MAXIMO 7 TRAINING GUIDE

INVENTORY MANAGEMENT
FLORIDA INTERNATIONAL UNIVERSITY

3451 NE 1st Ave – M1008 • Miami, FL 33137

TABLE OF CONTENTS

I CHAPTER 1 – INVENTORY MANAGEMENT

INVENTORY MODULE

1 OBJECTIVES

Given the Maximo 7 platform, learn how the various Item, Tool and Inventory records relate to Storerooms and to each other. Understanding the fundamentals of stock management is vital to the overall efficiency of asset management and the subsequent Storeroom economies.

2 OVERVIEW

Managing your spare parts inventory is an important part of maintaining any asset. The Inventory module tracks materials needed for maintenance. Maximo keeps track of:

- Items in stock
- Indicates when stock falls below user-defined reorder points
- Perform cycle counts and make appropriate adjustments
- Creates purchase requisitions and purchase orders to restock needed items
- Accurately capture transactions, such as receipts, issues, transfers and returns
- Run reports

The Inventory module works to help balance two opposing objectives:

- Maximize the availability of items for future work tasks
- Reduce excess inventory balances with their related carrying costs

The goal is to find a balance of inventory stock that lets maintenance work be performed with minimum delays due to unavailable materials and still keep unnecessary or seldom used items off the shelf.

2.1 INVENTORY MODULE APPLICATIONS

The Inventory Module consists of the following applications:

- **Condition Codes:** Used to define the codes used to describe the condition of items in stock.
- **Inventory:** Used to manage items in inventory, including tracking stock levels, reordering items and tracking rotating assets.
- **Issue and Transfers:** Used to issue stock from inventory, either with or without a work order, and to transfer stock from one storeroom location to another.
- **Item Master:** Used to define inventory items and add them to a storeroom's stock list.
- **Service Items:** Used to define services that your company requisitions, either as part of the purchasing process, or as part of a work order.
- **Stocked Tools:** Used to manage Tool inventory.
- **Storerooms:** Used to define storeroom locations and view the list of items stocked at each storeroom location.
- **Tools:** Used to define Tools and add them to storerooms.

Inventory is a pivotal module in Maximo. It functions in a dynamic relationship with the Preventive Maintenance, Work Orders, Contracts, Purchasing and Assets modules, as well as Companies in the Resources module. These other modules affect the quantity of items in inventory; identify where those items are used and the manufacturers and vendors who supply them.

Components of the overall system administration and configuration necessary to establish such supporting functions as Chart of Accounts, Organizations and Cron Task Setup are addressed in the System Administration training, and are considered outside the scope of this document.

Maximo's inventory management applications include applications for creating item records and separate application for managing those items in storerooms, see Figure 1.1.

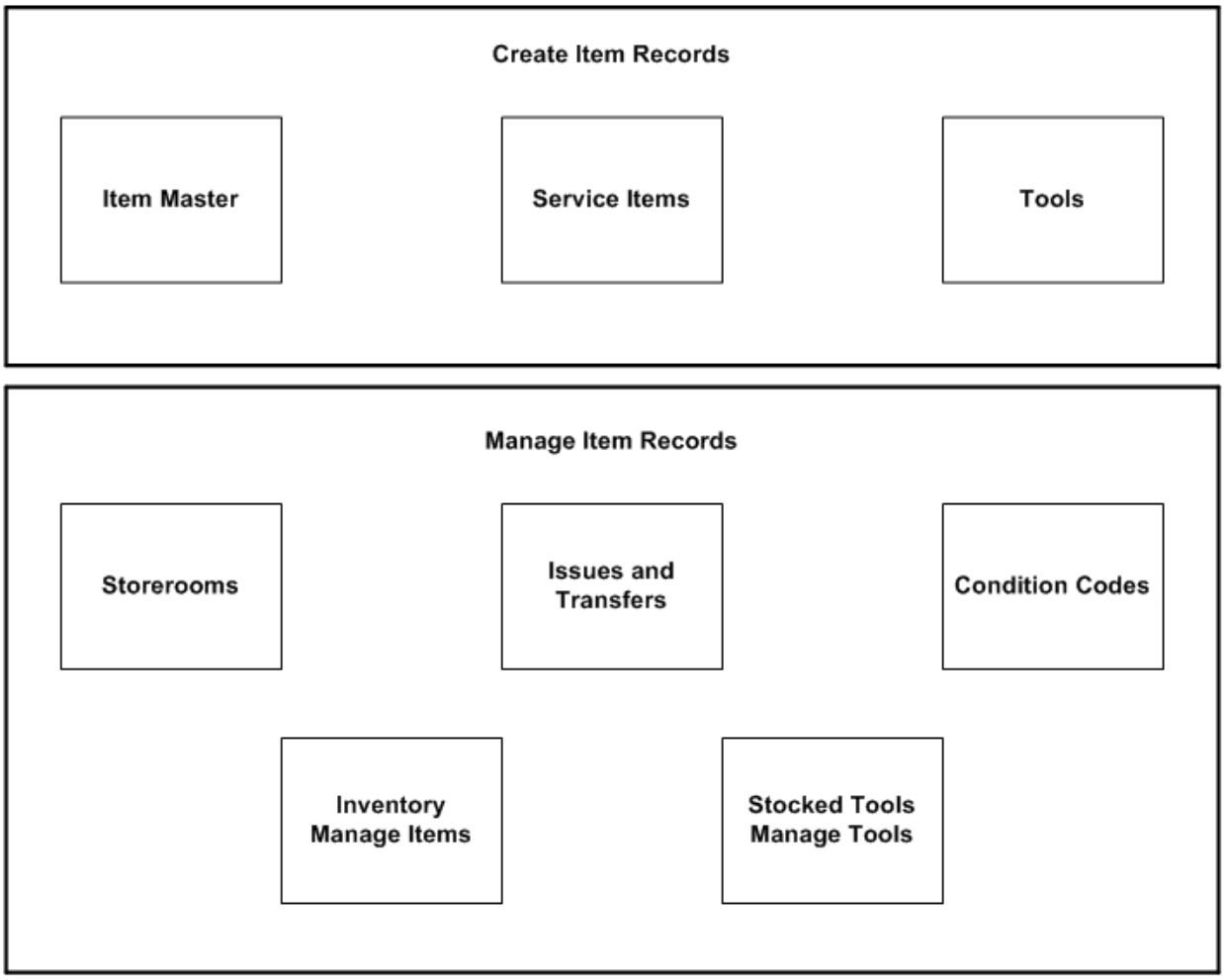


Figure 1.1 Inventory Module Applications Relationships

You use the Storerooms application to define financial and billing information for storeroom locations, for example the General Ledger (GL) account codes and a Ship To Address for each storeroom location. Storerooms can be physical locations or employees who are responsible for transporting or holding inventory items, e.g. a worker who stores spare parts in their vehicle.

Before you create item records you should define:

- Units of Measurement and conversion values for each,
- A master list of all conditions for each Item Set.

You use the Item Master application to create records for items and materials that your company uses for maintenance purposes. You also use the Item Master application to define the characteristics and specifications of rotating items that can be used to create rotating asset

records, for example information technology (IT) assets. Items are added to the master stock list for a storeroom in the Item Master application.

Item balances are managed in the Inventory application. Maximo's reorder process can automatically reorder items when item balances reach a specified point. When the receipt of ordered items is recorded in the Receiving application, Maximo updates inventory balances for the items.

You use the Service Items application to create records for the standard services that your company purchases. Service Items can be used on job plans, work orders, purchase requisitions, and purchase orders.

You use the Tools application to create records for Tools that will be issued from and managed in a Tool storeroom. Tool balances are managed in the Stocked Tools application. You can list items, services, and Tools on job plans and work orders. Inventory reservations are created for items and Tools when a work order status is changed to approved (APPR). You use the Issues and Transfers application to issue and transfer items, and the Stocked Tools application to issue and transfer Tools. Items and Tools can be issued to an individual if they are listed in the Locations application as a labor type location. Costs for items and Tools can be charged to a work order, asset, location, or GL account code

2.2 INVENTORY AND MULTISITE – ITEM SETS

Inventory items and materials, Service Items, and Tools are created as part of an **Item Set.** An Item Set consists of an ID that identifies a list of items that can be shared by one or more Organizations. Only one Item Set can be specified for an Organization, but more than one Organization may use the same Item Set. Items and Tools can be transferred between Organizations that share the same Item Set. When creating item records, all item identifiers must be unique within an Item Set. Everywhere that an item ID is referenced on a Maximo record there is also an Item Set ID.

Conversion values between **Order Units** and **Issue Units** are defined at the Item Set level via the **Add/Modify Conversions** action available from the Select Action menu of several of the inventory and purchasing applications.

Units of measurement for **Order Units** and **Issue Units** are defined at the Organization level via the **Add/Modify Units of Measure** action available from the Select Action menu of several of the inventory and purchasing applications.

> **NOTE:** It is recommended that all possible combinations of units of measure and their conversion values be defined before creating item master records.

2.3 COMMODITY GROUPS

A **commodity** is a thing or product that you purchase. Some companies organize their purchasing departments by commodity. Purchasing managers may create budgets, create and manage purchase orders, and manage vendor relationships based on commodities. You can create commodity group and commodity code records in Maximo that can be applied to item, company, and contract records. When you associated a **Commodity Group** and **Commodity Code** with an item record it allows users, for example planners or purchasing agents, to search for items by commodity code.

Commodity codes are defined and managed using the **Add/Modify Commodity Codes** action available from the Select Action menu of the following applications:

- Companies
- Item Master
- Purchase Orders
- Service Items
- Tools

Commodity codes are defined at the Item Set level. Commodity group names must be unique for the Item Set. A commodity code can only belong to a single commodity group. You cannot delete commodity groups or codes if they are associated with other Maximo records. You can also create service type commodities to help you categorize and manage services. For more information about service type commodities, see "Service Catalog," below.

2.4 KITS

A **Kit** is a collection of items that can be issued as a single unit. A kit record is created in the Item Master application, and consists of a parent item record, and associated child item records that are listed on the Item Assembly Structure tab. Using kits allows you to put all the items needed for a job plan or maintenance task into one container and manage them as a single unit.

Kits are defined in the Item Master application, and managed in the Inventory application. You cannot create kits that contain items that are condition-enabled, lotted, or are defined as rotating items.

> **NOTE:** The individual items that make up a kit are considered part of the kit, and are not tracked separately in inventory once they have been assembled into a kit. This means that balances for an item record do not include any instances ofthat item that have been assembled into a kit.

2.5 CONDITION CODES

A **Condition Code** enables you to specify that an item record has a different value depending on the physical condition of an item. For example, an item that has been damaged, worn, used, or rebuilt would not have the same value as a new item. A Condition Code has a rate associated with it, which can be used to calculate the value of non-new inventory items. For example, you might create two conditions for an item, "new" where the value of the item is 100%, and "used" where the value of the item is 50% of the full value.

You use the Condition Codes application to create a master list of Condition Codes for each Item Set defined in your database. For more information about Item Sets refer to the *Maximo System Administrator's Guide.* The Condition Codes you create can be applied to the following types of Maximo records:

- item records created in the Item Master application
- rotating asset records created in the Assets application

2.6 MULTISITE AND CONDITION CODES

Condition Codes are defined at the Item Set level. Item Sets exist below the System level, but above the Organization level so that Organizations can share data. This means that:

- Key fields for new records must be unique within the Item Set.
- Records are available to all users in the Organizations that share the Item Set and who have security permissions to the application.

Each Item Set has a separate list of Condition Codes. Item Sets can be shared by more than one Organization.

2.7 CONDITION CODES AND ASSETS

Condition Codes are an inventory function, but they can be applied to rotating assets, since rotating asset records include a value in the **Rotating Item** field. For more information about rotating items, see the section on Item Master Records and Assets. For more information about rotating assets, see Maximo help.

2.8 CONDITION CODES AND INVENTORY

Condition Codes are used to indicate the value of inventory items in various physical conditions. They are also used to help calculate the value of worn or used items that have been returned to inventory. When you are managing a condition enabled item record, entering a Condition Code value is mandatory when using the following inventory actions:

- Issue Current Item
- Transfer Current Item
- Inventory Adjustments > Current Balance
- Inventory Adjustments > Physical Count

NOTE: You cannot apply a Condition Code to a kit, because each item in the kit could potentially have a different condition.

2.9 CONDITION CODES AND ISSUES AND TRANSFERS

A new item received into inventory in the Receiving application has a Condition Code equivalent to "new" with a rate of 100%. The item can be issued, used, and returned to inventory, at which point the condition would no longer be "new" and the value or rate would no longer be 100%. When an item is returned (issued back to) to a Storeroom, the existing Condition Code is displayed in the **From Condition Code** field for the item, and the new condition can be entered in the **To Condition Code** field.

2.10 CONDITION CODES AND ITEM RECORDS

When you create item records that will have Condition Codes applied to them you must first select the **Condition Enabled?** check box, then enter a row in the Condition Codes table window for each condition you want to apply to the item.

2.11 CONDITION CODES AND TOOLS

You cannot apply a Condition Code to a Tool record.

II CHAPTER 2 – STOREROOMS

SET-UP AND MANAGING STOREROOMS

1 OBJECTIVES

Given the Maximo 7 platform, learn to create and configure Storeroom records. Learn the following concepts and how best to apply them to your own Organization environment:

- How Storerooms relate to the Item Master records
- Utilization of GL Accounts and default addresses in Storeroom configuration

2 OVERVIEW

A storeroom is a location that contains Inventory items. Storerooms have General Ledger account codes associated with them to help track Inventory costs.

You use the Storerooms application to create new Storeroom records, define the GL account codes to be associated with a storeroom, and view a read-only list of items stocked at that storeroom location.

> **NOTE:** Inventory stock can be issued to a courier or labor location, but these "inventory type" locations are not considered storerooms.

2.1 MULTISITE AND STOREROOMS

Storeroom records are at the Site level. This means that:

- Maximo requires that key fields be unique to a Site, but allows duplication of record IDs used by other Sites or Organizations. For example, you could have a storeroom named "Central" at each Site.
- Records can only be viewed by users who have security permission to the Site and the application.

2.2 STOREROOMS AND INVENTORY

The records in the Inventory application are for an item/storeroom combination. Balances for each item record are tracked separately for each storeroom that stocks the item. Balances for all storerooms can be viewed using the **View Item Availability** action in the Inventory application, see Figure 3.1.

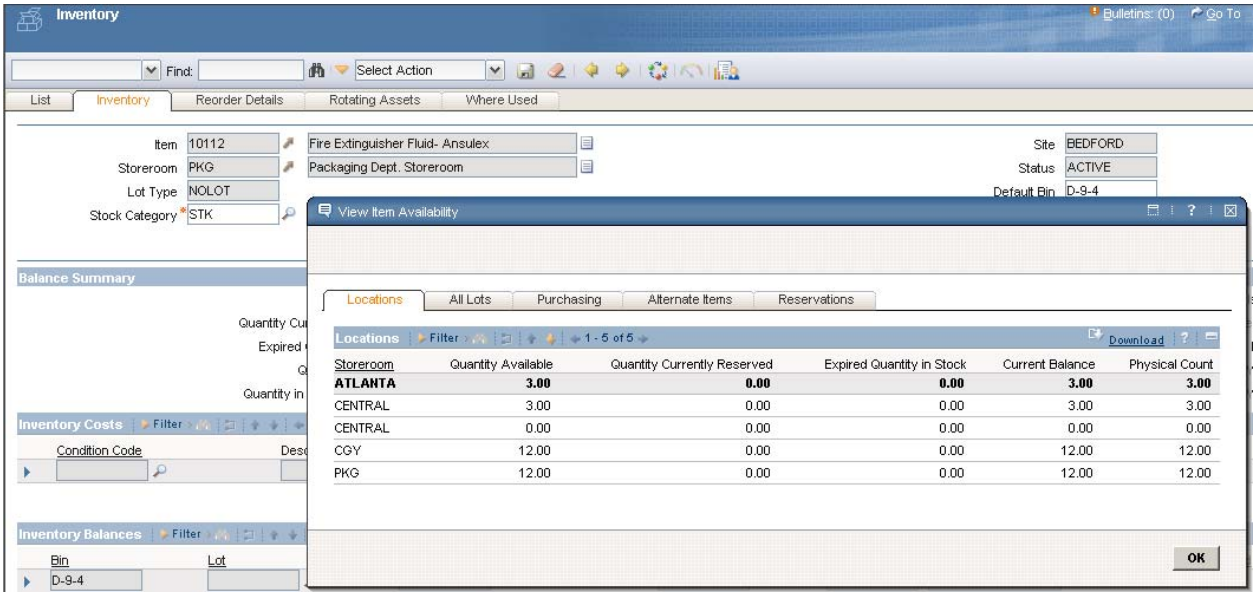


Figure 3.1 Inventory Application – View Item Availability

2.3 STOREROOMS AND ITEM RECORDS

After a Storeroom has been created, you can create a master stock list by associating Items with the Storeroom in the Item Master application using the Add Item to Storeroom action. Items are also deleted from a storeroom's master stock list in the Item Master application by deleting the Storeroom from the item records Storerooms tab.

2.4 STOREROOMS AND PURCHASING

Some companies do all of their purchasing at a central storeroom, and have all other storerooms "purchase" their stock from that storeroom. Maximo refers to this type of transfer

as an internal purchase requisition or purchase order. You select the **Use in PO/PR?** check box to indicate that a storeroom can be used as a "vendor" for internal purchases.

3 CREATING STOREROOMS

The Storerooms application lets you add new storeroom location records. Storeroom locations are the names of your inventory storerooms, the places inventory items are stored in and issued from. This application is used to set the general ledger accounts to be associated with each new storeroom location. You can indicate which GL Account code is to be charged for each type of inventory transaction associated with the location. Check with your accounting department if you need information on providing the proper GL account codes.

> **NOTE:** Depending on your company's business practices, you might need security authorization to create storeroom locations and/or to provide GL account code information for storeroom locations.

To access the Storerooms application, click the application link on your Start Center, or select **Inventory > Storerooms** from the Go To menu, see Figure 3.2.

The Storerooms application contains the following tabs:

- **List** — to search Maximo for storeroom records.
- **Storeroom**— to define storeroom locations and provide default GL account code information.
- **Items** — to view a read-only list of items associated with the storeroom.

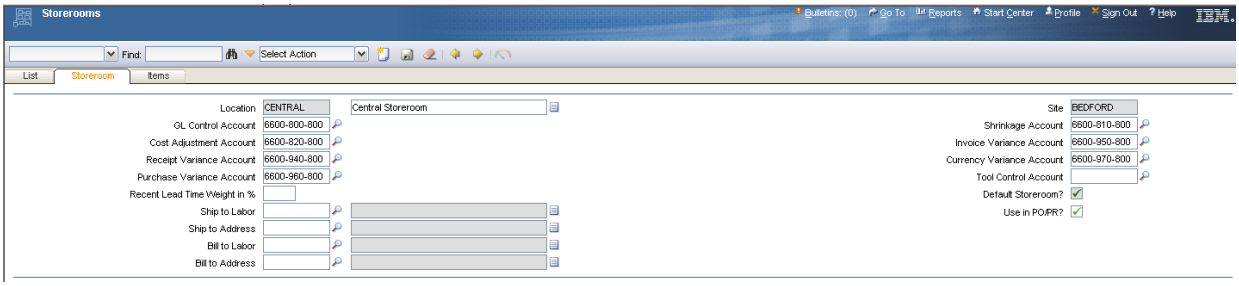


Figure 3.2 Storeroom Application Storeroom Tab

Ship to and **Bill to** fields on a storeroom record are used as default shipping and billing information by Maximo's reorder process.

4 MANAGING STOREROOMS

Items are added to and deleted from a Storeroom's master stock list in the Item Master application.

You can delete a storeroom record using the **Delete Storeroom** action available from the Select Action menu. You cannot delete a storeroom if there are Items or Tools stocked in it.

For more information about the record deletion rules, refer to the *Maximo System Administrator's Guide.*

5 REVIEW QUESTIONS

1. Following the instructions in Section 3 above, create a new Storeroom in the Storeroom application.

2. What do you have to do to make sure this Storeroom is set up to be used as a "vendor" for internal purchases.

III CHAPTER 3 – ITEM MASTER

ITEM CREATION AND MAINTENANCE

1 OBJECTIVES

The Item Master application is used to define Items that will be procured and stocked in storerooms. You will learn to navigate to the Item Master application and use it to create, modify and manage Item records. Items are grouped into Item Sets which permits the sharing of Items by Organizations that use the Item Set. You will develop an understanding of the Item Set functionality and how it applies to the Inventory.

This chapter will also discuss the relationship between Item and Inventory records and how the Item/Inventory hierarchy provides support to the maintenance department's initiative to:

- Efficiently managing Storeroom balances,
- Minimize stock-out occurrences,
- Accurately capture Inventory transactions, such as issues, transfers and returns.

2 OVERVIEW

An **Item** record defines an item or material that is stocked in a company storeroom. When you use the Item Master application to create an item record you can define the type of stock the item is, whether it is lotted or nonlotted, associate hazards and Material Safety Data Sheets (MSDS) with the item, define the item as a rotating item that can be listed on rotating assets, and identify alternate items that can be used as substitutes for the item.

You also can define other information related to items, such as the storeroom locations that stock the item, vendor information for the item, Classification and Specifications for the item, item assembly structures, and documents outside of Maximo that relate to the item record.

Managing your spare parts inventory is an important part of maintaining any asset. There are a series of applications involved with the management of Inventory with the Item Master serving as the central repository of item records. The Inventory module tracks materials needed for maintenance. It allows you to:

- Track items in stock
- Indicate when stock falls below user-defined reorder points
- Creates purchase requisitions and purchase orders to restock needed items
- Perform cycle counts and make appropriate adjustments
- Record all inventory transactions including receipts, issues, transfers and returns
- Run reports

The Inventory module works to help balance two opposing objectives:

- Maximize the availability of items for future work tasks,
- Reduce excess inventory balances with their related carrying costs.

2.1 INTRODUCTION TO INVENTORY MANAGEMENT IN MAXIMO 7

An **Item** record defines an item or material that is stocked in a storeroom. When you use the Item Master application to create an item record you can define the type of stock the item is, whether it is lotted or nonlotted, associate hazards and Material Safety Data Sheets (MSDS) with the item, define the item as a rotating item that can be listed on rotating assets, and identify alternate items that can be used as substitutes for the item.

You also can define other information related to items, such as the storeroom locations that stock the item, vendor information for the item, Classification and Specifications for the item, item assembly structures, and documents outside of Maximo that relate to the item record.

For many maintenance organizations, the quickest and most substantial "hard dollar" returns are achieved through the materials management modules - Inventory and Purchasing. In their early years of existence, the primary Inventory focus of Maximo and other CMMS products was the recording of part issues and cost tracking of Inventory transactions to Work Orders. Today, enhancements to these software products now assist Organizations in achieving superior “Return on Investment” through deployment of sound Inventory Management principles. Therefore, this course is designed to demonstrate how to best:

- Handle the process of issue and receipt transactions, accurately expensing the cost of purchased materials to the correct Work Order and/or its associated GL account, and

- Manage storeroom balances and optimize the supply chain, generating valuable hard-dollar returns to the Organization through sound materials management.

Due to inefficiencies and the high cost of maintaining a substandard stores management department, a growing number of Organizations have now outsourced their Inventory departments to third-party contractors. This need not be the case. The course will cover strategies used by such contractors including Just-in-Time Inventory, Vendor Analysis, Parts staging and the normalization of stock keeping units (SKUs) to make spare parts easier to locate.

To achieve these objectives, it is important to understand how the Maximo 7 Inventory applications are constructed. The applications within the Inventory module are hierarchical in structure. The top level of the Part hierarchy is the ***Item Master*** record. This record includes the information about a Part that is constant, regardless of the Storeroom location of that Part. As shown below, the Item Number, Stock Type (category), MSDS Reference Number and other fields make up the Item data set, see Figure 4.1.

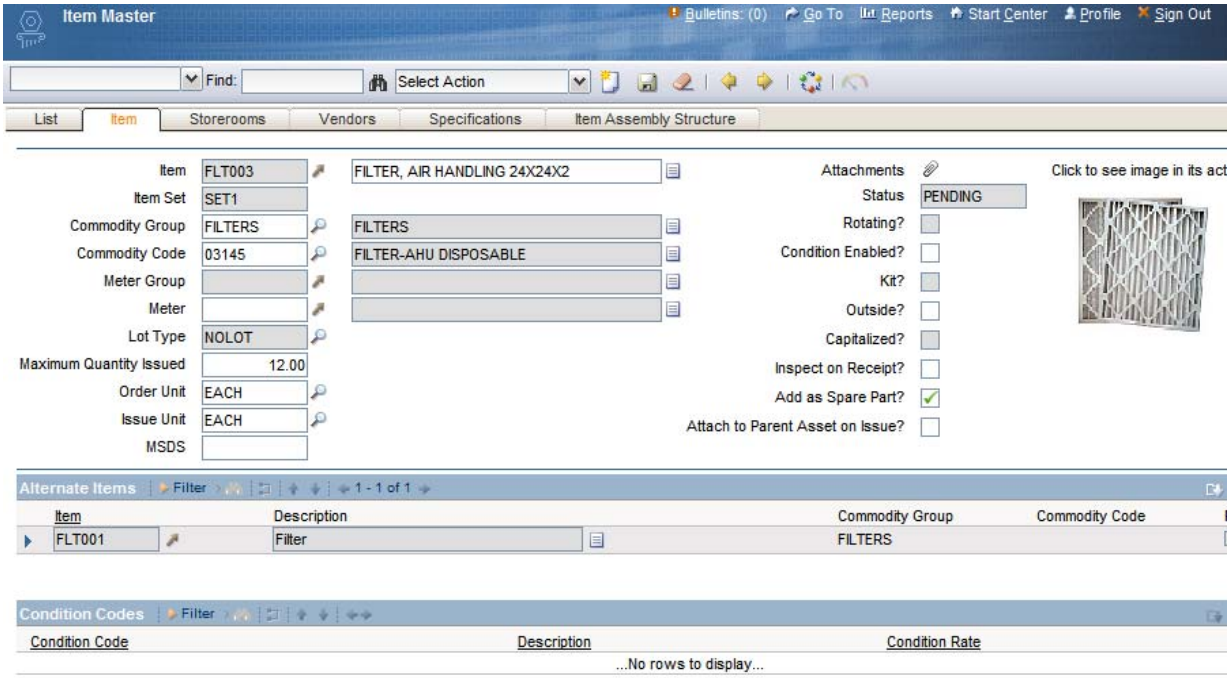


Figure 4.1 Item Application Item Tab

At the second level of the Part hierarchy, Maximo 7 gathers the **Storeroom** information for that Part. For each Part/Storeroom combination (the Inventory record), there is a unique and individual record that is displayed in the Inventory application. This will become a critical issue as to how we define Storerooms in our Organization, which will be discussed later in this document. Note that in the illustration below, the Item below (FLTR003) exists within two

different storerooms. Thus, there is one Item record, but there are two Inventory records, see Figure 4.2.

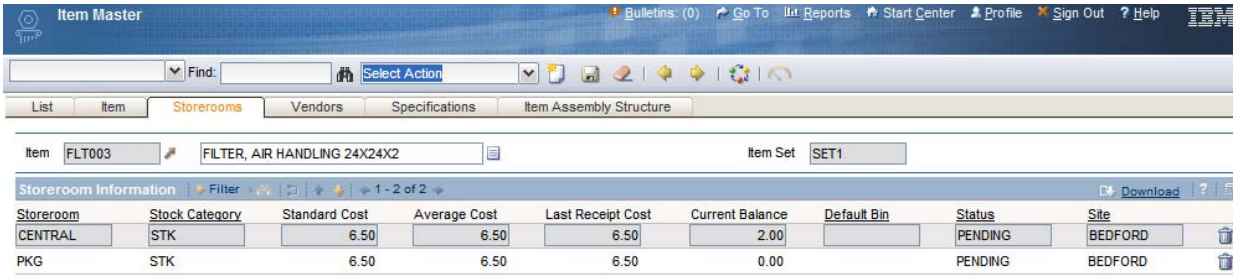


Figure 4.2 Item Application Storeroom Tab

For the moment, let's switch from looking at the Item Master screen to observe the second tier level – the Inventory application. By looking closely at two of the Inventory application screens below (Inventory and Reorder Details screens), notice that each Part/Storeroom combination has its own unique balance, cost structure, reorder values, primary vendor and issue history, see Figures 4.3 and 4.4. The values for the fields listed above for the Part (FLT003) in Storeroom *CENTRAL* can be entirely different for Storeroom PKG. Therefore, by definition, Maximo 7 treats the concept of Storeroom as a location that will act independently of the other Storerooms in the Organization.

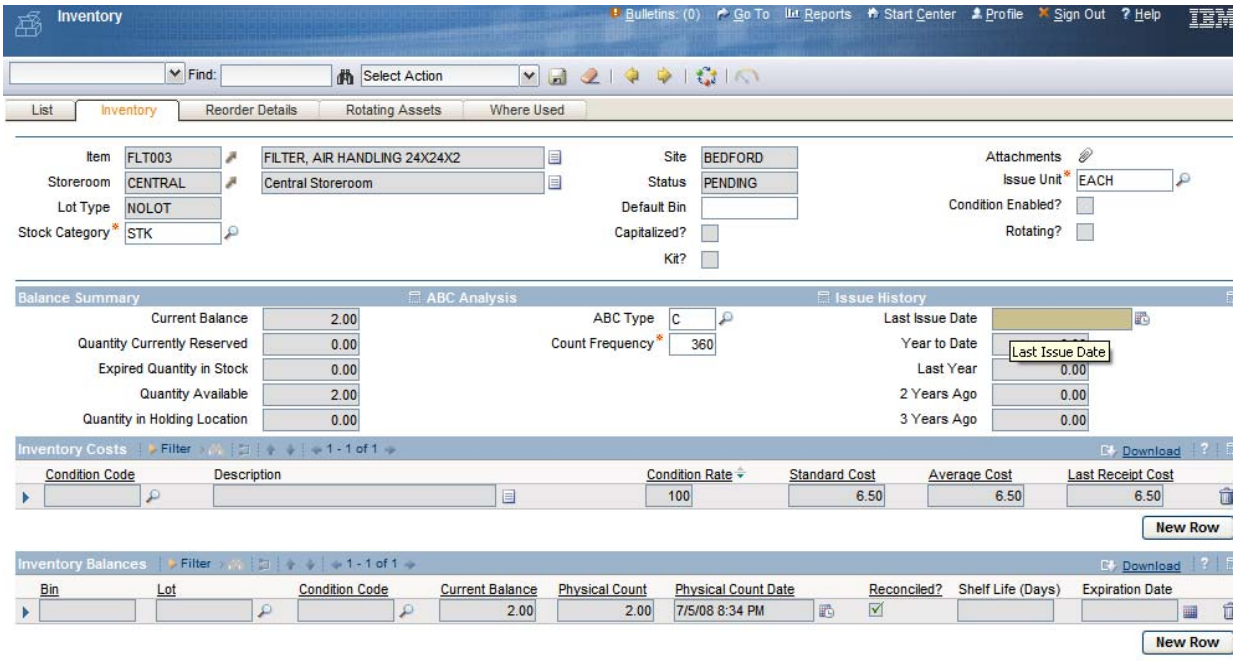


Figure 4.3 Inventory Application Inventory Tab

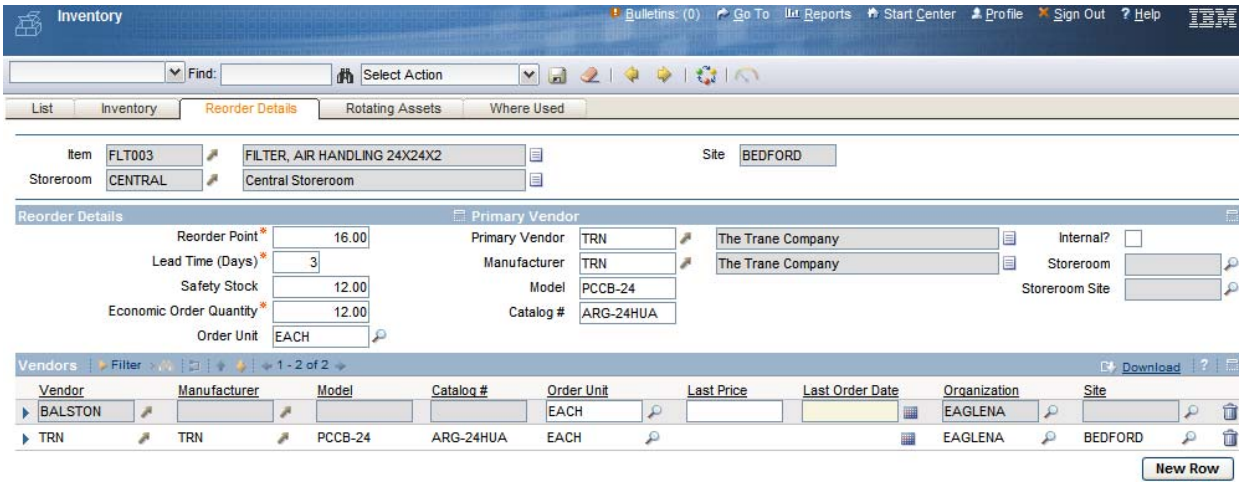


Figure 4.4 Inventory Application Reorder Details Tab

For database and reporting purposes, there is a third tier table (the INVBALANCES table) which holds the balance information. This is required since Maximo will allow the use of multiple bins for the same part in the same Storeroom.

2.2 MULTISITE AND ITEM MASTER RECORDS

Item master records are defined at the Item Set level. **Item Sets** exist below the System level, but above the Organization level so that Organizations can share data. This means that:

- Key fields for new records must be unique within the Item Set.
- Records are available to all users in the Organizations that share the Item Set and who have security permissions to the application.

Some of the data on an item record may be specific to a single Organization or Site. For example, storerooms listed on the Storerooms tab are at the Site level, and the companies listed on the Vendor tab are at the Organization level.

You use the **Item/Organization Details** action available from the Select Action menu to specify Organization specific data such as **Hazards** and **Tax Codes** for each Organization that uses the Item Set.

Commodity codes are also defined at the Item Set level. For more information about commodity codes, see the section on Item Master Records and Commodity Codes.

2.3 ITEM MASTER RECORDS AND ASSETS

Item records are usually created for consumable items or materials. But you can also create item records for items that can be reused or refurbished, and therefore must also be tracked as assets so that you can keep a maintenance history for the item. Maximo accomplishes this by allowing you to create rotating item records that can be used to create rotating asset records.

A rotating item is a special category of item record, used to indicate items that can be used interchangeably as a replacement for a like item, for example, fire extinguishers, motors, or pumps, but that are repaired or refurbished when they are removed from service. Rotating items can be managed like any other item record; they can be stocked in storerooms, issued and transferred, reordered and so forth.

Rotating assets are a special category of asset records, used to refer an any asset record that contains a value in the **Rotating Item** field. Rotating assets consist of multiple interchangeable assets, with each asset having the *same item number* and a *different asset number.*

These items are tracked both by their item numbers in the Inventory module and by their individual asset numbers in the Assets module. The term **rotating item** is used when referring to inventory records and management, and the term **rotating asset** is used when referring to asset records and maintenance.

To illustrate how a rotating item record is used, let's imagine that your company purchases a dozen identical fire extinguishers. You would create a single rotating item record for the model that you purchased, then create a *separate asset record* for each individual fire extinguisher. All twelve asset records would have the *same item number* in the **Rotating Item** field, but different asset numbers. The asset records allow you to keep a maintenance record for each extinguisher; you can list each fire extinguisher location on an inspection route, record meter readings, generate preventive maintenance work orders and so forth. The fact that the asset records share the same item number allows you to easily find replacement fire extinguishers in your storerooms when they are needed.

NOTE: An item cannot be both a spare part and a rotating item.

2.4 ITEM MASTER RECORDS AND COMMODITY CODES

The term **commodity** is used to describe classifications of inventory. Commodity codes are used to distinguish groups of inventory items that can be used for reporting and analysis. Your purchasing department might include Commodities Managers who track spending by commodity and make decisions about vendor relationships based on that data.

When you create an item record you can associate the item with an existing **Commodity Group** and **Commodity Code** by listing them on the item record. Commodity codes can be defined

and managed using the **Add/Modify Commodity Codes** action available from the Select Action menu of the following applications:

- Companies
- Item Master
- Purchase Orders
- Service Items
- Tools

NOTE: Commodity Codes are defined at the Item Set level.

2.5 ITEM MASTER RECORDS AND CONDITION CODES

A Condition Code specifies the physical condition of an item, and is used to indicate that an item is not new. Condition Codes are also used to help calculate the value of worn or used items that have been returned to inventory. You use the **Condition Enabled?** check box on an item record to indicate if Condition Codes can be applied to inventory records for the item. Before saving a condition-enabled item record you must assign at least one full value (100%) Condition Code to the item. You can assign multiple Condition Codes to an item record, but only one can have a rate of 100%.

When an item is added to a storeroom via the **Add Items to Storerooms** action in the Item Master application the Condition Code always defaults to the 100% rate.

When you are managing a condition enabled item record, entering a Condition Code value is mandatory when using the following Inventory actions:

- Issue Current Item
- Transfer Current Item
- Inventory Adjustments > Current Balance
- Inventory Adjustments > Physical Count

NOTE: You cannot apply a Condition Code to a kit, because each item in the kit could potentially have a different condition.

2.6 ITEM MASTER RECORDS AND CONTRACTS

Item records may be specifically listed on purchase or lease contracts, or they may be covered under a generic agreement with a vendor where you company has agreed to spend a specific amount on purchases from the vendor.

2.7 ITEM MASTER RECORDS AND INVENTORY

Item records are created in the Item Master application, but item balances are tracked in the Inventory application.

2.8 ITEM MASTER AND SAFETY

If an item record is for a hazardous material, you can list the Material Safety Data Sheet number issued by the Occupational Safety and Health Association (OSHA) in the **MSDS** field of the item record. Because item records are at the Item Set level in Multisite and hazard records are at the Organization level, you use the **Item/Organization Details** action to associate hazards with an item record. The **Can Have Hazardous Materials?** check box on the hazard record must be checked before it can be associated with an item record. Associating a hazard record with an item record allows warehouse and storeroom workers to view the hazard information for the item. When an item with an associated hazard is listed on a work order, Maximo automatically displays safety information to the work order's Safety Plan tab.

2.9 ITEM MASTER RECORDS AND STOREROOMS

You use the Storerooms tab of an item record to view storeroom information about the item, including a list of all storerooms that have the item on their stock list, balances, and costs for the item.

You use the **Add Item to Storeroom** action in the Item Master application to add an item record to a storeroom location's stock list. Adding an item to a storeroom is one of the few times you make an entry in the **Current Balance** field. Usually, this field is either calculated by Maximo or updated after inventory is received in the Receiving application. Rotating item balances are zero until an asset record is created for the rotating item number.

You can delete an item from a storeroom's stock list if the item balance in the storeroom is zero by deleting the storeroom on the Storerooms tab of the item record.

3 CREATING AN ITEM RECORD

It is recommended that all possible combinations of units of measure and their conversion values be defined before you create Item Master records. You use the **Add/Modify Units of Measure** action and the **Add/Modify Conversions** action available from the Select Action menu to define these values.

You can use the **Duplicate Item** action to create a copy of an existing item record, for example if you have similar items with different specifications. Once you duplicate an item you can then modify it as needed.

The Item Master application contains the following tabs:

- **List** — to search Maximo for item records.
- **Item** — to enter, view, or modify items, and to specify alternate items.

- **Storerooms** — to view a read-only list of information about storerooms that stock the item.
- **Vendors** — to enter, view, modify, or delete information about vendors and manufacturers for an item.
- **Specifications** — to classify an item and add, view, modify, or delete specifications that give details about the attributes of the item
- **Item Assembly Structure** — to enter, view, or modify item assembly structures.

Let's return to the Item Master application and focus on the functionality of the critical fields and how to create a new Item record. To create a new Item record:

- To access the Item Master application, click the application link on your Start Center, or select **Inventory > Item Master** from the Go To menu.
- From the List tab, click the **New Item Button** (blank page icon)
- Enter a value for the Item record number and all other fields that are required by the system or by your business processes.
- A record is not created until the user saves the record. Users must click the **Save (diskette) icon** button on the toolbar to execute a save transaction.

3.1 ITEM TAB

3.1.1 PRIMARY COMPONENT FIELDS

Item: Key field to identify the Part. This ID constitutes the record number within the Maximo 7 database and must be a unique value from all other Item records. This field becomes read-only after the first save.

Description: The description field value provides a longer text field for descriptive purposes. Remember, the description field is not only a primary query field for record searches within the Inventory applications, but also for searches on parts within other application screens, such as Work Order Tracking and Purchasing. For optimal results, create the description field value as noun first (e.g. Filter) followed by attribute adjectives. If the part description exceeds the field length, additional information can be populated into the long description field by clicking on the **Page icon** to the right of the *Description* field. When populated, the page icon will change to an orange color.

Commodity Group/Commodity Code: These fields help classify parts into logical group categories such as Belts, Bearings, Pumps, and Motors. Such groupings will assist with the reporting and query functions, as well as supporting Organization e-purchasing initiatives. Values can be entered at the discretion of authorized users, using the **Select Action/ Add/Modify Commodity Code** option. Commodity Codes act as children to Commodity Group values. After creating a new Commodity Code and associating it with one or more Commodity

Groups, that value will appear in the Select Value list whenever a record is selected that has a parent association to the Commodity Code value.

Add as Spare Part?: To expedite the process of constructing a correct Parts list (Bill of Materials) for an Asset, individual Item records can be set to automatically build a Part/Asset association, based upon that Part being issued against a Work Order covering a specific Asset. The feature, *Add as Spare Part,* is an optional Yes/No checkbox field on the Item Master main screen. It is an effortless, cost-effective way to allow the Work Order system to build the association of Parts to Asset. The Maximo 7 out-of-the-box default establishes the Add as Spare Part field as not checked (set to No). Thus, to build the ongoing Parts list, Organizations will need to activate the Add as Spare Part function, either on a selective Part-by-Part (Item record) basis, or globally for all Parts. The logic was to allow users to leave this function inactive for certain (or all) Parts, so as *not* to create a Part/Asset association. Examples of specifically excluded Parts would include those Parts which are associated more with a procedure than the Asset being worked on, such as miscellaneous hardware (fasteners), or catalysts (cleaning fluid and safety glasses).

Lot Type: Lots can be identified for a Part when received through the Maximo Purchasing applications to identify the shipment in which the Part was received and the expiration of the useful life of the Items shipped.

MSDS: This field is designed to store the proper Material Safety Data Sheet number in order to provide proper user safety information and to satisfy the requirements of OSHA and other safety organizations. The reference number can be used to search for hazard and reaction/remedy information from printed forms or data sources on the Web. The Linked documents functionality is also available to store such information.

Status: When a new Item record is created, the Item record status, and all associated Inventory record statuses for that Part are set to *PENDING*. In this status (and also the record status of *PLANNING*), the Part cannot be issued from a Storeroom. The Inventory record's status must be changed to *ACTIVE* to be able to fully utilize the Item functionality in Maximo. Other statuses include *OBSOLETE* and *PENDOBS.* Status changes are made either at the Inventory or the Item record level utilizing the Status Change icon on the toolbar, see Figure 4.5.

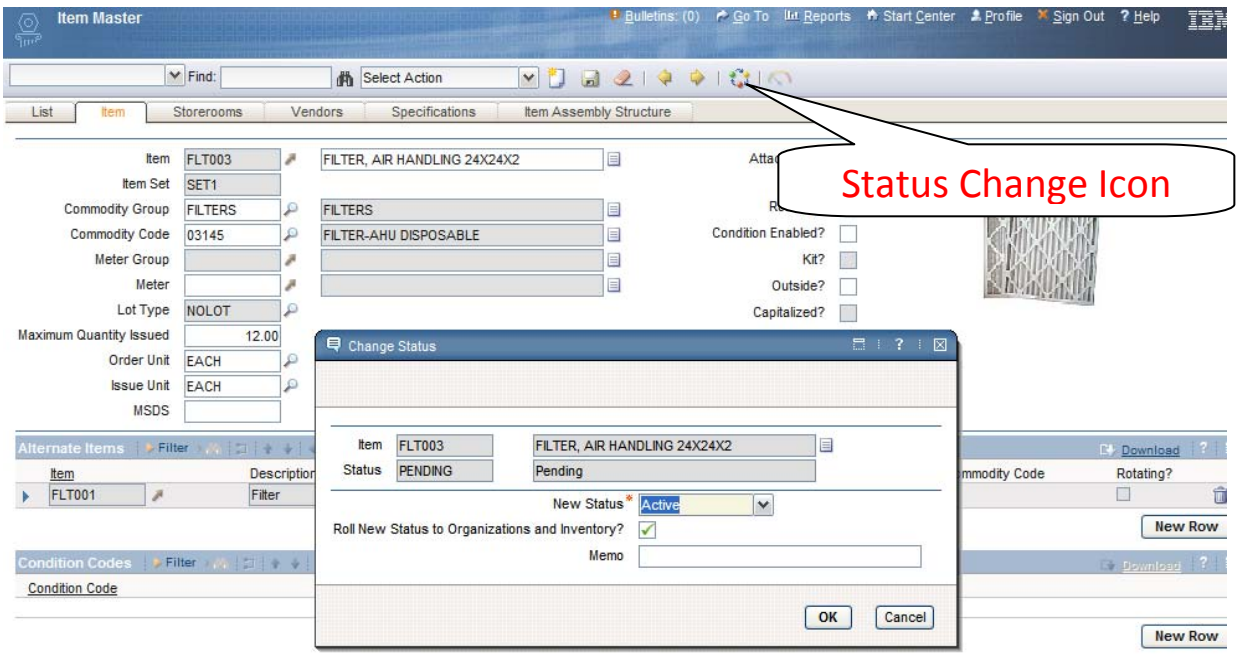


Figure 4.5 Item Master Application Status Change

Rotating?: This is a Yes/No field with the default setting set at *No*. When changed to *Yes*, the Rotating field is used to identify those Parts that have the characteristics of both Asset and Parts. After the Rotating Item record is saved, individual serialized Asset records can then be established for each common Rotating Part object. This is done by populating the Rotating Part ID record number value on the Asset record in the Item field. Common examples of rotating parts include motors and pumps. To summarize, there would be one Item record for a 10 HP Motor, but multiple records for each tangible Asset (complete with the current Location, Serial Number, etc.). From the Rotating asset tab in the Inventory application, a current view and count of all rotating asset carrying that Item reference can be seen.

Capitalized?: If the Rotating field is set to *Yes*, the Capitalized field becomes activated. If the Capitalized field is set to *Yes*, then the Cost of the Part/Asset object is not charged to the Work Order (or other associated charge account) when it is issued from the Storeroom. Rather, it is placed on the Organization books as a depreciable asset and would be expensed on a monthly basis over time. If the Capitalized field is set to *No*, then the cost of the Rotating Part/Asset object *will* be charged to the appropriate Work Order and associated GL accounts upon issue.

Outside?: This is a field that can be used to differentiate between those Parts that are owned internally, versus those that are owned or held by an Outside Vendor/Contractor on behalf of your Organization (e.g. Graybar, Briggs Weaver, etc.). The field does not change the functionality of the application, but allows Users to run reports and queries based upon the Part's internal/external ownership.

3.1.2 SELECT ACTION > ADD/MODIFY IMAGE

An image can be added to the front screen of the Item record by specifying a file address for the image. Just as with attached documents, be sure the path will work for all Maximo Users not just accessible by the User attaching the document.

3.1.3 DESIGNATING ALTERNATE ITEMS

Alternate items are items that can be used interchangeably with other inventory items, for example, two different brands of motor oil. You use the Alternate Items table window to list any items that can be used as an alternate for the current item.

In many cases, one item can be an alternate for another, but the oppose relationship might not be desired. As a result, Maximo does not automatically created matching rows in the Alternate Items table window when an item record is listed as an alternate. If you want two items to be listed as alternates for each other, you must go into both item records separately and assign each item as an alternate for the other.

3.1.4 CREATING ROTATING ITEMS

A **rotating item** is a special category of item record, used to indicate items that can be used interchangeably as a replacement for a like item, for example, fire extinguishers, motors, or pumps, but that are repaired or refurbished as assets when they are removed from service. Rotating items can be managed like any other item record; they can be stocked in storerooms, issued and transferred, reordered and so forth.

You create a rotating item by selecting the **Rotating?** check box on an item record. After you create and save an item record, the **Rotating?** field becomes read-only and cannot be edited, and the **Current Balance** field becomes read-only. If an item is defined as rotating, the values in the **Balances** fields are controlled by the movement of the rotating items in and out of a storeroom.

When you list a **Rotating Item** on an asset record, Maximo copies the **Classification** and **Attributes** that are listed on the Specifications tab of the item record to the Specifications tab of the asset record.

> **NOTE:** When you create rotating item records that will be used to create information technology (IT) asset records, you must enter a value in the **Classifications** field to allow Maximo to filter for IT assets when performing reconciliation.

3.1.5 UNDERSTANDING ITEM ASSEMBLY STRUCTURES

An item assembly structure (IAS) is a list of individual items and subassemblies that are required to build an asset or define the requirements of a location. Rather than specify its components each time you enter an individual asset or a location, you create an item assembly structure as a template. You can use an IAS as a template when building multiple asset assembly structures and their related location systems.

The IAS is built on an item record, and the IAS is then identified by the item number at the top ofthe hierarchy. You can apply an item assembly structure to an asset or to a location by specifying the top-level item number in the **Rotating Item** field on an asset or location record, then choosing the **Apply Item Assembly Structure** action.

For example, a five-horsepower motor and its associated spare parts can be used in 10 asset assembly structures in a plant. Rather than entering 10 asset records and specifying the spare parts for each one, you enter the asset records and apply (copy) the IAS for a five-horsepower motor to the records. The entire IAS is applied to the asset assembly structure. Similarly, you could apply the same IAS to the 10 operating locations in the plant that require the motor and its spare parts.

> **NOTE:** Although you can use any item as the top level of an IAS, you can only *apply* an IAS to asset or operating locations if the top level is a rotating item.

3.1.6 USING ITEM ASSEMBLY STRUCTURES

Item assembly structures are applied to asset and location records in the Assets and Locations applications. Item assembly structures can be applied when you create new asset records in the Receiving application. You also use item assembly structures when creating item kits in the Item Master application.

3.1.7 CREATING ITEM KITS

A **kit** is an item record that contains other item records and can be issued as a single unit.

Item records contain a **Kit?** check box that is used to indicate that the item record will act as the virtual "container" for all of the other items contained within the kit. After you create the item record for the kit "container" you then define the components of the kit using the Item Assembly Structure tab. On this tab you list items, and quantities for each item that are to be included in the kit. Kits can be included as components of other kits.

> **NOTE:** Maximo does not allow items that are condition-enabled, rotating, or lotted to be added to a kit.

And item record cannot be included as part of a kit if it has any of the following properties:

- Condition Enabled? = Yes
- Rotating? = Yes
- Lot Type = LOT

> **NOTE:** Kits are assembled in Inventory via the **Assemble Kits** action.
>
> **TIP:** As a best practice you should include an **Issue Unit** for any item record that may be included as part of a kit.

3.2 STOREROOM TAB

Even though an Item record has been created in the database, it is only when the Item is attached to a Storeroom that a full and functional record is created. To create a new Inventory/Storeroom record for your newly created Item record, use the **Select Actions** drop down list and select **Add Item to Storeroom**, see Figure 4.6.

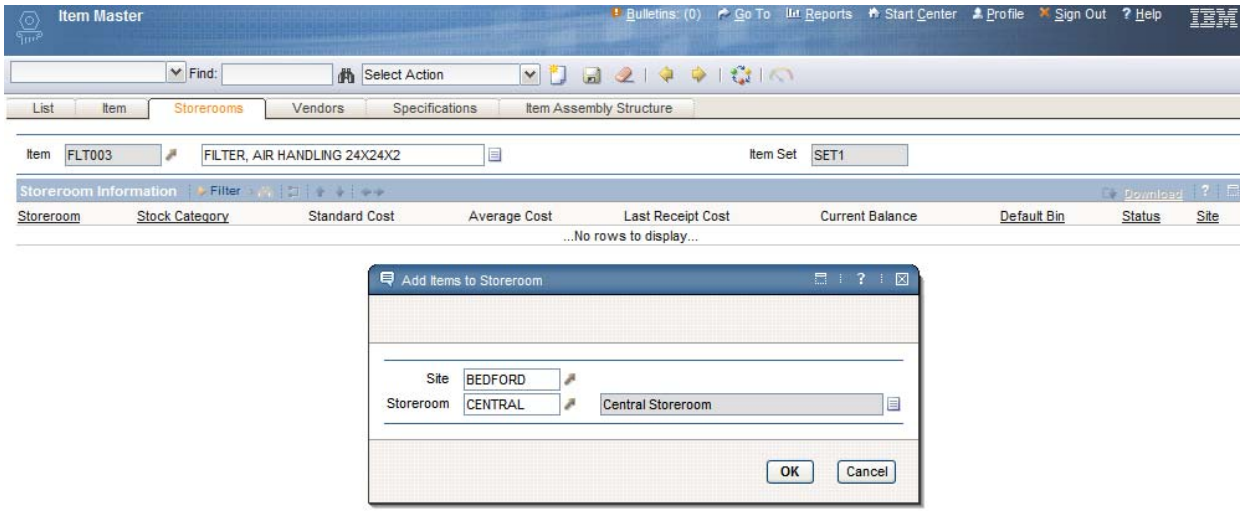


Figure 4.6 Item Master Application Add Item to Storeroom

The Add Items to Storeroom dialog box will appear (as above). Select a Site and a Storeroom ID using the detail arrows at the right side of the fields. After selecting the Storeroom, enter the Bin Identity (if available) and the initial Standard Cost for the Part. The *Average Cost* and *Last Receipt Cost* fields will automatically populate with the same value that was entered for Standard Cost. (Note: If the price is left at 0 when creating the part, the system will assume that these parts were acquired at a cost of 0 and may understate the issue cost to future Work Orders.) If there is a quantity of this Part already on hand, enter the quantity in the Current Bin Balance field, see Figure 4.7. Once the OK button is selected future edits to the information shown below will have to be made within the Inventory application, rather than on the Storeroom tab of the Item Master application.

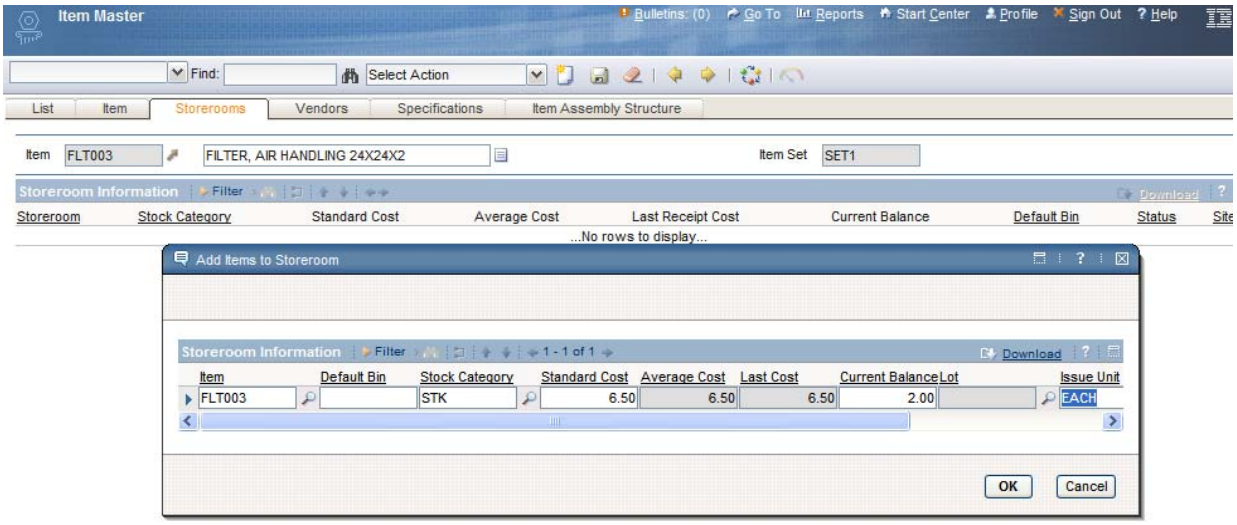


Figure 4.7 Item Master Application Add Item to Storeroom – Additional Details

3.3 VENDORS TAB

The Vendor tab establishes the normal sources from which the Part can be received, see Figure 4.8. The same vendor may appear on multiple lines if there are different manufacturers for that same part ID (from the same vendor source). The *Last Order Date* and *Last Price* fields will populate from information received in the Maximo 7 Purchasing applications. The Default Vendor field selects this vendor for all instances of direct issue items using the Work Order Tracking application Planned Materials and Services.

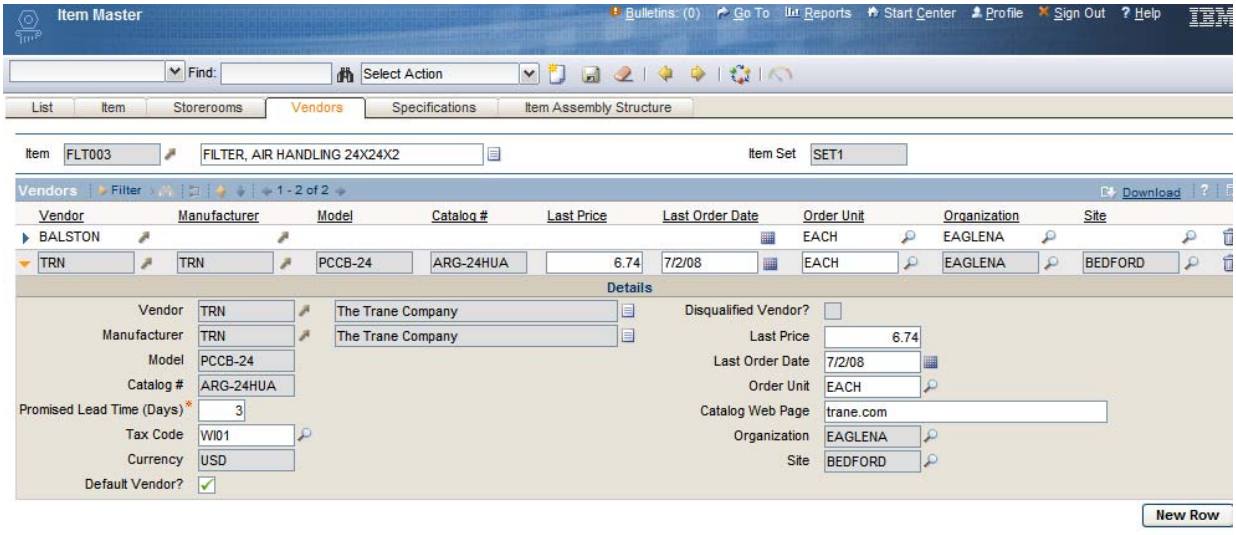


Figure 4.8 Item Master Application Vendors Tab

3.4 SPECIFICATIONS TAB

Organizations can construct specification templates for Items using the Specifications functionality within Maximo 7. The pre-built Specifications template determines which attributes will be visible for a given Part category, see Figure 4.9. Individual part records are then associated with the category and their attribute values entered on the part record. Users can then better query for and view the attributes of a Part (which through the associated attribute values will be defined with much greater granularity).

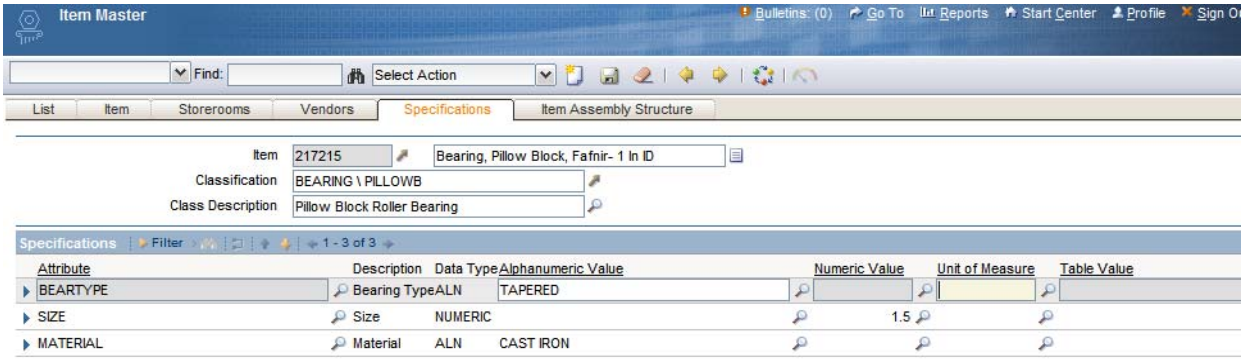


Figure 4.9 Item Master Application Specifications Tab

To associate a Part with a previously-built Specifications template, the user selects *Classification* and *Sub-classification* values and then clicks on the **Associate Specification Template** to attach the Item record to a list of associated attributes, see Figure 4.10.

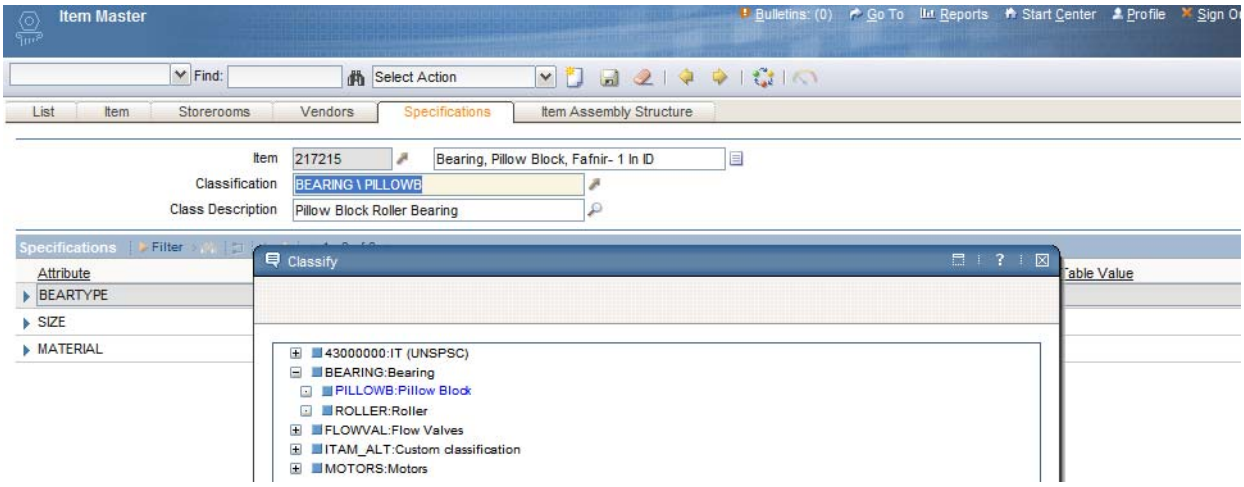


Figure 4.10 Item Master Application Specifications Tab – Classify Details

The pre-specified field entries will appear based on the User created template. The reason for populating the attribute values for a Part can be understood when the user is searching the database through a long list of Air Filters and wants to reduce the result set to only those Air Filters with a size dimension of 24x24x2 (attribute). Other examples would include the search for a Pump with a rating of 20 GPM or greater or a Motor that is 3 Phase, 230 Volts with a Horsepower rating of 5.

3.5 ITEM ASSEMBLY STRUCTURE TAB

The purpose of the Item Assembly Structure is to develop a hierarchy of Parts (the top level of which is generally a Rotating Part) that have child Asset subassemblies and Parts, see Figure 4.11. Its primary use is to speed database loading operations for Assets that are repetitive and have large numbers of child Assets and extensive lists of Part components, which can all be attached using the option **Select Actions>Copy Item Assembly Structure**.

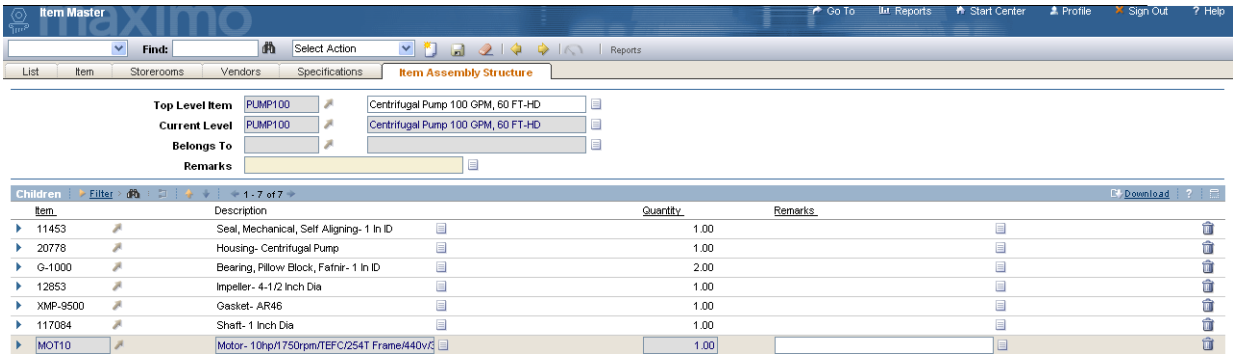


Figure 4.11 Item Master Application Item Assembly Structure Tab

4 MANAGING ITEM MASTER RECORDS

You manage data about an item record, for example vendors and classifications, in the Item Master application, but you manage item balances in the Inventory application.

4.1 MANAGING VENDORS

You use the Vendors tab of an item record to view or manage a list of vendors or companies that supply the item. The list can include vendors you have previously ordered from, as well as vendors you have not purchased the item from. You can use the vendor data to compare prices and delivery information.

4.2 MANAGING KITS

You use the **Assemble Kit** and **Disassemble Kit** actions available in the Inventory application to create and dismantle kits. You can only assemble kits from components available in an individual storeroom.

Kits can be issued and transferred using the Issues and Transfers application. When returning kits you can only return complete kits. If some of the components have been consumed, you should return the remaining items as individual items, since Maximo does not recognize partial kits.

4.3 LINKING ITEMS TO CLASSIFICATIONS

Maximo includes a feature called Classifications which can be used to structure records into organized hierarchies. Using classifications helps you to more easily locate records, and help to ensure that records are not duplicated unintentionally.

You can add new item records to Classifications by associating a specification template with the record on the Specifications tab. After items are associated with specification templates, you can use the Classification Search dialog to search through Maximo to find the records you are looking for. For more information about Classifications, see Maximo help.

4.4 DELETING ITEMS

You can delete an item record using the **Delete Item** action available from the Select Action menu. You cannot delete an item record if any of the following are true:

- Inventory balances or reservations exist for the item.
- The item is associated with an asset record as a **Rotating Item** or as a spare part.
- The item is listed on a master PM record.
- The item is listed as planned materials on a job plan or work order.
- The item is listed on a desktop requisition, purchase requisition, or purchase order.

Maximo displays a message if the item cannot be deleted.

5 REVIEW QUESTIONS

1. Following the instructions in Section 4 above, create a new Part in the Item Masters application.

    a. Locate the Item Master application under the Inventory module.

b. Click the **Insert record icon** on the toolbar when you first enter the application at the Find screen.
c. Fill out the fields in the Item application and click the **Save button icon** to make the new record a permanent one.
d. Write down the Item Number so that you can quickly reference for use with the next chapter's workshop.

2. Now, add the new Part record to the one of the available Storerooms, including the Price, Balance, and Bin Location data.

    a. If you have forgotten where to access this function, check the options under the Select Action drop down menu on the toolbar.
    b. Complete the information fields on the remaining Item application screens.

3. How would one query to find how many filters there are in the database?

4. How would a filter with dimensions of 24x24x2 be most easily located through the use of:
    a. standard screen fields
    b. Specification attributes

IV CHAPTER 4 – SERVICE ITEMS

SERVICE ITEM CREATION AND MAINTENANCE

1 OBJECTIVES

Given the Maximo 7 platform, learn to create and modify Service Item records, including their use with Job Plans, Purchasing and Work Orders. Learn the following concepts and how best to apply them to your own Organization environment:

- Planning services usage with Job Plans and Work Orders
- Ordering services with Desktop Requisitions, Purchase Requisitions and Purchase Orders

2 OVERVIEW

A **Service Item** is a special type of item used to define services that your company utilizes. Service Items cannot be issued, transferred, or contain balances, but they can be used as part of job plans, work orders, and can be used in the purchasing applications when creating purchase requisitions, purchase orders, and so forth. Another way to think of Service Items is that they are "planned services" or services that you plan to use or purchase.

You use the Service Items application to create records for any type of service that your company uses or purchases on either a frequent or infrequent basis. Some examples of Service Items include standard services associated with purchasing such as freight or installation, or regular maintenance services that you might purchase from a vendor, such as landscaping or janitorial services.

2.1 MULTISITE AND SERVICE ITEMS

Service Items are defined at the Item Set level. Item Sets exist below the System level, but above the Organization level so that Organizations can share data. This means that:

- Key fields for new records must be unique within the Item Set.
- Records are available to all users in the Organizations that share the Item Set and who have security permissions to the application.

Some of the data on a Service Item record may be specific to a single Organization or Site. For example the companies listed on the Vendors table window are at the Organization level. You use the **Service Item/Organization Details** action available from the Select Action menu to specify Organization specific data such as **GL Account** and **Tax Codes** for each Organization that uses the Item Set.

2.2 SERVICE ITEMS AND JOB PLANS

The Job Plans application includes a Services sub tab on the Job Plan tab, allowing you to include Service Items as part of a job plan.

2.3 SERVICE ITEMS AND PURCHASING

Service Items can be requisitioned using Desktop Requisitions or the Purchase Requisitions (PR) applications, and ordered using the Purchase Orders (PO) application. When you order a Service Item, the PR or PO line Type = STDSERVICE. Service Items are always direct issue items because they cannot be "stored" in a storeroom location.

2.4 SERVICE ITEMS AND WORK ORDERS

The Work Order Tracking application includes a Services sub tab on both the Plans and Actuals tabs. This allows you to plan for services when creating a work plan, and record the actual costs for Service Items needed to complete the work order.

3 CREATING SERVICE ITEM RECORDS

To access the Service Items application, click the application link on your Start Center, or select **Inventory > Service Items** from the Go To menu.

The Service Items application contains the following tabs:

- **List** — to search Maximo for Service Item records.
- **Service** — to create, view, or modify Service Item records.

You can create a Service Item record for any type of service that your company uses or purchases on either a frequent or infrequent basis, see Figure 5.1. You can list the vendors that you purchase the service from in the Vendors table window.

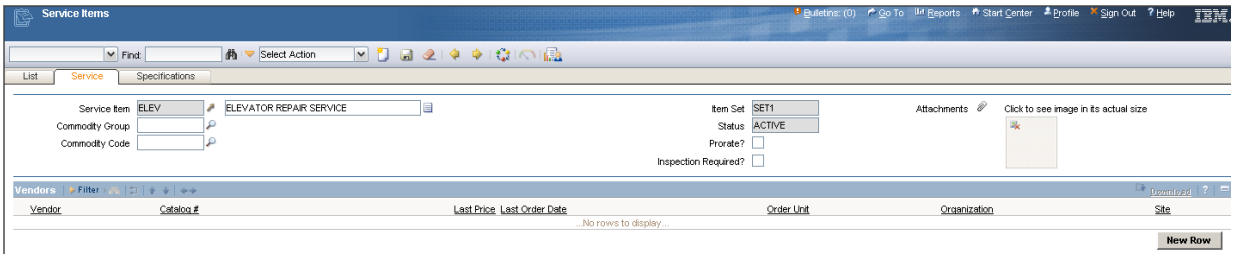


Figure 5.1 Service Item Application Service Tab

If you want to associate a GL Account or a Tax Code with a Service Item, you can use the **Service Item/Organization Details** action available from the Select Action menu to do so. You can use the **Duplicate Service Item** action to create a copy of an existing Service Item, for example if purchase different services from the same vendor. Once you duplicate a Service Item you can then modify it as needed.

4 MANAGING SERVICE ITEM RECORDS

Because they cannot be received into inventory or stored in a storeroom, Service Items are always categorized as direct issue items. You can reorder a Service Item using the **Reorder Direct Issue Itms/Svcs** action available from the Select Action menu.

You can delete a Service Item record using the **Delete Service Item** action available from the Select Action menu. For more information about the record deletion rules, refer to the *Maximo System Administrator's Guide*.

5 REVIEW QUESTIONS

1. Following the instructions in Section 3 above, create a new Service Item in the Service Item application.
2. Select at least two vendors that will be able to provide this service.
3. What controls the Item Set that automatically populates in the new record?
4. Set the Status to “Active”.

V CHAPTER 5 – MANAGING THE STOREROOM INVENTORY

1 OBJECTIVES

Given the Maximo 7 platform, learn to create and modify Inventory records, including Storeroom balances, price, and reorder information, and to recognize the functionality of the various Storeroom procedures. Learn the following concepts and how best to apply them to your own Organization environment:

- Reorder Point and Automatic Reorder Process
- Economic Order Quantity
- ABC Analysis
- Work Order Reserves and Available Balance

2 OVERVIEW

An **inventory** is a listing of all items, materials, and rotating assets that are stored in your storerooms. With Maximo you create item records in the Item Master application, and you create storeroom records in the Storerooms application, but you manage your inventory in the Inventory application.

Using the Inventory application you can track item balances down to the bin and lot level for a storeroom, as well as item costs using condition codes. You can track vendors that supply an item as well as reorder details such as price and lead time for orders. You can view rotating assets that list a rotating item record, as well as assets that list the item as a spare part.

You use the Inventory application to view information about a specific item at a specific storeroom location. The fields on an inventory record refer to item/ location records. Current

Balance, for example, means the current balance of the item at the storeroom in the **Storeroom** field. Like **Current Balance,** the fields listed under Balance Summary, Issue History, and Balances all apply to the item in a *specific* storeroom.

In addition to inventory cost tracking, several other inventory-related objectives have evolved from the improved Inventory functionality within the EAM/CMMS packages. Implementing these strategies has proven to be invaluable in improving the Stores Management process and in maximizing the Organization's Return on Investment. A partial list is shown below:

- Just-in-Time Inventory Procedures (reducing stock balances)
- Automatic Stock Reorders Based upon Current Bin Availability and Upcoming Work Order Requirements
- Historic Vendor and Price History Information
- Automatic Compilation of a Bill of Materials for Assets (accomplished through Part Usage on Work Orders)
- Quick Identification of Part Number for Issuance and Purchasing Applications
- Reduced Number of Stock-outs (Parts Unavailable) and Expedited Buys

The annual cost of maintaining an inventory storeroom is considerable. Through industry studies, it has been found that the percentage cost of maintaining an inventory storeroom will annually run between 20-30% of the total inventory dollar value. Thus, a reduction of $1 million of Parts held on hand delivers an **annual** (and repetitive) savings of $200,000 - $300,000. The primary components of this holding cost include the cost of money (capital) associated with holding inventory, insurance, facility space and maintenance cost, the cost of physical counts and reconciliation, the cost of theft, obsolescence and spoilage, and so on. The high storage cost certifies the need to reduce the volume of stocked inventory, but to accomplish the reduction in stock without increasing the number of out-of-stock occurrences. Without the implementation of other inventory strategies, "across the board" stock reduction might prove counter-productive as the increased cost of labor, transit time, and related purchasing expenses from stock-outs might far outweigh the extra carrying cost.

2.1 MULTISITE AND INVENTORY

The Inventory application tracks items and materials in storerooms, which are at the Site level. Thus the Inventory application is managed at the Site level.

2.2 INVENTORY AND CONDITION CODES

Condition codes are created in the Condition Codes application, and applied to item records in the Item Master application.

When you are managing a condition enabled item record, entering a condition code value is mandatory when using the following inventory actions:

- Issue Current Item
- Transfer Current Item
- Inventory Adjustments > Current Balance
- Inventory Adjustments > Physical Count

2.3 INVENTORY AND ITEM RECORDS

With Maximo you create item records in the Item Master application, but you manage your inventory in the Inventory application.

2.4 INVENTORY AND PURCHASING (REORDERING)

When you reorder items either manually (using one of the reorder actions in the Inventory application), or automatically (via a reorder cron task set up by your system administrator), Maximo automatically creates one or more purchasing records for the reorder. Exactly what type of purchasing records are created is based on settings controlled by your system administrator. Your system administrator can configure Maximo so that when purchase requests are received one of the following types of records is created:

- Unapproved purchase requisitions (PRs)
- Approved purchase requisitions (PRs)
- Unapproved purchase orders (POs)
- Approved purchase orders (POs)

2.5 INVENTORY AND STOREROOMS

Inventory records refer to an item/location combination, usually an item at a storeroom location. Storeroom records are created using the Storerooms application. Items are added to storerooms using the **Add Item to Storeroom** action in the Item Master application.

3 CREATE INVENTORY RECORDS

You use the Inventory application to enter, display, and update information for a specific item at a specific storeroom location. With Maximo you create item records in the Item Master application, and you create storeroom records in the Storerooms application, but you manage your inventory in the Inventory application.

When taking a look at the Inventory application, remember that for each Item and Storeroom combination, there will be one Inventory record. Entering the Inventory application, we begin at the **List** tab where we can query by *Part number, Part Description, Storeroom, Vendor,* or other fields to locate the desired record. The **Quick key search** (located on the toolbar) can

also be used if the Item Number for the Part is exactly known. Pulling up an existing Inventory record, we will take a look at the available screens and critical fields.

You use the Inventory application to view information about a specific item at a specific storeroom location. Item records are created in the Item Master application. Storeroom records are created in the Storerooms application. You add items to storerooms using the **Add Items to Storerooms** action in the Item Masters application.

3.1 INVENTORY TAB

The top section of the Inventory tab includes several fields which were previously populated from the data entered on the Item Master Main Screen, see Figure 7.2. The cost information completes the remainder of the top section. In the *Balance Summary Section*, the current balance for the Storeroom *CENTRAL* is shown along with the quantity of Parts currently reserved for existing approved Work Orders.

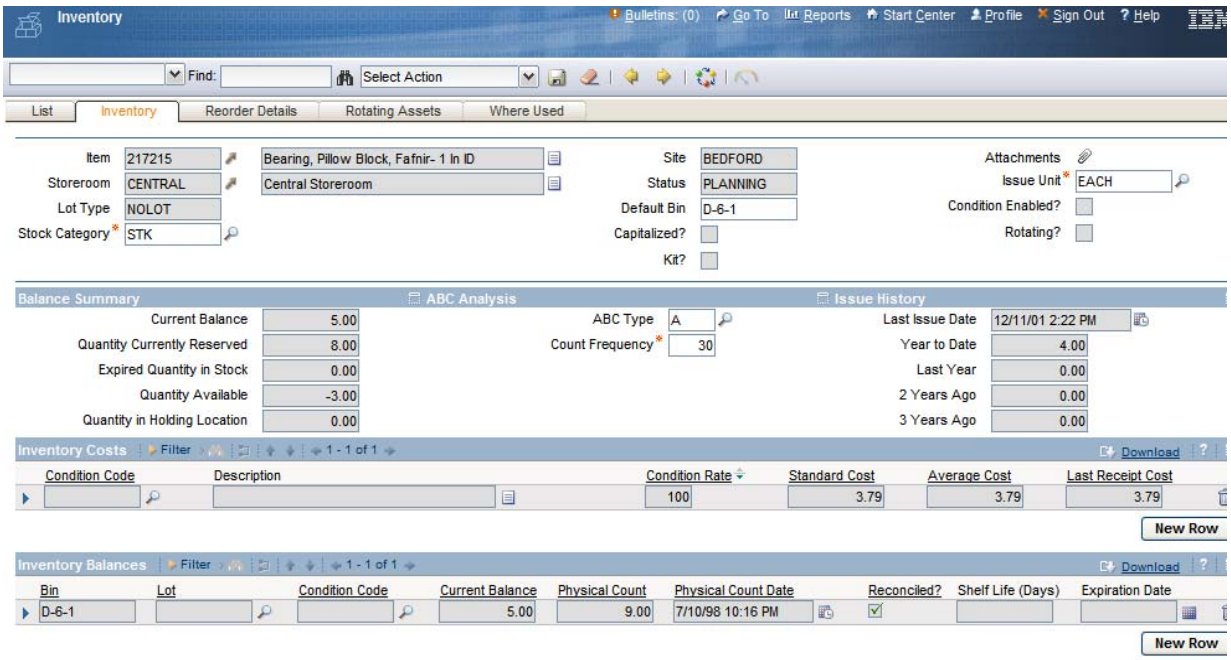


Figure 7.2 Inventory Application Inventory Tab

3.1.1 PRIMARY COMPONENT FIELDS

Storeroom: Item records may reside in more than one Storeroom. The balance, issue history and reorder information displayed on this record are only for this Storeroom.

- **Default Bin:** An Item may also reside in multiple bin locations within the same storeroom. Maximo tracks the balances in each bin separately. If balances are moved

from one bin to another (or charged out from bin A not bin B) then the transactions entered must reflect the uniqueness of the balances within each bin. When establishing a new record, be sure to place any existing balances in a bin location. If you state that there are three (3) Items present in a Storeroom, but do not specify a bin, the balance will be placed into a null bin. When a default bin is subsequently identified, Maximo will reflect a balance of three in the null bin and none in the newly-specified default bin.

- **Lot Type:** If lots are utilized by your Organization, any expired stock will be deducted to determine the Quantity Available (or free) Balance. When a Part is set to "LOT", an expiration date (or number of days until expiration) can be established for Items when received through the Purchasing Module. The default for all Parts is *NOLOT*.

- **Stock Category:** Stocked, Non-stocked, and Special Order Items

- "***STK***" is the default value and indicates that this Part is subject to the reorder process whenever the Part falls to, or below, its reorder point. "***NS***" or non-stock Parts are objects registered in the Maximo 7 Inventory database, but are not to be evaluated for reorder purposes. Parts that fit this category would include those that are used intermittently, but they are Parts that you would not want to reorder unless there was a specific upcoming Work Order requirement for that Part. "***SP***" or Special Order Parts are Parts that are not subject to reorder, and SP records are deemed to be temporary - subject to deletion after receipt, see Figure 7.3.

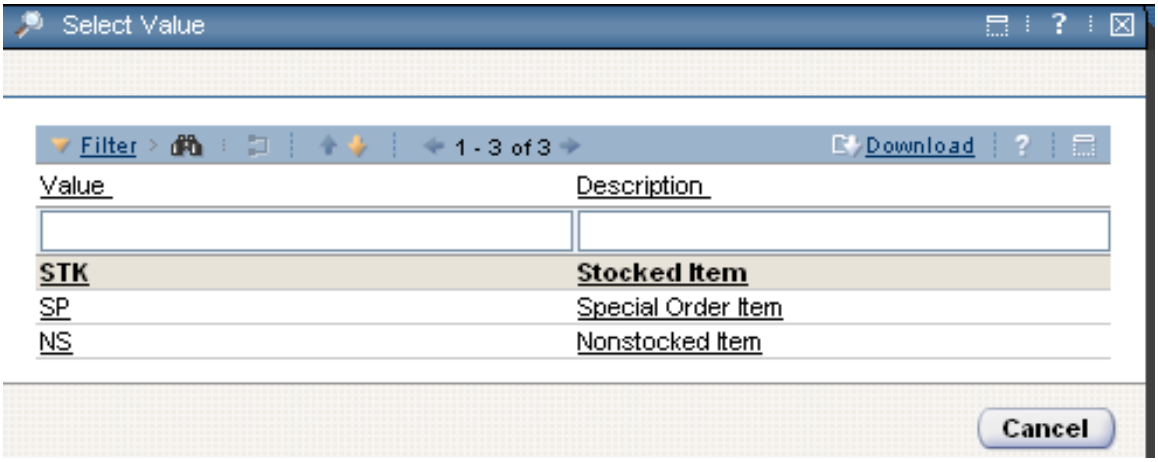


Figure 7.3 Inventory Application Stock Category

Maximo uses the Stock Category field as part of the reorder process, as a means of determining which items should be reordered on a regular basis. By default Maximo recognizes three categories of inventory items:

- **NS** —Non-stocked item. Non-stocked items are items you do not stock on a regular basis, need only occasionally, or do not want to maintain in your storerooms throughout the year. Non-stocked items are not automatically reordered, but because you order these items as needed you want to retain the item records in the database. These records are useful both for cost tracking purposes and for future reference (for example, the vendor's name, the price, and so on).

  Example of non-stocked items include items needed once a year for inspections, or items that are only stocked during certain seasons of the year. For example, each spring you replace your air filters. Since you only need the air filters once a year, you do not stock them in your storerooms, you only order them just before they need to be replaced. But because you order the air filters every year, you want to keep the record for the item in your database for reference next spring.
- **SP**— Special Order Item. Special order items are typically items that are ordered only once, often for unexpected needs or for a one-time work order. These items are not kept in stock, and you do not expect to order them again, thus you do not need a permanent record of the item in your database. In most cases, after the item is received, you want to delete special order item records from the database. For more information about deleting item records, see the section on Managing Item Master Records.

- **STK** — Stocked Item. This is the default value for a new item added to a storeroom. A stocked item is an item that you stock on a regular basis, and want to keep on hand because it has a regular turnover rate and is frequently needed. Stocked items are automatically included in Maximo's reorder process. Stocked items have a reorder criteria (for example, a reorder point and an economic order quantity) which is specific to each storeroom location.
  Examples of stock items include bearings, gaskets, valves, and belts.

3.1.2 ISSUE HISTORY SECTION

This section allows users to gauge the volume of prior year issues for that Part in this Storeroom. At the end of each year, the Maximo administrator must remember to execute the Option to ***Zero Year to Date Quantities*** so that the prior year's total issues are moved into the *Last Year* total - and other years' totals are likewise moved one year forward.

3.1.3 ABC ANALYSIS SECTION

The system employs a Cycle Count Tool known as ABC Analysis to assist with the Inventory physical count process. The administrative settings allow an Organization to group its parts into categories ("A", "B", "C", and "N" for Not Applicable) and determine at what interval an item needs to be physically counted and reconciled (if the physical count and bin balance do not match) to the Maximo 7 system balance.

The system options allow Organizations to determine what percentage of Parts should be counted as "A","B" and "C" items. "A" represents the most critical Parts. The "B" and "C" classifications represent less and least critical ranking, respectively. The Breakpoint percentiles are designed to support a standard Maximo 7 Inventory report, the *Inventory ABC Analysis* report. This report assists Users in the determining the ABC value for a Part by multiplying its historical issue volume by the Part cost to mathematically calculate an Extended (or Issued) Cost value. The Parts with the highest product of cost multiplied by volume are shown in the report as "A" items, while the lower extended cost Parts are listed as "Bs" and "Cs". This report contains the option to update the ABC field values in the database using those values calculated by the Report. The option appears on the Report output screen as ***Click to Update Database with new ABC Values***.

After determining the count interval (number of days between counts) for each Part, the *Cycle Count Report* can be used to provide a list of all Items that need to be physically counted on a weekly, monthly or other desired interval basis. This report evaluates the last physical count date and adds the default interval as set by the ABC Option settings, to determined whether a count of that part is required. The report then prints an output list of all Items that needed to be counted during the upcoming designated period. If the number of days since the last physical count exceeded the interval from the ABC Analysis, then that Part would appear on the Report to be physically counted.

3.2 REORDER DETAILS TAB

You use the Reorder Details tab to enter, view, or modify reorder details, such as the reorder point, lead time, and issue units of an item. In addition, you can enter or view information about one or more vendors for a item, as well as information about multiple manufacturers or models for each vendor, sees Figure 7.4.

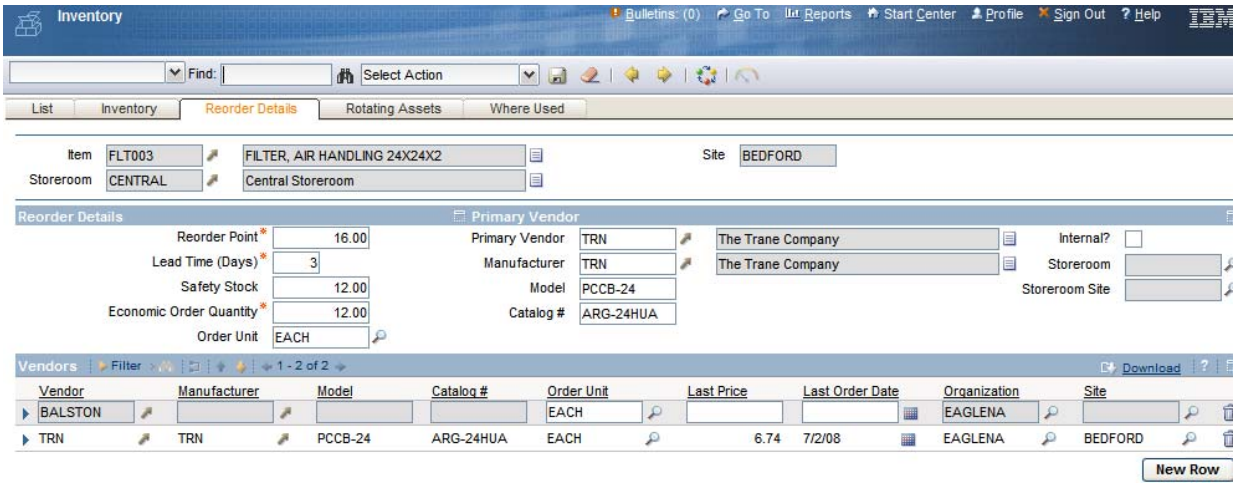


Figure 7.4 Inventory Application Reorder Details Tab

3.2.1 PRIMARY COMPONENT FIELDS

- **Reorder Point:** This value reflects the quantity at which Parts will be reordered upon generation of the **Reorder Items** option. Whenever the *available* balance falls to the Reorder level or below, initiation of the **Reorder Items** option will generate a Purchase Requisition to the designated Primary Vendor for that Part.

- **Lead Time Days:** The estimated time necessary for that Part to be received from the Vendor after the point of approval of a Purchase Order instrument.

- **Economic Order Quantity:** The optimal quantity of Parts to be ordered when an order is dictated by the Reorder Point calculation. In a much summarized definition, this quantity balances the carrying cost of holding inventory in stock against the cost of purchasing the Item on demand.

- **Issue Unit:** The quantity unit of measure defined for issues for this Part (e.g. *EACH*).

- **Order Unit:** The quantity unit of measure defined for use with Maximo Purchasing and Issue functions for this Part (e.g. *BOX24, DOZEN, ROLL*, etc.).

- **Vendor Table:** This section provides a reference list of historical vendors for this Part – automatically updated from the Maximo 7 purchasing activities for this Part.

- **Internal?:** By checking this field, you are indicating that Central does not receive the Item FLT003 from an outside vendor, but instead receives it via another corporate Storeroom. If the Internal field is checked, the Storeroom and Storeroom Site fields become enabled to populate the order source.

3.2.2 REORDER POINT AND ECONOMIC ORDER QUANTITIES

In order to optimize the inventory stock balance and ordering function, we will want to employ two proven Storeroom Management concepts that are included in the Maximo software: the Reorder Point and the Economic Order Quantity. The **Reorder Point** is defined as that point at which the stock balance should trigger the system to automatically generate a reorder document to replenish the stock balance. By executing the **Reorder Parts** option under **Select Actions**, Maximo will execute the reorder process for all Parts with a part type of "*STK*" – stocked, which have an available balance at or below their stated reorder point. For those Parts that require replenishment, the Reorder process will automatically generate Purchase Requisitions grouping by vendor the ordered Parts into new PR records.

Initially, the Stores Manager will want to manually populate the *Reorder Point* field and *Economic Order Quantity* field values for each Inventory record, as shown in the screen above. Population of the *Safety Stock* field is optional, and is used to support the calculation of the Reorder point values for the Maximo *Inventory Reorder Point* report.

The **Inventory Reorder Point** report assists users in determining the optimal Reorder point. This report starts its calculation of the Reorder Point as the quantity level at which a reorder must be generated so that the Part balance will not fall below the value entered in the Safety stock field. Thus, the Reorder Point is calculated as Safety Stock plus the Volume Usage Rate for that Part divided by the Lead Time for Delivery. For example, if the *Safety Stock* (Minimum Threshold Balance) field has a value of 4, the lead time required to receive the Part is 7 days and the usage rate is 2 per week (7 day period), the calculation of the proper Reorder Point would equal 6. (Note: The algorithm in the Maximo report would calculate a value slightly more than 6, but differs only slightly.) The automatic reorder would be generated whenever the available bin balance level fell to 6, and based on the usage rates the new parts would be received through Purchasing at a time on or before the balance fell below the Safety Stock value setting of 4. To achieve the most accurate values from the *Reorder Point* report, the Stores Manager must populate the *Safety Stock* (Emergency Level Requirement) and the *Lead Time Days* fields for all *STK* Part records in the database.

After running the Reorder Point report, the Store Manager could choose to let the system overwrite the existing **Reorder Points** based upon the Maximo calculated optimal reorder balances. This option, shown at the bottom of the Report Output page, entitled **Click to Update Database with New Reorder Point** should **NOT** be activated unless the values calculated within the Maximo system are verified to be more accurate than the existing populated Reorder Point values. Even though one would generally never allow the report to "batch" overwrite all Reorder Point values, the report does provide a good measuring tool for Stores Managers to check for discrepancies - whenever the values calculated from the report and the Organization's existing Reorder Points are substantially different.

Maximo 7 also provides a standard Inventory Report to assist in the calculation of the **Economic Order Quantity**. The objective of the Economic Order Quantity calculation is to determine the optimal *quantity* (number of items) to reorder, whenever a reorder is required. This calculation must balance the cost of procurement (Purchase Order cost) against the holding, or carrying cost of Inventory. As mentioned earlier, the Inventory carrying cost has been estimated to equal 20-30% of the outstanding balance - based on recent Inventory Management studies. The end-to-end cost of a Purchase Orders in large Organizations is currently estimated to exceed $100 per PO. Thus, if on average, five parts are ordered on a PO and your estimated cost to process a PO is $100, the purchasing cost per part would equal $20. While a $20 order cost would represent an insignificant cost add-on for Part purchases totaling $1,000 or more, it would not represent a good economic decision to execute small Purchase Orders for with aggregate costs of less than $50. By balancing the Cost of Capital (inventory carrying cost)

against the Part Procurement Cost, the Maximo Economic Order Quantity calculation can determine the most cost-efficient **quantity** of Parts to be ordered.

Thus, the EOQ quantity entered in the Maximo Inventory records should discourage small cost POs, as well as high storage costs created by overly excessive unit purchase levels. As mentioned above, it is **not** advisable to activate the **Click to Update Database with New Economic Order Quantity Values** or the calculated values will overwrite the existing EOQ values already entered. Another reason to use this report *only* for supporting information is that the system does not include volume vendor discounts in its calculations. For example, if Maximo calculated the optimal Reorder Point for a Part to be 10.23 units, we might want to increase this Reorder Point figure to 12 if there was a quantity price discount of 25% based upon purchases of at least a dozen units.

3.2.3 WORK ORDER RESERVES AND THE AVAILABLE BALANCE

To minimize the number of stock-out events, Maximo creates a *reserve* against Part balances for all associated Planned Materials on Work Orders, at the time that the Work Order first reaches a status of *APPR* (Approved) or higher. Calculation of this reserve against stock balances (a "Just-in-Time" inventory concept) allows the system to evaluate in its reorder calculation all stated Part requirements needed to fill upcoming PM or other planned Work Orders. The Available balance process will help eliminate those situations where maintenance personnel go to the Storeroom to gather the required Parts for the Work Order tasks, only to find that the Storeroom balance is not sufficient.

Whenever, a reserve is created, Maximo reduces the (calculated) available balance to the level of the current balance on hand minus the reserved quantity (adding in any Parts already on order). The Reorder Parts process evaluates the **Available** Balance, rather than the **Current** Balance and will reorder Parts (having outstanding WO requirements), even though the balance on hand appears to be adequate. For example, if the reorder point is 10, and we have 15 Parts on hand in the Storeroom, a reorder would not normally be necessary. But, if PM Work Orders are generated that require the usage of 20 such Parts, we need to reorder these Parts prior to the Work Order commencement date, or the Storeroom will have insufficient stock balance at time of issue.

Maximo will place a "reserve" for 20 units on the Storeroom, making the available balance minus 5 (15 on-hand less 20 required for approved Work Orders). Therefore, when the **Reorder Parts** function is activated, see Figure 7.5, a reorder will occur to replenish the stock balances, even though the physical view of the bin balance would indicate that stock levels are adequate. Reserve balances remain in effect until the Part is 1) charged against the Work Order (to which the reserve was made) or 2) the status of the Work Order is changed to *CAN* or *CLOSE*. (Note: There is a system option setting in Maximo 7 that will negate the reserves when a Work Order has reached a status of *COMP* (Organizations>Work Order Options>Other Organization

Options). This is a preferable option, to ensure reserves are closed out expeditiously and do not remain for an indefinite period waiting for a status change to *CLOSE*.

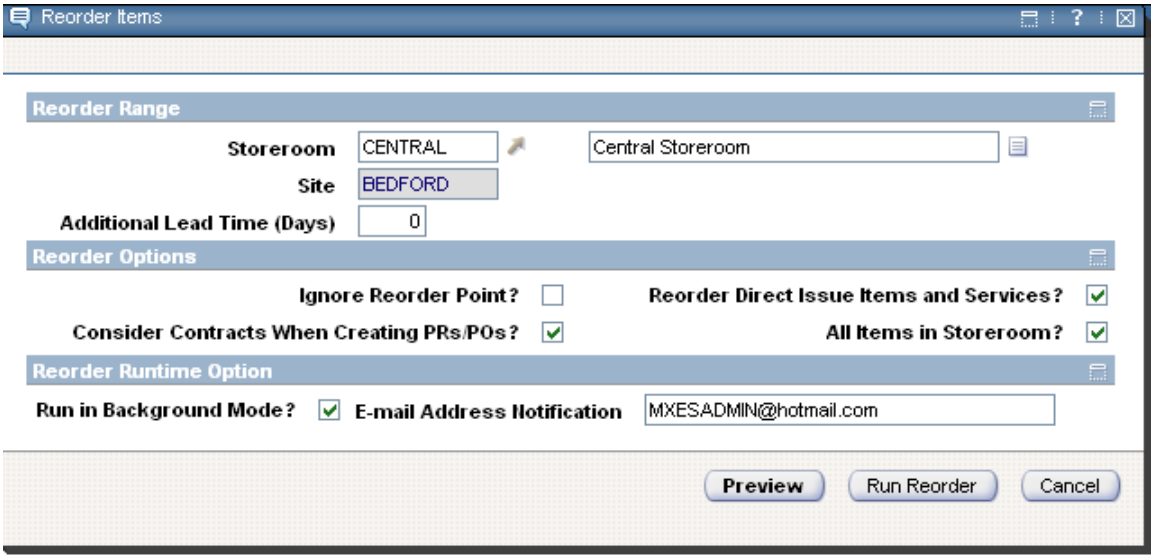


Figure 7.5 Inventory Application Reorder Dialog

3.2.4 PRIMARY COMPONENT FIELDS

- **Ignore Reorder Point:** Not a good idea to check this one or the Reorder process will reorder all "Stocked Items" in the database, regardless of available balance on hand.

- **Consider Agreement Purchase Orders:** Price Agreement Purchase Orders (for information on this option see the GS Maximo 7 Purchasing course).

- **Reorder Direct Issue Items:** Activation of this option informs the system to search for *Approved* Work Orders that have planned Parts where the Storeroom location is not defined (meaning that Parts will come in as Direct Issue Parts through the Purchasing function rather than by Storeroom receipt and subsequent issuance of the Parts. See illustration on the next page showing planned Parts in the Work Order Tracking application.)

- **All Items in Storeroom:** This will execute the Reorder process for all items in the designated Storeroom. If this is unchecked, the system will process the Reorder request only against the record(s) selected.

- **Preview Button:** This option allows the user to review the Items to be ordered and to adjust or delete any of the rows listed prior to the Reorder generation of PR's.

3.2.5 REORDER PROCESS

The timing of the Reorder process (daily, weekly, or biweekly) will be at the Organization's discretion. However, it would be a good policy to schedule the Reorder shortly after (rather than before) the PM generation process. PM Work Orders are, by default, generated with a status of *WSCH* (Waiting to Be Scheduled), which is an *Approved* status. Thus, Maximo will create an *immediate* reservation against parts for all Planned Materials for Work Orders created through the PM **Generate Work Orders** option. When the Reorder process is subsequently run, it will evaluate balances and reorder those Parts that are insufficiently stocked to cover the upcoming Planned Material requirements of the newly generated PM Work Orders, see Figure 7.6.

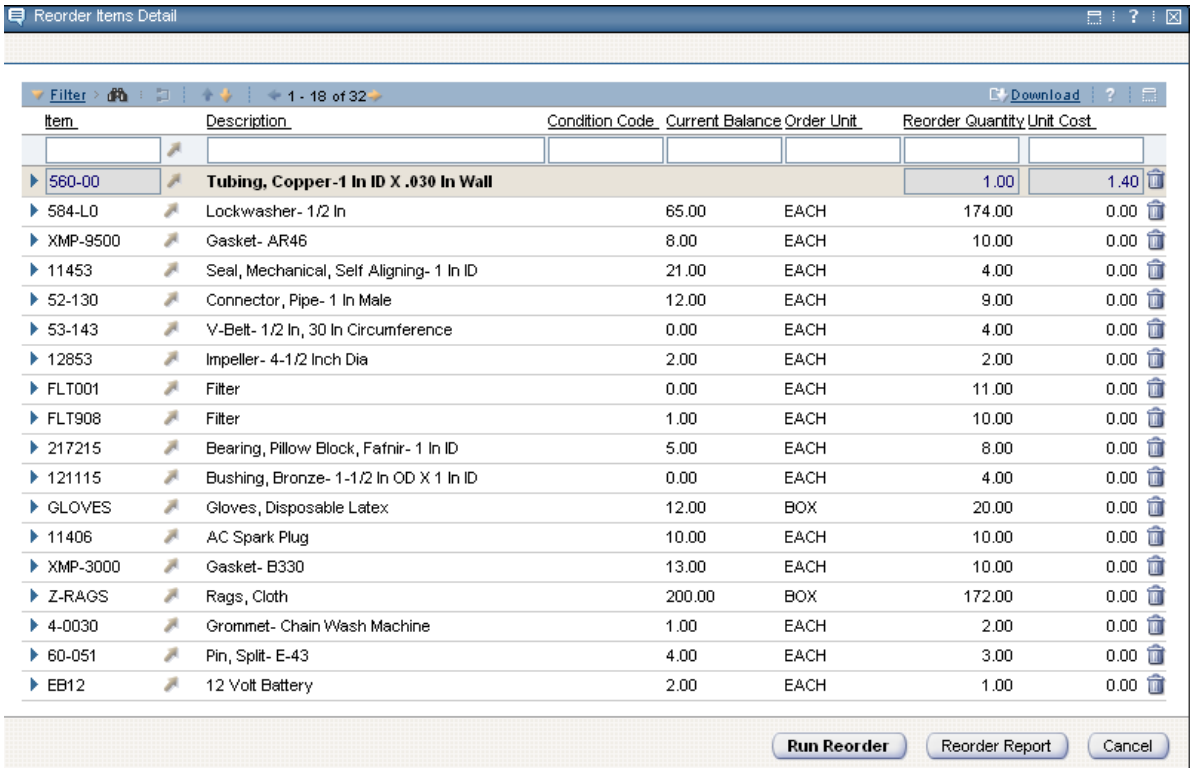


Figure 7.6 Inventory Application Reorder Items Detail

Users can also run the Reorder Direct Materials and Services function to check all approved Work Orders for Planned Materials coded as Direct Issues rather than specifying a Storeroom for a supply source, see Figure 7.7. All items that **do not** have an Item record number have to be listed as Direct Issue items since there is no established storeroom account to draw the balance from. When Items are reorder via Direct Issue, a Required Date can be entered for a date in the future. Maximo will then defer from ordering this Item until the lead time reaches the Required Date as stated in the Work Order.

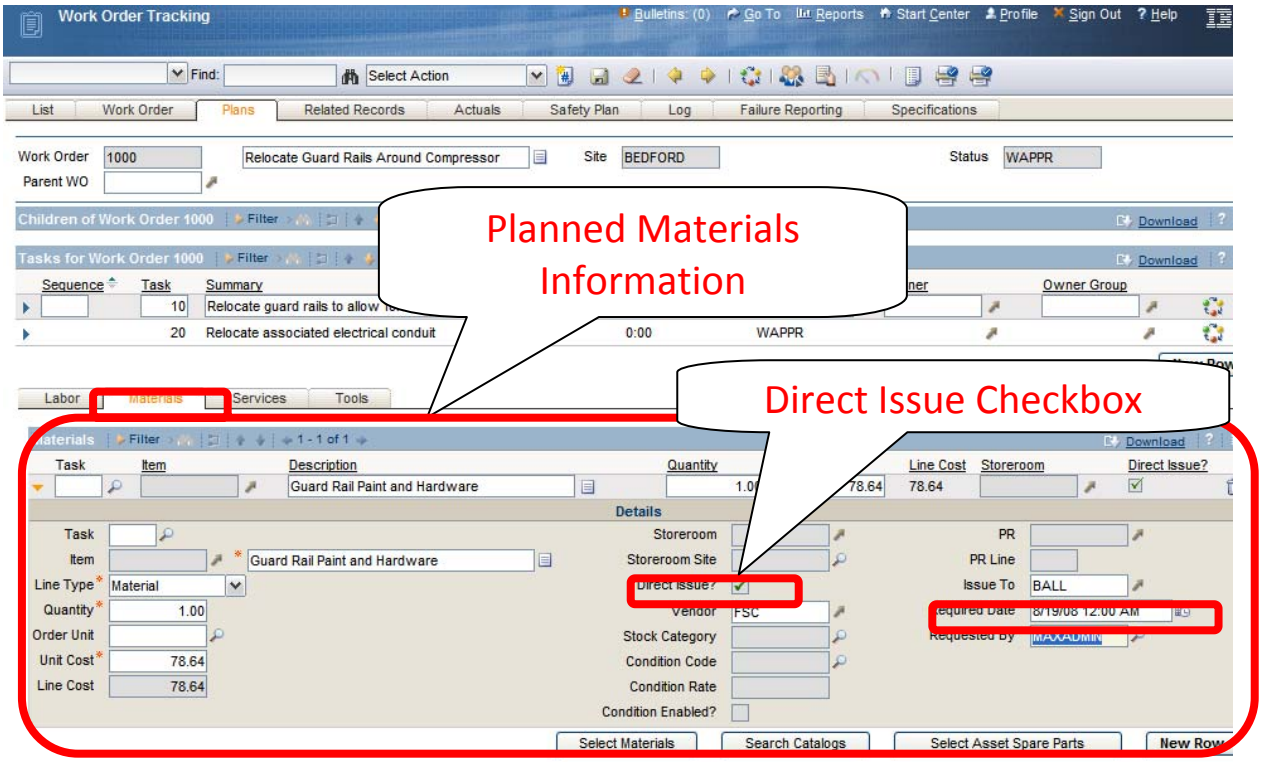


Figure 7.7 Work Order Tracking Application Direct Issue Detail

3.2.6 NEGATIVE AVAILABILITY

Whenever an attempt is made to issue more parts from the Storeroom than is available, the Stores Manager will note that the Available balance could fall below zero even though the current (visible) stock level would appear to accommodate the new issue. The available balance calculation is designed to notify users (entering the transaction) that the visible parts in question have already been reserved for another Work Order(s). The ability to issue parts that would result in a negative available and/or a negative current balance is controlled by the Administrative settings for Inventory options, see Figure 7.8.

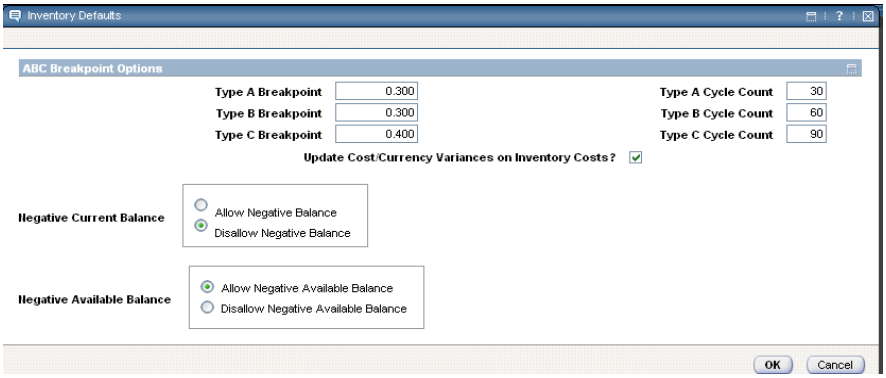


Figure 7.8 Organizations Application Inventory Options

If the Disallow Negative Balance is activated, Users will receive a message that the issue/transfer creates a negative balance and the transaction will be denied. Likewise, if the Disallow Available Balance is activated, an issue cannot be executed that would result in a negative available balance (even if quantity exists in the bin). Disallowing Negative Available Balances has another drawback. This setting will suppress the creation of PM Work Orders that would create a negative available balance.

From any Item number field throughout the Maximo 7 screens (by clicking the arrow to the right of the field), Users can easily access the information about Parts, available balances at each Storeroom and Reservation Detail identifying the Work Orders to which the Part is reserved. An informed decision can then be made by the User or Stores Manager whether the current Work Order task requesting the part should be accommodated, or whether the Part should be held for more critical Work Order activity (the original reserve). Take a look at the following screens to see how Part availability and reserve details can be viewed. The **View Item Availability** Option is accessed by clicking the arrow icon to the right of the Item field, see Figure 7.9.

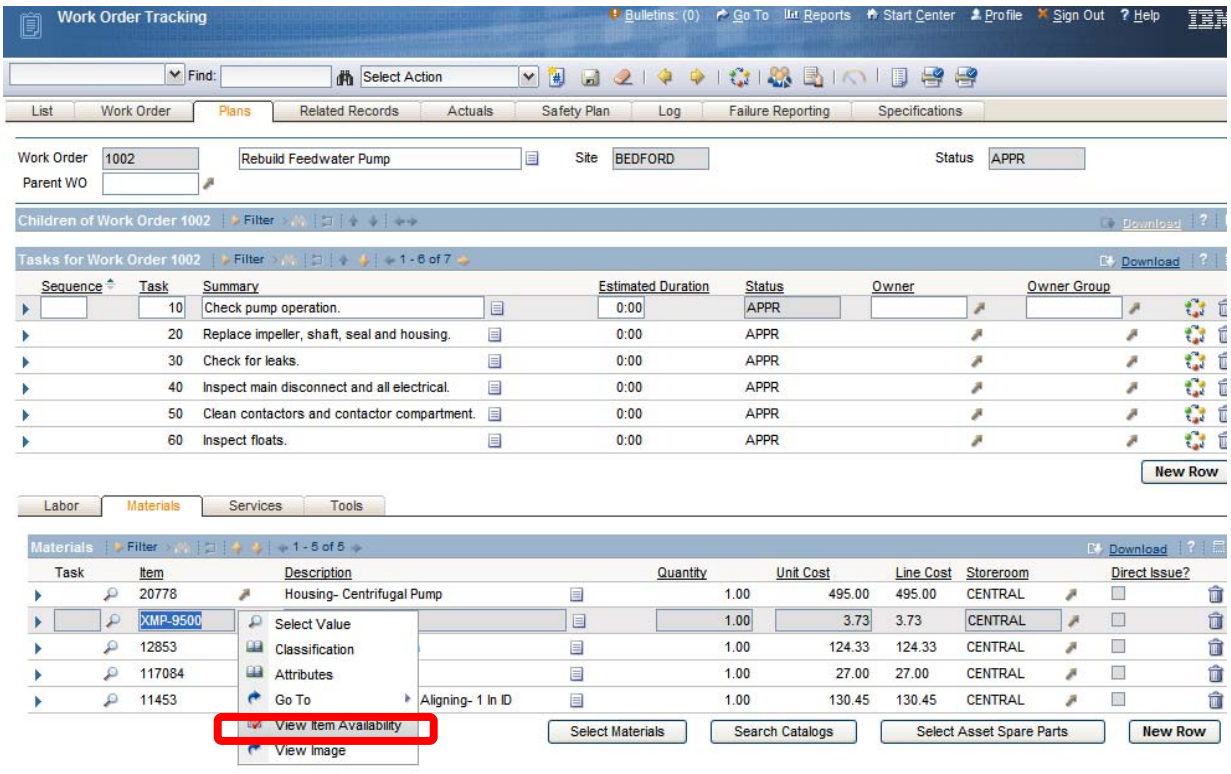


Figure 7.9 Work Order Tracking Application View Item Availability Menu Option

By selecting the **View Item Availability** Option, the User is transferred to a screen displaying detailed Storeroom balance and availability information concerning that Part, see Figure 7.10.

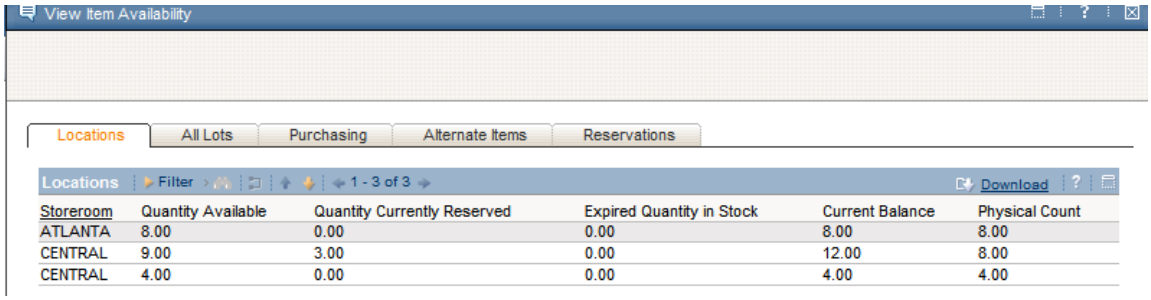


Figure 7.10 Work Order Tracking Application View Item Availability Dialog

The Tabs at the top of the Screen display information about:

- Locations of each Storeroom with availability information,
- Lot identity, quantity, and expiration,
- Purchase Order details to permit users to evaluate incoming stock,
- Alternate Part Availability (as defined from the Item Screen), and
- If existing, the Quantity and Work Order details regarding outstanding Part reservations.

3.3 ROTATING ASSET TAB

If the Rotating Asset field has been checked on the Item Master screen, it indicates that the record does **not** represent a single Part ID, but instead identifies the Item as an "intangible Inventory category" which will be shared by multiple Maximo Asset records. In the Asset application, a unique record will be created for each serialized asset (pump, motor, etc.). When creating the unique Asset records, Users will populate the Item field on the Asset record with the same Item ID to associate that Asset to the Rotating Item category. One benefit from the Rotating Asset functionality is the ability to view the current location of all Assets that share the Rotating Item ID, see Figure 7.11.

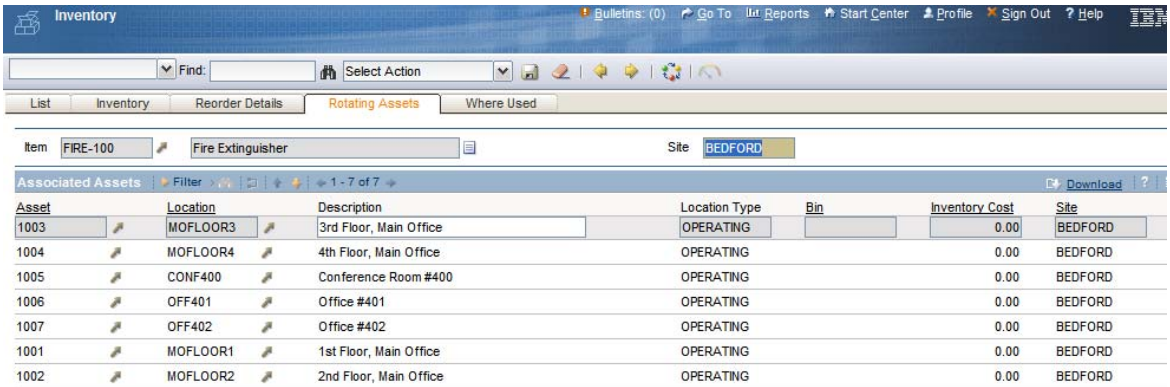


Figure 7.11 Inventory Application Rotating Assets Tab

The reason that Maximo created this feature was to accommodate those objects that had the attributes of Assets (individual serial numbers, can accept Work Order charges, etc.) but also could be treated as Parts (e.g. brought into a Storerooms and issued out/expensed against Work Orders). The capitalized field (*Yes* or *No*) value is activated when the Item is rotating and the setting for that field determines whether the cost of the Asset should be expensed to the Work Order, or whether the Asset record retains its own cost basis upon issue - as an Asset to be depreciated over a future time period.

3.4 WHERE USED TAB

The Where Used screen shows a list of Asset records that utilize the Part record in question, see Figure 7.12. These records can be manually entered, or as described earlier, they can be set to become automatically associated whenever the Part is used against the Asset in a Work Order setting (see **Add as Spare Part** functionality above).

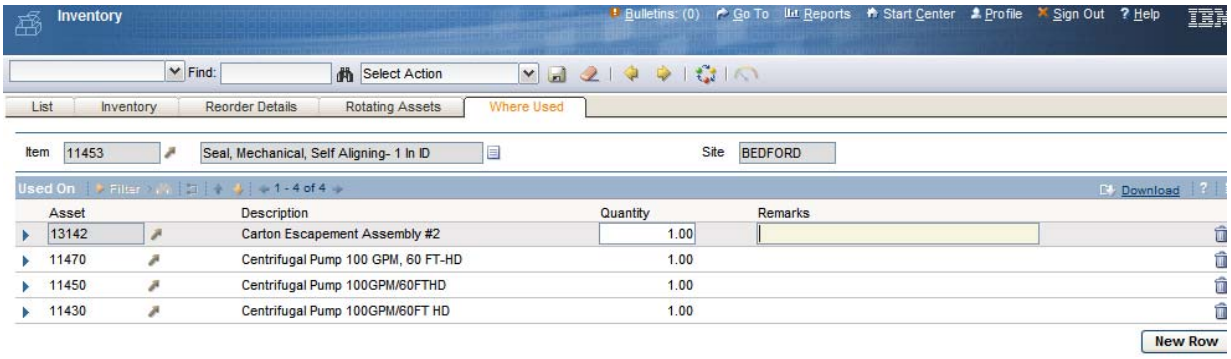


Figure 7.12 Inventory Application Where Used Tab

3.5 SELECT ACTIONS MENU OPTIONS

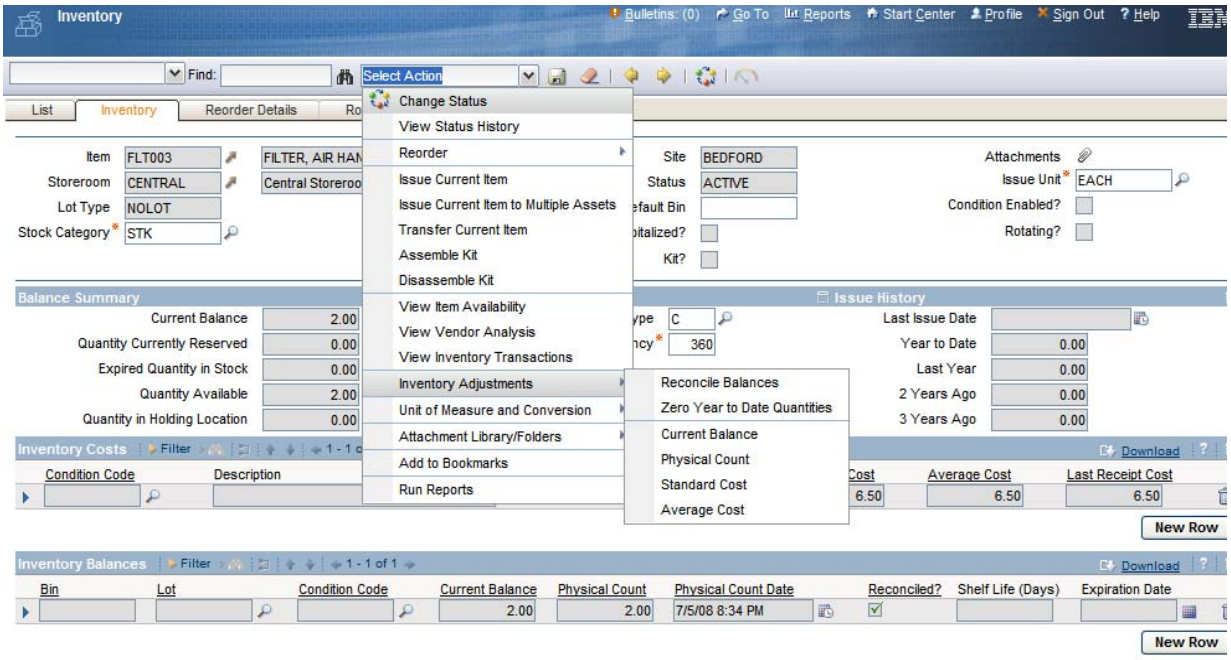


Figure 7.13 Inventory Application Select Action Menu Options

- **Issue Current Item** – Used to issue Items to Work Orders or other charge accounts. This option functionality is duplicated within the Issues and Transfers application (see Chapter 4).
- **Issue Current Item to Multiple Assets/GL Accounts** – Same as above but charges are made directly to the Assets or GL Accounts, not Work Orders, see Figure 7.14.

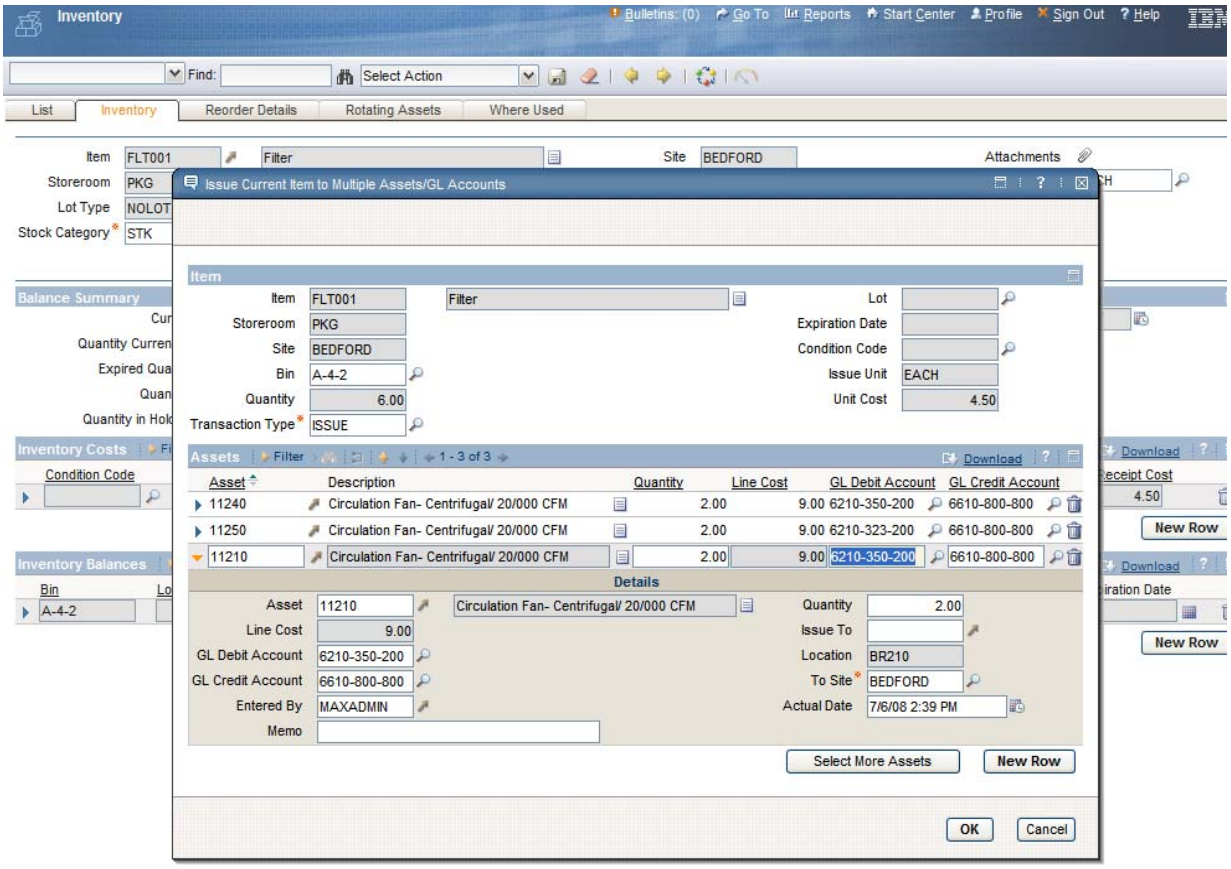


Figure 7.14 Inventory Application Issue Current Item to Multiple Assets/GL Accounts

- **Transfer Current Item** – Used to transfer Items between Storerooms, Labor and Courier locations. This option duplicates the functionality within the Issues and Transfers application (see Chapter 3).

- **View Item Availability** – Used to access information - such as quantities within each Storeroom, reserve availability, Items on order and other details for the Item. This duplicates the functionality of the **View Item Availability** option which can be accessed using the arrow icon button next to any Item field.

- **View Vendor Analysis –** Used to view the Purchasing History for this Part from various vendors including Last Price, Last Order Date, Promise Date, Completed PO's, etc. This data is update on a continual basis from the Purchasing transaction data, see Figure 7.15.

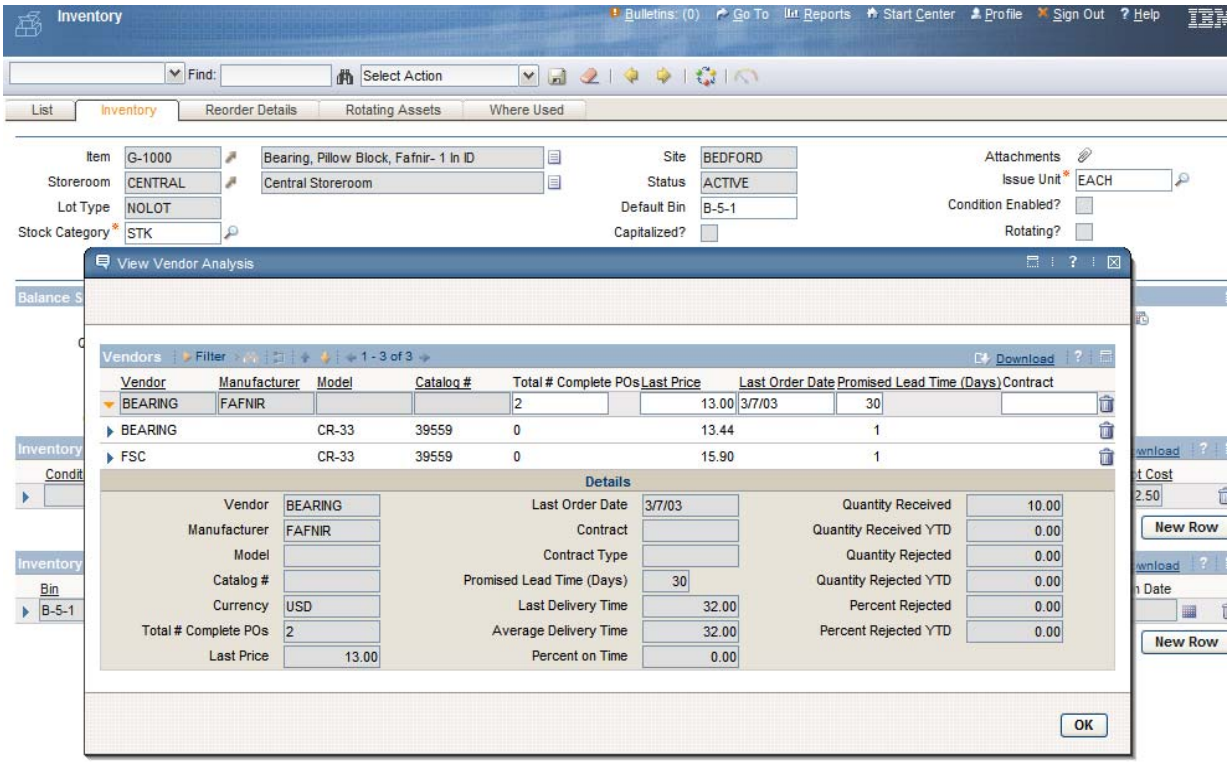


Figure 7.15 Inventory Application View Vendor Analysis

View Inventory Transactions – Used as a short-form Inventory report tool to view transactions for this part which are grouped as:

- Receipts and Transfers, see Figure 7.16
- Issues and Returns, see Figure 7.17
- Adjustments, see Figure 7.18

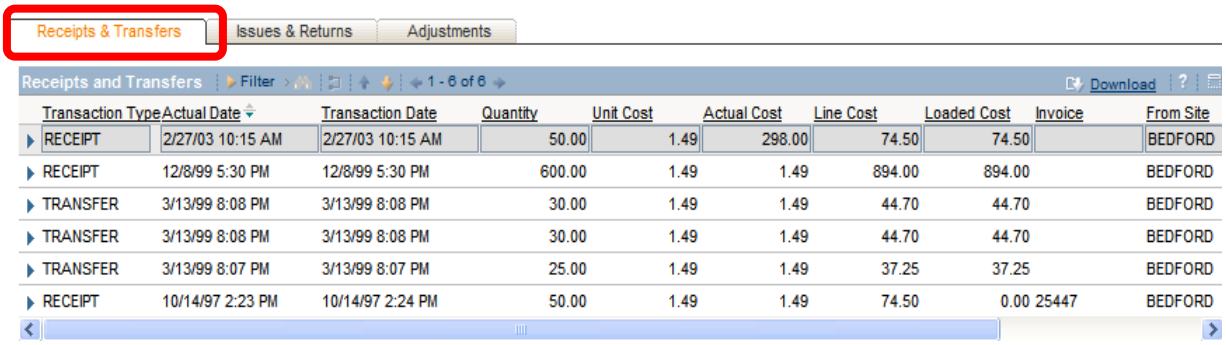
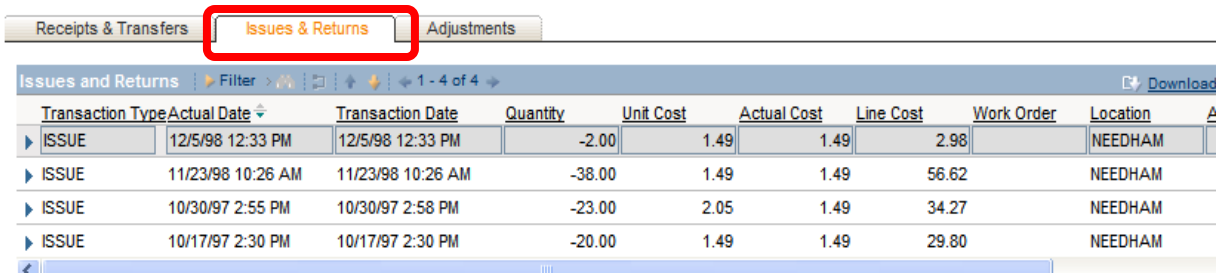
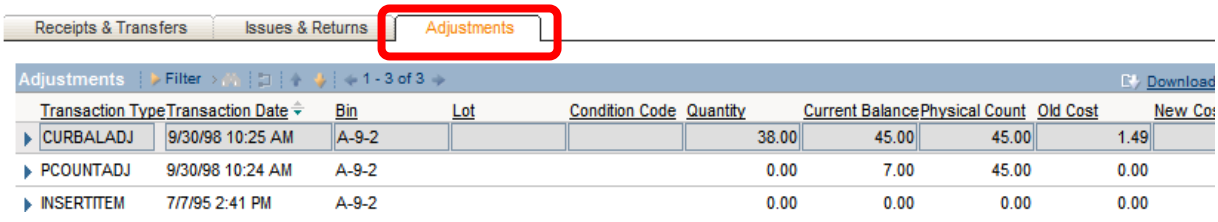


Figure 7.16 Inventory Application View Inventory Transactions – Receipts & Transfers



Transaction Type	Actual Date	Transaction Date	Quantity	Unit Cost	Actual Cost	Line Cost	Work Order	Location
ISSUE	12/5/98 12:33 PM	12/5/98 12:33 PM	-2.00	1.49	1.49	2.98		NEEDHAM
ISSUE	11/23/98 10:26 AM	11/23/98 10:26 AM	-38.00	1.49	1.49	56.62		NEEDHAM
ISSUE	10/30/97 2:55 PM	10/30/97 2:58 PM	-23.00	2.05	1.49	34.27		NEEDHAM
ISSUE	10/17/97 2:30 PM	10/17/97 2:30 PM	-20.00	1.49	1.49	29.80		NEEDHAM

Figure 7.17 Inventory Application View Inventory Transactions – Issues & Returns



Transaction Type	Transaction Date	Bin	Lot	Condition Code	Quantity	Current Balance	Physical Count	Old Cost	New Cos
CURBALADJ	9/30/98 10:25 AM	A-9-2			38.00	45.00	45.00	1.49	
PCOUNTADJ	9/30/98 10:24 AM	A-9-2			0.00	7.00	45.00	0.00	
INSERTITEM	7/7/95 2:41 PM	A-9-2			0.00	0.00	0.00	0.00	

Figure 7.18 Inventory Application View Inventory Transactions – Adjustments

- **Units of Measure and Conversion** – Used to add or modify the conversion unit that is applied when ordering and issuing items.

- **Inventory Adjustments Sub-menu Selections:**

  - **Reconcile Balances** – Use this option to adjust the current balance of the Part to equal the amount recorded during the Inventory Physical Count.
  - **Zero Year to Date Quantities** – Used to reset to zero the *Year to Date* field in the Issue History section of the Inventory screen. The balances in the other annual usage fields advance to the next year when this option is selected.
  - **Physical Count –** Used to enter the physical count of a Part in that Storeroom. If a group of Inventory records are going to be counted simultaneously, first query for the result set of records from the List tab. In the example below, see Figure 7.19, we are preparing to count all MECH type Inventory parts that are in the BEDFORD – CENTRAL storeroom.

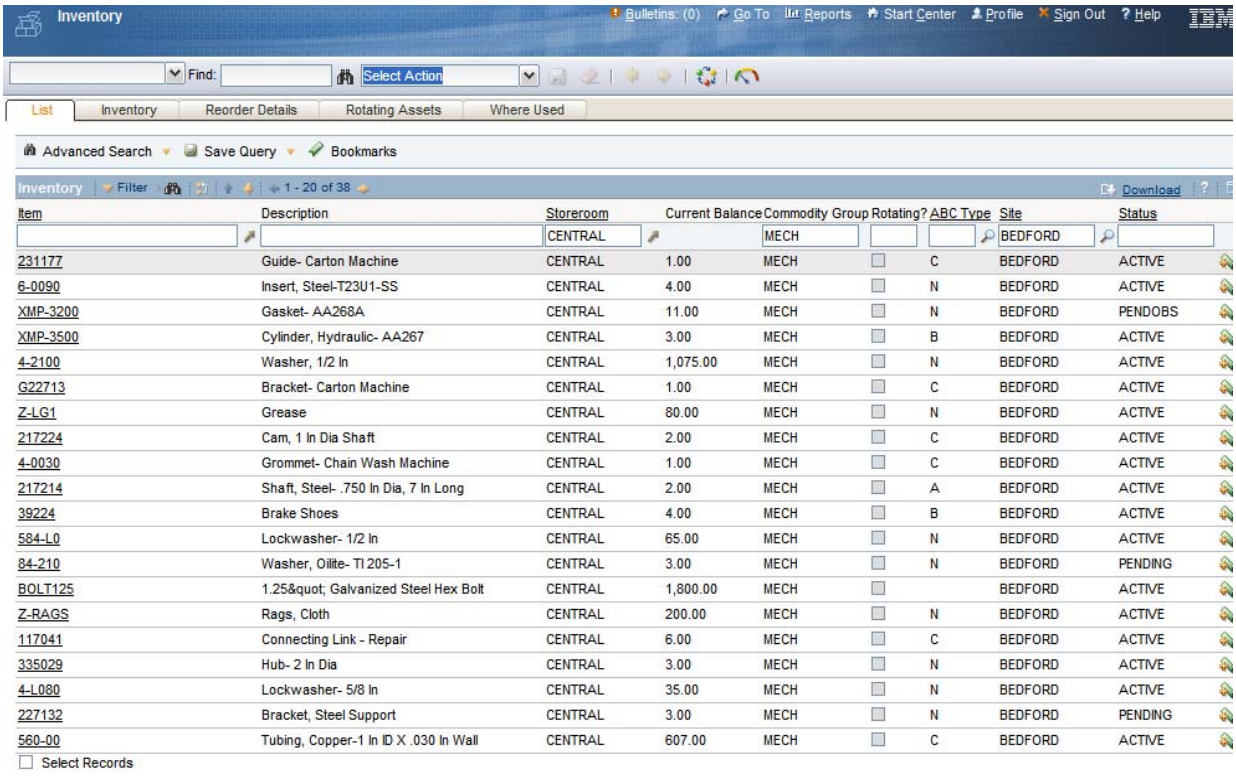


Figure 7.19 Inventory Application List Tab – Query By Example

Then access the Physical Count option under the **Select Action / Inventory Adjustments** section, see Figure 7.20. A form will appear where Users can enter the *New Count* values for each Item counted. When ***OK*** is selected, Maximo will distribute the new balance count to each of the records listed, along with the User defined physical count date. To modify the current balance numbers to reflect the newly-entered Physical Count balances, execute the **Reconcile Balances option** from the List tab – to update the affected records in batch format.

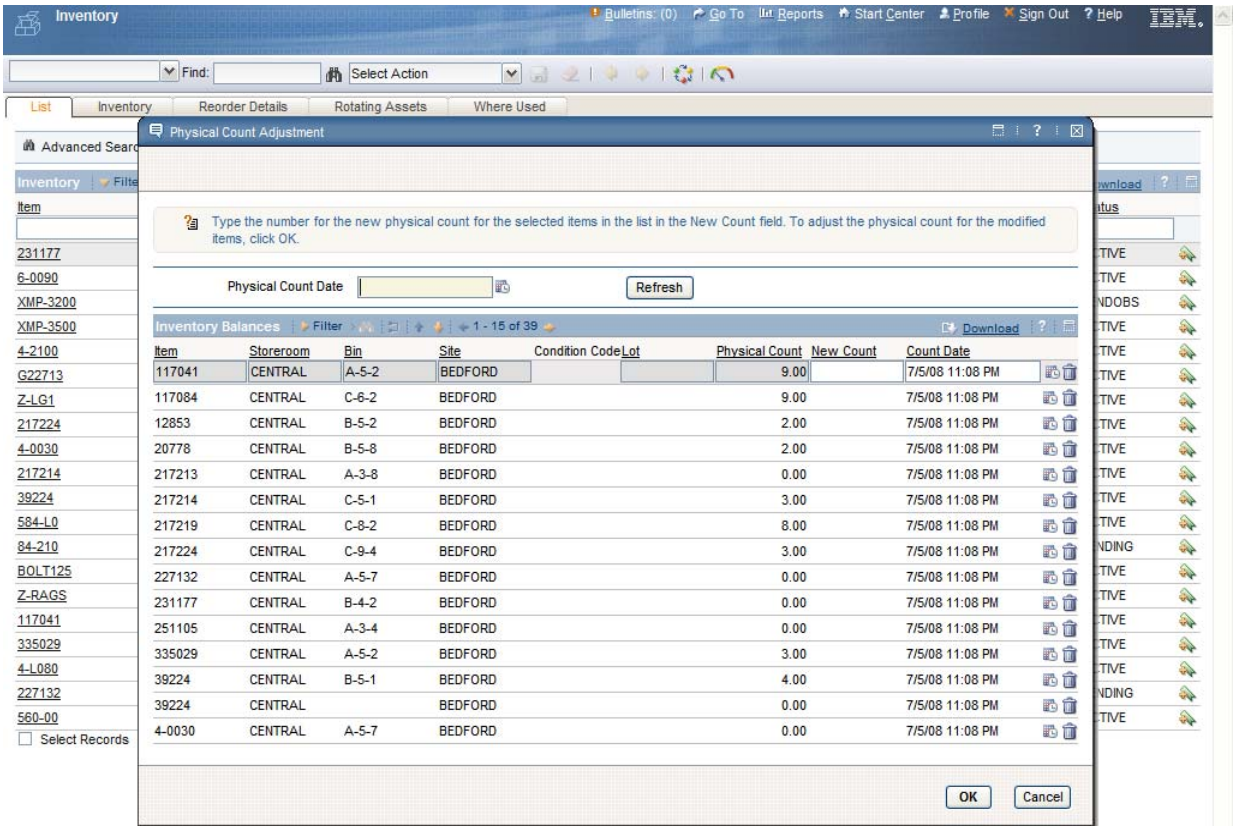


Figure 7.20 Inventory Application Physical Count Adjustment Dialog

- **Current Balance Adjustment** – Used to adjust a Part's current balance for reasons other than by reconciliation of Physical Counts**.**
- **Standard Cost Adjustment** – Used to adjust the Standard Cost of an Item.
- **Average Cost Adjustment** – Used to adjust the (Weighted) Average Cost of an Item.

4 CREATING KITS

A **kit** is a collection of items that can be issued as a single unit. Kits are defined in the Item Master application, and managed in the Inventory application.

After you define the contents of a kit in the Item Master application, you use the **Assemble Kit** action in the Inventory application to create kit records for a single storeroom location. Maximo calculates the number of kits that can be build based on current balances for the kit components, and allows you to enter the quantity of kits you want to assemble.

NOTE: You cannot assemble kits from items located in different storerooms.

5 MANAGING INVENTORY

Many companies are moving to a just-in-time system to reduce their inventory levels and associated carrying costs. When using a just-in-time system for maintenance, you base your purchasing and stock levels on upcoming work, rather than on past usage. Because parts and assets can become obsolete and your company's process can change, looking back might not be as useful as looking forward when considering your inventory needs.

Maximo can accommodate a just-in-time system by letting you set reorder quantities. Using the Preventive Maintenance application to plan upcoming maintenance and inspection work also can help to determine which items will be needed in the future.

If you are trying to locate stock for an item or material you can use the **View Item Availability** action to view balances for all storeroom locations that stock the item, all lots of the item, all PRs and POs that list the item, alternate items that can be substituted for the item, and approved work orders that have created reservations for the item.

> **NOTE:** Items that have been assembled into kits do not appear in item balances displayed in this dialog box.

5.1 MAXIMO REORDER PROCESS

When Maximo reorders inventory stock, the amount to be ordered is based on Maximo's reorder logic, which uses the following formula:

(current balance + quantity on current purchase requisitions and purchase orders) — (quantity reserved for work orders and internal purchase orders + quantity expired) < = Reorder point

"Current Purchase Requisitions and Purchase Orders" are any PRs and POs with a status of waiting for approval (WAPPR), approved (APPR), or in progress (INPRG). Maximo checks to see how many units of this item are listed on current PRs and POs, adds this number to the current balance, then subtracts any items on approved work orders, internal POs, and any expired items. If the resulting number does not exceed the reorder point (ROP), Maximo will reorder the item.

You can reorder items either manually by using on of the reorder actions in the Inventory module, or via a reorder cron task set up by your system administrator. A **cron task** is a software command to execute a task at a particular time. For more information about configuring the reorder cron task, refer to the *Maximo System Administrator's Guide.*

> **CAUTION:** The reorder process does not check to see if Items appear inside kits when reordering an item.

5.2 DETERMINING THE REORDER POINT

The reorder point (ROP) is the point when items should be reordered so that the item balance does not fall below the number designated as safety stock during the lead time for the order. Ideally the calculation of the ROP is based on the following variables:

- **Safety stock** is the minimum number of the item that you must have on hand at all times.
- **Lead time** is the amount of time it takes between placing an order and receiving it.
- **Economic Order Quantity** (EOQ) is the number of an item that should be reordered at one time, usually based on the vendor's price for a particular quantity ordered. For example, buying a case of an item can cost less per item than buying the item individually.

5.3 REORDERING ITEMS

Reordering is done separately for each individual storeroom. Your system administrator can use the Cron Task Setup application to create a cron task to automatically reorder items or you can reorder items manually using one of the reorder actions available from the Inventory Select Action menu:

- **Reorder > Reorder Items** — Use to reorder one or more inventory items. All items selected must be from the same storeroom location.
- **Reorder > Reorder Direct Issue Itms/Svcs** — Use to reorder items or service items listed on approved work orders.
- **Reorder > Clear Reorder Locks** — Use to remove a lock on the reorder process logged against your user name.

When a user runs the reorder process (even if preview mode). Maximo places a lock on the process against the storeroom being reordered. This is to prevent other users from running reorder against the same storeroom at the same time. Occasionally, users running the reorder process in preview mode may inadvertently lock the reorder process and prevent themselves and others from running reorder against a certain storeroom.

NOTE:

- This action only clears Preview Mode reorder locks, created by the current user. Users running the full reorder process are not affected.
- You can set the reorder process to run in the background and notify you by e-mail after the process ends. This lets you do other work while running a lengthy reorder process.
- You can repeat the reorder process for additional storerooms without exiting the Reorder Items page.

5.4 MANAGING INVENTORY ITEM COUNTS AND COSTS

The balances and costs fields on an inventory record are calculated fields, and are read-only. You may occasionally need to adjust the balances or costs for an inventory item to accommodate a variety of circumstances. For example:

- After a routine physical count
- At the end of the year
- When items have entered or left a storeroom without a Maximo transaction
- When item costs have changed due to inflation

You use the following inventory adjustment actions available from the Select Action menu to make modifications to item balances or costs for a storeroom.

- **Inventory Adjustments > Reconcile Balances** — Use to adjust the current balance for an item based on a physical count of the item. This action updates only the selected item in the selected **Storeroom**.

- Inventory Adjustments > Zero Year to Date Quantities— Use to change the values in the Issue History section of an item record. This action moves all **Year to Date** quantities back one year and changes the current **Year to Date** quantity to zero. Typically this action is used only at the end of a fiscal year. This action updates only the selected item in the selected **Storeroom.**

- **Inventory Adjustments > Current Balance** — Use to change the **Current Balance** of an item listed in the Balance Summary section of an item record. Maximo automatically adjusts balances when items are issued, transferred, received, assembled into kits, and so forth. However, you can use this action if you are aware of a change in the current balance that has not been reflected in any other inventory transaction. This action updates only the selected item in the selected **Storeroom.**

- **Inventory Adjustments > Physical Count** — Use to change the Physical Count of an item listed in the Inventory Balance table window. This action updates only the selected item in the selected **Storeroom, Bin,** and/or **Lot.**

- **Inventory Adjustments > Standard Cost** — Use to adjust the read only **Standard Cost** listed in the Inventory Costs table window.

- **Inventory Adjustments > Average Cost** — Use to adjust the read-only **Average Cost** listed in the Inventory Costs table window. You might want to adjust the average cost value if you issue items at average cost and want any price increases reflected immediately in the issue cost. This action updates only the selected item in the selected **Storeroom.**

5.5 MANAGING KITS

A **kit** is an item record that "contains" other item records and can be issued as a single unit. Item kit records are created in the Item Master application. You use the **Assemble Kit** action in the Inventory application to record changes to item balances when you assemble all of the components and create a kit. Kits can only be assembled from components stored in the same storeroom.

Likewise you use the **Disassemble Kit** action when you need to break a kit into its individual items, for example when you need to return a partially used kit. The parts from a disassembled kit must be returned to a single storeroom, Maximo will not allow kits to be disassembled across storerooms.

6 REVIEW QUESTIONS

1. From the Inventory application, query to locate the Part you created in the Item application from the previous Chapter. Try querying from several fields to see if you can locate the Item using:
   - The Stock Type field – notice when selecting a value from the value list, Maximo adds the = to limit matches to exactly that value
   - The Description field – enter a word or partial word in the field
   - The Quick Key Search – enter the Item record number on the toolbar.

2. Navigate to the Reorder tab and populate the open fields so that the Part will be integrated with the Maximo 7 automated reorder process. After completing the entry to the Inventory screens, click on the View Item Availability Option (which can be accessed from the Detail Menu button directly to the right of any Item field) and view the data in the table window.

3. Using the Where Used tab, associate your new Part with one or more Asset objects. After saving your record, hyperlink/navigate to the Asset application and view the Spare Parts tab for one of the Asset records that you associated with the new Part. Is the new Part visible in the Asset application?

4. How many Storerooms are there at your Organization? Based upon the information in this Chapter, how many Storerooms should be created for your Organization in Maximo? Do virtual Storerooms need to be created?

VI CHAPTER 6 – ISSUES AND TRANSFERS

ISSUING, RECEIVING AND TRANSFERRING PARTS

1 OBJECTIVES

Given the Maximo 7 platform, learn to how to issue and expense Part costs against Work Orders, Assets, Locations and GL accounts and how to transfer Parts between Storeroom, Labor and Courier locations.

2 OVERVIEW

The primary objectives of the first automated maintenance products were to provide for the tracking of Work Orders and related costs and to establish an automated PM system (for the creation of Work Orders). The only objective for MRO inventory was to keep accurate balances and to properly record the cost of Parts used in the Work Order process. These costs could result from a specific Parts buy from an external vendor, or from the issuance of parts from the company storeroom. By properly accounting for Part costs to the Work Order, costs also become indirectly accumulated against specific Asset and Location objects and General Ledger accounts. To correctly identify the true cost of maintaining a building (Maximo Location) or the true life-cycle cost of an Asset, the cost of Parts used to maintain these assets must be recorded.

You use the Issues and Transfers application to manage the movement of inventory items out of your storerooms. You **issue** an item when it is moving out of a storeroom to be used. You **transfer** an item when it is moving between storerooms. Using the Issues and Transfers application you can:

- Issue items directly to a work order, asset, location, or charge to a GL Account
- Return previously issued items to a storeroom
- Transfer items out of one storeroom and into another storeroom location
- Transfer items to a courier location or a labor location
- Receive items previously issued to a courier location or a labor location for transport

2.1 MULTISITE AND ISSUES AND TRANSFERS

Since the Inventory and Storerooms applications are at the Site level, Issues and Transfers are also managed at the Site level. You can issue or transfer items within a single Site, or between any Sites and Organizations that share the same Item Set.

2.2 ISSUES AND TRANSFERS AND CONDITION CODES

When you issue, return, or transfer a condition enabled item Maximo prompts you to specify the condition of the item. Maximo calculates the cost of the item based on the condition code and rate.

2.3 ISSUES AND TRANSFERS AND INVENTORY

After you create a job plan for a work order, the materials needed for the work order are reserved in inventory. After the work order is approved, you can issue the reserved items. When you issue an item, Maximo updates the balance for the issuing storeroom. When you transfer items:

- If the item is transferred out to or in from a courier location or a labor location, Maximo only updates the storeroom balance.
- If the item is transferred out to or in from another storeroom, Maximo updates the item balances for both storerooms.
-

You can issue or return an item from the Inventory application using the **Issue Current Item** action. You can record physical counts for items when issuing or transferring by entering a value in the **New Physical Count** field. Maximo updates the physical count information for the item in the specified storeroom.

2.4 ISSUES AND TRANSFERS AND PURCHASING

You can transfer items between storerooms with the same Site or between Sites within the same Organization without creating an internal purchase order. If you are transferring items across Organizations, Maximo requires that the Organizations share the same Item Set, and that you create an internal purchase order.

2.5 ISSUES AND TRANSFERS AND WORK ORDERS

When you record item use on a work order, Maximo creates a material transaction record in the database. Item usage on work orders can be recorded in one of two ways:

- Record material issue to work order using the Issues and Transfers application
- Record material usage using the Actuals tab of the Work Order Tracking application.

Because Maximo updates inventory balances when you perform either of these actions, it is possible for the same item to be subtracted from inventory twice, thereby causing inaccurate item counts. To ensure accurate inventory records, your company should establish a policy for each site regarding whether item use will be recorded in the Issues and Transfers application or in the Work Orders module. No matter where the materials issues/usage are originally recorded, the information is copied to the Materials sub-tab on the Actuals tab in Work Order Tracking.

3 ISSUES AND TRANSFERS

3.1 PART CHARGES USING THE WORK ORDER APPLICATIONS

For cases in which the User charges the part to a Work Order record after work has been completed, it is generally easier to post the transaction through the Actual section of the Work Order applications, see Figure 8.1, simultaneously with the entry of labor hours and failure information for the same Work Order. An advantage to this method is that by deferring entry of Part charges until the work activity has been completed, any unused Parts will not require a transaction as “returned” Parts, whereas Parts that are recorded as “issued” when they leave the Storeroom will require an additional return transaction to accurately maintain the Storeroom balance.

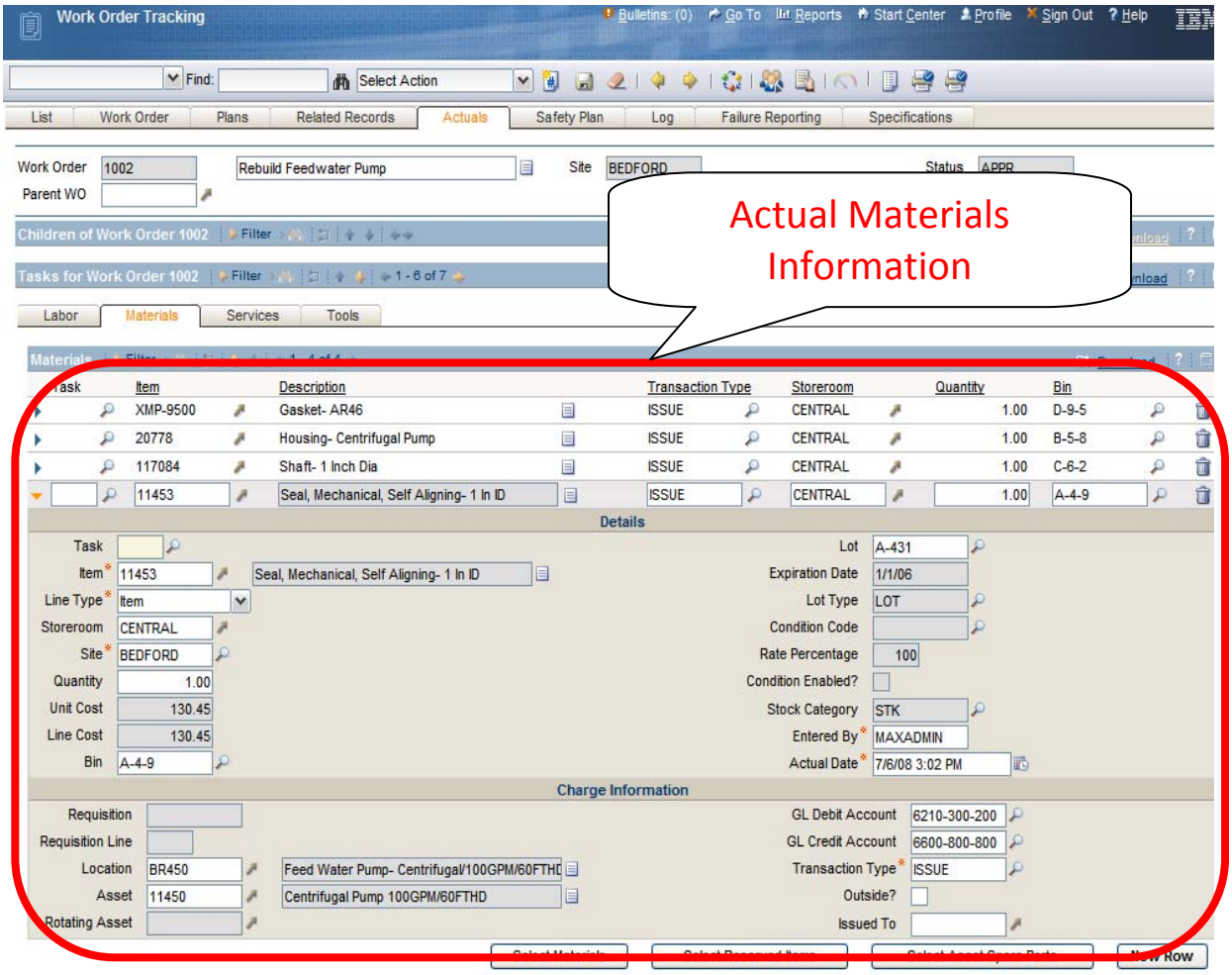


Figure 8.1 Work Order Tracking Application Actuals Tab – Materials Details

3.2 PART CHARGES USING THE INVENTORY APPLICATION

Some Users prefer to issue Parts by pulling up the Item in the Inventory application and then entering the Materials charges using the **Select Options>Issue Current Part** drop-down menu option, see Figure 8.2.

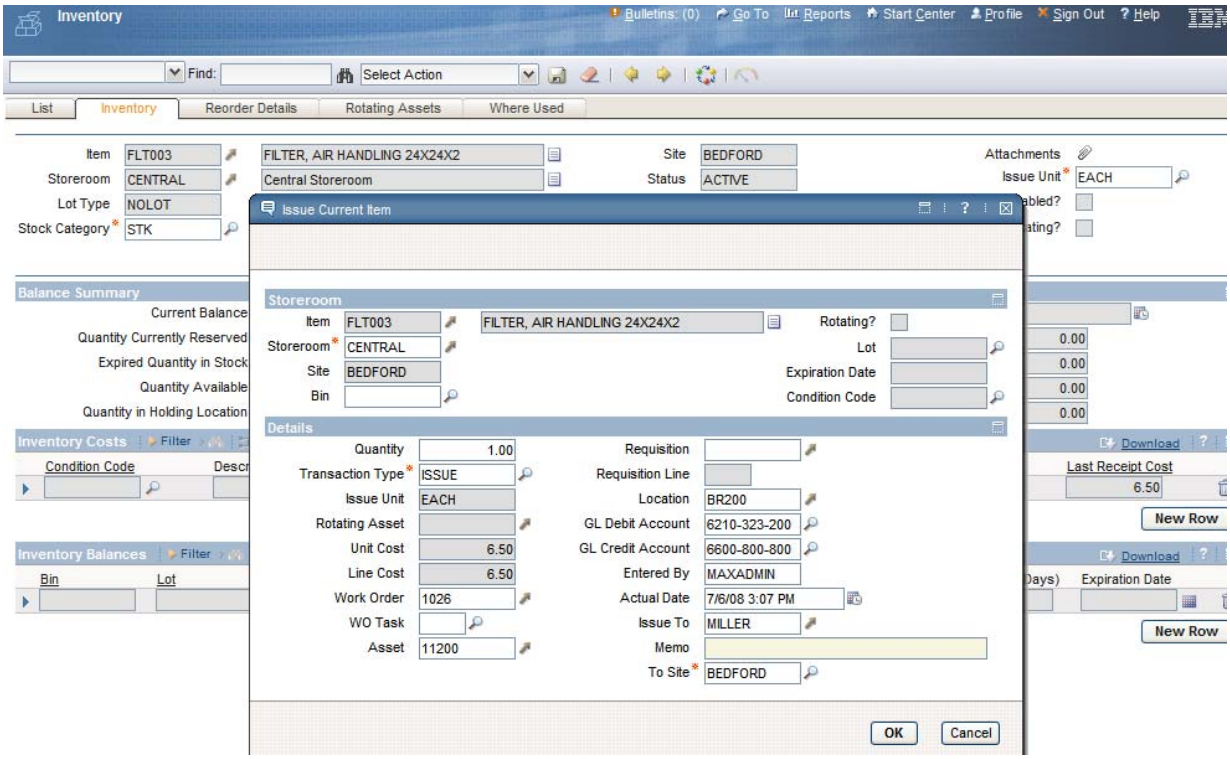


Figure 8.2 Inventory Application Issue Current Item Option

3.3 PART CHARGES USING THE ISSUES AND TRANSFERS APPLICATION

To access the Issues and Transfers application, click the application link on your Start Center, or select **Inventory > Issues and Transfers** from the Go To menu. The Issues and Transfers application contains the following tabs:

- **List** — to search Maximo for storeroom records.
- **Issue** — to issue items directly to a work order, asset, location, or against a general ledger account. Also used for returning items to the storeroom.
- **Transfer Out** — to transfer items out of your storeroom to another storeroom, a courier location, or a labor location.
- **Transfer In** — to transfer items from another storeroom, a courier location, or a labor location.

The Issue screen in the Issues and Transfers application was designed to process issues and returns of Parts to Work Orders, Locations, Assets and GL Accounts (or any combination of those four objects). The remaining two screen tabs, Transfer In and Transfer Out are used to move a part from one Storeroom location to another. One way to determine whether to use the Issues or one of the Transfer screens is to ask whether this transaction will create a charge (cost) to the Organization.

If it does, then the transaction should be made from the Issues tab; if not, it should be placed on one of the other two tabs, as it is not expensing but only relocating the Part from one Storeroom location to another. Although the screen below looks very detailed, once the User has entered a Storeroom value, the only primary entry fields are the Item ID, quantity, and the object of the charge (e.g. Work Order). The remaining fields are populated from default data already entered for the Inventory, Work Order, and General Ledger core records specific to that transaction. Using the Issues and Transfers application, see Figure 8.3, for Part charges can be made as appropriate.

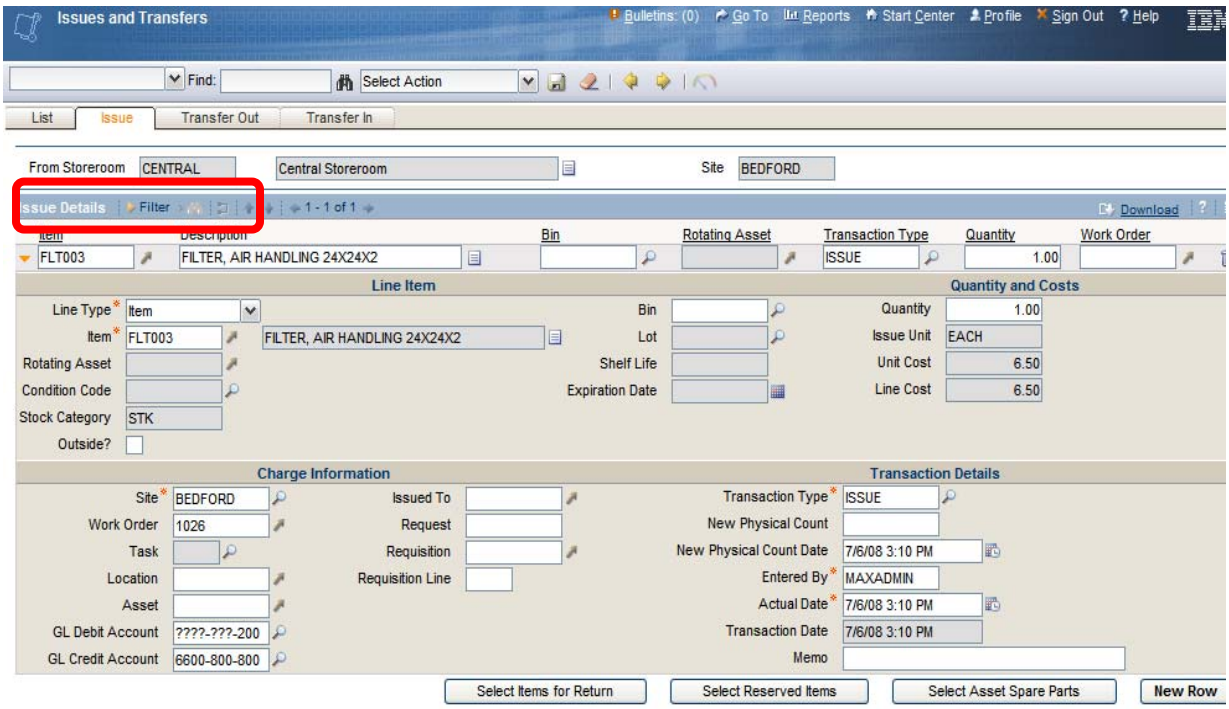


Figure 8.3 Issues and Transfers Application Issue Tab

If Parts transactions are entered through the Issues and Transfers application, Maximo will require that at least **one or more** of the following objects be identified to accept the charge:

- Work Order
- Asset
- Location
- General Ledger Account

Thus, within the system functionality, office supplies could be charged solely to a GL account (for Miscellaneous Supplies) without requiring the creation of a Work Order. Likewise, a light bulb could be charged solely to an Asset without requiring a Work Order; or daily janitorial labor could be charged to a Location record. If Parts transactions are completed through the Work Order application screens, then by default, a Work Order number will have to be provided.

NOTE: Before charging Parts to objects **other** than Work Orders, check with the Business Process procedures for your own Organization. For Organizations that maintain no Parts Inventory, the Business Process may dictate that all Materials Charges should be entered through the Purchasing modules, where the Items purchased will be charged to a Work Order or other account.

Whenever an issue or return transaction is saved in Maximo, it becomes a permanent entry and that entry line cannot be edited at a later date. The programming logic here was to ensure data integrity for the original transaction by the original entry person. If User A charged 1 thermostat to a job, and these transactions could be edited, User B could modify the entry to an increased amount of issue - 10 thermostats, and take 9 thermostats home. Physical counts would balance and there would be no record of a second transaction, just an edit to the first transaction. Thus, in Maximo, each new entry of Material costs must be entered on a new line, where the system can record the associated time and user stamp identification.

3.3.1 DIRECT ISSUE ITEMS

A **direct issue item** is an item that you have ordered that will be issued immediately upon receipt to an asset, location, or work order rather than stocked in the storeroom. These items might be special order items, or regular stock that is needed immediately to complete maintenance work.

NOTE: Service item records are always direct issue items.

Because they are issued directly upon receipt, direct issue items are managed in the Receiving application, not the Issues and Transfers application.

3.3.2 CREATING ISSUE TRANSACTIONS

In order to be able to issue items using the Issues and Transfers application you must specify which storeroom you want to issue from, and you must be authorized to issue items from the selected storeroom. Although items are generally specified in a job plan and issued in conjunction with specific work orders, it is also sometimes necessary to issue them directly to a location, or against an asset, or against a General Ledger account, without a work order number. For example, you might want to charge the cost of items such as soap, grease, or rags to a location or GL account rather than to a work order or specific asset.

To allow Maximo to track inventory costs, you must make an entry in at least one of the following fields when issuing items:

- Asset
- GL Debit Account
- Location
- Work Order

In general, after you make an entry in one field, one or more other fields are filled in with default values associated with the first specified field. For example, if you specify a work order, the asset and/or location and/or GL account named on the work order are also filled in:

- **Select Items for Return** — Click to select from a list of items and materials previously issued from the selected storeroom.
- **Select Reserved Items** — Click to select items to issue from a list of items that have been reserved for approved work orders.
- **Select Asset Spare Parts** — Click to select from the spare parts associated with a particular asset.
- **New Row** — Click to issue items directly to an asset, location, or charge against a General Ledger account, or issue unreserved items (items that are not included in a work order work plan).

3.3.3 CREATING TRANSFER TRANSACTIONS

Items can be transferred from one storeroom location to another inventory location using the Transfer Out and Transfer In tabs. Transfers can be made within a Site, or to another Site within your Organization. You also can transfer items from a storeroom to a courier location or a labor location.

Transferring items to another storeroom is done on the Transfer Out tab. You have the following options for selecting items for transfer out to another storeroom:

- **Select PO Items** — allows several options to filter your search when you transfer items on an internal PO to another company storeroom.
- **Select Items for Transfer** — allows you to filter your search by Item, Bin, and Lot.
- **Select Asset Spare Parts** — allows you to select from the spare parts associated with a particular asset.
- **New Row** — allows you to enter items to be transferred individually.

Receiving the transfer into a storeroom is done on the Transfer In tab. You have the following options available when transferring items into a storeroom:

- **Select PO Items** — allows several options to filter your search when you transfer items on an internal PO to another company storeroom
- **Select PO Items in Transit** — allows you to select items from internal purchase orders that are in transit with a courier.
- **Select Items for Transfer** — allows you to filter your search by Item, Bin, and Lot.
- **Select Asset Spare Parts** — allows you to select from the spare parts associated with a particular asset.
- **New Row** — allows you to enter items to be transferred individually.

3.3.4 MANAGING ISSUES AND TRANSFERS

You use the Issues tab to return previously issued items and materials, for example, if some parts on a work order were not needed. Note the following restrictions on returns:

- You cannot return rotating asset that has been modified (moved or worked on) since its original issue.
- You cannot return a partial kit. The remaining kit components should be returned as individual items.

3.4 PARTS CHARGED UPON RECEIPT

Certain Organizations may limit or prohibit all Part charges through the Inventory and Work Order applications in favor of using the Purchasing applications to record them. Many such Organizations generally charge all maintenance materials to a single cost account at the time of purchase. If the total dollar cost of maintenance parts is insignificant in percentage to the overall expenses, such a strategy could be defended. However, in some maintenance shops it is done as a convenience, rather than spending the time to properly record the receipt and final destination of those materials. Not only does such a strategy incorrectly represent the stock on hand (there would be none), but the material costs that were used on specific Work Orders, Locations and Assets would not be added to the Labor costs of such work, thus understating the actual cost of maintenance for that asset.

Other commonly-used transaction shortcuts are to purchase Parts and charge the entire lot purchased to the Work Order that triggered the requirement, when only a portion of the Parts purchased were spent on the job. This practice encourages overbuying of stock which would likely become dormant stock in mechanics' lockers and other undocumented areas. It also invites pilferage. If the quantity of stock purchased exceeds the amount that will be used on the Work Order, a much better procedure is to receive the stock into the Storeroom, issue out the necessary amount for the Work Order (through the Work Order actuals screen or Issues and Transfers) and leave the remaining balance in the Storeroom as a stock balance for future use/issue.

3.5 PROCESSING STOCK RETURNS

Since issue transactions saved cannot be deleted - or the issuing balance edited, whenever a Part is not used on the job, a return to Storeroom will be required. This can be handled through either the Work Order, see Figure 8.4, or Issues and Transfers, see Figure 8.5, applications. The Return transaction is shown below as it would appear when returning the four filters to the Central Storeroom that had previously been charged to Work Order 1026. Using the Work Order Tracking application (Actuals tab), a new line entry is made and the Issue Type field is changed from its default value of "*Issue*" to "*Return*" as highlighted below. Users may wish to

delay recording Parts issue transactions on Work Orders until the work has been completed – thereby eliminating the need to process returns for Parts planned but unused.

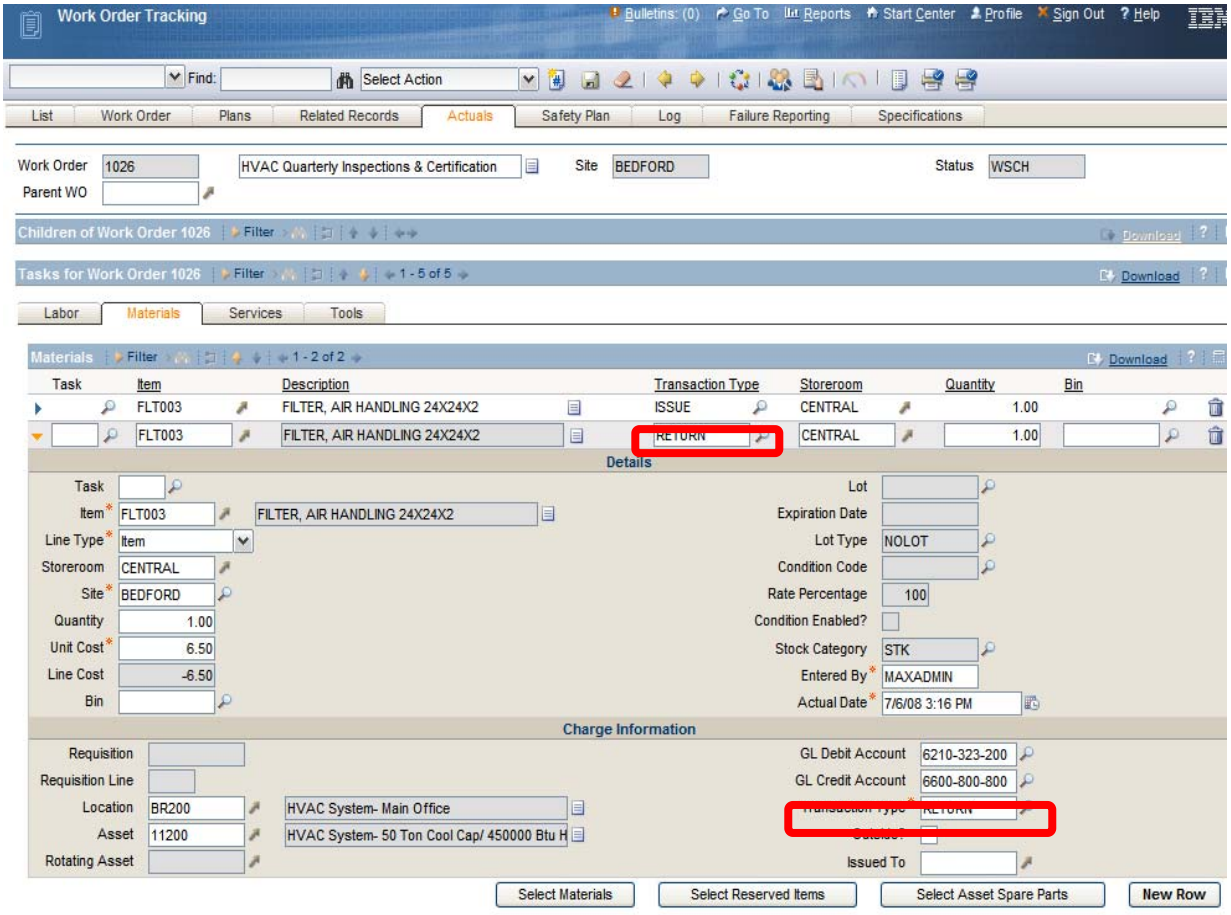


Figure 8.4 Work Order Tracking Application Item Return

The Issues and Transfers screen processes a return transaction slightly differently, by matching the return against a list of prior issue transactions.

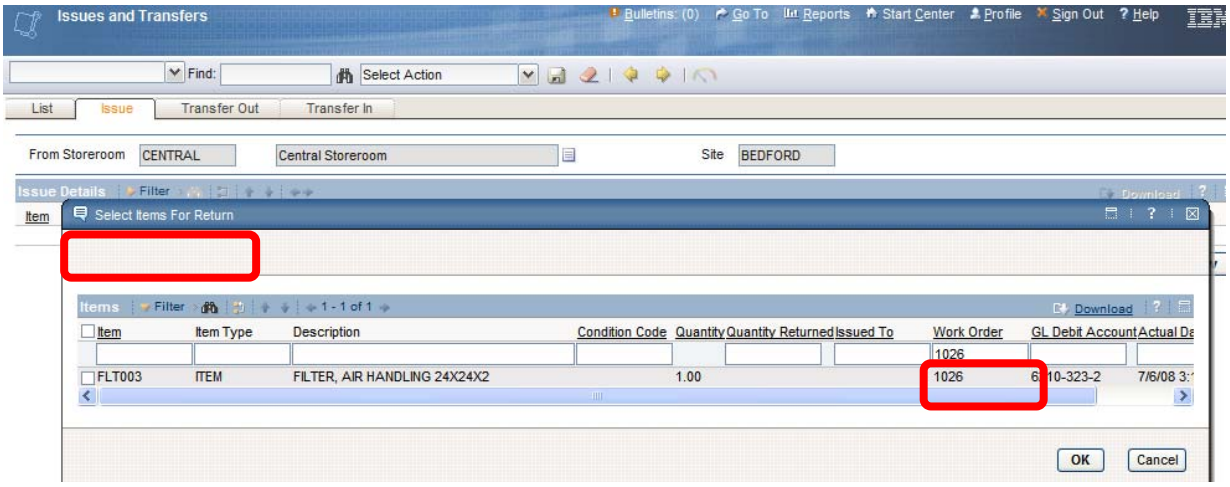


Figure 8.5 Issues and Transfers Application Item Return

As shown in the Figure 8.5 above, the User initiates the return transaction by selecting from a list of previous issues from the named Storeroom and a filter (Work Order number, date, etc.) specified by the User. After the User has entered the filter values, click the **binoculars icon** (or click the Enter key) and the system displays the list of Parts issues from the Storeroom matching the filter request. The User then clicks the checkbox to the right of each Item that was returned to the Storeroom. The system will create a second row with a transaction to replenish the balance and reverse the GL account transactions, negating the original issue transaction, see Figure 8.6.

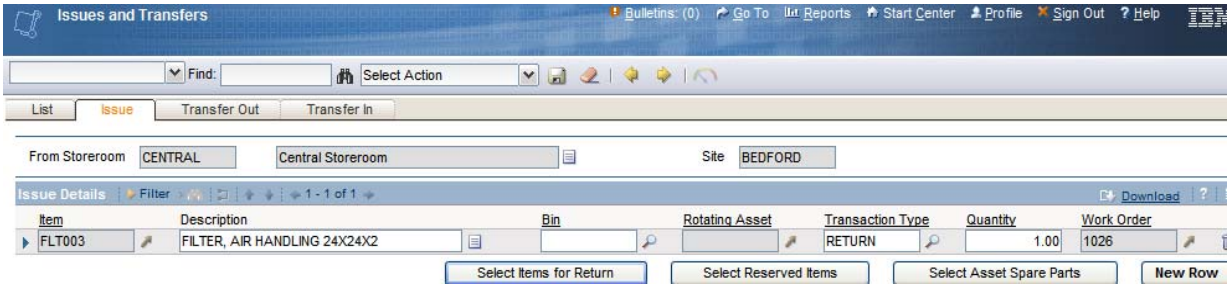


Figure 8.6 Issues and Transfers Application Item Returned Record

3.6 THE ISSUES AND TRANSFERS TRANSFER OUT/TRANSFER IN SCREENS

At the Organization's option, Labor records and Courier records can be established as Storeroom locations. For example, a mechanic checks out a Part prior to receiving the Work Order charge number and becomes a temporary Storeroom, or a third party Prime Source Vendor becomes a temporary Storeroom when they hold Parts on behalf of your Organization. A transfer of a Part to a Labor or Courier can be completed in either the Transfer In or the Transfer Out tab screens, but not the Issue screen. As shown below, the quantity, Part ID and

receiving Storeroom are all that is required to accomplish both the Issue and the Receipt side of the transaction. (Note: After entering a Transfer Out transaction, do not go to the Transfer In screen and duplicate the transaction, as it would then be recorded twice.) If you are transferring a Part to a Labor or Courier location, you will have to use the Transfer Out screen, since only Inventory Storerooms can be used as the key value for the Issues, Transfer In and Transfer Out screens. Likewise, if you are sending a Part from a Labor or Courier location to your Storeroom, you will have to use the Transfer In screen. In the *To Location* field, the User will enter the receiving Storeroom ID, a Labor record or a Courier record, see Figure 8.7.

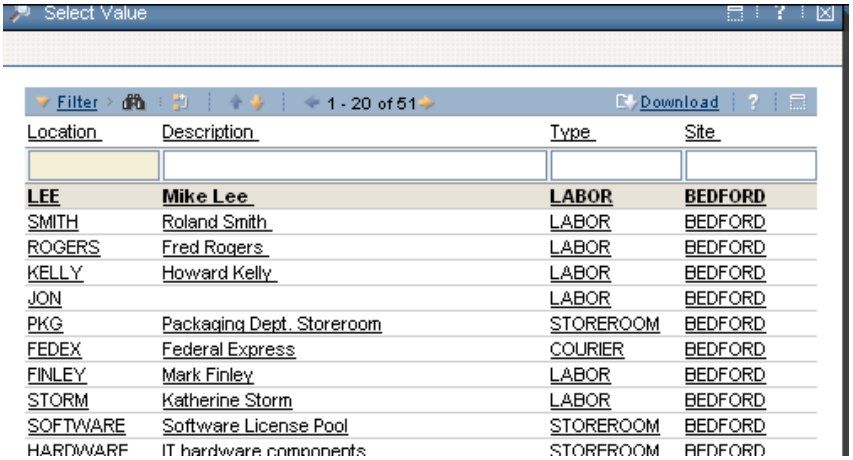


Figure 8.7 Issues and Transfers Application Item Transferred to Labor or Courier

4 REVIEW QUESTIONS

1. From the Issues tab in the Issues and Transfer application, enter the Storeroom that you used to create your new Item in the previous chapter workshops. Then create a new row and place the Part you created in the Item field. Use the search arrow icon to locate your Part if necessary.

2. Complete the information on that line issuing the new Part to an existing Work Order.

   - What happens if you choose a Work Order that has a status of *WAPPR, CAN,* or *CLOSE*?
   - Upon completing the row, save the record.
   - Hyperlink to the Work Order and once in the Work Order Tracking application, see if the Part issue is visible on the Actuals screen.
   - If you charge the wrong Work Order number and save the transaction, how would it be edited at a later date?

- Using the Work Order Tracking screen or by returning to the Issues and Transfers application, process a return of the transaction you just entered.

3. From the Issues and Transfers application, transfer two units of your new Part from one Storeroom to another Storeroom.

   - Did you remember to change tabs?
   - What information and security privileges are required to complete the transfer?

4. Search the database for a bearing (or other Part) of your choosing.

   - Check the Item Availability option to locate the Storeroom with the largest available quantity.
   - Issue the entire Storeroom balance to a Work Order.
   - Check the reorder point and Stock Category for the part in that Storeroom (found in the Inventory application Reorder screen).
   - Will a reorder be created for that Part the next time the Reorder process is generated for that Storeroom?