

Wheels: *Eric G. of Centerville OH writes by e-mail: I consider myself a pretty handy guy in the garage, but this issue has me a little stumped. I recently purchased a 2007 Mazda 3. It has about 70k miles on it, has abs and traction control. I was on the highway and had to make a "panic stop" and hit the brakes very hard, but just momentarily, when I lifted off the brake pedal, the brakes did not release immediately. There was just a half second delay, during which it almost felt like they were being applied even harder.... then they released. I was so confused by what just happened that I had to think about " what just happened". Since that time I have had two more occasions that I had to hit the brakes pretty hard, and when I lifted, there was a momentary delay before the braking stopped. It has never been as pronounced as that first time on the highway, but I am concerned about the issue. I am afraid to take it to the dealership and have them just start replacing parts. Any ideas where to look, or is there some troubleshooting I can do on my own to narrow it down?*

Halderman: Thanks for writing. I think your vehicle is equipped with a brake assist system. If the system detects a panic stop situation, the system keep the brake applied even though research has shown that drivers will often release the brake pedal force. This is why this system was designed.

See what I wrote in one of my textbooks:

“Some vehicles are equipped with a brake assist system (BAS) that applies the brakes with maximum force if the system detects that the driver is making a panic stop. Tests performed by

brake engineers have indicated that it is normal for a person to first apply the brakes rapidly during a panic situation. However, it was also found that the driver would tend to reduce the force applied to the brake pedal. As a result, the vehicle did not brake with the maximum effort.

OPERATION The brake assist system opens an air valve on the rear part of the vacuum booster assembly. As a result, more air at atmospheric pressure can flow into the rear chamber of the vacuum booster, thereby increasing the force applied to the master cylinder. The BAS function works with the electronic stability control (ESC) system to ensure maximum braking efficiency during evasive or emergency situations. If the speed of the brake pedal application exceeds a predetermined limit as determined by the brake pedal travel sensor, the ABS controller energizes the BAS solenoid valve. When the solenoid valve opens, additional air at atmospheric pressure enters the driver’s side of the booster. The additional pressure applies the brakes faster and with more force. The BAS solenoid is de-energized when the brake is released and normal braking returns”.

