

JD Edwards EnterpriseOne Applications

Product Data Management Implementation Guide

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Preface

Welcome to the JD Edwards EnterpriseOne Applications Product Data Management Implementation Guide.

Audience

This guide is intended for implementers and end users of the JD Edwards EnterpriseOne Product Data Management system.

JD Edwards EnterpriseOne Products

This implementation guide refers to these JD Edwards EnterpriseOne products from Oracle:

- JD Edwards EnterpriseOne Inventory Management.
- JD Edwards EnterpriseOne Procurement and Subcontract Management.
- JD Edwards EnterpriseOne Production and Distribution Planning.
- JD Edwards EnterpriseOne Product Costing and Manufacturing Accounting.
- JD Edwards EnterpriseOne Sales Order Management.
- JD Edwards EnterpriseOne Manufacturing - Shop Floor.
- JD Edwards EnterpriseOne Requirements Planning.

JD Edwards EnterpriseOne Application Fundamentals

Additional, essential information describing the setup and design of your system appears in a companion volume of documentation called *JD Edwards EnterpriseOne Applications Inventory Management Implementation Guide*.

Customers must conform to the supported platforms for the release as detailed in the JD Edwards EnterpriseOne minimum technical requirements. In addition, JD Edwards EnterpriseOne may integrate, interface, or work in conjunction with other Oracle products. Refer to the cross-reference material in the Program Documentation at <http://oracle.com/contracts/index.html> for Program prerequisites and version cross-reference documents to assure compatibility of various Oracle products.

See "Preface" in the *JD Edwards EnterpriseOne Applications Inventory Management Implementation Guide*.

Documentation Accessibility

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Related Documents

You can access related documents from the JD Edwards EnterpriseOne Release Documentation Overview pages on My Oracle Support. Access the main documentation overview page by searching for the document ID, which is 1308615.1, or by using this link:

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To navigate to this page from the My Oracle Support home page, click the Knowledge tab, and then click the Tools and Training menu, JD Edwards EnterpriseOne, Welcome Center, Release Information Overview.

Conventions

The following text conventions are used in this document:

Convention	Meaning
Bold	Indicates field values.
<i>Italics</i>	Indicates emphasis and JD Edwards EnterpriseOne or other book-length publication titles.
Monospace	Indicates a JD Edwards EnterpriseOne program, other code example, or URL.

Introduction to JD Edwards EnterpriseOne Product Data Management

This chapter contains the following topics:

- [Section 1.1, "JD Edwards EnterpriseOne Product Data Management Overview"](#)
- [Section 1.2, "JD Edwards EnterpriseOne Product Data Management Integrations"](#)
- [Section 1.3, "JD Edwards EnterpriseOne Product Data Management Implementation"](#)
- [Section 1.4, "Business Interface Integration Objects"](#)

1.1 JD Edwards EnterpriseOne Product Data Management Overview

To understand the critical role that product data management plays in the business, you must understand the ways in which product data affects businesses and how businesses can more efficiently define, track, manage, and maintain product data. The JD Edwards EnterpriseOne Product Data Management system from Oracle enables you to define manufacturing specific item information, bills of materials, ingredients lists, work centers, routings, and processes.

With this application you can:

- Enter and review bills of material.
- Create work centers, and enter costing and accounting information, use routing instructions, and generate lead times.
- Set up shift information and kanbans for repetitive manufacturing.
- Enter and review processes, operations, ingredients, co-products, and by-products for process manufacturing.
- Set up, review, approve, and print engineering change orders.
- Send and receive data from external systems.
- Set up start dates, manage overlapping and concurrent operations, and calculate lead times.

1.2 JD Edwards EnterpriseOne Product Data Management Integrations

The JD Edwards EnterpriseOne Product Data Management system integrates with these JD Edwards EnterpriseOne systems from Oracle:

- JD Edwards EnterpriseOne Inventory Management.

- JD Edwards EnterpriseOne Requirements Planning.
- JD Edwards EnterpriseOne Procurement.
- JD Edwards EnterpriseOne Product Costing and Manufacturing Accounting.
- JD Edwards EnterpriseOne Sales Order Management.
- JD Edwards EnterpriseOne Shop Floor Manufacturing.
- JD Edwards EnterpriseOne Capacity Planning.

The JD Edwards EnterpriseOne Product Data Management system works with other JD Edwards EnterpriseOne systems to ensure that all product and manufacturing costs are tracked and transacted. We discuss integration considerations in the implementation chapters in this implementation guide. Supplemental information about third-party application integrations is located on My Oracle Support at <https://support.oracle.com/>.

1.2.1 JD Edwards EnterpriseOne Inventory Management

Supplies the basic information about each component (or ingredient), such as part number, description, unit of measure, stocking type, issue type code, location, and lot control information.

Activates flash messaging to warn of a pending engineering change order (ECO).

1.2.2 JD Edwards EnterpriseOne Requirements Planning

Uses JD Edwards EnterpriseOne Product Data Management information to plan finished goods, the raw material, and purchased parts that are required to manufacture them.

Uses sales orders and forecasts to pass demand for items down through the bills of material to the components.

Uses the bills of material to determine component requirements for planned orders and work orders without a parts list.

Master Production Schedule (MPS) uses the effective dates established by ECOs to plan and introduce products.

1.2.3 JD Edwards EnterpriseOne Procurement

Activates flash messaging to warn of a pending ECO.

Uses bills of material for kit processing.

1.2.4 JD Edwards EnterpriseOne Product Costing and Manufacturing Accounting

Uses bills of material (BOMs), routing instructions, and work center information to calculate total material, labor, machine, and overhead costs for each primary unit of the parent item.

Uses bills of material during a cost roll-up to determine the material cost for the parent.

1.2.5 JD Edwards EnterpriseOne Sales Order Management

Uses bills of material for kit processing.

1.2.6 JD Edwards EnterpriseOne Shop Floor Management

Uses bills of material and routing instructions to process work orders and schedule work activity within the plant.

1.2.7 JD Edwards EnterpriseOne Capacity Planning

Retrieves a multilevel bill of material for a master-scheduled item and selects the routing instructions for the components.

Activates flash messaging to warn of a pending ECO.

1.3 JD Edwards EnterpriseOne Product Data Management Implementation

This section provides an overview of the steps that are required to implement the JD Edwards EnterpriseOne Product Data Management system.

In the planning phase of the implementation, take advantage of all JD Edwards EnterpriseOne sources of information, including the installation guides and troubleshooting information.

When determining which electronic software updates (ESUs) to install for JD Edwards EnterpriseOne Product Data Management, use the EnterpriseOne and World Change Assistant. EnterpriseOne and World Change Assistant, a Java-based tool, reduces the time required to search and download ESUs by 75 percent or more and enables you to install multiple ESUs at one time.

See *JD Edwards EnterpriseOne Tools Software Updates Guide*.

For information about the Oracle Business Accelerator solution for implementation of JD Edwards EnterpriseOne Product Data Management, review the documentation available.

See http://docs.oracle.com/cd/E24705_01/index.htm.

1.3.1 Global Implementation Steps

This table lists the suggested global implementation steps for the JD Edwards EnterpriseOne Product Data Management system:

- Set up global user-defined code (UDC) tables.
See "Working With User Defined Codes" in the *JD Edwards EnterpriseOne Tools System Administration Guide*.
- Set up fiscal date patterns.
See "Setting Up Organizations, Setting Up Fiscal Date Patterns" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up companies.
See "Setting Up Organizations, Setting Up Companies" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up business units.
See "Setting Up Organizations, Setting Up Business Units" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up next numbers.

- See "Setting Up Next Numbers" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up accounts, and the chart of accounts. (Optional)
See "Creating the Chart of Accounts, Setting Up Accounts" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up the General Accounting Constants.
See "Setting Up the General Accounting System, Setting Up Constants for General Accounting" in the *JD Edwards EnterpriseOne Applications General Accounting Implementation Guide*.
- Set up multicurrency processing, including currency codes and exchange rates.
See *JD Edwards EnterpriseOne Applications Multicurrency Processing Implementation Guide*.
- Set up ledger type rules. (Optional)
See "Setting Up Organizations" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.
- Set up address book records.
See "Entering Address Book Records" in the *JD Edwards EnterpriseOne Applications Address Book Implementation Guide*.
- Set up default location and printers.
See "Working with Report Printing Administration" in the *JD Edwards EnterpriseOne Tools Report Printing Administration Technologies Guide*.
- Set up branch/plant constants.
See "Setting Up the Inventory Management System, Setting Up Constants, Defining Branch, Plant Constants" in the *JD Edwards EnterpriseOne Applications Inventory Management Implementation Guide*.
- Set up Manufacturing/Distribution automatic accounting instructions (AAIs).
See "Setting Up the Inventory Management System, Setting Up AAIs in Distribution Systems" in the *JD Edwards EnterpriseOne Applications Inventory Management Implementation Guide*.
- Set up document types.
See "Setting Up the Inventory Management System, Setting Up Document Type Information" in the *JD Edwards EnterpriseOne Applications Inventory Management Implementation Guide*.
- Set up shop floor calendars.
See "Setting Up Shop Floor Management, Setting Up Shop Floor Calendars" in the *JD Edwards EnterpriseOne Applications Shop Floor Management Implementation Guide*.
- Set up manufacturing constants.
See [Setting Up Manufacturing Constants](#).

1.3.2 Product Data Management Implementation Steps

This table lists the suggested application-specific implementation steps for JD Edwards EnterpriseOne Product Data Management:

- Set up UDCs.

See [Setting Up User-Defined Codes](#).

- Set up standard procedures.

See [Setting Up Standard Procedures](#).

- Convert quantity decimal places.

See [Setting Up Quantity Decimal Conversion](#).

1.4 Business Interface Integration Objects

A business interface is a set of components that implementation teams can use to create an integration between JD Edwards EnterpriseOne and an external system. Business interfaces can include one or more of these business interface components:

- Business Services
- Real-Time Events
- Batch Import and Export Programs

For additional information about business interfaces, and the business objects available for this product area, see these topics in the *JD Edwards EnterpriseOne Applications Business Interface Reference Guide*:

- Business Interfaces Overview
- Engineering Change Orders

Understanding Product Data Management

This chapter contains the following topics:

- [Section 2.1, "Product Data Management Overview"](#)
- [Section 2.2, "Product Data Management Features"](#)
- [Section 2.3, "Product Data Management Tables"](#)

2.1 Product Data Management Overview

To understand the critical role that product data management plays in the business, you must understand the ways in which product data affects businesses and how businesses can more efficiently track, manage, and maintain product data.

Today's customers want specialized products and short leadtimes from ordering to the delivery of a product. Manufacturers want to respond to the pressure and opportunities that are presented by their customers' needs. The industry currently struggles with manual paperwork, slow response times, lack of systems integration, and product volume versus complexity. Manufacturers need agility to provide specialized products at competitive prices.

To be agile, manufacturers require a method of creating and maintaining critical product information. Manufacturers must then communicate this critical information to the rest of the organization. A company's sales, manufacturing, and service organizations need a fast, accurate, and reliable system. With today's integrated systems, product data management is crucial throughout the organization. Creating product data that meets the needs of various groups and insures accurate data within the organization is vitally important.

The JD Edwards EnterpriseOne Product Data Management system enables you to integrate all of the aspects of product data with the rest of the business operations. This system provides basic data for other manufacturing systems. You must verify that the product data is accurate to ensure the efficiency of associated systems, such as JD Edwards EnterpriseOne Shop Floor Management and JD Edwards EnterpriseOne Requirements Planning.

Accuracy of bills of material, routings, and work center information is essential to the system's overall integrity. Accuracy can be increased and maintained by cross-functional teams if they review new products, product changes, and process changes, as well as bills of material, routings, work center information, and the engineering change management process.

The JD Edwards EnterpriseOne Product Data Management system lets you track the fundamental information that is required to manufacture components, subassemblies,

and end-item products. It includes bills of material, routings, work centers, and engineering change management.

2.1.1 Product Data Throughout the Organization

Bills of material (BOMs), routings, work center information, and engineering change management are used throughout an organization. Although the manufacturing facility is the primary user of routings and work centers, and the bill of material was originally intended for engineering purposes, they are now critical inputs to other areas of an organization. Engineering change management is a tool that is used throughout the organization to communicate changes to product data.

Manufacturing engineers use bills of material to develop and communicate manufacturing requirements, and to indicate how and in what order the product should be built. Work centers are defined and manufacturing routings are then developed. To enhance planning and decrease leadtimes, components on a bill of material are attached to a routing operation step to identify where specific material should be issued and consumed in the manufacturing sequence of the product.

Accounting uses bills of material and routings to run a cost roll-up. From the cost roll-up, you can determine the cost of the product and then determine the product price.

If you sell configured items, you use the bills of material that are created for features and options to create an overall bill of material and routing for the final configured item. The engineering change order (ECO) notifies you of changes to product features and options. If significant changes are required, the customer can be notified about any changes to the features and options of the final product.

Material planners, who usually drive planning and inventory control within the company, use bills of material to determine what manufactured and purchased items are required. Routings and bills of material are used to determine when, where, and what quantities are required to produce parts, and what resources and work centers are required to complete the work orders.

When a work order is created, the engineering bill of material becomes the parts list on the work order. The stockroom uses this parts list to pull parts for the work order. Components are issued to the work order so that inventory is relieved.

After the work order and parts list are issued to the manufacturing floor, the product is manufactured or assembled. A bill of material might also be listed on the engineering drawing that is issued with the work order.

Building the product while cross-referencing the bill of material on the drawing and the parts list attached to the work order:

- Ensures that the part is manufactured to engineering specifications.
- Verifies the accuracy of the bill of material.

The service department uses the parent/component relationships in bills of material to determine what parts must be stocked for warranty and replacement parts.

2.1.2 Types of Manufacturing

Discrete, process, and repetitive manufacturing all use bills of material and routing instructions. The bills of material contain individual parts or components, such as nuts, bolts, wire, plastic, or metal parts of a fixed or variable quantity. Products can be broken down into subassemblies that go into various larger assemblies. The routing

instructions include the operations to be performed, their sequence, the various work centers involved, and the standards for setting up and running the operations.

All types of manufacturing use the term *item* for both the raw materials and finished goods. Not all items are planned, scheduled, or produced in their primary unit of measure. To accommodate this fact, full unit of measure capabilities are enabled throughout the JD Edwards EnterpriseOne Shop Floor Management system. Most entry programs have a Unit of Measure (UOM) field next to the quantity fields. The unit of measure is stored in the database tables with the quantities.

Throughout JD Edwards EnterpriseOne Shop Floor Management, the system uses the values in three fields in the Item Master table (F4101) as default values in entry forms:

- Component Unit of Measure
- Production Unit of Measure
- Primary Unit of Measure

The value in the Primary Unit of Measure field must be the smallest of the three units of measure.

2.1.3 Discrete Manufacturing

Discrete manufacturing is typically characterized by:

- Work orders produce a specific quantity of a single item for a specific completion date.
- Routing instructions are a series of independent operations.
- Components can be manually issued with the release of the work order, backflushed at completion of the work order, or both.

Discrete manufacturing is most often used in these manufacturing environments:

- Make-to-stock, using either a highly repetitive or process order-based system.
- Any of the to-order strategies, such as make-to-order, assemble-to-order, or engineer-to-order.
- The one-off or job shop environment.

Discrete manufacturing is used to produce items such as:

- Cars
- Furniture
- Electronics
- Airplanes

2.1.4 Process Manufacturing

Process manufacturing is typically characterized by:

- Work orders produce multiple items, both co-products and by-products, for a specific completion date.
- Routing instructions are a series of dependent operations that work together continuously.
- Products are often produced in batches or with a continuous process.
- Components or ingredients are often stated in terms of a recipe or formula.

- The quantities of components or ingredients can vary according to their grade or potency.
- Components or ingredients can be issued by preflushing with the release of the work order or backflushed at the completion of the work order.

Process manufacturing is most often used to produce:

- Pharmaceuticals.
- Foods and beverages.
- Raw materials such as lumber, metals, and fluids.

Process manufacturing uses one of these processes:

- **Batch processing:** a product is usually made in a standard run or lot-size that is determined by vessel size, line rates, or a length of standard run.

Items are typically scheduled in short production runs due to the life cycle of the product after its completion. Typical items might be pharmaceuticals, foods, inks, glues, oil or chemical products, and paints. A co-products and by-products list might be generated during batch processing.

- **Continuous processing:** the production period is typically extended, using dedicated equipment that produces one product or product line with slight variations.

This method of manufacturing is characterized by the difficulty of planning and controlling variances in quantity and quality yield. Typical items might be petroleum-based products or distilled seawater. Co-products and by-products are generally more prevalent in continuous processing than in batch processing

Strategies that are similar to discrete manufacturing, including repetitive or any of the to-orders strategies (such as, make-to-order, assemble-to-order, or engineer-to-order) might be used to control the process.

Usually, both batch and continuous processing methods require extensive record-keeping. You must track quality and tolerance values during the process, as well as strictly adhere to *lot tracing* and *lot tracking*. You use lot tracing to display the items that are assigned to a lot. You use lot tracking to display the items that are removed from a lot.

2.1.5 Repetitive Manufacturing

Repetitive manufacturing is typically characterized by:

- Entire production lines are dedicated to a family of products.
- Product families share similar components and routing instructions.
- Products are often manufactured in a continuous process that requires less inventory movement to and from the production line.
- Work center setup and changeover times between related products are minimized.
- Production is defined in units per hour. The time spent at the operational level might or might not be important. Therefore, you must be able to set up line capacity and define routing instructions in units per hour at the line level. The fundamental basis for back scheduling and capacity planning is hours. To view information in units, the system uses a conversion factor defined at the work center level.

- Visual cues, called kanbans, control material movement. Kanbans represent predetermined quantities of components at specified locations on the production line. They are designed to minimize work-in-process inventories.

2.2 Product Data Management Features

The JD Edwards EnterpriseOne Product Data Management system includes:

- Bills of material
- Work centers
- Routing instructions
- Engineering change management

2.2.1 Bills of Material

The bill of material is the primary method for defining and communicating the structure of the product. Although there is no single correct way to structure the bill of material for a product, you can follow some general industry guidelines. These guidelines assist you in determining and developing the levels within the bill, creating part numbers, defining phantoms, and setting up other bill of material issues.

The bill of material was traditionally created, maintained, and used only by the engineering department. However, as bills of material take on new and increasingly important roles within a company, remember to create bills of material that support the needs of all departments. This action eliminates the need to create several different types of bills of material to support the various needs within the company.

Use bills of material to:

- Enter multiple bills of material to maintain many arrangements for an item without creating additional part numbers.
- Access items online by using the item description as search criteria.
- Define quantities of intermediate products in any unit of measure as they progress through the manufacturing process.
- Enter similar items by copying bills of material, routing instructions, and processes; and changing only the information that is unique to each item.

2.2.2 Work Centers

Work centers are the specific, physical locations on the shop floor where routing operations occur. A work center defines basic information such as the machines and number of people employed at the work center. Additional information can include work center rates for labor, machines, and setup, work center capacity, machine utilization, and labor efficiency.

Use work centers to:

- Define work center number, description, and link to business unit.
- Define queue and move times.
- Define operator, machine, and capacity by hours per day.
- Define rates for setup, labor, machine, and overhead.
- Define information for Capacity Planning.

- Define where an item is produced.

2.2.3 Routing Instructions

A routing lists the operations that are required to manufacture a product in sequential order. Each operation within the routing identifies specific information such as the work center and time standards for setup, machine run, and labor hours. Routing operations can also include additional information such as required tools and inspections. Each part in a bill of material can be linked to a routing operation to identify the specific routing operation where a part should be issued from inventory and consumed by the product.

Use routing instructions to:

- Define each step of the manufacturing process with allowances for anticipated yield and scrap for each operation.
- Add alternate operations to routing instructions.

2.2.4 Engineering Change Management

Engineering change management is a general term for the engineering change request (ECR) and ECO processes. Engineering change management is sometimes called engineering change notification (ECN).

The ECR process defines and tracks requested product changes. An ECR is created, reviewed, and approved. It then becomes an engineering change order. You use engineering change management to create, plan, review, approve, and implement product changes. New designs or products can be included in the ECO process or go through a similar process called engineering creation order. ECOs usually include changes or enhancements to existing products. ECOs can also include process specifications. For example, the engineering department might specify a product assembly method that must be followed. Changes are generally made to products to resolve quality and safety issues, or to improve product performance.

Use engineering change orders to:

- Control item changes from a single source.
- Incorporate approved changes to bills of material automatically.

2.3 Product Data Management Tables

JD Edwards EnterpriseOne Product Data Management uses these tables:

Table	Description
Business Unit Master table (F0006)	Stores branch, plant, warehouse, and business unit information, such as company, description, and category codes that are assigned to that entity.
Workday Calendar table (F0007)	Contains workday types for month, year, century, and shift of each branch/plant.
Address Book Master table (F0101)	Stores all address information pertaining to customers, vendors, employees, and prospects.
Work Center Master File table (F30006)	Contains labor, machine, and overhead rates for each work center.

Table	Description
Work Center Rates File table (F30008)	Stores work center rate information, such as simulated and frozen rates for setup, labor, and machines.
Bill of Material Master File table (F3002)	Stores information at the business unit level about bills of materials, such as component requirements, quantity per, issue type, revision level, features and options.
Routing Master File table (F3003)	Stores information about routings, including work centers, operation sequences, yield percentages, and run, setup, and machine time. The system uses this information to calculate labor, machine, and overhead costs.
Work Center Resource Units table (F3007)	Stores daily and monthly capacity information for work centers at each branch by shift.
Manufacturing Constants table (F3009)	Stores general branch/plant information, such as bill of material validation, commitment control, work hours per day and shift, and costing options.
Bill of Materials Change File table (F3011)	Stores all changes to any bill of material, including dates, ECO reasons, and effective dates.
ECO Parts List Detail table (F3013)	Lists the parts that are affected by the ECO.
Component Locator File table (F3015)	Stores the location of a component that you define within a subassembly.
Kanban Master table (F3016)	Stores the set of kanban cards that are associated with an item. Each kanban defines the supplying location, consuming location, quantity, and unit of measure. The system uses next numbers to control the kanban identification number. If the system obtains the item from an external source, the supplier's number is included.
Kanban Card Detail table (F30161)	Stores information that is related to the kanban, such as status, transaction quantity, and date updated.
Work Order Routing table (F3112)	Contains the routing steps for work order or ECO implementation.
Item Master table (F4101)	Stores basic information about each defined inventory item, such as item number, description, category codes, and units of measure.
Line Type Control Constants File table (F40205)	Stores constants for maintaining line types, such as general ledger classification, order type, and record variance.
Item Manufacturing Data table (F4101M)	Stores manufacturing data for each item, such as leadtime, document type, and issue type code.
Item Branch File table (F4102)	Stores the warehouse or plant-level information for an item, such as costs, quantities, category codes, and physical locations.
Item Location File table (F41021)	Stores all inventory locations for an item.
Item Cross Reference File table (F4104)	Stores information that enables you to relate item numbers for a specific purpose.
Work Order Master File table (F4801)	Stores the work order and rate schedule information, such as item numbers, quantities, dates, and status.

Table	Description
Order Routing Approval Master table (F4808)	Contains the address book numbers for the people who are responsible for approving ECOs and the order in which those people should be notified.
WO Supplemental DB User Defined table (F48092)	Stores additional information about ECOs, such as implementation costs.
Order Approval Audit table (F4818)	Contains the approval history of an ECO.

Setting Up Product Data Management

This chapter contains the following topics:

- Section 3.1, "Understanding Product Data Management Setup"
- Section 3.2, "Setting Up User-Defined Codes"
- Section 3.3, "Setting Up Standard Procedures"
- Section 3.4, "Setting Up Quantity Decimal Conversion"
- Section 3.5, "Setting Up Manufacturing Constants"
- Section 3.6, "Defining Document Type Constants for Work Orders"
- Section 3.7, "Setting Up Repetitive Manufacturing Information"
- Section 3.8, "Setting Up Engineering Change Management"
- Section 3.8.2, "Prerequisites"

3.1 Understanding Product Data Management Setup

Before you can use the JD Edwards EnterpriseOne Product Data Management system you must set up:

- User-defined codes (UDCs) and standard procedures for the bills of material.
- Manufacturing constants and decimal settings that are unique to the branch/plants.
- Company work days and shifts by month and year.

You must set up manufacturing information that is necessary for the JD Edwards EnterpriseOne Product Data Management system. This information includes decimal placement for quantities, manufacturing constants, and calendars. If you want the system to display quantities with the decimal set to something other than zero, you must change the decimal setting. You can change the manufacturing constants to record bill of material changes, perform online component and parent validation, and retrieve information from the master routing when attaching the routing instructions. You define workdays and shifts for the branch/plants by month and year by using the shop floor calendar.

See Also:

- "Setting Up Shop Floor Management, Setting Up Shop Floor Calendars" in the *JD Edwards EnterpriseOne Applications Shop Floor Management Implementation Guide*.

3.2 Setting Up User-Defined Codes

User-defined codes (UDCs) are stored in tables by system and code type. For example, system 30, type TB represents JD Edwards EnterpriseOne Product Data Management (system 30) and time basis code (TB). To set up UDCs, use the User Defined Codes program (P0004A) to identify the codes to use. If you are working in a program and attempt to enter a UDC that was not defined on the User Defined Codes form for a particular UDC table, the system displays an error message.

This table lists UDCs that are primary to the JD Edwards EnterpriseOne Product Data Management system:

User-Defined Code	Description
Bill Type (40/TB)	This code indicates the type of bill of material, such as manufacturing bill, rework bill, and spare parts bill. Regardless of the other bill of material types that you define, only the standard manufacturing bill (M) is planned and costed. A planned bill of material facilitates the master scheduling of material planning and forecasting. A costed bill of material extends the quantity per amount of every component by the cost of the components.
Time Basis Code (30/TB)	This code indicates the rate that is used for machine or labor hours as you enter a routing instruction. These programs and systems use the value of the time basis code to determine run time per unit: <ul style="list-style-type: none"> ■ Leadtime Rollup program (R30822A) ■ Product Costing ■ Capacity Requirements Planning ■ Shop Floor Management
Stocking Type Code (41/I)	This UDC table maintains stocking type codes that indicate whether an item is purchased or manufactured. For example, you can define types such as subassemblies and purchased raw materials. M (manufactured) and P (purchased) are hard-coded and appear as the first character in the Description 02 field on the User Defined Codes form. You can use any other letter to define additional make and buy values.
Routing Type (40/TR)	This code indicates the type of routing instruction, such as alternate routing instruction, standard manufacturing routing instruction, rush routing instruction, and rework routing instruction. Regardless of the other routing types that you define, only the standard manufacturing routing (M) is planned for capacity and costed.
Type of Day (00/TD)	This code specifies the type of day on the shop floor calendar. Day type W is hard-coded for workday. You set up codes to identify non-working days.

3.3 Setting Up Standard Procedures

This section provides an overview of standard procedures and discusses how to:

- Set processing options for Standard Procedures (P00191).
- Set up standard procedures.

3.3.1 Understanding Standard Procedures

You can set up codes and text to describe standard procedures for the work orders. For example, you can:

- Designate a specific procedure for a work order or group of work orders.
- Provide a list of instructions to complete a work order.
- Include messages for work orders.

For example, you might set up a code called 1000 for a 1000-hour maintenance inspection. For the 1000 code, you can enter text to describe procedures, such as checking coolant levels and adjusting belt tension.

To avoid retyping similar procedures for every work order, you can also copy the appropriate message text from another procedure.

After you set up standard procedures, you can assign them to the appropriate work orders.

3.3.2 Forms Used to Set Up Standard Procedures

Form Name	FormID	Navigation	Usage
Enter Generic Message/Rates	W00191D	Product Data Management Setup menu (G3041), Std. Procedure Descriptions Select a message type and click Select.	Define standard procedures with instructions for work orders.
General Message	W00191E	On Enter Generic Message/Rates, locate a code and select General Message from the Row menu.	Define the specific instructions supporting the generic message.

3.3.3 Setting Processing Options for Standard Procedures (P00191)

Use these processing options to set default values, identify the text type displayed by the system, and define the display column width.

3.3.3.1 Defaults

These processing options supply default values for the Std. Procedure Descriptions (standard procedure descriptions) program.

1. System Code

Specify a default system code. Enter a valid code from UDC 98/SY.

2. Record Type

Specify a default record type.

3.3.3.2 Display

1. Text Type

Specify the type of text displayed. Values are:

1: Rate Text

2: Message Text

2. Text Column Display

Specify the column width. Values are:

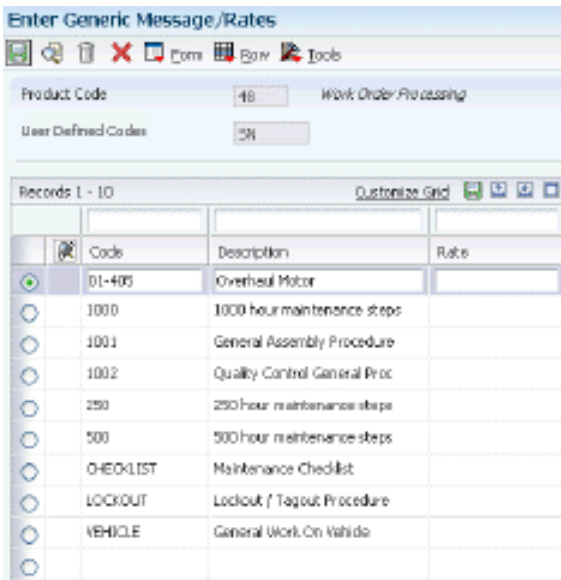
1: 60 Column Display

2: 80 Column Display

3.3.4 Setting Up Standard Procedures

Access the Enter Generic Message/Rates form.

Figure 3-1 Enter Generic Message/Rates form



Product Code

Enter a UDC (98/SY) that identifies a system. Values include:

01: Address Book

03B: Accounts Receivable

04: Accounts Payable

09: General Accounting

11: Multicurrency

User Defined Codes

Enter a code that identifies the table that contains UDCs. The table is also referred to as a UDC type.

Message Number

Displays a list of valid codes for a specific UDC list.

3.4 Setting Up Quantity Decimal Conversion

This section provides an overview of quantity decimal conversion and discusses how to:

- Run Quantity Decimal Conversion.
- Set processing options for QNTY Decimal Conversion (R30QNTY).

3.4.1 Understanding Quantity Decimal Conversion

Some tables in the JD Edwards EnterpriseOne Manufacturing systems from Oracle maintain the Quantity (QNTY) data item:

- Bill of Material Master File table (F3002).
- Bill of Materials Change File table (F3011).
- ECO Parts List Detail table (F3013).
- Work Order LSN table (F3105).
- Rules Table Detail table (F3283).
- Assembly Inclusions Rules table (F3293).

The JD Edwards EnterpriseOne system ships the QNTY data item in the data dictionary with the display decimals set to zero. You can change the decimals on this data item to a value other than zero. If you change the display decimals, the system displays any data that has already been entered into the tables incorrectly on forms and reports. To insure that the display decimals are correct, run the QNTY Decimal Conversion program before anyone enters any new data using the new display decimals.

Use the QNTY Decimal Conversion program to convert the QNTY data items on all affected tables from a specified number of decimal places to a new number of decimal places. You use the processing options to identify these numbers. If you enter 0 as the Display Decimals From value and 2 as the Display Decimals To value, the system adds two decimal places to the existing QNTY value. For example, the system converts 1 to 100 and displays it as 1.00. If you convert from two decimals to zero decimals, the system removes two decimal places. For example, the system converts 100 (displayed as 1.00) to 1.

Note: The system first rounds the value before adding or removing decimal places. If you convert from two decimals to zero decimals, and the display quantity is 1.51, the system rounds the quantity to 2.00 and then converts 200 to 2.

You should run this program only if you have changed the Quantity field to display decimal places. You can run this program in proof mode and final mode. Proof mode displays the changes that you made to the decimal placement but does not update any tables. Final mode displays the changes and updates the tables.

The system performs special processing based on these conditions:

- Prints a warning message when rounding a co-product or by-product quantity on the Bill of Material Master File table or the Bills of Materials Change File table.
- Prints a warning message when rounding a percent bill quantity on the Bill of Material Master File table or the Bill of Materials Change File table.
- Prints an error message, and does not convert the quantity when you are increasing the number of decimals and the quantity value is too large, such as adding decimal positions that would cause an overflow on the nondecimal portion of the quantity.
- Converts only P and Q type records on the Rules Table Detail table and the Assembly Inclusions Rules table.

Important: You should understand the changes that this program makes to the system and the existing data before you run this program. Because of the way that the system stores numeric values in Microsoft Access databases, you should not run this program for any Access tables.

3.4.2 Running Quantity Decimal Conversion

Select Advanced Product Data Management (G3031), QNTY Decimal Conversion.

3.4.3 Setting Processing Options for QNTY Decimal Conversion (R30QNTY)

Use these processing options to convert the QNTY data items on all affected tables to display a new number of decimal places.

3.4.3.1 Process

These processing options determine the display decimals converting from, the display decimal places converting to, and whether you run this program in proof or final mode.

1. Proof or Final Mode

Specify whether the program runs in proof mode and produces a report or final mode and updates the tables. Values are:

Blank: Proof mode

1: Final mode

2. Displays Decimals From

Specify the number of decimal places the system currently displays.

3. Display Decimals To

Specify the number of display decimal places you want the system to use during the conversion process.

3.5 Setting Up Manufacturing Constants

This section provides an overview of manufacturing constants and discusses how to set up manufacturing constants.

3.5.1 Understanding Manufacturing Constants

You set up manufacturing constants to define branch-specific information that affects processing throughout the JD Edwards EnterpriseOne Manufacturing systems. You can use the Manufacturing Constants program (P3009) to specify the values for constants.

3.5.1.1 Manufacturing Constants

These constants specify:

- Whether the system validates bills of material online as you enter them.
- Whether an audit trail tracks all changes made to bills of material.
- Whether the system uses the master routing for an item or the routing instructions that are defined for the parent item.

3.5.1.2 Shifts

These constants specify the number of work hours that the plant typically operates in a day.

Note: Shifts can also be set up by work center. The work center shifts override the shifts set up at the constants level.

3.5.1.3 Commitment Control

These constants specify when inventory is committed and backflushed.

3.5.1.4 Costing Options

These constants specify which overhead cost calculations are used and whether the system considers work center efficiency when it calculates direct labor and overhead costs. You can specify whether costs are maintained by cost components and work center or by cost component only. Costing options also include the source for machine and labor rates.

3.5.2 Forms Used to Set Up Manufacturing Constants

Form Name	FormID	Navigation	Usage
Manufacturing Constants Revision	W3009B	Product Data Management Setup (G3041), Manufacturing Constants On Work with Manufacturing Constants, locate and select a branch/plant.	Set up manufacturing constants.

3.5.3 Setting Up Manufacturing Constants

Access the Manufacturing Constants Revision form.

Figure 3–2 Manufacturing Constants Revision form



Skip to Branch/Plant

Enter a code that represents a high-level business unit. Use this code to refer to a branch or plant that might have departments or jobs, which represent lower-level business units, subordinate to it. For example:

- Branch/Plant (MMCU)
- Dept A (MCU)
- Dept B (MCU)
- Job 123 (MCU)

Business unit security is based on the higher-level business unit.

Log Bill of Material

Indicates whether changes to the bill of material are recorded in the Bill of Material Change File table. When you log bill of material changes, the system saves the old bill of material and the new, changed bill of material. To record changes to the bill of material, click the Log Bill of Material option under the BOM/Routing Options heading.

On-Line BOM Validation (on-line bill of material validation)

Indicates whether the system performs an online component or parent validation and low-level code assignment when you revise a bill of material.

It is recommended that you validate items online unless the bills of material are extremely large. If you select not to validate items online, you must validate the items in batch. Run the Integrity Analysis program (P30601) after updates to the bill of material and before you run the Item Cost Component - Frozen Update program (R30835) or perform a DRP/MPS/MRP generation (R3482).

To specify that the system validates items online, click the On-Line BOM Validation option under the BOM/Routing Options heading. If you do not click the On-Line BOM Validation option, the system does not validate items online.

Master Routings

Indicates whether the system uses the master routing for an item or a routing defined for the parent item. Both routings are retrieved from the Routing Master table.

If you check for master routings, the JD Edwards EnterpriseOne Shop Floor Management system checks the Item Cross Reference table (F4104), cross-reference type MR, for the parent item. If it finds a cross-reference, the program uses the master routing from the Routing Master table. If it does not find a cross-reference, the system uses the routing defined for the parent item. If you do not check for master routings, the program uses the parent item's routing from the Routing Master table.

For JD Edwards World from Oracle, values are:

Y: Yes, use the master routing for an item, if one exists.

N: No, do not check for a master routing for the item.

For JD Edwards EnterpriseOne:

To specify whether the system checks for cross-references and uses a master routing for the item, click the Master Routings option under the BOM/Routing Options heading.

3.6 Defining Document Type Constants for Work Orders

This section provides an overview of document type constants and discusses how to:

- Run the Document Type Master (F40039) Conversion program.
- Set processing options for Document Type Master (F40039) Conversion (R31P40039).
- Run the Order Type Conversion program.
- Set processing options for Order Type Conversion (R31P802).

3.6.1 Understanding Document Type Constants

Document types are used in the software to specify particular types of transactions. You define the characteristics of document types in the Document Type Maintenance program (P40040). The document type constants defined in this program affect all software transactions. The order type for each of the document types must be defined so that the system knows how to process the activity for it. For example, the document type for a manufacturing work order can be set to WO for the correct transactions that relate to the processing of a manufacturing work order.

To differentiate the various work order document types from each other, you assign a specific order type to each work order document type. For example, a manufacturing work order is associated with order type 02.

The order type values for work order processing are stored in the UDC table 48/OT (Order Type) and are hard-coded:

Document Type	Order Type
Manufacturing Work Order	02
Manufacturing Rework Work Order	03
Equipment Work Order	04
Service Order	05
Warranty Claim Order	06
Supplier Recovery Order	07
Engineering Change Order	08
Engineering Change Request Order	09
Real Estate Management	10
ETO Summary Order	11
Rate Schedule	12

Each type of work order is designated by a specific work order type. If you have existing records in the Document Type Master table, these records now require a specific value in the Work Order Type field. You run the Convert F40039 to ERP 9.0 program (R31P40039) only once to enter the desired values in this field. You determine the values entered in the processing options. Depending on which systems you use, you complete the fields on the appropriate tabs. For example, you complete the fields on the Manufacturing tab for manufacturing work orders. You can run this program in either proof mode or final mode.

Different work orders have to be designated by different document types. For example, if manufacturing work orders have document type WO, equipment orders have to be assigned a different document type. To ensure that the different types of work orders have unique document types, you run the Order Type Conversion program. You use the data selection to define which orders in the Work Order Master

File table (F4801) need to be converted. The program assigns new document types to work orders based on the definition in the processing options.

3.6.2 Running the Document Type Master (F40039) Conversion Program

Select Upgrade Conversions (GH9619A), Convert F40039 to EnterpriseOne.

3.6.3 Setting Processing Options for Document Type Master (F40039) Conversion (R31P40039)

Use these processing options to set the order type values.

3.6.3.1 Process

This processing option controls whether you run the conversion program in proof or final mode.

1. Mode

Specify whether the system runs the report in proof or final mode. Values are:

Blank: Proof mode

1: Final mode

3.6.3.2 Manufacturing

These processing options specify which order types are assigned to manufacturing orders during conversion.

Order Type values 01 through 05 for Manufacturing Orders

Specify the order types for manufacturing work orders.

3.6.3.3 Manufacturing Rework

These processing options specify which order types are assigned to manufacturing rework orders during conversion.

Order Type values 01 through 05 for Engineering Change Request Orders

Specify the order types for manufacturing rework work orders.

3.6.3.4 Equipment

These processing options specify which order types are assigned to equipment orders during conversion.

Order Type values 01 through 05 for Equipment Orders

Specify the order type for service work orders.

3.6.3.5 S/WM

These processing options specify which order types are assigned to service during conversion.

Order Type values 01 through 05 for Service Orders

Specify the order types for service work orders.

3.6.3.6 Warranty Claim

These processing options specify which order types are assigned to warranty claim orders during conversion.

Order Type values 01 through 05 for Warranty Claim Orders

Specify the order types for warranty claim orders.

3.6.3.7 Supplier Recovery

These processing options specify which order types are assigned to supplier recovery orders during conversion.

Order Type values 01 through 05 for Supplier Recovery Orders

Specify the order types for supplier recovery orders.

3.6.3.8 ECO

These processing options specify which order types are assigned to engineering change orders during conversion.

Order Type values 01 through 05 for Engineering Change Orders

Specify the order types for engineering change orders (ECOs).

3.6.3.9 ECO Request

These processing options specify which order types are assigned to engineering change request orders during conversion.

Order Type values 01 through 05 for Engineering Change Request Orders

Specify the order types for engineering change request orders.

3.6.3.10 Real Estate Management

These processing options specify which order types are assigned to Oracle's JD Edwards EnterpriseOne Real Estate Management orders during conversion.

Order Type values 01 through 05 for Real Estate Management Orders

Specify the order types for property management orders.

3.6.3.11 Rate Schedule

These processing options specify which order types are assigned to rate schedules during conversion.

Order Type values 01 through 05 for Rate Schedule Orders

Specify the order types for rate schedules.

3.6.3.12 ETO Summary Order

These processing options specify which order types are assigned to ETO summary orders during conversion.

Order Type values 01 through 05 for ETO Summary Orders

Specify the order types for engineer to order summary orders.

3.6.4 Running the Order Type Conversion Program

Select System Administration Tools (GH9011), Batch Versions in the JD Edwards EnterpriseOne Windows environment.

Alternatively, type **BV** in the Fast Path.

3.6.5 Setting Processing Options for Order Type Conversion (R31P802)

Use these processing options to convert an existing order type to a new order type.

3.6.5.1 Default

This processing option defines the new order type to which the selected work orders should be converted.

1. Order Type (to be converted to)

Specify the new order type to which orders are converted. The order type that you specify here is the default order type for the selected records.

3.6.5.2 Process

This processing option controls whether the conversion program runs in proof or final mode.

1. Mode

Specify whether the program runs in proof mode or final mode. When you run the program in proof mode, the system generates a report but does not update data. When you run the program in final mode, the system updates the order type in the Work Order Master File table. Values are:

Blank: Proof mode

1: Final mode

3.7 Setting Up Repetitive Manufacturing Information

This section provides an overview of repetitive manufacturing setup and discusses how to:

- Set up shifts in the manufacturing constants.
- Set processing options for Work Center Resource Units (P3007).
- Set up resource units.

See Also:

- "Setting Up Kanban Management" in the *JD Edwards EnterpriseOne Applications Kanban Management Implementation Guide*.
- "Setting Up Shop Floor Management, Setting Up Shop Floor Calendars" in the *JD Edwards EnterpriseOne Applications Shop Floor Management Implementation Guide*.
- "Setting Up Shop Floor Management, Setting Up Item-to-Line Relationships" in the *JD Edwards EnterpriseOne Applications Shop Floor Management Implementation Guide*.
- "Setting Up Capacity Planning, Determining Available Capacity" in the *JD Edwards EnterpriseOne Applications Requirements Planning Implementation Guide*.

3.7.1 Understanding Repetitive Manufacturing Setup

Repetitive or rate-based manufacturing of discrete products uses manufacturing techniques that are associated with achieving just-in-time or flow line production. Repetitive manufacturing aims to achieve the continuous production of a mix of

similar items on a specialized flow line rather than the traditional work order with its fixed quantity and due date of a single item. It is usually the preferred method with families of products that have minor variations among products with a constant, high-volume demand, such as cameras and electronics.

Repetitive manufacturing dedicates entire production lines to a family of products. These product families share similar components and routing instructions. Generally, these products are manufactured in a continuous process, which requires less inventory movement to and from the production line. Work center setup and changeover times among related products are minimized.

Equipment and work centers are designed to manufacture a family of products and enable quick setup changes. Repetitive environments define production in terms of units per hour. The capacity for the line is determined by one constraining operation. You define the constraining operation as the slowest cell in the line. Scheduling this line requires the tools to schedule, sequence, and balance production. Balancing the line so that the workload is distributed evenly along the production line is very important and you can produce a mix of products with different constraining operations. This product mix, when properly sequenced, enables the production line to operate consistently and efficiently.

The product mix is typically not a large batch of one item. Instead, the mix is the integration of different variances within the product family members through the production line in an order that optimizes the production line. For example, when manufacturing cameras, the cast body remains the same while certain components vary, such as top and bottom covers. The production line can be mixed by ordering the production of cameras: 3 black, 2 silver, 1 black with silver trim, 3 black, 2 silver, 1 black with silver trim, and so on. This product mix meets production demand.

To supply the product line, inventory can be pulled from stock or another work center and delivered as needed to the consuming operation or delivered directly to the line by external suppliers. While requirements for material are driven by demand, movement is controlled by visual cues called kanbans. The kanban authorization to produce is generated by actual demand.

Repetitive manufacturing:

- Decreases work-in-process inventory.
- Increases responsiveness to the customer's requirements.
- Reduces leadtime.
- Ties inventory consumption to production completion.
- Ties frequent supplier deliveries to actual production demand.
- Minimizes non-value-added activities.

Important: All items that are produced in a repetitive manufacturing environment must have an Order Policy Code value of 5, defined in the Item Master program (P4101) or Item Branch program (P41026). This value defines the item as a rate scheduled item.

3.7.1.1 Example: Manufacturing Bicycle Frames

The table illustrates a production line that is operating in a repetitive manufacturing environment.

This production line manufactures three aluminum bicycle frames for three different bicycles:

Consuming Location	Material	Operation Number	Work Center	Description
LA.10	50mm aluminum tubing	10	R-112	Cut to length.
		20	R-121	Mill ends.
		30	R-122	Drill mounting holes and pin.
LA.10	Rear assembly, touring	40	R-112	Cut to length.
		50	R-121	Mill ends.
		60	R-134	Form rear assembly.
LA.70	Head tube light Bottom tube	70	R-101	Weld frame.
LA.80	Front fork, touring	80	R-103	Inspect welds.

3.7.1.2 Repetitive Terminology

You should be familiar with the industry terminology before working with repetitive manufacturing:

Term	Description
Production line	A production line is a sequence of operations that are arranged to produce a family of products. The production line is defined as a work center. The operations that make up the production line might or might not be work centers. You defined these in the routing instruction. The capacity of the production line is determined by the constraining operation within the production line.
Bill of Material	For items produced in a repetitive manufacturing environment, the operation sequence number on the bill of material is crucial to ensure that the components are delivered to the production line at the operations for which they are needed. Because the line is setup to run in a continuous fashion, components typically are setup to be consumed through backflushing, at a specific paypoint, or upon completion.
Routing Instruction	The relationship between the production line and the operations or work centers that the line contains are defined in the routing instructions for the parent item. Each operation is tied to its production line by the line or cell number in the Line/Cell field on the routing instruction. The consuming location is the inventory location from which the production line pulls components that are necessary to produce the parent at a particular operation. The consuming location must be identified in the routing instruction to ensure that inventory is always available to the line. When the system backflushes and relieves inventory from the consuming location, it triggers the kanban, a visual cue, to replenish inventory as materials are consumed.
Kanban	Kanban is a method of just-in-time production that uses standard containers or lot sizes. It is a pull system in which work centers or locations signal that they need to withdraw parts from feeding work centers, inventory locations, or suppliers. This signal alerts manufacturing to build, or suppliers to furnish, the required part in the standard lot size that is defined by the Kanban Master table (F3016).

Term	Description
Item to Line Relationship	Item-to-line defines the relationship between an item produced in a repetitive manufacturing environment and the production line or lines on which the item is produced. Each relationship defines the number of resource units that are required by the line to produce one end product.

3.7.1.3 Shifts

You must identify specific shift information for repetitive manufacturing in three places:

- Manufacturing constants
- Work centers
- Shop floor calendars

You set up information in the manufacturing constants to identify the usual number of work hours by shift that the plant operates in one day. Use the Manufacturing Constants program to establish shifts that are unique to the branch/plants. You can identify up to six shifts for a 24-hour period. However, the work hours per day are calculated only from the first three shifts that are listed.

You must define shop floor calendars by shift so that the system can use the calendars to schedule and sequence lines by shift. To increase plant capacity, you can run production lines for multiple shifts, as well as run different lines of production on different days of the week. The system uses these calendars for line sequencing by shift in repetitive manufacturing. Shift calendars are not used for Distribution Requirements Planning (DRP), Master Production Schedule (MPS), and Material Requirements Planning (MRP).

You can further define a shop floor calendar by using name-specific calendars within a shift. Named calendars are tied to work centers or production lines based on specified shifts. When setting up named calendars you must have a first shift and then you can add additional shifts. The named calendar is used as a basis for generating resource units and calculating line capacity to support the operation of a particular production line.

If you locate a month and year that does not exist, it appears with default values for workdays (Monday through Friday) and weekends (Saturday and Sunday). Holidays are always user-defined.

Enter production line information that corresponds to the facilities on the shop floor. Any work hours per shift that you enter in the Work Center Revision program (P3006) override all of the hours per shift information in the Manufacturing Constants table.

You also set up resource unit information that indicates the capacity of a work center on a given day for a specified shift. Use the Work Center Resource Units program (P3007) to identify additional shifts for the work centers.

Note: When you add resource units for a shift, the system also adds a blank shift that represents the total of all shifts.

3.7.2 Forms Used to Set Up Repetitive Manufacturing

Form Name	FormID	Navigation	Usage
Manufacturing Constants Revision	W3009B	Product Data Management Setup (G3041), Manufacturing Constants On Work with Manufacturing Constants, locate and select a record.	Set up shift information on the Shifts tab.
Work Center Resource Unit Revision	W3007B	Shop Floor Management Setup (G3141), Enter/Change Resource Units On Work with Resource Units, locate and select a record.	Enter shift information for resource units. You cannot manually change the values if the value in the Shift field is blank. A blank value in the Shift field represents the sum of all shifts for a work center for a specific period of time.

3.7.3 Setting Up Shifts in the Manufacturing Constants

Access the Manufacturing Constants Revision form.

Figure 3-3 Manufacturing Constants Revision form, Shifts tab

The screenshot shows the 'Manufacturing Constants Revision' form with the 'Shifts' tab selected. At the top, there are fields for 'Branch/Plant' (set to '1000') and 'Current Manufacturing Center'. Below these are tabs for 'Manufacturing Constants', 'Shifts', 'Commitment Control', and 'Costing Options'. The 'Shifts' tab is active, displaying a 'Work Hours Per Day' field set to '16.00'. Below this is a table with three columns: 'Hours', 'Shift Code', and 'Description'. The table contains six rows. The first row has '8.00' in the 'Hours' field, '1' in the 'Shift Code' field, and 'Days' in the 'Description' field. The second row has '8.00' in the 'Hours' field, '2' in the 'Shift Code' field, and 'Second Shift' in the 'Description' field. The remaining four rows have empty 'Hours' and 'Shift Code' fields and 'No Shift' in the 'Description' field.

Work Hours

Enter the number of work hours that the manufacturing plant operates per day.

Shift Code

Enter a UDC (00/SH) that identifies daily work shifts.

In Oracle's JD Edwards EnterpriseOne payroll systems, you can use a shift code to add a percentage or amount to the hourly rate on a timecard.

For payroll and time entry: If an employee always works a shift for which a shift rate differential is applicable, enter that shift code on the employee's master record. When you enter the shift on the employee's master record, you do not need to enter the code on the timecard when you enter time. If an employee occasionally works a different shift, you enter the shift code on each applicable timecard to override the default value.

3.7.4 Setting Processing Options for Work Center Resource Units (P3007)

Use these processing options to set default values for the Work Center Resource Units program.

3.7.4.1 Defaults

These processing options specify the unit of measure and shop floor calendar version.

Unit of Measure as Input

Specify the default unit of measure. The default unit of measure is HR.

Work Day Calendar

Identify the shop floor calendar version. The default version is ZJDE0001.

3.7.5 Setting Up Resource Units

Access the Work Center Resource Unit Revision form.

Figure 3–4 Work Center Resource Unit Revision form

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Efficiency
						1	100.00
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	Utilization
23	24	25	26	27	28	29	100.00
30	31						
						0	
0	32.00	32.00	32.00	32.00	32.00	0	
0	32.00	32.00	32.00	32.00	32.00	0	
0	32.00	32.00	32.00	32.00	32.00	0	Total
0	32.00	32.00	32.00	32.00	32.00	0	Resource Units
0	32.00						672.00

Total Resource Units

Identifies the total resource units for the month.

Efficiency

Displays a user-defined value that indicates how efficiently a work center operates.

This value usually refers to staff efficiency. When you enter a value in this field, and the Modify Cost by Work Center Efficiency field in the Manufacturing Constants table is set to Y, the system creates a new cost component (B4) from the cost calculated from the direct labor cost (B1).

For example, if the constant is set to Y, the value of this field is 80 percent, and the direct labor cost is 10, the system creates a B4 cost component for 2 in the Item Cost Component Add-Ons table (F30026).

The Refresh Resource Units program also uses this value as a default when calculating rated capacity.

Enter percents as whole numbers. For example, enter 80 percent as 80.00.

Note: The system expects that the routing times entered for each operator are the actual times it takes to complete an operation. Efficiency does not affect total cost. Efficiency does reassign some costs into different cost components. Efficiency does not change the duration or backscheduling of a work order.

Utilization

Displays a percentage that indicates how intensively a work center is being used. This value usually refers to machine use. It is the ratio of the direct time charged for production activities to the planned hours.

The Refresh Resource Units program also uses this value as a default when calculating rated capacity.

Enter percents as whole numbers. For example, enter 80 percent as 80.00.

3.8 Setting Up Engineering Change Management

This section provides an overview of Engineering Change Management setup and discusses how to:

- Set up UDCs for engineering change management.
- Set processing options for ECO Approval Routing Master (P4808).
- Set up an ECO approval routing master.
- Set up order-specific approval routings.

3.8.1 Understanding Engineering Change Management Setup

Before you use Engineering Change Management, you must set up codes, next numbers, and the approval routing master for engineering change orders (ECOs). The codes that you must set up are user-defined and specify the type, priority, and status of the ECO. The UDCs also indicate how the system handles existing items that are affected by the ECO and the reasons for the ECO. You must also set up next numbers to automatically number ECOs according to the specifications. You can set up the system to route the ECO information to specified reviewers for their approval before it is processed. To do so, you must identify an ECO approval routing.

3.8.1.1 Approval Routings

Use an approval routing to maintain a list of reviewers who should receive an electronic mail notification of pending ECOs.

You can set up two types of approval routing:

- Approval routing master.
The approval routing master applies to a specific branch/plant and order type combination.
- Order-specific approval routing.
An order-specific approval routing applies to a specific ECO.

After you set up an approval routing master for the branch/plant, you can customize the routing for a specific ECO.

The system notifies all of the reviewers in a group at the same time. The system notifies the groups in the order that is defined within the UDC. The codes do not have to be numeric. The system waits to send notification to a group until all of the members in the prior group have approved the ECO.

3.8.2 Prerequisites

Before you complete the tasks in this section:

- Define the work centers.
- Define the items in the JD Edwards EnterpriseOne Inventory Management system.
- Ensure that the document type for ECOs is set up in Document Type Maintenance program (P40040).

See [Defining Document Type Constants for Work Orders](#).

- Set up system next numbers.

See "Setting Up Next Numbers" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.

3.8.3 Forms Used to Set Up Engineering Change Management

Form Name	FormID	Navigation	Usage
ECO Approval Routing Revisions	W4808B	Engineering Change Management (G3013), ECO Approval Routing Master On Work With ECO Approval Routing Master, click Add.	Set up approval routings for engineering changes.
Order Specific Routing Approval Revisions	W48182C	Engineering Change Management (G3013), ECO Order Specific Routing Approval	Define an order-specific approval routing.

3.8.4 Setting Up User-Defined Codes for Engineering Change Management

You set up UDCs to use with Engineering Change Management:

User-Defined Code	Description
Work Order/ECO Type table (00/TY)	This code indicates the type of ECO, such as G for government change and R for rework.
Order Type table (48/OT)	This code enables you to distinguish each work order record in the Work Order Master File table (F4801) from other records with different work order types. For example, you do not use the same document type and work order type to represent both an equipment work order and a manufacturing work order. The relationship between the document and its related work order type is defined in the Document Type Maintenance program (P40400).
Work Order Priority table (00/PR)	This code indicates the priority of the ECO, such as H for high priority and 3 for normal priority.
Work Order Status table (00/SS)	This code indicates the status of the ECO, such as EM for emergency and A for approved.

User-Defined Code	Description
Phase In table (40/PH)	This code specifies how to phase in ECOs, such as IMD for immediate and AVL for as available.
Existing Disposition table (40/ED)	This code specifies what to do with existing items that are affected by the ECO, such as CNL for cancel, RWK for rework, UAI for use as is, and SCP for scrap.
Engineering Change Reason table (40/CR)	This code indicates the reasons for defined ECOs, such as CC for customer change and RF for federal requirements.
ECO Next Revision Levels table (30/NR)	This code indicates the sequence of revision levels that are assigned to ECO transactions.

3.8.5 Setting Processing Options for ECO Approval Routing Master (P4808)

Use these processing options to set the default order type and the versions accessed from the Approval Routing Master program.

3.8.5.1 Defaults

Order Type

Specify a default order type. If you leave this processing option blank, the system uses EN.

3.8.5.2 Versions

Address Book (P0101)

Specify the Address Book version the system uses.

3.8.6 Setting Up an ECO Approval Routing Master

Access the ECO Approval Routing Revisions form.

Figure 3-5 ECO Approval Routing Revisions form



Seq# (sequence number)

Enter the sequence set up for the order in which valid environments are displayed for JD Edwards EnterpriseOne.

Enter a sequence or sort number that the system uses to process records in a user-defined order for Oracle's JD Edwards World.

Group

Enter a number used to combine similar records.

Approver# (approver number)

Enter a number that identifies an entry in the JD Edwards EnterpriseOne Address Book system from Oracle, such as employee, applicant, participant, customer, supplier, tenant, or location.

3.8.7 Setting Up Order-Specific Approval Routings

Access the Order Specific Routing Approval Revisions form.

Setting Up Bills of Material

This chapter contains the following topics:

- [Section 4.1, "Understanding Bills of Material"](#)
- [Section 4.2, "Understanding Types of Bills of Material"](#)
- [Section 4.3, "Understanding Bill of Material Terminology"](#)
- [Section 4.5, "Entering a Bill of Material"](#)
- [Section 4.6, "Validating Bills of Material"](#)
- [Section 4.7, "Updating Multiple Bills of Material"](#)
- [Section 4.7.2, "Prerequisite"](#)

4.1 Understanding Bills of Material

A bill of material identifies the manufacture of finished products (end items), subassemblies, and components. Before you create a bill of material, you must first understand the types of bills of material and how they are used. Then you can create a bill of material; define its components, enter reference, grade, or potency information, and substitute item information as necessary. After you have entered bills of material, you can review them to plan and research engineering change orders; view the results of a pending product change; determine the effect of an item shortage; or evaluate capacity, manpower, equipment needs, and other resources.

Use a bill of material to accomplish specific actions:

- Detail specific items and quantities that are used to assemble the parent item.
- Define items as parents or components in the assembly.
- Provide the foundation for Product Costing and Master Production Schedule programs.

A properly structured bill of material:

- Enables efficient storage and maintenance of bill of material information.
- Reflects material flow and how the product is built.
- Permits easy order entry.
- Enables the system to display the master schedule in the fewest end items possible.
- Enables forecasting of optional product features.

An inaccurate bill of material might result in problems:

- Poor material planning.
- Material shortages.
- Inaccurate product costing.
- Increased production costs.
- Delayed shipments.
- Lost sales.
- Excess and obsolete inventory.
- Poor specification control.
- Increased product liability.

The features and functionality that are associated with bills of material enable you to complete these tasks:

- Replace all occurrences of one component with another.
- Plan for component scrap in JD Edwards EnterpriseOne Product Costing and JD Edwards EnterpriseOne Shop Floor Management.
- Substitute one component for another.
- View the producible quantity of an end item for the amount of the component that you enter.
- Print complete bill of material information.
- Copy an existing bill of material and make changes for a new item.
- Offset the required date of a component in a work order from the order start date.
- Locate all bills of material that use a specified part.
- Create multiple versions of the bills of material to present information in formats that are tailored to the needs of different departments.
- Track the status of all bill of material changes.
- Define where a component is located within a specific assembly.
- Check an item's low-level codes.
- Inquire on a bill of material by using a single-level or multilevel format.

Using bills of material in a multiple-plant environment enables you to define different manufacturing data, such as order policy or lot size, for an item that is used in different branches.

You can specify the effective dates for component parts on a bill of material and nonstock, bulk, and expense items. You can also add notes describing tool requirements.

The system uses a bill of material as a master list when generating the parts lists for work orders; cost roll-ups; leadtime roll-ups; Master Production Schedule (MPS), Material Requirements Planning (MRP), and Distribution Requirements Planning (DRP) generation; and kit processing for sales orders.

4.2 Understanding Types of Bills of Material

Depending on the business requirements, JD Edwards EnterpriseOne Product Data Management provides several types of bills of material, including:

- Planning bill of material.
- Batch bill of material.
- Percent bill of material.
- Manufacturing bill of material.

4.2.1 Planning Bill of Material

Use a planning bill of material to facilitate master scheduling and material planning by categorizing product features or options. This bill includes the ratio of each item as determined from sales history.

The planning bill of material is also known as:

- Super bill of material.
- Modular bill of material.
- Transient bill of material.
- Aggregate bill of material.

4.2.2 Batch Bill of Material

Use a batch bill of material to accommodate physical constraints, such as ovens or vats, in industries where products are produced in fixed quantities.

MRP plans orders to fill net requirements by using one or multiple batch quantities. If the system does not find a batch quantity for the net requirement, it uses the next larger batch size. If larger batch size does not exist, MRP uses multiples of the closest smaller batch size until the requested amount is supplied.

MRP functions differently when you have defined multiple batch bills of material.

When only one batch bill exists, the MRP system uses the batch quantity as a:

- Multiple if the net requirements are greater than the batch quantity.
- Minimum if the net requirements are less than the batch quantity.

This table displays the resulting MRP planned order for one batch bill of material:

Batch Quantity	MRP Requirements	Resulting MRP Planned Order
1,000	1,500	1,000
		1,000
1,000	967	1,000

If multiple batch bills of material exist and the net requirement is greater than all of the batch quantities, then the system uses the largest batch quantity in combination with any of the others to satisfy the requirement.

This table displays the resulting MRP planned order for multiple batch bills of material:

Batch Quantity	MRP Requirement	Resulting MRP Planned Order
400	1,500	1,000
600		600

Batch Quantity	MRP Requirement	Resulting MRP Planned Order
800		
1,000		
400	3,000	1,000
600		1,000
800		1,000
1,000		

If multiple batch bills exist and the net requirement does not match, but is less than the largest batch quantity, then the system uses the smallest batch bill that satisfies the requirements.

This table displays the resulting MRP planned order for multiple batch bills of material with requirements that are less than the largest batch quantity:

Batch Quantity	MRP Requirement	Resulting MRP Planned Order
400	780	800
600		
800		
1,000		

4.2.3 Percent Bill of Material

A percent bill of material enables you to express component quantities as a percent of the parent item or process batch quantity. The system converts the batch quantity to the primary unit of measure for the parent item or process.

The system stores quantities for components by:

- Calculating a percentage for the component in relation to the batch size.
- Converting the batch unit of measure to the component unit of measure and stores the quantity for the component.

Note: Percent bills of material are not supported in Oracle's JD Edwards EnterpriseOne Demand Flow® Manufacturing (DFM).

4.2.4 Manufacturing Bill of Material

Use a manufacturing bill of material to document and track components. This type of bill is also known as:

- As-built bill of material.
- Customer order configured bill of material.
- Frozen bill of material.
- Standard bill of material.

4.3 Understanding Bill of Material Terminology

To work with bills of material, you should be familiar with industry terminology:

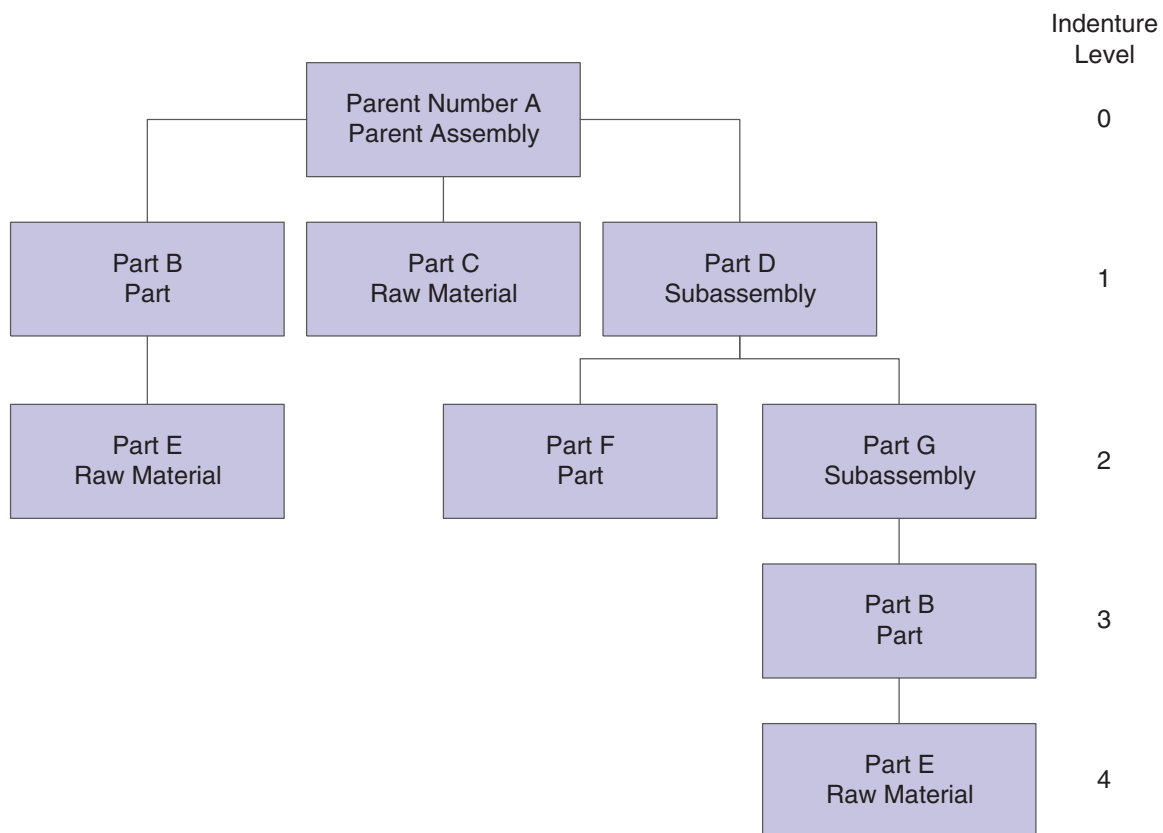
4.3.1 Parent and Component Relationship

A parent and component relationship defines the association between a parent item and the components that you use to produce it. Parent and component relationships are used in engineering change orders to define the proposed item change.

A single-level bill of material consists of a parent item made up of one level of components that include parts, raw materials, and subassemblies.

This graphic illustrates a more complex relationship of a parent item to its components. Part B is both an independent part and part of the subassembly that makes up Part G.

Figure 4–1 Parent and component relationship



4.3.2 Phantom Item

A phantom is an individual item that can exist anywhere in the bill of material. Phantom items are also known by other terms - for example, transient items, nonstock assemblies, and blow-through or self-consumed items.

An example of a phantom item occurs during the production of a spray pump nozzle. The spray pump nozzle consists of a button, tubing, and an insert. The first operation specifies placing the button and inserting items in an automated assembly machine. The machine combines them into a phantom part called a button unit. This unit goes directly to the next operation. After the next operation attaches the tubing, the spray pump nozzle is complete. The button unit, as with all phantom items, is never stocked.

4.3.3 Substitute Item

You can define a substitute item for components within the parent item. You might need to do this for several reasons:

- Quality concerns
- Inventory shortages
- Supplier delivery problems

4.3.4 Component Locator

A component locator indicates the specific location of a component within a subassembly. Component locators are common features in the electronics industry. For example, the printed key pads that cover the keys on the computer keyboard must be placed in a specific sequence. Use a component locator to indicate the location of each key pad cover to ensure that each is correctly placed during production.

4.3.5 Nonstock Item

You can add a nonstock item to the bill of material. Nonstock items include drawings, tools, bulk items, or reference materials. The system does not plan for nonstock items, but they appear on the bill of material and parts list for shop floor personnel. You can enter drawing numbers on the bills of material as nonstock items so that they are printed on the shop paperwork. If the drawing numbers differ for each branch/plant, enter the drawing number as a component.

4.3.6 Tools

If a tool is needed to create the parent item and is located on the shop floor and reused as needed, you can indicate that it is a necessary component item which is required for the parent item. Enter reusable tools as text lines or nonstock items in the bill of material. You enter expendable tools (that is, tools used one time) on the bill of material like any other component item. The manufacturing process commits and consumes expendable tools in the same way as other components. Paint roller pads are an example of an expendable tool.

4.3.7 Bulk Item

You use bulk items on the shop floor. Bulk items are not closely tracked, but are ordered in large quantities as they are needed. Examples include tape, rubber bands, lubricants, cleaning fluid, rivets, and nails. You must enter bulk items in the Item/Branch Plant Information form.

4.3.8 Part Replacement

You might need to replace one part with another in the bill of material. You can either scrap the old part or deplete the inventory.

Use these guidelines to specify a replacement part:

- Leadtime must be set to 0 (zero).
- Order policy code in the branch/plant record must be set to lot-for-lot.
- Bill of material must be entered so that the new part is a component of the old part.
- Stocking type must be set appropriately.

As MRP uses up the quantity of the old part, the quantity reaches zero. Since requirements still exist, the system generates a planned order release. This planned order becomes the requirement for the new item in the same period (because the leadtime of the old part is zero). MRP then plans the new part, which alerts the material planner to change the bill of material by removing the old part.

4.4 Common Fields Used in This Chapter

Is Cd (issue code)

Enter a code that indicates how the system issues each component in the bill of material from stock. In JD Edwards EnterpriseOne Shop Floor Management, the code indicates how the system issues a part to a work order. Values are:

I: Manual issue.

F: Floor stock (there is no issue).

B: Backflush (when the part is reported as complete).

P: Preflush (when the parts list is generated).

U: Super backflush (at the pay-point operation).

S: Sub-contract item (send to supplier).

Blank: Shippable end item.

You can issue a component in more than one way within a specific branch/plant by using different codes on the bill of material and the work order parts list. The bill of material code overrides the branch/plant value.

Quantity

Enter the number of units that the system applies to the transaction.

A number that indicates how many components you use to manufacture the parent item. A quantity of zero is valid. The default value is 1.

UM (unit of measure)

Select a user-defined code (UDC) (system 00/type UM) that identifies the unit of measure for an item. For example, it can be eaches, cases, boxes, and so on.

F V (fixed variable)

Enter a code that indicates if the quantity per assembly for an item on the bill of material varies according to the quantity of the parent item produced or is fixed regardless of the parent quantity. This value also determines if the component quantity is a percent of the parent quantity. Values are:

F: Fixed Quantity.

V: Variable Quantity (default).

%: Quantities are expressed as a percentage and must total 100 percent.

For fixed-quantity components, the JD Edwards EnterpriseOne Work Order Processing system from Oracle and MRP in the JD Edwards EnterpriseOne Requirements Planning system do not extend the component's quantity per assembly value by the order quantity.

Effective From

Enter a date that indicates:

- When a component part goes into effect on a bill of material.

- When a routing step goes into effect as a sequence on the routing for an item.
- When a rate schedule is in effect.

The default is the current system date. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in JD Edwards EnterpriseOne Product Costing, JD Edwards EnterpriseOne Shop Floor Management, and JD Edwards EnterpriseOne Capacity Planning. MRP, in the JD Edwards EnterpriseOne Requirements Planning system, determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates that you enter.

Effective Thru (effective through)

Enter a date that indicates:

- When a component part is no longer in effect on a bill of material.
- When a routing step is no longer in effect as a sequence on the routing for an item.
- When a rate schedule is no longer active.

The default is December 31 of the default year that is defined in the Data Dictionary for Century Change Year. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in JD Edwards EnterpriseOne Product Costing, JD Edwards EnterpriseOne Shop Floor Management, and JD Edwards EnterpriseOne Capacity Planning. MRP, in the JD Edwards EnterpriseOne Requirements Planning system, determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates that you enter.

Percent Scrap

Enter the percentage of unusable component material that is created during the manufacture of a particular parent item. During DRP/MPS/MRP generation, the system increases gross requirements for the component item to compensate for the loss. Enter percentages as whole numbers, for example, five percent as 5.0.

Note: Inventory shrink and scrap are compounded to calculate the total loss in the manufacture of a particular item. Accurate shrink and scrap factors support more accurate planning calculations.

JD Edwards EnterpriseOne Shop Floor Management and MRP inflate component requirements by this percentage. This scrap percentage is unique to the relationship of one parent and one component.

Frm Grd (from grade)

Enter a UDC (40/LG) that indicates the minimum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that do not meet the minimum grade acceptable. The system does not allow you to sell items with grades that do not meet the minimum acceptable level.

Thr Grd (through grade)

Enter a UDC (40/LG) that indicates the maximum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that exceed the maximum grade acceptable. The system does not allow you to sell items with grades that exceed the maximum grade acceptable.

From Potency

Enter a number that indicates the minimum potency or percentage of active ingredients acceptable for an item.

The system displays a warning message if you try to purchase or issue items that do not meet the minimum acceptable potency. The system does not allow you to sell items that do not meet the minimum acceptable potency.

Thru Potency (through potency)

Enter a number that indicates the maximum potency or percentage of active ingredients that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items that have a potency that exceeds the maximum potency acceptable. The system does not allow you to sell items that have a potency that exceeds the maximum potency acceptable.

4.5 Entering a Bill of Material

This section provides an overview of bill of material entry and discusses how to:

- Set processing options for Bill of Material Revisions (P3002).
- Enter a bill of material.
- Enter substitute items.
- Set processing options for Component Locator Revisions (R3015).
- Enter component locators.

Note: If you are using batch bills of material, define a bill of material for batch bills, define routing instructions that correspond to the batch sizes, and set the processing options for the Enter/Change Bill (P3002) and Work With Routing Master (P3003) programs to activate the Batch Quantity field.

4.5.1 Understanding Bill of Material Entry

A bill of material defines an item as a parent or component in the assembly. It details the specific components and quantities that are used to assemble the parent item and provides the foundation for costing and planning activities.

As you define a bill of material, you combine information from F3009, F4101, and F4102 tables. The resulting bill of material is stored in the F3002 table. Changes are stored in the F3011 table.

When you delete a parent item's bill of material, the bills of material for the item's lower level components and subassemblies are not affected.

A parent item is the end result of a bill of material. After you enter a parent item, you can define the specific components and quantities that are used to assemble the parent item. If you are working in a batch manufacturing environment, you can also define the batch quantity. The bill of material displays component information that you defined in the Item Master (P4101) and Item Branch (P41026) programs - for example, issue type code and lead time. In addition, use the Enter Bill of Material Information form to enter grade and potency information for a specific item. You can define either grade or potency information, but not both. You can enter grade or potency information only for items that are defined as lot-controlled.

To enter bills of material for the same parent item but multiple branch/plants, you can copy the original bill of material. Locate the existing bill, select Copy, and enter the new branch/plant.

Use the Enter/Change Bill program (P3002) to enter substitute items for components within the parent item, if necessary. You can use substitute items if you encounter quality issues, inventory shortages, or supplier delivery problems with the original component. To locate substitute items for any of the components, use item cross-references set up in the Item Cross Reference program (P4104).

Substitutes can also be entered by selecting a component line on the bill of material and selecting the row exit to the Bill of Material Component Substitutes program (P3002S). This substitute item will be used for the specific BOM, while the cross reference substitute is used for the item across the system.

Use production information to identify how the system issues each component from stock and how many days the component is needed before or after the start date of the work order. For each component, enter an issue code and the number of days for the leadtime offset. JD Edwards EnterpriseOne Shop Floor Management uses this production information when processing work orders.

4.5.1.1 Planning Bills and Kits

Use planning bills and kits to produce items in which components are features and might not be listed as separate inventory items. When you enter these components as parts of kits, the system places them in the planning and manufacturing processes.

4.5.1.2 Component Locators

Use component locators to indicate the specific location of a component within a subassembly. You can define locations with any combination of characters, but the number of locations must equal the quantity per assembly. To add locators, you call the Component Locator Revisions form from the Enter Bill of Material Information form by selecting Location from the Row menu. The value in the Quantity field on the bill of material indicates the maximum number of locators that you can enter. After you have created a locator for a component, you can access the Component Locator Rev (Revisions) program (P3015) directly from the menu and make changes to the locator information.

4.5.2 Forms Used to Set Up a Bill of Material

Form Name	FormID	Navigation	Usage
Enter Bill of Material Information	W3002A	Daily PDM Discrete (G3011), Enter/Change Bill On Work with Bill of Material, complete the Branch/Plant, Item Number, and As of Date fields and click Add.	Create a bill of material and add components. Define component characteristics.
Enter Component Substitutes	W3002SB	On Enter Bill of Material Information, select a component then select Substitutes from the Row menu.	Enter items that can be substituted if the original component is not available.

Form Name	FormID	Navigation	Usage
Component Locator Revisions	W3015D	Daily PDM Discrete (G3011), Component Locator On Work With Component Locators, complete the Branch/Plant and Parent Item fields and click Find. Select a record and select Revisions from the Row menu.	Define location of component within a subassembly. If the number of the locators that you entered does not match the quantity on the bill of material, the system issues a warning. To accept the entry, click OK again.

4.5.3 Setting Processing Options for Bill of Material Revisions (P3002)

Use these processing options to set default values, control the system display, and specify versions when entering a bill of material.

4.5.3.1 Defaults

These processing options control the default values for the parent branch, the bill of material type, and the current date. The system uses the default values when processing a bill of material. You can also sort the information by component line number or by operation sequence number.

1. Component Branch

Specify whether the system uses the parent branch as the default value in the bill of material records when you copy the bill of material to add a new bill of material.

Values are:

Blank: Component branch.

1: Parent branch.

2. Bill of Material Type

Specify the type of bill of material for the system to use as the default value in the Type of Bill fields. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Enter the bill of material type to use or select it from the User Defined Code form. If you leave this processing option blank, the system uses M.

3. As of Date

Specify whether the system uses the current date as the default value in the As Of Date field in the header area of the Work with Bill of Material form. Enter the date to use or select it from the Calendar. Additional values are:

Blank: Uses * as the default value, which enables the system to select all dates.

1: Uses the current date as the default value.

4. Display Sequence

Specify how the system sorts the information on the Enter Bill of Material Information form. You can select whether to sequence the data by component line number or by operation sequence number.

The component line number indicates the sequence of the components on a bill of material. The operation sequence number indicates the sequence of the fabrication or assembly steps in the manufacture of an item. Values are:

Blank or 1: Component line number.

2: Operation sequence number.

4.5.3.2 Display

These processing options control whether the system displays the Bill Type and Batch Quantity fields. The Bill Type field appears in the header area on the Work With Bill of Material and the Enter Bill of Material Information forms. The Batch Quantity field only appears in the header area on the Enter Bill of Material Information form. If you leave these processing options blank, the system does not display the fields.

1. Bill Type

Specify whether to activate the Bill Type field in the header area of both the Work With Bill of Material and Enter Bill of Material Information forms. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Values are:

Blank: Do not display.

1: Display.

2. Batch Quantity

Specify whether to activate the Batch Quantity field in the header area of the Enter Bill of Material Information form. Batch quantity is the quantity of finished units that you expect a specific bill of material to produce. Values are:

Blank: Do not display.

1: Display.

4.5.3.3 Versions

These processing options control which version of the programs the system uses when processing a bill of material.

1. Single Level BOM Print (R30460) (single level bill of material print)

Specify the version of the Single Level Bill of Material Print program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Single Level Bill of Material program displays information. Therefore, you might need to set the processing option to a specific version.

2. Multi Level BOM Print (R30460) (multilevel bill of material print)

Specify the version of the Multi Level Bill of Material Print program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Multi Level Bill of Material program displays information. Therefore, you might need to set the processing option to a specific version.

3. ECO Workbench (P30225) (engineering change order workbench)

Specify the version that the system uses when you select the Row exit to the ECO Workbench form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the ECO Workbench program displays information. Therefore, you might need to set the processing option to a specific version.

4. Component Maintenance (P3015)

Specify the version that the system uses when you select the Row exit to the Component Maintenance form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Component Maintenance program displays information. Therefore, you might need to set the processing option to a specific version.

5. ECO Header (P30BREV) (engineering change order header)

Specify the version that the system uses when you select the Row exit to the ECO Header form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the ECO Header program displays information. Therefore, you might need to set the processing option to a specific version.

6. Bill of Material Where Used (P30201)

Specify the version of the Bill of Material Where Used program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Bill of Material Where Used program displays information. Therefore, you might need to set the processing option to a specific version.

7. Item Master (P4101)

Specify the version that the system uses when you select the Row exit to the Item Master program. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Master program displays information. Therefore, you might need to set the processing option to a specific version.

8. Co/By- Products Inquiry (P30211)

Specify the version that the system uses when you select the Row exit to the Co/By-Products Inquiry program. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Co/By-Products Inquiry program displays information. Therefore, you might need to set the processing option to a specific version.

9. Bill of Material Inquiry (P30200)

Specify the version that the system uses when you select the Row exit to the Bill of Material Inquiry program. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Bill of Material Inquiry program displays information. Therefore, you might need to set the processing option to a specific version.

4.5.3.4 Edit

This processing option controls whether the system verifies that an item branch record exists in the F4102 table.

1. Item Branch Validation

Specify whether the system checks for a component's existing item branch record in the F4102 table. Values are:

Blank: Do not check.

1: Check.

4.5.3.5 Interop

These processing options control the transaction type that the system uses for export processing, the version of the Interoperability Generic Outbound Subsystem UBE report (R00460), and whether you want the system to write the before or after image for a changed transaction.

1. Transaction Type

Specify the transaction type that the system uses for export processing. Transaction type is a UDC (00/TT) that identifies the type of transaction for the work order. Enter the transaction type to use as the default value or select it from the User Define Codes form. If you leave this processing option blank, the system does not use export processing.

2. Write Image for a Change Transaction

Specify whether the system writes the before or after image for a change transaction. The system writes the images to the F3002Z1 table from the Bill of Material Master table. Values are:

Blank: Store the after image.

1: Store the before image.

3. Interoperability Outbound (R00460)

Specify the version of the Interoperability Outbound Subsystem program that the system uses for export processing. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Interoperability Outbound Subsystem program displays information. Therefore, you might need to set the processing option to a specific version.

4.5.4 Entering a Bill of Material

Access the Enter Bill of Material Information form.

Figure 4–2 Enter Bill of Material Information form

Item Number	Description	Quantity	UM	Active Ingr. Rsp	P	Y	Is Cd	S/kg Typ	Ln Ty	Line No.	Oper Seq#	Effective From	Effective Thru
2001	Cro-Moly Frame, Red	1	EA		V		U	S		10.00	10.00	04/04/199	12/31/2041
2005	Touring Fork	1	EA		V		U	S		20.00	20.00	04/04/199	12/31/2041
2007	Bottom Bracket	1	EA		V		U	S		30.00	30.00	04/04/199	12/31/2041
2008	Head Set	1	EA		V		U	S		40.00	40.00	04/04/199	12/31/2041
2009	Crank	2	EA		V		U	S		50.00	50.00	04/04/199	12/31/2041
2010	Chain Rings	1	EA		V		U	S		60.00	60.00	04/04/199	12/31/2041
2011	Chain Set	1	EA		V		U	S		70.00	60.00	04/04/199	12/31/2041
2013	Shift Kit	1	EA		V		U	S		80.00	30.00	04/04/199	12/31/2041
2014	Brake Kit	1	EA		V		U	S		90.00	40.00	04/04/199	12/31/2041
2015	Wheel Set, Front	1	EA		V		U	S		100.00	60.00	04/04/199	12/31/2041

Item Number

Enter an item number. It can be in short, long, or third item number format.

Bubble Seq No (sequence bubble number)

Enter a secondary bill of material sequence number that indicates the drawing bubble number.

Ln Ty (line type)

Displays a code that controls how the system processes lines on a transaction. It controls the JD Edwards EnterpriseOne systems with which the transaction interfaces, such as Oracle's JD Edwards EnterpriseOne General Ledger, Oracle's JD Edwards EnterpriseOne Job Cost, Oracle's JD Edwards EnterpriseOne Accounts Payable, Oracle's JD Edwards EnterpriseOne Accounts Receivable, and JD Edwards EnterpriseOne Inventory Management. It also specifies the conditions under which a line prints on reports, and it is included in calculations. Codes include:

S: Stock item.

J: Job cost.

N: Nonstock item.

F: Freight.

T: Text information.

M: Miscellaneous charges and credits.

W: Work order.

Remarks

Enter a remark about an item.

Stkg Typ (stocking type)

Enter a UDC (41/I) that indicates how you stock an item, for example, as finished goods or as raw materials. The stocking types are hard-coded and you should not change them:

0: Phantom item

B: Bulk floor stock

C: Configured item

E: Emergency/corrective maintenance

F: Feature

K: Kit parent item

N: Nonstock

The first character of Description 2 in the UDC table indicates if the item is purchased (P) or manufactured (M).

Drawing Number

Enter an engineering drawing number. It might be the same as the part or item number.

Feat Plan % (feature plan percentage)

Enter the percentage of demand for a specified feature based on projected production. For example, a company might produce 65 percent of their lubricant with high viscosity, and 35 percent with low viscosity, based on customer demand.

JD Edwards EnterpriseOne Material Requirements Planning uses this percentage to accurately plan for a process's co-products and by-products. Enter percentages as whole numbers, for example, enter five percent as 5.0. The default value is 0 (zero) percent.

Feat Cost % (feature cost percentage)

Enter a percentage that the Simulate Cost Rollup program uses to calculate the cost of a feature or option item as a percentage of the total cost of the parent.

Enter the percentage as a whole number, for example, enter five percent as 5.0.

Unit Price

Enter a base or default price that is used with multipliers from the pricing rules to develop discounted prices. If no formula applies to an item or no discounts apply to a customer, the system uses this price without adjustments.

Unit Cost

Enter the amount per unit, derived by dividing the total cost by the unit quantity.

Opt (S/O/F) (option (standard/option/feature))

Enter a code that indicates whether a component is standard or optional within a bill of material or for kit processing. Codes are:

S: (Default) Standard. The item is always included in any transaction involving the bill of material.

O: Optional. In order entry, you can specify whether the item is included in a particular sale.

F: Feature. The item has features that you must specify at order entry.

R (required)

Enter a code that specifies whether a component is required. Codes are:

Y: Required.

N: (Default) Not required.

D C (default component)

Enter an option that specifies a default component. Use this field if you are creating sales orders using the Recurring Orders Edited Creation program (P40211Z). To do so, enter **Y** in this field. When you specify a kit master item, the Recurring Orders Edited Creation program automatically selects all related standard and default components.

Leadtime Offset

Enter the number of days that a part is needed before or after the start date of a manufacturing work order. The system adds the leadtime offset days for the part to the start date of the work order to determine the actual date that the part is required. To indicate that a part is needed before the work order start date, enter the days as a negative number. To indicate how many days after the work order start date that the part is required, enter a positive number.

Lean Superflush Flag

Enter a value to indicate whether the item is included in the Lean Superflush. Values are:

Blank: Included. This is the default.

1: Excluded.

This field is used only in the Item Completions program (PF31012). Since Item Completions back flushes all components used, this flag enables you to determine at what level in the multi-level bill of material you require the back flush to stop. This field is generally used by components made on another line using either a work order or another plan to complete the inventory issues.

Prep Code (preparation code)

Enter the prep code that is associated with a component in the bill of material. When a component goes through a preparation location it is given a prep code. The prep code is identified in the bill of material.

4.5.5 Entering Substitute Items

Access the Enter Component Substitutes form.

Figure 4–3 Enter Component Substitutes form

Substitute Item	Description	Quantity	UM	S	Active Ingr. Flag	Is Cd	Effective From	Effective Thru
2012	chain, DK	1	EA	S		B	09/01/1997	12/31/2041

Substitute Item

Displays a number that the system assigns to an item. It can be in short, long, or third item number format.

Quantity

Displays the number of units that the system applies to the transaction.

Sub Item Sequence (substitute item sequence)

Indicates the sequence number for the substitute items for a component.

The system looks for substitute items by this sequence number.

4.5.6 Setting Processing Options for Component Locator Revisions (P3015)

Use these processing options to set default values and specify versions when entering a component locator information.

4.5.6.1 Defaults

These processing options specify the default values for the effective from date and system designator when adding component locators.

1. Effective From Date

Specify the date to use as the Effective From date. If you leave this processing option blank, the system uses the current date.

2. Designator

Specify the sales or purchasing category code to use as the designator (for example, S1 = Sales Category Code 1, P1 = Purchasing Category Code 1, and so forth.)

4.5.6.2 Versions

This processing option controls which version of the Bill of Material program that the system uses.

1. Bill of Materials (P3002)

Specify the version that the system uses when you select the Row exit to the Bill of Material form. If you leave this processing option blank, the system uses version ZJDE0001.

4.5.7 Entering Component Locators

Access the Component Locator Revisions form.

Figure 4–4 Component Locator Revisions form

The screenshot shows the 'Component Locator Revisions' form. At the top, there are navigation icons (Home, Back, Forward, Print, Tools). The form contains several input fields: 'Parent Item' with value '2004', 'Component Item' with value '9010', 'Effective From' with value '04/04/1997', 'Effective Thru' with value '12/31/2043', 'Branch/Plant' with value 'MSD', 'Logic Board', 'Capactor', 'Comp. Seq.' with value '1.00', 'Designator', and 'Quantity Per' with value '1 EA'. Below these fields is a table titled 'Locators' with columns numbered 1 through 10. The table has two rows of data, with the first row containing empty cells and the second row containing empty cells. The table is labeled 'Records: 1 - 2' and has a 'Customize Grid' button.

4.6 Validating Bills of Material

This section provides an overview of bill of material validation and discusses how to:

- Verify bills of material.
- Set processing options for Bill of Material Structure Analysis (R30601).
- Set processing options for Bill of Material Inquiry (P30200).
- Locate bills of material.
- Locate bills of material graphically.
- Set processing options for Bill of Material Where Used (P30201).
- Locate components on a bill of material.
- Set processing options for Bill of Material Comparison (P30204).
- Compare bills of material.

4.6.1 Understanding Bill of Material Validation

You can review bills of material to:

- Plan and research engineering change orders.
- View the results of a pending product change.
- Determine the effect of an item shortage.

- Evaluate capacity, manpower, equipment needs, and other resources.

Use the Integrity Analysis program (R30601) to check the bills of material for low-level codes and product structure errors, such as parent items that are listed as their own components.

This program generates a report that identifies any bills of material that you need to correct. If the report indicates errors, you should correct the bills of material and run the Integrity Analysis program again. When the program does not find errors in the bills of material, it updates the low-level codes in both the Item Master and the Item Branch File tables.

You should run the Integrity Analysis program immediately after a data conversion, such as system startup, and then periodically, such as two or four times a year. You should also run the Integrity Analysis program before running the Cost Simulation - Build Temp (R30812) or MRP/MPS Requirements Planning (R3482) programs to prevent the system from updating tables with incorrect product structures.

Note: As an alternative to running Integrity Analysis, you can activate online validation in the Manufacturing Constants program, whereby the system validates the items as you enter them. When you select the Online BOM Validation option, the system issues an error message when you attempt to enter recursive components.

You can use the Bill of Material Inquiry program (P30200) to find and display the components of a bill of material, as well as parts availability and lead time information. Several forms display bill of material information. Depending on the information that you want to see, you can review a parent item and its components, the subassemblies of components, a graphical tree structure of a bill of material, or review where a component is used.

You can view the bill of material with a single level of components, with multiple component levels, and in a tree structure format.

You can use processing options to determine what elements are included in the bill of material view:

- Phantom items or only components of the phantom items.
- Subassemblies or only components of the subassemblies.
- Processes or discrete bills of material.

You can consolidate entries with the same component branch, component item, and fixed and variable information into one component record. You can also consolidate across a single level or multiple levels.

In addition, you can display an adjusted quantity of parent or component items based on shrink information from the Item Branch File table, and scrap and yield information from the bill of material.

Use the Graphical Bill Inquiry form to review each parent item and its components organized in a tree structure. You can change the inquiry type and display sequence, based on the options you select. For example, you can view a single-level, multilevel, or indented bill of material; and you can view the bill sequenced by line number, operation sequence number, or item number.

You might want to determine where a component is used on a bill of material. Components can appear on different levels in the bill of material and can be part of different subassemblies. You can use the Bill of Material Where Used program to

review where a component is used in a bill of material. You can conduct this review on single-level and on a multilevel bill of material. When you enter a component number, the system displays all of its parent items.

Use Bill of Material Comparison to compare bills of material. Based on the view mode that you select, the system displays all of the components of both bills or only those components of the two that are different. You can also use this program to compare a bill of material with a parts list or to compare two parts lists with each other. You can define the comparison in the processing options or by selecting the appropriate tab on the Work With Comparisons form.

4.6.2 Forms Used to Validate Bills of Material

Form Name	FormID	Navigation	Usage
Bill of Material Inquiry - Single Level	W30200C	Daily PDM Discrete (G3011), Single Level Bill Inquiry	Review the components on the bill of material. To change to the view, use the appropriate option on the View menu.
Bill of Material Inquiry - Multi Level Indented		Daily PDM Discrete (G3011), Multi Level Bill Inquiry	
Work With Bill of Material - Tree View	W30200E	Daily PDM Discrete (G3011), Graphical Bill Inquiry	Review a graphical representation of the bill of material.
Work With Bill of Material Where Used	W30201B	Daily PDM Discrete (G3011), Single Level Where Used Daily PDM Discrete (G3011), Multi Level Where Used	Locate components where they are used on the bill of material.
Display Comparisons	W30204D	Daily PDM Discrete (G3011), Bill of Material Comparison On the Work With Comparisons form, enter item numbers and order numbers on the tabs. Select a Mode on the View menu and click Find.	Compare bills of material. View all the information or just the differences.

4.6.3 Verifying Bills of Material

Select Advanced Product Data Management (G3031), Integrity Analysis.

4.6.4 Setting Processing Options for Bill of Material Structure Analysis (R30601)

Use these processing options to specify the types of information included in the analysis.

4.6.4.1 Process

1. Use Work File Instead of Cache

Specify to use the work file instead of cache.

Blank: Use cache

1: Use work file.

4.6.4.2 Project

1. Consider Items Involved in Project

Specify whether to consider items involved in a project.

Blank: Do not consider items involved in project.

1: Consider items involved in project.

2: Check whether items involved in project need to be considered.

2. Closed Work Order Status

Enter a user-defined code (00/SS) that describes the status of a work order, rate schedule, or engineering change order. Any status change from 90 through 99 triggers the system to automatically update the completion date.

4.6.5 Setting Processing Options for Bill of Material Inquiry (P30200)

Use these processing options to set default display modes, control how the system uses safety stock, define the type of information displayed, and specify versions when entering a bill of material.

4.6.5.1 Defaults

These processing options control the default mode of processing, mode of inquiry, type of bill of material, and how the system sequences detail information.

You select one of three modes of processing:

- Simple inquiry
- Parts availability
- Leadtime inquiry

You select one of three modes of inquiry:

- Single level
- Multilevel
- Multilevel indented

You define the bill of material type by specifying the appropriate UDC. In addition, you select whether to display the detail information by component line number or by operation sequence number. The system uses these default values when processing the bill of material inquiry.

1. Processing Mode

Specify how the system displays the information on which you inquire. Select from the processing modes: simple inquiry, parts availability, or leadtime inquiry.

The simple inquiry mode displays the components of a bill of material.

The parts availability mode displays the components of a bill of material and the available quantities for those components. If you use this mode, specify whether you want to subtract safety stock from the quantity on hand and whether to display negative quantities using the Safety Stock and Negative Quantities processing options on the Select tab.

The leadtime inquiry mode displays actual and calculated leadtimes for an item. Actual leadtimes are derived from the leadtimes as updated in the Item Branch table by the Leadtime Rollup program. Calculated leadtimes are the number of days that you must start to manufacture a part before the date that the parent needs it. You can

use this mode of processing to define leadtimes for an item at each routing instruction step or to compare the actual and calculated leadtimes. If you use this mode, specify whether to display the actual or calculated leadtimes in the Leadtime Values processing option under the Select tab. Values are:

- 1: Simple inquiry mode.
- 2: Parts availability mode.
- 3: Leadtime inquiry mode.

If you leave this processing option blank, the system displays the simple inquiry mode.

2. Inquiry Mode

Specify the level of detail to display. The single level mode displays the parent item and its components. The multilevel mode displays the parent item, its components, and the subassemblies of the components. The multilevel indented mode displays the parent item, its components, and the subassemblies of the components. In addition, it indents the subassemblies. Values are:

- 1: Single level mode.
- 2: Multilevel mode.
- 3: Multilevel indented mode.

If you leave this processing option blank, the system displays the multilevel indented mode.

3. Bill of Material Type

Specify the type of bill of material that the system uses as the default value in the Type of Bill field on the Work With Bill of Material form. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Enter the bill of material type to use or select it from the User Define Code form. If you leave this processing option blank, the system uses M for manufacturing bill of material.

4. Display Sequence

Specify how to sort information on the Work With Bill of Material form. You can sequence the data by component line number or by operation sequence number. The component line number indicates the sequence of the components on a bill of material. The operation sequence number indicates the sequence of the fabrication or assembly steps in the manufacture of an item. Values are:

- 1: Component line number.
- 2: Operation sequence number.

If you leave this processing option blank, the system sorts the data by component line number.

4.6.5.2 Versions

These processing options control which versions of the programs the system uses to process a bill of material.

1. Bill Of Material Print (R30460)

Specify the version of the Bill of Material Print report that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Bill of Material Print report displays information. Therefore, you might need to set the processing option to a specific version.

2. ECO Workbench (P30225) (engineering change order workbench)

Specify the version that the system uses when you select the Row exit to the ECO Workbench program from the Work With Bill of Material form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the ECO Workbench program displays information. Therefore, you might need to set the processing option to a specific version.

3. ECO Header (P48020) (engineering change order header)

Specify the version of the ECO Header program that the system uses when you select the Form exit to the Bill of Material Revisions program from the Work With Bill of Material. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the ECO Header program displays information. Therefore, you might need to set the processing option to a specific version.

4. Bill of Material Revisions (P3002)

Specify the version that the system uses when you select the Form exit to the Bill of Material Revisions program from the Work With Bill of Material form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Bill of Material Revisions program displays information. Therefore, you might need to set the processing option to a specific version.

5. Item Master (P4101B)

Specify the version that the system uses when you select the Form exit to the Item Master program from the Work With Bill of material form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Master program displays information. Therefore, you might need to set the processing option to a specific version.

6. Process Inquiry (P30240)

Specify the version that the system uses when you select the Form exit to the Process Inquiry program from the Work With Bill of Material form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Process Inquiry program displays information. Therefore, you might need to set the processing option to a specific version.

7. Work With Routing Master (P3003)

Specify the version of the Work With Routing Master program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Work With Routing Master program displays information. Therefore, you might need to set the processing option to a specific version.

8. Item Availability (P41202)

Specify the version of the Item Availability program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Availability program displays information. Therefore, you might need to set the processing option to a specific version.

9. Item Cross Reference (P4104)

Specify the version of the Item Cross Reference program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Cross Reference program displays information. Therefore, you might need to set the processing option to a specific version.

10. Item Search (P41200)

Specify the version of the Item Search program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Search program displays information. Therefore, you might need to set the processing option to a specific version.

4.6.5.3 Select

These processing options control whether the system subtracts the safety stock from the quantity on hand, displays only negative availability of items, and displays the calculated or the actual leadtimes.

1. Safety Stock

Specify whether the system subtracts the safety stock from the quantity on hand. Use this processing option with the Parts Availability mode in the Processing Mode processing option under the Defaults tab. Values are:

Blank: Do not subtract.

1: Subtracts.

2. Negative Quantities

Specify whether the system displays negative amounts for the component quantities. Use this processing option with the Parts Availability mode in the Processing Mode processing option under the Defaults tab. Values are:

Blank: All amounts.

1: Negative amounts.

3. Leadtime Values

Specify whether the system displays the actual or calculated leadtime values. Use this processing option with the Leadtime Inquiry mode in the Processing Mode processing option under the Defaults tab. Values are:

Blank: Actual leadtime values from the Item Branch table (F4102).

1: Calculated leadtime values.

4.6.5.4 Process

These processing options control whether the system displays phantom items, process items, text lines, consolidated component rows, subassemblies, and purchased items. If you leave any of these processing options blank, the system excludes them from the inquiry. In addition, these processing options specify how the system adjusts the requested quantity for shrinkage and whether the system adjusts the extended quantity for scrap and for yield.

1. Phantom Items

Specify whether the system explodes the phantoms to the next level and omits the display of the phantom. A phantom is normally defined for engineering or manufacturing purposes. Phantoms enable common parts, that might or might not be assembled, to be grouped in a bill of material structure. When viewing the bill of material, you might want to display only the subassemblies and raw material. Values are:

Blank: Omit the phantom items from the inquiry and display only the subassemblies and raw material.

1: Include phantom items in the inquiry.

2. Process Items

Specify whether the system displays the process items. Process items include the process, co-products, by-products, and ingredients. A discrete bill might contain a component that is produced from a process. You use this processing option when you combine discrete and process manufacturing to display a complete structure of the requirements. Values are:

Blank: Exclude.

1: Include.

3. Text Lines

Specify whether the system displays the text lines. Values are:

Blank: Exclude.

1: Include.

4. Consolidate Component Items

Specify whether the system consolidates duplicate components. The same component might be listed in the bill of material several times, either on different subassemblies or on the same subassembly at different operations. When you use this processing option with the Subassemblies processing option, the system consolidates components at the subassembly level or for all levels of the bill of material. When viewing the consolidated components, the quantity required is accumulated for duplicate components. Values are:

Blank: Display individual occurrences of duplicate components in the inquiry.

1: Consolidate duplicate components in the inquiry.

5. Subassemblies

Specify whether the system displays the subassemblies. A subassembly is an assembly that is used at a higher level to form another assembly. Values are:

Blank: Exclude.

1: Include.

6. Shrink

Specify whether the system adjusts the requested quantity for shrinkage. Shrinkage is the planned loss of a parent item caused by factors such as breakage, theft, deterioration, and evaporation. Values are:

Blank: Do not adjust.

1: Adjust.

7. Scrap

Specify whether the system adjusts the extended quantity for scrap. Scrap is unusable material that results from the production process. It is material outside of specifications and of such characteristics that rework is impractical. Values are:

Blank: Do not adjust.

1: Adjust.

8. Yield

Specify whether the system adjusts the extended quantity for yield. Yield is the ratio of usable output from a process to its input. Values are:

Blank: Do not adjust.

1: Adjust.

9. Purchased Items

Specify whether the system explodes to the next level of purchased items in the bill of material report. Values are:

Blank: Exclude lower-level purchased items from the report.

1: Include lower-level purchased items in the report.

10. Phantom Operation Sequence Number

Specify how the system displays operation sequence numbers for components of a phantom item. Values are:

Blank: Operation sequence number of the component.

1: Operation sequence number of the phantom item.

4.6.6 Locating Bills of Material

Access the Bill of Material Inquiry - Single Level form.

Figure 4-5 Bill of Material Inquiry - Single Level form

The screenshot shows the 'Bill of Material Inquiry - Single Level' form. The parent item is '200 Touring Bike, Red' and the branch is 'M30'. The requested quantity is 1. The table below lists the components:

Level	2nd Item Number	Description	Quantity	UM	P %	Issue Code	Active Ing. Flag	Oper Desc	Stocking Type	Line No.	Line Type	Component Branch	Effective From	Effective Thru
1	2001	Cro-Moly Frame, Red	1	EA	✓	U		10.00	M	10.00	S	M30	04/04/1997	12/31/2041
1	2006	Touring Fork	1	EA	✓	U		20.00	P	20.00	S	M30	04/04/1997	12/31/2041
1	2007	Bottom Bracket	1	EA	✓	U		30.00	P	30.00	S	M30	04/04/1997	12/31/2041
1	2008	Head Set	1	EA	✓	U		40.00	P	40.00	S	M30	04/04/1997	12/31/2041
1	2009	Crank	2	EA	✓	U		50.00	P	50.00	S	M30	04/04/1997	12/31/2041
1	2010	Chain Rings	1	EA	✓	U		60.00	P	60.00	S	M30	04/04/1997	12/31/2041
1	2011	Shift Kit	1	EA	✓	U		70.00	P	70.00	S	M30	04/04/1997	12/31/2041
1	2013	Shift Kit	1	EA	✓	U		30.00	P	30.00	S	M30	04/04/1997	12/31/2041

4.6.7 Locating Bills of Material Graphically

Access the Work With Bill of Material - Tree View form.

Figure 4–6 Work With Bill of Material - Tree View form

Graphical Bill Inquiry - Work With Bill of Material - Tree View

Parent Item: 220
 Requested Quantity: 1.0000 EA
 Revision Level: _____ Type of Bill: _____

Records 1 - 33

Item Number	2nd Item Number	Description	Quantity	Extended Quantity	UH
2001	2001	Cro-Moly Frame, Rod	1.000000	1.000000	EA
2004	2004	Cro-Moly Frame	2.000000	2.500000	EA
9001	9001	25 mm Cro-Moly Tubing	1.000000	2.500000	CM
9002	9002	50 mm Cro-Moly Tubing	1.000000	2.500000	CM
9004	9004	50 mm Cro-Moly Bar	1.000000	2.500000	CM
2005	2005	Chain Stay	1.000000	2.500000	EA
9003	9003	16 mm Cro-Moly	1.000000	.000000	CM
9005	9005	60 mm Cro-Moly Plate	200000	.507500	CM
2001	2001	Handle Bar	1.000000	1.000000	EA
2002	2002	Aluminum Frame, Mount	1.000000	1.000000	EA
1409.1	1409.1	Component	17.000000	17.000000	EA
9102	9102	50 mm Aluminum Tubing	.000105	.000100	CM

4.6.8 Setting Processing Options for Bill of Material Where Used (P30201)

Use these processing options to set default values and specify versions when inquiring on a bill of material.

4.6.8.1 Defaults

These processing options supply default values when viewing a bill of material.

1. Mode - Processing

Specify the level of detail that you want the system to display. The single level mode displays the component item and its parent items. The multilevel mode displays the component item, its parents, and all parents up to the end item. The multilevel indented mode is like the multilevel mode but the display is indented for each level. Values are:

- 1: Display the single level mode.
- 2: Display the multilevel mode.
- 3: Display the multilevel indented mode.

If you leave this processing option blank, the system displays the single level mode.

2. Default Type Bill of Material

Specify the type of bill of material that the system uses as the default value in the Type of Bill field on the Work With Bill of Material form. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Enter the bill of material type to use or select it from the User Define Code form. If you leave this processing option blank, the system uses M for manufacturing bill of material.

4.6.8.2 Versions

These processing options control which version of the programs the system uses to process a bill of material.

Item Search (P41200)

Specify the version of the Item Search program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Material Where Used Print (R30420)

Specify the version of the Material Where Used Print report that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Item Master (P4101B)

Specify the version of the Item Master program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Where Used Inquiry (P13226)

Specify the version of the Where Used Inquiry program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Manufacturing Work Order Processing (P48013)

Specify the version of the Manufacturing Work Order Processing program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

Bill of Material Inquiry (P30200)

Specify the version of the Bill of Material Inquiry program that the system uses. If you leave this processing option blank, the system uses the ZJDE0001 version.

4.6.9 Locating Components on a Bill of Material

You might want to determine where a component is used on a bill of material. Components can appear on different levels in the bill of material and can be part of different subassemblies. You can use the Bill of Material Where Used program to review where a component is used in a bill of material. You can conduct this review on single-level and on a multi-level bill of material. When you enter a component number, the system displays all of its parent items.

4.6.10 Setting Processing Options for Bill of Material Comparison (P30204)

Use these processing options to set default values, set the display mode, control how the system compares data, and specify the types of information included in the comparison.

4.6.10.1 Defaults

This processing option controls the default value for the Bill Type fields.

1. Bill of Material Type

Specify the type of bill of material that the system uses as the default value in the Bill Type fields. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Enter the bill of material type to use or select it from the User Define Code form. If you leave this processing option blank, the system uses **M** (manufacturing bill of material).

4.6.10.2 Display

These processing options control the comparison level and the view mode for the review.

1. Single Level or Multilevel Comparison

Specify whether the system displays the information in a single level or multilevel comparison. The single level comparison displays the item's first-level components; the multilevel comparison displays the subassemblies and components for an item. Values are:

1: Single level.

2: Multilevel.

If you leave this processing option blank, the system displays a single level comparison.

2. View Mode

Specify the mode in which the system displays the information. The bill of material mode compares two bills of material, the parts list mode compares two parts lists, and the parts list to bill of material mode compares a parts list to a bill of material. Values are:

1: Bill of material mode.

2: Parts list mode.

3: Parts list to bill of material mode.

If you leave this processing option blank, the system uses the bill of material mode.

4.6.10.3 Process

These processing options control the information that is included in the comparison.

1. Include Different Records

Specify whether the system displays all components or only those components that are different between the two bills of material or parts lists. Values are:

D: Displays the component that are different between the two bills of material or parts lists.

A: Displays all the components of the two bills of material or parts lists.

If you leave this processing option blank, the system displays the components that are different between the two bills of material or parts lists.

2. Work Center or Item Summary

Specify whether the system sorts the information by work center or by item number. Values are:

Blank: Sort the information by item number.

1: Work center.

2: Item number.

3. Subassemblies

Specify whether the system displays the subassemblies. A subassembly is an assembly that is used at a higher level to form another assembly. Values are:

Blank: Exclude subassemblies in the inquiry.

0: Exclude subassemblies from the inquiry.

1: Include subassemblies in the inquiry.

4. Phantom Items

Specify whether the system explodes the phantom to the next level and omits the display of the phantom. A phantom is normally defined for engineering or manufacturing purposes. Phantoms enable common parts, that may or may not be assembled, to be grouped in a bill of material structure. When viewing the bill of material, you may want to display only the subassemblies and raw material. Values are:

Blank: Exclude phantom items in the inquiry.

0: Omit the phantom items from the inquiry and display only the subassemblies and raw material.

1: Include phantom items in the inquiry.

4.6.11 Comparing Bills of Material

Access the Display Comparisons form.

Figure 4–7 Display Comparisons form

Work Center	2nd Item Number	Quantity Item 1	UOM Item 1	Stocking Type Item 1	Quantity Item 2	UOM Item 2	Stocking Type Item 2	Short Item No	3rd Item Number
	2006	1,000	EA		0			60118	2006
	2007	1,000	EA		0			60126	2007
	2008	1,000	EA		0			60134	2008
	2009	2,000	EA		0			60142	2009
	2010	2,000	EA		0			60151	2010
	2011	1,000	EA		0			60169	2011
	2013	1,000	EA		0			60185	2013
	2014	1,000	EA		0			60193	2014
	2015	1,000	EA		0			60204	2015
	2016	1,000	EA		0			60214	2016

4.7 Updating Multiple Bills of Material

This section provides an overview of bill of material update, list a prerequisite, and discusses how to:

- Run the Where Used Bill of Material Update.
- Set processing options for Where Used Bill of Material Update (R30520).

4.7.1 Understanding Bill of Material Update

You change multiple bills of material by running the Where Used Bill of Material Update program (R30520).

You can use this program to perform mass updates to information such as:

- Replacing one component item with another.

- Deleting an item.
- Changing effective dates for an item.
- Changing the quantity per assembly for an item.
- Changing the issue type code.
- Changing the unit of measure.

You use data selection to specify the items to change. You then use processing options to define the change. The system locates all occurrences of the item (as a component) and updates the bills of material. You can also update a component with past or future effective dates.

If you want to make changes to a bill of material and remove the old records, run the program twice. First run the program to create the new records, and then run it again to delete the old ones.

The system stores changes in the Bill of Material Master File table. The system does not automatically update existing parts lists, MRP calculations, and costing information.

In addition, the program updates fields in other tables:

- Low Level Code (in the Item Master table).
- Net Change Flag (in the Item Branch File table).

You can run this program in either proof or final mode. In proof mode, the system generates a report of the proposed changes for the review but does not update the data. In final mode, the system updates the data and generates a report identifying the changes.

Important: When you run this program, you can potentially change many bills of material in the system. It is recommended that you run this program in proof mode first to verify the choices before running it in final mode to change the data. You might want to restrict access to this program.

4.7.2 Prerequisite

Review the bills of material to verify that the item that you are updating is active within the effective dates and appears in at least one bill of material.

4.7.3 Running the Where Used Bill of Material Update

Select Advanced Product Data Management (G3031), Where Used Update.

4.7.4 Setting Processing Options for Where Used Bill of Material Update (R30520)

Use these processing options to define the changes you want to make, verify the component is valid in the branch plant, and if you want the program to run in proof or final mode.

4.7.4.1 Defaults 1

These processing options specify the details required to make changes to the bill of material.

1. Branch/Plant

Specify the Branch/Plant location to select for bill of material changes. This is a required field; if you leave this processing option blank, no processing is performed.

2. New Component Item Number

Specify the new component item number. If you leave this processing option blank, no change is made to the component item number.

3. New Quantity Per (new quantity per amount)

Specify the new quantity per amount. If you leave this processing option blank, no change is made to the Quantity Per amount.

4. New Unit of Measure

Specify the new Quantity Per Unit of Measure. If you leave this processing option blank, no change is made to the Quantity Per Unit of Measure.

4.7.4.2 Defaults 2

These processing options specify the effective dates and issue type code to change on the bill of material.

1. New Effective From

Specify the new Effective From Date. If you leave this processing option blank, the system uses the current date.

2. New Effective Thru (new effective through)

Specify the new Effective Thru Date. If you leave this processing option blank, no change is made to the Effective Thru Date.

3. New Issue Type Code

Specify the new Issue Type Code. If you leave this processing option blank, no change is made to the Issue Type code.

4.7.4.3 Process

These processing options specify the program mode and whether the system deletes records.

1. Final Mode

Specify whether the program runs in proof or final mode. Values are:

Blank: Proof mode.

1: Final mode.

2. Delete Mode

Specify whether existing records are deleted from the BOM file. No updating is performed when delete is selected. Values are:

Blank: Do not delete.

1: Delete.

4.7.4.4 Edits

This processing options specifies whether the system validates the new component against the Item Branch file.

1. Item Branch Validation

Specify whether the system validates the new component against the Item Branch file.

Values are:

Blank: Do not validate.

1: Validate.

Entering Work Centers and Routing Instructions

This chapter contains the following topics:

- [Section 5.1, "Understanding Work Centers and Routing Instructions"](#)
- [Section 5.2, "Common Fields Used in This Chapter"](#)
- [Section 5.3, "Creating Work Centers"](#)
- [Section 5.4, "Creating Routing Instructions"](#)
- [Section 5.5, "Calculating Lead Times"](#)

5.1 Understanding Work Centers and Routing Instructions

After you have defined an item's components using a bill of material, you must specify where each operation occurs and the sequence of operations that is necessary to manufacture the item. Work centers consist of people and machines where routing operations occur. Routing instructions define the operations that are required to produce an item and the lead time for an item at each routing instruction step.

5.1.1 Work Centers

A work center consists of people and machines.

A work center is a specific production facility on the shop floor where the routing operations occur. For each work center, you define:

- Number, description, and associated business unit.
- Queue and move times.
- Operator, machine, and hours-per-day capacity.
- Rates for setup, labor, machine, and overhead.

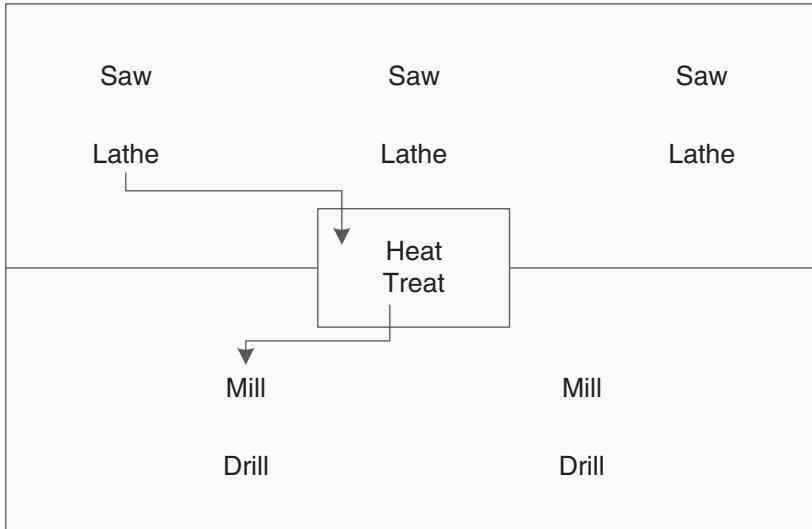
A work center enables you to:

- Set up a dispatch group for departments that perform similar operations.
- Specify if an operation is a reporting point for material, or labor, or both.
- Define crew size per work center.
- Specify the work center efficiency for JD Edwards EnterpriseOne Product Costing.
- Define work center labor, machine, and setup rates.

You should arrange the work centers so that work in process moves efficiently from one area to the next.

This process flow illustrates equipment grouped by operation; this structured flow layout provides a direct path and ensures efficient workflow:

Figure 5-1 Work center arrangement by operation



After you have defined the item's bill of material and where each operation occurs on the factory floor (work center), you must define the sequence of operations that is necessary to manufacture the item (routing instructions).

Routing instructions are critical for shop floor control, capacity requirements planning, product costing, and measuring production efficiency.

For each item, you define routing instructions that include:

- Production process.
- Equipment.
- Operator skill level.
- Inspection criteria.
- Operations.
- Sequence.
- Applicable work centers.
- Standard values for setup, machine, and labor times.

You can define an alternate routing instruction operation to be performed, for example, using drill B if drill A is not operational. An alternate routing instruction operation is information for shop floor personnel. The system ignores it during product costing and backscheduling.

For activities that occur outside the plant, you define outside operations. Outside operations are characterized by their own line types and stocking types. They require a supplier and a purchase order.

For multiplant environments, set up identical or different routing instructions for an item by plant. Use the effective from and thru dates to enter and date routing instruction changes as they occur.

You have the option of setting up a master routing to create one routing instruction for parts that use the same manufacturing steps. You must define an Item Cross Reference for the Item to be used as a master routing. Create a record in the Item Cross Reference application (P4104) with a cross reference type **MR**. By creating a master routing, you can eliminate duplicate routing instructions. For example, during the manufacture of furniture, the frame and fabric might change, but the routing instructions are the same. To set up a master routing, you must activate the Master Routing option in the Manufacturing Constants program (P3009) for the branch/plant where the item will be manufactured.

Use batch routing instructions for products that are commonly made in batch quantities. Batch routing instructions are useful in industries, such as pharmaceuticals, foods, or petroleum, where products are manufactured in fixed quantities or batches. You can create different batch routing instructions for the same item by branch, type, batch quantity produced, or a combination of these items.

5.2 Common Fields Used in This Chapter

Work Center

Enter the work center where the operation sequence is being performed.

Business unit security might prevent you from viewing information about business units for which you have no authority.

For JD Edwards EnterpriseOne Plant & Equipment Management from Oracle, this is the craft/resource responsible for completing the maintenance activity.

Crew Size

Enter the number of people who work in the specified work center or routing operation.

The system multiplies the Run Labor value in the Routing Master table (F3003) by crew size during costing to generate total labor amounts.

If the Prime Load Code is L or B, the system uses the total labor hours for backscheduling. If the Prime Load Code is C or M, the system uses the total machine hours for backscheduling without modification by crew size.

For JD Edwards EnterpriseOne Shop Floor Management:

If you leave the Hours field on the Routing Revisions form blank, the system uses the value entered in this field for lead time and scheduling calculations.

5.3 Creating Work Centers

This section provides an overview of work center creation and discusses how to:

- Set processing options for Work Center Revision (P3006).
- Enter work centers.
- Enter costing and accounting information for work centers.
- Review operations by work center.

5.3.1 Understanding Work Center Creation

You use work centers to define each production facility on the shop floor where routing instruction operations occur. Once you set up the work centers, you can enter costing and accounting information so that you can generate reports and journal entries. As you set up work centers, you associate them with particular branch/plants. This association enables you to use the same work center in different branch/plants. The system stores work center information in the Work Center Master table (F30006).

Enter work center information that corresponds to the facilities on the shop floor, such as dispatch group; pay point; crew size; and queue, move, and replenishment hours. You can also enter a shop floor calendar for the work center, even though the system does not validate this information.

If you are using JD Edwards EnterpriseOne Plant & Equipment Management, you enter work center information that corresponds to the maintenance labor groups.

Note: After upgrading from Release Xe to Release 9.1, if you are running the Work Center Master (F30006) Conversion program (R8930006C), the program does not convert work center information if the work center is not associated with a routing. If you want to convert all the work center records, you must set the F30006 Conversion Mode processing option for the R8930006C program to a value of 1. (Release 9.1 Update)

5.3.1.1 Work Center Rates

After you enter a work center, you can enter simulated rates for machine and labor hours. JD Edwards EnterpriseOne Product Costing and JD Edwards EnterpriseOne Manufacturing Accounting from Oracle use these values to generate reports, roll up costs, and create journal entries. The Cost Rollup program uses all of these values to calculate the simulated cost.

You can update the simulated rates but not the frozen values. The system updates frozen values when you run Frozen Update.

5.3.2 Prerequisites

Set up the work centers and dispatch groups as valid business units in the Revise Single Business Unit program (P0006).

See "Setting Up Next Numbers" in the *JD Edwards EnterpriseOne Applications Financial Management Fundamentals Implementation Guide*.

See Also:

- "Working with Product Costing, Updating Frozen Costs" in the *JD Edwards EnterpriseOne Applications Product Costing and Manufacturing Accounting Implementation Guide*.

5.3.3 Forms Used to Create Work Centers

Form Name	FormID	Navigation	Usage
Work Center Master Revisions	W3006A	Daily PDM Discrete (G3011), Enter/Change Work Center Shop Floor Management Setup (G3141), Enter/Change Work Centers Planning Setup (G1346), Work Center Revision On Work With Work Centers, click Add.	Enter new work center information.
Work Center Rate Revisions	W3006C	On Work With Work Centers, select a work center and click Rates from the Row menu. On Work With Work Center Rates, select Rates Revision from the Row menu.	Enter the rates for various types of costs for a work center.
Work With Work Center Where Used	W30202B	Daily PDM Discrete (G3011), Operations by Work Center	Review operations scheduled at a work center.

5.3.4 Setting Processing Options for Work Center Revision (P3006)

Use these processing options to specify transaction types for interoperability and to specify versions.

5.3.4.1 Interop

These processing options specify the interoperability transaction type and image tracking.

Type - Transaction

Specify the transaction type for the interoperability transaction. If left blank, outbound interoperability processing is not performed. Enter a value from user-defined code (UDC) 00/TT.

Before Image Processing

Specify whether the system writes before images before outbound change transactions. Values are:

Blank: After images.

1: Before and after images.

5.3.4.2 Versions

This processing option controls which version of the program the system uses.

Manufacturing Constants (P3009)

Specify the version of the Manufacturing Constants program (P3009) that the system uses.

5.3.5 Entering Work Centers

Access the Work Center Master Revisions form.

Figure 5–2 Work Center Master Revisions form

The screenshot shows a software interface for editing work center master data. At the top, the title is 'Enter/Change Work Center - Work Center Master Revisions'. Below the title, there are two input fields: 'Work Center' with the value '200-101' and 'Branch/Plant' with the value 'M30'. The main form area is divided into two tabs: 'Work Center Master' (selected) and 'Hours & Efficiency'. Under the 'Work Center Master' tab, there are several fields arranged in two columns. The left column contains: 'Dispatch Group' (200-100), 'Location - Issue' (empty), 'Location Branch' (M30), 'Work Center Type' (0), 'Pay Point' (0), 'Prime Load' (B), and 'Critical W/C' (3). The right column contains: 'Calendar Name' (empty), 'Crew Size' (1.0), 'Number of Machines' (2), 'Number of Employees' (3), and 'Resources Offset' (empty). There are also icons for 'Form' and 'Tools' at the top left of the form area.

Branch/Plant

Represents a branch/plant or work center, usually defined as a business unit.

The default value comes from the Default Location and Printers table.

Prime Load

Enter a code that determines if a work center is machine or labor intensive. The system also uses prime load codes in Resource Requirements Planning (RRP) and Capacity Requirements Planning (CRP) calculations to develop load profiles. Codes are:

- L:** Run labor hours only.
- M:** Machine hours only.
- B:** Run labor plus setup labor hours.
- C:** Machine plus setup hours.
- O:** Other (will not generate resource units).

Number of Employees

Enter the normal number of employees in this work center. When you run the Work Center Resource Units Refresh program, the system multiplies this number by the Number of Work Hours Per Day from the Manufacturing Constants table to generate the total gross labor hours available in the work center each day.

Dispatch Group

Enter a category code used to group work centers within an overall business unit.

For example, you can use this code to group similar machines operating out of several work centers that report to one business unit.

Location - Issue

Enter the storage location from which goods will be moved.

Location Branch

Enter the branch plant of the location associated with the work center.

Work Center Type

Enter a code that defines the type of work center. Values are:

- 0:** Stand alone work center.

- 1: Production line in a repetitive environment.
- 2: Production line in a JD Edwards EnterpriseOne Demand Flow® Manufacturing (DFM) environment.

Pay Point

Enter a code that indicates whether a work center has labor, material, or both backflushed through it when quantities are reported against operations occurring in the work center. If you do not override the routing record, the system uses the work center value as the default value. Values are:

- 0: Not a backflush work center.
- B: Backflush material and labor.
- M: Backflush material only.
- L: Backflush labor only.
- P: Preflush material only.

Critical W/C (critical work center)

Enter a code that indicates whether the work center is critical or not critical when the system calculates capacity. Values are:

- N: Not a critical work center.
- 1: A critical work center in calculating RRP only.
- 2: A critical work center in calculating Rough Cut Capacity Planning (RCCP) and CRP.
- 3: A critical work center in calculating RRP, RCCP, and CRP. The system also displays Type 3 work centers when you select Type 1 or Type 2 in this field.
- 4: Not a capacity work center. The system does not include this work center in capacity planning.

Note: The data selection is a system feature that processes certain groups of information with the RRP, RCCP, and CRP programs.

Number of Machines

Enter the normal number of machines in this work center. When you run the Work Center Resource Units Refresh program, this number is multiplied by the number of work hours per day from the Manufacturing Constants table to generate the total gross machine hours available in the work center each day.

Standard Capacity

Enter the standard capacity level at which a production line usually operates. Capacity is stated in units per hour. This level is used for repetitive processing only.

Capacity UOM (capacity unit of measure)

Enter a unit of measure that you use to express the capacity of a production line. Examples of units of measure include hours, number of stampings, coats of paint, and so on. This item is used for repetitive processing only.

Maximum Capacity

Enter the upper limit of the capacity, beyond which a production line cannot produce. Capacity is stated in units per hour. This limit is used for repetitive processing only.

Minimum Capacity

Enter the lower limit of the capacity, beyond which the production line should not operate. Management sets this limit, based on factors, such as efficiencies, costs, and so on. Capacity is stated in units per hour. This limit is used for repetitive processing only.

Queue Hours

Enter the total hours that an order is expected to be in queue at work centers and moving between work centers.

The system stores this value in the Item Branch table (F4102). You can calculate this value using the Leadtime Rollup program or you can enter it manually. When you run the Leadtime Rollup program, the system overrides manual entries and populates the table with calculated values.

Move Hours

Enter the planned hours that are required to move the order from this operation to the next operation in the same work center.

If the Routing Master values are blank, the system retrieves the default value from the work order routing. However, the system uses these values only for back scheduling variable lead time items.

If you leave the Hours field on the Routing Revisions form blank, the system uses the value in this field for lead time and scheduling calculations.

Replen. Hrs. (replenishment hours)

Enter the time required before a consuming location has a replacement kanban available from its supplying location. This value is used only for kanban card processing in JD Edwards EnterpriseOne Shop Floor Management.

Efficiency

Enter a user-defined value that indicates how efficiently a work center operates.

This value usually refers to staff efficiency. When you enter a value in this field, and the Modify Cost by Work Center Efficiency field in the Manufacturing Constants table is set to **Y**, the system creates a new cost component (B4) from the cost calculated from the direct labor cost (B1).

For example, if the constant is set to **Y**, the value of this field is 80 percent, and the direct labor cost is 10, the system creates a B4 cost component for 2 in the Item Cost Component Add-Ons table (F30026).

The Refresh Resource Units program also uses this value as a default when calculating rated capacity.

Enter percents as whole numbers. For example, enter 80 percent as **80.00**.

Note: The system expects that the routing times entered for each operator are the actual times it takes to complete an operation. Efficiency does not affect total cost. Efficiency does reassign some costs into different cost components. Efficiency does not change the duration or back scheduling of a work order.

Utilization

Enter a percentage that indicates how intensively a work center is being used. This value usually refers to machine use. It is the ratio of the direct time charged for production activities to the planned hours.

The Refresh Resource Units program also uses this value as a default when calculating rated capacity.

Enter percents as whole numbers. For example, enter 80 percent as **80.00**.

5.3.6 Entering Costing and Accounting Information for Work Centers

Access the Work Center Rate Revisions form.

Figure 5–3 Work Center Rate Revisions form

	Simulated	Frozen
Direct Labor	12.00	12.00
Setup Labor	12.00	12.00
Labor Variable O/H	25.00	25.00
Labor Fixed O/H	25.00	25.00
Machine Run	10.00	10.00
Machine Variable O/H	10.00	10.00
Machine Fixed O/H	10.00	10.00

* O/H values are shown in percents

Cost Method

Enter a UDC (40/CM) that specifies the basis for calculating item costs. Cost methods 01 through 19 are reserved for use by the JD Edwards EnterpriseOne system.

Direct Labor

Enter a rate, in cost per person per hour, that the system uses with the run labor hours of the associated routing to calculate the standard run labor cost.

Setup Labor

Enter a rate that the system uses with the setup labor hours of the associated routing to calculate the standard setup labor cost.

Labor Variable O/H (labor variable overhead)

Enter a rate or percent, as determined on Manufacturing Constants, used to calculate the standard variable labor overhead cost. If this field is a rate, it is the cost per hour. If this field is a percent, it is the percent of direct labor.

Enter percents as whole numbers. For example, enter five percent as **5.00**.

Labor Fixed O/H (labor fixed overhead)

Enter a rate or percent, as determined on Manufacturing Constants, used to calculate the standard fixed labor overhead cost. If this field is a rate, it is the cost per hour. If this field is a percent, it is the percent of direct labor.

Enter percents as whole numbers. For example, enter five percent as **5.00**.

Machine Run

Enter a rate that the system uses with the Run Machine hours of the associated routing to calculate the standard machine labor cost.

Machine Variable O/H (machine variable overhead)

Enter a rate or percent, as determined on Manufacturing Constants, used to calculate the future standard machine overhead cost. If this field is a rate, it is the cost per hour. If this field is a percent, it is the percent of machine run.

Enter percents as whole numbers. For example, enter five percent as **5.00**.

Machine Fixed O/H (machine fixed overhead)

Enter a rate or percent, as determined on Manufacturing Constants, used to calculate the standard fixed machine overhead cost. If this field is a rate, it is the cost per hour. If this field is a percent, it is the percent of machine run.

Enter percents as whole numbers. For example, enter five percent as **5.00**.

5.3.7 Reviewing Operations by Work Center

Access the Work With Work Center Where Used form.

Figure 5–4 Work With Work Center Where Used form

Work Center	Oper Seq#	Std Item Number	Description	Batch Quantity	LIN	Run Labor	Run Machine	Time Basis	Typ Rtg	Effective From	Effective Thru
R-101	70.00	2031	Aluminum Frame, Touring		EA	.15		U	M	09/16/1998	12/31/2041
R-101	70.00	2031	Aluminum Frame, Touring		EA	.15		U	M	06/26/2000	12/31/2041
R-101	70.00	2032	Aluminum Frame, Mountain		EA	.25		U	M	09/16/1998	12/31/2041
R-101	70.00	2032	Aluminum Frame, Mountain		EA	.25		U	M	06/26/2000	12/31/2041
R-101	70.00	2033	Aluminum Frame, Sport		EA	.08		U	M	09/16/1998	12/31/2041
R-101	70.00	2033	Aluminum Frame, Sport		EA	.08		U	M	06/26/2000	12/31/2041
R-101	40.00	2037	Front Fork, Touring		EA	.02		U	M	09/16/1998	12/31/2041
R-101	40.00	2037	Front Fork, Touring		EA	.02		U	M	06/26/2000	12/31/2041
R-101	40.00	2038	Front Fork, Mountain		EA	.04		U	M	09/16/1998	12/31/2041
R-101	40.00	2038	Front Fork, Mountain		EA	.04		U	M	06/26/2000	12/31/2041

5.3.8 Running the Work Center Master (F30006) Conversion Program (R8930006C) (Release 9.1 Update)

Select System Administration Tools (GH9011), Batch Versions. Alternatively, enter **BV** in the Fast Path field.

5.3.9 Setting Processing Option for Work Center Master (F30006) Conversion (R8930006C) (Release 9.1 Update)

Use this processing option to convert work center information.

5.3.9.1 F30006 Conversion

This processing option controls the work center conversion.

F30006 Conversion Mode

Specify whether to convert all the work center records in the Work Center Master File table (F30006) or only those work center records that have a corresponding routing record in the Routing Master File table (F3003). Values are:

1: Convert all the records in the F30006 table.

Blank: Convert only the records in the F30006 table that are present in the F3003 table.

5.4 Creating Routing Instructions

This section provides an overview of routing instruction creation and discusses how to:

- Set processing options for Enter/Change Routing (P3003).
- Enter routing instructions.
- Enter outside operations.
- Update component scrap.
- Set processing options for Planned Yield Update (R3093).

5.4.1 Understanding Routing Instruction Creation

After you enter a bill of material, you must define the routing instruction information for each item and for each branch/plant. Use routing instructions to define the sequence of operations necessary to manufacture an item. Routing instruction information is stored in the Routing Master table.

If you want to include an alternate routing step for any routing instructions, you must complete the Operation Type field on the grid. If you manually link the routing instruction to a work order, the system includes alternate routing steps with the work order routing instructions. If you use the Order Processing program (R31410) to link the routing instruction to the work order, the system does not include alternate routing steps.

For an operation that is to be performed on an item by an external supplier, you can define an outside routing operation. For an outside operation, a purchase order is required. You can generate the purchase order when you run the Order Processing program. You can also enter a purchase order interactively after you have attached the routing to the work order.

If you are using activity-based costing, you can enter an activity code for each operation sequence to indicate how you want the system to account for the operation. To activate the Activity Code field, you must select activity-based costing in the Advanced Cost Accounting Constants program (P1609).

You can print all routing instruction operations for an item by generating the Standard Routing Information report (R30430).

To support JD Edwards EnterpriseOne DFM, a process map is imported to an JD Edwards EnterpriseOne routing. A single-level routing may be imported from DFM that reflects process map times and processes for each end product. The routing imported from DFM is stored in the F3003 table with the relationship between processes maintained for the operation steps.

Note: There is a current limitation of adding up to 999 operation steps in the F3003 table. If the Sequence Of Events (SOE) in DFM are modeled as routing operation steps, this would limit the complete import of SOEs from DFM to base manufacturing. Although multilevel routings are supported in base manufacturing, multilevel routings are not supported with the import from DFM. If you import SOEs into base manufacturing, the routing is in one level.

5.4.1.1 Component Scrap

Select Advanced Product Data Management (G3031), Planned Yield Update.

During manufacturing, material loss often occurs at operations. Examples of loss include evaporation or items damaged during move time. You can update the amount of materials and labor hours to account for operation loss by running Planned Yield Update.

For the operations that you select, this program uses the operational planned yield percent to update the cumulative percent for the routing instruction and to update the operation scrap percent for the bill of material.

You enter the operational planned yield percent value on the routing instruction. This value represents the planned output yield percent for a step. The system uses this value to adjust the operation scrap percent for the components at that step. Material Requirements Planning (MRP) uses the step scrap percent along with the existing component scrap percent to plan component demand.

The system updates the cumulative planned yield percent on the routing instruction. This value represents the item quantity that an operation is expected to produce. It is the ratio of usable output to input quantity. This value can be less than 100 percent, due to loss at one or more operations. The system calculates the cumulative yield in reverse of the operations' sequence. The system uses this value to increase the labor hours to make up for loss within the operation or to decrease labor hours if the cumulative planned yield percent is higher than 100 percent.

The system updates the operation scrap percent value on the bill of material. The operation scrap percent represents the expected amount of scrap material that is created at each operation. The system calculates this value by compounding the yield percentages from the last operation to the first operation. The system uses this value to increase or decrease the amount of materials to account for loss within the operation.

5.4.1.2 Example: Component Scrap

This table illustrates the calculations for cumulative planned yield and operation scrap:

Step	Operational Planned Yield Percent	Cumulative Planned Yield Percent	Operation Scrap Percent
40	80	80 percent	$(100/0.8) - 100 = 25$ percent
30	90	$.80 \times .90 \times 100 = 72$ percent	$(100/0.72) - 100 = 39$ percent
20	100	$.72 \times 100 = 72$ percent	$(100/0.72) - 100 = 39$ percent
10	95	$.72 \times .95 \times 100 = 68$ percent	$(100/0.68) - 100 = 47$ percent

5.4.2 Forms Used to Create Routing Instructions

Form Name	FormID	Navigation	Usage
Enter Routing Information	W3003B	Daily PDM Discrete (G3011), Enter/Change Routing	Enter routing instructions.
		On Work with Routing Operations, complete the Branch/Plant, Item Number, Routing Type, and Item Rev fields and click Add.	Enter outside operations.

5.4.3 Setting Processing Options for Enter/Change Routing (P3003)

Use these processing options to control the system display, set default values, control processing, set requirements for interoperability, and specify versions.

5.4.3.1 Display

These processing options control whether these fields appear in the routing header.

1. Line/Cell

Specify whether the system displays the Line/Cell field in the routing header. The Line/Cell number defines a production line or cell in repetitive manufacturing. Values are:

Blank: Do not display.

1: Display.

2. Routing Type

Specify whether the system displays the routing type (40/TR) in the routing header. You can define routing types to meet the needs of the organization. Values are:

Blank: Do not display.

1: Display.

3. Batch Quantity

Specify whether the system displays the Batch Quantity field in the routing header. The batch quantity is the number of finished units that you expect this bill of material or routing to produce. You can specify varying quantities of components based on the amount of finished goods expected. Values are:

Blank: Do not display.

1: Display.

5.4.3.2 Defaults

This processing option controls what routing type is used as a default value.

1. Type of Routing

Specify the routing type that the system displays. Routing types are defined in UDC 40/TR. You can define routing types that correspond to routing instructions. Examples include:

M: Standard Manufacturing Routing.

RWK: Rework Routing.

RSH: Rush Routing.

If you include the routing type in the routing header, the related routing instructions apply.

Note: JD Edwards EnterpriseOne Product Costing and JD Edwards EnterpriseOne Capacity Planning use only **M** routing types.

5.4.3.3 Process

These processing options control whether the program is called in inquiry or revision mode, as well as whether the operation scrap percent value in the bill material and the cumulative yield value on the routing are updated.

1. Mode - Processing

Specify whether the system uses inquiry mode or revision mode for the Work With Routing Master program. If you specify inquiry mode, you can add routings but you cannot revise existing routings. If you specify revision mode, you can add routings and change existing routings. Values are:

0: Inquiry mode (default).

1: Revision mode.

2. Update Component Operation Scrap Percent and Cumulative Yield

Specify whether the system updates the fields for the components in the operation when you update the operation yield percent:

- Operation Scrap Percent in the Bill of Material Revisions program (P3002).
- Cumulative Yield Percent in the Work With Routing Master program (P3003).

Values are:

Blank: Do not update.

1: Update.

5.4.3.4 Interop

These processing options control processing for outbound transactions.

1. Transaction Type

Specify the transaction type that the system uses for export processing or that the system uses for the supply chain scheduling and planning. Transaction Type is a UDC (00/TT) that specifies the type of transaction for the rate schedule.

Note: Blank is a value if you do not use export processing.

2. Outbound Processing Version

Specify the version that the system uses when you access the Outbound Processing program from the Work With Routing Master program. If you leave this processing option blank, the system uses version ZJDE0001.

3. Before Image Processing

Specify whether the system writes the before image for an outbound change transaction. Values are:

Blank: Do not write.

1: Write.

5.4.3.5 Versions

These processing options control which version that the system uses when you call the programs from the Enter/Change Routing program.

1. Bill of Material Revision (P3002)

Specify the version that the system uses when you access the Bill of Material Revisions program from the Enter/Change Routings form. If you leave this processing option blank, the system uses version ZJDE0001.

2. Work With Assets (P1204)

Specify the version that the system uses when you access the Work With Assets program (P1204) from the Enter/Change Routings form. If you leave this processing option blank, the system uses version ZJDE0001.

3. Work With Item Master (P4101)

Specify the version that the system uses when you access the Item Master program (P4101) from the Enter/Change Routings form. If you leave this processing option blank, the system uses version ZJDE0001.

4. Work With Activity Based Costing Workbench (P1640)

Specify the version that the system uses when you access the Activity Based Costing Workbench program (P1640) from the Enter/Change Routing form. If you leave this processing option blank, the system uses version ZJDE0001.

5.4.4 Entering Routing Instructions

Access the Enter Routing Information form.

Figure 5–5 Enter Routing Information form

Work Center	Oper Seq#	Description	Run Labor	Run Machine	Setup Labor	Cons Prod	Queue Hours	Move Hours	Line/Cell	Effective From	Effective Thru
200-201	10.00	Filter	.50	.00	.00	Cons	.00			04/04/1997	12/31/2041
200-901	20.00	Assembly	.25	.00	.00	Cons	.00			04/04/1997	12/31/2041
200-901	30.00	Assembly	1.00	.00	.00	Cons	.00			04/04/1997	12/31/2041
200-901	40.00	Assembly	1.00	.00	.00	Cons	.00			04/04/1997	12/31/2041
200-911	50.00	Test / Inspect	.25	.00	.00	Cons	.00			04/04/1997	12/31/2041
200-920	60.00	Package	.25	.00	.00	Cons	.00			04/04/1997	12/31/2041

Item Rev. (item revision)

Enter a number that indicates the revision level of a routing. This number is usually used in conjunction with an engineering change notice or engineering change order. The revision level of the routing should match the revision level of its associated bill of material, although the system does not check this.

This value is user-defined and not maintained by the system.

Run Labor

Enter the standard hours of labor that you expect to incur in the normal production of this item.

The run labor hours in the Routing Master table are the total hours that it takes the specified crew size to complete the operation. The hours are multiplied by the crew size during shop floor release and product costing.

For JD Edwards EnterpriseOne Plant & Equipment Management:

This is the estimated number of hours needed to complete a maintenance activity.

Run Machine

Enter the standard machine hours that you expect to incur in the normal production of this item.

Setup Labor

Enter the standard setup hours that you expect to incur in the normal completion of this item. This value is not affected by crew size.

Cons Prod (consumed produced)

Displays a code that indicates whether consumed resources, produced resources, or both are defined for the operation. Values are:

Blank: No consumed or produced resources are defined for the operation.

Cons: Consumed resources (components, ingredients) are defined going into the operation.

Prod: Produced resources (co-products, by-products) are defined coming out of the operation.

Both: Both consumed resources (components, ingredients) and produced resources (co-products, by-products) are defined for the operation.

Note: If this field is highlighted, then an intermediate exists for the operation.

Line/Cell

Enter a number that defines a production line or cell. Detailed work center operations can be defined inside the line or cell.

Type Oper (type operation)

Specify a UDC (30/OT) that indicates the type of operation. Values include:

A: Alternate routing

TT: Travel time

IT: Idle time

T: Text

For JD Edwards EnterpriseOne Product Costing:

Only operations with a blank type operation code are costed.

DFM Operation on Critical Path (demand flow manufacturing on critical path)

Set a flag to indicate if an operation exists on the critical path for a particular item. If this field is set to a **1**, then it is the main line. This field is used during the lead time calculations.

This flag is set in JD Edwards EnterpriseOne DFM and cannot be changed manually. If you do not have JD Edwards EnterpriseOne DFM and enter a routing in base

manufacturing, the value in the Critical Path field is set to a 1 for each operation. Never change this field manually.

Equipment Number

Enter an identification code that represents an asset. You enter the identification code in one of these formats:

1. Asset number (a computer-assigned, 8-digit, numeric control number).
2. Unit number (a 12-character alphanumeric field).
3. Serial number (a 25-character alphanumeric field).

Every asset has an asset number. You can use unit number and serial number to further identify assets. If this is a data entry field, the first character that you enter indicates whether you are entering the primary (default) format that is defined for the system or one of the other two formats. A special character (such as / or *) in the first position of this field indicates which asset number format that you are using. You assign special characters to asset number formats on the fixed assets system constants form.

Standard Desc. (standard description)

Enter a message code (48/SN) that is assigned to a standard note, message, or general narrative explanation. You can use this code to add instructional information to a work order. You set up codes for this field on the Generic Message/Rate Types table (F00191).

Job Type

Enter a UDC (07/G) that defines the jobs within the organization. You can associate pay and benefit information with a job type and apply that information to the employees who are linked to that job type.

Next Oper (next operation)

Enter the operation number with which the current operation can be simultaneously processed.

Yield % (yield percent)

Enter the planned output yield percent for a step. The Planned Yield Update program uses this value to update the cumulative percent in the routing and the operation scrap percent in the bill of material. MRP uses the step scrap percent and the existing component scrap percent to plan component demand.

Cum Yield % (cumulative yield percent)

Displays the cumulative planned output yield percent for a step. The system uses this value to adjust the operation step scrap percent for the components at that operation step. This enables MRP to use the operation step scrap percent, along with the existing component scrap percent, to plan component demand.

Percent of Overlap

Enter a number that indicates the percentage that successive operations can overlap.

The actual overlap percentage entered for the operation sequence is the percent by which that operation overlaps the prior operation. For example, if you enter 80 percent, this indicates that work can begin on the overlapped operation when 20 percent of the prior operation is completed.

Note: Overlapping has no effect on move and queue calculations. The percent entered must be less than or equal to 100 percent. Enter percents as whole numbers. For example, 5 percent should be entered as **5.00**.

Time Basis

Enter a UDC (30/TB) that indicates how machine or labor hours are expressed for a product. Time basis codes identify the time basis or rate to be used for machine or labor hours entered for every routing step. For example, 25 hours per 1,000 pieces or 15 hours per 10,000 pieces. You can maintain the time basis codes in Time Basis Codes.

The system uses the values in the Description-2 field on the User Defined Codes form for costing and scheduling calculations. The description is what the code represents, but is not used in calculations.

Consuming Location

Enter the storage location from which goods will be moved.

Resource Units

Enter a number that indicates how many of the line's resource units are needed to produce one item.

Capacity UOM (capacity unit of measure)

Enter a unit of measure that you use to express the capacity of a production line. Examples of units of measure include hours, number of stampings, coats of paint, and so on.

This item is used for repetitive processing only.

Employee Number

Enter a number that identifies an entry in the JD Edwards EnterpriseOne Address Book system from Oracle, such as employee, applicant, participant, customer, supplier, tenant, or location.

Competency Type

Enter a code that identifies a competency table or category for which you can track employee competencies. Values are:

001: Training.

002: Skill.

003: Accomplishment.

004: Certification.

005: Degree.

006: Language.

It is a UDC (05/CY), but the values are hard-coded and cannot be changed. Therefore, each of the competencies that you track must pertain to one of these competency types. Adding additional values to this list requires system customizations.

Competency Code

Enter a code that specifies a competency within a competency type. For example, a competency for the competency type Skill might be C programming or driving a forklift.

Level From

Enter the lowest value to be included in the rule criteria range for a competency level range selection.

Level To

Enter the highest value to be included in the rule criteria range for a competency level range selection.

Match Rule

Enter a value to indicate whether the resource must satisfy the requirements that define the rule criteria. Values are:

1: The resource must meet the rule criteria.

0: The rule criteria are optional.

5.4.5 Entering Outside Operations

Access the Enter Routing Information form.

Supplier

Enter the address book number of the preferred provider of this item.

Cost Type

Enter a code that designates each element of cost for an item. Examples of the cost object types are:

A1: Purchased raw material.

B1: Direct labor routing roll up.

B2: Setup labor routing roll up.

C1: Variable burden routing roll up.

C2: Fixed burden routing roll up.

Dx: Outside operation routing roll up.

Xx: Extra add-ons, such as electricity and water.

The optional add-on computations usually operate with the type Xx extra add-ons. This cost structure enables you to use an unlimited number of cost components to calculate alternative cost roll-ups. The system then associates these cost components with one of six user-defined summary cost buckets.

Dx is the only relevant code for outside operations. For outside operations, the value that you enter indicates the cost component with which to associate costs. You should not enter the same cost component for more than one operation. If you do, the cost component includes the total cost of all operations. When the material is received from one operation, the system calculates the cost of the operation using the total cost of all operations.

PO (Y/N) (purchase order [yes/no])

Enter a code to determine if the Work Order Generation program (P31410) creates a purchase order for a subcontracted operation within a routing. Values are:

Y: Yes.

N: No.

5.4.6 Updating Component Scrap

Select Advanced Product Data Management (G3031), Planned Yield Update.

5.4.7 Setting Processing Options for Planned Yield Update (R3093)

Use these processing options to set the defaults for Planned Yield Update.

5.4.7.1 Defaults

This processing option specifies the date used by the program.

Date 01

Specify the as of date for the Planned Yield Update. If left blank, the current date is used.

5.5 Calculating Lead Times

This section provides an overview of lead time and lead time calculations and discusses how to:

- Generate lead times.
- Set processing options for Leadtime Rollup (R30822A).

5.5.1 Understanding Lead Time

Determining lead time is an essential part of any manufacturing or scheduling process. For any product that you purchase or manufacture, you encounter a time lag between when you order or start it and when you receive or finish it. To account for the lag, you must estimate the extra time (lead time) and account for it in planning.

For JD Edwards EnterpriseOne DFM, the system calculates lead time based on the operations flagged as critical in the Critical Path field. If you do not use JD Edwards EnterpriseOne DFM and enter a routing in base manufacturing, a value of **1** is set in the Critical Path field for each operation.

Important: The Critical Path flag is set in JD Edwards EnterpriseOne DFM and cannot be changed manually upon import to base manufacturing. The value in the Critical Path field is set to **1** for routings entered in base manufacturing and should never be changed manually.

Cumulative lead time is the total amount of time that is required to produce a product. JD Edwards EnterpriseOne Shop Floor Management uses the requested date of the order and calculates the appropriate order start date, based on the methods used to define the level lead time or lead time per unit for the product.

Many factors can influence the company's lead time policy, including:

- Manufacturing environment (assemble-to-order, make-to-order).
- Fixed or variable quantities.
- Serial or overlap operations.
- Fixed or variable time.
- Number of shifts and operators.

- Factoring by efficiency.
- Protection.

Whether the company uses fixed or variable lead time depends on whether you have consistent work order quantities for a manufactured item. If the work order quantities vary significantly, you use variable lead time. A significant variation is any amount that requires more or less lead time. Items with short lead times can have larger fluctuations than items with long lead times. You specify fixed or variable lead time on the Additional System Information forms in the Item Master program (P4101) and the Item Branch/Plant program (P41026). The system calculates lead times for parent and component items based on this information combined with the work center information and routing instructions that are set up in JD Edwards EnterpriseOne Product Data Management. At any point in the planning and scheduling process, you can change lead time values manually.

The system subtracts fixed lead times directly from the requested date on the work request to calculate the start date of production. Fixed lead time remains the same, regardless of the quantity produced. However, variable lead time adjusts according to the quantity produced.

For any manufactured product, the system calculates four types of lead time:

Lead Time Type	Description
Level lead time	The number of workdays required to complete the product after all items are available.
Manufacturing lead time	The total number of workdays required to complete a product, from its lowest-level components to the final item, assuming that all purchased items are in-house.
Cumulative lead time	The number of workdays required to acquire items and complete a product, from its lowest-level components to the final item. Cumulative lead time is the level lead time for a product plus the longest cumulative lead time of any of its components.
Per unit lead time	The sum of the run times, as defined by the prime load codes for the work centers, factored by the routing time basis and converted to the lead time per unit. You use this lead time calculation when the Fixed/Variable option in the Item Master and the Item Branch/Plant programs is set to variable lead time.

The JD Edwards EnterpriseOne Shop Floor Management system uses specific information to calculate lead times:

- Serial or overlap operations.
- Fixed or variable lead time indicator.
- Routing labor, setup, queue, move, and machine run hours.
- Work center prime load code.
- Number of employees or machines per work center.
- Hours per work day.

5.5.1.1 Lead Time Concepts

This table explains important lead time terms and concepts that you must understand:

Type of Hours	Description
Machine hours	The number of machine hours that are required to produce the amount from the time basis code.
Labor hours	The number of labor hours that are required to produce the amount from the time basis code.
Setup hours	The number of hours that are required to prepare machinery to produce a specific item, regardless of quantity.
Move hours	The number of hours that a manufacturing work order is in transit from the completion of one operation to the beginning of the next.
Queue hours	The number of hours that a job waits at a work center before setup or work is performed on it.
Total queue and move hours	The sum of the move hours and the queue hours.
Time basis code	A UDC (30/TB) that indicates how machine or labor hours are expressed for a product. Time basis codes identify the time basis or rate to be used for machine or labor hours entered for every step in the routing instructions, such as 25 hours per 1,000 pieces.
Resource units	The available amount of capacity in a work center for the months in the calendar. As the system calculates the operation start and due dates, it uses the available hours to calculate the operation start dates. You maintain the resource units in the Enter/Change Resource Units program (P3007).
Prime load code	<p>A code that indicates whether a work center is labor-intensive or machine-intensive. The prime load code also indicates whether the system uses the number of employees or the number of machines to determine the daily resource units in the Work Center Resource Units table (F3007). You maintain the prime load codes in the Enter/Change Work Centers program (P3006).</p> <p>For calculating lead times, these prime load code values are valid:</p> <ul style="list-style-type: none"> ■ L = run labor hours. ■ M = machine labor hours. ■ B = run and setup hours. ■ C = machine and setup hours. ■ O = Other.
Purchased parts	A part bought from a supplier. For any purchased part, you specify the level lead time, which is equal to the cumulative lead time. The manufacturing lead time, lead time per unit, total queue and move hours, and setup times for purchased parts are zero as the default.

5.5.1.2 Work Order Start Dates

When an item has a fixed lead time, the system uses the item's level lead time value to backschedule the work order start date. For backscheduling, the start of a work order is based on the due date of the order.

For example, suppose that the system generates a planned order with a requested due date of October 15. The level lead time is three days for this product, so the system calculates the start date by counting back three working days on the shop floor calendar from (but not including) the requested date. The system assigns the order a start date of October 12.

When an item has a variable lead time, the system uses this calculation to determine the lead time days:

$$(\text{Lead time per unit} \times \text{order quantity} / \text{TIMB}^*) + \text{setup} + \text{total queue/move} = \text{Variable lead time}$$

The system reads the time basis code (TIMB) from the Item Branch File table (F4102).

The calculation uses these values:

- Due date: October 15.
- Lead time per unit: 32 hours.
- Order quantity: 1,000.
- Setup: 1 hour.
- Total queue/move: 9 hours.
- Work hours per day: 8 hours.

$$((32 \times 1000 / 10,000) + 1 + 9) / 8 = 2 \text{ days}$$

To determine the start date, the system counts back the lead time days from the due date of planned orders. The system back schedules the due date, October 15, two days to determine the start date of October 13.

Note: Lead time per unit does not use crew size to calculate lead time for an item with a labor-based work center. However, lead time per unit does use the number of employees in the work center to calculate lead time.

5.5.1.3 Operation Start Dates

The system calculates the operation start dates with the average number of hours per operation.

For a fixed lead time, the system calculates the operation hours using:

- Level lead time.
- Hours per work day.
- Number of employees per operation.
- Number of operations.

You must schedule the hours per operation according to the resource units within the entire level lead time to ensure that the start date of the first operation equals the start date of the work order. When the job moves to a different work center in the same day, the system decreases the resource units available by the percentage of the work day remaining. The system does not use resource units on the due date of the work order. Instead, it assumes that the order was completed at the end of the previous day.

For each operation, the system then schedules this average time into the appropriate work center, based on the available hours from the Work Center Resource Units table (F3007). The system schedules the last operation due date on the day before the work order due date.

The system uses this formula to calculate average time per operation:

$$\text{Level lead time} \times \text{work hours per day} \times \text{employees or machine number of operation sequences (blank operation sequence codes only)} = \text{average time per operation.}$$

The work hours per day are retrieved from the Manufacturing Constants table (F3009).

The calculation uses these values:

- Work order due date: May 1
- Average time per operation: 25 hours
- Operations in the routing instructions:
 - OP40 WC 200-204 due April 30 start April 27
 - OP30 WC 200-101 due April 27 start April 24
 - OP20 WC 200-204 due April 24 start April 21
 - OP10 WC 200-101 due April 21 start April 17
 - WC Resource Units 200-204: 8
 - WC Resource Units 200-101: 8

To determine variable lead times, the system schedules the actual hours from the work order routing instructions according to the same resource unit rules used for fixed lead time.

The system uses the prime load code to determine the hours to use. The hours are then applied to the Work Center Resource Units table, similar to fixed lead time. The system applies the queue time from the work order routing instructions at the beginning of an operation and the move time at the end of an operation.

5.5.1.4 Overlapping and Concurrent Operations

If a percent of overlap is specified in the routing instructions, the work order routing instruction includes specified operations that overlap. For example, an overlap percentage of 80 percent for an operation means that the next operation can start when 20 percent of the previous operation is complete.

Consider this example:

- Work order complete date: May 1
- Last operation 20: 24 hours
- First operation 10: 24 hours
- Resource hours per day, per work center: 8 hours
- Operation overlap on 20: 75 percent

This table illustrates overlapping operations:

Figure 5–6 Operation start and complete dates

Operation	Without Overlap	With Overlap
Operation 10		
Start date	April 27	April 27
Complete date	April 29	April 29
Operation 20		
Start date	April 30	April 27
Complete date	May 2	April 30

Using data from the previous tables, the system advances the complete date of the previous operation by 75 percent of 24 hours, or 18 hours. The system then recalculates the start date using normal back scheduling rules. As a result, operations 10 and 20 overlap and takes 24 hours to complete.

This table illustrates this concept:

Figure 5–7 Operation schedule with and without overlap

Date	April 27	April 28	April 29	April 30	May 1	May 2
Resource hours	8	8	8	8	8	8
OP 10 (24 hrs) (w/o overlap)	←		→			
OP 20 (24 hrs) (w/o overlap)				←		→
OP 10 (w/overlap)	←		→			
OP 20 (w/overlap)		←		→		

5.5.2 Understanding Lead Time Calculations

You must generate lead times for MRP and CRP. The Leadtime Rollup program (R30822A) calculates planned level lead times for manufactured items and updates them in the Item Branch File table (F4102).

This program calculates:

- Level lead time (if using manufacturing lead time quantity).
- Manufacturing lead time.
- Cumulative lead time.
- Lead time per unit.
- Total queue and move hours.

- Setup hours.

When calculating the lead time per unit, you can set a processing option so that the number of employees or machines in the work center that you use to divide the run time in the routing by is set to 1. This value overrides the actual number of employees or machines in the work center.

Important: You cannot run this program in proof mode. It updates the records according to the processing options that you select. Changes to lead times affect the MRP and CRP. Run this program without any data selection and with no changes to data sequencing.

5.5.2.1 Level Lead Time

For a manufactured product, level lead time is the number of workdays that is required to complete the product after all of the items are available. Level lead time for a purchased item is the number of calendar days that are required for you to receive the item after the supplier receives the purchase order. Level lead time is not calculated if the Manufacturing Lead Time in F4102 is zero.

This example illustrates where the level lead times occur for a manufactured item and a purchased item:

The system uses the formula to calculate level lead time:

$$\sum [\{ (M \text{ or } L) / (E \text{ or } M) \} / \{ (EF \text{ or } UT) \times (CUM \text{ Yield}) \}] \times MLQ] / TIMB + Setup + Total \text{ Queue \& Move} = \text{Work Hours per Day}$$

The work hours per day are retrieved from Manufacturing Constants table (F3009). The system reads the time basis code from the Routing Master File table (F3003).

This table defines the values used in the formula:

Value	Description
M or L	Machine or labor hours based on the prime load code
SUM	Sum of all operations
TIMB	Time basis code
MLQ	Manufacturing lead time quantity
E or M	Number of employees or machines in the work center
Setup	Information from the routing
Queue	Queue plus move time from the routing or work center
EF or UT	Efficiency or utilization from the work center
CUM Yield %	Yield from the routing

5.5.2.2 Manufacturing Lead Time

Manufacturing lead time is the total number of workdays required to complete a product, from its lowest-level components to the final item, assuming that all purchased items are in-house.

Manufacturing lead time includes:

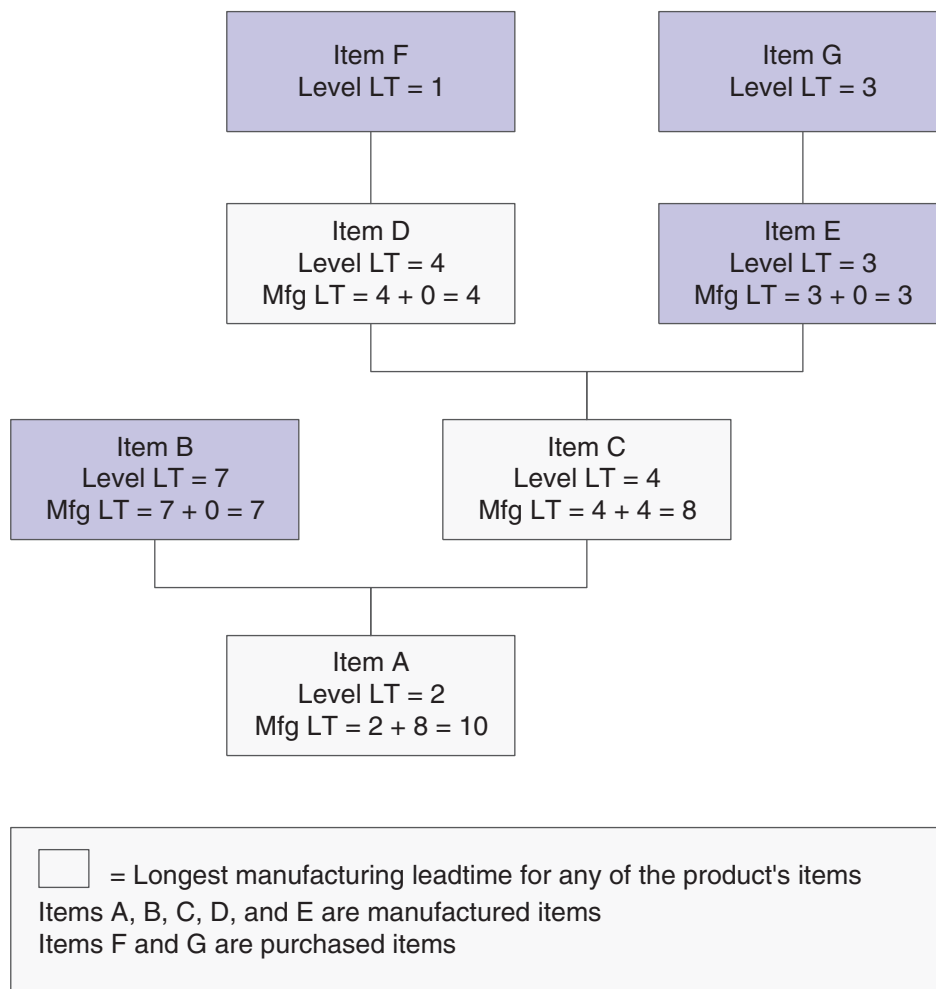
- Order preparation time
- Queue time

- Setup time
- Run time
- Move time
- Inspection time
- Putaway time

Manufacturing lead time is the total of the level lead time for an item plus the longest manufacturing lead time for any of its components. Lead time for purchased items is not included in manufacturing lead time calculations.

This process flow, which depicts the calculation for manufacturing lead time, illustrates where the manufacturing lead time occurs in the process for a manufactured item:

Figure 5–8 Manufacturing lead time calculation



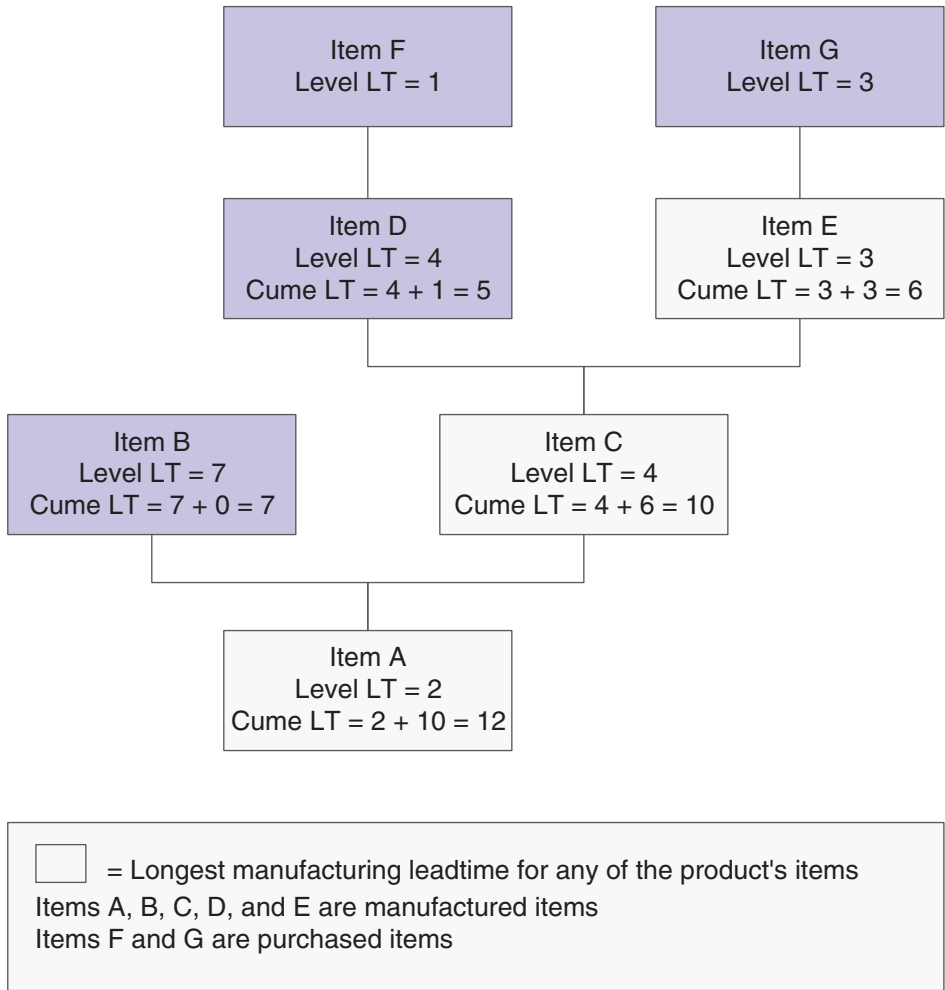
5.5.2.3 Cumulative Lead Time

Cumulative lead time, unlike manufacturing lead time, includes the lead times for purchased items. It includes both the time to acquire purchased items and the time to complete the product.

Cumulative lead time is the number of workdays that are required to acquire items and complete a product, from its lowest-level components to the final item. Cumulative lead time is the level lead time for a product plus the longest cumulative lead time of any of its components. The cumulative lead time for a purchased item is its level lead time.

This graphic illustrates the calculation for cumulative lead time:

Figure 5-9 Cumulative lead time calculation



5.5.2.4 Lead Time Per Unit

The lead time per unit is the sum of the run times, as defined by the prime load codes for the work centers, factored by the routing time basis and converted to the lead time per unit. The lead time per unit sets valid start dates for orders planned in other-than-normal planned order quantity. When you run the Leadtime Rollup program, the system measures the lead time per unit in hours.

The system uses this formula to calculate the lead time per unit:

$$\sum \{ ((M \text{ or } (L \times \text{Crew Size})) / (E \text{ or } M)) / ((EF \text{ or } UT) \times (\text{CUM Yield})) \} / \text{TIMB1 TIMB2}$$

The system reads the time basis code 1 (TIMB1) from the Item Branch File table (F4102) and the time basis code 2 (TIMB2) from the Routing Master File table (F3003).

If the processing option to override the number of employees or machines in the work center is set to **1**, the system uses this formula:

$$\Sigma \{ ((M \text{ or } (L \times \text{Crew Size})) / (1)) / ((EF \text{ or } UT) \times (\text{CUM Yield})) \} / \text{TIMB1 TIMB}$$

This table defines the values used in the formulas:

Value	Description
M or L	Machine or labor hours based on the prime load code
Crew Size	Size of the crew set in the routing (P3003)
SUM	Sum of all operations
TIMB1	Time basis code from the Item Branch File table
TIMB2	Time basis code from the routing
E or M	Number of employees or machines in the work center
EF or UT	Efficiency or utilization from the work center
CUM Yield	Yield from the routing

5.5.2.5 Setup Hours

Setup hours indicate the time that is required to prepare the machinery to run a specific item. To calculate setup hours, divide the setup by the number of employees or machines for each routing, and then add the values together. This formula ensures consistency during the backscheduling routing because the resource units for the work center are created based on those numbers.

This graphic illustrates that in this example, the setup hours equal six hours:

Figure 5–10 Setup hours calculation

Setup	=	$\frac{1}{1}$	+	$\frac{2}{1}$	+	$\frac{6}{2}$	= 6 setup hours
Employees or machines		OP 30		OP 60		OP 80	

5.5.3 Generating Lead Times

Select Advanced Product Data Management (G3031), Leadtime Rollup.

5.5.4 Setting Processing Options for Leadtime Rollup (R30822A)

Use these processing options to set default values for the Leadtime Rollup program.

5.5.4.1 Defaults

These processing option specify the branch/plant and routing effectivity dates to use when calculating lead times.

1. Branch

Specify the branch/plant to be processed or leave this processing option blank for all branches.

2. As of Date

Specify the routing effectivity date that the system should use to calculate the lead times. If you leave this processing option blank, today's date is used.

3. Calculate Leadtime for Queue/Move Hours

Specify how the system uses queue and move hours to calculate Level Leadtime. Values are:

Blank: Use queue and move hours as a percentage of the work center shift hours per day.

1: Use queue and move hours as a percentage of the work hours per day from Manufacturing Constants.

4. Zero Move/Queue Hours From Routings

Specify what to do with a zero value in the standard routing for the move and queue hours when calculating the item lead time. Values are:

Blank: Use the zero value from the routing if move and queue hours are zero in the routing. (Release 9.1 Update)

1: Use the move and queue hours from the Work Center Master table (F30006- QUED, MOVD) if move and queue hours are zero in the routing. (Release 9.1 Update)

If move and queue hours are non-zero in the routing, then the leadtime calculation uses that value irrespective of the Zero Move/Queue Hours From Routings processing option setting. (Release 9.1 Update)

5. Override Number of Employees/Machines

Specify a value to override the number of employees or machines in the work center. Values are:

Blank: Use the existing number of employees or machines in the work center.

1: Override the number of employees or machines to 1 for all work centers in the routing.

Working With Process Manufacturing

This chapter contains the following topics:

- [Section 6.1, "Understanding Process Manufacturing"](#)
- [Section 6.2, "Understanding Process Terminology"](#)
- [Section 6.4, "Entering Processes"](#)
- [Section 6.4.2, "Prerequisite"](#)
- [Section 6.5, "Verifying Processes"](#)

6.1 Understanding Process Manufacturing

Process manufacturing produces products such as liquids, fibers, powders, or gases. Pharmaceuticals, foodstuffs, and beverages are typical examples of process products and represent a significant share of the manufacturing market.

These types of products are usually manufactured by a two-step process:

- Mixing or blending
- Filling or packaging

Intermediate steps, such as curing, baking, or additional preparation, can also occur. Intermediates enable you to track the quantity of output of any operation in a work center at a specific time. You can define intermediates in different units of measure, by item, or by quantity. You can set up one intermediate per operation, but you cannot define an intermediate for the last operation in a routing instruction.

Process manufacturing uses recipes or formulas, and resources or ingredients. Resources can either be consumed or produced during the manufacturing process. Products that the process produces are called co-products and by-products. In a process recipe or formula, the quantity of a component can vary according to its grade or potency.

The different types of processing in process manufacturing are:

- Batch processing
In batch processing, a product is usually made in a standard run or lot size determined by vessel size, line rates, or standard run length. Items made this way are typically scheduled in short production runs due to the life cycle of the product after its completion. Typical items are pharmaceuticals, foods, inks, glues, oil or chemical products, and paints. Co-products and by-products might be generated during batch processing.
- Continuous processing

In continuous processing, production typically occurs over an extended period using dedicated equipment that produces one product or product line with only slight variations. This method of manufacturing is characterized by the difficulty of planning and controlling quantity and quality yield variances. Typical items are petroleum-based products or distilled seawater. Co-products and by-products are generally more prevalent in continuous processing than in batch processing.

In addition, strategies similar to those in discrete manufacturing, such as repetitive or to-orders (for example, make-to-order, assemble-to-order, or engineer-to-order) might drive the process. Usually, both batch and continuous processing methods require extensive record keeping on quality and tolerance values during the process, as well as strict adherence to lot tracing and tracking.

Not all processes are planned, scheduled, or produced in their primary unit of measure. To accommodate this situation, full unit of measure capabilities are enabled throughout the JD Edwards EnterpriseOne Shop Floor Management system.

Most entry programs have a unit of measure next to the quantity fields, and the unit of measure is stored in the database tables along with the quantities.

The system uses four fields in the Item Master table (F4101) throughout shop floor as default values in entry forms:

- Component Unit of Measure.
- Production Unit of Measure.
- Primary Unit of Measure.
- Secondary Unit of Measure.

The Primary Unit of Measure value must be the smallest of the three units of measure. If intermediates exist for an operation, the intermediate can be any valid unit of measure as long as the conversion is set up.

The next section provides different examples of process manufacturing.

6.1.1 Graphite Lubricant Batch Process

This example illustrates the ingredients, routing instructions in operation number sequence, and the co-products and by-products that the graphite lubricant batch process produces:

Figure 6–1 Graphite Lubricant Batch Process

Ingredients	Routing Instructions	Co-Products and By-Products
Bulk oil	10 Filter oil 20 Blend additives 30 Refine 40 Blend graphite	By-product = sludge Co-product = Household lubricant Co-product = Graphite lubricant

6.1.2 Percent Process

In this example, the parent item is Soft Drink and its batch quantity is 300 GA:

Component	Quantity	Unit of Measure	Fixed/Variable
Vanilla	50	GA	Percent
Water	40	QT	Percent
Concentrate	10	LT	Percent

This table displays the percent calculation and conversion to batch unit of measure storage:

Component	Calculation	Batch Size	Converted Value
Vanilla	= .5 × 300	= 150 GA	150 GA
Water	= .4 × 300	= 120 GA	480 QT
Concentrate	= .1 × 300	= 30 GA	114 LT

The system uses the component unit of measure in the percent bill to convert the number of gallons that correspond to the percent for each component. In this example, the system calculates the water and concentrate components to be 120 GA and 30 GA of the batch size. The system converts the unit of measure to the component unit of measure and stores them as 480 QT and 114 LT.

You must set up the unit of measure conversion for percent bills to work properly. Verify that all of the components can convert to the batch quantity unit of measure.

6.2 Understanding Process Terminology

You should be familiar with the process manufacturing terms before using process manufacturing:

Process Term	Description
Co-Products	Many process steps create multiple outputs. A co-product is produced by process steps that are defined for specific ingredients. Co-products are usually the main products that companies sell to customers. For example, a graphite lubricant process creates two co-products: household and graphite lubricants. Material Requirements Planning plans for co-product demand.
By-Products	A by-product is produced as a residual or incidental item that results from the process steps. Companies can recycle, sell, or use by-products for other purposes. For example, a graphite lubricant process creates one by-product: sludge. Material Requirements Planning does not plan for by-product demand.
Ingredients	An ingredient is the raw material or item that is combined during process manufacturing to produce the end item. Typically, raw materials are purchased.
Intermediates	Intermediates enable you to track the quantity of output of any operation in a work center at a specific time. You can define intermediates in different units of measure, by item, or by quantity. You can set up one intermediate per operation, but you cannot define an intermediate for the last operation in a routing. You can manually attach intermediates. Intermediates are not stocked in inventory, sold to customers, or planned by Material Requirements Planning (MRP). Fermented liquid is an example of an intermediate. The liquid ferments for an extended period of time before being distilled. The resulting liquid is not a finished product, but it proceeds to the next operation.

Process Term	Description
Process Routing Instructions	A process routing instruction details the method of manufacture for a specific process item. It includes operations and operation sequence, work centers, and standards for setup and run. You can also define operator skill levels, inspection operations, and testing requirements.
Substitutes	A substitute item is an alternate item that the system uses in production when the primary item is not available. You can define substitutes for a single ingredient within the process. You might need to do so for several reasons, such as quality concerns, inventory shortages, or supplier delivery problems.
Alternate Operations	An alternate operation is a replacement for a normal operation for an item in the manufacturing process. You can define an alternate operation to be performed only as required, such as using oven B if oven A is unavailable. This information assists shop floor personnel, but it is not used by the JD Edwards EnterpriseOne Product Costing or the JD Edwards EnterpriseOne planning and execution systems.
Batch Processes	In batch processing, items are produced in fixed quantities, or batches. Food, petroleum, and pharmaceutical industries use batch processing. The batch process feature enables you to define different processes for items based on quantity or batch size, since processes vary by quantity.
Percent Bills of Material	<p>Percent bills of material enable you to define processes with ingredient quantities that are expressed as a percent of the process batch quantity.</p> <p>The system processes percent information as:</p> <ul style="list-style-type: none"> ■ Multiplies the ingredient percentage times the batch quantity to obtain ingredient quantities expressed in the batch quantity unit of measure. ■ Converts the ingredient quantities from the batch unit of measure to the ingredient unit of measure. <p>The system stores quantities for ingredients by:</p> <ul style="list-style-type: none"> ■ Calculating a percentage for the ingredient in relation to the batch size. ■ Converting the batch unit of measure to the ingredient unit of measure and stores the quantity for the ingredient. <p>Note: Percent bills of material are not supported in JD Edwards EnterpriseOne Demand Flow® Manufacturing from Oracle.</p>

6.3 Common Fields Used in This Chapter

Oper Seq# (operation sequence number)

Enter a number used to indicate an order of succession.

In routing instructions, a number that sequences the fabrication or assembly steps in the manufacture of an item. You can track costs and charge time by operation.

In bills of material, a number that designates the routing step in the fabrication or assembly process that requires a specified component part. You define the operation sequence after you create the routing instructions for the item. The JD Edwards EnterpriseOne Shop Floor Management system uses this number in the backflush/preflush by operation process.

In engineering change orders, a number that sequences the assembly steps for the engineering change.

For repetitive manufacturing, a number that identifies the sequence in which an item is scheduled to be produced.

Skip To fields enable you to enter an operation sequence that you want to begin the display of information.

You can use decimals to add steps between existing steps. For example, use 12.5 to add a step between steps 12 and 13.

Effective From

Enter a date that indicates:

- When a component part goes into effect on a bill of material.
- When a routing step goes into effect as a sequence on the routing for an item.
- When a rate schedule is in effect.

The default is the current system date. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in JD Edwards EnterpriseOne Product Costing, JD Edwards EnterpriseOne Shop Floor Management, and Capacity Requirements Planning (CRP). MRP, in the JD Edwards EnterpriseOne Requirements Planning system, determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.

Effective Thru (effective through)

Enter a date that indicates:

- When a component part is no longer in effect on a bill of material.
- When a routing step is no longer in effect as a sequence on the routing for an item.
- When a rate schedule is no longer active.

The default is December 31 of the default year defined in the Data Dictionary for Century Change Year. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in JD Edwards EnterpriseOne Product Costing, JD Edwards EnterpriseOne Shop Floor Management, and CRP. MRP determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.

Feat Cost % (feature cost percentage)

Enter a percentage that the Simulate Cost Rollup program uses to calculate the cost of a feature or option item as a percentage of the total cost of the parent.

Enter the percentage as a whole number, for example, enter 5 percent as 5.0.

Move Hours

Enter the planned hours that are required to move the order from this operation to the next operation in the same work center.

If the Routing Master values are blank, the system retrieves the default value from the work order routing. However, the system uses these values only for backscheduling variable leadtime items.

6.4 Entering Processes

This section provides an overview of product data entry for process manufacturing, lists a prerequisites, and discusses how to:

- Enter processes and process operations.
- Enter outside operations.
- Enter process ingredients.
- Enter a substitute ingredient.

- Enter a co- and by-product list.
- Enter intermediates.
- Change multiple processes.

6.4.1 Understanding Product Data Entry for Process Manufacturing

You use the Enter/Change Process program (P3003) to enter a process. You define a process item with ingredient relationships. Relationships also determine information about co-products, by-products, intermediates, and substitutions. You also enter batch information, batch quantity and unit of measure for the process.

After you enter a process, you must enter the process operations. Operations define the work centers and labor standards that are required to manufacture the process item.

To enter the process operations, you must provide:

- Work center and operation sequence for the process.
- Hours for any machine, labor, setup, move, and queue time that you might incur.

For operations that you set up as outside operations, you must specify a supplier and indicate that a purchase order is required.

Note: You have the option to access work center information for a particular operation by choosing the Work Center option on the Row menu of the Work With Routing Master form or the Enter Process Information form.

If you are using activity-based costing, you can enter an activity code for each operation sequence to indicate how you want the system to account for the operation. To activate the Activity Code field, you must select activity-based costing in the Advanced Cost Accounting Constants program (P1609).

After you define operations for each process, you must enter the ingredients. These ingredients are the raw materials or items that are combined during operations to produce the process item.

When entering process ingredients you can provide:

- Ingredients for each operation.
- Minimum and maximum grade or potency ranges that apply to the ingredients.
- Substitute ingredients that the system uses when the primary ingredient is not available.
- Percentages of applicable ingredients that the system uses.

When entering grade and potency information, you can only enter grade or potency values for an ingredient, but not both. You can only enter grade or potency information for items that are defined as lot-controlled.

You can enter substitute ingredients for components within the parent item. You can use substitute items if you encounter quality issues, inventory shortages, or supplier problems with the original component. The system highlights an ingredient's item description to indicate a substitution. Specify ingredient substitution for a specific process. Use item cross references for global substitutions.

You can enter as many ingredients in the form of percentages as necessary, but the sum of the percentages must equal 100 percent. The system uses the batch size to calculate percentages of the process for each ingredient. You should verify that each ingredient can convert to the process unit of measure, either by using the item unit of measure conversion or the standard unit of measure conversion.

You can enter production and cost information based on demand for a specified feature. You specify an issue type code that identifies how the system issues each component from stock. You identify how many days before or after the start of the process that a component is needed. You also identify the percentage of demand for a specified feature and the percentage that is used to calculate the cost of the feature.

Many process steps create multiple outputs. You can enter co-products, which are usually the main products that companies sell to customers, or by-products, which are produced as a residual item to the process steps.

Note: If you are entering a co-products and by-products list for a batch process, verify that the ratio of the co-products and by-products is the same for each batch quantity. For example, if a batch process with a batch quantity of 10 produces 10 each of a co-product and by-product, then a batch quantity of 20 must produce 20 each of the co-product and by-product.

Intermediates are products that are produced from ingredients in the process. Intermediates are not a finished product, but they do proceed to the next operation in the process. Intermediates enable you to track the quantity of output of any operation in a work center at a specific time. You can define intermediates, in different units of measure, by item or by quantity. You can set up one intermediate per operation, but you cannot define an intermediate for the last operation in the routing instruction.

Use the Where Used Update program (R30520) to change multiple processes. For example, you can use this program to replace an old ingredient with a new one. When you run this program, you can review the report to verify changes.

You can use this program to perform various types of mass updates:

- Replace one ingredient with another.
- Delete a process item.
- Change effectivity dates for a process item.
- Change the quantity per assembly value for a process item.
- Change the issue type code.
- Change the unit of measure.

Use data selection to specify the process items that you want to change. Use processing options to define the change. This program finds all occurrences of the item (as an ingredient) in the Bill of Material Master File table (F3002) and updates the process. You can also update an ingredient that has past or future effectivity dates.

You can run this program in either proof or final mode. In proof mode, the system generates a report of the proposed changes for review, but it does not update the data. In final mode, the system generates a report that lists the changes and updates the data according to the selected choices.

Important: This program can potentially change many processes in the system at the same time. It is recommended that you first run it in proof mode to verify the choices, and then run it in final mode to change the data. You might want to restrict access to this program.

To make changes to a process and remove the old records, run the program twice. First, create the new records and then delete the old ones.

The system stores the changes in the Bill of Material Master File table. It does not automatically update the existing parts lists, MRP calculations, and costing information.

The program updates:

- Low Level Code field in the Item Master table.
- Net Change Flag field in the Item Branch File table (F4102).

6.4.2 Prerequisite

Review the process to verify that the item that you are updating is active (within the effective dates) and appears in at least one process.

See Also:

- [Updating Component Scrap](#).

6.4.3 Forms Used to Enter Processes

Form Name	FormID	Navigation	Usage
Enter Process Information	W3003B	Daily PDM Process (G3012), Enter/Change Process On Work with Routing Operations, complete the Item Number and Branch/Plant field and click Add.	Enter new processes and process operations. Enter effectivity dates, operation yield percentage, operation resource units, and outside operation information.
Enter Ingredients	W3002A	On Enter Process Information, select Ingredients from the Form menu.	Enter the ingredients required for the process together with grade and potency information.
Enter Component Substitutes	W3002SB	On Enter Ingredients, select an ingredient and then select Substitutes from the Row menu.	Define substitutes for ingredients.
Co/By Product Revision	W3002PA	On Enter Process Information, select Co/By Revision from the Form menu.	Define the co- and by-products for the process.
Enter Intermediate Products	W3002IA	On Enter Process Information, select a process operation, and then select Intermediates from the Row menu.	Define intermediate products for the process.

6.4.4 Entering Processes and Process Operations

Access the Enter Process Information form.

Figure 6–2 Enter Process Information form

Work Center	Oper Seq#	Description	Run Labor	Run Machine	Setup Labor	Cons Prod	Queue Hours	Move Hours	Line/Cell	Effective From	Effective Thru
200-201	10.00	Filter bulk oil	.00	1.00	.25	Both	.00			04/15/1997	12/31/2042
200-202	20.00	Blend additives	.00	.25	.00	Cons	.00			04/15/1997	12/31/2042
200-203	30.00	Refine	.00	2.00	.00	Prod	.00			04/15/1997	12/31/2042
200-202	40.00	Blend graphite	.00	.25	.00	Both	.00			04/15/1997	12/31/2042

Work Center

Enter the alphanumeric code that identifies a separate entity within a business for which you want to track costs. For example, a business unit might be a warehouse location, job, project, work center, branch, or plant.

This is the physical location of the shop floor where routing operations occur.

Business unit security might prevent you from viewing information about business units for which you have no authority.

For the JD Edwards EnterpriseOne Plant & Equipment Management system from Oracle, this is the craft/resource responsible for completing the maintenance activity.

Run Labor

Enter the standard hours of labor that you expect to incur in the normal production of this item.

The run labor hours in the Routing Master table are the total hours that it takes the specified crew size to complete the operation. The hours are multiplied by the crew size during shop floor release and product costing.

For JD Edwards EnterpriseOne Plant & Equipment Management:

This is the estimated number of hours needed to complete a maintenance activity.

Run Machine

Enter the standard machine hours that you expect to incur in the normal production of this item.

Setup Labor

Enter the standard setup hours that you expect to incur in the normal completion of this item. This value is not affected by crew size.

Queue Hours

Enter the total hours that an order is expected to be in queue at work centers and moving between work centers.

The system stores this value in the Item Branch table. You can calculate this value using the Leadtime Rollup program or you can enter it manually. When you run the Leadtime Rollup program, the system overrides manual entries and populates the table with calculated values.

Line/Cell

Enter a number that defines a production line or cell. Detailed work center operations can be defined inside the line or cell.

Crew Size

Enter the number of people who work in the specified work center or routing operation.

The system multiplies the Run Labor value in the Routing Master table by crew size during costing to generate total labor amounts.

If the Prime Load Code is L or B, the system uses the total labor hours for backcheduling. If the Prime Load Code is C or M, the system uses the total machine hours for backcheduling without modification by crew size.

For JD Edwards EnterpriseOne Shop Floor Management:

The Crew Size field on the Work Order Routing form contains the value entered on the Work Center Revision form (P3006). You can override the value by changing this field on the Work Order Routing form. However, the Work Center Revision form does not reflect this change.

Type Oper (type operation)

Enter a user-defined code (UDC) (30/OT) that indicates the type of operation. Values include:

A: Alternate routing

TT: Travel time

IT: Idle time

T: Text

For JD Edwards EnterpriseOne Product Costing:

Only operations with a blank type operation code are costed.

P C (pay point code)

Enter a code that indicates whether a work center has labor, material, or both, backflushed through it when quantities are reported against operations occurring in the work center. If you do not override the routing record, the system uses the work center value as the default. Codes are:

0: Not a backflush work center.

B: Backflush material and labor.

M: Backflush material only.

L: Backflush labor only.

P: Preflush material only.

Job Type

Enter a UDC (07/G) that defines the jobs within the organization. You can associate pay and benefit information with a job type and apply that information to the employees who are linked to that job type.

Next Oper (next operation)

Enter the operation number with which the current operation can be simultaneously processed.

Yield % (yield percent)

Enter the planned output yield percent for a step. The Planned Yield Update program uses this value to update the cumulative percent in the routing and the operation scrap percent in the bill of material. MRP uses the scrap percent and the existing component scrap percent to plan component demand.

Time Basis

Enter a UDC (30/TB) that indicates how machine or labor hours are expressed for a product. Time basis codes identify the time basis or rate to be used for machine or labor hours entered for every routing step. For example, 25 hours per 1,000 pieces or 15 hours per 10,000 pieces. You can maintain the time basis codes in Time Basis Codes.

The system uses the values in the Description-2 field on the User Defined Codes form for costing and scheduling calculations. The description is what the code represents, but is not used in calculations.

6.4.5 Entering Outside Operations

Access the Enter Process Information form.

Supplier

Enter the address book number of the preferred provider of this item.

Cost Type

Enter a code that designates each element of cost for an item. Examples of the cost object types are:

A1: Purchased raw material.

B1: Direct labor routing roll-up.

B2: Setup labor routing roll-up.

C1: Variable burden routing roll-up.

C2: Fixed burden routing roll-up.

Dx: Outside operation routing roll-up.

Xx: Extra add-ons, such as electricity and water.

The optional add-on computations usually operate with the type Xx extra add-ons. This cost structure enables you to use an unlimited number of cost components to calculate alternative cost roll-ups. The system then associates these cost components with one of six user-defined summary cost buckets.

For outside operations, the value that you enter indicates the cost component with which to associate costs. You should not enter the same cost component for more than one operation. If you do, the cost component includes the total cost of all operations. When the material is received from one operation, the system calculates the cost of the operation using the total cost of all operations.

PO (Y/N) (purchase order (yes/no))

Enter a value to determine if the Work Order Generation program (P31410) creates a purchase order for a subcontracted operation within a routing. Values are:

Y: Yes

N: No

6.4.6 Entering Process Ingredients

Access the Enter Ingredients form.

Figure 6–3 Enter Ingredients form

Item Number	Description	Quantity	UN	Active Ingr. Flag	F Y	Is Cd	Slog Typ	Ln Ty	Line No.	Oper Seq#	Effective From	Effective Thru
5001	Oil	50	GA	0	V	I	P	S	10.00	10.00	04/15/1997	12/31/2042
5002	Rust Inhibitor	1	GA	0	V	B	P	S	20.00	20.00	04/15/1997	12/31/2042
5003	Graphite	30	OZ	0	V	B	P	S	30.00	40.00	04/15/1997	12/31/2042
5004	Thinner	1	GA	0	V	B	P	S	40.00	20.00	04/15/1997	12/31/2042

Component Branch

Enter a secondary or lower-level business unit. The system uses the value that you enter to indicate that a branch or plant contains several subordinate departments or jobs. For example, assume that the component branch is named MMCU. The structure of MMCU might be:

Branch/Plant - (MMCU)

Dept A - (MCU)

Dept B - (MCU)

Job 123 - (MCU)

Line No. (line number)

Enter a number to specify how the system displays the sequence of components on a single-level bill of material. This number initially indicates the sequence in which a component was added to the bill of material. You can modify this number to change the sequence in which the components appear.

Percent Scrap

Enter the percentage of unusable component material that is created during the manufacture of a particular parent item. During Distribution Requirements Planning (DRP), Master Planning Schedule (MPS), and MRP generation, the system increases gross requirements for the component item to compensate for the loss. Enter percentages as whole numbers, for example, 5 percent as 5.0.

Note: Inventory shrink and scrap are compounded to calculate the total loss in the manufacture of a particular item. Accurate shrink and scrap factors support more accurate planning calculations.

The JD Edwards EnterpriseOne Shop Floor Management system and MRP in the JD Edwards EnterpriseOne Requirements Planning system inflate component requirements by this percentage. This scrap percentage is unique to the relationship of one parent and one component.

P (partial quantity)

Indicates whether the total quantity is required to be available or if a partial quantity available is acceptable to commit when you specify component and substitute items on the bill of material. Example: 100 lb of item A is available: 150 lb of item A is needed.

If substitutes are not used and Partial Allowed is set to Y for item A, then the 100 lb is committed. If substitute processing is used, substitutes are checked next, and Partial Allowed on the substitute record are considered.

Ln Ty (line type)

Displays a code that controls how the system processes lines on a transaction. It controls the systems with which the transaction interfaces, such as Oracle's JD Edwards EnterpriseOne General Ledger, Oracle's JD Edwards EnterpriseOne Job Cost, Oracle's JD Edwards EnterpriseOne Accounts Payable, Oracle's JD Edwards EnterpriseOne Accounts Receivable, and JD Edwards EnterpriseOne Inventory Management. It also specifies the conditions under which a line prints on reports, and it is included in calculations. Codes include:

S: Stock item.

J: Job cost.

N: Nonstock item.

F: Freight.

T: Text information.

M: Miscellaneous charges and credits.

W: Work order.

Frm Grd (from grade)

Enter a UDC (40/LG) that indicates the minimum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that do not meet the minimum grade acceptable. The system does not allow you to sell items with grades that do not meet the minimum acceptable level.

Thr Grd (through grade)

Enter a UDC (40/LG) that indicates the maximum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that exceed the maximum grade acceptable. The system does not allow you to sell items with grades that exceed the maximum grade acceptable.

Note: Use only grade or potency, not both.

From Potency

Enter a number that indicates the minimum potency or percentage of active ingredients acceptable for an item.

The system displays a warning message if you try to purchase or issue items that do not meet the minimum acceptable potency. The system does not allow you to sell items that do not meet the minimum acceptable potency.

Thru Potency (through potency)

Enter a number that indicates the maximum potency or percentage of active ingredients that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items that have a potency that exceeds the maximum potency acceptable. The system does not allow you to sell items that have a potency that exceeds the maximum potency acceptable.

F V (fixed variable)

Enter a code that indicates if the quantity per assembly for an item on the bill of material varies according to the quantity of the parent item produced or is fixed regardless of the parent quantity. This value also determines if the component quantity is a percent of the parent quantity. Values are:

F: Fixed Quantity.

V: Variable Quantity (default).

%: Quantities are expressed as a percentage and must total 100 percent.

For fixed-quantity components, the JD Edwards EnterpriseOne Work Order Processing system from Oracle and MRP in JD Edwards EnterpriseOne Requirements Planning system do not extend the component's quantity per assembly value by the order quantity.

Is Cd (issue code)

Enter a code that indicates how the system issues each component in the bill of material from stock. In JD Edwards EnterpriseOne Shop Floor Management, it indicates how the system issues a part to a work order. Values are:

I: Manual issue.

F: Floor stock (there is no issue).

B: Backflush (when the part is reported as complete).

P: Preflush (when the parts list is generated).

U: Super backflush (at the pay-point operation).

S: Sub-contract item (send to supplier).

Blank: Shippable end item.

You can issue a component in more than one way within a specific branch/plant by using different codes on the bill of material and the work order parts list. The bill of material code overrides the branch/plant value.

Leadtime Offset

Enter the number of days that a part is needed before or after the start date of a manufacturing work order. The system adds the lead time offset days for the part to the start date of the work order to determine the actual date that the part is required. To indicate that a part is needed before the work order start date, enter the days as a negative number. To indicate how many days after the work order start date that the part is required, enter a positive number.

Feat Plan % (feature plan percent)

Enter the percentage of demand for a specified feature based on projected production. For example, a company might produce 65 percent of their lubricant with high viscosity, and 35 percent with low viscosity, based on customer demand.

The JD Edwards EnterpriseOne Requirements Planning system uses this percentage to accurately plan for a process's co-products and by-products. Enter percentages as whole numbers, for example, enter 5 percent as 5.0. The default value is 0 percent.

6.4.7 Entering a Substitute Ingredient

Access the Enter Component Substitutes form.

Substitute Item

Enter the item number that the system uses as a substitute if the original item is not available. It can be in short, long, or third item number format.

Quantity

Enter the number of units that the system applies to the transaction.

Sub Item Sequence

Enter a number that indicates the sequence for the substitute items for a component.

The system looks for substitute items by this sequence number.

6.4.8 Entering a Co- and By-Products List

Access the Co/By Product Revision form.

Figure 6-4 Co/By Product Revision form

Co By	Co/By Product	Description	Output Quantity	UM	Storing Type	Co/By Branch	Feat Cost%	Resource %	Oper Seq#	Remark	Co/By Line#
B	5010	Sludge	2	GA	M	M90	.01	.01	10.00		.00
C	5110	Household Lubricant Bulk	20	GA	M	M90	40.00	40.00	30.00		1.00
C	5210	Graphite Lubricant Bulk	30	GA	M	M90	100.00	100.00	40.00		1.00

Co By

Enter a code that distinguishes standard components or ingredients from co-products, by-products, and intermediates. Co-products are (concurrent) end items as the result of a process. By-products are items that can be produced at any step of a process, but were not planned. Intermediate products are items defined as a result of a step but are automatically consumed in the next step.

Generally, intermediates are nonstock items and are only defined steps with a pay-point for reporting purposes. Standard components (Discrete Manufacturing) or ingredients (Process Manufacturing) are consumed during the production process.

Values are:

C: Co-products.

B: By-products.

I: Intermediate products.

Blank: Standard components or ingredients.

Co/By Product

Enter the item number for the co-product, by-product, or intermediate.

Output Quantity

Enter the quantity of finished units that you expect this bill of material or routing to produce. This field enables you to specify varying quantities of components based on the amount of finished goods produced. For example, 1 ounce of solvent is required per unit up to 100 units of finished product.

However, if 200 units of finished product is produced, 2 ounces of solvent are required per finished unit. In this example, you would set up batch quantities for 100 and 200 units of finished product specifying the proper amount of solvent per unit.

Co/By Branch

Represents a branch/plant or work center, usually defined as a business unit.

The default value comes from the Default Location and Printers table.

Feat Cost % (feature cost percentage)

Enter a percentage that the Simulate Cost Rollup program uses to calculate the cost of a feature or option item as a percentage of the total cost of the parent.

Enter the percentage as a whole number, for example, enter 5 percent as 5.0.

This value is used in Cost Rollup to calculate what percentage of the cost, up to and including the operation, that the co-product and by-product comes out of, is apportioned to the co-products and by-products at that step.

The total of all percentages at an operation cannot exceed 100 percent. All percentages at the last operation must total 100 percent.

Resource % (resource percent)

Enter a number that indicates what percent of the ingredients should be issued separately to co-products and by-products.

This is used to issue ingredients separately to co-products and by-products at work order completion, rather than a total issue for each ingredient.

For co-products and by-products at the final operation, their resource percent must total 100 percent to issue all ingredients.

6.4.9 Entering Intermediates

Access the Enter Intermediate Products form.

Figure 6-5 Enter Intermediate Products form



Output Qty (output quantity)

Enter the number of units that the system applies to the transaction.

This value is the quantity of an intermediate that the system produces at the current step in the process.

6.4.10 Changing Multiple Processes

Select Advanced Product Data Management (G3031), Where Used Update.

6.5 Verifying Processes

This section provides an overview of process verification and discusses how to:

- Run Integrity Analysis.
- Set processing options for Where Produced Inquiry (P30210).
- Review co- and by-products.
- Review resources.
- Review process instructions.

6.5.1 Understanding Process Verification

The Integrity Analysis program (R30601) generates a report that identifies any processes that you must correct. If the report indicates errors, you should correct the processes and run the Integrity Analysis program again. When the program does not find errors in the processes, it updates the low-level codes in both the Item Master and the Item Branch File tables.

Note: It is recommended that you run the Integrity Analysis program immediately after a data conversion, such as a system startup, and then on a periodic basis, such as two or four times a year. You should also run the Integrity Analysis program before you run the Simulate Rollup (R30812) or MRP/MPS Requirements Planning (R3482) programs.

Instead of running the Integrity Analysis report, you can use online validation so that the system validates process items as you enter them. When you use online validation, the system does not allow you to enter recursive ingredients. For example, the system displays an error message if you attempt to enter a parent process item as an ingredient of itself.

The system retrieves the data for this report from the Bill of Material Structure Analysis Work File table (F30UI002).

You can review process information from several programs, depending on the information that you want to review.

The JD Edwards EnterpriseOne Product Data Management system provides review programs, which enable you to review information about ingredients, co- and by-products, resources, and process instructions:

Program	Function
Ingredients Inquiry program (P30200)	Use this program to review the ingredients in a process.
Ingredients Where Used program (P30201)	Use this program to review the processes that include a specific ingredient.
Where Produced Inquiry program (P30210)	Use this program to review the processes that include a specific co-product or by-product.
Resources Inquiry program (P30240)	Use this program to review the resources of the process, such as the operations of the process and the work center at which they are processed.
Instructions Inquiry program (P3003)	Use this program to review the hours for machine, labor, and setup, as well as move and queue hours in the instructions for a specific process.

For the Ingredients Inquiry and the Ingredients Where Used programs, you can use the processing options or the View menu to determine how the system presents the information.

6.5.2 Forms Used to Verify Processes

Form Name	FormID	Navigation	Usage
Work with Co-/By-Products Where Produced	W30210A	Daily PDM Process (G3012), Where Produced Inquiry	View all processes that produce co- and by-products.
Work With Operations Sequence	W30240B	Daily PDM Process (G3012), Resources Inquiry	Verify resources such as operations, work centers, and run time for the process.
Process Inquiry	W3003A	Daily PDM Process (G3012), Enter/Change Process On Work with Routing Operations, complete the Item Number and Branch/Plant fields and click Find. On Work with Process, select a process operation, and then select Inquiry from the Row menu.	Review run, move, queue, and setup hours for a specific operation step.

6.5.3 Running Integrity Analysis

Select Advanced Product Data Management (G3031), Integrity Analysis.

6.5.4 Setting Processing Options for Where Produced Inquiry (P30210)

Use these processing options to set default versions.

6.5.4.1 Versions

These processing options identify the default versions. If left blank, version ZJDE0001 is used.

Item Master (P4101), ECO Workbench (P30225), Bill of Material Revisions (P3002), and Single Level BOM Report (R30410)

Specify the versions called from the Where Produced Inquiry form.

6.5.5 Reviewing Co- and By-Products

Access the Work With Co-/By-Products Where Produced form.

6.5.6 Reviewing Resources

Access the Work With Operations Sequence form.

6.5.7 Reviewing Process Instructions

Access the Process Inquiry form.

Figure 6–6 Process Inquiry form

The screenshot shows the 'Enter/Change Process - Process Inquiry' form. The title bar includes 'Form' and 'Job' icons. The form is divided into several sections:

- Process Information:** Process (5000), Batch Qty / UM (EA), Type of Routing (R), Rapid w/ Shrink, Oper Seq # (10.00), Work Center (200-201), Filter bulk of, Work Center Branch (M30).
- Run Hours:** Run Hours, Run Machine (1.00), Move Hours, Queue Hours, Set up Hours (.25), Type Oper, Time Base (3), Crew Size (1.0), Op. Yield % (100.00), % of Overlap.
- Effective Dates:** Effective From (04/15/1997), Effective Thru (12/31/2042), Equipment Number, Std Desc.
- Location:** Location, Employee Number.

Working With Engineering Change Orders

This chapter contains the following topics:

- [Section 7.1, "Understanding Engineering Change Management"](#)
- [Section 7.3, "Creating Engineering Change Orders"](#)
- [Section 7.4, "Validating Engineering Change Orders"](#)
- [Section 7.4.3, "Prerequisites"](#)

7.1 Understanding Engineering Change Management

To maintain and increase market share, manufacturers often must respond quickly with engineering changes to their products. Engineering changes might be necessary to respond to market demand, governmental requirements, safety issues, service requirements, or for other functional or competitive reasons. Changes can involve adding a new part, changing an existing part, replacing an old part with a new part, or removing an existing item. Use Engineering Change Management to create, plan, review, approve, and implement engineering change orders and engineering change requests for any of these types of changes.

Product or process changes can affect many areas within the company, including:

- Customer service
- Tooling
- Standards
- Suppliers
- Master production schedule
- Product cost
- Service parts
- Inventory
- Plant layout

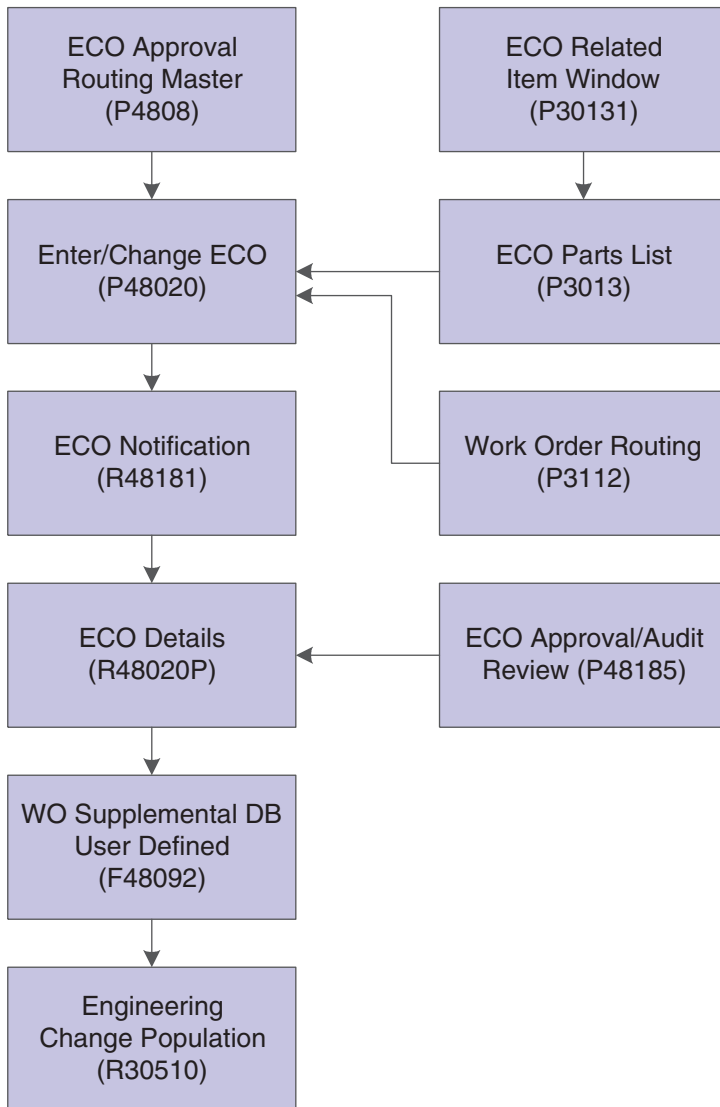
Engineering change orders (ECOs) are numbered documents that you use to track product changes within Engineering Change Management. After you have tested and approved an ECO, you can implement it and modify the standard product or process.

Engineering change requests (ECRs) are numbered documents that you use to track requested product changes within Engineering Change Management. After you have tested and approved an ECR, you can convert it to an ECO and implement it using the ECO processes.

The procedures for ECOs and ECRs are the same, except that you must use order type EN when you set up, review, or approve ECOs; and you must use order type EG when you set up, review, or approve ECRs.

This process flow illustrates the engineering change order process:

Figure 7-1 Engineering Change Order Process



7.1.1 Engineering Change Management Features

You use ECOs to:

Feature	Description
Define who approves the ECO	<p>Defining ECO approvers enables you to:</p> <ul style="list-style-type: none"> ■ Establish levels of approval so that each member of the first review group must approve the ECO before the next group receives notification. ■ Locate the status of an ECO and review who has approved it and who has yet to approve it. ■ Use electronic mail to notify reviewers and approve ECOs. ■ Create and maintain bill of material data that is associated with the change. ■ Notify reviewers during the approval process. ■ Limit access to the approval records.
Define which items to change	<p>Defining which items to change enables you to:</p> <ul style="list-style-type: none"> ■ Describe the change. ■ Define the parts and processes that are necessary to implement the ECO. ■ Include multiple parent item or component relationships on the same change order.
Define the change to the routing instructions	<p>Defining the change to the routing instructions enables you to itemize the steps required to make the change.</p>
Define additional detail	<p>Defining additional detail enables you to:</p> <ul style="list-style-type: none"> ■ Enter into a centralized database supporting data, such as costs, dates, reasons, status, affected work and purchase orders, approval history, and implementation steps. ■ Identify the originator of and reason for the change. ■ Set up user-defined codes (UDCs) to define the reason, status, and disposition of the change order. ■ Attach supplemental information.

7.1.1.1 System Integration

Engineering change orders (ECOs) integrate with JD Edwards EnterpriseOne Shop Floor Management and JD Edwards EnterpriseOne Inventory Management. JD Edwards EnterpriseOne Shop Floor Management uses the revision level maintained by ECOs to retrieve the appropriate bill of material for a work order. You can create a work order from a prior ECO revision level. JD Edwards EnterpriseOne Inventory Management updates the drawing revision level in the Item Master table (F4101).

7.1.1.2 Roles in the Engineering Change Order Process

The ECO process involves several people, each of whom fills a role:

The administrator, who sets up the ECO by completing several tasks:

- Setting up the approval routing master.
- Reviewing and modifying the ECO codes.
- Setting up next numbers.

The coordinator, who creates the ECO by completing several tasks:

- Verifying that no prior ECO or ECR exists for this change.

- Entering the ECO.
- Defining the change with a list of affected parent and component items.
- Establishing the new routing instruction operations to implement the ECO.
- Maintaining supplemental details.
- Running the notification program.

The reviewer, who approves or rejects the ECO by completing several tasks:

- Reviewing the ECO after system notification.
- Running reports to obtain information for an individual ECO or a list of open ECOs.
- Searching for outstanding ECOs periodically.

After the reviewer approves the ECO, the coordinator implements it by running the Engineering Change Population program (R30510).

7.1.1.3 Engineering Change Order Revision Levels

A revision level is an alphanumeric character that represents the number of times that an item has been changed. This value usually indicates a permanent change to the form, fit, or function of an item. For efficient tracking of changes with revision levels, the revision levels for an item's bill of material and its routing instruction should match. You can use an ECO to update the revision level for an item and a drawing.

Use ECOs to manage revision-level information.

For example, you can:

- Assign the next revision level to an ECO using a value in UDC 30/NR.
- Load parent revision levels for a component that is being added or modified.
- Locate the revision levels of an ECO.
- Assign ECO revision levels automatically.
- Maintain drawing revision levels for each item that is changed by an ECO and update the drawing revision in either the Bill of Material (F3002) or Item Master table.

7.2 Common Fields Used in This Chapter

Status

Enter a UDC (00/SS) that describes the status of a work order, rate schedule, or engineering change order. Any status change from 90 through 99 triggers the system to automatically update the completion date.

Phase In

Enter a UDC (40/PH) that indicates how the system phases in an engineering change order.

7.3 Creating Engineering Change Orders

This section provides an overview of the engineering change order process and engineering change requests and discusses how to:

- Set processing options for ECO Workbench (P30225).

- Locate existing engineering change orders.
- Set processing options for ECO Entry (P48020).
- Enter engineering change orders.
- Define routing instructions.
- Set processing options for ECO Parts List (P3013).
- Define affected items.
- Define changes.
- Load work orders or purchase orders into supplemental data.
- Notify reviewers of engineering change orders.
- Set processing options for ECO Notification (R48181).

See Also:

- [Entering Engineering Change Orders](#).

7.3.1 Understanding the Engineering Change Order Process

Use engineering change orders (ECOs) to plan, approve, and implement product changes. The creator of the ECO typically performs several tasks, such as setting up the approval routing master, reviewing and modifying the UDCs, and setting up next numbers.

Before you create an ECO, you might want to determine whether one already exists for the change. Use the ECO Workbench program (P30225) to review and manage ECO information and to determine the progress of an ECO.

You must first define the ECO number and codes that determine its priority, status, effective dates, and so on. Later, you must define the routing instruction, parts list, and detail information. If you specify a parent work order number on the ECO, you can retrieve related work orders and review the history of a product.

To delete an ECO, you must first delete the ECO parts list and then delete the ECO.

7.3.1.1 Routing Instructions

After you enter the ECO, you can define routing instructions that indicate the steps that are necessary to implement the ECO. For example, the engineering department might request that you test a new manufacturing process before it is implemented.

Note: You cannot use the Enter/Change ECO program (P48020) to change production routing instructions.

7.3.1.2 Parts List

After you have created the ECO and defined the routing instruction, you must define the change and identify the affected items. For all engineering change types except swap parent, you must enter information about the change for other items on the ECO Related Items List form.

You can use the UDC Next Revision Levels (30/NR) to automatically update revision levels based on the sequence that you define. Revision levels usually require an ECO and are for permanent, long-term changes. Revision levels include changes to form, fit, or function; and should match on a bill of material and routing instruction for the item.

However, ECO does not update the Routing Revision Level. You can track changes in a bill of material with revision levels. Use the Item Revision Level field in the Enter/Change Bill program (P3002) to display a revision history of the bill. These revision levels are user-defined and for reference only.

The values that you enter in the Chg Type (Change Type) and P/C Rel (Parent/Component Relationship) fields on the ECO Parts List Entry form define the changes and determine how the Engineering Change Population program updates the bill of material for the item.

You can use values in the Chg Type and P/C Rel fields:

Field	Values
Chg Type	<p>N: Add a new part.</p> <p>C: Change an existing part.</p> <p>S: Swap an old part with new part.</p> <p>R: Remove an existing part.</p>
P/C Rel	<p>P: Parent item.</p> <p>C: Component item.</p>

The Chg Type and P/C Rel fields allow eight possible combinations. These combinations are:

- On the ECO Parts List Entry form:

Change	Change Type	P/C Rel	Information that You Enter	Revision Level
Add a new bill	N	P	Parent item for the new bill.	New parent revision.
Change a bill	C	P	Current parent item.	Current parent revision.
Swap a parent item	S	P	Swap to parent item. Swap from parent information.	Swap to parent revision. Swap from parent revision.
Remove a bill	R	P	Current parent information.	Current revision.
Add a new component	N	C	New component.	New component revision.
Change a component	C	C	The component to change.	New revision of component.
Swap a component	S	C	Swap to component. Swap from component.	Revision of swap to component. Revision of swap from component.
Remove a component	R	C	The component to remove.	Revision of component to remove.

- On the ECO Related Items form:

Change	Change Type	P/C Rel	Information that You Enter	Revision Level
Add a new bill	N	P	Components for the new parent.	Revision level of added components.
Change a bill	C	P	Updated parent information.	New revision.
Swap a parent item	S	P	Not allowed.	Not allowed.
Remove a bill	R	P	Not allowed.	Not allowed.
Add a new component	N	C	Parent bills using component (where used).	Revision of new components' parent.
Change a component	C	C	Parent bills that do not have component changes.	Parent of new component revision.
Swap a component	S	C	Parent bill having components swapped.	Revision of parent having component swapped.
Remove a component	R	C	Parent bills have component removed (where used).	Revision of parent having component removed.

7.3.1.3 Related Items

After you create an ECO, define the routing instructions, and define the parts list, you also define the items affected by the change. You can update an ECO with the next revision level only if no pending ECOs exist for the item. If pending ECOs exist, the system displays an error message and does not update the revision level.

Engineering Change Order automatically selects related items based on the change type and parent and child relationship values. You can delete the related items for which you do not want to implement the change.

Use effective dates to phase in and out any product or process changes. Effective dates might not require an ECO process and are for smaller, short-term or low-impact changes.

You can maintain the drawing revision level for each item. The Engineering Change Population program can update the drawing revision level in both the Bill of Material table and the Item Master table.

Defining changes does not update the work order parts list for the item. You can update the bills of material with engineering change information manually, or by using either the Where Used Update program (R30520) or the Engineering Change Population program. However, you cannot delete or change the parts on the ECO parts list after you have run the Engineering Change Population program.

7.3.1.4 Pending Orders

After you process existing work orders and purchase orders, you can review pending orders for items that are affected by the ECO. You can work with open and existing work orders and purchase orders, and enter a quantity and cost estimate for incorporating the ECO into the work order or part on the purchase order.

The system displays the orders, based on the supply and demand inclusion rules that you specify in the processing options.

Use the ECO Parts List program (P3013) to access and review the items on pending purchase orders and work orders that are affected by an ECO.

7.3.1.5 Notification

After you define an ECO and its routing instructions and parts list, use the ECO Notification program (R48181) to send notices to the reviewers that you defined in the approval routing master. To generate notifications, you must have an address book record established. You can run ECO Notification in either of two ways:

- To process several ECOs, use the data selection in the ECO Notification program.
- To process a single ECO, run the ECO Notification program from the Enter/Change ECO program.

You run this program only once. After all of the reviewers in the first review group have reviewed the ECO, the system sends notification to the next review group.

You can set a processing option to activate flash messages for the item that is affected by the ECO. You can then view the flash message from review programs. The system deactivates the flash message when you run the Engineering Change Population program to update the bill of material for the item.

7.3.2 Understanding Engineering Change Requests

Engineering Change Requests (ECRs) are numbered documents that you use to track requested product changes within Engineering Change Management. When used with engineering change orders (ECOs), ECRs enable you to create two change request processes with separate reviewers and approvers. For example, the shop floor employees can use ECRs to request that the design engineering staff make a change to a product. After the ECR is reviewed and approved, you can use the ECO processes to implement the change.

The procedures for ECRs are the same as the procedures for ECOs. Use order type EG when setting up, reviewing, or approving ECRs.

7.3.3 Forms Used to Enter Engineering Change Orders

Form Name	FormID	Navigation	Usage
Work With ECO Workbench by Item	W30225A	Engineering Change Management (G3013), ECO Workbench	Locate existing engineering change orders.
ECO Work Order Entry Revisions	W48020A	Engineering Change Management (G3013), Enter/Change ECO On Work With ECO Work Order Entry, click Add.	Enter new ECOs.
Work Order Routing	W3112E	On Work With ECO Work Order Entry, complete the Branch/Plant field and click Find. Select a record then select Order Routing from the Row menu.	Enter routing instructions to support the ECO.

Form Name	FormID	Navigation	Usage
ECO Parts List Entry	W3013D	Engineering Change Management (G3013), ECO Parts List On Work With ECO Parts List, complete the Branch/Plant field and click Find. Select a record and click Select.	Specify the type of change and the items affected by the change. Load work orders or purchase orders into supplemental data, using Row exit.
ECO Related Items	W30131A	On ECO Parts List Entry, select a record, and select Related Items from the Row menu.	Define information to support the changes.

7.3.4 Setting Processing Options for ECO Workbench (P30225)

Use these processing options to set default values and versions.

7.3.4.1 Versions

These processing options specify the program versions called from the ECO Workbench. If left blank, version ZJDE0001 is used.

1. Enter/Change Order (P48020)

Specify the version called from the ECO Workbench.

2. WO Details *ZJDE0001 (P480200) (work order details)

Specify the version of the Work With Supplemental Data program to call when you select WO Details from the Row menu on the Work With ECO Workbench by Item form. If you leave this processing option blank, the system uses ZJDE0001.

3. Pending POs *ZJDE0002 (P480200) (pending purchase orders)

Specify the version of the Work With Supplemental Data program to call when you select Pending POs from the Row menu on the Work With ECO Workbench by Item form. If you leave this processing option blank, the system uses ZJDE0002.

4. Parts List (P3013), 5. Approval/Audit Review (P48185), 6. Address Book Address Search (P0101S), and 7. Work Order Routing (P3112)

Specify the version called from the ECO Workbench.

7.3.4.2 Defaults 1

These processing options supply default values to preload on the initial inquiry. If left blank, no value is preloaded.

Reason Code

Specify a default value for initiating an engineering change order. Enter a value from UDC 40/CR.

Phase Code

Specify a default value identifying the phase in requirements for the ECO. Enter a value from UDC 40/PH.

Work Order Type

Specify a default value for the ECO Type. Enter a value from UDC 00/TY.

Priority

Specify a default value for the ECO order priority. Enter a value from UDC 00/PR.

Originator

Specify the address book number of the person initiating the ECO.

7.3.4.3 Defaults 2

These processing options supply default values to preload on the initial inquiry. If left blank, no value is preloaded.

From Status and Thru Status (through status)

Specify the default value range associated with the ECO status. Enter a value from UDC 00/SS.

Item Number

Specify the default item number.

Document Types

Specify the default document type. Enter a value from UDC 00/DT.

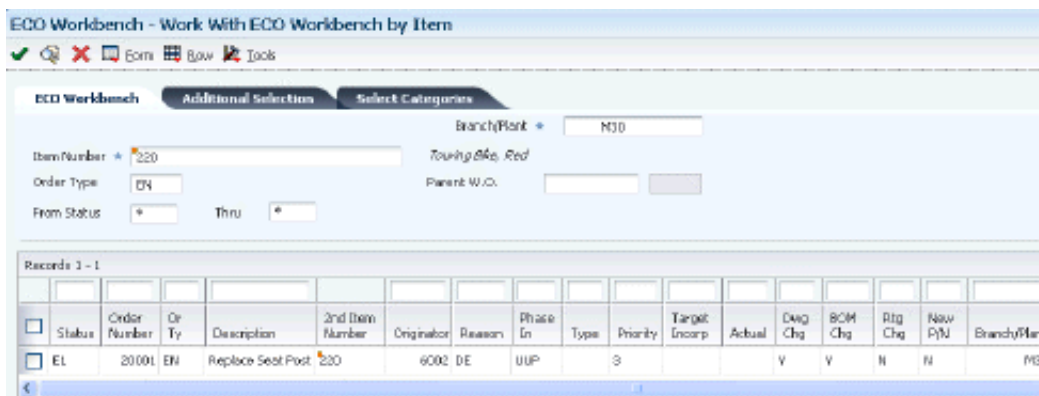
Phase

Specify the phase or system code for the default value. Enter a value from UDC 00/W1.

7.3.5 Locating Existing Engineering Change Orders

Access the Work With ECO Workbench by Item form.

Figure 7-2 Work With ECO Workbench by Item form



Order Number

Displays the number that identifies an original document.

Type

Displays a UDC (00/TY) that indicates the classification of a work order or engineering change order.

You can use work order type as a selection criterion for work order approvals.

Originator

Displays the address book number of the person who originated the change request. The system verifies this number against the JD Edwards EnterpriseOne Address Book from Oracle.

Reason

Displays a UDC (40/CR) that indicates the reason for an engineering change order.

Priority

Displays a UDC (00/PR) that indicates the relative priority of a work order or engineering change order in relation to other orders.

A processing option for some forms lets you enter a default value for this field. The value then displays automatically in the appropriate fields on any work order you create on those forms and on the Project Setup form. You can either accept or override the default value.

Target Incorp (target incorporation)

Displays a date that identifies the beginning of the date range within which the engineering change order should be completed according to plan.

Actual

Displays the date that the work order or engineering change order is completed or canceled.

7.3.6 Setting Processing Options for ECO Entry (P48020)

Use these processing options to set default values, control processing, and specify versions when entering engineering change orders.

7.3.6.1 Defaults

These processing options supply default values for document types and engineering change order status on the ECO Work Order Entry Revisions form.

Document Type

Specify a default value for document type. If left blank, EN is used. Enter a value from UDC 00/DT.

Status

Specify a default value for the order status. If no value is entered, then blank is used. Enter a value from UDC 00/SS.

7.3.6.2 Process

This processing option specifies the document type used when converting an engineering change request to an engineering change order.

ECO Order Type

Specify a default value for document type. If left blank, EN is used. Enter a value from UDC 00/DT.

7.3.6.3 Edits

These processing options specify whether the system validates an engineering change request is approved before converting it to an engineering change order and if the generic text is copied.

1. ECR Approval Validation

Specify if the system validates the engineering change request is approved before copying it to an engineering change order. Values are:

Blank: No approval validation

1: Approval validation

2. Copy ECR Generic Text to ECO

Specify whether to copy generic text. Values are:

Blank: Do not copy ECR text to the ECO

1: Copy ECR text to the ECO

7.3.6.4 Versions

These processing options control which version of the programs the system uses when entering an engineering change order.

WO Details *ZJDE0001 (P480200) (work order details)

Specify the version of work order details supplemental data you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Parts List (P3013)

Specify the version for the parts list you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Workbench (P30225)

Specify the version of the ECO Workbench you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Pending POs *ZJDE0002 (P480200) (pending purchase orders)

Specify the version of pending purchase order supplemental data you want the system to use. If you leave this processing option blank, the system uses ZJDE0002.

Approval Notification (R48181)

Specify the version of ECO Notification you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Approval Audit/Review (P48185)

Specify the version of ECO Approval/Audit Review you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Instruction/Disposition (P4802)

Specify the version to call. If you leave this processing option blank, the system uses ZJDE0001.

Work Order Routing (P3112)

Specify the version of Work Order Routing you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

Work Order Record (P48217)

Specify the version of Work Order Record Type you want the system to use. If you leave this processing option blank, the system uses ZJDE0001.

7.3.7 Entering Engineering Change Orders

Access the ECO Work Order Entry Revisions form.

Figure 7-3 ECO Work Order Entry Revisions form

7.3.7.1 ECO Entry

Cost Code

Enter a subset of an object account. Subsidiary accounts include detailed records of the accounting activity for an object account.

Note: If you are using a flexible chart of accounts and the object account is set to six digits, you must use all six digits. For example, entering 000456 is not the same as entering 456 because, if you enter 456, the system enters three blank spaces to fill a six-digit object.

Parent Work Order

Enter a number that identifies the parent work order. You can use this number to:

- Enter default values for new work orders, such as Type, Priority, Status, and Manager.
- Group work orders for project setup and reporting.

Search X-Ref (search cross reference)

Enter an alphanumeric value used as a cross-reference or secondary reference number. Typically, this is the customer number, supplier number, or job number.

W.O. Flash Message (work order flash message)

Enter a UDC (00/WO) that indicates a change in the status of a work order. The system indicates a changed work order with an asterisk in the appropriate report or inquiry form field. The system highlights the flash message in the Description field of the work order.

Drawing Change

Select this option to specify that the engineering change order requires a drawing change.

BOM Change (bill of material change)

Select this option to specify that the engineering change order requires a change to the bill of material.

Routing Change

Select this option to specify that the engineering change order requires a change to the routing.

New Part Number

Select this option to specify whether a new part number is required for an engineering change order.

7.3.7.2 Type

Existing Disp (existing disposition)

Enter a UDC (40/ED) that identifies the disposition of the existing item affected by the engineering change order.

7.3.7.3 Names

Coordinator

Enter the address book number of the person assigned to do the work.

Supervisor

Enter the address book number of the supervisor.

Manager

Enter the address book number of a manager or planner.

Note: A processing option for some forms enables you to enter a default value for this field based on values for category codes 1 (Phase), 2, and 3. You set up the default values on the Default Managers and Supervisors form. After you set up the default values and the processing option, the default information displays automatically on any work orders that you create if the category code criterion is met. You can either accept or override the default value.

7.3.7.4 Dates

Design

Enter the date that an item is scheduled to arrive or that an action is scheduled for completion.

Engineering

Enter the date the person responsible for the work order receives the work order.

Incorporated

Enter the date that the work order or engineering change order is planned to be completed.

Design

Complete the three fields, which are Actual Dates.

Enter the start date for the order. You can enter this date manually, or have the system calculate it using a backscheduling routine. The routine starts with the required date and offsets the total leadtime to calculate the appropriate start date.

Engineering

Enter the date that the system sends the engineering change order notice to the inspector in the review process.

Incorporated

Enter the date that the work order or engineering change order is completed or canceled.

7.3.7.5 Category Codes**Phase**

Enter a UDC (00/W1) that indicates the current stage or phase of development for a work order. You can assign a work order to only one phase code at a time.

Note: Certain forms contain a processing option that enables you to enter a default value for this field. If you enter a default value on a form for which you have set this processing option, the system displays the value in the appropriate fields on any work orders that you create. The system also displays the value on the Project Setup form. You can either accept or override the default value.

Category 02 and Category 03

Enter UDC (00/W2) or UDC (00/W3) that indicates the type or category of a work order.

Note: A processing option for some forms enables you to enter a default value for this field. The system enters the default value automatically in the appropriate fields on any work orders that you create on those forms and on the Project Setup form. You can either accept or override the default value.

Category 04, Category 05, Experience Level, Service Type, Skill Type, and Category 10

Enter UDC (00/W4) or (UDCs (00/W5) through (00/W0)) that indicate the type or category of the work order.

7.3.8 Defining Routing Instructions

Access the Work Order Routing form.

After you create the ECO, you must define the routing instructions. In subsequent steps you define the parts list and define items affected by the change.

Figure 7–4 Work Order Routing form

Work Center	Operation Sequence	IR	Operation Status	Operation Status Desc	Operation Description	Labor Run Hours	Run Labor	Start Date	Request Date	Assigned To	Assigned Name	Line/Cell Identifier
MEO-	10.00	0		Waiting for Assignment	Complete Design	24.00						
PROD	20.00	0		Waiting for Assignment	Review Manufacturing Impact	40.00						
PROD	30.00	0		Waiting for Assignment	Update Standard Cost Amounts	2.00						
PROD	40.00	0		Waiting for Assignment	Implement Change	1.00						

7.3.9 Setting Processing Options for ECO Parts List (P3013)

Use these processing options to set default values, identify versions, and define process controls for pending engineering change orders.

7.3.9.1 Defaults

This processing option specifies the document type to use for the search.

1. Order Type

Specify the type of document on which you want the system to search. Order type is a UDC (00/DT) that identifies the type of document, such as an order or an invoice. Enter an order type to use as the default value or select it from the Search User Define Code form. If you leave this processing option blank, the system uses **EN** for engineering change order.

7.3.9.2 Versions

These processing options control which version of the programs the system uses when processing an ECO parts list.

1. Item Master Revisions (P4101B)

Specify the version that the system uses when you select the Row exit to the Item Master Revisions program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Master Revisions program displays information.

Therefore, you might need to set the processing option to a specific version.

2. Item Inquiry With Word Search (P41200)

Specify the version that the system uses when you select the Row exit to the Item Inquiry With Word Search program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Inquiry With Word Search program displays information. Therefore, you might need to set the processing option to a specific version.

3. Supply and Demand Inquiry (P4021)

Specify the version that the system uses when you select the Row exit to the Supply and Demand Inquiry program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Supply and Demand Inquiry program displays information. Therefore, you might need to set the processing option to a specific version.

4. Bill of Material Inquiry (P30200)

Specify the version that the system uses when you select the Row exit to the Bill of Material Inquiry program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Bill of Material Inquiry program displays information. Therefore, you might need to set the processing option to a specific version.

5. Where Used Inquiry (P30201)

Specify the version that the system uses when you select the Row exit to the Where Used Inquiry program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Where Used Inquiry program displays information.

Therefore, you might need to set the processing option to a specific version.

6. Item Branch (P41026B)

Specify the version that the system uses when you select the Row exit to the Item Branch program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Item Branch program displays information. Therefore, you might need to set the processing option to a specific version.

7. WO Scheduling Workbench (P31225)

Specify the version that the system uses when you select the Row exit to the Work Order Scheduling Workbench program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Work Order Scheduling Workbench program displays information. Therefore, you might need to set the processing option to a specific version.

8. Enter/Change Order (P48020)

Specify the version that the system uses when you select the Form exit to the Enter/Change Order program from the Work With ECO Parts List form or from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Enter/Change Order program displays information.

Therefore, you might need to set the processing option to a specific version.

9. Work Order Routing (P3112)

Specify the version that the system uses when you select the Row exit to the Work Order Routing program from the Work With ECO Parts List form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Work Order Routing program displays information.

Therefore, you might need to set the processing option to a specific version.

10. ECO Related Item (P30131)

Specify the version that the system uses when you select the Row exit to the ECO Related Item program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the ECO Related Item program displays information.

Therefore, you might need to set the processing option to a specific version.

11. Purchase Order (P4310)

Specify the version that the system uses when you select the Row exit to the Purchase Order program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Purchase Order program displays information.

Therefore, you might need to set the processing option to a specific version.

12. WO Details (P480200)

Specify the version that the system uses when you select the Row exit to the Work Order Detail program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0001 version.

Versions control how the Work Order Detail program displays information.

Therefore, you might need to set the processing option to a specific version.

13. Pending PO (P480200)

Specify the version that the system uses when you select the Row exit to the Pending Purchase Orders program from the ECO Parts List Entry form. If you leave this processing option blank, the system uses the ZJDE0002 version.

Versions control how the Pending Purchase Orders program displays information.

Therefore, you might need to set the processing option to a specific version.

7.3.9.3 Process

These processing options control information about pending engineering change orders. First, specify the version of the Supply/Demand Inclusion Rules program (P34004) to use when adding engineering change orders. Secondly, specify whether the system uses the value in the To Revision field from the UDC table 30/NR when no pending engineering change orders exist. Finally, specify the UDC table for retrieving the next revision level.

1. Supply/Demand Inclusion Rules

Specify the version of the Supply/Demand Inclusion Rules that the system uses. The system uses this version to add orders to the ECO Pending Orders Detail program. If you leave this processing option blank, the system does not add any orders.

Versions control how the Supply/Demand Inclusion Rules program displays information. Therefore, you might need to set the processing option to a specific version.

2. To Revision Field

Specify whether the system uses the default value in the To Revision field from the next revision level UDC table when no pending engineering change orders exist.

When you set this processing option to update the item revision to the next revision level, the system updates the revision level for the change types as depicted in the tab level help. Values are:

Blank: Uses a default value of the current revision level in the To Revision field.

1: Uses a default value of the next revision level in the To Revision field.

3. UDC Product Code (user-defined product code)

Specify the product code of the UDC table from which the system retrieves the next revision level. If you leave this processing option and the UDC Code Type processing option blank, the system uses 30.

4. UDC Code Type (user-defined code type)

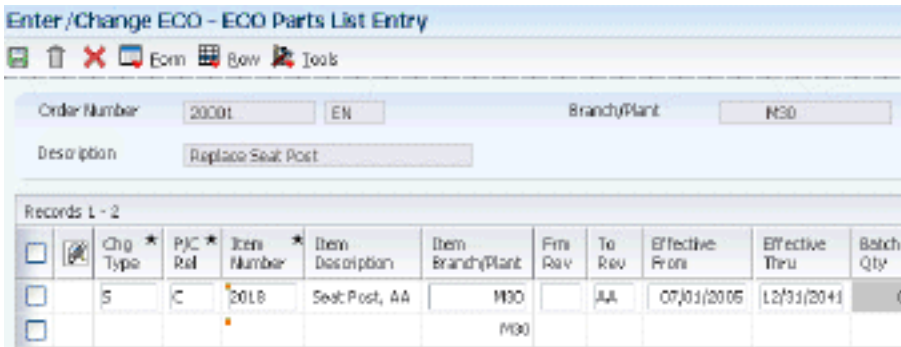
Specify code type of the UDC table from which the system retrieves the next revision level. If you leave this processing option and the UDC Product Code processing option blank, the system uses NR.

7.3.10 Defining Affected Items

Access the ECO Parts List Entry form.

After you define and save the parts list, you define the items affected by the change.

Figure 7-5 ECO Parts List Entry form



Chg Type (change type)

Enter a code that describes the type of item change. This value is used by the Related Items window to determine the number and nature of related items allowed. The value is also used during Engineering Change Population to determine the changes. Values are:

- N: Add a new component or bill.
- S: Swap or replace one item with another.
- C: Change an existing component or bill.
- R: Remove an existing component or bill.

P/C Rel (parent/component relationship)

Enter a code that indicates whether the item is a parent or component. Using this value, the system selects items for you on the Related Items window when you perform a where-used inquiry for components or a single-level or multilevel inquiry for parent items. The Engineering Change Population program uses this value to determine the requested change. Values are:

- P: The item is a parent.
- C: The item is a component.

Frm Rev (from revision)

Enter the revision level for the part that was previously reported. This might be the previous sequential revision.

To Rev (to revision)

Enter the revision level for the part that is reported next. This might not be the next sequential revision.

Bill Type

Enter a UDC (40/TB) that designates the type of bill of material. You can define different types of bills of material for different uses. For example:

M: Standard manufacturing bill.

RWK: Rework bill.

SPR: Spare parts bill.

The system enters bill type M in the work order header when you create a work order, unless you specify another bill type. The system reads the bill type code on the work order header to know which bill of material to use to create the work order parts list. Material Requirements Planning (MRP) uses the bill type code to identify the bill of material to use when it attaches MRP messages. Batch bills of material must be type M for shop floor management, product costing, and MRP processing.

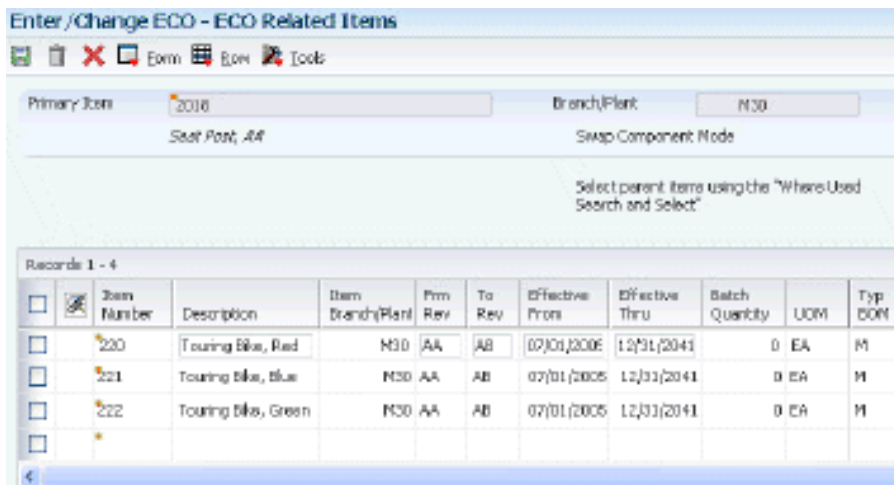
Swp Rev (swap revision)

Enter the revision level of the Swap-to item whenever an engineering change order is swapping out one item for another. The swap-to revision becomes the next revision level for the item only when the ECO is created in Swap To mode.

7.3.11 Defining Changes

Access the ECO Related Items form.

Figure 7-6 ECO Related Items form



To Rev (to revision)

Enter the revision level for the part that is reported next. This might not be the next sequential revision.

Curr Rev (current revision)

Enter the revision level for an item. If you enter a revision level in this field, verify that the revision level of the routing for an item matches the revision level on the bill of material for the item.

Line No. (line number)

Enter a number that specifies how the system displays the sequence of components on a single-level bill of material. This number initially indicates the sequence in which a component was added to the bill of material. You can modify this number to change the sequence in which the components appear.

F V (fixed variable)

Enter a code to indicate if the quantity per assembly for an item on the bill of material varies according to the quantity of the parent item produced or is fixed regardless of the parent quantity. This value also determines if the component quantity is a percent of the parent quantity. Values are:

F: Fixed Quantity.

V: Variable Quantity (default).

%: Quantities are expressed as a percentage and must total 100 percent.

For fixed-quantity components, the JD Edwards EnterpriseOne Work Order Processing system from Oracle and MRP in the JD Edwards EnterpriseOne Requirements Planning system do not extend the component's quantity per assembly value by the order quantity.

7.3.12 Loading Work Orders or Purchase Orders into Supplemental Data

Access the ECO Parts List Entry form.

7.3.13 Notifying Reviewers of Engineering Change Orders

Select Engineering Change Management (G3013), ECO Notification.

7.3.14 Setting Processing Options for ECO Notification (R48181)

Processing options enable you to specify the default processing for programs and reports.

Do not modify Oracle's JD Edwards EnterpriseOne demo versions, which are identified by ZJDE or XJDE prefixes. Copy these versions or create new versions to change any values, include the version number, version title, prompting options, security, and processing options.

7.3.14.1 Process

This processing option specifies whether to use a flash message.

Item Flash Message

Specify the Item Flash Message code used by the system. Enter a value from UDC 40/FL.

When you specify a flash message in this processing option, it affects what you need to enter in the Item Flash Message processing option for Engineering Change Population (R30510). If the same UDC value appears in the Item Flash Message processing option for R48181 and R30510, ECO Approval (P4818) removes the flash message.

If you do not want the flash message removed until you run R30510, enter the UDC value for R48181, but leave the processing option blank for R30510. Alternatively, you can specify the flash message for R48181 for notifications, and use a different version of R48181 for approvals.

7.4 Validating Engineering Change Orders

This section provides an overview of ECO validation and the bill of material update, list prerequisites, and discusses how to:

- Set processing options for ECO Revisions Inquiry (P30135).
- Review revision information.
- Set processing options for ECO Approval/Audit Review (P48185).
- Review approval audit information.
- Set processing options for ECO Open Task Review (P30220).
- Review open tasks.
- Set processing options for ECO Approval (P4818).
- Approve engineering change orders.
- Update the bill of material.
- Set processing options for Engineering Change Population (R30510).

7.4.1 Understanding ECO Validation

Both reviewers and coordinators can review engineering change order (ECO) information. For an ECO, you can locate all of the revision-level changes made to the item. To view the most current revision information, you should run the Engineering Change Population program (R30510) daily. To help you plan and schedule work, you can search for an ECO by requested dates, start dates, and labor hours by operation. You can review ECOs and evaluate outstanding ECOs that are awaiting approval. An ECO coordinator can review ECO information to:

- Review work orders and purchase orders for affected items.
- Determine whether anyone has rejected an ECO.
- Review the progress of an ECO.
- Plan and schedule work.
- Determine who is in the process of reviewing an ECO.
- Determine who has not received notification.

You locate the ECO that awaits approval, and then indicate the approval or rejection. You can also enter text to provide more information regarding the approval.

After you locate an engineering change order (ECO) for review, you must indicate the approval or rejection. The reviewer typically performs this task. After the last person in the approval routing has approved the ECO, the system updates the status code with the value that you specify in a processing option.

To reject an ECO, use status code R to stop the notification process. After a reviewer rejects an ECO, the creator of the ECO must redefine the ECO and restart the notification process.

You can set a processing option to protect the approval field so that only the current user can change approval status.

Approval status codes are stored in UDC table 30/ST. Approval status code **A** is hard-coded and is the only value that initiates the notification of other review groups. You can define additional approval status codes.

7.4.2 Understanding the Bill of Material Update

For engineering change orders (ECOs) with attached parts lists, you can process the ECO parts list and related items list to update the Bill of Material Master File table (F3002) with the requested changes.

The Engineering Change Population program (R30510):

- Processes ECOs.
- Updates the bills of material for the items on the ECO.
- Creates a report in proof or final mode that describes the requested changes.
- Updates ECO-related information in the Item Branch File table (F4102).
- Updates the Item Master table (F4101) for item flash messages that are based on other outstanding ECOs.
- Validates the ECO for full approval before accepting the requested changes.
- Updates the effectivity dates.
- Updates the drawing revision level.
- Copies substitute items from the old component to the new component.
- Updates the parent or component revision level.

Important: It is recommended that you first run this program in proof mode. In proof mode, the report lists all of the requested changes without actually changing any records. Review the report and then run the program in final mode to update records. After you run this program and update table F3002, you cannot change the parts list and run the program again.

The Engineering Change Population program updates only the bill of material. You must update the routing instruction to include the same item revision level as the bill of material if you want to synchronize them.

7.4.3 Prerequisites

Before you complete the tasks in this section:

- Verify that all reviewers approved the ECO.
- Verify that the ECO parts list contains the correct change type and relationship values.
- Verify that the ECO-related items list contains the items that you want to include in the change.

7.4.4 Forms Used to Validate Engineering Change Orders

Form Name	FormID	Navigation	Usage
Work With ECO Revisions Inquiry	W30135A	Engineering Change Management (G3013), ECO Revisions Inquiry	Review approved and pending engineering change order information.
Work With ECO Approval/Audit Review	W48185A	Engineering Change Management (G3013), ECO Approval/Audit Review	Review approver names, current status, planned completion date, and remarks for a specific engineering change order.
ECO Approval Revisions	W4818A	Engineering Change Management (G3013), ECO Approval On Work With ECO Approval, complete search fields and click Find. Select an approver name and click Select. On Work With ECO Approval/Audit Review, complete the Order Number field and click Find. Select an approver name and click Select.	Approve engineering change orders and add notes.
Enter ECO Assignments	W30220B	Engineering Change Management (G3013), ECO Open Task Review On Work With ECO Assignment Review, complete the search fields and click Find. Select an operation and click Select.	Review open tasks.

7.4.5 Setting Processing Options for ECO Revisions Inquiry (P30135)

Use these processing options to set default values and define versions.

7.4.5.1 Versions

These processing options control which version of the programs the system uses.

1. Enter/Change Order (P48020)

Specify the version that the system uses when you select the Row exit to the Enter/Change Order program from the ECO Revisions Inquiry form. If you leave this processing option blank, the system uses version ZJDE0001.

2. BOM Revisions (P3002)

Specify the version that the system uses when you select the Row exit to the BOM Revisions program from the ECO Revisions Inquiry form. If you leave this processing option blank the system uses version ZJDE0001.

7.4.5.2 Defaults

This processing option specifies the document type to use for the search.

1. Order Type

Specify the type of document on which you want the system to search. Order type is a UDC (00/DT) that identifies the type of document, such as an order or an invoice.

Enter an order type to use as the default value or select it from the Search User Define Code form. If you leave this processing option blank, the system uses **EN** for engineering change order.

7.4.6 Reviewing Revision Information

Access the Work With ECO Approval/Audit Review form.

Figure 7–7 Work With ECO Approval/Audit Review

Records 1 - 2	Approver Name	Status	Planned Complete	Date Approved	Seq No.	Group No.	Note	Address Number
<input type="checkbox"/>	AB Common	In Process			1	0001		1001
<input type="checkbox"/>	Abbott, Dominique	In Process			2	0001		6002

Approver Name

Displays the names of the approvers. This 40-character alphabetic field appears on many forms and reports. You can enter dashes, commas, and other special characters, but the system cannot search on them when you use this field to search for a name.

Status

Displays the status for each approver.

Planned Complete

Displays the date that the work order or engineering change order is planned to be completed.

Date Approved

Displays the date on which an approver has approved or rejected an ECO. The default value is the current system date.

Seq No. (sequence number)

Displays the sequence setup for the order in which valid environments are displayed for JD Edwards EnterpriseOne.

Displays a sequence or sort number that the system uses to process records in a user-defined order for Oracle's JD Edwards World.

Group No. (group number)

Displays a number used to combine similar records.

Note

Displays a 40-character description.

7.4.7 Setting Processing Options for ECO Approval/Audit Review (P48185)

Use these processing options to define versions.

7.4.7.1 Versions

These processing options control which version of the programs the system uses.

1. Approval (P4818)

Specify the version that the system uses when you select the Row exit to the ECO Approval program. If you leave this processing option blank, the system uses version ZJDE0001.

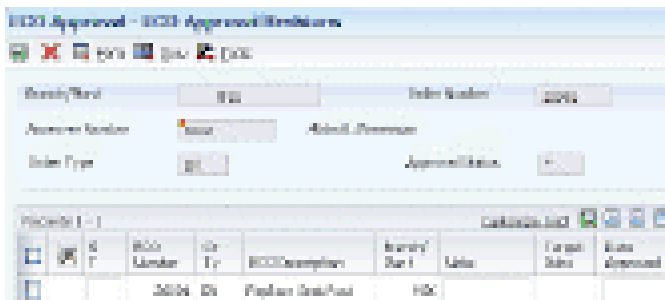
2. Enter/Change Order (P48020)

Specify the version that the system uses when you select the Form exit to the Enter/Change ECO program. If you leave this processing option blank the system uses version ZJDE0001.

7.4.8 Reviewing Approval Audit Information

Access the ECO Approval Revisions form.

Figure 7-8 ECO Approval Revisions form



7.4.9 Setting Processing Options for ECO Open Task Review (P30220)

Use these processing options to set default values and define versions.

7.4.9.1 Defaults

This processing option specifies the document type to use for the search.

1. Order Type

Specify the type of document on which you want the system to search. Order type is a UDC (00/DT) that identifies the type of document, such as an order or an invoice. Enter an order type to use as the default value or select it from the Search User Define Code form. If you leave this processing option blank, the system uses * to load all document types.

2. Operation Status - From and 3. Operations Status - Thru

Specify the default from and through operation statuses. Enter values from UDC 31/OS.

7.4.9.2 Versions

These processing options control which version of the programs the system uses.

1. Enter/Change Order (P48020)

Specify the version that the system uses when you select the Row exit to ECO Entry. If you leave this processing option blank, the system uses version ZJDE0001.

2. Parts List (P3013)

Specify the version that the system uses when you select the Row exit to ECO Parts List. If you leave this processing option blank the system uses version ZJDE0001.

3. Work Order Routing (P3112)

Specify the version that the system uses when you select the Row exit to Routing. If you leave this processing option blank the system uses version ZJDE0001.

7.4.10 Reviewing Open Tasks

Access the Enter ECO Assignments form.

Figure 7-9 Enter ECO Assignments

Op St	Operation Description	ECO Number	Ty	Start Date	Request Date	Labor Hours	Assigned	Assigned Name	Work Center	Work Center Description	Oper Seq#	Branch
	Update Standard Cost Amounts	20001	EN			2.00			PRODCO	Product Cost	30.00	M30
	Implement Change	20001	EN			1.00			PRODEN	Production Engineering 1	40.00	M30
	Review Manufacturing Impact	20001	EN			40.00			PRODEN	Production Engineering 1	20.00	M30
	Complete Design	20001	EN			24.00			MECHENG	Mechanical Engineering 1	10.00	M30

Op St (operation status)

Enter the operation status code that identifies the current status of a work order or engineering change order as the operation steps in the routing are completed. Enter a value from UDC 31/ OS.

Operation Description

Displays a remark about an item.

ECO Number (engineering change order number)

Displays a number that identifies an original document. This document can be a voucher, a sales order, an invoice, unapplied cash, a journal entry, and so on.

Work Center

Displays an alphanumeric code that identifies a separate entity within a business for which you want to track costs. For example, a business unit might be a warehouse location, job, project, work center, branch, or plant.

You can assign a business unit to a document, entity, or person for purposes of responsibility reporting. For example, the system provides reports of open accounts payable and accounts receivable by business unit to track equipment by responsible department.

Business unit security might prevent you from viewing information about business units for which you have no authority.

Oper Seq# (operation sequence number)

Displays a number used to indicate an order of succession.

In routing instructions, a number that sequences the fabrication or assembly steps in the manufacture of an item. You can track costs and charge time by operation.

In bills of material, a number that designates the routing step in the fabrication or assembly process that requires a specified component part. You define the operation sequence after you create the routing instructions for the item. The JD Edwards EnterpriseOne Shop Floor Management system uses this number in the backflush/preflush by operation process.

In engineering change orders, a number that sequences the assembly steps for the engineering change.

For repetitive manufacturing, a number that identifies the sequence in which an item is scheduled to be produced.

Skip To fields enable you to enter an operation sequence to begin the display of information.

You can use decimals to add steps between existing steps. For example, use 12.5 to add a step between steps 12 and 13.

7.4.11 Setting Processing Options for ECO Approval (P4818)

Processing options enable you to specify the default processing for programs and reports.

7.4.11.1 Defaults

This processing option specifies the document type to use for the search.

1. Order Type

Specify the type of document on which you want the system to search. Order type is a UDC (00/DT) that identifies the type of document, such as an order or an invoice. Enter an order type to use as the default value or select it from the Search User Define Code form. If you leave this processing option blank, the system uses * to load all document types.

2. Approval Status

Specify the default approval status on which you want the system to search. If you leave this processing option blank, no value is entered. Enter a value from UDC 30/ST.

3. Status Code W.O. (status code work order)

Specify the ECO Status code to update the ECO order master when approval routing is complete. If you leave this processing option blank, no ECO status update occurs. Enter a value from UDC 00/SS.

7.4.11.2 Versions

These processing options control which version of the programs the system uses.

1. Enter/Change Order (P48020)

Specify the version that the system uses when you select the Row exit to ECO Master. If you leave this processing option blank, the system uses version ZJDE0001.

2. Approval Notification (R48181)

Specify the Approval Notification version that the system uses. If you leave this processing option blank the system uses version ZJDE0001.

7.4.11.3 Edits

These processing options control which version of the programs the system uses.

1. Approval Security

Enable approval security. Values are:

Blank: Disabled.

1: Enabled.

7.4.12 Approving Engineering Change Orders

Access the ECO Approval Revisions form.

Approver Number

Enter a number that identifies an entry in the JD Edwards EnterpriseOne Address Book system, such as employee, applicant, participant, customer, supplier, tenant, or location.

S T (status)

Enter a UDC (30/ST) that indicates the approval status of an engineering change order. For example:

A: Accept (initiates notification of next review group).

R: Reject (stops the notification process).

7.4.13 Updating the Bill of Material

Select Engineering Change Management (G3013), Engineering Change Population.

7.4.14 Setting Processing Options for Engineering Change Population (R30510)

Use these processing options to set default values, define if the system runs in proof or final mode, establish edits, and control various update options.

7.4.14.1 Mode

This processing option controls whether the program is run in proof or final mode.

Mode

Specify whether the system runs the Engineering Change Population program (P30510) in proof or final mode. It is recommended that you first run this program in proof mode. The proof report lists all requested changes without actually changing any data. Review the report and then run the program in final mode to update the data in the Bill of Materials Change table (F3011). After you run this program in final mode, you cannot change the parts list and run the program again. Values are:

Blank: Proof mode.

1: Final mode.

7.4.14.2 Edits

This processing option controls whether the system uses engineering change order verification for the Engineering Change Population program (R30510).

ECO Approval Validation

Specify whether the system uses engineering change order verification for the Engineering Change Population program (P30510). ECO approval verification lets you

update the ECO in final mode only if everyone on the ECO approval list has approved the ECO. If you leave this processing option blank, it is possible that an ECO can be fully incorporated without any approval. Values are:

Blank: Does not verify that the ECO is fully approved before allowing the final mode update.

1: Verifies that the ECO is fully approved before allowing the final mode update.

7.4.14.3 Process

These processing options control various update options, which item flash message the system uses, and whether the system automatically copies a component's substitute items to the new bill of material.

Update Actual Incorporation Date

Specify whether the system updates the actual incorporation date of the engineering change order to the system date. Values are:

Blank: Does not update the date.

1: Updates the date of the ECO.

Status Code

Specify the default status code for the engineering change order. Status code is a UDC (00/SS) that identifies the status of the engineering change order. Enter the status code to use as the default value or select it from the Select User Define Code form. If you leave this processing option blank, the system does not change the status.

Update Revision Level

Specify whether the system updates the revision level in the Item Branch table (F4102) when the bill of material revision level is updated for a corresponding parent item. The item revision level appears on the Manufacturing Data form in the JD Edwards EnterpriseOne Inventory Management system. Values are:

Blank: Does not update.

1: Automatically updates.

Update Item Balance Revision Info

Specify whether the system updates the engineering change order item balance revision level information in the Item Branch table (F4102). Item balance revision level information appears on the Manufacturing Data form in the JD Edwards EnterpriseOne Inventory Management system. Values are:

Blank: Does not update.

1: Automatically updates.

Item Flash Message

Specify the message that the system uses when resetting the flash message due to other outstanding engineering change orders. Item flash message is a UDC (40/FL) that identifies the item message. Enter the status code to use as the default value or select it from the Select User Define Code form. If you leave this field blank, the system does not display the item flash message.

If you specified a flash message in ECO Notification (R48181), enter the same UDC value here to remove the flash message after the ECO is processed.

Update Drawing Revision Level

Specify whether the system updates the drawing revision level in the Item Master table (F4101) when a change is made to the drawing revision level for items defined in the engineering change order (ECO) parts list and related item list. The drawing revision level appears on the Manufacturing Data form in the JD Edwards EnterpriseOne Inventory Management system. Values are:

Blank: Does not update.

1: Automatically updates.

Copy Substitutes Items

Specify whether the system copies a component's substitute items to the new component or bill of material during a swap or change. Values are:

Blank: Does not copy.

1: Automatically copies.

7.4.14.4 Defaults

This processing option controls the default engineering change order type that the system uses.

Order Type

Specify the order type that the system uses when running the Order Change Population program (P30510). Order type is a UDC (00/DT) that identifies the type of the engineering change order.

Enter the order type to use as the default value or select it from the Select User Define Code form. If you leave this processing option blank, the system includes all order types.

JD Edwards EnterpriseOne Product Data Management Reports

This appendix contains the following topics:

- [Section A.1, "Product Data Management Reports"](#)
- [Section A.2, "JD Edwards EnterpriseOne Product Data Management Reports A to Z"](#)
- [Section A.3, "JD Edwards EnterpriseOne Product Data Management Reports: Selected Reports"](#)

A.1 Product Data Management Reports

The JD Edwards EnterpriseOne Product Data Management reports are based on these tables:

- Bill of Material Master File (F3002)
- Routing Master File (F3003)

The engineering change order reports are based on these tables:

- Bill of Material Master File (F3002)
- Work Order Master (F4801)

A.2 JD Edwards EnterpriseOne Product Data Management Reports A to Z

This table lists the JD Edwards EnterpriseOne Product Data Management reports, sorted alphanumerically by report ID:

Report ID and Report Name	Description	Navigation
R30420 Material Where Used	Lists the parent assemblies that contain a specific component and displays all the subassemblies of the components for an item, as well as the indented level of these subassemblies. A version of this report is used for the Where Used Ingredient report.	Periodic PDM Discrete menu (G3021), Where Used Item Report Periodic PDM Process menu (G3022), Where Used Ingredient

Report ID and Report Name	Description	Navigation
R30430 Standard Routing Information	Displays the work centers, sequence numbers, planned yield, run hours, setup hours, move hours, crew size, and effective dates for a parent item.	Periodic PDM Discrete menu (G3021), Routing Instructions Report Periodic PDM Process menu (G3022), Instructions Report
R30435 Process Report	Displays process information including run hours, effectivity dates, ingredients, quantity per, and co- and by-products for each operation sequence.	Periodic PDM Process menu (G3022), Process Report
R30460 Bill of Material Print	Displays all the levels of an item's components and enables you to review all of the subassemblies. A version of this report is used for the Multi Level Ingredient report.	Periodic PDM Discrete menu (G3021), Multi Level Bill of Material Periodic PDM Process menu (G3022), Multi Level Ingredient
R30460 Bill of Material Print	Displays the first-level component information for an item. Information includes item number, description, component quantity, effectivity dates, operations sequence numbers, and revision levels. A version of this report is used for the Single Level Ingredient report	Periodic PDM Discrete menu (G3021), Single Level Bill of Material Periodic PDM Process menu (G3022), Single Level Ingredient
R48020P ECO Work Order Print	Lists all of the details for a specific ECO.	Engineering Change Management menu (G3013), ECO Details
R48421 ECO Summary Report	Lists the ECOs that are currently in the approval process or as a basis for running the Engineering Change Population program (R30510).	Engineering Change Management menu (G3013), Open ECOs

A.3 JD Edwards EnterpriseOne Product Data Management Reports: Selected Reports

Some reports include a more detailed description, and information about processing options. These reports are listed alphanumerically by report ID in this appendix.

A.3.1 R30420 - Where Used Item Report

Use this report to illustrate where items are used on the bill of material.

A.3.2 Processing Options for Material Where Used (R30420)

Use these processing options to control the report format and control the number of detail lines to print on the report.

A.3.2.1 Format Option

These processing options specify whether the report prints the bill of material for a single level, multi-level, or multi-level indented and if one or two detail lines are printed.

Mode of Report

Specify the mode or style for the report. Values are:

- 1: Single level
- 2: Multi-level
- 3: Multi-level indented

Print Line of Detail

Specify whether one or two lines of detail information prints.

- 1: Print second line.
- Blank: Print one line.

A.3.3 R30460 - Multi Level Bill of Material Report and Single Level Bill of Material Report

You can generate several reports to review bill of material information. These reports retrieve data from the Bill of Material Master File table. You access these report from the Periodic PDM Discrete menu (G3021) and the Periodic PDM Process menu (G3022). They enable you to display different views of the bill of material.

You can use processing options to define the format and scope for each report.

Important: It is recommended that you do not change the first two data sequences from the settings in the demonstration version of these reports. If you change the data sequencing, you might obtain unexpected or inaccurate results.

A.3.4 Processing Options for Bill of Material Print (R30460)

Use these processing options to set the report display format and define the type of information displayed on the report.

A.3.4.1 Display

These processing options control the display format, display sequence, and other parameters for the report.

1. Inquiry Mode

Specify whether the system displays the information in single level or multilevel format. The single level format displays the item's first-level components, the multilevel format displays the subassemblies and components for an item, and the multilevel indented format displays the subassemblies indented. Values are:

Blank: Display the multilevel indented format.

- 1: Display the single level format.
- 2: Display the multilevel format.
- 3: Display the multilevel indented format.

2. As of Date

Specify the as of date that the system uses for the bill of material. The as of date is the date that the system uses for effectivity checking. Enter a specific date to display bills of material that are effective on or after that date. You can enter any future or past date as the default value or select it from the Calendar. If you leave this processing option blank, the system uses the current date.

3. Type Bill of Material

Specify the type of bill of material that the system uses as the default value. Bill of material type is a UDC (40/TB) that designates the type of bill of material. Enter the bill of material type to use or select it from the Select User Define Code form. If you leave this processing option blank, the system uses M (manufacturing bill of material).

4. Display Sequence

Specify whether the system sequences the information by component line number or by operation sequence number. The component line number indicates the sequence of components on a bill of material. The operation sequence number indicates the number that designates the routing step in the fabrication or assembly process that requires a specified component part. Values are:

Blank: Sequence by component line number.

1: Component line number.

2: Operation sequence number.

A.3.4.2 Print

These processing options control the types of information that are included on the report.

1. Detail Line

Specify whether the system prints a second line of detail for each item. This second line of detail includes data such as leadtime level and bill revision level. Values are:

Blank: One line of detail.

1: Second line of detail.

2. Component Locators

Specify whether the system prints the component locations. The component location is the specific location of a component in the assembly of an item, for example, the location of a part on a circuit board. Values are:

Blank: Do not print.

1: Print.

3. Parent Item Detail Line

Specify whether the system prints a line of detail for the parent item. This detail line includes data such as the drawing number. Values are:

Blank: Do not print.

1: Print.

A.3.4.3 Process

These processing options control the types of item quantities that are included on the report.

1. Phantom Items

Specify whether the system explodes the phantoms to the next level and omits the display of the phantom. A phantom is normally defined for engineering or manufacturing purposes. Phantoms enable common parts, that may or may not be assembled, to be grouped in a bill of material structure. When viewing the bill of material, you may want to display only the subassemblies and raw material. Values are:

Blank: Omit the phantom items from the inquiry and display only the subassemblies and raw material.

1: Include phantom items in the inquiry.

2. Process Items

Specify whether the system displays process items. Process items include the process, co-products, by-products, and ingredients. A discrete bill may contain a component that is produced from a process. You use this processing option when you combine discrete and process manufacturing to display a complete structure of the requirements. Values are:

Blank: Exclude.

1: Include.

3. Subassemblies

Specify whether the system displays subassemblies. A subassembly is an assembly that is used at a higher level to form another assembly. Values are:

Blank: Exclude.

1: Include.

4. Text Lines

Specify whether the system displays text lines. Values are:

Blank: Exclude.

1: Include.

5. Consolidate Component Items

Specify whether the system consolidates duplicate components. The same component may be listed in the bill of material several times, either on different subassemblies or on the same subassembly at different operations. When you use this processing option with the Subassemblies processing option, the system consolidates components at the subassembly level or for all levels of the bill of material. When viewing the consolidated components, the quantity required is accumulated for duplicate components. Values are:

Blank: Display individual occurrences of duplicate components.

1: Consolidate duplicate components.

6. Purchased Item

Specify whether the system explodes to the next level of purchased items in the bill of material report. Values are:

Blank: Exclude lower-level purchased items.

1: Include lower-level purchased items.

7. Shrinkage

Specify whether the system adjusts the requested quantity for shrinkage. Shrinkage is the planned loss of a parent item caused by factors such as breakage, theft, deterioration, and evaporation. Values are:

Blank: Do not adjust.

1: Adjust.

8. Scrap

Specify whether the system adjusts the extended quantity for scrap. Scrap is unusable material that results from the production process. It is material outside of specifications and of such characteristics that rework is impractical. Values are:

Blank: Do not adjust.

1: Adjust.

9. Yield

Specify whether the system adjusts the extended quantity for yield. Yield is the ratio of usable output from a process to its input. Values are:

Blank: Do not adjust.

1: Adjust.

10. Requested Quantity

Specify the required quantity of the parent item in the bill of material inquiry.

11. Unit of Measure as Input

Specify the unit of measure of the parent item in which the requested quantity is entered.

A.3.5 R48020P - ECO Work Order Print Report

You can print a variety of engineering change order information to help you manage the ECOs that you create. You can access the reports from the Engineering Change Management menu (G3013).

You can generate the ECO Work Order Print report to list all of the details for a specific ECO. You can set the processing options to specify the amount and type of information in the report. The system retrieves the data for this report from the Bill of Material Master table.

A.3.6 Processing Options for ECO Work Order Print (R48020P)

Use these processing options to select the information to print on the report and set default values.

A.3.6.1 Print

These processing options specify the information to include on the report.

1. Notes

Specify if notes print on the report. Values are:

Blank: Do not print.

1: Print.

2. Parts List

Specify if the parts list prints on the report. Values are:

Blank: Do not print.

1: Print.

3. Routing

Specify if the routing prints on the report. Values are:

Blank: Do not print.

1: Print.

A.3.6.2 Defaults

This processing option specifies the default note type to print.

Record Type

Specify the default note type that is printed. If left blank, note type A is used.

A.3.7 R48421 - ECO Summary Report

Use the ECO Summary Report to list the ECOs that are currently in the approval process or as a basis for running the Engineering Change Population program.

You can set up the report with information:

- Document type and status code.
- Category code and product family.
- Status code for pending approval.
- Status code for ECOs that have been approved.

The system retrieves the data for this report from the Work Order Master table.

Glossary

Effective From

Enter a date that indicates:

- When a component part goes into effect on a bill of material.
- When a routing step goes into effect as a sequence on the routing for an item.
- When a rate schedule is in effect.

The default is the current system date. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in the JD Edwards EnterpriseOne Product Costing system from Oracle, JD Edwards EnterpriseOne Shop Floor Management system from Oracle, and JD Edwards EnterpriseOne Capacity Planning system from Oracle. Material Requirements Planning (MRP) in the JD Edwards EnterpriseOne Requirements Planning system from Oracle determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.

Effective Thru (effective through)

Enter a date that indicates:

- When a component part is no longer in effect on a bill of material.
- When a routing step is no longer in effect as a sequence on the routing for an item.
- When a rate schedule is no longer active.

The default is December 31 of the default year defined in the Data Dictionary for Century Change Year. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in the JD Edwards EnterpriseOne Product Costing system, JD Edwards EnterpriseOne Shop Floor Management system, and JD Edwards EnterpriseOne Capacity Planning system. MRP in the JD Edwards EnterpriseOne Requirements Planning system determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.

Frm Grd (from grade)

Enter a user-defined code (UDC) (40/LG) that indicates the minimum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that do not meet the minimum grade acceptable. The system does not allow you to sell items with grades that do not meet the minimum acceptable level.

From Potency

Enter a number that indicates the minimum potency or percentage of active ingredients acceptable for an item.

The system displays a warning message if you try to purchase or issue items that do not meet the minimum acceptable potency. The system does not allow you to sell items that do not meet the minimum acceptable potency.

Group No. (group number)

Displays a number used to combine similar records.

Item Number

Enter an item number. It can be in short, long, or third item number format.

Job Type

Enter a UDC (07/G) that defines the jobs within the organization. You can associate pay and benefit information with a job type and apply that information to the employees who are linked to that job type.

Leadtime Offset

Enter the number of days that a part is needed before or after the start date of a manufacturing work order. The system adds the lead time offset days for the part to the start date of the work order to determine the actual date that the part is required. To indicate that a part is needed before the work order start date, enter the days as a negative number. To indicate how many days after the work order start date that the part is required, enter a positive number.

Line/Cell

Enter a number that defines a production line or cell. Detailed work center operations can be defined inside the line or cell.

Ln Ty (line type)

Displays a code that controls how the system processes lines on a transaction. It controls the systems with which the transaction interfaces, such as JD Edwards EnterpriseOne General Ledger from Oracle, JD Edwards EnterpriseOne Job Cost from Oracle, JD Edwards EnterpriseOne Accounts Payable from Oracle, JD Edwards EnterpriseOne Accounts Receivable from Oracle, and JD Edwards EnterpriseOne Inventory Management from Oracle. It also specifies the conditions under which a line prints on reports, and it is included in calculations. Codes include:

S: Stock item.

J: Job cost.

N: Nonstock item.

F: Freight.

T: Text information.

M: Miscellaneous charges and credits.

W: Work order.

Move Hours

Enter the planned hours that are required to move the order from this operation to the next operation in the same work center.

If the Routing Master values are blank, the system retrieves the default value from the work order routing. However, the system uses these values only for backscheduling variable leadtime items.

Next Oper (next operation)

Enter the operation number with which the current operation can be simultaneously processed.

Oper Seq# (operation sequence number)

Displays a number used to indicate an order of succession.

In routing instructions, a number that sequences the fabrication or assembly steps in the manufacture of an item. You can track costs and charge time by operation.

In bills of material, a number that designates the routing step in the fabrication or assembly process that requires a specified component part. You define the operation sequence after you create the routing instructions for the item. The JD Edwards EnterpriseOne Shop Floor Management system uses this number in the backflush/preflush by operation process.

In engineering change orders, a number that sequences the assembly steps for the engineering change.

For repetitive manufacturing, a number that identifies the sequence in which an item is scheduled to be produced.

Skip To fields enable you to enter an operation sequence to begin the display of information.

You can use decimals to add steps between existing steps. For example, use 12.5 to add a step between steps 12 and 13.

Percent Scrap

Enter the percentage of unusable component material that is created during the manufacture of a particular parent item. During Distribution Requirements Planning (DRP), Master Production Schedule (MPS), and MRP generation, the system increases gross requirements for the component item to compensate for the loss. Enter percentages as whole numbers, for example, 5 percent as 5.0.

Note: Inventory shrink and scrap are compounded to calculate the total loss in the manufacture of a particular item. Accurate shrink and scrap factors support more accurate planning calculations.

Quantity

Enter the number of units that the system applies to the transaction.

Queue Hours

Enter the total hours that an order is expected to be in queue at work centers and moving between work centers.

The system stores this value in the Item Branch table. You can calculate this value using the Leadtime Rollup program or you can enter it manually. When you run the Leadtime Rollup program, the system overrides manual entries and populates the table with calculated values.

Record Type

Enter the default note type that is printed. If left blank, note type **A** is used.

Run Labor

Enter the standard hours of labor that you expect to incur in the normal production of this item.

The run labor hours in the Routing Master table are the total hours that it takes the specified crew size to complete the operation. The hours are multiplied by the crew size during shop floor release and product costing.

Run Machine

Enter the standard machine hours that you expect to incur in the normal production of this item.

Setup Labor

Enter the standard setup hours that you expect to incur in the normal completion of this item. This value is not affected by crew size.

Substitute Item

Enter the item number that the system uses as a substitute if the original item is not available. It can be in short, long, or third item number format.

Thr Grd (through grade)

Enter a UDC (40/LG) that indicates the maximum grade that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items with grades that exceed the maximum grade acceptable. The system does not allow you to sell items with grades that exceed the maximum grade acceptable.

Use only grade or potency, not both.

Thru Potency (through potency)

Enter a number that indicates the maximum potency or percentage of active ingredients that is acceptable for an item.

The system displays a warning message if you try to purchase or issue items that have a potency that exceeds the maximum potency acceptable. The system does not allow you to sell items that have a potency that exceeds the maximum potency acceptable.

Time Basis

Enter a UDC (30/TB) that indicates how machine or labor hours are expressed for a product. Time basis codes identify the time basis or rate to be used for machine or labor hours entered for every routing step. For example, 25 hours per 1,000 pieces or 15 hours per 10,000 pieces. You can maintain the time basis codes in Time Basis Codes.

The system uses the values in the **Description-2** field on the User Defined Codes form for costing and scheduling calculations. The description is what the code represents, but is not used in calculations.

Work Center

Displays an alphanumeric code that identifies a separate entity within a business for which you want to track costs. For example, a business unit might be a warehouse location, job, project, work center, branch, or plant.

You can assign a business unit to a document, entity, or person for purposes of responsibility reporting. For example, the system provides reports of open accounts payable and accounts receivable by business unit to track equipment by responsible department.

Business unit security might prevent you from viewing information about business units for which you have no authority.

Yield % (yield percent)

Enter the planned output yield percent for a step. The Planned Yield Update program uses this value to update the cumulative percent in the routing and the operation scrap percent in the bill of material. Materials Requirements Planning uses the step scrap percent and the existing component scrap percent to plan component demand.

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