Door Wind Noise Reduction on a Sprinter

Wind noise is the result of air flow passing over some concave space where air turbulence causes rhythmic pressure osculation. The harmonic can be either high, like a whistle, or low, like a deep bass that can often be felt right through the door and floor.

Other sites, such as http://www.shagadelic.org/VW/info/gmbulley-soundproof/intrir1.html, offer great advice and pictures on how to sound-deaden the vast echo-chamber that is the Sprinter van. This paper focuses just on the front door wind noise.

Sprinter front doors, notwithstanding their size and exposed surface, generate remarkably little wind noise. Some owners have reported more serious noise problems. Those Sprinters probably have misaligned doors, gaskets or both. Based on reports from owners with this problem, the Dodge and Freightliner dealers usually won't fix the problem, as it is not considered a mechanical defect.

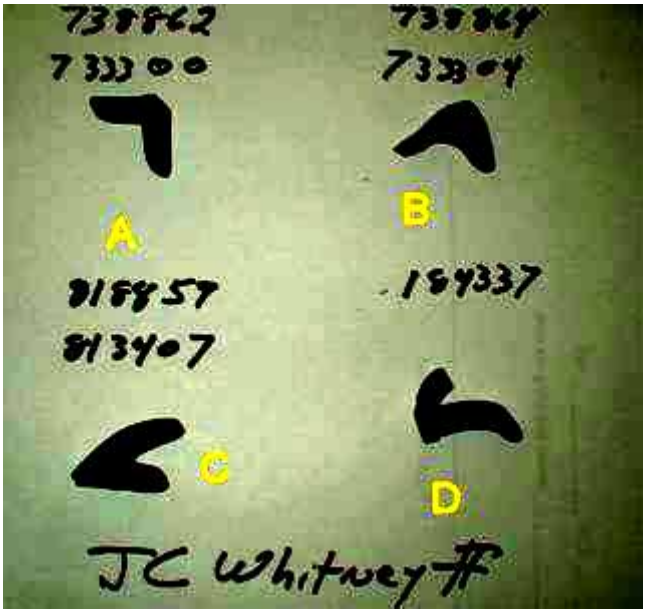
Still, even in the majority of Sprinters that do not have a pronounced wind noise, there is noise. For those of us taller folks, our left ear is located not far from the door-frame interface. On long trips the cumulative impact of noise from all sources can wear a person down and inhibit conversation with passengers.

A Sprinter door can generate wind noise from several locations. In the picture to the left, note four obvious sources that can disrupt the airflow. Sources 2, 3 and the leading edge of 4 are outside of owners' control. However, sources 1 (including around the fender) and the trailing edge of 4 offer possibilities. The area between the two hinges, while hiding a large cavity, is not readily approachable. I chose not to do anything with the gap at the floor level. Sprinters already have a problem in this area shedding water, and I did not want to compound the problem.

The gap between the door and the body turns out to be sizeable. Between the exterior surface of the van and the interior gasket that seals the door and the body is a chamber that varies in size from 1/2-inch x 2 inches, to as large as 6-inches x 4-inches around the hinge area. The chamber's cross dimensions constantly change around the perimeter of the door. The lips of the door and body provide

opportunity for creating air turbulence, and the chamber provides a means to transmit the energy to other parts of the vehicle.

The objective is to fill the gap with a gasket. Many Mercedes cars have a double gasket.



I bought gaskets from JC Whitney. I ended up using styles B (quantity 2), C (quantity 1) and D (quantity 1). JC Whitney ships these gaskets with plenty of contact glue.

Cut about 3" of gasket and use masking tape to mount the piece and figure out where the gasket should mount. Use a marking pen to mark the frame as to where the gasket should go. This will guide the application of the contact cement. Do not be too aggressive in forcing the gasket out from the frame. That causes two problems: (1) as visible in the last set of pictures, too aggressive placement can cause the contact glue to be visible; (2) the combined resistance of the gaskets can prevent the door from closing properly.

Note that the contact cement comes in a tube. Be prepared with either a small disposable brush or stick to apply and spread the glue.

The three pictures below show the existing frame, the application of gasket style C from the top rear of the door frame down to the top of the first hinge, and the final appearance.



There are two other areas that can be filled with gasket material. First, there is the leading edge of the door around the fender area. This uses gasket style D, with the trailing edge of the gasket cut off for fit and flat-surface gluing purposes.


The second area is the trailing edge of the door (area 4 in the picture above). This uses gasket style B. This gasket was also the most difficult to install. Note that on my van I applied this gasket a little too far out, thus causing the contact glue to be visible.