

MIE Trak Work In Process (WIP)

Work In Process (WIP) is the accumulation of costs during the production process of making a part up to the point that the part is completed to finished goods inventory.

In MIE Trak, WIP is accumulated during the work order data collection process. When an employee scans one of the Work Order Collection Activities barcodes, the barcode station prompts the employee through the following scans or inputs:

- 1) Work Order Collection Activity being performed (i.e. Setup, Run, Inspection, etc.)
- 2) Work Order/Router Number
- 3) Work Order Sequence Number
- 4) Employee ID

There are four hourly rate fields that are populated in each collection record which are then used to calculate WIP based on the number of hours worked in that collection record. These four fields come from two maintenance tables. They are:

- 1) Work Center Maintenance
 - a) **Hourly Overhead** – overhead absorption rate for the work center
- 2) Employee Maintenance
 - a) **Hourly Wage** – employee wage rate for the employee ID
 - b) **Overtime** – employee overtime wage rate for the employee ID
 - c) **Hourly O/Head** – employee overhead absorption rate for the employee ID

When calculating WIP the system uses 3 of the 4 fields depending on the Work Order Collection Activity.

ENTERING A COLLECTION RECORD

To enter work order collection records the user can use the following:















- 1) Bar code scanning – the user, using a barcode scanning station scans the appropriate sequence of barcodes or enters information through the keypad of the scanning station.
- 2) MIE Kiosk (Scanview) – the user, using a computer with keyboard and mouse or a touch screen clicks on their employee ID and then on the work center they are working on and then on the work order they are going to work on.
- 3) Manual Data Entry – the user, using a standard computer workstation 10 keys in the data collection based on a job collection ticket for the day for each employee.

Barcode Scanning

WORK ORDER COLLECTION ACTIVITY

When the user scans the Work Order Collection Activity barcode they are going to perform, the system will create a record in the WOCOLL table. Based on the work order, sequence and employee ID scanned the system will populate the fields in the record accordingly.

First Step: Scanning the Activity that is going to be performed the system enters the date and time, based on the current computer system date and time, into the **Date** and **Time ON** fields.

Work Order Collection	
Setup :  * S U I N *	Log Out :  * L O G O U T *
Run :  * R U N I N *	Log Out With Qty :  * L O G O U T Q *
Inspection :  (With Time) * I N S P I N *	Log Out Incomplete :  * O U T I N *
Inspect Seq :  (No Time) * I N S P E C T *	Log Out Incomplete With Qty :  * O U T I N Q *
Rework :  * R E W I N *	Stop Sequence Override :  * O V E R R I D E *
Overtime :  Run Hours * O T R U N *	Log Out Of All Jobs :  * L O G O U T A *
Helper :  * H E L P E R *	Sequence Qty :  (Completed) * S E Q Q T Y *

WORK ORDER/ROUTER NUMBER

Second Step: Scanning the Work Order/Router Number gives the system the information of where the costs should be accumulated for costing purposes.

W.O. Number : 00063836

Work Order

Customer : NMC/Wollard

Router # : 0008511



Part Number : 305773	Rev : B
Description : Front Stabilizer Plate	Item :
Drawing Number :	
Qty Required : 8	Due Date : 06/10/2009
Qty Fabricate : 8	06/10/2009
Qty Pull : 0	

Single Detail	
Level 0 To	
Qty To Zero	1
Page 1 of 1	

Est Hrs :	
Finished Goods Inv.	
Quantity :	0
Location :	

1 Laser Cutting	Insp	Qty	Oper	10	SU/Min
				55.70	Parts Hour



Material	A36 .50"
	Stock Requirements : 60.000 X 120.000
* 1 0 2 5 8 4 0 0 1 *	Blank Size : 6.000 X 8.000
Vendor:	Part Size : 5.000 X 6.190
Comment:	Parts Per Blank : 1.000
	Blanks Per Sheet : 150
	Blanks req'd : 8 Stock req'd : 0.0533

2 Machining	Insp	Qty	Oper	20	SU/Min
				30.00	Parts Hour



3 Shipping	Insp	Qty	Oper	7	SU/Min
				0.00	Parts Hour



WORK ORDER SEQUENCE NUMBER

Third Step: Scanning the Work Order Sequence Number identifies the work center ID which identifies the Hourly Overhead absorption rate to add to the collection record.

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Router # : 0008511

Work Order



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Page 1 of 1

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Material A36 .50"

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Part Size : 5.000 X 6.190

Parts Per Blank : 1.000

Blanks Per Sheet : 150

Blanks req'd : 8 Stock req'd : 0.0533

2 Machining	Insp	Qty	Oper	20	SU/Min	
				30.00	Parts Hour	

3 Shipping	Insp	Qty	Oper	7	SU/Min	
				0.00	Parts Hour	

EMPLOYEE ID NUMBER

Final Step: Scanning the Employee ID identifies the employee record to get the hourly wage rate, overtime wage rate and hourly overhead absorption rate from.

ID
001151

Employee
DON CLUTTER



LOGGING OUT OF A WORK ORDER SEQUENCE

When scanning out of a sequence the system enters the current system time in the TIME OFF field of the work order collection record in the WOCOLL table. The system at the same time calculates the amount of time to charge to the sequence by taking the TIME OFF field and subtracting the TIME ON field.

When the user scans out of a work order the user scans one of the following barcodes:

- 1) Log Out – scanning Log Out will mark the sequence as COMPLETE
- 2) Log Out With Qty – scanning Log Out With Qty will mark the sequence as COMPLETE and require the user to enter the quantity of parts produced and scrapped.
- 3) Log Out Incomplete – scanning Log Out Incomplete will keep the sequence in a status of current so the scheduling module will continue to schedule the sequence.
- 4) Log Out Incomplete With Qty – scanning Log Out Incomplete With Qty will keep the sequence in a status of current so the scheduling module will continue to schedule the sequence, but will require the user to enter the quantity of parts produced and scrapped.

Work Order Collection	
Setup : * S U I N *	Log Out : * L O G O U T *
Run : * R U N I N *	Log Out With Qty : * L O G O U T Q *
Inspection : (With Time) * I N S P I N *	Log Out Incomplete : * O U T I N *
Inspect Seq : (No Time) * I N S P E C T *	Log Out Incomplete With Qty : * O U T I N Q *
Rework : * R E W I N *	Stop Sequence Override : * O V E R R I D E *
Overtime : Run Hours * O T R U N *	Log Out Of All Jobs * L O G O U T A *
Helper : * H E L P E R *	Sequence Qty : (Completed) * S E Q R T Y *

Work Order Labor Cost Calculation

Based on the Work Order Collection Activity item, the system uses the following fields when calculating the cost for the collection record that will be used in WIP. The system will take the three hourly rates identified, add them together and multiply by the calculated hours based on the TIME ON and TIME OFF fields. If Employee breaks have been set up in the Employee Shift Maintenance, the number of minutes will be deducted from the TIME ON and TIME OFF hour calculation.

Hourly rates used in the calculation.

- 1) Setup
 - a) Hourly Overhead (Work Center)
 - b) Hrly Wage (Employee)
 - c) Hrly O/Head (Employee)
- 2) Run
 - a) Hourly Overhead (Work Center)
 - b) Hrly Wage (Employee)
 - c) Hrly O/Head (Employee)
- 3) Inspection (With Time)
 - a) Hourly Overhead (Work Center)
 - b) Hrly Wage (Employee)
 - c) Hrly O/Head (Employee)
- 4) Inspect Seq. (No Time)
 - a) No hours are recorded so no cost is associated with the collection record.
- 5) Rework
 - a) Hourly Overhead (Work Center)
 - b) Hrly Wage (Employee)
 - c) Hrly O/Head (Employee)
- 6) Overtime Run Hours
 - a) Hourly Overhead (Work Center)
 - b) **Overtime** (Employee)
 - c) Hrly O/Head (Employee)
- 7) Helper
 - a) **Hourly Overhead (Work Center) – when scanning Helper the system does not bring over a value for the Hourly Overhead rate from the work center.**
 - b) Hrly Wage (Employee)
 - c) Hrly O/Head (Employee)

Work Order Bill of Material Cost Calculation

Issuing Bill of Material items to a work order adds the cost of the items to the work order based on the accounting method specified in System Parameters. The three accounting methods to pick from are the following:

- 1) Standard – the user has the ability to adjust the Standard Cost field.
- 2) Average – the system updates the Average Cost field automatically when a PO Receiver is posted to inventory.
 - a) Calculation – the system takes the current Average Cost rate times the On Hand inventory quantity. It then adds the current extended cost of what is on the PO Receiver to the calculated current extended cost. Then the new total extended cost is divided by the total of the current On Hand quantity plus the quantity being received on the PO Receiver.

Example:

Item A	Average Cost	Qty	Extended
Current Inventory	\$1.000	100	\$100.00
Issue to Work Order	\$1.000	50	\$50.00
<u>Net Inventory</u>	<u>\$1.000</u>	<u>50</u>	<u>\$50.00</u>
<u>PO Receiver</u>	<u>\$2.000</u>	<u>100</u>	<u>\$200.00</u>
<u>Net Inventory</u>	<u>\$1.667</u>	<u>150</u>	<u>\$250.00</u>
Issue to Work Order	\$1.667	50	\$83.35
Net Inventory	\$1.667	100	\$166.70

- 3) Last – the system updates the Last Cost field automatically when a PO Receiver is posted to inventory.

MATERIAL AND HARDWARE BOM ITEMS

Whatever the value is in the Costing Method field at the time the BOM item is issued is what the value will be written to the WOBILL table and thus affect WIP.

If for some reason there is a value in the Override Price field on the individual BOM item in Router Design, regardless of what costing method is picked, that BOM item will always be issued to WIP at the Override Price value.

OUTSIDE PROCESSING BOM ITEMS

When creating a Purchase Order from the Work Order Bill Of Materials to ship the Outside Process to a vendor and thus associating the work order to a Purchase Order line item, when creating a PO Receiver and posting it the system will automatically issue it to the work order and thus update the WIP value at the time of posting. If when an invoice is received and the user goes into the PO Receiver and updates the price if different the price will automatically be updated to the work order.

Work Order Completions to Finished Goods Inventory Calculation

When completing parts to Finished Goods Inventory the system has a System Parameter that can be set to choose between two different methods of reducing WIP from the work order. They are:

- 1) Use Router Estimated Cost On Partial Completions – if checked in System Parameters the system will default to the total value of the 4 Standard Cost fields in Router Design located on the Inventory tab that are labeled 1)Labor Stnd, 2)Overhead Stnd, 3)Material Stnd and 4)Product Stnd. If none of the fields have any costs entered into them then the system will default to the following calculation.
- 2) Piece Cost Calculation on the Work Order – the system takes the total cost so far accumulated on the work order at the time of the completion to inventory and divides it by the Quantity to Fab on the work order.

Depending on the method the value is written to the completion record in the WOSHIP table and WIP will be reduced by that amount.

Running the WIP Report

When running the WIP Report at the end of an accounting period ***NONE*** of the checkboxes should be checked. The filter settings should be what the system defaults to when bringing up the Query as displayed below.

The screenshot shows the 'Work Order WIP/Profit Report' window. The 'Query Work Orders WIP/Profit' tab is active. The 'Customer Range' section is selected, with 'FROM' set to '4D Optical' and 'TO' set to 'Z Sign Co.'. The 'Date Range' is set to '1/1' to '12/31/2020'. The 'Work Order Status' is 'QUERY : Status All Open Work Orders', 'W.O. Release Status' is 'QUERY : Released and Unreleased', and 'Cell Number' is '0'. The 'Profit Percent Range' is '0' to '0' with the 'Cost > 0' checkbox unchecked. The 'Sort By' options are 'SORT BY : Customer', 'And SORT BY : Due Date', and 'And SORT BY : Priority'. The 'Sales Order Costing', 'WIP Report', and 'Explode Assembly Details' checkboxes are all unchecked.

The Sort By options can be changed for how the user wants to sort the queried information.

The report formats to use are:

- 1) **WIP Report (Unchecked)** (*wp_4.frx*) – this report breaks the work order WIP value down into Purchases (BOM \$) and Labor (direct labor and overhead \$)
- 2) **WIP Report (Unchecked) Detailed** (*wp_6.frx*) – this report breaks the work order WIP value down into Purchases (BOM \$), Labor (direct labor \$), Labor O/H (employee overhead \$) and WC O/H (work center overhead \$).