

Air/Wind Noise

Diagnostic Information and Procedures

Air/Wind Noise

Caution: An assistant should drive the vehicle while the technician checks for the location of the reported condition. Otherwise, personal injury could result.

To analyze a reported windnoise condition, test drive the vehicle to determine the origin of the noise. Choose a regular route for the road test. The road should consist of smooth and straight streets that run in all 4 directions, North, South, East, and West. The area should have little traffic or little noise to eliminate interference with the test.

Important: Often there is one primary leak source and one or more secondary leaks that contribute to the noise condition. Repairing only one of the contributing leak sources may not completely repair the total condition but only reduce the condition.

The following are four common methods for diagnosing wind noise:

The vehicle will be driven at the speed in which the customer noticed the noise, or until the noise is heard. Maintain safe and legal speeds.

Many of the waterleak diagnosis tests are also used for the windnoise diagnosis.

Most of the windnoise is caused by either leaking seals or misaligned body surfaces. The following are three basic types of wind noise:

- Whistle
- Roar
- Rush

When moving at highway speeds, air pressure inside the vehicle becomes significantly greater than the air pressure outside. When a leak occurs, the escaping air causes a hiss or a whistle.

Wind roar occurs when air passes over or through an opening between the two body surfaces. To correct the condition, adjust the alignment to the body surfaces.

Wind rush occurs when air passes over the vehicle's body, and is related to the aerodynamics of the vehicle. Wind whistle and wind roar are serviceable. Rule out wind whistle and wind roar before concluding that the wind noise is due to wind rush.

Diagnose wind whistle or wind roar using the following procedure:

1. Note the detail for wind noise:
 - The perceived location
 - The location where the noise is the loudest
 - When the noise occurs
 - The vehicle speed
 - The interior fan speed
 - The position of the windows.
 - What the noise sounds like

2. Inspect the vehicle for the possible cause of the windnoise.
3. Test drive the vehicle and determine if the windnoise is external or internal.
4. Perform a visual inspection of the following components:
 - Loose fasteners
 - Torn weatherstrips
 - Broken weld joints
 - Sealer and/or adhesive skips

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. Ensure that the areas are free of chalk or powder.
2. Close the panel completely without slamming the panel. 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. Mask off the pressure relief valve.
2. Turn on the vehicle's ventilation fan.
3. Close all of the windows and doors.
4. To listen for escaping air along the door and window seals use a stethoscope or length of heater hose.

A smoke or dusting powder can be used if preferred. The exact leak location can be seen as smoke or powder travels through the poor seal.

Soap Suds or Bubble Test

1. Cover the pressure relief valve.
2. Turn the vehicle's ventilation fan to high.
3. Close all windows and doors.
4. Apply a soapy solution to all potential leak areas.
5. Look for bubbles that reveal escaping air.
6. Consider the following as an alternative to pressurizing the vehicle's interior:
 - Use compressed air
 - Do not exceed 207 kPa (30 psi)

Repair Instructions

Exterior Windnoise

Notice: If masking the grille or headlamp bezel areas, care must be taken not to restrict airflow. Restricting airflow can cause vehicle overheating.

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) in width
 - Strip caulk
 - China 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

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:
 - *Tracing Powder or Chalk Test*
 - *Air Pressure Test*
 - *Soap Suds or Bubble Test*