



Microsoft Dynamics® GP  
**Manufacturing Production Functions**

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# Introduction

You can use Manufacturing to organize and track the daily workings of the manufacturing process, such as taking orders, purchasing raw materials, building finished goods, fulfilling orders, and selling the finished goods.

This introduction is divided into the following sections:

- [Manufacturing documentation](#)
- [What's in this manual](#)
- [Symbols and conventions](#)
- [Resources available from the Help menu](#)
- [Send us your documentation comments](#)

## Manufacturing documentation

Manufacturing documentation is divided into five manuals. Refer to the following table for an overview of what is included in each of the manuals.

Manual	Modules or other major pieces
Manufacturing Setup manual	System setup User setup
Manufacturing Core Functions manual	Manufacturing Cards Extensions to Inventory Control Bills of Materials Extensions to Sales Order Processing Sales Configurator Manufacturing Reports
Manufacturing Production Functions manual	Routings Manufacturing Orders Outsourcing Work in Process
Manufacturing Management Functions manual	Quality Assurance Engineering Change Management Job Costing
Manufacturing Planning Functions manual	Sales Forecasting Master Production Scheduling Capacity Requirements Planning (CRP) Material Requirements Planning (MRP)

The online help file includes all of the information in the manuals, except installation information. The online help also includes field-by-field descriptions of the windows. You can access online help by pressing F1 whenever a Manufacturing window is active, or by choosing Help >> About this window.



*If a Microsoft Dynamics® GP window—such as the Sales Transaction Entry window—is the active window when you access help, online help for Microsoft Dynamics GP will be displayed. You can close that help, open any Manufacturing window, and try again to access Manufacturing-specific help.*

## What's in this manual

This manual is designed to give you an understanding of how to use the features of Manufacturing, and how it integrates with the Microsoft Dynamics GP system.

To make best use of Manufacturing, you should be familiar with systemwide features described in the System User’s Guide, the System Setup Guide, and the System Administrator’s Guide.

Some features described in the documentation are optional and can be purchased through your Microsoft Dynamics GP partner.



To view information about the release of Microsoft Dynamics GP that you’re using and which modules or features you are registered to use, choose Help >> About Microsoft Dynamics GP.

The manual is divided into the following parts:

- [Part 1, Routings](#), includes information about setting up and using routings to describe the production tasks that must be done to build your products.
- [Part 2, Manufacturing Order Processing](#), describes how you can create, schedule, and close manufacturing orders. Information about rescheduling single orders or batches of orders also is included.
- [Part 3, Outsourcing](#), describes how to create and work with manufacturing orders that include outsourced sequences. Information about special rules that apply with outsourced manufacturing orders is included, along with information about entering shipping and purchasing information.
- [Part 4, Work In Process](#) includes information about entering information about machine and labor time for manufacturing orders.

## Symbols and conventions

For definitions of unfamiliar terms, see the glossary in the manual or refer to the glossary in Help.

Symbol	Description
	The light bulb symbol indicates helpful tips, shortcuts and suggestions.
	The warning symbol indicates situations you should be especially aware of when completing tasks.

This manual uses the following conventions to refer to sections, navigation and other information.

Convention	Description
<i>Creating a batch</i>	Italicized type indicates the name of a section or procedure.
File >> Print or <b>File &gt; Print</b>	The (>>) or (>) symbol indicates a sequence of actions, such as selecting items from a menu or toolbar, or pressing buttons in a window. This example directs you to go to the File menu and choose Print.
TAB or ENTER	All capital letters indicate a key or a key sequence.

## Resources available from the Help menu

The Microsoft Dynamics GP Help menu gives you access to user assistance resources on your computer, as well as on the Web.

### Contents

Opens the Help file for the active Microsoft Dynamics GP component, and displays the main “contents” topic. To browse a more detailed table of contents, click the Contents tab above the Help navigation pane. Items in the contents topic and tab are arranged by module. If the contents for the active component includes an “Additional Help files” topic, click the links to view separate Help files that describe additional components.

To find information in Help by using the index or full-text search, click the appropriate tab above the navigation pane, and type the keyword to find.

To save the link to a topic in the Help, select a topic and then select the Favorites tab. Click Add.

### Index

Opens the Help file for the active Microsoft Dynamics GP component, with the Index tab active. To find information about a window that’s not currently displayed, type the name of the window, and click Display.

### About this window

Displays overview information about the current window. To view related topics and descriptions of the fields, buttons, and menus for the window, choose the appropriate link in the topic. You also can press F1 to display Help about the current window.

### Lookup

Opens a lookup window, if a window that you are viewing has a lookup window. For example, if the Checkbook Maintenance window is open, you can choose this item to open the Checkbooks lookup window.

### Show Required Fields

Highlights fields that are required to have entries. Required fields must contain information before you can save the record and close the window. You can change the font color and style used to highlight required fields. On the Microsoft Dynamics GP menu, choose User Preferences, and then choose Display.

### Printable Manuals

Displays a list of manuals in Adobe Acrobat .pdf format, which you can print or view.

### What’s New

Provides information about enhancements that were added to Microsoft Dynamics GP since the last major release.

### Microsoft Dynamics GP Online

Opens a Web page that provides links to a variety of Web-based user assistance resources. Access to some items requires registration for a paid support plan.

## Customer Feedback Options

Provides information about how you can join the Customer Experience Improvement Program to improve the quality, reliability, and performance of Microsoft® software and services.

## Send us your documentation comments

We welcome comments regarding the usefulness of the Microsoft Dynamics GP documentation. If you have specific suggestions or find any errors in this manual, send your comments by e-mail to the following address: [bizdoc@microsoft.com](mailto:bizdoc@microsoft.com).

To send comments about specific topics from within Help, click the Documentation Feedback link, which is located at the bottom of each Help topic.

*Note: By offering any suggestions to Microsoft, you give Microsoft full permission to use them freely.*





# Part 1: Routings

This part of the documentation includes information that will help you create and maintain routings. You can refer to this information for instructions on modifying or viewing existing entries.

You need to define at least one routing for a manufactured item before you can begin work with manufacturing orders for the item.

The following information is discussed:

- [Chapter 1, “Routings overview,”](#) provides basic information about routings, such as common terms and concepts.
- [Chapter 2, “Routing entry,”](#) describes how to create routings. Information about special situations and uses—such as pointer routings and parallel routing sequences—also is included.
- [Chapter 3, “Links to bills of materials,”](#) contains information about linking routing sequences and bills of materials requirements.
- [Chapter 4, “Routing queries and utilities,”](#) includes information about how you can search through routing records.
- [Chapter 5, “Pointer routings,”](#) describes pointer routings and explains how you can use them in your business.



# Chapter 1: Routings overview

Bills of materials are lists of items and parts required for creating a product, and routings are the instructions that tell you how to combine those items. Routings provide information about how a product moves through your manufacturing plant, from raw materials through the initial, intermediate, and final processes.

Manufacturing provides many ways to work with routings and includes features for dealing with special cases. You can create, copy, change, and delete routings, link them to bills of materials, and print them in various formats for distribution among employees. New routings can be created by copying sequences from existing routings—or by deleting sequences from existing routings. You also can search through routing information to perform analyses of production requirements.

This information is divided into the following sections:

- [Routing terms](#)
- [Types of routings](#)
- [Before you begin](#)

## Routing terms

Several terms specific to routings are used to describe applications in Manufacturing. You can use the following information for reference.

**Routing** A routing is a complete set of instructions describing how to create a particular item and include operations to be performed, the scheduling sequence, the machines, and work centers involved, and the hours required for setup and cycle times. In some companies, routings also include information such as tooling, operator skill levels, inspection needs, and testing requirements. Routings are also known as bills of operations, instruction sheets, manufacturing data sheets, operation charts, operation lists, operations sheets, and routing sheets.

**Sequence number** An alphanumeric sequence number is assigned to each step in the routing and controls the order in which steps are completed. Each step represents an operation or task in the manufacturing process. Assigning sequence numbers in large increments lets you add new steps without renumbering the sequences. Common increments would be ten units or 100 units, such as 10, 20, 30, or 100, 200, 300. However, you can renumber routings, as needed.

**Operation code** An operation code—or “op code”—is a code assigned to a particular task within the manufacturing process. For example, if a company makes electrical components, the operation code for testing a certain characteristic might be 110. In all routings that include the test for that characteristic, 110 would appear as the operation code for the test.

Refer to [Chapter 3, “Operations,”](#) in the Manufacturing Core Functions documentation for more information about operation codes.

**Header record** A header record is the information that links the sequences of a routing together. That information can include the routing name and type, and its status as a primary or alternate routing.

**Parallel routing sequences** Parallel routing sequences are sequences that can happen concurrently. For example, a manufacturer might have one production line that produces small engines and another that produces the chassis that the engines are put into. The manufacturing processes for the two lines can run concurrently to the point when the engines are placed in the chassis, shortening the overall manufacturing lead time.

## Types of routings

There are several types of routings you can define for your organization. Some routing types are based on the status of the routing—whether or not the routing can be used in production. Other types are based on special attributes, such as whether or not a routing is the primary routing for a manufactured item. Still other types refer to special kinds of routings that can help you define routings for complex procedures.

### Routing types

You can define planning routings that become manufacturing (or “active” or “working”) routings as you use them in manufacturing orders.

**Planning routing** When you define a routing to estimate resource requirements, you’re creating planning routings. A planning routing isn’t tied to a specific manufacturing order. Each item number can have several planning routings.

**Manufacturing (or “active” or “working”) routing** When you’re ready to build products, you can specify the planning routing to use for each manufacturing order. A manufacturing routing is a copy of a planning routing made when you create the manufacturing order. (This will become more important later, when you need to update routings. Then you’ll need to determine if you need to update the planning routing, the manufacturing routing—or both.) You might use several manufacturing routings to build the same product, but there can be only one manufacturing routing for each manufacturing order.



Refer to [Chapter 9, “Routings and rescheduling,”](#) for more information about working with manufacturing order routings.

### Planning routing status types

When you define a planning routing, you can assign it a routing type. You must assign a Released type to a routing to use the routing in production. The other routing types—Archived, Not Released, and On Hold—are only informational.

**Archived** You might set the routing type to Archived when a routing becomes obsolete. That way, you can save the information in the routing but are ensured that the routing won’t be used in production.

**Not Released** You might set the type of a routing to Not Released when the routing is still being created. Prototype projects might use the Not Released routing type.

**On Hold** If you need to temporarily suspend the use of a routing, set the routing type to On Hold.

**Released** Choose Released for all routings that might be used in production.

## Specially designated routings

All planning routings are either primary routings or alternate routings. Each manufactured item can have only one primary routing, but you can define as many alternate routings for each item as you like.

**Primary routing** If you define multiple planning routings for an item, one of them must be the primary routing. Information from the primary planning routing is used for scheduling and resource requirements calculations. The primary planning routing also determines the manufacturing lead time for an item. Each item number can have only one primary routing.

**Alternate routing** If you define multiple planning routings for an item, all the routings except the primary routing are alternate routings. You can use alternate routings for manufacturing routings. Each item number can have multiple alternate routings.

## Pointer routings

You can define pointer routings—series of sequences that are common to several planning routings. A pointer routing describes how to complete processes that are common to all items. For example, if each item requires a quality assurance inspection and then packaging, you can create a pointer routing for these steps.



Refer to [Chapter 4, “Routing queries and utilities,”](#) for more information about creating and using pointer routings.

## Before you begin

Before you begin creating routings, be sure you’ve created work centers and operation codes, and defined at least one made item.



## Chapter 2: Routing entry

Use the Routing Sequence Entry window to create routings that specify the steps needed to build your products. You can create multiple routings for your products. This makes it easy for you to choose the appropriate routing for different manufacturing situations; for instance, you might use one routing for small manufacturing orders and another routing for large manufacturing orders.

The routings you define are planning routings—they aren't linked to specific manufacturing orders, but are used to estimate resource requirements. Later on, when you create manufacturing orders, you can specify the planning routing to use for each manufacturing order. After a routing is linked to a manufacturing order, a copy of that routing becomes your manufacturing routing.

This information is divided into the following sections:

- [Overview of Routing Sequence Entry window](#)
- [Creating a routing header record](#)
- [Creating routing sequences](#)
- [Parallel routing sequences](#)
- [Verifying parallel routing sequences](#)
- [Attaching a drawing to a sequence](#)
- [Viewing a drawing linked to a routing](#)
- [Types of routing modifications](#)
- [How routing records are updated](#)
- [Changing routing sequence information](#)
- [Deleting a single sequence from a routing](#)
- [How routings are scheduled](#)
- [Viewing a routing](#)

### Overview of Routing Sequence Entry window

You'll use the Routing Sequence Entry window to enter and modify the routing sequences that comprise a routing. Depending on your business practices, you might not need to use all the areas of the window.



*The Routing View Closeup window is similar to the Routing Sequence Entry window, except that you can use the Routing View Closeup window only to view information. You can refer to this information for an overview of what is displayed.*

Refer to the table for a summary of the areas of the window.

Region name	Explanation	Resources
Header Information	Includes the Item Number and Routing Name fields. Required for all routings.	<a href="#">Creating a routing header record</a> on page 14
Sequence Information	Includes fields for entering the Sequence Number and the Work Center ID, which are required for all routing sequences.	<a href="#">Creating routing sequences</a> on page 15
	Other fields are needed only if the routing includes outsourcing sequences.	<a href="#">Creating a routing sequence for outsourcing</a> on page 180

Region name	Explanation	Resources
Time and Costing	Includes fields used to calculate the cost of a manufacturing order. You can use them to estimate manufacturing order costs. These fields aren't required unless you're creating a sequence for outsourced services.	<a href="#">Creating routing sequences</a> on page 15
Scheduling Information	Includes fields that you'll need only if you're using parallel sequences, or if you need to ensure that a certain sequence is the last scheduled sequence for the day.	<a href="#">Parallel routing sequences</a> on page 18
Other	Includes fields—all optional—for attaching an electronic file to a sequence, designating a sequence as a QA sequence, or setting backflushing options.	<a href="#">Attaching a drawing to a sequence</a> on page 19 <a href="#">Viewing a drawing linked to a routing</a> on page 20
Update on Save Options	Includes fields you can use to determine how routing records are updated when changes are made.	<a href="#">How routing records are updated</a> on page 21

## Creating a routing header record

Each routing you create will have at least two parts—a header record, and one or more sequences. You must first create a header routing, and then create the sequences that are attached to it.

### To create a routing header record:

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)

The screenshot shows the 'Routing Sequence Entry' window with the following data:

Section	Field Name	Value
Header Information	Item Number	FINISHED GOOD
	Routing Name	AUTOMATED
Sequence Information	Sequence Number	100
	Description	Setup
	Work Center ID	WC1
	Vendor ID	
	Work Center Opcode	100
	PO Release Offset Days	0
	WIP Output per MQ Start Quantity	1
Time and Costing	Setup Time	1.50000
	Setup Labor Code	SLC1
	Labor Time	0.00000
	Labor Code	SLC1
	No. of Emps./Crews	0
Scheduling Information	No. of Machines	0
	Machine Time	0.00000
	Machine ID	
	Queue Time	0.00000
	Move Time	0.00000
Other	QA Sequence	<input type="checkbox"/>
	Auto-Backflush Labor	<input type="checkbox"/>
Update on Save Options	Auto-Backflush Machine	<input type="checkbox"/>
	Active Routing	<input type="checkbox"/>
Run Time	Run Time for one piece	3.00000
	Time for every additional piece	1.50000

- Click the Item Number link to open the Routing Header Creation window.

- Enter or select an item number and routing name.



If you're using Engineering Change Management, a message might appear if the item record is being changed. Refer to [Handling ECM notifications in other modules in Chapter 10, "Engineering change inquiries,"](#) in the *Manufacturing Management Functions* documentation for more information about these notifications.

- You can enter a revision level, if needed. The field is only informational and won't be updated automatically if you change the routing record.
- If the routing will be the primary routing for the item, mark Primary Routing. You must specify a primary routing to calculate manufacturing lead times, MRP, and capacity requirements. Primary routings also are used to calculate the standard cost of made items.

You can designate only one primary routing for each manufactured item. Any routing that isn't a primary routing automatically will be an alternate routing.

- Select the routing type. Several options are available, but only released routings can be used for manufacturing orders. Routing types include:

**Archived** Routings that are obsolete.

**Not Released** Routings that aren't yet ready for use in production.

**On Hold** Routings that have been temporarily suspended.

**Released** Routings that might be used in production.

- Choose Save and close the window.

## Creating routing sequences

Use the Routing Sequence Entry window to define one or more sequences for a routing.



You must define a routing header record before creating sequences. Refer to [Creating a routing header record](#) on page 14 for more information.

You also can use the Routing Sequence Entry window to define sequences for outsourced services. Refer to the following topics for more information about sequences for outsourced services:

- [Rules for outsourcing routing sequences](#) on page 180
- [Creating a routing sequence for outsourcing](#) on page 180
- [Entering work in process output for outsourcing](#) on page 182

## To create routing sequences:

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)

2. Enter a sequence number.



*To add descriptive information about a sequence, choose the note button.*

3. Enter or select the work center where the sequence will take place.

Refer to [Chapter 2, “Work centers,”](#) in the Manufacturing Core Functions documentation for information about work centers.

4. You can enter or select the operation code—or “op code”—for this sequence. When you choose the lookup button on the Work Center Opcode field, only operations that have been linked to the work center will be available.

Refer to [Chapter 3, “Operations,”](#) in the Manufacturing Core Functions documentation for information about operations.

5. You can mark options to have machine and labor costs backflushed for this sequence.

If you choose to backflush those costs, you won’t enter machine and labor data collection information. Instead, machine and labor time based on entries in this window automatically will be applied to the manufacturing order when you receive finished goods or close the manufacturing order. Refer to [How backflushed machine and labor amounts are calculated](#) on page 164 for more information.



*Backflushing options are particularly important if you’re using the routing for quick manufacturing orders. Refer to [Quick manufacturing orders](#) on page 103 for more information.*

6. You can mark QA Sequence if the sequence is an inspection or testing step. Marking the option is only informational and doesn’t affect any processing or transactions.



7. Enter time and labor code information.



*If you're using outsourcing and are using one of the labor cost buckets to track outsourcing costs, you must select an outsourcing labor code. Refer to [Creating a routing sequence for outsourcing](#) on page 180.*

8. Enter the number of employees or crews needed for the sequence. The number is only informational, and isn't used when manufacturing orders are scheduled or when capacity requirements are calculated.
9. Enter or select the machine ID required for this sequence.



*If you're using outsourcing and are using one of the machine cost buckets to track outsourcing costs, you must select a machine ID that has been set up for outsourcing. Refer to [Creating a routing sequence for outsourcing](#) on page 180.*

10. Enter information about the estimated time required for the sequence. Time information includes:

**Queue Time** The number of hours the item must wait before work on the sequence can begin.

**Move Time** The number of hours needed to move the item to the next work center.

**Cycle Time** The number of hours needed to make one unit of the item, not including setup time.



*Refer to [How routings are scheduled](#) on page 23 for more information about how manufacturing lead times are calculated.*

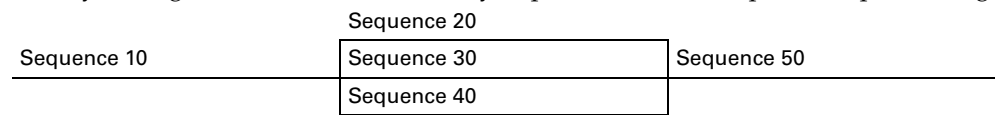
11. If you choose to have the next sequence begin after a certain number of units or a certain percentage of units are through the current sequence, enter either the quantity or the percentage that must to be completed. If you leave this field blank, the next sequence will begin when this sequence is complete for the entire order quantity.
12. If another sequence can run simultaneously with this one, enter that sequence number in the Concurrent Sequence field. Refer to [Parallel routing sequences](#) on page 18 for more information about parallel routing sequences.
13. Enter the number of the next sequence, if needed. Each routing must have at least one sequence, but you can add as many sequences to a routing as you like.
14. Mark the Last sequence scheduled for a day option if, at the end of the day, no other sequences should be completed.
15. Choose Save.
16. To continue adding sequences to the routing until all the sequences needed to complete the product have been entered, repeat steps 2 through 15, as needed, and save each sequence.

After you've added all the sequences for a routing, you can use the MFG/Lead Times window to calculate the amount of time needed to build one unit of the finished good, or you can use the Calculate Manufacturing Lead Times window to calculate the amount of time needed to build the average quantity of the finished good. Refer to [Calculating lead time for an item unit](#) and [Calculating lead time for quantities](#), both in [Chapter 8, "Item engineering data,"](#) in the Manufacturing Core Functions documentation.

If any of the sequences in the routing are for outsourced services, refer to [Creating a routing sequence for outsourcing](#) on page 180 for more information.

## Parallel routing sequences

You can create routings so sequences run concurrently. Following is an example of how you can use parallel routing sequences to set up product manufacturing to make your organization run as efficiently as possible. For example, a simple routing



might include three sequences that will run simultaneously. When you define these sequences, use the following sequence setup:

Setup for sequence ...	Concurrent sequence	Next Run sequence
10	–	20 (default)
20	30	50
30	40	50
40	20	50
50	–	–

This type of setup creates a closed loop in the three parallel sequences: Sequence 20 points to Sequence 30; Sequence 30 points to Sequence 40; and Sequence 40 points back to Sequence 20. In this example, Sequence 50—sometimes called the exit sequence—is the first sequence after the simultaneous sequences. This closed-loop structure must be achieved whenever you use parallel routings.



*When you use parallel routings, the entries you make in the Concurrent and Next Run Sequence fields override the entries in the Percent Next Start or Quantity Next Start fields in the Routing Entry window.*

Here are some tips for creating parallel routings:

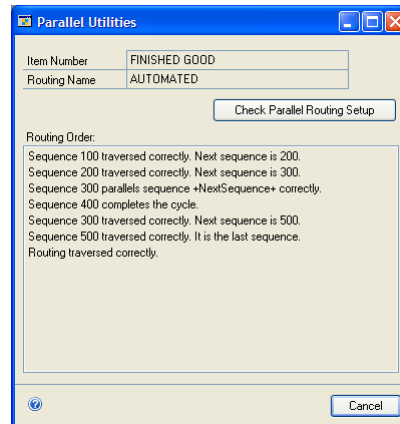
- Use the simplest routing structure you can.
- It's a good idea to draw complex routings on paper and check for unclosed loops or missing exit sequences.
- All parallel sequences must share an exit sequence. A sequence with a "0" cycle time can be defined for this, if needed.
- Use the Parallel Routings Utility to check your simple parallel routings. Refer to [Verifying parallel routing sequences](#) for more information.

## Verifying parallel routing sequences

If you've created a routing that includes parallel routing sequences, you can use the Parallel Utilities window to verify that the routing was properly defined.

### To verify parallel routing sequences:

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)
2. Enter or select a routing that includes parallel sequences.
3. From the Go To button, choose Parallel Utilities to open the Parallel Utilities window.



4. Choose Check Parallel Routing Setup. Information about the routing will be displayed in the window. If problems with the routing were identified, you can change the routing and then use this utility again to check the routing.
5. When you've finished reviewing information in the window, close the window.

## Attaching a drawing to a sequence

You can attach electronic drawings, prints, or schematics to sequences. You can attach CAD drawings that show dimensions, or even .AVI or .MPG movies of the proper procedure for completing a task.



*Before you attach a drawing to a sequence, use the Drawings window to define a drawing group and its drawings. Refer to [Chapter 4, "Drawings"](#) in the Manufacturing Core Functions documentation for more information.*

### To attach a drawing to a sequence:

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)
2. Choose the routing that includes the sequence you want to attach a drawing to.
3. Select the sequence.
4. Use the lookup button on the Drawing Group field to open the Drawing Group Lookup window.

5. Select the drawing group that includes the drawing.
6. Choose Save and close the window.

## Viewing a drawing linked to a routing

If a drawing has been attached to a sequence, you can view it through the Routing Sequence Entry window or the Routing View Closeup window. For more information, refer to [Viewing a drawing attached to a record](#) in [Chapter 4, "Drawings,"](#) in the Manufacturing Core Functions documentation.

## Types of routing modifications

Most updates to planning routings can be made in the Routing Sequence Entry window. However, you can change your routings in other ways. For example, you can renumber routing sequences, copy, and delete ranges of routings sequences, and create and use pointer routings. The following information describes which Manufacturing window will work best for making changes to your routing records.

**Header record changes** To change header record information, refer to [Modifying a routing header record](#) on page 38.

**Routing sequence changes** Use the Routing Sequence Entry window to complete these changes:

- Header information
- Sequence description or notes
- Work center IDs
- Work center operation codes
- Drawing groups
- Percent or quantity before next start
- Concurrent or next-run sequences
- Setup, labor, machine, move, queue or cycle hours, or the labor codes or machine IDs associated with them

For more information about completing these changes, refer to [Changing routing sequence information](#) on page 21.

**Special changes** You can make special changes, such as renumbering sequences, using the Routing Edit window. For more information, refer to [Chapter 4, "Routing queries and utilities."](#)

**Manufacturing order routing changes** To change a routing for a current manufacturing order routing without changing a planning routing first, you must use the Manufacturing Order Routing Sequence Edit window. Refer to [Chapter 9, "Routings and rescheduling,"](#) for more information.

**Pointer routings** You also can add a pointer routing to a routing for a manufactured item. A pointer routing is a series of routing sequences that can be easily added to any routing. For example, you could create a pointer routing for final sequences in your manufacturing processes, such as inspecting, labeling, and packaging products. Refer to [Pointer routings](#) on page 41 for more information. Refer to [Adding a pointer routing to a routing](#) on page 43 for more information about adding them to existing routings.

## How routing records are updated

When you change routing sequence information, you should consider how the changes should be reflected throughout your routing records. You can easily determine which routings will—or will not—be affected by a change.

For example, suppose a manufacturer is producing an item that is finished with a varnish coating. The manufacturer has had many complaints that the finish peels and flakes after just a few uses of the product. Then the manufacturer learns that baking the items in a curing oven for an hour solves the varnish problem.

The manufacturer can change the planning routings for the item, but then must decide if all active routings should also be updated. The active routings are the copies of the planning routing that are currently being used in production. In this case, implementing this change quickly is important, so when the routing is changed to add the baking process, the manufacturer can update all active routings.

However, you might not always want to update the active routings. Suppose you plan to install a new piece of equipment next week that will significantly reduce the amount of time needed to process items. You can update the planning routing now, so that all manufacturing orders created from now on will have the new machine time information, but you might not want the active routings to be updated because current equipment—with its slower processes—is still being used for those routings.

For information about how you specify if planning routings, active routings, or both are to be updated, refer to [Changing routing sequence information](#) on page 21.

## Changing routing sequence information

You can use the Routing Sequence Entry window to change the details in any routing sequence. To make extensive changes—such as renumbering or deleting a range of sequences, copying a routing, or changing a pointer routing—refer to [Chapter 4, “Routing queries and utilities.”](#)

### To change routing sequence information:

1. In the navigation pane, choose the Manufacturing button, and then choose the Routings list.
2. Mark an item.
3. Choose Edit to open the Routing Sequence Entry window.
4. Enter or select a routing and make your changes.
5. Mark the Planning Routings option if the changes should affect other planning routings for the same sequence for the same manufactured item.



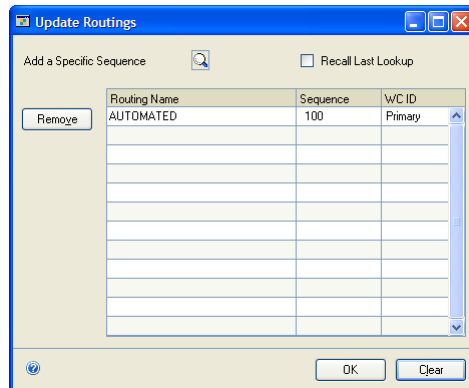
*Marking this option generates a list of candidate routings that can be updated. Later, you can remove routings that shouldn't be updated from the list.*

6. If the changes should affect manufacturing order (active) routings, mark the Active Routing option in the Update on Save Options area.



*Marking this option generates a list of candidate routings that can be updated. Later, you can remove routings that shouldn't be updated from the list.*

7. Choose Save.
8. If you marked the Planning Routing option, you must specify which planning routings should be updated. The Update Routings window opens, and all routings that are for the same manufactured item and that include the sequence that was changed will be displayed.



- To remove a routing from the update list, highlight the routing to be removed in the scrolling window and choose Remove.
- To add other routing sequences, choose the Add a Specific Sequence lookup button. Select a routing that includes a sequence to be included, and then select the sequence in that routing that should be updated. Repeat this step as many times, as needed, until you've identified all routing sequences to be updated. Choose OK.

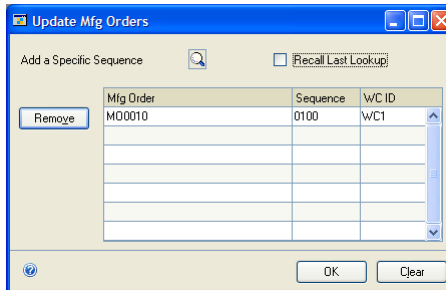


*When you use this method to choose other routing sequences to be updated, the routings don't have to be for the same manufactured item, and the sequences don't have to have the same sequence number.*

- If you marked the Active Routing option, you must specify which active routings should be updated. The Update Mfg Orders window opens, and all active routings will be displayed.



*If your change will affect scheduling, be sure to use the Manufacturing Order Entry window to open each affected manufacturing order and reschedule, as needed.*



- To remove a routing from the update list, highlight the routing to be removed in the scrolling window and choose Remove.
- To add other routing sequences, choose the Add a Specific Sequence lookup button. Select a manufacturing order that includes a routing with a sequence to be included, and then select the sequence in that routing. Repeat this step as many times, as needed, until you've identified all routing sequences to be updated. Choose OK.

- When you've finished, close the window.

## Deleting a single sequence from a routing

You can use the Routing Sequence Entry window to delete routing sequences.



*To delete entire routings or to delete a range of sequences from a routing, use the Routing Delete window. Refer to [Deleting a range of sequences from a routing](#) on page 36 and [Deleting an entire routing](#) on page 37.*

### To delete a single sequence from a routing:

- Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)
- Enter or select the routing that includes the sequence to delete.
- Enter or select the sequence to delete.
- Choose Delete. A message appears. Choose Yes to delete the routing sequence.

## How routings are scheduled

The starting and ending times for a sequence are determined by the entries you make in the Routing Sequence Entry window. The following formula is used:

$$\text{Setup time} + \text{Queue time} + (\text{Cycle time} \times \text{Quantity}) + (\text{Move time} \times \text{Quantity}) = \text{Total sequence time}$$

To calculate the manufacturing lead time for an item, use the MFG/Lead Times window. Refer to [Calculating lead time for an item unit](#) in Chapter 8, “Item engineering data,” in the Manufacturing Core Functions documentation for more information.

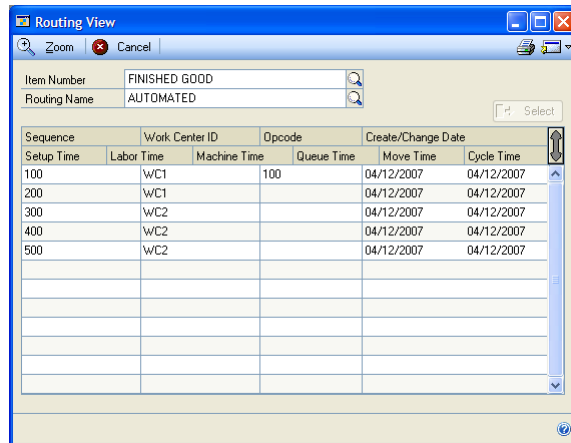
## Viewing a routing

To simply view a routing, use the Routing View window. You can view a summary of information for any routing in your system, including each sequence in the routing, where the sequence takes place, and the operation code associated with the sequence.

To view more detailed information about a routing, use the Routing View Closeup window, also described in this procedure.

### To view a routing:

1. Open the Routing View window.  
(Inquiry >> Manufacturing >> Routings >> View)



The screenshot shows the 'Routing View' window with the following data:

Sequence	Work Center ID	Opcode	Queue Time	Move Time	Cycle Time
100	wc1	100		04/12/2007	04/12/2007
200	wc1			04/12/2007	04/12/2007
300	wc2			04/12/2007	04/12/2007
400	wc2			04/12/2007	04/12/2007
500	wc2			04/12/2007	04/12/2007

2. Enter or select the item number and routing name to view.
3. Review the information in the scrolling window, using the hide and show button to adjust the amount of information displayed in the scrolling window.



- To view more detailed information about a specific sequence, highlight the sequence in the scrolling window and choose the zoom icon button. The Routing View Closeup window opens, displaying detailed information about the sequence.

The screenshot shows the 'Routing View Closeup' window with the following data:

Header Information		Time and Costing	
Item Number	FINISHED GOOD	Setup Time	1.50000
Routing Name	AUTOMATED	Setup Labor Code	SLC1
Revision Level	6a <input checked="" type="checkbox"/> Primary Routing	Labor Time	
Routing Type	Released	Labor Code	SLC1
Sequence Information		No. of Emps./Crews	
Sequence	100	No. of Machines	
Seq. Description		Machine Time	
Work Center ID	WC1	Machine ID	
Vendor ID		Queue Time	
WC Opcode	100	Move Time	
PD Release Offset Days		Cycle Time	1.50000
WIP Output Per MO Start Quantity	1	Scheduling Information	
Other		Percentage Next Start	
Drawing Group		Quantity Next Start	
<input type="checkbox"/> QA Sequence		Concurrent Sequence	
<input checked="" type="checkbox"/> Auto-Backflush Labor	<input checked="" type="checkbox"/> Auto-Backflush Machine	Next Run Sequence	
Run Time for one piece	3.00000	<input type="checkbox"/> Last sequence scheduled for day	
Time for every additional piece	1.50000		



If a drawing has been attached to the routing sequence, you can view it through the Routing View Closeup window. Refer to [Viewing a drawing attached to a record in Chapter 4, "Drawings,"](#) in the Manufacturing Core Functions documentation for more information.

- When you've finished reviewing the information, close the windows.



## Chapter 3: Links to bills of materials

The routings you define are like the instructions in a recipe, describing how to combine and process ingredients. Bills of materials list the components—raw materials and subassemblies—needed to produce finished goods. The components and the routings are the only information you need to produce a finished item in a manufacturing facility. With the BOM Routing Link window, you can create links between the component requirements and routing sequences.

Linking bills of materials and routings can help you manage the delivery of your component items. If you're building a house, for example, you won't want all the nails delivered to the site the first day—you'll want them delivered as they are needed. If you link your bills of materials and routings, you can more closely match the delivery of components to the work center when they are needed and where they are needed.

**MRP** Linking bills of materials and routing sequences helps Material Requirements Planning (MRP) and picklist operations indicate material use at the exact step in the process where those materials are required. This facilitates Just-In-Time (JIT) material planning.

**Sales Configurator** Links between bills of materials and routings are required for using the Manufacturing Sales Configurator. Refer to [Chapter 24, "Bills and routings,"](#) in the Manufacturing Core Functions documentation for more information about using links with the Sales Configurator.

**Outsourcing** If you're using outsourcing, it's recommended that you use links between bills of materials and routing sequences. This ensures that purchase orders are released and shipments are suggested at the appropriate time.



*To use the BOM Routing Link window, you also must be using Manufacturing Order Processing, which includes routings windows.*

This information is divided into the following sections:

- [Linking a routing sequence to component usage](#)
- [Modifying links](#)
- [Unlinking routing sequences and components](#)
- [Viewing link information](#)

### Linking a routing sequence to component usage

You can use the BOM Routing Link window to link routing sequences in routings to component requirements in bills of materials, which can help you plan delivery of your materials to the production floor.

## To link a routing sequence to component usage:

1. Open the BOM Routing Link window.  
(Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)

2. Enter or select the parent part item with the bill of materials and routing to link. If the parent part has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.
3. Enter or select the routing that includes the routing sequence to link to the bill of materials.
4. In the Routing Sequence scrolling window, mark the sequence to link to the component information. A black dot appears when you've marked a sequence.
5. In the Component Item Number scrolling window, mark the component number to link to the marked sequence. A black dot appears when you've marked a component.
6. Mark the option that determines what portion of the component quantity to link to the routing sequence.

**All** Mark All to link the entire component quantity to the sequence.

**Percent of Total** Mark Percent of Total to specify the component quantity to be linked as a percentage.

**Number of Total** Mark Number of Total to specify the component quantity to be linked as a number of units.

7. If you marked Percent of Total or Number of Total, enter the percentage or number of units.



You can change these amounts later, if needed. Refer to [Modifying links](#) on page 29 for more information.

8. Choose Insert. The routing and component information and the amount of the component tied to this sequence will be added to the lower scrolling window. Your changes will be saved when they're displayed in the lower scrolling window.

When a manufacturing order is created, raw material shrinkage is reflected in the picklist quantities if the manufacturing order uses a scheduling preference that applies raw material shrinkage. If you're linking component quantities that have raw material shrinkage, link only the component quantity that would be needed if there were no shrinkage; otherwise, your picklist quantities could be greater than what is actually needed.

The position number also will be displayed. The position number for the items in the lower scrolling window will be determined by the quantity of the item linked in the upper scrolling window.

- If the Quantity Linked field is zero, the position number will be the position number of the item for the selected bill of materials.
- If the Quantity Linked field is greater than zero, the position number will be the next available position number on the bill of materials routing link items for the selected bill of materials and routing.



*If the position number would exceed the allowed limit, you must renumber components and manually assign the position number before you can insert the item. Refer to [Position number guidelines](#) on page 91 in the Manufacturing Core Functions documentation for more information.*

9. Repeat steps 4 through 8 to link other components and routing sequences, as needed.



*You can link a single component to multiple routing sequences, if you like.*

10. When you've finished linking component requirements and sequences, close the window.

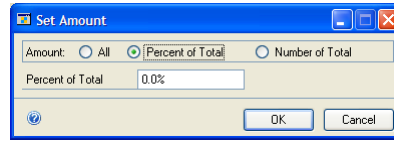
## Modifying links

You can use the BOM Routing Link window to change the amount of the component usage linked to a particular sequence.

### To modify links:

1. Open the BOM Routing Link window.  
(Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)
2. Enter or select the item with the bill of materials and routing link.
3. If the item has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.
4. Enter or select the routing that includes the routing sequence to link to this bill of materials.

- In the lower scrolling window, locate the combination of component and routing sequence to change. Choose the expansion button for the line to open the Set Amount window.



- Determine what portion of the component quantity to link to the routing sequence.

**All** Mark All to link the entire component quantity to the sequence.

**Percent of Total** Mark Percent of Total to specify the component quantity to be linked as a percentage.

**Number of Total** Mark Number of Total to specify the component quantity to be linked as a number of units.

- If you marked Percent of Total or Number of Total, enter the percentage or number of units.
- Choose OK. The routing and component information and the amount of the component tied to this sequence will be added to the lower scrolling window in the BOM Routing Link window. Your changes will be saved when they're displayed in the lower scrolling window.
- Close the window.

## Unlinking routing sequences and components

Use the BOM Routing Link window to unlink routing sequences and bill of materials component requirements.

### To unlink a sequence and components:

- Open the BOM Routing Link window.  
(Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)
- Enter or select the item with the bill of materials and routing link to remove. If the item has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.
- Enter or select the routing that includes the routing sequence to unlink from this bill of materials.
- In the lower scrolling window, highlight the link to delete. Choose the delete icon button. Your changes automatically will be saved.
- Close the window.

## Viewing link information

You can use the drop-down list at the bottom of the BOM Routing Link window to view more information about the links that have been created for a specific bill of materials and routing. Refer to the tables for more information about how you can use the drop-down list to learn more about the links.

Information in all tables assumes that an item number is displayed in the BOM Routing Link window.

### List selection is Item Number

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	All linked sequences

### List selection is Item & Routing

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
Selected	None selected	None selected	Only linked sequences from the selected routing

### List selection is Item & Component Part

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
None selected	None selected	One or more is marked	Only linked sequences for the marked item

### List selection is Item, Routing & Component Part

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
Selected	None selected	One or more is marked	Only linked sequences in the selected routing for the marked item

**List selection is Item, Routing & Sequence**

Refer to the table for more information.

<b>Routing</b>	<b>Sequences</b>	<b>Components</b>	<b>Bottom scrolling window will display:</b>
None selected	None selected	None selected	Nothing
Selected	One or more is marked	None selected	Only linked sequences in the selected routing for the marked sequence(s)



## Chapter 4: Routing queries and utilities

After you've created routings, you can create queries to find specific information, and you can use any of several special windows to update routings.

You can use the Routing Query window to view routing information for any item you manufacture. The window includes easy-to-use lists that help you set guidelines for selecting information from your routings.

After you've entered a routing, you can edit or update its information. You can copy an entire routing to use for another routing for the same parent part or a different parent part. You can copy one or more sequences from several routings to create a new routing.

This information is divided into the following sections:

- [\*Query types\*](#)
- [\*Generating a routing query\*](#)
- [\*Copying a range of routing sequences\*](#)
- [\*Deleting a range of sequences from a routing\*](#)
- [\*Deleting an entire routing\*](#)
- [\*Copying an entire routing\*](#)
- [\*Modifying a routing header record\*](#)
- [\*Renumbering routing sequences\*](#)

### Query types

You can use the Routing Query window to get “where used” queries—quick overviews of routing details including the components, labor codes, setup codes, and machines required by the routing. You also can generate “field used” reports that indicate every occurrence of a specific phrase or number in your routings and bills of materials. You can limit the queries you generate to a single routing or to a group of routings. The scrolling window will display the results of your inquiry. You also can print queries.

### Generating a routing query

Use the Routing Query window to complete this procedure.

**To generate a routing query:**

1. Open the Routing Query window.  
(Inquiry >> Manufacturing >> Routings >> Query)

2. Mark Where Used or Field Used to specify the kind of query.

**Where Used** Mark Where Used to search for routings with a specific value in a specific field. For example, you would mark Where Used to generate a list of all routings that have a sequence that occurs in work center 100.

**Field Used** Mark Field Used to search routings for all values used in a specific field. For example, you would mark Field Used to generate a list of all the machine IDs associated with routing sequences.

3. Choose the data to query from the Query list. Complete all applicable fields. For example, to generate a list of all routings that include sequences performed in work center 100, you must select “WC ID” for the Query, and then select the identifier for work center 100.
4. Select a range for the query. Choices include:

**All Mfg Routings** Includes all manufacturing routings in the query.

**All Routings** Includes all routings—including both planning routings and active manufacturing order routings—in the query.

**All Rtg/Part** Includes all routings for a specific manufactured item in the query.

**Single Mfg Routing** Limits the query to a single manufacturing order routing.

**Single Routing** Limits the query to a single planning routing.

5. If needed, enter or select information to complete associated fields. For example, if you select Single Routing, you must enter or select the specific routing record.

6. Decide how much detail the report should include. To generate a detailed report, mark Detailed Report.
7. Choose Generate Report.
8. Remove any unwanted items from the scrolling window by marking them and choosing Remove from Window.
9. To see more detailed information about any record in the scrolling window, highlight the record and then choose Zoom. Another window with more information about the record will open, displaying detailed information. The window that opens depends on the routing type.
  - If the routing is a planning routing, the Routing View window opens.
  - If the routing is a manufacturing order routing, the Manufacturing Order Closeup window opens.
10. To print the report, choose the print icon button.
11. When you've finished viewing information, close the windows.

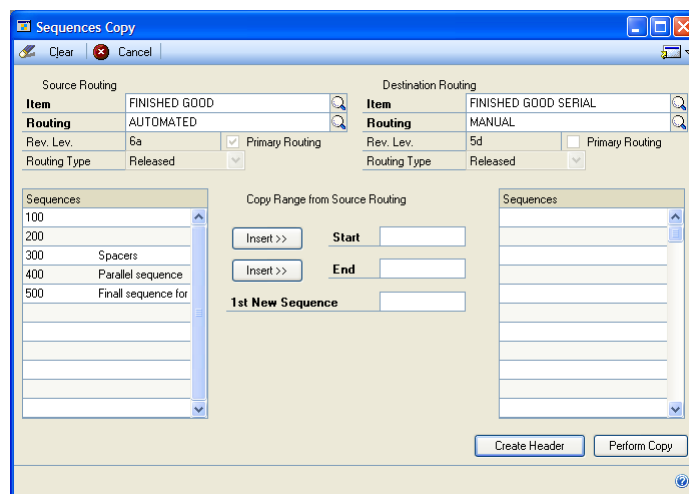
### Copying a range of routing sequences

You can copy sequences from one routing to another quickly and easily without having to reenter each sequence.

A source routing contains one or more steps that you can use in a new routing. The steps can be copied from the source routing to the new routing, which is known as the destination routing.

#### To copy a range of routing sequences:

1. Open the Sequences Copy window.  
(Transactions >> Manufacturing >> Routings >> Sequence Copy)



2. Enter or select the source routing and the destination routing.



To create a new routing, you must first create a routing header. Choose the Create Header button to open the Routing Header Creation window, and then refer to [Creating a routing header record](#) on page 14 for more information.

3. In the Source Routing scrolling window, mark the first sequence in the range to copy. Choose the upper Insert button in the Copy Range from Source Routing section of the window. The sequence number will be displayed in the Start field.
4. In the Source Routing scrolling window, mark the last sequence in the range to copy. Choose the lower Insert button in the Copy Range from Source Routing section of the window. The sequence number will be displayed in the End field.
5. In the 1st New Sequence field, enter a sequence number that specifies where the copied sequences should be inserted in the destination routing.
6. Choose Perform Copy. You'll have the option to renumber sequences. If you choose to do so, this will expand the sequence numbers by whatever increments you have set up for sequence spacing.



Refer to [Setting up sequence spacing, notes, and pointer usage in Chapter 4, "Manufacturing production functions setup,"](#) in the Manufacturing Setup documentation for more information about setting the default spacing for routing sequences.

7. When the copying process is complete, close the Sequences Copy window.

## Deleting a range of sequences from a routing

You can use the Routing Delete window to delete a range of sequences from a routing.

### To delete a range of sequences from a routing:

1. Open the Routing Delete window.  
(Transactions >> Manufacturing >> Routings >> Delete)

2. Enter or select an item number and routing name.

3. In the scrolling window, mark the first sequence in the range to delete. Choose the upper Insert button. The sequence number will appear in the Start field.
4. In the scrolling window, mark the last sequence in the range to delete. Choose the lower Insert button. The sequence number will appear in the End field.
5. Choose Perform Delete.
6. A message will appear, asking if you're sure you want to delete the sequences. Choose Yes.
7. When the sequences have been deleted, close the window.

## Deleting an entire routing

You can use the Routing Delete window to delete an entire routing.

### To delete an entire routing:

1. Open the Routing Delete window.  
(Transactions >> Manufacturing >> Routings >> Delete)
2. Enter or select an item number and routing name.
3. In the scrolling window, mark the first sequence in the routing. Choose the upper Insert button. The sequence number will appear in the Start field.
4. In the scrolling window, mark the last sequence in the routing. Choose the lower Insert button. The sequence number will appear in the End field.
5. Choose Perform Delete.
6. A message will appear, asking if you're sure you want to delete the sequences. Choose Yes.
7. Another message will appear, asking if you also want to delete the header record for the routing. Choose Yes.
8. When you've finished, close the window.

## Copying an entire routing

Use the Routing Duplicate window to copy an existing routing and save it with a new name. This can be particularly helpful if you need to create many similar routings.

### To copy an entire routing:

1. Open the Routing Duplicate window.  
(Transactions >> Manufacturing >> Routings >> Duplicate)

2. Enter or select a source routing and a destination routing. You can select an existing routing, or you can choose Create Header to create a new header record for the routing you're copying.



Refer to [Creating a routing header record](#) on page 14 for more information.

3. Choose Perform Copy.
4. When the routing has been copied, close the window.

### Modifying a routing header record

A routing header record identifies individual routings. Header records include the revision levels, types, and statuses—primary or alternate—of the routings. To change any of the header information, use the Routing Header Edit window.

#### To modify a routing header record:

1. Open the Routing Header Edit window.  
(Transactions >> Manufacturing >> Routing >> Header Edit)

2. Enter or select the item number and routing name.
3. To change the revision level, enter a new revision level in the Revision Level field.
4. Select a routing type from the Routing Type list.
5. Choose Save and close the window.

### Renumbering routing sequences

Sometimes operations within a routing need to be adjusted or the sequences need to be renumbered. Use the Routing Renumber window to make these adjustments.

**To renumber routing sequences:**

1. Open the Routing Renumber window.  
(Transactions >> Manufacturing >> Routings >> Renumber)

2. Enter or select the item and routing with sequences to renumber.
3. In the scrolling window, highlight the first sequence in the range to renumber. Choose the upper Insert button. The sequence number will appear in the Start field.
4. Highlight the last sequence in the range to renumber. Choose the lower Insert button. The sequence number will appear in the End field.
5. Set the Sequence Spacing—the increment use between sequence numbers.
6. In the 1st New Sequence field, enter the sequence number to use for the first of the renumbered sequences.
7. Choose Renumber Range.
8. When the process is complete, close the window.





# Chapter 5: Pointer routings

Refer to this document for information about creating and using pointer routings—series of routing sequences that can be added to routings for manufactured items.

This information is divided into the following sections:

- [Pointer routings](#)
- [Creating a pointer routing](#)
- [Modifying a pointer routing](#)
- [Adding a pointer routing to a routing](#)
- [Copying pointer routings](#)

## Pointer routings

Pointer routings are special routings that can be used within other routings. For example, suppose the last procedures in your production processes are to label items, inspect them, and package them. You can create a pointer routing that includes these three sequences, and then add the pointer routing as the final sequence to routings for all items that require these three final steps.

Pointer routings provide some special advantages. They can help you define routings more quickly, and they can help to ensure that no final steps are accidentally omitted. Pointer routings also can be helpful if you need to update your processes: a change in a pointer routing can be reflected automatically in all the routings that include the pointer routing.

You can create as many pointer routings as you like, so you can create various pointer routings for various situations. For example, an electronics manufacturer might use one pointer routing for items that are to be packaged in boxes, and another pointer routing for items that are to be packaged in tape-and-reel packaging.

## Creating a pointer routing

Creating a pointer routing is a two-step process. First, you must use the Pointer Routing Creation window to create a header record for the pointer routing. Then you must use the Pointer Routing Edit window to add more sequences to the pointer routing.

Before you can create a pointer routing, the work center and its associated operation codes must be set up. Refer to [Chapter 2, “Work centers,”](#) and [Chapter 3, “Operations,”](#)—both in the Manufacturing Core Functions documentation—for more information.



*The Use Pointer Routings option in the Routing Preference Defaults window must be marked if you plan to use pointer routings. Refer to [Setting up sequence spacing, notes, and pointer usage in Chapter 4, “Manufacturing production functions setup,”](#) in the Manufacturing Setup documentation for more information.*

Use the Pointer Routing Creation window and the Pointer Routing Edit window to create a pointer routing.

**To create a pointer routing:**

1. Open the Pointer Routing Creation window.  
(Cards >> Manufacturing >> Routings >> Ptr Rtg Creation)

2. Enter a name for the pointer routing.
3. Enter or select the work center ID and operation code for the first sequence in the pointer routing.
4. Choose Save and close the window.



*Whenever you're adding sequences to a routing and you choose the work center and operation code combination you used here, the pointer routing sequences are added to the routing.*

5. Open the Pointer Routing Edit window.  
(Transactions >> Manufacturing >> Routings >> Pointer Edit)

WC ID	Opcode	Description
PACKAGING	100	Setup work station
PACKAGING	200	Package items
PACKAGING	300	Label items for courier
PACKAGING	400	Move items to shipping dock

6. Enter or select the name of the pointer routing.

Information about the first sequence for the pointer routing—entered in the Pointer Routing Creation window—is displayed in the first line of the scrolling window.

7. Enter or select the work center ID and operation code for the next sequence in the pointer routing.
8. Choose Insert to add the sequence to the scrolling window.
9. Repeat steps 7 and 8 until all of the pointer routing sequences have been added to the scrolling window.
10. When you've finished, close the window.

## Modifying a pointer routing

You can add sequences only to the end of a pointer routing. To add a sequence in the middle of a pointer routing, delete the pointer routing sequences that must follow the added pointer routing sequence, add the new sequence, and then replace the deleted sequences.

Use the Pointer Routing Edit window to update and edit pointer routings.

### To modify a pointer routing:

1. Open the Pointer Routing Edit window.  
(Transactions >> Manufacturing >> Routings >> Pointer Edit)
2. Enter or select the pointer routing to change.
3. Decide what changes to make.
  - To add a sequence to a pointer routing, enter or select the work center ID and operation code. Choose Insert.
  - To remove a sequence from a pointer routing, highlight the sequence in the scrolling window and choose Remove.
4. Changes automatically are saved when they appear in the scrolling window. When you've finished modifying the pointer routing, close the window.

## Adding a pointer routing to a routing

Use the Routing Sequence Entry window and the Pointer Routing Edit window to add a pointer routing to a routing for a manufactured item.



*The Use Pointer Routings option in the Routing Preference Defaults window must be marked if you plan to use pointer routings. Refer to [Setting up sequence spacing, notes, and pointer usage in Chapter 4, "Manufacturing production functions setup,"](#) in the *Manufacturing Setup* documentation for more information.*

### To add a pointer routing to a routing:

1. Open the Pointer Routing Edit window.  
(Transactions >> Manufacturing >> Routings >> Pointer Edit)
2. Enter or select the pointer routing to add to the routing for the manufactured item.
3. Note the work center ID and opcode for the first sequence in the pointer routing.
4. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)
5. Enter or select a routing.
6. Choose Clear at the top of the window to clear the sequence information in the window.

7. Enter an appropriate sequence number.



*Sequence numbers determine the order of the sequences, so be sure to enter a sequence number that is greater than the highest existing sequence number if the pointer routing should be added to the end of the routing.*

8. In the Work Center ID field, enter the work center of the first sequence in the pointer routing.
9. In the Work Center Opcode field, enter the operation code of the first sequence in the pointer routing. The Pointer Routing window opens, displaying information about the pointer routing.

Pointer Rtg Name	PACK AND SHIP
Work Center ID	PACKAGING
W/C Opcode	100
Item Number	FINISHED GOOD SERIAL
Routing Name	AUTOMATED
Status	<input checked="" type="checkbox"/> Primary Routing
Sequence Number	600
Increment Sequence by	10

10. You can change the sequence number to be assigned to the first sequence in the pointer routing when it is added to the routing for the manufactured item, if needed. Enter the beginning sequence number in the Sequence Number field.
11. You can change the numerical spacing between the pointer routing sequences as they will appear in the routing for the manufactured item. For example, the pointer routing might use spacing of 10 for the sequences (010, 020, 030) and you might want to use spacing of 100 for the sequences in the routing for the manufactured item (0100, 0200, 0300). Enter the new spacing in the Increment Sequence by field.
12. Choose OK in the Pointer Routing window to add the pointer routing information to the routing for the manufactured item.
13. Choose Save in the Routing Sequence Entry window and then close the windows.

## Copying pointer routings

A pointer routing might have an application for more than one work center. After a pointer routing has been defined, you can copy it to use in other work centers.

**To copy pointer routings:**

1. Open the Pointer Routing Duplicate window.  
(Transactions >> Manufacturing >> Routings >> Pointer Duplicate)

Source Pointer Routing	
Pointer Rtg. Name	PACK AND SHIP
Work Center ID	PACKAGING
WC Opcode	100

Destination Pointer Routing	
Pointer Rtg. Name	PACKAGE AND SHIP (FOREIGN)
Work Center ID	PACKAGING
WC Opcode	100

2. Select the source pointer routing to copy.
3. Enter a name for the pointer routing, and enter or select a work center ID and work center operation code. The work center ID and operation code combination will be the combination that you'll use to add the new pointer routing to a routing for a manufactured item.
4. Choose Save and close the window.





# Part 2: Manufacturing Order Processing

This part of the documentation includes information that will help you create, maintain, and close manufacturing orders. Manufacturing Order Processing has two main components: routings and manufacturing orders. For more information, refer to [Part 1, Routings](#).

The following information is discussed:

- [Chapter 6, “Manufacturing order overview,”](#) defines manufacturing order terms and concepts.
- [Chapter 7, “Manufacturing order entry,”](#) describes how to create and modify manufacturing orders.
- [Chapter 8, “Component transactions,”](#) includes information about picklists, component transactions, and pick documents.
- [Chapter 9, “Routings and rescheduling,”](#) contains information about viewing and modifying manufacturing order routings and describes how to adjust production schedules.
- [Chapter 10, “Quick manufacturing orders,”](#) contains information about special manufacturing orders that require fewer steps to close.
- [Chapter 11, “Manufacturing/sales order link,”](#) describes how you can link manufacturing orders and sales orders.
- [Chapter 12, “Manufacturing order inquiries,”](#) contains information about viewing manufacturing orders.
- [Chapter 13, “Receipts and closing,”](#) includes information about tasks required to close a manufacturing order.
- [Chapter 14, “Manufacturing order removal,”](#) contains information about how to remove manufacturing order records from your system.



## Chapter 6: Manufacturing order overview

A manufacturing order is a set of instructions you create to give your production floor the authority to make goods in quantities you specify. Manufacturing orders are also commonly called batch cards, job orders, production orders, run orders, shop orders, or work orders.

This information is divided into the following sections:

- [\*Manufacturing Order Processing tasks\*](#)
- [\*Manufacturing order terms\*](#)
- [\*Manufacturing order statuses\*](#)
- [\*How statuses limit activities\*](#)
- [\*Scheduling methods\*](#)
- [\*How required dates are calculated\*](#)
- [\*How required quantities are calculated\*](#)
- [\*How multiple bins affect manufacturing orders\*](#)

### Manufacturing Order Processing tasks

With Manufacturing Order Processing, you can:

- Create, change, and delete manufacturing orders.
- Enter component transactions to allocate, issue, and scrap components for a manufacturing order. You also can reverse allocate, reverse issue, and reverse scrap component quantities.
- Schedule manufacturing orders, and use manual rescheduling capabilities to adjust the schedules, as needed.
- Link manufacturing orders to specific sales orders.
- Generate purchase orders for outsourced services for manufacturing orders.
- Receive finished goods into inventory and calculate the costs of the finished goods.
- Close manufacturing orders, calculate associated costs, and, if needed, reconcile material usage records.
- Remove old or canceled manufacturing orders from your system.

Manufacturing Order Processing actually includes two main parts—manufacturing orders and routings. Refer to [Chapter 1, “Routings overview,”](#) for information about routings. Manufacturing Order Processing also includes special windows you can use if your manufacturing orders require outsourced services. Refer to [Chapter 15, “Outsourcing overview,”](#) for more information about outsourcing.

Manufacturing Order Processing is linked to other modules in Manufacturing, including Master Production Scheduling, Material Requirements Planning (MRP), Bill of Materials, and Sales Orders. Manufacturing Order Processing is also closely linked to Inventory Control.

## Manufacturing order terms

Before working with manufacturing orders, you should be familiar with terms commonly associated with manufacturing orders.

**Manufacturing order** A manufacturing order is a set of instructions you create to give your production floor the authority to make certain goods in quantities and at times you specify. Manufacturing orders also are commonly called batch cards, job orders, production orders, run orders, shop orders, or work orders.

**Picklist** After you've created a manufacturing order, a picklist is created for the order. The picklist specifies the component items required to fill a manufacturing order. It is a kind of shopping list for the materials needed for the manufacturing order.

**Position number** Each component on a bill of materials and each component item on a picklist has a position number. A position number is a number that indicates the order in which components are used to build a product. All new components and new picklist items will be assigned a position number. Because you assign a position number to each component on a bill a materials and each component item on a picklist, a component can be used more than once in the process. For example, if a component is used at the beginning and at the end of the process, you can add the component to the bill of materials twice, using a different position number for each instance. The position number will be displayed in windows where you can enter or view bill of materials and picklist information.

**Allocating materials** The process of reserving materials for a manufacturing order is called "allocating." You can set system preferences to automatically allocate materials when the status of the manufacturing order is Released, or you can allocate materials manually. Refer to [Allocating components](#) on page 72 for more information.

**Issuing materials** When a manufacturing order is released—usually when it has been scheduled—you can issue materials for the manufacturing order. Issuing is an accounting procedure that removes component items from their issue-from sites to the manufacturing order. Usually when materials are issued, they also are moved from the issue-from site to the issue-to site.

**Quick manufacturing orders** Closing a manufacturing order *typically* requires you to collect information about the labor, machine time, and material costs associated with a particular manufacturing order. Some companies routinely have manufacturing orders for items that don't require such detailed information. For example, a company that builds electronic components might have a machine that automatically puts pins into bobbins. The company can create manufacturing orders to build the bobbin assemblies, but not to track the costs associated with this process because it is so simple and so routine. For those manufacturing orders, the company can use quick manufacturing orders.

All costs for quick manufacturing orders are backflushed—that is, the Manufacturing system will calculate costs for materials, labor, and machine time based on the bill of materials and the routing. If you use a quick manufacturing order, you can create and close a manufacturing order using just one window.



Refer to [Chapter 10, "Quick manufacturing orders,"](#) for more information.

**Manufacturing order receipt** If you build large quantities of items from your manufacturing orders, you can receive a portion or all of the finished goods produced from the manufacturing order. You can add the completed items from the manufacturing order to inventory as soon as they are completed, making them available for sales. You can enter and post manufacturing order receipts for both standard- and actual-cost items.

**Cost variance** After you've fully closed a manufacturing order, you can compare the actual costs for materials, machine time, and labor, with the estimated costs. The difference is the cost variance. The variance can be positive or negative. Manufacturing calculates both the cost of the variance and the percentage of variance for labor costs, labor hours, machine costs, machine hours, material costs, and overhead amounts.

## Manufacturing order statuses

Most manufacturing orders have a lifecycle that includes two or more phases called "statuses." You'll assign some statuses to manufacturing orders; other statuses are assigned as certain tasks are completed.



Refer to [Rules for changing manufacturing order statuses](#) on page 62 and [Changing the status of multiple manufacturing orders](#) on page 65 for more information.

Manufacturing includes these manufacturing order statuses:

**Quote/Estimate** A manufacturing order might have Quote/Estimate status if you're not certain the order will be produced. For example, some companies might create quote/estimate manufacturing orders so work can begin immediately if a customer decides to buy the order quantities. This is the default status that will be assigned to all manufacturing orders when you create them.

**Open** A manufacturing order might have Open status if you're reasonably sure the manufacturing order will be produced. Depending on your system settings, manufacturing orders generated by sales orders might have this status. You can allocate materials to a manufacturing order with Open status.

**Released** A manufacturing order has Released status when you're ready to begin work on the order, such as allocating or issuing materials, or beginning work on the first routing sequence. A manufacturing order must have Released status before you can issue materials to it, or enter data collection transactions for labor or machine costs.

**Hold** You can assign Hold status to a manufacturing order if the order must be temporarily stopped. You must enter information in all required fields in the Manufacturing Order Entry window before you can select Hold status for a manufacturing order.

**Canceled** You can assign Canceled status to a manufacturing order if the order must be permanently suspended. You must enter information in all required fields in the Manufacturing Order Entry window before you can select Canceled status for a manufacturing order.

**Complete** If all the tasks for a manufacturing order are complete, the status of the manufacturing order might be Complete. You can't select this option when creating a new order because the work can't be completed before the order is defined.

**Partially Received** If a portion of the finished goods from a manufacturing order has been received, the status of the manufacturing order will be changed to Partially Received. This option won't be available when you create a new order because the items can't be posted before you define the manufacturing order.

**Closed** If all accounting tasks associated with tracking the costs of a manufacturing order are complete—if all the material, machine, and labor costs have been posted and all the finished items have been posted—the manufacturing order status automatically will be changed to Closed.

## How statuses limit activities

The status of a manufacturing order often determines whether you can perform certain tasks. For example, you can't issue components for a manufacturing order with Quote/Estimate or Open status.

The following table illustrates the lifecycle of a simple manufacturing order—one that doesn't include backflushed or phantom component items.

Status	Schedule	Picklist	Allocate	Issue	Receive	Close
Quote/Estimate	The manufacturing order is scheduled and the picklist is built when you save a manufacturing order with these statuses.		No	No	No	No
Open			Yes	No	No	No
Released	No	No	Yes	Yes	Yes	Yes
Complete	No	No	Yes	Yes	Yes	Yes
Partially Received	No	No	Yes	Yes	Yes	Yes
Closed	No	No	No	No	No	No
Hold	No	No	No	No	No	No
Canceled	No	No	No	No	No	No

There also are rules that determine when you can change the status of a manufacturing order. For more information, refer to [Rules for changing manufacturing order statuses](#) on page 62.

More specific rules apply if the manufacturing order includes outsourcing sequences. Refer to [Changing the status of an outsourcing manufacturing order](#) on page 203 for more information about those situations.



Refer to [Changing the status of multiple manufacturing orders](#) on page 65 for information about changing several manufacturing orders at the same time.

## Scheduling methods

Manufacturing includes two options for scheduling methods: forward infinite and backward infinite.

**Forward infinite** Assumes that you'll supply a start date for the manufacturing order and that you have unlimited resources to complete the work.

**Backward infinite** Assumes that you'll supply a due date for the manufacturing order and that you have unlimited resources to complete the work.

## How required dates are calculated

When a picklist is generated for a manufacturing order, component quantities are calculated. Required dates—the dates when individual components are needed in production—also are calculated.

The required dates for most components depend on two factors: whether the bill of materials component has been linked to a routing sequence, and whether a lead time offset has been entered for the component item. (The required date for by-products—components that have negative quantities in the bill of materials—is always the manufacturing order due date.)



Refer to [Chapter 12, “Links to routings,”](#) in the *Manufacturing Core Functions* documentation for more information about linking components to routing sequences. Refer to [Lead time calculations](#) in [Chapter 9, “Bill of Materials overview,”](#) in the *Manufacturing Core Functions* documentation for more information about lead time calculations.

Refer to the table to see how linking and lead time offsets affect required dates.

BOM/ Routing link?	Lead Time Offset	Calculati on	Is resulting date before MO Start Date? If so:	Is resulting date after MO Due Date? If so:	Is it a down day on the shop calendar? If so:
No	None	MO Start Date	Not applicable	Not applicable	Not applicable
	Offset from MO Start; Positive value	MO Start Date + Lead Time Offset	Not applicable	MO Due Date	Next up day
	Offset from MO Start; Negative value	MO Start Date - Lead Time Offset	Not applicable	Not applicable	Preceding up day
	Offset from MO Due Date; Positive value	MO Due Date - Lead Time Offset	MO Start date	Not applicable	Preceding up day
Yes	Any	Scheduled sequence start date is always used			

## How required quantities are calculated

When a picklist is built, the required quantity for each component is calculated. At the simplest level, the required quantity is the quantity of the component that is needed to build the manufacturing order start quantity. However, these calculations can reflect several variables, including:

- The quantity, fixed quantity, and shrinkage percentage for the component, as stated in the bill of materials
- The scheduling preference for the manufacturing order regarding raw material shrinkage
- The manufacturing order start quantity
- Links between bills of materials and routing sequences

Refer to the table for more information about how required quantities are calculated.

BOM/ Routing link?	Raw material shrinkage?	Calculation
No	No	(BOM quantity x MO start quantity) + Fixed quantity
No	Yes	(BOM quantity x MO start quantity) + Shrinkage* + Fixed quantity
All linked	No	First linked sequence: (Linked quantity x MO start quantity) + Fixed quantity Subsequent linked sequences: (Linked quantity x MO start quantity)
Partially linked	No	First linked sequence: (Linked quantity x MO start quantity) + Fixed quantity Subsequent linked sequences: (Linked quantity x MO start quantity) If a portion of the BOM quantity is not linked, it won't appear on the picklist.
All linked	Yes	First linked sequence: (Linked quantity x MO start quantity) + Shrinkage † + Fixed quantity Subsequent linked sequences: (Linked quantity x MO start quantity) + Shrinkage †
Partially linked	Yes	First linked sequence: (Linked quantity x MO start quantity) + Shrinkage † + Fixed quantity Subsequent linked sequences: (Linked quantity x MO start quantity) + Shrinkage † If a portion of the BOM quantity is not linked, it won't appear on the picklist.
* Shrinkage for lines with no BOM/routing link is calculated: $(\text{BOM quantity} \times \text{MO start quantity}) \div (1 - \text{Shrinkage percent})$ † Shrinkage for lines with BOM/routing link is calculated: $(\text{Linked quantity} \times \text{MO start quantity}) \div (1 - \text{Shrinkage percent})$		

Although these are the calculations that are usually made for the picklist quantities, there is an exception. Any time the calculated required quantity is less than the Minimum Issue quantity (which is specified in the Item Engineering Data window), the minimum issue quantity is used.



Refer to [Chapter 8, "Item engineering data,"](#) in the Manufacturing Core Functions documentation for more information about entering item engineering information.

## How multiple bins affect manufacturing orders

When you use multiple bins with Manufacturing, bin information will be required when you're working with items for manufacturing orders. Manufacturing transactions use default bins for Material Issues and for Material Receipts. You can specify default bins for sites and for item-site combinations. When you create a transaction—such as a component transaction for issuing materials for a manufacturing order—the default bin information is used. If a default bin has been defined for the item-site combination, that bin is used. Otherwise, the default bin for the site is used. You can use the default bins or select other bins, if needed.



Default bins for other types of transactions—such as fulfilling sales orders and receiving purchased items—are also required. General information about multiple bins is included in the Microsoft Dynamics GP Inventory Control documentation. You also should refer to Sales Order Processing and Purchase Order Processing documentation for information about how using multiple bins affects those modules.

Refer to the following topics for more information about using multiple bins with Manufacturing:

- [\*Modifying bin selections for a component\*](#) on page 77
- [\*Modifying bin information for a finished item\*](#) on page 143





# Chapter 7: Manufacturing order entry

After you've created routings to describe the steps in the manufacturing process and you have entered bills of material for your products, you can create manufacturing orders to build products. Manufacturing includes a detailed manufacturing order entry and processing system you can use to track the products manufactured, the volume of production, and the schedule for producing goods.

This information is divided into the following sections:

- [\*How manufacturing orders are created\*](#)
- [\*Entering a manufacturing order\*](#)
- [\*Entering serial numbers when entering a manufacturing order\*](#)
- [\*Changing a manufacturing order\*](#)
- [\*Rules for changing manufacturing order statuses\*](#)
- [\*Component shortages and automatic allocations\*](#)
- [\*Changing the status of multiple manufacturing orders\*](#)
- [\*Updating CRP for MRP-planned manufacturing orders\*](#)
- [\*Deleting a manufacturing order\*](#)

## How manufacturing orders are created

There are several ways you can create manufacturing orders. You can create them one at a time using the Manufacturing Order Entry window, or you can have them created automatically at various other points in the system.

Manufacturing orders can be generated in the following instances.

**Enter sales orders for made items** Refer to [Chapter 20, "Sales order entry,"](#) in the Manufacturing Core Functions documentation for more information.

**Use Master Production Scheduling to plan manufacturing orders** Refer to [Chapter 5, "MPS manufacturing orders,"](#) in the Manufacturing Planning Functions documentation for more information.

**Identify and plan for shortages in the MOP/SOP Link window** Refer to [Chapter 11, "Manufacturing/sales order link,"](#) in this manual for more information.

**Update MRP, creating MRP-planned manufacturing orders** Refer to [Chapter 11, "Pegging,"](#) in the Manufacturing Planning Functions documentation for more information.

## Entering a manufacturing order

Use the Manufacturing Order Entry window to create a manufacturing order. Before you can create a manufacturing order for an item, you must create a routing and a bill of materials for the finished item.

### To enter a manufacturing order:

1. In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.

- Choose Manufacturing Order to open the Manufacturing Order Entry window.

- Accept the default manufacturing order number, or change it. You can enter a brief description of the manufacturing order. Use the notes button to enter detailed information.
- Enter or select a finished good item number.

If you select a phantom item—a finished good item with a manufacturing bill of materials with the phantom BOM category—a message is displayed, asking if you’re sure you want to create a manufacturing order for a phantom item. If you choose Yes, you can continue to create the manufacturing order as you would for any item.

- From the BOM Type list, select the type of bill of materials for the manufacturing order. The default selection is MFG BOM, or manufacturing bill of materials.

If you select ARCH BOM—archived bill of materials—or CONFIG BOM—configured bill of materials, you also must enter or select the bill of materials name. The revision of the bill of materials used to build the picklist is displayed.

- Enter or select a routing. The default selection will be the primary routing for the item, but you can change it, if needed. The revision of the routing used to schedule the manufacturing order is displayed.



*You can change the bill of materials, the routing, or both for a manufacturing order if the status of the order is Quote/Estimate or Open.*

- Select a status. Refer to [Manufacturing order statuses](#) on page 51 for more information.

8. If the item you're producing with this manufacturing order requires lot or serial numbers, you can enter the lot or serial number information.



*If you prefer, you can enter lot and serial numbers when you receive the finished goods.*

- If the item is tracked by lot numbers, enter the Lot Number.
  - If the item is tracked by serial numbers, choose the Serial Numbers expansion button to open the Manufacturing Serial Number Pre-Entry window. Refer to [Entering serial numbers when entering a manufacturing order](#) on page 60 for more information.
9. Accept the default scheduling preference for the manufacturing order, or enter or select another scheduling preference. The default scheduling preference is specified in the Scheduling Preferences window.
10. Accept the default scheduling method for the item, or change it. Refer to [Scheduling methods](#) on page 52.
11. Enter the Ending Quantity—the quantity to be produced by this manufacturing order. The default ending quantity will be the average quantity for the item, according to information in the Item Engineering Data window. If you've set system preferences to allow for shrinkage, the starting quantity will be calculated for you, but you can override the calculated starting quantity.

Refer to [Setting up scheduling preferences](#) in [Chapter 4, "Manufacturing production functions setup,"](#) in the Manufacturing Setup documentation for more information about setting shrinkage preferences for manufacturing order quantities.

12. Accept the posting sites for the raw materials and finished goods—the Draw Inventory from Site and the Post Finished Goods to site—or select different ones. The posting sites might be part of the scheduling preference, but you can change them. If you haven't specified a default post-to site for the finished goods, the default site for the item will be the default entry for the post-to site.
13. Depending on the scheduling method, enter or select either the Start Date or Due Date for the order.
- If the scheduling method is Forward Infinite, enter or select a start date.
  - If the scheduling method is Backward Infinite, enter or select a due date.



*Regardless of the scheduling method you're using, you can edit the manufacturing order due date. This is helpful if you don't use Manufacturing to schedule production processes because you can enter a date that can be used as a reference.*

14. You can select a priority—High, Medium, or Low—for this manufacturing order.
15. Choose Save.

If the status of the manufacturing order is Quote/Estimate or Open, the order automatically will be scheduled, and its picklist will be built.

16. Close the window.

## Entering serial numbers when entering a manufacturing order

If your business produces finished goods that are tracked by serial numbers, you can enter the serial numbers that will be used for the finished goods when you create the manufacturing order, or later, when you receive the finished goods.



For information about creating serial numbers when you receive the finished goods, refer to [Serial number assignments for finished goods](#) on page 144.

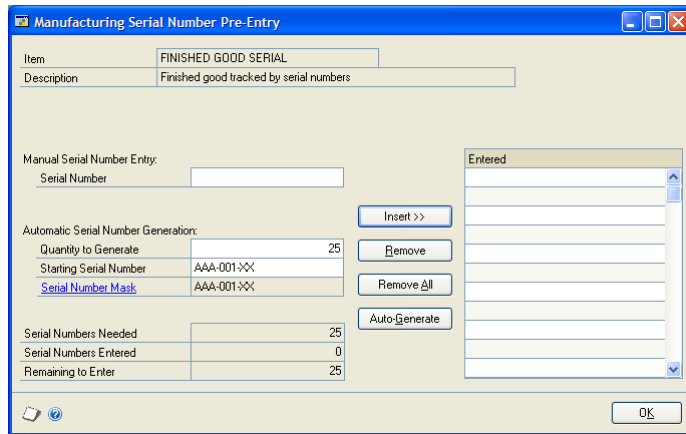
You can use this procedure to enter serial numbers for a new manufacturing order. You also can add serial numbers to an existing manufacturing order.

### To enter serial numbers when entering a manufacturing order:

1. Open the Manufacturing Order Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Entry)

2. Enter or select a manufacturing order for a finished good item tracked by serial numbers.

- Choose the Serial Numbers expansion button to open the Manufacturing Serial Number Pre-Entry window.



- You can enter serial numbers manually or automatically.
  - To enter serial numbers manually, go to step 5.
  - To enter serial numbers automatically, go to step 8.
- In the Manual Serial Number Entry region, enter a serial number.
- Choose Insert to add the serial number to the Entered list.
- Repeat steps 5 and 6 until the Serial Numbers Needed equals the Serial Numbers Entered, then skip to step 11.
- Accept the default Quantity to Generate, or enter another quantity. The default value is the ending quantity for the manufacturing order.
- To create or edit a serial number mask, click the Serial Number Mask link to open the Item Serial Number Definition window.



*Refer to Inventory Control documentation for information about creating a serial number mask and generating serial numbers.*

- Repeat steps 8 and 9 until the Serial Numbers Needed equals the Serial Numbers Entered.
- Choose OK to save the serial numbers and close the window.

## Changing a manufacturing order

After you've created a manufacturing order, your next steps will depend on your business processes.

You might need to change the status of the manufacturing order. Refer to [Rules for changing manufacturing order statuses](#) on page 62 for more information.

You might want to allocate or issue components. For more information, refer to [Chapter 8, "Component transactions."](#)

If your manufacturing order includes outsourcing, you might want to create purchase orders for outsourced services, or record shipments of items to outsourcing vendors. For more information, refer to [Chapter 17, “Purchase orders and shipments.”](#)

Occasionally, you might need to update a manufacturing order routing while it is in process. For example, your engineering department might find a better way to complete a task for a manufacturing order that is currently in production. Changes to manufacturing order routings should be done using the Manufacturing Order Routing Sequence Edit window. For more information about changing manufacturing order routings, refer to [Modifying a manufacturing order routing](#) on page 98.

## Rules for changing manufacturing order statuses

Refer to the tables for information about rules that apply when you change the status of a manufacturing order.

**To change the status of one manufacturing order** Use the Manufacturing Order Entry window. Refer to [Changing a manufacturing order](#) on page 61.

**To change the status of multiple manufacturing orders** Use the Edit Manufacturing Order Status window. Refer to [Changing the status of multiple manufacturing orders](#) on page 65.

### Quote/Estimate status manufacturing orders

Refer to the table for information about changing the status of a manufacturing order from Quote/Estimate to another status.

New status	Rules or effects
Open	Always allowed.
Released	You'll be warned if any components couldn't be allocated.
Hold	You'll have the option to remove the capacity from CRP. You also will have the option to remove routing sequences.
Canceled	You'll have the option to remove routing sequences.
Partially Received	Not allowed. (This only occurs automatically when you post a manufacturing order receipt.)
Complete	Not allowed.

### Open status manufacturing orders

Refer to the table for information about changing the status of a manufacturing order from Open to another status.

New status	Rules or effects
Quote/Estimate	You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled.
Released	You'll be warned if any components couldn't be allocated.
Hold	You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled. You'll have the option to remove the capacity from CRP. You also will have the option to remove routing sequences.
Canceled	You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled. You also will have the option to remove routing sequences.

New status	Rules or effects
Partially Received	Not allowed. (This only occurs automatically when you post a manufacturing order receipt.)
Complete	Not allowed.

**Released status manufacturing orders**

Refer to the table for information about changing the status of a manufacturing order from Released to another status.

New status	Rules or effects
Quote/Estimate	You can't make this change if costs have been applied for outsourcing, or if components have been issued. You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled.
Open	You can't make this change if costs have been applied for outsourcing, or if components have been issued or backflushed. You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled.
Hold	You can't make this change if components have been issued or data collection transactions have been entered for the manufacturing order. You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled.
Canceled	You can't make this change if costs have been applied for outsourcing, if components have been issued or backflushed, or if data collection transactions have been entered for the manufacturing order. You'll be asked how any linked purchase orders or recorded shipments for outsourcing should be handled. You also will have the option to remove routing sequences.
Partially Received	Not allowed. (This only occurs automatically when you post a manufacturing order receipt.)
Complete	Not allowed.

**Hold or Canceled status manufacturing orders**

Refer to the table for information about changing the status of a manufacturing order from Hold or Canceled to another status.

New status	Rules or effects
Quote/Estimate	Always allowed.
Open	
Released	You'll be warned if any components couldn't be allocated.
Canceled	Always allowed.
Partially Received	Not allowed. (This only occurs automatically when you post a manufacturing order receipt.)
Complete	Not allowed.

## Partially Received status manufacturing orders

Refer to the table for information about changing the status of a manufacturing order from Partially Received to another status.

New status	Rules or effects
Quote/Estimate	Not allowed.
Open	
Released	
Hold	
Canceled	
Complete	Allowed.

## Complete status manufacturing orders

Refer to the table for information about changing the status of a manufacturing order from Complete to another status.

New status	Rules or effects
Quote/Estimate	Allowed only if there is no material, labor, or machine activity recorded for the manufacturing order.
Open	
Released	Allowed. However, CRP information won't be updated.
Hold	Allowed only if there is no material, labor, or machine activity recorded for the manufacturing order.
Canceled	
Partially Received	Not allowed.



*Additional rules apply when you're changing the status of a manufacturing order that includes outsourced sequences. Refer to [Changing the status of an outsourcing manufacturing order](#) on page 203.*

## Component shortages and automatic allocations

If you marked the Allocate Inventory when MO Status becomes Released option in the Manufacturing Order Preference Defaults window, the components that are needed for each manufacturing order are allocated as soon as you change the status of the manufacturing order to Released.

If there aren't enough of the components available at the appropriate sites to allocate, a message will be displayed and you'll have the option to allocate the component quantity that is available. (Allocations for other components that have sufficient quantities will be made as usual, regardless of how you respond to the message.) The options you'll have, however, will depend on whether you've also marked Allow Adjustment Overrides when you set up Inventory Control, and whether any of the shortage components is tracked by lot or serial numbers.

If you *have not marked* the Allow Adjustment Overrides option in the Inventory Control Setup window, you can choose Yes or No.

- If you choose Yes, the available quantity of components will be allocated.
- If you choose No, no allocations will occur for any components where the required quantity is greater than the available quantity.



If you *have marked* the Allow Adjustment Overrides option in the Inventory Control Setup window, you'll also be able to specify whether the component shortages for the allocations should be overridden. If you choose Override, the following rules will apply.

- For items tracked by lot or serial numbers, the available quantity is allocated.
- For items that are not tracked by lot or serial numbers, the required quantity is allocated.

## Changing the status of multiple manufacturing orders

Use the Edit Manufacturing Order Status window to update the status of a group of manufacturing orders. You can use the window to update the status of any type of manufacturing order, including planned ones that are suggested by MRP processing.

When you're working with groups of manufacturing orders, you can filter the manufacturing orders that are displayed in the scrolling window.

- You can use the Ranges fields to limit the manufacturing orders based on their manufacturing order numbers, finished-good item numbers, start dates, post-to sites, routing names, or bill of materials types or names.
- You can use the Exclude MOs with Status of fields to limit the manufacturing orders that are displayed based on their current statuses. Manufacturing orders that are on hold or that are canceled are not displayed by default, but you can choose to include those manufacturing orders, or to restrict other statuses as well.

Refer to [Viewing and transferring MRP-planned orders](#) in [Chapter 11, "Pegging,"](#) in the Manufacturing Planning Functions documentation for more information about MRP-planned orders.

### To change the status of multiple manufacturing orders:

1. In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.
2. Mark a manufacturing order.

- Choose Edit Status to open the Edit Manufacturing Order Status window.

MO Number	Status	Finished Good	Start Date	Ending Quantity
<input type="checkbox"/> MO0001	Open	PRO1	08/25/2005	450
<input type="checkbox"/> MO0002	Open	100KLG	03/15/2006	50
<input type="checkbox"/> MO0010	Open	CONFIGURABLE FINISHED GOC	04/06/2007	1

- To work with manufacturing orders that have been planned by MRP processes, mark Show MRP Planned Orders.
- Select the status to assign to a group of manufacturing orders.

As soon as you select the status, manufacturing orders that are eligible to be changed to that status are displayed in the scrolling window.

- You can use the Ranges fields or Exclude MOs with Status of fields, if needed, to filter the manufacturing orders that are displayed in the scrolling window.

If you use the filters, be sure to choose Redisplay to update the information in the scrolling window.

- If you're changing the status of the manufacturing orders to Closed, enter information used for the closing process.



*CRP records are deleted when an order is closed.*

**Posting Date** Accept the default Posting Date, or change it. The posting date is used when the manufacturing order closing transactions are recorded.



*When you change the posting date, the transactions will be posted using the date you enter, regardless of whether you've chosen to use batch or transactional posting.*

**Calculation Option** Select a Calculation Option to determine how the quantities of backflushed components for the manufacturing orders will be calculated. For more information about the selections, refer to [How backflushed item quantities are calculated](#) on page 163.

8. In the scrolling window, mark the manufacturing orders to be updated with the new status. Use the Mark All button to mark all manufacturing orders at the same time.
9. Choose Process.
10. When processing is complete, close the window.

## Updating CRP for MRP-planned manufacturing orders

You can use the Edit Manufacturing Order Status window to update Capacity Requirements Planning for a group of MRP-planned manufacturing orders.

When you're working with groups of planned manufacturing orders, you can select information that determines which manufacturing orders to display in the scrolling window.



*CRP records are deleted when an order is closed or cancelled.*

### To update CRP for MRP-planned manufacturing orders:

1. In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.
2. Mark a manufacturing order.
3. Choose Edit Status to open the Edit Manufacturing Order Status window.
4. To work with manufacturing orders that have been planned by MRP processes, mark Show MRP Planned Orders.
5. You can use the Ranges fields, if needed, to specify which manufacturing orders to display in the scrolling window.

If you use the filters, be sure to choose Redisplay to update the information in the scrolling window.

6. In the scrolling window, mark the manufacturing orders to be updated with the CRP information. Choose Mark All to mark all manufacturing orders at the same time.
7. Choose Update CRP for MRP Orders. The CRP tables will be updated with the labor and machine data for each affected work center for the MRP-planned manufacturing orders that you selected.
8. Close the window.

## Deleting a manufacturing order

You can use the Manufacturing Order Entry window to delete a manufacturing order if the following conditions are met:

- The manufacturing order isn't linked to any sales orders or purchase orders.
- The status of the manufacturing order isn't Released, Partially Received, Hold, or Complete.
- No data collection transactions have been entered for the manufacturing order.
- No items have been allocated, issued, or purchased for the manufacturing order.
- No background processes are running.
- No other user is editing the manufacturing order record.
- If you're using Job Costing, you must have access through process security to delete job costing links.



Refer to [About removing manufacturing order records](#) on page 169 for information about removing groups of old or canceled manufacturing orders, or deleting lot- and serial-number information for specific manufacturing orders.

### To delete a manufacturing order:

1. Open the Manufacturing Order Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Entry)
2. Enter or select a manufacturing order.
3. Choose Delete.

## Chapter 8: Component transactions

After you've created a manufacturing order, you must determine what quantities of raw materials will be required—and when and where you'll need them. That information is calculated when you build a picklist for a manufacturing order.

Next, you must decide how to handle component requirements. You can backflush all or some of the components for a manufacturing order, or you can issue the components. Later, you might need to scrap components, or to “reverse” earlier transactions, and enter transactions to reverse allocate, reverse issue, or reverse scrap.

This information is divided into the following sections:

- [Component transaction types](#)
- [Picklists, pick documents, and component transactions](#)
- [Component transactions and accounting](#)
- [Viewing a picklist](#)
- [Allocating components](#)
- [Entering component transactions](#)
- [Adding a component to a picklist](#)
- [Modifying bin selections for a component](#)
- [Specifying lot numbers for a component transaction](#)
- [Specifying serial numbers for a component transaction](#)
- [How lot quantities are consolidated](#)
- [Modifying a component transaction line](#)
- [How item values are calculated for transactions](#)
- [Using an alternate item](#)
- [Printing a picking report](#)
- [Deleting a pending component transaction](#)
- [Changing dates for a pick document](#)
- [Specifying components in the picklist to backflush](#)
- [Using a pick document as a template](#)
- [Adding items to a picklist](#)
- [Picklist reports](#)
- [Removing a component from a picklist](#)
- [Deleting a picklist](#)

## Component transaction types

You can use several types of component transactions to enter information about the components that are used—or that aren't used—in your manufacturing processes. Refer to the following table for more information about the effect of transactions on inventory.

Action	Effect on inventory	References
Allocate	<i>Optional.</i> When items are allocated, the Available quantity of the item at the issue-from site is reduced, and the Allocated quantity is increased. Allocations occur as soon as an item is selected in the Manufacturing Component Transaction Entry window.	<a href="#">Allocating components</a> on page 72
Reverse allocate	<i>Optional.</i> When a reverse allocate entry is saved for an inventory quantity, the Allocated quantity is reduced and the Available quantity is increased.	<a href="#">Entering component transactions</a> on page 73
Issue	<i>Required for any component not backflushed.</i> When an issue transaction is posted for an inventory quantity, the quantity is moved to WIP (work in process). When you issue an item, it automatically is allocated if it wasn't already allocated. When an issue transaction is posted, the On Hand and Allocated quantities for the item are reduced.	
Reverse issue	<i>Optional.</i> When a reverse issue transaction is posted, the quantity is removed from WIP and the On Hand quantity is increased. Depending on whether the Allocate when Reverse Issue option is marked, the Allocated quantity may be increased.	
Scrap	<i>Optional.</i> When a scrap entry is saved, the component quantities in WIP are marked to be scrapped. The costs are still applied to the manufacturing order, but by entering scrap information, you can monitor component quality and the quantity actually used to manufacture the finished good.	
Reverse scrap	<i>Optional.</i> When a reverse scrap entry is saved, the component quantities remain in WIP, but the designation as a scrapped component is removed.	
Backflushing	<i>Required for backflushed components.</i> When you backflush items, they are marked so that their quantities are consumed when the manufacturing order items are received, and possibly when the manufacturing order is closed.	<a href="#">Specifying components in the picklist to backflush</a> on page 90
Unbackflushing	<i>Optional.</i> When you unbackflush items, their designation as backflushed items is removed. You'll need to issue the components for the manufacturing order.	



Refer to [How item values are calculated for transactions](#) on page 84 for more information.

## Picklists, pick documents, and component transactions

When you schedule a manufacturing order—either when you create the manufacturing order, or automatically when you save the order for the first time—a picklist also is generated. The picklist is the calculation of material requirements, based on the manufacturing order quantity and the bill of materials.

When you build a manufacturing order picklist, position numbers are assigned based on the bill of materials and routing link combinations of the components that you selected.

**Bill of materials and routing link combinations** When a bill of materials and routing link combination exists for the bill of materials components that you selected, the position numbers of the linked components are assigned to the items in the manufacturing order picklist.

**No bill of materials and routing links** When no bill of materials and routing links exist for the bill of materials components that you selected, the position numbers of those bill of materials components are assigned to the items in the manufacturing order picklist.

To view the picklist, to identify all or some components to backflush, or to add items to the picklist, you'll use the Picklist window. To allocate or issue components, however, you'll use the Manufacturing Component Transaction Entry window and enter component transactions to create "pick documents." A pick document is a collection of component transactions that share the same component transaction type—such as Allocate or Issue—and posting date. A single pick document can, however, include component transactions for several manufacturing orders.

## Component transactions and accounting

You should be aware of the following information about posting component transactions.

**MRP** Component demand in MRP is based on the required date for the component, not on its allocation date.



Refer to [How required dates are calculated](#) on page 53 for information about how required dates are calculated for components.

**Reference numbers** Every transaction generated by Manufacturing for materials will include a reference to the manufacturing order number.

**Subsidiary ledger** All material transactions automatically will post through the Inventory subsidiary ledger.

**General Ledger and posting preferences** Preferences for posting in summary or in detail and for posting through General Ledger or to General Ledger will be used in all component transactions.

**Standard cost items** All items with a Periodic valuation method will have only one credit amount and only one debit amount in the Inventory subsidiary ledger. However, the associated General Ledger transaction can have as many as nine credit and debit values per line.

**Site segments** Where they are available, site segments will be used in account numbers for component transactions.

**Missing accounts** If an account is not found during the posting process, the transaction won't be completed. You will need to correct and manually post the transaction.

**Units of measure** Component transactions always are posted in the base unit of measure, but transaction and posting reports will use the unit of measure used in the bill of materials.

## Viewing a picklist

You can use the Picklist window to view a summary of the picklist information for a particular manufacturing order.

### To view a picklist:

1. Open the Picklist window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Picklist)

2. Enter or select a manufacturing order.
3. Use the scrolling window to view information about the components required for the manufacturing order. The default sorting method for the components in the scrolling window was set up in the Manufacturing Order Preference Defaults window. You can use the View menu to select a different sorting method.



*Use the hide and show buttons to view more information about component parts.*

## Allocating components

Although it's not necessary to allocate components in manufacturing order processing, it can be helpful because it reserves component quantities for use in specific manufacturing orders. You can allocate both "regular" and backflushed components.



Allocations can occur automatically when the status of the manufacturing order becomes Released, or you can allocate components manually.

**To allocate automatically** Mark the option to Allocate Inventory when MO Status becomes Released in the Manufacturing Order Preference Defaults window. Refer to [Setting up manufacturing order processing](#) in [Chapter 4, “Manufacturing production functions setup,”](#) in the Manufacturing Setup documentation.

**To allocate manually** Use the Manufacturing Component Transaction Entry window to create a pick document with the Allocate transaction type. Refer to [Entering component transactions.](#)

## Entering component transactions

Use the Manufacturing Component Transaction Entry window to create pick documents—collections of component transactions. You can use this window to allocate, issue, and scrap components. You also can use the window to enter the reverse transactions: reverse allocate, reverse issue, and reverse scrap.

To add components to the manufacturing order picklist, you can choose Add Component in this window to open the Manufacturing Order Add Component window. For more information, refer to [Adding a component to a picklist.](#)



*Component transactions always are posted in the base unit of measure, but transaction and posting reports will use the unit of measure used in the bill of materials.*

### To enter component transactions:

1. In the navigation pane, choose the Manufacturing button, and then choose the Picking Documents list.
2. Choose Picking Doc to open the Manufacturing Component Transaction Entry window.

3. Choose the Transaction Type. Refer to [Component transaction types](#) on page 70 for more information.

4. Choose the information to view in the scrolling window.
  - You can use the Ranges fields to choose any combination of manufacturing orders, components, issue-from and -to sites, and required dates.
  - Use the Restrict Items To list to choose the items to be displayed in the scrolling window. For example, you can choose to view only the components that are tracked by serial numbers.
  - To include backflushed components in the scrolling window, mark Include Backflushed Items.
5. Choose Refresh. Item records that meet your restrictions are displayed in the scrolling window.
6. Choose items to include in the pick document.

Use the View icon button in the upper right corner of the scrolling window to switch between the scrolling window view of the items and a card view of the items.

- To choose a single line, mark the check box for the line item.
  - To choose all items, choose Mark All. If a line can't be marked—perhaps because the available quantity for the item isn't great enough to cover the requirement or because the item is tracked by lot or serial numbers—a message appears. You can choose to mark those items individually, and handle the exceptions one at a time.
7. Handle exceptions identified by the messages.

For example, if a component is tracked by lot or serial numbers and depending on the transaction type, you might need to specify the lot or serial numbers that should be used. Refer to the table for more information.

Issue	Action	Reference
Transaction Quantity is zero	Before you can mark the line, you must edit the Transaction Quantity so that it is greater than zero.	--
Component tracked by lot numbers	If the transaction type is not Allocate or Reverse Allocate, you must specify the lot numbers of components tracked by lot numbers.	<a href="#">Specifying lot numbers for a component transaction</a> on page 79
Component tracked by serial numbers	If the transaction type is not Allocate or Reverse Allocate, you must specify the serial numbers of components tracked by serial numbers.	<a href="#">Specifying serial numbers for a component transaction</a> on page 81
Component shortage	A message will appear when you mark the line. You can use the available quantity, or you can use components from a different site. (Change the Issue From site to do this.) If you've set up Inventory Control to allow overrides, you can override the shortage.	<a href="#">Modifying a component transaction line</a> on page 83
A substitution should be made	If you've already identified components that can be substituted for bill of materials items, you can choose to use the alternate components.	<a href="#">Using an alternate item</a> on page 87

8. If you're using multiple bins and the transaction type is not Scrap or Reverse Scrap, you can change the default bin selection for the transaction. (Scrap and Reverse Scrap transactions don't need bin information.) Refer to [Modifying bin selections for a component](#) on page 77 for more information.
9. Repeat steps 6 through 8 until you've marked all the component information to be added to the pick doc.
10. Choose Add to Pick Doc.

To view the items that are part of the pick document you can choose the Pick Doc tab. (Use the View icon button to switch between the scrolling window view and the card view, if needed.)

11. If the transaction type of the pick document is Issue, Reverse Issue, Scrap, or Reverse Scrap, you can enter the Picked By and Date Picked information. The information you enter in the fields above the scrolling window will be the default Picked By and Date Picked values for the component transaction lines, but you can change them, if needed.

If you've already added one or more items to the pick document when you change information in the Date Picked or the Picked By fields, a message is displayed and you'll have the option to have the same information applied to the items already on the pick document.



Refer to [Changing dates for a pick document](#) on page 89 for information about changing the posting date for a pick document.

12. Choose Save or Post. You must save or post the entire pick document at the same time; you can't select separate lines to save or post.

Refer to the table for more information.

Transaction Type	Save	Post
Allocate and reverse allocate	Available.	Not available.
Scrap and reverse scrap	Available. If you save a pick document with scrap, reverse scrap, issue, or reverse issue transactions, you can save the pick document and post it later.	Available. If you post a pick document with scrap, reverse scrap, issue, or reverse issue transactions, accounting transactions are created and posted.
Issue and reverse issue		

13. When you've finished, close the window.

## Adding a component to a picklist

Use the Manufacturing Order Add Component Entry window to add a component to the picklist for a manufacturing order. The new component also will be displayed for the manufacturing order in the Manufacturing Component Transaction Entry window.

**To add a component to a picklist:**

1. Open the Manufacturing Component Transaction Entry window Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry
2. Select a transaction to view in the Manufacturing Component Transaction Entry window. For more information refer to [Entering component transactions](#).
3. Choose Add Component.

4. Enter or select a component to add to the picklist.
  - If you enter an item number that isn't already in inventory, a message is displayed and you'll have the option to add the item as a non-inventoried item and also enter a description.
  - If the component is an inventoried item, the description will be displayed.



*You can't add a phantom item from this window. To add phantom items, refer to [Adding items to a picklist](#).*

5. Accept or change the position number. Refer to [Chapter 10, "Position numbers"](#) in the Manufacturing Core Functions for more information about position numbers.
6. Enter the quantity of the item to add to the picklist
7. Enter or select a unit of measure for the item.
8. Enter or select the date when the item is needed in the work center.
9. Mark options, as needed for the component.

**Floor Stock** Mark this option if the component quantity should be taken from floor stock and treated as an expense. This option is available only for inventoried items.

**Eng. Approval Req'd** Mark this option if an engineer's approval is required before the substitution can be made on the production floor.

**Backflush Item** Mark this option if the component usage for this item should be backflushed.

**Single Lot Only** Mark this option if the entire component quantity you're adding to the picklist must come from the same lot. This option is available only for lot-tracked inventoried items.

- Enter or select issue-from and issue-to sites, and enter other information, as needed. Different information is required, depending on the type of item you're adding.

**Inventoried item** You can add an item that has a periodic valuation method (standard cost item) to a picklist for a finished item that has a perpetual valuation method (actual cost item). However, you can't add an actual cost item to a picklist for a standard cost item finished good.

**Non-inventoried item** If you're adding a non-inventoried item, refer to the table for a summary of the information you must enter for the component and alternate part information.

Field	Summary
Unit Cost	The cost for the item will be the Unit Cost multiplied by the Required Quantity. This amount will be added to WIP, and will be included in calculations when finished goods are received and when the order is closed.
Required Quantity	
Non-inventoried Account	The default Inventory Control account—specified in the Posting Setup window—will be the default account, but you can change it.

- If needed, you can specify the routing sequence that the item should be linked to.
- Choose Save. The item will be added to the picklist and will be displayed in the scrolling window in the Manufacturing Component Entry window.

## Modifying bin selections for a component

You can edit the default bin selections for component transactions. Default bin selections come from the item-site record when possible. When no default bin has been identified for the item-site combination, the default bin for the site is used.

You also can modify bin information for components—including by-products—that are backflushed when you enter a manufacturing order receipt.

**Component transactions** You can edit bin information for component transaction information on unposted pick documents if the transaction type for the pick document is not Allocate, Reverse Allocate, Scrap, or Reverse Scrap.



*If the component is tracked by lot or serial numbers, you don't need to use this procedure to edit bin information. You can use procedures to select serial or lot numbers instead, because bin information automatically is updated when lot or serial number selections change.*

**Manufacturing order receipts** You can edit bin information for components that are backflushed as part of a manufacturing order receipt.

This procedure assumes that you're working with a pick document in the Manufacturing Component Transaction Entry window or you're entering a receipt in the Manufacturing Order Receipt Entry window. Use the Bin Quantity Entry window to modify bin information.

**To modify bin selections for a component:**

1. Open the window for the pick document or manufacturing order receipt.

Refer to the table for more information.

Document	Window and navigation path
Pick document	Manufacturing Component Transaction Entry window (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
Manufacturing order receipt	Manufacturing Order Receipt Entry window (Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)

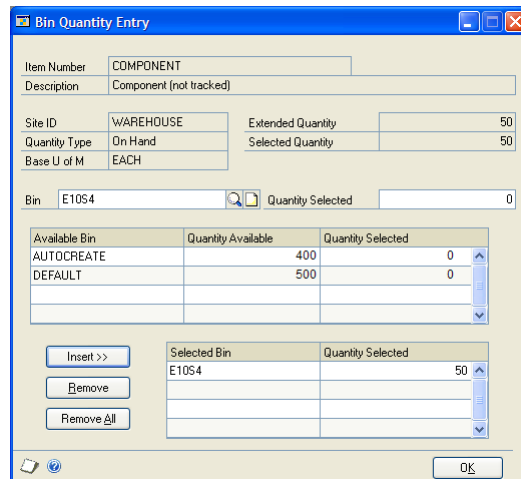
2. Enter or select the pick document or manufacturing order receipt that includes the component information.
3. In the scrolling window, mark the line for the component with the bin information to modify.
4. Open the Bin Quantity Entry window.

Refer to the table for more information.

Window	Navigation
Manufacturing Component Transaction Entry window	Choose the Transaction Quantity expansion button.
Manufacturing Order Receipt Entry window	Choose the Quantity to Backflush expansion button.



*The Bin Quantity Entry window will open only if the item is not tracked by lot or serial numbers. If the item is tracked by lot or serial numbers, windows for selecting lot or serial numbers open. When you select the lot or serial number, you're selecting the bin information as well.*



5. Enter or select a bin and the quantity to be used from that bin. You can use either of the following methods:
  - Enter or select a bin in the Bin field, and then enter the Quantity Selected.
  - Locate the bin in the upper scrolling window and enter the Quantity Selected directly in the scrolling window.
6. Choose Insert to add your selection to the lower scrolling window.
7. Continue, repeating steps 5 and 6 until the Selected Quantity equals the Extended Quantity.
8. Choose OK to close the window.

## Specifying lot numbers for a component transaction

If a component is tracked by lot numbers and you're entering a transaction to issue, reverse issue, scrap, or reverse scrap, you must specify the lot associated with the component quantities. If you're using multiple bins, the bin information automatically is selected when you select the lot.



Refer to [How lot quantities are consolidated](#) on page 83 for more information about working with lot number information.

Use the Manufacturing Component Lot Number Selection window to complete this procedure.

### To specify lot numbers for a component transaction:

1. Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a pick document. Refer to [Entering component transactions](#) on page 73 for more information.
3. Mark a line in the scrolling window for a component that is tracked by lot numbers. The Manufacturing Component Lot Number Selection window opens.



Components that are tracked by lot or serial numbers are marked with a blue pound sign in the scrolling window.

If needed, you can choose the Transaction Quantity expansion button at the top of the scrolling window to open the window.

Available	Quantity Selected	Quantity Available	Bin
AAA-219	0.0	192.0	DEFAULT
AAA-266	0.0	10.0	DEFAULT
AAA-79	0.0	35.0	DEFAULT
AAA-789	0.0	178.0	DEFAULT
AAA-90	0.0	250.0	DEFAULT
AAA-87	0.0	300.0	DEFAULT

4. Enter lot number information. You can use any of the following methods:
  - Enter the quantity to be taken from each lot in the Quantity Selected column and choose Insert.
  - Enter the lot identifier in the Lot Number field, and enter the quantity in the Quantity Selected field. Choose Insert.
  - Choose Auto-Select to have lot-numbered items selected automatically, based on the valuation method of the item.



*A warning icon appears in the Lot Number field if the lot has already expired. If you're selecting lot quantities for an Issue component transaction and you select a lot that is already past its expiration date or its expiration date is the same as the user date, a message is displayed and you'll have the option to continue or cancel.*

5. Continue, repeating step 4 until the Extended Quantity equals the Lots Selected.
6. Choose OK.
7. Choose Add to Pick Doc to add the transaction to the pick document.
8. Choose Save or Post. You must save or post the entire pick document at the same time; you can't select separate lines to save or post.



Refer to the table for more information.

Transaction type	Save	Post
Scrap and reverse scrap	Available. If you save a pick document with scrap, reverse scrap, issue, or reverse issue transactions, you can save the pick document and post it later.	Available. If you post a pick document with scrap, reverse scrap, issue, or reverse issue transactions, accounting transactions are created and posted.
Issue and reverse issue		

- When you’ve finished, close the window.

## Specifying serial numbers for a component transaction

If a component is tracked by serial numbers and you’re entering a transaction to issue, reverse issue, scrap, or reverse scrap, you must specify the serial numbers associated with the component quantities. If you’re using multiple bins, the bin information automatically is selected when you select specific serial numbers.

Use the Manufacturing Component Serial Number Selection window to complete this procedure.

### To specify serial numbers for a component transaction:

- Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
- Enter or select a pick document. Refer to [Entering component transactions](#) on page 73 for more information.
- Mark a line in the scrolling window for a component that is tracked by serial numbers. The Manufacturing Component Serial Number Selection window opens.



*Components that are tracked by lot or serial numbers are marked with a blue pound sign in the scrolling window.*

If needed, you also can choose Transaction Quantity expansion button at the top of the scrolling window to open the Manufacturing Component Serial Number Selection window.

4. Enter serial number information. You can use any of the following methods.
  - Enter the serial number of a component to be included in the transaction in the Serial Number field.
  - Highlight a serial number in the Available scrolling window, and choose Insert.
  - Choose Auto-Select to have lot-numbered items selected automatically, based on the valuation method of the item.



*You don't need to specify bins when selecting items tracked by serial numbers, because bin information automatically is included with the serial number selection.*

5. Continue, repeating step 4 until the Extended Quantity equals the Serial Numbers Selected.
6. Choose OK.
7. Choose Add to Pick Doc to add the transaction to the pick document.
8. Choose Save or Post. You must save or post the entire pick document at the same time; you can't select separate lines to save or post.

Refer to the table for more information.

Transaction type	Save	Post
Scrap and reverse scrap	Available. If you save a pick document with scrap, reverse scrap, issue, or reverse issue transactions, you can save the pick document and post it later.	Available. If you post a pick document with scrap, reverse scrap, issue, or reverse issue transactions, accounting transactions are created and posted.
Issue and reverse issue		

9. When you’ve finished, close the window.

## How lot quantities are consolidated

When you use a Microsoft Dynamics GP or Manufacturing window to select quantities of items that are tracked by lot numbers, the lot number information might be consolidated. That is, rather than displaying lot information for each purchase receipt on a separate line in a scrolling window, lot information will be consolidated if all of the following values are the same for the lines:

- Item number
- Lot number
- Site
- Bin
- Quantity type
- Manufactured date
- Expiration date

If quantities are selected automatically, the selections that are made will depend on the sorting option you’re using in the window.

- If you’re sorting information in the window by Date Received, the lot quantities will be taken from either the lot that was received first (if the valuation method of the item is FIFO) or the lot the that was received last (if the valuation method of the item is LIFO).
- If you’re sorting information in the window by Lot Number or Expiration Date, the lot quantities will be taken from whatever lot appears first in the scrolling window.



*If you’re allocating or issuing components for a manufacturing order and the bill of materials requires that all of the component quantity be taken from a single lot, then the lot quantities will be taken from the first lot that satisfies both the sorting rule and the lot quantity.*

## Modifying a component transaction line

Before a component transaction line is posted, you can change the transaction quantity, issue-from site, and the unit of measure. You can make changes before or after the transaction line is added to a pick document, but the pick document can’t be already posted.

When you change this information, you might also have to update other information for the line. For example, if you increase the transaction quantity and the item is tracked by lot or serial numbers, you’ll need to select more lot or serial numbers.

Use the Manufacturing Component Transaction Entry window to complete this procedure.

**To modify a component transaction line:**

1. Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a saved (not posted) pick document with the Issue, Reverse Issue, Scrap, or Reverse Scrap transaction type.
3. Choose the Pick Doc tab to view saved component transaction lines.
4. In the scrolling window, change the transaction quantity, issue-from site, or unit of measure.



*To view information about the quantities of the item, choose the Info icon button to open the Picklist Quantity Status window.*

5. Continue making changes to other component transaction lines by repeating step 4.
6. Choose Save or Post when you’ve finished making changes. You must save or post the entire pick document at the same time; you can’t select separate lines to save or post.

Refer to the table for more information.

Transaction type	Save	Post
Scrap and reverse scrap	Available. If you save a pick document with scrap, reverse scrap, issue, or reverse issue transactions, you can save the pick document and post it later.	Available. If you post a pick document with scrap, reverse scrap, issue, or reverse issue transactions, accounting transactions are created and posted.
Issue and reverse issue		

**How item values are calculated for transactions**

In Inventory Control, the valuation method for an item determines how the cost of the item used to fulfill a requirement is calculated.

**Standard cost items** If the valuation method of an item is periodic, items are removed from inventory at their standard cost and are returned to inventory at the same cost that was used when they were removed from inventory.



*Refer to [Understanding posting for standard-cost items](#) on page 167 for more information.*

**Average (current) cost items** If the valuation method of an average cost item is perpetual, items are removed from inventory based on the current cost of the item. Inventory is issued to WIP at the items current cost. When the current cost of an item is recalculated and the cost of the item is adjusted, the cost of the item will be updated if the item is still in WIP. If the item has been removed from WIP by a manufacturing order receipt, the cost won’t be updated.

If an item is removed from inventory and then returned back to inventory, the item will have the same cost it had when it was removed. If this cost differs from the average cost, the average cost of the item will be recalculated. The manufacturing WIP account will be credited and the inventory account will be debited for the item.

You can view assembly and manufacturing transactions of an average cost item by clicking on the Quantity Sold Details link in the Purchase Receipts Inquiry window. Refer to Inventory documentation for more information about the Purchase Receipts Inquiry window.

**Actual cost items** If the valuation method of an actual cost item is perpetual, items are removed from inventory based on the LIFO or FIFO part of their valuation methods. This is done by tracking the receipt date and cost of each item, and storing that information in a theoretical format called the “inventory stack.” Inventory is issued to WIP at cost from the purchase receipt.

Think of the inventory stack as a table that includes information about item quantities and costs. The most recently received items are added to the top of the table or stack. When an item needs to be taken from the stack—such as when you issue components for a manufacturing order—it’s taken from either the top of the stack (if you’re using a LIFO valuation method) or from the bottom of the stack (if you’re using a FIFO valuation method). A very simple representation of the inventory stack for widgets at the Warehouse site might look like this:

Quantity received	Receipt date	Quantity sold	Cost
2	Jan. 11	0	\$5.00
3	Jan. 15	0	\$5.75
5	Feb. 9	0	\$4.98

When you issue a component, it is removed from inventory and placed into WIP at the work center site. The WIP stack is very similar to the inventory stack, but it uses the WIP receipt date rather than the inventory receipt date to determine the order of the items.



*You can view information about WIP with the SmartList. To open the SmartList, choose the SmartList icon (it looks like a flashlight) in the toolbar. In the SmartList window, highlight Work in Process in the left column. Refer to the System User’s Guide (Help >> Contents >> select Using the System) for information about using the SmartList.*

For example, suppose that the widgets have a FIFO valuation method, and you enter two separate component transactions on February 20 to issue three widgets each. Inventory would be updated to look like this:

Quantity received	Receipt date	Quantity sold	Cost
2	Jan. 11	2	\$5.00
3	Jan. 15	3	\$5.75
5	Feb. 9	1	\$4.98

*\*The Quantity Sold field is used to track quantities removed from the inventory stack layers. For a manufacturing component the field would be better named “Quantity Used.”*

The WIP stack at the work center site (the site the items were issued to) would be updated to look like this:

WIP quantity in	Inventory receipt date	WIP in date	WIP quantity out	Unit cost
2	Jan. 11	Feb. 20	0	\$5.00
3	Jan. 15	Feb. 20	0	\$5.75
1	Feb. 9	Feb. 20	0	\$4.98

Now suppose you enter a reverse issue component transaction for two widgets. Those widgets would be taken from the bottom of the WIP stack because those are the widgets most recently taken from inventory. One of the widgets would have a cost of \$4.98, and the other would have a cost of \$5.75. After you posted the reverse issue transaction, the WIP stack at the work center site would be updated to look like this:

WIP quantity in	Inventory receipt date	WIP in date	WIP quantity out	Unit cost
2	Jan. 11	Feb. 20	0	\$5.00
3	Jan. 15	Feb. 20	1	\$5.75
1	Feb. 9	Feb. 20	1	\$4.98

When the reverse issue transaction is posted, the items also are returned to their original places within the inventory stack, based on their original inventory receipt dates. Inventory would look like this:

Quantity received	Receipt date	Quantity sold*	Cost
2	Jan. 11	2	\$5.00
3	Jan. 15	2	\$5.75
5	Feb. 9	0	\$4.98

\*The Quantity Sold field is used to track quantities removed from the inventory stack layers. For a manufacturing component the field would be better named "Quantity Used."

You can refer to the following table for an overview of how the valuation method for an item determines how costs are calculated for Reverse Issue and Scrap transaction types.

Transaction type	Valuation method	Cost information
Reverse Issue	Periodic	Items are returned to inventory at the same cost that was used when they were removed from inventory.
	FIFO Perpetual	Items are taken from the bottom of the WIP stack.
	LIFO Perpetual	Items are taken from the top of the WIP stack.
Scrap	FIFO Perpetual Average	Items are taken from the top of the WIP stack for the transaction.
	LIFO Perpetual	Items are taken from the bottom of the WIP stack for the transaction.

## Using an alternate item

When you create a bill of materials, you can specify if one component can be used as a substitute for another in the bill. When you create a picklist based on a bill of materials that includes alternates, the alternate items will appear with zero for the Transaction Quantity. Changing the quantity for the alternate item is the first step in using an alternate item in a manufacturing order. After you've changed the transaction quantity for the alternate item, you can treat it just like other components for the manufacturing order.

Use the Manufacturing Component Transaction Entry window to complete this procedure.

### To use an alternate item:

1. Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Create a pick document with an Allocate or Issue transaction type. Refer to [Entering component transactions](#) on page 73 for more information.



*Select Alternates from the Restrict Item To list to display information about alternates in the scrolling window.*

3. Change the Transaction Quantity for the item you're substituting for the primary item.



*Alternate items—those that can be substituted for other, primary items in a picklist—are marked with a small icon that looks like two gears.*

When you select the alternate item, a message appears. If neither the primary item nor the alternate item has been allocated or issued, you'll have the option to reduce the quantity of the primary item to zero, leave the quantity of the primary item as it is, or cancel.

4. Be sure the line is marked, and choose Add to Pick Document.
5. Choose to save or post the pick document, and close the window.

## Printing a picking report

Depending on your business practices, you might want to use a picking report to help warehouse personnel move component items from one site to another. The picking report can be based on posted transactions or on saved transactions.

**Posted transactions** You can print a picking report based on posted transactions. For example, your business practice might be to issue components and then print a picking report that warehouse personnel can use to move the items.

**Saved transactions** You also can print a picking report based on saved transactions. For example, if your businesses uses many serial-number-tracked items, you might want to create and save issuing transactions. The warehouse personnel could use the picking report as they picked the items, noting the serial or lot numbers of items chosen. The marked-up picking report could be used to enter information about the serial and lot numbers of the specific items that were picked.

The picking report summarizes the items and quantities for an Issue type component transaction. You'll also have the option to print the picklist notes, if needed. The report also includes spaces where warehouse personnel can record information about the items they've picked.

### To print a picking report:

1. Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a manufacturing pick document with one of the following transaction types:
  - Issue
  - Reverse Issue
  - Scrap
  - Reverse Scrap
3. Choose the print icon button. The Picking Report Print Options window will open.
4. Mark Print Picklist Notes if picklist notes should also be printed.



*You can set up your system to always include picklist notes, if they should always be included on the report. Refer to [Setting up manufacturing order processing in Chapter 4, "Manufacturing production functions setup,"](#) in the Manufacturing Setup documentation.*

5. Choose how the report should be sorted.
6. Choose Print. The Report Destination window appears, and you can specify how the report should be printed.

## Deleting a pending component transaction

If you've saved a pick document with the Issue, Reverse Issue, Scrap, or Reverse Scrap transaction type, but haven't posted the pick document, you can delete component transactions from it. Some tasks—such as changing the status of a manufacturing order from Released to Open—can occur only if there are no pending (unposted) component transactions for the manufacturing order.

### To delete a pending component transaction:

1. Open the Manufacturing Component Transaction Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a picking document. The document must have Issue, Reverse Issue, Scrap, or Reverse Scrap transaction type, and can't be already posted.



*If you're using the lookup window to choose the pick document, you can restrict the scrolling window to those pick documents that are saved.*

3. Be sure you're viewing the Pick Doc tab.
4. In the scrolling window, mark the item to remove.



5. Choose Remove.
6. When you've finished, close the window.

### Changing dates for a pick document

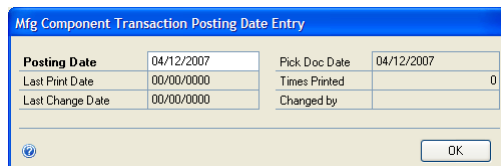
You can specify a date other than the current date for posting some pick documents. The posting date is used to update inventory tables, and is used regardless of whether you've chosen to post by transaction date or batch date. Refer to the table for more information.

Transaction type	Changes to posting date allowed?
Allocate Reverse Allocate	You can change the date only if the pick document hasn't been saved.
Issue Reverse Issue Scrap Reverse Scrap	You can change the date only if the pick document hasn't been posted.

Use the Mfg Component Transaction Posting Date Entry window to complete this procedure.

#### To change dates for a pick document:

1. Open the Manufacturing Component Transaction Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a pick document.
3. Choose the expansion button on the Date field to open the Mfg Component Transaction Posting Date Entry window.



4. Enter date information. If the pick document hasn't been saved or posted, date information is updated according to these rules:
  - If you haven't changed the posting date but change the pick document date, the date you enter for the pick document date also will be the posting date.
  - If you have changed the posting date and then change the pick document date, the posting date won't be changed to match the pick document date.
5. Choose OK.

- In the Manufacturing Component Transaction Entry window, choose Save or Post. You must save or post the entire pick document at the same time; you can't select separate lines to save or post.

If you're posting the document, reports will be printed if the transaction type is Issue or Reverse Issue.

- When you've finished, close the window.

## Specifying components in the picklist to backflush

If you choose to backflush the materials for a manufacturing order, the inventory quantities to be deducted from your material accounts will include quantities for covering shrinkage in either raw materials or finished goods. The exact numbers deducted from inventory will be determined and posted when you post manufacturing order receipts.

You can allocate backflushed components, but it isn't required. If you don't allocate materials, they will be allocated and then backflushed when you post manufacturing order receipts.



*Not all components can be backflushed. Refer to [Rules for backflushed components](#) in [Chapter 9, "Bill of Materials overview,"](#) in the *Manufacturing Core Functions* documentation for more information.*

### To specify components in the picklist to backflush:

- Open the Picklist window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Picklist)
- Enter or select a manufacturing order.
- Decide what components should be backflushed.

**Backflushing specific components** In the scrolling window, mark the Backflush option for the components that should be backflushed. (Some component requirements might already be marked, if they were designated for backflushing in the bill of materials.)

**Backflushing all components** Mark Backflush All, and choose Apply.

You can unbackflush all the backflushed components—as long as there are no pending transactions against them—by marking Unbackflush All and choosing Apply.



*If you mark a phantom item to backflush, the phantom item won't be backflushed, but all of its components will be. To backflush all the components of a phantom item, mark Backflush All and choose Apply.*

- When processing is complete, choose OK and close the window.

## Using a pick document as a template

You can use an existing pick document as the basis for a new pick document. For example, if you used pick document PICK000123 to allocate all the materials for a certain manufacturing order, you could use that same pick document as a template for a different pick document to issue all the materials for the order. By using existing pick documents as templates for new pick documents, you can reduce data entry time.

Refer to the table for more information.

<b>This pick document:</b>	<b>... can be used as a template for:</b>
Saved document with Allocate transaction type	A pick document to Issue or Reverse Allocate
Posted document with Issue transaction type	A pick document to Reverse Issue or Scrap
Posted document with Scrap transaction type	A pick document to Reverse Scrap

### To use a pick document as a template:

1. Open the Manufacturing Component Transaction Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Component Trx Entry)
2. Enter or select a pick document.
3. Change the transaction type for the pick document.

Changing the transaction type will have these effects:

- When the transaction type is changed, the next pick document number appears in the Pick Document field because the new pick document requires its own identifier.
  - The Transaction Quantity information in the new pick document will be the same as the transaction quantity information in the original pick document. If you have reverse allocated component quantities, those changes will be reflected in the Transaction Quantity in the new pick document.
4. You can continue to make changes to the new pick document, as needed.
  5. Choose Save or Post. You must save or post the entire pick document at the same time; you can't select separate lines to save or post.

Refer to the table for more information.

<b>Transaction type</b>	<b>Save</b>	<b>Post</b>
Allocate and reverse allocate	Available.	Not available.
Scrap and reverse scrap	Available. If you save a pick document with scrap, reverse scrap, issue, or reverse issue transactions, you can save the pick document and post it later.	Available. If you post a pick document with scrap, reverse scrap, issue, or reverse issue transactions, accounting transactions are created and posted.
Issue and reverse issue		

6. When you've finished, close the window.

## Adding items to a picklist

You can add items to a picklist. For example, if your manufacturing process calls for one epoxy but you decide to use a new glue, you might need to add the glue to the picklist. This way, you can substitute one item for another without needing to identify the new item in the bill of materials for the manufacturing order.

Use the Picklist window and the Add Picklist Entry window to complete this procedure.

### To add items to a picklist:

1. Open the Picklist window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Picklist)
2. Enter or select a manufacturing order.
3. Choose Add Component to open the Add Picklist Entry window.

4. Enter or select the item to be added to the picklist.

**Non-inventoried item** If you enter an item number that isn't already in inventory, a message appears and you'll have the option to add the item as a non-inventoried item.

**Inventoried item** If you enter an inventoried item that isn't active or that isn't effective, a message appears and you'll have the option to add the item anyway.



*You also can add a finished good item to the picklist.*

5. Accept or change the position number. Refer to [Position numbers](#) on page 89 in the Manufacturing Core Functions documentation for more information.
6. Enter the quantity of the item to add to the picklist.
7. Enter or select a unit of measure for the item.
8. Enter or select the date when the item is needed in the work center.

9. Mark options for the component, as needed.

**Floor Stock** Mark this option if the component quantity should be taken from floor stock and treated as an expense. This option is available only for inventoried items.

**Eng. Approval Req'd** Mark this option if an engineer's approval is required before the substitution can be made on the production floor.

**Backflush Item** Mark this option if the component usage for this item should be backflushed.

**Single Lot Only** Mark this option if the entire component quantity you're adding to the picklist must come from the same lot. This option is available only for lot-tracked inventoried items.

10. Enter or select issue-from and issue-to sites, and enter other information, as needed. Different information is required, depending on the type of item you're adding.

**Non-inventoried item** If you're adding a non-inventoried item, refer to the table for a summary of the information you must enter.

Field	Summary
Unit Cost	The cost for the item will be the Unit Cost multiplied by the Required Quantity. This amount will be added to WIP, and will be included in calculations when finished goods are received and when the order is closed.
Required Quantity	
Non-inventoried Account	The default Inventory Control account—specified in the Posting Setup window—will be the default account, but you can change it.
Backflush Item	All non-inventoried items automatically are backflushed.

**Phantom item** If you add a phantom item to the picklist, the requirements for the components of the phantom will be calculated, based on the phantom bill of materials and the Required Quantity. Those component requirements also will be added to the picklist.

**Standard-cost item** You can add an item that has a periodic valuation method (standard cost item) to a picklist for a finished item that has a perpetual valuation method (actual cost item). However, you can't add an actual cost item to a picklist for a standard cost item finished good.

11. If needed, you can specify the routing sequence the item should be linked to.
12. Choose Save and close the window.

## Picklist reports

Depending on your system settings, inventory transactions might be generated when you post a material component transaction. For example, if you issue or unissue materials to a manufacturing order, inventory transactions to reflect moving those items from inventory to work in process will be generated.

To help you track these inventory transactions, certain reports are generated each time a manufacturing component transaction with the Issue or Reverse Issue type is

posted. Depending on the posting options you've set, the following reports might be generated when you post the transaction:

- Inventory Transaction Journal
- Transaction GL Register
- General Posting Journal

You also can print Manufacturing reports based on picklist information. To print a general report about a specific picklist, open the Picklist window and choose the print icon button to generate the Picklist Report, which summarizes information about the displayed picklist. Item numbers, sites, quantities, and types—Made, Bought, Make or Buy—are all included in the report.



*To print a picking report for a component transaction with the Issue, Reverse Issue, Scrap, or Reverse Scrap transaction type, open the Manufacturing Component Transaction Entry window, enter or select the pick document, and choose the print icon button.*

## Removing a component from a picklist

You can remove components from a picklist. For example, if your manufacturing process no longer uses a certain type of glue, you might need to remove the glue from the picklist.

Use the Picklist window to remove a component from a picklist.

### To remove a component from a picklist.

1. Open the Picklist window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Picklist)
2. In the scrolling window, mark the item to delete.
3. Delete the row using one of the following methods.
  - From the Edit menu, choose Delete Row
  - Choose the delete icon button at the top of the scrolling window.
4. Save and close the Picklist window.

## Deleting a picklist

You can use the Picklist window to delete a picklist. You can delete a picklist if there are no components issued for the manufacturing order. You could enter Reverse Issue transactions, if needed, to remove those transactions, and then delete the picklist.



*Every manufacturing order needs a picklist, so if you delete a picklist for a manufacturing order but need to continue work on the order, be sure to rebuild the picklist. To do so, open the Manufacturing Order Entry window, select the manufacturing order, and choose Build Picklist.*

**To delete a picklist:**

1. Open the Picklist window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Picklist)
2. Enter or select a manufacturing order.
3. Choose Delete.



*If you're using outsourcing and you've already recorded shipments for items in the picklist, a message will appear when you delete the picklist and you'll have the option to void the shipments or cancel.*

4. When you've finished, close the Picklist window.





## Chapter 9: Routings and rescheduling

When you create a manufacturing order, a copy of the planning routing you've chosen for the manufacturing order is created. The copy—called the active, working, or manufacturing order routing—includes all the information that was part of the planning routing when the manufacturing order was created.

If you make changes to the planning routing, you'll have the option to update the associated active routings. Sometimes, however, you'll want to update the active routing, and leave the planning routing unchanged.

You can use the Manufacturing Order Routing View window to see a summary of information for any active routing, and then use the Manufacturing Order Routing Sequence Edit window to change routing sequence information for manufacturing order routings.

You also can reschedule manufacturing order sequences. You can use the Manual Scheduling window to change the scheduling method for one or more sequences for a single manufacturing order. You can use the Batch Reschedule window to change scheduling information two or more manufacturing orders.

This information is divided into the following sections:

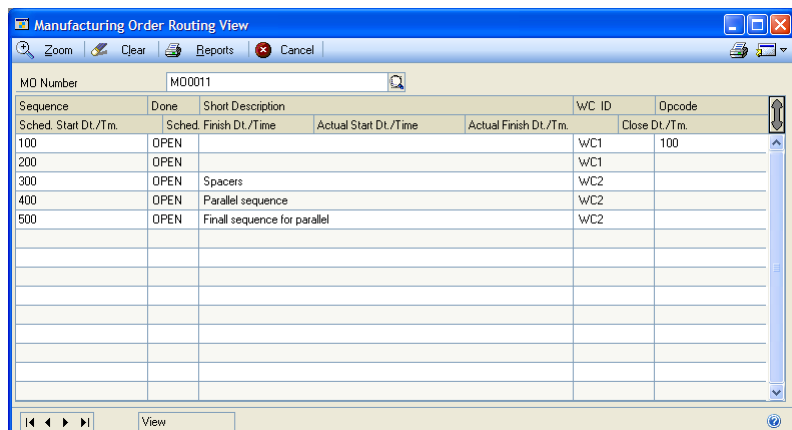
- [Viewing a manufacturing order routing](#)
- [Modifying a manufacturing order routing](#)
- [Changing user-defined field information](#)
- [Comparing actual and estimated sequence times](#)
- [Rescheduling manufacturing order sequences](#)
- [Rescheduling an entire manufacturing order](#)

### Viewing a manufacturing order routing

Use the Manufacturing Order Routing View window to view information about the sequences within a manufacturing routing.

#### To view a manufacturing order routing:

1. Open the Manufacturing Order Routing View window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Routing View)



The screenshot shows the 'Manufacturing Order Routing View' window for manufacturing order MO0011. The window contains a table with the following data:

Sequence	Done	Short Description	WC ID	Opcode
100	OPEN		WC1	100
200	OPEN		WC1	
300	OPEN	Spacers	WC2	
400	OPEN	Parallel sequence	WC2	
500	OPEN	Final sequence for parallel	WC2	

2. Enter or select a manufacturing order.
3. Review the information in the scrolling window. Use the hide and show buttons to adjust the amount of information displayed in the scrolling window.
4. To view more detailed information about a particular manufacturing order routing sequence, highlight the sequence and choose Zoom. The Manufacturing Order Closeup window will open, displaying information about the sequence you've selected.

The screenshot shows the 'Manufacturing Order Closeup' window with the following data:

Header Information	
MO Number	MO0011
Item Number	FINISHED GOOD
Sequence	300 <input type="checkbox"/> QA Sequence
Description	Spacers
Status, Time Closed	<input type="checkbox"/> Done
Work Center	WC2
Vendor ID	
WC Opcode	
PO Release Offset Days	0
WIP Output Per MO Start Quantity	1
Drawing Group	
<input checked="" type="checkbox"/> Auto-Backflush Labor	<input checked="" type="checkbox"/> Auto-Backflush Machine
Schedule Information	
Percentage Next Start	
Quantity Next Start	
Concurrent Sequence	400
Next Sequence	500
<input type="checkbox"/> Last sequence scheduled for day	
Quantity	50.00000

Scheduled Times and Dates		
	Time	Date
Scheduled Start	9:00:00 AM	04/30/2007
Scheduled Finish	10:00:00 AM	06/07/2007
Actual Start		
Actual Finish		

Time and Costing	
Setup Time	
Setup Labor Code	
Labor Time	4.50000
Labor Code	LC1
# of Emps.	
# of Machines	1
Machine Time	4.50000
Machine ID	INSERT
Queue Time	
Move Time	
Cycle Time	4.50000
Run Time for one piece	4.50000
Time for every additional piece	4.50000

5. When you've finished viewing information, close the windows.

## Modifying a manufacturing order routing

Use the Manufacturing Order Routing Sequence Edit window to change manufacturing order routings. You can change estimated times for setup, labor, and other tasks, you can change required labor codes, and you can modify other information, as needed.

**To modify a manufacturing order routing:**

1. Open the Manufacturing Order Routing Sequence Edit window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Routing Edit)

2. Enter or select a manufacturing order.
3. Use the browse buttons on the Sequence field to select a routing sequence.
4. Make changes, as needed.
5. Choose Save and close the window.

**Changing user-defined field information**

Use the User Defined Fields window to change the information you've entered for user-defined fields for a manufacturing order routing.

Using user-defined fields requires two procedures. First, you must define the prompts or labels that will appear on the user-defined fields; then you must enter values in the fields. Refer to [Setting up work center options](#) in [Chapter 1, "Manufacturing basic setup,"](#) in the Manufacturing Setup documentation for information about defining the field labels. Refer to [Creating an operation](#) in [Chapter 3, "Operations,"](#) in the Manufacturing Core Functions documentation for more information about entering values in those fields.

**To change user-defined-field information:**

1. Open the Manufacturing Order Routing Sequence Edit window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Routing Edit)
2. Enter or select a manufacturing order.
3. Enter or select a manufacturing order routing sequence.

4. From the Go To button, choose User Defined Fields to open the User Defined Fields window.
5. Change the information in the window, as needed.
6. Choose OK to save your changes and close the window.



*Changes you made to user-defined fields apply only to the manufacturing order you selected.*

## Comparing actual and estimated sequence times

Use the Sequence Dates window to view information about the estimated and actual time needed to complete a specific manufacturing order routing sequence.

### To compare actual and estimated sequence times:

1. Open the Manufacturing Order Routing Sequence Edit window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Routing Edit)
2. Enter or select a manufacturing order.
3. Use the browse buttons on the Sequence field to select a routing sequence.
4. Choose Sequence Start/Stop to open the Sequence Dates window.

	Time	Date
Scheduled Start	12:30:00 PM	04/26/2007
Scheduled Finish	9:00:00 AM	04/30/2007
Actual Start	12:00:00 AM	00/00/0000
Actual Finish	12:00:00 AM	00/00/0000
When Closed	12:00:00 AM	00/00/0000

5. Review information in the window. When you've finished, close the window.

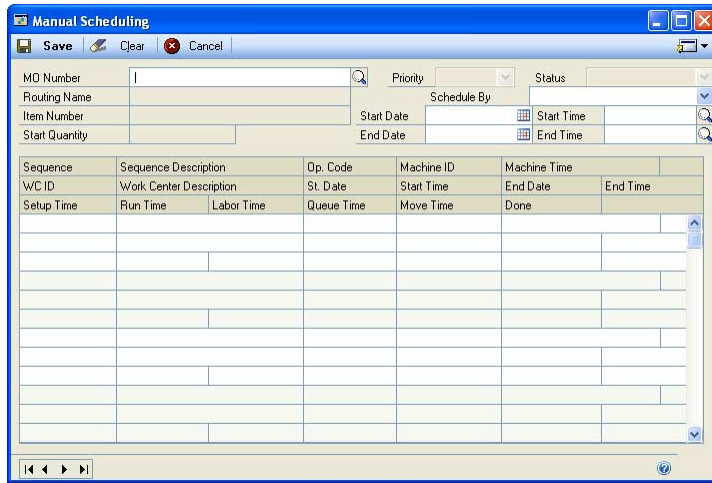
## Rescheduling manufacturing order sequences

Use the Manual Scheduling window to make scheduling changes to a single manufacturing order routing sequence or to a range of sequences.

### To reschedule manufacturing order sequences:

1. In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.
2. Mark a manufacturing order.

- Choose Manual Schedule to open the Manual Scheduling window.



- Enter or select a manufacturing order.
- In the scrolling window, select the sequence or range of sequences to reschedule. A black dot will appear at the end of the first line in the scrolling window to identify the selected sequences.



*You can't mark a sequence if it has already been completed.*

- Use the fields in the upper right corner of the window to change scheduling information.
  - To change the scheduling method, select another Schedule By option. Refer to [Scheduling methods](#) on page 52 for more information about scheduling methods.
  - To change the start date and time—for sequences scheduled with the Forward Infinite scheduling method—enter or select a new date or time.
  - To change the end date and time—for sequences scheduled with the Backward Infinite scheduling method—enter or select a new date or time.
- Choose Save. If the sequence or sequences you're rescheduling should have already occurred, a message will appear, and you'll have the option to cancel the rescheduling process.
- When processing is complete, close the window.

## Rescheduling an entire manufacturing order

Use the Batch Reschedule window to reschedule one or more entire manufacturing orders at one time. For example, if your plant has had an unexpected down day, you might want to move all start dates and end dates of all sequences for several manufacturing orders out one day.

**To reschedule an entire manufacturing order:**

1. Open the Batch Reschedule window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Batch Reschedule)

Manufacturing Orders Available		Priority	Status	Qty	Base U of M
MO0011	Replenishment	Medium	Released		
FINISHED GOOD	Finished good (not tracked)			50	EACH
MO0012	Replenishment	Medium	Released		
FINISHED GOOD SERIAL	Finished good tracked by serial numbers			25	EACH

Manufacturing Orders to Reschedule		START DATE	START TIME	END DATE	SCHEDULE METHOD
MO0011	Replenishment				
FINISHED GOOD	Finished good (not tracked)				
AUTOMATED		04/13/2007	8:00:00 AM	06/12/2007	Forward Infinite
50	EACH	Released		Medium	
MO0012	Replenishment				
FINISHED GOOD SERIAL	Finished good tracked by serial numbers				
AUTOMATED		04/16/2007	8:00:00 AM	05/18/2007	Forward Infinite
25	EACH	Released		Medium	

2. If needed, use the View MOs with Priority field and the and Due Date <= field to restrict the list of manufacturing orders listed in the top scrolling window. You can use one or both of these methods.
  - To limit the list of manufacturing orders in the upper scrolling window to those with a specific priority level, select an operator, and then select a priority. You can choose from the following operators.
    - <= Means “is less than or equals”.
    - = Means “equals”.
    - >= Means “is greater than or equals”.
  - To limit the list of manufacturing orders in the upper scrolling window to those with a due date on or before a date you specify, enter the date in the and Due Date <= field.
3. In the upper scrolling window, highlight a manufacturing order to reschedule. Choose Insert to move the manufacturing order to the lower scrolling window.
4. Continue, repeating step 3 until you’ve added all the manufacturing orders to be rescheduled to the lower scrolling window.
5. Modify the scheduling information for the manufacturing orders in the lower scrolling window. You can make changes directly in the lower scrolling window, using lookup buttons and changing settings in the Scheduling Method field. Your changes automatically will be saved as you make them.
6. Choose Process to update information.
7. When you’ve finished rescheduling manufacturing orders, close the window.

# Chapter 10: Quick manufacturing orders

This information is divided into the following sections:

- [\*Quick manufacturing orders\*](#)
- [\*Creating a quick manufacturing order\*](#)
- [\*Adding a component to a quick manufacturing order\*](#)
- [\*Closing a quick manufacturing order\*](#)

## Quick manufacturing orders

Before you close a standard manufacturing order, you must supply information about the labor and machine time used toward the order, as well as material information—how much material was used, how much was scrapped, how much was returned to stock.

If your company doesn't want to track manufacturing order information to this level of detail, you can use the window designed for creating and closing "quick manufacturing orders," allowing you to bypass some of the usual steps required to close a manufacturing order—such as data collection—while still completing all of the accounting procedures necessary to close an order.

When you use quick manufacturing orders—sometimes called "quick MOs"—a picklist automatically is built when you save a manufacturing order. Posting completed items to inventory and updating the raw materials inventory is handled automatically when you close the manufacturing order.

You can use the Quick MOs window to close manufacturing orders that were created in the Manufacturing Order Entry window if no component transactions have been entered for the manufacturing order. Conversely, you can close manufacturing orders created in the Quick MOs window using the MO Close window.

Before you create a quick manufacturing order for an item, you should review the following information.

**Primary routing** The method you use to receive finished goods and close a quick manufacturing order affects how the primary routing for the finished item must be set up.

- If you close the manufacturing order using the Quick MOs window, all labor and machine time automatically is backflushed, regardless of whether the labor and machine time information in each routing sequence is marked to be backflushed.
- If you use the Manufacturing Order Receipts window to receive finished goods and the Manufacturing Order Close window to close the manufacturing order, labor and machine time is not backflushed unless it is marked to be backflushed in the primary routing sequences.

**Manually select serial and lot numbers for components** To manually select the serial and lot numbers of components for quick manufacturing orders, be sure that the option Manually select serial/lot numbers in Quick MO is marked in the Manufacturing Order Preference Defaults window. Refer to [Setting up manufacturing order processing](#) in Chapter 4, “Manufacturing production functions setup,” in the Manufacturing Setup documentation for more information.

**Automatically select serial and lot numbers for components** To automatically have the lot or serial numbers of components selected, be sure that the Auto-Select lot numbers based on date received or expiration date option is marked in the Manufacturing Order Preference defaults window.

You can specify if lot numbers that are selected automatically should be based on the dates that the components are received or the dates when they expire.

- If you select Date Received from the Auto-Select lot numbers based on field, the lot number selection will be based on the date received.
- If you select Expiration Date for the Auto-Select lot numbers based on field, the quantity of lot numbers from the backflush site will be selected from the lot numbers beginning with those that have a blank expiration date, followed by lot numbers that have an expiration date in order of the earliest date to the latest date.

Lot-numbered items with expiration dates that come before the current user date will be skipped. If the actual quantity is unavailable because of expiration dates, no lot numbers will be selected.

## Creating a quick manufacturing order

Use the Quick MOs window to create a quick manufacturing order. Before you can create a quick manufacturing order, however, be sure you’ve specified a primary routing and scheduling preference for the item.

Refer to [Setting up scheduling preferences](#) in Chapter 4, “Manufacturing production functions setup,” of the Manufacturing Setup documentation for more information about specifying default scheduling preferences.



*Regardless of the scheduling preference for the finished item, the scheduling method for quick manufacturing orders is forward infinite.*

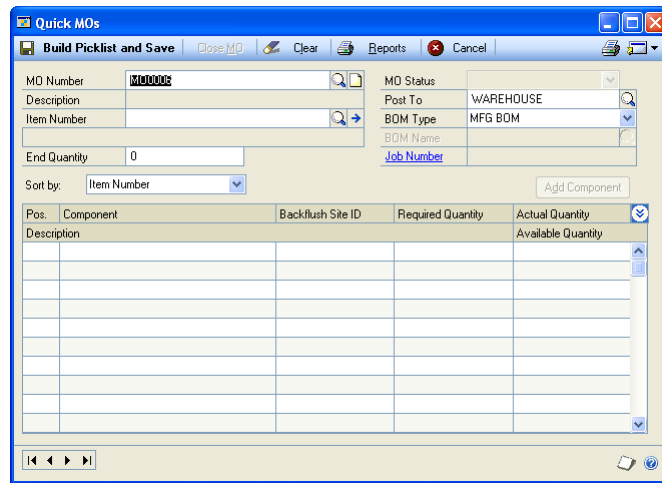
To add components to a quick manufacturing order, you can choose Add Component in the Quick MOs window to open the Quick MO Add Component Entry window. The new components also will be displayed in the Quick MOs scrolling window. For more information, refer to *Adding a component to a quick MO*.

### To create a quick manufacturing order:

1. In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.



- Choose Quick Manufacturing Order to open the Quick MOs window.



- Accept the default manufacturing order number, or enter another.
- Enter or select the number of the item to be produced with this manufacturing order.

If you select a phantom item—an item with a manufacturing bill of materials with the phantom BOM category—a message is displayed, asking if you’re sure you want to create a manufacturing order for a phantom item. If you choose Yes, you can continue to create the manufacturing order as you would for any item.

- Accept the default End Quantity, or enter another. The default end quantity comes from the Avg. Make Quantity field in the Item Engineering Data window.
- Enter or select a site ID in the Post To field for a destination for the finished items produced with this manufacturing order. The default post-to site will be the site specified in your default scheduling preference. If no site is specified in the scheduling preference, the default site for the item will be the default value for the post-to site.
- Select the bill of materials type.
  - MFG BOM is a manufacturing bill of materials.
  - ENG BOM is an engineering bill of materials.
  - ARCH BOM is an archived bill of materials.
  - CONFIG BOM is a configured bill of materials.

If you select Archived or Configured, you also must select a bill of materials name.

- Choose Build Picklist and Save. Information about the components needed for the manufacturing order is calculated and displayed in the scrolling window.



Use the hide and show buttons in the scrolling window to adjust the amount of information displayed in the scrolling window.

- Use the lookup buttons in the Backflush Site ID fields in the scrolling window to select the locations materials should be taken from. Changes in the scrolling window automatically are saved.

- You can modify the Actual Quantity amounts. Changes in the scrolling window automatically are saved.



If the issue-to site for a component is an outsourced work center, you can't edit the actual quantity for the component.

- When you've finished making changes, close the window.

## Adding a component to a quick manufacturing order

Use the Quick MO Add Component Entry window to add a component to the picklist for a quick manufacturing order. The new component also will be displayed in the scrolling window of the Quick MOs window.

For more information about quick manufacturing orders, refer to [Quick manufacturing orders](#) and [Creating a quick manufacturing order](#).

### To add a component to a quick manufacturing order:

- In the navigation pane, choose the Manufacturing button, and then choose the Manufacturing Orders list.
- Mark an item.
- Choose Edit Quick Manufacturing Order to open the Quick MOs window.
- Enter or select a manufacturing order number. Choose Build Picklist and Save. Refer to [Creating a quick manufacturing order](#).
- Choose Add Component to open the Quick MO Add Component Entry window.

6. Enter or select a component item number. You can select an inventoried item—one already defined in Microsoft Dynamics GP—or enter a non-inventoried item and description.

**Non-inventoried item** If you enter an item number that isn't already in inventory, a message is displayed and you'll have the option to add the item as a non-inventoried item.

**Inventoried item** Only some inventoried items can be added to the manufacturing order.

- The status of the item—entered in the Item Engineering Data window—must be Active, Released, or Service.
- If the effective date of the item—entered in the Item Engineering Data window—is after the system date, a message is displayed and you'll have the option to use the item or cancel.



*You can't add a phantom item from this window.*

7. Accept or change the position number. Refer to [Chapter 10, "Position numbers,"](#) for more information.
8. Enter the quantity to backflush, which is the entire quantity of the item to be added to the manufacturing order.
9. Enter or accept the unit of measure.
10. Mark the Single Lot Only option if the entire component quantity you're adding to the picklist must come from the same lot. This option is available only for lot-tracked inventoried items.
11. If you're adding an inventoried item, enter or select a backflush site ID—the site that quantities will be taken from.
12. If you're adding a non-inventoried item, you can enter the unit cost of the item and a non-inventoried account. The default Inventory Control account—specified in the Posting Setup window—will be the default account, but you can change it.
13. Choose Save. The item is added to the picklist and inventoried items are backflushed on the picklist.
14. Continue adding items to the picklist, as needed.
15. When you've finished adding items, choose Cancel to close this window and return to the Quick MOs window. The component items you've added will be displayed.

## Closing a quick manufacturing order

You can use the Quick MOs window to close quick manufacturing orders. If you use this window, labor and machine costs automatically are backflushed, regardless of whether they're marked to be backflushed in the routing. When you close a manufacturing order using the Quick MOs window, it's assumed that the component quantities are exactly as described in the picklist, and the number of finished goods received from the manufacturing order is exactly as planned.

You can use the Manufacturing Order Receipt Entry window to receive finished goods from a quick manufacturing order, if needed. If you do that, however, the manufacturing order isn't "quick" any more, and you'll need to account for material, labor, and machine costs that aren't backflushed. You'll also need to use the Manufacturing Order Close window to close the manufacturing order.



*If you're using multiple bins, you can't edit bin selections for components or receipt quantities when you close a manufacturing order with the Quick MOs window. To edit bin information, use the Manufacturing Order Receipt Entry window and the Manufacturing Order Close window to receive finished goods and close the order. Refer to [Chapter 13, "Receipts and closing,"](#) for more information.*

### To close a quick manufacturing order:

1. Open the Quick MOs window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> Quick MO)
2. Enter or select a manufacturing order number.
3. Choose Close MO. The order status will be changed to Closed.
4. If the manufacturing order is for an item number that is tracked with lot or serial numbers, another window will open for you to enter that information. Refer to the following topics for more information:
  - If the item is tracked by serial numbers, the Serial Number Assignment window opens. Refer to [Serial number assignments for finished goods](#) on page 144 for more information.
  - If the finished item is tracked by lot numbers, the Manufacturing Lot Number Entry window opens. Refer to [Assigning lot numbers for finished goods](#) on page 148 for more information.

# Chapter 11: Manufacturing/sales order link

Manufacturing provides a two-way link between sales orders and manufacturing orders. With this link—sometimes called the “MOP/SOP link”—demand for finished products can be applied to outstanding manufacturing orders, or new orders can be created for finished products to be added to inventory.

This information is divided into the following sections:

- [Demand terms](#)
- [Working with MRP-planned manufacturing orders](#)
- [Applying an existing manufacturing order to demand](#)
- [Applying a new manufacturing order to demand](#)
- [Removing sales order-manufacturing order links](#)

## Demand terms

Several terms specific to manufacturing demand are used to describe applications in Manufacturing.

**Total forecasted demand** Forecasted demand is the anticipated amount of an item that will be required to meet projected orders.

**Total unmet (or unconsumed) forecasted demand** An unmet forecasted demand is the difference between forecasted demand and actual production. For example, if you have projected sales of 10,000 units of a product and have produced only 8,000 units, your unmet forecasted demand would be 2,000 units.

**Total actual demand** Actual demand is the total quantity of an item requested on all manufacturing orders with Open status.

## Working with MRP-planned manufacturing orders

You can use the Manufacturing/Sales Order Link window to link MRP-planned orders to existing manufacturing orders or to create new manufacturing orders to cover the shortage amounts.

**To work with MRP-planned manufacturing orders:**

1. Open the Manufacturing/Sales Order Link window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MOP/SOP Link)

2. Enter or select an item number.
3. Enter or select a site.
4. Mark the MRP Planned Orders option. Choose Refresh to update the information in the left scrolling window.
5. Mark the record in the left scrolling window that you want to create a manufacturing order for.
6. Choose Create New MO. The Manufacturing Order Entry window will open, displaying information about a manufacturing order you could create to meet the demand.



*When you choose Create New MO, information about the order that is suggested will be deleted regardless of whether you save the information in the Manufacturing Order Entry window.*

Several default selections will be displayed in the window. For example, the manufacturing bill of materials and the primary routing for an item will be selected. The default scheduling method also will be selected. The ending quantity for the manufacturing order will be determined by the order policy you specified for the item. You can accept these default entries or change them.

7. Choose Save.

You can close the window and complete other manufacturing order tasks—such as scheduling the order or building its picklist—or you can complete those tasks now. Refer to [Chapter 7, “Manufacturing order entry,”](#) for more information.

## Applying an existing manufacturing order to demand

You can use the Manufacturing/Sales Order Link window to apply units in existing manufacturing orders to the demand of your existing sales orders with an Open status.

### To apply an existing manufacturing order to demand:

1. Open the Manufacturing/Sales Order Link window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MOP/SOP Link)
2. Enter a location (site ID) and an end date. All manufacturing orders with Quote/Estimate, Open, Released or Partially Received status and sales orders with an end date that is the same as or before the date you enter will be displayed.
3. Choose Sales Orders or MRP Planned Orders. Information displayed in the left scrolling window will vary, depending on your choice.
  - For sales orders, the sales order type, the sales order number, sales order date, and quantity ordered will be displayed.
  - For MRP planned orders, the type, source, date, and quantity needed will be displayed.

The MO Number, MPS Plan Name, End Quantity, MO Due Date, Actual Demand, BOM Type, and BOM Name will be displayed in the right scrolling window.

4. Select the sales order line items to apply to the manufacturing order.
5. In the right-hand scrolling window, select the manufacturing order to apply these items to.
6. Choose Link. When you've finished, close the window.

## Applying a new manufacturing order to demand

You can use the Manufacturing/Sales Order Link window to apply production quantities from new manufacturing orders to sales orders. For example, if demand has been created by sales orders that have been entered, you could create a new manufacturing order to fulfill that demand.

When you create a new manufacturing order to meet specific sales order demand, the priority level for the manufacturing order will come from the Manufacturing Series Sales Order Preferences window. You can choose to specify one priority for all manufacturing orders that are created with links to sales orders, or you can choose to have the customer's priority level (set in the Customer Maintenance window) translated to a specific manufacturing order priority. Refer to [Setting up manufacturing orders for sales orders](#) in [Chapter 3, "Manufacturing core functions setup,"](#) in the Manufacturing Setup documentation for more information.

**To apply a new manufacturing order to demand:**

1. Open the Manufacturing/Sales Order Link window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MOP/SOP Link)
2. Enter an item and site ID.
3. Enter the end date. Information about all manufacturing and sales orders with an end date that matches or precedes the date you've entered is displayed in the scrolling windows.
  - For manufacturing orders, the order number, end date, plan name, end quantity, and actual demand will be displayed.
  - For sales orders, the sales order type, the sales order number, sales order date, and quantity ordered will be displayed.
4. In the left scrolling window, choose the sales order to apply the new manufacturing order to.
5. Choose Create New MO.
6. Go to the Manufacturing Order Entry window to complete the information.

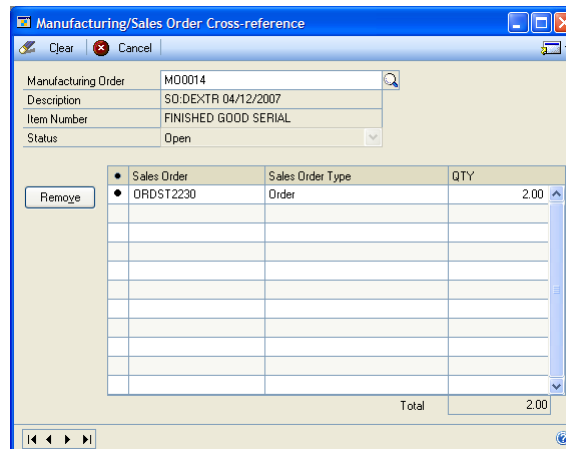
Refer to [Chapter 7, "Manufacturing order entry,"](#) for more information about entering information for a new manufacturing order.

**Removing sales order-manufacturing order links**

You can use the Manufacturing/Sales Order Cross-reference window to remove links between sales orders and manufacturing orders.

**To remove sales order-manufacturing order links:**

1. Open the Manufacturing/Sales Order Cross-reference window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MOP/SOP Xref)



2. Enter or select a manufacturing order to view.



3. Mark the sales order line item in the scrolling window.
4. Choose Remove to remove the link between the sales order line item and the manufacturing order.



## Chapter 12: Manufacturing order inquiries

Because manufacturing orders are related to nearly every aspect of Manufacturing, several inquiry windows are included. You can use these inquiry windows to see information about the status and costs of manufacturing orders and to view information about picklists, component transactions, and pick documents.

This information is divided into the following sections:

- [Viewing manufacturing order entry information](#)
- [Viewing the manufacturing order calendar](#)
- [Viewing manufacturing order activity](#)
- [Interpreting manufacturing order reason codes](#)
- [Viewing component transaction information](#)
- [Viewing manufacturing order receipts](#)
- [Viewing manufacturing order receipt details](#)
- [Viewing manufacturing order summary information](#)
- [Viewing serial and lot number component information](#)
- [Viewing manufacturing order costs per sequence](#)
- [Viewing manufacturing order variances](#)
- [Viewing manufacturing picklist quantities](#)
- [Interpreting the Manufacturing Order Variance window](#)
- [Setup labor costs](#)
- [Labor costs](#)
- [Machine costs](#)
- [Item costs for a picklist item](#)
- [Viewing item transaction information](#)

### Viewing manufacturing order entry information

Use the Manufacturing Order View window to view information about how a manufacturing order was entered. You also can use the window to open other windows that provide more detailed information about the manufacturing order.

#### To view manufacturing order entry information:

1. Open the Manufacturing Order View window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> MO View)

The screenshot shows the 'Manufacturing Order View' window with the following fields and options:

- MO Number: [ ]
- Item Number: [ ]
- Production Information section:
  - BOM Type: [ ]
  - BOM Revision: [ ]
  - Routing Name: [ ]
  - Routing Revision: [ ]
  - MO Status: [ ]
  - Job Number: [ ]
  - Scheduling Preference: [ ]
  - Scheduling Method: Forward Infinite
  - Ending Quantity: 0
  - Start Quantity: 0
  - Forecast Plan: [ ]
  - Actual Demand: 0
- Priority: Medium
- Draw Inventory from Site: [ ]
- Post Finished Goods to: [ ]
- Start Date: [ ]
- Due Date: [ ]
- Partial Remove Date: [ ]
- Outsourcing section:
  - Purchasing: [ ]
  - Shipping: [ ]

At the bottom, the status bar displays 'sa' and '4/12/2007'.

2. Enter or select a manufacturing order.
3. Review the information.

You also can open other windows to view more detailed information for the manufacturing order. Refer to the table for more information.

Window	Navigation	Information
Manufacturing Serial Number Pre-Entry Inquiry window	Serial Numbers expansion button	Displays a list of the serial numbers that were entered for the finished goods when the manufacturing order was created.
Manufacturing Order/ Purchase Order Link Inquiry window	Purchasing expansion button	Displays information about the purchase orders that are suggested for outsourcing services.
Manufacturing Order Shipments Inquiry window	Shipping expansion button	Displays information about the shipments of materials that are suggested for outsourced manufacturing orders.

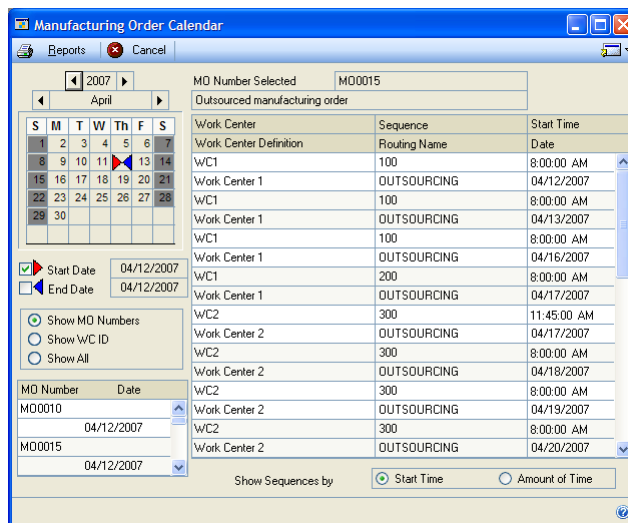
4. When you've finished viewing information, close the window.

## Viewing the manufacturing order calendar

You can use the Manufacturing Order Calendar window to see which manufacturing orders are scheduled at specific times. You can see which manufacturing orders are scheduled for a particular work center, or for all work centers. You also can see the "flow" of a manufacturing order through your plant and the plan for work center operations for a single routing or all routings.

### To view the manufacturing order calendar:

1. Open the Manufacturing Order Calendar window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Calendar)



2. Select the time period to view.
  - Mark the Start Date option to move the start date triangle on the calendar. Choose the starting date for the period. The red triangle will move to that date.
  - Mark the End Date option to move the end date triangle on the calendar. Choose the last day of the period. The blue triangle will move to that date.
3. Determine how to view information in the window.

**Show MO Numbers** View information about selected manufacturing orders. A small scrolling window will appear in the lower left corner of the window. Double-click a manufacturing order number to view information about the specific manufacturing order in the main scrolling window.

**Show WC ID** View information about selected work centers. A small scrolling window will appear in the lower left corner of the window. Double-click a work center ID to view information about that work center in the main scrolling window.

**Show All** View information about all manufacturing orders and all work centers.

4. Determine the kind of time information to view.

**Start Time** View information about the scheduled start time for each sequence.

**Amount of Time** View information about the length of time each sequence will take.

5. When you've finished viewing information, close the window.

## Viewing manufacturing order activity

Use the Manufacturing Order Activity window to track changes made to a manufacturing order record. You can see when the order was created and when its status was changed. The window also displays accounting information about an order, such as the numbers of the generated journal entries, document numbers and types, and reason codes.



For more information about interpreting the information displayed in the Manufacturing Order Activity window, refer to [Interpreting manufacturing order reason codes](#) on page 118.

**To view manufacturing order activity:**

1. Open the Manufacturing Order Activity window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> MO Activity)

The screenshot shows the 'Manufacturing Order Activity' window. At the top, there are buttons for 'Clear', 'Reports', and 'Cancel'. Below these are input fields for 'MO Number' (MO0011), 'Replenishment' (Finished good (not tracked)), 'Current Status' (Partially Received), and 'Show Document Type' (Show All). A table below displays the activity history with columns for Date, Time, Status, Reason Code, Document Type, Document Number, and User ID.

Date	Time	Status	Reason Code	Document Type	Document Number	User ID
04/12/2007	11:46:49 AM	Partially Received	Finished Good Post	IV Transaction	0000000000000056	DEXTR
04/12/2007	11:45:41 AM	Partially Received	Raw Material Relief	MO Receipt	RCT0003	DEXTR
04/12/2007	11:45:25 AM	Partially Received	Status Change			DEXTR
04/12/2007	11:26:29 AM	Released	Issue	IV Transaction	0000000000000055	DEXTR
04/12/2007	11:15:45 AM	Released	Issue	IV Transaction	0000000000000054	DEXTR
04/12/2007	11:15:42 AM	Released	Issue	Pick Document	PK015	DEXTR
04/12/2007	10:38:18 AM	Released	Machine Data Collection			DEXTR
04/12/2007	10:24:30 AM	Released	Labor Data Collection			DEXTR
04/12/2007	10:15:14 AM	Released	Labor Data Collection			DEXTR
04/12/2007	2:00:13 PM	Released	MO Scheduled			DEXTR
04/12/2007	9:40:58 AM	Released	Allocate	Pick Document	PK007	DEXTR
04/12/2007	9:40:43 AM	Released	Status Change			DEXTR
04/12/2007	9:13:43 AM	Quote/Estimate	Picklist Built			DEXTR
04/12/2007	9:10:13 AM	Quote/Estimate	MO Scheduled			DEXTR
04/12/2007	9:05:41 AM	Quote/Estimate	Status Change			DEXTR

2. Enter or select a manufacturing order.

To view more information about a specific activity in the scrolling window, highlight the event and then choose the Reason Code expansion button. The window that opens will depend on the activity and the document type.

3. To print the Manufacturing Order Activity report, choose the print icon button. The report summarizes the history of a particular manufacturing order.
4. Review information in the window. When you've finished, close the window.

**Interpreting manufacturing order reason codes**

When you use the Manufacturing Order Activity window to view information about the events in the life cycle of a manufacturing order, the scrolling window displays information based on reason codes.

You can use the following tables to see what document types can be associated with each event. For example, if the reason code for an activity record is Allocate and you choose the expansion button on the Reason Code field in the Manufacturing Order Activity window, a pick document will be displayed if the component allocation occurred through the picklist.

For more information about using the Manufacturing Order Activity window, refer to [Viewing manufacturing order activity](#) on page 117.

### Allocate

Refer to the following table for information you can use to understand the Allocate reason code.

Event	Document type
Component allocation on pick document	Pick Document
Component allocation on order receipt	MO Receipt
Component allocation at order close	--



*If you've set the preference to have allocations occur automatically when the status of a manufacturing order becomes Released, then pick documents also are created automatically for quick manufacturing orders and MPS manufacturing orders. This enables you to reverse issue components for those manufacturing orders, if needed.*

### Financial Activity

Refer to the following table for information you can use to understand the Financial Activity reason code information.

Event	Document type
Any Manufacturing-based transaction that will affect the General Ledger, such as posting a pick document with the Issue transaction type	Journal Entry

### Finished Good Post

Refer to the following table for information you can use to understand the Finished Good Post reason code information.

Event	Document type
Finished goods posted for an order receipt	MO Receipt
Inventory transaction for finished goods posted from an order receipt	IV Transaction

### Issue

Refer to the following table for information you can use to understand the Issue reason code information.

Event	Document type
Component issue on pick document	Pick Document
Inventory transaction for issuing components from a pick document	IV Transaction

### Labor Data Collection

Refer to the following table for information you can use to understand the Labor Data Collection reason code information.

Event	Document type
Labor data collection record	--

### Machine Data Collection

Refer to the following table for information you can use to understand the Machine Data Collection reason code information.

Event	Document type
Machine data collection	--

### MO Scheduled

Refer to the following table for information you can use to understand the MO Scheduled reason code information.

Event	Document type
Manufacturing order is scheduled or rescheduled	--

### Outsourcing Costs

Refer to the following table for information you can use to understand the Outsourcing Costs reason code information.

Event	Document type
Outsourcing data collection record for documenting outsourcing costs	--

### Picklist Built and Picklist Change

Refer to the following table for information you can use to understand the Picklist Built and Picklist Change reason codes information.

Event	Document type
Building a picklist	--
Changing a picklist	--

### Post Variance from WIP

Refer to the following table for information you can use to understand the Post Variance from WIP reason code information.

Event	Document type
Journal entry for moving amounts from WIP to variance accounts	Journal Entry

### Raw Material Relief

Refer to the following table for information you can use to understand the Raw Material Relief reason code information.

Event	Document type
Component consumption from a manufacturing order receipt	MO Receipt
Component backflushing from an order receipt	MO Receipt
Inventory transaction for component backflushing from an order receipt	IV Transaction
Journal entry for component backflushing from an order receipt	MO Receipt
Component backflushing from closing an order	--
Inventory transaction for backflushing a component from closing an order	IV Transaction



### Reverse Allocate

Refer to the following table for information you can use to understand the Reverse Allocate reason code information.

Event	Document type
Component reverse allocation on pick document	Pick Document
Component reverse allocation when canceling an order close process	--

### Reverse Issue

Refer to the following table for information you can use to understand the Reverse Issue reason code information.

Event	Document type
Component reverse issue from a pick document	Pick Document
Inventory transaction created from a component reverse issue on a pick document	IV Transaction

### Reverse Scrap

Refer to the following table for information you can use to understand the Reverse Scrap reason code information.

Event	Document type
Component reverse scrap from a pick document	Pick Document

### Routing Change

Refer to the following table for information you can use to understand the Routing Change reason code information.

Event	Document type
Changing the active routing for the order	--

### Scheduled

Refer to the following table for information you can use to understand the Scheduled reason code information.

Event	Document type
Scheduling a manufacturing order	--

### Scrap

Refer to the following table for information you can use to understand the Scrap reason code information.

Event	Document type
Component scrap from a pick document	Pick Document
Component scrap from an order receipt	MO Receipt

## Status Change

Refer to the following table for information you can use to understand the Status Change reason code information.

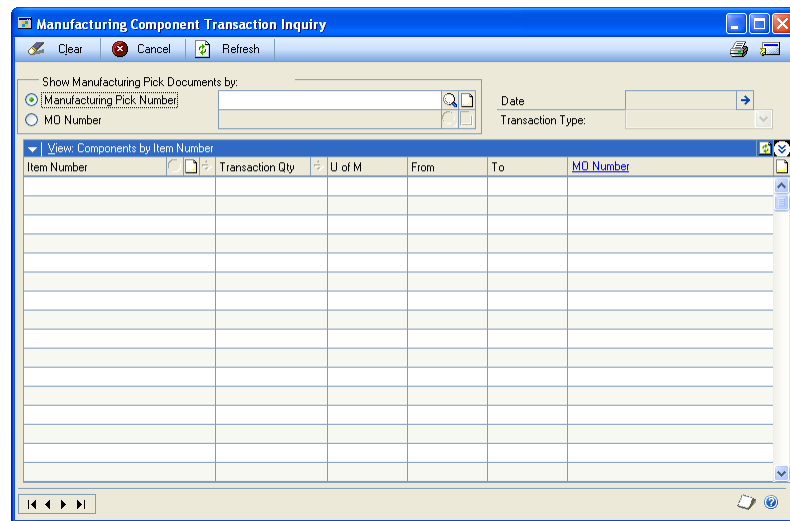
Event	Document type
Manufacturing order status changes	--

## Viewing component transaction information

You can use the Manufacturing Component Transaction Inquiry window to view information about a specific component transaction in a pick document.

### To view component transaction information:

1. Open the Manufacturing Component Transaction Inquiry window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Component Trx Inquiry)



2. Choose component transactions to view.
  - To view component transactions for a pick document, mark Manufacturing Pick Number, and enter or select a pick document.
  - To view component transactions for a manufacturing order, mark MO Number, and enter or select a manufacturing order.
3. Choose the refresh icon button at the top of the scrolling window.

Information will be displayed in the window. You can adjust your view of the information using the view icon button at the top of the button bar to switch between the scrolling window view and the card view of the information.

4. If necessary, use the View menu to select a sorting method.
5. You can use the information in this window as a starting point for viewing more details.

Refer to the table for more information about other windows you can view.

Event	Document type	Event
Date expansion button	Mfg Component Transaction Posting Date Inquiry window	Pick document date, posting date, last date changed, times printed.
Item Number info button	Picklist Quantity Status window	Information about the item at the issue-from site, such as the Available, Allocated, Issued, Backflushed, and Scrapped quantities.
Item Number expansion button	BOM Component Assigned Alternates window	Available only if other items in the bill of materials for the manufacturing order have been designated as alternates for the marked component. Displays the identifier of the alternate item, as well as the required quantity, available quantity, and unit of measure.
Transaction Quantity expansion button	Manufacturing Component Lot Number Inquiry window, or Manufacturing Component Serial Number Inquiry window	If the item is tracked by lot or serial numbers, either the Manufacturing Component Lot Number Inquiry window or the Manufacturing Component Serial Number Inquiry window opens, displaying information about the lot or serial numbers of the items that were included in the specific component transaction. (If you're using multiple bins, bin information also is included.)
	Manufacturing Transaction Bin Inquiry window	If the item is not tracked but you're using multiple bins, you can view more information about the bins involved. If the transaction type is not Scrap or Reverse Scrap, the Manufacturing Transaction Bin Inquiry window opens, displaying information about the sites and bins for the transaction. (No bin information is available for Scrap and Reverse Scrap transaction types.)

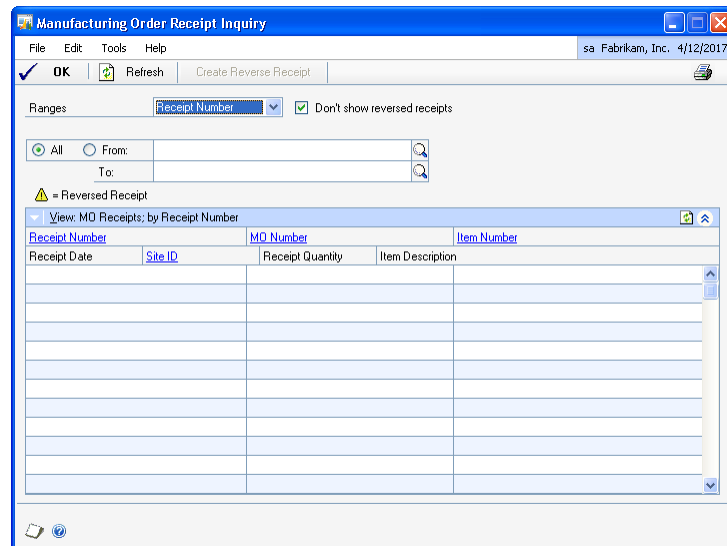
- When you've finished viewing information, close the windows.

## Viewing manufacturing order receipts

You can use the Manufacturing Order Receipt Inquiry window to view information about one or more posted receipts. The window displays information about the manufacturing order associated with each receipt, as well as the finished good item number, the receipt quantity and date, and the issue-to site for the finished goods.

**To view manufacturing order receipts:**

1. Open the Manufacturing Order Receipt Inquiry window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> MO Receipt Inquiry)



2. Select the receipts to view.
  - To limit the receipts displayed in the scrolling window, select a range. You can then use the From and To fields to specify what portion of the records should be displayed.
  - To show all manufacturing order receipts in the scrolling window, select any range and choose All.
  - To show reversed manufacturing order receipts, unmark the Don't show reversed receipts option.
3. Choose Refresh from the View menu near the top left corner of the scrolling window to update the information in the window.
4. View information in the scrolling window. To view more detailed information about a specific manufacturing order receipt, highlight it in the scrolling window and then click any of the links at the top of the scrolling window.



You can open the Manufacturing Order Receipt Inquiry Detail window by highlighting a record in the scrolling window and clicking the Receipt Number link. Refer to [Viewing manufacturing order receipt details](#) on page 124 for more information.

5. When you've finished, close the windows.

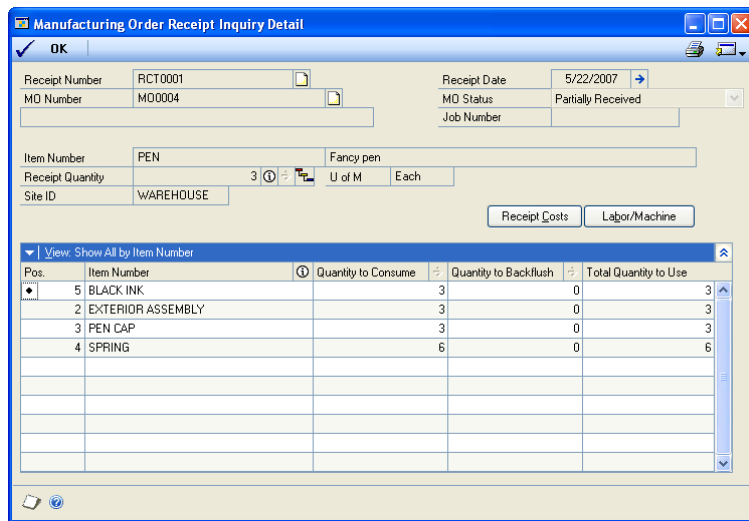
**Viewing manufacturing order receipt details**

You can use the Manufacturing Order Receipt Inquiry Detail window to view detailed information about a manufacturing order receipt. You can view the receipt number, date, and quantity, as well as information about the components that were used by the receipt—either through backflushing or through consumption.

The Manufacturing Order Receipt Inquiry Detail window is also a good starting point for opening other windows that display more detailed information about the receipt.

**To view manufacturing order receipt details:**

1. Open the Manufacturing Order Receipt Inquiry window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> MO Receipt Inquiry)
2. Refer to [Viewing manufacturing order receipts](#) on page 123 to display receipts in the scrolling window.
3. Mark the receipt to view, and click the Receipt Number link to open the Manufacturing Order Receipt Inquiry Detail window.



Information will be displayed in the window. You can adjust your view of the information by using the view icon button at the top of the button bar to switch between the scrolling window view and the card view of the information.

4. You can use the information in this window as a starting point for viewing more details.

Refer to the table for more information about other windows you can view.

Button	Window opened	Displayed information
Receipt Date expansion button	Manufacturing Order Receipt Posting Date Inquiry window	Displays information about the receipt date and the posting date.
Receipt Qty info button	Manufacturing Order Receipt Quantity Inquiry window	Displays information about the finished good quantities for the manufacturing order: start quantity, end quantity, and quantity received to-date.

Button	Window opened	Displayed information
Receipt Qty expansion button	Manufacturing Serial-Lot Number Inquiry window	If the finished good is tracked by lot or serial numbers, information about serial and lot numbers for the finished good is displayed.
	Manufacturing Transaction Bin Inquiry window	If the finished good is not tracked by lot or serial numbers but you're using multiple bins, information about the bins where the items were posted is displayed.
Receipt Qty component inquiry button	Manufacturing Component Consumption Inquiry window	Displays information about the components used in a specific manufacturing order, including serial- or lot-number links, unlinked components, scrap, by-products, and backflushed components. Information about components removed from WIP when the manufacturing order was closed (component variance) also is included.
Receipt Costs button	Manufacturing Order Receipt Cost Inquiry window	Displays information about the total costs and the costs per-unit for material, labor, and machine time, as well as their related overhead amounts.
Labor/Machine button	Manufacturing Order Receipt Labor/Machine Cost Inquiry window	Displays information about the labor and machine costs that are applied to a manufacturing order receipt for an actual cost item.
Item Number info button	Manufacturing Order Receipt Component Detail window	Displays information about the marked component, including whether the item is tracked by lot or serial numbers, and whether it is consumed.
Quantity to Consume expansion button	Manufacturing Serial-Lot Number Inquiry window	This button is available only if the marked component is tracked by lot or serial numbers.
Quantity to Backflush expansion button		Displays the lot or serial numbers of the items that were consumed or backflushed.

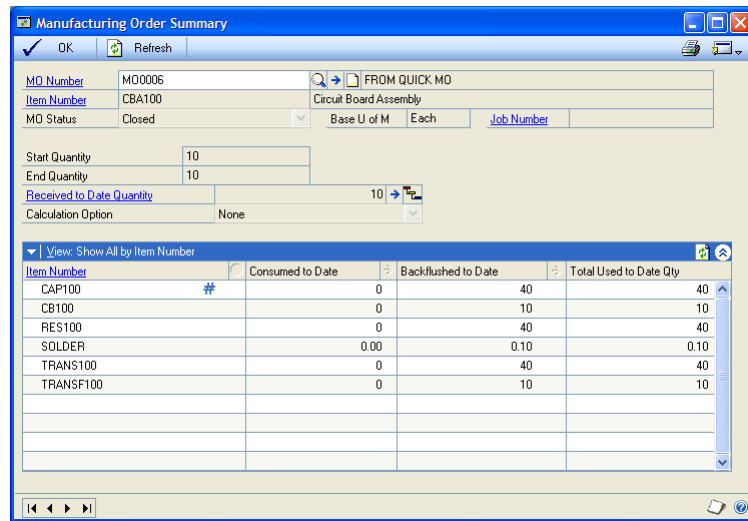
- When you've finished viewing information, close the windows.

## Viewing manufacturing order summary information

If the status of a manufacturing order is Released, Partially Received, Complete, or Closed, you can use the Manufacturing Order Summary window to view information about the order. You can view quantity information, such as start and end quantities for the order, and the quantity received to date. You also can view information about the manufacturing order components.

**To view manufacturing order summary information:**

1. Open the Manufacturing Order Summary window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> MO Summary)



2. Enter or select a manufacturing order to view.



*Information will be displayed in the window. You can adjust your view of the information by the view icon button at the top of the button bar to switch between the scrolling window view and the card view of the information.*

3. You can use the information in this window as a starting point for viewing more details.

Refer to the table for more information about other windows you can view.

Button	Window opened	Displayed information
MO Number expansion button	Manufacturing Order Summary Sequence Detail window	Displays information about the costs applied to a manufacturing order for a specific sequence. Refer to <a href="#">Viewing manufacturing order costs per sequence</a> on page 129.
Received to Date Quantity expansion button	Manufacturing Serial-Lot Number Inquiry window	Displays information about the serial or lot numbers that have been assigned to the finished goods produced from the manufacturing order.
Received to Date Quantity component inquiry button	Manufacturing Component Consumption Inquiry window	Displays information about the components used in a specific manufacturing order, including serial- or lot-number links, unlinked components, scrap, by-products, and backflushed components. Information about components removed from WIP when the manufacturing order was closed (component variance) also is included.

Button	Window opened	Displayed information
Item Number info button	Manufacturing Order Summary Component Detail window	Displays information about the component item, such as whether it is tracked by lot or serial numbers.
Consumed to Date expansion button	Manufacturing Serial-Lot Number Inquiry window	This button is available only if the marked component is tracked by lot or serial numbers. Displays the lot or serial numbers of the items that were consumed or backflushed.
	Manufacturing Transaction Bin Inquiry window	If the component is not tracked by lot or serial numbers but you're using multiple bins, information about the sites and bins where the quantities were taken from is displayed.
Backflushed to Date expansion button	Manufacturing Serial-Lot Number Inquiry window	This button is available only if the marked component is tracked by lot or serial numbers. Displays the lot or serial numbers of the items that were consumed or backflushed.
	Manufacturing Transaction Bin Inquiry window	If the component is not tracked by lot or serial numbers but you're using multiple bins, information about the sites and bins where the quantities were taken from is displayed.

- When you've finished viewing information, close the windows.

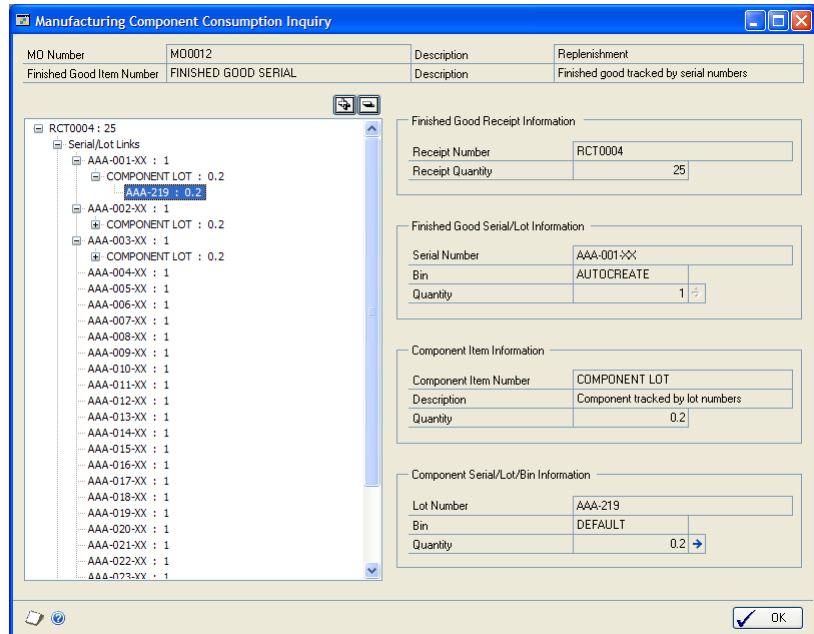
## Viewing serial and lot number component information

You can use the Manufacturing Component Consumption Inquiry window to view information about the components that were issued for a manufacturing order. If you use serial and lot number linking, you can see the lot and serial numbers of components and can view the lot or serial numbers of the finished goods that they were used in. You can view information about the components that were scrapped or backflushed, and you can view the components that were removed from WIP when the manufacturing order was closed.



**To view serial and lot number component information:**

1. Open the Manufacturing Component Consumption Inquiry window. (Inquiry >> Manufacturing >> Manufacturing Orders >> MO Summary >> enter or select a manufacturing order >> Received to Date Quantity component expansion button)



2. Use the plus and minus sign buttons above the tree view to show more or less information. You also can use the plus and minus signs in the tree view to expand or collapse specific parts of the tree view.
3. When you've finished viewing information, close the window.

**Viewing manufacturing order costs per sequence**

If the status of a manufacturing order is Released, Partially Received, or Complete, you can use the Manufacturing Order Summary Sequence Detail window to view information about the machine and labor costs that have been entered in data collection windows.

**To view manufacturing order costs per sequence:**

1. Open the Manufacturing Order Summary window. (Inquiry >> Manufacturing >> Manufacturing Orders >> MO Summary)
2. Enter or select a manufacturing order.

- Choose the MO Number expansion button to open the Manufacturing Order Summary Sequence Detail window.

Sequence	Source of Cost	Total Cost	Seq. Complete?
001	Material	\$67.40	<input type="checkbox"/>

- When you've finished viewing information, close the windows.

## Viewing manufacturing order variances

Use the Manufacturing Order Variance window to compare actual and estimated costs for a manufacturing order. You can use the window after a manufacturing order is closed, or while it is in progress.

A variance is the difference between what it should have cost to make something and what it actually cost to make it. You can analyze variance information to see what areas need improvement, or what areas are performing above expectations. A variance of zero indicates that what it actually cost to make something was exactly what it should have cost to make it. Some variance information compares expected materials costs, which can be affected by the quantities of the materials actually used for a manufacturing order or by the cost of those items. Other variance information compares anticipated costs for labor and machine time to actual amounts. A positive variance means that it costs less to make something than expected and indicates performance levels above expectations. A negative variance means that it cost more than expected and indicates performance levels below expectations.

The source of the estimated costs for manufacturing orders for standard cost items can vary. If the manufacturing order was based on a configured bill of materials, then the "configured standard cost" is the cost of the materials for the configured item, based on the cost of those items at the time when the item was configured. Refer to [Material costs for configured manufacturing orders](#) in [Chapter 26. "Configurator manufacturing orders."](#) in the Manufacturing Core Functions documentation for more information.

In other cases, the estimated material costs for a manufacturing order for a standard cost item is the inventory standard cost for the finished good.

**To view manufacturing order variances:**

1. Open the Manufacturing Order Variance window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Order Variance)

The screenshot shows the 'Manufacturing Order Variance' window for manufacturing order MO0026. The window has tabs for 'Production Variance', 'Standard Cost Variance', 'General Ledger Variance', and 'Data Collection Detail'. The 'Production Variance' tab is active, displaying a table with columns for 'Production Costs', 'Costs Put into WIP', 'Costs Consumed', 'Variance', and 'Variance %'. The table lists various cost categories such as Labor Hours, Machine Hours, Material, and overheads. At the bottom, there is a formula for Variance %:  $\text{Variance \%} = \frac{\text{Variance}}{\text{Production Costs}} \times 100$ .

	Production Costs	Costs Put into WIP	Costs Consumed	Variance	Variance %
Labor Hours	84.25000	79.25000	79.25000	5.00000	5.93%
Machine Hours	45.00000	45.00000	45.00000	0.00000	0.00%
Material	\$113.00	\$113.00	\$113.00	\$0.00	0.00%
Material Fixed Overhead	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
Material Variable Overhead	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
Labor	\$849.25	\$799.25	\$799.25	\$50.00	5.88%
Labor Fixed Overhead	\$25.26	\$23.71	\$23.71	\$1.55	6.13%
Labor Variable Overhead	\$12.89	\$11.82	\$11.82	\$1.07	8.30%
Machine	\$2.30	\$2.25	\$2.25	\$0.05	2.17%
Machine Fixed Overhead	\$0.00	\$0.05	\$0.05	(\$0.05)	100.00%
Machine Variable Overhead	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
<b>Total Costs</b>	<b>\$1,002.70</b>	<b>\$960.08</b>	<b>\$960.08</b>	<b>\$52.62</b>	<b>5.24%</b>
<b>Unit Costs</b>	<b>\$100.27</b>	<b>\$95.00</b>	<b>\$95.00</b>	<b>\$5.26</b>	<b>5.24%</b>

2. Enter or select a manufacturing order.
3. Review information in the window, using the tabs to view different types of variance information.

You can use the following resources to learn more about the information that is displayed.

- For general descriptions of the tabs, refer to [Interpreting the Manufacturing Order Variance window](#).
- For information about how specific values are calculated, refer to online help. Press F1 when the Manufacturing Order Variance window is open, and then click the Fields link near the top of the page.

To view more information for material variances, click the Material link on the Production Variance tab or the Standard Cost Variance tab to open the Manufacturing Material Variance Detail window, where you can view information about both cost and usage variances for materials.



*Some information for manufacturing orders closed with versions of Manufacturing earlier than 8.0 will be missing because those values weren't saved in earlier versions of the product. If you're viewing variance information for one of those manufacturing orders, some options for viewing the information won't be available, and the message, "This MO was closed in a previous version of Manufacturing. Some information may be unavailable," will be displayed at the bottom of the window.*

4. When you've finished, close the window.

## Viewing manufacturing picklist quantities

You can use the Manufacturing Picklist Shortages Inquiry window to view information about picklist quantities.

### To view manufacturing picklist quantities:

1. Open the Picklist Shortage Inquiry window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Picklist Shortages)
2. Enter or select information in the ranges.
3. Mark the Include Open Manufacturing Orders option to include information in the scrolling window for manufacturing orders that have an Open status.
4. Information about picklist quantities will be displayed in the scrolling window. When you've finished reviewing the information, close the window.

## Interpreting the Manufacturing Order Variance window

The Manufacturing Order Variance window (Inquiry >> Manufacturing >> Manufacturing Orders >> MO Variance) includes tabs that display different types of manufacturing order variance information.

You can use the tabs to view variance information for any manufacturing order. As costs are added to and removed from WIP and manufacturing order receipts are posted, the information on the tabs is updated. After the manufacturing order is closed, however, the calculations won't change.



*Some information for manufacturing orders closed with versions of Manufacturing earlier than 8.0 will be missing because those values weren't saved in earlier versions of the product. If you're viewing variance information for one of those manufacturing orders, some options for viewing the information won't be available, and the message, "This MO was closed in a previous version of Manufacturing. Some information may be unavailable," will be displayed at the bottom of the window.*

Depending on the options used to view variances, you might have a general ledger variance and not have a production or standard cost variance. It also is possible to have a production or standard cost variance but no general ledger variance. Typically, however, standard cost variances and general ledger variances will be the same.

### Production Variance tab

Use the Production Variance tab to compare actual manufacturing order costs to anticipated costs, based on the manufacturing order routing, picklist, and labor and machine codes. You can view information on this tab for any manufacturing order, but it's probably most useful for manufacturing orders that produce actual cost finished goods.

Material costs displayed on the Production Variance tab come from the current cost of components, which might not be the same as the costs from the purchase receipts for the component items. Therefore, it is possible to have a material variance just because the two values are different—not because more or fewer materials were used in production. To see specific information about the cause of material variances, choose the Material link to open the Manufacturing Material Variance Detail window.

### **Standard Cost Variance tab**

Use the Standard Cost Variance tab to compare the costs for a manufacturing order and the standard costs for the finished good. Information is displayed in the Standard Cost Variance tab only for those manufacturing orders that produce standard-cost finished goods. The variance calculations are the finished good standard cost multiplied by the manufacturing order quantity, and less any costs put into WIP (the actual costs of the manufacturing order).

Repeated variances for a particular finished good could indicate a need to change either the manufacturing bill of materials or the primary routing for the finished good.

### **General Ledger Variance tab**

Use the General Ledger Variance tab to view information about the costs that remain in WIP. For closed manufacturing orders, actual general ledger variances are calculated; for open manufacturing orders, estimated general ledger variances are calculated.

You can use general ledger variance information to ensure that all costs in WIP are removed by the time the manufacturing order is closed. General ledger variance information doesn't show how well a manufacturing order matched anticipated costs. Instead, it shows how closely the costs that were put into WIP—through data collection and through issuing and backflushing material, labor, and machine use—match the costs that were taken out of WIP through receiving and posting finished goods to inventory. The calculation for a general ledger variance is costs consumed (or taken out of WIP) minus costs put in WIP.

The general ledger variance amounts are posted to variance accounts when the manufacturing order is closed. When more costs have been put into WIP than have been taken out, the WIP account is credited and the variance account is debited when the manufacturing order is closed. When more costs have been taken out of WIP than have been put into it, the WIP account is debited and the variance account is credited when the manufacturing order is closed.

### **Data Collection Detail tab**

You can use the Data Collection Detail tab to view information about the sources of labor and machine variances. The tab includes variance calculations for each labor and machine code that's included in the manufacturing order routing, except those that are automatically backflushed. Values for backflushed routing sequences are not included in this tab.

A comparison of estimated and actual costs for labor and machine use is displayed on the tab. Estimated costs are calculated based on the manufacturing order routing. Actual costs are those that have been added to WIP by data collection activities, which can include any of the following:

- Entries in the Data Collection window and the Time Card Entry window
- Automatic data collection
- Receipts and invoices for outsourced purchase orders

### Setup labor costs

The Manufacturing Order Variance window includes setup labor cost information. The figures used to calculate the setup labor costs come from the following windows:

- Manufacturing Order Routing Sequence Edit window
- Labor Code Definition window

Refer to the following table for information about how setup labor costs are calculated for a single manufacturing order routing sequence. To find the total setup costs for a manufacturing order, you'd need to calculate the amounts for each sequence and then add them together.

Cost type	Calculations		
Setup labor	Per hour		Setup time x shop rate
	Per piece		Shop rate
Setup labor - fixed overhead	Per hour	Amount	Setup time x fixed overhead amount
		Percentage	Setup time x shop rate x fixed overhead percent
	Per piece	Amount	Fixed overhead amount
		Percentage	Shop rate x fixed overhead amount ÷ 100
Setup labor - variable overhead	Per hour	Amount	Setup time x variable overhead amount
		Percentage	Setup time x shop rate x variable overhead percent
	Per piece	Amount	Variable overhead amount
		Percentage	Shop rate x (variable overhead amount ÷ 100)

### Labor costs

The Manufacturing Order Variance window includes labor cost information. The figures used to calculate the labor costs come from the following windows:

- Manufacturing Order Routing Sequence Edit window
- Labor Code Definition window

Refer to the following table for information about how labor costs are calculated for a single manufacturing order routing sequence. To find the total setup time for a manufacturing order, you'd need to calculate the amounts for each sequence and then add them together.

Cost type	Calculations		
Labor	Per hour		Labor time x shop rate
	Per piece		Shop rate
Labor - fixed overhead	Per hour	Amount	Labor time x fixed overhead amount
		Percentage	Labor time x shop rate x fixed overhead percent
	Per piece	Amount	Fixed overhead amount
		Percentage	Shop rate x (fixed overhead amount ÷ 100)
Labor - variable overhead	Per hour	Amount	Labor time x variable overhead amount
		Percentage	Labor time x shop rate x variable overhead percent
	Per piece	Amount	Variable overhead amount
		Percentage	Shop rate x (variable overhead amount ÷ 100)

### Machine costs

The Manufacturing Order Variance window includes machine cost information. The figures used to calculate machine costs come from the following windows:

- Manufacturing Order Routing Sequence Edit window
- Machine Definition window

Refer to the following table for information about how machine costs are calculated for a single manufacturing order routing sequence. To find the total machine costs for a manufacturing order, you'd need to calculate the amounts for each sequence and then add them together.

Cost type	Calculations		
Machine			(Machine time x operating cost) + piece cost
Machine - fixed overhead	Per hour	Amount	Machine time x fixed overhead amount
		Percentage	Machine time x operating cost x fixed overhead percent
	Per piece	Amount	Fixed overhead amount
		Percentage	Piece cost x (fixed overhead amount ÷ 100)
Machine - variable overhead	Per hour	Amount	Machine time x variable overhead amount
		Percentage	Machine time x operating cost x variable overhead percent
	Per piece	Amount	Variable overhead amount
		Percentage	Piece cost x (variable overhead amount ÷ 100)

## Item costs for a picklist item

The Manufacturing Order Variance window includes material cost information. The current cost that is selected for an item depends on whether it is an inventoried item and its valuation method. Refer to the table for more information.

Item type	Valuation method	Source for current cost
Inventoried	Actual cost (FIFO or LIFO Perpetual)	Current Cost field in the Item Maintenance window
	Average cost	
	Standard cost (FIFO or LIFO Periodic)	The total of the nine cost buckets—Material, Material fixed overhead, and so on—in the Standard Cost Maintenance window
Non-inventoried	Not applicable	Add Picklist Entry window or from the Manufacturing Order Receipt Component Entry window



To calculate total material costs for a manufacturing order, you'd need to calculate the amounts for each item and then add them together.

## Viewing item transaction information

Use the Manufacturing Item Transaction Inquiry window to view information about the item transactions for manufacturing orders. You can view information for a range of item numbers for components or finished goods, of manufacturing order numbers, of serial or lot numbers, or of dates.

### To view item transaction information:

1. Open the Manufacturing Item Transaction Inquiry window.  
(Inquiry >> Manufacturing >> Manufacturing Orders >> Item Transactions)

2. Specify a range to restrict information. You can choose to view information for a specific item or range of items.



3. Choose Redisplay to update the information in the window.
4. In the tree view, expand and collapse information to see more or fewer details. When you highlight different levels in the tree view, different information is displayed in the rest of the window.
5. When you've finished viewing information, close the window.



## Chapter 13: Receipts and closing

You can receive some finished goods from a manufacturing order before all items are complete for the order. Each instance of receiving items is a manufacturing order receipt. You can enter unlimited receipts for each manufacturing order.

After you've received all the finished goods for an order, you'll close the manufacturing order. When you close a manufacturing order, it's marked as being closed and component quantity information is cleaned up. For instance, if the quantity received from the manufacturing order doesn't match the expected end quantity, you'll need to specify how backflushed component quantities should be calculated.

This information is divided into the following sections:

- [\*Manufacturing order receipts\*](#)
- [\*Entering a manufacturing order receipt\*](#)
- [\*Modifying bin information for a finished item\*](#)
- [\*Serial number assignments for finished goods\*](#)
- [\*Manually entering serial numbers for finished goods\*](#)
- [\*Generating serial numbers for finished goods\*](#)
- [\*Applying pre-entered serial numbers to finished goods\*](#)
- [\*Assigning lot numbers for finished goods\*](#)
- [\*Linking finished good and component lot and serial numbers\*](#)
- [\*Changing dates for a manufacturing order receipt\*](#)
- [\*Adding an item to a manufacturing order receipt\*](#)
- [\*Entering labor and machine costs for receipts\*](#)
- [\*Manufacturing order receipts with by-products\*](#)
- [\*How receipts affect linked sales orders and invoices\*](#)
- [\*Effects of posting a manufacturing order receipt\*](#)
- [\*Reversing a manufacturing order receipt\*](#)
- [\*Effects of posting a reversing manufacturing order receipt\*](#)
- [\*Prerequisites for closing manufacturing orders\*](#)
- [\*Closing a manufacturing order\*](#)
- [\*Effects of closing a manufacturing order\*](#)
- [\*How backflushed item quantities are calculated\*](#)
- [\*How backflushed machine and labor amounts are calculated\*](#)
- [\*Changing the posting date for closing a manufacturing order\*](#)
- [\*Causes of variances\*](#)
- [\*Understanding posting for standard-cost items\*](#)

### Manufacturing order receipts

A manufacturing order receipt is a group of transactions that reflect changes in inventory when finished goods are moved out of production. In accounting terms, you can enter a manufacturing order receipt to consume the quantities of components you've added to work in process (WIP)—a process also known as relieving raw material—and to add the finished goods to inventory. If some components are backflushed, you also can backflush them in the receipt, so that their costs are applied to the receipt.

Machine and labor costs also can be included in manufacturing order receipts. If machine or labor time for a manufacturing order sequence is backflushed (something you can choose to do when you create the routing), then the receipt quantity is multiplied by the backflush amounts to calculate the machine and labor costs for the receipt. If the labor and machine costs are not backflushed, and if you've collected information about the labor and machine time before you enter the manufacturing order receipt, you can specify an amount or percentage of the labor and machine costs to apply to the receipt.

If you've linked a manufacturing order to a sales order, the quantity you receive will be allocated to fulfill the sales order line when you post the receipt. For more information, refer to [How receipts affect linked sales orders and invoices](#) on page 156.

## Entering a manufacturing order receipt

When you're ready to receive some of the finished goods from a manufacturing order, use the Manufacturing Order Receipt Entry window to enter a manufacturing order receipt.

To enter a manufacturing order receipt, there can be no pending scrap or reverse scrap component transactions for the manufacturing order. You also can't enter a manufacturing order receipt if the inventory year-end closing routine is running.



*If you're using multiple bins with Manufacturing, you can edit the bin information for the quantities of finished goods received, and for the quantities of backflushed components. You don't need to enter bin information for the quantities of consumed items because those items are taken from WIP and don't need bin information.*

### To enter a manufacturing order receipt:

1. Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)

Pos.	Item Number	Quantity to Consume	Quantity to Backflush	Total Quantity to Use

2. Select to create a manufacturing order receipt.

3. Enter or select a manufacturing order.
4. Accept the default receipt date, or change it. Refer to [Changing dates for a manufacturing order receipt](#) on page 152.
5. Accept the default receipt quantity for the finished item, or change it. If you change it, a message will appear and you'll have the option to recalculate the component quantities. Doing so adjusts the default component values in the scrolling window.



*Choose the info icon button on the Receipt Qty field to open the Manufacturing Order Receipt Quantity Inquiry window, where you can view information about the anticipated manufacturing order quantities and the receipts to-date.*

If the receipt quantity plus the total of receipts to date are greater than the manufacturing order end quantity, the Component Quantity Calculation window opens. You'll have the option to have component requirements based on the manufacturing order start quantity, or the total receipt quantity. If the option will be the same for all manufacturing orders, mark Always use this type of calculation.

6. If the finished goods are tracked by lot or serial numbers, you can choose the Receipt Quantity expansion button to open a window where you can specify the lot or serial numbers for the finished goods. Refer to [Serial number assignments for finished goods](#) on page 144 or [Assigning lot numbers for finished goods](#) on page 148 for more information.

You also can choose Auto-Select Serial/Lot Numbers to have component serial numbers or lot numbers automatically selected for the finished goods.

7. If the finished goods aren't tracked by lot or serial numbers but you're using multiple bins and want to edit the bin information for the items, choose the Receipt Quantity expansion button to open the Bin Quantity Entry window. Refer to [Modifying bin information for a finished item](#) on page 143.
8. Accept the default site, or change it. The site is the one to which the finished goods will be added.
9. To apply all the labor and machine costs collected for the manufacturing order to this manufacturing order receipt, mark Use all collected labor and machine costs available.
10. To apply all materials issued to work in process for the manufacturing order to this manufacturing order receipt, mark Use all material issued to WIP.
11. To apply all remaining setup costs for the manufacturing order to this manufacturing order receipt, mark Use all remaining setup costs.
12. Review information in the scrolling window.

When you sort by position number, the finished good first-level components and components of phantom subassembly components are assorted numerically, in ascending order. Components of phantom subassemblies will be grouped together as if they were appearing beneath the phantom. The phantom position number will not be displayed.



Choose the view icon button at the top of the scrolling window to switch between the scrolling window view and the card view of the components.

13. Accept the default Quantity to Consume and the default Quantity to Backflush for each of the components, or change them. Depending on the manufacturing order and your business practices, special rules might apply.

**Multiple bins** If you're using multiple bins and you're backflushing an item that is not tracked by lot or serial numbers, you can use the Quantity to Backflush expansion button to open the Bin Quantity Entry window, where you can edit bin information. You can't edit the bin information for the Quantity to Consume because those item quantities come from WIP and don't have bin information. Refer to [Modifying bin selections for a component](#) on page 77.

**Partial receipt** If you're receiving just a portion of the manufacturing order, be sure to choose Recalculate Component Quantities so that the default quantities are updated. You can change the default quantities, if needed, but the recalculated ones should be more accurate.

**By-product item** If the manufacturing order receipt is for by-products, as well as finished goods, enter the quantity of by-product items for this receipt as a negative number in the Quantity to Backflush field.

14. If part of the backflush quantity is for scrap, enter that quantity in the Backflush Quantity to Scrap field.
15. Specify the lot or serial numbers of any components that are tracked. You can select an item tracked by lot or serial numbers and choose the expansion button for the Quantity to Consume or the Quantity to Backflush to open the appropriate window.
  - Refer to [Specifying lot numbers for a component transaction](#) on page 79 for information about choosing lot numbers.
  - Refer to [Specifying serial numbers for a component transaction](#) on page 81 for information about choosing serial numbers.
16. If you're entering a partial receipt—if more finished goods will be received later from the manufacturing order—for an actual-cost item, choose the Labor/Machine button to open the Manufacturing Order Receipt Labor/Machine Cost Entry window. Refer to [Entering labor and machine costs for receipts](#) on page 154.
17. If you're entering information for a by-product, be sure that the Quantity to Backflush for that item is negative, and verify that the By-product Site ID is the one to post by-products to.
18. To add another component to a manufacturing order receipt, choose the Add Component button to open the Manufacturing Receipt Component Entry window. Refer to [Adding an item to a manufacturing order receipt](#) on page 152 for more information.

19. Choose Post. Depending on the options you've selected, reports will be generated to summarize the changes you're making to your inventory records.

For more information about the effects of posting a manufacturing order receipt, see [Effects of posting a manufacturing order receipt](#) on page 157.

20. When processing is complete, close the window.



*When you post a manufacturing order receipt that includes items that will be used to fulfill a sales order invoice or a sales order line, the MO/SO Cross-Reference report is generated. You can use the report to view information about allocated items, including their lot and serial numbers if they are tracked.*

## Modifying bin information for a finished item

If you're using multiple bins, you can use the Bin Quantity Entry window to modify bin information for manufacturing order receipts. For example, if you don't want finished goods to be placed in the default bin for the item-site combination or for the site, you can select a different bin. You also can split the receipt quantity among several bins.

If the finished item is tracked by lot or serial numbers, you can enter or edit bin information when you enter lot or serial number information. Refer to the following topics for more information:

- [Manually entering serial numbers for finished goods](#) on page 145
- [Generating serial numbers for finished goods](#) on page 146
- [Assigning lot numbers for finished goods](#) on page 148



*This procedure assumes that you already are entering a manufacturing order receipt.*

### To modify bin information for a finished item:

1. Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)

Enter receipt information. Refer to [Entering a manufacturing order receipt](#) on page 140.

- Choose the Receipt Quantity expansion button to open the Bin Quantity Entry window.



*The Bin Quantity Entry window will open only if the item is not tracked by lot or serial numbers. If the item is tracked by lot or serial numbers, windows for selecting lot or serial numbers open. When you select the lot or serial number, you're selecting the bin information, as well.*

Available Bin	Quantity Available	Quantity Selected

Selected Bin	Quantity Selected
AUTOCREATE	45

- Accept the default bin information, or change it.
  - To accept the bin information, skip to step 7.
  - To change it, choose Remove All to clear the lower scrolling window. Refer to steps 4 through 6 to enter new bin information.
- Enter or select a bin in the Bin field, and then accept the default Quantity Selected, or change it.
- Choose Insert to add your selection to the lower scrolling window.
- Continue, repeating steps 3 and 4 until the Selected Quantity equals the Extended Quantity.
- Choose OK to close the window.

## Serial number assignments for finished goods

You can use the Manufacturing Serial Number Entry window to enter serial numbers for finished goods. You either can simply record the serial numbers that have already been assigned to items, you can generate a list of serial numbers and apply them to your finished items, or you can assign serial numbers from a list you entered when you started the manufacturing order to the actual items.

If you choose to create serial number masks, you can use any combination of letters, symbols, spaces, dates, and numbers. However, the serial numbers can be no more than 20 characters long.





Generating serial numbers in smaller groups can be especially helpful if you create groups of serial numbers. For example, if you needed to generate serial numbers for a manufacturing order of 10,000 items, you might want to create different sets of serial numbers—ABC-0001, ABC-0002, ABC-0003 for one group, DEF-0001, DEF-0002, and DEF-0003 for another group, and so on. You can use the serial number mask to modify the mask for each group of serial numbers you create.

Refer to the following topics for more information:

- [Manually entering serial numbers for finished goods](#) on page 145
- [Generating serial numbers for finished goods](#) on page 146
- [Applying pre-entered serial numbers to finished goods](#) on page 147

## Manually entering serial numbers for finished goods

You can use the Manufacturing Serial Number Entry window to enter serial numbers that have been assigned to finished items one at a time.

### To manually enter serial numbers for finished goods:

1. Open the Manufacturing Serial Number Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry >> Receipt Qty expansion button)



The window also will open automatically if you use the Quick MOs window to close a manufacturing order that produces finished goods tracked by serial numbers, or if you post a manufacturing order receipt for a serial-numbered item and haven't already selected enough serial numbers.

Selected	Bin
AAA-026	AUTOCREATE
AAA-027	AUTOCREATE
AAA-028	AUTOCREATE
AAA-029	AUTOCREATE
AAA-030	AUTOCREATE
AAA-031	AUTOCREATE
AAA-032	AUTOCREATE
AAA-033	AUTOCREATE
AAA-034	AUTOCREATE
AAA-035	AUTOCREATE

Automatic Serial Number Generation:	
Quantity to Generate	0
Starting Serial Number	AAA-036
Serial Number Mask	AAA-001

Serial Numbers Needed	
Serial Numbers Needed	10
Serial Numbers Selected	10
Remaining to Select	0

2. If you're using multiple bins, accept the default bin information or change it.
3. Enter a serial number in the Serial Number field.
4. Choose Insert to add the serial number to the scrolling window. The number in the Serial Numbers Selected field will change to reflect the addition of the serial number to the scrolling window.

5. Continue, repeating steps 2 through 4 until you've added all the serial numbers to the scrolling window. The Serial Numbers Selected field must equal the Serial Numbers Needed.
6. Choose OK.

You can close the window, or you can create relationships between the serial numbers of the finished goods and the lot or serial numbers of the components. Refer to [Linking finished good and component lot and serial numbers](#) on page 149 for more information.

## Generating serial numbers for finished goods

Use the Manufacturing Serial Number Entry window to automatically generate serial numbers for finished items. This is particularly helpful if you have to create a large number of serial numbers.

There are some limitations to the serial numbers that can be generated. Refer to [Serial number assignments for finished goods](#) on page 144 for more information.

### To generate serial numbers for finished goods:

1. Open the Manufacturing Serial Number Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry >> Receipt Qty expansion button)
2. If you're using multiple bins, accept the default bin information or change it.
3. Click the Serial Number Mask link to open the Item Serial Number Definition window. Refer to Microsoft Dynamics GP Purchase Order Processing documentation for more information about creating a serial number mask.
4. After you've entered the serial number mask, return to the Manufacturing Serial Number Entry window, and enter the lowest serial number to be used in the Starting Serial Number field.
5. Be sure the number in the Quantity to Generate field is the number of serial numbers you want to generate. The default value is the number of serial numbers that are needed for the receipt, but you can change it.
6. Choose Auto-Generate. Serial numbers in the range specified will be added to the scrolling window until the number in the Quantity to Generate field is reached.

The number of serial numbers needed for the manufacturing order quantity will be displayed in the Extended Quantity field. The number of serial numbers in the scrolling window will be displayed in the Serial Numbers Selected field.



*The number of serial numbers selected must match the number displayed in the Extended Quantity before you can post the receipt.*

7. Review the list of serial numbers in the scrolling window.
  - To remove any serial numbers from the list, mark them in the scrolling window and choose Remove.
  - To delete all serial numbers from the list, choose Remove All.

If you delete all the serial numbers from the list and then regenerate them, the first serial number in the list won't be reset. That is, if you generate serial numbers AAA-001, AAA-002, and AAA-003 and then delete them, the first serial number in the new list will be AAA-004.

8. When you have reviewed the numbers, choose OK.

You can close the window, or you can create relationships between the serial numbers of the finished goods and the lot or serial numbers of the components. Refer to [Linking finished good and component lot and serial numbers](#) on page 149 for more information.

## Applying pre-entered serial numbers to finished goods

You can use the Manufacturing Serial Number Entry window to select the pre-entered serial numbers to be applied to the finished goods of a manufacturing order receipt. Refer to [Entering serial numbers when entering a manufacturing order](#) on page 60 for more information.

### To apply pre-entered serial numbers to finished goods:

1. Open the Manufacturing Serial Number Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry >> Receipt Qty expansion button)



*The window also will open automatically if you use the Quick MOs window to close a manufacturing order that produces finished goods tracked by serial numbers, or if you post a manufacturing order receipt for a serial-numbered item and haven't already selected enough serial numbers.*

2. If you're using multiple bins, accept the default bin information or change it.

3. Choose Auto-Select to move serial numbers displayed in the Pre-entered Serial Numbers scrolling window to the Selected scrolling window.
4. Determine if any additional serial numbers are needed.
  - If the Serial Numbers Selected equals the Serial Numbers Needed, go to step 5.
  - If the Serial Numbers Selected is less than the Serial Numbers Needed, enter an additional serial number in the Serial Number Field, and choose Insert to add it to the Selected scrolling window. Repeat until the Serial Numbers Selected equals the Serial Numbers Needed.
5. Choose OK.

You can close the window, or you can create relationships between the serial numbers of the finished goods and the lot or serial numbers of the components. Refer to [Linking finished good and component lot and serial numbers](#) on page 149 for more information.

## Assigning lot numbers for finished goods

You can use the Lot Number Entry window to assign lot numbers to the finished goods for a manufacturing order receipt when you enter the receipt. If all the items in the order will share the same lot number, you also can specify the lot number when you create the manufacturing order.

### To assign lot numbers for finished goods:

1. Open the Manufacturing Lot Number Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry >> Receipt Qty expansion button)



*The window also will open automatically if you use the Quick MOs window to close a manufacturing order that produces finished goods tracked by lot numbers, or if you post a manufacturing order receipt for a lot-numbered item and you haven't specified enough lot number information.*

Lot Numbers Selected	Quantity Selected	Bin
Total Quantity Selected		0

2. If you're using multiple bins, accept the default bin information or change it.

3. Enter the Lot Number. If you entered a lot number in the Manufacturing Order Entry window when you created the manufacturing order, that lot number will be the default value.

If you've set up a lot category and lot attributes for the lot, you can choose the Lot Number expansion button to open the Lot Attribute Entry window. You can use that window to enter information about the specific characteristics of the items in this lot. The default Manufactured Date will be the user date and the default Expiration Date will be user date plus the number of days specified for the finished item in the Item Engineering Data window. However, you can change those dates, if needed.

4. Enter the quantity of the manufacturing order receipt that will have this lot number.
5. Choose Insert to move the information to the scrolling window.
6. Continue, repeating steps 2 through 5 until the Total Quantity Selected equals the Quantity Needed.
7. Choose OK.

You can close the window, or you can create relationships between the lot numbers of the finished goods and the lot or serial numbers of the components. Refer to [Linking finished good and component lot and serial numbers](#) on page 149 for more information.

## Linking finished good and component lot and serial numbers

You can use the Manufacturing Serial/Lot Link Entry window to link the lot or serial numbers of finished goods to the lot or serial numbers of their components. Creating links is not necessary, unless you marked the Require Serial/Lot Linking option in the Manufacturing Order Preference Defaults window. Creating links will allow you to track serial and lot numbers throughout your business process. With the links, you could find all finished goods that included components from a certain lot, for example. If several different components in a finished good have lot or serial numbers, you can link as many or as few as you like.

If linking is not required, unmark the Require Serial/Lot Linking option in the Manufacturing Preference Defaults window. Refer to [Setting up manufacturing order processing](#) for more information.

Before you can link the lot or serial numbers of finished goods with the lot or serial numbers of components, you must assign the lot or serial numbers to the finished goods, and you must specify the lot or serial numbers of the components that are used in each manufacturing order receipt.

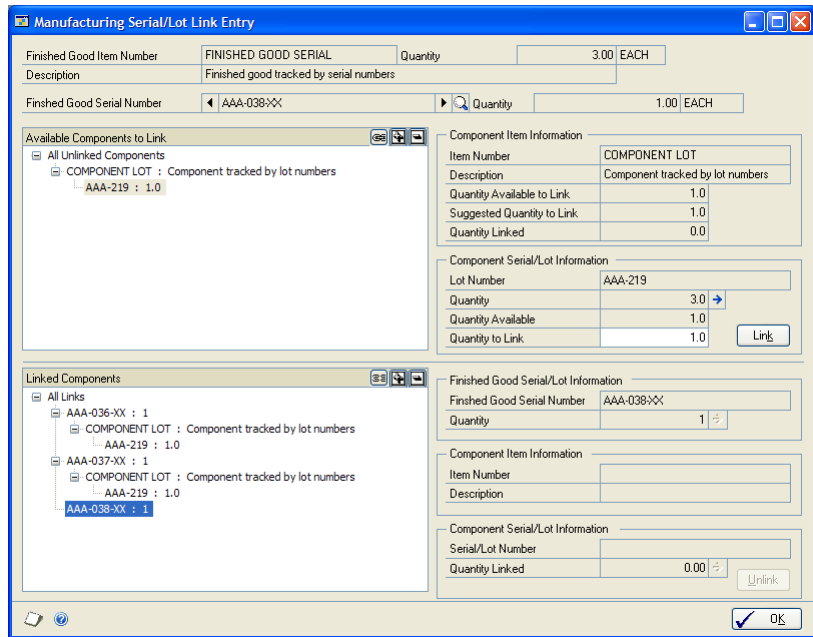
Refer to the following table for more information.

<b>To do this:</b>	<b>Refer to:</b>
Assign lot numbers to finished goods	<a href="#">Assigning lot numbers for finished goods</a> on page 148
Assign serial numbers to finished goods	<a href="#">Serial number assignments for finished goods</a> on page 144 <a href="#">Manually entering serial numbers for finished goods</a> on page 145 <a href="#">Generating serial numbers for finished goods</a> on page 146 <a href="#">Applying pre-entered serial numbers to finished goods</a> on page 147
Specify lot numbers for components in a receipt	<a href="#">Specifying lot numbers for a component transaction</a> on page 79
Specify serial numbers for components in a receipt	<a href="#">Specifying serial numbers for a component transaction</a> on page 81

### **To link finished good and component lot and serial numbers:**

1. Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)
2. Enter or select a manufacturing order for finished goods tracked by lot or serial numbers.
3. Choose the Receipt Quantity expansion button.
  - If the finished good is tracked by serial numbers, the Manufacturing Serial Number Entry window opens.
  - If the finished good is tracked by lot numbers, the Manufacturing Lot Number Entry window opens.

- Choose Link Components to open the Manufacturing Serial/Lot Link Entry window.



Information about the lot and serial numbers of the components is displayed in the upper scrolling window. Information about the lot or serial numbers of the finished goods is displayed in the lower scrolling window.

- Enter or select the lot or serial number of the finished good that you want to link component lot or serial numbers to. You can use any of these methods:
  - You can use the browse buttons or the lookup button on the Finished Good Lot Number or Finished Good Serial Number field.
  - You can highlight the lot or serial number in the lower scrolling window.
- Highlight the lot number or serial number of a component that you want to link to the finished good. You will need to expand the branches of the tree view to see specific lot or serial numbers.
- Link the numbers. If you marked the Require Serial/Lot Linking option in the Manufacturing Order Preference Defaults window, you must link all available serial-numbered and lot-numbered items.

You can use either of the following methods:

- To link all of the quantity to the lot or serial number marked in the lower scrolling window, choose the link icon button in the upper right corner of the upper scrolling window.
- To link a portion of the quantity to the lot or serial number marked in the lower scrolling window, enter the quantity in the Quantity to Link field, and choose Link.

- Continue, repeating steps 5 through 7 until you've linked all the lot and serial numbers that you want to link.



*To undo all links, choose the Unlink button in the Linked Components tree view. To unlink a single link, highlight the link and choose the Unlink button.*

- When you've finished, choose OK and close the window.

## Changing dates for a manufacturing order receipt

Sometimes transactions for a manufacturing order receipt should be posted on a date other than the user date. You can use the Manufacturing Order Receipt Posting Date Entry window to change the posting date for a manufacturing order receipt.

### To change dates for a manufacturing order receipt:

- Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)
- Enter a manufacturing order receipt. Refer to [Entering a manufacturing order receipt](#) on page 140 for more information.
- Choose the Receipt Date expansion button to open the Manufacturing Order Receipt Posting Date Entry window.
- Enter a posting date for the manufacturing order receipt.



*When you change the posting date for a manufacturing order receipt, the transactions for the manufacturing order receipt will be posted on the entered posting date, regardless of whether you've chosen to use batch or transactional posting.*

- Choose OK to close the Manufacturing Order Receipt Posting Date Entry window.
- When you've finished entering the manufacturing order receipt, choose Post to save the information and close the window.

## Adding an item to a manufacturing order receipt

When you enter a manufacturing order receipt, you can add inventoried or non-inventoried items to the receipt so the costs of the added item are reflected in the overall manufacturing order costs. For example, suppose you have a rush order and offer to buy pizza for the employees who put in extra hours to get the order completed. You might want to add the cost of the pizzas to the manufacturing order receipt. The items you add to a manufacturing order receipt are backflushed as part of the receipt.

Use the Manufacturing Order Receipt Component Entry window to add an item to a manufacturing order receipt.

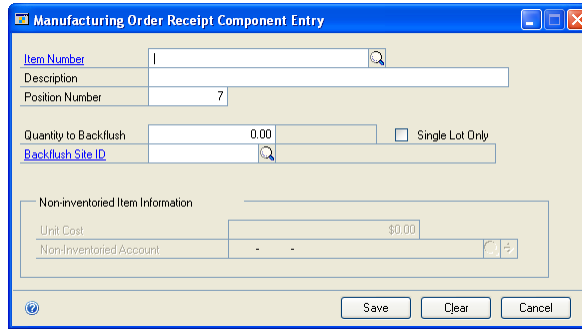


*This procedure assumes that you're entering a manufacturing order receipt as described in [Entering a manufacturing order receipt](#) on page 140.*



**To add an item to a manufacturing order receipt:**

1. Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt)
2. Enter or select a manufacturing order receipt.
3. Choose Add Component to open the Manufacturing Order Receipt Component Entry window.



4. Enter or select an item number. You can select an inventoried item—one already defined in Microsoft Dynamics GP—or enter a non-inventoried item.

**Non-inventoried item** If you enter an item number that isn't already in inventory, a message appears and you'll have the option to add the item as a non-inventoried item.

**Inventoried item** Only some items can be added to the receipt. Refer to the table for more information.

Item information	Rules
Item status	The status of the item—entered in the Item Engineering Data window—must be Active, Released, or Service.
Effective date	If the effective date of the item—entered in the Item Engineering Data window—is after the system date, a message appears and you'll have the option to use the item or cancel.

5. Enter the Quantity to Backflush, which is the entire quantity of item to be added to the receipt.
6. If you're adding an inventoried item, enter or select the Backflush Site ID—the site from which the quantities will be taken.

7. Enter other information, as needed. Different information is required, depending on the type of item you're adding.

**Non-inventoried item** Refer to the following table for a summary of the information you must enter.

Field	Summary
Unit Cost	The cost for the item will be the Unit Cost multiplied by the Quantity to Backflush. This amount will be added to WIP, and will be included in calculations when finished goods are received and when the order is closed.
Quantity to Backflush	
Non-inventoried Account	The default Inventory Control account—specified in the Posting Setup window—will be the default account, but you can change it.

**Standard cost items** You can add an item that has a periodic valuation method (standard cost item) to a picklist for a finished item that has a perpetual valuation method (actual cost item). However, you can't add an actual cost item to a picklist for a standard cost item finished good.

8. Choose Save. You'll have the option to add the item to the manufacturing order picklist.

If you add the item to the manufacturing order picklist, a material variance won't be calculated.

9. Close the window to return to the Manufacturing Order Receipt Entry window, where you can finish entering receipt information.



*If you don't post the manufacturing order receipt in the Manufacturing Order Receipt Entry window, the costs of the items you've added to the receipt won't be reflected in the manufacturing order costs.*

## Entering labor and machine costs for receipts

If you are entering a manufacturing order receipt—one that is not for the entire manufacturing order quantity—for an actual cost finished good, you can use the Manufacturing Order Receipt Labor/Machine Cost Entry window to specify the labor and machine costs that were entered in data collection windows and that should be applied to this portion of the manufacturing order.

For example, suppose you have a manufacturing order for 100 items that is due on Friday. On Wednesday, 30 of those items are complete and ready to be shipped to customers. You could enter a receipt for the 30 items, and then specify what machine and labor costs should be applied to this portion of the order.



*You can mark the Use all collected labor and machine costs available option to add all labor and machine costs that have been collected for the manufacturing order to the manufacturing order receipt.*

**To enter labor and machine costs for a receipt:**

1. Open the Manufacturing Order Receipt Labor/Machine Cost Entry window. (Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry >> Labor/Machine button)

	Costs Collected	Collected Costs Used	Collected Costs Available	Costs to Backflush	Collected Costs to Use	Costs per Unit
<b>Labor</b>						
Labor	\$0.00	\$0.00	\$0.00	\$366.24	\$0.00	\$122.08
Fixed Overhead	\$0.00	\$0.00	\$0.00	\$9.65	\$0.00	\$3.21
Variable Overhead	\$0.00	\$0.00	\$0.00	\$4.65	\$0.00	\$1.55
<b>Total Labor</b>	\$0.00	\$0.00	\$0.00	\$380.55	\$0.00	\$126.85
<b>Machine</b>						
Machine	\$0.00	\$0.00	\$0.00	\$0.69	\$0.00	\$0.22
Fixed Overhead	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Variable Overhead	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Machine</b>	\$0.00	\$0.00	\$0.00	\$0.69	\$0.00	\$0.23

2. Choose how to specify the portion of labor costs to be applied to the receipt.
  - Mark Amount to enter currency amounts for Labor, Labor Fixed Overhead and Labor Variable Overhead.
  - Mark Percent and enter a percentage to apply a percentage of the collected costs to the receipt.
3. Choose how to specify the portion of machine costs to be applied to the receipt.
  - Mark Amount to enter currency amounts for Machine, Machine Fixed Overhead and Machine Variable Overhead.
  - Mark Percent and enter a percentage to apply a percentage of the collected costs to the receipt.
4. When you've finished, choose OK to save your entries and close the window. You'll be returned to the Manufacturing Order Receipt Entry window, where you can continue to enter manufacturing order receipt information.

## Manufacturing order receipts with by-products

If your manufacturing processes create by-products, you can use Manufacturing to account for the additional items created.

You can add by-products to bills of materials or to picklists.

- To add a by-product to a bill of materials, enter a negative amount of usage. Refer to [Accounting for by-products in a bill of materials](#) in [Chapter 11, “Bill of Materials entry,”](#) in the Manufacturing Core Functions documentation for more information.
- To add a by-product to a picklist, enter a negative amount of usage. Refer to [Adding items to a picklist](#) on page 92.

When you enter a manufacturing order receipt for a manufacturing order, any by-product quantities will be added to inventory, rather than removed from inventory when the receipt is posted. To account for the amount of a by-product that is received on a specific receipt, enter the by-product quantity in the Quantity to Backflush field in the Manufacturing Order Receipt Entry window *as a negative quantity*. The by-product quantity will be posted to the By Product Site ID.

## How receipts affect linked sales orders and invoices

When a manufacturing order is linked to a sales order or invoice, receipts of finished goods for the manufacturing order are used to fulfill the sales order or invoice. Requirements for linked sales order invoices are met first; requirements for linked sales orders are met next. Any receipts of finished goods greater than the invoice and sales order line requirements is posted to inventory.

For example, suppose a sales order has a back order quantity of 10 widgets. All 10 widgets are linked to a manufacturing order. Then you decide to manually change the back order quantity to six, and transfer four to an invoice. Now the sales order (linked to the manufacturing order) has a requirement for six widgets and the sales order invoice (also linked to the manufacturing order) has a requirement for four widgets.

If you post a receipt for the manufacturing order for two widgets, those widgets will be allocated to the sales order invoice. If you post another receipt—this one for three widgets—two of those widgets will be allocated to the sales order invoice, and the remaining widget will be allocated to the sales order line. If you post another manufacturing order receipt—this one for six widgets—five would be allocated to the sales order, and the last one would be posted to inventory.



*When you post a manufacturing order receipt that includes items that will be used to fulfill a sales order invoice or a sales order line, the MO/SO Cross-Reference report is generated. You can use the report to view information about allocated items, including their lot and serial numbers if they are tracked.*

## Effects of posting a manufacturing order receipt

The following actions occur when posting a manufacturing order receipt.

- The receipt quantity of the finished good posts to inventory.
- Each component’s quantity to consume is removed from WIP based on each component’s valuation method. WIP quantities can be negative quantities if you marked the Allow Negative WIP Quantities option in the Manufacturing Order Preference Defaults window.
- The quantity to backflush is removed from inventory. If the quantity to backflush is a negative quantity (a by-product), the quantity posts to inventory.
- Items with the a type of Miscellaneous, Flat Fee, or Service are backflushed. The picklist item’s inventory account is credited and the finished good’s WIP-Material account is debited.
- The status of the manufacturing order changes to Complete when the Received to Date Qty equals the manufacturing order’s Ending Quantity. If you are using Capacity Requirements Planning (CRP), completing the manufacturing order updates CRP.
- If you’ve linked a manufacturing order to a sales order, the quantity you receive is allocated to fulfill the sales order line.
- Floor stock items post as an expense.

When posting a manufacturing order receipt, all finished good serial-numbered and lot-numbered items must be linked before they can be posted if you marked Require Serial/Lot Linking in the Manufacturing Order Preference Defaults window.

If you selected the option in the Manufacturing Order Preference Defaults window to Display Negative WIP Quantities Warning, a message appears if the labor or machine costs for the manufacturing order receipt is greater than the labor or machine amounts available in WIP. The message that appears will depend on whether you also marked the option to Allow Negative WIP Quantities and the valuation method of the finished item. Refer to the table for more information.

<b>Allow Negative WIP Quantities?</b>	<b>Valuation method</b>	<b>Result</b>
Yes	Perpetual	You will be able to continue, use available, or cancel.
	Periodic	You will be able to continue or cancel.
No	Perpetual	You will be able to continue or cancel.
	Periodic	The attempt to post will fail.

If you did not select the option to Display Negative WIP Quantities Warning and the labor or machine costs for the manufacturing order receipt is greater than the labor or machine amounts available in WIP, posting will occur. Refer to the table for

more information about what happens, based on other options and the valuation method of the finished item.

<b>Allow Negative WIP Quantities?</b>	<b>Valuation method</b>	<b>Result</b>
Yes	Perpetual or Periodic	The needed quantities from WIP are posted.
No	Perpetual or Periodic	The attempt to post will fail.

## Reversing a manufacturing order receipt

If entries on a posted manufacturing order receipt are incorrect, you can use the Manufacturing Order Receipt Entry window to reverse a manufacturing order receipt.

You can't reverse a manufacturing order receipt once a finished good is sold, the manufacturing order is closed, or the manufacturing order is linked to a sales order and a sales line item quantity is fulfilled. You can't reverse a manufacturing order receipt if the manufacturing order is linked and the quantity is allocated to a sales document that is locked.

### To reverse a manufacturing order receipt:

1. Open the Manufacturing Order Receipt Entry window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Receipt Entry)
2. Select to reverse a manufacturing order receipt.
3. Enter or select a receipt number.
4. Accept the default receipt date, or change it.

To change the posting date, choose the Receipt Date expansion button to open the Manufacturing Order Receipt Posting Date Entry window.

5. Choose Post.

For more information about the effects of posting a manufacturing order receipt, see [Effects of posting a reversing manufacturing order receipt](#) on page 158.

6. When processing is complete, close the window.

## Effects of posting a reversing manufacturing order receipt

The following actions occur when posting a reversing manufacturing order receipt.

### Status

The status of the manufacturing order changes to Released if the manufacturing order had only one posted receipt. The status changes to Partially Received if the manufacturing order had more than one posted receipt.

**Finished good**

The quantity sold is increased for the purchase receipt or purchase receipts for the finished good created when the manufacturing order receipt was posted. For items using the Average Perpetual valuation method, the item's average cost is recalculated.

The serial numbers and lot numbers are made available.

**WIP quantities**

Components consumed from WIP are returned to WIP, reversing the debits and credits using the same posting accounts as on the original manufacturing order receipt.

For items using the LIFO Perpetual valuation method and the FIFO Perpetual valuation method, the components are returned to WIP at the same cost at which they were removed from WIP by the original manufacturing order receipt.

For items using the Average Perpetual valuation method, the components are returned to WIP at their current cost. If the cost is different from the cost at which the items were removed from WIP by the original manufacturing order receipt, the difference posts to the finished good's purchase price variance account.

For items using the Periodic valuation method, the components are returned to WIP at the current standard cost. If the cost of the item being returned is different from the current standard cost, the difference will be handled when the item is reverse-issued or when the manufacturing order is closed.

The serial numbers and lot numbers are made available in WIP and the serial or lot links are removed.

Labor and machine costs and hours removed from WIP are returned to WIP at the same costs they were removed from WIP, reversing the debits and credits using the same posting accounts on the manufacturing order receipt.

**Backflushed components**

A purchase receipt is created for the backflush quantity.

The serial number and lot number are made available in inventory and the serial or lot links are removed.

For items using the LIFO Perpetual valuation method and the FIFO Perpetual valuation method, the components are returned to inventory at the same cost at which they were removed from WIP by the manufacturing order receipt.

For items using the Average Perpetual valuation method, the components are returned to WIP at their current cost. If the cost is different from the cost at which the items were removed from inventory by the manufacturing order receipt, the difference posts to the finished good's purchase price variance account.

For items using the Periodic valuation method, the components are returned to inventory at the current standard cost. If the cost of the item being returned was different from the current standard cost, the difference posts to the item's material and material overhead variance accounts.

If the Allocate Inventory when MO Status becomes Released option is marked in the Manufacturing Order Preference Defaults window, components are allocated when they are returned to Inventory.

### **By-products**

If a by-product was posted, the inventory purchase receipt or receipts are removed. If the item uses Average Perpetual as the valuation method, the average cost for the item is recalculated. If serial numbers are tracked for the by-product, the serial numbers are made available again.

### **Outsourcing costs**

Outsourcing costs applied to the manufacturing order receipt are reversed along with the labor and machine costs.

### **Sales order links**

If you've linked a manufacturing order to a sales order, the quantity you receive is allocated to fulfill the sales order line when you post the receipt. When you reverse the receipt, the sales order line is unallocated, the Qty to Invoice is decreased, and the Qty to Back Order is increased by the quantity that is unallocated.

### **Job links**

A manufacturing order receipt linked to a job is removed from the job and the job expenses are updated.

## **Prerequisites for closing manufacturing orders**

Before you can close a manufacturing order and post the associated financial information, certain other tasks must be completed. Refer to this checklist, as needed, when you close and post a manufacturing order.

- The status of the manufacturing order must be Released, Partially Received, or Complete.
- There can be no pending component transactions for the manufacturing order.
- The quantity to backflush must be available—you can have no shortages of backflushed components.

Manufacturing order receipts—information about how materials that were issued to a manufacturing order were consumed, the number of finished goods added to inventory—aren't required to close a manufacturing order.

## **Closing a manufacturing order**

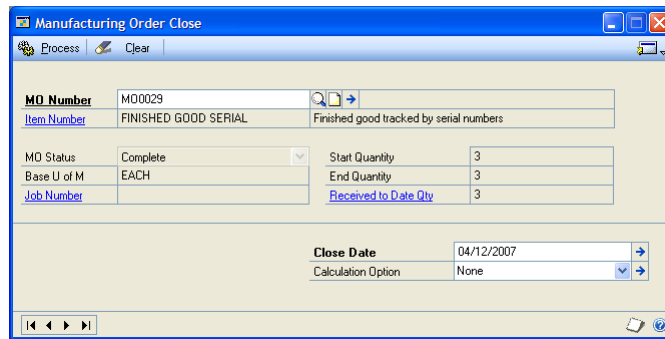
When you close a manufacturing order, any quantities of backflushed components that weren't consumed in manufacturing order receipts are backflushed, WIP quantities are cleaned up, and variance transactions are created. Transactions will be posted in Microsoft Dynamics GP to complete the process.

Use the Manufacturing Order Close window to close a manufacturing order.



**To close a manufacturing order:**

1. Open the Manufacturing Order Close window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Close)



2. Enter or select a manufacturing order.

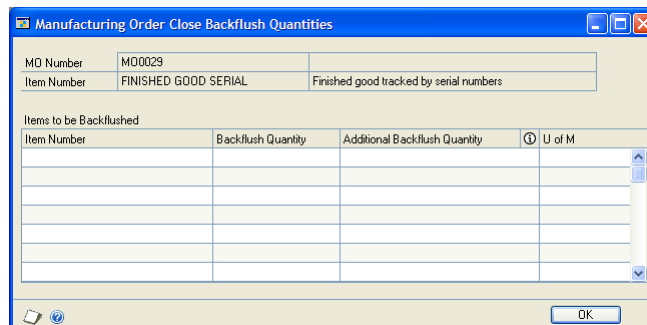
The manufacturing order you select can have no pending component transactions, and its status must be Released, Partially Received, or Complete.

3. Review the information in the window. If needed, choose the MO Number expansion button to open the Manufacturing Order Summary window, where you can view information about the component quantities that have been backflushed for the manufacturing order.
4. Accept the default Close date, or change it. Refer to [Changing the posting date for closing a manufacturing order](#) on page 165 for more information.
5. If the Received to Date Qty for the order doesn't match the End Quantity for the order, you can select a calculation option. Refer to [How backflushed item quantities are calculated](#) on page 163 for more information.



*If you're closing a manufacturing order for a standard cost finished good item and you choose the Total Quantity Received calculation option, the total estimated cost for the manufacturing order will be updated, based on the receipts from the manufacturing order. This prevents a variance from being posted for the manufacturing order.*

The quantity of each component that's yet to be backflushed is recalculated when you choose the calculation method. If more of an item needs to be backflushed but the total of the allocated and available amounts for that item aren't enough to cover the additional amount to backflush, the Manufacturing Order Close Backflush Quantities window opens.





You also can open the window by choosing the Calculation Option expansion button in the Manufacturing Order Close window.

6. Review shortages of backflushed components, if needed. Your options will depend on whether you've marked Allow Adjustment Overrides in the Inventory Control Setup window and whether the components are tracked.

Refer to the table for more information.

Overrides allowed?	Tracked?	Action:
No	None	You can't close the manufacturing order until you backflush component quantities.
	Lot	
	Serial	
Yes	None	A message appears and you'll have the option to close the manufacturing order, or cancel.
	Lot	You can't close the manufacturing order until you backflush component quantities.
	Serial	

To account for backflushed quantities, you will need to make more of the backflushed components available at the issue-from sites. You might need to receive items or transfer them from one site to another. Refer to Inventory Control documentation for more information.

7. When you've finished handling shortages, close the Manufacturing Order Close Backflush Quantities window.
8. After you've handled additional backflush quantities, return to the Manufacturing Order Close window and choose Process.
9. When you've finished, close the window.

## Effects of closing a manufacturing order

When you close a manufacturing order, several events occur to "clean up" accounts for the manufacturing order, including:

**Status** The status of the manufacturing order will be changed to Closed.

**WIP quantities are consumed** If there are remaining component quantities in WIP, those quantities will be consumed during the closing process.

**Variances** Variances are calculated. If there are variances or backflushed quantities, several standard reports will be generated, depending on your system settings.

If there are currency amounts for material, labor, or machine costs remaining in WIP accounts, the amounts will be removed from those accounts and placed into variance accounts. If the WIP amount is positive, that account will be credited and the variance account will be debited. If the WIP amount is negative, the WIP account is debited and the variance account is credited.



Negative labor and machine costs can occur if you're using a standard cost component to build an actual cost finished good and you've marked options to allow WIP to be negative when you post a manufacturing order receipt.

**Capacity Requirements Planning** If you're using Capacity Requirements Planning and you close the manufacturing order with less labor time than expected, all remaining capacity reserved for the manufacturing order will be cleared from CRP. The capacity then becomes available for other manufacturing orders.

## How backflushed item quantities are calculated

When you backflush items, you can consume the backflushed quantities when you enter a manufacturing order receipt and apply the cost of the backflushed items to the finished goods from the receipt.

In a perfect world, the bill of materials and the picklist for a manufacturing order would be identical, and the manufacturing order start quantity and end quantity would be identical. Then calculating the backflush quantity of a particular component would be easy.

If the manufacturing order end quantity doesn't match the total received from the order, however, you need to decide how backflushed quantities should be calculated. You can base them on the quantity of finished goods that was started in production, or you can base them on the quantity of goods that was received from the order.



*If you always prefer one method, you can select it as a preference in the Manufacturing Order Preference Defaults window. Refer to [Setting up manufacturing order processing in Chapter 4, "Manufacturing production functions setup,"](#) in the Manufacturing Setup documentation for more information.*

### Example 1: Original and actual end quantities match

Suppose you were building a manufacturing order for 10 finished goods. The bill of materials for each item calls for two widgets. No shrinkage is involved in the components or finished goods, so the picklist for the manufacturing order calls for 20 of item A.

Then, suppose that you complete three manufacturing order receipts. In this case, the default transaction amounts might look like this:

	Quantity to consume	Quantity to backflush	Total quantity used (cumulative)
<b>Receipt 1 (5 items)</b>	0	10 (5x2)	10
<b>Receipt 2 (4 items)</b>	0	8 (4x2)	18
<b>Receipt 3 (1 items)</b>	0	2 (1x2)	20

In this case, no transactions for backflushing would be needed when the manufacturing order is closed because the quantities that were *expected* to be backflushed matched the quantities that actually *were* backflushed.

### Example 2: Original and actual end quantities don't match

Again, suppose you were building a manufacturing order for 10 finished goods. The bill of materials for each calls for two widgets, a backflushed component. These components have some shrinkage, so the picklist quantity for item A is 30.

Then, suppose that you complete two manufacturing order receipts for the order. If you base the default quantities for the backflushed components on the original start quantity, the transaction to handle backflushing when you close the manufacturing order is based on the theoretical quantity of components per finished item. In this case, the picklist quantity (30) divided by the manufacturing order quantity (10) would be three. The default transaction amounts might look like this:

	Quantity to consume	Quantity to backflush	Total quantity used (cumulative)
<b>Receipt 1 (5 items)</b>	0	15 (5x3)	15
<b>Receipt 2 (2 items)</b>	0	6 (2x3)	21
<b>Manufacturing order close</b>	0	9 (3x3)	30

In this case, when you closed the manufacturing order, a transaction would be created and posted to include backflushing an additional nine items.

On the other hand, if you were to base the calculations for the default backflushed quantity on the total receipt quantity, the transaction quantities might look like this:

	Quantity to consume	Quantity to backflush	Total quantity used (cumulative)
<b>Receipt 1 (5 items)</b>	0	15 (5x3)	15
<b>Receipt 2 (2 items)</b>	0	6 (2x3)	21
<b>Manufacturing order close</b>	0	0 (3x7)-21	21

In this case, when you close the manufacturing order, no transaction would be created and posted because the theoretical component quantity (3) multiplied by the total quantity received (7) is 21—and 21 items already have been backflushed for the order when you posted the manufacturing order receipts.



*If the component has a fixed quantity on the bill of materials that hasn't been consumed through earlier receipts, however, that quantity will be backflushed when the manufacturing order is closed.*

## How backflushed machine and labor amounts are calculated

If you're backflushing labor costs for a manufacturing order routing sequence, costs for the sequence are calculated for you.



*These cost calculations do not reflect setup costs. For more information about how setup costs are applied to a manufacturing order, refer to [Setting up costing system default settings](#) in [Chapter 1, "Manufacturing basic setup,"](#) in the Manufacturing Setup documentation.*

Refer to the table for more information about how labor costs are calculated.

Total Quantity Received	Shop Rate	Amount backflushed
Equals manufacturing order End Quantity	Per hour	MO End Quantity x Labor Time per piece x Shop Rate per hour
	Per piece	MO End Quantity x Shop Rate per piece
Less than manufacturing order End Quantity	Per hour	Quantity Received x Labor Time x Shop Rate per hour
	Per piece	Quantity Received x Shop Rate per piece
Greater than manufacturing order End Quantity	Per hour	MO End Quantity x Labor Time x Shop Rate per hour
	Per piece	MO End Quantity x Shop Rate per piece

Refer to the following table for more information about how machine costs are calculated.

Total Quantity Received	Operating Cost	Amount backflushed
Equals manufacturing order End Quantity	Per hour	MO End Quantity x Machine Time x Operating Cost per hour
	Per piece	MO End Quantity x Operating Cost per piece
Less than manufacturing order End Quantity	Per hour	Quantity Received x Machine Time] x Operating Cost per hour
	Per piece	Quantity Received x Operating Cost per piece
Greater than manufacturing order End Quantity	Per hour	MO End Quantity x Machine Time x Operating Cost per hour
	Per piece	MO End Quantity x Operating Cost per piece

## Changing the posting date for closing a manufacturing order

To post transactions for closing a manufacturing order on a date other than the user date, you can use the Manufacturing Order Close Posting Date Entry window to change the posting date.

### To change the posting date for closing a manufacturing order:

1. Open the Manufacturing Order Close window.  
(Transactions >> Manufacturing >> Manufacturing Orders >> MO Close)
2. Enter information to begin closing the order. Refer to [Closing a manufacturing order](#) on page 160 for more information.
3. Choose the Close Date expansion button to open the Manufacturing Order Close Posting Date Entry window.
4. Enter a posting date.



*When you change the posting date, the transactions will be posted on the date you enter, regardless of whether you've chosen to use batch or transactional posting.*

5. Choose OK to close the Manufacturing Order Close Posting Date Entry window.
6. When you've finished entering the manufacturing order close information, choose Process to save the information and close the window.

## Causes of variances

When you use the Manufacturing Order Variance window to view variance information, you often can identify the area where discrepancies occurred. You can use the Data Collection Detail tab to view information about variances for specific labor or machine codes, and you can use the Manufacturing Material Variance Detail window to view information for variances in material costs.

### Labor and machine variances

The following events might explain a variance for a particular labor or machine code.

**Labor or machine hours didn't match routing hours** The number of hours or pieces entered through data collection was different from the estimates included in the manufacturing order routing.

**Labor cost is different** The cost of the labor for the manufacturing order was different from the estimated labor cost. For example, this would be the case if the shop rate is significantly different from the labor rates that are actually used.

**Some labor or machine costs weren't included in the manufacturing order routing** The machine or labor hours were entered in data collection windows but weren't included in the manufacturing order routing.

### Material variances

Some manufacturing order variances can't be attributed to a machine or labor code. Those variances might be caused by the following factors:

**Standard cost of a component changes before it is consumed** If a standard cost revaluation is completed for a component item while that item is in WIP, a variance could occur because the component will be consumed at the new standard cost, while WIP will be reduced at the previous standard cost.

**Standard cost of a component changes before it is reverse-issued** If a standard cost revaluation is completed for a component item while that item is in WIP, a variance could occur because the component will be returned to inventory at the new cost, while WIP will be reduced at the previous standard cost. Refer to [Understanding posting for standard-cost items](#) on page 167 for an example.

**A WIP shortage is overridden for a receipt, and the current cost has changed** You enter a manufacturing order receipt that includes a component quantity that is greater than the quantity that exists in WIP, and the component is consumed at its current cost. If the current cost is different from the WIP amount, a variance would occur.

**Component quantities** The quantity of a component actually used for a manufacturing order is different from the picklist quantity for the component.

## Understanding posting for standard-cost items

To understand how posting works for standard cost items, you can refer to the following examples that show the debit and credit amounts for a manufacturing order where the components actually used in the manufacturing order were less than anticipated. Both manufacturing orders begin with the same steps—issuing components and posting a manufacturing order receipt. The difference lies in how the quantities left over in WIP are handled.

For these examples, assume that each standard-cost finished good uses four widgets, and that the standard cost of each widget is \$1. Refer to the following illustrations of how accounts are affected by issuing components and posting a manufacturing order receipt.

**Issue components** Issue four widgets for a total cost of \$4. You'll need to credit the component inventory account and debit the finished good WIP inventory account.

Component inventory account	Finished good WIP material account
\$4.00	\$4.00

**Post a manufacturing order receipt** If you post a manufacturing order receipt using just three of the components, a transaction to credit the WIP inventory account for the finished good for \$4 will be created, but one component quantity is left in WIP. Even though the manufacturing order receipt is consuming three widgets, the finished good is posted at standard cost of \$4. The inventory account for the finished good is debited.

Finished good WIP material account	Finished good inventory account
\$4.00	\$4.00

### Example 1: Leaving component quantity in WIP

For the first example, suppose that you simply close the manufacturing order.

**Close the manufacturing order** When you close the manufacturing order, the WIP account is cleared and the remaining component is removed from WIP at a cost of \$0. No variance is created.

**Example 2: Reverse-issuing a component**

For the second example, suppose that you reverse-issue the component in WIP before you close the manufacturing order.

**Reverse-issue the component in WIP** If you create a Reverse-Issue component transaction to remove the component that remains in WIP, the component inventory is debited for \$1, and the WIP inventory account of the finished good is credited for \$1. Doing this leaves a \$1 credit balance in WIP.

Component inventory account	Finished good WIP material account
\$1.00	\$1.00

**Close the manufacturing order** When you close the manufacturing order, you clean out WIP. The WIP inventory account of the finished good is debited for \$1, and the variance account is credited for \$1.

Finished good WIP material account	Variance account
\$1.00	\$1.00



# Chapter 14: Manufacturing order removal

In the regular cycle of creating and fulfilling manufacturing orders, you'll eventually accumulate many "old" manufacturing order records. These are orders that have been fulfilled or canceled or are no longer needed in your system.

You can remove manufacturing orders that have been canceled or completed. You also can remove old manufacturing transaction log records. Those records—generated only if an attempt to create manufacturing orders from a Master Production Scheduling plan fail—can be removed in the MO Transaction Log window.

This information is divided into the following sections:

- [About removing manufacturing order records](#)
- [Removing manufacturing orders](#)
- [Restricting manufacturing order removal](#)
- [Removing manufacturing order transaction logs](#)

## About removing manufacturing order records

The first step in removing manufacturing orders is setting the default removal preferences in the Manufacturing Order Preferences Defaults window. Refer to [Setting up manufacturing order processing](#) in [Chapter 4, "Manufacturing production functions setup,"](#) in the Manufacturing Setup documentation.

You must establish a time frame for removing canceled orders and completed orders.

When you have set up these time frames, they'll appear as the default entries in the Remove Manufacturing Orders window. You can override the default entries in this window; for example, you can remove orders that meet the default entry criteria or a specific range of orders.

Finally, you can open the Restrict Manufacturing Order Removal window from the Remove Manufacturing Orders window to review all orders that meet the removal criteria, and then mark the orders to include or exclude from the removal process.

When you choose Process from either the Remove Manufacturing Orders window or the Restrict Manufacturing Order Removal window, the orders you have specified will be removed from your system. Any pick documents that have been saved but that don't include any line items also will be removed.

If you've specified an order that can't be removed—such as an order linked to a job still in process—a message will be displayed. Messages also will be displayed when you select a manufacturing order in another Manufacturing Order Processing window—such as Manufacturing Order Variances—and some or all of the order has been removed. You'll have the option to continue having those messages displayed.



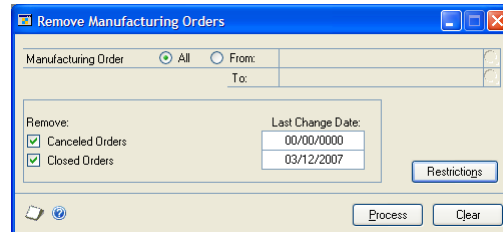
*For security reasons, only one person can remove manufacturing orders at any one time.*

## Removing manufacturing orders

Use the Remove Manufacturing Orders window to complete this procedure.

### To remove manufacturing orders:

1. Open the Remove Manufacturing Orders window.  
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> Remove MO)



2. Select the range of manufacturing order data to remove.
  - If you mark All, the system will search all manufacturing orders for the orders that meet your removal criteria. The Last Change Date fields at the bottom of the window will display the dates as calculated from the Days after last change entries in the Manufacturing Order Preference Defaults window.
  - If you mark From, the From and To fields will be available. You can enter the beginning and ending range of the manufacturing orders to be searched. You must manually enter the dates in the Last Change Date fields at the bottom of the window.
3. In the Remove section, mark Canceled Orders to remove canceled orders. You can accept the default date or enter a different date.
4. Mark Closed to remove orders that have been closed. You can accept the default date or enter a different date.

To review the manufacturing orders you've selected, refer to [Restricting manufacturing order removal](#) on page 170 for more information.

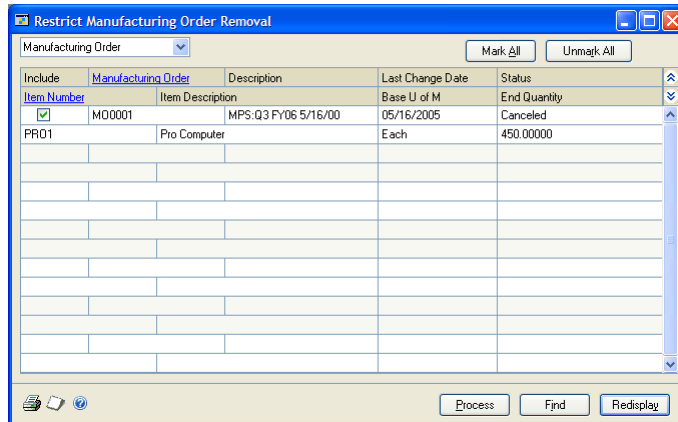
5. To remove all the selected manufacturing orders, choose Process. The orders and the information you've specified will be removed.

## Restricting manufacturing order removal

Before you delete all the manufacturing orders that meet the selection criteria you specify in the Remove Manufacturing Orders window, you can use the Restrict Manufacturing Order Removal window to view a summary of the orders and to select which ones to delete.

### To restrict manufacturing order removal:

1. Open the Restrict Manufacturing Order Removal window.  
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> Remove MO >> Restrictions)



2. Select a sorting option from the list at the top of the window. Choose Redisplay to update the contents of the scrolling window.
3. Review the information to determine which orders to remove.
  - Choose Mark All to indicate that all displayed manufacturing orders will be removed.
  - Choose Unmark All to exclude the displayed orders from removal.
4. Choose Process to remove all marked manufacturing order records. When processing is complete, close the window.

## Removing manufacturing order transaction logs

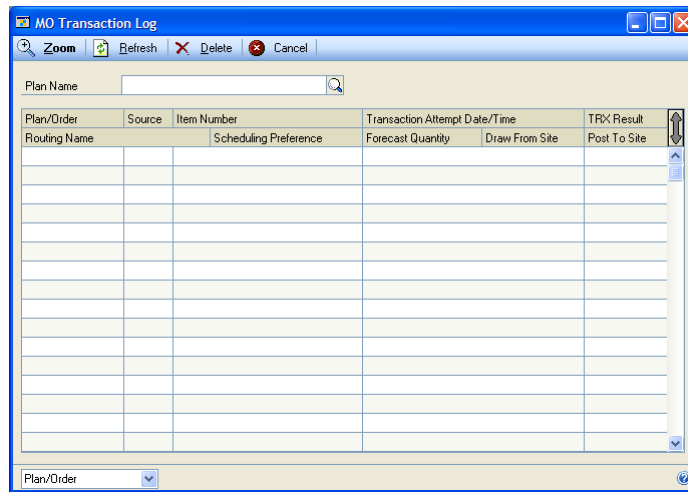
Transaction logs are created when an attempt to create a manufacturing order based on a master production scheduling plan fails. You can use the MO Transaction Log window to remove transaction logs.



Refer to [Chapter 5, "MPS manufacturing orders,"](#) in the *Manufacturing Planning Functions* documentation for more information about using manufacturing order transaction logs.

**To remove manufacturing order transaction logs:**

1. Open the MO Transaction Log window.  
(Inquiry >> Manufacturing >> Manufacturing orders >> MO Transaction Log)



2. Choose Delete to open the Transaction Log Record Removal window.
3. Enter or select dates to include the range of manufacturing order transaction log records to delete.
4. Choose Process to remove the transaction log records. When you've finished, close the window.



# Part 3: Outsourcing

This part of the documentation includes information that will help you set up and use outsourcing.

The following information is discussed:

- [Chapter 15, “Outsourcing overview.”](#) describes what outsourcing is and how it works in Manufacturing.
- [Chapter 16, “Outsourcing setup.”](#) includes information about the tasks to complete before you start using outsourced services.
- [Chapter 17, “Purchase orders and shipments.”](#) explains how you can create purchase orders for outsourced services, and how to enter information about shipments of items to outsourcing vendors.
- [Chapter 18, “Outsourcing and manufacturing orders.”](#) describes the effects of using outsourcing on Manufacturing Order Processing. Special rules for some tasks—such as changing the status of a manufacturing order—are included.
- [Chapter 19, “Outsourcing inquiries.”](#) includes information about viewing outsourcing information.

# Chapter 15: Outsourcing overview

Outsourcing is a common business practice among manufacturing companies. Using outsourcing vendors to complete certain tasks can be time- and labor-saving.

You can set up and create manufacturing orders that include outsourcing and can specify the cost bucket to track outsourcing costs. When you create manufacturing orders that include outsourcing routing sequences, purchase orders and shipments to outsourcing vendors are suggested.

This information is divided into the following sections:

- [Outsourcing terms](#)
- [Outsourcing workflow](#)
- [Outsourcing cost buckets](#)
- [Outsourcing routings](#)
- [Types of manufacturing shipments](#)
- [Outsourcing vendors](#)

## Outsourcing terms

Refer here for information about some of the terms related to outsourcing.

**Outsourcing cost bucket** A cost bucket used to track outsourcing costs. You must specify which of the six existing cost buckets—Labor, Labor Fixed Overhead, Labor Variable Overhead, Machine, Machine Fixed Overhead, and Machine Variable Overhead—should be used for the outsourcing cost bucket. Refer to [Outsourcing cost buckets](#) on page 176 for more information.

**Outsourcing work center** A work center where outsourcing tasks occur. When you designate a work center as an outsourcing work center, you can select a vendor and a Services item. You also can specify the purchase order offset days—the number of days that the release of the purchase order should precede when the outsourced services are needed.

**Outsourcing vendor** A vendor from whom you purchase outsourced services.

**Services items** A service that you purchase from an outsourcing vendor. You create items with the Services type to use with outsourcing. Later on, you create purchase orders to buy the outsourced Services item from a vendor. (If you choose not to create items with the Services type, purchase orders for non-inventoried items are created for you.)

**Manufacturing shipments** Shipments of items—either raw material or work in process (WIP)—to outsourcing vendors. Refer to [Types of manufacturing shipments](#) on page 178 for more information.

**Outsourcing routing sequence** A routing sequence that occurs at an outsourcing work center. Sometimes “outsourcing sequence” refers to an outsourcing routing sequence, and “outsourcing routing” refers to a routing that includes outsourcing routing sequences.

**Outsourcing manufacturing order** A manufacturing order that includes outsourcing sequences.

**Outsourcing labor code** A labor code for outsourced services. If you select one of the labor cost buckets—Labor, Labor Fixed Overhead, or Labor Variable Overhead—for outsourcing costs, then you must set up an outsourcing labor code. The labor code will include the information that’s used to calculate the default costs of the outsourced service.



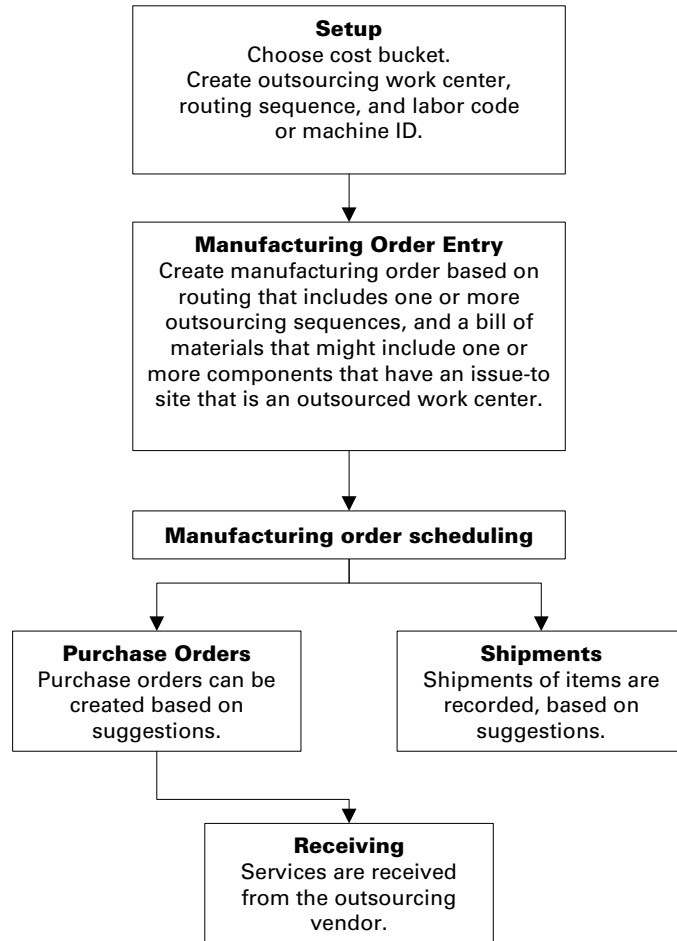
Refer to [Entering a labor code](#) in [Chapter 1, “Machines and labor codes.”](#) in the *Manufacturing Core Functions* documentation for more information.

**Outsourcing machine ID** A machine ID for outsourced services. If you select one of the machine cost buckets—Machine, Machine Fixed Overhead, or Machine Variable Overhead—for outsourcing costs, then you must set up an outsourcing machine ID. The machine ID will include the information that’s used to calculate the default costs of the outsourced service.



Refer to [Entering a machine record](#) in [Chapter 1, “Machines and labor codes.”](#) in the *Manufacturing Core Functions* documentation for more information.

### Outsourcing workflow



### Outsourcing cost buckets

If you purchase outsourced services for manufacturing, you must specify which of the six available cost buckets to use for outsourcing costs.



The bucket you choose for outsourcing costs should be one that isn't currently used by your business for tracking other cost information. The bucket also should be one that has a formula for calculating the estimated costs of outsourced services that will work well for your business. Estimated outsourcing costs are included in the estimated manufacturing order costs—and affect manufacturing order variances.



*Carefully consider the cost bucket you select for outsourcing. Switching to another cost bucket later could be very difficult.*

The table lists the cost buckets and describes ways you can use each of them to calculate outsourcing costs.

Cost bucket	Variations	Formula for cost of outsourcing sequence	
Labor	Shop Rate per Hour	Order Quantity x Shop Rate x Labor Time	
	Shop Rate per Piece	Order Quantity x Shop Rate	
Labor Fixed Overhead	Amount	Order Quantity x Currency Amount (assuming that the Shop Rate is 0)	
	Percentage	Order Quantity x Shop Rate x Percentage	
Labor Variable Overhead	Amount	Order Quantity x Amount (assuming that the Shop Rate is 0)	
	Percentage	Order Quantity x Shop Rate x Percentage	
Machine	--	(Operating Cost x Machine Time x Order quantity) + (Piece Cost x Order Quantity)	
Machine Fixed Overhead	Amount	Per Hour	Order Quantity x Amount x Machine Time x Order Quantity
		Per Piece	Order Quantity x Amount
	Percentage	Per Hour	Order Quantity x Percentage x Operating Cost x Machine Time
		Per Piece	Order Quantity x Percentage x Piece Cost
Machine Variable Overhead	Amount	Per Hour	Order Quantity x Amount x Machine Time
		Per Piece	Order Quantity x Amount
	Percentage	Per Hour	Order Quantity x Percentage x Operating Cost x Machine Time
		Per Piece	Order Quantity x Percentage x Piece Cost

Order Quantity is the manufacturing order start quantity for the finished item.  
 Shop Rate is entered in the Labor Code Definition window.  
 Labor Time and Machine Time are entered in the Routing Sequence Entry window, but can be modified for a specific manufacturing order in the Manufacturing Order Routing Sequence Edit window.  
 Amount and Percentage are entered in the Labor Code Definition window or the Machine Definition window, depending on whether the cost bucket is a labor cost bucket or machine cost bucket.  
 Operating Cost and Piece Cost are entered in the Machine Definition window.

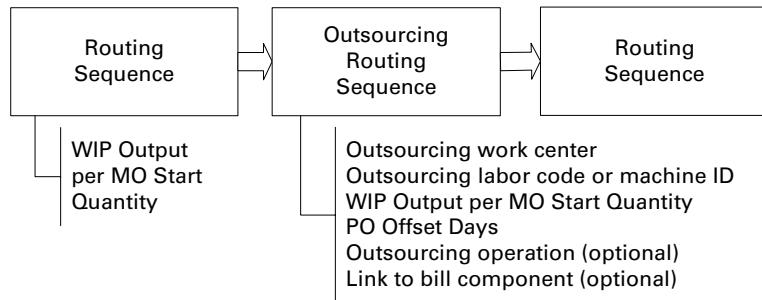
## Outsourcing routings

Before you can create an outsourcing manufacturing order, you must create an outsourcing planning routing. The outsourcing routing can include multiple outsourcing sequences.

Each outsourcing sequence requires an outsourcing work center and either an outsourcing labor code or an outsourcing machine ID, depending on the cost bucket you've chosen.

You also can specify the number of work in process items per finished good item that is generated from each routing sequence. By specifying this number—called the WIP Output per MO Start Quantity—for the outsourcing sequence and for the sequence that immediately *precedes* the outsourcing sequence, better suggestions can be made for the number of items to ship to the outsourcing vendor, and the number of items to expect to receive from the outsourcing vendor.

The following illustration shows how a routing with outsourcing sequences might appear.



Refer to the following topics for more information about outsourcing routings.

- [Rules for outsourcing routing sequences](#) on page 180
- [Creating a routing sequence for outsourcing](#) on page 180
- [Entering work in process output for outsourcing](#) on page 182

## Types of manufacturing shipments

When you use outsourcing, you'll ship items—raw materials, work in process (WIP), or both—to an outsourcing vendor. Shipments can be divided into three types: suggested, recorded, and voided.

**Suggested shipments** When you schedule a manufacturing order that includes outsourcing, a suggested shipment record is created. The suggested shipment includes the vendor ID, item number, quantity, and other information.

**Recorded shipments** If you choose to ship items as suggested, you can enter information about the items actually shipped. This information is a recorded shipment.

**Voided shipments** Voided shipments are recorded shipments that have been reversed.

## Outsourcing vendors

You can change the vendor by entering or selecting a new vendor ID. When you change the vendor ID, you'll be able to use the new vendor for the displayed suggestions.

You can't delete a vendor ID if the vendor has been assigned to an outsourced work center. To delete the vendor ID, you must remove the vendor ID from any outsourcing work centers, and then delete the vendor ID, as usual.



*You can use the Work Center Report Options window to print the Employee/Machine Allocation report, if needed, to view which outsourced work center a vendor is assigned to.*

Refer to [Defining or modifying an outsourced work center](#) in [Chapter 2, "Work centers,"](#) in the Manufacturing Core Functions documentation for information about changing the vendor for an outsourced work center. Refer to Microsoft Dynamics GP Purchase Order Processing documentation for more information about deleting vendor IDs.

# Chapter 16: Outsourcing setup

Before you can create manufacturing orders that include outsourcing sequences, you must complete several setup tasks. Some tasks must be completed only once, but others—such as creating a Services item for an outsourcing vendor, or creating an outsourcing work center—might need to be completed for each outsourcing service.

This information is divided into the following sections:

- [Outsourcing setup overview](#)
- [Rules for outsourcing routing sequences](#)
- [Creating a routing sequence for outsourcing](#)
- [Entering work in process output for outsourcing](#)

## Outsourcing setup overview

Before you can use outsourcing, you must complete several setup tasks. The following table summarizes the tasks that you must complete once. These tasks affect how outsourcing works in all manufacturing orders.

Task	Refer here for more information
Specify a cost bucket	You'll use the WIP Preferences Defaults window to choose the cost bucket. Refer to <a href="#">Setting up options for outsourcing costs</a> in <a href="#">Chapter 4, "Manufacturing production functions setup,"</a> in the Manufacturing Setup documentation.
Set up a user-defined field (optional)	You'll use the Manufacturing Order Preference Defaults window to set up user-defined fields and process security.
Set up process security for outsourcing tasks	Refer to <a href="#">Specifying outsourcing manufacturing order options</a> in <a href="#">Chapter 4, "Manufacturing production functions setup,"</a> in the Manufacturing Setup documentation.

To set up outsourcing information for a specific finished item, you must complete the tasks that are described in the following table.

Task	Refer here for more information
Set up a work center for outsourcing	You'll use the Work Center Setup window and the Outsourced Work Center Setup window to set up the work center. Refer to <a href="#">Defining or modifying an outsourced work center</a> in <a href="#">Chapter 2, "Work centers,"</a> in the Manufacturing Core Functions documentation.
Set up a labor code or machine for outsourcing	Depending on whether you're using a labor cost bucket or a machine cost bucket, you'll use either the Labor Code Definition window or the Machine Definition window to set up the labor code or machine. Refer to <a href="#">Entering a labor code</a> or <a href="#">Entering a machine record</a> in <a href="#">Chapter 1, "Machines and labor codes,"</a> in the Manufacturing Core Functions documentation.
Set up a routing for outsourcing	You'll use the Routing Sequence Entry window to create outsourcing routing sequences. Refer to <a href="#">Creating a routing sequence for outsourcing</a> on page 180 for information about the additional information required for outsourcing routing sequences.

You also can complete other, optional tasks. Refer to the table for more information.

Task	Refer here for more information
Set up an operation for outsourcing (optional)	To use the same outsourcing work center for many routings, you can use the Operations Setup window to create an operation as a template for the outsourcing sequence. Refer to <a href="#">Creating an operation</a> in <a href="#">Chapter 3, "Operations,"</a> in the Manufacturing Core Functions documentation.
Create an item with the Services type (optional)	To track the historical information about the costs of using an outsourcing vendor for a specific service, create an item with a Services type and then use the Outsourced Work Center Setup window to assign it to the outsourcing work center. Refer to your Microsoft Dynamics GP Inventory Control documentation for information about creating an item record. Refer to <a href="#">Defining or modifying an outsourced work center</a> in <a href="#">Chapter 2, "Work centers,"</a> in the Manufacturing Core Functions documentation.
Review the bill of materials (optional)	To ship raw materials to an outsourcing vendor, you must use the Bill of Materials Entry window to specify that the component item in the bill of materials has an issue-to site that is the outsourcing work center. Refer to <a href="#">Adding a component to a bill of materials</a> in <a href="#">Chapter 11, "Bill of Materials entry,"</a> in the Manufacturing Core Functions documentation.  If only a portion of the bill quantity should be shipped to the outsourcing vendor, you can create a link between the bill of materials quantity and the outsourcing routing. Refer to <a href="#">Linking component usage to a routing sequence</a> in <a href="#">Chapter 12, "Links to routings,"</a> in the Manufacturing Core Functions documentation.

## Rules for outsourcing routing sequences

Each routing sequence for outsourcing services must meet the following requirements:

- The sequence must occur at an outsourcing work center.
- If you're using a labor cost bucket for outsourcing costs—Labor, Labor Fixed Overhead, or Labor Variable Overhead—you must select a labor code designated for outsourcing for the Labor Code for the routing sequence.
- If you're using a machine cost bucket for outsourcing costs, you should select a machine ID that's been created for outsourcing.

## Creating a routing sequence for outsourcing

Use the Routing Sequence Entry window to create a routing sequence for outsourcing.

This procedure assumes that you've already completed the following tasks:

- You have created a header record for the routing. Refer to [Creating a routing header record](#) on page 14 for more information.
- You have created an outsourcing work center. Refer to [Defining or modifying an outsourced work center](#) in [Chapter 2, "Work centers,"](#) in the Manufacturing Core Functions documentation for more information.

**To create a routing sequence for outsourcing:**

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)

2. Enter or select the work center where this sequence will take place. The work center must be one that has been designated for outsourcing.



*Outsourced work centers are marked with an asterisk in the lookup window.*

Refer to [Defining or modifying an outsourced work center](#) in [Chapter 2, “Work centers,”](#) in the Manufacturing Core Functions documentation for more information about defining work centers.

3. You can enter or select the operation code—or “opcode”—for this sequence. When you choose the lookup button on the Work Center Opcode field, only operations that have been linked to the work center will be available.

Refer to [Creating an operation](#) in [Chapter 3, “Operations,”](#) in the Manufacturing Core Functions documentation for more information.



*If you enter an operation code, it must be designated for outsourcing. That is, the operation code must use an outsourced labor code if you’re using a labor cost bucket for outsourcing costs, or must use an outsourced machine ID if you’re using a machine cost bucket for outsourcing costs.*

4. Enter or accept the default PO Release Offset Days, which is the number of days that the release of the purchase order should precede the start of the routing sequence.

The default PO Release Offset Days value comes from the outsourcing work center record. You can change the value for the routing, but that change won’t be reflected in the work center record.

5. Determine if backflushing should be used for the sequence.



Refer to [How backflushed machine and labor amounts are calculated](#) on page 164 for more information.

6. Mark QA Sequence if the sequence is an inspection or testing step. Marking the option is only informational, and doesn't affect any processing or transactions.
7. Depending on the cost bucket you're using for outsourcing costs, you can enter other information, such as a labor code, machine ID, run time, and machine time.

Refer to [Outsourcing cost buckets](#) on page 176 for information about what fields are needed for each cost bucket.

Refer to the table for information about the fields.

Field	Notes
Labor Code	If you're using one of the labor cost buckets, you must select an outsourcing labor code. Refer to <a href="#">Rules for outsourcing routing sequences</a> on page 180. Also, note that you can never use an outsourced labor code for the Setup Labor Code.
Machine ID	If you're using one of the machine cost buckets to track outsourcing costs, you must select a machine ID for outsourcing.

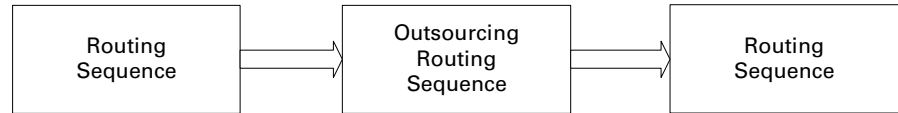
8. If you choose to have the next sequence begin after a certain number of units or a certain percentage of units are through the current sequence, enter either the quantity or the percentage that needs to be completed. If you leave this field blank, the next sequence will begin when this sequence is complete for the entire order quantity.
9. If another sequence can run simultaneously with this one, enter that sequence number in the Concurrent Sequence field. Refer to [Parallel routing sequences](#) on page 18 for more information about parallel routing sequences.
10. Enter the number of the next sequence, if needed. Each routing must have at least one sequence, but you can include additional sequences.
11. Mark the Last sequence scheduled for a day option if, at the end of the day, no other sequences should be completed.
12. Choose Save.
13. To continue adding sequences to the routing until all the sequences needed to complete the product have been entered, repeat steps 2 through 12, as needed. Be sure to save each sequence.

### Entering work in process output for outsourcing

To have default quantities for suggested shipments and receipts calculated correctly, you can specify the WIP Output per MO Start Quantity in the sequence that precedes the outsourcing sequence, and in the outsourcing sequence itself.

For example, suppose you manufacture wagons. The second routing sequence is outsourced: the outsourcing vendor attaches the wheels to the axles for the wagons. Two wheels are attached to each axle, and two axles are used for each wagon. A portion of the routing sequence for building wagons might look like this:

**Routing with Outsourcing (Example: Building 10 wagons)**



**Wheels assembled.**

WIP output is 4, because 4 wheels are needed for each wagon.

**Suggested shipment:**

40 units of WIP  
(MO Start Quantity x WIP Output = 10 x 4 = 40)

**Wheels put on axles.**

WIP output is 2, because 2 axles are needed for each wagon.

**Default receipt quantity:**

20 units of WIP (MO Start Quantity x WIP Output = 10 x 2 = 20)

In this case, you would enter 4 as the WIP Output per MO Start Quantity for the first sequence. The quantity of items suggested to be shipped for the second, outsourcing sequence would be 40—that is, the WIP Output of the first sequence multiplied by the manufacturing order start quantity.

You would also enter 2 as the WIP Output per MO Start Quantity for the outsourcing sequence, because you would expect to receive two axles for each wagon.



*If the outsourcing routing sequence is the first sequence, the suggested shipment quantity is based on the picklist quantity because there would be no work in process material to ship.*

**To enter work in process output information for outsourcing:**

1. Open the Routing Sequence Entry window.  
(Cards >> Manufacturing >> Routings >> Routing Entry)
2. Enter or select the finished good item number.
3. Enter or select the routing identifier.
4. Enter or select the routing sequence.
5. Enter the WIP Output per MO Start Quantity.
6. Choose Save and close the window.





# Chapter 17: Purchase orders and shipments

After you've created a routing with outsourcing sequences, you can use that routing in a manufacturing order. When you schedule the order, suggested purchase orders for the outsourced services and suggested shipments of items to the outsourcing vendor are created.

This information is divided into the following sections:

- [\*Effects of scheduling outsourcing manufacturing orders\*](#)
- [\*Creating a purchase order for outsourced services\*](#)
- [\*Changing the vendor for outsourced purchase orders\*](#)
- [\*Voiding a manufacturing order/purchase order link\*](#)
- [\*Recording a manufacturing shipment\*](#)
- [\*Specifying lot numbers for a shipment\*](#)
- [\*Specifying serial numbers for a shipment\*](#)
- [\*Voiding a manufacturing shipment\*](#)
- [\*Receipts of outsourced items\*](#)
- [\*Distributing additional outsourcing costs\*](#)
- [\*Invoicing for outsourced services\*](#)

## Effects of scheduling outsourcing manufacturing orders

When you schedule or save an outsourcing manufacturing order, the outsourcing sequences are scheduled, and other information—used for suggesting purchase orders and shipments—is calculated.

**Purchase orders for outsourced services are suggested** A purchase order for the outsourced service is suggested for each outsourced service in the manufacturing order routing.

- If you specified a Services item in the Outsourcing Work Center Setup window, a purchase of that item is suggested. The default cost for the service is the amount on the most recent invoice for the service. However, you can change the cost when you create the purchase order.
- If no Services item was specified for the outsourcing work center, a purchase of an outsourced service (with a made-up name) is suggested. The item number begins with the letters SERV, followed by the last six letters in the manufacturing order identifier, a hyphen, and then the routing sequence number. You can accept the created item number, or you can change to something more meaningful. However, you can't change it to an inventoried item number, and you can't change it after a purchase order has been created.

The default cost for the purchase is based on the cost bucket selected for outsourcing. Refer to [\*Outsourcing cost buckets\*](#) on page 176.

**One or more shipments is suggested** A shipment of raw materials or work in process (WIP) will be suggested.

Refer to the table for more information.

	Raw material	Work in process
First sequence	The raw material to be shipped must have an issue-to site that is the outsourced work center for the outsourcing routing sequence.	Not applicable
Subsequent sequences		If the outsourced sequence is not the first sequence, a shipment of work in process is suggested.

### Creating a purchase order for outsourced services

After you've scheduled one or more manufacturing orders that include outsourced services, you can create purchase orders for the services you're obtaining from the outsourcing vendor.

You can use the Manufacturing Order/Purchase Order Link window or the Manufacturing Order/Purchase Order Link by Vendor window to create purchase orders for outsourced services.

- Use the Manufacturing Order/Purchase Order Link window to select with a manufacturing order and create purchase orders for only that manufacturing order.
- Use the Manufacturing Order/Purchase Order Link by Vendor window if you have multiple manufacturing orders that require outsourced services from the same vendor, and you want to create a single purchase order for all of the manufacturing orders.



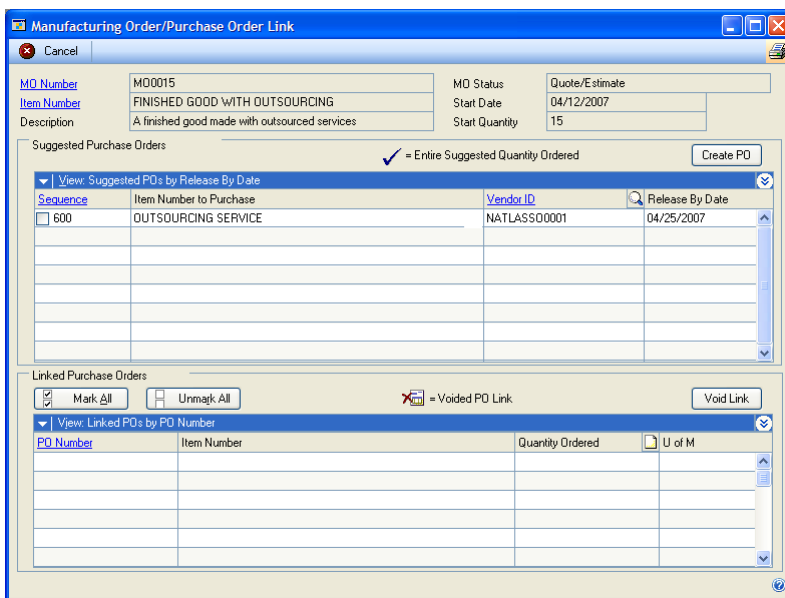
*Before you can create purchase orders for outsourced services, you must have entered and scheduled a manufacturing order that includes outsourcing, and the status of the manufacturing order must be Open, Released, or Partially Received.*

**To create a purchase order for outsourced services:**

1. Open the window to use to create the purchase order.

Refer to the table for more information.

Window	Navigation
Manufacturing Order/Purchase Order Link window	Transactions >> Manufacturing >> Manufacturing Orders >> Entry >> enter or select a manufacturing order with outsourcing sequences >> Outsourcing Purchasing button
Manufacturing Order/Purchase Order Link by Vendor window	Transactions >> Manufacturing >> Manufacturing Orders >> MOP/POP Link You also can open this window from the MO entry window to have information displayed, such as Vendor ID, MO Number Range, Release By Date Range.



The illustration shows the Manufacturing Order/Purchase Order Link window, but the Manufacturing Order/Purchase Order Link by Vendor window is very similar.

2. Review the vendor selection.

- If you're using the Manufacturing Order/Purchase Order Link by Vendor window, enter or select a vendor ID.



If you opened the Manufacturing Order/Purchase Order Link by Vendor window from the Manufacturing Order Entry window—with a manufacturing order displayed—you can accept or change the default information displayed in the Vendor ID field. If any suggested purchase orders are displayed in the upper scrolling window when you change the vendor ID, you'll have the option to use the new vendor for the displayed suggestions.

- If you're using the Manufacturing Order/Purchase Order Link window, accept the default vendor selection, or change it.

3. If you're using the Manufacturing Order/Purchase Order Link by Vendor window, use the MO Number Range and Release By Date Range fields to select the group of manufacturing orders you want to work with.



*If you opened the Manufacturing Order/Purchase Order Link by Vendor window from the Manufacturing Order Entry window—with a manufacturing order displayed—you can accept or change the default information displayed in the MO Number Range and Release By Date Range fields.*

4. The upper scrolling window will display information about the suggested purchase orders.
  - If you specified a Services type item for the outsourcing work center in the manufacturing order routing, a purchase order for that service will be suggested.
  - If you did not specify a Services type item, an item number for the services to be purchased is created. You can accept that item number, or enter another that is more meaningful. However, you can't change it to a inventoried item number.

5. Mark the lines of suggested purchase orders to change into purchase orders.

Use the view icon button at the top of the scrolling window to view more information about the suggested purchase order. You can accept the default information or change it before transforming the suggestion into a purchase order.

6. Choose the Create PO button.

If you marked the option to require process security when a purchase order is created from a manufacturing order in the Manufacturing Order Preference Defaults window, you might have to supply a password. Process security also can be based on user IDs, though, so you might not need to supply a password.



*If the outsourced routing sequence already has been marked Done when you create the purchase order, the Done designation will be unmarked; the sequence can't be done before you create a purchase order for it.*

7. The Purchase Order Entry window appears. Enter information in other fields in that window, as needed, and then choose Save.

Refer to your Microsoft Dynamics GP Purchase Order Processing documentation for more information.

8. Close the Purchase Order Entry window.



*Depending on your setup options, one or more reports might be printed when you close the window. If you marked the Include Sequence Notes Report with Purchase Order Report in the Routing Preference Defaults window, a print dialog box will appear and you'll have the option to print the sequence notes report after the purchase order report. A separate report page will be printed for each combination of purchase order, manufacturing order, and routing sequence.*

The lower scrolling window in the Manufacturing Order/Purchase Order Link or in the Manufacturing Order/Purchase Order Link by Vendor window displays information about the purchase orders that have been created for the outsourced services.

9. If other purchase order suggestions are displayed in the upper scrolling window, you can create more purchase orders. Repeat steps 5 through 8 for each purchase order.
10. When you've finished, close the window.

### Changing the vendor for outsourced purchase orders

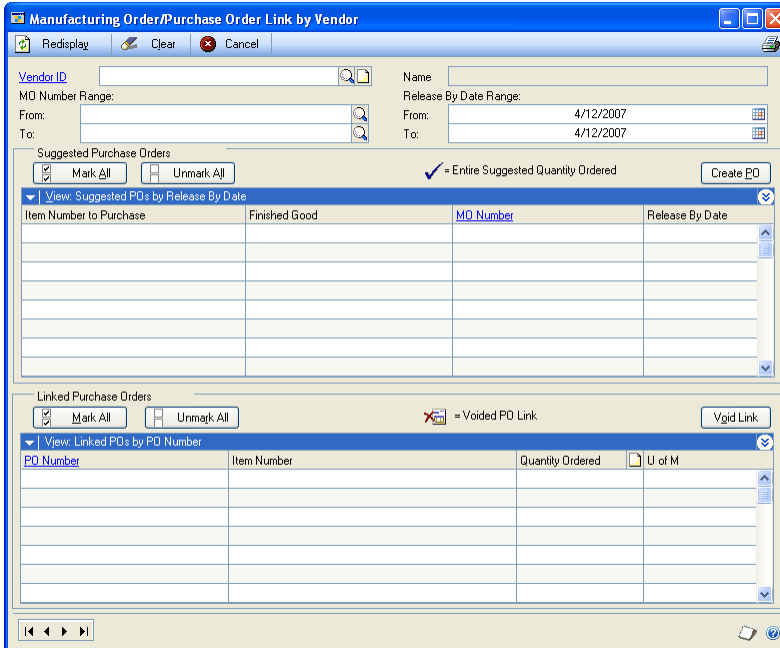
After you've displayed suggested purchase orders in the scrolling window of the Manufacturing Order/Purchase Order Link by Vendor window, you may need to change the outsourcing vendor.

You can use the Manufacturing Order/Purchase Order Link by Vendor window to view suggested purchase orders and change the outsourcing vendor, if necessary.

#### To change the vendor for outsourced purchase orders:

1. Open the Manufacturing Order/Purchase Order Link by Vendor window. (Transactions >> Manufacturing >> Manufacturing Orders >> MOP/POP Link)

You also can open this window from the MO entry window to have information displayed, such as Vendor ID, MO Number Range, Release By Date Range.



2. Enter or select the vendor.



*If you opened the Manufacturing Order/Purchase Order Link by Vendor window from the Manufacturing Order Entry window—with a manufacturing order displayed—the vendor for the manufacturing order will be displayed.*

- Use the MO Number Range and Release By Date Range fields to select the group of manufacturing orders to work with.



*If you opened the Manufacturing Order/Purchase Order Link by Vendor window from the Manufacturing Order Entry window—with a manufacturing order displayed—the default manufacturing order number ranges and release by date ranges will be displayed.*

- Change the vendor number in the Vendor ID field. If any suggested purchase orders are displayed in the upper scrolling window when you change the vendor ID, you'll have the option to use the new vendor for the displayed suggestions.
- When you've finished, close the window.

### Voiding a manufacturing order/purchase order link

You might need to void a link for a purchase order for outsourced services that is linked to a manufacturing order. For example, to delete or cancel a manufacturing order that has linked purchase orders, you'll need to void—or remove—the link before the manufacturing order can be canceled or deleted.



*Voiding a purchase order link doesn't remove the purchase order itself. You must use the Purchase Order Entry window to void or delete the purchase order, if needed. Refer to your Microsoft Dynamics GP Purchase Order Processing documentation for more information.*

You can use either the Manufacturing Order/Purchase Order Link window or the Manufacturing Order/Purchase Order Link by Vendor window to void the links between purchase orders and manufacturing orders.

- If the purchase order was for outsourced services for a single manufacturing order, you can use the Manufacturing Order/Purchase Order Link window.
- If the purchase order was for outsourced services for multiple manufacturing orders, use the Manufacturing Order/Purchase Order Link by Vendor window.

#### To void a manufacturing order/purchase order link:

- Open the window to use to void the link.

Refer to the table for more information.

Window	Navigation
Manufacturing Order/Purchase Order Link window	Transactions >> Manufacturing >> Manufacturing Orders >> Entry >> enter or select a manufacturing order with outsourcing sequences >> Outsourcing Purchasing button
Manufacturing Order/Purchase Order Link by Vendor window	Transactions >> Manufacturing >> Manufacturing Orders >> MOP/POP Link You also can open this window from the MO entry window to have information displayed, such as Vendor ID, MO Number Range, Release By Date Range.

2. If you're using the Manufacturing Order/Purchase Order Link by Vendor window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Release By Date Range fields to select a group of manufacturing orders.



*If you opened this window from the Manufacturing Order Entry window—with a manufacturing order displayed—you can accept or change the default information displayed in the Vendor ID, MO Number Range and Release By Date Range fields. If any suggested purchase orders are displayed in the upper scrolling window when you change the vendor ID, you will have the option to use the new vendor for the displayed suggestions.*

3. The lower scrolling window will display information about the linked purchase orders.

In the lower scrolling window, mark the lines of purchase orders to void.



*Use the view icon button at the top of the scrolling window to view more information about the purchase orders.*

4. Choose the Void Link button.

If you marked the option to require process security to manage manufacturing order/purchase order links, you might have to enter a password.



*Depending on your setup options, one or more reports might be printed.*

The lower scrolling window in the Manufacturing Order/Purchase Order Link window or in the Manufacturing Order/Purchase Order Link by Vendor window displays information about the voided purchase order link. The voided purchase order will be marked with a small icon.

5. When you've finished, close the window.

## Recording a manufacturing shipment

When you're ready to ship items to an outsourcing vendor for services, you'll need to record the shipment of the items.



*You must issue items tracked by lot or serial numbers before you ship them.*

You can use either the Manufacturing Order Shipments window or the Manufacturing Order Shipments by Vendor window to enter information about the items shipped to an outsourcing vendor.

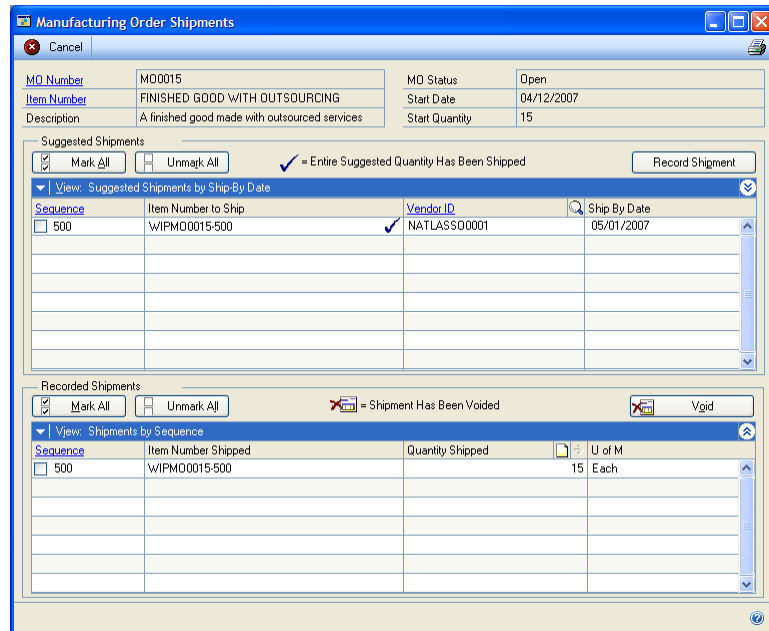
- If the shipment is for items for a single manufacturing order, you can use the Manufacturing Order Shipments window.
- If the shipment is for several items to a single vendor, you can use the Manufacturing Order Shipments by Vendor window.

**To record a manufacturing shipment:**

1. Open the window to use to enter manufacturing shipment information.

Refer to the table for more information.

Window	Navigation
Manufacturing Order Shipments window	Transactions >> Manufacturing >> Manufacturing Orders >> Entry >> enter or select a manufacturing order with outsourcing sequences >> Outsourcing Shipping button
Manufacturing Order Shipments by Vendor window	Transactions >> Manufacturing >> Manufacturing Orders >> MFG Shipments



2. If you're using the Manufacturing Order Shipments by Vendor window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Ship By Date Range fields to select a group of manufacturing orders.
3. The upper scrolling window will display information about the suggested items to ship. You can ship either of the following types of items, or both.
  - If the issue-to site for any of the items in the manufacturing order picklist is an outsourcing work center, then a shipment of that item will be suggested.
  - Otherwise, an item number for the work in process items to be shipped is created if the outsourced sequence is not the first sequence. (There would be no WIP items to suggest to ship for the first sequence.) The item number will be WIP, then the manufacturing order identifier, a hyphen, and then the identifier of the sequence preceding the outsourcing sequence.



4. Use the view icon button at the top of the scrolling window to view more information about the suggested shipments. You can use the view icon button to switch between the two views of information whenever you like.

You can accept the default entries, or change them in either view of the information. For example, to ship only part of the total suggested quantity, you would enter the quantity that you're shipping now in the Shipment Quantity field.

5. In the scrolling window, mark the suggested shipments that should be recorded. If you're using the card view, mark the check box in the first line.
6. Choose the Record Shipment button.

If you marked the option to require process security when a shipment is recorded, you might have to enter a password.



*Depending on your setup options, one or more reports might be printed when you close the window. If you marked the Include Sequence Notes Report with Outsourcing Shipping Report option in the Routing Preference Defaults window, you'll have the option to print the note report for the routing sequence.*

7. If the item you're shipping is tracked by lot or serial numbers, you must specify them. The Manufacturing Shipping Lot Number Entry window or the Manufacturing Shipping Serial Number Entry window will open. Refer to [Specifying lot numbers for a shipment](#) on page 193 or [Specifying serial numbers for a shipment](#) on page 194 for more information.
8. If you set up a user-defined field for outsourcing, you can enter information in that field, which will appear in the card view of the lower scrolling window. Card-view information appears when you use the view icon button in the upper right corner of the scrolling window to see more detailed information about a specific record.
9. When you've finished, close the window.

## Specifying lot numbers for a shipment

As you're entering the shipment information in the Manufacturing Order Shipments window or the Manufacturing Order Shipments by Vendor window, you might need to specify lot numbers for the items being shipped. If you mark a line in the upper scrolling window for an item tracked by lot numbers, and if the Shipment Quantity for the line isn't zero, the Manufacturing Shipping Lot Number Entry window opens. The window also opens if you edit the shipment quantity for items tracked by lot numbers.

If you're shipping raw materials tracked by lot numbers to an outsourcing vendor, you can use the Manufacturing Shipping Lot Number Entry window to specify the lots the items are taken from.



*You must issue items tracked by lot numbers before you can specify that they are to be shipped to an outsourcing work center.*

### To specify lot numbers for a shipment:

1. Enter information about a shipment of items tracked by lot numbers in the Manufacturing Order Shipments window or the Manufacturing Order Shipments by Vendor window. Refer to [Recording a manufacturing shipment](#) on page 191 for more information.

2. In the upper scrolling window, determine which lot shipped items will be taken from. The upper scrolling window displays the lot numbers issued for the manufacturing order.
3. On the appropriate line in the Quantity Selected column, enter the quantity of the lot-number-tracked item to be shipped from the specific lot.
4. Choose Insert. Information about the lot and the items will be displayed in the lower scrolling window.
5. Repeat steps 3 and 4 until the Lot Quantity Selected equals the Shipment Quantity. If needed, mark lines in the lower scrolling window and choose Remove or Remove All to remove incorrect entries.
6. Choose OK to save your entries and close the window.

### Specifying serial numbers for a shipment

As you're entering the shipment information in the Manufacturing Order Shipments window or the Manufacturing Order Shipments by Vendor window, you might need to specify serial numbers for the items being shipped. If you mark a line in the upper scrolling window for an item tracked by serial numbers, and if the Shipment Quantity for the line isn't zero, the Manufacturing Shipping Serial Number Entry window opens. The window also opens if you edit the shipment quantity for items tracked by serial numbers.

If you record a shipment for a group of items that is tracked by serial numbers, you can use the Manufacturing Shipment Serial Number Entry window to enter information about the serial numbers of the shipped items.

**To specify serial numbers for a shipment:**

1. Enter information about a shipment of items tracked by serial numbers in the Manufacturing Order Shipments window or the Manufacturing Order Shipments by Vendor window. Refer to [Recording a manufacturing shipment](#) on page 191 for more information.

2. Serial numbers of available items that were issued for the manufacturing order are listed in the left scrolling window. Highlight a serial number to be included in the shipment, and then choose Insert.
3. Continue until the Serial Numbers Selected equals the Shipment Quantity.
4. Choose OK to close the window.

**Voiding a manufacturing shipment**

You can use the Manufacturing Order Shipments window and the Manufacturing Order Shipments by Vendor window to void a manufacturing order shipment. To reverse-issue items that have been shipped to an outsourcing vendor, you must first void the shipment.

- If the shipment is for items for a single manufacturing order, you can use the Manufacturing Order Shipments window.
- If the shipment is for several items to a single vendor, you can use the Manufacturing Order Shipments by Vendor window.



*If you void a shipment for items tracked by lot or serial numbers, those items typically will be made available again so another shipment can be recorded. However, if the shipment was voided because you chose to void shipments when you were entering a Reverse Issue transaction in the Manufacturing Component Transaction Entry window, then you must reissue the items before you can ship them.*

**To void a manufacturing shipment:**

1. Open a window to void manufacturing shipment information.

Refer to the table for more information.

Window	Navigation
Manufacturing Order Shipments window	Transactions >> Manufacturing >> Manufacturing Orders >> Entry >> enter or select a manufacturing order with outsourcing sequences >> Outsourcing Shipping button
Manufacturing Order Shipments by Vendor window	Transactions >> Manufacturing >> Manufacturing Orders >> MFG Shipments

2. If you're using the Manufacturing Order Shipments by Vendor window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Ship By Date Range fields to select a group of manufacturing orders.
3. The lower scrolling window will display information about the shipments.
4. Use the view icon button at the top of the scrolling window to view more information about the shipments. You can switch views whenever you like.
5. In the lower scrolling window, mark the shipments that should be voided. If you're using the record view, mark the check box in the first line.
6. Choose the Void button.

If you marked the option to require process security when a shipment is recorded, you might have to enter a password.

In the upper scrolling window, the suggested shipment quantities will be updated. In the lower scrolling window, the voided shipment record will be marked with an icon.

7. When you've finished, close the window.

**Receipts of outsourced items**

When an outsourcing vendor returns items to you, you can use the Receiving Transaction Entry window to enter information about the items. You should be aware of the following effects.

**Data collection** If you marked Mark Outsourced Sequences as "Done" when Service is Received in the WIP Preference Defaults window, the sequence will be marked completed when you have received the entire line quantity.

**Accounts** When you enter a shipment or shipment/invoice for an outsourced service for a manufacturing order, the extended cost is not debited to inventory.

Instead, the extended cost of the receiving line is debited to the manufacturing order finished good WIP-X account. If you're using site segments in your account numbers and have set them up for the site for the outsourcing work center, the WIP-X account uses that site segment. (X is the account you selected in WIP Preferences Defaults window for outsourcing costs: Labor, Labor Fixed Overhead, Labor Variable Overhead, Machine, Machine Fixed Overhead, or Machine Variable Overhead.) You can edit the account, but if you do, the costs of the outsourcing service won't be applied to the manufacturing order.

The accrued purchases account (for a shipment) or the accounts payable account (for a shipment/invoice) is credited.



*If the manufacturing order status is Closed, the default inventory or purchases account (for non-inventoried items) will be used because the costs can no longer be applied to the manufacturing order.*

**Landed costs** If you're using landed costs, only those landed costs that are entered when the linked purchase order line is received with a Shipment or Shipment/Invoice transaction will be applied to the cost of the manufacturing order. The landed costs that are applied are calculated using this formula:

Unit Cost Included Landed Cost value for receiving line x (Quantity Shipped - Quantity Rejected)

If later on you match the invoice for the landed cost and the cost differs from the landed cost amount from the purchase receipt, the difference is not applied to the manufacturing order.

## Distributing additional outsourcing costs

Use the Additional Outsourcing Cost Distribution Entry window to modify how additional costs of purchasing outsourced services—such as freight and tax—are applied to manufacturing orders that include outsourced services. If you've set up your system to distribution additional costs to the manufacturing order but you don't use this window, the additional costs are still applied to the manufacturing orders.



*To apply these additional costs to a manufacturing order, you must have the Apply Additional Outsourcing Costs to MO option marked in the WIP Preference Defaults window.*

### To distribute additional outsourcing costs:

1. Enter a shipment/invoice or a purchasing invoice for the receipt of outsourced items linked to a manufacturing order.
  - Use the Receiving Transaction Entry window to enter a shipment/invoice.
  - Use the Purchasing Invoice Entry window to enter a purchasing invoice.



*Refer to your Microsoft Dynamics GP Purchase Order Processing or Invoicing documentation for more information.*



# Chapter 18: Outsourcing and manufacturing orders

Manufacturing orders that include outsourcing sequences have special rules and requirements.



Note that these changes are for manufacturing orders and manufacturing order routings. These rules don't apply to changes to planning routings. For more information about the differences between manufacturing order routings and planning routings, refer to [Types of routings](#) on page 10.

This information is divided into the following sections:

- [Rescheduling outsourcing manufacturing orders](#)
- [Purchase orders and outsourcing manufacturing orders](#)
- [Shipment rules for changes to outsourcing manufacturing orders](#)
- [Changing the status of an outsourcing manufacturing order](#)
- [Effects of removing history of outsourcing orders](#)

## Rescheduling outsourcing manufacturing orders

Some changes to the manufacturing order routing can affect how outsourcing information for purchase orders and shipments is calculated. If you change any of the following information for a manufacturing order that includes outsourcing sequences, you should reschedule the manufacturing order.

- PO Release Offset Days
- WIP Output per MO Start Quantity
- Setup Time
- Labor Time
- Machine Time
- Queue Time
- Move Time
- Cycle Time
- Percentage Next Start
- Quantity Next Start
- Concurrent Sequence
- Next Run Sequence

You also should reschedule an outsourcing manufacturing order any time you add or remove a sequence.

Refer to the table for more information about methods you can use to reschedule manufacturing orders.

Condition	Method
Manufacturing order status is Quote/Estimate or Open	Use the Schedule MO button in the Manufacturing Order Entry window.
Manufacturing order status is Released	Use the Batch Reschedule window to reschedule the entire order. Refer to <a href="#">Rescheduling an entire manufacturing order</a> on page 101.
	Use the Manual Scheduling window to reschedule specific sequences. Refer to <a href="#">Rescheduling manufacturing order sequences</a> on page 100.

## Purchase orders and outsourcing manufacturing orders

You can make many changes to a manufacturing order. For example, you can replace one work center with another. You can add a manufacturing order routing sequence, or you can remove one. You also can reschedule an entire manufacturing order, or specific sequences.

When you make changes to an outsourcing manufacturing order routing, special rules apply. Generally, if no purchase orders have been created and no shipments have been recorded for the specific sequence, you can complete the change as if it were any other manufacturing order routing. If purchase orders have been created or shipments have been recorded, however, there are some limitations.

### Rescheduling an outsourcing manufacturing order

Refer to the table for information about rules for rescheduling a manufacturing order.

Purchase orders		Effect
None created		Rescheduling occurs as normal.
Created	New suggestions are the same as existing suggestions	No changes are made to suggested or created purchase orders
	New suggestions differ from existing suggestions	If the status of the lines in the created purchase orders is New, Released, or Change Order, then you'll have the option to remove the link to the purchase order lines, leave the lines, or cancel.

### Replacing an outsourcing work center

Refer to the table for information about replacing an outsourcing work center.

Purchase orders		Effect
None created		You can change the work center. If you're replacing the work center with a different outsourcing work center, new suggestions are created.
Created	Purchase order line status is New, Released, or Change Order	You'll have the option to void the links, keep them intact, or cancel.
	Purchase order line status of Received or Closed	A message appears, stating that the costs of the lines already have been applied to the manufacturing order. You'll have the option to void the links to the purchase order lines that aren't already applied to the manufacturing order (if there are any); to leave the links; or to cancel.



### Deleting a manufacturing order

Refer to the table for information about deleting an outsourcing manufacturing order.

Purchase orders		Effect
None		Manufacturing order is deleted as usual.
Created	Purchase order line status is New, Released, or Change Order	You'll have the option to void the purchase order links or cancel. If you choose to void the links, the links also will be removed from any unposted receipt or invoice transactions.
	Purchase order line status is Received or Closed	You can't delete the manufacturing order.

### Deleting a manufacturing order routing sequence

Refer to the table for information about deleting a manufacturing order routing sequence.

Purchase orders		Effect
None		Sequence is deleted as usual.
Created	Purchase order line status is New, Released, or Change Order, and no lines have Received or Closed status	You'll have the option to void the links to the lines, or cancel.
	Purchase order line status is Received or Closed, and costs have been applied	You'll have the option to continue and void links to lines that have New, Released, or Change Order status, or cancel.

### Rescheduling a manufacturing order routing sequence

Refer to the table for information about rescheduling a routing sequence.

Purchase orders		Effect
None		Sequence is rescheduled as usual.
Created	Purchase order line status is New, Released, or Change Order for all lines	You'll have the option to void the links to the purchase order lines, leave the links, or cancel.
	One or more lines have Received or Closed status	You'll have the option to void the links to the lines with New, Released, and Change Order status, leave the links, or cancel.

### Shipment rules for changes to outsourcing manufacturing orders

When you change an outsourcing manufacturing order, special rules apply. Generally, if no purchase orders have been created and no shipments have been recorded for the specific sequence, you can complete the change as if it were any other manufacturing order. If purchase orders have been created or shipments have been recorded, however, there are some limitations.

### Rescheduling an outsourcing manufacturing order

Refer to the table for information about rescheduling an outsourcing manufacturing order.

Shipments		Effect
None recorded		All the suggested shipments are replaced with new suggestions.
Recorded	New suggestions are the same as existing suggestions	No changes are made to the suggested or recorded shipments.
	New suggestions differ from existing suggestions	If shipments have been recorded and new suggestions differ from existing ones, you'll have the option to void the recorded shipments, leave them, or cancel. If you void the shipments, the links will be removed, the manufacturing order will be rescheduled, the picklist will be rebuilt, and the old shipment suggestions will be replaced with new ones. If you leave the shipments, the existing recorded shipments will be unchanged, the manufacturing order will be rescheduled, the picklist will be rebuilt, and the existing shipment suggestions will be replaced with new ones. If you cancel, the suggested and recorded shipments are kept intact, and the manufacturing order is not rescheduled.

### Replacing an outsourcing work center

Refer to the table for information about replacing an outsourcing work center.

Shipments	Effect
None recorded	You can change the work center. If you replace the outsourcing work center with a different outsourcing work center, new suggestions for shipments are created.
Recorded	You'll have the option to void the links, leave them, or cancel. If you replace an internal work center—one that is not for outsourcing—with an outsourcing work center in a manufacturing order routing, suggestions for purchase orders and shipments will be created.

### Deleting a manufacturing order

Refer to the table for information about deleting an outsourcing manufacturing order.

Shipments	Effect
None recorded	Manufacturing order is deleted as usual.
Recorded	You'll have the option to void the shipments or cancel.

### Deleting a manufacturing order routing sequence

Refer to the table for information about deleting a manufacturing order routing sequence.

Shipments	Effect
None recorded	Manufacturing order routing sequence is deleted as usual.
Recorded	You'll have the option to void the recorded shipments or cancel.

### Rescheduling a working routing sequence

Refer to the table for information about rescheduling a manufacturing order routing sequence.

Shipments	Effect
None recorded	Manufacturing order routing sequence is rescheduled as usual.
Recorded	You'll have the option to void the recorded shipments or cancel.

### Changing the status of an outsourcing manufacturing order

You can change the status of a manufacturing order, but changing a manufacturing order that includes outsourcing might require special attention for any linked purchase orders or recorded shipments.



*You also can change the status of multiple manufacturing orders at the same time. Refer to [Changing the status of multiple manufacturing orders](#) on page 65 for more information.*

### Purchase orders

Refer to the table for information about the effects of changing the manufacturing order status of an outsourcing manufacturing order.

Manufacturing order status		Purchase order line status	Effect
Old status	New status		
--	Quote/Estimate Canceled	New Released Change Order	You'll have the option to void the links to the purchase order lines, or cancel.
--	Hold	Received Closed	You'll have the option to void the links to the lines that haven't yet been applied to the manufacturing order (if any), leave the links, or cancel.
		New Released Change Order	You'll have the option to void the links, leave them, or cancel.
Released	Quote/Estimate Open Canceled	Received Closed	This change is not permitted.
	Open	New Released Change Order	You'll have the option to void the links, leave them, or cancel.

### Shipments

Refer to the table for information about the rules that apply when you change the manufacturing order status of an outsourcing manufacturing order. The messages will appear only if shipments have been recorded for the manufacturing order.

New order status	Effect
Hold Open	You'll have the option to void the links, leave them, or cancel.
Quote/Estimate Cancel	You'll have the option to void the links or cancel.

## Effects of removing history of outsourcing orders

You can use the Remove Manufacturing Orders window to remove information about closed and completed manufacturing orders.



Refer to [Removing manufacturing orders](#) on page 170 for more information about removing manufacturing orders

When you remove information about manufacturing orders with outsourcing sequences, the following changes occur:

- When you remove an outsourcing manufacturing order, its suggested purchase orders, purchase order links, and suggested and recorded shipments also are removed. If the linked purchase order still exists, it will no longer show a visual cue that it is linked to a manufacturing order.
- If you remove purchase order history for a linked purchase order, the link information will be removed and you won't be able to view information about it in Manufacturing.

## Chapter 19: Outsourcing inquiries

You can use outsourcing inquiry windows to view information about suggested and created purchase orders, as well as suggested and recorded shipments. You can view information for a vendor or for a specific manufacturing order. You also can view information about the additional costs that have been applied to outsourcing manufacturing orders.

This information is divided into the following sections:

- [Viewing outsourcing purchase order information](#)
- [Viewing manufacturing shipment information](#)
- [Viewing lot number information for shipments](#)
- [Viewing serial numbers for shipments](#)
- [Viewing distributions of additional outsourcing costs](#)

### Viewing outsourcing purchase order information

You can use either the Manufacturing Order/Purchase Order Link Inquiry window or the Manufacturing Order/Purchase Order Link by Vendor Inquiry window to view purchase orders for outsourced services.

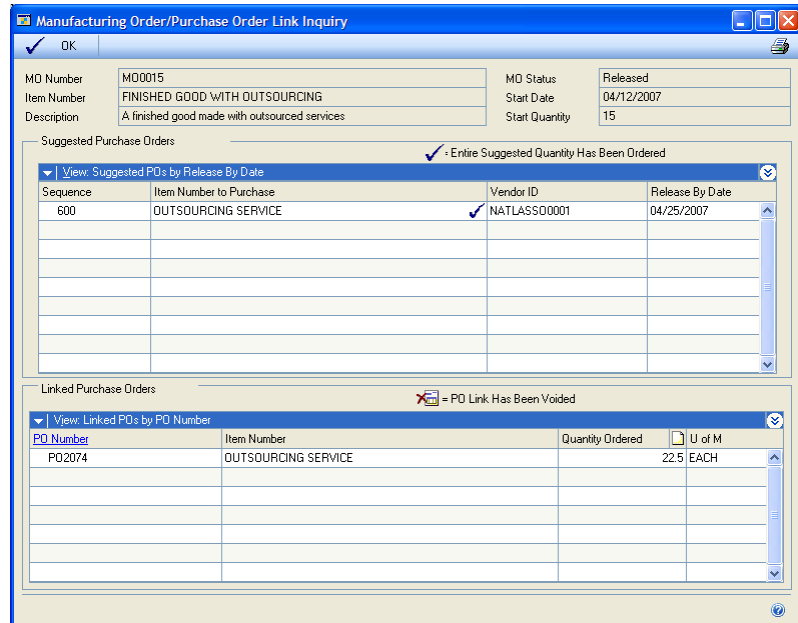
- Use the Manufacturing Order/Purchase Order Link Inquiry window to start with a manufacturing order and view purchase order information for only that manufacturing order.
- Use the Manufacturing Order/Purchase Order Link by Vendor Inquiry window to view purchase order information for a vendor.

**To view outsourcing purchase order information:**

1. Open the window to view the purchase order information.

Refer to the table for more information.

Window	Navigation
Manufacturing Order/Purchase Order Link Inquiry window	Inquiry >> Manufacturing >> Manufacturing Orders >> MO View >> select manufacturing order >> Purchasing button
Manufacturing Order/Purchase Order Link by Vendor Inquiry window	Inquiry >> Purchasing >> Vendor >> Additional >> MO PO Link Inquiry



2. If you're using the Manufacturing Order/Purchase Order Link by Vendor Inquiry window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Release By Date Range fields to select a group of manufacturing orders.
3. The upper scrolling window displays information about the suggested purchase orders; the lower scrolling window displays information about the created purchase orders.

Use the view icon button at the top of the scrolling windows to view more information about the suggested and created purchase orders.

4. When you've finished, close the window.

## Viewing manufacturing shipment information

You can use either the Manufacturing Order Shipments Inquiry window or the Manufacturing Order Shipments by Vendor Inquiry window to view information about the items shipped to an outsourcing vendor.

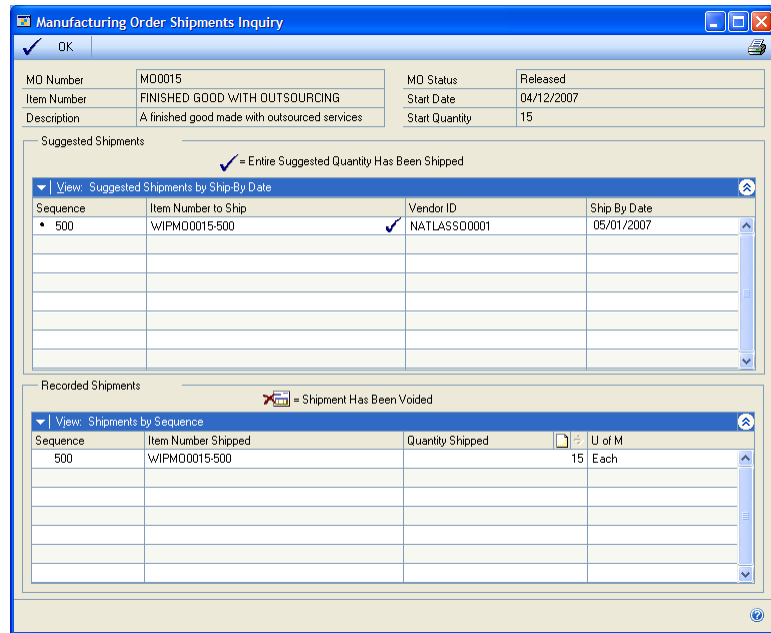
- If the shipment is for items for a single manufacturing order, use the Manufacturing Order Shipments Inquiry window.
- If the shipment is for several items to a single vendor, use the Manufacturing Order Shipments by Vendor Inquiry window.

### To view manufacturing shipment information:

1. Open the window to view manufacturing shipment information.

Refer to the table for more information.

Window	Navigation
Manufacturing Order Shipments Inquiry window	Inquiry >> Manufacturing >> Manufacturing Orders >> MO View >> select manufacturing order >> Shipping button
Manufacturing Order Shipments by Vendor Inquiry window	Inquiry >> Purchasing >> Vendor >> Additional >> MFG Shipments Inquiry



2. If you're using the Manufacturing Order Shipments by Vendor Inquiry window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Ship By Date Range fields to select a group of manufacturing orders.

3. The upper scrolling window displays information about the suggested shipments; the lower scrolling window displays information about the recorded shipments.

Use the view icon button at the top of the scrolling windows to view more information about the suggested and recorded shipments.

4. When you’ve finished, close the window.

## Viewing lot number information for shipments

If you’re shipping raw materials tracked by lot numbers to an outsourcing vendor, you can use the Manufacturing Shipping Lot Number Inquiry window to view information about the lot numbers. You can open the window through the Manufacturing Order Shipments window, or through the Manufacturing Order Shipments by Vendor Inquiry window.

- If the shipment is for items for a single manufacturing order, use the Manufacturing Order Shipments Inquiry window.
- If the shipment is for several items to a single vendor, use the Manufacturing Order Shipments by Vendor Inquiry window.

### To view lot number information for shipments:

1. Open the appropriate window.

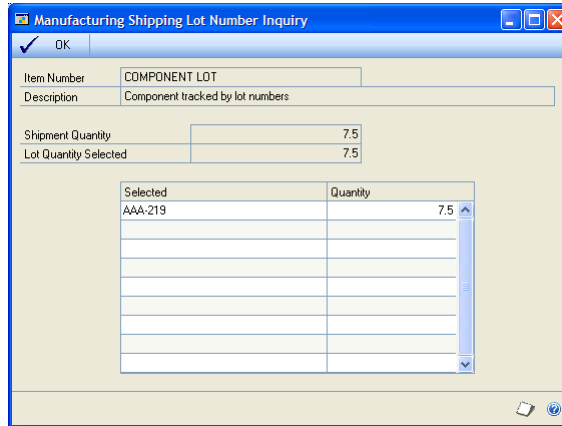
Refer to the table for more information.

Window	Navigation
Manufacturing Order Shipments Inquiry window	Inquiry >> Manufacturing >> Manufacturing Orders >> MO View >> select manufacturing order >> Shipping button
Manufacturing Order Shipments by Vendor Inquiry window	Inquiry >> Purchasing >> Vendor >> MFG Shipments Inquiry

2. If you’re using the Manufacturing Order Shipments by Vendor Inquiry window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Ship By Date Range fields to select a group of manufacturing orders.
3. Use the view icon button at the top of the lower scrolling window to see a “card view” of recorded shipments.
4. Use the Previous and Next buttons, as needed, to see the specific shipment record.



- Choose the expansion button on the Quantity Shipped field to open the Manufacturing Shipping Lot Number Inquiry window.



- View information in the window.
- When you've finished, close the window.

## Viewing serial numbers for shipments

If you record a shipment for a group of items that are tracked by serial numbers, you can use the Manufacturing Shipment Serial Number Entry window to enter information about the serial numbers of the shipped items. You can open the window through the Manufacturing Order Shipments window, or through the Manufacturing Order Shipments by Vendor Inquiry window.

- If the shipment is for items for a single manufacturing order, use the Manufacturing Order Shipments Inquiry window.
- If the shipment is for several items to a single vendor, use the Manufacturing Order Shipments by Vendor Inquiry window.

### To view serial numbers for shipments:

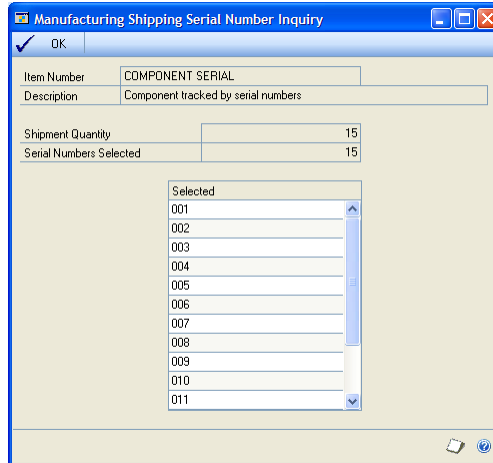
- Open the window to view shipment information.

Refer to the table for more information.

Window	Navigation
Manufacturing Order Shipments Inquiry window	Inquiry >> Manufacturing >> Manufacturing Orders >> MO View >> select manufacturing order >> Shipping button
Manufacturing Order Shipments by Vendor Inquiry window	Inquiry >> Purchasing >> Vendor >> MFG Shipments Inquiry

- If you're using the Manufacturing Order Shipments by Vendor Inquiry window, you must:
  - Enter or select a vendor ID.
  - Use the MO Number Range and Ship By Date Range fields to select a group of manufacturing orders.

3. Use the view icon button at the top of the lower scrolling window to see a “card view” of recorded shipments.
4. Use the Previous and Next buttons, as needed, to view information about the specific shipment record.
5. Choose the expansion button on the Quantity Shipped field to open the Manufacturing Shipping Serial Number Inquiry window.



6. When you’ve finished viewing information in the window, close the window.

## Viewing distributions of additional outsourcing costs

You can use the Additional Outsourcing Cost Distribution Inquiry window to view information about how the additional costs of outsourcing purchases—such as freight, miscellaneous, and taxes—are distributed among manufacturing orders. You can view the information for one receipt at a time.







# Part 4: Work In Process

This part of the documentation includes information that will help you enter and use information in the Work in Process module. You can refer to this information for details about entering work-in-process information—direct labor, indirect labor, and machine time. You also can refer to this information for instructions on modifying or viewing existing entries, or for using the information as the basis of your Payroll transactions.

The following information is discussed:

- [Chapter 20, “Work in Process overview,”](#) includes terms and concepts you’ll need to know to use Work in Process.
- [Chapter 21, “Manual data entry,”](#) describes how data entry personnel can enter information about indirect and direct labor time, as well as machine time.
- [Chapter 22, “Time card entry,”](#) explains how you can use time card entry windows to enter direct and indirect labor information you collect from employees’ time cards.
- [Chapter 23, “Automated data collection,”](#) contains information about setting up your system to use automated data collection.
- [Chapter 24, “Outsourcing and Work in Process,”](#) explains how data collection records will appear for outsourcing sequences.
- [Chapter 25, “Work in Process data uses,”](#) includes information about how you can use the information you collect and enter in Work in Process.

## Chapter 20: Work in Process overview

Work in Process helps you to track and analyze the costs associated with a particular manufacturing order. Accountants can use work-in-process information to gather information about the costs associated with manufacturing orders. On the production floor, employees can use the information to view the progress of manufacturing orders through the system. Managers can use the labor and machine cost information about your manufacturing orders to make more informed decisions about pricing and scheduling.

This information is divided into the following sections:

- [Why use Work in Process?](#)
- [Work in Process terms](#)
- [Data collection methods](#)
- [Work in Process transactions](#)
- [Using Work in Process options to track progress](#)

### Why use Work in Process?

Work in Process helps you to track two main costs: labor costs and machine costs. By comparing actual costs to estimated costs, you can get a better idea of which areas of your plant are performing best—and which have room for improvement. (Material costs are not entered through Work in Process, but are now entered in the Manufacturing Order Receipt window. Refer to [Chapter 13, “Receipts and closing,”](#) for more information about material costs.)



*If you used an earlier version of Manufacturing, you can use Work in Process to view material data collection entries made with that software. You also can print the Data Collection Material report for those entries.*

You can capture the costs of labor and machine time two ways: you can backflush the labor and machine costs, or you can enter the actual times each employee or machine started and ended work on a particular manufacturing order sequence.

If you use backflushing, the costs for the labor, machine time, or both, are calculated based on the manufacturing order receipt quantity, the times entered when you created the routing sequences, and the shop rate or operating costs. Refer to [How backflushed machine and labor amounts are calculated](#) on page 164.

If you enter actual times, you'll use Work in Process to enter the amount of time spent on each sequence. You can use traditional data entry methods, or you can use automated data collection. The traditional methods rely on data entry personnel who enter information from worksheets or other forms your employees complete. The automated data collection method uses other devices—such as bar-code readers—to enter information into the system.

## Work in Process terms

Before using Work in Process, you should be familiar with terms commonly used in discussions about work in process and data collection.

**Direct labor** Direct labor is the cost of any employee time spent working on a specific manufacturing order. For example, production personnel who spend their time assembling or finishing goods is direct labor. Direct labor doesn't reflect quality assurance testing or support costs.

**Indirect labor** Indirect labor is the cost of any employee time that can't be attributed to a specific manufacturing order. Indirect labor tasks can include meetings, training, quality-assurance testing, and paid break times.

**Total costs** Total costs are the cumulative total of all expenses associated with a manufacturing order, plus any overhead that might not be directly associated with the order.

**Unit cost** Unit cost is the value of time and resources consumed to create one unit of product for an order. Typically, the unit cost is calculated by dividing the total costs by the number of units manufactured.

## Data collection methods

The methods manufacturing companies use to record information about the machine time and labor time will vary from one company to another. One company might use a bar-code reader to automatically enter information, while another company might use data-entry personnel to transfer information recorded on paper to the computer system. The Manufacturing windows you use with your work-in-process information will depend on your company's data collection methods.

### Manual data collection

If your company uses a paper-based system—requiring employees to complete time sheets or other logs to track the hours they've spent on a particular task and the number of items they've completed—you must use traditional data entry to add the information to your system.

Manufacturing provides two systems for manual data entry. You'll use the Data Collection window for all manual entries of machine time and indirect labor, but the window you use to record direct labor will depend on your information source.

**Travelers** If your information is taken from travelers—pages that accompany items through the production process—you should use the Data Collection window to record labor information. Refer to [Chapter 21, "Manual data entry,"](#) for more information about using the Data Collection window to record employee information from travelers.

**Time cards** If your information is taken from time sheets or time cards, you should use the Time Card Entry window to record direct labor for each employee. Refer to [Chapter 22, "Time card entry,"](#) for more information about using the Time Card Entry window to record employee information from time cards.



## Automated data collection

If your company is using a bar-code reader or other device to collect information, you might use the Automated Data Collection window to make manual corrections to your data entries. Refer to [Chapter 23, “Automated data collection,”](#) for more information about working with automated data collection.



*Automated data collection can be used to collect information only for machine time and direct labor time. You can enter information for material usage in the Manufacturing Order Receipt Entry window. You can enter information for indirect labor in the Data Collection window.*

## Work in Process transactions

Data is collected for the WIP machine and labor accounts, as well as the associated overhead accounts. When transactions are posted, the finished goods work-in-process account is debited, and the appropriate overhead and applied accounts—labor or machine—are credited.

As you enter information about the labor and machine costs that have accrued for a particular manufacturing order, the information is saved and becomes the basis of the information needed to complete the manufacturing order closing process.

However, you only can enter information for manufacturing orders with Released or Partially Received status.

## Using Work in Process options to track progress

As you're entering information about the labor and machine costs, you can use other options to track progress on a manufacturing order. You can use these additional options when you're using manual data entry from travelers or from time cards.

- You can specify if the labor numbers you're entering are for setup tasks by marking the Setup option when you're entering the labor information.
- You can specify if all work for a specific routing sequence for a manufacturing order is complete by marking the Done option.



# Chapter 21: Manual data entry

You can enter any manual data collection for machine time or indirect labor in the Data Collection window. Refer to [Data collection methods](#) on page 216 for more information about determining the best data collection method for direct labor information for your company.

This information is divided into the following sections:

- [Entering direct labor information](#)
- [Entering indirect labor information](#)
- [Entering machine-cost information](#)
- [Entering a reversing entry](#)

## Entering direct labor information

Use the Data Collection window to enter information about the hours employees have spent completing tasks directly associated with a manufacturing order. The information describes how to enter information for one combination of employee, manufacturing order, and routing sequence. You must enter a separate record for each combination.

### To enter direct labor information:

1. Open the Data Collection window.  
(Transactions >> Manufacturing >> WIP >> Data Collection)

The screenshot shows the 'Data Collection' window with the following fields and values:

MO Number	M00011	Done
FINISHED GOOD	Finished good (not tracked)	
Routing Name	AUTOMATED	Job Number
Sequence	200	Done
Work Center ID	W/C1	
Data Collection Type	Direct Labor	
Employee ID	CLAY0001	Clayton, Jane
Labor Code	LC1	Production Labor Code 1
Start Date/Time	04/12/2007	10:00:00 AM
Finish Date/Time	04/12/2007	10:30:00 AM
Elapsed Time		000000000:30:00
Pieces Completed	1	
Pieces Rejected	0	



*As you make selections in the Data Collection window, the available fields will change.*

2. Enter or select a manufacturing order with a Released or Partially Received status.

If the manufacturing order is linked to a job, the number of the job will be displayed in the window. Refer to [Linking an element or transaction to a job](#) in [Chapter 14, "Job link maintenance,"](#) in the Manufacturing Management Functions documentation for more information about linking manufacturing orders to jobs.

3. Enter or select a routing sequence.

4. If the data you're entering is for the last sequence of the manufacturing order, mark the Done option. For example, if you're entering information for a painting sequence for a manufacturing order of 100 widgets, you should mark the Done option when you enter information about the last group of widgets to be painted.
5. From the Data Collection Type list, select Direct Labor.

If the manufacturing order routing is using backflushing for labor data collection, you can't enter data collection information for direct labor time. Instead, a standard cost will be used to determine costs for the sequences. Refer to [How backflushed machine and labor amounts are calculated](#) on page 164 for more information.

6. Use the fields at the bottom of the window to enter information about the employee time spent working on the manufacturing order. You must enter or select the employee's ID, labor code, starting and finishing dates and times, and pay codes.

The default labor code comes from the manufacturing order routing and the default pay code is the primary pay code for the labor code. You can accept the default values or change them.

7. You can enter piece-count and reject-count information.
8. If you're entering information about setup tasks, mark the Setup option.
9. Choose Save.

Fields cleared after the record is saved will depend on your user preferences. For example, if you must enter many data collection records for the same manufacturing order, you might not want to have the manufacturing order number field cleared each time you save a record.

Refer to [Setting up WIP user preferences](#) in [Chapter 9, "Manufacturing production functions user setup,"](#) in the Manufacturing Setup documentation for more information about setting user preferences

10. Enter the next data collection transaction, or close the window.

## Entering indirect labor information

Use the Data Collection window to enter information about compensated time employees spend on tasks not directly related to a specific manufacturing order. The information describes how to enter this information for one employee. If several employees have indirect labor time, you must enter a separate record for each employee.

### To enter indirect labor information:

1. Open the Data Collection window.  
(Transactions >> Manufacturing >> WIP >> Data Collection)
2. From the Data Collection Type list, select Indirect Labor.

- Use the fields at the bottom of the window to enter information about the employee time spent working on indirect labor tasks. You must enter or select the employee's ID, labor code, start and finish dates and times, and pay code.
- Choose Save.

Fields cleared after the record is saved will depend on your user preferences.

Refer to [Setting up WIP user preferences in Chapter 9, "Manufacturing production functions user setup,"](#) in the Manufacturing Setup documentation for more information about setting user preferences.

- Enter the next data collection transaction, or close the window.

## Entering machine-cost information

Use the Data Collection window to enter information about the machine time associated with a manufacturing order routing sequence. The information describes how to enter this information for one combination of machine, manufacturing order, and routing sequence. You must create a separate record for each combination.

### To enter machine-cost information:

- Open the Data Collection window.  
(Transactions >> Manufacturing >> WIP >> Data Collection)

- Enter or select a manufacturing order with Released or Partially Received status.

If the manufacturing order is linked to a job, the number of the job will be displayed in the window. Refer to [Chapter 15, "Job link details,"](#) in the Manufacturing Management Functions documentation for more information about linking manufacturing orders to jobs.

- Enter or select a routing sequence.

4. If the data you're entering is the last sequence for this manufacturing order, mark the Done option. For example, if you're entering information for a painting sequence for a manufacturing order of 100 widgets, you should mark the Done option when you enter information about the last group of widgets to be painted.
5. From the Data Collection Type list, select Machine Cost.

If the manufacturing order routing is using backflushing for machine data collection, you can't enter data collection information for machine time. Instead, a standard cost will be used to determine costs for the sequences. Refer to [How backflushed machine and labor amounts are calculated](#) on page 164 for more information.

6. Use the fields at the bottom of the window to enter information about the machine time spent working on the manufacturing order. You must enter or select the machine ID and start and finish dates and times.
7. You can enter piece-count and reject-count information.
8. Choose Save.

Fields cleared after the record is saved depend on your user preferences. For example, if you must enter many data collection records for the same manufacturing order, you might not want to have the manufacturing order number field cleared each time you save a record.

Refer to [Setting up WIP user preferences](#) in [Chapter 9, "Manufacturing production functions user setup,"](#) in the Manufacturing Setup documentation for more information about setting user preferences.

9. Enter the next data collection transaction, or close the window.

## Entering a reversing entry

If you make an error while entering labor or machine data collection records, use the Data Collection window to enter a reversing entry—a transaction that “undoes” the error you made in your original transaction.

If you must enter a reversing entry, you should create one that reverses the entire quantity of the entry with the error. For example, if you entered a transaction for an employee for four hours of direct labor but later discover that the transaction should have been for three hours of direct labor, you should create a reversing entry for four hours. Then you should create a new transaction for three hours of direct labor.

### To enter a reversing entry:

1. Open the Data Collection window.  
(Transactions >> Manufacturing >> WIP >> Data Collection)
2. Enter a transaction as you would normally for machine time, or indirect or direct labor costs.

3. Mark the Reversing Entry option.
4. Choose Save to save the negative transaction and close the window.





## Chapter 22: Time card entry

If you're using manual data collection techniques and you're taking information from time cards or time sheets, you should use the Time Card Entry window to record information about the hours a specific employee has spent in direct labor tasks. Later, you can post this data using the Time Card Batch window.



You can enter direct labor information in the Data Collection window or in the Time Card Entry window. If the data records you're entering information from are by manufacturing order, we recommend using the Data Collection window. If the information is organized by employee, use the Time Card Entry window.

Besides using the Time Card Entry window to enter information about employee hours, you also can use the window to view all unposted transactions for an employee.

This information is divided into the following sections:

- [Entering labor information from a time card](#)
- [Removing a time card entry line](#)
- [Posting batches of time card entries](#)
- [Viewing details about a time card entry](#)

### Entering labor information from a time card

Use the Time Card Entry window to record an employee's time card data in one window.



You must post the batches that include your time card transactions so they are updated in General Ledger.

#### To enter labor information from a time card:

1. Open the Time Card Entry window.  
(Transactions >> Manufacturing >> WIP >> Time Card Entry)

MO Number	Sequence	Done	Work Center ID	Job Number	Labor Code	Start Date/Time	Finish Date/Time	Duration	Setup	Completed	Scrapped	Rejected	Pay Code
M00012	200	<input type="checkbox"/>	W01	0	LC1	04/12/2007 12:00:00 AM	04/12/2007 12:00:00 AM	H: 5 M: 30	<input type="checkbox"/>	25	0	0	HOUR
								H: M:					
								H: M:					
								H: M:					
								H: M:					

2. Enter or select an employee ID and a time sheet date. The default time sheet date will be the user date, but you can change it, if needed.

3. Accept the default value for Enter Duration Hours/Minutes, or change it.
  - If the option is marked, you can enter the hours and minutes that an employee spends on each sequence for a manufacturing order.
  - If the option is not marked, you can enter the start and finish dates and times for an employee's work on each sequence for a manufacturing order.
4. In the scrolling window, enter or select a manufacturing order number and a sequence. Default information—such as the work center, labor code, and job number, if any—will be displayed on the scrolling window line.
5. If the sequence is complete, mark Done.
6. You can accept the default Labor Code (which is the run labor code for the sequence in the working routing) or you can change it.
7. Enter either starting and finishing dates and times, or the duration (hours and minutes).



*If you're entering start and finishing dates and times, enter time using six characters based on the 24-hour clock. For example, enter 133000 if the start time should be 1:30 p.m., or 073000 if the time should be 7:30 a.m.*

8. If the task is a setup task only, mark Setup.
9. If the task is not a setup task, you can enter the number of units completed, scrapped, or rejected.
10. Accept the default pay code, or enter or select another. The default pay code comes from the Labor Code Definition window.
11. Continue, repeating steps 4 through 10 until you've entered all of the information for the employee.
12. Close the window.



*Your entries are saved as you move off the scrolling window lines.*

## Removing a time card entry line

You can use the Time Card Entry window to remove a line from the scrolling window, if needed.

### To remove a time card entry line:

1. Open the Time Card Entry window.  
(Transactions >> Manufacturing >> WIP >> Time Card Entry)
2. Enter or select an employee ID. All unposted entries for the employee will be displayed in the scrolling window.
3. Highlight the line in the scrolling window to be removed.



## Viewing details about a time card entry

You can select a specific line in the Time Card Batch window and then use the Go To button to see more detailed information about the entry.

### To view details about a time card entry:

1. Open the Time Card Batch window.  
(Transactions >> Manufacturing >> WIP >> Time Card Batch)
2. Mark a record in the scrolling window. A black dot will appear in the left column of the marked record.
3. From the Go To button, choose Time Card Entry. The Time Card Entry window will open, displaying information about the highlighted record.
4. When you've finished viewing the information, close the windows.

## Chapter 23: Automated data collection

Automated data collection can make your data collection efforts more efficient. Rather than manually entering individual transactions, you can set up your system to automatically transfer data into Manufacturing.

After the data is part of the Manufacturing system, you can review it, compile statistics for it, and use it for other analyses.

This information is divided into the following sections:

- [\*How automated data collection works\*](#)
- [\*Designating a workstation as an ADC processor\*](#)
- [\*Generating the ADC Transactions report\*](#)
- [\*Correcting automated data collection entries\*](#)
- [\*Correcting posted data collection transactions\*](#)

### How automated data collection works

Moving information into Manufacturing involves using an automated data entry device—such as a bar-code reader—to enter information, and a workstation computer you’ve designated as an Automated Data Collection (ADC) Processor to collect the raw data.

Each entry from your data entry device must include specific information: a manufacturing order number, a sequence number, an employee or machine ID, a data collection type—machine time or direct labor—and a date and time. After this information is transferred into the workstation computer that is logged into Microsoft Dynamics GP, the system will begin a routine comparison of all the data entries.

Before you can use automated data collection, a primary pay code must be assigned to every labor code that will be supplied by the automated data collection device, and a labor code must be assigned to every manufacturing order sequence. If you plan to track setup time separately from production time, be sure you’ve assigned both a setup labor code and a production labor code to each manufacturing order routing sequence.

When the system identifies two entries with matching manufacturing order numbers, sequence numbers, employee or machine IDs, and data collection types, the two entries together become a single transaction; the earlier entry is the starting date and time for the machine or labor time, and the later entry is the ending date and time for the work. The difference between the starting and ending times is used to calculate the amount of machine time or direct labor to be applied to a manufacturing order sequence.

To ensure that two records match to create a transaction, the starting record time must be earlier than the ending record time. The start and end record also must have identical information for these fields:

- Manufacturing order number
- Sequence number
- Employee or machine ID
- Data collection type (direct or machine)
- Setup indication, if the data collection type is Direct labor
- Labor code, if the data collection type is Direct Labor
- Pay code, if the data collection type is Direct Labor

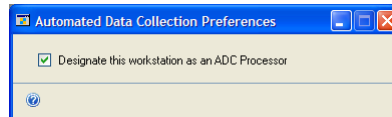
When two records match, the transaction is transferred to the Microsoft Dynamics GP data tables. Sometimes, you might have starting and ending entries that don't match. You can use the ADC Transactions Report to review those entries and then correct them manually using the Automated Data Collection window. Refer to [Generating the ADC Transactions report](#) on page 230 and to [Correcting automated data collection entries](#) on page 231.

## Designating a workstation as an ADC processor

To use automated data collection, you must designate at least one computer as an ADC processor—the computer where routines will be run to compare data entries and match them up to create transactions. Use the Automated Data Collection Preferences window to complete this procedure.

### To designate a workstation as an ADC processor:

1. Open the Automated Data Collection Preferences window.  
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> Automatic Data Collection Preferences)



2. Mark Designate this workstation as an ADC Processor.
3. Close the window.

The processor will begin reading input from the device immediately, storing it and comparing entries for matches. This process will continue as long as the computer is logged into Manufacturing.



*Automatic data collection is a background process, so you can't change users on the ADC computer without exiting from Microsoft Dynamics GP.*

## Generating the ADC Transactions report

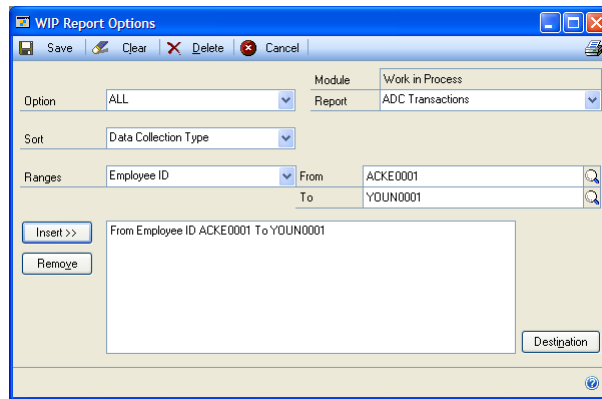
You can use the ADC Transactions report to review the entries that have been created from your automated data collection entries but that haven't been matched to form transactions and to determine what manual corrections need to be made, if any.

To view transactions created when records are matched, use the Data Collection Summary window. Refer to [Viewing a manufacturing-order data summary](#) on page 235 for more information.

Use the Automated Data Collection window to print ADC Transaction reports.

### To generate the ADC Transactions report:

1. Open the WIP Report Options window.  
(Reports >> Manufacturing >> WIP)



2. Select the ADC Transactions report.
3. Select a report option, or create a new one.

Refer to [Chapter 28, "Manufacturing reports,"](#) in the Manufacturing Core Functions documentation for more information about creating report options.

4. Choose the print icon button. You'll have the option to view the report on your computer screen or to send the report to a printer or computer file.
5. When you've finished, close the WIP Report Options window.

## Correcting automated data collection entries

Generally, you'll use the Automated Data Collection window only to make correcting entries for errors you find in the automatically collected data. For example, if you have a starting record but no ending record or an ending record but no starting record, you can enter the missing record. If an automated data collection transaction has been posted, you also can create starting and ending records to reverse the posted transaction.

Use the Automated Data Collection window to correct errors in automated data collection transactions.

### To correct automated data collection entries:

1. Open the Automated Data Collection window.  
(Transactions >> Manufacturing >> WIP >> Auto Data Collection)
2. Enter the data collection type, the employee or machine ID, the manufacturing order number, and the sequence number.

3. Enter information in these fields, as needed:
  - Data collection type - Choices are direct labor or machine.
  - ADC device ID
  - Employee ID
  - Machine ID
  - Manufacturing order number
  - Sequence
  - Sequence Done option
  - Sequence Labor Setup option
  - Labor code - The default labor code is the labor code assigned to the sequence.
  - Pay code - The default pay code is the pay code assigned to the labor code.
  - Transaction type - Start or Finish
  - Date and time
  - Scrapped pieces
  - Pieces rejected
  
4. When you've finished entering the information, choose Save. If you entered any invalid information—such as a labor code that doesn't exist—a message appears, listing the errors. You can correct the errors and then choose Save again.

Saving the record transfers it to the Microsoft Dynamics GP data table where it can be matched with another record to form a data collection transaction.

## Correcting posted data collection transactions

To correct an automated data collection transaction that has been posted, you'll need to complete two steps.

First, you must enter a negative adjustment transaction in the Data Collection window to "undo" the incorrect transaction. Refer to [Entering a reversing entry](#) on page 222 for more information.

Second, you must enter a new, correct transaction. You can enter one manual transaction in the Data Collection window. Refer to [Entering direct labor information](#) on page 219 for more information. Alternatively, you can enter two separate transactions—a starting transaction and a stop transaction—in the Automated Data Collection (ADC) window.



# Chapter 24: Outsourcing and Work in Process

Data collection for manufacturing orders that include outsourcing sequences has some limitations and requirements.

This information is divided into the following sections:

- [\*Direct labor and machine data collection\*](#)
- [\*Component transactions for outsourcing\*](#)
- [\*Data collection records for outsourcing\*](#)
- [\*Completed sequences and outsourcing data collection\*](#)

## Direct labor and machine data collection

If you're entering data collection information for direct labor or for machine time for an outsourcing sequence, a message appears. You'll have the option to continue, or to cancel.

If you choose to continue and if you're using one of the labor cost buckets for your outsourcing costs, you must select an outsourcing labor code.

## Component transactions for outsourcing

If you're entering component transactions for an outsourcing sequence, the following situations might arise.

**You enter a material quantity for a picklist item greater than the picklist quantity** Suggested shipment information for the manufacturing order will be updated.

- The Total Suggested Quantity will be increased by the difference between the issued quantity and the picklist quantity.
- The Shipment Quantity will be recalculated, based on the Total Suggested Quantity.

**You enter a reverse issue component transaction** Suggested shipment information will be updated.

- The Total Suggested Quantity will be decreased to reflect the quantity returned to stock. However, the Total Suggested Quantity can't be less than zero.
- The Shipment Quantity will be recalculated, based on the updated Total Suggested Quantity.

**You enter a scrap transaction** No changes are made to suggested shipments.

## Data collection records for outsourcing

Data collection records for outsourcing will appear differently, depending on whether you selected a labor cost bucket or a machine cost bucket for outsourcing costs. If you selected a labor cost bucket, the data collection type will be Direct Labor. If you selected a machine cost bucket, the type will be Machine Cost.

Each time a shipment or shipment/invoice that is linked to a manufacturing order is posted, a data collection record is created or updated.

The data type, the manufacturing order number, and the sequence number are included on all data collection records (except those for indirect labor). However, when a data collection record is for an outsourcing sequence, the information sources for some fields in data collection windows are different from the sources for typical manufacturing order sequences.



Refer to [Outsourcing cost buckets](#) on page 176 for more information about how outsourcing costs are calculated using data collection transaction fields.

Refer to the table for more information.

Field	Explanation
Total Time	The quantity received on the posted shipment or shipment/invoice. (Invoices don't affect this value.)
Total Cost	The total cost to be applied to the manufacturing order, including any additional costs that were applied.
Cost	Calculated only if the Labor or the Machine cost bucket (not one of the overhead buckets) was selected for outsourcing costs. The amount will be the total cost applied to the manufacturing order, including any additional costs that were applied.
Fixed Overhead Cost	Calculated only if you're using the Labor Fixed Overhead or Machine Fixed Overhead cost bucket for outsourcing. The amount will be the total cost applied to the manufacturing order, including any additional costs that were applied.
Variable Overhead Cost	Calculated only if you're using the Labor Variable Overhead or Machine Variable Overhead cost bucket for outsourcing. The amount will be the total cost applied to the manufacturing order, including any additional costs that were applied.

## Completed sequences and outsourcing data collection

If the Mark Outsourced Sequences as Done when Service is Received option in the WIP Preference Defaults window is marked, an outsourcing sequence will be marked complete when all linked purchase order lines have Received status.

Even if a shipment or shipment/invoice linked to a manufacturing order is posted after the outsourcing sequence is marked complete, a data collection record will be created or updated, which enables you to receive more of a service than you ordered. Any time an invoice that includes a WIP distribution is posted, data collection information is updated.



If a sequence is marked complete and then you create a new purchase order line for that sequence, the Done check box is cleared.

# Chapter 25: Work in Process data uses

You can use the information you’ve collected about the direct and indirect labor hours employees have spent in various ways. For example, you can prepare summaries to analyze the information you’ve collected. You also can use the information as the basis of your payroll entry.

This information is divided into the following sections:

- [Viewing a manufacturing-order data summary](#)
- [Viewing data-collection summary details](#)
- [Data collection and Payroll](#)
- [Entering a data collection payroll transaction](#)
- [Verifying and viewing data collection transactions](#)
- [Viewing an employee’s indirect labor information](#)

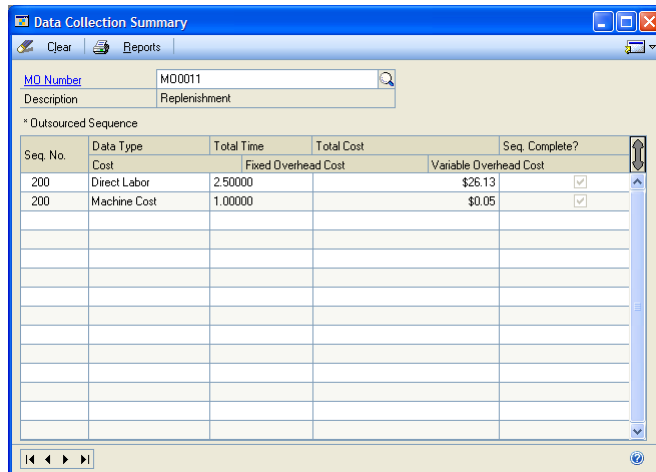
## Viewing a manufacturing-order data summary

You can use the Data Collection Summary window to view the time and cost totals for each sequence in a manufacturing order. For example, if ten employees worked on a particular sequence for a manufacturing order, you can use the Data Collection Summary window to see the total amount of time and cost that can be attributed to the sequence.

Use the Data Collection Summary window to complete this procedure.

### To view a manufacturing-order data summary:

1. Open the Data Collection Summary window.  
(Inquiry >> Manufacturing >> WIP >> DC Summary)



2. Enter or select a manufacturing order. Information about the data that has been collected for the sequences of the manufacturing order will be displayed in the scrolling window.



*With this release of Manufacturing, you can no longer use Work in Process to enter information about material usage. You must enter that information in the Manufacturing Order Receipt Entry window. However, you can still view material entries you made when using earlier versions of the product.*

3. Review the information, as needed. When you've finished, close the window.

## Viewing data-collection summary details

Manufacturing includes three windows you can use to see detailed information about a specific data collection record in the Data Collection Summary window. The windows are:

- Data Collection Summary–Direct Labor
- Data Collection Summary–Machine
- Data Collection Summary–Material

### To view data-collection summary details:

1. Open the Data Collection Summary window.  
(Inquiry >> Manufacturing >> WIP >> DC Summary)
2. Enter or select a manufacturing order.

3. Double-click any record in the scrolling window to open the appropriate window and view more details about the record.
  - If the data type of the record is Direct Labor, the Data Collection Summary–Direct Labor window will open.

Employee ID	Last Name	First Name	Labor Code	Pay Code
CLAY0001	Clayton	Jane	LC1	HOUR
			0.500000	0.000000
			04/12/2007 7:00:00 AM	04/12/2007 7:30:00 AM
				0.500000
DOYL0001	Doyle	Jenny	LC1	HOUR
			0.450000	0.000000
			04/12/2007 8:00:00 AM	04/12/2007 10:00:00 AM
				2.000000

- If the data type of the record is Machine, the Data Collection Summary–Machine window will open.

Machine ID	Machine Description	Pieces	Rejects	Closed
INSERT	Insertion	50.00000	0.00000	<input type="checkbox"/>
		\$0.05	\$0.00	\$0.00
		04/12/2007 8:00:00 AM	04/12/2007 9:00:00 AM	1.00000

- If the data type of the record is Material, the Data Collection Summary–Material window will open.
4. You can view information in these windows. You also can click links to other windows to display still more information about the records, if needed.



*With this release of Manufacturing, you can no longer use Work in Process to enter information about material usage. You must enter that information in the Manufacturing Order Receipt Entry window. However, you can still view material entries you made when using earlier versions of the product.*

5. When you’ve finished reviewing information, close the windows.

## Data collection and Payroll

As you enter data collection information in Manufacturing—through either manual entry or automated data collection—transactions are created to reflect the information you provide. Inventory transfer transactions are created to reflect material use and production, and General Ledger transactions are created to reflect overhead, machine, and labor costs.

If you're using Microsoft Dynamics GP Payroll, you also can use the information you collect as the basis of transactions for your company's payroll. You can use the Data Collection Transactions window to record information about the time and tasks that employees will be paid for, according to pay codes you've defined in Payroll.

These transactions must be manually posted to a payroll batch to complete processing. For more information about creating and posting payroll transactions in batches, refer to Payroll documentation.

## Entering a data collection payroll transaction

Use the Data Collection Transactions window to enter a data collection payroll transaction.



Before entering data collection transactions, be sure no one is using the data you want to work with. Refer to [Using Manufacturing module security in Chapter 2, "Security,"](#) in the *Manufacturing Setup* documentation—for more information.

### To enter a data collection payroll transaction:

1. Open the Data Collection Transactions window.  
(Transactions >> Manufacturing >> WIP >> DC Transactions)

Employee ID	Pay Code	Start Date	End Date	Elapsed Time	Labor Code
MO Number			Sequence	Start Time	End Time
BAR0001	HOURL	04/12/2007	04/12/2007	0.50000	LC1
CLAY0001	HOURL	04/12/2007	04/12/2007	0.50000	LC1
DOYL0001	HOURL	04/12/2007	04/12/2007	2.00000	LC1

2. Select the Labor Type to enter transactions for.

**Direct Labor** Select Direct Labor to enter transactions based on the time an employee spent on direct labor tasks—those directly associated with a specific manufacturing order.

**Indirect Labor** Select Indirect Labor to enter transactions based on the time an employee spent on indirect labor tasks—those not directly related to a specific manufacturing order, such as clean up, training, meetings, and breaks.

3. Enter or select the beginning and ending dates for the period for which you are creating payroll transactions. The beginning and ending dates might be the beginning and ending dates of the payroll period, but you can use other dates, if needed.
4. Enter or select an employee ID. If you leave the Employee ID field blank, all data collection records that are within the specified date range will be selected.
5. Enter or select a batch ID.
6. Choose Save to create payroll transactions based on the displayed data collection records. A transaction number will be generated automatically.

If a record in the scrolling window can't be added to a batch—for example, suppose an employee doesn't have an assigned pay code—a message will be displayed and you'll be advised to check the Data Collection Transaction Log window for more information. Refer to [Verifying and viewing data collection transactions](#) on page 239.

You also will have the option to print an exception report, which includes information about why a particular record couldn't be transformed into a transaction for a payroll batch. Instead of printing the report, you can view information in the Data Collection Transaction Log window.

7. Process the payroll transaction batch through Payroll. Refer to the Payroll documentation for more specific information.

## Verifying and viewing data collection transactions

Use the Data Collection Transaction Log window to determine if the transactions you created in the Data Collection Transactions window were completed. The Data Collection Transaction Log lists payroll transactions that have been generated from data collected on the shop floor. These transactions have been assigned to a batch and are ready to be manually posted to payroll. If a transaction posting fails, that information will be recorded in the Data Collection Transaction Log window.

**To verify and view a data collection transaction:**

1. Open the Data Collection Transaction Log window.  
(Inquiry >> Manufacturing >> WIP >> DC Transaction Log)

Transaction #	Batch ID	Employee ID	Transaction Attempt Date/Time	TRX Result
Lab. Type	Pay Code	Labor Code	Start Date/Time	Finish Date/Time
739	LABOR PAY	BARR0001	04/12/2007 12:43:32 PM	successful
740	LABOR PAY	CLAY0001	04/12/2007 12:43:39 PM	successful
741	LABOR PAY	DOYL0001	04/12/2007 12:43:45 PM	error



*You also can open the window by choosing the Go To button in the Data Collection Transactions window and choosing Data Collection Transaction Log.*

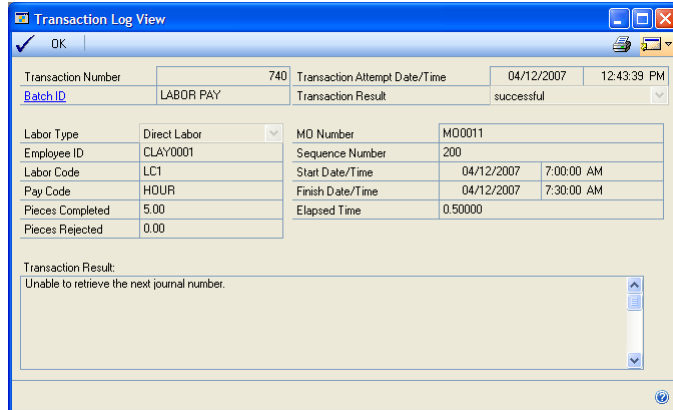
2. Use the Filter On Transactions list to choose the type of transactions to view.
  - All** Choose All to see information about all transactions.
  - Successful** Choose Successful to see information about only those transactions that were successfully posted.
  - Unsuccessful** Choose Unsuccessful to see information about only those transactions that were not successfully posted.
3. Enter or select an attempt date, batch ID, or transaction number, depending on the sorting method you've selected. Information about the transactions will be displayed in the scrolling window.



- Review the information.

To view more detailed information, highlight the record in the scrolling window and choose Zoom, or double-click the record.

The Transaction Log View window will open, displaying more detailed information about the specific transaction. The message in the Transaction Result field should describe the problem, if any.



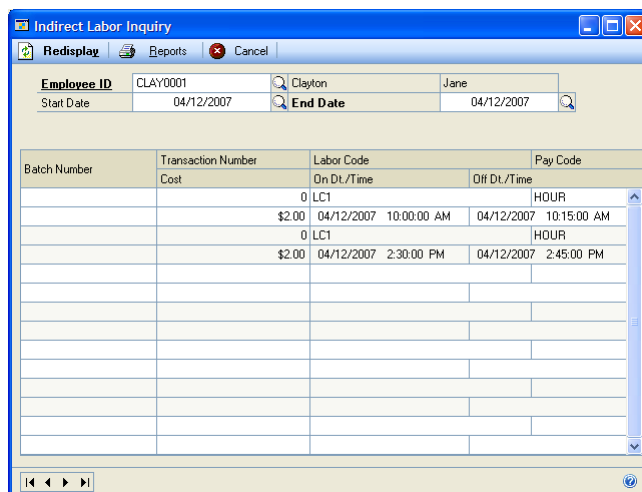
- When you've finished reviewing the information, close the windows.

## Viewing an employee's indirect labor information

You can use the Indirect Labor Inquiry window to view information about the amount of indirect labor that has been recorded for a specific employee.

### To view an employee's indirect labor information:

- Open the Indirect Labor Inquiry window.  
(Inquiry >> Manufacturing >> WIP >> Indirect Labor)



- Enter or select an employee ID.

3. You can enter or select a starting date. You must enter an ending date for the information.
4. Information about indirect labor entries for the employee will be displayed in the scrolling window. When you've finished reviewing the information, close the window.

# Glossary

## Acceptable Quality Level table

A representation of testing standards and sample sizes. AQL tables include information about appropriate sample sizes and the maximum number of pieces that can fail inspection in an acceptable lot. You'll probably set up several AQL tables to reflect different inspection standards for different items.

## Active routing

See [Manufacturing order routing](#).

## Actual costing

An inventory tracking method that involves constantly updating inventory each time an item is added or removed.

## Actual demand

The total quantity of an item requested on all firm manufacturing orders.

## Actual expenses (Job Costing)

The total of all applied expense transactions linked to a job.

## Actual margin (Job Costing)

A measure of the overall profitability of a specific job. The actual margin for a job is calculated by dividing the actual profit by the actual revenue, and then multiplying the result by 100.

## Actual profit (Job Costing)

The difference between actual expenses and actual revenues for a job.

## Actual revenues

The total of all applied revenue transactions linked to a job.

## Allocate

To reserve materials needed for a manufacturing order.

## Alternate routing

Any planning routing for an item other than the primary routing.

## Alternate work center

A work center to which work can be shifted if the customary work center for a specific task is not available. If the primary work center is temporarily shut down, or if demand exceeds the capacity of the primary work center, the work load can be shifted to the alternate work center.

## Apply

To add the amount of a revenue or expense linked to a job to the financial information about the job. If a transaction isn't applied to a job, its amount won't be reflected in the overall financial information about the job. Applying transactions in Job Costing can happen manually or automatically.

## AQL table

See [Acceptable Quality Level table](#).

## ARCH BOM

See [Archived bill of materials](#).

## Archived bill of materials

A bill of materials stored in a separate area of your computer system. Bills of material might be archived as they become obsolete.

## Assemble to order

A type of manufacturing facility that puts a group of components together according to customer specifications.

## Back order

An order to be fulfilled when stock for items in shortage is replenished.

## Backflushing

A method of accounting for the use of resources—labor and machine time, and items—based on standards you've defined. Transactions to account for the use of backflushed resources are created when a manufacturing order is closed.

## Backward finite scheduling

A scheduling method that starts from a due date and works out a plan for the flow of work through the plant with the assumption that there are only a limited number of resources (machines and workers) available to complete the task.

## Backward infinite scheduling

A scheduling method that starts from a due date and works out a plan for the flow of work through the plant with the assumption that the plant has unlimited machine and worker capacity.

## Batch cards

See [Manufacturing order](#).

## Bill of materials

A list of the components and subassemblies needed to build one unit of a product. The bill of materials also shows quantities for each component.

## Bill of operations

See [Routing](#).

## Bin

A storage device to hold discrete items.

## Blanket purchase order

A purchase order that is delivered gradually to the buyer.

## Bucket

A time period used for calculating MRP requirements. Manufacturing supports daily, weekly, and monthly bucketing options.

## Buy items

Items that are supplied to your plant by a supplier.

## Buyer ID

Code that identifies the person who purchases the item from a supplier.

## By-product

A finished good that is created incidentally to another finished good.

## Child part

See [Component](#).

## Class

A method for grouping similar parts or products.

## Co-product

See [By-product](#).

## Company data

Company data is the information you enter about your organization, such as its applicants, employees, benefits systems, training programs, and organizational structure.

## Component

Items used to build a product. Component parts can be items (nuts, screws, diodes) or subassemblies (axles, circuit boards).

## Component transaction

A line on a pick document to allocate, reverse allocate, issue, reverse issue, scrap, or reverse scrap components for a manufacturing order.

## CONFIG BOM

See [Configured bill of materials](#).

## Configuration data

In Bill of Materials, information about the product's overall design. It includes the design authority for the product, the unit of measure, and the revision level.

## Configured bill of materials

A bill of materials that is built by selecting options from a super bill of materials.

## Configured cost

The calculated cost of building a specific configured item, depending on the options a customer selects. The configured cost reflects the cost of the component items and the labor required to manufacture the item.

## Configured price

The suggested price to charge the customer for a configured item, based on your finished goods price schedule and the selected options.

## Configured routing

A routing based on the selected options. For example, if you created a configured bill of materials for office chairs and chose plastic components rather than wooden ones, the routing would be modified to exclude the sequences for staining and varnishing the wooden components. Also known as a "configured working routing."

**Configured Working Routing**

See [Configured routing](#).

**Consume**

To use up the quantity that has been issued to WIP—for materials, labor time, or machine time—for a manufacturing order.

**Cost variance**

The difference between the actual costs—for materials, machine time and labor—and the estimated costs for a manufacturing order. Cost variances can be positive or negative.

**Customer record**

A record that shows all the information you need to conduct sales transactions, such as address information, billing and shipping instructions, credit history and other data for that customer.

**Cycle time**

The total amount of time it takes to make one part, such as setup time, labor time, machine time, queue time and move time.

**Default inventory site**

The location commonly used to store raw materials or finished goods.

**Defect code**

An identifier for a particular type of item failure. For example, if an item is too long and fails a specification for length, you might create a defect code called LENGTH. Defect codes are used in Manufacturing reports to help summarize information.

**Denial code**

An identifier for the reason why an engineering change request wasn't approved.

**Destination routing**

A routing that you copy from another routing. You can add sequences to the destination routing.

**Direct labor**

The time spent by one or more production workers on filling a specific manufacturing order.

**Discrete item**

An item that is manufactured as a distinct unit. Examples of discrete items include computers, automobiles, and radios.

**Disposition code**

An identifier for a method for handling defective items. For example, you might decide to scrap certain defective items, and might assign a SCRAP disposition code to those items.

**Double-booking**

A situation where a job might inadvertently be charged twice for the same expense.

**Down day**

A day when the facility—the entire shop floor or a specific work center—is not in production.

**Drawing**

A schematic or other illustration. You can “attach” electronic drawing files—such as CAD illustrations, bitmaps and even .AVI movies—to records.

**Drawing group**

A set of related drawing files. For example, a drawing group might include several views of the same item.

**Due date**

The date when the items on a sales order should be ready to ship.

**ECM**

See [Engineering change management \(ECM\)](#).

**ECO**

See [Engineering change order \(ECO\)](#).

**ECR**

See [Engineering change request \(ECR\)](#).

**Either item**

Item that can be bought or manufactured by your company.

**Element**

An order or transaction that can be linked to a job, such as a manufacturing order, a sales order, a purchase order line, a receiving line, or inventory transaction.

**Employee allocation**

The assignment of workers to work areas. Each employee can be assigned an efficiency rating for a particular task. The number of hours per shift spent on a task can also be specified. Total scheduled employee hours for the work center are also displayed.

**Employee efficiency percentage**

A ranking of how an employee performs a given task. You can use this field different ways, depending on how your organization handles its employee efficiencies. Some organizations complete time studies of various tasks, and set task goals for workers based on those figures. Employees earn efficiency ratings based on their ability to meet those criteria. In other organizations, the top producer is assigned a value of 100% (or less) and all other employees would be ranked in comparison to the top producer.

**ENG BOM**

See [Engineering bill of materials](#).

**Engineering bill of materials**

A proposed bill of materials. Designs that are only in the prototype stage of development, for example, may have engineering bills of materials. In this way, the costs of producing a design can be studied without impacting the material requirements that the system generates.

**Engineering change management (ECM)**

The systems that a company has in place to ensure that changes to its product specifications are properly monitored.

**Engineering change order (ECO)**

The second stage of the engineering change management process. An engineering change order is a change that has been approved for incorporation.

**Engineering change request (ECR)**

The proposal stage of the engineering change management process. An engineering change request is a proposed change.

**Estimated expense**

A projection of the expenses for a job, entered in the Job Maintenance window.

**Estimated margin**

A job costing calculation based on estimated revenues and estimated expenses for a specific job. The estimated margin is calculated by dividing the estimated profit by the estimated revenues, and the multiplying the result by 100.

**Estimated profit**

The difference between the estimated expenses and the estimated revenues for a specific job.

**Estimated revenue**

A projection of the revenues for a job, entered in the Job Maintenance window.

**Exclusions (MRP)**

A method of marking an item, site or item-site combination so it isn't included in MRP calculations.

**Exclusions (Sales Configurator)**

Options that are disallowed because of another option selection.

**Expensed floor stock**

A bill of materials component that has been designated—regardless of its issue-to and issue-from sites—as a floor stock item. The cost of expensed floor stock is applied to an expense account, rather than to the cost of the finished item. See also [Floor stock](#).

**Explode**

To determine the total quantities of components needed for a manufactured item. To explode a bill of materials, the quantity ordered is multiplied by the quantity used for each of its components. Exploding continues throughout the bill of materials, so component requirements for subassemblies are also calculated.

**Filled order**

An order that has had all its requirements met and can be closed.

**Finished goods**

An item that is manufactured for sale. Also, the final products that a company sells.

**Finite scheduling**

A scheduling method that assumes that limited capacity for labor and machines is available.

**Fixed order quantity**

An order policy type that calculates order size for a day's requirements based on one or more of these variables: standard order quantity, order increment size, minimum order size, and maximum order size.

**Fixed quantity**

The quantity of a component that is required for each manufacturing order, regardless of how many finished goods are produced with the order. For example, if you use two widgets to calibrate equipment each time you begin a new manufacturing order, the fixed quantity for widgets would be 2 for the finished good bill of materials.

**Floor stock**

A bill of materials component that uses the same site for its issue-from and issue-to sites. The cost of this type of floor stock is applied to the cost of the finished item. *See also* [Expensed floor stock](#).

**Forecasted demand**

An estimate of how much of an item should be produced over a specific period of time.

**Forward infinite scheduling**

A scheduling type based on a starting date for an order, with the assumption that the plant has unlimited machine and worker capacity for the work order.

**Full regeneration**

An MRP process that recalculates your MRP data, including all sales orders, purchase orders, sales forecasts, and manufacturing orders. *See* [Net change regeneration](#).

**Functional currency**

The currency type (such as dollars or pounds) used by your organization for its accounting. *See also* [Originating currency](#).

**General ledger variance**

The difference between costs that have been added to WIP and the costs that have been removed from WIP for a specific manufacturing order.

**Header record**

The information that ties the pieces of a larger record together. For example, the header record of a routing includes information about the type of routing, the routing name, the date the routing was created and so on. This information ties sequence records together to create one routing record.

**Hours per shift**

The amount of time per shift actually spent working on the assigned tasks. To determine hours available per shift, subtract any non-task related activities from the total number of available hours. For example, if an employee is scheduled for an eight-hour shift but has a one-hour meeting and two quarter-hour breaks that day, the total available time would be 6.5 hours.

**Inclusions**

Option items automatically added to a configured bill of materials when a customer selects a certain option. For example, a computer manufacturer might offer a computer system in tan and black. If the customer selects the option for a tan computer, the computer manufacturer might set up the super bill of materials so that the tan keyboard automatically is included as part of the purchase.

**Indirect labor**

The time spent on tasks that are not directly related to filling a specific manufacturing order. Examples of indirect labor include meetings and training.

**Instruction sheet**

*See* [Routing](#).

**Infinite scheduling**

A scheduling method that assumes that all required capacity for labor and machines is always available.

**Invoice history**

The information tracked about past invoices. Invoice history allows you to determine what historical information you will need for tracking sales activity. History information can include transaction detail and/or account distributions.

**Issue**

A type of component transaction. When components are issued for a manufacturing order, they are removed from inventory and added to WIP.

**Issue-from location**

The site where the components used in the manufacturing process are stored prior to beginning the manufacturing order, such as with a vendor, or in a department, a warehouse, or another plant.

**Issue-to location**

The site where the finished product will be stored prior to delivery to the customer, such as in a department, a warehouse, or another plant.

**Item type**

A code to designate the accounting class for the item, such as inventory, discontinued, and misc. charge.

**Item-specific inventory valuation**

An accounting method that places a value on each item that you produce, based upon either standard cost or current cost.

**Job**

A series of business activities that, when completed, will fulfill a high-level objective.

**Job category**

Groupings that you can create to organize the titles and descriptions of jobs within your company. Each job category must include a set of values that can be used to sort all jobs. For example, you might create a job category called REGION so you could track jobs from specific geographical areas. Values for that job category might be East, West, North and South-or might be states, provinces, countries/regions or other areas.

**Job costing element**

A type of element that can be linked to a job.

**Job costing transaction**

An instance of a job element that is linked to a specific job, capturing information about a specific revenue or expense associated with the job. Job costing transactions aren't accounting transactions: they won't affect the General Ledger or any subsidiary ledgers.

**Job order**

*See* [Manufacturing order](#).

**Job transaction list**

A selection of transactions to be applied to a specific job. You can use transaction lists to specify the kinds of transactions that should be applied to jobs, and to specify the transactions to be applied automatically to jobs.

**Kit**

A group of finished items that compose a set.

**Labor code**

A code that is used to tie a job function to a specific pay grade. Usually, jobs requiring fewer skills have lower pay grades and are compensated at lower rates. Jobs requiring more skills or education have higher pay grades and higher pay rates.

**Labor time**

The number of employee hours required to complete the operation.

**Lead time**

The minimum amount of time required for production of an item.

**Location**

A work site. Some businesses are organized as a single company or division, but may have multiple sites.

**Lot-for-lot**

An order policy for ordering the exact quantity needed, provided that the order quantity is between the minimum and maximum order quantities.

**Lot-numbered item**

Any inventoried item that is part of a group that is assigned a unique identifier, which can be letters, numbers or a combination of letters and numbers.

**Lot-number-tracked item**

See [Lot-numbered item](#).

**Lot-sample size**

The number of item units that should be inspected to determine if a group of items meets specifications.

**Lot-tracked item**

See [Lot-number-tracked item](#).

**Low-level code**

A code that identifies the deepest level an item has in any bill of materials in your manufacturing records.

**Machine**

Any tool, device or implement that you use in your manufacturing process.

**Machine allocation**

The assignment of a machine to a work area. Each allocation record displays available machine hours, the efficiency rating, and utilization rate for that machine. Total scheduled machine hours for the work center are also displayed.

**Machine definition**

The record of a machine in your plant that allows you to track statistics for each machine, including vendor information, warranty period, and operating costs.

**Machine efficiency**

A measure of how a machine is suited for a specific task. The higher the efficiency rating, the more effectively the machine works.

**Machine time**

The number of machine hours needed to complete the operation.

**Machine utilization**

A measure of how much of the available machine capacity is actually being used. For example, if a machine is capable of producing 100 items per eight-hour day and you are only producing 80 items, the machine utilization rate is 80 percent.

**Make item**

An item that is produced by your plant.

**Make or Buy item**

An item that can be bought or manufactured by your company.

**Make to order**

An order fulfillment method for made items. When make-to-order items are sold, manufacturing orders to build the items required to fulfill the manufacturing orders are created. Manufacturing orders are used to respond to specific sales orders

**Make to stock**

An order fulfillment method for made items. When make-to-stock items are sold, the quantities required to fulfill the sales order are taken from inventory quantities. Manufacturing orders are used to keep inventory levels up so that sales orders can be fulfilled.

**Manufacturing bill of materials**

The bill of materials used to build a parent part in your organization. A manufacturing bill of materials is the “real” bill of materials, and is used to figure material requirements for your organization.

**Manufacturing data sheets**

See [Routing](#).

**Manufacturing order**

A set of documents conveying the authority to manufacture parts or products in specified quantities. Manufacturing orders are also called batch cards, job orders, production orders, run orders, shop orders, or work orders.

**Manufacturing order receipt**

A document where material, labor, and machine costs in WIP are applied to finished goods that are received in inventory. Costs for backflushed materials, labor, and machine time also are applied to the finished goods cost.

**Manufacturing order routing**

A routing used to complete a specific manufacturing order, which includes all the necessary requirements to fill the order, such as workers, machine time, and raw materials. Also known as “manufacturing routing.”

**Manufacturing picklist**

A list of the items and quantities of items that are required to fill a manufacturing order.

**Material Requirements Planning**

A series of data collection and interpretation procedures that allow you to forecast resource requirements over a specified time period (days, weeks or months).

**Maximum order size**

One of the variables that can be used to calculate order quantities for fixed or period order quantity order policies. Maximum order size puts a limit on the size of automatically generated purchase and manufacturing orders. If demand is greater than the maximum order size, an additional order will be created.

**MFG BOM**

See [Manufacturing bill of materials](#).

**Minimum order size**

One of the variables that can be used to calculate order quantities for fixed or period order quantity order policies. It is similar to standard order quantity, and is used in its place if the standard order quantity is zero. If the standard order quantity is greater than zero, the standard order quantity supersedes the minimum order size.

**Module security**

A way to see if other users are working with records that prevent you from completing certain processes. Module security also allows you to unlock records and remove users from MRP.

**Move in**

To adjust the due dates of existing manufacturing orders and purchase orders to meet potential shortages identified by MRP calculations. If MRP calculations uncover a shortage of an item and if there’s an existing order for the item in the future, the order will be flagged to be “moved in” to prevent the shortage.

**Move out**

To reschedule certain manufacturing orders or purchase orders to prevent stock overages on the current due date. An appropriate future date to move the order to cover a future net requirement is proposed

**Move time**

The number of hours needed to physically move an item to the next operation.

**MRP**

See [Material Requirements Planning](#).

**MRP shortage**

A lack of resources to produce the required amount of an item to fill outstanding orders. Manufacturing orders can be entered regardless of current stock of available materials.

**Multi-level bill of materials**

A bill of materials that lists all the components directly or indirectly involved in building the parent part, together with the required quantity for each item. For example, if a subassembly is used in the parent part, the multi-level bill of materials will show all the components needed to build the subassembly, including purchased parts and materials. *See also* [Single-level bill of materials](#).

**Negative WIP**

The situation that occurs if you enter and post a manufacturing order receipt where more is consumed from WIP than was in WIP for the manufacturing order. When finished goods are received into inventory before materials have been issued to the order or before labor or machine time data collection transactions have been completed, this can occur. You must set up Manufacturing Order Processing to be able to enter receipts that would cause negative WIP.

**Net change regeneration**

An MRP process that updates MRP information based on changes to manufacturing orders, sales orders, purchase orders, and inventory quantities. *See also* [Full regeneration](#).

**Nettable item**

An item, site or item-site combination that is included in MRP calculations.

**Non-nettable item**

Any item, site, or item-site combination that is not included in MRP calculations.

**Non-Standard Report**

A report for internal use that summarizes information about defects identified in a group of items. An NSR might also include information about the disposition of the defective items.

**NSR**

*See* [Non-Standard Report](#).

**Op code**

*See* [Operation code](#).

**Operation**

A specific task within the manufacturing process. You can use operations as templates for routing sequences.

**Operation chart**

*See* [Routing](#).

**Operation code**

A code assigned to a particular task within the manufacturing process. For example, in a company that makes electrical components, the operation code for testing the validity of a certain characteristic might be "110." Also, op code.

**Operation list**

*See* [Routing](#).

**Operations sheets**

*See* [Routing](#).

**Option**

In sales configurator, an option is one of the available choices for some aspect of a configured item. For example, a computer manufacturer might offer 15-, 17- and 21-inch monitors as options for a computer.

**Option bill of materials**

A bill of materials for a component signifying that the component won't be identical in all finished products.

**Option category**

A group of related items that customers can choose from, such as various sizes of computer monitors.

**Option setting**

A setting that controls the information that appears on a report, such as sorting method, detail level, and range restriction.

**Order increment**

A variable that can be used to calculate order quantities for fixed or period order quantity order policies. The order increment is the number of item units that can be added to the standard order quantity to increase the order size to meet demand.

**Order policy**

A method for calculating the order sizes of automatically generated purchase and manufacturing orders. Manufacturing includes three order policies: lot-for-lot, fixed order quantity and period order quantity.

**Originating currency**

The alternate currency that a multicurrency transaction was conducted in. *See also* [Functional currency](#).

**Outsourced item**

A finished good that requires one or more outsourced services.

**Outsourced service**

A service that is part of manufacturing processes that is purchased from a vendor.

**Outsourcing**

The practice of using outside vendors to perform certain manufacturing tasks.

**Outsourcing routing**

A routing that includes one or more sequences that are completed by an outsourcing vendor.

**Outsourcing vendor**

A vendor that you purchase outsourced services from.

**Outsourcing work center**

A work center where outsourced services are performed. An outsourcing work center can be on-site or can be at the vendor site.

**Overhead**

Costs incurred that cannot be directly related to the products or serviced produced. These costs, such as light, heat, supervision, and maintenance can be grouped and distributed to units of products or services by some standard allocation method.

**Parallel routing**

A routing that includes some routing sequences that run concurrently.

**Parent part**

An item built from the component parts. A parent part can be a subassembly or a final product.

**Pegging**

To trace an item requirement through the MRP system to find the source of the requirement quantity. Pegging will reveal whether a requirement is driven by a manufacturing order, sales order, purchase order or picklist.

**Period order quantity**

An order policy type that calculates order size for requirements for a period you specify, based on one or more of these variables: standard order quantity, order increment size, minimum order size and maximum order size.

**Periodic costing**

*See* [Standard costing](#).

**Periodic inventory**

An inventory tracking method that involves taking inventory on a recurring basis, such as monthly, quarterly or yearly. This is the same as "standard" costing.

**Perpetual inventory**

An inventory tracking method that involves constantly updating inventory each time an item is added or removed.

**Phantom bill of materials**

A bill of materials used to describe the components of a parent part that will be built as part of a higher-level parent part. The term “phantom” is used to indicate that the part never really exists as a stocked item, but is built along with the production of the higher-level part that is driving an overall production order. Creating bills of materials as phantoms allows the manufacturing order picklist and the Material Requirements Planning (MRP) features to explode through the phantom item down to the lower-level parts.

**Pick document**

A group of component transactions that share a type such as Allocate, Issue, Reverse Issue, and that are posted together. A pick document can include component transactions for multiple manufacturing orders, items, or sites.

**Picklist**

A list of the items and quantities of items that are required to fill a manufacturing order.

**Planner code**

A code that identifies the individual responsible for the production of the item.

**Planning routing**

A routing used to determine resource requirements for a potential manufacturing order. If negotiations with the customer are successful, the planning routing can be converted into an active routing and used to fill a manufacturing order.

**Pointer routing**

A pointer routing is used to outline a series of steps that are common to all items produced by your plant. For example, if each item needs to be tested by quality assurance, packaged and shipped, a routing can be defined to cover these steps for all items that you manufacture.

**Post-to site**

The site where the finished product will be stored prior to delivery to the customer. This location can be a department, a warehouse, or another plant.

**Primary routing**

A routing that provides the instructions for building an item. It is a basis for scheduling and resource estimates. The primary routing information is used to determine the required lead time for manufacturing the product. Each item can have only one active primary routing.

**Process security**

A type of security that allows you to restrict access to certain procedures or processes within Manufacturing.

**Process security set**

A password or list of user IDs you define to restrict authority for completing a Manufacturing process. You can use one process security set for all restricted procedures, or you can create different process security sets for different procedures.

**Production variance**

The difference between the actual and estimated costs for a manufacturing order, based on the working routing, the picklist, and labor and machine codes.

**Promise date**

The date that the customer has been told to expect receipt of the order.

**Promotion**

Special pricing offered on a particular option for a configured item.

A special pricing offered on a particular option for a configured item.

**Purchase order**

A formal request for goods or services. The purchase order shows the quantity of goods ordered, expected receipt date, and supplier name. The purchase order may also include other information pertaining to the delivery of the item, such as Free On Board (F.O.B.) points.

**QA Required**

A designation for purchased items that must pass a quality inspection before being added to your inventory.

**Quantity damaged**

The total items, if any, damaged during shipping.

**Quantity ordered**

The amount of the item requested on a single purchase order.

**Quantity received**

The amount of the item received from the supplier.

**Quantity to fill**

An amount of a product that was ordered but has not been received.

**Query**

A search through a specific set of records for certain information.

**Queue time**

The number of hours spent waiting for the operation to begin.

The number of hours spent waiting for an operation to begin.

**Quick manufacturing order**

A manufacturing order that doesn't require you to collect information about labor and machine time and material costs when the order is closed.

**Quote**

A company's offered price for an item that a customer or a potential customer has requested. Quotes can be transferred to another document type, deleted or voided.

**Raw materials**

Items used to build products. They can be individual items like nuts, screws and diodes, or they can be subassemblies.

**Record**

A group of computer data tied together by a common key. (All of one item's information—from quantity and site information to engineering data to bill of materials data—is the item's record.)

**Reference designator**

Information that specifies where components should be used in an assembly, such as the placement of four resistors on a printed circuit board.

**Regular bill of materials**

A simple, single-level bill of materials.

**Replaced item**

An item in a mass update to bills of materials that is removed from bills of materials. A replacement item might or might not be substituted for the replaced item.

**Replacement item**

An item in a mass update to bills of materials that is added to bills of materials. A replacement item might be an addition to a bill of materials, or might be a substitution for a replaced item.

**Return**

An item or merchandise returned by a customer to your company. A return decreases the customer's balance on account and, if you choose, increases inventory quantities.

**Revalue**

To finalize rolled-up standard cost changes. Revaluing replaces existing standard cost information with new standard cost information, which is used in your accounting processes. As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

**Revenue/expense code**

A short identifier used to categorize expenses and revenues linked to a job.

**Reverse allocate**

A component transaction type where items that have been allocated to a manufacturing order are unallocated. *See also* [Allocate](#).



**Reverse Issue**

A component transaction type where components that were issued to a manufacturing order (which removes them from inventory and adds them to WIP) are removed from WIP and put again in inventory. *See also* [Issue](#).

**Reverse Scrap**

A component transaction type where components that were scrapped for a manufacturing order are restored to the issued (and not scrapped) quantity for the order. *See also* [Scrap](#).

**Roll up**

To apply calculations based on changes to standard cost information to items. If you change the cost of a raw material that is part of several subassemblies and finished goods, "rolling up" that change will result in calculations that will determine the new standard costs of the subassemblies and finished goods.

As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

**Routing**

A detailed set of instructions that describes how to create a particular item. Routings include operations to be performed, the scheduling sequence, machines and work centers involved, and hours required for setup and run times. Routings also can include information about tooling, operator skill levels, inspection needs, testing requirements, and so on.

In engineering change management, a routing is a list of users who must review an engineering change request before it becomes a change order, and who must review a change order before it's finalized.

**Routing preference**

An individual user choice on how information is displayed or processed for update in the routings subsystem. Preferences can control such actions as substituting one description for another or appending work center operations notes on to routing notes.

**Routing sequence**

A single step in the manufacturing process. Some routings will contain multiple steps while others will have only a single step. Examples of a sequence include assembly, painting, drying, etc.

**Routing sheets**

*See* [Routing](#).

**Run labor code**

A labor code that identifies the skill requirements to perform the operation as defined.

**Run orders**

*See* [Manufacturing order](#).

**Sales order**

A request for goods or services. Sales orders can be Open (ready to be filled) or Planned (hold pending credit check or other criteria).

**Sampling**

A statistical process of selecting a portion of a large group of items to be inspected. From the sample you select—and your inspection results for the sample—you can draw inferences about the overall quality of the entire item quantity.

**SCAR**

*See* [Supplier Corrective Action Request](#).

**Scheduling data**

The lead time needed to manufacture an item on a bill of materials and the amount of scrap materials produced by the manufacturing process.

**Scheduling preference**

A user preference that controls the allocation of resources to a particular manufacturing order. Scheduling preferences identify additional resources that may be available and define waiting periods for a sequence.

**Scrap**

A component transaction type where components that are issued to a manufacturing order are flagged to be scrapped. Scrapped component costs are applied to the manufacturing order costs, but the quantities aren't.

**Sequence number**

A number assigned to a particular step in a routing. Each step (or sequence) represents an operation in the manufacturing process. The sequence number controls the order in which steps are executed.

**Serial-numbered item**

An inventoried item that is assigned a unique identifier, which can be letters, numbers, or a combination of letters and numbers.

**Serial-number-tracked item**

*See* [Serial-numbered item](#).

**Serial-tracked**

*See* [Serial-numbered item](#).

**Setup cost**

The cost of preparing a work area for production. Setup costs might include the cost of calibrating machines or gathering the necessary tools and resources.

**Setup labor code**

A labor code that identifies the skill requirements for the person preparing the work area prior to performing the manufacturing task.

**Setup time**

The number of hours needed to prepare the work area prior to the operation.

**Ship date**

The date when a sales order leaves your warehouse or office.

**Shipping method**

The manner in which the items are transported from the supplier to the manufacturer. Examples of shipping methods include FedEx, rail, air freight, etc.

**Shop calendar**

A calendar of up and down days—days when the plant is in production and when it isn't—for an entire manufacturing facility.

**Shop order**

*See* [Manufacturing order](#).

**Shop rate**

The average pay rate for the pay grade. It is the figure that is used when labor costs are estimated for a manufacturing order.

**Shrinkage**

The loss of materials. You might have raw material shrinkage—such as when some component items are defective and can't be used in manufacturing—or you might have parent part shrinkage—such as when not all manufactured items meet your product standards.

**Single-level bill of materials**

A bill of materials that lists components and subassemblies, including the quantities of each, that make up the parent part. *See also* [Multi-level bill of materials](#).

**Site**

A location that you have defined for storing items. A site could be a department, a plant, or a warehouse. The number of sites depends on your organizational structure.

**Source routing**

A previously defined routing that contains one or more steps that you want to use in a new routing.

**Standard cost variance**

The difference between the actual costs for a manufacturing order for a standard cost item, and the standard cost of the item.

**Standard costing**

An accounting method used by some businesses to value their inventories. A company that uses standard costing—also known as "periodic costing"—revalues its inventory periodically to reflect significant changes in the cost of its items.

## GLOSSARY

### **Standard order quantity**

A variable that can be used to calculate order quantities for fixed or period order quantity order policies. It is similar to a minimum order quantity, requiring no less than a set amount for an order, but it can be increased, either by increments or multiples of the standard order quantity.

### **Subassembly**

A part that is both a component and a parent part. An assembly that is used in the manufacture of a higher-order assembly.

### **Super bill of materials**

A list of all the component items that can possibly be included the bill of materials for a finished item. For example, a computer manufacturer might develop a super bill of materials that includes several options for hard disks, RAM, monitors, keyboards, mice and other peripherals. No computer can include all the options, but all the options must be included in the super bill of materials.

### **SUPER BOM**

See [Super bill of materials](#).

### **Supplier**

A person or company that supplies goods or services to a manufacturer.

### **Supplier Corrective Action Request**

A formal report to be sent to a supplier to involve the supplier in resolving problems with defective parts. SCARs describe the problems you've found—including item numbers, lot numbers, dates and test results—and might outline possible areas for the supplier to research to prevent the defect from recurring. Suppliers usually are required to respond to the SCAR reports with information about the cause of the

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