

Chapter 1 - Line Levelling

Introduction

The Line Levelling program provides a faster, more efficient way of running and collecting level loop data. You can select from a list of methods (BF, BFFB, aBF, aBFFB) and the program will automatically update for each move after you have measured and recorded the shot.

Program notes

There are typically many choices for each of the settings we will discuss while preparing the program to start, but this example will not cover using all of them. We will go through the most standard setup that will allow you to begin collecting data the fastest and easiest way. As you become more familiar with the level we suggest you explore the other settings and reference the user's manual for any additional explanations you require for the available settings.

| Step | Action | Display |
|------|---|--|
| 1 | <p>From the "Meas & Rec" screen:</p> <ul style="list-style-type: none"> Press the PROG button. Select 2 Line Levelling and press the ENTER button. <p>This takes you to the "LINE LEVELLING" screen.</p> | <pre> PROGRAMS ----- 1 MEASURE ONLY 2 LINE LEVELLING 3 CHECK & ADJUST <QUIT> </pre> |
| 2 | <p>From the "LINE LEVELLING" screen:</p> <ul style="list-style-type: none"> Highlight 1 Set Job and press the ENTER button. <p>You will either need to select an existing job or create a new job as we will do in this example.</p> <ul style="list-style-type: none"> Enter the job name and information in the other fields you require. Highlight <SET> and press the ENTER button. <p>This takes you back to the "LINE LEVELLING" screen.</p> | <pre> NEW JOB ----- Job : EXAMPLE Oper: KHL Cmt1: ----- Cmt2: ----- 03.09.2003 10:20:04 <QUIT> <SET> </pre> |

Line Levelling, Continued

| Step | Action | Display |
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| 3 | <p>Continuing in the "LINE LEVELLING" screen:</p> <ul style="list-style-type: none"> Highlight 2 Set Line and press the ENTER button. <p>At this point you will be able to either choose an existing line or create a new line as we will do in this example.</p> <ul style="list-style-type: none"> Enter a line name. Select a method using the left and right arrows to display the available selections. Enter the beginning Point ID. <p>Note: Choose a different value from the running Point ID starting value.</p> <ul style="list-style-type: none"> Enter the beginning point elevation. Highlight <SET> and press the ENTER button. <p>This takes you back to the "LINE LEVELLING" screen.</p> | <pre> NEW LINE ----- Name: HWY59 Meth: BFFB PtID: BM145 H0 : 12.4270 m Stf1: ----- Stf2: ----- <QUIT> <SET> </pre> |
| 4 | <p>Continuing in the "LINE LEVELLING" screen:</p> <ul style="list-style-type: none"> Highlight 3 Set Tolerances and press the ENTER button. Use the Left and Right arrow buttons to toggle the tolerances OFF or ON based on your preferences. Highlight <VALUE> and press the ENTER button. <p>This takes you to the "ENTER TOLERANCES" screen.</p> | <pre> SET TOLERANCES ----- DistBal : ON MaxDist : Off StafLow : Off StatDif : On B-B/F-F : Off <QUIT> <VALUE> <SET> </pre> |

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Line Levelling, Continued

| Step | Action | Display |
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| 5 | <p>In the "ENTER TOLERANCES" screen:</p> <ul style="list-style-type: none"> Set your tolerances to the preferred values. Highlight <SET> and press the ENTER button. <p>This takes you back to the "SET TOLERANCES" screen.</p> | <pre> — ENTER TOLERANCES — DistBal : 3.00 m MaxDist : 50.00 m StaflOW : 0.50 m StatDif : 0.0003 m B-B/F-F : 0.0002 m <EXIT> <SET> </pre> |
| 6 | <p>Continuing in the "SET TOLERANCES" screen:</p> <ul style="list-style-type: none"> After having the appropriate tolerances set, highlight <SET> and press the ENTER button. <p>Note: Once these tolerances have been set for a particular line, they will stay as you have set them although the user will still have to enter the SET TOLERANCES screen as step four of the line levelling process. The crew will just need to enter the Set Tolerances menu, highlight <SET>, press the ENTER button and continue with the program.</p> <p>This takes you back to the "LINE LEVELLING" screen.</p> | <pre> — SET TOLERANCES — DistBal : On MaxDist : On StaflOW : Off StatDif : On B-B/F-F : Off <QUIT> <VALUE> <SET> </pre> |

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Line Levelling, Continued

| Step | Action | Display |
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| 7 | <p>Continuing in the "LINE LEVELLING" screen:</p> <ul style="list-style-type: none"> Highlight 4 Start and press the ENTER button. <p>This takes you to the "CHECK LIST" screen.</p> | <pre> LINE LEVELLING ----- [*] 1 Set Job [*] 2 Set Line [*] 3 Set Tolerances 4 Start <QUIT> </pre> |
| 8 | <p>The "CHECK LIST" screen allows you to observe a few of the settings that you have chosen on other screens before beginning the level line.</p> <ul style="list-style-type: none"> Mode: measurement mode n: number of measurements PtID: running point id value Incr: running point increment value <ul style="list-style-type: none"> Highlight <OK> and press the ENTER button. <p>This takes you to the "LINE LEV" measurement screen.</p> | <pre> ----- CHECK LIST ----- Mode : Single n : 1 sDevM/20m: -.---- m USER-Key : TestMeas PtID: : 1 Incr: : 1 : <OK> </pre> |
| 9 | <p>In the "LINE LEV" screen:</p> <p>The first measurement will be a backsight to the point you established as the starting point of the new line.</p> <ul style="list-style-type: none"> Aim at the rod on that backsight point (BM145 in this example). Press the red MEASURE button. <p>This will advance you to the next screen ready for the foresight measurement.</p> | <pre> LINE LEV BFFB BFFB ↑ ----- PtID: BM145 Rem : ██████████ DBal: 0.00 m DTot: 0.00 m <QUIT> </pre> |

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Line Levelling, Continued

| Step | Action | Display |
|------|---|---|
| 10 | <p>Continuing in the "LINE LEV" screen:</p> <ul style="list-style-type: none"> Aim at the rod on the foresight point (1 in this example) and press the red MEASURE button. Continue through the sequence of measuring to the foresight again and the backsight. | <pre> LINE LEV BFFB BFFB ↑ ----- PtID: 1 Rem : ----- DBal: 45.00 m DTot: 45.00 m <QUIT> <LAST> </pre> |
| 11 | <p>Continuing in the "LINE LEV" screen:</p> <p>If you would like to view details about the last measurement taken:</p> <ul style="list-style-type: none"> Highlight <LAST> and press the ENTER button. Highlight <PREV> and press the ENTER button to return to the "LINE LEV" program screen. | <pre> View last measurement ----- PtID : BM145 Staff: 1.5000 m Dist : 45.00 m <PREV> </pre> |
| 12 | <p>Continuing in the "LINE LEV" screen:</p> <ul style="list-style-type: none"> Move the level ahead and backsight the original foresight (point 1 in this example). Continue with the level line measurements until the last point has been measured as a complete station setup. When finished, highlight <QUIT> and press the ENTER button. <p>This takes you back to the "MEAS & REC" screen.</p> | <pre> LINE LEV BFFB BFFB ↑ ----- PtID: 1 Rem : ----- DBal: 0.00 m DTot: 90.00 m <QUIT> <STATION> <LAST> </pre> |