

2018 ACCESSORIES & EQUIPMENT

Active Noise Cancellation - Acadia

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

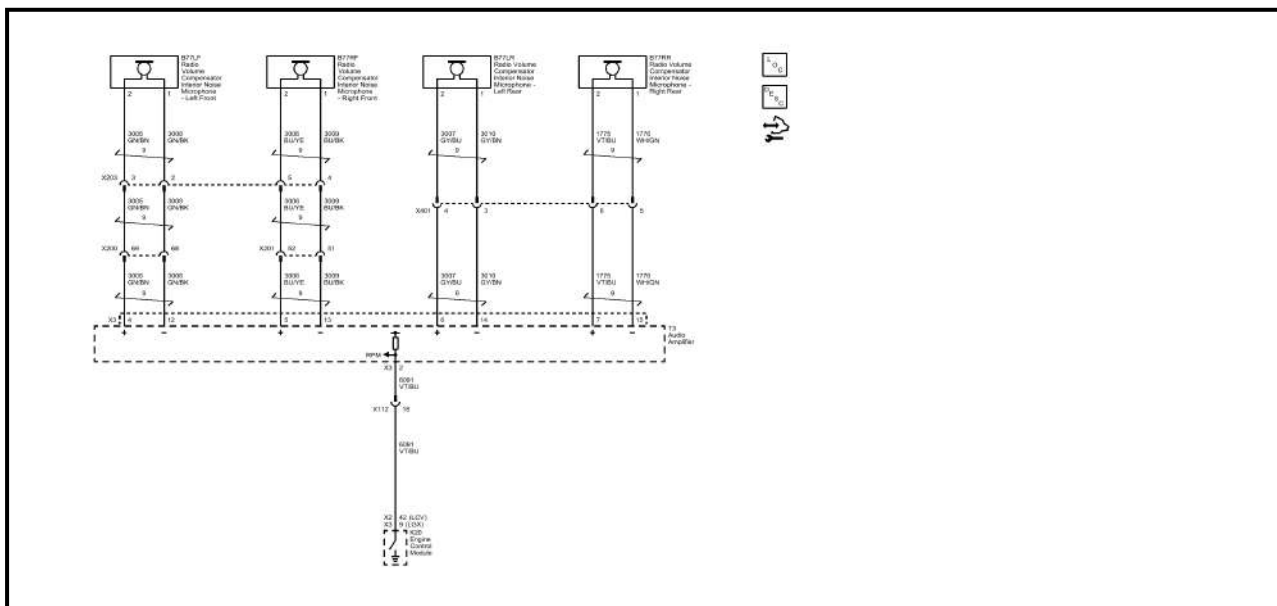
All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Radio Speaker Amplifier Nut	6 N.m (53 lb in)

SCHEMATIC WIRING DIAGRAMS

ACTIVE NOISE CANCELLATION WIRING SCHEMATICS

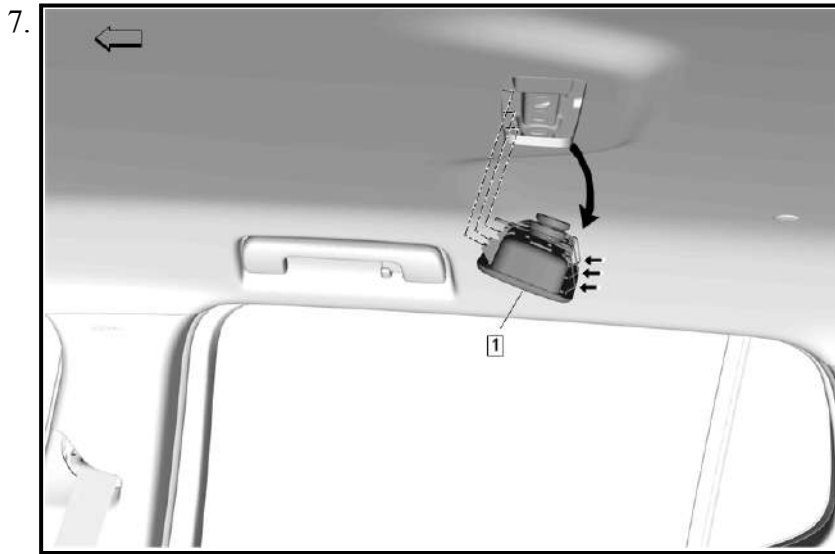
Active Noise Cancellation



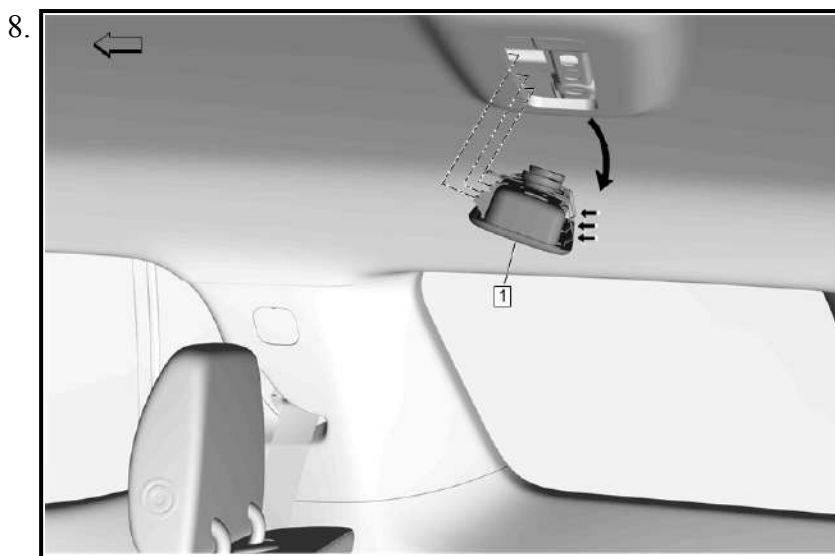
Active Noise Cancellation (IOB)



Roof Rail Rear Assist Handle (2) - Remove (Qty: 2) - [Roof Rail Rear Assist Handle Replacement](#)

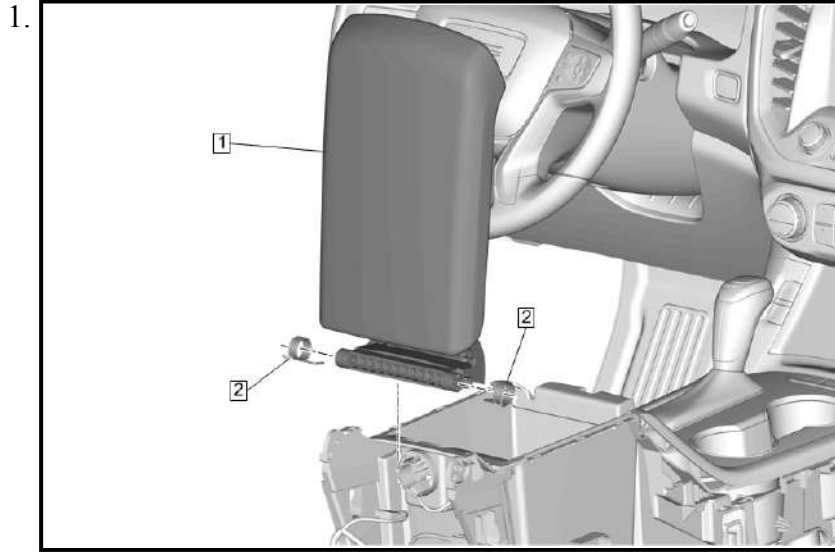


Rear Seat Position Center Reading and Courtesy Lamp (1) - Remove - [Rear Seat Position Center Reading and Courtesy Lamp Replacement](#)

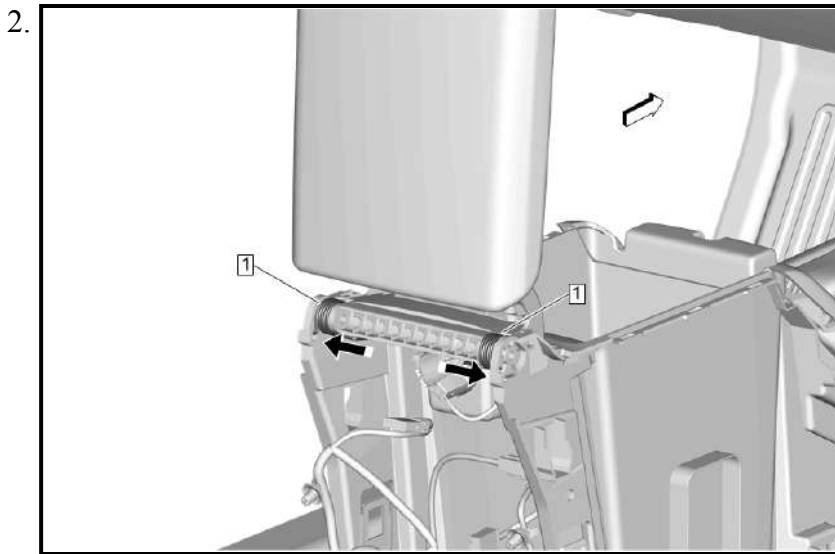


3rd Row Seat Position Center Reading and Courtesy Lamp (1) - Remove - [3rd Row Seat Position Center Reading and Courtesy Lamp Replacement](#)

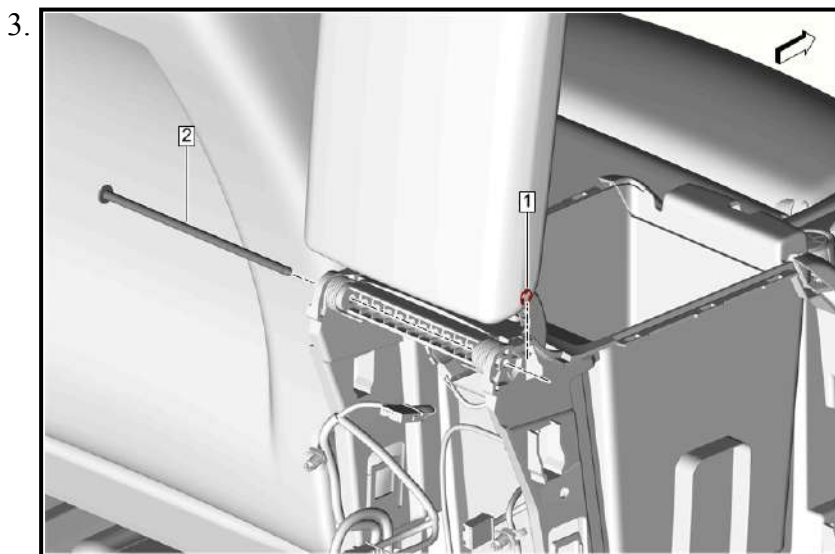




Install the front floor console armrest (1) to the front floor console assembly.



Attach the ends of the front floor console armrest hinge spring (1) to the front floor console assembly.



Install the front floor console compartment door hinge pin (2) to the armrest assembly.

4. Install the front floor console compartment door hinge pin retainer (1) to the hinge pin.
5. Front Floor Rear Console Side Trim Panel - Right Side - Install [Front Floor Rear Console Side Trim Panel Replacement - Right Side](#)
6. Front Floor Rear Console Side Trim Panel - Left Side - Install [Front Floor Rear Console Side Trim Panel Replacement - Left Side](#)

- K20 Engine Control Module and follow on-screen instructions.
 - If the programming is not successful Replace the appropriate component: K20 Engine Control Module or K71 Transmission Control Module
 - Go to next step: If the programming is successful
4. All OK.
- **Go to next step: If the programming is successful**
5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

[Control Module References](#) for control module replacement, programming and setup.

K29F SEAT HEATING CONTROL MODULE - FRONT: PROGRAMMING AND SETUP

This device does not require programming or setup.

K29R SEAT HEATING CONTROL MODULE - REAR: PROGRAMMING AND SETUP

This device does not require programming or setup.

K32 STEERING WHEEL HEATING CONTROL MODULE: PROGRAMMING AND SETUP

This device requires no programming or setup.

K33 HVAC CONTROL MODULE: PROGRAMMING AND SETUP

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)

NOTE:

- **Do NOT program a control module unless directed to by a service procedure or a service bulletin. If the control module is not properly configured with the correct calibration software, the control module will not control all of the vehicle features properly.**
- **Verify the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or control module damage may occur.**
- **Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. When required install the below mentioned special tool to maintain system voltage. If not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply.**
- **Turn Off or disable systems that may put a load on the vehicle's battery. For example, interior lights, daytime running lights, HVAC, and radio.**
- **During the programming procedure, follow the Service Programming System (SPS) prompts for the correct ignition switch position.**
- **Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to No.**

Reference Information

Special Tools

EL-49642 SPS Programming Support Tool

- If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver or S79D Window Switch - Driver

• **Go to next step: If the specified state**

8. Test or replace the component: A23D Door Latch Assembly - Driver

Test 2

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: A23P Door Latch Assembly - Passenger
3. Test for less than 10 ohms between the test points: Ground circuit terminal 3 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 3 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify the scan tool parameter: Passenger Door Ajar Switch = Inactive
 - **If not the specified state**
 1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: S79P Window Switch - Passenger
 3. Test for infinite resistance between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79P Window Switch - Passenger
 - **Go to next step: If the specified state**
6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 5 & Ground circuit terminal 3
7. Verify the scan tool parameter: Passenger Door Ajar Switch = Active
 - **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector: S79P Window Switch - Passenger
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 - 5. Ignition/Vehicle - Off
 - 6. Test for less than 2 ohms between the test points: Signal circuit terminal 5 @ Component harness & Signal circuit terminal 2 @ S79P Window Switch - Passenger
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79P Window Switch - Passenger
 - **Go to next step: If the specified state**
8. Test or replace the component: A23P Door Latch Assembly - Passenger

Test 3

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off

7. Reconnect the K20 Engine Control Module
8. Test for infinite resistance between control circuit and ground.
 - If less than infinite resistance, replace the K20 Engine Control Module.
 - If infinite resistance, replace the T19 Power Supply Transformer
 - **Go to next step: If the test lamp turns ON and OFF**
9. Ignition ON, connect a 30 A fused jumper wire between the B+ circuit terminal 30 and the control circuit terminal 87.
10. Verify the M64 Starter Motor is activated.
 - **If the M64 Starter Motor does not activate**
 1. Ignition OFF, disconnect the harness connector at the M64 Starter Motor.
 2. Test for infinite resistance between the control circuit terminal X1 A or X1 1 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the M64 Starter Motor.
 - **Go to next step: If the M64 Starter Motor activates**
11. Test or replace the KR27 Starter Relay.

Component Testing

Relay Test

1. Ignition OFF, disconnect the appropriate relay.
2. Test for 70 - 150 Ω between terminals (85 or 1) and (86 or 2).
 - **If less than 70 or greater than 150 Ω**

Replace the relay.
 - **Go to next step: If between 70 - 150 Ω**
3. Test for infinite resistance between the terminals listed below:
 - (30 or 3) and (86 or 2)
 - (30 or 3) and (87 or 5)
 - (30 or 3) and (85 or 1)
 - (85 or 1) and (87 or 5)
 - (86 or 2) and (87 or 5)
 - **If less than infinite resistance**

Replace the relay.
 - **Go to next step: If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal (85 or 1) and 12 V. Install a jumper wire between relay terminal (86 or 2) and ground.
5. Test for less than 5.0 Ω between terminals (30 or 3) and (87 or 5).
 - **If 5.0 Ω or greater**

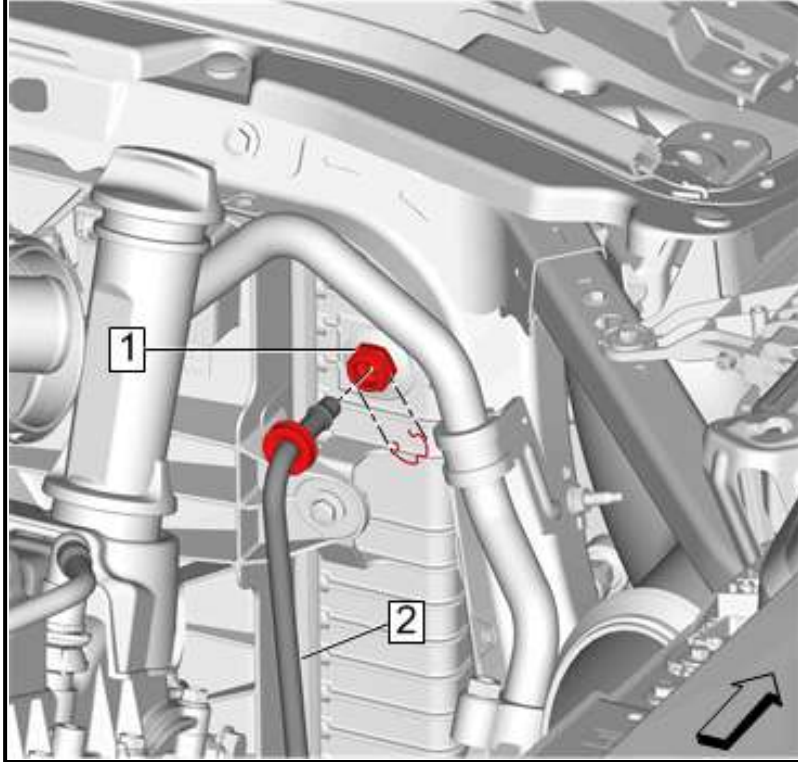
Replace the relay.
 - **Go to next step: If less than 5.0 Ω**
6. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

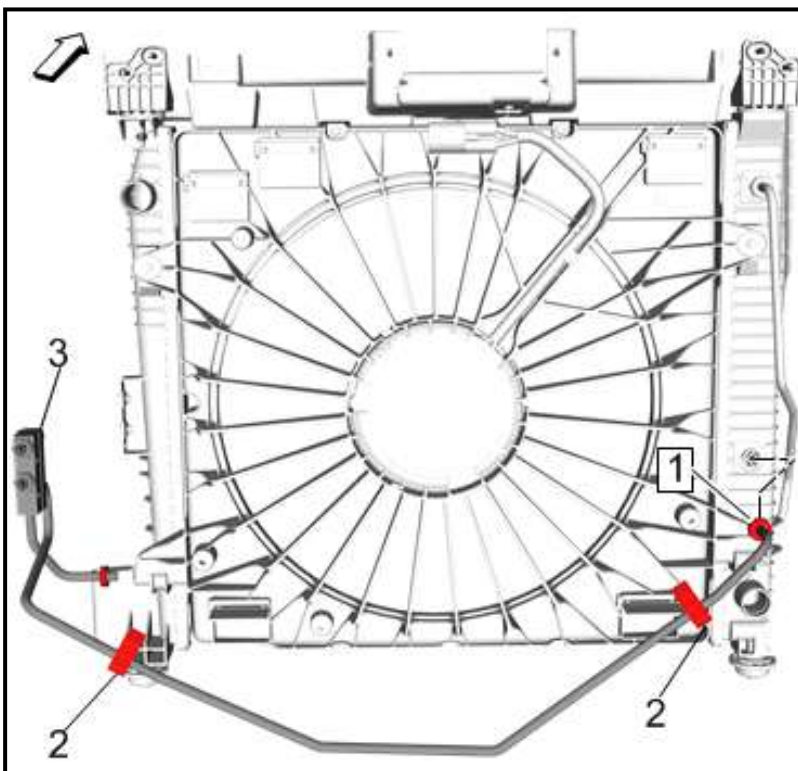
[Control Module References](#) for control module replacement, programming, and setup.

Code	Name	Option	Location	Locator View	Connector End View
X104	Body Harness to Forward Lamp Harness	-	In the lower right front of the engine compartment	<u>Forward Lamp Harness Routing (2 of 2)</u> <u>Body Harness Routing - Right Engine Compartment</u>	<u>X104 Body Harness to Forward Lamp Harness</u>
X106	Shock Absorber - Left Jumper Harness to Body Harness	F45	Under the left front of the vehicle, near the left front wheel speed sensor connector	-	<u>X106 Shock Absorber - Left Jumper Harness to Body Harness (F45)</u>
X107	Shock Absorber - Right Jumper Harness to Body Harness	F45	Under the right front of the vehicle, near the right front wheel speed sensor connector	<u>Body Harness Routing - Left Engine Compartment</u>	<u>X107 Shock Absorber - Right Jumper Harness to Body Harness (F45)</u>
X110	Forward Lamp Harness to Left Headlamp Harness	-	In the engine compartment, in the left front corner, at the back of the headlamp assembly	<u>Forward Lamp Harness Routing (1 of 2)</u>	<u>X110 Forward Lamp Harness to Left Headlamp Harness (T3W)</u> <u>X110 Forward Lamp Harness to Left Headlamp Harness (T7E)</u>
X112	Engine Harness to Body Harness	-	In the left front of the engine compartment on the same breakout as X101	<u>Engine Harness Routing - Right Front (LCV)</u> <u>Body Harness Routing - Left Engine Compartment</u> <u>Engine Harness Routing - Right Front (LGX)</u>	<u>X112 Engine Harness to Body Harness</u>



Transmission Fluid Cooler Pipe (2) @ Radiator - Remove - [Transmission Fluid Cooler Pipe Replacement \(V08\)](#)

14.



Transmission Fluid Cooler Thermal Bypass Valve (3) - Remove - [Transmission Fluid Cooler Thermal Bypass Valve Replacement \(V08\)](#)

15.



- Specific components such as crankshaft oil seals or valve stem oil seals may require lubrication during assembly.
- Components requiring lubrication will be identified in the service procedure.
- Apply only the amount of sealant specified in the service procedure to a component.
- Do not allow the sealant to enter into any blind threaded holes, as the sealant may prevent the fastener from clamping properly or cause component damage when tightened.

NOTE: **Do not overtighten the fasteners.**

- Tighten the fasteners to the proper specifications.

USE OF ROOM TEMPERATURE VULCANIZING (RTV) AND ANAEROBIC SEALANT

Cleaning Mating Part Surfaces for RTV Joints

RTV sealant depends greatly on adhesion to the mating parts in order to form and maintain a robust sealed joint. As with any adhesion system, proper surface preparation of the bonded parts is extremely important to ensure good adhesion over the life of the product.

CAUTION: **When cleaning the sealing surfaces of engine components, DO NOT use bristle discs, abrasive pads, wire wheels or surface conditioning discs. These types of devices should not be used because they produce a very fine grit that is abrasive and known to cause internal engine damage. The bristle discs and pads are embedded with abrasive material and wear down as they clean, continually exposing fresh abrasive to the surface of the component.**

Abrasive pads, wire wheels and bristle discs can remove enough metal to affect the engine front cover, cylinder head, engine block, oil pan rail, and intake manifold runner surface flatness, which can then result in engine coolant leaks, engine oil leaks and air leaks. It takes about 15 seconds to remove 0.203 mm (0.008 in) of metal with an abrasive pad.

Abrasive pads, wire wheels and bristle discs used with high speed grinders produce airborne debris that can travel throughout the shop contaminating other work being performed outside of the immediate work area.

When cleaning engine gasket sealing surfaces and/or cleaning parts from an engine that are to be reused, surface conditioning discs, typically constructed of woven fiber or molded bristles that contain abrasives, such as a high amount of aluminum oxide, should NOT be used. The use of such surface conditioning discs dislodges aluminum oxide from the disk and metal component particles, which can lead to premature engine bearing failure. The presence of aluminum oxide in engine oil has been shown to cause premature engine bearing failure. In some cases, this failure occurs in as little as 1600 km (1000 mi) or less after the repair has been made.

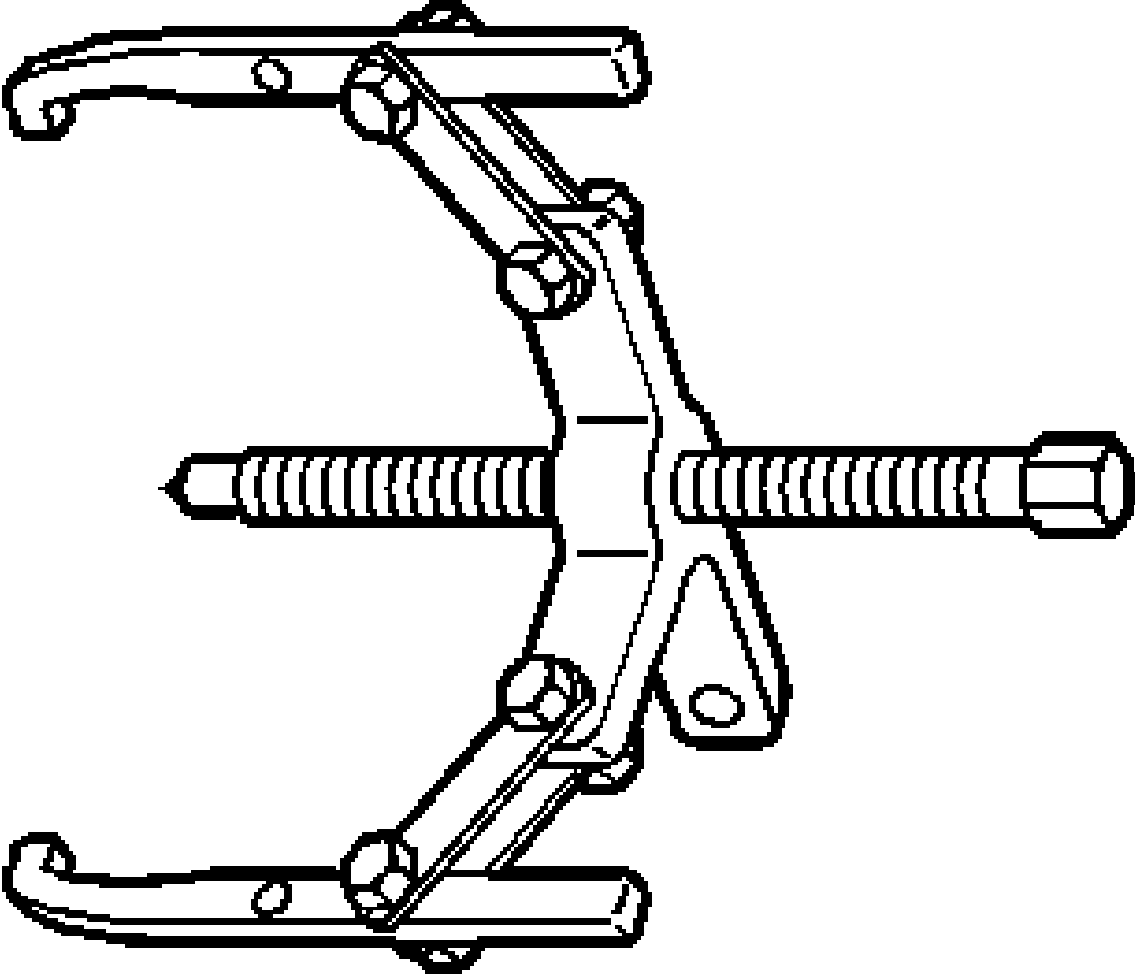
Surface conditioning discs may grind the component material and embed it into the disc. This can result when more aggressive grinding of the gasket surface takes place.

General Motors strongly recommends using a plastic razor blade, plastic gasket scraper, a wood scraper or a non-metallic scraper to remove all sealer/gasket material on the surface of engine components that are to be reused. Do not use any other method or technique to remove the sealant or the gasket material from a part.

- Do not gouge or scratch any engine sealing surface during the cleaning process.
- It is not necessary to remove every speck of the old sealer.

To remove the old RTV sealant from the sealing surface, spray GM Low VOC Cleaner or an equivalent, on the mating surfaces and allow it to soak to loosen the old gasket material. Use care to avoid getting GM Low VOC Cleaner in any area other than the mating surface to be cleaned.

Use a plastic razor blade, that mounts in a scraper device or a hand held plastic razor blade, to remove old RTV sealant from a sealing surface. Use a new blade for each corresponding engine component surface. Hold the blade as parallel to the flat surface as possible.

Illustration	Tool Number/Description
	EN-25031 _A J-25031 _A Three Jaw Puller

1. Verify none of the following conditions listed below exist:
 - Damage, carbon tracking, or fluid intrusion of the spark plug boots and/or spark plugs
 - Vacuum hose splits, kinks, and incorrect connections
 - Engine vacuum leaks
 - Crankcase ventilation system for vacuum leaks
 - Fuel pressure that is too low or too high. Refer to [Fuel System Diagnosis](#) .
 - Contaminated fuel. Refer to [Alcohol/Contaminants-in-Fuel Diagnosis](#) .
 - Exhaust system restrictions
 - **If a condition exists**

Repair or replace as necessary.
 - **Go to next step: If no conditions exist**

NOTE: **An erratic or weak spark is considered a no spark condition.**

2. Ignition OFF, remove the appropriate T8 Ignition Coil from the spark plug and connect the **EL 26792** HEI Spark Tester to the spark plug boot, engine Cranking.
3. Verify the spark output.
 - **If no output or the output is weak**

Refer to [Electronic Ignition System Diagnosis](#) .
 - **Go to next step: If the output is good**
4. Ignition OFF.
5. Verify the conditions listed below. Refer to [Ignition System Specifications](#) .
 - The correct spark plug type
 - The correct spark plug gap
 - The correct spark plug torque
 - **If a condition exists**

Repair or replace as necessary.
 - **Go to next step: If no conditions exist**
6. Exchange the suspect spark plug with another cylinder that is operating correctly.
7. Engine Running.
8. Verify the scan tool Cylinder 1 - 4 Current Misfire Counter does not increment for the cylinder where the suspect spark plug was installed.
 - **If increments**

Replace the spark plug.
 - **Go to next step: If does not increment**
9. Test or inspect for the conditions listed below:
 - A lean or rich Q17 Fuel Injector - Refer to [Fuel Injector Diagnosis](#) .
 - An engine mechanical condition - Refer to [Symptoms - Engine Mechanical](#) .

Repair Instructions

- [Ignition Coil Replacement](#)
- [Spark Plug Replacement](#)

Repair Verification

1. Install any components or connectors that have been removed or replaced during diagnosis.

CAUTION: Do not attach add-on vacuum operated equipment to this vehicle. The use of add-on vacuum equipment may result in damage to vehicle components or systems.

CAUTION: Connect any add-on electrically operated equipment to the vehicle's electrical system at the 12 V battery (power and ground) in order to prevent damage to the vehicle.

Aftermarket, add-on, electrical and vacuum equipment is defined as any equipment installed on a vehicle after leaving the factory that connects to the vehicle's electrical or vacuum systems. No allowances have been made in the vehicle design for this type of equipment.

Add-on electrical equipment, even when installed to these strict guidelines, may still cause the powertrain system to malfunction. This may also include equipment not connected to the vehicle electrical system, such as portable telephones and radios. Therefore, the first step in diagnosing any powertrain condition is to eliminate all of the aftermarket electrical equipment from the vehicle. After this is done, if the problem still exists, the problem may be diagnosed in the normal manner.

Electrostatic Discharge (ESD) Damage

NOTE: In order to prevent possible electrostatic discharge damage to the ECM, DO NOT touch the connector pins on the ECM.

The electronic components that are used in the control systems are often designed to carry very low voltage. These electronic components are susceptible to damage caused by electrostatic discharge. Less than 100 V of static electricity can cause damage to some electronic components. By comparison, it takes as much as 4,000 V for a person to even feel a static discharge.

There are several ways for a person to become statically charged. The most common methods of charging are by friction and by induction. An example of charging by friction is a person sliding across a car seat.

Charging by induction occurs when a person with well insulated shoes stands near a highly charged object and momentarily touches ground. Charges of the same polarity are drained off leaving the person highly charged with the opposite polarity. Static charges can cause damage, therefore, it is important to use care when handling and testing electronic components.

Emissions Control Information Label

The underhood Vehicle Emissions Control Information Label contains important emission specifications. This identifies the year, the displacement of the engine in liters, and the class of the vehicle.

This label is located in the engine compartment of every General Motors vehicle. If the label has been removed, it can be ordered from GM service parts operations (GMSPO).

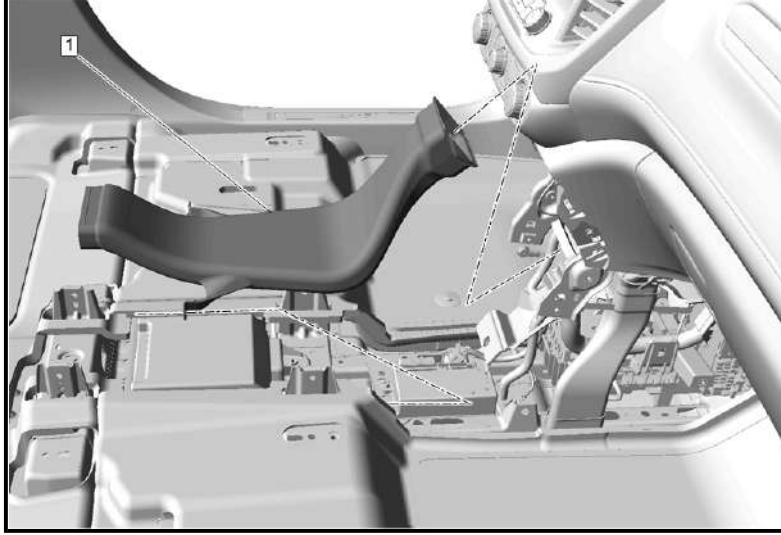
CYLINDER DEACTIVATION (ACTIVE FUEL MANAGEMENT) SYSTEM DESCRIPTION

To provide maximum fuel economy under light load driving conditions, the Engine Control Module (ECM) will command the cylinder deactivation system ON to deactivate engine cylinders 2 and 5, switching to a V4 mode. The engine will operate on 6 cylinders, or V6 mode, during engine starting, engine idling, and medium to heavy throttle applications.

The conditions listed below determine when cylinder deactivation is enabled.

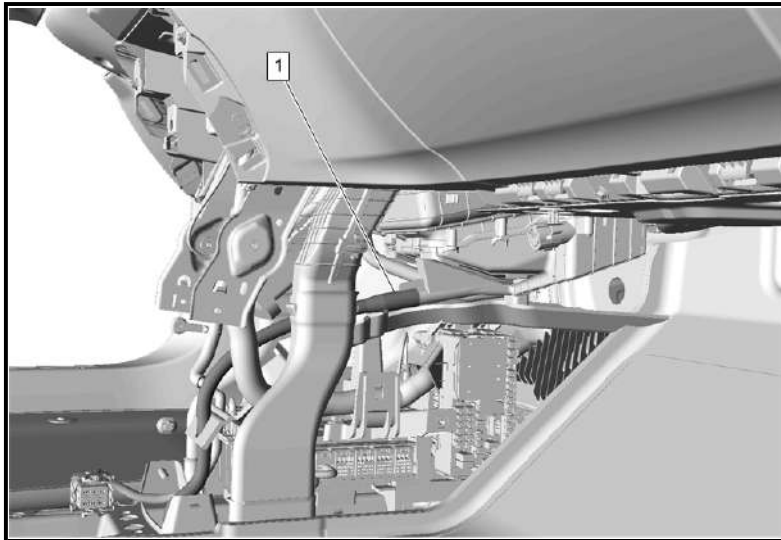
- Engine has been running for greater than 30 s
- Engine speed is between 700 and 2800 RPM
- Engine oil pressure is between 187 - 455 kPa (27 - 66 psi)
- Engine coolant temperature is between 40 - 129°C (100 - 264°F)
- Engine oil temperature is between 16 - 128°C (61 - 263°F)
- Throttle angle is 6% or less

CONDITION & POSSIBLE CAUSE		CORRECTION
Sticking flow control valve		See POWER STEERING PUMP article
Insufficient pump pressure output		See POWER STEERING PUMP article
Excessive internal pump leakage		See POWER STEERING PUMP article
Excessive internal gear leakage		See POWER STEERING PUMP article
Flange rubs against gear adjust plug		See STEERING COLUMN article
Loose pump belt		Adjust or replace if necessary
Low fluid level		Check and add proper amount of fluid
Engine idle too low		Adjust to correct setting
Steering gear-to-column misaligned		See STEERING COLUMN article
No Power, Left Turn		
Left turn reaction seal "O" ring worn		See POWER STEERING GEAR article
Left turn reaction seal damaged/missing		See POWER STEERING GEAR article
Cylinder head "O" ring damaged		See POWER STEERING PUMP article
No Power, Right Turns		
Column pot coupling bottomed		See STEERING COLUMN article
Right turn reaction seal "O" ring worn		See POWER STEERING GEAR article
Right turn reaction seal damaged		See POWER STEERING GEAR article
Internal leakage through piston end plug		See POWER STEERING GEAR article
Internal leakage through side plugs		See POWER STEERING GEAR article
Lack of Effort in Turning		
Left and/or right reaction seal sticking in cylinder head		Replace, see POWER STEERING GEAR article
Wanders to One Side		
Front end alignment incorrect		See WHEEL ALIGNMENT article
Unbalanced steering gear valve		See POWER STEERING GEAR article
Low Pressure Due to Steering Pump		
Flow control valve stuck or inoperative		See POWER STEERING PUMP article
Pressure plate not flat against cam ring		See POWER STEERING PUMP article
Extreme wear of cam ring		Replace and check adjustments
Scored plate, thrust plate or rotor		See POWER STEERING PUMP article
Vanes not installed properly		See POWER STEERING PUMP article



Front Floor Console Rear Air Duct (1) - Remove - [Front Floor Console Rear Air Duct Replacement \(Front C59\)](#)[Front Floor Console Rear Air Duct Replacement \(Rear C59\)](#).

2.

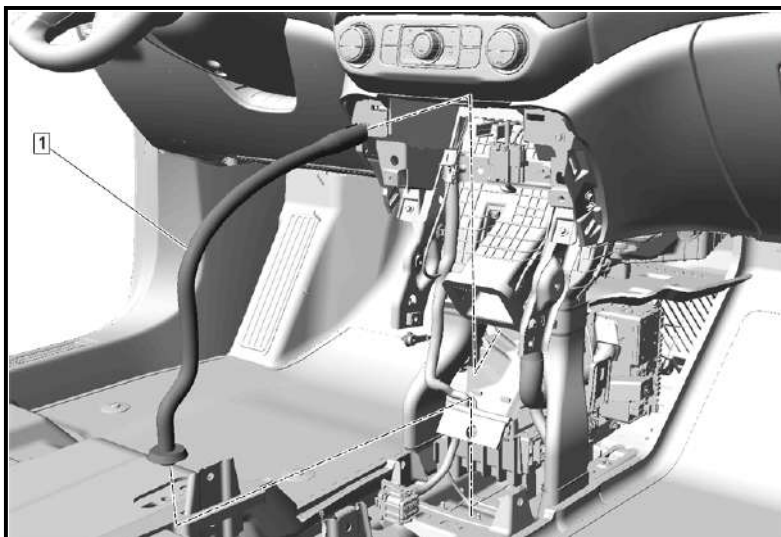


CAUTION: Refer to [HVAC Module Drain Tube Caution](#) .

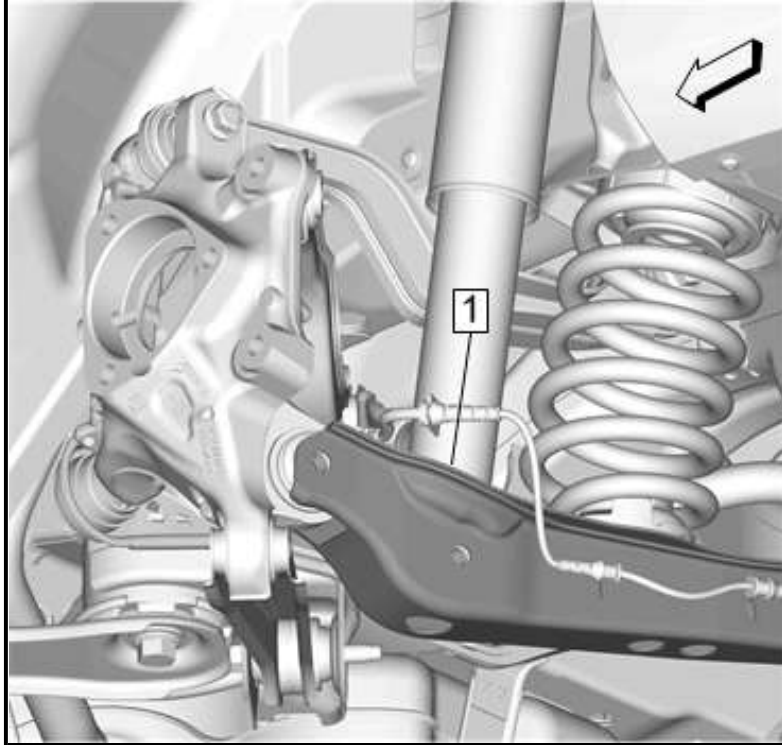
Prior to removing the air conditioning evaporator and blower module drain tube/hose, use clean and absorbent shop clothes/towels to cover the electrical components protecting the electrical components from water damage.

3. Push the air conditioning evaporator and blower module drain hose (1) towards the front of vehicle and twist and pull air conditioning evaporator and blower module drain hose (1) to remove from the air conditioning evaporator and blower module drain port.

4.

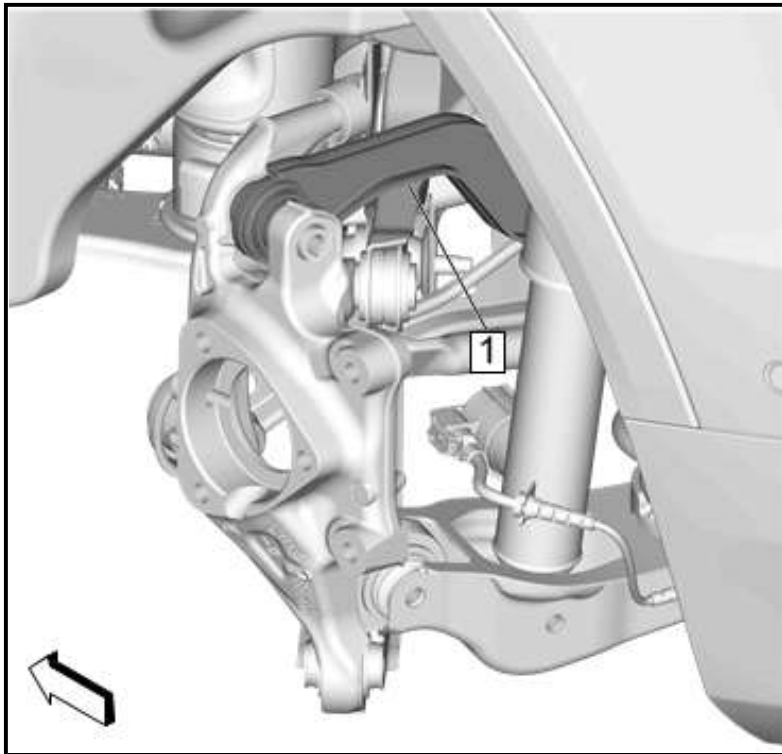


Air Conditioning Evaporator and Blower Module Drain Hose (1) - Remove



Rear Suspension Lower Control Arm(1)@Rear Suspension Knuckle - Separate - [Lower Control Arm Replacement](#)

12.



Rear Suspension Upper Lateral Link(1)@Rear Suspension Knuckle - Separate - [Rear Suspension Upper Lateral Link Replacement](#)

13.

