PENTAGON 2000SQL
SOFTWARE EMPOWERING THE ENTERPRISE

Version

8.5

PENTAGON 2000 SOFTWARE

Tool and Equipment Calibration Management Module

Pentagon 2000 Software
15 West 34th Street 5th Floor
New York, NY 10001
Phone 212.629.7521 • Fax 212.629.7513

TITLE:	Tool and Equipment Calibration Management Module		
PART:	Material Management		
MODULE:	Tool and Equipment Calibration Management Module	**BUILD**	8.5.54.107
RESPONSIBILITY:	Procedures Specialist, Pentagon 2000	**REVISION:**	00
APPROVED BY:	Vice President, Operations, Pentagon 2000	**EFFECTIVE DATE:**	02/22/2013

Purpose

The Pentagon 2000 Tool and Equipment Calibration Management Module enables identification and tracking of the periodic calibration requirements for tools and inspection requirements for equipment.

- Prevents tools and equipment for which calibration or inspection intervals have been identified from being allowed to be issued for use on component or maintenance work orders.
- Enables reporting to identify tools and/or equipment where calibration/inspection is coming due/overdue.
- Stores calibration/inspection results history, to include the detailed results of each test required by the calibration/inspection.
- Stores the check out and check in history of each tool.
- Stores the purchase order (calibration, repair, servicing), shipping, and receiving history for each tool aor piece of equipment.

Overview

This procedure outlines the steps for identifying tools requiring calibration, equipment requiring inspection, and the intervals associated with each.

Required Modules/Features

- Pentagon 2000 Core
- Tool and Equipment Calibration Management Module
- Barcoding (for advanced functionality)

Table of Contents

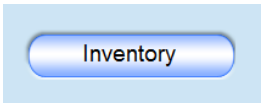
1. CALIBRATED TOOL SETUP (IN PARTS MASTER FILE) 4
2. EQUIPMENT/MACHINE REQUIRING INSPECTION SETUP (IN PARTS MASTER FILE) 7
3. TOOL INFORMATION WINDOW 10
4. IDENTIFY TEST REQUIREMENTS 17
5. RECORD TEST RESULTS 18
6. SEND TOOL OUT FOR CALIBRATION 23
7. ISSUE TOOLS TO OPERATIONS/CARDS 25
8. RETURN TOOLS FROM OPERATIONS/CARDS 29
9. REPORTS 32

Procedure

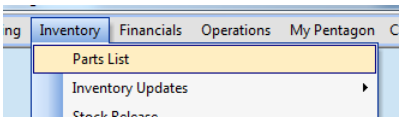
1. Calibrated Tool Setup (in Parts Master File)

Identify that particular part numbers should be considered a tool and requires periodic calibration.

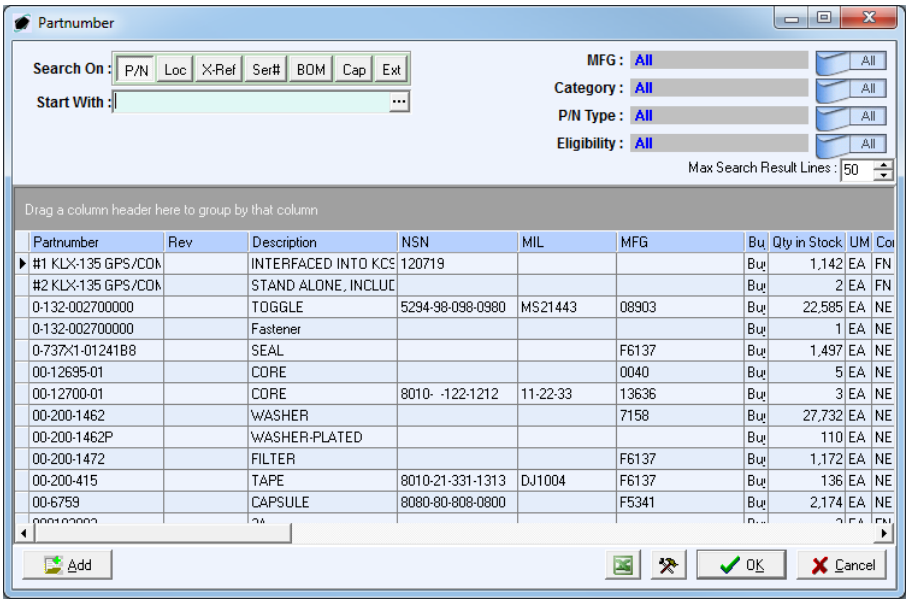
a. From the **Main Menu** screen, left-click the **Inventory** button.



NOTE: *The user may also left-click* ***Inventory*** *from the* ***Main Menu*** *toolbar, then left-click* ***Parts List****.*

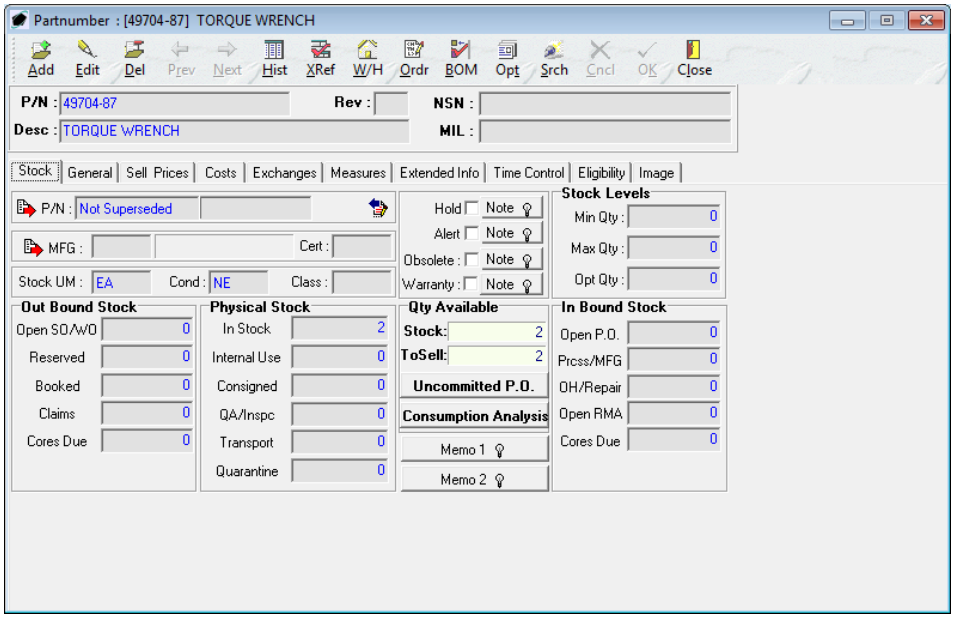


b. The **Partnumber** search window will appear.



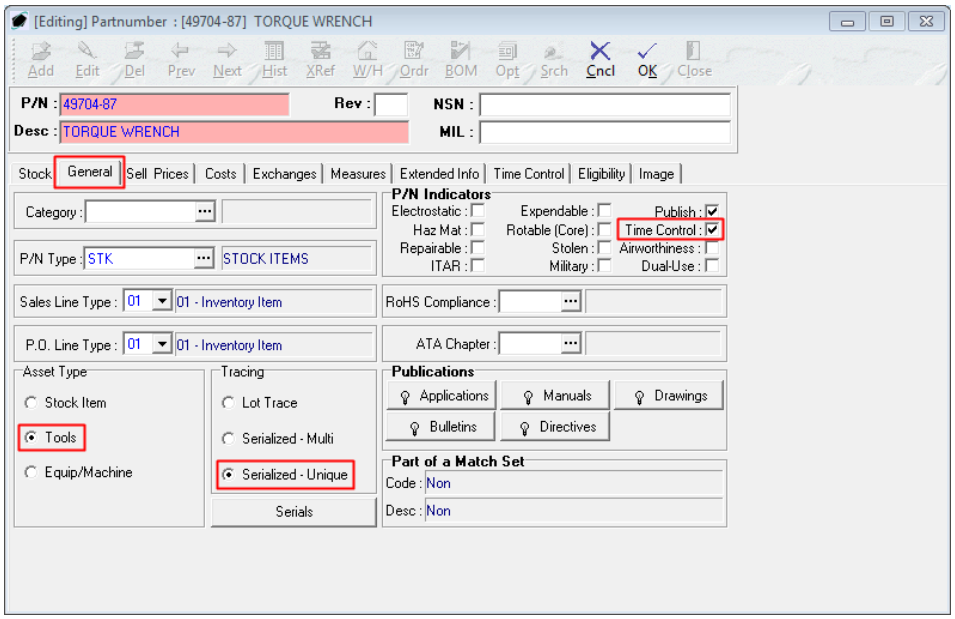
c. Select the appropriate part number (left-click the line within the search window and left-click OK; or double-click the line within the search window).

d. The **Partnumber** window will appear.



e. Left-click the **Edit** button in the **Partnumber** window toolbar.

f. Left-click the **General** tab.

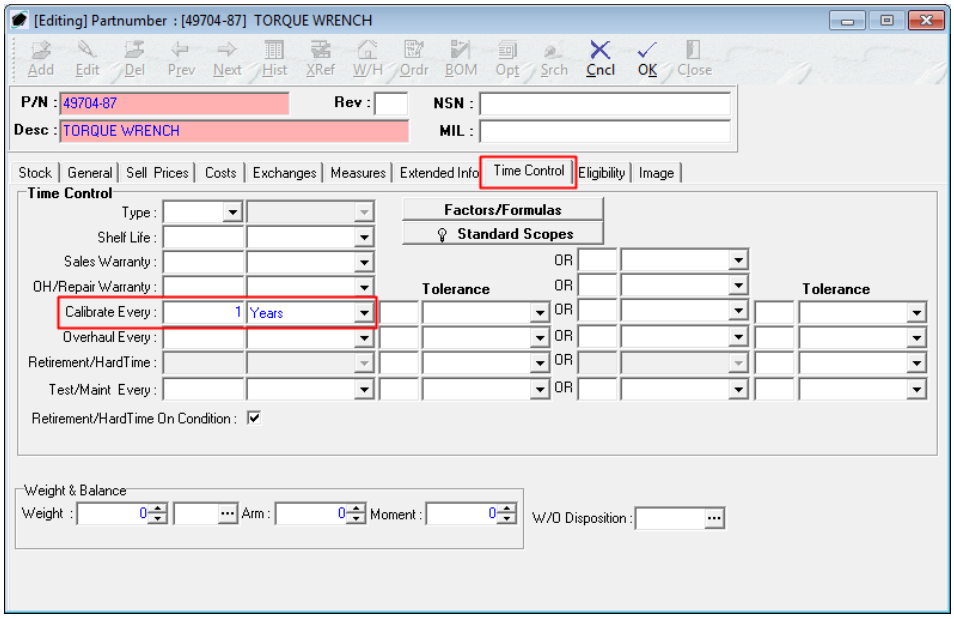


i. **Asset Type** group box – Ensure the radio button to the left of the “Tools” label is selected.

ii. **Tracing** group box – Ensure the radio button to the left of the “Serialized - Unique” label is selected.

iii. **Time Control** check box – Ensure the check box is marked as “checked”.

g. Left-click the **Time Control** tab.



i. **Calibrate Every** interval – enter the number associated with the interval on which the tool is required to be calibrated.

ii. **Calibrate Every** interval unit of measure – left-click the drop down arrow in the field to the right of the number field and select the unit of measure associated with the interval on which the tool is required to be calibrated.

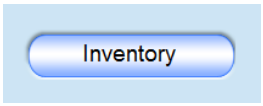
> ***NOTE:*** *Only the units of measure "Days", "Weeks", "Months", and "Years" should be used.*
>
> ***FUTURE CHANGE:*** *The remaining units of measure should be removed.*

END OF SECTION

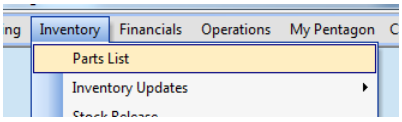
2. Equipment/Machine Requiring Inspection Setup (in Parts Master File)

Identify that particular part numbers should be considered a piece of equipment or a machine and requires periodic inspection or testing.

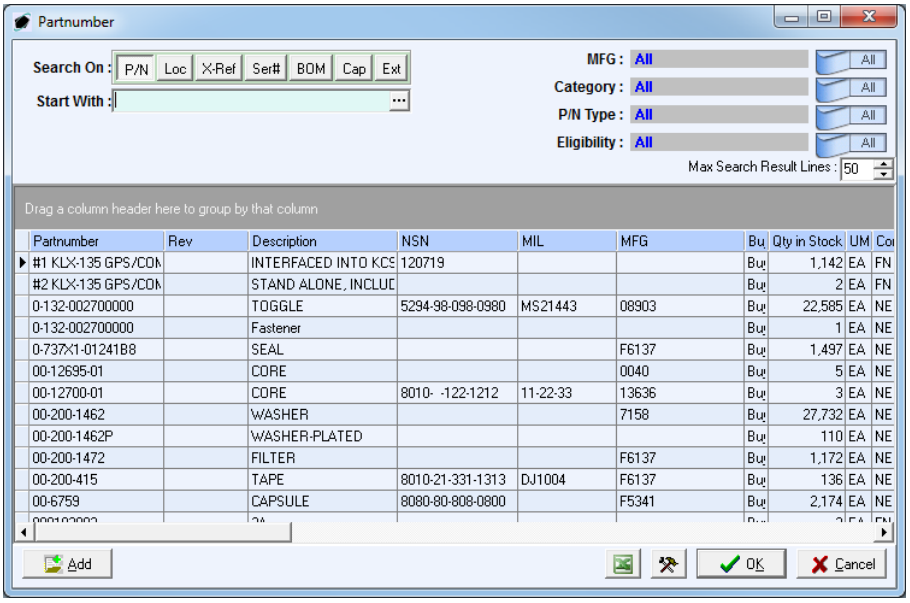
a. From the **Main Menu** screen, left-click the **Inventory** button.



NOTE: *The user may also left-click* ***Inventory*** *from the* ***Main Menu*** *toolbar, then left-click* ***Parts List****.*

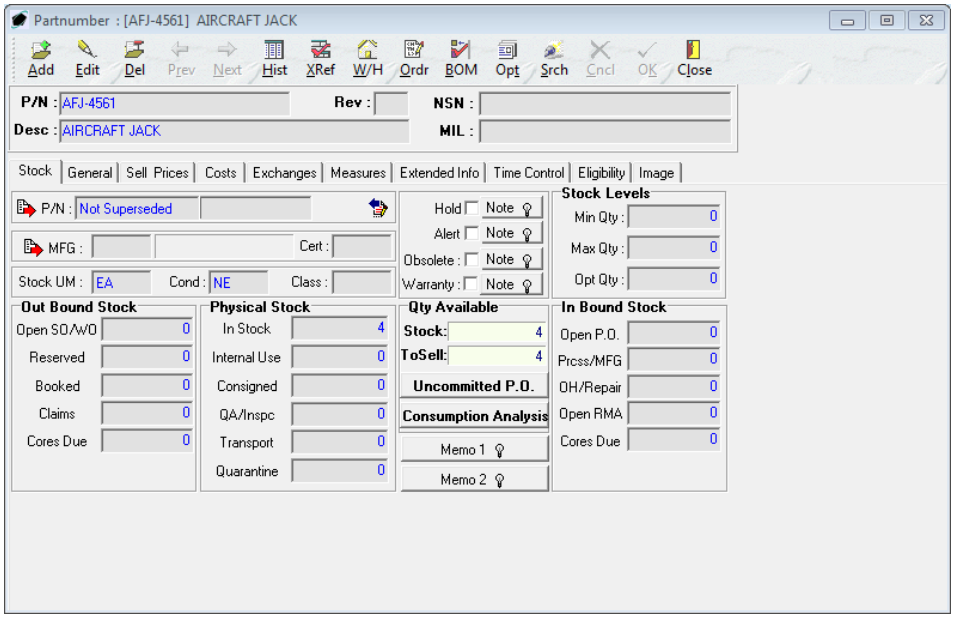


b. The **Partnumber** search window will appear.



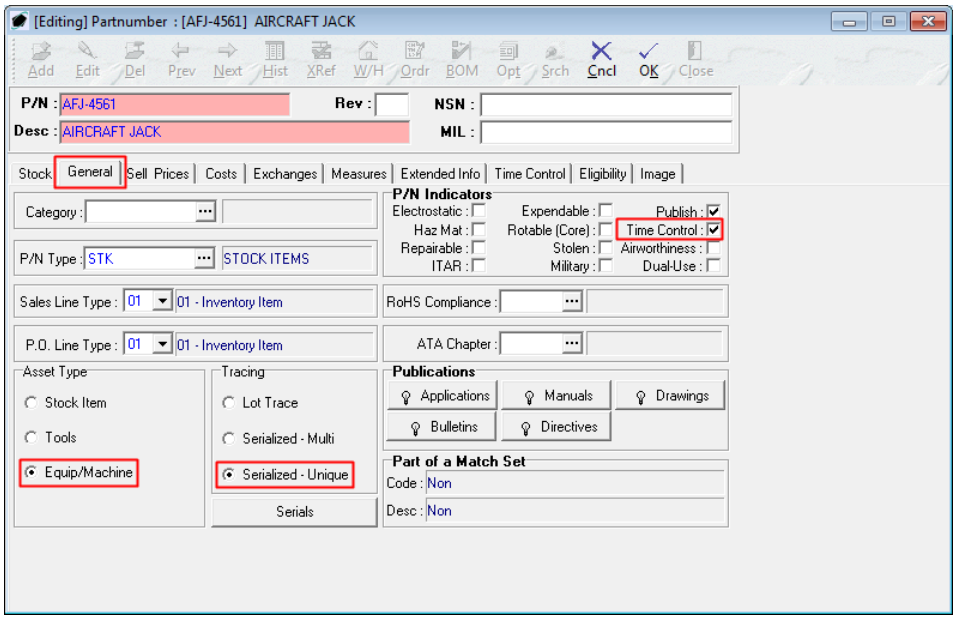
c. Select the appropriate part number (left-click the line within the search window and left-click OK; or double-click the line within the search window).

d. The **Partnumber** window will appear.



e. Left-click the **Edit** button in the **Partnumber** window toolbar.

f. Left-click the **General** tab.

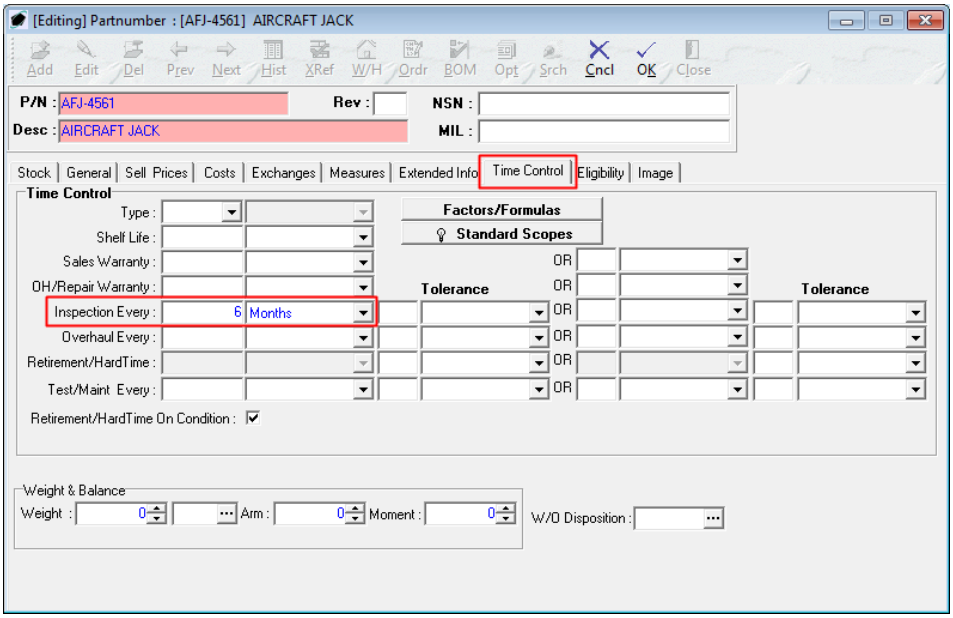


i. **Asset Type** group box – Ensure the radio button to the left of the “Equip/Machine” label is selected.

ii. **Tracing** group box – Ensure the radio button to the left of the “Serialized - Unique” label is selected.

iii. **Time Control** check box – Ensure the check box is marked as “checked”.

g. Left-click the **Time Control** tab.



i. **Inspection Every** interval – enter the number associated with the interval on which the piece of equipment or machine is required to be inspected or tested.

ii. **Inspection Every** interval unit of measure – left-click the drop down arrow in the field to the right of the number field and select the unit of measure associated with the interval on which the piece of equipment or machine is required to be inspected or tested..

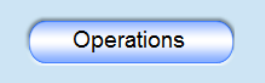
> ***NOTE:*** *Only the units of measure "Days", "Weeks", "Months", and "Years" should be used.*
>
> ***FUTURE CHANGE:*** *The remaining units of measure should be removed.*

END OF SECTION

3. Tool Information Window

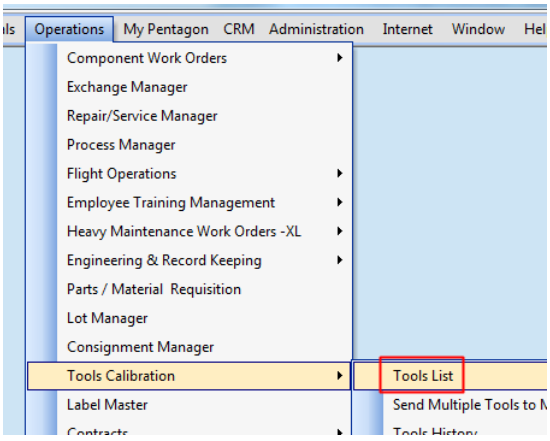
a. Open the **Tool Information Window** for a particular tool.

i. From the **Main Menu** screen, left-click the **Operations** button.

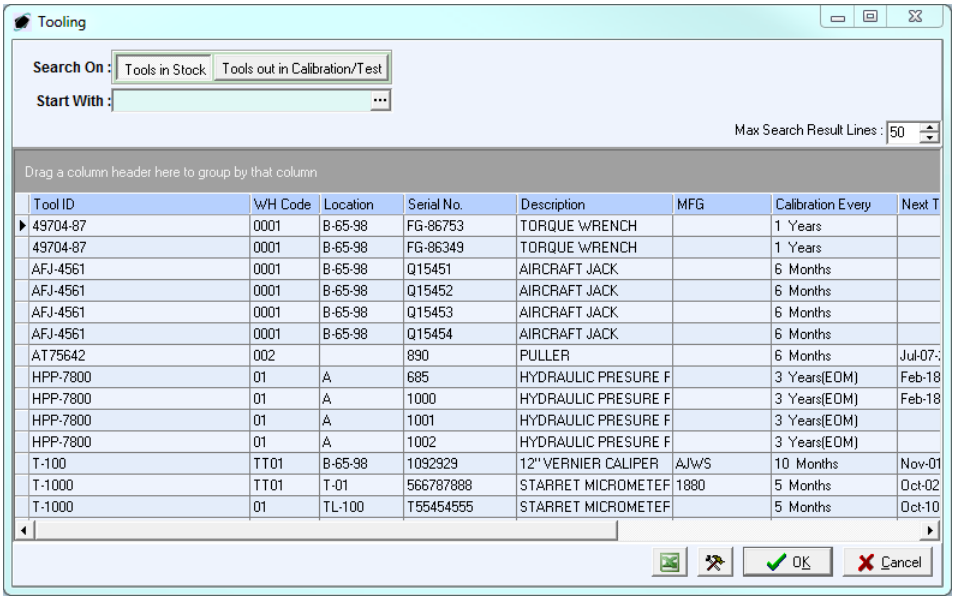


ii. The **Operations** window will appear; left-click the **Tooling** button.

NOTE: *The user may also left-click* ***Operations*** *from the* ***Main Menu*** *toolbar, go to* ***Tools Calibration****, then left-click* ***Tools List****.*

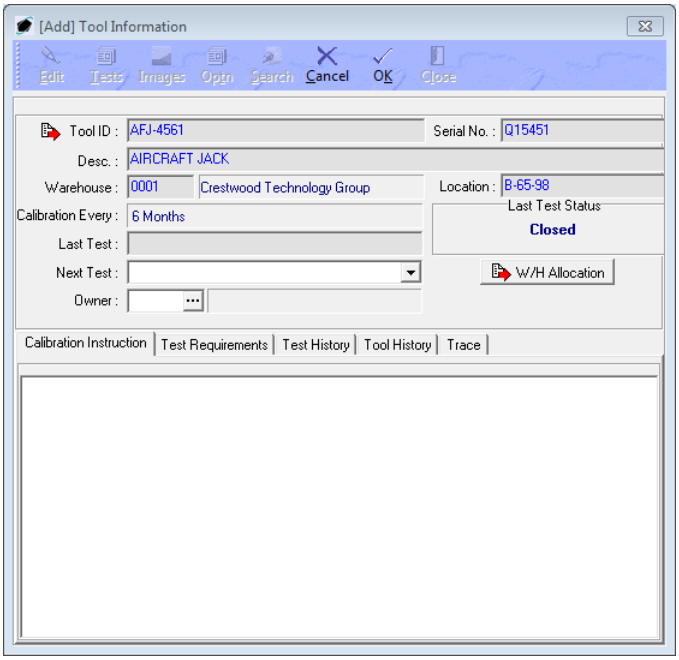


iii. The **Tooling** search window will appear.



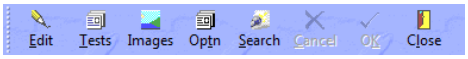
iv. Select the appropriate tool (left-click the line within the search window and left-click OK; or double-click the line within the search window).

v. The **Tool Information** window will appear in "Edit" mode.



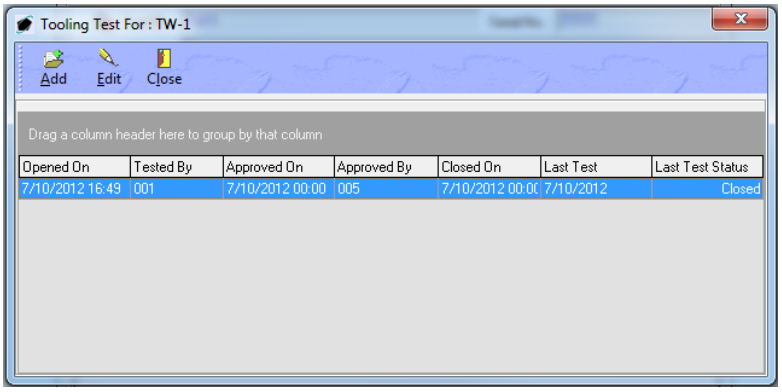
vi. Left-click the **OK** button on the **Tool** information window.

b. Toolbar



i. **Edit** button – Left-click to place the **Tool Information** window in "Edit" mode.

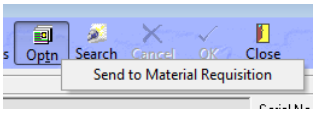
ii. **Tests** button – Left-click to view a list of the calibration and inspection tests that have been performed on the selected tool, piece of equipment or machine.



iii. **Images** button – Left-click to add, edit, view, or delete images associated with the tool, piece of equipment or machine.

> ***NOTE:*** *Images associated with particular tests may be linked to each of the test records.*

iv. **Optn** (Option) button – Left-click to see the list of available options.



1. **Send to Material Requisition** – left-click to send the selected tool, piece of equipment or machine to a parts/material requisition for calibration.

v. **Cancel** button – Left-click to cancel all changed made since the record last entered "Edit" mode.

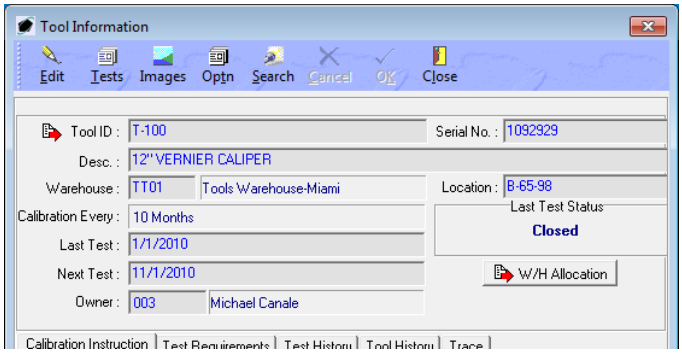
> **NOTE:** The **Cancel** button will appear inactive except while in "Edit" mode.

vi. **OK** button - Left-click to save all changed made since the record last entered "Edit" mode.

> **NOTE:** The **OK** button will appear inactive except while in "Edit" mode.

vii. **Close** button – Left-click to close the **Tool Information** window.

c. Header



i. **Tool ID** field – Displays the part number of the selected tool, piece of equipment or machine.

ii. **Serial No.** field – Displays the serial number of the selected tool, piece of equipment or machine.

iii. **Warehouse** field – Displays the warehouse to which the selected tool, piece of equipment or machine is assigned.

iv. **Location** field – Displays the location to which the selected tool, piece of equipment or machine is assigned.

v. **Calibration Every** field – Displays the interval identified for calibration or inspection in the part master record for the part number of the selected tool, piece of equipment or machine.

vi. **Last Test** field – Displays the date that the selected tool, piece of equipment or machine was last calibrated or inspected.

vii. **Last Test Status** group box – Displays the status of the last calibration or inspection test for the selected tool, piece of equipment or machine.

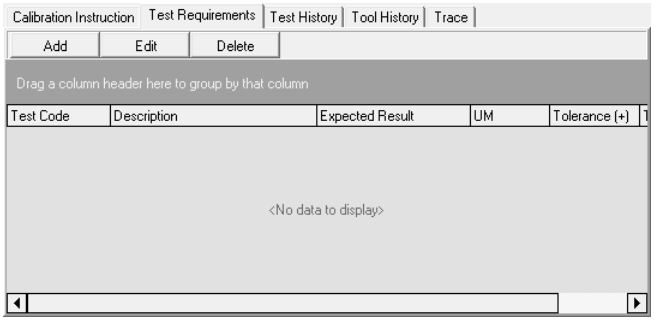
viii. **Next Test** field – Identifies the next date that the selected tool, piece of equipment or machine must be calibrated or inspected in order to be considered serviceable.

ix. **W/H Allocation** button – Left-click to view the selected tool, piece of equipment or machine in the warehouse.

x. **Owner** field (optional) – Identifies the owner of the selected tool, piece of equipment or machine.

d. **Calibration Instruction** tab (optional) – Enter instructions for calibration or inspection of the selected tool, piece of equipment or machine.

e. **Test Requirements** tab – Enables the identification of specific testing requirements that must be met in order to pass the calibration or inspection.



NOTE: *Buttons will only appear on the* ***Test Requirements*** *tab while in "Edit" mode.*

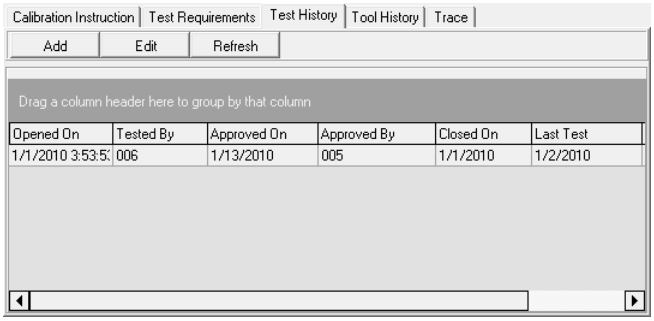
i. **Add** button – Left-click to add a test requirement.

ii. **Edit** button – Left-click to edit an existing test requirement.

iii. **Delete** button – Left-click to delete an existing test requirement.

CONTINUE TO NEXT PAGE

f. **Test History** tab – Enables the recording of the calibration or inspection of the selected tool, piece of equipment or machine.



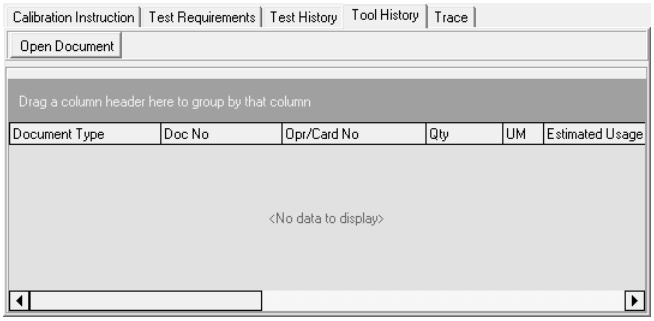
NOTE: *Buttons will only appear on the* ***Test History*** *tab while in "Edit" mode.*

i. **Add** button – Left-click to add a calibration or inspection.

ii. **Edit** button – Left-click to edit an existing calibration or inspection.

iii. **Refresh** button – Left-click to refresh the list of existing calibrations or inspections.

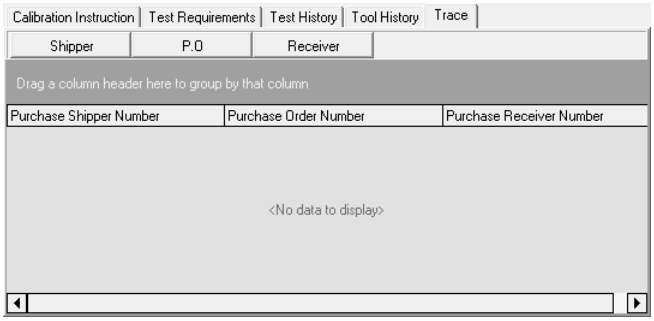
g. **Tool History** tab – Displays the list of component and maintenance work orders to which the selected tool was issued.



i. **Open Document** button – Opens the selected operation or card to which the selected tool was issued.

CONTINUE TO NEXT PAGE

h. **Trace** tab – Displays the purchase shippers, purchase orders, and purchase receivers associate with the calibration or inspection of the selected tool, piece of equipment or machine.



i. **Shipper** button – Opens the selected purchase shipper.

ii. **P.O.** button – Opens the selected purchase order.

iii. **Receiver** button – Opens the selected purchase receiver.

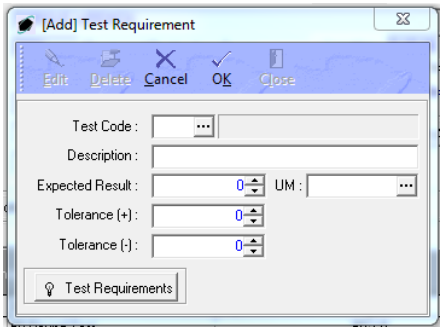
4. Identify Test Requirements

a. Left-click the **Edit** button on the **Tool Information** window.

b. Left-click the **Test Requirements** tab.

c. Left-click the **Add** button.

d. The **Test Requirement** window will appear.



i. **Test Code** field – Identify the category of the test requirement.

ii. **Description** field – Enter the description of the test requirement.

iii. **Expected Result** field – Enter the number associated with the expected measurable result of the test requirement.

iv. **UM** field – Enter the unit of measure associated with the expected measurable result of the test requirement.

v. **Tolerance (+)** field – Enter the acceptable positive variance allowed for the result of the test requirement.

vi. **Tolerance (-)** field – Enter the acceptable negative variance allowed for the result of the test requirement.

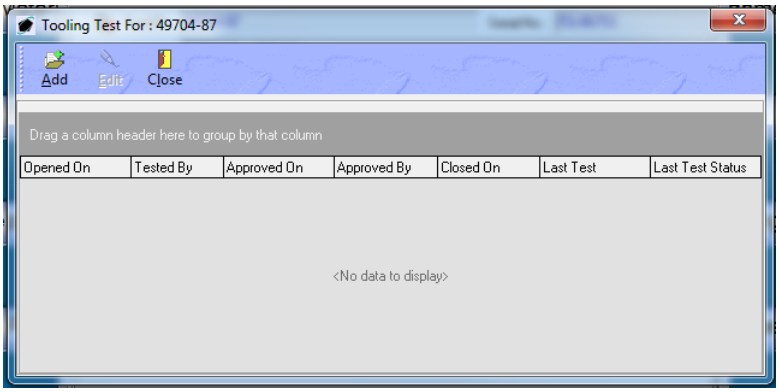
vii. **Test Requirements Tolerance (+)** field – Enter the acceptable positive variance allowed for the result of the test requirement

viii. **Test Requirements** button – Enter any instructions or comments related to the test requirement.

5. Record Test Results

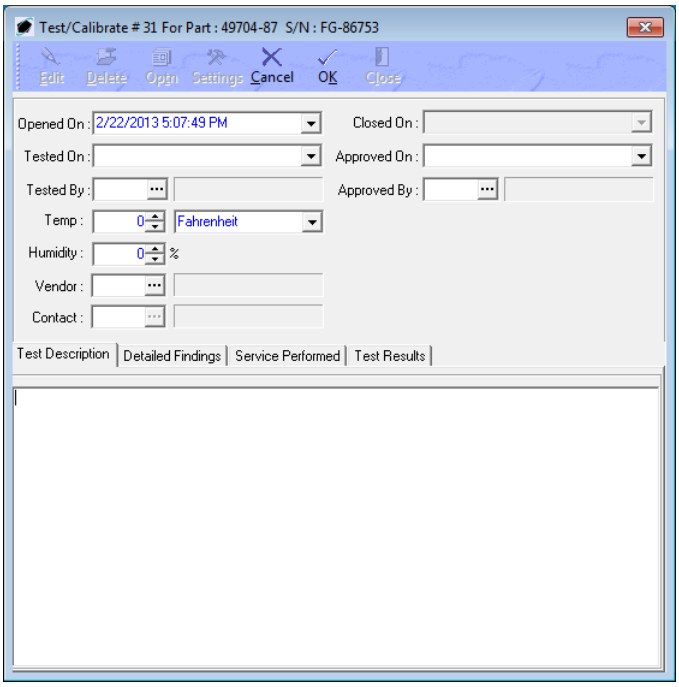
a. Left-click the **Tests** button on the **Tool Information** window.

b. The **Tooling Test** window will appear.



c. Left-click the Add button in the **Tooling Test** window toolbar.

d. The **Test/Calibrate** window will appear and will be in "Edit" mode.



e. Toolbar

i. **Edit** button – Left-click to place the **Test/Calibrate** window in "Edit" mode.

ii. **Delete** button – Left-click to delete the test/calibration record.

iii. **Optn** (Option) button – Left-click to see the list of available options.

1. **Images** – Left-click to add images related to the specific test/calibration record.

2. **Print Certificate** – Left-click to print a calibration certificate identifying the results of the specific test/calibration record.

iv. **Settings** button – Left-click to save or clear the window size and position.

v. **Cancel** button – Left-click to cancel all changed made since the record last entered "Edit" mode.

> **NOTE:** The **Cancel** button will appear inactive except while in "Edit" mode.

vi. **OK** button - Left-click to save all changed made since the record last entered "Edit" mode.

> **NOTE:** The **OK** button will appear inactive except while in "Edit" mode.

vii. **Close** button – Left-click to close the **Test/Calibrate** window.

f. Header

i. **Opened On** field – identify when the test/calibration record was opened. This field will automatically be populated with the date and time that the test/calibration record was added.

ii. **Tested On** field – Identify when the test/calibration was actually performed.

iii. **Tested By** field – If the test/calibration was performed in house, identify the individual who performed the test/calibration.

iv. **Temp** field – Identify the temperature at the time of test/calibration (if applicable).

v. **Humidity** field – Identify the humidity at the time of test/calibration (if applicable).

vi. **Vendor** field – If the test/calibration was performed by a vendor, identify the vendor who performed the test/calibration.

vii. **Contact** field – If the test/calibration was performed by a vendor, identify the point of contact for the vendor who performed the test/calibration.

viii. **Approved By** field – If the test/calibration requires verification or approval, identify the individual who approved the test/calibration.

ix. **Approved On** field – If the test/calibration requires verification or approval, identify the date on which the test/calibration was approved.

x. **Closed On** field – Identify the date that the test/calibration was closed.

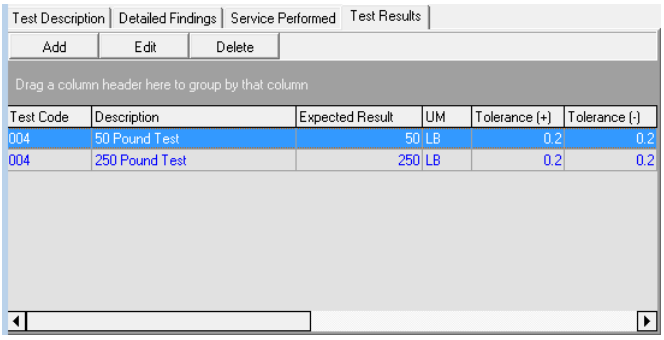
g. Tabs

i. **Test Description** tab – Enter any notes related to the specific test/calibration that was performed.

ii. **Detailed Findings** tab – Enter any notes related to the results of the specific test/calibration that was performed.

iii. **Service Performed** tab – Enter any notes related to associated servicing during the specific test/calibration.

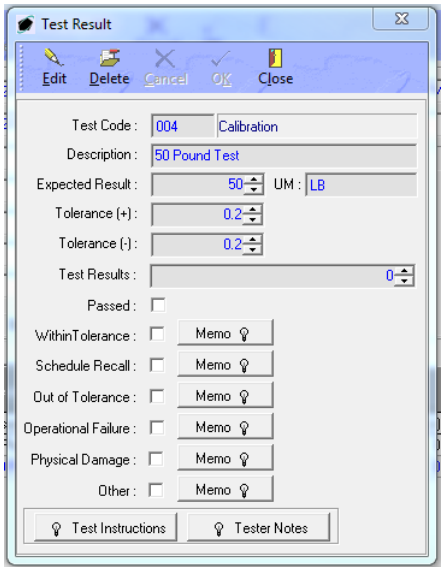
iv. **Test Results** tab – the test requirements created on the **Test Requirements** tab of the **Tool Information** window will be listed.



1. Double-click one of the test requirements to enter the test results.

CONTINUE TO NEXT PAGE

2. The **Test Result** window will appear.



3. The details of the test requirements will be automatically populated in the upper portion of the **Test Result** window.

4. Left-click the **Edit** button from the **Test Result** toolbar.

   a. **Test Results** field – Identify the number associated with the test/calibration results in terms of the unit of measure identified in the test requirements.

   b. **Passed** check box – Mark the check box as “checked” if the tool, piece of equipment, or machine passed this test/calibration.

   c. **Within Tolerance** check box - Mark the check box as “checked” if the tool, piece of equipment, or machine was found to be within tolerance.

   d. **Schedule Recall** check box – Mark the check box as “checked” if an evaluation of all work performed by the tool, piece of equipment, or machine should be scheduled.

   e. **Out of Tolerance** check box - Mark the check box as “checked” if the tool, piece of equipment, or machine was found to be out of tolerance.

   f. **Operational Failure** check box – Mark the check box as “checked” if the test could not be performed because the tool, piece of equipment, or machine failed to function properly.

   g. **Physical Damage** check box - Mark the check box as “checked” if the test could not be performed because the tool, piece of equipment, or machine is physically damaged.

h. **Other** check box – Mark the check box as "checked" for whatever your organization chooses to use the check box to indicate.

i. **Memo** buttons – Enter any information related to each of the check boxes (if applicable).

j. **Test Instruction** button – Enter any instructions related to the specific test result.

k. **Tester Notes** button – Enter any notes that the tester provided about the specific test result.

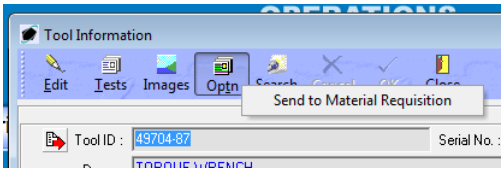
5. Left-click the **OK** button in the **Test Result** window toolbar to save the record.

6. Left-click the **Close** button in the **Test Result** window toolbar to close the record.

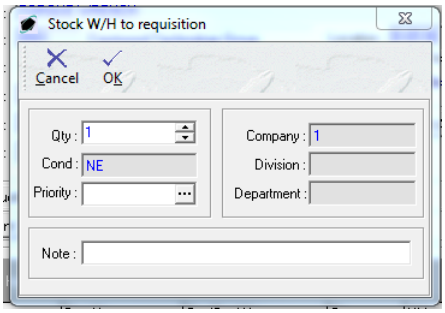
END OF SECTION

6. Send Tool Out for Calibration

a. Left-click the **Optn** button from the **Tool Information** window toolbar, then left-click **Send to Material Requisition**.



b. The **Stock W/H to Requisition** window will appear.



i. **Qty** field – Identify the quantity being sent out for calibration. This number should always be "1".

ii. **Cond** field – Displays the condition of the item in the warehouse.

iii. **Priority** field – Identify the priority of this calibration.

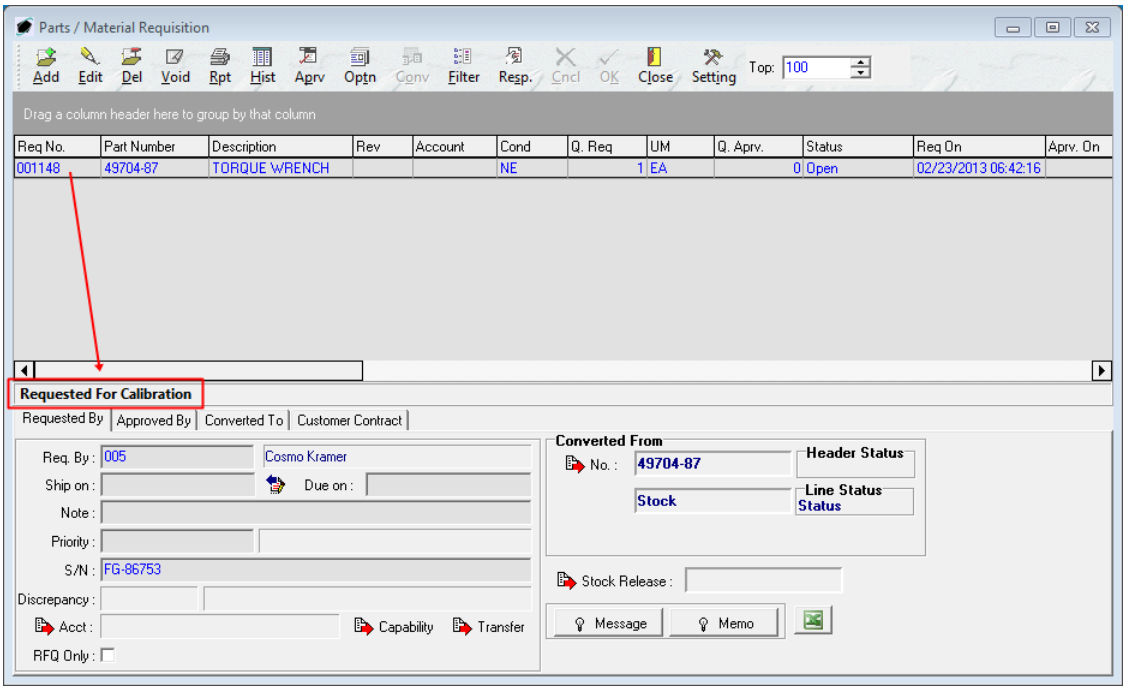
iv. **Note** field – Enter any short note related to the calibration.

v. **Company**, **Division**, and **Department** fields – identifies the company, division, and department with which the PMR will be associated.

c. Left-click the OK button on the **Stock W/H to Requisition** window toolbar.

CONTINUE TO NEXT PAGE

d. The **Parts/Material Requisition** window will appear. The line will be identified as "Requested for Calibration".



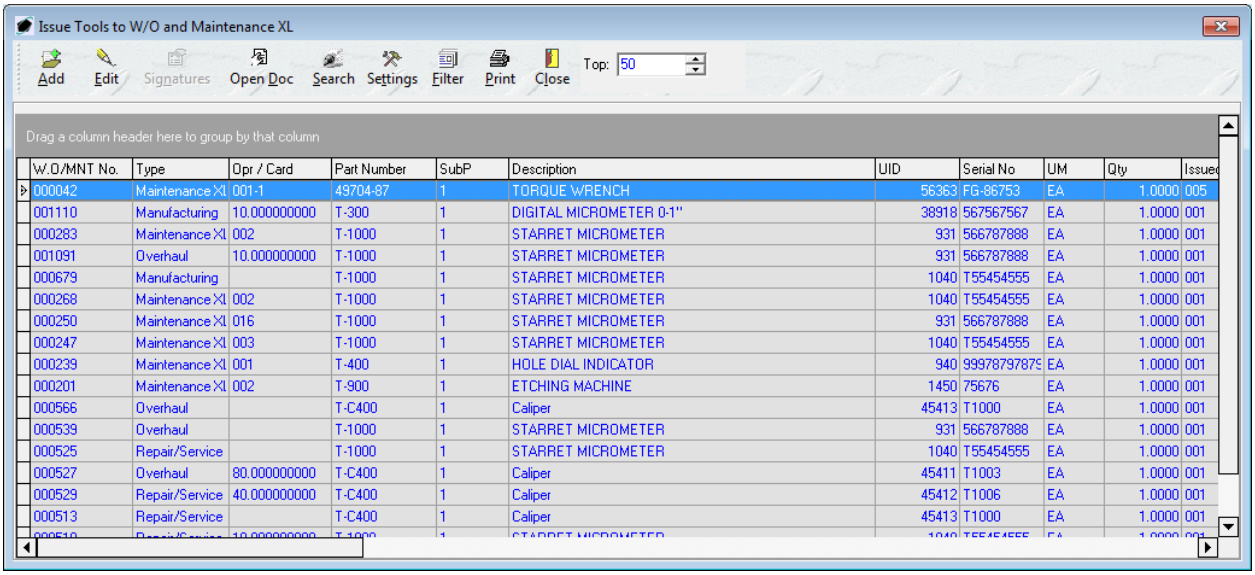
END OF SECTION

7. Issue Tools to Operations/Cards

a. Normal Issue

i. From the **Main Menu** toolbar, left-click the Inventory menu item, then left-click **Issue Tools to W/O and Maintenance XL**.

ii. The Issue Tools to W/O and Maintenance XL window will appear.

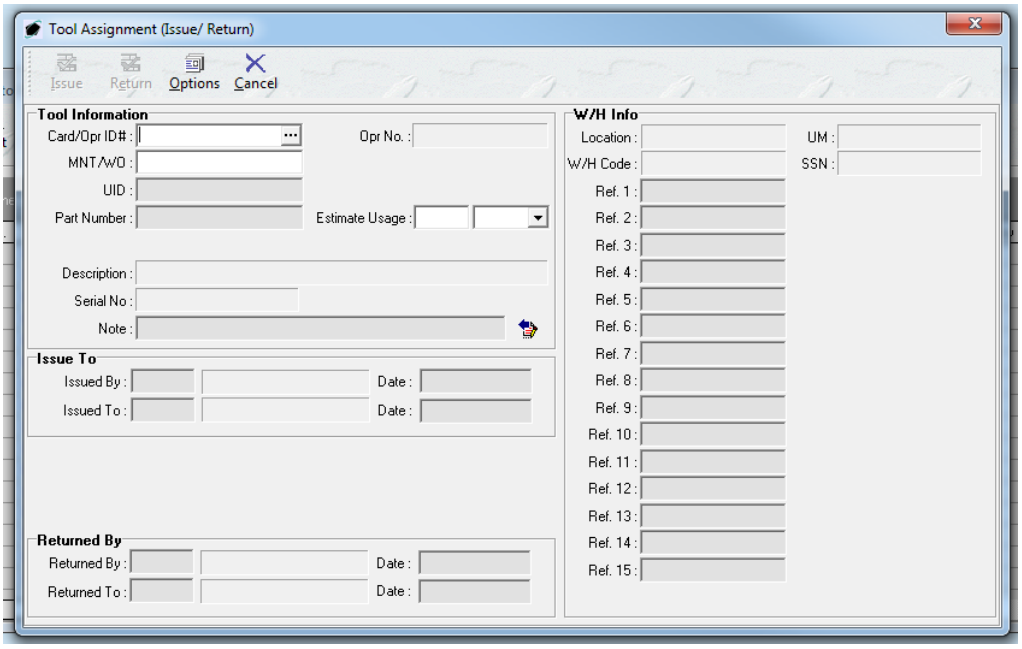


iii. Toolbar

1. **Add** button – Left-click to create a new tool assignment record.
2. **Edit** button – Left-click to edit an existing tool assignment record.
3. **Signatures** button – for future functionality, may be ignored in Build 8.5.54.107 and earlier.
4. **Open Doc** button – Left-click to open the component or maintenance work order to which an existing tool assignment record is associated.
5. **Search** button – Left-click to search existing tool assignment records.
6. **Settings** button – Left-click to save or clear the window size and position.
7. **Filter** button – Left-click to set filters in the **Issue Tools to W/O and Maintenance XL** window grid.
8. **Print** button – left-click to print the tool issue for an existing tool assignment record.
9. **Close** button – left-click to close the **Issue Tools to W/O and Maintenance XL** window.

iv. Left-click the Add button on the **Issue Tools to W/O and Maintenance XL** window toolbar.

v. The Tool Assignment (Issue/Return) window will appear.



1. **Card/Opr ID#** field - Identify the maintenance work order card or component work order operation to which the tool will be issued, then press the 'Tab' key.

   BARCODING: If you have a printed copy of the maintenance work order card or component work order operation, scan the card or operation number.

   The **MNT/WO**, **Issued By** and **Date** fields will be populated automatically.

2. **UID** field – Identify the UID of the tool that is being issued.

   BARCODING: If you have tools labeled with UID barcodes, scan the UID barcode.

   The **Part Number**, **Description**, **Serial Number** fields, as well as the field within the **W/H Info** group box will be populated automatically.

3. **Estimate Usage** field – Identify the length of time to tool is expected to be checked out before it is returned (if desired).

4. **Note** field – Enter a short note related to the issue of this tool (if applicable)

5. **Issued to** field – Identify the individual to whom the tool will be issued.

   BARCODING: If the user has a barcoded employee badge, scan the user barcode.

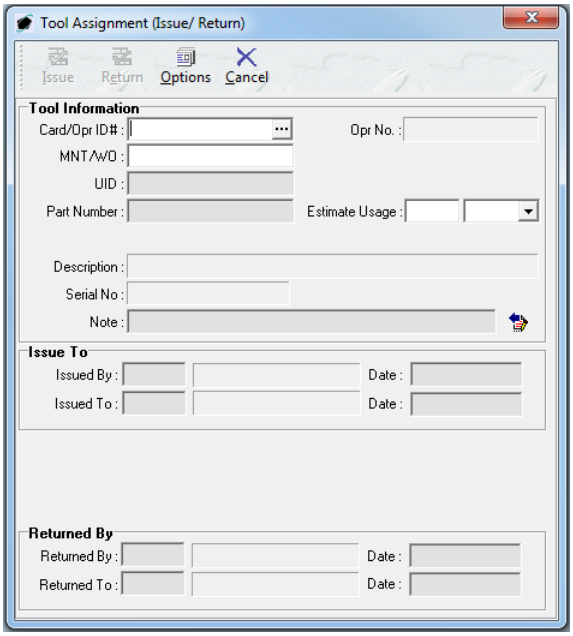
   The **Issued to Date** fields will be populated automatically.

6. Left-click the **Issue** button on the **Tool Assignment (Issue/Return)** window toolbar.

b. Quick Issue – This option is particularly useful when using barcodes. A tool can be issued in three barcode scans.

i. From the **Main Menu** toolbar, left-click the Inventory menu item, then left-click **Quick Tool Issue**.

ii. The **Tool Assignment (Issue/Return)** will appear.



1. **Card/Opr ID#** field - Identify the maintenance work order card or component work order operation to which the tool will be issued, then press the 'Tab' key.

> **BARCODING:** If you have a printed copy of the maintenance work order card or component work order operation, scan the card or operation number.

The **MNT/WO**, **Issued By** and **Date** fields will be populated automatically.

2. **UID** field – Identify the UID of the tool that is being issued.

> **BARCODING:** If you have tools labeled with UID barcodes, scan the UID barcode.

The **Part Number**, **Description**, **Serial Number** fields will be populated automatically.

3. **Estimate Usage** field – Identify the length of time to tool is expected to be checked out before it is returned (if desired).

4. **Note** field – Enter a short note related to the issue of this tool (if applicable)

5. **Issued to** field – Identify the individual to whom the tool will be issued.

   BARCODING: If the user has a barcoded employee badge, scan the user barcode.

   The **Issued to Date** fields will be populated automatically.

6. Left-click the **Issue** button on the **Tool Assignment (Issue/Return)** window toolbar.

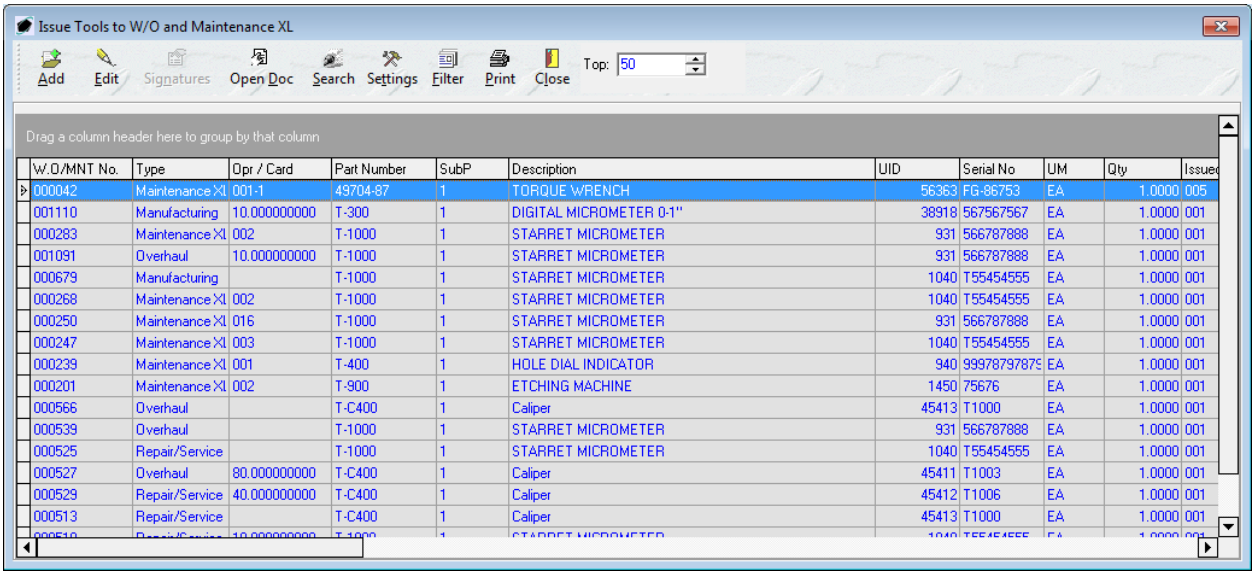
END OF SECTION

8. Return Tools from Operations/Cards

a. Normal Return

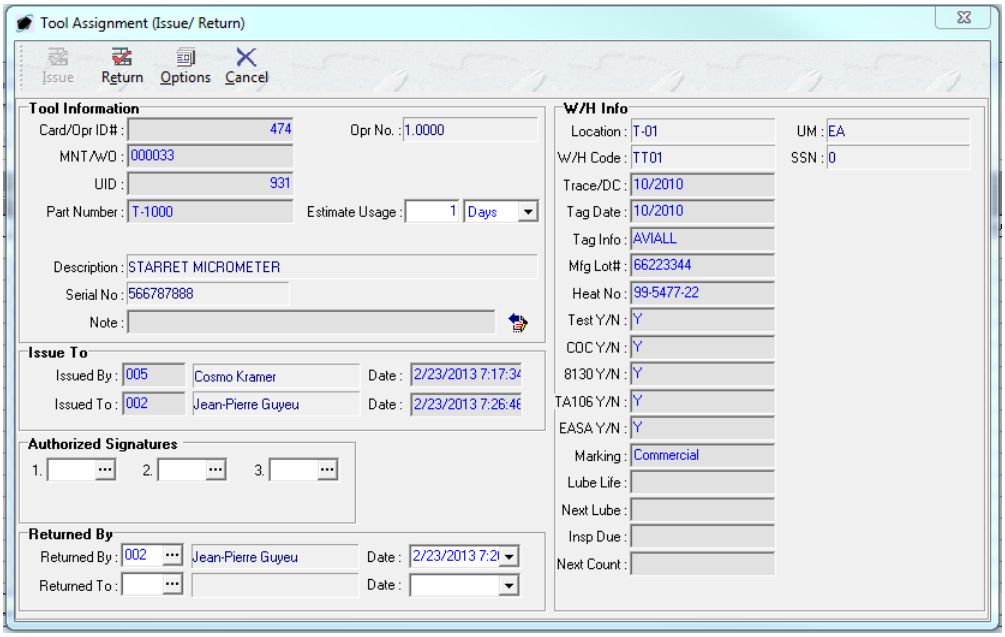
i. From the **Main Menu** toolbar, left-click the Inventory menu item, then left-click **Issue Tools to W/O and Maintenance XL**.

ii. The Issue Tools to W/O and Maintenance XL window will appear.



iii. Left-click the line that identifies the tool that is to be returned.

iv. The **Tool Assignment (Issue/Return)** window will appear.



v. **Returned By** field – Displays the individual to whom the tool was issued previously. This field may be modified if returned by a different user.

vi. **Returned To** field – Identify the individual receiving the returned tool.

> **BARCODING:** If the user has a barcoded employee badge, scan the user barcode.

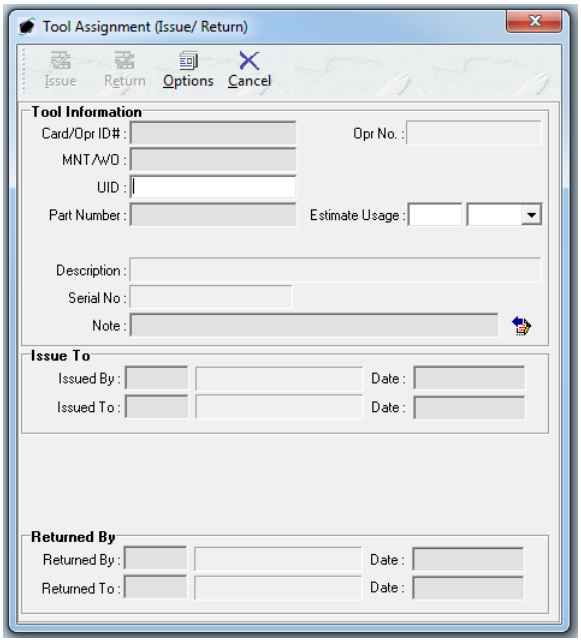
The **Returned To Date** will be populated automatically.

vii. Left-click the **Return** button from the **Tool Assignment (Issue/Return)** window toolbar.

b. Quick Return - This option is particularly useful when using barcodes. A tool can be returned in two barcode scans.

i. From the **Main Menu** toolbar, left-click the Inventory menu item, then left-click **Quick Tool Return**.

ii. The Tool Assignment (Issue/Return) window will appear.



1. **UID** field – Identify the UID of the tool that is being issued.

> **BARCODING:** If you have tools labeled with UID barcodes, scan the UID barcode.

The window will be populated automatically with the information identified during the issue of the tool.

2. **Returned By** field – Displays the individual to whom the tool was issued previously. This field may be modified if returned by a different user.

3. **Returned To** field – Identify the individual receiving the returned tool.

   BARCODING: If the user has a barcoded employee badge, scan the user barcode.

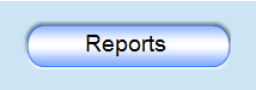
   The **Returned To Date** will be populated automatically.

4. Left-click the **Return** button from the **Tool Assignment (Issue/Return)** window toolbar.

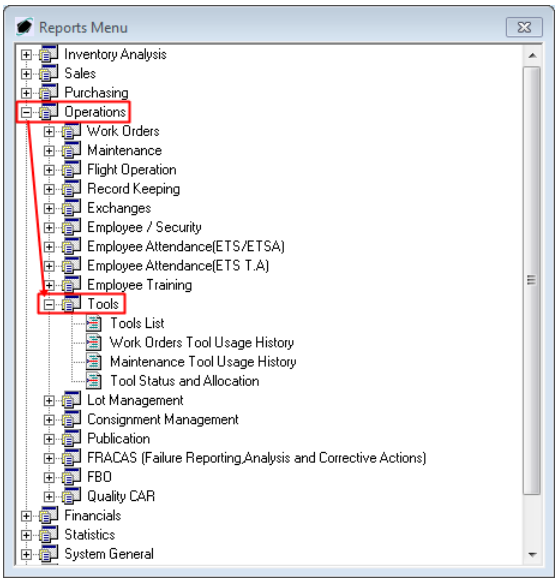
END OF SECTION

9. Reports

a. From the **Main Menu** screen, left-click the **Reports** button.



b. The **Reports Menu** window will appear.



c. Left-click on the ⊞ to the left of **Operations** to expand the menu.

d. Left-click on the ⊞ to the left of **Tools** to expand the menu.

i. **Tools List** report – This report is a simple list of tools displaying part and calibration information..

ii. **Work Orders Tool Usage History** report – This report displays the component work orders and the associated operations to which a tool (or list of tools) was issued.

iii. **Maintenance Tool Usage History** report – This report displays the maintenance work orders and the associated cards to which a tool (or list of tools) was issued.

iv. **Tool Status and Allocation** report – This report displays the status of all (or selected) parts.

END OF SECTION