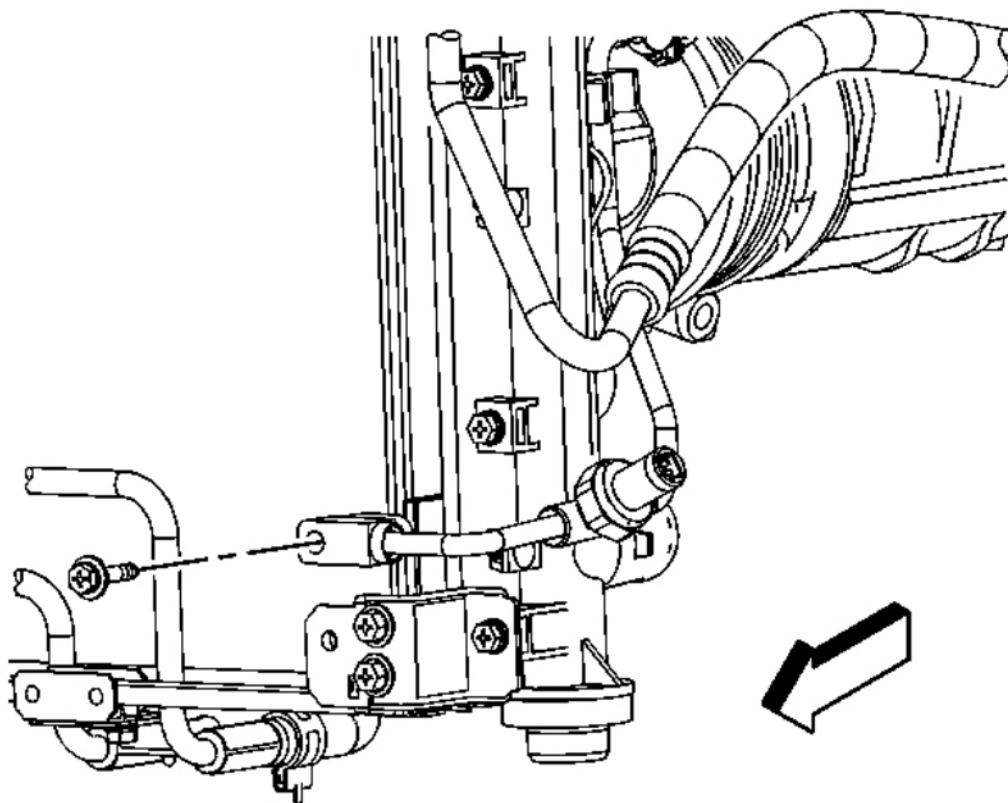


Fig. 72: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

10. Remove the condenser tube bolt.
11. Disconnect the condenser tube from the condenser.
12. Remove and discard the O-ring.
13. Disconnect the high pressure sensor electrical connector.
14. Remove the condenser tube.
15. Remove the high pressure sensor.

Installation Procedure

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the high pressure sensor.

Tighten: Tighten the sensor to 9.8 N.m (87 lb in).

2. Install the condenser tube.
3. Connect the high pressure sensor electrical connector.
4. Install a new O-ring to the condenser tube. Refer to **O-Ring Replacement**.
5. Connect the condenser tube to the condenser.

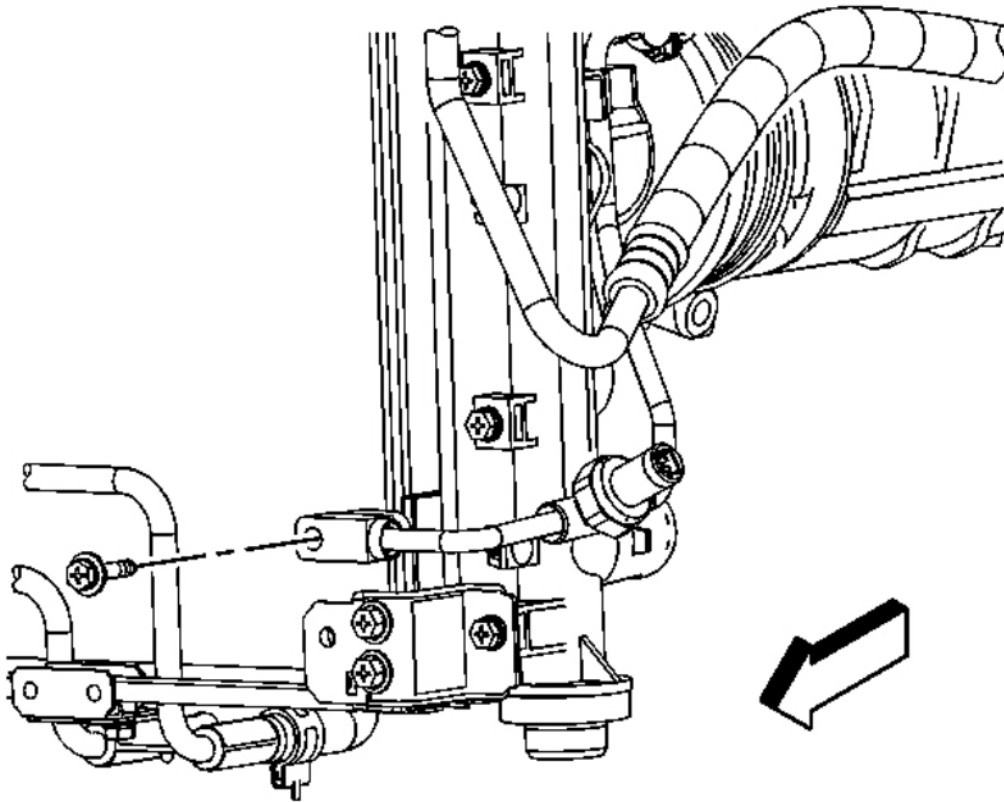


Fig. 73: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

6. Install the condenser tube bolt.

Tighten: Tighten the sensor to 9 N.m (80 lb in).

7. Install the front air deflector.
8. Install the front air deflector retainers.

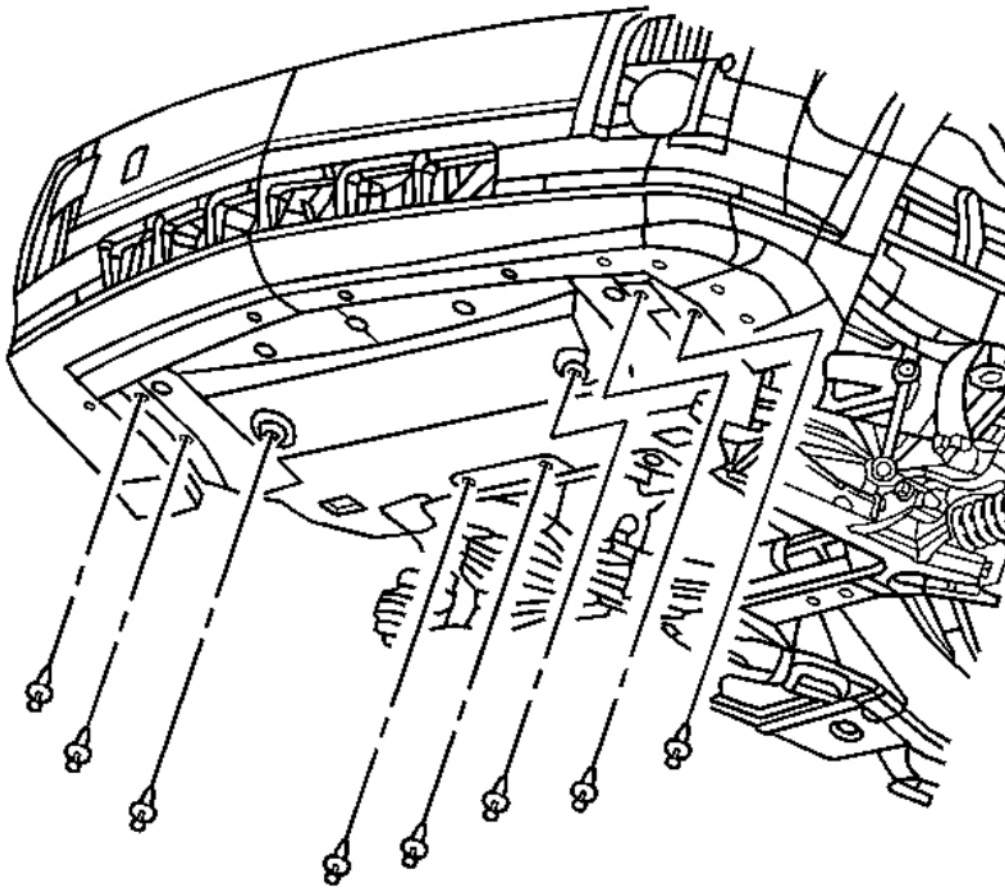


Fig. 74: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

9. Lower the vehicle.
10. Install new O-rings on the A/C liquid line. Refer to **O-Ring Replacement**.
11. Connect the condenser tube to the A/C liquid line.

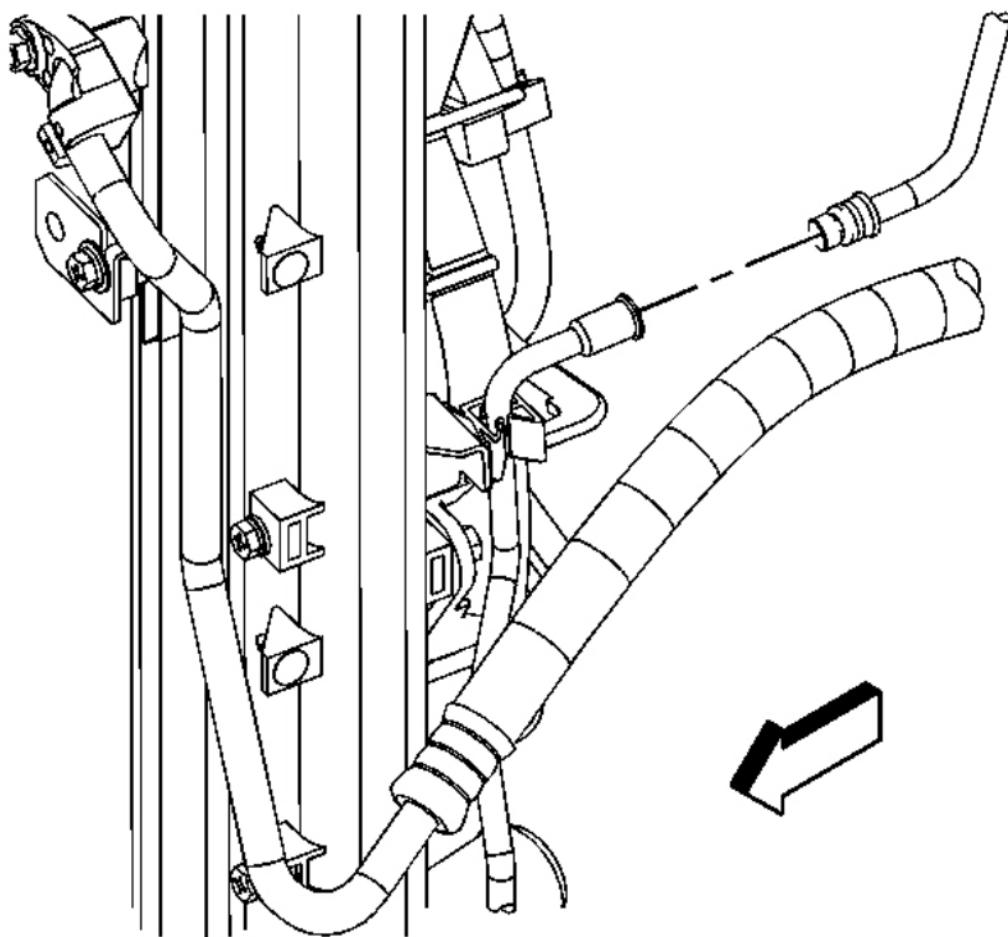


Fig. 75: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

12. Connect the condenser tube from the radiator mounting clip.
13. Install the condenser tube quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
14. Install the air cleaner intake duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L or **Air Cleaner Intake Duct Replacement** in Engine Controls - 3.6L.
15. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
16. Leak test the fittings of the component using J 39400-A . See **Special Tools and**

Equipment.

DISCHARGE HOSE REPLACEMENT (LH2)

Tools Required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment.**

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging.**
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the front air deflector retainers.

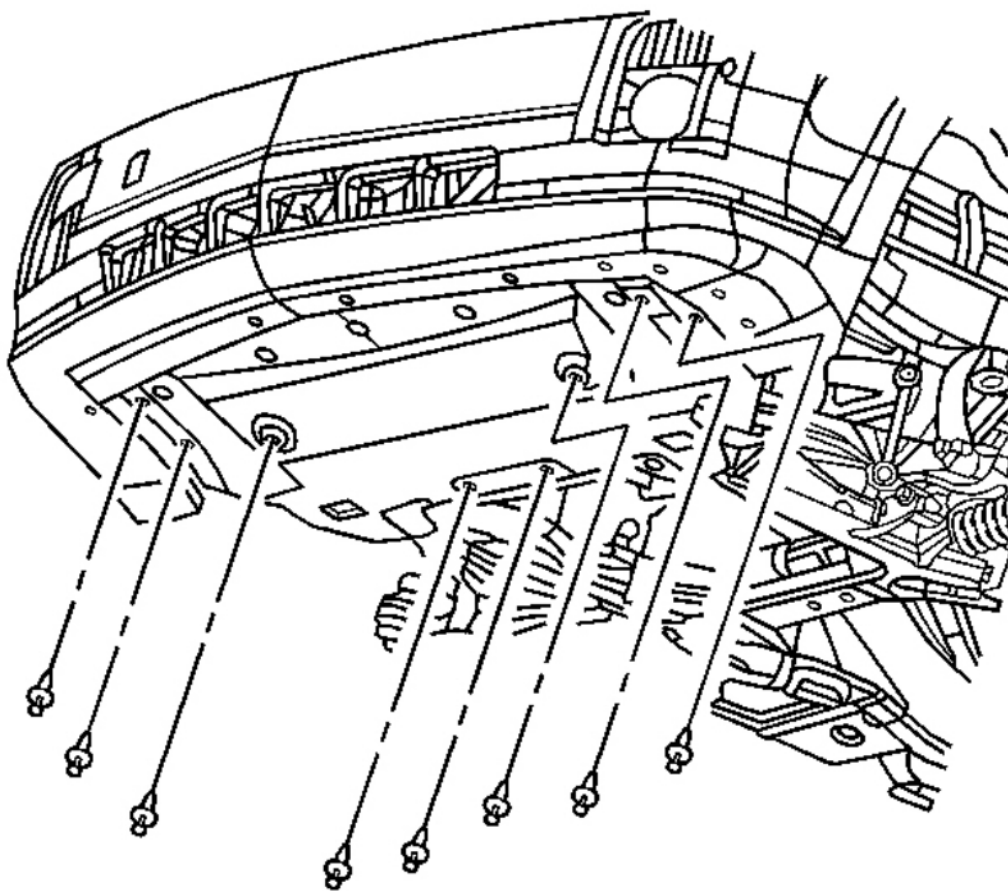


Fig. 76: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

4. Remove the front air deflector.

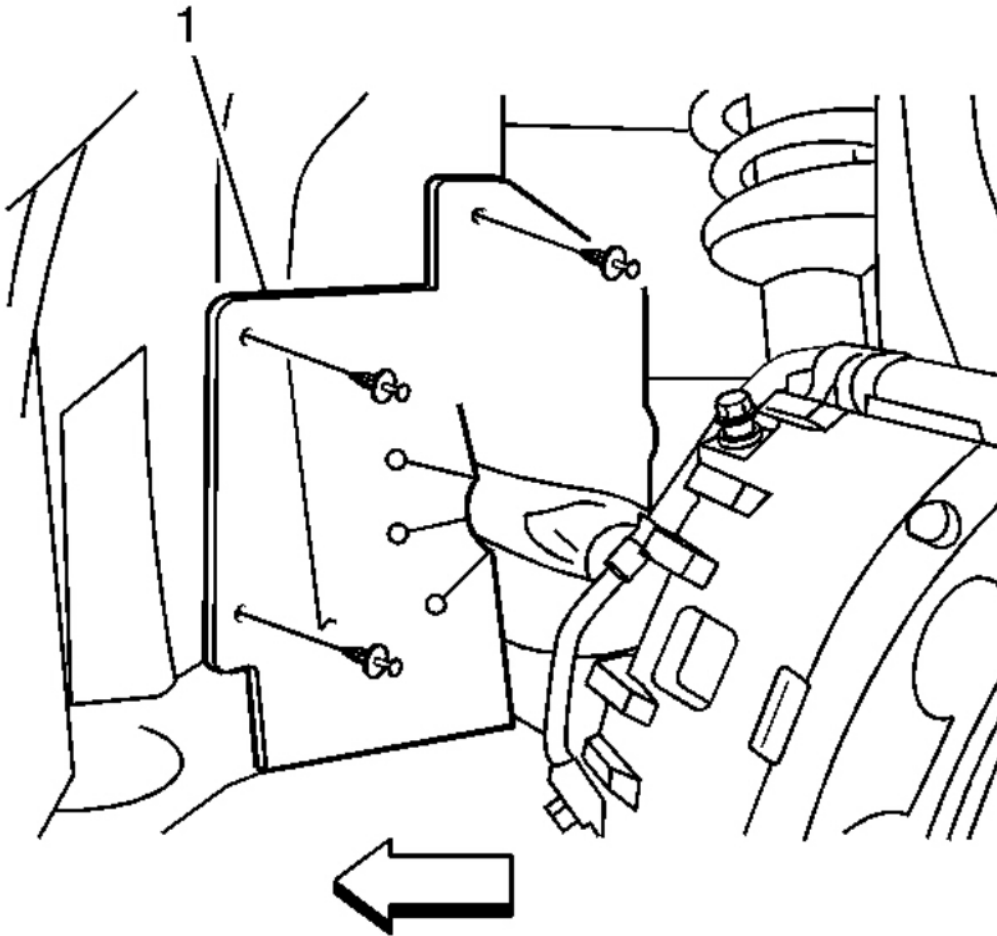


Fig. 77: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

5. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
6. Remove the LH front splash shield retainers.
7. Remove the LH front splash shield (1).

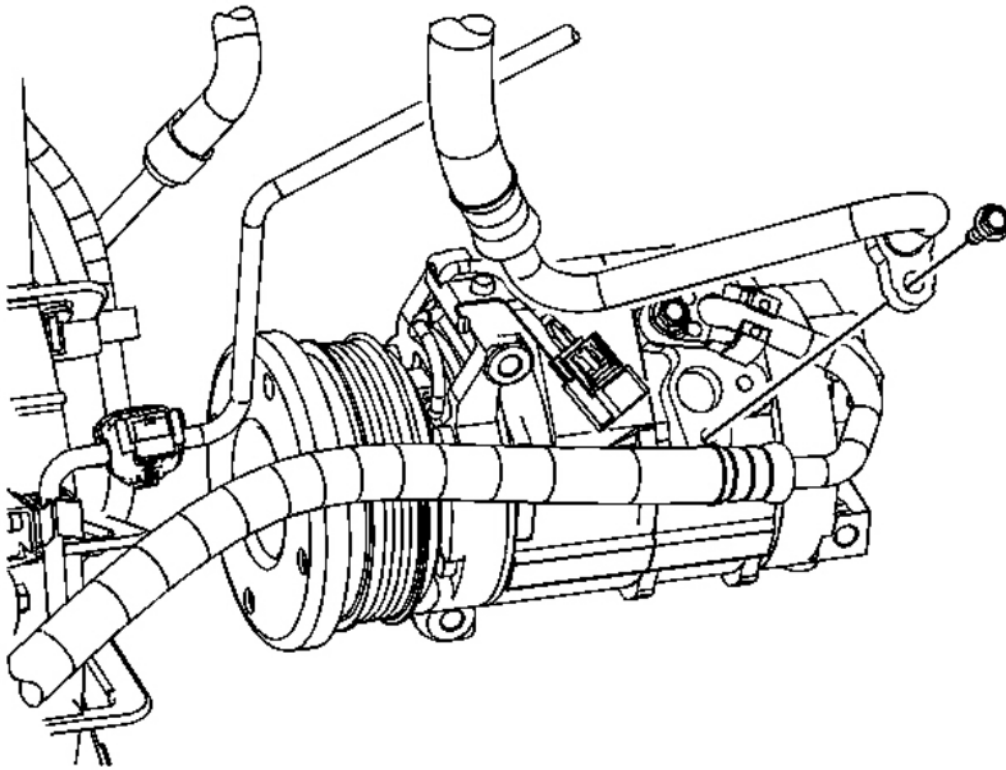


Fig. 78: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the suction line bolt from the A/C compressor.
9. Disconnect the suction line from the A/C compressor.
10. Remove and discard the O-ring.

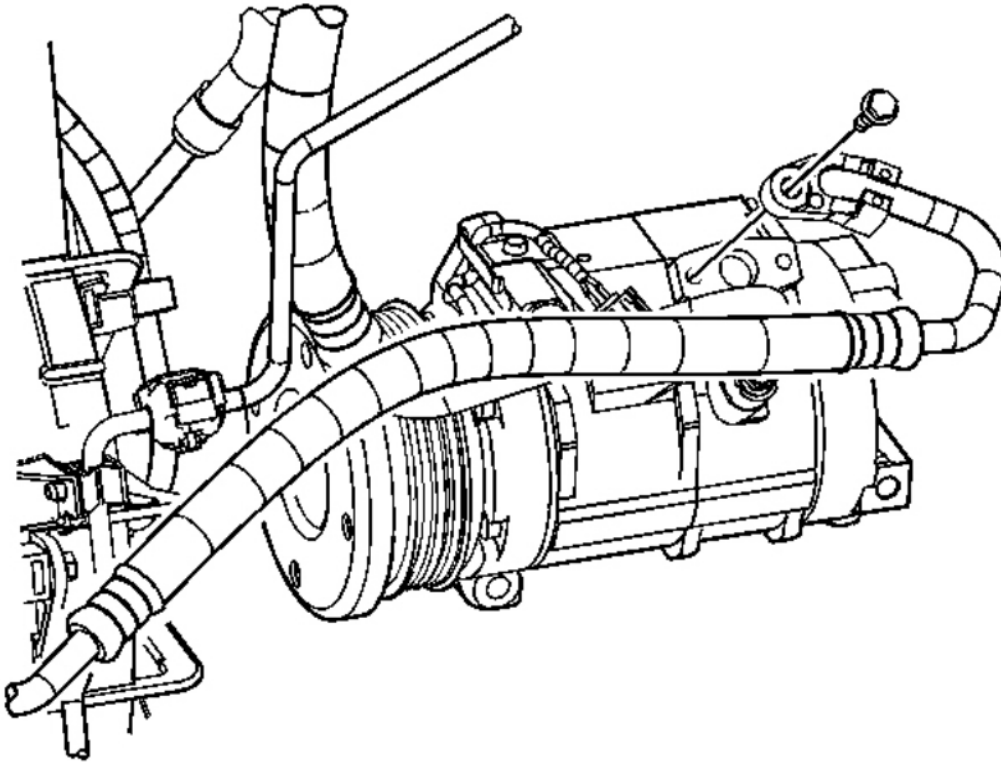


Fig. 79: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

11. Remove the discharge line bolt from the A/C compressor.
12. Disconnect the discharge line from the A/C compressor.
13. Remove and discard the O-ring.

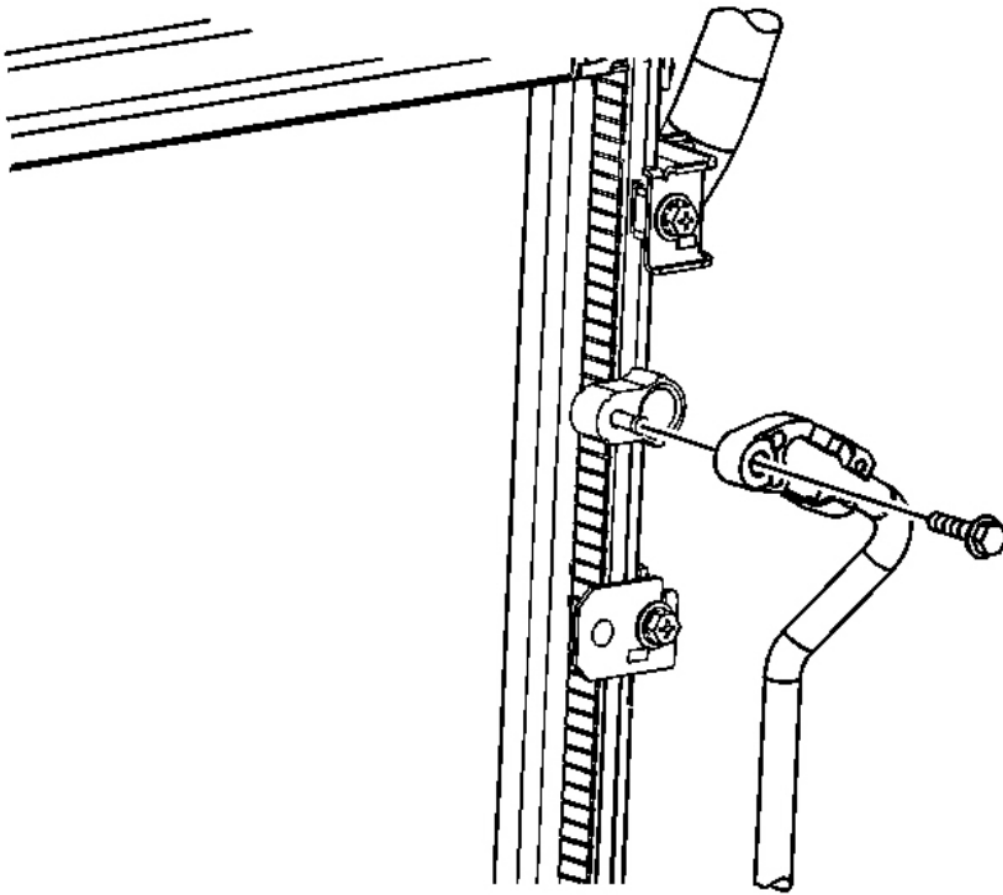


Fig. 80: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

14. Remove the discharge line to condenser bolt.
15. Disconnect the discharge line from the condenser.
16. Remove and discard the O-ring.
17. Disconnect the push-pin retainer from the front bumper and reposition the air baffle aside.
18. Remove the discharge line.

Installation Procedure

1. Install the discharge line.

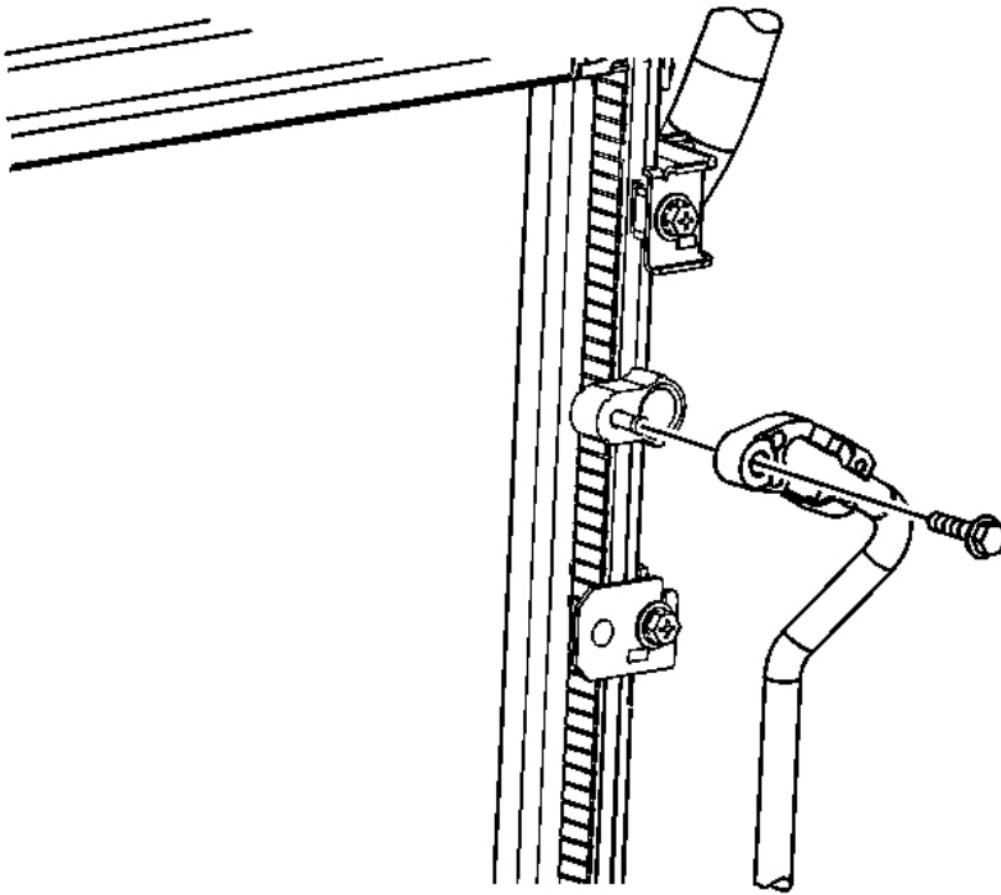


Fig. 81: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

2. Connect the push-pin retainer to the front bumper.
3. Install a new O-ring to the discharge line at the condenser. Refer to **O-Ring Replacement**.
4. Connect the discharge line to the condenser.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

5. Install the discharge line to condenser bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

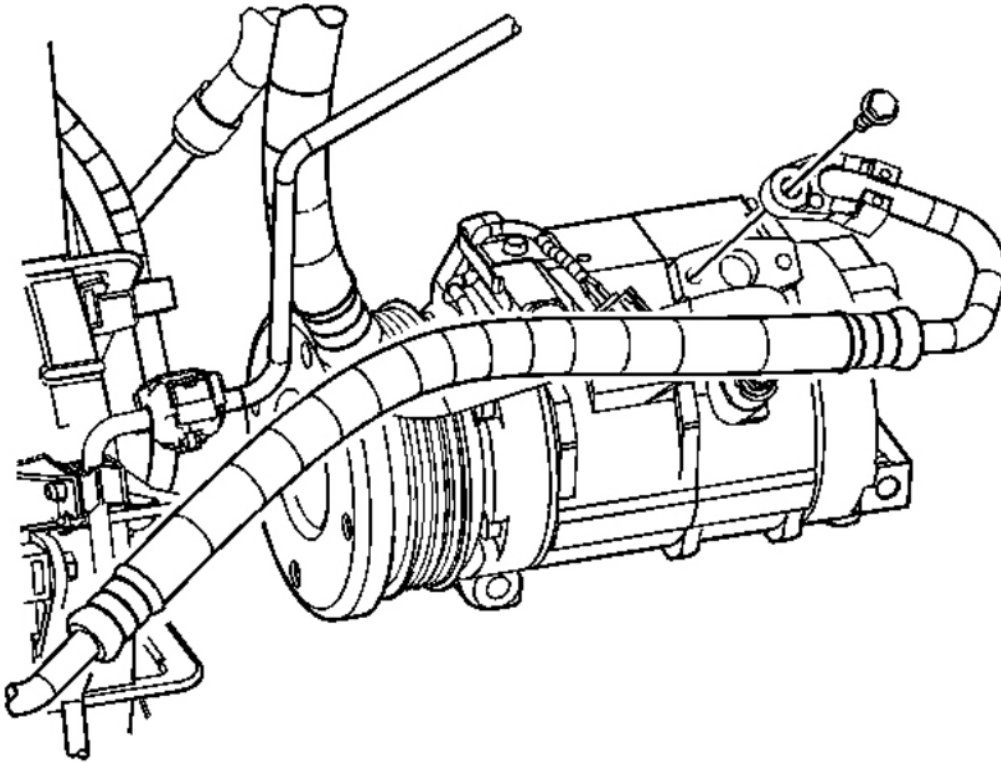


Fig. 82: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

6. Install a new O-ring to the discharge line at the A/C compressor. Refer to **O-Ring Replacement**.
7. Connect the discharge line to the A/C compressor.
8. Install the discharge line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

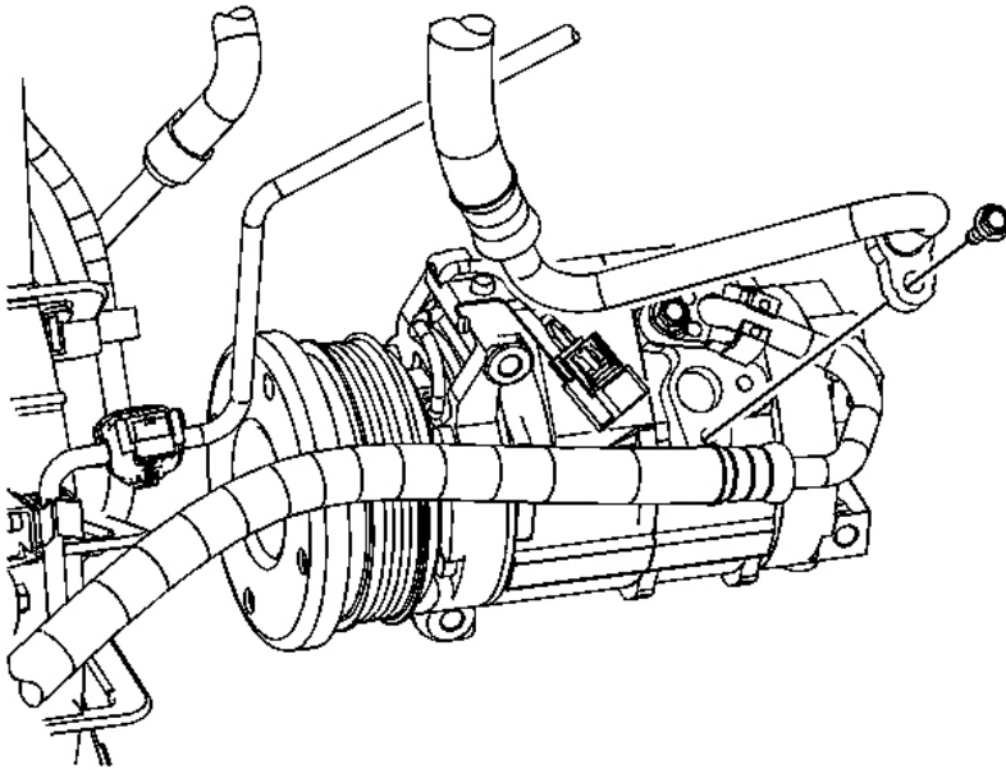


Fig. 83: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

9. Install a new O-ring to the suction line at the A/C compressor. Refer to **O-Ring Replacement**.
10. Connect the suction line to the A/C compressor.
11. Install the suction line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

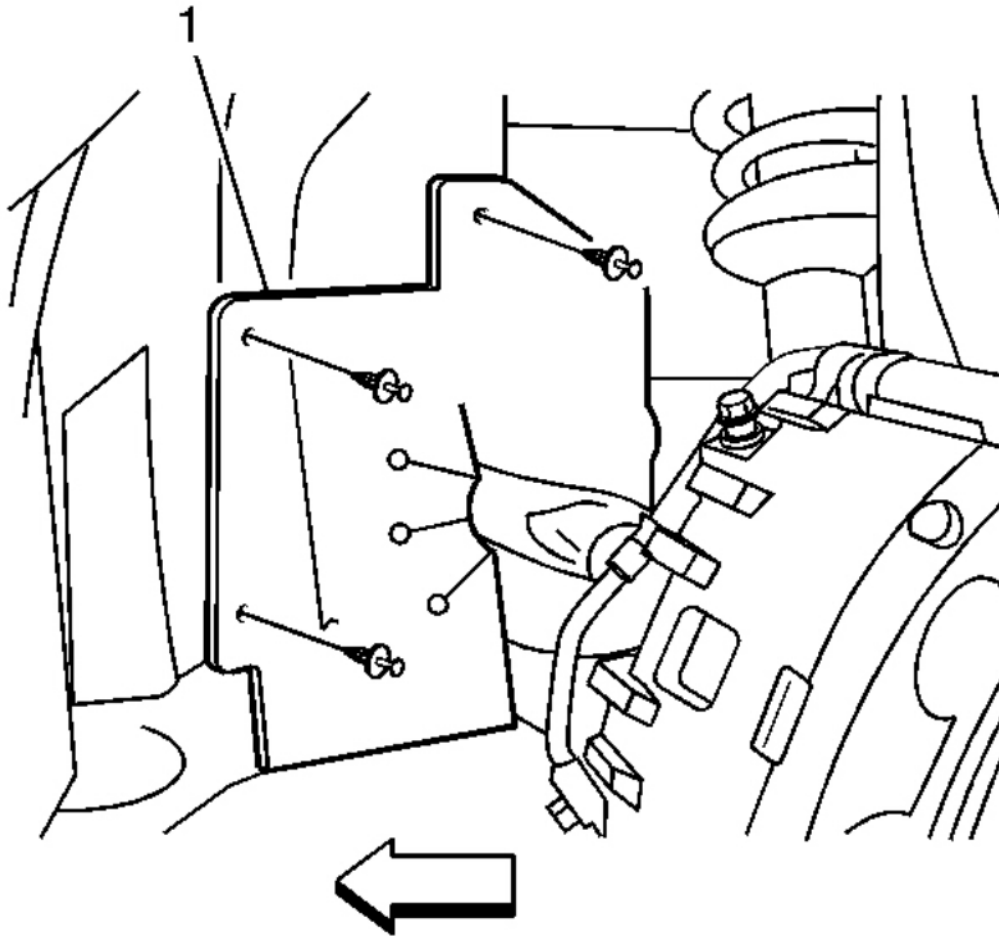


Fig. 84: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

12. Install the LH front splash shield (1).
13. Install the LH front splash shield retainers.
14. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
15. Remove the front air deflector retainers.

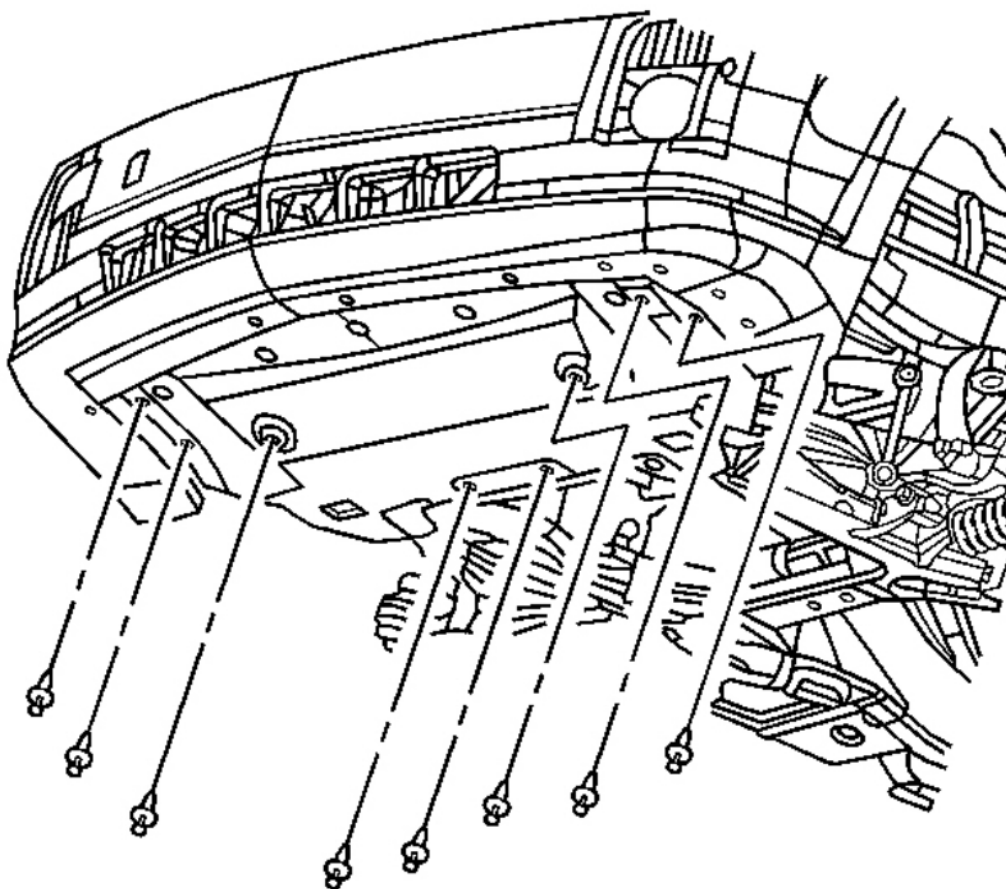


Fig. 85: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

16. Install the front air deflector.
17. Install the front air deflector retainers.
18. Lower the vehicle.
19. Evacuate and recharge the refrigerant system. Refer to **Refrigerant Recovery and Recharging**.
20. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

Tools Required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the front air deflector retainers.

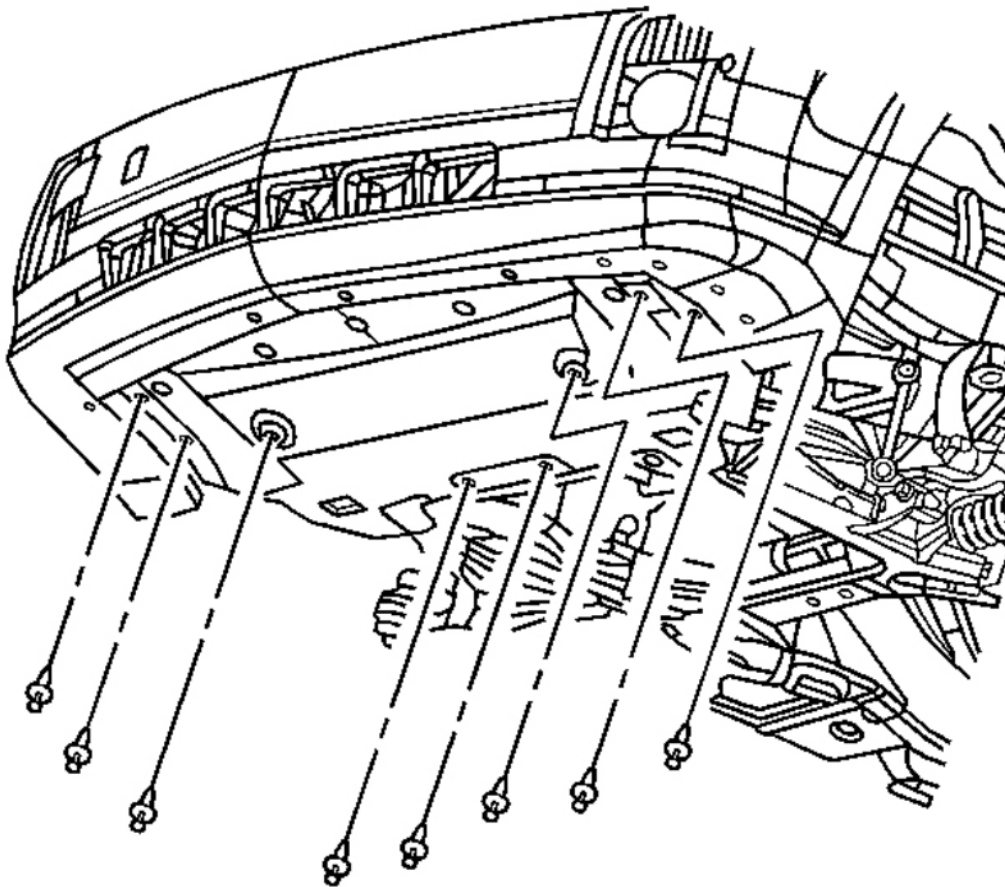


Fig. 86: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

4. Remove the front air deflector.
5. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

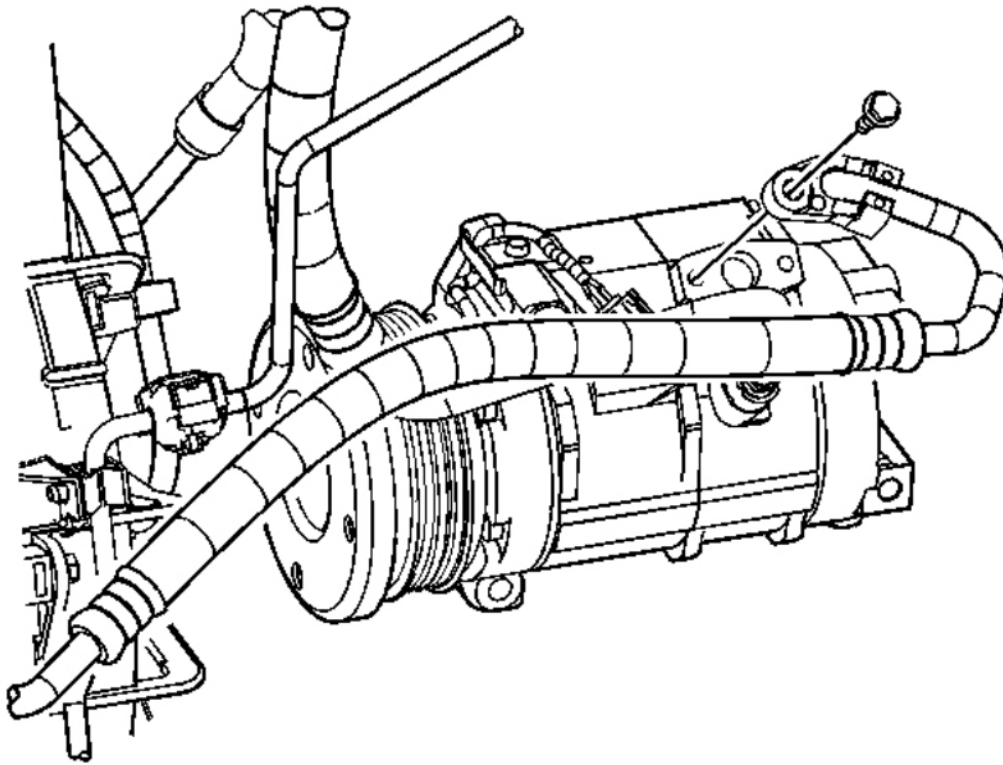


Fig. 87: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

6. Remove the discharge line bolt from the A/C compressor.
7. Disconnect the discharge line from the A/C compressor.

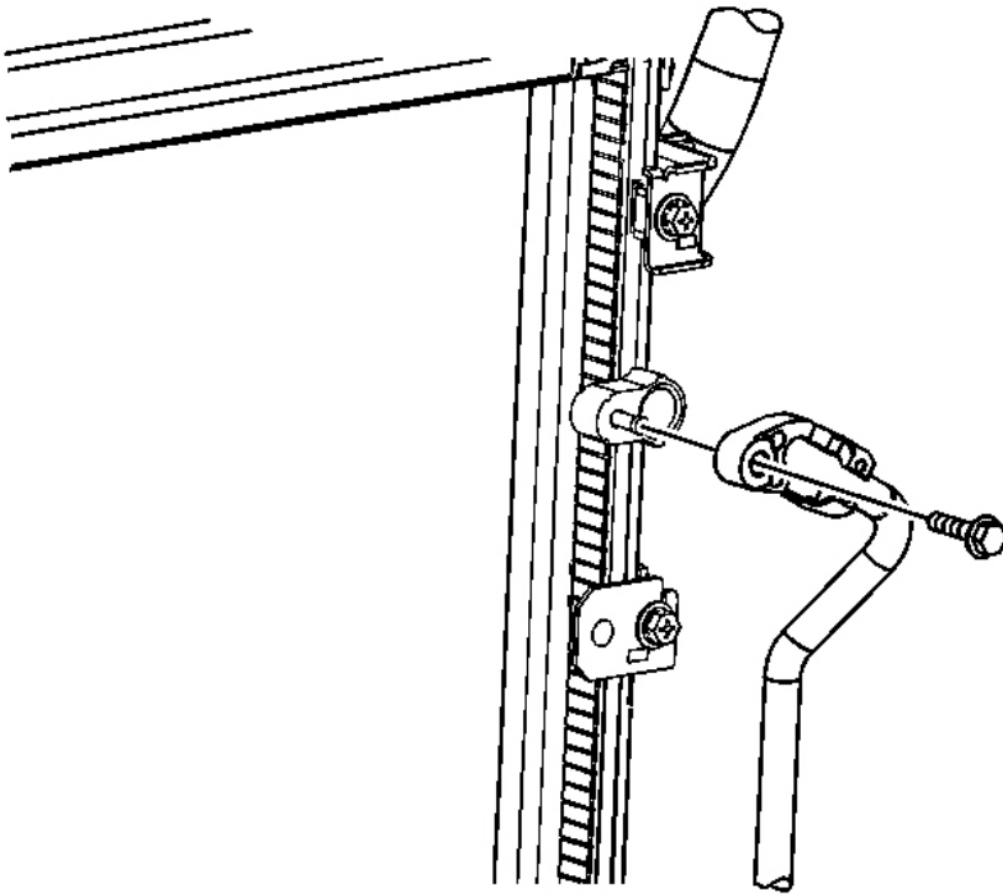


Fig. 88: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the discharge line to condenser bolt.
9. Disconnect the discharge line from the condenser.
10. Remove the discharge line.
11. Remove and discard the discharge line O-rings.

Installation Procedure

1. Install new O-rings to the discharge line. Refer to **O-Ring Replacement**.
2. Install the discharge line.

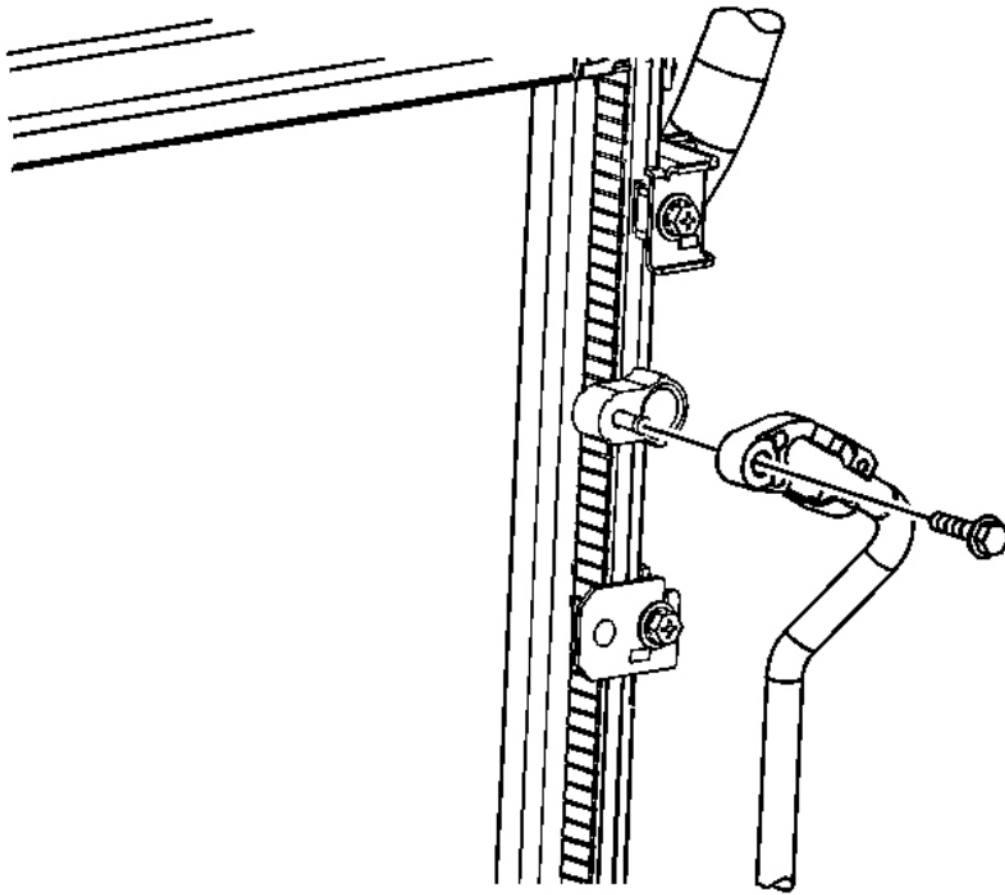


Fig. 89: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

3. Connect the discharge line to the condenser.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the discharge line to condenser bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

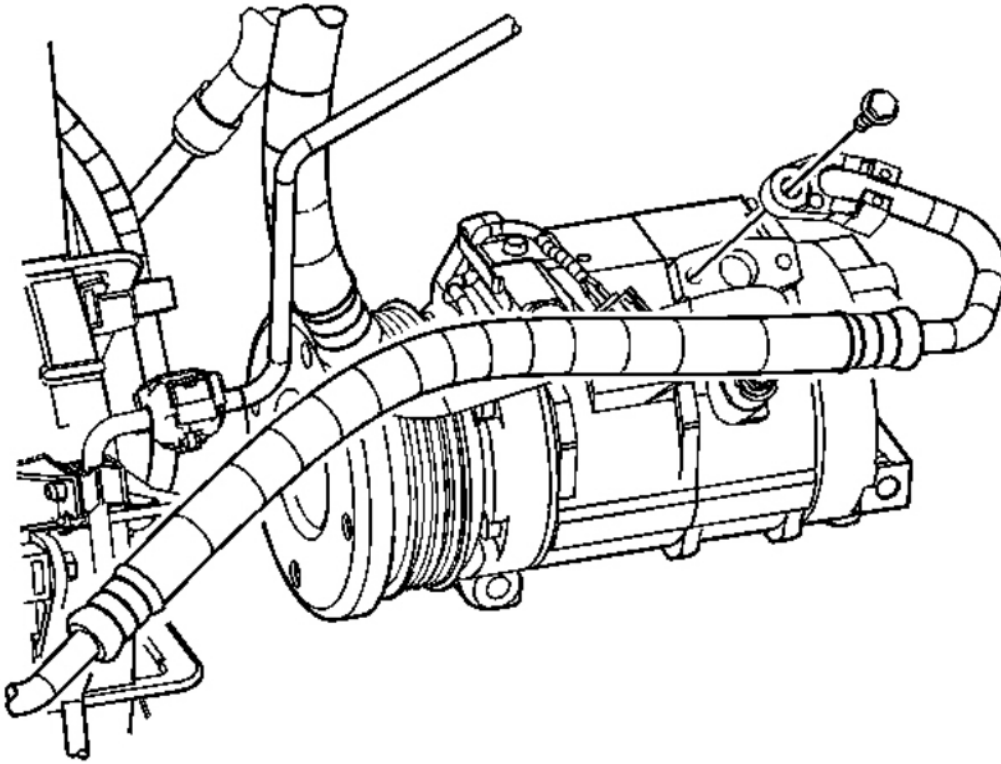


Fig. 90: View Of Discharge Line Bolt
Courtesy of GENERAL MOTORS CORP.

5. Connect the discharge line to the A/C compressor.
6. Install the discharge line bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

7. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
8. Remove the front air deflector retainers.

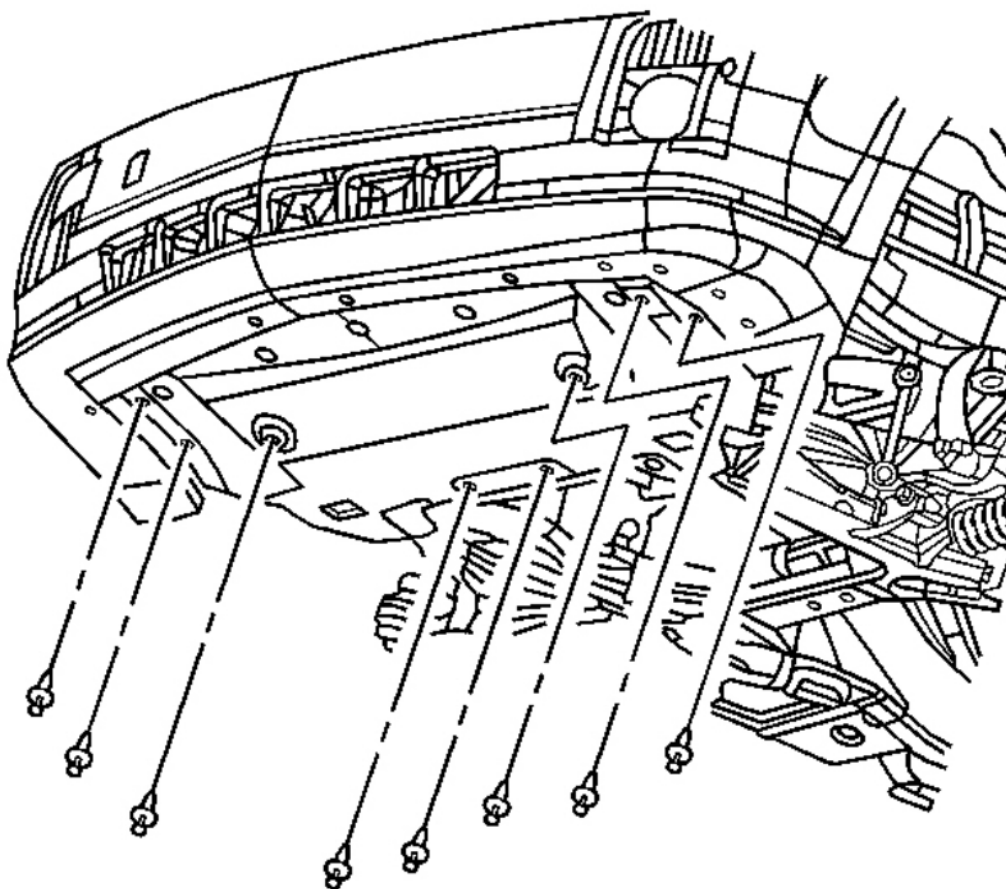


Fig. 91: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

9. Install the front air deflector.
10. Install the front air deflector retainers.
11. Lower the vehicle.
12. Evacuate and recharge the refrigerant system. Refer to **Refrigerant Recovery and Recharging**.
13. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

Tools Required

- **J 39400-A** Halogen Leak Detector. See Special Tools and Equipment.
- **J 45689** A/C Quick Joint Tool. See Special Tools and Equipment.

Removal Procedure

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.
2. Remove the suction hose quick connect fitting. Refer to A/C Line/Tube Connector Removal/Replacement.
3. Remove the suction hose retaining screw from the clamp.
4. Separate the suction line from the clamp.
5. Remove the air cleaner assembly. Refer to Air Cleaner Assembly Replacement in Engine Controls-4.6L.

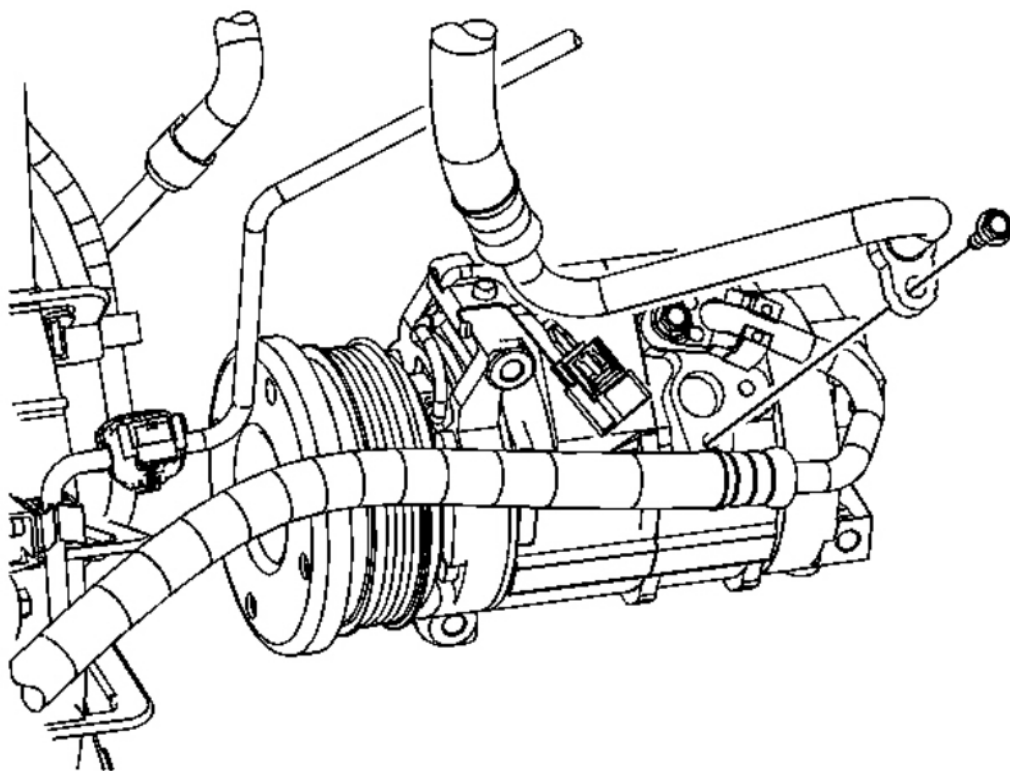


Fig. 92: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

6. Remove the suction hose retaining bolt from the compressor.
7. Remove the suction hose from the vehicle.

Installation Procedure

1. Coat the new O-rings with refrigerant oil. Refer to **O-Ring Replacement**.
2. Install the suction hose.
3. Connect the suction hose to the suction pipe.
4. Install the suction hose quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
5. Position the suction hose into the bracket.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

6. Install the suction hose retaining screw into the bracket.

Tighten: Tighten the screw to 2 N.m (18 lb in).

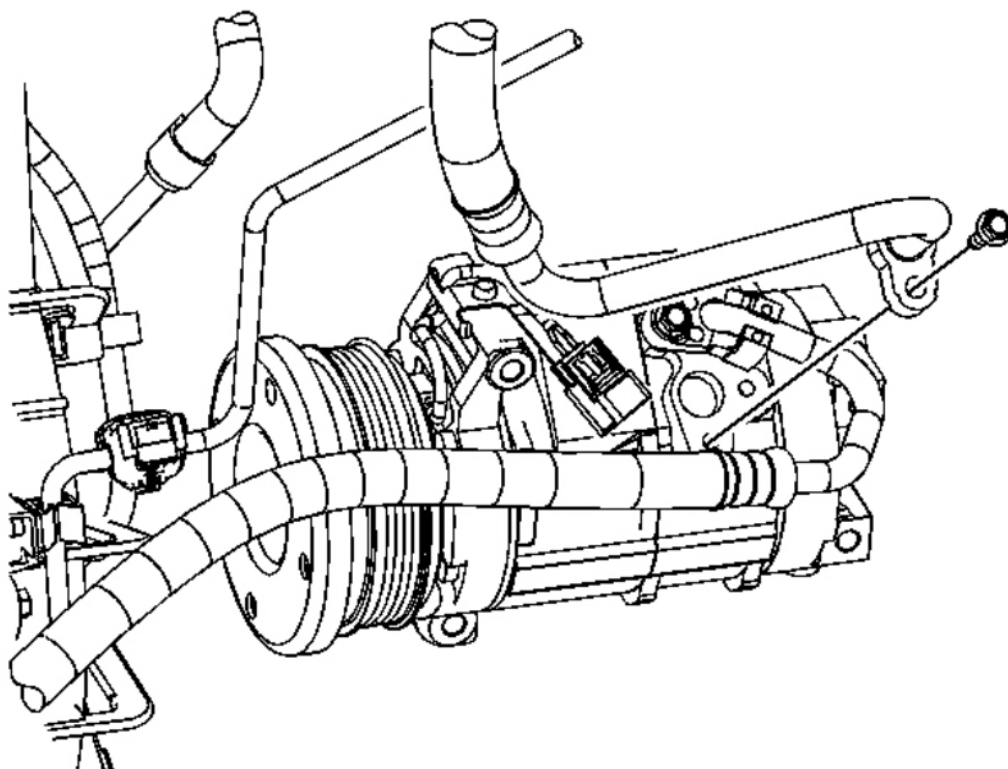


Fig. 93: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

7. Connect the suction hose to the compressor.
8. Install the retaining bolt to the compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

9. Install the air cleaner assembly. Refer to **Air Cleaner Assembly Replacement** in Engine Controls - 4.6L.
10. Evacuate and recharge the refrigerant system. Refer to **Refrigerant Recovery and Recharging**.
11. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

Tools Required

- **J 39400-A** Halogen Leak Detector. See Special Tools and Equipment.
- **J 45689** A/C Quick Joint Tool. See Special Tools and Equipment.

Removal Procedure

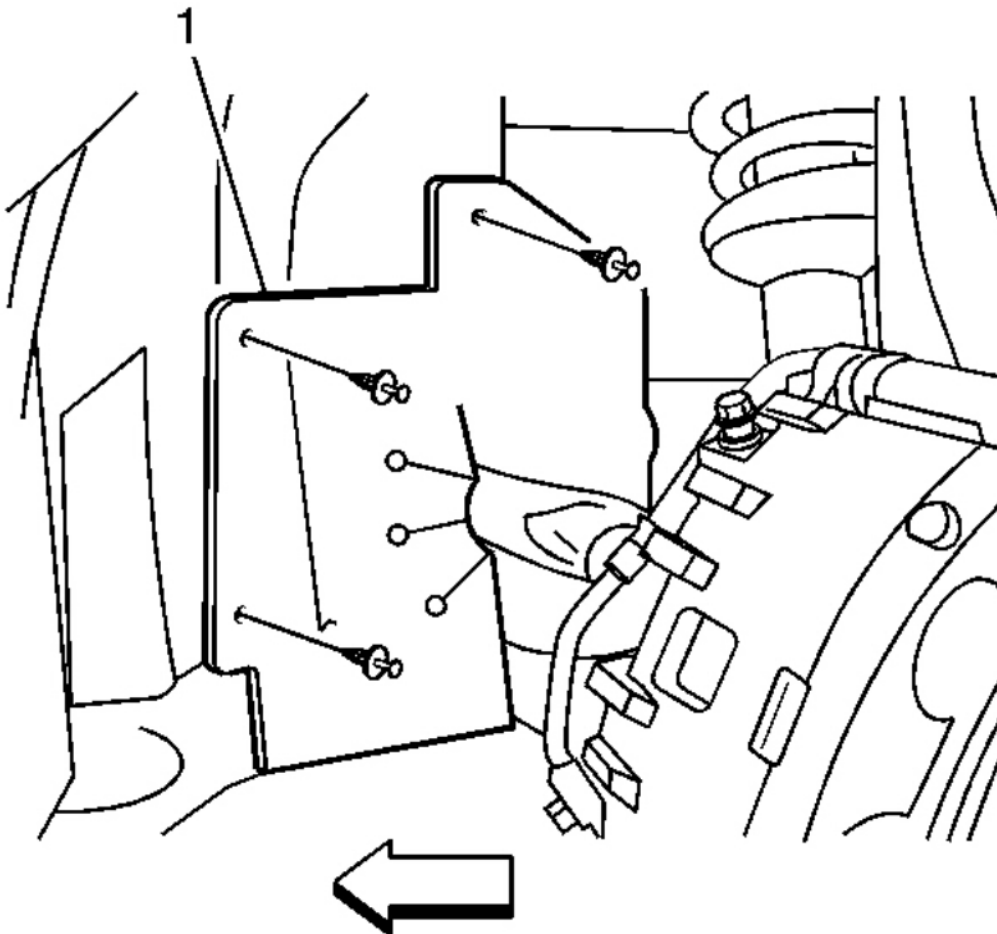


Fig. 94: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General

Information.

3. Remove the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
4. Remove the LH front splash shield retainers.
5. Remove the LH front splash shield (1).

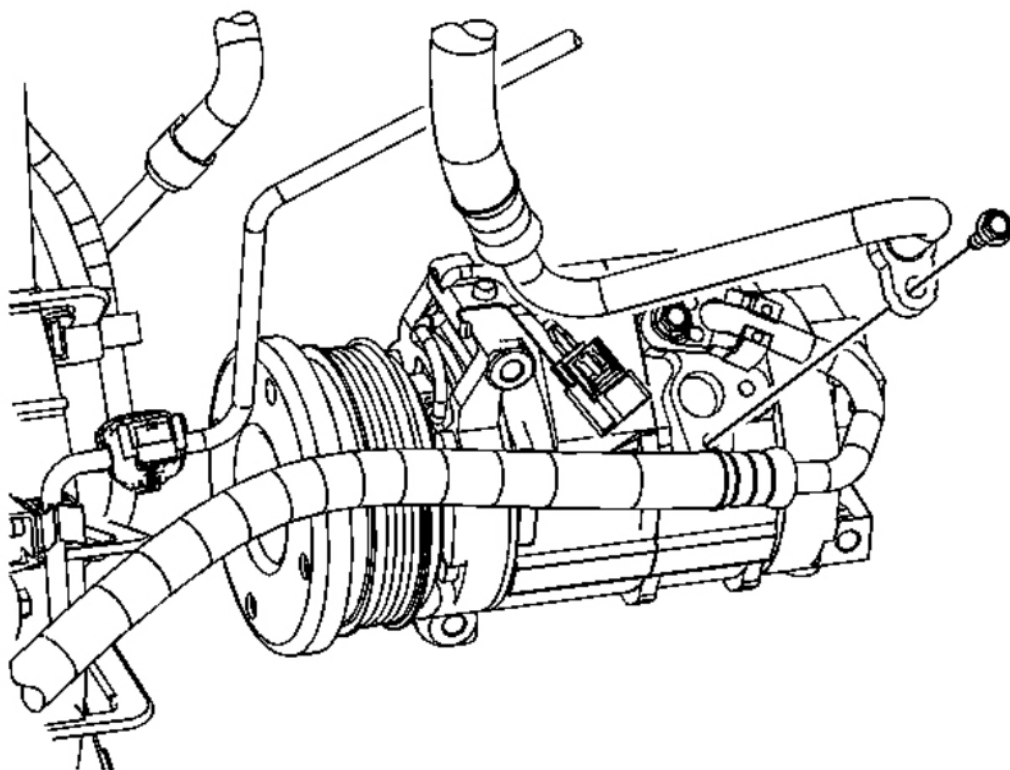


Fig. 95: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

6. Remove the suction hose bolt from the A/C compressor.
7. Disconnect the suction hose from the A/C compressor.
8. Remove and discard the O-ring.
9. Lower the vehicle.
10. Remove the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in

Engine Controls - 4.6L.

11. Remove the suction hose retaining screw from the clamp.
12. Separate the suction hose from the clamp.
13. Remove the suction hose quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.

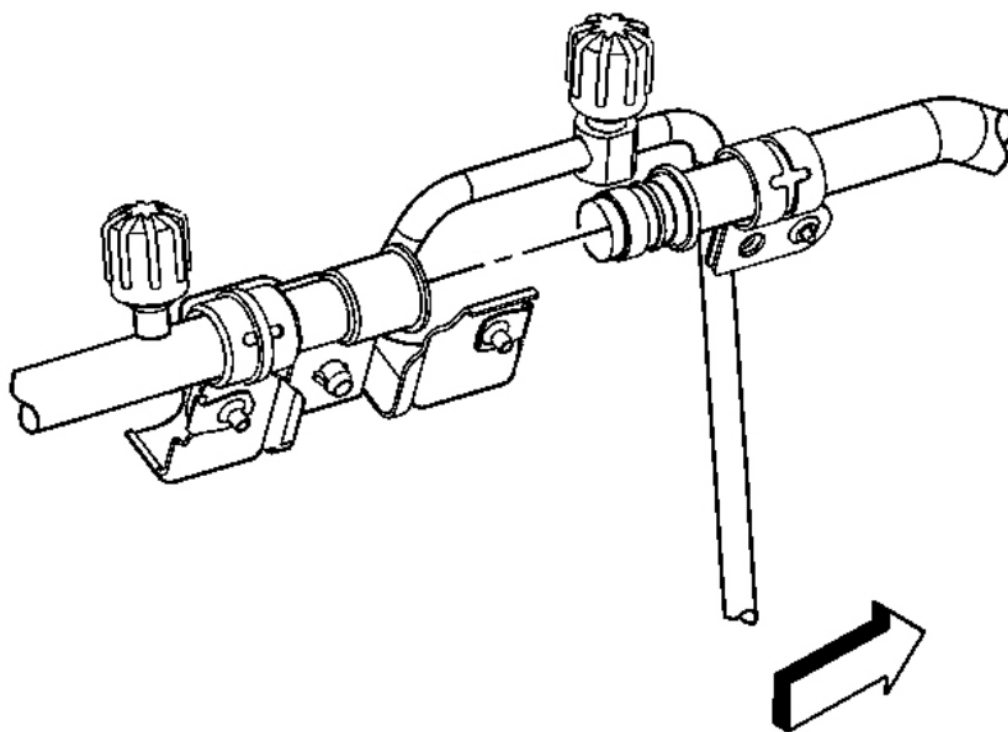


Fig. 96: View Of Suction Hose & Suction Pipe
Courtesy of GENERAL MOTORS CORP.

14. Disconnect the suction hose from the suction pipe.
15. Remove the suction hose from the vehicle.
16. Remove and discard the O-rings on the suction hose.

Installation Procedure

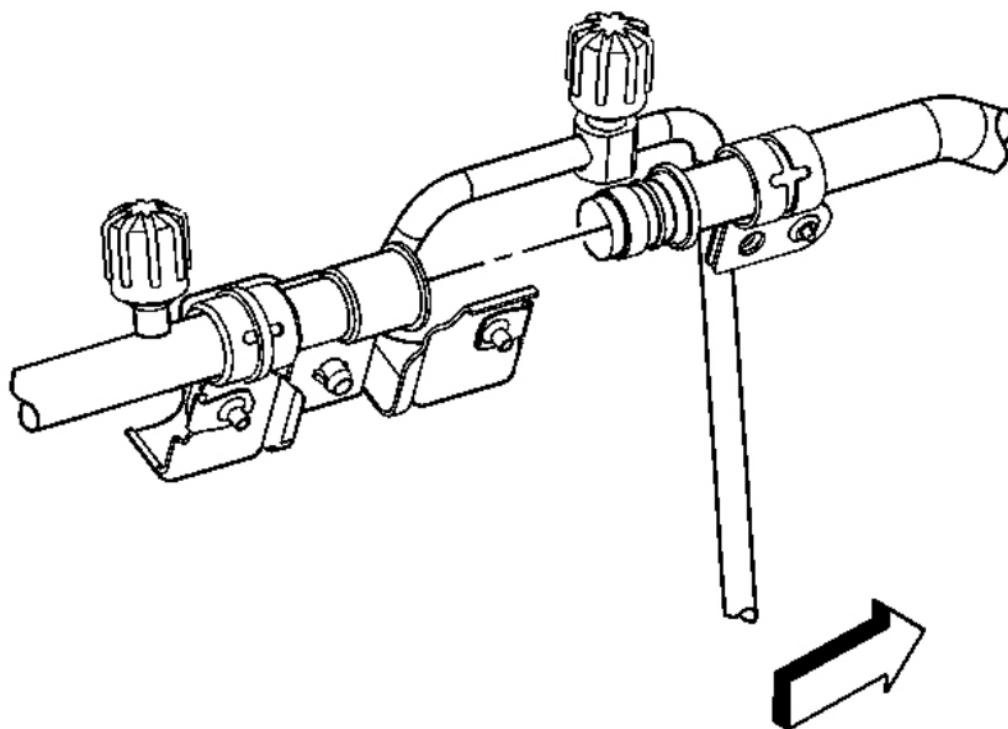


Fig. 97: View Of Suction Hose & Suction Pipe
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings onto the suction hose. Refer to **O-Ring Replacement**.
2. Install the suction hose.
3. Connect the suction hose to the suction pipe.
4. Install the suction hose quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
5. Position the suction hose into the bracket.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

6. Install the suction hose retaining screw into the bracket.

Tighten: Tighten the screw to 6 N.m (53 lb in).

7. Install the air cleaner outlet duct. Refer to **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6L.
8. Raise and support the vehicle.
9. Connect the suction hose to the A/C compressor.

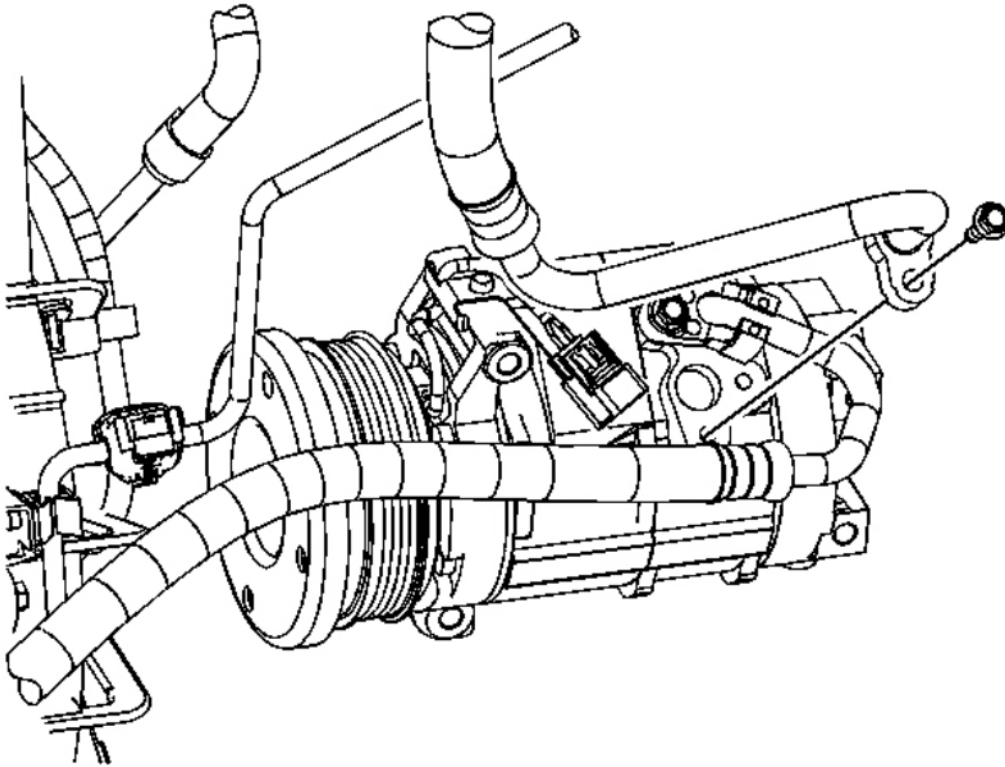


Fig. 98: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

10. Install the suction hose bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

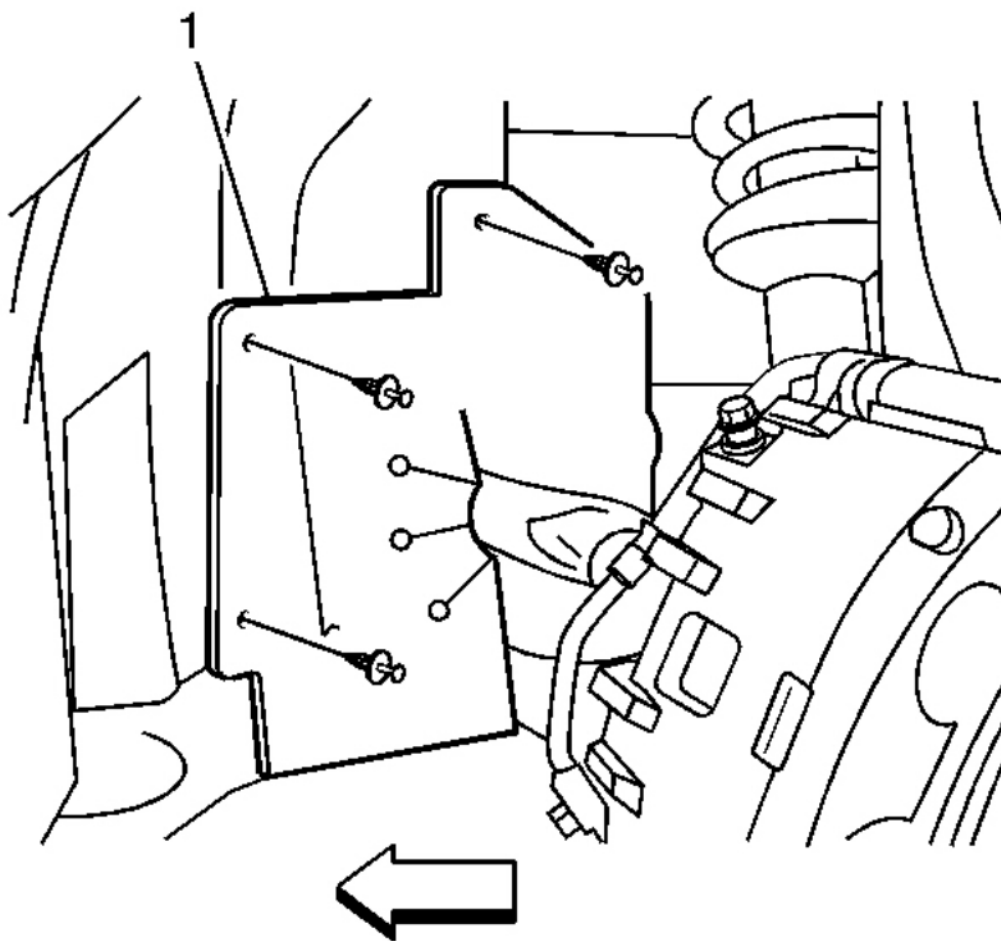


Fig. 99: View Of LH Front Splash Shield
Courtesy of GENERAL MOTORS CORP.

11. Install the LH front splash shield (1).
12. Install the LH front splash shield retainers.
13. Install the LH front wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
14. Lower the vehicle.
15. Evacuate and recharge the refrigerant system. Refer to **Refrigerant Recovery and Recharging**.
16. Leak test the fittings of the component using J 39400-A . See **Special Tools and**

Equipment.

SUCTION HOSE REPLACEMENT (LY7 W/O C57)

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.
- **J 45689** A/C Quick Joint Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner intake duct. Refer to **Air Cleaner Assembly Replacement** in Engine Controls - 3.6L.

IMPORTANT: It is not necessary to completely remove the power steering and A/C compressor drive belt.

3. Disconnect the drive belt from the A/C compressor. Refer to **Drive Belt Replacement - Power Steering and Air Conditioning** in Engine Mechanical - 3.6L.

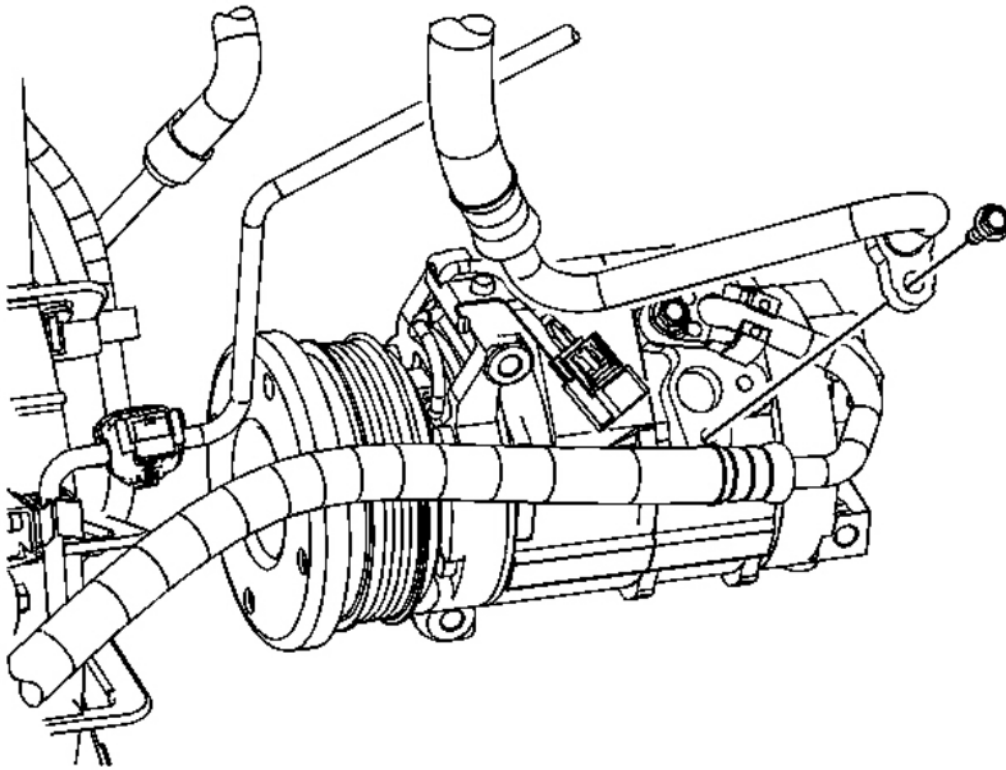


Fig. 100: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the suction hose retaining bolt from the A/C compressor.
5. Disconnect the suction hose from the A/C compressor.
6. Remove the suction hose retaining screw from the clamp.
7. Separate the suction hose from the clamp.
8. Remove the suction hose quick connect fitting (1). Refer to **A/C Line/Tube Connector Removal/Replacement**.

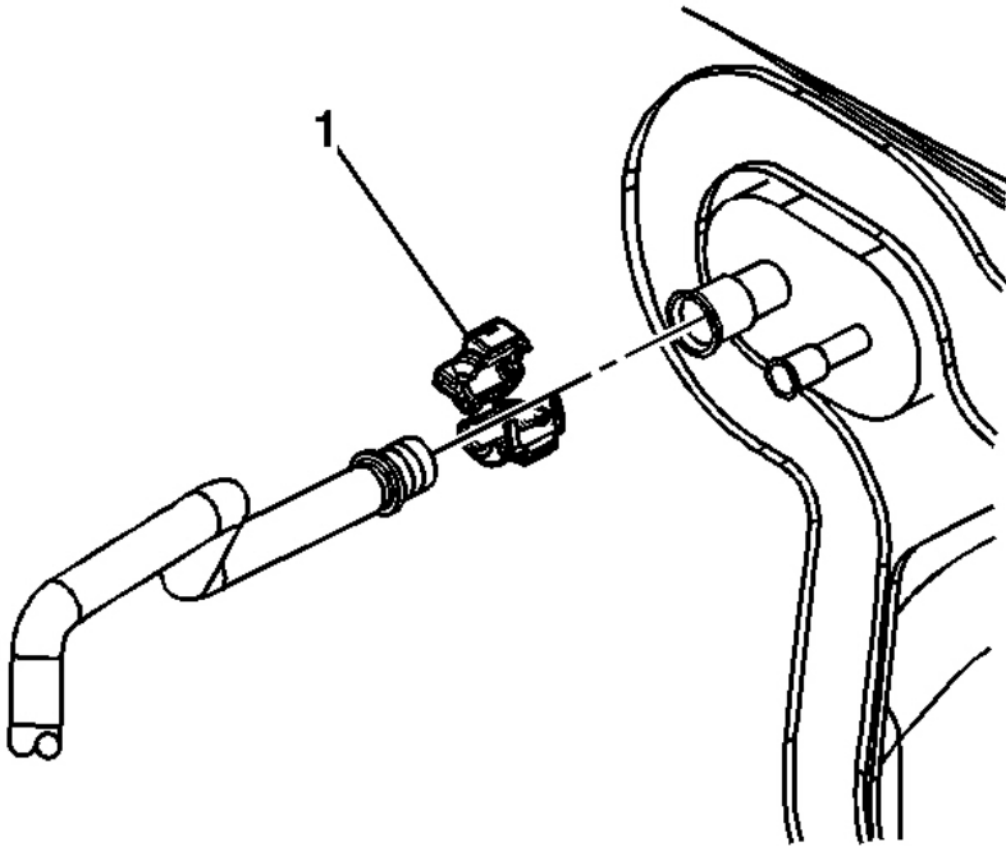


Fig. 101: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

9. Disconnect the suction hose from the thermal expansion valve (TXV) suction tube.
10. Remove the suction hose from the vehicle.
11. Remove and discard the O-rings from the suction hose.

Installation Procedure

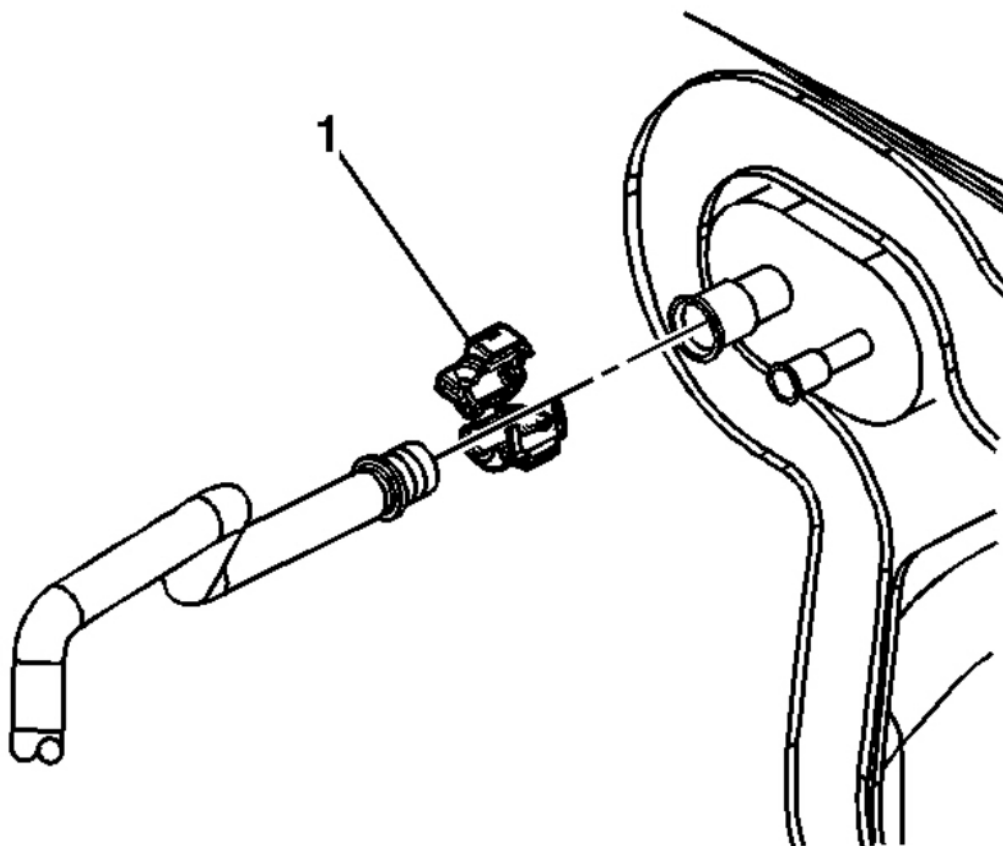


Fig. 102: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings onto the suction hose. Refer to O-Ring Replacement.
2. Install the suction hose.
3. Connect the suction hose to the TXV suction tube.
4. Install the suction hose quick connect fitting (1). Refer to A/C Line/Tube Connector Removal/Replacement.
5. Position the suction hose into the clamp.

NOTE: Refer to Fastener Notice in Cautions and Notices.

6. Install the suction hose retaining screw into the clamp.

Tighten: Tighten the screw to 2 N.m (18 lb in).

7. Connect the suction hose to the A/C compressor.

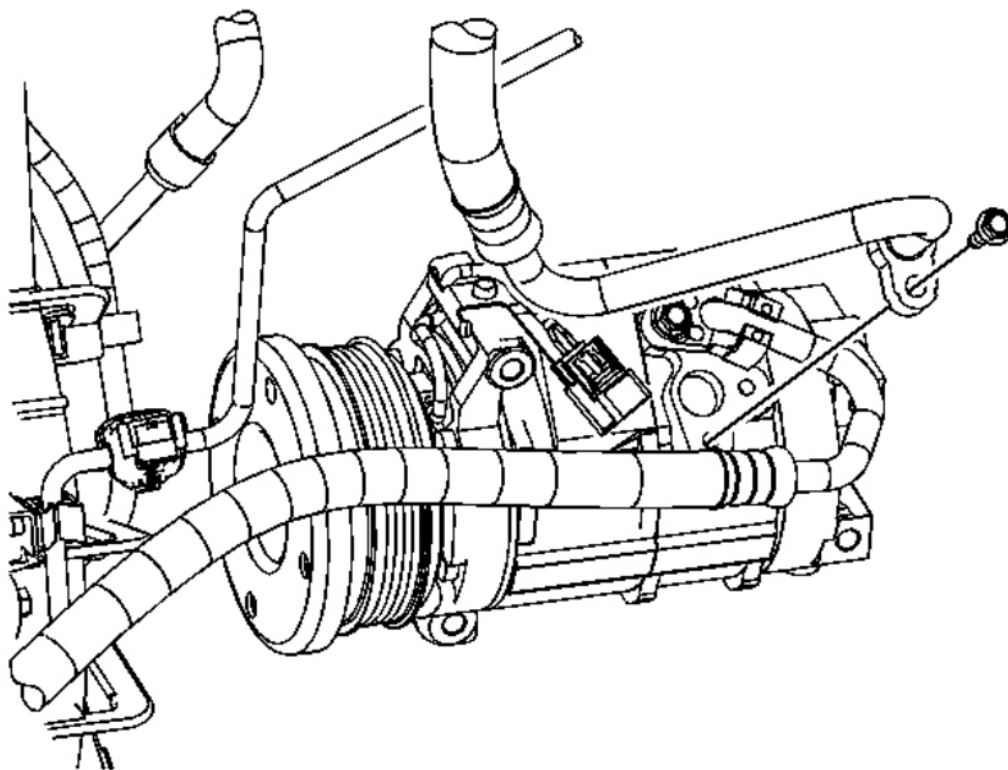


Fig. 103: View Of Suction Line Bolt
Courtesy of GENERAL MOTORS CORP.

8. Install the suction hose retaining bolt to the A/C compressor.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

9. Connect the drive belt to the A/C compressor. Refer to **Drive Belt Replacement - Power Steering and Air Conditioning** in Engine Mechanical - 3.6L.
10. Install the air cleaner intake duct. Refer to **Air Cleaner Assembly Replacement** in Engine Controls - 3.6L.
11. Evacuate and recharge the refrigerant. Refer to **Refrigerant Recovery and Recharging**.

12. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

SUCTION PIPE REPLACEMENT

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.
- **J 45689** A/C Quick Connect Joint Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant from the system. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the liquid line. Refer to **Liquid Line Replacement (w/o C57)** or **Liquid Line Replacement (w/C57)**.
3. Remove the suction line clamp screw from the strut tower.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
5. Remove the suction line quick connect fitting from the mid-section A/C lines. Refer to **A/C Line/Tube Connector Removal/Replacement**.
6. Lower the vehicle.
7. Remove the suction line quick connect fitting from the strut tower bracket. Refer to **A/C Line/Tube Connector Removal/Replacement**.

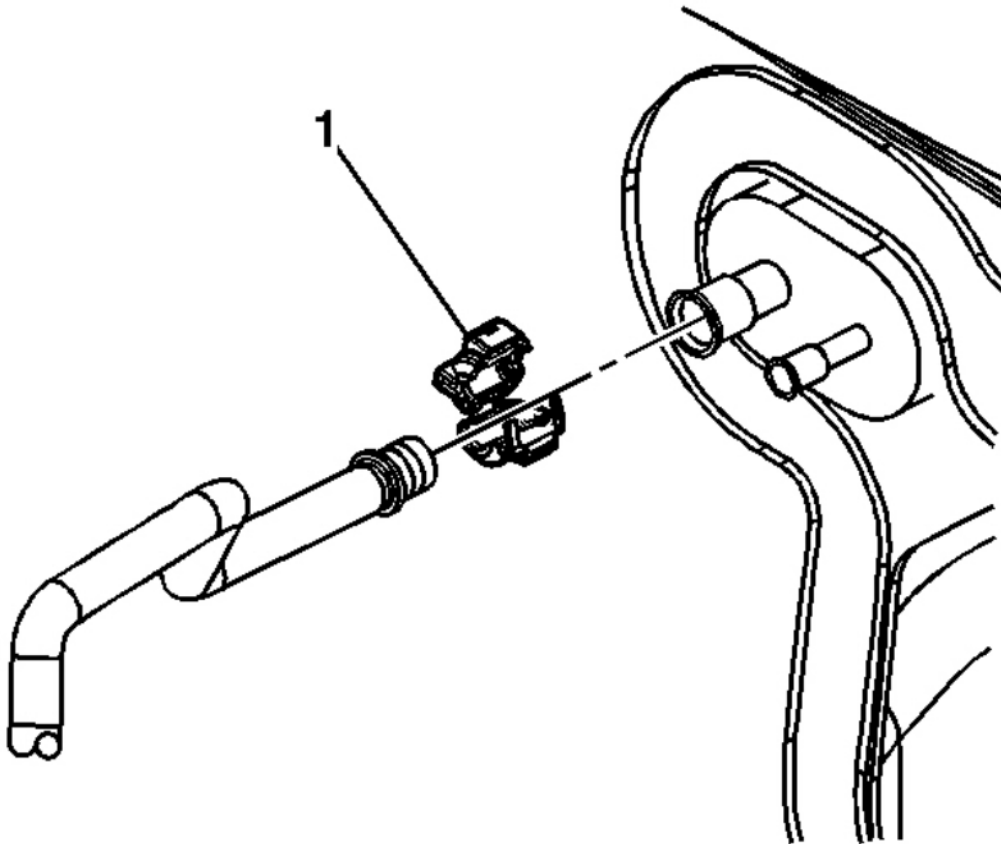


Fig. 104: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

8. Remove the suction line quick connect fitting (1) from the evaporator. Refer to **A/C Line/Tube Connector Removal/Replacement**.
9. Remove the suction line from the vehicle.
10. Remove and discard the O-rings from the suction line.

Installation Procedure

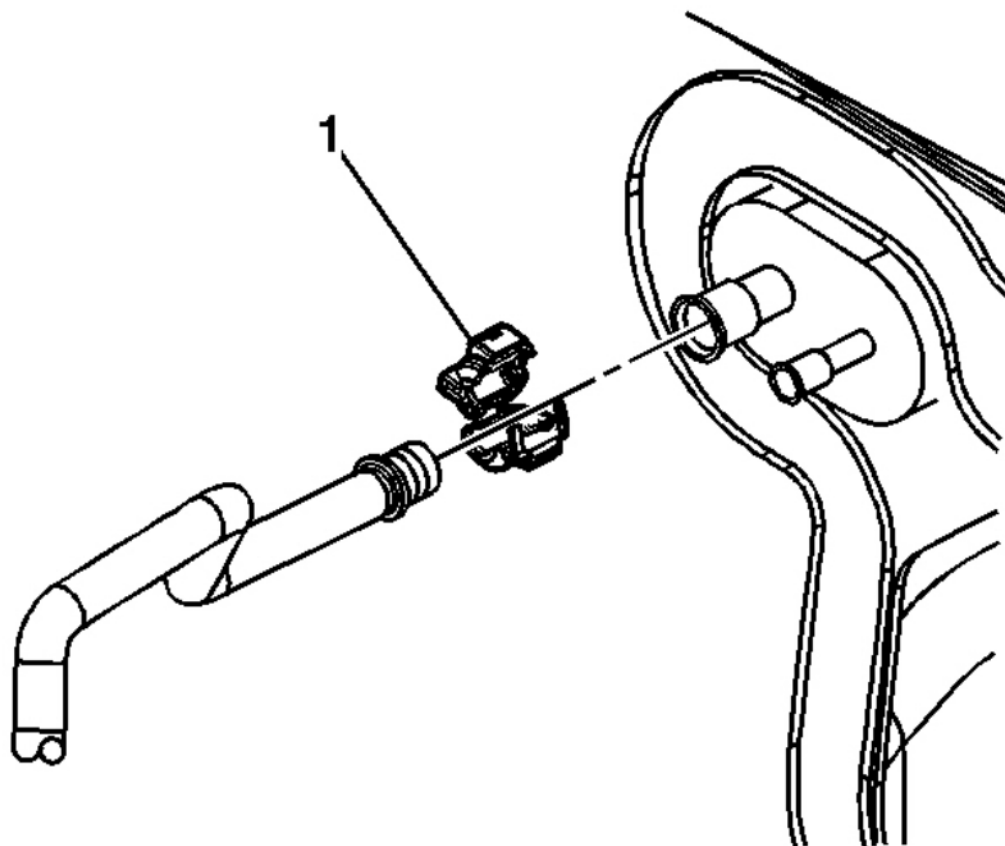


Fig. 105: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings to the suction line. Refer to **O-Ring Replacement**.
2. Install the suction line to the vehicle.
3. Install a quick connect fitting (1) to the suction line at the evaporator. Refer to **A/C Line/Tube Connector Removal/Replacement**.
4. Install a quick connect fitting to the suction line at the strut tower. Refer to **A/C Line/Tube Connector Removal/Replacement**.
5. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
6. Install a quick connect fitting to the suction line at the mid-section A/C lines. Refer to **A/C Line/Tube Connector Removal/Replacement**.

7. Lower the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

8. Install the suction clamp screw to the strut tower.

Tighten: Tighten the screw to 1 N.m (9 lb in).

9. Install the liquid line. Refer to Liquid Line Replacement (w/o C57) or Liquid Line Replacement (w/C57).
10. Evacuate and recharge the A/C system. Refer to Refrigerant Recovery and Recharging.
11. Leak test the fittings of the component using J 39400-A . See Special Tools and Equipment.

LIQUID LINE REPLACEMENT (W/O C57)

Tools Required

- J 39400-A Halogen Leak Detector. See Special Tools and Equipment.
- J 45689 A/C Quick Joint Tool. See Special Tools and Equipment.

Removal Procedure

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.
2. Remove the air cleaner intake duct from the vehicle. Refer to Air Cleaner Intake Duct Replacement in Engine Controls-3.6L or Air Cleaner Outlet Duct Replacement in Engine Controls - 4.6.
3. Remove the liquid line to condenser tube quick connect fitting. Refer to A/C Line/Tube Connector Removal/Replacement.

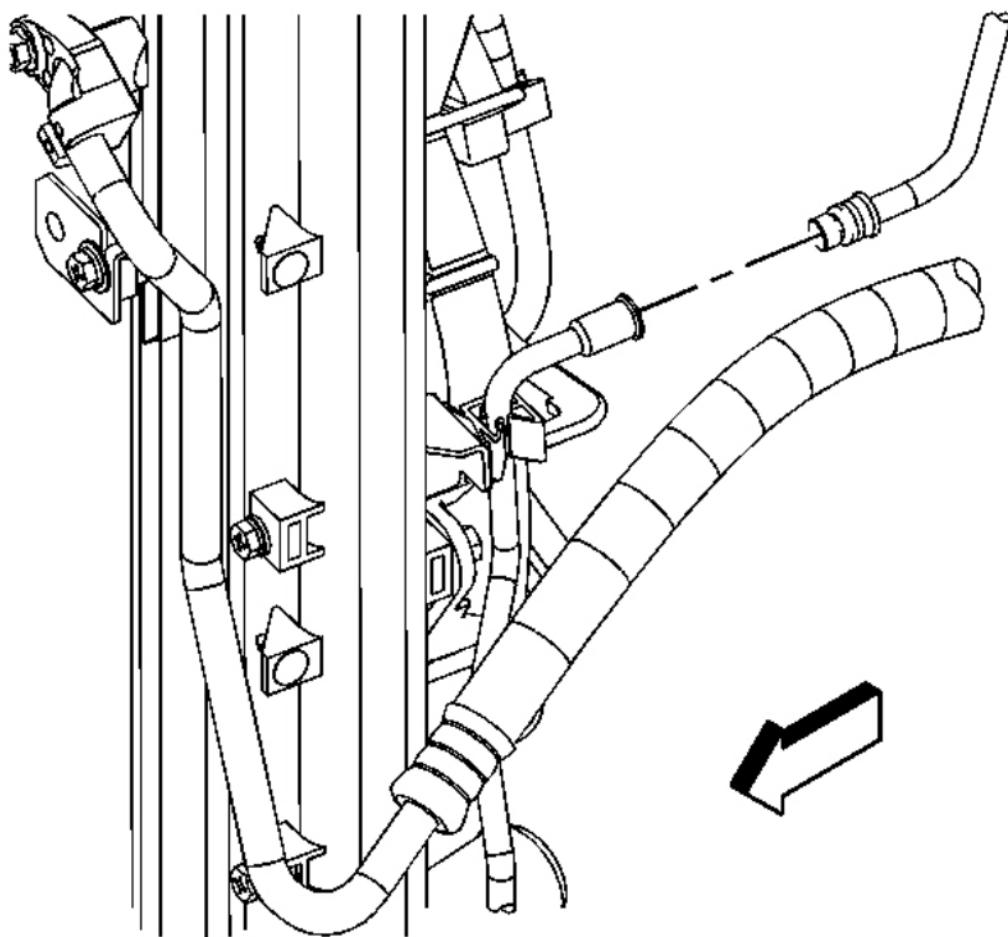


Fig. 106: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the liquid line from the condenser tube.

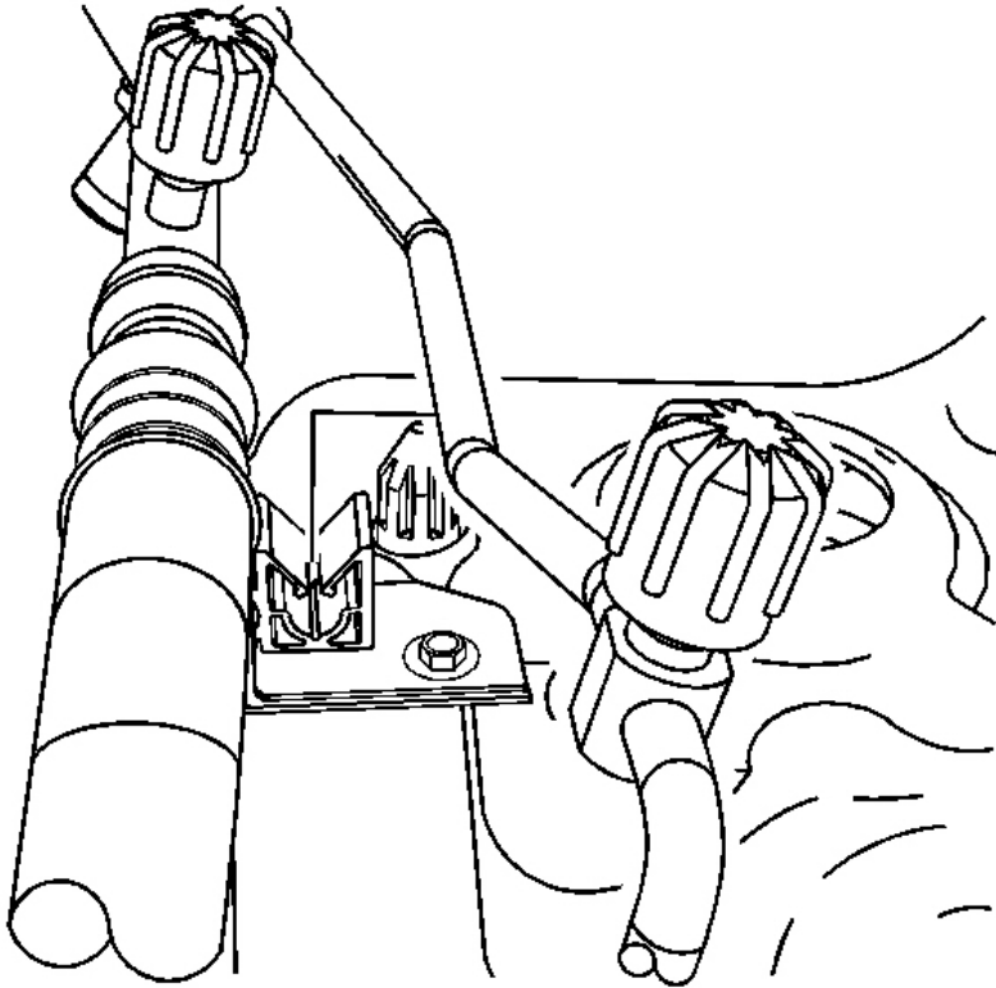


Fig. 107: View Of Evaporator Tube Strut Tower Retaining Clip
Courtesy of GENERAL MOTORS CORP.

5. Remove the evaporator tube from the strut tower retaining clip.

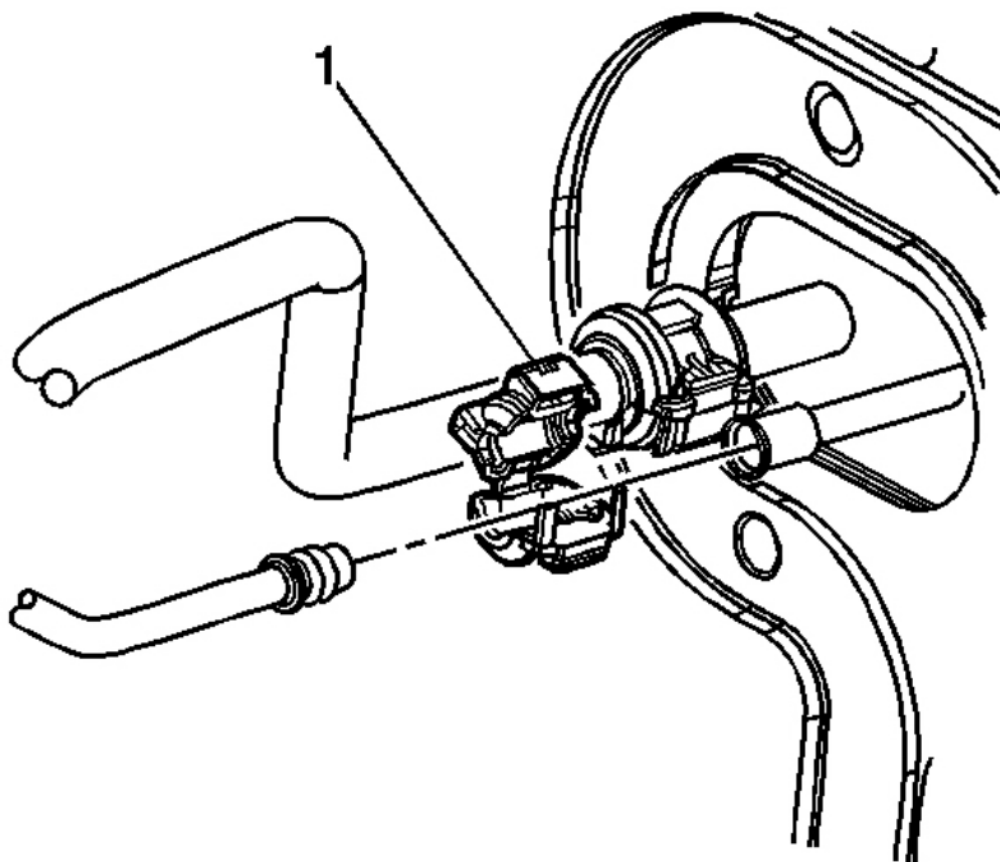


Fig. 108: Identifying A/C Fitting Retainer
Courtesy of GENERAL MOTORS CORP.

6. Remove the liquid line to thermal expansion valve (TXV) liquid tube quick connect fitting (1). Refer to **A/C Line/Tube Connector Removal/Replacement**.
7. Disconnect the liquid line from the TXV liquid tube.
8. Remove the liquid line from the vehicle.
9. Remove and discard the O-rings from the liquid line. Refer to **O-Ring Replacement**.

Installation Procedure

1. Install new O-rings onto the liquid line. Refer to **O-Ring Replacement**.
2. Install the liquid line into the vehicle.

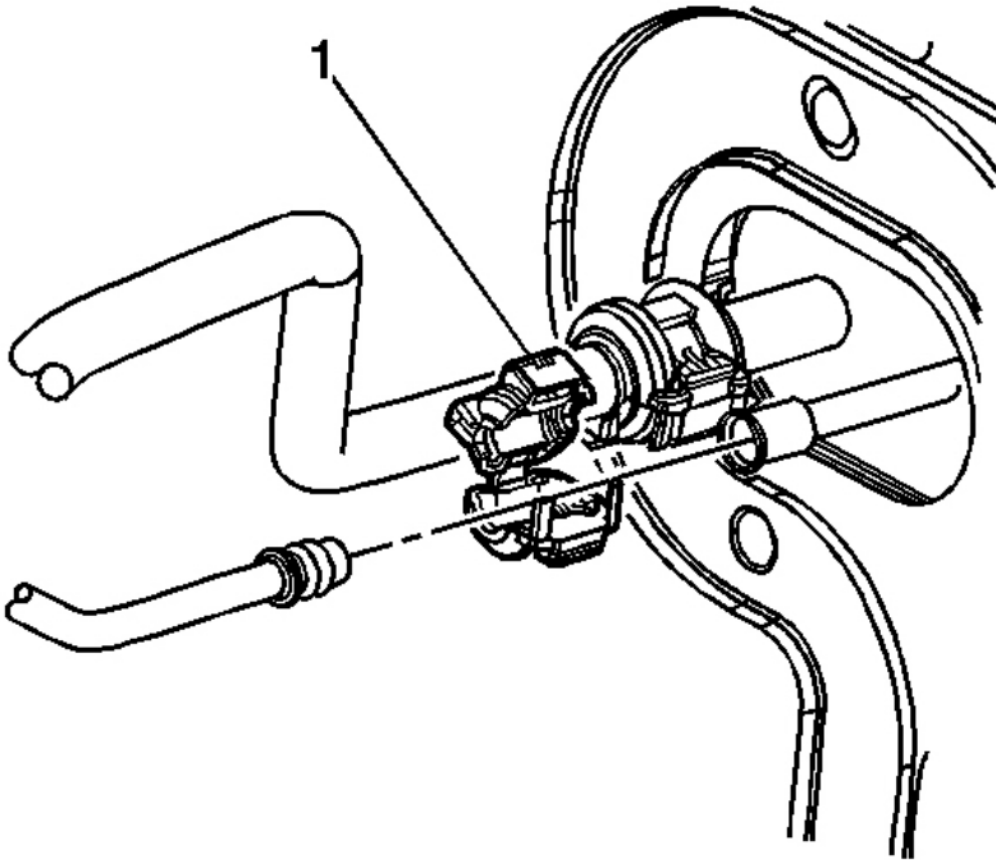


Fig. 109: Identifying A/C Fitting Retainer
Courtesy of GENERAL MOTORS CORP.

3. Connect the liquid line to the TXV liquid tube.
4. Install the A/C quick connect fitting (1) to the liquid line. Refer to **A/C Line/Tube Connector Removal/Replacement**.

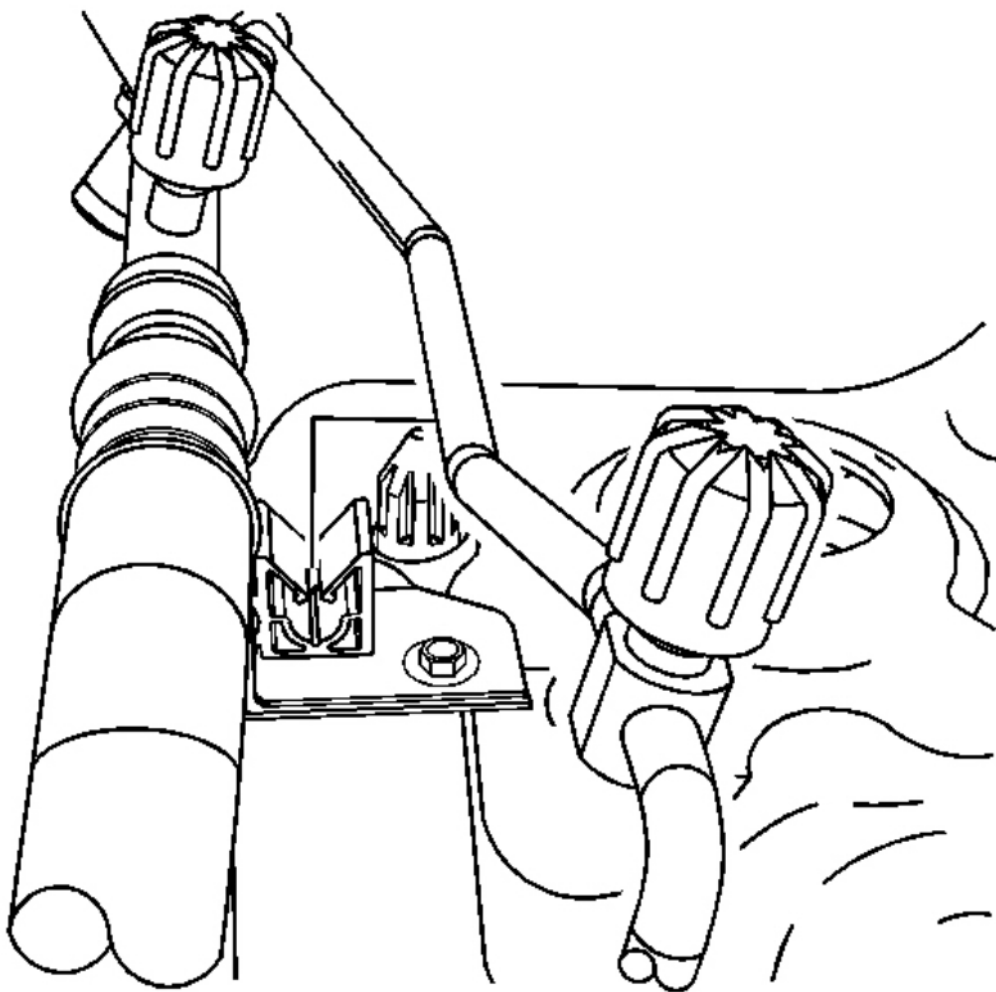


Fig. 110: View Of Evaporator Tube Strut Tower Retaining Clip
Courtesy of GENERAL MOTORS CORP.

5. Install the evaporator tube to the strut tower retaining clip.

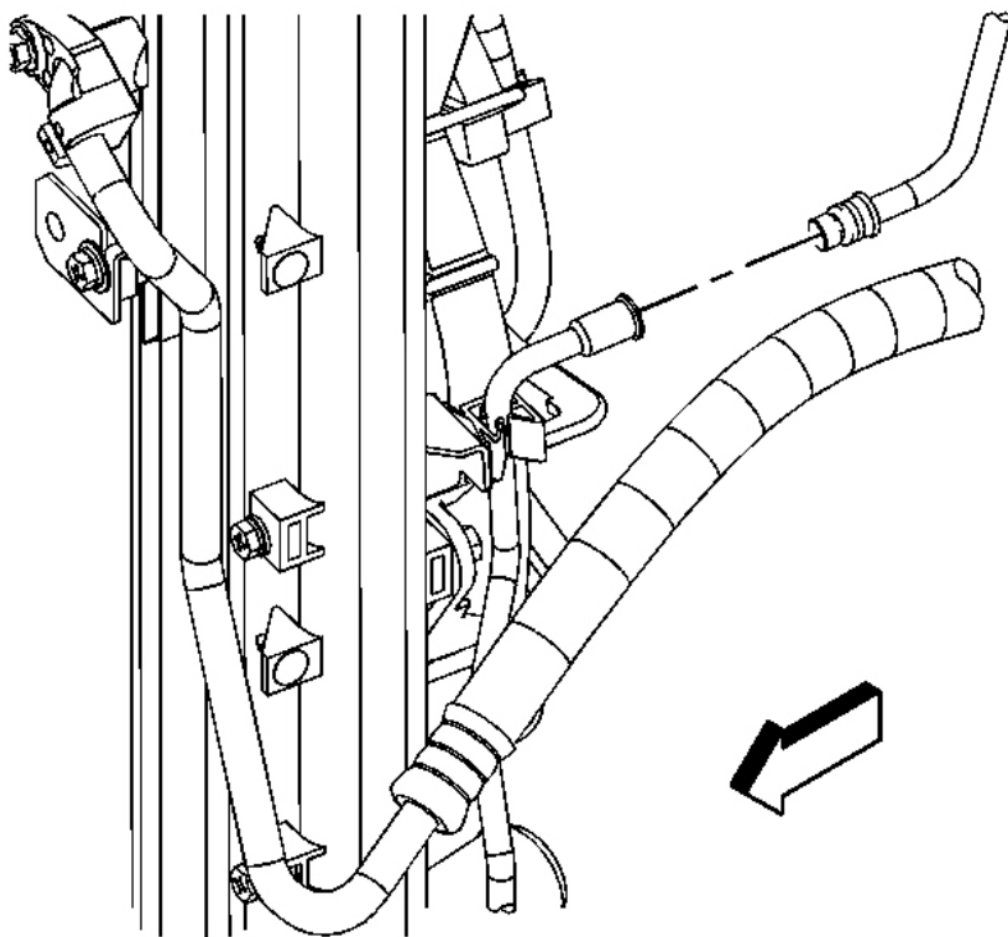


Fig. 111: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

6. Connect the liquid line to the condenser tube.
7. Install the liquid line to condenser tube quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
8. Gently tug on the liquid line to ensure that the clamp is engaged.
9. Install the air cleaner intake duct to the vehicle. Refer to **Air Cleaner Intake Duct Replacement** in Engine Controls-3.6 **Air Cleaner Outlet Duct Replacement** in Engine Controls - 4.6.
10. Evacuate and recharge the refrigerant. Refer to **Refrigerant Recovery and Recharging**.

11. Leak test the fittings of the repaired or reinstalled component using **J 39400-A** . See **Special Tools and Equipment**.

LIQUID LINE REPLACEMENT (W/C57)

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.
- **J 45689** A/C Quick Connect Joint Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant from the system. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the air cleaner assembly. Refer to **Air Cleaner Assembly Replacement** in Engine Controls-4.6L.
3. Remove the surge tank. Refer to **Surge Tank Replacement** in Engine Cooling.
4. Disconnect the electrical connector from the wiper motor.
5. Disconnect the engine harness electrical connector.
6. Remove the surge tank outlet hose bracket nuts from the cowl.
7. Reposition the surge tank outlet hose.
8. Remove the brake booster. Refer to **Vacuum Brake Booster Replacement** in Hydraulic Brakes.
9. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

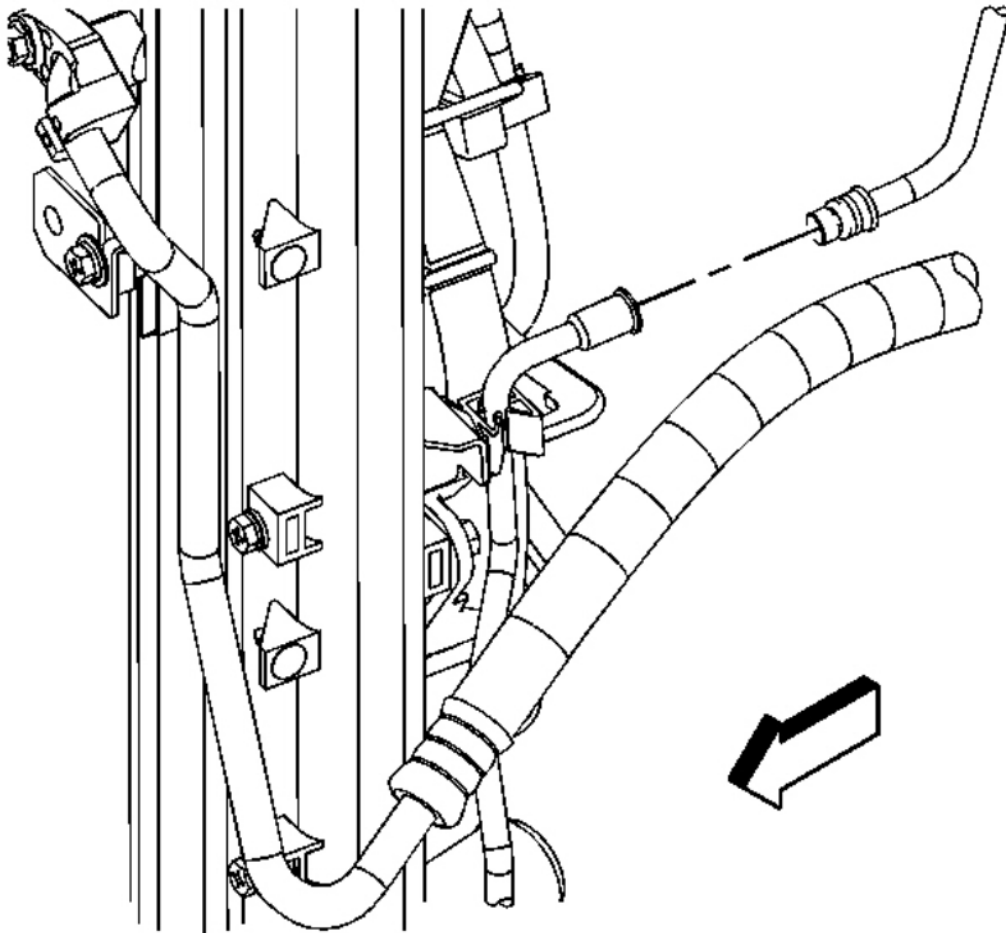


Fig. 112: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

10. Remove the liquid line quick connect fitting from the condenser tube. Refer to **A/C Line/Tube Connector Removal/Replacement.**
11. Disconnect the liquid line from the condenser tube.

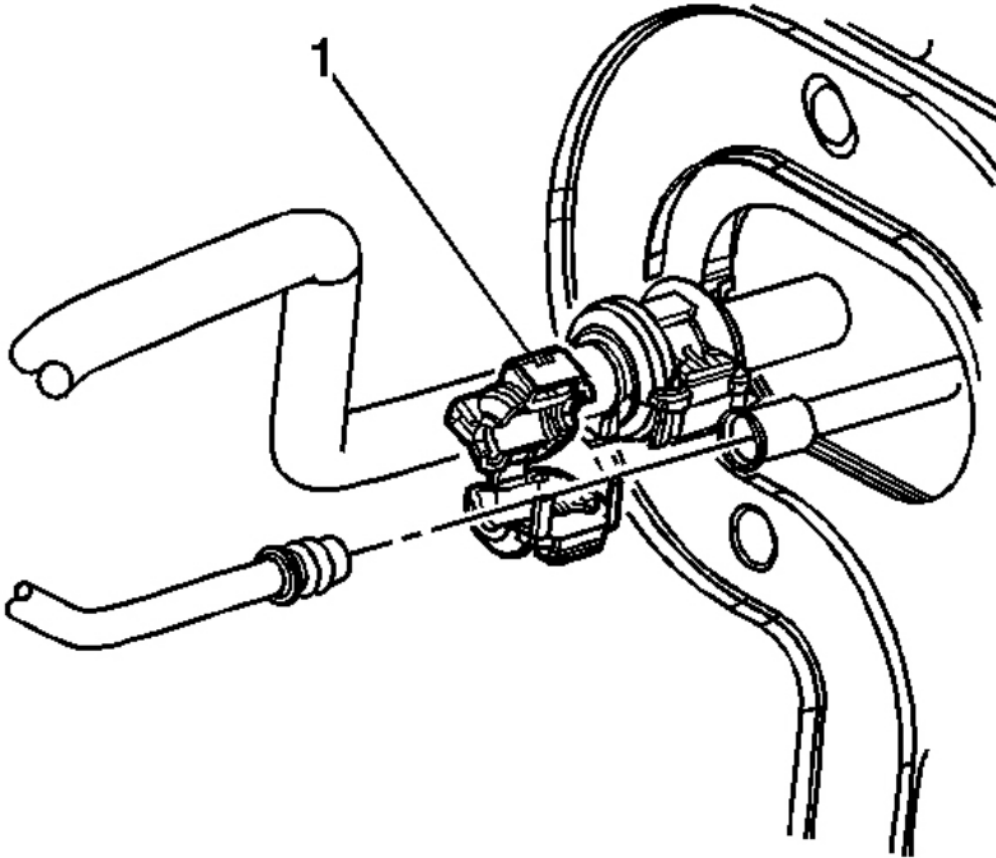


Fig. 113: Identifying A/C Fitting Retainer
Courtesy of GENERAL MOTORS CORP.

12. Remove the liquid line quick connect fitting (1) from the evaporator. Refer to **A/C Line/Tube Connector Removal/Replacement**.
13. Disconnect the liquid line from the evaporator.
14. Remove and discard the O-rings from the liquid line. Refer to **O-Ring Replacement**.

Installation Procedure

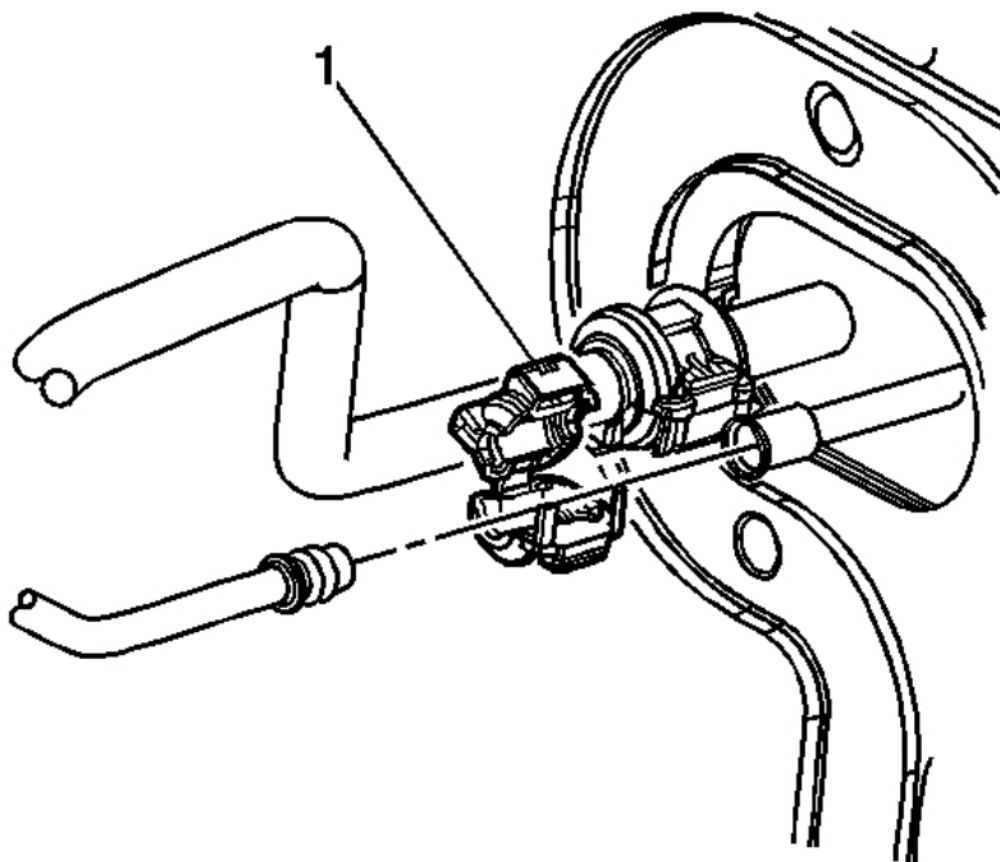


Fig. 114: Identifying A/C Fitting Retainer
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings to the liquid line. Refer to **O-Ring Replacement**.
2. Connect the liquid line to the evaporator.
3. Install a quick connect fitting (1) to the liquid line at the evaporator. Refer to **A/C Line/Tube Connector Removal/Replacement**.
4. Connect the liquid line to the condenser tube.
5. Install a quick connect fitting to the liquid line at the condenser. Refer to **A/C Line/Tube Connector Removal/Replacement**.
6. Install the brake booster. Refer to **Vacuum Brake Booster Replacement** in Hydraulic Brakes.

7. Reposition the surge tank outlet hose to the installed position.

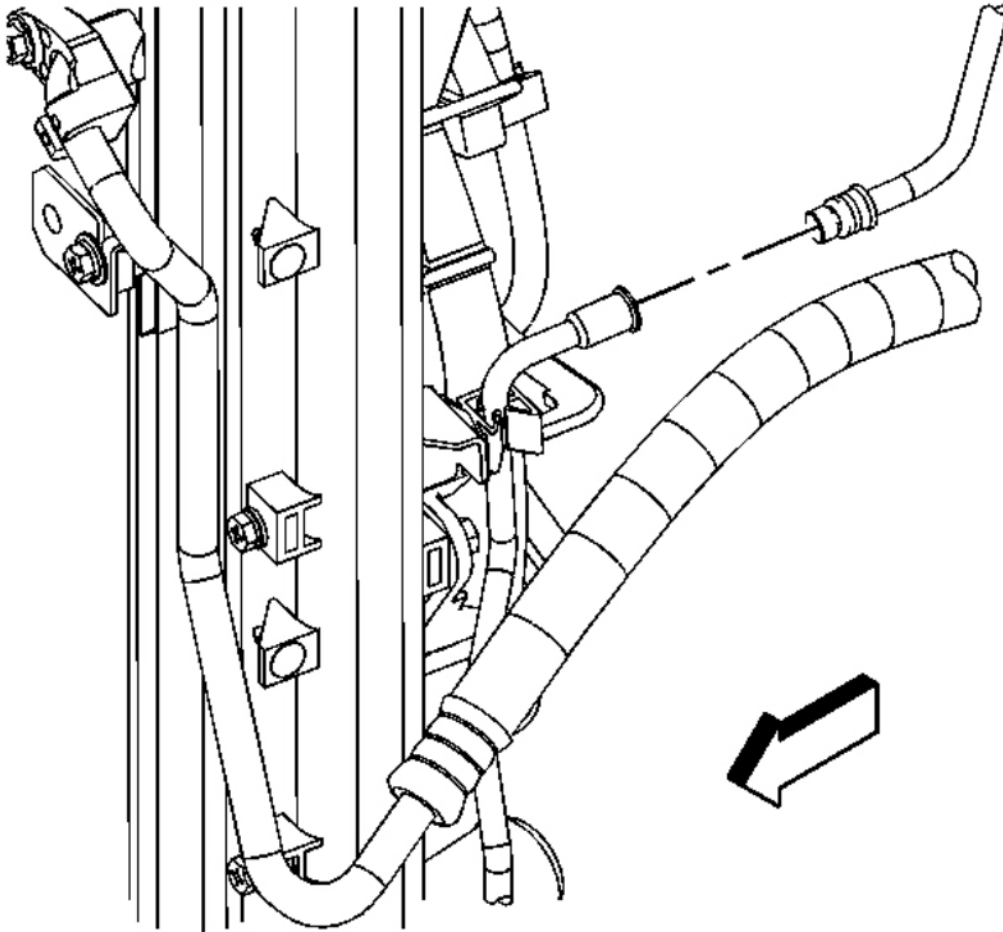


Fig. 115: View Of Condenser Tube & Liquid Line
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

8. Install the surge tank outlet hose bracket nuts to the cowl.

Tighten: Tighten the nuts to 9 N.m (80 lb in).

9. Connect the engine harness electrical connector.

10. Connect the electrical connector to the wiper motor.
11. Install the surge tank. Refer to **Surge Tank Replacement** in Engine Cooling.
12. Install the air cleaner assembly. Refer to **Air Cleaner Assembly Replacement** in Engine Controls-4.6L.
13. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
14. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

COMPRESSOR RELAY REPLACEMENT

Tools Required

J 43244 Relay Puller Pliers

Removal Procedure

1. Remove the electrical center cover.
2. Locate the compressor relay. Refer to **Electrical Center Identification Views** in Wiring Systems to locate the electrical center where the compressor relay exists.

IMPORTANT:

- Always note the orientation of the relay.
- Make sure the electrical center is secure, as not to put added stress on the wires or terminals.

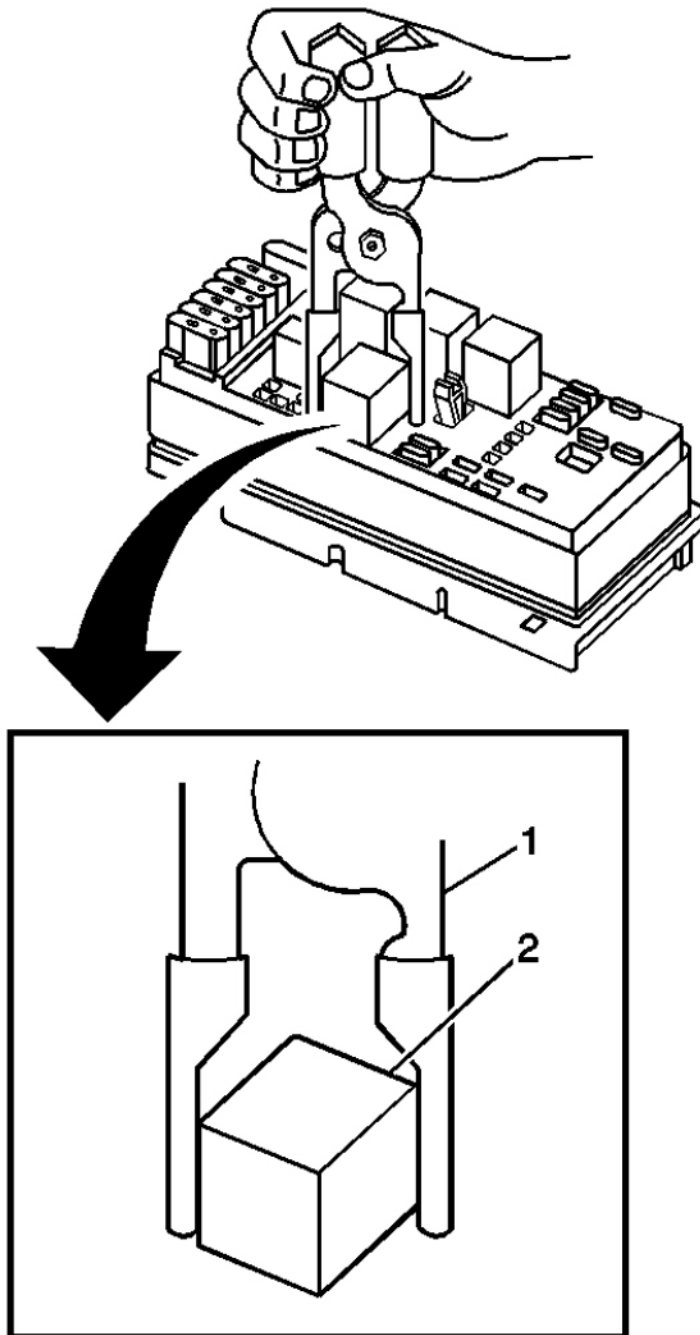


Fig. 116: Removing/Installing Relay Using J 43244
Courtesy of GENERAL MOTORS CORP.

3. Using **J 43244** (1) position the tool on opposing corners of the compressor relay (2).

2004 Cadillac SRX

2004 HVAC Heating, Ventilation & Air Conditioning - SRX

NOTE: Use J43244 to pull the relay straight out from the electrical center terminals. The use of pliers or a flat bladed tool could damage the electrical center.

4. Remove the compressor relay (2) from the electrical center.

Installation Procedure

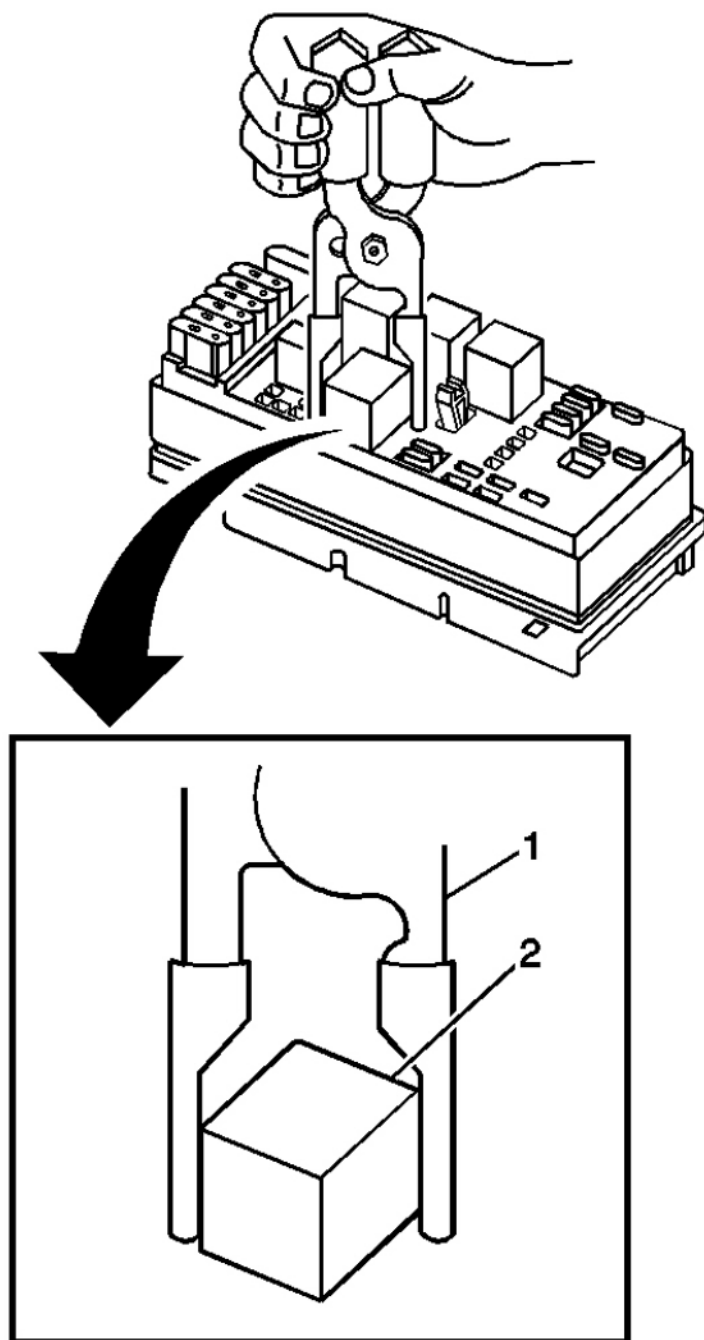


Fig. 117: Removing/Installing Relay Using J 43244
Courtesy of GENERAL MOTORS CORP.

1. Install the compressor relay (2) in the same position as removed.

2. Install the electrical center cover.

DESICCANT BAG REPLACEMENT

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.

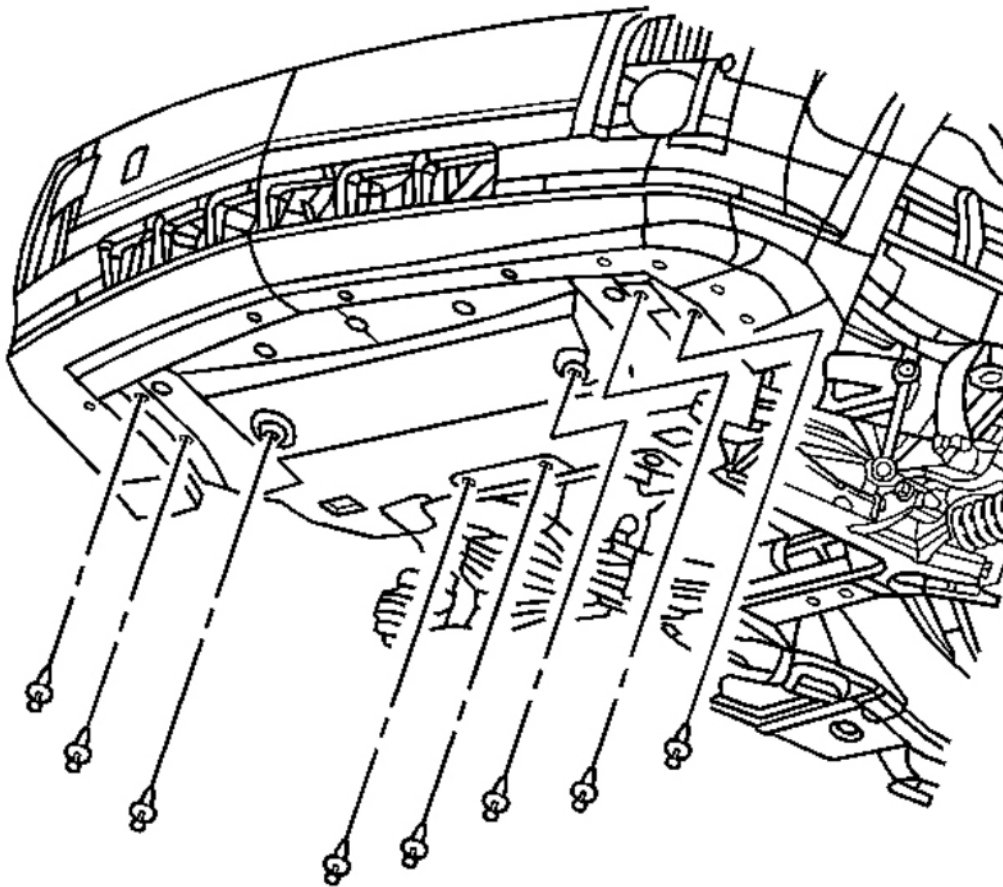


Fig. 118: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the front air deflector retainers.
4. Remove the front air deflector.

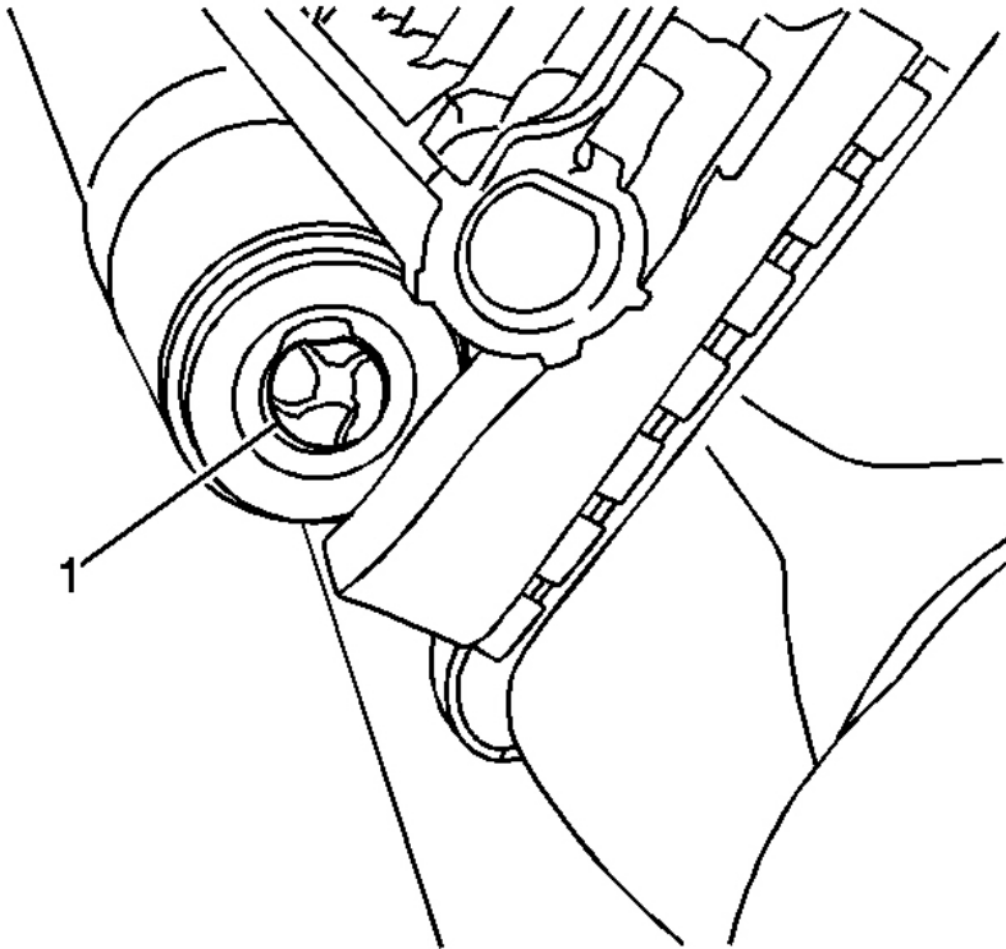


Fig. 119: Locating Desiccant Bag Plug
Courtesy of GENERAL MOTORS CORP.

5. Remove the desiccant bag plug (1).

IMPORTANT: Record the amount of any lost PAG oil from the desiccant

bag to maintain the correct total system amount.

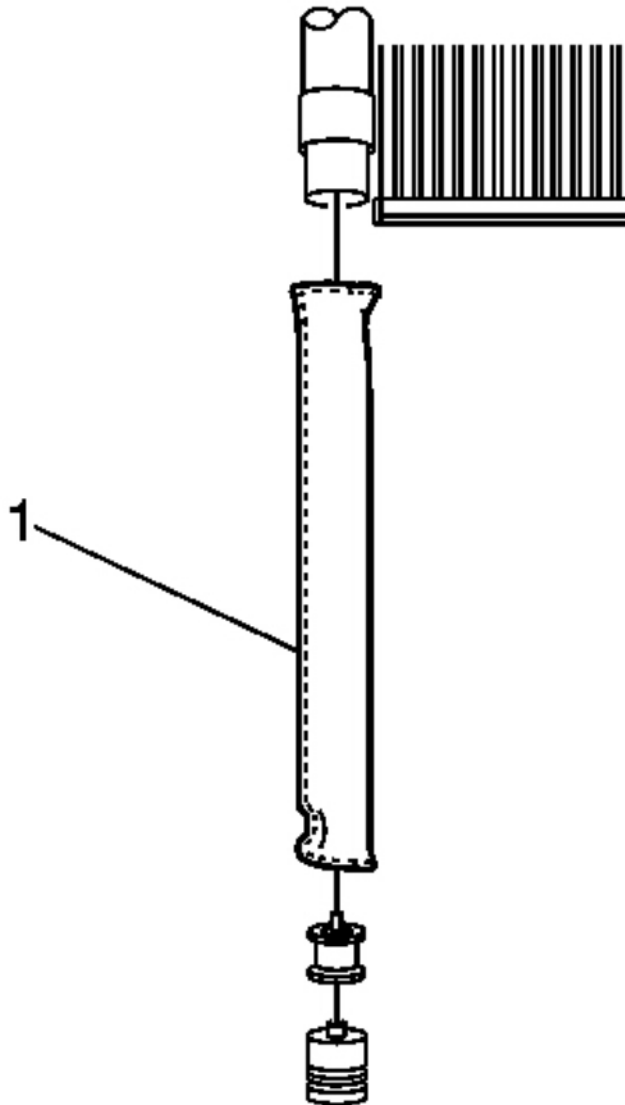


Fig. 120: View Of Desiccant Bag
Courtesy of GENERAL MOTORS CORP.

6. Remove the desiccant bag (1).

Installation Procedure

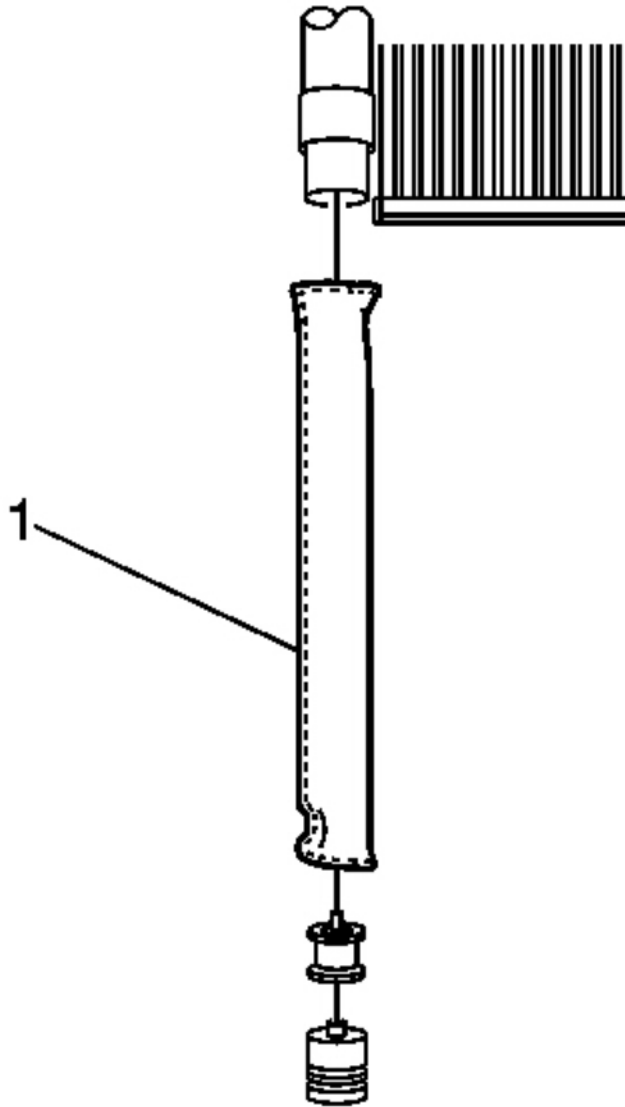


Fig. 121: View Of Desiccant Bag
Courtesy of GENERAL MOTORS CORP.

1. Install the desiccant bag (1).
2. Lubricate the O-ring on the desiccant bag plug. Refer to **O-Ring Replacement**.

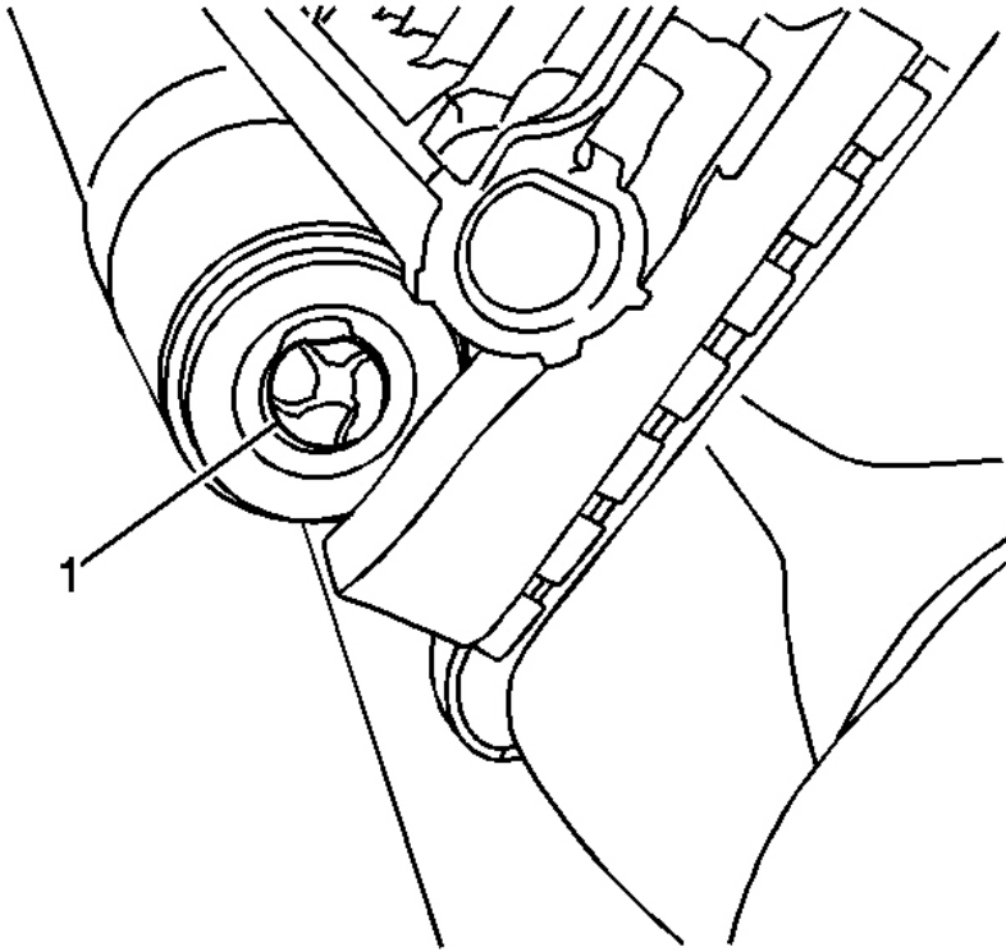


Fig. 122: Locating Desiccant Bag Plug
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the desiccant bag plug (1).

Tighten: Tighten the plug to 2.9 N.m (26 lb in).

4. Install the front air deflector.
5. Install the front air deflector retainers.

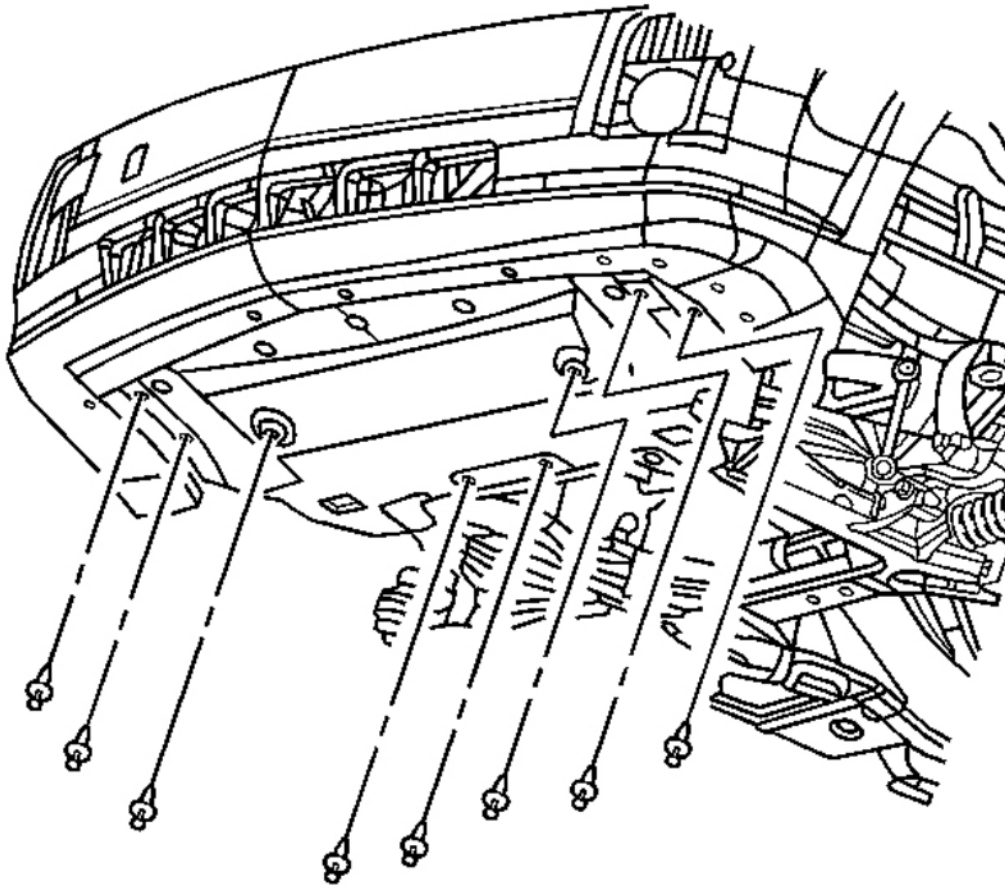


Fig. 123: Locating Front Air Deflector Retainers
 Courtesy of GENERAL MOTORS CORP.

6. Lower the vehicle.
7. Add the proper amount of oil. Refer to **Refrigerant System Capacities**.
8. Evacuate and recharge the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
9. Leak test the fittings of the component with J 39400-A . See **Special Tools and Equipment**.

THERMAL EXPANSION VALVE REPLACEMENT

Tools Required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant from the A/C system. Refer to **Refrigerant Recovery and Recharging**.
2. Remove the I/P retainer. Refer to **Instrument Panel (I/P) Retainer Replacement** in Instrument Panel, Gages, and Console.

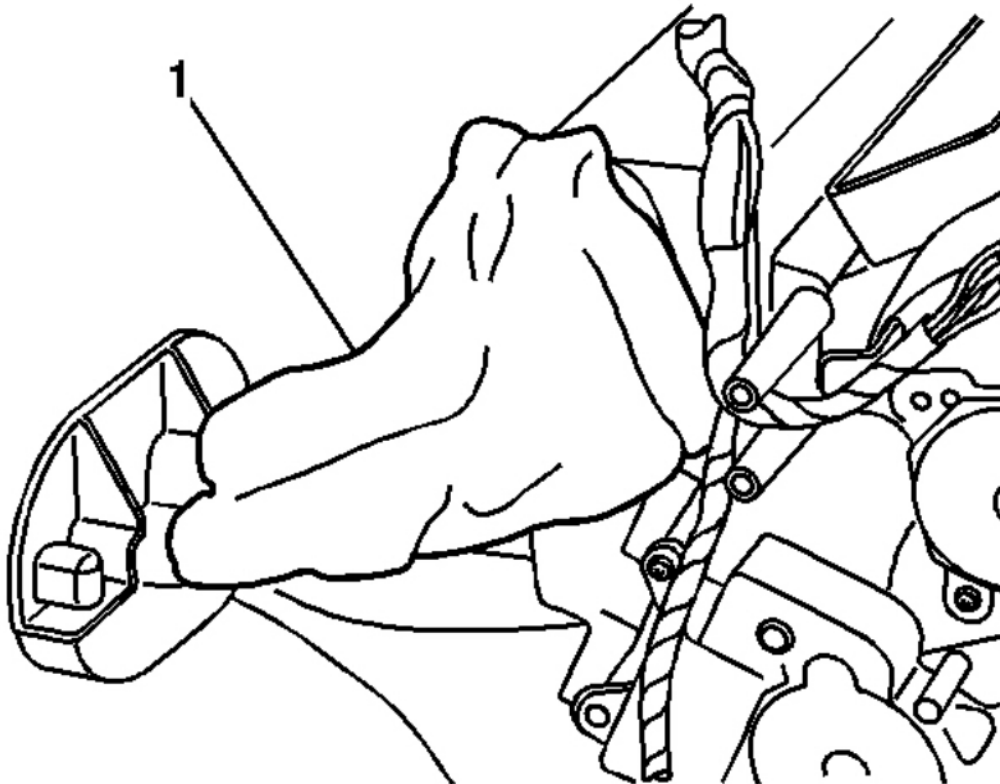


Fig. 124: View Of TXV Insulation
Courtesy of GENERAL MOTORS CORP.

3. Remove the insulation (1) from the thermal expansion valve (TXV).

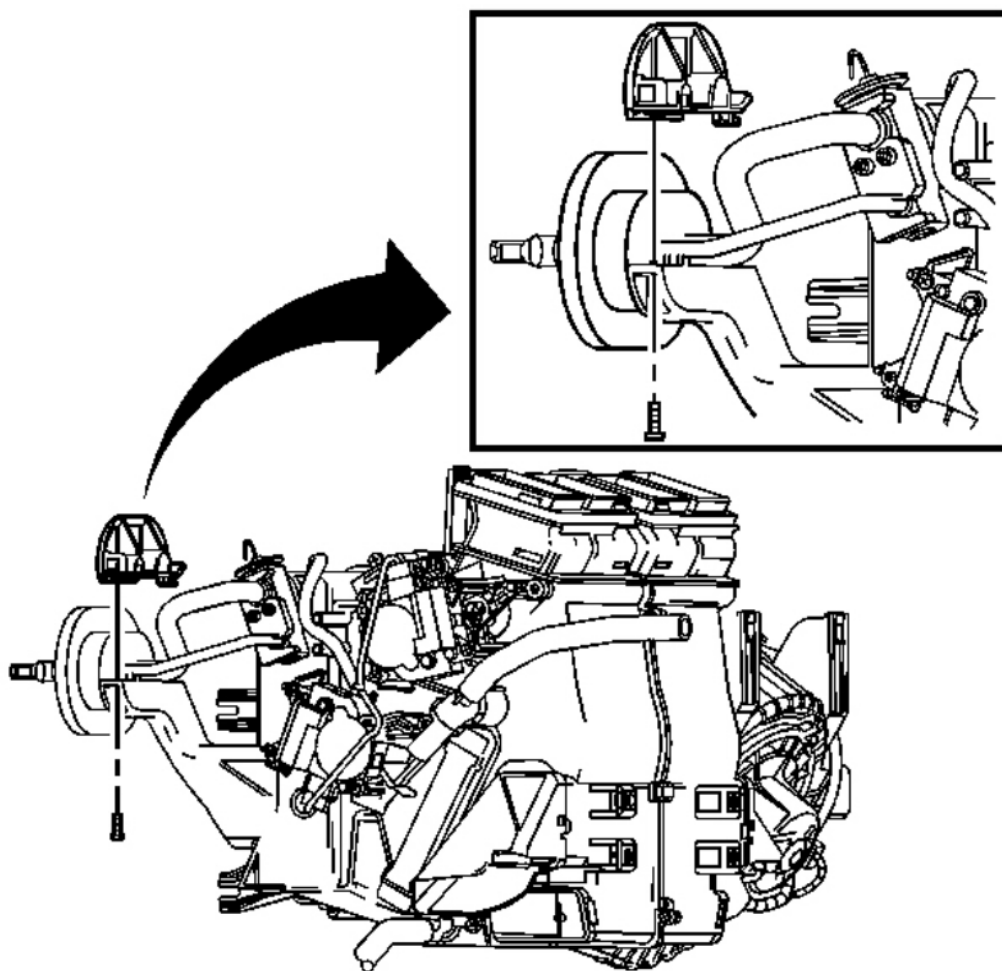


Fig. 125: View Of HVAC Line Clamp
Courtesy of GENERAL MOTORS CORP.

4. Remove the HVAC line clamp screw.
5. Remove the HVAC line clamp.

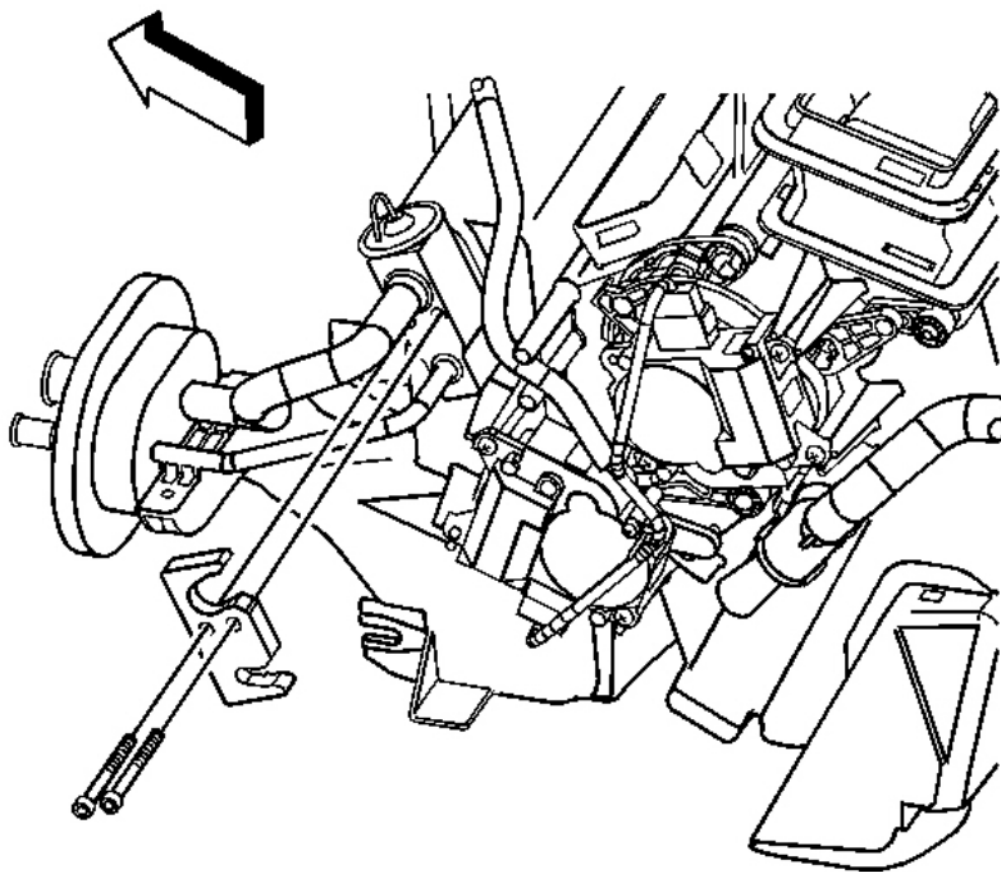


Fig. 126: Identifying TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

6. Remove the TXV to evaporator bolts.
7. Remove the TXV line bracket.

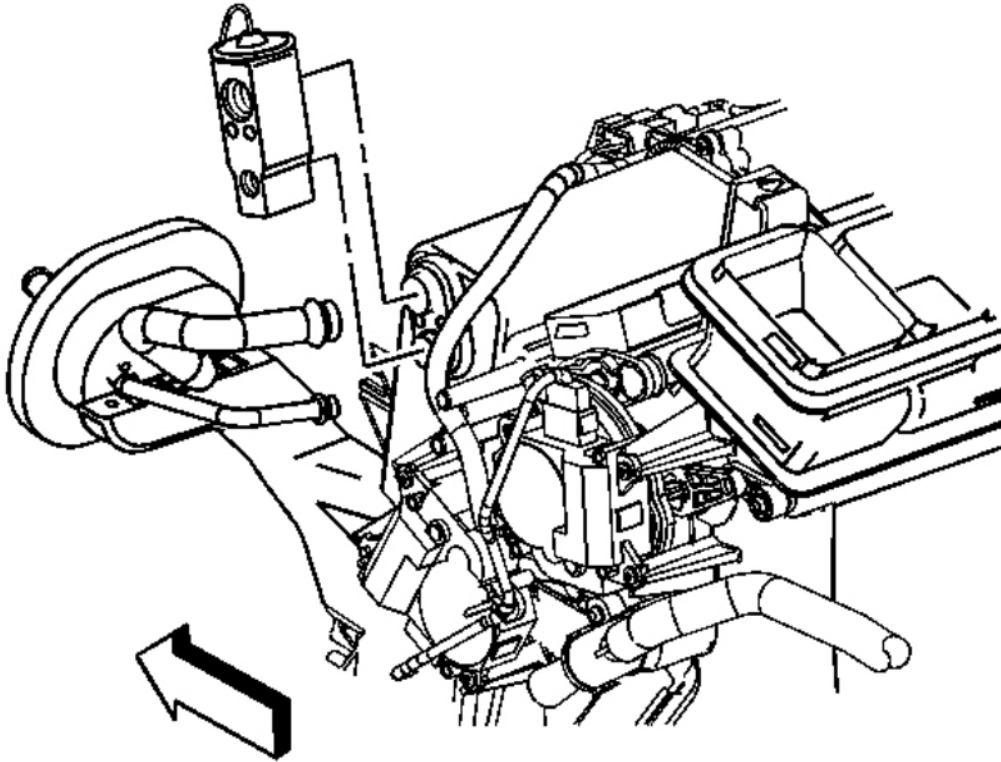


Fig. 127: Identifying TXV
Courtesy of GENERAL MOTORS CORP.

8. Remove the TXV from the evaporator core.
9. Disconnect the TXV from the A/C lines by pulling straight out.
10. Remove the TXV.
11. Remove and discard all O-rings

Installation Procedure

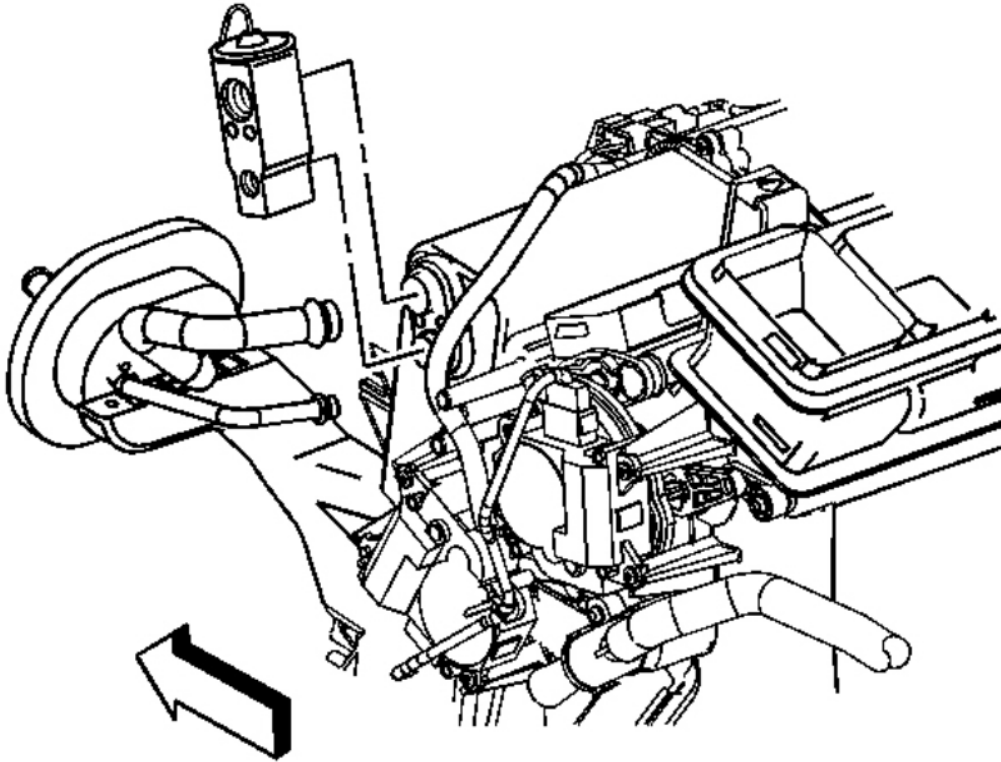


Fig. 128: Identifying TXV

Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings. Refer to **O-Ring Replacement**.
2. Install the A/C lines into the TXV.
3. Install the TXV onto the evaporator core.

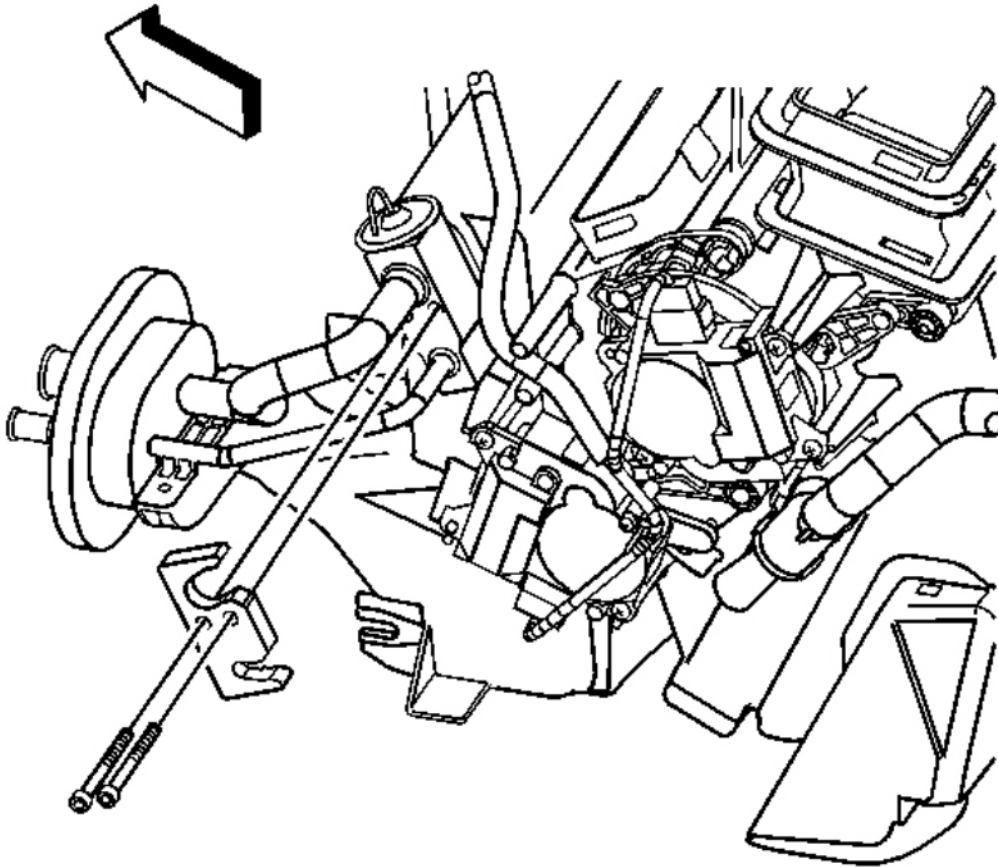


Fig. 129: Identifying TXV Line Bracket
Courtesy of GENERAL MOTORS CORP.

4. Install the TXV line bracket.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install the TXV to evaporator bolts.

Tighten: Tighten the bolts to 3.5 N.m (31 lb in).

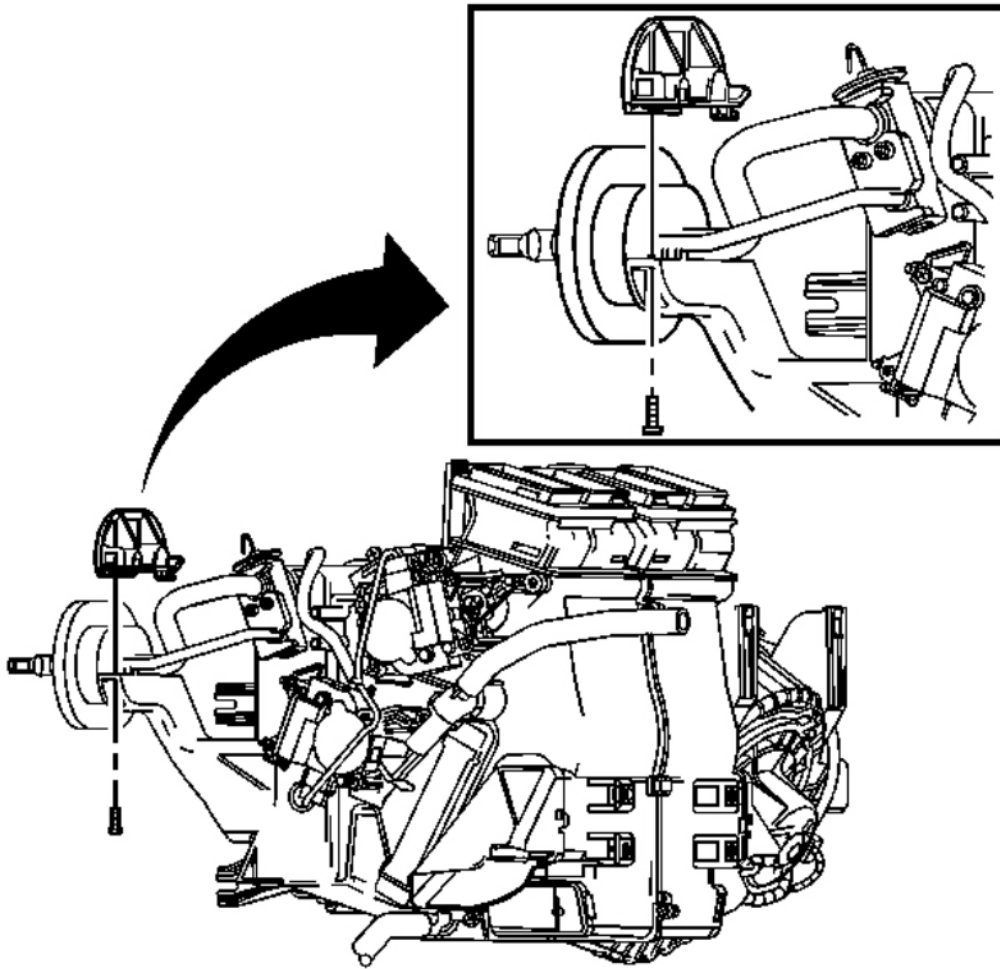


Fig. 130: View Of HVAC Line Clamp
Courtesy of GENERAL MOTORS CORP.

6. Install the HVAC line clamp.
7. Install the HVAC line clamp screw.

Tighten: Tighten the screw to 1 N.m (9 lb in).

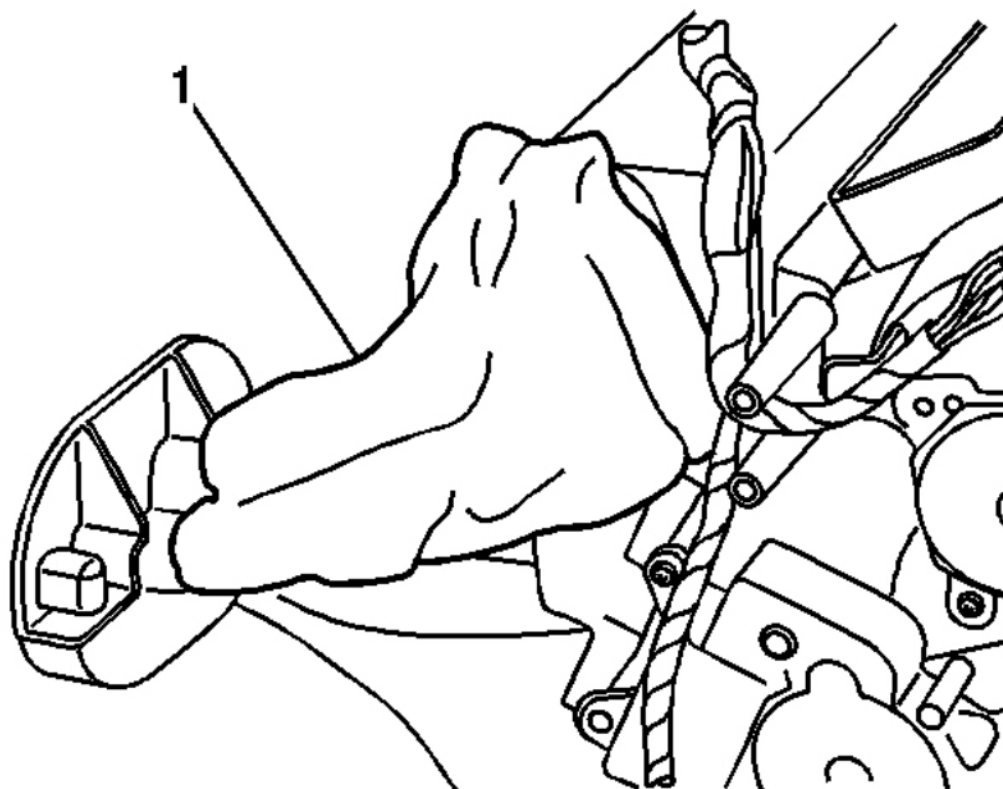


Fig. 131: View Of TXV Insulation
Courtesy of GENERAL MOTORS CORP.

8. Install the insulation (1) onto the lines and TXV.
9. Install the I/P retainer. Refer to **Instrument Panel (I/P) Retainer Replacement** in Instrument Panel, Gages, and Console.
10. Evacuate the A/C system. Refer to **Refrigerant Recovery and Recharging**.
11. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

AIR CONDITIONING (A/C) REFRIGERANT PRESSURE SENSOR REPLACEMENT

Tools required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment**.

Removal Procedure

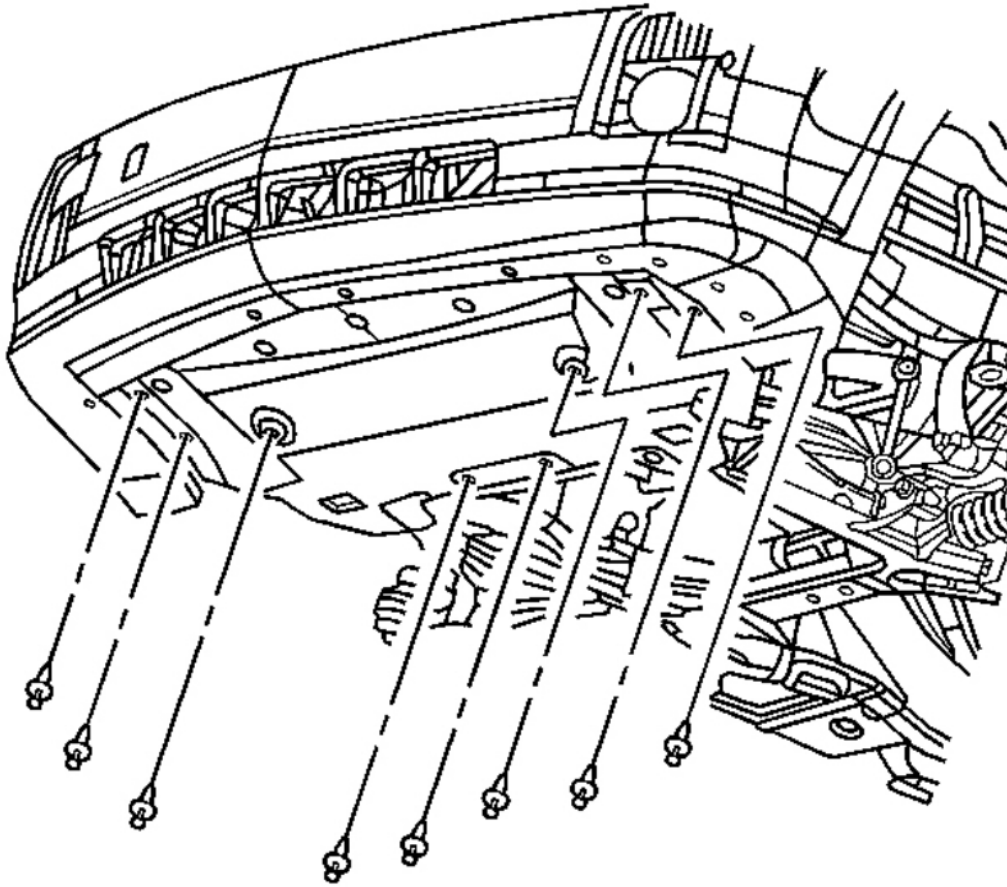


Fig. 132: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: There is no Schrader valve under the pressure sensor.

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
3. Remove the front air deflector retainers.
4. Remove the front air deflector.

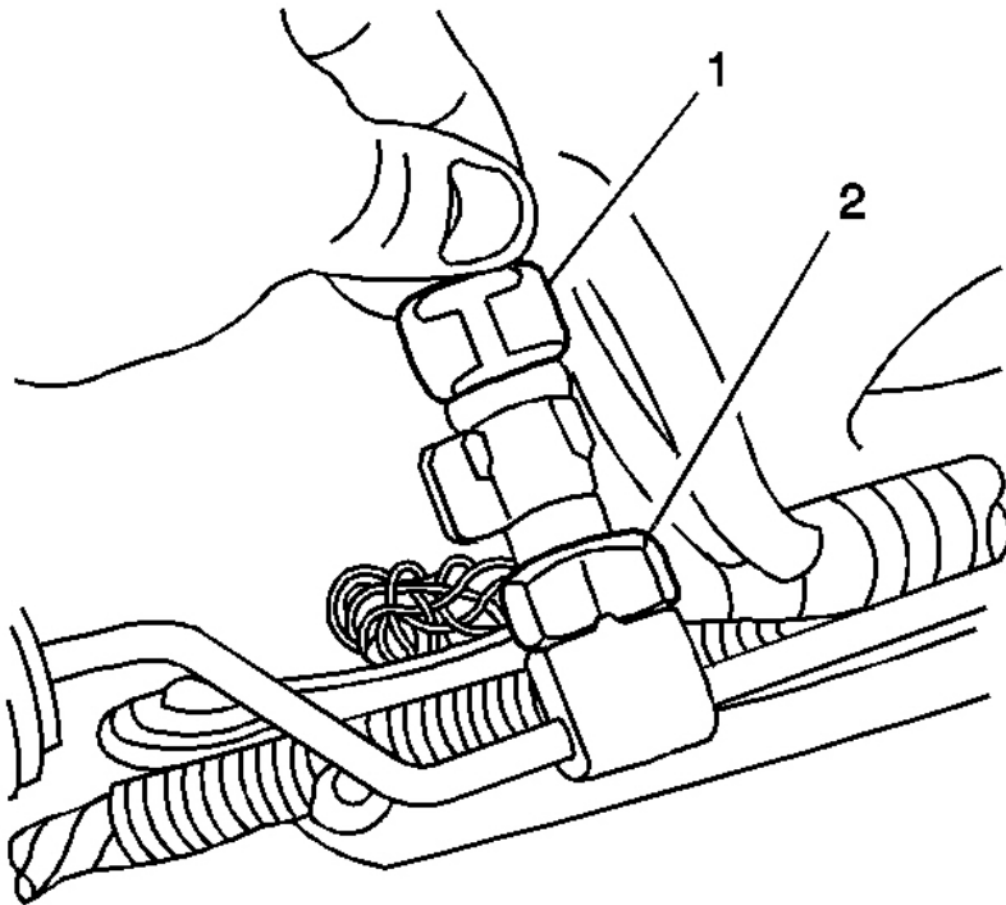


Fig. 133: View Of A/C Refrigerant Pressure Sensor & Electrical Connector
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the electrical connector (1) from the A/C refrigerant pressure sensor (2).
6. Remove the A/C refrigerant pressure sensor.

Installation Procedure

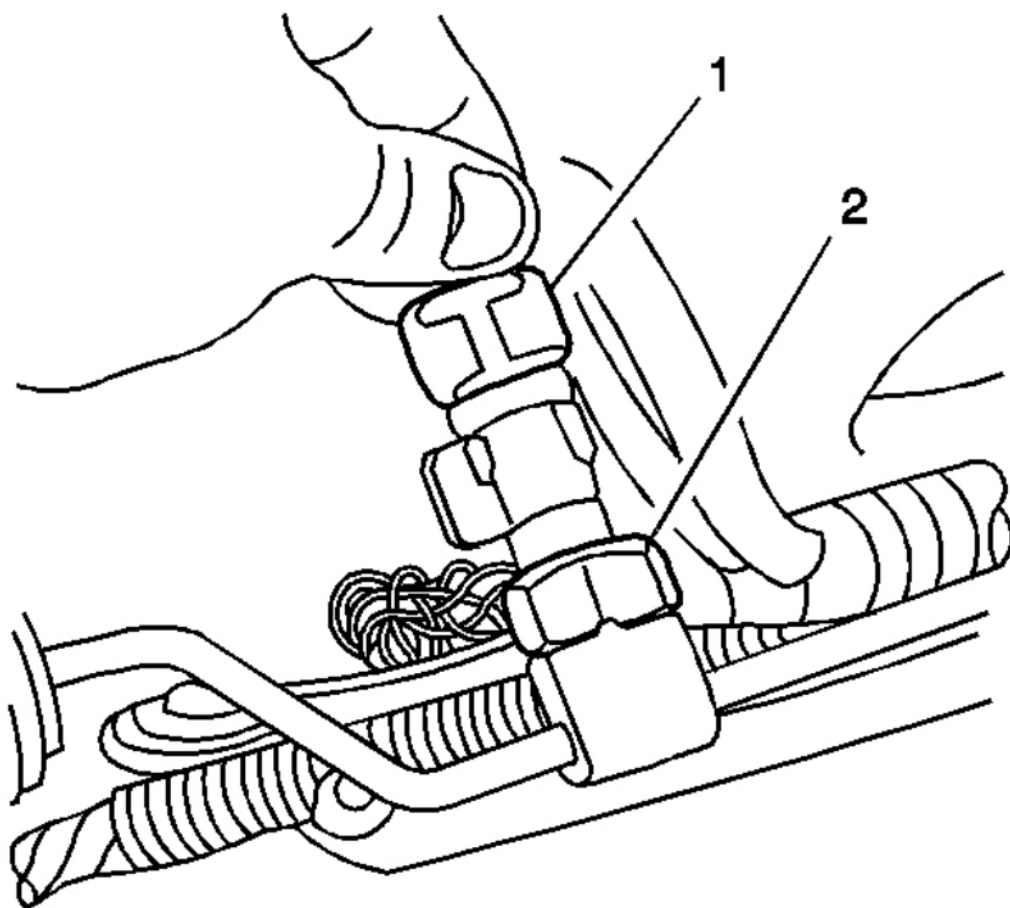


Fig. 134: View Of A/C Refrigerant Pressure Sensor & Electrical Connector
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install a new O-ring to the refrigerant pressure sensor. Refer to O-Ring Replacement.
2. Install the A/C refrigerant pressure sensor (2).

Tighten: Tighten the sensor to 9.8 N.m (87 lb in).

3. Connect the electrical connector (1) to the A/C refrigerant pressure sensor.

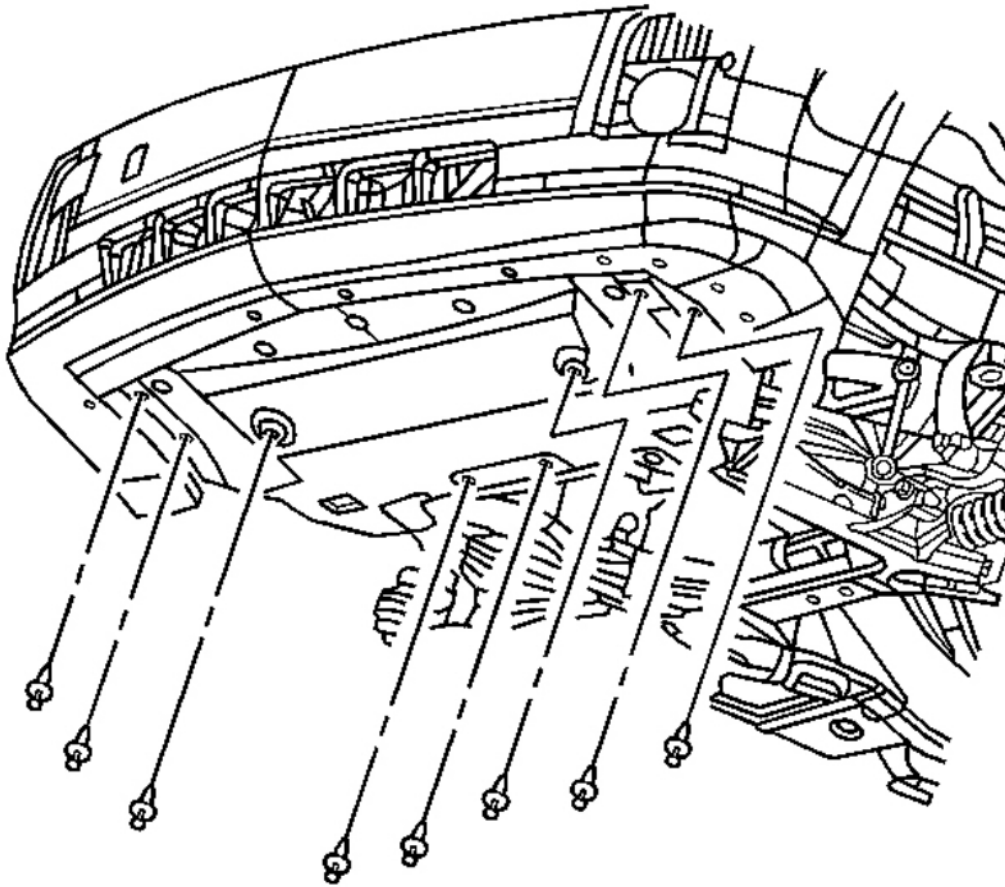


Fig. 135: Locating Front Air Deflector Retainers
 Courtesy of GENERAL MOTORS CORP.

4. Install the front air deflector.
5. Install the front air deflector retainers.
6. Lower the vehicle.
7. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
8. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

CONDENSER REPLACEMENT (HEAVY DUTY COOLING)

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

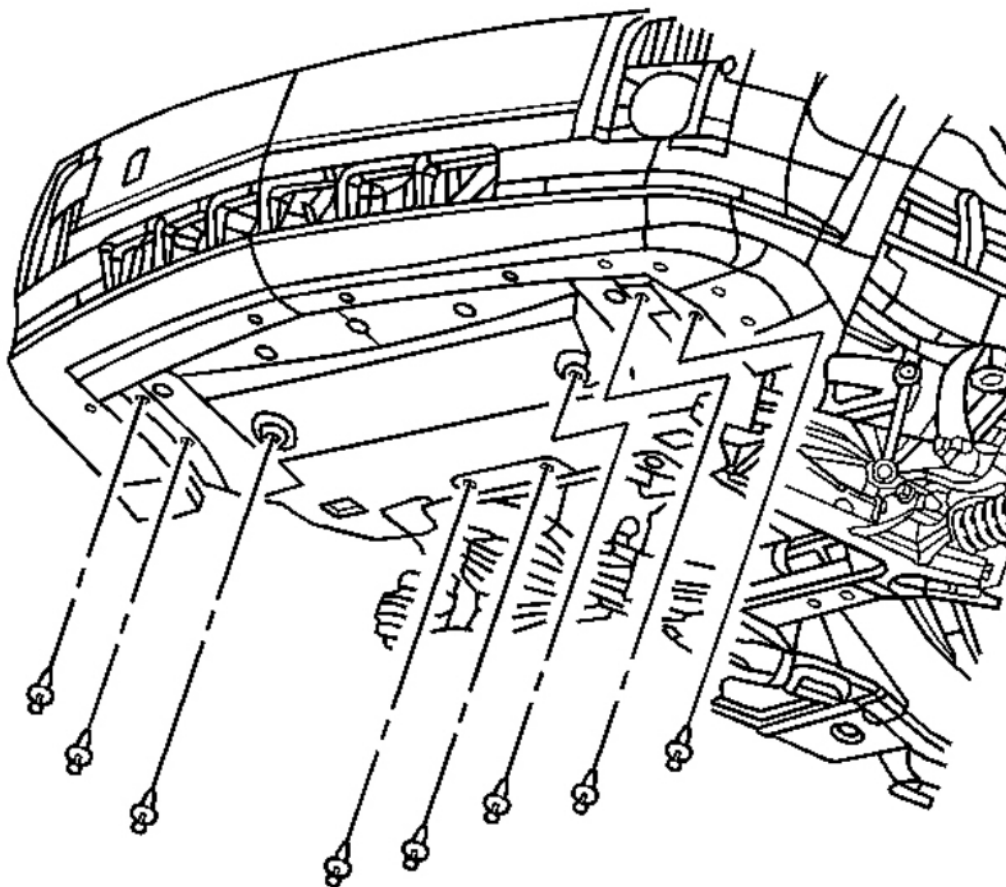


Fig. 136: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

1. Recover the refrigerant. Refer to Refrigerant Recovery and Recharging.
2. Remove the power steering cooler mounting bolts. Refer to Power Steering Cooler Replacement (LY7 W/O V92) or Power Steering Cooler Replacement (LH2 or LY7 with V92) in Power Steering System.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

4. Remove the front air deflector retainers.
5. Remove the front air deflector.
6. Remove the lower air baffle push pin retainers.

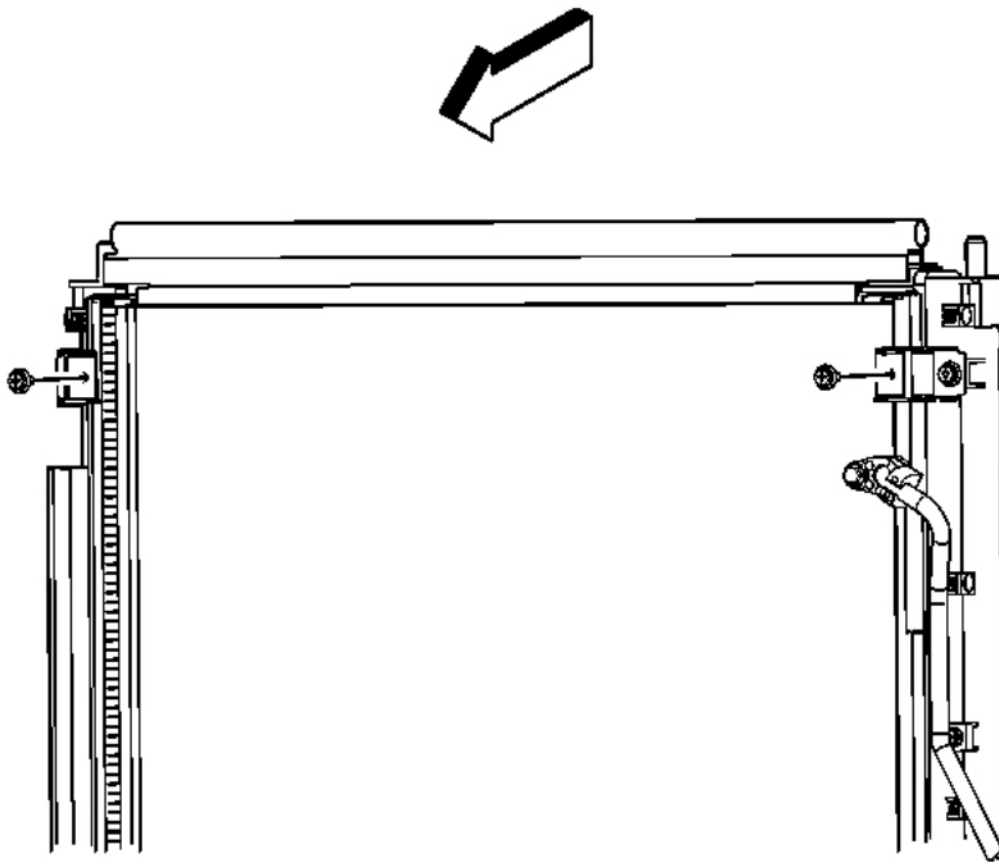


Fig. 137: View Of Condenser Upper Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the condenser upper bracket bolts.

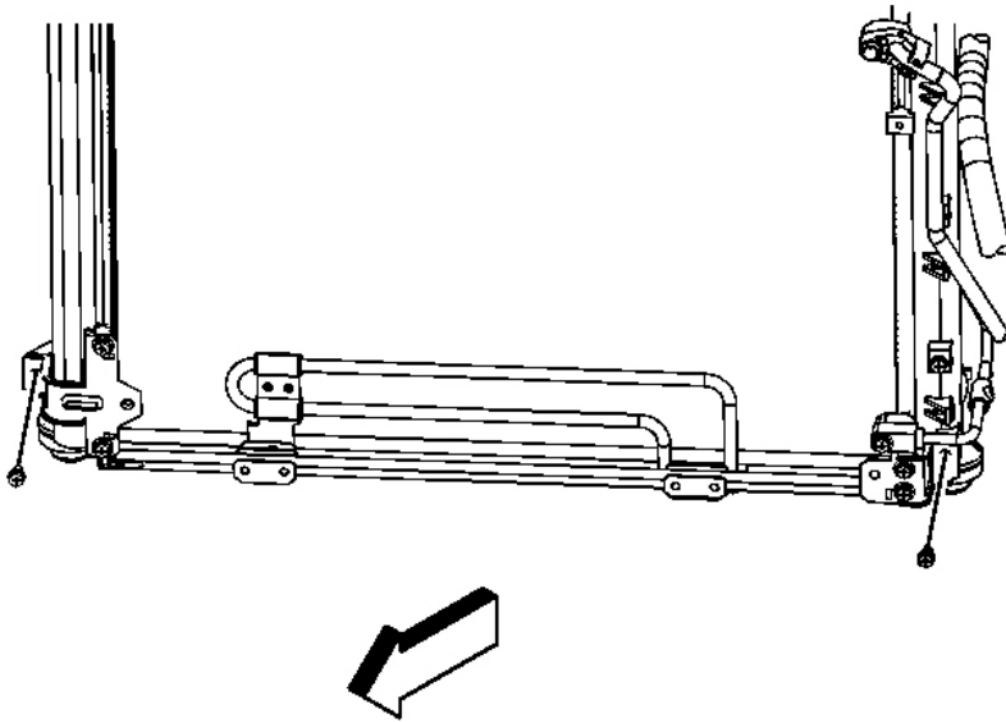


Fig. 138: View Of Condenser Lower Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the condenser lower mounting bolts.

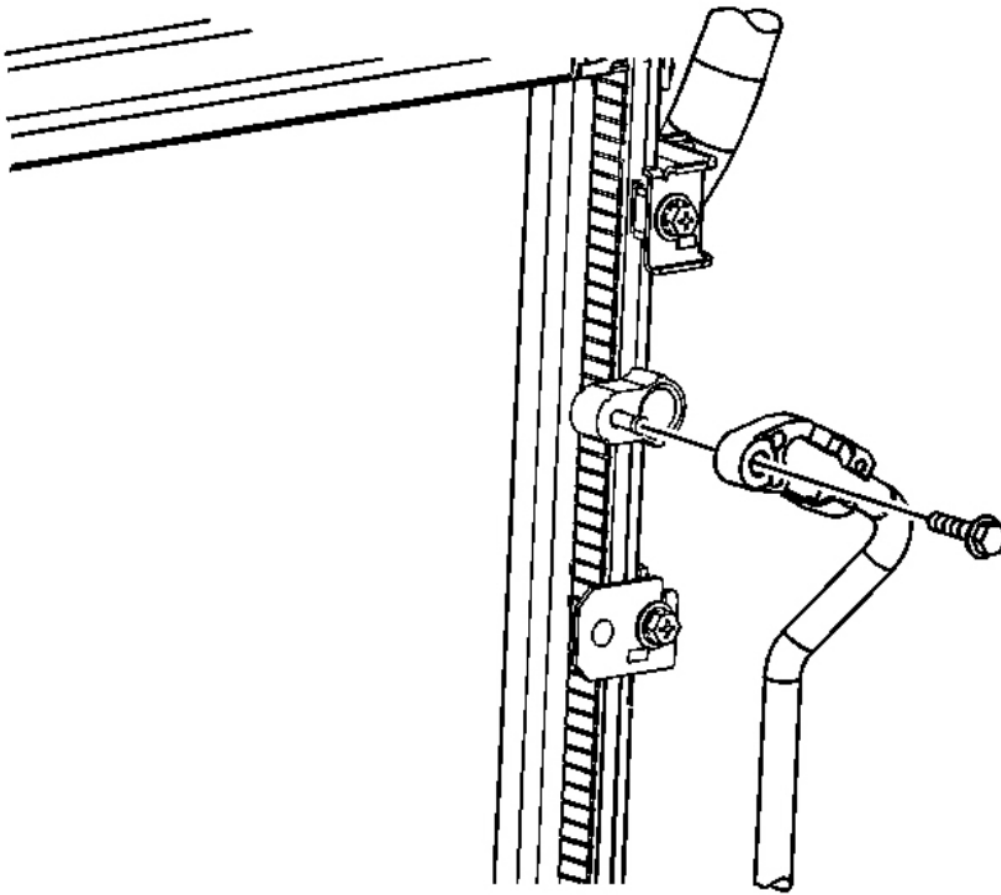


Fig. 139: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

9. Remove the discharge line bolt.
10. Disconnect the discharge line from the condenser.
11. Remove and discard the O-ring.

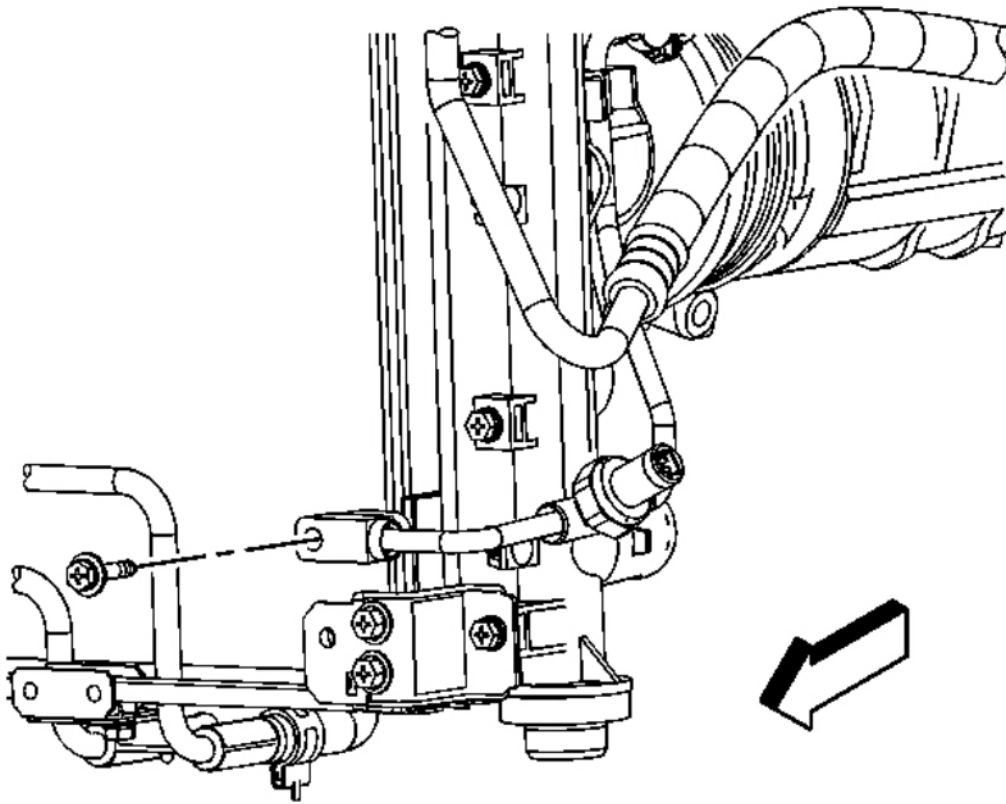


Fig. 140: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

12. Remove the condenser tube bolt.
13. Disconnect the condenser tube from the condenser.
14. Remove and discard the O-ring.

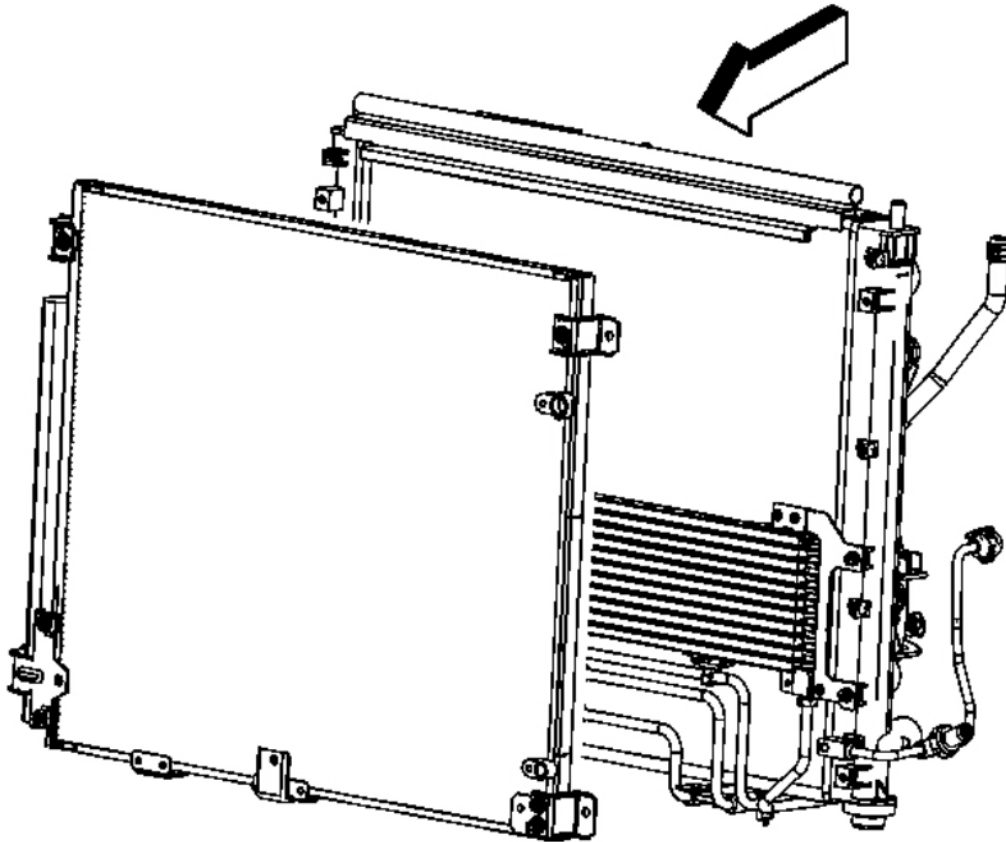


Fig. 141: View Of Condenser
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Reposition the power steering cooler aside to aid in removing the condenser.

15. Reposition the power steering cooler.
16. Remove the condenser.

Installation Procedure

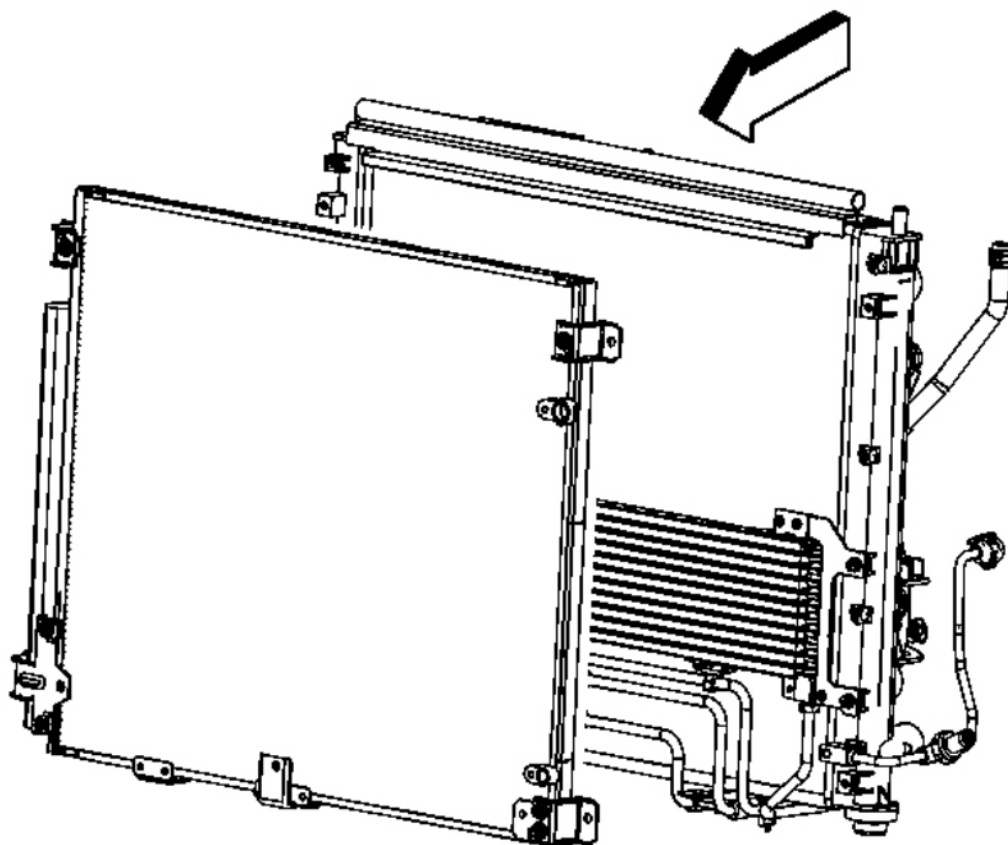


Fig. 142: View Of Condenser
Courtesy of GENERAL MOTORS CORP.

1. If replacing the condenser, add the specified amount of PAG oil directly to the condenser. Refer to **Refrigerant System Capacities**.
2. Install the condenser.
3. Reposition the power steering cooler into position.
4. Install a new O-ring to the condenser tube. Refer to **O-Ring Replacement**.
5. Connect the condenser tube to the condenser.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

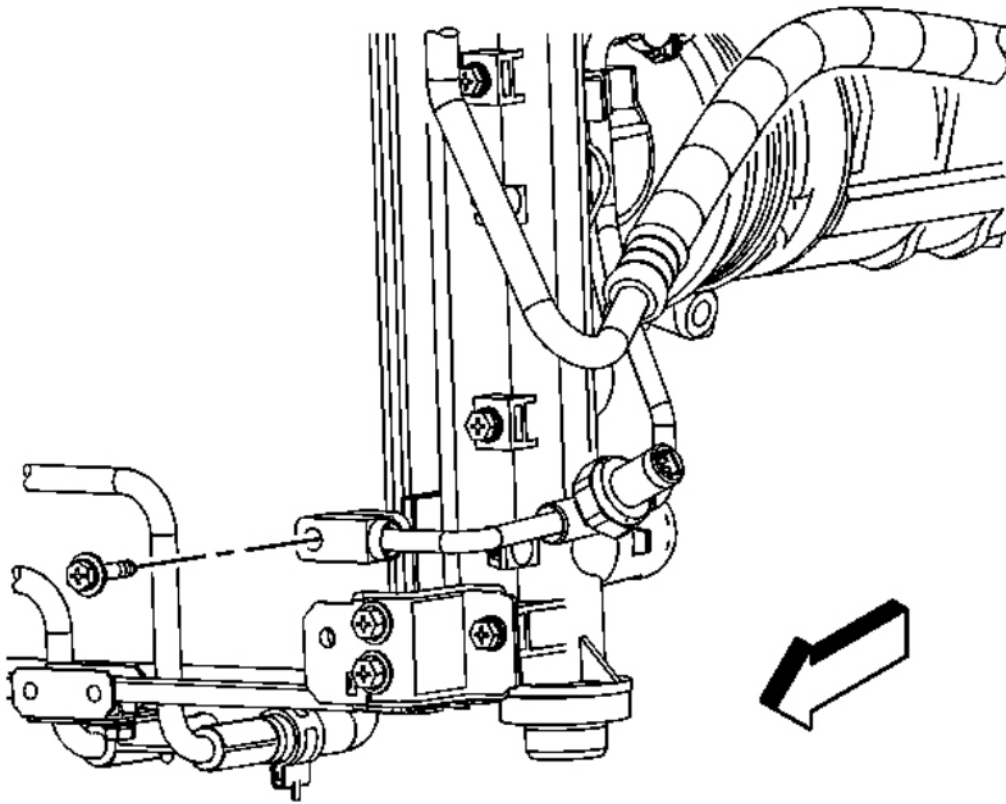


Fig. 143: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

6. Install the condenser tube bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

7. Install a new O-ring to the discharge line. Refer to **O-Ring Replacement**.
8. Connect the discharge line to the condenser.

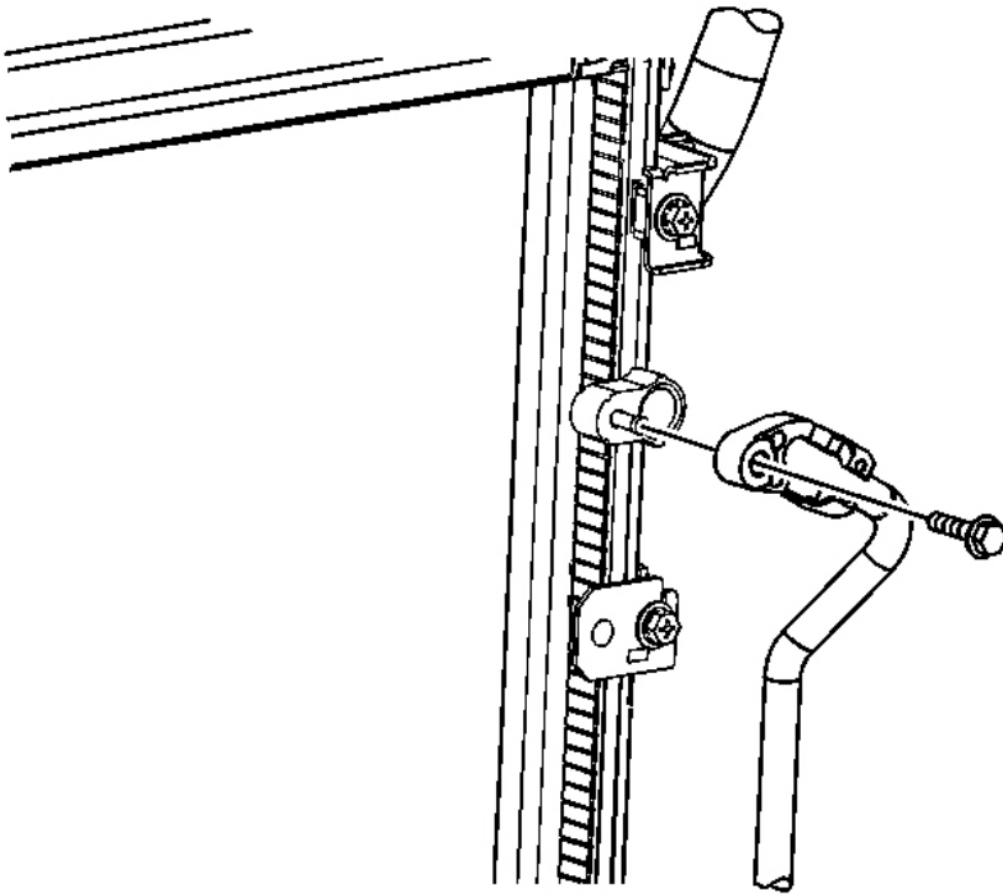


Fig. 144: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

9. Install the discharge line bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

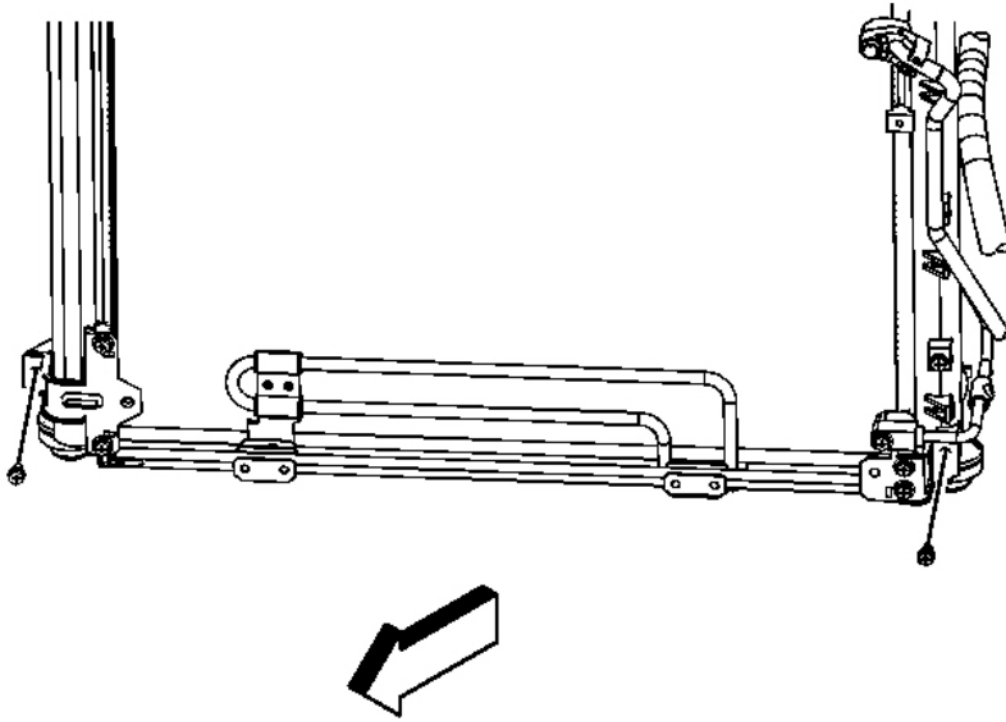


Fig. 145: View Of Condenser Lower Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

10. Install the condenser lower mounting bolts.

Tighten: Tighten the bolts to 5.4 N.m (48 lb in).

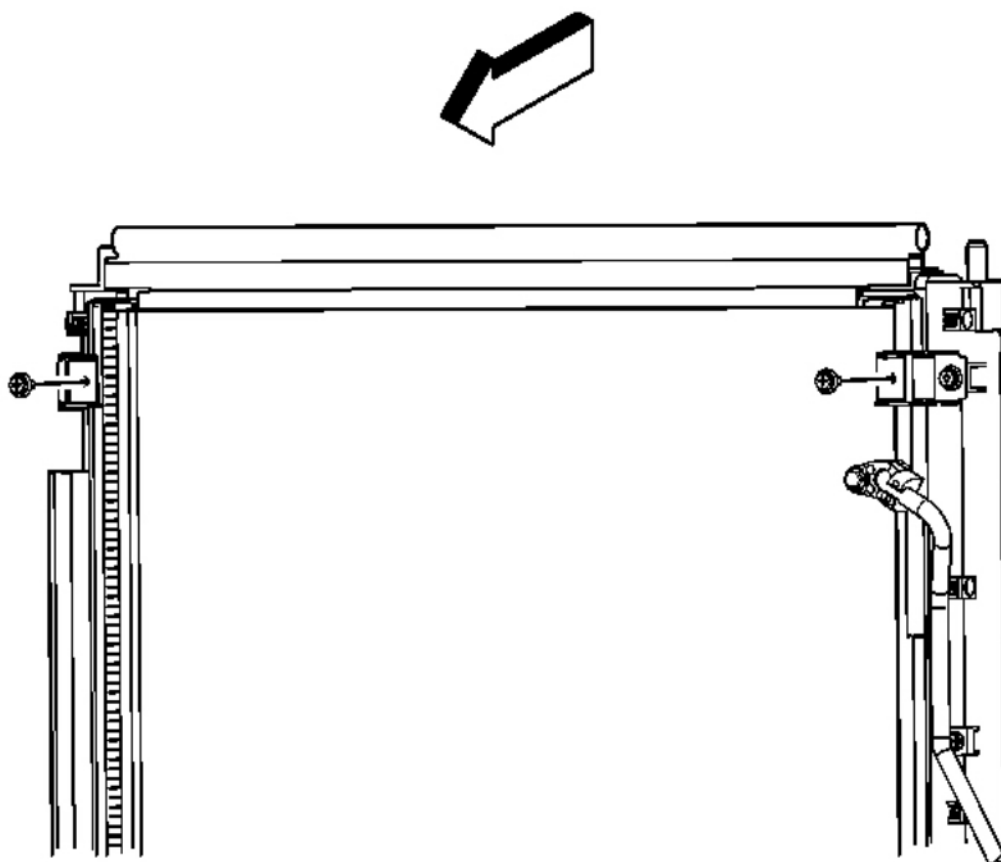


Fig. 146: View Of Condenser Upper Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

11. Remove the condenser upper bracket bolts.

Tighten: Tighten the bolts to 5.4 N.m (48 lb in).

12. Install the lower air baffle push pin retainers.
13. Install the front air deflector.
14. Install the front air deflector retainers.
15. Lower the vehicle.
16. Install the power steering cooler mounting bolts. Refer to **Power Steering Cooler Replacement (LY7 W/O V92)** or **Power Steering Cooler Replacement (LH2 or LY7**

with V92) in Power Steering System.

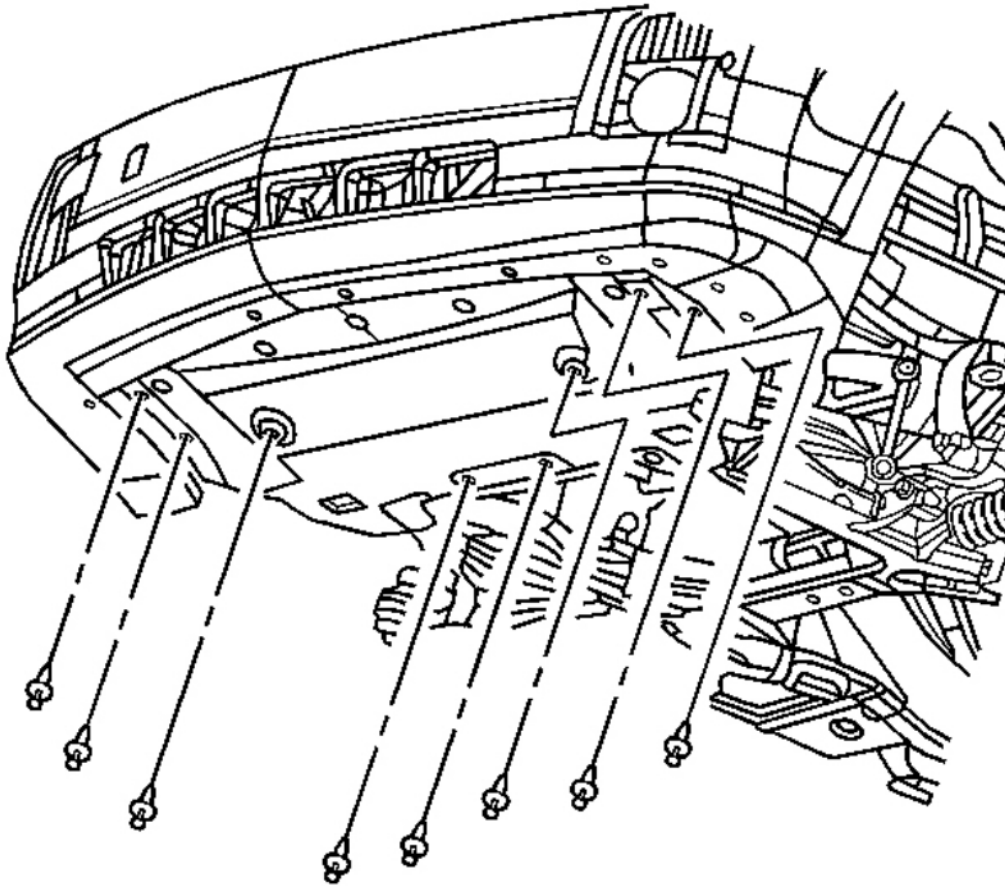


Fig. 147: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

17. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
18. Leak test the fittings of the component using the **J 39400-A** . See **Special Tools and Equipment**.

CONDENSER REPLACEMENT (STANDARD COOLING)

Tools Required

J 39400-A Halogen Leak Detector. See **Special Tools and Equipment**.

Removal Procedure

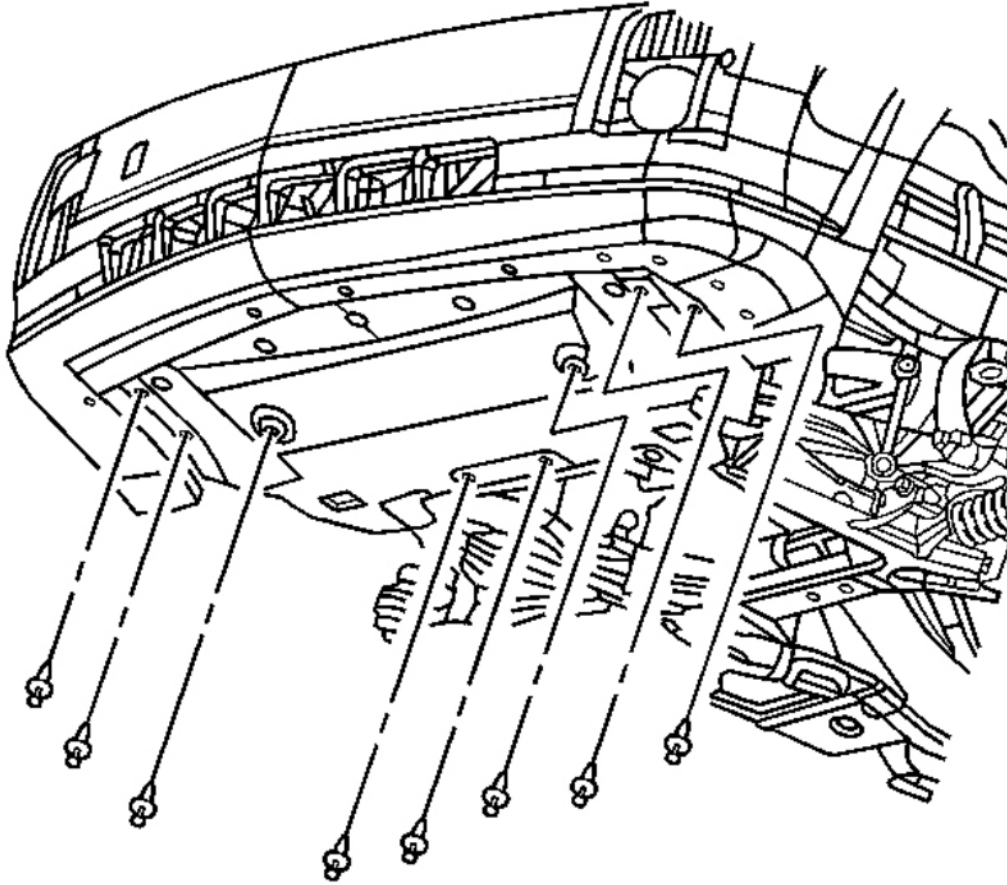


Fig. 148: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the front air deflector retainers.
4. Remove the front air deflector.
5. Remove the lower air baffle push pin retainers.

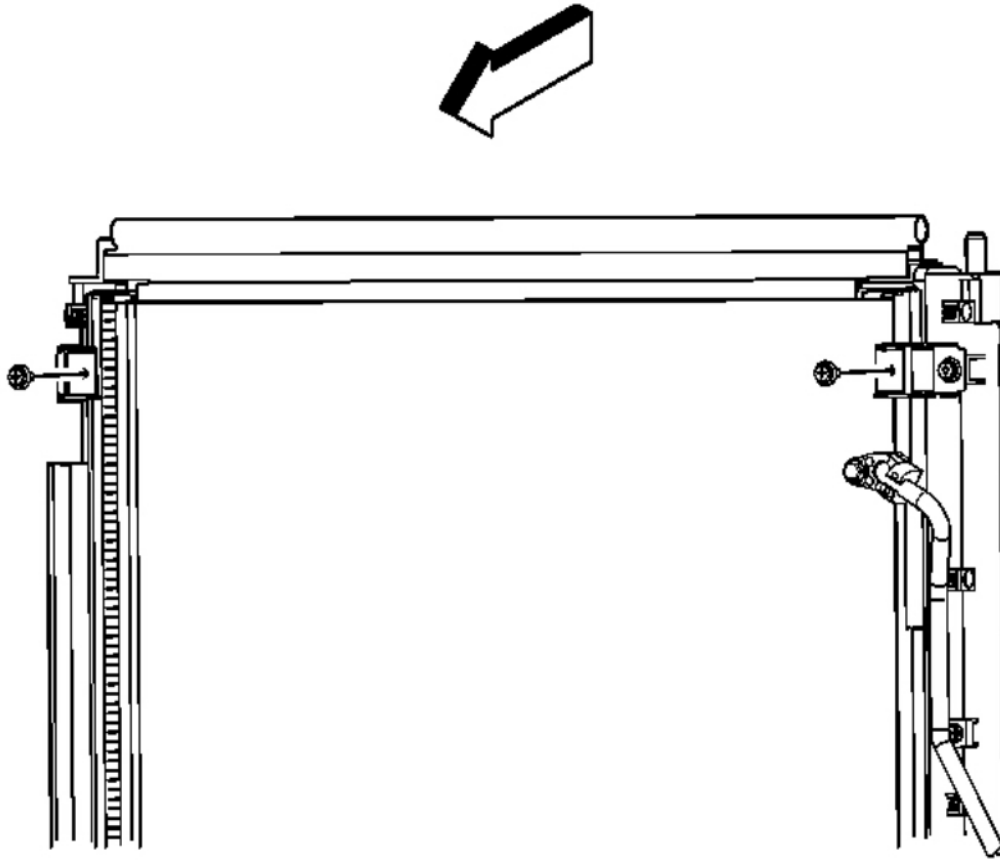


Fig. 149: View Of Condenser Upper Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

6. Remove the condenser upper bracket bolts.

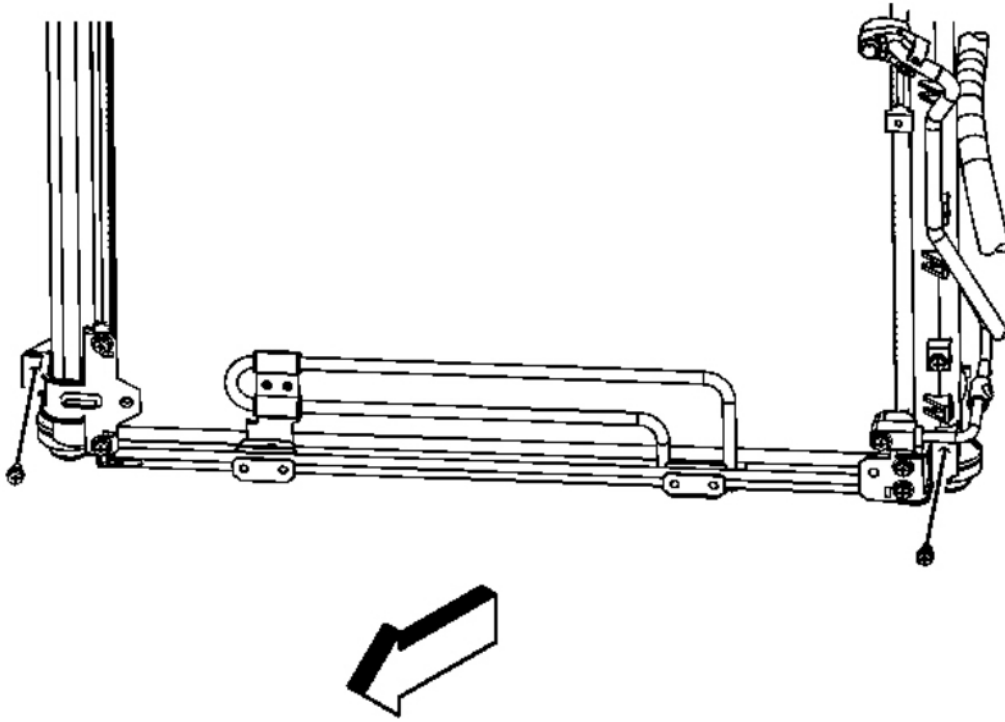


Fig. 150: View Of Condenser Lower Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the condenser lower mounting bolts.

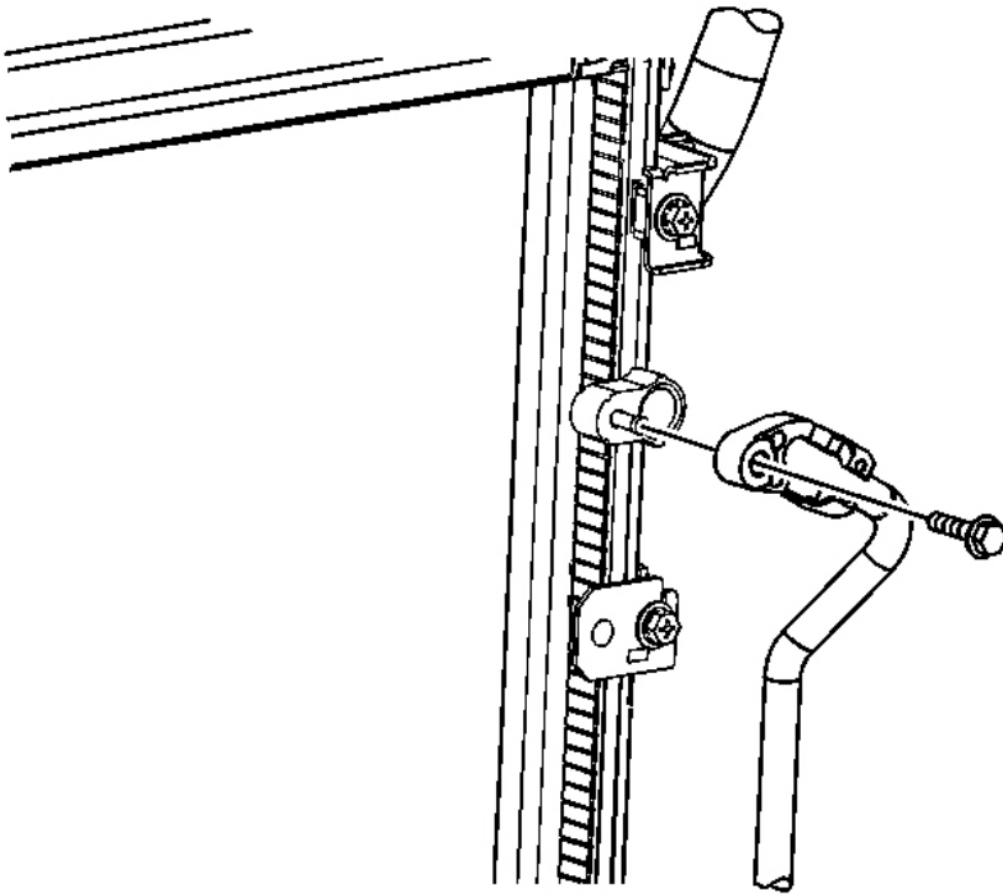


Fig. 151: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the discharge line bolt.
9. Disconnect the discharge line from the condenser.
10. Remove and discard the O-ring.

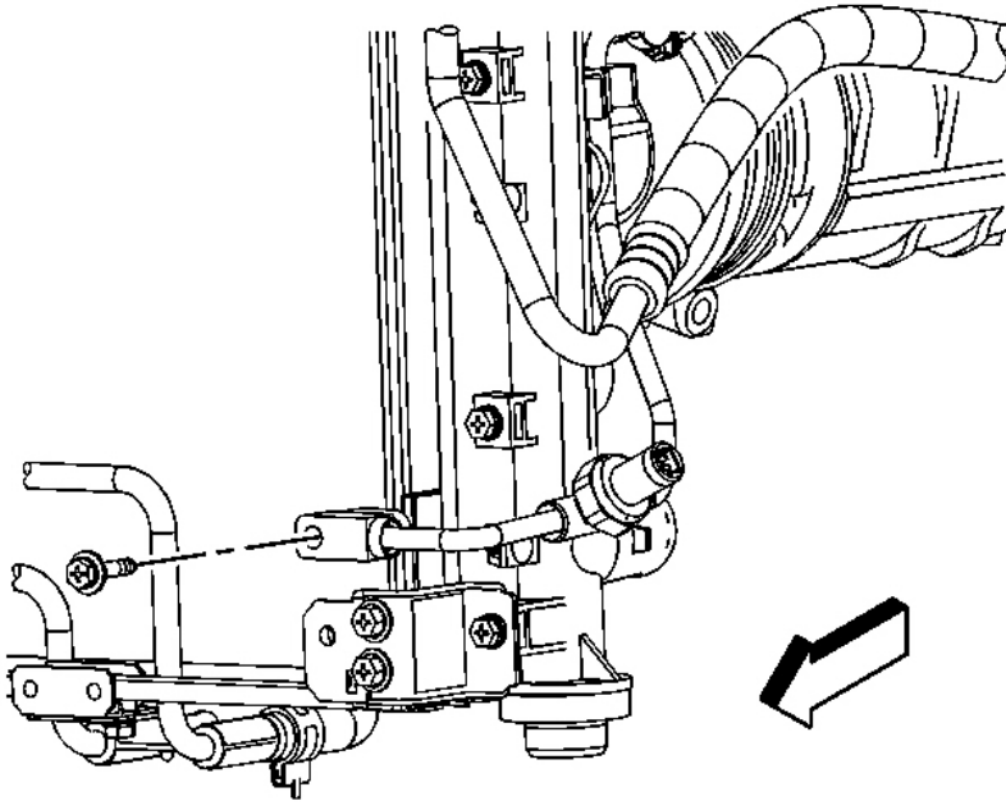


Fig. 152: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

11. Remove the condenser tube bolt.
12. Disconnect the condenser tube from the condenser.
13. Remove and discard the O-ring.

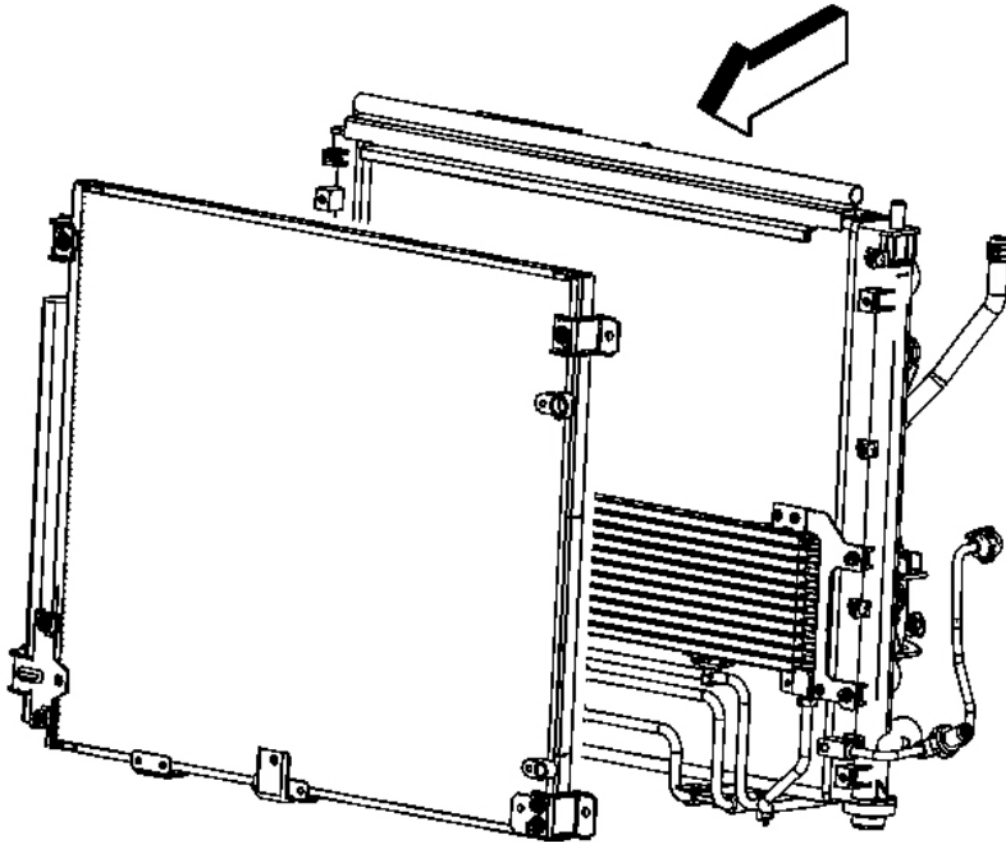


Fig. 153: View Of Condenser
Courtesy of GENERAL MOTORS CORP.

14. Remove the power steering cooler line to condenser retaining bolts.
15. Remove the condenser.

Installation Procedure

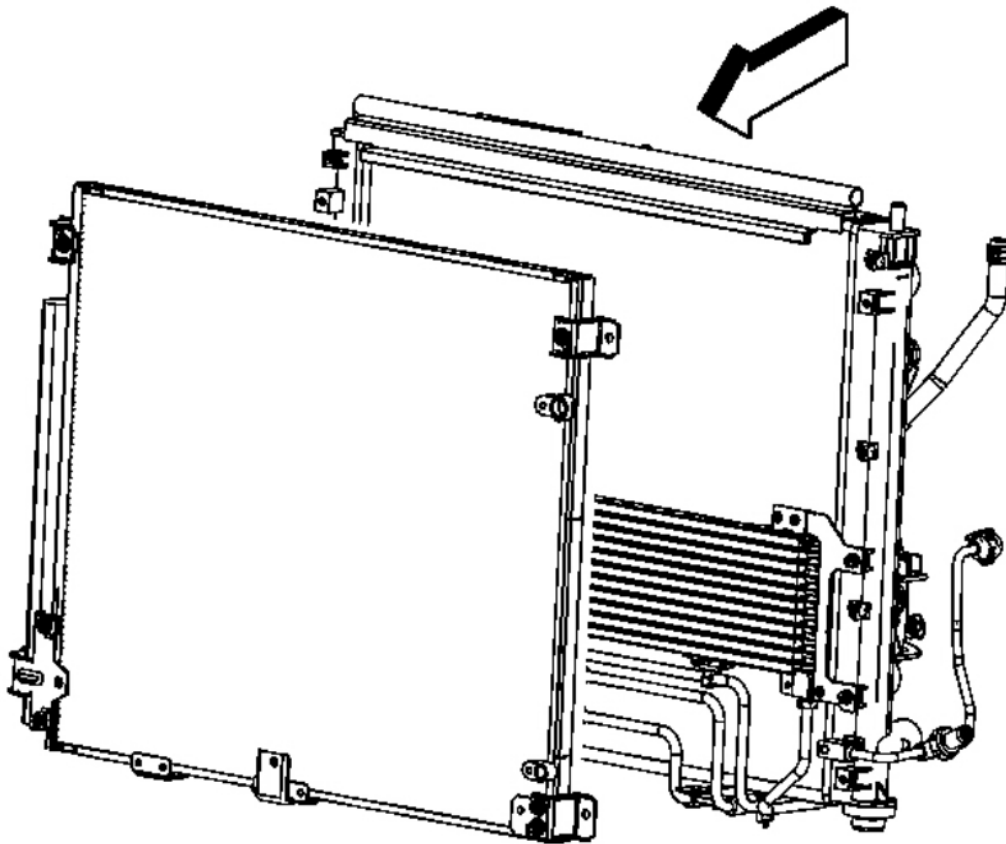


Fig. 154: View Of Condenser
Courtesy of GENERAL MOTORS CORP.

1. If replacing the condenser, add the specified amount of PAG oil directly to the condenser. Refer to **Refrigerant System Capacities**.
2. Install the condenser.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

3. Install the power steering cooler line to condenser retaining bolts.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

4. Install a new O-ring to the condenser tube. Refer to **O-Ring Replacement**.

5. Connect the condenser tube to the condenser.

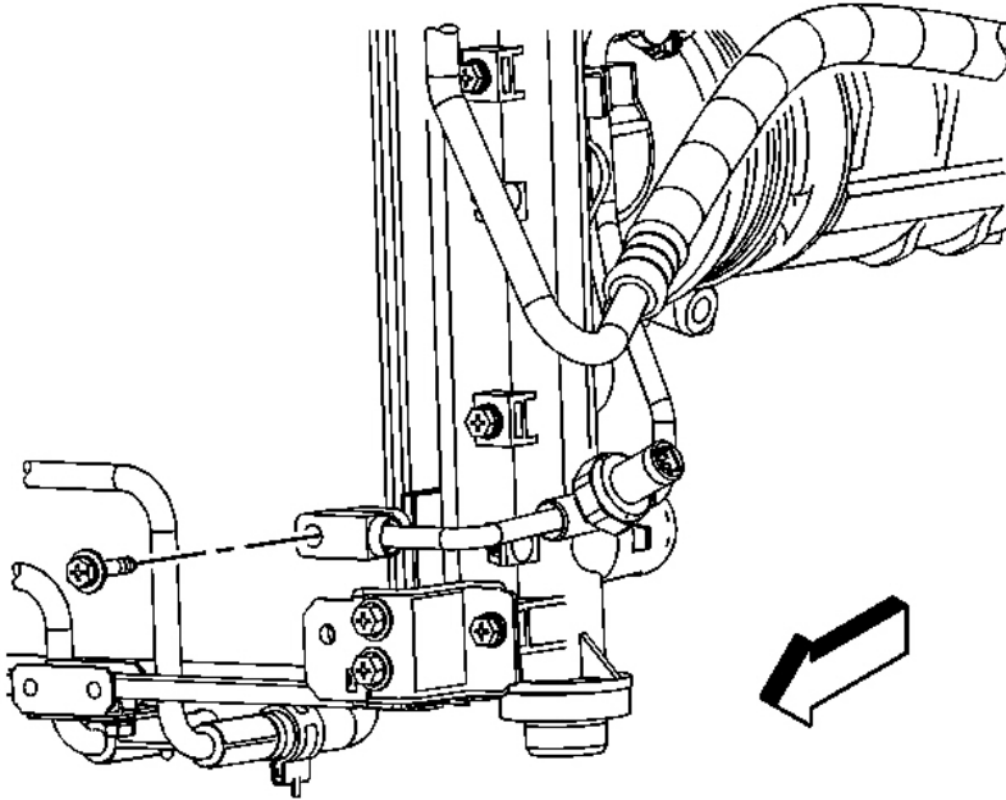


Fig. 155: View Of Condenser Tube Bolt
Courtesy of GENERAL MOTORS CORP.

6. Install the condenser tube bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

7. Install a new O-ring to the discharge line. Refer to **O-Ring Replacement**.
8. Connect the discharge line to the condenser.

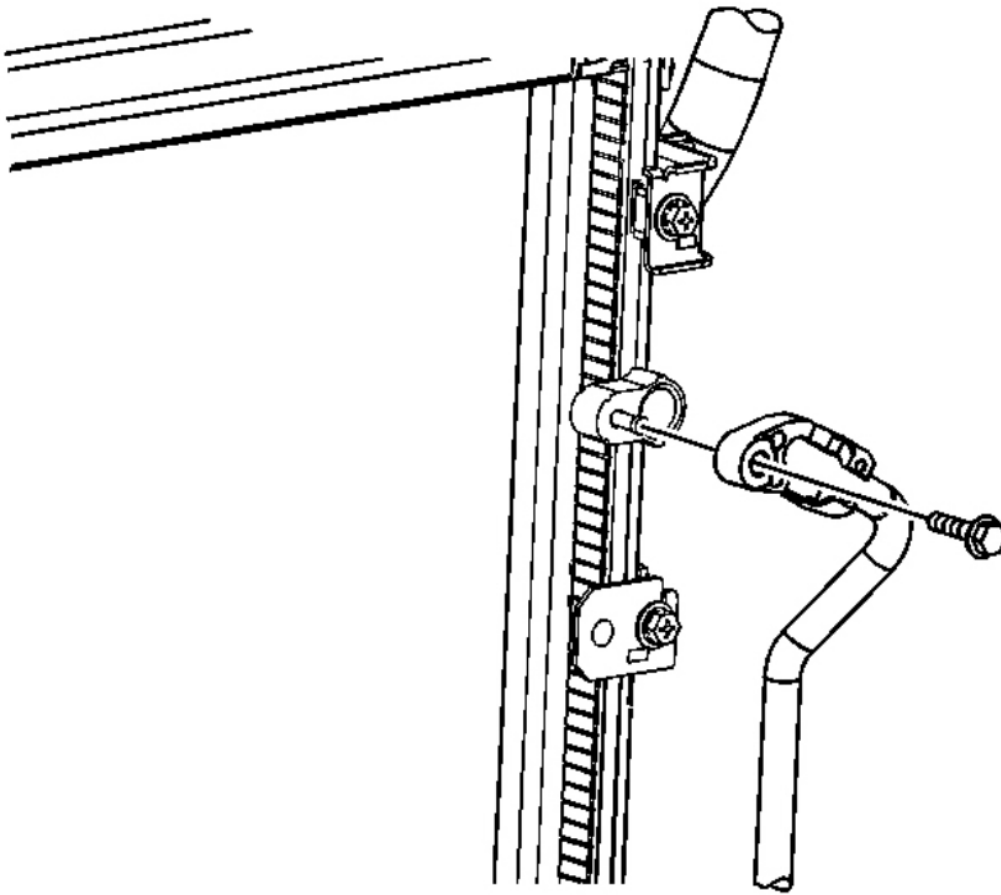


Fig. 156: View Of Discharge Line-To-Condenser Bolt
Courtesy of GENERAL MOTORS CORP.

9. Install the discharge line bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

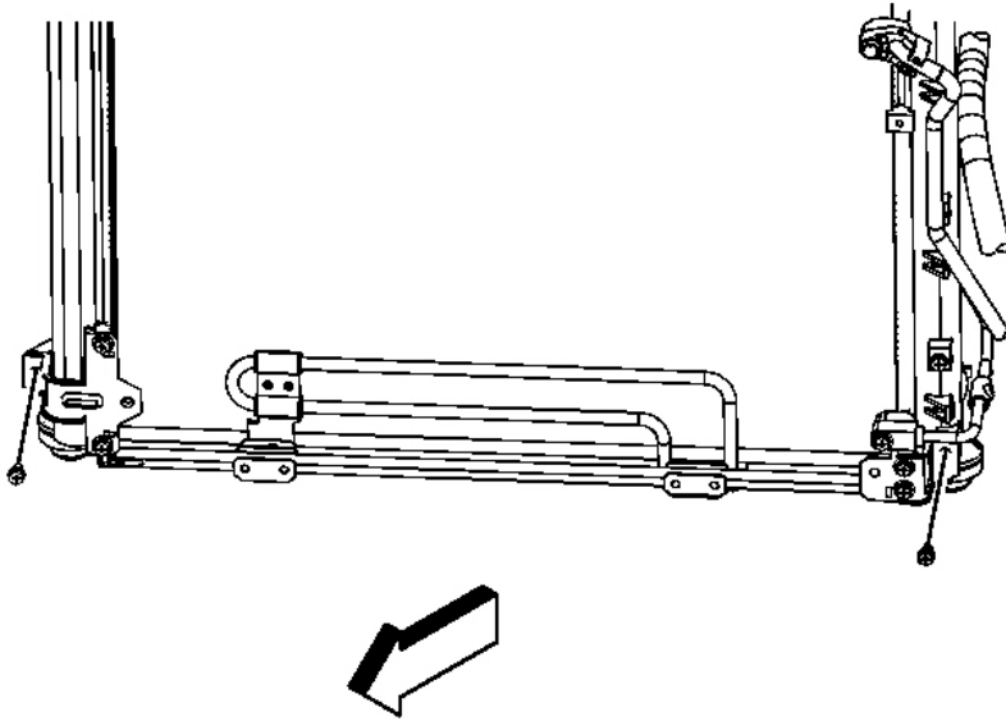


Fig. 157: View Of Condenser Lower Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

10. Install the condenser lower mounting bolts.

Tighten: Tighten the bolts to 5.4 N.m (48 lb in).

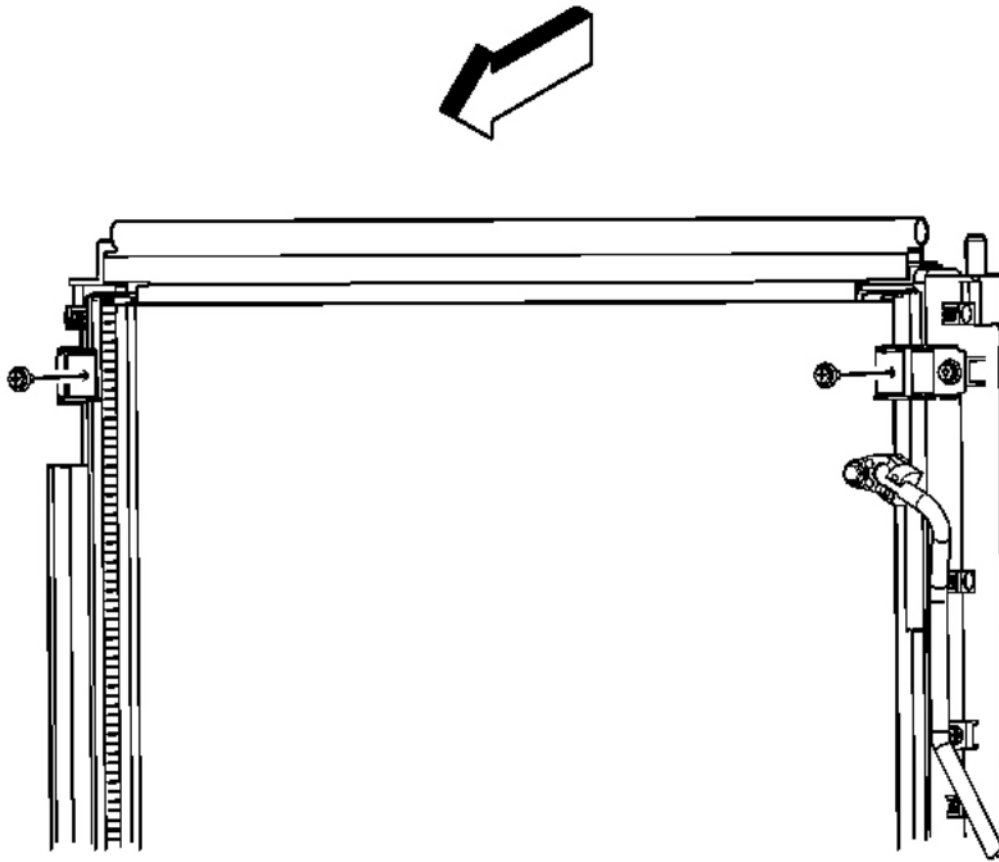


Fig. 158: View Of Condenser Upper Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

11. Remove the condenser upper bracket bolts.

Tighten: Tighten the bolts to 5.4 N.m (48 lb in).

12. Install the lower air baffle push pin retainers.
13. Install the front air deflector.
14. Install the front air deflector retainers.
15. Lower the vehicle.
16. Install the power steering cooler mounting bolts. Refer to **Power Steering Cooler Replacement (LY7 W/O V92)** or **Power Steering Cooler Replacement (LH2 or LY7**

with V92) in Power Steering System.

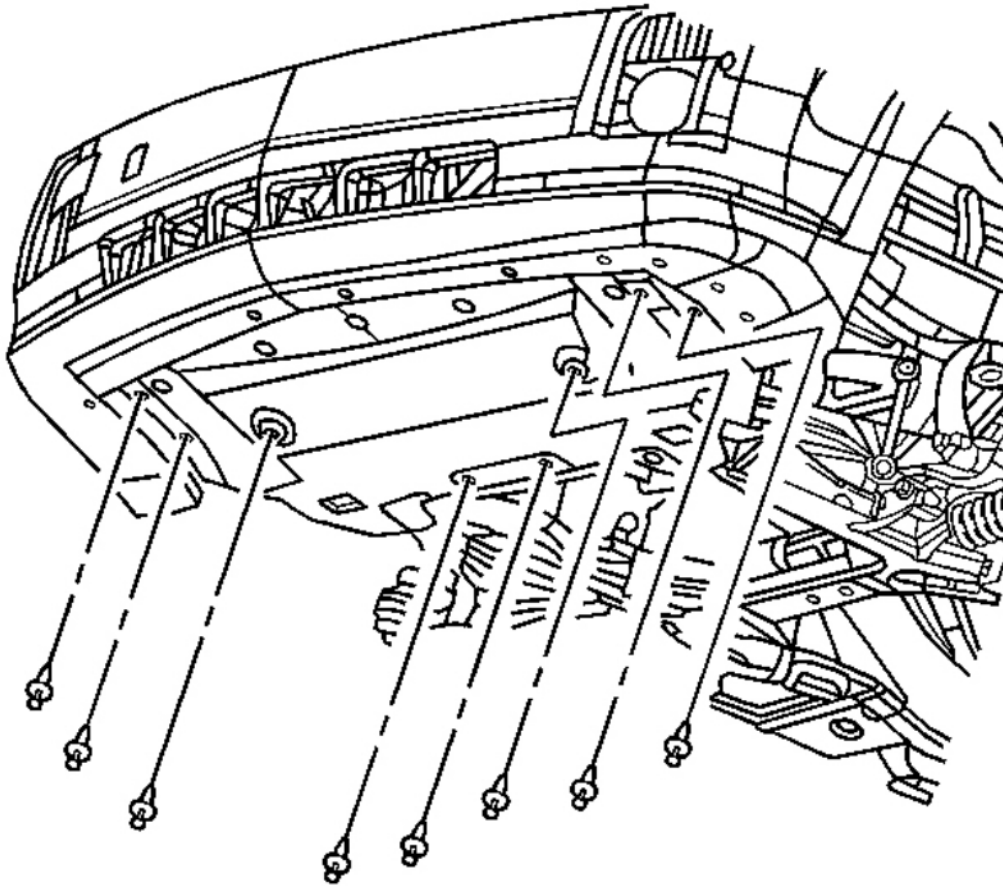


Fig. 159: Locating Front Air Deflector Retainers
Courtesy of GENERAL MOTORS CORP.

17. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
18. Leak test the fittings of the component using the **J 39400-A** . See **Special Tools and Equipment**.

HVAC MODULE ASSEMBLY REPLACEMENT

Tools Required

- **J 39400-A** Halogen Leak Detector. See **Special Tools and Equipment**.

- **J 45689** A/C Quick Joint Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Recover the refrigerant. Refer to **Refrigerant Recovery and Recharging**.
2. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
3. Drain the coolant. Refer to **Draining and Filling Cooling System** in Engine Cooling.
4. Disconnect the inlet heater hose from the heater core. Refer to **Heater Hose Replacement - Inlet**.
5. Disconnect the outlet heater hose from the heater core. Refer to **Heater Hose Replacement - Outlet**.
6. Remove the quick connect fitting (1) from the liquid line. Refer to **A/C Line/Tube Connector Removal/Replacement**.

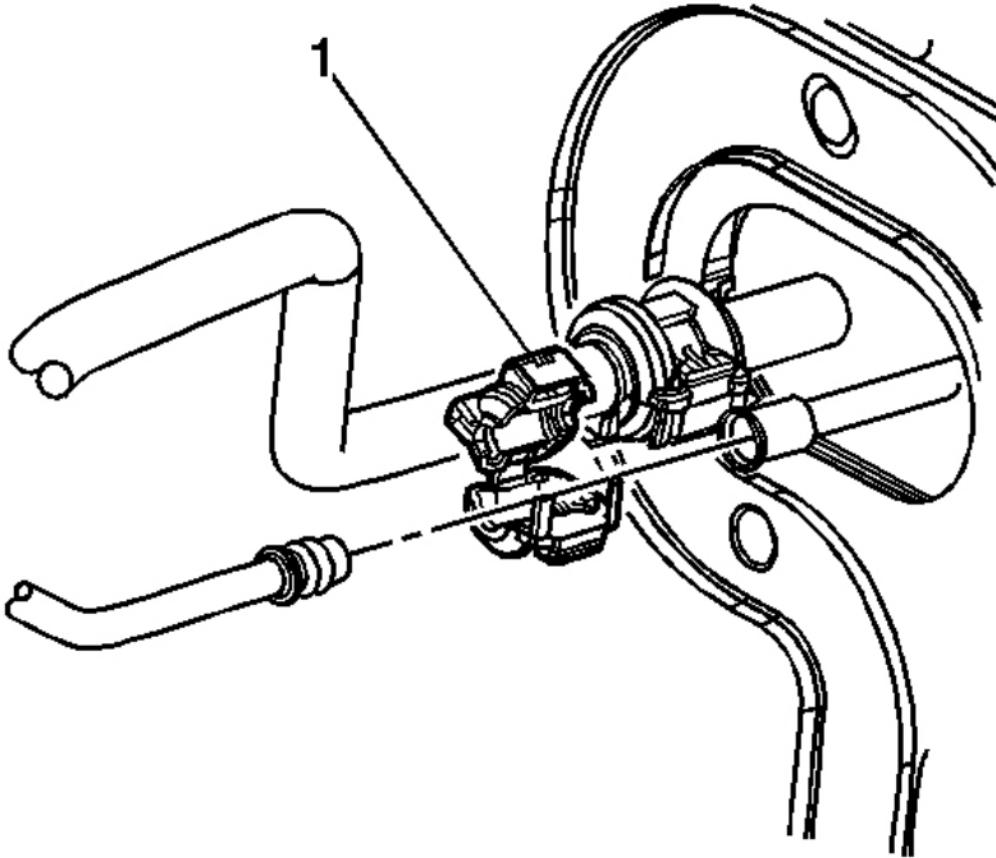


Fig. 160: Identifying A/C Fitting Retainer
Courtesy of GENERAL MOTORS CORP.

7. Disconnect the A/C liquid line from the evaporator.
8. Remove and discard the O-rings.
9. Remove the quick connect fitting (1) from the suction line. Refer to **A/C Line/Tube Connector Removal/Replacement**.

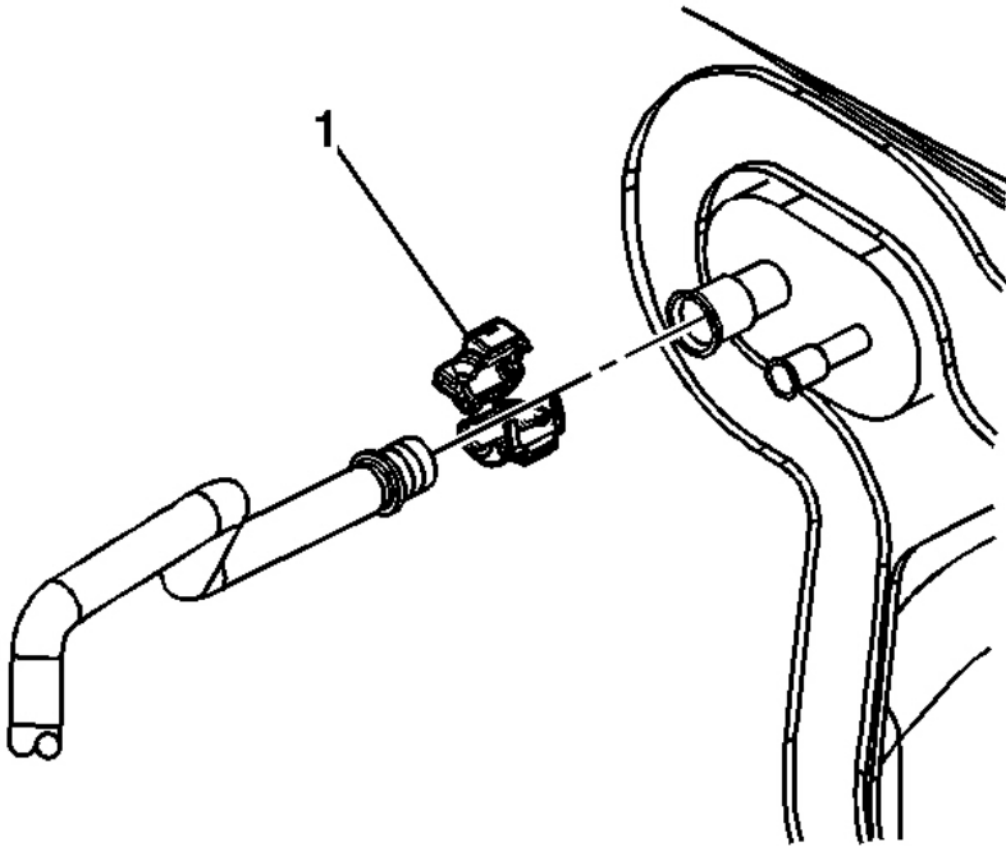


Fig. 161: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

10. Disconnect the A/C suction line from the evaporator.
11. Remove and discard the O-rings.

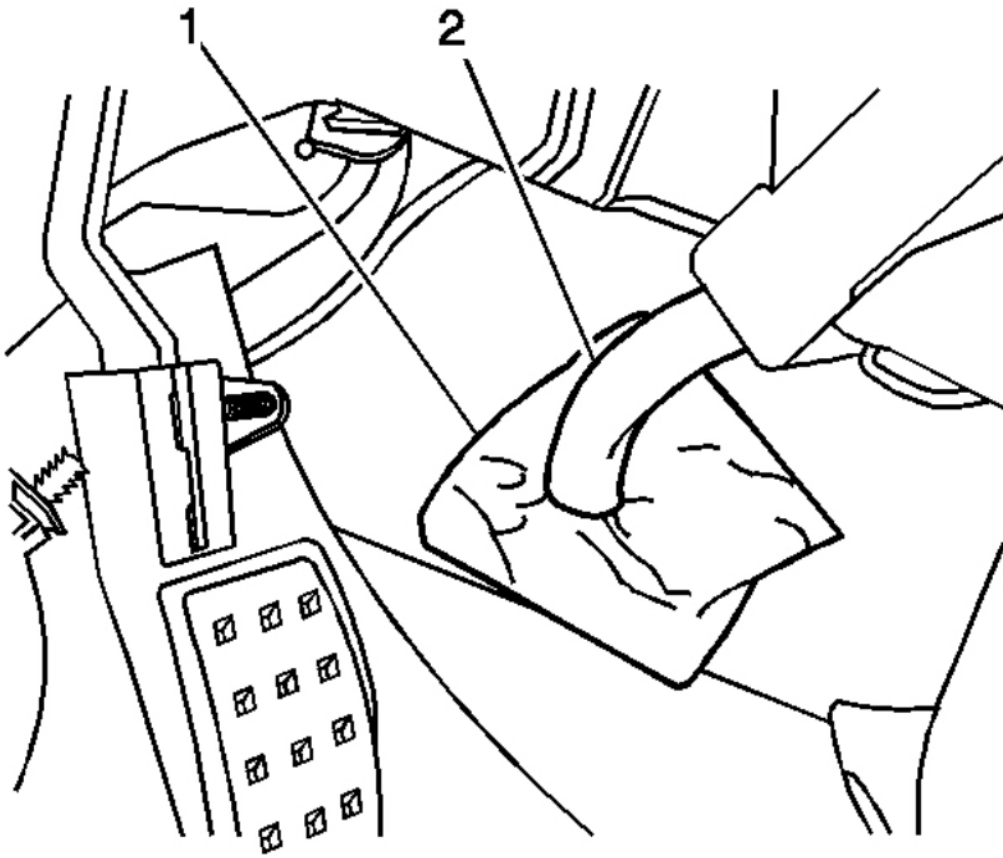


Fig. 162: View Of Rubber Adhesive Patch & Drain Tube
Courtesy of GENERAL MOTORS CORP.

12. Remove the instrument panel (I/P) carrier. Refer to **Instrument Panel (I/P) Carrier Replacement** in Instrument Panel, Gages, and Console.
13. Remove the air inlet assembly.
14. Disconnect the HVAC module electrical connector.
15. Disconnect the HVAC module drain tube (2) from the floor.

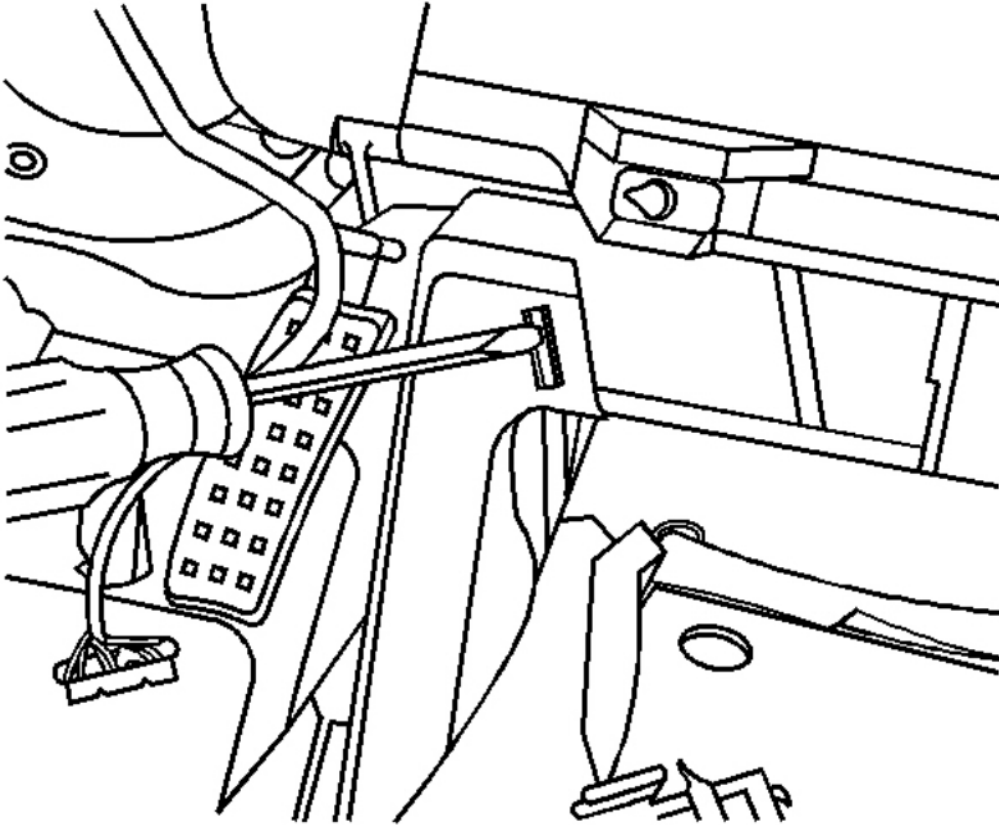


Fig. 163: Releasing Left Rear Duct
Courtesy of GENERAL MOTORS CORP.

16. Press the tab and release the left rear duct from the HVAC module.
17. Position the left rear heater duct away from the HVAC module.

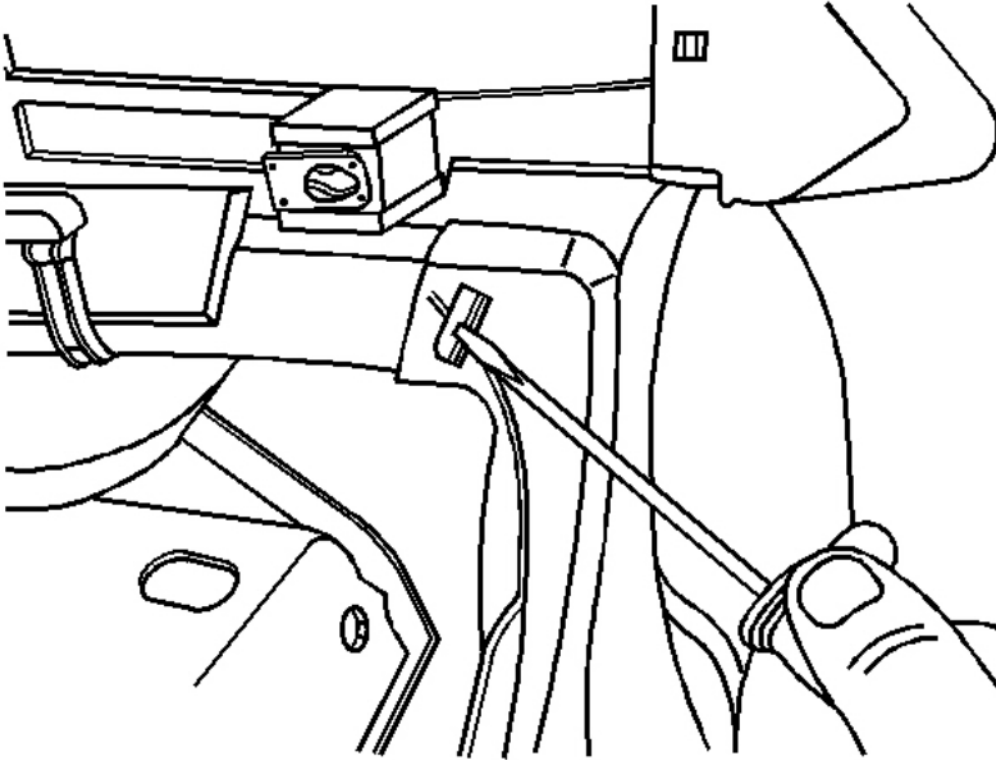


Fig. 164: Releasing Right Rear Duct
Courtesy of GENERAL MOTORS CORP.

18. Press the tab and release the right rear duct from the HVAC module.
19. Position the right rear heater duct away from the HVAC module.

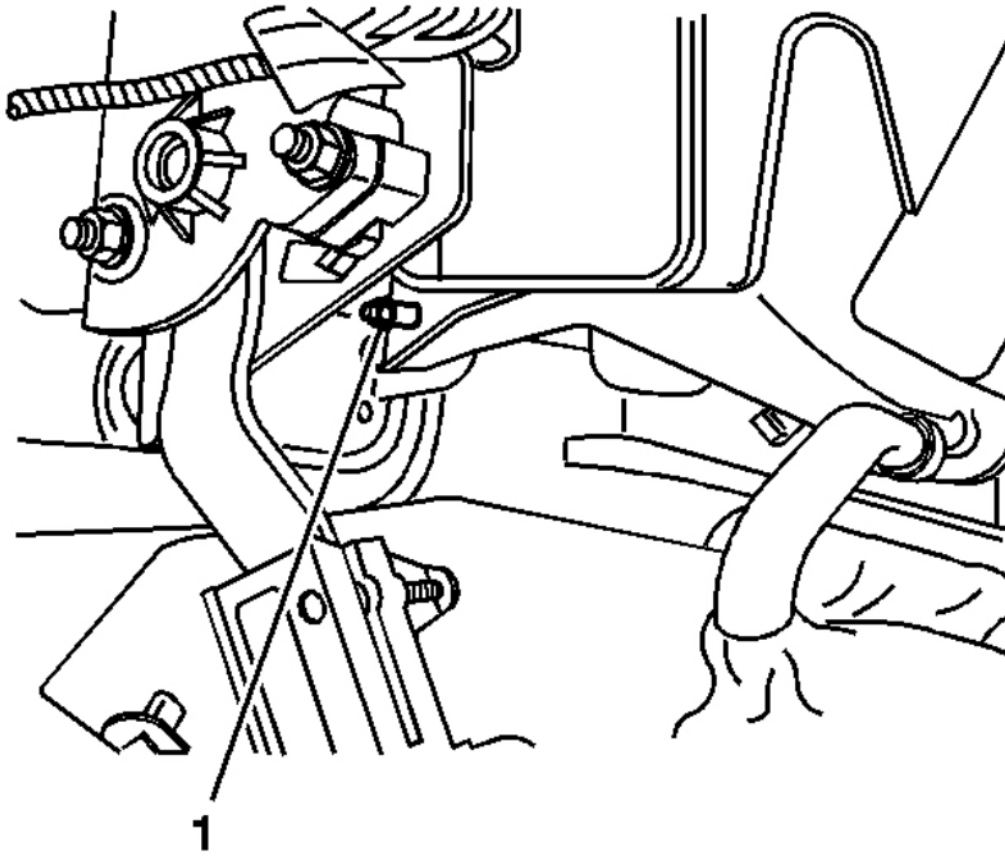


Fig. 165: Locating Lower Left HVAC Module Mounting Nut
Courtesy of GENERAL MOTORS CORP.

20. Remove the lower left HVAC module mounting nut (1).

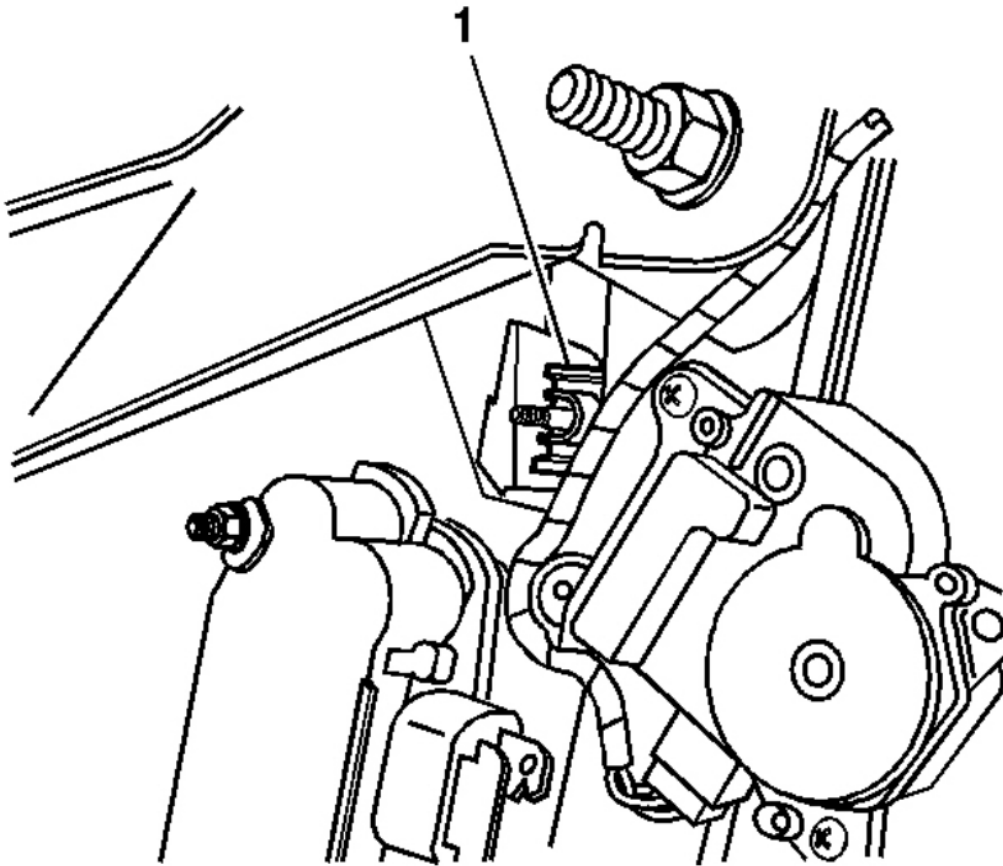


Fig. 166: Locating Upper Left HVAC Module Mounting Nut
Courtesy of GENERAL MOTORS CORP.

21. Remove the upper left HVAC module mounting nut (1).
22. Remove the HVAC module from the vehicle.

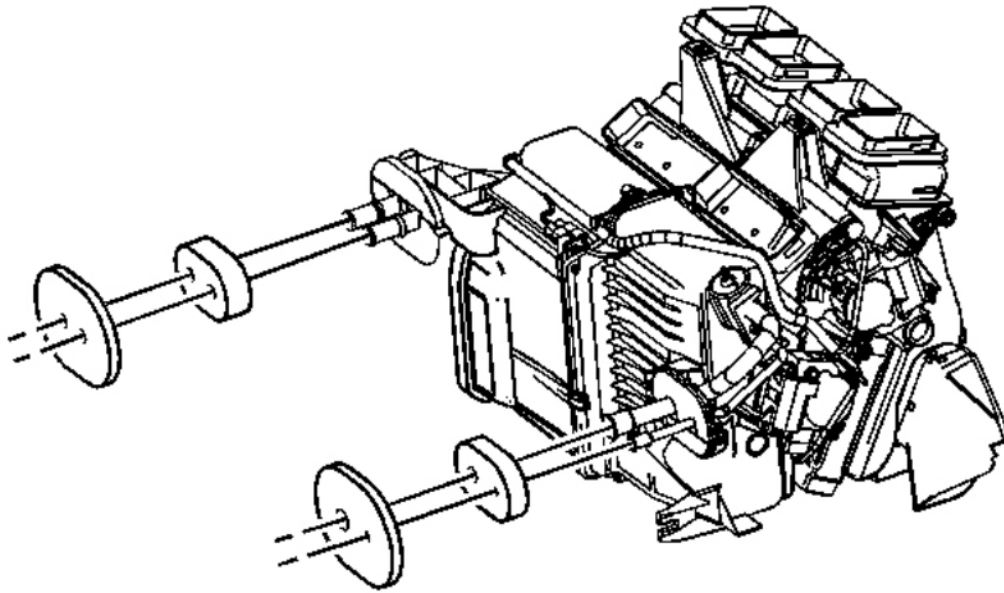


Fig. 167: View Of Foam Seals
Courtesy of GENERAL MOTORS CORP.

23. Remove the foam seals from the A/C evaporator lines.
24. Remove the foam seals from the heater core pipes.

Installation Procedure

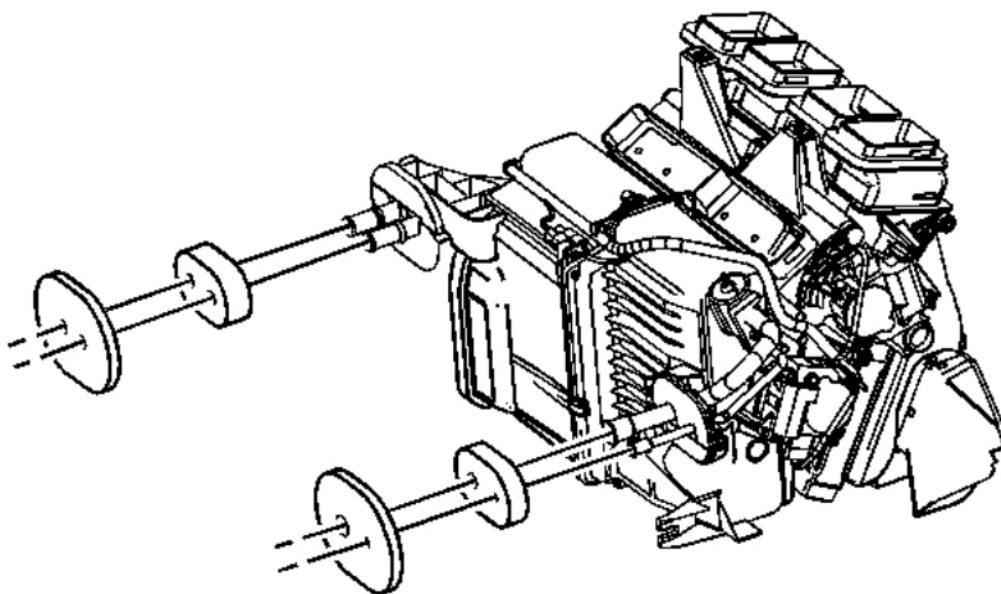


Fig. 168: View Of Foam Seals
Courtesy of GENERAL MOTORS CORP.

1. Install new foam seals onto the heater core pipes.
2. Install new foam seals onto the A/C evaporator lines.
3. Install the HVAC module into the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the upper left HVAC module mounting nut (1).

Tighten: Tighten the nut to 9 N.m (80 lb in).

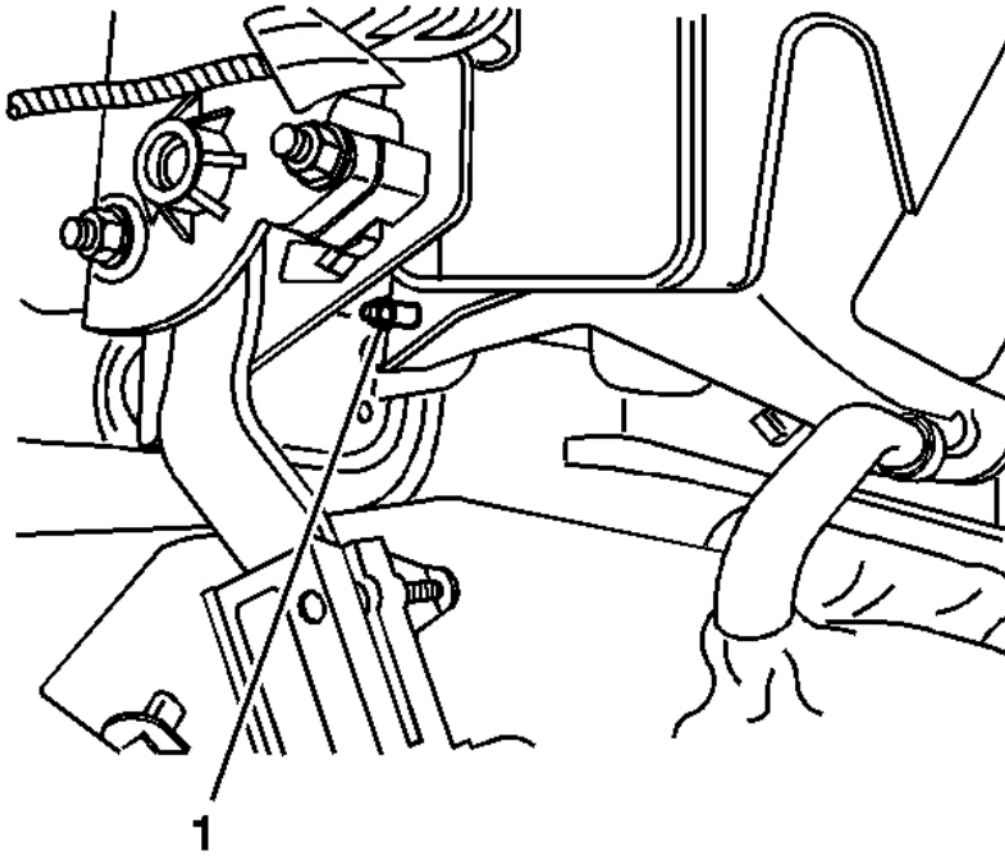


Fig. 169: Locating Lower Left HVAC Module Mounting Nut
Courtesy of GENERAL MOTORS CORP.

5. Install the lower left HVAC module mounting nut (1).

Tighten: Tighten the nut to 9 N.m (80 lb in).

6. Connect the rear heater ducts to the HVAC module.
7. Connect the drain tube to the bottom of the HVAC module.

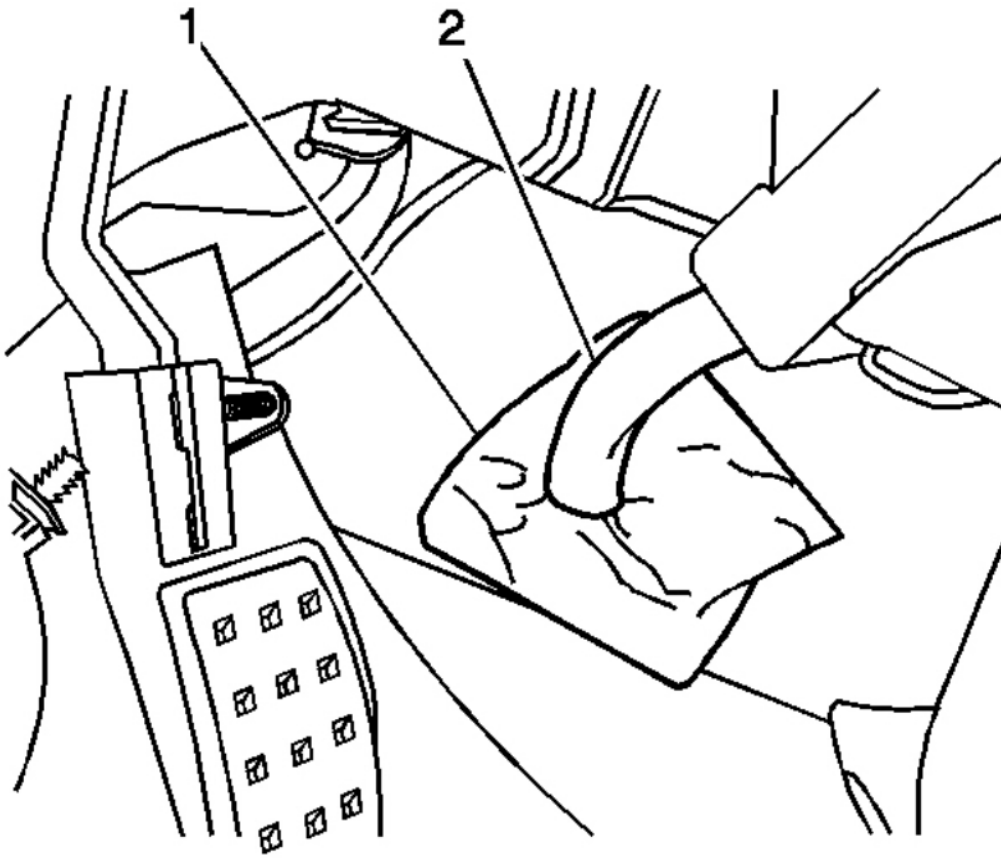


Fig. 170: View Of Rubber Adhesive Patch & Drain Tube
Courtesy of GENERAL MOTORS CORP.

8. Connect the drain tube (2) to the floor.
9. Connect the HVAC electrical connector.
10. Install the air inlet assembly.
11. Install the I/P carrier. Refer to **Instrument Panel (I/P) Carrier Replacement** in Instrument Panel, Gages, and Console.
12. Install new O-rings to the suction line. Refer to **O-Ring Replacement**.

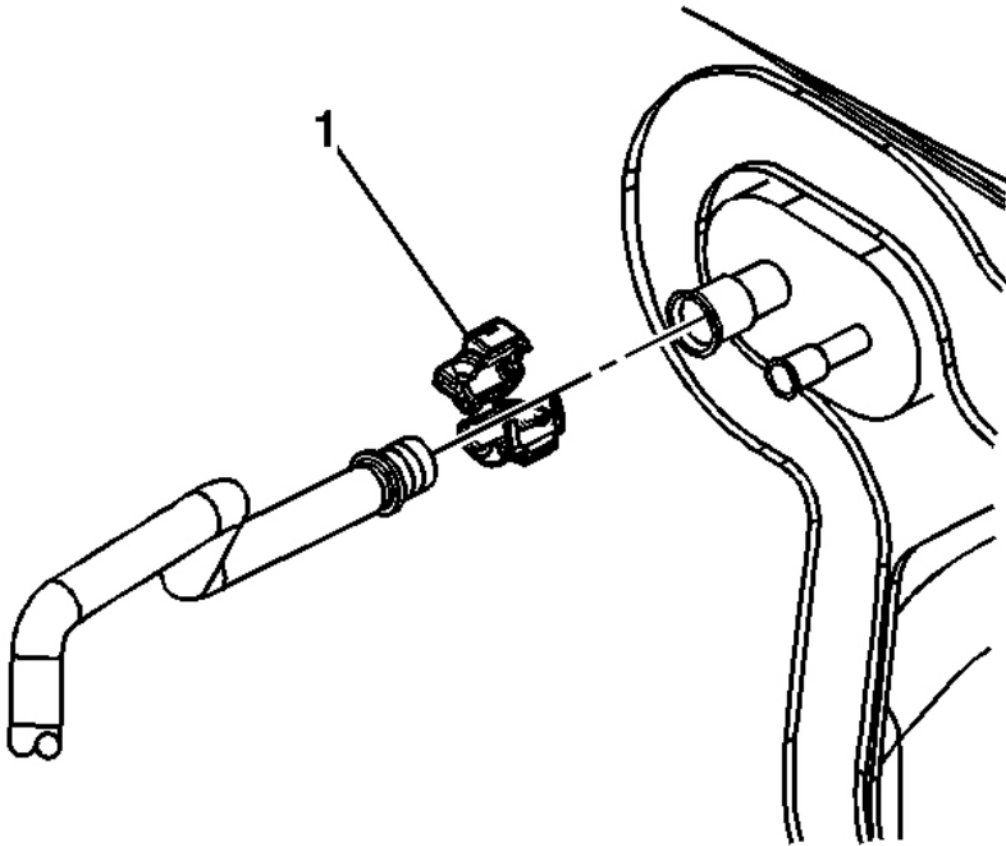


Fig. 171: Identifying Air Conditioning Suction Hose & Retainer
Courtesy of GENERAL MOTORS CORP.

13. Install the A/C suction line to the evaporator.
14. Install the quick connect fitting (1) to the suction line. Refer to **A/C Line/Tube Connector Removal/Replacement**.
15. Install new O-rings to the suction line. Refer to **O-Ring Replacement**.

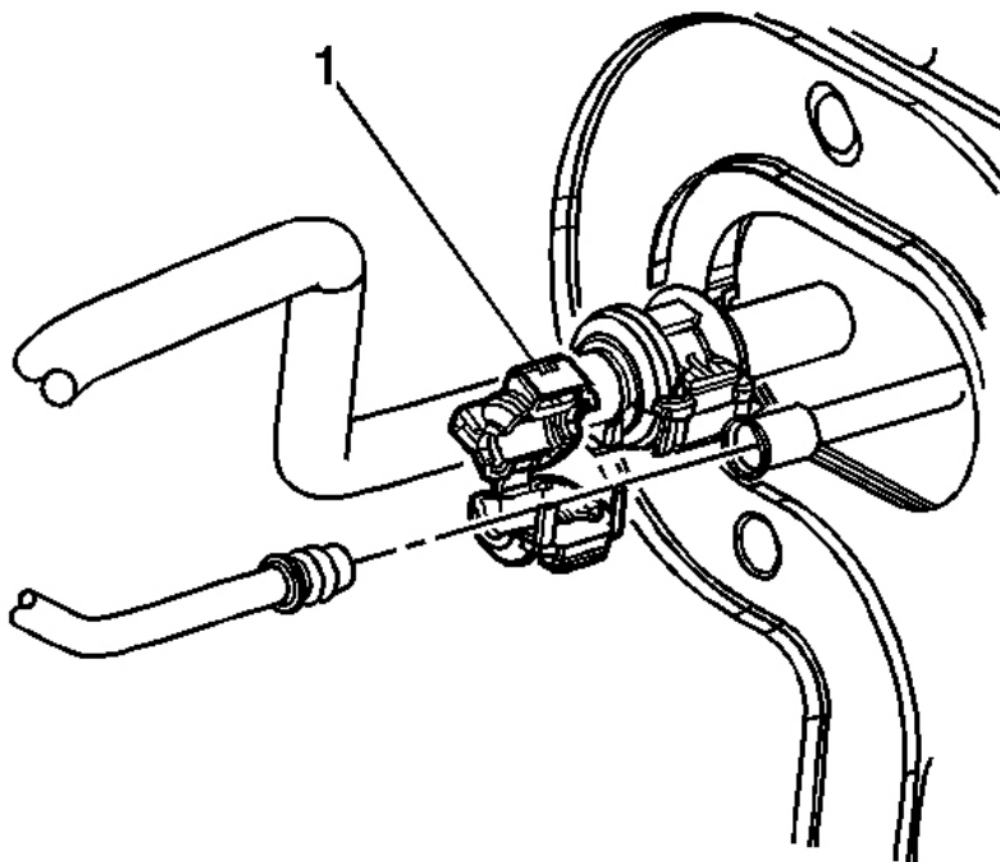


Fig. 172: Identifying A/C Fitting Retainer
 Courtesy of GENERAL MOTORS CORP.

16. Install the A/C liquid line to the evaporator.
17. Install the quick connect fitting (1) to the liquid line. Refer to **A/C Line/Tube Connector Removal/Replacement**.
18. Connect the inlet heater hose to the heater core. Refer to **Heater Hose Replacement - Inlet**.
19. Connect the outlet heater hose to the heater core. Refer to **Heater Hose Replacement - Outlet**.
20. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.

21. Fill the coolant. Refer to **Draining and Filling Cooling System** in Engine Cooling.
22. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
23. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

EVAPORATOR CORE REPLACEMENT

Removal Procedure

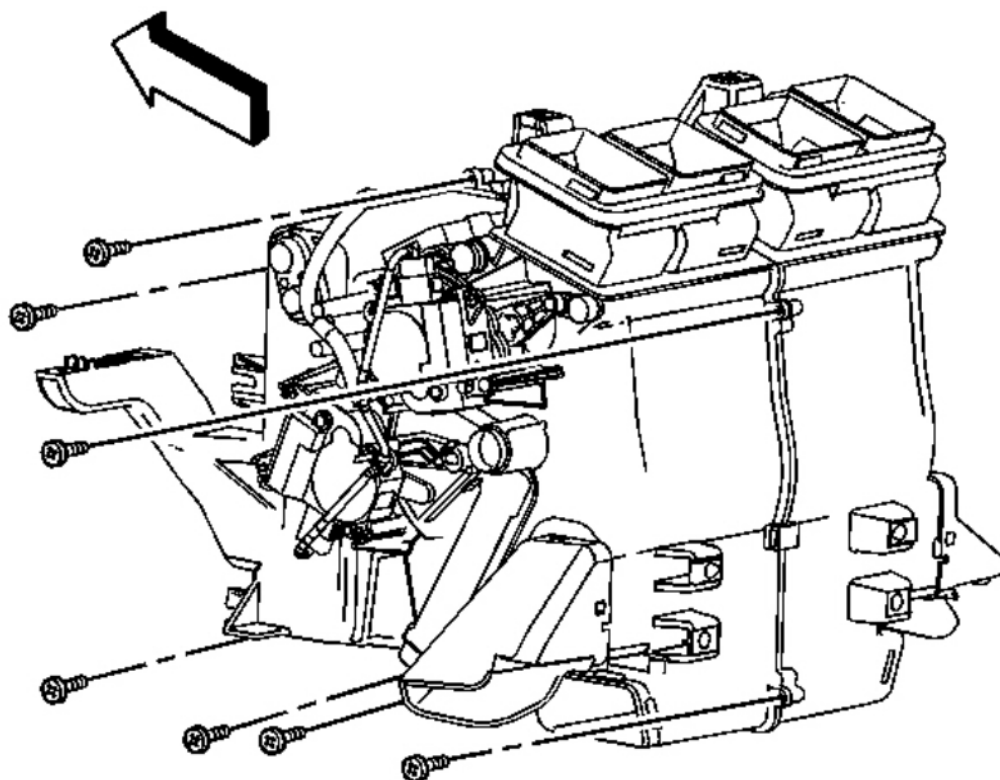


Fig. 173: View Of HVAC Module Case Screws
Courtesy of GENERAL MOTORS CORP.

1. Remove the thermal expansion valve. Refer to **Thermal Expansion Valve Replacement**.
2. Remove the HVAC module case screws.

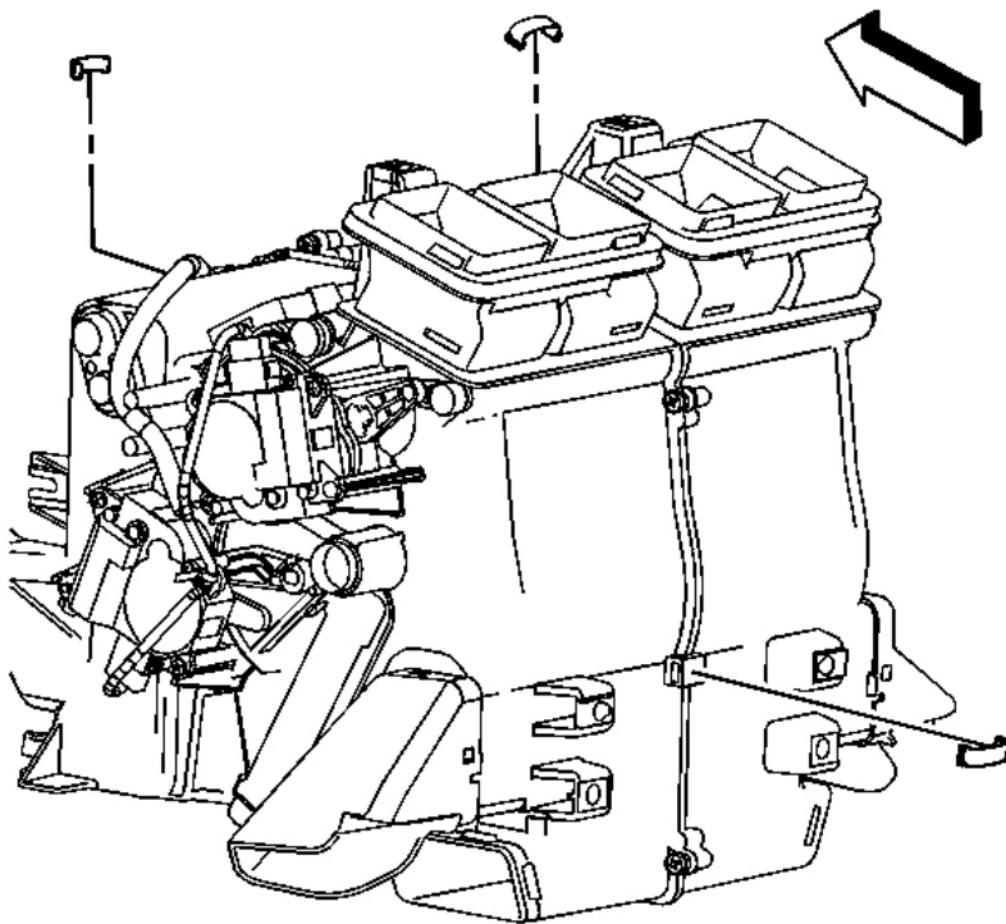


Fig. 174: View Of HVAC Module Retainer Clips
Courtesy of GENERAL MOTORS CORP.

3. Remove the HVAC module retainer clips.

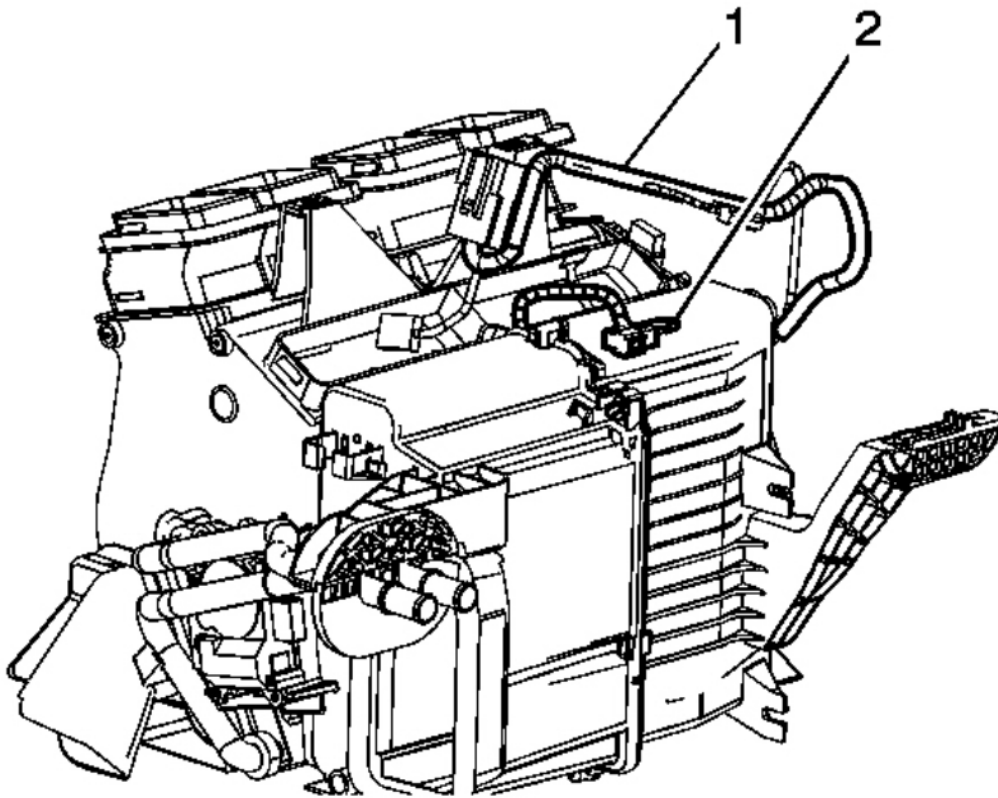


Fig. 175: View Of HVAC Module Wiring Harness & Evaporator Core Temperature Sensor Connector

Courtesy of GENERAL MOTORS CORP.

4. Disconnect the HVAC Module wiring harness (1) from the RH temperature actuator and reposition the wiring harness aside.
5. Disconnect and reposition the evaporator core temperature sensor connector (2) and reposition aside.

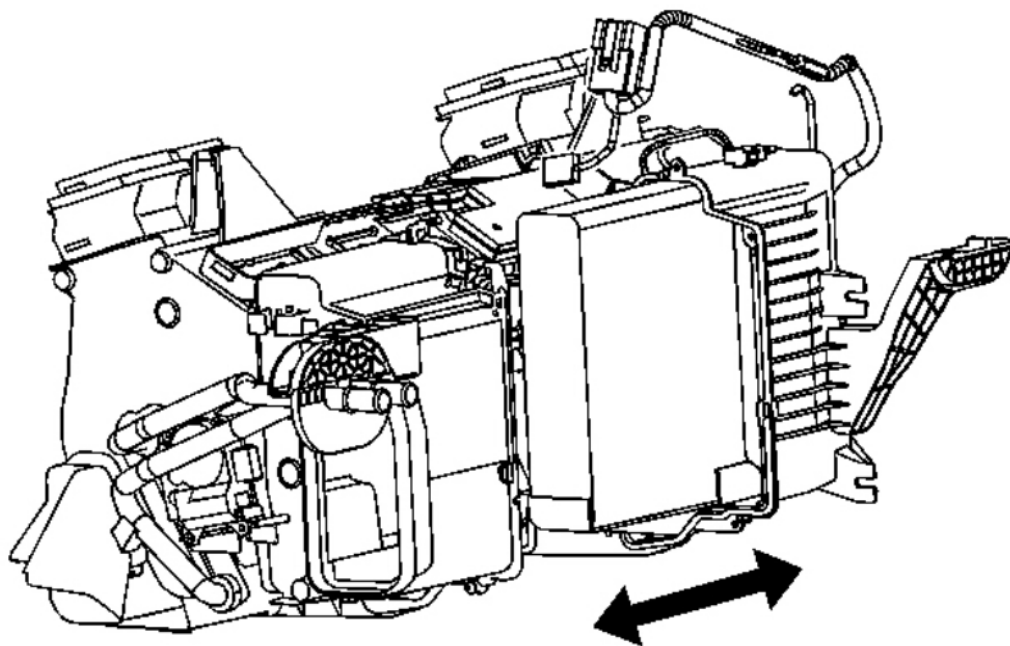


Fig. 176: Separating HVAC Module
Courtesy of GENERAL MOTORS CORP.

6. Separate the HVAC module.

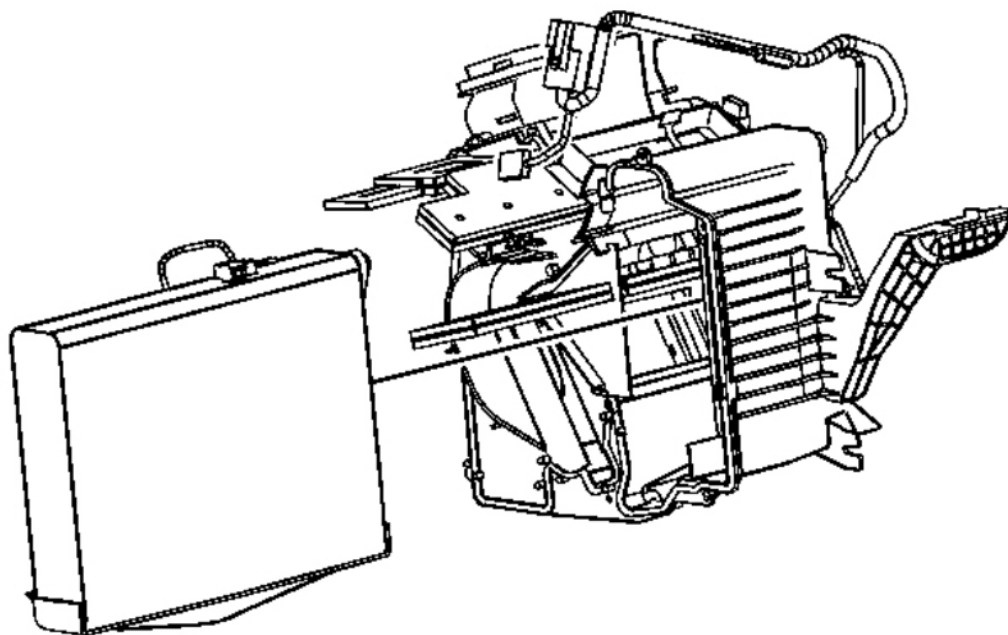


Fig. 177: View Of Evaporator Core
Courtesy of GENERAL MOTORS CORP.

7. Remove the evaporator core.

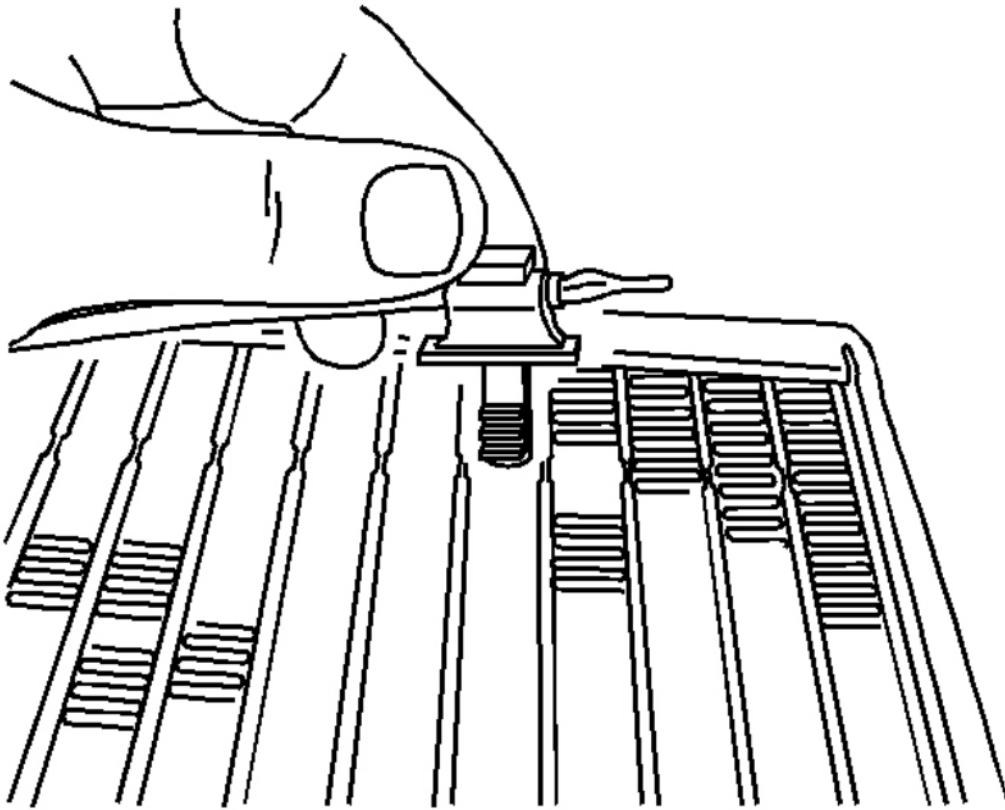


Fig. 178: View Of Evaporator Core Thermistor
Courtesy of GENERAL MOTORS CORP.

8. Remove the thermistor from the evaporator core.

Installation Procedure

1. Add refrigerant oil to the evaporator core. Refer to **Refrigerant System Capacities**.
2. Install the new evaporator core seals to evaporator.

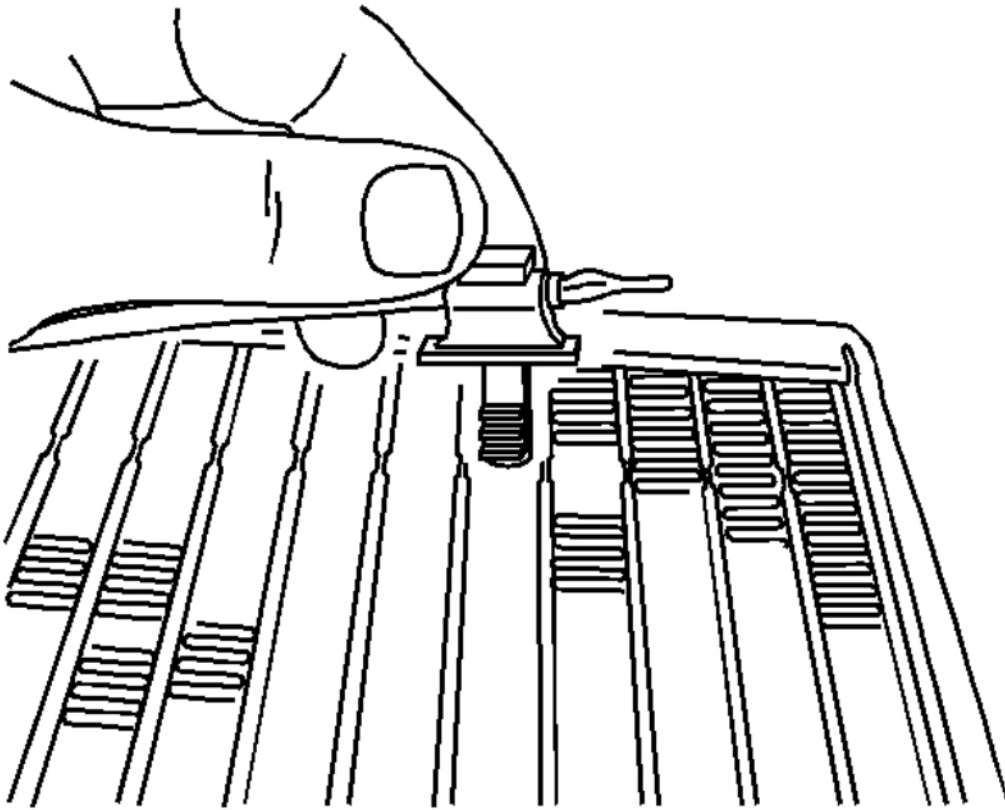


Fig. 179: View Of Evaporator Core Thermistor
Courtesy of GENERAL MOTORS CORP.

3. Install the thermistor to the evaporator.

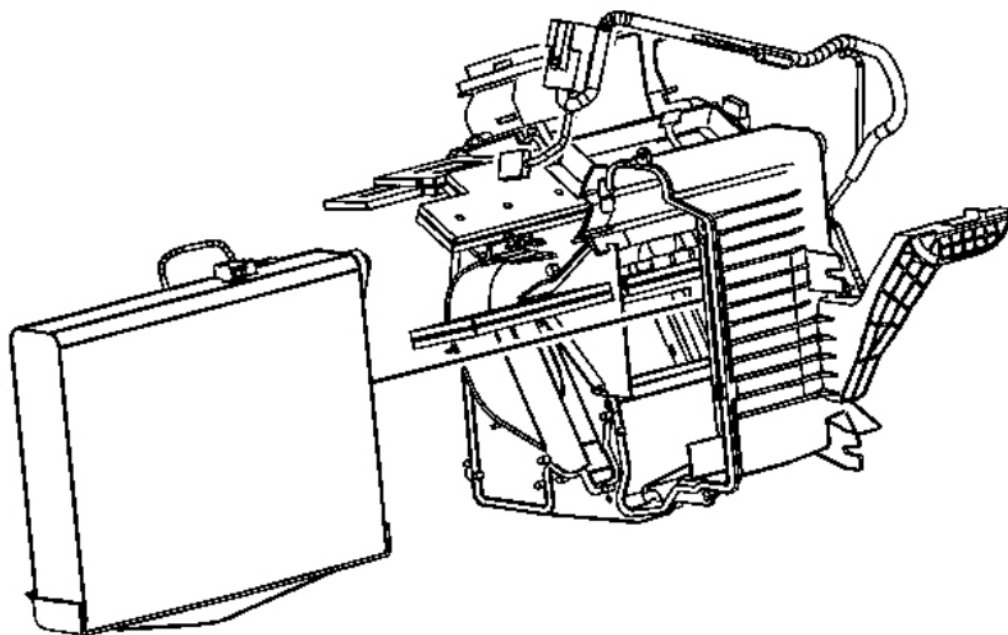


Fig. 180: View Of Evaporator Core
Courtesy of GENERAL MOTORS CORP.

4. Install the evaporator core.

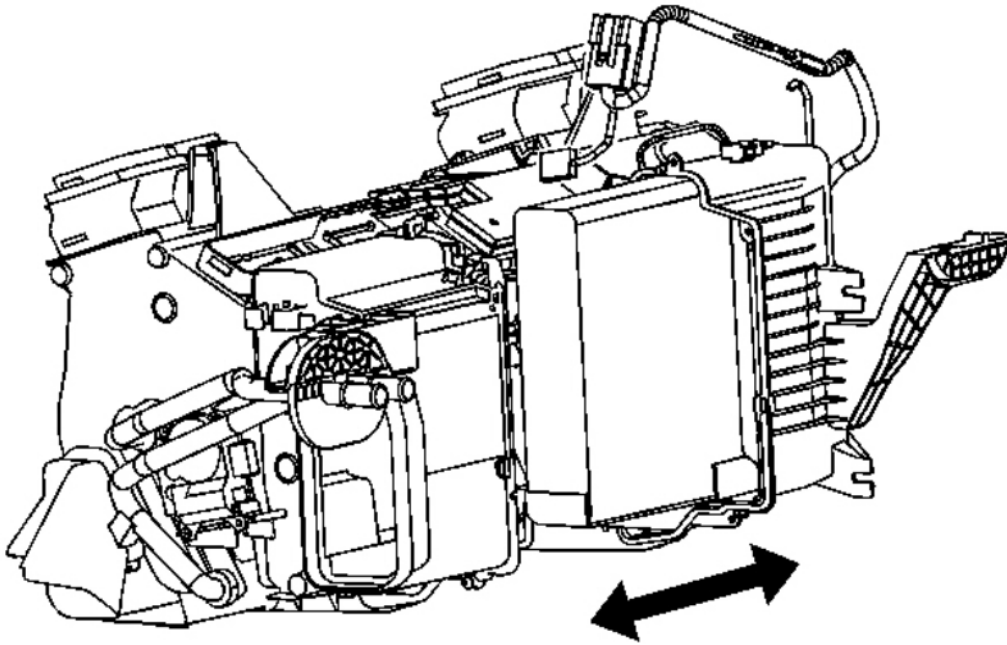


Fig. 181: Separating HVAC Module
Courtesy of GENERAL MOTORS CORP.

5. Connect the HVAC module case halves together.
6. Reposition and connect the evaporator core temperature sensor connector (2).

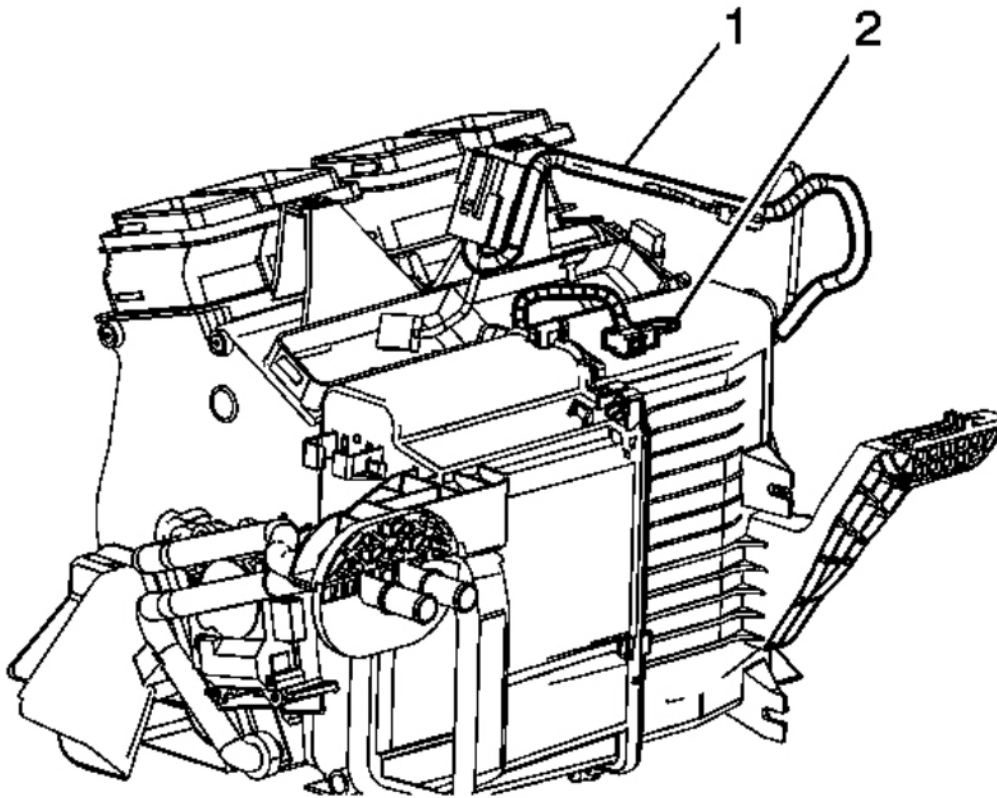


Fig. 182: View Of HVAC Module Wiring Harness & Evaporator Core Temperature Sensor Connector

Courtesy of GENERAL MOTORS CORP.

7. Reposition and connect the HVAC Module wiring harness (1) to the RH temperature actuator.

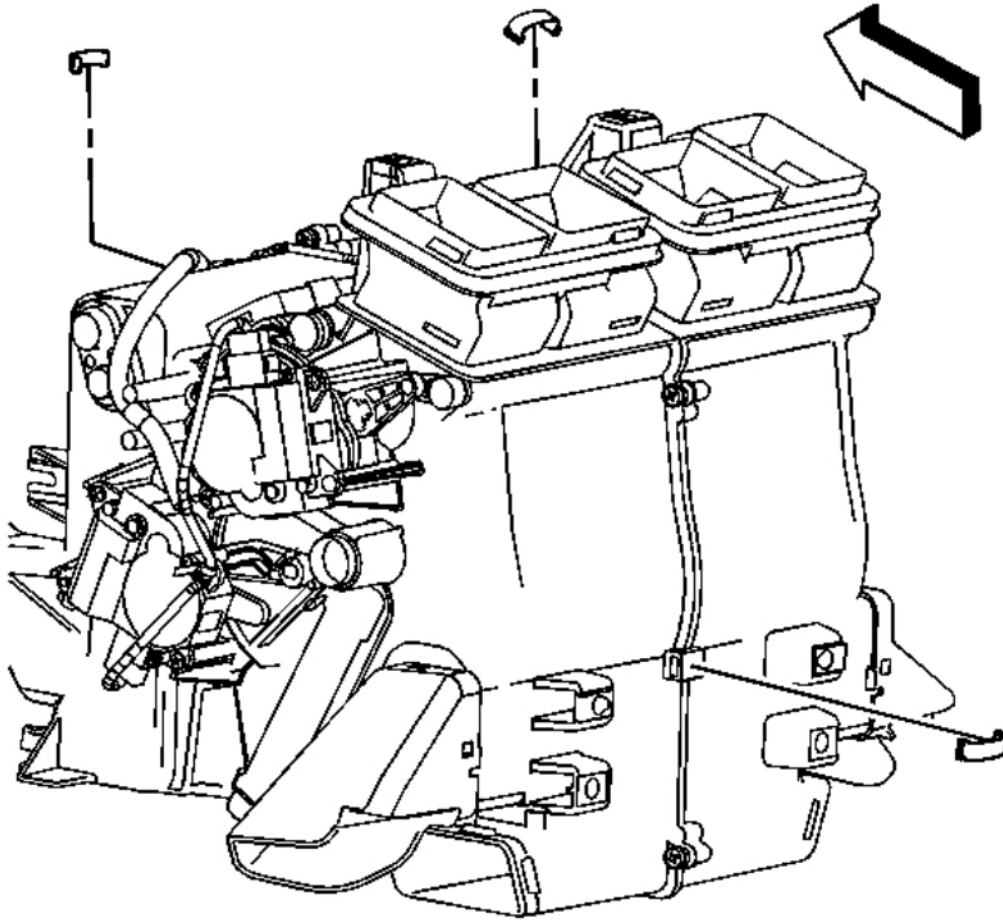


Fig. 183: View Of HVAC Module Retainer Clips
Courtesy of GENERAL MOTORS CORP.

8. Install the HVAC module retainer clips.

NOTE: Refer to Fastener Notice in Cautions and Notices.

9. Install the HVAC module case screws.

Tighten: Tighten the screws to 1 N.m (9 lb in).

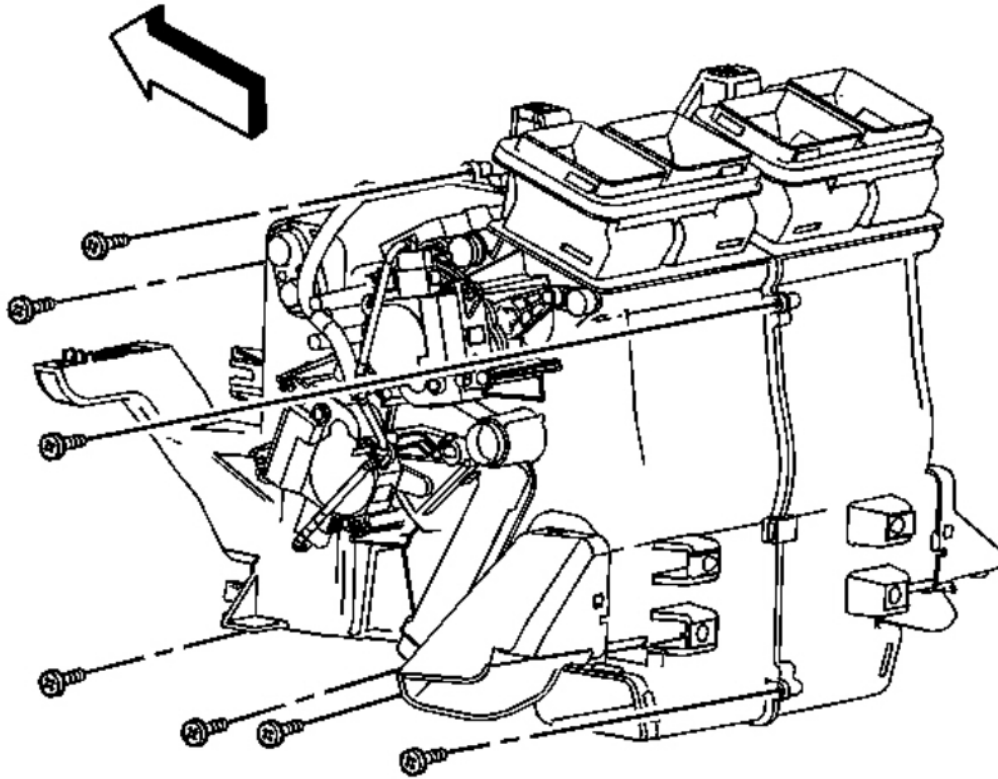


Fig. 184: View Of HVAC Module Case Screws
Courtesy of GENERAL MOTORS CORP.

10. Install the thermal expansion valve. Refer to **Thermal Expansion Valve Replacement.**

EVAPORATOR DRAIN HOSE REPLACEMENT

Removal Procedure

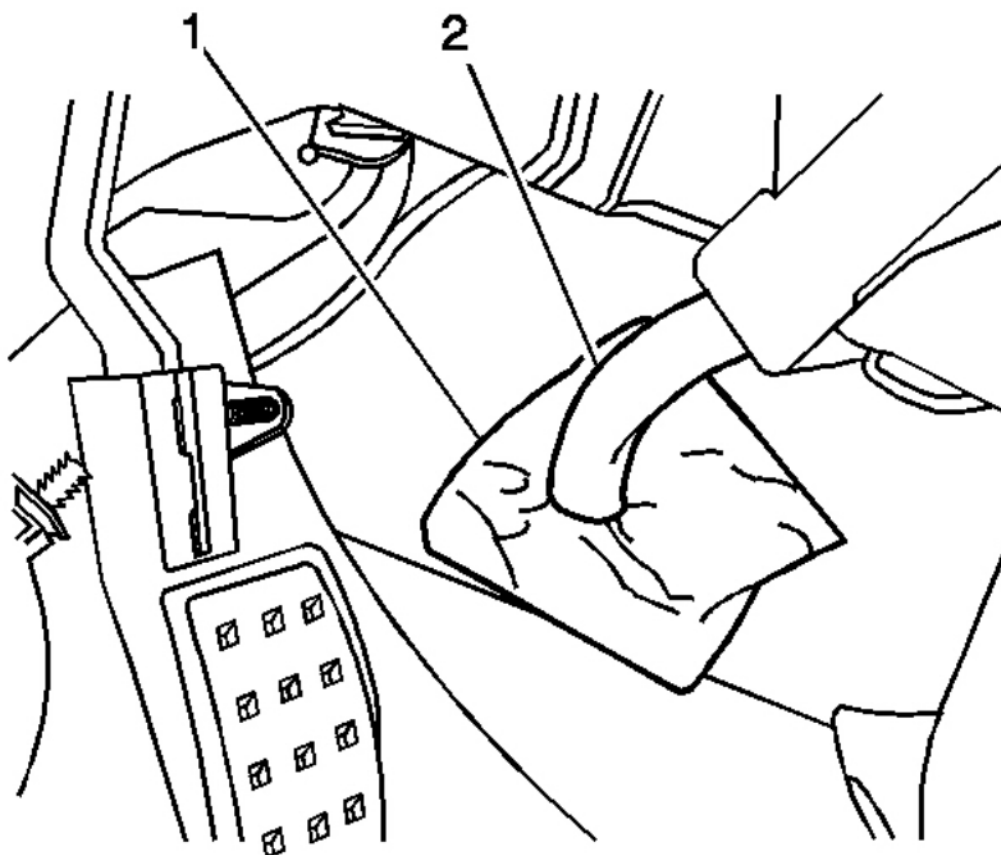


Fig. 185: View Of Rubber Adhesive Patch & Drain Tube
Courtesy of GENERAL MOTORS CORP.

1. Remove the center console. Refer to **Console Replacement - Front Floor** in Instrument Panel, Gages, and Console.
2. Remove the rubber adhesive patch (1) from around the drain tube (2).
3. Open the flap in the tunnel insulator and unsnap drain fitting from the tunnel sheet metal.
4. Remove the HVAC module drain tube from the HVAC module.

Installation Procedure

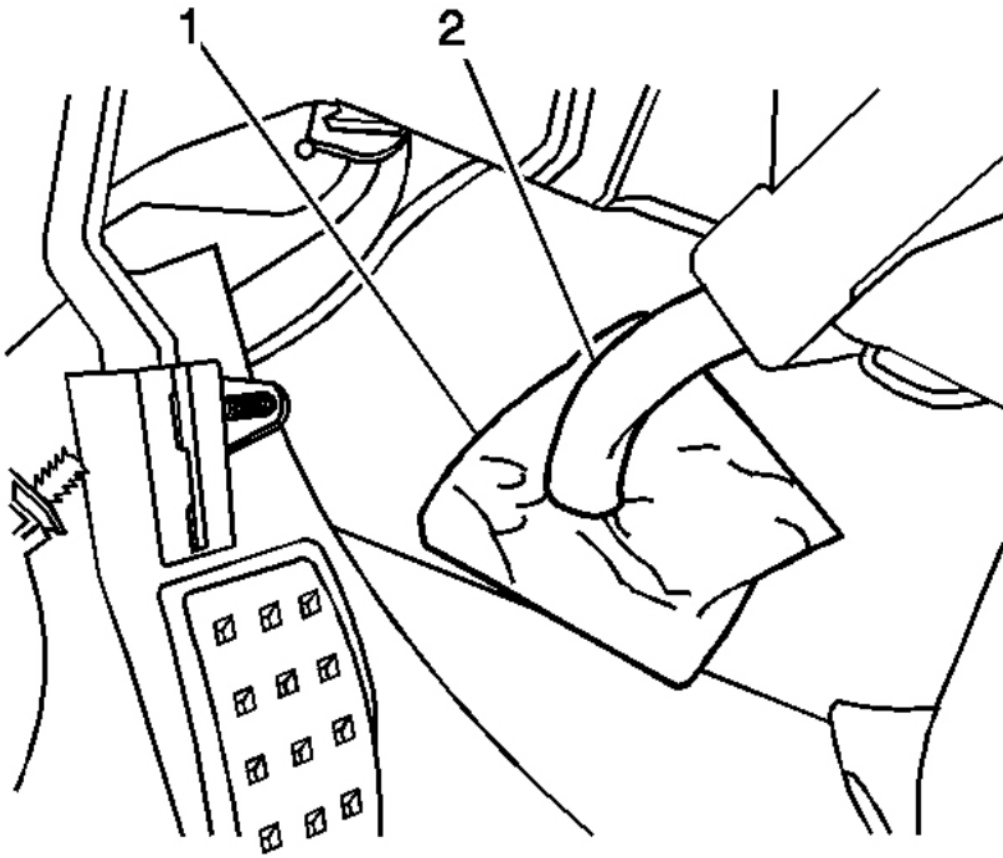


Fig. 186: View Of Rubber Adhesive Patch & Drain Tube
 Courtesy of GENERAL MOTORS CORP.

1. Install the HVAC module drain tube to the HVAC module.
2. Ensure that the drain tube is fully seated to the HVAC module.
3. Snap drain fitting into the tunnel sheet metal.
4. Close the flap on the tunnel insulator.
5. Install the rubber adhesive patch (1) around the drain tube (2).
6. Install the center console. Refer to **Console Replacement - Front Floor** in Instrument Panel, Gages, and Console.

2004 Cadillac SRX

2004 HVAC Heating, Ventilation & Air Conditioning - SRX

Tools Required

J 38185 Hose Clamp Pliers

Removal Procedure

1. Drain the cooling system. Refer to **Draining and Filling Cooling System** in Engine Cooling.
2. Remove the battery tray. Refer to **Battery Tray Replacement** in Engine Electrical.
3. Remove the cowl panel retaining bolts.
4. Remove the cowl panel.

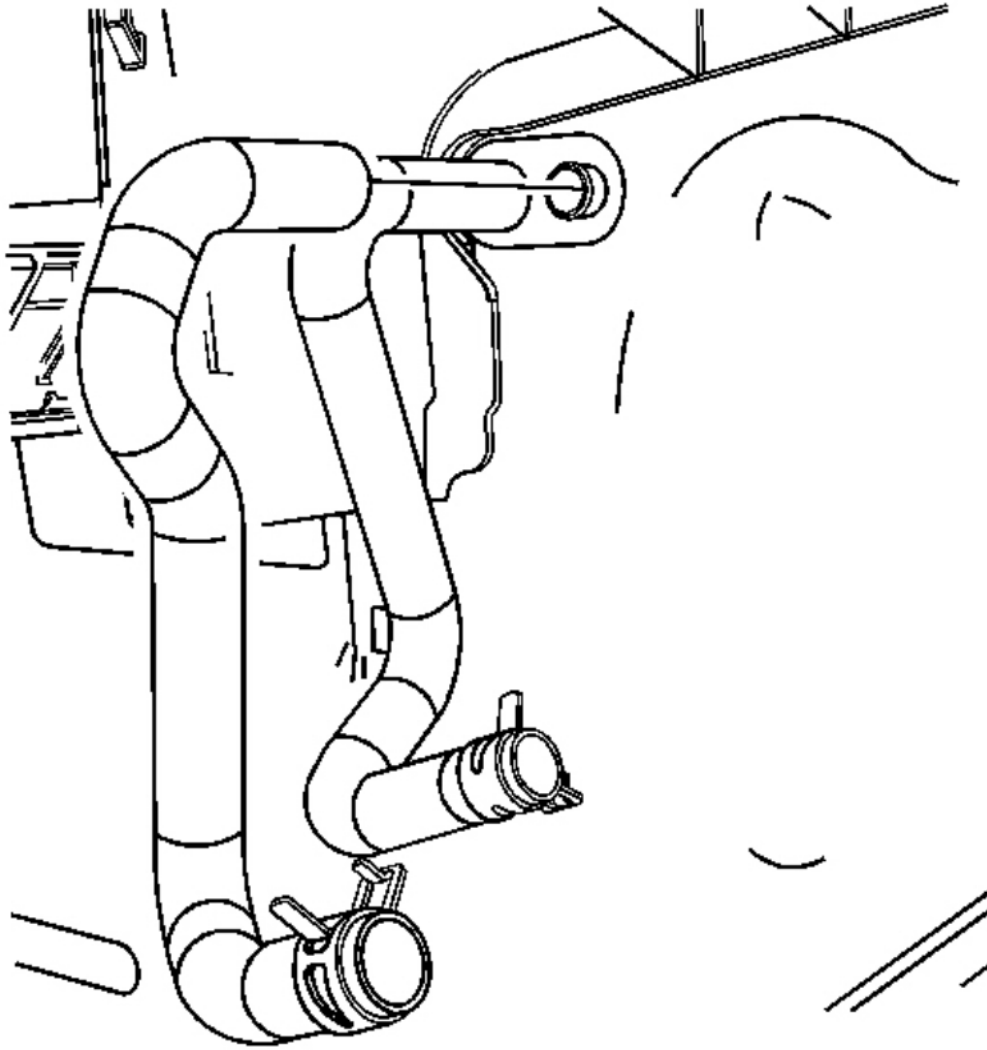


Fig. 187: View Of Inlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

5. Using **J 38185** slide the clamp away from the base of the heater inlet hose.
6. Remove the inlet heater hose from the heater core.

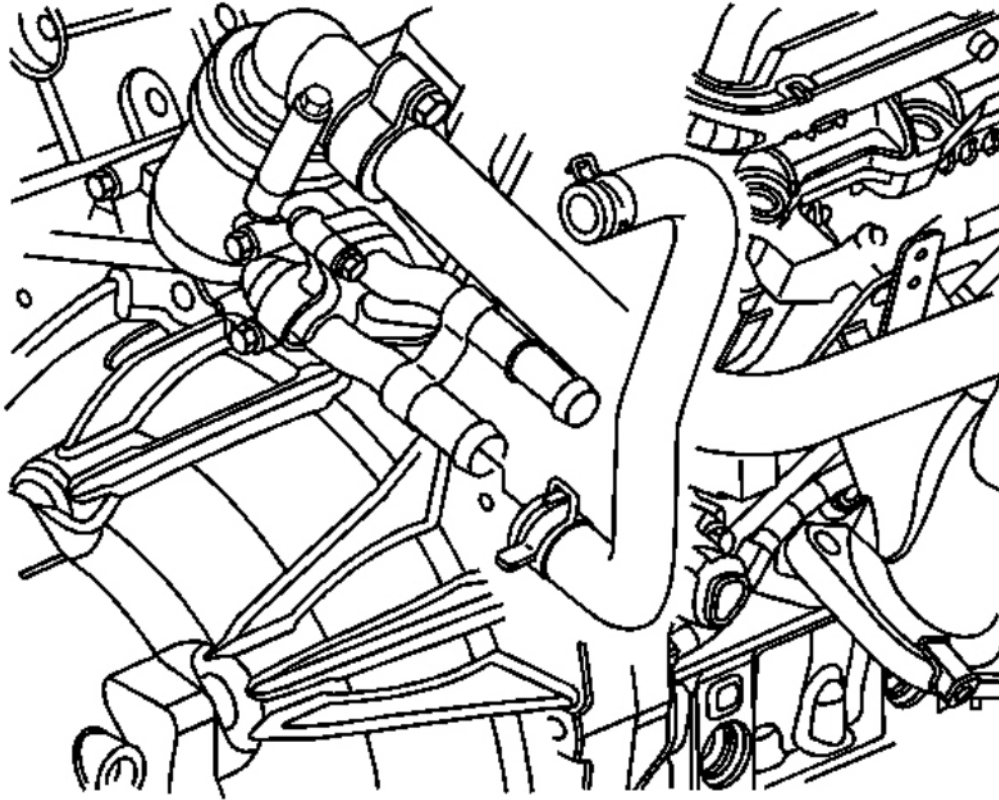


Fig. 188: Identifying Inlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

7. Using **J 38185** slide the clamp away from the base of the heater inlet hose.
8. Remove the clamp and hose from the engine cooling thermostat assembly.

Installation Procedure

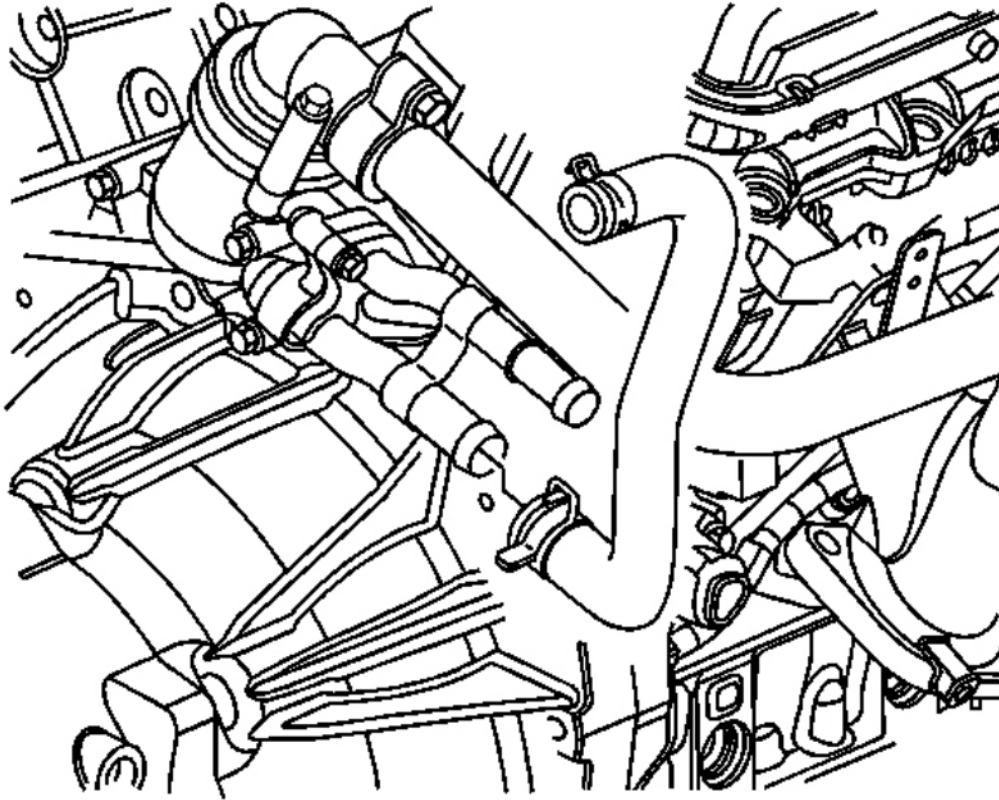


Fig. 189: Identifying Inlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

1. Install the inlet heater hose to the engine cooling thermostat assembly.
2. Using **J 38185** slide the clamp back into the original position on the hose.

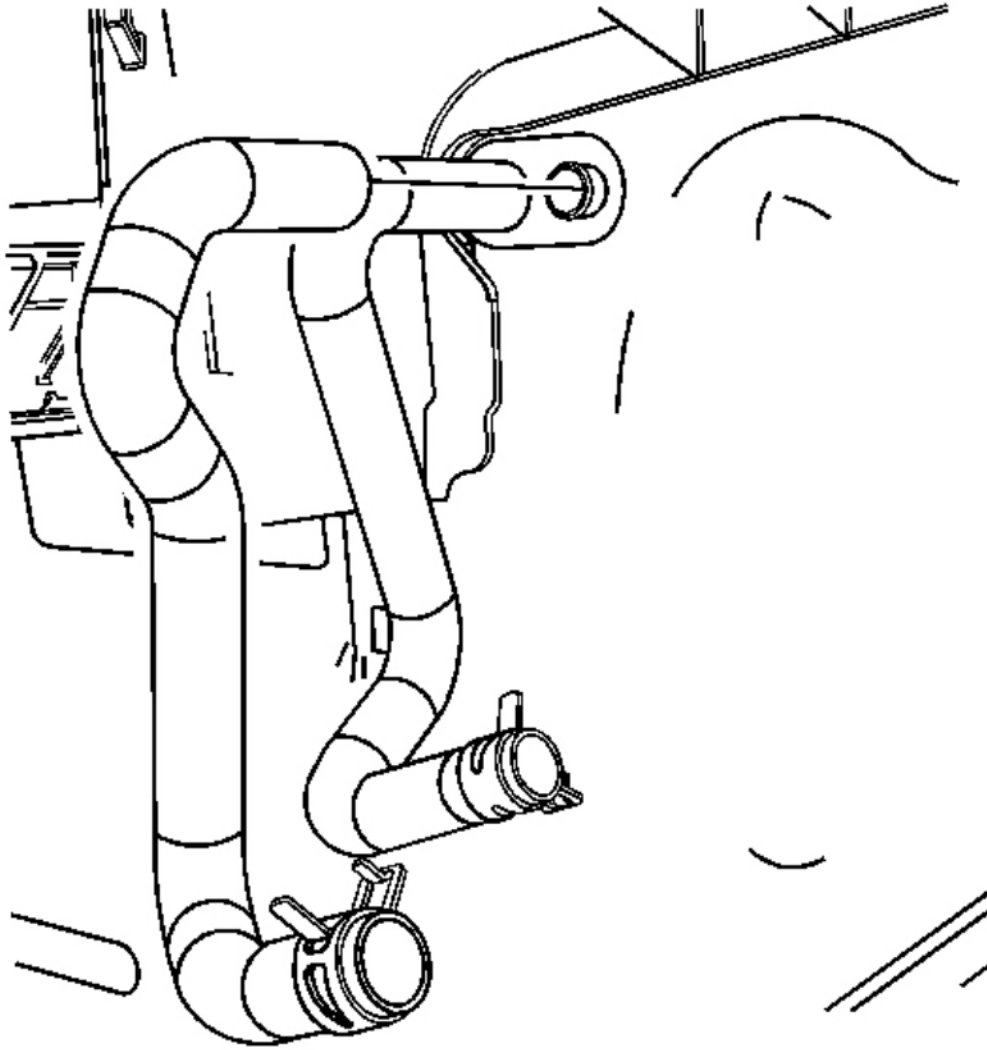


Fig. 190: View Of Inlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

3. Install the inlet heater hose to the heater core.
4. Using **J 38185** slide the clamp back into the original position on the hose.
5. Install the cowl panel.

NOTE: Refer to Fastener Notice in Cautions and Notices.

6. Install the cowl panel retaining bolts.

Tighten: Tighten the bolts to 6 N.m (13 lb ft).

7. Install the battery tray. Refer to **Battery Tray Replacement** in Engine Electrical.
8. Fill the cooling system. Refer to **Draining and Filling Cooling System** in Engine Cooling.

HEATER HOSE REPLACEMENT - OUTLET

Tools Required

J 38185 Hose Clamp Pliers

Removal Procedure

1. Drain the cooling system. Refer to **Draining and Filling Cooling System** in Engine Cooling.
2. Remove the battery tray. Refer to **Battery Tray Replacement** in Engine Electrical.
3. Remove the cowl panel retaining bolts.
4. Remove the cowl panel.

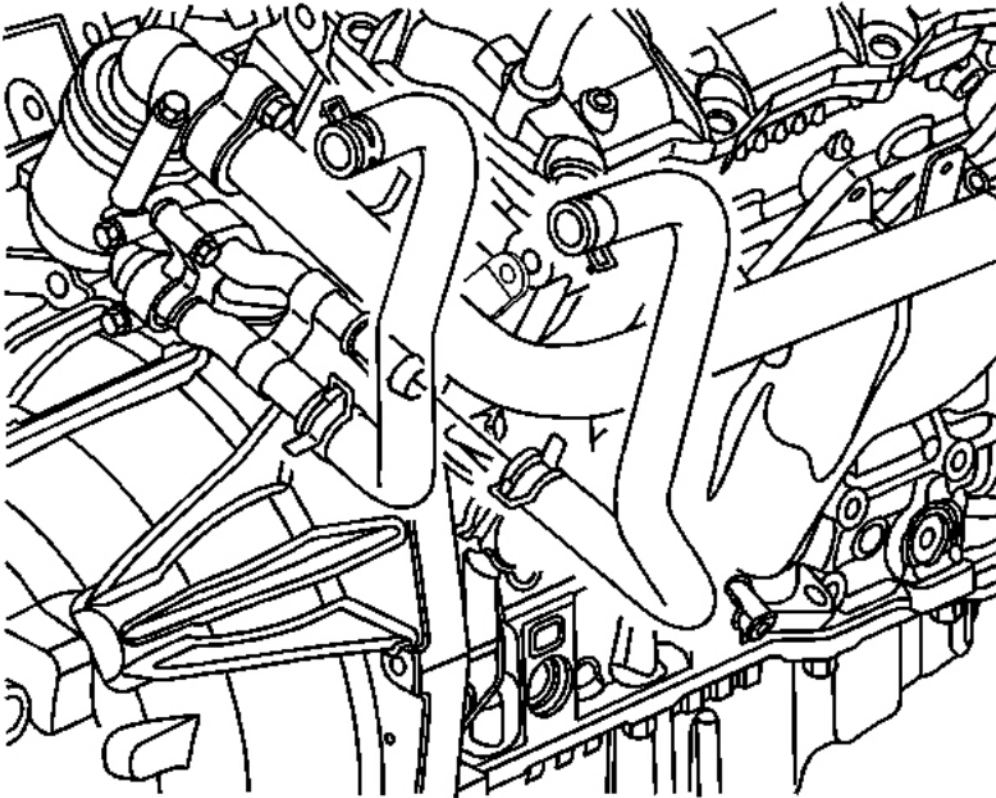


Fig. 191: View Of Outlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

5. Using **J 38185** slide the hose clamp away from the base of the heater hose.
6. Remove the outlet heater hose from the engine cooling thermostat assembly.

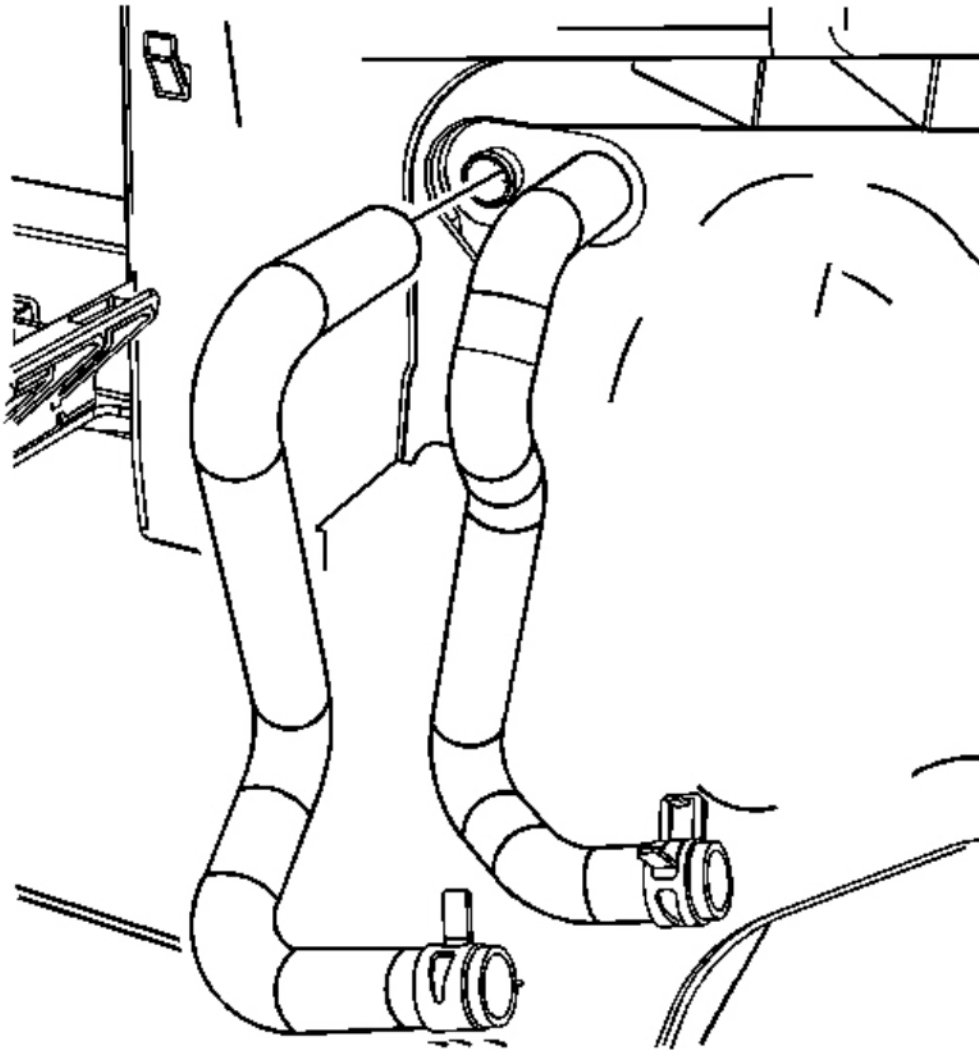


Fig. 192: Identifying Outlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

7. Using **J 38185** , slide the hose clamp away from the base of the heater hose.
8. Remove the heater outlet hose from the heater core.
9. Remove the heater outlet hose.

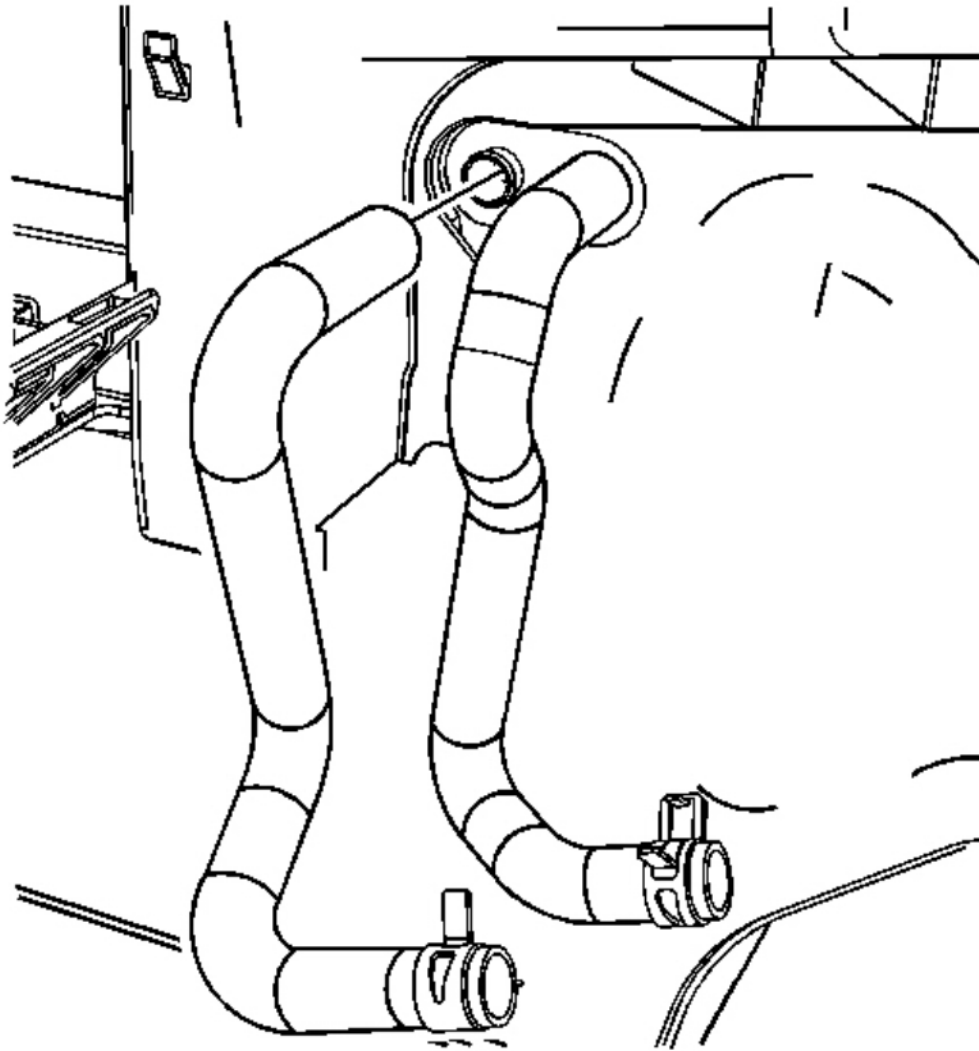


Fig. 193: Identifying Outlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

1. Position the outlet heater hose assembly into the vehicle.
2. Install the outlet hose to the heater core.
3. Using **J 38185** slide the hose clamp back into the original position on the hose.

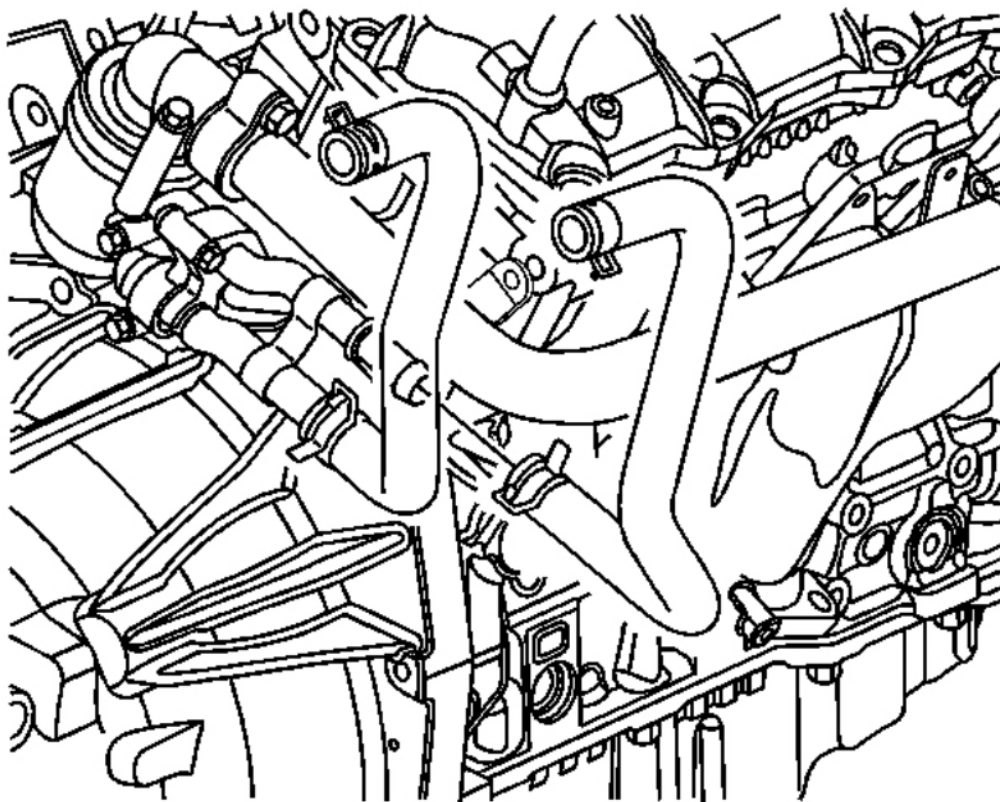


Fig. 194: View Of Outlet Heater Hose
Courtesy of GENERAL MOTORS CORP.

4. Install the outlet hose to the engine cooling thermostat assembly.
5. Using **J 38185** slide the hose clamp back into the original position on the hose.
6. Install the cowl panel.

NOTE: Refer to **Fastener Notice in Cautions and Notices.**

7. Install the cowl panel retaining bolts.

Tighten: Tighten the bolts to 6 N.m (13 lb ft).

8. Install the battery tray. Refer to **Battery Tray Replacement** in Engine Electrical.

9. Fill the cooling system. Refer to **Draining and Filling Cooling System** in Engine Cooling.

PASSENGER COMPARTMENT AIR FILTER HOUSING REPLACEMENT

Removal Procedure

1. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.

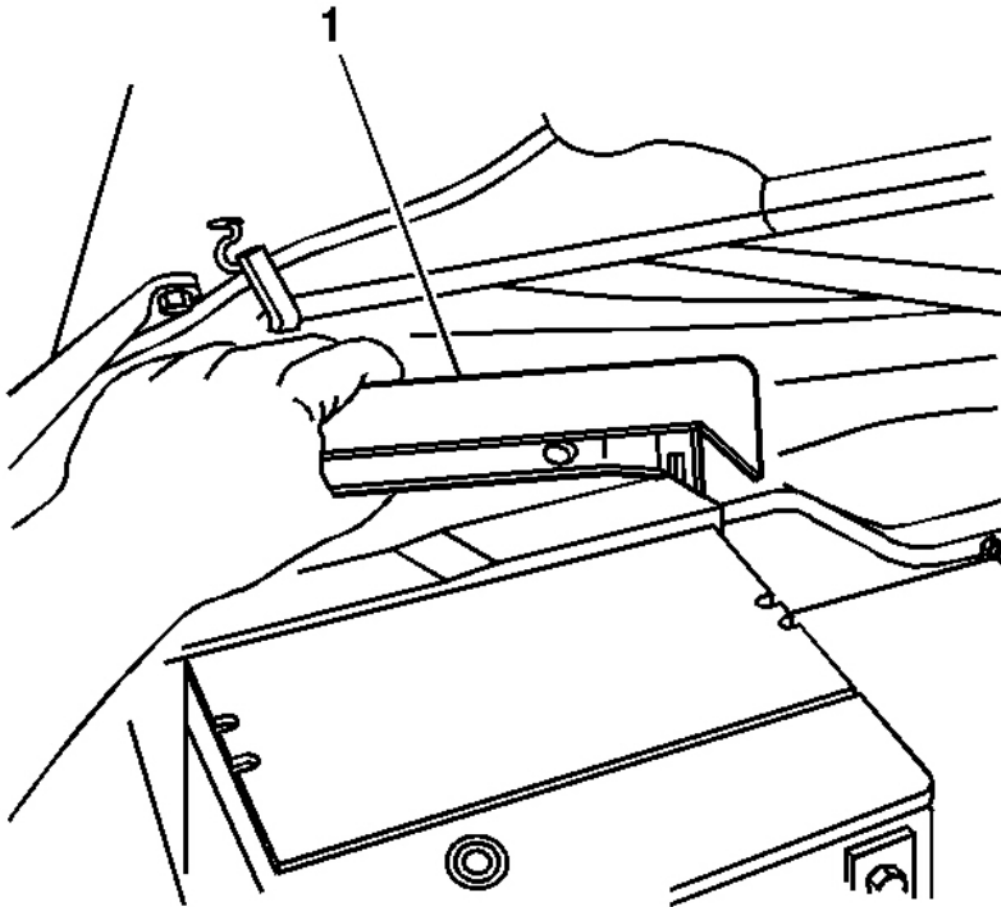


Fig. 195: View Of Filter Access Cover
Courtesy of GENERAL MOTORS CORP.

2. With two hands release the tabs on each side of the access cover.

3. Lift up and remove the filter access cover (1).

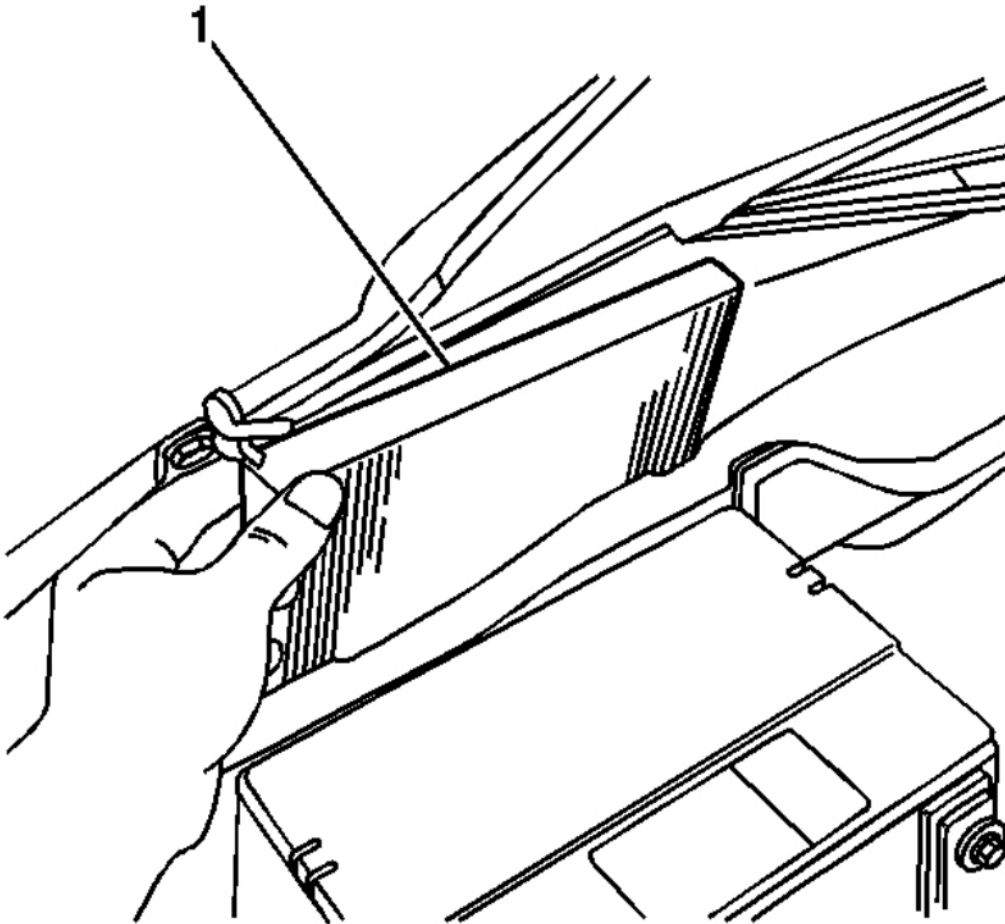


Fig. 196: View Of Filter

Courtesy of GENERAL MOTORS CORP.

4. Remove the filter (1) from the filter housing.

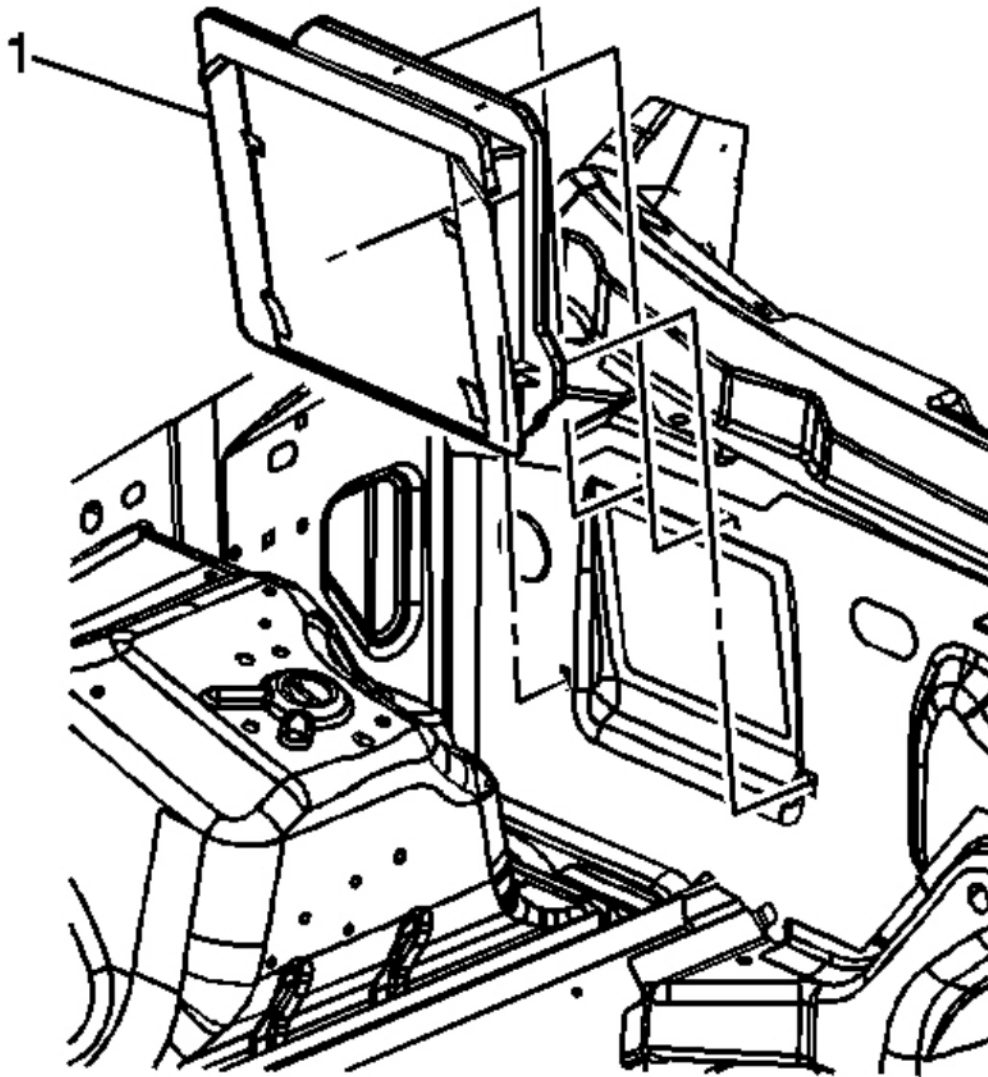


Fig. 197: View Of Passenger Air Filter Housing
Courtesy of GENERAL MOTORS CORP.

5. Gently pry out on the filter housing to separate the housing from the sheet metal.
6. Remove the passenger air filter housing (1).

1. Install the passenger air filter housing (1).
2. Press the passenger air filter housing until all clips engage into the sheet metal.

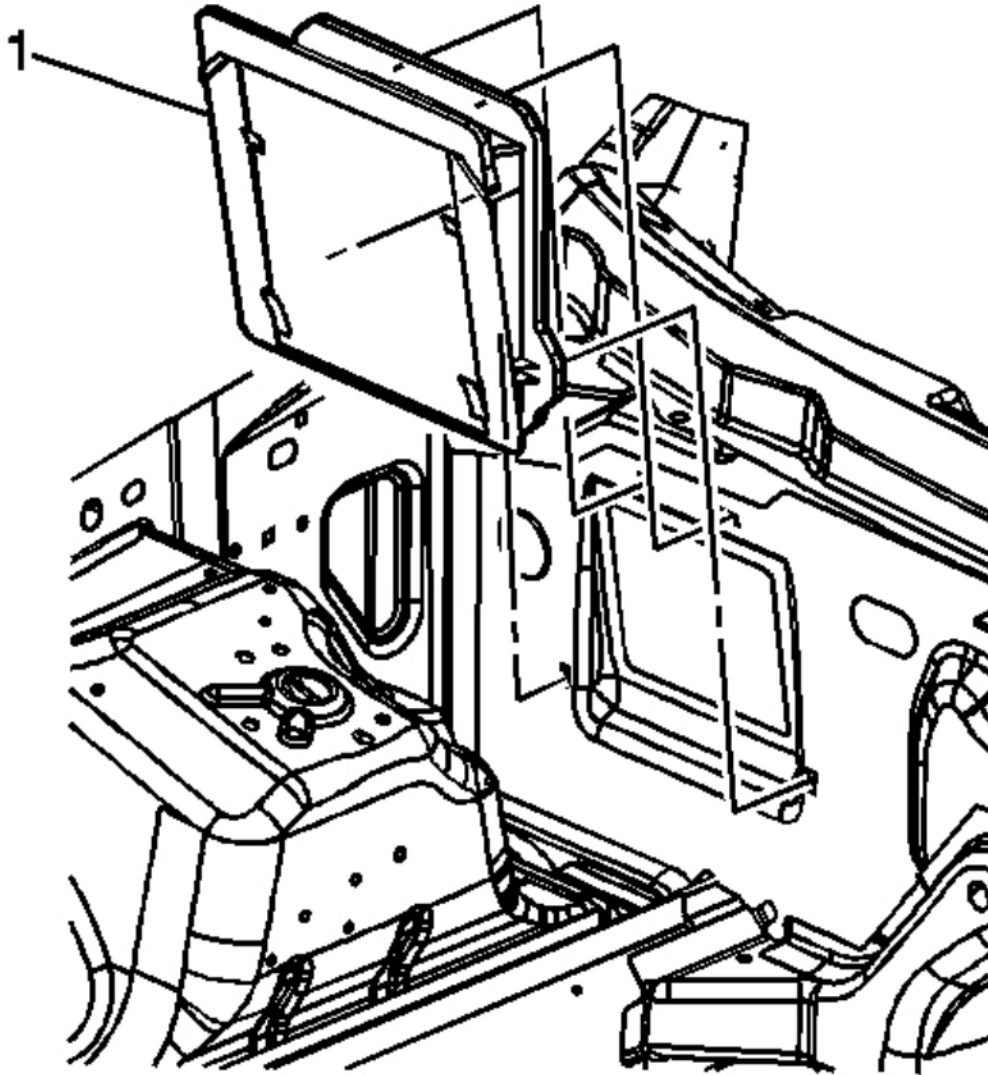


Fig. 198: View Of Passenger Air Filter Housing
Courtesy of GENERAL MOTORS CORP.

3. Ensure that there is a good seal between the passenger air filter housing and the sheet metal.

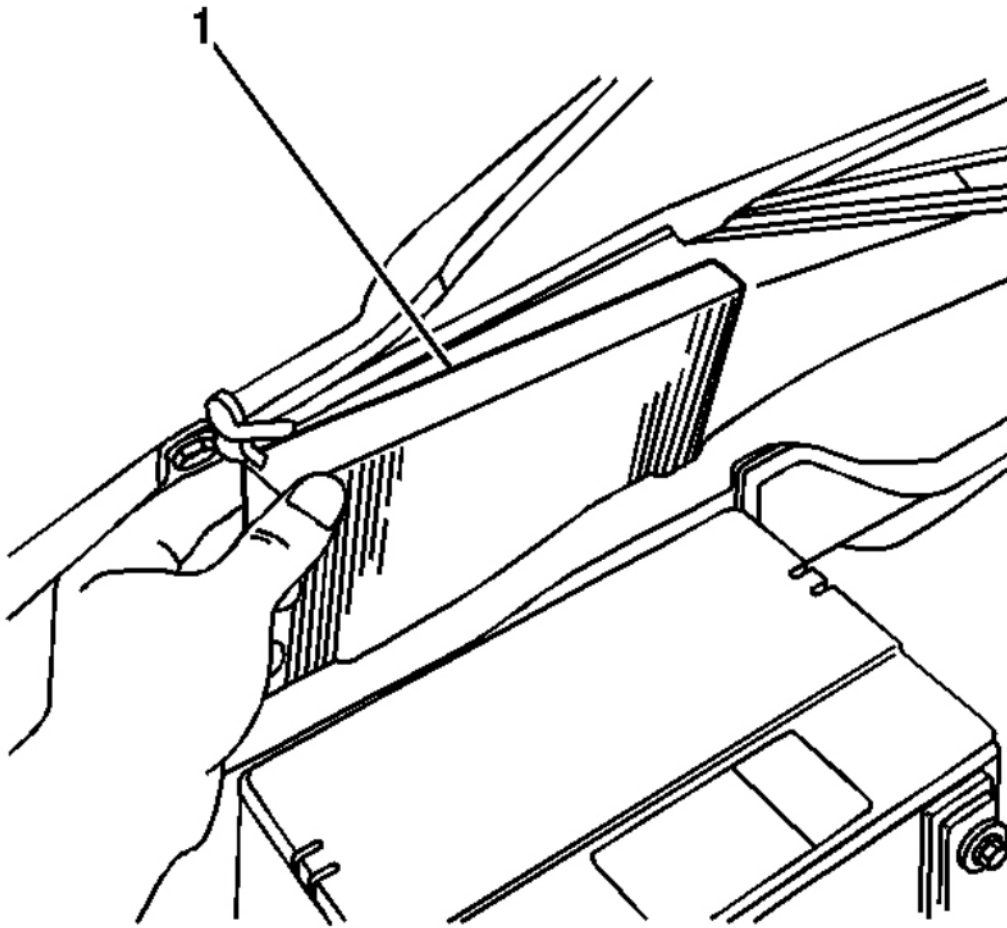


Fig. 199: View Of Filter

Courtesy of GENERAL MOTORS CORP.

4. Install the filter (1) in to the filter housing.

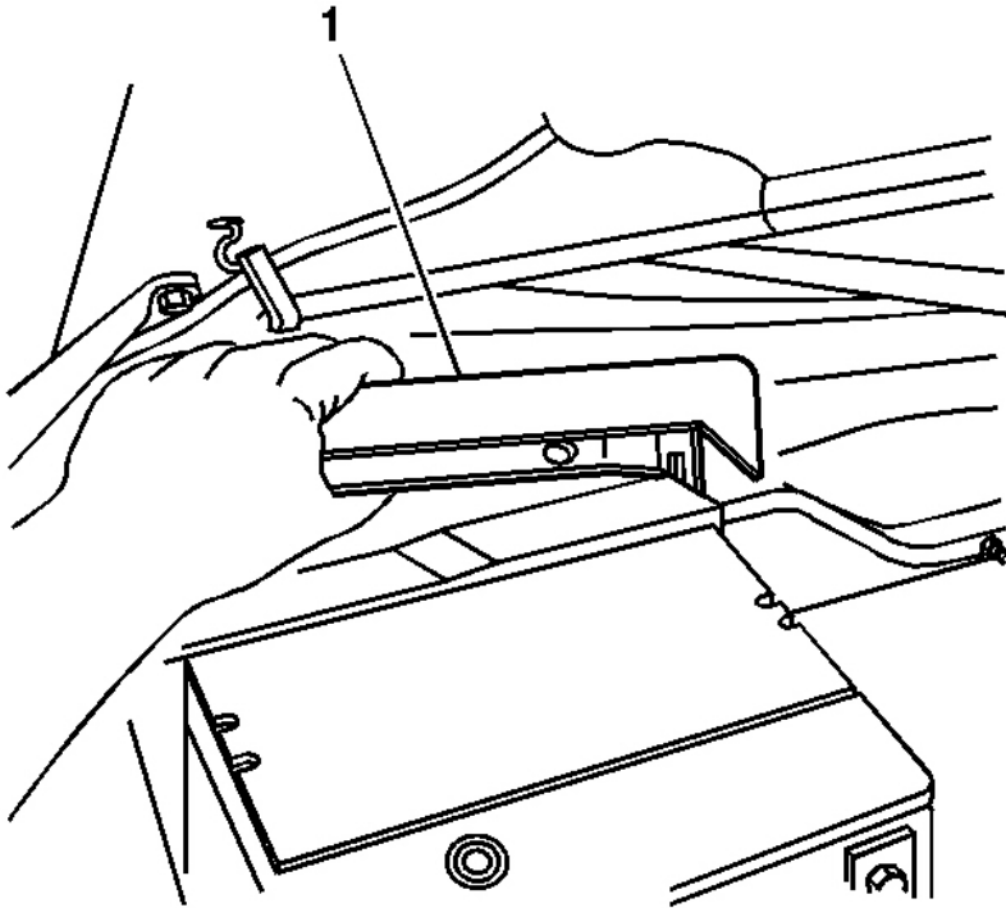


Fig. 200: View Of Filter Access Cover
Courtesy of GENERAL MOTORS CORP.

5. Install the filter access cover (1).
6. Install the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.

PASSENGER COMPARTMENT AIR FILTER REPLACEMENT

Removal Procedure

1. Remove the air inlet grille access panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.

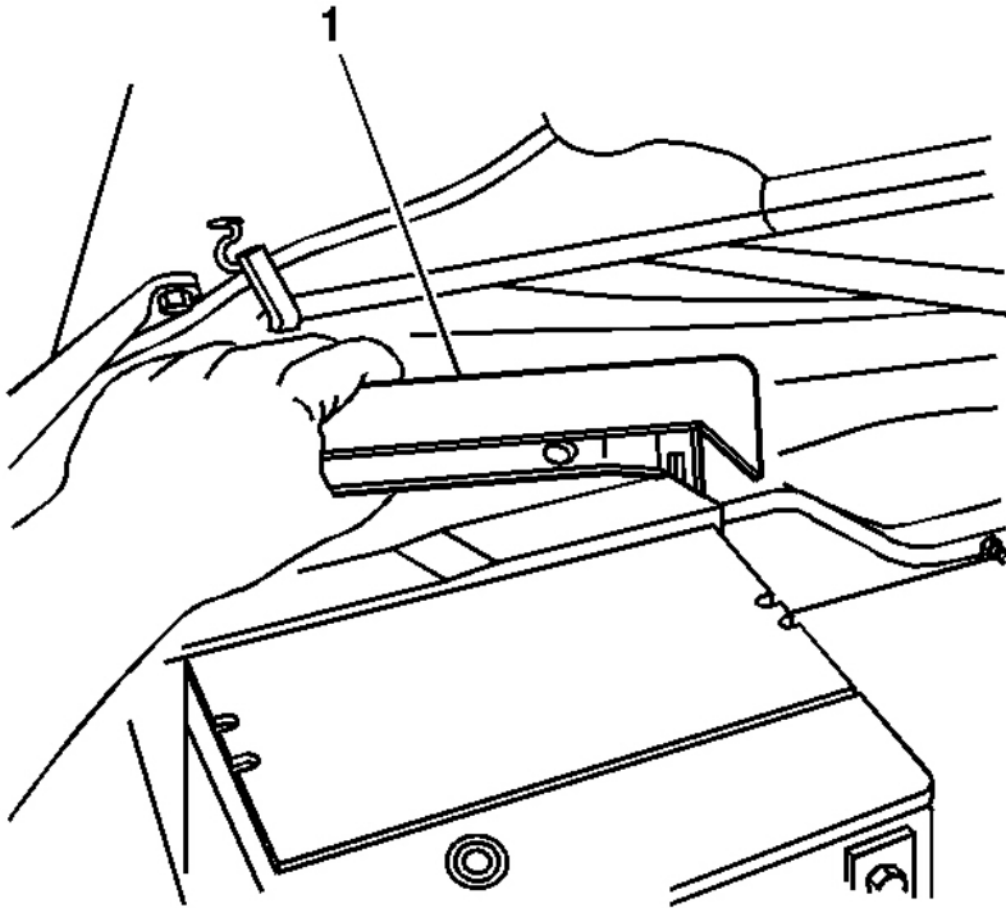


Fig. 201: View Of Filter Access Cover
Courtesy of GENERAL MOTORS CORP.

2. With two hands release the tabs on each side of the access cover.
3. Lift up and remove the filter access cover (1).

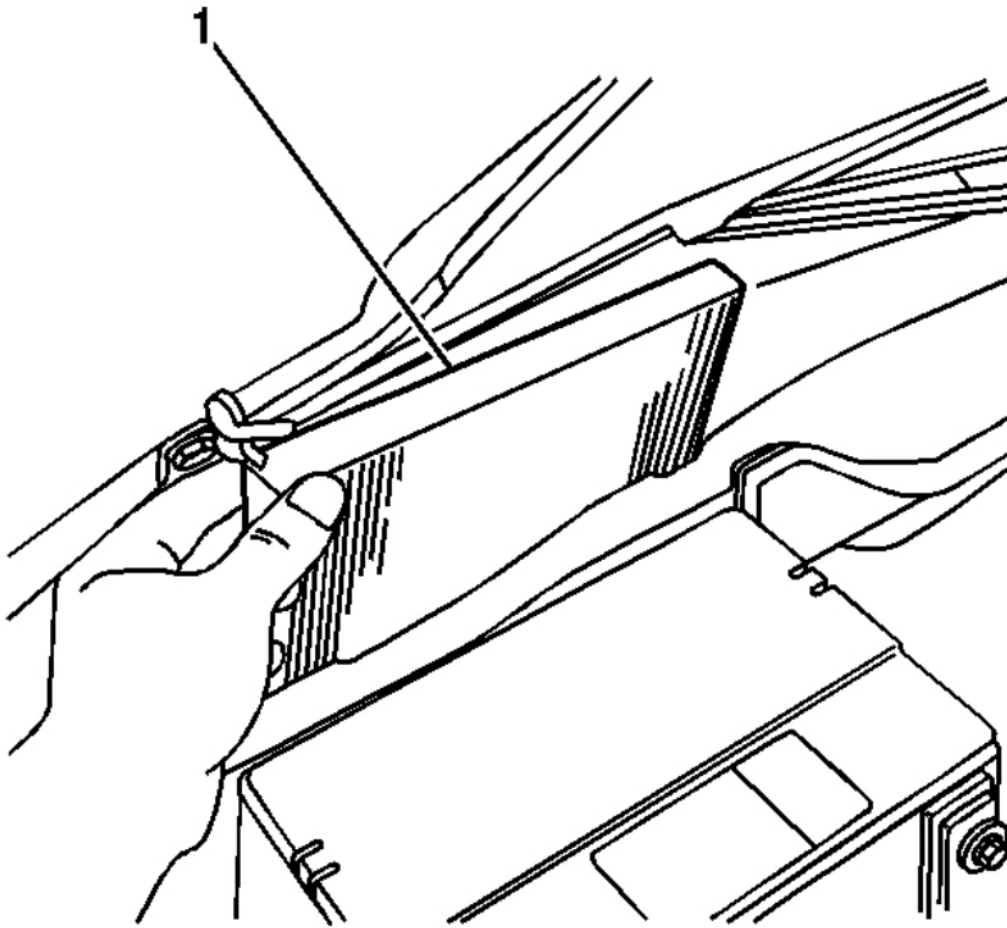


Fig. 202: View Of Filter

Courtesy of GENERAL MOTORS CORP.

4. Remove the filter (1) from the filter housing.

Installation Procedure

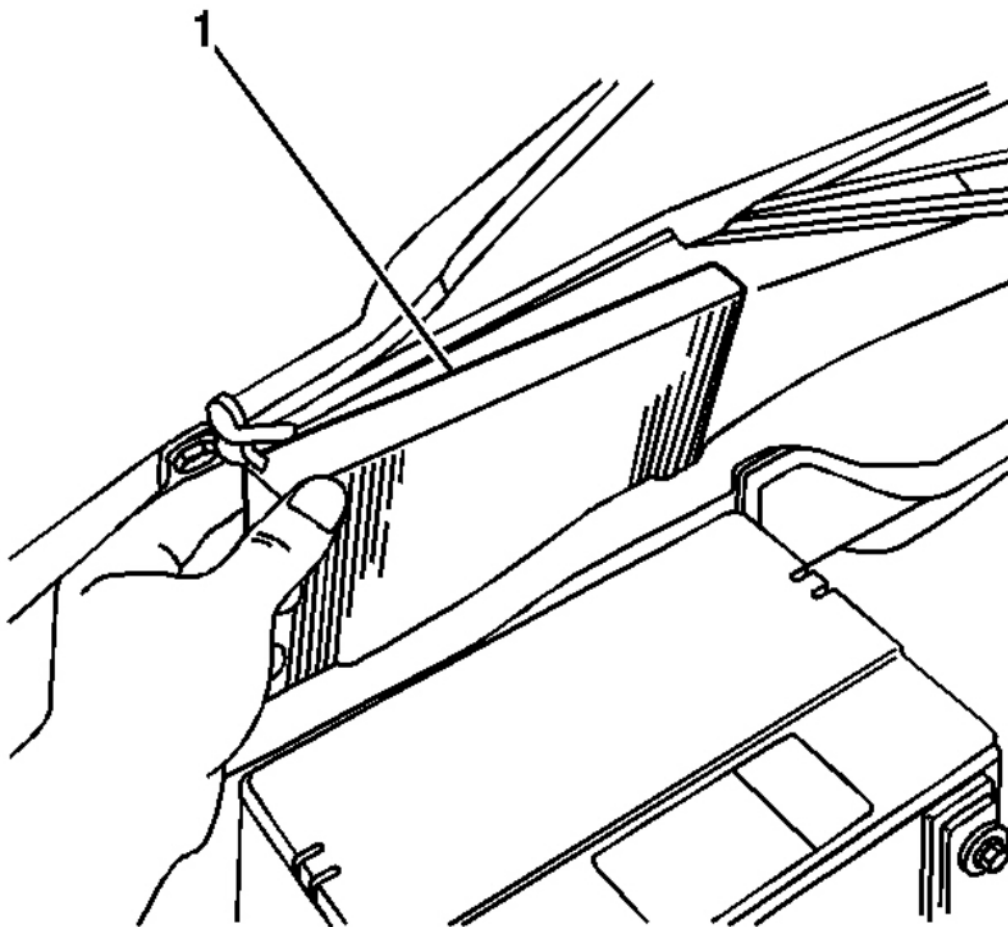


Fig. 203: View Of Filter

Courtesy of GENERAL MOTORS CORP.

1. Install the filter (1) in to the filter housing.

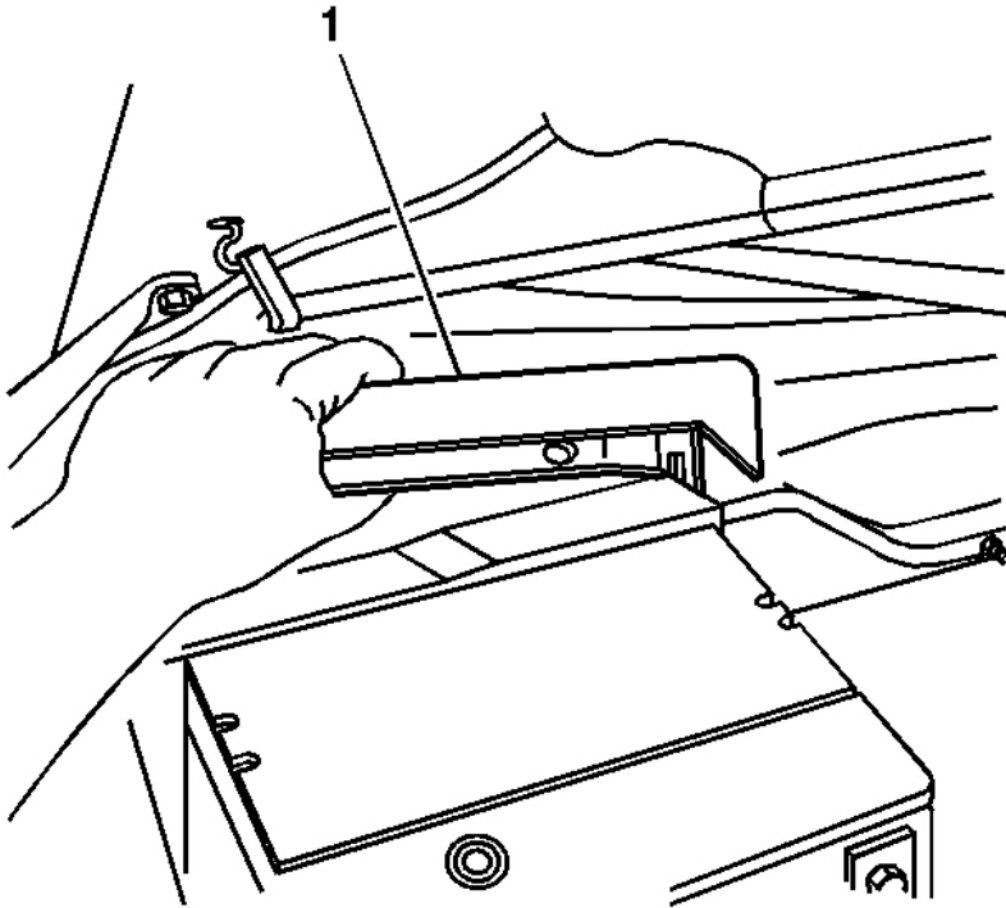


Fig. 204: View Of Filter Access Cover
Courtesy of GENERAL MOTORS CORP.

2. Install the filter access cover (1).
3. Install the air inlet grille access panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.

AIR INLET ASSEMBLY REPLACEMENT

Removal Procedure

1. Remove the instrument panel (I/P) compartment. Refer to **Compartment Replacement - Instrument Panel (I/P)** Instrument Panel, Gages, and Console.

2. Remove the closeout panel. Refer to Closeout/Insulator Panel Replacement - Right in Instrument Panel, Gages and Console.

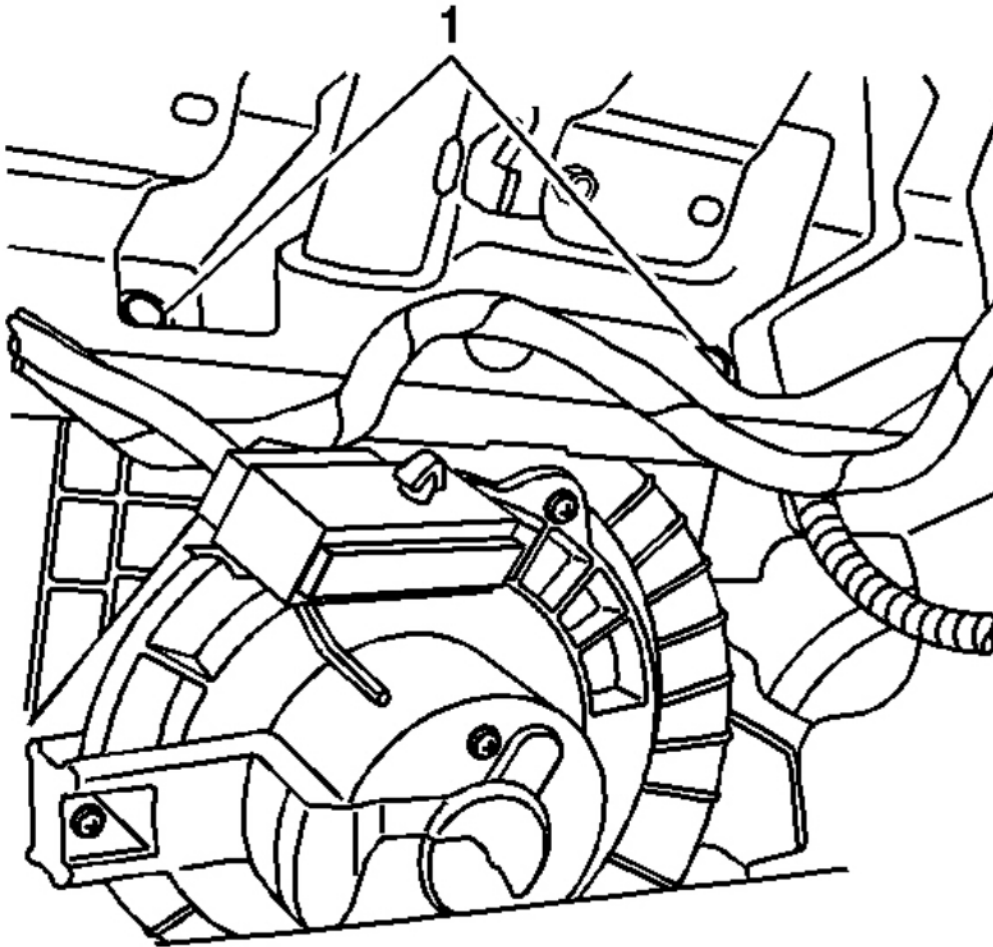


Fig. 205: Locating Upper Air Inlet Assembly Bolts
Courtesy of GENERAL MOTORS CORP.

3. Remove the upper air inlet assembly bolts (1).

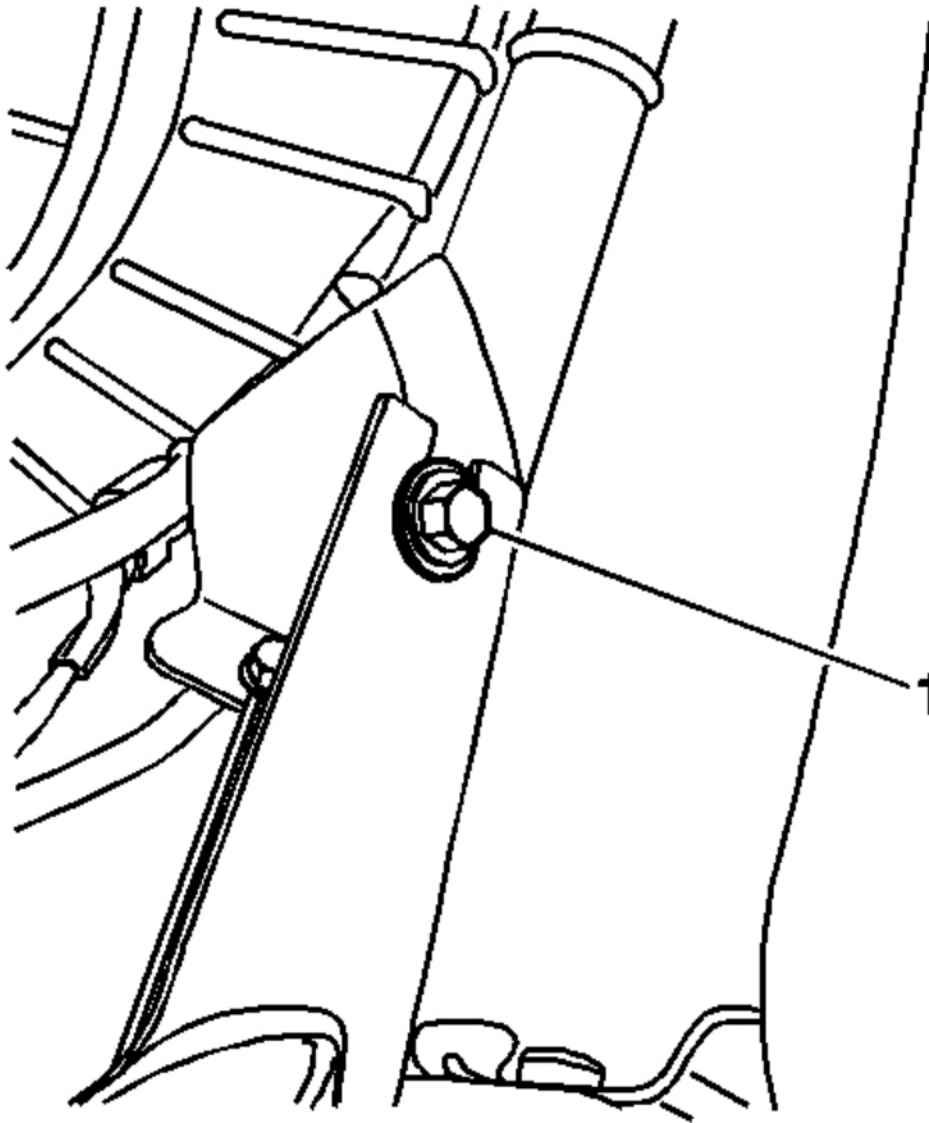


Fig. 206: View Of Lower Right Air Inlet Assembly Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the lower right air inlet assembly bolt (1).
5. Slide the assembly to the right and then lower.

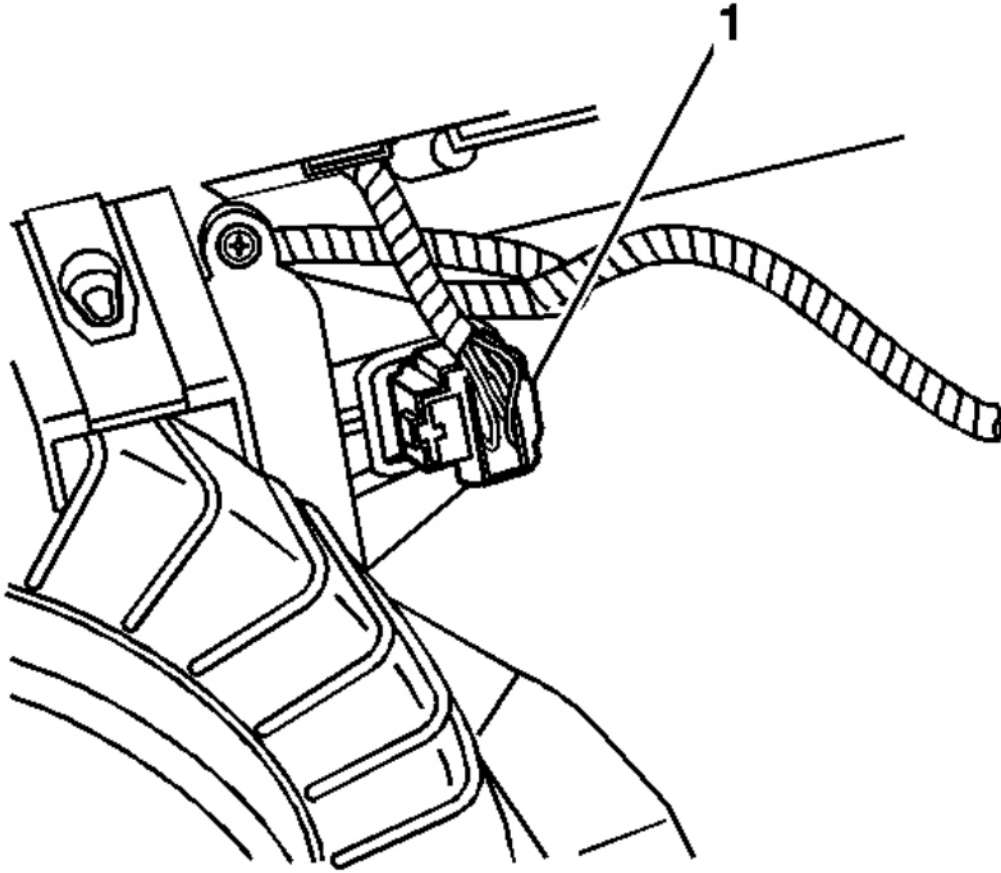


Fig. 207: View Of Air Inlet Assembly Electrical Connector
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the air inlet assembly electrical connector (1).

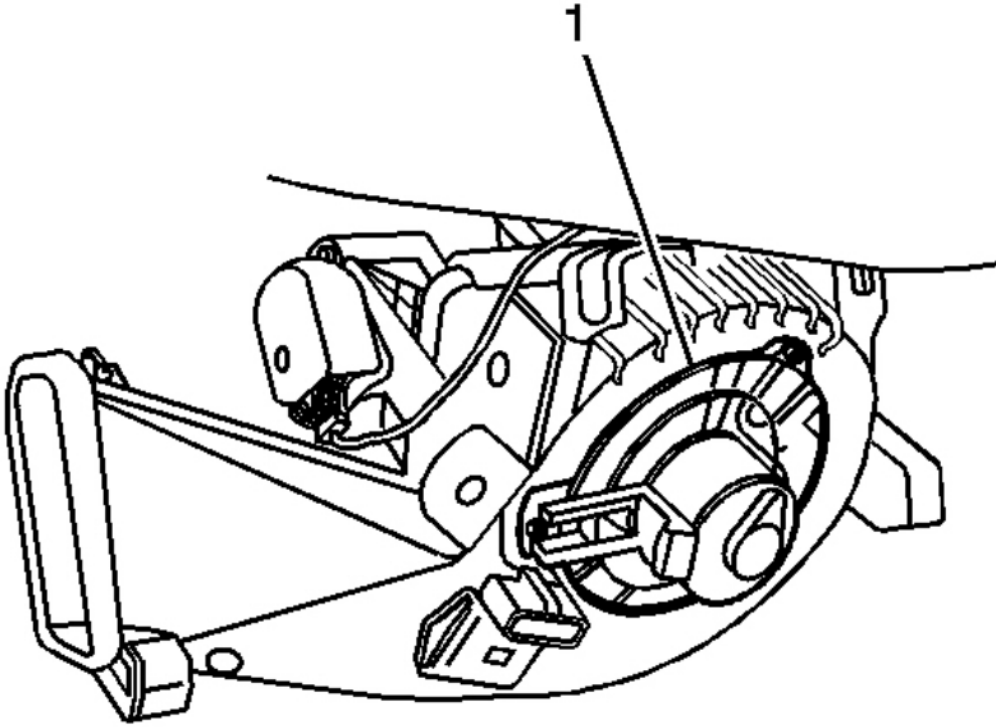


Fig. 208: View Of Air Inlet Assembly
Courtesy of GENERAL MOTORS CORP.

7. Rotate the air inlet assembly (1) and remove.

Installation Procedure

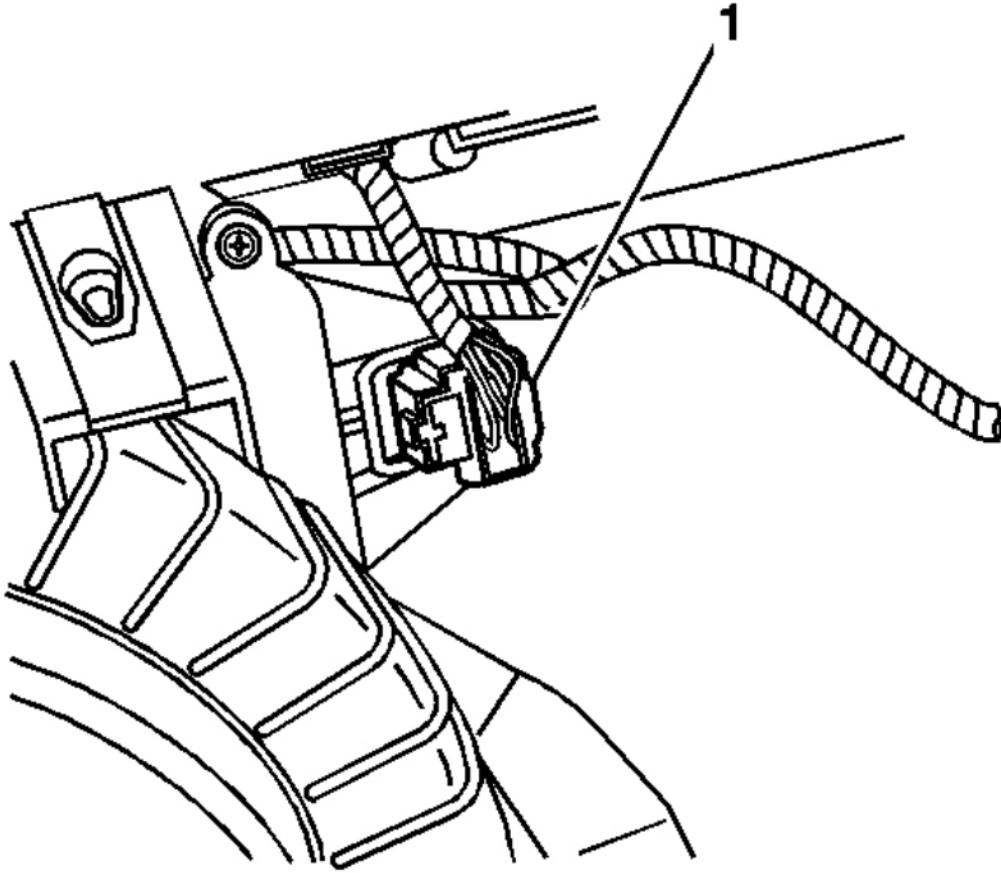


Fig. 209: View Of Air Inlet Assembly Electrical Connector
Courtesy of GENERAL MOTORS CORP.

1. Connect the air inlet assembly electrical connector (1).

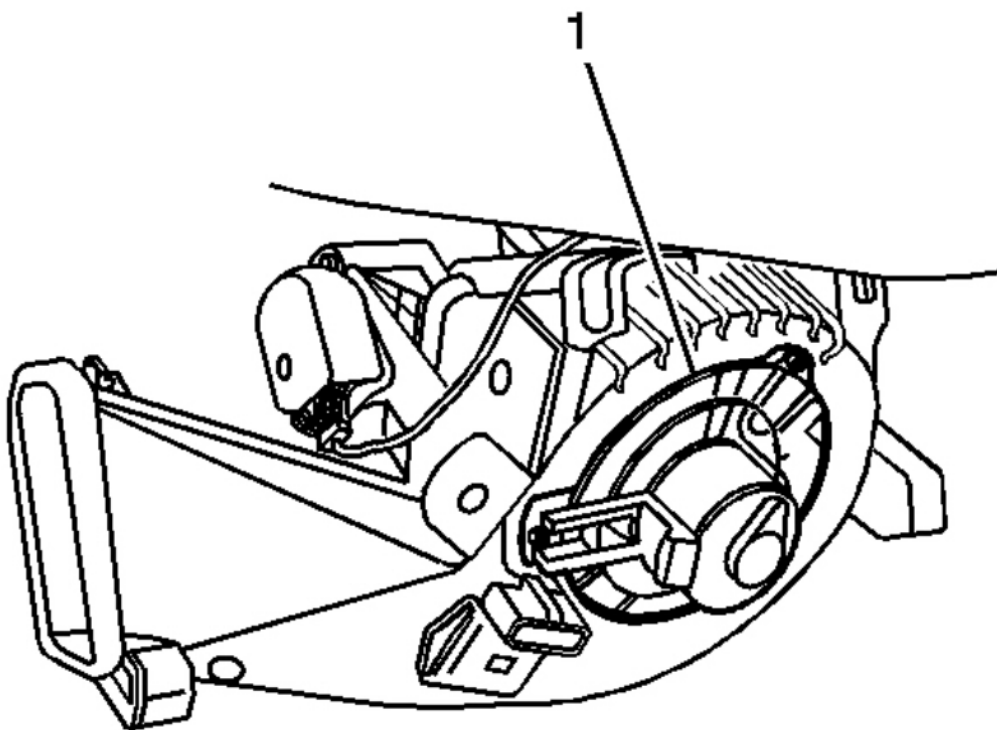


Fig. 210: View Of Air Inlet Assembly
Courtesy of GENERAL MOTORS CORP.

2. Install the air inlet assembly (1) to the locator pin.

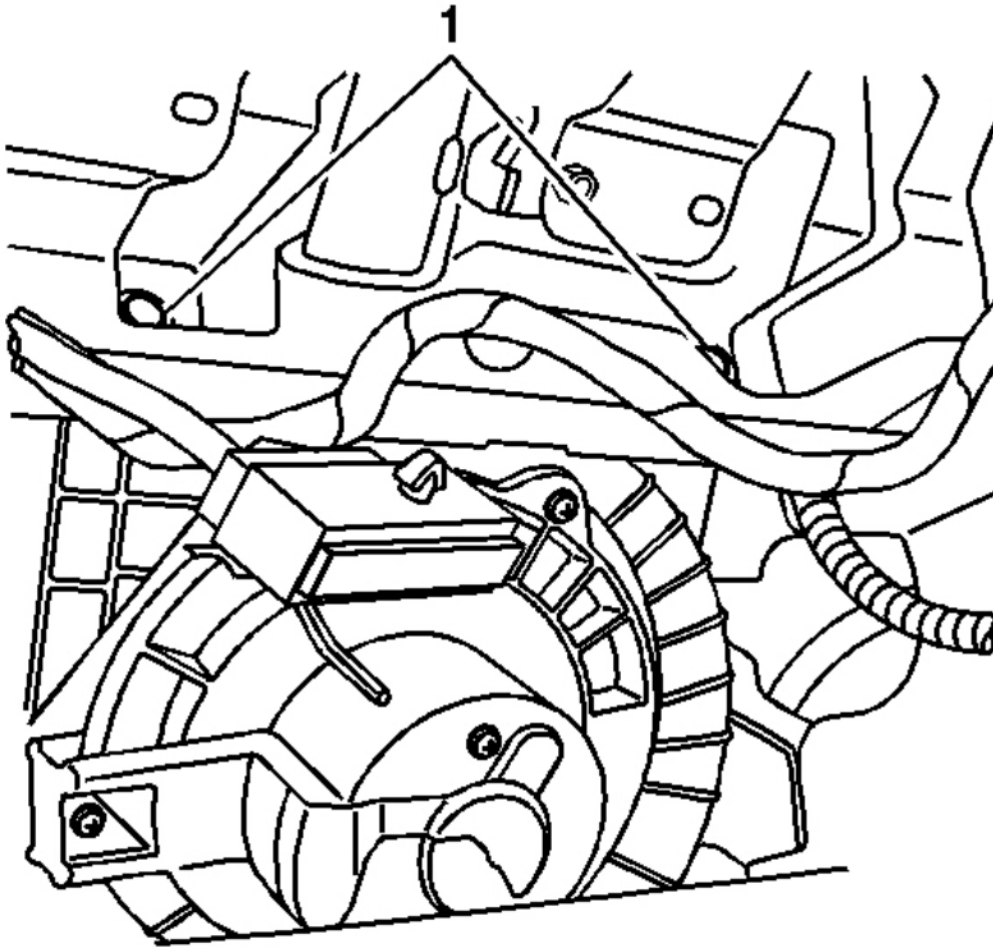


Fig. 211: Locating Upper Air Inlet Assembly Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the upper air inlet assembly bolts (1).

Tighten: Tighten the bolt to 9 N.m (80 lb in).

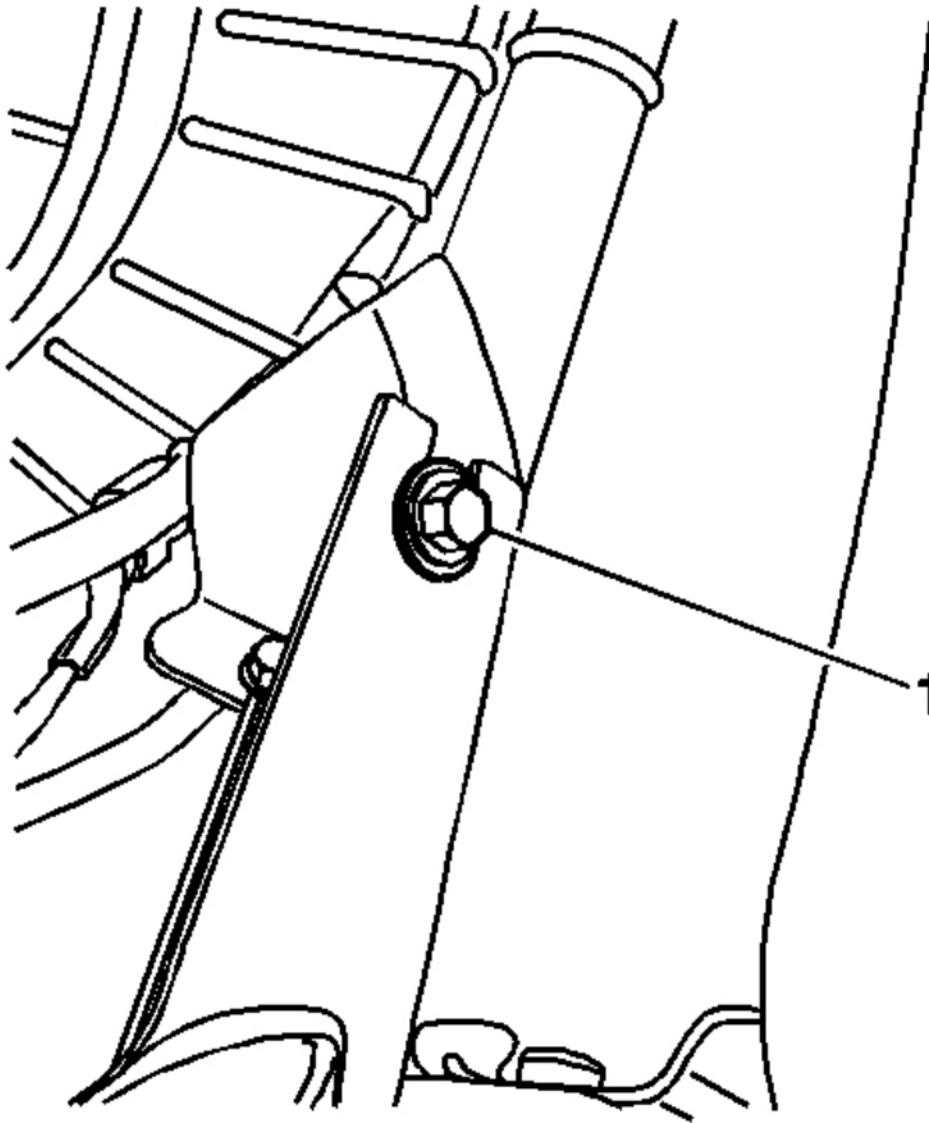


Fig. 212: View Of Lower Right Air Inlet Assembly Bolt
Courtesy of GENERAL MOTORS CORP.

4. Install the lower right air inlet assembly bolt (1).

Tighten: Tighten the bolt to 9 N.m (80 lb in).

5. Install the I/P compartment. Refer to **Compartment Replacement - Instrument Panel (I/P)** in Instrument Panel, Gages, and Console.
6. Install the closeout panel. Refer to **Closeout/Insulator Panel Replacement - Right** in Instrument Panel, Gages and Console.

BLOWER MOTOR REPLACEMENT

Removal Procedure

1. Remove the right closeout insulator panel. Refer to **Closeout/Insulator Panel Replacement - Right** in Instrument Panel, Gages, and Console.
2. Remove the instrument panel (I/P) compartment. Refer to **Compartment Replacement - Instrument Panel (I/P)** in Instrument Panel, Gages, and Console.

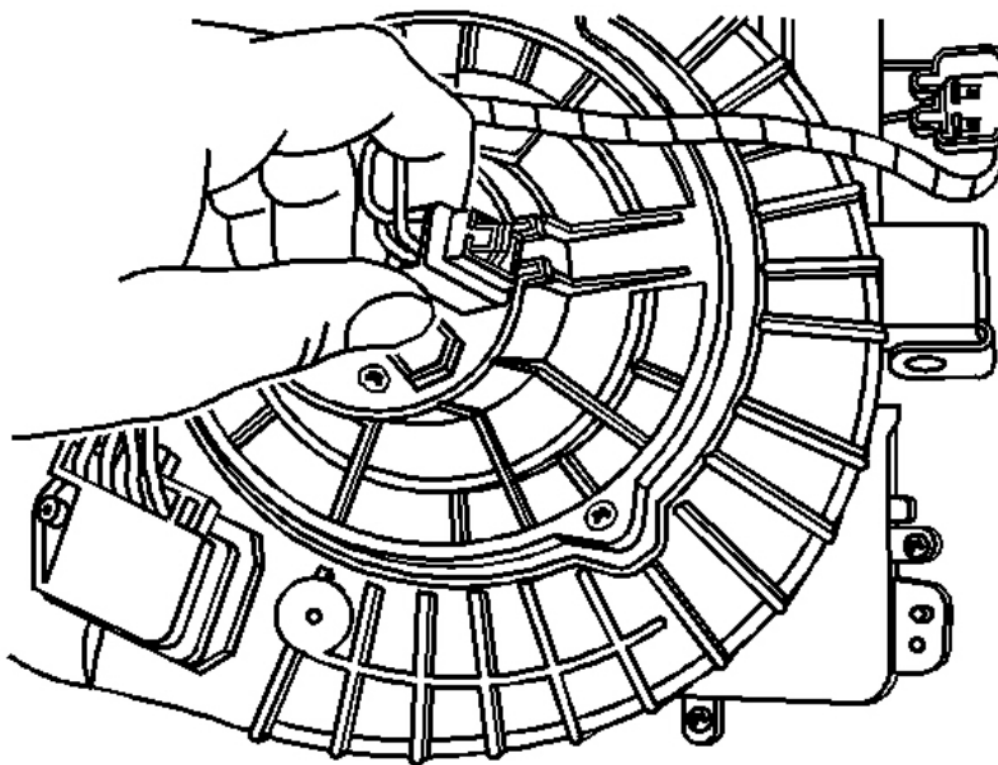


Fig. 213: View Of Blower Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the blower motor electrical connector.

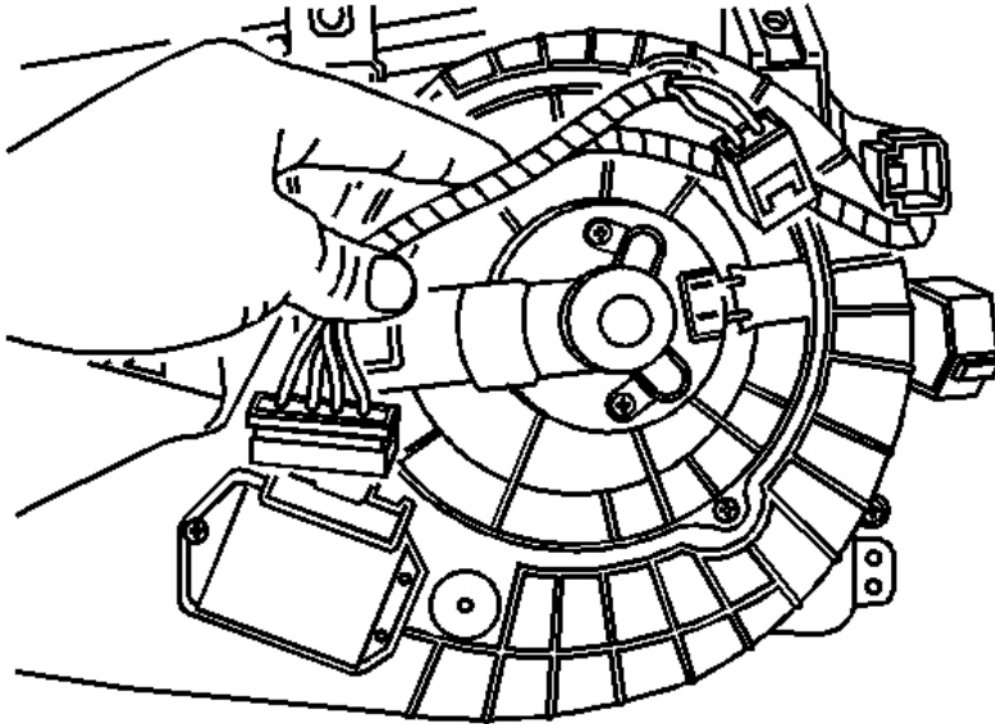


Fig. 214: View Of Blower Motor Processor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the blower motor processor electrical connector.

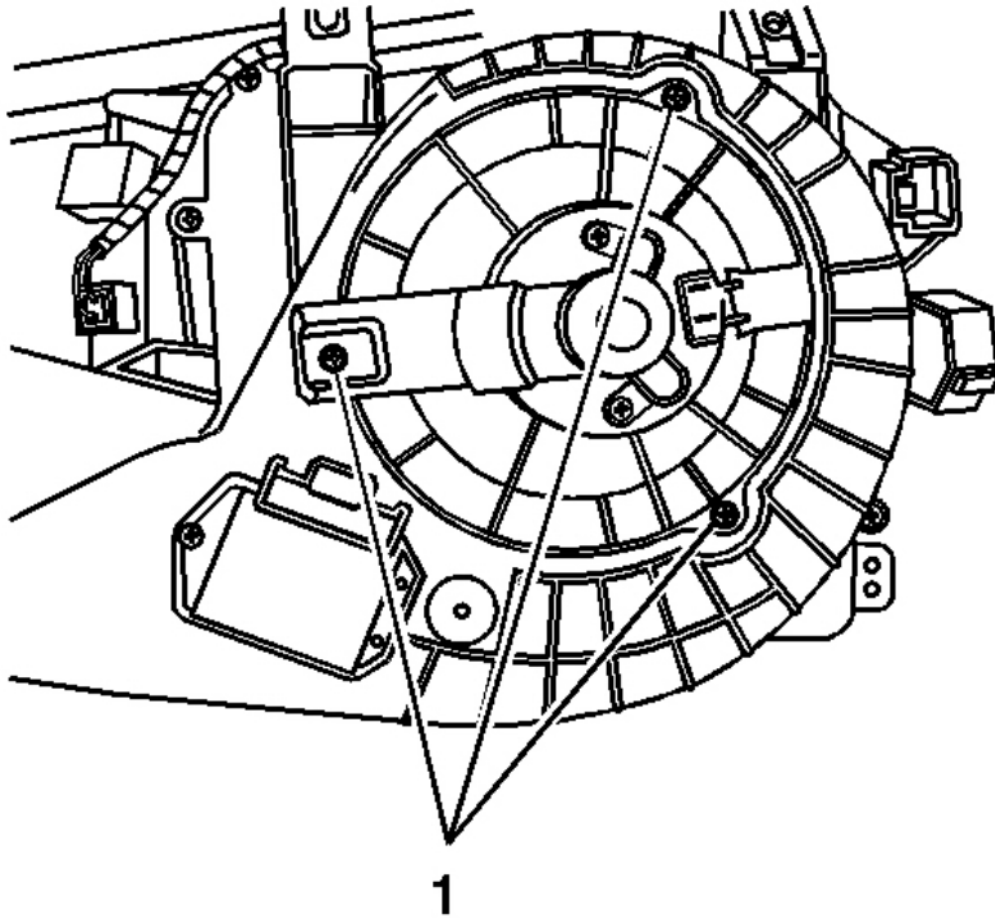


Fig. 215: Locating Blower Motor Retaining Screws
Courtesy of GENERAL MOTORS CORP.

5. Remove the screws (1) that retain the blower motor.

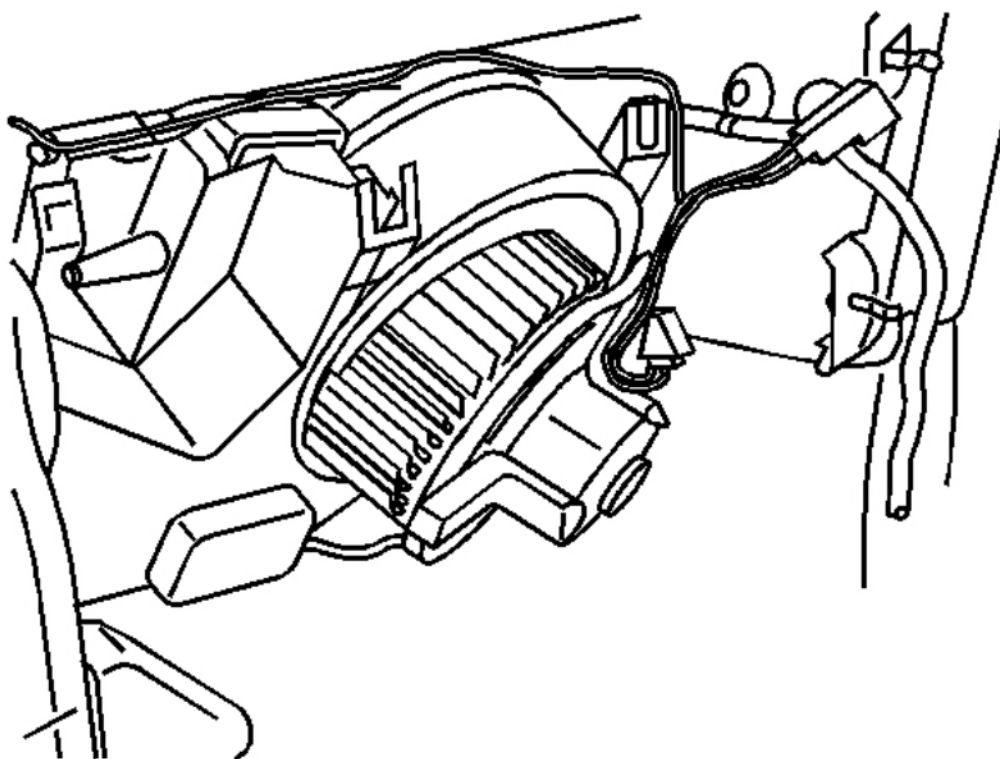


Fig. 216: View Of Blower Motor
Courtesy of GENERAL MOTORS CORP.

6. Remove the blower motor.

Installation Procedure

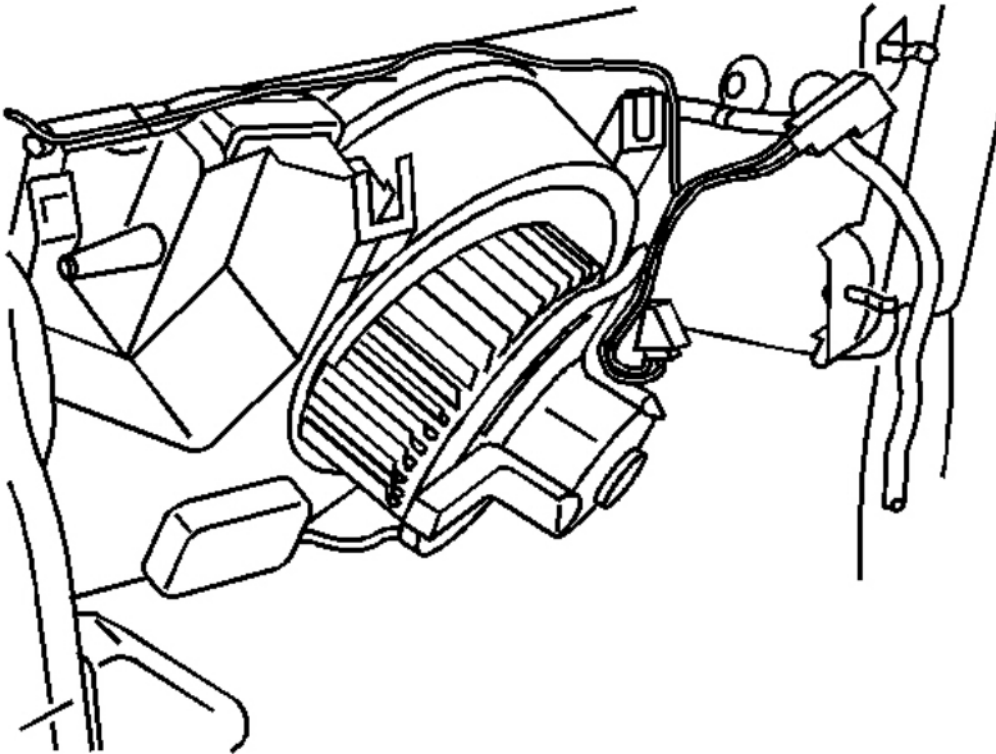


Fig. 217: View Of Blower Motor
Courtesy of GENERAL MOTORS CORP.

1. Install the blower motor.

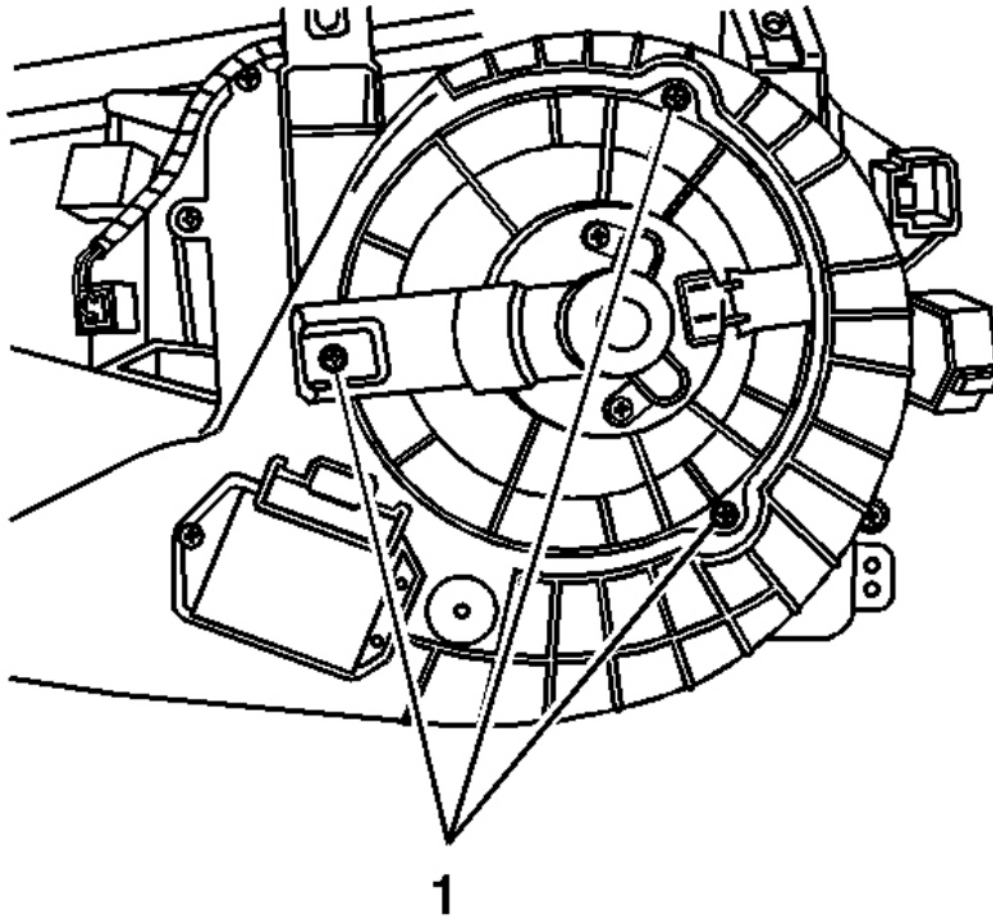


Fig. 218: Locating Blower Motor Retaining Screws
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the blower motor screws (1).

Tighten: Tighten the screws to 1.5 N.m (13 lb in).

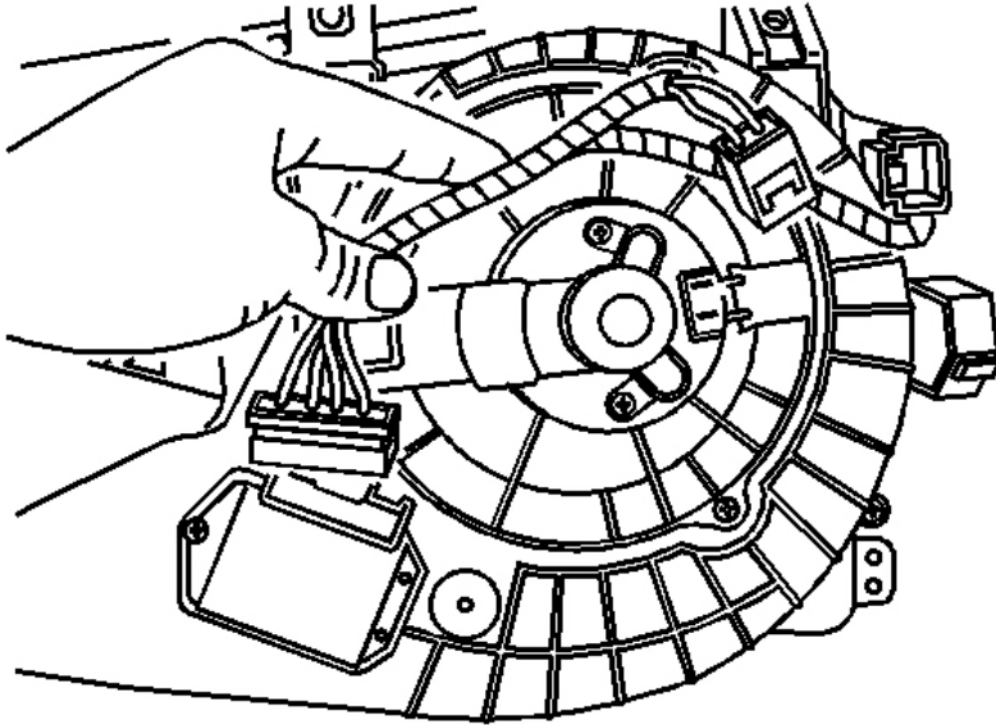


Fig. 219: View Of Blower Motor Processor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

3. Connect the blower motor processor electrical connector.

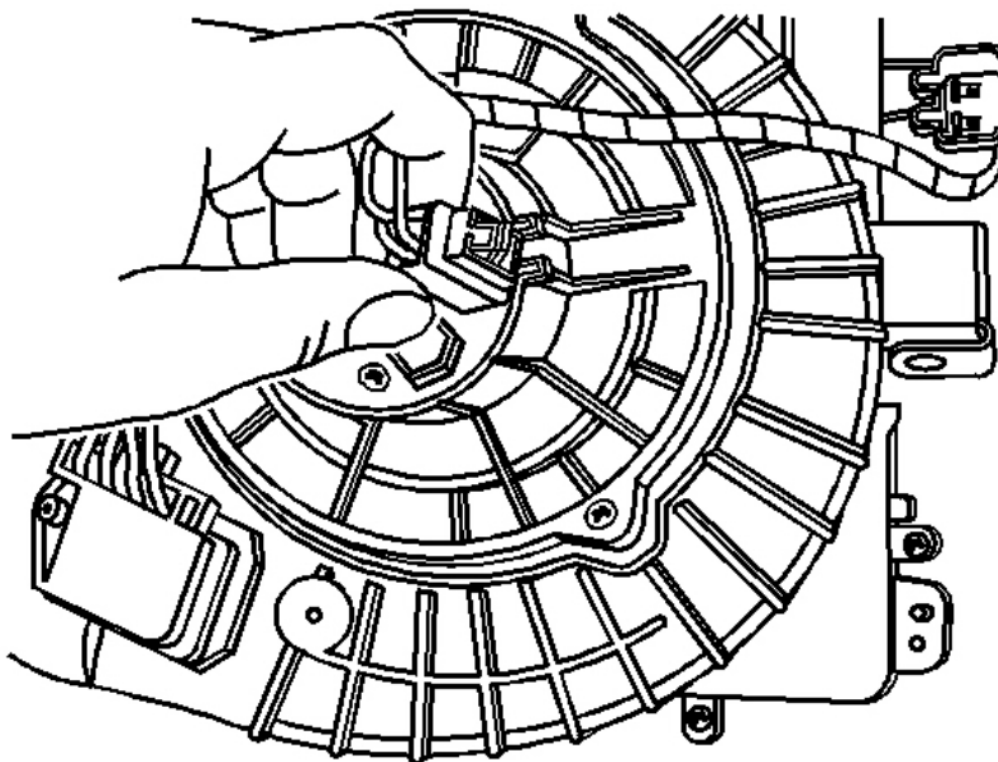


Fig. 220: View Of Blower Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Connect the blower motor electrical connector.
5. Install the I/P compartment. Refer to **Compartment Replacement - Instrument Panel (I/P)** in Instrument Panel, Gages, and Console.
6. Install the right closeout insulator panel. Refer to **Closeout/Insulator Panel Replacement - Right** in Instrument Panel, Gages, and Console.

DEFLECTOR REPLACEMENT - INSTRUMENT PANEL AIR - LEFT

Removal Procedure

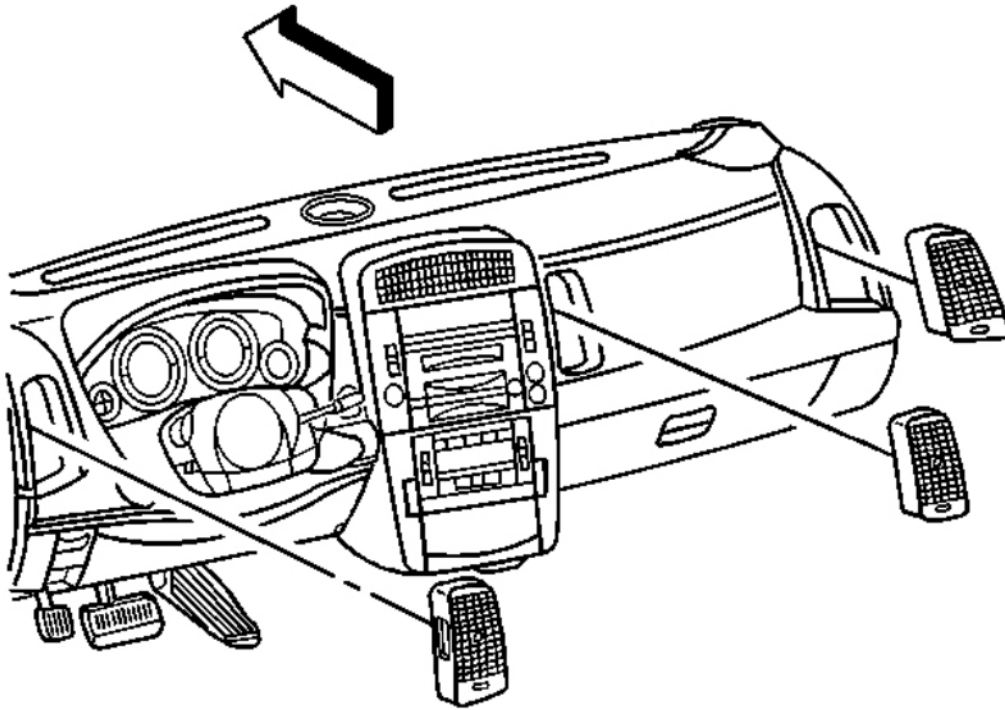


Fig. 221: View Of Air Vents

Courtesy of GENERAL MOTORS CORP.

1. Using a small flat bladed tool, insert between the air vent and the I/P retainer.
2. Pry out in order to release the retainer securing the air vent.

Installation Procedure

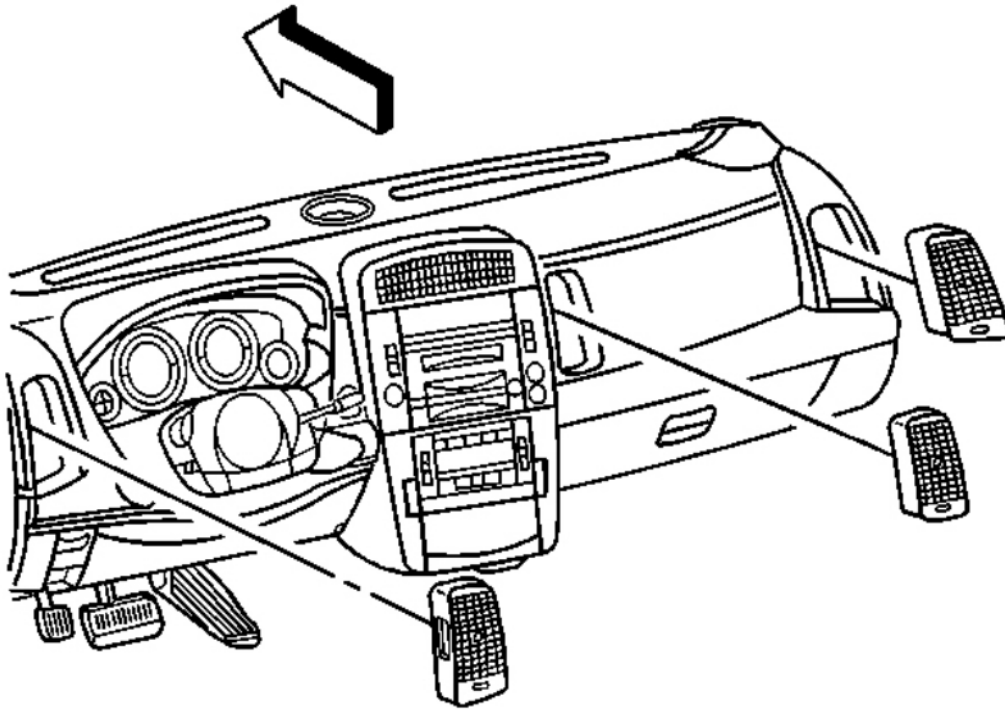


Fig. 222: View Of Air Vents

Courtesy of GENERAL MOTORS CORP.

1. Position the air vent onto the I/P.
2. Push the air vent into the I/P in order to secure.

DEFLECTOR REPLACEMENT - INSTRUMENT PANEL AIR - CENTER

Removal Procedure

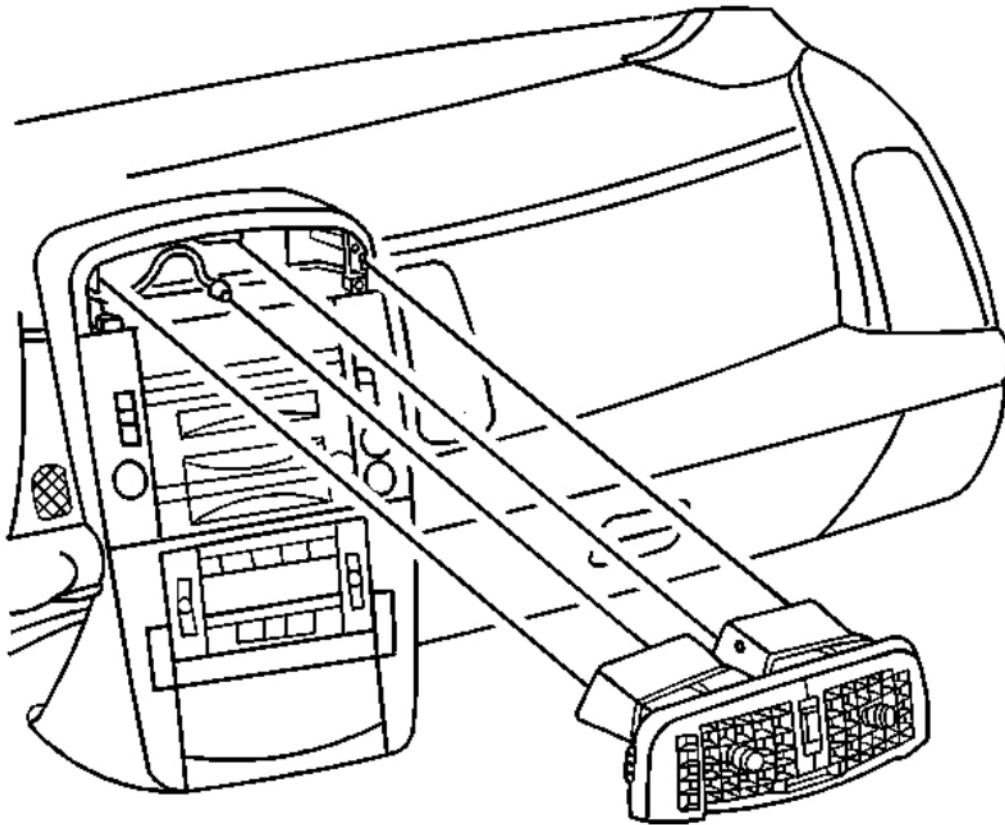


Fig. 223: View Of Center I/P Air Vent And Hazard Switch Connector
Courtesy of GENERAL MOTORS CORP.

1. Pull out on the center I/P vent assembly in order to release the fasteners securing the vent to the I/P.
2. Disconnect the hazard switch electrical connector.
3. Remove the vent from the I/P.

Installation Procedure

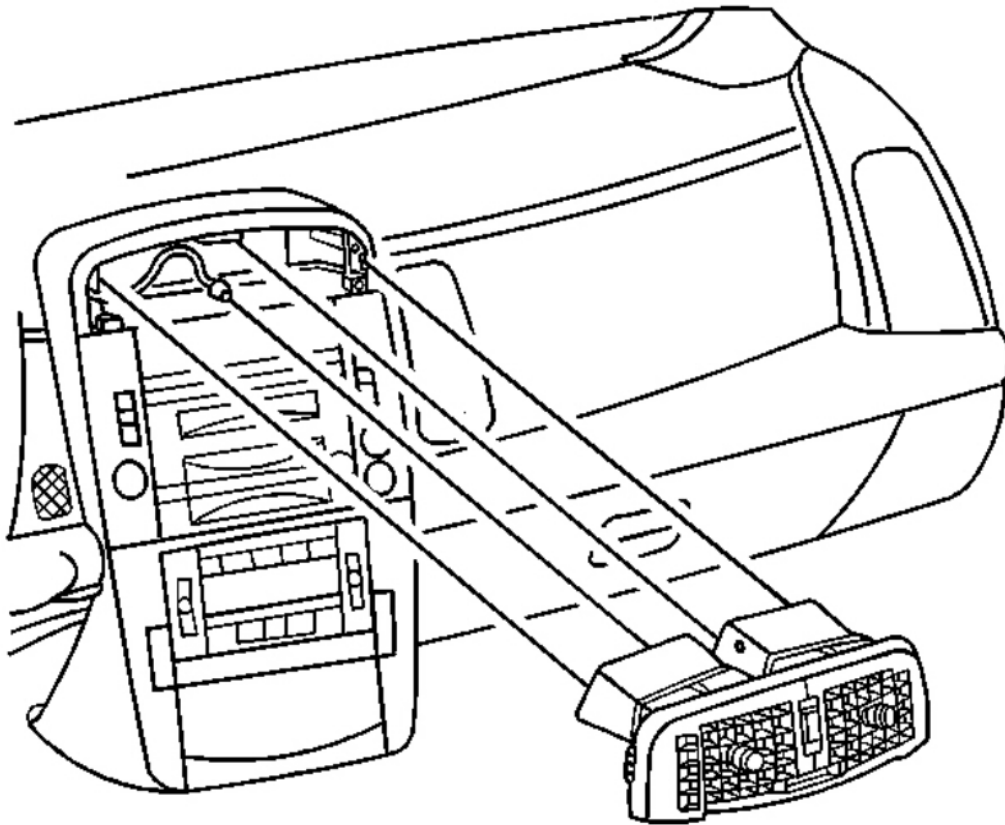


Fig. 224: View Of Center I/P Air Vent And Hazard Switch Connector
Courtesy of GENERAL MOTORS CORP.

1. Connect the hazard switch connector.

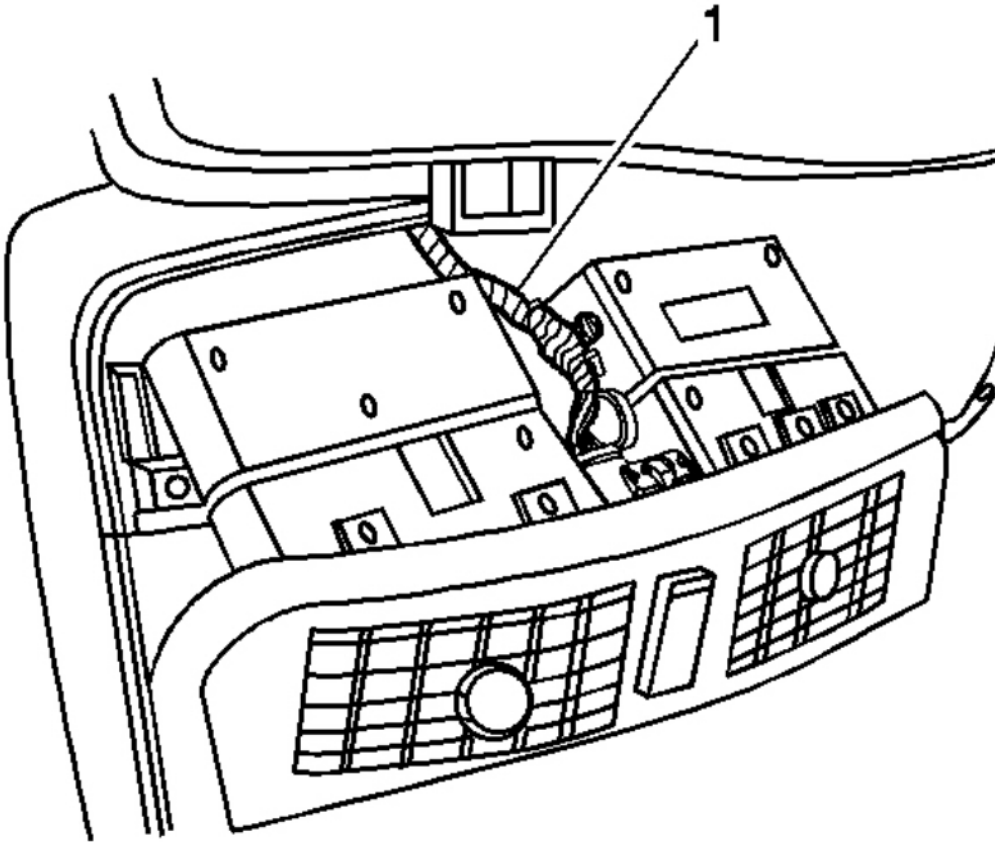


Fig. 225: View Of Hazard Switch Wire Harness
Courtesy of GENERAL MOTORS CORP.

2. Position hazard switch wire harness (1) in the harness retainers.
3. Push the wire service loop forward between the duct as the vent is positioned on the I/P.
4. Overlap the vent housing over the duct.
5. Position the vent into the I/P.

IMPORTANT: Ensure that the wire harness is not interfering with the moving parts of the vent.

6. Push the vent in to the I/P in order to seat the retainers.

DEFLECTOR REPLACEMENT - INSTRUMENT PANEL AIR - RIGHT

Removal Procedure

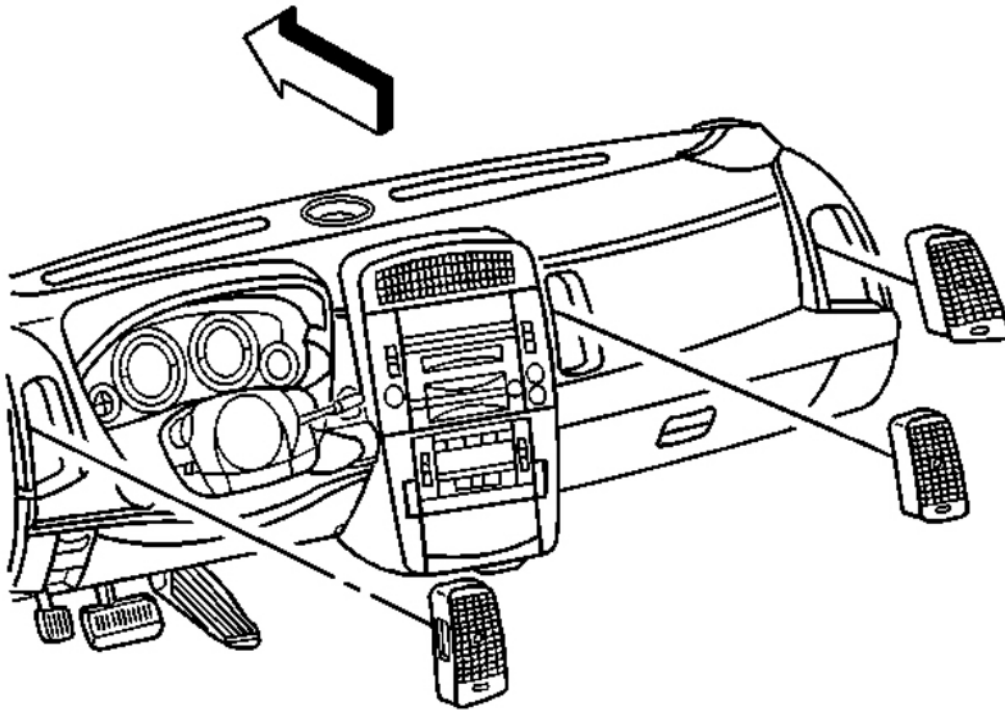


Fig. 226: View Of Air Vents

Courtesy of GENERAL MOTORS CORP.

1. Using a small flat bladed tool, insert between the air vent and the I/P retainer.
2. Pry out in order to release the retainer securing the air vent.

Installation Procedure

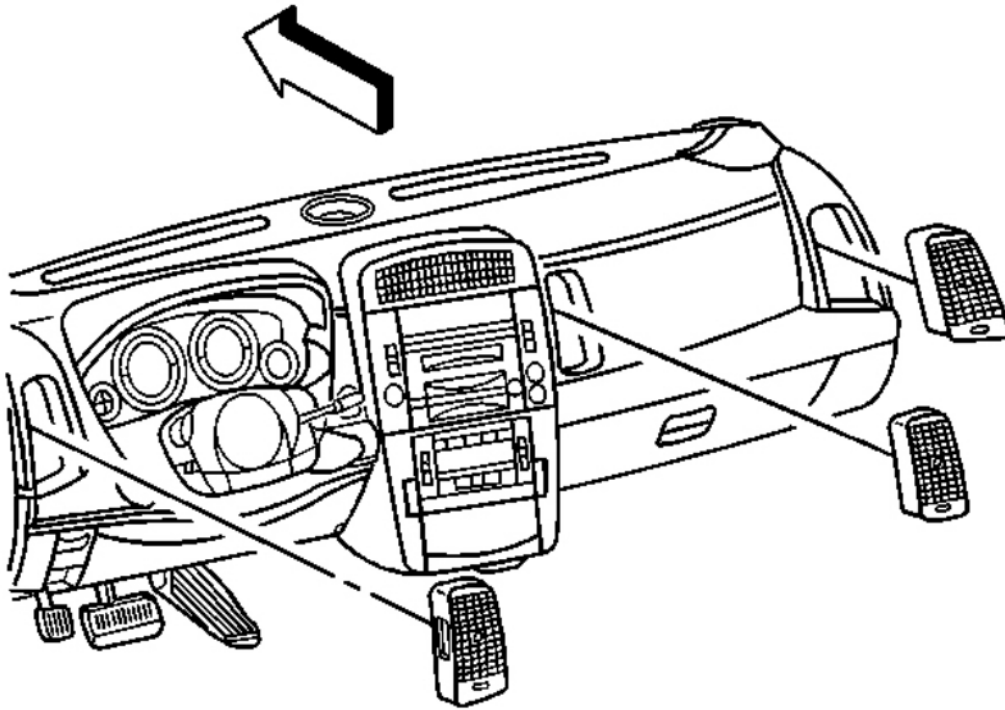


Fig. 227: View Of Air Vents
Courtesy of GENERAL MOTORS CORP.

1. Position the air vent onto the I/P.
2. Push the air vent into the I/P in order to secure.

AIR OUTLET DUCT REPLACEMENT - INSTRUMENT PANEL (I/P) - UPPER LEFT

Removal Procedure

1. Remove the instrument panel (I/P) retainer. Refer to **Instrument Panel (I/P) Retainer Replacement** in Instrument Panel, Gages, and Console.

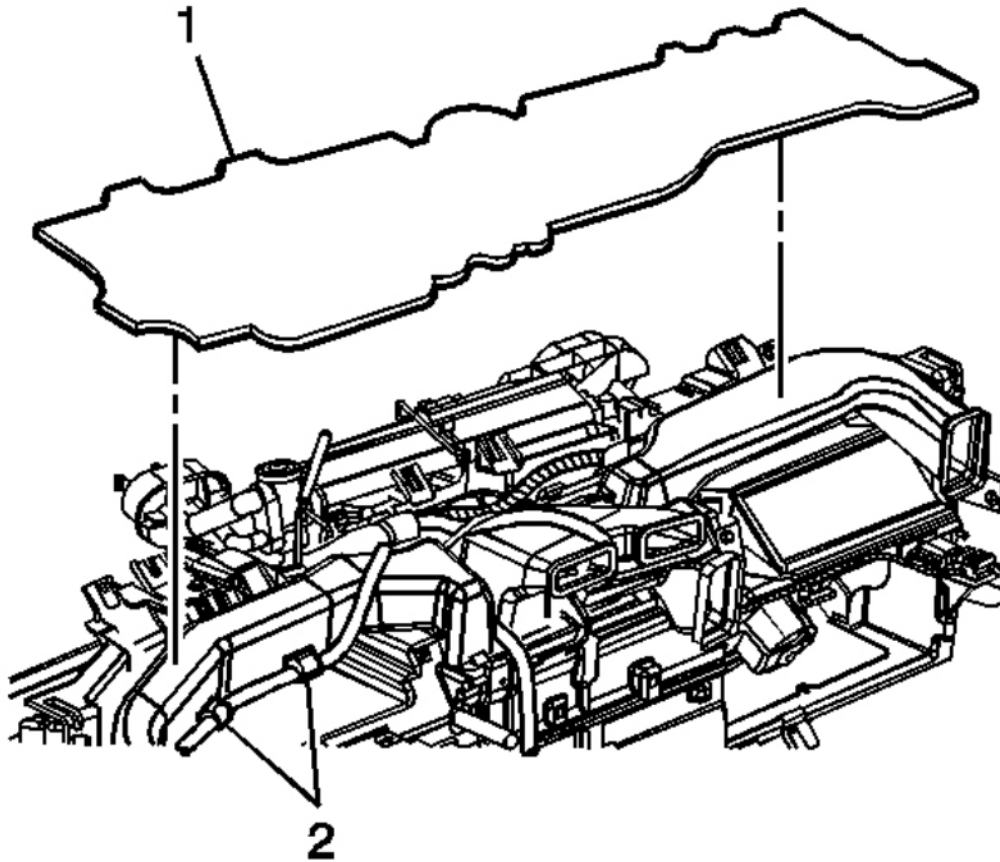


Fig. 228: View Of Dash Insulator
Courtesy of GENERAL MOTORS CORP.

2. Remove the dash insulator (1).
3. Disconnect the wiring harness from the air duct.

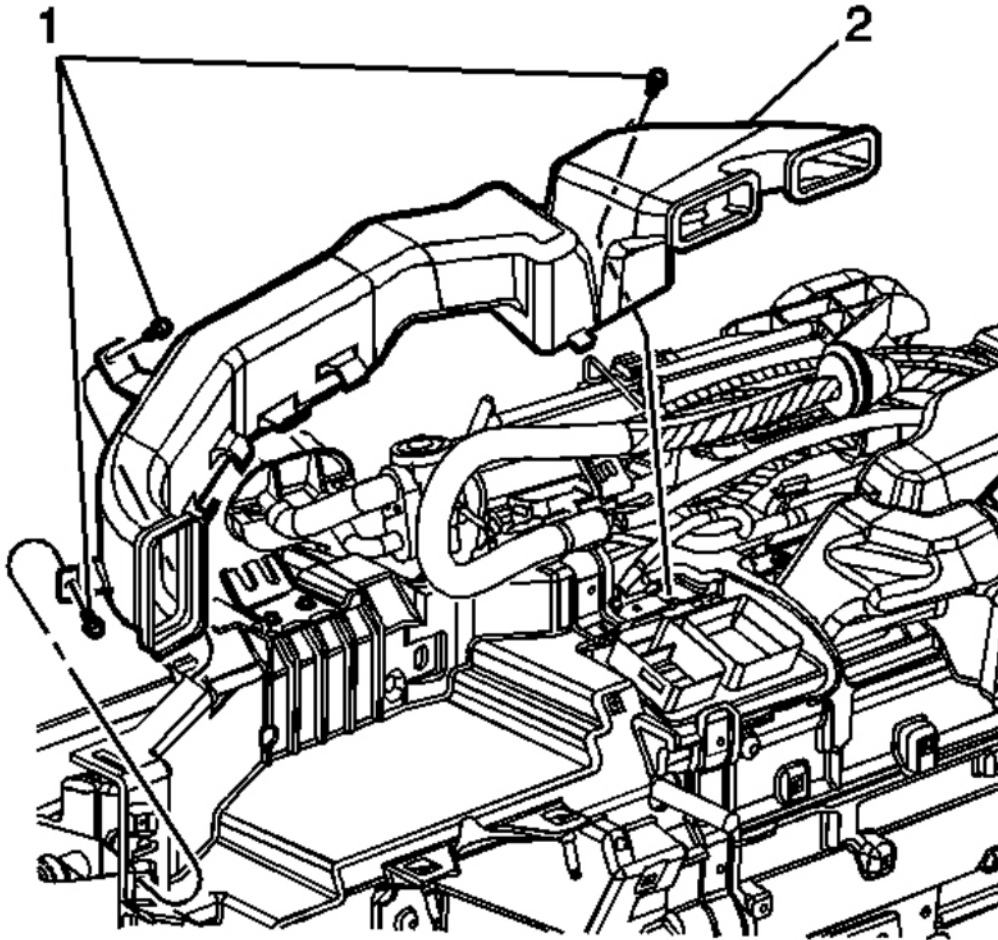


Fig. 229: View Of Left Air Duct
Courtesy of GENERAL MOTORS CORP.

4. Remove the screws (1) that retain the air duct.
5. Remove the left air duct (2), by unsnapping the duct from the HVAC module.

Installation Procedure

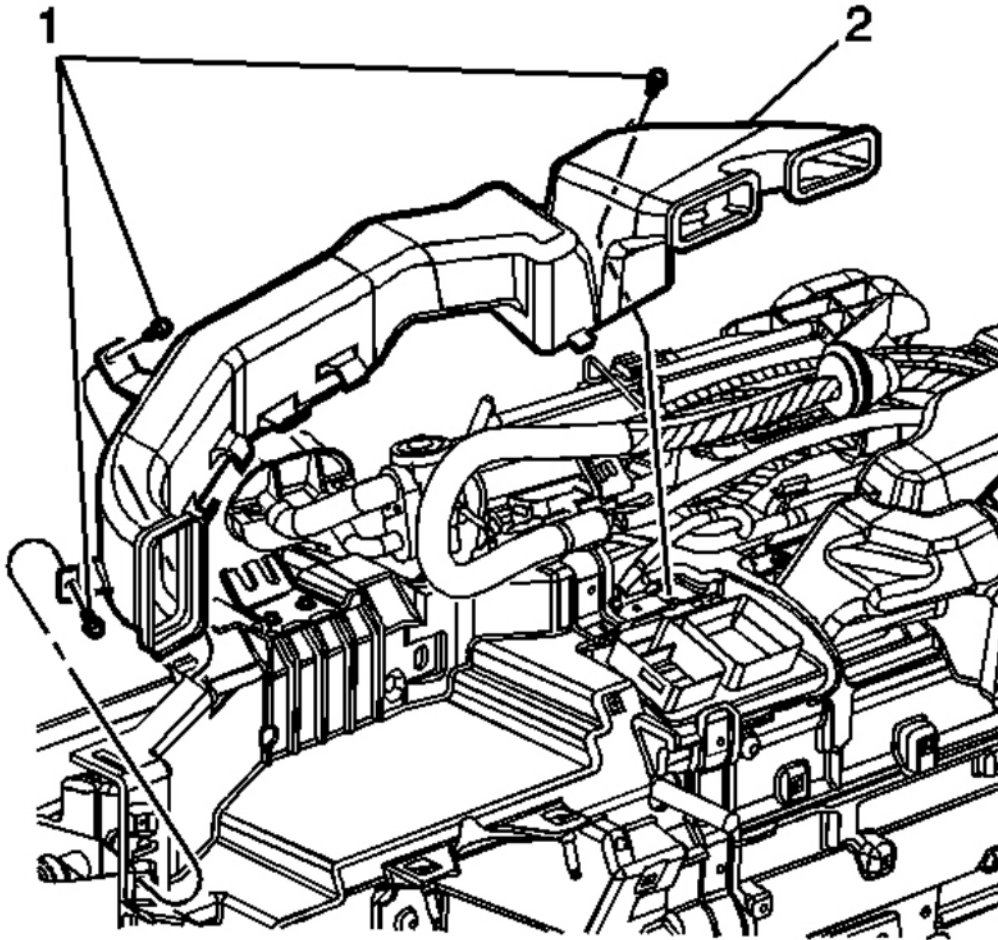


Fig. 230: View Of Left Air Duct
Courtesy of GENERAL MOTORS CORP.

1. Install the left air duct (2), by pressing down until you hear the tabs engage on the HVAC module.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the air outlet duct screws (1).

Tighten: Tighten the screws to 2 N.m (18 lb in).

3. Connect the wiring harness to the air duct.

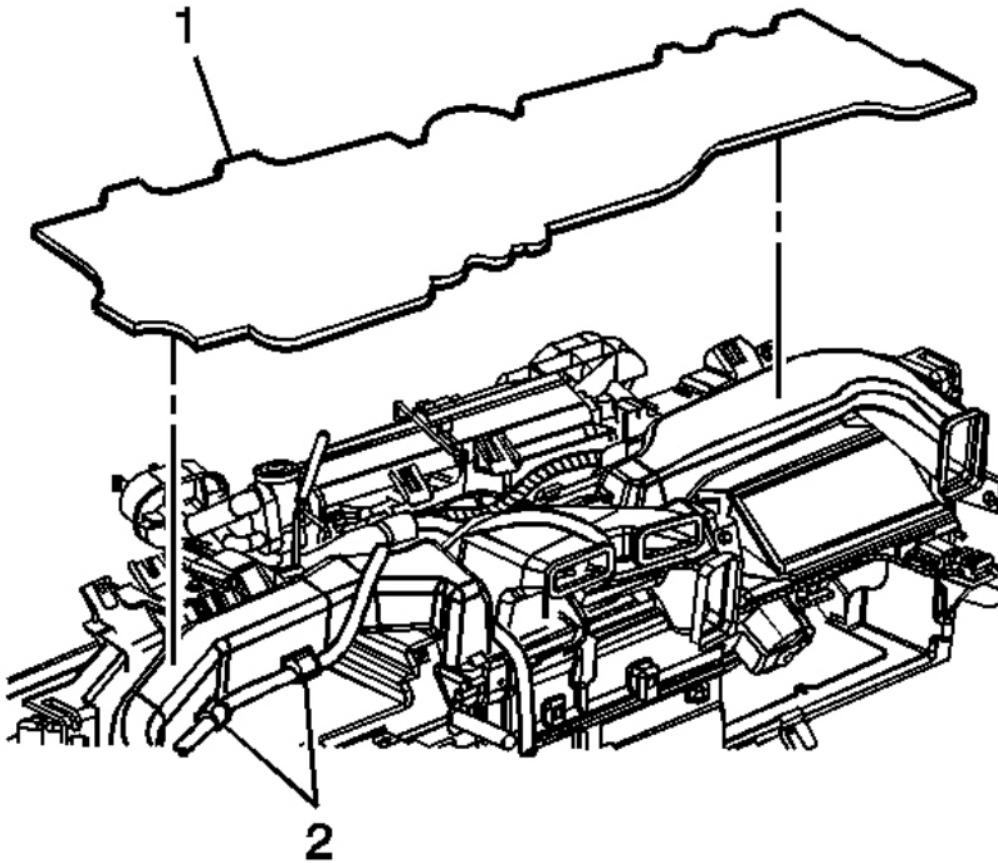


Fig. 231: View Of Dash Insulator
Courtesy of GENERAL MOTORS CORP.

4. Install the dash insulator (1).
5. Install the I/P retainer. Refer to **Instrument Panel (I/P) Retainer Replacement** in Instrument Panel, Gages, and Console.

AIR OUTLET DUCT REPLACEMENT - INSTRUMENT PANEL (I/P) - UPPER RIGHT

Removal Procedure

1. Remove the instrument panel (I/P) retainer. Refer to **Instrument Panel (I/P) Retainer**

Replacement in Instrument Panel, Gages, and Console.

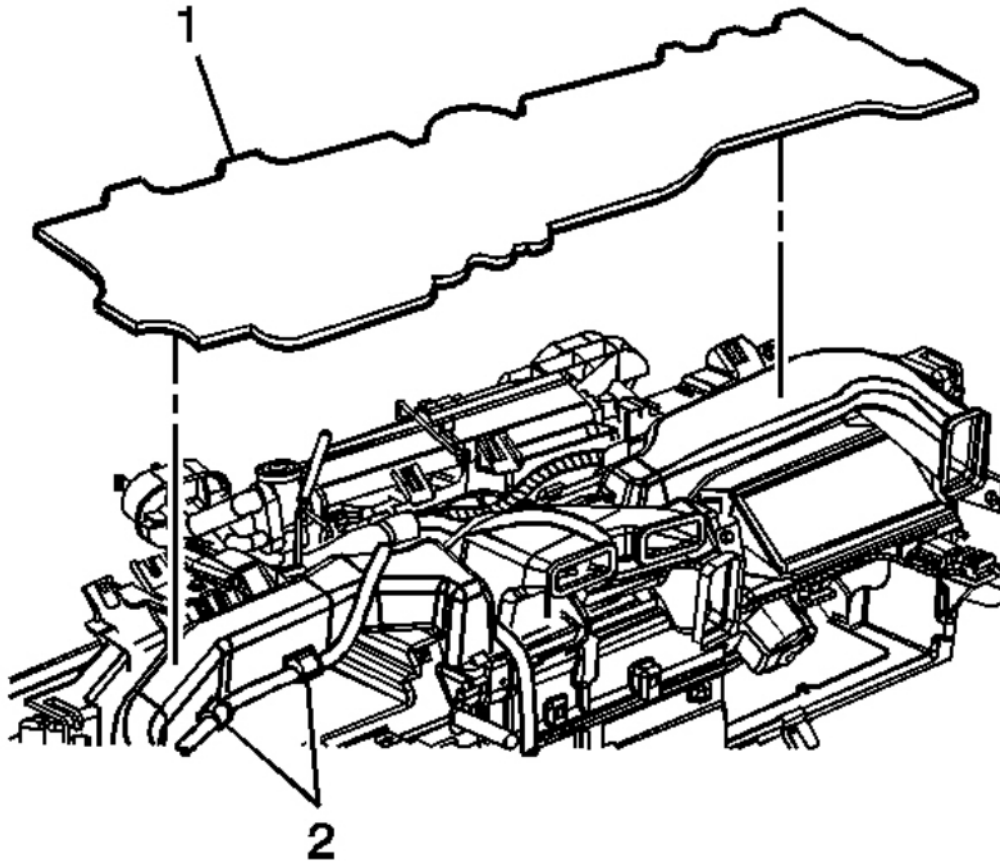


Fig. 232: View Of Dash Insulator
Courtesy of GENERAL MOTORS CORP.

2. Remove the dash insulator (1).

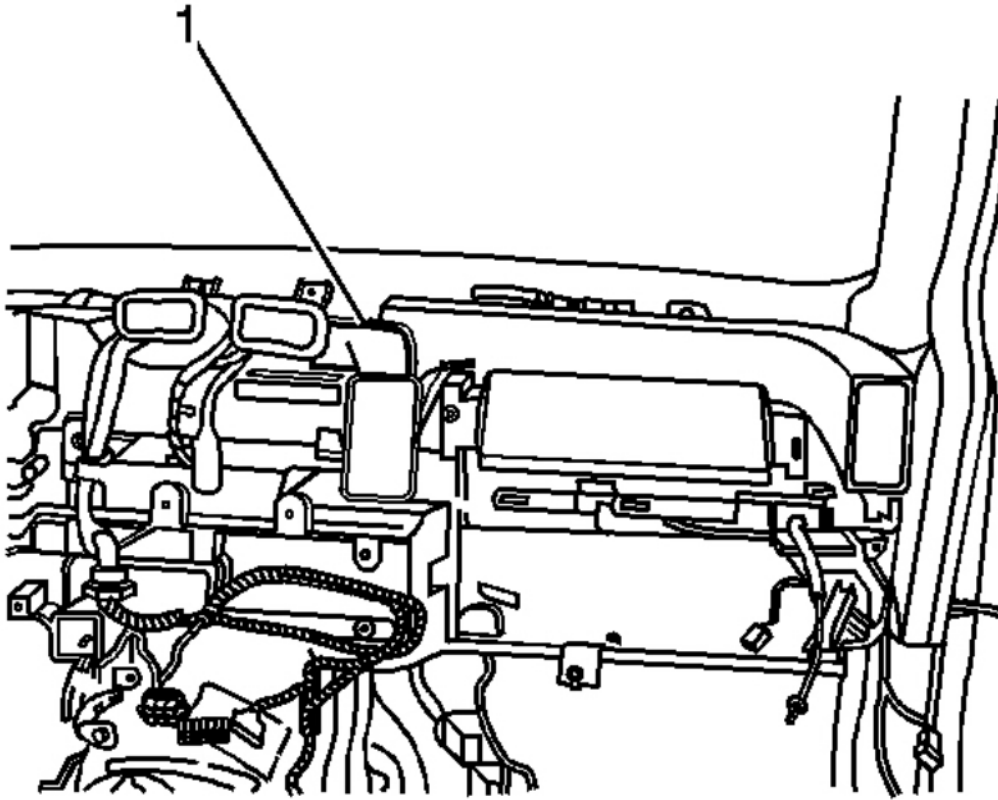


Fig. 233: Locating Air Duct Wiring Harness
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the wiring harness from the air duct (1).

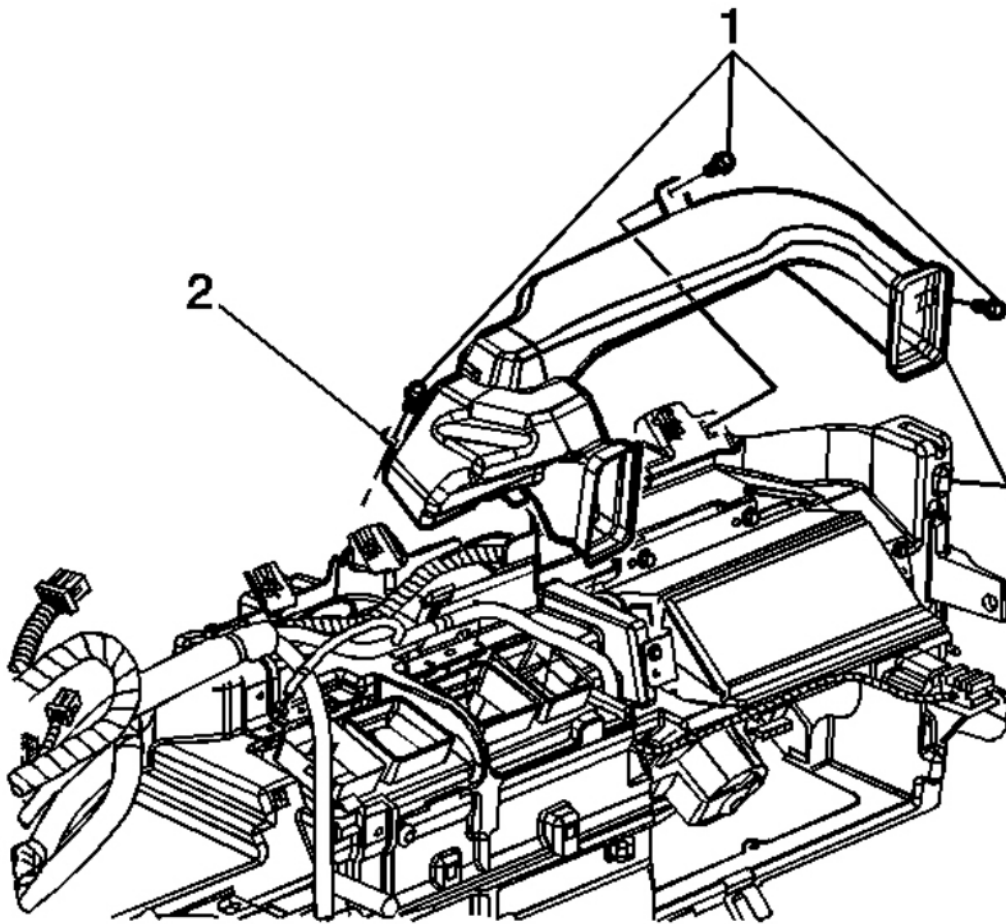


Fig. 234: View Of Right Air Duct
Courtesy of GENERAL MOTORS CORP.

4. Remove the screws (1) that retain the air duct (2).
5. Remove the right air duct (2), by releasing the tabs from the module.

Installation Procedure

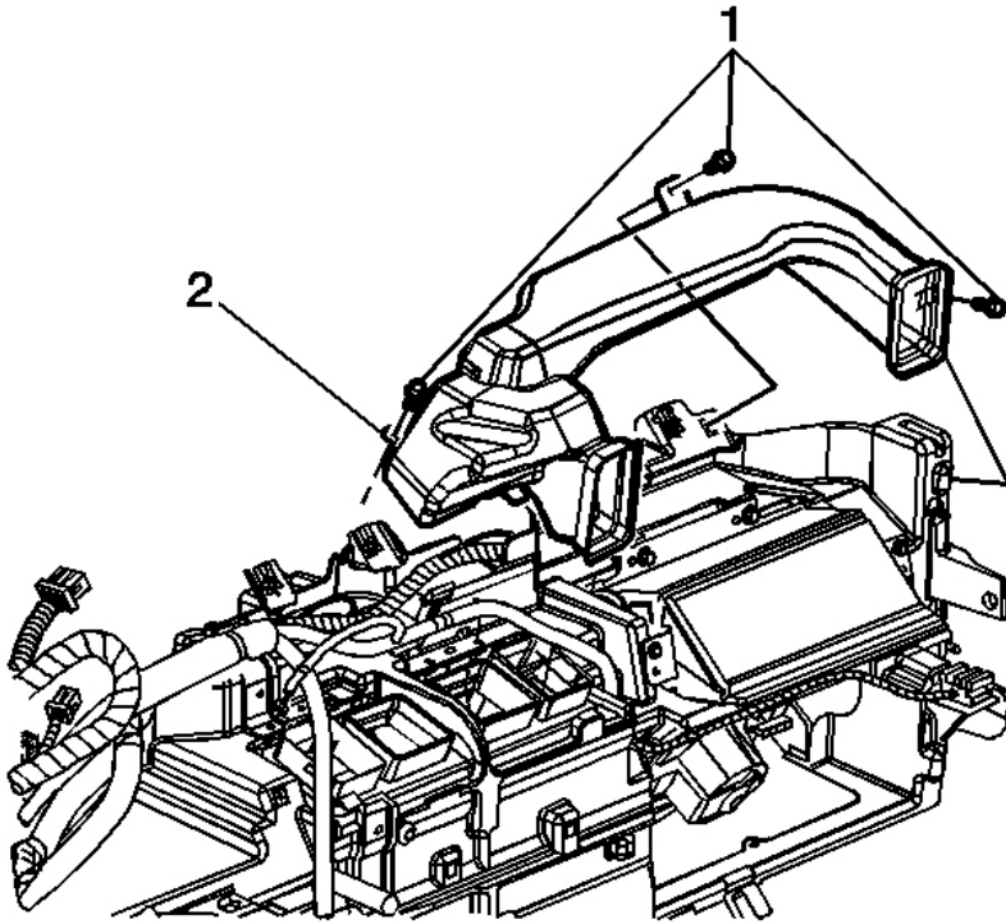


Fig. 235: View Of Right Air Duct
Courtesy of GENERAL MOTORS CORP.

1. Install the right air duct (2), by pressing down until you hear the tabs engage on the HVAC module.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the right air duct screws (1).

Tighten: Tighten the screws to 2 N.m (18 lb in).

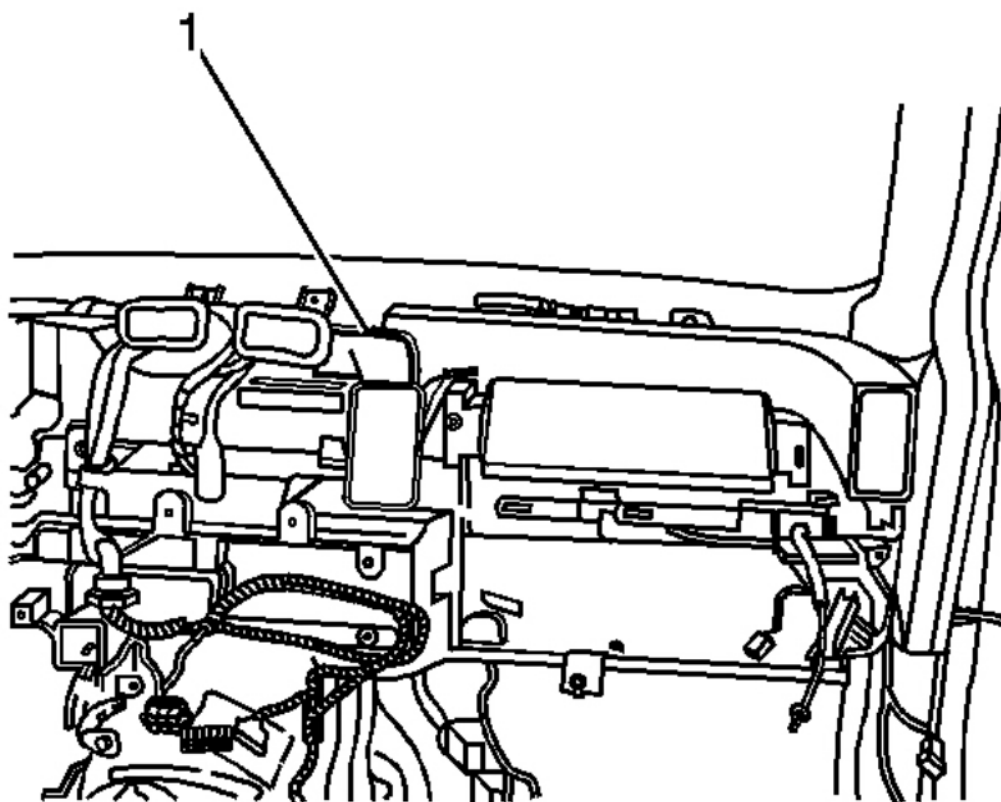


Fig. 236: Locating Air Duct Wiring Harness
Courtesy of GENERAL MOTORS CORP.

3. Connect the wiring harness to the air duct (1).

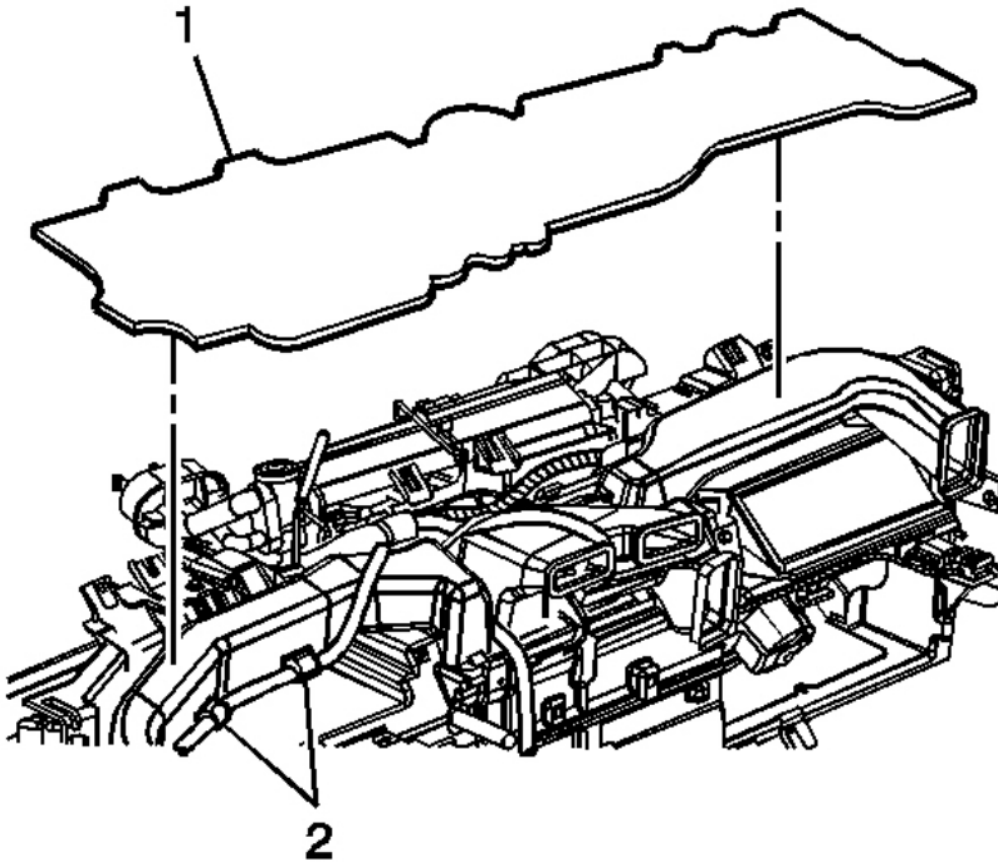


Fig. 237: View Of Dash Insulator
Courtesy of GENERAL MOTORS CORP.

4. Install the dash insulator (1).
5. Install the I/P retainer. Refer to **Instrument Panel (I/P) Retainer Replacement** in Instrument Panel, Gages, and Console.

DEFROSTER DUCT REPLACEMENT - WINDSHIELD

Removal Procedure

1. Remove the instrument panel (I/P) carrier. Refer to **Instrument Panel (I/P) Carrier Replacement** in Instrument Panel, Gages, and Console.

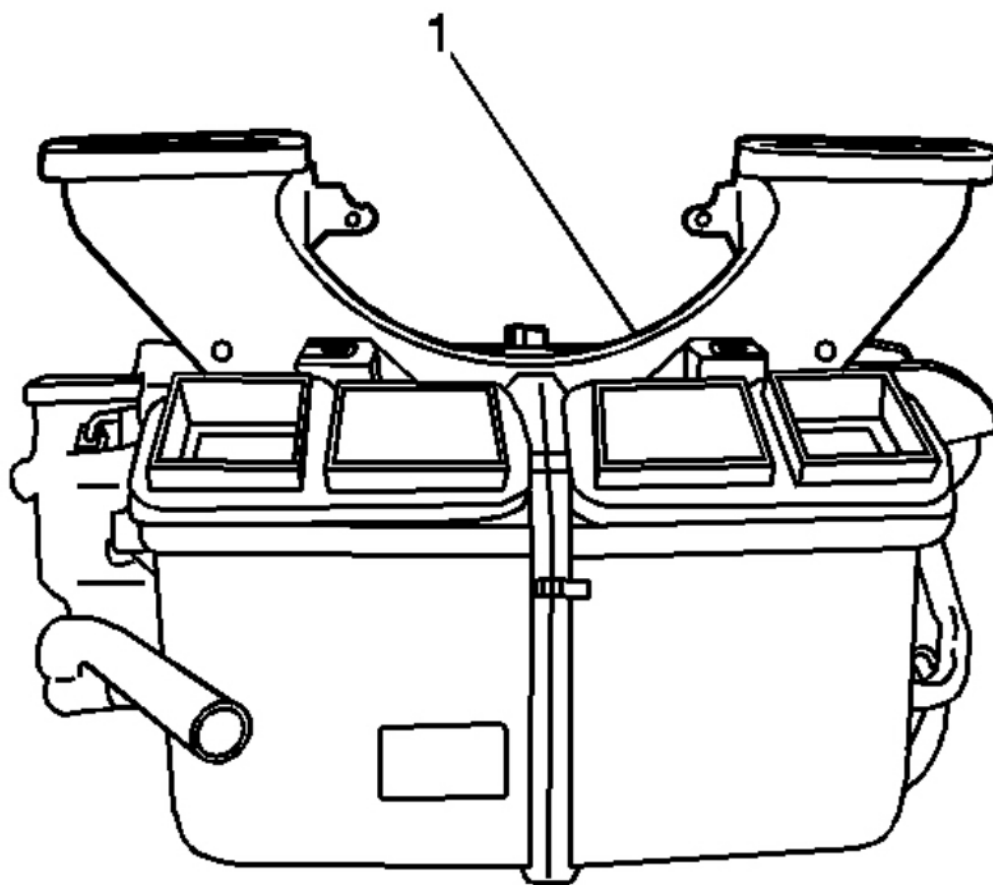


Fig. 238: Locating Defroster Duct
Courtesy of GENERAL MOTORS CORP.

2. Press in on the tab to release the defroster duct (1) from the HVAC module.

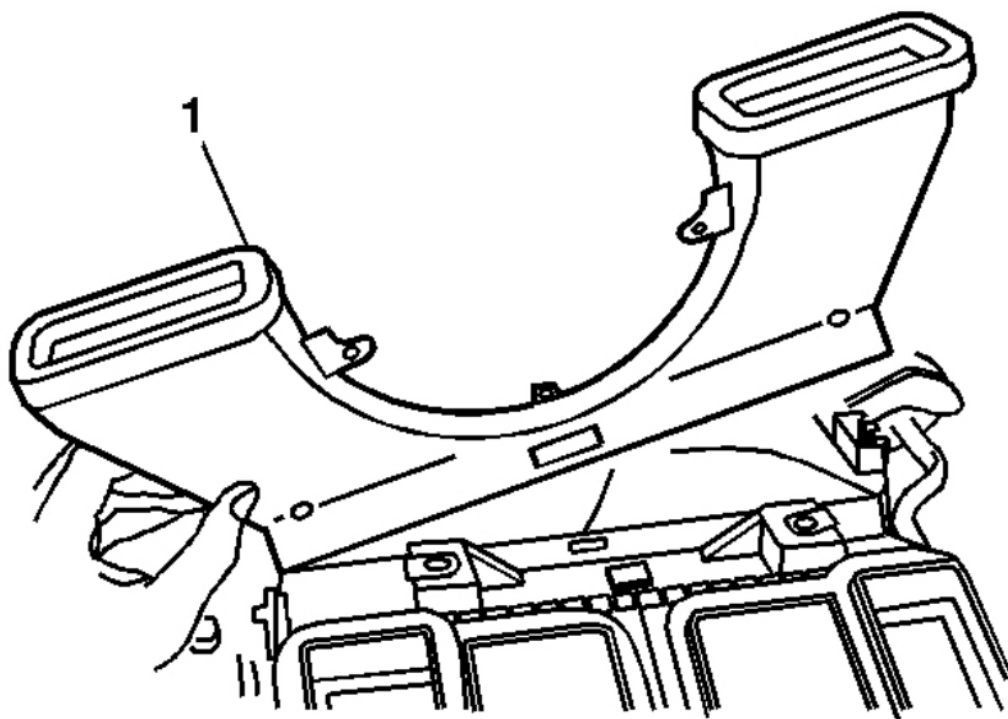


Fig. 239: View Of Defroster Duct
Courtesy of GENERAL MOTORS CORP.

3. Remove the defroster duct (1).

Installation Procedure

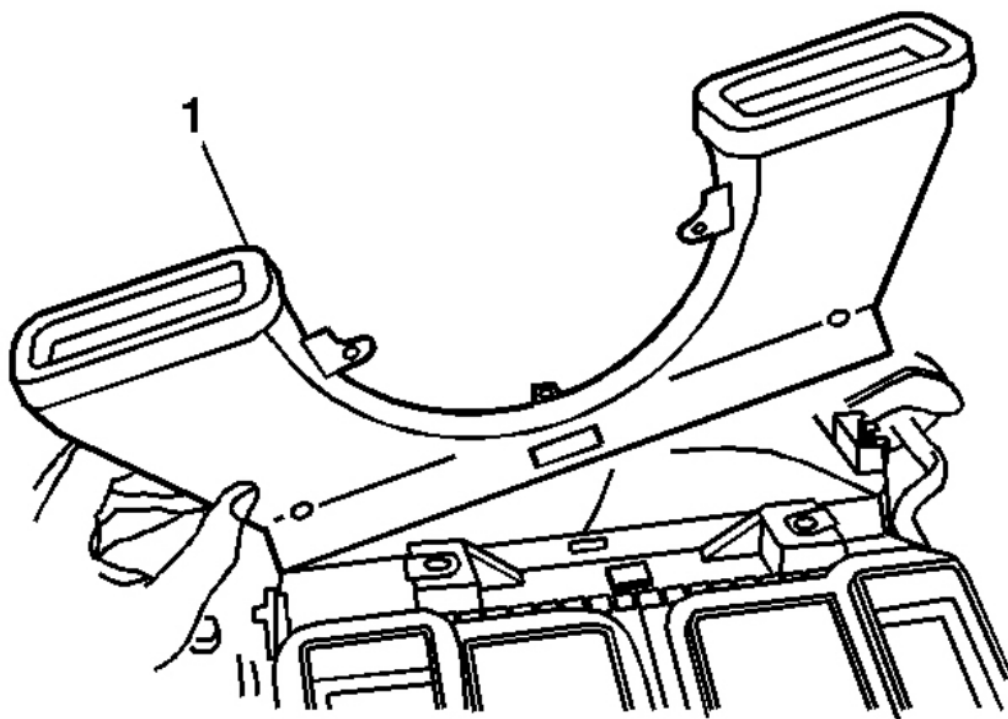


Fig. 240: View Of Defroster Duct
Courtesy of GENERAL MOTORS CORP.

1. Install the defroster duct (1).

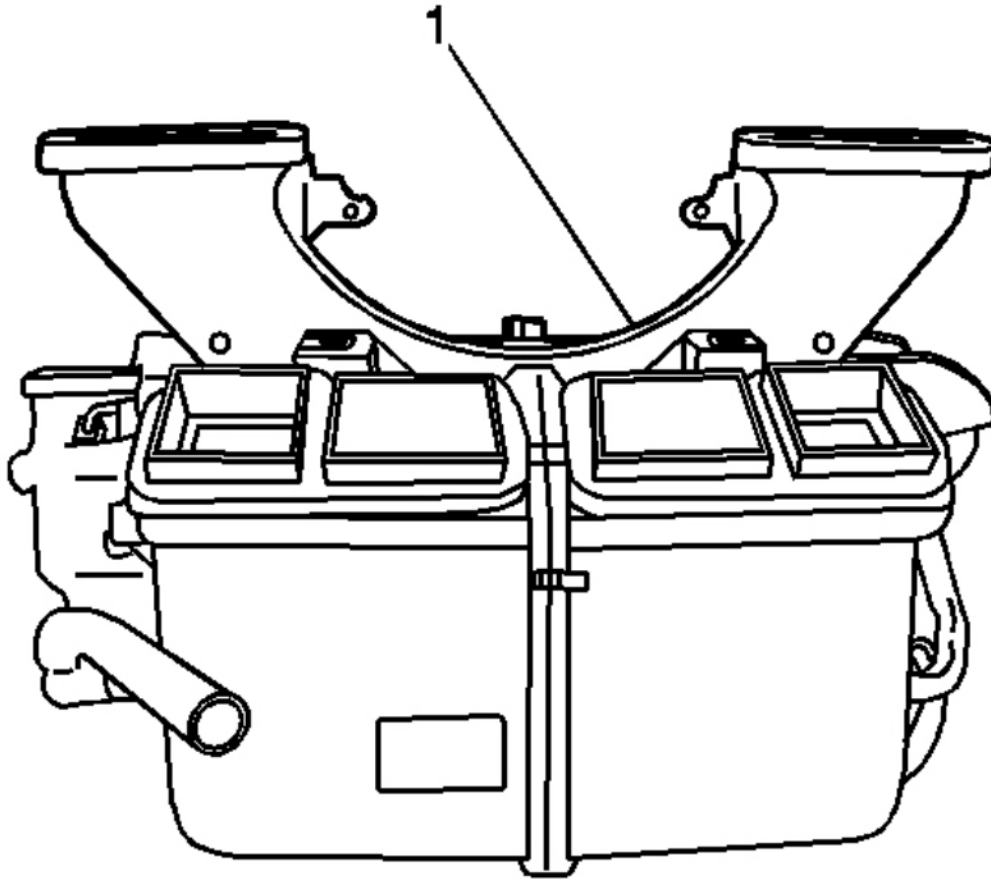


Fig. 241: Locating Defroster Duct
Courtesy of GENERAL MOTORS CORP.

2. Press down on the defroster duct (1) until you hear the tabs engage.
3. Install the I/P carrier. Refer to **Instrument Panel (I/P) Carrier Replacement** in Instrument Panel, Gages, and Console.

AIR OUTLET DUCT REPLACEMENT - REAR FLOOR, LH

Removal Procedure

1. Remove the front carpet. Refer to **Carpet Replacement - Front** in Interior Trim.

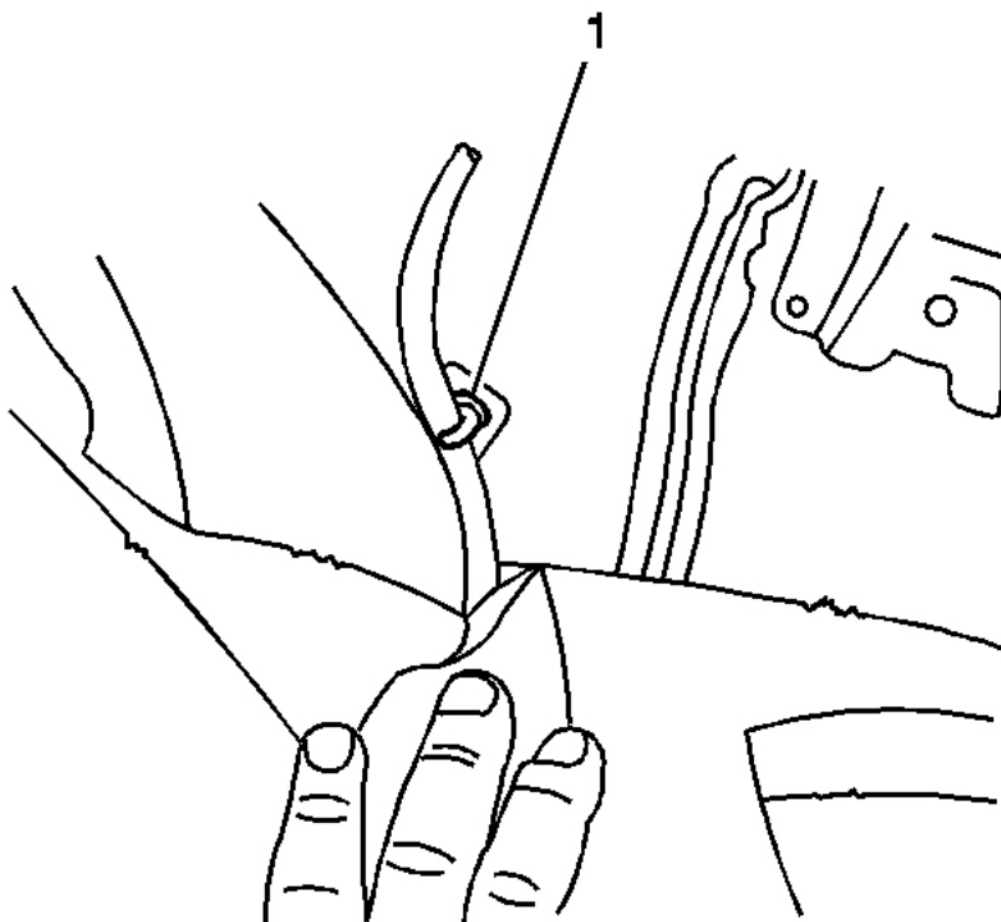


Fig. 242: View Of Duct Wiring
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the wiring (1) from the duct.

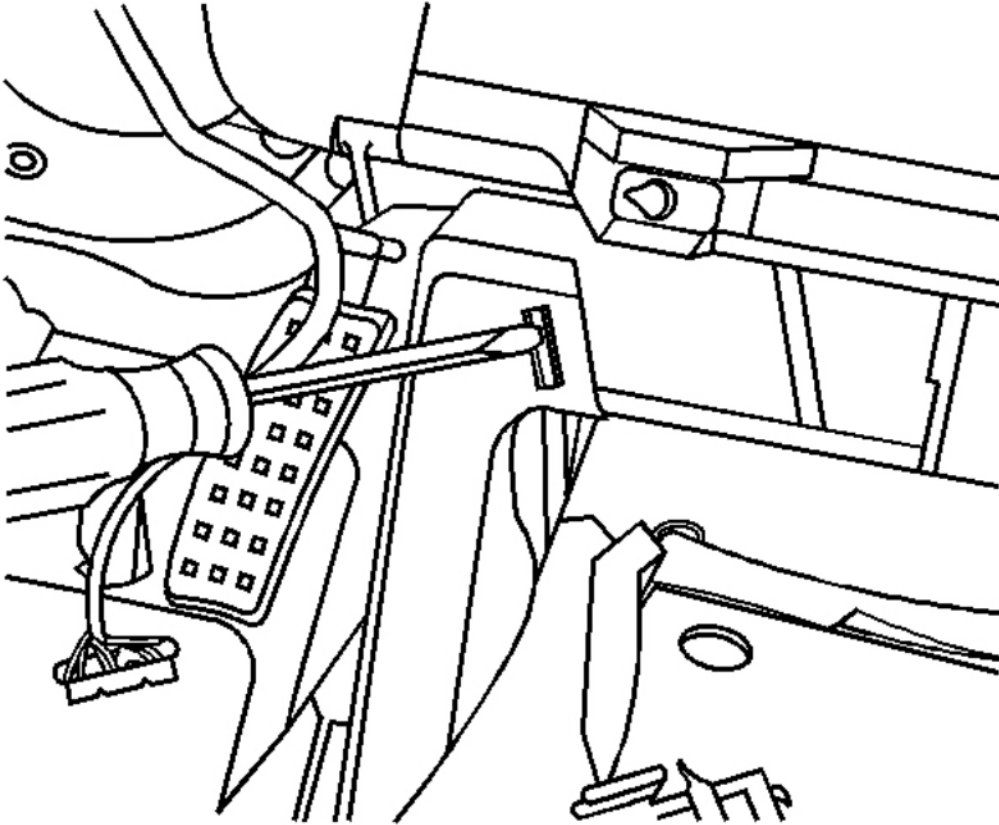


Fig. 243: Releasing Left Rear Duct
Courtesy of GENERAL MOTORS CORP.

3. Press the tab to release the duct from the HVAC module.

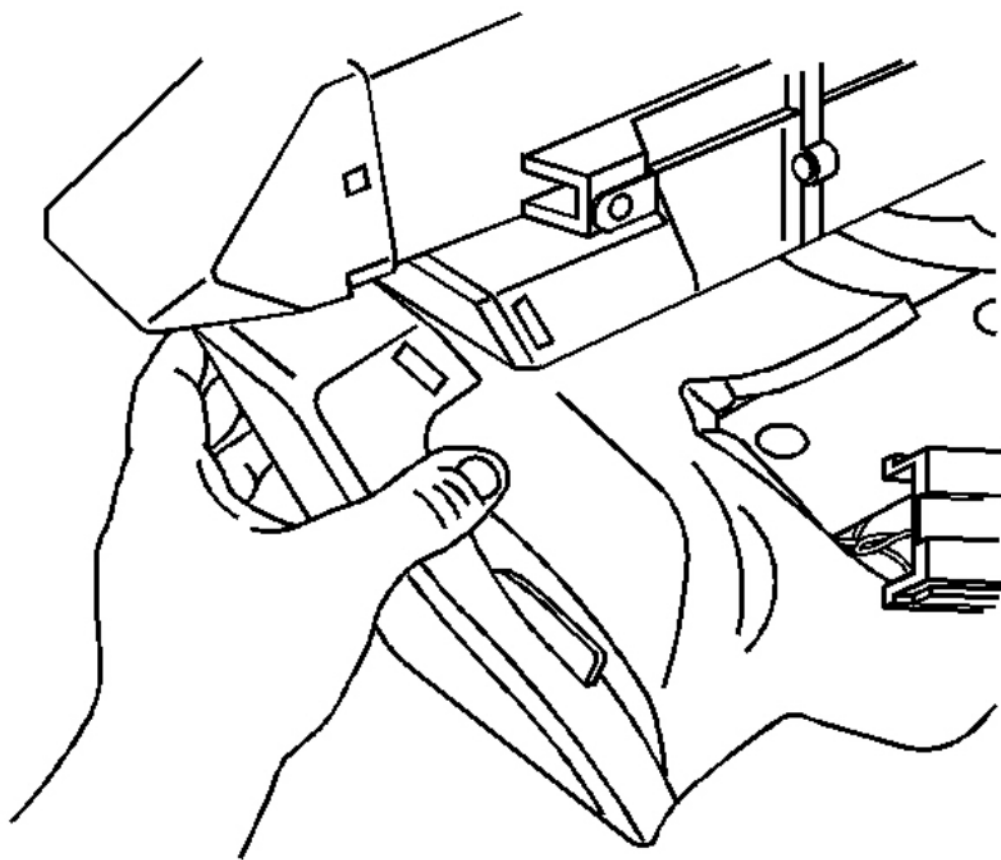


Fig. 244: View Of Module Duct
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the duct from the module.

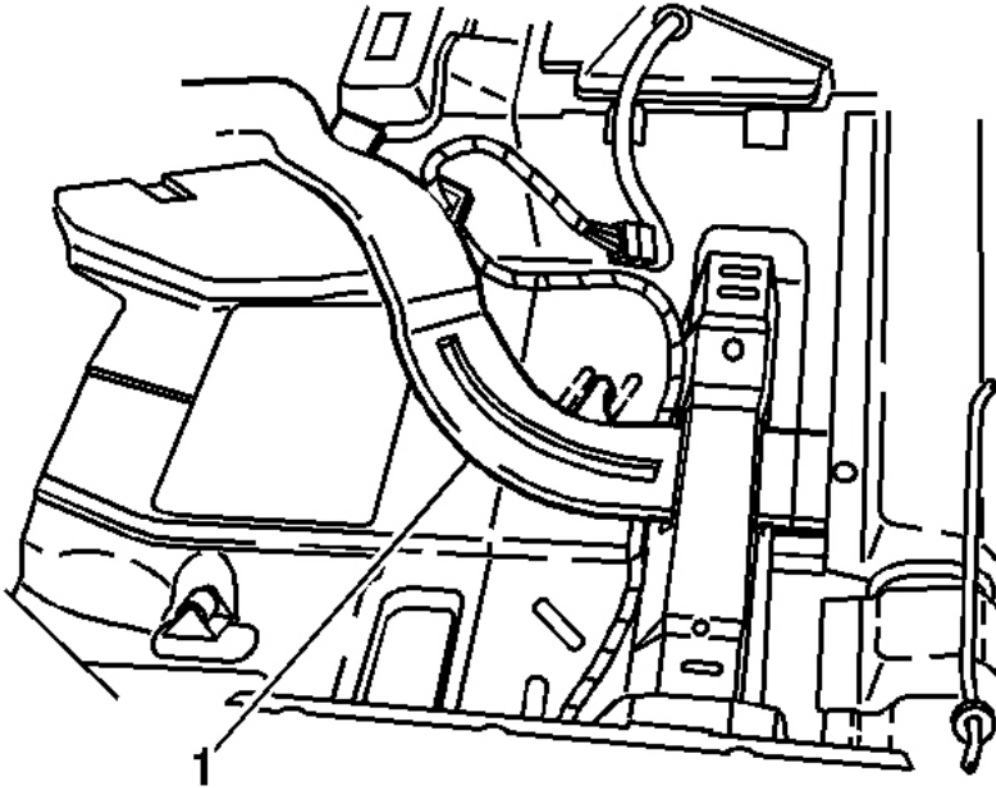


Fig. 245: View Of Air Outlet Duct - LH
Courtesy of GENERAL MOTORS CORP.

5. Remove the air outlet duct (1).

Installation Procedure

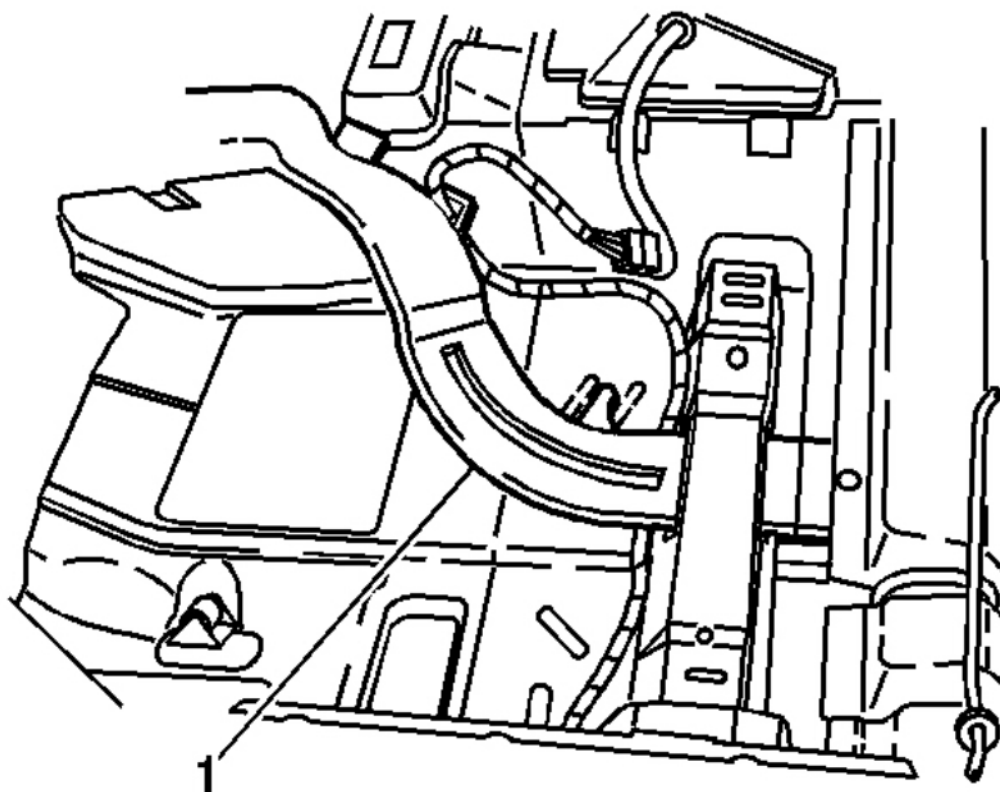


Fig. 246: View Of Air Outlet Duct - LH
Courtesy of GENERAL MOTORS CORP.

1. Install the air outlet duct (1).

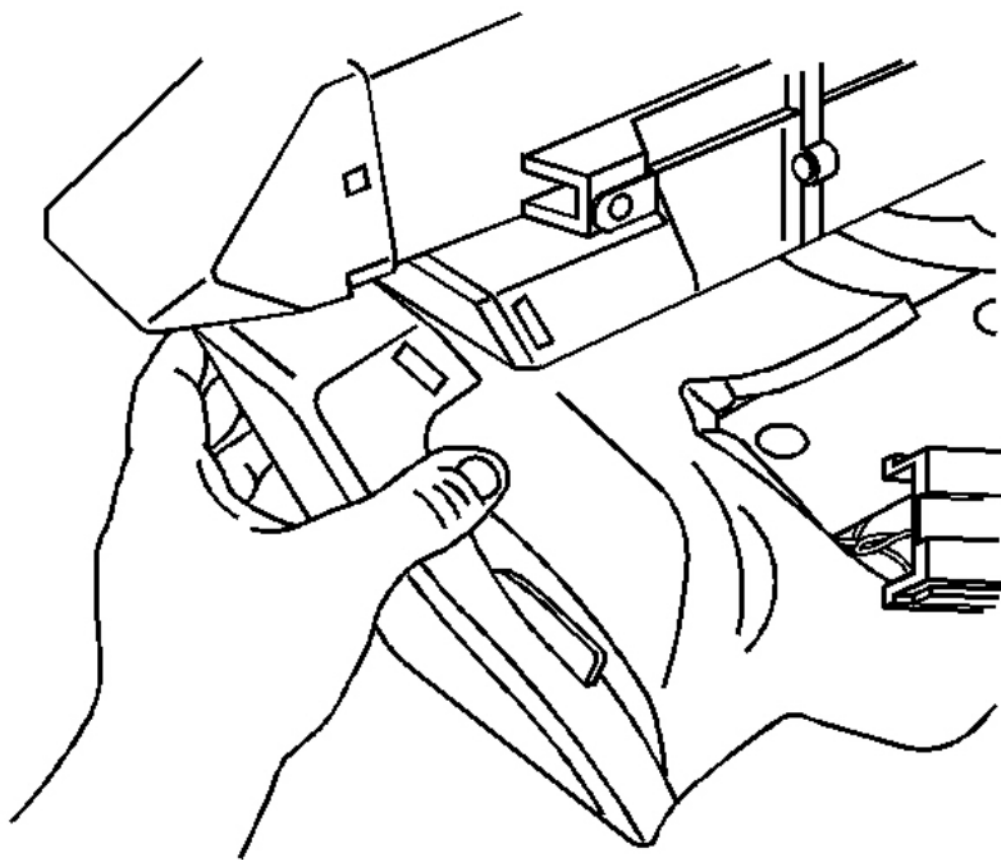


Fig. 247: View Of Module Duct
Courtesy of GENERAL MOTORS CORP.

2. Connect air outlet duct to the HVAC module.

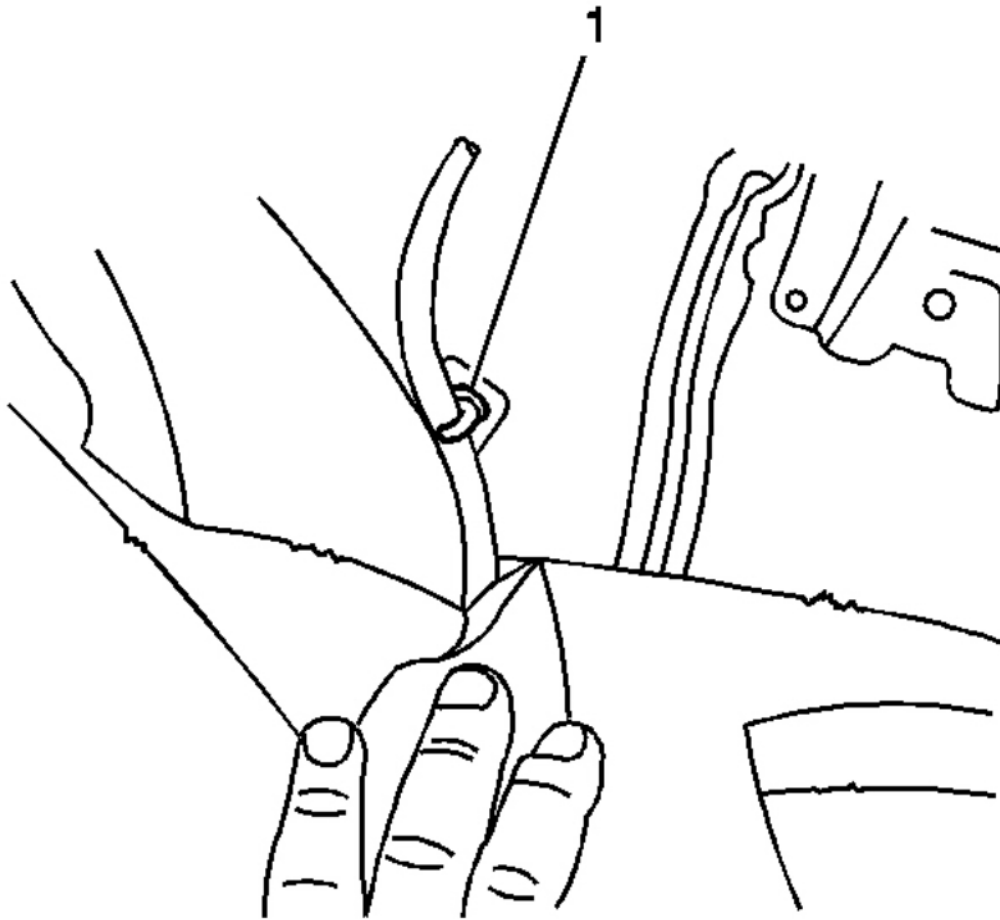


Fig. 248: View Of Duct Wiring
Courtesy of GENERAL MOTORS CORP.

3. Connect the wiring (1) to the duct.
4. Install the front carpet. Refer to **Carpet Replacement - Front** in Interior Trim.

AIR OUTLET DUCT REPLACEMENT - REAR FLOOR, RH

Removal Procedure

1. Remove the front carpet. Refer to **Carpet Replacement - Front** in Interior Trim.
2. Disconnect the wiring from the duct.

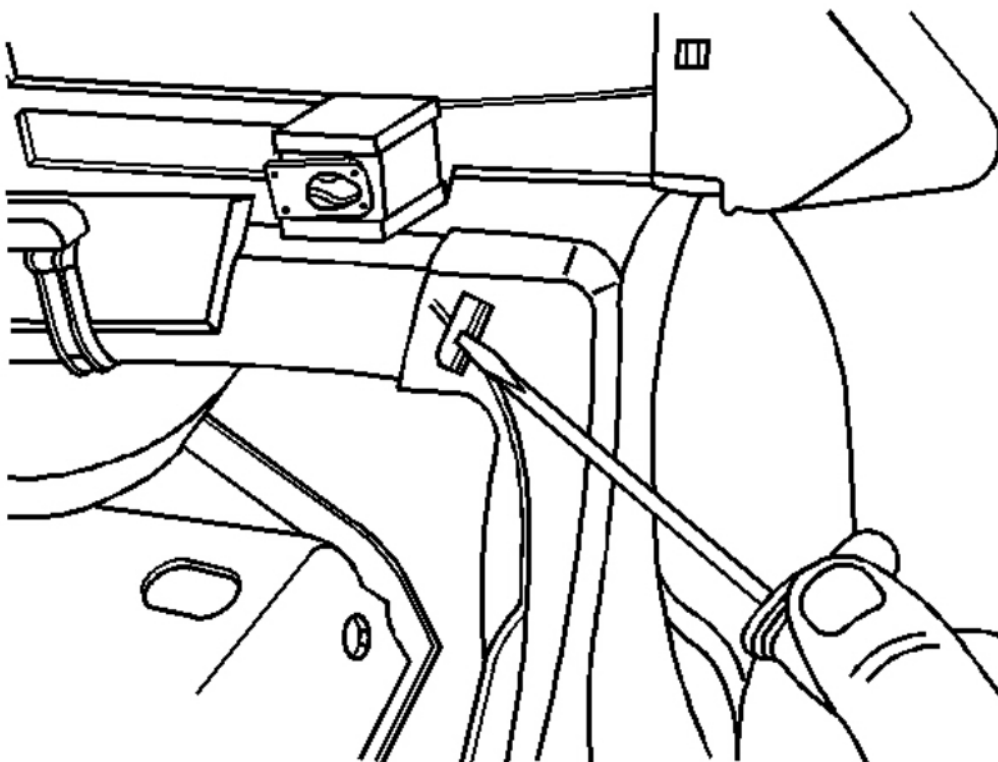


Fig. 249: Releasing Right Rear Duct
Courtesy of GENERAL MOTORS CORP.

3. Press the tab to release the duct from the module.

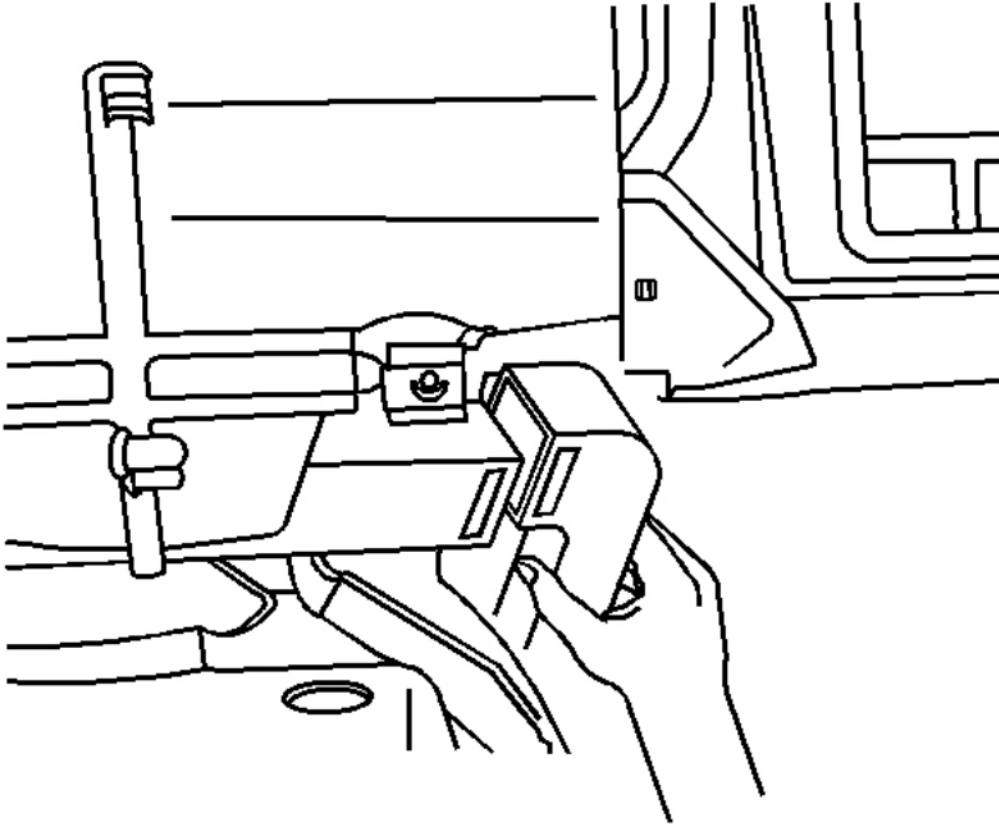


Fig. 250: View Of Air Outlet Duct - RH
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the duct from the module.
5. Remove the air outlet duct.

Installation Procedure

1. Install the air outlet duct.

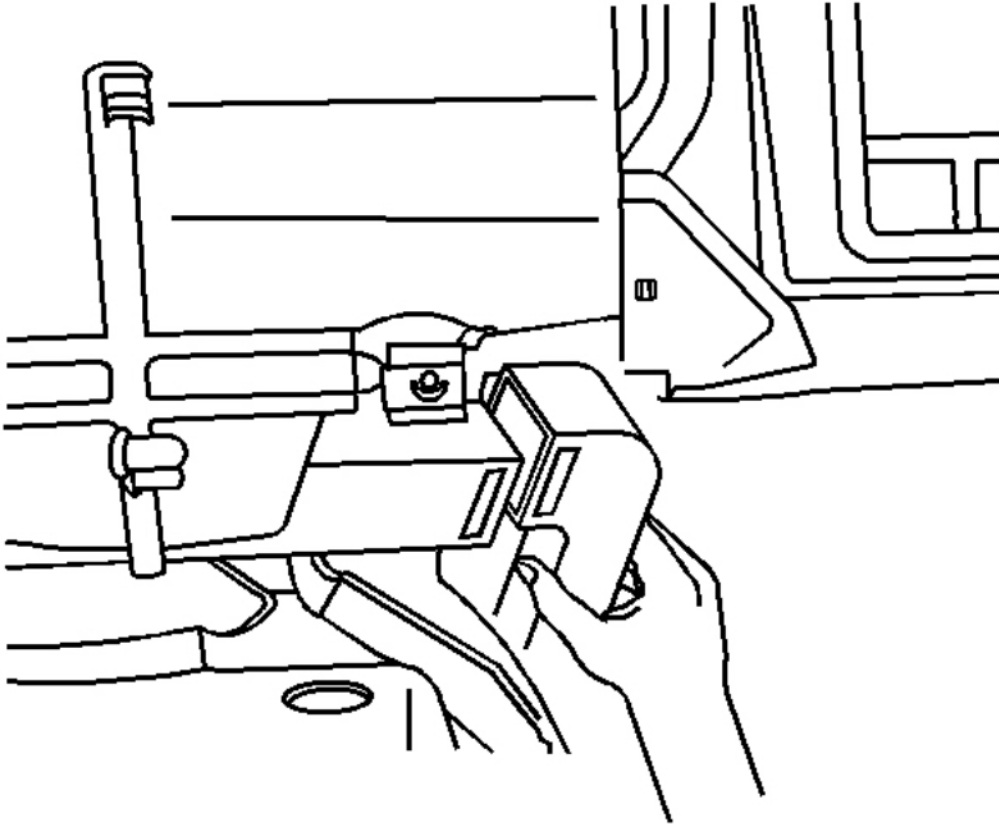


Fig. 251: View Of Air Outlet Duct - RH
Courtesy of GENERAL MOTORS CORP.

2. Connect the duct to the module.
3. Connect the wiring to the duct.
4. Install the front carpet. Refer to **Carpet Replacement - Front** in Interior Trim.

HEATER CORE REPLACEMENT

Removal Procedure

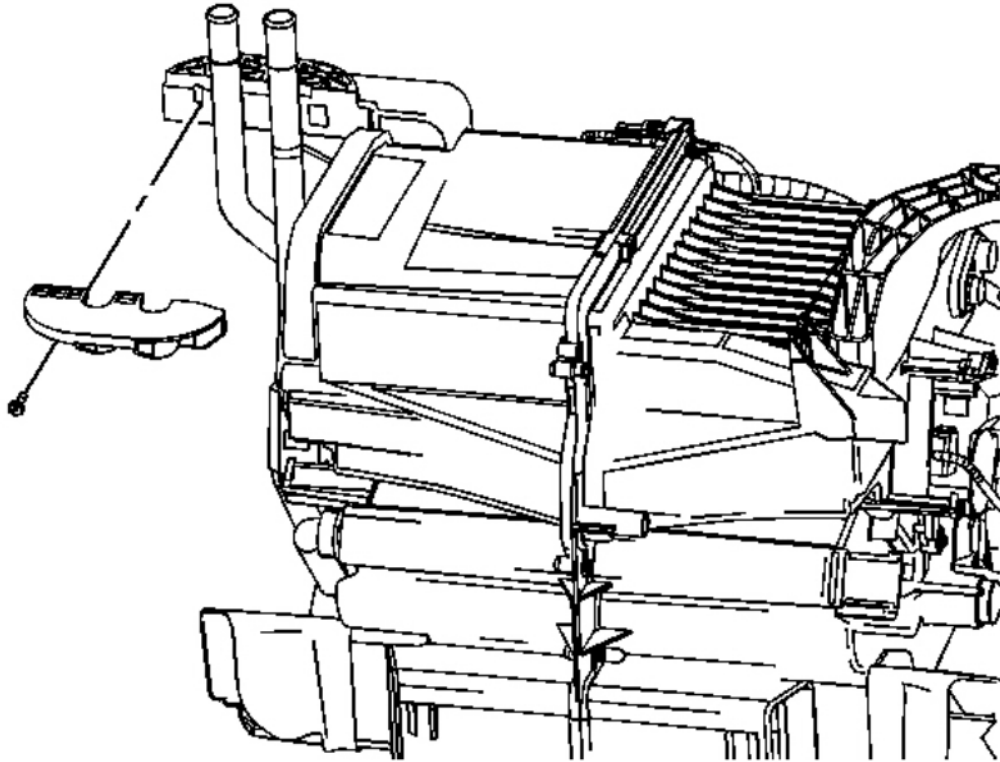


Fig. 252: View Of Heater Core Pipe Bracket
Courtesy of GENERAL MOTORS CORP.

1. Remove the HVAC module. Refer to **HVAC Module Assembly Replacement**.
2. Remove the heater core pipe bracket screw.
3. Remove the heater core pipe bracket.

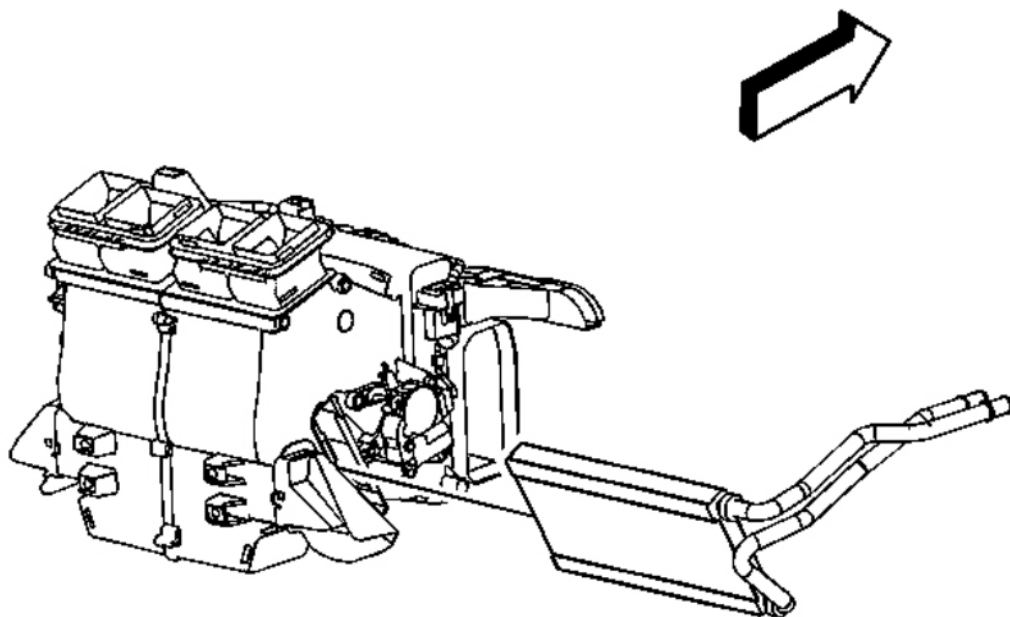


Fig. 253: View Of Heater Core
Courtesy of GENERAL MOTORS CORP.

4. Remove the heater core out of the HVAC module.

Installation Procedure

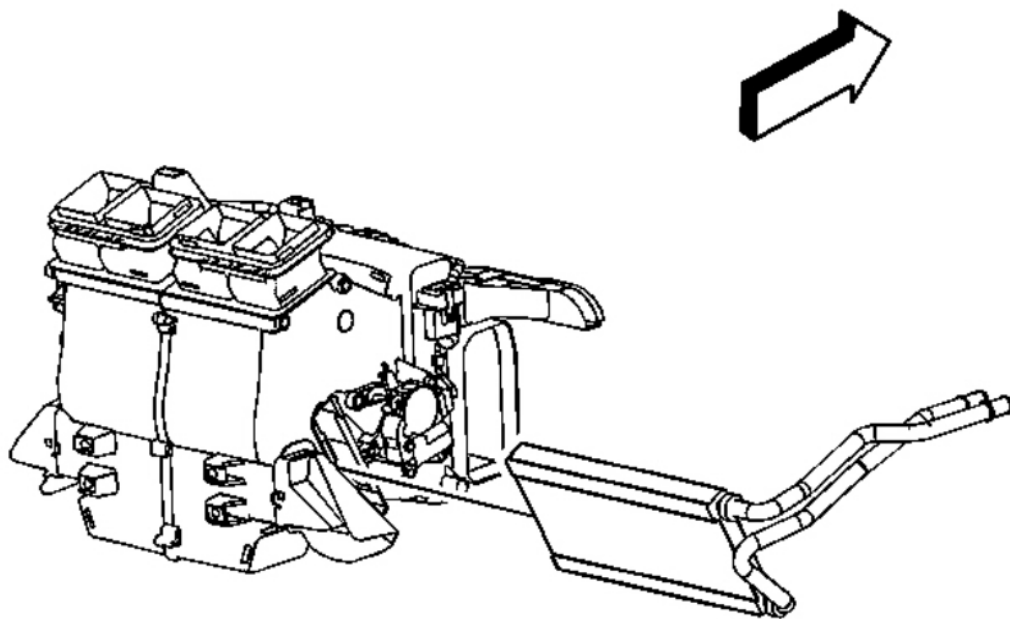


Fig. 254: View Of Heater Core
Courtesy of GENERAL MOTORS CORP.

1. Install the heater core into the HVAC module.
2. Install the heater core pipe bracket.

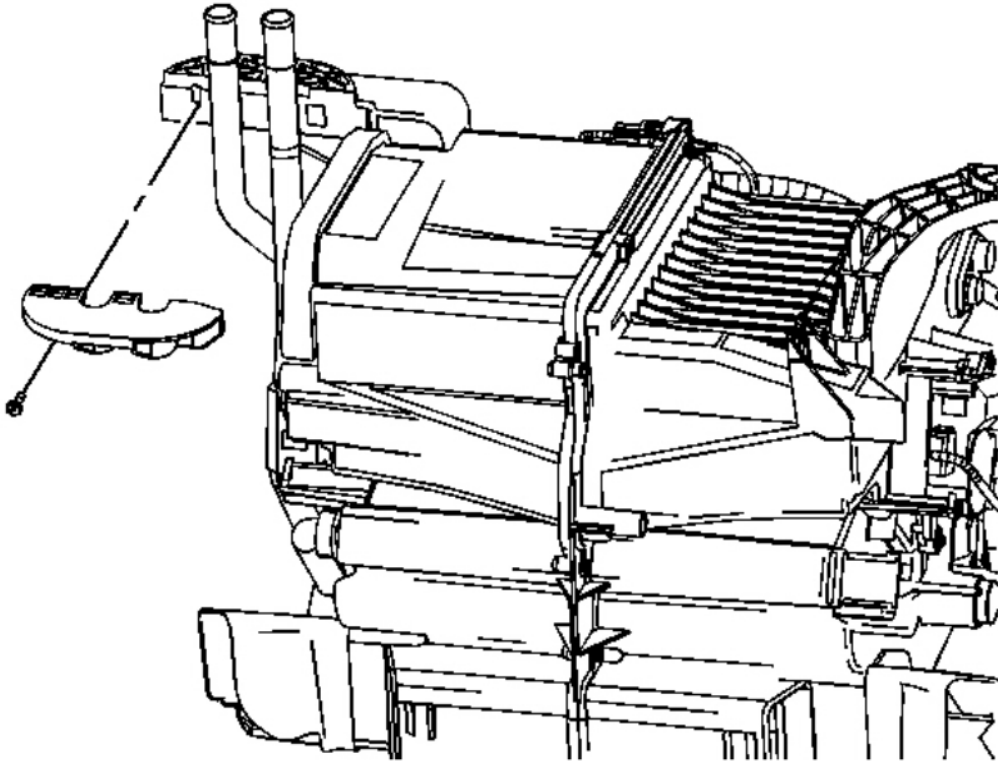


Fig. 255: View Of Heater Core Pipe Bracket
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the heater core pipe bracket screw.

Tighten: Tighten the screws to 1 N.m (9 lb in).

4. Install the HVAC module. Refer to **HVAC Module Assembly Replacement**.

BLOWER MOTOR RESISTOR REPLACEMENT - AUXILIARY

Removal Procedure

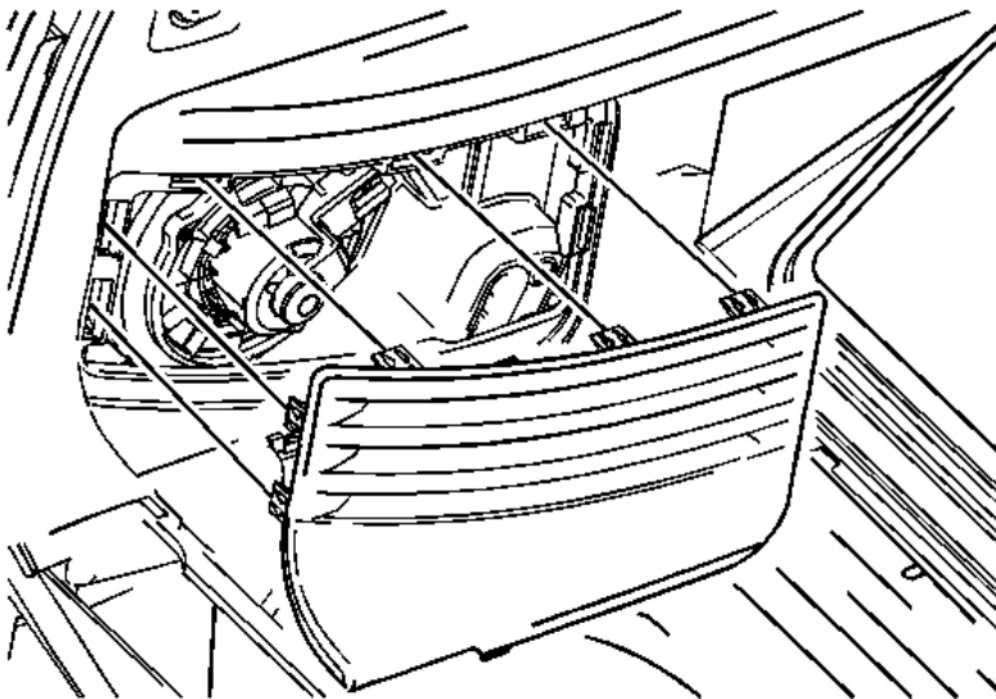


Fig. 256: View Of Left Body Side Trim Access Panel
Courtesy of GENERAL MOTORS CORP.

1. Remove the left body side trim access panel.
2. Disconnect the electrical connector from the blower motor resistor.

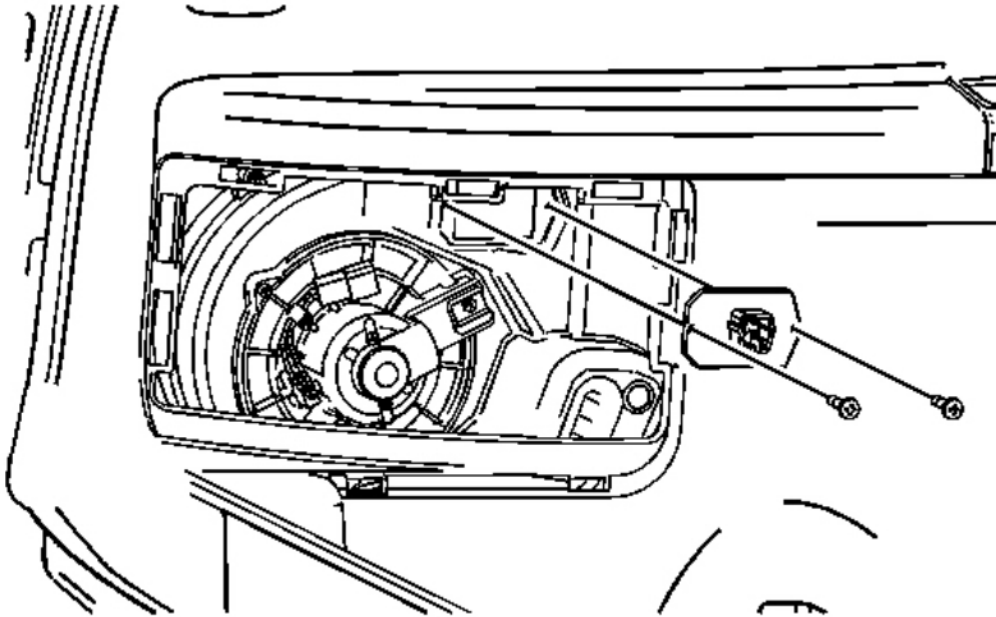


Fig. 257: View Of Blower Motor Resistor
Courtesy of GENERAL MOTORS CORP.

3. Remove the blower motor resistor screws from the HVAC module.
4. Remove the blower motor resistor from the vehicle.

Installation Procedure

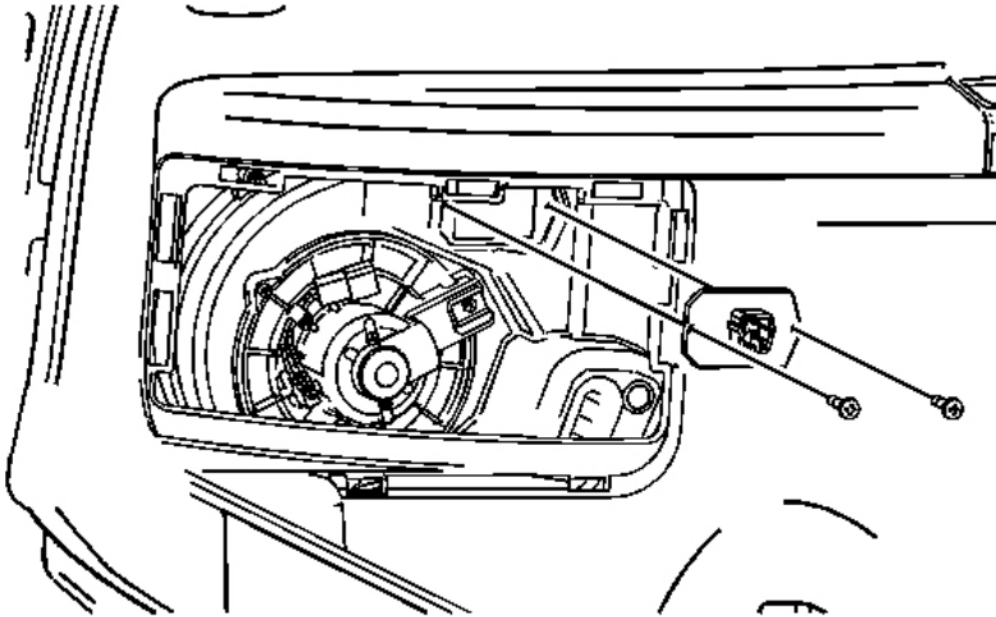


Fig. 258: View Of Blower Motor Resistor
Courtesy of GENERAL MOTORS CORP.

1. Install the blower motor resistor.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the blower motor resistor screws.

Tighten: Tighten the screws to 1 N.m (9 lb in).

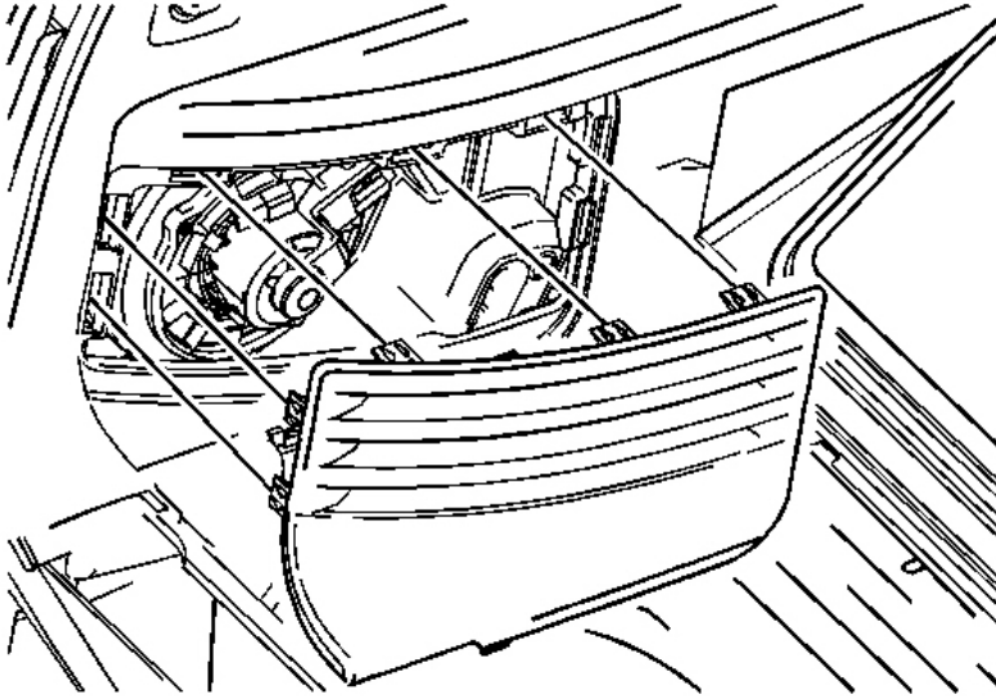


Fig. 259: View Of Left Body Side Trim Access Panel
Courtesy of GENERAL MOTORS CORP.

3. Connect the electrical connector to the blower motor resistor.
4. Install the left body side trim access panel.

BLOWER MOTOR REPLACEMENT - AUXILIARY

Removal Procedure

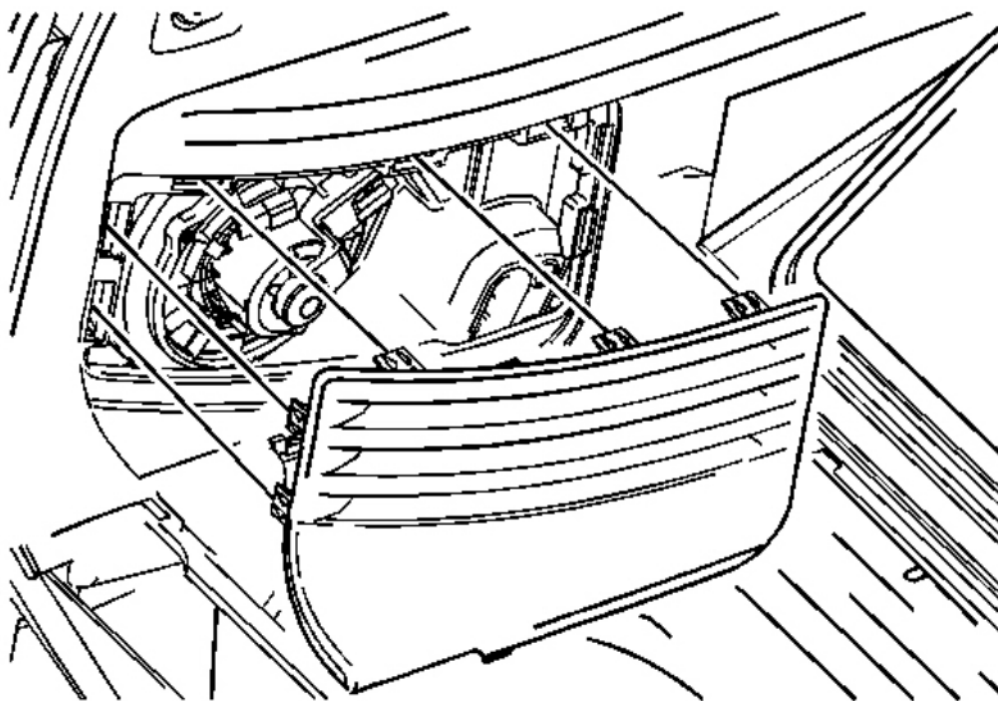


Fig. 260: View Of Left Body Side Trim Access Panel
Courtesy of GENERAL MOTORS CORP.

1. Remove the left body side trim access panel.

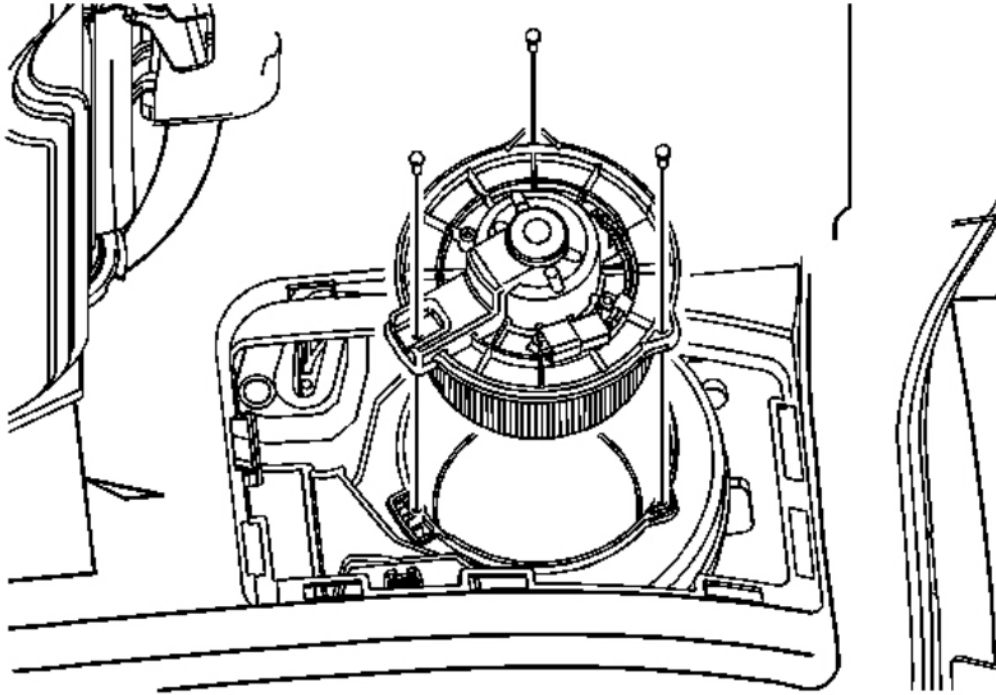


Fig. 261: Identifying Blower Motor
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the blower motor electrical connector.
3. Remove the blower motor screws from the HVAC module.
4. Remove the blower motor from the HVAC module.

Installation Procedure

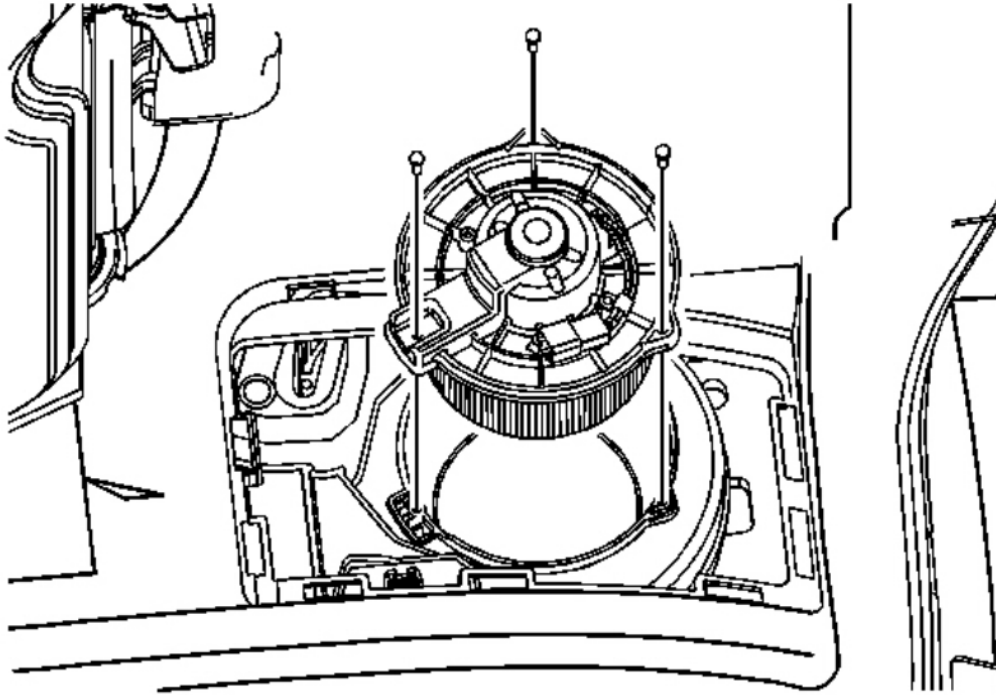


Fig. 262: Identifying Blower Motor
Courtesy of GENERAL MOTORS CORP.

1. Install the blower motor to the HVAC module.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the blower motor screws.

Tighten: Tighten the screws to 1 N.m (9 lb in).

3. Connect the blower motor electrical connector.

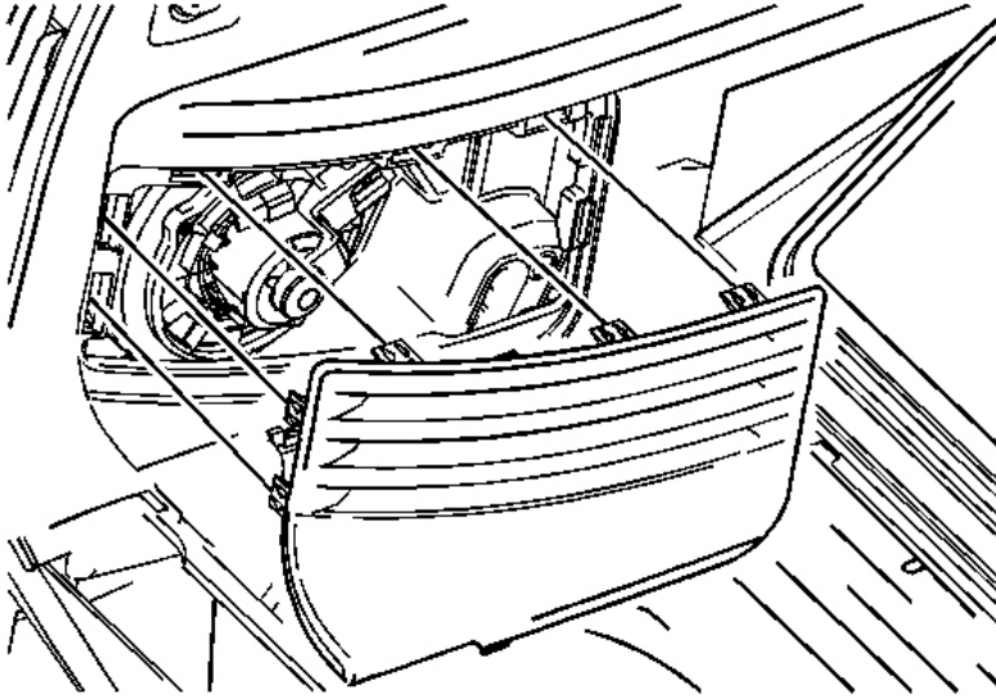


Fig. 263: View Of Left Body Side Trim Access Panel
Courtesy of GENERAL MOTORS CORP.

4. Install the left body side trim access panel.

THERMAL EXPANSION VALVE REPLACEMENT - AUXILIARY

Removal Procedure

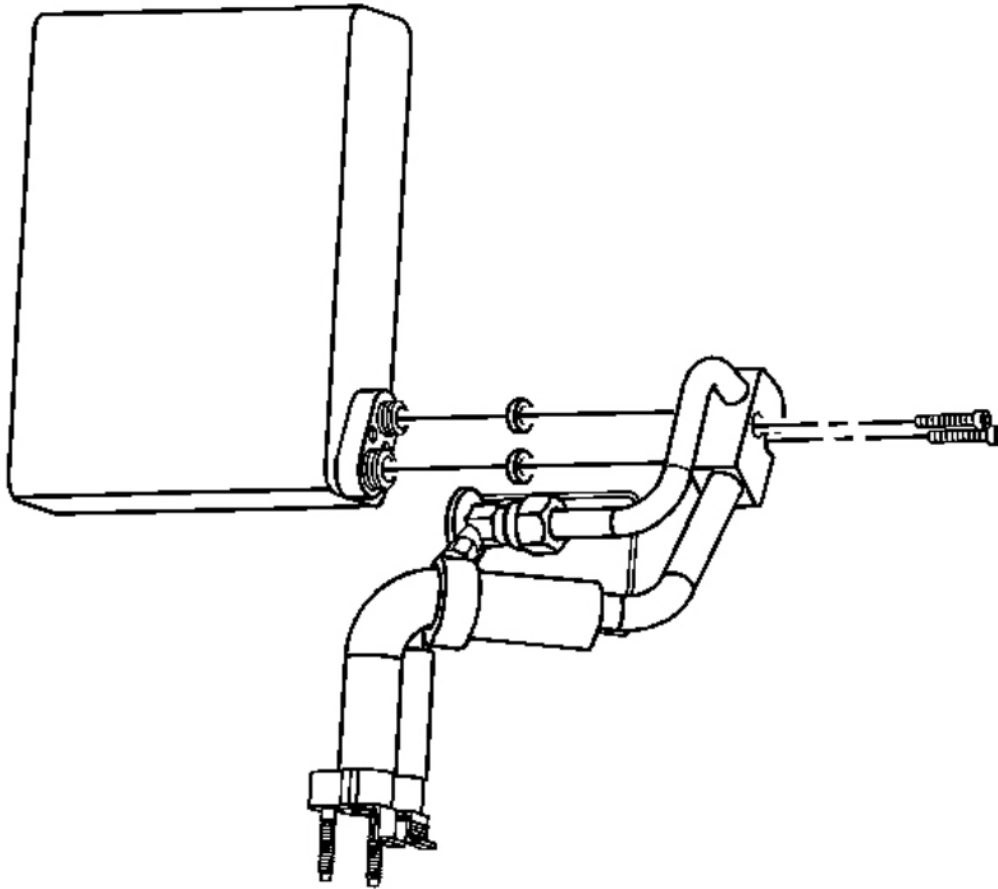


Fig. 264: View Of Auxiliary TXV
Courtesy of GENERAL MOTORS CORP.

1. Remove the auxiliary evaporator from the auxiliary HVAC module. Refer to **Evaporator Core Replacement - Auxiliary**.
2. Remove the auxiliary thermal expansion valve (TXV) assembly bolts.
3. Remove the auxiliary TXV from the auxiliary evaporator.
4. Remove and discard the O-rings.

Installation Procedure

1. Install new O-rings to the auxiliary TXV assembly. Refer to **O-Ring Replacement**.

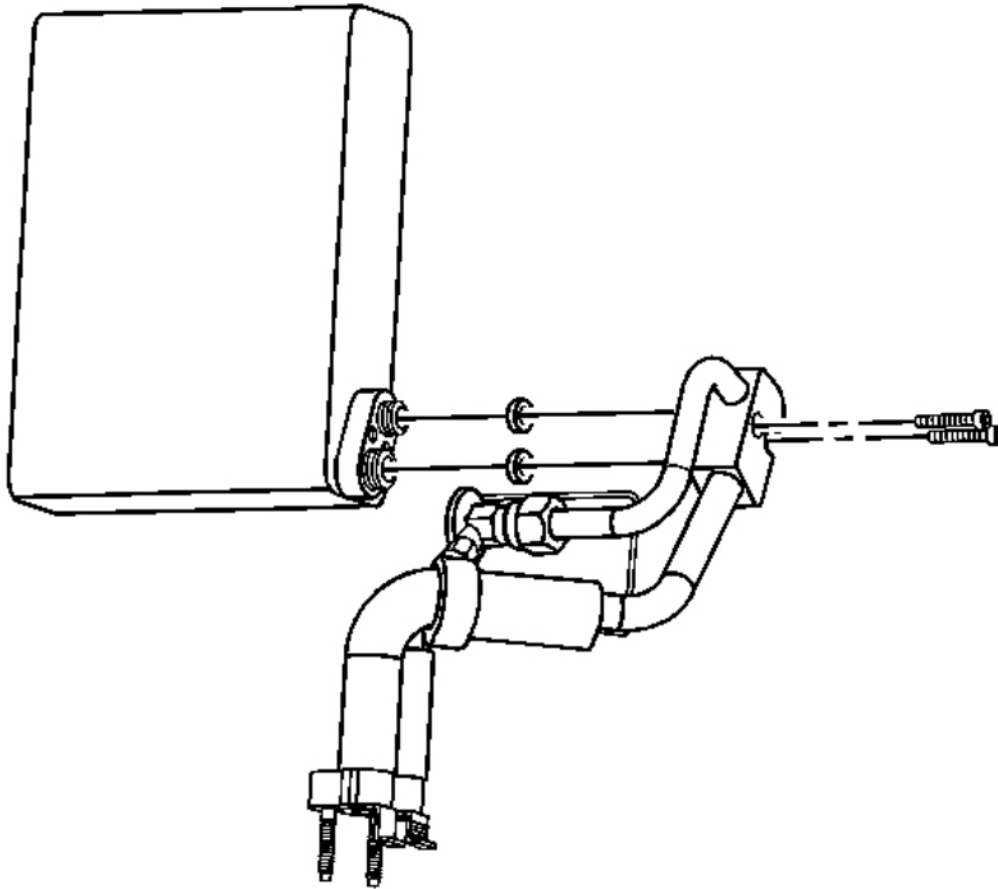


Fig. 265: View Of Auxiliary TXV
Courtesy of GENERAL MOTORS CORP.

2. Install the auxiliary TXV to the evaporator.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the auxiliary TXV bolts to the auxiliary evaporator.

Tighten: Tighten the bolt to 3.5 N.m (31 lb in).

4. Install the auxiliary evaporator to the auxiliary HVAC module. Refer to **Evaporator Core Replacement - Auxiliary.**

HVAC MODULE REPLACEMENT - AUXILIARY

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

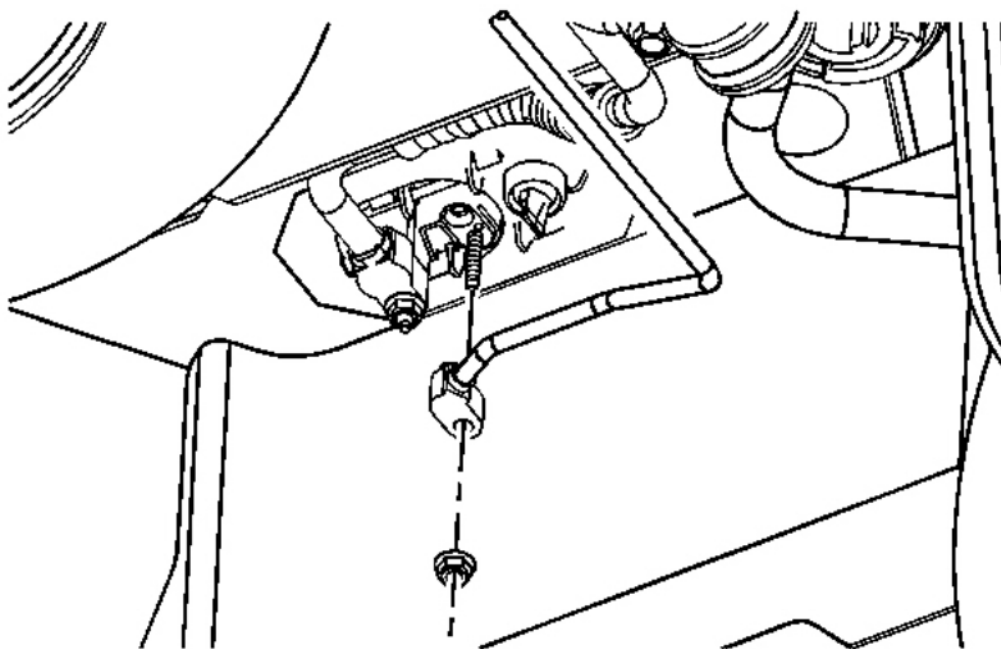


Fig. 266: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

1. Recover the refrigerant from the A/C system. Refer to Refrigerant Recovery and Recharging.
2. Raise the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

IMPORTANT: Disconnect the LH muffler from the support hangers to gain access to the auxiliary A/C lines

3. Disconnect the LH muffler from the support hangers.

4. Remove the auxiliary evaporator inlet line nut from the auxiliary HVAC module at the underside of the vehicle.
5. Disconnect the auxiliary evaporator inlet line from the auxiliary evaporator.
6. Disconnect the auxiliary evaporator inlet line from the body retainer clip.
7. Remove and discard the O-ring.

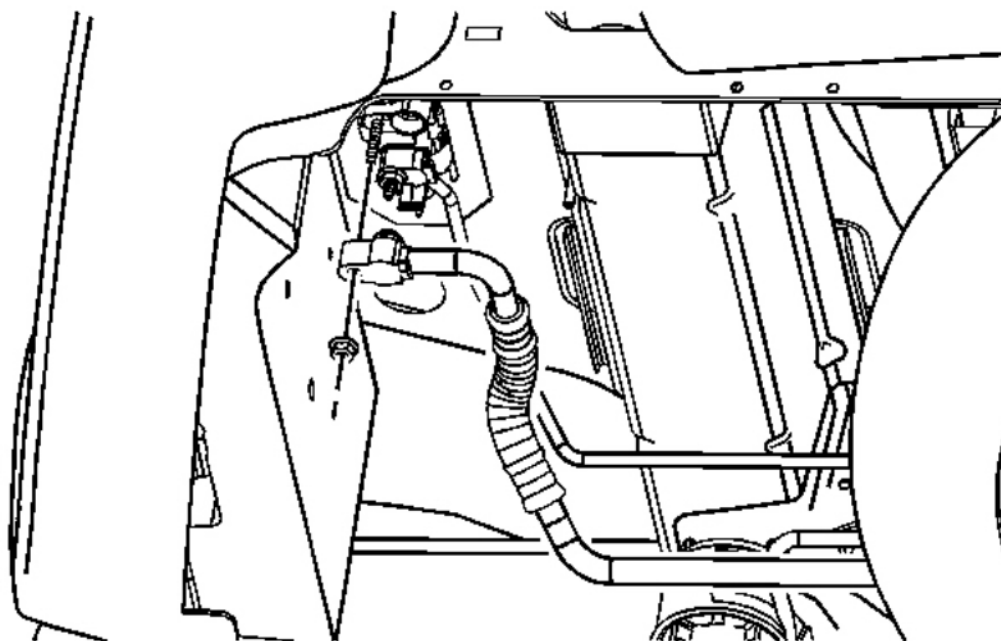


Fig. 267: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

8. Remove the auxiliary evaporator outlet line nut from the auxiliary HVAC module at the underside of the vehicle.
9. Disconnect the auxiliary evaporator outlet line from the auxiliary evaporator.
10. Disconnect the auxiliary evaporator outlet line from the body retainer clip.
11. Remove and discard the O-ring.
12. Lower the vehicle.
13. Remove the left body side trim panel. Refer to **Trim Panel Replacement - Body Side Rear** in Interior Trim.

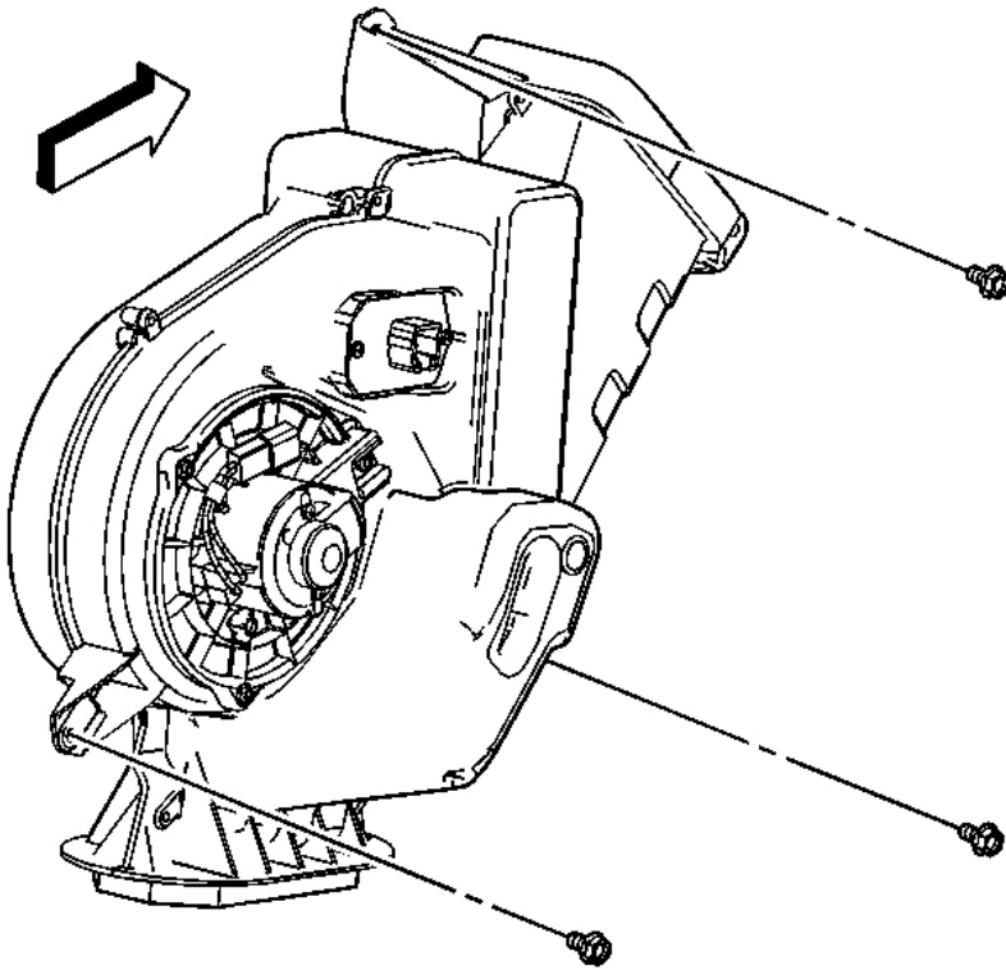


Fig. 268: View Of Auxiliary HVAC Module
Courtesy of GENERAL MOTORS CORP.

14. Disconnect the electrical connectors from the auxiliary HVAC module.
15. Remove the air duct from the auxiliary HVAC module.
16. Remove the auxiliary HVAC module bolts from the vehicle.
17. Remove the auxiliary HVAC module from the vehicle.

Installation Procedure

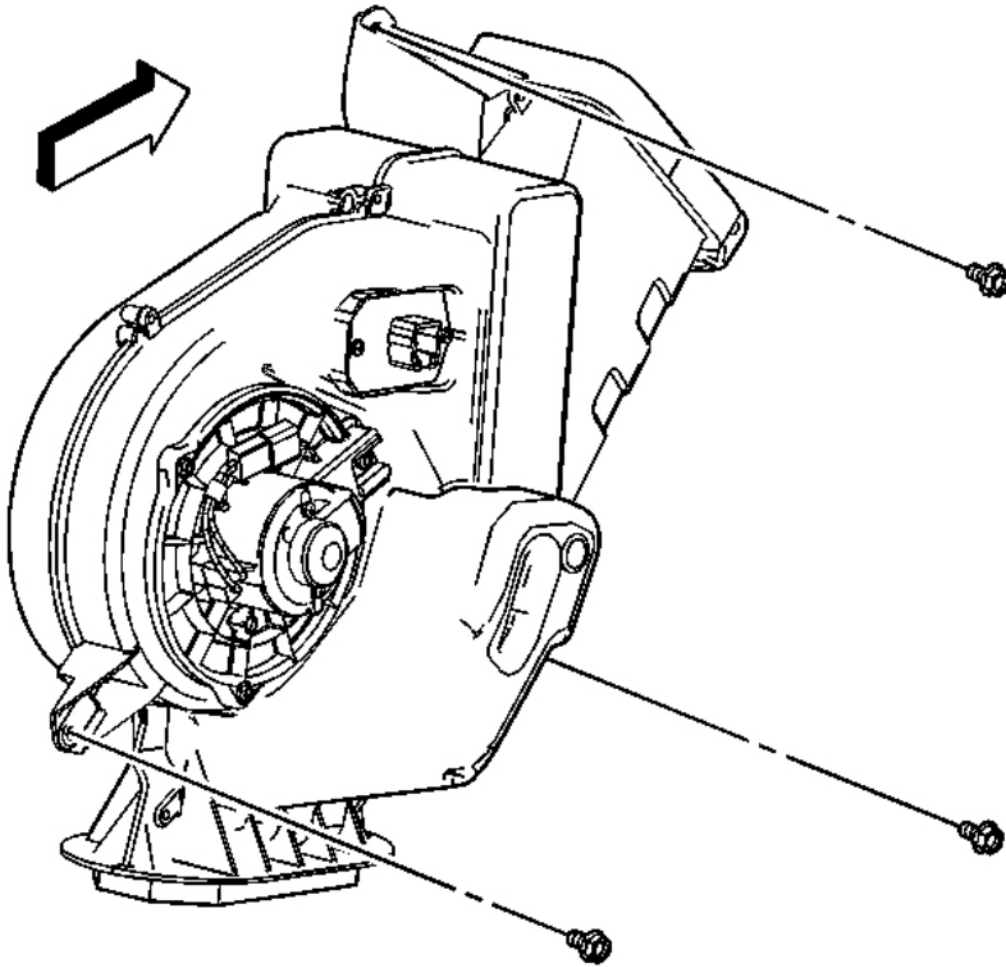


Fig. 269: View Of Auxiliary HVAC Module
Courtesy of GENERAL MOTORS CORP.

1. Install the auxiliary HVAC module to the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the auxiliary HVAC module bolts to the vehicle.

Tighten: Tighten the bolts to 9 N.m (80 lb in).

3. Connect the electrical connectors to the auxiliary HVAC module.
4. Install the air duct to the auxiliary HVAC module.
5. Install the left body side trim panel. Refer to **Trim Panel Replacement - Body Side Rear** in Interior Trim.
6. Raise the vehicle.
7. Install new O-rings to the auxiliary evaporator inlet and outlet lines. Refer to **O-Ring Replacement**.
8. Install the auxiliary evaporator outlet line to the auxiliary HVAC module.
9. Connect the auxiliary evaporator inlet line to the body retainer clip.

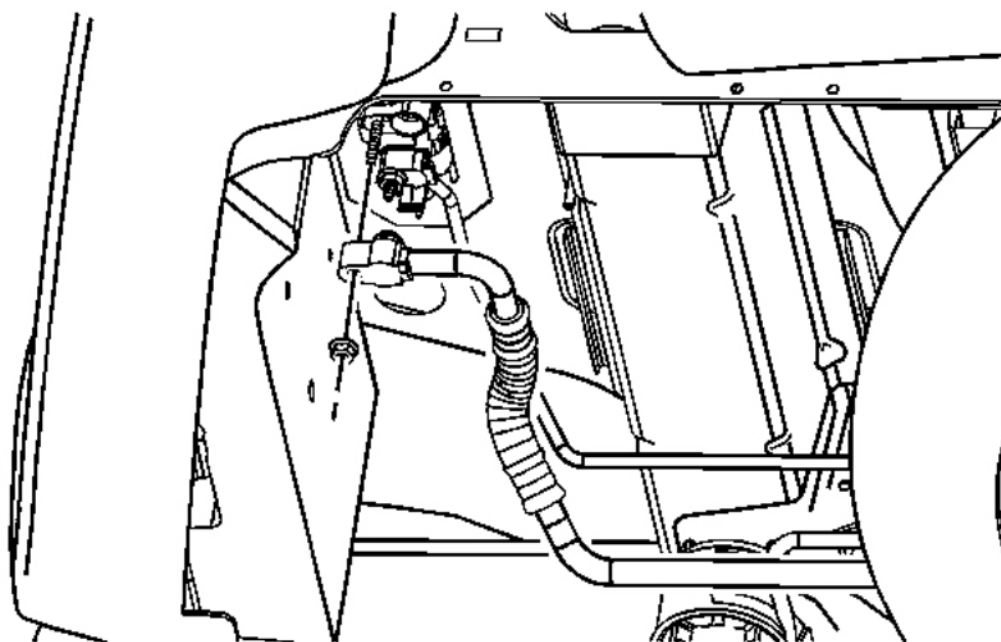


Fig. 270: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

10. Install the auxiliary evaporator outlet line nut to the auxiliary HVAC module.

Tighten: Tighten the nut to 9 N.m (80 lb in).

11. Install the auxiliary evaporator inlet line to the auxiliary HVAC module.
12. Connect the auxiliary evaporator inlet line from the body retainer clip.

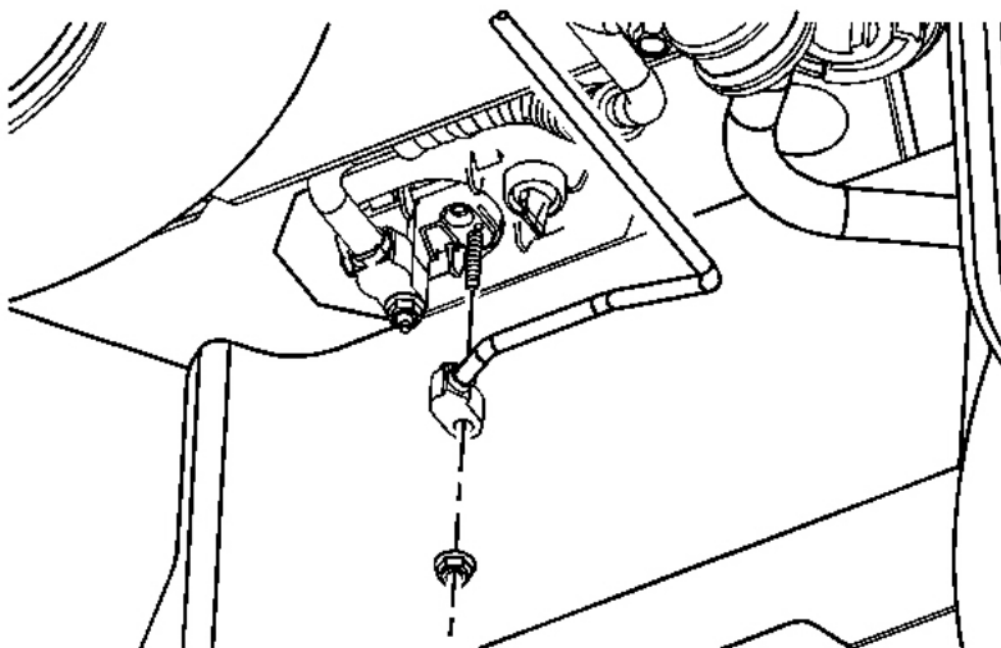


Fig. 271: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

13. Install the auxiliary evaporator inlet line nut to the auxiliary HVAC module.

Tighten: Tighten the nut to 9 N.m (80 lb in).

14. Lower the vehicle.
15. Connect the LH muffler to the support hangers.
16. Recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
17. Leak test the fittings of the component using **J 39400-A** . See **Special Tools and Equipment**.

Removal Procedure

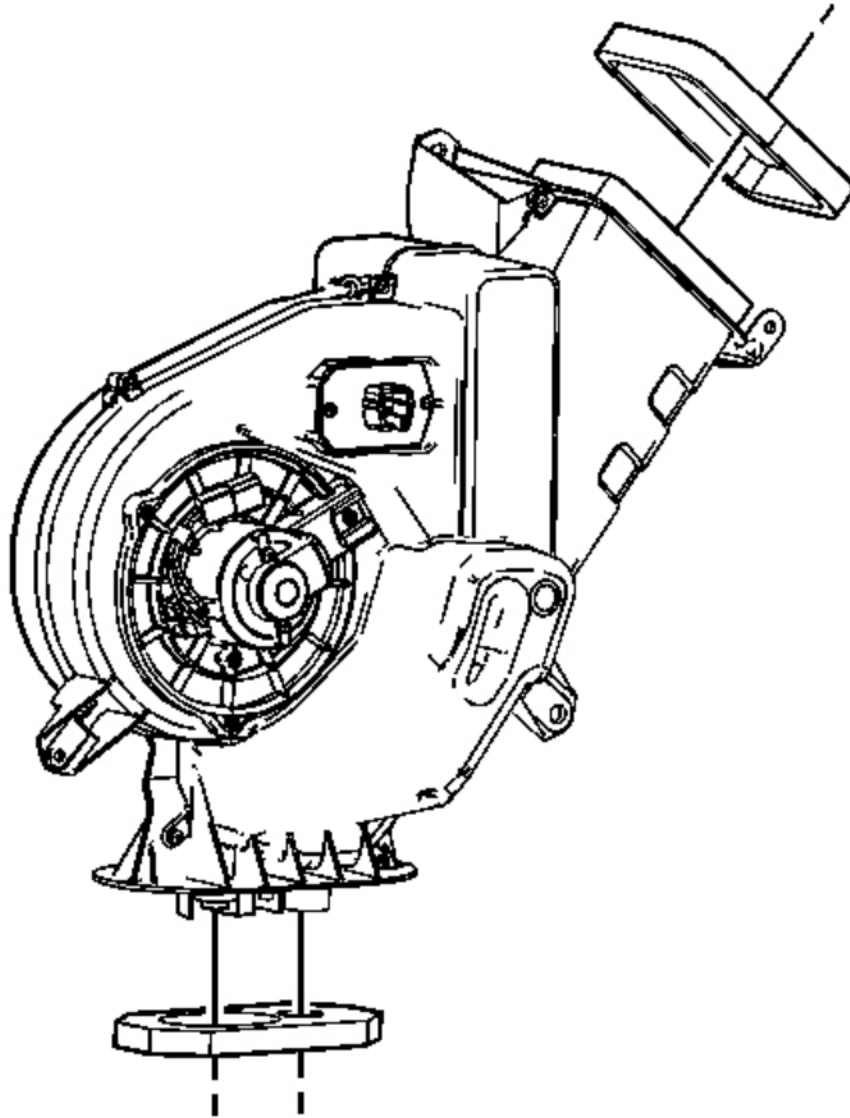


Fig. 272: View Of Auxiliary HVAC Module Seals
Courtesy of GENERAL MOTORS CORP.

1. Remove the auxiliary HVAC module from the vehicle. Refer to **HVAC Module Replacement - Auxiliary.**

2. Remove and discard the auxiliary HVAC module seals.

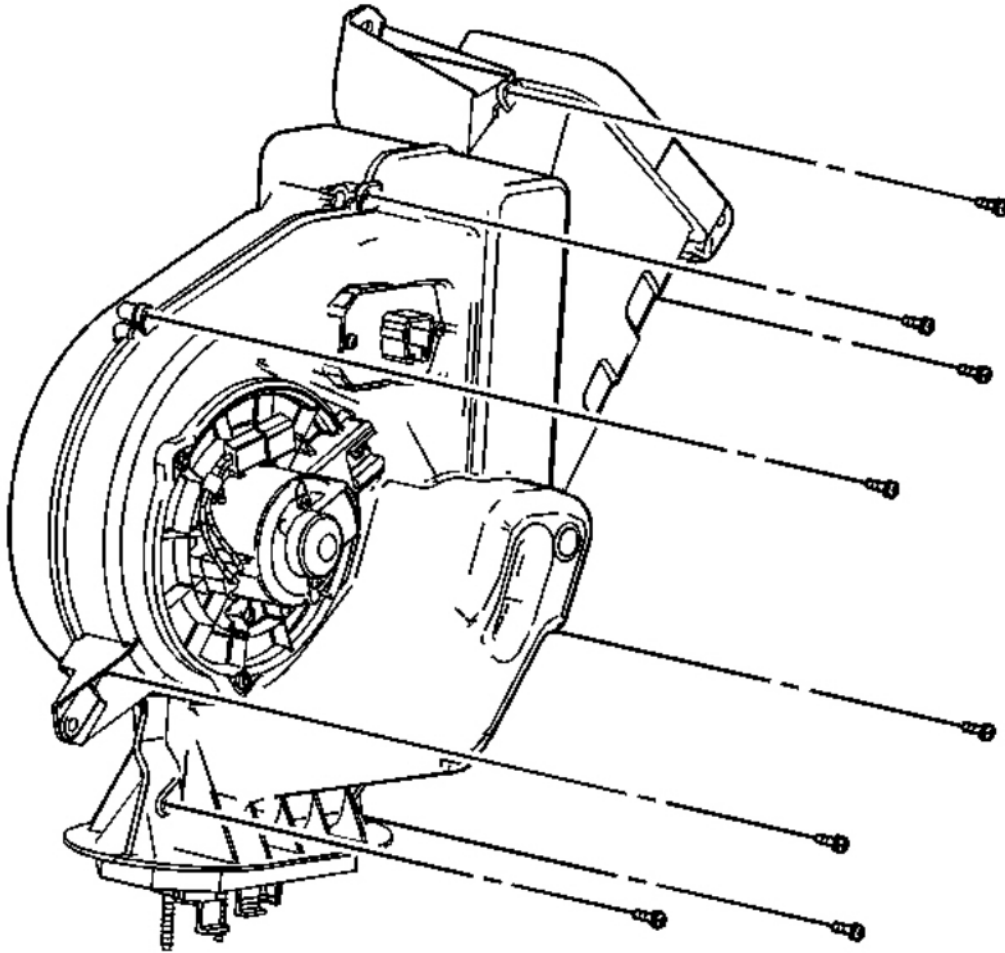


Fig. 273: View Of Auxiliary HVAC Module Screws
Courtesy of GENERAL MOTORS CORP.

3. Remove the auxiliary HVAC module screws.
4. Separate the auxiliary HVAC module halves.

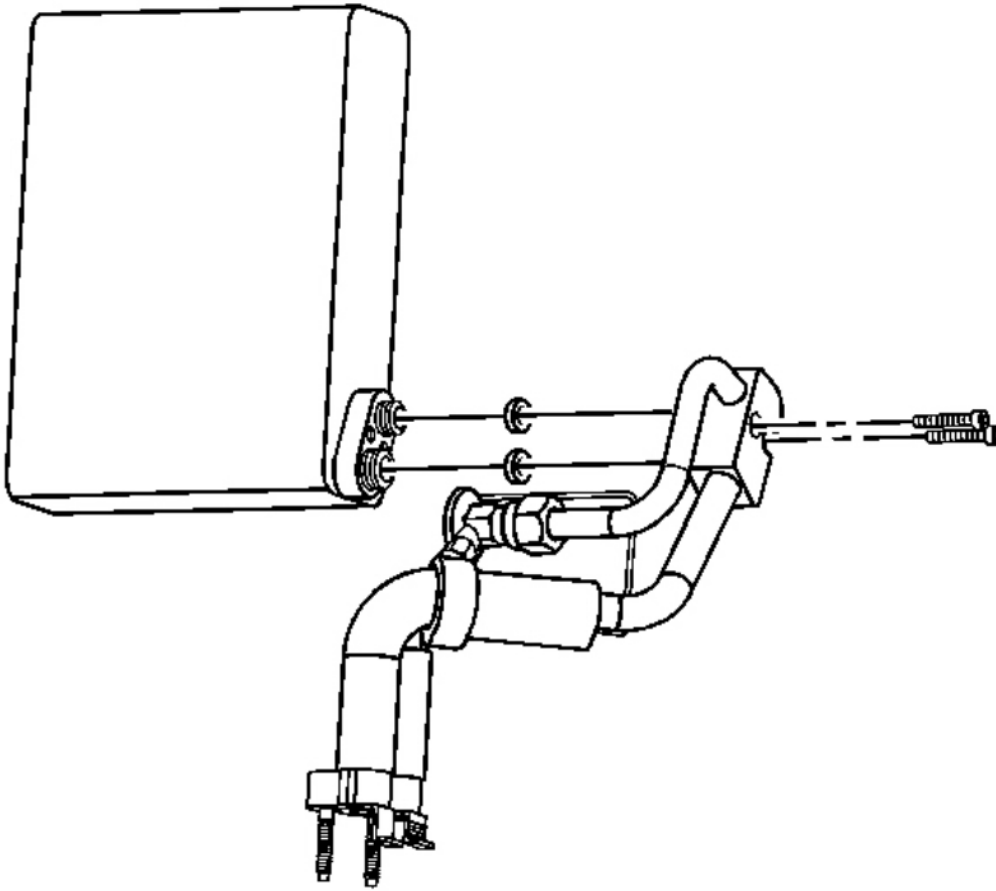


Fig. 274: View Of Auxiliary TXV
Courtesy of GENERAL MOTORS CORP.

5. Remove the auxiliary evaporator from the auxiliary HVAC module.
6. Remove the auxiliary evaporator pipe assembly bolts from the evaporator.
7. Remove the auxiliary evaporator pipe assembly from the evaporator.
8. Remove and discard the O-rings.

Installation Procedure

1. If replacing the auxiliary evaporator core, add the specified amount of PAG oil directly into the auxiliary evaporator core. Refer to **Refrigerant System Capacities**.

2. Install new O-rings to the auxiliary TXV assembly. Refer to **O-Ring Replacement**.

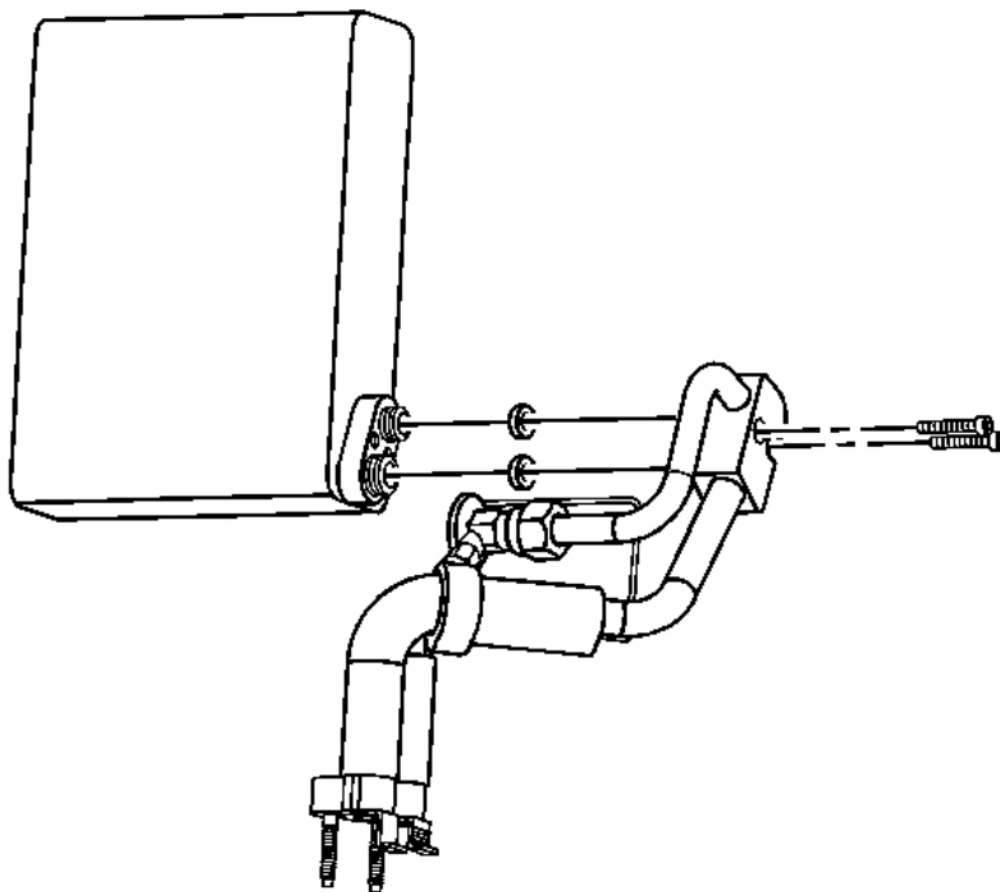


Fig. 275: View Of Auxiliary TXV
Courtesy of GENERAL MOTORS CORP.

3. Install the auxiliary evaporator TXV assembly to the evaporator.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the auxiliary evaporator pipe assembly bolts to the evaporator.

Tighten: Tighten the bolts to 3.5 N.m (31 lb in).

5. Install the auxiliary evaporator to the auxiliary HVAC module.

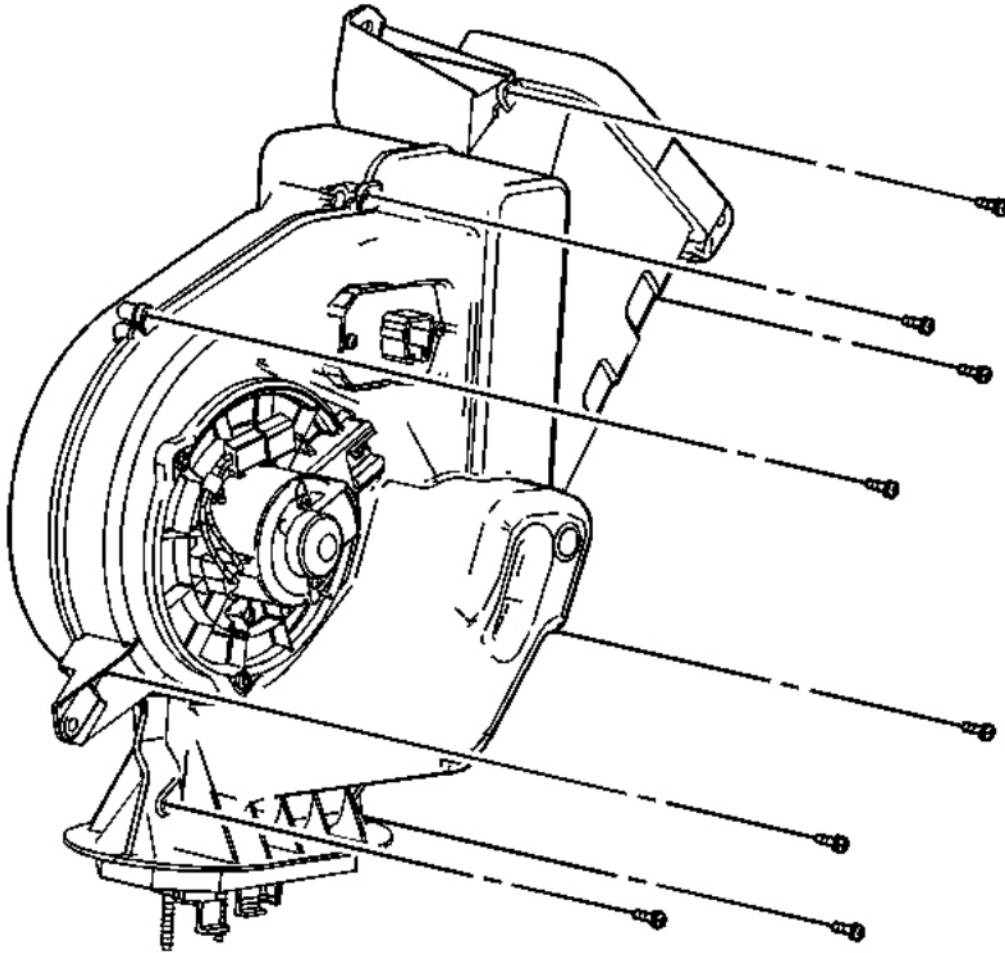


Fig. 276: View Of Auxiliary HVAC Module Screws
Courtesy of GENERAL MOTORS CORP.

6. Connect the auxiliary HVAC module halves.
7. Install the auxiliary HVAC module screws.

Tighten: Tighten the screws to 1 N.m (9 lb in).

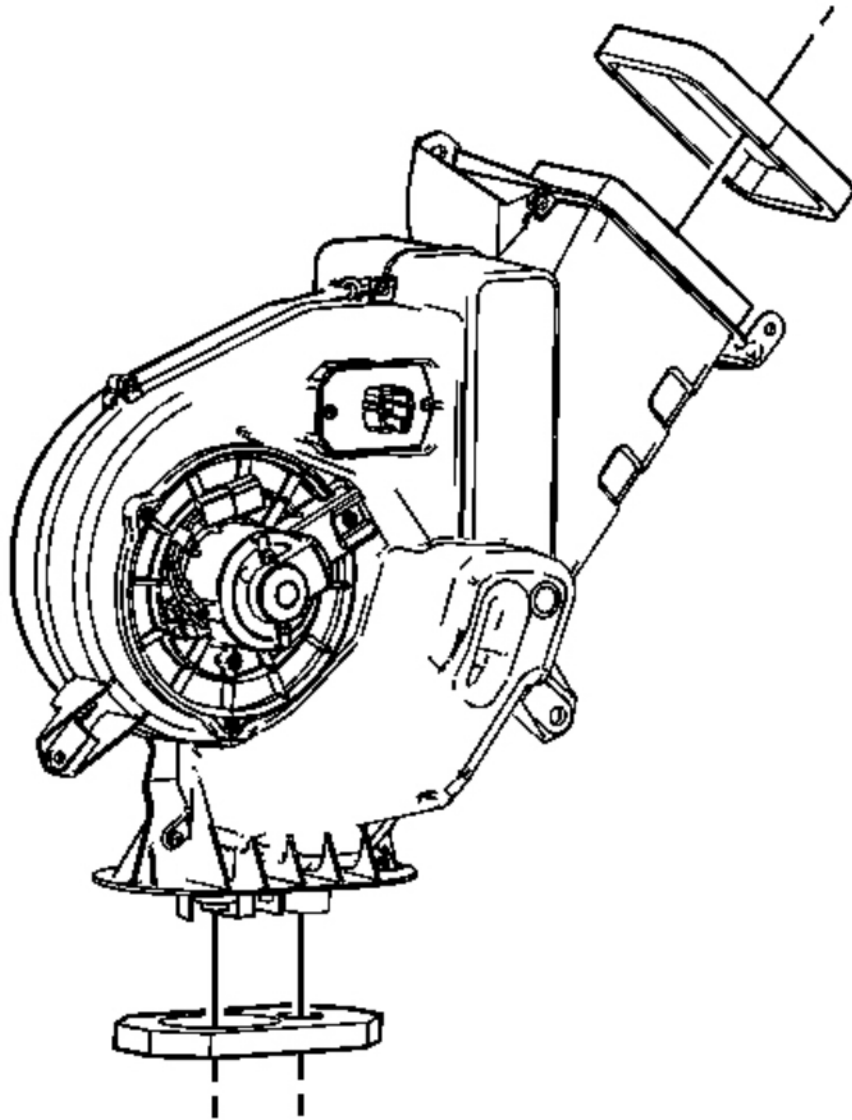


Fig. 277: View Of Auxiliary HVAC Module Seals
Courtesy of GENERAL MOTORS CORP.

8. Install new auxiliary HVAC module case joint seals.
9. Install the auxiliary HVAC module to the vehicle. Refer to **HVAC Module Replacement - Auxiliary**.

EVAPORATOR TUBE REPLACEMENT - AUXILIARY FRONT (SUCTION LINE)

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

1. Recover the A/C system. Refer to Refrigerant Recovery and Recharging.

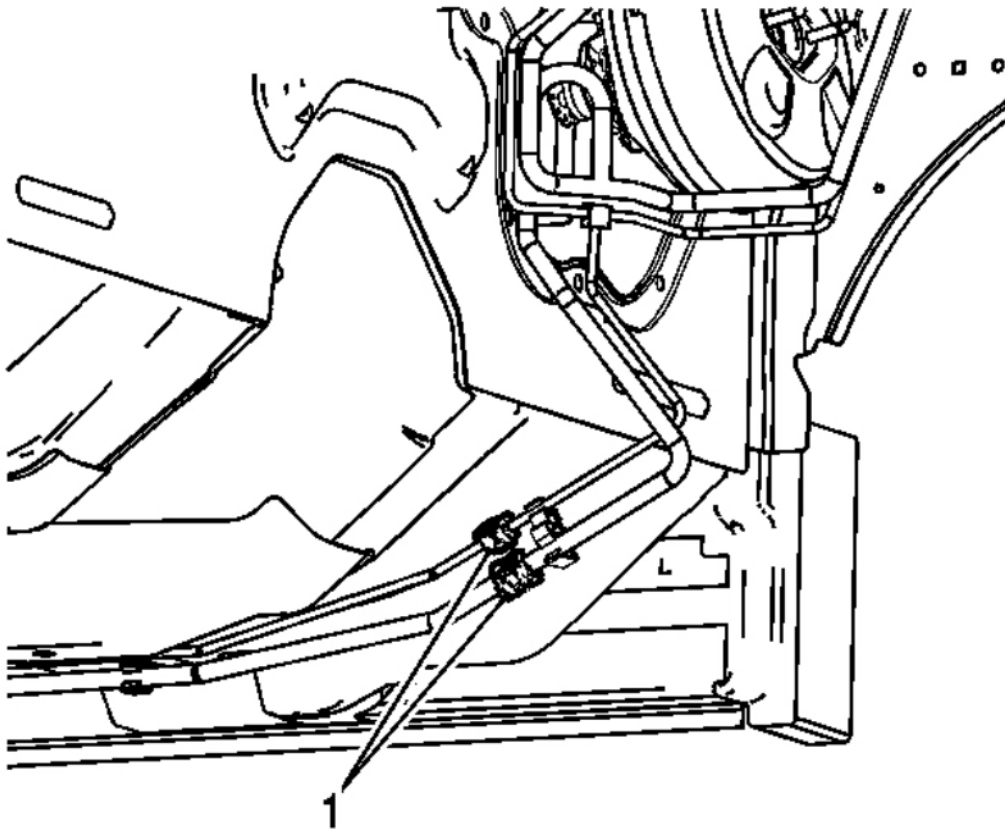


Fig. 278: View Of Auxiliary Front Line
Courtesy of GENERAL MOTORS CORP.

2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

3. Remove the auxiliary front suction line to front suction line quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
4. Disconnect the auxiliary front suction line from the front suction line.

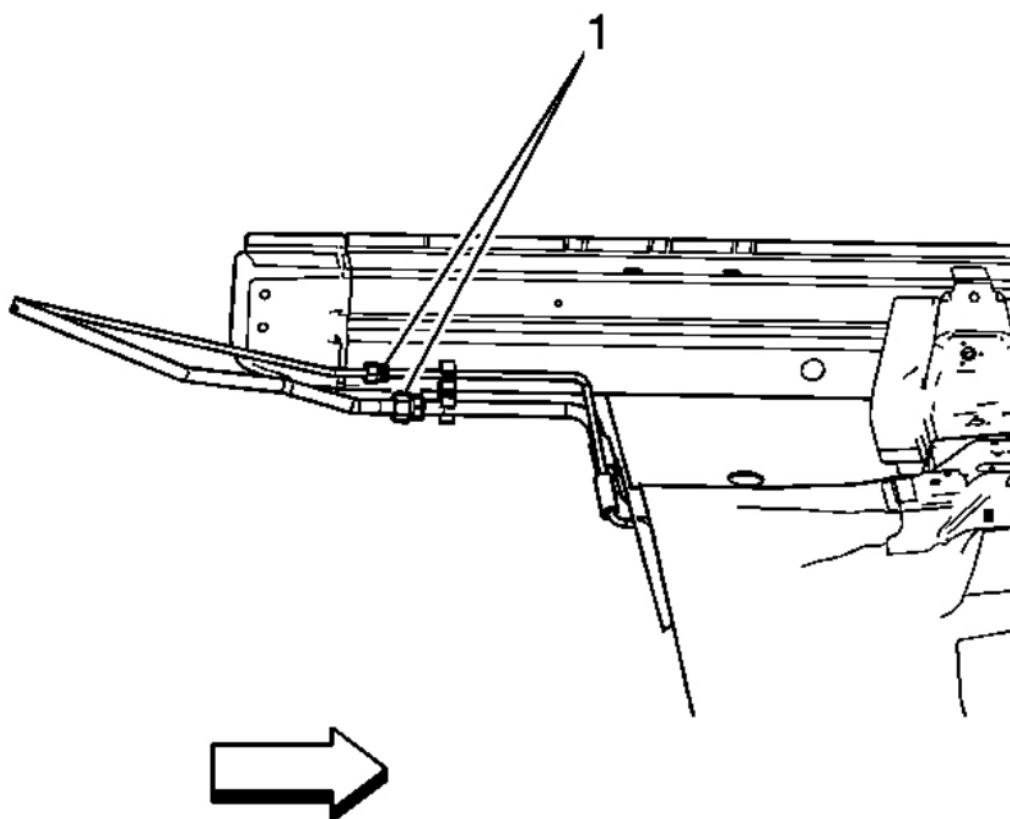


Fig. 279: Identifying Auxiliary Lines
 Courtesy of GENERAL MOTORS CORP.

5. Loosen the auxiliary front suction line to auxiliary rear suction line fitting.
6. Disconnect the auxiliary front suction line from the auxiliary rear suction line
7. Disconnect the auxiliary front suction line from the body retainers
8. Remove the auxiliary front suction line from the vehicle.
9. Remove and discard the O-rings from the auxiliary front suction line. Refer to **O-Ring Replacement**.

Installation Procedure

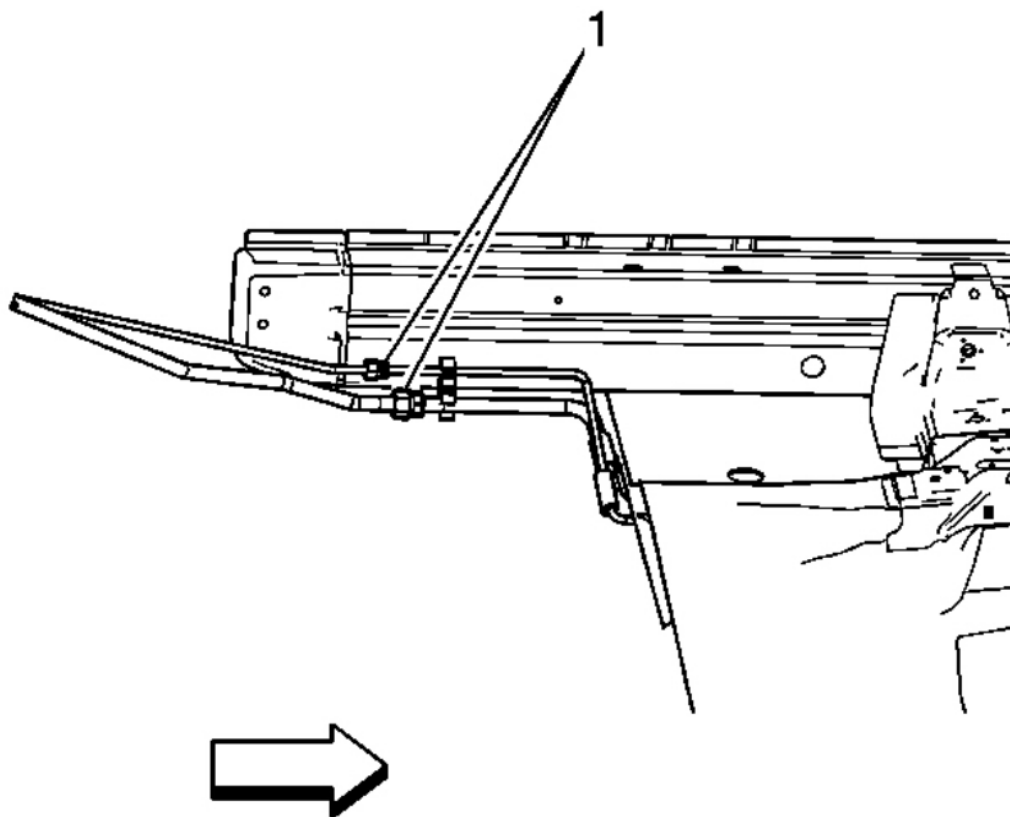


Fig. 280: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings to the auxiliary front suction line. Refer to **O-Ring Replacement**.
2. Install the auxiliary front suction line to the vehicle.
3. Connect the auxiliary front suction line to the body retainers
4. Connect the auxiliary front suction line to the auxiliary rear suction line.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the fitting of the auxiliary front suction line.

Tighten: Tighten the fitting to 9 N.m (80 lb in).

6. Connect the auxiliary front suction line to the front suction line.

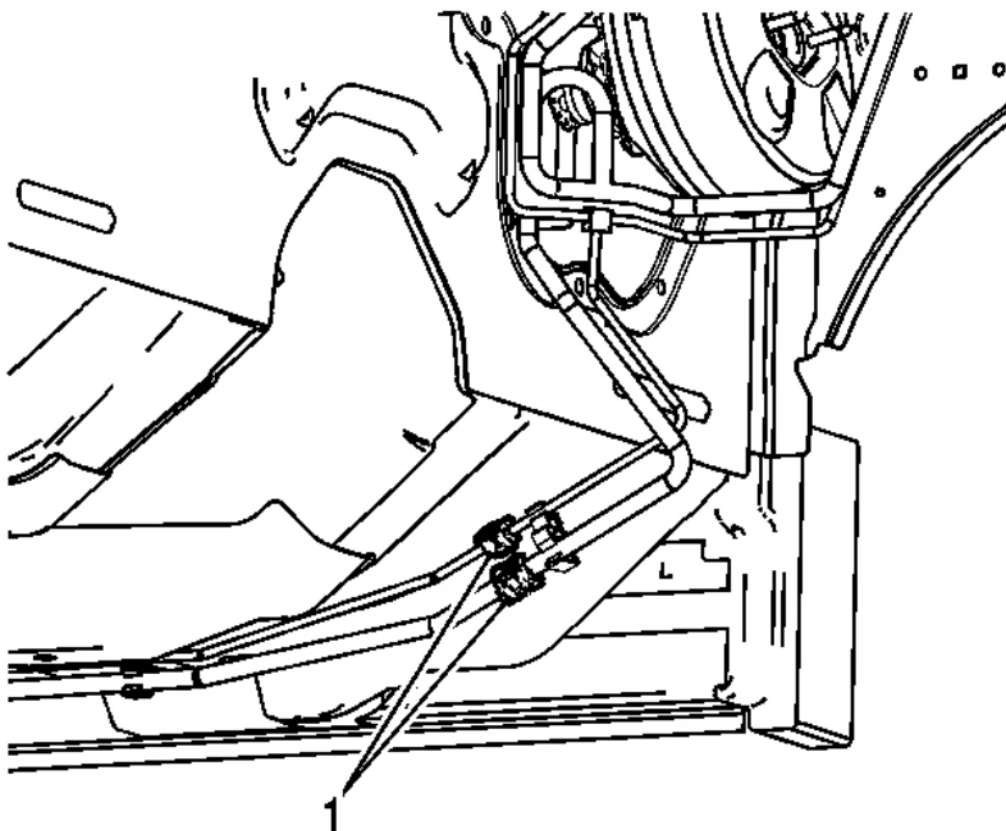


Fig. 281: View Of Auxiliary Front Line
Courtesy of GENERAL MOTORS CORP.

7. Install the auxiliary front suction line to front suction line quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
8. Lower the vehicle.
9. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
10. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

EVAPORATOR TUBE REPLACEMENT - AUXILIARY FRONT (DISCHARGE LINE)

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

1. Recover the A/C system. Refer to Refrigerant Recovery and Recharging.

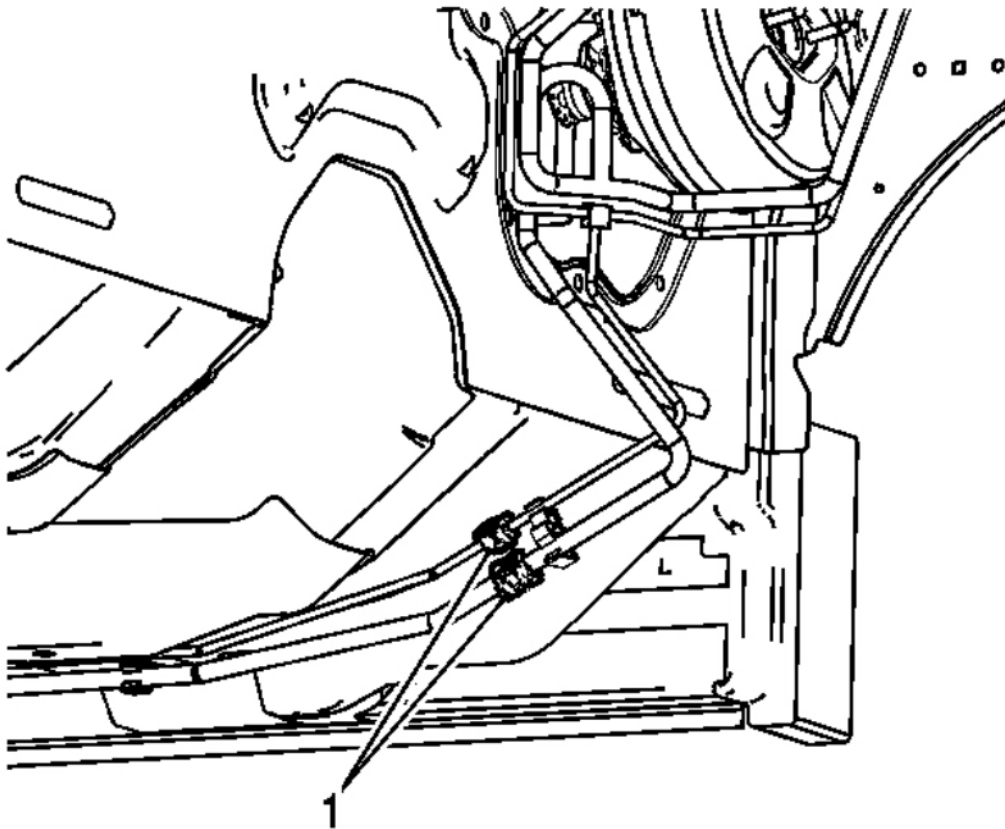


Fig. 282: View Of Auxiliary Front Line
Courtesy of GENERAL MOTORS CORP.

2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

3. Remove the auxiliary front discharge line to front discharge line quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
4. Disconnect the auxiliary front discharge line from the front discharge line.

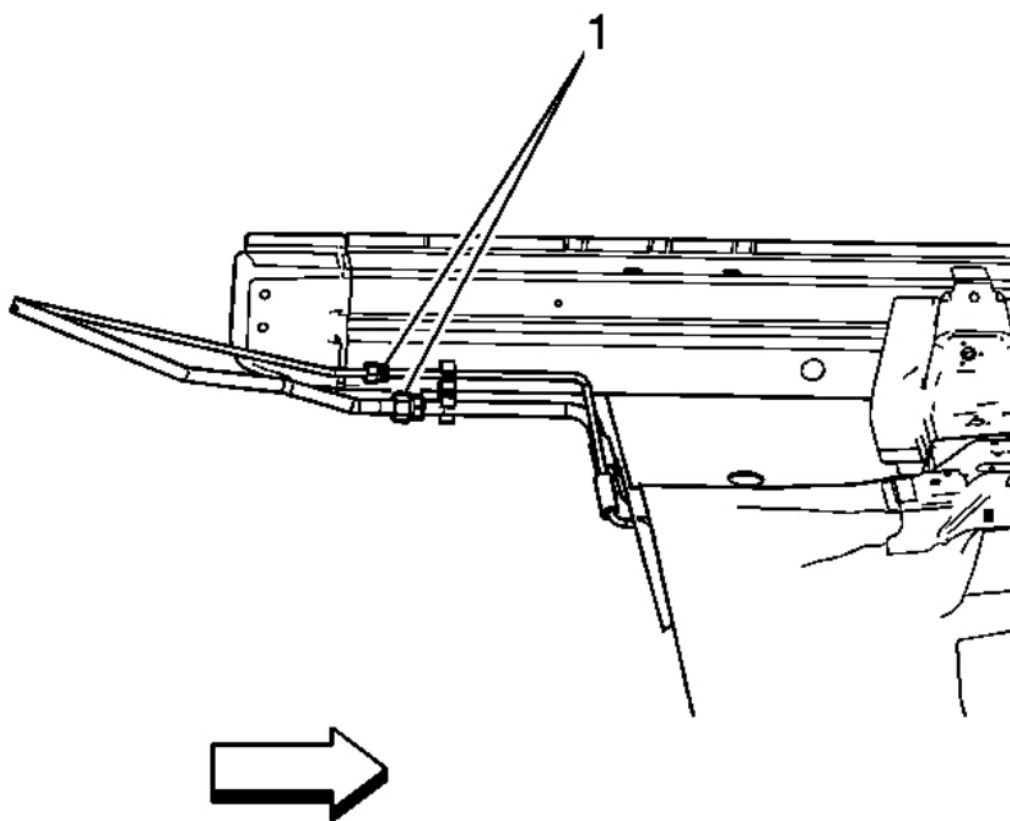


Fig. 283: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

5. Loosen the auxiliary front discharge line to auxiliary rear discharge line fitting.
6. Disconnect the auxiliary front discharge line from the auxiliary rear discharge line.
7. Disconnect the auxiliary front discharge line from the body retainers.
8. Remove the auxiliary front discharge line from the vehicle.
9. Remove and discard the O-rings from the auxiliary front discharge line. Refer to **O-Ring Replacement**.

Installation Procedure

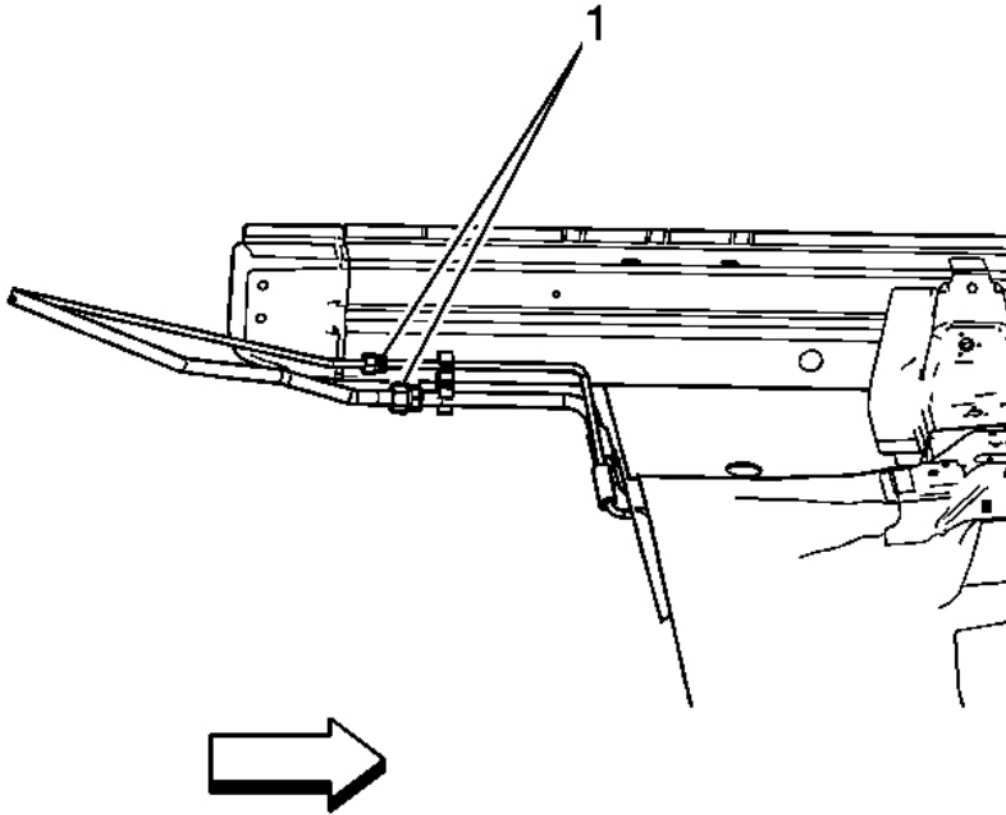


Fig. 284: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings to the auxiliary front discharge line. Refer to **O-Ring Replacement**.
2. Install the auxiliary front discharge line to the vehicle.
3. Connect the auxiliary front discharge line to the body retainers.
4. Connect the auxiliary front discharge line to the auxiliary rear discharge line.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

5. Install the fitting of the auxiliary front discharge line.

Tighten: Tighten the fitting to 9 N.m (80 lb in).

6. Connect the auxiliary front discharge line to the front discharge line.

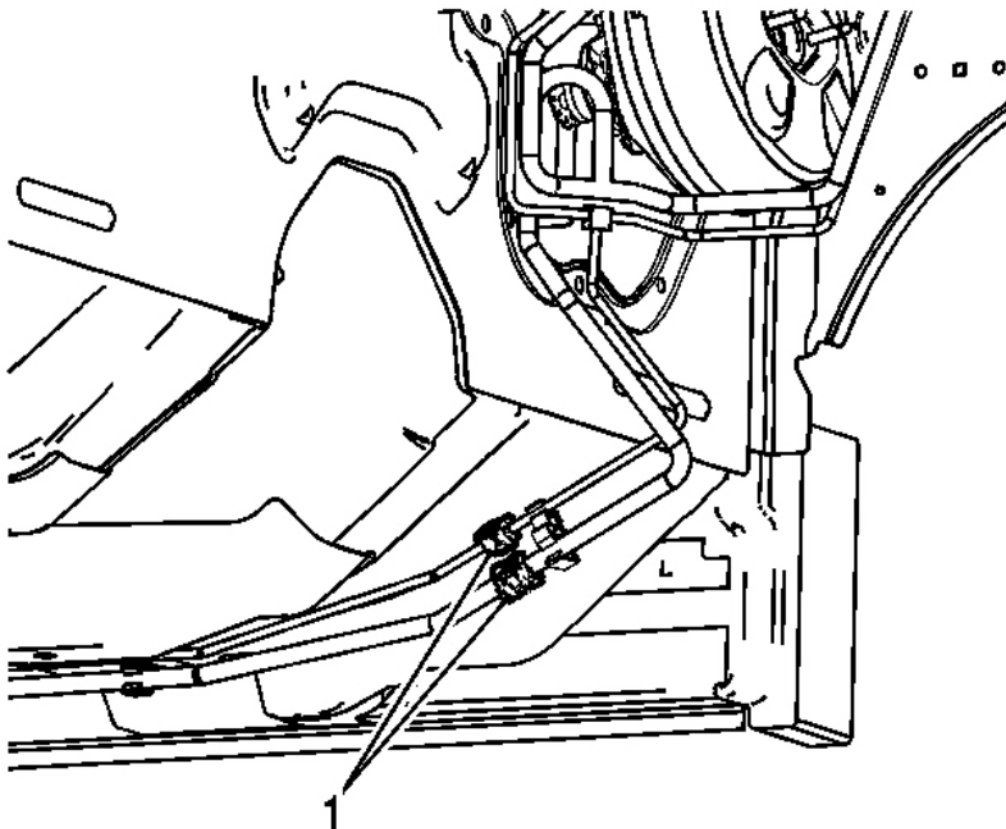


Fig. 285: View Of Auxiliary Front Line
Courtesy of GENERAL MOTORS CORP.

7. Install the auxiliary front discharge line to front discharge line quick connect fitting. Refer to **A/C Line/Tube Connector Removal/Replacement**.
8. Lower the vehicle.
9. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
10. Leak test the fittings of the component using J 39400-A . See **Special Tools and Equipment**.

EVAPORATOR TUBE REPLACEMENT - AUXILIARY REAR (LIQUID LINE)

Tools Required

J 39400-A Halogen Leak Detector. See Special Tools and Equipment.

Removal Procedure

1. Recover the A/C system. Refer to Refrigerant Recovery and Recharging.

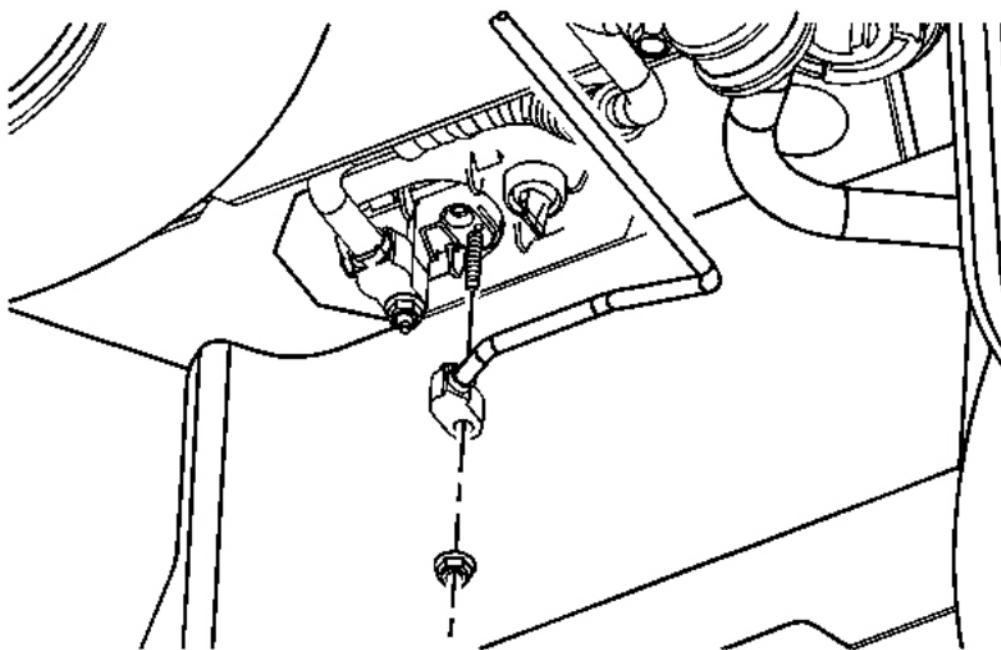


Fig. 286: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
3. Remove the engine exhaust. Refer to Exhaust System Replacement in Engine Exhaust.
4. Remove the auxiliary rear liquid line nut from the auxiliary evaporator.
5. Disconnect the auxiliary rear liquid line from the auxiliary evaporator.

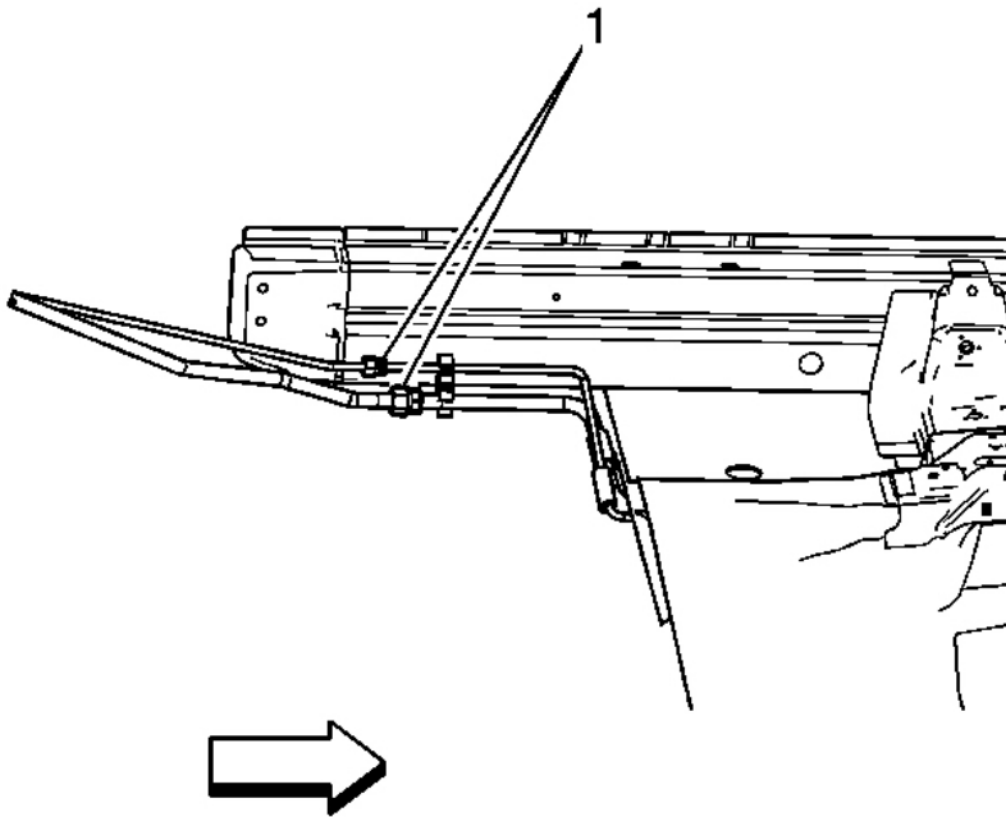


Fig. 287: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

6. Loosen the auxiliary rear liquid line to the auxiliary front liquid line fitting (1).
7. Remove the auxiliary rear liquid line from the body retainers.
8. Remove the auxiliary rear liquid line from the vehicle.
9. Remove and discard the O-rings from the auxiliary rear liquid line.

Installation Procedure

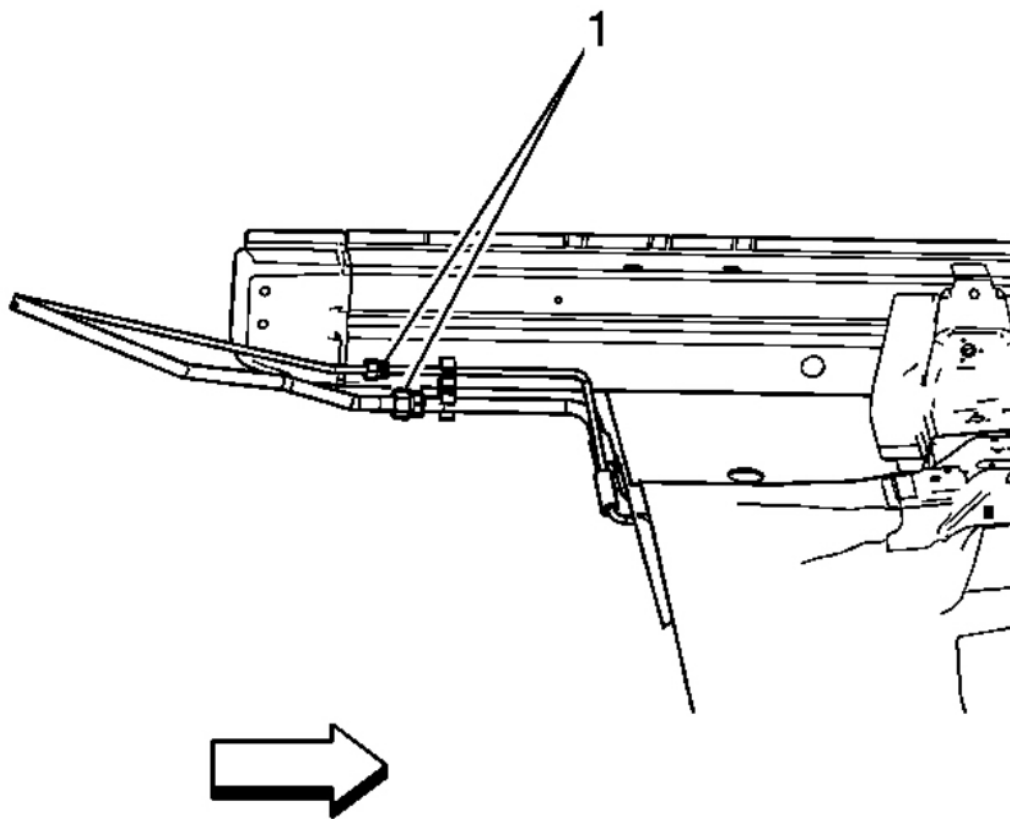


Fig. 288: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

1. Install new O-rings to the auxiliary rear liquid line. Refer to **O-Ring Replacement**.
2. Install the auxiliary rear liquid line to the vehicle.
3. Install the auxiliary rear liquid line to the body retainers.
4. Connect the rear auxiliary A/C line to the front auxiliary front liquid line.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

5. Install the liquid line fitting (1).

Tighten: Tighten the fitting to 9 N.m (80 lb in).

6. Connect the auxiliary rear liquid line to the auxiliary evaporator.

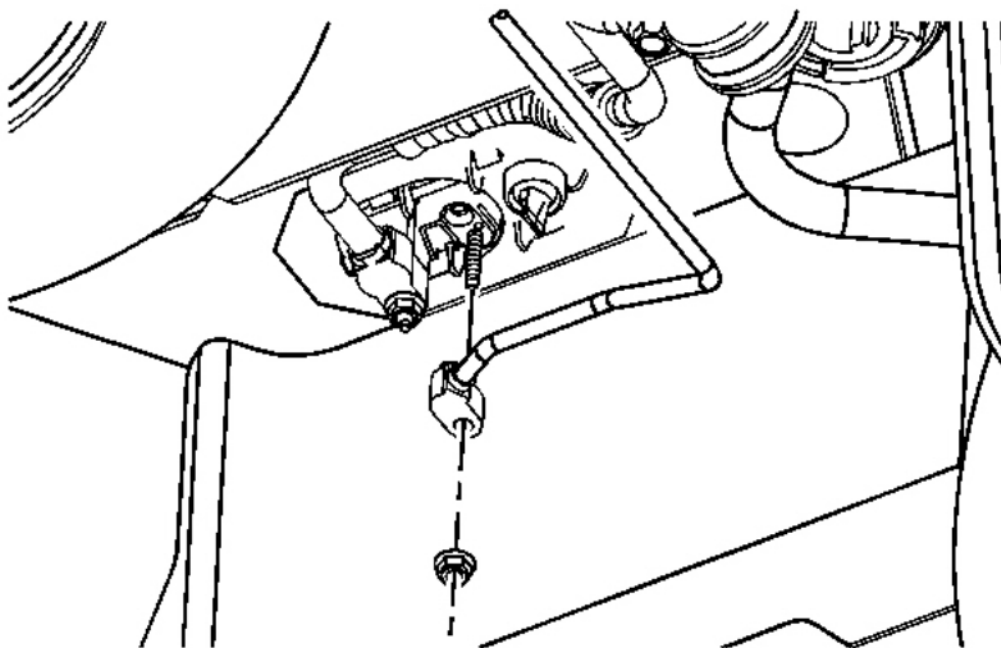


Fig. 289: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

7. Install the auxiliary rear liquid line nut to the auxiliary evaporator.

Tighten: Tighten the nut to 9 N.m (80 lb in).

8. Install the engine exhaust. Refer to **Exhaust System Replacement** in Engine Exhaust.
9. Lower the vehicle.
10. Recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
11. Leak test the fittings of the components using **J 39400-A** . See **Special Tools and Equipment**.

EVAPORATOR TUBE REPLACEMENT - AUXILIARY REAR (SUCTION LINE)

Tools Required

- **J 39400-A** Halogen Leak Detector. See Special Tools and Equipment.
- **J 41425** A/C Line Repair Kit. See Special Tools and Equipment.

Removal Procedure

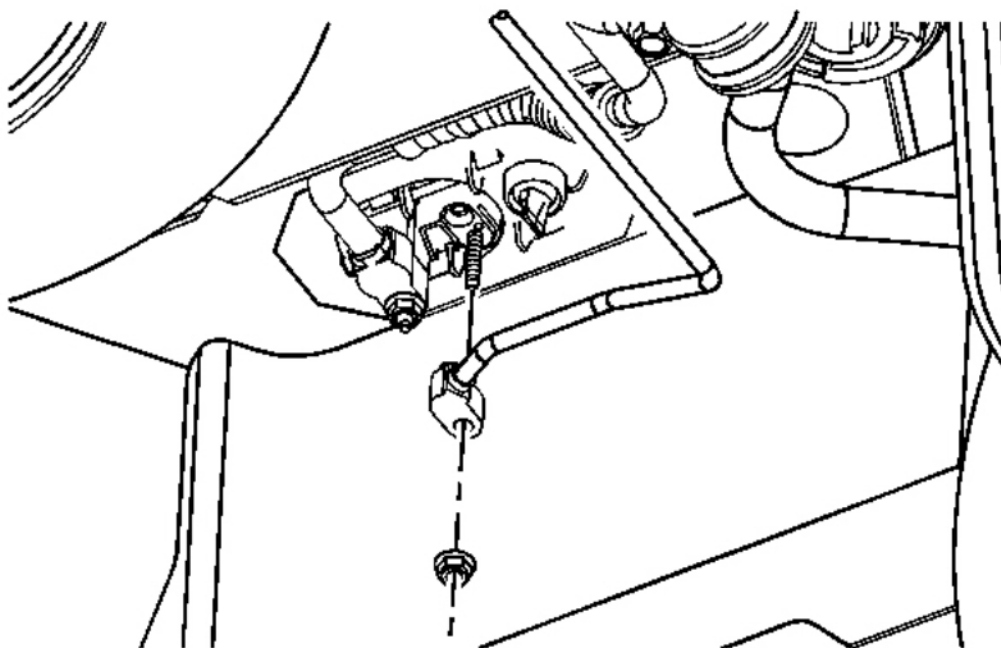


Fig. 290: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The auxiliary rear suction line must be sectioned for removal.

1. Recover the A/C system. Refer to Refrigerant Recovery and Recharging.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
3. Remove the engine exhaust. Refer to Exhaust System Replacement in Engine Exhaust.
4. Remove the LH rear wheel and tire assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.

5. Remove the auxiliary rear liquid line nut from the auxiliary evaporator.
6. Disconnect the auxiliary rear liquid line from the auxiliary evaporator.
7. Disconnect the auxiliary rear liquid line from the body retainers and reposition the line aside.

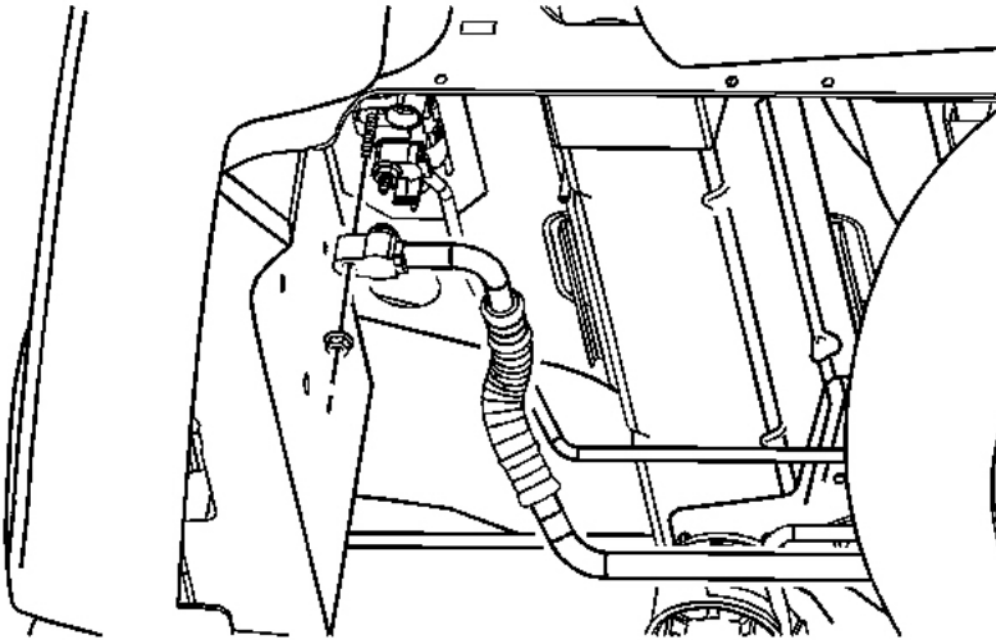


Fig. 291: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

8. Remove the auxiliary rear suction line nut from the auxiliary evaporator.
9. Disconnect the auxiliary rear suction line from the auxiliary evaporator.
10. Remove the auxiliary rear suction line from the body retainers.

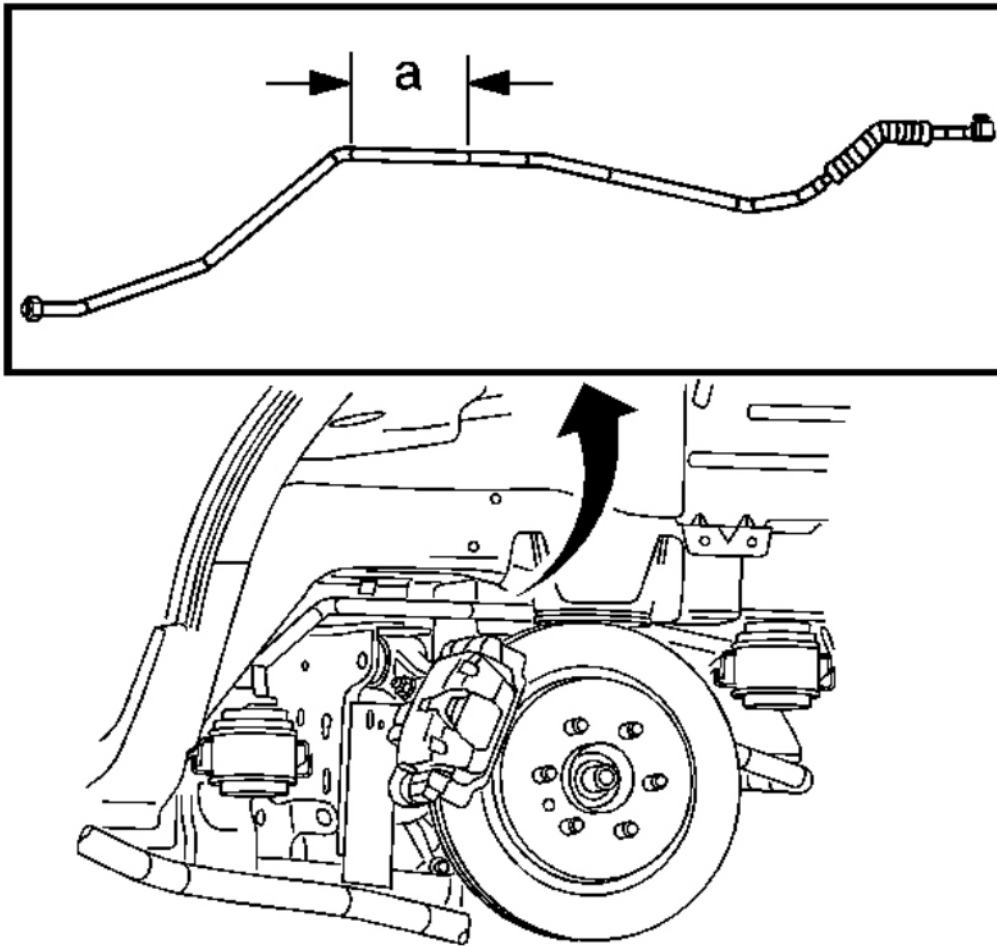


Fig. 292: Measuring Auxiliary Rear Suction Line
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The auxiliary rear suction line splice area is located through the LH rear wheelhouse opening.

11. Locate the area where the auxiliary rear suction line will be cut.
12. Measure approximately 150 mm (5.9 in) from the sharp bend (a) on the auxiliary rear suction line.
13. Use a tubing cutter in order to cut the auxiliary rear suction line.

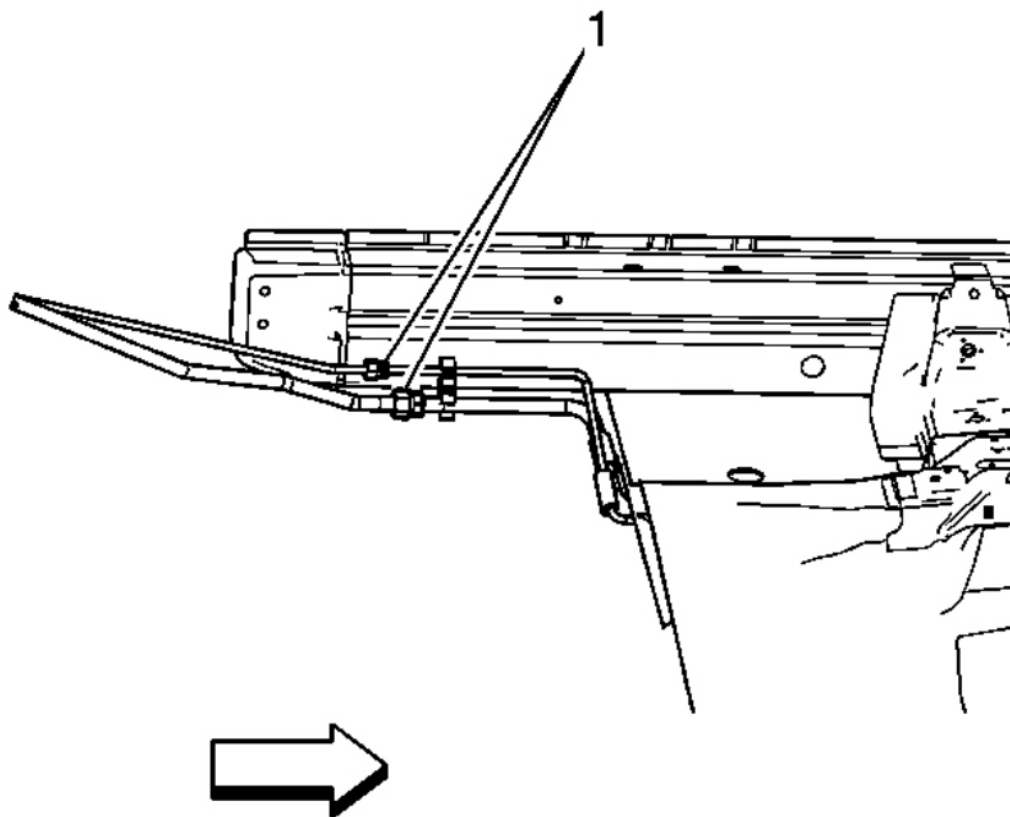


Fig. 293: Identifying Auxiliary Lines
Courtesy of GENERAL MOTORS CORP.

14. Loosen the auxiliary rear suction line to the auxiliary front suction line fitting (1).
15. Remove the auxiliary rear suction lines from the vehicle.
16. Remove and discard the O-rings from the auxiliary rear liquid lines.

Installation Procedure

IMPORTANT: The length of the replacement line must be the same as the section being replaced.

1. If replacing a section of the auxiliary rear suction line, the replacement line must be the same length as the original line.

2. Use a tubing cutter in order to cut the replacement line to length.

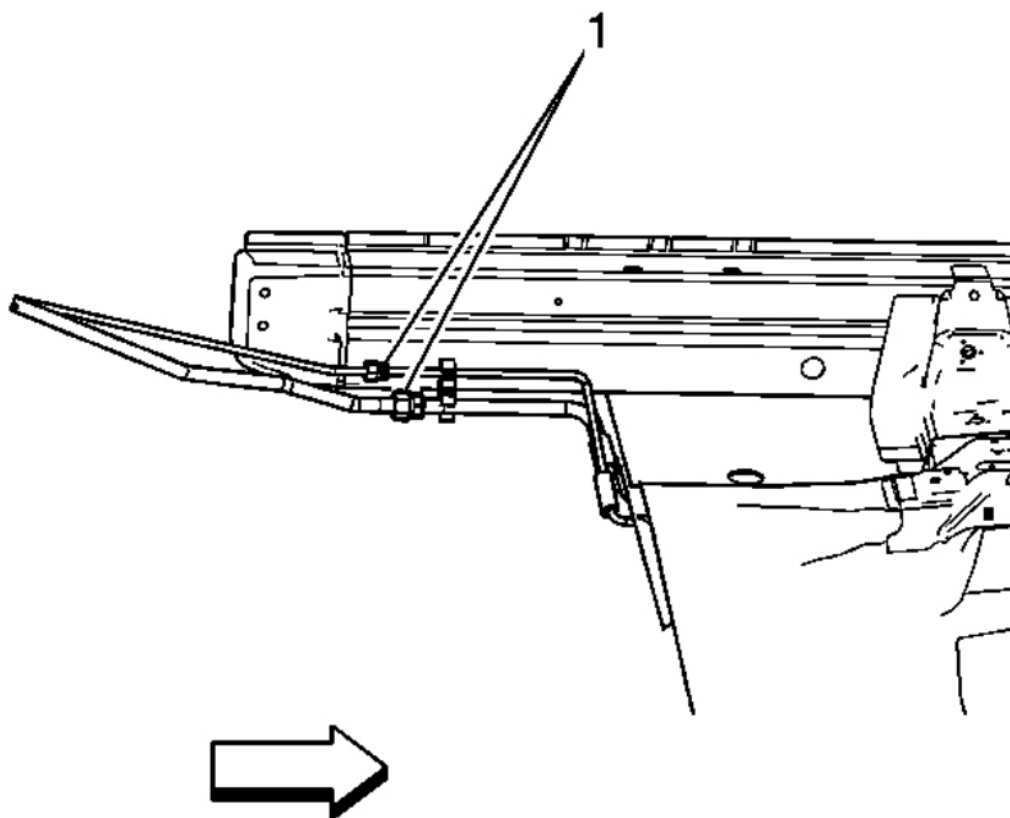


Fig. 294: Identifying Auxiliary Lines
 Courtesy of GENERAL MOTORS CORP.

3. Install new O-rings to the auxiliary rear suction lines. Refer to **O-Ring Replacement**.
4. Install the auxiliary rear suction lines to the vehicle.
5. Connect the rear auxiliary A/C line to the front auxiliary front suction line.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

6. Install the auxiliary front suction line fitting (1).

Tighten: Tighten the fitting to 9 N.m (80 lb in).

7. Use the cleaning pad from the **J 41425** in order to clean any burrs or grease from the auxiliary rear suction line ends. See **Special Tools and Equipment**. Be sure to clean at least 19 mm (0.75 in) from the line ends.
8. Use the LOK prep sealant in order to prep the line ends.
9. Apply one drop of the J 41425-3 sealing compound to the outside of each end of the line.

IMPORTANT: Use the 5/8 in connector to splice the forward and rearward auxiliary rear suction lines together.

10. Insert the line ends into the LOK fitting.
11. Rotate the LOK fitting one complete turn in order to evenly distribute the sealing compound around the lines.
12. Install the correct LOK fitting jaws into the J 41425-1 tool.
13. Install the J 41425-1 tool over the LOK connectors.

Verify that the LOK connector ends are positioned in the counter bores of the jaws.

IMPORTANT: The lines must be inserted fully into the connector to obtain a leak free joint.

14. Hold the J 41425-1 tool body with a 3/8 in breaker bar.
15. Tighten the forcing screw of the J 41425-1 tool.

When fully seated, the LOK connector collars will bottom out on the center shoulder of the LOK fitting.

16. Loosen the forcing screw and remove the J 41425-1 tool from the line.
17. Verify that the LOK fittings are correctly installed.

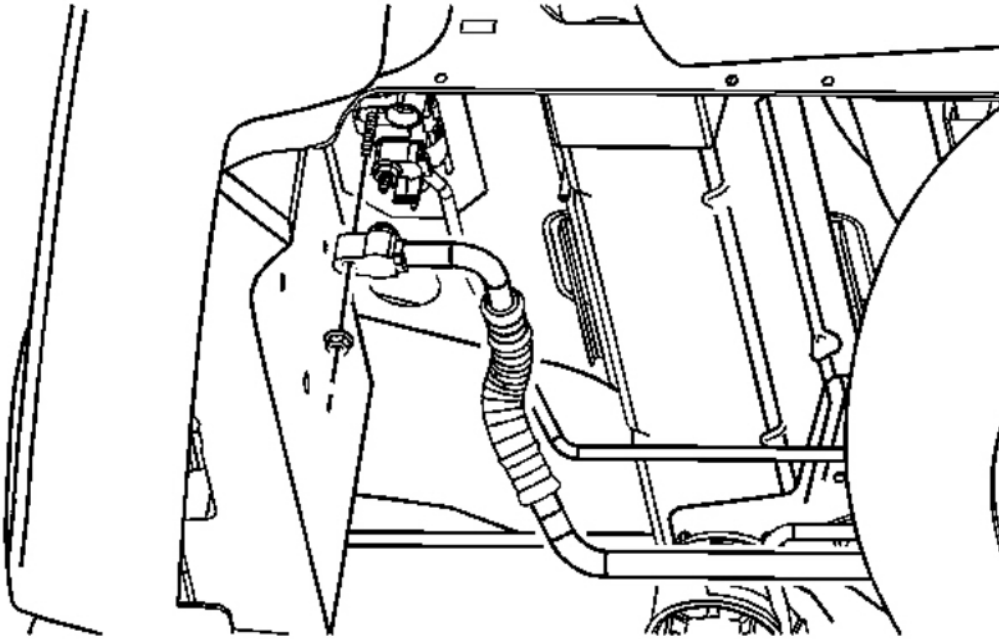


Fig. 295: View Of Auxiliary Evaporator Core Outlet Line
Courtesy of GENERAL MOTORS CORP.

18. Connect the rearward section of the auxiliary rear suction line to the auxiliary evaporator.
19. Install the auxiliary rear suction line nut to the auxiliary evaporator.

Tighten: Tighten the nut to 9 N.m (80 lb in).

20. Install the auxiliary rear suction line to the body retainers.

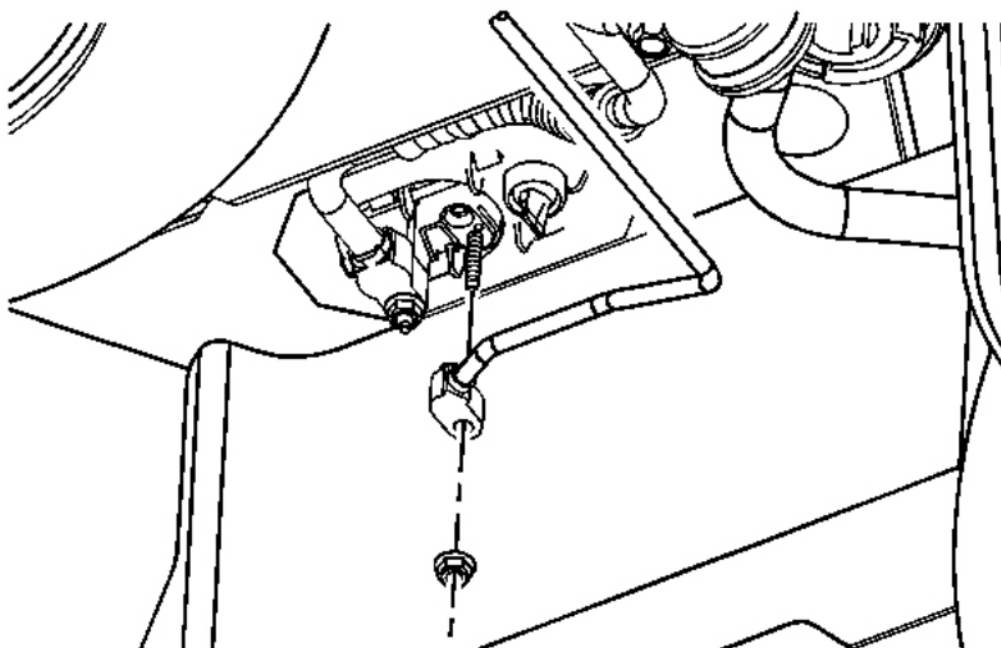


Fig. 296: View Of Auxiliary Evaporator Core Inlet Line
Courtesy of GENERAL MOTORS CORP.

21. Connect the auxiliary rear liquid line to the auxiliary evaporator.
22. Install the auxiliary rear liquid line nut to the auxiliary evaporator.

Tighten: Tighten the nut to 9 N.m (80 lb in).

23. Install the auxiliary rear liquid line to the body retainers.
24. Install the LH rear wheel and tire assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
25. Install the engine exhaust. Refer to **Exhaust System Replacement** in Engine Exhaust.
26. Lower the vehicle.
27. Evacuate and recharge the A/C system. Refer to **Refrigerant Recovery and Recharging**.
28. Leak test the fittings of the components using J 39400-A . See **Special Tools and Equipment**.

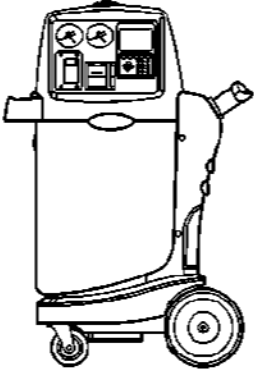
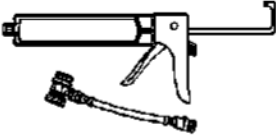
2004 Cadillac SRX

2004 HVAC Heating, Ventilation & Air Conditioning - SRX

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

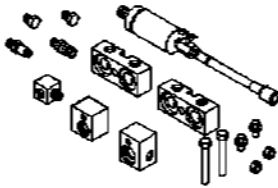
Illustration	Tool Number/ Description
	J 43600 ACR 2000 Air Conditioning Service Center
	J 45037 A/C Oil Injector
	J 45689 A/C Quick Joint Tool
	J 43872

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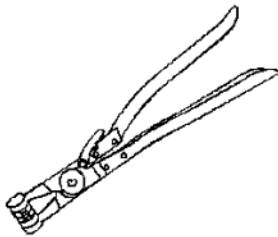
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Fluorescent Dye Cleaner



J 45268
A/C Flushing Adapter Kit

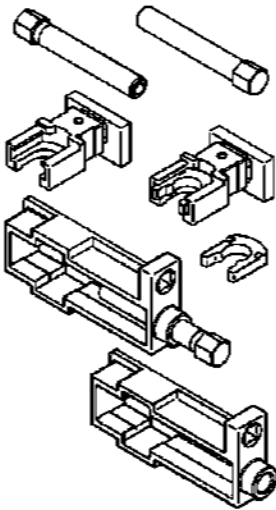
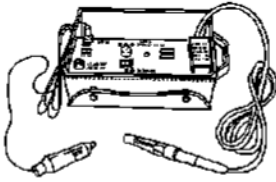


J 38185
Hose Clamp Pliers

J 39400-A
Halogen Leak Detector

2004 Cadillac SRX

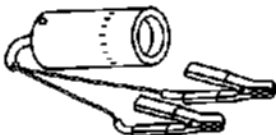
2004 HVAC Heating, Ventilation & Air Conditioning - SRX



J 41425
A/C Line Repair Kit



J 41447
R-134A A/C Tracer Dye - Box of 24

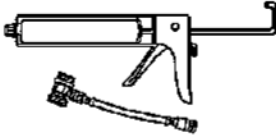


J 42220
Universal 12V Leak Detection Lamp

J 46297
A/C Dye Injector Kit

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J 46297-12
Replacement Dye Cartridges