

Universal Trail Assessment Process (UTAP)

Tool Function & Calibration



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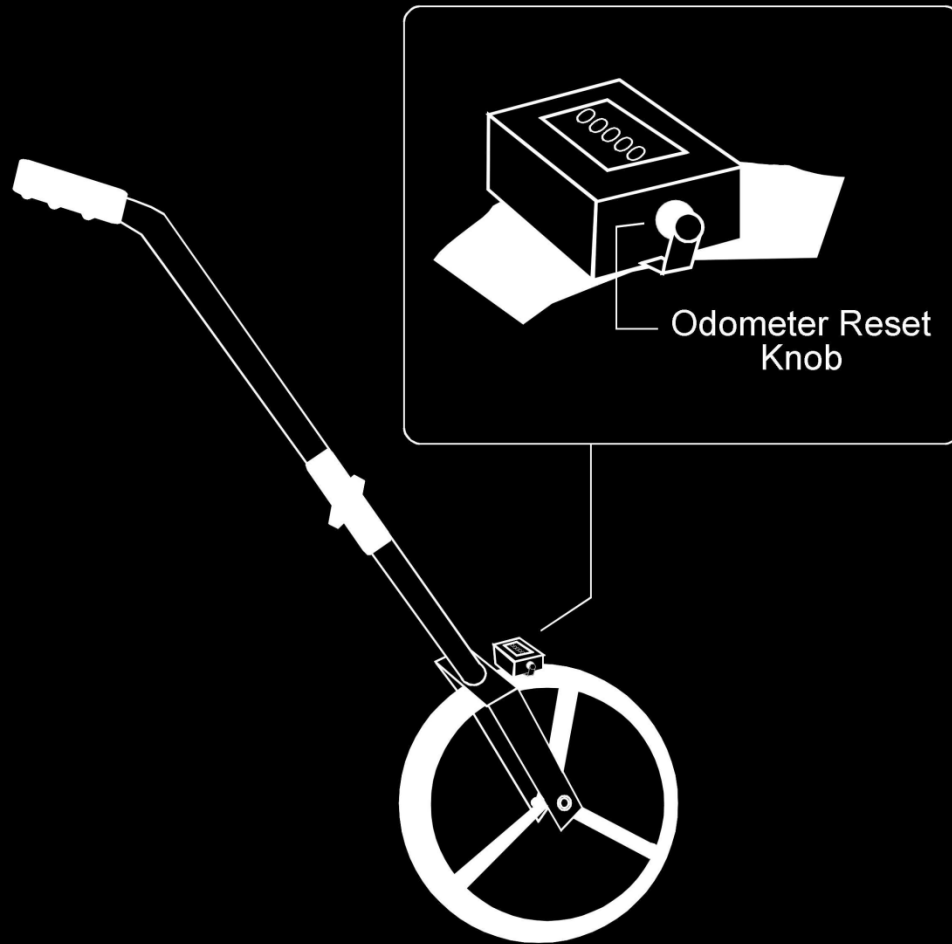
Tool Function & Calibration Objectives

Identify each tool used for the UTAP & HETAP

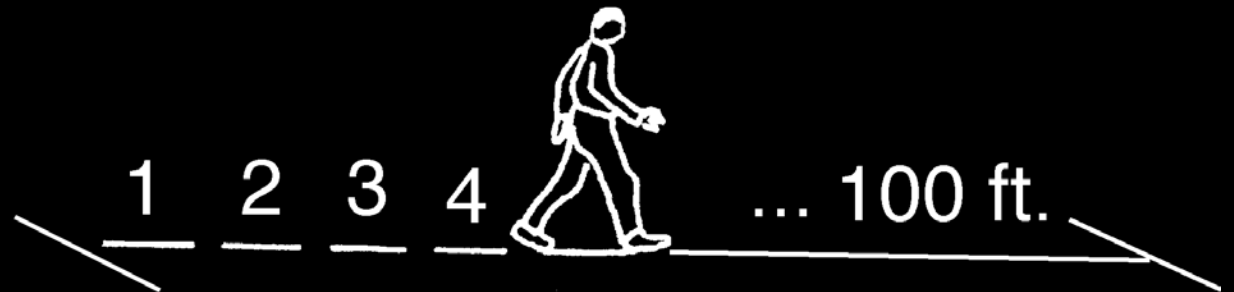
Perform tool calibrations

Describe how each tool functions

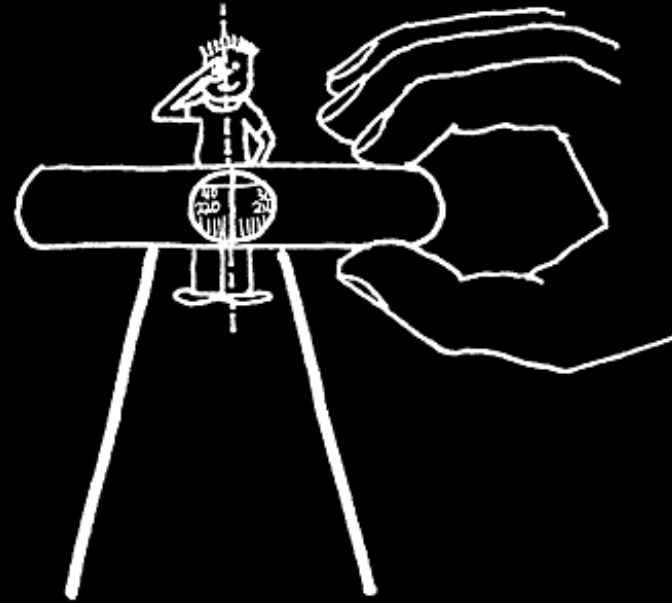
Rolawheel



Length of Pace

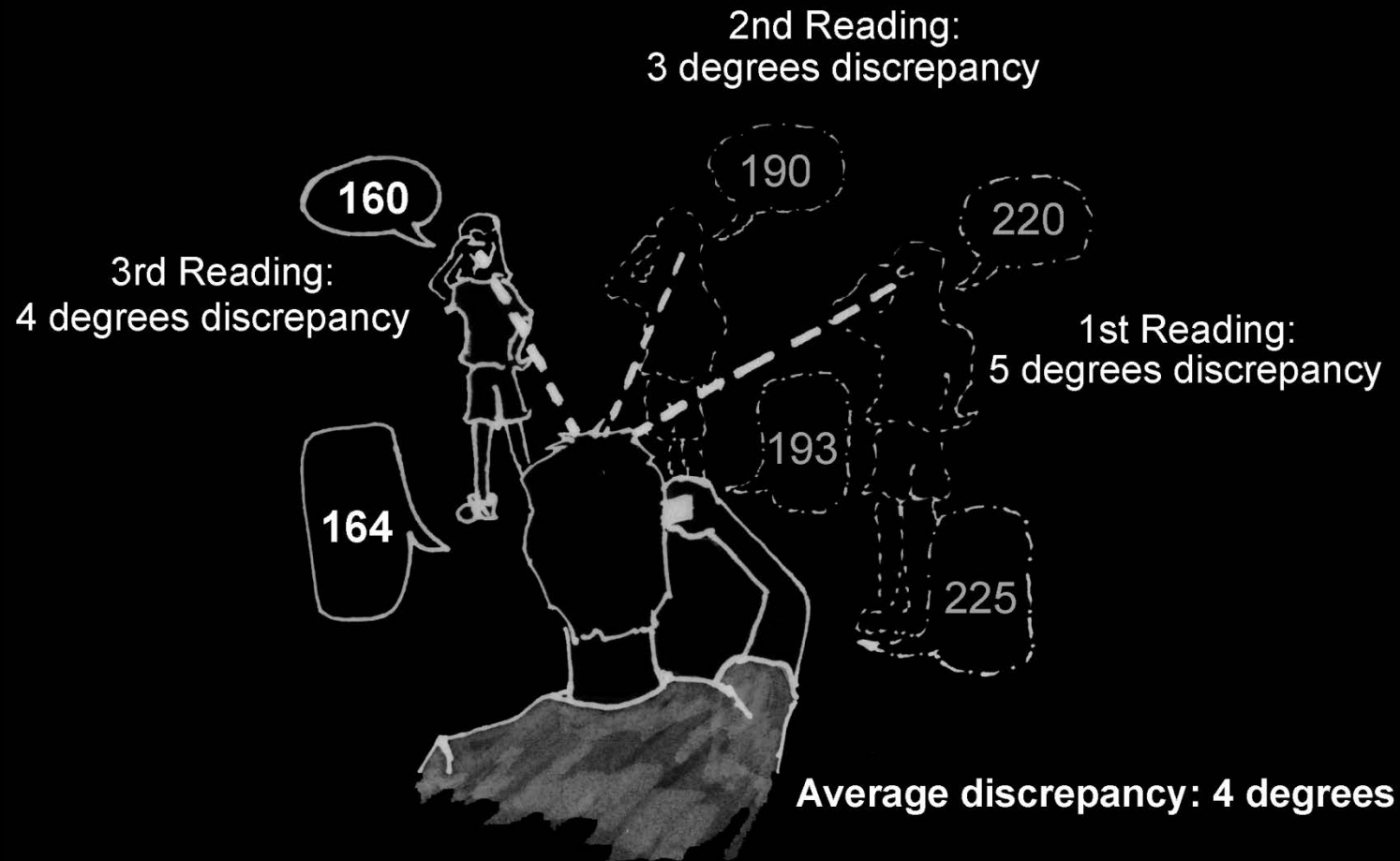


Compass

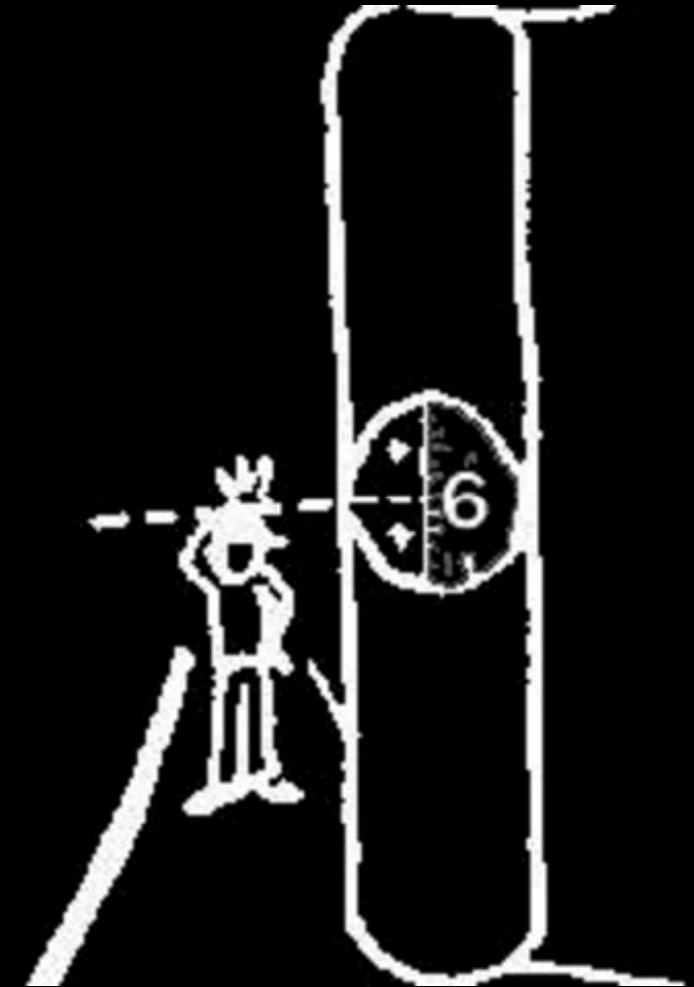


Dominant Eye

Calibrated Discrepancy for Compass Measurements



Clinometer



Clinometer Scales

Determining Your Eye Level Target



Inclinometer



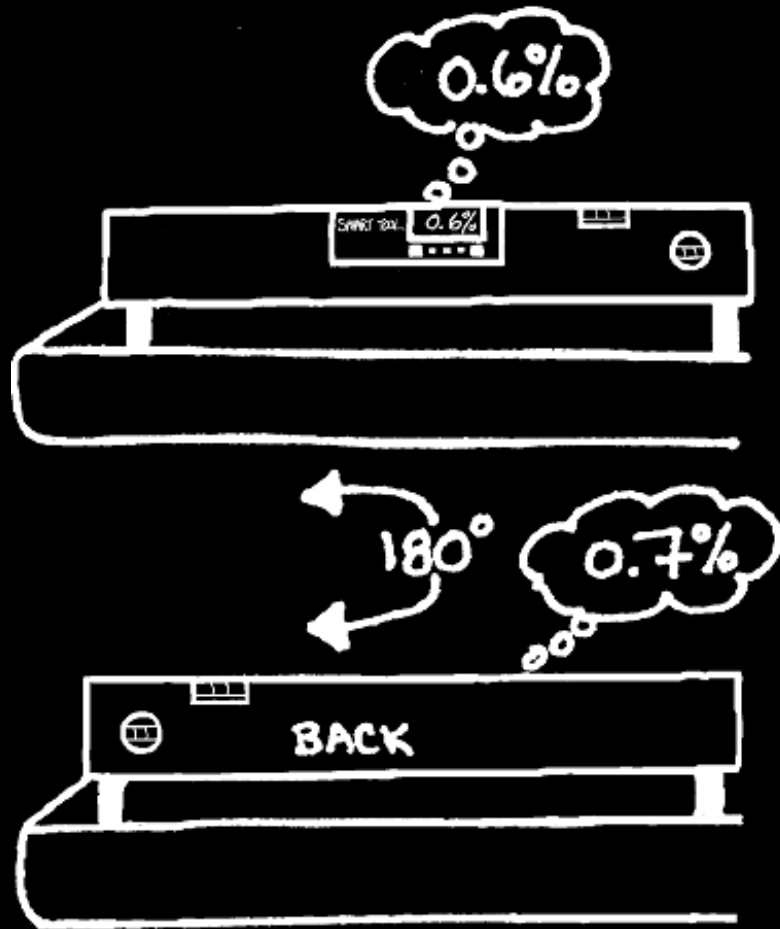
On/Off
Button

Calibrate
Button

% in/ft
Button

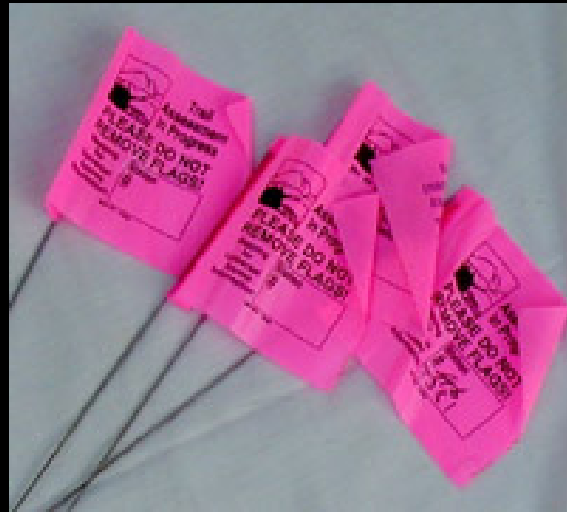
Hold
Button

Calibration Check



Calibrating the Inclinometer





Additional Tools



HETAP – WISP Calibration

The grade, cross slope, and distance calibration should be checked before performing any trail assessment session



HETAP – WISP Calibration

Calibration will need to be performed on a planar, smooth surface



Slopes - Start Position

“Check Grade” or “Select to Calibrate”
and then “Start Position” to Begin

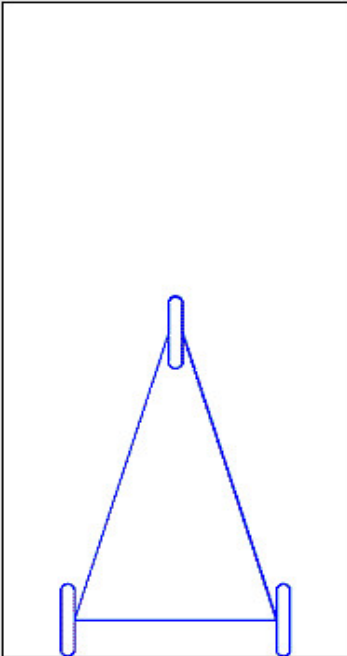
Tilt Sensor Calibration

Tilt Calibration Verification:

Set the data collection vehicle in the starting position.

Select [Check Grade].

Check Distance Calib



Grade	X-Slope
0.5 %	-0.3 %

Select to Calibrate

Tilt sensor data from Sensor Instrumentation Package Label:

Ensure these numbers match your box!

X Axis (mV/deg)	Y Axis (mV/deg)
35.079	34.812

Cancel



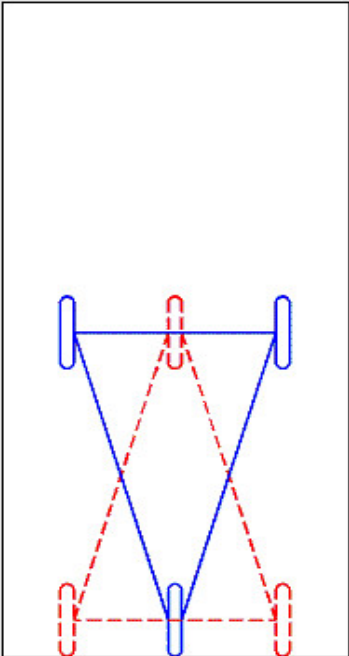
Rotate 180° in same space

“Check X-Slope” or “Calibrate Grade”
to Continue

Tilt Sensor Calibration

Rotate the vehicle 180° so the rear wheels straddle the original front wheel location and the front wheel sits between the original rear wheel locations.

The Grade should be 0.3% ±0.3%.
If it is, select [Check X-Slope].
Otherwise, select [Select to Calibrate].



<input type="button" value="Check X-Slope"/>	
Grade	X-Slope
-0.3 %	0.2 %
<input type="button" value="Select to Calibrate"/>	

Tilt sensor data from Sensor Instrumentation Package Label:

Ensure these numbers match your box!

X Axis (mV/deg)	Y Axis (mV/deg)
35.079	34.812

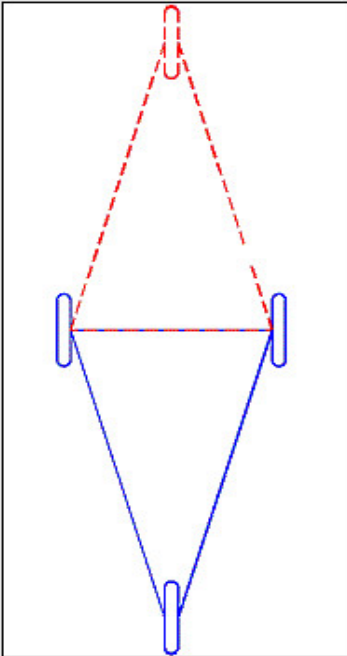


Roll Forward

“Finish Checking” or “Calibrate X-Slope”
to Continue

Tilt Sensor Calibration

Roll the vehicle forward until the rear wheels return to the starting position. The X-Slope should be $-0.3\% \pm 0.3\%$. If it is, select [Finish Checking]. Otherwise, select [Select to Calibrate].



Finish Checking

Grade **X-Slope**
-0.2 % **0.2 %**

Select to Calibrate

Tilt sensor data from Sensor Instrumentation Package Label:
Ensure these numbers match your box!

X Axis (mV/deg) **Y Axis (mV/deg)**
35.079 **34.812**

Check Distance Calib **Cancel**



Slopes Calibration Complete

Must always “Check” calibration before saving the new settings is allowed

Tilt Sensor Calibration

Tilt Calibration Verification is now complete.
You may select [Cancel] or [Check Again].
Select [Select to Calibrate].
ONLY IF the Grade or X-Slope checks were out of tolerance.

You should now check distance calibration.

Check Distance Calib

Calibration is Complete

Check Again

Grade	X-Slope
-0.2 %	0.2 %

Select to Calibrate

Tilt sensor data from Sensor Instrumentation Package Label:

Ensure these numbers match your box!

X Axis (mV/deg)	Y Axis (mV/deg)
35.0	34.812

Done **Cancel**

“Check Distance” or “Done” to save new settings

Distance - Start Position

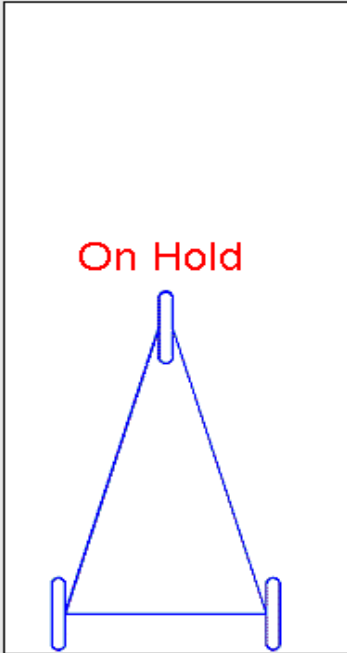
Enter the measured Distance in the Calibration Distance Box (25ft min)

Distance Calibration

Distance Calibration Verification:

1) Measure a known distance from the start line to the finish line.
2) Set the rear wheels on the start line.

Select [Start Position].



Magnet Count Whl. Dia.

Max. Dist. Range

Calibration Distance: Feet

Select to Calibrate

Distance Traveled

Reset

Done Cancel



Align Rear Wheel with Start Mark

Distance - Start Position

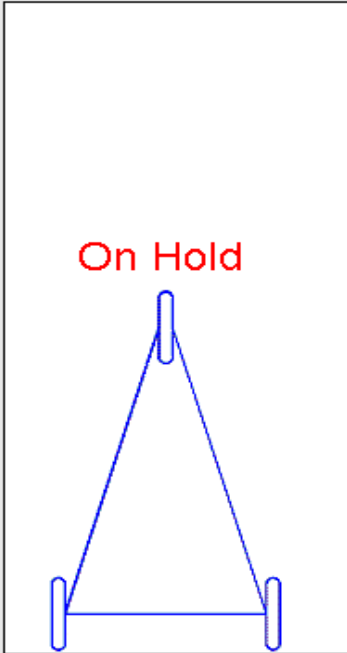
“Start Position” or “Select to Calibrate”
then “Start Position” to Begin

Distance Calibration

Distance Calibration Verification:

- 1) Measure a known distance from the start line to the finish line.
- 2) Set the rear wheels on the start line.

Select [Start Position].



Start Position

Magnet Count Whl. Dia.

Max. Dist. Range

Calibration Distance: Feet

Select to Calibrate

Distance Traveled

Reset

Done **Cancel**



Distance – Finish Line

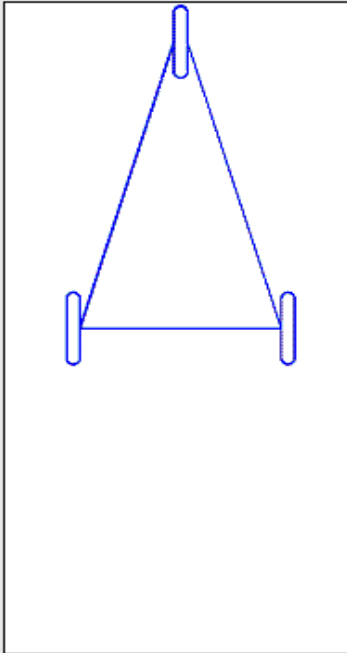
Select “Finish Line” when distance has been traversed (Verify Distance Traveled)

Distance Calibration

Roll from the start line to the finish line.

Select [Finish Line]

Select [Reset] any time you need to zero the "Distance Traveled".



Finish Line

Magnet Count **10** Whl. Dia. **1.25**

Max. Dist. Range **200**

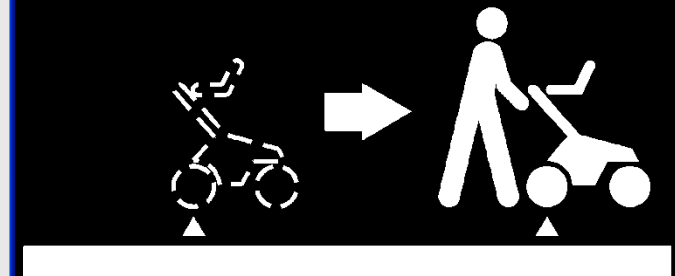
Calibration Distance: **50** Feet

Select to Calibrate

Distance Traveled **50.1**

Reset

Done Cancel



Align Rear Wheel with Finish Mark

Distance Calibration Complete

Must always “Check” calibration before saving of the new settings is allowed

Distance Calibration

Distance calibration is complete.

You should now select [Check Calibration].

Calibration is Complete

Check Calibration

Magnet Count 10 Whl. Dia. 1.25

Max. Dist. Range 200

Calibration Distance: 50 Feet

Select to Calibrate

Distance Traveled -0.0

Reset

Done Cancel

“Done” to save new settings

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through research, design & education*