Optical Tooling with a Laptop Data Collector

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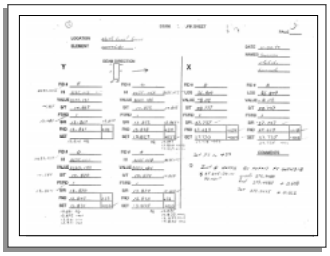
Abstract:

It has long been understood that the transposition of data from printouts to data collection sheets, and the subsequent manipulation of this data with measurement values, is an obvious error source in optical tooling projects. Ideas for computerized data collection have been under consideration for some time, yet they lacked the versatility needed for even the most typical optical tooling jobs. Surveyors experienced with optical tooling were used to designing the measurement strategy that worked best for each job. There was no canned formula that worked with every case. After extensive field testing a program was developed that worked in as many cases as possible. The program contains ideal files for components and monumentation, format sheets for set-up and measurement of components, and a summary sheet of work accomplished so far. This allows for the step by step movement through the measurement process.

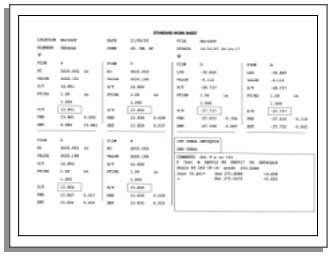
By hand, one person full time could almost keep up with measurements.

Using the computer, instant results are available to the crew.

Now, where was that data sheet?

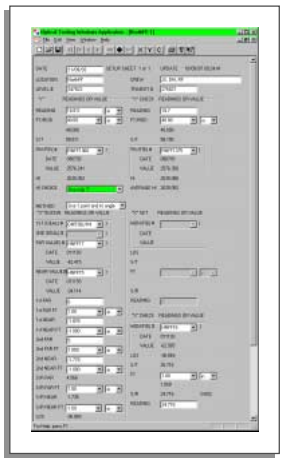


Hand written work sheet.

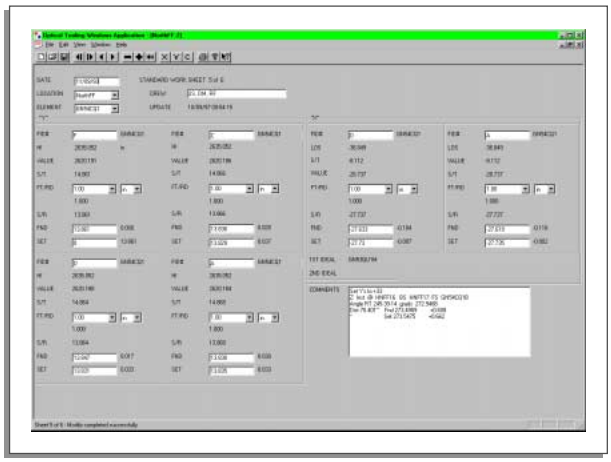


Worksheet printout from computer.

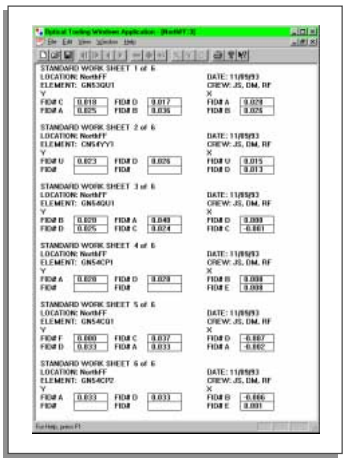
Setup sheet, worksheet, summary sheet, and all data files.



Set up sheet, with instrument height and line of sight



Work sheet, showing fiducials of one component



Summary sheet, showing all components done from one setup.