Accurate Technology, Inc. ProCAB QC Measurement Software User Manual

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Introduction

ProCAB QC is a Microsoft Windows® application that is designed to be used with the Accurate Technology Inc. ProTable-CAB 2D measuring system. The purpose of the system is to provide a method of importing daily or shift based production data representing customer orders to be produced and then measuring the dimensional quality of the fabricated parts used to fulfill those orders.

The software will automatically attempt to identify a part once it has been measured, recording the actual measurements for the part and associate the measurement data with the corresponding line item of the order. The software can optionally print a self-adhesive label from a label printer that can be applied to the measured part. This label may contain the measured dimensional data, part identification, order ID, line number data and time/date of measurement and other user definable information.

Upon completion of measurement of all parts in the order, the software can generate a packing slip showing customer ship and bill information along with line item specifications including measurement results for each part. The application also generates a data file for the order containing the same information as the packing slip in electronic format. This data can then be later imported by a spreadsheet or database program for quality control tracking or other purposes.

Key Features Include:

- Production data imported via .CSV file in either single order or multi-order formats.
- Multiple user definable data mapping templates for both single and multi-order file formats.
- Software can parse existing business model .CSV files based on mapping templates. Import files do not require special formatting. Data fields that may be used for other applications or reporting are ignored.
- The number of imported orders that can be maintained by the system is limited only by system memory.
- The number of line items per order is limited only by system memory.
- Parts can be measured in any sequence for a particular order.
- Parts can be measured manually (not using the measuring table), if enabled, to measure parts whose size exceeds the capabilities of the measuring table.
- Line items are automatically marked as complete when the prescribed number of parts for that line item have been measured.
- Orders are marked as complete when all line items have been completed.
- Incomplete orders can be processed as complete allowing for back-ordered parts if option enabled.
- User definable packing slips can be printed containing the customer ship and bill information plus part measurement information.
- Completed order data is written to an individual .CSV file when an order is complete.
- The system state is automatically saved when the program is exited and

restored when re-started. This includes all order, line item and measurement information.

o Dimensional part measurement tolerance for height and width are user definable with separate upper and lower tolerances per template.

o Production data can be imported in either inches or millimeters per template.

o Production measurement data can be imported in either decimal or fractional inches or a mixture of the two.

o Displayed measurement position data can be switched between inches and millimeters on the fly.

o Measurement precision is definable for both inches and millimeters.

o Software can recognize if one or more line items have the same measurement specifications (Part Ambiguity).

o The system can be configured to accept out of tolerance parts with user interaction.

o Line item part quantity required, width and height can be optionally modified after file import.

o Optional label printer feature to generate self-adhesive labels for measured parts.

o Part label formatting is user definable to include any available data fields in the system. Various label printers can now be supported via the use of Windows print drivers.

o Rejected part labels can be printed when using the optional label printer and automatically include nominal height and width information.

o Incomplete Order Report can be generated to indicate missing or out of tolerance parts that need to be reproduced to complete the order.

o Parts can be automatically identified regardless of their placement orientation on the table (normal or rotated 90 degrees).

o Primary table measurement axes can be swapped via system option setting.

o Part label printing can be defined and enabled via individual .CSV template.

o Pack list printing can be defined and enabled via individual .CSV template.

o System parameter settings can be exported and imported for backup and migration to newer versions of ProCAB QC.

o Two user definable line item fields and one user definable order field have been added to allow the storage of additional information.

o Pack list can be printed directly after order completion or can be viewed via "Print Preview" based on option configuration.

New to Version 1.2

o Tool Bar that provides buttons to access most used functionality.

o Larger pull-down menus to ease access when choosing items using touchscreen.

o Larger main window size, 1024 x 768

- Supports optional DEPTH axis measurements to test parts in all three dimensions.
- Depth axis measurement capability can be determined by template definition.
- Ability to preview part labels prior to printing.
- Additional fields in label/report printing features. Includes height, width and depth measuring error values and part measured rotated status.
- Completed order CSV file now includes rotated status for each measured part.
- System state saved to disk after each part measured. Allows system to recover if PC is powered off or crashes.
- Defect labels can now be printed even if part is out of tolerance.
- Refined axis swap option to switch height and width axis operation.
- Enhancement to allow operation with Open Office CSV export to filter out quotation marks around text fields.

New to Version 1.2.1.0

- Digital angle measurement support. Allows ProTable-CAB measurement systems equipped with optional angle measurement capabilities to display measured angle of origin corner and include the measured angle in the line item matching test results. If a match is found, the measured angle is recorded in the completed job file along with the existing part measurement data. Angle tolerances are programmable by template and have independent (asymmetrical) upper and lower limits.
- User interface screen can now be expanded to fit the entire desktop in computing environments that use screen resolutions higher than 1024 x 768.
- Line item quantity required data can now be imported in either integer (whole) or decimal values from the job/order CSV file.

New to Version 1.2.1.4

- Added template fields for importing additional optional job data. These additional fields can be used in reports and part label generation. Additional fields include:
  - Hinging information.
  - Finish.
  - Type.
  - Location.
  - Machining required.
  - Assembly ID.
  - User Message.

- Updated the line item grid screen to add the additional columns for the new import fields.
- If User Message field is populated with data AND Show User Message Dialog is checked under options, a pop-up user message dialog box is presented to

the user when a part is measured and identified. This allows important information to be passed to the user on a per line item basis. The user must click the OK button on the dialog box to continue.

o Added Job List sorting capability. Previous versions listed jobs in the order in which they were imported. This version sorts jobs as they are imported in ascending order. A new Sort Direction button allows the user to sort in descending order.

New to Version 1.2.1.5

o Changed security package.

New to Version 1.2.1.6

o Added User Defined 3 field to import additional non-defined line item data.

o Modified Line Item grid screen to support column name configuration from default. Columns positions can now be re-ordered.

o Updated Line Item detail dialog to add new import fields from version 1.2.1.4.

Glossary

The following is a glossary of terms used by ProCAB QC.

CSV File - A text file that uses commas to delimit fields of data that can be parsed or separated into groups. This type of data file can be created or imported by spreadsheet applications and database systems. The ProCAB QC software uses this type of file to import production information and export completed order information.

Line Item - The fundamental description of the part to be created and measured. Minimally, a line item includes the part's nominal width and height dimension, a description (i.e. part number or textual description) and the quantity of part instances (copies) required to fulfill the line item. Optionally, a line item may also include nominal thickness, material, style ,a comment and two user definable data fields. These optional fields are not used directly by the system but may be useful to the operator during the measurement process.

Order - A collection of one or more line items that are typically associated with a single customer. In addition to the line items, the order may contain customer shipping and billing information. The customer information is used for packing list generation and writing completed order data files.

Single Order Production Data File - A CSV file that contains production information for a single order. Typically, this type of file has a header section that defines the customer information followed by one or more lines of data with each line representing information for a single line item. This type of file and its structure is described in detail in Single Order File.

Multi Order Production Data File - A CSV file that contains production information for one or more orders. Typically, this type of file contains multiple lines of data with each line representing a single line item. In this file format, EVERY line item contains references to an associated order number/ID and customer information. This type of file and its structure is described in detail in Multi Order File.

CSV Mapping Template - ProCAB QC uses templates to determine what fields of data are to be used from a production data file. The system supports two independent groups of templates, one for single order data files and one for multi-order data files. The user initially configures one or both of these groups of templates depending on which type of file is being used in the customer's production. Once properly configured, production data files can be read by the system and parsed into line items and orders. Mapping Templates are described in detail in Field Mapping Using Templates.

Part Measurement - When an individual part is measured on the ProTable-CAB, a part measurement is created which contains the measured width and height plus a time/date stamp. The part measurement is then compared to each line item in the order. If a match is found within tolerance, the measurement is stored with that line item and the part quantity measured for that line item is incremented by one.

Completed Order CSV File - When the required quantities for all line items have been met, the order is complete. The order data which contains all line items and their

associated parts measurements plus any defined customer information is stored to a separate CSV which is named by the Order ID. This data can then be later imported by a spreadsheet or database system for production or quality control statistics.

Packing List - ProCAB QC can optionally print a ***user defined*** packing list that has the same information that is stored to the completed order file. This can be used as part of the shipping documentation to the customer if desired. The documentation can also be exported to a variety of formats including PDF, bitmap, CSV, etc. The list can also be emailed directly from the application if the host computer has an email tool installed. This additional capability requires that the Print Preview option be used.

Part Labels - Using an optional label printer, ProCAB QC can be configured to print a ***user defined*** self-adhesive label for application to the measured part. The label may contain the measured height and width, in-spec/fail, order ID, line item number, part ID, time/date of measurement or other user defined information.

Quick Start Installation Guide

This section can be used as an overview for ProCAB QC Installation and Setup. It summarizes the steps required to install and configure the application. For more details regarding individual topics, review the associated topic sections of this manual.

Item denoted in RED are already completed when you purchase the ProTable-CAB measuring system with the integrated industrial computer.

1. Install ProCAB QC on the target PC. This application requires the use of Microsoft .NET 3.5 framework. If not currently installed on the target PC, the installation program will automatically download .NET from Microsoft and install it. This will require an active Internet connection. This must be done while being logged into the PC as an administrator.

2. Install the provided ProRF wireless receiver driver software on the target PC.

3. Connect the ProRF wireless receiver to the target PC via a USB cable.

4. Launch ProCAB QC and select the "Register Later" button from the welcome screen. The application is initially distributed in a trial version. You have 15 days to use the program prior to expiration or activation. See the Evaluation Screen section for details. *NOTE: When purchased with the integrated industrial computer, the software is shipped activated.*

5. Click on the Configuration menu item and select "Log In". Enter the default password of 1234. Press OK (Check Mark). Click on the Interface Hardware tab. Click the drop-down arrow button on the Port Setting field. Select the serial port ID that is being used by the ProRF receiver. See ProRF Wireless Receiver Setup for details on determining what port ID to use.

6. Click the Auto Configure button to begin the automated configuration of the ProScale Encoder transmitters. Follow the instructions provided.

7. Click on the Axis Parameters tab to set the encoder direction, datum preset and the scaling factor if necessary. This must be completed for both Width and Height axes.

8. Click the OK button to save the parameters and close the Options dialog. Move the width and height encoders to verify that the measurements from each are being displayed by the system. If the position of an axis is displaying in an opposite direction from desired, open the Options dialog, choose the Axis Parameter tab and change the encoder direction to the opposite setting.

9. If needed, open the Options dialog again and click the System Settings tab. Choose the desired type of CSV Import Template Style depending on which type is used by your company. Single Order type is used when a production CSV file contains only a single order. Multi-Order type is used when a production CSV file contains multiple orders. Once the correct type of CSV import is selected, click the Edit Template button to access the template list. Each template type can support one or more independent templates. Select the *Default* template and click the Edit Template button. See section titled *CSV Template Concepts* for details on the CSV templates and the template editor.

   a) Once the template editor is open, select the columns for the desired fields in the Line Item section of the template editor. Columns start with A

and can extend to ZZ. This process is similar to that found in a spreadsheet. Note that several fields in the Line Item section are required. These required fields are designated by an asterisk *. The Line Item Start Row is the row where line item data begins. Rows after this defined field are read as line items. Note that rows are numbered starting from 1. This is similar to the format in a spreadsheet. NOTE: Fields that are blank are UNDEFINED and are not used.

b) Bill To and Ship To Customer data is optional. In the Single Order CSV file format, the customer data is located in defined cells PRIOR to the Line Item data. Fill in the appropriate column and row data to define the location of the appropriate customer fields in the template. In the Multi-Order CSV file format, the customer data is contained in each Line Item in the file. As a result, customer data in this template is defined only by columns similar to that of the Line Item data. In both cases, fields that are left blank are UNDEFINED and are not read by the system.

c) The Order ID field is used to associate data with an order. In the Single Order CSV format, the Order ID is typically located in a particular cell of the header area PRIOR to the Line Item data. If this is the case in your company's data files, define the cell where the Order ID is located. If your file does not include an Order ID field, leave the row and column fields blank for the Order ID. The Order ID will automatically be defined as the name of the CSV file. For Multi-Order CSV format, each Line Item (line) in the file MUST include an order ID field.

d) Click on the appropriate units type for the CSV Measurement Data, inches or millimeters. This defines the measuring units of the CSV file data.

e) Define the upper and lower tolerances for the width and height measurements. The default is .031" (.794 mm).

f) Click the OK button to close the CSV template editor.

10. Click the OK button to close the Options dialog.

11. Attempt to import a CSV file by clicking the File/Import Order File menu item. A file open dialog will be displayed. Navigate to the location where your CSV import files are located and click on the selected file. The application will attempt to read and parse the data within the file based on the definitions within the associated CSV template. If the CSV file has parsing errors, an error box will be displayed showing the error log. The log will contain debugging data that can be used to identify where the errors occurred. If the file was loaded without parsing errors, a message box will be displayed showing the import was successful. **IMPORTANT: Although a file was imported without parsing errors, it is necessary to verify that the correct data was imported into the correct fields**. This can be reviewed by selecting the order as described in the next section.

12. After one or more orders have been imported into the system, a list of orders is displayed in the Orders window of the application. Clicking on an order ID will update the line item listing relating to that order. Verify that the data is correct for the appropriate fields. If customer data fields were defined in the CSV template, click on the Bill To Info and Ship To Info tabs to display the respective customer data. If all the data for the order is correct, the template definition is also correct.

Quick Start Measurement Guide

This section can be used as an overview for the ProCAB QC fundamental operation. It summarizes the steps required to use the basic functions of the application. For more details regarding individual topics, review the associated topic sections of this manual.

This section assumes that ProCAB QC has be successfully installed and configured and the CSV template(s) have been defined correctly.

1. If not already completed, import an Order file by selecting the File/Import Order menu selections. Depending on the CSV file type, one or more orders will be imported after reading the file. The orders that are currently loaded into the system are displayed in the Orders list by Order ID

2. Click on one of the Order ID items in the Orders list. The item will become highlighted and the order data will be populated in the Line Items/Ship-Bill fields. Selecting the Line Items tab shows all of the line items contained in the order with their dimensional data, part ID quantities and a comment field. Clicking on the Ship To Info or Bill To Info will display the respective customer data if the data exists in the CSV file and has been defined in the template.

3. To complete a measurement, place the part under test on the ProTable-CAB with the bottom and left sides of the part against the horizontal and vertical fences. Move the width and height (X and Y respectively) gantries against the top and right side of the part to measure the overall part height and width. Note that the height and width fields on the monitor update in real-time as the gantries are moved. Press the Measure button on the touchscreen. The system will attempt to locate a matching line item in the order. The comparison uses the defined nominal height and width measurements from the line item plus the defined Allowable Measuring Tolerance found in the corresponding template under the System Settings tab. The results of the comparison will be one of the following:

   - An **exact match** is found (within tolerance) between the part being measured and a line item in the order. The system will momentarily display a dialog box that indicates which line item's quantity was updated. If the line item quantity has not yet been reached (quantity measured < quantity required) but at least one part has been measured, the line item will appear as yellow. If the line item is complete (quantity measured = quantity required), the line item turns green.

   - **Multiple Matches** are found for the measured part. This is referred to as part ambiguity and results when two or more line items have the same nominal dimensions. This may occur where two dimensionally equal parts are required but are made of different materials. In this scenario, the system will report the part ambiguity and require the operator to interact with the system to identify the part. A dialog will be displayed for the user providing additional descriptive information, if defined, for each matching line item. The operator then chooses the correct line item in the sequence. The measurement is then applied to the selected line item.

   - **No Matches Found.** If no line items match the measured part within tolerance, the system will find no line item matches. This would occur if

the part was improperly manufactured or if the measurement data in the CSV file were incorrect. By default, the system will indicate that there are no matching line items in the order and the measurement is discarded. The system can be configured to allow out of tolerance parts to be accepted using operator interaction. If enabled, the system will provide a list of all line items in the order to the operator showing additional line item detail if available. The operator must choose which line item matches the measured part. If the operator chooses a line item to match to the part under test, the measurement is assigned to that line item. The measurement is stored as Out of Tolerance.

4. When a line item is complete, the line for that line item turns green signifying that the quantity measured has been met. Optionally, the system can be configured such that the completed line item disappears from the order. Thus, when all line items are complete, there are no line items visible and the order is then complete.

5. The application can be configured to support an optional label printer. If enabled and connected, the label printer will print a label as each part is successfully measured. The self-adhesive label can then be applied to the part for identification.

6. When all line items for a particular order are completed, the order is considered complete. Optionally, the user can force an order to be processed as complete (if enabled). This would be used to complete an order with incomplete line items processed as a backorder. The order is removed from the order list and the order data is saved as a CSV data file. This file contains all of the original order data imported from the production CSV file plus the measured part data for each line item. The system can optionally print a pack list containing the same information. This pack list can be printed, emailed or exported in various file formats.

7. The operator selects the next order from the Orders list to continue the measurement process.

NOTES:

- When the application is closed, the state of the system is automatically saved. Incomplete orders are restored when the system is restarted.

- Orders can be optionally removed from the Orders list if that capability is enabled.

- Some fields of the Line Item can be modified by the operator if that capability is enabled.

- Orders do not have to be completed in any sequence. Measurements can be made for various orders out of sequence. The operator can work on one order, partially complete it and then switch to another order as parts become available. The operator can later switch back to the first order to complete it.

CSV Template Concepts

The input data for the ProCAB QC software is in the form of a CSV file. This file format can be easily exported from a spreadsheet or database program and presents data in a tabular form.

Two different "styles" of file format are supported.

- o **Single Order file format**. This format contains customer and production data for a single order in a single file. This type of file typically includes a header section that contains customer data in individual cells. Below the header section is one or more line items. Each line item contains data relative to a particular part to be produced.
- o **Multi Order file format**. This format contains multiple orders, line items and customer data. In this file type, there is no header section containing customer data. Each line item includes an order reference, part information and customer data if desired.

The type of file format to be selected for use is based on the customer's business model and production data. Examples of each of the file formats are provided in the next section.

Single Order File

- **Single Order File** – This file contains a single customer order which may include:

  - o Customer Bill To and Ship To information.

  - o Other miscellaneous information.

  - o One or more line items consisting of part ID, width, height, etc., all pertaining to the same order and customer.

	A	B	C	D	E
1	Ship To:	Jones Cabinetry		Header	
2		123 Main St.		Information	
3					
4		Grand Rapids	MI	49501	
5					
6	Line No	Part ID	Quantity	Width	Height
7	1	34847	5	6.5	12
8	2	34856	2	7	4
9	3	34932	6	8	16
10					

Multi Order File

- **Multi-Order File** – This file contains only line items with each line item containing:

  o An order ID.

  o Optionally, additional customer information.

  o Part data consisting of part ID, width, height, etc.

	A	B	C	D	E	F	G
1							
2	Line No	Order ID	Customer	Part ID	Qty	Width	Height
3	1	34825	Jones Cabinetry	34847	5	6.5	12
4	2	34825	Jones Cabinetry	34856	2	7	4
5	3	34825	Jones Cabinetry	34932	6	8	16
6	4	34826	Smith Interiors	34659	6	6	10
7	5	34826	Smith Interiors	34749	2	6	4
8							
9							
10							

Field Mapping Using Templates

To allow for the diversity in customer data formatting, ProCAB QC utilizes a data mapping feature to assign order file data to application fields. The system supports multiple templates for each file type (single or multi-order) that can be used to map order data to fields in the system. Each template is independently configurable and provides a method to import order data when more than a single order file format structure exists. This allows customers to tailor the software to their existing production data files based on their business model.

As part of the initial configuration process, the user must choose which type of import file type to use, single or multi-order format. The administrator can use the initial Default template and then assign the associated data fields from the production file sample to the appropriate cell or column data in the template.

In some cases, the order data structure may be submitted or defined by the customer and may not be consistent from customer to customer. In this case, the administrator can define multiple templates, perhaps one for each customer. Each template can then be configured for the associated customer's order data file structure.

The template configuration process may be iterative, requiring several imports and template modifications prior to a successful data import. Once the template(s) have been configured, template modification should not be required unless the order data file structure changes.

The template configuration process is outlined as follows.

1. Start the ProCAB QC application.
2. Click Configuration/Log In.
3. Enter the password. The default is 1234. Press OK or ENTER.
4. From the System Settings tab, choose the desired CSV Import Template Style, Single Order or Multi-Order.
5. Click on the Edit Template button.
6. The Template List will be displayed. The administrator can create, rename, delete or edit templates for a particular style. See the next section for details.
7. Choose the Default template, another existing template or create a new template and click the Edit Template button.
8. The appropriate template editor will open. See the following section for examples of each.
9. Fill out the column/cell entries as required. Note that only fields marked by an asterisk are required.
10. Select the type of measuring units, inches or millimeters, that is used by the template.
11. Define the upper and lower accuracy tolerances for the width and height measurements.
12. Click OK to close the template editor. Click Done to close the Templates List. Click OK to close the Options dialog.

13. Open a CSV file to import by clicking File/Import Order File. A File Open dialog appears. Navigate to the desired CSV production file and select it. Click Open.

14. If more than the Default template has been created, the system will post a dialog with a list of templates to choose from. The selected template is then used to parse the CSV file.

15. The system will attempt to import the CSV data, parse the information and build one or more orders. There are two possible results of this operation:

   - The system will *successfully* import the CSV data into the system without error. A notification message will be presented to the user that the file was imported successfully.

   - One or more errors are detected during the import operation. An error message dialog is presented with a list of errors and the CSV file line number where each error was detected.

If the import was successful, it is important to review the imported data to verify that it is correct. Errors are detected, for example, where numeric data was anticipated but character data was read. These types of error are detected and listed in the error log. The system CANNOT determine if the data that was read was the type expected BUT was the incorrect data. In both cases, these types of errors are related to incorrect field mapping.

If errors are detected or if the imported data is not in the correct fields, open the Options dialog by clicking the Configuration/Options menu item. Continue from step 5 listed above and re-edit the template. Attempt to import the CSV file again and verify the data.

Template List
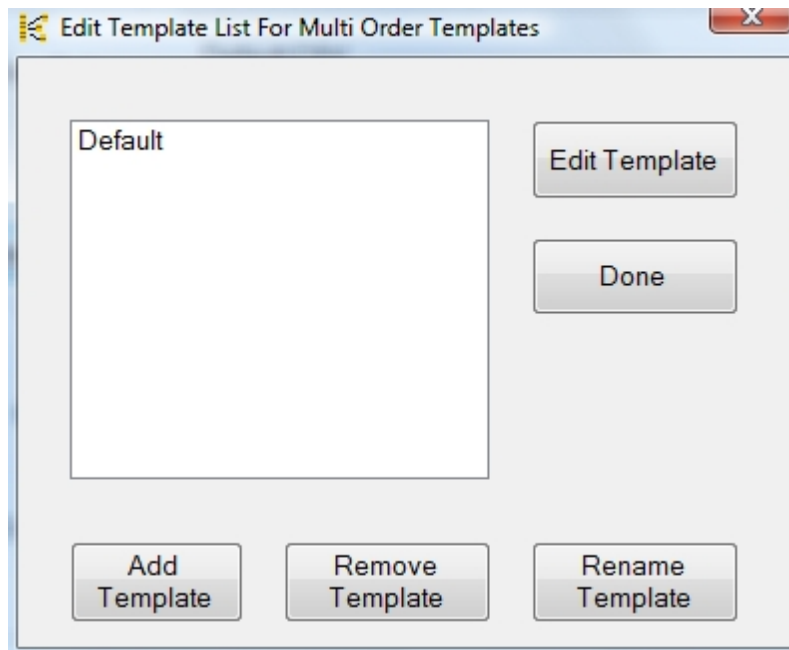
The dialog above shows the Template List for Single Order templates. The administrator can complete the following:

- o Edit an existing template shown in the list.
- o Add a new template to the list.
- o Remove an existing template from the list.
- o Rename an existing template.

Edit Template - Select an existing template name from the list and click the Edit Template button. The appropriate template editor will be displayed. See the next sections.

Add Template - When the system is required to import order data from various file configurations, a separate template is required for each file configuration (mapping). Click the Add Template button to add a new template. A dialog will be presented to name the new template. Enter the template name and click OK. The name of the new template will appear in the list.

Remove Template - Removes an existing template from the system. Select the name of the template to delete and click the Remove Template button. A warning message will be issued that the template is about to be deleted. Clicking **Yes** will permanently delete the template data from the system. NOTE: Deleting a template CANNOT be undone.

Rename Template - Renames an existing template. Select the template to rename and click the Rename Template button. A dialog will be presented to rename the template. Enter the template name and click OK. The new name of the template will appear in the list.

Done - Exits from the Template List editor.

Note. You can select a template to edit by double clicking on the template name.

Single Order Template

The image below shows the layout for the Single Order template.

Line Items

Line items are repeated rows of data where the field data are located columns that typically do not change. As a result, the fields under the Line Items section are all represented by columns. To assign a system field to a file data field, enter the corresponding letter representing the column where that field data is located. Legal identifiers are A-ZZ. Letters can be entered in either upper or lower case. If a field is not to be used (not read), leave the column entry blank. Note that fields marked with an asterisk (*) are required and

must be defined.

Line Item Start Row indicates the row where line item data starts. Rows prior to the start row are considered the header section, column titles or other unused data.

Customer Data

In the Single Order template, the customer data is defined in specific cells in the header area of the file. There are separate billing and shipping customer areas. To associate a customer system field with the file data field, assign both a row and column to the customer field template entry. If a customer field is not to be used, leave the row and column entries blank. Customer data is completely optional and is used for creating pack lists and writing completed order data to a file.

Order ID defines the cell that holds the Order Identification data in the production data file. If your file data contains the order ID in a cell, define the column and row that contains the data. If your data file does not contain the order ID data in a cell, leave the column and row entries blank. When the file is imported, the order will be identified by the root name of the data file. For example, if the data file is named 34759.CSV then the order will be identified as 34759.

CSV Measurement Data

These buttons define if the CSV file data to be imported is in inches or millimeters. A CSV data file cannot mix inch and millimeter measurements but when using inch mode, data can be processed as decimal inches or fractional inches or mixed.

Pack List Template

ProCAB QC version 1.1 allows pack list printing to be controlled via CSV templates. If the CSV file includes a specific pack list print template file name to use, define the cell that contains the print template file name. See "Controlling Printing via CSV Templates" for more information. See appendix B, "Configuring Printing Templates" for information regarding Printing Templates.

Part Label Template

ProCAB QC version 1.1 allows part label printing to be controlled via CSV templates. If the CSV file includes a specific part label print template file name to use, define the cell that contains the print template file name. See "Controlling Printing via CSV Templates" for more information. See appendix B, "Configuring Printing Templates" for information regarding Printing Templates.

Order User Def 1

This cell can be used for data that is user defined relating to a particular order. It is typically used in reporting, labeling and in creating the completed order CSV file. If used, define the cell's row and column IDs.

Test Depth Dim

If configured, defines the cell in the CSV file that instructs the ProCAB-QC software if the Depth axis is to be used in the part measurement evaluation. The defined cell must have the word **yes** or **YES**. If the cell is configured in the template but the defined cell does NOT have the word **yes**, the Depth axis will not be used in the measurement evaluation. This allows a common template to be used for both 2D and 3D evaluations and enables the CSV data file to determine if the Depth axis is to be used on a per file basis.

Allowable Measuring Tolerance

This section defines the plus and minus tolerances for the height, width and depth and angle measurements. Set these values to correspond to the minimum and maximum tolerances allowed for completed parts. These tolerances are used in conjunction with the respective nominal height, width and depth dimensions. Angle tolerance is ALWAYS based on a 90 degree angle and the values are in DEGREES.

Multiple Order Template

The image below shows the layout for the Multi Order template

Line Items

Line items are repeated rows of data where the field data are located columns that typically do not change. As a result, the fields under the Line Items section are all represented by columns. To assign a system field to a file data field, enter the corresponding letter representing the column where that field data is located. Legal identifiers are A-ZZ. Letters can be entered in either upper or lower case. If a field is not to be used (not read), leave the column entry blank. Note that fields marked with an asterisk (*) are required and

must be defined.

Line Item Start Row indicated the row where line item data starts. Rows prior to the start row are considered column titles or other unused data.

Customer Data

In the Multi Order template, the customer data is defined within the same row as the line item data and is identified by a specific column for each customer field. Legal identifiers are A-ZZ. Letters can be entered in either upper or lower case. Customer data is optional and is used for creating a pack list and saving the completed order to a file. Assign a column letter to the associated customer field if that field is to be used. Otherwise, leave unused customer column entries blank.

Order ID defines the column that holds the Order Identification data in each line item row. Since a multi order file contains numerous line items from multiple orders, each line item MUST have a column associated with it that defines the order ID for which it belongs. This data is required.

CSV Measurement Data

These buttons define if the CSV file data to be imported is in inches or millimeters. A CSV data file cannot mix inch and millimeter measurements but when using inch mode, data can be processed as decimal inches or fractional inches or mixed.

Pack List Template

ProCAB QC version 1.1 allows pack list printing to be controlled via CSV templates. If the CSV file includes a specific pack list print template file name to use, define the column that contain the print template file name. See "Controlling Printing via CSV Templates" for more information. See appendix B, "Configuring Printing Templates" for information regarding Printing Templates.

Part Label Template

ProCAB QC version 1.1 allows part label printing to be controlled via CSV templates. If the CSV file includes a specific part label print template file name to use, define the column that contain the print template file name. See "Controlling Printing via CSV Templates" for more information. See appendix B, "Configuring Printing Templates" for information regarding Printing Templates.

Order User Def 1

This cell can be used for data that is user defined relating to a particular order. It is typically used in reporting, labeling and in creating the completed order CSV file. If used, define the column that identifies this data.

Test Depth Dim

If configured, defines the column in the CSV file that instructs the ProCAB-QC software if the Depth axis is to be used in the part measurement evaluation. The defined cell must have the word **yes** or **YES**. If the cell is configured in the template but the defined cell does NOT have the word **yes**, the Depth axis will not be used in the measurement evaluation. This allows a common template to be used for both 2D and 3D evaluations and enables the CSV data file to determine if the Depth axis is to be used on a per file basis.

Allowable Measuring Tolerance

This section defines the plus and minus tolerances for the height, width and depth and angle measurements. Set these values to correspond to the minimum and maximum tolerances allowed for completed parts. These tolerances are used in conjunction with the respective nominal height, width and depth dimensions.   Angle tolerance is ALWAYS based on a 90 degree angle and the values are in DEGREES.

Interface Hardware Installation

ProCAB QC will support either the ProRF wireless receiver **OR** the ProMUX-3 wired multiplexer. The following section describes the required hardware configuration for each. Only one setup procedure must be completed based on the interface hardware used.

NOTE: If you have purchased your ProTable-CAB with the industrial computer option, the hardware setup has already been completed at the factory.

ProRF Wireless Receiver Setup

The typical installation of a ProRF receiver utilizes USB data communications. This installation procedure is outlined on page 9 of the ProRF user's manual. A summary of the process is given below:

1. Install the supplied USB drivers on the target PC BEFORE connecting the ProRF receiver to the PC.

2. After the drivers are installed, plug the ProRF receiver into a USB port on the PC. The PC will finalize the driver installation of the ProRF receiver.

When using the ProRF receiver with the USB interface, no external power supply is required. The device will be powered from the USB port of the PC.

If the user desires to use the RS-232, DB-9 interface, follow the procedure outlined on page 8 of the ProRF user's manual. **Note: The ProRF is configured, by default, for USB operation.** If the RS-232 interface is used, two internal jumpers JP2 and JP3 must be positioned on pins 1 and 2 for proper operation. In addition, an external power supply must be used to power the receiver. See page 13 of the ProRF user's manual for details.

To determine the serial port being used by the ProRF receiver, complete the following:

1. Connect the ProRF receiver to the PC.
2. From the Windows Start button, open the Control Panel.
3. Click on the System icon.
4. Open the Device Manager.
5. Locate the Ports (COM & LPT) listing and expand it by clicking on the plus icon.
6. Find the listing titled ProScale ProRF Receiver. There will be a listing in parenthesis that indicates the COM port associated with the receiver. Use this setting when configuring the Interface Hardware tab in ProCAB QC.

ProMUX Wired Multiplexer Setup

The ProMUX-3 is a hard wired multiplexer typically used to interface ProScale ABS encoders directly with a PC. The ProMUX-3 can be used to acquire data from up to 3 encoders. In the case of the Virtual DRO application, a maximum of two encoders are used, one for X and one for Y.

Connect the ProMUX-3 to the PC as described in the ProMUX-3 user's manual using the provided DB-9 cable and power supply. Connect the X encoder to Port 1 and the Y encoder to port 3

NOTE: THE ProMUX 3 will not support the new depth axis operation.

Software Installation

ProCAB QC utilizes Microsoft's .NET Framework version 3.5 as the basis for its underlying operation. This requires .NET to be installed on the target PC prior to the application installation. If the PC does not already have Microsoft .NET Framework 3.5 installed, the user can install the files via a high speed Internet connection. The Setup program will automatically download and install the .NET files prior to the application installation.

For the remainder of this section, it will be assumed that the target PC has access to a high speed Internet connection.

The software is distributed via an archive file (.zip) from the Accurate Technology website or emailed link.

Archive File Installation

Open the archive with WinZip® or other archive software. Double click on setup.exe. The setup program will start.

Common Installation
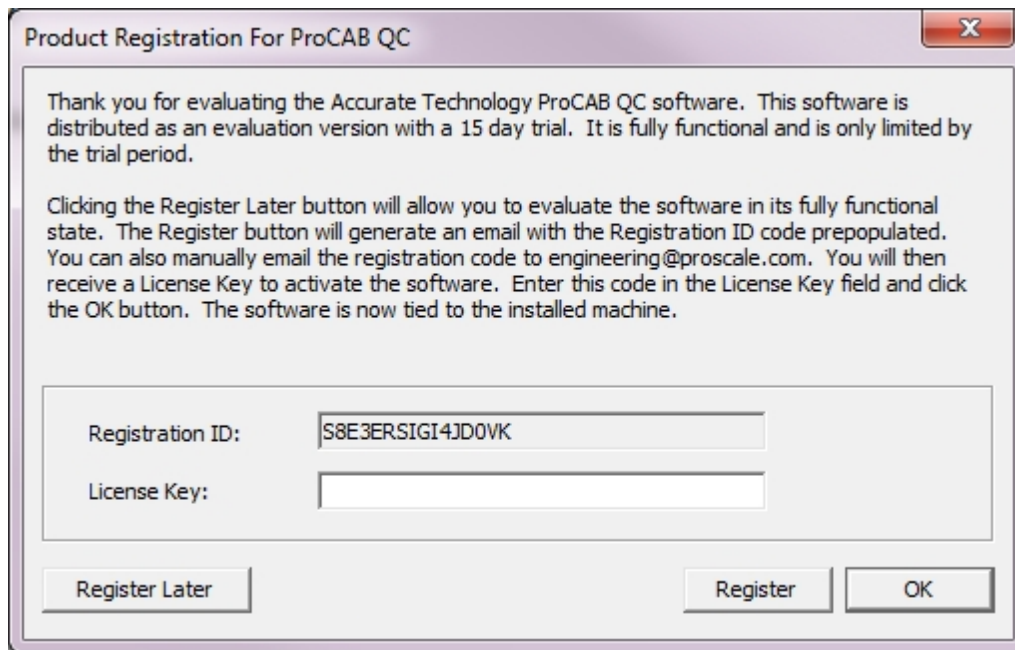
Once setup has started, the program will automatically check if the latest version of .NET is installed on the PC. If not, the .NET Framework will be downloaded from the Microsoft™ site and installed. This operation may require the PC to be restarted.

Once the .NET framework is installed, setup will install ProCAB QC and add a shortcut for the application to the Start menu.

Evaluation Screen

ProCAB QC is distributed initially as **full feature** demo software. The program is fully operational for a period of 15 days from initial installation. The user can purchase the software at any time during the trial period. After the trial period has expired, the application will not execute.

When the application is launched in demo mode, the screen shown below is displayed:

The form provides the following information/options:

- o   The option to register the application after purchase by clicking "Register".
- o   Continuation of the evaluation period by clicking "Register Later".
- o   Entry for a License Key that unlocks the application on the installed computer.

To run the program in DEMO mode, click on the **Register Later** button. Skip to the Main User Screen.

Purchasing the Software

To purchase the software and register it for permanent operation on a specific PC, complete the following:

1.   Contact Accurate Technology, Inc. to purchase the software at 800 233 0580 (Toll free in the U.S.) or at +1 828 654 7920 or by email at <u>sales@proscale.com</u>. We accept Visa, MasterCard, American Express and Discover.

2.   After the payment has been completed, launch the program and the demo screen is provided as shown below.
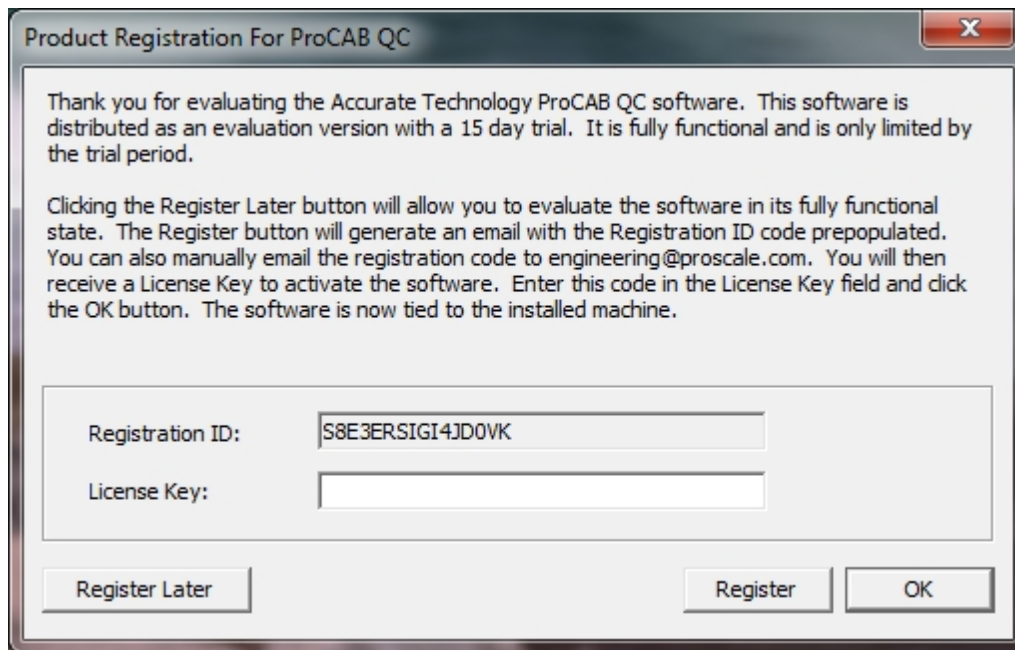
3. If you have a dedicated email tool such as Outlook installed on your PC, click the Register button. This will cause a pre-populated email to be generated with the Registration ID already in the body of the email. If you do not use an email client, such as in the case of web based email, copy the registration code from the Registration ID field <Ctrl-C> and paste it into a composed email in your browser. Email the ID to engineering@proscale.com.

4. We will email you back a license key code with 1 business day. Copy the provided Key code into the License Key field. Click the OK button. If valid, the program is now unlocked and will launch immediately after activation.

NOTE: The software is now licensed to the specific machine on which it was installed. You will not be able to install the application permanently on another machine unless you complete either of the following:

- **Purchase an additional copy of the software for use on another machine.**

- **Un-install the software from the current machine and re-install it on another machine. Note: You must follow the procedure in Appendix A to properly transfer the license from the current machine to a new machine.**

Main User Screen

The image below illustrates the main user interface for ProCAB QC.
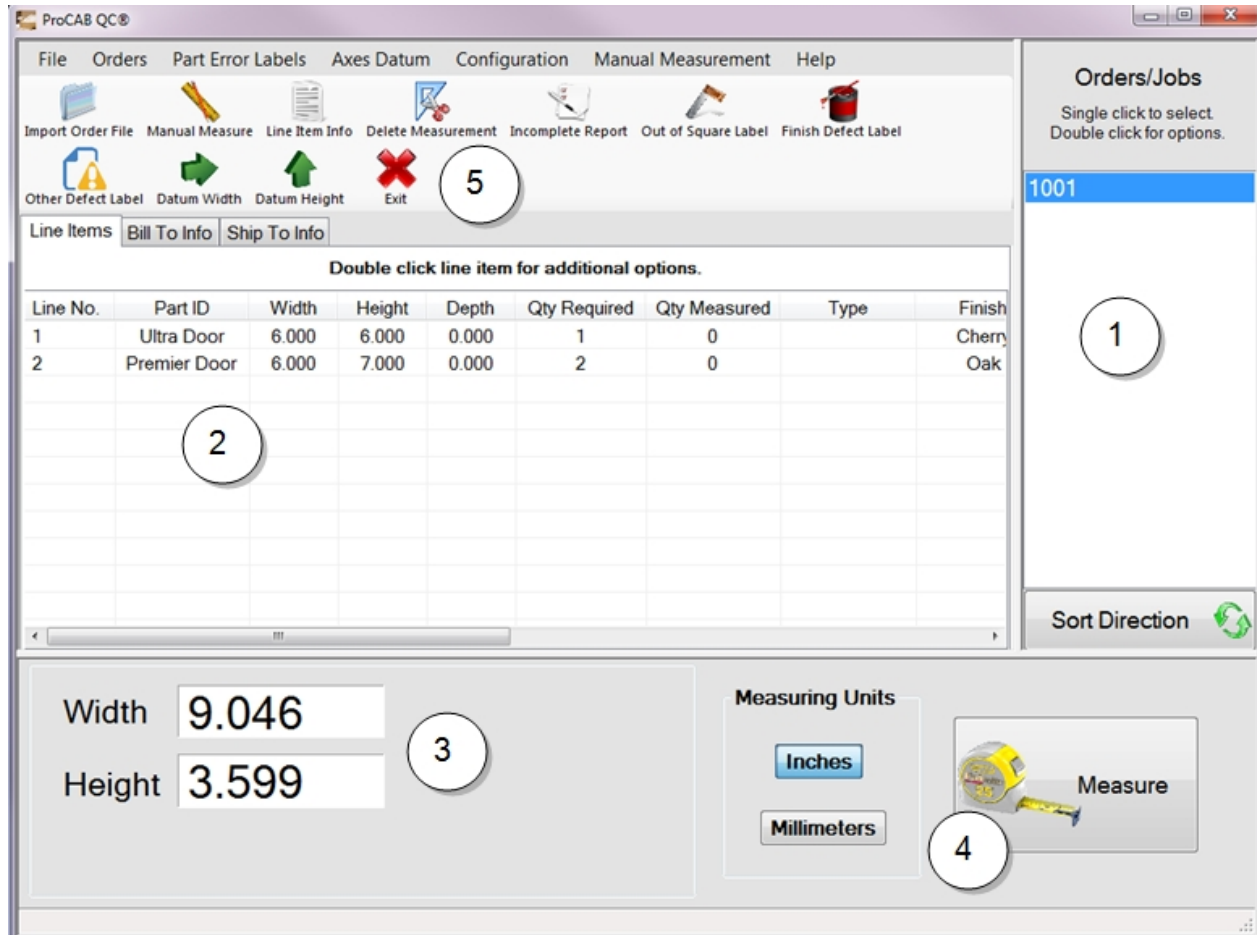
1. **The Orders/Jobs List** - This area displays all of the non-completed orders that have been imported into the system via CSV file(s). To select an order from the list to be the active order, click on the item. The Order ID will be highlighted and the Order Details (2) section will be populated. The Sort Direction button allows the orders to be sorted in either ascending or descending order.

2. **The Order/Jobs Detail View** - This area displays details relating to the currently selected order. The area is divided into three sub-areas via a tabbed view.

   - Line Items - A list of line items that form the body of the order. Each line item relates to a part definition that is to be produced. The line item data includes:

     - Line Number.

     - Part ID - Can be a descriptive name, part number or other identifier.

     - Nominal Width, Height and Depth dimensions.

- Quantity Required.

- Quantity Measured.

- Type

- Finish

- Hinging

- Machining

- Assembly

- Comments - This is a free-form field that can be used to aid the operator.

- User Def 1 - A user defined field.

- User Def 2 - A user defined field.

- User Def 3 - A user defined field.

- Location

  - Bill To Info - Customer Bill To data that can be imported from the CSV file if present and defined.

  - Ship To Info - Customer Ship To data that can be imported from the CSV file if present and defined.

3. **The real-time position of the width and height*** - Position of measuring stages on the ProTable-CAB.

4. **The measurement activation button** - Clicking or pressing (with touchscreen monitor) on this button activates the measurement process. A part is placed on the table against the fixed stops. The moving stops must be positioned against the top and right side of the part. The Measure button is then activated. The system searches the line items of the selected order to locate a match.

5. **Tool Bar** - New to version 1.2. Provides buttons to quickly access the most commonly used functionality of the ProCAB-QC software.

Line Item Columns Configuration - New to version 1.2.1.6 Allows the Line Item columns to be repositioned by *clicking* and *holding* on a column title cell and dragging it to a new position. The associated column data will be moved with the column title. The user can also resize column widths for optimized display. When the program is closed, the current display configuration is saved and restored on the next program launch. In addition, the text for the column titles can be changed via a configuration file. See Appendix D for information regarding column title text changes.


* If the ProTable-CAB is configured with the optional Depth measurement or Angle measurement axis hardware, the current depth or angle position is also displayed in real time.

System Configuration

Prior to initial use, ProCAB QC must be configured for proper operation.

To enter the system configuration menu, click on the Configuration/Login menu item. A password dialog will be presented. Enter the system password and press the enter key or click OK. THE DEFAULT PASSWORD IS 1234. It is strongly recommended that the default password be changed and documented.

The application will display the System Options dialog as shown below.
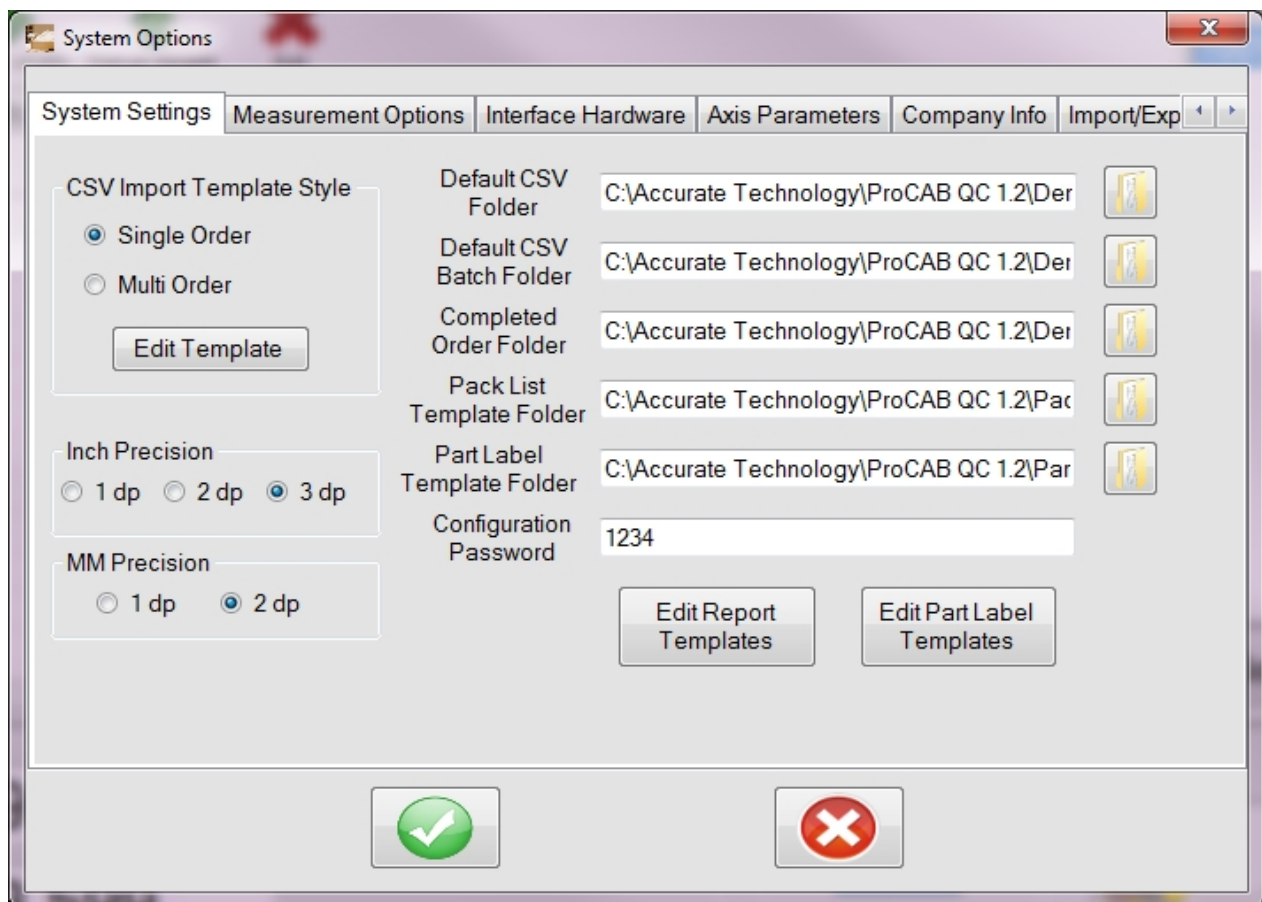

The System Options are divided into groups using a tabbed display. The tabs are:

1. System Settings - General settings for the system including import template configuration, default directory settings and precision/accuracy configuration.

2. Measurement Option - These settings cover operations relating to measurement functions.

3. Interface Hardware - This tab is used to configure the measuring system hardware interface and the system printers.

4. Axis Parameters - This section is used to configure aspects of the width and height measurement axes.

5. Company Info - YOUR company information to be printed on the packing list upon order completion if enabled.

6. Import/Export/Deactivate - Used to export configuration settings or import configuration settings from a previous version. Also used to de-activate the software so that it can be installed on another PC.

The following sections cover each of the groups listed above in detail.

System Settings
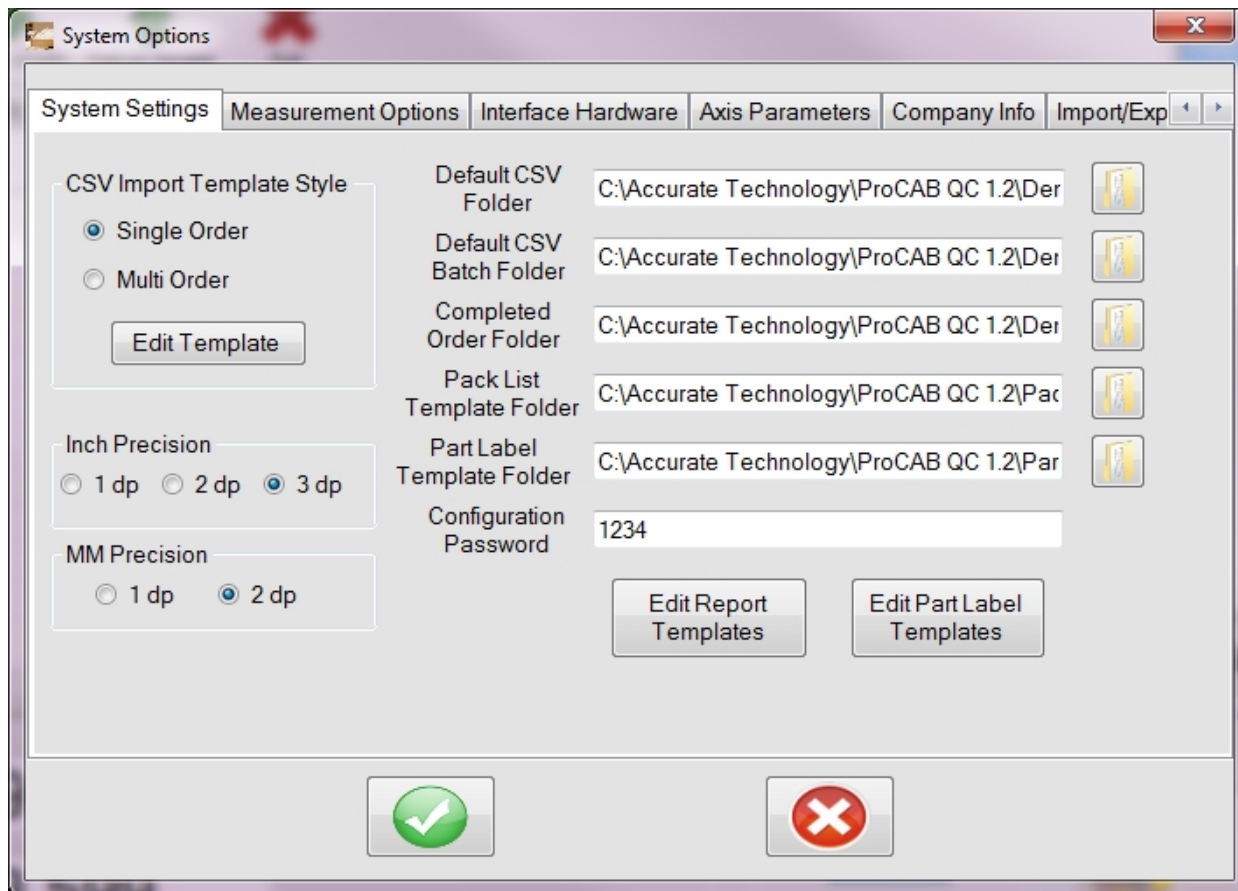
CSV Import Template Style - Selects the type of CSV file to be imported by the system. The system can import Single Order type files or Multi Order type files. This configuration is covered in additional detail in the section CSV Template Concepts. To edit the selected style of CSV templates, click the Edit Template button.

Default CSV Folder - The default path to CSV production data files to be imported. The path can be entered manually or click the folder button next to the field to browse to the target folder location.

Default CSV Batch Folder - Since Single Order CSV files have only a single order per file, loading individual order files by hand can be tedious if many orders are required to be loaded. An alternative is to use a Batch Order file. This file is a simple text file that contains a list of Single Order CSV file names. This list can be created with a simple text editor such as notepad. This entry is the default path to CSV batch files. The path can be entered manually or click the folder button next to the field to browse to the target folder location.

Completed Order Folder - The default path to the folder that contains completed orders. After all of the line items of an order are completed, the order and all of its part measurements are saved to a CSV file located in this directory. The path can be entered manually or click the folder button next to the field to browse to the target folder location.

Pack List Template Folder - The default path to the folder that contains Pack List printing templates. Pack list printing format is now user defined by printing templates. If desired, the CSV production order data can contain the name of the pack list printing template to be used. All pack list printing templates should be stored in this directory.

Part Label Template Folder - The default path to the folder that contains Part Label printing templates. Part label printing format is now user defined by printing templates. If desired, the CSV production order data can contain the name of the part label printing template to be used. All part label printing templates should be stored in this directory.

Configuration Password - This is the password that is used to access the options dialog. The default password is 1234. It is recommended that this password be changed and documented.

Edit Report Templates - Pack list and incomplete order reports are now user defined using printing templates. To edit the default pack list, the incomplete order report or any other user created pack list, click on the Edit Report Templates button. See appendix B, Configuring Printing Templates for details regarding report formatting.

Edit Part Label Templates - Part labels are now user defined using printing templates. To edit the default part label or any other user created part label, click on the Edit Part Label Templates button. See appendix B, Configuring Printing Templates for details regarding report formatting.

Inch Precision - Defines the number of digits to the right of the decimal point that are to be displayed while in inch measurement mode.

MM Precision - Defines the number of digits to the right of the decimal point that are to be displayed while in millimeter measurement mode.

Measurement Options
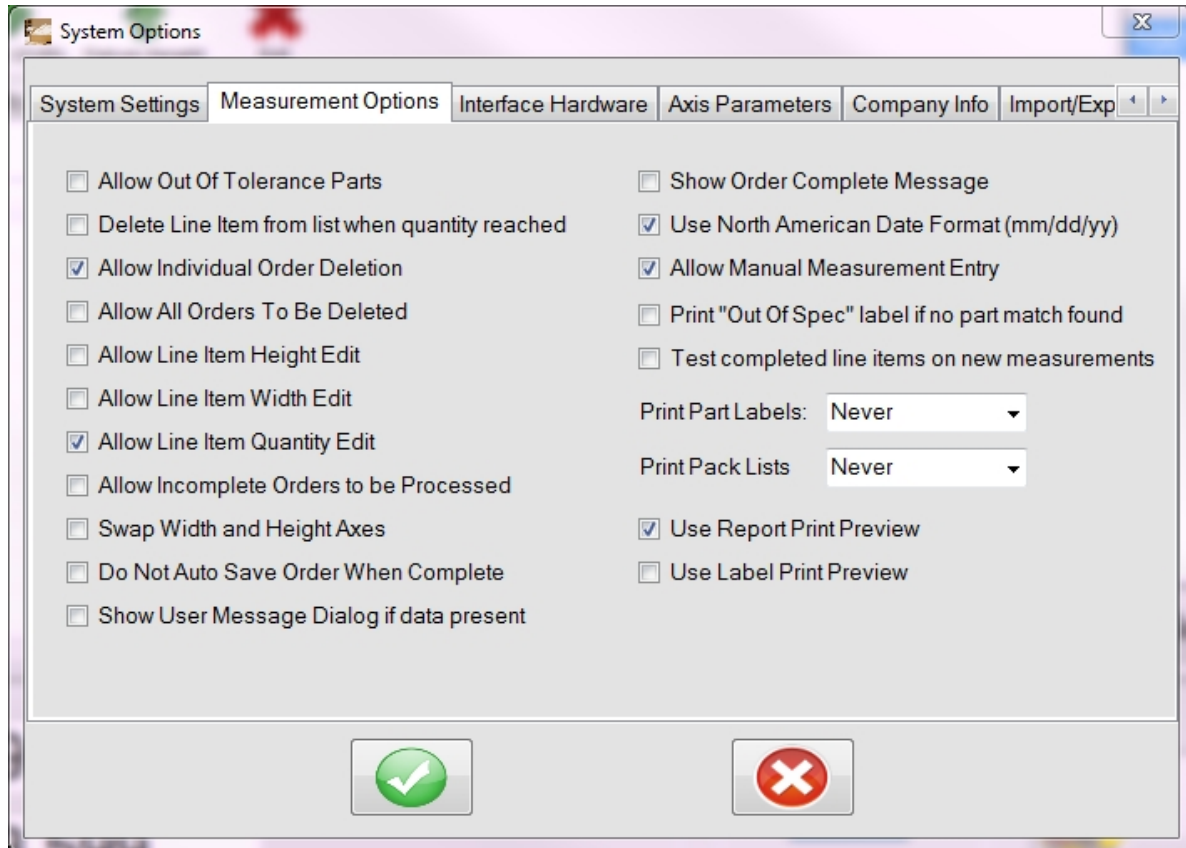
Allow Out Of Tolerance Parts - If selected, the system will provide the operator with a method of accepting a measured part that is outside the defined tolerances and associating it with one of the line items of the current order. See section Measuring Parts for an Order for details on measuring parts. WARNING: It is not recommended that this option be enabled.

Delete Line Item from list when quantity reached - When this option is enabled, the line item is automatically removed from the line item list when the quantity of measured parts reaches the quantity required. When this option is disabled, the line item remains on the list when it is fulfilled but turns green to show that it has been completed.

Allow Individual Order Deletion - If checked, the user can delete individual orders from the order list by double clicking on the order ID an selecting Remove Order from the pop-up menu. If not enabled, individual orders cannot be deleted and must be completed to be removed from the list OR processed as Incomplete if enabled..

Allow All Orders To Be Deleted - When enabled, this option allows the operator to delete all the orders in the order list at one time. This is completed from the Orders/Remove All Orders menu item.

Allow Line Item Height Edit - If selected, the user can edit the defined height dimension of a line item using the line item editor. See Edit Line Item for details. NOTE: Once one or more parts have been measured for a line item, the height dimension for that line item CANNOT be modified even if this option is enabled.

Allow Line Item Width Edit - If selected, the user can edit the defined width dimension of a line item using the line item editor. See Edit Line Item. NOTE: Once one or more parts have been measured for a line item, the width dimension for that line item CANNOT be modified even if this option is enabled.

Allow Line Item Quantity Edit - If enabled, the user can edit the defined quantity required of a line item using the line item editor. See Edit Line Item. NOTE: The quantity required cannot be set to a number lower than the current quantity of measured parts.

Allow Incomplete Orders to be Processed - If enabled, allows an incomplete order to processed as completed. The order data is written to the Completed Orders folder as normal but any incomplete line items will show part shortage quantities. If pack lists are used, a pack list will be printed as normal.

Swap Width and Height Axes - If unchecked, the width axis is the horizontal axis and the height axis is the vertical axis. If checked, the width axis is the vertical axis and the height axis is the horizontal axis. If the majority of your product is longer than it is wide, enabling this feature will allow the product to be placed 90 degrees rotated to allow for easier measurement. This feature will not interfere with the new auto part rotation measurement feature.

Do Not Auto Save Order When Complete - When checked, an order is not automatically processed as complete after the last line item is measured. This allows an order to remain on the active order list indefinitely and the user must manually process the order as complete by double clicking on the order ID in the Job List and select Process Order as Complete.

Show User Message Dialog if data present - When checked, a User Message Dialog is presented after a part is measured if the associated User Message line item field for that part has been populated with a text message.

Show Order Complete Message - When checked, the system will present a timed message that pops up to tell the operator that the order has been completed.

Use North American Date Format - If enabled, time and date stamps are in mm/dd/yyyy format. If not checked, dates are in dd/mm/yyyy format.

Allow Manual Measurement Entry - When enabled, allows the user to enter measurements manually via dialog box. This would be used if measuring a part that was larger than the capabilities of the ProTable-CAB. See Manual Measurement of Parts for details. Manually measured parts are recorded in the system and indicated on documentation as a manual measurement entry.

Print "Out Of Spec" label if no part match found - If enabled, automatically prints a label to be placed on the measured part to indicate that the part is out of accuracy tolerance. Note that this feature is only operative if a label printer is connected and is enabled.

Test Completed Line Items on New Measurements - Normally, new measurements are only compared to line items that are not completed. If this feature is enabled, completed line items are also compared during a measurement. This allows for "extra" parts to be

recorded with a matching line item even though the quantity required has been met. Typically, this feature would normally not be used.

Print Part Labels selection box - This option controls the printing of part labels. The available choices are:

- o Never - Never prints a part label. Part label printing is disabled.
- o Always - Always prints a part label using the default part label printing template.
- o By Template - The CSV file template in use determines if and what type of part label is to be printed. The choices are determined by how the Part Label Template cell or column is defined. The choices are:
  - Never - if the Part Label Template cell/column is undefined (blank), a part label is not printed.
  - Always default part label - If the Part Label Template cell/column is defined but the imported data has nothing in that cell/column then the default label is printed.
  - Always user defined part label - If the Part Label Template cell/column is defined and the imported data has a valid part label printing template file name, then that user defined part label is printed. If the part label printing template file name is invalid or blank, the default part label printing template is used.

Print Pack List selection box - This option controls the printing of pack lists. The available choices are:

- o Never - Never prints a pack list. Pack list printing is disabled.
- o Always - Always prints a pack list using the default pack list printing template.
- o By Template - The CSV file template in use determines if and what type of pack list is to be printed. The choices are determined by how the Pack List Template cell or column is defined. The choices are:
  - Never - if the Pack List Template cell/column is undefined (blank), a pack list is not printed.
  - Always default pack list - If the Pack List Template cell/column is defined but the imported data has nothing in that cell/column then the default pack list is printed.
  - Always user defined pack list - If the Pack List Template cell/column is defined and the imported data has a valid pack list printing template file name, then that user defined pack list is printed. If the pack list printing template file name is invalid or blank, the default pack list printing template is used.

Use Report Print Preview - If checked, pack list and incomplete order reports are initiated first in print preview mode. This allows the user to verify the report on the screen and optionally change the default settings such as the target printer or allow the report to be exported in a different format such as PDF prior to printing. If disabled, the report automatically prints to the default report printer defined in the Interface hardware tab.

Use Label Print Preview - If checked, a print preview dialog of the pending part label is displayed on the monitor prior to printing. This allows the operator to view the label information before the print operation occurs. The user can then cancel the printing operation or allow it to continue to the defined label printer.

Interface Hardware
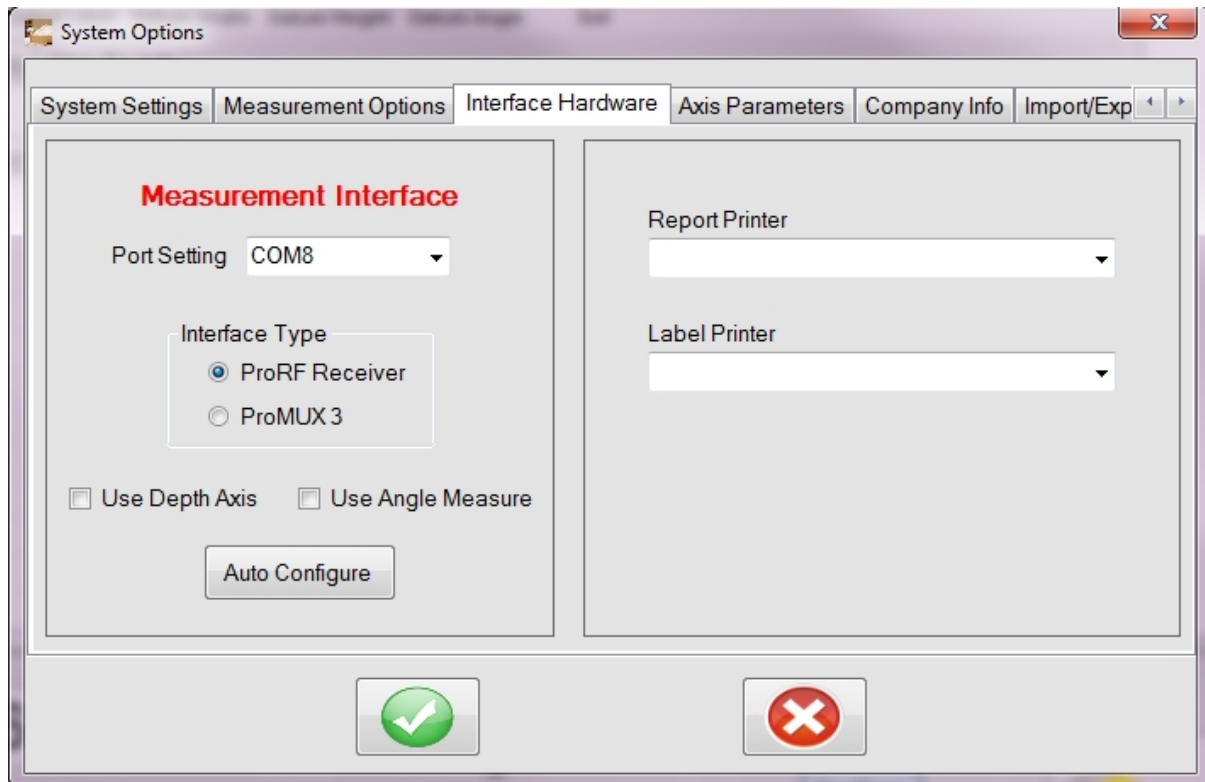
The Measurement Interface is used to configure the ProScale measurement equipment. The system can support two type of interface devices: ProRF radio receiver and ProMUX 3 hardwired 3 channel multiplexer. In a typical ProTable-CAB application, the ProRF radio receiver is used.

Prior to operation, a driver must be installed on the PC to interface with the ProRF receiver's USB port. Insert the provided ProRF driver CD into the PC's CD drive. Follow the installation procedure. NOTE: The driver installation procedure should be completed AND the ProRF connected to the PC BEFORE attempting this configuration within ProCAB-QC.

Click the Port Setting pull-down list to select the associated communications port for the ProRF receiver. The COM number to select will depend on the PC and other equipment already attached. To identify which COM selection to use, you can check under the Windows Device Manager usually located in the Control Panel under System. Expand the Ports (COM & LPT) tree and look for the device labeled ProScale ProRF Receiver. The associated COM port number will be next to the label.

Auto Configure button. This will bring up a configuration wizard that will automatically program the receiver and associate the transmitters with the receiver. This procedure requires the user to activate each transmitter's LEARN button when requested. This button is located inside the transmitter next to the channel switch as shown below.
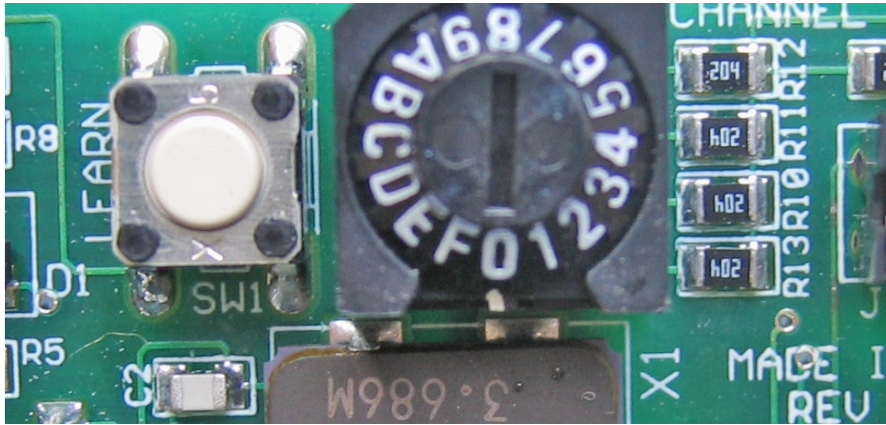
After the configuration wizard has completed, the transmitters and receiver should be interfaced properly to the system.

Use Depth Axis - New to version 1.2. Checking this option enables the depth axis functionality of the ProCAB-QC software. The optional Depth axis hardware must be installed for this functionality to be enabled. When active, the Depth position window and the associated datum button on the main screen are displayed.

Use Angle Measure - New to version 1.2.1. Allows the origin angle to be measured and recorded if your ProTable-CAB has the optional angle measurement hardware option installed.

Report Printer - This pull-down selection allows the user to configure the default printer to be used to print reports (pack lists and incomplete order reports). All available installed printers are displayed if selector is opened. Printers are installed via the standard Windows printer installation wizard. As such, printers can be connected to the local industrial computer that hosts ProCAB QC or on a network.

Label Printer - This pull-down selection allows the user to configure the default printer to be used to print labels. All available installed printers are displayed if selector is opened. Printers are installed via the standard Windows printer installation wizard. As such, printers can be connected to the local industrial computer that hosts ProCAB- QC or on a network. Note that the label printer is typically a specialized roll feed type thermal or ink printer specifically designed to print labels. ProCAB-QC does not support the printing of sheet feed type labels.

Axis Parameters
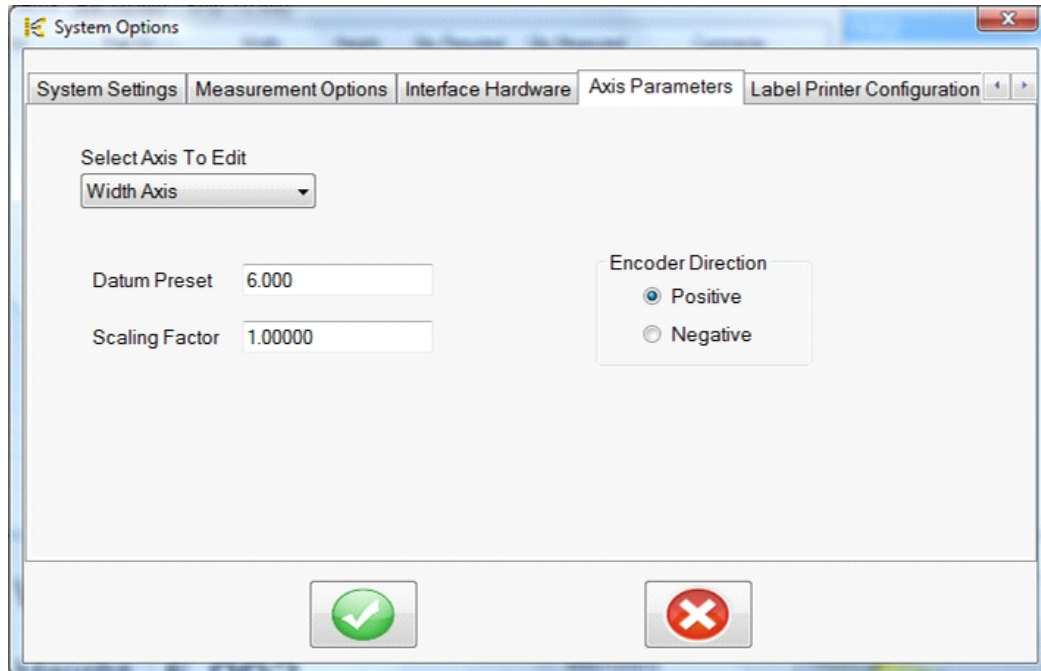
The Axis Parameters tab is used to configure axis related parameters. These include:

- o Datum Preset - The pre-defined position used to calibrate the axis when it is placed against the inside hard-stop of the ProTable-CAB. See Initiating Axes Datums for instructions on recalibrating the axes.
- o Scaling Factor - A multiplier that allows for measuring accuracy adjustment in the linear encoders.
- o Encoder Direction - Changes the sign of the reported position of the axis.

To configure an axis, select the axis from the axis pull-down menu. Once selected, set the associated fields to the appropriate values. Repeat for the other axis.

Angle Measurement Axis:
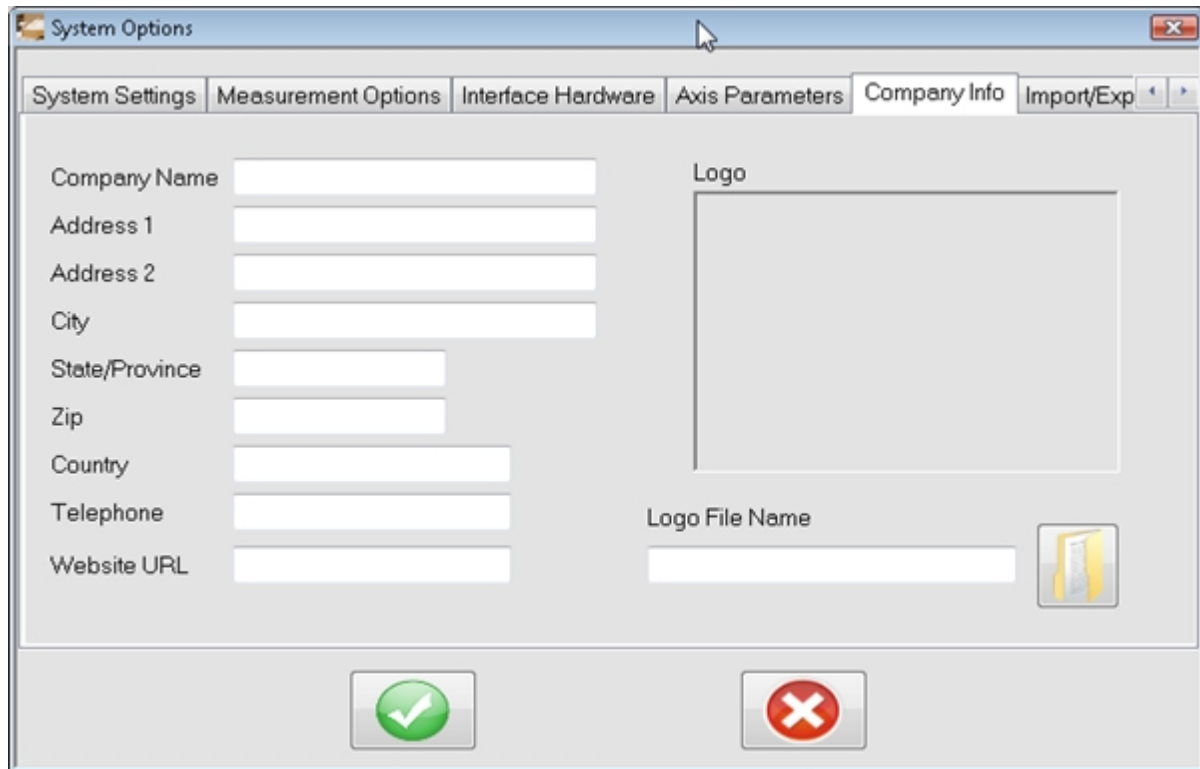
In version 1.2.1.0, angle measurement capabilities have been added to ProCAB-QC. The Axis Parameters tab has be modified as shown below:
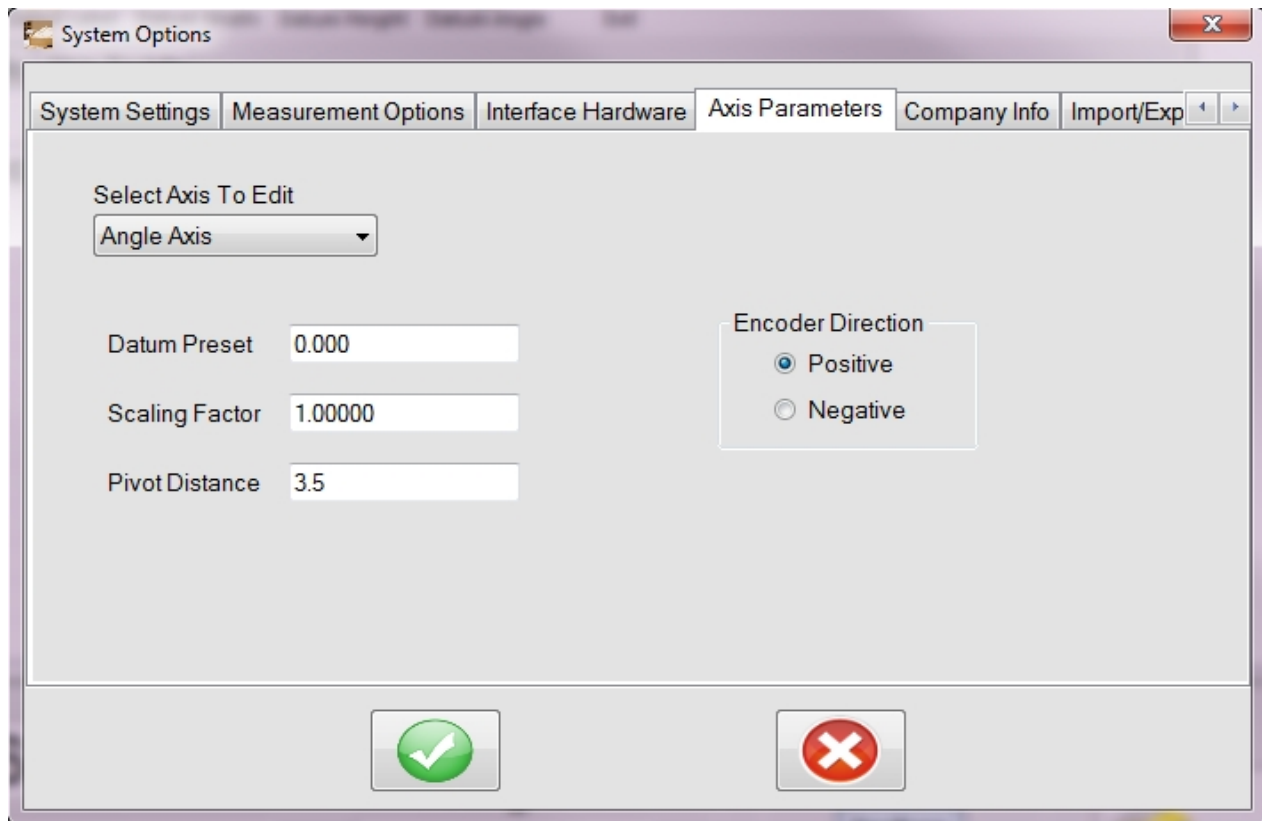
The datum preset should remain set to 0.0.

The pivot distance is the distance between the vertical fence pivot point and the ProScale encoder fence contact point. This distance has been empirically derived at the factory and should not be changed.

Company Information

The Company Info tab is used to configure ProCAB-QC with the user's company information. This data is used when generating a pack list to be printed on the form's header section.

As much or as little of the company information can be entered.

In addition, an image file of the company logo can be imported to be printed on the pack list header. This can be a JPG, PNG, BMP or other graphics files. The image will automatically be scaled to fit the area defined on the pack list. The path to the file can be entered manually or the user can click on the Folder icon to open a file open dialog. This can be used to navigate to the desired image file.

Import/Export
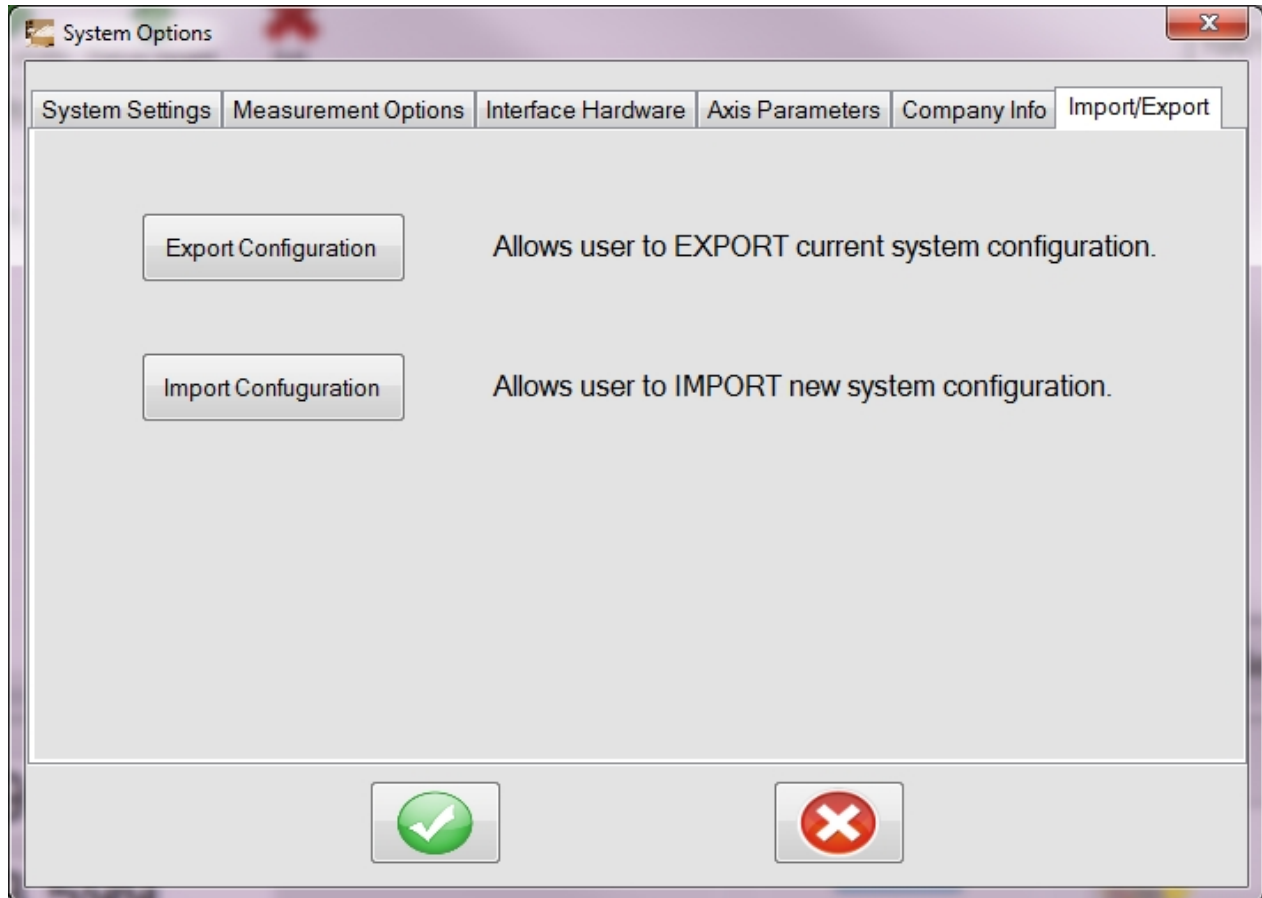
This tab allow the user to import and export the current system options configuration.

The system options configuration can be exported to a file for backup purposes or for use when upgrading to a newer version of the software. To export the system configuration, click the **Export Configuration** button. The user must then select a target directory for the export.

The system options configuration can be imported from a backup or when a newer release of ProCAB-QC is installed. To import the system configuration, click the **Import Configuration** button. A warning message will appear indicating that the current system configuration will be overwritten. If Yes is selected, the use must then select a target directory where the imported configuration file exists.

Controlling Printing via CSV Templates

Starting with ProCAB QC version 1.1, CSV templates are now able to control printing functions for pack list and part labels. In each CSV template type, there is a mapping selection for Pack List templates and Part Label templates. Using these mapping selections in conjunction with the "Print Part Label/Print Pack List" selections under the Measurement Options configuration dialog allow for a wide variety of label and pack list printing options.

Printing of labels and pack list can be defined as one of the following:

- o Never
- o Always
- o By Template

See Measurement Options for more information. For the remainder of this section, we will assume that printing is defined as "By Template". The functionality listed below applies to both label and pack list printing.

Defining Custom Print Templates Per CSV Template

To define a specific printing template to be used when a label or pack list is to be printed, define the cell or column in the CSV template that will contain the printing template file name. For example, in the default Single Order template, a custom pack list printing template file is to be used that is located in cell N4. In the default Single Order template, define the *Pack List Template* row with 4 and the column with N.

In this example, the custom pack list print template file is called "Custom Pack List1.repx". When the CSV order data file is imported, cell N4 should contain the text data: Custom Pack List1.repx. When a pack list is to be printed, the system will attempt to locate this printing template file in the system and use it to format the pack list. If successful, a pack list with the format define by "Custom Pack List1.repx" will be printed.

If the cell *Pack List Template* is defined in the template but the imported CSV cell data either contains no data or an invalid pack list printing template file name, ProCAB QC will use the *default* pack list printing template file name.

If the CSV template cell *Pack List Template* is not defined (row and column are blank), a pack list will not be printed when using this CSV template.

Selective Printing of Pack Lists

There may be some situations where it may be desirable to selectively print a pack list based on a CSV template. This can be completed in the following manner.

1. In the Measurement Option configuration, set the *Print Pack List* option to "By Template"
2. Create a CSV template and name it "Print Pack Lists" or some other reasonable name.
3. Edit the template as normal but define *Pack List Template* with a column and row value

that will point to a cell that would normally be blank in the CSV data.
4. Save the template.
5. Create another CSV template and name it "No Pack List Print".
6. Edit the template to match the "Print Pack List" template but DO NOT define *Pack List Template* row and column data (blank).
7. Save the template.

Whenever order are to be imported and pack list are not to be printed, use the "No Pack List Print" template. When pack list printing is desired, import using the "Print Pack Lists" CSV template.

The same functionality applies to label printing.

Importing an Order File

Importing an Order File is the process of loading one or more production orders or jobs into the system depending on the type of CSV template in use. When the Single Order template is used, importing an order file loads a single customer order. When Multi Order files are used, a single production data file can contain one or more customer orders.
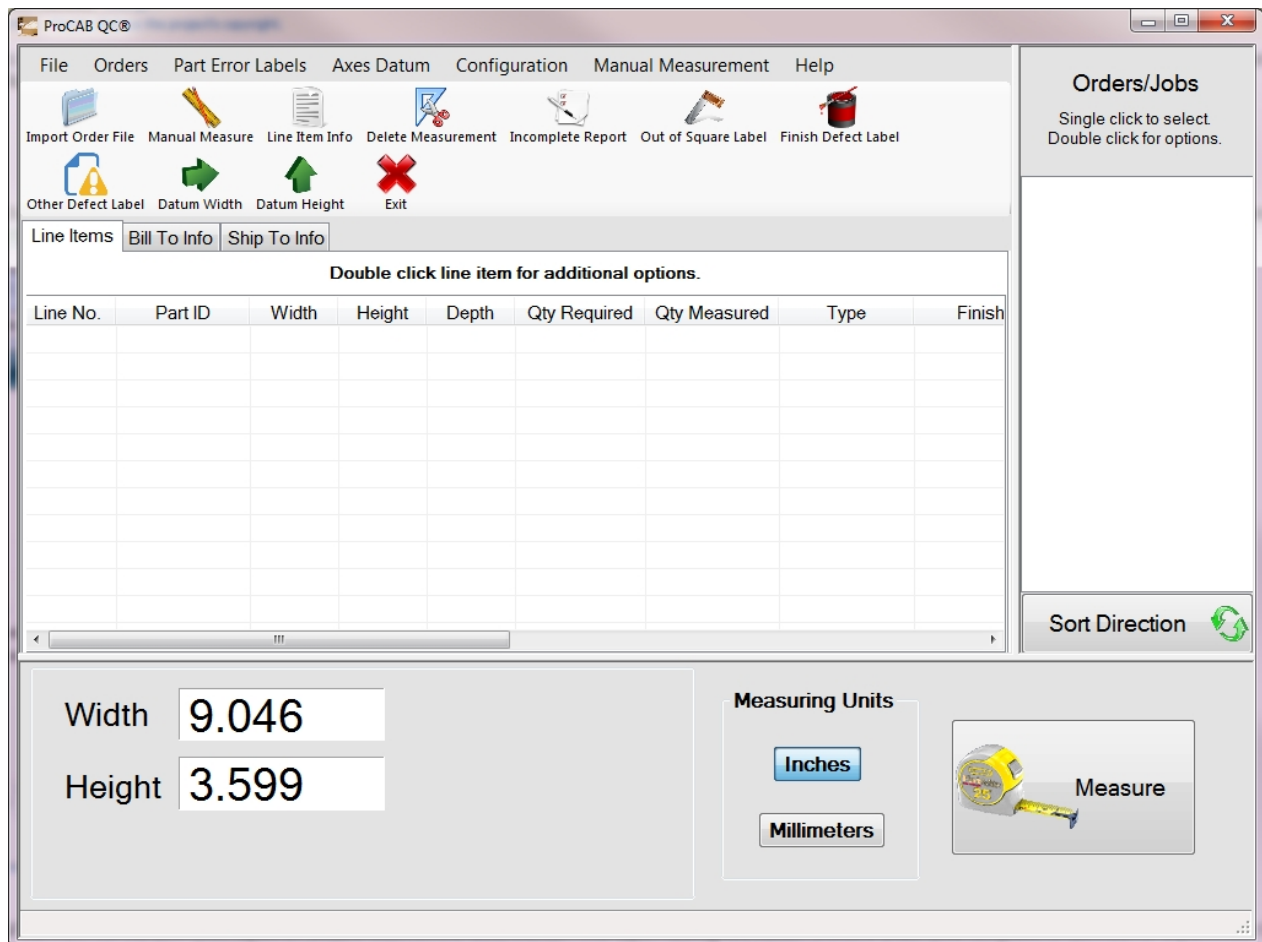
To import an order file, click on the Import Order File button on the tool bar or click on the File/Import Order File menu selection. This will cause the Open dialog to be displayed as shown below. Note that the starting directory is defined in the System Settings options. The default file type is CSV
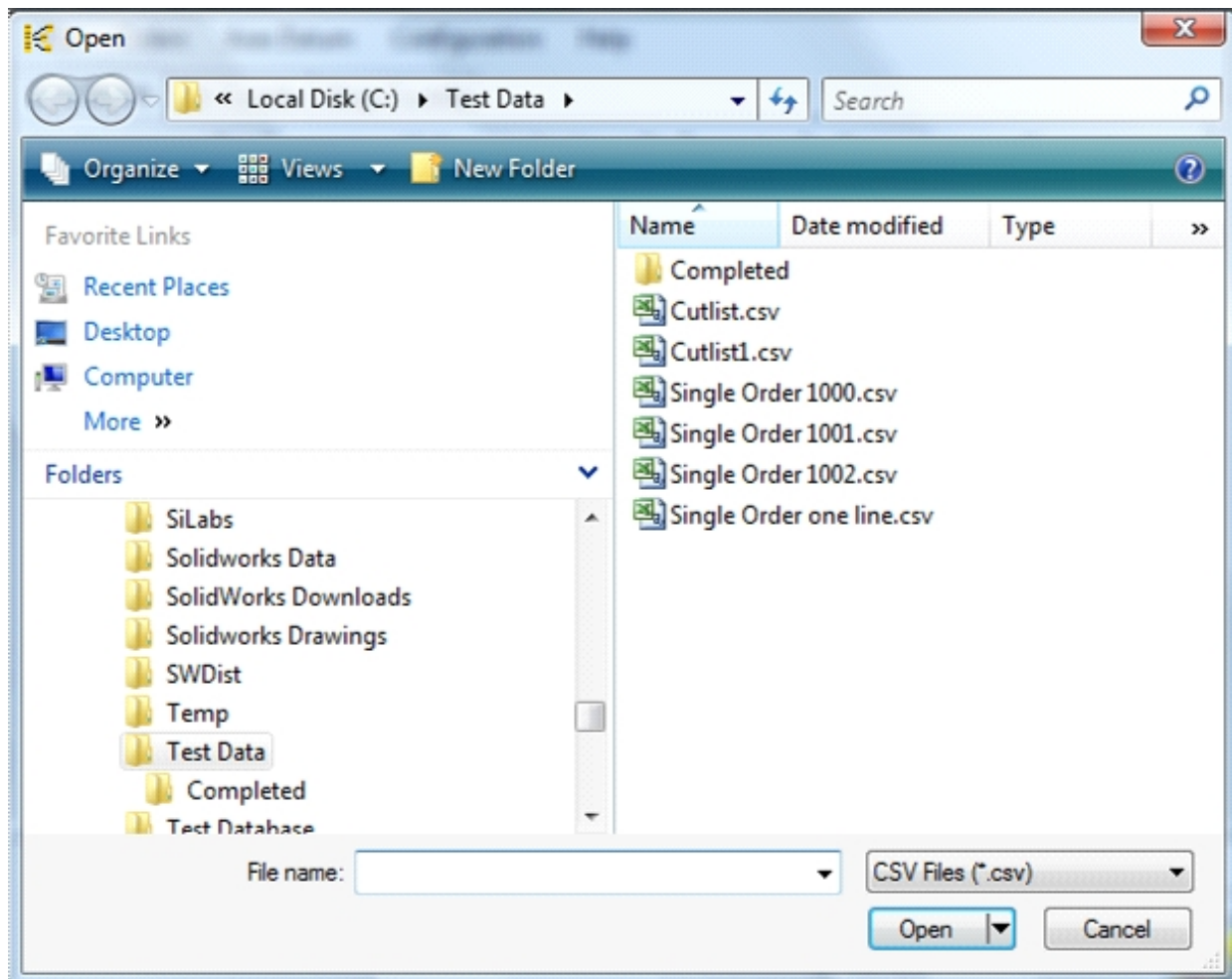
Click on the desired CSV file from the list and click Open or double click on the desired file. The Open dialog will close. If **more than one** template is defined for a particular CSV file type (see <u>Field Mapping Using Templates</u>) the dialog listed below will be presented. NOTE: *If only the default template is used, the CSV template selection dialog shown below WILL NOT be displayed.*
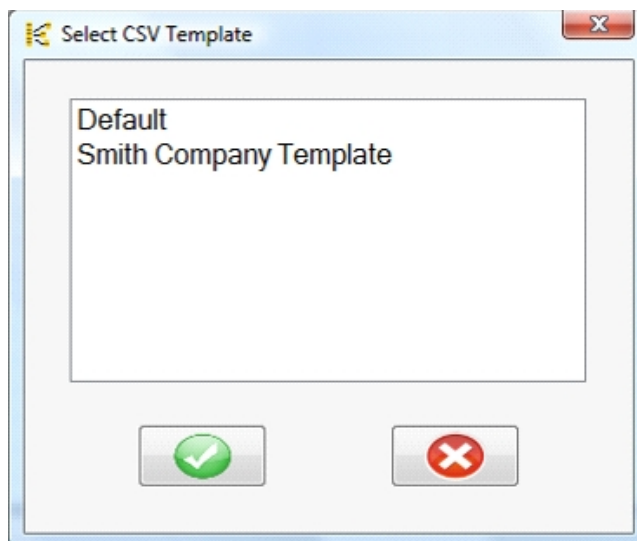

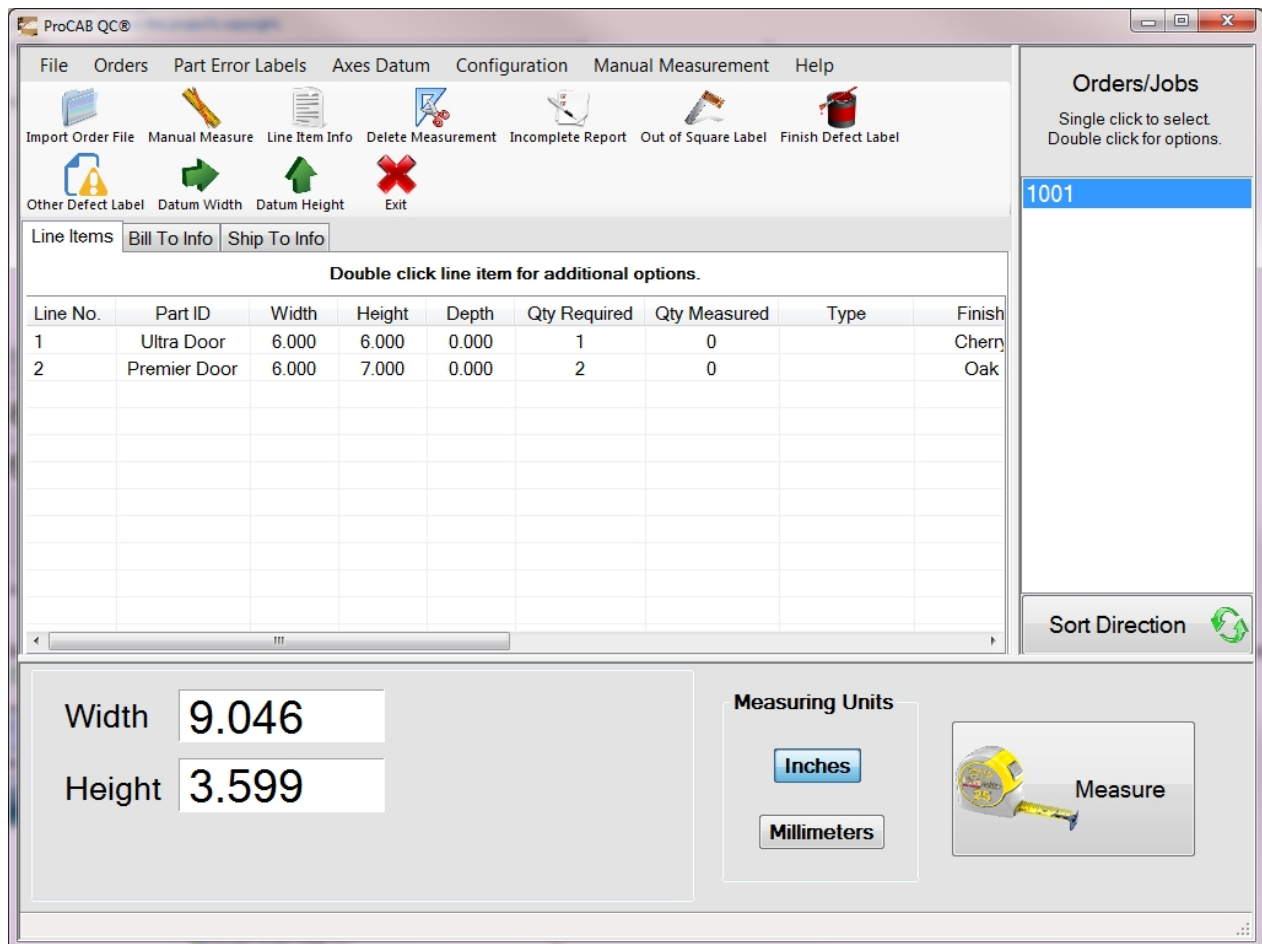Select the associated template that is to be used to filter the data as defined and click OK

or double click on the name of the desired template. The dialog will close and the system will attempt to import the file. If the file is imported without parsing errors, the application will display a message box with the file name indicating the import was successful as shown below.
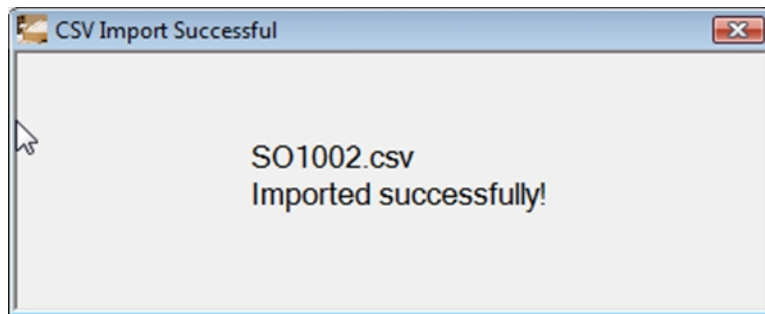
If there were one or more parsing errors (for example, numeric data was expected but received text instead), an error log will be presented indicating the type of error and where it occurred in the CSV file as illustrated below.
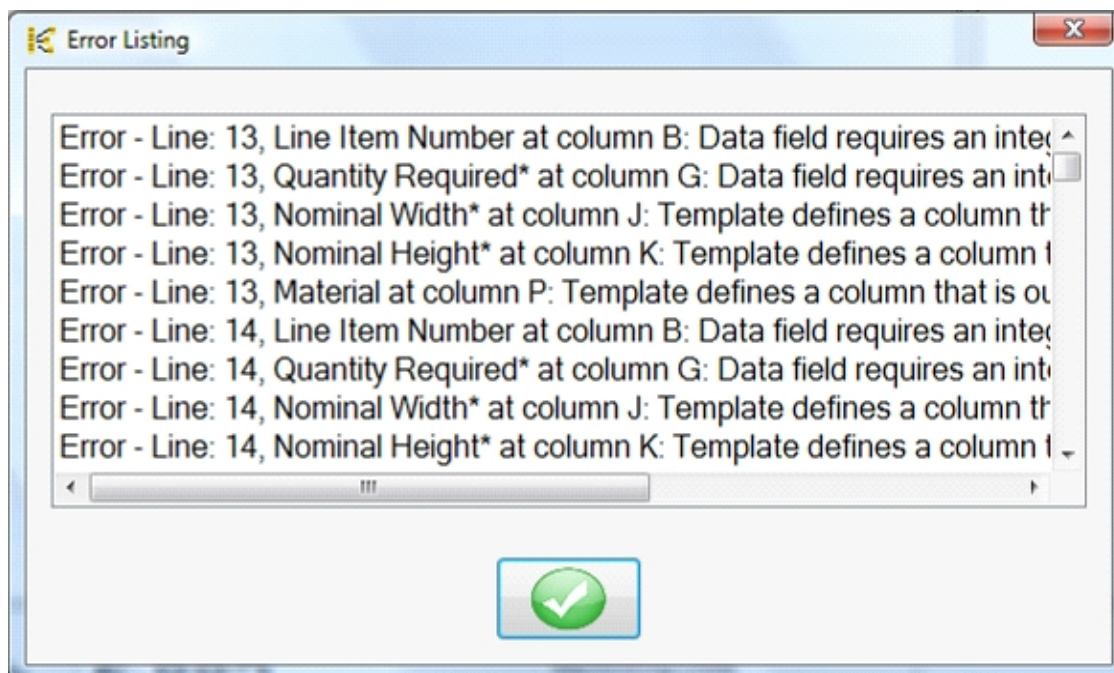

When a Order File is imported successfully, the Orders window will be populated with a list of order/job IDs. Clicking on one of the order IDs will populate the line item and customer information tabbed pages for that order as shown below.

ProCAB QC®

File   Orders   Part Error Labels   Axes Datum   Configuration   Manual Measurement   Help

Import Order File   Manual Measure   Line Item Info   Delete Measurement   Incomplete Report   Out of Square Label   Finish Defect Label

Other Defect Label   Datum Width   Datum Height   Exit

Orders/Jobs

Single click to select.
Double click for options.

1001

| Line Items | Bill To Info | Ship To Info |

Double click line item for additional options.

Line No.	Part ID	Width	Height	Depth	Qty Required	Qty Measured	Type	Finish
1	Ultra Door	6.000	6.000	0.000	1	0		Cherry
2	Premier Door	6.000	7.000	0.000	2	0		Oak

Sort Direction

Width   9.046

Height   3.599

Measuring Units

Inches

Millimeters

Measure

Batch Order Processing - Single Order File Types

When using Single Order file types, loading individual order files could be a tedious task when there are numerous orders to process. To facilitate this task, the system supports the reading of a Batch Order file. This file is a simple text file that contains the names of one or more Single Order CSV data files. The system opens the Batch file and reads each CSV file name, importing the associated file.
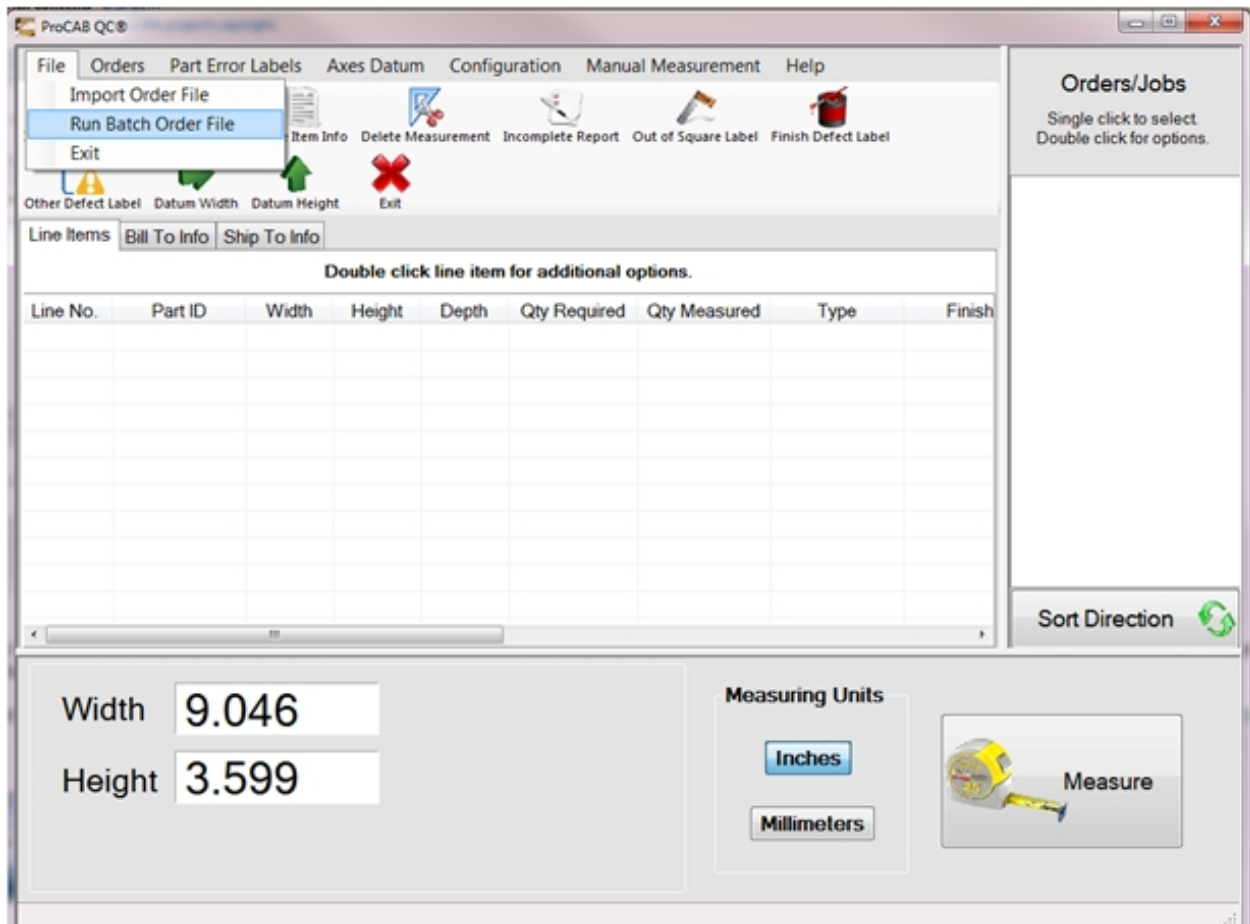
To execute a Batch Order file, click the File/Run Batch Order File menu item. The system will show an Open dialog box to select the desired batch file. Note that the starting directory is defined in the System Settings options. The default file type is TXT.
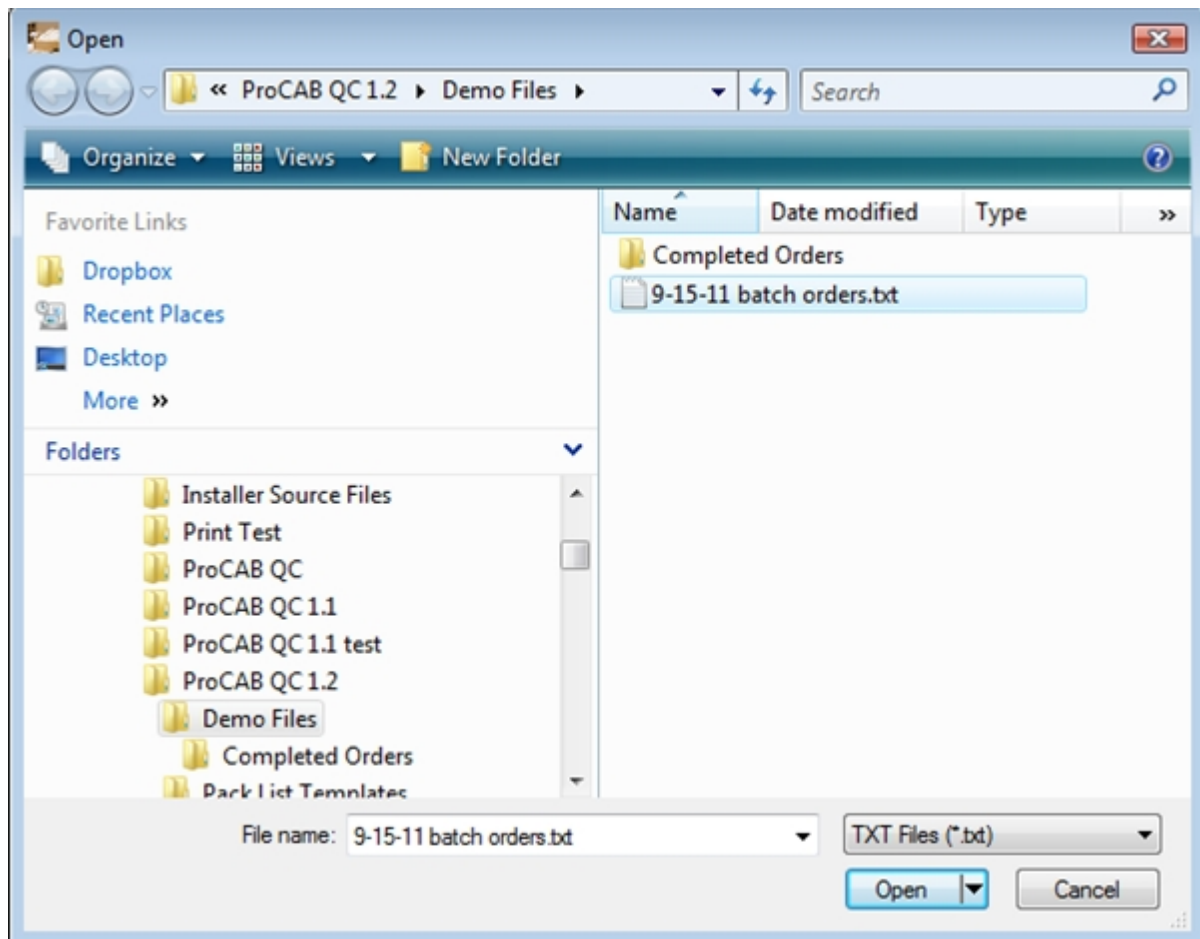
Click on the desired text document and click Open or double click on the desire text file document. The system will then read the batch file and import the contained CSV production data files. If there are any errors, an error log is generated. Otherwise, the system will indicate a successful import.

The file shown below is a sample Batch Order file.
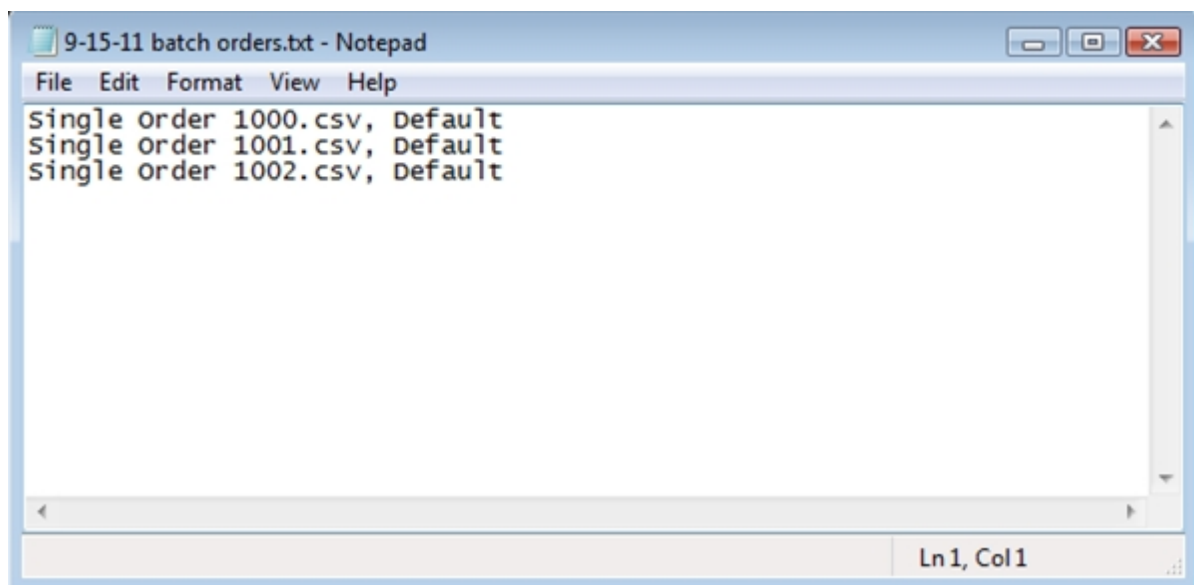
The format for the batch file **per line** is:

1. CSV file name. This includes the .csv extension but DOES NOT include a directory path. The system uses the defined CSV directory path.
2. A comma to separate fields.
3. The name of the template to be used for parsing. The name in the file must match the template name EXACTLY. Leading spaces are ignored.

Measuring Parts for an Order
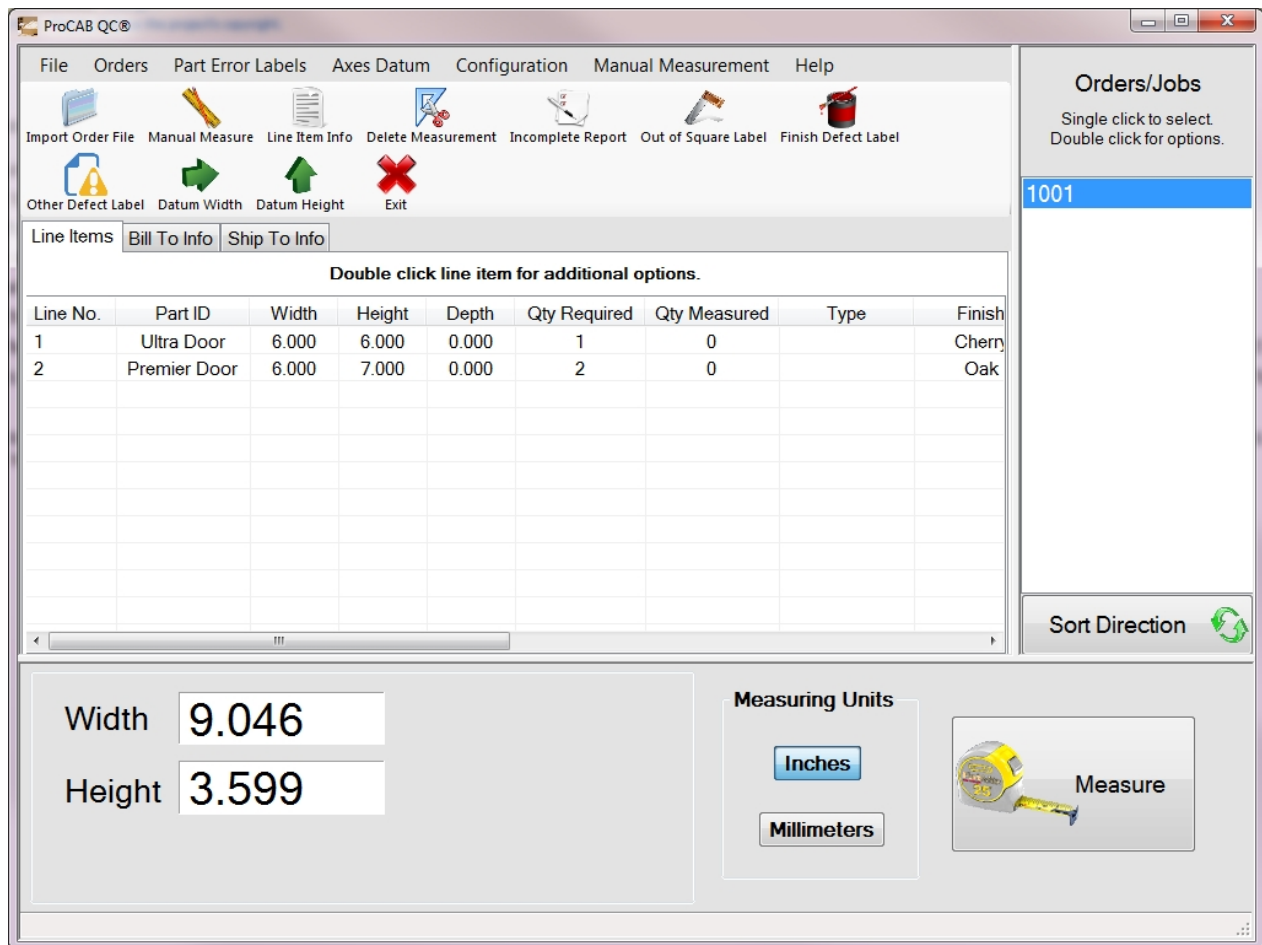
To begin taking part measurements, complete the following:

1. Select the desired Order/Job ID from the Orders list window. When selected, the line items for the order are displayed as shown in the example above.

2. Place the part to be measured on the ProTable-CAB with the left and bottom part edges against the bottom and left side fence.

3. Move the width and height gantries against the right and top edges of the part.

4. Press or click on the Measure button located in the lower right corner of the application.

5. ProCAB QC will attempt to locate a matching line item in the order. One of three results will occur:

   ▪ A matching line item is found that is within tolerance. The corresponding line item entry may change color.

   ▪ **More** than one line items have been found that match the measured part. This is referred to as *Part Ambiguity*. The user will be asked to select the correct line item from a provided list of matching line items.

   ▪ There is no line item that matches the measured part within tolerance. Typically the part would be rejected. There is an option that can be selected to allow for acceptance of out-of-tolerance parts.

ProCAB-QC incorporates a feature called A*uto Part Rotation Detection*. This feature allows parts to be placed on the table in normal orientation or rotated by 90 degrees. The system will first search for a matching line item in normal orientation. If no matches are found, the measured dimensions are rotated by 90 degrees and the line items are checked again.

Matching Line Item Found
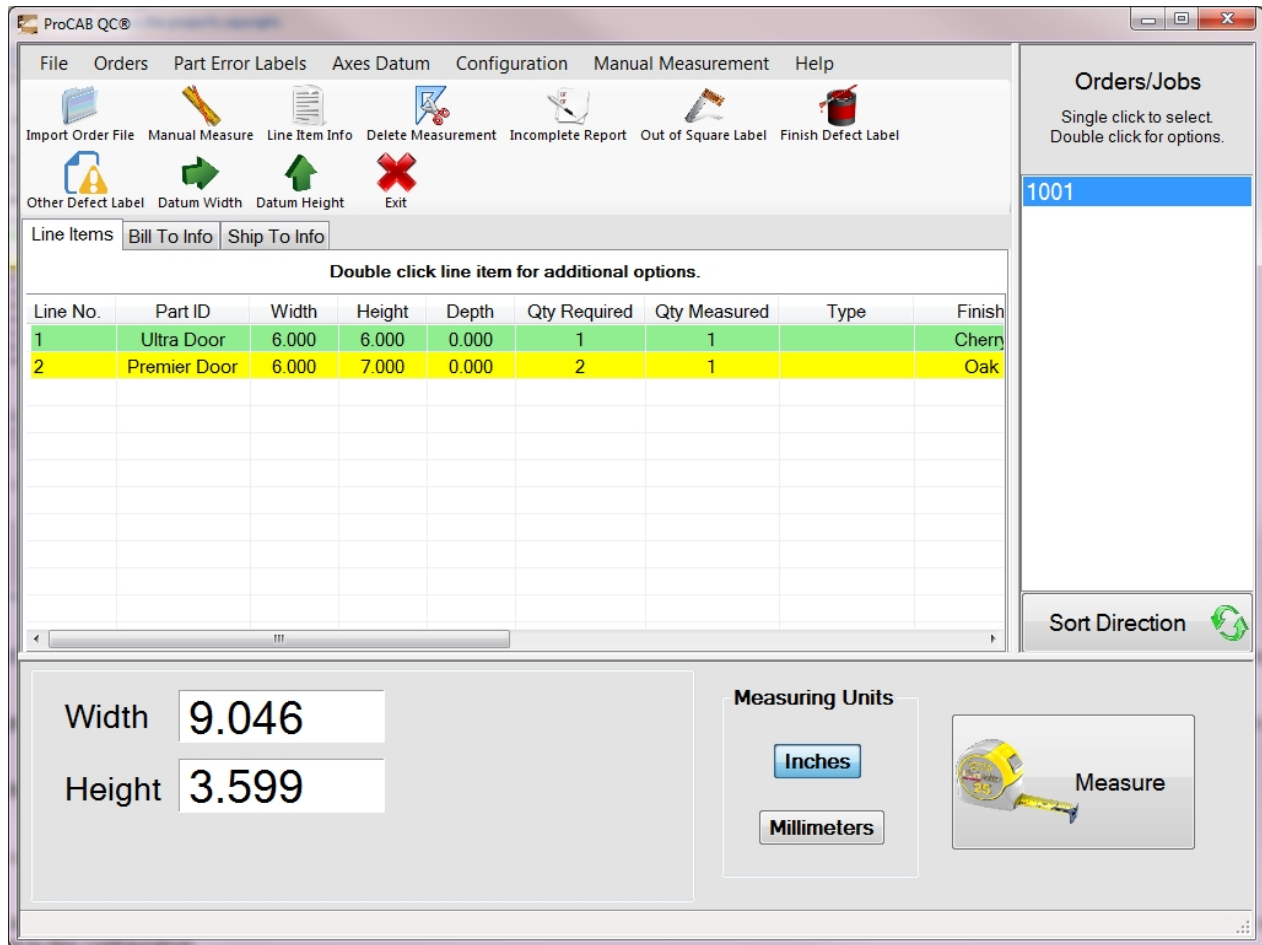
When a line item is found that matches the measured part, the measurement is recorded and associated with the respective line item. The Quantity Measured column value is updated to reflect the number of measured parts that match that line item.

The line item entry background color may change to reflect the current status of the line item. When one or more measured parts have been completed for a line item BUT the required quantity has not yet been met, the background turns YELLOW.

When the *quantity of parts measured* equals the *quantity of parts required* for a line item, the line item is considered complete and the background turns GREEN.

When all of the line items are green, the order is complete.
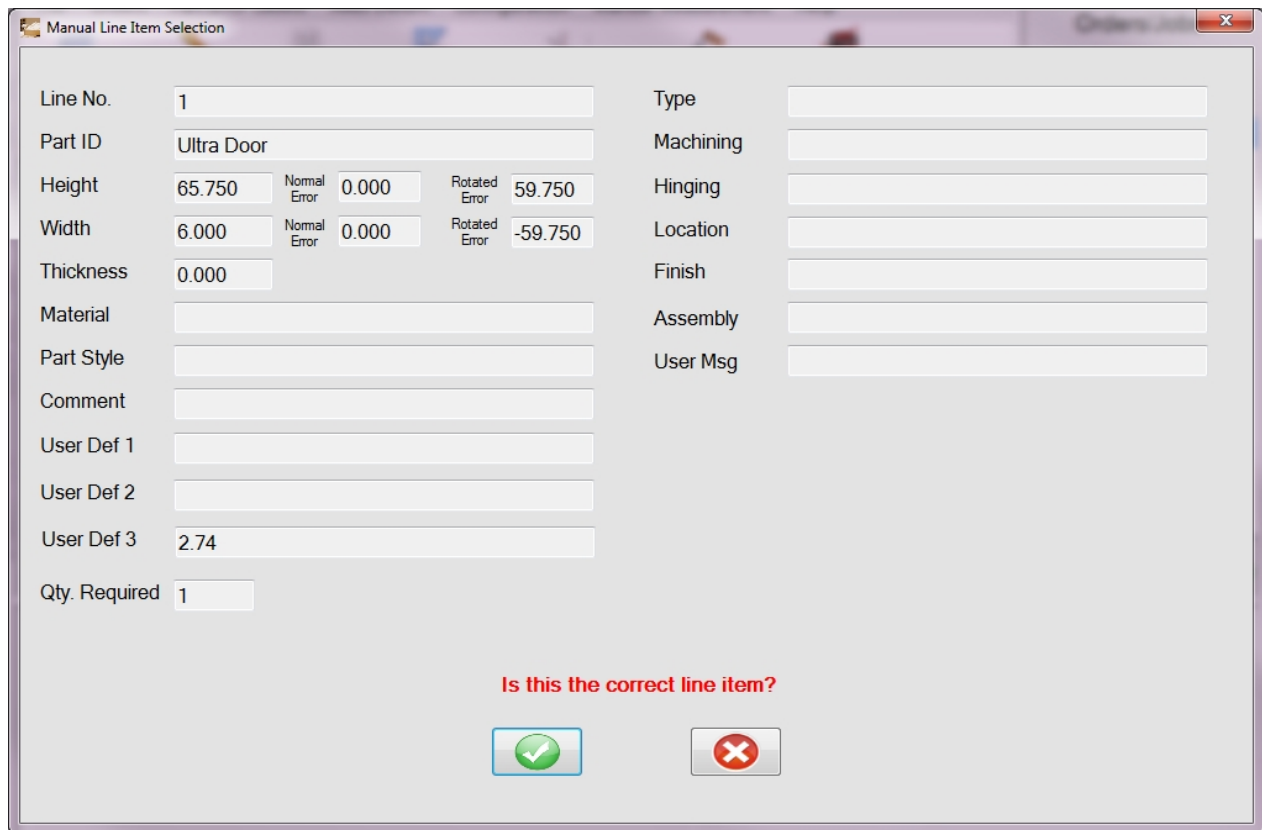
Optionally, the software can be configured to automatically remove the line item from the list as it is completed. In this case, when all of the line items have been removed, the order is complete. See the Measurement Options tab of the Options dialog relating to this configuration.

Multiple Matching Line Item (Part Ambiguity)
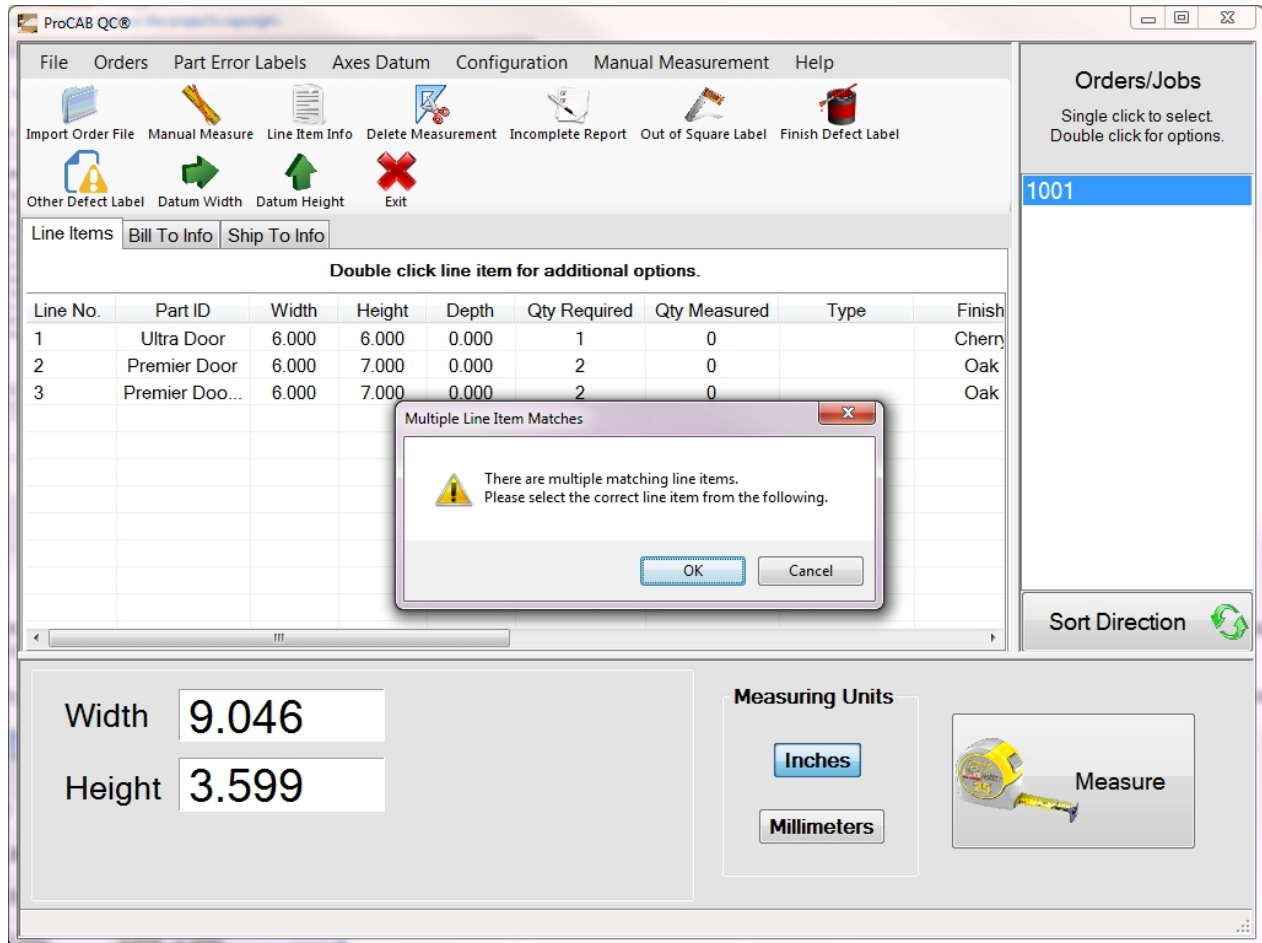
There may be times when an order contains two or more line items that are dimensionally the same but have other different characteristics. Because the system can only characterize parts based on their dimensional measurements, ProCAB QC will detect that multiple line items match the measured part. This is referred to as *Part Ambiguity*.

When the system detects part ambiguity, a warning message is presented that multiple line items match the measured part as shown above. Click OK to continue the process or Cancel to abort the measurement.

The system will present a series of dialog boxes that will provide additional information about each matching part. The operator can use the additional information to decided if the displayed line item is the correct selection. If the displayed line item is the correct item, click the OK button. The measured part will then be associated with that line item. If it is NOT the correct part, click the cancel button. The next matching line item information will be displayed.
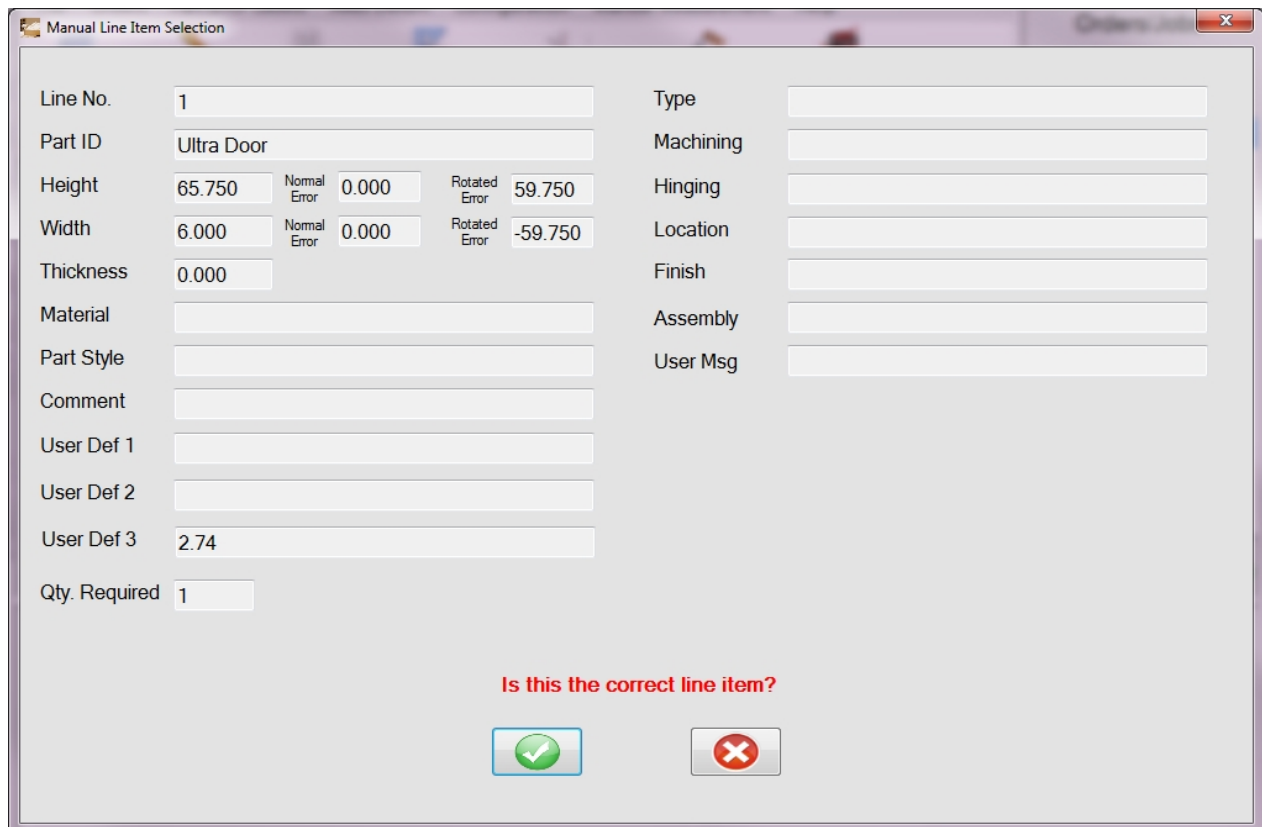
If after reviewing all matching line items, no line item is selected, the system will indicate that no line items were selected and the measurement is discarded.

Accepting Out Of Tolerance Parts

By default, ProCAB QC is configured NOT to allow out of tolerance parts to be accepted as valid. This option can be changed under the Measurement Options tab in the System Configuration. If the *Allow Out of Tolerance Parts* option is checked, measured parts that do not match any line item can still be accepted. **Warning:** *It is strongly recommended that this option NOT be enabled.*
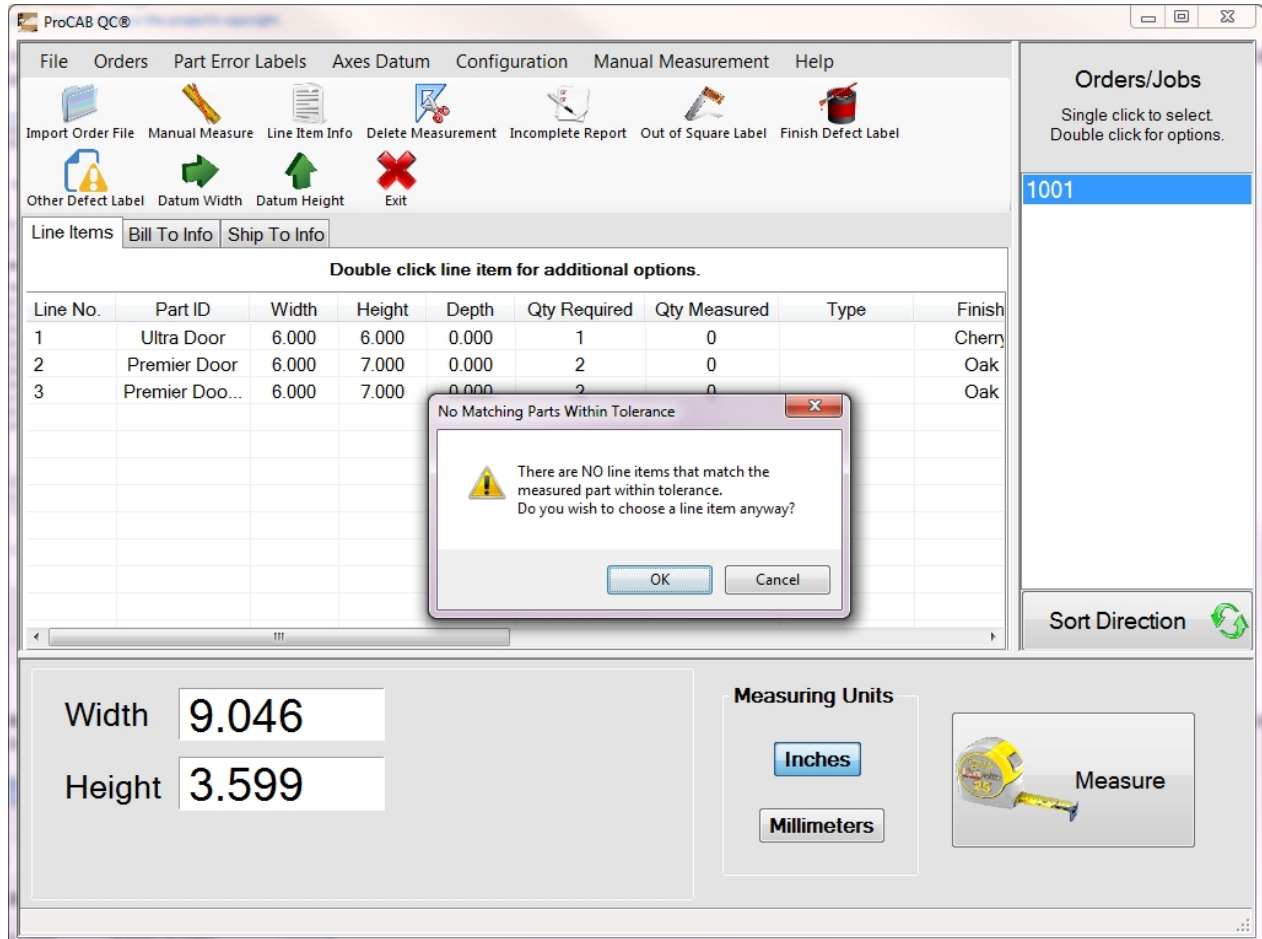
When this option is enabled and a measured part does not match any line items, the system will present the warning message shown above. If the user chooses OK, the operation will proceed. If Cancel is selected, the measurement will be discarded.

The system will present the operator with a series of dialog boxes that provides additional line item information used to determine if the measured part is to be associated with the specific line item. If the user chooses OK, the measurement will be associated with the specified line item. If Cancel is selected, the data for the next line item in the order is presented.

If no line item is chosen after reviewing all of the line item details, the measurement is discarded.

NOTE: If an out of tolerance measurement is accepted as valid, the associated measured part data in the completed CSV data file is marked as out of tolerance. In addition, if a label printer is in use, the dimensions that are out of tolerance are indicated as "Failed". Also, if the optional Packing List feature is being used, the out of tolerance measured part instance for the line item is marked as failed.

Manual Measurement Of Parts

There are several instances where the operator may want to input a manual measurement instead of using the measuring feature of the ProTable-CAB.

- o Evaluation Mode - The user has downloaded an evaluation copy of ProCAB QC and needs to simulate part measurements.
- o Oversized Parts - The dimensions of a particular part to be measured are beyond the measuring capabilities of the ProTable-CAB.

To enable Manual Measurement capability, check the "Allow Manual Measurement Entry" option in the Measurement Options tab of the System Configuration.
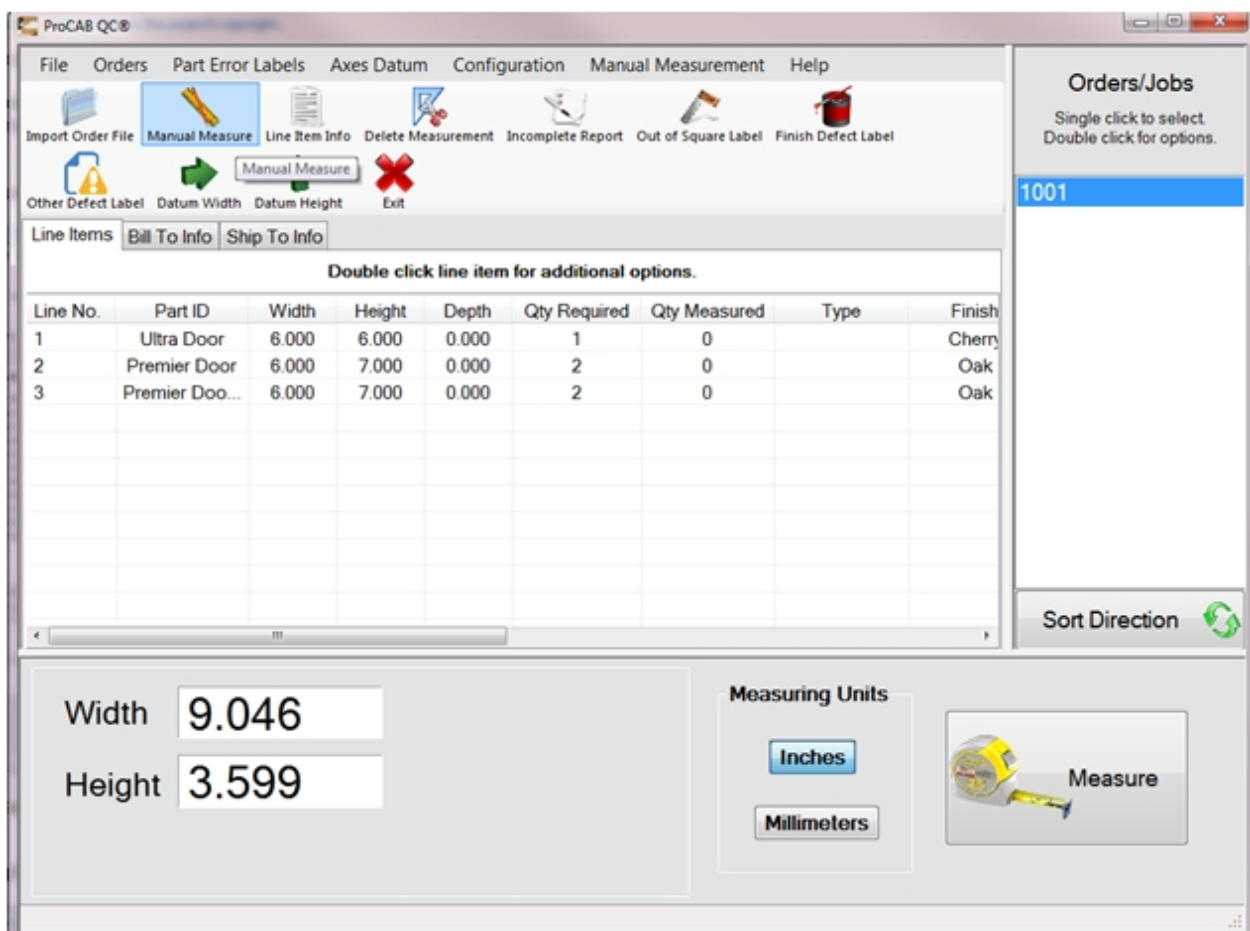
To begin a manual measurement, click the Manual Measure button on the tool bar OR the Manual Measurement menu button as shown above.

This will provide a dialog for entering the part width and height as shown below.
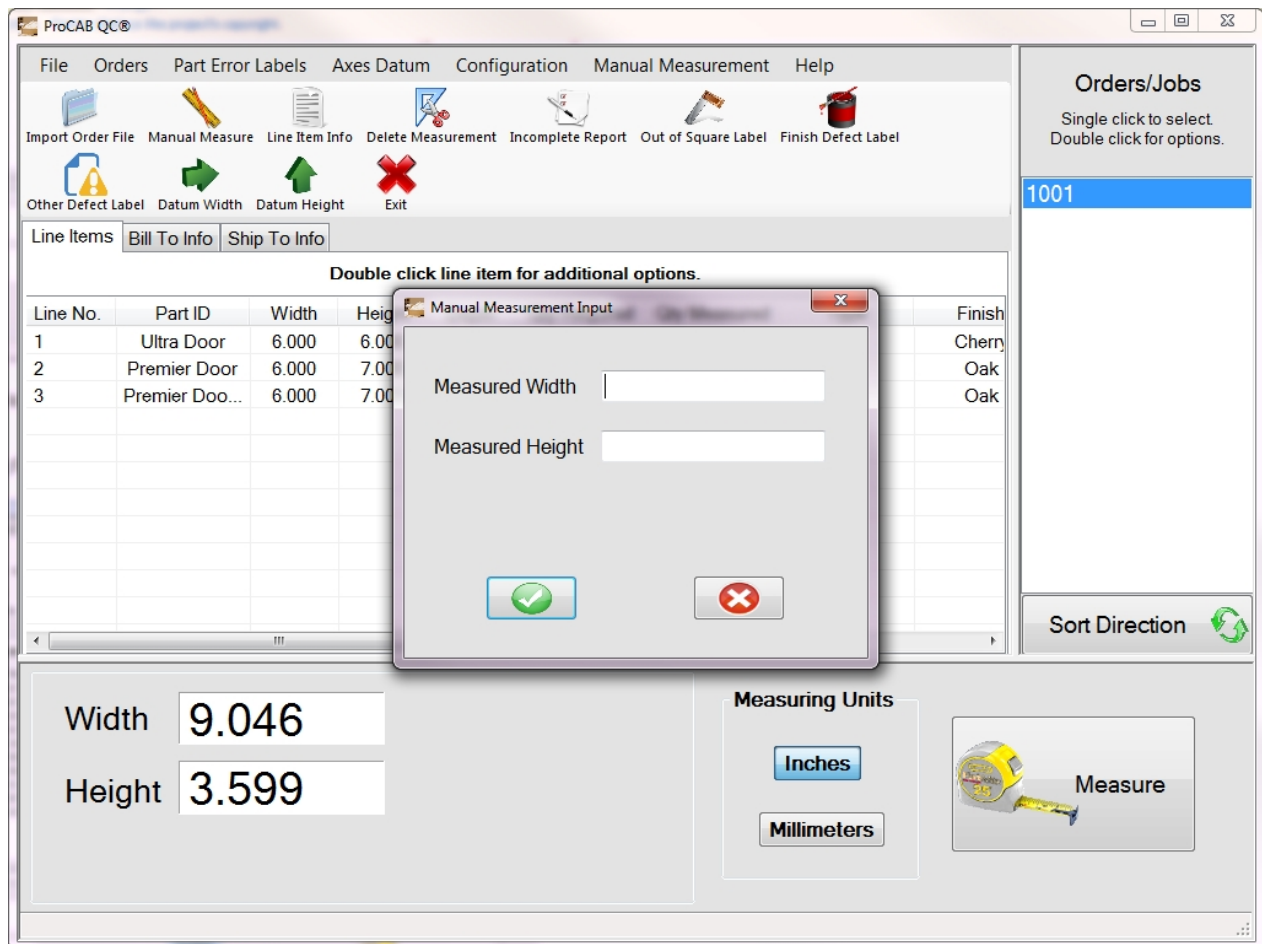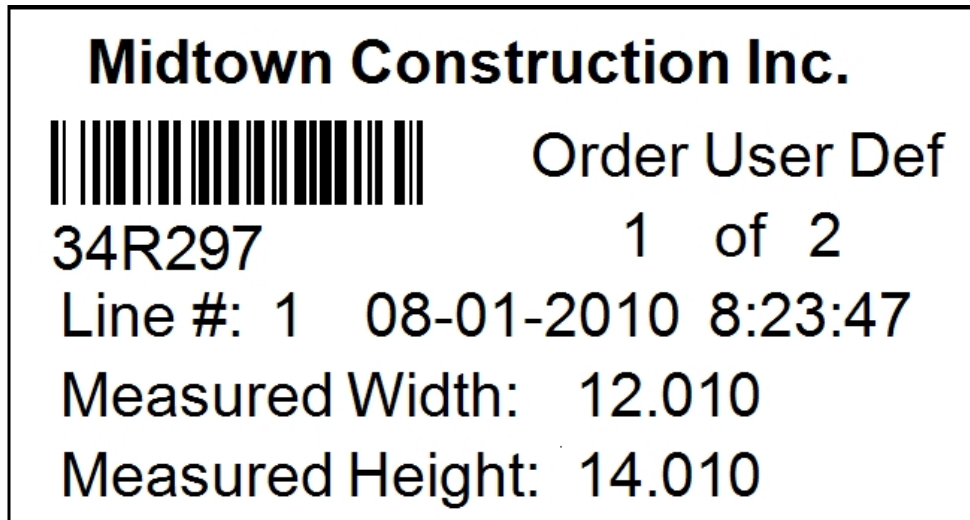
Enter the part width and height as requested. Press the OK button to complete the entry. ProCAB QC will search the line items for a matching entry as if the measurement had been completed with the ProTable-CAB measuring system. If the measurement is to be discarded, click the cancel button.

NOTES:

- Manual measurements are recorded in the completed CSV file as "manual entries". If a label printer is in use, the "In-Spec" entry of OK or FAIL is appended with M-M indicating a manual measurement.

- If the option "Allow Manual Measurement Entry" is NOT checked, the Manual Measurement menu button will not be displayed.

Part Labels

Midtown Construction Inc.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

34R297

Order User Def
1   of   2

Line #: 1   08-01-2010 8:23:47
Measured Width: 12.010
Measured Height: 14.010

ProCAB QC supports an optional label printer that can be used to print labels containing part measurement data. The part label is fully user configurable via the Reports Manager configuration tool. See Appendix B Configuring Printing Templates for more information regarding this feature.

The image above illustrates the default part label configuration as provided by the system. This includes:

- Customer ship-to name.
- Order ID, both text and bar code.
- User defined order miscellaneous field.
- Part count.
- Line item number.
- Measurement date and time.
- Measured width and height.

The format of the label is completely user definable including its size and layout.

Labels are printed after a part measurement has been completed. The label can then be affixed to the part for easy identification and reference.

To print part labels after a completed measurement, the *Print Part Labels* selection must be set to Always or By Template in the Measurement Options dialog.
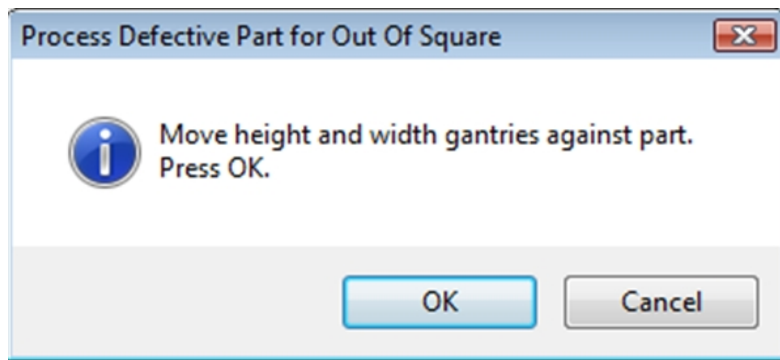
Printing Part Error Labels
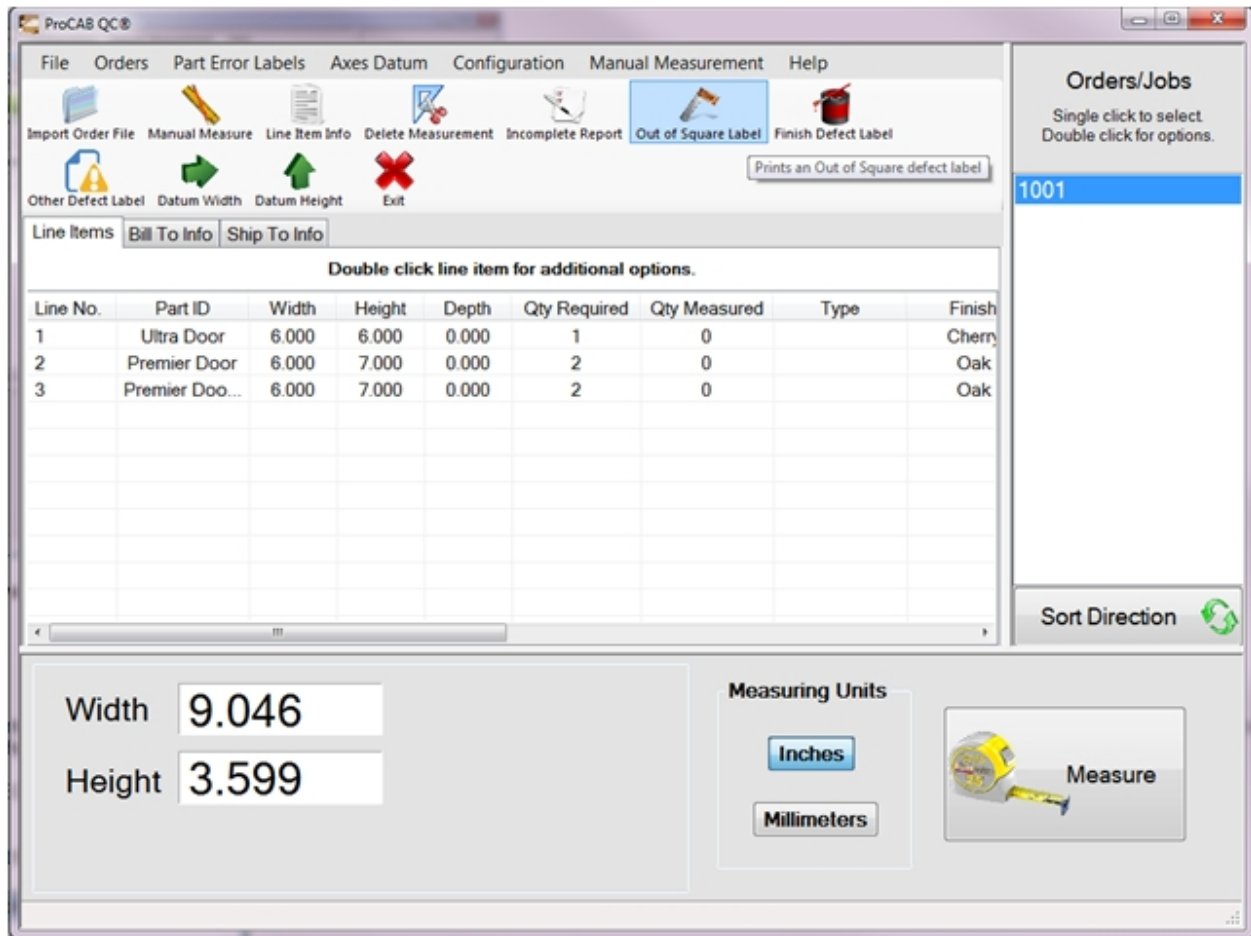
When using the label printer with ProCAB QC, the operator can generate several other labels on demand during inspection of the part. These include part rejection labels for:
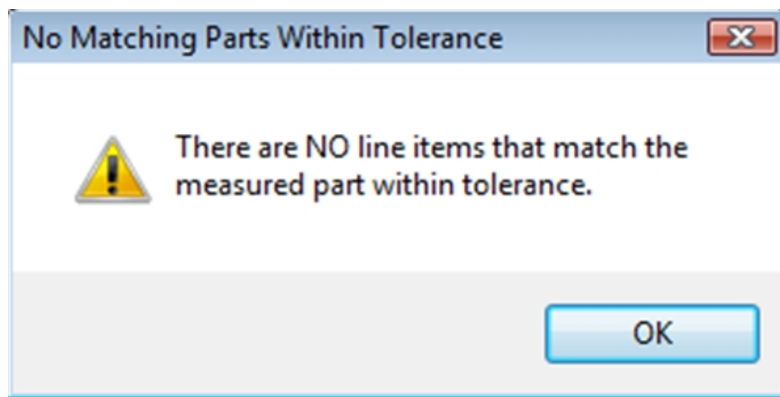
- o Out of Square
- o Finish Defect
- o Other

These labels are generated manually by selecting the associated defect label button from the tool bar or the Part Error Labels menu item as shown above. Since these errors are not automatically detected by the system, it is the operator's responsibility to choose the proper label type.

These labels include a REJECTED message plus a reason message. In the case of Other, a blank line is printed for the operator to write a reason.

To print a defect label, select the type of defect label required from the tool bar or Part Error Labels menu. The system will then display the shown below.

Process Defective Part for Out Of Square

Move height and width gantries against part.
Press OK.

OK   Cancel

Place the defective part on the ProTable-CAB and move the gantries against the sides of the part. Press the OK button to allow the system to find the line item that matches the part. If no matching line item can be found, the system will indicate the error message shown below:

No Matching Parts Within Tolerance

There are NO line items that match the measured part within tolerance.

OK

Press the OK button. The system will then ask if you want to generate an error label anyway as illustrated.

No Line Item Found

No line item found. Do you wish to print a defect label anyway?

Yes   No
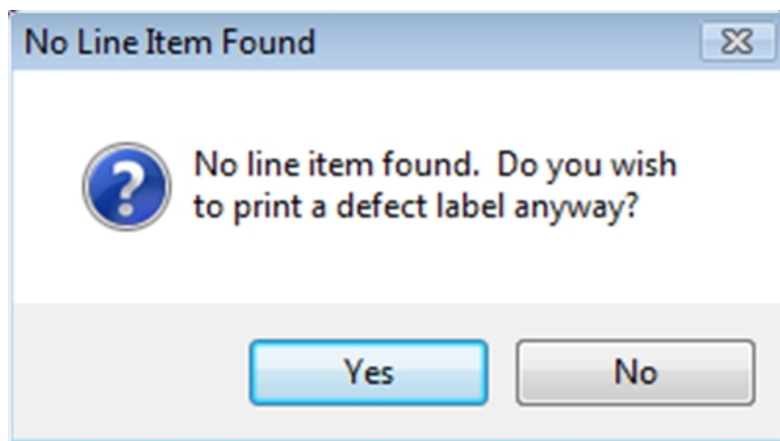
If found, the defect label will be printed with the nominal values as illustrated below.

.

Order: ‖ ‖‖‖‖ ‖‖ Line#

Out Of Square

Width: Height:

As with the standard part labels, defect labels can be customized by the user to meet their specific needs. See Appendix B Configuring Printing Templates for additional information.

Completing An Order

As line items are completed, each complete line item turns green with the remaining partially completed line items in yellow. In this example, all of the line items have been completed except line item 1 which requires one additional measured part.
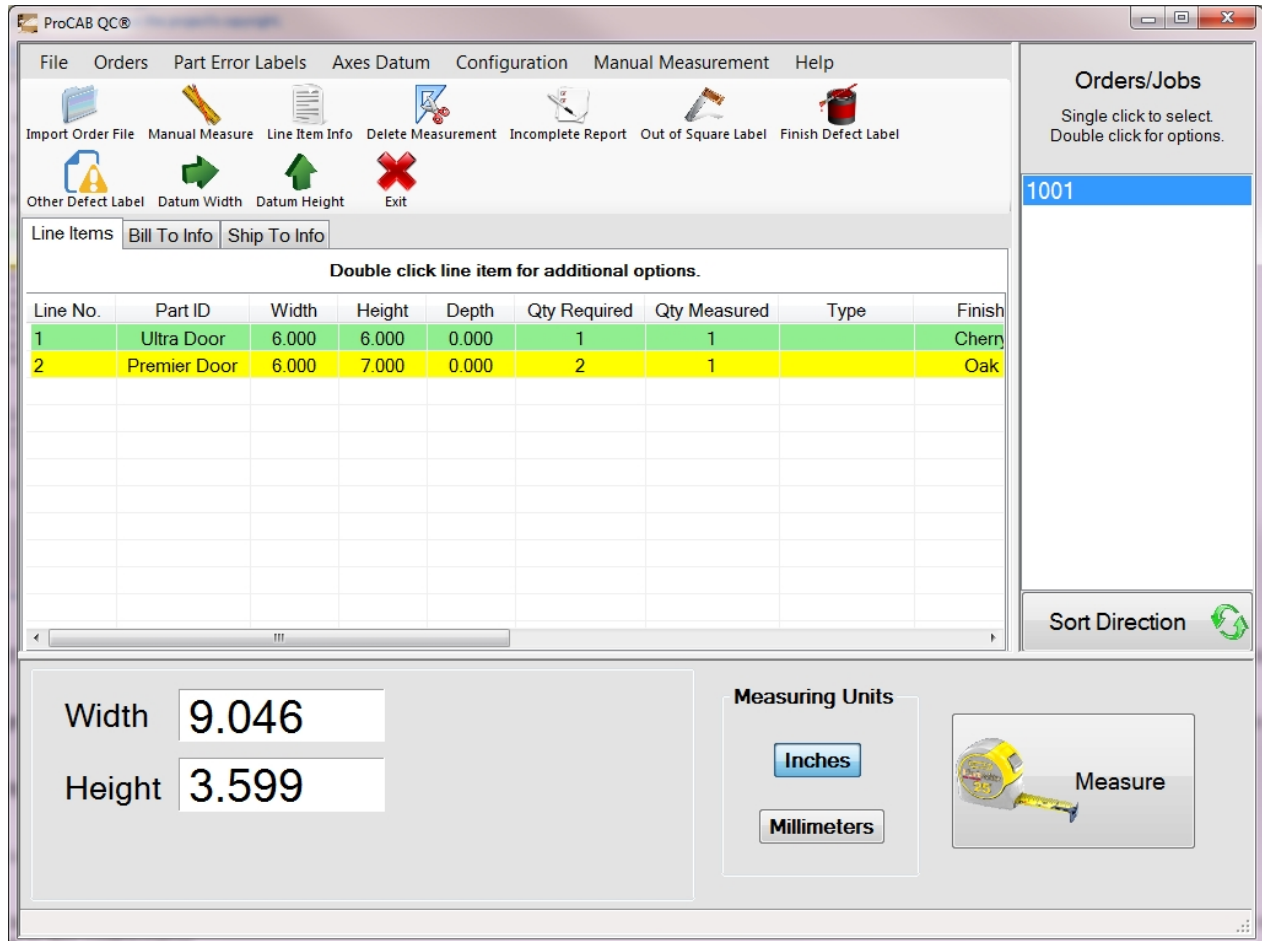
After the last part is measured, the system saves a completed order CSV file, named with the Order ID to the Completed Order folder as specified in the System Settings tab of the System Configuration.

The completed order CSV file can be opened by a spreadsheet program such as Microsoft® Excel™. An example of this order file is shown below.

In addition, ProCAB QC can generate a packing list that includes the same data that is stored in the completed order CSV file. This packing list can be printed or email to the customer documenting the measured components. An example is shown below.

Starlite Cabinet Company
500 E. State St.
Bldg. 2
Knoxville   TN   32810

Bill To:

Acme Cabinets Inc.
429 Front St.
Receiving Dock A
Johnson City   TN   29301
USA

Ship To:

Midtown Construction Inc.
459 South St.
Suite A
Hendersonville   NC   28777
USA

Order: 34R297   Completion Date: 11-15-2010

| Line # | 1 | **Width:** | 12.000 | **Length:** | 14.000 |

Measured Part #	Measured Width		Measured Height	
1	12.010	IN	14.010	IN

| Line # | 2 | **Width:** | 12.010 | **Length:** | 14.010 |

Measured Part #	Measured Width		Measured Height	
1	12.020	IN	14.020	IN
2	12.030	IN	14.030	IN

| Line # | 3 | **Width:** | 12.030 | **Length:** | 14.030 |

Measured Part #	Measured Width		Measured Height	
1	12.040	IN	14.040	IN
2	12.050	IN	14.050	IN
3	12.060	IN	14.060	IN
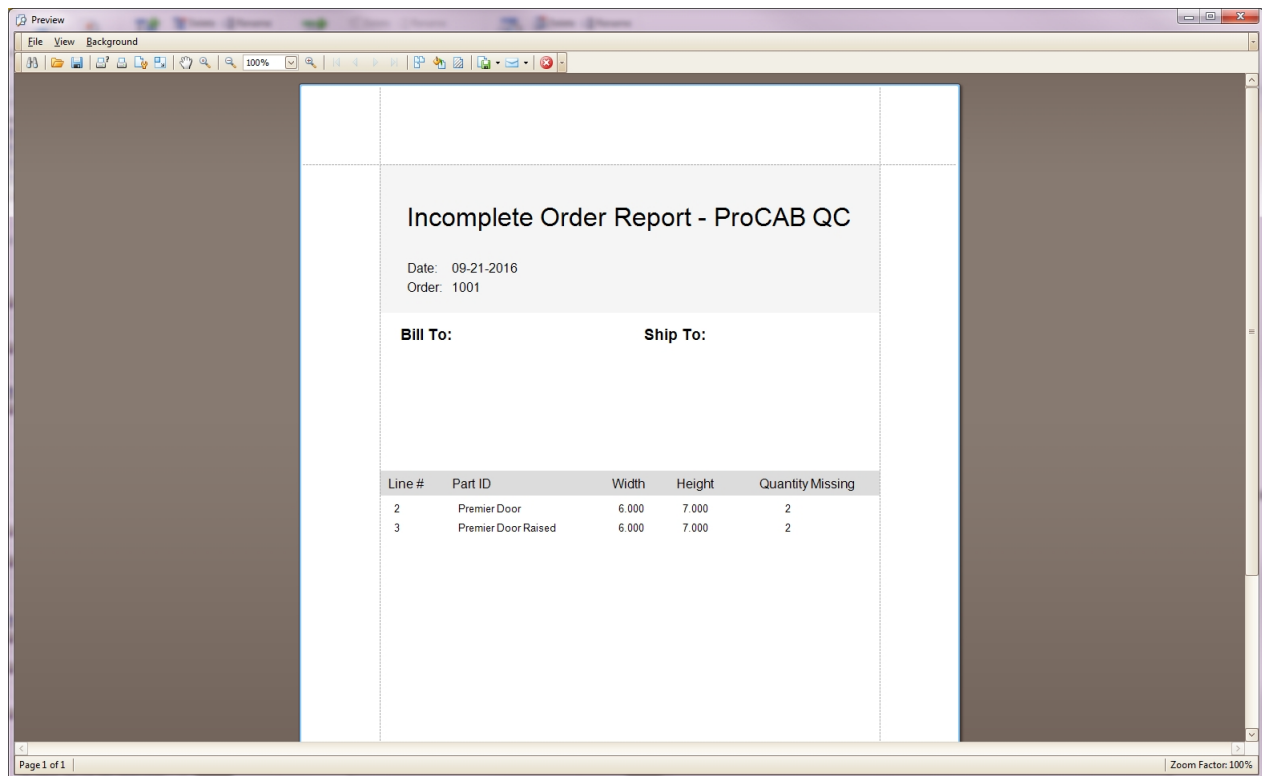
After order completion, the order is automatically removed from the Orders list.

Incomplete Order Report

Incomplete Order Report is used to document missing parts that are required to complete an order.
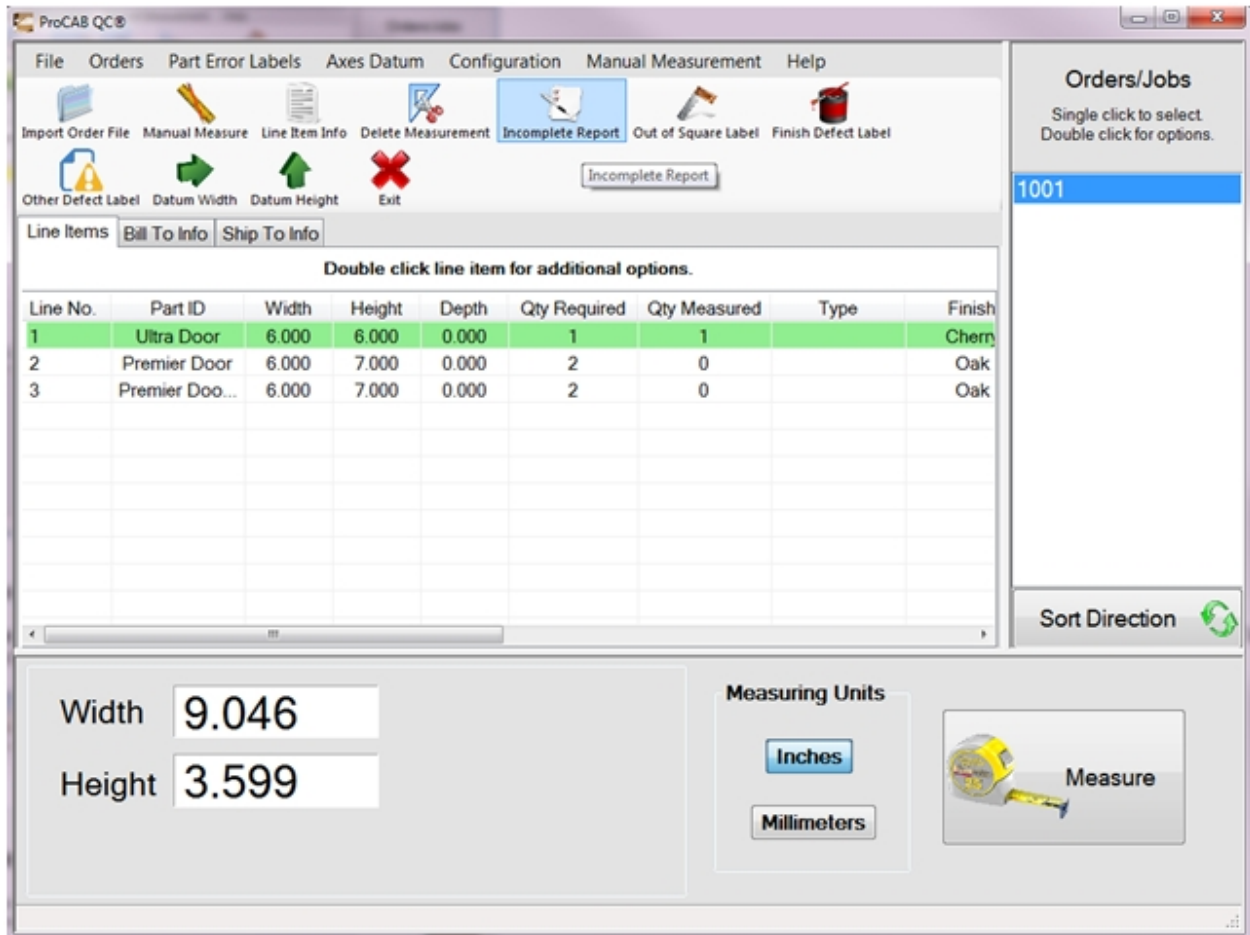
In the example above, two line items, 2 and 3, are incomplete with each line item missing two parts. The parts were found to be out of tolerance and need to be reproduced. To relate that information to the production department, the operator can generate an Incomplete Order Report. The output of the report is shown below.

This report can then be printed out or emailed to the production department to reproduce the required parts.

To generate an Incomplete Order Report, select the desired order and click on Orders/ Incomplete Order Report. Alternately, double click on the desired order in the Orders list and select Incomplete Order Report from the pop-up menu.

Processing an Incomplete Order as Complete

In certain instances, it may be required to process incomplete orders as completed orders. In this example, the single line item has not been fulfilled. The part required is to be back ordered for a later manufacturing date. To process the order as complete, click on the Process as Complete tool bar button **or** double click on the active order in the orders window.
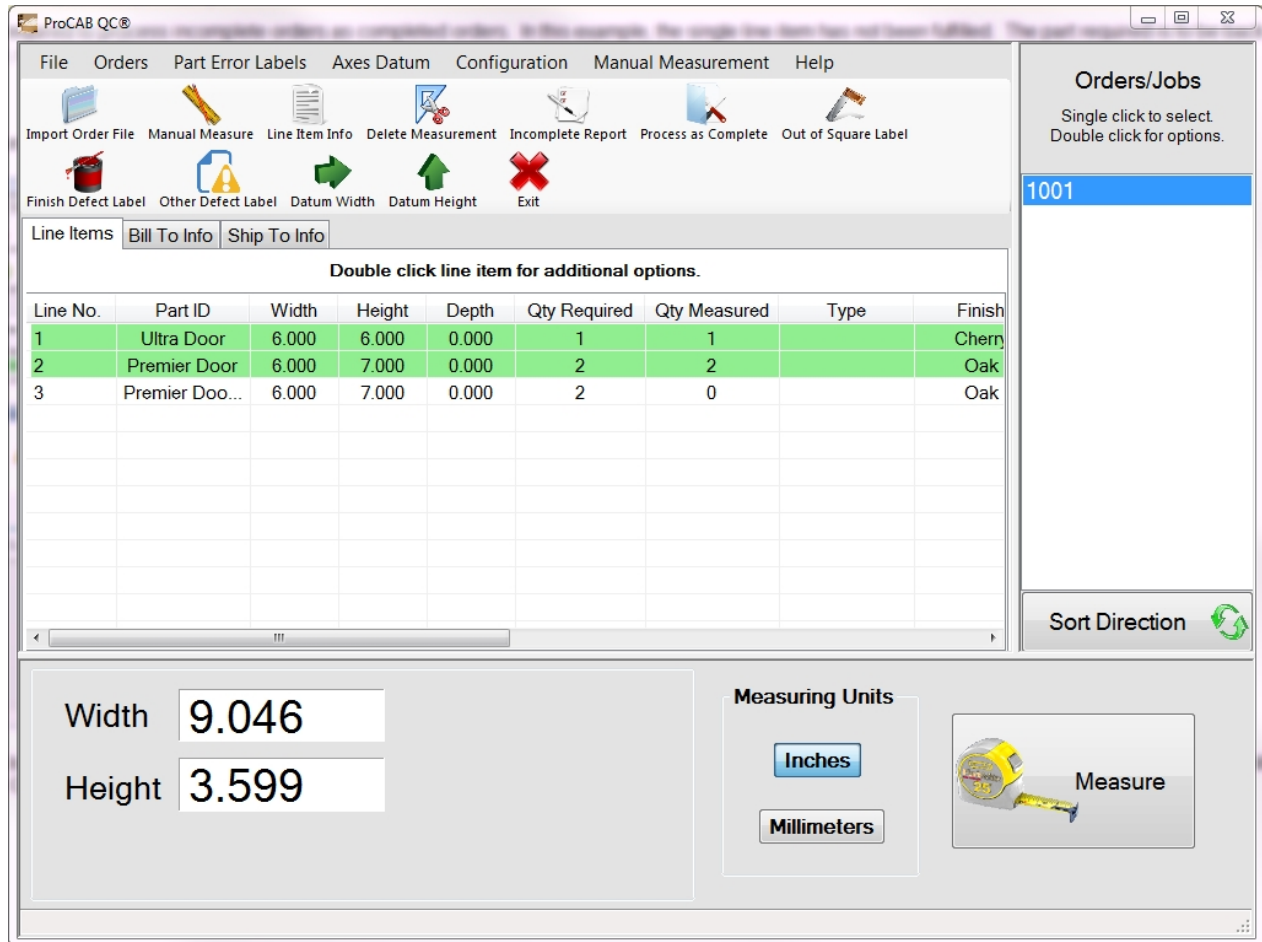
Once the Process Order as Complete selection has been made, a warning box is provided as shown.
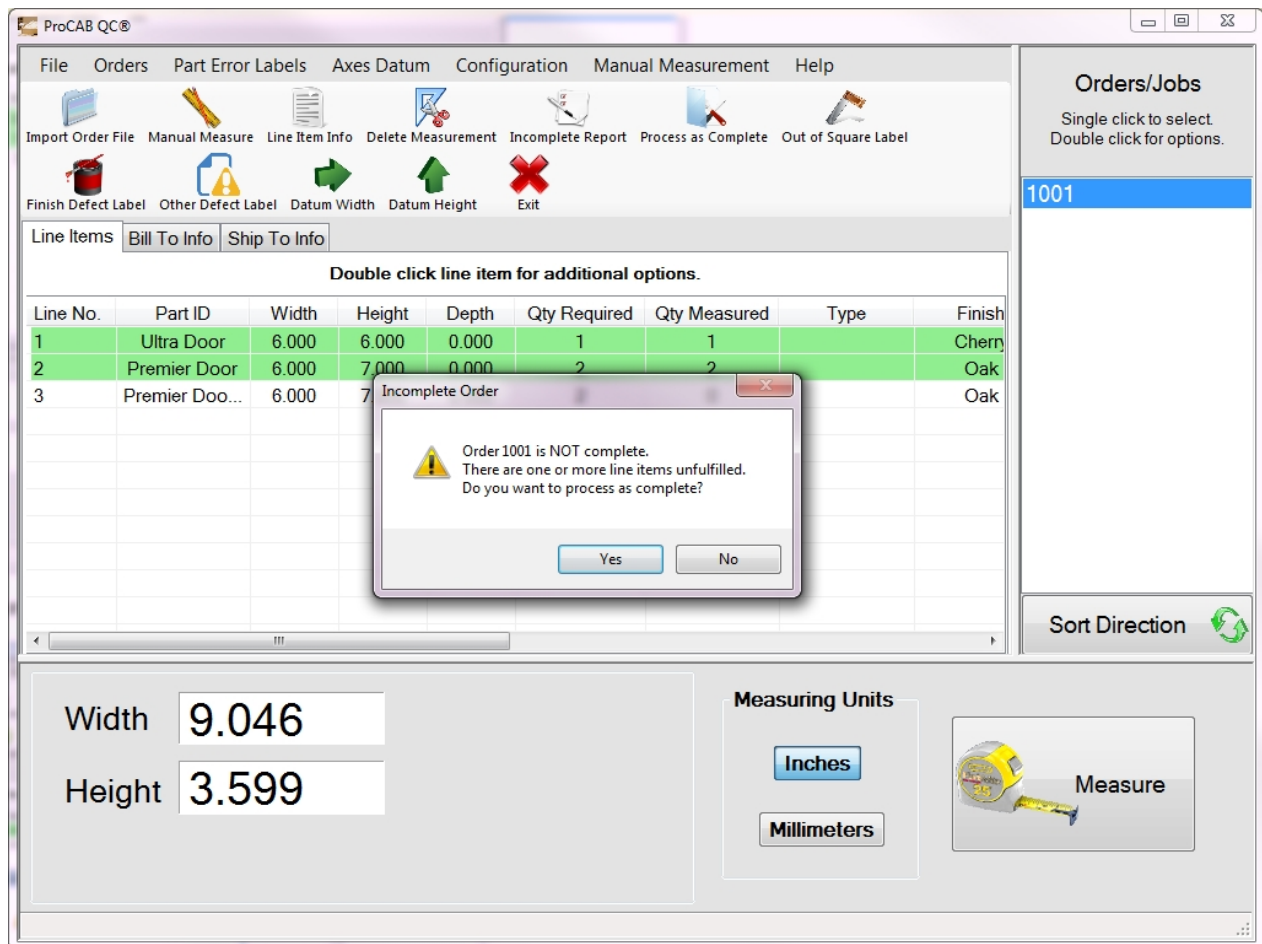
Clicking Yes will cause a pack list to be printed if enabled and the order to be saved to the completed orders file. The incomplete line items will have a non-zero quantity in the Qty Missing column for the respective line item. The order will be removed from the Orders list.

Line Item Options
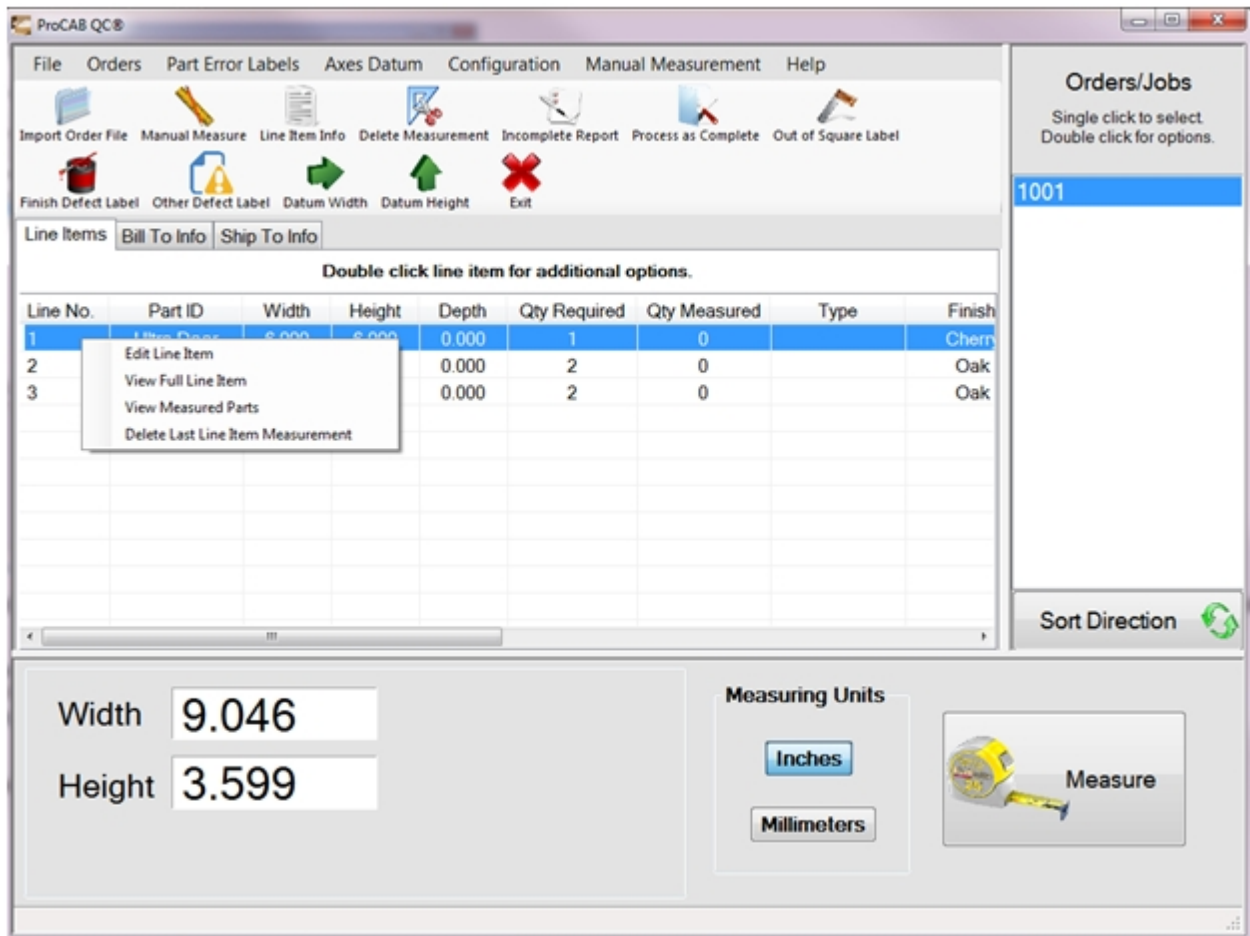
Several options can be selected relating to line items within an order. To activate the pop-up menu for the line item options, double click (double touch) on the desired line item as shown above. The pop-up menu provides the following choices:

- o Edit Line Item - Allows limited editing of select line item values, if enabled.
- o View Full Line Item - Provides additional line item details not provided in the main Line Items tabbed view.
- o View Measured Parts - Displays a listing of parts that have already been measured and associated with the line item.

The following sections provide additional details these options.

Edit Line Item

After clicking **Edit Line Item** from the pop-up menu, a dialog box is displayed as illustrated above. The data includes:

- o Line Item Number - The line item number identifier from within the order.
- o Part ID - The part number or description as defined by the CSV production file.
- o Width - The nominal target width of the part.
- o Height - The nominal target height of the part.
- o Qty. Required - The quantity of parts to be successfully measured to fulfill the line item.

The Line Number and Part ID fields cannot be changed. The Width, Height and Quantity Required can be edited if permitted. The administrator can enable or disable the edit capabilities of each field in the Measurement Options tab of the System Configuration. These related option controls are:

- o **Allow Line Item Height Edit** - Controls Height dimension editing.
- o **Allow Line Item Width Edit** - Controls Width dimension editing.
- o **Allow Line Item Quantity Edit** - Controls Quantity Required editing.

Click the OK button to save the changes to the line item. Click Cancel to discard the changes.
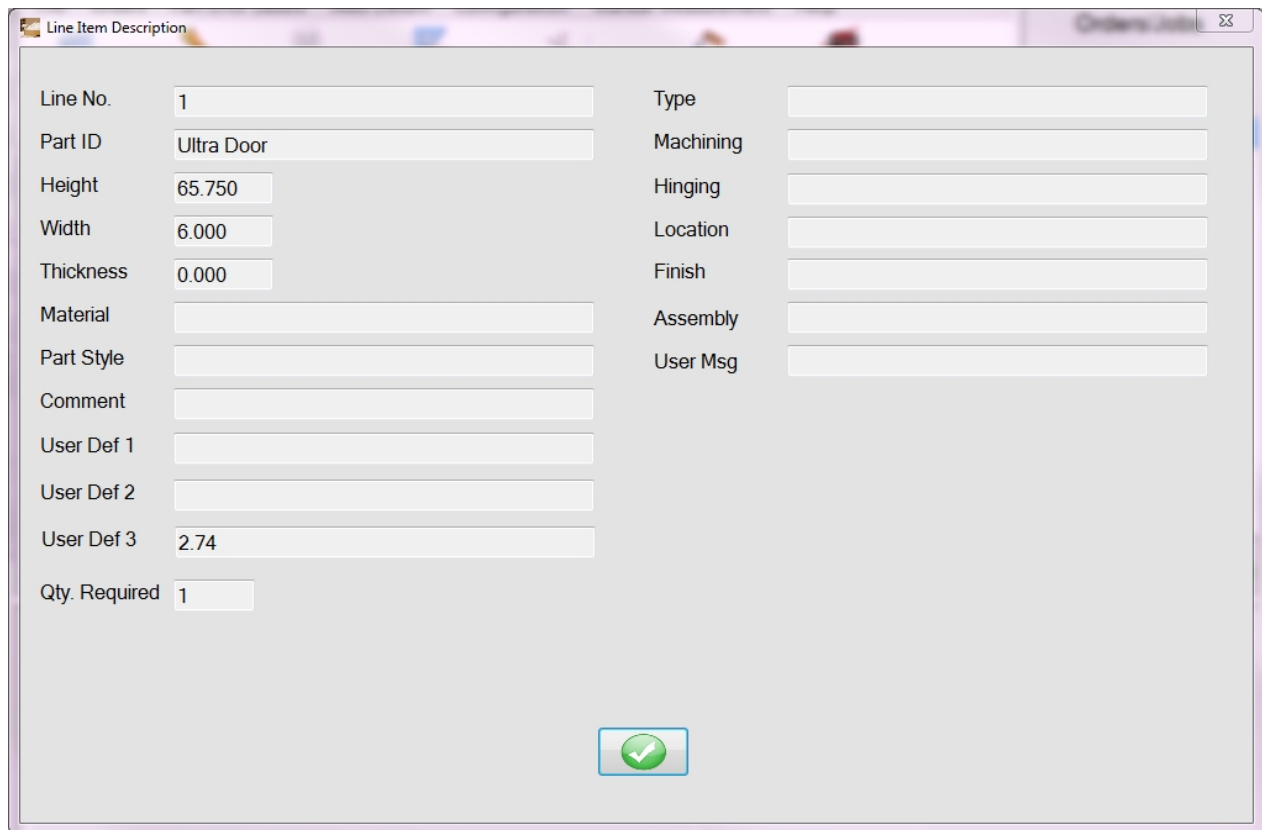
NOTES:

- If one or more parts have been measured and associated with the line item, the height and width fields are not editable, even if they are selected for editing in the Measurement Options tab.
- The quantity required field cannot be set to a value less than the quantity measured.

View Full Line Item
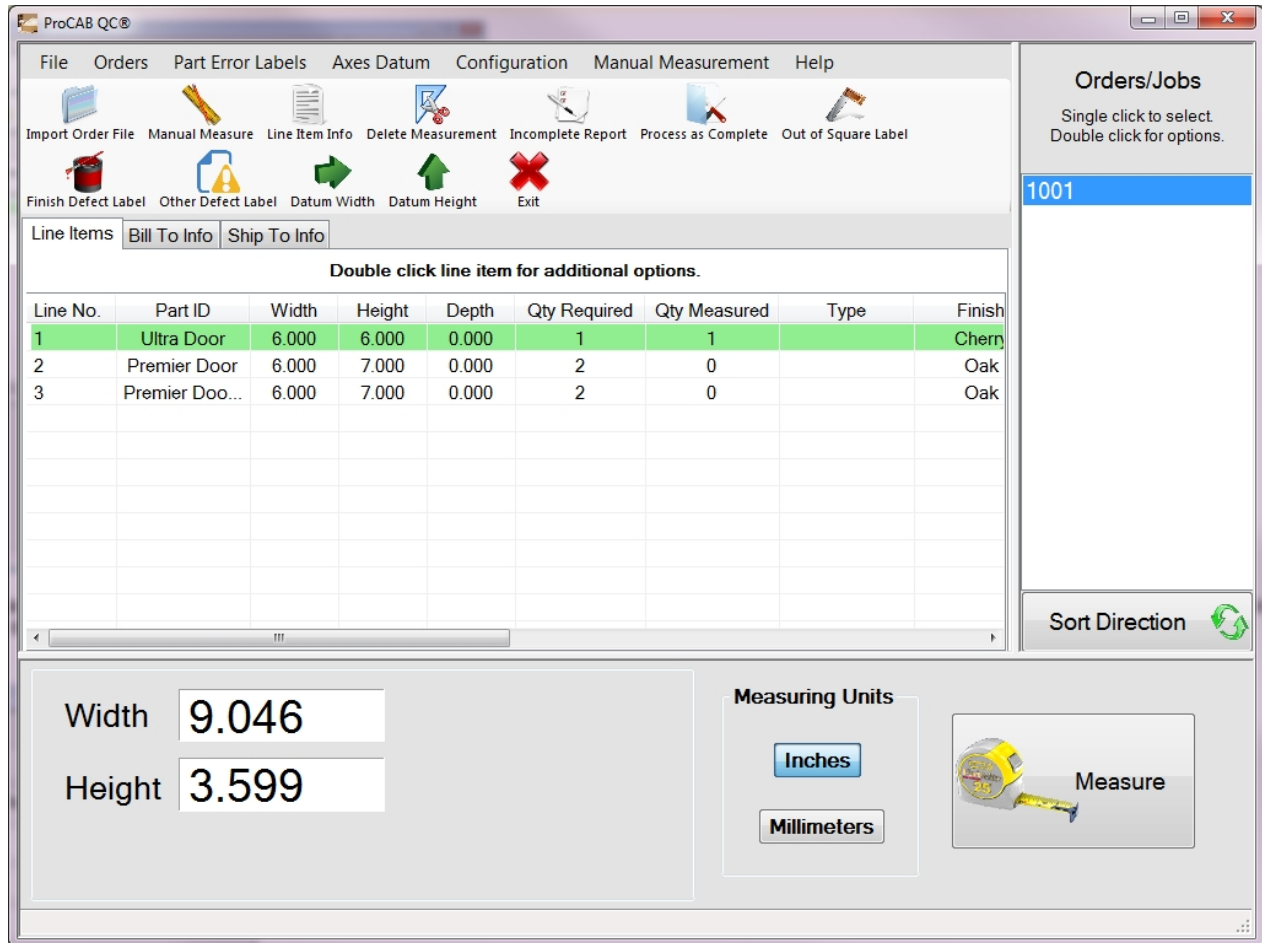
The user can access the complete line item information by selecting the line item and the clicking the Line Item Info tool bar button as shown above. Alternately, double clicking the line item will display the line item pop-up menu. The user can select "View Full Line Item".

This dialog box provides the complete details relating to the selected line item. None of these fields are editable. This dialog is for informational purposes only and is populated from data derived from the production CSV file. Fields that are unpopulated in the screen are either not mapped in the CSV template or the data does not exist in the CSV file.

Click the OK button when viewing is complete.

View Measured Parts

This dialog provides part measurement information for the selected line item.

In this example, the title indicates that the measurement data is for line item 1. There has been two parts measured at the time and date specified. The measured width and height are provided and both are in-specification. The measurement type indicates that this was a manual measurement, not measured on a ProTable-CAB.

Additional measured part data would appear on subsequent lines in the listing.

When viewing is complete, click the OK button to close the dialog.

Delete Last Line Item Measurement
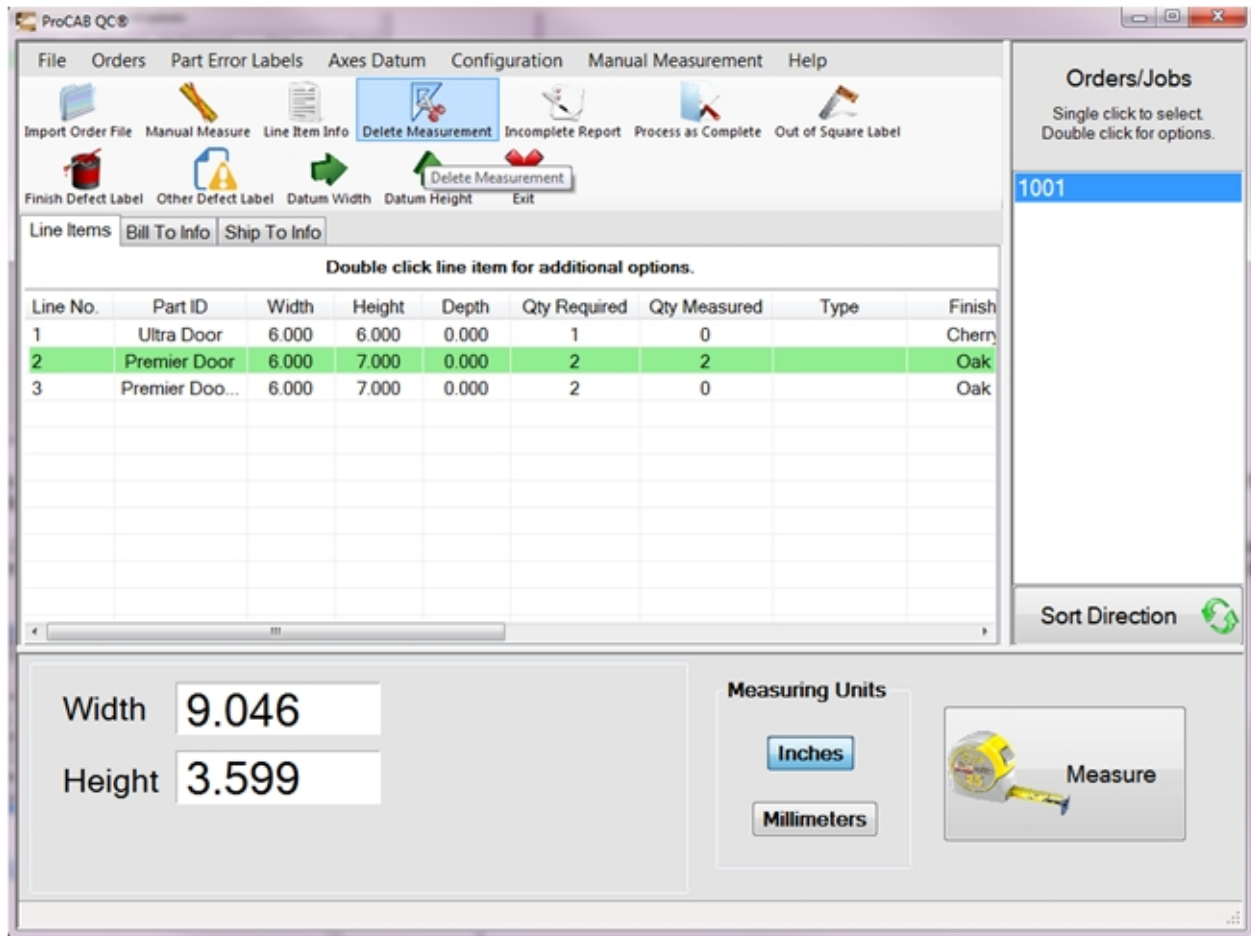
There may be situations when a measurement has been completed for a line item but the last measured part is then found to be defective. ProCAB-QC will allow the user to delete the LAST part measurement from a line item. A new part may need to be manufactured to replace the defective part or the part may be placed on back order.

In the example above, line item 2 requires two parts and two parts have already been measured and recorded. The user now determines that there is a defect in the last part and needs to remove the measurement from the line item. The user can select the line item and click the Delete Measurement tool bar button as illustrated above **or** double click on the line item and the pop-up menu is displayed as shown below. Click on the "Delete Last Line Item Measurement" item.
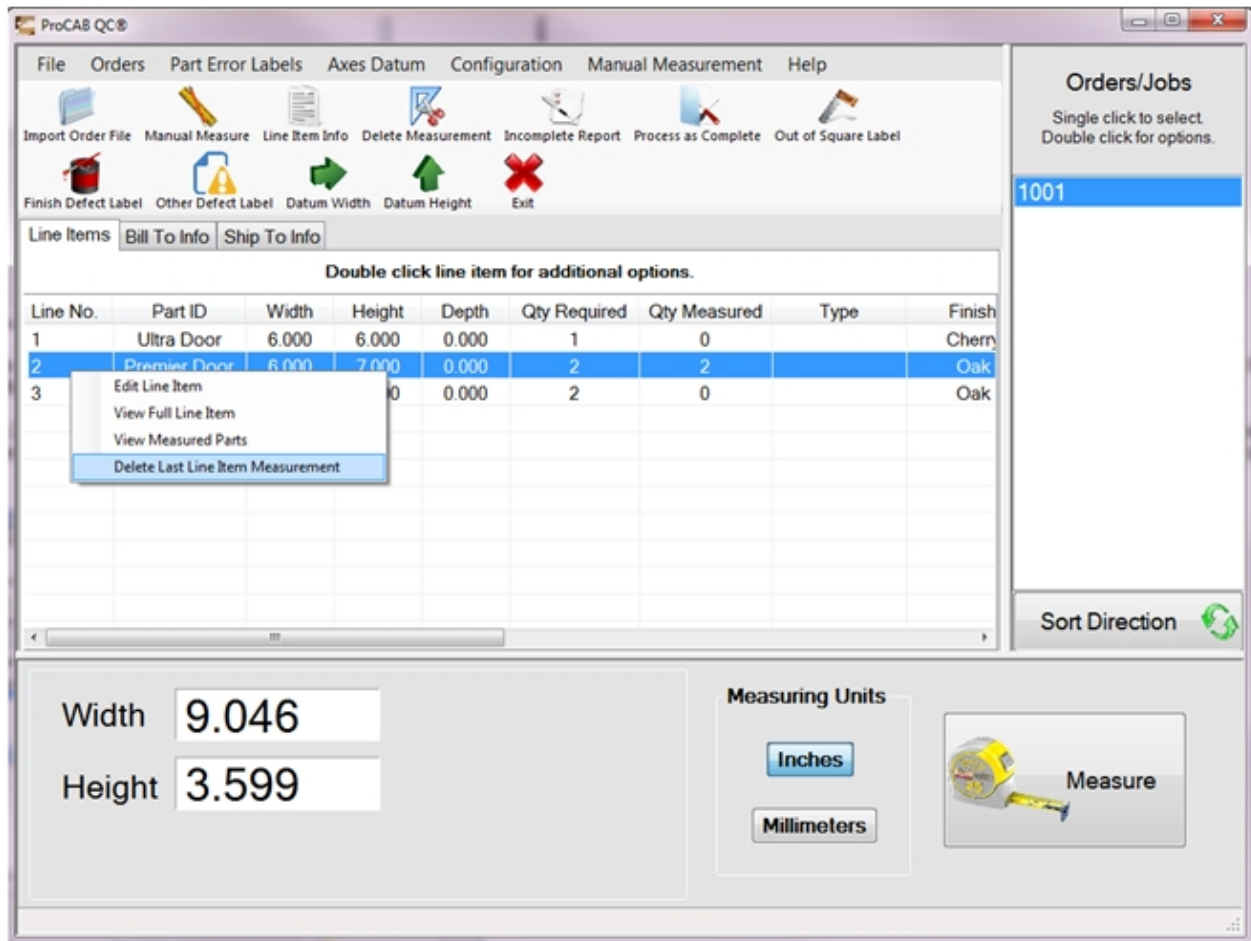
Click on the Delete Last Line Item Measurement menu selection. A warning box is displayed as illustrated below
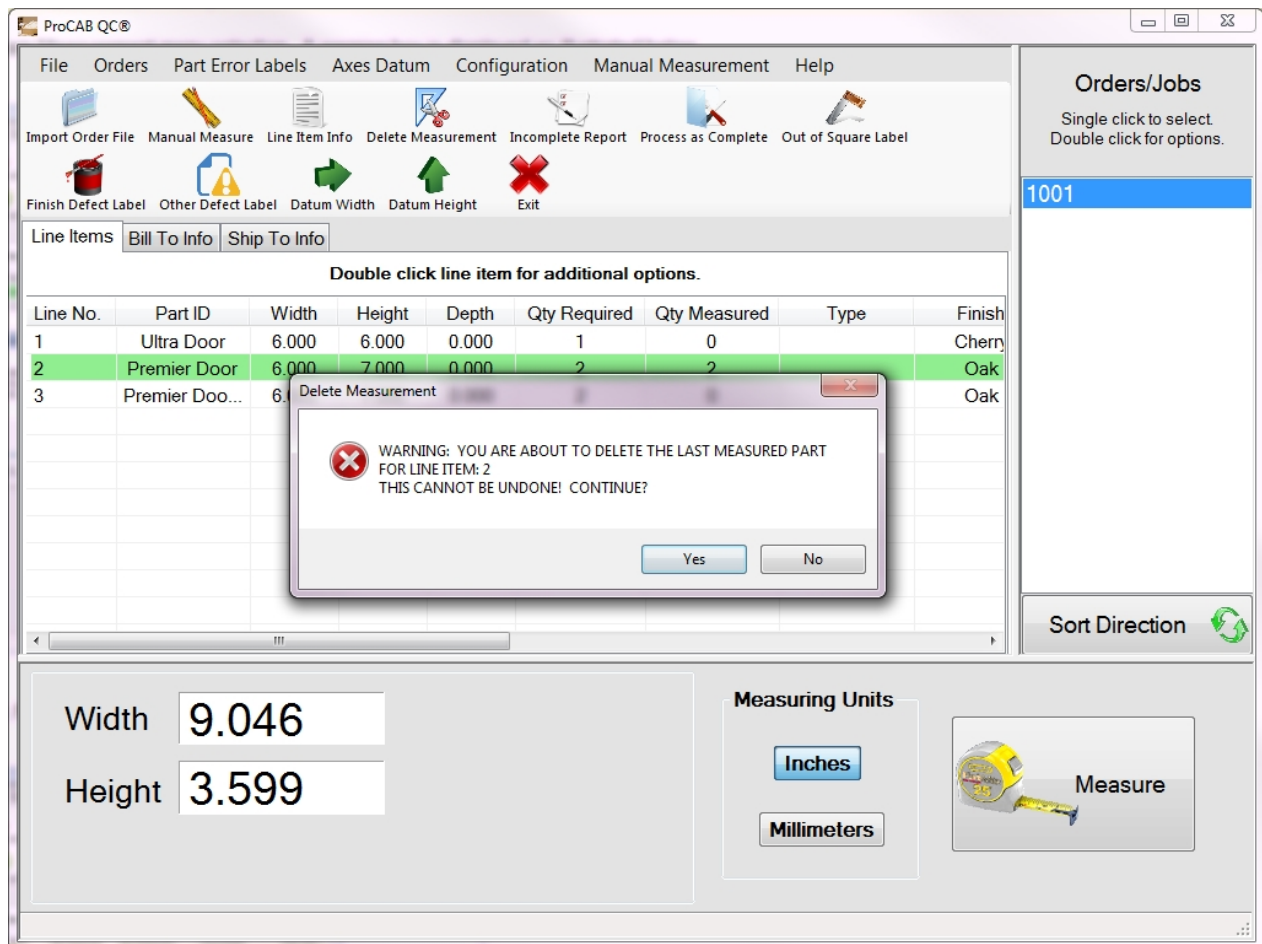
If the user clicks the Yes button, the last measurement is deleted from the line item and the Quantity Measured field is reduced by one as shown.

ProCAB QC®

File   Orders   Part Error Labels   Axes Datum   Configuration   Manual Measurement   Help

Import Order File   Manual Measure   Line Item Info   Delete Measurement   Incomplete Report   Process as Complete   Out of Square Label

Finish Defect Label   Other Defect Label   Datum Width   Datum Height   Exit

Orders/Jobs

Single click to select.
Double click for options.

1001

Line Items | Bill To Info | Ship To Info

Double click line item for additional options.

Line No.	Part ID	Width	Height	Depth	Qty Required	Qty Measured	Type	Finish
1	Ultra Door	6.000	6.000	0.000	1	0		Cherry
2	Premier Door	6.000	7.000	0.000	2	1		Oak
3	Premier Doo...	6.000	7.000	0.000	2	0		Oak

Sort Direction

Width   9.046

Height   3.599

Measuring Units

Inches

Millimeters

Measure

Order Options

After orders have been imported to ProCAB QC, the user may complete the order by measuring the required number of parts, process the incomplete order as completed or delete the order. In addition, the operator may be able to delete all orders from the system if that option is enabled.

The ability to process incomplete orders as completed is controlled in the Measurement Options tab of the System Configuration.

The ability to remove the current order and/or removing all orders are controlled by options in the Measurement Options tab of the System Configuration. If the associated feature is enabled, the user can delete the currently active order and/or all orders.

To delete all orders, click the Orders menu button and select Remove All Orders. All orders from the orders list will be deleted.

To delete the current order, select the order to delete from the Orders list. Click the Orders menu button and select Remove Current Order. Alternately, the operator may double click on the specific order in the Orders list. A pop-up menu is displayed as shown below.
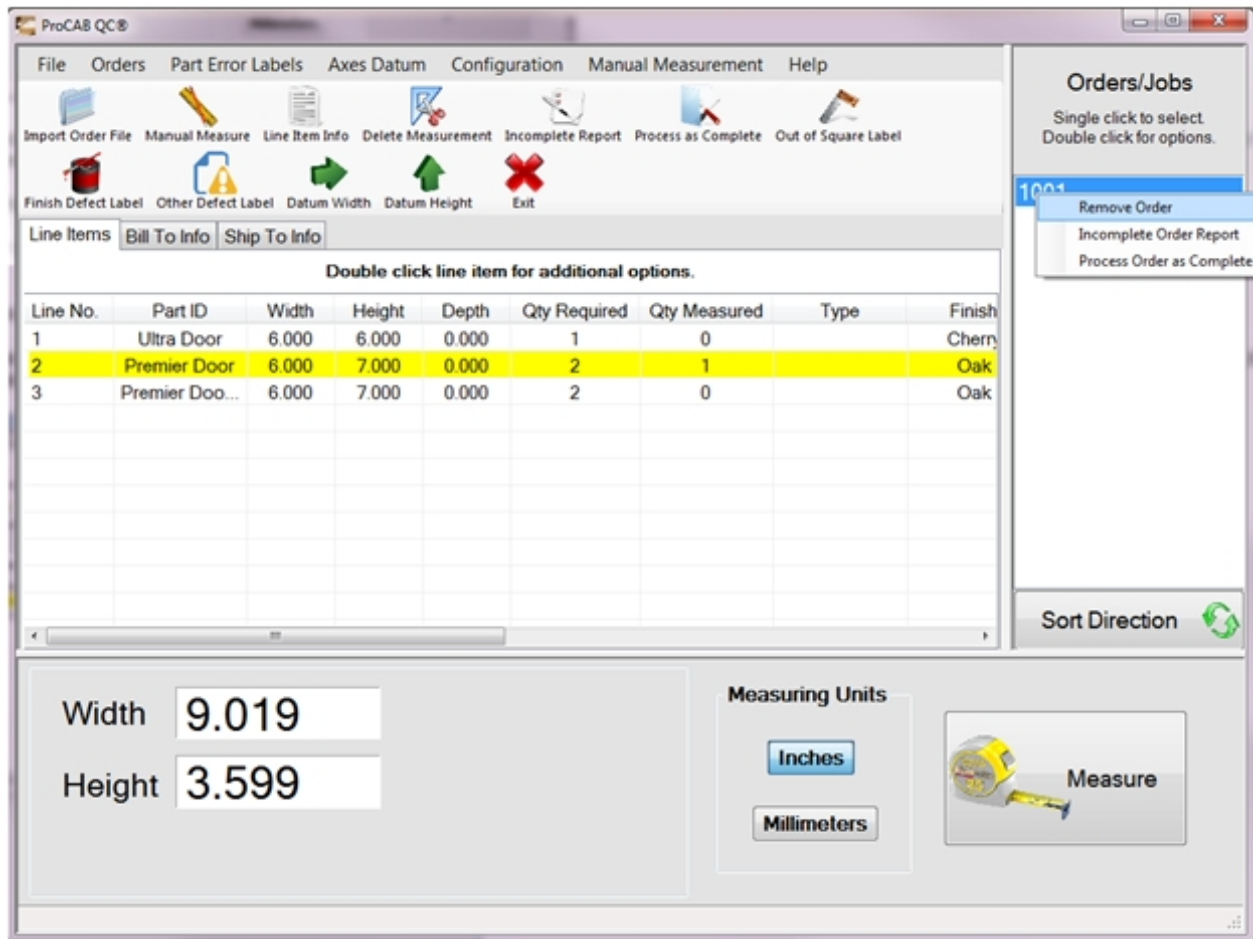
Click on the Remove Order selection. The current order is removed from the system.

WARNING: **Order removal cannot be undone! Once an order is deleted, all measurement data is lost.**

Initiating Axes Datums
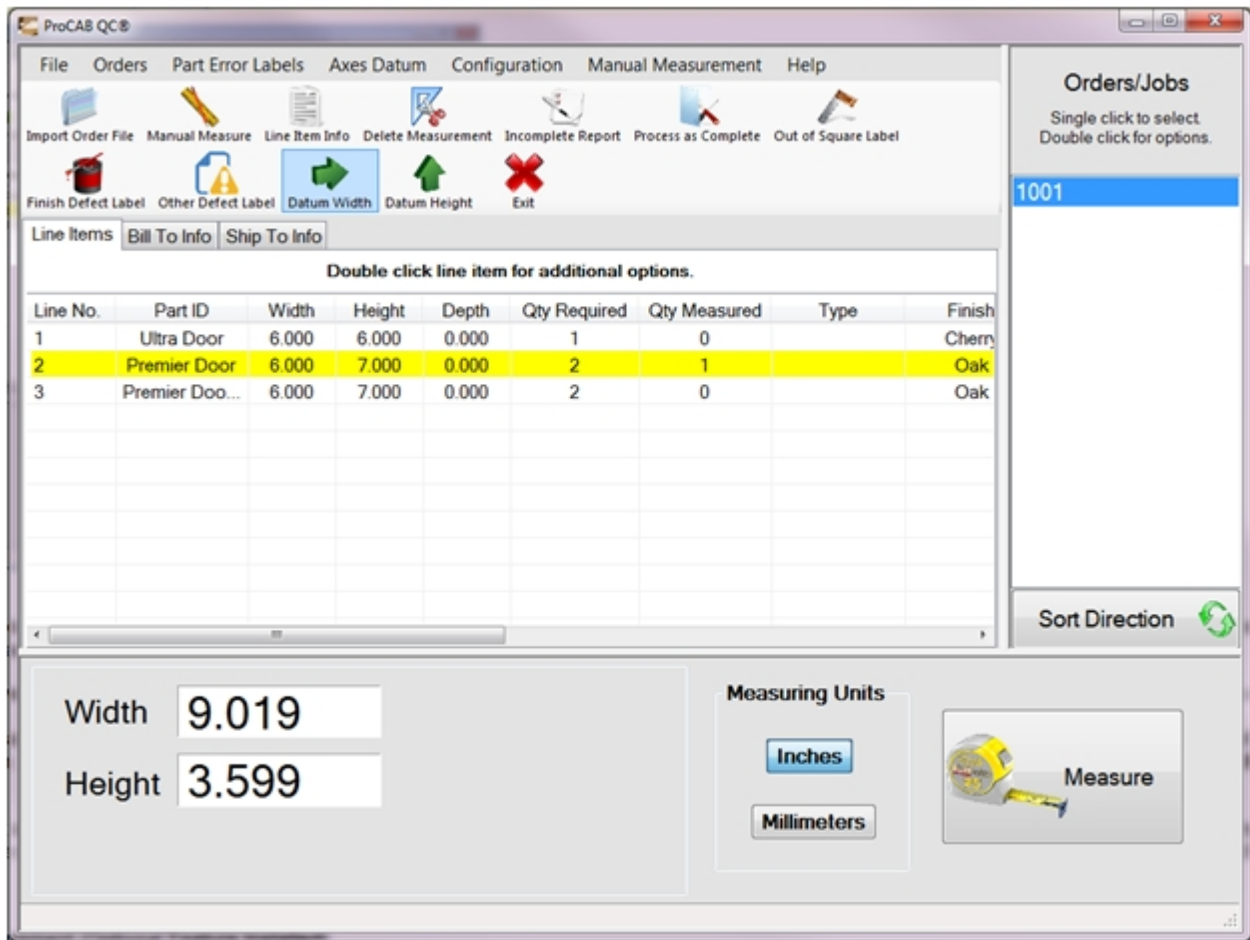
On a periodic basis, the axes for the ProTable-CAB should be re-initialized to a calibrated position for each axis. This configures the system to display the correct measurement position when the axis is moved to a particular point. This point is referred to as the axis *datum point*.

In the case of the X (horizontal/width) axis, a hard stop near the left end of the scale has been installed for its datum point. The Y (vertical/height) axis uses the horizontal fence for its datum position.

To set the datum for the Width axis, move the Width measuring stage to the left hard stop. Click the Datum Width tool bar button **or** click the *Axes Datum* menu item followed by *Set Width Datum*. A information dialog is displayed asking to confirm the operation. Click OK to proceed or Cancel to abort. After proceeding, the current width position is set to the value defined in the Datum Preset field for the Width axis in the Axis Parameters tab of System Configuration.

To set the datum for the Height axis, move the Height measuring stage to the horizontal fence. Click the Datum Height tool bar button **or** click the *Axes Datum* menu item followed by *Set Height Datum*. A information dialog is displayed asking to confirm the operation. Click OK to proceed or Cancel to abort. After proceeding, the current height position is set

to the value defined in the Datum Preset field for the Height axis in the [Axis Parameters](#) tab of System Configuration.

Calibrating the Angle Measurement (Optional Feature Installed)

To set the datum for the Angle measurement, place a machinist square in the origin corner forcing the vertical fence to become perpendicular with the horizontal fence as shown in the picture below:

While holding the square in position, press the Datum Angle tool bar button: A information dialog is displayed asking to confirm the operation. Click OK to proceed or Cancel to abort. Upon clicking OK, the Angle measurement is calibrated to 90.0 degrees and is ready for measurement.

NOTE: When a ProTable-CAB is purchased with the ProCAB QC option, the Datum Presets are calculated and stored in the industrial PC as part of the manufacturing process. The Datum Preset values should not need to be modified unless a physical change is made to the ProTable-CAB measuring components. If ProCAB-QC is purchased separately, it is the user's responsibility to calculate the correct datum points for each axis.

Appendix A Uninstalling ProCAB QC

When ProCAB QC is purchased, its installation is secured to the installed machine via a licensing mechanism. In the event that the user needs to re-install the software on another computer, the following procedure MUST BE COMPLETED.

1. Install ProCAB QC on the new computer and launch the program. The demo screen will be displayed as shown in step 2:
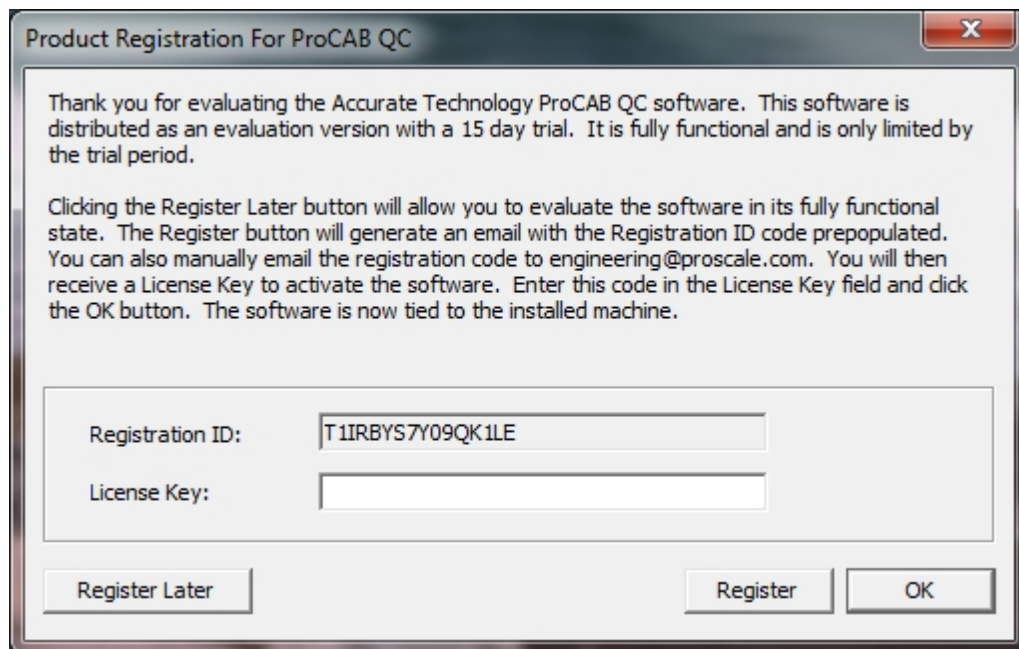
2.

3. Record the Registration ID code displayed on the new computer installation.

4. From the original computer installation, browse to the Accurate Technology \ProCAB QC 1.2 folder and locate the program: Transfer.exe.

5. Double click on the icon: to execute the Transfer program. The dialog in step 6 will be displayed:
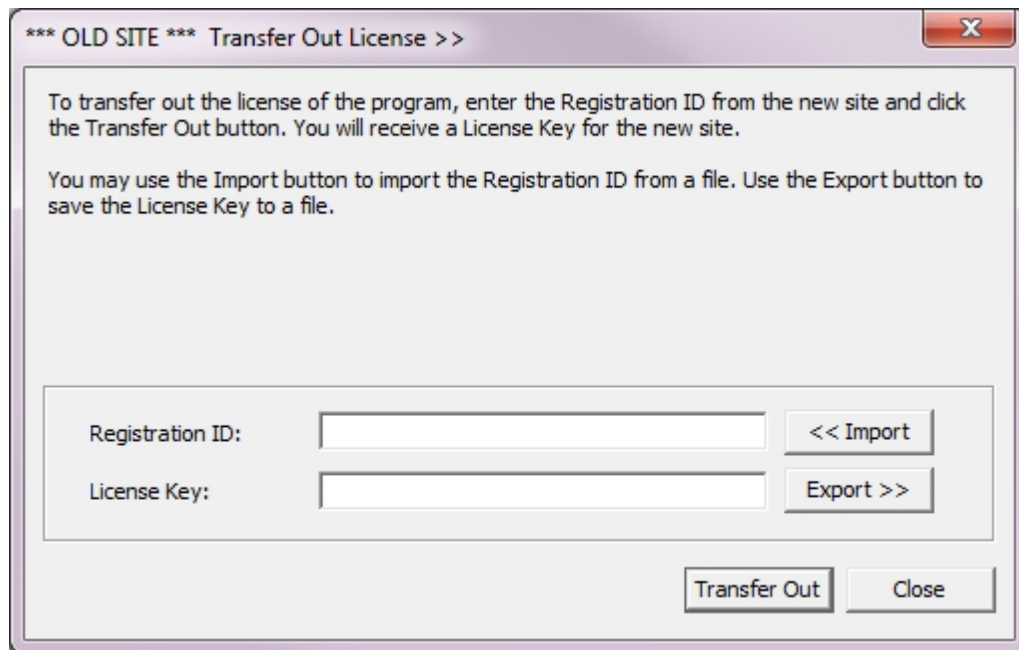
6.

7. Enter the Registration ID from the new installation in step 2.

8. Click the Transfer Out button. A new license key will be generated that can be used with the new installation. The original installation is now invalid and will no longer run. Copy the new license code by hand or export to a file. Enter the new license key into the demo screen of the new installation. This will unlock the ProCAB QC program on the new machine.

Appendix B Configuring Printing Templates

ProCAB-QC provides the user with the capability to define all report and label printing formats. This new feature is completed through the use of the Report Manager interface launched from the Configuration/Options menu.

The Report Manager allows the user to custom tailor reports and labels to meet the unique requirements of their business. Once a particular printing format is configured, the user then saves the layout to a printing template file on the PC with a name in the format: "*filename.repx*". Different types of printing operations will access different .repx printing template files. The file naming convention is described in *Default Print Form File Names* section.

Report printing templates and label printing templates use exactly the same file format and are both edited via the Report Manager. The main differences between the two are:

1. Reports are printed by default using the Report Printer. Labels are printed by default using the Label Printer.
2. Reports are printed typically on 8 1/2" by 11" paper. Label size is user definable.
3. Report printing templates are stored in the Pack List Template Folder location. Label printing templates are stored in the Part Label Template Folder location.

To access the Report Manager, open the Configuration Options dialog. There are two buttons on the System Settings tab, Edit Report Templates and Edit Part Label Templates as illustrated below.
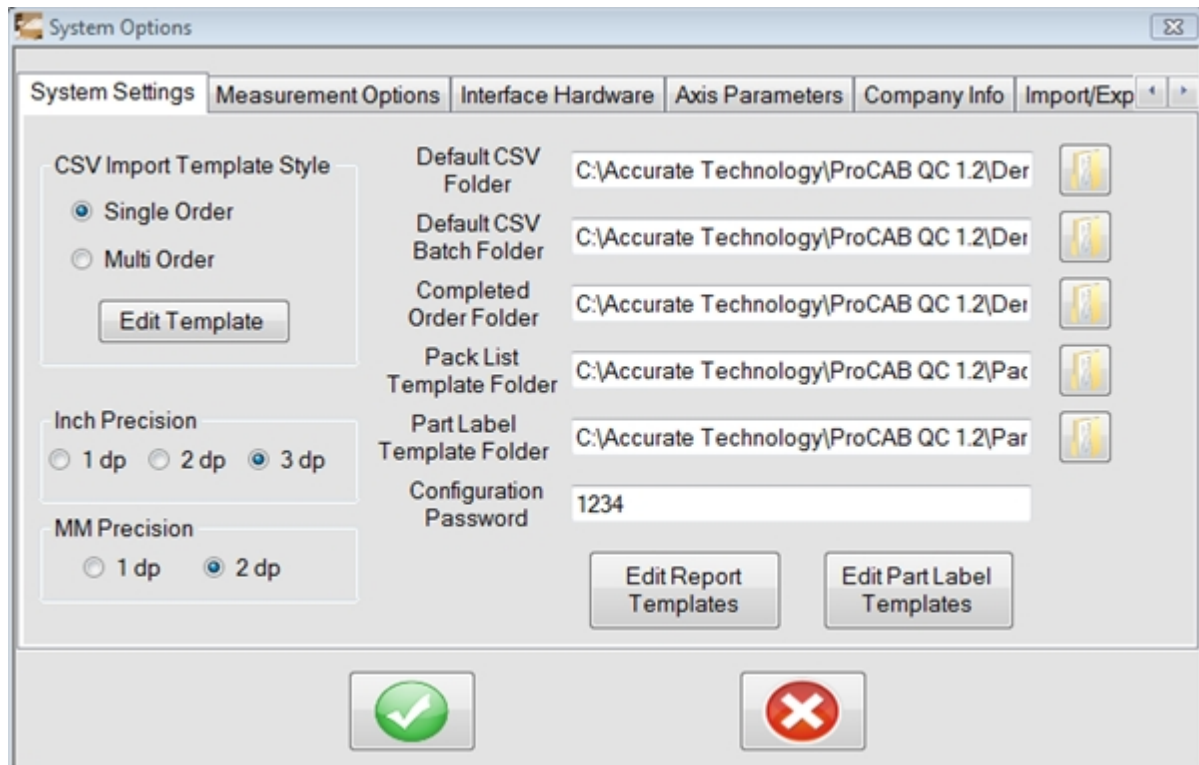
To edit a pack list or the incomplete order report, click on the Edit Reports Templates button. To edit a part label, click on the Edit Part Label Templates button. Clicking either of these buttons will launch the Report Manager and open the respective DEFAULT pack list (Default Pack Lists.repx) or part label (Default Part Label.repx).

The first time the manager is launched per session of ProCAB-QC, the may be a delay of several seconds. The dialog shown below will be displayed.
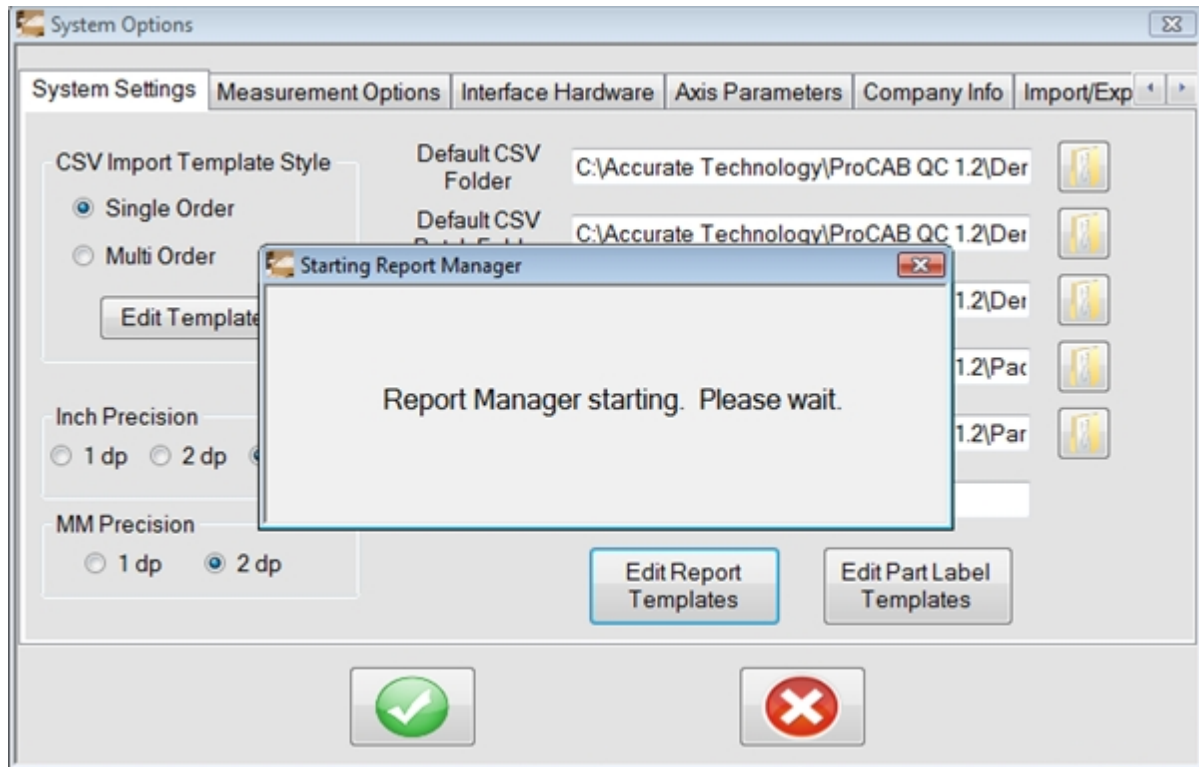
The Report Manager will then be displayed. See the next section for details.

Report Manager Layout
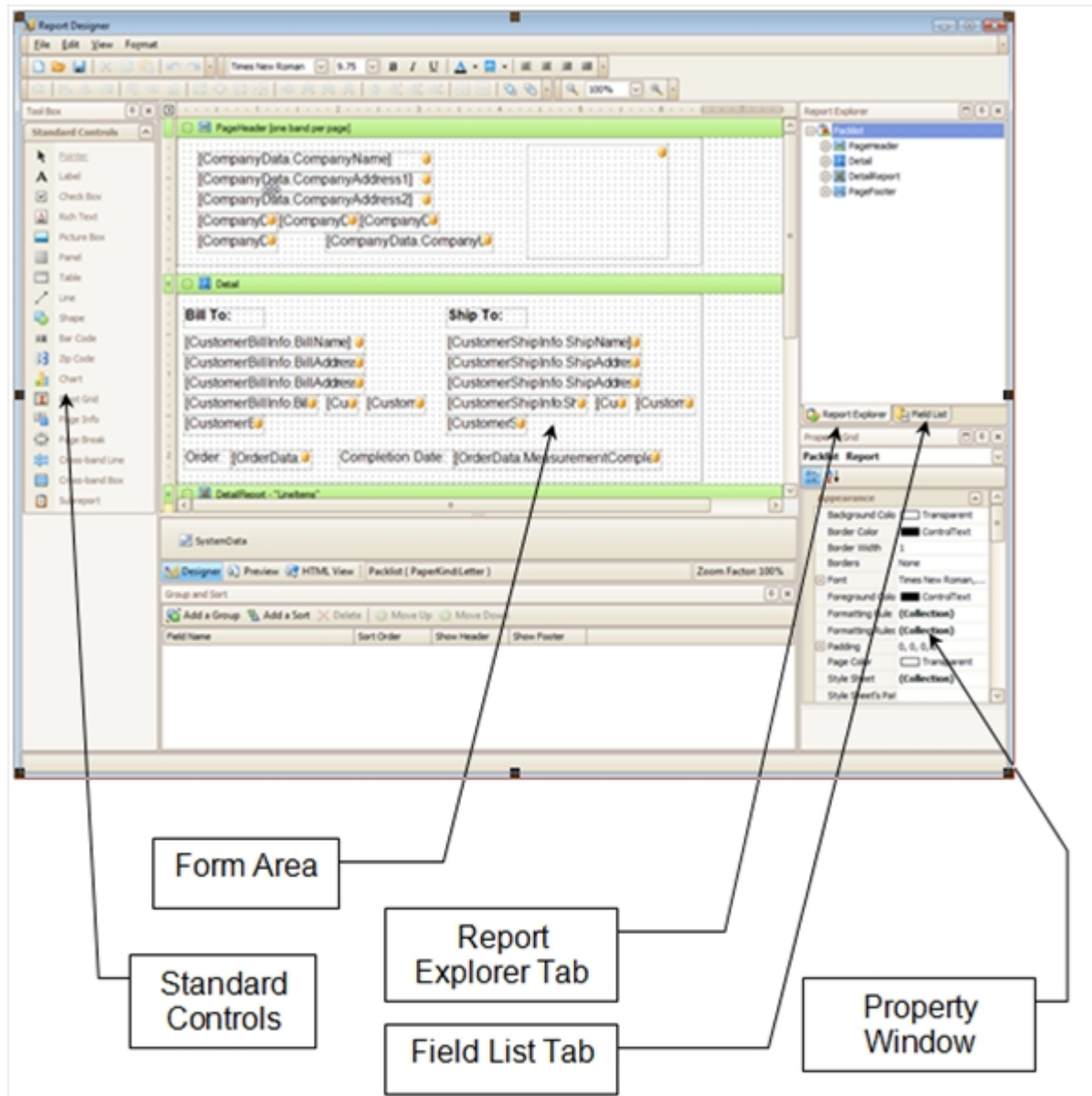
The general report manager layout format is shown above. There are five important areas of interest:

Form Area - This section represents the area of the form to be printed. It consists of data fields that get populated with system data and static controls that are used to format the form's appearance. Static controls can consist lines, shapes, panels, text, etc. Static controls typically do not change once a layout is complete.

Standard Controls - This area can be thought of as a "toolbox" of components. Some components are static such as lines and shapes. Some components are "bound" to a data field. An example of this is a bar code. The value of the bar code would change as the data that it is "bound" to changes. To use a standard control, drag and drop the control from the Standard Controls area to the Form Area. The control can then be formatted in the form area.

Report Explorer Tab - When this tab is active, the report explorer list all of the components currently placed on the form. The form is divided into separate areas called "Report Bands". Report bands are used to group related data together in the report. Bands are described in detail in the next section.

Field List Tab - Activate this tab to view all of the fields that are available to be used with the print form. These fields are bound to the data within ProCAB-QC and can be dragged and dropped from the fields list tab onto the form. Fields are grouped into these major categories:

- o *Company Data* - Your company related data such as name, address, URL, etc.
- o *Customer Bill Info* - Billing related information for the order's customer.
- o *Customer Ship Info* - Shipping related information for the order's customer.
- o *Line Items* - Line item related fields for the order.
- o *Measured Instance* - Fields that are associated to part measurements.
- o *Order Data* - These fields relate to miscellaneous data associated with the order.

**Property Window** - This window allows the properties of the selected item on the form to be modified. This includes properties such as foreground and background colors, size, font size and type, borders and other attributes. Each type of object (text, graphic, bar code, etc.) will have different properties. Changing these properties allows the user to fully customize the objects on the form.

Design/Preview Mode

The Report Manager has multiple view mode options. In most cases, the user will operate in either Designer mode or Preview mode.

Designer mode - This is the default view mode and is used while designing the form. This view displays the field names, their position and size along with other objects on the form. This view allows the user to move objects on the form and edit their properties. Note that bound fields (dynamic with system data) are indicated by the small gold disk icon in the right hand corner of the data field. Bound data fields also include the name of the field that they are bound to. Static fields do not have this icon and do not change with system data. An example of the designer view is shown below.
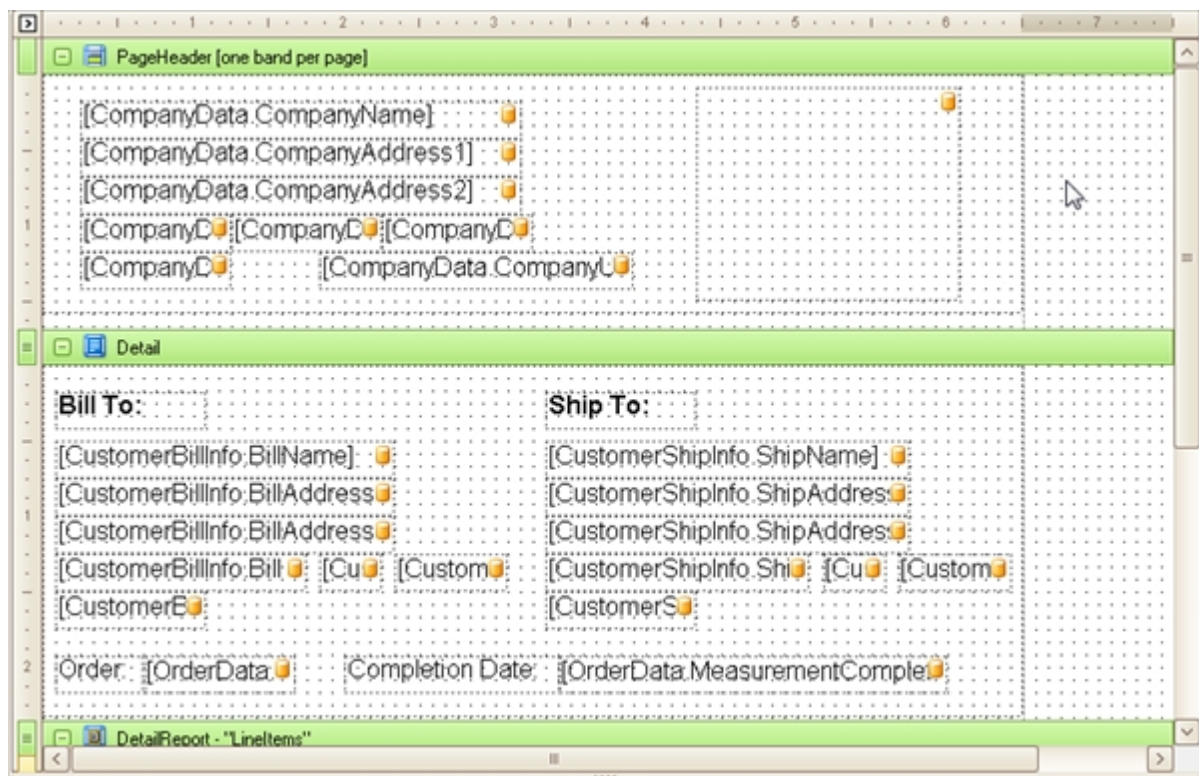
Preview Mode - This viewing mode is used to represent the layout of the form as if it were printed. In this mode, the fields are replaced with data. Preview does not allow any editing but provides a quick way to view the output of the form without printing it. An example of the same form above is shown in Preview mode below.

Starlite Cabinet Company
500 E. State St.
Bldg. 2
Knoxville   TN   32810

Bill To: **Ship To:**

Acme Cabinets Inc.   Midtown Construction Inc.
429 Front St.   459 South St.
Receiving Dock A   Suite A
Johnson City   TN   29301   Hendersonville   NC   28777
USA   USA

Order: 34R297   Completion Date: 11-29-2010

The user can quickly switch back and forth between view modes by simply clicking the associated tab.

Report Bands

Report bands are used to organize the data of a report and control the printing of specific data items. One can think of bands as control area of the form that allow formatting to occur.

A band is placed on the form and the data that is to be associated with the band is placed below the band. The example below shows the default pack list form with two its associated bands.

The Page Header band is used to control what data is printed as the header of each page. Data in this band is printed only once per page and is at the top of the form. In this example, the Page Header band is used to print the the user's company name and information. In addition, there is a picture box that is bound to the Company Logo picture file.

The Detail band is used to display the main data used on the form. In this case, the top most section of the detail band shows the Bill To and Ship To customer data. The next section displays some order related information including the order ID and the Order Completion date.

Types of Report Bands

There are several report bands and particular types are used to display specific report information The main types are:

- o **Report Header** - This band is used to display data only once per report at the beginning of the report. For example, data in this page might be used as a title or cover page.
- o **Top Margin** - This band is used to represent the area in the top margin of the print form. Objects in this band area will appear in the top margin of each page.
- o **Page Header** - Data that is present in this band will be displayed once per page.
- o **Detail** - This band typically represents the main data to be displayed within the report.
- o **Detail Report** - This band is designed to control a group or array of common type objects. In the ProCAB-QC application, the primary array of objects to control or print are Line Items. Using a Detailed Report band within a Detail band allows all of the Line Item data to be organized as a group. Multiple Detail Reports can be nested as will be described in the next section, "Grouping Part Measurements with Line Items".
- o **Page Footer** - Similar to the Page Header, the Page Footer band associates data that is to be printed once per page but at the bottom of the page. This might include page numbers or other report information.
- o **Bottom Margin** - This band is used to display objects that should appear on each page in the bottom margin.
- o **Report Footer** - This band displays data only once per report but at the end of the report.

Two other types of specialized bands are available for use with Detail Reports. These are:

- o **Group Header** - Used to display objects that appear *before* the Detail Reports main data.
- o **Group Footer** - Used to display objects that appear *after* the Detail Reports main data.

The use of Group Headers and Group Footers are illustrated in the next section.

Placing Bands on the Form - To place a band on the form, right click on the form. The pop-up menu below will be displayed.
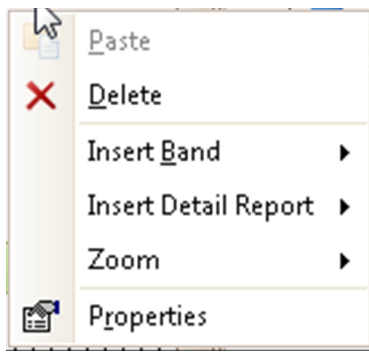
To place a band other than a Detail Report, click *Insert Band*. A secondary pop-up menu is displayed.
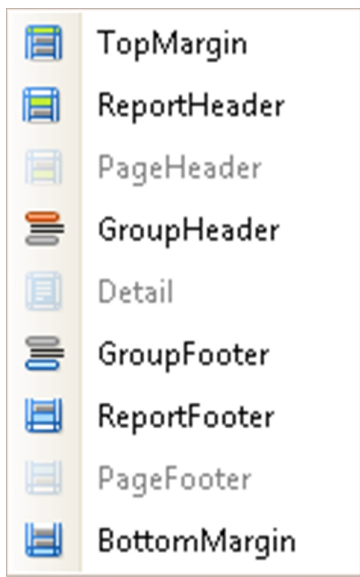
Choose the desired band from the list. The band will automatically appear in the appropriate area on the form.

Note that if a band already exists on the form, that selection will be grayed out.

Placing a Detail Report - To place a Detail Report on the form, right click in the Detail band on the form. The pop-up shown above will appear. Click Insert Detail Report. A secondary pop-up is displayed.
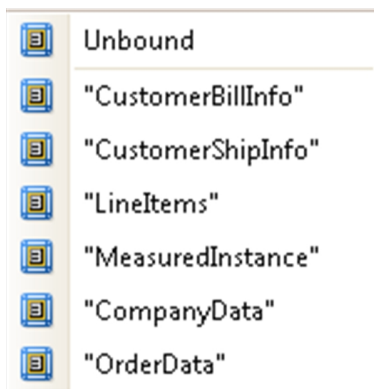
Although there are several options to choose from, the only viable selection in the application is "LineItems". The next section describes how to group Line Items and Measured Parts together.

Grouping Part Measurements with Line Items

The example above illustrates the use of nested Detail Report bands to generate a pack list that shows individual line items grouped with their associated measured parts. The form design is as follows.

1. A Detail Report band is inserted that is bound to the Line Items field.
2. Right clicking on the Line Item Detail Report band allows the user to insert a Detail band (Detail1). In this example, several static text fields are used with bound data text fields in the Detail band. These fields show the line item number, nominal width and nominal height.
3. Right clicking on the Line Item Detail Report band allows the user to insert a nested Detail Report (DetailReport1) that is bound to LineItemsToMeasuredParts. This Detail Report will group all of the measured parts associated with a particular line item.
4. Right clicking on the LineItemToMeasuredParts Detail Report band allows a group header (GroupHeader2) to be added. Objects placed in this area are displayed once per measured parts grouping, i.e. per line item.
5. Right click on the LineItemToMeasuredParts Detail Report band to add the Detail band. Objects placed here will relate to each measured part.
6. Right click on the LineItemToMeasuredParts Detail Report band to add the Group Footer (GroupFooter1). Objects placed here will print after all of the measured parts data are printed. In this case, a red line is used as a separator between line items.

The resulting output can be viewed in Preview mode as shown below.

Order: 34R297   Completion Date: 11-29-2010

Line #   1   **Width:**   12.000   **Length:**   14.000

    Measured Part #   Measured Width   Measured Height
    1   12.010   IN   14.010   IN

Line #   2   **Width:**   12.010   **Length:**   14.010

    Measured Part #   Measured Width   Measured Height
    1   12.020   IN   14.020   IN
    2   12.030   IN   14.030   IN

Line #   3   **Width:**   12.030   **Length:**   14.030

    Measured Part #   Measured Width   Measured Height
    1   12.040   IN   14.040   IN
    2   12.050   IN   14.050   IN
    3   12.060   IN   14.060   IN

Basic Form Editing Fundamentals

In general, the formatting tools used while creating and editing the print form are similar to the tools found in other productivity tools such as Microsoft Office or Open Office. This section provides a brief overview of form formatting fundamentals.
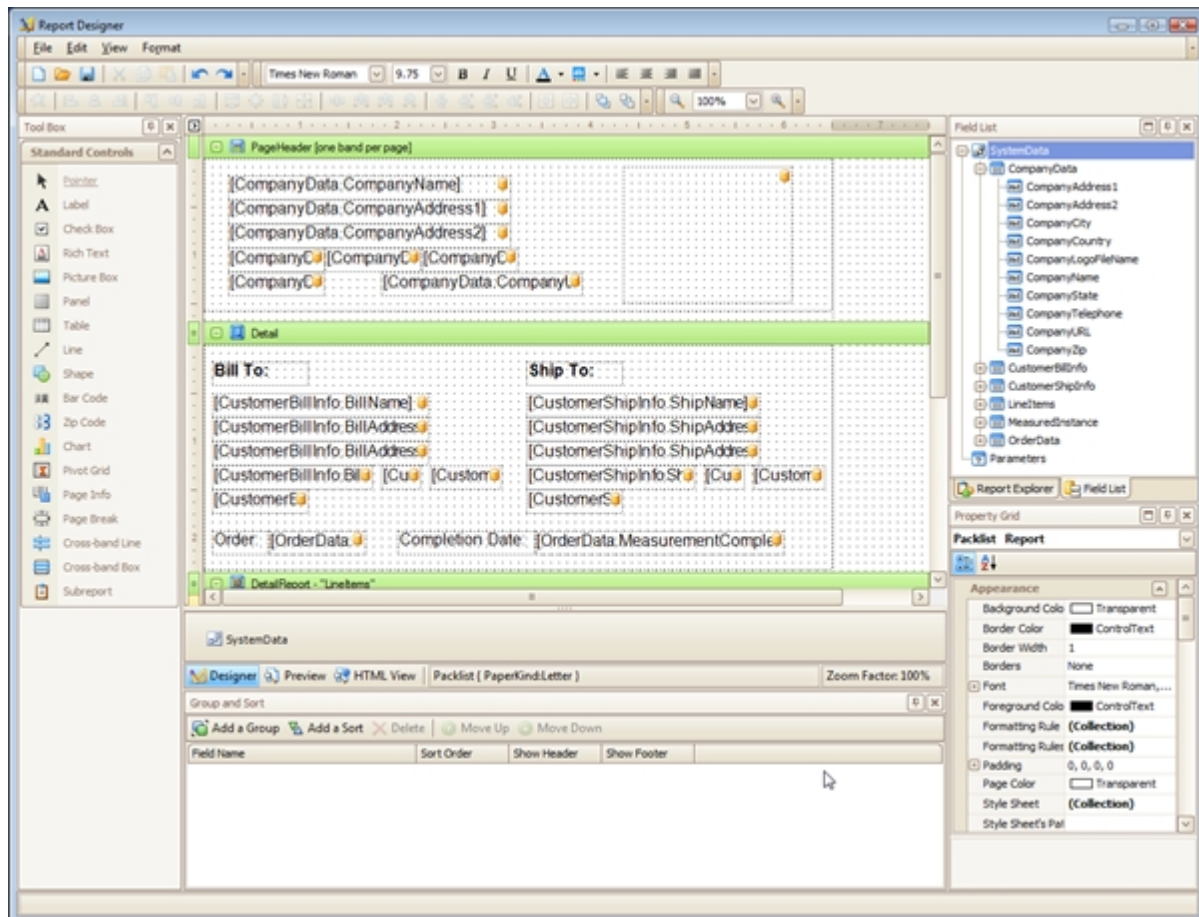
Prior to starting a form design, be sure to place the desired bands on the form first. Minimally, the form should have a detail band. Other bands are optional based on the user's requirements. See Types of Report Bands for details on placing bands.

In general, the placing of components is accomplished via "drag and drop". For example, if a line object is to be placed on the form simply drag a line object from the standard controls window and drop it on the form in the band area desired. Once placed, the user can resize the line or move it around the form by clicking and dragging.

Placing bound data fields are accomplished in the same manor. Select the desired data field from the Field List window and drop it on the form in the desired band area.

Once an object is placed, the properties of the object can be edited using the Property Grid window. The properties of an object vary depending on the type of object in use. To edit the object's properties, click on the object to highlight it. A box appears around the object when it is selected. The user can then scroll through the Properties window to view and/or edit properties.

Formatting Object Positions
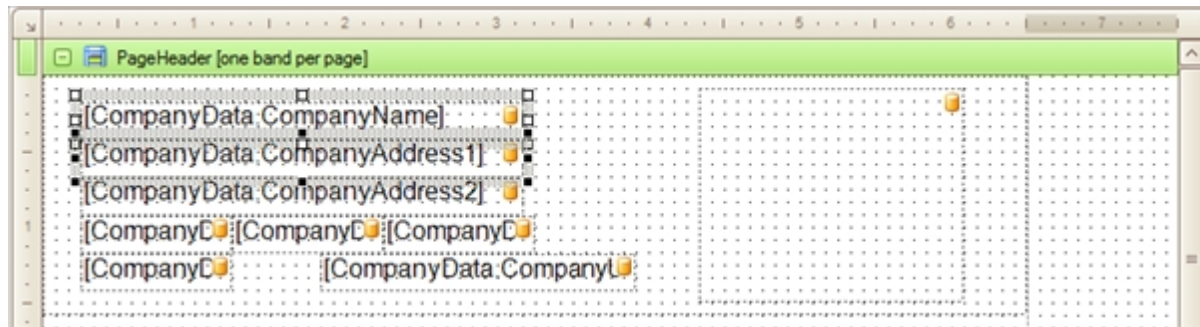
Multiple objects can be selected simultaneously by pressing and holding the Ctrl button while clicking on each object. In the example above, note that the two top fields are selected with a highlighting selection box around each. Once selected, multiple objects can be moved as a group or have their properties modified. For example, the user could move both selected fields by clicking and dragging either field.

When multiple text fields are selected, the user can change common properties such as font size or type. In this case, changing the font properties is applied to all selected fields.

Multiple Object Position Formatting

When multiple objects are selected, several positioning tool buttons become available as shown below.

Tool Buttons from left to right.

- Align selected objects to grid.
- Left align selected objects.
- Center align selected objects.
- Right align selected objects.
- Align tops of selected objects.
- Align middles of selected objects.
- Align bottoms of selected objects.
- Make selected objects have same width.
- Resize the selected objects to fit grid.
- Make selected objects have same height.
- Make selected objects be same size.
- Make equal horizontal spacing between selected objects.
- Increase horizontal spacing between selected objects.
- Decrease horizontal spacing between selected objects.
- Remove horizontal spacing between selected objects.
- Make equal vertical spacing between selected objects.
- Increase vertical spacing between selected objects.
- Decrease vertical spacing between selected objects.
- Remove vertical spacing between selected objects.

- o Horizontally center selected objects within the band.
- o Vertically center selected objects within the band.
- o Bring selected objects to front.
- o Send selected objects to back.

Editing Default Report Templates

When ProCAB-QC is installed on your PC, the application includes default printing templates for pack lists, incomplete order reports, part labels and defect labels. These printing form layouts are generic in nature and are designed to be used "as is" or as a basis for your own designs.

To use these forms "as is", simply configure the printer setup information and enable printing of pack lists and/or labels by setting the Printing mode selection in the Measurements Options tab of the System Options dialog.

Editing the Default Pack List

To edit the default pack list, complete the following:

1. Click the Edit Report Templates button on the System Settings tab of the System Options dialog. This will open the default pack list template.
2. Edit the template to meet your needs and when complete, click File/Save from the Report Manager menu. A "File Save" dialog box will appear.
3. Navigate to the folder where report templates are stored. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Pack List Templates. The name for the default pack list template is *Default Pack List.repx* and should appear in the list of existing files in this folder.
4. Click on this file and then click Save. The default pack list template has now been saved with your updates. The Report Manager can now be closed.

Editing the Default Incomplete Order Report

To edit the default Incomplete Order report, complete the following:

1. Click the Edit Report Templates button on the System Settings tab of the System Options dialog. This will open the default pack list template.
2. Click File/Open from the Report Manager menu.
3. Navigate to the folder where report templates are stored. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Pack List Templates. The name for the default incomplete order template is *Incomplete Order Report.repx* and should appear in the list of existing files in this folder.
4. Click on this file and then click Open. A message may appear warning the user that the new form is different from the current form. Click YES to proceed.
5. The Incomplete Order report will open. Edit the form as desired.
6. When complete, click File/Save from the Report Manager menu. The report manager can now be closed.

Editing Default Label Templates

Editing the Default Part Label

To edit the default Part Label, complete the following:

1. Click the Edit Part Label Templates button on the System Settings tab of the System Options dialog. This will open the default part label template.
2. Edit the template to meet your needs and when complete, click File/Save from the Report Manager menu. A "File Save" dialog box will appear.
3. Navigate to the folder where part label templates are stored. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Part Label Templates. The name for the default pack list template is *Default Part Label.repx* and should appear in the list of existing files in this folder.
4. Click on this file and then click Save. The default part label template has now been saved with your updates. The Report Manager can now be closed.

Editing the Default Part Defect Labels

There are four part defect labels that the user can choose from when a part has been identified as defective. They include:

- Out of Square - Uses label template named: *Out Of Square defect label.repx*.
- Finish Defect - Uses label template named: *Finish defect label.repx*.
- Miscellaneous Defect - Uses label template named: *Miscellaneous defect label.repx*.
- Out of Tolerance - Uses label template named: Out Of Tolerance label.repx.

To modify any of the default defect labels, complete the following:

1. Click the Edit Part Label Templates button on the System Settings tab of the System Options dialog. This will open the default part label template.
2. Click File/Open from the Report Manager menu.
3. Navigate to the folder where part label templates are stored. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Part Label Templates. Locate the name of the desired defect label to edit as listed above.
4. Click on the file name and then click Open. A message may appear warning the user that the new form is different from the current form. Click YES to proceed.
5. The selected defect label will open. Edit the form as desired.
6. When complete, click File/Save from the Report Manager menu. The report manager can now be closed.

Changing the Label Size

The size of the labels to be used can be configured in the Property Window of the Report Manager. The label height and width are represented by integer values representing one

hundredths of an inch. For example, the default label dimensions are 1.25" high and 2.25" wide. The height and width properties would be 125 and 225 respectively. If a new label dimensions were 2" high by 3" wide, the height and width properties would be 200 and 300 respectively.

To change the height and width properties of the label, complete the following:

1. Click on an area OUTSIDE the form's grid area.
2. In the Property Window, scroll down to the Page Settings group. In that group are the Page Height and Page Width properties.
3. Change the height and width properties as required for your label.
4. Click on the Preview tab under the form area to see the change in dimensions in preview mode. Note: You must change back to designer view mode and then back to preview mode if dimensional changes are made again.
5. Edit the form as required. When complete, click File/Save to store the updates.

Creating New Pack Lists

ProCAB-QC provides the capability to allow the user to create custom pack list based on the use of CSV templates. This could allow the use of different pack list templates for different customers. See *Controlling Printing via CSV Templates* for details regarding this functionality.

To create a custom pack list, complete the following:

1. Click the Edit Report Templates button on the System Settings tab of the System Options dialog. This will open the default pack list template.
2. Edit the pack list template for the custom pack list.
3. When complete, click File/Save As from the Report Manager main menu. This opens a Save As file dialog box.
4. Navigate to the folder that stores the pack list templates. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Pack List Templates.
5. Enter the new pack list template file name. Click the Save button.
6. The new pack list template is now saved. The Report Manager can be closed.

Create New Part Labels

ProCAB-QC provides the capability to allow the user to create custom part labels based on the use of CSV templates. This could allow the use of different part label templates for different customers. See *Controlling Printing via CSV Templates* for details regarding this functionality.

To create a custom part label, complete the following:

1. Click the Edit Part Label Templates button on the System Settings tab of the System Options dialog. This will open the default part label template.
2. Edit the part label template for the custom part label.
3. When complete, click File/Save As from the Report Manager main menu. This opens a Save As file dialog box.
4. Navigate to the folder that stores the part label templates. By default, this is C:\Accurate Technology\ProCAB QC 1.2\Part Label Templates.
5. Enter the new part label template file name. Click the Save button.
6. The new part label template is now saved. The Report Manager can be closed.

Default Print Form File Names

ProCAB-QC includes a variety of default forms for use in printing reports and labels. Although the format of any of these forms can be edited to suit the user's requirements, the file names that refer to these forms **cannot** be changed. The list below describes the default forms and their file names.

Form Description	File Name
Default Pack List	Default Pack List.repx
Incomplete Order Report	Incomplete Order Report.repx
Default Part Label	Default Part Label.repx
Finish Defect Label	Finish defect Label.repx
Out of Square Defect Label	Out Of Square defect label.repx
Miscellaneous Defect Label	Miscellaneous defect label.repx
Out of Tolerance Label	Out Of Tolerance label.repx

Appendix C Enabling Depth Axis Operation

ProCAB-QC now supports the measurement of a depth axis when properly equipped on a ProTable-CAB. To allow for depth measurement operation, the following must be completed:

- The necessary Depth Axis measurement hardware must be installed on the ProTable-CAB. If the measurement table was purchased with this option, the table will be shipped with the hardware already installed. If this option is being purchased as an add-on, contact Accurate Technology for assistance in purchasing the add-on kit.
- The ProCAB-QC must be configured for Depth axis operation. If the table was purchased with this option, the configuration is already complete. If purchased as an add-on, see the next section for details regarding configuration.

Once the configuration is complete, the operation of the Depth axis measurement is controlled via CSV template configuration. See *Configuring the CSV template for Depth measurements* for details.

Configuring the Depth Axis hardware

Once the Depth Axis measurement hardware has been installed on the ProTable-CAB, the ProCAB-QC application must be configured to use the Depth Axis during system operation. See the Depth Axis hardware installation manual shipped with the equipment for further details regarding the installation of the add-on hardware kit.

The configure the ProCAB-QC application for Depth Axis operation, complete the following:

1. Log into the Configuration menu with the administrator password.
2. Choose the Interface Hardware tab of the System Options dialog.
3. Check the "Use Depth Axis" button. The system will display an information message notifying you that the RF hardware must be configured. Click OK.
4. Click the Auto Configure button. This will start a configuration wizard that will configure the RF hardware. See the *Interface Hardware* section for a description of "learning" the axes transmitters.
5. After the Auto Configure wizard has completed, click the Axis Parameters tab to show the Axis configuration window.
6. Click the Select Axis To Edit drop box and select the Depth Axis.
7. Set the Datum Preset value. This is typically the height of the Depth Axis jaw resting on the vertical fence. This value is generally derived from an actual measurement using calipers.
8. The Scaling Factor can generally be left at 1.00000.
9. The Encoder Direction will be set accordingly such that the encoder position positively increases in value as the Depth Axis jaw is lifted off the fence surface.
10. Click the OK button to exit the System Options dialog.

The Depth Axis configuration is now complete.

Configuring the CSV template for Depth measurements

Depth measurement functionality is controlled via the CSV template file in use. A field is provided in the template that controls whether a particular CSV file is to use the Depth axis during measurement operations. The default Single Order template is shown below:

The field labeled "Test Depth Dim" determines if the Depth axis is used for measurement evaluations. In this example, cell K4 of the CSV file is evaluated to determine if Depth measurements are to be used for a particular order. When a CSV order is imported, the application evaluates cell K4. If the cell contains the words:

- o YES
- o Yes

the order is then assumed to use the Depth Axis during measurements. If the CSV order is imported and cell K4 is empty or has something other than YES or Yes, the Depth Axis is not used during measurement tests for that order. If no depth measurements are to be used, leave the "Test Depth Dim" field undefined.

Mixing Depth and non-Depth evaluations

In some instances, there may be a need to evaluate parts in a common order where some parts require the Depth axis be evaluated and others do not. To accomplish this, all parts that do NOT require the Depth axis to be evaluated should have their line item Depth value be set to 0.0. In this case, line items with a depth of zero are only evaluated for height and width, not depth.

Appendix D Line Item Column Configuration

The Line Item Column Title configuration is stored in an external file within the working directory of the ProCAB QC system. The file name is: *Item List Layout.txt*. This is a text file that maintains the column display order, width and column titles. Each line of the file represents a particular column in the Line Item view. Fields are separated by commas and are in the following order: Display order, Column Width, and Column Title string.

Each file line is associated with a particular line item's characteristic and their line order in the file is coordinated with a particular characteristic. The order is as follows:

Line 1 - Line No.   (Top most line)
Line 2 - Part No.
Line 3 - Width
Line 4 - Height
Line 5 - Depth
Line 6 - Quantity Required
Line 7 - Quantity Measured
Line 8 - Type
Line 9 - Material
Line 10 - Finish
Line 11 - Hinging
Line 12 - Machining
Line 13 - Assembly
Line 14 - Comments
Line 15 - User Def 1
Line 16 - User Def 2
Line 17 - User Def 3
Line 18 - Location

An example file is shown below:

0,70,Line No.
1,110,Part No.
2,70,Width
3,70,Height
4,70,Depth
5,132,Qty. Required
6,139,Qty. Measured
7,110,Type
8,110,Material
9,110,Finish
10,110,Hinging
11,110,Machining
12,110,Assembly
13,110,Comments
14,110,User Def 1
15,110,User Def 2
16,110,User Def 3
17,110,Location

For example, the first line:
0,70,Line No.

0 = Displayed column number where the first column is 0, the second is 1, etc.
70 = Column width in pixels.
Line No. is the text that is displayed for the column name

Because it is the top most line (Line 1 in the file), it is associated with the Line Number characteristic of the Line Item. The text "Line No." is the default text but could be renamed to anything the user prefers. Regardless of the column title text, this data is ALWAYS associated with the Line Number characteristic.

The first two fields, in the above example: 0,70 are related to the display order and the column width respectively. These two fields are automatically updated whenever the user moves a column or resizes a column within the application itself. For example, if the user moves the Line Number column over one position to the right, the first field would change from 0 to 1. As a result, the next line; Part Number would change from 1 to 0. If the Line Number column was widened slightly, the second field in the first line might change from 70 to 100.

The third field, the column name is not modified by the program and is only read in on start up and written back out on program exit. To change the column title, the user must open the *Item List Layout.txt* file and manually modify the text to be displayed. Save the file after the text changes are made. NOTE: Do not change the text names while ProCAB QC is open. The file is overwritten when the program closes and would result in the changes being lost.

Do not change the order of the lines in the file or add/delete information. The structure of this file is fixed and changes in its structure may cause improper system operation.

Contact Us

For technical support, contact:

Accurate Technology, Inc.
270 Rutledge Rd. Unit E
Fletcher, NC 28732
+1 828 654 7920   Monday-Friday 8:00AM to 5:00PM Eastern Time
Toll Free: 800 233 0580

Visit us on the web at:

www.proscale.com

Contact us by email at:

customerservice@proscale.com

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