Particle Physics Division, Technical Centers, Alignment and Metrology
Operating Procedure

Procedure Name : Leica DNA03 Level Procedure (short form) **Revised on Date:** May 7, 2009

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AMG Levels Program Short-form Procedure

1. At the office, download an elevation control file from the AMG Database, save as .csv file.
2. Ensure that the computer has a file c:Levels/corrections/ScaleCorrection.csv
3. Inspect equipment; ensure that all are in good condition.
4. Setup level on tripod and perform peg test using the peg test program in the instrument.

5) Peg test will be performed at the start of each day that levels are run.
   a) Turn on the instrument by pressing and releasing the red oblong shaped button on the bottom left side of the instrument. The instrument opens in "Measure & Record" mode.
   b) Press the "Prog" oval button in the first row of buttons on the right side of the eye piece.
   c) Use the yellow arrow shaped buttons on the left side of the eye piece (the bottom "Pg Dn") arrow down three times to the number 4 "CHECK & ADJUST", then press the red right angle shaped button at the bottom and right side (this is a "return/enter" button).
   d) The collimation error will be stored in accordance with Procedure AMG-022, To set the job, press the "return" key at the number 1. Job. The job indicated may be continued by using the arrows to select the <QUIT> or <SET> at the bottom of the screen. To change the name of the job, use the yellow arrows to move to <NEW> and select by pressing the enter button. The "New Job" screen is displayed; enter the job name (i.e. 06MAR07), operator name, and comments, then arrow to the <SET> selection and press the return button. (Note: pressing the shift key before pressing the number/letter keys toggles the keypad between alpha and numeric.)
   e) Next in the "Check & Adjust" window the 2 "Set Method" must be selected using the return button.
   g. The method should be A x x B (this method requires two instrument stations at 1/3 the distance from the two scales). Entering the staff identification is not required. Arrow down to the <SET> and press the enter key.
   h. Two leveling rods or scales will be used at approximately 21 meters. At the "Check & Adjust" screen, 3 "START" is selected: press the return button. Determine the distance between the two scales; the first instrument should be 1/3 the distance from Scale "A" and between the two scales
   i. Sight scale "A", and press the measure button (the round red button on the left side of the instrument).
   j. After the measurement is taken, press the return key to continue.
   k. Sight the "B" scale, and press the measure button (the round red button on the left side of the instrument).
   l. After the measurement is taken, press the return key to continue.
   m. Move the instrument to the second instrument station, approximately 1/3 of the distance from scale "B".
   n. Sight scale "B", and press the measure button.
   o. After the measurement is taken, press the return key to continue.
   p. Sight scale "A" and press the measure button.

q. After the measurement is taken, press the return key to continue.
r. The screen will now display the collimation computation. Note the difference number. Press the return key to set the collimation correction, if the difference is outside the +2 to –2 range, the peg check must be repeated.

6. (**NOTE: there are two sets of BluePort Connection systems; ensure that you are using a matched set! They all have a small sticky label with a number on them: use the #1's together (on the HP laptop) or use the #2's together (on the Latitude D800 laptop), they will not work otherwise**.)

7. Connect RS232 cable to Rosie (DNA03), connect the other end to the BluePort connector and using the slide switch to turn it on.
8. Connect Firefly BluePort in one of the USB ports on the computer.
9. Boot up the computer: The FireFly BluePort will glow with a blue light and the BluePort connected to the computer should have a solid green light when connected.
10. Copy your Elevation control file to c:levels/DataBase Elevations/<Name> (this must be a .csv file).
11. Double click the levels program shortcut on the desktop (or navigate to c:MyConsole/ConsoleApplication/bin/VB.NET How-To Using The Comm Port.exe)
12. Click START.
13. Select the elevation control file.
14. Select Normal or Inverted
15. Input point name.
16. Select number of measurements per point. This may be adjusted at any time.
17. At the bottom of the user interface window is a scrollable input box labeled "Please Enter Comments Below", the comments will be attached to the next point measured. A "Repeat Comments" check box may be used to associate the comment with several points and must be unchecked to discontinue.
18. Input stick and scale corrections. NOTE: the stick box number is a combination of the stick and the scale corrections.
19. Measure backsight.
20. Program moves to foresight mode automatically, user may opt to take intermediate shots by checking the Intermediate checkbox (remains in intermediate until user un-checks this option).
21. Input stick/scale corrections, and measure foresight.
22. Program will switch to the backsight mode.
23. Continue alternating between backsight and foresight until forward run is completed.
24. Click "Reverse Run", program will guide the user through the measured points in reverse order and notify the user when finished.
25. Miscellaneous user informational windows will pop up as need to guide the user. Observe statistics and make corrections as needed to maintain the integrity of the run. Station Balance, Cumulative Delta, BS Distance, and FS Distance are in meters, not feet.
26. NOTE: New point names that do not exist in the elevation data file loaded at "START" of program will require stick/scale corrections to be entered twice.
27. "New Line" (upper right corner of the window) clears the statistics and inserts a new starting point for the reverse run option.
28. The program creates three data files during operation. One file is an operational file only (c:/Levels/DataBase Elevations/Level Control_<today's date>); the other two are the data files for the run, which must be logged at the office at the end of the day and or job. The two data files are c:/Levels/Run/LevelRun.txt and c/Levels/Run/LevelRunCrew.txt. The operational file may be deleted

when the run is completed. Each run, data will be appended to the data files. Each day, the c:/Levels/Run/LevelRun.txt and c/Levels/Run/LevelRunCrew.txt data files may have the data from past runs cleared to avoid confusion and keep the files current. NOTE: when clearing out the data of these two files do not delete or clear the headers! Do not move the files or change the names.