

Model: Model S

Vehicle System: 33 - Brakes

Region: All

Tech Note: Inconsistent Brake Pedal Feel When Powering On Model S

Tech Notes are announcements that help to communicate and track new information about Tesla Service concerns. Such concerns may or may not be VIN specific. These instructions assume knowledge of motor vehicle and high voltage electricity repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or for repairs attempted by unqualified individuals.

Some customers have reported that they experience an inconsistent stiffness in the brake pedal when initially powering on Model S (activating the drive rails); sometimes the brake pedal feels “harder” or “softer” than what they consider to be normal. This is a result of the way that the Electric Vacuum Pump (EVP) was designed to retain vacuum. The EVP does not run while the vehicle is powered off, so the vacuum might become depleted if the brake pedal is pressed while the vehicle is powered off, causing the brake pedal to feel stiffer than normal until the next time Model S is powered on and the EVP activates. The brake pedal stiffness is directly related to the amount of vacuum in the booster; if the brake pedal is pressed while the vehicle is powered off then the vacuum is used and might become depleted, making the pedal stiffer.

NOTE: The vacuum level in the brake booster can range from 0 Mbar (vacuum depleted) to 740 Mbar (vacuum is at full capacity).

What to Tell the Customer

Many modern vehicles have power-assisted brakes that “boost” the driver’s input to the brake pedal, making the pedal feel softer than it would be without it. In Model S, this boost is provided by an electric vacuum pump that only runs while the vehicle is powered on. While the vehicle is powered off, however, there is only a limited amount of vacuum that is retained in the brake booster, and this vacuum becomes depleted by pressing the brake pedal multiple times while the vehicle is off.

If the brake pedal is pressed while Model S is powered off, the reserved vacuum pressure is used up and the brake pedal might feel stiffer than usual until after Model S powers on and the EVP begins to run. This is a normal behavior that does not damage the vehicle in any way, and does not affect braking ability.

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