

### Training Parameters

**DEALER:** Review this information with all users of power wheelchairs.



Yes, you can.

### Power Wheelchairs

Front, Center and Rear Wheel Drive

#### I Overview



**WARNING**

**Risk of Death or Serious Injury**

Not wearing your seat positioning strap could result in death or serious injury.

—ALWAYS wear your seat positioning strap. Your seat positioning strap helps reduce the possibility of a fall from the wheelchair. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap **MUST** be replaced IMMEDIATELY.

Invacare manufactures Powered Mobility Devices (PMDs) in all three drive wheel configurations: front, rear and center. Invacare enables the provider to maximize consumer choice through our versatile product offerings and allows the consumer to choose the best configuration for his or her environment.

Each drive wheel configuration has its own unique strengths and no single configuration is better than others in all circumstances. An individual's clinical and postural needs, preferences and environmental demands need to be matched with the key performance capabilities of the power wheelchair being considered. To ensure this, Invacare highly recommends that the Provider review these seven environmental situations with the consumer to train and demonstrate how each drive wheel configuration will react in each of these situations.

#### 2 Training Parameters

PARAMETER	RWD	CWD	FWD
<b>CONTROL</b>	Provides great control at the very fastest speeds.	Center Wheel Drive chairs offer control comparable to RWD.	Requires reduced speed to maintain control (generally not > 5 mph).
<ul style="list-style-type: none"> <li>The Driver's ability to accurately maneuver the wheelchair in all situations and environments.</li> <li>The wheelchair's ability to stay on a true path directed by the driver's control – without veer</li> <li>The Driver's confidence that the wheelchair will perform in a predictable manner in response to control input.</li> </ul>	<b>Tracking Applications:</b> Environmental influences, such as slopes, thresholds and uneven terrain can cause a wheelchair to veer off the intended path. This can be both a safety and independence issue for some (i.e. those with marginal hand function or requiring alternative controls). G-Trac Technology allows a wheelchair to maintain a consistent forward path with fewer corrections, resulting in less fatigue and improved driving, accessibility and independence.		

Part No 1167452 I Power Wheelchairs

PARAMETER	RWD	CWD	FWD
<b>MANEUVERABILITY</b>	<b>Turning radius</b> Measured from the center point between the drive wheels to the farthest point on the wheelchair.  The largest turning radius of the three configurations. Moving the rear wheels forward can improve maneuverability, but not equal to that of CWD or FWD.  <b>RWD Driving Tips:</b> <ol style="list-style-type: none"> <li>When turning a corner or into a doorway, allow the hub of the drive wheel to reach the opening, then initiate the turn.</li> <li>For optimal turning space when approaching a turn in a hallway, approach the turn close to the wall opposite the turn.</li> <li>To turn away from a wall/obstacle on the side, drive forward turning slowly away from the wall.</li> </ol>		
<ul style="list-style-type: none"> <li>Overall turning radius</li> <li>Access through doorways.</li> <li>Maneuvering away from a wall.</li> </ul>	The smallest turning radius of the three and generally considered the most maneuverable  <b>CWD Driving Tips:</b> <ol style="list-style-type: none"> <li>When turning a corner or into a doorway, allow the hub of the drive wheel to reach the opening, then initiate the turn.</li> <li>For optimal turning space when approaching a turn in a hallway, approach the turn in the center of the hallway.</li> <li>Turning away from a wall/obstacle on the side may require several reverse/forward sequences to prevent the rear casters from hitting the wall/obstacle.</li> </ol>	Very small front turn radius, and a full turning radius slightly better than RWD.  <b>FWD Driving Tips:</b> <ol style="list-style-type: none"> <li>When turning a corner into a doorway, allow the hub of the drive wheel to pass the opening, then initiate the turn.</li> <li>For optimal turning space, when approaching a turn in a hallway, approach close to the wall on the side of the turn.</li> <li>To turn away from a wall/obstacle on the side, turn slowly in reverse to clear the rear casters from the wall/obstacle before driving forward.</li> </ol>	
<b>POSITIONING</b>	For each drive wheel configuration the consumer should: <ol style="list-style-type: none"> <li>Always wear the seat positioning strap</li> <li>Tilt back slightly when traversing down a ramp (if the power wheelchair is equipped with powered seating).</li> <li>Lower the elevating seat (if equipped) to the lowest position when driving.</li> <li>Make sure to maintain enough front rigging ground clearance to clear transitions. Refer to the owner's manual for more information.</li> </ol>		

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Yes, you can.

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### NOTES:

- Page count: 4 pages
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- Color: Black and White
- Special Instructions: **DO NOT PRINT THIS DRAWING. This drawing is for information purposes only. See attached document.**

**APPROVED ORIGINAL**

*Tim Mc Cluskey*  
 12/27/16

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TITLE: <b>Manual, Service Training Parameters</b>		
PART NUMBER: <b>1167452</b>	REV: <b>B</b>	SHEET: <b>1 OF 1</b>
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		
TOLERANCES (UNLESS OTHERWISE SPECIFIED):		
<b>INCHES</b> DECIMALS: ____ X = N/A .X = ± .1 .XX = ± .02 .XXX = ± .005 FRACTIONS: ____ ± 1/64 ANGLES: ____ ± .5°		<b>METRIC</b> X = ± 3mm .X = ± .5mm .XX = ± .13mm .XXX = ± N/A ± 1/64 ± .5°
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Each drive wheel configuration has its own unique strengths and no single configuration is better than others in all circumstances. An individual's clinical and postural needs, preferences, and environmental demands need to be matched with the key performance capabilities of the power wheelchair being considered. To ensure this, Invacare highly recommends that the Provider review these seven environmental situations with the consumer to **train and demonstrate** how each drive wheel configuration will react in each of these situations.

### 2 Training Parameters

PARAMETER	RWD	CWD	FWD
<b>CONTROL</b> <ul style="list-style-type: none"> <li>The Driver's ability to accurately maneuver the wheelchair in all situations and environments.</li> <li>The wheelchair's ability to stay on a true path directed by the driver's control – without veer</li> <li>The Driver's confidence that the wheelchair will perform in a predictable manner in response to control input.</li> </ul>	Provides great control at the very fastest speeds.	Center Wheel Drive chairs offer control comparable to RWD.	Requires reduced speed to maintain control, (generally not > 5 mph).  Tracking Technology, (G-Trac™ Module), provides veer control to allow safe controllable driving at speeds up to 7 mph.
<b>Tracking Applications:</b> Environmental influences, such as slopes, thresholds and uneven terrain can cause a wheelchair to veer off the intended path. This can be both a safety and independence issue for some (i.e. those with marginal hand function or requiring alternative controls). G-Trac Technology allows a wheelchair to maintain a consistent forward path with fewer corrections, resulting in less fatigue and improved driving, accessibility and independence.			

PARAMETER	RWD	CWD	FWD
<p><b>STABILITY</b></p> <ul style="list-style-type: none"> <li>Front and rear susceptibility to tipping, especially when driving up or down a ramp.</li> </ul>	<p>Anti-tippers prevent backward tipping on inclines.</p> <p>Weight distribution over the rear wheels and forward placed casters prevent tipping forward on declines.</p>	<p>Front stabilizers/casters prevent tipping forward on a decline or when stopping quickly.</p> <p>Dynamic stabilizers <b>with</b> a stability lock feature prevent tipping by locking out any movement of the frame components – preventing the rear casters from leaving the ground.</p> <p>CWD <b>without</b> stability lock can become susceptible to tipping on some declines. Driving with elevated legrests and forward mounted seating systems exaggerate this by shifting the center of gravity (COG) further forward.</p>	<p>Anti-tippers prevent forward tipping on declines.</p> <p>FWD chairs without sufficient weight over the rear casters can be susceptible to tipping on declines. Driving with elevated legrests and forward mounted seating systems exaggerate this by shifting the center of gravity (COG) further forward.</p>
		<p><b>CWD Driving Tips to Improve Stability:</b></p> <ol style="list-style-type: none"> <li>Maintain proper center of gravity (COG) set up with majority of the weight over the drive wheels.</li> <li>Power Tilt users may benefit from slight tilt when driving down declines for improved ground clearance.</li> <li>Drive slowly down declines and avoid sudden stops.</li> </ol>	<p><b>FWD Driving Tips to Improve Stability:</b></p> <ol style="list-style-type: none"> <li>Maintain proper center of gravity (COG) set up with majority of the weight over the rear casters.</li> <li>Power Tilt users may benefit from slight tilt when driving down declines for improved ground clearance.</li> <li>Drive slowly down declines and avoid sudden stops.</li> </ol>
<p>Footplates need to be adjusted high enough to prevent hitting the ground when transitioning off the decline onto the level surface.</p>			
<p><b>TRANSFERS</b></p> <ul style="list-style-type: none"> <li>The ability to transfer in and out of the wheelchair without interference from front riggings, stabilizers, or wheels.</li> </ul>	<p>RWD allow the front riggings to be removed for optimal clearance and legroom during transfers.</p>	<p>Stabilizers on the front of the base can interfere with foot placement on some transfers.</p> <p>Front footplates (center mount) that fold up flush with the seat pan edge allows for the most efficient transfer positioning.</p>	<p>Anti tip casters can interfere with foot placement on some transfers.</p>

PARAMETER	RWD	CWD	FWD
<p><b>OBSTACLE HANDLING</b></p> <ul style="list-style-type: none"> <li>The ability of the wheelchair to both traverse up over an obstacle/step and down an obstacle/step.</li> </ul>	<p>Most obstacles require driving into the obstacle to allow the front casters to traverse the obstacle.</p> <p>Larger casters (8" and 9") are available for outdoor driving on rougher terrains</p> <p>A RWD wheelchair will tip forward slightly as the casters step down off an obstacle/step.</p>	<p>Dynamic Stabilizers allow the front casters to stay on the ground for stability, and raise when required to traverse obstacles. Those that can adjust to be more flexible to traverse taller obstacles can compromise stability.</p> <p>The SureStep<sup>®</sup> feature keeps 6 wheels on the ground for stability, and allows the torque of the drive wheels to lift the stabilizers over the obstacles, minimizing bumps and jolts to the user.</p> <p>The SureStep feature also allows the stabilizers to step down off an obstacle, minimizing forward tipping of the wheelchair during this transition. This is helpful for users with impaired trunk balance.</p> <p><b>CWD Obstacle Handling Tips:</b></p> <p>When approaching an obstacle, stop when the front casters reach the obstacle.</p> <p>Then power (drive) through the obstacle, not stopping until the drive wheels have driven over as well.</p>	<p>The large front wheels drive easily over small obstacles with less impact to the user than wheelchairs with front casters.</p> <p>For larger obstacles, dynamic suspension of the FDX<sup>™</sup> wheelchair allows the front anti-tipper wheels to lift the seat and base sufficiently to allow the drive wheels to overcome the obstacle.</p> <p>The FDX wheelchair will tip forward slightly as the casters step down off an obstacle/step.</p>
<p><b>General Rule</b></p> <p>The larger the front wheel, the larger the obstacle that can be overcome.</p>			
<p><b>TRANSITIONS</b></p> <ul style="list-style-type: none"> <li>The ability to make the transition from a level surface to a sloped surface.</li> </ul>	<p>Front casters of RWD transition with ease.</p>	<p>Dynamic Front Stabilizers with sufficient travel (i.e. SureStep) generally do not have any problems.</p> <p>Fixed stabilizers can cause high centering (lifting the drive wheel off the ground) which limits access.</p>	<p>FWD wheelchair makes transitions with ease, provided the front anti-tipper wheels are raised high enough to prevent high centering of the drive wheel (lifting the drive wheel off the ground).</p>
<p><b>Transition Driving Tips:</b></p> <ol style="list-style-type: none"> <li>Front footplates need to be adjusted high enough to prevent hitting the surface of the incline during transition.</li> <li>Power Tilt users may benefit from a slight tilt when driving down declines to improve ground clearance and postural stability</li> </ol>			

PARAMETER	RWD	CWD	FWD
<p><b>MANEUVERABILITY</b></p> <ul style="list-style-type: none"> <li>• Overall turning radius</li> <li>• Access through doorways.</li> <li>• Maneuvering away from a wall.</li> </ul>	<p><b>Turning radius</b></p> <p>Measured from the center point between the drive wheels to the farthest point on the wheelchair.</p> <p>The largest turning radius of the three configurations. Moving the rear wheels forward can improve maneuverability, but not equal to that of CWD or FWD.</p> <p><b>RWD Driving Tips:</b></p> <ol style="list-style-type: none"> <li>1. When turning a corner or into a doorway, allow the hub of the drive wheel to reach the opening, then initiate the turn.</li> <li>2. For optimal turning space when approaching a turn in a hallway, approach the turn close to the wall opposite the turn.</li> <li>3. To turn away from a wall/obstacle on the side, drive forward turning slowly away from the wall.</li> </ol>		
<p><b>POSITIONING</b></p> <ul style="list-style-type: none"> <li>• The ability to position the feet close into the body.</li> </ul>	<p>For each drive wheel configuration the consumer should:</p> <ol style="list-style-type: none"> <li>1. Always wear the seat positioning strap</li> <li>2. Tilt back slightly when traversing down a ramp (if the power wheelchair is equipped with powered seating).</li> <li>3. Lower the elevating seat (if equipped) to the lowest position when driving.</li> <li>4. Make sure to maintain enough front rigging ground clearance to clear transitions. Refer to the user manual for more information.</li> </ol>		

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