

2009 Dodge Journey's Safe, Solid Structure Strengthened by Advanced Steel Technologies

- High-strength, hot-stamped steel improves Journey's structural integrity, reduces weight
- Journey's two-box design results in added reinforcements
- World-class use of structural adhesives and sealants deliver whisper-quiet ride

January 31, 2008, Auburn Hills, Mich. - With more than one-third of its body structure consisting of high-strength or ultra-high-strength steel, the all-new 2009 Dodge Journey provides drivers and passengers a safe, solid structure that delivers excellent impact performance, a smooth ride and solid handling. This all-new mid-size Dodge crossover vehicle also features world-class levels of sealants and sound-deadening materials, designed to make every journey a quiet one, void of road, wind and powertrain noise.

"By mass, 36 percent of Dodge Journey's structure contains hot stamped and high-strength steels for optimized weight and structural performance," said Jim Issner, Chief Engineer – Dodge Journey. "Extensive use of dual-phase steels in the front and rear rails, tunnel reinforcements and sills permit these components to handle greater loads than conventional steels, while still being relatively easy to stamp and control dimensionally."

Hot stamped steel A-pillars and B-pillars reduce upper body weight in the Journey by 30 lbs. compared with conventional steel equivalents. Dodge Journey also features a composite liftgate, which is an alternative to traditional steel and reduces weight by 20 percent compared with steel. This lightens the overall weight of the vehicle and makes the liftgate easy to close.

Two-box Designs Results in Added Reinforcements, Structure

Dodge Journey's two-box design, as well as its many functional requirements for seating, cargo, storage and safety defined its structure. Journey is built on the same platform as Dodge Avenger, and in fact, from the B-pillar forward, the two vehicles share the same architecture. However, the structural commonalities differ from there.

Rearward of the C-pillar, the Journey has a unique shape to accommodate both passengers and cargo. An additional D-pillar reinforcement spans the floor to the roof, providing occupant protection and reducing noise, vibration and harshness (NVH) characteristics. Changes also were made to the floor pan and elsewhere in the body to reduce NVH and improve impact performance. These include:

- Adding a crossmember in the ladder assembly to support the available third-row seat
- Moving the powertrain 50 mm forward to add more crush space to the engine box
- Mounting the spare tire under the vehicle to accommodate the available third-row seat and optimize cargo room
- Raising the floor for higher ground clearance to allow packaging of the second-row in-floor storage bins and the jack and tool storage bin
- Opening the rear doors to 90 degrees to make it easier to load and install child safety seats, as well as gain access to the available third-row seating for as many as seven passengers

World-class Use of Structural Adhesives and Sealants Provide Quiet Ride

The Dodge Journey features world-class levels of structural adhesives, which improve stiffness when compared with spot and laser welding. The Dodge Journey benefits from the extensive application of pumpable and moldable sealers in the upper body to reduce road, wind and powertrain noise. Seam sealing is applied both inside and outside the body, instead of just inside.

The use of the next generation of elastic adhesives in the Journey adds strength to joints during an impact. Effective joint designs create a rigid structure, minimizing NVH inputs to the passenger compartment and increasing body stiffness through enhanced structural continuity.

To further seal the Journey's interior from the rest of the world and its noises, the body received the following treatments:

- Twenty-two shots of Expandable Polyurethane Foam (PUR®) are manually injected into cavities in the body structure. The foam prevents the cavities from acting as conduits for noise transmission to the passenger compartment
- Every hole and cavity is covered with a plug or patch
- Baked-on Mastic is bonded to the floor pan to dampen vibrations and act as a noise barrier
- Three baffles are inserted in the body
- The door weather-stripping system is triple sealed, providing world-class sealing and NVH control. The door-to-body-side interface is designed for a side view cutline. This design reduces the potential for wind noise because the cut lines are out of the air stream.
- Precise dimensional control of the doors and the body side ensures that the sealing system seals the gaps.
- Reduced door-to-body side gaps, made possible by more precise dimensional control, contribute to effective sealing and reduced NVH

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