

2017 ACCESSORIES & EQUIPMENT

Air/Wind Noise - Impala

DIAGNOSTIC INFORMATION AND PROCEDURES

AIR/WIND NOISE

Air / Wind Noise-Diagnosis and Tests

Tools

- Stethoscope
- Duct tape, foam, etc.

WARNING: Refer to [Assistant Driving Warning](#) .

Overview

To analyze a reported wind noise condition, use the following outline:

- Speak with the customer to obtain as much information as possible.
- Perform a static evaluation of the vehicle to identify potential areas of concern.
- Test drive the vehicle to determine the source of the noise.
- Select the appropriate solution.
- After repair, re-evaluate the vehicle to confirm the customer's complaint is resolved.

When test driving the vehicle, choose a regular route with smooth and straight roads. The area should have little traffic and little noise in order to minimize interference with the test. Drive the vehicle at the speed in which the noise was noticed, or until the noise is heard. Maintain safe and legal speeds.

You can diagnose the following types of wind noise:

- Wind whistle / wind leaks
- Wind rush

When moving at highway speeds, air pressure inside the vehicle becomes greater than the air pressure outside. When a leak occurs, the escaping air causes a hiss or a whistle. Wind whistle / wind leaks are repairable when properly root caused.

Wind rush occurs when air presses over the vehicle's body, and is related to the aerodynamics of the vehicle. Some wind rush is repairable as it relates to part fits and body panel fits. A thorough root cause analysis is required before concluding that the wind noise is not repairable.

Air / Wind Noise - Diagnostic Procedure

Use the following procedure in order to diagnose wind noise:

1. It is important to obtain as many details from the customer as possible in order to assure that you are addressing the issue that the customer hears. Note the following details:
 - The perceived location (B-pillar, mirror, roof, rear of vehicle, front of vehicle, high or low in vehicle)
 - The location where the noise is loudest (specific location along the door header, front edge of sunroof, etc.)
 - The volume of the noise (very loud, can only hear when radio is off and no ambient noises)
 - The ambient conditions (temperature, windy, direction of wind, quiet)
 - The road surface (rough, smooth, smooth concrete, ribbed concrete, asphalt)

- The vehicle speed (city, highway, all speeds)
 - The interior fan speed (off, low, high, floor mode, defrost, etc.)
 - The position of the windows (closed, partially open, full open, which windows are open-front and/or rear, driver and/or passenger)
 - The position of the sunroof (closed, partially open, full open)
 - What the noise sounds like (whistle, hiss, swoosh, etc.)
2. Using the details learned from the customer, perform a visual inspection of the vehicle for possible causes of the wind noise.
 - Misinstalled / torn weatherstrips (door glass seals, door to body seals, sunroof seals) - improper crimping, pins not fully engaged, seals not fully seated, seals pinched or deformed
 - Poor Door fits (panels proud to each other, door headers protruding out, etc.)
 - Poor Sunroof fits (sunroof proud to roof)
 - Poor Windshield fits (windshield proud to roof, windshield lace/molding gaps/distortions, etc.)
 - Roof Rack improperly installed (cross bar position fore-aft or backwards)
 - Mirrors misinstalled (gapping of mirror patch, mirror skull cap gaps, mirror gasket pinched, seals pinched, etc.)
 - Poor Molding fits (windshield moldings, belt moldings, grilles, emblems)
 - Any exterior aftermarket items installed (bug deflector, rain guards, etc.)
 - Loose fasteners, broken weld joints, sealer and/or adhesive skips
 3. Use the customer information to duplicate the driving conditions in order to duplicate the customer concern. Make sure you are working on the issue that the customer hears.
 4. Tape off the area of concern on the outside of the vehicle to turn the noise off. Start with a large area of taping to identify the general area of the noise. Then progressively remove sections of the tape until the noise returns. This method can help pinpoint the source of the noise quickly.
 5. If necessary, utilize some of the specific diagnostic procedures below (air pressure, bubble, etc.) to understand the leak path.
 6. Based on a thorough understanding of the leak path from inside to outside, select the appropriate resolution (refit doors, reposition weatherstrips, reposition gaskets, replace seals, etc.).
 7. After repair, test drive the vehicle to confirm the customer complaint is resolved.

TRACING POWDER OR CHALK TEST

Clean the weatherstrips and the contact surfaces with cleaning solvent.

1. Apply powder or chalk in an unbroken line to the contact surface of the weatherstrip surrounding the perimeter of the suspected areas.
2. Close the panel very lightly so as to not disturb the chalk or over-travel the door. Closing the panel completely presses the weatherstrip firmly against the mating surface.
3. Inspect the applied line on the weatherstrip. The applied line is marred where contact is good. A corresponding imprint is on the mating surfaces.
4. Gaps or irregularities in the powder or the chalk line on the mating surfaces indicate the areas with a poor seal.

AIR PRESSURE TEST

1. Close all the windows.
2. Turn the vehicles ventilation fan to the on position, with the selector on high speed and in the defrost mode (or panel mode with fresh air vent on - no recirc).
3. Unlock and close the doors.
4. Listen for escaping air along the door and the window seals with a stethoscope or a length of heater hose.
5. If unsuccessful in identifying the leak path, consider masking off the pressure relief valves (to increase cabin pressure) and perform the evaluation again.

SOAP SUDS OR BUBBLE TEST

1. Close all the windows.
2. Turn the vehicles ventilation fan to the on position, with the selector on high speed and in the defrost mode (or panel mode with fresh air vent on - no recirc).
3. Unlock and close the doors.
4. Apply the soap solution to the potential leak areas.
5. Look for bubbles revealing escaping air.
6. If unsuccessful in identifying the leak path, consider masking off the pressure relief valves (to increase cabin pressure) and perform the evaluation again.

REPAIR INSTRUCTIONS

EXTERIOR WINDNOISE

WARNING: Refer to [Assistant Driving Warning](#) .

Exterior windnoise is louder when the vehicle is driven with one or more windows down. Exterior windnoise occurs when air passes over the body panels, the seams, or the openings. Use the following items during the test drive in order to aid in the detection of leaks:

- Mechanic's stethoscope or heater hose
 - Masking tape - 51 mm (2 in) width
 - Strip caulk
 - A water soluble marking pencil
1. While driving, determine the location of the exterior windnoise by lowering one window at a time. If the location corresponds with the condition in step 2, pull over and make a temporary repair with 51 mm (2 in) wide masking tape.
 2. Tape over the gaps and the moldings one at a time. Test between each taping. Taping over the gaps and moldings will correct the condition.
 3. Temporarily repair the condition with masking tape. Adjust the tape when needed.
 4. Continue testing in order to determine if the noise has been eliminated or other leak areas exist.
 5. When all the reported leak conditions are located, make permanent repairs using the proper alignment techniques and the sealing materials.

INTERIOR WINDNOISE

WARNING: Refer to [Assistant Driving Warning](#) .

Interior windnoise is not heard when the window is lowered. Interior windnoise is caused by the air leaving the inside of the vehicle through a seal or a seam.

1. Tape over the relief valves to cause added air pressure within the vehicle.
2. Test drive the vehicle and listen for windnoise or a whistle.
3. Pull the vehicle over and make the temporary repairs using masking tape. If you cannot determine the source of the windnoise, perform one or more of the following diagnostic tests:
 - [Air Pressure Test](#)
 - [Soap Suds or Bubble Test](#)
 - [Tracing Powder or Chalk Test](#)

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description

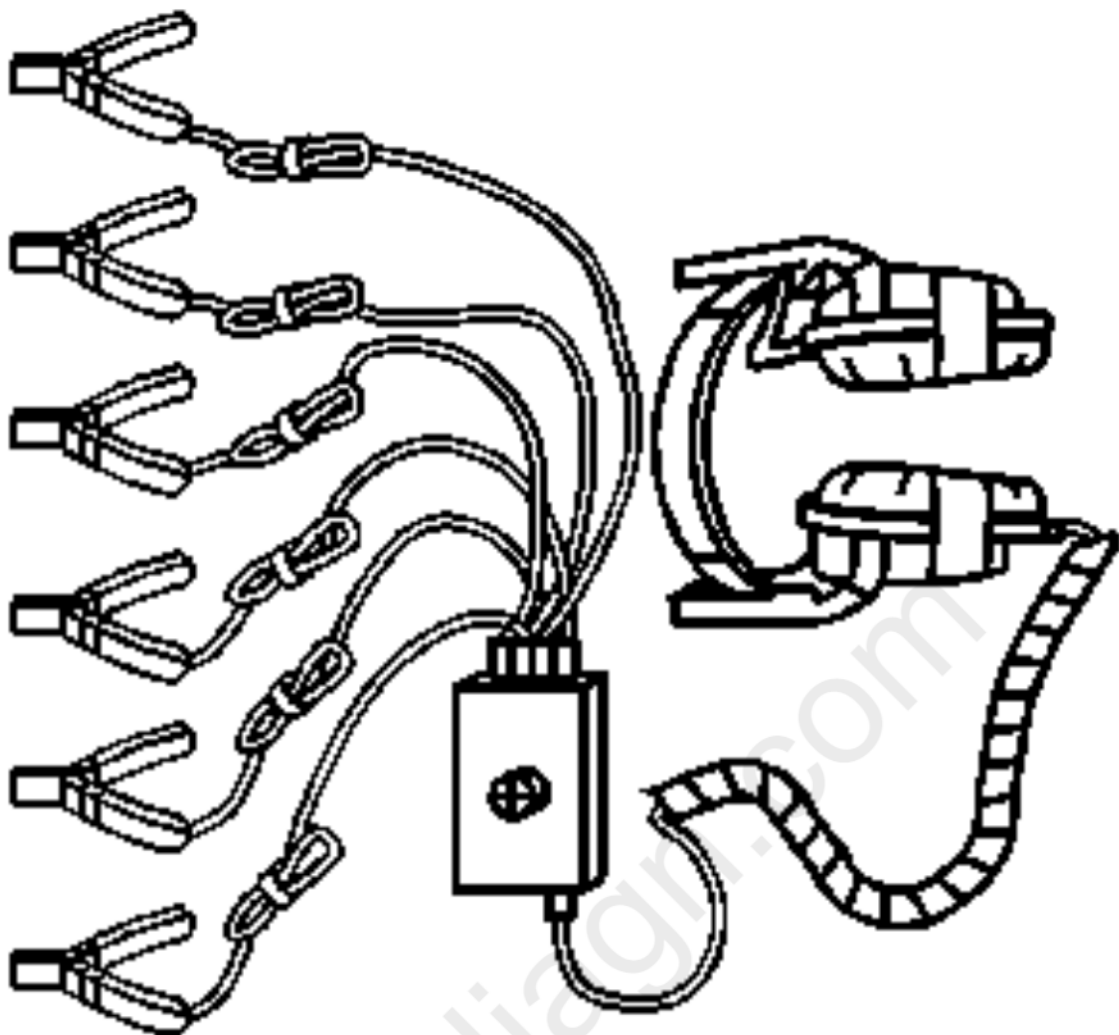
Illustration	Tool Number/ Description
	CH-39570 J 39570 Chassis Ear
	GE-41416 J 41416 Ultrasonic Leak Detector

Illustration	Tool Number/ Description
