

Jefferson Lab Alignment Group

InvLevel PROCEDURE

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Procedure Overview

This procedure describes the steps necessary to perform 1st order vertical control primarily within the accelerator network using the Psion data collector, Invlevel software version 1.0, and the NA3003 auto level.

Safety Issues

Refer to general survey hazard analysis for issues concerning lifting, equipment transfer, etc.

Prerequisites

When planning for NA3003 use, ensure battery packs and lights are charged the day before. Calibration should be performed on the rods and instrument prior to use. Care should be used handling equipment to prevent shock and monuments should be free of debris.

EQUIP. LIST:	Fluorescent light	Psion	NA3003
	Tripod	Cable	1.5" sphere (2)
	Level rods	Blowout bulb/air	

Procedure Steps

1. Set up

Uncap and clean an even number of monuments (up to 12) to be measured within the loop. During the level run, a "leap frog" system will be used. It is helpful to record the monument names on paper in the desired sequence of shots to prevent recording errors in the data collector and confusion during the loop. The instrument should be temperature acclimated and set up mid way between the first and third monuments (first leg with one skipped). The level rods should be placed on the monuments with the scale portion directly over the monument tangent point.

2. Instrument and program startup

Connect communication cable, turn on the instrument, and level up.

Turn on the Psion, using the arrow keys, toggle to PsiLevel and press **enter**.

Note: If PsiLevel does not come up on screen when turned on, or locked up, follow these steps: Reboot (Ctrl-U-Del), Menu, System screen, Menu, Side arrow to Apps, Install, At (File: Name), side arrow to Psilevel.app.

Toggle side arrow to INV LEVEL NA3003 and press **enter**.

Using the arrow keys, follow prompts to enter type of leveling, hand booked or not, and initialization.

Note: "OK" on screen is the enter key.

Follow prompts to enter names of crew, station, and rod, and type of foot. Monument names should have an **R** prefix.

3. Begin measurements

After the station information is entered, the measure back sight screen comes up. When taking measurements, the line of sight must be centered and in focus on rod for accurate measurements. Ensure that the light is in the area of sight on the rod and without glare.

Press **enter** to record the back and front sights. Press **U-A** to accept measurements for the leg.

4. Continue with the remaining setups

Continue with prompts to enter the next station information.

Continue the same sequence for each setup while skipping over one monument each time. These monuments will be picked up on the return portion of the loop. With the exception of overlapping at least two monuments for the next loop and the starting point, the caps can be replaced during the run to help keep track.

When finishing at the starting point of the loop, if all monuments were shot in the proper sequence, you should have the same rod and name as started with. The software recognizes this is the end of the loop and will solve for the loop closure.

Press **U-A** at the same time to accept closure.