**Wheels:** A reader writes, "I would appreciate some help with pinpointing what is causing the rotors on my car to warp so often and how to keep it from happening again. I own a 2002 Impala, which has about 42,000 miles on it. The rotors have warped three times since I got the car in Nov 2001. The first time it happened I had 22,000 miles on it and the front rotors were turned by the dealership. At 26,000 miles, all four rotors were warped and they replaced the front rotors and turned the back ones. I had 60% of the front pads left and 50% of the rear. This dealership could not find anything wrong in the braking system to tell me why this was happening. Now at 42,000 miles, all four rotors are warped again. I had it evaluated at another dealership and they told me I had 50% of both the front and rear pads left. They said the front

rotors need to be turned and the back rotors need to be replaced. Again, the dealership couldn't find anything wrong with the braking system. It has been suggested by some of the tech writers that I ride my brakes (I mostly drive highway and use cruise control, which would be disengaged upon applying the brakes) or drive hard. I drive this car to and from work and don't load it down or pull a trailer. I've driven a Saturn, a Grand Am, and a Grand Prix over these same roads for the past 20 years and never had a problem with the brakes. I'm not convinced that it's my driving style that's doing this. I feel that something in the car is wrong but neither dealership was

able to locate anything in the braking system, which was performing outside of its specifications. Thank you for your help."

Halderman: Warped rotors can be caused by several things including:

- Unequal or over torquing of the wheel lug nuts. Most experts recommend that a torque wrench be used to tighten all lug nuts.
- Driving through water after the brake rotors have been hot due to stops from high speed or when braking on a long hill. To help prevent this last issue, try placing the gear selector into a lower range labeled "2" or "L" on the selector or use a lower gear of a manual transmission while descending a long grade. This procedure allows the engine to help slow the vehicle, thereby reducing the need to keep the brakes applied.
- If the rotors have a slight lateral runout, the brake pads will cause the rotor to wear in spots creating the vibration during braking.

If you have not driven in hilly, mountainous areas, or through deep water, then have the rotor runout checked to determine if this is the cause. Rust or dirt between the hub and the rotor can be the cause and can be corrected by cleaning. In severe cases, the hub may have excessive runout requiring replacement.

