

Chapter 7:

Troubleshooting the Segway PT

This chapter describes:

- Troubleshooting techniques.
- Using InfoKey Controller icons to help diagnose an error or failure condition.

Troubleshooting Procedures

You can troubleshoot certain problems with your Segway PT before contacting an Authorized Segway Dealer or Distributor, or Segway Customer Care. This chapter provides lists of problems and recommended actions.



WARNING!

Always shut down your Segway PT and unplug the AC Power Cord before performing any maintenance or installing any part or accessory.

Refer to **Table 13** for a list of potential errors. This table directs you to the page in this chapter where you can find more information on resolving the problem.

Table 13. Segway PT Troubleshooting Procedures

Problem:	See:
The Segway PT will not power on.	page 122
The Segway PT will not enter Balance Mode.	page 123
The LeanSteer Frame slips or is off-center.	page 124
The Tire/Wheel Assembly is loose and wobbles.	page 125
The Segway PT pulls to one side when riding.	page 126
A Tire is flat or will not maintain inflation pressure.	page 127
A Safety Shutdown occurs when you are entering or leaving a store, library, or other building.	page 127
The Segway PT will not power down.	page 128

If you are unable to solve the problem, look through the section showing the InfoKey Controller icons that display during error or failure conditions in **“Diagnosing Errors with InfoKey Controller Icons” on page 130**. That section shows the icons and recommended actions to take when you see certain icons.

If, after reviewing the troubleshooting procedures and the InfoKey Controller icons, you are still unable to resolve the problem, contact an Authorized Segway Dealer or Distributor, or Segway Customer Care. For a list of Authorized Dealers and Distributors, visit www.segway.com.

Segway PT Will Not Power On

Your Segway PT will not power on when you press the InfoKey Controller Power/Standby button. The procedure below will help you determine if you are standing in range for the InfoKey Controller to communicate with the Segway PT, whether the InfoKey Controller Battery needs replacement, whether your Segway PT needs to be “reset” by removing and reattaching the Batteries, or if you are experiencing a startup error.

You should review the following service procedures prior to troubleshooting this problem for important instructions and torque values.

- **“Removing the Batteries” on page 100**
- **“Reattaching the Batteries” on page 102**
- **“Replacing the InfoKey Controller Battery” on page 110**

Recommended Action:

1. Make sure your Segway PT's Batteries are charged.
2. Make sure you are standing with the InfoKey Controller no further than 15 ft. (5m) from your Segway PT.
3. Tap the InfoKey Controller Power/Standby button and verify that the Link Signal icon appears in the InfoKey display.
4. For more information, see **“InfoKey Controller” on page 19**.
5. If no Link Signal icon is displayed or the display is blank (no information displayed), remove and reseal the InfoKey Battery.
6. Tap the InfoKey Controller Power/Standby button. If the InfoKey display is blank, replace the InfoKey Controller Battery.
7. If the Warning icon appears (see **“InfoKey Controller” on page 19**) in the InfoKey Display when attempting to power on, see **“Startup Error Conditions” on page 130**.
8. If your Segway PT will still not power on, remove both Batteries and then reattach them.

Segway PT Will Not Enter Balance Mode

Your Segway PT will not enter Balance Mode.

Recommended Action:

Ensure that you have properly followed all instructions in “**Understanding Balance Mode**” and “**Riding Your Segway PT**” in the Getting Started Manual.

1. Confirm power has been turned on.
2. Confirm the LeanSteer Frame/Handlebar Assembly is centered and the Powerbase is level. (If you are positioned across a gentle slope, the LeanSteer Frame/Handlebar Assembly must be vertical side-to-side).
3. Confirm there is no weight on the Mats.
4. Check that the center Balance Indicator light is green and all four other Balance Indicator lights are not illuminated.
5. Tap the Mat with your foot without stepping on, then remove your foot. Confirm that all five Balance Indicator lights are pulsing green, and a smiling face icon shows in the InfoKey Controller display.
6. If the Segway PT still will not enter Balance Mode, identify the error icon on the InfoKey Controller, and attempt to clear the fault following the recommended actions in “**Startup Error Conditions**” on page 130.

The LeanSteer Frame Slips or is Off-Center

When you move the LeanSteer Frame, it slips on the Pivot Base Assembly, or the LeanSteer Frame is off-center and will not return to center.

You should review the following service procedures prior to troubleshooting this problem for important instructions and torque values.

- **“Removing the LeanSteer Frame” on page 93**
- **“Attaching the LeanSteer Frame” on page 96**

Recommended Action:

1. Loosen the LeanSteer Frame fastener with a 5mm hex wrench.
2. Align the LeanSteer Frame and visually check that the Handlebar is straight and centered. If it is not straight and centered, adjust the LeanSteer Frame to straighten and center it.
3. Tighten the LeanSteer Frame fastener to the correct torque value.
4. If the LeanSteer Frame still slips or falls off-center, loosen the LeanSteer Frame fastener and remove the LeanSteer Frame from the Pivot Base Assembly and ensure that the Pivot Base Assembly is clean and free of debris.
5. Remove the LeanSteer Frame fastener and Wedge Clamps and inspect them to make sure there is no slippery substance, and that the Wedge Clamps are not substantially worn and smooth.
6. If the Wedge Clamps are worn, replace them. If the Wedge Clamps or Pivot Base Assembly are not clean, thoroughly clean with isopropyl alcohol and ensure that all substance is removed prior to reinstalling the Wedge Clamps and LeanSteer Frame.
7. Attach the LeanSteer Frame to the Pivot Base Assembly.

Tire/Wheel Assembly is Loose and Wobbles

The Tire/Wheel assembly is not secure. It appears to be loose and wobbles.

You should review the following service procedures prior to troubleshooting this problem for important instructions and torque values.

- **“Removing the Tire/Wheel Assembly” on page 106**
- **“Installing the Tire/Wheel Assembly” on page 107**

Recommended Action:

1. Remove the Wheel Cap by pressing down on the outside edge, and lifting the opposite outside edge with your fingers or a plastic wedge.
2. Tighten the Wheel Nuts.
3. If the Tire/Wheel Assembly is still loose or wobbles, remove, clean, and reseal the Tire/Wheel Assembly and the flange on which the Tire/Wheel Assembly mounts.

Segway PT Pulls To One Side When Riding

Your Segway PT pulls to one side when you are riding.

You should review the following service procedure prior to troubleshooting this problem for important instructions: **“Checking Tire Inflation Pressure” on page 104.**

Recommended Action:

1. Check to make sure tire inflation pressure is equal, and set to recommended specifications in both Tires. See **“Tire Inflation Pressure” on page 5.**
2. If either Tire is not set at the proper tire inflation pressure, inflate the Tire or Tires until both are at equal and correct pressure.
3. Distribute your weight evenly on both feet. If you put more weight on one foot, the Segway PT will pull in that direction.

Tire is Flat or Will Not Hold Air

One of the Tires on your Segway PT is flat or will not hold air.

You should review the following service procedure prior to troubleshooting this problem for important instructions: “**Checking Tire Inflation Pressure**” on page 104.

Recommended Action:

1. Check for Tire damage. If the Tire is damaged, contact an Authorized Segway Dealer or Distributor to order a replacement Tire/Wheel Assembly.
2. If there is not visible Tire damage, check to make sure the Tire valve stem core is tight. Tighten the valve stem if necessary.
3. Inflate the Tire and check for leaks. If the Tire goes flat or will not maintain inflation pressure, contact an Authorized Segway Dealer or Distributor to order a replacement Tire/Wheel Assembly.

Safety Shutdown At Building Entrance

Theft detection systems, such as the type used in some libraries and retail stores can interfere with the Segway PT's ability to balance and/or cause the Segway PT to perform a Safety Shutdown. Do not ride within 5 feet (1.5 meters) of any theft detection system. These systems may not always be visible.

Recommended Action:

1. Step off at least 5 feet (1.5 meters) away from theft detection systems and walk through the theft detection system in Standby Mode or with the Segway PT powered off.
2. Once you are at least 5 feet (1.5 meters) away from the theft detection system, return to Balance Mode and step on.

The Segway PT Will Not Power Down

Your Segway PT will not power down when you press and hold the Power/Standby button on the InfoKey Controller.

You should review the following service procedure prior to troubleshooting this problem for important instructions

- **“Removing/Installing the Mats” on page 109**
- **“Replacing the InfoKey Controller Battery” on page 110**

Recommended Action:

1. Check that your Mats are not sticking to the Powerbase.
2. If a Mat is sticking, lift the Mat to release it, being careful not to move your Segway PT forward or backward or move the LeanSteer Frame.
3. Press and hold the Power/Standby button on the InfoKey Controller for two seconds to confirm the problem is resolved.
4. If your Segway PT still will not power down, check that your InfoKey Controller Battery is not fully depleted and that the InfoKey Controller is not damaged. If necessary replace or reset the InfoKey Controller Battery.

5. If reseating the InfoKey Controller Battery did not resolve the problem, and you do not have a replacement InfoKey Controller Battery:

Switch your Segway PT to Standby Mode by walking beside it while holding the Handlebar until you hear the Stick Shake Warning and feel the Segway PT switch out of Balance Mode, into Standby Mode.

Leave your Segway PT in a secure location for 15 minutes until it automatically powers down.

Install a new InfoKey Controller Battery.

6. Reinstall the Mat after your Segway PT is powered down.
7. Tap the Power/Standby button on the InfoKey Controller to power on your Segway PT, then press and hold Power/Standby button for two seconds to confirm the problem is resolved.

Diagnosing Errors with InfoKey Controller Icons

InfoKey Controller icons assist you in diagnosing certain errors. Match the icon shown in your InfoKey Controller display to those in the tables in this section to identify and attempt to correct the fault.

Startup Error Conditions

If you attempt to power on the Segway PT and an error condition occurs that prevents the Segway PT from powering on and entering Standby Mode, the icons shown in **Table 14** will appear on the InfoKey Controller.

To clear these conditions, follow the instructions in the Recommended Action column in **Table 14**.



WARNING!

Do not step onto the Segway PT Mats until you have cleared all error conditions and have confirmed the Segway PT is in Balance Mode.

Table 14. Icons for Startup Errors

Display Icon	Description	Recommended Action
	<p>The Segway PT is plugged in.</p>	<p>Unplug the Power Cord. If the Segway PT has powered off, power on again.</p>
	<p>The charge in the Segway PT Batteries is too low to allow safe operation of the Segway PT.</p>	<p>Charge the Batteries, and then attempt to power on.</p>
	<p>A Rider Detect sensor is on at startup.(The corresponding icon in the display will blink).</p>	<p>Make sure your foot is not on the Mat when powering on your Segway PT.</p> <p>Check the Mat to ensure it is clear of foreign objects and not sticking to the Powerbase. If necessary, remove and inspect, then reinstall the Mats (see “Removing/Installing the Mats” on page 109).</p>

Balance Mode Error Conditions

If you unsuccessfully attempt to enter Balance Mode and step onto the Mat, the icon shown in **Table 15** will appear on the InfoKey Controller.

To clear this condition, follow the instructions in the Recommended Action column of **Table 15**.

Table 15. Icons for Errors Entering Balance Mode

Display Icon	Description	Recommended Action
 The image shows a circular InfoKey Controller display. The display is divided into several sections. At the top, it shows 'PM' and '12:00'. Below the time is a vertical bar with horizontal segments, representing a balance indicator. In the center, there is a large warning symbol (an exclamation mark inside a triangle). At the bottom, there are two small foot icons with arrows pointing towards each other, indicating the correct foot placement on the mat.	Powerbase is not level, or LeanSteer Frame is tilted when attempting to enter Balance Mode. This icon will display when you place your foot on the Mat.	Remove your foot from the Mat. Level the Powerbase and center the LeanSteer Frame until the center Balance Indicator light is green and no other Balance Indicator lights are illuminated.

Reduced Performance Levels

When the Segway PT is operating at reduced performance levels due to an error condition, the icon shown in **Table 16** will appear on the InfoKey Controller. (See “**Speed Limiter**” on page 48 for a list of the conditions that cause reduced performance.)

To clear this condition, follow the instructions in the Recommended Action column of **Table 16**.

Table 16. Icons for Reduced Performance Level

Display Icon	Description	Recommended Action
	<p>The Segway PT is operating at reduced performance levels, with the speed limit lowered, due to a temporary condition.</p>	<p>The Segway PT’s Speed Limiter is an alert that you are moving too fast. When the Speed Limiter pushes the Handlebar back, stop leaning forward and slow down. Always leave a gap between yourself and the Handlebar. Once you slow to a speed that the Segway PT determines is safe, it will resume normal operation and riding position.</p>

Critical Faults While Riding

During normal riding, if the Segway PT detects a fault in any of its redundant subsystems, the icon shown in **Table 17** will appear on the InfoKey Controller.

When such a fault is detected, the Segway PT performs a Safety Shutdown. When a Safety Shutdown occurs, the Segway PT automatically reduces its speed, gives the Stick Shake Warning (shakes the Handlebar and makes a growling sound), flashes the Console lights, and the InfoKey displays a Safety Shutdown icon. As the Segway PT slows, it emits an audio alert.

Follow the instructions in the Recommended Action column of **Table 17**.

Table 17. Icon for Critical Faults in Redundant Subsystems

Display Icon	Description	Recommended Action
	<p>The system has detected a critical error in its redundant subsystems and performs a Safety Shutdown.</p>	<p>The rider has approximately 10 seconds from the start of a Safety Shutdown to come to a controlled stop and step off. After 10 seconds, the Segway PT will immediately shut down when the Wheels reach zero speed.</p>

Pitch or Roll Angle Exceeded

If the Segway PT shuts down because a forward/backward (pitch), or side (roll) tilt limit was exceeded, or no Rider Detect sensors were depressed while the Segway PT was moving at speed, the icon shown in **Table 18** will appear on the InfoKey Controller.

The Segway PT is programmed to shut down in these situations because the rider is not in control of the Segway PT.

To clear this condition, follow the instructions in the Recommended Action column of **Table 18**.

Table 18. Icons for Tilt Limits Exceeded

Display Icon	Description	Recommended Action
	The Segway PT shut down because a forward/backward (pitch), or side tilt limit was exceeded, or no Rider Detect sensors were depressed while the Segway PT was moving at speed.	Check the Segway PT for damage. If there is no damage, turn on power by tapping the Power/Standby button on the InfoKey Controller.

System Faults

If the Segway PT detects a hardware fault, the icons shown in **Table 19** will appear on the InfoKey Controller.

The Segway PT cannot be used until the fault is cleared. To attempt clear system faults, follow the instructions in the Recommended Action column of **Table 19**.

Table 19. Icons for System Faults

Display Icon	Description	Recommended Action
	<p>There is a fault in the Powerbase or Batteries.</p>	<ol style="list-style-type: none"> 1. Power on the Segway PT. 2. If the same icon appears, confirm that both Li-ion Batteries are installed correctly. 3. If the same icon appears remove and reseal both Batteries (see “Removing the Batteries” on page 100 and “Reattaching the Batteries” on page 102). 4. If the same icon appears, plug in your Segway PT and verify that both Battery Charge Indicator lights are green. Plug in and charge the Segway PT overnight.