

# TPS1200 Quick Guide

## 8.0 Stakeout Application

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*In this Chapter* The following sections of this chapter describe an introduction to the Stakeout application, accessing and configuring the Stakeout application, and then describe the staking points of points.

Section	Topic
8.1	Stakeout Introduction
8.2	Accessing Stakeout
8.3	Configuring Stakeout
8.4	Staking Out Points

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# TPS1200 Quick Guide

## 8.1 Stakeout Introduction

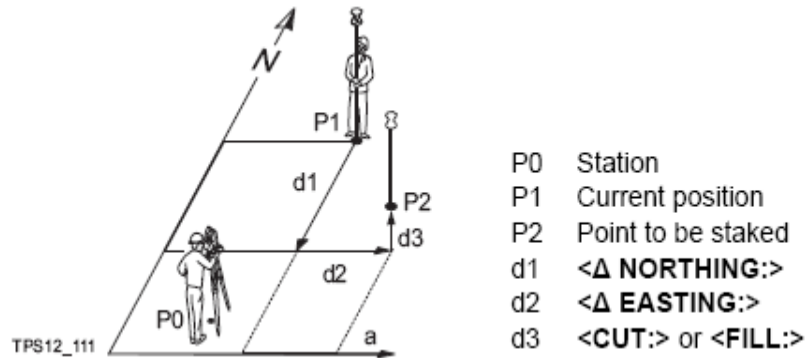
### *What is the Stakeout Application?*

The Stakeout application program is used to place marks in the field at predetermined coordinates. These predetermined points are the points to be staked and may:

- Have been uploaded to a job on the instrument using LGO.
- Already exist in a job on the instrument.
- Have been uploaded from an ASCII file to a job on the instrument using **Main Menu: Convert...Import ASCII/GSI Data to Job** (see section 3.1 *Import ASCII/GSI Data to Job* for more information).
- Have been typed in to a job manually.

Stakeout can be used to stake:

- Position-only points (points with northing/easting or longitude/latitude).
- Height-only points.
- Points with full sets of coordinates.



### *Target Points*

Points to be staked (target points) must be stored on the instrument's CompactFlash (CF) card, in a job.

### *Coordinate System*

Points cannot be staked if the active coordinate system is different from that in which the points to be staked are stored. For example, the points to be staked are stored in local coordinates and the active coordinate system is WGS 84.

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## 8.1 Stakeout Introduction

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### *Jobs*

#### **Stakeout Job**

The stakeout job is the job that contains the points that you would like to stakeout. This is also called the **Stake** job or **Design** job.

#### **Store Job**

When staking from a job and storing surveyed positions for the staked points, it is recommended that you store the measured coordinates in another job. This is called the **Store** job. Storing the coordinates to a separate job allows you to download only the surveyed points without having to mix the original stakeout point coordinates with the coordinates of the points measured and store during fieldwork.


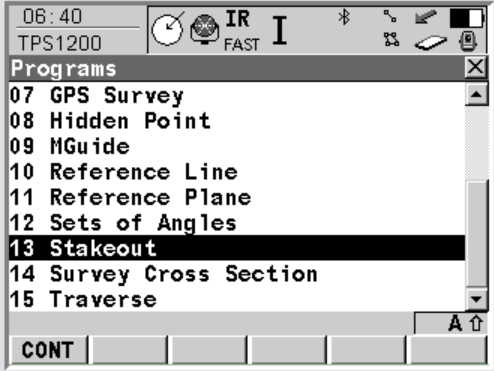
The configuration for staking from one job and storing in another is shown in *Step 3* of section *8.2 Accessing Stakeout* of this chapter.

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## 8.2 Accessing Stakeout

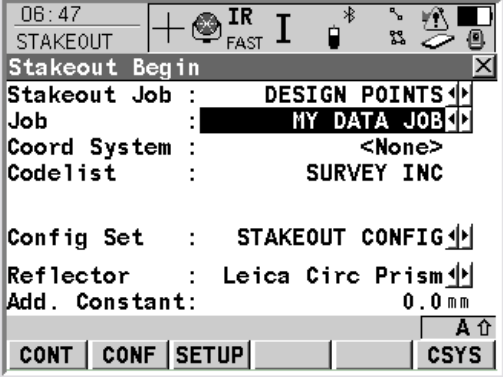
Access Stakeout Follow the steps below to access and begin the Stakeout application program.

Step	Action	Display
1	<p>From the Main Menu:</p> <ul style="list-style-type: none"> <li>Select <b>2 Programs....</b></li> </ul> <p>This takes you to the TPS1200 Programs screen.</p>	
2	<p>From the TPS1200 Programs screen:</p> <ul style="list-style-type: none"> <li>Select <b>Stakeout.</b></li> </ul> <p><b>Note:</b> The number corresponding to a particular application depends on the order in which applications were loaded onto the TPS1200 instrument. The number on your instrument may be different from those in this quick guide.</p> <p>This takes you to the STAKEOUT Begin screen.</p>	

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## 8.2 Accessing Stakeout

Step	Action	Display
3	<p>In the STAKEOUT Begin screen:</p> <p>This is the screen where you select the stakeout job, store job, coordinate system, codelist, configuration set and reflector type.</p> <ul style="list-style-type: none"> <li>Select the job that contains the known points to be located in the <b>Stakeout Job</b> field list. In this example we are selecting the job, <b>Design Points</b>.</li> <li>Select your store job from the <b>Job</b> field list. As previously mentioned, this is the job where your measured points are stored. In this example we are selecting the job, <b>My Data Job</b>.</li> </ul> <p>The coordinate system attached to the current job is displayed in the <b>Coord System</b> field.</p> <ul style="list-style-type: none"> <li>Enter <b>&lt;None&gt;</b> in the <b>Coord System</b> field.</li> <li>Select a codelist from the <b>Codelist</b> field.</li> <li>Select a configuration set from the <b>Config Set</b> field list.</li> <li>Select your prism type from the <b>Reflector</b> field list. The prism constant changes automatically to correspond with the selected prism. In this example we are using the Leica circular prism.</li> <li>Press the <b>F2 (CONF)</b> button.</li> </ul> <p>This takes you to the General page of the STAKEOUT Configuration screen.</p>	 <p>The screenshot shows the 'Stakeout Begin' screen with the following settings: Stakeout Job: DESIGN POINTS, Job: MY DATA JOB, Coord System: &lt;None&gt;, Codelist: SURVEY INC, Config Set: STAKEOUT CONFIG, Reflector: Leica Circ Prism, and Add. Constant: 0.0 mm. The bottom of the screen features buttons for CONT, CONF, SETUP, and CSYS.</p>

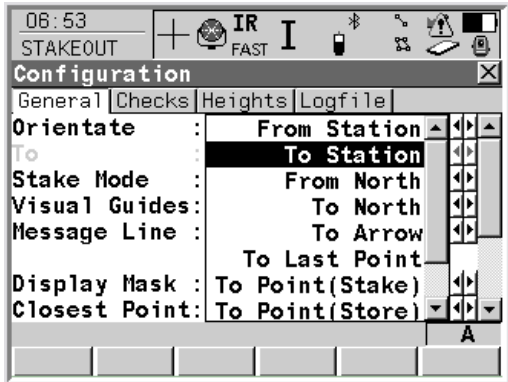
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## 8.3 Configuring Stakeout

### Configure Stakeout

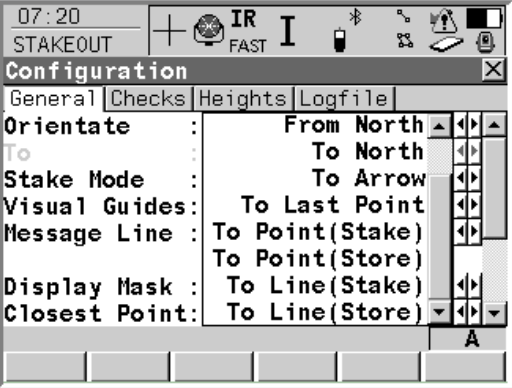
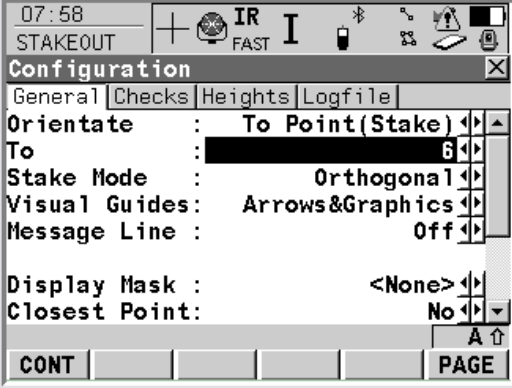
Follow the steps below to configure the Stakeout application program.

Step	Action	Display
4	<p>In the General page of the <b>STAKEOUT</b> Configuration screen:</p> <p>The <b>Orientate</b> field sets the reference direction from which points will be staked. The stakeout elements and the graphical display shown within the program are based on this selection. The choices are:</p> <p><b>From Station:</b> The direction of the orientation is from the instrument to the point to be staked.</p> <p><b>To Station:</b> The direction of the orientation is from the point to be staked to the instrument.</p> <p><b>From North:</b> The direction of the orientation is from the North direction to the point to be staked.</p> <p><b>To North:</b> The direction of the orientation is from the point to be staked to the North direction.</p> <p><b>To Arrow:</b> The direction of the orientation is from the current position to the point to be staked. The graphical display shows an arrow pointing in the direction of the point to be staked.</p> <p>This step continues on the following page.</p>	 <p>The screenshot shows the 'Configuration' dialog box with the 'General' tab selected. The 'Orientate' field is set to 'To Station'. Other settings include 'Stake Mode' set to 'From North', 'Visual Guides' set to 'To North', 'Message Line' set to 'To Arrow', 'Display Mask' set to 'To Point(Stake)', and 'Closest Point' set to 'To Point(Store)'. The 'To Station' option is highlighted in the 'Orientate' dropdown menu.</p>

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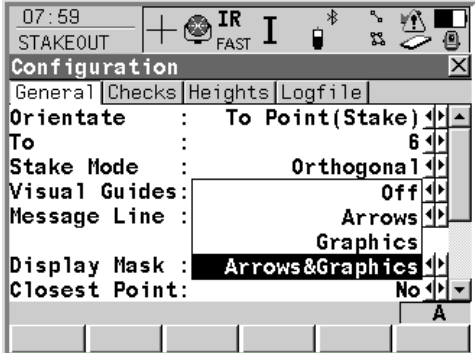
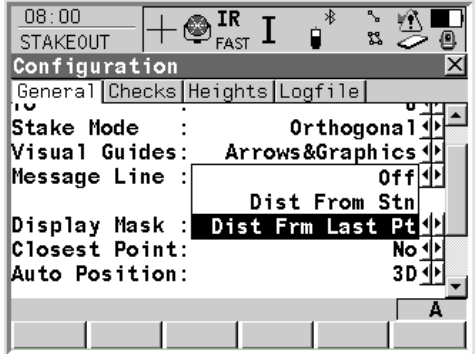
## 8.3 Configuring Stakeout

Step	Action	Display
4	<p>This step continues from the previous page:</p> <p><b>To Last Point:</b> Time wise, this refers to the last recorded point. If no points have been staked, <b>To North</b> is used for the first point.</p> <p><b>To Point (Stake or Store):</b> The orientation is referenced from an existing point that can either be in the stakeout or store job.</p> <p><b>To Line (Stake or Store):</b> The direction of the orientation is parallel to a reference line. This reference line can reside either in the stakeout or store job.</p> <ul style="list-style-type: none"> <li>Select a stakeout orientation. In this example we are using <b>To Point (Stake)</b>.</li> </ul> <p>If the <b>To Point (Stake or Store):</b> or <b>To Line (Stake or Store)</b> orientations are selected, then the <b>To</b> field becomes available. If applicable, select your reference point or line here.</p> <p>The <b>Stake Mode</b> field is used to select the method of stakeout you wish to use. The choices are:</p> <p><b>Polar:</b> The direction from the orientation reference, horizontal distance and cut/fill is displayed.</p> <p><b>Orthogonal:</b> The distance forward to/backwards from the point, right/left to the point and cut/fill is displayed.</p> <ul style="list-style-type: none"> <li>Select a stake mode. In this example we are using the <b>Orthogonal</b> method.</li> </ul> <p>This step continues on the following page.</p>	 <p>The first screenshot shows the Configuration dialog box with the following settings:     <ul style="list-style-type: none"> <li>Oriente : From North</li> <li>To : To North</li> <li>Stake Mode : To Arrow</li> <li>Visual Guides : To Last Point</li> <li>Message Line : To Point(Stake)</li> <li>Display Mask : To Line(Stake)</li> <li>Closest Point : To Line(Store)</li> </ul> </p>  <p>The second screenshot shows the Configuration dialog box with the following settings:     <ul style="list-style-type: none"> <li>Oriente : To Point(Stake)</li> <li>To : 6</li> <li>Stake Mode : Orthogonal</li> <li>Visual Guides : Arrows&amp;Graphics</li> <li>Message Line : Off</li> <li>Display Mask : &lt;None&gt;</li> <li>Closest Point : No</li> </ul> </p>

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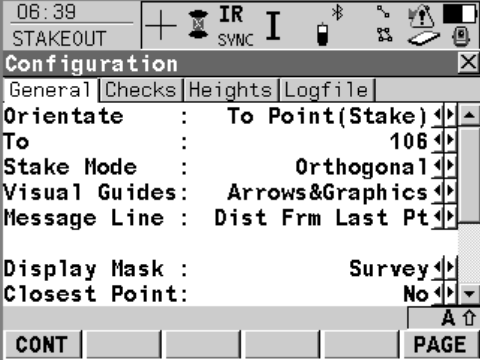
## 8.3 Configuring Stakeout

Step	Action	Display
<p>4</p> <p>This step continues from the previous page:</p> <p>The <b>Visual Guides</b> field is used to select whether arrows and/or a graphical display are used to help locate the point to be staked. The choices are:</p> <p><b>Off:</b> Neither arrows nor a graphical display are shown, only distances to the point are given.</p> <p><b>Arrows:</b> Upon pressing the <b>F2 (DIST)</b> button, arrows and distances are shown .</p> <p><b>Graphics:</b> A graphical display is shown.</p> <p><b>Arrows&amp;Graphics:</b> Upon pressing the <b>F2 (DIST)</b> button, arrows and a graphical display are shown.</p> <ul style="list-style-type: none"> <li>Select a visual guide. In this example we are using <b>Arrows &amp; Graphics</b>.</li> </ul> <p>The <b>Message Line</b> is an option that can be set to allow the application to display the angle and distance to the next point selected to be staked for about 4 seconds in the message line. The options are:</p> <p><b>Off:</b> No message will be displayed.</p> <p><b>Dist From Stn:</b> The needed change in the horizontal angle that the instrument should turn to the point and the distance from the instrument to the point is momentarily displayed in the message line.</p> <p><b>Dist frm Last Pt:</b> The change in the horizontal angle that the instrument should turn to the point and the distance from the last staked point is momentarily displayed in the message line.</p>		 <p>The screenshot shows the 'Configuration' window for the STAKEOUT application. The 'Visual Guides' field is set to 'Arrows&amp;Graphics'. Other settings include 'Orientate' set to 'To Point(Stake)', 'Stake Mode' set to 'Orthogonal', and 'Message Line' set to 'Arrows'. The 'Display Mask' is set to 'Arrows&amp;Graphics'.</p>  <p>The second screenshot shows the 'Configuration' window with 'Visual Guides' set to 'Arrows&amp;Graphics' and 'Message Line' set to 'Dist From Stn'. The 'Display Mask' is set to 'Dist Frm Last Pt'.</p>

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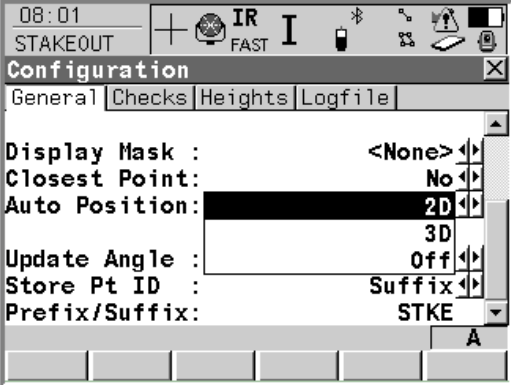
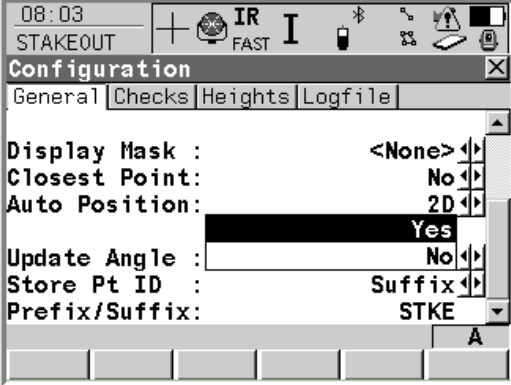
## 8.3 Configuring Stakeout

Step	Action	Display
4	<p>This step continues from the previous page:</p> <p>The <b>Display Mask</b> field is used to select a predefined or user-created display mask.</p> <ul style="list-style-type: none"> <li>Select a display mask. In this example we are using the Survey display mask. (See chapter 2 <i>Configuration Sets</i>, section 2.4 <i>Editing a Configuration Set</i>, steps 10-12.)</li> </ul> <p>The <b>Closest Point</b> field is used to select the order of points suggested for staking out. The options are:</p> <p><b>Yes:</b> After staking and storing a point, the closest point is suggested for the next stakeout point.</p> <p><b>No:</b> After staking and storing a point, the subsequent point in the stakeout job is suggested for the next stakeout point.</p> <p>This step continues on the following page.</p>	

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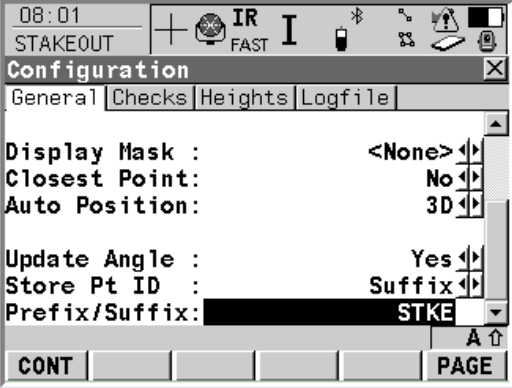
## 8.3 Configuring Stakeout

Step	Action	Display
<p>4</p> <p>This step continues from the previous page:</p> <p>The <b>Auto Position</b> field is used to select whether or not the instrument automatically positions to the point to be staked. The choices are:</p> <p><b>2D:</b> The instrument positions horizontally to the point to be staked.</p> <p><b>3D:</b> The instrument positions horizontally and vertically to the point to be staked.</p> <p><b>Off:</b> The instrument does not position to the point to be staked.</p> <ul style="list-style-type: none"> <li>Select an auto position. In this example we are using <b>2D</b>.</li> </ul> <p>The <b>Update Angle</b> field is used to select whether or not the stakeout angle is updated with telescope movement. The choices are:</p> <p><b>Yes:</b> Angles are updated with telescope movement after a distance is measured.</p> <p><b>No:</b> Angles and stakeout values are updated after a distance measurement. All displayed values are frozen until the next distance is taken.</p> <ul style="list-style-type: none"> <li>Select whether you want the angle updated. In this example we are setting this to <b>Yes</b>.</li> </ul> <p>This step continues on the following page.</p>		 

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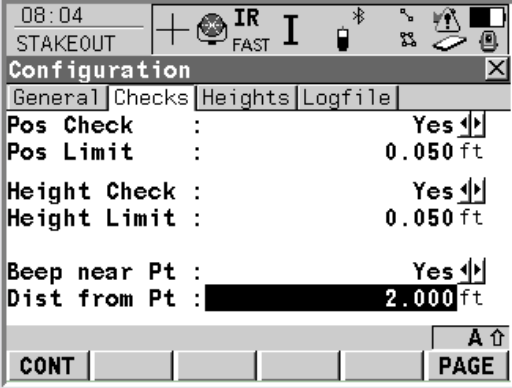
## 8.3 Configuring Stakeout

Step	Action	Display
4	<p>This step continues from the previous page:</p> <p>The <b>Store Pt ID</b> field is used to select the point ID format in which the staked points are stored. The choices are:</p> <p><b>Same as Stake Pt:</b> The staked points are stored with the same point ID as the points to be staked.</p> <p><b>Prefix:</b> Places the <b>Prefix/Suffix</b> entry value in front of the original point ID.</p> <p><b>Suffix:</b> Places the <b>Prefix/Suffix</b> entry value at the end of the original point ID.</p> <ul style="list-style-type: none"> <li>Select how you want the staked point labeled. In this example we are adding suffix to the staked points.</li> </ul> <p>If <b>Prefix</b> or <b>Suffix</b> is selected in the <b>Store Pt ID</b> field, the <b>Prefix/Suffix</b> field becomes available. This entry will be added to the point ID when the staked point is stored.</p> <ul style="list-style-type: none"> <li>If you selected <b>Prefix</b> or <b>Suffix</b>, enter a prefix or suffix. In this example we are using the suffix <b>STKE</b>.</li> <li>Tap on the <b>Checks</b> tab.</li> </ul> <p>This takes you to the Checks page of the <b>STAKEOUT</b> Configuration screen.</p>	 <p>The screenshot shows the 'Configuration' dialog box with the 'Checks' tab selected. The 'Prefix/Suffix' field is set to 'STKE'. Other visible settings include 'Display Mask' set to '&lt;None&gt;', 'Closest Point' set to 'No', and 'Auto Position' set to '3D'. The 'Update Angle' is set to 'Yes' and 'Store Pt ID' is set to 'Suffix'. The 'Prefix/Suffix' field is highlighted with a black background and white text 'STKE'. At the bottom, there are buttons for 'CONT' and 'PAGE'.</p>

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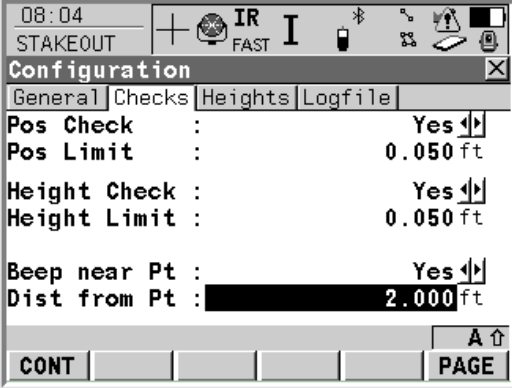
## 8.3 Configuring Stakeout

Step	Action	Display
<p>5</p>	<p>In the Checks page of the STAKEOUT Configuration screen:</p> <p>The <b>Pos Check</b> field allows a check to be made on the horizontal coordinate difference between the staked point and the point to be staked. If the <b>Pos Limit</b> is exceeded, the stakeout can be repeated, skipped or stored. In this example we will use a position check.</p> <ul style="list-style-type: none"> <li>Set the <b>Pos Check</b> field to <b>Yes</b>.</li> </ul> <p>If <b>Yes</b> is selected in the <b>Pos Check</b> field, the <b>Pos Limit</b> field becomes available.</p> <ul style="list-style-type: none"> <li>Enter a limit in the <b>Pos Limit</b> field. In this example we will enter <b>0.050 ft</b>.</li> </ul> <p>The <b>Height Check</b> field allows a check to be made on the vertical difference between the staked point and the point to be staked. If the <b>Height Limit</b> is exceeded, the stakeout can be repeated, skipped or stored. In this example we will use a height check.</p> <ul style="list-style-type: none"> <li>Set the <b>Height Check</b> field to <b>Yes</b>.</li> </ul> <p>If <b>Yes</b> is selected in the <b>Height Check</b> field, the <b>Height Limit</b> field becomes available.</p> <ul style="list-style-type: none"> <li>Enter a limit in the <b>Height Limit</b> field. In this example we will enter <b>0.050 ft</b>.</li> </ul> <p>This step continues on the following page.</p>	 <p>The screenshot shows the 'Configuration' dialog box with the 'Checks' tab selected. The 'Pos Check' field is set to 'Yes', 'Pos Limit' is '0.050 ft', 'Height Check' is 'Yes', and 'Height Limit' is '0.050 ft'. The 'Dist from Pt' field is highlighted with a value of '2.000 ft'. The 'Beep near Pt' field is also set to 'Yes'. The 'CONT' and 'PAGE' buttons are visible at the bottom.</p>

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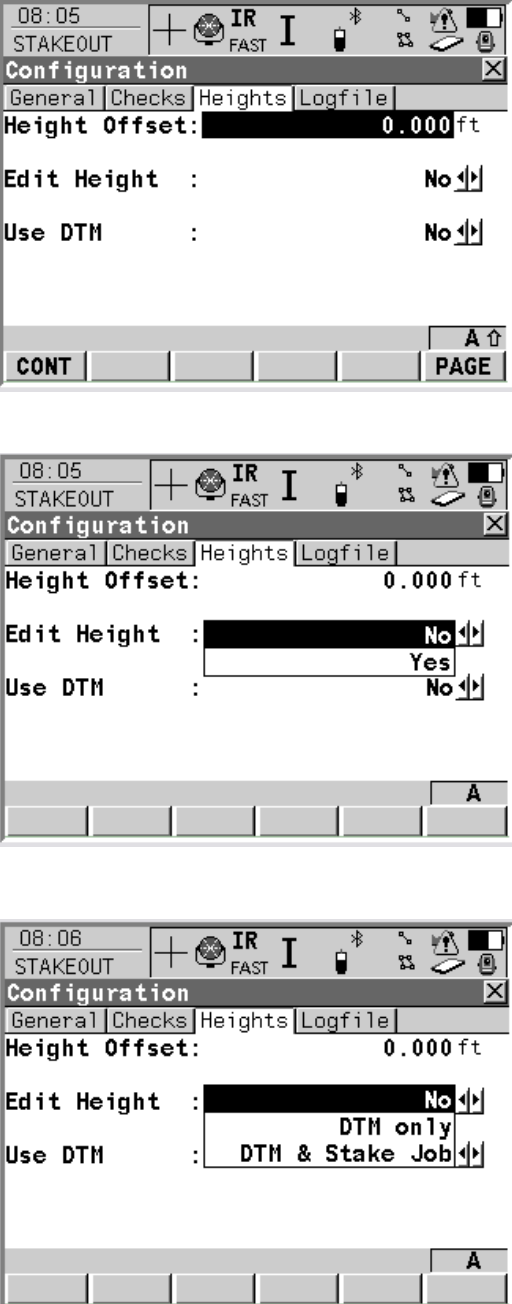
## 8.3 Configuring Stakeout

Step	Action	Display
5	<p>This step continues from the previous page:</p> <p>The <b>Beep Near Pt</b> field is used to select whether or not the instrument beeps when the horizontal radial distance from the current position to the point to be staked is equal to or less than the <b>Dist from Pt</b> field value.</p> <ul style="list-style-type: none"> <li>Set the <b>Beep Near Pt</b> field to <b>Yes</b>.</li> </ul> <p>If <b>Yes</b> is selected in the <b>Beep Near Pt</b> field, the <b>Dist from Pt</b> field becomes available. Use this field to enter a radial distance from the point to be staked when a beep should be heard.</p> <ul style="list-style-type: none"> <li>Enter a distance in the <b>Dist from Pt</b> field. In this example we will enter <b>2.0 ft</b>.</li> </ul> <p><b>Note:</b> After a while you may want to turn this function off because the beeping can become annoying.</p> <ul style="list-style-type: none"> <li>Tap on the <b>Heights</b> tab.</li> </ul> <p>This takes you to the Heights page of the STAKEOUT Configuration screen.</p>	 <p>The screenshot shows the STAKEOUT Configuration screen with the 'Heights' tab selected. The 'Beep near Pt' field is set to 'Yes' and the 'Dist from Pt' field is set to '2.000 ft'. Other fields include 'Pos Check' (Yes), 'Pos Limit' (0.050 ft), 'Height Check' (Yes), and 'Height Limit' (0.050 ft). The screen also shows a status bar at the top with '08:04', 'STAKEOUT', and various icons. At the bottom, there are 'CONT' and 'PAGE' buttons.</p>

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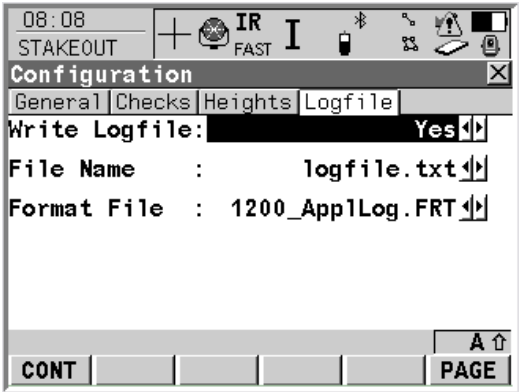
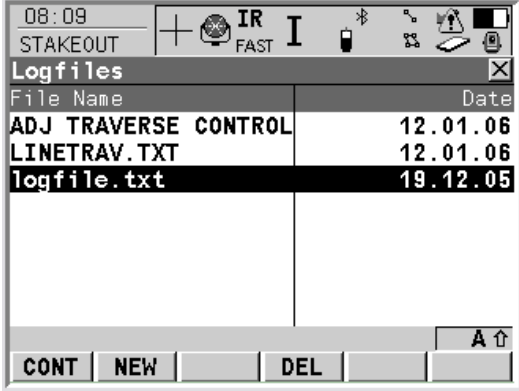
## 8.3 Configuring Stakeout

Step	Action	Display
<p><b>6</b></p> <p>In the Heights page of the STAKEOUT Configuration screen:</p> <p>The <b>Height Offset</b> field allows a constant height offset to be applied to the height of the points or DTM being staked. In this example we will not be using a height offset.</p> <ul style="list-style-type: none"> <li>• Leave the <b>Height Offset</b> field as <b>0.000 ft.</b></li> </ul> <p>The <b>Edit Height</b> field is used to select whether or not the height of the point to be staked displayed during stakeout can be changed or not. In this example we will not allow height changes.</p> <ul style="list-style-type: none"> <li>• Set the <b>Edit Height</b> field to <b>No.</b></li> </ul> <p>The <b>Use DTM</b> field is available if DTM Stakeout has been activated via a license key. Refer to <i>Chapter 29 Tools...Licence Keys</i> of the <i>TPS1200 Technical Reference Manual</i> for more information. The choices are:</p> <p><b>No:</b> No DTM file is used. The positions and heights of points in the selected <b>Stakeout Job</b> are used.</p> <p><b>DTM Only:</b> Activates the stakeout of heights without positions. Heights relative to the selected <b>DTM Job</b> are staked out.</p> <p><b>DTM &amp; Stake Job:</b> In this option the horizontal position is referenced to the Stakeout Job and heights come strictly from the DTM attached.</p> <ul style="list-style-type: none"> <li>• Tap on the <b>Logfile</b> tab.</li> </ul> <p>This takes you to the Logfile page of the STAKEOUT Configuration screen.</p>		 <p>The display shows three sequential screenshots of the STAKEOUT Configuration screen, specifically the Heights tab. Each screenshot includes a status bar at the top with the time (08:05), STAKEOUT mode, and various icons. The main configuration area shows 'Height Offset' set to 0.000 ft. The 'Edit Height' field is set to 'No'. The 'Use DTM' field is set to 'No'. The bottom of the screen features a navigation bar with 'CONT' and 'PAGE' buttons. The second screenshot shows the 'Edit Height' dropdown menu open, with 'No' selected. The third screenshot shows the 'Use DTM' dropdown menu open, with 'DTM &amp; Stake Job' selected.</p>

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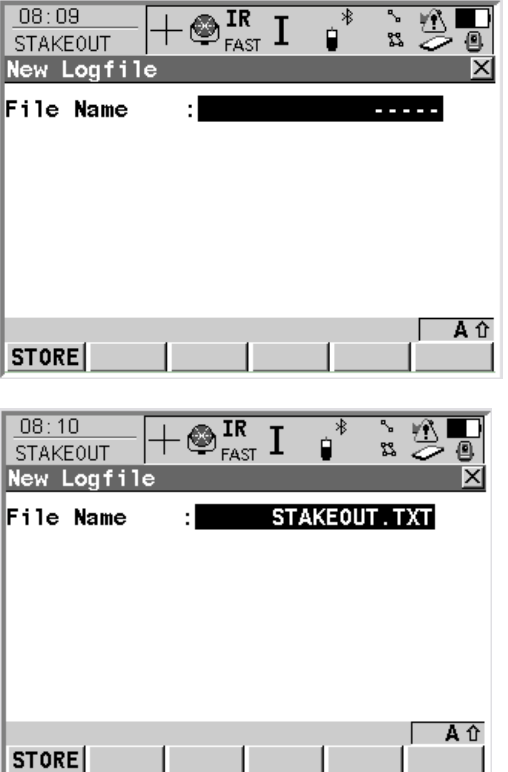
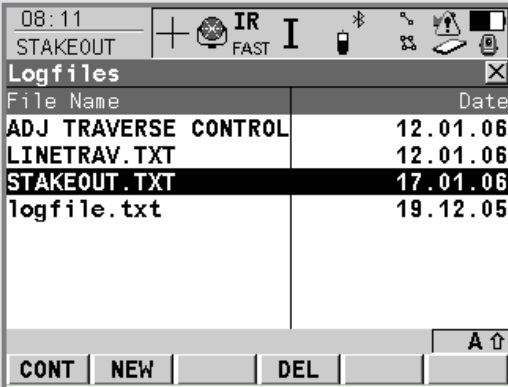
## 8.3 Configuring Stakeout

Step	Action	Display								
7	<p>In the Logfile page of the STAKEOUT Configuration screen:</p> <p>The <b>Write Logfile</b> field is used to generate an ASCII file that logs information while an application is being used. A logfile is a file to which data from an application program is written. This file is stored in the \DATA directory of the active memory device. It is generated using the selected <b>Format File</b>.</p> <ul style="list-style-type: none"> <li>Set the <b>Write Logfile</b> to <b>Yes</b>.</li> </ul> <p>If <b>Yes</b> is selected in the <b>Write Logfile</b> field, the <b>File Name</b> field becomes available.</p> <ul style="list-style-type: none"> <li>Tap on the <b>File Name</b> field.</li> </ul> <p>This takes you to the STAKEOUT Logfiles screen.</p>	 <p>08:08 STAKEOUT Configuration</p> <p>General Checks Heights Logfile</p> <p>Write Logfile: Yes</p> <p>File Name : logfile.txt</p> <p>Format File : 1200_App1Log.FRT</p> <p>CONT PAGE</p>								
8	<p>In the STAKEOUT Logfiles screen:</p> <p>In this screen we see a list of all of the existing logfiles. In this example we will create a new stakeout logfile.</p> <p><b>Note:</b> You may not have the same logfiles that you see in the image on the right.</p> <ul style="list-style-type: none"> <li>Press the <b>F2 (NEW)</b> button.</li> </ul> <p>This takes you to the STAKEOUT New Logfile screen.</p>	 <p>08:09 STAKEOUT Logfiles</p> <table border="1"> <thead> <tr> <th>File Name</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>ADJ TRAVERSE CONTROL</td> <td>12.01.06</td> </tr> <tr> <td>LINETRAV.TXT</td> <td>12.01.06</td> </tr> <tr> <td>logfile.txt</td> <td>19.12.05</td> </tr> </tbody> </table> <p>CONT NEW DEL</p>	File Name	Date	ADJ TRAVERSE CONTROL	12.01.06	LINETRAV.TXT	12.01.06	logfile.txt	19.12.05
File Name	Date									
ADJ TRAVERSE CONTROL	12.01.06									
LINETRAV.TXT	12.01.06									
logfile.txt	19.12.05									

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# TPS1200 Quick Guide

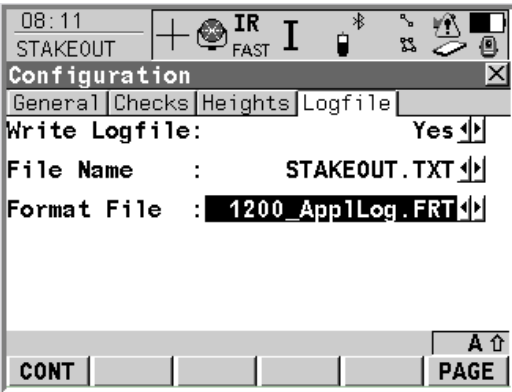
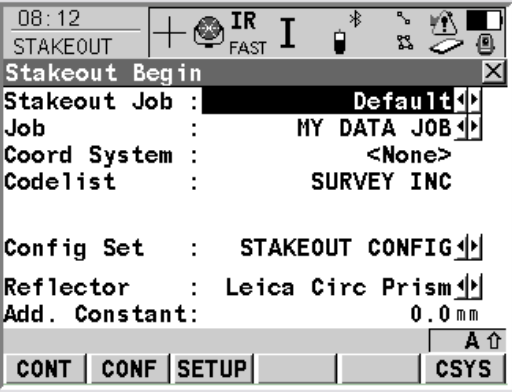
## 8.3 Configuring Stakeout

Step	Action	Display
<p><b>9</b></p>	<p>In the STAKEOUT New Logfile screen:</p> <ul style="list-style-type: none"> <li>Enter a logfile name in the <b>File Name</b> field. In this example we will enter <b>STAKEOUT.TXT</b>.</li> <li>Press the <b>F1 (STORE)</b> button.</li> </ul> <p>This returns you to the STAKEOUT Logfiles screen.</p>	
<p><b>10</b></p>	<p>In the STAKEOUT Logfiles screen:</p> <p>We now see our new logfile in the logfile list.</p> <p>With the new logfile selected,</p> <ul style="list-style-type: none"> <li>Press the <b>F1 (CONT)</b> button.</li> </ul> <p>This returns you to Logfile page of the STAKEOUT Configuration screen.</p>	

*Continued on next page*

# TPS1200 Quick Guide

## 8.3 Configuring Stakeout

Step	Action	Display
<p>11</p>	<p>In the Logfile page of the STAKEOUT Configuration screen:</p> <p>If <b>Yes</b> is selected in the <b>Write Logfile</b> field, the <b>Format File</b> field becomes available. Format files are created using LGO and define the format of a logfile. Format files must be transferred from the CF card to the system RAM before they can be selected. Refer to chapter 25 <i>Tools... \Transfer Objects...</i> of the <i>TPS1200 Technical Reference Manual Ver. 3.0</i> for more information.</p> <ul style="list-style-type: none"> <li>Press the <b>F1 (CONT)</b> button.</li> </ul> <p>This returns you to the STAKEOUT Begin screen.</p>	 <p>08:11 STAKEOUT Configuration General   Checks   Heights   Logfile Write Logfile: Yes File Name : STAKEOUT.TXT Format File : 1200_App1Log.FRT CONT PAGE</p>
<p>12</p>	<p>In the STAKEOUT Begin screen:</p> <p>The next step is to set up the instrument station and orientation.</p> <p>For more information about instrument setup, please refer to chapter 6 <i>Setup Application</i> of this quick guide and/or chapter 46 <i>Setup</i> of the <i>TPS1200 Technical Reference Manual Ver. 3.0</i>.</p> <ul style="list-style-type: none"> <li>Press the <b>F3 (SETUP)</b> button.</li> </ul>	 <p>08:12 STAKEOUT Stakeout Begin Stakeout Job : Default Job : MY DATA JOB Coord System : &lt;None&gt; Codelist : SURVEY INC Config Set : STAKEOUT CONFIG Reflector : Leica Circ Prism Add. Constant : 0.0 mm CONT CONF SETUP CSYS</p>

# TPS1200 Quick Guide

## 8.4 Staking Out Points

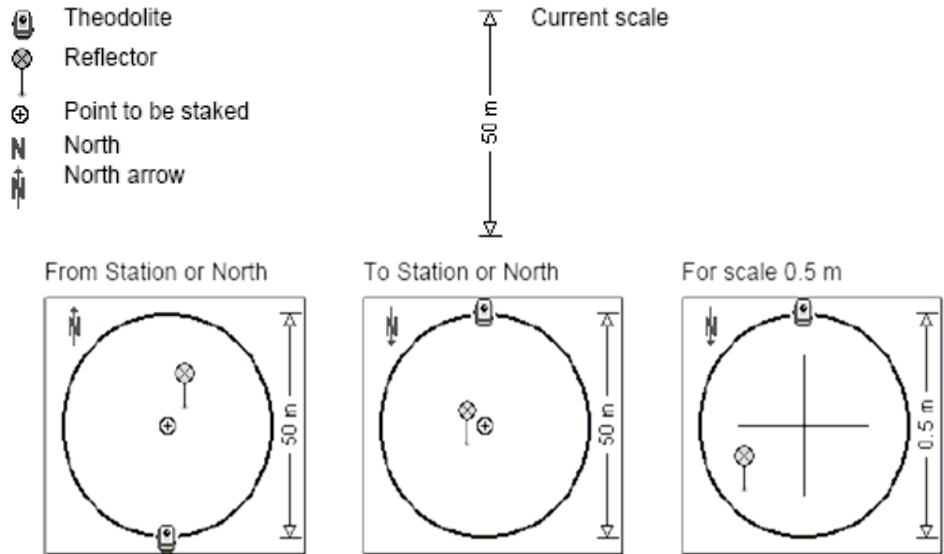
### Stake out Points

The following pages explain the displays and commands associated with the Stakeout application.

### Graphical Display

The graphical display provides a guide to find the point to be staked out. The map page provides an interactive display of the data.

Below are the elements used in the graphical display and examples of the different display formats.



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# TPS1200 Quick Guide

## 8.4 Staking Out Points

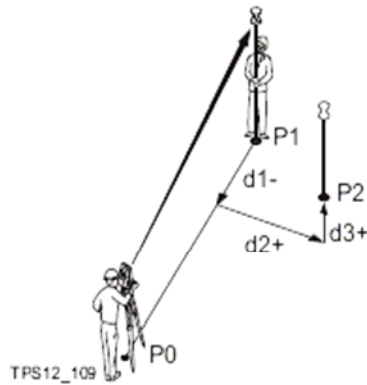
### Orthogonal Stakeout

- The stakeout elements are
- a horizontal distance forwards/backwards,
  - a horizontal distance right/left and
  - a cut/fill.

The diagram below illustrates these elements in a typical orthogonal stakeout.

### Diagram

Orthogonal from and to station



- P0 Station  
P1 Current position  
P2 Point to be staked  
d1 <Go FORWARD:> ↓ ↑ or <Go BACK:> ↑ ↓  
d2 <Go RIGHT:> → or <Go LEFT:> ←  
d3 <CUT:> or <FILL:>

### Note:

**Polar** is the other stakeout mode, which basically utilizes an azimuth and a distance instead of an X and Y distance. For more information on Staking Out in Polar Mode, please refer to section 47.4.4, page 1147, *Staking Out in Polar Mode* of the *TPS1200 Technical Reference Manual Ver. 3.0*.

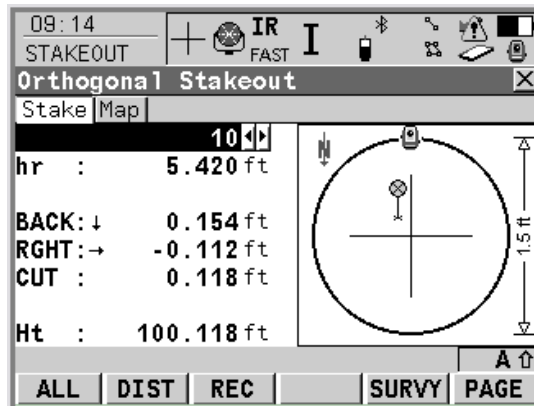
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# TPS1200 Quick Guide

## 8.4 Staking Out Points

### Stakeout Display

Below is a typical display of the Orthogonal Stakeout screen.



The first field is the **Point ID** field.

**hr:** This is the reflector height. The default reflector height as defined in the active configuration set is suggested.

**FORW/BACK:** The horizontal distance along the line defined by station and reflector from the current position to the point to be staked. ↑ or ↓ is displayed to indicate movement towards or away from the station as defined in **Symbols**.

**RIGHT/LEFT:** The horizontal distance orthogonal to the right or left of the line defined by station and reflector from the current position to the point to be staked. → or ← is displayed to indicate movement to the right or left of the line as defined in **Symbols**.

**CUT/FILL:** The negative/positive height difference from the height of the current position to the height of the point to be staked. The value for **Height Offset** defined in **Stakeout Configuration** is taken into account.

**Ht:** The height of the current position as displayed if **Edit Height** in **Stakeout Configuration** was set to **NO**. If the orthometric height cannot be displayed, the local ellipsoidal height is displayed. If the local ellipsoidal height cannot be displayed the WGS 84 height is displayed. The value for **Height Offset** defined in **Stakeout Configuration** is taken into account.

**D Ht:** The height of the current position as displayed if **Edit Height** in **Stakeout Configuration** was set to **YES**. If the orthometric height cannot be displayed, the local ellipsoidal height is displayed. If the local ellipsoidal height cannot be displayed the WGS 84 height is displayed. The value for **Height Offset** defined in **Stakeout Configuration** is taken into account. Changing this value changes the value displayed for **CUT/FILL**.

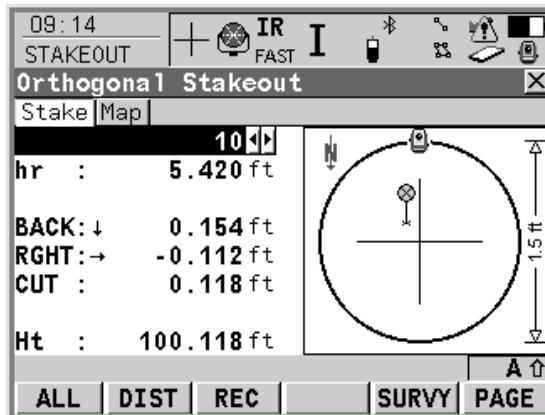
*Continued on next page*

# TPS1200 Quick Guide

## 8.4 Staking Out Points

### Stakeout Commands

Below is a description of the available buttons in orthogonal stakeout.



**F1 (ALL):** This is used to measure distance and store distance and angles.

**F2 (DIST):** This is used to measure distance only.

**F3 (REC):** This is used to store angles and distance. The distance must be measured first.

**F5 (SURVY):** This is used to access the Survey application to measure points independent from the Stakeout application. To return to the Stakeout application program, press the **SHIFT** button and press the **F6 (QUIT)** button or press the **ESC** button.

**F6 (PAGE):** This is used to access the Stake and Map pages on this screen.

**SHIFT Functions** – Additional commands available on function keys after pressing the Shift Key.

**SHIFT – F2 (CONF):** This is used to access the Configure Stakeout screen.

**SHIFT – F3 (POS2D):** This is used to position the instrument in 2D.

**SHIFT – F4 (POS3D):** This is used to position the instrument in 3D.

**SHIFT – F5 (MSTAK):** This is used to enter angle and distance values to stake out a point manually.

**SHIFT – F6 (QUIT):** This is used to quit the application.

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# TPS1200 Quick Guide

## 8.4 Staking Out Points

### Stake out points

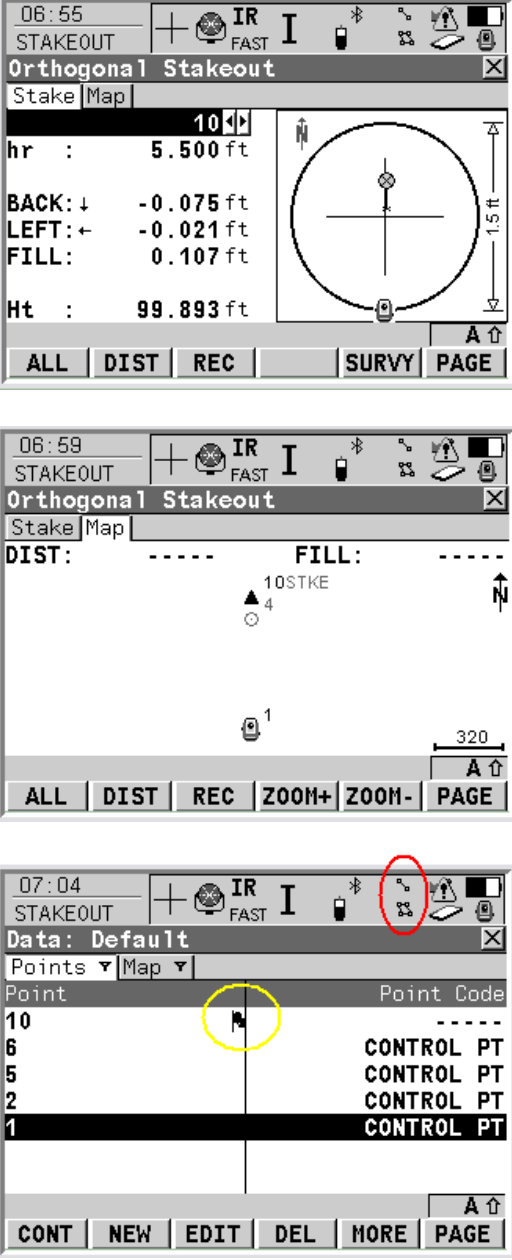
The following steps outline the Stakeout process continuing from **Step 12** of section 8.3 and completing the setting up of the instrument.

Step	Action	Display
1	<p>From the Stake page of the STAKEOUT Orthogonal Stakeout screen:</p> <ul style="list-style-type: none"> <li>Select the point number of the point you wish to stake from the first field. In this example we will be staking point number <b>10</b>.</li> <li>Enter the rod height in the <b>hr</b> field.</li> </ul> <p>You are now ready to make an observation.</p> <ul style="list-style-type: none"> <li>Sight the reflector and press the <b>F1 (ALL)</b> button.</li> </ul> <p>This will take an observation and, depending on the location of the reflector, one of two screens will appear. More than likely you will not be within your tolerances set in the Stakeout Configuration step and will see the Difference Limit Exceeded screen.</p> <p>This screen displays the <b>Point ID</b> and <b>Store ID</b> as well as the directions and distances with respect to the orientation that the reflector needs to move to reach the stakeout point. Notice that the ! icon appears next to any field whose value lies outside the tolerance.</p> <ul style="list-style-type: none"> <li>Move the reflector closer to the point and press the <b>F1 (BACK)</b> button to return to the Orthogonal Stakeout screen and make another observation.</li> </ul> <p>This step continues on the following page.</p>	

Continued on next page

# TPS1200 Quick Guide

## 8.4 Staking Out Points

Step	Action	Display
1	<p>Continuing in the STAKEOUT Orthogonal Stakeout screen:</p> <p>Notice that the Orthogonal Stakeout screen now displays the directions and distances with respect to the orientation from the previous screen as well as a graphical representation of the location of the reflector with respect to the point. You can now turn to the reflector and either press the <b>F2 (DIST)</b> button to check its location or press the <b>F1 (ALL)</b> button to record another observation. This process is repeated until the reflector falls within the specified distance from the stakeout point.</p> <p>Once the reflector is observed within the specified distance of the stakeout point, it will store the staked point and automatically turn to the next stakeout point.</p> <p>By pressing the <b>F6 (PAGE)</b> button, you can access the Map page and see that point <b>10</b> has been replaced with point <b>10STKE</b> due to having the option chosen to add a suffix in the configuration menu.</p> <p>Additionally, you can access the Data Manage screen by selecting the Data icon (📊) and see that the staked icon (📍) appears next to point <b>10</b> as a reminder to the user that this point has been staked out.</p> <p>Pressing the <b>ESC</b> button and pressing the <b>F6 (PAGE)</b> button again returns you to the Stake page where additional points can be selected and staked out.</p>	 <p>The first screenshot shows the 'Orthogonal Stakeout' screen at 06:55. It displays a circular target with a reflector icon. The distance to the reflector is 5.500 ft. The screen also shows 'BACK: -0.075 ft', 'LEFT: -0.021 ft', and 'FILL: 0.107 ft'. The 'Ht' is 99.893 ft. The 'ALL' button is highlighted.</p> <p>The second screenshot shows the 'Orthogonal Stakeout' screen at 06:59. It displays a map view with point 10STKE. The 'DIST' and 'FILL' values are shown as dashed lines. The 'ALL' button is highlighted.</p> <p>The third screenshot shows the 'Data: Default' screen at 07:04. It displays a list of points and their codes. The 'Data' icon is circled in red. The 'Point Code' column shows 'CONTROL PT' for points 10, 6, 5, 2, and 1. The 'Point Code' for point 10 is circled in yellow.</p>