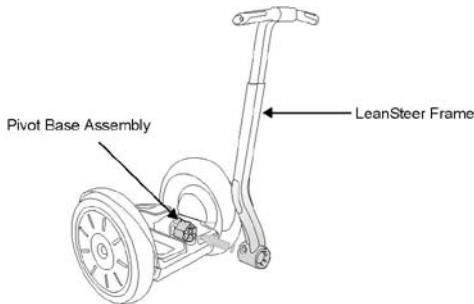




Segway PT Tire Pressure Variation Hazards

Most Segway operators know that tire pressure can have an impact on battery range or efficiency and tire wear, just as it affects fuel efficiency and tire wear on a motor vehicle. What many people don't realize is that tire pressure issues can actually cause problems with the internal balance and control systems on the Segway PT and result in a Safety Shutdown of the unit.

Why This Happens: The internal balance and controller components of the Segway PT use information from Balance, Tilt, and Steering sensors as well as *tire rotation speed information* from the Motors to keep the Segway PT in an upright position in all directions and at all speeds.



When tires have unequal and/or incorrect tire pressure, this situation can cause inaccurate tire rotation speed information to be sent to the Segway PTs control systems. This incorrect tire rotation information is combined with turn rate data provided by the Pivot Base. The Pivot Base is connected to the LeanSteer frame and measures turn rate/direction input from the Segway rider's left or right manipulation of the LeanSteer frame when turning.

If, for example, the Segway PT is being driven in a straight line and the left side tire has significantly higher tire pressure than the right side tire, the rpms or tire rotation speed of the over-inflated left side tire will register as slower in relation to the right side tire. This information will cause the Segway PT's control systems to "think" that the unit is in a left-hand turn instead of a straight line. At the same time, the turn rate information from the Pivot Base will indicate that the Segway PT is being driven in a straight line. This contradicting information may cause the Segway PT to begin the ten second "Safety Shutdown" sequence since its control systems are unable to resolve the conflicting rotation speed and turn rate/direction information.

Aside from the obvious resulting safety issues, continual data conflicts of this type can cause additional problems with the control systems over a long period of time and should be avoided through proper monitoring of tire pressures. The factory recommendation is to check tire pressure at least monthly. However, commercial users should "visually" check relative tire pressure before each use (observe tire bulge while riding) and check with a tire pressure gauge twice per month to maintain proper psi in each tire.

Tire Pressure:

- **i2 at 15 psi**
- **x2 at 4 psi**