Kinetic Job Costing Technical Reference Guide

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Introduction

Purpose of this Guide

The Job Costing Technical Reference Guide explores how the application first estimates and then records the costs accumulated on jobs. The components and calculations the application uses to generate estimated costs are examined in detail.

The guide also explores how actual costing data is accumulated to arrive at the final cost on each job record. This guide is intended to provide the different kinds of costing information you may need. The Concepts and Calculations sections describe the logic and design behind job costing; this information gives you a solid understanding of the processes used by the application to arrive at cost amounts. The Primary Components, Transaction Types, and Modifiers sections all contain more reference based material that you can use to answer a specific question about a costing function.

Please note that many of the primary components discussed in this guide perform more functions than what is described here. For more information about these features, review the related topics in the Online Help, speak with your consultant, or enroll in an appropriate Epicor education course.

Here you can find the topics included in the Job Costing Technical Reference Guide.

Intended Audience

This guide is for individuals within your company responsible or partially responsible for planning jobs and their requirements. It is also intended for financial planners involved in monitoring the final cost amounts on jobs.

- Individuals who have this responsibility:
- Purchase material quantities required for job production.
- Issue material quantities from inventory to jobs.
- Manage employees who contribute labor towards the production of subassembly and finished product quantities.

- Manage subcontract operations and their costs.
- Maintain the quality of the production output.
- Evaluate the overall profitability of each job.

  Individuals who perform all or some of these tasks can benefit from reviewing the Job Costing Technical Reference Guide.

How it is Organized

This guide first explores the concepts behind job costing and then details the items that affect the outcome of the estimated and actual costing results. The second half of the guide explores more detailed information about each transaction type, account, and modifier involved in some aspect of the job costing process.

The following are the main sections of this guide:

- **Job Costing Concepts**- This section explores the underlying concepts behind job costing. We recommend that you read this section first, as the rest of the guide references the information detailed here.
- **Primary Components**- This section documents the main records used by the costing processes, such as assemblies, cost groups and suppliers.
- **Calculations**- This section details the main calculations used to run costing. Review this material to learn about costing methods, labor costing, burden costing and material costing.
- **Transaction Types**- Each inventory transaction is assigned a specific transaction type. This section details all the transactions types and the specific transactions that they capture.
- **Modifiers**- This section documents any fields and options you can use to adjust the estimated and actual costing results. It also examines subjects such as Labor Rates, Burden Rates, Move to DMR, and other modifiers.
- **Costing in Action**- This section contains a more complex example that explores how the Costing Workbench arrives at final standard costs.

Job Costing Concepts

This section details the main logic concepts of the Costing functionality. The application uses different logic to calculate estimated costs, work in process costs, and actual (final) costs.

These logic concepts are built upon later in the guide within the Components, Calculations, Transaction Types, and Modifiers sections.

Estimated Job Costs

The application has two calculation options for generating estimated job costs - the Default Calculation and the Split Cost Elements Calculation. These calculations evaluate costing categories, or buckets, to arrive at the estimated cost to produce quantities on each job.

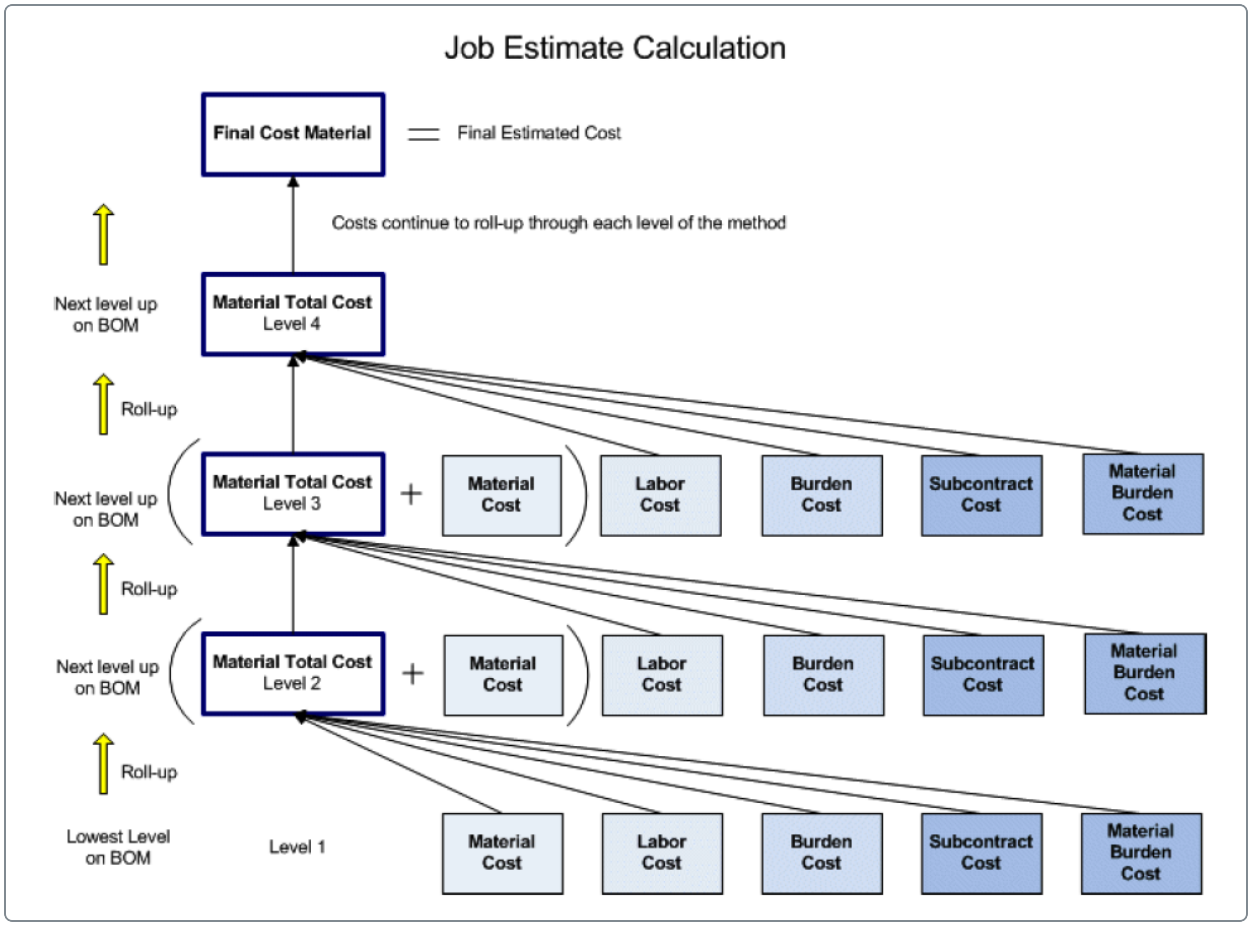
Both calculations use methods of manufacturing, various costing rates, estimated production time, and estimated quantities to arrive at estimated costs for both quotes and jobs.

Default Calculation

If you just need an overall total of job and quote costs, use the default calculation.

This calculation estimates job costs by first totaling the costs on the bottom level of the method of manufacturing and then moving this total to the next higher level. The total cost of the bottom level is added to the total cost of this BOM level. This total cost is, in turn, moved up to the next higher level and ultimately up to the final, or highest, assembly level. This value becomes the total estimated cost on the job or quote.

The following illustration shows you this cost estimating process:



Notice that costs at each level of the BOM are broken out in different categories, or buckets.

- The Material bucket tracks the cost of purchased or previous manufactured quantities consumed during this BOM level.
- The Labor bucket records the estimated cost of setup and production time that may be accumulated against the BOM level.
- The Burden bucket records any other expenses, like maintenance and utilities, which occurred during the BOM level.
- The Subcontract bucket tracks expenses for part quantities worked on by a supplier and returned to your manufacturing process.
- The Material Burden bucket estimates other costs, like import duties and freight, that you want to account for within your job estimate.

The calculation first evaluates the lowest operation level on the method. It determines the labor cost, burden cost, material cost, subcontract cost, and material burden cost (if a Material Burden Rate is defined on the part record). These costs are totaled, and the result becomes the material cost for this operation.

The calculation then pulls this total material cost amount up to the next operation level. For example, if a 2 quantity is for a material on Operation 40, the cost of this quantity is included in the cost for Operation 30, the next operation level in the method. The application then adds this amount to the material cost calculated at this operation level. Once again it determines the labor, burden, subcontract, and material burden (if a Material Burden Rate is defined on the part record) costs for this operation. These costs are totaled and the result becomes the Material Cost for this operation.

This Material Cost amount is then moved up to the next higher operation level and the process continues. Building on the previous example, the costs for Operation 30 and Operation 40 are totaled and then added to the costs on Operation 20. This process moves up throughout all the operations within the assembly. The total material cost for this assembly is then added to the material cost on the lowest operation within the next assembly. By working through each operation from last to first, the estimated costs roll up through the method. The final estimated cost on the job is the final material cost determined on the highest, or last, assembly.

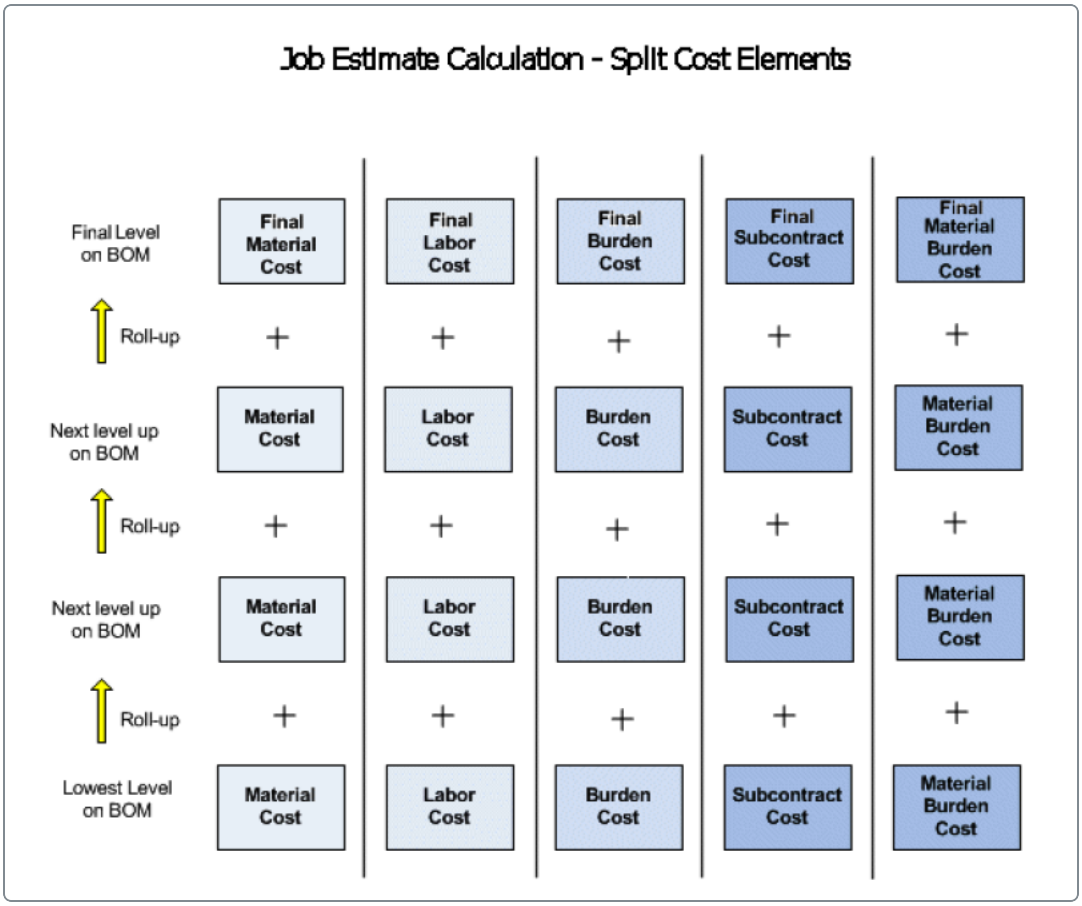
This cost estimating logic is also used to generate standard cost values for specific parts. This ensures that the application arrives at the final estimated cost values through a uniform, accurate process. The Cost Rollup Calculation section later in this guide explains this functionality.

The costs account tracked within the Material Burden bucket can be more accurately added to job costs through the Landed Costs functionality. This is a PO Receipt Entry function; use it to directly enter the specific import duty, freight, and other indirect amounts that were accumulated against a material quantity. However, if you use Landed Costs, you cannot use the Material Burden functionality.

Split Cost Elements Calculation

If you need more details about job costs use the Split Cost Elements calculation.

This calculation totals the costing buckets independently throughout the method of manufacturing to arrive at separate material, labor, burden, subcontract, and material burden (if used) values for the highest level assembly. Because the calculation keeps these values in separate costing buckets, you can review more specific job analysis results within the Job Tracker.



This method is similar to the default calculation, as it starts at the lowest assembly on the method of manufacturing and moves up to the final, or highest assembly level. In contrast, however, the costing buckets are not totaled into the Material Cost on the next level. Instead, each costing bucket is added directly to the costing bucket on the next level.

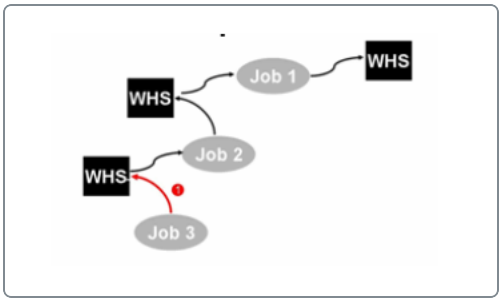
To activate the Split Cost Elements calculation, you need to select the Split Manufacturing Cost Elements check box within Company Configuration. This check box is found on the Modules - Production - Job sheet. All jobs created after this check box is selected will use the Split Cost Elements calculation; all job created before this check box was selected will still use the default calculation.

Example(s)

The following example illustrates the different job analysis results generated by the two calculations.

Notice that both calculations arrive at the same total cost, but subtotal the cost amounts differently during each level of the manufacturing process.

You are manufacturing a complex part as three jobs are needed to manufacture the entire part. After each job is complete, the part quantity is stored in a warehouse until the next job can pull this quantity and produce the parts. Because of this, the entire production cycle is a five step process:



The first job, Job 3, is manufactured and the resulting part quantity is moved to stock. The generated job costs are $10 of labor and $10 of material. The two calculations reflect this cost differently:

Default Calculation:

- Material: $20
- Labor: $0

Split Cost Elements Calculation:

- Material: $10
- Labor: $10

The $20 total cost is added to Inventory and WIP:

	Debit	Credit
Inventory	$20	
WIP		$20
	$20	$20

Now the next job, Job 2, pulls the part quantity out of stock and processes the parts. This job adds $3 of labor and $3 of material to the cost of the parts. The two calculations reflect this cost differently:

Default Calculation:

- Material: $23 (20+3)
- Labor: $3

Split Cost Elements Calculation:

- Material: $13 (10+3)
- Labor: $13 (10 + 3)

The part quantity is stocked within inventory. The $26 total cost is added to Inventory and WIP:

	Debit	Credit
Inventory	$26	
WIP		$26
	$26	$26

Now the part quantity is issued from stock to the last job, Job 1. The two calculations reflect these issued costs differently:

Default Calculation:

- Material: $26
- Labor: $0

Split Cost Elements Calculation:

- Material: $13
- Labor: $13

This job adds $5 of labor and $5 of material to the cost of the parts. The two calculations reflect this cost differently:

Default Calculation:

- Material: $31 (26 + 5)
- Labor: $5

Split Cost Elements Calculation

- Material: $18 (13 + 5)
- Labor: $18 (13 + 5)

Notice, however, that the final cost for the part quantity is the same, $36. These values are added to Inventory and WIP:

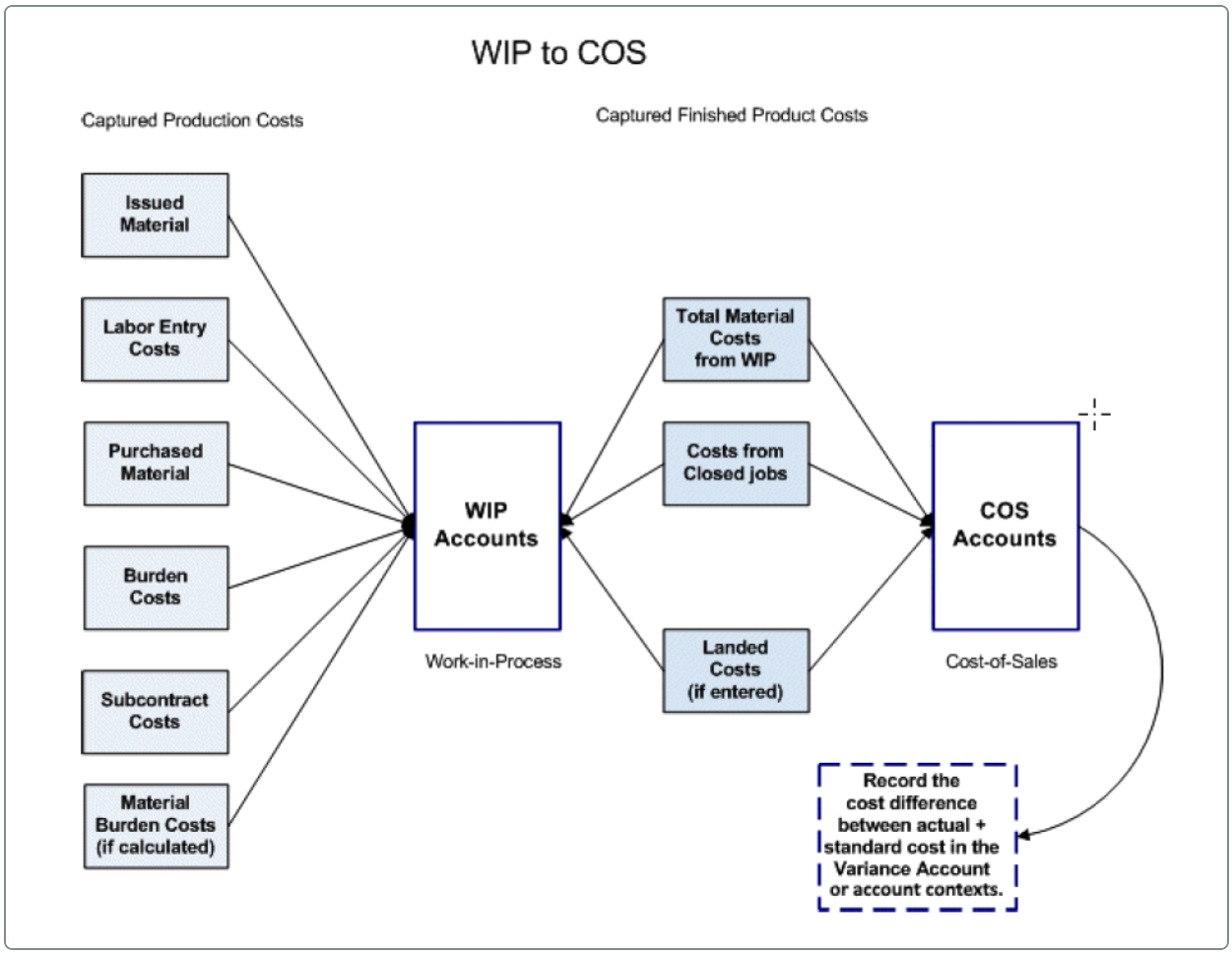
	Debit	Credit
Inventory	$36	
WIP		$36
	$36	$36

If you need more detailed cost analysis, use the Split Cost Elements calculation. If you just need a running total cost for a part quantity, however, the default calculation will generate the same cost value result.

Work in Process and Cost of Sales Calculations

The application uses Work in Process (WIP) and Cost of Sales (COS) calculations to display the costing state of jobs currently in production. It does this by totaling the costs accumulated so far by issued material quantities, purchased material quantities, labor costs, burden costs, subcontract costs, and material burden (if calculated) costs.

These values are all placed within the WIP transactions, and this information is displayed on various reports and trackers.



However, when a material quantity is shipped to the customer, the WIP amounts are automatically passed along to the Cost of Sales (COS) transactions. The cost of shipping is not included in this amount - only the cost of producing the part quantity. Likewise, when a job is closed, its accumulated costs are moved to the COS transactions.

If you use the Landed Cost functionality instead of material burden, these costs are also included in the COS transactions.

You may wish to use the Standard costing method to create a default unit cost for each part you manufacture. When the actual cost is different from the standard cost, a variance transaction is created. This variance amount is then recorded within the selected GL control.

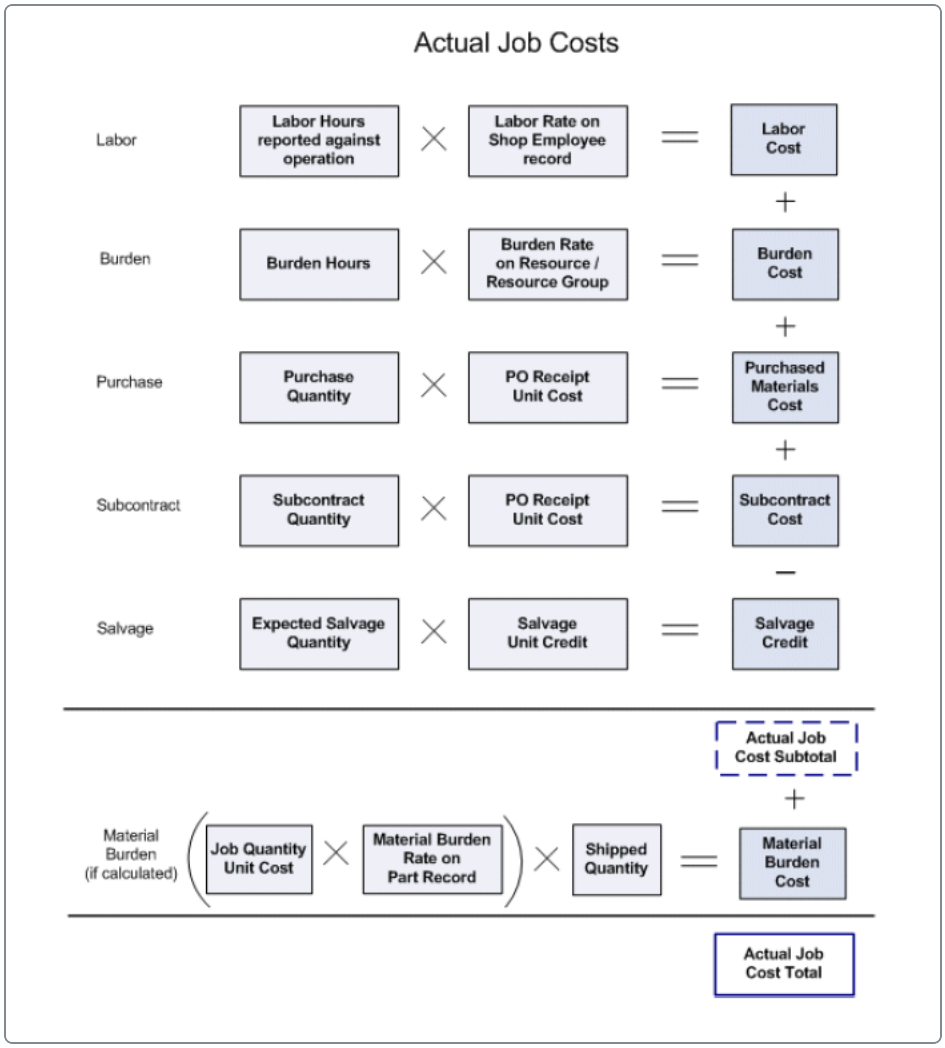
Based on the variance cost component, the variance transaction is created for a material variance, labor variance, burden variance, subcontract variance, material burden variance or rounding variance account context. If the account context for the cost component is not defined, the base variance account is used.

Actual Job Costs

Actual job costs are calculated in the same way as estimated costs. The application starts with the bottom level on the method and accumulates the costs as it moves up to the final assembly.

The final actual cost in the Material bucket is the final actual cost on the job.

What changes, however, is the source of the data used during the calculations. The actual labor hours are multiplied against the labor rates defined for the shop employees who worked on the operation. The unit costs defined on PO receipts are multiplied against the actual purchased or subcontract quantity. The salvage credit is calculated by using the actual amount salvaged.If material burden is used, it is calculated as well.


Actual Job Costs
Labor
Labor Hours reported against operation
Labor Rate on Shop Employee record
Labor Cost
Burden
Burden Hours
Burden Rate on Resource / Resource Group
Burden Cost
Purchase
Purchase Quantity
PO Receipt Unit Cost
Purchased Materials Cost
Subcontract
Subcontract Quantity
PO Receipt Unit Cost
Subcontract Cost
Salvage
Expected Salvage Quantity
Salvage Unit Credit
Salvage Credit
Actual Job Cost Subtotal
Material Burden (if calculated)
Job Quantity Unit Cost
Material Burden Rate on Part Record
Shipped Quantity
Material Burden Cost
Actual Job Cost Total

Primary Components

This section details the main components users must define in order to use the costing functionality. Each component contains Description, Program Location and Modifiers, Logic/Algorithms, and Examples sections.

Assembly

Assemblies define all the manufactured components required to make each part.

Each assembly has its own part number and material requirements. A Parent Assembly is any assembly that is made up of child subassemblies. Parent assemblies are used to determine the proper manufacturing hierarchy when scheduling the job.

For a part that has no subassemblies, only one parent assembly is for the end part quantity produced. A part that uses many assemblies can also have several parent assemblies. The term "level" is used to describe each tier of a multiple assembly.

Programs and Their Modifiers

You leverage and modify the Assembly functionality in the following application.

Engineering Workbench

Engineering Workbench

Use the Engineering Workbench to enter or update assemblies for a part method through the Method of Manufacturing -Operations - Subcontract Detail and the Method of Manufacturing - Assembly- Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate** - This value is used to determine the estimated material burden percentage of thisassembly. Material burden is any unallocated costs, like import duties, freight and storage which do not directly apply to the part quantity. If the part defined on the assembly has a part record, the Material Burden Rate defined on this record appears by default. However, you can override this value.
- **Unit Cost (Assembly)** - This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)** - The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the assembly part quantity.

Job Entry

You can enter or update assemblies for a job method through the Job Details -Operations - Subcontract Detail and the Job Details - Assembly - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate** - This value is used to determine the estimated material burden percentage of this assembly. Material burden is any unallocated costs, like import duties, freight and storage, which do not directly apply to the part quantity. If the part defined on the assembly has a part record, the Material Burden Rate defined on this record appears by default. However, you can override this value.
- **Unit Cost (Assembly)**- This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)** - The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the assembly part quantity.

Opportunity/Quote Entry

You can to enter or update assemblies on a quote method through the Line - Mfg Details - Quote Details - Assembly - Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate** - This value is used to determine the estimated material burden percentage of this assembly. Material burden is any unallocated costs, like import duties, freight and storage, which do not directly apply to the part quantity. If the part defined on the assembly has a part record, the Material Burden Rate defined on this record appears by default. You can override this value if needed.
- **Unit Cost (Assembly)** - This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)** - The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the Unit Cost of the assembly part.

Logic/Algorithms

The Assembly functionality uses this logic to calculate its results.

Material Burden Cost = Unit Cost x Material Burden Rate

Examples

The following example(s) illustrate how you use the Assembly functionality.

The Table is the top level, while the Leg and Top are additional levels. You are making a table that has a top and four legs. The top and legs can be made at the same time, and then be assembled to make the table. The Table is the parent assembly to both the leg and the top subassemblies. The Leg subassembly requires additional wheelbase and wheel components, so the Leg subassembly is the parent assembly to these parts.

You must purchase the wheels from Perfect Wheels Ltd., a supplier located in another country. You need to manufacture 100 tables, so you create Job 8723. Because of this demand, you purchase a 400-wheel quantity and receive the quantity into inventory. Each wheel costs $0.50 plus the import duty and shipping fees. You estimate that these additional costs are about 5% of the unit cost, and enter this value within the Wheel part record.

When you create the Wheel assembly for Job 8723, this 5% Material Burden Rate value is automatically pulled into the assembly detail. This value is multiplied against the 0.50 Unit Cost defined for the part. The Material Burden Unit Cost is 0.025, or 2.5 cents.

Cost Groups

You use cost groups to update the Standard Cost of each part you manufacture and purchase. Each group pulls together the job methods of specific parts; you can then both review and maintain these costs.

You can also review the labor and burden rates currently in use by your resources. By pulling together cost estimates from current job methods, you can get an accurate view of cost values that you can then use on quotes and job estimates. You create cost groups within the Costing Workbench.

You use the Cost Rollup calculation to pull together the current estimated costs for the parts included within the cost group. You can then print these adjusted values on an edit list. If you are not satisfied with the results, adjust the estimated costs on the job method and then run the cost rollup calculation again. When you are satisfied with the results, your part records are updated with the new standard cost values.

If you do not use standard costing with your parts, you can still use cost groups to run a mass update of your burden and labor rates. You can also use a cost group to recalculate the internal costs you charge for parts used within different sites.

Any cost adjustments you make to part records are displayed on the Material Transaction Detail report.

Cost Groups - What You Define

You must select a specific site for each cost group. You then decide whether you roll up new costs or pull existing costs from another site or cost group. You then select the costing method used when the costs are pulled into the workbench. After you finish defining the cost group parameters, you are ready to pull in the manufactured parts, purchased parts, labor rates, and/or burden rates to include within the cost group.

You can now edit the costs and rates as needed. When you finish, run the Cost Rollup command from the Actions menu to calculate the adjusted costs of these parts and rates. You can verify these amounts by printing the cost group. To update the standard cost for each selected part, click on the Actions menu and select the Post command.

The Cost Rollup calculation is explained in detail within the Calculations section of this guide. For more information on the Costing Workbench process, review the Costing Workbench topics within the help system.

Programs and Their Modifiers

You leverage and modify the Cost Groups functionality in the following application.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

Production Management/Engineering/Operations/Costing Workbench

The following cost rollup modifiers are used within this application:

- **Burden Rates** - Use these radio button options to determine how the burden rates are calculated for the resource and resource groups included within this cost group. You can update the Costing burden rates for job estimates, or the Quoting burden rates for quotes.
- **Copy from site Cost ID** - This is an optional field; use this drop down list to select a specific cost set (For more information about cost sets, review the Cost Set section.) from which you want to load part cost information. This causes the Costing Workbench to load in all data with the specified cost set from the PartCost table. Use this field or the Copy from Cost Group field to specify the cost group to use as a starting point for your new cost group. You might select to copy from a site Cost ID rather than from a Cost Group if you want to initiate your new cost group with the current costs from the site that has that site Cost ID assigned to it.
- **Copy from Cost Group** - This is an optional field; use this drop down list to select a specific cost group from which you want to load part cost information. When you run the Load Cost Details function, your cost group is initiated with the costs contained within the selected cost group. Use this field or the Copy from site Cost ID field to specify the cost set to use as a starting point for your new cost group. You might select to copy from an existing Cost Group rather than a site Cost ID if you want to pull What If costs into the workbench and try out other What If cost scenarios.

- **Costing Method**- Use these radio buttons to select the method through which the costs are pulled to initialize the costs in this group. You can select the Average, Last, or Standard costing method. You can also select the Costing Method radio button; this indicates that you want to use the costing method selected on the Part - site detail from each part record. For more information, review each costing method within the Calculations section of this guide.
- **Labor Rates** - Use these radio button options to determine how the labor rates are calculated for the resource and resource groups included within this cost group. You can update the Costing labor rates for job estimates, or the Quoting labor rates for quotes.
- **Load Alternate Methods** - Select this check box if you want the alternate methods defined for the selected manufactured parts to be loaded within the cost group.
- **Load Costing Lot Sizes** - Select this check box if you want the Costing Lot Size settings for the part/site combinations to load into the cost group. This causes the Lot Size field on the Manufactured Parts card to activate; use this field to update the lot sizes you want the selected manufactured parts to use. If this check box is clear, the Lot Size field is not available. The costing lot size for setup costing calculations is then always equal to 1.
- **Site** - Use this field to enter or select the main site used during the initial cost load process. All the costs linked to this site, for the parts you select, are then pulled into the Costing Workbench.
- **Proposed Posting Date** - This field defines the date on which you expect to post the updated standard costs. Enter or select the date you need in this field.

Logic/Algorithms

The Cost Groups functionality uses this logic to calculate its results.

This section contains a brief overview about how the cost rollup calculation creates updated costs. The Cost Rollup calculation is explained in detail within the Calculations section of this guide.

Manufactured Parts

If the part is manufactured and has an approved revision, the application rolls up bill of material to determine the new Standard Cost value for the part. If the part has revisions now approved, its costs are not rolled up. In this case, a message displays indicating that there are one or more parts in the cost group that do not have approved revisions.

Purchased Parts

If the part is purchased and does not have a revision, the cost of the purchased part used in the rollup process becomes the current cost for the part.

If the purchased part does have both a method and a revision, the cost rollup calculation treats it like a manufactured part. The part costs are totaled (rolled up) and added into the higher level assemblies within the method.

However, if the purchased part's revision is not approved, the part costs do not rollup. In this case, a message displays indicating that there are one or more parts in the cost group that do not have approved revisions.

You can click on the Actions menu and run the Unapproved Revisions List before you run the cost rollup. This displays which part revisions within the cost group are not yet approved. This applies to both manufactured and purchased parts.

Example(s)

The following example(s) illustrate how you use the Cost Groups functionality.

Copy from Site Cost ID (Cost Set) Example

It is the end of December, and you want to setup your standard costs in Site A for the new year. In this Copy from Site Cost ID, you would enter or select the Site Cost ID, or cost set, assigned to Site A. When you run Load Cost Details, the current costs for Site A are loaded into the workbench. Use the workbench to modify standard costs as necessary for the new year, and then when you rollup your cost group on December 31 or January 1 (or whenever you choose), your standard costs for the new year is in place for Site A.

If you have created a new site that has a new Site Cost ID assigned to it, and you wish to create a whole new set of costs for your new site, you can select your new cost set in this field and load costs at zero as your starting point for your cost group. This would be helpful if the costs in your new site were different from the costs in all of your other sites.

Copy from Cost Group Example

You would like to review the effect that changing all your labor rates would have on the total costs of all of your manufactured parts. In this Copy from Cost Group field, you select a cost group that you previously created for trying out What If scenarios. When you run Load Cost Details, your cost group is initiated with the costs within that cost group. Use the Cost Labor Rates card to change all your labor rates, and then run the Rollup process to review the effect.

You would only post this cost group if you wanted your new rolled up costs to get posted to the Site Cost ID assigned to the site for which you created your cost group.

This field is not available if a site cost ID (cost set) has been specified in the Copy from site Cost ID field.

Delete this text and replace it with your own content.

Cost Sets

You use a cost set to share unit cost calculations across multiple sites. If three sites share the same cost set, they then use the same costing method (Average, FIFO, FIFO Lot, Last, Lot, or Standard) for parts they manufacture.

You cannot have different costing methods for sites within the same cost set. For example, if FIFO is selected for a site then Average cannot be selected for another site within the same cost set.

If a different costing method is needed between sites, create a separate cost set for each site. The costing results are then calculated accurately, as unit costs are calculated for each part within each cost set. Because each site has its own cost set, the costing values are consistent for the site.

If sites share the same cost set but have different GL controls, additional cost adjustments automatically occur. If a cost adjustment is entered for site A, then the cost adjustment is made for the Quantity On Hand value for each site. Because only one part transaction occured, however, the cost adjustment is only posted to site A. This causes variances between inventory and the general ledger. If this is not a desired result, you must either offset these records by manually creating general ledger entries or prevent these transactions by selecting a different cost set.

Cost sets are also used within the Costing Workbench. During the standard cost rollup calcuation within the Costing Workbench, the application can use cost sets as a source for the cost amounts. You do this by selecting a cost set on the Copy from site Cost ID list.

Programs and Their Modifiers

You leverage and modify the Cost Sets functionality in the following application.

Site Cost ID Maintenance

You create site cost identifiers within this application. To launch Site Cost ID Maintenance from the Main Menu:

Production Management/Engineering/Setup/

The costing modifiers you define in this application are:

- **Site Cost ID** - This value defines the unique identifier for the cost set. Be sure to enter a meaningful identifier, because on cards and reports that have limited space, you may only see this value.
- **Description** - This field displays a brief, concise explanation for the cost set. Enter the description value that best describes the purpose for the cost set.
- **Load Alternate Methods** - Select this check box to indicate that this cost set will use alternate methods during the What If cost calculation within the Costing Workbench. An alternate method is a method of manufacturing for a part revision that is different than the base method of manufacturing.
- **Load Costing Lot Sizes** - Select this check box to indicate that this cost set will use Costing Lot Size settings for part/site combinations during the What If cost calculation within the Costing Workbench. A costing lot size is the manufacturing lot size the cost rollup calculation uses to distribute setup costs.

- **Primary Site** - Select the site that is considered the primary site for this cost set. This information is used as the default in the Costing Workbench.

- **Enable FIFO Layers** - Select this check box to enable the maintenance of FIFO costs (layers) as secondary costs for non-FIFO costed parts. Any issue or receipt of the part consumes or creates PartFIFOCost records to reflect the movement of FIFO quantities and costs, in the same manner in which the Epicor application updates/consumes FIFO costed parts.

The same validations apply to non-FIFO parts when issuing/consuming quantities (the Epicor application prevents the FIFO costs/quantities from going negative). You still receive customary FIFO negative quantity errors when the FIFO layer is enabled; these stop you from continuing to process these types of transactions.

Company Maintenance

You select the default cost set for a company within Company Maintenance. To launch this application from the Main Menu:

System Management/Company

You select the default cost set on the ***Modules >All Modules > General*** card:

- **Site Cost ID** - Defines the cost set used with this company. The cost set is then used for the cost method calculations of all the parts manufactured within all the sites within the current company.

Site Maintenance

You can override the default cost set on specific site records. You create and update site records within Site Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup

- Material Management/Inventory Management/Setup

- Financial Management/Multi-Site/Setup

You define the cost set used for this site on the Planning Data card:

- **Site Cost ID** - Defines the cost set used with the current site. The cost set is then used for the cost method calculations of all the parts manufactured within the selected site. If you need to change this value, click the Actions menu and select Change Site Cost ID. Note that changing the site cost ID might change the cost values for the part. This occurs if a costing method on a site linked to the selected cost set is different than the other sites linked to this same cost set.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

Production Management/Engineering/Operations/Costing Workbench

The following cost set modifier is used within this application:

- **Copy from Site Cost ID** - This is an optional field; use this drop down list to select a specific cost set from which you want to load part cost information. This causes the Costing Workbench to load in all data with the specified cost set from the PartCost table. Use this field or the Copy from Cost Group field to specify the cost group to use as a starting point for your new cost group. You might select to copy from a Site Cost ID (cost set) rather than from a Cost Group if you want to initiate your new cost group with the current costs from the site assigned to this cost set.

Logic/Algorithms

The Cost Sets functionality uses this logic to calculate its results.

Use the cost set defined on the site record. If this value is not defined on the site record, use the default cost set defined within the company record.

Example(s)

The following example(s) illustrate how you use the Cost Sets functionality.

Cost Sets - Same Costing Method

Site A and site B both use the Red Group site cost ID (cost set). During the cost rollup calculation within the Costing Workbench, the values defined within the site cost identifier are used to calculate the standard cost amounts within the current cost group.

Cost Sets - Different Costing Methods

Site A uses the Standard costing method and site B uses the Average costing method. Both sites use the same ALLSITES cost set. Because they are in the same cost set, the average cost values for site B also use the transactions for site A. If both sites use a different cost set, however, then only part transactions in site B use the Average costing method.

Discrepant Material Report (DMR)

Use Discrepant Material Report (DMR) records to process material quantities that fail inspection.

These records accumulate the rejected job material/assemblies, inventory, customer returns, or purchase order receipt quantities that failed inspection. These discrepant part quantities are then placed on the DMR record.

You must decide how you want to deal with each discrepant part quantity. You can accept the quantity, indicating that it still can be used by the manufacturing center. You also reject the part

quantity, sending it back to your supplier; you can also just scrap all or a section of the quantity. You can also create a request for a debit memo from the supplier for the rejected part quantity.

You can enter as many acceptances, rejections, and debit memos requests as you want within each DMR record. However, the total of the rejected and accepted quantities must equal the total discrepant quantity defined on the DMR record.

Move Costs to DMR

You create DMR records by failing a quantity within Inspection Processing and then moving these costs to DMR. You do this by selecting the Move Costs to DMR check box; it indicates that you want costs for failed assemblies to be moved from the work in process (WIP) transactions to a DMR (Discrepant Material Report) record. These costs are then placed within the DMR account, and a DMR record is created for you to review within DMR Processing.

The assembly costs are not removed from the job while the assembly is sitting in inspection. These costs are only removed when the assembly is failed within Inspection Processing and then moved to a DMR record.

Programs and Their Modifiers

You leverage and modify the Discrepant Material Report (DMR) functionality in the following application.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

Production Management/Quality Assurance/Operations

The following costing modifiers are used within this application:

- **Accept to Job- Assembly** - The sequence number of the assembly to which the parts are accepted. If the discrepant material came from an assembly or was originally purchased for an assembly, that assembly sequence number is the default, but if needed, you can change this value.
- **Accept to Job- Job** - The number of the job to which the parts are accepted. If the discrepant material came from a job or was originally purchased for a job, that job number is the default, but if needed, you can change this value.
- **Accept to Job- Material** - The sequence number of the material to which the parts are accepted. If the discrepant material came from a material sequence or was originally purchased for a material sequence, that material sequence number is the default, but if needed, you can change this value.

- **Accept to Job- Quantity** - The quantity of this discrepant material that you are accepting to the job. You can accept a DMR quantity to a material, operation, or stock.
- **Debit Memo- Quantity** - The quantity for which you would like the amount in the Unit Cost field credited to you by the supplier.
- **Debit Memo- Unit Cost** - The amount that should be credited to you by the supplier for each unit specified in the Quantity field.
- **Reject Quantity- Supplier RMA** - The return material authorization (RMA) number the supplier has given you to attach to this discrepant material.
- **Reject Quantity- Quantity** - The quantity of this discrepant material that you are rejecting.
- **Supplier** - The supplier and, if applicable, the purchase point associated with this discrepant material. If the DMR was created from a job material or job subcontract operation, the default supplier is pulled from the purchase order linked to the job material or subcontract operation. Any debit memos you request for this DMR are associated with this supplier. You use this value if you are rejecting a quantity or are requesting a debit memo.

Inspection Processing

Use the Inspection Processing application to inspect the non-conformance entries made for defective assemblies and materials. You can also inspect purchase order receipts and customer returns. You select the Move Costs to DMR check box on the Operations - Details card. To launch Inspection Processing from the Main Menu:

Production Management/Quality Assurance/Operations

The following costing modifiers are used within this application:

- **Move Costs to DMR** - Select this check box to indicate that you want costs for failed assemblies to be moved from the work in process (WIP) transactions to a DMR (Discrepant Material Report) record.

Logic/Algorithms

The Discrepant Material Report (DMR) functionality uses this logic to calculate its results.

You determine how to dispose of a rejected material quantity. How a rejected part quantity is costed depends on your actions:

- If the material quantity can be reworked, the application removes it from the DMR account and sends it to the job by using the WIP Material account or to inventory by using the Inventory GL account.
- If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.

- If the material quantity is scrapped, the application removes it from the DMR account and sends it to the Scrap / DMR Write-off account.

Closing a DMR Record

If the entire Accepted quantity plus the entire Rejected quantity equals the total discrepant quantity for the DMR, the application closes the DMR.

Accepted Quantity + Rejected Quantity = Total DMR Quantity

Example(s)

The following example(s) illustrate how you use the Discrepant Material Report (DMR) functionality.

You create a DMR for a 100 quantity, and you now must decide how to cost the defective material. You decide to accept a 50 quantity into your stock and reject a 50 quantity. You assign this 50 quantity to an RMA number so that you can return it to the supplier. The total of the rejected and accepted quantities equal the total discrepant quantity, 100, on the DMR.

GL Controls

You use GL controls to define the accounts and journal codes available to a specific maintenance (setup) record, like a company, site, part, part class, and so on. GL controls then update these accounts and journal codes during the posting process.

You create GL controls within GL Control Maintenance.

You can create and modify GL controls to extend posting functionality. For example, you add a Landed Cost context to the AP Account type in order to add a landed cost account to the AP type control which is applied to a record in Company Configuration. Always make sure that the new account contexts are appropriate for the type.

You can create and modify GL controls to extend posting functionality. For example, you add a Product Group context to the AR Account type in order to add a product group account to the AP type control which is applied to a record in Company Configuration. Always make sure that the new account context are appropriate for the type.

Each GL control must be linked to a GL control type. Each type groups the financial contexts together that then define the overall parameters used for each GL control. You can associate multiple GL controls under each GL control type. Each GL control uses the account contexts and journal contexts defined within the GL control type.

GL Control Maintenance

You create GL controls through GL Control Maintenance. To launch this application from the Main Menu:

Programs and Their Modifiers

You leverage and modify the GL Controls functionality in the following application.

Logic/Algorithms

The GL Controls functionality uses this logic to calculate its results.

GL controls determine the account strings and journal codes used to record financial transactions for a specific record.

Example(s)

The following example(s) illustrate how you use the GL Controls functionality.

The AR Account and AP Account control types reference the Company business entity. You define GL controls which use both types. You then select them as GL controls for the Company A record within Company Configuration . A transaction for Company A posts to the general ledger. The posting rules use the account strings selected on the GL controls to record both the AP and AR transactions and generate the appropriate journal codes.

GL Control Types

Use GL control types to group account contexts and journal contexts together; these types are later used to group together GL controls. Each GL control assigned to a GL control type uses the overall parameters assigned to the GL control type.

You can associate one or more GL controls within a setup (Maintenance) application in order to define the posting process used for companies, sites, parts, suppliers, and so on. Each GL control associated with a maintenance record must belong to a different control type. You can then use control values when the record is applied against a posted transaction.

The application comes with a set of predefined control types that match the application that maintain codes applied to posted transactions. You might create a type, however, to support a new accounting process.

Programs and Their Modifiers

You leverage and modify the GL Control Types functionality in the following application.

GL Control Maintenance

You create GL controls through GL Control Maintenance. To launch this application from the Main Menu:

Logic/Algorithms

The GL Controls functionality uses this logic to calculate its results.

GL controls determine the account strings and journal codes used to record financial transactions for a specific record.

Example(s)

Example(s)

The following example(s) illustrate how you use the GL Control Types functionality.

The AR Account and AP Account control types reference the Company business entity. You define GL controls which use both types and apply them to Company A within Company Configuration.

Now a transaction which belongs to Company A is posted. The posting rules use the GL control type and GL control's account references to generate the accounts for the company journals.

Job Department

Job departments group together both resource groups and shop employees. You can then select these job departments on reports to review the various transactions placed against all the resources and employees selected to be part of this job department.

At least one job department is required by the application.

Programs and Their Modifiers

You leverage and modify the Job Department functionality in the following application.

Job Department Maintenance

You create job departments through this application. To launch this application from the Main Menu:

- Production Management/Job Management/Setup/Department
- Production Management/Scheduling/Setup/Department
- Production Management/Quality Assurance/Setup/Department

The following costing modifiers are used within this application:

- **Job Department ID** - The identifier you use to identify this job department.
- **Job Department Description** - A brief, concise explanation that describes the job department.

Payroll Employee Maintenance

You can select a job department for each shop employee through Payroll Employee Maintenance. To launch this application from the Main Menu:

Financial Management/Payroll/Setup

The following costing modifier is located within the Payroll-Detail card:

- **Department** - Select the default department for each payroll employee from this drop down list.

Resource Group Maintenance

You define job departments for resource groups on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

The following costing modifier is located within the Detail card:

- **Department** - Select the default department for each resource group from this drop down list.

Shop Employee Maintenance

You can select a job department for each shop employee through Employee Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

The following costing modifier is located within the Production Info card:

Department - Select the default department for each shop employee from this drop down list.

Logic/Algorithms

The Job Department functionality uses this logic to calculate its results.

Place all resource groups and shop employees from a department within the same area on the report.

Example(s)

The following example(s) illustrate how you use the Job Department functionality.

ASSEM Assembly Department

DEBUR Deburring Department

Job Operations

Job operations define the processes your company uses to manufacture product. They are manufacturing tasks like Welding, Painting, Cutting, Stamping and Bending.

You create operations within the Operation Maintenance application, and then you add these operations to quote, part, and job methods.

Within these methods, you define the resources and resource groups the manufacturing center uses to work on the operation. The estimated labor rates, burden rates, and crew sizes entered on these resources/resource groups become the default values pulled into the operation. However, you can override these rates on the method and enter the specific costing values that you need.

There are three types of operations - job (in house) operations you run internally, service operations you perform directly for a customer, and subcontract operations you send out to a supplier. These operation costs are calculated differently. Review the Service Operations and Subcontract Operations for details on how expenses are calculated for these operation types.

Get Details

When you have these alternate rates defined for an operation, you can then use these estimated values on other records. Use the Get Details application to copy production details from a method of manufacturing, another job, or an unlinked quote. Through this application, you can quickly create details for parts manufactured through an identical or similar process that you have previously used.

When you use the Get Details functionality to pull in a method on a job, the Costing Labor Rates from each resource/resource group are used as the default estimated setup labor rates on the operations for the method. However, you can select the Override Rates check box on each operation to use the values on the method being pulled into the job.

When you use the Get Details functionality to pull in a method on a quote, the Quoting Labor Rates from each resource/resource group are used as the default estimated production labor rates on the operations for the method. If you need, you can enter different labor rates within the quote method.

Programs and Their Modifiers

You leverage and modify the Job Operations functionality in the following application.

Engineering Workbench

You create job operations through the Method of Manufacturing -Operations -- Details cards. To launch this application from the Main Menu:

Production Management/Engineering/General Operations

This is the costing modifier you define in the Method of Manufacturing -Operations -- Details card:

- **Production Standard** - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation.

These are the costing modifiers you define in the Method of Manufacturing -Operations -- Scheduling Resources -- Detail card:

- **Crew Sizes (Production)** - Used for calculating estimated labor, this value defines the average number of operators in this resource group that manufacture part quantities on an operation at the same time. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job.

- **Crew Sizes (Setup)** - Used for calculating estimated labor, this value defines the average number of operators in this resource group that simultaneously prepare for manufacturing work on an operation. This is the default setup crew size used on methods of manufacturing, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job.

- **Override Rates** - Use this option when you want to change the default resource or resource group rates on a job method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate. You can enter these new labor rates manually. If you run the Get Details functionality to pull in a quote, job, or part method, however, the rates are overridden automatically by the values defined on the pulled method.

Job Entry

You create job operations through the Job Details -- Operations -- Details card. To launch this application from the Main Menu:

Production Management/Job Management/General Operations/Job Entry

This is the costing modifier you define in the Job Details -- Operations -- Details card:

- **Production Standard** - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation.

These are the costing modifiers you define in the Job Details -- Operations -- Scheduling Resources -- Detail card:

- **Burden Rate (Production)** - This value defines the rate at which estimated job burden is calculated during Production Time against this resource and/or resource group. This is the time it takes to produce part quantities on the operation. Use this field when you want to override the default production burden rate for a resource/resource group selected on a job method. Note that the default burden rate is pulled from the Costing Burden Rate (Production) on the resource or resource group.

- **Burden Rate (Setup)** - This value defines the rate at which estimated job burden is calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. Use this field when you want to override the default setup burden rate for a resource/resource group selected on a job method. Note that the default burden rate is pulled from the Costing Burden Rate (Setup) on the resource or resource group.

- **Crew Sizes (Production)** - Used for calculating estimated labor, this value defines the average number of operators in this resource group that manufacture part quantities on an operation at the same time. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job.

- **Labor Rate (Production)** - This value defines the rate at which estimated job labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities on this operation. Use this field when you want to override the default production labor rate for a resource/resource group selected on a job method. Note that the default labor rate is pulled from the Costing Labor Rate (Production) on the resource or resource group.Crew Sizes (Setup) - Used for calculating estimated labor, this value defines the average number of operators in this resource group that simultaneously prepare for manufacturing work on an operation. This is the default setup crew size used on methods of manufacturing, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job.

- **Labor Rate (Setup)** - This value defines the rate at which estimated job labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on this operation. Use this field when you want to override the default setup labor rate for a resource/resource group selected on a job method. Note that the default labor rate is pulled from the Costing Labor Rate (Setup) on the resource or resource group.

- **Override Rates** - Use this option when you want to change the default resource or resource group rates on a job method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate. You can enter these new labor rates manually. If you run the Get Details functionality to pull in a quote, job, or part method, however, the rates are overridden automatically by the values defined on the pulled method.

- **Production Standard** - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation.

Opportunity/Quote Entry

You create job operations through the Line - Mfg Details - Quote Details - Operations - Details card. To launch this application from the Main Menu:

Sales Management/Quote Management/General Operations

These are the costing modifiers you define in the Line - Mfg Details - Quote Details - Operations - Details card:

- **Production Standard** - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation.

These are the costing modifiers you define in the Line - Mfg Details - Quote Details - Operations - Scheduling Resources - Details card:

- **Burden Rate (Production)** - This value defines the rate at which estimated burden is calculated during Production Time against this resource and/or resource group. This is the time it takes to produce part quantities on the operation. Use this field when you want to override the default production burden rate for a resource/resource group selected on a quote method. Note that the default burden rate is pulled from the Quoting Burden Rate (Production) on the resource or resource group.

- **Burden Rate (Setup)** - This value defines the rate at which estimated burden is calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. Use this field when you want to override the default setup burden rate for a resource/resource group selected on a quote method. Note that the default burden rate is pulled from the Quoting Burden Rate (Setup) on the resource or resource group.

- **Crew Sizes (Production)** - Used for calculating estimated labor, this value defines the average number of operators in this resource group that manufacture part quantities on an operation at the same time. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job.

- **Crew Sizes (Setup)** - Used for calculating estimated labor, this value defines the average number of operators in this resource group that simultaneously prepare for manufacturing work on an operation. This is the default setup crew size used on methods of manufacturing, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more

people are working the job.

- **Labor Rate (Production)** - This value defines the rate at which estimated labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities on this operation. Use this field when you want to override the default production labor rate for a resource/resource group selected on a quote method. Note that the default burden rate is pulled from the Quoting Labor Rate (Production) on the resource or resource group.
- **Labor Rate (Setup)** - This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on this operation. Use this field when you want to override the default setup labor rate for a resource/resource group selected on a quote method. Note that the default labor rate is pulled from the Quoting Labor Rate (Setup) on the resource or resource group.
- **Override Rates** - Use this option when you want to change the default resource or resource group rates on a job method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate. You can enter these new labor rates manually. If you run the Get Details functionality to pull in a quote, job, or part method, however, the rates are overridden automatically by the values defined on the pulled method.

Logic/Algorithms

The Job Operations functionality uses this logic to calculate its results.

Estimated Labor Hierarchy

1. Use the Labor Rate defined on the Resource Detail.
2. If Labor Rate on the Resource Detail is = 0, then use the Labor Rate on the Resource Group.
3. If Labor Rate value is defined on the Operation Detail, however, override the default Labor Rate value.

Estimated Burden Hierarchy

1. Use the Burden Rate defined on the Resource Detail.
2. If Burden Rate on the Resource Detail is = 0, then use the Burden Rate on the Resource Group.
3. If Burden Rate value is defined on the Operation Detail, however, override the default Burden Rate value.

Example(s)

The following example(s) illustrate how you use the Job Operations functionality.

You create a Shear operation used on methods for several parts you manufacture. You indicate that this is a Manufacturing operation. You then select the Machining Work Force as the resource this operation uses for both setup and production.

When you select this resource group, a number of default costing values are now linked to the Shear operation. This resource group has a Labor Rate of 57 used for both setup and production. Because this resource group defines a labor force, no burden expenses are required; both the setup and production Burden Rate values are set to 0. The Crew Size value is 3, which indicates that three shop employees are included in this resource group.

When you select the Shear operation on a quote, job, or part method, these default costing values are used. However, you can select the Override Rates check box on the Scheduling Resources - Detail card to enter rates that more accurately match the estimated costs you need within the specific method.

You also need to define the Production Standard for this operation. In this case, this machining crew can work on 6 pieces an hour. This value is divided against the part quantity worked on during this operation. The application now has the estimated number of hours required for this operation. These hours are, in turn, multiplied against the Labor Rate to arrive at the final estimated cost for the Shear operation.

Labor Expense Code

Labor expense codes classify labor and control the General Ledger account numbers used for labor costs within the Payroll module. These codes define the various types of labor performed within your manufacturing center, like Assembly, Deburring, Paint and Tooling.

You define a default labor expense code on each shop employee record. However, you can override this value within both Labor Entry and the MES interface. Your shop employees can then record the different kinds of labor that they can perform.

Programs and Their Modifiers

You leverage and modify the Labor Expense Code functionality in the following application.

Job Entry

You can override an employee's default labor expense code within each labor detail. To do this, select a different expense code from the Expense drop down list. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

This is the costing modifier you define in this application:

- Expense- Select the identifier to use with each labor detail.

Labor Expense Code Maintenance

You create labor expense codes through this maintenance application. To launch this application from the Main Menu:

- Production Management/Job Management/Setup

This is the costing modifier you define in this application:

- **Code**- This value defines the identifier used for the current labor expense code.
- **Description**- Use this field to enter a brief, concise explanation for the labor expense code. This is the value that displays on the Expense drop down lists throughout the application.

MES Interface

You can override the default labor expense code through this interface. To display this interface, each workstation must be configured to display it.

This is the costing modifier you define in this application:

- **Expense**- Select the identifier to use with each labor detail.

Payroll Employee Maintenance

You can select a default expense code for each shop employee. To launch this application from the Main Menu:

- Financial Management/Payroll/Setup/Employee

This is the costing modifier you define in this application:

- **Expense**- This drop down list is displayed on the Payroll card. Select the identifier to use with each payroll employee record from this list.

Employee Maintenance

You can select a default expense code for each shop employee. To launch Shop Employee Maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

This is the costing modifier you define in this application:

- **Expense**- This drop down list is displayed on the Detail card. Select the identifier to use with each shop employee record from this list.

Logic/Algorithms

The Labor Expense Code functionality uses this logic to calculate its results.

When creating a labor time record, display the default value selected on the shop employee record. However, if this value is changed, use the new value defined on the saved labor time record.

Example(s)

The following example(s) illustrate how you use the Labor Expense Code functionality.

- Assembly
- Deburring
- Grinding
- Inspection

Material

A material is any item you use to manufacture a job quantity. You can directly purchase materials consumed during the manufacturing process.

You can also pull material quantities from stock. Regardless of the material source, the application calculates the costs of these materials. These costs are then totaled with labor, burden, and other costs to calculate the final cost of the job.

Material Types

There are some additional types of materials handled through the material functionality:

- **Subcontract Material**- A subcontract operation is a job step that is completed outside your company by another supplier. You select a material on the subcontract operation to indicate the specific quantity worked on by the supplier. When you receive the subcontract materials, the Unit Cost on the PO receipt is used as the actual cost of the subcontract operation. This cost is added to the original cost to arrive at the final material cost.
- **Scrap Material**- A scrap part is one that, for whatever reason, is no longer usable. You can estimate how much scrap is created during an operation and indicate whether the estimated amount of scrap occurs as a Quantity or as a Percentage. Regardless of how you measure scrap, this calculation causes the estimated Required Quantity to increase, which in turn causes the estimated material costs to increase.
- **Service Material**- A service material is a part quantity used to complete a field service call. You use the Material Service card on job and quote methods to estimate how much the material costs on the service call. After the actual material costs are posted against the job, you can then compare these costs against these estimated material costs.
- **Salvage Material**- A salvage part is one that, after the operation, you can reuse in some way. A salvage part can have its own part record. You can link this salvage part to a material within a job or quote method. As the manufacturing process produces job quantities, the salvage part quantity created from the linked material is received to inventory. Because of this, the material costs for the salvage part quantity are then credited back to the job. When the salvaged material is used on the next job, however, the inventory costs for the salvage quantity are then added to the costs on the second job.

Total Job Material Costs

To generate the total material costs on a job, the application steps through each material sub-component defined on the method. As your manufacturing center finishes each assembly within the method, it records the total cost of the material used or manufactured during that assembly. All of these burden, labor, subcontract, and purchased costs are then moved along to the next assembly. The material costs generated on the next assembly are then added to the costs on the previous assembly, and this new total is then passed along to the next assembly, and so on throughout the method of manufacturing.

Note, however, that these separate material costs for labor, burden and subcontracting are not lost. These items are tracked separately by the application, so that you can evaluate your costs separately on various dashboards and reports.

There is also a situation that can cause negative material costs. This occurs when the material has a zero On-Hand Quantity value and then a quantity is pulled from this zero value. The resulting negative value is recorded within the Variance account.

If the variance account has a defined material variance, labor variance, burden variance, subcontract variance, material burden variance and / or rounding variance account context, the amount is broken out into cost components. The variance account context hierarchy is Product Group, then Inventory, COS and WIP.

Issued Complete

Job costing logic for calculating the material usage for one of the related operation quantities considers the **Issued Complete** flag to determine if actual issued materials or the estimated required materials should be used in the calculation. If the materials are completely issued, then the material unit cost is proportionate to the actual issued materials. If the materials are not completely issued, then the material unit cost is proportionate to whichever is greater between the expected required materials and actual issued materials.

Programs and Their Modifiers

You leverage and modify the Material functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation and/or a material detail for a part method through the Method of Manufacturing -Operations - Subcontract Detail and the Method of Manufacturing -Materials - Detail card.

- Production Management/Engineering/General Operations

These are the material costing modifiers you define in this application:

- **Part** - The part record for the material. You define the part used on the job method on the Materials - Detail and the Operations - Subcontract card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through

the job or quote.

- **Price Breaks** - Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Operations - Subcontract card.
- **Quantity/Parent** - The quantity of the material part required to make one of the assembly parts. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Materials -Detail card.
- **Salvage Material Burden Rate** - The estimated material burden percentage of this salvage material; this value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Materials - Detail card.
- **Salvage Part** - The part identifier for a salvaged item. If you estimate that you salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier that you can use to track the scrap separately within your inventory. You define this identifier on the Materials - Detail card.
- **Salvage Quantity Per** - A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Materials - Detail card.
- **Scrap** - The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these default scrap values are pulled from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID** - The supplier that performs this subcontracted operation. This is a required field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You can then review these breaks by clicking the Supplier button on the Materials - Detail and the Operations - Subcontract card.
- **Unit Credit (Salvage)** - The cost per unit credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the within the Materials - Detail card.
- **Unit Cost (Subcontract)** - This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the within the Materials - Detail card.

Job Entry

You can enter or update a subcontract operation and/or a material detail for a job method through the Job Details -Operations - Subcontract Detail and the Job Details -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the material costing modifiers you define in this application:

- **Material Burden** - The estimated percentage of this material used to calculate any unallocated costs. For example, import duties, freight, storage, or purchasing cost are material burden costs, as they do not directly apply to the part. This percentage modifier is multiplied against the cost of the material quantity; the resulting amount is then added to the material cost to arrive at the Total Material Cost.
- **Part** - The part record for the material. You define the part used on the job method on the Materials - Detail and the Subcontract - Detail card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Price Breaks** - Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Subcontract- Detail card.
- **Quantity/Parent** - The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Job Details - Materials - Detail card.
- **Required Quantity** - The number of parts required for the operation within the job or quote method. This field is calculated based on the Quantity Per and Scrap modifiers within the Materials - Detail card.
- **Salvage Part** - The part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier that you can use to the scrap separately within your inventory. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Salvage Material Burden Rate** - The estimated material burden percentage of this salvage material; this value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Salvage Quantity Per** - A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Job Details - Materials - Material Salvage card.

- **Scrap** - The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID** - The supplier that performs this subcontracted operation. This is a required field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You can then review these breaks by clicking the Supplier button on the Materials - Detail and the Subcontract- Detail card.
- **Unit Credit (Salvage)** - The cost per unit credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Unit Cost (Burden)** - The burden cost per unit of each part. These fields, found on quote and job methods, are used to determine the estimated burden cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Quantity)** - The cost per unit of each part. These fields, found on both quote and job methods, are used to determine the estimated quantity cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Subcontract)** - This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the Job Details - Operations - Subcontract card.

Opportunity/Quote Entry

You can enter or update a subcontract operation and/or a material detail for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail and the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the material costing modifiers you define in this application:

- **Material Burden** - The estimated percentage of this material used to calculate any unallocated costs. For example, import duties, freight, storage, or purchasing cost are material burden costs, as they do not directly apply to the part. This percentage modifier is multiplied against the cost of the material quantity; the resulting amount is then added to the material cost to arrive at the Total Material Cost. You can define this value on quote methods.
- **Part** - The part record for the material. You define the part used on the quote method on the Materials - Detail and the Subcontract- Detail card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Price Breaks** - Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that

you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Subcontract - Detail card.

- **Quantity/Parent** - The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Mfg Details - Quote Details - Materials - Detail card.
- **Salvage Material Burden Rate** - The estimated material burden percentage of this salvage material; this value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Salvage Part** - The part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier that you can use to track the scrap separately within your inventory. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Salvage Quantity Per** - A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Scrap** - The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID** - The supplier that performs this subcontracted operation. This is a required field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You can then review these breaks by clicking the Supplier button on the Materials - Detail and the Subcontract- Detail card.
- **Unit Credit (Salvage)** - The cost per unit credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Unit Cost (Burden)** - The burden cost per unit of each part. This field, found on both quote and job methods, is used to determine the estimated burden cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Quantity)** - The cost per unit of each part. This field, found on both quote and job methods, is used to determine the estimated quantity cost of the material on the job or quote method. This value is found within the Materials - Detail card.

- **Unit Cost (Subcontract)** - This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the Line - Mfg Details - Quote Details - Operation - Subcontract Detail card.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You select costing methods on the Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configuration Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

These are the material costing modifiers you define in this application:

- **Costing Method** - You define the costing method - average, last, standard, lot, FIFO - on each part. Each method calculates the inventory cost of a part quantity differently; review the Costing Method sections in this guide for more information. This list is available on the Part card.
- **Material Burden Rate** - Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations. The rate you define on a part record is the default value on job and quote methods.
- **Supplier ID** - The supplier from whom you typically buy a purchased part. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials that use this part. You select the supplier on the sites-Detail card.

Logic/Algorithms

The Material functionality uses this logic to calculate its results.

Required Quantity = (Scrap Percentage x Estimated Quantity) + Estimated Quantity

Example(s)

The following example(s) illustrate how you use the Material functionality.

Your manufacturing center is producing a 200 quantity of Part 742W, a finished product used as a material component for Part 743. It costs you $100 in labor to manufacture the quantity, and another $50 in burden. You receive this part quantity to inventory, so the total cost for the 200 quantity of Part 742W is $150.

Now your manufacturing center needs this Part 742W part quantity to manufacture Part 743. The cost of the Part 742W material component is $150, and so this value is consumed as a material cost on the job that is manufacturing Part 743. The separate labor ($100) and burden ($50) costs are still, however, tracked by the application. If needed, you can review these material costs separately.

Method of Manufacturing

A Method of Manufacturing is the process through which a part is produced. Each method is made up of two components: a bill of operations, or routing, and a bill of materials.

The bill of operations defines the various tasks that need to be run in order to manufacture the part. The bill of materials specifies the materials required to complete the part.

You can create methods of manufacturing on part, job, and quote records. A part record is created by using the Engineering Workbench. A job method is created through Job Entry. A quote method is designed within Opportunity/Quote Entry. Each method can be defined as a template for a part that can then be pulled into other job, quote, or part records. This ensures that you create consistent methods that you can reuse and modify as you need.

Please note that it is crucial that you have a solid method of manufacturing designed for each part. Each method is used to estimate job costs through various applications are reports. The Costing Workbench uses the values defined within a method to arrive at an updated Standard Cost value on each part, its does this by rolling up the costs defined for each level within the method. By creating thorough methods of manufacturing and then updating these methods as manufacturing processes evolve, you ensure that estimated costs of production remain an accurate source of costing information.

Programs and Their Modifiers

You leverage and modify the Method of Manufacturing functionality in the following application.

Engineering Workbench

You create part methods within the Engineering Workbench. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You create job methods within Job Entry. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You create quote methods within Opportunity/Quote Entry. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Method of Manufacturing functionality uses this logic to calculate its results.

This section contains a brief overview about how the cost rollup calculation creates updated costs. The Cost Rollup calculation is explained in detail within the Calculations section of this guide.

Manufactured Parts

If the part is manufactured and has an approved revision, the bill of material is rolled up to determine the new Standard Cost value for the part. If the part has revisions now approved, its costs are not rolled up. In this case, a message displays indicating that there are one or more parts in the cost group that do not have approved revisions.

Purchased Parts

If the part is purchased and does not have a revision, the cost of the purchased part used in the rollup process becomes the current cost for the part.

If the purchased part does have both a method and a revision, the cost rollup calculation treats it like a manufactured part. The part costs are totaled (rolled up) and added into the higher level assemblies within the method.

However, if the revision for the purchase part is not approved, the part costs do not rollup. In this case, a message displays indicating that there are one or more parts in the cost group that do not have approved revisions.

Example(s)

The following example(s) illustrate how you use the Method of Manufacturing functionality.

Your company manufactures tables, so you much create a method of manufacturing for this product. The complete, assembled product is a table that has a top and four legs. The top and legs can be made at the same time, and then be assembled to make the table. The Table is the parent assembly to both the leg and the top subassemblies. The Leg subassembly requires additional wheelbase and wheel components, so the Leg subassembly is the parent assembly to these parts.

Within the final Table parent assembly is the Table Assembly operation. This is a Manufacturing operation that uses the Table Assembly Work Force as the resource group for both its setup and production.

Because of this resource group, a number of default costing values are now linked to the Table Assembly operation. This resource group has a Labor Rate of 57 that it uses for both setup and production. Because this resource group defines a labor force, no burden expenses are required; both the setup and production Burden Rate values are set to 0. The Crew Size value is 3, which indicates that three shop employees are included in this resource group.

You also need to define the Production Standard for this operation. In this case, the assembly crew can work on 3 pieces an hour. This value is divided against the part quantity in order to calculate the estimated number of hours required for this operation. These hours are, in turn, multiplied against the Labor Rate to arrive at the final estimated cost for the Table Assembly operation.

The Leg assembly contains the Leg operation. As described above, this operation requires that you purchase wheel components, so a material record is needed for this operation. You purchase these wheels from Perfect Wheels Ltd., a supplier located in another country. Each wheel costs $0.50 plus the import duty and shipping fees. You estimate that these additional costs are about 5% of the unit cost, and enter this value within the Wheel part record.

When you define the Leg assembly on a job method, this 5% Material Burden Rate value is automatically pulled into the assembly detail. This value is multiplied against the 0.50 Unit Cost defined for the part. The Material Burden Unit Cost is 0.025, or 2.5 cents.

All of these costs are added together at each level of the method and then added onto the next highest level of the method. When the application subtotals these subassembly costs and adds this amount to the parent assembly cost, the final cost estimate for the job is calculated.

Part

You use part records to track information on both manufactured and purchased items. The application uses part records to record costs generated by these items.

You enter part records within Part Maintenance.

Note that most functions do not require that the part records exist in the database. You can create job methods, quote methods, and material requirements by entering new part numbers as needed. Because they can save time during the method creation and data entry process, Epicor recommends that you create part records. sites can also access part records when they exist in your database. If you use the Engineering Workbench, you must create part records.

Programs and Their Modifiers

You leverage and modify the Part functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You select costing methods on the Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

These are the material costing modifiers you define in this application:

- **Class**- Part classes define the various types of parts you store within inventory. Classes are not required by the application, but you may want to use them for reporting purposes. You can define the GL controls that each part class uses; parts linked to a part class automatically use these GL controls by default. You can, however, override these GL controls on a specific part record.
- **Costing Method**- You define the costing method - average, last, standard, lot, FIFO - on each part. Each method calculates the inventory cost of a part quantity differently; review the Costing Method sections in this guide for more information. This list is available on the Part card.
- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a part record during the posting process. Access the GL control cards to define which GL controls you wish to use with this part record. These records indicate which posting accounts are used for transactions with the current part record. You can associate one or more GL controls with a part record. Note that each control must belong to a different control type.
- **Group**- Product groups define the different types of your finished manufactured items that you store within inventory. Groups are not required by the application, but you may want to use them for reporting purposes. For example, if you manufacture two different product lines, you can assign parts within each line to a specific group. Product groups also define the general ledger account numbers used during AR invoicing. You can define the GL controls that each group uses; parts linked to a group automatically use these GL controls by default. You can, however, override these GL controls on a specific part record.
- **Internal Price**- The price used when this part is transferred from stock in one site to a job within another site. This field is only available if you use the Multi-Site module. This value can be set up to price for a single part, for every one hundred parts, and for every thousand parts.
- **Sales Unit Price**- The price at which you typically sell the current part. An optional field, only enter a price if this is a manufactured item you sell. This value is the default when you select this part on a sales order. It can be modified by any price breaks you enter. This value can be set up to price for a single part, for every one hundred parts, and for every thousand parts. As you track how much it costs to manufacture a part, you need to update this value to reflect costing changes.

- **Material Burden Rate**- Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations. The rate you define on a part record is the default value on job and quote methods.
- **Supplier ID**- The supplier from whom you typically buy a purchased part. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials that use this part. You select the supplier on the sites-Detail card.

Example(s)

The following example(s) illustrate how you use the Part functionality.

Purchased Part

You frequently use a raw material, Sheet Metal, during the manufacture of multiple products. To help you better track the expenses for this raw material, you enter a Sheet Metal part record. You then assign this record to a part class. After you save this record, your engineers may then select this purchased part material on quote, job, and part methods.

Manufactured Part

You manufacture Part 87543-K in multiple sites. This part is manufactured in different ways, however, depending on the site that is manufacturing the part quantity. Because of this, you enter a record for Part 87543-K within Part Maintenance. The engineers at each site can then use the Engineering Workbench to create a method that is specific to their site.

Part Class

Part classes define the various types of part you store within inventory. The application does not require that you use part classes, but you may want to use them on reports to help organize inventory transactions.

You create classes within Part Class Maintenance; you then select them on part records within Part Maintenance.

If a class is selected on a part record, transactions for this part are recorded within the GL controls defined on the part class. If GL controls are selected on the part record, however, they override the GL controls selected on the part class.

Programs and Their Modifiers

You leverage and modify the GL Controls functionality in the following application.

Logic/Algorithms

The GL Controls functionality uses this logic to calculate its results.

GL controls determine the account strings and journal codes used to record financial transactions for a specific record.

Example(s)

The following example(s) illustrate how you use the GL Controls functionality.

The AR Account and AP Account control types reference the Company business entity. You define GL controls which use both types. You then select them as GL controls for the Company A record within Company Configuration . A transaction for Company A posts to the general ledger. The posting rules use the account strings selected on the GL controls to record both the AP and AR transactions and generate the appropriate journal codes.

Payroll Class

A payroll class groups together similar employees for payroll processing. These classes allow the application to determine who should be paid during each payroll run.

These classes are also used for security. Each user can be assigned to a specific payroll class, and this person only has access to the payroll employees within that class.

At least one payroll class is required before you can use the Payroll module.

Programs and Their Modifiers

You leverage and modify the Payroll Class functionality in the following application.

Payroll Class Maintenance

You create payroll classes within this application. To launch Payroll Class Maintenance from the Main Menu:

- Financial Management/Payroll/Setup/Pay Class

These are the costing modifiers you define in this application:

- **Class ID**- This value defines the unique identifier for the pay class. Be sure to enter a meaningful identifier, because on cards and reports that have limited space, you may only see the identifier value. For example: EXEC, SHOP
- **Description**- This field displays a brief, concise explanation of the pay class. Enter the description value that best describes the purpose for the payroll class.
- **Available Users/Selected Users**- The Available Users list displays all the employees currently not included within this payroll class. The Selected Users list displays all the employees currently within this payroll class. Use the arrow buttons to add and remove employees from this payroll class.

Logic/Algorithms

The Payroll Class functionality uses this logic to calculate its results.

If a payroll class is available, then allow users to enter payroll employee records within Payroll Employee Maintenance.

Example(s)

The following example(s) illustrate how you use the Payroll Class functionality.

- Executives
- Shop Employees

Payroll Employees

You can pay shop employees through the Payroll module. If your company uses this module, you should first enter these employee records within the Payroll Employee Maintenance application.

Payroll employee records are separate from the shop employee records used within the Job Management module. For security reasons, the Payroll and Job Management modules use separate employee files. Use this design feature to set up miscellaneous or contract employees for use in labor reporting, without affecting any Payroll information.

You can only use the Payroll Employee Maintenance application if you have set up at least one payroll class. For more information about payroll classes, read the previous Payroll Class section.

Payroll Employee vs. Shop Employee Implementation

If you are implementing both the Job Management module and the Payroll module at the same time, first enter your employees through the Payroll Employee Maintenance application. When the payroll information is complete, select the Active Shop Employee check box. This employee record also automatically appears in the Shop Employee Maintenance application. When you need to make changes to the Payroll Employee record, these changes are also updated within the shop employee record.

If you implement the Job Management module first, however, enter your employees through Shop Employee Maintenance and select the Payroll Employees check box. When you are ready to implement Payroll, launch the Payroll Employee Maintenance application. Click on the Actions menu and select the New Shop Employee command to display these shop employees; select each one from the browser list and enter the appropriate Payroll information.

Some information in the Shop Employee record is disabled once the employee exists in the Payroll Employee record. This is for security reasons; it makes sure that you only make maintenance changes through Payroll Employee Maintenance. For example, you can only terminate an employee through Payroll Employee Maintenance.

Programs and Their Modifiers

You leverage and modify the Payroll Employees functionality in the following application.

Payroll Employee Maintenance

Use this application to enter your payroll information. To launch this application from the Main Menu:

- Financial Management/Payroll/Setup/Employee

These are the modifiers you define within this application:

- **Active Shop Employee**- When selected, this check box indicates that the current payroll employee works within your manufacturing center. After you save this payroll employee record, an identical record is automatically created within the Shop Employee Maintenance application. Note that if you clear this check box, however, the shop employee record may be automatically deleted from the Shop Employee Maintenance application. This only occurs, however, when the shop employee does not have any labor records linked to the shop employee record.
- **Class**- Payroll classes group together similar employees for payroll processing; these classes determine who should be paid during each payroll run. Select the payroll class you need from this drop down list. You create payroll classes within the Payroll Class Maintenance application.
- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a payroll employee record during the posting process. Access the GL control cards to define which GL controls you wish to use with this employee. These records indicate which posting accounts are used for transactions with the current payroll employee. You can associate one or more GL controls with a payroll employee record. Note that each control must belong to a different control type.
- **Job Department**- This drop down list defines the home department for each shop employee. This optional field is only available if the Active Shop Employee check box is selected. This value defines the default job department for the work queue for the Data Collection module (MES interface). Note: Do not confuse the Department drop-down list with the Job Department drop-down list on this card. The Department drop-down list defines the payroll department within your General Ledger. The job department is a department within your shop.
- **Labor Rate**- This field defines the hourly rate used for costing the labor for this employee on both manufacturing and service jobs. You enter the hourly rate in this field; for example 15.00 or 12.50 (labor rate per hour). This is the actual labor rate used to calculate the final labor cost on a completed job. Normally this value is the same as the employee pay rate, so that actual labor costs are posted to jobs. Any additional labor costs (for example, premium pay and benefits) should be averaged and included in the burden rate for the resource group.

Logic/Algorithms

The Payroll Employees functionality uses this logic to calculate its results.

If the Active Shop Employee check box is selected, copy this employee file within the Shop Employee Maintenance application.

Example(s)

The following example(s) illustrate how you use the Payroll Employees functionality.

Employee Leary works within the manufacturing center. You enter Leary's payroll information within the Payroll Employee Maintenance application. You then select the Active Shop Employee check box. Leary's Labor Rate, Department, and other information are copied as another record within the Shop Employee Maintenance application.

Site

You use Part-site details to indicate the costing method used against the parts.

You can also use site records to define the general ledger accounts used to capture transfer transactions between the sites.

To create site records, you must license the Multi-Site module.

Programs and Their Modifiers

You leverage and modify the site functionality in the following application.

Site Maintenance

You create and update site records within Site Maintenance.

Menu Path

Navigate to this application from the Main Menu:

- Financial Management > Multi-Site > Setup > Site Maintenance
- Material Management > Inventory Management > Setup > Site Maintenance
- Production Management > Job Management > Setup > Site Maintenance
- Service Management > Field Service Integration > Setup > Site Maintenance
- System Setup > Company/Site Maintenance > Site Maintenance

You define the site cost ID used for this site on the Detail > Detail card:

- **Site Cost ID** - Defines a reference to a cost group. The cost group is then used for the cost method calculations of all the parts manufactured or consumed within a site. If a site cost ID is not selected for the site, the application uses the default value from the company record. If you need to change this value, click the Actions menu and select Change Site Cost ID. Note that changing the site cost ID might change the cost for the part. This occurs if a costing method on a site linked to the site cost ID is different than the other sites linked to this same site cost ID.
- **GL Controls** - Use the GL control cards to define the accounts and journal codes available to a site record during the posting process. Access the GL control cards to define which GL controls you wish to use with this site. These records indicate which posting accounts are used for transactions with the current site. You can associate one or more GL controls with a site record. Note that each control must belong to a different control type.

Site Configuration Control

You define how each site interacts with other modules using the Site Configuration Control application.

Menu Path: System Setup > Company/Site Maintenance > Site Configuration

Example(s)

The following example(s) illustrate how you use the site functionality.

You manufacture product in two sites - the Red site and the Blue site. You create records for each site within Site Maintenance. You can now create separate site details for all your part records within Part Maintenance.

Because material quantities move between these sites, you also define the GL controls that capture these transfer transactions.

Product Group

Product groups define the different types of your finished manufactured items that you store within inventory.

Groups are not required by the application, but you may want to use them to help organize reports for sales analysis. For example, if you manufacture two different product lines, you can assign parts within each line to a specific group.

Product groups define the general ledger account numbers used during AR invoicing. The account numbers for Sales, Discounts, and Returns can be defined within each group.

You can also use product groups to define the GL controls used to capture work-in-process (WIP) and cost-of-sales (COS) information. If you do not define these GL controls on the product group, however, the GL controls defined within Company Configuration are used instead.

Programs and Their Modifiers

You leverage and modify the Product Group functionality in the following application.

Product Group Maintenance

You create and update product group records within Product Group Maintenance. To launch this application from the Main Menu

- Production Management/Job Management/Setup

These are the modifiers you define within this application:

- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a product group record during the posting process. Access the GL control cards to define which GL controls you wish to use with this product group. These records indicate which posting accounts are used for transactions with the current product group. You can associate one or more GL controls with a product group record. Note that each control must belong to a different control type.

For more information on Work in Process and Cost of Sales, review their explanations within the Calculations section of this guide.

Example(s)

The following example(s) illustrate how you use the Product Group functionality.

You are a fastener manufacturer that produces three product lines - nuts, bolts, and washers. You launch Product Group Maintenance and create the Nuts, Bolts and Washers product groups. You then define the GL controls that track the activity for each group.

You also want to track WIP and COS at the product group level. Because of this, you define these GL controls within Product Group Maintenance as well.

Resource

A resource is an asset within your manufacturing center that performs a specific function. A resource can be a physical piece of equipment like a punch press and drilling machine.

It can be a fixture, like a tool or gauge, which is required to measure various parts. A resource can also be an employee, like a setter operator, and cutter.

Each resource must exist within a resource group. Resource groups contain one or more related resources; use these groups to define specific work areas within your manufacturing center. A resource group can hold default values used on all resources in the group. However, each resource can also have its own set of values independent from the resource group values.

Estimated Burden and Labor Rates

You can enter estimated Labor and Burden rates on each resource. Labor is the cost of the work performed at a resource by your shop employees. Burden(non-material burden)is the regular operating expenses, like maintenance and electrical expenses, of a resource. These rates are the base values used by the application to calculate the estimated labor and burden costs accumulated by an operation. After the application determines the total estimated labor and burden cost, the totals from each operation are then added together to calculate the estimated final cost of labor and burden that may generated; these totals are displayed on quotes and jobs.

You may define these rates at each resource, or you can enter these rates for a resource group and apply them to all the resources within the group. This provides flexibility, as you can define estimated labor and burden costs at a specific resource to track costs unique to that resource, while at the same time define base labor and burden rates that typically apply to all resources in the group. The application can then generate estimated labor and burden costs that reflect your manufacturing process.

You can also override these estimated values on quote, job, and part methods. To do this, enter different labor and burden rates within these methods. Use this to define specific estimated values on each quote or job.

Capabilities

Resources also support the concept of manufacturing cells, which are collections of different resources that act as independent production units within your manufacturing center. You use this functionality by creating capabilities, which are abilities that a resource can possess. For example, a machine resource can have a Shear capability, while a human resource can have an Engineer capability.

Capabilities are available if your company purchases the Advanced Planning and Scheduling (APS) module. When you link resources together through a capability, the scheduling engine schedules operations using any resource that is available at that point in the time line. The labor rates and burden rates defined on the selected resource then become the default rates used on the method. However, you can override these default costing rates.

Actual Burden and Labor Costs

When a job is manufactured, by default the labor costs are not calculated using the costing values defined on the resource or resource group. Instead, the labor rate of each shop employee that worked on the job is multiplied against the amount of hours worked on each job operation. This calculation is different, however, if you select the Use Estimates option on the resource group. When this value is selected, the actual labor time reported against operations is calculated by using the estimated time on each operation. When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation. If an employee is clocked into multiple operations within different resource groups and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.

Burden costs, however, are calculated using the costing burden rates defined on the resource or resource group. The burden rates are multiplied against the burden hours using a flat or a percentage calculation method. If your manufacturing center uses Labor Entry, your shop employees can directly enter burden hours records. If your manufacturing center uses the MES interface for automatic labor entry, the burden hours can be modified by using the Burden = Labor or Split Burden calculation options. These options are explored within the following Resource Group section.

Programs and Their Modifiers

You leverage and modify the Resource functionality in the following application.

Resource Group Maintenance

You create resources on the Resources - Detail card within Resource Group Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

These are the values you can modify for this item:

- **Costing Burden Rate (Setup)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources.
- **Costing Burden Rate (Production)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Costing Labor Rate (Production)**- This value defines the rate at which estimated labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities for operations using this resource/resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Costing Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource/resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Quoting Burden Rate (Setup)**- This value defines the rate at which the estimated burden is calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a percentage rate; and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.

- **Quoting Burden Rate (Production)**- This value defines the rate at which estimated burden is calculated for Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate can be measured by using a flat or a percentage rate, and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.
- **Use Resource Group Values**- When selected, it indicates that this specific resource uses the costing labor and burden rates defined on the resource group. You can define this value on the Resources - Detail card.

Logic/Algorithms

The Resource functionality uses this logic to calculate its results.

Resource to Resource Group Hierarchy

1. If Burden Rate on the Resource detail is = 0, then use the Burden Rate on the Resource Group.
2. If Labor Rate on the Resource detail is = 0, then use the Labor Rate on the Resource Group.

Example(s)

The following example(s) illustrate how you use the Resource functionality.

You are setting up a Drill Center resource group. This resource group contains four Drill Machines, so you create separate resource records for each machine within the group. Three of the machines are the same, so you want to use the same labor and burden rates on all of these resources. On each of these resource records, you select the Use Resource Group Values check box.

Drill Machine A, however, is larger and takes more labor and burden to operate. To account for this, you enter larger costing labor and burden rates on this resource.

Resource Group

Resource groups contain one or more related resources. Use resource groups to define specific work areas within your manufacturing center.

A resource group can contain the machines used for a specific function, any tools used to measure parts manufactured from these machines, and the operators who run both the machines and tools.

Estimated Burden and Labor Rates

You can enter estimated Labor and Burden rates on each resource group. Labor is the cost of the work performed at a resource group by your shop employees. Burden(non-material burden) is the regular operating expenses, like maintenance and electrical expenses, of a resource group. These rates are the base values used by the application to calculate the estimated labor and burden costs accumulated by an operation. After the application determines the total estimated labor and burden

cost, the totals from each operation are then added together to calculate the estimated final cost of labor and burden that may generated; these totals are displayed on quotes and job estimates.

Although you can define these rates at each resource, you mainly enter these rates on at the resource group level and apply these rates to all the resources contained within the group. This provides flexibility, as you can define estimated labor and burden costs at a specific resource to estimate costs unique to that resource, while at the same time defining overall base labor and burden rates that typically apply to all resources within the group.

You can also override these estimated values on quote, job, and part methods. To do this, enter different labor and burden rates within these methods. Use this to define specific values on each quote or job.

Capabilities

Resource groups also support the concept of manufacturing cells, which are collections of different resource groups that act as independent production units within your manufacturing center. You use this functionality by creating capabilities, which are abilities that a resource group can possess. For example, a machine resource group can have a Shear capability, while a human resource group can have an Engineer capability.

Capabilities are available if your company purchases the Advanced Planning and Scheduling (APS) module. When you link resource groups together through a capability, the scheduling engine schedules operations using any resource group that is available at that point in the time line. The labor rates and burden rates defined on the selected resource group then become the default rates used on the method. However, you can override these default costing rates.

Actual Burden and Labor Costs

When a job is manufactured, by default the labor costs are not calculated using the costing values defined on the resource or resource group. Instead, the labor rate of each shop employee that worked on the job is multiplied against the amount of hours worked on each job operation. This calculation is different, however, if you select the Use Estimates option on the resource group. When this value is selected, the actual labor time reported against operations is calculated by using the estimated time on each operation. When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation. If an employee is clocked into multiple operations within different resource groups -- and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.

Burden costs, however, are calculated using the costing burden rates defined on the resource or resource group. The burden rates are multiplied against the burden hours using a flat or a percentage calculation method. If your manufacturing center uses Labor Entry, your shop employees can directly enter burden hours records. If your manufacturing center uses the MES interface for automatic labor entry, the burden hours can be modified by using the Burden = Labor or

Split Burden calculation options. These options are explored within the following Program Location and Modifiers section.

Programs and Their Modifiers

You leverage and modify the Resource functionality in the following application.

Resource Group Maintenance

You define burden rates and the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. You can also enter different burden rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

These are the values you can modify for this item:

- **Burden = Labor**- This check box defines the calculation option used to generate burden cost against the resource group. When selected, this option causes the application to multiply the hourly resource/resource group Burden Rate against the number of Labor Hours posted against it on a job operation. This calculation option is useful when an employee clocks into multiple job operations during the same shift. The application tracks each minute that the employee works on each operation, accurately recording the burden (and labor) cost. This value is then multiplied against the burden rate. Note that this option can only be defined for a resource group. You cannot select the Burden = Labor calculation option on a resource. You select this calculation option on the Details card.
- **Costing Burden Rate (Setup)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Setup Time against this resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Costing Burden Rate (Production)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Production Time against this resource group. This is the time it takes to produce part quantities on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Costing Labor Rate (Production)**- This value defines the rate at which estimated labor is calculated for Production Time on a resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities for operations using this resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Costing Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource/resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).

- **Crew Sizes (Production)**- Used for calculating estimated labor, this value defines the average number of operators in this resource group that manufacture part quantities on an operation at the same time. This is the default production crew size used on methods of manufacturing, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job. You define this value on the Details card (resource groups).
- **Crew Sizes (Setup)**- Used for calculating estimated labor, this value defines the average number of operators in this resource group that simultaneously prepare for manufacturing work on an operation. This is the default setup crew size used on methods of manufacturing, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your estimated labor cost, as more people are working the job. You define this value on the Details card (resource groups).
- **Department**- Job departments group together both resource groups and shop employees. You can then select these job departments on reports to review the various transactions placed against all the resources and employees selected to be part of this job department. You create job departments within the Job Department Maintenance application.
- **Quoting Burden Rate (Setup)**- This value defines the rate at which the estimated burden is calculated during Setup Time against this resource/resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a percentage rate; and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.
- **Quoting Burden Rate (Production)**- This value defines the rate at which estimated burden is calculated for Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate can be measured by using a flat or a percentage rate, and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.
- **Quoting Labor Rate (Production)**- This value defines the rate at which estimated labor is calculated for Production Time on a resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities for operations that use this resource group. This is the rate used on quotes. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.
- **Quoting Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource group. This is the rate used on quotes. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Split Burden**- This check box defines the calculation option used to generate burden against the resource group. When selected, the application multiplies the hourly resource group Burden Rate against the number of Resource Hours posted on a job operation. Typically you use this burden calculation when people are considered resources within the resource group; these people resources are then placed together within, for example, a Welding Center or Assembly resource group. The burden calculation can then account for the multiple employees who are clocked in on the same resource and job operation. For example, if two shop employees clock into the Drill operation at 10:00 and then clock out of the operation at

10:30, 15 minutes of burden are calculated against each employee's time. Note that this calculation option can only be defined for a resource group. You cannot select the Split Burden calculation method on a resource. You select this check box on the Details card.

- **Use Estimates**- When this value is selected, the actual labor time reported against operations is calculated by using the estimated time on each operation. When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation. If an employee is clocked into multiple operations within different resource groups -- and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.

Logic/Algorithms

The Resource Group functionality uses this logic to calculate its results.

Resource to Resource Group Hierarchy

1. If Burden Rate on the Resource detail is = 0, then use the Burden Rate on the Resource Group.
2. If Labor Rate on the Resource detail is = 0, then use the Labor Rate on the Resource Group.

Example(s)

The following example(s) illustrate how you use the Resource Group functionality.

You are setting up a Drill Center resource group. This resource group contains four Drill Machines, so you create separate resource records for each machine within the group. Three of the machines are the same, so you want to use the same labor and burden rates on all of these resources. On each of these resource records, you select the Use Resource Group Values check box.

Drill Machine A, however, is larger and takes more labor and burden to operate. To account for this, you enter larger costing labor and burden rates on this resource.

Service Operation

A service operation is an operation completed by employees who are out on a service call. You can create service call jobs if your company uses the Field Service module.

If a service call is entered within the Service Call Center, a service job is automatically created within Job Entry.

Within the job record for the service call, or service job, the Job Details - Operations - Service card contains the amount you charge your customers for the service job. These values do not, however, apply against the actual cost of the service job. These costs are generated in the same way manufacturing jobs are calculated.

Typically service call jobs generate labor costs, and these actual costs are calculated by multiplying the Labor Rate from the shop employee record or payroll employee record against the number of hours placed against the service call operation.

If any materials are used on a service job, the calculations for burden and material burden/landed costs are applied against these materials; these costs are totaled to determine the final actual cost on the service job.

Programs and Their Modifiers

You leverage and modify the Service Operation functionality in the following application.

Job Entry

You can enter the billable cost of a service job through the Job Details -Operations - Service card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Payroll Employee Maintenance

If your company uses the Payroll module, use this application to define the labor rate for each employee that conducts service jobs. To launch Payroll Employee maintenance from the Main Menu:

- Financial Management/Payroll/Setup

These are the service job costing modifiers you define in this application:

- **Labor Rate (Payroll Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. You can define this value within Payroll Employee Maintenance if the Active Shop Employee check box is selected. This option causes a matching shop employee record to be created within Shop Employee Maintenance that uses the rate you define within this application. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. However, any additional labor costs like premium pay and benefits should be averaged and included in the Burden Rate entered for each resource or resource group. You define this value on the Detail card.

Service Call Center

You use this application to enter service calls. These calls automatically create service jobs within Job Entry. To launch this application from the Main Menu:

- Production Management/Field Service/General Operations

Shop Employee Maintenance

Use this application to define the labor rate for each employee that conducts field service jobs. Note, however, that if you use the Payroll module, you need to enter this rate within the Payroll Employee

Maintenance application, as the Labor Rate field is read-only in this application. To launch Shop Employee Maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

These are the service job costing modifiers you define in this application:

- **Labor Rate (Shop Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. However, any additional labor costs like premium pay and benefits should be averaged and included in the Burden Rate entered for each resource or resource group.

Logic/Algorithms

The Service Operation functionality uses this logic to calculate its results.

- Actual Service Job Labor Cost Per Employee = Labor Rate x Labor Hours
- Total Actual Service Job Labor Cost Per Operation = The Total Cost of Labor for all Employees who worked on the Operation

Example(s)

The following example(s) illustrate how you use the Service Operation functionality.

Your company has a service call department that does maintenance on the ventilation fans manufactured by your company. Acme Eggs Incorporated, a nearby chicken farm, places a service call to fix a couple fans in one of their barns.

You send out two field service employees to fix these fans. They work 4 hours on the fans, and finally get them running. One employee has a 10.25 Labor Rate, while the other has an 11.25 Labor Rate. The total actual labor cost for this field service job is $96.00.

Shop Employee

Shop employees are the individuals who produce quantities within your manufacturing center. Each employee is assigned a Labor Rate value; this value is multiplied against the number of hours the employee worked on an operation.

The resulting value is the actual labor cost placed against the operation. The sum of all labor costs on every operation equals the final actual labor cost on the job.

You can also define the job department for each shop employee. Job departments are used to link shop employees and resource groups together for display on specific reports.

You enter shop employees through the Shop Employee Maintenance application. If your company uses the Payroll module, however, you typically set up your shop employees within the Payroll Employee Maintenance application. Within this application, you can then indicate that this individual is a shop employee, and a duplicate record is automatically generated within Shop Employee Maintenance.

For security reasons, the Payroll and Job Management modules use separate employee files. Use this design feature to set up miscellaneous or contract employees for use in labor reporting, without affecting any Payroll information.

Payroll Employee vs. Shop Employee Implementation

If you are implementing both the Job Management module and the Payroll module at the same time, first enter your employees through the Payroll Employee Maintenance application. When the payroll information is complete, select the Active Shop Employee check box. This employee record automatically appears in the Shop Employee Maintenance application. When you need to make changes to the Payroll Employee record, these changes are also updated within the shop employee record.

If you implement the Job Management module first, however, enter your employees through Shop Employee Maintenance and select the Payroll Employees check box. When you are ready to implement Payroll, launch the Payroll Employee Maintenance application. Click on the Actions menu and select the New Shop Employee command to display these shop employees; select each one from the browser list and enter the appropriate Payroll information.

Some information in the Shop Employee record is disabled once the employee exists in the Payroll Employee record. This is for security reasons; it makes sure that you only make maintenance changes through Payroll Employee Maintenance. For example, you can only terminate an employee through Payroll Employee Maintenance.

Programs and Their Modifiers

You leverage and modify the Shop Employee functionality in the following application.

Shop Employee Maintenance

Use this application to enter master file records for each employee that works within your manufacturing center. To launch Shop Employee Maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

These are the modifiers you define within this application:

- **Job Department**- This drop down list defines the home department for each shop employee. This optional field indicates the default job department for the work queue within the Data Collection module (MES interface). Note: Do not confuse the Department drop-down list with the Job Department drop-down list on this card. The Department drop-down list defines the

payroll department within your General Ledger. The job department is a department within your shop.

- **Labor Rate**- This field defines the hourly rate used for costing this employee's labor on manufacturing and service jobs. You enter the hourly rate in this field; for example 15.00 or 12.50 (labor rate per hour). This is the labor rate used to calculate the actual labor cost on a completed job. Normally this value is the same as the employee pay rate, so that actual labor costs are posted to jobs. Any additional labor costs (premium pay, benefits, and so on) should be averaged and included in the burden rate for the resource group.

Logic/Algorithms

The Shop Employee functionality uses this logic to calculate its results.

Actual Labor Cost Per Employee = Labor Rate x Labor Hours

Total Actual Labor Cost Per Operation = The Total Cost of Labor for all Employees who worked on the Operation

Example(s)

The following example(s) illustrate how you use the Shop Employee functionality.

You just hired Pat Jones to work in your sauerkraut factory. You launch the Shop Employee Maintenance application and create a new employee record for Pat Jones. For this person's Labor Rate, you enter $12.50. For the job department, you enter SHOP. For the labor expense code, you select Assembly.

Subassembly

A subassembly is a child of a parent assembly. Each subassembly defines a manufacturing component that is required to make each part; you can have as many subassemblies as you need to complete all the steps required for manufacturing a final part quantity.

Each assembly and subassembly has its own part number and material requirements. A Parent Assembly is any assembly that is made up of child subassemblies. Parent assemblies are used to determine the proper manufacturing hierarchy when scheduling the job.

Programs and Their Modifiers

You leverage and modify the Subassembly functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update assemblies for a part method through the Method of Manufacturing - Assembly - Subassemblies - Detail card.

- Production Management/Engineering/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate**- This value is used to determine the estimated material burden percentage of this assembly. Material burden is any unallocated costs, like import duties, freight, storage, and so on, which do not directly apply to the part quantity. If the part defined on the assembly has a part record, the Material Burden Rate defined on this record appears by default. However, you can override this value.
- **Unit Cost (Assembly)**- This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)**- The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the assembly part quantity.

Job Entry

You can enter or update assemblies for a job method through the Job Details - Assembly - Subassemblies - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate**- This value is used to determine the estimated material burden percentage of this assembly. Material burden is any unallocated costs, like import duties, freight, storage, and so on, which do not directly apply to the part quantity. If the part defined on the assembly has a part record, the Material Burden Rate defined on this record appears by default. However, you can override this value.
- **Unit Cost (Assembly)**- This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)**- The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the assembly part quantity.

Opportunity/Quote Entry

You can to enter or update assemblies on a quote method through the Line - Mfg Details - Quote Details - Assembly - Subassemblies - Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the assembly costing modifiers you define in this application:

- **Material Burden Rate**- This value is used to determine the estimated material burden percentage of this assembly. Material burden is any unallocated costs, like import duties, freight, storage, and so on, which do not directly apply to the part quantity. If the part defined

on the assembly has a part record, the Material Burden Rate defined on this record appears by default. However, you can override this value.

- **Unit Cost (Assembly)**- This value is the estimated unit cost for this assembly. The application uses this value to calculate the estimated material cost for any assembly parts that you are pulling from inventory. The most recent unit cost calculated on the part record appears by default.
- **Unit Cost (Material Burden)**- The value defined the unallocated cost of each unit of the part. This value is calculated by multiplying the Material Burden Rate against the Unit Cost of the assembly part.

Logic/Algorithms

The Subassembly functionality uses this logic to calculate its results.

Material Burden Cost = Unit Cost x Material Burden Rate

Example(s)

The following example(s) illustrate how you use the Subassembly functionality.

The Table is the top level, while the Leg and Top are additional levels. You are making a table that has a top and four legs. The top and legs can be made at the same time, and then be assembled to make the table. The Table is the parent assembly to both the leg and the top subassemblies. The Leg subassembly requires additional wheelbase and wheel components, so the Leg subassembly is the parent assembly to these parts.

You must purchase the wheels from Perfect Wheels Ltd., a supplier located in another country. You need to manufacture 100 tables, so you create Job 8723. Because of this demand, you purchase a 400-wheel quantity and receive the quantity into inventory. Each wheel costs $0.50 plus the import duty and shipping fees. You estimate that these additional costs are about 5% of the unit cost, and enter this value within the Wheel part record.

When you create the Wheel subassembly for Job 8723, this 5% Material Burden Rate value is automatically pulled into the subassembly detail. This value is multiplied against the 0.50 Unit Cost defined for the part. The Material Burden Unit Cost is 0.025, or 2.5 cents.

Subcontract Operation

A subcontract operation is a job step that is completed outside your company by another supplier. By entering subcontract requirements as operations, you can include the time that the parts are off site within the job's schedule.

When you create these operations, you can exactly track where the parts are throughout the manufacturing process.

You can create subcontract operations on quote, part, and job methods. You define these operations on the Subcontract Detail cards found within Job Entry, Opportunity/Quote Entry, and the Engineering Workbench.

Before you create subcontract operations, however, you should enter records for the suppliers that perform the subcontract work. You can then select the supplier you need on each subcontract operation. Supplier records can also be linked to price lists. These lists hold current price breaks that the application can automatically apply against the subcontract quantity. If the quantity matches a price break, this adjusted price is multiplied against subcontract quantity to generate the estimated cost used on the purchase order.

This value is also typically used on the invoice. When the subcontract quantity returns from the supplier, however, the invoice cost is compared against the actual cost from the receipt. If there is a difference between these values, the difference is recorded within the Purchase Price Variance account.

Suppliers are optional, however; you do not need them to create a subcontract operation. You can create subcontract operations on a method and then decide later which subcontractor you use for the operation.

Programs and Their Modifiers

You leverage and modify the Subcontract Operation functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation; you do this on the Method of Manufacturing -Operations - Subcontract Detail card.

- Production Management/Engineering/General Operations

These are the subcontract costing modifiers you define in this application:

- **Part**- The part that this supplier works on. The default part that appears is the part number from the assembly or the job. You can click the Part button to find and select the part you need. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation.
- **Supplier ID**- The supplier that performs this subcontracted operation. This is an optional field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it.
- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order.

Job Entry

You can enter or update a subcontract operation method resource group through the Job Details - Operations - Subcontract Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the subcontract costing modifiers you define in this application:

- **Part**- The part that this supplier works on. The default part that appears is the part number from the assembly or the job. You can click the Part button to find and select the part you need. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job. You define this modifier on the Job Details - Operations - Subcontract card.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation. You define this modifier on the Job Details - Operations - Subcontract card.
- **Supplier ID**- The supplier that performs this subcontracted operation. This is an optional field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. You define this modifier on the Job Details - Operations - Subcontract card.
- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order. You define this modifier on the Job Details - Operations - Subcontract card.

Opportunity/Quote Entry

You can enter or update a subcontract operation for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the subcontract costing modifiers you define in this application:

- **Part**- The part that this supplier works on. This is a required field. You The default part that appears is the part number from the assembly or the job. You can click the Part button to find and select the part you need. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.
- **Supplier ID**- The supplier that performs this subcontracted operation. This is an optional field. You can enter the supplier identifier directly or click the Supplier ID button to find and select it. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.

- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.

Supplier Maintenance

You enter supplier records through the Supplier Maintenance application. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Logic/Algorithms

The Subcontract Operation functionality uses this logic to calculate its results.

- Estimated Total Subcontract Cost (PO and Invoice) = Estimated Unit Cost x Planned Subcontract Quantity
- Actual Unit Cost = Unit Cost on PO Receipt
- If no Unit Cost exists on PO Receipt, use Estimated Unit Cost from Subcontract Operation.
- Actual Total Subcontract Cost = Actual Unit Cost x Actual Subcontract Quantity
- If Invoice Cost <> Receipt Cost, then create ADJ-PUR transaction

Example(s)

The following example(s) illustrate how you use the Subcontract Operation functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and their invoice sent back to your company uses this same value.

However, due to an increase in the cost of paint, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

There is a $550 difference between the estimated cost and the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded within the Purchase Price Variance account.

Supplier

Suppliers are businesses from whom you purchase products and subcontract services.

Use the Supplier Maintenance application to create these supplier records. Supplier records are used in several applications and are crucial for creating purchase orders and AP invoices.

Throughout the application, the term supplier is now used instead of vendor. To make sure the database can be updated from previous versions, however, several tables and fields still use vendor in their titles. If you are creating custom applications and reports that use supplier records, be sure to locate these vendor tables.

Supplier records also contain price lists. These lists hold current price breaks that the application can automatically apply against a purchase or subcontract quantity. If the quantity matches a price break, this adjusted price is multiplied against subcontract or purchase quantity to generate the estimated cost used on the purchase order.

Programs and Their Modifiers

You leverage and modify the Supplier functionality in the following application.

Supplier Maintenance

You enter supplier records through the Supplier Maintenance application. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup

- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

These are the costing modifiers you define in this application:

- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a supplier record during the posting process. Access the GL control cards to define which GL controls you wish to use with this supplier. These records indicate which posting accounts are used for transactions with the current supplier.You can assocate one or more GL controls with a supplier record. Note that each control must belong to a different control type.
- **Price Lists**- You can create price lists for each supplier record. These lists define the quantity or amount levels that determine the price breaks given by this supplier. You do not create price lists directly within the Supplier Maintenance application. Instead you create them through the Supplier Price List Maintenance application. This application can be launched from the Actions menu within Supplier Maintenance.

Logic/Algorithms

The Supplier functionality uses this logic to calculate its results.

Estimated Purchase Costs (Direct Purchase)

- If a supplier price list exists and material quantity <= to the Price Break Quantity, use the Unit Cost defined on the price break.
- Estimated Total Purchase Cost = Estimated Unit Cost x Planned Material Quantity

Subcontract Costs

- Estimated Total Subcontract Cost = Estimated Unit Cost x Planned Subcontract Quantity
- Actual Unit Cost = Unit Cost on PO Receipt
- If no Unit Cost exists on PO Receipt, use Estimated Unit Cost from Subcontract Operation.
- Actual Total Subcontract Cost = Actual Unit Cost x Actual Subcontract Quantity
- If Actual Unit Cost <> Estimated Unit Cost, then create ADJ-PUR transaction.

Example(s)

The following example(s) illustrate how you use the Supplier functionality.

Direct Purchase Example

You purchase aluminum alloy from ABC Metals. This supplier has several price breaks available during the first half of the year. ABC Metals has a base unit cost of $10.00. A purchase quantity of 250 or above, however, drops the unit cost to $9.00, while a purchase quantity of 500 or above drops the unit cost to $8.00.

You purchase a 320 quantity of aluminum quantity, so your purchase qualifies for the $9.00 price break. The estimated cost of this purchase quantity is $2880.00.

When you receive this quantity from ABC Metals, you see that the actual unit cost is $9.32 on the PO Receipt. Because of this, the application calculates that the actual cost of the purchased quantity is $2976.00.

Subcontract Purchase Example

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and their invoice sent back to your company uses this same value.

However, due to an increase in the cost of paint, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

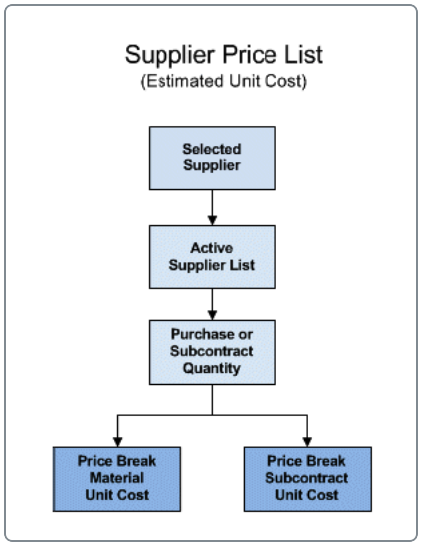
There is a $550 difference between the estimated cost and the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded within the Purchase Price Variance account.

Supplier Price List

You can use supplier price lists to define price breaks available for the materials or services you purchase.

Each price list is created for a specific supplier, and each supplier can have multiple price lists. When you select this supplier record on a material for job and quote methods, you can select the specific price list you use. Likewise, when you create a subcontract operation on job, quote, and part methods, you can also select a specific supplier price list.

Multiple price breaks can be defined on each price list. A price break is defined by entering a Minimum Quantity value; any direct purchase or subcontract quantities that equal to or greater than this quantity then match the price break. The estimated discount you receive is then calculated by using a flat discount amount, which is subtracted from the price, or a percentage value that is multiplied against the total and the resulting value subtracted from the original amount.



You can set up a price list to be effective forever. You can also cause the application to consider price lists active only for a limited period of time; this time limit is indicated by the Expires Date. As long as the current date is one or before the Expires Date, the application considers the price list to be active. When this last date is passed, however, the price list is no longer used in the cost calculations.

However, price lists are only used to calculate the estimated cost on purchase orders. This cost value is also typically used on the AP invoice. When the material or subcontract quantity is received from the supplier, however, the invoice cost is compared against the actual cost from the receipt. If there is a difference between these values, the difference is recorded within the Purchase Price Variance account.

The application uses a hierarchy to determine the price on a purchase order. If an estimated price cannot be found on a supplier price list, the application then uses the estimated price defined on the job method.

Programs and Their Modifiers

You leverage and modify the Supplier Price List functionality in the following application.

Engineering Workbench

You can select supplier price lists for purchased materials and subcontract operations. You do this on the Method of Manufacturing -Operations - Subcontract Detail card. And on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You can select supplier price lists for purchased materials and subcontract operations. You do this on the Job Details -Operations - Subcontract Detail card and the Job Details -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can select supplier price lists for purchased materials and subcontract operations. You do this on the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card and the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail) or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

You can also launch this application from within Supplier Maintenance:

- Actions Menu/Price List

These are the costing modifiers you define in this application:

- **Base Unit Price**- The main price if this supplier uses a base price plus or minus a factor at different part quantity levels. This value is used to calculate the Effective Price in the Price Breaks table. If flat amount prices are in this table, the Base Unit Price is added to the Price Modifier value. If percent price breaks are in this table, this price is increased or decreased by the Price Modifier percentage. This is an optional value. Do not enter a value in this field if the supplier uses flat amounts to define the cost for each price break.
- **Days**- The number of days during which these price breaks are active. You may enter any number of days you need in this field. After you save the price list, the Expiration Date value is automatically calculated for you.
- **Discount %**- The overall discount percentage that this supplier gives your company. An optional field, any value you enter further reduces the estimated price.
- **Effective**- The first date from which these price breaks are active. The application compares this date to the PO date, quote date, or current date in Job Entry to determine which price breaks to use. This situation occurs when multiple price breaks are active for a specific supplier. Either the current date or the last date from the previous price list appears in this field.
- **Effective Price**- The specific price used for each price break. This value is calculated on each line by using Base Unit Price, Discount, Flat or Percent price break modifier, and the Price Modifier. The Logic/Algorithms section details this calculation.
- **Expires**- The last date on which this price list is active. This is an optional field. If you do not enter an Expires Date, the application considers the price breaks to be effective forever. Note

that if you enter a date and the price list expires, you receive a warning message when you attempt to use this price list on a method or purchase order.

- **Minimum Line Value**- The lowest amount that this supplier allows for a price on this purchased or subcontracted part. This value is used to calculate unit cost with PO Entry, Job Entry, and Quote Entry. If the price breaks cause the unit cost to fall below this amount, the application instead uses this price to calculate the cost. This value is also used as the default cost on quote and job methods.
    - In Purchase Order Entry and PO Suggestions, this specifies the minimum value (amount) that the supplier allows / requires per line for this part, regardless of associated price breaks or base unit price. The Epicor application divides this value by the quantity entered on the purchase order line to determine its unit price, until the base unit price or price breaks equate to a value greater than this value.
    - In Job Entry or Quote Entry, when you add a part either as a job material or quote material requirement, and the part is marked as Buy Direct, the Epicor application retrieves the price from the Supplier Price tab (similar to how it does in Purchase Order Entry); it updates the quote material unit cost or job material unit cost with this price.
- **Minimum Quantity**- The lowest part quantity that is required for the material or subcontract purchase to qualify for the price break. This value uses the Supplier Unit of Measure.
- **Miscellaneous Amount**- An additional miscellaneous charge that is associated with the subcontract service. Miscellaneous charges are independent of any purchased quantities. This amount is entered only if these are subcontract price breaks. You can only have one miscellaneous charge for each price list. If this supplier requires more than one miscellaneous charge, you must manually enter these additional charges on the PO.
- **Part**- The part discounted through this price list. This can be a part that exists or does not exist in your part records.
- **Price Format (Flat Amount or Percentage)**- The format for the price breaks within the Price Break table. There are two options:
- **Flat Amount**- A specific amount that is subtracted from the Base Unit Price or used as the actual cost of the part at this quantity.
- **Percentage**- A percentage value multiplied against the total cost of the part quantity. The resulting value is then subtracted from the Total Cost of the part to arrive at the final estimated unit cost.
- **Price Modifier**- The values used to determine the Effective Price for the price break. This number value is a set amount or a percentage, depending on the price format (Flat Amount or Percentage) you define on the list. If a Base Unit Price is entered, this value is added against the Base Unit Price. If you wish to reduce the Base Unit Price, enter a negative amount in the Price Modifier field.
- **Subcontract Operation**- The operation used for the subcontract services on a quote, job, or part method. Price breaks for subcontract services are used in PO Entry when you enter a PO line that is for a job subcontract operation. If the supplier is selected on the subcontract operation and this price list is active, the price breaks defined on this list are used on the subcontract part quantity.

- **Supplier**- The supplier for which you are creating the price list. Before you can enter a value in this field, the supplier record must be created within Supplier Maintenance. Also note that if you launch Supplier List Maintenance from within Supplier Maintenance, the Supplier ID value is automatically populated with the current Supplier ID.

Logic/Algorithms

The Supplier Price List functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Supplier Price List functionality.

Flat Amount Example

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and the invoice they send back to your company uses this same value.

However, due to an increase in the cost of paint, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

There is a $550 difference between the estimated cost and the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded within the Purchase Price Variance account.

Percentage Example

You select the Percentage option with a value of 10%. The part price break has a Minimum Quantity of 50. When you purchase a quantity of 50 or more from this supplier, your company receives a 10 percent discount.

Tax Type

You create different tax types and tax rate codes to support sales and purchase processes.

Each tax type is set up with different attributes such as a calculation algorithm, collection method, time of recognition, tax rates, and other accounting information. The tax type can have multiple rates but one is the default rate. This rate is used unless a different rate is specified elsewhere.

Specific products can be exempt from certain tax types. Use product tax categories to divide taxes into groups that apply to different products. On the Rates > Exempt card in this application, select which categories should not have the current tax calculated against their orders.

Tax types are assigned to individual tax liabilities. Tax liabilities define geographic areas, and each tax code selected identifies individual taxes collected within that area. Each customer record can have a tax liability assigned, which defines the taxes calculated against the orders and invoices for that customer.

Programs and Their Modifiers

You create and modify Tax Types using the following application.

Tax Type Maintenance

You create tax types within this application. To launch Tax Type Maintenance from the Main Menu:

- Financial Management/Accounts Payable/Setup/Tax Type

These are the costing modifiers you define in this application:

- **AP Deductible %** - Specifies the deductible part of the tax. This is used in countries where taxes on purchases are fully or partially disallowed. The non-deductible amount is treated as a cost.

  This parameter is only used in accounts payable for purchases. The total reclaimable amount posts to Tax Accrual GL control context, and the non-reclaimable amount posts to the **Non-Deductible Tax** GL control context.

  To set up non-recoverable tax, you must enter zero in this field.

  The **ADJ-PUR** Part Transaction records factor in the Non Recoverable Cost difference between the AP Invoice and Receipt. Therefore, for inventory purchases the non-recoverable tax amount is recognized as part of the material unit cost.

- **Percentage** - Specifies the tax percentage. This percentage is multiplied against taxable line items to calculate tax amounts.

Logic/Algorithms

The non-recoverable tax functionality uses the following logic.

- If the receipts or drop shipments are captured by the Capture COS/WIP process, the value of the non-recoverable tax posts to the inventory or expense account.
- If there is a subsequent price adjustment on the invoice which leads to non-recoverable tax adjustment, the application generates corresponding inventory adjustment transactions to account for the change in cost.
- If you create and post an AP invoice for a receipt, the AP clearing account also clears the amount of the non-recoverable tax.
- If a partial invoice exists and the **Final Invoice** check box, located on the **AP Invoice Entry > Lines > Detail** card, is selected then the previously invoiced quantity are added to the invoice line amount. The non-recoverable cost associated with this previous invoice is added to the variance.

Example(s)

The following example(s) illustrate non-recoverable cost.

Currently all taxes are recoverable, meaning that they are not included in a material unit cost, because they are recovered once you sell the items. However, based on certain legislation around the world, some companies are not able to recover taxes on their purchases. For instance, the tax for Swedish clinics is non-recoverable. If the tax is non-recoverable, it represents a cost that the company has to take. Therefore, the non-recoverable portion of the tax has to be considered in the cost of the purchased material or the cost of the subcontracted item. This means that the cost of the transaction should be calculated correctly by the time the material or the service is received, so the cost is accurate when the goods are used.

Example 1

Example You enter a purchase order for **10** units of **Part A**. The unit cost on the purchase order is USD 10.00, and the tax liability carries a **10%** tax type/rate. Therefore, the order total equals to **USD 110.00**.

10 (Order Qty) x 10 (Unit Cost in USD) + 10 (Tax in USD) = USD 110.00

Next, you received the purchase order in full and invoiced your supplier. When you enter the invoice you change the **Unit Cost** from **10** to **12**. As a result, the **Header** amount equals to **USD 132.00**.

120 (10 units x USD 12.00) + 12 (10% Tax from USD 120.00) = USD 132.00

The transactions in the **Transaction History Tracker** display as follows:

Type	Amount	Mtl Unit Cost	Non-Recoverable Cost
ADJ-PUR	22.00	22.00	2.00

- **Material Unit Cost Calculation**

  USD 132.00 (Invoice Line Ext Amount) – USD 110.00 (Receipt Ext Amount)= USD 22.00 (Mtl Unit Cost)

- **Non-Recoverable Tax Calculation**

  USD 12.00 [(10% from USD 120 (USD 12/Per Unit x 10 Qty) - USD 10.00 (10% from USD 110.00) = USD 2.00

Example 2

John works as a salesperson who sells washers. In the state where John does business, there's a sales tax called Non-Recoverable **(NRC-2)**. The tax rate in that state is **10%**. When John sells USD **100.00** of washers, he charges **10%** of NRC-2. As a result, he collects **USD 10.00** in NRC-2. When John buys office stationary for **USD 20.00**, he pays **10%** of NRC-2, therefore **USD 2.00**. Since NRC-2 is non-recoverable, when it comes time to remit the tax he's collected to the government, John ignores the tax that he has paid, and sends the government all the money he collected, therefore **USD 10.00**.

Calculations

This section details the main calculations used to run costing. Each calculation/value contains Description, Modifiers, Where Located, Logic/Algorithms, and Examples sections.

Base Units of Measure in Cost Calculations

Unless specifically stated otherwise, most cost amounts in the Epicor application are calculated using the base unit of measure (UOM) assigned to the part for which the specific cost is being calculated.

The quantity amounts that appear in the Logic/Algoritms sections are based on this part base UOM, unless also stated otherwise. If a landed cost is set to calculate by Volume, the Epicor application sums the volumes of each part in the base unit of measure that has been defined the Volume UOM Class code. This is common to the unit net volume entry for all parts.

Batch Jobs

If your company uses the Advanced Production module, you can manufacture multiple parts through batch jobs. You create batch jobs when two or more jobs have overlapping operations that can be combined for better scheduling.

You do this by indicating the Primary Job Operation used to batch the jobs, and then the Pull Direction (forward or backward) used to combine the preceding or subsequent operations. You can only batch jobs from an operation back to the beginning of the routing or forward to the end of the routing. You cannot batch jobs between two operations.

The material requirements from the source jobs are pulled into the batch job, and the operation costs (and schedules) are combined.

- **Sequential** - A sequential job is processed through part quantities completed in order. For example, a quantity needs to be complete before work begins on the next quantity. You can batch together jobs in different modes:
- **Concurrent** - The production for a concurrent job is based on the number of operations performed - instead of the part quantity produced. For example, you select this option if the job has a stamping operation that produces multiple parts. The production time on this job is measured by the number of operations performed on the job.

A batch job has costs placed against it like a regular job. The product group for the primary part (the first part added to the batch) is used to record transactions in the general ledger. If you need, you can also change the product group on the batch job. All manufacturing variances are also placed against the selected product group.

Unit Cost Calculation

The unit costs are calculated differently on batch jobs, depending on the mode you select:

- For sequential jobs, the unit cost is calculated by dividing the Total Production Cost by the final Part Quantity. This reflects how much the part costs to make for each unit of production.
- For concurrent jobs, the Part Quantity and Production Quantity values are different. Because of this, the unit cost is calculated by using the unit cost per part - instead of the unit cost per production. To arrive at this value, the Production Quantity is first calculated by dividing the Part Quantity by the Yield Per value. The application then calculates the unit cost per each part. This is the base unit cost used for all parts manufactured on a concurrent job.

The Production Quantity is used to calculate the material and labor costs on the job. These costs can then be adjusted further by selecting a Labor Cost Factor and a Material Cost Factor for each co-part. These values are multiplied against the primary part's unit cost.

Labor and Material Cost Factors

The unit cost for the primary part is used as the unit cost for all the other parts manufactured through a batch job. By default, all the co-parts share the manufacturing costs equally.

You can use the cost factor values, however, to define how much labor and materials each part consumes. Each co-part is assigned both a Labor Cost Factor and a Material Cost Factor; these factors are multiplied against the material and labor costs placed against the primary part. The result of this calculation can create higher and lower costs that are assigned to each co-part manufactured through the batch job.

These costs are only calculated on the total amounts listed on the final assembly (Assembly 0).

Material Costing

Material requirements are pulled into the batch job; what materials are pulled depends on the point at which the routing is combined. If you batch the first operation on the assembly, all materials are transferred to the batch job. The actual costs and quantities are also transferred to the batch job. However, these material records are not added together. Instead they are copied exactly from the source jobs. The material records on the source jobs are also automatically selected as Complete and all source jobs list the material costs that apply to it from the batch job.

A job to job receipt is created to track the change in the material requirements.

Two ADJ-MTL transactions, one positive and one negative, are also created to adjust the costs of the related materials. The negative transaction is created against the source job, while the positive transaction is put against the new job. These transactions are not general ledger (GL) transactions.

If the Advanced Material Management (AMM) module is installed, all part Work In Process (WIP) transactions are also transferred to the batch job.

Programs and Their Modifiers

You leverage and modify the Batch Jobs functionality in the following application.

Job Entry

You create multi-part jobs and update batch jobs within Job Entry. You do this on the Job > Co-Parts card. To launch this application from the Main Menu:

- Production Management /Job Management /General Operations

These are the costing modifiers you define within this application:

- **Labor Cost Factor** - A value that defines the ratio used to prorate labor costs on each part. This value affects the final labor costs that accumulate for each part quantity manufactured on this job.
- **Material Cost Factor** - A value that defines the ratio used to prorate material costs on each part. This value affects the final material costs that accumulate for each part quantity manufactured on this job.
- **Yield Per** - For each co-part, you use the Yield Per field to define how many parts are made when one quantity of the primary part is manufactured. The total part quantities produced is calculated by multiplying the Yield Per value for each co-part against the quantity for the primary part.

Resource Scheduling Board

Use this application to review and modify scheduled jobs at the resource or resource group level. To launch this application from the Main Menu:

- Production Management/Scheduling/General Operations

You batch jobs by launching a application from the Actions menu:

- **Actions Menu** - Batch Operations

These are the costing modifiers you define within this application:

- **Job Processing Mode** - These options define the manufacturing mode through which the batch job is produced. There are two options:
- **Sequential** - The default option. A sequential job is processed through part quantities completed in sequence. For example, a quantity needs to be complete before work begins on the next quantity. This is the typical way jobs are set up within the application.
- **Concurrent** - The production for a concurrent job is based on the number of operations performed - instead of the part quantity produced. For example, you select this option if the job has a stamping operation that produces multiple parts. The production time on this job is measured by the number of operations performed on the job.
- **Primary Job Operation** - The operation from which the routing for the source job is combined. This must be an operation that all the jobs have in common. Only operations from the source jobs selected for this batch appear on this list; select the operation you need.
- **Pull Direction** - These options define the direction in which the operations are combined. You can batch the operations from a point backwards to the beginning of the routing, or from a point forwards to the end of the routing. You cannot batch between two operations in the middle of the routing.

- **Forward** - Selecting this option causes the batch job to combine operations, starting with the selected Primary Job Operation and moving ahead through the routing.
- **Backward** - Selecting this option causes the batch job to combine operations, starting with the selected Primary Job Operation and moving back through the routing.

Logic/Algorithms

The Batch Jobs functionality uses this logic to calculate its results.

Quantity Per

Quantity Per = Required Quantity/Production Quantity

Batch Job - Sequential Job

Unit Cost per Production = Total Production Cost/Part Quantity

Batch Job - Concurrent Job

Production Quantity = Part Quantity/Yield Per Operation

Unit Cost per Part = Production Quantity/ Part Quantity

Yield Per Operation

Co-Part Quantity = Primary Part Quantity x Yield Per

Total Part Quantity = Primary Part Quantity + Co-Part Quantity 1 + Co-Part Quantity 2 + Co-Part Quantity 3 and so forth...

Cost Factors

Co-Part Labor Cost = Primary Part Labor Cost x Labor Cost Factor

Co-Part Material Cost = Primary Part Material Cost x Material Cost Factor

Example(s)

The following example(s) illustrate how you use the Batch Jobs functionality.

Batch Job Example

You create a batch job for the manufacture of parts ABC and XYZ. You decide to select ABC as the primary part, and indicate that these parts are batched at Assembly 0, Operation 40 on the routing that produces part ABC. The batch part number is ABC-0-40. When you view this part within Job Entry, ABC-0-40 is listed as the primary part on the batch job.

Material Cost Factor Example

A multi-part job produces parts A and B. You need Part B to consume three times the materials used to create Part A. You enter different Material Cost Factors; Part A's Material Cost Factor is 1, while Part B's Material Cost Factor is 3. This causes Part B to consume 75% (3/4) of the total material costs, while Part A consumes 25% (1/4) of the total material cost.

Burden

Burden (non-material burden) is the regular operating expenses of a resource or a resource group. What expenses are included within a resource/resource group's total burden cost is unique from company to company, but as a costing rule, burden expenses do not include direct labor or direct material costs on a job.

Burden is also commonly known as overhead.

The application calculates estimated and actual burden through a resource to resource group hierarchy. It does this by first checking the rates defined on the resource used for the burden transaction. If the resource does not have burden rates, the application then uses the rates defined on the resource group. This provides flexibility, as you can define burden costs at a specific resource to account for rates unique to that resource, while at the same time define a base burden rate that typically applies to all resources in the group. The application can then generate burden costs that reflect your manufacturing process.

Estimated burden costs are calculated using the estimated number of labor hours placed against each operation. Labor hours and burden hours are considered to be the same. Actual burden costs, however, can be accumulated through different methods. If your manufacturing center uses Labor Entry, your shop employees directly enter burden hours records. If your manufacturing center uses the MES interface for automatic labor entry, however, the burden hours can be modified by using the Burden = Labor or Split Burden calculation options. These options are explored within the following Program Location and Modifiers section.

Defining Burden Rates

To accurately calculate the burden cost of each resource/resource group, you need to research and define what specific expenses your company should include for overhead expenses. These overhead expenses then need to be divided between the resources and/or resource groups that make up your production workflow.

You must do this research before you enter each resource and/or resource group's hourly costing and quoting burden rates. The quoting burden rates are used for quote estimates, while the costing burden rates are used for the both estimated and actual job costs.

Your accountant is the definitive source of information for evaluating what may or may not be a burden expense. Be sure to consult with your accountant before you make any final decisions about burden costs.

Some typical burden expenses may include:

- Rent
- Utilities
- Upkeep
- Taxes
- Machine Cost
- Miscellaneous Supplies

When you have defined the areas of burden expense you usually incur on each resource or resource group, calculate how much burden you have during each hour that the resource/resource group is in operation. This is the hourly Burden Rate you enter for both costing and quoting.

You define a burden rate for both Setup Time and Production Time. The setup value defines the amount of overhead expense that accumulates while the operation is being prepared at the resource/resource group. The production value defines the amount of overhead expense that accumulates while production is run on the resource/resource group.

Percentage Rate versus Flat Rate

There are two ways to measure burden rates. You can enter a percentage value which is then multiplied against the labor cost to arrive at the total burden cost. For example, you determine that the burden rate on the Drill resource is 60 percent of the labor cost. After the application calculates the total labor cost on an operation, the burden cost is 60% of this value.

You can also enter a flat monetary value which is then multiplied against the total burden hours worked at the resource/resource group. For example, if the burden rate is $50 per hour and there are three hours of burden placed against that resource, the total burden cost is $150.

You must select Percent or Flat for both the production and the setup costing burden rates. You cannot select Percent for the production burden rate type and then select Flat as the setup burden rate type.

The Location Check Box

Available for both resources and resource groups, the Location check box indicates whether the resource/resource group is a physical area within your manufacturing center. If the resource/resource group is defined as a location, shop employees can report labor hours against it. Resources/resource groups defined as locations can also be overridden, or substituted, on the operation during labor reporting. In this situation, the burden rates defined on the substituted resource/resource group are used instead to arrive at burden costs.

If the resource/resource group is not defined as a location, these resources/resource groups cannot be substituted during labor reporting. However, the labor hours run against the operation, are still multiplied against the burden rates defined on the non-location resource/resource group.

Notice that in either case, burden is still calculated by multiplying the reported labor hours against the burden rates defined on the resource/resource group.

Backflushing and Burden

The backflush labor and/or quantity functionality addresses the situation where labor or quantity reporting is difficult to record or does not add value to the manufacturing process. This feature places a predetermined amount of labor hours and/or quantity, and their accompanying costs, against a job.

Because this is an alternate source method for gathering labor and material costs, backflushing does not affect the burden calculation. If labor hours are used to calculated burden hours, the labor hours reported through backflushing are multiplied against the burden rates and the resulting amount is the burden cost.

Quoting Burden Rates

The application uses the Quoting Burden Rates to generate quote estimates. This is the value you want customers to see on quotes. Usually you enter Quoting Burden Rates that are a little higher than the Costing Burden Rates. You can then both improve the profitability of the potential job and also allow for any unforeseen costs that may occur during production.

When you finish planning the method on a quote, the application automatically incorporates the estimated burden costs against the operations on the method to arrive at the estimated burden cost. The application does this by multiplying the hourly projected resource group Burden Rates against the Estimated Setup and Production Hours. The application then adds this value to the estimate labor cost and other expenses to arrive at a final cost estimate for the job. This total cost is then displayed on the quote.

Costing Burden Rates

When a job is first created, the application uses the Costing Burden Rate defined on each job's resource/resource groups to arrive at an estimated cost on the job. The Costing Burden Rate values from each resource/resource group are multiplied against the estimated burden hours to generate the estimated total burden cost on a job.

These rates are then used again when actual burden hours are recorded against the job's operations. If you use Labor Entry to enter these hours, the burden hours entered against the each job operation are accumulated to arrive at the actual burden hours. These burden hours are then multiplied against the costing burden rates on the resources/resource groups to arrive at the final burden cost on the job.

If you use the MES interface (Data Collection), however, the actual labor hours are accumulated automatically against a job. As these hours accumulate, the application uses this value to calculate the hourly actual burden costs. The application does this through one of two calculation options - Split Burden and Burden = Labor. These calculation options are defined later in the Modifier section.

Regardless of whether burden is entered manually or automatically, the burden cost data moves through the database in the same way. These costs first accumulate within the LaborDtl table. They are then passed on to the specific job within the Job Asmbl, JobOpr, and JobMtl tables to arrive at both the estimated and actual burden cost on each job.

Burden Cost and Inventory

When parts are received to inventory from manufacturing, burden costs are recorded into inventory based on the costing method used by each part. This is a summary of each method:

- **Standard**- A fixed value is used to cost the part.
- **Last**- The most recent cost of the part quantity.
- **Average (or part average)**- The accumulated cost of the part is divided by the total quantity. This creates a value which is used by the application logic as the cost for each part.
- **FIFO**- First In, First Out. The application tracks part quantity using FIFO records; each record is creaated when a quantity is received. The costs on the oldest FIFO record is used to calculate the current cost of the part quantity. When the quantity from the oldest record is consumed, costs are then pulled from the next oldest FIFO record.
- **Lot**- The average cost of the part quantities received by a lot.
- **Lot FIFO**- The FIFO cost of the part quantities received by a lot.

If you use the Standard costing method, the cost of the incoming part quantities do not change the overall cost of the part. This value is based on the cost defined on the part record. When there is a difference between the actual cost and the standard cost, this amount is recorded within the selected Variance account.

If the variance account has a defined material variance, labor variance, burden variance, subcontract variance, material burden variance and / or rounding variance account context, the amount is broken out into cost components. The variance account context hierarchy is Product Group, then Inventory, COS and WIP.

However, the Last, Average, and Lot methods all accumulate the costs generated by the job. When the application updates the On Hand Quantity, it also updates the current cost of this quantity.

Programs and Their Modifiers

You leverage and modify the Burden functionality in the following application.

Site Configuration Control

Use site Configuration Control to set up how each site interacts with various functions such as the Inventory Management, Production Management, Shipping/Receiving, Time Management, and Expense Management modules. To launch site Configuration Control from the Main Menu:

Menu Path: System Setup > Company/Site Maintenance > Site Configuration

This application is not available in Classic Web Access.

These are the burden modifiers you define within this application:

- Apply Burden to All Operation Resources- Specifies if all operation resource burden costs should be summed for those operations with more than one assigned resource when labor is entered against a job operation.

  Select this check box to indicate that when labor is entered against an operation with more than one assigned resource, the burden costs are calculated using all resources linked to the operations. All resource burden rates are then calculated against the job, and the total is the sum of these operation burden costs (default setting).

  Clear this check box to only calculate burden costs for the first (primary) operation. If multiple resources are assigned to this primary operation, these additional resource burden rates are only included if each resource is defined as a Location and it is selected as the reported resource on a time (labor) entry.

Engineering Workbench

You can use this application to display the estimated burden cost for each part revision. To do this, you load in the part record you wish to review and then select the View Costs command from the Action menu. To launch the Engineering Workbench from the Main Menu:

- Production Management/Engineering/General Operations

To launch View Costs from the Actions Menu:

- Actions Menu/Revision/View Costs

These are the burden modifiers you define within this application:

- **Production Standard** - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation. You define this value on the Operation - Detail card.

Job Entry

You can override estimated burden rates for a job method resource group through the Job Details - Operations - Scheduling Resources - Details card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the burden modifiers you define within this application:

- **Production Standard**- The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation. You define this value on the Operation - Detail card.

- **Production Burden Rate (Job Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

- **Setup Burden Rate (Job Method)**- Enter a value in this field when you need to override the default estimated setup burden rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

Opportunity/Quote Entry

You can override estimated burden rates for a quote method resource group through the Line - Mfg Details - Quote Details - Operations - Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the burden modifiers you define within this application:

- **Production Burden Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card. Production Standard - The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation. You define this value on the Operation - Detail card.

- **Setup Burden Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated setup burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

Resource Group Maintenance

You define burden rates and the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. You can also enter different burden rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup

- Production Management/Engineering/Setup

These are the burden modifiers you define within this application:

- **Burden = Labor** This check box defines the calculation option used to generate burden cost against the resource group. When selected, this option causes the application to multiply the

hourly resource/resource group Burden Rate against the number of Labor Hours posted against it on a job operation. These hours are recorded through the MES interface. This calculation option is useful when an employee clocks into multiple job operations during the same shift. The application tracks each minute that the employee works on each operation, accurately recording the burden (and labor) cost. This value is then multiplied against the burden rate. Note that this option can only be defined for a resource group. You cannot select the Burden = Labor calculation option on a resource. You select this calculation option on the Details card within Resource Group Maintenance.

- **Costing Burden Rate (Setup)**- This value defines the rate at which both estimated job burden and actual burden is calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).

- **Costing Burden Rate (Production)**- This value defines the rate at which both estimated job burden and actual burden is calculated during Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).

- **Crew Size (Production)** - The average number of operators at this resource group that work on an operation at the same time. This value is used as a multiplier to calculate the estimated labor hours for each operation. This is the estimated production crew size that is the default on methods of manufacturing that use this resource group. Note that this value affects estimated labor hours, which are also used to calculate the estimated burden cost for each operation. You define this value on the Details card.
- **Crew Size (Setup)** - The average number of operators at this resource group that prepare an operation at the same time. This value is used as a multiplier to calculate the estimated labor hours for each operation. This is the estimated setup crew size that is the default on methods of manufacturing that use this resource group. Note that this value affects estimated labor hours, which are also used to calculate the estimated burden cost for each operation. You define this value on the Details card.
- **Location** - If this check box is selected, it indicates that this resource or resource group is a physical location within the manufacturing center. Resources/resource groups defined as locations can also be overridden, or substituted, on the operation during labor reporting. This means an employee can report labor directly against this resource or resource group. If the resource/resource group is not defined as a location, these resources/resource groups cannot be substituted during labor reporting. The labor hours run against the operation, however, are still multiplied against the burden rates defined on the non-location resource/resource group. Note: If the resource/resource group is not a location, shop employees cannot place labor hours against it within Labor Entry or the MES interface. If they attempt to do this, an error message displays.
- **Quoting Burden Rate (Setup)** - This value defines the rate at which the estimated burden is calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. This rate is measured by using a flat or a

percentage rate, and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.

- **Quoting Burden Rate (Production)** - This value defines the rate at which the estimated burden is calculated for Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate can be measured by using a flat or a percentage rate, and the calculation results are displayed on quotes. You can define this value on both the Details card and the Resources - Detail card.
- **Split Burden** - This check box defines the calculation option that is used to generate burden against the resource group. When selected, the application multiplies the hourly resource group Burden Rate against the number of Resource Hours posted on a job operation. These hours are recorded through the MES interface. Typically you use this burden calculation when people are considered resources within the resource group; these people resources are then placed together within, for example, a Welding Center or Assembly resource group. The burden calculation can then account for multiple employees who are clocked in on the same resource and job operation. For example, if two shop employees clock into the Drill operation at 10:00 and then clock out of the operation at 10:30, 15 minutes of burden are calculated against each employee's time. Note that this calculation option can only be defined for a resource group. You cannot select the Split Burden calculation method on a resource. You select this check box on the Details card.
- **Use Estimates** - When this value is selected, the actual labor time reported against operations is calculated by using the estimated time on each operation. When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation. If an employee is clocked into multiple operations within different resource groups -- and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.
- **Use Resource Group Values** - When selected, it indicates that this specific resource uses the costing burden rates defined on the resource group. You can define this value on the Resources - Detail card.

Logic/Algorithms

The Burden functionality uses this logic to calculate its results.

Resource to Resource Group Hierarchy

If Burden Rate on the Resource detail is = 0, then use the Burden Rate on the Resource Group.

Flat Burden Rate

Total Actual Burden Cost = Burden Rate (Flat Rate Option) x Burden Hours

Percentage Burden Rate

Total Actual Burden Cost = Burden Rate (Percentage Option) x Labor Cost

Quoting Burden Rates

- Quote Estimated Setup Burden Total = Number of Operations x (Number of Resources Used x (Quoting Setup Burden Rate x Setup Hours Per Resource))
- Quote Estimated Production Burden Total = Number of Operations x (Quoting Production Burden Rate x (Production Standard x Number of Parts Produced))

Costing Burden Rates

- Job Estimated Setup Burden Total = Number of Operations x (Number of Resources Used x (Costing Setup Burden Rate x Setup Hours Per Resource))
- Job Estimated Production Burden Total = Number of Operations x (Costing Production Burden Rate x (Production Standard x Number of Parts Produced))

Costing Burden Rates - Split Burden Method

- If the Split Burden calculation option is active, then divide the burden cost between the number of employees clocked into the operation.
- Job Estimate and Actual Burden Setup Cost Total = Burden Hours x Costing Setup Burden Rate
- Job Estimate and Actual Burden Production Cost Total = Burden Hours x Costing Production Burden Rate

Costing Burden Rates: Burden = Labor Method

- Actual Burden Setup Cost Total = Costing Setup Burden Rate x Burden Hours
- Actual Burden Production Cost Total = Costing Production Burden Rate x Burden Hours

Quantity Only - Labor Type

For job operations set as **Quantity Only**, the Epicor application calculates Burden Cost as follows:

```
Burden Cost = (Production Costing Burden Rate of RG1 * Burden Hours)
```

The calculation above is based on a single operation set as Quantity Only. The operation is tied to three resource groups:

- RG1
- RG2
- RG3

- In Resource Group Entry, you can set different Production Costing Burden Rates for a Resource tied to a Resource Group, if you clear the Use Resource Group Values checkbox.

- The RG1 resource group represents the first Resource Group in the list. If you select another Resource Group in Time and Expense Entry, the Burden Cost is calculated according to the Resource Group you select.
- For the Quantity Only operations, the Epicor application automatically calculates the Burden Hours, when you submit labor quantities in Time and Expense Entry.

```
Burden Hours = (Labor Quantity entered in Time and Expense /
Production Standard of the Operation)
```

If you select the Apply Burden From all Operation Resources checkbox in the Site Configuration Control, the Epicor application calculates the Burden Cost as follows:

Burden Cost = (Production Costing Burden Rate of RG1 + Production Costing Burden Rate of RG2 + Production Costing Burden Rate of RG X) * Burden Hours

Example(s)

The following example(s) illustrate how you use the Burden functionality.

Percentage Rate versus Flat Rate Example

If you cost production burden as 110% of labor, select Percent as the burden rate type and enter a production costing rate of $110.00. If you cost setup burden at $55.00 per hour, however, select Flat as the burden rate type and enter a setup costing rate of $55.00.

Burden = Labor Example

An employee works on four operations during 8:00 to 12:00. This employee clocks out of all four operations at 12:00. Each transaction has one hour of labor placed against it. The Burden = Labor check box is selected on this resource group, so each labor transaction also has one hour of burden cost for a total of 4 burden hours. Note that if this method is not selected on the resource group, then each labor transaction has 4 hours of burden cost, for a total of 16 burden hours.

Split Burden Example

Two employees clock in an operation at 8:00 and clock out at 12:00. Because the burden cost is divided between these employees, each employee generates 2 hours of burden. This transaction then has a total of 4 burden hours. This value is then multiplied against the resource/resource group's burden rate. Note that if this method is not selected on the resource group, then the application assumes that each employee generated 4 burden hours, so this transaction then has a total of 8 burden hours placed against it.

Location Example

The Shear job operation uses two resource groups. The first resource group is Shear Machines A, a location resource group that has a burden rate of $1 per labor hour. The second resource group is

Shear Machines Maintenance. This resource group is not defined as a location, however, and it has a burden rate of $1 per labor hour. This means that for each hour of labor reported against the Shear operation, there is a $2 burden cost.

During the actual day of the operation, a device within Shear Machines A breaks down. You have another location resource group, Shear Machines B, which your shop employees can use. It has a burden rate of $2 per labor.

During labor entry on the Shear operation, your shop employees substitute the Shear Machines B resource group. The Shear Machines Maintenance is not a location resource group, however, so it cannot be substituted. Now for each hour of labor reported against the Shear operation, there is a $3 burden cost. The burden rate for the Shear Machine Maintenance resource group is always included with the total burden cost that is calculated against the Shear operation hour.

Multiple Resource Operation Burden Calculations

The Shear job operation uses two resource groups. The first resource group is Shear Machines A, a location resource group that has a burden rate of $1 per labor hour. The second resource group is Shear Machines Maintenance and has a burden rate of $2 per labor hour.

During the actual day of the operation, a device within Shear Machines A breaks down. You have another location resource group, Shear Machines B, which your shop employees can use. It has a burden rate of $2 per labor hour. During labor entry on the Shear operation, your shop employees attempt to substitute the Shear Machines B resource group. The Shear Machines Maintenance is not a location resource group, however, so it cannot be substituted.

- If the Apply Burden to All Operation Resources check box is selected for the site, the burden rate for the Shear Machine Maintenance resource group is always included with the total burden cost that is calculated against the Shear operation. For each hour of labor reported against the Shear operation, there is a $3 burden cost.
- If the Apply Burden to All Operation Resources check box is cleared, the applied burden cost is that of the primary resource (in this case, $1.00 for Shear Machines A). However, if the substituted resource has been defined as a location, it instead uses the burden rate of the substituted resource ($2 per hour).

Actual Production Hours Burden - Single Employee Example

A shop employee posts time against a single job operation. No other shop employees are clocked into this operation, and the selected resources are only being used to complete this operation.

The main scheduling resource is defined so that it does not use estimates (Use Estimates = No), so Actual Hours are used for the burden calculation. Because only one employee is working on this operation, the Split Burden and Burden = Labor calculation options on the resource do not affect the burden hours value.

This is how the application calculates burden in this situation:

1. The hours posted by the shop employee are multiplied against the Burden Rate defined on the resource used during the operation. There are some variables the application evaluates: If the

resource does not have a Burden Rate value, it determines whether the Use Resource Group Values check box is selected. If it is, the engine uses the Burden Rate defined on the resource group that contains this resource. If it is not, the engine uses the Burden Rate defined on the resource. The posted time can be multiplied against two different values:

- **Flat Rate**- This value is a flat percentage value that is multiplied against the posted hours.
- **% of Labor**- This value causes the application to multiply the Total Labor Cost accumulated by the shop employee against the percentage defined for the Burden Rate.

2. The application next determines if the resource that was used is the same as the main (primary) scheduling resource:
    - **If it is (True)**- The application continues with the burden calculation.
    - **If it is (False)**- The application does not use this resource's Burden Rate during the burden calculation.
3. The application next evaluates all the other resources assigned to the job operation by reviewing their operation detail records. If any of these resources have burden rates, the application multiplies these burden rates against the hours posted by the employee.

Actual Production Hours Burden - Multiple Employees Example

Using the MES interface, two shop employees post time against a single job operation. The main scheduling resource is defined so that it does not use estimates (Use Estimates = No), so Actual Hours are used for the burden calculation. Because two employees are working on this operation, the Split Burden calculation option is selected on the resource.

This is how the application calculates burden in this situation:

1. In order to calculate the burden hours, the hours posted by the shop employees are divided (split) by two. They worked for 8 labor hours, so each generated a total of 4 burden hours against the operation.
2. These burden hours are then multiplied against the Burden Rate defined on the resource. There are some variables the application considers: If the resource does not have a Burden Rate value, it determines whether the Use Resource Group Values check box is selected. If it is, the engine uses the Burden Rate defined on the resource group that contains this resource. If it is not, the engine uses the Burden Rate defined on the resource. The posted time can be multiplied against two different values:
    - **Flat Rate**- This value is a flat percentage value that is multiplied against the posted hours.
    - **% of Labor**- This value causes the application to multiply the Total Labor Cost accumulated by the shop employee against the percentage defined for the Burden Rate.
3. The application next determines if the resource that was used is the same as the main (primary) scheduling resource:

- **If it is (True)**- The application continues with the burden calculation.
- **If it is (False)**- The application does not use this resource's Burden Rate during the burden calculation.

4. The application next evaluates all the other resources assigned to the job operation by reviewing their operation detail records. If any of these resources have burden rates, the application multiplies these burden rates against the two employees' posted hours, splitting the burden hours on any resource that uses the Split Burden method.

Actual Production Hours Burden - Single Employee/Multiple Operations Example

Using the MES interface, one shop employee posts time against multiple job operations. The main scheduling resource is defined so that it does not use estimates (Use Estimates = No), so Actual Hours are used for the burden calculation. Because this employee works on multiple operations, all the resources used on these operations have their Burden = Labor options selected.

This is how the application calculates burden in this situation:

1. The hours posted by the shop employee against each operation are used to calculate the burden hours. The employee worked on 4 operations during 8 hours. One operation took 1 hour, the second operation took 4 hours, the third operation took 2:30 hours, and the last operation took 30 minutes.
2. The application now uses these labor hours as the actual burden hours generated on each operation.
3. These burden hours are then multiplied against the specific Burden Rates defined on each resource used during each operation. There are some variables the application considers: If the resource does not have a Burden Rate value, it determines whether the Use Resource Group Values check box is selected. If it is, the engine uses the Burden Rate defined on the resource group that contains this resource. If it is not, the engine uses the Burden Rate defined on the resource. The posted time can be multiplied against two different values:
    - **Flat Rate**- This value is a flat percentage value that is multiplied against the posted hours.
    - **% of Labor**- This value causes the application to multiply the Total Labor Cost accumulated by the shop employee against the percentage defined for the Burden Rate.
4. The application next determines if the resources that were used are the same as the main (primary) scheduling resources:
    - **If it is (True)**- The application continues with the burden calculation.
    - **If it is (False)**- The application does not use these resources' Burden Rates during the burden calculation.
5. The application next evaluates all the other resources assigned to the job operations by reviewing their operation detail records. If any of these resources have burden rates, the application multiplies these burden rates against the employee's posted labor hours as well.

Quantity Only - Actual Burden Cost

The scenarios listed below provide examples of how burden costs are calculated based on the following burden and resource group information.

- **Employee Labor Rate** - 16
- Operation 10 used in the scenarios includes three Resource Groups listed in the following order:

Resource Group Costing Burden Rate	RG1 (The Resource Group includes one resource that uses the Resource Group costing values (R1 resource). 1
Resource Group Costing Burden Rate	RG2 (The Resource Group includes one resource that uses the Resource Group costing values (R2 resource). 1.5
Resource Group Costing Burden Rate	RG3 (The Resource Group includes one resource that uses the Resource Group costing values (R3 resource). 1.75

- **Production Calendar** - D5H8 (Monday-Friday/8h per day)

Scenario 1

In Time and Expense Entry, you report labor against the job operation set as **Time and Quantity**. The employee that reports labor carries a labor rate and the **Production Quantity** is 1.

Result

The Burden Cost equals the Burden Rate of the RG1 resource group:

```
Burden Rate of RG1 or Resource (1) * Burden Hours Reported (8) = 8
(1 * 8)
```

Scenario 2

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**, but you use a different Resource Group. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**. Before you submit labor, you select the **RG3** resource group using the **Time and Expense Entry > Time > Daily Time > Detail > Detail > Location (pane) > Resource Group** field.

The Crew Size values are as follows:

RG1	1
RG2	1
RG3	1

Result

- The Burden Cost equals the Burden Rate of the RG3 resource group:

```
Burden Rate of RG3 or Resource (1.75) * Burden Hours (1)    =  1.75
(1.75 * 1)
```

As the Labor Type for the operation is **Quantity Only**, the Epicor application automatically calculates the Burden Hours of **1** based on the following formula:

```
Labor Qty entered in Time and Expense Entry (1) /
Production Standard of the Operation (1)
 = Burden Hours (1)
```

Scenario 3

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**. The Resource Groups used carry the following Crew Size values:

RG1	3
RG2	3
RG3	1

Result

- The Burden Cost equals the Burden Rate of the RG1 resource group:

```
Burden Rate of RG1 or Resource (1) * Burden Hours (1) = 1 (1 * 1 =
1)
```

Scenario 4

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **2**. The employee that reports labor carries a labor rate and the **Production Quantity** is **10**. The Resource Groups used carry the following Crew Size values:

RG1	1
RG2	1
RG3	1

Result

- The Labor Qty you enter is the same as the Make to Stock quantity of **10**. Therefore, the job operation is marked complete.

- The Burden Cost equals the Burden Rate of the RG1 resource group. Therefore,

  ```
  Burden Rate of RG1 or Resource (1) * Burden Hours (5) = 5 (1 * 5 = 1)
  ```

  As the Labor Type for the operation is **Quantity Only,** the Epicor application automatically calculates the Burden Hours of **5** based on the following formula:

  ```
  Labor Qty entered in Time and Expense Entry (10) /
  Production Standard of the Operation (2)
   = Burden Hours (5)
  ```

Scenario 5

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**.

You modify the Resource Costing Burden Rates as follows:

R1	2
R2	2.5
R3	2.75
Total	7.25

In Job Entry, using the **Job Details > Operations> Scheduling Resources > Detail**sheet, select the **R1** resource.

Result

- The Burden Cost equals the burden of the R1 resource:

  ```
  R1 = 2
  ```

Scenario 6

In Time and Expense Entry, you report labor against the job operations set as **Backflush** and **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**.

- In Job Enty, set Operation 10 as **Backflush**, and Operation 20 as **Quantity Only**.
  Note: Operation 10 is tied to the RG3 resource group. Operation 20 includes all three resource groups.
- In Time and Expense Entry, report activity against Operation 20.
- Run the **Run Backflush Labor Server Process**.

Result

- The Burden Rate equals the sum of the Burden Rate of the RG3 resource group tied to Operation10, plus the Burden Rate of the RG1 resource group tied to Operation 20:

```
Burden Rate of RG3 (1.75) + Burden Rate of RG1 (1) = 2.75
```

Cost Adjustment

Use the Cost Adjustment calculation to change the various unit costs for a specific part. When you adjust the unit cost, all the Quantity On-Hand infrormation linked to this part record automatically updates to reflect the new value.

You can adjust the Average/Lot, Last, and Standard cost of each costing bucket for the part. Under each costing method, you may enter adjusted unit values for labor, burden, material, subcontract, and material burden. After you enter the new unit costs for each bucket and click Save, the cost adjustment calculation runs.

Information about each costing method is within the Costing Method - Average, Costing Method - Last, Costing Method - Lot, Costing Method - FIFO, Costing Method Lot FIFO, and Costing Method - Standard sections later in this guide.

Cost adjustments are recorded using the ADJ transaction types. These changes are reflected in the transaction history file through at least two separate transactions. One transaction removes the old Quantity On-Hand at the old cost, and the second transaction records the new Quantity On-Hand at the new cost. If the part resides in more than one warehouse, two transactions are generated for every warehouse.

Programs and Their Modifiers

You leverage and modify the Cost Adjustment functionality in the following application.

Cost Adjustment

You adjust a specific part's unit cost within Cost Adjustment. To launch this application from the Main Menu:

- Material Management/Inventory Management/Operations

The following adjustment modifiers are used within this application:

- **FIFO Date/Seq/Sub**- You can select a specific FIFO record to review and update.

Logic/Algorithms

The Cost Adjustment functionality uses this logic to calculate its results.

Adjustment Hierarchy

After you save the unit cost changes, the cost adjustment calculation uses the following hierarchy:

1. Remove the original Quantity on-Hand value that uses the old unit costs.
2. Record the new Quantity on-Hand using the new unit costs.

Example(s)

The following example(s) illustrate how you use the Cost Adjustment functionality.

Part ABC has a quantity on hand of 25 in bin 1, and another 30 in bin 2. The current unit cost is $5.00. If you enter a cost adjustment of $5.25, you will see the following transactions in the Transaction Log:

Part Bin QOH U.Cost

ABC 1 -25 5.00

ABC 1 25 5.25

ABC 2 -30 5.00

ABC 2 30 5.25

Cost Rollup

The Cost Rollup calculation updates the standard costs of your parts. This calculation is run within the Costing Workbench.

Use this application to create a cost group that you then use to pull in the costs of the purchased and manufactured parts you want to review.

After you review and update these costs, you run the Cost Rollup calculation by clicking the Actions menu and selecting the Rollup command. You can then print out an edit list to verify these costs. When you are satisfied with the new costs, click on the Actions menu again and run the Post command. The Part-site details within the selected part records are updated with the new standard costs.

The rest of this section details how this calculation works.

Pulling In Costs

When you initially pull parts into the cost group, the calculation starts by pulling in the top level part within each job method and goes on down through the BOM structure. This process determines which parts to include within the cost group. If a part is used on multiple methods, this part only appears once within the Costing Workbench.

If you select the Load Alternate Methods check box, you also pull in additional methods for any parts currently not linked to an active job method.

You can also pull in current costs from a site by selecting a site Cost ID. This idenitifier defines the cost set linked to the site. Any parts linked to this site are then pulled into the cost group, and these part records contain the base costing values you use. For example, you are creating a cost group for site B, but you select the site A Cost ID. Part A is only linked to site A, but because you are using the site A cost set, Part A is still pulled into your cost group.

Likewise, you can copy part records from another cost group into the current cost group. This previous cost group contains the base values you then modify within the current cost group.

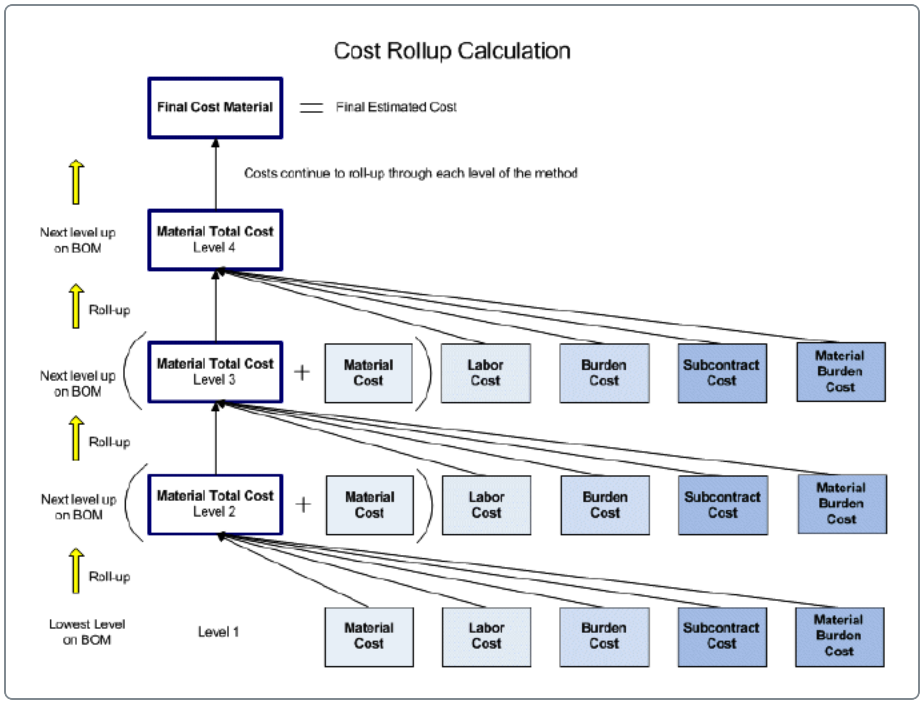
This calculation also brings in all the labor and burden rates used on the selected BOM records. If a resource is linked to a resource group used on a selected BOM, these additional rates are loaded into the Costing Workbench as well, even though they are not directly connected to a job method.

Modify the Costs

These changes cause the values associated with the different costing categories, or buckets, to update. These are the same job costing buckets used throughout the application - Labor, Burden, Material, Subcontract, and Material Burden. When you modify these costs, you change the estimated values used in the future for each part in the cost group. When you have all the manufactured and purchased parts loaded into the cost group, you can then edit these costs as needed. You can also modify the labor and burden rates for each of the resource and resources groups included within the cost group.

Run the Rollup

After you finish modifying the costs, you run the Cost Rollup calculation. You launch this process from the Actions menu.



The calculation first evaluates the lowest operation level on the method. It determines the labor cost, burden cost, material cost, subcontract cost (if a Material Burden Rate is defined on the part record). These costs are totaled, and the result becomes the material cost for this operation.

The calculation then pulls this Material Cost amount up to the next operation level. For example, if a 2 quantity is for a material on Operation 40, the cost of this quantity is included in the cost for Operation 30, the next operation level in the method. The application then adds this amount to the material cost calculated at this operation level. Once again it determines the labor, burden, subcontract, and material burden (if a Material Burden Rate is defined on the part record) costs for this operation. These costs are totaled and the result becomes the Material Cost for this operation.

This Material Cost amount is then moved up to the next higher operation level and the process continues. Continuing the previous example, the costs for Operation 30 and Operation 40 are totaled and then added to the costs on Operation 20. This process continues throughout all the operations within the assembly. The final Material Cost for this assembly is then added to the material cost on the lowest operation within the next assembly. By working through each operation from last to first, the estimated costs roll up through the method. The final estimated cost on the job is the Material Cost determined on the highest, or last, assembly.

Note that salvage credit amounts are not included in the cost of each assembly. The salvage credit amount is removed from the total cost of the assembly, and this updated cost is rolled up into the next level of the method.

To arrive at the labor and burden costs, the calculation uses the labor and burden rates defined on the resources or resource groups that work on the operation. The JobOpr table within the method contains these values. It also evaluates the different rates defined for Setup and Production, so the final estimated job cost reflects the various rates defined for these manufacturing activities.

The cost rollup calculation then uses a selected costing method - Average, Last, FIFO, Standard - to arrive at the final estimated unit cost for the part.

Post the Costs

You can review the updated costs within Cost Set Group Edit List. When you are satisfied with the cost results, run the Post process. This updates the Standard Cost value of all the part records included within the cost group, and these amounts become the values used on future transactions on these parts.

These adjustments are saved within PARTTRAN records.

Even though these costs are totaled, the application still records material, labor, burden, subcontract, and material burden costs separately. When you issue part quantities from inventory, these costs are broken up again into their separate buckets. Use this functionality to review these costs separately on various reports and trackers.

Programs and Their Modifiers

You leverage and modify the Cost Rollup functionality in the following application.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

The following cost rollup modifiers are used within this application:

- **site**- Use this field to enter or select the main site used during the initial cost load process. All the costs linked to this site, for the parts you select, are then pulled into the Costing Workbench.
- **Proposed Posting Date**- This field defines the date on which you expect to post the updated standard costs. Enter or select the date you need in this field.
- **Load Alternate Methods**- Choose this check box if you want the alternate methods defined for the selected manufactured parts to be loaded within the cost group.
- **Load Costing Lot Sizes**- Select this check box if you want the Costing Lot Size settings for the part/site combinations to load into the cost group. This causes the Lot Size field on the Manufactured Parts card to activate. Use this field to update the lot sizes you want the selected manufactured parts to use. If this check box is clear, the Lot Size field is not available. The costing lot size for setup costing calculations is then always equal to 1.
- **Copy from site Cost ID**- This is an optional field; use this drop down list to select a specific cost set from which you want to load part cost information. This causes the Costing Workbench to load in all data with the specified cost set from the PartCost table. Use this field or the Copy from Cost Group field to specify the cost group to use as a starting point for your new cost group. You might select to copy from a site Cost ID (cost set) rather than from a Cost

Group if you want to initiate your new cost group with the current costs from the site assigned to this cost set.

- **Copy from Cost Group**- This is an optional field; use this drop down list to select a specific cost group from which you want to load part cost information. When you run the Load Cost Details function, your cost group is initiated with the costs contained within the selected cost group. Use this field or the Copy from site Cost ID field to specify the cost set to use as a starting point for your new cost group. You might select to copy from an existing Cost Group rather than a site Cost ID if you want to pull What If costs into the workbench and try out other What If cost scenarios.
- **Costing Method**- Use these radio buttons to select the method through which the costs are pulled to initialize the costs in this group. You can select the Average, Last, FIFO, or Standard costing method. You can also select the Costing Method radio button. This indicates that you want to use the costing method selected on the Part - site detail from each part record. For more information, review each costing method within the Calculations section of this guide.
- **Burden Rates**- Use these radio button options to determine how the burden rates are calculated for the resource and resource groups included within this cost group. You can update the Costing burden rates for job estimates, or the Quoting burden rates for quotes.
- **Labor Rates**- Use these radio button options to determine how the labor rates are calculated for the resource and resource groups included within this cost group. You can update the Costing labor rates for job estimates, or the Quoting labor rates for quotes.

Logic/Algorithms

The Cost Rollup functionality uses this logic to calculate its results.

Pull In Costs

1. Pull in all the parts linked to the selected site unless...
2. ...a site Cost ID (cost set) is selected instead. In this case, pull in all part records linked to the selected cost set unless...
3. ... a Cost Group is selected instead. In this case, pull in all part records linked to the selected Cost Group.

Cost Rollup

1. Start at the lowest operation within the method.
2. Calculate labor, burden, material, and subcontract costs.
3. If a Material Burden Rate is defined on the part record, multiply this rate against the unit cost. Multiply the Material Burden Unit Cost amount against the quantity to arrive at the material burden cost.
4. Total Material Cost (Operation One) = Labor Cost + Burden Cost + Material Cost + Subcontract Cost+ Material Burden Cost.
5. Move the Total Material Cost (Operation One) amount to the next level operation (Operation Two) within the method.

6. Calculate and subtotal the labor, burden, subcontract, material, and material burden costs on Operation
7. Add the Total Material Cost (Operation One) to the Subtotal Material Cost (Operation Two). This becomes the Total Material Cost (Operation Two).
8. Move the Total Material Cost (Operation Two) amount to the level operation (Operation Three) within the method. Continue the above process for the operations within each assembly on the method.
9. The Total Material Cost (Last Operation) becomes the estimated cost of the job.

Example(s)

The following example(s) illustrate how you use the Cost Rollup functionality.

For a detailed example of the Cost Rollup calculation, read the Costing Workbench example within the Job Costing in Action section later in this guide.

Cost of Sales (COS)

The Cost of Sales (COS) calculation determines the final cost of a part quantity. This value is first calculated by adding the beginning inventory to the cost of finished goods manufactured during a specific period.

It does this by pulling the costs accumulated by the Work In Process (WIP) calculation and then adding the variances to this original WIP amount. It always calculates costs per base unit of measure (UOM) assigned to the part.

The costing method selected on each part is also considered by the COS calculation. The Average, Last, FIFO, Lot, and Lot FIFO methods record the current costs generated against the parts. Additional COS transactions are not generated through these costing methods.

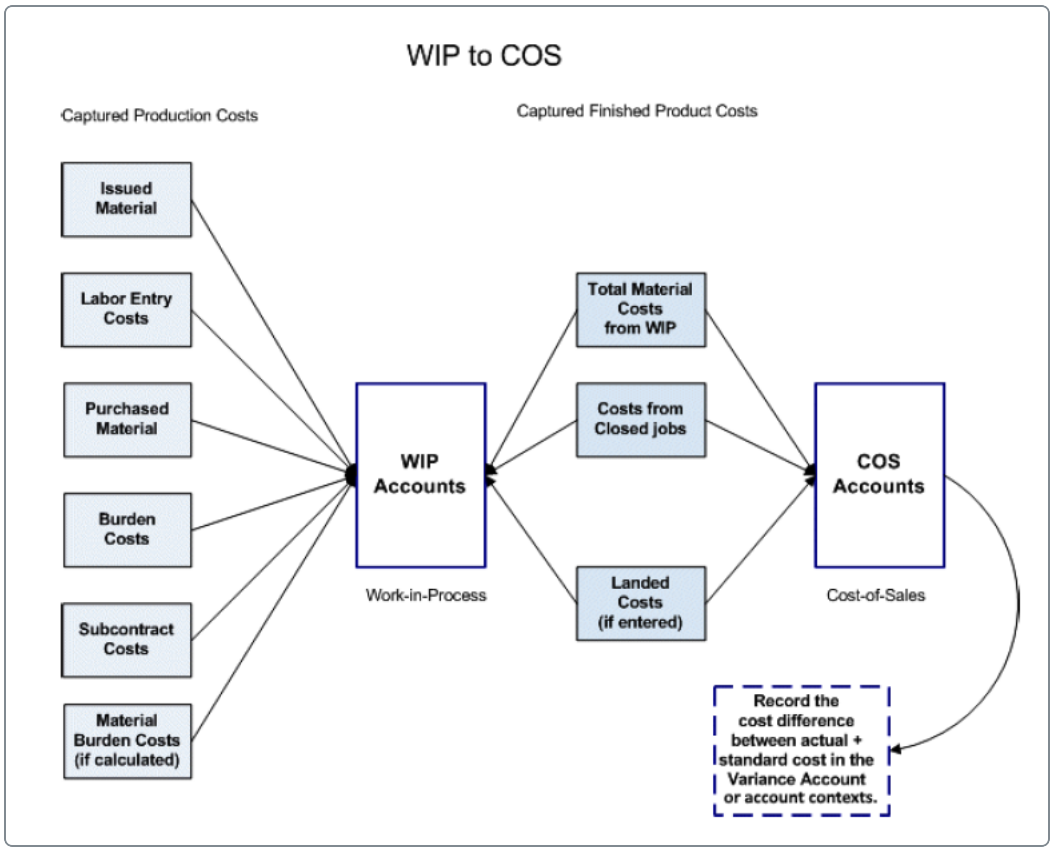
The Standard costing method, however, generates variance transactions. If there is a difference between the standard cost of a part and the actual cost of a part, the difference between the two costs is recorded by the selected GL control. For example, if the actual part cost is eight dollars more than the part's standard cost, the eight dollar difference is recorded by the GL control. Because of this, it is possible for the COS results to become negative using standard costing, as the final part cost may not have enough costs to cover the standard cost.

The COS calculation automatically runs when generating specific reports. These reports then display the COS results. The reports that use the COS calculation are the Inventory/WIP Reconciliation report, the Sales Gross Margin report, and the WIP report. You can also run the COS calculation through the Capture WIP/COS Process. You can set up the Capture WIP/COS Process to automatically post these costs directly to the General Ledger. Use this process to finalize these transactions at the end of each fiscal period.

Moving into COS

The WIP results record the costs of moving part quantities to and from inventory to the manufacturing center. When a part quantity is shipped to a customer, however, its costs are moved from WIP to the Cost of Sales (COS) transactions. Use this to track the final cost of the part quantity before it is shipped to the customer.

When you close a job, its production is finished and no more expenses can be placed against it. All of its costs are also automatically moved from the WIP to the COS transactions. If costs remain, they are recorded by the GL control. You close jobs through the Job Completion/Closing Maintenance application.



The WIP transactions are credited and the COS transactions are debited with these costs. The Clearing account is also debited with these same costs. When you invoice the part quantity, these costs are then moved from the Clearing account to the GL account. The values within the COS transactions, however, do not change.

Programs and Their Modifiers

You leverage and modify the Cost of Sales (COS) functionality in the following application.

Capture COS/WIP Activity

This process can be run to update WIP and COS transactions with the current manufacturing and shipping cost values. You can run this process as needed, but you can also set it to run automatically through a recurring schedule. To launch this application from the Main Menu:

Menu Path: Production Management > Job Management > General Operations > Capture COS/WIP Activity

This application is not available in Classic Web Access.

These are the COS/WIP modifiers you define within this application:

- **Ending**- This value defines the final date on which COS and WIP activity are recorded (captured). The current date is the default value, but if you need, you can change this date.
- **Post Cost of Sales/MFG Variance**- Selecting this modifier causes the WIP/COS process to post the Cost of Sales values and manufacturing variances against jobs. These amounts are only posted against jobs; they are not posted to the General Ledger. To have this occur during this process, you must select the Post to GL check box. Note: If you indicate that the WIP/COS process posts to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post. These are the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).
- **Post to General Ledger**- Selecting this modifier causes the generated WIP and COS information to update your General Ledger. This option is available if the Inventory check box is selected within the Company Configuration application. This check box is located on the General Ledger card.

Company Configuration

You set up the primary configurations for your modules within this application. To launch this application from the Main Menu:

Menu Path: System Setup > Company/Site Maintenance > Company Maintenance

This application is not available in Classic Web Access.

This is the COS/WIP modifier you define within this application:

- **Inventory**- When you select the Inventory check box on the General Ledger card, you indicate that the Capture WIP/COS Process can post these transactions to the General Ledger.

Job Completion/Closing Maintenance

Use this application to both complete and close jobs. Once you close a job through this application, it is then ready to be closed through the financial modules.

Menu Path: Production Management > Job Management > General Operations > Job Closing

- Production Management/Job Management/General Operations/Job Closing

Sales Gross Margin Report

This report prints COS and WIP information for the invoices created during the selected date range. Only the amounts from Shipment invoices are calculated and displayed on this report.

Menu Path: Financial Management > Accounts Receivable > Reports > Sales Gross Margin

WIP Report

The Work in Process Report displays the current value of all WIP, cost to inventory, and COS items. This report first prints the total costs to-date for each job. Based on the part's current status, these costs are moved into the Inventory, Cost of Sales, and Work in Process categories.

Menu Path: Production Management > Job Management > Reports > Work In Process

Logic/Algorithms

The Cost of Sales (COS) functionality uses this logic to calculate its results.

This section documents how the Cost of Sales calculation determines its costing results. It first describes the logic used by the Cost of Sales calculation to gather records and determine the costing results. This section next describes how the application calculates the Shipped Quantity costs and Closed Job costs.

Post Cost of Sales / MFG Variance Logic

When you select the **Post Cost of Sales / MFG Variance** check box within the Capture COS/WIP Activity process, the application runs the following logic sequence to gather data:

1. A cache builds for all jobs (**JobHead**) records that have the **WIPCleared** check box set to FALSE (not selected) and have at least one part transaction (**PartTran**) or one labor transaction (**LaborDtl**).
2. For each job added to the cache, the logic next builds a cache of part transaction (**PartTran**) records.
3. Now for each job added to the cache, the logic builds a cache of job assembly (**JobAsmbl**) records.
4. Lastly for each job assembly record added to the cache, the logic builds a cache of related job operation (**JobOper**) records.

COS/WIP Logic

The Capture COS/WIP Activity process uses the following logic to determine costing results:

1. The logic individually analyzes each cached job.
2. The logic gathers any part transactions placed against the job.
3. If a job needs to backflush labor, this additional logic runs to process these labor transactions.

4. The logic totals the part and labor transactions to calculate the **Total Job Cost**.
5. The logic next divides the **Total Job Cost** by the **Part Quantity** to arrive at a **Unit Cost/Piece**.
6. If a manufacturing variances exists, the logic creates a **Variance parttran** record. The logic will later pass this parttran record to the **Posting Engine**.
7. Likewise if a cached job has any shipment records (**MFG-CUS**) associated with it, the logic updates the linked Invoice Detail (**InvcDtl**) records with the shipment information.
8. If a cached job is set to Closed, the logic selects the **WIPCleared** check box on the job (**JobHead**) record, setting this value to TRUE. The next time the Capture COS/WIP process runs, it will not select this job.

However if the job is reopened or additional costs are placed against it, the job is included during the next Capture COS/WIP process.

Post to General Ledger Logic

If you select the **Post to General Ledger** check box, the posting engine now takes the costing results generated through the COS/WIP logic and publishes them to the appropriate GL journals:

1. The logic selects all part transactions and labor detail records that have dates within the current **Fiscal Period** and the **Cutoff Date**. These transactions are selected from their related table and passed along to the Posting Engine.
2. The Posting Engine creates an **RVLock** record for each transaction. This lock prevents the transaction from being used in other processes.
3. The appropriate posting rule is run against each transaction.
4. If the posting rules are summarized, the Posting Engine creates a summary entry for each day included in the date range defined for the Capture COS/WIP Activity process.
5. The Posting Engine next creates **TranGLC** records for each transaction.
6. Lastly the Posting Engine creates **GLJrnlDtl** records for each transaction.
7. After the posting process ends, the logic removes the **RVLock** records from each transaction.
8. The logic updates the part transactions and labor transactions by marking them as both **Posted** and **Costed**.
9. The logic now checks Invoice Detail (**InvcDtl**) records linked to the jobs. If any Invoice Detail record has its **COSPostingReqd** value set to TRUE and its **COSPosted** value set to FALSE, the logic updates the cost totals on these linked invoices.

For details on where the logic posts these invoice costs, review the **Posting Engine Technical Reference Guide**. This guide is located in the application help; navigate to the **General Ledger > Working With General Ledger > Posting Engine Technical Reference Guide** section.

Transaction Types

The following transaction types are reviewed by the COS calculation:

- MFG-VAR
- MFG-CUS
- MFG-STK
- MFG-WIP
- MFG-PLT
- INS-DMR
- DMR-ASM

These transaction types all remove costs from a job. The application totals the amounts from all the transactions placed against the job to determine the final cost of sales for the job.

For more information on these transaction types, review the Transaction Types section later in this guide.

COS - Shipped Quantity

1. When a part quantity is shipped, move Material, Labor, Burden, Subcontract, and Material Burden WIP amounts to COS amounts.
2. COS Shipped Quantity Cost = Material COS Amount + Labor COS Amount + Burden COS Amount + Subcontract COS Amount+ Material Burden COS Amount

COS - Closed Job

1. When a job is closed, move final Material, Labor, Burden, Subcontract, and Material Burden WIP amounts to COS amounts.
2. COS Closed Job Cost = Final Material COS Amount + Final Labor COS Amount + Final Burden COS Amount + Final Subcontract COS Amount+ Final Material Burden COS Amount

Example(s)

The following example(s) illustrate how you use the Cost of Sales (COS) functionality.

You want to make sure that your General Ledger contains the accumulated costs from all the jobs that are closed or currently in production. To do this, you define all the GL controls that monitor WIP and COS transactions within Company Configuration. Because you want these costs posted to these transactions, you also select the Inventory check box on the General Ledger card.

Before you commit these costs to the General Ledger, however, you need to run the Inventory/WIP Reconciliation report. You set up this report to run on a recurring schedule a day before the Capture COS/WIP Activity process is run. To do this, you select the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month - 1" option. This means that you want this process to run one day before the end of each month. You now add this report to a process set, and attach this process set to a recurring schedule.

You next launch the Capture COS/WIP Activity process. You indicate that this process updates the General Ledger by selecting the Post to GL check box. You then place this process on a recurring schedule by selecting the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month option. This means that this process runs on the last day of each month. You now add this process to a process set, and attach this process set to a recurring schedule.

Each time the system calendar advances to the day before the end of the month, the Inventory/WIP Reconciliation report is run for your review. This gives you a day to make any changes you need to the transaction information. The next day, the Capture COS/WIP Activity process runs, and the WIP and COS transactions update with the current information.

Costing Method - Average

This costing method maintains a rolling average of the part cost. Using this method, the application totals the costs of the parts received to inventory and then divides this amount by the current On-Hand Quantity.

The resulting value is the average cost of the part.

When you receive part quantities to inventory, these costs are calculated using the Average or Last costing method.

Regardless of which costing method you use, the application always maintains boththe average Unit Material cost and average Unit Material Burden cost (if calculated)of each part. You can display these average unit costs within Cost Adjustment. You can then see these values as you modify the unit costs of the part.

Programs and Their Modifiers

You leverage and modify the Costing Method - Average functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup

- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Company Maintenance

You select the default costing method for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

Navigate to the Modules - All Modules - General card:

- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to rollup the estimated standard cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Navigate to the Group - Detail card:

- **Costing Method**- Select the method from which the costs are pulled to initialize the costs in this group. All costing methods are available. If you select the Costing Method radio option, the default method selected on the part record is used during the cost rollup calculation.

Logic/Algorithms

The Costing Method - Average functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Average Method Calculation

Average Cost of Part = Total Cost/Current On-Hand Quantity

Example(s)

The following example(s) illustrate how you use the Costing Method - Average functionality.

You have a 100 quantity of Part 565Y in stock. This quantity was received to inventory at a $1 value for each part. You manufacture a 200 quantity of this part and receive it to inventory at a $2 value for each part. This is how the average cost is calculated:

($100+$400)/ 300 On-Hand Quantity = $1.66 unit cost.

Costing Method FIFO

The First-In-First-Out costing method is an accurate way to calculate the cost of quantities within inventory. This method is appropriate when you produce different batches of similar products.

It assumes that the next quantity to be issued or shipped from stock is the oldest quantity stored within the warehouse. The cost of this quantity at the time it was received is used as the cost of this issued or shipped quantity. As long as quantity remains from the original received quantity, the application uses this cost value until the entire quantity is consumed.

The FIFO method creates cost queue records to track each price on the date on which the part quantity was received. As part quantities are issued to production or shipped to customers, the oldest cost queue record is consumed first. When a cost queue record is reduced to a zero quantity, it is deactivated. At this point, quantity from the next cost queue record is consumed, using the cost value generated when this queue record was received.

The FIFO method generates accurate tracking for audit purposes. Cost queue records are deactivated, not deleted; this ensures an accurate audit trail. Likewise when a transaction requires two or more cost queue records, a separate part transaction is generated for each cost queue record.

When FIFO layers are consumed, the application uses the sum of the actual FIFO costs to determine the extended cost instead of deriving it from the weighted average unit costs of all the consumed FIFOs.

Rounding on FIFO and LOTFIFO transactions use the Extended Subcomponent Costs in PartTran. The application stores the weighted FIFO average unit costs in PartTran, but also populates the actual FIFO subcomponent costs for the transaction. All areas where the subcomponent costs are derived will use the Extended Subcomponent Costs when available. Capture COS/WIP Process also uses the Extended Subcomponent Costs when posting to the General Ledger. Whenever job costs are updated, these Extended Subcomponent Costs are used.

If a part quantity is not consumed during production and is returned to inventory, the actual FIFO layers issued to the job will be returned in reverse order (starting from the latest issued FIFO layer). RMA and Nonconformance also use this logic. All other inventory adjustments use the average for all quantities.

Price changes can also be applied to a quantity still available within a cost queue record. These price variances are posted to the Inventory account. When a price variance is needed for issued quantities, however, this variance is still recorded by the GL control.

Programs and Their Modifiers

You leverage and modify the Costing Method - FIFO functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Company Maintenance

You select the default costing method for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

Navigate to the Modules - All Modules - General card:

- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to rollup the estimated standard cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Navigate to the Group - Detail card:

- **Costing Method**- Select the method from which the costs are pulled to initialize the costs in this group. All costing methods are available. If you select the Costing Method radio option, the

default method selected on the part-site, part detail, or company record is used during the cost rollup calculation.

Logic/Algorithms

The Costing Method - FIFO functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Receive into Inventory

1. Receive quantity from PO receipts and transfer orders into inventory.
2. Create new FIFO cost queue record for each quantity received at each time and date.

Issue from Inventory

1. As quantities issue from inventory to sales orders, jobs, and transfer orders, decrease the quantity of oldest FIFO cost queue record.
2. If quantity of FIFO cost queue record equals zero, deactivate FIFO cost queue record.
3. If more quantity is issued than available on the cost queue record, then consume needed quantity from the next cost queue record in sequence.

Return Material to Inventory

1. When returning material from a job, the cost for the quantity is the actual FIFO cost layers that were originally issued to the job material
2. Create a new FIFO cost queue record.
3. Depending on site configuration, determine date of FIFO cost queue record.

Return from Customer to Inventory

1. When returning quantity from customer via RMA, the cost of the quantity is the actual FIFO cost layers that were originally shipped to the customer
2. Create new FIFO cost queue record using the original FIFO date for each of the FIFO layer returned.

Adjust Inventory (Decrease Quantity)

1. Select the part bin or lot.
2. Decrease the quantity.
3. Use the FIFO unit cost from the oldest cost queue record to calculate the value of the decreased quantity.

Adjust Inventory (Increase Quantity)

1. Select the part bin or lot.
2. Increase the quantity.
3. Use the average cost value or last cost if average is zero
4. Create a new FIFO cost queue record.

Adjust Inventory (Adjust Cost)

1. Select the part bin or lot.
2. Select an active FIFO cost queue record.
3. Change the unit cost for the selected FIFO cost queue record.

Example(s)

The following example(s) illustrate how you use the Costing Method - FIFO functionality.

Example 1

You receive four shipments of Part 4354-T. Each part shipment is tracked using a different cost queue record. A sequence number is also assigned to each cost queue record; this defines the order in which the quantities on each record are consumed:

Date	Sequence	Quantity	Cost	
10/01/2010	1	4	7	
10/05/2010	2	6	7	
10/07/2010	3	10	6	
10/09/2010	4	10	5	
Total		30		

FIFO Average Cost: ((4 x 7) + (6 x 7) + (10 x 6) + (10 x 5))/30 = 6

Weighted Average Cost $180/30 = 6

Five items are issued from Inventory to Work In Progress (WIP). One cost queue record is completely consumed and a quantity of one is pulled from the next record that is in sequence:

Date	Sequence	Quantity	Cost	Extended Cost
10/01/2010	1	4	7	28
10/05/2010	2	(6 - 1) 5	7	35

Date	Sequence	Quantity	Cost	Extended Cost
10/07/2010	3	10	6	60
10/09/2010	4	10	5	50
Total		25		150

FIFO Average Cost: ((0 x 0) + ((6 - 1) x 7) + (10 x 6) + (10 x 5)/30 = 4.83

Weighted Average Cost (180 - (5 x 6)) / (30-5) = $150/25 = 6

Example 2

This example demonstrates how material that is returned to inventory from a job, or material that is pulled from a job because of nonconformance, is costed.

A job material requires 250 items:

Layer 1	200 items at $10
Layer 2	50 items at $50

The total value is (200 * 10) + (50 * 50) = $4500

The average unit cost is $4500/250 = $18

15 items are over-issued and must be returned to inventory (or pulled because of nonconformance - the same rules apply). The reverse order of the FIFO layers will be used to cost the returned items. The 15 items will be returned at $50 each (the cost from Layer 2), for a total of $750. A new sequence is added to the end of the FIFO layer for this transaction.

If instead of 15 items, 60 items are returned to inventory, then two FIFO layers will be restored:

Layer 2	50 items at $50
Layer 1	10 items at $10

The total value of the returned items is (50 * 50) + (10 *10) = $2600

If there are intermediate transactions that consume a layer, no corrections will be made to those intermediate transactions.

Costing Logic for FIFO and LOTFIFO Returns from RMA Disposition

When material that was originally costed using FIFO or LOTFIFO is returned, the application uses the following costing logic to apply a cost. The following rules apply:

- The **Use Reference Invoice Costs** option in **Company Configuration** does not apply to FIFO and LOTFIFO returns.

- If an RMA line specifies and invoice number and line, the application finds the related invoice and uses the shipping information to find the last invoice shipment transaction for the pack and line. This transaction is linked to the PartFIFOTran which stores the breakdown of actual FIFO cost layers used for the shipment. If the shipment is not yet completely returned, then the shipped FIFO layers with "remaining/eligible" quantity can be used by the RMA Disposition for the return. This will use the original FIFO layers from the shipment. Multiple layers can be created.

  If the invoice shipment does not have enough quantity left for RMA return or the RMA line does not have an invoice number and line, the application will find the LAST generic shipment transaction for the part regardless of the customer to which it was shipped. This generic shipment also stores the breakdown of actual FIFO costs, which can be used as reference costs for the RMA Disposition. It does not matter if the generic shipment has been returned completely. The application will create a single FIFO layer for the remaining RMA quantity using the aforementioned reference costs.

Important Notes

LOTFIFO follows the same logic as the FIFO return. The FIFO layers used during shipment will be assessed/returned in the same REVERSE order regardless of the LOTNUM used.

New layers are created using the actual date the RMA is disposed/received to stock.

One or more FIFO Layers from the original shipment can be returned thru RMA if the invoice and line number are specified and the related invoice shipment transaction still has "unreturned" FIFO Layers. The shipped FIFO Layers will be returned in REVERSE. The LAST FIFO layer will be returned first.

Invoice Shipment is not found or no unreturned shipped FIFO layers then we use the generic shipment for the Part to get the Last FIFO Layer used by the shipment as Reference Costs. A single FIFO Layer will be returned for the full/remaining RMA quantity using the reference costs.

If RMA Disposition has one of the **Override Costs** or **Use Current Costs** set to enabled, then the system will ignore the FIFO layers from the Invoice/Generic Shipment transaction and will use the RMA Disposition Costs entered by the user to create a Single FIFO layer for the RMA return.

FIFO Layers returned from RMA Disposition to Job or Fail (DMR) will be processed as individual or distinct FIFO layers during DMR Processing and Return Material applications and will retain the multiple FIFO Layers when finally received to stock.

Examples

Part 01-FIFO has the following FIFO layers:

- FIFO1: 02/01/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 100
- FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 200
- FIFO3: 02/03/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 300

- FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 400
- FIFO5: 02/05/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 500

The following shipments occur against part 01-FIFO:

Shipment	Quantity	Invoice Number	Invoice Line	Layers
1	01-FIFO Qty = 3	10100	1	FIFO1: 02/01/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 100 FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200
2	01-FIFO Qty = 4	10200	1	FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200 FIFO3: 02/03/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 300 FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 400
3	01-FIFO Qty = 3	10300	1	FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 400 FIFO5: 02/05/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 500

RMA #1 is created for part 01-FIFO for a quantity of 6 and disposed to Stock on 07/14/16 (Current System Date). The invoice number and line are 10100/1. The customer is returning a quantity from 10100 that is more than the quantity shipped.

INS-STK: (RMA to Stock) Qty = 6

Returned FIFO Layers:

- FIFO2: 07/14/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200
- FIFO1: 07/14/16 Seq = 2 SubSeq = 0 Qty = 2 Cost = 100
- FIFO5: 07/14/16 Seq = 3 SubSeq = 0 Qty = 3 Cost = 500

RMA #2 is created for part 01-FIFO for a quantity of 3 and disposed to Stock on 07/14/16 (Current System Date). The invoice number and line are 10300/1. The customer is returning the material from invoice #3.

Although FIFO5 was used as Reference Costs under RMA#1, the shipped quantity was not actually "returned" and will actually be returned here under RMA#2.

INS-STK: (RMA to Stock) Qty = 3

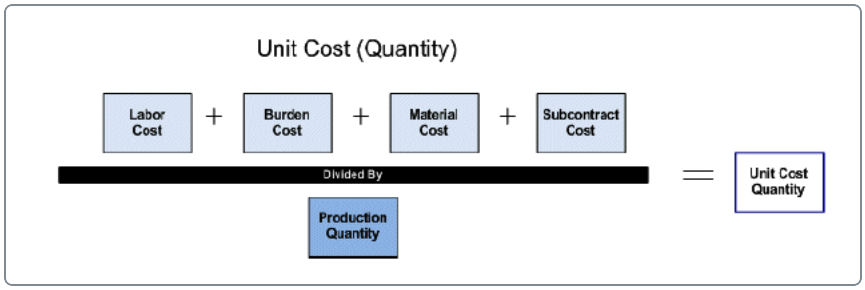
Returned FIFO Layers:

- FIFO2: 07/14/16 Seq = 4 SubSeq = 0 Qty = 2 Cost = 500
- FIFO1: 07/14/16 Seq = 5 SubSeq = 0 Qty = 1 Cost = 400

Costing Method-Last

This costing method pulls in the most recent Unit Cost of the part. This value is then used as the Unit Cost of the part for all future inventory transactions until a new part quantity is received to inventory.

The application again uses this updated, or last, unit cost as the value of the part quantity.



Regardless of which costing method you use, the application always maintains boththe last Unit Material cost and last Unit Material Burden cost (if calculated)of each part. You can display these last unit costs within Cost Adjustment. You can then see these values as you modify the unit costs of the part.

When you receive part quantities to inventory, these costs are calculated using the Average or Last costing method.

Programs and Their Modifiers

You leverage and modify the Costing Method - Last functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Company Maintenance

You select the default costing method for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

Navigate to the Modules - All Modules - General card:

- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to rollup the estimated standard cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Navigate to the Group - Detail card:

- **Costing Method**- Select the method from which the costs are pulled to initialize the costs in this group. All costing methods are available. If you select the Costing Method radio option, the default method selected on the part record is used during the cost rollup calculation.

Logic/Algorithms

The Costing Method - Last functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Last Method Calculation

Unit Cost = Most recent Unit Cost of the part that is received to inventory

Example(s)

The following example(s) illustrate how you use the Costing Method - Last functionality.

You manufacture a 100 quantity of Part 453EF for an actual unit cost of $5.87. This value is the unit cost for Part 453EF on all of its transactions. You later manufacture another 100 quantity of this part for an actual unit cost of $4.98. The Unit Cost value for Part 453EF is updated to the $4.98 value.

Costing Method-Lot Average

The resulting value is the average cost of the part.

This costing method maintains a rolling average of the part cost for quantities within a specific lot. Using this method, the application totals the costs of the parts received to the lot and then divides this amount by the current On-Hand Quantity within the lot.

Regardless of which costing method you use, the application always maintains boththe lot Unit Material cost and lot Unit Material Burden cost (if calculated)of each part. You can display these lot unit costs within Cost Adjustment. You can then see these values as you modify the unit costs of the part.

Programs and Their Modifiers

You leverage and modify the Costing Method - Last functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup

- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Company Maintenance

You select the default costing method for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

Navigate to the Modules - All Modules - General card:

- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to rollup the estimated standard cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Navigate to the Group - Detail card:

- **Costing Method**- Select the method from which the costs are pulled to initialize the costs in this group. All costing methods are available. If you select the Costing Method radio option, the default method selected on the part record is used during the cost rollup calculation.

Logic/Algorithms

The Costing Method - Last functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Last Method Calculation

Unit Cost = Most recent Unit Cost of the part that is received to inventory

Example(s)

The following example(s) illustrate how you use the Costing Method - Last functionality.

The following example(s) illustrate how you use the Costing Method - Lot Average functionality.

You have a 100 quantity of Part 565Y in lot 5B. This quantity was received to the lot at a $1 value for each part. You manufacture a 200 quantity of this part and receive it to the same lot at a $2 value for each part. This is how the average cost is calculated:

$300/200 On-Hand Lot Quantity = $1.50 unit cost (specific lot).

Costing Method-Lot FIFO

The Lot First-In-First-Out costing method is an accurate way to calculate the cost of quantities within inventory if you use lot tracking. This method is appropriate when you produce different batches of similar products.

It assumes that the next quantity to be issued or shipped from stock is the oldest quantity stored within the warehouse. The cost of this quantity at the time it was received is used as the cost of this issued or shipped quantity. As long as quantity remains from the original received quantity, the application uses this cost value until the entire quantity is consumed.

The Lot FIFO method creates cost queue records to track each price on the date on which the part quantity was received. As part quantities are issued to production or shipped to customers, the oldest cost queue record is consumed first. When a cost queue record is reduced to a zero quantity, it is deactivated. At this point, quantity from the next cost queue record is consumed, using the cost value generated when this queue record was received.

The Lot FIFO method generates accurate tracking for audit purposes. Cost queue records are deactivated, not deleted; this ensures an accurate audit trail. Likewise when a transaction requires two or more cost queue records, a separate part transaction is generated for each cost queue record.

When Lot FIFO layers are consumed, the application uses the sum of the actual Lot FIFO costs to determine the extended cost instead of deriving it from the weighted average unit costs of all the consumed Lot FIFOs.

Rounding on FIFO and Lot FIFO transactions use the Extended Subcomponent Costs in PartTran. The application stores the weighted Lot FIFO average unit costs in PartTran, but also populates the actual Lot FIFO subcomponent costs for the transaction. All areas where the subcomponent costs are derived will use the Extended Subcomponent Costs when available. Capture COS/WIP Process also uses the Extended Subcomponent Costs when posting to the General Ledger. Whenever job costs are updated, these Extended Subcomponent Costs are used.

If a part quantity is not consumed during production and is returned to inventory, the actual FIFO layers issued to the job will be returned in reverse order (starting from the latest issued FIFO layer). RMA and Nonconformance also use this logic. All other inventory adjustments use the average for all quantities.

Price changes can also be applied to a quantity still available within a cost queue record. These price variances are posted to the Inventory account. When a price variance is needed for issued quantities, however, this variance is still recorded by the GL control.

Programs and Their Modifiers

You leverage and modify the Costing Method - Lot FIFO functionality in the following application.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Company Maintenance

You select the default costing method for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

Navigate to the Modules - All Modules - General card:

- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to rollup the estimated standard cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Navigate to the Group - Detail card:

- **Costing Method**- Select the method from which the costs are pulled to initialize the costs in this group. All costing methods are available. If you select the Costing Method radio option, the default method selected on the part-site, part detail, or company record is used during the cost rollup calculation.

Logic/Algorithms

The Costing Method - Lot FIFO functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Receive into Inventory

1. Receive quantity from PO receipts and transfor orders into inventory.
2. Create new FIFO cost queue record for each quantity recieved at each time and date.

Issue from Inventory

1. As quantities issue from inventory to sales orders, jobs, and transfer orders, decrease the quantity of oldest Lot FIFO cost queue record.
2. If quantity of Lot FIFO cost queue record equals zero, deactivate Lot FIFO cost queue record.
3. If more quantity is issued than available on the cost queue record, then consume needed quantity from the next cost queue record in sequence.

Return Material to Inventory

1. When returning material from a job, the cost for the quantity is the actual FIFO cost layers that were originally issued to the job material
2. Create a new Lot FIFO cost queue record.
3. Depending on site configuration, determine date of Lot FIFO cost queue record.

Adjust Inventory (Decrease Quantity)

1. Select the part bin or lot.
2. Decrease the quantity.
3. Use the Lot FIFO unit cost from the oldest cost queue record to calculate the value of the decreased quantity.

Adjust Inventory (Increase Quantity)

1. Select the part bin or lot.
2. Increase the quantity.
3. Use the average cost value or last cost if average is zero
4. Create a new Lot FIFO cost queue record.

Adjust Inventory (Adjust Cost)

1. Select the part bin or lot.
2. Select an active Lot FIFO cost queue record.
3. Change the unit cost for the selected Lot FIFO cost queue record.

Example(s)

The following example(s) illustrate how you use the Costing Method - Lot FIFO functionality.

Example 1

You receive four shipments of Part 4354-T. Each part shipment is tracked using a different cost queue record. A sequence number is also assigned to each cost queue record; this defines the order in which the quantities on each record are consumed:

Date	Sequence	Quantity	Cost	Extended Cost
10/01/2010	1	4	7	28
10/05/2010	2	6	7	42
10/07/2010	3	10	6	60
10/09/2010	4	10	5	50

Lot FIFO Average Cost: ((4 x 7) + (6 x 7) + (10 x 6) + (10 x 5))/30 = 6

Weighted Average Cost $180/30 = 6

Five items are issued from Inventory to Work In Progress (WIP). One cost queue record is completely consumed and a quantity of one is pulled from the next record that is in sequence:

Date	Sequence	Quantity	Cost	Extended Cost
10/01/2010	1	4	7	28
10/05/2010	2	(6 - 1) 5	7	35
10/07/2010	3	10	6	60

Date	Sequence	Quantity	Cost	Extended Cost
10/09/2010	4	10	5	50
Total		25		150

Lot FIFO Average Cost: ((0 x 0) + ((6 - 1) x 7) + (10 x 6) + (10 x 5)/30 = 4.83

Weighted Average Cost (180 - (5 x 6)) / (30-5) = $150/25 = 6

Costing Logic for FIFO and LOTFIFO Returns from RMA Disposition

When material that was originally costed using FIFO or LOTFIFO is returned, the application uses the following costing logic to apply a cost. The following rules apply:

- The **Use Reference Invoice Costs** option in **Company Configuration** does not apply to FIFO and LOTFIFO returns.
- If an RMA line specifies and invoice number and line, the application finds the related invoice and uses the shipping information to find the last invoice shipment transaction for the pack and line. This transaction is linked to the PartFIFOTran which stores the breakdown of actual FIFO cost layers used for the shipment. If the shipment is not yet completely returned, then the shipped FIFO layers with "remaining/eligible" quantity can be used by the RMA Disposition for the return. This will use the original FIFO layers from the shipment. Multiple layers can be created.

  If the invoice shipment does not have enough quantity left for RMA return or the RMA line does not have an invoice number and line, the application will find the LAST generic shipment transaction for the part regardless of the customer to which it was shipped. This generic shipment also stores the breakdown of actual FIFO costs, which can be used as reference costs for the RMA Disposition. It does not matter if the generic shipment has been returned completely. The application will create a single FIFO layer for the remaining RMA quantity using the aforementioned reference costs.

Important Notes

LOTFIFO follows the same logic as the FIFO return. The FIFO layers used during shipment will be assessed/returned in the same REVERSE order regardless of the LOTNUM used.

New layers are created using the actual date the RMA is disposed/received to stock.

One or more FIFO Layers from the original shipment can be returned thru RMA if the invoice and line number are specified and the related invoice shipment transaction still has "unreturned" FIFO Layers. The shipped FIFO Layers will be returned in REVERSE. The LAST FIFO layer will be returned first.

Invoice Shipment is not found or no unreturned shipped FIFO layers then we use the generic shipment for the Part to get the Last FIFO Layer used by the shipment as Reference Costs. A single FIFO Layer will be returned for the full/remaining RMA quantity using the reference costs.

If RMA Disposition has one of the **Override Costs** or **Use Current Costs** set to enabled, then the system will ignore the FIFO layers from the Invoice/Generic Shipment transaction and will use the RMA Disposition Costs entered by the user to create a Single FIFO layer for the RMA return.

FIFO Layers returned from RMA Disposition to Job or Fail (DMR) will be processed as individual or distinct FIFO layers during DMR Processing and Return Material applications and will retain the multiple FIFO Layers when finally received to stock.

Examples

Part 01-FIFO has the following FIFO layers:

- FIFO1: 02/01/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 100
- FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 200
- FIFO3: 02/03/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 300
- FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 400
- FIFO5: 02/05/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 500

The following shipments occur against part 01-FIFO:

Shipment	Quantity	Invoice Number	Invoice Line	Layers
1	01-FIFO Qty = 3	10100	1	FIFO1: 02/01/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 100 FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200
2	01-FIFO Qty = 4	10200	1	FIFO2: 02/02/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200 FIFO3: 02/03/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 300 FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 400
3	01-FIFO Qty = 3	10300	1	FIFO4: 02/04/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 400 FIFO5: 02/05/16 Seq = 1 SubSeq = 0 Qty = 2 Cost = 500

RMA #1 is created for part 01-FIFO for a quantity of 6 and disposed to Stock on 07/14/16 (Current System Date). The invoice number and line are 10100/1. The customer is returning a quantity from 10100 that is more than the quantity shipped.

INS-STK: (RMA to Stock) Qty = 6

Returned FIFO Layers:

- FIFO2: 07/14/16 Seq = 1 SubSeq = 0 Qty = 1 Cost = 200
- FIFO1: 07/14/16 Seq = 2 SubSeq = 0 Qty = 2 Cost = 100
- FIFO5: 07/14/16 Seq = 3 SubSeq = 0 Qty = 3 Cost = 500

RMA #2 is created for part 01-FIFO for a quantity of 3 and disposed to Stock on 07/14/16 (Current System Date). The invoice number and line are 10300/1. The customer is returning the material from invoice #3.

Although FIFO5 was used as Reference Costs under RMA#1, the shipped quantity was not actually "returned" and will actually be returned here under RMA#2.

INS-STK: (RMA to Stock) Qty = 3

Returned FIFO Layers:

- FIFO2: 07/14/16 Seq = 4 SubSeq = 0 Qty = 2 Cost = 500
- FIFO1: 07/14/16 Seq = 5 SubSeq = 0 Qty = 1 Cost = 400

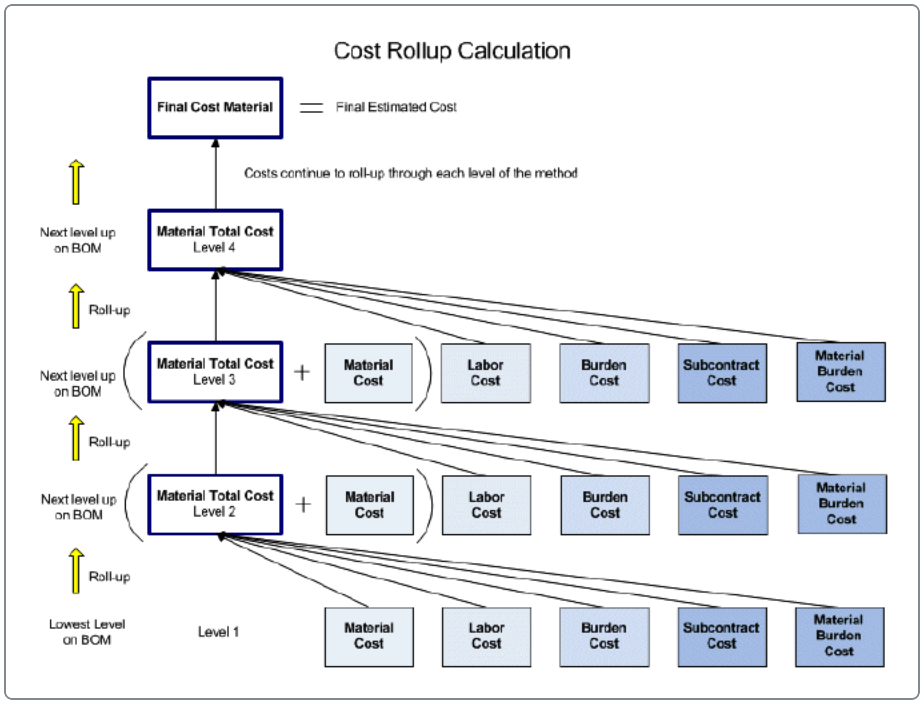
Costing Method-Standard

Use the Standard costing method when you want to define a baseline value for your part costs. This baseline value does not change through transactions against this part.

This standard cost is used on customer shipments, and the MFG-CUS transaction captures the standard cost for the part rather than the actual cost from the job.

As actual costs are calculated at the time of receipt, the difference between the actual and standard costs are tracked through the selected GL control within the product group. A MFG-VAR transaction is also created for the remaining WIP cost balances.

When the variance between these two costs becomes too great, you should consider updating the standard cost on the part record to better reflect your actual costs. You do this within the Costing Workbench. Use this application to pull in the current estimated costs from job methods. You can modify the costs to better reflect the current situation within your manufacturing process. You can then post these costs to your part records. Each Part-site detail uses these updated standard costs, and they in turn become the amounts used within customer shipments.



Programs and Their Modifiers

You leverage and modify the Costing Method - Standard functionality in the following application.

Company Configuration

Use Company Configuration to define the base parameters for each module. To launch this application from the Main Menu:

- System Management/Company Maintenance/Company

The costing modifiers you define in this application are:

- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a company record during the posting process. Access the GL control cards to define which GL controls you wish to use with this company. These records indicate which posting accounts are used for transactions with the current company. You can associate one or more GL controls with a company record. Note that each control must belong to a different control type.
- **Cost Method**- Select the default costing method from the entire company from this drop-down list.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

The following costing modifiers are used within this application:

- **Costing Method**- Use these radio buttons to select the method through which the costs are pulled to initialize the costs in this group. You can select the Average, Last, FIFO, or Standard costing method. You can also select the Costing Method radio button. This indicates that you want to use the costing method selected on the Part - site detail from each part record.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill orders. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning/Setup
- Production Management/Quality Assurance/Setup

You define the costing method for a part on the Part card and the Site card. The Part card defines the default costing method for the part. You can override this default value, however, on each part-site record you create for the part. The value you update:

- **Costing Method**- You define the costing method for the part or part-site from this drop-down list.

Product Group Maintenance

You create and update product group records within Product Group Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup

These are the costing modifiers you define within this application:

- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a product group record during the posting process. Access the GL control cards to define which GL controls you wish to use with this product group. These records indicate which posting accounts are used for transactions with the current product group. You can associate one or more GL controls with a product group record. Note that each control must belong to a different control type.

Logic/Algorithms

The Costing Method - Standard functionality uses this logic to calculate its results.

Costing Method Hierarchy

1. The transaction uses the costing method defined on the part-site record.
2. If not defined, the transaction uses the costing method defined on the part detail.
3. If not defined, the transaction uses the costing method defined on the company.

Variance Amount Calculation

Variance Amount = Actual Unit Cost - Standard Unit Cost

Example(s)

The following example(s) illustrate how you use the Costing Method - Standard functionality.

You track your part costs using the Standard costing method. For Part 45T6X, you enter $55.00 as the standard cost value. You receive a quantity of Part 45T6X to inventory at an actual cost of $56.32. The variance amount for each unit of this part is $1.32.

Inter Divisional Internal Prices

Inter Division Internal Prices define the unit costs of part quantities transferred between sites that use different GL controls. You can modify each part's unit cost with the Inter Divisional Internal Prices calculation.

Each updated unit cost value is saved within each part record.

This value then becomes the Unit Cost for the material used for quantities consumed by the site.

You run this calculation within the Costing Workbench.

Costing Workbench

Use the Costing Workbench to calculate the internal prices for parts transported between sites within your company. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

To launch the Calculate Inter Divisional Internal Prices application:

- Actions Menu/Calculate Inter Division Internal Prices

This is the costing modifier you define within this application:

- **Percentage**- This value determines the change that occurs for the internal unit price of the part. You can enter positive or negative values within this field. A positive value creates an internal price that is higher than the part's total cost. A negative value creates an internal price that is lower than the part's total cost.

Logic/Algorithms

The Inter Divisional Internal Prices functionality uses this logic to calculate its results.

Material Unit Cost = (Current Unit Cost x Percentage) + Current Unit Cost

Example(s)

The following example(s) illustrate how you use the Inter Divisional Internal Prices functionality.

Both the Red site and the Blue site use Part 764R. This part has a unit cost of $5.00. Because of a 2% rise in shipping costs, however, you need to modify this unit cost.

You launch the Costing Workbench and load in the cost group that contains Part 764R. You then click the Actions menu and select Calculate Inter Division Internal Prices. This application appears.

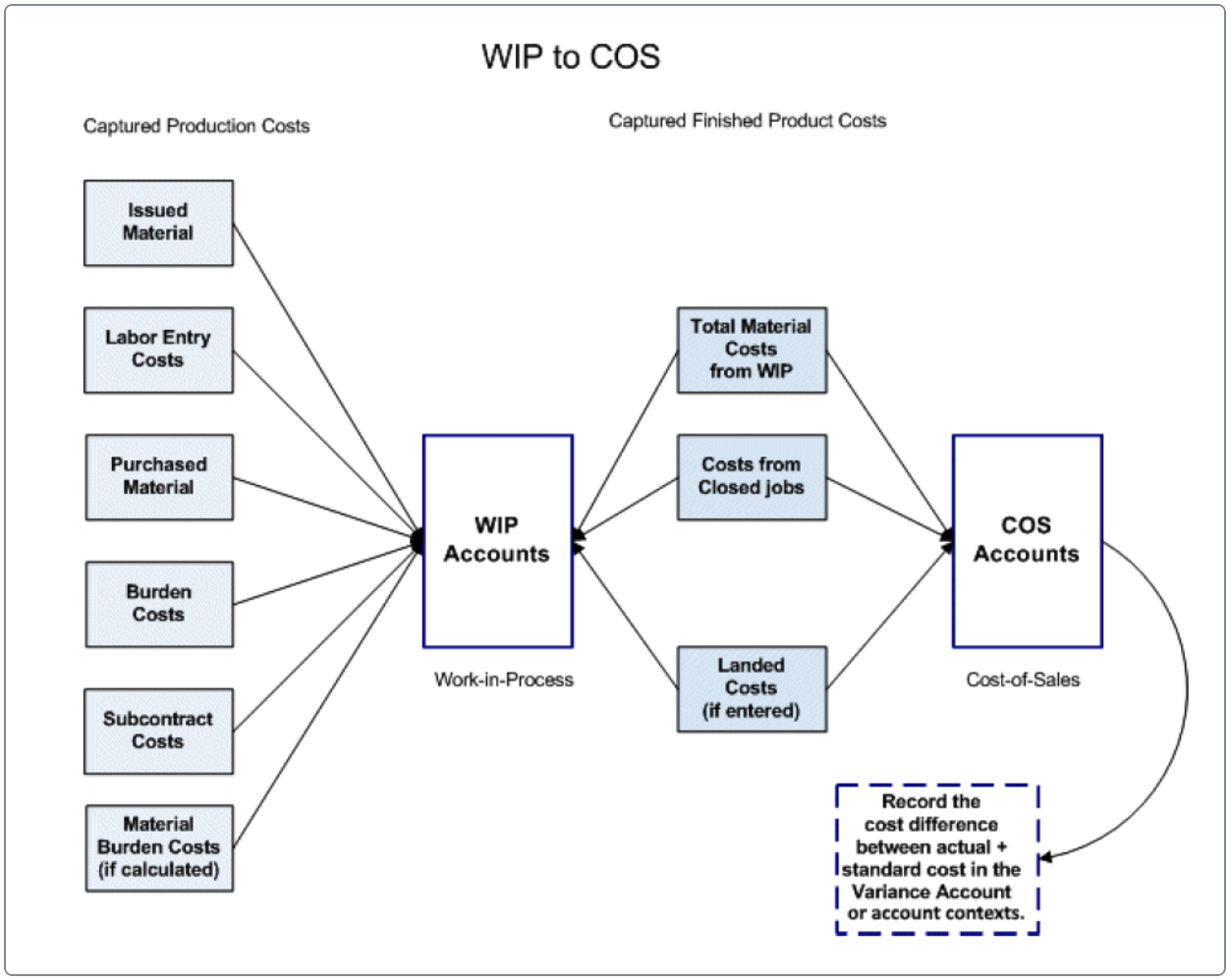
Within the Percentage field, you enter 2. You then click the Calculate button. This results in a new unit cost of $5.10. This is the Material Unit Cost value you want to use internally going forward. Because of this, you click the Update button.

The record for Part 764R is now updated with the $5.10 unit cost.

Inventory - WIP Reconciliation

The Inventory/WIP Reconciliation calculation reconciles the General Ledger with costs from Inventory and Work In-Process (WIP). As inventory transactions like MFG-VAR and MFG-STK are generated, their costs accumulate in WIP and Inventory. When you run the Inventory/WIP Reconcilication calculation, you summarize these costs and track each transaction. You display the results of this calculation on the Inventory/WIP Reconciliaion report.

This calculation captures simulated COS and WIP information. You use the Work in Process (WIP) calculation to review the costs that have occurred so far on a job currently in production. The costs associated with WIP are the current labor, burden, subcontract, and material burden amounts generated so far against each job. The Cost of Sales (COS) calculation determines the final cost of a part quantity. This value is first calculated by adding the beginning inventory to the cost of finished goods manufactured during a specific period. It does this by pulling the costs accumulated by the Work In Process (WIP) calculation and then adding the variances to this original WIP amount.



Because this calculation captures simulated COS and WIP information, the report displays recent manufacturing variances for closed jobs as records with a description of Phantom Purge of WIP to COS. These records do not exist as MFG-VAR PartTran records in your database - they are temporary records, created and displayed so that you can review any current variances and make corrections before you commit (post) COS and WIP information to your database.

Transaction Type Hierarchy

The application automatically assigns GL controls to various inventory transaction types (PartTran records). It selects these GL controls based on a default hierarchy that is defined for each transaction type. You set up the base level default GL controls through Company Configuration. You can then set up more specific default GL controls in your product group, part class, and part records.

The Transaction Types section of this guide documents the specific transactions that trigger each type. Use this information to define the GL control hierarchy you need for each type.

When to Run

Use the Inventory/WIP Reconciliation report to analyze how costs are currently being accumulated and assigned. Run this report before you run the Capture COS/WIP Activity process. You can then verify that the correct GL controls are recording the correct transactions. When you are satisfied with the results displayed on the report, run the Capture COS/WIP Activity application. These transactions are then posted to your General Ledger.

Please be aware that the posted results will likely be somewhat different then the results displayed on the Inventory/WIP Reconciliation report. This occurs for several reasons. One potential reason is that the filters you select on the report may calculate the results differently then the posting engine. Another is that you typically run this report before you close the previous period. If you make adjustments and then post costs, the results will be different. Because of this, the Inventory/WIP Reconciliation report is an important verification tool, but it cannot display the final production costs.

The Capture COS/WIP Activity process is documented in both the Cost of Sales and Work In Process sections of this guide. You launch this application from the Main Menu by opening the Production Management/Job Management/Operations directory path.

Programs and Their Modifiers

You leverage and modify the Inventory - WIP Reconciliation functionality in the following application.

Inventory/WIP Reconciliation Report

You run and display the results of the Inventory/WIP calculation through the Inventory/WIP Reconciliation report. To launch this report from the Main Menu:

- Material Management/Inventory Management/Reports
- Production Management/Job Management/Reports

These are several filters you define before you run this report. You run this report with either a specific date range or a specific journal entry. If you want, you can filter this report by using a specific transaction type, job, and G/L account. You also indicate the Account Level and GL Posting details you want to include.

Logic/Algorithms

The Inventory - WIP Reconciliation functionality uses this logic to calculate its results.

The Inventory/WIP Reconciliation calculation pulls data from several tables and fields. This section details all the tables and fields touched by this calcuation. The data pulled from these fields is then displayed on the report.

For information on the WIP and COS calculations, review the Work In Process and Cost of Sales sections located within this guide.

PartTran

All the data from this table is pulled during the Inventory/WIP Reconciliation calculation.

GLAcctCache

GLAcctCache.DisplayAccount

ttPartTran

ttPartTran.TranDate

ttLaborDtlCache

ttLaborDtlCache.JobNum

JobHead

JobHead.PartNum

ttGLAcctCache

ttGLAcctCache.Company

LaborDtl

LaborDtl.Company

LaborDtl.PayrollDate

LaborDtl.JobNum

LaborDtl.ResourceGrpID

LaborDtl.PostedToGL

LaborDtl.FiscalYear

LaborDtl.JournalNum

LaborDtl.WipPosted

LaborDtl.LaborHrs

LaborDtl.BurdenHrs

LaborDtl.LaborRate

LaborDtl.BurdenRate

LaborDtl.Labortype

LaborDtl.EmployeeNum

InvcHead

InvcHead.Company

InvcHead.InvoiceType

InvcHead.Posted

InvcHead.CustNum

InvcHead.InvoiceNum

InvcHead.InvoiceDate

InvcHead.site

InvcDtl

InvcDtl.dtInvoiceNum:InvoiceNum

InvcDtl.COSPostingReqd

InvcDtl.COSPosted

InvcDtl.OurShipQty

InvcDtl.MtlUnitCost

InvcDtl.SubUnitCost

InvcDtl.LbrUnitCost

InvcDtl.BurUnitCost

InvcDtl.MtlBurUnitCost

InvcDtl.PartNum

Example(s)

The following example(s) illustrate how you use the Inventory - WIP Reconciliation functionality.

You want to make sure that your General Ledger contains the accumulated costs from all the jobs that are closed or currently in production. To do this, you define the GL controls within Company Configuration. Because you want these costs posted to these GL controls, you also select the Inventory check box on the General Ledger card.

Before you commit these costs to the General Ledger, however, you need to run the Inventory/WIP Reconciliation report. You set up this report to run on a recurring schedule a day before the Capture COS/WIP Activity process is run. To do this, you select the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month - 1" option. This means that you want this process to run one day before the end of each month. You now add this report to a process set, and attach this process set to a recurring schedule.

You next launch the Capture COS/WIP Activity process. You indicate that this process updates the General Ledger by selecting the Post to GL check box. You then place this process on a recurring schedule by selecting the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month option. This means that this process runs on the last day of each month. You now add this process to a process set, and attach this process set to a recurring schedule.

Each time the system calendar advances to the day before the end of the month, the Inventory/WIP Reconciliation report is run for your review. This gives you a day to make any changes you need to the transaction information. The next day, the Capture COS/WIP Activity process runs, and the WIP and COS GL transactions update with the current information.

Labor

Labor is the direct cost of the work performed on each operation by your shop employees.

The application generates labor cost through the following calculations:

- An estimated labor cost that is based on each resource/resource group's Quoting Labor Rate and Crew Size values. These rates are used on quotes.
- An estimated labor cost that is based on each resource/resource group's Costing Labor Rate and Crew Size values. These rates are used on job estimates.
- An override or substitute estimated labor cost based on each operation's Labor Rate and Crew Size values defined within the quote method. These rates are used on quotes.
- An override or substitute estimated labor cost based on each operation's Labor Rate and Crew Size values defined within the job method. These rates are used on job estimates.
- An actual labor cost calculated by multiplying each employee's Labor Rate against the Actual Labor Hours clocked against an operation.

Only direct labor is calculated against jobs to determine cost. Indirect labor for tasks like sweeping, clerical work, management, and so on is not assigned to specific jobs. Because of this, indirect labor is not included in job costing.

Direct labor hours are also used as the base value for calculating burden. Generally burden hours equal labor hours. In some situations, however, it may be preferable to divide the burden hours among all the employees working on the operation.

Backflushing and Labor

The backflush labor and/or quantity functionality addresses the situation where labor or quantity reporting is difficult to record or does not add value to the manufacturing process. This feature places a predetermined amount of labor hours and/or quantity, and their accompanying costs, against a job.

Because this is an alternate source method for gathering labor and material costs, backflushing does not change how the labor calculation runs. The labor hours reported through backflushing are multiplied against the labor rates and the resulting amount is the labor cost.

The estimating labor rates are first defined on resources and or resource groups.

Estimated Labor Cost

The estimating labor rates are first defined on resources and or resource groups. You can set up different labor rates for Setup Time and Production Time. You can also enter different rates on specific resources within a resource group to more accurately reflect the workflow on the shop floor.

To further refine the estimated labor cost, you can additionally enter a Crew Size value for both setup and production. This indicates how many employees are required to work on setup and/or production at the same time. This value is multiplied against the quoting or costing labor rates to arrive at the estimated labor cost on a quote or a job.

In addition, the estimated values you enter through Resource Group Maintenance can be overridden within quote methods and job methods. Typically the estimated labor rates and crew sizes from resources/resources groups appear by default on the resources selected to run the operation, but you can enter different values on each operation. Use this to create quote and job methods that more accurately estimate the labor costs you plan to accumulate during a specific quote or job method.

The estimated labor costs from each operation are added together to calculate the total estimated cost of labor for each quote and job.

Estimated Labor Rate Selection Hierarchy

The rates selected by the application to calculate estimated labor costs on a job use the following hierarchy:

1. If a Labor Rate is defined on a resource, this value is used for the estimated rate.
2. If a Labor Rate is not defined on a resource, the rate defined on the resource group is used instead.
3. If a Labor Rate is defined on a job or quote method, this value is used instead of the resource or resource group rate.

Actual Labor Cost

Each employee who works in production must have a shop employee record. This record defines the Labor Rate at which this person costs per hour. This rate does not have to be the actual rate you pay the employee; you could instead use this value to define the Labor Rate you charge customers for

this employee's labor. It is recommended, however, that these values be the same, as then your actual labor costs better reflect your payroll costs.

You define labor rates through the Shop Employee Maintenance application. If you use the Payroll module, however, you instead define these rates within Payroll Employee Maintenance. After you select the Active Shop Employee check box within Payroll Employee Entry and save the employee record, a matching record is automatically generated within the Shop Employee Maintenance application.

Actual setup costs are calculated by multiplying the Labor Rate value from the Shop Employee record against the Setup Hours defined on the operation. Actual production labor costs are calculated by multiplying this same Labor Rate value against the number of hours the shop employee worked on an operation.

Production labor hours can be entered through two ways. The hours worked on each operation can be entered manually through the Labor Entry application. Labor hours can also be entered automatically through the MES interface. Shop employees use this interface to clock in and out of operations. The labor hours then accumulate automatically based on the amount of time each employee was clocked into each operation.

The actual labor costs on each operation are added together to arrive at the total actual labor cost of the job.

Programs and Their Modifiers

You leverage and modify the Labor functionality in the following application.

Job Entry

You can override estimated labor rates and crew sizes for a job method resource group through the Job Details -Operations - Scheduling Resources - Details card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the labor modifiers you define within this application:

- **Override Rates (Job Method)**- Use this option when you want to change the default resources rates on a job method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate within the Setup and Production sections. You can enter these new labor rates manually. If you run the Get Details functionality to pull in a quote, job, or part method, the rates are overridden automatically by the values defined on the pulled method. This check box is found on the Scheduling Resources card.
- **Production Labor Rate (Job Method)**- Enter a value in this field when you need to override the default estimated production labor rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

- **Production Standard**- The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. You define this value on the Operation - Detail card.
- **Setup Crew Size (Job Method)**- Enter a value in this field when you need to override the default crew size value from a resource/resource group on a job method. You can enter a value in this field when you select the Override Rates check box. This field is located on the Scheduling Resources card.
- **Setup Labor Rate (Job Method)**- Enter a value in this field when you need to override the default setup labor rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

Opportunity/Quote Entry

You can override estimated labor rates and crew sizes for a quote method resource group through the Line - Mfg Details - Quote Details - Operations - Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the labor modifiers you define within this application:

- **Override Rates (Quote Method)**- Use this option when you want to change the default resources rates on a quote method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate within the Setup and Production sections. This check box is found on the Scheduling Resources card.
- **Production Labor Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production labor rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.
- **Production Standard**- The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. You define this value on the Operation - Detail card.
- **Setup Crew Size (Quote Method)**- Enter a value in this field when you need to override the default crew size value from a resource/resource group on a quote method. You can enter a value in this field when you select the Override Rates check box. This field is located on the Scheduling Resources card.
- **Setup Labor Rate (Quote Method)**- Enter a value in this field when you need to override the default setup labor rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card.

Payroll Employee Maintenance

If your company uses the Payroll module, use this application to define the labor rate for each employee who works on the shop floor. To do this, select the Active Shop Employee check box and enter the Labor Rate that you need. To launch Payroll Employee maintenance from the Main Menu:

- Financial Management/Payroll/Setup folder.

This is the labor modifier you define within this application:

- **Labor Rate (Payroll Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. You can define this value within Payroll Employee Maintenance if the Active Shop Employee check box is selected. This option causes a matching shop employee record to be created within Shop Employee Maintenance that then uses the rate you define within this application. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. Any additional labor costs like premium pay, benefits, and so on, however, should be averaged and included in the Burden Rate entered for each resource or resource group. You define this value on the Detail card.

Resource Group Maintenance

You define labor rates for a resource group on the Detail card. You can also enter different labor rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

These are the labor modifiers you define within this application:

- **Costing Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource/resource group. This rate is used on job estimates. When you use the Get Details functionality to pull in a method on a job, the Costing Labor Rates from each resource/resource group are used as the default estimated setup labor rates on the method's operations. If you need, however, you can select the Override Rates check box to use the values on the method being pulled into the job. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).Costing Labor Rate (Production) - This value defines the rate at which estimated labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is cost estimated to manufacture part quantities on operations using this resource/resource group. This rate is used on job estimates. When you use the Get Details functionality to pull in a method on a job, the Costing Labor Rates from each resource/resource group are used as the default estimated setup labor rates on the method's operations. If you need, however, you can select the Override Rates check box on each operation to use the values on the method being pulled into the job. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Crew Sizes (Production)**- Used for calculating estimated labor, this value defines the average number of operators in this resource group that manufacture part quantities on an operation at the same time. This is the default production crew size that is used on methods of manufacture, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your planned labor

cost, as more people work on the job. You define this value on the Details card (resource groups).

- **Crew Sizes (Setup)**- Used for calculating estimated labor, this value defines the average number of operators in this resource group that simultaneously prepare for manufacturing work on an operation. This is the default setup crew size that is used on methods of manufacture, quotes, and jobs that use this resource group. Do not confuse crew size with resources per operation. The crew size value is a factor that increases your planned labor cost, as more people work on the job. You define this value on the Details card (resource groups).
- **Quoting Labor Rate (Production)**- This value defines the rate at which estimated labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to manufacture part quantities for operations that use this resource/resource group. This is the rate used on quotes. When you use the Get Details functionality to pull in a method on a quote, the Quoting Labor Rates from each resource/resource group are used as the default estimated production labor rates on the method's operations. If you need, you can enter different labor rates within the quote method. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.
- **Quoting Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource/resource group. This is the rate used on quotes. When you use the Get Details functionality to pull in a method on a quote, the Quoting Labor Rates from each resource/resource group are used as the default estimated setup labor rates on the method's operations. If you need, you can enter different labor rates within the quote method. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources).
- **Use Estimates**- When this value is selected, the actual labor time reported against operations is calculated by using the estimated time on each operation. When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation. If an employee is clocked into multiple operations within different resource groups -- and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.

Shop Employee Maintenance

Use this application to define the labor rate for each employee who works on the shop floor. Note, however, that if you use the Payroll module, you need to enter this rate within the Payroll Employee Maintenance application, as the Labor Rate field is read-only in this application. To launch Shop Employee maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

These are the labor modifiers you define within this application:

- **Labor Rate (Shop Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. Any additional labor costs like premium pay, benefits, and so on, however, should be averaged and included in the Burden Rate entered for each resource or resource group. You define this value on the Detail card. Note that if you use the Payroll module, you are not able to enter this value within Shop Employee Maintenance. You instead enter this value within Payroll Employee Maintenance.

Logic/Algorithms

The Labor functionality uses this logic to calculate its results.

Estimated Labor Cost

1. Estimated Setup Labor Cost = (Setup Labor Rate x Setup Hours) x Crew Size
2. Estimated Production Labor Cost = (Production Labor Rate x Production Hours) x Crew Size
3. Estimated Labor Cost = Estimated Setup Labor Cost + Estimated Production Labor Cost

Actual Labor Cost

Actual Labor Cost Per Employee = Labor Rate x Labor Hours

Total Actual Labor Cost Per Operation = The Total Cost of Labor for all Employees who worked on the Operation

Get Details - Job

If a job, quote, or part method is pulled into a job through the Get Details functionality, the production and setup labor rates from the JobOpDtl or Quote OpDtl table are copied if the Override Rates check box is selected (True).

If this check box is clear, however, then the default costing rates from the resource/resource group are automatically used instead.

Get Details - Quote

If a job, quote, or part method is pulled into a quote through the Get Details functionality, the production and setup labor rates are replaced by the estimated rates defined on each resource/resource group. If you need, you can enter different labor rates within the quote method.

Quantity Only - Labor Type

For **Quantity Only** operations the Labor Cost is calculated according to the following formula:

```
Labor Cost = ( [(Production Costing Labor Rate of the RG1 resource
group * its crew size)
```

```
 + (Production Costing Labor Rate of the RG2 resource group * its
crew size) + (Production Costing
 Labor Rate of the RG 3 resource group * its crew size)] / Sum of
all the crew sizes ) * Labor Hrs
```

The calculation above is based on a single operation set as Quantity Only. The operation is tied to three resource groups:

- RG1
- RG2
- RG3

The calculation formula is only valid if you select the RG1 resource group in Time and Expense Entry, considering the RG1 resource group is the first Resource Group assigned to the job operation (default).

- In Resource Group Entry, you can set different Production Costing Labor Rates for a Resource tied to a Resource Group, if you clear the **Use Resource Group Values** checkbox.
- For the **Quantity Only** operations, the Epicor application automatically calculates the Labor Hours, when you submit labor quantities in Time and Expense Entry.

  ```
  Labor Hours = (Labor Quantity entered in Time and Expense /
  Production Standard of the
  Operation) * Sum of the crew sizes of all Resource Groups (or
  Resources) assigned to the Operation.
  ```

  In Time and Expense Entry, if you select a different Resource Group instead of **RG1** (default), for example **RG2**, the Epicor application calculates the Labor Cost as follows:

  ```
  Labor Cost = (Production Costing Labor Rate of RG2 * Labor
  Hours)
  ```

  Considering **RG2** is not the default Resource Group on the job operation.

Example(s)

The following example(s) illustrate how you use the Labor functionality.

Estimated Labor Cost Example

You manage a sauerkraut factory, and you need to estimate the labor cost for a Push operation that moves cabbage from the conveyor into a Shredder machine. On the Push resource group, you enter the following values:

- Setup Labor Rate (Quoting): $10
- Setup Crew Size: 4
- Production Labor Rate (Quoting): $30
- Production Crew Size: 4

It takes 1 hour to prepare for the Push operation and 7 hours to complete production work on the Push operation.

1. The estimated Setup Labor Cost is $10 x 1 hour x 4 shop employees, for a total estimated setup cost of $40.
2. The estimated Production Labor Cost is $30 x 7 hours x 4 shop employees for a total estimated production cost of $840.
3. The Estimated Setup Labor Cost ($40) is added to the Estimated Production Labor Cost ($840) for a Total Estimated Labor Cost of $880.

Actual Labor Cost Example

You manage a sauerkraut factory, and you have a Push operation that moves the cabbage from the conveyor into a Shredder machine. You have 4 shop employees who push the cabbage into the Shredder each day. You set up the job method so that each Push operation takes 8 hours to complete. The shop employees have a $30 Labor Rate.

The equation for the Push operation for each employee is 30 x 8 for a total of $240 labor cost for each employee. Because four employees worked on the operation, the final actual labor cost for this operation is $960.

Quantity Only - Actual Labor Cost

The scenarios listed below provide examples of how labor costs are calculated based on the following labor and resource group information:

- **Employee Labor Rate** - 16
- Operation 10 used in the scenarios includes three Resource Groups listed in the following order:

Resource Group	RG1 (The Resource Group includes one resource that uses the Resource Group costing values (R1 resource).
Costing Labor Rate	2
Resource Group	RG2 (The Resource Group includes one resource that uses the Resource Group costing values (R2 resource).

Costing Labor Rate	2.5
Resource Group	RG3 (The Resource Group includes one resource that uses the Resource Group costing values (R3 resource).
Costing Labor Rate	2.75

- **Production Calendar** - D5H8 (Monday-Friday/8h per day)

Scenario 1

In Time and Expense Entry, you report labor against the job operation set as **Time and Quantity**. The employee that reports labor carries a labor rate and the **Production Quantity** is 1.

- The Labor Cost equals the Labor Rate of the employee:

```
Employee Rate (16) *Labor Hours Reported (8) = 128 (16 * 8)
```

Scenario 2

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**, but you use a different Resource Group. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**. Before you submit labor, you select the **RG3** resource group using the **Time and Expense Entry > Time > Daily Time > Detail > Detail > Location (pane) > Resource Group** field.

The Crew Size values are as follows:

RG1	1
RG2	1
RG3	1

Result

The Labor Cost equals the Labor Rate of the RG3 resource group:

```
Labor Rate of RG3 or Resource (2.75) * Labor Hours (3) = 8.25 (2.75
* 3)
```

As the Labor Type for the operation is **Quantity Only,** the Epicor application automatically calculates the Labor Hours of **3** based on the following formula:

```
Labor Quantity entered in Time and Expense Entry (1) /
Production Standard of the Operation (1)
 * Sum total of all three Crew Sizes for the Resource
```

```
Groups (or Resources) assigned to the Operation (3)
 = Labor Hours (3)
```

Scenario 3

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**. The Resource Groups used carry the following Crew Size values:

RG1	3
RG2	3
RG3	1

Result

- The Labor Cost calculates as follows:

```
Labor Rate of RG1 or Resource (2) * its Crew Size (3)  + Labor Rate
of RG2 or Resource (2.5)
 * its Crew Size (3)  + Labor Rate of RG3 or Resource (2.75) * its
Crew Size (1) = 16.25 ( [2*3] + [2.5*3]
 + [2.75*1] = 16.25
```

Scenario 4

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **2**. The employee that reports labor carries a labor rate and the **Production Quantity** is **10**. The Resource Groups used carry the following Crew Size values:

RG1	1
RG2	1
RG3	1

Result

- The Labor Qty you enter is the same as the Make to Stock quantity of **10**. Therefore, the job operation is marked complete.
- The Labor Cost equals the sum of the Labor Cost of the Resources Groups or Resources multiplied by Labor Hours/Crew Size total. Therefore,

```
Labor Rate Total (7.25 [RG1 = 2; RG2 = 2.5; RG3 = 2.75]) * Labor
Hours (15) / Crew Sizes
 Total (3) = 36.25
```

As the Labor Type for the operation is **Quantity Only,** the Epicor application automatically calculates the Labor Hours of **15** based on the following formula:

```
Labor Quantity entered in Time and Expense Entry (10) / Production
Standard of the Operation (2)
 * Sum total of all three Crew Sizes for the Resource Groups (or
Resources) assigned to the Operation (3)
 = Labor Hours (15).
```

Scenario 5

In Time and Expense Entry, you report labor against the job operation set as **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**.

You modify the Resource Costing Labor Rates as follows:

R1	3
R2	3.5
R3	3.75
Total	10.25

In Job Entry, using the **Job Details > Operations> Scheduling Resources > Detail**card, select the **R1** resource.

Result

- The Labor Cost equals the sum of the labor values of the three Resources:

  ```
  R1 (3) + R2 (3.5) + R3 (3.75) = 10.25
  ```

Scenario 6

In Time and Expense Entry, you report labor against the job operations set as **Backflush** and **Quantity Only**, with the **Production Standard** of **1**. The employee that reports labor carries a labor rate and the **Production Quantity** is **1**.

- In Job Enty, set Operation 10 as **Backflush**, and Operation 20 as **Quantity Only**.
  Note: Operation 10 is tied to the RG3 resource group. Operation 20 includes all three resource groups.
- In Time and Expense Entry, report activity against Operation 20.
- Run the **Run Backflush Labor Server Process**.

Result

- The Labor Cost equals the sum of the Labor Rate of the RG3 resource group tied to Operation 10, plus the Labor Rates of the three Resource Groups (RG1, RG2, RG3) tied to Operation 20:

```
Labor Rate of RG3 (2.75) + Labor Rate of RG1 (2) +  Labor Rate of
RG2 (2.5) + Labor Rate
 of RG3 (2.75) = 10
```

Landed Costs

Use the Landed Costs functionality to enter and calculate any additional, unallocated expenses that must be included with the cost of purchased materials. These are costs that cannot be handled through labor or burden calculations.

Landed costs are also referred to as material burden. Some typical examples of landed costs are:

- Import Duties
- Freight
- Storage
- Taxes
- Insurance

Notice that these costs do not directly apply to the part. You may need to enter these expenses, however, to receive an accurate picture of your job costs.

Material Burden versus Landed Cost Functionality

You can record these unallocated costs through two different functions. You can enter a Material Burden percentage rate on a part record. This value is then the default used on all quote and job estimates, although you can override this value on a specific method of manufacturing. This value is also used as the default material burden percentage for any estimated salvaged part quantities received on part methods. The actual material burden value used for the final job cost, however, is always the specific rate defined on the part record.

For a more accurate tracking of these costs, however, use the application's Landed Cost functionality. The additional costs are recorded in a similar way to material burden, but the landed costs functionality gives you manual control over their value and information. Use this feature to define a separate GL control credited with the transaction amounts.

Select the functionality that best matches how your company plans to record landed costs. The material burden functionality defines a general expense percentage that you can apply against total purchased quantities of a part. This value is then used any time the material is purchased. The Landed Cost functionality is more accurate and flexible, but also requires additional manual entry time.

The application does not let you use both functions at the same time. Landed costs cannot be entered for parts that already have material burden rates defined within their part master files. For information about material burden, review the Material Burden section later in this guide.

Programs and Their Modifiers

You leverage and modify the Landed Costs functionality in the following application.

Receipt Entry

You enter landed costs through the Receipt Entry -Landed Costs cards. To launch this application from the Main Menu:

- Material Management/Shipping /Receiving/General Operations/Receipt Entry

These are the landed cost modifiers you define within this application:

- **Comment**- Use this field to enter a specific note to help you both report and reconcile the landed cost. If you need, you can create a custom report that displays the information from this field.
- **Landed Cost**- The total landed cost for the entire receipt. Enter the value you need in this field. This is the total value of the landed cost that is applied against the receipt.
- **Landed Cost Amount**- This field is located within the Landed Cost grid. Use this field to enter or edit the amount of a specific landed cost entry. The sum of all of these costs is the total landed cost on the receipt.
- **Method**- You spread, or disburse, landed costs across all the detail lines in a receipt. You can do this through the following methods:
  - **Manual**- Select this method to directly enter the costs directly into the Landed Cost Amount column within the Landed Cost grid.
  - **Value**- Select this method to disburse the landed costs based on a percentage of the shipment's total value.
  - **Volume**- Select this method to disburse the landed costs based on a percentage of the shipment's total volume.
  - **Weight**- Select this method to disburse the landed costs based on a percentage of the shipment's weight.
- **Reference**- Use this field to enter the business reason for the landed costs. If you need, you can create a custom report that displays the information in this field.

Logic/Algorithms

The Landed Costs functionality uses this logic to calculate its results.

Value Method

Landed Cost Per Detail Line = Total Landed Cost/(Value/Number of Lines)

Volume Method

Landed Cost Per Detail Line = Total Landed Cost/(Volume/Number of Lines)

Weight Method

Landed Cost Per Detail Line = Total Landed Cost/(Weight/Number of Lines)

Example(s)

The following example(s) illustrate how you use the Landed Costs functionality.

You receive a 100 quantity of pipes from an overseas supplier. Each pipe costs $10 USD. There are five detail lines on the receipt, and each line contains a 20 quantity. There is an import duty on this shipment of $60 USD.

You enter 60 for the landed cost. You then indicate that you want to spread out this cost by using the Volume method. You click the Disburse Costs button. The land cost is spread out across the 5 detail lines. Each 20 quantity now has a $12 landed cost added to its total cost.

Material Burden

Material burden is the cost of unallocated expenses placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

Material burden expenses are also referred to as landed costs. Some typical examples of material burden expenses are:

- Import Duties
- Freight
- Storage
- Taxes
- Insurance

Notice that these costs do not directly apply to the part. You must account for these expenses, however, to receive an accurate picture of your job costs.

Material Burden versus Landed Cost Functionality

You record these unallocated costs through two different functions. You can enter a Material Burden percentage rate on a part record. This value is then the default used on all quote and job estimates, although you can override this value on a specific method of manufacturing. This value is also used as the default material burden percentage for any estimated salvaged part quantities received on part methods. The actual material burden value used for the final job cost, however, is always the specific rate defined on the part record.

For a more accurate tracking of these costs, however, use the application's Landed Cost functionality. The additional costs are recorded in a similar way to material burden, but the landed costs functionality gives you manual control over their value and information. Use this feature to define a separate general ledger Recovery account that is credited with the transaction amounts.

Select the functionality that best matches how your company plans to record landed costs. Use the material burden functionality to define a general expense percentage that you can apply against total purchased quantities of a part. This value is then used any time the material is purchased. The Landed Cost functionality is more accurate and flexible, but also requires additional manual entry time.

The application does not let you use both functions at the same time. Landed costs cannot be entered for parts that already have material burden rates defined within their part records. For information about material burden, review the Landed Cost section earlier in this guide.

Programs and Their Modifiers

You leverage and modify the Material Burden functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or override the salvage material burden rate for part quantities estimated to be salvaged through the part method. If the salvage part has a part record, the Material Burden Rate from this part record appears by default.

You enter this estimated value on the Method of Manufacturing - Material - Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

These are the material burden cost modifiers you define within this application:

- **Salvage Material Burden Rate (Part Method)**- The estimated material burden percentage of this material that is multiplied against the received salvage quantity. If the salvaged part has a part record, the material burden rate defined on this record appears by default. If you need, however, you can change this value. You enter this estimated value on the Method of Manufacturing - Material - Detail card.

Job Entry

You can override the default material burden percentage on a job method through the Job Details - Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the material burden cost modifiers you define within this application:

- **Material Burden Rate (Job Method)**-The estimated material burden percentage of this material on the current job method. If this part exists in your part records, the rate defined on the specific part record appears by default. If you need, however, you can override this value. You enter this estimated value on the Job Entry - Material Detail card.

Opportunity/Quote Entry

You can override the default material burden percentage on a quote method through the Line - Mfg Details - Quote Details - Materials - Details card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the material burden cost modifiers you define within this application:

- **Material Burden Rate (Quote Method)**-The estimated material burden percentage of this material on the current quote method. If this part exists in your part records, the rate defined on the part record appears by default. If you need, however, you can override this value. You enter this estimated value on the Quote Entry - Material Detail card.

Part Maintenance

Use this application to define the actual material burden percentage used for each part. This value is also the default value displayed on job, quote, and part methods that use this part.

To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

These are the material burden cost modifiers you define within this application:

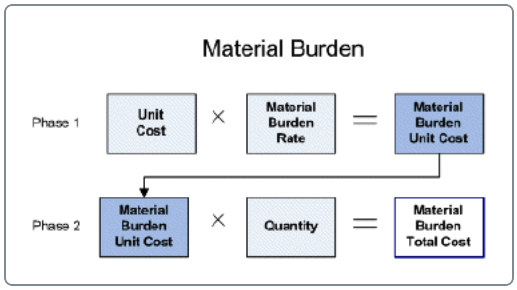
- **Material Burden %**- The default rate that you use against all purchased quantities of a specific part. You enter this value on part records. This is the actual value that is used on all transactions with this part. This value is also used as the default on quote and job estimates for methods of manufacturing that use this part. You enter this value on the Part card.

Logic/Algorithms

The Material Burden functionality uses this logic to calculate its results.

Estimated Material Burden Cost

Estimated Material Burden Cost = (Estimated Unit Cost x Material Burden Rate on Method) x Estimated Production Quantity



Estimated Salvage Material Burden Cost

Estimated Salvage Material Burden Credit = (Estimated Unit Credit x Number of Salvaged Units) x Salvage Material Burden Rate on Part Method

Actual Material Burden Cost

Actual Material Burden Cost = (Actual Unit Cost x Material Burden Rate on Part Record) x Shipped Quantity

Example(s)

The following example(s) illustrate how you use the Material Burden functionality.

You purchase some washers from a manufacturer in another country. This country charges a 2% tariff on all materials that cross its border. You purchase $100 of material from this company. Because of the Material Burden Rate entered in this part record, the material burden cost is $2 for this shipment.

Material Costing

The application constantly updates material costs. It does this every time materials are purchased, subcontract work is performed, and job quantities are manufactured.

The application arrives at these values by recalculating the costs that result from these changes in the data.

The total cost calculated for each material then populates the Unit Cost fields on the Material - Detail cards within job and quote methods. If you need, however, you can override this default Unit Cost value on a specific method.

The costing values pull from the site-Detail card within Part Maintenance. Each part record can have multiple site detail records. The application can then record different costs depending upon the site were the quantity is manufactured or stored.

The Costing Method from the site-Detail card determines how the current Unit Cost is calculated, whether Average, Last, Standard, FIFO, Lot FIFO, or Lot. Regardless of the method, the current default cost of the part is stored within the PartLast table. The Standard method adds an additional

feature, as the current standard cost is compared against the current actual cost. If there is a difference between these values, this amount is recorded within the Variance control account.

To arrive at these default costing values, the application handles actual material costing through two calculations - one for purchased materials and the other for stock materials.

Actual Costs - Purchased Materials

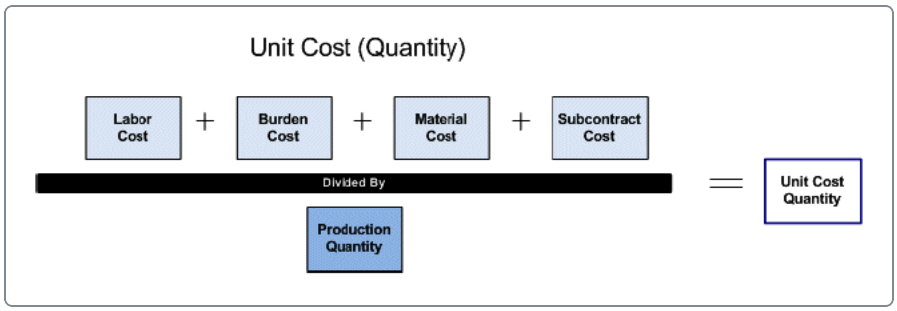
If the part quantity is for a purchased direct part, the cost is calculated by multiplying the Unit Cost from the PO receipt against the purchased quantity. This is the actual cost of the purchased material quantity that is applied against the job.

If the part has a material burden rate for tracking expenses like storage and shipping, this percentage is also multiplied against the Unit Cost on the receipt. The resulting value is then added to the original cost to arrive at the total actual cost. If you track these expenses individually through landed costs, however, these costs are added directly to the amount on the PO receipt to arrive at the total actual cost. This is similar to how the application calculates costs on subcontract operations.

If there is a difference between the estimated unit cost on the AR invoice and the unit cost on the PO receipt, a purchasing adjustment is created. The transaction type, ADJ-PUR, tracks this difference, and these transactions are stored within the Variance control account.

Actual Costs - Stock Materials

If the part quantity is pulled from stock, the calculation totals the burden, labor, and subcontract costs to arrive at a total quantity cost. The application does this by using the costing method selected on the site-Detail record (Average, Last, Standard, Lot), creating a subtotal cost for the part quantity.



Just like purchased material, if the part record also has an additional material burden rate, this percentage is multiplied against this subtotal cost to arrive at the final cost of the stock material. If you use landed costs instead of a material burden percentage, however, these additional costs are automatically added when the PO receipt is entered for the stock quantity.

Scrap Estimate Calculation

Unlike purchased materials, however, a variance is usually not created when the actual stock quantity cost does not equal the estimated cost. The application uses these stock costs as the final actual cost. It does not compare these costs against the estimated amounts defined on the AP invoice. The only exception is when you use the Standard costing method. If there is a difference

between the Standard unit cost of the part and the received unit cost, a variance is created and recorded within the Variance control account.

A scrap part is one that, for whatever reason, is no longer usable. You can estimate how much scrap you plan to make during an operation on the Operation - Detail or the Materials-Detail card. You do this within the Scrap field. If you define this value on the operation, it is then the default on the material.

You can indicate that the estimated amount of scrap occurs as a Quantity or a Percentage. If this value is a percentage, it is multiplied against the estimated quantity. This resulting value is then added to the Estimated Quantity and the sum is the Required Quantity.

If the scrap is a defined quantity, this amount is added directly to the Estimated Quantity, and the sum is the Required Quantity.

Regardless of how you measure scrap, this calculation causes the estimated Required Quantity to increase, which in turn causes the estimated material costs to increase.

Salvage Calculation

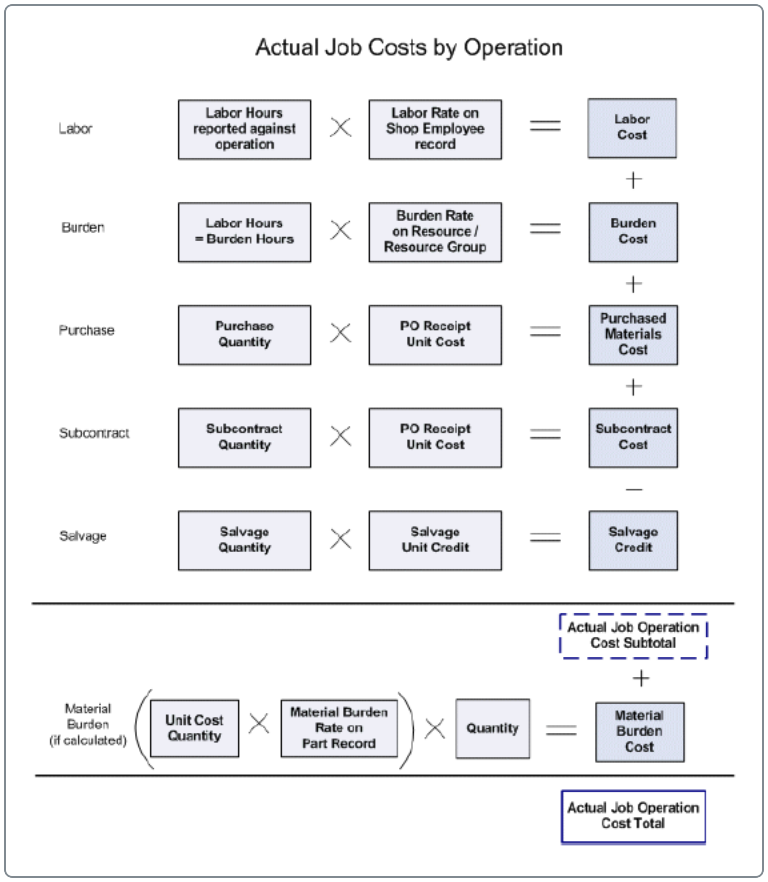
A salvage part is one that, after the operation, you can reuse in some way. A salvage part can have its own part record. You can link this salvage part to a material within a job or quote method. To do this, select the salvage part identifier on the Job Details - Material - Material Salvage card within Job Entry, and on the Line - Mfg Details - Quote Details - Materials - Salvage card within Opportunity/Quote Entry. You can also create a part method for the salvage part within the Engineering Workbench.

As the manufacturing process produces job quantities, the salvage part quantity created from the linked material is received to inventory. Because of this, the material costs for the salvage part quantity are then credited back to the job. When the salvaged material is used on the next job, however, the salvage quantity's inventory costs are then added to this second job's costs.

You can define the salvage rates on part, quote, and job methods. The Salvage Quantity Per value defines the percentage of the material that is saved. This value is multiplied against the Required Quantity value to calculate the amount of material that is salvaged. This quantity is then multiplied against the Unit Cost to arrive at the total salvage amount. This value is then subtracted (credited) against the original material costs, reducing the total cost of this material on the operation.

Total Job Material Costs

To generate the total material costs on a job, the application steps through each material sub-component defined on the method. As your manufacturing center finishes each assembly within the method, it records the total cost of the material used or manufactured during that assembly. All of these burden, labor, subcontract, and purchased costs are then moved along to the next assembly. The material costs generated on the next assembly are then added to the costs on the previous assembly, and this new total is then passed along to the next assembly, and so on.



Note, however, that these separate material costs for labor, burden, subcontracting, and so on are not lost. These items are tracked separately by the application, so that you can evaluate your costs separately on various dashboards and reports.

There is also a situation that can cause negative material costs. This occurs when the material has a zero On-Hand Quantity value and then a quantity is pulled from this zero value. The resulting negative value is recorded by the selected GL control.

Programs and Their Modifiers

You leverage and modify the Material Costing functionality in the following application.

Costing Workbench

Use this application to pull in (roll up) current costs from parts, operations, and resource groups into a distinct cost set for your review. This function is valuable when you want to roll up the costs and print an edit list of the rolled-up costs.

You can then use these results to update the Standard Cost value of each part. You can also post these new costs back to parts, operations, and resource groups on quote and job methods. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation and/or a material detail for a part method through the Method of Manufacturing -Operations - Subcontract Detail and the Method of Manufacturing -Materials - Detail card.

- Production Management/Engineering/General Operations

These are the material costing modifiers you define in this application:

- **Part**- The part record for the material. You define the part that is used on the job method on the Materials - Detail and the Operations - Subcontract card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Price Breaks**-Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Operations - Subcontract card.
- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Materials -Detail card.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Materials - Detail card.
- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory. You define this identifier on the Materials - Detail card.
- **Salvage Quantity Per**-A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Materials - Detail card.
- **Scrap**- The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You

can then review these breaks by clicking the Supplier button on the Materials - Detail and the Operations - Subcontract card.

- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the within the Materials - Detail card.
- **Unit Cost (Subcontract)**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the within the Materials - Detail card.

Job Entry

You can enter or update a subcontract operation and/or a material detail for a job method through the Job Details -Operations - Subcontract Detail and the Job Details -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the material costing modifiers you define in this application:

- **Material Burden**- The estimated percentage of this material that is used to calculate any unallocated costs. For example, import duties, freight, storage, or purchasing cost are material burden costs, as they do not directly apply to the part. This percentage modifier is multiplied against the cost of the material quantity. The resulting amount is then added to the material cost to arrive at the Total Material Cost. The default material burden percentage is pulled from the part record. If you need, however, you can override this value on a job method.
- **Part**- The part record for the material. You define the part that is used on the job method on the on the Materials - Detail and the Subcontract- Detail card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Price Breaks**- Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Subcontract- Detail card.
- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Job Details - Materials -Detail card.
- **Required Quantity**- The number of parts required for the operation within the job or quote method. This field is calculated based on the Quantity Per and Scrap modifiers within the Materials - Detail card.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and

purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Job Details - Materials - Material Salvage card.

- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Salvage Quantity Per**- A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Scrap**- The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You can then review these breaks by clicking the Supplier button on the Materials - Detail and the Subcontract- Detail card.
- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the Job Details - Materials - Material Salvage card.
- **Unit Cost (Burden)**- The burden cost per unit of each part. These fields, found on quote and job methods, are used to determine the estimated burden cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Quantity)**- The cost per unit of each part. These fields, found on both quote and job methods, are used to determine the estimated quantity cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Subcontract)**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the Job Details - Operations - Subcontract card.

Opportunity/Quote Entry

You can enter or update a subcontract operation and/or a material detail for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail and the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the material costing modifiers you define in this application:

- **Material Burden**- The estimated percentage of this material that is used to calculate any unallocated costs. For example, import duties, freight, storage, or purchasing cost are material burden costs, as they do not directly apply to the part. This percentage modifier is multiplied against the cost of the material quantity. The resulting amount is then added to the material cost to arrive at the Total Material Cost. The default material burden percentage is pulled from the part record. If you need, however, you can override this value on a quote method.
- **Part**- The part record for the material. You define the part that is used on the quote method on the on the Materials - Detail and the Subcontract- Detail card. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Price Breaks**- Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of a subcontract operation or a purchased part. Price breaks are contained within price lists that you link to a specific supplier record. You can then review these breaks by clicking the Price Breaks button on the Materials - Detail and the Subcontract- Detail card.
- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity. You define this value on the Mfg Details - Quote Details - Materials - Detail card.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Salvage Quantity Per**- A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Scrap**- The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity. This value is found within the Materials - Detail card.
- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials. You

can then review these breaks by clicking the Supplier button on the Materials - Detail and the Subcontract- Detail card.

- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount. You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card.
- **Unit Cost (Burden)**- The burden cost per unit of each part. This field, found on both quote and job methods, is used to determine the estimated burden cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Quantity)**- The cost per unit of each part. This field, found on both quote and job methods, is used to determine the estimated quantity cost of the material on the job or quote method. This value is found within the Materials - Detail card.
- **Unit Cost (Subcontract)**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the job or quote. This value is found within the Line - Mfg Details - Quote Details - Operation - Subcontract Detail card.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You select costing methods on the Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Configurator Management/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

These are the material costing modifiers you define in this application:

- **Costing Method**- You define the costing method - average, last, standard, FIFO, lot FIFO, lot - on each part. Each method calculates the inventory cost of a part quantity differently. Review the Costing Method sections in this guide for more information. This list is available on the Part card.
- **Material Burden Rate**- Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations. The rate you define on a part record is the default value on job and quote methods.

- **Supplier ID**- The supplier from whom you typically buy a purchased part. You can enter the supplier's identifier directly or click the Supplier ID button to find and select it. This value defines the price lists available on subcontract operations and purchased materials that use this part. You select the supplier on the sites-Detail card.

Receipt Entry

Use this application to enter the receipt of all inventory and non-inventory materials and subcontract parts. To launch this application from the Main Menu:

- Material Management/Shipping/Receiving/Operations

These are the material costing modifiers you define in this application:

- **Our Quantity (Receipt Entry)**- The number of parts received from a purchase order. This value is used to calculate the actual cost of parts through a direct purchase or a subcontract operation.
- **Part**- The part record for the material. You can select this part within Receipt Entry. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through the job or quote.
- **Unit Cost (Receiving Quantity)**- The cost per unit of each received part quantity. This value is used to calculate the actual cost of parts through a direct purchase or a subcontract operation.

Supplier Maintenance

You enter supplier records through the Supplier Maintenance application. You also attach supplier price lists to supplier records through this application. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

You can also launch this application from within Supplier Maintenance:

- Actions Menu/Price List

Logic/Algorithms

The Material Costing functionality uses this logic to calculate its results.

Estimated Purchase Costs (Direct Purchase)

- If a supplier price list exists and material quantity <= to the Price Break Quantity, use the Unit Cost defined on the price break.
- Estimated Total Purchase Cost = Estimated Unit Cost x Planned Material Quantity

Actual Purchase Costs (Direct Purchase)

- Actual Total Purchase Cost = PO Receipt Unit Cost x Purchase Quantity
- **If Invoice Unit Cost <> Receipt Unit Cost, then create ADJ**-PUR transaction.

Subcontract Costs

- Estimated Total Subcontract Cost = Estimated Unit Cost x Planned Subcontract Quantity
- Actual Unit Cost = Unit Cost on PO Receipt
- If no Unit Cost exists on PO Receipt, use Estimated Unit Cost from Subcontract Operation.
- Actual Total Subcontract Cost = Actual Unit Cost x Actual Subcontract Quantity
- **If Actual Unit Cost <> Estimated Unit Cost, then create ADJ**-PUR transaction.

Scrap Costs

- Required Quantity (Scrap Quantity) = (Assembly Production Quantity x Quantity Per Parent) + Scrap Quantity
- Required Quantity (Scrap Percentage) = (Assembly Production Quantity x Quantity Per Parent) x Scrap Percentage

Salvage Credit

- Expected Salvage Quantity = Required Quantity x Salvage Quantity Per
- Salvage Credit Amount = Expected Salvage Quantity x Unit Credit

Total Material Cost (Estimated)

Total Material Cost (Estimated) = Estimated Unit Cost x Estimated Required Quantity

Total Material Cost (Actual)

Total Material Cost (Actual) = Unit Cost x Quantity Received to Inventory

Example(s)

The following example(s) illustrate how you use the Material Costing functionality.

Your manufacturing center is producing a 200 quantity of Part 742W, a finished product that is used as a material component for Part 743. It costs you $100 in labor to manufacture the quantity, and

another $50 in burden. You receive this part quantity to inventory, so the total cost for the 200 quantity of Part 742W is $150.

Now your manufacturing center needs this Part 742W part quantity to manufacture Part 743. The cost of the Part 742W material component is $150, and so this value is consumed as a material cost on the job that is manufacturing Part 743. The separate labor ($100) and burden ($50) costs are still, however, tracked by the application. If needed, you can review these material costs separately.

Multi-Part Jobs

If your company uses the Advanced Production module, you can manufacture multiple parts through multi-part jobs. You create multi-part jobs when you produce a job that can generate multiple parts.

For example, a job has a Stamping operation. This operation can stamp multiple washer size quantities on one card of metal. You create a single multi-part job that tracks and costs these multiple part quantities.

A multi-part job has costs placed against it similar to a regular job. The product group for the primary part is used to record transactions in the general ledger. If you need, you can also change the product group. All manufacturing variances are also placed against the selected product group.

Multi-Part Job Quantities

Multi-part jobs always contain a part defined as the primary part. A unit cost is calculated for the primary part. This unit cost is then used as the base cost for other parts manufactured through a multi-part job. The larger part quantity you manufacture, the higher the cost for all the different part quantities.

Because of this situation, the Part Quantity and Production Quantity values are different. The unit cost is calculated by using the unit cost per part - instead of the unit cost per production. To arrive at this value, the Production Quantity is first calculated by dividing the Part Quantity by the Yield Per value. The application then calculates the unit cost per each part. This is the base unit cost that is used for all parts manufactured on the multi-part job.

If you need, you can further define the job costs by entering values in the Material Cost Factor and Labor Cost Factor fields. Defining values in these fields more accurately reflects the costs that each part accumulates on the job. The next section describes how to use these additional costing fields.

Labor and Material Cost Factors

The unit cost for the primary part is used as the unit cost for all the other parts manufactured through a multi-part job. By default, all the co-parts share the manufacturing costs equally.

You can use the cost factor values, however, to define how much labor and materials each part consumes. Each co-part is assigned both a Labor Cost Factor and a Material Cost Factor. These factors are multiplied against the material and labor costs placed against the primary part. The result

of this calculation can create higher and lower costs that are then assigned to each co-part manufactured through the job.

These costs are only calculated on the total amounts listed on the final assembly (Assembly 0).

Programs and Their Modifiers

You leverage and modify the Multi-Part Jobs functionality in the following application.

Job Entry

You create multi-part jobs and update batch jobs within Job Entry. You do this on the Job > Co-Parts card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the costing modifiers you define within this application:

- **Labor Cost Factor** - A value that defines the ratio used to prorate labor costs on each part. This value affects the final labor costs that accumulate for each part quantity manufactured on this job.
- **Material Cost Factor** - A value that defines the ratio used to prorate material costs on each part. This value affects the final material costs that accumulate for each part quantity manufactured on this job.
- **Yield Per** - For each co-part, you use the Yield Per field to define how many parts are made when one quantity of the primary part is manufactured. The total part quantities produced is calculated by multiplying each co-part's Yield Per value against the primary part's quantity.

Logic/Algorithms

The Multi-Part Jobs functionality uses this logic to calculate its results.

Yield Per Operation

1. Co-Part Quantity = Primary Part Quantity x Yield Per
2. Total Part Quantity = Primary Part Quantity + Co-Part Quantity 1 + Co-Part Quantity 2 + Co-Part Quantity 3 and so forth.

Cost Factors

- Co-Part Labor Cost = Primary Part Labor Cost x Labor Cost Factor
- Co-Part Material Cost = Primary Part Material Cost x Material Cost Factor

Example(s)

The following example(s) illustrate how you use the Multi-Part Jobs functionality.

Yield Per Example

You run a molding operation that can manufacture Part A, B, C, D at the same time. To record this within Job Entry, you create Job 1234. You select Part A for the primary part. This part also defines the product group that is used to classify the job. For every one Part A manufactured, the job makes two Part B and two Part C quantities. It also makes 3 Part D quantities. You enter these Yield Per values for each respective part.

The job's Production Standard is 10 pieces per hour and 20 pieces are needed on the job. The total quantities produced through this job are:

Part A - 20

Part B - 40

Part C - 40

Part D - 60

Material Cost Factor Example

A multi-part job produces parts A and B. You need Part B to consume three times the materials used to create Part A. You enter different Material Cost Factors. Part A's Material Cost Factor is 1, while Part B's Material Cost Factor is 3. This causes Part B to consume 75% (3/4) of the total material costs, while Part A consumes 25% (1/4) of the total material cost.

Non-Recoverable Taxes

The **ADJ-PUR** Part Transaction records factor in the **Non Recoverable Cost** difference between the AP Invoice and Receipt. Therefore, for inventory purchases the non-recoverable tax amount is recognized as part of the material unit cost.

Currently all taxes are recoverable, meaning that they are not included in a material unit cost, because they are recovered once you sell the items. However, based on certain legislation around the world, some companies are not able to recover taxes on their purchases. For instance, the tax for Swedish clinics is non-recoverable. If the tax is non-recoverable, it represents a cost that the company has to take. Therefore, the non-recoverable portion of the tax has to be considered in the cost of the purchased material or the cost of the subcontracted item. This means that the cost of the transaction should be calculated correctly by the time the material or the service is received, so the cost is accurate when the goods are used.

Programs and Their Modifiers

You set up Non-Recoverable tax in the following application.

Tax Type Maintenance

You create tax types within this application. To launch Tax Type Maintenance from the Main Menu:

- Financial Management/Accounts Payable/Setup/Tax Type

These are the costing modifiers you define in this application:

AP Deductible % - Specifies the deductible part of the tax. This is used in countries where taxes on purchases are fully or partially disallowed. The non-deductible amount is treated as a cost.

This parameter is only used in accounts payable for purchases. The total reclaimable amount posts to Tax Accrual GL control context, and the non-reclaimable amount posts to the **Non-Deductible Tax** GL control context.

To set up non-recoverable tax, you must enter zero in this field.

The **ADJ-PUR** Part Transaction records factor in the **Non Recoverable Cost** difference between the AP Invoice and Receipt. Therefore, for inventory purchases the non-recoverable tax amount is recognized as part of the material unit cost.

- **Percentage** - Specifies the tax percentage. This percentage is multiplied against taxable line items to calculate tax amounts.

Logic/Algorithms

The non-recoverable tax functionality uses the following logic.

Material Unit Cost Calculation

```
Invoice Line Ext Amount – Receipt Ext Amount = Mtl Unit Cost
```

- If the receipts or drop shipments are captured by the Capture COS/WIP process, the value of the non-recoverable tax posts to the inventory or expense account.
- If there is a subsequent price adjustment on the invoice which leads to non-recoverable tax adjustment, the application generates corresponding inventory adjustment transactions to account for the change in cost.
- If you create and post an AP invoice for a receipt, the AP clearing account also clears the amount of the non-recoverable tax.
- If a partial invoice exists and the **Final Invoice** check box, located on the **AP Invoice Entry > Lines > Detail** card, is selected then the previously invoiced quantity are added to the invoice line amount. The non-recoverable cost associated with this previous invoice is added to the variance.

Example(s)

The following example(s) illustrate non-recoverable tax.

Example: You enter a purchase order for **10** units of **Part A**. The unit cost on the purchase order is **USD 10.00**, and the tax liability carries a **10%** tax type/rate.

Therefore, the order total equals to **USD 110.00**.

```
10 (Order Qty) x 10 (Unit Cost in USD) + 10 (Tax in USD) = USD
110.00
```

Next, you received the purchase order in full and invoiced your supplier. When you enter the invoice you change the **Unit Cost** from **10** to **12**. As a result, the **Header** amount equals to **USD 132.00**.

```
120 (10 units x USD 12.00) + 12 (10% Tax from USD 120.00) = USD
132.00
```

The transactions in the Transaction History Tracker display as follows:

Type	Amount	Mtl Unit Cost	Non-Recoverable Cost
ADJ-PUR	22.00	22.00	2.00

- **Material Unit Cost Calculation**

  ```
  USD 132.00 (Invoice Line Ext Amount) - USD 110.00 (Receipt Ext
  Amount) = USD 22.00 (Mtl Unit Cost)
  ```

- **Non-Recoverable Tax Calculation**

  ```
  USD 12.00 [(10% from USD 120 (USD 12/Per Unit x 10 Qty) -  USD 10.00
  (10% from USD 110.00) = USD 2.00
  ```

Example: John works as a salesperson who sells washers. In the state where John does business, there's a sales tax called Non-Recoverable **(NRC-2)**. The tax rate in that state is **10%**. When John sells **USD 100.00** of washers, he charges **10%** of NRC-2. As a result, he collects **USD 10.00** in NRC-2. When John buys office stationary for **USD 20.00**, he pays **10%** of NRC-2, therefore **USD 2.00**. Since NRC-2 is non-recoverable, when it comes time to remit the tax he's collected to the government, John ignores the tax that he has paid, and sends the government all the money he collected, therefore **USD 10.00**.

Relieved Quantity

The application determines the Relieved Quantity value during the WIP/COS calculation. It does this by calculating and storing a Relieved Quantity value for each subassembly and final assembly on the job method.

If a quantity is relieved on a parent assembly, the application considers that it is relieved within all its child assemblies as well.

Programs and Their Modifiers

You leverage and modify the Relieved Cost functionality in the following application.

Capture COS/WIP Activity

This process can be run to update WIP and COS transactions with the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the COS/WIP modifiers you define within this application:

- **Ending**- This value defines the final date on which COS and WIP activity are recorded (captured). The current date is the default value, but if you need, you can change this date.
- **Post Cost of Sales/MFG Variance**- Selecting this modifier causes the WIP/COS process to post the Cost of Sales values and manufacturing variances against jobs. These amounts are only posted against jobs; they are not posted to the General Ledger. You must select the Post to GL check box in order to place these costs within the General Ledger. Note: If you indicate that the WIP/COS process posts to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post to the General Ledger - the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).
- **Post to General Ledger**- Selecting this modifier causes the generated WIP and COS information to update your General Ledger. This option is available if the Inventory check box is selected within the Company Configuration application. The Inventory check box is located on the General Ledger card.

Company Configuration

You configure the primary module functionality within this application. To launch this application from the Main Menu:

- System Management/Company Maintenance/Company

This is the COS/WIP modifier you define within this application:

- **Inventory**- When you select the Inventory check box on the General Ledger card, you indicate that the Capture WIP/COS Process can post these transactions to the General Ledger.
- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a company record during the posting process. Access the GL control cards to define which GL controls you wish to use with this company. These records indicate which posting accounts are used for transactions with the current company.You can assocate one or more GL controls with a company record. Note that each control must belong to a different control type.

Inventory/WIP Reconciliation

Use this report to reconcile the General Ledger with costs from Inventory and Work In Process. As inventory transactions are generated, these costs accumulate in WIP and Inventory. You can summarize these costs on this report. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Inventory/WIP Account Reconciliation

Job Completion/Closing Maintenance

Use this application to both complete and close jobs. Once you close a job through this application, it is then ready to be closed through the financial modules. To launch this report from the Main Menu:

- Production Management/Job Management/General Operations/Job Closing

Sales Gross Margin Report

This report prints COS and WIP information for the invoices created during the selected date range. Only the amounts from Shipment invoices are calculated and displayed on this report. To launch this report from the Main Menu:

- Financial Management/Accounts Receivable/Reports/Sales Gross Margin

WIP Report

The Work in Process Report displays the current value of all WIP, cost to inventory, and COS items. This report first prints the total costs to-date for each job. Based on the part's current status, these costs are moved into the Inventory, Cost of Sales, and Work in Process categories. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Work in Process

Logic/Algorithms

The Relieved Quantity functionality uses this logic to calculate its results.

Relieved Quantity Sources

The sources for Relieved Quantity values are pulled from the following transactions:

- Shipments
- Receipts to Inventory
- Nonconformance Failed to DMR (the INS-DMR transaction)

INS-DMR transactions are related to a specific operation. The calculation rolls these quantities forward from the first operation on which they were reported up to the assembly.

Relieved Quantity Value

Material Quantity Relieved = Operation Qty Relieved x Material Qty Per

Example(s)

The following example(s) illustrate how you use the Relieved Quantity functionality.

Work on Job 4587 is progressing on schedule. Your manufacturing center has completed work on the first assembly, and a quantity of aluminum was pulled from inventory to create the final assembly quantity. There were five operations within this assembly that each required 20 units of aluminum to generate one quantity of the assembled part. The application determines that the Relieved Quantity value so far on the operation is 100.

Relieved Cost

The application determines the Relieved Cost value during the WIP/COS calculation. It does this by calculating a cost for each Relieved Quantity value recorded on each subassembly and final assembly on the job method.

This value is used to determine the Remaining Cost that exists on each job.

Programs and Their Modifiers

You leverage and modify the Relieved Cost functionality in the following application.

Capture COS/WIP Activity

This process can be run to update WIP and COS transactions with the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the COS/WIP modifiers you define within this application:

- **Ending**- This value defines the final date on which COS and WIP activity are recorded (captured). The current date is the default value, but if you need, you can change this date.
- **Post Cost of Sales/MFG Variance**- Selecting this modifier causes the WIP/COS process to post the Cost of Sales values and manufacturing variances against jobs. These amounts are only posted against jobs; they are not posted to the General Ledger. You must select the Post to GL check box in order to place these costs within the General Ledger. Note: If you indicate that the WIP/COS process posts to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post to the General Ledger - the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).
- **Post to General Ledger**- Selecting this modifier causes the generated WIP and COS information to update your General Ledger. This option is available if the Inventory check box is selected within the Company Configuration application. The Inventory check box is located on the General Ledger card.

Company Configuration

You configure the primary module functionality within this application. To launch this application from the Main Menu:

- System Management/Company Maintenance/Company

This is the COS/WIP modifier you define within this application:

- **Inventory**- When you select the Inventory check box on the General Ledger card, you indicate that the Capture WIP/COS Process can post these transactions to the General Ledger.
- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a company record during the posting process. Access the GL control cards to define which GL controls you wish to use with this company. These records indicate which posting accounts are used for transactions with the current company.You can assocate one or more GL controls with a company record. Note that each control must belong to a different control type.

Inventory/WIP Reconciliation

Use this report to reconcile the General Ledger with costs from Inventory and Work In Process. As inventory transactions are generated, these costs accumulate in WIP and Inventory. You can summarize these costs on this report. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Inventory/WIP Account Reconciliation

Job Completion/Closing Maintenance

Use this application to both complete and close jobs. Once you close a job through this application, it is then ready to be closed through the financial modules. To launch this report from the Main Menu:

- Production Management/Job Management/General Operations/Job Closing

Sales Gross Margin Report

This report prints COS and WIP information for the invoices created during the selected date range. Only the amounts from Shipment invoices are calculated and displayed on this report. To launch this report from the Main Menu:

- Financial Management/Accounts Receivable/Reports/Sales Gross Margin

WIP Report

The Work in Process Report displays the current value of all WIP, cost to inventory, and COS items. This report first prints the total costs to-date for each job. Based on the part's current status, these costs are moved into the Inventory, Cost of Sales, and Work in Process categories. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Work in Process

Logic/Algorithms

The Relieved Cost functionality uses this logic to calculate its results.

- Material Quantity Relieved = Operation Qty Relieved x Material Qty Per
- Relieved Cost = Actual Unit Cost to Date x Material Quantity Relieved
- Remaining Cost = Actual Cost to Date- Relieved Cost

Example(s)

The following example(s) illustrate how you use the Relieved Cost functionality.

Work on Job 4587 is progressing on schedule. Your manufacturing center has completed work on the first assembly, and a quantity of aluminum was pulled from inventory to create the final assembly quantity. There were five operations within this assembly that each required 20 units of aluminum to generate one quantity of the assembled part. The application determines that the Relieved Quantity value so far on the operation is 100.

Each unit of aluminum costs $18.45. The application determines that the Relieved Cost value on this job is $1,845. The total job is budgeted for $10,000, so the Remaining Cost on this job is $8,155.

Salvage

A salvage part is one that, after the operation, you can reuse in some way. A salvage part can have its own part record.

You can link this salvage part to a material within a job or quote method. To do this, select the salvage part identifier on the Job Details - Material - Material Salvage card within Job Entry, and on the Line - Mfg Details - Quote Details - Materials - Salvage card within Opportunity/Quote Entry. You can also create a part method for the salvage part within the Engineering Workbench.

As the manufacturing process produces job quantities, the salvage part quantity created from the linked material is received to inventory. Because of this, the material costs for the salvage part quantity are then credited back to the job. When the salvaged material is used on the next job, however, the salvage quantity's inventory costs are added to this second job's costs.

You can define the salvage rates on part, quote, and job methods. The Salvage Quantity Per value defines the percentage of the material that ia saved. This value is multiplied against the Required Quantity value to calculate the amount of material that is salvaged. This quantity is then multiplied against the Unit Cost to arrive at the total salvage amount. This value is then subtracted (credited) against the original material costs, reducing the total cost of this material on the operation.

The application uses the receipts from manufacturing to determine the actual salvage credit. The calculation is the same, but the actual manufactured quantity is used to arrive at the salvage material quantity that is returned to inventory. This actual credit value is then subtracted from the actual material cost of the job. The resulting value is the final material cost placed against the job.

Programs and Their Modifiers

You leverage and modify the Salvage functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update a material detail for a part method through the Method of Manufacturing -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

These are the salvage costing modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part.
- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generates salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory.
- **Salvage Quantity Per**- A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value.
- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount.

Job Entry

You can enter or update a material salvage detail on a job method through the Method of Manufacturing -Materials - Material Salvage card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the material costing modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part.

- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generates salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory.
- **Salvage Quantity Per**-A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value.
- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount.

Opportunity/Quote Entry

You can enter or update a material detail on a quote method through the Line - Mfg Details - Quote Details - Materials - Material Salvage card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the salvage costing modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Salvage Material Burden Rate**- The estimated material burden percentage of this salvage material. This value is used to calculate any unallocated costs. For example storage and purchasing cost are material burden costs, as they do not directly apply to the salvaged part.
- **Salvage Part**- The part identifier for a salvaged item. If you estimate that you generates salvage quantities of a material during an operation, you must define this salvage part identifier. The identifier can be the same as the material part identifier. It can also be a different identifier you can use to track the scrap separately within your inventory.
- **Salvage Quantity Per**- A percentage, this factor is then multiplied against the Required Quantity (found on the Material Detail card) to calculate the expected salvage quantity. If you need, you can change this value.
- **Unit Credit (Salvage)**- The cost per unit that is credited back to the job for this salvaged part. If the salvaged part has a part record, the unit cost from the part record appears by default. The Unit Credit is multiplied by the expected salvage quantity to calculate a salvage credit amount.

Logic/Algorithms

The Salvage functionality uses this logic to calculate its results.

Estimated Salvage Credit

1. Expected Salvage Quantity = Required Quantity x Salvage Quantity Per
2. Salvage Credit Amount = Expected Salvage Quantity x Unit Credit
3. Estimated Material Cost = (Required Quantity x Unit Cost)- Salvage Credit Amount

Actual Salvage Credit

1. Actual Salvage Quantity = Actual Received Quantity x Salvage Quantity Per
2. Salvage Credit Amount = Actual Salvage Quantity x Unit Credit
3. Actual Material Cost = (Actual Received Quantity x Unit Cost)- Salvage Credit Amount

Example(s)

The following example(s) illustrate how you use the Salvage functionality.

Job 45983 contains a burring operation. This operation requires a 200 quantity of Part 34R-874 to complete. This material is a raw metal, and the burring process creates a quantity of salvageable metal pieces that you can melt down and reuse.

Because of this, you add 34R-875, a Material Salvage part, to the 34R-874 material on the job method. This material has a Salvage Quantity Per value of .05. Because you are using a 200 quantity, you estimate that this operation creates a 10 quantity of the 34R-875 salvageable material.

Scrap

A scrap part is one that, for whatever reason, is no longer usable. You can estimate how much scrap is created during an operation on both job and quote methods.

You can define the estimated amount of scrap that occurs as a Quantity or a Percentage. If this value is a percentage, it is multiplied against the estimated quantity. This resulting value is then added to the Estimated Quantity, and the resulting sum is the Required Quantity.

If the scrap is a defined Quantity, this amount is added directly to the Estimated Quantity, and the sum is the Required Quantity.

Regardless of how you measure scrap, this calculation causes the estimated Required Quantity to increase, which in turn causes the estimated material costs to increase.

Actual Scrap Quantities

The scrap calculation is only used on estimated costs. A scrap calculation is not run against actual job costing. This is because the inspection functionality handles recording the actual scrap quantities created on a job. The actual scrap quantity is recorded by an inspector within a Discrepant Material Report (DMR) record. You then use these DMR records to reject scrap quantities and record these additional costs. These additional costs are then added to the final actual cost of the job.

Programs and Their Modifiers

You leverage and modify the Scrap functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation and/or a material detail for a part method through the Method of Manufacturing -Operations - Subcontract Detail and the Method of Manufacturing -Materials - Detail card.

- Production Management/Engineering/General Operations

These are the scrap modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Scrap**-This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. You can define this value within the Operations - Detail card or the Materials - Detail card on job or quote methods. If you define this value on the operation, this value is the default on the material.
- **Scrap Quantity or Percent**- Use these radio buttons to indicate whether the scrap factor is calculated using a fixed quantity or a percentage of the estimated quantity. These are the options:
  - **Quantity**- This value is a specific quantity that is automatically added to the Estimated Quantity.
  - **Percentage**- This value is a percentage value that is multiplied against the Estimated Quantity. The resulting amount is then added to the Estimated Quantity to arrive at the Required Quantity.

Job Entry

You can enter or update a subcontract operation and/or a material detail for a job method through the Job Details -Operations - Subcontract Detail and the Job Details -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the scrap modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.

- **Scrap**-This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. You can define this value within the Operations - Detail card or the Materials - Detail card on job or quote methods. If you define this value on the operation, this value is the default on the material.
- **Scrap Quantity or Percent**- Use these radio buttons to indicate whether the scrap factor is calculated using a fixed quantity or a percentage of the estimated quantity. These are the options:
    - **Quantity**- This value is a specific quantity that is automatically added to the Estimated Quantity.
    - **Percentage**- This value is a percentage value that is multiplied against the Estimated Quantity. The resulting amount is then added to the Estimated Quantity to arrive at the Required Quantity.

Opportunity/Quote Entry

You can enter or update a subcontract operation and/or a material detail for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail and the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the scrap modifiers you define in this application:

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, then this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Scrap**- This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. You can define this value within the Operations - Detail card or the Materials - Detail card on job or quote methods. If you define this value on the operation, this value is the default on the material.
- **Scrap Quantity or Percent**- Use these radio buttons to indicate whether the scrap factor is calculated using a fixed quantity or a percentage of the estimated quantity. These are the options:
    - **Quantity**- This value is a specific quantity that is automatically added to the Estimated Quantity.
    - **Percentage**- This value is a percentage value that is multiplied against the Estimated Quantity. The resulting amount is then added to the Estimated Quantity to arrive at the Required Quantity.

Logic/Algorithms

The Scrap functionality uses this logic to calculate its results.

Scrap - Quantity Method

Required Quantity (Scrap Quantity) = (Assembly Production Quantity x Quantity Per Parent) + Scrap Quantity

Scrap - Percentage Method

Required Quantity (Scrap Percentage) = (Assembly Production Quantity x Quantity Per Parent) x Scrap Percentage

Example(s)

The following example(s) illustrate how you use the Scrap functionality.

Scrap Quantity Example

You need to manufacture a 100 quantity of Part 56T-092. To assemble this part, you have a Join operation that requires a 50 quantity of Part 432W, an adhesive. Each time the Join operation is run, an amount of the adhesive material is wasted and needs to be cleaned up after the operation is complete.

You estimate that a 5 quantity of Part 432W is wasted during each Join operation. Because of this, you select the Quantity radio button and enter a 5 value in the Scrap field. The application calculates that the Required Quantity for Part 432W is a 55 value.

Scrap Percentage Example

You need to manufacture a 100 quantity of Part 56T-092. To assemble this part, you have a Join operation that requires a 50 quantity of Part 432W, an adhesive. Each time the Join operation is run, an amount of the adhesive material is wasted and needs to be cleaned up after the operation is complete.

You estimate that 5% of the Part 432W quantity is wasted during each Join operation. Because of this, you select the Percentage radio button and enter a 5 value in the Scrap field. The application calculates that the Required Quantity for Part 432W is a 52.5 value.

Estimated Scrap Example

There is a job with production quantity = **1000**. You have one operation where **10%** scrap is defined. When material has been issued and good quantity = **110** is reported (no scrap quantity at all), job costs are:

Labor	330 EUR
Burden	110 EUR
Material	110 EUR

Now you make job receipt to inventory and quantity is **110**. Costs moved to inventory are:

Labor	330 EUR

Burden	110 EUR
Material	110 EUR (10 EUR remains to job)

Service Job Costs

The application calculates service job costs in the same way as it calculates manufacturing jobs. Typically service call jobs generate labor costs, and these actual costs are calculated by multiplying the Labor Rate from the shop employee record or payroll employee record against the number of hours placed against the service call operation.

If any materials are used on a service job, the calculations for burden and material burden/landed costs are applied against these materials. These costs are totaled to determine the final actual cost on the service job.

The values you enter within the Service card within Job Entry are used to determine the amount you charge your customers for the service job. They do not apply against the actual cost of the service job, however, and are beyond the scope of this technical guide.

You can only create service call jobs if your company uses the Field Service module. If a service call is entered within the Service Call Center, a service job is automatically created within Job Entry.

Programs and Their Modifiers

You leverage and modify the Service Job Costs functionality in the following application.

Job Entry

You can enter the billable cost of a service job through the Job Details -Operations - Service card. The amounts you enter here, however, do not reflect the actual costs of the service job. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Payroll Employee Maintenance

If your company uses the Payroll module, use this application to define the labor rate for each employee who conducts service jobs. To do this, select the Active Shop Employee check box and enter the Labor Rate that you need. To launch Payroll Employee maintenance from the Main Menu:

- Financial Management/Payroll/Setup

This is the service job costing modifiers you define in this application:

- **Labor Rate (Payroll Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. You can define this value within Payroll Employee Maintenance if the Active Shop Employee check box is selected. This

option causes a matching shop employee record to be created within Shop Employee Maintenance then uses the rate you define within this application. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. Any additional labor costs like premium pay, benefits, and so on, however, should be averaged and included in the Burden Rate entered for each resource or resource group. You define this value on the Detail card.

Service Call Center

You use this application to enter service calls. These calls automatically create service jobs within Job Entry. To launch this application from the Main Menu:

- Production Management/Field Service/General Operations

Shop Employee Maintenance

Use this application to define the labor rate for each employee who conducts field service jobs. Note, however, that if you use the Payroll module, you need to enter this rate within the Payroll Employee Maintenance application, as the Labor Rate field is read-only in this application. To launch Shop Employee Maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

These are the service job costing modifiers you define in this application:

- **Labor Rate (Shop Employee Maintenance)**- This values defines the rate used for costing hourly labor for operations on which this shop employee works. Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. Any additional labor costs like premium pay, benefits, and so on, however, should be averaged and included in the Burden Rate entered for each resource or resource group. You define this value on the Detail card. Note that if you use the Payroll module, you are not able to enter this value within Shop Employee Maintenance. You instead enter this value within Payroll Employee Maintenance.

Logic/Algorithms

The Service Job Costs functionality uses this logic to calculate its results.

- Actual Service Job Labor Cost Per Employee = Labor Rate x Labor Hours
- Total Actual Service Job Labor Cost Per Operation = The Total Cost of Labor for all Employees who worked on the Operation

Example(s)

The following example(s) illustrate how you use the Service Job Costs functionality.

Your company has a service call department that does maintenance on the ventilation fans manufactured by your company. Acme Eggs Incorporated, a nearby chicken farm, places a service call to fix a couple of fans in one of their barns.

You send out two field service employees to fix these fans. They work 4 hours on the fans, and finally get them running. One employee has a 10.25 Labor Rate, while the other has an 11.25 Labor Rate. The total actual labor cost for this field service job is $96.00.

Split Job

The Split Job calculation divides one job into multiple jobs. The quantities of these multiple jobs are then manufactured separately.

You can also indicate whether the split job quantity is manufactured (targeted) for stock, a sales order, or another job material. The new job creates the demand link appropriate for the selected target.

Aside from the quantity and the target however, all the other parameters for the two jobs are identical. The method of manufacturing is duplicated on the new job, using the same assemblies, operations, and materials. All the quantities and estimated costs on these job steps are adjusted to account for the smaller quantity. Likewise, the quantities and estimated costs on the original job adjust to reflect the updated quantity. The labor rates, burden rates, subcontract cost, material cost, and salvage credit values all update to reflect the new quantities.

These separate jobs can now be scheduled and accumulate costs independently.

Programs and Their Modifiers

You leverage and modify the Split Job functionality in the following application.

Job Entry

Split Job Entry is a application launched from the Actions menu within Job Entry. To launch Job Entry from the Main Menu:

- Production Management/Job Management/General Operations

To launch Split Job Entry from the Actions menu:

- Actions Menu--Job--Split Job

These are the labor modifiers you define within this application:

- **Split Quantity**- Use this field to define the quantity that you wish to divide from the original job quantity. Enter a numeric value in this field. Note that this value must be smaller than the original job quantity.
- **Split Target Options**- Select an option to define the demand link that is created on the new job. You can create a target demand link for stock, an order release, or another job. If you select the Job Material option, you must define the Job, Assembly, and Material that you want to receive the new quantity.

Logic/Algorithms

The Split Job functionality uses this logic to calculate its results.

- Quantity on Split Job = Split Quantity
- Reduced Quantity on Original Job = Job Quantity- Split Quantity
- Update job estimated costs for material, labor, burden, subcontract, and material burden to reflect the new quantities on both jobs.
- The two jobs accumulate actual costs independently from each other.

Example(s)

The following example(s) illustrate how you use the Split Job functionality.

You create Job 4872 for Part 56Y092A, a clamp used to attach boat motors to the sides of fishing boats. It is January, and you would like to manufacture additional part quantities to have on hand during the busy spring season. The current sales order is for 100 parts.

You decide to double this production quantity to 200. You enter these values within Job Entry, and you then select the Split Job command from the Actions menu. You click the Next Job button to create a new identifier for the split job. In this example, Job 4873 is displayed. You then select the Stock radio button. This indicates that the split job has a stock demand link. Lastly, you enter the Split Quantity, which is a 100 quantity value. You then click Save.

Both Job 4872 and Job 4873 are now within your database. Each can be scheduled separately, and their cost amounts reflect the new quantities (100 and 100) that you defined for each job.

Subcontract Costs

A subcontract operation is a job step that is completed outside your company by a supplier. The application calculates the cost of a subcontract operation in a way that is similar to how it calculates materials - it multiplies the unit cost of subcontracted parts against the quantity worked on by the supplier.

This becomes the total actual cost of the subcontract operation.

The application estimates the subcontract unit cost by locating a price on an active (current) price list linked to the selected supplier. If it cannot locate an active price list, you must manually enter the unit cost on the Subcontract card within the job or quote method. This value then becomes the estimated unit cost that is used on the purchase order you send to the supplier. Note that these are the default costs on the PO; if you need, you can overwrite these values.

The supplier then sends you an invoice, which typically uses these same estimated values. When the part quantity is then returned to your manufacturing center by the supplier, however, the unit cost on the receipt becomes the actual unit cost that is charged against the quantity sent out on the subcontract operation. If there is not a unit cost on the receipt, the original estimated unit cost is used instead for the actual unit cost.

If the parts are received for the same price, the part cost is calculated without any further transactions. If there is a difference between the estimated unit cost on the invoice and the actual unit cost on the receipt, however, a purchasing adjustment is created. The transaction type, ADJ-PUR, tracks this difference in cost, and these transactions are stored within the Purchase Price Variance account with the AP control account.

Programs and Their Modifiers

You leverage and modify the Subcontract Costs functionality in the following application.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation. You do this on the Method of Manufacturing -Operations - Subcontract Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

These are the material costing modifiers you define in this application:

- **Part**- The part that this supplier works on. The default part that appears is the part number from the assembly or the job. If you need, however, you can click the Part button to find and select the part. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation.
- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it.
- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order.

Job Entry

You can enter or update a subcontract operation method resource group through the Job Details - Operations - Subcontract Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the subcontract costing modifiers you define in this application:

- **Part**- The part that this supplier works on. The default part that appears is the part number from the assembly or the job. If you need, however, you can click the Part button to find and select the part. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job. You define this modifier on the Job Details - Operations - Subcontract card.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are

automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation. You define this modifier on the Job Details - Operations - Subcontract card.

- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it. You define this modifier on the Job Details - Operations - Subcontract card.
- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order. You define this modifier on the Job Details - Operations - Subcontract card.

Opportunity/Quote Entry

You can enter or update a subcontract operation for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

These are the subcontract costing modifiers you define in this application:

- **Part**- The part that this supplier works on. The default part that appears is the part number from the assembly or the job. If you need, however, you can click the Part button to find and select the part. Note that this part, however, does not have to exist in your part records. It can be a part that you are manufacturing directly through this job. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.
- **Price Breaks**- To review or link a price list from this supplier to the subcontract operation, click the Price Breaks button. Based on the quantity that is ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.
- **Supplier ID**- The supplier that performs this subcontracted operation. A required field, you can enter the supplier's identifier directly or click the Supplier ID button to find and select it. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.
- **Unit Cost**- This field defines the estimated unit cost for the subcontract operation. If there is a value in this field, it is used as the estimated unit cost on the purchase order. You define this modifier on the Mfg Details - Quote Details - Operations - Subcontract Detail card.

Supplier Maintenance

You enter supplier records through the Supplier Maintenance application. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup

- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Logic/Algorithms

The Subcontract Costs functionality uses this logic to calculate its results.

- Estimated Total Subcontract Cost (PO and Invoice) = Estimated Unit Cost x Planned Subcontract Quantity
- Actual Unit Cost = Unit Cost on PO Receipt
- If no Unit Cost exists on PO Receipt, use Estimated Unit Cost from Subcontract Operation.
- Actual Total Subcontract Cost = Actual Unit Cost x Actual Subcontract Quantity
- If Invoice Cost <> Receipt Cost, then create ADJ-PUR transaction

Example(s)

The following example(s) illustrate how you use the Subcontract Costs functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost that is used on the purchase order sent to Acme Painting, and their invoice sent back to your company uses this same value.

Due to an increase in the cost of paint, however, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

There is a $550 difference between the estimated cost versus the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded by the selected GL control.

Work in Process WIP (WIP)

Use the Work in Process (WIP) calculation to review the costs that have occurred so far on a job that is currently in production. WIP is an accounting term for uncompleted work still in production.

The costs associated with WIP are the current labor, burden, subcontract, and material burden amounts generated so far against each job. WIP cost amounts in Epicor ERP are calculated using the base unit of measure (UOM) assigned to the part for which the specific cost is being calculated.

Use this calculation to keep track of current production expenses. You should run this calculation using a regular schedule to make sure productions costs are up to date for the period during which they occur.

The WIP calculation gathers together the actual costs placed against each active job. It takes into consideration the labor, burden, subcontract, material, and material burden costs accumulated so far. It then pro-rates these costs to arrive at the amount it took to produce each part. The costs are accumulated, stored in the PARTTRAN table, and then distributed within the WIP transactions.

The WIP calculation automatically runs when generating specific reports. These reports then display the WIP results. The reports that use the WIP calculation are the Inventory/WIP Reconciliation report, the Sales Gross Margin report, and the WIP report. You can also run the WIP calculation through the Capture WIP/COS Process. You can set up the Capture WIP/COS Process to automatically post these costs directly to the General Ledger. Use this process to finalize these transactions at the end of each fiscal period.

Costing Methods

The costing method selected on each part is considered by the WIP calculation. The Average, Last, FIFO, Lot FIFO, Lot, and methods record the current costs generated against the parts. Additional WIP transactions are not generated through these costing methods.

The Standard costing method, however, generates variance transactions. If there is a difference between the standard cost of a part and the actual cost of a part, the difference between the two costs is recorded within the Variance account. For example, if the actual part cost is eight dollars more than the part's standard cost, the eight dollar difference is recorded in the Variance account. Because of this, it is possible for the WIP results to have negative values using standard costing, as the job may not have enough costs to cover the standard cost.

If the variance account has a defined material variance, labor variance, burden variance, subcontract variance, material burden variance and / or rounding variance account context, the amount is broken out into cost components. The variance account context hierarchy is Product Group, then Inventory, COS and WIP.

Unexpected Results - How They Can Occur

Note that, depending on the data entered against the job, this calculation can produce unexpected, negative results. This can happen when too much material is issued to a job, or when shop

employees post labor against the wrong jobs. For example, if a 120 material quantity is issued to a job that only needs a 100 quantity, the WIP calculation still places the 120 material cost quantity against the job. Likewise if 100 hours of labor was performed on a job, but 160 labor hours are posted against it, the WIP calculation reflects the additional 60 hours of labor expense.

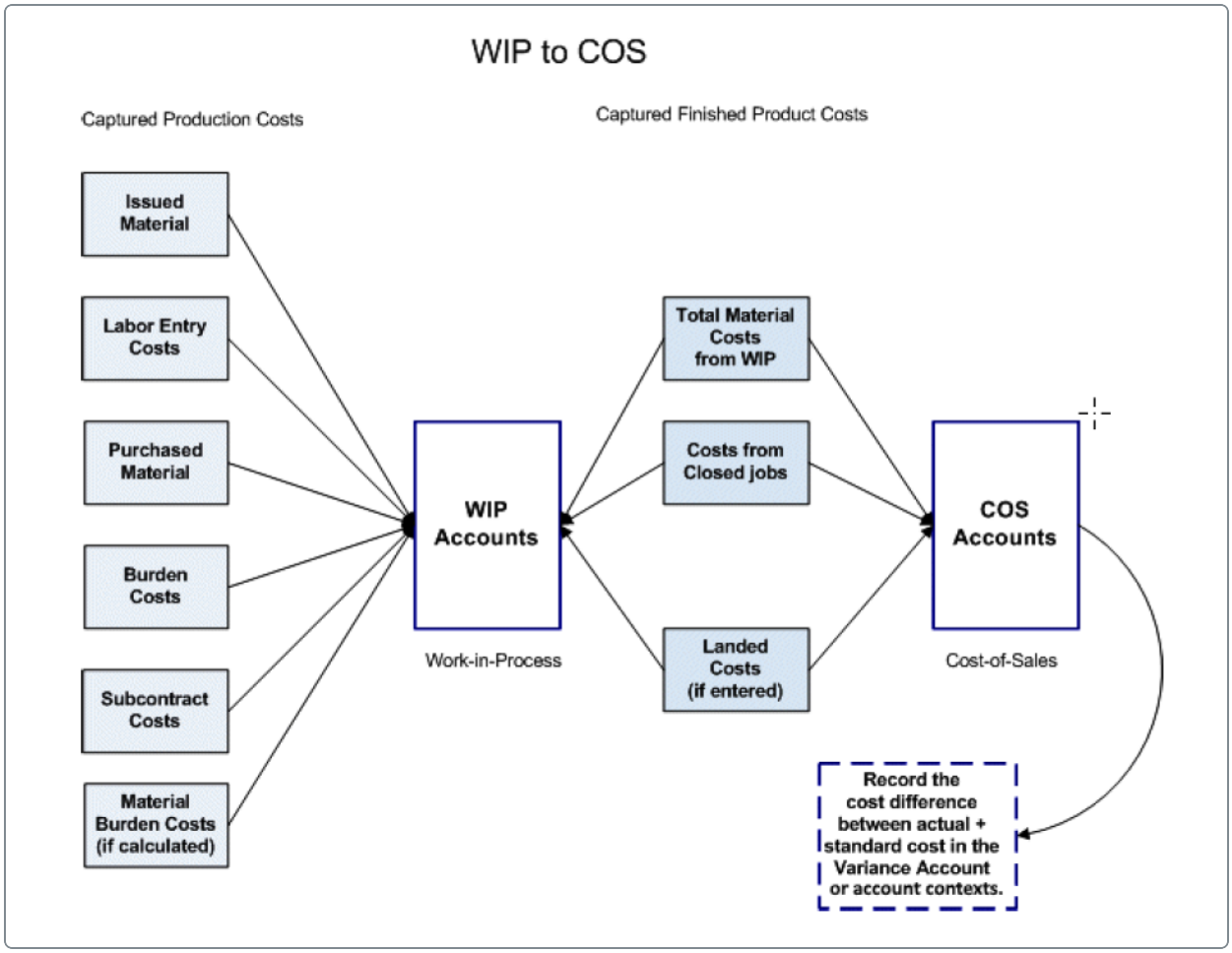
If you are receiving unexpected results, review the costs being placed against the current jobs and make adjustments as needed. You can then rerun the WIP calculation to verify the changes. Because of this, the WIP calculation is also a useful tool for verifying that correct data is being entered against your jobs.

Moving into COS

The WIP results record the costs of moving part quantities to and from inventory to the manufacturing center. When a part quantity is shipped to a customer, however, its costs are moved from WIP to the Cost of Sales (COS) transactions. Use this to track the final cost of the part quantity before it is shipped to the customer.

When you close a job, its production is totally finished and no more expenses can be placed against it. All of its costs are also automatically moved from the WIP transactions to the COS transactions. If costs remain, they are recorded within the Variance account. You close jobs through the Job Completion/Closing Maintenance application.

If the variance account has a defined material variance, labor variance, burden variance, subcontract variance, material burden variance and / or rounding variance account context, the amount is broken out into cost components. The variance account context hierarchy is Product Group, then Inventory, COS and WIP.



For more information about the Cost of Sales (COS) calculation, review the previous Cost of Sales section.

Programs and Their Modifiers

You leverage and modify the Work in Process (WIP) functionality in the following application.

Capture COS/WIP Activity

This process can be run to update WIP and COS transactions with the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

These are the COS/WIP modifiers you define within this application:

- **Ending**- This value defines the final date on which COS and WIP activity are recorded (captured). The current date is the default value, but if you need, you can change this date.

- **Post Cost of Sales/MFG Variance**- Selecting this modifier causes the WIP/COS process to post the Cost of Sales values and manufacturing variances against jobs. These amounts are only posted against jobs; they are not posted to the General Ledger. You must select the Post to GL check box in order to place these costs within the General Ledger. Note: If you indicate that the WIP/COS process posts to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post to the General Ledger - the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).
- **Post to General Ledger**- Selecting this modifier causes the generated WIP and COS information to update your General Ledger. This option is available if the Inventory check box is selected within the Company Configuration application. The Inventory check box is located on the General Ledger card.

Company Configuration

You set up primary module features within this application. To launch this application from the Main Menu:

- System Management/Company Maintenance/Company

This is the COS/WIP modifier you define within this application:

- **Inventory**- When you select the Inventory check box on the General Ledger card, you indicate that the Capture WIP/COS Process can post these transactions to the General Ledger.
- **GL Controls**- Use the GL control cards to define the accounts and journal codes available to a company record during the posting process. Access the GL control cards to define which GL controls you wish to use with this company. These records indicate which posting accounts are used for transactions with the current company.You can assocate one or more GL controls with a company record. Note that each control must belong to a different control type.

Inventory/WIP Reconciliation

Use this report to reconcile the General Ledger with costs from Inventory and Work In Process. As inventory transactions are generated, these costs accumulate in WIP and Inventory. You can summarize these costs on this report. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Inventory/WIP Account Reconciliation

Job Completion/Closing Maintenance

Use this application to both complete and close jobs. Once you close a job through this application, it is then ready to be closed through the financial modules. To launch this report from the Main Menu:

- Production Management/Job Management/General Operations/Job Closing

Sales Gross Margin Report

This report prints COS and WIP information for the invoices created during the selected date range. Only the amounts from Shipment invoices are calculated and displayed on this report. To launch this report from the Main Menu:

- Financial Management/Accounts Receivable/Reports/Sales Gross Margin

WIP Report

The Work in Process Report displays the current value of all WIP, cost to inventory, and COS items. This report first prints the total costs to-date for each job. Based on the part's current status, these costs are moved into the Inventory, Cost of Sales, and Work in Process categories. To launch this report from the Main Menu:

- Production Management/Job Management/Reports/Work in Process

Logic/Algorithms

The Work in Process (WIP) functionality uses this logic to calculate its results.

This section documents how the Work In Process calculation determines the current actual costs of jobs. It first describes the logic used by the Work In Process calculation to gather records and determine the costing results. This section next describes logic within the calculation. The **Method of Manufacturing Cost Breakdown** section details the WIP calculation that occurs for each action on a method. It then shows you the calculation flows for cumulative unit costing on labor, burden, material, subcontract, and material burden. The Logic/Algorithms section concludes with the Relieved Job Cost Total and Remaining Job Cost Total calculations.

Post Cost of Sales / MFG Variance Logic

When you select the **Post Cost of Sales / MFG Variance** check box within the Capture COS/WIP Activity process, the application runs the following logic sequence to gather data:

1. A cache builds for all jobs (**JobHead**) records that have the **WIPCleared** check box set to FALSE (not selected) and have at least one part transaction (**PartTran**) or one labor transaction (**LaborDtl**).
2. For each job added to the cache, the logic next builds a cache of part transaction (**PartTran**) records.
3. Now for each job added to the cache, the logic builds a cache of job assembly (**JobAsmbl**) records.
4. Lastly for each job assembly record added to the cache, the logic builds a cache of related job operation (**JobOper**) records.

COS/WIP Logic

The Capture COS/WIP Activity process uses the following logic to determine costing results:

1. The logic individually analyzes each cached job.
2. The logic gathers any part transactions placed against the job.
3. If a job needs to backflush labor, this additional logic runs to process these labor transactions.
4. The logic totals the part and labor transactions to calculate the **Total Job Cost**.
5. The logic next divides the **Total Job Cost** by the **Part Quantity** to arrive at a **Unit Cost/Piece**.

6. If a manufacturing variances exists, the logic creates a **Variance parttran** record. The logic will later pass this parttran record to the **Posting Engine**.
7. Likewise if a cached job has any shipment records (**MFG-CUS**) associated with it, the logic updates the linked Invoice Detail (**InvcDtl**) records with the shipment information.
8. If a cached job is set to Closed, the logic selects the **WIPCleared** check box on the job (**JobHead**) record, setting this value to TRUE. The next time the Capture COS/WIP process runs, it will not select this job.

However if the job is reopened or additional costs are placed against it, the job is included during the next Capture COS/WIP process.

Post to General Ledger Logic

If you select the **Post to General Ledger** check box, the posting engine now takes the costing results generated through the COS/WIP logic and publishes them to the appropriate GL journals:

1. The logic selects all part transactions and labor detail records that have dates within the current **Fiscal Period** and the **Cutoff Date**. These transactions are selected from their related table and passed along to the Posting Engine.
2. The Posting Engine creates an **RVLock** record for each transaction. This lock prevents the transaction from being used in other processes.
3. The appropriate posting rule is run against each transaction.
4. If the posting rules are summarized, the Posting Engine creates a summary entry for each day included in the date range defined for the Capture COS/WIP Activity process.
5. The Posting Engine next creates **TranGLC** records for each transaction.
6. Lastly the Posting Engine creates **GLJrnlDtl** records for each transaction.
7. After the posting process ends, the logic removes the **RVLock** records from each transaction.
8. The logic updates the part transactions and labor transactions by marking them as both **Posted** and **Costed**.
9. The logic now checks Invoice Detail (**InvcDtl**) records linked to the jobs. If any Invoice Detail record has its **COSPostingReqd** value set to TRUE and its **COSPosted** value set to FALSE, the logic updates the cost totals on these linked invoices.

For details on where the logic posts these invoice costs, review the **Posting Engine Technical Reference Guide**. This guide is located in the application help; navigate to the **General Ledger > Working With General Ledger > Posting Engine Technical Reference Guide** section.

General Costing Structure

Job costing is structured to accumulate costs through two categories.

1. **Variable Manufacturing Costs**- These cost amounts are unique for each job. The variable costs consist of the following areas:
    - Material costs required to manufacture the job quantity.
    - Labor costs accumulated by shop employees recording setup and production time against the job.
    - Burden (overhead) costs accumulated for electricity, water, needed maintenance, and any other expenses placed against the job.
2. **Fixed Manufacturing Costs**- These cost amounts are expected values placed against each job automatically. The fixed costs consist of the following areas:
    - Regular, default labor costs like supervisor time, production manager time, and indirect expenses (cleaning, regular maintenance) not linked to production time.
    - Regular, default burden costs like preventive machine maintenance, building expenses, required auxilary fixtures (chillers, fans), vehicle expenses (trucks, forklifts, cranes), computer depreciation, and so on.

Transaction Types

The following transaction types are reviewed by the WIP calculation:

- MFG-VAR
- MFG-CUS
- MFG-STK
- MFG-WIP
- MFG-PLT
- INS-DMR
- DMR-ASM

These transaction types all remove costs from a job. The application totals the amounts from all the transactions placed against the job to determine the cost that remains on the job.

For more information on these transaction types, review the Transaction Types section later in this guide.

Method of Manufacturing Cost Breakdown

While a job is in process, the WIP calculation totals the actual costs accumulated so far against each subassembly within the method of manufacturing. The average cost calculation and standard cost calculation are determined differently for each method action.

Method Action	Average Cost Calculation	Standard Cost Calculation
Inventory	Calculate the cumulative unit costs (labor,	The costs are recorded using the standard unit rate recorded for the

material quantity generated by a stock subassembly (WIP Item)	burden, subcontract, material, material burden) for each operation contained within the subassembly and each operation contained within its children subassemblies. The material subassembly cost is the total of the actual costs generated by each operation.	stocked part generated through the Costing Workbench. Any actual amount that does not equal the standard amount is recorded by the selected GL control.
Shipping a sub-assembly material quantity to a customer as loan stock	Subassembly quantities are not supposed to be shipped to customers by design as the job is not closed, so the WIP calculation cannot generate an average cost amount for this action.	If a subassembly part quantity is shipped and it uses the standard costing method, the quantity cost is calculated leveraging the standard unit rate generated through the Costing Workbench.
Material quantity issued from one subassembly to another job	Calculate the cumulative unit costs (labor, burden, subcontract, material, material burden) for each operation contained within the subassembly and each operation contained within its children subassemblies. The material subassembly cost is the total of the actual costs generated by each operation.	The costs are recorded using the standard unit rate recorded for the part generated through the Costing Workbench. Any actual amount that does not equal the standard amount is recorded by the selected GL control.
A material quantity is scrapped (DMR) on a subassembly	The material quantity is scrapped using the current average costs generated against the subassembly part quantity.	The costs are recorded using the standard unit rate recorded for the part generated through the Costing Workbench. Any actual amount that does not equal the standard amount is recorded by the selected GL control.
A subcontract operation generates a variance amount	An ADJ-PUR transaction is created to record the difference between the invoice amount and the subcontract receipt amount. The variance amount is also placed against the actual labor cost and subcontract cost of the operation.	An ADJ-PUR transaction is created to record the difference between the invoice amount and the subcontract receipt amount. The variance amount is also placed against the actual labor cost and subcontract cost of the operation.
Completing a	Production costs are accumulated and	The costs are recorded using the

job	totaled for the entire method. Any outstanding material, burden, and labor costs are subtracted from the final production costs. If additional labor and material costs are placed against the job, these costs are added by the WIP calculation.	standard unit rate recorded for the part generated through the Costing Workbench. Any actual amount that does not equal the standard amount is recorded by the selected GL control.
Closing a job	The average job costs are no longer determined by the WIP calculation. Instead these amounts are moved to the Cost of Sales (COS) calculation.	The standard job costs are no longer determined by the WIP calculation. Instead these amounts are moved to the Cost of Sales (COS) calculation.

Cumulative Labor Unit Cost

The labor WIP values are pulled from job operation (JobOpr) records. The calculation flow:

- Actual Labor Unit Cost = Actual Cost / Quantity Worked Note: The Quantity Worked value includes both the finished quantity and the scrap quantity calculated on the operation.
- Labor WIP Unit Cost = Remaining Cost / Remaining Quantity
- Relieved Labor Cost = Labor WIP Unit Cost x Operation Quantity Relieved
- Remaining Labor Cost = Actual Cost To Date- Relieved Labor Cost
- Total Labor WIP Cost = Remaining Labor Cost + Previous Labor WIP Cost

Cumulative Burden Unit Cost

The burden WIP values are pulled from job operation (JobOpr) records. The calculation flow:

- Actual Burden Unit Cost = Actual Cost / Quantity Worked Note: The Quantity Worked value includes both the finished quantity and the scrap quantity calculated on the operation.
- Burden WIP Unit Cost = Remaining Cost / Remaining Quantity
- Relieved Burden Cost = Burden WIP Unit Cost x Operation Quantity Relieved
- Remaining Burden Cost = Actual Cost To Date- Relieved Burden Cost
- Total Burden WIP Cost = Remaining Burden Cost + Previous Burden WIP Cost

Cumulative Material Unit Cost

The total material cost on an operation is calculated by multiplying the actual unit cost against the quantity used so far on the job operation. The values are pulled from job material (JobMtl) records. The calculation flow:

- Actual Material Unit Cost = Actual Cost / Quantity Issued
- Material Quantity Per = Maximum Quantity (Issued Quantity or the Required Quantity) / Maximum Quantity (Operation Quantity Worked or the Operation Run Quantity)

- Material Quantity Relieved = Operation Qty Relieved x Material Qty Per
- Relieved Material Cost = Actual Material Unit Cost x Material Quantity Relieved
- Remaining Material Cost = Actual Cost to Date- Relieved Material Cost
- Material WIP Unit Cost = Remaining Material Cost / Remaining Material Quantity
- Total Material WIP Cost = Remaining Material Cost + Previous Material WIP Cost

Cumulative Subcontract Unit Cost

The total subcontract cost on an operation is calculated by multiplying the actual unit cost against the quantity received so far on the job operation. The values are pulled from job material (JobMtl) records. The calculation flow:

- Relieved Subcontract WIP Cost = Actual Unit Cost x Actual Subcontract Quantity Received So Far
- Remaining Subcontract Cost = Actual Cost to Date- Relieved Subcontract WIP Cost
- Remaining Subcontract Quantity = Total Subcontract Quantity- Actual Subcontract Quantity Received So Far
- Subcontract WIP Unit Cost = Remaining Subcontract Cost / Remaining Subcontract Quantity
- Total Subcontract WIP Cost = Remaining Subcontract Cost + Previous Subcontract WIP Cost

Cumulative Material Burden Unit Cost

The total material burden cost on an operation is calculated by multiplying the material burden rate against the the total WIP costs received so far on the job operation. The values are pulled from job material (JobMtl) records. The calculation flow:

- Relieved Material Burden WIP Cost = (Material WIP Cost + Labor WIP Cost + Burden WIP Cost + Subcontract WIP Cost) x Material Burden Rate
- Remaining Material Burden Cost = Actual Cost to Date- Relieved Material Burden WIP Cost
- Remaining Material Quantity = Total Material Quantity- Relieved Material Quantity
- Material Burden WIP Unit Cost = Remaining Material Burden Cost / Remaining Material Quantity
- Total Material Burden WIP Cost = Remaining Material Burden Cost + Previous Material Burden WIP Cost

Relieved Total Cost

Relieved Cost = Material WIP Cost + Labor WIP Cost + Burden WIP Cost + Subcontract WIP Cost+ Material Burden WIP Cost

Remaining Total Job Cost

Remaining Job Cost = Total Job Cost - Relieved Cost

Example(s)

The following example(s) illustrate how you use the Work in Process (WIP) functionality.

You want to make sure that your General Ledger contains the accumulated costs from all the jobs that are closed or currently in production. To do this, you define all the GL controls within Company Configuration. Because you want these costs posted to these transactions you also select the Inventory check box on the General Ledger card.

Before you commit these costs to the General Ledger, however, you need to run the Inventory/WIP Reconciliation report. You set up this report to run on a recurring schedule a day before the Capture COS/WIP Activity process is run. To do this, you select the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month - 1" option. This means that you want this process to run one day before the end of each month. You now add this report to a process set, and attach this process set to a recurring schedule.

You next launch the Capture COS/WIP Activity process. You indicate that this process updates the General Ledger by selecting the Post to GL check box. You then place this process on a recurring schedule by selecting the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month option. This means that this process runs on the last day of each month. You now add this process to a process set, and attach this process set to a recurring schedule.

Each time the system calendar advances to the day before the end of the month, the Inventory/WIP Reconciliation report is run for your review. This gives you a day to make any changes you need to the transaction information. The next day, the Capture COS/WIP Activity process runs, and the WIP and COS transactions update with the current information.

Transaction Types

Each inventory transaction (PartTran record) is assigned a specific transaction type. For example, when you issue parts from inventory to a job material, you create an inventory transaction with a transaction type of STK-MTL.

Depending on the transaction type, the default GL controls you use record this transaction in a different account. Use GL controls to define how you want the application to track job costs.

This section of the guide details all the inventory transaction types used by the application. Each transaction type is explained, and then the transactions it records are detailed. Use this information to help you review the results displayed on the Inventory/WIP Reconciliation report.

ADJ-CST

The ADJ-CST transaction type records any changes made to the cost of a part. There are five transactions that trigger this transaction type.

ADJ-CST Transaction 1

This transaction decreases the cost of a part.

ADJ-CST Transaction 2

This transaction increases the cost of a part.

ADJ-CST Transaction 3

This transaction tracks the PO Receipt for each Standard costed item. If the PO cost is greater than the Standard cost, this transaction is created. The entire PO cost is recorded within the Inventory account, and the adjusted difference is recorded within the AP Clearing account.

ADJ-CST Transaction 4

This transaction tracks the PO Receipt for each Standard costed item. If the PO cost is less than the Standard cost, this transaction is created. The entire PO cost is recorded within the Inventory account, and the adjusted difference is recorded within the AP Clearing account.

ADJ-CST Transaction 5

Some transactions involving non-standard costed parts automatically create ADJ-CST transactions. This makes sure that the Stock Status report matches the GL inventory value of each part.

ADJ-DRP

The ADJ-CUS transaction type records special shipment cost adjustments related to late costs of purchased FIFO costed parts that have already been shipped to customer.

These transactions are only generated when Update Issue to Job/Shipment Costs check box is selected on Site Cost Maintenance > Detail.

ADJ-DRP

The ADJ-DRP transaction type records any cost variances or discrepancies when matching the supplier's invoice to the original purchase order for drop-shipments.

These transactions are only generated when Update Issue to Job/Shipment Costs check box is selected on Site Cost Maintenance > Detail.

ADJ-MTL

The ADJ-MTL transaction type records any changes made to the cost of a material being used on a job or a service call. There are eight transactions that trigger this transaction type.

These transactions are only generated when Update Issue to Job/Shipment Costs check box is selected on Site Cost Maintenance > Detail.

ADJ-MTL

The ADJ-MTL transaction type records any changes made to the cost of a material being used on a job or a service call. There are eight transactions that trigger this transaction type.

The ADJ-MTL transaction type records any changes made to the cost of a material being used on a job or a service call. There are eight transactions that trigger this transaction type.

ADJ-MTL Transaction 1

This transaction decreases a material cost on a manufacturing job.

ADJ-MTL Transaction 2

This transaction increases the material cost on a manufacturing job.

ADJ-MTL Transaction 3

This transaction decreases a material cost on a service job related to a service call.

ADJ-MTL Transaction 4

This transaction increases a material cost on a service job related to a service call.

ADJ-MTL Transaction 5

This transaction decreases a material cost on a service job related to a service contract.

ADJ-MTL Transaction 6

This transaction increases a material cost on a service job related to a service contract.

ADJ-MTL Transaction 7

This transaction decreases a material cost on a service job related to a warranty.

ADJ-MTL Transaction 8

This transaction increases a material cost on a service job related to a warranty.

ADJ-PUR

The ADJ-PUR transaction type records any changes made to a purchased quantity. There are twenty-three transactions that trigger this transaction type.

ADJ-PUR Transaction 1

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a part quantity received to stock. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 2

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a part quantity received to stock. It records when the PO cost is greater than the PO cost.

ADJ-PUR Transaction 3

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a manufacturing job. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 4

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a manufacturing job. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 5

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a manufacturing job. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 6

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a manufacturing job. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 7

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a service call. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 8

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a service call. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 9

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a service call. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 10

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a service call. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 11

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a service contract. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 12

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a service contract. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 13

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a service contract. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 14

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a service contract. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 15

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a warranty. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 16

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a material quantity received to a service job related to a warranty. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 17

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a warranty. It records when the invoice cost is greater than the PO cost.

ADJ-PUR Transaction 18

This transaction tracks the difference between the estimated PO cost and the actual invoice cost for a subcontract quantity received to a service job related to a warranty. It records when the PO cost is greater than the invoice cost.

ADJ-PUR Transaction 19

This transaction records when a Job Miscellaneous Line is added to a service job related to a service call in AP Debit Memo Entry.

ADJ-PUR Transaction 20

This transaction records when a Job Miscellaneous Line is added to a service job related to a service contract in AP Invoice Entry.

ADJ-PUR Transaction 21

This transaction records when a Job Miscellaneous Line is added to a service job related to a service contract in AP Debit Memo Entry.

ADJ-PUR Transaction 22

This transaction records when a Job Miscellaneous Line is added to a service job related to warranty in AP Invoice Entry.

ADJ-PUR Transaction 23

This transaction records when a Job Miscellaneous Line is added to a service job related to warranty in AP Debit Memo Entry.

ADJ-QTY

ADJ-QTY Transaction 1

This transaction decreases the Quantity-on-Hand value of a part.

ADJ-QTY Transaction 2

This transaction increases the Quantity-on-Hand value of a part.

ADJ-SUB

ADJ-SUB Transaction 1

This transaction decreases a subcontract cost on a manufacturing job.

ADJ-QTY Transaction 2

This transaction increases a subcontract cost on a manufacturing job.

ADJ-QTY Transaction 3

This transaction decrease a subcontract cost on a service job related to service call.

ADJ-SUB Transaction 4

This transaction increases a subcontract cost on a service job related to service call.

ADJ-SUB Transaction 5

This transaction decreases a subcontract cost on a service job related to service contract.

ADJ-SUB Transaction 6

This transaction increases a subcontract cost on a service job related to service contract.

ADJ-SUB Transaction 7

This transaction decreases a subcontract cost on a service job related to warranty.

ADJ-SUB Transaction 8

This transaction increases a subcontract cost on a service job related to warranty.

ASM-INS

ASM-INS Transaction 1

This transaction records a discrepant quantity on a labor transaction.

ASM-INS Transaction 2

This transaction records when each First Article is created.

ASM-INS Transaction 3

This transaction records when a non-conformance entry for an Assembly type is created.

You have the option to move costs to DMR during inspection.

DMR-ASM

This transaction type records discrepant material receipts that affect assemblies. There are four transactions that trigger this transaction type.

DMR-ASM Transaction 1

This transaction records the receipt of a DMR assembly to a manufacturing job.

It does this for the following DMR types:

- A discrepant quantity on a labor transaction
- A new First Article
- A new non-conformance for an Assembly type
- A new non-conformance for a Subcontract type

When the quantity is sent from inspection to DMR, a GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

DMR-ASM Transaction 2

This transaction records the receipt of a DMR assembly to a service job related to service call.

It does this for the following DMR types:

- A discrepant quantity on a labor transaction
- A new First Article
- A new non-conformance for an Assembly type
- A new non-conformance for a Subcontract type

When the quantity is sent from inspection to DMR, a GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

DMR-ASM Transaction 3

This transaction records the receipt of a DMR assembly to a service job related to service contract.

It does this for the following DMR types:

- A discrepant quantity on a labor transaction
- A new First Article
- A new non-conformance for an Assembly type
- A new non-conformance for a Subcontract type

When the quantity is sent from inspection to DMR, a GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

DMR-ASM Transaction 4

This transaction records the receipt of a DMR assembly to a service job related to a warranty.

It does this for the following DMR types:

- A discrepant quantity on a labor transaction
- A new First Article

- A new non-conformance for an Assembly type
- A new non-conformance for a Subcontract type

When the quantity is sent from inspection to DMR, a GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

DMR-MTL

This transaction type records discrepant material receipts that affect materials. There are four transactions that trigger this transaction type.

DMR-MTL Transaction 1

This transaction tracks a Job Material receipt from a DMR to a manufacturing job.

DMR-MTL Transaction 2

This transaction tracks a Job Material receipt from a DMR to a service job related to service call.

DMR-MTL Transaction 3

This transaction tracks a Job Material receipt from a DMR to a service job related to service contract.

DMR-MTL Transaction 4

This transaction tracks a Job Material receipt from a DMR to a service job related to warranty.

DMR-REJ

This transaction type records transactions that occur when a DMR is rejected.

It does this for the following DMR types:

- A discrepant quantity on a labor transaction
- A new First Article
- A new non-conformance for an Assembly type

A GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

DMR-STK

This transaction records a receipt from DMR to Stock.

DMR-SUB

This transaction records a receipt of a subcontract quantity from a DMR.

This is not a valid transaction type since version 5.20. These transactions may exist in your database, however, if your company first installed version 5.10 or earlier.

DRP-CUS

This transaction type records the shipment transactions for drop-shipments to customers.

FAM-STK

This transaction type records transfers of Fixed Assets to stock.

INS-ASM

This transaction records when a quantity passes inspection in the following situations:

- A discrepant quantity returned to a job.
- A First Article returned to a job.
- A non-conformance quantity for type Assembly.
- A non-conformance quantity for type Subcontract.

INS-DMR

This transaction type records transactions that fail non-conformance. There are six transactions that trigger this transaction type.

INS-DMR Transaction 1

This transaction records when a non-conformance quantity fails for a manufacturing job.

This quantity can come from the following sources:

- First Article entry
- A discrepant quantity on a labor transaction
- A non-conformance created for type Assembly
- A non-conformance created for type Subcontract

A GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

INS-DMR Transaction 2

This transaction records when a non-conformance quantity fails for a service job related to a service call.

This quantity can come from the following sources:

- First Article entry
- A discrepant quantity on a labor transaction
- A non-conformance created for type Assembly
- A non-conformance created for type Subcontract

> A GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

INS-DMR Transaction 3

This transaction records when a non-conformance quantity fails for a service contract.

This quantity can come from the following sources:

- First Article entry
- A discrepant quantity on a labor transaction
- A non-conformance created for type Assembly
- A non-conformance created for type Subcontract

> A GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

INS-DMR Transaction 4

This transaction records when a non-conformance quantity fails for a service job related to warranty. This quantity can come from the following sources:

This transaction records when a non-conformance quantity fails for a service job related to warranty. This quantity can come from the following sources:

- First Article entry
- A discrepant quantity on a labor transaction
- A non-conformance created for type Assembly
- A non-conformance created for type Subcontract

A GL Entry is only created if you select the Move Cost to DMR check box. For more information, review the INS-DMR transaction type.

INS-DMR Transaction 5

This transaction records when a RMA fails through RMA Disposition.

This transaction only occurs if your company uses the Quality Assurance module. If you do not use this module, the INS-REJ transaction is used instead.

INS-DMR Transaction 6

This transaction records all other transaction types that fail. These are transaction types other than the categories previously described.

INS-MTL

This transaction type records all transactions for materials received from inspection or disposed through an RMA. There are eight transactions that trigger this transaction type.

INS-MTL Transaction 1

This transaction records the receipt of material from inspection to a manufacturing job.

INS-MTL Transaction 2

This transaction records the receipt of material from inspection to a service job related to service call. The Division value comes from site then 1 or 2.

INS-MTL Transaction 3

This transaction records the receipt of material from inspection to a service job related to service contract.

INS-MTL Transaction 4

This transaction records receipt of material from inspection to a service job related to warranty.

INS-MTL Transaction 5

This transaction records the disposition of an RMA to a manufacturing job material.

INS-MTL Transaction 6

This transaction records the disposition of an RMA to material for a service call job related to service call.

INS-MTL Transaction 7

This transaction records the disposition of an RMA to material for a service call job related to service contract.

INS-MTL Transaction 8

This transaction records the disposition of an RMA to material for a service call job related to warranty.

INS-REJ

This transaction type records a failed RMA transaction created through RMA Disposition. This transaction type is only used if your company does not use the Quality Assurance module.

INS-STK

This transaction type records all transactions for materials received to inventory. There are two transactions that trigger this transaction type.

INS-STK Transaction 1

This transaction records the receipt of a subcontract quantity from an inspection to inventory.

INS-STK Transaction 2

This transaction records the receipt of a part quantity from RMA to inventory.

INS-SUB

This transaction type records all transactions for materials received from subcontract operations. There are four transactions that trigger this transaction type.

INS-SUB Transaction 1

This transaction records the receipt of a subcontract quantity from an inspection to a manufacturing job.

INS-SUB Transaction 2

This transaction records the receipt of a subcontract quantity from an inspection to a service job related to service call.

INS-SUB Transaction 3

This transaction records the receipt of a subcontract quantity from an inspection to a service job related to service contract.

INS-SUB Transaction 4

This transaction records the receipt of a subcontract quantity from an inspection to a service job related to warranty.

INVOICE

This transaction type records all transactions created when using the AR Clearing functionality. There are two transactions that trigger this transaction type.

INVOICE Transaction 1

This transaction handles records for outside customers (customers who are not defined as Inter-Company). This transaction is created when you use the AR Clearing functionality. This functionality populates the AR Clearing account defined within Company Configuration.

This transaction handles records for outside customers (customers who are not defined as Inter-Company). This transaction is created when you use the AR Clearing functionality. This functionality populates the AR Clearing account defined within Company Configuration.

This is not a valid transaction for a field service call, service contract, and warranty invoice. For more information, review the MFG-CUS transaction type.

INVOICE Transaction 2

This transaction handles records for customers who are defined as Inter-Company Customers. This transaction is created when you use the AR Clearing functionality. This functionality populates the AR Clearing account defined within Company Configuration.

This transaction handles records for customers who are defined as Inter-Company Customers. This transaction is created when you use the AR Clearing functionality. This functionality populates the AR Clearing account defined within Company Configuration.

This is not a valid transaction for a field service call, service contract, and warranty invoice. For more information, review the MFG-CUS transaction type.

KIT-CUS

This transaction type records transactions that track shipments sent to customers for sales kits that come from inventory. These transactions follow the movements of parent parts.

There are two transactions that trigger this transaction type.

KIT-CUS Transaction 1

This transaction records a sales kit shipment to an outside customer (a customer who is not defined as an Inter-Company Customer) from inventory.

KIT-CUS Transaction 2

This transaction records a sales kit shipment to an Inter-Company Customer from inventory.

LABOR

This transaction type records all labor transactions that occur within the application. There are twelve transactions that trigger this transaction type.

LABOR Transaction 1

This transaction records a labor amount reported against a manufacturing job.

LABOR Transaction 2

This transaction records a job adjustment amount that increases the labor cost on a manufacturing job.

LABOR Transaction 3

This transaction records a job adjustment amount that decreases the labor cost on a manufacturing job.

LABOR Transaction 4

This transaction records a labor amount reported against a service job related to service call.

LABOR Transaction 5

This transaction records a Job Adjustment amount that increases the labor cost on a service job related to service call.

LABOR Transaction 6

This transaction records a Job Adjustment amount that decreases the labor cost on a service job related to warranty.

LABOR Transaction 7

This transaction records a labor amount reported against a service job related to a service contract.

LABOR Transaction 8

This transaction records a Job Adjustment amount that increases the labor cost on a service job related to service contract.

LABOR Transaction 9

This transaction records a job adjustment amount that decreases the labor cost on a service job related to a service contract.

LABOR Transaction 10

This transaction records a labor amount reported against a service job related to warranty.

LABOR Transaction 11

This transaction records a job adjustment amount that increases the labor cost on a service job related to warranty.

LABOR Transaction 12

This transaction records a job adjustment amount that decreases the labor cost on a service job related to warranty.

MFG-CUS

This transaction type records transactions your company has made with customers. There are six transactions that trigger this transaction type.

MFG-CUS Transaction 1

This transaction records a shipped quantity from a manufacturing job to an outside customer (not defined as an Inter-Company customer). The Division value comes from site then 1 or 2.

MFG-CUS Transaction 2

This transaction records a shipped quantity from a manufacturing job to an Inter-Company customer.

MFG-CUS Transaction 3

This transaction records when a service call is both closed and, if applicable, invoiced. It moves the service call amounts from the WIP transactions to the COS transactions.

MFG-CUS Transaction 4

This transaction records when a service call related to a service contract is both closed and, if applicable, invoiced. It moves the service call amounts from the WIP transactions to the COS transactions.

MFG-CUS Transaction 5

This transaction records when a service call related to a warranty is both closed and, if applicable, invoiced. It moves the service call amounts from the WIP transactions to the COS transactions.

MFG-CUS Transaction 6

This transaction moves costs from Work-In-Process (WIP) to Cost of Sales (COS) for Project jobs assigned to WBS Phases with an invoicing method of Customer Shipment or Milestone Billing when a project job closes. This transaction type is **MFG-CUS: Post Costs to WIP**.

MFG-DMR

This transaction type records receipt of a part from a job to DMR.

This is not a valid transaction type since version 3.00. These transactions may exist in your database, however, if your company first installed version 3.00 or earlier.

MFG-PLT

This transaction type records the receipt of job from one site to a warehouse to job in another site.

This is for the first half of transaction. For the second half of the transaction, PLT-STK, PLT-ASM, or PLT-MTL is used instead.

MFG-STK

This transaction type records receipt of a part from a manufacturing job to stock.

MFG-VAR

This transaction type records manufacturing variance transactions. There are four transactions that trigger this transaction type.

MFG-VAR Transaction 1

This transaction records a manufacturing variance for make to order job. It occurs when the costs relieved from WIP are greater than the actual job costs.

MFG-VAR Transaction 2

This transaction records a manufacturing variance for a make to order job where the costs relieved from WIP are less than the actual job costs.

MFG-VAR Transaction 3

This transaction records a manufacturing variance for a make to stock job where the costs relieved from WIP are greater than the actual job costs.

MFG-VAR Transaction 4

This transaction records a manufacturing variance for a make to stock job where the costs relieved from WIP are less than the actual job costs.

MFG-VEN

This transaction type records shipments to subcontractors.

MFG-WIP

This transaction type records the receipt of a part manufactured on one job (source job) to another job (target job). This occurs when the Make Direct check box is selected within the same site.

MTL-DMR

This transaction type records when a material is rejected from a job.

This is not a valid transaction type since version 3.00. These transactions may exist in your database, however, if your company first installed version 3.00 or earlier.

MTL-INS

This transaction type records non-conformance transactions on materials. There are four transactions that trigger this transaction type.

MTL-INS Transaction 1

This transaction records when you create a non-conformance entry for a manufacturing job material.

MTL-INS Transaction 2

This transaction records when you create a non-conformance entry for a for a service job related to a service call material.

MTL-INS Transaction 3

This transaction records when you create a non-conformance entry for a for a service job related to a service contract material.

MTL-INS Transaction 4

This transaction records when you create a non-conformance entry for a for a service job related to a warranty material.

PLT-ASM

This transaction type records material quantities transferred between warehouses. There are two transactions that trigger this transaction type.

PLT-ASM Transaction 1

This transaction records the second half of an inventory transfer quantity from site A Warehouse to site B Job. The first half of this transaction is handled by the STK-PLT or MFG-PLT transaction type.

PLT-ASM Transaction 2

This transaction records the second half of an inventory transfer quantity from site A Job to site B Job. The first half of this transaction is handled by the STK-PLT or MFG-PLT transaction type.

PLT-MTL

This transaction records the second half of an inventory transfer quantity from site A Warehouse to site B Job. The first half of this transaction is handled by the STK-PLT transaction type.

PLT-STK

This transaction records the second half of an inventory transfer quantity from site A/Warehouse A to site B/Warehouse B. The first half of this transaction is handled by the STK-PLT transaction type.

PUR-CMI

This transaction type records purchase receipts to the customer-managed inventory.

PUR-CMI Transaction 1

PO Receipt to stock for defined buy to order (BTO) parts listed in the Part master for customer-managed inventory.

PUR-CMI Transaction 2

Miscellaneous Receipt to stock for defined buy to order (BTO) parts listed in the Part master for customer-managed inventory.

PUR-CUS

This transaction type records transactions for Buy To Order (BTO) parts shipped to customers.

PUR-CUS Transaction 1

This transaction records a purchase receipt for a BTO shipment quantity to an outside customer (a customer who is not defined as Inter-Company) from inventory.

PUR-CUS Transaction 2

This transaction records a purchase receipt for a BTO shipment quantity to an Inter-Company customer from inventory.

PUR-DRP

This transaction type records the receipt transactions which are automatically generated by drop-shipments.

The PUR-DRP transaction should always be paired with a DRP-CUS transaction.

PUR-INS

This transaction type records transactions in which receipts are sent to inspection. There are two transactions that trigger this transaction type.

PUR-INS Transaction 1

This transaction records a PO receipt to inspection.

PUR-INS Transaction 2

This transaction records a miscellaneous receipt to inspection.

PUR-MTL

This transaction type records transactions in which receipts are made to job materials. There are eight transactions that trigger this transaction type.

PUR-MTL Transaction 1

This transaction records a PO receipt to a job material for a manufacturing job.

PUR-MTL Transaction 2

This transaction records a miscellaneous receipt to a job material for a manufacturing job.

PUR-MTL Transaction 3

This transaction records a PO receipt to a job material for a service job related to a service call.

PUR-MTL Transaction 4

This transaction records a miscellaneous receipt to a job material for a service job related to a service call.

PUR-MTL Transaction 5

This transaction records a PO receipt to a job material for a service job related to a service contract.

PUR-MTL Transaction 6

This transaction records a miscellaneous receipt to a job material for a service job related to a service contract.

PUR-MTL Transaction 7

This transaction records a PO receipt to a job material for a service job related to a warranty.

PUR-MTL Transaction 8

This transaction records a miscellaneous receipt to a job material for a service job related to a warranty.

PUR-SMI

This transaction type records purchase receipts to supplier-managed inventory.

PUR-STK

This transaction type records transactions in which receipts are made to stock. There are two transactions that trigger this transaction type.

PUR-STK Transaction 1

PO Receipt to stock.

PUR-STK Transaction 2

Miscellaneous Receipt to stock.

PUR-SUB

This transaction type records transactions in which receipts are made to a subcontract operation. There are eight transactions that trigger this transaction type.

PUR-SUB Transaction 1

This transaction records a PO receipt to a subcontract operation for a manufacturing job.

PUR-SUB Transaction 2

This transaction records a miscellaneous receipt to a subcontract operation for a manufacturing job.

PUR-SUB Transaction 3

This transaction records a PO receipt to a subcontract operation for a service job related to a service call.

PUR-SUB Transaction 4

This transaction records a miscellaneous receipt to a subcontract operation for a service job related to a service call.

PUR-SUB Transaction 5

This transaction records a PO receipt to a subcontract operation for a service job related to a service contract.

PUR-SUB Transaction 6

This transaction records a miscellaneous receipt to a subcontract operation for a service job related to a service contract.

PUR-SUB Transaction 7

This transaction records a PO receipt to a subcontract operation for a service job related to a warranty.

PUR-SUB Transaction 8

This transaction records a miscellaneous receipt to a subcontract operation for a service job related to a warranty.

PUR-UKN

This transaction type records transactions in which receipts are made to other items. There are two transactions that trigger this transaction type.

PUR-UKN Transaction 1

This transaction records a PO receipt to other item.

PUR-UKN Transaction 2

This transaction records a miscellaneous receipt to other item.

RMA-INS

This transaction type records transactions for RMA receipts to inventory.

The application handles these receipts through the following methods:

1. If the Quality Assurance module is active, the RMA receipt automatically goes to inspection.
2. If the Quality Assurance module is not active, you must use RMA Disposition, a program found in this Order Management module.

RMA-STK

This transaction type records transactions for RMA receipts to stock.

This is not a valid transaction type since version 3.00. These transactions may exist in your database, however, if your company first installed version 3.00 or earlier.

STK-ASM

This transaction type records transactions that occur for assemblies. There are eight transactions that trigger this transaction type.

STK-ASM Transaction 1

This transaction records an issue of an assembly to a manufacturing job.

STK-ASM Transaction 2

This transaction records a return of an assembly from a manufacturing job.

STK-ASM Transaction 3

This transaction records the issue of an assembly to a service job related to service call.

STK-ASM Transaction 4

This transaction records the return of an assembly from a service job related to a service call.

STK-ASM Transaction 5

This transaction records the issue of an assembly to a service job related to a service contract.

STK-ASM Transaction 6

This transaction records the return of an assembly from a service job related to a service call.

STK-ASM Transaction 7

This transaction records the issue of an assembly to a service job related to a warranty.

STK-ASM Transaction 8

This transaction records the return of an assembly from a service job related to a warranty.

STK-CUS

This transaction type records transactions that track shipments sent to customers that come from stock. There are two transactions that trigger this transaction type.

STK-CUS Transaction 1

This transaction records a shipment quantity to an outside customer (a customer who is not defined as Inter-Company) from inventory.

STK-CUS Transaction 2

This transaction records a shipment quantity to an Inter-Company customer from inventory.

STK-DMR

This transaction type records transactions used for rejecting an inventory quantity.

This is not a valid transaction type since version 3.00. These transactions may exist in your database, however, if your company first installed version 3.00 or earlier.

STK-FAM

This transaction type records transfers of stock to Fixed Assets.

STK-INS

This transaction type records transactions for creating a non-conformance entry for an inventory item.

STK-KIT

The STK-KIT transaction type records transactions that occur with shipped sales kits. This transaction does not occur unless the sales kit is selected as Shipped Complete.

STK-MTL

This transaction type records transactions that track issues and returns of materials to and from inventory. There are eight transactions that trigger this transaction type.

STK-MTL Transaction 1

This transaction records the issue of a material quantity to a manufacturing job.

STK-MTL Transaction 2

This transaction records the return of a material quantity from a manufacturing job.

STK-MTL Transaction 3

This transaction records the issue of a material quantity to a service job related to a service call.

STK-MTL Transaction 4

This transaction records the return of a material quantity from a service job related to a service call.

STK-MTL Transaction 5

This transaction records the issue of a material quantity to a service job related to a service contract. The Division value comes from warehouse then site then 1, 2, or 3.

STK-MTL Transaction 6

This transaction records the return of a material quantity to a service job related to a service contract.

STK-MTL Transaction 7

This transaction records the issue of a material quantity to a service job related to a warranty.

STK-MTL Transaction 8

This transaction records the return of a material quantity from a service job related to a warranty.

STK-PLT

This transaction type records the first half of an inventory transfer from site A/Warehouse A to site B/Warehouse B. The second half of this transaction is recorded by the PLT-STK, PLT-MTL, or PLT-ASM transaction type.

STK-SVR

This transaction type records a material quantity issue to a service call.

This is not a valid transaction type since version 5.10. These transactions may exist in your database, however, if your company first installed version 5.10 or earlier.

This transaction type is replaced by the STK-MTL transaction type.

STK-STK

This transaction type records an inventory transfer that occurs within the same site or between sites.

STK-UKN

This transaction type records transactions that track miscellaneous issues of inventory. There are two transactions that trigger this transaction type.

STK-UKN Transaction 1

This transaction records a miscellaneous issue of inventory.

STK-UKN Transaction 2

This transaction records a miscellaneous return of inventory.

SUB-DMR

This transaction type records nonconformance entries for a subcontract operation.

This is not a valid transaction type since version 5.10. These transactions may exist in your database, however, if your company first installed version 5.10 or earlier.

SUB-INS

This transaction type records nonconformance entries for a subcontract operation. During inspection, you can select the Move Costs to DMR check box to place these values on a DMR.

SVG-STK

This transaction type records a salvage receipt to inventory from a manufacturing job.

Service jobs cannot use the salvage functionality.

UKN-CUS

This transaction type records Buy To Order (BTO) shipments of non-quantity bearing parts to the customer.

WIP-MFG

This transaction type records a material issue of a make direct part from its source job to its target job. This transaction is created at the same time as the MFG-WIP transaction.

The MFG-WIP transaction creates the GL Entry. The WIP-MFG transaction does not create entries in the general ledger.

Modifiers

This section details the modifiers that affect the outcome of the costing calculations. Each component contains Description, Adjustments, Where Located, Logic/Algorithms, and Examples sections.

Apply Burden to All Operation Resources

Specifies if all operation resource burden costs should be summed for those operations with more than one assigned resource when labor is entered against a job operation.

Select this check box to indicate that when labor is entered against an operation with more than one assigned resource, the burden costs are calculated using **all** resources linked to the operations. All resource burden rates are then calculated against the job, and the total is the sum of these operation burden costs (default setting). Clear this check box to only calculate burden costs for the first (primary) operation. If multiple resources are assigned to this primary operation, these additional resource burden rates are only included if each resource is defined as a **Location** and it is selected as the reported resource on a time (labor) entry.

Where Located

You can access the Apply Burden to All Operation Resources check box through the following locations.

Site Configuration Control

Use Site Configuration Control to set up how each site interacts with various functions such as the Inventory Management, Production Management, Shipping/Receiving, Time Management, and Expense Management modules. To launch site Configuration Control from the Main Menu:

Menu Path: System Setup > Company/Site Maintenance > Site Configuration

This application is not available in Classic Web Access.

Example(s)

The following example illustrates the impact of the Apply Burden to All Operation Resources check box on burden cost calculations for operations with multiple assigned resources.

The Shear job operation uses two resource groups. The first resource group is Shear Machines A, a location resource group that has a burden rate of $1 per labor hour. The second resource group is Shear Machines Maintenance and has a burden rate of $2 per labor hour.

During the actual day of the operation, a device within Shear Machines A breaks down. You have another location resource group, Shear Machines B, which your shop employees can use. It has a

burden rate of $2 per labor hour. During labor entry on the Shear operation, your shop employees attempt to substitute the Shear Machines B resource group. The Shear Machines Maintenance is not a location resource group, however, so it cannot be substituted.

The applied burden rate calculated in this situation is dependent on the setting of the Apply Burden to All Operation Resources check box in site Configuration Control, for the site in which the work is performed.

- If the Apply Burden to All Operation Resources check box is selected for the site, the burden rate for the Shear Machine Maintenance resource group is always included with the total burden cost that is calculated against the Shear operation. For each hour of labor reported against the Shear operation, there is a $3 burden cost.
- If the Apply Burden to All Operation Resources check box is cleared, the applied burden cost is that of the primary resource (in this case, $1.00 for Shear Machines A). However, if the substituted resource has been defined as a location, it instead uses the burden rate of the substituted resource ($2 per hour).

Average - Lot Costs

A Cost Adjustment modifier, use these five fields to change the unit cost values for the current part. These fields modify values calculated using the Average or Lot costing method.

You can modify the part's average or lot unit cost for labor, burden, material, subcontract, and/or material burden.

Adjustments

You can change the Average - Lot Costs modifier using the following options.

- **Unit Burden**- This field defines the average/lot unit cost for this part's overhead expenses. You enter a numeric value in this field.
- **Unit Labor**- This field defines the average/lot unit cost for this part's labor expenses. You enter a numeric value in this field.
- **Unit Material**- This field defines the average/lot unit cost for this part's material expenses.You enter a numeric value in this field.
- **Unit Material Burden**- This field defines the average/lot unit cost for unallocated expenses placed against the current part's material quantity. You enter a numeric value in this field.
- **Unit Subcontract**- This field defines the average/lot unit cost used against subcontract operations. You enter a numeric value in this field.

Logic/Algorithms

The Average - Lot Costs functionality uses this logic to calculate its results.

Adjustment Hierarchy

After you save the unit cost changes, the cost adjustment calculation uses the following hierarchy:

- Remove the original Quantity on-Hand value that uses the old unit costs.
- Record the new Quantity on-Hand using the new unit costs.

  Multiple Warehouses

  If the part is stored in two or more warehouses, generate two ADJ transactions for each warehouse that contains the part.

Example(s)

The following example(s) illustrate how you use the Average - Lot Costs functionality.

Part ABC has a quantity on hand of 25 in bin 1, and another 30 in bin 2. The current unit cost is $5.00. If you enter a cost adjustment of $5.25, you will see the following transactions in the Transaction Log:

Part Bin QOH U.Cost

ABC 1 -25 5.00

ABC 1 25 5.25

ABC 2 -30 5.00

ABC 2 30 5.25

Assembly (Accept to Job)

A DMR Processing modifier, the Assembly field defines the sequence number of the assembly to which the parts are accepted. If you decide that you can still use the discrepant material, you can define this value to accept the discrepant material to a job.

If the discrepant material came from an assembly or was originally purchased for an assembly, that sequence number becomes the default. If needed, however, you can change this value.

Adjustments

You can change the Assembly (Accept to Job) modifier using the following options.

- **Assembly**- This is a numeric value that you can update. You can enter a different number or click the Assembly button to find and select the assembly you need.

Where Located

You can access the Assembly (Accept to Job) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Assembly (Accept to Job) functionality uses this logic to calculate its results.

If the material quantity can be reworked, the application removes it from the DMR account and sends it to the job by using the WIP Material account or to inventory by using the Inventory GL account.

Example(s)

The following example(s) illustrate how you use the Assembly (Accept to Job) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. After you look over the quantity, however, you decide that the defects do not compromise the quality of your final product. Because of this, you need to return this quantity to the job for which it was originally purchased.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the Accept - Job Material command. You select Job 2376 - the job for which this material was purchased. The Assembly and Material values, Assembly 2 and Material 10:57K-987, display by default. You enter the 50 quantity in the Quantity field. You then save the DMR record.

This material quantity is now available to use again on Job 2376.

Base Unit Price

The Base Unit Price is used on supplier price lists. It defines the primary price when this supplier uses a base price plus or minus a factor at different part quantity levels.

This value is used to calculate the Effective Price in the Price Breaks table. If flat amount prices are in this table, the Base Unit Price is added to the Price Modifier value. If percent price breaks are in this table, this price is increased or decreased by the Price Modifier percentage.

This is an optional value. Do not enter a value in this field if the supplier uses flat amounts to define the cost for each price break.

Adjustments

You can change the Base Unit Price modifier using the following options.

- **Base Unit Price**- This is the main price per each unit that this supplier charges for the materials or services. Enter a numeric value in this field.

Where Located

You can access the Base Unit Price functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Base Unit Price functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Base Unit Price functionality.

ABC Metals is your sheet metal supplier. They give you flat amount breaks on the Base Unit Price value based on the quantity you purchase. Their Base Unit Price is $10.00 a sheet. If you purchase 100 sheets, they give you a $1.00 discount per sheet.

You purchase 103 sheets from ABC Metals. Because the quantity is large enough for the price break, you buy the 103 at the 9 dollar rate, for a total cost of $927.

Burden=Labor

The Burden = Labor check box defines the calculation option used to generate burden cost against the resource group. When selected, this option causes the application to multiply the hourly resource/resource group Burden Rate against the number of Labor Hours posted against it on a job operation.

Just like the Split Burden checkbox, this option only applies to direct labor automatically entered by using the MES interface.

This calculation option is useful when an employee clocks into multiple job operations during the same shift. The application tracks each minute that the employee works on each operation, accurately recording the burden (and labor) cost. This value is then multiplied against the burden rate. Note that this option can only be defined for a resource group. You cannot select the Burden = Labor calculation option on a resource.

Adjustments

You can change the Burden = Labor modifier using the following options.

- **Split Burden**- This burden calculation option causes the application to multiply the hourly resource group Burden Rate against the number of Resource Hours posted on a job operation. The burden calculation can then account for multiple employees clocked in on the same resource and job operation. For example, if two shop employees clock into the Drill operation at 10:00 and then clock out of the operation at 10:30, 15 minutes of burden are calculated against each employee's time. If you use the Burden = Labor calculation option, you cannot use the Split Burden option.

Where Located

You can access the Burden = Labor functionality through the following locations.

Resource Group Maintenance

You define the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Logic/Algorithms

The Burden = Labor functionality uses this logic to calculate its results.

- If the Split Burden calculation option is active, then divide the burden cost between the number of employees clocked into the operation.
- Job Estimate and Actual Burden Setup Cost Total = Burden Hours x Costing Setup Burden Rate
- Job Estimate and Actual Burden Production Cost Total = Burden Hours x Costing Production Burden Rate

Example(s)

The following example(s) illustrate how you use the Burden = Labor functionality.

Example One

An employee clocks in to two different jobs. Later, the employee clocks out of both jobs. The results are: Job 1 has 4 hours of labor and 8 hours of burden and Job 2 also had 4 hours of labor and 8 hours of burden. This means that 16 hours of burden is calculated against these resources. When the Burden = Labor check box is selected, however, the total burden is 8 hours.

Example Two

An employee works on four operations during 8:00 to 12:00. This employee clocks out of all four operations at 12:00. Each transaction has one hour of labor placed against it. The Burden = Labor check box is selected on this resource group, so each labor transaction also has one hour of burden cost for a total of 4 burden hours.

Note that if this method is not selected on the resource group, then each labor transaction has 4 hours of burden cost, for a total of 16 burden hours.

Burden Rates (Costing Workbench)

A Costing Workbench modifier, use these radio button options to determine how the burden rates are calculated for the resource and resource groups included within this cost group. You can update the Costing burden rates for job estimates, or the Quoting burden rates for quotes.

Adjustments

You can change the Burden Rates (Costing Workbench) modifier using the following options.

- Burden Rates- You select one of the following options:
- Costing
- Quoting

Where Located

You can access the Burden Rates (Costing Workbench) functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Burden Rates (Costing Workbench) functionality uses this logic to calculate its results.

- If the Costing option is selected, this cost group calculates burden for job estimates.
- If the Quoting option is selected, this cost group calculations burden for quotes.

Example(s)

The following example(s) illustrate how you use the Burden Rates (Costing Workbench) functionality.

You have a number of jobs soon in production. You need to estimate the costs of these jobs, and so you launch the Costing Workbench to update the current Standard Cost values of these parts.

Because you wish to update job estimates, you select the Costing option for the Burden Rates.

Copy from Cost Group

An optional Costing Workbench modifier, use the Copy from Cost Group drop down list to select a specific cost group from which you want to load part cost information. When you run the Load Cost Details function, your cost group is initiated with the costs contained within the selected cost group.

Use this field or the Copy from site Cost ID field to specify the cost set to use as a starting point for your new cost group. You might select to copy from an existing Cost Group rather than a site Cost ID (cost set) if you want to pull What If costs into the workbench and try out other What If cost scenarios.

Adjustments

You can change the Copy from Cost Group modifier using the following options.

- **Copy from Cost Group**- To define this value, you select an existing cost group.

Where Located

You can access the Copy from Cost Group functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Copy from Cost Group functionality uses this logic to calculate its results.

If an existing cost group is selected on the current cost group, pull in all the parts from the selected group into the current cost group.

Example(s)

The following example(s) illustrate how you use the Copy from Cost Group functionality.

You would like to review the effect that changing all your labor rates would have on the total costs of all of your manufactured parts. In this Copy from Cost Group field, you select a cost group that you previously created for trying out What If scenarios. When you run Load Cost Details, your cost group is initiated with the costs within that cost group. Use the Cost Labor Rates card to change all your labor rates, and then run the Rollup process to review the effect.

You would only post this cost group if you wanted your new rolled up costs to get posted to the site Cost ID assigned to the site for which you created your cost group.

This field is not available if a site cost ID (cost set) has been specified in the Copy from site Cost ID field.

Copy from site Cost ID

An optional Costing Workbench modifier, use this drop down list to select a specific cost set from which you want to load part cost information. A cost set contains the unit costs generated between multiple sites, ensuring that these costing values are consistent across the sites linked to the cost set.

By copying these values from a cost set, the Costing Workbench loads in all data with the specified cost set from the PartCost table.

Use this field or the Copy from Cost Group field to specify the cost group to use as a starting point for your new cost group. You might select to copy from a site Cost ID (cost set) rather than from a Cost Group if you want to initiate your new cost group with the current costs from the site that has a cost set assigned to it.

Adjustments

You can change the Copy from site Cost ID modifier using the following options.

- **Copy from site Cost ID**- To define this value, you select an existing site record.

Where Located

You can access the Copy from site Cost ID functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Copy from site Cost ID functionality uses this logic to calculate its results.

If an existing site is selected on the current cost group, pull in all the parts linked to the selected site into the current cost group.

Example(s)

The following example(s) illustrate how you use the Copy from site Cost ID functionality.

It is the end of December, and you want to setup your standard costs in site A for the new year. In this Copy from site Cost ID, you would enter or select the site Cost ID, or cost set, assigned to site A. When you run Load Cost Details, the current costs for site A are loaded into the workbench. Use the workbench to modify standard costs as necessary for the new year, and then when you rollup your cost group on December 31 or January 1 (or whenever you choose), your standard costs for the new year is in place for site A.

If you have created a new site that has a new site Cost ID assigned to it, and you wish to create a whole new set of costs for your new site, you can select your new cost set in this field and load costs at zero as your starting point for your cost group. This would be helpful if the costs in your new site were different from the costs in all of your other sites.

Costing Burden Rates

These rate values control the burden, or overhead cost, associated with running each resource or resource group.

They defines the rate at which both estimated job burden cost and actual burden cost are calculated against each resource/resource group used on an operation.

Separate rates can be defined for the Setup Time and Production Time reported against each resource/resource group. Setup Time is the time it takes to prepare for work on the operation. Production Time is the time it takes to produce part quantities on the operation.

This rate is measured by using a Flat or a Percentage rate option. You must select one rate option for both the production and the setup costing burden rates. For example, you cannot select Percent for the production burden rate option and then select Flat as the setup burden rate option.

Although you define the Costing Burden Rates on resources and resource groups, you can override these cost estimates by entering different rates on job methods. Use this to recalculate estimated burden costs on a specific job.

Adjustments

You can change the Costing Burden Rates modifier using the following options.

- **Flat**- This option causes a specific monetary amount to be calculated against the number of burden hours reported against an operation.
- **Percent**- This option causes a percentage value to be multiplied against the operation's labor cost reported against an operation.
- **Production Burden Rate (Job Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Job Entry.
- **Production Burden Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.
- **Setup Burden Rate (Job Method)**- Enter a value in this field when you need to override the default estimated setup burden rate from a resource/resource group on a job method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Job Entry.
- **Setup Burden Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.

Where Located

You can access the Costing Burden Rates functionality through the following locations.

Resource Group Maintenance

You define burden rates for a resource group on the Detail card. You can also enter different burden rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Job Entry

You may override the estimated burden rates defined on resources/resource groups on a specific job method. Use this to define the estimated cost of burden on a specific job. You do this on the Job Details - Operations - Scheduling Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Costing Burden Rates functionality uses this logic to calculate its results.

Burden Rate Hierarchy

The application calculates burden by first checking the rates defined on the resource used for the labor transaction.

If the resource does not have burden rates, the system uses the rates defined on the resource group.

Estimated Setup Burden Cost

Job Estimated Setup Burden Total = Number of Operations x (Number of Resources Used x (CostingSetup Burden Rate x Setup Hours Per Resource))

Estimated Production Burden Cost

Job Estimated Production Burden Total = Number of Operations x (Costing Production Burden Rate x (Production Standard x Number of Parts Produced))

Flat Burden Rate

Total Actual Burden Cost = Burden Rate (Flat Rate Option) x Burden Hours

Percentage Burden Rate

Total Actual Burden Cost = Burden Rate (Percentage Option) x Burden Hours

Example(s)

The following example(s) illustrate how you use the Costing Burden Rates functionality.

If you cost production burden as 110% of labor cost, select Percent as the burden rate option and enter a production costing rate of 110.00. If you cost setup burden at $55.00 per hour, select Flat as the burden rate option and enter a setup costing rate of 55.00.

Costing Labor Rates

These rate values define the estimated cost of labor associated with running each resource or resource group. They define the rate at which the estimated labor cost are calculated against each resource/resource group used on an operation.

These rates are multiplied against the estimated setup hours, estimated production hours, and Crew Size values to determine the final estimated cost on a job method.

Separate rates can be defined for the Setup Time and Production Time reported against each resource/resource group. Setup Time is the time it takes to prepare for work on the operation. Production Time is the time it takes to produce part quantities on the operation.

When you use the Get Details functionality to pull in a method on a job, the Costing Labor Rates from each resource/resource group are used as the default estimated setup and production labor rates on the method's operations. If you need, however, you can select the Override Rates check box on each operation to use the values on the method being pulled into the job.

You define the Costing Labor Rates on resources and resource groups; however, you can override these cost estimates by entering different rates on job methods. Use this to define estimated labor costs on a specific job.

Actual setup costs are calculated by multiplying the Labor Rate value from the Shop Employee record against the Setup Hours defined on the operation. Actual production labor costs are calculated by multiplying this same Labor Rate value against the number of hours the shop employee worked on an operation. For more information about these calculations, review the Labor Rate modifier in this section of the guide.

Adjustments

You can change the Costing Labor Rates modifier using the following options.

- **Labor Rate (Production) (Job Method)**- You can override the estimated production Labor Rate on a job method. This field is located on the Scheduling Resources card with Job Entry.
- **Labor Rate (Setup) (Job Method)**- You can override the estimated setup Labor Rate on a job method. This field is located on the Scheduling Resources card with Job Entry.

Where Located

You can access the Costing Labor Rates functionality through the following locations.

Resource Group Maintenance

You define labor rates for a resource group on the Detail card. You can also enter different labor rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Job Entry

You may override the estimated labor rates defined on resources/resource groups on a specific job method. Use this to define the estimated cost of labor on a specific job. You do this on the Job Details - Operations - Scheduling Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Costing Labor Rates functionality uses this logic to calculate its results.

Estimated Labor Cost

1. Estimated Setup Labor Cost = (Setup Labor Rate x Setup Hours) x Crew Size
2. Estimated Production Labor Cost = (Production Labor Rate x Production Hours) x Crew Size
3. Estimated Labor Cost = Estimated Setup Labor Cost + Estimated Production Labor Cost

Get Details - Job

If a job, quote, or part method is pulled into a job through the Get Details functionality, the production and setup labor rates from the JobOpDtl or Quote OpDtl table are copied if the Override Rates check box is selected (True).

If this check box is clear, however, then the default costing rates from the resource/resource group are automatically used instead.

Example(s)

The following example(s) illustrate how you use the Costing Labor Rates functionality.

You manage a sauerkraut factory, and you need to estimate the labor cost for a Push operation that moves cabbage from the conveyor into a Shredder machine. On the Push resource group, you enter the following values:

- Setup Labor Rate (Quoting): $10
- Setup Crew Size: 4
- Production Labor Rate (Quoting): $30
- Production Crew Size: 4

It takes 1 hour to prepare for the Push operation and 7 hours to complete production work on the Push operation.

1. The estimated Setup Labor Cost is $10 x 1 hour x 4 shop employees, for a total estimated setup cost of $40.
2. The estimated Production Labor Cost is $30 x 7 hours x 4 shop employees for a total estimated production cost of $840.
3. The Estimated Setup Labor Cost ($40) is added to the Estimated Production Labor Cost ($840) for a Total Estimated Labor Cost of $880.

Costing Lot Size

Use the Costing Lot Size field to define the size of the quantity required to satisfy setup costs. This value is used during the Cost Rollup calculation to distribute setup costs.

The total setup cost for the part quantity is divided by this value to determine the setup cost for each unit.

Adjustments

You can change the Costing Lot Size modifier using the following options.

- **Costing Lot Size**- You enter a numeric value in this field.

Where Located

You can access the Costing Lot Size functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You define the Costing Lot Size on the site - Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup

- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

Logic/Algorithms

The Costing Lot Size functionality uses this logic to calculate its results.

Setup Cost Per Unit = Part Quantity/Costing Lot Size

Example(s)

The following example(s) illustrate how you use the Costing Lot Size functionality.

You determine that your setup costs to make Part DCD-100-SP require that you must make a 25 quantity each time to justify the setup costs. You create a cost group that includes Part DCD-100-SP and select the Load Costing Sizes check box.

You then click the Manufactured Parts card. You locate Part DCD-100-SP on this grid and enter 25 in the Costing Lot Size field. During the Cost Rollup calculation, the total setup costs is divided by 25 to arrive at a per unit setup cost.

Costing Method (Costing Workbench)

Use the Costing Method radio buttons to select the method through which the costs are pulled in order to determine the costs in this group. You can select the Average, Last, FIFO, or Standard costing method.

You can also select the Costing Method radio button. This indicates that you want to use the costing method selected on the Part - site detail from each part record. Note: For more information, review each costing method within the Calculations section of this guide.

Adjustments

You can change the Costing Method (Costing Workbench) modifier using the following options.

- **Costing Method**- The following options are available:
  - Average
  - Last
  - FIFO
  - Standard
  - Costing Method (the default costing method selected on each part record's Part-site card)

Where Located

You can access the Costing Method (Costing Workbench) functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Costing Method (Costing Workbench) functionality uses this logic to calculate its results.

For details on costing method logic, review each costing method within the Calculations section of this guide.

Example(s)

The following example(s) illustrate how you use the Costing Method (Costing Workbench) functionality.

Average Costing Method

You have a 100 quantity of Part 565Y in stock. This quantity was received to inventory at a $1 value for each part. You manufacture a 200 quantity of this part and receive it to inventory at a $2 value for each part. This is how the average cost is calculated:

$300/200 On-Hand Quantity = $1.50 unit cost.

Last Costing Method

You manufacture a 100 quantity of Part 453EF for an actual unit cost of $5.87. This value is the unit cost for Part 453EF on all of its transactions. You later manufacture another 100 quantity of this part for an actual unit cost of $4.98. The Unit Cost value for Part 453EF is updated to the $4.98 value.

Standard Costing Method

You track your part costs using the Standard costing method. For Part 45T6X, you enter $55.00 as the standard cost value. You receive a quantity of Part 45T6X to inventory at an actual cost of $56.32. The variance amount for each unit of this part is $1.32.

Crew Size

The Crew Size value is used for calculating labor estimates.

This value defines the average number of shop employees at this resource group who work on this resource at the same time. You define two values for each resource group; one for Setup and the other for Production. The Setup Crew Size defines the number of people it physically takes to prepare for work at the resource/resource group. The Production Crew Size defines the number of people it physically takes to manufacture part quantities at the resource.

The application uses this value as a multiplier to calculate the estimated labor cost for each operation. Do not, however, confuse crew size with resources per operation. The crew size value is a factor that increases your planned labor cost, as more people work on the job.

You define the Crew Size modifier on resources and resource groups; however, you can also override this default value by entering different Crew Sizes on job, quote, and part methods. Use this to define estimated labor costs on a specific job record, quote, and/or method of manufacturing.

Adjustments

You can change the Crew Size modifier using the following options.

- **Crew Size (Production) (Engineering Workbench)**- You can override the Crew Size value on a part method. This field is located on the Scheduling Resources card with the Engineering Workbench.
- **Crew Size (Setup) (Engineering Workbench)**- You can override the Crew Size value on a part method. This field is located on the Scheduling Resources card within the Engineering Workbench.
- **Crew Size (Production) (Job Method)**- You can override the Crew Size value on a job method. This field is located on the Scheduling Resources card with Job Entry.
- **Crew Size (Setup) (Job Method)**- You can override the Crew Size value on a job method. This field is located on the Scheduling Resources card with Job Entry.
- **Crew Size (Production) (Opportunity/Quote Entry)**- You can override the Crew Size value on a quote method. This field is located on the Scheduling Resources card with the Opportunity/Quote Entry.
- **Crew Size (Setup) (Opportunity/Quote Entry)**- You can override the Crew Size value on a quote method. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.

Where Located

You can access the Crew Size functionality through the following locations.

Resource Group Maintenance

You define Crew Sizes for a resource group on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Engineering Workbench

You may override the Crew Size values defined on resource groups on a method of manufacturing. Use this to further refine the estimated cost of labor on a specific part method. You do this on the Method of Manufacturing - Operations - Scheduling Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You may override the Crew Size values defined on resource groups on a job method. Use this to refine the estimated cost of labor on a specific job. You do this on the Job Details - Operations - Scheduling Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can override crew size values on a quote method through the Line - Mfg Details - Quote Details - Operations -Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Crew Size functionality uses this logic to calculate its results.

Estimated Labor Cost

1. Estimated Setup Labor Cost = (Setup Labor Rate x Setup Hours) x Crew Size
2. Estimated Production Labor Cost = (Production Labor Rate x Production Hours) x Crew Size
3. Estimated Labor Cost = Estimated Setup Labor Cost + Estimated Production Labor Cost

Get Details - Job

If a job, quote, or part method is pulled into a job through the Get Details functionality, the production and setup Crew Size values from the JobOpDtl or Quote OpDtl table are copied if the Override Rates check box is selected (True).

If this check box is clear, however, then the default Crew Size values from the resource group are automatically used instead.

Get Details - Quote

If a job, quote, or part method is pulled into a quote through the Get Details functionality, the Crew Size values are replaced by the Crew Size values defined on each resource group. If you need, you can enter different labor rates within the quote method.

Example(s)

The following example(s) illustrate how you use the Crew Size functionality.

You manage a sauerkraut factory, and you need to estimate the labor cost for a Push operation that moves cabbage from the conveyor into a Shredder machine. On the Push resource group, you enter the following values:

- Setup Labor Rate (Quoting): $10
- Setup Crew Size: 4
- Production Labor Rate (Quoting): $30
- Production Crew Size: 4

It takes 1 hour to prepare for the Push operation and 7 hours to complete production work on the Push operation.

1. The estimated Setup Labor Cost is $10 x 1 hour x 4 shop employees, for a total estimated setup cost of $40.
2. The estimated Production Labor Cost is $30 x 7 hours x 4 shop employees for a total estimated production cost of $840.
3. The Estimated Setup Labor Cost ($40) is added to the Estimated Production Labor Cost ($840) for a Total Estimated Labor Cost of $880.

Days

The Days value is used on supplier price lists. This value indicates the number of days during which these price breaks are active.

You may enter any number of days you need in this field. After you save the price list, the Expiration Date value is automatically calculated by adding this value to the Effective Date value.

If you leave both this field and the Expiration Date field blank, the price list is always active.

Adjustments

You can change the Days modifier using the following options.

- **Days**- You enter a numeric value in this field.

Where Located

You can access the Days functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Days functionality uses this logic to calculate its results.

Expiration Date = Days + Effective Date

Example(s)

The following example(s) illustrate how you use the Days functionality.

ABC Metals has just emailed you a list of their discounts for the upcoming year. These price breaks begin on January 1st. You select January 1st as the Effective Date value. You then enter 365 in the Days field. The application calculates the Expires Date value to be December 31st. You can now use this price list throughout the coming year.

Department

Use the Department drop down lists to assign job departments to both shop employees and resource groups.

You can then select these job departments on reports to review the various transactions placed against all the resources and employees selected to be part of this job department.

Adjustments

You can change the Department modifier using the following options.

You create job departments within the Job Department Maintenance application.

- **Department**- Select the job department that you want to assign to the current resource group or shop employee.

Where Located

You can access the Department functionality through the following locations.

Job Department Maintenance

You create job departments through this application. To launch this application from the Main Menu:

- Production Management/Job Management/Setup/Department
- Production Management/Scheduling/Setup/Department
- Production Management/Quality Assurance/Setup/Department

Payroll Employee Maintenance

You can select a job department for each shop employee through Payroll Employee Maintenance. To launch this application from the Main Menu:

- Financial Management/Payroll/Setup/Employee

Resource Group Maintenance

You define job departments for resource groups on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Shop Employee Maintenance

You can select a job department for each shop employee through Shop Employee Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

Logic/Algorithms

The Department functionality uses this logic to calculate its results.

Place all resource groups and shop employees from a department within the same area on the report.

Example(s)

The following example(s) illustrate how you use the Department functionality.

ASSEM Assembly Department

DEBUR Deburring Department

Discount Percent

The Discount % value is used on supplier price lists. These lists determine the estimated costs of purchased materials and subcontract services.

This value defines the overall discount percentage that this supplier allows. This is an optional field. Any value you enter further reduces the estimated price.

Adjustments

You can change the Discount Percent modifier using the following options.

- **Discount %**- You enter a percentage value within this field.

Where Located

You can access the Discount Percent functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Discount Percent functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Discount Percent functionality.

ABC Metals gives an automatic discount of 2% on all purchases ordered before March 15th this year. You create a price list that indicates this. You enter a 2 within the Discount % field.

Effective

The Effective value is used on supplier price lists. This is the first date from which the price breaks defined on the current list are active.

The application compares this date to the PO date, quote date, or current date in Job Entry to determine which price breaks to use. This situation occurs when multiple price breaks are active for a specific supplier.

Adjustments

You can change the Effective modifier using the following options.

- **Effective**- By default, the current date or the last date from the previous price list appears in this field. If you need, you can change this value.

Where Located

You can access the Effective functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Effective functionality uses this logic to calculate its results.

Expiration Date = Days + Effective Date

Example(s)

The following example(s) illustrate how you use the Effective functionality.

ABC Metals has just emailed you a list of their discounts for the upcoming year. These price breaks begin on January 1st. You select January 1st as the Effective Date value. You then enter 365 in the Days field. The application calculates the Expires Date value as December 31st. You can now use this price list throughout the coming year.

Effective Price

The Effective Price value is used on supplier price lists.

These lists determine the estimated costs of purchased materials and subcontract services. This value defines the specific price used for each price break.

Adjustments

You can change the Effective Price modifier using the following options.

- **Effective Price**- You cannot directly modify this value. Instead, it is calculated by using the Base Unit Price, Discount, Flat or Percent price break modifier, and the Price Modifier values. The Logic/Algorithms section details this calculation.

Where Located

You can access the Effective Price functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Effective Price functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Effective Price functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

Job 55432 contains the Paint subcontract operation, and you send Acme 550 parts to paint. This quantity matches the $4.00 price break, so the total estimated cost for this subcontract operation is $2,200.

Ending

The Ending value defines the last date on which cost-of-sales (COS) and work-in-process (WIP) activity is captured by the WIP/COS calculation. The current value is the default value.

If you need, you can change this value.

This value can also be a Dynamic value. This means that when the system calendar advances to a date that matches the Dynamic value, the WIP/COS process automatically runs.

Adjustments

You can change the Ending modifier using the following options.

- **Ending**- You enter a date value or a Dynamic date value within this field.

Where Located

You can access the Ending functionality through the following locations.

Capture COS/WIP Activity

This process updates WIP and COS transactions with the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Ending functionality uses this logic to calculate its results.

If Ending value = Current Date, then run the WIP/COS calculation

Example(s)

The following example(s) illustrate how you use the Ending functionality.

You launch the Capture COS/WIP Process. You indicate that this process updates the General Ledger by selecting the Post to GL check box. You need to run this process on a recurring schedule, so you select the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month - 1" option. This means that you want this process to run one day before the end of each month. You now add this process to a process set, and attach this process set to a recurring schedule.

Each time the system calendar advances to the day before the end of the month, the WIP and COS transactions update with the current information.

Expense

The Expense drop down lists allow you to define the default labor expense code you want to link to each shop employee record. Labor expense codes classify labor and control the General Ledger account numbers used for labor costs within the Payroll module.

These codes define the various types of labor performed within your manufacturing center, like Assembly, Deburring, Paint, Tooling, and so on.

Although you determine each employee's labor expense code within Shop Employee Maintenance or Payroll Employee Maintenance, you can override these default values as needed. You can use this within both Labor Entry and the MES interface. Your shop employees can then record the different kinds of labor that they may perform.

Adjustments

You can change the Expense modifier using the following options.

- **Expense**- These drop down lists let you indicate the labor expense code you want to use with each shop employee or labor detail.

Where Located

You can access the Expense functionality through the following locations.

Labor Entry

You can override an employee's default labor expense code within each labor detail. To do this, select a different expense code from the Expense drop down list. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Labor Expense Code Maintenance

You create labor expense codes through this maintenance application. To launch this application from the Main Menu:

- Production Management/Job Management/Setup

MES Interface

You can override the default labor expense code through this interface. To display this interface, you must configure each workstation to display this interface.

Payroll Employee Maintenance

You can select a default expense code for each shop employee from the Expense drop down list. This drop down list is displayed on the Payroll card. To launch this application from the Main Menu:

- Financial Management/Payroll/Setup/Employee

Shop Employee Maintenance

You can select a default expense code for each shop employee from the Expense drop down list. This drop down list is displayed on the Detail card. To launch Shop Employee Maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

Logic/Algorithms

The Expense functionality uses this logic to calculate its results.

When creating a labor time record, display the default value selected on the shop employee record. If this value is changed, however, use the new value defined on the saved labor time record.

Example(s)

The following example(s) illustrate how you use the Expense functionality.

Assembly

Deburring

Expires

The Expires value is used on price lists. This value indicates the last date on which this price list is active.

This is an optional field. If you do not enter an Expires Date, the application considers that the current price list is always active.

Note that if you enter a date here and the price list expires, you a warning message displays when you attempt to use this price list on a method or purchase order.

Adjustments

You can change the Expires modifier using the following options.

- **Expires**- The last date on which the current supplier price list is active. You can enter or select a specific date within this list. You can also enter a value in the Days field. This value is added to the Effective Date field to arrive at the Expires date value.

Where Located

You can access the Expires functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Expires functionality uses this logic to calculate its results.

Expiration Date = Days + Effective Date

Example(s)

The following example(s) illustrate how you use the Expires functionality.

ABC Metals has just emailed you a list of their discounts for the upcoming year. These price breaks begin on January 1st. You select January 1st as the Effective Date value. You then enter 365 in the

Days field. The application calculates the Expires Date value as December 31st. You can now use this price list throughout the coming year.

Internal Price

Internal Price is the unit cost value used when a part is transferred from stock in one site to a job within another site. This field is only available if your company uses the Multi-Site module.

This value can be set up to be the price for a single part, for every one hundred parts, and for every thousand parts.

You can modify this value directly on the part record. You can also use Calculate Inter Divisional Internal Prices, a application found within the Costing Workbench, to automatically increase or decrease this value on multiple part records included within a cost group.

Adjustments

You can change the Expires modifier using the following options.

- **Expires**- The last date on which the current supplier price list is active. You can enter or select a specific date within this list. You can also enter a value in the Days field. This value is added to the Effective Date field to arrive at the Expires date value.

Where Located

You can access the Expires functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup

- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Expires functionality uses this logic to calculate its results.

Expiration Date = Days + Effective Date

Example(s)

The following example(s) illustrate how you use the Expires functionality.

ABC Metals has just emailed you a list of their discounts for the upcoming year. These price breaks begin on January 1st. You select January 1st as the Effective Date value. You then enter 365 in the Days field. The application calculates the Expires Date value as December 31st. You can now use this price list throughout the coming year.

Internal Price

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This value can be set up to be the price for a single part, for every one hundred parts, and for every thousand parts.

You can modify this value directly on the part record. You can also use Calculate Inter Divisional Internal Prices, a application found within the Costing Workbench, to automatically increase or decrease this value on multiple part records included within a cost group.

Adjustments

You can change the Internal Price modifier using the following options.

- **Internal Price**- You enter a numeric value within this field.

Where Located

You can access the Internal Price functionality through the following locations.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You define each part's Internal Price on the Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

Costing Workbench

Use this application to calculate the internal prices you use for parts transferred between sites within your company. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

To launch the Calculate Inter Divisional Internal Prices application:

- Actions Menu/Calculate Inter The Division value Internal Prices

Logic/Algorithms

The Internal Price functionality uses this logic to calculate its results.

Internal Price = Material Unit Cost on part quantity transfers between sites

Example(s)

The following example(s) illustrate how you use the Internal Price functionality.

Part 123 has an Internal Price of $5.00. There is stock quantity of Part 123 in site A that is needed for a job in site B. When Part 123 is transferred from site A to site B for that job, the Internal Price of $5.00 is used as the Material Unit Cost for the transaction.

Inventory

The Inventory check box indicates that the Capture WIP/COS Activity process can post work-in-process and cost-of-sales transactions to the General Ledger. Each time this process runs, these amounts are automatically placed within their respective GL transactions.

Adjustments

You can change the Inventory modifier using the following options.

- **Inventory**- This is a check box value that is selected or clear.

Where Located

You can access the Inventory functionality through the following locations.

Company Configuration

You set up all the primary module features with this application. To launch this application from the Main Menu:

- System Management/Company Maintenance/Company

Logic/Algorithms

The Inventory functionality uses this logic to calculate its results.

If the Post to General Ledger check box is selected, move the WIP/COS amounts to the selected transactions within the General Ledger.

Example(s)

The following example(s) illustrate how you use the Inventory functionality.

Your supervisor needs month end results for the manufacturing center at the beginning of each month. Because of this, you need to set up the Capture COS/WIP Activity process to post COS and WIP amounts to the General Ledger. Your supervisor launches the Company Configuration application and selects the Inventory check box. You can now set up the Capture COS/WIP Activity process to post COS/WIP amounts to transactions within your General Ledger.

Job (Accept to Job)

A DMR Processing modifier, the Job field defines the specific job record to which a discrepant material quantity is accepted. If you decide you can still use a discrepant material, you define this value to use this material quantity on a job.

If the discrepant material came from a job or was originally purchased for a job, that job number is the default. If needed, however, you can change this value.

Adjustments

You can change the Job (Accept to Job) modifier using the following options.

- **Job**- This is a numeric field that contains the job number. You can enter a different number or click the Job button to find and select the job you need.

Where Located

You can access the Job (Accept to Job) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Job (Accept to Job) functionality uses this logic to calculate its results.

If the material quantity can be reworked, the application removes it from the DMR account and sends it to the job by using the WIP Material account or to inventory by using the Inventory GL account.

Example(s)

The following example(s) illustrate how you use the Job (Accept to Job) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. After you look over the quantity, however, you decide that the defects do not compromise the quality of your final product. Because of this, you need to return this quantity to the job for which it was originally purchased.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the Accept - Job Material command. You select Job 2376 - the job for which this material was purchased. The Assembly and Material values, Assembly 2 and Material 10:57K-987, display by default. You enter the 50 quantity in the Quantity field. You then save the DMR record.

This material quantity is now available to use again on Job 2376.

Job Processing Mode

A batch job modifier, use these options to define the manufacturing mode through which the batch job is produced. There are two available modes - Sequential and Concurrent.

Adjustments

You can change the Job Processing Mode modifier using the following options.

- **Job Processing Mode**- There are two options:
- **Sequential**- The default option. A sequential job is processed through part quantities completed in sequence. For example, you must complete a quantity before work begins on the next quantity. This is the typical way jobs are set up within the application.
- **Concurrent**- Concurrent job production is based on the number of operations performed - instead of the part quantity produced. For example, you select this option if the job has a stamping operation that produces multiple parts. The production time on this job is measured by the number of operations performed on the job.

Where Located

You can access the Job Processing Mode functionality through the following locations.

Resource Scheduling Board

Use this application to review and modify scheduled jobs at the resource or resource group level. To launch this application from the Main Menu:

- Production Management/Scheduling/General Operations

You batch jobs by launching a application from the Actions menu:

- Actions Menu- Batch Operations

Logic/Algorithms

The Job Processing Mode functionality uses this logic to calculate its results.

Batch Job - Sequential Job

Unit Cost per Production = Total Production Cost/Part Quantity

Batch Job - Concurrent Job

Production Quantity = Part Quantity/Yield Per Operation

Unit Cost per Part = Production Quantity/ Part Quantity

Example(s)

The following example(s) illustrate how you use the Job Processing Mode functionality.

You create a batch job to manufacture parts ABC and XYZ. You decide to select ABC as the primary part, and indicate that you want to batch these parts at Assembly 0, Operation 40 on the routing that produces part ABC. The batch part number is ABC-0-40. When you view this part within Job Entry, ABC-0-40 are listed as the primary part on the batch job.

Labor Cost Factor

A batch job and multi-part job factor, this modifier is a value that defines the ratio used to prorate labor costs on each part. This value affects the final labor costs that accumulates for each part quantity manufactured on this job.

Adjustments

You can change the Labor Cost Factor modifier using the following options.

- **Labor Cost Factor** - Enter a numeric value within this field that defines the ratio used to prorate labor costs on each part. This value affects the final labor costs that will accumulate for each part quantity manufactured on a job.

Where Located

You can access the Labor Cost Factor functionality through the following locations.

Job Entry

You create multi-part jobs and update batch jobs within Job Entry. You do this on the Job > Co-Parts card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Labor Cost Factor functionality uses the following logic to calculate results:

- Co-Part Labor Cost = Primary Part Labor Cost x Labor Cost Factor

Example(s)

The following example illustrates how you use the Labor Cost Factor functionality.

A multi-part job produces parts A and B. You need Part B to consume three times the labor used to create Part A. You enter different Labor Cost Factors. Part A's Labor Cost Factor is 1, while Part B's Labor Cost Factor is 3. This causes Part B to consume 75% (3/4) of the total labor costs, while Part A consumes 25% (1/4) of the total labor cost.

Labor Rate

The Labor Rate value defines the rate used for costing actual hourly labor for each shop employee. When a shop employee logs time on an operation, this is the rate value multiplied against this time.

This value is used on both manufacturing and service jobs.

Although this value can be the same as the employee's rate of pay, you can also use this value to reflect the rate at which you charge customers for this employee's labor. It is recommended, however, that these rates be the same. You can then better calculate the actual cost of labor within the total cost of producing a job.

Any additional labor costs like premium pay, benefits, and so on, however, should be averaged and included in the Burden Rate entered for each resource or resource group.

Setup Costs

Actual setup costs are calculated by multiplying the Labor Rate value from the Shop Employee (or Payroll Employee) record against the Setup Hours defined on the operation.

Production Costs

Production labor hours can be entered through two ways. The hours worked on each operation can be entered manually through the Labor Entry application. Labor hours can also, however, be entered automatically through the MES interface. Shop employees use this interface to clock in and out of operations. The labor hours then accumulate automatically based on amount of time each employee was clocked into each operation.

The actual labor costs on each operation are added together to arrive at the total actual labor cost of the job.

Adjustments

You can change the Labor Rate modifier using the following options.

- **Labor Rate**- Use this field to define the hourly labor rate for each employee.

Where Located

You can access the Labor Rate functionality through the following locations.

Shop Employee Maintenance

Use this application to define the labor rate for each employee who works on the shop floor. Note, however, that if you use the Payroll module, you need to enter this rate within the Payroll Employee Maintenance application, as the Labor Rate field is read-only in this application. To launch Shop Employee maintenance from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Field Service/Setup

Payroll Employee Maintenance

If your company uses the Payroll module, use this application to define the labor rate for each employee that works on the shop floor. To do this, select the Active Shop Employee check box and enter the Labor Rate that you need. To launch Payroll Employee Maintenance from the Main Menu:

- Financial Management/Payroll/Setup

Logic/Algorithms

The Labor Rate functionality uses this logic to calculate its results.

Setup Cost = Labor Rate x Setup Hours

Production Cost = Labor Rate x Hours logged against an operation.

Example(s)

The following example(s) illustrate how you use the Labor Rate functionality.

You manage a sauerkraut factory, and you have a Push operation that moves the cabbage from the conveyor into a Shredder machine. You have 4 shop employees who push the cabbage into the Shredder each day. You set up the job method so that each Push operation takes 8 hours to complete. The shop employees have a $30 Labor Rate.

The equation to for the Push operation for each employee is 30 x 8 for a total of $240 labor cost for each employee. Because four employees worked on the operation, the final actual labor cost for this operation is $960.

Labor Rates (Costing Workbench)

A Costing Workbench option, use these radio button options to determine how to calculate labor rates for the resource and resource groups included within this cost group. You can update the Costing labor rates for job estimates, or the Quoting labor rates for quotes.

Adjustments

You can change the Labor Rates (Costing Workbench) modifier using the following options.

- **Labor Rates**- You select one of the following options:
  - Costing
  - Quoting

Where Located

You can access the Labor Rates (Costing Workbench) functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Labor Rates (Costing Workbench) functionality uses this logic to calculate its results.

- If the Costing option is selected, this cost group calculates labor for job estimates.
- If the Quoting option is selected, this cost group calculates labor for quotes.

Example(s)

The following example(s) illustrate how you use the Labor Rates (Costing Workbench) functionality.

You have a number of jobs that soon in production. You need to estimate the costs of these jobs, and so you launch the Costing Workbench to update the current Standard Cost values of these parts.

Because you wish to update job estimates, you select the Costing option for the Labor Rates.

Landed Cost Amount

Use the Landed Costs functionality to enter and calculate any additional, unallocated expenses you must include with the cost of purchased materials. These are costs, like freight and import duties, that cannot be handled through labor or burden calculations.

The Landed Cost Amount field is located within the Landed Costs grid within Receipt Entry. Use this field to enter the specific amount of a landed cost. You can enter as many landed cost line items as you need for each receipt.

The sum of all the landed cost lines equals the total Landed Cost placed against this receipt.

Landed costs are sometimes referred to as material burden. As described above, you can directly enter landed costs for each specific item. You can instead, however, define a material burden percentage that is automatically multiplied against the total cost of each part quantity. You define this value within the Part Maintenance application. Parts that use the material burden percentage cannot have landed costs.

Adjustments

You can change the Landed Cost Amount modifier using the following options.

- **Landed Cost Amount**- The amount of this specific landed cost line item. Enter the specific amount that you need.

Where Located

You can access the Landed Cost Amount functionality through the following locations.

Receipt Entry

You enter landed costs within the Receipt Entry application. Its Main Menu path is the following:

- Inventory Mangement/ShippingReceiving/General Operations/Receipt Entry

To activate the Landed Costs functionality:

- Actions Menu/Landed Costs

Logic/Algorithms

The Landed Cost Amount functionality uses this logic to calculate its results.

Total Landed Cost on Receipt = Landed Cost Amount 1 + Landed Cost Amount 2 + Landed Cost Amount 3 + and so on.

Example(s)

The following example(s) illustrate how you use the Landed Cost Amount functionality.

You have purchased Part 45R32 from Acme Metals, Ltd. This company is located overseas. You pay $134.34 for the freight cost and another $54.23 for the import duty. You launch the Receipt Entry application and enter the PO and Packing Slip number information.

You now can enter these additional landed costs. You select the Landed Costs command from the Actions menu and click on the Landed Cost card. You enter the freight and import duty landed costs as separate line items on this card. The total landed cost value on this receipt is $188.57.

Landed Cost Method

Use the Landed Costs functionality to enter and calculate any additional, unallocated expenses you must include with the cost of purchased materials. These are costs, like freight and import duties, that cannot be handled through labor or burden calculations.

You use the Landed Cost Method option to spread, or disburse, landed costs across all the detail lines in a PO receipt. You can do this through the Manual, Value, Volume, and Weight methods. These methods are described in the following Adjustments section.

When you finish entering the landed costs and have selected the method, click the Disburse Cost button. The costs are spread out across the receipt detail lines.

Landed costs are sometimes referred to as material burden. You can define a material burden percentage that is automatically multiplied against the total cost of each part quantity. You define this value within the Part Maintenance application. Parts that use the material burden percentage cannot have landed costs.

Adjustments

You can change the Landed Cost Method modifier using the following options.

- **Method**- You disburse landed costs through this through the following methods:
  - **Manual**- Select this method to enter the costs directly into the Landed Cost Amount column within the Landed Cost grid.
  - **Value**- Select this method to disburse the landed costs based on a percentage of the total shipment value.
  - **Volume**- Select this method to disburse the landed costs based on a percentage of the total shipment volume.
  - **Weight**- Select this method to disburse the landed costs based on a percentage of the shipment weight.

Where Located

You can access the Landed Cost Amount functionality through the following locations.

Receipt Entry

You enter landed costs within the Receipt Entry application. Its Main Menu path is the following:

- Inventory Mangement/ShippingReceiving/General Operations/Receipt Entry

To activate the Landed Costs functionality:

- Actions Menu/Landed Costs

Logic/Algorithms

The Landed Cost Method functionality uses this logic to calculate its results.

Value Method

Landed Cost Per Detail Line = Total Landed Cost/(Value/Number of Lines)

Volume Method

Landed Cost Per Detail Line = Total Landed Cost/(Volume/Number of Lines)

Weight Method

Landed Cost Per Detail Line = Total Landed Cost/(Weight/Number of Lines)

Example(s)

The following example(s) illustrate how you use the Landed Cost Method functionality.

You receive a 100 quantity of pipes from an overseas supplier. Each pipe costs $10 USD. There are five detail lines on the receipt. Each line contains a 20 quantity. There is an import duty on this shipment of $60 USD.

You enter 60 for the landed cost. You then indicate that you want to spread out this cost by using the Volume method. You click the Disburse Costs button. The land cost is spread out across the 5 detail lines. Each 20 quantity now has a $12 landed cost added to its total cost.

Landed Costs Field

Use the Landed Costs functionality to enter and calculate any additional, unallocated expenses you must include with the cost of purchased materials. These are costs, like freight and import duties, that cannot be handled through labor or burden calculations.

The Landed Cost field displays the total landed cost amount applied against the current receipt. You enter each landed cost separately within the Landed Cost grid. You then select the method used to spread, or disburse, this landed cost across all the detail lines in the receipt. To finish the process, click the Disburse Cost button.

Landed costs are sometimes referred to as material burden. You can define a material burden percentage that is automatically multiplied against the total cost of each part quantity. You define this value within the Part Maintenance application. Parts that use the material burden percentage cannot have landed costs.

Adjustments

You can change the Landed Costs Field modifier using the following options.

- **Landed Cost**- This value is the sum of all the separate landed costs you entered in the Landed Cost grid. As you enter these values, the total amount is displayed in this grid.

Where Located

You can access the Landed Costs Field functionality through the following locations.

Receipt Entry

You enter landed costs within the Receipt Entry application. Its Main Menu path is the following:

- Inventory Mangement/ShippingReceiving/General Operations/Receipt Entry

To activate the Landed Costs functionality:

- Actions Menu/Landed Costs

Logic/Algorithms

The Landed Costs Field functionality uses this logic to calculate its results.

Total Landed Cost on Receipt = Landed Cost Amount 1 + Landed Cost Amount 2 + Landed Cost Amount 3 + and so on...

Example(s)

The following example(s) illustrate how you use the Landed Costs Field functionality.

You have purchased a 100 quantity for Part 45R32 from Acme Metals, Ltd. This company is located overseas. You pay $134.34 for the freight cost and another $54.23 for the import duty. You launch the Receipt Entry application and enter the PO and Packing Slip number information.

You now can enter these additional landed costs. You select the Landed Costs command from the Actions menu and click on the Landed Cost card. You enter the freight and import duty landed costs as separate line items on this card. The total landed cost value on this receipt is $188.57.

You then indicate that you want to spread out the total landed cost by using the Volume method and then click the Disburse Cost button. There are five detail lines on this receipt and each quantity contains a 20 quantity. Each receipt detail line has a $31.71 landed cost applied against it.

Last Costs

A Cost Adjustment modifier, use these five fields to change the unit cost values for the current part. These fields modify values calculated using the Last costing method.

Adjustments

You can change the Last Costs modifier using the following options.

- **Unit Burden**- This field defines the last unit cost for this part's overhead expenses. You enter a numeric value in this field.
- **Unit Labor**- This field defines the last unit cost for this part's labor expenses. You enter a numeric value in this field.
- **Unit Material**- This field defines the last unit cost for this part's material expenses.You enter a numeric value in this field.
- **Unit Material Burden**- This field defines the last unit cost for unallocated expenses placed against the current part's material quantity. You enter a numeric value in this field.
- **Unit Subcontract**- This field defines the last unit cost used against subcontract operations. You enter a numeric value in this field.

You can modify the part's last unit cost for labor, burden, material, subcontract, and/or material burden.

Logic/Algorithms

The Last Costs functionality uses this logic to calculate its results.

Adjustment Hierarchy

After you save the unit cost changes, the cost adjustment calculation uses the following hierarchy:

1. Remove the original Quantity on-Hand value that uses the old unit costs.
2. Record the new Quantity on-Hand using the new unit costs.

Multiple Warehouses

If the part is stored in two or more warehouses, generate two ADJ transactions for each warehouse that contains the part.

Example(s)

The following example(s) illustrate how you use the Last Costs functionality.

Part ABC has a quantity on hand of 25 in bin 1, and another 30 in bin 2. The current unit cost is $5.00. If you enter a cost adjustment of $5.25, you will see the following transactions in the Transaction Log:

Part Bin QOH U.Cost ABC 1 -25 5.00 ABC 1 25 5.25 ABC 2 -30 5.00 ABC 2 30 5.25

Load Alternate Methods

Select the Load Alternate Methods check box if you want the alternate methods defined for the selected manufactured parts to be loaded within a cost group or a cost set.

Adjustments

You can change the Load Alternate Methods modifier using the following options.

- **Load Alternate Methods**- This is a check box value that is selected or clear.

Where Located

You can access the Load Alternate Methods functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

site Cost ID Maintenance

You create cost sets within this application. To launch site Cost ID Maintenance from the Main Menu:

- Production Management/Engineering/Setup/site Cost

Logic/Algorithms

The Load Alternate Methods functionality uses this logic to calculate its results.

Cost Groups

When selected, the Costing Workbench pulls in all the alternate methods defined for each selected part. The costs associated with each alternate method are then used to determine the current Standard Cost value for each part.

Cost Sets

When selected, the cost set pulls in all the alternate methods defined for each part manufactured within sites that share the cost set. The costs associated with each alternate method, calculated using the costing method defined for the cost set, are then used to determine the current cost value for each part.

Example(s)

The following example(s) illustrate how you use the Load Alternate Methods functionality.

Part 435T has a primary method your manufacturing center typically uses to manufacture part quantities. Your engineers also have created two different, or alternate, methods to use when a purchased part is not available from your usual supplier.

You select the Load Alternate Methods check box within the cost group. These alternate methods are also used to determine the standard cost of Part 435T.

Load Costing Lot Sizes

Both a cost group and a cost set modifier, select the Load Costing Lot Sizes check box if you want the Costing Lot Size settings for the part/site combinations to load into the cost group or the cost set. This causes the Lot Size field on the Manufactured Parts card to activate.

Use this field to update the lot sizes you want the selected manufactured parts to use.

If this check box is clear, the Costing Lot Size field is not available. The costing lot size for setup costing calculations is then always equal to 1.

Adjustments

You can change the Load Costing Lot Sizes modifier using the following options.

- **Load Costing Lot Sizes**- This is a check box value that is selected or clear.

Where Located

You can access the Load Costing Lot Sizes functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

site Cost ID Maintenance

You create site cost identifiers within this application. To launch site Cost ID Maintenance from the Main Menu:

- Production Management/Engineering/Setup/site Cost

Logic/Algorithms

The Load Costing Lot Sizes functionality uses this logic to calculate its results.

- **ICost Groups**-- If the Load Costing Lot Sizes check box is selected, activate the Costing Lot Size field on the Manufactured Part card. After new sizes are entered and saved, use these costing lot sizes for the Standard Cost values on the selected parts.
- **Cost Sets**-- If the Load Costing Lot Sizes check box is selected, activate the Costing Lot Size field on the Manufactured Part card. After new sizes are entered and saved, use these costing lot sizes, calculated using the costing method defined for the cost set, to determine the cost of the selected parts.
- If the Load Costing Lot Sizes check box is clear, the Costing Lot Size field is not available on the Manufactured Part card. The costing lot size = 1.

Example(s)

The following example(s) illustrate how you use the Load Costing Lot Sizes functionality.

You determine that your setup costs to make Part DCD-100-SP require that you must make a 25 quantity each time to justify the setup costs. You create a cost group that includes Part DCD-100-SP and select the Load Costing Sizes check box.

You then click the Manufactured Parts card. You locate Part DCD-100-SP on this grid and enter 25 in the Costing Lot Size field. During the Cost Rollup calculation, the total setup costs are divided by 25 to arrive at a per unit setup cost.

Location

The Location check box is a modifier found within Resource Group Maintenance, and it is available for both resources and resource groups. The Location check box indicates whether the resource/resource group is a physical area within your manufacturing center.

If the resource/resource group is defined as a location, shop employees can report labor hours against it. Resources/resource groups defined as locations can also be overridden, or substituted, on the operation during labor reporting. In this situation, the burden rates defined on the substituted resource/resource group are used instead to arrive at burden costs.

If the resource/resource group is not defined as a location, these resources/resource groups cannot be substituted during labor reporting. The labor hours run against the operation, however, are still multiplied against the burden rates defined on the non-location resource/resource group. Notice that in either case, burden is still calculated by multiplying the reported labor hours against the burden rates defined on the resource/resource group.

Use this functionality as an additional way to calculate burden, as you can set up each operation to account for regular burden costs that always occur.

At least one resource or resource group selected on an operation must be defined as a location.

Adjustments

You can change the Location modifier using the following options.

- **Location**- This is a check box that you select or clear.

Where Located

You can access the Location functionality through the following locations.

Resource Group Maintenance

You define burden rates and the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. You can also enter different burden rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Logic/Algorithms

The Location functionality uses this logic to calculate its results.

If the Location check box is selected, this resource/resource group can be overridden by another resource group defined as a location during labor reporting.

Example(s)

The following example(s) illustrate how you use the Location functionality.

The Shear job operation uses two resource groups. The first resource group is Shear Machines A, a location resource group that has a burden rate of $1 per labor hour. The second resource group is Shear Machines Maintenance. This resource group is not defined as a location, however, and it has a burden rate of $1 per labor hour. This means that for each hour of labor reported against the Shear operation, there is a $2 burden cost.

During the actual day of the operation, a device within Shear Machines A breaks down. Luckily you have another location resource group, Shear Machines B, which your shop employees can use. It has a burden rate of $2 per labor hour.

During labor entry on the Shear operation, your shop employees substitute the Shear Machines B resource group. The Shear Machines Maintenance is not a location resource group, however, so it cannot be substituted. Now for each hour of labor reported against the Shear operation, there is a $3 burden cost. The burden rate for the Shear Machine Maintenance resource group is always included with the total burden cost calculated against the Shear operation.

Material (Accept to Job)

A DMR Processing modifier, the Material field defines the specific material part identifier to which a discrepant material quantity is accepted. If you decide that you can still use a discrepant material, you define this value to use this material quantity on a job.

If the discrepant material came from a material sequence or was originally purchased for a material sequence, that material sequence number is the default. If you need, however, you can change this value.

Adjustments

You can change the Material (Accept to Job) modifier using the following options.

- **Material**- This is a field that contains the part identifier. You can enter a different part identifier or click the Material button to find and select the material you need.

Where Located

You can access the Material (Accept to Job) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Material (Accept to Job) functionality uses this logic to calculate its results.

If the material quantity can be reworked, the application removes it from the DMR account and sends it to the job by using the WIP Material account or to inventory by using the Inventory GL account.

Example(s)

The following example(s) illustrate how you use the Material (Accept to Job) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. After you look over the quantity, however, you decide that the defects do not compromise the quality of your final product. Because of this, you need to return this quantity to the job for which it was originally purchased.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the Accept - Job Material command. You select Job 2376 - the job for which this material was purchased. The Assembly and Material values, Assembly 2 and Material 10:57K-987, display by default. You enter the 50 quantity in the Quantity field. You then save the DMR record.

This material quantity is now available to use again on Job 2376.

Material Burden Rate

The Material Burden Rate is the default percentage you use to account for material burden costs (sometimes called landed costs) against quantities of a specific part.

Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

You enter this percentage value on specific part records. This is the actual value multiplied against all transactions with this part. The resulting value is added to the total cost of the part transaction.

This value is also the default used on quote and job estimates for methods of manufacturing that use this part. This value is also used as the default material burden rate for any estimated salvage quantities calculated on a part method. On all these methods, however, you can override this default value. Note: Material burden is also referred to as landed costs. You can enter these specific costs against receipts and then spread, or disburse, them against all the lines within the receipt. You enter landed costs within the Receipt Entry application. If you enter a Material Burden Rate on a part record, however, you cannot enter landed costs against any receipt that uses this part.

Adjustments

You can change the Material Burden Rate modifier using the following options.

- **Material Burden %**- The percentage multiplied against the total cost of a part quantity. Enter the percentage value you need in this field.

Where Located

You can access the Material Burden Rate functionality through the following locations.

Part Maintenance

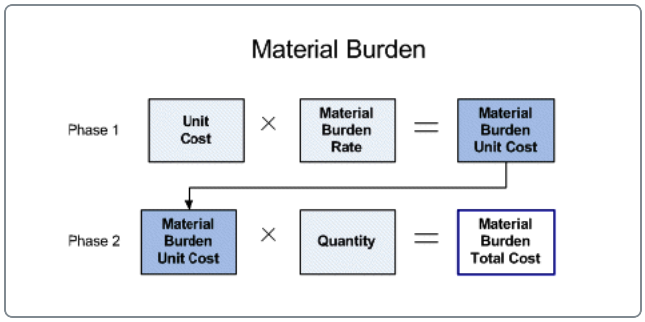
Use this application to establish or update part information. Use this application to define the actual and default material burden percentage used for each part. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

Logic/Algorithms

The Material Burden Rate functionality uses this logic to calculate its results.

- Actual Material Burden Unit Cost = Actual Unit Cost x Material Burden Rate on Part Record
- Actual Material Burden Total Cost = Actual Material Burden Unit Cost x Actual Quantity



Example(s)

The following example(s) illustrate how you use the Material Burden functionality.

You purchase some washers from a manufacturer in another country. This country charges a 2% tariff on all materials that cross its border. You purchase $100 of material from this company. Because of the Material Burden Rate entered in this part record, the material burden cost is $2 for this shipment.

Material Burden Rate (Job Method)

You can enter a material burden rate on a job method. This is the percentage you use to account for estimated material burden costs (sometimes called landed costs) against quantities of a material used on the job method.

Material Burden is the cost of unallocated expenses, like freight and import duties, against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

If this part has a part record, the rate defined on the part record appears by default. If you need, however, you can override this value within this field.

Adjustments

You can change the Material Burden Rate (Job Method) modifier using the following options.

- **Material Burden Rate**- Use this field to enter or override the estimated material burden rate to multiply against this part quantity within the job method.

Where Located

You can access the Material Burden Rate (Job Method) functionality through the following locations.

Job Entry

You can override the default material burden percentage on a job method through the Job Details - Materials - Detail card and the Job Details - Assembly - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Material Burden Rate (Job Method) functionality uses this logic to calculate its results.

Estimated Material Burden Cost = Estimated Unit Cost x Material Burden Rate on Part Method

Example(s)

The following example(s) illustrate how you use the Material Burden Rate (Job Method) functionality.

You typically purchase washers from BPD Metalworks, a manufacturer in another country. This country frequently changes the rate of its import tariff. When you enter the washer material on the job method, you enter the current tariff rate, which is 2%. You estimate that you need to purchase $100 of washers from this company. Because of this, the estimated material burden cost on the job method is $2 for this shipment.

Material Burden Rate (Quote Method)

You can enter a material burden rate on a quote method. This is the percentage you use to account for estimated material burden costs (sometimes called landed costs) against quantities of a material used on the quote method.

Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

If this part has a part record, the rate defined on the part record appears by default. If you need, however, you can override this value within this field.

Adjustments

You can change the Material Burden Rate (Quote Method) modifier using the following options.

- **Material Burden Rate**- Use this field to enter or override the estimated material burden rate multiplied against this part quantity within the quote method.

Where Located

You can access the Material Burden Rate (Quote Method) functionality through the following locations.

Opportunity/Quote Entry

You can override the default material burden percentage on a quote method through the Line - Mfg Details - Quote Details - Materials -Details card and the Line - Mfg Details - Quote Details - Assembly -Details card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Material Burden Rate (Quote Method) functionality uses this logic to calculate its results.

Estimated Material Burden Cost = Estimated Unit Cost x Material Burden Rate on Method

Example(s)

The following example(s) illustrate how you use the Material Burden Rate (Quote Method) functionality.

You typically purchase washers from BPD Metalworks, a manufacturer in another country. This country frequently changes the cost of its import tariff. When you enter the washer material on the quote method, you enter the current tariff rate, which is 2%. You estimate that you need to purchase

$100 of washers from this company. Because of this, the estimated material burden cost on the quote method is $2 for this shipment.

Material Cost Factor

A batch job and multi-part job factor, this modifier is a value that defines the ratio used to prorate material costs on each part. This value affects the final material costs that accumulates for each part quantity manufactured on this job.

Adjustments

You can change the Material Cost Factor modifier using the following options.

- **Material Cost Factor** - Enter a numeric value within this field that defines the ratio used to prorate material costs on each part. This value affects the final material costs that will accumulate for each part quantity manufactured on a job.

Where Located

You can access the Material Cost Factor functionality through the following locations.

Job Entry

You create multi-part jobs and update batch jobs within Job Entry. You do this on the Job > Co-Parts card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Material Cost Factor functionality uses the following logic to calculate results:

- Co-Part Material Cost = Primary Part Material Cost x Material Cost Factor

Example(s)

The following example illustrates how you use the Material Cost Factor functionality.

A multi-part job produces parts A and B. You need Part B to consume three times the materials used to create Part A. You enter different Material Cost Factors. Part A's Material Cost Factor is 1, while Part B's Material Cost Factor is 3. This causes Part B to consume 75% (3/4) of the total material costs, while Part A consumes 25% (1/4) of the total material cost.

Minimum Line Value

The Minimum Line Value is used on price lists. This value defines the lowest amount this supplier allows for a price on this purchased or subcontracted part.

This value is used to calculate unit cost with PO Entry, Job Entry, and Quote Entry. If the price breaks cause the unit cost to fall below this amount, the application instead uses this price to calculate the cost. This value is also used as the default cost on quote and job methods.

- In Purchase Order Entry and PO Suggestions, this specifies the minimum value (amount) that the supplier allows / requires per line for this part, regardless of associated price breaks or base unit price. The Epicor application divides this value by the quantity entered on the purchase order line to determine its unit price, until the base unit price or price breaks equate to a value greater than this value.
- In Job Entry or Quote Entry, when you add a part either as a job material or quote material requirement, and the part is marked as Buy Direct, the Epicor application retrieves the price from the Supplier Price tab (similar to how it does in Purchase Order Entry); it updates the quote material unit cost or job material unit cost with this price.

Adjustments

You can change the Minimum Price modifier using the following options.

Minimum Price - Enter a numeric value in this field.

Where Located

You can access the Minimum Line Value functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup

- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Example(s)

The following example(s) illustrate how you use the Minimum Price functionality.

You are purchasing a 100 quantity of sheet metal from ABC Metals. They are heavily discounting this purchase, selling you this quantity for $2 a sheet. They have a Minimum Price of $250, however, so even though the Effective Price is $200, the estimated price on the purchase order is $250.

In another example, if the **Minimum Line Value** field is set to 100.00 and **Base Unit Price** field is set 25.00 in the supplier price list record (and no other discounts or price breaks are in use) then, on the corresponding purchase order line, until the line quantity is 4 (100 / 4 = 25), the Epicor application uses the Minimum Line Value to calculate the purchase order line unit price. If the user enters a quantity of 3, the unit price is calculated as 33.33 (100 / 3). Once the entered line quantity is sufficient enough to arrive at a line value that exceeds the Minimum Line Value (using the base unit price, or price breaks combined with discounts), the Epicor application uses those values instead.

Minimum Quantity

The Minimum Quantity is used on price lists. This value defines lowest part quantity required for the material or subcontract purchase to qualify for the price break.

If you are purchasing or subcontracting a quantity that is this value or higher, then the estimated cost uses this price break.

This value uses the Supplier Unit of Measure.

Adjustments

You can change the Minimum Quantity modifier using the following options.

- **Minimum Quantity**- You enter a numeric value in this field.

Where Located

You can access the Minimum Quantity functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Minimum Quantity functionality uses this logic to calculate its results.

If the material or subcontract quantity is >= the Minimum Quantity, then use the price break for the Estimated Total Cost calculation.

Example(s)

The following example(s) illustrate how you use the Minimum Quantity functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You have a subcontract operation that has a 400 quantity. This is the Minimum Quantity for the $4.00 price break, so the estimated cost for this subcontract operation is $1,600.

Miscellaneous Amount

The Miscellaneous Amount field is used on price lists. This value defines an additional miscellaneous charge associated with the subcontract service.

Miscellaneous charges are independent of any purchased quantities. You only enter a value in this field if the supplier price list is for subcontract services.

You can only have one miscellaneous charge for each price list. If this supplier requires more than one miscellaneous charge, you must manually enter these additional charges on the PO.

Adjustments

You can change the Miscellaneous Amount modifier using the following options.

- **Miscellaneous Amount**- Enter a numeric value in this field.

Where Located

You can access the Miscellaneous Amount functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Miscellaneous Amount functionality uses this logic to calculate its results.

Total Estimated Subcontract Cost = Effective Price + Miscellaneous Amount

Example(s)

The following example(s) illustrate how you use the Miscellaneous Amount functionality.

The company you hire for paint services, Acme Paints, is located in another city. Because of this, you need to pay for shipping. In order to make sure that the estimated subcontract costs are accurate, you enter a $100 value within the Miscellaneous Amount field. This indicates that you expect an average shipping cost of $100 on this price list.

Move Costs to DMR

The Move Costs to DMR check box is a modifier found within Inspection Processing. Select this check box to indicate that you want costs for failed assemblies to be moved from the work in process (WIP) transaction to a DMR (Discrepant Material Report) record.

These costs are then placed within the DMR account.

Assembly costs are not removed from the job while the assembly is sitting in inspection. These costs are only removed when the assembly is failed within Inspection Processing and then moved to a DMR record.

To learn more about DMR records, review the Discrepant Material Report section found earlier in this guide.

Adjustments

You can change the Move Costs to DMR modifier using the following options.

- **Move Costs to DMR**- This is a check box that you select or clear.

Where Located

You can access the Move Costs to DMR functionality through the following locations.

Inspection Processing

Use the Inspection Processing application to inspect the non-conformance entries made for defective assemblies and materials. You can also inspect purchase order receipts and customer returns. You select the Move Costs to DMR check box on the Operations - Details card. To launch Inspection Processing from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Move Costs to DMR functionality uses this logic to calculate its results.

If the Move Costs to DMR check box is selected, transfer the costs linked to this assembly material from the WIP transactions to the DMR transactions. Create a DMR for this failed material.

Example(s)

The following example(s) illustrate how you use the Move Costs to DMR functionality.

You are inspecting a 100 quantity that was manufactured for Job 34987. You pass a 92 quantity on this job, but there is an 8 quantity that failed your inspection. Launching Inspection Processing, you pass the 92 quantity and fail the 8 quantity for Job 34987. You then select the Move Costs to DMR check box. A DMR record is created that contains the failed 8 quantity.

Later you launch the DMR Processing application, and display this DMR record. You then decide how to handle this discrepant material cost.

Override Rates

Use the Override Rates option when you want to change the default resources rates on a job or quote method. When selected, this check box causes the Labor Rate, Burden Rate, and Crew Size fields to activate within the Setup and Production sections on the job or quote method.

You can enter these new labor rates manually. If you run the Get Details functionality to pull in a quote, job, or part method, however, the rates are overridden automatically by the values defined on the pulled method.

Adjustments

You can change the Override Rates modifier using the following options.

- **Override Rates**- Select this check box to change the default rates on a job or quote method.

Where Located

You can access the Override Rates functionality through the following locations.

Job Entry

You may override the Labor Rates, Burden Rates, and Crew Size values defined on resource groups on a job method. You do this on the Job Details - Operations - Scheduling Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You may override the Labor Rates, Burden Rates, and Crew Size values defined on resource groups on a quote method. You can do this on the Line - Mfg Details - Quote Details - Operations - Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Override Rates functionality uses this logic to calculate its results.

If the Override Rates check box is selected, open the Labor Rates, Burden Rates, and Crew Sizes field for data entry.

Example(s)

The following example(s) illustrate how you use the Override Rates functionality.

You are manufacturing Part 87343-C. Quantities you manufacture for this part use more electricity than other parts in your product line. Because of this, you select the Override Rates check box on the job method and enter a higher production Burden Rate.

You then save this job method as a template. The next time you are manufacturing a quantity for Part 87343-C, you use the Get Details functionality to pull this job method into your current job.

Part Field

The part that you purchase directly from a supplier or the part sent to a supplier for subcontract work. You can select this part on the Material - Detail cards and Operations - Subcontract cards within quote, job, and part methods.

Note however, that the parts you define on these methods do not have to exist within your part records. Use this feature to create a part once that you do not want to permanently define with a part record.

Adjustments

- **Part**- You define direct purchase parts on the Material - Detail cards. You define subcontract parts on the Operations - Subcontract cards.

Where Located

You can access the Part Field functionality through the following locations.

Job Entry

You can enter or update a subcontract operation through the Job Details -Operations - Subcontract Detail card. You can enter or update a purchased material through the Job Details -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or update a subcontract operation for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card. You can enter or update a purchased material for a quote method through the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists define price breaks for a specific part. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Logic/Algorithms

The Part Field functionality uses this logic to calculate its results.

- If the selected part has a part record, use the values defined on this part record.
- If the entered part does not have a part record, use the values defined on the job, part, or quote method.

Example(s)

The following example(s) illustrate how you use the Part Field functionality.

You select Part 45XTR on a price list you are creating for ABC Metals. You select the Percentage option with a value of 10%. The part price break has a Minimum Quantity of 50. When you purchase a quantity of 50 or more from this supplier, your company receives a 10 percent discount.

Percentage (Inter Divisional Internal Prices)

A Costing Workbench modifier, the Percentage value determines the change that occurs for the internal unit price of the part.

You can enter positive or negative values within this field. A positive value creates an internal price that is higher than the total part cost. A negative value creates an internal price lower than the total part cost.

Adjustments

You can change the Percentage (Inter Divisional Internal Prices) modifier using the following options.

- **Percentage**- You enter a numeric value in this field. The value you enter is used as a percentage by the Inter Divisional Internal Prices calculation.

Where Located

You can access the Percentage (Inter Divisional Internal Prices) functionality through the following locations.

Costing Workbench

Use the Costing Workbench to calculate the internal prices you use for parts transported between sites within your company. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

To launch the Calculate Inter Divisional Internal Prices application:

- Actions Menu/Calculate Inter Division Internal Prices

Logic/Algorithms

The Percentage (Inter Divisional Internal Prices) functionality uses this logic to calculate its results.

Material Unit Cost = (Current Unit Cost x Percentage) + Current Unit Cost

Example(s)

The following example(s) illustrate how you use the Percentage (Inter Divisional Internal Prices) functionality.

Both the Red site and the Blue site use Part 764R. This part has a unit cost of $5.00. Because of a 2% rise in shipping costs, however, you need to modify this unit cost.

You launch the Costing Workbench and load in the cost group that contains Part 764R. You then click the Actions menu and select Calculate Inter Division Internal Prices. This application appears.

Within the Percentage field, you enter 2. You then click the Calculate button. This results in a new unit cost of $5.10. This is the Material Unit Cost value you want to use internally going forward. Because of this, you click the Update button.

The record for Part 764R is now updated with the $5.10 unit cost.

Primary Job Operation

A batch job modifier, use this field to define the operation from which the source jobs' routing is combined. This must be an operation that all the jobs have in common.

Only operations from the source jobs selected for this batch appear on this list. Select the operation you need.

Adjustments

You can change the Primary Job Operation modifier using the following options.

- **Primary Job Operation**- You select a job operation from the method from this drop down list.

Where Located

You can access the Primary Job Operation functionality through the following locations.

Resource Scheduling Board

Use this application to review and modify scheduled jobs at the resource or resource group level. To launch this application from the Main Menu:

- Production Management/Scheduling/General Operations

You batch jobs by launching a application from the Actions menu:

- **Actions Menu**- Batch Operations

Logic/Algorithms

The Primary Job Operation functionality uses this logic to calculate its results.

- If Pull Direction = Forward, combine operations starting with the Primary Job Operation through subsequent operations to the final operation on the method.
- If Pull Direction = Backward, combine operations starting with the Primary Job Operation through previous operations to the first operation on the method.

Example(s)

The following example(s) illustrate how you use the Primary Job Operation functionality.

You create a batch job to manufacture parts ABC and XYZ. You decide to select ABC as the primary part, and indicate that you want to batch these parts at Assembly 0, Operation 40 on the routing that produces part ABC. The batch part number is ABC-0-40. When you view this part within Job Entry, ABC-0-40 are listed as the primary part on the batch job.

Post Cost of Sales - MFG Variance

Selecting this modifier causes the WIP/COS process to post the Cost of Sales values and manufacturing variances against jobs. These additional costs are then displayed on the Inventory/WIP report, the Sales Gross Margin report, and the WIP report.

These amounts are only posted against jobs; they are not posted to the General Ledger. You must select the Post to GL check box in order to place these costs within the General Ledger. Note: If you indicate that the WIP/COS process post to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post to the General Ledger - the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).

Adjustments

You can change the Post Cost of Sales - MFG Variance modifier using the following options.

Post Cost of Sales/MFG Variance - This is a check box value is select or clear.

Where Located

You can access the Post Cost of Sales - MFG Variance functionality through the following locations.

Capture COS/WIP Activity

This process can be run to update WIP and COS transaction swith the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

Menu Path: Production Management > Job Management > General Operations > Capture COS/WIP Activity

This application is not available in Classic Web Access.

Logic/Algorithms

The Post Cost of Sales - MFG Variance functionality uses this logic to calculate its results.

When you select the **Post Cost of Sales / MFG Variance** check box within the Capture COS/WIP Activity process, the application runs the following logic sequence to gather data:

1. A cache builds for all jobs (**JobHead**) records that have the **WIPCleared** check box set to FALSE (not selected) and have at least one part transaction (**PartTran**) or one labor transaction (**LaborDtl**).
2. For each job added to the cache, the logic next builds a cache of part transaction (**PartTran**) records.
3. Now for each job added to the cache, the logic builds a cache of job assembly (**JobAsmbl**) records.
4. Lastly for each job assembly record added to the cache, the logic builds a cache of related job operation (**JobOper**) records.

Example(s)

The following example(s) illustrate how you use the Post Cost of Sales - MFG Variance functionality.

You want to track the cost-of-sales and manufacturing variances accumulating against your current jobs. You do not, however, want to post these costs within your General Ledger. Within the Capture COS/WIP Activity process, you select the Post COS/MFG Variance check box and you clear the Post to General Ledger check box.

Post to General Ledger

Select the Post to General Ledger modifier to cause the generated WIP and COS information to update your General Ledger. Whenever the Capture COS/WIP Activity process is run, these values are automatically recorded within your GL accounts.

This check box is available if the Inventory check box is selected within the Company Configuration application. The Inventory check box is located on the General Ledger card.

If you indicate that the WIP/COS process post to the General Ledger and you do not select the Post Cost of Sales/MFG Variance check box, only two transactions do not post to the General Ledger - the shipments from WIP (MFG-CUS transaction type) and variances (MFG-VAR).

Adjustments

You can change the Post to General Ledger modifier using the following options.

- **Post Cost of Sales/MFG Variance**- This is a check box value is select or clear.

Where Located

You can access the Ending functionality through the following locations.

Capture COS/WIP Activity

This process updates WIP and COS transactions with the current manufacturing and shipping cost values. You may launch this process whenever you need, but you can also set up this process to run automatically through a recurring schedule. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

This application is not available in Classic Web Access.

Logic/Algorithms

The Post to General Ledger functionality uses this logic to calculate its results.

When you select the **Post to General Ledger** check box, the posting engine now takes the costing results generated through the COS/WIP logic and publishes them to the appropriate GL journals:

1. The logic selects all part transactions and labor detail records that have dates within the current **Fiscal Period** and the **Cutoff Date**. These transactions are selected from their related table and passed along to the Posting Engine.
2. The Posting Engine creates an **RVLock** record for each transaction. This lock prevents the transaction from being used in other processes.
3. The appropriate posting rule is run against each transaction.
4. If the posting rules are summarized, the Posting Engine creates a summary entry for each day included in the date range defined for the Capture COS/WIP Activity process.
5. The Posting Engine next creates **TranGLC** records for each transaction.
6. Lastly the Posting Engine creates **GLJrnlDtl** records for each transaction.
7. After the posting process ends, the logic removes the **RVLock** records from each transaction.
8. The logic updates the part transactions and labor transactions by marking them as both **Posted** and **Costed**.
9. The logic now checks Invoice Detail (**InvcDtl**) records linked to the jobs. If any Invoice Detail record has its **COSPostingReqd** value set to TRUE and its **COSPosted** value set to FALSE, the logic updates the cost totals on these linked invoices.

If For details on where the logic posts these invoice costs, review the **Posting Engine Technical Reference Guide**. This guide is located in the application help; navigate to the **General Ledger > Working With General Ledger > Posting Engine Technical Reference Guide** section.

Example(s)

The following example(s) illustrate how you use the Post to General Ledger functionality.

Your supervisor needs month end results for the manufacturing center at the beginning of each month. To do this, you need to pull in the current work-in-process and cost-of-sales amounts within your General Ledger. You launch the Capture COS/WIP Activity process and select the Post to General Ledger check box. This process now performs this function.

You also want to run this process on a recurring schedule, so you select the Dynamic check box next to the Ending date. For the Dynamic option, you select the "End of the Month - 1" option. This means that you want this process to run one day before the end of each month.

You now add this process to a process set, and attach this process set to a recurring schedule.

Each time the system calendar advances to the day before the end of the month, the WIP and COS transactions update with the current information you need. You can then generate the month end reports that your supervisor requires.

Price Break

The Price Break button is available on materials and subcontract operations within job, quote, and part methods. When you indicate a specific supplier from which you purchase the materials or services, click this button to select the price list for this part quantity.

You can also set up new price lists through this button. Clicking it launches the Supplier List Maintenance application, so you can also create new price lists as you need.

After you define the price list for the material quantity or subcontract operation, the application uses this list to calculate the estimated cost of the material or subcontract service. Based on the quantity ordered, various discounts are automatically applied to the manufactured parts. These values determine the estimated cost of the subcontract operation.

Adjustments

You can change the Price Break modifier using the following options.

- **Price Breaks**- Click this button to launch the Supplier List Maintenance application. Use this application to create or edit the price list used with the purchased material or subcontracted service.

Where Located

You can access the Price Break functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation; you do this on the Method of Manufacturing -Operations - Subcontract Detail card. You also use this application to define the purchased materials required to manufacture the part quantity; you do this on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You can enter or update a subcontract operation method resource group through the Job Details - Operations - Subcontract Detail card. You also use this application to define the purchased materials required to manufacture the part quantity; you do this on the Job Details -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or update a subcontract operation for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card. You also use this application to define the purchased materials required to manufacture the part quantity; you do this on the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Price Break functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Price Break functionality.

Flat Amount Example

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity.

They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and the invoice they send back to your company uses this same value.

Due to an increase in the cost of paint, however, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

There is a $550 difference between the estimated cost versus the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded within the Purchase Price Variance account.

Percentage Example

You select the Percentage option with a value of 10%. The part price break has a Minimum Quantity of 50. When you purchase a quantity of 50 or more from this supplier, your company receives a 10 percent discount.

Price Format

You define a price format on each supplier price list. The selected option defines the format for the price breaks within the Price Break table.

Adjustments

You can change the Price Format modifier using the following options.

- There are two price format options:
- **Flat Amount**- A specific amount is subtracted from the Base Unit Price or used as the actual cost of the part at this quantity.
- **Percentage**- A percentage value multiplied against the total cost of the part quantity. The resulting value is then subtracted from the Total Cost of the part to arrive at the final estimated unit cost.

Where Located

You can access the Price Format functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Price Format functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Price Format functionality.

Flat Amount Example

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and the invoice they send back to your company uses this same value.

Due to an increase in the cost of paint, however, Acme Painting charges you the base rate of $5.00 a part. You receive the subcontract part quantity at this unit cost on the receipt, so the actual cost of this subcontract operation is $2,750 (550 x 5.00).

There is a $550 difference between the estimated cost versus the actual cost. This difference triggers an ADJ-PUR transaction, and this amount is recorded within the Purchase Price Variance account.

Percentage Example

You select the Percentage option with a value of 10%. The part price break has a Minimum Quantity of 50. When you purchase a quantity of 50 or more from this supplier, your company receives a 10 percent discount.

Price Modifier

The Price Modifier values are used on supplier price lists.

These values determine the Effective Price for each price break within the list. This number value is a set amount or a percentage, depending on the price format (Flat Amount or Percentage) you define on the list.

If a Base Unit Price is entered, this value is added against the Base Unit Price. If you wish to reduce the Base Unit Price, enter a negative amount in the Price Modifier field.

Adjustments

You can change the Price Modifier modifier using the following options.

- **Price Modifier**- You can enter two format types:
  - **Flat Amount**- This value is the amount you charge for quantities that meet this price break, or the amount you subtract or add from the Base Unit Price.
  - **Percentage**- This value is multiplied against the Total Cost on the subcontract operation. The resulting value is then subtracted from the Total Cost to arrive at the Effective Price value.

Where Located

You can access the Price Modifier functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Price Modifier functionality uses this logic to calculate its results.

Effective Price (Flat Amount)

Effective Price = (Base Price + Price Modifier) - (Base Price + Modifier) x (Discount/100)

Effective Price (Percent Amount)

Effective Price = (Base Price - (Base Price x Modifier/100)) - ((Base Price + (Base Price x Modifier/100)) x (Discount/100))

Example(s)

The following example(s) illustrate how you use the Price Modifier functionality.

Flat Amount Example

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

You send a 550 part quantity to Acme Painting. The application sees the 550 part quantity, and calculates that this part quantity matches the 400 + price break from the price list, so the total estimated cost for this subcontract operation is $2,200 (550 x 4.00). This is the cost used on the purchase order sent to Acme Painting, and the invoice they send back to your company uses this same value.

Percentage Example

You select the Percentage option with a value of 10%. The part price break has a Minimum Quantity of 50. When you purchase a quantity of 50 or more from this supplier, your company receives a 10 percent discount.

Production Standard

The Production Standard value is the estimated production rate for each operation. This value is used to calculate the total estimated production hours for each operation within a method of manufacturing.

Because this value is used to calculate the estimated production time for labor costs, it is also used to calculate the estimated burden cost of production on each operation.

You define this value on the Operation - Detail card on quote, part, and job methods.

Adjustments

You can change the Production Standard modifier using the following options.

- **Production Standard**- You enter a numeric value in this field. You then further define this value by selecting a rate of production, like Pieces/Hour, Pieces/Minute, and so on.

Where Located

You can access the Production Standard functionality through the following locations.

Engineering Workbench

You enter production standards for operations through the Method of Manufacturing -Operations - Details card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You enter production standards for operations through the Job Details -Operations - Scheduling Resources - Details card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You enter production standards for operations through the Line - Mfg Details - Quote Details - Operations - Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Production Standard functionality uses this logic to calculate its results.

Estimated Labor Hours = Estimated Quantity x Production Standard

Example(s)

The following example(s) illustrate how you use the Production Standard functionality.

The Bonding operation can glue together 10 pieces for each hour. Job 5421 includes this Bonding operation and it needs to work on a 50 quantity. The Bonding operation for Job 5421 is estimated to take 5 hours to complete.

Proposed Posting Date

This field defines the date on which you expect to post the updated standard costs. Use this field to plan when to update the Standard Cost values of the parts contained within the cost group.

Note that this is the proposed date. After you post this cost group, the actual date is displayed within the Post Date field.

When you post these costs, these updated Standard Cost values used by the application for both job estimates and quotes. If an actual cost is different from the Standard Cost recorded on this posting date, a variance is recorded in the Variance account.

Adjustments

You can change the Proposed Posting Date modifier using the following options.

- **Proposed Posting Date**- Enter or select the date you need in this field.

Where Located

You can access the Proposed Posting Date functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The Proposed Posting Date functionality uses this logic to calculate its results.

This field is available only for your reference. It does not affect the cost rollup calculation.

Example(s)

The following example(s) illustrate how you use the Proposed Posting Date functionality.

You are evaluating a new Standard Cost values for all the parts manufactured in the Red site. You plan on updating these costs by the end of December, so you enter 12/31 as the Proposed Posting Date.

Pull Direction

A job batching modifier, these options define the direction in which the operations are combined. You can batch the operations from a point backwards to the beginning of the routing, or from a point forwards to the end of the routing.

You cannot batch between two operations in the middle of the routing.

Adjustments

You can change the Pull Direction modifier using the following options.

- **Pull Direction**- Select one of these options:
  - **Forward**- Select this option to cause the batch job to combine operations, starting with the selected Primary Job Operation and moving ahead through the routing.
  - **Backward**- Select this option to cause the batch job to combine operations, starting with the selected Primary Job Operation and moving back through the routing.

Where Located

You can access the Pull Direction functionality through the following locations.

Resource Scheduling Board

Use this application to review and modify scheduled jobs at the resource or resource group level. To launch this application from the Main Menu:

- Production Management/Scheduling/General Operations

You batch jobs by launching a application from the Actions menu:

- Actions Menu- Batch Operations

Logic/Algorithms

The Pull Direction functionality uses this logic to calculate its results.

- If Pull Direction = Forward, combine operations starting with the Primary Job Operation through subsequent operations to the final operation on the method.
- If Pull Direction = Backward, combine operations starting with the Primary Job Operation through previous operations to the first operation on the method.

Example(s)

The following example(s) illustrate how you use the Pull Direction functionality.

You create a batch job of manufacture parts ABC and XYZ. You decide to select ABC as the primary part, and indicate that you want to batch these parts at Assembly 0, Operation 40 on the routing that produces part ABC. The batch part number is ABC-0-40. When you view this part within Job Entry, ABC-0-40 are listed as the primary part on the batch job.

Quantity (Accept to Job)

A DMR Processing modifier, the Quantity (Accept to Job) field defines the specific material part quantity accepted to a job. If you decide that you can still use a discrepant material, you define this value to use this material quantity on a specific job you select.

You can accept a DMR quantity to a material, operation, or stock.

Adjustments

You can change the Quantity (Accept to Job) modifier using the following options.

- **Quantity**- This is a numeric value that you can update as needed. This is the quantity that you are returning to the job.

Where Located

You can access the Quantity (Accept to Job) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Quantity (Accept to Job) functionality uses this logic to calculate its results.

If the material quantity can be reworked, the application removes it from the DMR account and sends it to the job by using the WIP Material account or to inventory by using the Inventory GL account.

Example(s)

The following example(s) illustrate how you use the Quantity (Accept to Job) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. After you look over the quantity, however, you decide that the defects do not compromise the quality of your final product. Because of this, you need to return this quantity to the job for which it was originally purchased.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the Accept - Job Material command. You select Job 2376 - the job for which this material was purchased. The Assembly and Material values, Assembly 2 and Material 10:57K-987, display by default. You enter the 50 quantity in the Quantity field. You then save the DMR record.

This material quantity is now available to use again on Job 2376.

Quantity (Debit Memo)

A DMR Processing modifier, the Quantity (Debit Memo) field defines the specific material part quantity for which you want the supplier to credit through a debit memo.

Enter the quantity you need within this field.

Adjustments

You can change the Quantity (Debit Memo) modifier using the following options.

- **Quantity**- This is a numeric value that you can update as needed.

Where Located

You can access the Quantity (Debit Memo) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Quantity (Debit Memo) functionality uses this logic to calculate its results.

If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.

Example(s)

The following example(s) illustrate how you use the Quantity (Debit Memo) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. You purchased this part quantity from ABC Metals, and you want this supplier to give you a debit memo for this discrepant quantity.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the New Debit Memo command. ABC Metals is selected on the DMR record, so the application opens the Debit Memo card.

You enter the Unit Cost you want credited on this DMR - $200. You then enter the 50 value within the Quantity field. To complete the DMR, you select the Reason for the discrepant quantity - DMR Material Cracks.

Save this DMR to create the Debit Memo request.

Quantity (Reject Quantity)

A DMR Processing modifier, the Quantity (Reject Quantity) field defines the specific material part quantity you are rejecting.

Adjustments

You can change the Quantity (Reject Quantity) modifier using the following options.

- **Quantity**- This is a numeric value you can update as needed.

Where Located

You can access the Quantity (Reject Quantity) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Quantity (Reject Quantity) functionality uses this logic to calculate its results.

- If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.
- If the material quantity is scrapped, the application removes it from the DMR account and sends it to the Scrap / DMR Write-off Account.

Example(s)

The following example(s) illustrate how you use the Quantity (Reject Quantity) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. You purchased this part quantity from ABC Metals, and return the rejected material through a Supplier RMA.

You launch DMR Processing and open the DMR record. ABC Metals is selected on the DMR record. Now you click on the Down Arrow next to the New button and select the New Reject Material command. The application opens to the Reject - Detail card.

You enter the Supplier RMA identifier used by the supplier to process the returned materials - 785R. You then enter the 50 value within the Quantity field. You select the Reason for the discrepant quantity - DMR Material Cracks. To complete the transaction, you select the Request Debit Memo check box. This causes the application to create a Debit Memo request to send to ABC Metals.

Save this DMR to create the Debit Memo request.

Quantity Parent

The Quantity/Parent field defines how much of the material part is required to make one quantity of the assembly part. This is a required field.

If this job does not have multiple assemblies, than this is the quantity required to make one quantity of the final part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.

Adjustments

You can change the Quantity - Parent modifier using the following options.

- **Quantity/Parent**- You enter a numeric value in this field.

Where Located

You can access the Quantity - Parent functionality through the following locations.

Job Entry

You can enter a material detail for a job method through the Job Details -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or update a material detail for a quote method through the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Engineering Workbench

Use the Engineering Workbench to enter or update a material detail for a part method through the Method of Manufacturing -Materials - Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Logic/Algorithms

The Quantity - Parent functionality uses this logic to calculate its results.

- Required Quantity (Scrap Quantity) = (Assembly Production Quantity x Quantity Per Parent) + Scrap Quantity
- Required Quantity (Scrap Percentage) = (Assembly Production Quantity x Quantity Per Parent) x Scrap Percentage

Example(s)

The following example(s) illustrate how you use the Quantity - Parent functionality.

Job 45983 has an end quantity of 100. This job contains Operation 300, an operation that requires Part 34R-874 to complete. This material has a Quantity/Parent value of 2. Because you are manufacturing a 100 quantity of the end part, this operation has a Required Quantity value of 200.

Quoting Burden Rate

These rates are the burden costing rates used for entering quotes within Opportunity/Quote Entry. These rate values control the estimated burden, or overhead cost, associated with running each resource or resource group.

They define the rate at which the quoting burden cost is calculated against each resource/resource group used on an operation.

Separate rates can be defined for the Setup Time and Production Time reported against each resource/resource group. Setup Time is the time it takes to prepare for work on the operation. Production Time is the time it takes to produce part quantities on the operation.

This rate is measured by using a Flat or a Percentage rate option. You must select one rate option for both the production and the setup quoting burden rates. For example, you cannot select Percent for the production burden rate option and then select Flat as the setup burden rate option.

You define the Quoting Burden Rates on resources and resource groups; however, you can override these cost estimates by entering different rates on quote methods. Use this to recalculate estimated burden costs on a specific quote.

When you use the Get Details functionality to pull in a method on a quote, the Quoting Burden Rates from each resource/resource group are used as the default estimated burden rates on the method's operations. If you need, you can enter different burden rates within the quote method.

Adjustments

You can change the Quoting Burden Rate modifier using the following options.

- **Flat**- This option causes a specific monetary amount to be calculated against the number of burden hours reported against an operation.
- **Percent**- This option causes a percentage value to be multiplied against the operation's labor hours reported against an operation.
- **Production Burden Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.
- **Setup Labor Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated setup burden rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.

Where Located

You can access the Quoting Burden Rate functionality through the following locations.

Resource Group Maintenance

You define burden rates for a resource group on the Detail card. You can also enter different burden rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Opportunity/Quote Entry

You can override estimated burden rates for a quote method resource group through the Line - Mfg Details - Quote Details - Operations - Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Quoting Burden Rate functionality uses this logic to calculate its results.

Burden Rate Hierarchy

1. The application calculates burden by first checking the rates defined on the resource used for the labor transaction.
2. If the resource does not have burden rates, the system uses the rates defined on the resource group.

Estimated Setup Burden Cost

Quote Estimated Setup Burden Total = Number of Operations x (Number of Resources Used x (Quoting Setup Burden Rate x Setup Hours Per Resource))

Estimated Production Burden Cost

Quote Estimated Production Burden Total = Number of Operations x (Quoting Production Burden Rate x (Production Standard x Number of Parts Produced))

Flat Burden Rate

Total Actual Burden Cost = Burden Rate (Flat Rate Option) x Burden Hours

Percentage Burden Rate

Total Actual Burden Cost = Burden Rate (Percentage Option) x Burden Hours

Example(s)

The following example(s) illustrate how you use the Quoting Burden Rate functionality.

If you quote production burden as 110% of labor, select Percent as the burden rate option and enter a production costing rate of 110.00. If you quote setup burden at $55.00 per hour, select Flat as the burden rate option and enter a setup costing rate of 55.00.

Quoting Labor Rate

These rates are the labor costing rates used for entering quotes within Opportunity/Quote Entry. These rate values control the estimated labor costs that accumulate as your shop employees run each resource or resource group.

They define the rate at which the quoting labor cost are calculated against each resource/resource group used on an operation.

Separate rates can be defined for the Setup Time and Production Time reported against each resource/resource group. Setup Time is the time it takes to prepare for work on the operation. Production Time is the time it takes to produce part quantities on the operation.

You define the Quoting Labor Rates on resources and resource groups; however, you can override these cost estimates by entering different rates on quote methods. Use this to refine estimated labor costs on a specific quote.

When you use the Get Details functionality to pull in a method on a quote, the Quoting Labor Rates from each resource/resource group are used as the default estimated production and setup labor rates on the method's operations. If you need, you can enter different labor rates within the quote method.

Adjustments

You can change the Quoting Labor Rate modifier using the following options.

- **Production Labor Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated production labor rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.
- **Setup Labor Rate (Quote Method)**- Enter a value in this field when you need to override the default estimated setup labor rate from a resource/resource group on a quote method. This field is available when you select the Override Rates check box. This field is located on the Scheduling Resources card within Opportunity/Quote Entry.

Where Located

You can access the Quoting Labor Rate functionality through the following locations.

Resource Group Maintenance

You define labor rates for a resource group on the Detail card. You can also enter different labor rates for each resource on the Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Opportunity/Quote Entry

You can override estimated labor rates for a quote method resource group through the Line - Mfg Details - Quote Details - Operations -Scheduling Resources card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Quoting Labor Rate functionality uses this logic to calculate its results.

Estimated Labor Cost

1. Estimated Setup Labor Cost = (Setup Labor Rate x Setup Hours) x Crew Size
2. Estimated Production Labor Cost = (Production Labor Rate x Production Hours) x Crew Size
3. Estimated Labor Cost = Estimated Setup Labor Cost + Estimated Production Labor Cost

Get Details - Quote

If a job, quote, or part method is pulled into a quote through the Get Details functionality, the production and setup labor rates are replaced by the estimated rates defined on each resource/resource group. If you need, you can enter different labor rates within the quote method.

Example(s)

The following example(s) illustrate how you use the Quoting Labor Rate functionality.

You manage a sauerkraut factory, and you need to estimate the labor cost for a Push operation that moves cabbage from the conveyor into a Shredder machine. On the Push resource group, you enter the following values:

- Setup Labor Rate (Quoting): $10
- Setup Crew Size: 4
- Production Labor Rate (Quoting): $30
- Production Crew Size: 4

It takes 1 hour to prepare for the Push operation and 7 hours to complete production work on the Push operation.

1. The estimated Setup Labor Cost is $10 x 1 hour x 4 shop employees, for a total estimated setup cost of $40.
2. The estimated Production Labor Cost is $30 x 7 hours x 4 shop employees for a total estimated production cost of $840.
3. The Estimated Setup Labor Cost ($40) is added to the Estimated Production Labor Cost ($840) for a Total Estimated Labor Cost of $880.

Required Quantity

The Required Quantity field displays number of parts required for the operation within the job or quote method.

You cannot update this value directly. Instead, this field is calculated based on the Quantity/Parent and Scrap modifiers within the Materials - Detail card. The Quantity/Parent value defines the quantity

needed during the operation to manufacture one quantity of the parent part. The Scrap value indicates the estimated quantity of unusable material generated when the operation is complete.

Adjustments

You can change the Required Quantity modifier using the following options.

- **Quantity/Parent**- The quantity of the material part required to make one of the assembly part. This is a required field. If this job does not have multiple assemblies, than this is the quantity required to make 1 of the end part. Note that the calculation for Required Quantity is always based on the Production Quantity. If a related operation is entered and that operation quantity is different than the production quantity, the material requirement is still based on the production quantity.
- **Scrap**- The scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected. If the Related Operation has a scrap factor, these scrap values default from this operation. The application adds the quantity value directly to the estimated quantity to arrive at the Required Quantity A percentage value is multiplied against the estimated quantity. This value is then added to the Required Quantity.

Where Located

You can access the Required Quantity functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a material required on an operation. You do this on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

Use Job Entry to enter or update a material required on an operation. You do this on the Job Details - Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

Use Opportunity/Quote Entry to enter or update a material required on an operation. You do this on the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Required Quantity functionality uses this logic to calculate its results.

- Required Quantity (Scrap Quantity) = (Assembly Production Quantity x Quantity Per Parent) + Scrap Quantity
- Required Quantity (Scrap Percentage) = (Assembly Production Quantity x Quantity Per Parent) x Scrap Percentage

Example(s)

The following example(s) illustrate how you use the Required Quantity functionality.

Quantity/Parent Example

Job 45983 has an end quantity of 100. This job contains Operation 300, an operation that requires Part 34R-874 to complete. This material has a Quantity/Parent value of 2. Because you are manufacturing a 100 quantity of the end part, this operation has a Required Quantity value of 200.

Scrap Quantity Example

You need to manufacture a 100 quantity of Part 56T-092. To assemble this part, you have a Join operation that requires a 50 quantity of Part 432W, an adhesive. Each time the Join operation runs, an amount of the adhesive material is wasted and must be cleaned up after the operation is complete.

You estimate that a 5 quantity of Part 432W is wasted during each Join operation. Because of this, you select the Quantity radio button and enter a 5 value in the Scrap field. The application calculates the Required Quantity for Part 432W as 55.

Sales Unit Price

The Sales Unit Prices defines the price at which you typically sell the current part. An optional field within Part Maintenance, only enter a price if this is a manufactured item you sell.

This value is the default when you select this part on a sales order. It can be modified by any price breaks you enter. This value can be set up to price for a single part, for every one hundred parts, and for every thousand parts.

As you update the Standard Cost for a manufacture a part, you update this value to reflect both these costing changes and profitability.

Adjustments

You can change the Sales Unit Price modifier using the following options.

- **Sales Unit Price**- This is a numeric value that you enter.

Where Located

You can access the Sales Unit Price functionality through the following locations.

Part Maintenance

Use this application to establish or update part information. Parts are items purchased for use as raw material, made to use as subassemblies, or built as finished items to fill sales orders. You select costing methods on the Detail card. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Quality Assurance/SetupProduction Management/Material Requirements Planning folder/Setup

Logic/Algorithms

The Sales Unit Price functionality uses this logic to calculate its results.

If a Sales Unit Price value exists on the part record, use this as the default value on sales orders.

Example(s)

The following example(s) illustrate how you use the Sales Unit Price functionality.

You ordinarily sell Part 1000ABC in batches of 100 at a price of $250.00 per batch. You enter the part in the application, assign it a unit price of 250, and mark this price as per hundred. Then you take an order from a customer for 300 pieces of this part. When you enter this part in the sales order, 250 per each hundred price appears as the default unit price, and a total price of $750.00 is calculated (250 * 300 / 100 = 750).

Salvage Part

Salvage Part is the part identifier for a salvaged item. If you estimate that you generate salvage quantities of a material during an operation, you must define this salvage part identifier.

The identifier can be the same as the material part identifier. It can also be a different identifier that you can use to track scrap separately within your inventory.

You define salvage parts with the material required during an operation on job and quote methods. You can also create part methods for salvage parts within the Engineering Workbench.

Adjustments

You can change the Salvage Part modifier using the following options.

- **Salvage Part**- Use this field to directly enter the identifier for the salvage part. You can also click the Part button to find and select the salvage part that you need.

Where Located

You can access the Salvage Part functionality through the following locations.

Job Entry

You define this identifier on the Job Details - Materials - Material Salvage card with Job Entry. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You define this identifier on the Mfg Details - Quote Details - Materials - Material Salvage card within Opportunity/Quote Entry.

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Salvage Part functionality uses this logic to calculate its results.

Expected Salvage Quantity = Required Quantity x Salvage Quantity Per

Example(s)

The following example(s) illustrate how you use the Salvage Part functionality.

Job 45983 contains a burring operation. This operation requires a 200 quantity of Part 34R-874 to complete. This material is a raw metal, and the burring process creates a quantity of salvageable metal pieces that you can melt down and reuse.

Because of this, you add 34R-875, a Material Salvage part, to the 34R-874 material on the job method. This material has a Salvage Quantity Per value of .05. Because you are using a 200 quantity, you estimate that this operation creates a 10 quantity of the 34R-875 salvageable material.

Salvage Material Burden Rate

Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

You can define the Salvage Material Burden Rate on part methods. This indicates any part amount you are planning to save, or salvage, after the manufacturing process is complete. The Salvage Material Burden Rate is the estimated material burden percentage of this returned material. This amount is credited to the job and reduces its final cost.

Adjustments

You can change the Salvage Material Burden Rate modifier using the following options.

- **Salvage Material Burden Rate**- You can enter or override this percentage value on part methods. If this part has a part record, the Material Burden Rate defined on this record appears by default. If you need, however, you can override this value within the part record.

Where Located

You can access the Salvage Material Burden Rate functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to define the Salvage Material Burden Rate for part quantities salvaged through the part method. You enter this estimated value on the Method of Manufacturing - Material - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Salvage Material Burden Rate functionality uses this logic to calculate its results.

Estimated Salvage Material Burden Credit = (Estimated Unit Credit x Number of Salvaged Units) x Salvage Material Burden Rate on Part Method

Example(s)

The following example(s) illustrate how you use the Salvage Material Burden Rate functionality.

You are creating a part method for a nightstand within the Engineering Workbench. You typically order more washers than you need for final assembly on the nightstand, so you need to indicate that a percentage of the washers is saved and returned to inventory.

You estimate that you salvage 10 washers for each nightstand you produce, and each washer returns 10 cents of Unit Credit to inventory. The material burden rate on this Washers part record is 5 percent. Using these values, you receive $1.00 of Unit Credit for each nightstand you produce. You also receive Salvage Material Burden Credit of 5 cents. So for this part method, you estimate that each nightstand has a $1.05 salvage cost reduction.

Salvage Material Burden Unit Credit

Material Burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity. These are costs that cannot be handled through typical production or purchasing calculations.

You can define how many parts you estimate are salvaged and returned to inventory on part methods. The Salvage Material Burden Rate is the estimated percentage used to help determine the total credit placed against the salvage part quantity.

The Salvage Material Burden Unit Credit field displays the total amount of material burden credit assigned to the estimated job quantity received.

Adjustments

You can change the Salvage Material Burden Unit Credit modifier using the following options.

- **Salvage Material Burden Rate**- You can enter or override this percentage value on part methods. If this part has a part record, the rate defined on this record appears by default. If you need, however, you can override this value within the part record. The value you enter here modifies the Salvage Material Burden Unit Credit amount received back to inventory.

Where Located

You can access the Salvage Material Burden Unit Credit functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to define the salvage material burden rate for part quantities salvaged through the part method. You enter this estimated value on the Method of Manufacturing - Material - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Salvage Material Burden Unit Credit functionality uses this logic to calculate its results.

Estimated Salvage Material Burden Credit = (Estimated Unit Credit x Number of Salvaged Units) x Salvage Material Burden Rate on Method

Example(s)

The following example(s) illustrate how you use the Salvage Material Burden Unit Credit functionality.

You are creating a part method for a nightstand within the Engineering Workbench. You typically order more washers than you need for final assembly on the nightstand, so you need to indicate a percentage of the washers saved and returned to inventory.

You estimate that you salvage 10 washers for each nightstand you produce, and each washer returns 10 cents of Unit Credit to inventory. The material burden rate on this Washers part record is 5 percent. Using these values, you receive $1.00 of Unit Credit for each nightstand you produce. You also receive Salvage Material Burden Credit of 5 cents. So for this part method, you estimate that each nightstand has a $1.05 salvage cost reduction.

Salvage Quantity Per

The Salvage Quantity Per value is the percentage multiplied against the Required Quantity found on the Material Detail card within job, quote, and part methods. The application uses this value to calculate the expected salvage quantity.

Adjustments

You can change the Salvage Quantity Per modifier using the following options.

- **Salvage Quantity Per**- You enter a numeric value in this field.

Where Located

You can access the Salvage Quantity Per functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a material required on an operation. You do this on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

Use Job Entry to enter or update a material required on an operation. You do this on the Job Details - Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

Use Opportunity/Quote Entry to enter or update a material required on an operation. You do this on the Line - Mfg Details - Quote Details - Materials -Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Salvage Quantity Per functionality uses this logic to calculate its results.

Expected Salvage Quantity = Required Quantity x Salvage Quantity Per

Example(s)

The following example(s) illustrate how you use the Salvage Quantity Per functionality.

Job 45983 contains a burring operation. This operation requires a 200 quantity of Part 34R-874 to complete. This material is a raw metal, and the burring process creates a quantity of salvageable metal pieces that you can melt down and reuse.

Because of this, you add 34R-875, a Material Salvage part, to the 34R-874 material on the job method. This material has a Salvage Quantity Per value of .05. Because you are using a 200 quantity, you estimate that this operation creates a 10 quantity of the 34R-875 salvageable material.

Scrap Factor

The application uses the Scrap Factor value to determine scrap quantity factor. This modifier can be a defined quantity or a percentage, depending upon which radio button, Quantity or Percentage, is selected.

If the Related Operation has a scrap factor, these scrap values default from this operation. A quantity value is added directly to the estimated quantity. The application then uses the result for the Required Quantity. A percentage value is multiplied against the estimated quantity. The result is then added to the estimated quantity to determine the Required Quantity.

This value is found within the Materials - Detail card on job, quote, and part methods.

Adjustments

You can change the Scrap Factor modifier using the following options.

- **Quantity**- When this radio option is selected, you enter the numeric value you want to directly to the Required Quantity.
- **Percentage**- When this radio option is selected, you enter the numeric value you want to multiply against the estimated quantity.

Where Located

You can access the Scrap Factor functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a material required on an operation. You do this on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

Use Job Entry to enter or update a material required on an operation. You do this on the Job Details - Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

Use Opportunity/Quote Entry to enter or update a material required on an operation. You do this on the Line - Mfg Details - Quote Details - Materials - Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Scrap Factor functionality uses this logic to calculate its results.

- Required Quantity (Scrap Quantity) = (Assembly Production Quantity x Quantity Per Parent) + Scrap Quantity
- Required Quantity (Scrap Percentage) = (Assembly Production Quantity x Quantity Per Parent) x Scrap Percentage

Example(s)

The following example(s) illustrate how you use the Scrap Factor functionality.

Scrap Quantity Example

You need to manufacture a 100 quantity of Part 56T-092. To assemble this part, you have a Join operation that requires a 50 quantity of Part 432W, an adhesive. Each time the Join operation runs, an amount of the adhesive material is wasted and must be cleaned up after the operation is complete.

You estimate that a 5 quantity of Part 432W is wasted during each Join operation. Because of this, you select the Quantity radio button and enter a 5 value in the Scrap field. The application calculates that the Required Quantity for Part 432W is 55.

Scrap Percentage Example

You need to manufacture a 100 quantity of Part 56T-092. To assemble this part, you have a Join operation that requires a 50 quantity of Part 432W, an adhesive. Each time the Join operation runs,

an amount of the adhesive material is wasted and must be cleaned up after the operation is complete.

You estimate that 5% of the Part 432W quantity is wasted during each Join operation. Because of this, you select the Percentage radio button and enter a 5 value in the Scrap field. The application calculates that the Required Quantity for Part 432W is 52.5.

Site (Costing Workbench)

Use this field to enter or select the main site used during the initial cost load process. All the costs linked to this site, for the parts you select, are then pulled into the Costing Workbench.

Adjustments

You can change the site (Costing Workbench) modifier using the following options.

- **site**- Click on this drop down list to select the site you want.

Where Located

You can access the site (Costing Workbench) functionality through the following locations.

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

Logic/Algorithms

The site (Costing Workbench) functionality uses this logic to calculate its results.

1. Find and select all the parts linked to the selected site.Place all of these parts inside the cost group record.
2. Place all of these parts inside the cost group record.

Example(s)

The following example(s) illustrate how you use the site (Costing Workbench) functionality.

You need to update the standard cost of several parts. These parts are all manufactured in your Red site. You launch the Costing Workbench and create a new cost group. You then select the Red site option from the site drop down list. All the parts manufactured at this site are pulled into the new cost group. You can then update the cost for each of these parts.

Site Cost ID

A site cost identifier defines a reference to a cost set. The cost set is then used for the cost method calculations for all the parts manufactured within the sites linked to the cost set.

This makes sure that the same cost method is used for all the sites linked to this cost set.

If a different costing method is needed between sites, create a separate cost set for each site. The costing results are then calculated accurately, as unit costs are calculated for each part within each cost set. Because each site has its own cost set, the costing values are consistent for the site. Although it is possible to link sites with different costing methods to the same cost set, it is not recommended.

Site cost identifiers are also used within the Costing Workbench. During the standard cost rollup calculation within the Costing Workbench, the application uses site cost identifiers as a source for the cost amounts.

Adjustments

You can change the site Cost ID modifier using the following options.

- **Site Cost ID**- Click on this drop down list to select the site cost ID you need for the company or the site record.

Where Located

You can access the Site Cost ID functionality through the following locations.

Site Cost ID Maintenance

You create site cost identifiers within this application. To launch Site Cost ID Maintenance from the Main Menu:

- Production Management/Engineering/Setup

Company Maintenance

You select the default cost set for a company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

You define the site cost ID value on the Modules > All Modules > General card.

Site Maintenance

You can override the default cost set for a specific Site within Site Maintenance. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Material Management/Inventory Management/Setup
- Financial Management/Multi-Site/Setup

You select the site cost ID used for this site on the Planning Data card:

Costing Workbench

Use the Costing Workbench to create cost groups and then rollup the estimated cost of each part contained within the group. To launch this application from the Main Menu:

- Production Management/Engineering/Operations/Costing Workbench

You can select a cost set to use for the cost rollup calculation:

- **Copy from Site Cost ID**- This is an optional field; use this drop down list to select a specific cost set from which you want to load part cost information. This causes the Costing Workbench to load in all data with the specified cost set from the PartCost table. Use this field or the Copy from Cost Group field to specify the cost group to use as a starting point for your new cost group. You might select to copy from a site Cost ID (cost set) rather than from a Cost Group if you want to initiate your new cost group with the current costs from the site assigned to this cost set.

Logic/Algorithms

The site Cost ID functionality uses this logic to calculate its results.

Use the site cost ID value defined on the site record. If this value is not defined on the site record, use the default defined within the company record.

Example(s)

The following example(s) illustrate how you use the site Cost ID functionality.

Cost Sets - Same Costing Method

site A and site B both use the Red Group site cost ID (cost set). During the cost rollup calculation within the Costing Workbench, the values defined within the site cost identifier are used to calculate the standard cost amounts within the current cost group.

Cost Sets - Different Costing Methods

site A uses the Standard costing method and site B uses the Average costing method. Both sites use the same ALLsiteS cost set. Because they are in the same cost set, the average cost values for site B also use the transactions for site A. If both sites use a different cost set, however, then only part transactions in site B use the Average costing method.

Split Burden

The Split Burden check box defines the calculation option used to generate burden against the resource group.

When selected, the application multiplies the hourly resource group Burden Rate against the number of Resource Hours posted on a job operation. Use this to split the burden hours among those labor entries to more accurately reflect the actual burden hour usage of the resource group. Just like the Burden = Checkbox check box, this option only applies to direct labor automatically entered by using the MES interface.

Typically you use this burden calculation when people are considered resources within the resource group. These people resources are then placed together within, for example, a Welding Center or Assembly resource group. The burden calculation can then account for multiple employees clocked in on the same resource and job operation. For example, if two shop employees clock into the Drill operation at 10:00 and then clock out of the operation at 10:30, 15 minutes of burden are calculated against each employee's time. Note that this calculation option can only be defined for a resource group. You cannot select the Split Burden calculation method on a resource.

Adjustments

You can change the Split Burden modifier using the following options.

- **Burden = Labor**- When selected, this calculation option causes the application to multiply the hourly resource/resource group Burden Rate against the number of Labor Hours posted against it on a job operation. This calculation option is useful for employees who clock into multiple job operations during the same shift. The application tracks each minute that the employee works on each operation, accurately recording the burden (and labor) cost. This value is then multiplied against the burden rate. You select this calculation option on the Details card within Resource Group Maintenance.

Where Located

You can access the Split Burden functionality through the following locations.

Resource Group Maintenance

You define the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Logic/Algorithms

The Split Burden functionality uses this logic to calculate its results.

- If the Split Burden calculation option is active, then divide the burden cost between the number of employees clocked into the operation. Burden Hours = Labor Hours/Number of Employees
- Job Estimate and Actual Burden Setup Cost Total = Burden Hours x Costing Setup Burden Rate
- Job Estimate and Actual Burden Production Cost Total = Burden Hours x Costing Production Burden Rate

Example(s)

The following example(s) illustrate how you use the Split Burden functionality.

Two employees clock in an operation at 8:00 and clock out at 12:00. Because the burden cost is divided between these employees, each employee generates 2 hours of burden. This transaction then has a total of 4 burden hours. This value is then multiplied against the resource/resource group burden rate.

Split Manufacturing Cost Elements

Use the Split Manufacturing Cost Elements check box to activate the alternate Split Cost Elements job estimate calculation. This calculation provides more detailed job cost analysis by totaling the costing buckets independently throughout the method of manufacturing on each job.

It then arrives at separate material, labor, burden, subcontract, and material burden (if used) total cost values for the highest level assembly.

In contrast, the default job estimate calculation totals all the costing buckets on each assembly in the material bucket, then adds this material value to the material cost bucket on the next level assembly. This process continues throughout each level in the method of manufacturing.

Any jobs created before you select this check box continue to use the default calculation for job estimates. Any jobs created after you select this check box, however, will use the Split Manufacturing Cost Elements calculation.

Adjustments

You can change the Split Manufacturing Cost Elements modifier using the following options.

- **Split Manufacturing Cost Element**- Select this check box to activate the Split Cost Elements calculation.

Where Located

You can access the Split Manufacturing Cost Elements functionality through the following locations.

Company Maintenance

You select the Split Cost Elements calculation for a specific company within Company Maintenance. To launch this application from the Main Menu:

- System Management/Company

This check box is located on the Modules - Production - Job card.

Job Tracker

You can review more specific job analysis results within the Job Tracker. To launch this application from the Main Menu:

- Production Management/Job Management/Operations
- Production Management/Scheduling/Operations
- Production Management/Material Requirements Planning/Operations
- Production Management/Quality Assurance/Operations
- Material Management/Inventory Management/Operations
- Material Management/Shipping/Receiving/Operations
- Material Management/Purchase Management/Operations
- Material Management/Supplier Relationship Management/Operations

The separate cost results are displayed on the Job Details - Assemblies - Costs card.

Logic/Algorithms

The Split Manufacturing Cost Elements functionality uses this logic to calculate its results.

- Total Material Job Cost = Material Cost Assembly 1 + Material Cost Assembly 2 + Material Cost Assembly 3 + And so on through each assembly within the method.
- Total Labor Job Cost = Labor Cost Assembly 1 + Labor Cost Assembly 2 + Labor Cost Assembly 3 + And so on through each assembly within the method.
- Toal Burden Job Cost = Burden Cost Assembly 1 + Burden Cost Assembly 2 + Burden Cost Assembly 3 + And so on through each assembly within the method.
- Toal Subcontract Job Cost = Subcontract Cost Assembly 1 + Subcontract Cost Assembly 2 + Subcontract Cost Assembly 3 + And so on through each assembly within the method.
- Toal Material Burden Job Cost (If Used) = Material Burden Cost Assembly 1 + Material Burden Cost Assembly 2 + Material Burden Cost Assembly 3 + And so on through each assembly within the method.

Example(s)

The following example(s) illustrate how you use the Split Manufacturing Cost Elements functionality.

Job 5689 has two assemblies. The first level assembly has estimated costs of $10 in material, $15 in labor, and $20 in burden. The two calculations evaluate these costs differently:

Default Calculation:

- Material: $45
- Labor: $0
- Burden $0

Split Cost Elements Calculation:

- Material: $10
- Labor: $15
- Burden: $20

These estimated costs are then rolled up into the next assembly. The second level assembly has estimated costs of $15 in material, $5 in labor, and $35 in burden. These two calculations evaluate these costs as follows:

Default Calculation:

- Material: $100 (45 + 55)
- Labor: $0
- Burden: $0

Split Cost Elements Calculation:

- Material: $25 (10 + 15)
- Labor: $20 (15 + 5)
- Burden: $55 (20 + 35)

The separate cost amounts are displayed within the Job Details - Assemblies - Costs card within the Job Tracker. However notice that the total estimated cost for the job is the same -- $100.

Split Quantity

A Split Job modifier, use the Split Quantity field to define the quantity that you wish to divide from the original job quantity. Enter a numeric value in this field.

Note that this value must be smaller than the original job quantity.

Adjustments

You can change the Split Quantity modifier using the following options.

- **Split Quantity**- You enter a numeric value in this field.

Where Located

You can access the Split Quantity functionality through the following locations.

Job Entry

Split Job Entry is a application launched from the Actions menu within Job Entry. To launch Job Entry from the Main Menu:

- Production Management/Job Management/General Operations

To launch Split Job Entry from the Actions menu:

- Actions Menu--Job--Split Job

Logic/Algorithms

The Split Target Options functionality uses this logic to calculate its results.

Create a demand link on the new job based on the split job target option.

Example(s)

The following example(s) illustrate how you use the Split Target Options functionality.

You create Job 4872 for Part 56Y092A, a clamp used to attach boat motors to the sides of fishing boats. It is January, and you would like to manufacture additional part quantities to have on hand during the busy spring season. The current sales order is for 100 parts.

You decide to double this production quantity to 200. You enter these values within Job Entry, and you then select the Split Job command from the Actions menu. You click the Next Job button to create a new identifier for the split job. In this example, Job 4873 is displayed. You then select the Stock radio button. This indicates that the split job has a stock demand link. Lastly, you enter the Split Quantity, which is a 100 quantity value. You then click Save.

Both Job 4872 and Job 4873 are now within your database. Each can be scheduled separately, and their cost amounts reflect the new quantities (100 and 100) that you defined for each job.

Split Target Options

A Split Job modifier, select an option to define the demand link on the new job. You can create a target demand link for stock, an order release, or another job.

If you select the Job Material option, you must define the Job, Assembly, and Material that you want to receive the new quantity.

Adjustments

You can change the Split Target Options modifier using the following options.

- **Split Target Option**- The available options are:
  - Order Release (Make to Order Demand Link)
  - Stock (Make to Stock Demand Link)
  - Job Material (Make to Job Demand Link)

Where Located

You can access the Split Target Options functionality through the following locations.

Job Entry

Split Job Entry is a application launched from the Actions menu within Job Entry. To launch Job Entry from the Main Menu:

- Production Management/Job Management/General Operations

To launch Split Job Entry from the Actions menu:

- Actions Menu--Job--Split Job

Logic/Algorithms

The Split Target Options functionality uses this logic to calculate its results.

Create a demand link on the new job based on the split job target option.

Example(s)

The following example(s) illustrate how you use the Split Target Options functionality.

You create Job 4872 for Part 56Y092A, a clamp used to attach boat motors to the sides of fishing boats. It is January, and you would like to manufacture additional part quantities to have on hand during the busy spring season. The current sales order is for 100 parts.

You decide to double this production quantity to 200. You enter these values within Job Entry, and you then select the Split Job command from the Actions menu. You click the Next Job button to create a new identifier for the split job. In this example, Job 4873 is displayed. You then select the Stock radio button. This indicates that the split job has a stock demand link. Lastly, you enter the Split Quantity, which is a 100 quantity value. You then click Save.

Both Job 4872 and Job 4873 are now within your database. Each can be scheduled separately, and their cost amounts reflect the new quantities (100 and 100) that you defined for each job.

Standard Costs

A Cost Adjustment modifier, use these five fields to change the unit cost values for the current part. These fields modify values calculated using the Standard costing method.

You can modify the part's standard unit cost for labor, burden, material, subcontract, and/or material burden.

Adjustments

You can change the Standard Costs modifier using the following options.

- **Unit Burden**- This field defines the standard unit cost for this part's overhead expenses. You enter a numeric value in this field.
- **Unit Labor**- This field defines the standard unit cost for this part's labor expenses. You enter a numeric value in this field.
- **Unit Material**- This field defines the standard unit cost for this part's material expenses.You enter a numeric value in this field.
- **Unit Material Burden**- This field defines the standard unit cost for unallocated expenses placed against the current part's material quantity. You enter a numeric value in this field.
- **Unit Subcontract**- This field defines the standard unit cost used against subcontract operations. You enter a numeric value in this field.

Logic/Algorithms

The Standard Costs functionality uses this logic to calculate its results.

Adjustment Hierarchy

After you save the unit cost changes, the cost adjustment calculation uses the following hierarchy:

1. Remove the original Quantity on-Hand value that uses the old unit costs.
2. Record the new Quantity on-Hand using the new unit costs.

Multiple Warehouses

If the part is stored in two or more warehouses, generate two ADJ transactions for each warehouse that contains the part.

Example(s)

The following example(s) illustrate how you use the Standard Costs functionality.

Part ABC has a quantity on hand of 25 in bin 1, and another 30 in bin 2. The current unit cost is $5.00. If you enter a cost adjustment of $5.25, you will see the following transactions in the Transaction Log:

Part Bin QOH U.Cost

ABC 1 -25 5.00

ABC 1 25 5.25

ABC 2 -30 5.00

ABC 2 30 5.25

Subcontract Operation Field

The Subcontract Operation value can be defined on supplier price lists. This is the operation used for the subcontract services on a quote, job, or part method.

Price breaks for subcontract services are used in PO Entry when you enter a PO line for a job subcontract operation. If the supplier is selected on the subcontract operation and this price list is active, the price breaks defined are used on the subcontract part quantity.

Adjustments

You can change the Subcontract Operation Field modifier using the following options.

- **Subcontract Operation**- Use this list to select from a series of subcontract operation options.

Where Located

You can access the Subcontract Operation Field functionality through the following locations.

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

Supplier Maintenance

You can also create supplier price lists within Supplier Maintenance. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup

- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

You launch the Supplier Price List Maintenance application from the Actions Menu:

- Actions Menu/Price List

Logic/Algorithms

The Subcontract Operation Field functionality uses this logic to calculate its results.

If a subcontract operation is used on a job method and this operation is linked to a supplier price list, use the price breaks on this list against the estimated part quantity.

Example(s)

The following example(s) illustrate how you use the Subcontract Operation Field functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. They also have a price list that defines a $4.00 unit cost for each part quantity over 400, and $2.50 unit cost for each part quantity over a 600 quantity.

Supplier Field

Supplier identifiers are used in two main functions through the costing process. They are used to define the supplier from which you purchase materials or subcontract services.

Supplier identifiers are also used to define the specific supplier for which you are creating a price list.

You create supplier records through the Supplier Maintenance application.

Adjustments

You can change the Supplier Field modifier using the following options.

- **Supplier ID**- Use this modifier to define the identifier for a specific supplier record. Use a meaningful ID, such as initials or the first part of the supplier name. Each identifier is limited to eight characters or less.

Where Located

You can access the Supplier Field functionality through the following locations.

Supplier Maintenance

You enter supplier records through the Supplier Maintenance application. To launch this application from the Main Menu:

- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Financial Management/Accounts Payable/Setup
- Financial Management/Multi-Site/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management/Setup
- Production Management/Quality Assurance/Setup

Supplier Price List Maintenance

Use this application to set up different price lists for different suppliers. These lists can account for different currencies, different situations (for example - promotional, retail, and so forth), or seasons. To launch this application from the Main Menu:

- Material Management/Purchase Management/Setup

You can also launch this application from within Supplier Maintenance:

- Actions Menu/Price List

Logic/Algorithms

The Supplier Field functionality uses this logic to calculate its results.

Example(s)

The following example(s) illustrate how you use the Supplier Field functionality.

The Supplier name is Bearclaw Tech Manufacturing, and they are located in Arizona. You may want to enter a Supplier ID such as BTMAZ to represent the first letters of the Supplier name and the two-letter state designation for their main office location.

Supplier (Debit Memo and Reject Quantity)

A DMR Processing modifier, the Supplier field defines the company associated with this discrepant material. If the DMR was created from a job material or job subcontract operation, the default supplier is pulled from the purchase order linked to the job material or subcontract operation.

Any debit memos you request for this DMR are associated with this supplier. You use this value if you are rejecting a quantity or are requesting a debit memo.

Adjustments

You can change the Supplier (Debit Memo and Reject Quantity) modifier using the following options.

- **Supplier**- You enter the supplier identifier within this field. You can enter this value directly or click the Supplier button to find and select the identifier you need.

Where Located

You can access the Supplier (Debit Memo and Reject Quantity) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Supplier (Debit Memo and Reject Quantity) functionality uses this logic to calculate its results.

If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.

Example(s)

The following example(s) illustrate how you use the Supplier (Debit Memo and Reject Quantity) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. You purchased this part quantity from ABC Metals, and return the rejected material through a Supplier RMA.

You launch DMR Processing and open the DMR record. ABC Metals is selected on the DMR record. Now you click on the Down Arrow next to the New button and select the New Reject Material command. The application opens to the Reject - Detail card.

You enter the Supplier RMA identifier used by the supplier to process the returned materials - 785R. You then enter the 50 value within the Quantity field. You select the Reason for the discrepant quantity - DMR Material Cracks. To complete the transaction, you select the Request Debit Memo check box. This causes the application to create a Debit Memo request for ABC Metals.

Save this DMR to create the Debit Memo request.

Supplier RMA (Reject Quantity)

A DMR Processing modifier, The Supplier RMA field defines the return material authorization (RMA) number received from the supplier. This RMA identifier is attached to this discrepant material.

The supplier uses this identifier to track the return of the discrepant quantity.

Adjustments

You can change the Supplier RMA (Reject Quantity) modifier using the following options.

- **Supplier RMA**- Enter the RMA identifier in this field. You can enter letters or numbers.

Where Located

You can access the Supplier RMA (Reject Quantity) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Supplier RMA (Reject Quantity) functionality uses this logic to calculate its results.

- If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.
- If the material quantity is scrapped, the application removes it from the DMR account and sends it to the Scrap / DMR Write-off Account.

Example(s)

The following example(s) illustrate how you use the Supplier RMA (Reject Quantity) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. You purchased this part quantity from ABC Metals, and return the rejected material through a Supplier RMA.

You launch DMR Processing and open the DMR record. ABC Metals is selected on the DMR record. Now you click on the Down Arrow next to the New button and select the New Reject Material command. The application opens to the Reject - Detail card.

You enter the Supplier RMA identifier used by the supplier to process the returned materials - 785R. You then enter the 50 value within the Quantity field. You select the Reason for the discrepant quantity - DMR Material Cracks. To complete the transaction, you select the Request Debit Memo check box. This causes the application to create a Debit Memo request for ABC Metals.

Save this DMR to create the Debit Memo request.

Unit Cost (Debit Memo)

A DMR Processing modifier, the Unit Cost (Debit Memo) field defines the amount that should be credited to you by the supplier for each unit specified in the Quantity field.

Enter the unit cost you need within this field.

Adjustments

You can change the Unit Cost (Debit Memo) modifier using the following options.

- **Unit Cost**- You enter a numeric value in this field.

Where Located

You can access the Unit Cost (Debit Memo) functionality through the following locations.

DMR Processing

You create and process DMR records through DMR Processing. To launch this application from the Main Menu:

- Production Management/Quality Assurance/Operations

Logic/Algorithms

The Unit Cost (Debit Memo) functionality uses this logic to calculate its results.

If the material quantity is returned to the supplier and debit memo is requested, the application removes the material from the DMR account and sends it to the CA Receiving account.

Example(s)

The following example(s) illustrate how you use the Unit Cost (Debit Memo) functionality.

Your inspectors failed a 50 quantity of 57K-987, a purchased part. You purchased this part quantity from ABC Metals, and you want this supplier to give you a debit memo for this discrepant quantity.

You launch DMR Processing and open the DMR record. Now you click on the Down Arrow next to the New button and select the New Debit Memo command. ABC Metals is selected on the DMR record, so the application opens the Debit Memo card.

You enter the Unit Cost you want credited on this DMR - $200. You then enter the 50 value within the Quantity field. To complete the DMR, you select the Reason for the discrepant quantity - DMR Material Cracks.

Save this DMR to create the Debit Memo request.

Unit Cost (Material Burden)

The material burden cost per unit of each part. Material burden is the cost of unallocated expenses, like freight and import duties, placed against a material quantity.

These are costs that cannot be handled through typical production or purchasing calculations.

These Unit Cost fields, found on quote and job methods, define the estimated material burden cost for each unit of the material on the job or quote method.

This value is calculated using the Material Burden Rate. The default value is pulled from the part record. You can, however, override the rate on a specific method.

Adjustments

You can change the Unit Cost (Material Burden) modifier using the following options.

- **Unit Cost**- You cannot edit this value. If you change the Material Burden Rate on the Material - Detail card, however, the Unit Cost field is updated with the new values.

Where Located

You can access the Unit Cost (Material Burden) functionality through the following locations.

Job Entry

You can override the default material burden percentage on a job method through the Job Details - Materials - Detail and the Job Details - Assemblies - Assembly card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can override the default material burden percentage on a quote method through the Line - Mfg Details - Quote Details - Materials -Details card and the Line - Mfg Details - Quote Details - Assembly - Details card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Part Maintenance

Use this application to define the actual material burden percentage used for each part. This value is the default value displayed on job, quote, and part methods that use this part. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup

- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

Logic/Algorithms

The Unit Cost (Material Burden) functionality uses this logic to calculate its results.

Unit Cost (Material Burden) = Material Burden Rate x Unit Cost (Quantity)

Example(s)

The following example(s) illustrate how you use the Unit Cost (Material Burden) functionality.

You purchase some washers from a manufacturer in another country. This country charges a 2% tariff on all materials that cross its border. You typically purchase a 10 quantity of the washers material (each unit contains a 100 washers), and each unit costs $10.

Job 45632 uses the washer material within its method. This method requires a 1 quantity (unit) of the washer material. Because of the Material Burden Rate entered in this part record, a 2% value is displayed in the Material Burden Rate field. The estimated Unit Cost for material burden on this material detail is $0.20.

Unit Cost (Quantity)

The Unit Cost (Quantity) field is the estimated cost per unit of each part. These fields are used to determine the estimated cost of the material on the job or quote method.

If this part has a part record, the current Average, Standard, Lot, or Last cost value appears by default.

If you are purchasing this material and you have entered supplier price breaks, the unit cost from the effective price break appears by default.

You can override this value, however, on the Assembly-Detail and Material-Detail card on each method.

Adjustments

You can change the Unit Cost (Quantity) modifier using the following options.

- **Unit Cost**- If this part has a record, the default value pulls from the part record or an active price list. If the part does not have a record, however, this field is blank. Regardless, you can enter or override the value in this field.

Where Located

You can access the Unit Cost (Quantity) functionality through the following locations.

Job Entry

You can enter or override the default Unit Cost (Quantity) value on a job method through the Job Details - Materials - Detail and the Job Details - Assemblies - Assembly card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or override the default Unit Cost (Quantity) value on a quote method through the Line - Mfg Details - Quote Details - Materials - Details card and the Line - Mfg Details - Quote Details - Assembly - Details card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

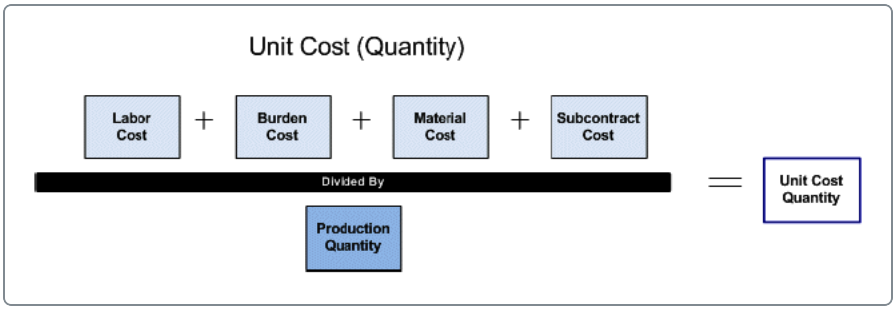
Part Maintenance

Use this application to enter part records for both manufactured and purchased parts. To launch this application from the Main Menu:

- Sales Management/Order Management/Setup
- Sales Management/Product Configuration/Setup
- Material Management/Inventory Management/Setup
- Material Management/Purchase Management/Setup
- Material Management/Supplier Relationship Management/Setup
- Production Management/Job Management folder/Setup
- Production Management/Engineering/Setup
- Production Management/Material Requirements Planning folder/Setup
- Production Management/Quality Assurance/Setup

Logic/Algorithms

The Unit Cost (Quantity) functionality uses this logic to calculate its results.



- If a supplier price list exists and material quantity <= to the Price Break Quantity, use the Unit Cost defined on the price break.
- If the part record exists, use the most recent unit cost from inventory.

Example(s)

The following example(s) illustrate how you use the Unit Cost (Quantity) functionality.

You purchase some washers from a manufacturer in another country. You typically purchase a 10 quantity of the washers material (each unit contains a 100 washers), and each unit costs $10. You enter a price list for this supplier; however, that has an active discount rate of $9 per unit. Because of this, the Unit Cost that displays on all new methods are $9 per unit.

Unit Cost (Subcontract Operation)

You can define the Unit Cost value for a subcontract operation on job, quote, and part methods. This field defines the estimated unit cost for the subcontract operation.

If there is a value in this field, it is used as the estimated unit cost on the purchase order.

Adjustments

You can change the Unit Cost (Subcontract Operation) modifier using the following options.

- **Unit Cost**- Enter the cost per unit that this supplier charges for services on the part quantity. This field is found on subcontract cards within the Engineering Workbench, Job Entry, and Opportunity/Quote Entry.

Where Located

You can access the Unit Cost (Subcontract Operation) functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a subcontract operation. You do this on the Method of Manufacturing -Operations - Subcontract Detail card.

- Production Management/Engineering/General Operations

Job Entry

You can enter or update a subcontract operation method resource group through the Job Details - Operations - Subcontract Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or update a subcontract operation for a quote method through the Line - Mfg Details - Quote Details - Operations -Subcontract Detail card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Unit Cost (Subcontract Operation) functionality uses this logic to calculate its results.

Estimated Subcontract Cost = Unit Cost x Run Quantity

Example(s)

The following example(s) illustrate how you use the Unit Cost (Subcontract Operation) functionality.

You have a contract with Acme Painting Services Ltd., a supplier that specializes in painting parts for manufacturers. This supplier charges a base unit cost of $5.00 for each part under a 100 quantity. You enter 5.00 in the Unit Cost field for all your Paint subcontract operations.

Unit Credit (Salvage)

The Unit Credit field defines the cost per unit credited back to the job for this salvaged part. If the salvaged part has a part record, the Unit Cost value from the part record appears by default.

If you need, however, you can override this value within the method.

The Unit Credit is multiplied by the expected salvage quantity to calculate the total salvage credit amount.

Adjustments

You can change the Unit Credit (Salvage) modifier using the following options.

- **Unit Credit**- Enter a numeric value in that field.

Where Located

You can access the Unit Credit (Salvage) functionality through the following locations.

Engineering Workbench

Use the Engineering Workbench to enter or update a material required on an operation. You do this on the Method of Manufacturing -Materials -Detail card. To launch this application from the Main Menu:

- Production Management/Engineering/General Operations

Job Entry

You can enter or update a material salvage detail on a job method through the Method of Manufacturing -Materials - Material Salvage card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Opportunity/Quote Entry

You can enter or update a material detail on a quote method through the Line - Mfg Details - Quote Details - Materials - Material Salvage card. To launch this application from the Main Menu:

- Sales Management/Quote Management/General Operations

Logic/Algorithms

The Unit Credit (Salvage) functionality uses this logic to calculate its results.

- Expected Salvage Quantity = Required Quantity x Salvage Quantity Per
- Salvage Credit Amount = Expected Salvage Quantity x Unit Credit

Example(s)

The following example(s) illustrate how you use the Unit Credit (Salvage) functionality.

Job 45983 contains a burring operation. This operation requires a 200 quantity of Part 34R-874 to complete. This material is a raw metal, and the burring process creates a quantity of salvageable metal pieces that you can melt down and reuse.

Because of this, you add 34R-875, a Material Salvage part, to the 34R-874 material on the job method. This material has a Salvage Quantity Per value of .05. Because you are using a 200 quantity, you estimate that this operation creates a 10 quantity of the 34R-875 salvageable material.

Use Estimates

The Use Estimates option apportions the actual labor time reported against operations by using the estimated time on each operation.

When an employee clocks into multiple operations on the same resource group at the same time, this functionality uses the estimated hours on each operation to calculate how much actual labor time to place against each operation.

If an employee is clocked into multiple operations within different resource groups -- and one resource group has its Use Estimates check box selected, the application includes the operation estimates when applying labor against each operation.

This check box is available regardless of whether you calculate burden using the Split Burden or Burden = Labor calculation options.

Adjustments

You can change the Use Estimates modifier using the following options.

- **Burden = Labor**- When selected, this calculation option causes the application to multiply the hourly resource/resource group Burden Rate against the number of Labor Hours posted against it on a job operation. This calculation option is useful when an employee clocks into multiple job operations during the same shift. The application tracks each minute that the employee works on each operation, accurately recording the burden (and labor) cost. This value is then multiplied against the burden rate. Note that this option can only be defined for a resource group. You cannot select the Burden = Labor calculation option on a resource. You select this calculation option on the Details card within Resource Group Maintenance.
- **Production Standard**- The estimated production rate for each operation. The standard is used to calculate the total estimated production hours for each operation on a method of manufacturing. You define this value on the Operation - Detail card on quote, part, and job methods.
- **Split Burden**- When selected, this calculation option causes the application to multiply the hourly resource group Burden Rate against the number of Resource Hours posted on a job operation. Typically you use this burden calculation when people are considered resources within the resource group. These people resources are then placed together within, for example, a Welding Center or Assembly resource group. The burden calculation can then account for multiple employees clocked in on the same resource and job operation. For example, if two shop employees clock into the Drill operation at 10:00 and then clock out of the operation at 10:30, 15 minutes of burden are calculated against each employee's time. Note that this calculation option can only be defined for a resource group. You cannot select the Split Burden calculation method on a resource. You select this check box on the Details card within Resource Group Maintenance.

Where Located

You can access the Use Estimates functionality through the following locations.

Resource Group Maintenance

You select the Use Estimates option for a resource group on the Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Logic/Algorithms

The Use Estimates functionality uses this logic to calculate its results.

- Total Estimated Hours = Operation 1 Hours + Operation 2 Hours + Operation 3 Hours + and so on...
- Percentage of Estimated Hours Per Operation = Estimated Hours Per Operation /Total Estimated Hours
- Actual Labor Hours Per Operation = Total Labor Hours x Percentage of Estimated Hours

Example(s)

The following example(s) illustrate how you use the Use Estimates functionality.

P.T. Jones clocks into two operations at the same resource group which has the Use Estimates option selected on its record:

- The first operation has a run quantity of 5 with a production standard of 2 hours per piece for a total of 10 hours of estimated production.
- The second operation has a run quantity of 10 with a production standard of 2 pieces per hour for a total of 5 hours of estimated production.

P.T. Jones works for 9 hours total on both operations. The application apportions the time, assigning 6 hours of labor to the first operation and 3 hours of labor to the second operation.

Use Resource Group Values

The Use Resource Group Values check box indicates that the costing labor and/or burden rates defined on the resource group is used on the resource. Select these options when you want the resource labor and/or burden rates to be the same as the rates defined for the resource group.

When this option is not selected, you can enter different costing labor and/or burden rates on the current resource.

Adjustments

You can change the Use Resource Group Values modifier using the following options.

- **Costing Burden Rate (Setup)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Setup Time against this resource and/or resource group. This is the time it takes to prepare for work on the operation. This rate is measured using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.

- **Costing Labor Rate (Production)**- This value defines the rate at which estimated labor is calculated for Production Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order manufacture part quantities for operations using this resource/resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.
- **Costing Burden Rate (Production)**- This value defines the rate at which both estimated job burden and actual burden are calculated during Production Time against this resource. This is the time it takes to produce part quantities on the operation. This rate is measured by using a flat or a percentage rate. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.
- **Costing Labor Rate (Setup)**- This value defines the rate at which estimated labor is calculated for Setup Time on a resource and/or resource group. This is the rate at which labor is estimated to cost in order to prepare production on operations that use this resource/resource group. This rate is used on job estimates. You can define this value on both the Details card (resource groups) and the Resources - Detail card (resources) within Resource Group Maintenance.

Where Located

You can access the Use Resource Group Values functionality through the following locations.

Resource Group Maintenance

You define burden rates and the calculation options (Burden = Labor or Split Burden) for a resource group on the Detail card. You can then select the Use Resource Group Values check box on each resource Resources - Detail card. To launch this application from the Main Menu:

- Production Management/Job Management/Setup
- Production Management/Engineering/Setup

Logic/Algorithms

The Use Resource Group Values functionality uses this logic to calculate its results.

If the resource does not have a Burden Rate value, it determines whether the Use Resource Group Values check box is selected. If it is, the engine uses the Burden Rate defined on the resource group that contains this resource. If it is not, the engine uses the Burden Rate defined on the resource.

Example(s)

The following example(s) illustrate how you use the Use Resource Group Values functionality.

You are setting up the Drill Center resource group, a group that includes four Drill Machine resources. The four machines are identical, so you want to use the same labor and burden rates used on all of the resources. You select the Use Resource Group Values check box on each Drill Machine resource within this group.

Yield Per

A batch job and multi-part job modifier, you use the Yield Per field to defines how many parts are made when one quantity of the primary part is manufactured. You define this value for each co-part on the batch or multi-part job.

The total part quantities produced is calculated by multiplying each co-part's Yield Per value against the primary part quantity.

Adjustments

You can change the Yield Per modifier using the following options.

- **Yield Per**- You enter a numeric value within this field.

Where Located

You can access the Yield Per functionality through the following locations.

You create batch jobs and multi-part jobs within Job Entry. You do this on the Job > Co-Parts card. To launch this application from the Main Menu:

- Production Management/Job Management/General Operations

Logic/Algorithms

The Yield Per functionality uses the following logic to calculate results:

1. Co-Part Quantity = Primary Part Quantity x Yield Per
2. Total Part Quantity = Primary Part Quantity + Co-Part Quantity 1 + Co-Part Quantity 2 + Co-Part Quantity 3 and so forth...

Example(s)

The following example illustrates how you use the Yield Per functionality.

You run a molding operation that can manufacture Part A, B, C, D at the same time. To record this within Job Entry, you create Job 1234. You select Part A for the primary part. This part also defines the product group used to classify the job. For every one Part A manufactured, the job make two Part B and two Part C quantities. It also makes 3 Part D quantities. You enter these Yield Per values for each respective part.

The job's Production Standard is 10 pieces per hour. 20 pieces are needed on the job. The total quantities produced through this job are:

- Part A- 20
- Part B- 40

- Part C- 40
- Part D- 60

Costing in Action

This section contains some more in depth examples that explain how the application handles costing.

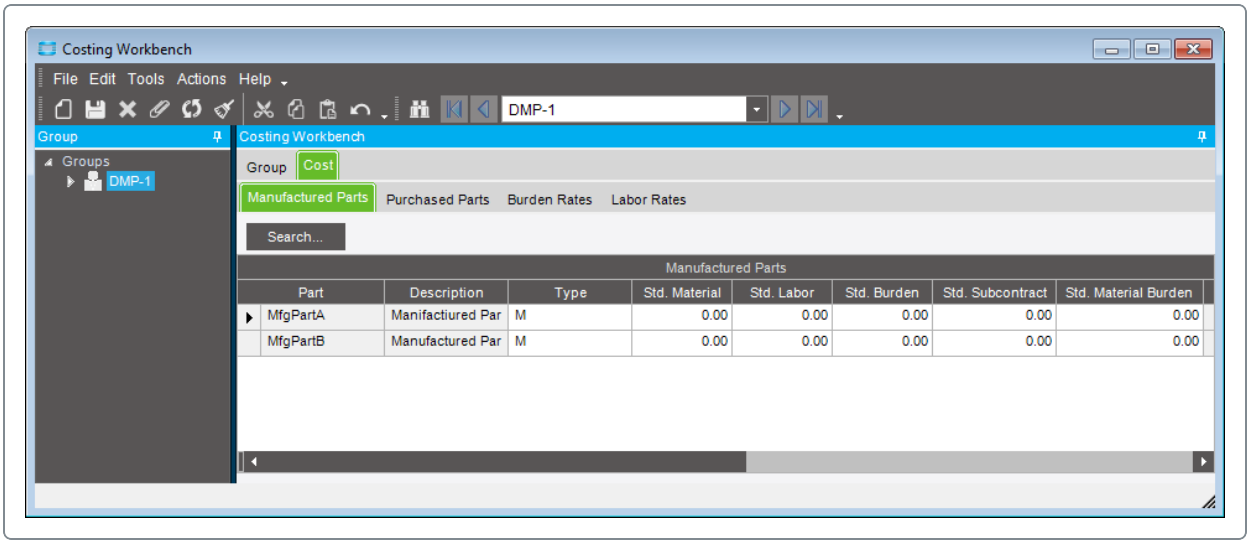
Costing Workbench Example

This example shows you how the Costing Workbench rolls through costs on a method to arrive at a new standard cost for a group of parts. It describes the parts contained within a job method and then shows you this base method in action.

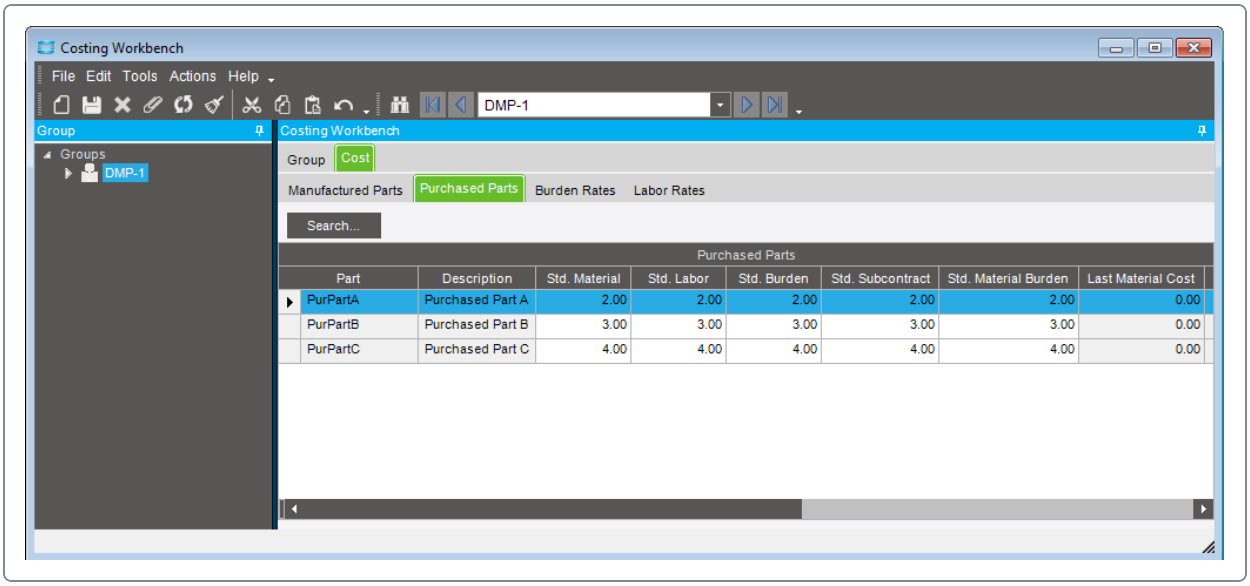
You have a method for Part MfgPartA. This is a method that includes both purchased and manufactured parts to complete its final assembly for MfgPartA. It contains the following parts within its BOM:

- **MfgPartB**- This is a manufactured part that has its own method. It has two component parts:
  - **PurPartA**- This is a purchased part that does not have its own method.
  - **PurPartB**- This is a purchased part that does not have its own method.
  - **PurPartC**- This is a purchased part required for the assembly of MfgPartA. It does not have its own method.

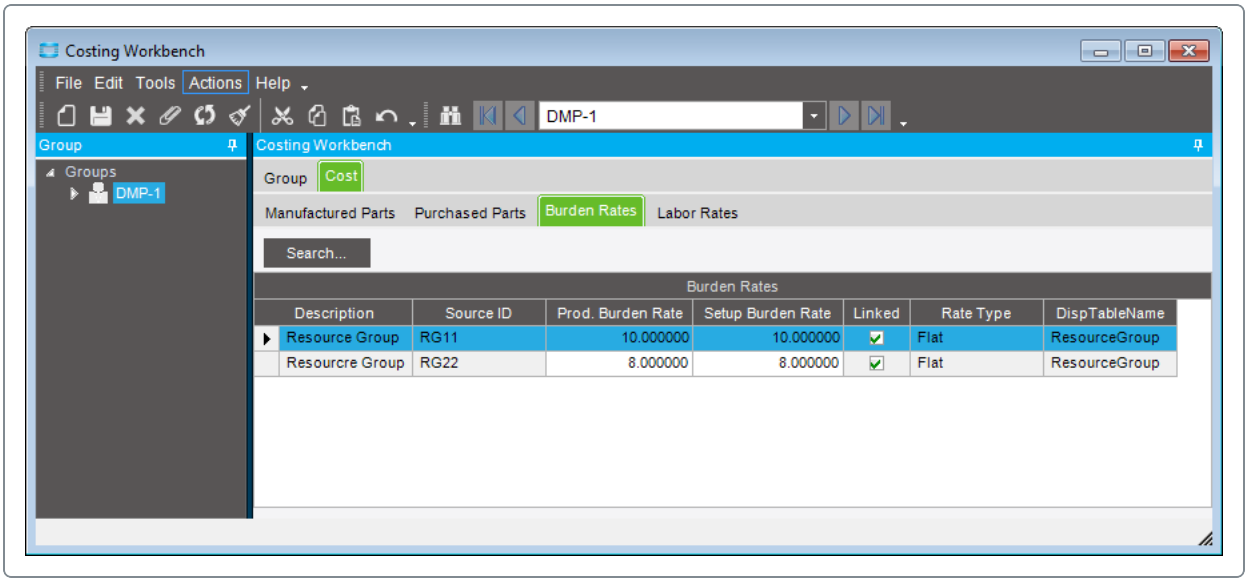
You launch the Costing Workbench and load in MfgPartA. You click on the Manufactured Parts tab to review the manufactured parts contained within this method:



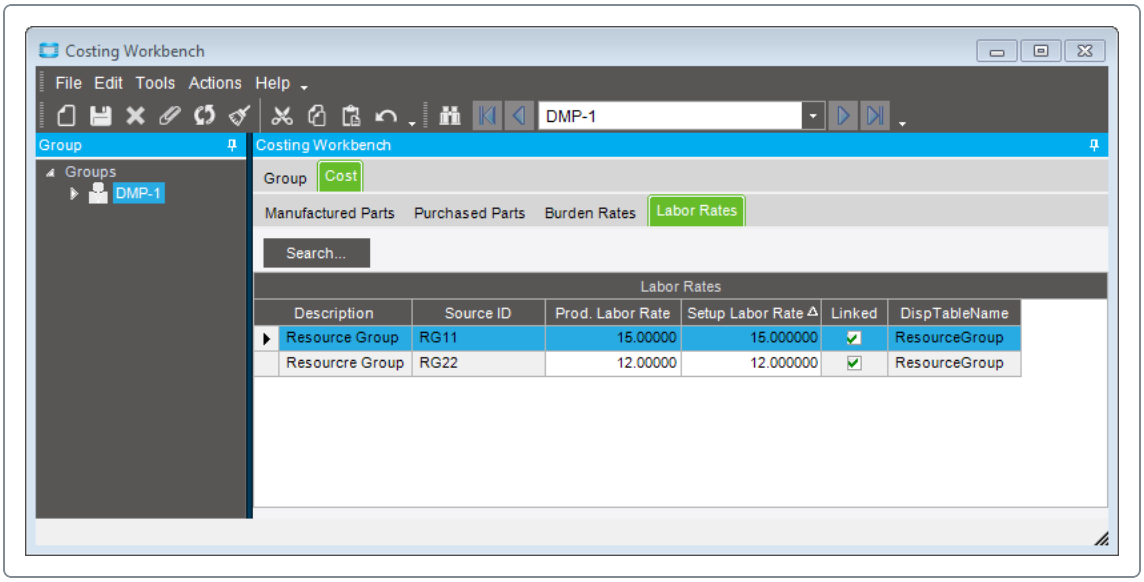
Next, you click on the Purchased Parts tab to review the purchased materials on this method:



Now you click on the Burden Rates tab to review the burden rates pulled in with this method:



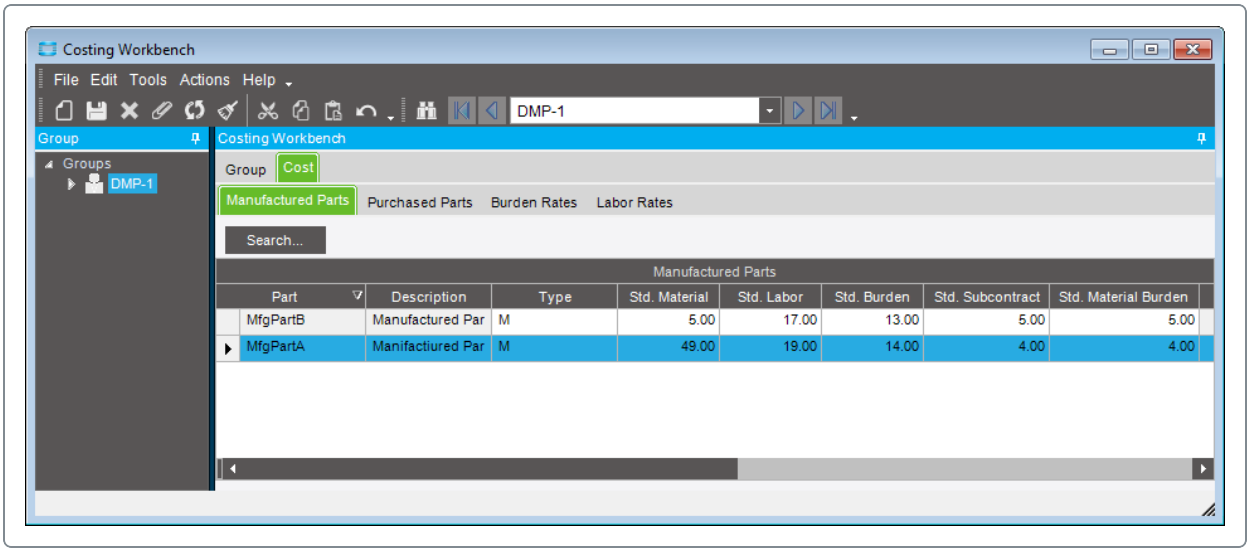
Lastly, you click on the Labor Rates tab to review the labor rates pulled in with this method:



The labor and burden rates are pulled from the resource groups assigned to produce the two manufactured parts. These are the sources for these rates:

- **MfgPartA**- RG11
- **MfgPartB**- RG22

The cost rollup is run. The new manufacturing costs are generated:



MfgPartB Calculation

1. The costs of PurPartA and PurPartB are totaled into the Material cost category, or bucket.
2. The Labor Rates for RG22 are calculated against the Labor Hours required to assemble MfgPartB. This cost is placed within the Labor bucket.

3. The Burden Rates for RG22 are calculated against the Burden Hours required to assemble MfgPartB. This cost is placed within the Burden bucket.
4. The Subcontract Cost is calculated against the subcontract quantity sent to the supplier. This cost (5) is placed within the Subcontract bucket.
5. The Material Burden Cost is calculated against the Unit Cost of the MfgPartB. This cost (5) is placed within the Material Burden bucket.
6. All of these costs are added together (5 + 17 + 13 + 5 + 5 = 45), or rolled up, into the total cost of MfgPartB.

MfgPartA Calculation

1. The total cost of MfgPartB (45) are rolled up in the Material bucket of MfgPartA.
2. The cost of PurPartC is totaled and also placed within the Material bucket for MfgPartA. This calculation is 45 +4 = 49.
3. The Labor Rates for RG11 are calculated against the Labor Hours required to assemble MfgPartB. This cost (19) is placed within the Labor bucket.
4. The Burden Rates for RG11 are calculated against the Burden Hours required to assemble MfgPartB. This cost (14) is placed within the Burden bucket.
5. The Subcontract Cost is calculated against the subcontract quantity sent to the supplier. This cost (4) is placed within the Subcontract bucket.
6. The Material Burden Cost is calculated against the Unit Cost of the MfgPartB. This cost (4) is placed within the Material Burden bucket.
7. All of these costs are added together (49 + 19 + 14 + 4 + 4 = 80), or rolled up, into the total cost of MfgPartA.

Costing with Rework Example

This example shows you have costing affects the final transaction when rework in involved in the job process.

You have a job that is intended to produce 95 pieces that includes three subassemblies. The first 90 pieces are produced correctly, however the final five of the pieces of this job were not. This meant a substantial amount of re-work was required for the final five pieces.

These 95 pieces were then received to stock through Manufacturing to Stock receipts. The first 94 pieces are entered in at a consistent unit cost. The unit cost of the final piece enters in at a higher value. The reason for the final piece being entered at a higher unit costs is because it is the final transaction. The last transaction will take the total costs of the job and subtract out the costs of the previous receipts to calculate the unit cost of the last transaction. This unit costs will include all the scrap and over\under labor reporting. This is to ensure that nothing is left in WIP.

The outcome of this on unit costs of the 95 pieces is that 94 of the pieces will be at relatively consistent prices whilst the final piece enters into stock at a higher, more exaggerated unit cost price.