

SEGWAY OPERATION AND PATROLLING

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OVERVIEW

The Segway PT can be used as a security patrol vehicle in areas and for purposes that other security vehicles – automobiles, bicycles, golf carts, etc. – cannot. The Segway PT enhances several patrol functions, especially the high visibility of the officers.

Using the Segway PT gives a security officer greater mobility with less exertion. Officers are able to cover greater patrol areas in less time. This means a security officer can expand patrol coverage, visiting more often those “corners of the mall” that are sometimes less emphasized.

Although Segway PTs are well known devices, they remain novel. Most members of the public have not encountered one before. Security officers report that customers are delighted by Segway PTs and approach them to learn more. This creates opportunities for pleasant and friendly interactions between officers and the public.

Finally, security officers report that patrolling on a Segway PT is fun.

What’s a Segway?

The Segway PT is a two wheeled, motorized vehicle that runs on batteries. Segway PTs charge by being plugged into a standard electrical socket.

The Segway PT was invented by Dean Kamen, an American entrepreneur and inventor.

The Segway PT was introduced in December 2001

The product name “Segway” was taken from the word “segue” which means a “smooth transition”. “PT” stands for “personal transporter”

The Segway PT utilizes a technology called “dynamic stabilization” which means the Segway PT is able to balance on its own. It does this using gyroscopic detectors that enable recognition of which way the Segway PT is “leaning”.

The new Segway PT series, i2 and x2, one of which is used during this training program, incorporate a new LeanSteer technology which means the Segway PT is controlled and driven by the rider through body movements (leaning forward, backward and side to side) rather than with a throttle like control (used in early models).

Segway PTs travel in Turtle Mode up to 6 mph. Taken out of Turtle Mode, Segway PTs travel up to 12.5 mph.

Segway PTs are used for work and recreation by people worldwide. For more information, including cost and where to buy one, visit www.segway.com.

GENERAL ORDERS

The following General Orders apply to security Site Operation personnel and relate to Segway PT operation and patrolling.

1. Security officers shall operate Segway PTs in a safe manner that maximizes patrol benefits and is consistent with all relevant rules and regulations.
2. Security officers shall operate Segway PTs in a manner that emphasizes courtesy to pedestrians and yields pedestrians the right of way.
3. Security officers shall report any malfunction, damage or accident involving a Segway PT accurately and immediately and shall complete a written report.
4. Any security officer aware of any condition, whether temporary or ongoing, that would hinder the safe and effective operation of the Segway PT is required to report the condition immediately and not ride the Segway PT.
5. Security officers shall not engage in any form of horseplay using a Segway PT and shall immediately report such activities.
6. Security officers shall not operate a Segway PT in any restricted area or upon any restricted or unduly hazardous surface or terrain.
7. Security officers shall not ride Segway PTs on stairs or escalators.
8. Security officers shall actively employ appropriate patrolling tactics and practices.
9. Security officers shall not allow operating a Segway PT to hinder their customer and tenant relations contacts nor any standard security duty or response.
10. Security officers shall not operate Segway PT's out of *Turtle Mode*.
11. Security officers shall not engage in the pursuit of subjects using a Segway PT

SECTION 4. PARTS OF A SEGWAY

Infokey Controller

The Infokey Controller is the device used to communicate with the Segway PT.

The Infokey is a circular device similar in appearance to a stopwatch and is comprised of a display panel and four control buttons.

The four control buttons are the:

- Beginner Button – Upper Left side
- Power/Standby Button – Lower Left side
- Information Display Button – Upper Right side
- Security Button – Lower Right side

Review Figure 6. Infokey Controller Buttons on Page 19 of the Segway PT Reference Manual.

The Display Panel conveys the following Icons and data:

- Warning Icon
- Segway PT Battery Gauge
- Infokey Controller Low Battery Icon
- AC Power Icon
- Rider Detect Error Icon
- Infokey Controller Link Signal Icon
- Beginner Icon
- Security Icon
- Face Icon
- Wrench Icon
- Information Display

Review Figure 7. Infokey Controller Display on Page 20 of the Segway PT Reference Manual.

Each Icon represents specific information. Familiarize yourself with the Icons and their meanings by reviewing the table on pages 21-23 of the Segway PT Reference Manual.

The Infokey Controller enables you to:

- Turn on/off the Segway PT
- Turn on/off the Segway PT security function
- Set the beginner setting
- Scroll or reset the Segway PT's patrol information including, time, date, speed, average speed
- Check the Segway PT's current charge and operating status

Each Infokey is designed to operate an individual Segway PT. The controllers are not interchangeable between Segway PT's.

- Each Segway PT is shipped with two Infokey Controllers.
- The spare Infokey should be stored in a secure location.
- If a controller is lost or damaged, replacement controllers must be ordered through Segway PT.
- The Infokey controller must be within 15 feet of the Segway PT in order to communicate.

LeanSteer Frame/ Handlebar

The Handlebar is attached to the LeanSteer Frame.

The Handlebar allows you to maneuver the Segway PT left or right by moving the LeanSteer Frame in the corresponding direction.

Powerbase

The Powerbase consists of the following parts:

- Console
- Rider Detect Sensors
- Controller Boards
- Motors
- Balance Sensor Assembly

Console and Console Trim

The Console is located behind the LeanSteer Frame and between the two Mats. The Console's cover should not be removed. A replaceable trim piece snaps onto the cover to protect the Console.

Charge and Balance Indicator Lights

The Console has two sets on indicator lights:

- The Balance Indicator Lights advise the rider whether or not the Segway PT is ready to be stepped on.
- The Charge Indicator Lights provide Battery charge information when the Segway PT is plugged into AC power.

Review pages 46 -50 of the Segway PT Reference Manual for an extended explanation of the Indicator Lights and their meanings.

Mats

The Segway PT is equipped with two Mats installed on the right and left side of the console. The functions of the Mats are:

- To cover/protect the Rider Detect Sensors located beneath them.
- To provide a comfortable surface for the rider to stand on.

Mats should be secured before riding the Segway PT.

Rider Detect Sensors

The Segway PT has four sensors located beneath the Mats that detect the presence or absence of a rider while the Segway PT is powered on.

- When your feet are properly positioned, all four of the sensors will be depressed, allowing the Segway PT to operate normally in Balance Mode.
- If fewer than four sensors are depressed, the Segway PT will slow down, reducing its top speed.
- Full performance will be regained once all four sensors are depressed.
- If the Segway PT is moved too quickly while in Balance Mode and a rider is not present on the vehicle the Segway PT will give a Stick Shake Warning before exiting Balance Mode and transitioning to Standby Mode.

Batteries

The Segway PT runs on Two Li-ion Batteries that:

- Require no maintenance (if properly installed).
- Are interchangeable between Segway PT's.

Both Batteries must be installed for the Segway PT to operate.

- If one Battery fails or is depleted below its safe limit, the Segway PT will perform a Safety Shutdown.
- Batteries should be replaced in pairs.

Tire/Wheel Assembly and Fenders

The Tires/Wheels are shipped as an assembly (finished product).

It is important that you:

- Do not remove the Tires from the Wheel.
- Ensure that the Tires are inflated to the proper pressure (Segway PT i2: 15 PSI).

SECTION 5. OPERATING A SEGWAY PT

Driver Safety Equipment

When operating a Segway PT, it is mandatory that you wear the proper safety equipment approved at your site operation. This may include, but is not limited to:

- Bicycle Helmet
- Knee Pads
- Elbow Pads
- Reflective Vest – (Exterior Patrol)

At a minimum, you are required to wear a properly fitting bicycle helmet.

Driver Personal Condition

Prior to riding a Segway PT, the operator must perform a Driver's Self Assessment. The Self Assessment is conducted by the operator to determine if he/she is in an appropriate condition to operate the Segway PT safely.

Prior to riding the Segway, the operator should ask themselves the following questions:

- Could tiredness or sleepiness be a hazard for you now?
- Could a substance you drank or took be a hazard for you now?
- Is there anything that will distract you while you drive now?
- Could fatigue be hazard for you driving now?

If the answer to one or more of these questions is "yes", you should "Risk Out":

- Do not begin patrolling on the Segway PT.
- Contact your Supervisor and explain the self-condition you have identified that you feel precludes you from operating the Segway PT.
- Your Supervisor will then make arrangements to relieve you from Segway PT patrol.

Turning ON/OFF the Segway PT

The Segway PT is turned on and off using the Infokey Controller.

- To turn ON the Segway PT, depress the Power/Standby button located on the bottom left side of the Infokey Controller

- You will be able to hear the Segway PT power on.
- To turn OFF the Segway PT, depress the Power/Standby button for 2 seconds.
- The Infokey Controller will show a sleepy face and the Segway PT will emit a tone as it powers off.

Security Function

The Segway PT is equipped with a Security function in case you have to leave the Segway unattended. Once the Security function is enabled, the Segway PT will omit an alarm if someone tries to move the unit.

- To turn ON the Security Function depress the Security Button found on the lower right side of Infokey Controller.
- When the function is enabled, you will see a Lock Icon displayed on the Infokey Controller.
- Make sure when you leave the Segway PT, you take the Infokey with you.
- To turn off the Security function, depress the Security Button. The lock will no longer be displayed on the Infokey Controller.

Balance Mode

To ride the Segway PT, it must be in Balance Mode. The Balance Mode is what allows the Segway PT to detect when you move forward or backward, or when you turn the LeanSteer Frame left or right and it moves the wheels in response to your movements.

The Segway PT is also equipped with a Riderless Balance Mode. This mode allows you to step off the Segway PT and maneuver the unit slowly over difficult terrain, stairs, curbs or other hazards. It is very important that you hold on to the Handlebars while the unit is in Riderless Balance Mode. This will prevent the Segway from moving forward on its own.

You will know the Segway PT is in Balance or Riderless Balance Mode when the Balance Indicator Lights are pulsing or rotating green and the Infokey controller displays a happy face.

Error Conditions during Startup

If you receive an error message during startup, refer to the *Segway Reference Manual pg. 130* for detailed information on how to remedy the error.

Handlebar Height Adjustment

Prior to operating the Segway PT, you should adjust the Handlebar to the proper height for you to safely operate the unit. Adjusting the Handlebar will allow you to bend your arms and legs slightly, making riding the unit more comfortable.

To adjust the height:

- Turn the Adjustment Knob located on the front of the LeanSteer Frame counterclockwise.
- While standing on the ground next to the upright level Segway PT, adjust the Handlebar so that it is just above your elbow.
- Then turn the Adjustment Knob clockwise, locking the height of the Handlebar.

Speed Limiter

The Speed Limiter is an alert given by the Segway PT that you are approaching the maximum speed allowed for a given situation. The Segway PT will push the handlebar back into you to slow the unit down.

Conditions that may cause the Speed Limiter to activate include:

- Riding up a steep hill
- Riding on bumpy terrain
- Riding with fewer than three Rider Detect Sensors depressed
- The first few seconds after the unit is powered on
- The system is hot
- Low Battery Charge
- The Battery packs are fully charged going down hill

Stick Shake Warning

The Stick Shake Warning occurs when the Segway PT has detected a condition that may cause you to fall from the unit. When a Stick Shake warning occurs, the Handlebar will shake and the unit will make growling noises.

If you are riding the unit when you receive the Stick Shake warning come to a stop and step off. Do not ride the unit again until the condition that caused the warning has been identified and corrected.

If you are stopped or stuck when you receive the warning, step off immediately and do not attempt to ride the unit again until:

- You have cleared all obstacles and slopes
- You have confirmed that it is not a Safety Shut Down.

When riding the Segway PT, Stick Shake Warnings may occur for the following reasons:

- Riding too fast backwards
- Climbing a steep hill
- Riding against the Handlebar causing the demand for too much power
- Riding against an obstruction
- During a Safety Shutdown
- Battery Packs are too low
- Accelerating or decelerating abruptly

Safety Shutdown

A Safety Shutdown occurs when the Segway PT detects a fault in one of its redundant systems or the Battery is depleted beyond its safe limit.

When a Safety Shutdown occurs, the unit will:

- Automatically Reduce Speed
- Give a Stick Shake Warning
- Flash the Balance Indicator Lights
- Emit a warning tone
- The Infokey Controller displays an unhappy face

Once the Safety Shutdown begins, you will have 10 seconds to come to a controlled stop and step off the unit. Failure to step off the unit in the allotted time may result in a fall.

Navigating

While on patrol, you will encounter many different types of terrain and surfaces. The maneuverability of the Segway PT will allow you to navigate around obstacles.

When riding on uneven terrain, it is important that you keep your knees bent and your body centered over the unit. This will allow your body to absorb the variation in the terrain.

When you determine that the terrain you are on is unsafe, step off the unit. Use the Riderless Balance Mode to traverse the terrain or obstacle.

Some examples of terrain and hazards you may encounter include:

- Wet floor or pavement
- Curbs
- Potholes
- Cracked floor or pavement
- Dirt
- Sand
- Loose gravel
- Mulch
- Grass
- Drainage grates
- Loose materials, etc.

Stairs

Whenever possible, you should avoid going up or down stairs; however, during the course of your patrol, you may have no alternative but to do so.

When preparing to negotiate stairs:

- Step off the unit
- Verify that the unit is in Riderless Balance Mode
- Walk to the front of the unit
- Align the wheels of the unit perpendicular to the stairs
- Stand above the unit and Guide the Segway PT up or down the stairs, one step at a time.

Elevator

When preparing to enter an elevator:

- Step off of the unit
- Verify that the unit is in Riderless Balance Mode

- Walk to the front of the unit
- Turn so you are facing the unit
- Pull the unit towards you onto the elevator

When exiting from the elevator:

- Pull the unit towards you and walk out of the elevator backwards. Be aware of your surroundings.
- Once out of the elevator, place the unit back in Balance Mode and begin patrol

Escalators

Under **NO** circumstances should you place a Segway PT on an escalator.

Operating in the Rain

The Segway PT may be used in the rain; however, the unit should not be used in heavy rain or electrical storms.

When operating in the rain:

- Avoid puddles or hazards which may cause the Segway PT to lose traction
- Wear proper raingear
- Wear a reflective vest
- If the Segway is equipped with lights, they should be turned on

Operating in the Snow

The Segway PT should not be operated in snow or icy conditions.

Nighttime Considerations

When operating the Segway PT at night consider the following:

- Hazards when riding may be more difficult for you to detect
- Drivers may not be able to see you

Segway PT Patrol Officers should:

- Wear a reflective vest

- If the Segway is equipped with lights, they should be turned on
- Patrol in well lit areas
- Patrol with the flow of traffic
- Avoid entering the roadway or parking lot drive lane from between parked vehicles

SECTION 6. SEGWAY PT SAFETY CONSIDERATIONS

Awareness and Attention

The fundamental security skill is Awareness, meaning an active connection of an officer's thoughts with the conditions, situations and events of the immediate environment. (See the VSS "Awareness" training module.)

In order to operate a Segway PT safely and effectively, an officer must devote focused attention constantly. While the officer will be maintaining a Yellow Zone level of awareness (relaxed alert while scanning) in order to detect relevant conditions, situations and events, the officer must constantly elevate to an Orange Zone level of awareness (focused alert upon potential hazards) in order to recognize and respond to pedestrian collision hazards.

Hazard Anticipation and Recognition: Driver, Vehicle, Terrain, Conditions

The Segway PT can cause serious injury or death to riders and others. The primary manners in which this would occur are the rider falling off the Segway PT and the rider colliding with a pedestrian or other vehicle.

The Segway PT can also cause uneasiness or irritation among members of the public were they to feel fearful of collision or that they were being made to "make way" for the Segway PT.

In order to effectively anticipate, recognize and avoid hazards officers must understand what constitutes a hazard for Segway PT riders.

Driver related hazards include:

- Lack of training or practice on the Segway PT
- Lack of proper safety gear, at minimum a bicycle helmet
- Inattentive rider who is unaware (daydreaming), suffering from divided attention (focusing upon detection when in the presence of collision hazards; or attempting to perform a physical task while driving forward, such as talking on the radio)
- Impaired condition, for example due to sleepiness, fatigue, illness, medicine or negative emotion

Vehicle related hazards include:

- Driving the Segway PT faster than allowed by regulation or by current driving conditions
- Operating the Segway PT for purposes other than intended (horse playing)
- Any damage or impaired condition of the Segway PT (such as low air pressure in tires)

Terrain related hazards include:

- Inappropriate surfaces (for example, slip prone floors such as very smooth concrete or stairs or steep inclines)
- Adjacent to falling hazards such as upper level railings or escalator or stairwell landings
- Objects on the riding surface that break wheel traction, especially wet spills, slippery objects like fruit and other foods and plastic sheeting
- Doorways in which the officer's head might strike the lintel (due to being elevated 8 inches)

Environmental Condition related hazards include:

- Rain, snow, sleet or ice on riding surface
- Pedestrians sharing riding surface
- Other vehicles sharing riding surface
- Darkness, Fog and other conditions obstructing clear view

Sharing the Surface with Pedestrians

When sharing the surface with pedestrians:

- Be aware that the Segway PT, as a moving vehicle, could alarm pedestrians who fear a collision were it to be operated too closely to pedestrians, especially at inappropriate speeds
- Drive at an appropriate speed, more slowly perhaps than at other times, to ensure control and stopping ability to prevent pedestrian collision
- Do not drive in a manner or area that will cause pedestrians to stand aside for you and the Segway PT
- Do not ride up from behind pedestrians without slowing and announcing your presence on the Segway PT
- Do not drive adjacent to retail entrances; do not hug the lease line. Select a riding path nearer the center of common area lanes.
- Avoid stopping or parking the Segway PT in a location that will hinder pedestrian movement
- Avoid riding through concentrations of pedestrians. When you must travel in such situations, do so at the same speed as the pedestrians are walking
- Do not drive through groups of pedestrians, such as when they are queuing in line
- Remember that Segway PTs are vehicles. Always give pedestrians the right of way

- Avoid riding near upper level or lower level stairwell and escalator landings where pedestrians might be stepping off

Evading Hazards

Anticipate hazards by actively maintaining appropriate levels of awareness (See VSS “Awareness” module) and by focusing attention into the Look Ahead Zone (See VSS “Tactical Driving” training), the area into which you will be driving the Segway PT in about 8 -10 seconds.

When approaching any intersection of either foot traffic or vehicle traffic, slow down and even stop if necessary, especially if your view of what might emerge at the intersection is obstructed or limited. (Each tenant store entrance into the common area is a foot traffic intersection.)

Rapid stopping or rapid turning might be required to evade a hazard that is suddenly detected.

In extreme situations, such as the moment before an automobile would strike the Segway PT, a rider might rapidly dismount before a collision

Avoiding Slips, Trips and Falls

Some factors that underlie instances in which a rider might fall from a Segway PT include:

- The Segway PT can slip forward, backwards or sideways, if its wheels lose their traction and no longer adequately grip the riding surface, potentially throwing the rider from the vehicle.
- If the Segway PT cannot grip the surface adequately, the vehicle will not stop quickly, potentially allowing a collision which can throw the rider.
- The Segway PT’s dynamic stabilization applies to front-to-back balance. There is no system for maintaining stability and balance from side to side: it is the rider’s responsibility to do so.

Avoiding or using caution during the following situations and conditions can minimize the risk of slips, trips and falls occurring:

- Avoid abrupt starting, stopping or turns, especially on questionable surfaces
- Avoid riding on poor terrain (slopes, broken surfaces, grass, loose gravel or dirt, smooth concrete)
- Avoid riding over foreign objects (spilled substances, plastic sheets, branches, debris)
- Avoid riding over hazardous landscaping or interior features (curbs, speed bumps, stairs)
- Exercise caution when transitioning between surface types (from concrete to grass, for example) or when you are uncertain of the new surface’s condition or quality
- Do not ride across any object that will cause the Segway PT to “bottom out” (the undercarriage will strike the object)

- Avoid turning sideways when riding on a slope. Take slopes either straight up or straight down, when possible. If riding along or turning is necessary on a gentle slope, maintain the LeanSteer frame straight up and lean uphill.
- Do not ride along the edge of a curb or drop off. Doing so can allow one wheel to fall off the curb, potentially pitching the rider.
- Avoid turning the Segway PT while driving in reverse

Avoiding 'Crouch Acceleration'

Riders, whether of skis, motorcycles, bicycles, etc. tend to crouch and lean forward when their speed increases.

The rider of a Segway PT might tend to revert to this crouching movement when speed increases. However, doing so on a Segway PT (i2 or x2 series) will make it move faster or maintain its fast speed as the rider will tend to push against the Handlebar and LeanSteer Frame.

In such a situation, the rider should:

- Recognize that his current posture (crouching, leaning forward) is causing or maintaining the increased speed
- Work against his conditioning, straighten upright and lean back to slow the Segway PT

Doorways

Doorways can pose hazards to Segway PT riders in the following ways:

- The additional 8 inches that the rider is elevated on a Segway PT can cause the rider to strike his head on the doorway lintel
- The body of the Segway PT is somewhat wider than a human body and might collide with the doorframe or simply not fit through

When approaching a doorway while riding a Segway PT, the officer should:

- Recognize the hazards posed by the doorway based upon height of the officer and width of the Segway PT
- Assess whether there is a risk of striking the rider's head or of the Segway PT not fitting through
- Bend knees while remaining centered (head over pelvic girdle) to avoid striking the rider's head
- Step off the Segway PT, switch to Riderless Balance Mode and manually move the Segway PT through the doorway prior to resuming riding

- Always step off and manually move the Segway PT through a doorway whenever a door must be held open

Upper Level Falling Hazards: Railings and Upper Landings of Stairs and Escalators

Officers should avoid riding adjacent to any upper level location from which the officer might fall to the lower level, if thrown from the Segway PT. Examples of this include:

- Near upper level railings, which are designed to serve as a barrier to people on foot. Being somewhat elevated and traveling at greater than a normal walking pace poses a potential for an officer to be pitched over the railing
- Near upper level stairwell and escalator landings, where no barriers exist to stop an officer from tumbling down

SECTION 7. PRE-RIDING DEMONSTRATION

Preparing to Step Onto a Segway

A spotter will assist you as you step onto the Segway PT by standing directly in front of the Segway PT and holding the Handlebars.

As you step onto a Segway PT for the first time, you may be off balance, causing the Segway PT to move back and forth. This is referred to as the “Segway Wobble.”

The spotter will continue to hold the Handlebar until you are comfortable standing on the Segway PT.

Stepping Onto the Segway

- Hold the Handlebar with both hands, and step up with one foot.
- Look forward; do not look down.
- Transfer your weight to the foot that is on the Segway PT Mat, and lift your second foot from the ground placing it on the other Mat.
- Avoid moving the Handlebar when stepping on the unit. Moving the Handlebar will cause the Segway PT to move and may result in you falling.
- Once you are on the Segway PT, keep the Powerbase level to remain stationary.

Riding Form

The following Best Practices should be utilized when operating a Segway PT:

- Your posture and stance directly affect your ability to ride the Segway PT safely
- Ensure the Handlebar has been adjusted to the appropriate height
- Keep your feet centered on the Mats
- Firmly grasp the Handlebar
- Keep your knees and elbows bent, allowing you to absorb the shock of uneven terrain
- Leave a gap between you and the Handlebar
- Do not lean over the Handlebar. Doing so increases your risk of falling and/or losing control of the Segway PT
- Keep your body aligned with the LeanSteer Frame
- Lean into turns

- Be aware of your surroundings

Safe Riding Practices

The following Safe Riding Practices should be followed when operating the Segway PT:

- Be careful and considerate of others
- Ride the Segway under control and at the appropriate speed
- Be prepared to stop
- Be aware of your surroundings. Anticipate and be prepared to evade
- Yield the right of way to the public
- Avoid startling pedestrians. When passing from behind, slow down to walking speed, announce yourself, and whenever possible, pass on the left. When approaching a pedestrian from the front, stay to the right and slow down.
- Look ahead of the unit 8 to 10 feet.
- Slow down for corners and crossings
- Cross roads at designated crosswalks. Do not jaywalk.
- Learn and obey applicable laws and regulations.

Forward and Backwards

When standing on the Segway PT platform:

- Slowly lean forward and the Segway PT will move forward.
- While moving forward, stop leaning and gently shift your hips back (as if preparing to sit) to bring the Segway PT to a stop.
- Remain stationary by centering your weight over the platform.
- Look behind you and slowly lean backwards, and the Segway PT will move backwards.
- To stop, simply stop leaning backwards. You will feel the Segway PT slow down and come to a stop.

Turning a Segway PT

While standing on the platform:

- Turn the Handlebar to the right or left
- This will cause the Segway to turn in the corresponding direction
- Lean your body in the direction you are turning

Stepping Off of a Segway PT

While standing stationary on the platform:

- Remove one foot at a time
- After stepping off, hold the Handlebar in place.
- Power off the Segway PT, by pressing and holding the Power/Standby Button

SECTION 8. RIDING DRILLS

Riding Drills are the practical application and practice of basic Segway PT controlled maneuvers.

The Riding Drills should be performed in order, because they are organized from simpler skills to more difficult. Also, the Riding Drills tend to build upon and incorporate skills learned from previous drills.

The Learner who works through each of these drills in order and becomes comfortable with each before moving onto the next, will move skill by skill to competent Segway PT handling.

During each Riding Drill the Instructor should watch the Learner(s) for:

- **Accuracy** – the maneuver requested is executed
- **Control** – the Segway PT’s speed, path, acceleration and deceleration appears to occur as the Learner intends. The vehicle is driven by the Learner, not driving the Learner
- **Smoothness** – the Learner’s control is not interrupted by unbalanced moments, stopping in the midst of a drill, false starting, etc.

At first, each Learner will likely need improvement in one of the qualities listed above. Continue instruction and drill practice until you see all three – accuracy, control and smoothness – for a given drill.

Once the instructor sees accuracy, control and smoothness, he may consider continuing the drill for reinforcement until the moment when the Learner’s interest or focus in the drill begins to diminish – a sign the Learner is eager to move on to the next Riding Drill.

Drill 1: TURN ON AND OFF

The Learner should stand beside the Segway PT

The Learner should press the Power/Standby button located on the bottom left side of the Infokey Controller

The Segway will be heard powering on

The Learner should power off the Segway PT by pressing the Power/Standby button for 2 seconds

The Infokey Controller will show a sleepy face and the Segway PT will emit a tone as it powers off

Drill 2: STEP ON AND OFF

The Instructor (or a training partner) will act as spotter and will hold the handlebars

The Learner will step on while the spotter continues to hold the handlebars until any Segway Wobbling by the Learning is controlled and the Learner is comfortable

Drill 3: DRIVE FORWARD AND STOP

Starting from a stationary position, the Learner should lean forward to drive the vehicle forward

After approximately 10 feet, the Learner should lean backward to cause the vehicle to stop

Drill 4: DRIVE BACKWARD AND STOP

Starting from a stationary position, the Learner should lean backward to drive the vehicle backward

After traveling slowly for approximately 5 feet, the Learner should lean forward to cause the vehicle to stop

Driving backward and stopping does not include driving backward and turning

Drill 5: TURN LEFT AND RIGHT

Starting from a stationary position, the Learner should lean forward to drive the vehicle forward

After traveling approximately 5 feet, the Learner should lean to either the right or the left to cause the vehicle to turn in that direction

The Learner should perform this both to the right and to the left

Drill 6: FAMILIARITY MANEUVERS

Starting from a standing position beside the vehicle, the Learner should:

Turn the vehicle on

Mount the vehicle

Drive slowly in an area defined by the Instructor (large enough for free movement, small enough for direct observation, communication and assistance)

Gain familiarity with accelerating, driving forward, stopping, turning, driving backward and stopping backward

Drill 7: CONTROLLED STOP WITH CONE

Two cones should be positioned approximately 20 feet apart

The Learner should start near one cone and drive directly at the other stopping before running into it

The Learner should then turn and repeat this while driving at the other cone

The Learner should attempt to decrease the distance necessary to execute stopping

Drill 8: DRIVE PAST CONE, RIGHT/LEFT, THEN STOP

Two cones should be positioned approximately 20 feet apart

The Learner should start near one cone and drive directly at the other

The Learner should change direction to either the right or the left to drive past the cone

The Learner should then turn and repeat this while driving at the other cone, driving past the cone to the other side than first performed

There is no emphasis on turning around during this drill

Drill 9: NARROWING DRIVING LANE

Two cones should be placed approximately twice the width of the Segway PT apart

Approximately 5 feet past these cones, another two cones should be positioned but closer together than the first two

Another set and another set should be positioned until the last set gives only several inches of clearance on either side of the Segway PT

The Learner should drive the vehicle into the narrowing lane from the wide end and proceed through the last, very close cones

The Learner should then turn loosely, drive back to the wide end and repeat

Drill 10: WEAVE BETWEEN LINE OF CONES

At least 5 cones should be placed approximately 15 feet apart in a line

The Learner should start a short distance from one of the end cones and drive towards the line parallel to it

The Learner should then drive weaving between the cones

As the Learner gains competency doing this, the instructor should position the cones closer

There is no emphasis on 180 degree turning during this drill

Drill 11: LAPS AROUND 2 CONES – RIGHT AND LEFT

Two cones should be positioned approximately 20 feet apart

The Learner should drive adjacent to the path between these two cones and then execute wide turns around each

The Learner should perform numerous laps around, first to the right and then to the left, to develop competence in driving straight forward and then turning

The emphasis of this drill is upon combining driving forward with turning right and left

There is no emphasis upon tightly controlled hairpin turning during this drill

Drill 12: FIGURE-EIGHT AROUND TWO CONES

Two cones should be positioned approximately 20 feet apart

The Learner should drive towards one of the cones starting from near the other cone

When the Learner reaches the cone, he should drive around it loosely turning 180 degrees to either the left or the right

The Learner should then drive at the other cone and repeat the loose 180 degree turn but to the opposite side

The Learner will continue to perform loose figure-eights around the cones

There is no emphasis upon tightly controlled hairpin turning during this drill

Drill 13: DRIVE AROUND CONE 180 DEGREES HAIRPIN TURN – RIGHT AND LEFT

Two cones should be positioned approximately 20 feet apart

The Learner should start near one cone and drive directly at the other

The Learner should turn tightly around the cone, executing a 180 degree hairpin turn

The Learner should then repeat this driving at the other cone turning in the opposite direction around to that first attempted

The Learner should attempt to increase the smoothness and control of the 180 degree turn while also minimizing the turn radius around the cone

Drill 14: WEAWE BETWEEN CONES WITH FIGURE 8 HAIRPIN TURN

At least 5 cones should be placed approximately 15 feet apart in a line

The Learner should start a short distance from one of the end cones and drive towards the line parallel to it

The Learner should then drive weaving between the cones

Upon reaching the final cone in the line, the Learner should execute a tightly controlled hairpin turn and weave back among the cones

The Learner should repeat the drill but turn in the other direction around the end cones

Drill 15: DRIVE BACKWARD AND TURN LEFT AND RIGHT AND STOP

The Learner should drive backward slowly approximately 10 feet and then turn the vehicle to the right or left and stop

The Learner should then repeat the drill but turn in the other direction

Drill 16: BALANCE STATIONARY

The Learner should drive the Segway forward or backward approximately 10 feet and then stop

The Learner should then stay on the vehicle without moving the vehicle forward or backward, or turning it

Drill 17: TURN IN PLACE

The Learner should drive the Segway forward or backward approximately 10 feet and then stop

The Learner should then stay on the vehicle without moving the vehicle forward or backward

The Learner should then turn the vehicle to the right or the left without moving the wheels either forward or backwards off its turning circumference

The Learner should reverse from stationary turning direction and continue

Drill 18: WALK UP STAIRS

The Learner should drive the vehicle to a set of stairs, if available, and dismount just prior to reaching the stairs

The Learner should then do the following:

Verify that the vehicle is in Riderless Balance Mode

Move to the front of the vehicle

Walk the vehicle to the stairs and align wheels to adjacent stair step

Always be above the vehicle on the stairs

Grab the handlebars with both hands and maintain facing the vehicle; walk the vehicle gently up or down the stairs step by step, one at a time

SECTION 9. SEGWAY PT PATROL TECHNIQUES

Segway as a Patrol Mode

Use of the Segway PT as a patrol vehicle enhances some aspects of patrolling and works against others. Officers must understand how the Segway PT can adversely effect patrolling in order to employ techniques to counteract these effects.

During patrolling, the Segway PT enhances:

- Noticeability of the officer by the public
- Scanning perspective of the officer due to being elevated 8 inches
- Traveling without exertion by the officer
- Covering more ground rapidly

However, the Segway PT can adversely impact patrol performance by:

- Fostering patrol performance predictability, in actuality and perception, when an officer tends to drive forward at a relatively constant rate without breaking up this activity
- Requiring the rider to limit the range and intensity of his scanning for security related situations due to watching for pedestrian hazards, focusing upon the “Look Ahead Zone” thereby narrowing field of vision and moving quickly through a given patrol area thereby limiting time for making observations there
- Hindering interpersonal contact with members of the public due to the speed at which the Segway PT travels through an area, the difference in height between the officer and members of the public, lack of eye contact by the officer due to having to primarily watch ahead, lack of active greetings to members of the public by the officer due to operating the vehicle and the perception by the public that the officer is occupied and on his way somewhere else.
- Posing as a collision hazard with pedestrians

Segway PT Patrol Tactics, Techniques and Practices

Segway PTs are not interaction tools, but merely transport devices. They are not elements of conflict interactions or use of force encounters. Also, Segway PTs are not intended as pursuit vehicles; and security officers are not to use the Segway PT to pursue any subject, whether in a vehicle or on foot.

Security officers should employ the same levels of awareness, officer safety mindset and safety oriented techniques while patrolling on a Segway as they do while performing foot patrol or using the security patrol motor vehicle.

Security officers should avoid driving the Segway PT in an unintentional manner, simply zooming through the mall. In order to counteract this tendency, officers should know a variety of Segway PT

patrol tactics and use them in intentional combinations to maximize patrol effectiveness and derive the best use of the Segway PT as a patrol tool. Descriptions of Segway PT patrol tactics and practices are listed and explained below.

A to B Driving

Driving the Segway PT from “point A to point B” by direct route with no variations in activity. This patrolling tactic should be used to move from a patrol zone or post to another or when responding to an incident; and should not be used constantly.

Perimeter Circuit Driving

Driving the Segway PT in a circuit around an area of patrol interest – a patrol zone or post or an area where a large number of members of the public are present. This patrolling tactic should be used when:

- Conducting an initial primary survey of a zone or post
- Making your presence known in a specific, limited area, like a food court
- Making your presence known in a specific area that requires a patrol emphasis either do to current conditions (like youth congregating) or ongoing conditions (frequent behavior incidents or crimes)
- Covering multiple zones or posts and wishing to establish your presence prior to moving onto the next zone or post where you would repeat the circuit

Stationary Observation Points

Selecting a point, driving the Segway PT to the point and then stopping at that point to make observations with undivided attention for several moments before resuming. This patrolling tactic should be used very frequently. It enables the officer to remain in a specific area and make observations for several minutes. This improves deterrent effects because persons in that area cannot simply pause from conducting improper conduct long enough for the officer to zoom by.

Customer Contact Points

Selecting a point next to the stream of customer foot traffic or that is highly visible and accessible to customers, driving to the point and then stopping at that point to actively greet and make oneself accessible to the public for several minutes, if the members of the public are continually present. This patrolling tactic should be used very frequently. It is similar to Stationary Observation Points, except that the selection of the Customer Contact Point is meant to emphasize interpersonal interaction. Example locations for Customer Contact Points include entrances, near directories, and adjacent to entry paths to the food courts.

Tenant Relations Point

Stopping momentarily in near the front of a tenant store firstly to actively greet the tenant with eye contact and a hand wave and then to linger for a few moments to scan the area around the store. This

patrolling tactic should be performed regularly. It emphasizes the security presence to the tenant employees.

Pause and Look Back

Turning the Segway PT 180 degrees and pausing to scan for a few moments the area through which the officer just rode. This is intended to break up the perception that the officer's patrol actions are predictable, that he is simply constantly zooming forward. When scanning back, the officer should look for any improper activity that subjects might have simply held off from performing until the officer passed by.

Doubling Back

Turning the Segway PT 180 degrees to travel back the same way the officer just traveled. This is intended to break up the perception that the officer's patrol actions are predictable and also to revisit areas where negative activity is seems likely to occur. Revisiting an area is often more effective when negative activity is suspected than simply pausing in that area. When subjects suspend their negative behavior due to an officer's presence, they resume when the officer moves on. If the officer revisits the area, they perceive that his next departure might also be followed by a revisit. This promises continued interruptions to their activity and tends to deter it.

Driving Against the Flow

Riding the Segway PT against the flow of foot traffic. This patrolling tactic should be used nearly constantly. It serves several functions. Through enabling the customers to see the Segway PT and rider coming:

- Startling the customers by riding up behind them is avoided
- Customers have more time to approach the officer or flag him down for assistance
- The officer can actively greet customers by making eye contact and smiling

Driving With the Flow

Slowing to the pace of foot traffic and announcing officer's approach. When an officer must ride the Segway PT in the same direction as foot traffic, he should slow his speed to match the foot traffic and verbally announce his approach to any pedestrian he is about to overtake by saying, "Excuse me! Security vehicle approaching!"

Driving near the Corridor Centers

Riding some distance from tenant lease lines. Each tenant space is an interaction with pedestrian foot traffic. A customer exiting a tenant space will not be expecting to encounter a Segway PT. From the officer's perspective, customers will tend to dart out of the tenant space directly into his travel path; this behavior would be especially common among children. To minimize this potential for collision, officers should drive the Segway PT nearer the common area center and further away from the lease lines.

Visiting the Corners

Benefiting from the Segway PTs mobility enhancements by taking time to visit every corner of the mall commons area. In an effort to cover the necessary expanse of terrain by foot, officers sometimes tend to skip “the corners”. Examples of “the corners” are a long corridor to a less busy mall entrance, the area in front of a major department store or corridors that lead to restrooms or offices. Officers riding a Segway PT are able to more quickly and with less exertion visit these areas and thereby expand patrol coverage.

Incident Response on a Segway PT

Stopping prior to the incident, parking the Segway PT and Approaching on Foot. The Segway PT will not serve a useful function parked in the midst of an incident. Most on scene incident functions must be performed by an officer on foot. Officers should dismount and park the Segway PT prior to engaging in interaction on scene.

Officers should employ good incident response techniques while en route on the Segway PT, these include:

- Watching en route for persons who might be related to the incident departing from the scene
- Realizing that the incident scene might have moved since reported and can be encountered sooner than expected
- Communicating status and updating: en route; arriving at scene; on scene; departing scene; etc.
- Coordinating with fellow responding officers. (This includes determining who will bring an AED unit to appropriate medical emergencies.)
- Pausing to observe the incident scene prior to entering it, whenever possible

Officers cannot ride Segway PTs up or down stairs or escalators. Manually carting Segway PTs up or down stairs is time consuming and should be avoided. Officers, therefore, will have to make decisions about better courses of action when dispatched to an incident that requires responding to a different level of the mall commons area. This will be especially true of emergency or serious in-progress incidents. Segway PTs might be parked on the lower level while the officer goes up stairs or escalators on foot.

Dismounting to Interact

Dismounting from the Segway PT a short distance from the immediate scene of an interaction and then approaching on foot. Remaining on the Segway PT can act as barrier to communication – body language is hindered, there is a height difference due to the officer being elevated 8 inches and the officer can give the impression that he is not really engaged in the conversation, being about to zoom off. Also, during conflict interactions, the subject has a clear indication that the officer is about to escalate when he steps from the Segway PT in the midst of the interaction, which can be avoided if the officer begins the interaction on foot. No security control techniques, even low level control talk, should be delivered by an officer still on a Segway PT. These techniques are not designed for use on a Segway PT and the

injury potential might be elevated. Segway PTs are not tools to assist in tactical interaction or use of force encounters.

Incident Response/Interaction Placement of Segway PT

Stowing the Segway PT when dismounting for incident response/interaction. The Segway PT should not be placed in the middle of an incident scene. The Segway PT should be stowed nearby, preferably set against a wall so that the vehicle will not tip over forward.

Stop To Watch: Surveillance

Pausing driving while focusing upon subjects/activity to avoid divided attention. When an officer's attention is taken up wholly with a close observation of subjects, their activities or other security related situations and conditions, he will not be able to also adequately look ahead in order to drive the Segway PT safely. Collisions with pedestrians, fixed objects or riding over objects are more likely when attention is distinctly divided. If an officer wishes to make a focused observation to evaluate activity, he should pause driving forward for a moment. If an officer determines that a more prolonged surveillance of subjects, activity or conditions in a given area is required, he should select the best observation point (if not already there), drive to it, stop and watch.

Stop to Talk: Using Security Radios

Segway PTs require both hands on the handlebars while driving. Radio talking requires one of the officer's hands to operate the microphone, potentially impairing control of the Segway PT. Also, talking on the radio while operating the Segway PT is a form of divided attention which impairs safe operation of the Segway PT. To avoid these divided attention hazards, officers should pause or stop the Segway PT in order to talk on the security radio.

Entering Tenant Spaces

Avoiding driving the Segway PT into tenant spaces. Officers should not ride Segway PTs into tenant spaces. Officers do not normally patrol in tenant spaces and so should not ride a Segway PT into the space to patrol. Tenant spaces are significantly hazardous riding areas. Also, tenants may feel that the security presence of a Segway PT is too imposing within the tenant space. If a walk-through is requested or when responding to an incident in a tenant space, the officer should dismount the Segway PT and park it either immediately outside or immediately inside the tenant space. **ALERT:** Some theft detection devices, such as in use at retail space entry ways have reportedly interfered with the dynamic stabilization processes of a Segway PT, causing a riding hazard. Officers should avoid riding the Segway PT in close proximity to these devices.

Standard Service Duties and Responses

Performing standard services despite riding upon a Segway PT. The officer's job description does not change because he is riding on a Segway PT. All standard services and duties still apply and must be performed. These duties include customer contacts, tenant relations contacts, active delivery of assistance to customers, watching for and responding to equipment malfunctions, wet spills or garbage on the floor (which must still be picked up), etc.

Putting the Segway PT Patrolling Tactics Together: Example

Maximizing the benefits of the Segway PT as an effective security patrol tool and minimizing the patrol limitations implicit in its use depend upon an officer's effective application of appropriate patrol techniques and practices. An example of combining patrol tactics for an intentional patrol follows:

- The Segway PT officer drives the vehicle to an assigned patrol area in the "A to B" method, minimizing the time spent to arrive.
- Upon approaching the patrol area, he notices that a significant number of pedestrians are seated in the area while foot traffic is proceeding through the center of the patrol area.
- The Segway PT officer drives around the perimeter of the patron concentration using "Perimeter Circuit Driving". While so doing, he establishes his presence in the area with the customers and tenants and makes primary survey observations regarding current activity in the area.
- During the primary survey, he notices several groups of teens who seem overly energetic and may engage in improper conduct. He pauses while observing them, using Stop to Watch technique and decides to move closer to emphasize presence and deter improper conduct.
- The Segway PT officer selects a Stationary Observation Point and stops there to observe for some moments. He then selects a series of Stationary Observation Points and throughout the patrol area to pause briefly and make additional observations of conditions.
- The Segway PT officer then selects a Customer Contact Point adjacent the foot traffic path through the patrol area and stations himself there facing the walking customers. He spends a minute actively greeting and making himself accessible to anyone in the patrol area who might have a need to approach security for assistance.
- The Segway PT officer then selects several tenant spaces that are in a portion of the patrol area where youth congregating has tended to occur. He uses the Tenant Contact Point tactic to emphasize his presence to these tenants by pausing for a moment outside each tenant space, catching the eye of an employee within and smiling and waving thereby ensuring the tenant employees have noticed the security presence.
- The Segway PT officer then visits a less busy corridor off of the primary patrol area, following the practice of Visiting the Corners.
- The Segway PT officer then drives past the group of energetic youths who notice his presence and react to it by sitting still. The Segway PT officer drives away but then employs the Pause and Look Back tactic. He observes that once the group believed he was leaving, they began to misbehave. He approaches, dismounts and parks the Segway PT and interacts (Dismount to Interact practice).
- After the interaction, the Segway PT officer moves through the busy patrol area by selecting several Stationary Observation Points and going from one to the next until at the boundary of the patrol area.

- The Segway PT officer then proceeds in an “A to B” manner along a common area corridor less populated with pedestrians. He travels near the corridor center, respecting the Riding near the Corridor Center practice and also drives against traffic consistent with the Driving against the Flow practice.
- The Segway PT officer employs the Stop and Look Back tactic several times while en route to the next major patrol area.
- The Segway PT officer also employs the Doubling Back tactic traveling along the way he just came although along the other side of the commons area corridor. He observes that this seems to attract the attention of a group of unusually watchful subjects standing around a kiosk. He uses the Stop to Watch technique to observe them momentarily. They begin to walk on.
- The Segway PT officer completes his travel to the next major patrol area in an “A to B” manner, where he repeats his combination of patrol tactics to establish his security presence, emphasized by the use of the Segway PT.

SECTION 10. SEGWAY PT PATROL EXERCISE

Segway PT Patrol Exercises serve as field practice to integrate basic riding skills with conditions and techniques that will be encountered in actual patrolling. The exercises focus upon:

- Operating a Segway PT amidst pedestrians sharing the riding surface
- Evading collisions or other hazards through rapid stopping and turning
- Operating the Segway PT skillfully while also focusing upon security functions
- Riding the Segway PT upon variable terrain
- Anticipating, detecting and recognizing hazards
- Incorporating patrolling tactics and practices for enhanced patrolling effectiveness

As with the Riding Drills, Instructors will look for:

- Accuracy – the maneuver requested is executed
- Control – the Segway PT’s speed, path, acceleration and deceleration appears to occur as the Learner intends. The vehicle is driven by the Learner, not driving the Learner
- Smoothness – the Learner’s control is not interrupted by unbalanced moments, stopping in the midst of a drill, false starting, etc.

Each Patrol Exercise also specifies Points of Competence, the key points that should be watched for in addition to basic skills.

The Patrol Exercises should be conducted in order, as they build upon each other until the Learner is able to incorporate all previous skills and techniques in actual patrolling performance. The Instructor should not proceed to the next exercise until the Learner has demonstrated competence in the current exercise.

Although a “Time of Exercise” is included for each, the Instructor should continue the exercise until he sees competence demonstrated and may continue the exercise past that point for further reinforcement and development.

If the Instructor observes during any exercise that the Learner’s basic Segway PT handling skills are insufficient and that continuing the exercise, therefore, might pose a hazard, the Instructor should stop the exercise and continue basic skills training to improve the Learner’s skills.

Exercise 1: SLOW RIDE BESIDE PEDESTRIAN WITH ERRATIC PACE

Purpose: To simulate driving responses and vehicle control necessary when operating a Segway PT amidst pedestrians

Time of Exercise: 3 to 5 minutes

Steps:

1. The instructor acts as the pedestrian, walking beside the Learner who is riding the Segway PT
2. At the onset of the exercise, the Learner on the Segway PT approaches the instructor from *beside and behind* (not directly behind) and issues a verbal announcement of his presence, "Excuse me, please. Security vehicle approaching."
3. The instructor varies his pace slightly (within normal walking rates) while the Learner on the Segway PT adjust his driving speed to match the instructor's varying walking paces
4. The instructor stops periodically. The Learner on the Segway PT then also stops.
5. The instructor veers gently to the right and to the left. The Learner on the Segway PT adjusts his driving path in response.

Points of Competence:

A. Learner can control Segway PT in situations when pedestrians share the riding surface

- ✓ Speed up and slow down smoothly to match pedestrian pace
- ✓ Maneuver left and right in response to pedestrian movements
- ✓ Stop quickly and smoothly in response to a pedestrian stopping

B. Learner can announce his approach when riding up behind pedestrians

- ✓ Proper volume and tone of announcement
- ✓ Proper timing of announcement
- ✓ Proper content of announcement
- ✓ Professional manner is demonstrated

Exercise 2: EVASIVE STOP

Purpose: To simulate the unexpected need to rapidly stop to evade collision

Time of Exercise: 3 to 5 minutes

Set-up: Approximately 5 cones are set up in a straight line approximately 3 feet apart from each

Steps:

1. The instructor directs the Learner to drive the Segway PT parallel to the line of cones and approximately 3 feet to the side of them. The Learner should begin driving approximately 20 feet before the first cone in line.
2. The instructor will have selected one of the cones in the line. When the Learner reaches that cone, the instructor will shout, "Stop!"
3. Upon hearing the shout, the Learner must rapidly stop
4. The instructor and Learner will then note how well the Learner controlled the Segway PT and what distance was required in order to effect the stop. (Did the Learner stop prior or after the next cone in line? How far past the next cone?)
5. Several attempts will be made in order to improve control and reaction time

Points of Competence:

- A. Learner can respond to external cues to rapidly stop the Segway PT
- ✓ Little delay between the shout "Stop!" and the Learner initiating stopping
 - ✓ The stopping of the vehicle, once initiated, occurs rapidly
- B. Learner can rapidly stop the Segway PT in a controlled manner

Exercise 3: EVASIVE TURN LEFT AND RIGHT

Purpose: To simulate the unexpected need to rapidly avoid collision by changing direction left or right

Time of Exercise: 3 to 5 minutes

Set-up: Two cones are set up approximately 20 feet apart

Steps:

1. The instructor stands approximately 10 feet behind one of the cones
2. The Learner drives the Segway PT from the other cone directly at the cone nearer the instructor
3. As the learner approaches the cone, the instructor will suddenly extend either his right arm or his left arm outwards to his side
4. Upon seeing which arm is extended, the Learner will immediately drive the Segway PT in the direction indicated, thereby avoiding collision with the upcoming cone
5. Initially, the instructor will give the signal with approximately 10 feet between the cone and the approaching Segway PT. The drive will be repeated several or more times, each time the instructor will reduce the distance somewhat based upon his close assessment of the Learners handling ability.
7. The Learner should have an opportunity to practice evasive turning to the left and to the right
8. Note: It is the responsibility of the instructor to ensure that enough distance is available to execute the turns and avoid collision with the cone

Points of Competence:

- A. Learner can respond to external cues to rapidly turn the Segway PT
 - ✓ Little delay between the signal and the Learner initiating turning
 - ✓ The turning of the vehicle, once initiated, occurs rapidly
- B. Learner can rapidly turn the Segway PT in a controlled manner

Exercise 4: INTERIOR/EXTERIOR INSTRUCTOR GUIDED RIDE

Purpose: To demonstrate for the instructor's observation the level of vehicle control necessary for general patrolling purposes in actual patrol settings

Time of Exercise: 15 to 30 minutes

Set-up: Two Segway PTs, one for the Learner and one for the Instructor. If only one Segway PT is available then the exercise will occur with the Learner riding and the Instructor walking and observing in a defined area. If the Segway PTs are prohibited from either interior or exterior use, then the exercise will be limited to allowed areas only.

Steps:

1. The Learner rides a Segway PT through actual patrol areas
2. The Instructor accompanies the Learner but allows the Learner to lead
3. The instructor makes observations concerning the Learners ability to drive the Segway in a safe and controlled manner
4. If the Learner is not competent in controlling the Segway PT or is inattentive to hazards, the instructor will immediately end the exercise and improve the Learner's skills prior to repeating the exercise.

Points of Competence:

A. Learner can drive the Segway PT safely and in a controlled manner while simultaneously observing his patrol environment

- ✓ Segway PT is under the Learner's control
- ✓ Drives the vehicle without continuous, overt focus on controlling it

B. Learner successfully responds to obstacles

C. Learner accelerates, stops and turns smoothly

D. Learner does not attempt unsafe acts or violations of driving rules

Exercise 5: VARIABLE TERRAIN RIDE – GENERAL AND SITE SPECIFIC

Purpose: To encounter while riding in a controlled setting various terrain-based challenges to driving the Segway PT

Time of Exercise: 15 to 30 minutes

Set-up: Two Segway PTs, one for the Learner and one for the Instructor. If only one Segway PT is available then the exercise will occur with the Learner and Instructor alternating use of the Segway PT. If the Segway PTs are prohibited from either interior or exterior use, then the exercise will be limited to allowed areas only.

Steps:

1. The Instructor and Learner drive the Segway PTs to areas pre-determined by the Instructor where terrain-based challenges are available
2. The Instructor is responsible to ensure that all terrain driven upon representing reasonable surfaces for driving a Segway PT
3. The instructor first demonstrates and then allows the Learner to attempt the various terrains
4. Terrain should include, if available:
 - ✓ Tile
 - ✓ Concrete
 - ✓ Wood
 - ✓ Grass
 - ✓ Over threshold
 - ✓ Over speed bump
 - ✓ Transitioning over terrain change (grass to concrete, for instance)
 - ✓ Gentle slope
5. The instructor will point out, when available, BUT WILL NOT RIDE OVER hazardous terrain, including but not limited to:
 - Slippery surfaces
 - Loose objects or spills

- Steep slopes
- Curbs
- Stairs or escalators
- Any object or surface that will cause the Segway PT to bottom out

6. The Instructor will visit known, site specific terrain challenge areas, hazards and example areas where driving would not be permitted and show these to the Learner

Points of Competence:

A. Learner can drive the Segway PT safely and in a controlled manner upon various terrains

- ✓ Segway PT is under the Learner's control while over various terrain
- ✓ Learner adjust driving to accommodate terrain needs

B. Learner notices and can articulate terrain to be avoided, when asked

Exercise 6: HAZARD ANTICIPATION RIDE

Purpose: To anticipate and recognize driving hazards while in a controlled setting

Time of Exercise: 15 to 30 minutes

Set-up: Two Segway PTs, one for the Learner and one for the Instructor. If only one Segway PT is available then the exercise will occur with the Learner and Instructor alternating use of the Segway PT. If the Segway PTs are prohibited from either interior or exterior use, then the exercise will be limited to allowed areas only.

Steps:

1. The Instructor and Learner drive the Segway PTs through actual patrol areas
2. The Instructor sets the pace of the riding, which should be slow
3. The instructor and Learner drive side by side but at a great enough distance to avoid collision of the Segway PTs
4. The Instructor initially verbalizes to the Learner any potential hazards observed. The Instructor should focus his awareness into the Look Ahead Zone, the areas 8 to 10 seconds driving distance ahead. The Instructor should not only point out areas of concern due to potential hazard but also explain the process of focusing upon the Look Ahead Zone
5. The Learner then takes over verbalizes any potential hazards observed
6. Examples of hazards include but are not limited to:
 - Terrain based riding challenges
 - Terrain areas to avoid
 - Pedestrians about to emerge from intersections (including pedestrians emerging from tenant spaces)
 - Vehicle intersections
 - Near railings
 - Upper or Lower Level stairwell and escalator landings
 - Object or spills on the riding surface
 - Children ahead
 - Members of the public being approached from behind

- Elderly persons, persons using mobility aids or other person who might be made uneasy by the approach of the Segway PT or who might experience mobility challenges

7. The Instructor will as an additional activity during this ride, layout various types of foreign objects on the riding surface and ride past them (but not over them) with the Learner, who should make observations about the level of difficulty in detecting these while driving the Segway PT. These objects include but are not limited to:

- Clear plastic sheet
- Sticks
- Pebbles, Loose Gravel
- Wet Spill, water or colored liquid
- Food (piece of fruit, for instance)
- Napkins, paper, cardboard

Points of Competence:

A. Learner can detect, recognize and verbalize conditions or situations that represent hazards to driving a Segway PT

B. Learner successfully drives the Segway PT in a controlled manner that minimizes exposure to hazards

Exercise 7: PATROL PERFORMANCE RIDE

Purpose: To practice Segway PT patrolling tactics, techniques and practices in an actual patrol setting, both interior and exterior

Time of Exercise: 1 hour or more

Set-up: Two Segway PTs, one for the Learner and one for the Instructor. If only one Segway PT is available then the exercise will occur with the Learner riding and the Instructor walking and observing in a defined area. If the Segway PTs are prohibited from either interior or exterior use, then the exercise will be limited to allowed areas only.

Steps:

1. The Instructor and Learner drive the Segway PTs through actual patrol areas
2. The Instructor will initially demonstrate Segway PT patrolling tactics, techniques and practices. The Instructor should articulate each in advance of performing them. An emphasis should be upon showing patrolling tactics combined into an effective, intentional patrol method.
4. The Instructor then allows the Learner to lead while the Instructor accompanies to observe. The Learner should initially verbalize what tactic, technique or practice he is about to employ
5. After all or most Segway PT patrolling tactics, techniques and practices have been addressed, patrolling will continue without verbalization
6. Tactics, techniques and practices should include:
 - A to B Driving (when appropriate to get between primary areas and to incidents)
 - Perimeter Circuit Driving
 - Stationary Observation Points
 - Customer Contact Points
 - Tenant Relations Points
 - Pause and Look Back
 - Doubling Back
 - Driving against the Flow
 - Driving near Corridor Centers

- **The above tactics, techniques and practices should be demonstrated in combination to form a method of Segway PT patrolling**
- Driving with the Flow, in order to demonstrate proper practices when driving in the same direction and among pedestrian foot traffic is unavoidable
- Incident Response to an imaginary incident
- Dismount to Interact with an imaginary incident
- Stop to Watch Surveillance
- Stop to Talk Radio Use
- Entering Tenant Spaces, using a simulated tenant space
- Standard Service Duties and Responses

Points of Competence:

- A. Learner can articulate name and nature of all Segway PT patrolling tactics, techniques and practices listed in this training
- B. Learner successfully performs each Segway PT patrolling tactic, technique and practice
- C. Learner successfully combines Segway PT patrolling tactics, techniques and practices into an intentional, effective method of patrolling

SECTION 11. MAINTAINING A SEGWAY PT**Charging the Battery**

To charge the Segway PT:

- Place the unit in a dry location, with the recommended charging temperature ranges. (14° F to 122° F)
- Open the charge port on the back of your Segway PT
- Verify that the charge port, power cord and AC power outlet are clean, dry and free from debris.
- Plug one end into the AC power source and plug the other end into the Segway PT charge port.

Prior to changing the Battery, read the Warning on page 100 of the Segway PT Reference Manual.

To remove the Batteries:

- Make sure the Segway PT is unplugged and powered off
- Tip the Segway PT onto its side so that the wheel lies flat against a smooth, clean surface
- Using a 3mm hex wrench, remove the fasteners which hold the Batteries in place (4 per Battery.)
- Pull Batteries straight off chassis.

Review Figure 35 Removing the Batteries on page 101 of the Segway Reference Manual

To insert the Batteries:

- Make sure the Segway PT is unplugged and powered off.
- Reseat one of the Batteries on the powerbase with curved edge facing out
- Ensure the Battery is aligned straight against the edge of the powerbase trim, and there are no uneven gaps
- Install and tighten the 2 center fasteners with the 3mm hex wrench to 1.0 N-m (9-lbf)
- Ensure the Battery is aligned straight against the base of the Powerbase trim, and there are no uneven gaps
- Repeat steps 1 through 7 for the second Battery.

Review Figure 36. Reattaching the Batteries on page 103 of the Segway PT Reference Manual

Mailing Battery Restrictions

Li-on Batteries are considered Hazardous Materials under the shipping regulations. You are required to comply with local and federal law when transporting the Segway PT Batteries.

- The Batteries may be shipped when attached to the Segway via Ground or Sea delivery but may not be mailed through the air.
- To ship Batteries that have not been installed, contact and authorized Segway Dealer or Distributor, or refer to Segway.com

Climate Restrictions

The Segway PT may only be operated in temperature between 14° F and 121 ° F.