Work Orders

TRAINING GUIDE

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Contents

ABOUT THIS COURSE 7

Course Description 8

Who Should Attend This Course 8

Prerequisites 8

Approximate Length of Course 8

Certification Preparation 9

Using this Training Guide 9

General Training Facilities Information 10

CHAPTER 1 INTRODUCTION TO WORK ORDERS 11

Overview 12

Work Orders 13

Work Order Bills and Routings 14

Work Orders: Source 15

Terminology 16

Course Objectives 18

Related Courses 19

Course Objectives 20

CHAPTER 2 BUSINESS CONSIDERATIONS AND CONTROL SETUP 21

Repetitive 24

Rework 25

Co-Products and By-Products 27

Configured Products 29

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Shop Floor Control 31
Work Order Closing 33
Component Issue/Backflush 34
Work Order Shortages 35
Compliance 36
Work Order Control 37

CHAPTER 3 WORK ORDER PROCESSING 43

Introduction 44
Work Order Status and Type 45
Work Order Status 46
Planned 47
Firm Planned 48
Exploded 49
Allocated 50
Released 51
Closed 52
Batch 53
Conclusion 54
Work Order Types 55
Standard 57
Final Assembly 58
Rework 59
Expense 61
Cumulative 63
Scheduled 64
Conclusion 65
Work Order Processing Cycle 66
Approving Planned Orders 67
Planned Work Order Approval 69
Maintaining Work Orders 74
Work Order Maintenance 76
Preparing and Planning 84
Work Order Component Check 86

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Releasing and Monitoring Work Orders 87
Work Order Release/Print 90
Multiple Work Order Release/Print 97
Work Order Bill Shortage Inquiry 99
Work Order Dispatch Report 100
Modifying Work Order Status 101
Multiple Work Order Status Change 103
Splitting Work Orders 106
Work Order Split 108
Issuing Components 111
Work Order Component Issue 113
Receiving Work Orders 119
Work Order Receipt 121
Backflushing 126
Work Order Receipt Backflush 128
Maintaining Work Order Bills 139
Work Order Bill Maintenance 141
Maintaining Work Order Routings 144
Work Order Routing Maintenance 146
Accounting Close 153
WIP Material Cost Revaluation 155
Work Order Accounting Close 159
Exercise: Work Orders 163

APPENDIX A WORKSHOPS AND STUDY QUESTIONS 167

Study Questions 168
Answers to Study Questions 170

APPENDIX B REPORTS, INQUIRIES, BROWSES. 171

APPENDIX C GENERAL LEDGER EFFECTS OF WORK ORDER TRANSACTIONS173

INDEX 177

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About This Course

Course Description

QAD designed this course to cover the basics of preparing to implement the Work Orders module of MFG/PRO. The course includes:

- An introduction to the Work Orders module
- An overview of key business issues
- Setting up the Work Orders module
- Using the Work Orders module
- Activities and exercises throughout the course
  - Students practice key concepts and processes in the Work Orders module

Students learn how to:

- Analyze some key business decisions before setting up the Work Orders module
- Set up and use the Work Orders module

Who Should Attend This Course

- Implementation consultants and members of implementation teams
- Key users

Prerequisites

- QAD training courses:
  - Initial MFG/PRO Setup
  - Product Structures and Formulas
  - MRP and CRP
  - Work Centers and Routings
- Basic knowledge of MFG/PRO as it is used in the business
- Working knowledge of the manufacturing industry in general

Approximate Length of Course

- This course is designed to be taught in one-half day

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Certification Preparation

This course is one of several courses designed to assist students in preparing for the QAD certification examination in Manufacturing. However, QAD does not guarantee anyone a passing grade as a result of having taken this course.

Students preparing for certification examinations should study all available materials (user guides, training guides, on-line help, for example) and acquire industry and field experience.

Using this Training Guide

Implementation consultants, members of implementation teams, and operators can use this guide in instructor-led classes, while knowledgeable consultants who want to learn about the Work Orders module can use this guide for self-study.

This training guide provides a road map for instruction and learning. It contains:

- Annotated PowerPoint slides for instructors
- MFG/PRO screens annotated for instructors to demonstrate the module's functionality
- Exercises and study questions

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General Training Facilities Information

- Telephone or fax
- Messages
- Restrooms
- Class hours: start and finish times, and punctuality
- Breaks: frequency, approximate times
- Parking considerations; carpooling
- Emergency procedures: location of first aid, contact person for assistance
- Exit locations, building hours
- Location of approved smoking area

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CHAPTER 1

Introduction to Work Orders

Course Overview

- Introduction to Work Orders in MFG/PRO
- Business Considerations and Work Order Control File Set Up
- Process Work Orders in MFG/PRO

eB-WO-IN-040

Overview

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Work Orders

Authorizations to produce a specific quantity of an item by a certain date

Work Order 9999			
Item	Description	Qty	Date
2000	Pencil	500	12/01/00

Work orders may exist for items with Pur/Mfg code of M or C

Pur/Mfg: M

(Item Planning Maintenance 1.4.7)

eB-WO-IN-050

Work Orders

- A work order is an authorization to produce a specified quantity of a specified item by a specified date.

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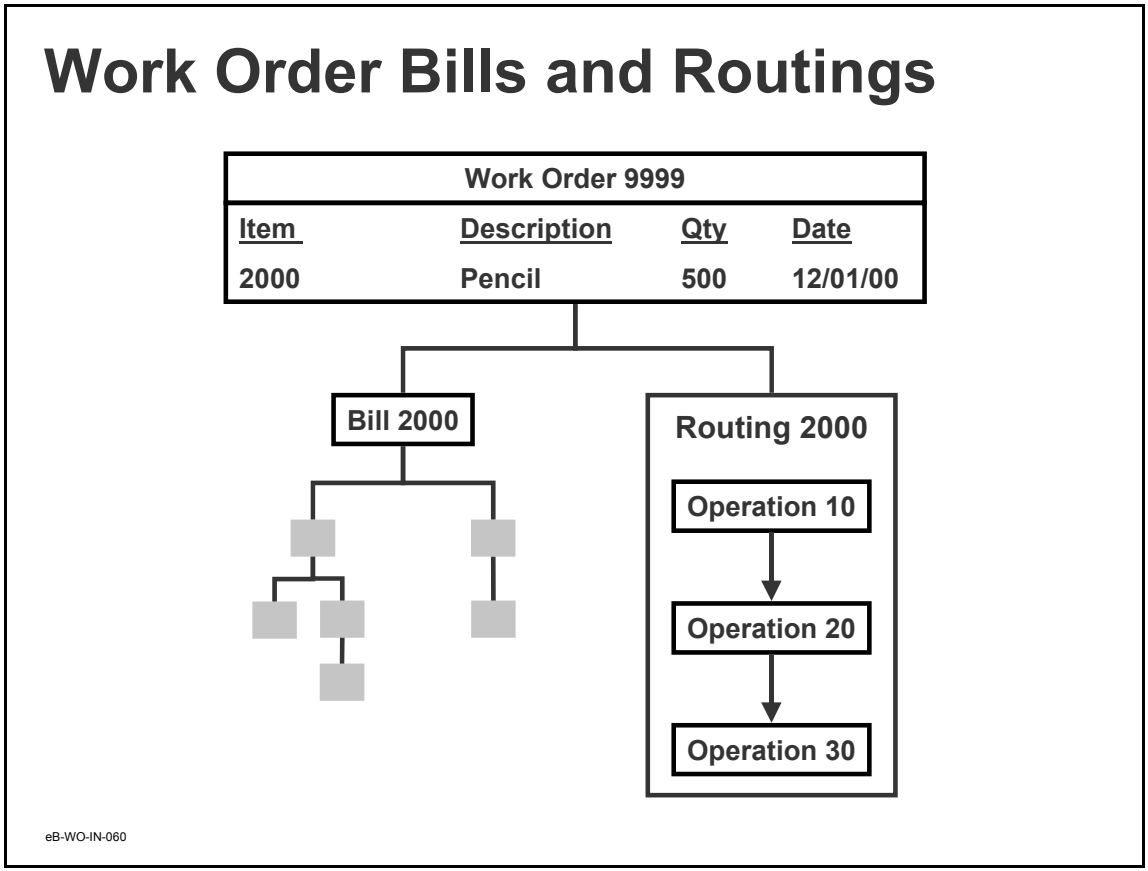

Work Order Bills and Routings

Each item has a bill and a routing associated with it.

- Each work order inherits the bill and routing of its item
  - You can modify the work order's bill and routing

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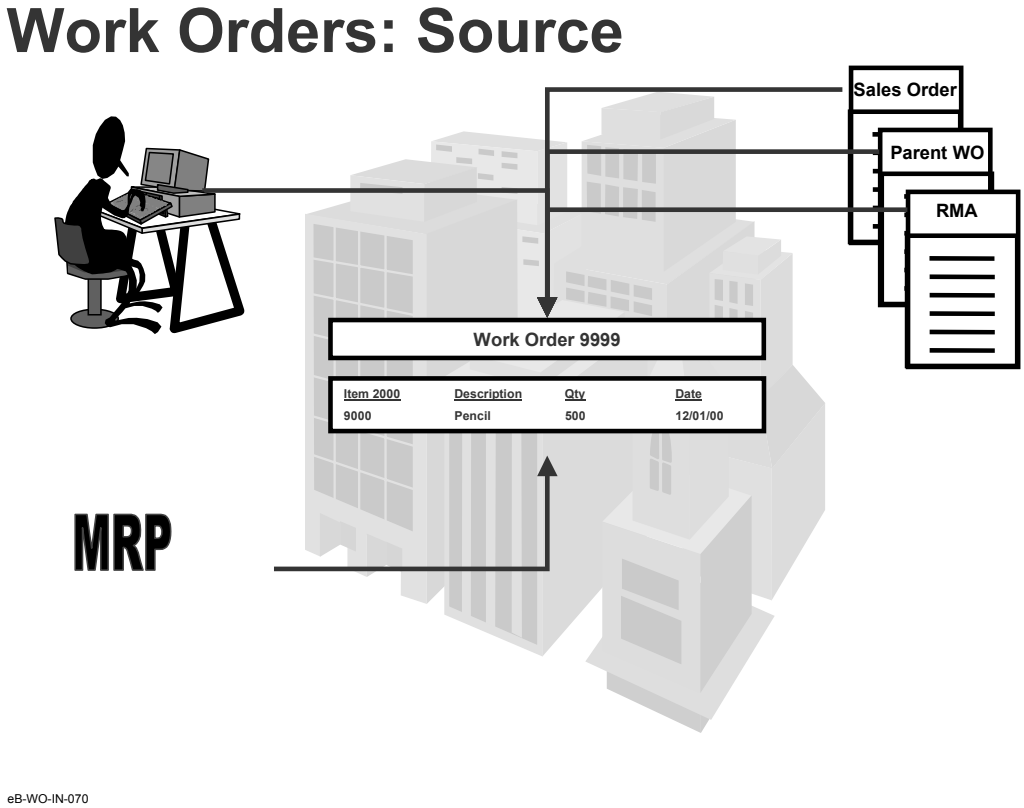

Work Orders: Source

The demand for work orders originates in MRP as it processes demand from:

- Sales orders
- Returned merchandise authorizations
- Parent work orders
- Manually entered orders

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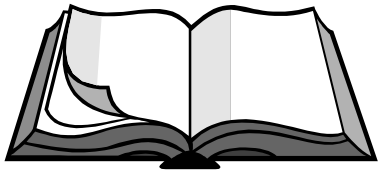
Terminology

- Routable
- Rework
- Work order splits
- Work in process (WIP)
- Due date
- Release date
- Manufacturing lead time



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Terminology

Routable

Routable work orders for subassemblies are automatically created when a parent item is allocated or released.

Rework

Rework is required for items that are unacceptable and require additional processing.

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Work Order Splits

Work Order Splits are often created when component inventory is short. You split the work order so as to finish as much as possible while awaiting receipt of more components.

Work In Process (WIP)

Work in process refers to products in various stages of completion throughout the plant. Stages include raw material issued to work orders up to completely processed material awaiting final inspection and acceptance as finished product.

Due Date

Due Date is the date this work order is due to be completed.

- This is the date you plan to have product available:
  - For shipment to a customer
  - To issue to another manufacturing order
- All MRP plans are based on this due date

Release Date

Release date is the date this work order is scheduled to be released to production.

- Orders not released by this date are flagged on the MRP reports

The system calculates either release or due date, creating in effect, forward or backward order scheduling.

Manufacturing Lead Time

Manufacturing lead time is the normal or average number of working days it takes to manufacture the item, including the time to process paperwork, issue components, inspect the finished product, and receive it into stock.

- For items with Pur/Mfg code = M, the manufacturing lead time may be calculated from the item's routing/process as part of the Routing Cost Roll-Up
- When a work order is entered for a purchased or manufactured item, the system uses this lead time to calculate the release date

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Course Objectives

In this course you learn how to:

- Identify some key business considerations before setting up Work Orders in MFG/PRO
- Set up the Work Order Control File in MFG/PRO
- Process Work Orders in MFG/PRO

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Course Objectives

This course covers the processing of normal work orders from setup to completion.

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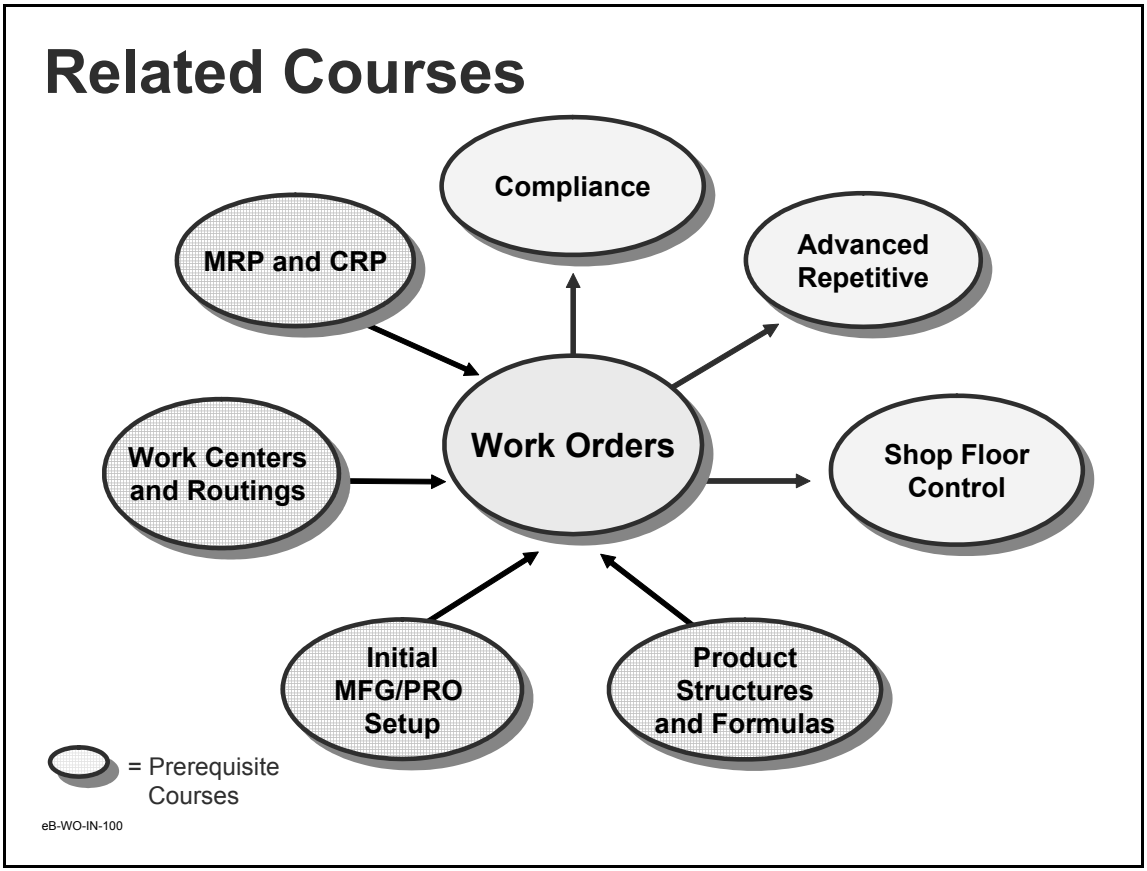

Related Courses

Other modules, especially shop floor control and advanced repetitive, deal with manufacturing processes similar to work orders. This course does not cover the same material. However, to understand shop floor control, for example, you need to take this course first.

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Course Overview

- ✓ Introduction to Work Orders
- ♦ Business Considerations
- ♦ Set up the Work Order Control File
- ♦ Process Work Orders

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Course Objectives

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CHAPTER 2

Business Considerations and Control Setup

Business Considerations

In this section you learn how to:

- ✓ **Identify some key business considerations before setting up Work Orders in MFG/PRO**
- ✓ **Set up the Work Order Control File**
- ♦ Process Work Orders in MFG/PRO

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Business Issues

- ✓ Repetitive
- ✓ Rework
- ✓ Co/by-products
- ✓ Configured products
- ✓ Shop floor control
- ✓ Work order closing
- ✓ Component issue/backflush
- ✓ Work order shortages
- ✓ Compliance

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There are several business issues to take into consideration before using work orders in MFG/PRO. This section does not discuss all potential issues, but presents some issues to generate thought and discussion.

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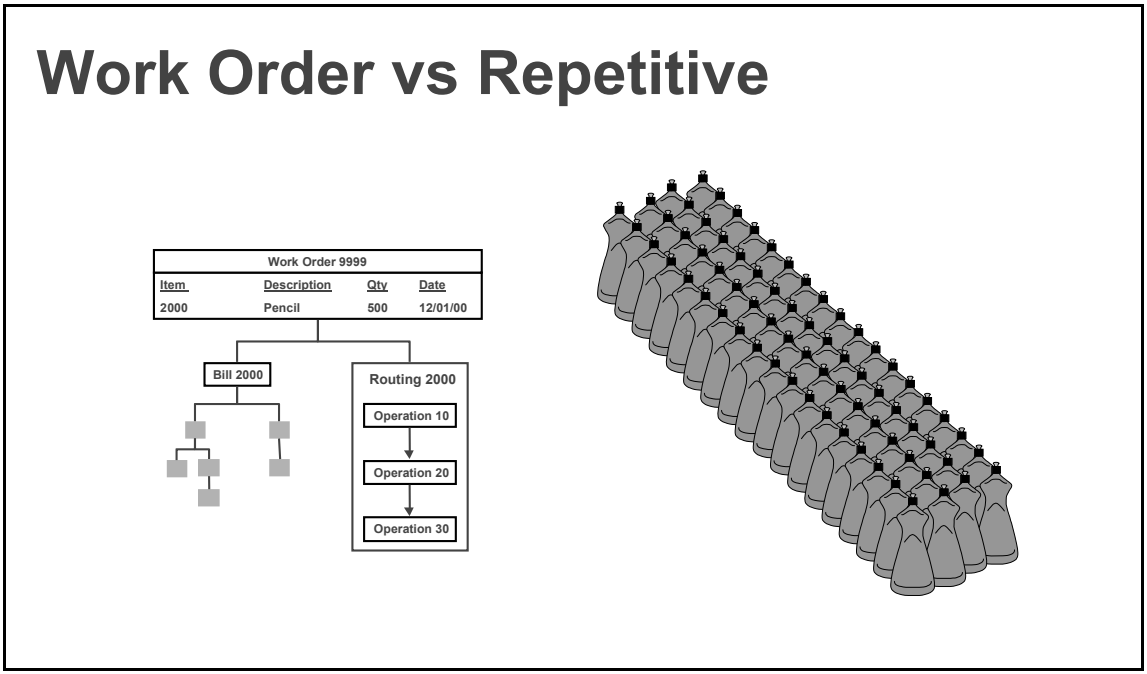

Repetitive

Definition

Work orders control and monitor the manufacturing of discrete items.

Repetitive manufacturing uses production line schedules.

Repetitive manufacturing typically involves continuous work and production lines dedicated to one item for relatively long times.

Why Consider?

- Repetitive manufacturing and work orders are appropriate to different environments

Functionality in MFG/PRO

- MFG/PRO handles repetitive manufacturing in the repetitive and advanced repetitive modules

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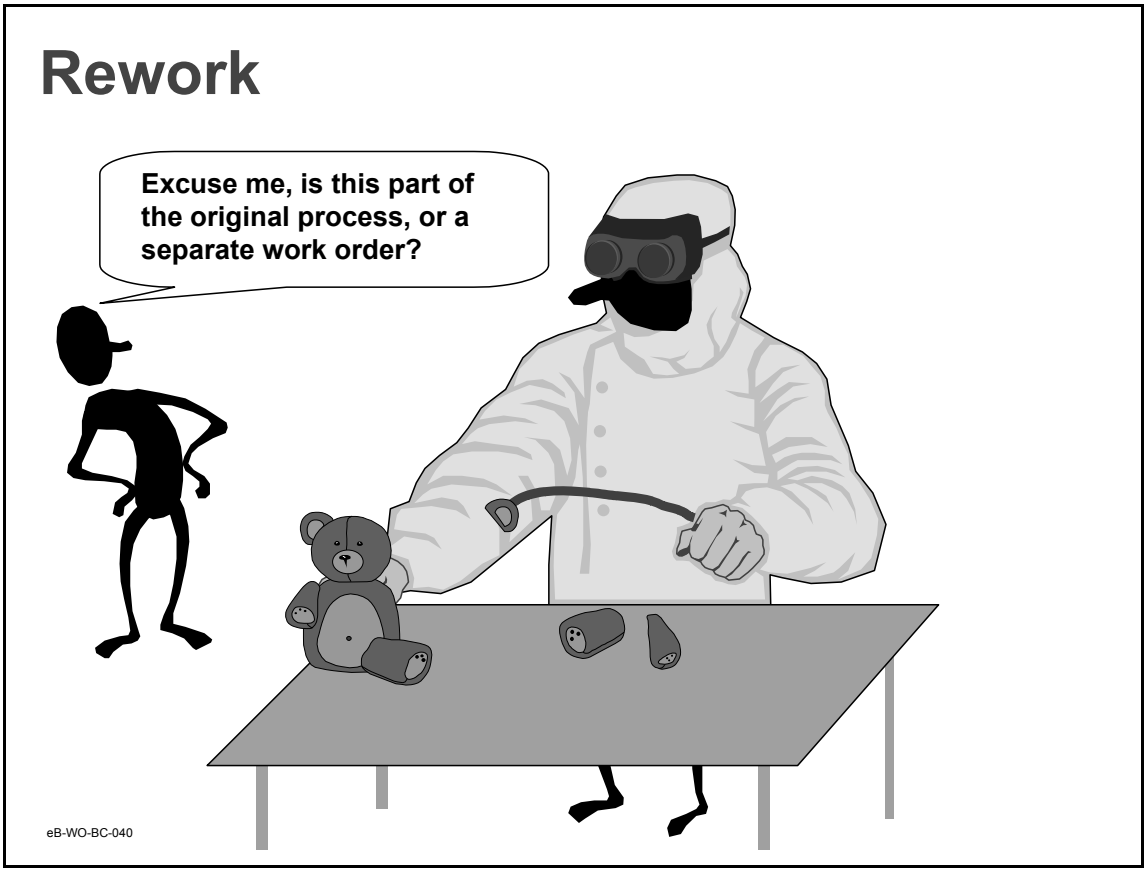

Rework

Definition

Rework work orders manage the repair, reprocessing, or completion of nonconforming items.

What to Consider?

- Whether to charge the costs to the original order or to a separate order
  - Charging to the original order is easier
  - Charging to a separate type *R* order splits out the rework costs

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Setup Implications

- Charging to the original order: None
- Charging to a separate order:
  - Create a rework department, work center, and possibly alternate routings
- Variances may need to be reclassified for accounting

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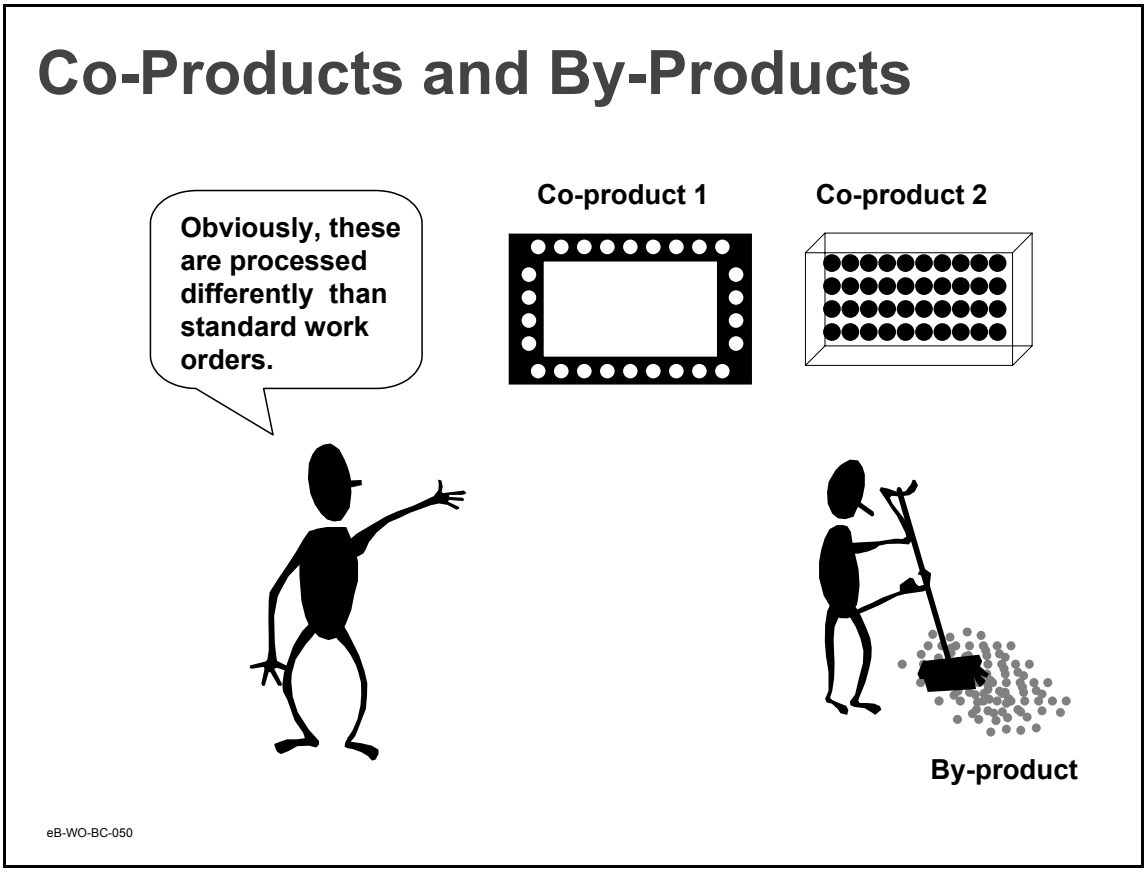

Co-Products and By-Products

Definition

Co/By-products are intended results of a base product. By-products are incidental results of these same base products.

Why Consider?

- MFG/PRO processes these products differently from standard work orders because of the product structures, variances, and multiple end items

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Functionality in MFG/PRO

- MFG/PRO handles co/by-products differently from regular products

Implications

- This course does not cover co/by-products

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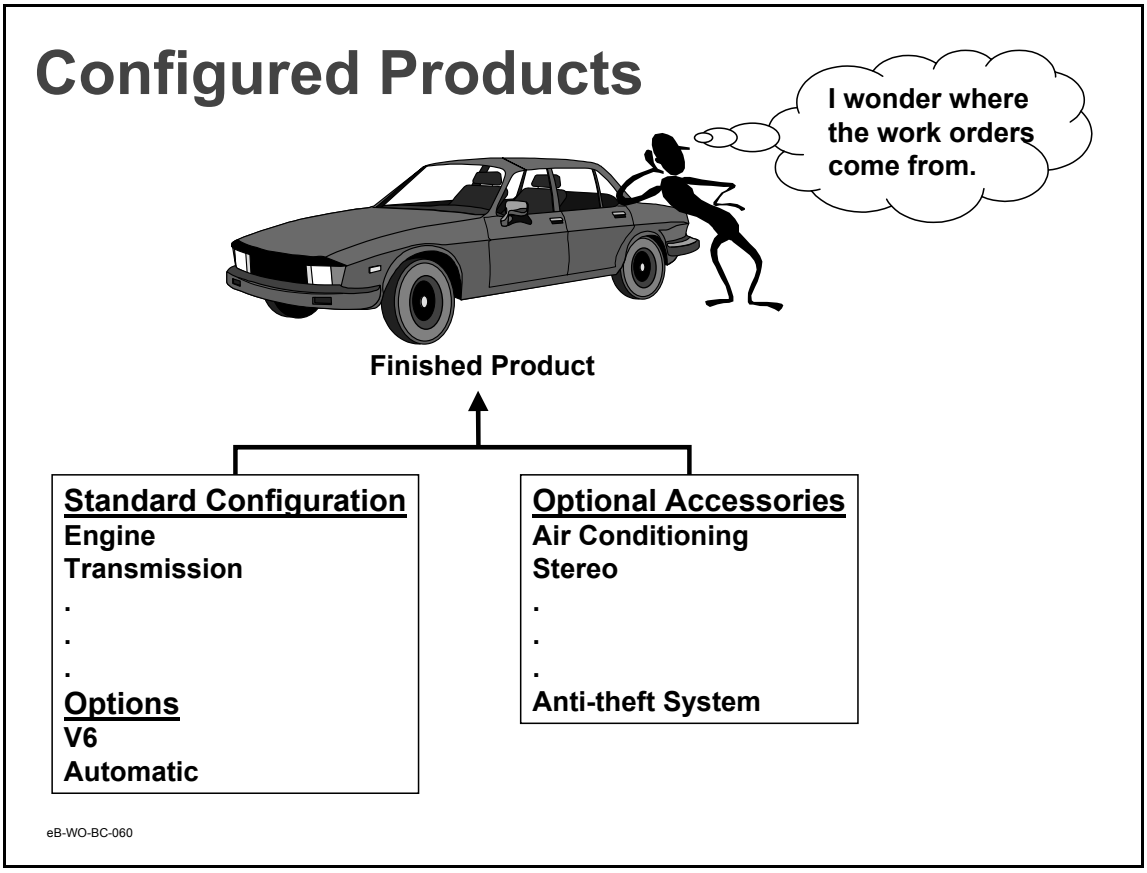

Configured Products

Definition

- Configured products offer the customer variations on the original product

What to Consider?

- Configured products come out of the Sales Order module

Functionality in MFG/PRO

- Configured products come from Sales Order Release to Work Order

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- Implications
- Set up Configured Products Control

Discussed in the following Training Guide: Sales Order Management

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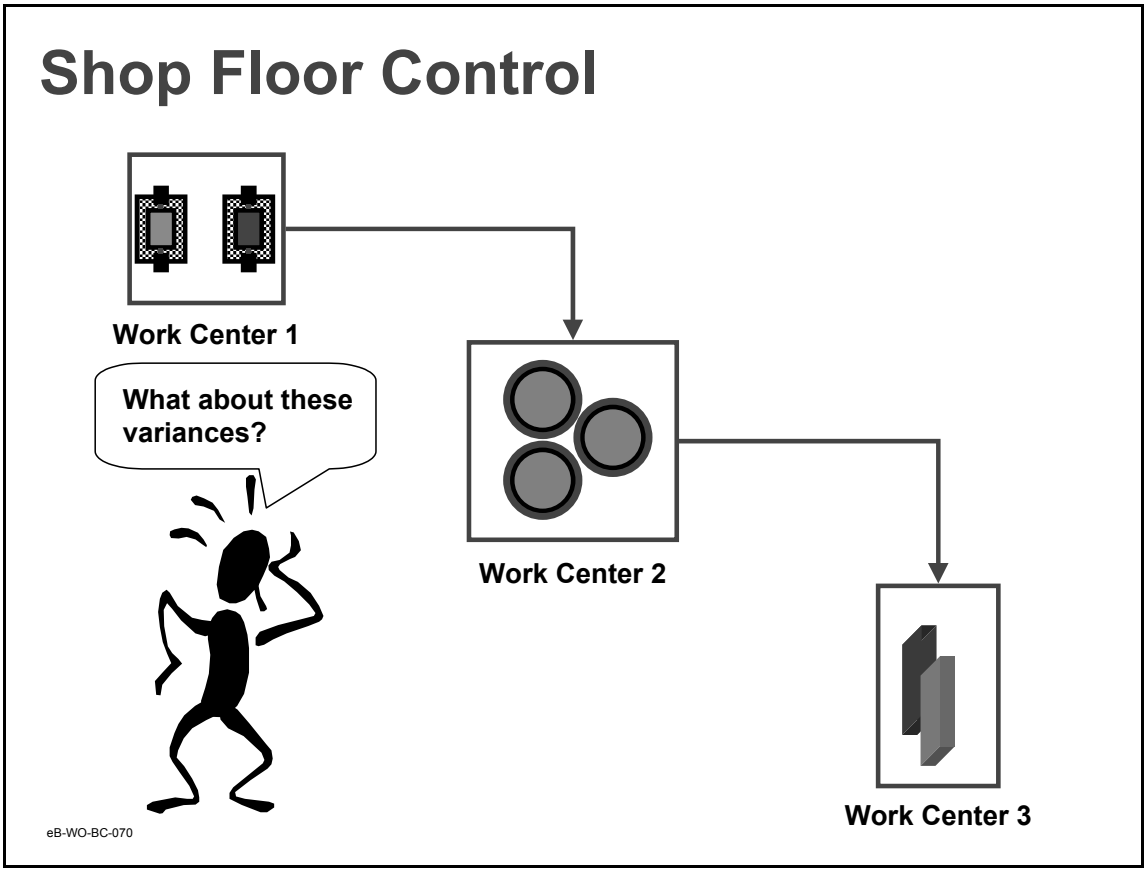

Shop Floor Control

Definition

- Shop Floor Control enables you to move items through work centers and operations to provide detailed analysis of the work

What to Consider?

- Variances can be affected by the *Post Variances at SFC* setting in the Work Order Control.

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Implications

- Work Order Control settings

Discussed in the following Training Guide: Shop Floor Control

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Work Order Closing

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Work Order Closing

Definition

- The closing of work orders completes the life cycle and
  - Causes unreported operations to be reported at standard
  - Calculates variances to post to the general ledger

What to Consider?

- If work order transactions have not ben properly completed before the closing process, then the variances created may not be legitimate and are extremely difficult to explain

Setup Implications

- Procedures must be in place to ensure proper reporting

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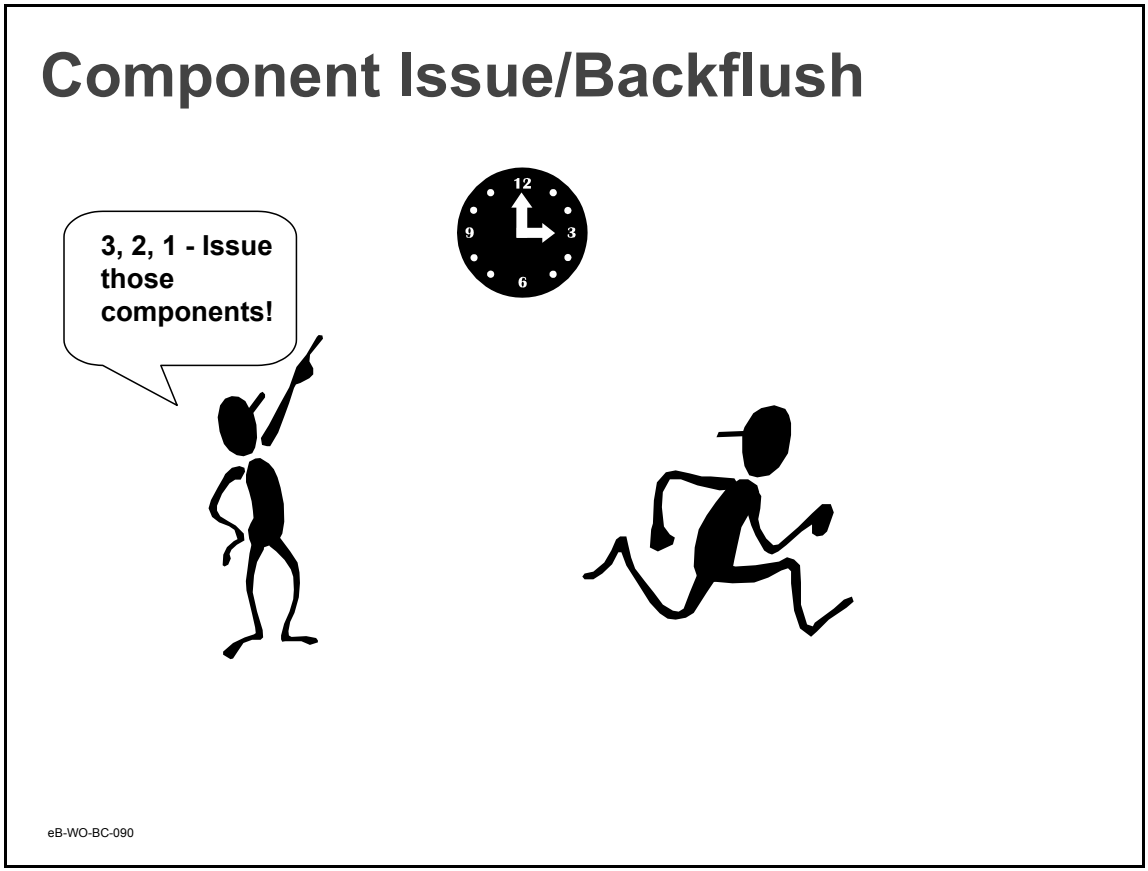

Component Issue/Backflush

What to Consider?

- The timely issuance of work order components affects the value of work in process inventory and the ability to verify inventory accuracy through cycle counting

Setup Implications

- Set procedures for your company that allow you to maintain accurate counts

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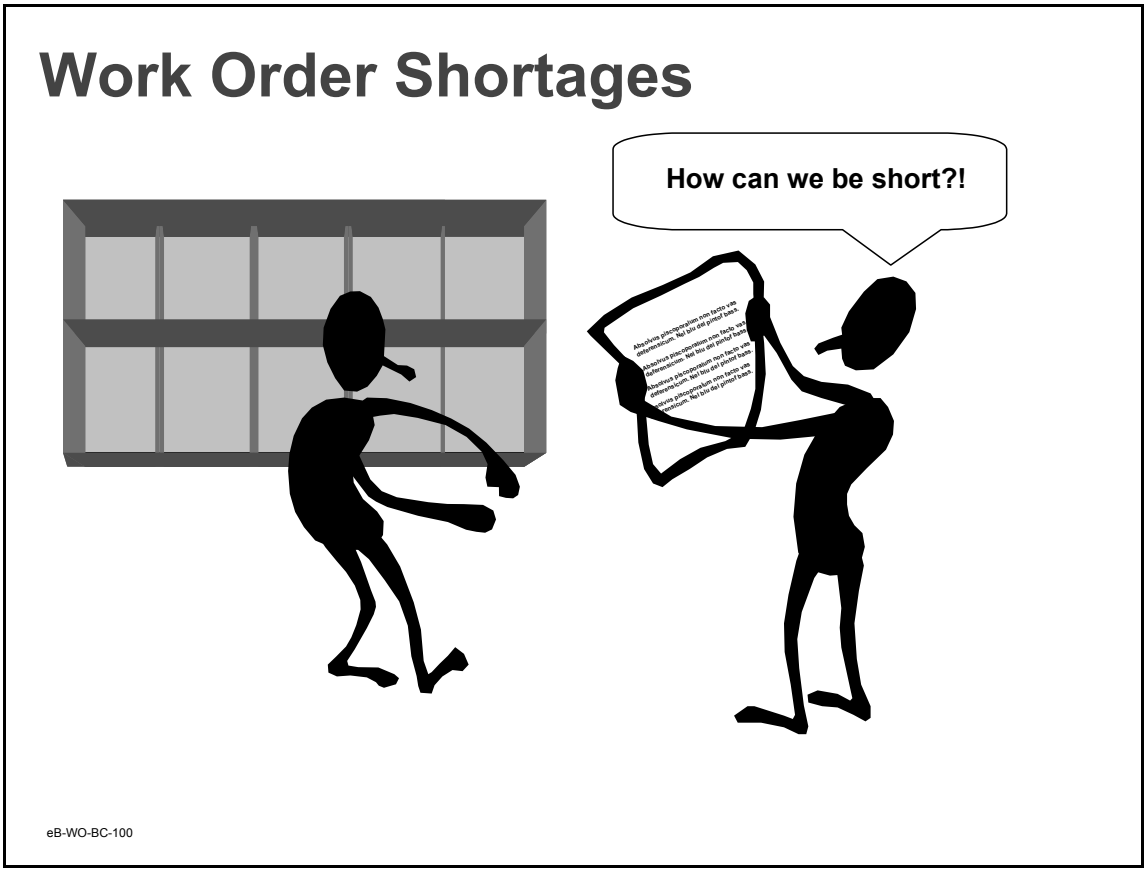

Work Order Shortages

Definition

- Shortages of work order components are one of the worst non-value-added problems, using up human resources and causing delays

Setup Implications

  - Set strict procedures to ensure accurate inventory counts

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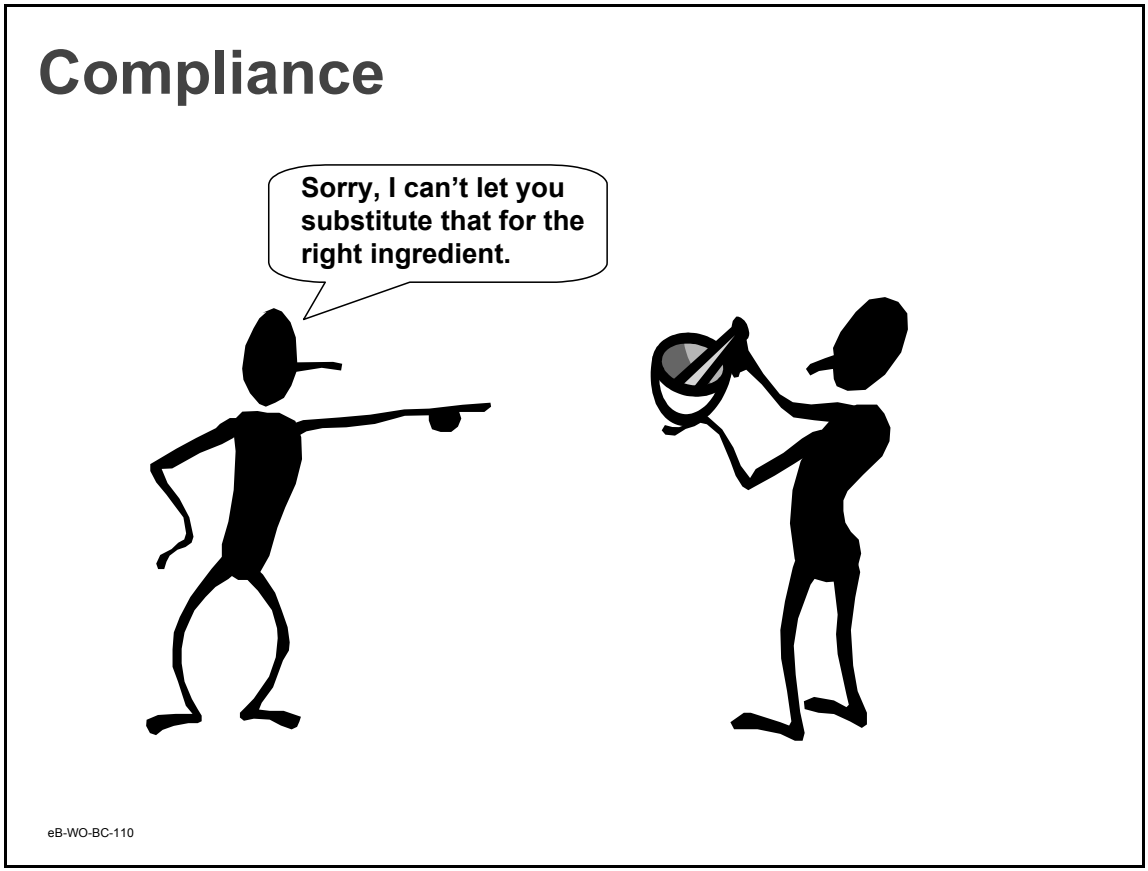

Compliance

Definition

- The compliance module controls lot and batch numbers and work order bill substitutions

What to Consider?

- This is important for highly regulated products and controlled substances

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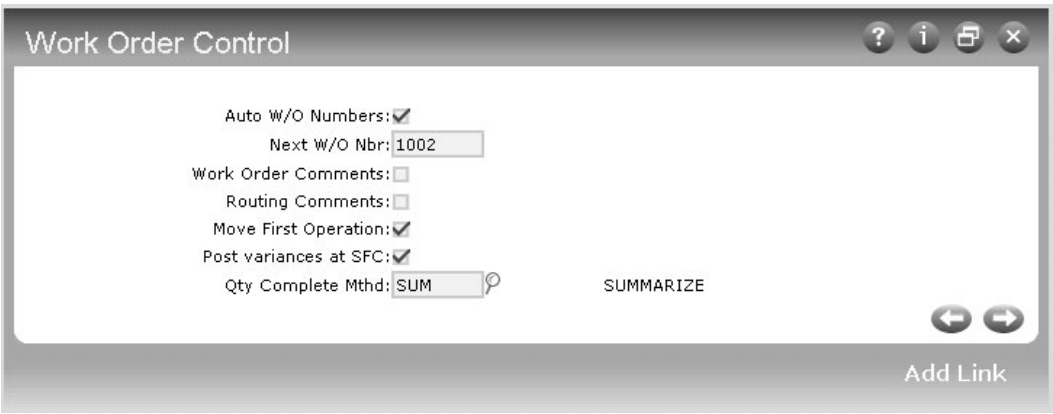
Work Order Control



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Work Order Control

Auto W/O Numbers

- No: You assign the numbers manually

  This field does not affect the work order ID number, which the system assigns if you don't.

Next W/O Number

- The next automatic work order number for system-assigned numbers
- It is not used for MRP planned orders

Work Order Comments

- Indicates whether comments are normally entered on manual work orders

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  - Information associated with the work order usually applies to the entire order and prints at the top of the work order document
- This sets the default that displays whenever you enter or modify an order
- Yes: The order comment flag defaults to Yes
  - The transaction comment screen appears for entry of printing or non-printing comments
- No: It defaults to No
  - If you normally do not use comments, set this flag to No to avoid being prompted each time with the comment entry screen

Routing Comments

- Indicates whether comments are normally entered on each routing operation
  - Information associated with an operation applies to just that operation and prints on the work order routing document
- This setting determines the default displayed whenever you enter or modify a work order routing operation
- Yes: The operation comment defaults to Yes
- The transaction comment screen displays for entry of comment text
- No: The default is No
- You can manually change the flag on individual work order routing operations

Move First Operation

- Indicates whether the work order release function should set the status of the first operation to Q for queue.
- Yes: At work order release the status of the first operation is set to Q
  - It then appears on the dispatch list for the specified work center, and the Q indicates that it is waiting to be started
  - This may not be appropriate if there is a lengthy picking effort and the work order may not be ready as soon as it is released
- No: The operation status is left blank
  - You can change it manually

Post Variances at SFC

- Indicates whether variances are only calculated and posted at the time of work order receipt
- Yes: Labor and burden variances are posted whenever shop floor labor feedback transactions are entered

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  - If you have short run times, set this flag to Yes
- No: Variances are suppressed and not calculated or posted until the work order is received
  - This reduces the number of variance transactions posted to the general ledger, particularly if there are many shop floor labor transactions processed before material receipts are recorded
  - If you have very long run times, set this flag to No, suppressing variance calculations until finished product is received

Note This value entered in Work Order Control displays as the default on all work orders. The exception to this is for routable work orders which do not default from the Work Order Control, but from the Parent Work Order.

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Review

- Processes and procedures
- Reporting requirements
- Customer expectations
- Product configuration

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Course Overview

- ✓ Introduction to Work Orders
- ✓ Business Considerations
- ✓ Set up the Work Order Control File
- ♦ Process Work Orders

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CHAPTER 3

Work Order Processing

Process Work Orders

In this section you learn how to:

- ✓ Identify some key business considerations before setting up Work Orders in MFG/PRO
- ✓ Set up Work Orders in MFG/PRO
- ✓ **Process Work Orders in MFG/PRO**

eB-WO-PR-010

Introduction

This section covers work order processing in MFG/PRO. It includes

- The various statuses through which work orders move
- The types of work orders
- The details of processing

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Work Order Processing: Introduction

Work Order Status

Work Order Types

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Work Order Status and Type

A work order's status denotes its current place in the processing cycle; its type denotes its use and, in some cases, its origin.

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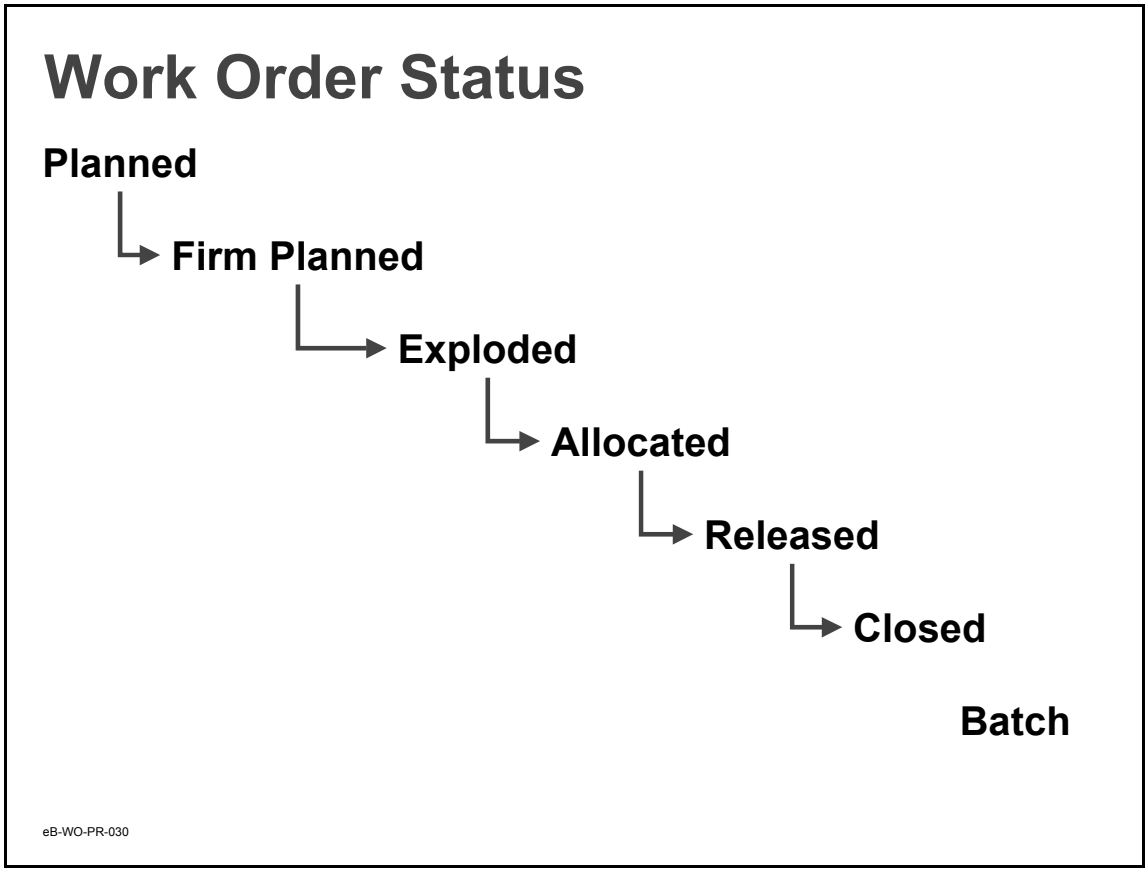

Work Order Status

The figure shows the statuses in sequence.

- The status of a work order determines how much control you have over its bill, routing, inventory allocations, inventory transactions, and labor feedback

Note Not all work orders take on all status conditions. Final assembly work orders, for example, have a default status of *exploded*.

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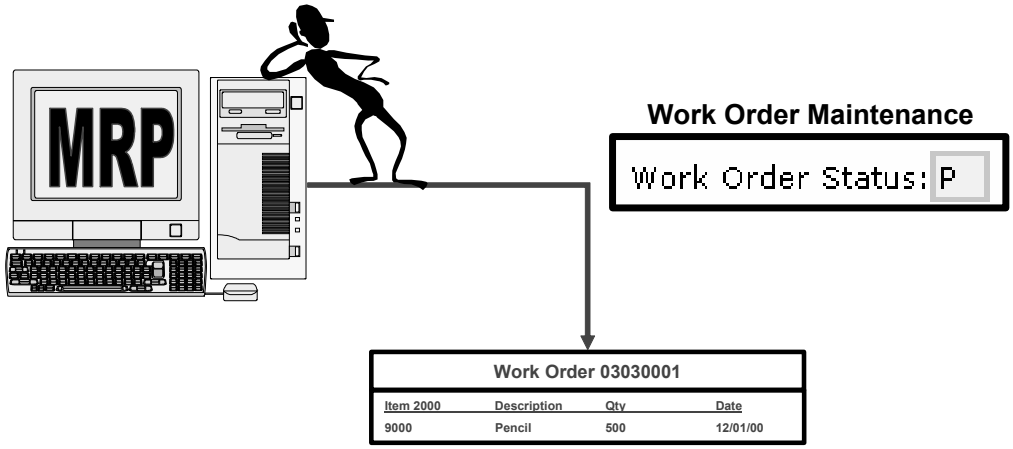
Work Order Status

Planned



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Planned

Planned work orders come from MRP.

- MRP can replan these orders
  - You cannot make any changes to orders with status Planned
- Work orders with statuses other than Planned have fixed quantities and due dates and are therefore not replanned by MRP

Approving a planned work order with Planned Work Order Approval changes its status to firm planned.

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Work Order Status

Firm Planned

Master Scheduler

Work Order Maintenance

Work Order Status: F

eB-WO-PR-050

Firm Planned

Approved orders take on this status firm planned.

- This is the default status for orders you create in Work Order Maintenance
- MRP does not replan these orders, but instead, generates action messages as needed
- You cannot record inventory transactions or labor feedback against firm planned orders
- There are bills and routings associated with these orders, but they are not frozen from any engineering changes that are performed to the bill of material or routing.
  - Bills are re-exploded by MRP, while routings are re-exploded by CRP

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Work Order Status

Exploded

Work Order Maintenance 16.1

Work Order Status: E

eB-WO-PR-060

Exploded

Exploding work orders recalculates the work order bills and freezes the bill and the routing

- The bill and routing can be changed only manually until the order is released
- You cannot record inventory transactions or labor feedback against work orders with this status

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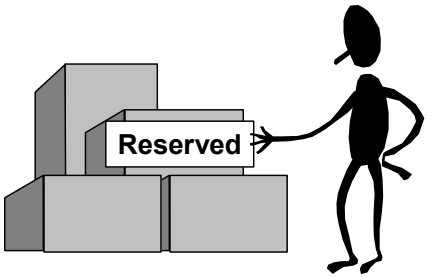
Work Order Status

Allocated



Work Order Maintenance

Work Order Status: A

eB-WO-PR-070

Allocated

Allocated orders are extensions of exploded orders and are used for inventory transactions.

- You cannot record labor feedback against orders with status Allocated
- Allocated orders differ from exploded orders in the following ways
  - General allocations are made for all of the required components
  - When the work order bill is created, MFG/PRO explodes through the requirements for phantoms if needed, using up quantities of phantom items already in inventory before creating requirements for their components
  - Work orders are automatically created for components with Pur/Mfg codes set to Routable in Item Planning Maintenance; these orders normally have a status of Batch

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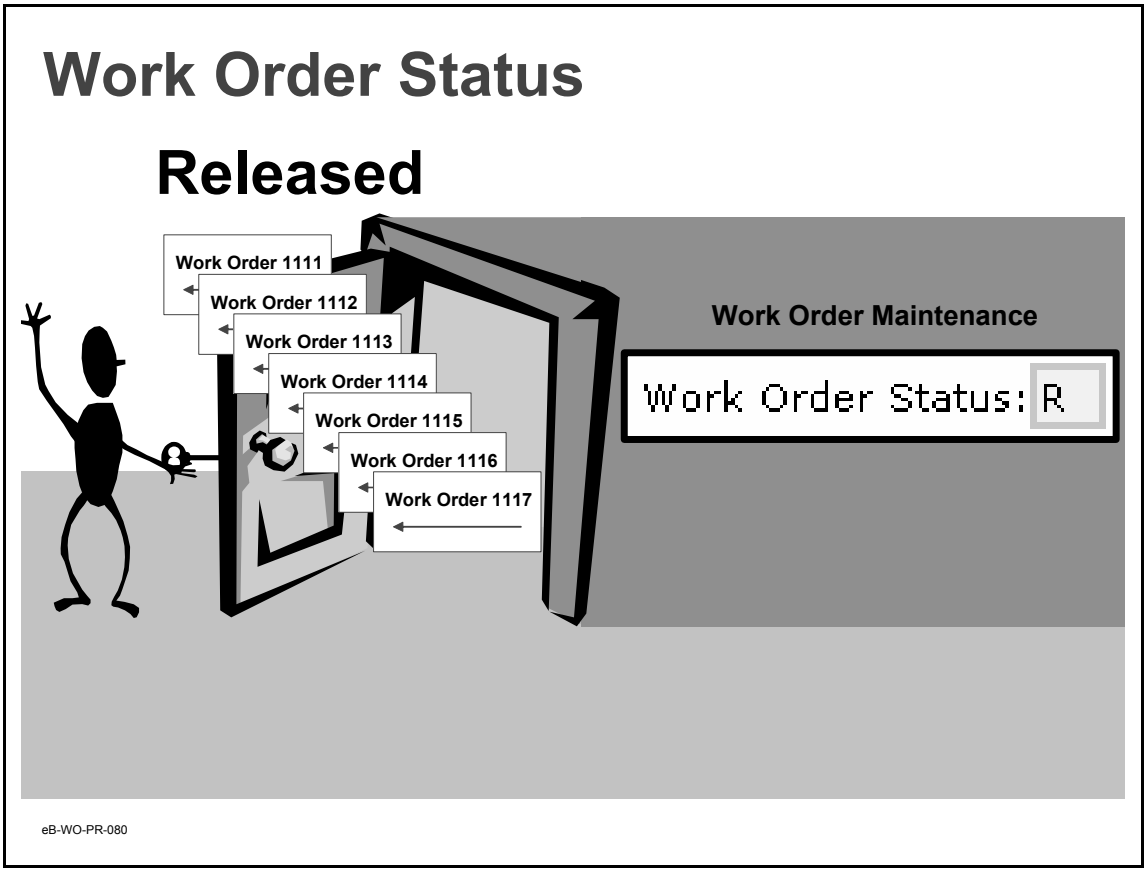

Released

Released orders are like allocated orders except that detail allocations are made for components and operations are scheduled.

- Picklists or routings can be printed when orders are released.
  - The picklist uses detail allocations to indicate the specific inventory detail records to pick for the order
- You can record inventory transactions or labor feedback against work orders with status Released

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Work Order Status

Closed

Work Order Maintenance

Work Order Status: C

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Closed

Work orders are typically closed when the items are received.

- For most purposes, this ends the life cycle
- You cannot process inventory transactions for closed orders
- Additional labor can be reported until either:
  - The operations are closed in Shop Floor Control
  - Work Order Accounting Close is executed
- This status is useful for reporting

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Work Order Status

Batch

Work Order Maintenance

Work Order Status: B

eB-WO-PR-100

Batch

Use the Batch status to speed up processing for large numbers of orders.

- Enter batch work orders manually as needed, or create them automatically for routable components when changing the order status to Allocated or Released
- Use Multiple WO Status Change to change order status at the appropriate time
- The system does not create and explode bills or routings for these orders until their status changes, so MRP does not recognize any component demand
- You cannot record inventory transactions or labor feedback against a batch order

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Work Order Status

Planned	**Planned and replanned by MRP**
Firm Planned	**Approved by a planner**
Exploded	**Bill and routing are fixed**
Allocated	**Inventory allocated for all components**
Released	**Detailed allocations; routing and bill are printable**
Closed	**Inventory transactions no longer allowed**
Batch	**Enter now, update files later**

eB-WO-PR-110

Conclusion

The diagram shows the various statuses and their meanings.

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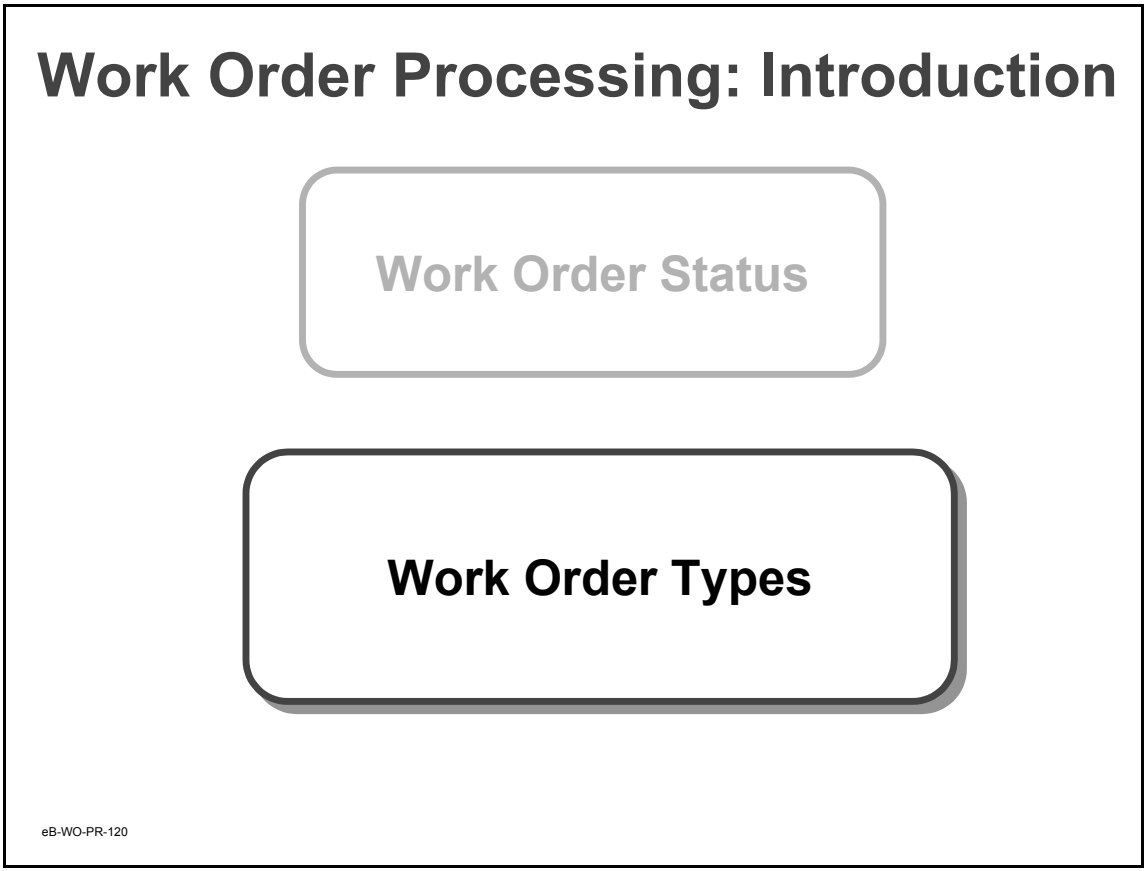

Work Order Types

We will look at all 6 types of work orders, even though some of them are covered in more detail in other training courses.

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Work Order Types

Standard

Final Assembly

Rework

Expense

Scheduled

Cumulative

eB-WO-PR-130

This is the sequence we follow in this course.

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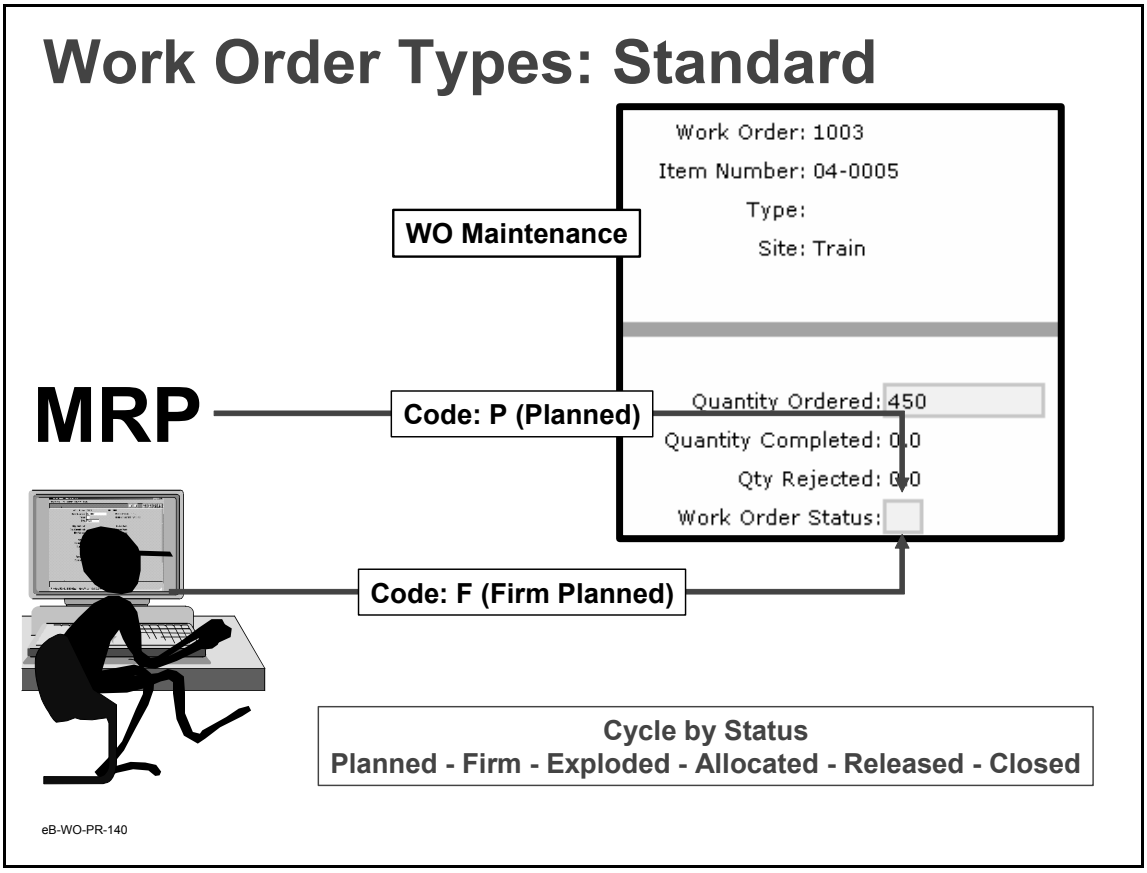

Standard

Standard work orders are used to produce items having predefined bills and routings.

- The default status is Firm if entered manually and Planned if generated by MRP

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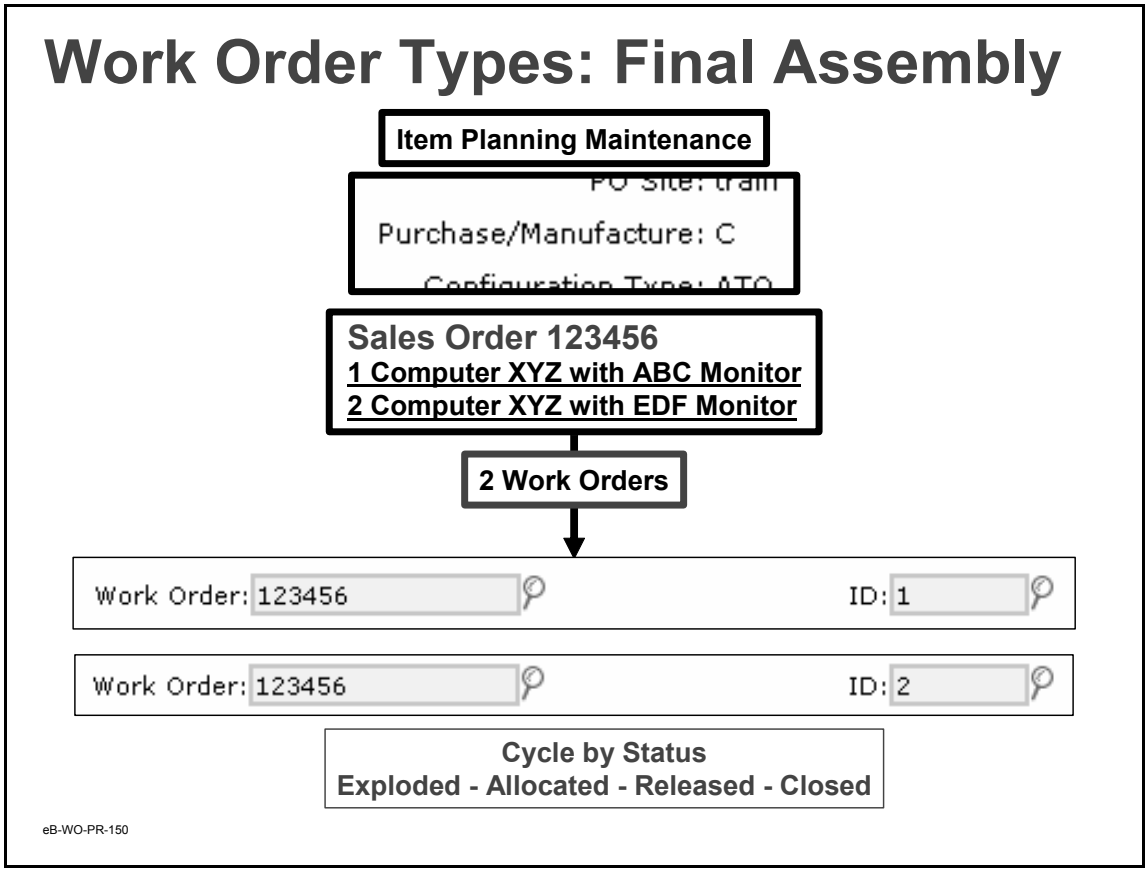

Final Assembly

Final assembly (FAS) orders are used to manufacture configured products.

- Configured products have a Pur/Mfg code of *C*
- FAS orders are generated when a sales order for a configured product is released to manufacturing using Sales Order Release to Work Order
- FAS orders use the standard item routing, but the BOMs contain only the items specified in the sales order configuration
- Release and process FAS orders the same as regular work orders

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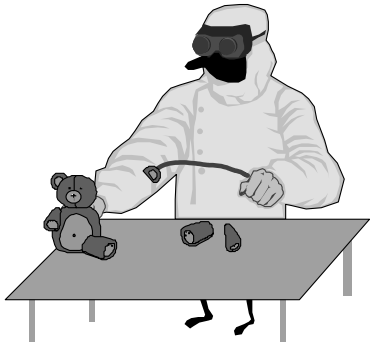
Work Order Types: Rework



WO Maintenance

Work Order: 1005
Item Number: 0110
Type: R
Site: train

Quantity Ordered: 10
Quantity Completed: 0.0
Qty Rejected: 0.0
Work Order Status: A

Cycle by Status
Allocated - Released - Closed

eB-WO-PR-160

Rework

Use rework orders to manage repair, reprocessing, or completion of non-conforming items.

- Rework orders have the parent item as the only component, and no routing
- In Work Order Maintenance, set the WIP account/cost center and project to an appropriate expense account for posting rework costs
- You can modify the bill and routing by adding components and operations before release
  - Use Work Order Component Issue or directly modify the bill using Work Order Bill Maintenance to add items
- If rework activity is a common procedure, consider establishing a rework routing in Routing Maintenance and attaching it in Work Order Maintenance, or create one in Work Order Routing Maintenance

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- If you are using the Service/Support Management module to receive items from customers and rework them, you can establish default service routings in Service Item Maintenance

Note The cost of rework components and labor is posted to variance accounts.

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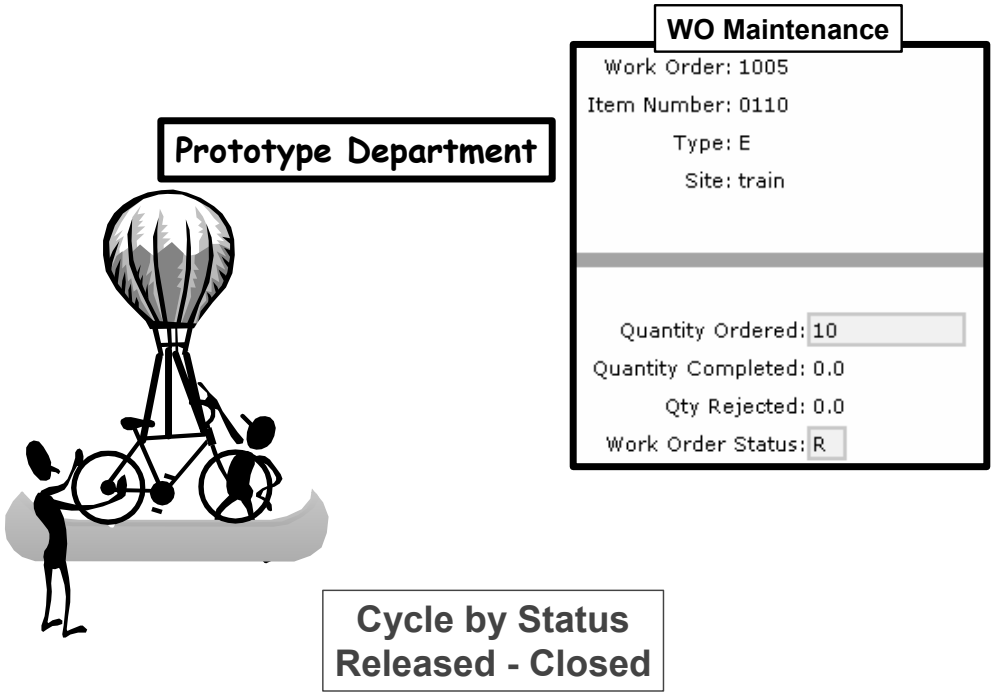
Work Order Types: Expense



eB-WO-PR-170

Expense

Use expense work orders for non-inventory jobs, such as engineering prototypes, repairing fixed assets, or design projects.

Note You should define a separate site, item code, and product line for expense orders to keep their planning and manufacturing separate from regular manufacturing.

- To separate cost accounting, specify an expense account rather than the default WIP account. Or use the Project field to track expenses in the GL.
- Expense work orders have no bill or routing, but you can attach these manually as needed
- If you process expense work orders frequently, streamline the process by:

  a Creating a product line with account numbers for this type of work

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b Creating an item of type E to use for expense orders

- Define a blank order quantity to prevent planning functions from treating it like a normal item

c Creating a status code that restricts all inventory transactions and assign it to the item

Note The cost of expense components and labor is posted to variance accounts.

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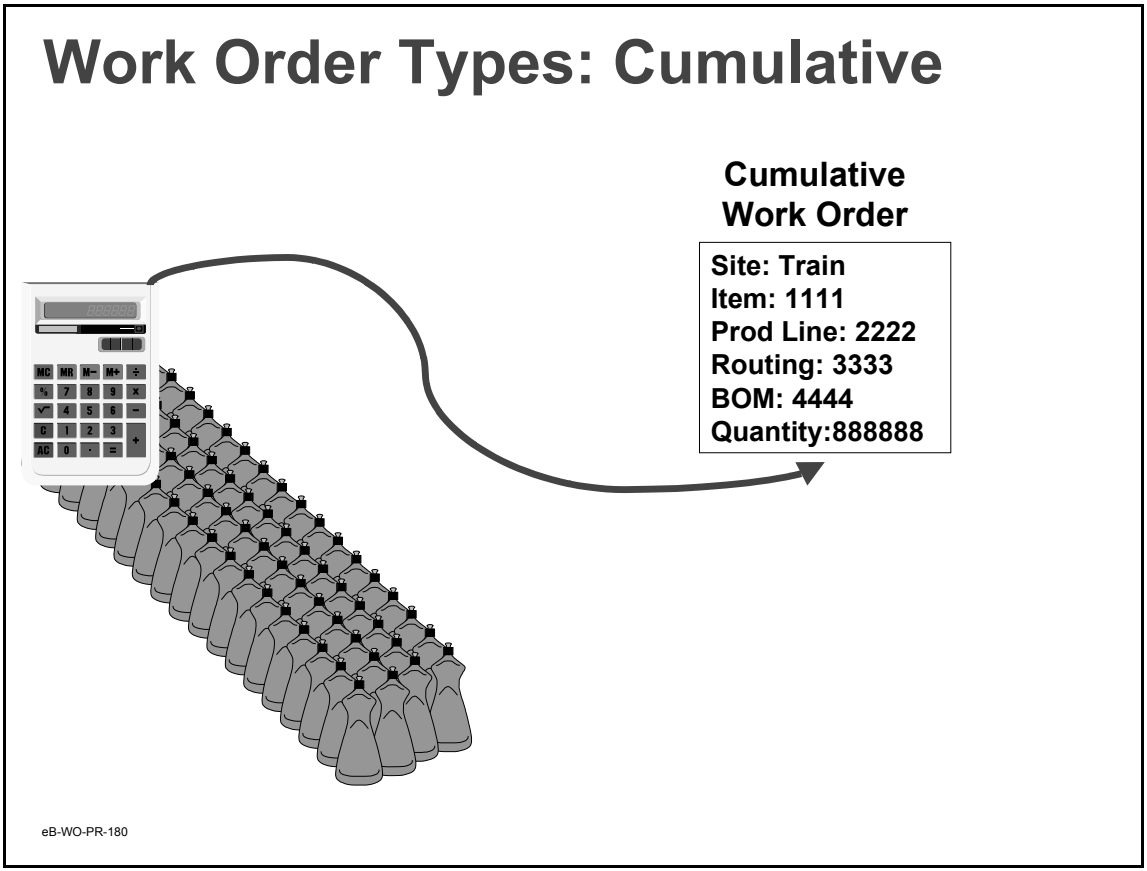

Cumulative

Cumulative orders are generated by the system to track repetitive production costs. They cannot be processed using work order functions.

- The system keeps a running total for each combination of items, sites, production lines, product structures, and routings using a cumulative order
- The cumulative order tracks costs and quantities for work-in-process (WIP) for repetitive production
- A cumulative order is created for a profile that defines the site, item number, production line, routing code, BOM/formula code for the order, and start and end effective dates

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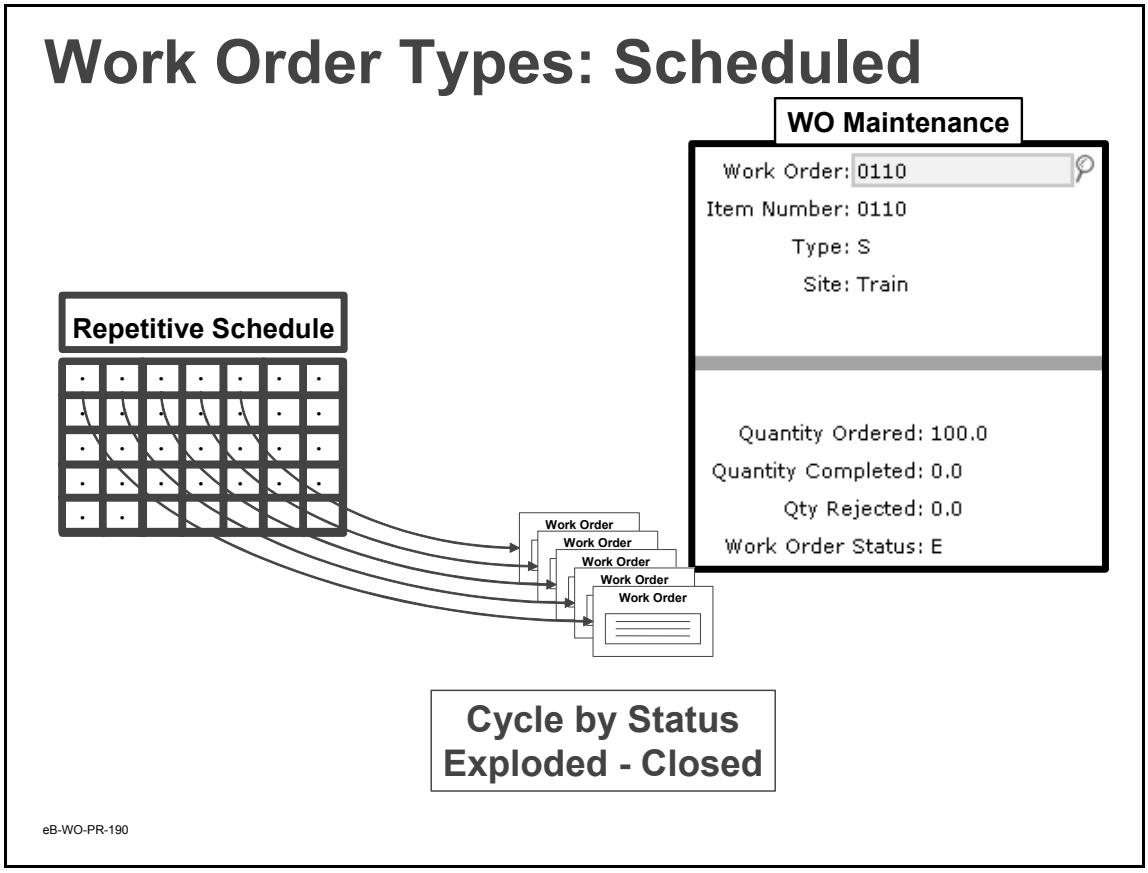

Scheduled

Scheduled work orders are generated by the system when repetitive schedules are entered.

- A scheduled work order cannot be processed as a standard work order unless you change its status to Allocated or Released
  - Changing a scheduled order to a regular order automatically updates the repetitive schedule to exclude it; however, the work order type remains Scheduled

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Work Order Types

Standard	**Produce items with predefined product structures and routings**
Final Assembly	**Produce configured products**
Rework	**Manage the repair, reprocessing, or completion of nonconforming items**
Expense	**Perform special jobs, such as non-inventory items**
Scheduled	**Created from a repetitive schedule explosion**
Cumulative	**Used by system to track repetitive production costs**

eB-WO-PR-200

Conclusion

The diagram shows all work order types.

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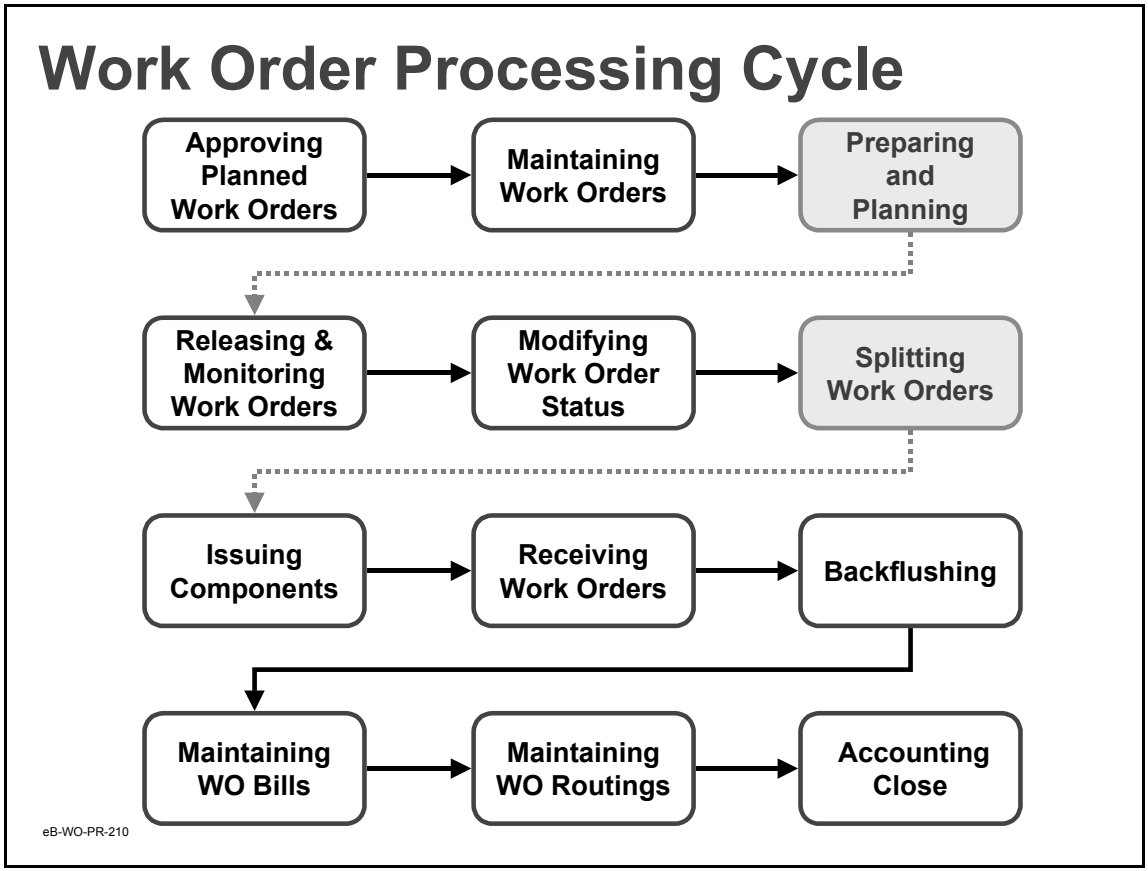

Work Order Processing Cycle

This lesson follows the sequence of processing steps shown here. This is not the only possible sequence.

- You can, for example, maintain work order bills and routings before issuing any components or receipts

Reading the illustration:

Boxes with solid lines are required to process work orders and are covered in this course.

Shaded boxes reflect optional steps, but are covered in this course.

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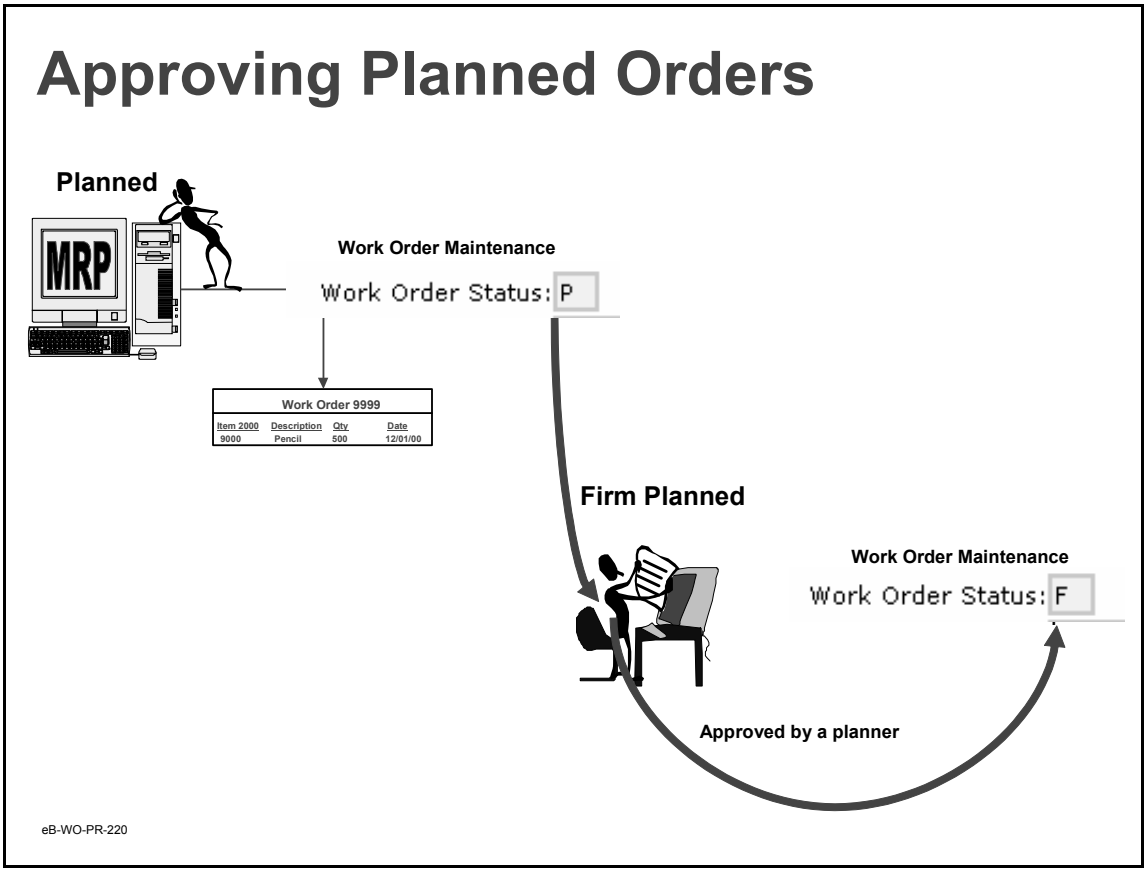

Approving Planned Orders

Approving planned orders changes the status from P to F. This means that MRP can no longer replan the orders, although it does generate action messages relative to them.

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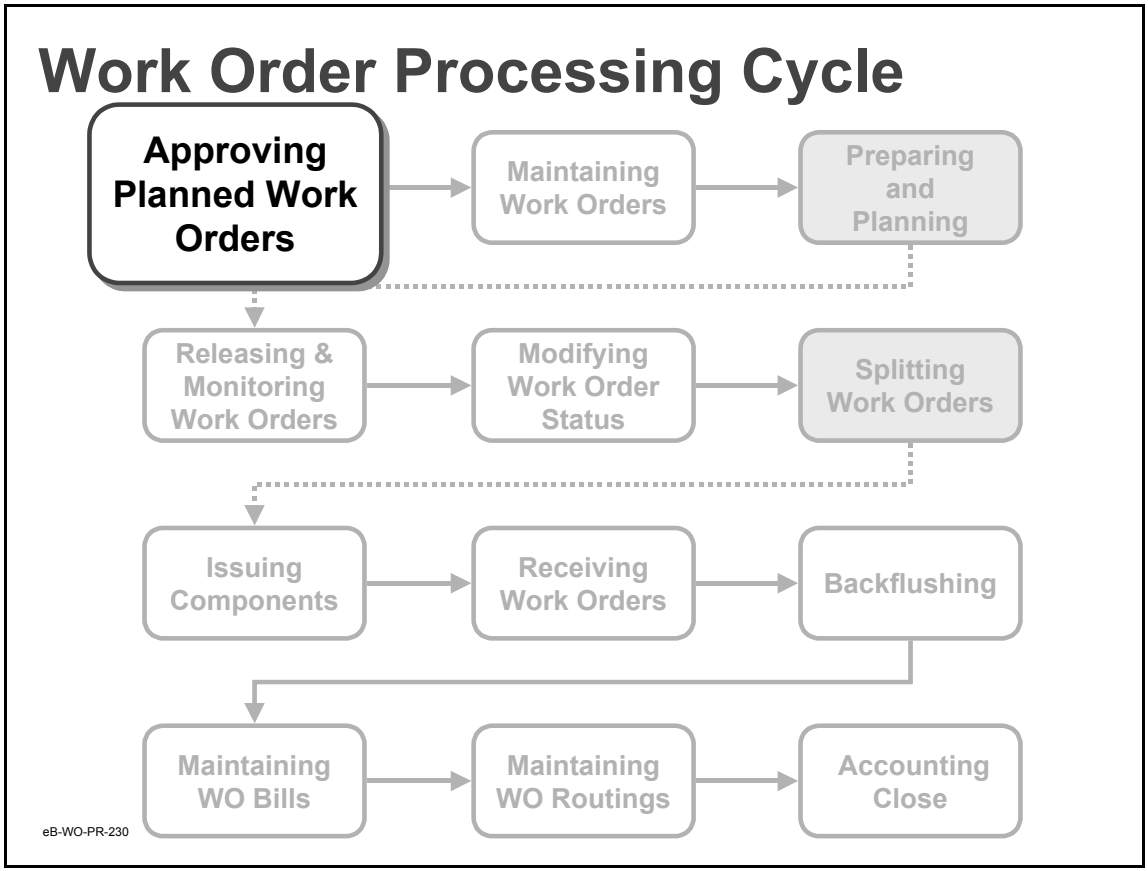

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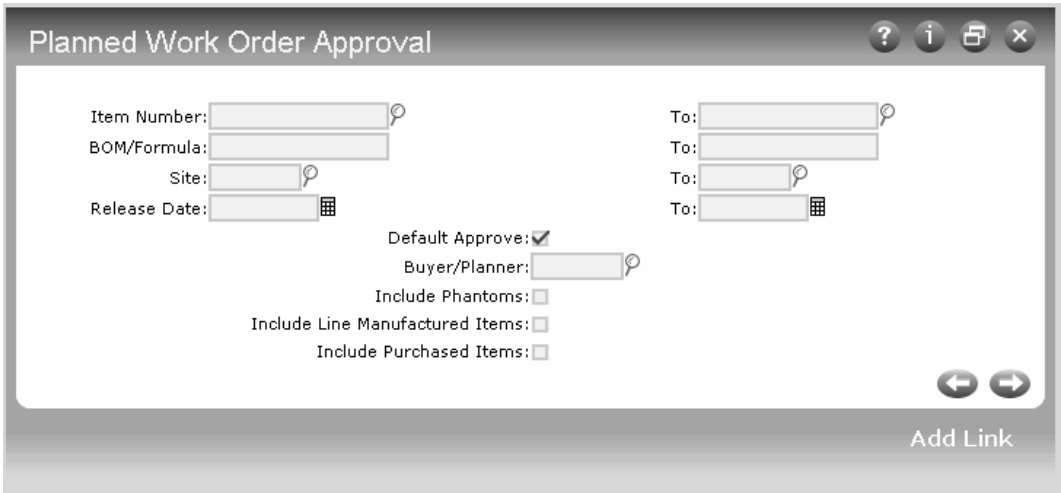
Planned Work Order Approval: Screen 1 of 2



eB-WO-PR-240

Planned Work Order Approval

Planned Work Order Approval approves the MRP plan, generating a firm planned work order for the amount of each planned order.

Note To create a routing for the firm planned order, run CRP or Multiple WO Status Change.

- MRP can't change firm planned / approved orders; it generates action messages instead
- If an order is approved by mistake, delete it and MRP will be recreate it at the next run time
- If you don't plan to act on a planned order you should delete it, particularly if MRP won't be run soon
  - MFG/PRO assumes you will take action on planned orders—they are included on Master Schedule reports as Scheduled Receipts and Scheduled Receipts are included in Available to Promise

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- This function should be password controlled

Item Number / BOM/Formula / Site / Release Date

- Select the work orders by the listed criteria

Default Approve

- Indicates whether all planned orders are to be flagged as approved
- *Yes* flags all of the selected planned orders as approved
  - Normally these are planned orders for manufactured items, those with a Pur/Mfg code of blank or *M*, however orders for purchased items may also be included
- *No* indicates that planned orders are to be manually approved
  - The approved flag defaults to *No* on each planned order and is changed to *Yes* manually

Note If most of the planned orders are to be approved, it is faster to set Default Approve to *Yes* and then manually change the approved flag to *No* on the few orders that you don't want to approve.

Buyer/Planner

- An optional code identifying the person responsible for planning and ordering this item
  - Defaults from Item Planning Maintenance
  - Validated against predefined values entered in Generalized Codes Maintenance, if any
- Several reports and inquiries can be selected by buyer code, in particular Action Messages and Past Due Receipts
- Selective MRP/DRP and planned order approvals can be run by buyer/planner

Note The value entered in Item Master Maintenance is used as the default for all sites. It may be changed manually for any site.

Include Phantoms

- Specifies whether to approve orders for phantom items
- Since phantom items are not normally manufactured or stocked, this flag is normally left at *No*

Include Purchased Items

- Indicates whether planned orders for purchased items are to be included
  - If this flag is set to *Yes*, then planned orders for purchased items (Pur/Mfg code = *P*) are displayed and may be approved as work orders
- This is useful when you have items that you usually purchase from outside suppliers, but also have the ability to manufacture in-house

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- When a planned order is created for the item, you have the choice of approving a purchase or work order

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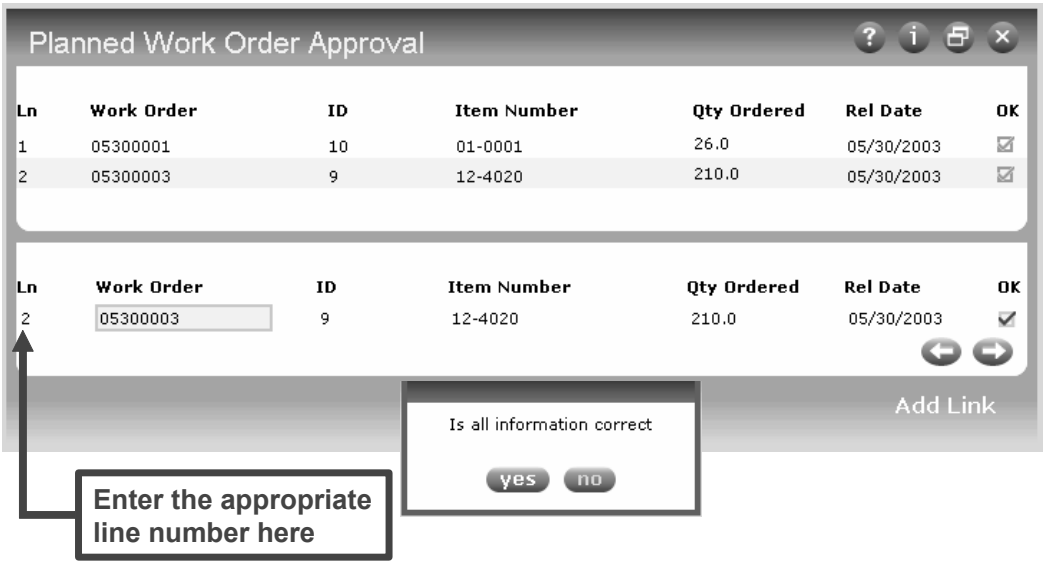
Planned Work Order Approval: Screen 2 of 2



eB-WO-PR-250

The screen displays the relevant work orders in the top half. In the bottom, you select orders by line number for processing.

Ln

- Enter the line number of the work order, shown in the top half of the screen

Work Order

- The number assigned by MRP
  - You can change this number, to match it up to the sales order, for example

ID / Item Number / Qty Ordered / Release

- Display-only fields

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OK

- *Yes* to release the order
- *No* to prevent its release

Is all information correct?

- *Yes*: Process
- *No*: Correct the data
- *Cancel*: Cancel the function

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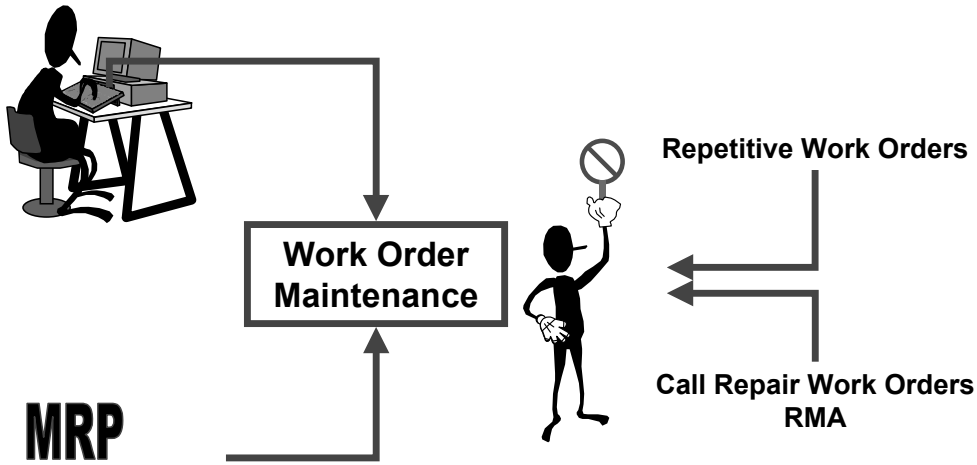
Maintaining Work Orders



eB-WO-PR-260

Maintaining Work Orders

We now take a look at Work Order Maintenance. You use it to create and maintain work orders. There are two exceptions

- Work orders created by entering repetitive schedules are managed in the Repetitive module
- Work orders created to manage call repairs are managed with Call Activity Recording in the Service/Support Management module

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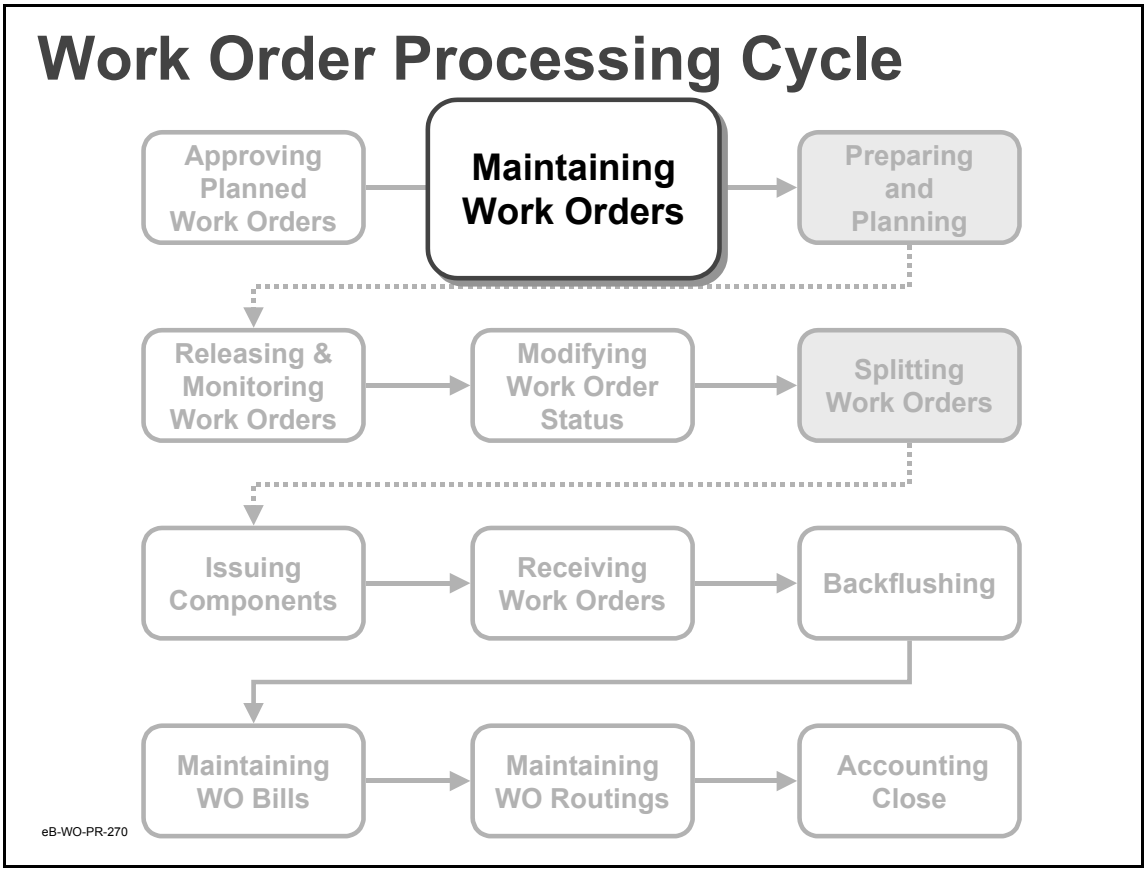

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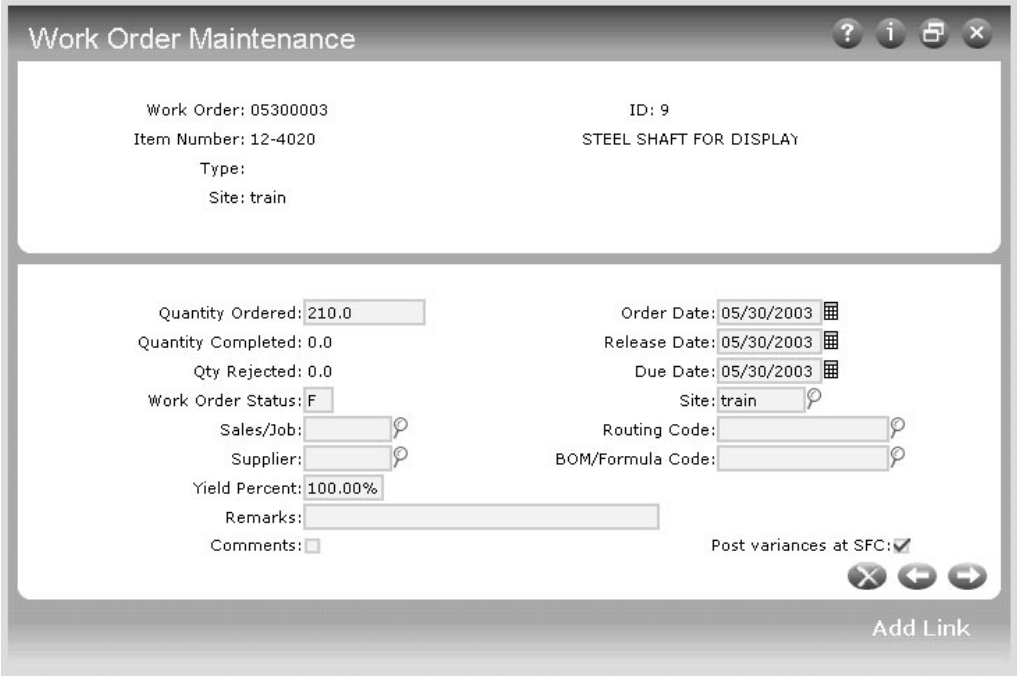
Work Order Maintenance: Screen 1 of 3



eB-WO-PR-280

Work Order Maintenance

Use this function to create and to maintain work orders.

Work Order / ID

- Enter the number and ID of the work order
  - For new work orders you can let the system assign numbers by leaving these fields blank
  - Some people enter the lot number in *ID*

Item Number

- The item to be manufactured

Type

- The work order type code:

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  - *blank* for Standard, *E for Expense, R for Rework*, *S for Scheduled*, *C for Cumulative*, *F for Final*

Site

- The site where the item is to be manufactured

Qty Ordered

- The quantity to be produced on this work order, expressed in the item unit of measure
- If the expected yield is less than 100%, this quantity may be greater than the quantity of usable product you actually expect to receive complete
  - MRP automatically adjusts planned order quantity to reflect expected yield losses
- Order quantity is used in calculating run time

Qty Completed / Qty Reject

- Display-only fields

Order Date

- Identifies the date this work order was entered
  - The default is the system date
- Work order reports may be selected for ranges of order dates

Release Date

- The date this work order is scheduled to be released to production
  - The default is the system date
- Your initial entry here automatically changes to the actual release date when you release and print the work order
- Most reports and inquiries can be selected for ranges of release dates
- Orders not released by this date are flagged on the MRP reports
- Release date determines the date components are required
  - Normally components are picked when an order is released, so the component need date defaults to the work order release date
  - Some components may be needed before or after production begins, as defined on the product structure in the lead time offset field
  - If lead time offset is positive, it is added to the release date
  - If it is negative, it is subtracted
  - MRP uses component need dates and prints them on the picklist

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- The system calculates either release or due date, creating in effect, forward or backward order scheduling
  - Enter *?* to have the system calculate the date using operation times from the item routing
  - Enter a Release Date and a question mark in the Due Date to have MFG/PRO calculate the Due Date by starting at the beginning of the Release Date and forward schedule starting with the queue time for the first operation
  - Enter a Due Date and enter a question mark in the Release Date to have MFG/PRO start at the end of the Due Date and backward schedule starting with the last move time for the last operation
  - Leave both dates blank to set the Release Date to today and establish forward scheduling

Note You may get different release and due dates using forward versus backward scheduling. This is because some lead time components are scheduled in shop days and some in calendar days. A shop day lead time component may be in effect over a weekend in one direction, whereas in the opposite direction, a calendar day component may be in effect.

Due Date

- The date this work order is due to be completed
  - Defaults to today's date plus the manufacturing lead time for the item
- Enter *?* here and a date in Release Date to have MFG/PRO calculate the Due Date by starting at the beginning of the Release Date and forward schedule starting with the queue time for the first operation
- This is the date you plan to have product available for shipment to a customer or to issue to another manufacturing order
- All MRP plans are based on this due date and most reports and inquiries can be selected for ranges of due dates

Status

- The current status of the work order
  - P for Planned by MRP (not set manually)
  - F for Firm Planned, approved orders
  - B for Firm planned orders entered in batch
  - E for Exploded
  - A for Allocated
  - R for Released

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Note You can release orders in Work Order Maintenance by changing their status to *R*. This method does not let you print a picklist or routing, but it still explodes phantom components and creates work orders for routable components.

  - C for Closed

Sales/Job

- An optional code associating this manufacturing order with a specific sales/job
- Most reports and inquiries can be selected by sales/job number
- Sales/job numbers can be referenced on purchase orders, work orders, and intersite requisitions, allowing you to review the progress of all activities associated with a particular sales order, contract, or job number
- Sales/job numbers are not validated

Supplier

- The supplier associated with this work order, if any
- When a work order is entirely subcontracted, the supplier can be recorded on the work order and on the work order routing operation
- This field is for reference only and may appear on some selected reports and inquiries

Yield

- The percentage of this work order expected to be in usable condition
- The order quantity is the number of units of the item you plan to produce
  - If the expected yield is less than 100%, the order quantity may be greater than the quantity of usable product you actually expect to receive complete
  - MRP automatically adjusts planned order quantity to reflect expected yield losses
- Line items on MRP reports contain *Scrap Requirement* and reference the work order number and lot ID

Note Since the order quantity has effects in so many areas, select an order size that will meet the production, marketing, and customer service goals of the company.

Site

- Identifies the facility at which this work order is being processed

Routing Code

- Identifies the routing for this work order
  - It may identify an alternate routing

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- Leave blank to use the routing stored with a code equal to the item number on the work order
- The routing code entered on the work order accesses the operation steps for the work order routing
  - These operations influence scheduling and variance calculations

BOM/Formula

- Identifies the bill of material (product structure) or formula for this work order
- Leave blank to use the product structure stored with a code equal to the item number on the work order

Remarks

- General remarks pertaining to this work order
  - This field is for reference only and may appear on some selected reports and inquiries

Comments

- Indicates whether to enter comments for this work order
- *Yes to display* another screen for entry or review of comments
  - The text can be entered manually or copied from existing master comments
- Work order comments print on the work order

Post Variances at SFC

- Indicates whether variances are recalculated and posted only at the time of work order receipt
- *Yes*: Labor and burden variances are posted whenever shop floor labor feedback transactions are entered
- *No*: Variances are suppressed and not calculated or posted until the work order is received
  - This reduces the number of variance transactions posted to the general ledger, particularly if there are many shop floor labor transactions processed before material receipts are recorded
- The value entered in the Work Order Control displays as the default on all work orders and may be changed manually on each

Note If you have very long run times, set this flag to *No*, suppressing variance calculations until finished product is received. If you have short run times, set this flag to *Yes*.

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Work Order Maintenance: Screen 2 of 3

eB-WO-PR-290

Work Order Attributes

This screen solicits various attributes of the work order. These attributes relate mainly to the Compliance module, which enables you to manage compliance with government regulations such as the FDA Current Good Manufacturing Practices, and with international agreements such as NAFTA and GATT.

With compliance active, these fields accept input as required. We look at them briefly here.

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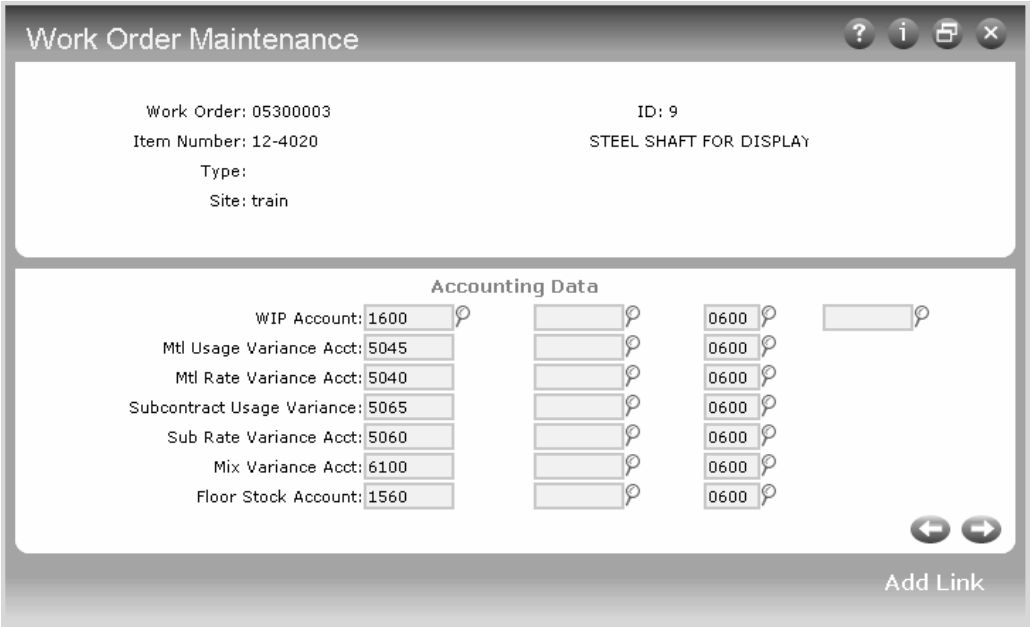
Work Order Maintenance: Screen 3 of 3



eB-WO-PR-300

Accounting Data

This screen accepts input of the General Ledger accounts and sub-accounts for the work order.

WIP Account / Mtl Variance Account / Mtl Rate Variance Account / Sub Usage Variance Account / Sub Rate Variance Account / Mix Variance Account / Floor Stock Account

- Enter the accounts as needed
  - Defaults appear and can be overridden

Project

- An optional code identifying the project this work order relates to
  - Project codes identify specific activities towards which expenses are tracked

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  - For example, a project code may be used to represent engineering design work, production rework, or a new construction project
- The project code entered on the work order is used for all GL transactions created by material issues and receipts for this work order and also appears as the default during labor feedback transactions
  - This allows you to track the cost of the work order by project, and is useful on special orders, rework, and expense type orders
- Project details appear on several GL summary and detail reports

Note Inventory value (but not physical inventory) may be tracked by project codes.

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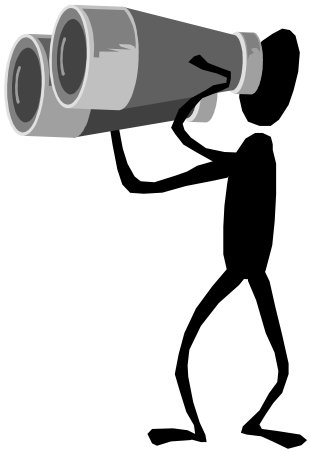
Preparing and Planning



eB-WO-PR-310

Preparing and Planning

Here we look at some functions to help you anticipate shortages before work order release and to monitor them afterwards.

- These shortages normally result from inaccurate inventory counts being entered into the system

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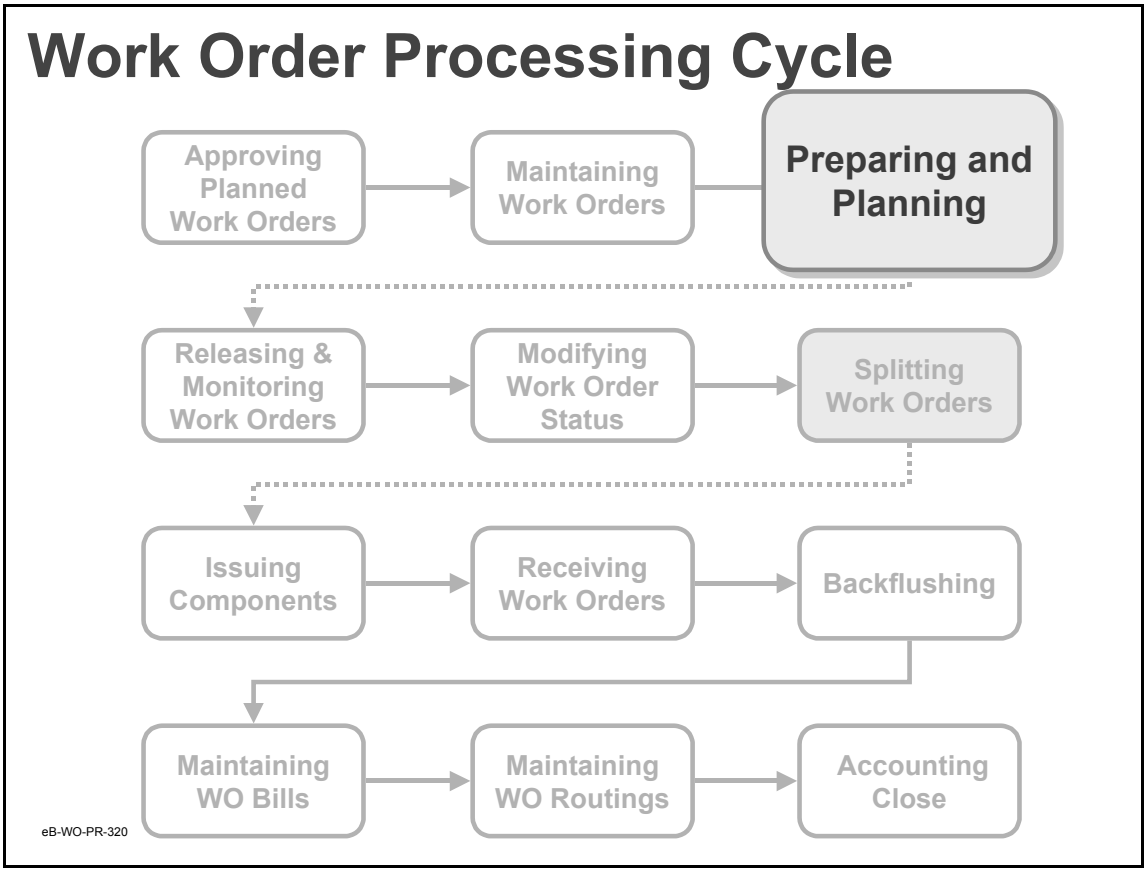

You can check for shortages before releasing work orders with Work Order Component Check. Work orders cannot be released if there is a shortage of an item flagged as critical.

You can review shortages after release with Work Order Bill Shortage Inquiry.

You can look ahead at production and work center loads with Work Order Dispatch Report.

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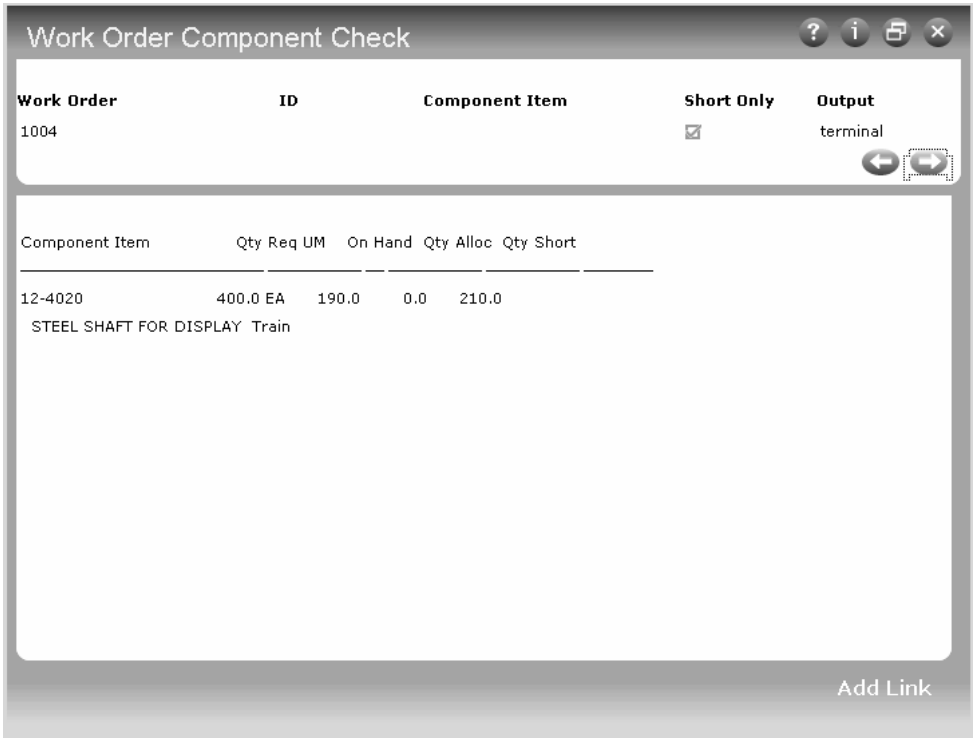
Work Order Component Check



eB-WO-PR-330

Work Order Component Check

To check availability of non-key items, use Work Order Component Check.

Work Order / ID / Component Item

- Enter the relevant data or leave blank to view all orders and components

Short Only

- *Yes*: List only component items which do not have enough quantity on hand
  - The shortage amount is the quantity on hand less the quantity required
- *No*: List all components

Note Use Simulated Picklist Item Check as an alternative.

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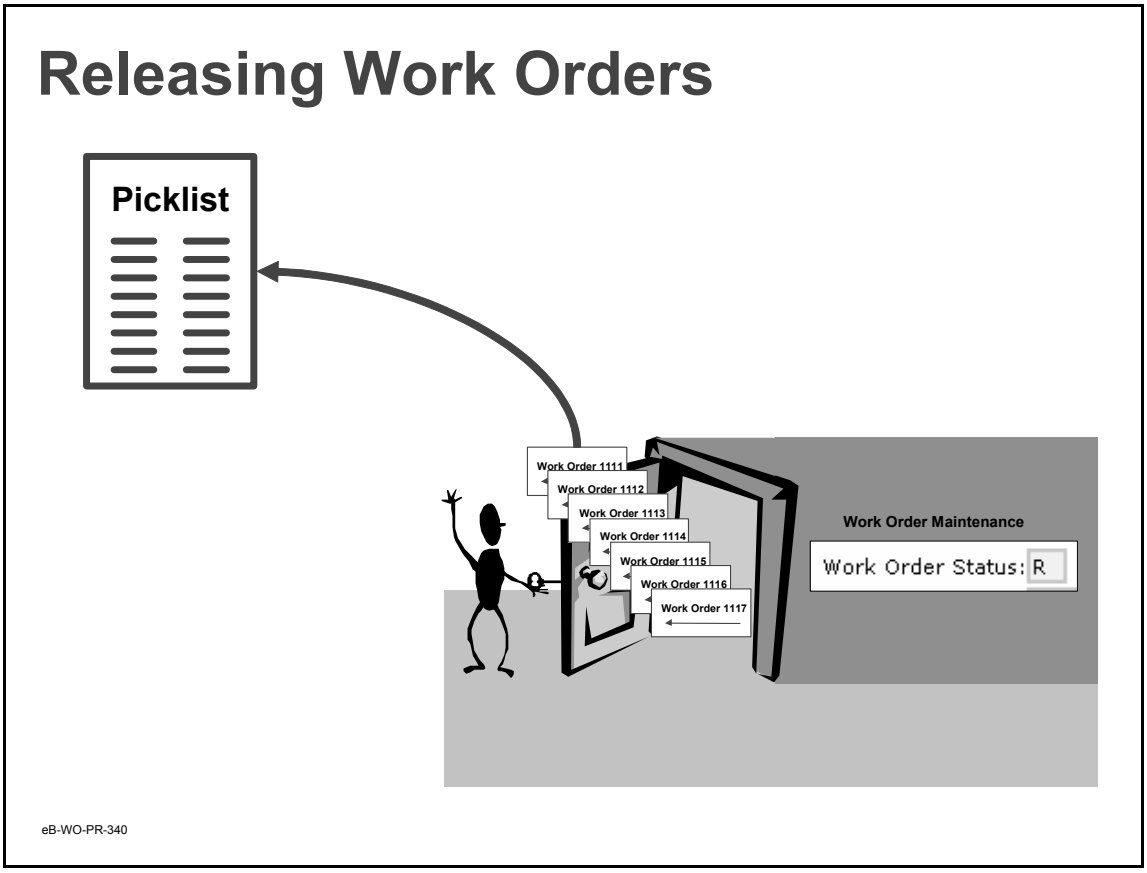

Releasing and Monitoring Work Orders

Releasing an order moves it into production. A released order is like an allocated order except that detail allocations are made for its components and its operations are scheduled. Depending on which program is used, a picklist or routing can be printed when an order is released. The picklist uses detail allocations to indicate the specific inventory detail records to pick for the order.

You can record inventory transactions or labor feedback against work orders with status *Released*.

You can monitor released work orders with an inquiry and a report.

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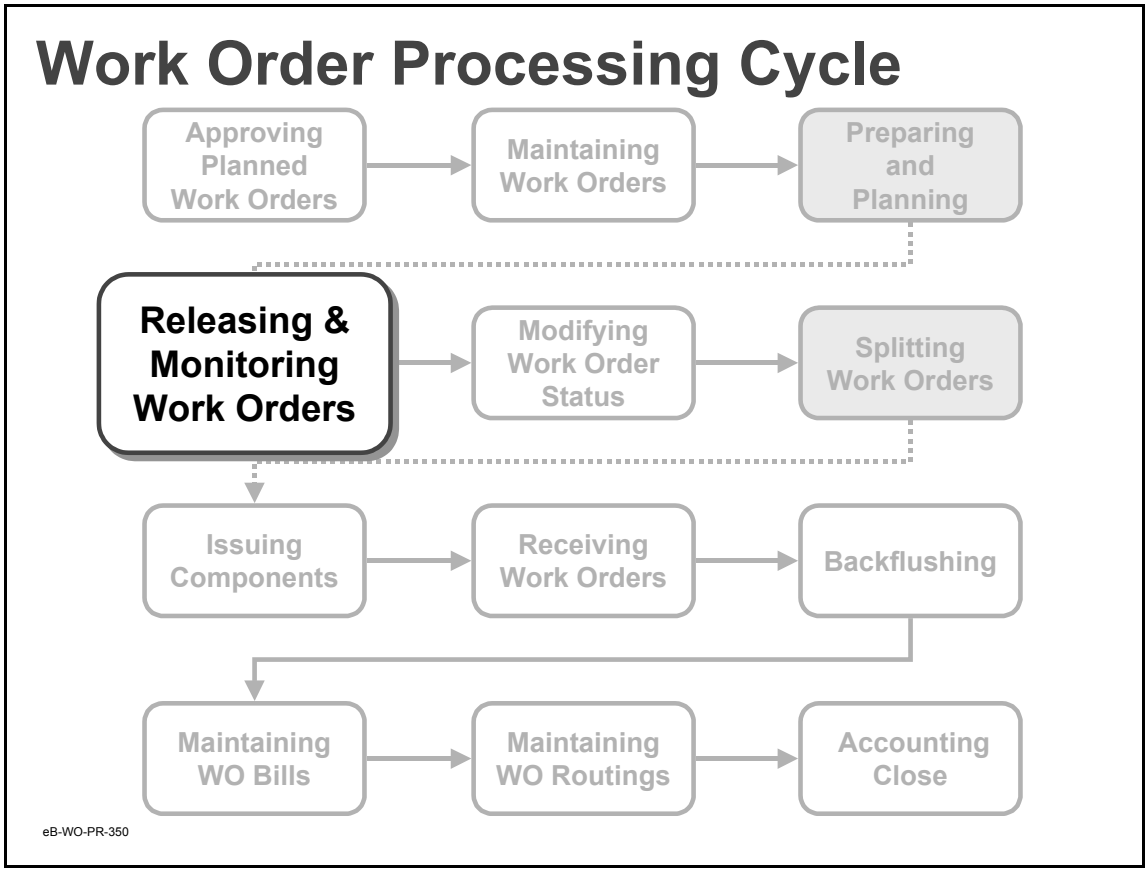

When a work order is released, the system automatically detail allocates all of the required components. It uses the picking logic defined in the Inventory Control to decide which locations, lot/serial numbers and lot reference numbers to allocate.

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Releasing Work Orders

Releasing Single Work Orders

Releasing Multiple Work Orders

eB-WO-PR-360

You can release work orders individually or in groups. Both functions print picklists of required component items and route sheets listing operations.

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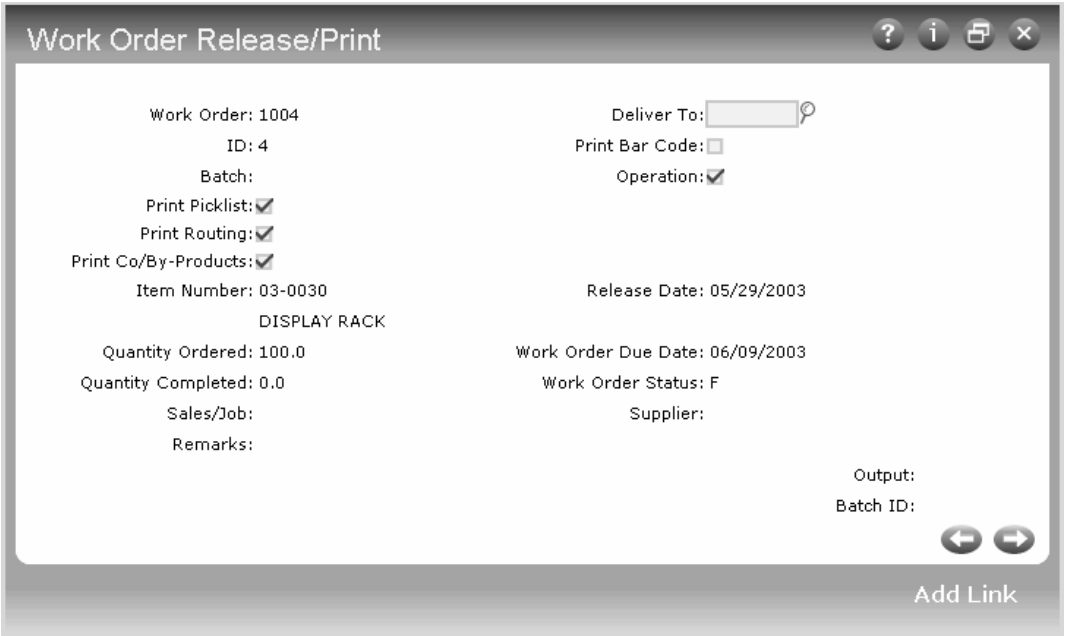
Work Order Release/Print: Screen 1 of 2



eB-WO-PR-370

Work Order Release/Print

Use this program to release individual work orders.

Work Order / ID

- Enter the number and ID

Print Picklist

- *Yes*: Print the picklist
- *No*: Do not print the picklist

Print Routing

- *Yes*: Print the routing

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Print Co/By-Products

- *Yes*: Print the Co-Product/By-Product work order listing
- *No*: Do not print the Co-Product/By-Product work listing

Deliver To

- An optional code identifying the person or place where this work order is to be delivered
  - This appears at the top of the picklist and the routing

Print Bar Code

- Assuming your printer is set up to print bar codes, this field specifies whether to print bar codes
- *Yes: Print* work order ID and the operation number are printed in bar code format in the routing section of the picklist, with the alphabetic code beside it
- *No*: Print only the alphabetic code

Operation

- *Yes*: Upon release, the work order's first operation is automatically set to *Q*ueue, indicating it is waiting to be started
- *No*: The operation status is left blank
  - You can then change it manually

Note Typically, you set this to *Yes*, but sometimes this may not be appropriate. If there is a lengthy picking effort required, the work order may not be ready as soon as it is released. In that case, set this flag to *No*, then use Operation Move Transaction to change the status to *Q*ueue.

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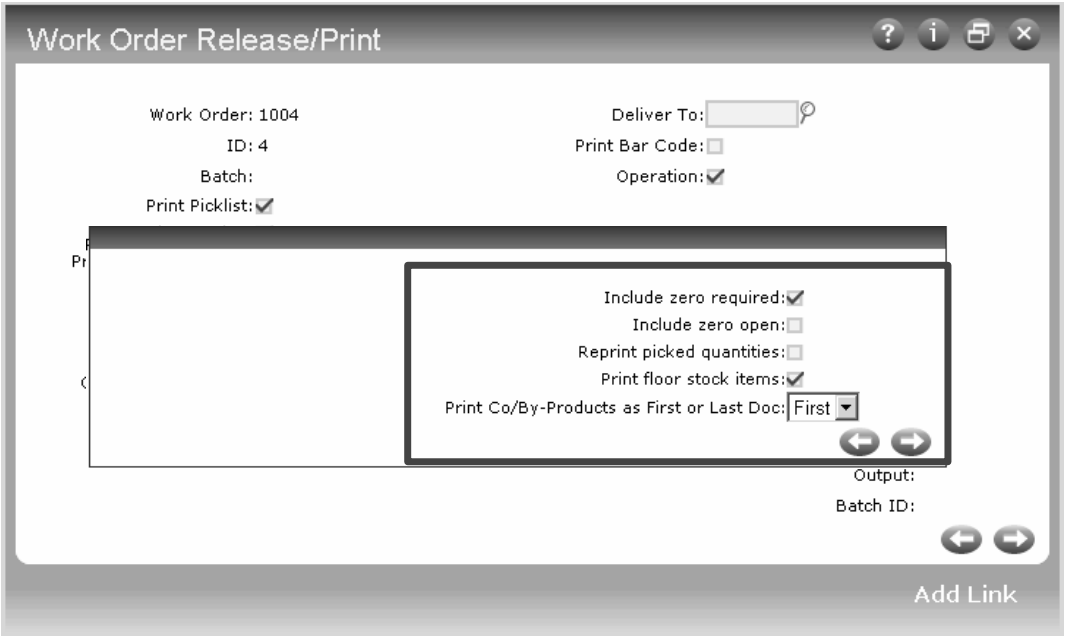
Work Order Release/Print: Screen 2 of 2



eB-WO-PR-380

These fields relate to the items to print on the picklist.

Include zero required

- *No*: Print only items with non-zero quantity required
- *Yes*: Print all components, including those with zero quantity required
  - For example: memo or expense items, tools, or documents
  - You can add items that have no quantity required through either Work Order Bill Maintenance or Work Order Component Issue

Include zero open

- *Yes*: Print all components, including those with zero quantity open
  - These are items which have already been issued to the work order

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  - Use this option to reprint a picklist after component items have already been issued to the work order
- *No*: Print only component items with non-zero quantity open

Reprint picked quantities

- *Yes*: Print all components, including those that have already been completely picked—quantity required equals quantity picked
  - Use this option to reprint a picklist
- *No*: Only component item quantity which has not been picked is printed—quantity required is greater than quantity picked

Print floor stock items

- *Yes*: Print floor stock items on a separate page from other component items
- *No*: Do not print floor stock is on the picklist
- These are items with Issue Policy set to *No*

Print Co/By-Products as first or last document

- Allows you to print the Co-Product/By-Product work order report as the first or the last document when Print Picklist and/or Print Routing are set to *Yes*
- The default is *First*

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Picklist

```
woworl.p 2+                 16.6 Work Order Release/Print          Date: 05/30/03
Page:    1                 MFG/PRO Training DB - eB 92             Time: 14:06:41

                              WORK ORDER PICKLIST

  Work Order: 1004                                        Issue Date: 05/30/03
          ID: 4
       Batch:
 Item Number: 03-0030                Rev: D      Work Order Due Date: 06/09/03
              DISPLAY RACK
     Remarks:                                              Sales/Job:
 Qty Ordered: 100.0        EA                             Deliver To:

                         Site     Location               Required
Item Number        Rev  Location Lot/Serial         Qty to Issue UM Issued
------------------ ---- -------- ------------------ ------------ -- --------
12-4010                 Train                              100.0 EA
   CUT PLATES - 12 x 15
   STAINLESS STEEL
                        300                                100.0    (      )


12-4020                 Train                              400.0 EA
   STEEL SHAFT FOR DISPLAY
                        300                                190.0    (      )

      ********          Quantity Not Available:            210.0    ********

12-4100                 Train                               25.0 EA
   WELDING RODS
                        300                                 25.0    (      )
```

eB-WO-PR-390

The Picklist

The picklist lists the Component Items, the Quantity to Issue and the Site, Location, Lot/Serial, and Ref numbers to issue.

The quantity printed on the picklist updates the Qty Picked on the work order bill. If this quantity was previously allocated, Qty Allocated is reset to zero. The allocations recorded in the Inventory Master (`in_mstr`) and Detail (`ld_det`) files are not relieved. If the components were not previously detail allocated, they are now.

Note The picklist will not print if it includes a key item that is not available.

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Routing

```
Page:    1                MFG/PRO Training DB - eB 92              Time: 14:06:41


                              Work Order Routing

  Work Order: 1004
          ID: 4
       Batch:
 Item Number: 03-0030                Rev: D      Work Order Due Date: 06/09/03
              DISPLAY RACK
     Remarks:                                              Sales/Job:
 Qty Ordered: 100.0         EA                             Deliver To:


                                          Tooling     Setup Time
    Op Work Center               Std Op   Supplier      Run Time Actual By
------ ------------------------ -------- -------- ------------- ------ ----
    10 4010  Mach: 30                                       0.0 ______ (  )
       WELD                                                25.0 ______ (  )
       ATTACH SHAFTS TO DISPLAY
    20 4010  Mach: 30                                       0.0 ______ (  )
       WELD                                                25.0 ______ (  )
       WELD SHAFTS TO DISPLAY
    30 9920                                                 0.0 ______ (  )
       PLATING - SUBCONTRACT             123456             0.0 ______ (  )

       SEND TO VENDOR TO PLATE
```

eB-WO-PR-400

The Routing

Route sheets list the work order information followed by operation information, and travel with the work order to identify the job and provide instructions.

The route sheet prints each operation along with the standard run time. Space is left for the operator to write in the actual time they spent on this operation. This can be used for entering labor feedback in Shop Floor Control.

Comment information, if any, also prints on the route sheet.

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Releasing Work Orders

Releasing Single Work Orders

Releasing Multiple Work Orders

eB-WO-PR-410

We will now look at the method for releasing multiple work orders at the same time.

QAD

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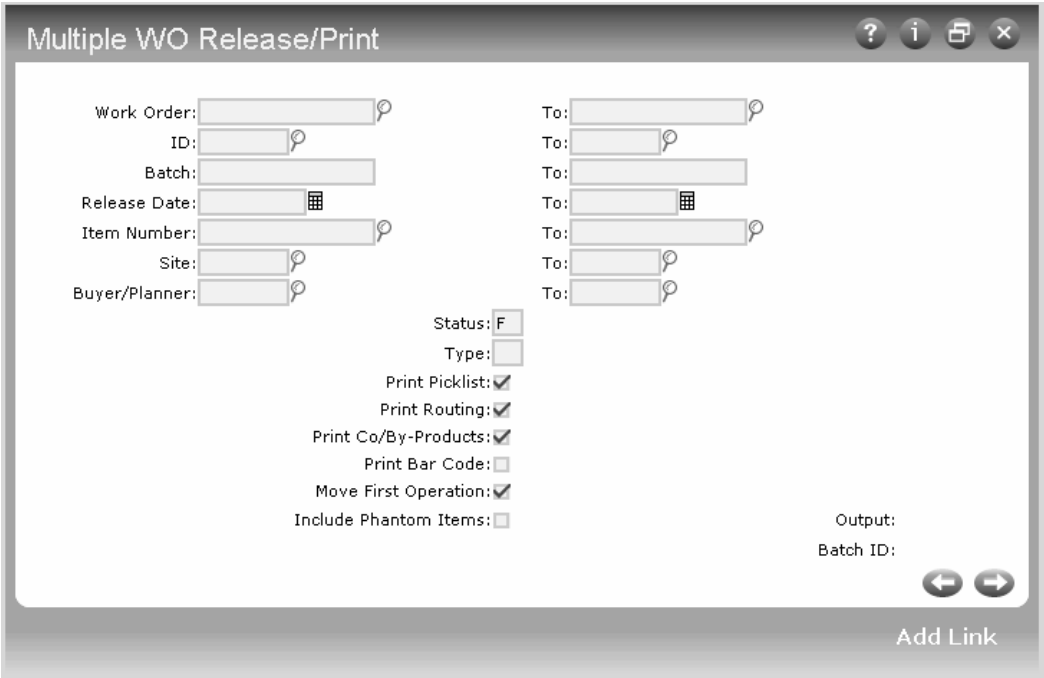
Multiple Work Order Release/Print: Screen 1 of 2



eB-WO-PR-420

Multiple Work Order Release/Print

Use this function to release multiple work orders.

Note This can take a long time, so you may want to do it in batch mode.

Work Order / ID / Batch / Release Date / Item Number / Buyer/Planner

- Fill in the data to select the work orders for release
  - Leaving all fields blank selects all appropriate work orders

The remaining fields are identical to those already covered in the discussion of Work Order Release/Print. For Routable orders (status B) you must use qqq to release them, not 16.6.

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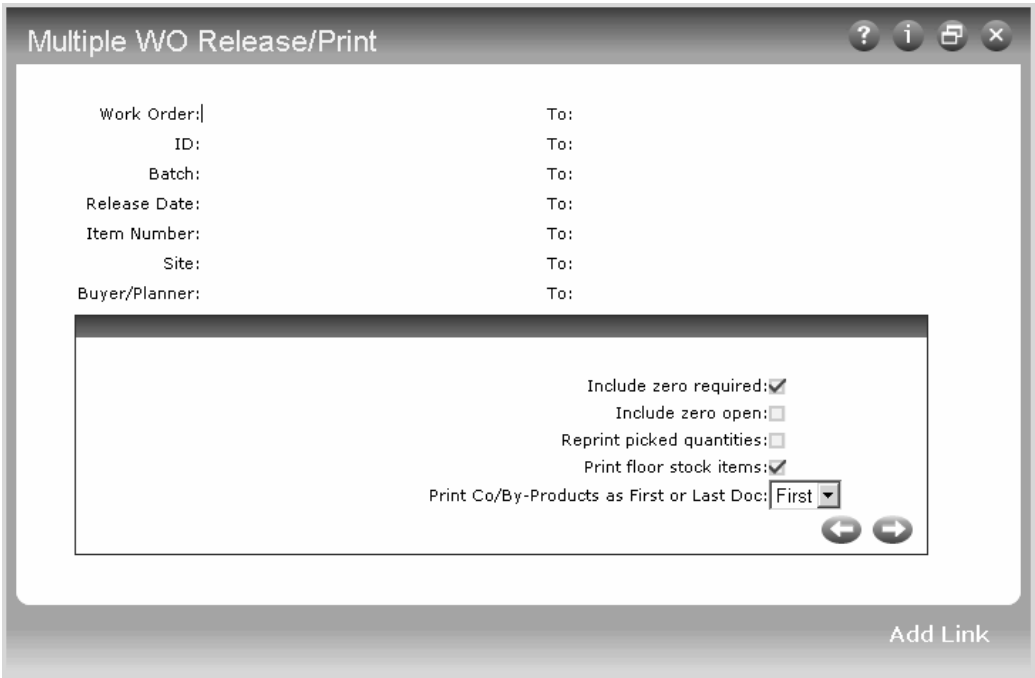
Multiple Work Order Release/Print: Screen 2 of 2



eB-WO-PR-430

These fields are the same as those covered in Work Order Release/Print.

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Work Order Bill Shortage Inquiry

eB-WO-PR-440

Work Order Bill Shortage Inquiry

Even if you check for potential shortages before an order is released, quality problems and inaccurate inventory balances may result in a shortage of components. You can monitor these shortages after release using Work Order Bill Shortage Inquiry.

- You can select the output based on work order number and ID, component, and issue date

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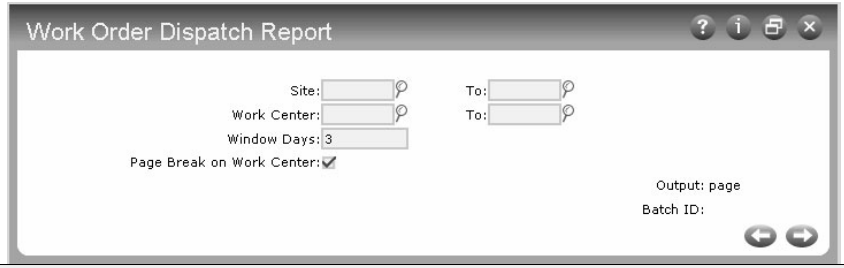
Work Order Dispatch Report




```
Item Number                  Work Order         Operation                  Start    Due Date Std Setup  Std Run Time     Open Qty St
---------------------------- ------------------ -------------------------- -------- -------- --------- ------------- ------------ --
02-0005                      1007               10                         05/27/03 06/04/03       1.0          50.0     10,000.0 Q
   MECHANICAL PENCIL           ID: 16           BLISTER PACK
   (5MM) BLISTER PACKED
02-0005                      1008               10                         06/03/03 06/04/03       1.0          10.0      2,000.0
   MECHANICAL PENCIL           ID: 19           BLISTER PACK
   (5MM) BLISTER PACKED
Page:    2                                            MFG/PRO Training DB - eB 92                                      Time: 08:47:02

Work Center: 1030     Machine:          INSPECTION                Site: train

Item Number                  Work Order         Operation                  Start    Due Date Std Setup  Std Run Time     Open Qty St
---------------------------- ------------------ -------------------------- -------- -------- --------- ------------- ------------ --
02-0005                      1007               20                         05/27/03 06/04/03       0.0          50.0     10,000.0
   MECHANICAL PENCIL           ID: 16           INSPECT CARDED PRODUCTS
   (5MM) BLISTER PACKED
02-0005                      1008               20                         06/03/03 06/04/03       0.0          10.0      2,000.0
   MECHANICAL PENCIL           ID: 19           INSPECT CARDED PRODUCTS
   (5MM) BLISTER PACKED
Page:    3                                            MFG/PRO Training DB - eB 92                                      Time: 08:47:02

Work Center: 4010     Machine: 30       WELD                      Site: train

Item Number                  Work Order         Operation                  Start    Due Date Std Setup  Std Run Time     Open Qty St
---------------------------- ------------------ -------------------------- -------- -------- --------- ------------- ------------ --
03-0030                      1004               10                         05/22/03 05/27/03       0.0          25.0        100.0 Q
   DISPLAY RACK                ID: 4            ATTACH SHAFTS TO DISPLAY
03-0030                      1004               20                         05/27/03 05/30/03       0.0          25.0        100.0
   DISPLAY RACK                ID: 4            WELD SHAFTS TO DISPLAY
Page:    4                                            MFG/PRO Training DB - eB 92                                      Time: 08:47:02
```

eB-WO-PR-450

Work Order Dispatch Report

The Work Order Dispatch Report displays the operations scheduled at a work center, sorted by start date. The report includes the item being built, the work order that authorizes the work, standard setup and run times, and the open quantity on the order at that work center.

Use this report to provide work visibility for a specified number of days, determined by the Window Days field. Also use it as a measurement tool for comparing production progress with production plans.

Note To make full use of this report for prioritizing work, you should be using Shop Floor Control to report completions of quantities ordered.

QAD

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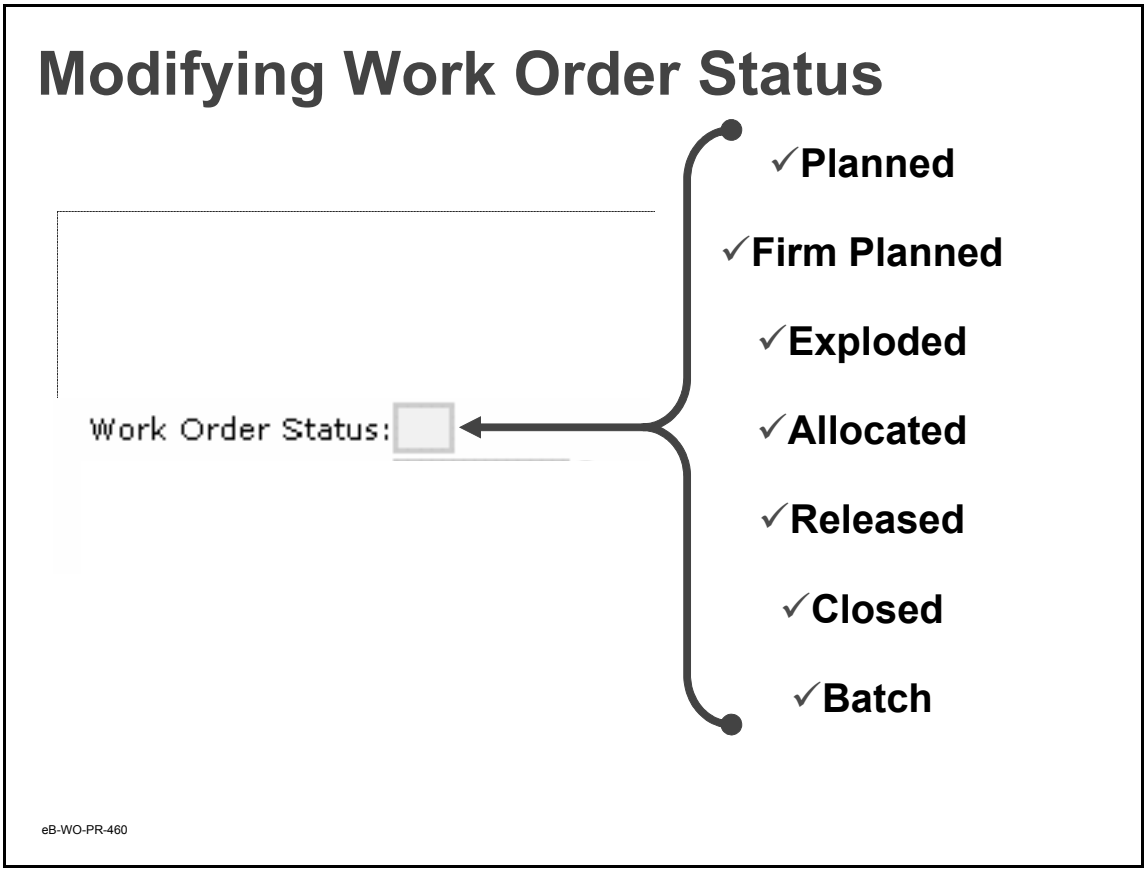

Modifying Work Order Status

As work orders move through the system their status changes. Next we will look at how you do this.

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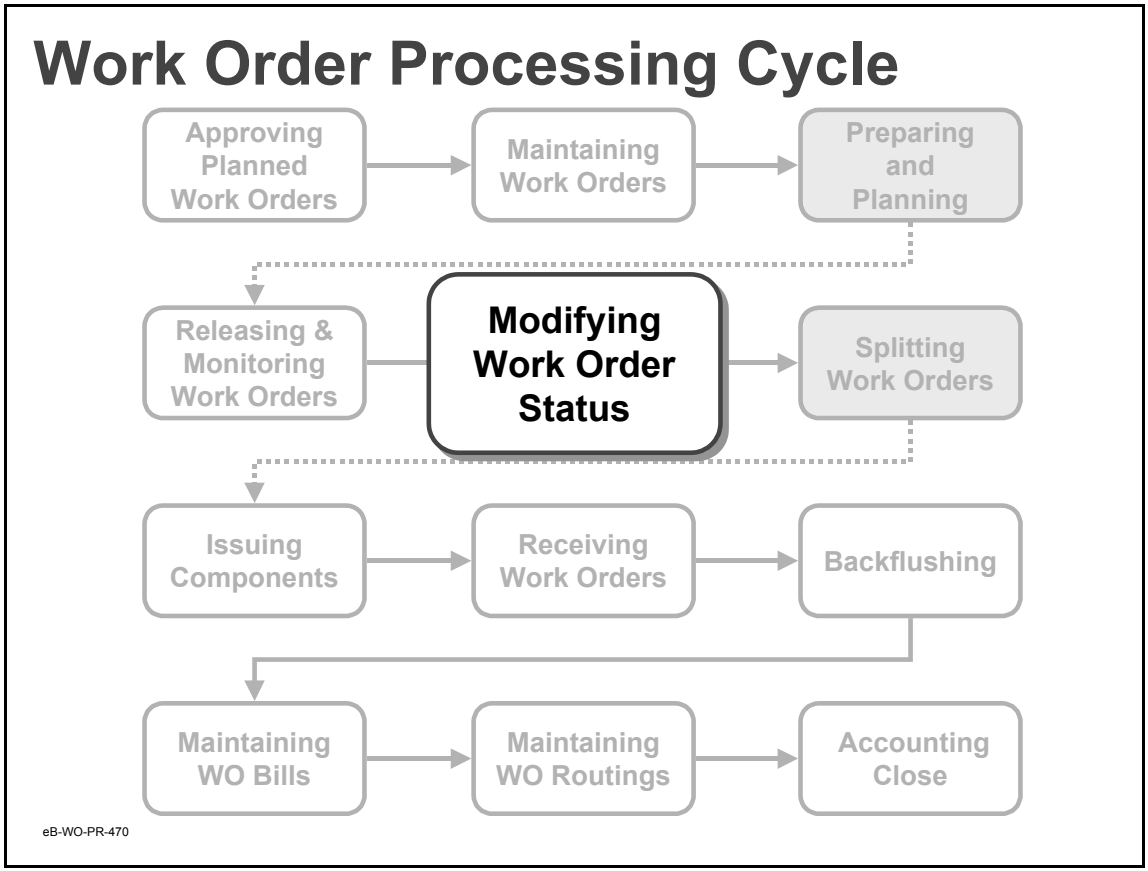

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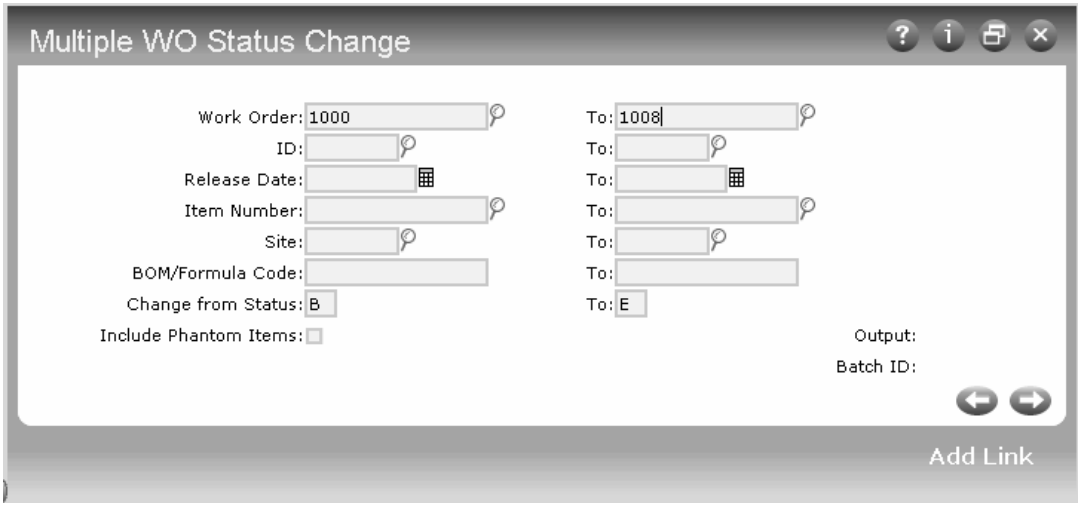
Multiple Work Order Status Change



eB-WO-PR-480

Multiple Work Order Status Change

Status indicates where the work order is in the manufacturing process. Multiple WO Status Change changes the status of the work orders you specify. You can change the status of individual work orders in Work Order Maintenance. The most common use of this function is to change batch input firm planned orders to exploded.

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The normal status progression is:

1. Planned or Batch Input Firm Planned
2. Firm Planned
3. Exploded
4. Allocated
5. Released
6. Closed

- Each step is cumulative—any skipped step is done automatically
- You can change the status for the following types of work orders
  - Standard (type blank)
  - Rework (type R)
  - Final Assembly (type F)
- Permitted changes are:
  - From Status B to F – Explodes the work order bill and routing, generating component demands
  - From Status P to F – Re-explodes the work order bill and routing
  - From Status P, B, or F to E – Explodes the component bill and routing, shields orders from engineering changes, and schedules operations
  - From Status P, B, F, or E to A – Verifies the bill and routing are exploded, makes general allocations for all components
  - From any Status to C – Closes the work order, no additional materials issued or received, labor can still be reported
- Regression is allowed – Released orders could be changed back to status A
- This function should be password controlled

Note This can take a long time to process. You may wish to submit it in batch.

Work Order / ID / Release Date / Item Number / BOM/Formula

- Select the work orders through all or some of these criteria
- Leaving all fields blank selects all work orders

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Change from Status

- The current status of work orders to be changed by this function
- The default is B

To

- The new status to be assigned to these work orders
- The default is E

Include Phantom Items

- Indicates if work orders for phantom items are to be considered by this function

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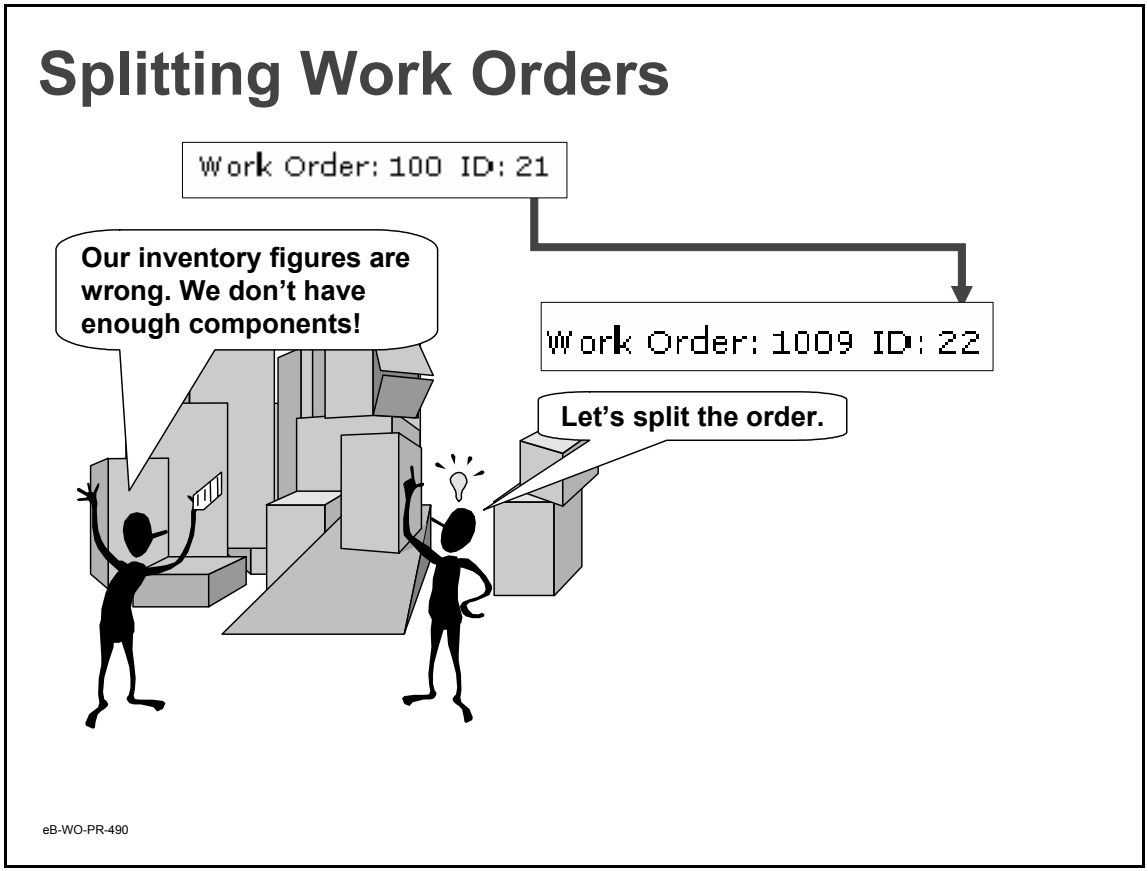

Splitting Work Orders

When your inventories are low, or machinery goes down, you can split work orders so as to complete partial shipments.

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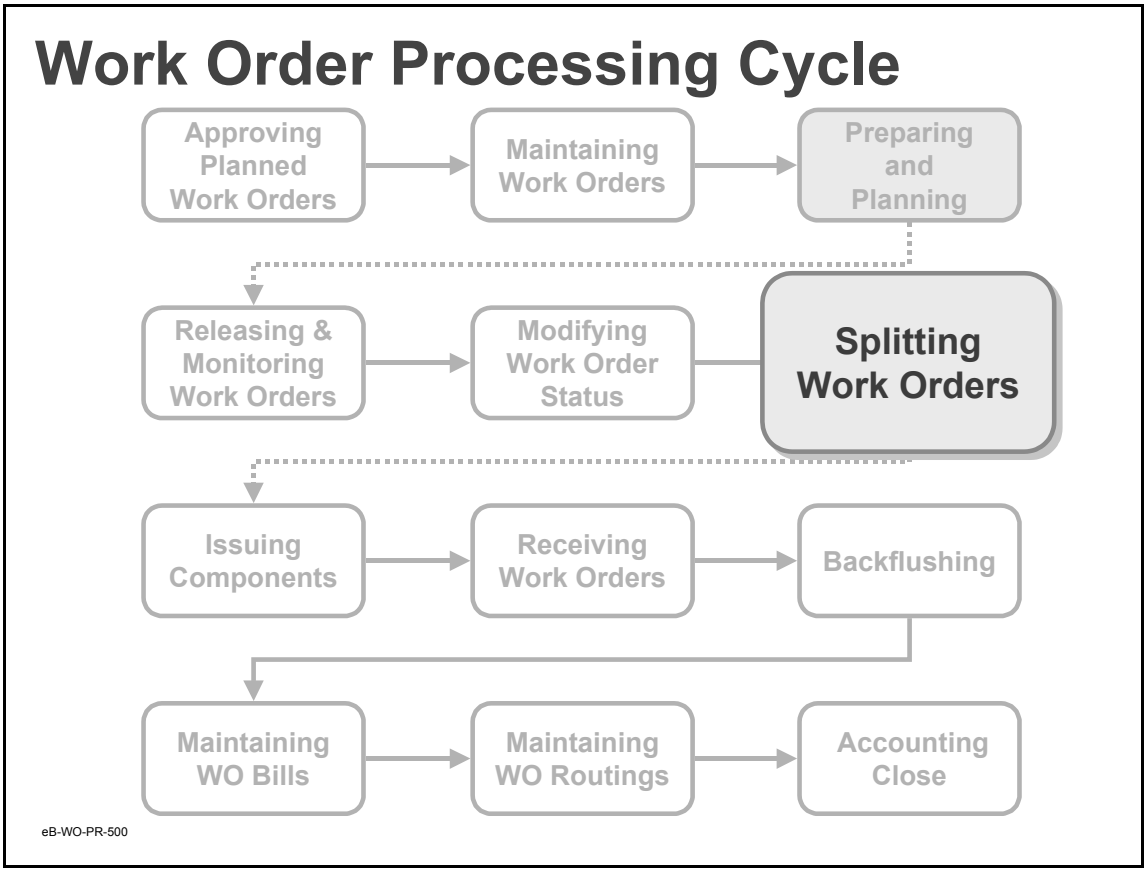

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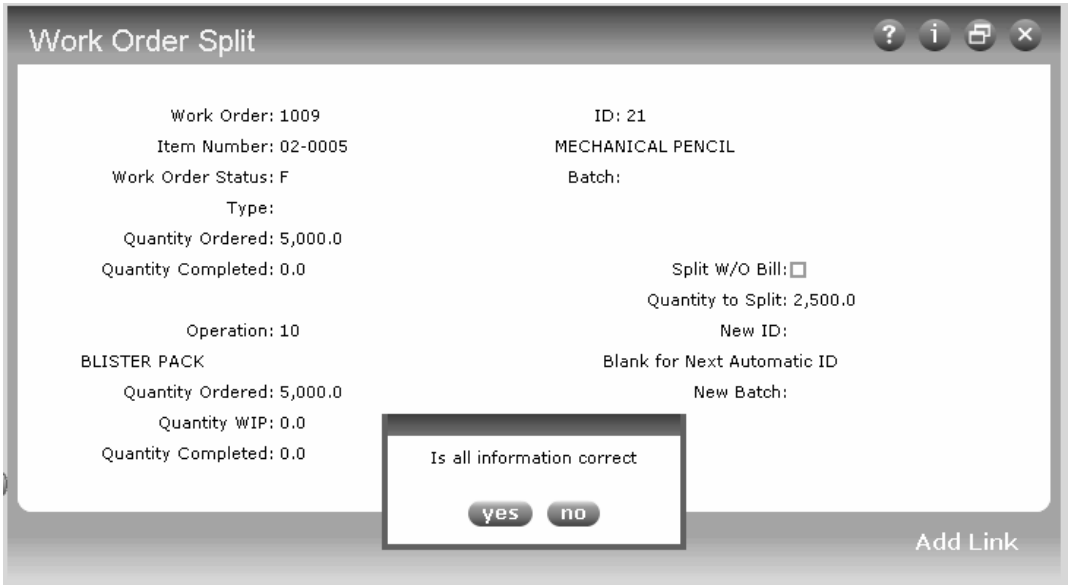
Work Order Split



eB-WO-PR-510

Work Order Split

Even if you check for potential shortages before releasing an order, quality problems and inaccurate inventory balances can result in a shortage of components. You can monitor these shortages through Work Order Bill Shortage Report and Work Order Bill Shortage by Item. If necessary, use Work Order Split to move part of a work order through the remaining operations while the rest waits for components. You can split open operations between the original and the new work order.

- Work Order Split results in two work orders with the same work order number but different IDs
  - Each ID may have its own bill and routing
- A picklist and route sheet can be printed

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- A bill is created for the split only if no components had been issued to the original order
- A work order routing for the new ID starts from the operation where the split took place
  - Completed operations and reported costs remain with the original ID
- Because the split orders have the same number, you can review the Work Order Status Report and Work Order Cost Report for the whole work order
- This function should be password controlled

Work Order / ID

- Enter the work order number and ID

Operation

- The operation at which this work order is to be split into two
  - Any operations prior to the split remain associated with the original work order only, as does any processing cost already incurred
  - This and all subsequent operations must be performed on each of the work orders
- The split process creates a new work order and its associated work order routing
  - The new routing lists each of those operations and the run time required to manufacture the split off quantity

Split W/O Bill

- Specifies whether work order components are to be divided between the new and old work orders
- *Yes*: The work order components are split based on the order quantity
  - For example, if a work order is split in half, then its components are split in half
- The work order bill cannot be split if there is an outstanding picklist
  - The picklist must be cancelled (by issuing zero quantities on all components and backordering the full amount) or the work order status must be changed back to *A*llocated
- Because of the transaction history generated, component items that have already had quantity issued cannot be split
- Any components that are allocated will be moved by default to the new work order

Qty to Split

- The quantity to be split off from the original work order
  - A new work order is created for the quantity split

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New ID

- The work order lot ID to use on the new work order
  - Leave this blank to let the system assign the next available number

Is all information correct?

- Click *Yes* to continue or *No* to return to the screen

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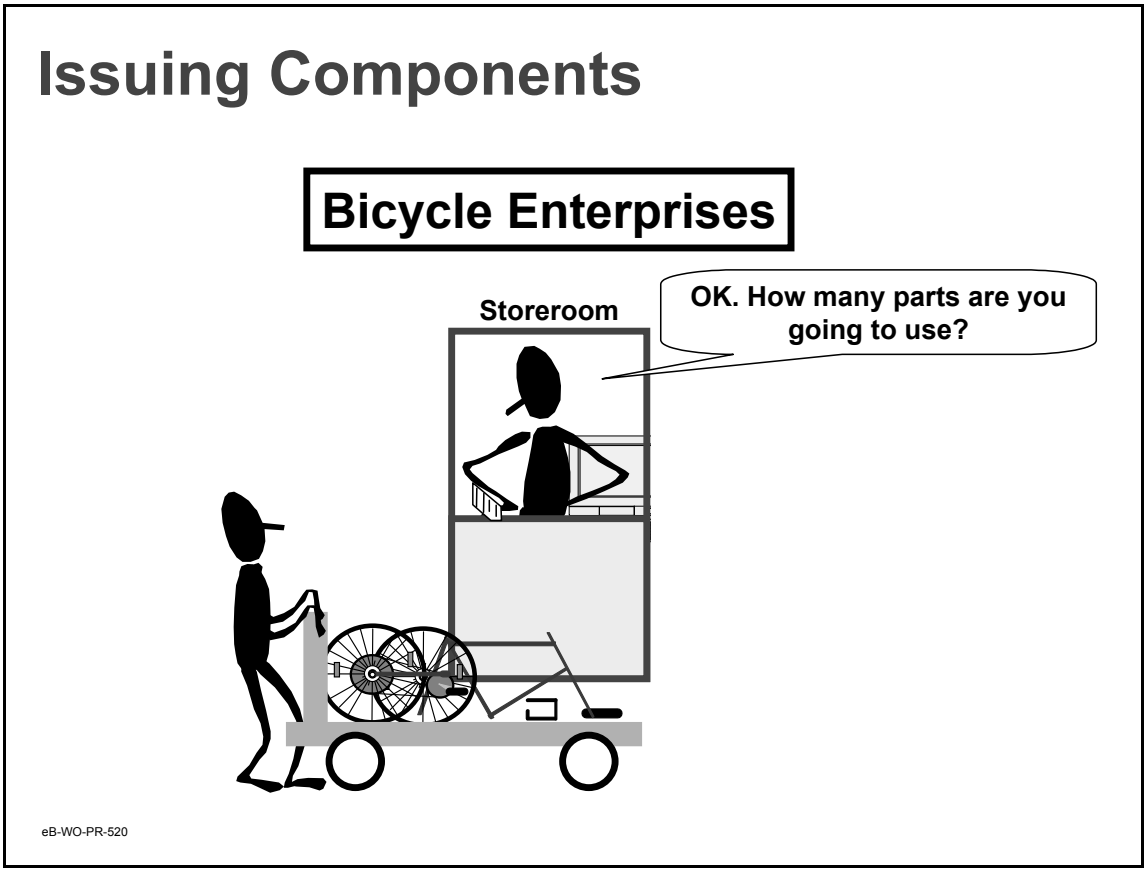

Issuing Components

Work order operations begin when you release orders and issue components.

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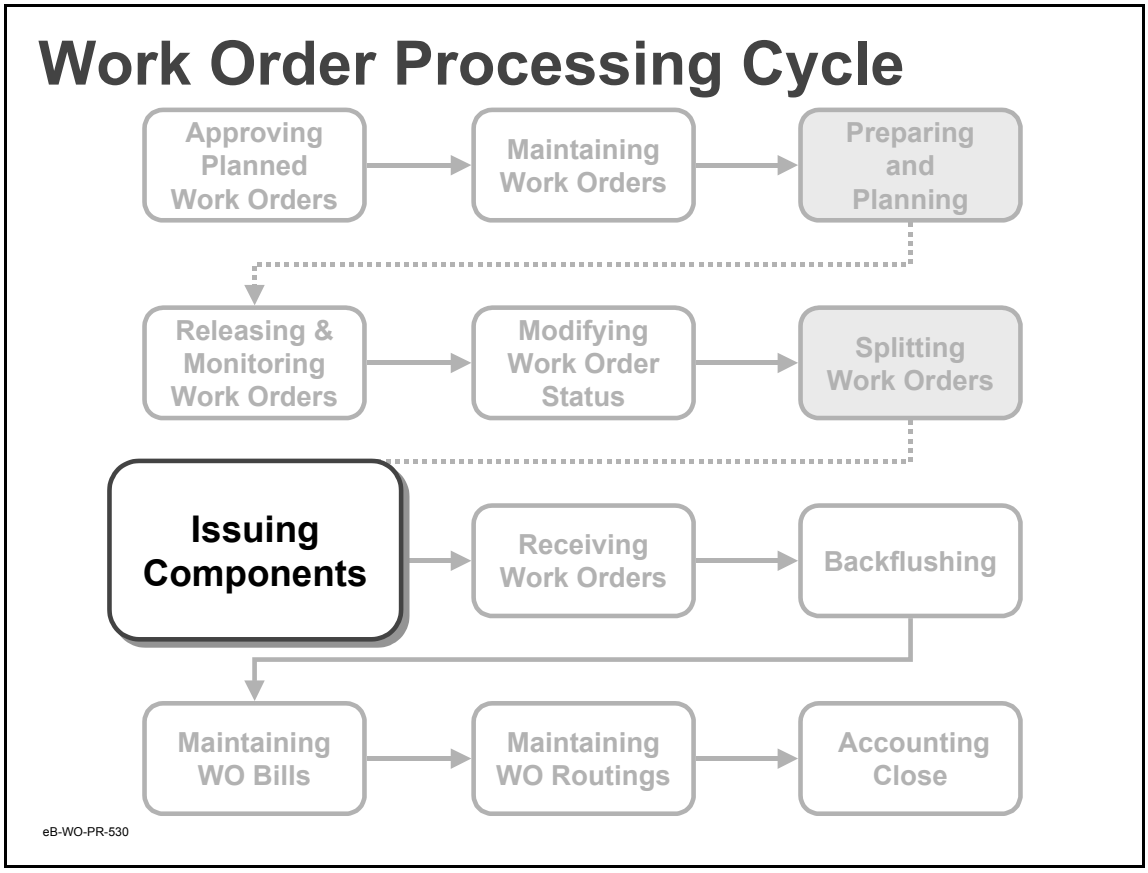

With Work Order Component Issue you issue inventory when the work order goes out to the shop floor. Another option is to issue the inventory after the work is done, which we will cover in backflushing.

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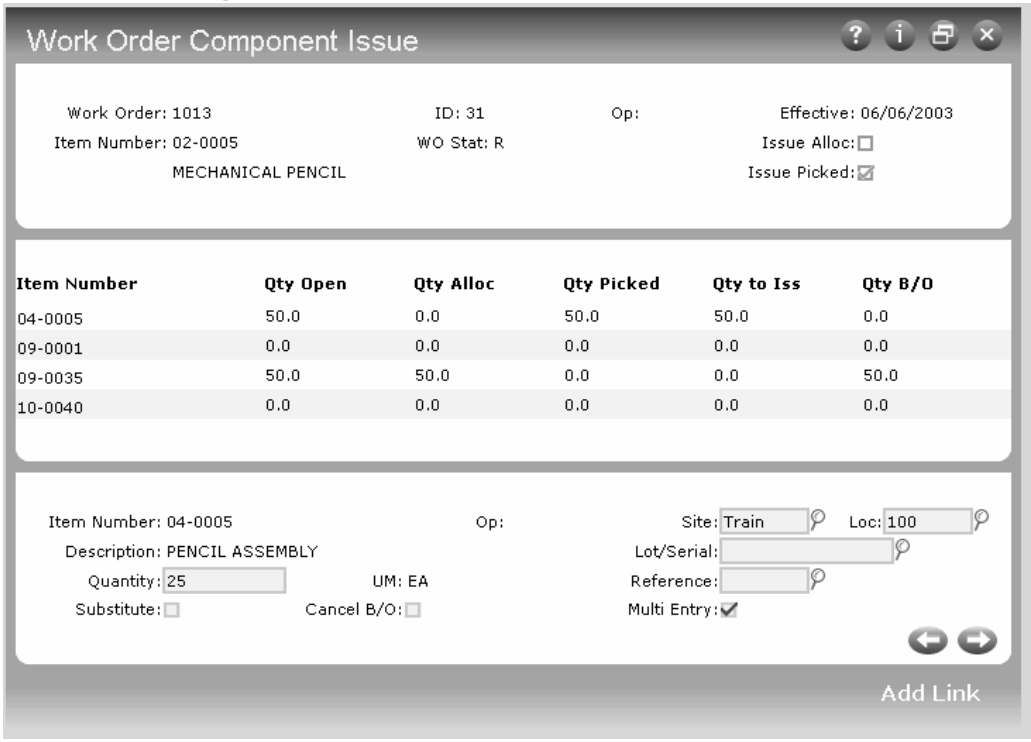
Work Order Component Issue: Screen 1 of 3



eB-WO-PR-540

Work Order Component Issue

Use this function to issue components to work orders. When materials are issued from stockroom to manufacturing, a Work Order Component Issue records this—decreasing inventory costs and quantities and increasing work in process (WIP).

Work Order / ID

- Enter work order number and ID

Op

- Enter an operation number to view only the components required at that operation
  - Leave *blank* to view all components

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Effective

- The general ledger effective date associated with this inventory transaction
  - The default is the system date
- The effective date determines when the general ledger transaction created by this transaction affects general ledger balances: a work order does not increase the balance in the general ledger inventory account until this effective date
  - Inventory quantity on hand is affected immediately upon processing the component issue, regardless of the effective date

Issue Alloc / Issue Picked

- Indicates whether to issue allocated or picked inventory
- Issue Allocated and Issue Picked determine which inventory to issue for each component item, greatly speeding up the entry of work order issues
- To issue picked components, set Issue Picked to *Yes*, review that the issue quantities are correct and process the issue
- To issue allocated components, set Issue Allocated to *Yes*, review that the issue quantities are correct and process the issue
- If some components have been picked and some are still allocated, set both fields to *Yes*

The bottom half of the screen appears, allowing you to enter item-specific data.

Item Number

- Enter the item number to issue
  - Normally components used only include items called for in the standard bill, but you can enter any valid item here
  - This allows you to record unplanned issues
- Use this field to enter substitute items as designated in the product structure

Op

- The operation where this item is used
  - The normal operation number appears automatically
- The bill of materials attached to each work order identifies each component by operation as well as item number
- If you enter an operation (or an item) which is not defined on the work order bill, the transaction is treated like an unplanned issue: the components are issued to the work order, but component requirements are not decreased, even if the component is on the bill

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  - Any item issued in this way displays as a new line in the issue screen above
- If you are issuing a substitute item, the operation must match the operation on the original component
- Issuing components at a different operation than the one on the work order bill allows you to perform unplanned issues – damaged components can be replaced at a later operation

Quantity

- The total quantity processed on this inventory transaction
- This is the quantity taken out of stock

Substitute

- Indicates if a substitute item should be entered for this component
- Issuing an allowable substitute decreases the requirement for the preferred component

Cancel B/O

- Indicates if the remaining component quantity required is to be placed on backorder or cancelled
- *No*: Any remaining quantity required for a component remains open on backorder for later issuance to the work order
- *Yes*: Cancel this component requirement
  - The quantity remaining is not issued later; the quantity required is set to zero and MRP is notified of the decreased requirement
- Since the quantity required for a component includes an allowance for scrap, there may be situations when you issue less than was called for, and in this case the backorder should be cancelled
- When a substitute item is issued, the requirement for the original component is automatically cancelled
- If a different component is used that is not an approved substitute, you must manually set the backorder quantity to zero for the original item

Site

- The site at which this inventory transaction was processed
  - Use *Multi Entry* to enter more than one site on an inventory transaction

Loc

- The location code associated with this inventory transaction
  - Use *Multi Entry* to enter more than one location on an inventory transaction

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Lot/Serial

- The lot/serial number associated with this inventory quantity
- Use *Multi Entry* to enter more than one lot/serial number on a transaction
- Each item may optionally be defined as Lot or Serial number controlled, determining whether you must enter a lot or serial number on each inventory transaction

Ref

- Lot reference, with site, location, and lot/serial number, specifically identifies inventory quantities
  - Lot reference may be the production lot of the item or it may be a location reference such as a skid, roll, or pallet number
- Use *Multi Entry* to enter more than one lot reference on an inventory transaction

Multi Entry

- Indicates whether this inventory transaction references multiple sites and locations, or multiple lot/serial numbers or lot reference numbers
- *No*: This inventory transaction is processed using the site, location, lot/serial, and lot reference on this screen
- *Yes*: The multi entry screen appears, allowing you to enter multiple lines for this inventory transaction

Display items being issued

- This prompt appears here only if you have selected *No* for *Multi Entry*
  - *Yes*: Display the items for verification
  - *No*: Issue the items without displaying them
  - *Cancel*: Return to the entry screen

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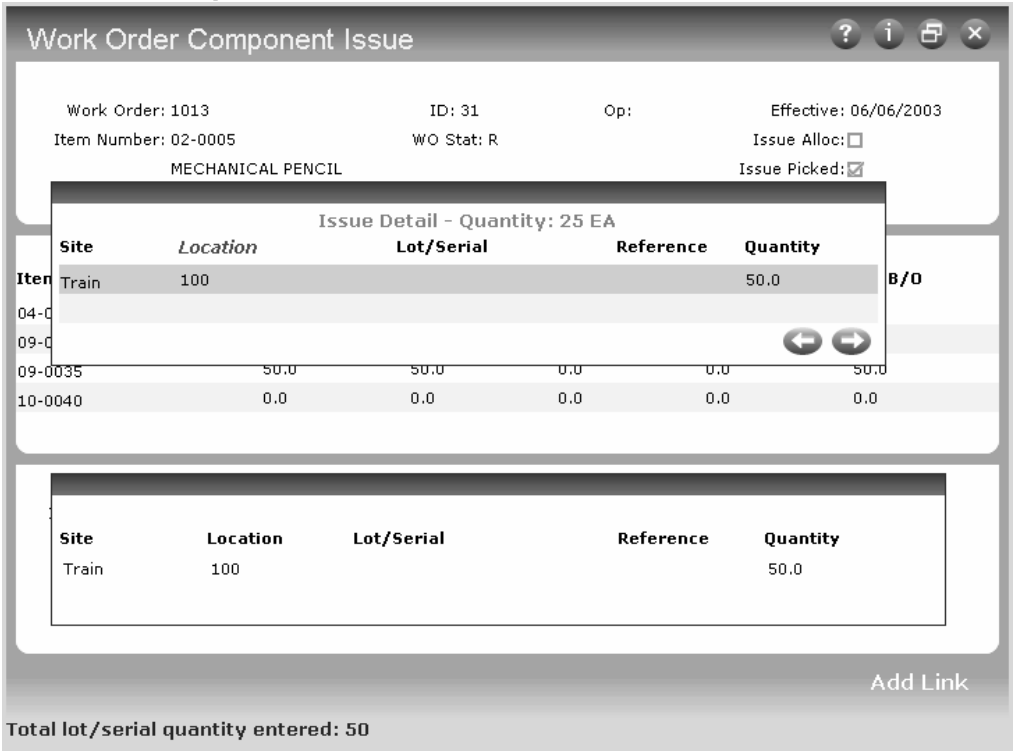
Work Order Component Issue: Screen 2 of 3



eB-WO-PR-550

Multi Entry Screen

The screen appears if you request multi entry for Site, Location, or Lot/Serial processing.

- On each line you enter a site, location, lot/serial, lot reference number, and quantity
- The open quantity on the order will be updated to the total entered in the multi-entry screen
- An individual transaction history record is created for each transaction line
- The total of all lines is used to update the inventory balance

Display items being issued

- *Yes*: Display the items for verification
- *No*: Issue the items without displaying them
- *Cancel*: Return to the entry screen

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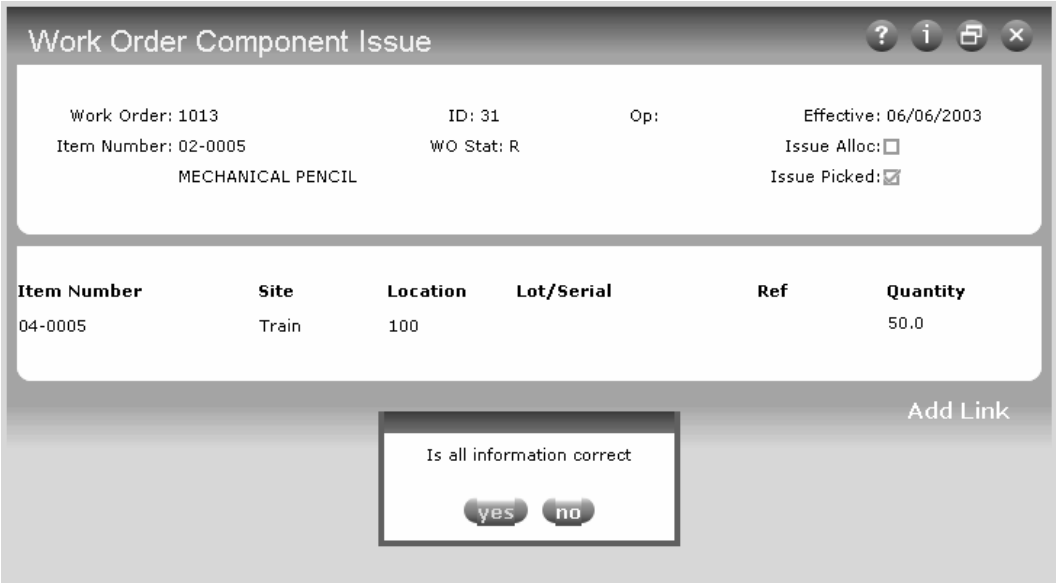
Work Order Component Issue: Screen 3 of 3



eB-WO-PR-560

Issues

Is all information correct?

- *Yes*: Issue the items
- *No*: Return to the entry screen for corrections
- *Cancel*: Do not issue the items

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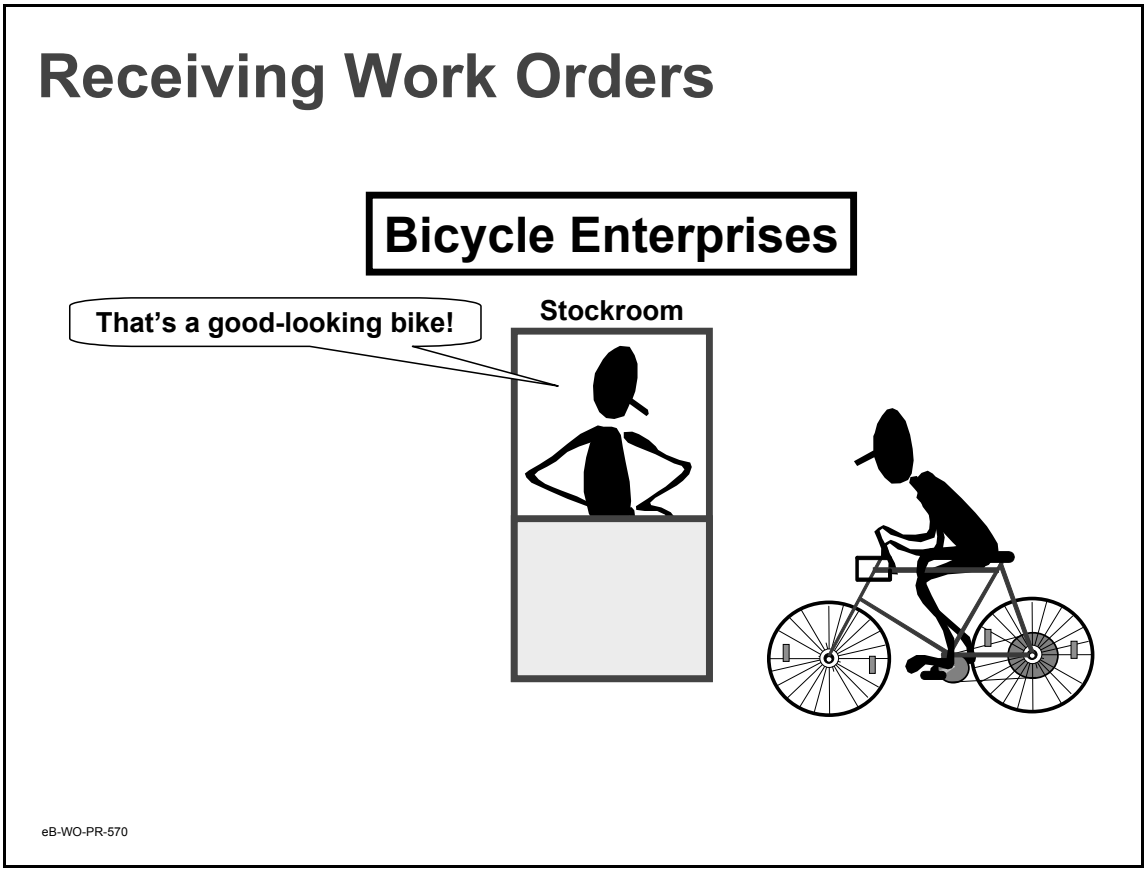

Receiving Work Orders

When the work order is complete, you receive the finished goods into inventory.

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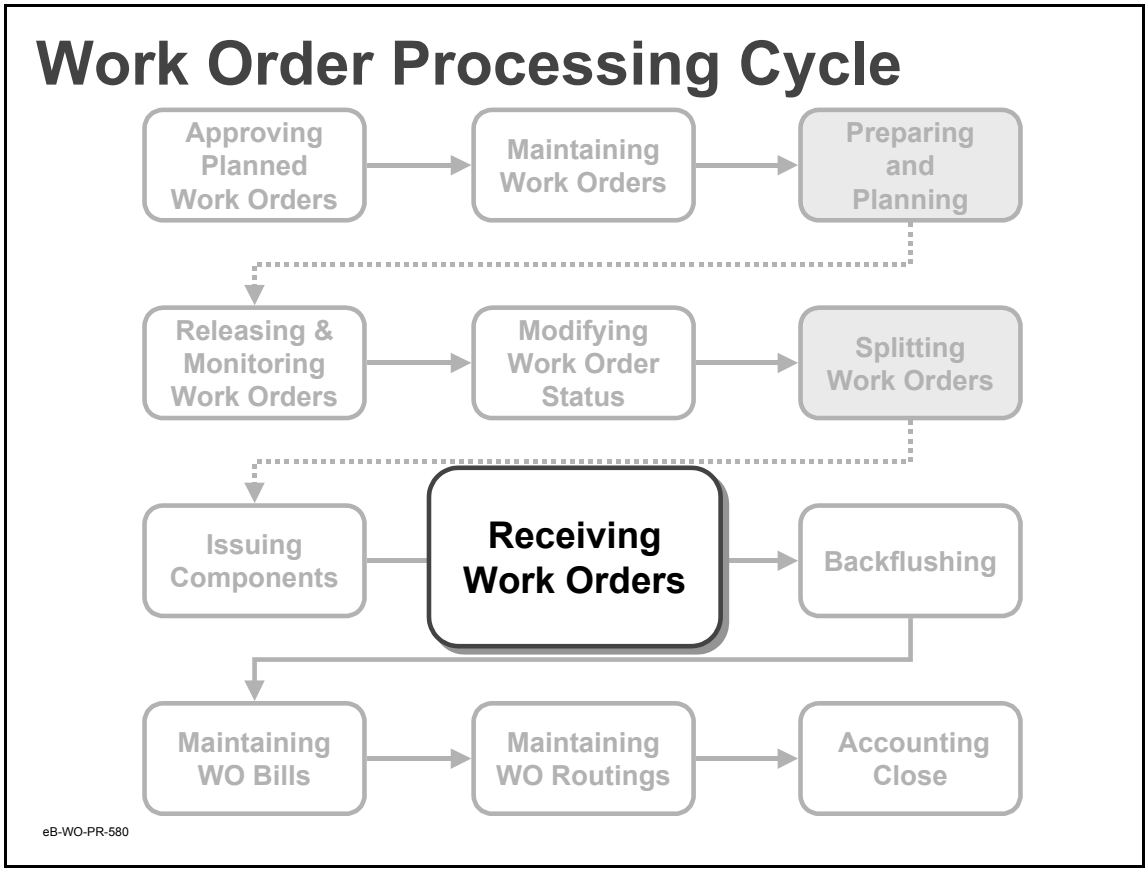

You receive the work order in finished goods inventory using Work Order Receipt.

You can also receive work orders using Work Order Receipt Backflush, covered later in this course.

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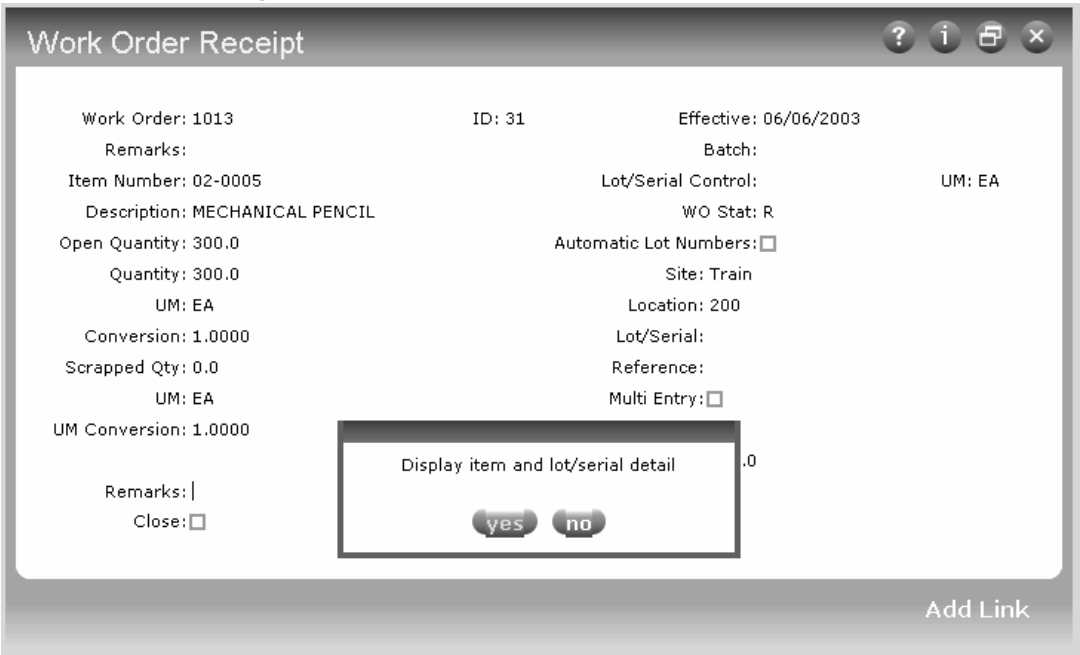
Work Order Receipt: Screen 1 of 2



eB-WO-PR-590

Work Order Receipt

When a work order is completed on the shop floor, the items are typically sent to the stockroom. Use Work Order Receipt to receive items and close the order.

Work Order / ID

- Enter the work order and ID numbers

Batch / Remarks / Item Number / L/S / UM / Description / Status / Open Qty / Auto Lot Numbers

- Display-only fields

Quantity

- The total quantity to receive against this work order
  - The quantity received is added into inventory at the specified site and location

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UM / Conversion

These two fields define and relate the received unit of measure and the inventory unit of measure.

- The unit of measure of the inventory transaction quantity
- If you enter a unit of measure other than the item unit of measure, the system accesses the appropriate conversion factor
  - For example, the item may be held in inventory in the unit of measure *EA*, but sold or purchased in a *CS* of 25, so when you enter the unit of measure *CS*, the system displays a UM Conversion of 25 and adjusts the cost and inventory quantity automatically
- If the alternate unit of measure has not been predefined in Unit of Measure Maintenance, a warning displays and the UM Conversion remains at 1.0000 and allows you to adjust it manually

Scrapped Qty

- The number of items rejected on this work order
- Reject quantity appears on work order history and cost reports
- The total GL cost of the rejected items posts to the scrap account found on the product line of the parent item

UM / Conversion

- The unit of measure and conversion fields play the same role here as for the items received

Site

- The site where this work order quantity is to be received

Location

- The location code associated with this inventory transaction
- Use *Multi Entr*y to enter more than one location

Lot/Serial

- The lot/serial number associated with this received inventory quantity
- Use *Multi Entr*y to enter more than one lot/serial number

Ref

- Lot reference, with site, location, and lot/serial number, specifically identifies inventory quantities
  - Lot reference may be the production lot of the item or it may be a location reference such as a skid, roll, or pallet number
- Use *Multi Entr*y to enter more than one lot reference on an inventory transaction

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Multi Entry

- Indicates whether this inventory transaction references multiple sites and locations, or multiple lot/serial numbers or lot reference numbers
- *No*: Process this inventory transaction using only the site, location, lot/serial, and lot reference entered on this screen
- *Yes*: Display another entry screen to enter multiple lines for this inventory transaction

Set Attributes

- Indicates whether to accept the default inventory attributes
- *No*: Receive the items into the inventory location specified and assign the default inventory attributes
- *Yes*: Display a pop-up window for entry of the Inventory Status, as well as Assay %, Grade, Expire Date, and the Active settings

Remarks

- Brief remarks associated with this transaction
- This field is for reference only and may appear on some selected reports and inquiries

Effective

- The general ledger effective date associated with this inventory transaction
  - The default is the system date
- The effective date determines when the general ledger transaction created by this transaction affects general ledger balances: a work order does not increase the balance in the general ledger inventory account until this effective date
- Inventory quantity on hand is affected immediately upon processing the receipt, regardless of the effective date
- The date of the transaction may differ from the Effective Date
  - At period end these are often different: if the period ends on Friday but you are still processing receipts on Monday, you may set the effective date to Friday's date, but the entered date is Monday's date

Close

- Indicates if the work order status should be set to *C* for Closed
- It is not necessary to use all of the status codes on each work order
  - Some companies go directly from *B* to *R* to *C*
- It is necessary to close work orders to reconcile WIP with the Accounting Close function

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Display item and lot/serial detail

- *Yes*: Display the detail screen
- *No*: Do not display the detail screen

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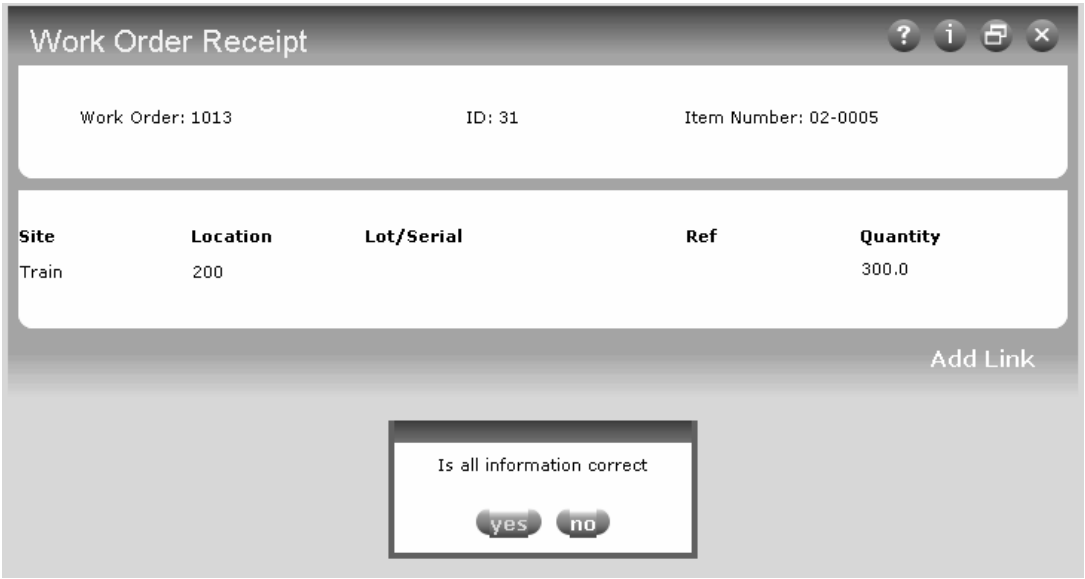
Work Order Receipt: Screen 2 of 2



eB-WO-PR-600

Is all information correct?

- *Yes*: Process the transaction
- *No*: Return to the entry screen

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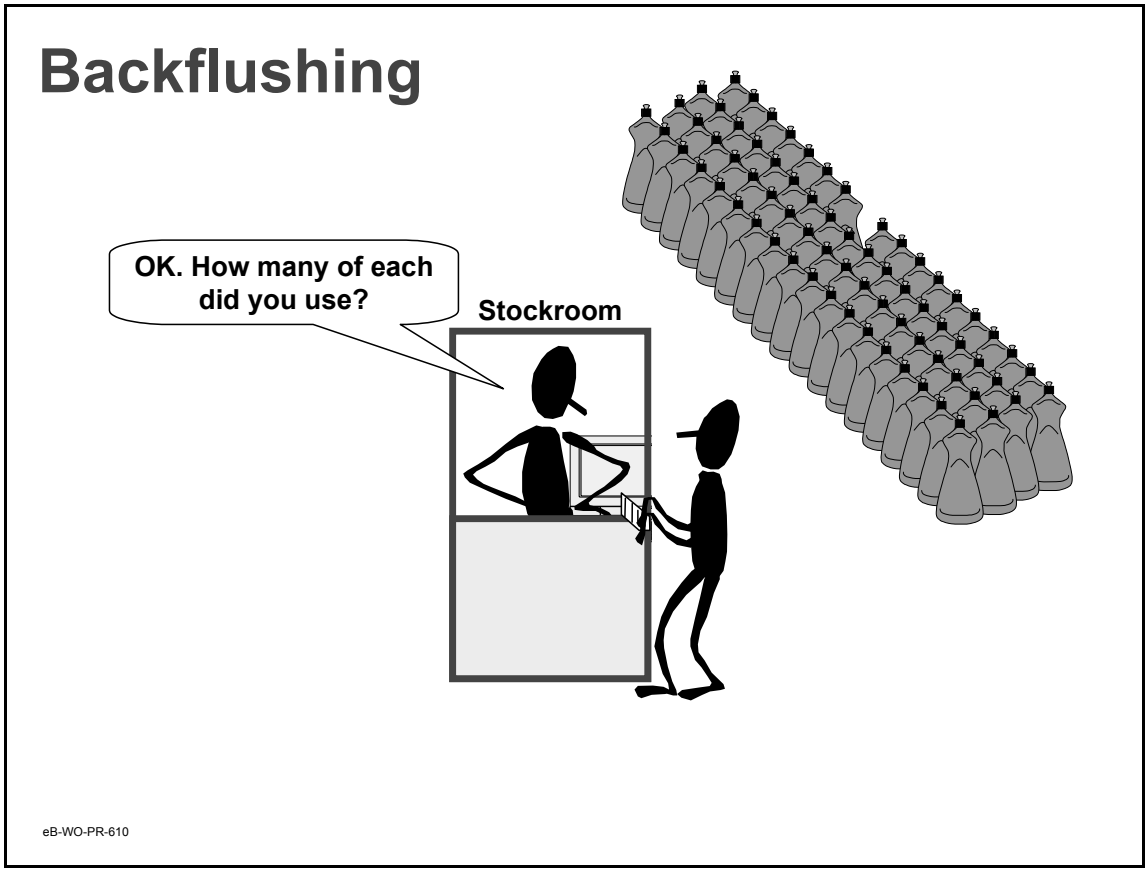

Backflushing

In backflushing you report usage of components after the manufacturing process instead of before, as in work order component issue.

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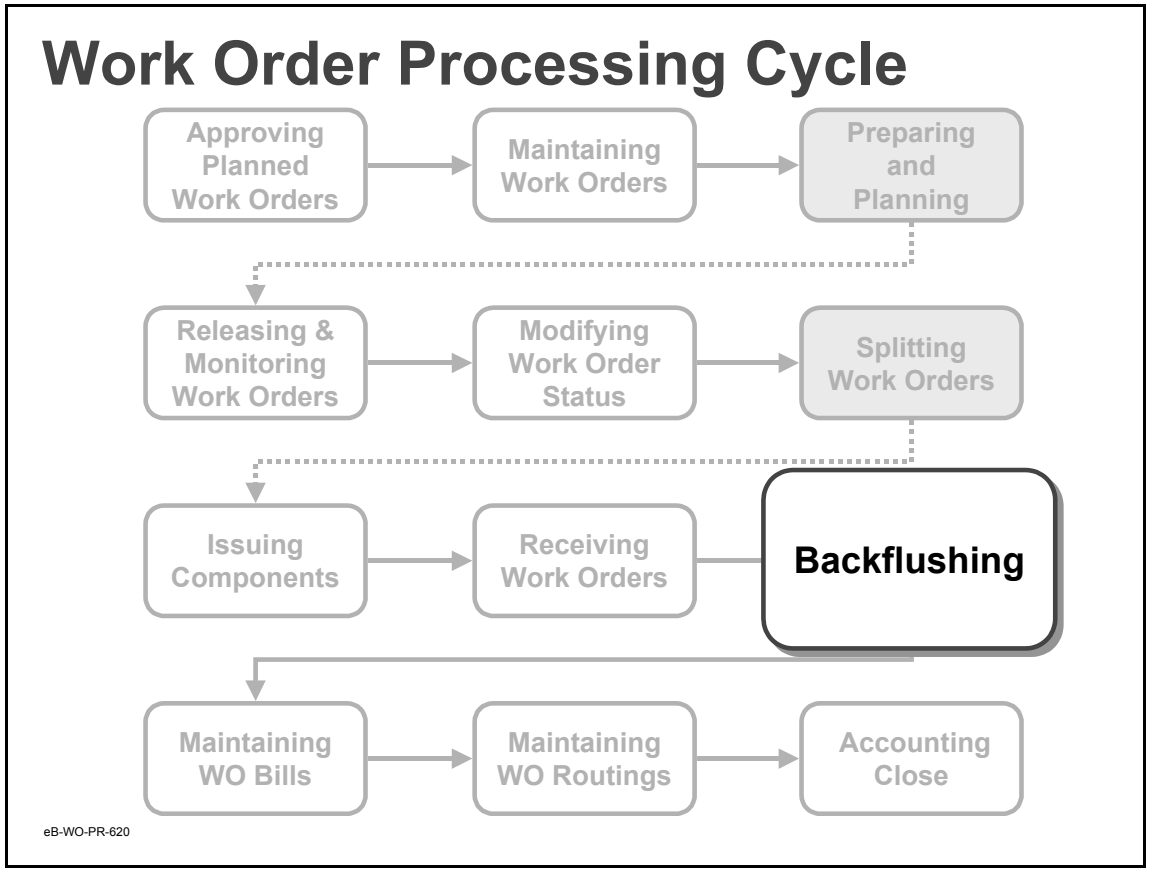

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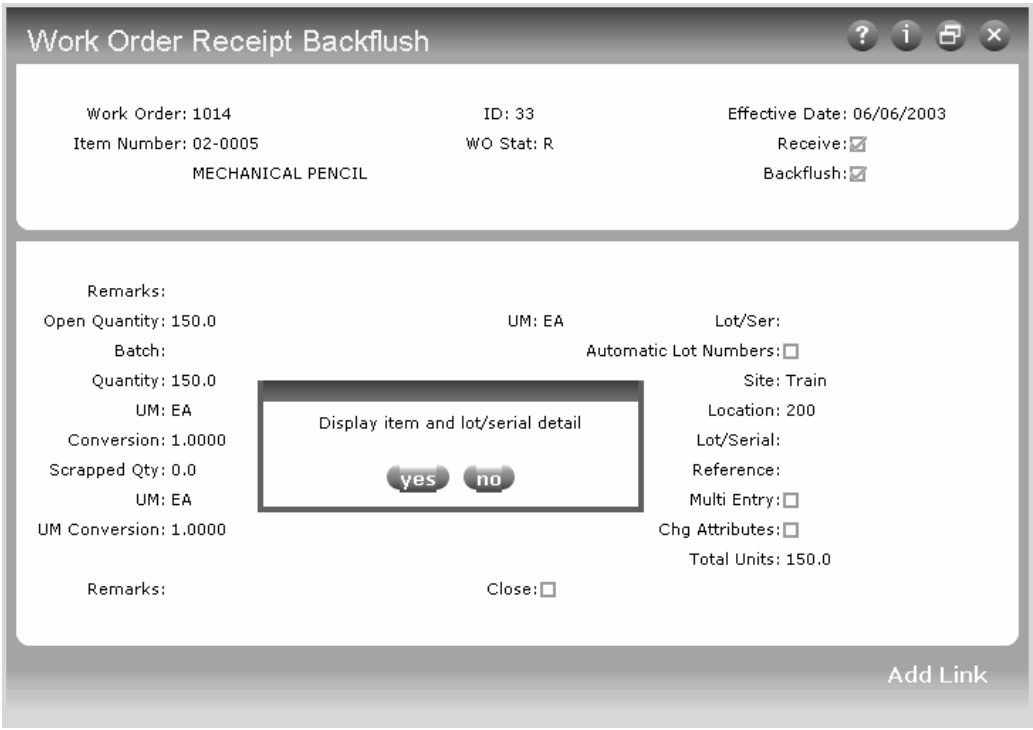
Work Order Receipt Backflush: Screen 1 of 6



eB-WO-PR-630

Work Order Receipt Backflush

This function combines issue and receipt, making for fast turnaround.

Work Order / ID

- Enter the work order and ID numbers

Effective

- The general ledger effective date associated with this inventory transaction
- The default is the system date
- The effective date determines when the general ledger transaction created by this transaction affects general ledger balances: a work order does not increase the balance in the general ledger inventory account until this effective date

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- Inventory quantity on hand is affected immediately upon processing the receipt, regardless of the effective date

Receive

- Indicates whether finished products are to be received into inventory
- *Yes*: The system prompts you to enter a receipt quantity and receives this into stock
- *No*: Backflush component items without receiving any finished products into inventory
- This is useful when you have a long lead time but still want to backflush components

Backflush

- Indicates whether to backflush components from inventory
- Component items may be issued individually to a work order using Work Order Component Issue or they can be backflushed from stock
  - A backflush simply issues items from stock automatically based on their standard component quantity per
- *Yes*: The system prompts you to enter the backflush (receipt) quantity

Quantity

- The total quantity to backflush

UM / Conversion

These two fields define and relate the backflush unit of measure and the inventory unit of measure.

- The unit of measure of the inventory transaction quantity
- If you enter a unit of measure other than the item unit of measure, the system accesses the appropriate conversion factor
  - For example, the item may be held in inventory in the unit of measure *EA*, but sold or purchased in a *CS* of 25, so when you enter the unit of measure *CS*, the system displays a UM Conversion of 25 and adjusts the cost and inventory quantity automatically
- If the alternate unit of measure has not been predefined in Unit of Measure Maintenance, a warning displays and the UM Conversion remains at 1.0000, and allows you to adjust it manually

Scrapped Qty

- The number of items scrapped on this work order

UM / Conversion

- The unit of measure and conversion fields play the same role here as for the items backflushed

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Site

- The site where this work order quantity is received

Location

- The location code associated with this inventory transaction
  - Use *Multi Entry* mode to enter more than one location on an inventory transaction

Lot/Serial

- The lot/serial number associated with this inventory quantity
  - Use *Multi Entry* mode to enter more than one lot/serial number on a transaction

Ref

- Lot reference, with site, location, and lot/serial number, specifically identifies inventory quantities
  - Lot reference may be the production lot of the item or it may be a location reference such as a skid, roll, or pallet number
  - Use *Multi Entry* mode to enter more than one lot reference on an inventory transaction

Multi Entry

- Indicates whether this inventory transaction references multiple sites and locations, or multiple lot/serial numbers or lot reference numbers
- *No*: This inventory transaction is processed using the site, location, lot/serial, and lot reference entered on this screen
- *Yes*: Another entry screen is displayed, allowing you to enter multiple lines for this inventory transaction

Chg Attributes

- Indicates whether to accept the default inventory attributes
- *No*: Receive the items into the inventory location specified and assign the default inventory attributes
- *Yes*: A pop-up window appears, prompting you to enter the Inventory Status, as well as Assay %, Grade, Expire Date, and the Active settings

Remarks

- Any remarks associated with this transaction, such as source or reason
- This field is for reference only and may appear on some selected reports and inquiries

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Close

- Indicates whether to set the work order status *C* for Closed

Effective

- The general ledger effective date associated with this inventory transaction
- The default is the system date

Display item and lot/serial detail

- Click Yes to display detail lines
- Click No to accept the data for processing

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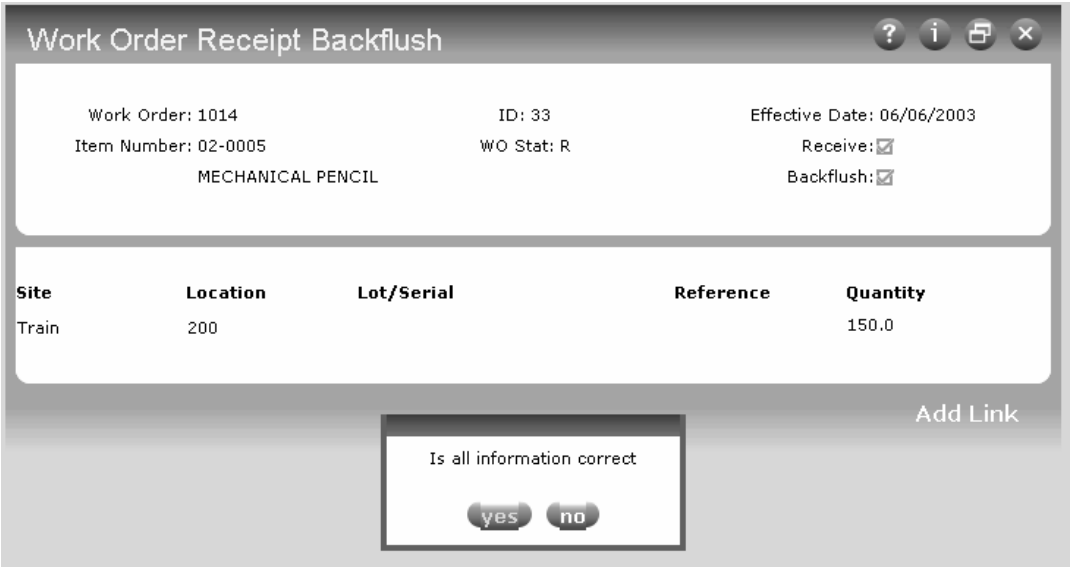
Work Order Receipt Backflush: Screen 2 of 6



eB-WO-PR-640

Is all information correct?

- *Yes:* Advance to the next screen
- *No* or *Cancel*: Return to the entry screen

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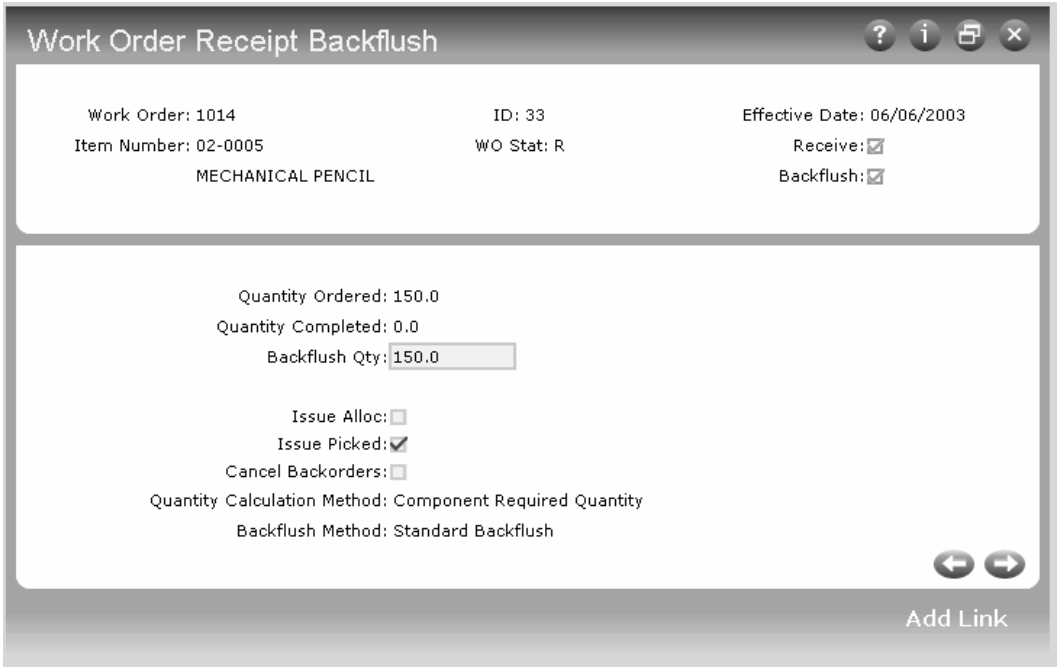
Work Order Receipt Backflush: Screen 3 of 6



eB-WO-PR-650

Backflush Qty

- The quantity to use when backflushing components from inventory
- The default is the quantity ordered, entered on the first screen
- Normally components are backflushed from inventory using the component quantity per multiplied by the receipt quantity
- In the Component Issue frame that follows, you can modify the issue information that the system calculates

Issue Alloc

- Indicates whether to issue allocated inventory

Issue Picked

- Indicates whether to issue picked inventory

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Cancel B/O

- The setting entered here is used as the default for each component item to be issued
- *No:* Any remaining quantity required for a component remains open (on backorder) for future issuance to the work order
- *Yes:* Cancel this component requirement
  - The quantity remaining is not issued later; the quantity required is set to zero and MRP is notified of the decreased requirement

Note Set this to *Yes* ONLY on the final Work Order Receipt Backflush. Using it on interim receipt backflushes causes variation in the calculation of the final receipt backflush component issue quantities.

Quantity Calculation Method

- Select the calculation method used to determine the Quantity to Issue for all components
  - You can adjust each issue quantity on a line-by-line basis in the detail screen
- The default is *Component Required Quantity*
- Other valid choices are *Work Order Bill Qty Per* and *Phantoms First*
- The Quantity Calculation Method works in conjunction with *Backflush Method*

Backflush Method

- Defines whether to use the backflush quantity entered, or to include prior issues and receipts against this order
- The default is Standard Backflush
- The other choice is net of prior issues and receipts
- Quantity Calculation Method works in conjunction with Backflush Method

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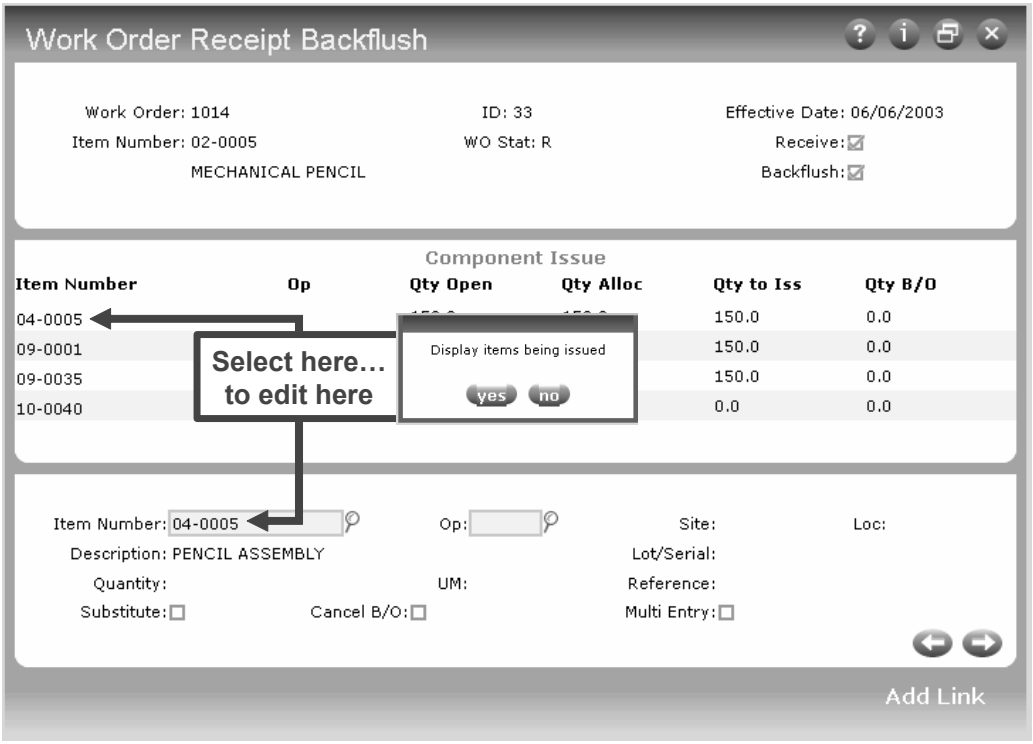
Work Order Receipt Backflush: Screen 4 of 6



eB-WO-PR-660

This screen allows you to approve the entire work order or to correct individual item quantities. You select the items in the top half and correct them in the bottom of the screen.

Item Number

- Select the item to change its quantity or operation

Op

- Select the operation number

Quantity

- Enter quantity to backflush

Substitute

- Indicates if a substitute item is being entered for this component

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Cancel B/O

- Indicates if any remaining component quantity required is to be placed on backorder or cancelled

Site

- The site where this work order quantity is received

Loc

- The location code associated with this inventory transaction
- Use *Multi Entr*y to enter more than one location on an inventory transaction

Lot/Serial

- The lot/serial number associated with this inventory quantity
- Use *Multi Entr*y to enter more than one lot/serial number on a transaction

Ref

- The lot reference associated with this inventory transaction
- Use *Multi Entr*y to enter more than one lot reference on an inventory transaction

Multi Entry

- Indicates whether this inventory transaction references multiple sites and locations, or multiple lot/serial numbers or lot reference numbers
- *No*: This inventory transaction is processed using the site, location, lot/serial, and lot reference entered on this screen
- *Yes*: Another entry screen is displayed, allowing you to enter multiple lines for this inventory transaction

Display items being issued

- *Yes*: Display the items
- *No*: Do not display the items

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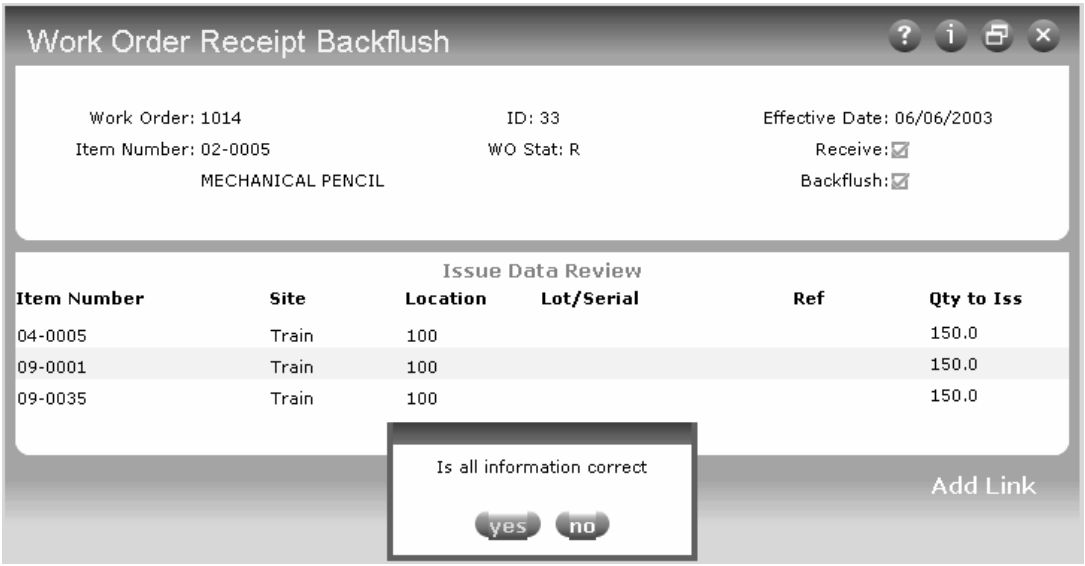
Work Order Receipt Backflush: Screen 5 of 6



eB-WO-PR-670

Is all information correct?

- *Yes*: Proceed to next screen
- *No*: Return to entry screen

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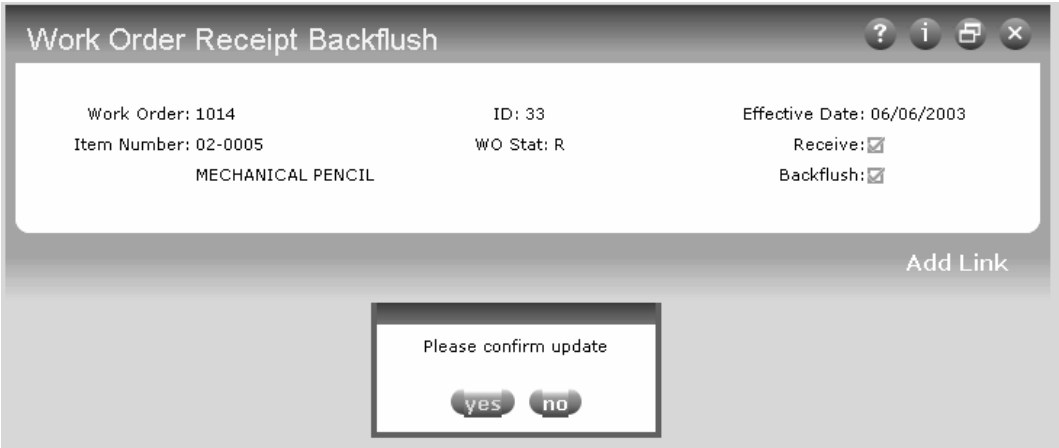
Work Order Receipt Backflush: Screen 6 of 6



eB-WO-PR-680

Please confirm update

- *Yes*: Update the transaction
- *No*: Cancel the update

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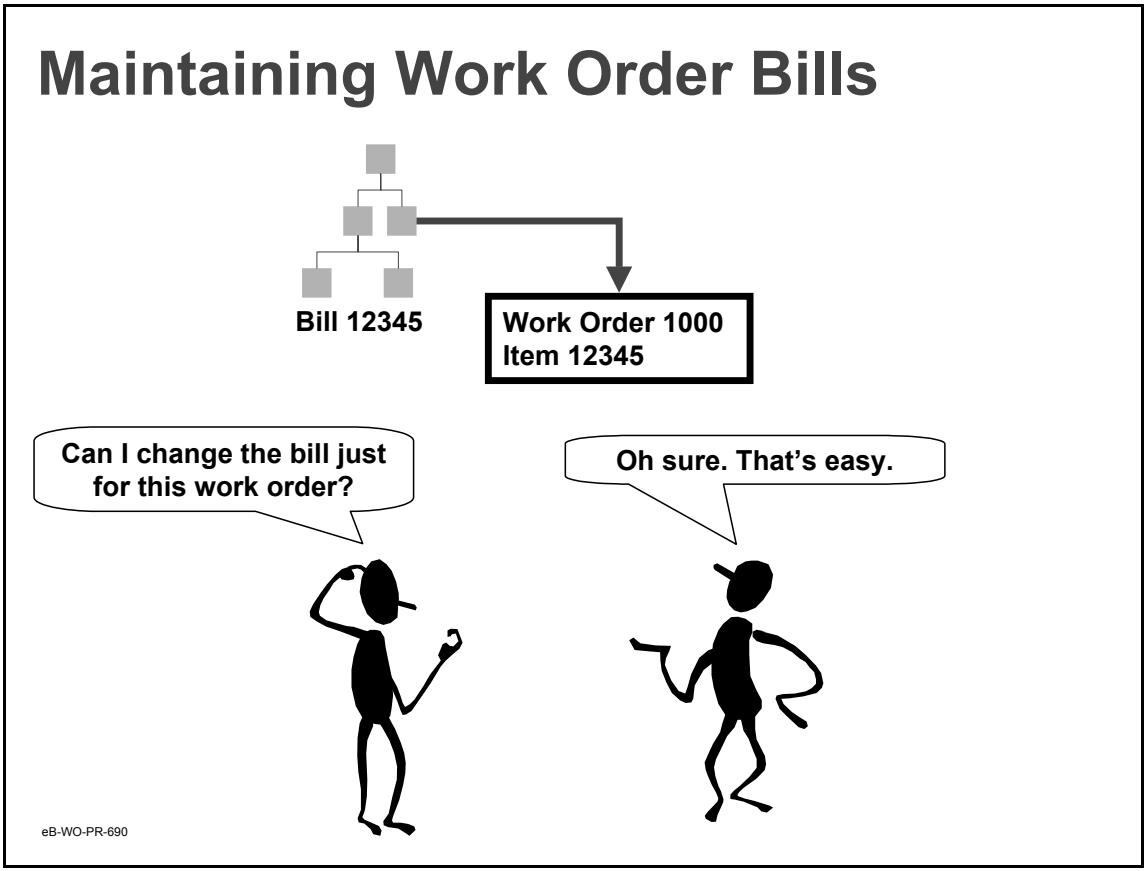

Maintaining Work Order Bills

Every work order has a bill or product structure associated with it. This is normally the structure created for the item produced. You can customize the structure on a work-order-by-work-order basis.

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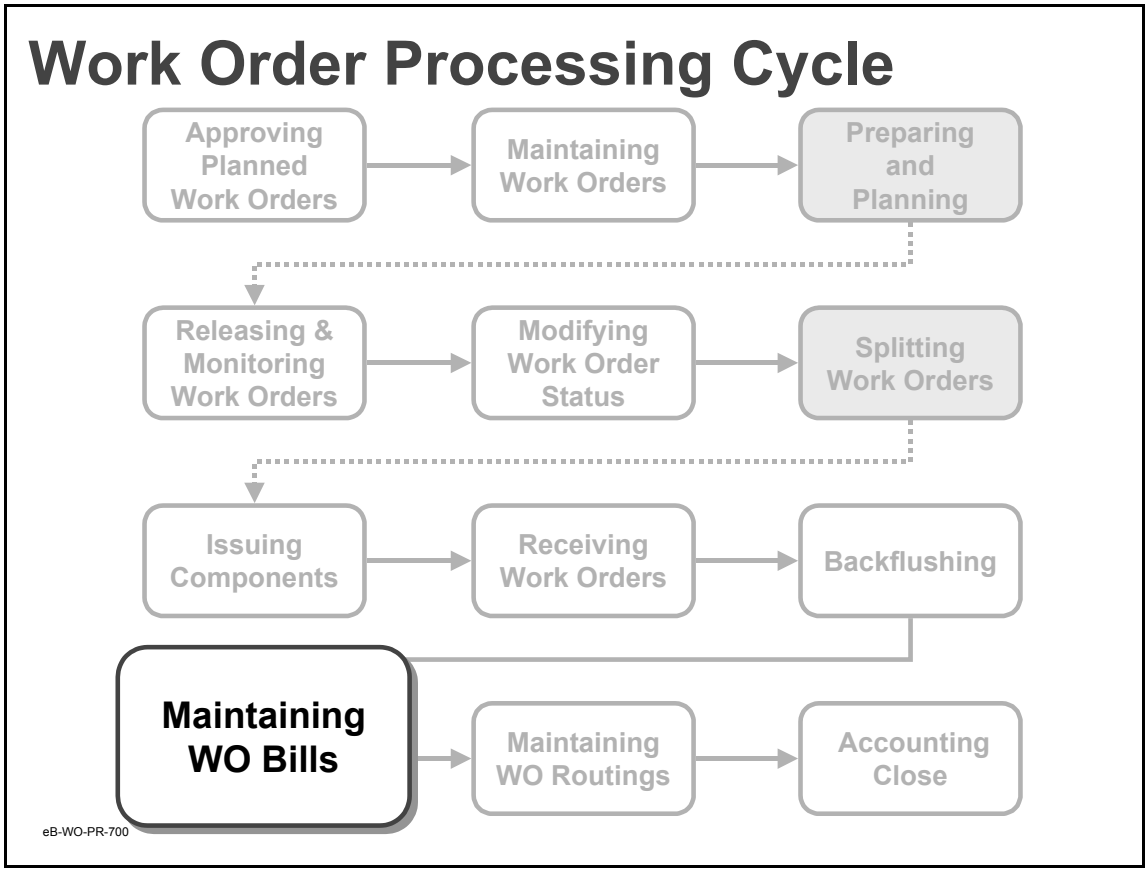

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Work Order Bill Maintenance: Screen 1 of 2

eB-WO-PR-710

Work Order Bill Maintenance

Work order bills—that list components required for a work order—start as the standard bill for that item-site but can be changed manually. Work order bills control component picking and issuing, and provide standards against which variances are calculated. This function enables you to modify the work order's bill.

- Work order bill changes during the manufacturing process are reflected by status codes
  - Planned – MRP plans component requirements based on the standard bill for the item-site
  - Firm Planned – An alternate bill can be specified and used by MRP
  - Exploded – The system makes a copy of the bill specified on the work order, and this is the one you can modify
  - This copy is unaffected by changes to the standard bill

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- As components are issued to this work order, using either Work Order Component Issue or Work Order Receipt Backflush, the Qty Issued is updated in the work order bill

Note Some work orders start out with a different work order bill. Rework orders have only one billed item, the item being reworked. Expense orders have no bill. Final Assembly orders use work order bills equal to the sales order bills. If the sales order configuration is changed, make the same changes to the work order bill.

Work Order / ID

- The work order and ID numbers

Component Item / Operation

- The component item number and the operation number

Qty Required

- The quantity of this component item, including expected scrap, you expect to use to complete this work order
  - When the work order bill is exploded, quantity required is set to the standard component quantity per multiplied by the work order quantity, and then adjusted upward to account for any scrap percentage on the bill
- To use more or less of this item, modify the quantity required on the work order bill so that work order variances will be calculated correctly

Qty Allocated

- The quantity allocated to this work order
  - Cannot be greater than the quantity required

Qty Picked

- The quantity printed on a picklist for this component
- If component quantities are increased or if new components are added to the work order bill, another picklist can be printed listing only these quantities

Detail Allocations

- Specifies if detail allocations are made for this component item
  - Use detail allocations to assign specific inventory lot/serial numbers and locations to the order
- *Yes:* Detail allocations are to be made for this component
  - The next screen prompts you to enter the location, lot/serial, and lot reference numbers to use on this order

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- *No*: General allocations are sufficient

Qty Per Unit

- The quantity of this component item called for in the standard bill of material
- When components are issued to a work order, material costs are posted to WIP as the quantity issued multiplied by the GL cost

Unit Cost

- The total GL cost of this component item when the work order was exploded
- This cost is used for calculating material rate variances

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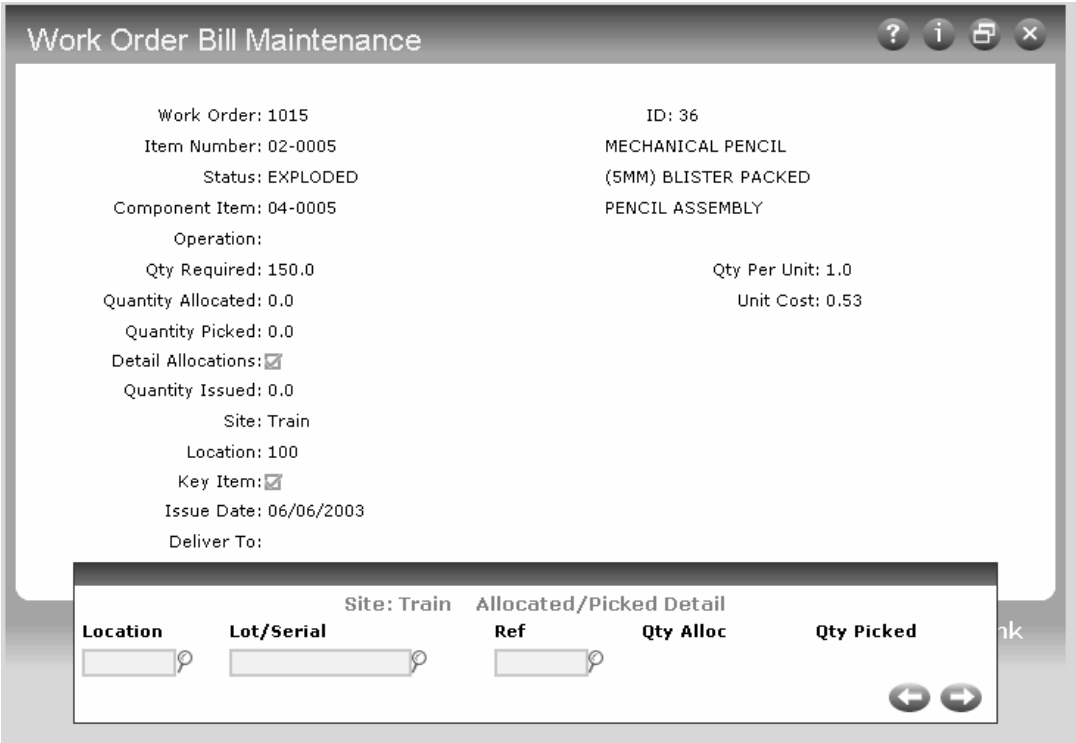
Work Order Bill Maintenance: Screen 2 of 2



eB-WO-PR-720

Maintaining Work Order Routings

Work order routings list all operation steps for a given work order and provide standard operation costs against which variances are calculated. They begin as the standard routing for that item-site but can be changed manually.

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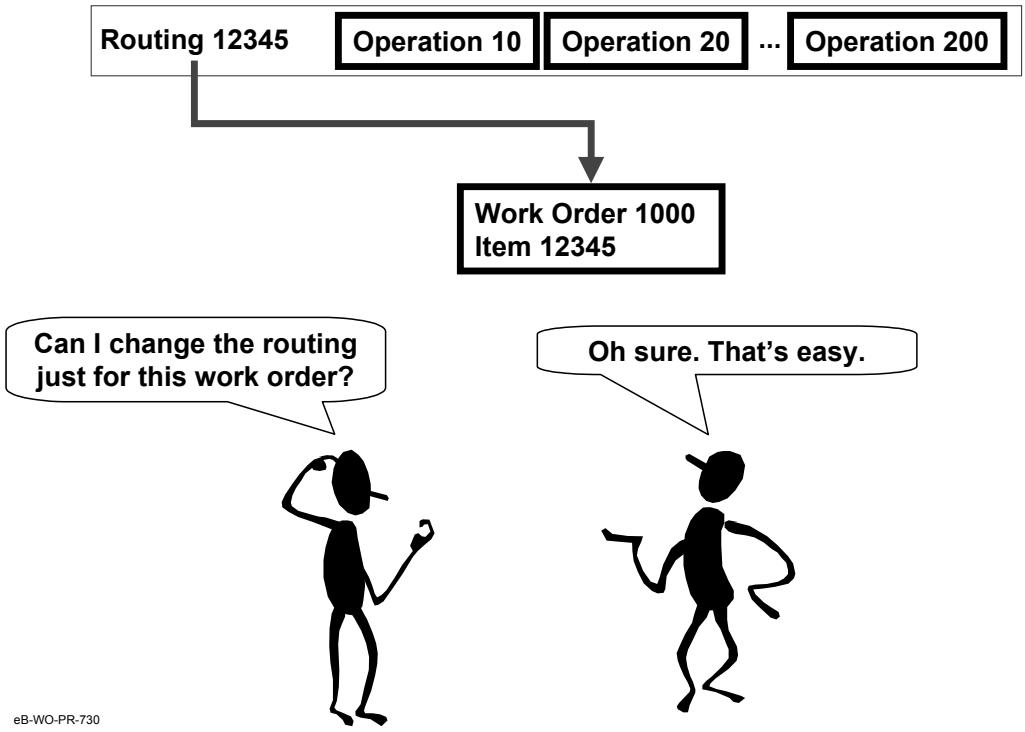
Maintaining Work Order Routings



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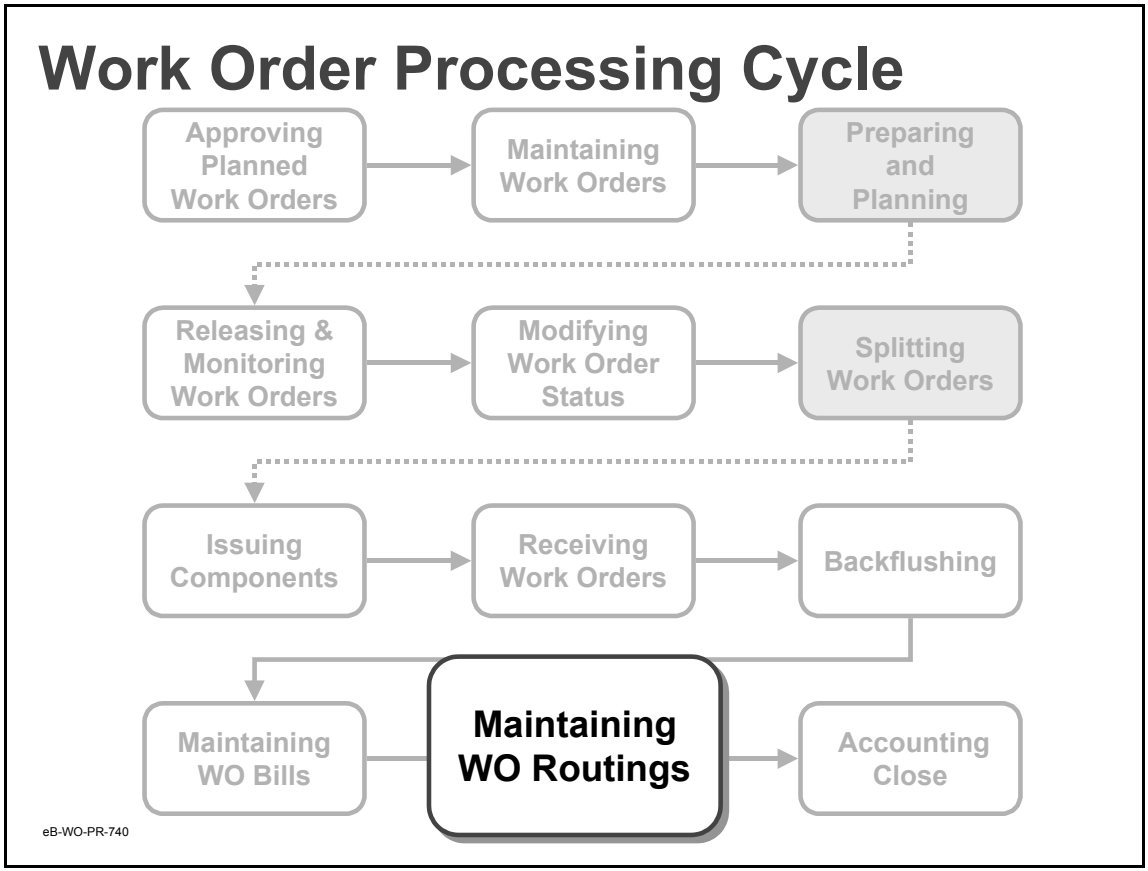

Work Order Routing Maintenance

This function enables you to customize routings on individual work orders. Work order routings list all operation steps for a given work order and provide standard operation costs against which variances are calculated. They begin as the standard routing for the relevant item-site but can be changed manually.

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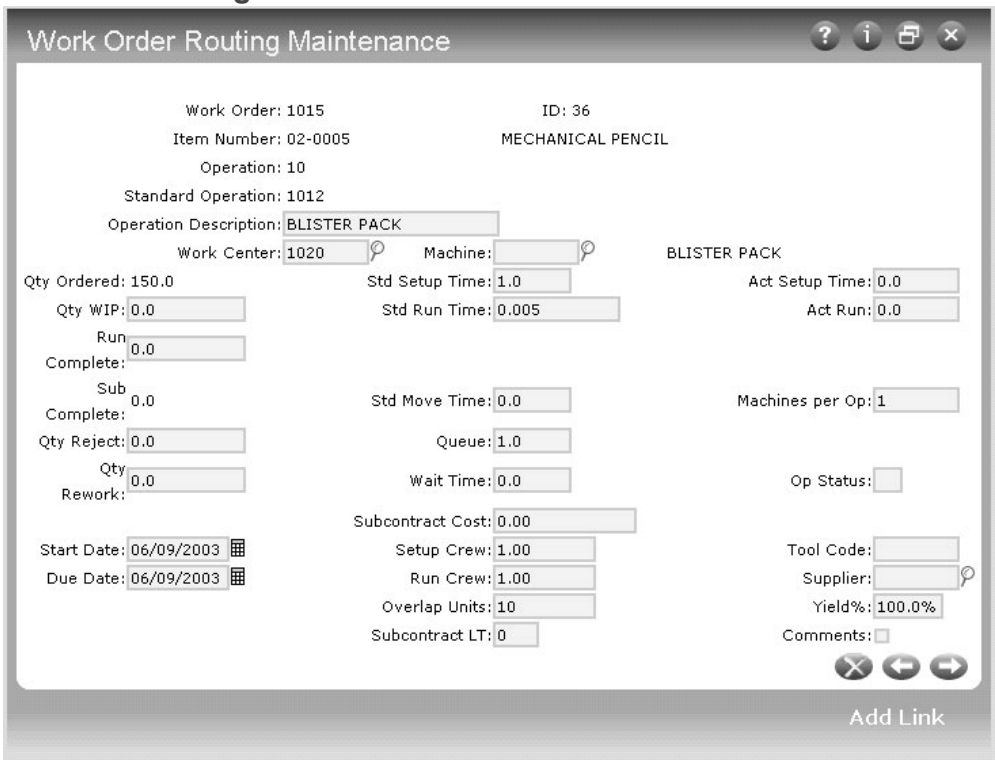
Work Order Routing Maintenance



eB-WO-PR-750

Work Order / ID

- The work order and ID numbers

Item Number

- Display only

Operation

- The operation number identifying a manufacturing step required for this work order

Standard Operation

- Display only

Description

- A short description of this manufacturing operation

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  - This description prints on most reports, inquiries, and printed shop documents

Work Center

- The work center where this operation is normally performed
  - If work is reported at a different work center than planned, any difference in work center labor or burden rates is written off as a work order rate variance

Machine

- The machine normally performing this operation

Qty Ordered

- Display only

Note The following fields concern quantities at the operation. When using Shop Floor Control, do not change quantities manually using Work Order Routing Maintenance.

Qty WIP

- The quantity in process at this operation
- As the work order proceeds through the manufacturing process, you can monitor the quantity moved from operation to operation
- You can set Work In Process (WIP) quantity manually using the Operation Move transaction, or automatically as labor and completions are reported
- The quantity completed may not be the same as the WIP quantity due to rejects, scrap, or rework—you may start 100 units at the first operation, but get 95 out of the last operation, a loss of 5 units during the process

Run Complete

- The quantity completed at this operation—the number of good items received not including any scrap or reject quantity

Sub Complete

- Display only

Qty Reject

- The quantity rejected at this operation

Qty Rework

- The number of items at this operation that needed rework before continuing to the next operation
- When you have usage variances, look at the rework quantities; rework can account for much of this, since it requires more material and labor than expected

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Start Date

- The date this operation is scheduled to begin
- The system calculates scheduled start and stop dates upon work order entry but they may be adjusted manually
- Scheduled dates print on the work order routing document, and help CRP calculate capacity loads

Due Date

- The date this operation is scheduled to be completed
- The system calculates scheduled start and stop dates upon work order entry but they may be adjusted manually
- Scheduled dates print on the work order routing document, and help CRP calculate capacity loads

Std Setup

- The standard time, in decimal hours, it takes to prepare this work center to carry out this operation, independent of order quantity
- If actual setup labor is not reported for an operation, the system assumes that standard setup was completed and was not reported; setup is posted at standard during Work Order Accounting Close.
- Actual setup can be compared to standard setup

Std Run

- The time, in decimal hours, it normally takes to process one unit at this operation
- Actual run times can be compared to standard
- The system applies the standard setup time if the setup time reported in the Shop Floor module is zero when this operation is closed on a work order

Std Move

- The time, in decimal hours, it normally takes to move work from this operation to the next, independent of order quantity
- Since move time is often dependent on what the next operation is, this normally is changed on each routing or process operation
- Move time is stated in terms of the Order Quantity of the item, but may be changed manually on the work order

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Queue

- The time, stated in decimal hours, a job normally waits at this work center before this operation is set up and processed

Wait

- The wait time, in decimal hours, for this routing operation – the time a job normally spends waiting at this work center after this operation has been completed

Setup Crew

- The number of people normally required to set up this operation
- This field is for reference only and may appear on some selected reports and inquiries
- No scheduling or cost calculations use setup and run crew

Run Crew

- The number of people normally required to run this operation at this work center
- This field is for reference only and may appear on some selected reports and inquiries
- No scheduling or cost calculations use setup and run crew

Overlap Units

- The number of units that must be completed at this operation before work can begin at the next operation
- This value is the default on all work orders referencing this routing code and may be changed on each work order routing
- If overlap is not used, overlap quantity should be zero
- In a process flow industry, normally overlap quantity is 1

Subcontract LT

- The average number of calendar days it normally takes a subcontractor to perform this operation

Act Setup

- The actual time, in decimal hours, spent setting up this work center for this operation

Act Run

- The actual time, in decimal hours, spent working on this operation, apart from setup time

Machines Per Op

- The number of machines at this work center that may work at the same time to process a given operation

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Status

- The current status of a work order operation
- Operation status tracks a work order through the manufacturing process and can be set manually using Work Order Routing Maintenance, or automatically using Shop Floor Control functions
- Operation status displays on most reports and inquiries
- Values may be blank, Q, S, R, C, or H
- Status codes:
- *Blank*–When a work order is first exploded, all operation status codes are blank
- *Q* – Queue: The operation is waiting to be set up and run at the designated work center
  - Usually when a work order is released it is moved into queue at the first operation
  - When an operation is completed, it can be moved into queue at the next operation automatically or using the Operation Move transaction
- *S* – Setup: The work center is in the process of being set up to run this operation
  - Status is changed to *S* when setup time is recorded in the Shop Floor Control module
- *R* – Running: This operation is in process
  - Status is changed to *R* when run time is recorded in the Shop Floor Control module
- *C* – Complete: This operation is complete
  - This can be set automatically when reporting labor for this operation, or at operations after this one
- *H* – Hold: This operation is on hold, perhaps waiting for a machine to be repaired or waiting for components
- This can only be set using Work Order Routing Maintenance

Tool Code

- A code identifying the tool normally used by this operation
- This field is for reference only and may appear on some selected reports and inquiries

Supplier

- For subcontract operations, the address code of the normal or preferred supplier

Yield

- The normal yield percentage for this operation–the percentage of any order expected to be in usable condition after this operation

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Comments

- *Yes*: Display a screen for input of comments concerning this operation
- *No*: Proceed without accepting comments

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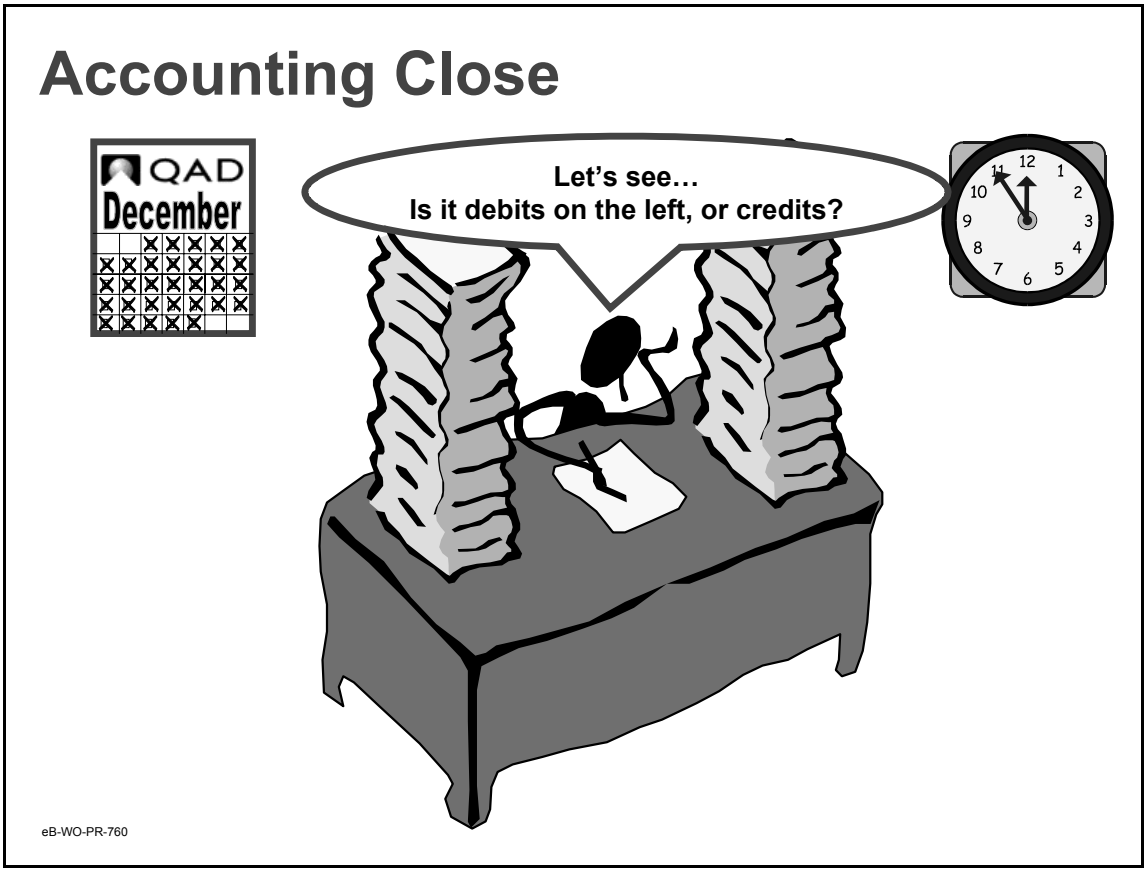

Accounting Close

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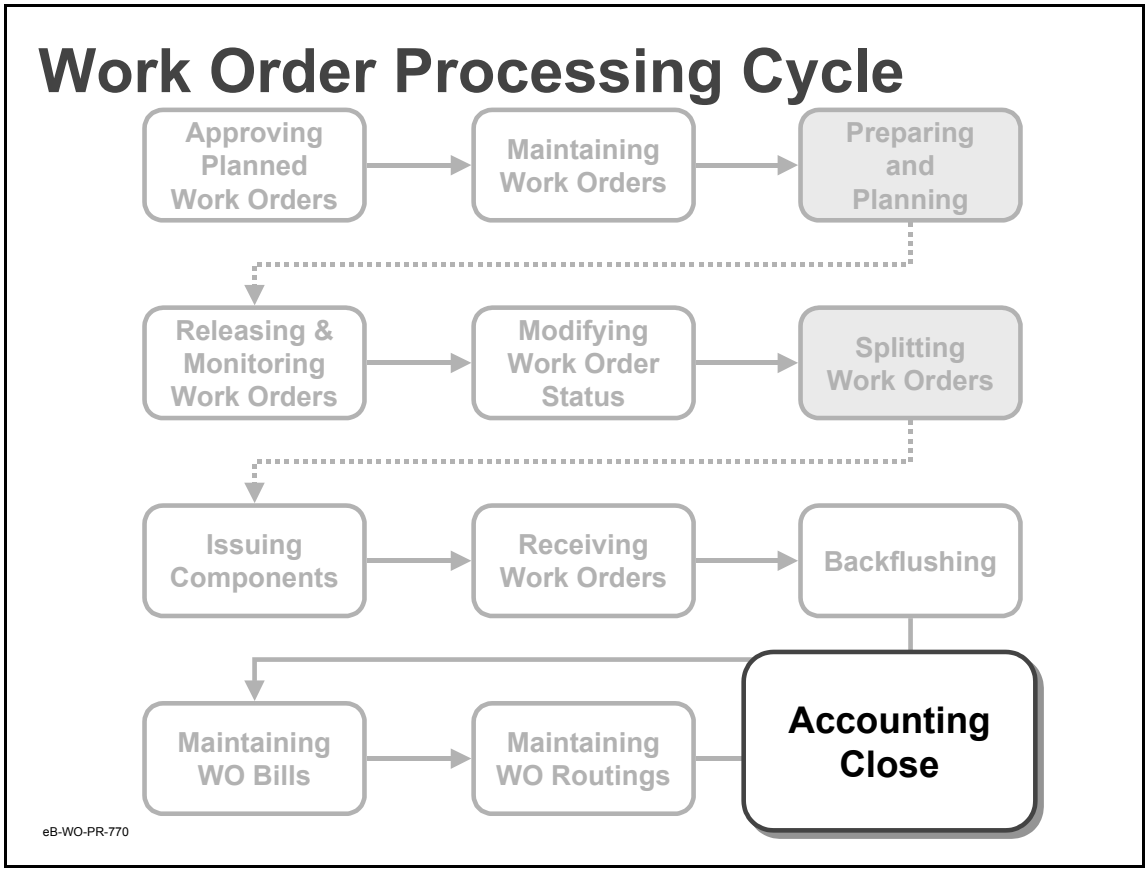

We will be examining WIP Material Cost Revaluation and Work Order Accounting Close.

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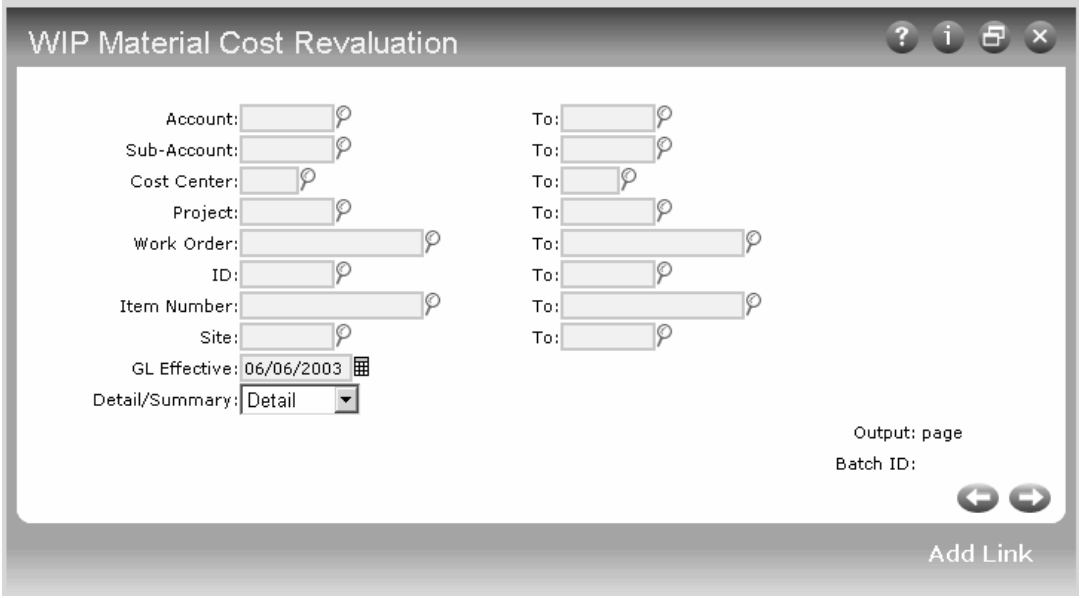
WIP Material Cost Revaluation



eB-WO-PR-780

WIP Material Cost Revaluation

WIP Material Cost Revaluation updates open work orders to reflect changes in GL material costs for components, preventing unaccounted for material rate variances during work order Accounting close. Work-in-process value is updated by component issues, labor reporting, and work order receipts. Once the manufacturing order has been closed, the Accounting Close function calculates and posts variances and zeroes out WIP.

This may take some time to process, so you may want to submit it in batch.

Standard component costs are recorded on work orders at release. When materials are issued to the order, the standard cost of those materials is posted to WIP from the work order bill.

- Use WIP Material Cost Revaluation when:
  - Standard costs change after a work order is released

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  - Additional materials have been issued to WIP
- WIP Material Cost Revaluation updates the work order bill with the currently effective GL cost
  - Any difference between the component issue Unit Cost and the standard cost is posted as a material rate variance
- WIP Material Cost Revaluation does not update product structures or labor and burden costs
- Work order GL references begin with WO
- General ledger transactions
  - Debit the Work in Process Acct from the work order
  - Credit the Material Rate Var from the work order

Note WIP Material Cost Revaluation can't be undone. You may want to back up your database beforehand. This function should be password controlled.

The fields identify the work orders to process.

Account

- The general ledger account recording work-in-process value for this work order

Cost Center

- The cost center (department) to be used to record work-in-process inventory value

Project

- Optional code identifying the project for this work order

Work Order / ID

- The work order and ID numbers

Item Number

- The item being manufactured on this work order

GL Effective

- The date when this transaction is to take effect in the general ledger
  - The default is the system date
- If General Ledger verification is on (in the System/Account Control), the GL calendar is checked to ensure that the effective date is within an open fiscal period

Detail/Summary

- *Detail:* Print details of each transaction, one page for each work order

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- *Summary:* Print transaction totals only

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WIP Material Cost Revaluation: Sample Report

```
Page:    13                                   MFG/PRO Training DB - eB 92                                   Time: 09:17

    Work Order: 1014                  Item Number: 02-0005              Quantity Received: 0.0
             ID: 33                   Description: MECHANICAL PENCIL        Work Order:                     ID:
Item Number:

                                                                                                   Matl Rate
                                                                                 Old          New          Variance
    Item Number          Qty Issued   Qty in WIP BOM Quantity    Matl Cost    Matl Cost       Posted
    ------------------ ------------ ------------ ------------ ------------ ------------ ------------
    04-0005                     0.0          0.0          1.0        0.530        0.530         0.00
    09-0001                     0.0          0.0          1.0        0.025        0.025         0.00
    09-0035                     0.0          0.0          1.0        0.015        0.015         0.00
    10-0040                   0.015          0.0       0.0001        0.030        0.030         0.00

                                                                                            ------------
                                                                          Total:                     0.00
```

eB-WO-PR-790

Sample Report

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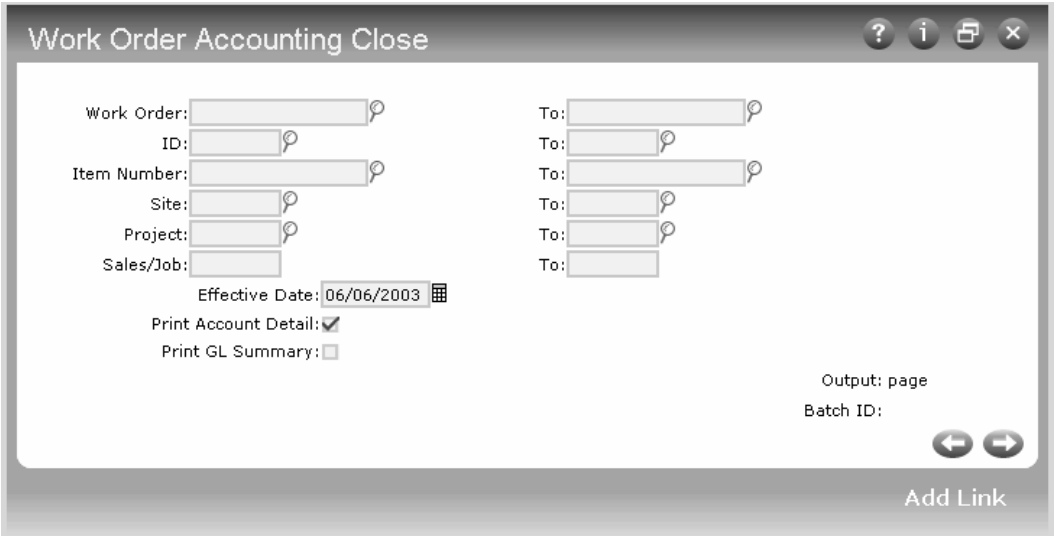
Work Order Accounting Close



eB-WO-PR-800

Work Order Accounting Close

This last step in the work order life cycle affects work orders whose finished items have been received, with a status of *C* for closed.

- Operations can be created in `op_hist` that will not appear on this report.
- You should consider running this function separately for rework (type *R*) and expense (type *E*) work orders if variances need to be reclassified.

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Accounting close goes through SIX steps:

1. For any closed work order, flags any open work order operations as complete and posts the standard labor and burden based on the work order quantities completed
   - If no actual hours have been posted, the standard hours are posted as actual hours
2. Adjusts the quantity complete at any open operation, or at the following operation, where insufficient quantities were reported to total the sum of completions and rejects at work order receipt
   - If the total rejects reported on receipt were greater than those reported at the operations, the difference is added to quantity complete at the final operation
3. Calculates material and subcontract usage variances
   - If 80 units were received but material was issued for 100 units, the excess material cost is posted to Material Usage Variance
4. Deducts floor stock WIP
5. Posts any amount remaining in WIP to the Method Variance account
   - This usually results from using a different work center for an operation or in-process losses such as labor for working on materials that were rejected
6. Updates current costs to reflect the actual cost of labor, burden, and subcontract

Note The GL references begin with WO or IC and are transaction type WO-CLOSE

Work Order / ID / Item Number / Site / Project / Sales/Job

- Use these criteria to select orders to close

Effective

- The date when this transaction is to take effect in the general ledger
- The default is the system date
- If General Ledger verification is on (in the System/Account Control), the GL calendar is checked to ensure that the effective date is within an open fiscal period

Print Account Detail

- Specifies whether to print the GL transaction detail by work order
- *No:* Print GL transaction detail
  - Output appears in sequence by work order number, ID, item number, site quantities ordered, completed and rejected, SO/Job, Project, and Effective Date for each work order

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- *Yes:* Print the general ledger transactions in sequence by GL reference number showing the debit and credit accounts and amount of each WO-CLOSE transaction created for each work order.

Print GL Summary

- Specifies whether to print a summarized list of general ledger amounts on this report
- *No*: No general ledger summary is required
- *Yes*: Print a general ledger summary
  - The GL summary prints on the last page of the report, listing general ledger transactions in sequence by entity, account, sub-account, cost center, and project
  - A consolidated debit or credit amount prints for each combination, with a summary total at the bottom

Note GL Summary should always be set to *Yes* when printing audit reports to file. It is also useful when researching general ledger transaction details. Use with Summary option to print only a short report followed by the GL Transaction summary.

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Work Order Accounting Close: Sample Report

```
wowocl.p 2+                                  16.21 Work Order Accounting Close          Date: 06/06/03Page:    1
              MFG/PRO Training DB - eB 92                                    MFG/PRO Training DB - V86e
                                                   Time: 11:27:54
Work Order         ID       Item Number        Site      Qty Ordered Qty Completed   Qty Reject SO/Job   Project  Eff Date
------------------ -------- ------------------ -------- ------------ ------------- ------------ -------- -------- --------
1000               1000     03-0030            train             2.0           2.0          0.0          DESIGN   01/18/99
                                                                DISPLAY RACK
GL Reference   Type            Dr Acct  CC   Description              Cr Acct  CC   Description                      Amount
-------------- --------------- -------- ---- ------------------------ -------- ---- ------------------------ -------------
WO990118000001 WO-CLOSE        1600          WORK IN PROCESS          6500     5040 LABOR ABSORBED                    10.00
WO990118000002 WO-CLOSE        1600          WORK IN PROCESS          6400     5040 BURDEN ABSORBED                   20.00
WO990118000003 WO-CLOSE        1600          WORK IN PROCESS          6500     5040 LABOR ABSORBED                    10.00
WO990118000004 WO-CLOSE        1600          WORK IN PROCESS          6400     5040 BURDEN ABSORBED                   20.00
WO990118000005 WO-CLOSE                                               1600          WORK IN PROCESS                  -20.00
IC990118000002 WO-CLOSE                                               1600          WORK IN PROCESS                   -9.20
IC990118000003 WO-CLOSE                                               1600          WORK IN PROCESS                  -52.80
IC990118000004 WO-CLOSE                                               1600          WORK IN PROCESS                   -2.30
IC990118000005 Method Change   6200     0500 METHOD CHANGE VARIANCE   1600          WORK IN PROCESS                   18.15
```

eB-WO-PR-810

Sample Report

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Processing Exercises

eB-WO-PR-820

Exercise: Work Orders

Important The data used in this exercise may not be the same as the data shown in the screen captures in this lesson.

This exercise takes you through the creation, release, receipt, and closing of work orders.

1 Use Forecast Worksheet Maintenance to create independent demand for item 90-100 by entering a forecast for it.

Site: Train

Quantity: 100 per week for 12 weeks starting this week

2 Use Selective MRP to run selective MRP and generate planned orders (independent demand).

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Item: 90-100

Site: Train

3 Use MRP Detail Inquiry

Item: 90-100

Site: Train

4 Use Item Inventory Data Maintenance to verify that there is no lot or serial control on the following items:

Item: 90-100	Item: 88-300	Item: 90-2000
Item: 90-3000	Item: 90-4000	

Site = Train

Location = 200

Key item = No

5 Determine the work order number for item 90-100 using Work Order Browse/Inquiry. Write the work order number down; you will use it in the following activities.

6 Use Work Order Release/Print to release a planned work order for the current week.

7 Using Work Order Component Check, see if there are any shortages for the component items.

8 Create balances for each component by entering unplanned receipts for them at Site train, Location 200, using Receipts-Unplanned.

Item: 88-300	Quantity: 200
Item: 90-2000	Quantity: 20,000
Item: 90-3000	Quantity: 30,000
Item: 90-4000	Quantity: 275

Warning This program is not tied to accounting and is normally used at implementation time and never thereafter. We are using it here to simulate Purchase Order receipts.

9 Use Work Order Component Check to verify that the shortages have been made up.

10 Rerun work order release using Work Order Release/Print.

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11 Using Work Order Component Issue, issue the work order items.

12 Use Work Order Receipt to receive the work order without closing it, setting close = No (because we'll close it manually).

13 Using Work Order Maintenance, manually close the work order. Change its status from R to C

14 Using Work Order Accounting Close, close the accounting for the work order.

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Course Overview

- ✓ Introduction to Work Orders
- ✓ Business Considerations
- ✓ Set up Work Orders
- ✓ Process Work Orders

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APPENDIX A

Workshops and Study Questions

Study Questions

1 Explain the status setting for work orders generated by MRP.

2 Explain Work Order Receipt Backflush.

3 Explain the General Ledger posting of a work order receipt.

4 Manufacturing work orders may be planned by MRP or unplanned; i.e., entered manually.

True False

5 A released work order, status R, has only the BOM frozen and not the routing.

True False

6 A usage variance is posted when the quantity used is different from what was planned or expected.

True False

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Answers to Study Questions

1. MRP generates planned work orders with a status of P, Planned. Planned orders must be approved to become status F, firmed.
2. Normally when components are issued to a work order, inventory is reduced immediately upon execution of the issue transaction. In a backflush, the component issue is not recorded until the parent item on the work order is received into inventory.
3. The Work Order Receipt posts the material costs of the components issued, but does not clear the balance in WIP. The WO Accounting Close clears the balance in WIP—posting the unreported run labor, setup labor, any manual updates from WO Routing Maintenance, floor stock to WIP, material usage variance, and method change variance.
4. True
5. False. The status R indicates that both the BOM and routing are frozen.
6. True

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APPENDIX B

Reports, Inquiries, Browses

Work Orders Reports, Inquiries, and Browses

Inquiry	Function / Purpose
Work Order Browse	Displays summary data by work order number.
Work Order Bill Shortage Inquiry	Displays component shortages by work order bill.
Work Order Bill Shortage Report	Prints component shortages by work order bill.
Work Order Bill Shortage by Item	Prints Work ORder Bill Shortages by Item.
Work Order Dispatch Report	Prints upcoming jobs by work center.
Work Order by Order Report	Prints work order data sorted by order number.
Work Order by Item Report	Prints work order data sorted by item number.
Work Order Status Report	Prints work orders by status.
Work Order Cost Report	Identifies work order costs, grouping them into five categories: material, labor, burden, subcontract, and method change.
Work Order WIP Cost Report	Identifies how the WIP balance is supported by work order activity.
Work Order History Report	Documents closed work orders with their bills and routings.

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APPENDIX C

General Ledger Effects of Work Order Transactions

Function	Notes	DR / CR	Account	Defaults From
Work Order Component Issue	Work order and item at same site	DR	Work in Process	Work Order Maintenance
		CR	Inventory	Inventory Account Maintenance [1]
	Work order and item at different sites	DR	Transfer Clearing[2]	Inventory Control
		CR	Inventory	Inventory Account Maintenance [1]
		DR	Material Rate Variance	Work Order Maintenance
		CR	Transfer Clearance	Inventory Control
		DR	Inventory	Inventory Account Maintenance [1]
		CR	Material Rate Variance	Work Order Maintenance
		DR	Work in Process	Work Order Maintenance
		CR	Inventory	Inventory Account Maintenance [1]
Work Order Receipt Backflush	Receipts	DR	Inventory	Inventory Account Maintenance [1]
		CR	Work in Process	Work Order Maintenance
		DR	Work in Process	Work Order Maintenance
		CR	Overhead Applied	Product Line Maintenance
	Rejects	DR	Scrap	Inventory Account Maintenance [1]
		CR	Work in Process	Work Order Maintenance

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Function	Notes	DR / CR	Account	Defaults From
	Backflush (component issue)	DR	Inventory	Inventory Account Maintenance [1]
		CR	Work in Process	Work Order Maintenance
		DR	Work in Process	Work Order Maintenance
		CR	Overhead Applied	Product Line Maintenance
		DR	Work in Process	Work Order Maintenance
		CR	Inventory	Inventory Account Maintenance [1]
Work Order Accounting Close	Floor Stock	DR	Work in Process	Work Order Maintenance
		CR	Floor Stock	Work Order Maintenance
	Material Usage	DR	Material Usage Variance	Work Order Maintenance
		CR	Work in Process	Work Order Maintenance
	Subcontract Usage	DR	Subcontract Usage Variance	Work Order Maintenance
		CR	Work in Process	Work Order Maintenance
	Operation Completion	DR	Work in Process	Work Order Maintenance
		CR	Labor	Department Maintenance
		CR	Burden	Department Maintenance
	WIP Variance	DR	Method Variance	Product Line Maintenance

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Function	Notes	DR / CR	Account	Defaults From
		CR	Work in Process	Work Order Maintenance

[1] The GL account defaults from the inventory item/site account if one is set up; otherwise, from the product line.

[2] Intercompany account instead of Transfer Clearing account if receipt is to a site other than the work order site.

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Index

A
accounting close 153
approving planned orders 67

B
backflush 34
backflushing 126
browses 171
business issue
  backflush 34
  co/by-products 27
  compliance 36
  component issue 34
  configured products 29
  rework 25
  shop floor control 31
  work order closing 33
  work order shortages 35
business issues
  repetitive 24

C
Call Activity Recording 74
capacity requirement planning 69
certification preparation 9
co/by-products 27
compliance 36
component issue 34
components
  issuing 111
Configured Product Control File 30
configured products 29
CRP 69

D
Department Maintenance 175
due date
  definition 17

G
General Ledger Effects of Work Orders 173
Generalized Codes Maintenance 70

I
inquiries 171
Inventory Account Maintenance 174, 175
Inventory Control 174
Inventory Control File 88
issuing components 111
Item Master Maintenance 70
Item Planning Maintenance 50

M
maintaining work orders 74
manufacturing lead time
  definition 17
modifying work order status 101
Multiple WO Status Change 53, 69
Multiple Work Order Release/Print 97
Multiple Work Order Status Change 103

O
Operation Move Transaction 91

P
picklists 94
planned orders
  approving 67
Planned Work Order Approval 47, 69
pre-setup business issues 21
Product Line Maintenance 174, 175

R
receiving work orders 119
related courses 19
release date
  definition 17

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releasing work orders 87
repetitive 24
reports 171
rework 16
rework work orders 25
routing 95
Routing Maintenance 59
routing sheets 95

S

Sales Order Release to Work Order 29, 58
Service Item Maintenance 60
Service/Support Management 60, 74
Shop Floor Control 95, 100, 148, 151
shortages 35
Simulated Picklist 86
splitting work orders 106
System/Account Control File 156, 160

U

Unit of Measure Maintenance 129

W

WIP Cost Revaluation 154
WIP Material Cost Evaluation 155
WIP Material Cost Revaluation
  sample report 158
work in process
  definition 17
Work Order Accounting Close 52, 149, 154, 159, 175
  sample report 162
Work Order Bill Maintenance 59, 92, 141
Work Order Bill Shortage by Item 172
Work Order Bill Shortage by Item Report 108
Work Order Bill Shortage Inquiry 85, 99, 172
Work Order Bill Shortage Report 108, 172
work order bills 14, 139
Work Order Browse 172
Work Order by Item Report 172
Work Order by Order Report 172
work order closing 33
Work Order Component Check 85, 86
Work Order Component Issue 59, 92, 112, 113, 129, 142, 174
Work Order Control File 31, 80
Work Order Cost Report 109, 172
Work Order Dispatch Report 85, 100, 172
Work Order History Report 172
Work Order Maintenance 59, 74, 76, 103, 174, 176
work order processing cycle 66
Work Order Receipt 120, 121
Work Order Receipt Backflush 120, 128, 142, 174
Work Order Release/Print 90, 97
Work Order Routing Maintenance 59, 146
work order routings 14, 144
work order shortages 35
Work Order Split 108
work order splits 17
Work Order Status Report 109, 172
Work Order WIP Cost Report 172
work orders 13
  accounting data 82
  allocated 50
  attributes 81
  backflushing 126
  batch 53
  business issues 21
  closed 52
  cumulative 63
  expense 61
  exploded 49
  final assembly 58
  firm planned 48
  introduction 11
  maintaining 74
  planned 47
  processing 43
  receiving 119
  released 51
  releasing 87
  rework 59
  routable 16
  scheduled 64
  shortages 106
  source 15
  splitting 106
  standard 57
  status 46
  status change 101
  types 55

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