

Industry-specific

QAD SOLUTIONS

Manufacturing Applications

User Guide Advanced Inventory Management (AIM)

Setting Up AIM
Using AIM
AIM Reference



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MFG/PRO Version 8.6E, 9.0, eB, and eB2
AIM Version 2.0 and higher
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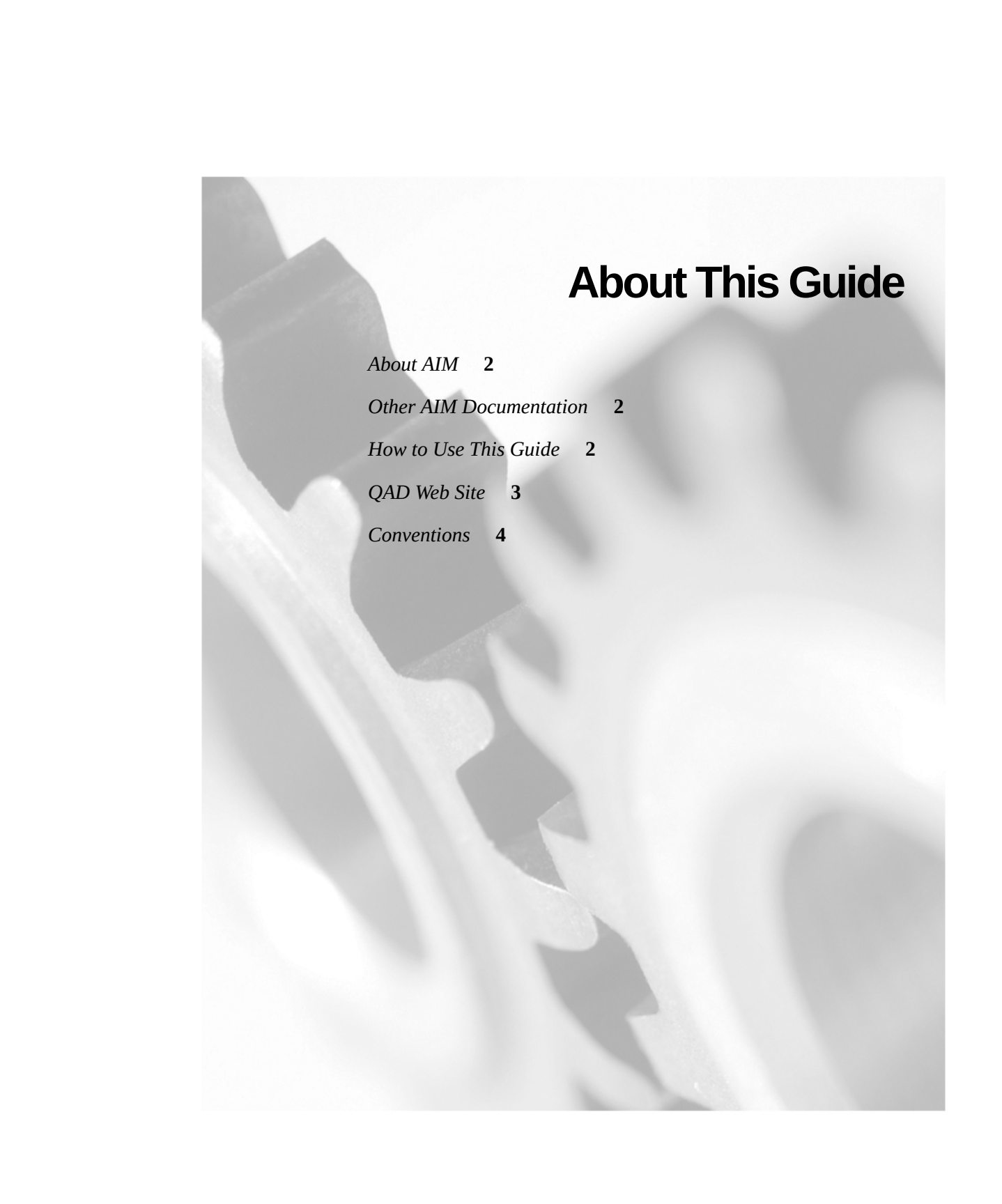
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The background of the page is a grayscale photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and motion. The lighting is soft, highlighting the metallic texture and the sharp edges of the gear teeth.

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About AIM

Advanced Inventory Management (AIM) is a module designed to work with QAD's MFG/PRO system. AIM has been especially developed to meet the requirements of organizations in a manufacturing or distributing environment where powerful but flexible stock control facilities are an important part of the business process.

AIM offers a range of inventory management facilities that enable you to control the receipt, put away, storage, picking, and shipping of inventory using warehouses that exist within the MFG/PRO environment. AIM provides a suite of programs and fields that let you set up the way that your inventory management processes operate, and a range of control, inquiry, and reporting functions that let you run the system efficiently on a day-to-day basis.

Other AIM Documentation

This guide provides detailed information about how to implement the AIM system and how to use AIM in day-to-day operations.

For details on installing the AIM product, see *Installation Guide: Advanced Inventory Management*.

How to Use This Guide

This guide assumes that readers are familiar with the following:

- Basic use of the Windows operating environment, the keyboard, and the mouse
- Terminology used in manufacturing, distribution, and warehousing, such as items, sites, locations, purchase orders, and works orders
- The MFG/PRO system

This guide is divided into three major sections:

- Section 1, "Setting Up AIM," beginning on page 5
- Section 2, "Using AIM," beginning on page 197
- Section 3, "AIM Reference," beginning on page 349

Any reader requiring information on specific AIM facilities should use one of the following methods to find the required information:

- Refer to the Contents list at the front of the guide.
- Search for a subject in the Index at the back of the guide.
- Read the introductory paragraph at the beginning of each chapter for an overview of the subjects covered by that chapter.

QAD Web Site

The QAD Web site provides a wide variety of information about the company and its products. You can access the Web site at:

<http://www.qad.com>

For users with a QAD Web account, product documentation is available for viewing or downloading at:

<http://support.qad.com/documentation/>

You can register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the page. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Adobe Acrobat Reader. A link for downloading this program is also available at the QAD Web site.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Features also include an online solution database to help users answer questions about setting up and using the product. Additionally, the QAD Web site has information about training classes and other services that can help you learn about MFG/PRO and related products.

Conventions

AIM is available in two interfaces: windows and character. To standardize presentation, the documentation uses the following conventions:

- Screen captures show the Windows interface.
- References to keyboard commands are generic.

Example Choose Go refers to:

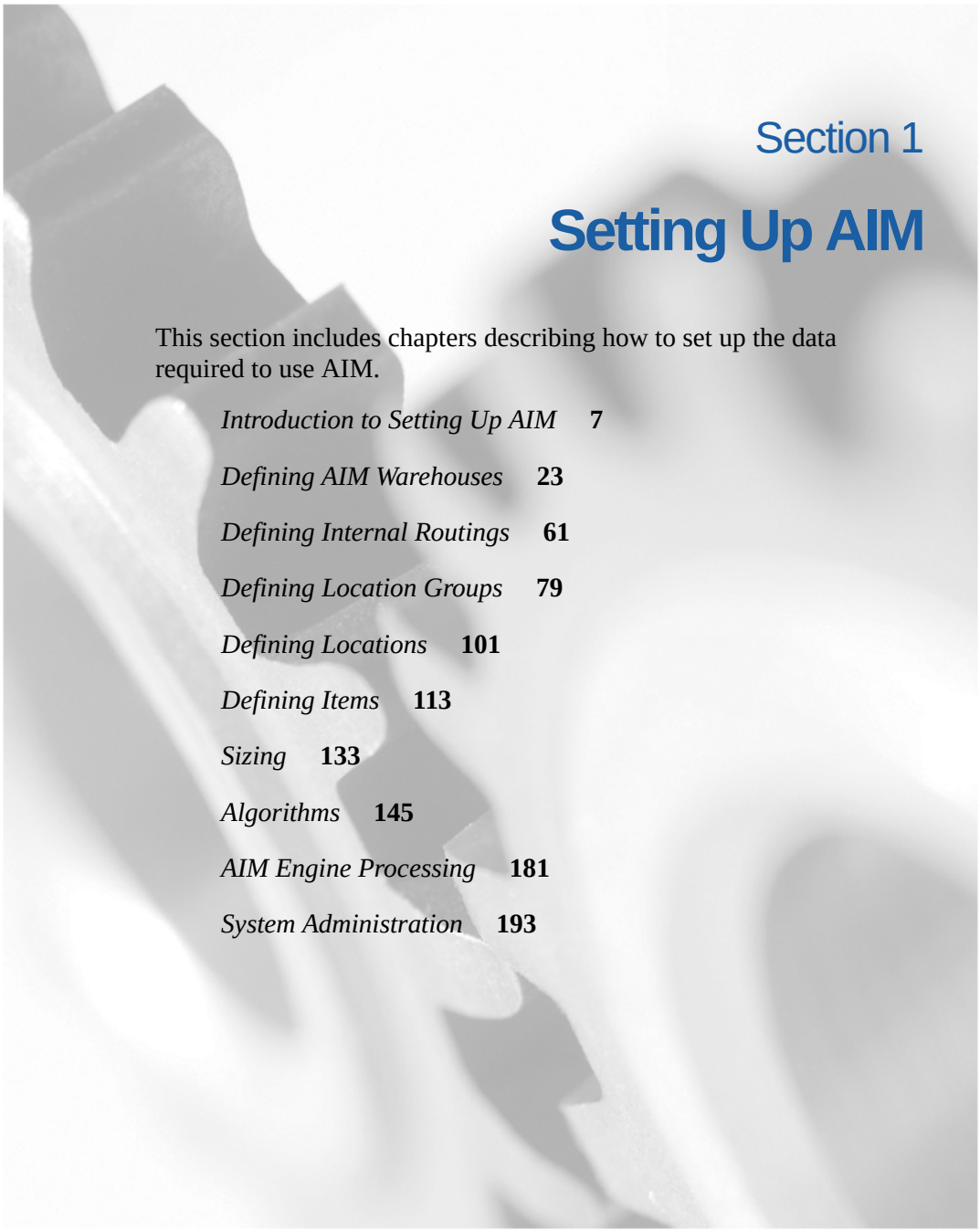
- F2 in the Windows interface
- F1 in the character interface

In the character and Windows interfaces, the Progress status line at the bottom of a program window lists the main UI-specific keyboard commands used in that program.

For complete keyboard command summaries for each interface, refer to the appropriate chapters of *User Guide Volume 1: Introduction*.

This document uses the text or typographic conventions listed in the following table.

If you see:	It means:
monospaced text	A command or file name.
<i>italicized monospaced text</i>	A variable name for a value you enter as part of an operating system command; for example, <i>YourCDROMDir</i> .
indented command line	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.



Section 1

Setting Up AIM

This section includes chapters describing how to set up the data required to use AIM.

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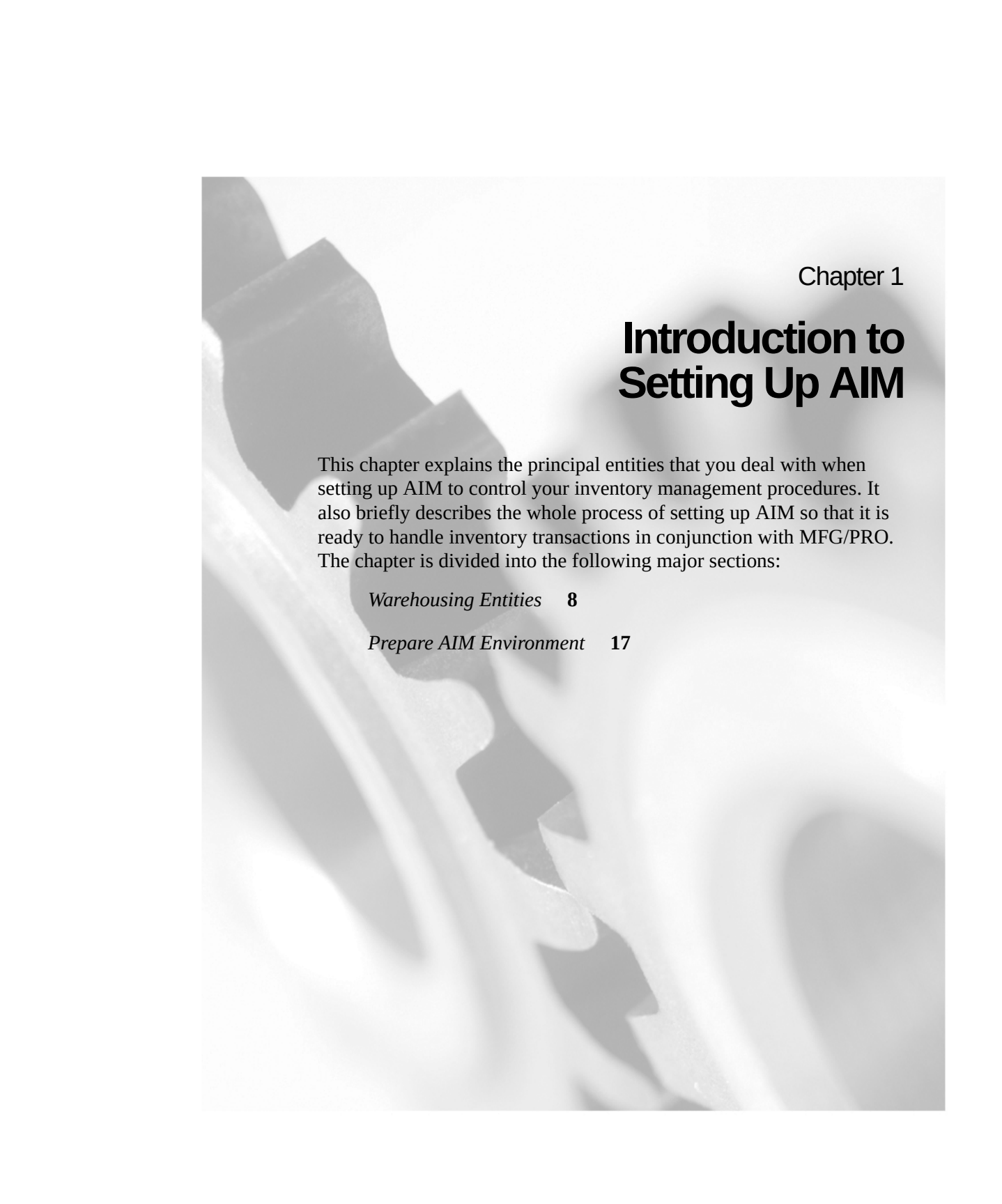
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Chapter 1

Introduction to Setting Up AIM

This chapter explains the principal entities that you deal with when setting up AIM to control your inventory management procedures. It also briefly describes the whole process of setting up AIM so that it is ready to handle inventory transactions in conjunction with MFG/PRO. The chapter is divided into the following major sections:

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Warehousing Entities

Advanced Inventory Management (AIM) provides highly flexible and adaptable warehousing facilities that integrate fully with the MFG/PRO system. AIM lets you incorporate a full range of inventory management functions into the warehousing aspect of your business.

To minimize the intrusiveness of integrating AIM into your MFG/PRO system, it has been designed so that almost all the operational functions work without the need to change MFG/PRO. Without AIM, MFG/PRO recognizes sites and locations. However, running a complex warehousing operation using only these entities is limiting, so AIM introduces a set of new entities that let you be very specific about the way you receive, store, and pick your inventory.

These new entities start at the warehouse level. In AIM, a *warehouse* is the highest level of AIM-specific data. The other elements of warehousing that are specific to AIM are all subsidiary to the warehouses. They represent ways of:

- Arranging storage locations within each warehouse
- Defining the routes through the warehouses that you want your inventory to take
- Handling the inventory management transactions that are involved in managing your warehousing activities on a day-to-day basis

This chapter briefly introduces each of the main AIM entities including:

- Warehouses
- Internal Routing Groups (IRGs)
- Internal Routings
- Storage Location Groups (SLGs)
- Work Location Groups (WLGs)
- Locations
- Items
- Units of Measure (UM)
- Algorithms
- Transaction types
- Engine processes

Introducing Warehouses

An AIM warehouse consists of a group of storage locations. These can constitute a single building, but this is not necessary. A warehouse could be part of a larger building, or, for storage of material such as construction materials, the storage locations could be in the open air. A single warehouse could actually consist of a number of separate buildings. To define it as an AIM warehouse, you identify the storage locations that you want to group together and manage in the same way.

Because MFG/PRO does not have to be aware of all the workings within the warehouse, each AIM warehouse is defined in MFG/PRO as a standard MFG/PRO location. This approach lets you keep all the internal warehouse operations separate from other MFG/PRO activities. When you want to send inventory into an AIM warehouse, as far as MFG/PRO is concerned, you are simply putting it in a location. However, when that location is also specified as an AIM warehouse, all the AIM warehousing facilities become available within it.

From MFG/PRO's point of view, you receive inventory into a location such as WHSE01, which is associated with an existing MFG/PRO site. However, because this is an AIM warehouse, the inventory does not actually stay in that location. The location is used as a gateway into the actual storage locations that exist within the warehouse.

Eventually, the inventory is put away in one or more actual storage locations within the warehouse. These are real locations, not dummy locations. Each of these actual locations is also defined as an MFG/PRO location, so the inventory is again recognized by MFG/PRO as residing in a known location in a known site. The part of this process that AIM handles is the selection of the locations for the inventory, an activity that is transparent to MFG/PRO.

In order for AIM to put your inventory away in the way you require, you must define the characteristics of your warehouses. This involves setting up a range of fields that control the inventory management processes, and also defining the way that the storage locations within each warehouse are broken down into groups.

The main groupings of locations within a warehouse are:

- Internal routing groups
- Storage location groups
- Work location groups

Note Since AIM does not modify the MFG/PRO database, the relationship between site and location is still the same. This means that locations are unique to a site. Because of this, two locations in two different warehouses but at the same site cannot have the same name.

As explained, items are received in a location representing a warehouse. The inventory status of this location should be non-available but nettable. Even though the inventory does not remain for long in that dummy warehouse location, the non-available status prevents the picking process from looking there.

Warehouse Location Groupings

AIM manages the movement of inventory within and between warehouses by defining pathways that take the inventory from one part of the warehouse to another. These pathways are called *internal routings*, and defining them involves specifying a sequence of steps that determine which part of the warehouse the next step goes to and any specific controls that should be applied at each step.

The parts of the warehouse involved in these internal routings are the major breakdown of the warehouse storage locations into areas that have a specific purpose. In AIM, the top-level grouping of the storage locations is known as an *internal routing group (IRG)*.

Example You define an internal routing group for receipt, another for bulk storage, and another for dispatch. Each internal routing that defines a route for inventory to take through the warehouse involves moving the inventory from one of these groups to another.

The next level below the internal routing groups is the *storage location group (SLG)*. All the storage locations within an IRG can have the same basic function, such as bulk storage, but the use of SLGs enables you to group your storage locations in more specific ways. For example, you can

group together all the locations in which a particular type of item is stored, or which have a common purpose, such as a primary picking area within bulk storage.

In parallel with the storage location groups is another way of grouping locations called the *work location group (WLG)*. This way of grouping locations enables you to account for factors related to working practices. For example, you can specify the printers to use, and the format of the printed output, for each separate work location group.

When you have set up all the groupings within a warehouse, every location belongs to a particular storage location group as well as a particular work location group. Each SLG is defined as being within an internal routing group. The hierarchy of these groupings is shown in Figure 1.1.

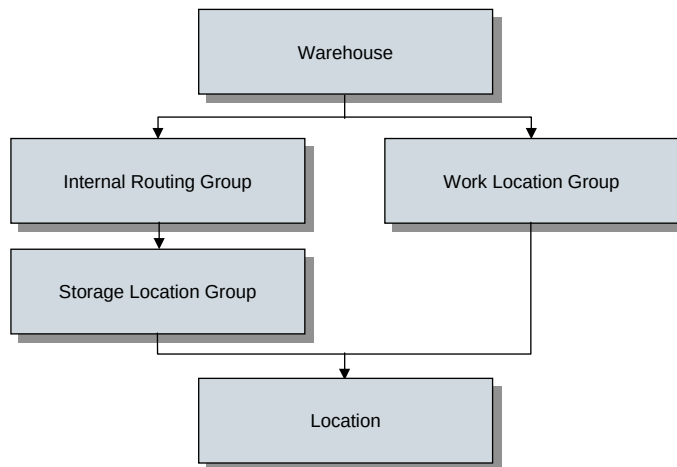


Fig. 1.1
Warehouse and Groups

Part of the flexibility of AIM comes from the fact that you can set up as many IRGs as you need within a warehouse, you can set up as many SLGs as you need within each IRG, and you can set up just one WLG, or as many as you need for your different working areas.

No rules govern the type of internal routing groups that you have to set up in a warehouse. Most users define areas such as receipt, inspection, storage, picking, packing, and dispatch. However, none of these are mandatory—you choose the areas you want, and you then choose the routes through these areas that you want your inventory to take.

Note You use IRGs to distinguish between the major functional areas of your warehouse. Although you have as many IRGs as you need for the goods-in and goods-out areas, you normally need only one or at the most two IRGs in your main storage area. Within your main storage IRG, you use SLGs to distinguish between the different types of storage areas.

AIM recognizes two basic types of internal routing group: functional and non-functional. The functional IRGs are areas that have a particular warehousing function, such as receipt or dispatch. Non-Functional IRGs are used for storing inventory. For AIM, the difference between the two types is the way in which it considers locations in the group when putting inventory away:

- In functional IRGs, AIM uses routines that simply find a location for the inventory, without considering capacity—the location-find algorithms.
- In non-functional IRGs, AIM uses routines that consider the size and quantity of the inventory, and the available capacity of the locations—the put-away algorithms.

The reason for this is that when you are receiving inventory, you simply want to find somewhere to put it in the goods-in part of the warehouse, and when you are shipping inventory, you just want to move it to the goods-out area. In either case, available storage space is not a relevant factor. However, when you are storing inventory—whether in bulk storage or in a picking area—you want AIM to choose the most efficient locations that meet your warehouse storage strategy.

Locations and Items

Both the locations that you define in your warehouses and the items of inventory that you intend to receive, store, and ship are elements that are also used by MFG/PRO. In both cases, though, some additional information is required by AIM so that it can manage your inventory procedures in the warehouses.

For locations, you must define for AIM the groups to which the location belongs (SLG and WLG), and specify a number of fields that control the way that inventory is stored in and picked from the location. AIM provides a Location Maintenance (80.3.13.1) function that replaces standard Location Maintenance (1.1.18) in MFG/PRO. You can,

therefore, set up all your location details within AIM. Standard Location Maintenance options are not recognized by AIM, and are not available for AIM warehouse functions.

For items, AIM requires certain additional fields that relate to item storage. However, AIM does not provide full item maintenance functions. For items, therefore, you define the basic item data using standard MFG/PRO programs, and then use the AIM item data functions to define the additional warehouse storage information.

Sizing and Units of Measure

One significant type of information about locations and items that AIM needs is the way they are sized and the units of measure used. AIM has a flexible approach that does not require you to specify a warehouse as being palletized or non-palletized. You can mix palletized goods with different types and sizes of pallets and loose items within the same location.

To be able to do this and still retain accurate records of the quantities of inventory and the available location capacities, AIM uses a system of alternate units of measure (UM). This enables you to define a base UM for an item, and also define alternate UMs that can be used for receipt, storage, and picking the item. You must define the conversion factors between the different UMs used for the item, such as how many items are in a box, or how many on a pallet. You also must define whether a unit can be split when picking inventory from a location.

When you have given AIM all the sizing data about your inventory items and your storage locations, it is then able to offer you complete flexibility regarding the storage and picking of those items.

Algorithms and Transaction Types

“Warehouse Location Groupings” on page 10 mentions the different routines that AIM uses when putting stock away in functional and non-functional areas. These routines are called *algorithms*. Each algorithm is a separate program that takes into account particular conditions before attempting to carry out an inventory movement transaction.

♦ See Chapter 8, “Algorithms,” on page 145.

Advanced AIM users can set up new types of algorithms to perform special functions, but the basic five types of algorithm are as follows:

- Location-find (LF) algorithms are used in functional IRGs to find a location for the inventory without considering capacity.
- Put-away (PA) algorithms are used in non-functional IRGs to find locations in storage areas by considering the size and available space.
- Picking (PK) algorithms are used when picking stock to fill sales orders or work orders.
- Shortage clearance (SC) algorithms are used when receiving stock that is immediately required to fill short orders. The inventory is moved directly from receipt to dispatch, being stored in between. This type of movement is also known as cross-docking.
- Inspection (QA) algorithms are used to determine when an inspection must take place.

AIM lets you choose which algorithm to use in any given situation. At the simplest level, you can just assign a particular algorithm to a particular transaction type.

Example When you receive inventory as a result of a purchase order, the transaction type is RCT-PO. You can define an internal routing for a RCT-PO transaction that moves it first to the receipt IRG and then to the storage IRG. The first movement uses a location-find algorithm to find a space in the functional receipt area; the second movement uses a put-away algorithm to find suitable locations for the inventory in the non-functional storage area.

In each of these movements, you can select which algorithms you want to assign. In put-away, you can choose different criteria, such as empty locations, or popular locations, or locations where the inventory can be merged with existing stock.

AIM also lets you assign a sequence of different algorithms for each transaction type. AIM tries your first choice algorithm, but if this does not succeed in completing the transaction, AIM then applies the second choice algorithm, and so on until the transaction is complete.

As well as assigning algorithms to each transaction type, you can also specify combinations of site, warehouse, item, supplier, or customer for which a different sequence of algorithms is to be applied. This approach

lets you be very specific about exactly how you handle supplies of stock from particular suppliers and how you pick particular inventory for particular customers.

Algorithm assignment setup can be as simple or as complicated as needed.

The most general setup of algorithm is for a generic transaction type (RCT-*, which represents all kinds of receipts: unplanned, PO, DO, WO...), for a given site and warehouse combination, and for a blank item, item type, and address.

On the other hand, you can define a very specific algorithm assignment for a given item for a given transaction type, in a given site/warehouse, and coming from a given supplier or going to a given customer.

Engine Processing

When all the AIM fields have been specified and you are operating your AIM warehouses, AIM uses processing engines to process all the inventory transactions.

Processing engines are run-time programs within AIM that select and process all the required inventory transactions. The way you set up your internal routings controls the way that inventory transactions are created and confirmed, and each step of an internal routing specifies the next step that is to follow when the current step is complete.

For each transaction type in each internal routing, you can specify the type of engine processing that you want applied. The three types are:

- AUTO mode specifies that the transaction is processed immediately.
- MANUAL mode specifies that the transaction is processed only when it is selected for processing by warehousing staff.
- TIMED mode specifies that the transaction is processed a set time interval after the preceding transaction has been confirmed.

By applying these different types of engine processing, you can control whether inventory passes through an internal routing automatically, with intervention from warehouse staff, or with built-in delays at specific stages.

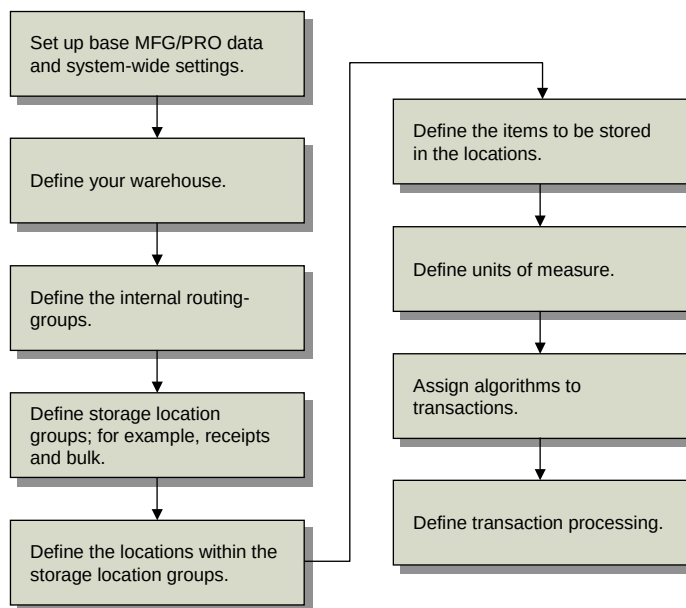
Example An internal routing is defined to go from Storage to Packing, and then from Packing to Dispatch. In AUTO mode, as soon as the transaction from Storage to Packing is confirmed, the next transaction is created. This could mean that somebody receives a task before the packing really takes place. In order to avoid this, you can use the MANUAL mode so the next step (from Packing to Dispatch) is only created when the mode is changed to AUTO.

Note The TIMED mode can only be used with an appropriate program, so only advanced AIM users with Progress experience can use it.

Setting Up AIM

See Figure 1.2 for an illustration of the work flow for AIM setup. Each work flow step is discussed on the following pages.

Fig. 1.2
AIM Setup
Work Flow



Prepare AIM Environment

The first step in setting up AIM is to ensure that the MFG/PRO environment in which your AIM warehouses are to operate is already completely defined within MFG/PRO. This means that you must ensure that all the following elements have been set up:

- All the sites in which you want to set up AIM warehouses
- All the inventory items you want to store in your AIM warehouses

Refer to your MFG/PRO documentation for details of setting up these elements.

Also, you must set up system control fields that govern the entire AIM operation using System Control File (80.24.24). You can also define the numbering sequences that you want AIM to use for automatically generated pallet references and for generating location identifiers when creating a range of storage locations. You do this using the AIM Sequence Definition options on the System Menu (80.24).

♦ See “System Control File” on page 28.

Define Warehouse

The second step is to set up details of the AIM warehouses you want to operate. Each AIM warehouse must have its individual fields defined. However, often you have similar requirements for a number of warehouses, so AIM lets you set up generic defaults used for each warehouse. You can also set up master lists of warehouses, which define the order AIM should use looking for a warehouse for an item. The sequence is:

- 1 Use Warehouse Control File Maintenance (80.1.24) to set up generic defaults for your warehouses. This step is optional.
- 2 Use Warehouse Maintenance (80.1.1) to set up the individual fields for your warehouses. This step is mandatory.
- 3 Use Warehouse Master List Maintenance (80.1.5) to set up master lists of warehouses that you can attach to inventory items. This step is optional; however, for multi-warehouse picking or inter-warehouse transfers and picking, it is mandatory.

♦ See “Warehouse Maintenance” on page 32.

♦ See page 30.

♦ See page 32.

♦ See page 54.

Define Internal Routings

▶ See Chapter 3, “Defining Internal Routings,” on page 61.

The third step is to define the internal routing groups (IRGs) within each warehouse, then define the internal routings you want to use to move inventory between these IRGs, and finally assign the internal routings to the inventory transaction types. This sequence is as follows:

- 1 Use Internal Routing Group Maintenance (80.2.1) to set up your IRGs. You must define these before you can create internal routings.
- 2 Use Internal Routing Maintenance (80.2.5) to set up your internal routings. These define specific pathways through the warehouse by way of the IRGs.
- 3 Use Internal Routing Assignment Maintenance (80.2.9) to assign your internal routings to particular transaction types.

Define Location Groups

▶ See Chapter 4, “Defining Location Groups,” on page 79.

The fourth step is to define the storage location groups and work location groups within the warehouse. You must set up these groups before defining locations, so you can specify the groups to which each location belongs.

- 1 Use Storage Location Group Maintenance (80.3.1) to set up your SLGs. You must define these before you can set up your locations.
- 2 Use Storage Location Group List Maintenance (80.3.5) to set up lists of SLGs, which you can use in place of an individually specified SLG to widen your choices for storage for an item. This step is optional.
- 3 Use Work Location Group Maintenance (80.3.9) to set up your WLGs. You must define these before you can set up your locations.
- 4 Use Inter-Work Location Group Maintenance (80.2.19) to specify any special requirements you have when moving inventory within a warehouse from one WLG to another. This step is optional.

Define Location

The fifth step is to set up all the individual storage locations within the warehouse. You define the standard location details as well as the required AIM fields. Where you have a large number of similar locations, you can use Mass Location Maintenance (80.3.13.21) to avoid repetition.

▶ See Chapter 5, “Defining Locations,” on page 101.

Setup locations using one of the following methods:

- 1 Use Location Maintenance (80.3.13.1) to set up individual locations one at a time.

—Or—

- 2 Use Mass Location Maintenance (80.3.13.21) to set up a range of similar locations.

If you want to set up a range of locations:

- a Use AIM Sequence Definition Maintenance (80.24.1) to set up a sequence definition code. This identifies the template to use for setting up the individual locations.
- b Use Mass Location Maintenance (80.3.13.21) to generate the range of locations. You specify the Sequence Definition to use, and AIM uses the format and range you defined in step a.

▶ See “Sequence Definition” on page 57 for details.

Define Items

The sixth step is to define the AIM fields for the inventory items you want to store in your AIM warehouses. The items must already exist in MFG/PRO. In addition to setting up the basic AIM fields for each item, AIM lets you specify information that links the storage or picking of an item with a particular site, warehouse, storage location group, supplier, or customer. The sequence is as follows:

▶ See Chapter 6, “Defining Items,” on page 113.

- 1 Use Item Maintenance (80.4.7) to set up generic default values for items. This step is optional.
- 2 Use Item-Site Maintenance (80.4.9) to set up default values for items that apply to all warehouses at the specified site. This step is optional, and uses the generic default values from Item Maintenance if you defined them.

- 3 Use Item-Warehouse Maintenance (80.4.11) to set up the actual fields to use for each item in the specified warehouse. This step is mandatory, and uses the site-level default values from Item-Site Maintenance if you have set these up.
- 4 Use Item/SLG Properties Maintenance (80.4.1) to specify additional warehousing fields for items related to a specific storage location group. This step is optional.
- 5 Use Supplier-Item Maintenance (80.4.13) to specify inspection parameters for a supplier-item relationship. This step is optional.
- 6 Use Customer-Item Status Maintenance (80.4.17) to specify particular inventory status codes for particular customers. This step is optional.

Note An additional option, Item Master Maintenance (80.4.5), combines all the first three steps in a single program, so that you can set up generic defaults, site-level defaults, and item-warehouse data in one continuous process. This option is an alternative to using options Item Maintenance (80.4.7), Item-Site Maintenance (80.4.9), and Item-Warehouse Maintenance (80.4.11).

Define Units of Measure

◆ See Chapter 7, “Sizing,” on page 133.

The seventh step is to set up details of the units of measure you want to use in the AIM sizing calculations. In practice, you may want to set up these details before you define the warehouses.

- 1 Use Alternate UM Maintenance (80.5.1) to define the alternate units of measure you want to use for sizing calculations for inventory and location capacities.
- 2 Use UM-Group Maintenance (80.5.5) to set up groups of related units of measure, with specified conversion factors between the different units. A UM group can then be attached to an item, with all the relevant conversion factors already be defined. This step is optional.
- 3 Use UM Conversion Generation (80.5.9) to attach the conversion factors for UM groups to selected ranges of items. This step is optional.

Note Defining UM groups helps to simplify the process of defining the conversion factors and assigning them to items. AIM does not use the UM groups other than to generate the conversion factors in UM Conversion Generation maintenance.

Assign Algorithms to Transactions

The eighth step is to link a specified sequence of algorithms to each transaction type that is used in your internal routings. A range of standard algorithms is supplied with AIM, but you can customize these, or add new algorithms, if required.

▶ See Chapter 8, “Algorithms,” on page 145.

- 1 Use Algorithm Type Maintenance (80.6.1) to modify the verbosity level for reporting purposes of any of the existing algorithm types. This step is optional.
- 2 Use Algorithm Master Maintenance (80.6.5) to modify the descriptions of existing individual algorithms within each of the algorithm type categories, or to add new algorithms to any of the categories.
- 3 Use Algorithm Assignment Maintenance (80.6.9) to link a specified sequence of algorithms to each transaction type or combination of transaction type, site, warehouse, item, and address. This step is required to define what algorithms AIM runs when processing your inventory transactions.

Define Transaction Processing

The ninth step is to define the processing fields associated with each of the transaction types you are using in your internal routings. Again, in practice, you may want to set up these details before you define warehouses. However, because the main transaction types are supplied

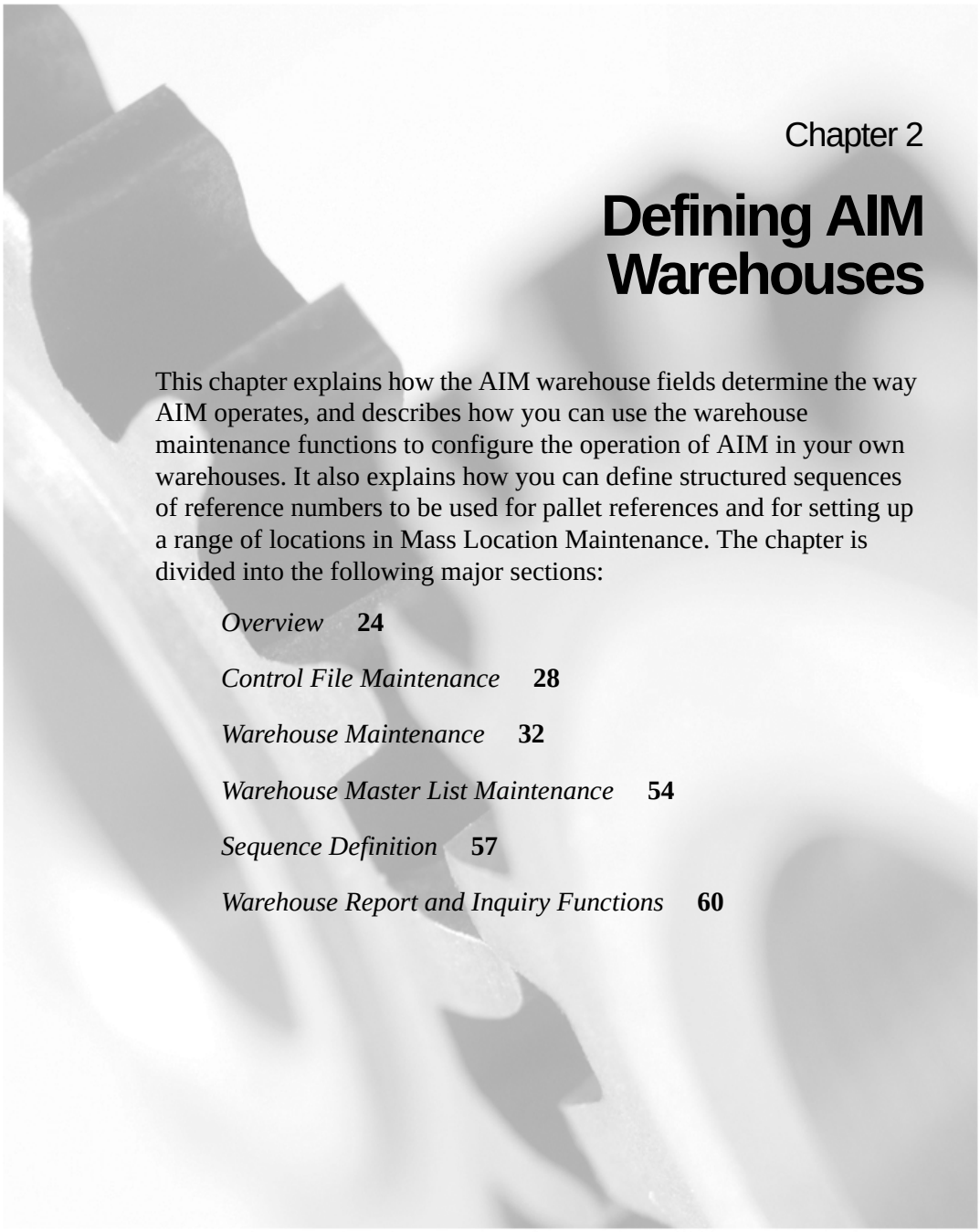
▶ See Chapter 9, “AIM Engine Processing,” on page 181.

with AIM and because they take default values from the basic warehouse fields, you may not need to make many alterations to the supplied transaction type fields.

- 1 Use Transaction Type Maintenance (80.7.6) to modify the processing fields for any of the existing transaction types, or to add new transaction types.
- 2 Use Warehouse Transaction Type Maintenance (80.7.10) to modify the processing fields for any of the existing transaction types, in relation to their operation within a specified warehouse. This step is optional.

▶ Refer to Section 2, “Using AIM,” beginning on page 197 for details of the day-to-day running of the system.

When you have completed these setup steps, your AIM system is ready for use.



Chapter 2

Defining AIM Warehouses

This chapter explains how the AIM warehouse fields determine the way AIM operates, and describes how you can use the warehouse maintenance functions to configure the operation of AIM in your own warehouses. It also explains how you can define structured sequences of reference numbers to be used for pallet references and for setting up a range of locations in Mass Location Maintenance. The chapter is divided into the following major sections:

Overview **24**

Control File Maintenance **28**

Warehouse Maintenance **32**

Warehouse Master List Maintenance **54**

Sequence Definition **57**

Warehouse Report and Inquiry Functions **60**

Overview

▶ See
“Warehousing
Entities” on
page 8.

Chapter 1 introduced the structure of an AIM site and the different entities that you need to set up. In its broadest possible definition, a warehouse consists of a grouping of storage locations. The logical grouping of these storage locations is further broken down into a hierarchy of internal routing groups, storage location groups, and, at the bottom of the hierarchy, the locations. In parallel with this logical structure is one relating to working practices that breaks the locations down into work location groups within the warehouse.

Managing the movement of inventory within your warehouses is a matter of specifying internal routings, which define a sequence of movements from internal routing group to internal routing group. These internal routings are associated with transaction types and items within the warehouse.

Example When a particular item is received as a result of a purchase order, the internal routing that is linked to the purchase order receipt transaction type for the item determines where the item is received and what route it takes through unpacking and inspection before it arrives in bulk storage.

You set up each warehousing entities—warehouses, internal routing groups, storage location groups, work location groups, locations, and internal routings—by setting values for a number of fields that control how that entity operates within your inventory management system. For example, for each storage location group, you can define fields that control whether issue of stock from locations in the group is allowed, and whether receipt of stock into locations in the group is allowed.

Because the warehousing structure is in the form of a hierarchy, many of the fields are applied at more than one level in the structure.

For example, you can specify at the warehouse level whether locations in the warehouse are allowed to contain stock with mixed inventory status codes. The value you specify for the warehouse becomes the default setting for each storage location group within the warehouse. At the storage location group level, you can either accept the default from the warehouse level, or override it with a different setting.

Because you can have several related warehouses within a site, a level in the hierarchy exists above warehouse defined in the Warehouse Control File Maintenance (80.1.24). The fields you set at this level do not control anything directly, but become defaults for each warehouse you set up. The highest level of all is the System Control File (80.24.24). However, the system control fields relate to overall use of the AIM system, and do not provide defaults lower down the hierarchy.

The most efficient way to set up your warehousing entities, therefore, is to start at the top of the hierarchy and work down. In this way, you only need to enter exceptions to the general field settings at the lower levels.

Use of both System Control File and Warehouse Control File Maintenance is described in “Control File Maintenance” on page 28; use of Warehouse Maintenance is described in “Warehouse Maintenance” on page 32.

Warehouse Master Lists

AIM warehouses and individual AIM locations are also defined as standard MFG/PRO locations. This enables them to use both the standard MFG/PRO facilities and the additional AIM facilities. One instance of this combined functionality is the feature where each item can have a default location. In AIM, this default location can be a dummy location that is defined as an AIM warehouse. The AIM functions then take over from standard MFG/PRO functions to find the actual location within the warehouse for the specified item.

However, you can specify a different warehouse for the item, depending on the type of inventory transaction being performed. For example, you can receive items in one warehouse, but pick for sales orders in another.

AIM supports this by letting you specify master lists of warehouses, which define different warehouses for different transaction types. You can attach one of these warehouse master lists to an item instead of a default location.

Example When a purchase order line is created, the system examines the Location field in the line. If it identifies the code as a warehouse master list, it looks in the list for the warehouse specified for purchase order receipts. That warehouse is then used as the location for the item.

Use of Warehouse Master List Maintenance is described in “Warehouse Master List Maintenance” on page 54.

Inventory Account Synchronization

MFG/PRO Inventory accounts are specified by product line. The cost of the full on-hand quantity of an item is posted to the general ledger (GL) account identified as the Inventory account for that item’s product line. This is how MFG/PRO represents the value of your company’s inventory within the general ledger. It is adjusted by any inventory transactions or cost adjustments that occur.

MFG/PRO lets you further refine this accounting process by defining a different set of Inventory accounts for each site. This is important since when an item is stored in multiple sites, site-specific GL accounts let you generate separate balance sheets for each site. If an Inventory account is not defined for a site, product line accounts are used.

This accounting refinement is extended still further. Within any site, you can give each individual location a different set of accounts. Without AIM, this process is frequently used to store all consignment stock—inventory held by your company but owned by somebody else—in a separate location that has a different set of Inventory accounts. GL reports then split the costs of this stock out to a different account.

In summary, MFG/PRO checks to see which Inventory accounts are affected whenever an inventory movement occurs. It does this by looking in the following order:

- 1 Accounts defined for a product line/site/location combination
- 2 Accounts defined for a product line/site combination
- 3 If neither of these is available, accounts defined for the product line

Within AIM, you can specify GL accounts at an additional level: for the warehouse. This lets you set up different accounts for all inventories stored in a specific warehouse. AIM makes this possible using a process called account synchronization.

Based on standard MFG/PRO features that support GL accounts at the location level, if you define Inventory accounts for a product line/site/warehouse combination, AIM automatically duplicates this definition for every location within that warehouse.

Example Warehouse W in site S contains 1000 locations. When you create an entry for product line PL in Inventory Account Maintenance (1.2.13) (product line set to PL, site set to S, location set to W), AIM creates a duplicate record for every location within warehouse W. The single record you create results in 1001 Inventory account records.

The Inventory Account Sync field in Warehouse Maintenance, which defaults from Warehouse Control File Maintenance, lets you specify how you want your Inventory accounts synchronized for a warehouse. The options are Full, Partial, and Blank.

▶ See “Inventory Account Sync” on page 34.

- Full creates Inventory account records for the locations as described in the previous example, over-writing any existing definitions. That is, location accounts are always synchronized with the corresponding warehouse accounts.
- Partial is similar. It creates Inventory account records for the locations, but any existing location definitions are not over-written. This allows some location accounts to be different from the warehouse accounts.
- Blank prevents any automatic Inventory account synchronization. Instead, you can use AIM Inventory Account Synchronization (80.1.13) to perform that function manually. With this approach, you define all of the warehouse accounts required in Inventory Account Maintenance without creating any corresponding location accounts. The location accounts are created only when you run Account Synchronization.

Control File Maintenance

Two control files affect the way AIM operates:

- Use System Control File (80.24.24) to set a few fields that affect the entire AIM setup.
- Use Warehouse Control File Maintenance (80.1.24) to set system-wide default values for fields that you can specify for individual warehouses. These values default to each warehouse, but you can modify them as required.

System Control File

System Control File (80.24.24) is shown in Figure 2.1.

Fig. 2.1
System Control File
(80.24.24)

The screenshot shows a window titled "System Control File" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The window has two tabs: "Inventory" and "Transaction". The main area displays the following configuration fields:

- Version: AIM 1.6f (MFG 8.6C)
- Active ? :
- Template Delimiter:
- Inventory History ? :
- Reference Uniqueness Level:
- Verbosity Level:
- Cycle Count Reason:

At the bottom, it shows:

- Created: 09/09/98 patrickf
- Modified: 01/02/99

Active. Indicate whether AIM is active. Set this to Yes when you want to implement AIM. If this field is No, none of the AIM functions operate, and MFG/PRO uses all the standard non-AIM functions.

Template Delimiter. Enter the ASCII character that is to be used as the delimiter between fields. This is relevant when AIM data is to be downloaded to another system; for example, for producing pallet labels. The default is the tilde character (~), but you can enter another delimiter, if required.

Inventory History. Indicate whether the system should keep a permanent history of inventory master records. These relate to movements of inventory with a sizing type of R (reference), where the reference unit of measure is, for example, a pallet. The system

creates an inventory master record when the reference stock is received, and this record is moved when the stock is moved, along with the inventory detail records. When the inventory is shipped or broken down into inventory other than sizing type R, the inventory master record is deleted if you set Inventory History to No, or permanently retained if you set it to Yes. Using inventory history lets you perform pallet tracking audits.

Reference Uniqueness Level. Indicate how you want the system to enforce unique pallet reference numbers. Valid entries are:

Blank—References are unique throughout the system.

S—References are unique within each site.

W—References are unique within each warehouse.

L—References are unique within each location.

B—References are unique within each batch/lot/serial.

The L and B options effectively tell the system that the references are not actually unique, but prevent duplicate references being used in the same location or batch.

Verbosity Level. This field determines how many messages the system captures to be displayed on the Verbosity Report (80.24.11). You can set a value in the range 0 to 999 depending on the amount of message detail you want include, for example, for use when solving problems.

- Setting a low value such as 10 or 20 causes only the most important system messages to be reported.
- Setting a value of 999 causes all system messages to be reported.
- Setting a value of 0 switches off the function; no messages are reported.

Note Be careful when setting this field value. Even a low value can slow down AIM's performance. It is intended to be used only for trouble-shooting purposes.

Cycle Count Reason. This field sets the default for the reason for generating a cycle count, which you can enter in Cycle Count Generation (80.8.12). You can override the default as required when generating a cycle count.

▶ See Chapter 20, "About Cycle Counts in AIM," on page 296

Warehouse Control File Maintenance

Use Warehouse Control File Maintenance (80.1.24) to set default values for fields associated with individual warehouses.

Fig. 2.2
Warehouse Control
File Maintenance
(80.1.24)

Warehouse Control File Maint.
User Menu Edit Queue Options Help

Inventory Transaction

General Defaults

Default Whse Inv Status: **HOLD** Inventory Account Sync:
Allow Mixed Status Codes ? : no Reference NR ID:
Flavor: a Logistics UM Tolerance: 0.00%

Transaction Create Defaults

Confirmed at Source ? : Task:
System Code: Priority:
Two Phase ? : Increment:
Keep From Status ? :

Transaction Confirmation Defaults

"From Location" Option: "To Location" Option:
"From Item" Option: "To Item" Option:
"From Lot/Serial" Option: "To Lot/Serial" Option:
"From Reference" Option: "To Reference" Option:
Allow Quantity Increase ? : Alternative UM Option:
Allow Quantity Decrease ? : Repick Type:
Quantity Change Option: Allow Task Switching ? :

General Defaults

Default Warehouse Inventory Status. You set up AIM warehouses as dummy locations within MFG/PRO. Each location, including AIM locations, takes as a default value the inventory status from the site definition. However, for warehouses you normally want an inventory status that is unavailable, so that you do not hold inventory in the warehouse dummy location. This field lets you set up a default inventory status for each AIM warehouse.

Note The inventory status you specify for your AIM warehouses should be not available but nettable. Use Inventory Status Code Maintenance (1.1.1) to set up your inventory status codes.

See "Warehouse Maintenance" on page 32.

The remaining fields in the General Defaults frame, the Transaction Create Defaults frame, and the Transaction Confirmation Defaults frame set default values used when you define individual warehouse details.

The next Warehouse Control File frame is shown in Figure 2.3.

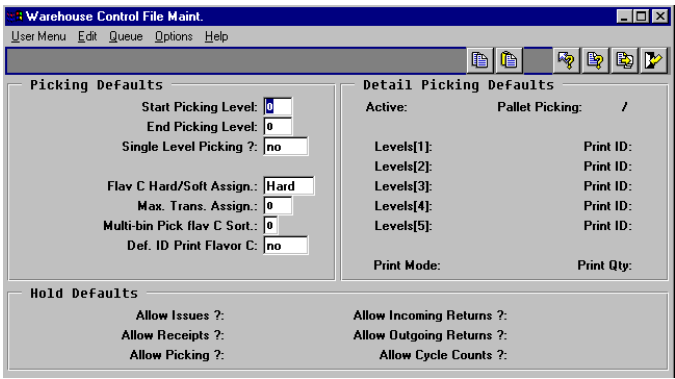


Fig. 2.3
Warehouse Control
File, Second Screen

The fields in the Picking Defaults frame, the Detail Picking Defaults frame, and the Hold Defaults frame set the default values for defining individual warehouse details.

See “Picking” on page 43, and “Hold Defaults” on page 44.

The next Warehouse Control File frame is shown in Figure 2.4.

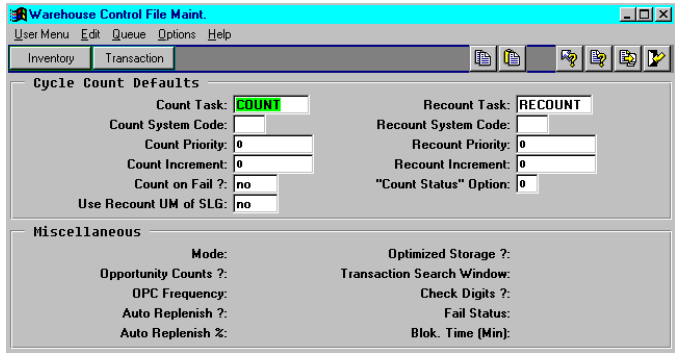


Fig. 2.4
Warehouse Control
File, Third Screen

The fields in the Cycle Count Defaults frame and the Miscellaneous frame set default values used when you set up individual warehouse details.

See “Cycle Count Defaults” on page 46, and “Miscellaneous” on page 48 for details.

The next Warehouse Control File frame is shown in Figure 2.5.

Fig. 2.5
Warehouse Control
File, Printer
Defaults

The screenshot shows a software window titled "Warehouse Control File Maint." with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is titled "Printer Defaults" and contains several sections of configuration options:

- IDENTIFICATION**
 - Print ID?: ☒ yes
 - ID Printer: IDPrint
 - Number Across: 1
 - Lines of Each: 0
- FORMS**
 - Form Printer: form
 - 132 Mode?: ☒ no
 - Use External?: ☒ no
- TASKS**
 - Pr on Create?: ☒ yes
 - Print on Conf?: ☒ yes
 - Task Printer: task
 - Number Across: 1
 - Lines of Each: 0
- EXTERNAL DEVICES**
 - External Device Printer:
 - Number Across: 0
 - Lines of Each: 0
 - Width of Each: 0
 - 132 Mode?: ☒ no
- EXCEPTIONS**
 - Print Except.?: ☒ yes
 - Print Mode: AUTO
- QA SAMPLING**
 - Insp Printer:
 - Number Across: 0
 - Lines of Each: 0
 - Width of Each: 0
- FORMAT**
 - Print Mode (Conf): AUTO
 - Print Flavor: a
 - Print by W. Loc. Gp.?: ☒ no

See “Printing” on page 52 for details.

The fields in the Printer Defaults frame set default values used when you set up individual warehouse details.

Warehouse Maintenance

See “Warehouse Control File Maintenance” on page 30.

Use Warehouse Maintenance (80.1.1) to set values for the fields associated with individual warehouses. Some of these fields directly control aspects of warehouse operation under AIM, while other fields act as default settings further down the hierarchy for internal routings or storage location groups associated with a warehouse. Most of the fields in Warehouse Maintenance default from Warehouse Control File Maintenance.

Figure 2.6 illustrates the first frame of Warehouse Maintenance (80.1.1).

Fig. 2.6
Warehouse
Maintenance
(80.1.1)

Enter values for the following fields:

Site. Enter the name of an existing site.

Warehouse. To modify the fields for an existing warehouse, enter the name of an existing warehouse.

To create a new warehouse, enter the name of the warehouse.

General Data

The General Data frame contains fields that relate to overall operation of the warehouse.

Description. Enter an optional text description of the warehouse.

Address. Enter the code for the address of the warehouse. Set up addresses for the company using Company Address Maintenance (2.12). This field is for information only.

Active. Enter Yes to make this an active warehouse using all the AIM functions. If you enter No, the warehouse is inactive and does not use the AIM functions.

▶ See “Sequence Definition” on page 57.

Reference Sequence ID. Enter the code that defines the format and sequence for reference numbers used to identify items such as pallets. The sequence definition format codes are set up using Sequence Definition Maintenance (80.24.1).

▶ See “Sequence Definition” on page 57.

Packaging Sequence ID. Enter the code that defines the format and sequence for packaging units, such as boxes or eaches, used for the detail picking module. The sequence definition format codes are set up using Sequence Definition Maintenance (80.24.1).

Flavor. Enter the code to define the style and format of Radio Frequency screens to be used for displaying AIM information. The Flavor codes are set up in Generalized Code Maintenance (36.2.13), and relate to display of information in situations such as forklift truck screens or Radio Data Terminals (RDTs).

▶ See “Inventory Account Synchronization” on page 26 for a more detailed explanation.

Inventory Account Sync. This field controls the synchronization of warehouse, location, and Inventory account records. The options are as follows:

F (Full synchronization)

P (Partial synchronization)

Blank (no synchronization)

Allow Mixed Status Codes. Indicate whether a single location in this warehouse can contain inventory with a mixture of different status codes. Enter Yes to allow mixed status codes; otherwise, enter No. This setting defaults to storage location groups within this warehouse.

Logistics UM Tolerance. Enter the tolerance percentage to be used when determining whether a location containing reference stock, such as pallets, is full.

Example If your standard pallet can hold 100 items, and you set the tolerance percentage to 5%, a location containing a pallet with 95 items is considered full, while one with 94 items is not.

This value defaults to the storage location groups you set up within this warehouse.

Log With Base UM Only. Indicate if the Logistic UM must be used when an item is received in a UM other than this base UM. For instance, if the logistic UM of an item is pl (pallet), the item is received in bx (box), and the base UM is ea (each), the system

generates pallet numbers only if Log With Base UM Only is set to No. If set to Yes, no reference is generated.

Comments. Enter Yes to display a standard page of comments when you press Go.

QAD Location Data

Because the warehouse is handled as a dummy location, you must specify the standard location data, as for any other location in MFG/PRO. This frame displays the relevant QAD location fields.

The Description is an optional text description of the location.

The inventory status defines the status of any inventory that is placed in the dummy location that corresponds to this warehouse. It is strongly recommended that you choose a status that defines the inventory as unavailable. This status defaults from the default warehouse inventory status field defined in Warehouse Control File Maintenance (80.24.1).

The Single Item and Single Lot/Reference fields are both automatically set to No. The dummy location—the warehouse—must be allowed to contain multiple items and multiple lot/references.

You can enter values for the other fields, but these do not affect the operation of the AIM functions. Refer to the MFG/PRO user documentation for further details of these fields and their use.

See User Guide
Volume 6: Master
Data.

Figure 2.7 illustrates the second Warehouse Maintenance frame.

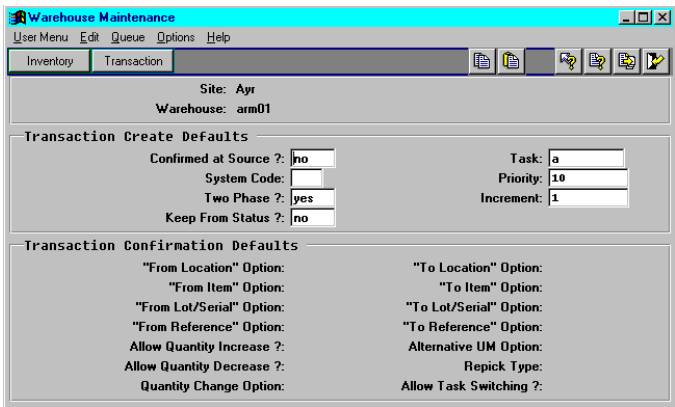


Fig. 2.7
Warehouse
Maintenance,
Second Screen

Transaction Create Defaults

The fields in this frame determine the characteristics of stock movement transactions that are created in the warehouse. The values you enter here default to all internal routings and work location groups within this warehouse and can be changed as needed.

Confirmed at Source. Enter Yes for transactions that are confirmed by the warehouse staff who initiate the stock movement; enter No for transactions that are confirmed by the warehouse staff who complete the stock movement at its destination.

Example In a warehouse with the three basic work areas (Receipts, Stores, and Dispatch) and two work teams (Receiving and Shipping), the receiving team logs on to their AIM devices in the Receipts area, and the shipping team logs on in the Dispatch area. Put-away transactions are created FROM receipts TO stores, and are confirmed by the receiving team. These transactions are defined with Confirmed at Source set to Yes. Picking transactions are created FROM Stores TO Dispatch, and are confirmed by the Shipping team. These transactions are defined with Confirmed at Source set to No since they are confirmed at their destination.

System Code. Specify the type of AIM screen that confirms transactions

Blank—normal AIM screens

RF—transactions confirmed using Radio Data Terminals (RDTs). (also known as RFs)

This field defaults to the internal routings and work location groups that you set up within this warehouse

Two Phase. This field default to the internal routings and work location groups that you set up within this warehouse.

No: Inventory movements are created and confirmed in a single step, the single phase.

Yes: Inventory movements are created in one step, the first phase, and confirmed in a second step, the second phase. In between the two phases, the stock is marked as being booked out of the first location and expected in the second location. However, the anticipated inventory levels are only confirmed when the stock is confirmed as arriving at the destination.

Note Two phase operation is a much safer way of ensuring precision in inventory management. Single-phase operation should only be used in special circumstances.

Keep From Status. Indicate how the system should set the status of transferred inventory.

No: The inventory takes its status from the new location.

Yes: The inventory status of the transferred inventory retains its original value.

This field defaults to the internal routings and work location groups that you set up within this warehouse.

Task. Specify the task associated with any inventory transaction that is created. This field defaults to internal routings and work location groups that you set up within this warehouse. You use it here simply to specify the most frequent task. Set up task codes in Task Maintenance (80.11.1).

▶ See “Defining Tasks” on page 324.

Priority. Assign a default priority value to transactions. The value you enter here defaults to the internal routings and work location groups that you set up within this warehouse. You normally assign different priorities to different types of transaction. The RDTs select the highest priority task as the next action: the higher the number you specify, the higher the priority.

Increment. Specify the increment that is added to a transaction’s priority as time elapses when you run the increment addition program as a background process.

Specifying an increment prevents the situation where a relatively low priority transaction never reaches the top of the priority list, and therefore, never gets performed. By gradually incrementing the priority, you ensure that even low priority tasks are eventually performed. This field defaults to the internal routings and work location groups that you set up within this warehouse.

Transaction Confirmation Defaults

The fields in this frame determine the characteristics of the confirmation of stock movements entered in the warehouse. The values you enter here default to internal routings within this warehouse, but you can change the values for individual routings.

Note During transaction confirmation, you can change location, item, lot, or reference only if source inventory is not detail allocated. If a detail allocation exists, the inventory record cannot be exchanged for another one. In this case, an error message displays.

From Location Option. Enter a number to define whether warehouse staff are allowed to modify the From Location aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed.
- 1 Issue a warning if the From location is changed.
- 2 Request confirmation if the From location is changed.
- 3 Require re-entry if the From location is changed.

From Item Option. Enter a number to define whether warehouse staff are allowed to modify the From Item aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed.
- 1 Issue a warning if the From Item is changed.
- 2 Request confirmation if the From Item is changed.
- 3 Require re-entry if the From Item is changed.

From Lot/Serial Option. Enter a number to define whether warehouse staff are allowed to modify the From Lot/Serial aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed.
- 1 Issue a warning if the From lot/serial is changed.
- 2 Request confirmation if the From lot/serial is changed.
- 3 Require re-entry if the From lot/serial is changed.

From Reference Option. Enter a number to define whether warehouse staff are allowed to modify the From Reference aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed.
- 1 Issue a warning if the From Reference is changed.
- 2 Request confirmation if the From Reference is changed.
- 3 Require re-entry if the From Reference is changed.

Allow Quantity Increase. Enter Yes if warehouse staff are allowed to increase the quantity when a transaction is confirmed; otherwise, enter No.

Example You might want sales orders to be picked in whole packaging quantities from Bulk Storage and then split down to the required quantity in a Repackaging area. The internal routing from Bulk Storage to Repackaging would then allow an increase in the original transaction quantity.

Allow Quantity Decrease. Enter Yes if warehouse staff are allowed to decrease the quantity when a transaction is confirmed; otherwise, enter No. This is normally set to Yes, unless your inventory management system can guarantee that sufficient inventory is always available in every possible circumstance.

Quantity Change Option. This field defines the action to take when the quantity is changed as controlled by the Allow Quantity Increase and Allow Quantity Decrease settings. The options are as follows:

- 0 Accept the change.
- 1 Accept the change and display a warning.
- 2 Accept the change after positive confirmation.
- 3 Force second entry of the quantity to confirm.

To Location Option. Enter a number to define whether warehouse staff are allowed to modify the To Location aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed
- 1 Reprompt; must be different location
- 2 Reprompt; can be same location

- 3 Reprompt; can be same location, warn if different
- 4 Reprompt; can be same location, confirm if different
- 5 Reprompt; can be same location, re-enter if different

To Item Option. Enter a number to define whether warehouse staff are allowed to modify the To Item aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed
- 1 Reprompt; must be different item
- 2 Reprompt; can be same item
- 3 Reprompt; can be same item, warn if different
- 4 Reprompt; can be same item, confirm if different
- 5 Reprompt; can be same item, re-enter if different

To Lot/Serial Option. Enter a number to define whether warehouse staff are allowed to modify the To Lot/Serial aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed
- 1 Blank the lot/serial field
- 2 Reprompt; must be new, non-blank lot/serial number
- 3 Reprompt; allow old lot/serial number
- 4 Reprompt; any value of lot/serial number allowed
- 5 3 + warning if changed
- 6 4 + warning if changed
- 7 3 + confirmation of change required
- 8 4 + confirmation of change required
- 9 3 + re-entry of change required
- 10 4 + re-entry of change required

To Reference Option. Enter a number to define whether warehouse staff are allowed to modify the To Reference aspect of inventory transactions, and, if so, what action is required. The options are as follows:

- 0 No change allowed
- 1 Blank the Reference field
- 2 Reprompt; a new, non-blank reference is required

- 3 Reprompt; allow old reference, blank reference not allowed
- 4 Reprompt; any value of reference is allowed
- 5 Automatically regenerate a new reference
- 6 3 + warning if changed
- 7 4 + warning if changed
- 8 3 + confirmation required if changed
- 9 4 + confirmation required if changed
- 10 3 + re-entry required if changed
- 11 4 + re-entry required if changed
- 12 5 + Reprompt

An example of a reference change is to facilitate backflushing. When backflushing is used, either in repetitive production or discrete production (work orders), it is easier to issue inventory if it is as standard as possible: no lot/serial (when possible), and no pallet number (reference). Using option 1 that blanks the reference lets you do that.

Another example is used for multi-bin pickup. When processing a multi-bin pickup movement, it is possible to assign a new pallet number to all items picked during the process. Option 12 that generates a new reference with a possible reprompt is the option to use in that case.

Note Some of the To Reference options are less accurate than the following alternate UM option. For instance, if an inventory record has a reference and an alternate UM pl and you use To Reference option 1 to blank the reference, the alternate UM pl is still on record, which is wrong. Instead, if you use an alternate UM option to set the Alternate UM field to the item's Default Stocking UM (1) together with a UM change action that blanks the reference when going from pl to ea (each), you obtain the expected result.

▶ See "Alternate UM Maintenance" on page 138.

Alternate UM Option. This field defines the action to be performed regarding any change to the Alternate Unit of Measure field during the transfer of any inventory moved by this sequence in an internal routing. The options are as follows:

- 0 No change allowed
- 1 Set the Alternate UM field to the item's default stocking UM

- 2 Reprompt and force entry of a new UM: the item's default stocking UM is not allowed
- 3 Reprompt, allow use of the old alternate UM, but not the item's default stocking UM
- 4 Reprompt, allow any value including the old alternate UM or the item's default stocking UM
- 5 Automatically set the alternate UM to the default of the From storage location group
- 6 Automatically set the alternate UM to the UM of the internal routing
- 7 3 + warning if changed
- 8 4 + warning if changed
- 9 3 + confirmation required if changed
- 10 4 + confirmation required if changed
- 11 3 + re-entry required if changed
- 12 4 + re-entry required if changed
- 13 Automatically set the alternate UM to the default of the To storage location group
- 14 Put-away in base UM, then take SLG acquisition UM

▶ See Chapter 23, "SO Management and Detail Picking," on page 333 for an example.

Option 14 is very useful for replenishment done in the Simulation Module using functions on the Detail Picking Menu.

Repick Type. This field defines the transaction type that should be used if a repick is required. The entry you make here defaults to internal routings you set up in this warehouse.

It is possible when confirming an inventory transaction, if allowed by the quantity change fields described above, to confirm a quantity picked less than the quantity expected. In this case, warehouse staff can set a field at confirmation to allow a repick of the missing items. For the repick, AIM uses an internal routing and a picking algorithm for the transaction type you specify in the Repick Type field.

Note This repick transaction type must start with PICK-, and must be defined in Transaction Type Maintenance (80.7.6). If you leave the Repick Type field blank, the repick uses the same transaction type as the original picking.

Allow Task Switching. This field is used to specify for a work location group whether warehouse staff are allowed to switch to a different task. The setting of this field is important whenever any of the task

confirmation fields has been set to allow a different value—for example, of a reference or lot/serial number, from that which was expected. You must indicate whether a user who enters a different reference is changing the value for the current task or switching to another task. In Warehouse Maintenance, you set the default for each work location group in the warehouse.

No: Prevent task switching. When a user enters a different value, AIM assumes that the value is being changed for the current task.

Yes: Allow task switching. When a user enters a different value such as a reference, AIM checks to see whether another task exists with the reference.

When a task is hard assigned, it cannot be switched with another task.

Figure 2.8 illustrates the next frames in Warehouse Maintenance.



Fig. 2.8
Warehouse
Maintenance, Third
Screen

Picking

The fields in this frame define which storage location groups the system should use for picking inventory. Each SLG has a picking level defined. Any SLG with a picking level that is not between the Start and End levels you specify here is not considered for picking by the picking algorithms in this warehouse.

Start Picking Level. Enter the numerical code for the picking level at which picking is to start. The picking algorithms do not consider any storage location group with a picking level below that value.

End Picking Level. Enter the numerical code for the picking level at which picking is to end. The picking algorithms do not consider any storage location group with a picking level above that value.

Single Level Picking. Enter Yes if all the picking quantity must be taken from only one picking level; otherwise, enter No.

▶ See “Storage Location Group Maintenance” on page 85.

Note Start and end picking levels are useful to restrict picking to one storage location group. You can define the start and end picking levels for a given transaction type within Warehouse-Transaction Type Maintenance (80.7.10).

Flavor C Hard/Soft Assign. Flavor C is the multi-bin pickup process. This field indicates if transactions for this process are reserved for a given person and can be exchanged with another one (soft), or not (hard).

Max Trans Assigned. For a Multi-Bin process, multiple transactions having, for instance, the destination in common, are reserved for a given person. The Maximum Number of Transactions Assigned indicates how many transactions are reserved for such a process.

Multi-Bin Flavor C Sort. The Sort Code indicates the criteria for grouping transactions for a multi-bin pickup process. The minimum requirement is to have a common destination.

- 0 Sort by order and destination location
- 1 Sort by ship-to and destination location
- 2 Sort by destination location

Default ID Print Flavor C. Specify the default value for the Print ID field that appears at the confirmation of a multi-bin pickup movement.

▶ See “Detail Picking Setup” on page 334.

Note The fields in the Detail Picking frame are defined in Chapter 23.

Hold Defaults

You can use Hold Maintenance (80.3.22.1) to put stock on hold so that it is not picked. You can put a hold on any entity from a warehouse: a storage location group, a location, or an item. The values you define in this frame default when you put stock on hold, but you can modify the settings as needed.

Allow Issues. Enter Yes if stock on hold can be issued or moved to another location; otherwise, enter No.

Allow Receipts. Enter Yes if stock can be received into the hold location; otherwise, enter No.

Allow Picking. Enter Yes if picking from the hold location is allowed; otherwise, enter No.

Allow Incoming Returns. Enter Yes if stock returned from a customer can be placed in the hold location; otherwise, enter No.

Allow Outgoing Returns. Enter Yes if stock to be returned to a supplier can be issued from the hold location; otherwise, enter No.

Allow Cycle Counts. Enter Yes if the hold location is to be included in system-generated cycle counts; otherwise, enter No.

The fourth Warehouse Maintenance frame is shown in Figure 2.9.

Fig. 2.9
Warehouse
Maintenance,
Fourth Screen

Cycle Count Defaults

The fields in this frame control the way cycle counts and recounts are performed. The values you enter here default to all work location groups you set up within this warehouse, but you can change the values for individual work location groups.

Count Task. Specify the task of any cycle counts created in the work location group. The tasks must already have been set up in Task Maintenance.

Count System Code. Specify the system code associated with any cycle counts created in the work location group. The system code determines the type of AIM screen that is used to confirm cycle count transactions. Leave blank for normal AIM screens; enter RF for RDT screens.

Count Priority. Specify a priority value for cycle count transactions created in the work location group. The RDTs select the highest priority task as the next action. The higher the number you specify, the higher the priority.

Count Increment. Specify the increment that is added to a cycle count transaction's priority as time elapses, if you run the increment addition program—for example, as a background process. You use this facility to prevent low priority tasks from never reaching the top of the priority list, and, therefore, never being performed.

Count on Fail. Indicate whether a cycle count should be automatically generated for the inventory if that inventory is failed, for example, when a transaction is completed for less than the required quantity.

Use Recount UM of SLG. Indicate whether recounts should result in inventory with the alternate unit of measure specified for the storage location group.

This field is especially useful when a CIM load in Cycle Count Entry (3.14) is required to load the stock into the system. The way session triggers work prevents the system from creating the alternate UM correctly. The consequence is an incorrect capacity calculation. When this field is set to Yes, the system gives any pallet recounted in 3.14 the alternate UM defined in the recount UM of the corresponding storage location group.

▶ See “Alternate UM Maintenance” on page 138.

Recount Task. This field is used to specify the task of any recounts created in the work location group. The tasks must already have been set up in Task Maintenance.

Recount System Code. Specify the system code for any recounts created in the work location group. System codes define the type of AIM screen that is used to confirm recount transactions, blank for normal AIM screens, RF for RDT screens.

Recount Priority. Assigns a priority value to recount transactions created in the work location group. The RDTs select the highest priority task as the next action: the higher the number you specify, the higher the priority.

Recount Increment. Specify the increment that is added to a recount transaction's priority as time elapses, if you run the increment addition program—for example, as a background process. You use this facility to prevent low priority tasks from never reaching the top of the priority list, and, therefore, never being performed.

Count Status Option. Enter a number to define how the system manages the inventory status upon confirmation of a recount or in-tolerance count in this storage location group. In Warehouse Maintenance, you set the default for each SLG in the warehouse. The options are as follows:

- 0 No status change.
- 1 Change to Location Status: The status of the inventory is changed to the default inventory status of the location.
- 2 Status change based on Fail Status: The status of the inventory is changed to the good status associated with the current fail status in Inventory Status Maintenance (80.8.15).

Miscellaneous

The fields in this frame affect the operation of storage location groups and internal routings. The values you enter here default to all storage location groups or internal routings you set up within this warehouse, but you can change the values for individual storage location groups or routings.

Mode. The Mode relates to internal routings and specifies how processes defined by the routing are initiated. This field defaults to the internal routings that you set up within this warehouse. The options are as follows:

- AUTO The process in a routing sequence is started automatically as soon as the previous process is complete.
- TIMED The process is started after a specified time interval, following completion of the previous process.
- MANUAL The process is only started when it is manually selected for processing.

Note The TIMED mode must be used with a custom batch program. There is no code currently to handle this mode.

Opportunity Counts. This field defaults to storage location groups that you set up within this warehouse. Enter Yes to specify that staff can be requested to perform cycle counts while they are at locations within this storage location group; otherwise, enter No.

OPC Frequency. If you enter Yes for Opportunity Counts, enter the frequency, in days, with which counts can be initiated. This field defaults to storage location groups that you set up within this warehouse.

Auto Replenish. Enter Yes to select Auto Replenishment. If an existing replenishment definition for a location/item or an SLG/item is active, when the inventory level falls below the replenishment point, the system automatically starts a replenishment process. This process picks the missing items and transfers them to the location/SLG to be replenished.

With auto replenishment, no need exists to start a manual replenishment; the process is triggered automatically. Enter No to switch off Auto Replenishment. This field defaults to item-warehouse data that you set up within this warehouse. To enable automatic replenishment, both fields at the warehouse level and at the item-warehouse level must be Yes.

Auto Replenish %. This field specifies the tolerance for the replenishment point. The replenishment point is the quantity of stock below which an automatic replenishment is triggered.

Example If the replenishment point is defined as 50 EA, when the inventory level drops below 50 EA, the system initiates a replenishment process. If the Auto Replenish percentage is 80%, the automatic replenishment occurs only when the stock level falls below 40 EA.

Note A value of 0% has the same effect as a value of 100%. This field defaults to item-warehouse data that you set up within this warehouse.

Optimized Storage. This field relates to the way AIM organizes put-away of inventory in your warehouse storage locations. Enter Yes for optimized storage, in which AIM completely fills one location before moving to another. Enter No if you want other factors to control put-away, such as the ability to place the entire stock in a single location.

You can specify optimized storage separately for the warehouse and for individual storage location groups within the warehouse. You can, therefore, have different combinations of optimized storage settings at warehouse and SLG level.

▶ See “About Optimized Storage” on page 82 for more details about optimized storage.

Note You normally minimize the number of put away transactions, which requires the No setting for optimized storage at both levels. Only when your warehouse is very full do you want to use optimized storage, so that AIM tries to find locations to put away the inventory by examining the available space within each available location, without regard for the number of put away transactions.

Transaction Search Window. To speed up processing, put-away algorithms 134 to 139 consider the last location, the last item, the last lot/serial or the last reference used for put-away when that same item, lot, or reference is received again. The algorithm does this by searching backwards through previous transactions.

You should limit the age of transactions that are searched in this way, because it is unlikely that the location found is still the most efficient for storage if the previous transaction is more than a few days old. Use this field to specify the number of days that the algorithms should search backwards for previous transactions relating to the current item.

Example Set this value to 1 if you want the algorithms to search only the transactions that were created today or yesterday.

Check Digits. This field defaults to the storage location groups that you set up within this warehouse. Enter Yes to specify that entry of the check digit defined for a location is required to confirm movement of stock to that location. You can specify the use of check digits individually for locations within each storage location group. Enter No if check digit entry is not required.

Fail Status. When the quantity confirmed is less than the expected quantity, you can fail the transaction. When a transaction fails, the system changes the status of the remaining stock in the source location to the Fail Status you define here. The Fail Status must be defined in Inventory Status Code Maintenance (1.1.1).

Example Consider a transaction of 10 items where only 9 are confirmed because the remaining item is damaged. If you fail the transaction, the remaining item in the source location changes its status to the Fail Status you define. If the original status was GOOD, and the corresponding Fail Status is BLOCKED, this item takes the BLOCKED status.

Hold Time. When confirming movement using Movement Confirmation By Order (80.8.3), you can generate a hold, which prevents any receipt or issue in that location for a certain period of time. When confirming with the Generate Hold field set to Yes, a hold on that location is created in the source location for a duration equivalent to the Hold Time field entered at the Warehouse Maintenance level. It is used when some action must be taken on the source location before it can be used again by another process. The Hold Time field is set in Minutes.

Completion Option. This field indicates if a transaction must be confirmed or stay unconfirmed when the transaction quantity is changed. In some cases, on RF, a pop-up window appears where this field can be changed. Different setup values are:

0	Always complete the transaction
1	Default to complete and prompt
2	Default to NOT complete and prompt
3	Never complete

Fail Option. Indicate if a transaction must be failed when the transaction quantity is changed. In some cases, on RF, a pop-up window appears where this field can be changed. Failing a transaction can have different consequences: create a count task in the source location and change the inventory status of the stock failed. Different setup values are:

0	Always fail
1	Default to fail and prompt
2	Default to NOT fail and prompt
3	Never fail

Repick Option. Indicate if a repick process must be started when the transaction quantity is changed. In some cases, on RF, a pop-up window appears where this field can be changed. Different setup values are:

0	Always repick
1	Default to repick and prompt
2	Default to NOT repick and prompt
3	Never repick

The fifth Warehouse Maintenance frame is shown in Figure 2.10.

Fig. 2.10

Warehouse Maintenance

User Menu Edit Queue Options Help

Printing

IDENTIFICATION

Print ID ? :

ID Printer:

Number Across:

Lines of Each:

Width of Each:

132 Mode ? :

Print Mode:

Use External ? :

FORMS

Form Printer:

132 Mode ? :

Use External ? :

TASKS

Pr on Create ? :

Print on Conf ? :

Task Printer:

Number Across:

Lines of Each:

Width of Each:

132 Mode ? :

Print Mode (Cr):

Print Mode (Conf):

Use External ? :

EXTERNAL DEVICES

External Device Printer:

Number Across:

Lines of Each:

Width of Each:

132 Mode ? :

Use External ? :

Print Mode (Conf):

EXCEPTIONS

Print Except. ? :

Print Mode:

QA SAMPLING

Insp Printer:

Number Across:

Lines of Each:

Width of Each:

132 Mode ? :

Use External ? :

Print Mode (Conf):

FORMAT

Print Flavor:

Print by W.Loc.Gp. ? :

Printing

The Printing frame contains fields that control the printing of transaction details. These cover the following:

- Printing an identification of inventory coming into the warehouse, such as a pallet label.
- Printing transactions for tasks when they are created.
- Printing transactions for tasks when they are confirmed.
- Printing exceptions when changes have been made to the original transaction; for example, a change to the put away location or quantity.
- Printing transactions relating to external devices.
- Printing QA sampling inspection tags.

The fields relating to identification printing are as follows:

Print ID. Enter Yes to print an identification of inventory coming into the warehouse; otherwise, enter No. If you enter No, you can ignore the other fields in this group.

ID Printer. Enter the name of the printer on which the IDs are to be printed.

Number Across. Enter the number of identifications that are to be printed across each page.

Lines of Each. Enter the number of printed lines in each identification.

Width of Each. Enter the width in character positions of the lines of the identification.

132 Mode. Enter Yes if the identifications are to be printed in 132 character position mode; otherwise, enter No.

Print Mode. Select a print mode to determine when output should be printed. The options are as follows:

AUTO	The system prints identifications automatically as soon as they are created.
MANUAL	The system holds identification print requests until an online or batch process activates printing.
AUTOSIG	The system prints identifications automatically but holds them until a signal to print is received.

The signal to trigger AUTOSIG printing is normally a sign that the process creating print requests is complete and that all requested prints can be output at one time. This is particularly relevant when, for example, printing multiple transactions on the same task sheet.

Use External. Enter Yes if you want RDT users to be able to print the identifications on an external printer such as the local printer in a fork-lift truck. Enter No if the identifications must be printed on the ID printer.

The remaining groups of fields apply to other types of printing; for example, tasks, exceptions, forms, and external devices. The explanation of the fields is the same as for identifications. The final group of fields covers general print format:

Print Flavor. This field defaults to each work location group you set up within the warehouse. Select the Print Flavor code to determine the format of the printed output. Print Flavor codes are set up in Generalized Code Maintenance (36.2.13).

Print by Work Location Group. Enter Yes or No to determine the sequence in which the printed output should be produced, sorted by work location group, or not.

Defining a Warehouse for a Site

After you activate AIM in the System Control File, you do not have to link all locations to a warehouse. If a site is defined without any warehouse, the picking process is a standard MFG/PRO picking process. AIM algorithms will not be started.

If you define at least one warehouse in a site, active or not, all locations of that site have to be linked to a warehouse. AIM picking algorithms are started instead of standard MFG/PRO picking rules.

This is particularly useful for a company that has multiple sites but does not use AIM at all of them. Generally, the sites that are not using AIM do not want to make additional set up like defining warehouses, linking locations to warehouses, and defining picking algorithms.

Warehouse Master List Maintenance

When an inventory transaction is created for a particular item, you should link a default warehouse to that item, specifically for that type of transaction.

Example You can specify that when purchased supplies of item X are ordered, they are normally received in warehouse A. This links transaction type RCT-PO for item X with warehouse A. However, after internal storage, transfers, and repackaging, sales order picking of item X is normally carried out in warehouse B. This links transaction type PICK-SO for item X with warehouse B.

In some cases, you can specify an alternate warehouse to cover situations where the first choice has insufficient stock. The first choice for picking item X can be warehouse B, but the second choice, if warehouse B runs out of stock, is to pick directly from warehouse A.

You achieve this by creating warehouse master lists. You identify each list by a unique name, and then specify the warehouses to associate with particular transaction types within that list. You can specify more than one

warehouse for a given transaction type by giving each warehouse a sequence number. For that transaction type, AIM tries to use the warehouses in the order of the sequence numbers you have assigned.

Note Warehouses in the warehouse master list provide default values. If you want to specify a different warehouse or location for the item you can override the warehouse that AIM has offered from the warehouse master list. Warehouse master lists are completely optional: if an item has all its operations performed in the same warehouse, you can simply specify that warehouse as the default location for the item, without using a master list at all.

You set up warehouse master lists using Warehouse Master List Maintenance (80.1.5). You can then attach a warehouse master list to an item using the standard MFG/PRO Item Master Maintenance (1.4.1). Enter the name of the warehouse master list in the Location field for the item.

In summary, use a warehouse master list:

- To receive/issue stock from different warehouses.
- For inter-warehouse picking.
- For multiple warehouse picking. If the stock is not available in one warehouse, start looking in the next one.

Figure 2.11 illustrates Warehouse Master List Maintenance.

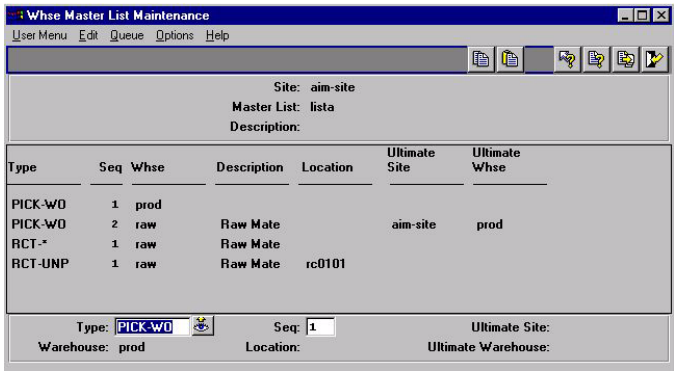


Fig. 2.11
Warehouse Master
List Maintenance
(80.1.5)

Enter values in the following fields:

Site. Enter the site associated with the warehouse master list.

Master List. To add a new list, enter the name of the list. To modify an existing list, enter the name of the list.

Description. Enter a description of the master list. Description displays in the lookup to help you select the required list, either for future modification or when attaching lists to items.

Type. Enter the transaction type code for which you want to specify one or more default warehouses.

Seq. Enter a sequence number. You can specify one default warehouse for each sequence number. The lowest sequence number is the first warehouse that AIM tries to use for this transaction type.

Location. Enter the location to display from the master list. See the discussion below for more information about the Location field.

Ultimate Site. If the transaction type relates to inter-warehouse picking, where you pick in warehouse A, for example, and transfer to warehouse B before issue, enter the site for the final issuing warehouse. Otherwise, leave this field blank.

Warehouse. Enter the name of the warehouse you want to default to this sequence number and this transaction type.

Ultimate Warehouse. If the transaction type relates to inter-warehouse picking, enter the final issuing warehouse. Otherwise, leave this field blank.

The Location field should be used whenever possible. For instance, for receipt movements, use the Location field—such as a receipt dock—instead of a warehouse. Since a receipt works as if AIM were not there, items are received into the location/warehouse defined in the master list. If the receipt is into a warehouse, MFG/PRO makes the receipt in the warehouse dummy location and AIM moves it from this dummy warehouse location to the location determined by the first step of the internal routing linked to the receipt movement. This is generally the receipt dock. From there, a transaction is created to move the stock from the dock to the destination location, which is calculated by a put-away algorithm.

This means that you have five MFG/PRO transactions:

- RCT-PO in the dummy warehouse
- ISS-TR from the dummy warehouse
- RCT-TR in the dock
- ISS-TR from the dock
- RCT-TR in the destination location

The two last are created after confirmation only.

If, instead, you use a location such as the dock, and not a warehouse, MFG/PRO makes the initial receipt (RCT-PO) in this location and AIM creates a task to move it from the dock (ISS-TR) to the destination location (RCT-TR), which means three transactions only. This can make a significant difference in performance and disk usage.

Sequence Definition

The sequence definition options on the AIM System Menu (80.24) let you define how controlled sequences of numbers are structured. The two main uses are to:

- Specify number sequences for use in generating pallet references, or other sized-by-reference units of measure.
- Specify the format and range of the location identifiers when you use Mass Location Maintenance to create a number of storage locations.

Use Sequence Definition Maintenance (80.24.1) to define either the automatically incrementing sequence number, for pallet references, or the format and range of the location identifiers that are generated. You can specify fixed-value parts and incrementing parts of the location names, so that you end up with location names such as Bulk0101, Bulk0102, Bulk0103.

Sequence Definition Maintenance

Figure 2.12 illustrates Sequence Definition Maintenance (80.24.1).

Fig. 2.12
Sequence
Definition
Maintenance
(80.24.1)

Seq	T	Format	Min	Max	Inc	Description
1	D	YY			1	
2	D	MM			1	
3	s	AimRef01			1	

Sequence Definition. Enter a code to identify this sequence definition, which can be a pallet numbering scheme or a template for creating a particular set of locations.

Description. Enter a description to explain how this sequence definition is used.

You can enter a number of sequence definitions in succession using these two fields.

When you have set up your sequence definition codes, the next step is to define the details of the way AIM generates the next required pallet reference, or identify a whole sequence of locations; for example by including an incrementing number in one part of the location identifier.

Seq. The pallet reference numbers or location identifiers for the range of locations are constructed from sequential segments, which can be fixed values or incrementing numbers; for example, Bulk01, Bulk02, where the Bulk segment is fixed and the number segment is incremented. Enter a sequence number like 1, 2, or 3 to specify which sequential segment of the identifier you are defining in the remaining fields of this program.

Type. Enter the type for this segment of the identifier. Valid types are:

- I for integer
- C for character

- F for fixed
- D for Date
- S for Sequence.

Depending on the type you select, you enter additional details in other fields in the frame.

Example If you enter S for sequence, you specify only which sequence you want in the Seq field, and optionally, a description.

Format. Enter the format for this segment of the reference number or location identifier. Valid formats are:

Segment Type	Format entry
I	Enter a 9 for each numeric position.
C	Enter an X for each character position.
F	Enter the actual text to use for the fixed value.
D	Enter one of the following valid date formats: DD, MM, YY or YYYY. Use consecutive segments if you want a full DDMMYY date.

In the previous example (Bulk01, Bulk02, and so on) the first segment has type F, format Bulk; the second segment has type I, format 99.

Sequence. For sequence segments, enter the sequence you want to use. AIM provides 20 separately incrementing reference number schemes, identified as AIMRef01 to AIMRef20. Each time a new pallet reference is required, AIM takes the next sequential number from the specified sequence.

Minimum Value. For incrementing segments, enter the start value for the incrementing range. Leave this field blank for fixed segments.

Maximum Value. For incrementing segments, enter the end value for the incrementing range. Leave this field blank for fixed segments.

Increment. For incrementing segments, enter the amount by which each successive location identifier or reference number should be incremented.

Description. Enter a description of this segment of the reference number or location identifier, if required. This is used for information purposes only.

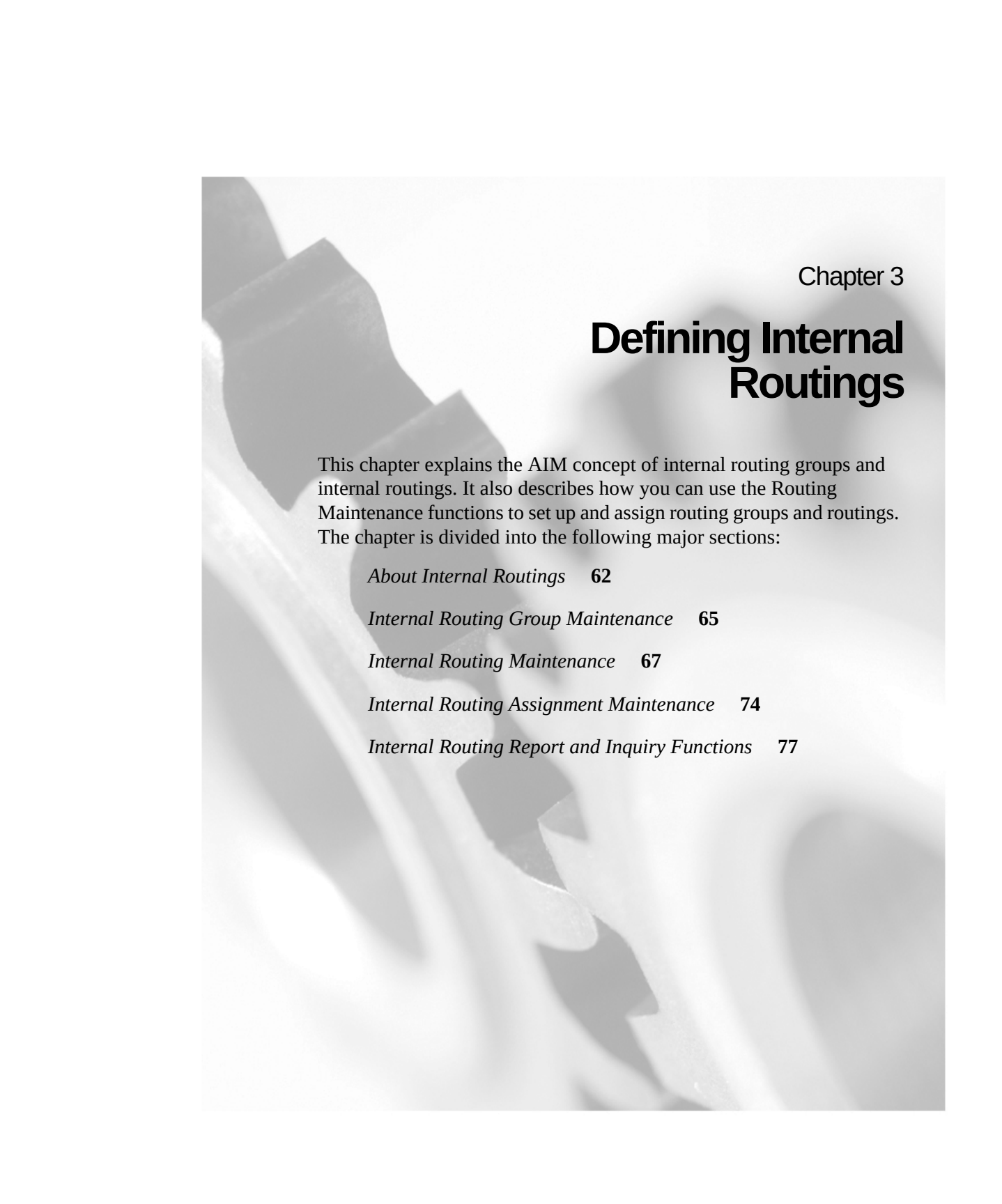
Note The I (Integer) type and the S (Sequence) type are very different. The I type is used when you want to generate all values between boundaries. S is used when you want to have an increment that is not limited only by the maximum size of the sequence. For instance, for a pallet number generation, you want to generate a new number for each pallet. Use type S for the increment. When you want to use the sequence definition to generate locations within a range such as from Bulk10 to Bulk99, use an Integer sequence.

Warehouse Report and Inquiry Functions

Table 2.1 lists report and inquiry options available from the AIM Warehouse menu.

Table 2.1
Warehouse Reports
and Inquiries

Program	Description
Warehouse Inquiry (80.1.2)	This option lets you select the site and the warehouse, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current values of the fields that have been set up for the selected warehouse.
Warehouse Report (80.1.3)	This option lets you select a range of sites and warehouses, and then specify where you want the report results printed or displayed. The report shows the current values of the fields that have been set up for the selected warehouses.
Whse Master List Inquiry (80.1.6)	This option lets you select the site and the warehouse master list, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries that have been set up for the selected warehouse master list.
Whse Master List Report (80.1.7)	This option lets you select a range of sites and warehouse master lists, and then specify where you want the report results printed or displayed. The report shows the current entries that have been set up for the selected warehouse master lists.



Chapter 3

Defining Internal Routings

This chapter explains the AIM concept of internal routing groups and internal routings. It also describes how you can use the Routing Maintenance functions to set up and assign routing groups and routings. The chapter is divided into the following major sections:

About Internal Routings **62**

Internal Routing Group Maintenance **65**

Internal Routing Maintenance **67**

Internal Routing Assignment Maintenance **74**

Internal Routing Report and Inquiry Functions **77**

About Internal Routings

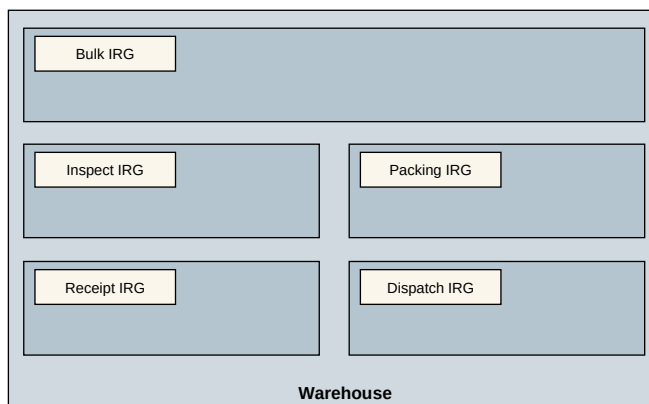
AIM offers great flexibility regarding the way you handle inventory movements. Any inventory transaction involves a particular item, a particular warehouse, and a particular transaction type such as receipt, transfer, or issue. You can distinguish between items that originate from a particular supplier, or that are destined for a particular customer. The particular combination of these factors creates a special set of requirements for the way the inventory movement is handled.

Example You can have one very trustworthy supplier of an item whose reliability is such that you do not need to route supplies of the item through an inspection stage. Another supplier of the same item, however, could be less reliable and you therefore, need to inspect all items from this source before putting them away in the warehouse.

Internal routings within AIM provide the flexibility to handle such situations. You can set up as many internal routings as you need. Each routing specifies a particular path through different warehouse areas. The first step is to define the different warehouse areas as internal routing groups. Then set up internal routings, each of which describes a path consisting of a sequence of internal routing groups. Finally, assign the appropriate internal routing to each transaction type, combined, where appropriate, with particular items, item types, or addresses.

Figure 3.1 shows a simple arrangement of internal routing groups within a typical AIM warehouse.

Fig. 3.1
Internal Routing
Example



The two internal routings shown in Figure 3.1 would work as shown in Figure 3.2.

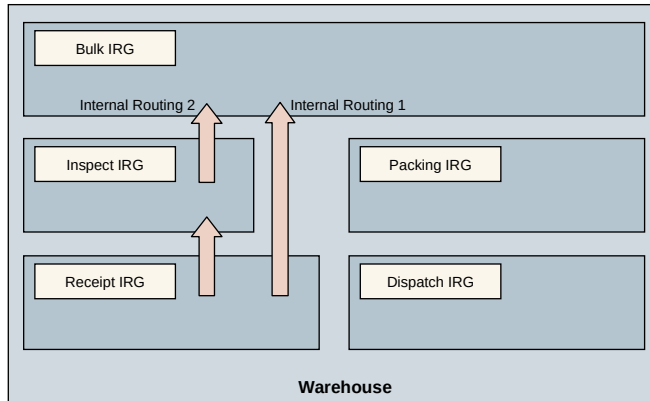


Fig. 3.2
Internal Routing
Example

Internal routing 1 takes the items directly to Bulk storage from the receipt area, while internal routing 2 takes the items first to the Inspect area, and then to the bulk storage area.

Internal Routing Definition

There are two aspects to the definition of an internal routing:

- An internal routing is a list of steps that specify the path inventory should follow through the warehouse.
- An internal routing is the means by which you specify the properties for inventory transactions.

Note Although you can also specify transaction properties for a work location group, it is important that you always specify the properties you require for inventory transactions as part of the internal routing.

You can specify internal routings that consist of a single step. Such an internal routing would represent a movement within the IRG, and would be used to specify the transaction properties, such as the options for making changes to the original transaction.

You could also create a simple internal routing with two steps, such as:

- 10 Receipt
- 20 Bulk

Each step has transaction properties specified, but only one transaction is present: the movement from the Receipt IRG to the Bulk IRG. In all such cases, the properties for the transaction are taken from the second step. A three-step internal routing has two transactions. The second step of the IR defines the properties for the first transaction, and the third step defines the properties for the second transaction.

You can have two identical steps in an internal routing. Use this to avoid creating any transaction but complete other tasks, such as printing a label.

Example During work order receipt, you want to receive the pallets in the production area without moving them immediately. If you do not define any internal routing for these RCT-WO movements, a message “No internal routing could be found” is displayed at receipt. However, the result is the expected result: no transaction is created to move the pallet from the production area. To avoid the warning message, define two identical steps from PROD to PROD. This avoids any task creation and does not cause any warning message. However, print of a pallet ID is still possible, if set up in the second step of the internal routing.

Functional and Non-functional Routing Groups

When you define each of your internal routing groups within the warehouse, one of the fields you set indicates whether the area is functional. The term *functional* refers to areas of a warehouse that perform some specific function; examples are receipt and dispatch areas.

The difference between functional and non-functional areas relates to the way that AIM chooses a location within the internal routing group when inventory is moved into the area.

- In functional areas, AIM uses location-find algorithms to select locations where the capacity of the location and the size of the inventory are not relevant. Location-find algorithms can make use of other inventory management criteria, such as ensuring that all picks for a sales order are kept together, ready for dispatch.
- In non-functional areas, AIM uses put-away algorithms to select locations based on the capacity of the location and the size of the inventory. These are the standard criteria used in warehouse storage areas.

Be careful when defining your internal routing groups to make sure that you set the Functional field according to the type of AIM processing you want for the area.

Note Some common mistakes result from a wrong setup of this Functional field. For instance, if you define an IRG as non-functional and do not define any capacity, the put-away process does not work. Another common mistake is to define a put-away algorithm for a functional area, instead of a location-find algorithm or the opposite. This causes a no source location could be found or no destination location could be found error.

Internal Routing Group Maintenance

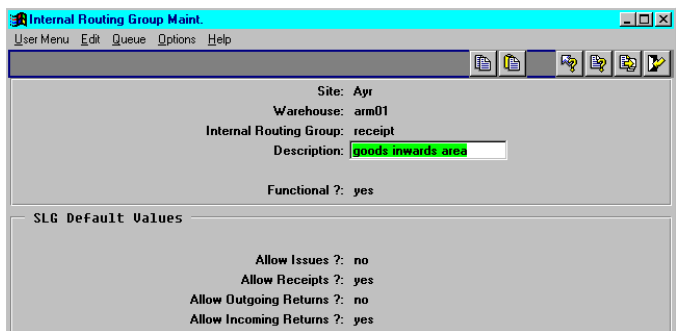
When you have defined your AIM warehouse, the next step is to set up all the internal routing groups (IRGs) within that warehouse. You do this using Internal Routing Group Maintenance (80.2.1). This lets you define a name and a description for each area in the warehouse, and to define whether the area is functional or not.

You can also specify values relating to issues, receipts, and returns that default to storage location groups within the internal routing group.

Internal Routing Group Maintenance (80.2.1) is shown in Figure 3.3.

See “Functional and Non-functional Routing Groups” on page 64.

Fig. 3.3
Internal Routing Group Maint (80.2.1)



Enter values in the following fields:

Site. Enter the name of an existing site.

Warehouse. Enter the name of the warehouse in which you want to maintain IRGs.

Internal Routing Group. Enter the name of the internal routing group (IRG) that you want to modify or create.

Description. Enter a description of the internal routing group. This is displayed in the lookup when you select the required internal routing groups for each of the sequence steps that define an internal routing.

Functional. Enter Yes if this internal routing group is a functional area, such as receipt or dispatch, in which AIM uses location-find algorithms to select locations when stock is moved into the area. Enter No if this is a non-functional area, such as general storage, in which AIM uses put-away algorithms to select locations when stock is moved into the area.

Note You normally need only one IRG, or at the most two, for bulk or general storage: that is, one non-functional IRG. You use storage location groups to define the different types of area within this main storage grouping.

SLG Default Values

The fields in this frame relate to the permitted movement of stock into and out of locations in the area. The values you choose for these fields are not applied directly, but default to all the storage location groups you set up within this internal routing group.

Allow Issues. This field controls whether inventory can be issued out of the system from locations in this area. Generally, you limit issues to specially designated areas, such as Goods-Out. Enter Yes if stock can be issued; otherwise, enter No.

Allow Receipts. This field controls whether inventory can be received from outside the system into locations in this area. Generally, you limit receipts to specially designated areas, such as Goods-In. Enter Yes if stock can be received; otherwise, enter No.

Allow Outgoing Returns. This field controls whether inventory can be issued from locations in this area as part of a returned receipt. Generally, you limit outgoing returns to specially designated areas, such as Goods-In Returns or Rejects. Enter Yes if stock to be returned to a supplier can be issued from locations in this area; otherwise, enter No.

Allow Incoming Returns. This field controls whether inventory can be received into locations in this area as part of a returned issue.

Generally, you limit incoming returns to specially designated areas, such as Goods-Out Returns or Rejects. Enter Yes if stock returned from a customer can be placed in locations in this area; otherwise, enter No.

When you are modifying an existing internal routing group, if you change any of the SLG default values, the system displays the following message:

CHANGE ALL MATCHING STORAGE LOCATION GROUPS? yes/no

Because the values you enter for the internal routing group act as defaults for all the storage location groups within the IRG, the system lets you make the same change to the related SLGs within the IRG. Enter Yes to change the related SLG field values; otherwise, enter No.

Internal Routing Maintenance

When you have defined the internal routing groups (IRGs) within an AIM warehouse, you can link specific sequences of IRGs together to form internal routings. Each step, or sequence, within an internal routing defines the IRG to which the inventory is next moved. For each sequence step within an internal routing, you also specify a number of fields that control how the inventory is processed as it reaches that point in the sequence.

The system offers you default values for these processing fields, which are the settings that were entered in Warehouse Maintenance. You can accept the default values, or override them with new values.

▶ See “Warehouse Maintenance” on page 32.

Remember that a three-step sequence represents two inventory transactions. For example:

10	Receipt
20	Inspect
30	Bulk

The first inventory transaction is the movement from Receipt to Inspect. The properties for this transaction are defined in IR sequence step 20. The second inventory transaction is the movement from Inspect to Bulk. The properties for this transaction are defined in IR sequence step 30.

You define internal routings using Internal Routing Maintenance (80.2.5), shown in Figure 3.4.

Fig. 3.4
Internal Routing
Maintenance
(80.2.5)

The screenshot shows the 'Internal Routing Maintenance' window with the following fields and values:

- Site:** Apr
- Warehouse:** arm01
- Internal Routing:** rct-gen
- Description:** general receipt
- Sequence:** 20
- Internal Routing Group:** inspect

Transaction Create

- Confirmed at Source?: yes
- System Code:
- Two Phase?: yes
- Keep From Status?: no
- Task: a
- Priority: 10
- Increment: 1

Transaction Confirmation

- "From Location" Option: 0
- "From Item" Option: 0
- "From Lot/Serial" Option: 0
- "From Reference" Option: 0
- Allow Quantity Increase?: yes
- Allow Quantity Decrease?: yes
- Quantity Change Option: 2
- "To Location" Option: 0
- "To Item" Option: 0
- "To Lot/Serial" Option: 0
- "To Reference" Option: 0
- Alternative UM Option: 4
- Repick Type:

Enter values in the following fields:

Site. Enter the name of an existing site.

Warehouse. Enter the name of the warehouse in which you want to maintain internal routings.

Internal Routing. To modify the fields for an existing internal routing, enter its name. To create a new internal routing, enter a new name for the routing.

Description. Enter a description of the internal routing. This is displayed in the lookup when you select internal routings for assignment to transaction types within the warehouse.

Sequence. Each internal routing consists of a number of steps, identified by a sequence number. To make it easier to add steps within the sequence later, standard practice is to number the sequences as 10, 20, 30 rather than 1, 2, 3. The process of setting up an internal routing

consists of entering a sequence number in the Sequence field, entering the relevant internal routing group in the next field, and then specifying the processing required for this sequence step.

Internal Routing Group. Enter the name of an existing IRG.

Transaction Create

The fields in this frame determine the characteristics of stock movement transactions that are created in this sequence step of the internal routing. The initial values default from Warehouse Maintenance, but you can change the values for individual sequence steps of your internal routings.

Confirmed at Source. Enter Yes for transactions that are confirmed by the warehouse staff who initiate the stock movement; enter No for transactions that are confirmed by the warehouse staff who complete the stock movement at its destination.

▶ See “Confirmed at Source” on page 36 for an example.

System Code. Define the type of AIM screens that confirm transactions. Leave blank for normal AIM screens; enter RF for transactions confirmed using Radio Data Terminals (RDTs), also known as RFs.

Two Phase. Indicate how inventory movements are created.

No: Inventory movements are created and confirmed in a single step, the single phase.

Yes: Inventory movements are created in one step, the first phase, and confirmed in a second step, the second phase. In between the two phases, the stock is marked as being booked out of the first location and expected in the second location. However, the anticipated inventory levels are only confirmed when the stock is confirmed as arriving at the destination.

Note Two-phase operation is a much safer way of ensuring precision in inventory management. Single-phase operation should be used in special circumstances only.

Keep From Status. Indicate how the system should set the status of transferred inventory.

No: The inventory takes its status from the new location.

Yes: The inventory status of the transferred inventory retains its original value.

◆ See “Defining Tasks” on page 324.

Task. Specify the task associated with any inventory transaction that is created. The task codes are set up in Task Maintenance (80.11.1).

Priority. Assigns a priority value to transactions. The RDTs select the highest priority task as the next action; the higher the number you specify, the higher the priority.

Increment. Identify the increment that is added to a transaction’s priority as time elapses, if you run the increment addition program—for example, as a background process. Use this facility to avoid the situation where a relatively low priority transaction never reaches the top of the priority list, and, therefore, never gets performed. By gradually incrementing the priority, you ensure that even low priority tasks are eventually performed.

Transaction Confirmation

The fields in this frame determine the characteristics of the confirmations of stock movements relating to this step in the internal routing sequence. The initial values default from Warehouse Maintenance, but you can change the values for individual sequence steps of your internal routings.

◆ See “From Location Option” on page 38 for options.

From Location Option. Enter a number to define whether warehouse staff are allowed to modify the From Location aspect of inventory transactions, and, if so, what action is required.

◆ See “From Item Option” on page 38 for options.

From Item Option. Enter a number to define whether warehouse staff are allowed to modify the From Item aspect of inventory transactions, and, if so, what action is required.

◆ See “From Lot/Serial Option” on page 38 for options.

From Lot/Serial Option. Enter a number to define whether warehouse staff are allowed to modify the From Lot/Serial aspect of inventory transactions, and, if so, what action is required.

◆ See “From Reference Option” on page 39 for options.

From Reference Option. Enter a number to define whether warehouse staff are allowed to modify the From Reference aspect of inventory transactions, and, if so, what action is required.

Allow Quantity Increase. Enter Yes if warehouse staff are allowed to increase the quantity when a transaction is confirmed; otherwise, enter No.

Example You might want sales orders to be picked in whole packaging quantities from bulk storage and then split down to the required quantity in a repackaging area. The internal routing from bulk storage to repackaging would then allow an increase in the original transaction quantity.

Allow Quantity Decrease. Enter Yes if warehouse staff are allowed to decrease the quantity when a transaction is confirmed; otherwise, enter No. This is normally set to Yes, unless your inventory management system can guarantee that sufficient inventory is always available in every possible circumstance.

Quantity Change Option. This field defines the action to be taken if the quantity is changed, as controlled by the Allow Quantity Increase and Allow Quantity Decrease settings.

▶ See “Quantity Change Option” on page 39 for options.

To Location Option. Enter a number to define whether warehouse staff are allowed to modify the To Location aspect of inventory transactions, and, if so, what action is required.

▶ See “To Location Option” on page 39 for options.

To Item Option. Enter a number to define whether warehouse staff are allowed to modify the To Item aspect of inventory transactions, and, if so, what action is required.

▶ See “To Item Option” on page 40 for options.

To Lot/Serial Option. Enter a number to define whether warehouse staff are allowed to modify the To Lot/Serial aspect of inventory transactions, and, if so, what action is required.

▶ See “To Lot/Serial Option” on page 40 for options.

To Reference Option. Enter a number to define whether warehouse staff are allowed to modify the To Reference aspect of inventory transactions, and, if so, what action is required.

▶ See “To Reference Option” on page 40.

Alternate UM Option. This field defines the action to be performed regarding any change to the Alternate Unit of Measure field during the transfer of any inventory moved by this sequence in an internal routing.

▶ See “Alternate UM Option” on page 41 for options.

Repick Type. Specify the transaction type to use if a repick is required.

It is possible when confirming an inventory transaction, if allowed by the Quantity change fields described above, to confirm a quantity picked less than the quantity expected. In this case, warehouse staff can set a field at confirmation to allow a repick of the missing items. For the repick, AIM uses an internal routing and a picking algorithm for the transaction type you specify in the Repick Type field.

Note This repick transaction type must start with PICK-, and must be defined in Transaction Type Maintenance (80.7.6). If you leave the Repick Type field blank, the repick uses the same transaction type as the original picking.

The second Internal Routing Maintenance frame is shown in Figure 3.5.

Fig. 3.5
Internal Routing
Maintenance,
Second Screen

The site, warehouse, and internal routing details, and the current Sequence number and IRG, remain displayed in the top part of the frame.

Print Options

The Print Options frame contains fields where you define the printing operations that are performed in relation to inventory transactions for this sequence step in the internal routing. The types of printing are:

- ID, identification of the inventory
- Created tasks
- Confirmed tasks
- Exceptions, when changes have been made to the original transaction

For each of these, you can enter Yes or No to specify whether the element is printed. The initial values default from Warehouse Maintenance, but you can change the values for individual sequence steps of your internal routings.

Print Mode. For those elements that are printed, you can also specify the Print Mode to determine when the element should be printed. The options are as follows:

AUTO	The system prints the elements automatically as soon as they are created.
MANUAL	The system holds print requests until an online or batch process activates printing.
AUTOSIG	The system prints elements automatically but holds them until a signal to print is received.

The signal to trigger AUTOSIG printing is normally a sign that the process creating print requests is complete and that all requested prints can be output at one time. This is particularly relevant when, for example, printing multiple transactions on the same task sheet.

Miscellaneous Options

The fields in this frame affect the operation of this sequence step in the internal routing.

Mode. Specify how processes defined by the routing are initiated. The initial value defaults from Warehouse Maintenance, but you can change the value for individual sequence steps of your internal routings. The options are as follows:

AUTO	The process in the routing sequence is started automatically as soon as the previous process is complete.
TIMED	The process is started after a specified time interval, following completion of the previous process.
MANUAL	The process is only started when it is manually selected for processing.

New UM. This field is used to specify the new unit of measure to be used for items upon reaching this step in the internal routing sequence, only if option 6 has been selected for the Alternate UM option.

▶ See “Alternate UM Option” on page 71.

Example You can split a pallet into boxes on arrival at a particular area of your storage. As it is unlikely that all your items use the same UM, you would normally use this field in assignments that specify a particular item number or item type.

Enter the existing new unit of measure.

▶ See “Alternate UM Maintenance” on page 138.

Use Alternate UM Maintenance (80.5.1) to define units of measure and to specify the action that must be taken when changing an item’s UM.

Clear Shortages. Enter Yes to cause the shortage clearance algorithms to be run before a location is identified to receive the inventory. These algorithms look for orders that were not fully satisfied in the original picking because of insufficient inventory levels. Enter No if you do not want the shortage clearance algorithms to be run.

Create Shipper. Enter Yes to cause standard MFG/PRO shippers to be created. Standard MFG/PRO functions can then be used to consolidate and print these shippers as shippers, containers, or bills of lading. Standard MFG/PRO functions are also available to then allow the bulk shipment of, for example, multiple sales orders that have been combined onto a single shipper. Enter No if you do not want to create shippers.

▶ See “Quality Inspection Internal Routings” on page 306.

Check Inspection. Entering Yes causes the Inspection (QA) algorithm to be run to determine whether inspection must take place.

Internal Routing Assignment Maintenance

When you have defined the internal routings within an AIM warehouse, you can link specific transaction types to particular internal routings. You can also specify a combination of a transaction type with an item, an item type, or an address relating to a supplier or customer, so that the internal routing is used when that particular combination occurs.

You link transaction types to internal routings using Internal Routing Assignment Maintenance (80.2.9), as shown in Figure 3.6.

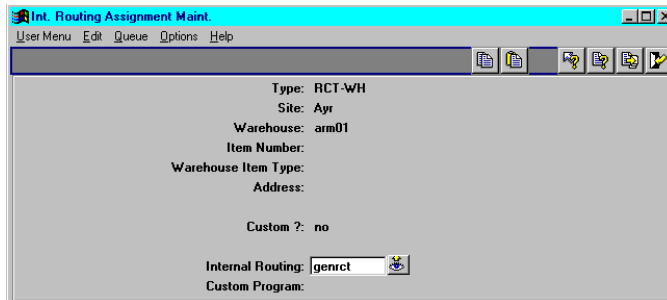


Fig. 3.6
Internal Routing
Assignment
Maintenance
(80.2.9)

Enter values in the following fields:

Type. Enter the transaction type to which you want to assign an internal routing. You can maintain transaction types using Transaction Type Maintenance (80.7.6).

Site. Enter the name of the site.

Warehouse. Enter the name of the warehouse for which you want to assign internal routings.

Item Number. If you want to assign an internal routing to a combination of transaction type and item, enter the item number here. If you leave this field blank, the assignment is valid for all items.

Warehouse Item Type. If you want to assign an internal routing to a combination of transaction type and warehouse item type, enter the item type code here. If you leave this field blank, the assignment is valid for all item types.

The warehouse item type codes are a way of grouping together items that have similar properties. You assign the codes to items using the AIM Item Maintenance options.

Address. If you want to assign an internal routing to a combination of transaction type and address, enter the address code here. If you leave this field blank, the assignment is valid for all addresses. For receipt transaction types, the address relates to the supplier of the item being received; for issue transaction types, the address relates to the customer to whom the goods are to be dispatched.

See “Defining Item Data for Sites and Warehouses” on page 115.

◆ See Appendix A, “Custom Assignments,” on page 351 for an example of custom assignments.

Custom. The custom assignment facility is provided to cover situations where you have a transaction type, such as PICK-RE, that could have two possible internal routing assignments. You would then run a purpose-defined custom program to determine which internal routing AIM should use. When you run the custom program, you have to provide the input fields that enable the program to decide which IR to assign.

Enter Yes in this field if you want to use a custom program; otherwise, enter No. If you enter Yes, the system skips the Internal Routing field and moves to the Custom Program field.

Internal Routing. Enter the name of the internal routing you want to assign to this transaction type.

Custom Program. If you entered Yes at the Custom field, enter the name of the Custom Program to run for this transaction type.

Resolving Conflicting Routing Assignments

Every internal routing assignment involves a transaction type, a site, and a warehouse. You can also specify an item number or an item type and an address. When you use these additional assignment options, there can be conflicts between different assignments.

Example You could assign one internal routing for receipt of item ABC, and a different internal routing for receipts from the address for supplier XYZ. AIM has to decide which internal routing to use when you have a receipt of item ABC from supplier XYZ.

In such situations, AIM uses the following sequence to look for a match between the specified conditions:

- 1 Look for a match of both item number and address
- 2 Look for a match of both item type and address
- 3 Look for a match of item number only
- 4 Look for a match of item type only
- 5 Look for a match of address only
- 6 Use the specified transaction type, site, and warehouse—no other conditions

Using these rules, you can see that the internal routing for receipt of item ABC takes precedence over the internal routing for receipts from the address for supplier XYZ.

Internal Routing Report and Inquiry Functions

Table 3.1 lists report and inquiry options available from the AIM Routings menu.

Program	Description
Internal Routing Group Browse (80.2.2)	This option lets you select the site and review details of all the internal routing groups that have been set up for warehouses in that site.
Internal Routing Group Report (80.2.3)	This option lets you select a range of sites, warehouses, and IRGs for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each IRG.
Internal Routing Inquiry (80.2.6)	This option lets you select the site, warehouse, and the internal routing, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current values of the fields that have been set up for the selected internal routing.
Internal Routing Report (80.2.7)	This option lets you select a range of sites, warehouses, and internal routings for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each internal routing.

Table 3.1
Internal Routing
Reports and
Inquiries

Program	Description
Internal Routing Assignment Browse (80.2.10)	This option lets you select a transaction type and review details of all the internal routing assignments that have been set up for it, in all warehouses in all sites. You can use the usual filter options to limit the ranges displayed.
Internal Routing Assignment Report (80.2.11)	This option lets you select ranges of transaction types, sites, warehouses, item numbers, item types, and addresses to define the internal routing assignments for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each internal routing assignment.

Chapter 4

Defining Location Groups

This chapter explains the purpose of grouping locations into both storage location groups and work location groups, and describes how you can use the Location Group Maintenance functions to set up your groups. The chapter is divided into the following major sections:

<i>About Location Groups</i>	80
<i>Storage Location Group Maintenance</i>	85
<i>Storage Location Group List Maintenance</i>	91
<i>Work Location Group Maintenance</i>	92
<i>Inter-Work Location Group Maintenance</i>	98
<i>Location Group Reports and Inquiries</i>	99

About Location Groups

AIM offers you two parallel ways of subdividing the areas within your warehouses:

- Division into different types of storage areas. This is achieved by defining different storage location groups (SLGs) within each internal routing group (IRG), and then defining the individual storage locations within each SLG.
- Division into different types of work areas. This is achieved by defining different work location groups within each warehouse, and then identifying which work location group each storage location belongs to.

Storage location groups group storage locations that have a common storage function, such as a primary picking area, or a bulk storage area for a particular type of pallet. The hierarchy relating to storage functions is site – warehouse – internal routing group – storage location group – location.

Work location groups group storage locations that have common working practices, such as access using fork-lift truck, or that have a common physical location, such as all storage locations on the first floor of the building. It is also used if several printers are used and assigned to different warehouse areas. The hierarchy relating to working practices is site – warehouse – work location group – location.

Figure 4.1 shows a simple arrangement of storage location groups within IRGs in a warehouse.

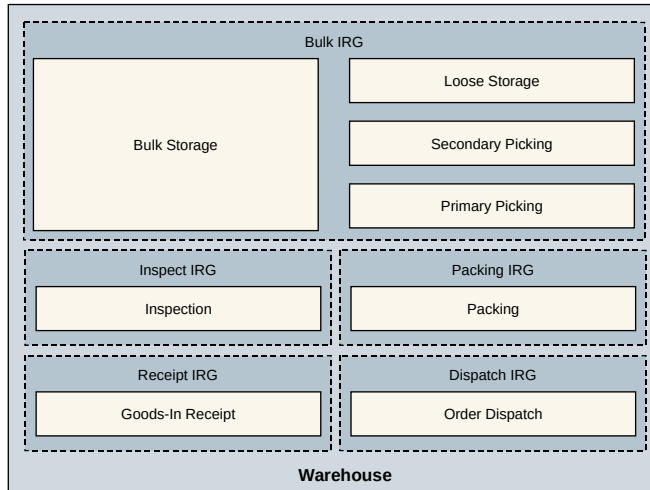


Fig. 4.1
Storage Location Groups

Each IRG can contain one or more storage location groups. Figure 4.2 shows the same locations, but now grouped into two work location groups.

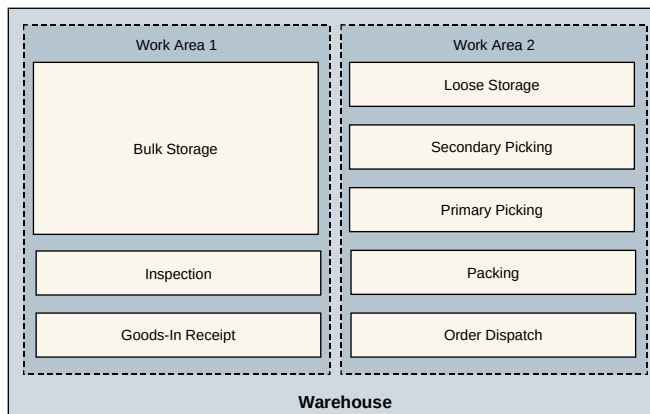


Fig. 4.2
Work Location Groups

Note Work location groups do not have to contain entire SLGs; work Area 1 could include half of the Loose Storage area, with the other half being in Work Area 2. The arrangement of the work location groups is entirely independent of the arrangement of the storage location groups and internal routing groups.

The AIM options you use for setting up and maintaining storage location groups and work location groups are both on the AIM Location Menu (80.3).

About Optimized Storage

You can specify optimized storage separately for the warehouse and for individual storage location groups within the warehouse. You can, therefore, have different combinations of optimized storage settings at warehouse and SLG level.

Note You normally want to minimize the number of put-away transactions, which requires the No setting for optimized storage at both levels. Only when your warehouse is very full do you want to use optimized storage, so that AIM tries to find locations to put away the inventory by examining the available space within each available location, without regard for the number of put away transactions.

At the SLG level, the Optimized field determines whether AIM sorts locations within the SLG in ascending or descending capacity, when looking for locations in which to put away stock.

If the warehouse is optimized, the order in which AIM selects SLG locations is as follows:

- First, the non-optimized SLGs and locations that have the highest capacity
- Second, the optimized SLGs and locations that have the least capacity

If the warehouse is not optimized, AIM considers the SLGs in the order specified in the storage location group list sequences. Within each SLG, AIM looks for locations as follows:

- If the SLG is optimized, AIM looks for the location with the smallest capacity.

- If the SLG is not optimized, AIM looks for the location with the highest capacity.

Non-optimized storage location groups offer a large performance advantage. AIM sorts the location with the highest capacity first, which reduces the number of movements that must be made in the warehouse, and terminates the program as soon as a suitable location has been found for all the inventory. If the warehouse is also non-optimized, the put-away program could end with the first SLG to be considered, without having to consider the other SLGs in the list. However, if the warehouse is optimized, AIM must consider all the locations in order to sort them.

How Optimization Works

The way in which optimization is carried out depends on the combination of warehouse and SLG optimization. There are four possible combinations.

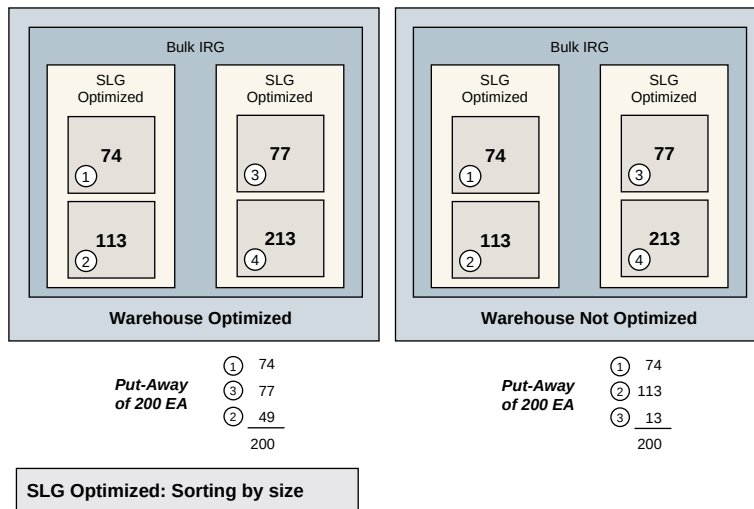
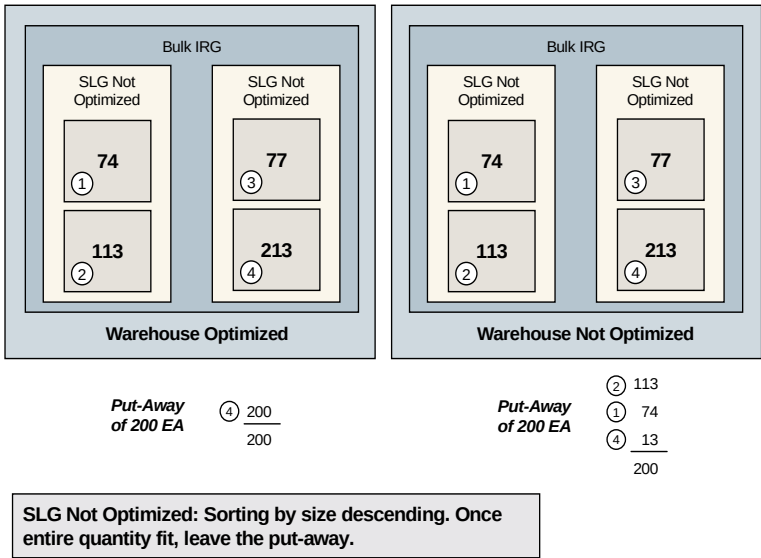


Fig. 4.3
Optimization 1

Fig. 4.4
Optimization 2



There is a trade-off between optimization and the performance of AIM. The more optimized locations in a warehouse, the slower the system runs. Conversely, the lower the optimization, the faster AIM runs.

When AIM is first set up and stock levels are low, you usually have no need for optimization. It is only as the number of locations and stock levels grows that optimization is useful.

A general recommendation for a balance of locations to performance is 500 SLGs/locations in a warehouse.

The following table compares how the different combinations of optimization affect three different benchmarks of system performance. The benchmarks are:

- 1 Number of transactions
- 2 Stock levels
- 3 System performance

		Warehouse Optimized	Warehouse Not Optimized
SLG Optimized	Good	2	2
	Medium		3
	Poor	3, 1	1
SLG Not Optimized	Good	1	3
	Medium		1
	Poor	2, 3	2

How to Optimize a Warehouse

Use Warehouse Maintenance (80.1.1) to set the Optimized Storage field to Yes.

▶ See page 49.

In Storage Location Group Maintenance (80.3.1), set the Optimized Storage field to Yes. To optimize a group of SLGs, first enter the name of an SLG list in the Storage Loc Group field.

▶ See page 89.

Note You can optimize both warehouse and storage location groups; or optimize the warehouse but not the storage location groups; or optimize the storage location groups but not the warehouse.

Storage Location Group Maintenance

When you have defined your AIM warehouse and its internal routing groups (IRGs), the next step is to set up all the storage location groups (SLGs) within each IRG in the warehouse. You do this using Storage Location Group Maintenance (80.3.1). This lets you define a name and a description for each storage location group, and to define fields relating to the control of inventory movements, cycle counts, and picking for locations in the SLG.

Storage Location Group Maintenance (80.3.1) is shown in Figure 4.5.

Fig. 4.5
Storage Location
Group Maintenance
(80.3.1)

Enter values in the following fields:

Site. Enter the name of the existing site.

Warehouse. Enter the name of the warehouse in which you want to maintain SLGs.

Store Loc Group. To modify the fields for an existing storage location group, enter its name. To create a new storage location group, enter the name of the SLG.

Description. Enter a description of the storage location group.

Press Go to accept the site, warehouse, and storage location group details and move to the next frame.

Internal Routing Group. Enter the name of the existing IRG to which this storage location group belongs.

▶ See “Internal Routing Group Maintenance” on page 65.

When you have specified the IRG, the system displays default values for most of the remaining fields in the frame. The defaults for the first four fields relating to allowing issues and receipts are taken from the default values that were entered for the IRG. The other defaults come from the default values entered for the warehouse.

▶ See “Warehouse Maintenance” on page 32.

For each SLG, you can accept the defaults or override them with new values.

Allow Issues. This field controls whether inventory can be issued out of the system from locations in this SLG. Generally, you limit issues to specially designated areas, such as Goods-Out. Enter Yes if stock can be issued; otherwise, enter No.

Allow Receipts. This field controls whether inventory can be received from outside the system into locations in this SLG. Generally, you limit receipts to specially designated areas, such as Goods-In. Enter Yes if stock can be received; otherwise, enter No.

Allow Incoming Returns. This field controls whether inventory can be received into locations in this SLG as part of a returned issue. Generally, you limit incoming returns to specially designated areas, such as Goods-Out Returns or Rejects. Enter Yes if stock returned from a customer can be placed in locations in this SLG; otherwise, enter No.

Allow Outgoing Returns. This field controls whether inventory can be issued from locations in this SLG as part of a returned receipt. Generally, you limit outgoing returns to specially designated areas, such as Goods-In Returns or Rejects. Enter Yes if stock to be returned to a supplier can be issued from locations in this SLG; otherwise, enter No.

Opportunity Counts. Enter Yes to specify that staff can be requested to perform cycle counts while they are at locations within this storage location group; otherwise, enter No.

OPC Frequency. If you have entered Yes for Opportunity Counts, enter the frequency, in days, with which counts can be initiated. This field defaults to the locations that you set up within this SLG.

Check Digits. This field specifies whether check digits are to be used for locations that you set up within this storage location group. Enter Yes to specify that entry of the check digit defined for a location is required to confirm movement of stock to that location. You can specify the use of check digits individually for locations within each storage location group. Enter No if check digit entry is not required.

Count Status Option. Enter a number to define what action should be performed on the inventory status upon confirmation of a recount or in-tolerance count in this storage location group. In Warehouse Maintenance, you set the default that is offered for each SLG you set up in the warehouse. The options are as follows:

- 0 No status change.
- 1 Change to Location Status: The status of the inventory is changed to the default inventory status of the location.
- 2 Status change based on Fail Status: The status of the inventory is changed to the good status associated with the current fail status in Inventory Status Maintenance (80.8.15).

Exclude From Picking. Enter Yes if locations within this SLG are to be excluded from picking; otherwise, enter No. If you enter Yes, the other picking fields are not relevant. Generally, you exclude from picking all SLGs in your functional IRGs, such as receipt, inspect, pack, and dispatch.

Picking Level. You can assign a picking level number to each storage location group. You can set default start and end picking levels in Warehouse Maintenance, or by using Warehouse Transaction Type Maintenance (80.7.10). These start and end settings determine the picking levels to be used for the pick. AIM then looks for inventory in the storage location groups that correspond to the specified range of picking levels.

Over Pick. This field specifies whether you can pick more stock from locations in this storage location group than is specified in the order. Enter Yes if over picking is allowed; otherwise, enter No.

▶ See “Control Over Pick at SLG” on page 186.

Note The Over Pick setting at SLG level is taken into account only if the Control Over Pick at SLG field is set to Yes in Transaction Type Maintenance or Warehouse Transaction Type Maintenance.

This field works in conjunction with the Allow Split field to control whether stock can be picked from locations in the SLG in situations where the quantity required for the pick does not match the unit of measure in which the item is stocked in the location.

Example If a location contains boxes of 100 of the item, and the required picking quantity is 70 pieces, the following possibilities can be specified:

Over Pick?	Allow Split?	Result
Yes	Yes	Pick 70 by splitting a box
Yes	No	Over pick—take a box of 100
No	Yes	Pick 70 by splitting a box
No	No	No pick from this location

Picking Multiple UM. Enter the unit of measure (UM) multiples of which must be used when picking inventory from locations in this storage location group.

Example Inventory could be stored on pallets, with the pallets containing a number of boxes. Each box contains a number of individual items. You might want to allow splitting of the pallet, but restrict such splitting to multiples of whole boxes.

Multi-Trans. This field defines whether AIM should create multiple transactions when picking in multiples of the UM.

Example If BX (for Box) is the picking multiple UM, and a box contains 20 EA, for individual items, you have two ways of creating transactions when you pick 40 EA:

Setting	Effect
Yes	Two transactions each for 1 BX
No	One transaction for 40 EA

Detail Overflow Group. Used with Sales Order Management only. This is the overflow location group that the system uses if the locations of the current storage location group cannot contain any additional goods replenished from the main Storage area. This Overflow storage location group must also be defined in Storage Location Group Maintenance (80.3.1) and should contain only one physical location.

Optimized Storage. This field relates to the way AIM organizes put-away of inventory in your warehouse storage locations. Enter Yes for optimized storage, in which AIM completely fills one location before moving to another during put away. Enter No if you want other factors to control put away, such as the ability to place the entire stock in a single location.

▶ See Chapter 4, “About Optimized Storage,” on page 82.

Allow Mixed Status Codes. This field determines whether a single location in this SLG can contain inventory with a mixture of different status codes. Enter Yes to allow mixed status codes; otherwise, enter No. This setting is used by put away algorithms for all the locations you set up within this SLG.

Acquisition UM. The acquisition UM is used in conjunction with some of the options, such as option 13, of the Alternate UM option from the internal routing definition. This option sets the inventory record UM to the acquisition UM of the destination storage location group.

Recount UM. This field specifies the alternate UM that should result from recounts, or in-tolerance counts, of inventory in this storage location group. This applies mainly to recounts entered using MFG/PRO's cycle counting functions, not the AIM Cycle Count Generation options.

The second Storage Location Group Maintenance frame is shown in Figure 4.6.

Fig. 4.6
Storage Location
Group Maint,
Second Frame

Alt UM	Split	Over Pick	Pick Mult UM	Multi Trans
BX	no	yes	CT	no
PL	yes	yes	CT	no

The five fields in this frame define alternate units of measure to be used in relation to inventory in locations in this storage location group. You can specify more than one alternate UM by using more than one line in this frame.

Alt UM. Enter the two character identifier for the Alternate unit of measure.

Split. Enter Yes if splitting this alternate UM is allowed when picking from locations in this SLG. Enter No if splitting the UM is not allowed.

Over Pick. This field specifies whether you can pick more stock from locations in this storage location group than is specified in the order. Enter Yes if over picking in the alternate UM is allowed; otherwise, enter No.

Pick Mult UM. Enter the two-character identifier for the UM multiples which must be used when specifying the quantity to pick.

Multi-Trans. Enter Yes or No to determine whether AIM should produce multiple transactions, one for each of the picking multiple UM, or a single transaction for the total number of items in the base UM.

Storage Location Group List Maintenance

To control which storage location groups AIM uses to put away particular items, you can specify a particular SLG for the item using Item-Warehouse Maintenance (80.4.11). If you have more than one SLG in which you might want to store the item, you can alternatively specify a list of SLGs. These lists specify the order in which you want AIM to consider them for put away of the item. You set up these SLG lists using Storage Location Group List Maintenance (80.3.5).

Note AIM also considers the setting of the optimized field when considering the list of SLGs.

Storage Location Group List Maintenance (80.3.5) is shown in Figure 4.7.

See “Defining Item Data for Sites and Warehouses” on page 115.

See “About Optimized Storage” on page 82 for details.

The screenshot shows a window titled "Storage Loc. Group List Maint." with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays the following information:

Site: Ayr
Warehouse: arm01
Storage Location Group List: List01
Description: SLG List 01

Below this is a section titled "Storage Location Group List Detail" containing a table:

Seq	SLocGrp	Description
10	bulk01	General hardware area
20	bulk02	bulk storage 2
30	bulk03	bulk storage 3

At the bottom, there is another empty table structure with the same headers: Seq, SLocGrp, and Description.

Fig. 4.7
Storage Location Group List Maintenance (80.3.5)

Enter values in the following fields:

Site. Enter the name of the existing site.

Warehouse. Enter the name of the existing warehouse in which you want to maintain storage location group lists.

Storage Location Group List. To modify the fields for an existing storage location group list, enter the name of the existing list.

To create a new SLG list, enter the name of the list.

Description. Enter a description of the SLG list.

Press Go to accept these entries and move to the list detail frame.

Seq. Enter a sequence number. You can specify one storage location group for each sequence number. The lowest sequence number is the first SLG that AIM tries to use for put away of the item.

SLocGrp. Enter the name of the SLG for this sequence number.

Work Location Group Maintenance

When you have defined your AIM warehouse, its internal routing groups (IRGs), and storage location groups (SLGs), the next step is to set up all the work location groups (WLGs) within the warehouse using Work Location Group Maintenance (80.3.9). This lets you define a name and a description for each work location group, and to define fields relating to the WLG.

The main purpose of work location groups is to enable you to control which warehouse staff work in which areas of the warehouse using User-Work Location Group Maintenance (80.19.5). The second purpose is to define the cycle count and printing fields for each work area.

Work Location Group Maintenance (80.3.9) is shown in Figure 4.8.

Fig. 4.8
Work Location
Group Maint
(80.3.9)

Enter values in the following fields:

Site. Enter the name of an existing site.

Warehouse. Enter the name of an existing warehouse in which you want to maintain work location groups.

Work Location Group. To modify the fields for an existing work location group, enter its name. To create a new work location group, enter the name of the WLG.

Press Go to accept the site, warehouse, and work location group and move to the second frame.

Description. Enter a description of the work location group.

Confirmed at Source. Enter Yes if transactions in this work location group are confirmed by the warehouse staff who initiate the stock movement. Enter No if transactions are confirmed by the warehouse staff who complete the stock movement at its destination.

See “Confirmed at Source” on page 36.

Priority. This field assigns a priority value to transactions in this WLG. The RDTs select the highest priority task as the next action: the higher the number you specify, the higher the priority.

Increment. This field specifies the increment that is added to a transaction’s priority as time elapses, if you run the increment addition program—for example, as a background process. You need to use this facility to avoid the situation where a relatively low

priority transaction never reaches the top of the priority list, and therefore, never gets performed. By gradually incrementing the priority, you ensure that even low priority tasks are eventually performed.

Task. This field defines the task associated with any inventory transaction that is created in this WLG. Task codes are set up in Task Maintenance (80.11.1).

System Code. This field defines the type of AIM screen that confirms transactions in this work location group. Leave this blank for normal AIM screens; enter RF for transactions confirmed using Radio Data Terminals (RDTs), also known as RFs.

Flavor. Enter the code to define the style and format of screens to be used for displaying AIM information in this work location group other than in the standard MFG/PRO frames. The Flavor codes are set up in Generalized Code Maintenance (36.2.13) and relate to display of information in situations such as fork-lift truck screens or Radio Data Terminals (RDTs).

Allow Task Switching. This field is used to specify for a work location group whether warehouse staff are allowed to switch to a different task. The setting of this field is important whenever any of the task confirmation fields has been set to allow a different value, for example, of a reference or lot/serial number, to that which was expected. You have to specify whether a user who enters a different reference is changing the value for the current task, or switching to another task.

Enter Yes to allow task switching. Upon entry of a different value, such as a reference, AIM checks to see whether another task exists with the reference. Enter No to prevent task switching. On entry of a different value, AIM assumes that the value is being changed for the current task.

Two Phase. Enter Yes to specify that inventory movements in this WLG are created in one step, the first phase, and confirmed in a second step, the second phase. In between the two phases, the stock is marked as being booked out of the first location and expected in the second location. However, the anticipated inventory levels are only confirmed when the stock is confirmed as arriving at the destination.

If you enter No, inventory movements are created and confirmed in a single step (single phase). The default value that was set up in Warehouse Maintenance is initially displayed.

Note Two-phase operation is a much safer way of ensuring precision in inventory management. Single-phase operation should only be used in special circumstances.

Keep From Status. This field specifies whether, when an inventory transaction is created and confirmed, the inventory status of the transferred inventory retains its original value by entering Yes here, or takes its status from the new location by entering No here. The default value that was set up in Warehouse Maintenance is initially displayed.

Device. Enter the code to define the device to be used within this work location group, if applicable. If No single device code is applicable, leave this field blank.

The second WLG Maintenance frame is shown in Figure 4.9.

Fig. 4.9
Work Location
Group Maint,
Second Screen

Cycle Counts

The fields in this frame control the way cycle counts and recounts are performed in this work location group. The system initially displays default values set up in Warehouse Maintenance, but you can change these values for individual work location groups.

Count Task. This field is used to specify the task of any cycle counts created in the work location group. The tasks must already have been set up in Task Maintenance.

Count System Code. This field specifies the system code of any cycle counts created in the work location group. It defines the type of AIM screen that is used to confirm cycle count transactions: blank for normal AIM screens, RF for RDT screens.

Count Priority. This field assigns a priority value to cycle count transactions created in the work location group. The RDTs select the highest priority task as the next action; the higher the number you specify, the higher the priority.

Count Increment. This field specifies the increment that is added to a cycle count transaction's priority as time elapses, if you run the increment addition program—for example, as a background process. You use this facility to prevent low priority tasks from never reaching the top of the priority list, and therefore, never being performed.

Count on Fail. This field specifies whether a cycle count should be automatically generated for the inventory if that inventory is failed; for example, when a transaction is completed for less than the required quantity.

Recount Task. This field specifies the task of any recounts created in the work location group. The tasks must already have been set up in Task Maintenance.

Recount System Code. This field specifies the system code of any recounts created in the work location group. It defines the type of AIM screen that is used to confirm recount transactions: blank for normal AIM screens, RF for RDT screens.

Recount Priority. This field assigns a priority value to recount transactions created in the work location group. The RDTs select the highest priority task as the next action: the higher the number you specify, the higher the priority.

Recount Increment. This field specifies the increment that is added to a recount transaction's priority as time elapses, if you run the increment addition program—for example, as a background process. You use this facility to prevent low priority tasks from never reaching the top of the priority list, and therefore, never being performed.

The third WLG Maintenance frame is shown in Figure 4.10.

Work Location Group Maint.

User Menu Edit Queue Options Help

Printing

IDENTIFICATION

Print ID: Width of Each: 132 Mode?: Print Mode: Use External?:

ID Printer: Number Across: Lines of Each:

FORMS

Form Printer: 132 Mode?: Use External?:

TASKS

Pr on Create?: Width of Each: 132 Mode?: Print Mode (Cr): Print Mode (Conf): Use External?:

Print on Conf?: Task Printer: Number Across: Lines of Each:

EXTERNAL DEVICES

External Device Printer: Number Across: Lines of Each: Width of Each: 132 Mode?: Use External?:

EXCEPTIONS

Print Except?: Print Mode:

QA SAMPLING

Insp Printer: Number Across: Lines of Each: Width of Each:

FORMAT

Print Flavor:

Fig. 4.10
Work Location
Group Maint, Third
Screen

Printing

The Printing frame contains fields where you define the fields that control the printing of transaction details. These cover the following:

- Printing an identification of inventory coming into the warehouse.
- Printing transactions for tasks when they are created.
- Printing transactions for tasks when they are confirmed.
- Printing exceptions when changes have been made to the original transaction; for example, a change to the put away location or quantity.
- Printing transactions relating to external devices.
- Printing QA sampling tags.

See “Printing” on page 52 for an explanation of the use of the printing fields.

Inter-Work Location Group Maintenance

In situations where inventory movements between two work location groups are not defined by an internal routing. For example, when both WLGs are in the same internal routing group, you must specify the Inter-work location group transaction fields. Otherwise, AIM does not know whether to take the transaction properties from the source WLG or the destination WLG.

You do this by using Inter-Work Location Group Maintenance (80.2.19) to specify what the transaction field settings should be for each combination of possible movements from one WLG to another.

Example If you have three WLGs, A, B, and C, you have six possible types of inter-WLG movement: from A to B, from A to C, from B to A, from B to C, from C to A, and from C to B. Note that if you leave the destination WLG blank, the inter-WLG definition applies to all destination WLGs.

Inter-Work Location Group Maintenance (80.2.19) is shown in Figure 4.11.

Fig. 4.11
Inter-Work
Location Group
Maintenance
(80.2.17)

Description	
Confirmed at Source ?	Task:
System Code:	Priority:
Two Phase ?	Increment:
Keep From Status ?	

Enter values in the following fields:

Site. Enter the name of an existing site.

Warehouse. Enter the name of an existing warehouse in which you want to maintain inter-work location group fields.

From WLocGroup. Enter the name of an existing source WLG for this movement combination.

To WLocGroup. Enter the name of an existing destination WLG for this movement combination.

Press Go to display the Description frame.

The fields in the Description frame control the same fields as in the Transaction Create Defaults frame of Warehouse Maintenance, only here they relate to a specific movement between the two WLGs you entered in the first frame.

▶ See “Transaction Create Defaults” on page 36 to learn more about individual fields.

Location Group Reports and Inquiries

Table 4.1 lists report and inquiry options available for storage location groups and work location groups.

Program	Description
Storage Location Group Browse (80.3.2)	This option lets you select the site and review details of all the storage location groups that have been set up in warehouses in that site.
Storage Location Group Report (80.3.3)	This option lets you select a range of sites, warehouses, and SLGs for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each SLG.
Storage Location Group List Inquiry (80.3.6)	This option lets you select the site, warehouse, and the storage location group list, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries that have been set up for the selected list.
Storage Location Group List Report (80.3.7)	This option lets you select a range of sites, warehouses, and SLG lists for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current entries that have been set up for each SLG list.
Work Location Group Inquiry (80.3.10)	This option lets you select the site and review details of all the work location groups that have been set up in warehouses in that site.
Work Location Group Report (80.3.11)	This option lets you select a range of sites, warehouses, and WLGs for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each WLG.

Table 4.1
Location Group
Reports and
Inquiries

Program	Description
Inter-Work Location Group Browse (80.2.20)	This option lets you select the site and review details of all the inter-work location group combinations that have been set up in warehouses in that site.
Inter-Work Location Group Report (80.2.21)	This option lets you select a range of sites, warehouses, from WLGs, and to WLGs for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each inter-work location group combination.

Defining Locations

This chapter describes how to set up the fields for defining the characteristics of individual storage locations in your warehouses. It also explains how to use Mass Location Maintenance (80.3.13.21) to set up a range of similar storage location details to minimize the repetition of the setup process. The chapter is divided into the following major sections:

About Locations **102**

Location Maintenance **103**

Mass Location Maintenance **109**

Location Report and Inquiry Functions **111**

About Locations

To enable MFG/PRO to make use of them, all inventory locations must be defined as standard MFG/PRO locations. When you are using AIM, you also have to define additional AIM fields for each location in each AIM warehouse. Because MFG/PRO sees each AIM warehouse as a dummy location, your AIM warehouses must also be defined as standard locations. There are, therefore, three different ways to define locations:

▶ See “Warehouse Maintenance” on page 32.

- An AIM warehouse is defined as a standard MFG/PRO location, so that MFG/PRO can use it, and is also defined as an AIM warehouse. You define both the AIM warehouse fields and the standard MFG/PRO location data in Warehouse Maintenance.
- A storage location that you want to use in an AIM warehouse is defined as a standard MFG/PRO location, so that MFG/PRO can report on its capacity, contents, and so on, and is also defined as an AIM location so that AIM can use it for put-away, storage, and picking. You define both the AIM fields and the standard MFG/PRO data using AIM Location Maintenance (80.3.13.1).
- A storage location that is outside the AIM system is defined only as a standard MFG/PRO location. MFG/PRO can report on its capacity and contents, but AIM is not aware of its existence. These locations are set up using MFG/PRO’s standard Location Maintenance (1.1.18) and are not part of the AIM system. Put-away or picking algorithms do not consider those locations.

▶ See *User Guide Volume 6: Master Data* for details on locations.

You do not need to use MFG/PRO’s Location Maintenance (1.1.18) to set up your AIM warehouses or your AIM locations within these warehouses. However, after you define AIM warehouses and locations, they also exist as standard MFG/PRO locations and can be accessed using MFG/PRO’s Location Maintenance (1.1.18). Do not use this option to maintain your AIM warehouses and locations though, because the entries you make in MFG/PRO are not available to AIM.

Location Maintenance

When you have defined your AIM warehouse and its internal routing groups (IRGs), storage location groups (SLGs), and work location groups (WLGs), the next step is to set up all the locations within the warehouse. You can do this for individual locations using Location Maintenance (80.3.13.1). This lets you define a name for each location and define both the standard MFG/PRO location data and the AIM specific data. When you have many locations to define, you can use Mass Location Maintenance.

See “Mass Location Maintenance” on page 109.

Figure 5.1 illustrates Location Maintenance.

The screenshot shows the 'Location Maintenance' window with the following fields:

- Site:** Ayr
- Location:** bk0102
- QAD Location Data:**
 - Description:** Bulk aisle 01 bin 02
 - Inventory Status:** GOOD
 - Permanent:** no
 - Item Location Type:**
 - Single Item:** no
 - Single Lot/Ref:** no
 - Capacity:** 10, 0
 - UM:** PL
- Location Dimensional Data:**
 - Height:** 1, 00
 - Length:** 5, 00
 - Width:** 2, 00
 - Dimensional UM:** PL
 - % Full:** 0, 00

Fig. 5.1
Location
Maintenance
(80.3.13.1)

Enter data in the following fields:

Site. Enter the name of an existing site.

Location. To modify the fields for an existing location, enter its name. To create a new location, enter its name or identifier. A blank location name is not allowed.

Location Data

The fields in this frame define the location for MFG/PRO. Refer to the MFG/PRO user documentation for full details of each field.

Following is a brief summary of the use of each field.

Description. Enter a brief description of this location, usually describing where to look for it.

Inventory Status. Enter the status typically assigned to inventory held in this location.

Permanent. Enter Yes to indicate that the location is permanent; it is retained even if the balance on hand is zero. Enter No to indicate that the location is temporary. Temporary locations are created and deleted by the system. They exist only when the on-hand balance in the location is greater than zero.

Item Location Type. If required, enter a code to indicate the type of storage location. These codes define special storage conditions.

Single Item. Enter Yes if quantities of only one item or product can be stored in this location; otherwise, enter No.

Single Lot/Ref. Enter Yes if only one lot/serial number of the same item can be stored in this location; otherwise, enter No.

Capacity. Enter the capacity of this storage location, in terms of the capacity unit of measure, in the next field.

◆ See “Quantity”
on page 108.

Note This value is for reference only. The capacity value that AIM uses for all calculations is the one you define in the Quantity field for a specific UM or UM and item number combination.

UM. Enter the unit of measure in which the location capacity is expressed.

Location Dimensional Data

Location dimensions are used for reference purposes only, so you do not have to enter values. If you do enter dimensions, the values are all in terms of the dimensional unit of measure, specified in the Dimensional UM field, below the three dimensions. AIM does not perform any validation between this reference dimensional data and the functional capacity of the location, which you define as described on page 108.

Height. Enter the height of the location.

Length. Enter the length of the location.

Width. Enter the width of the location.

Dimensional UM. Enter the unit of measure used to define the dimensions.

% Full. This field is for display only; you cannot modify it. It shows the percentage full value for the location, which is blank when you first set up the location.

The second Location Maintenance frame is shown in Figure 5.2.

Location Maintenance

User Menu Edit Queue Options Help

Site: aim-site
Location: bulk10

AIM Location Groupings

Warehouse: raw
Store Loc Group: bulk1
Work Loc Group: workA

AIM Location Data

Check Digit: A	Picking Type: LIFO
Popularity: Fast	Preferred UM:
Storage Type:	OPC Frequency: 0
Warehouse Location Type:	Last OPC: 03/10/99
Travel Sequence: 0	Stage (In):
Dedicated?: no	Stage (Out):

Fig. 5.2
Location
Maintenance,
Second Screen

AIM Location Groupings

Warehouse. Enter the name of the warehouse in which the location is found.

Store Loc Group. Enter the name of the storage location group to which the location belongs.

Work Loc Group. Enter the name of the work location group to which the location belongs.

AIM Location Data

Check Digit. If check digits are in use for this storage location group, enter the code used to confirm the movement of inventory into or out of this location. Leave this field blank if check digits are not in use for this location.

Popularity. Enter a code to define the relative priority for choosing this location when AIM has a choice of locations in which to put away inventory. Low alphanumeric values for the Popularity code indicate greater popularity.

Example A popularity code of AAA indicates a popular location that is easily accessed, while a code of ZZZ indicates an unpopular location, which is perhaps difficult to access. You normally want to put fast moving stock in the low value Popularity code locations, and slow moving stock in the higher ones.

You can base the popularity codes on an ABC analysis of the number of transactions; MFG/PRO (3.6.3) provides a report on item-ABC status.

Storage Type. Unless you are doing cycle counts, storage type codes are optional and are used only for information to define different types of storage locations.

Warehouse Location Type. This field is not currently in use; leave it blank.

Travel Sequence. This field is optional. You can use it to assign a number to this location that is used in conjunction with the numbers assigned to other locations to define a travel sequence within the warehouse. This is effective only in an RDT environment using the Next Task function. When the next task is selected, AIM considers all outstanding tasks and selects the task where the source location has a travel sequence number closest to the value of the current location's travel sequence number. You can use this feature to minimize travel within the warehouse.

Note When working with priorities, the Next Task function first sorts tasks by priority. This means that travel sequences are only efficient for tasks having the same priority.

Dedicated. Enter Yes if this location is dedicated to storage of only one item or product; otherwise, enter No. If you enter Yes, only specific algorithms for dedicated items consider this location for put away. You must also specify the item for which the location is dedicated. You do this in the following frame of Location Maintenance.

▶ See “Labor Management Workbench” on page 329.

▶ See Figure 5.3 on page 108.

Picking Type. You must enter a valid picking type code for the location. The standard values are FIFO (First In First Out), LIFO (Last In First Out), and blank, which takes the first database record for the location.

Preferred UM. Enter the preferred unit of measure for this location. This can be used by the relevant put-away algorithms; for example to put away only pallets in a location.

OPC Frequency. This field is used only if opportunity counts are in use for the storage location group to which this location belongs. If opportunity counts are in use, you can specify a number to control the frequency with which such counts are initiated. When inventory is taken out of the location, AIM checks whether the quantity on-hand falls below the threshold level for the item, and also checks the OPC frequency value for the location.

- Enter 0 to allow unlimited numbers of opportunity counts.
- Enter 1 to allow an opportunity count at a frequency of one per day.
- Enter 2 to allow an opportunity count at a frequency of one every two days, and so on.

Last OPC. This field is for display purposes only. It shows the date of the last opportunity count for this location.

Stage In. This field indicates the locations that must be used prior to arriving in the current location.

Stage Out. This field indicates the location that must be used when leaving the current location.

Note Stage in and out locations are very useful when certain fork-lift trucks or engines are used within the aisle while other equipment is used from another area to the aisle itself. When you make a put-away for instance, you must find the destination location, but the RF terminal shows the movement from the receipt area to the stage in first and then another task is created to move goods from the stage in to the destination location. For issue, when picking goods out of the location to the dispatch area, the first movement is from the location to the stage out and the second is from the stage out to the dispatch

▶ See “Staging” on page 293.

area. The two movements have the same transaction number. The stock is never in the stage location in the system, although physically, it is a mandatory step for the goods in movement. The stage in and out locations may or may not be defined as locations in the system.

The third Location Maintenance frame is shown in Figure 5.3.

Fig. 5.3
Location
Maintenance, Third
Screen

Item Number	UM	Quantity	Height	Length	Width
P2		1,0000	1	1	1
pl		5,0000	5	1	1

Item Number	UM	Quantity	Height	Length	Width
	P2	1,0000	1	1	1

The fields in the third frame specify the quantities of a particular unit of measure that fits in the location. You can enter multiple lines for different items and different units of measure.

Item Number. Enter the item number for the inventory item to which this quantity definition relates. You can leave this field blank if the quantity relates to all items.

Example You could define how many standard pallets fit in the location, regardless of the items contained on the pallets.

If you entered Yes in the Dedicated field on the previous frame, you must also specify the item to which this location is dedicated.

UM. Enter the unit of measure in which this quantity definition is specified.

Quantity. Enter the quantity of the selected UM that fits in this location.

Height, Length, Width. If the quantity is sized by reference, you have access to the height, length, and width fields to tell the system how many pallets of a given kind can be stored in that location. The Quantity field is automatically updated with the multiplication of the

three dimensions. If a maximum pallet height is defined at the item/warehouse level, the capacity of the location is truncated to take into account the stacking for this item.

Mass Location Maintenance

When you have a large number of similar locations to define in an AIM warehouse, you can simplify and speed up the setup procedure by using the Mass Location Maintenance facilities. There are two steps involved:

- 1 Use AIM Sequence Definition Maintenance (80.24.1) to set up a sequence definition code. This identifies the template to use for setting up the individual locations. Then define the format and range of the location names that are generated. You can specify fixed-value parts and incrementing parts of the location names, so that you end up with location names such as Bulk0101, Bulk0102, Bulk0103, and so on.
- 2 Use Mass Location Maintenance (80.3.13.21) to generate the range of locations. You specify the sequence definition to use, and AIM uses the format and range you defined in step 1.

▶ See “Sequence Definition” on page 57.

You must set up the sequence definition before starting Mass Location Maintenance.

The final stage of creating a range of locations is to run Mass Location Maintenance to generate the location records based on one of the sequence definitions you have set up using the Sequence Definition Maintenance.

Mass Location Maintenance (80.3.13.21) is shown in Figure 5.4.

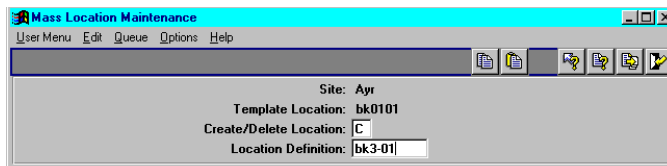


Fig. 5.4
Mass Location
Maintenance

Enter values in the following fields:

Site. Enter the name of an existing site.

Template Location. As well as specifying a sequence definition code to define the way the location identifiers are generated, you must also specify a template location, which is used to provide the field settings for all the new locations you generate. It is useful, therefore, to create the first location in the sequence using Location Maintenance, set up the location field settings the way you want them for the entire group of locations, and then specify this location as the Template Location for Mass Location Maintenance.

Create/Delete Location. If you are running Mass Location Maintenance to create a block of locations, enter C in this field. The sequence definition code specifies the range of locations that are created.

You can also use Mass Location Maintenance to delete a block of locations; for example, if you are restructuring your warehouse with a different location layout. You do this by entering D in the Create/Delete Location field. Again, the sequence definition code specifies the range of locations that are deleted.

Location Definition. Specify the sequence definition code you want to use to create or delete a block of locations.

When you press Go to accept these entries, AIM presents frames showing the field settings for the template location so that you can modify them if required. When you have checked all the fields, you are prompted to continue. Enter Yes to continue with the process or No to quit.

At the bottom of the frame, the system displays another message to inform you of the number of locations that are created or deleted based on the sequence definition you have selected.

Location Report and Inquiry Functions

Table 5.1 lists report and inquiry options available relating to Locations and Mass Location Maintenance.

Table 5.1
Location Reports
and Inquiries

Program	Description
Location Inquiry (80.3.13.2)	This option lets you select the site, warehouse, and the location, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries that have been set up for the selected location.
Location Report (80.3.13.3)	This option lets you select a range of sites, warehouses, and locations for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each location.
Dedicated Location Inquiry (80.3.13.5)	This option lets you display all the available locations for a given item, and specify where you want the inquiry results displayed; for example, a window.
Locations by SLG Inquiry (80.3.13.6)	This option lets you select the site, warehouse, and the SLG, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows all the locations that have been set up for the selected SLG.

Chapter 6

Defining Items

This chapter explains how you define item data relating to warehousing activities. Items you store in your AIM warehouses must exist in MFG/PRO, but you have to specify additional information concerning the storage and picking of items that relates the items to AIM's warehousing activities. The chapter is divided into the following major sections:

About Item Data **114**

Defining Item Data for Sites and Warehouses **115**

Defining Item Data for Storage Location Groups **125**

Defining Item Data for Suppliers **127**

Defining Customer Status for Items **129**

Item Data Report and Inquiry Functions **130**

About Item Data

You define all your standard item data in the usual way using MFG/PRO Item Master Maintenance (1.4.1). However, because additional item attributes must be specified to enable AIM to perform its put-away, storage, and picking functions, AIM provides extra item maintenance functions that enable you to enter the required information.

The information that AIM requires relates to the storage of items in individual AIM warehouses. You enter this information for items using Item-Warehouse Maintenance (80.4.11). Much of this information might be the same for other AIM warehouses in the same site, so an additional program is provided: Item-Site Maintenance (80.4.9). This program lets you enter much of the item-warehouse data in the form of default values used when you enter the details for a warehouse in that site. Similarly, much of the item-site data might be the same for other AIM sites. You can use another additional program—Item Maintenance (80.4.7)—to enter item-site data that defaults to each site.

So, the sequence is to:

- Enter overall generic default item data settings in Item Maintenance.
- Enter defaults for each site using Item-Site Maintenance.
- Enter settings for specific AIM warehouses using Item-Warehouse Maintenance. This is the only function that is mandatory; the use of the generic and site default programs is optional.

To simplify this procedure, you can use AIM's Item Master Maintenance (80.4.5), which combines the three item functions into one program.

The remaining item data maintenance options are as follows:

- Item/SLG Properties Maintenance lets you specify warehousing fields for items related to a specific storage location group.
- Supplier-Item Maintenance lets you specify specific inspection properties for the given supplier and item relationship.
- Customer-Item Status Maintenance lets you specify a particular inventory status code for a specified customer. When AIM is picking inventory to fill an order for that customer, it picks only inventory with that status.

Defining Item Data for Sites and Warehouses

The previous section explains how you can maintain item data using either Item Master Maintenance or the three separate options: Item Maintenance, Item-Site Maintenance, and Item-Warehouse Maintenance. This section explains the process of using Item Master Maintenance:

- The first part of this process corresponds to Item Maintenance, see page 116.
- The second part corresponds to Item-Site Maintenance, see page 120.
- The final part corresponds to Item-Warehouse Maintenance, see page 121.

Note These maintenance options are not used for creating item records. You must always first create item records using the standard MFG/PRO Item Master Maintenance (1.4.1). Only then can you add the AIM Warehousing fields to the basic item data.

Item Master Maintenance (80.4.5) is shown in Figure 6.1.

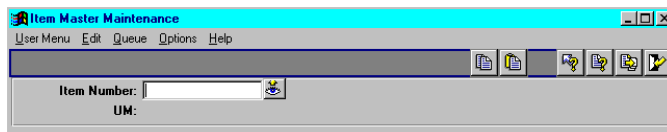


Fig. 6.1
Item Master
Maintenance
(80.4.5)

Enter the item number you want to maintain. When you select your item, the system displays its description and base UM at the top of the frame, and displays the first frame of fields for entry of generic defaults to apply to this item across all sites.

Item Maintenance

Figure 6.2 shows the Item Data and Default Site Data frames.

Fig. 6.2
Item Master
Maintenance, Item
and Site Data

The screenshot shows the 'Item Master Maintenance' window. At the top, the title bar reads 'Item Master Maintenance'. Below the title bar is a menu bar with 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. A toolbar with various icons is located below the menu bar. The main area is divided into two sections: 'Item Data' and 'Default Site Data'.

Item Data:

- Item Number: 001-4120
- UM: EA
- Item Name: PENCIL ASSEMBLY
- UM Group:
- Shelf Life Offset:
- Critical Days:

Default Site Data:

- Warehouse Item Type:
- Replenishment Type:
- Popularity: a01
- Single PA Trans: no
- Issue Method: DISCRETE
- Print ID ? : no
- ID Quantity: 0
- OPC Threshold: 2.000,0

Item Data

See “UM Conversion Generation” on page 142.

UM Group. If the units of measure used for this item belong to a group of UMs, you can enter the UM group code here. Any future revisions to the conversion factors in this UM group are then applied to this item when you run UM Conversion Generation. Leave this field blank if a UM group is not applicable.

Note UM groups are a tool to help generate conversion factors. Defining a group and linking it to an item is not enough to have conversion factors created. You must run UM Conversion Generation.

Shelf Life Offset. For inventory that has a limited shelf life, enter the number of days between the customer’s best before date and the expiry date for the item. This time period is taken into account by some of the picking algorithms to prevent picking inventory which would have insufficient shelf life remaining to be saleable. If shelf life is not applicable, leave this field blank. This field is frequently used in the food industry when the customer is a distributor/grocer and not the end customer.

Critical Days. For inventory that has a limited shelf life, enter the number of days counting back from the item’s expiry date during which time the inventory can be regarded as critical inventory. This

time period is taken into account by some of the picking algorithms that pick only critical inventory. If critical days are not applicable, leave this field blank.

Default Site Data

The entries you make in this frame default when you enter the Item-Site data. You can override these values for individual sites.

Warehouse Item Type. Enter a code to categorize items in groups of similar type; for example, handling characteristics or put-away method. These codes can be used in some algorithms and in internal routing assignment. Leave this field blank if the item does not belong to a particular item type.

Replenishment Type. Enter a code to categorize items in groups that have the same replenishment requirements. Replenishment can then be specified for a group of items, rather than for individual items. Leave this field blank if the item does not belong to a particular replenishment type.

Popularity. Locations are assigned popularity codes that represent the ease of access. Similarly, you assign a popularity code to each inventory item so that AIM can match popular inventory with popular locations. You can use this facility to ensure that fast moving items are stored in the most accessible locations. A sensible way to define this value is to use an ABC analysis and make categories for fast and slow moving items. Locations have a popularity code as well, and using the appropriate algorithm, AIM tries to put away fast-moving items in very accessible locations.

Single PA Trans. Enter Yes if the system should attempt to put away received quantities of this item in a single put-away transaction, that is, all the inventory in the same location. Otherwise, enter No.

Issue Method. This field specifies the picking transactions that are created for this item in the bulk picking process.

Print ID. Enter Yes to print identification labels for this item; otherwise, enter No.

ID Quantity. If you have entered Yes for Print ID, enter the number of identification labels to be printed; otherwise, leave this field blank.

OPC Threshold. This field relates to opportunity counts, which you can specify when this item is stored in an RDT environment. When inventory is taken out of the location, AIM checks whether the quantity on-hand falls below the threshold level you specify for the item, and also checks the OPC frequency value for the location where the item is stored. If both conditions are met, a cycle count is requested.

Merging Rules

The second Item Master Maintenance frame is shown in Figure 6.3.

Fig. 6.3
Item Master
Maintenance,
Default Site
Merging Rules

The screenshot shows a software window titled "Item Master Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays "Item Number: 001-4120" and "PENCIL ASSEMBLY" with "UM: EA" below. A section titled "Default Site Data" contains two columns of input fields. The "Same Days" column has values 10, 5, 3, 1, 0, 0, 0, 0. The "Days from Exp/Mfg" column has values 100, 50, 10, 3, 0, 0, 0, 0.

Same Days	Days from Exp/Mfg
10	100
5	50
3	10
1	3
0	0
0	0
0	0
0	0

The fields in this frame define the merging rules when AIM considers whether to merge newly received quantities of this item with quantities already stored in a warehouse location. The merging rules work by comparing the number of days left before the item reaches its expiry date. If the difference between the days remaining for the newly received inventory and the existing inventory is sufficiently small, the items can be merged; if the difference is too large, the items must be kept separate.

Same Days. Enter the number of days by which the days remaining before expiry date can differ while allowing the inventory to be merged.

Example If the existing inventory in the location has 70 days remaining before its expiry date, the newly received inventory has 80 days remaining, and the Same Days value for the item is 12, the inventory can be merged in the same location because the difference between 70 and 80 is less than 12. If the Same Days value was 5, AIM would not allow the inventory to be merged.

Days from Exp/Mfg. Enter the maximum number of days remaining before expiry date to which this Same Days value applies. You can use this field to set bands of merging rules which depend on the length of time remaining until expiry.

Example You might want a figure of 10 for the Same Days field if the inventory is within 100 days of expiry, but a figure of 5 if the inventory is within 50 days from expiry. To achieve this, you would specify values of 10 and 100 on the first line, and 5 and 50 on the second line.

Note The provision of multiple lines on which you can enter Same Days and Days from Exp/Mfg values lets you specify that the further away the expiry date is, the greater the acceptable difference is when merging stock. In practice, this is very useful in a LIFO location, where only the last pallet can be picked. By merging the stock, you can ensure that the last pallet in, if not the oldest, is one of the oldest.

The next section of Item Master Maintenance corresponds to Item-Site Maintenance, where you set up default values for the item-warehouse data for a particular site.

Item-Site Maintenance

Enter the site to which the default values apply. When you have selected the site, the system displays the Item Maintenance frame shown in Figure 6.4.

Fig. 6.4
Item Master Maintenance, Site and Default Warehouse Data

The screenshot shows a software window titled "Item Master Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. Below the menu bar are tabs for "Inventory" and "Transaction". The main area displays item information: Item Number: 001-4120, UM: EA, Site: Ayr, and PENCIL ASSEMBLY. Below this is a section titled "Site Data and Default Warehouse Data" with two columns of fields. The left column contains: Site Location (spr01), Default Whse Location (bu0101), Warehouse Item Type, Replenishment Type, and Popularity (a01). The right column contains: Single PA Trans (no), Issue Method (DISCRETE), Print ID ?, ID Quantity (0), and OPC Threshold (2,000,0).

Site Data and Default Warehouse Data

The values you enter in these fields apply to the whole site, the Site Location field, or default to each warehouse in this site when you enter item-warehouse data for these warehouses.

Site Location. Enter a location, which can also be a warehouse or a warehouse master list, for this item at this site. This value is used when an item is issued from one site using that site's location, warehouse, or master list, and received at another site, where a different location, warehouse, or master list applies. You must identify the location, warehouse, or warehouse master list for the item at each site.

Default Whse Location. Enter a default issuing and receiving location for this item at this site to be used when the warehouse is inactive. You cannot access storage location groups for an item in an inactive warehouse. At the item-warehouse level, you specify a storage location group or a list of SLGs for the item, used when the warehouse is active.

See "Default Site Data" on page 117.

The remaining fields (Warehouse Item Type, Replenishment Type, Popularity, Single PA Trans, Issue Method, Print ID, ID Quantity, and OPC Threshold) display the default values—if any—that you entered at the item level. At the item-site level, you can accept the generic defaults or override them with different values for this site.

When you press Go to accept the first frame of Default Site Data, the system displays the second Item-Site Maintenance frame, containing further default warehouse data fields. These fields define the merging rules when AIM considers whether to merge newly received quantities of this item with quantities already stored in a warehouse location.

Again, the system displays the generic default values that you entered for the item merging rules. You can accept the generic defaults or override them with different values for this site.

See “Merging Rules” on page 118.

The next section of Item Master Maintenance corresponds to Item-Warehouse Maintenance, where you set up the actual values for the item-warehouse data for each particular warehouse.

Item-Warehouse Maintenance

Enter the warehouse to which the item data applies. When you have selected the warehouse, the system displays the first of the Item-Warehouse Maintenance frames shown in Figure 6.5.

The screenshot shows a window titled "Item-Warehouse Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is divided into two sections. The top section displays item information: Item Number: compA, Item A Description, UM: EA, Site: aim-site, AIM Site, Warehouse: raw, and Raw Material Warehouse. The bottom section, titled "Warehouse Data", contains two columns of fields. The left column includes Location, Store Loc Group, SLG List (set to listA), Warehouse Item Type, Replenishment Type, Popularity, Logistics UM Tolerance (set to 10.00%), and Auto Replenish ? (set to yes). The right column includes Single PA Trans (set to no), Issue Method (set to ORDTYPE), Print ID ? (set to yes), ID Quantity (set to 1), OPC Threshold (set to 10.000,0), Logistics UM (set to pl), Pal.Max.Height (set to 0), Auto Replenish % (set to 0.00%), and Print Unpl. Issue Tag (set to no).

Fig. 6.5
Item-Warehouse
Maintenance

Warehouse Data

The values you enter in these fields are used by AIM in all inventory transactions relating to this item at this warehouse.

Location. This field is accessible only when the warehouse is inactive, when you can enter or modify the default location for this warehouse, if required. When the warehouse is active, the SLG or the SLG list specified in the following fields is used to identify locations for the item.

Store Loc Group. Enter the storage location group where you want the AIM put-away algorithms to search for locations to store receipts of this item. If you are using storage location group lists, you can leave this field blank and enter a list in the SLG List field. You cannot enter values in both of these fields.

SLG List. If you have left the Store Loc Group field blank, you can enter the name of a storage location group list. The AIM put-away algorithms consider each SLG on the list in sequence when searching for locations to store receipts of this item.

◆ See “Default Site Data” on page 117.

The fields Warehouse Item Type, Replenishment Type, Popularity, Single PA Trans, Issue Method, Print ID, ID Quantity, and OPC Threshold display the default values—if any—that you entered at the Item-Site Maintenance level. At the item-warehouse level, you can accept the item-site level defaults or override them with different values for this warehouse.

Logistics UM Tolerance. Enter a percentage value to specify when the sizing calculations use the Logistics UM and when they use base UM.

Example The base UM for an item is EA (each), the logistics UM is PL (pallet), and a pallet contains a maximum of 100 EA. The location where the item is stored can hold two pallets or 200 EA of the item. If you set the Logistics UM Tolerance to 10%, a pallet containing 90 items is within the tolerance of 10%, so the location is considered to have one full pallet and be 50% full. However, a pallet containing 80 items is outside the 10% tolerance, so the calculation for the space used in the location is performed in base UM (EA). Since the location holds 80 items in a capacity of 200, the location is considered to be 40% full. The main difference with pallet sizing is that additional pieces can be received in that location.

Auto Replenish. This field specifies the tolerance for the replenishment point. The replenishment point is the quantity of stock below which an automatic replenishment is triggered.

Example If the replenishment point is defined as 50 EA, when the inventory level drops below 50 EA, the system initiates a replenishment process. If the Auto Replenish value is set to 80%, the automatic replenishment occurs only when the stock level falls below 40 EA. Note that a value of 0% has the same effect as a value of 100%.

Logistics UM. Enter the logistics unit of measure to be used as the receipt UM when the receipt is made in base UM.

Note The logistics UM is only used if the receipt is made in the base UM for the item. Its use lets you make the receipt in pieces. For example, if the logistics UM is a pallet (PL) which holds 100 EA, and you receive 280 EA, AIM creates 3 records with reference information: 2 full pallets of 100 EA, and 1 partial pallet of 80 EA. The logistics UM Tolerance % field specifies whether the partial pallet is considered as full or not. From version 2.0c of AIM, however, it is possible to use the logistic UM even when receiving in alternate UM, like boxes. At the warehouse level, the Log with Base UM Only field indicates whether logistics UM is used with base UM only or also with alternate UM.

Max Pal Height. This field modifies the capacity calculation for the corresponding item to consider the stacking of pallets. When the location capacity is defined in referenced unit of measures such as pallets, the result of the capacity calculation is the multiplication of the height, width, and length. When the maximum pallet height is defined for a given item, the multiplication is made using this maximum height and not the location height.

Auto Replenish. Enter Yes to select Auto Replenishment. If an existing replenishment definition exists for a location/item or an SLG/item, when the inventory level falls below the replenishment point, the system automatically starts a replenishment process. This process picks the missing items and transfers them to the location/SLG to be replenished. With auto replenishment, you do not need to start a manual replenishment; the process is triggered automatically. Enter No to switch off auto replenishment.

Print Unplanned Issue Tag. This field enables you to print an unplanned issue tag to request the issue of material out of stock. It is created when using Issues–Unplanned (3.7). Make sure that the

ISS-UNP transaction type is defined in Transaction Type Maintenance (80.7.6) with print procedure code pk. The printer used is the same as for pallet ID. Make sure the printer is defined correctly at the work location group level.

Figure 6.6 shows the unplanned issue tag generated by AIM. When printed, the system is already updated. Its purpose is to help in knowing which goods are manually issued from the warehouse.

Fig. 6.6
Unplanned Issue
Tag Generated By
AIM

UNPLANNED ISSUE	
Site:	aim-site - AIM Site
Warehouse:	raw - Raw Material Warehouse
Location:	bulk10
Item Number:	compA - Item A Description
Lot/Serial:	
Reference:	99999999
Address:	
Quantity:	100 EA
Effective Date:	18/12/00
Created By:	yg
At:	18/12/00 11:44:44

The second Item-Warehouse Maintenance frame contains fields that define the merging rules when AIM considers whether to merge newly received quantities of this item with quantities already stored in a warehouse location.

▶ See “Merging Rules” on page 118.

Again, the system displays the item-site level default values that you entered for the item merging rules. You can accept the defaults or override them with different values for this warehouse.

When you have finished entering merging rules values at the item-warehouse level, press Go to accept the entries. You can now enter item-warehouse data for this item for another warehouse at this site, or you can press End to return to the Site field.

At the Site field, you can enter item-site level defaults for this item for another site, or press End again to return to the Item Number field.

At the Item Number field, you can select another item for Item Master Maintenance or press End to leave the program.

Defining Item Data for Storage Location Groups

In addition to defining data for items at the warehouse level, you can also use Item/SLG Properties Maintenance (80.4.1) to specify warehousing fields for items related to a specific storage location group. Item/SLG Properties Maintenance is shown in Figure 6.7.

▶ See “Warehouse Data” on page 121.

Item/SLG Properties Maintenance

User Menu Edit Queue Options Help

Site: aim-site
Warehouse: raw
Store Loc Group: bulk1
Item Number: compa

Transaction Details

Allow Issues?:
Allow Receipts?:
Allow Incoming Returns?:
Allow Outgoing Returns?:

Inventory Details

OPC Threshold: 0, 0
Popularity:
Count Status Option: 0
Recount UM:

Fig. 6.7
Item/SLG
Properties
Maintenance
(80.4.1)

Enter values in the following fields:

Site. Enter the name of an existing site.

Warehouse. Enter the name of the warehouse in which you want to maintain item/SLG data.

Store Loc Group. Enter the name of the storage location group.

Item Number. Enter the item number in which you want to maintain item/SLG data.

Transaction Details

The Transaction Details fields show the settings for this storage location group. If you want to modify these settings for this item only, you can modify the field values in this frame.

Allow Issues. This field controls whether inventory can be issued out of the system from locations in this SLG. Generally, you limit issues to specially designated areas, such as Goods-Out. Enter Yes if this item can be issued; otherwise, enter No.

Allow Receipts. This field controls whether inventory can be received from outside the system into locations in this SLG. Generally, you limit receipts to specially designated areas, such as Goods-In. Enter Yes if this item can be received; otherwise, enter No.

Allow Incoming Returns. This field controls whether inventory can be received into locations in this SLG as part of a returned issue. Generally, you limit incoming returns to specially designated areas, such as Goods-Out Returns or Rejects. Enter Yes if this item, when returned from a customer, can be placed in locations in this SLG; otherwise, enter No.

Allow Outgoing Returns. This field controls whether inventory can be issued from locations in this SLG as part of a returned receipt. Generally, you limit outgoing returns to specially designated areas, such as Goods-In Returns or Rejects. Enter Yes if quantities of this item to be returned to a supplier can be issued from locations in this SLG; otherwise, enter No.

Note If Allow Receipts is set to Yes in a bulk storage location group, for example, the system lets you make a direct receipt into these locations without generating any AIM transactions.

Inventory Details

▶ See “OPC Threshold” on page 118.

OPC Threshold. You can set the OPC Threshold for the item for the whole warehouse using Item-Warehouse Maintenance, but you can also enter a value in this field to apply only to this item in this SLG.

▶ See “Popularity” on page 117.

Popularity. You can set the Popularity for the item for the whole warehouse using Item-Warehouse Maintenance, but you can also enter a value in this field to apply only to this item in this SLG.

Count Status Option. Enter a number to define the action that should be performed on the inventory status upon confirmation of a recount or in-tolerance count in this storage location group. This field defaults from Warehouse Maintenance. The options are as follows:

- 0 No status change.
- 1 Change to Location Status: The status of the inventory is changed to the default inventory status of the location.
- 2 Status change based on Fail Status: The status of the inventory is changed to the good status associated with the current fail status in Inventory Status Maintenance (80.8.15).

Recount UM. This field is especially useful when you use CIM load with Cycle Count Entry (3.14) to load stock in the system.

When the Use Recount UM of SLG field is set to Yes in Warehouse Maintenance (80.1.1), the system gives any pallet recounted in Cycle Count Entry the alternate UM defined in the recount UM of the corresponding item/storage location group, if any.

Defining Item Data for Suppliers

Supplier-Item Maintenance (80.4.13) lets you specify default units of measure and quantities relating to the pallet, or other container, capacities for particular items from specified suppliers. These values are used during purchase order flow to provide the default quantity of the item from the particular supplier. If no record is available for a supplier-item combination, the default quantity is taken from the unit of measure records.

Supplier-Item Maintenance is shown in Figure 6.8.

Fig. 6.8
Supplier-Item
Maintenance
(80.4.13)

Enter values in the following fields:

Address. Enter the address code for the required supplier.

Item Number. Enter the item number in which you want to maintain supplier-item data.

◆ See Chapter 21, “Quality Inspection,” on page 301 for details on managing inspections.

Selective Inspection. Enter Yes if you want this item to be inspected every time the corresponding algorithm is used. Only items marked for selective inspection are considered for inspection.

Inspection Frequency. Specify the number of receipts between each inspection of this item, from this supplier, when the corresponding algorithm is used.

Inspection Frequency (Days). Specify the number of days separating two consecutive inspections of this item, from this supplier, when the corresponding algorithm is used.

Destructive. Indicate if the inspection test is a destructive test. When set to Yes, the inspection sample is assigned a specific status after inspection. This stock must be deleted manually, using an unplanned issue, for example.

Sample Quantity. Specify the sample quantity to consider. If Reference is Yes, quantity indicates a number of references, such as pallets, to consider for inspection. Otherwise, quantity is in the base UM of the item.

Sample %. The sample % is used in place of the sample quantity. It represents the percentage of items inspected out of those being received.

Random %. This is a chance to have this item, from this supplier, inspected, if the corresponding algorithm is used.

Defining Customer Status for Items

Customer-Item Status Maintenance (80.4.17) lets you specify a particular inventory status code for a specified customer. When AIM is picking inventory to fill an order for that customer, it picks only inventory with that status. You can use this function, for example, to pick only Grade 1 status inventory for a particularly valued customer.

Customer-Item Status Maintenance is shown in Figure 6.9.

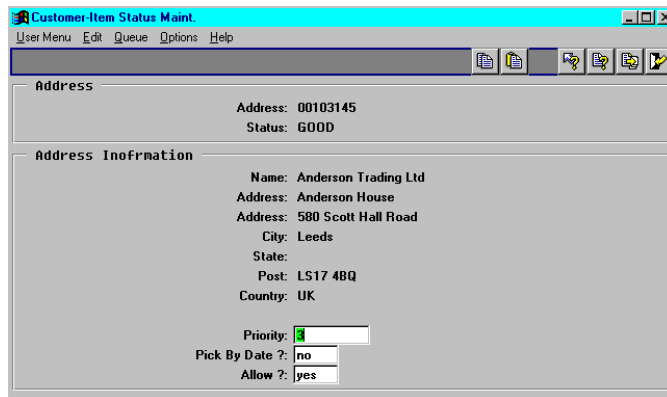


Fig. 6.9
Customer-Item
Status Maint
(80.4.17)

Enter values in the following fields:

Address. Enter the address code for the required customer.

Status. Enter the item status code you want to specify for this customer.

The Name and Address details are taken from the customer address record; you cannot modify them on this frame.

Priority. Enter a Priority code for this customer’s orders, which is used in automatically generating sales order allocations and performing sales order shortage clearances. Lower numbers have higher priority.

Pick By Date. Enter Yes to specify that picking and shipment of inventory to this customer must be in strict FIFO order; otherwise, enter No.

Allow. Indicate whether you want to allow inventory with this status to be picked or prevent it from being picked. Enter Yes to allow picking of inventory with the selected status, or No to disallow picking of inventory with the selected status.

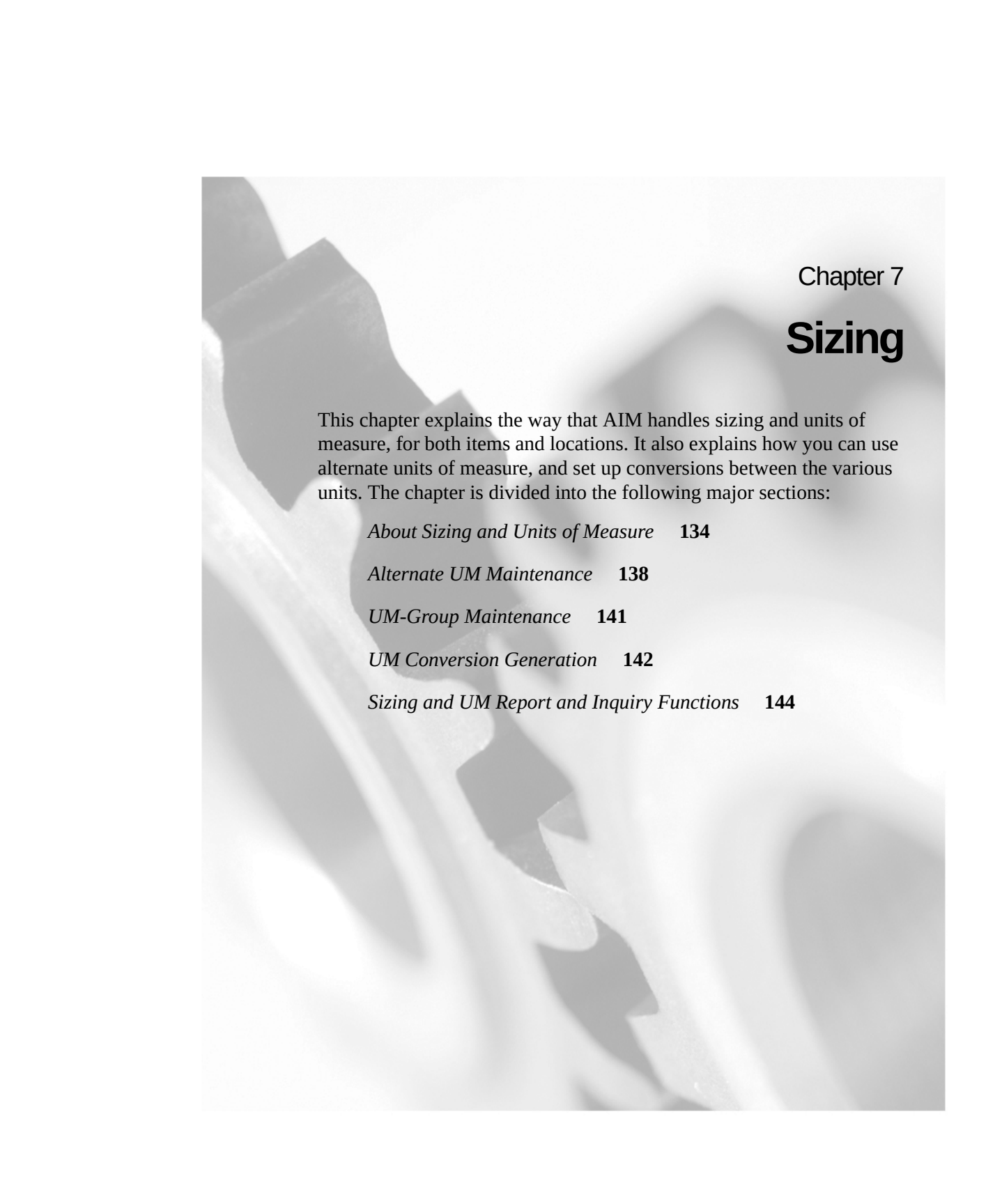
Item Data Report and Inquiry Functions

Table 6.1 lists report and inquiry options are available relating to Item Data and Item Maintenance.

Table 6.1
Item Data Reports
and Inquiries

Program	Description
Item-Storage Loc Group Inquiry (80.4.2)	Lets you select the site, warehouse, SLG, and Item, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries that have been set up for the selected Item and SLG.
Item-Storage Loc Group Report (80.4.3)	Lets you select a range of sites, warehouses, SLGs, and items for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each item and SLG.
Item Master Inquiry (80.4.6)	Lets you select an item number and, optionally, a site and warehouse for that item, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries in the Item Master Maintenance frames for the item, but you cannot modify the entries in the Inquiry.
Item Inquiry (80.4.8)	Lets you select an item number and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries in the Item Maintenance frames for the item, but you cannot modify the entries in the Inquiry.

Program	Description
Item-Site Inquiry (80.4.10)	Lets you select an item number and a site, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries in the Item-Site Maintenance frames for the item, but you cannot modify the entries in the Inquiry.
Item-Warehouse Inquiry (80.4.12)	Lets you select an item number and a warehouse, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current entries in the Item-Warehouse Maintenance frames for the item, but you cannot modify the entries in the Inquiry.
Supplier-Item Browse (80.4.14)	Lets you select a supplier address code and review details of the item numbers for which supplier-item details have been entered on the system.
Supplier-Item Report (80.4.15)	Lets you select a range of addresses, item numbers, and UMs for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current quantities that have been set up for each supplier-item and UM.
Customer-Item Status Browse (80.4.18)	Lets you select the customer address and inventory status, and review details of the fields that have been set up.
Customer-Item Status Report (80.4.19)	Lets you select a range of customer addresses, and inventory status codes for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the current fields that have been set up for each customer and status code.



Chapter 7

Sizing

This chapter explains the way that AIM handles sizing and units of measure, for both items and locations. It also explains how you can use alternate units of measure, and set up conversions between the various units. The chapter is divided into the following major sections:

About Sizing and Units of Measure **134**

Alternate UM Maintenance **138**

UM-Group Maintenance **141**

UM Conversion Generation **142**

Sizing and UM Report and Inquiry Functions **144**

About Sizing and Units of Measure

The AIM sizing functions are designed to give you complete flexibility in the way you handle units of measure (UMs) relating to ordering, receipt, storage, picking, and shipping of inventory. With AIM, you do not have to define your warehouses as either palletized or non-palletized. AIM can handle both methods of measuring the quantities of inventory, and can easily merge palletized and non-palletized stock in the same location.

AIM provides this flexibility by maintaining sizing definitions for both individual locations and individual inventory items. In both cases, you can define a range of sizing definitions using alternate units of measure.

Example A location sizing definition could specify that location Bulk0101 has the following capacities for item A:

UM	Capacity
EA (loose items)	100,000 items
P1 (Pallet type 1)	10 P1 pallets
P2 (Pallet type 2)	12 P2 pallets

The inventory sizing definition for item A specifies a base UM of EA (each), but it can also be supplied, stored, and picked in two different types of pallet. The conversion factors for these pallets are that a P1 pallet contains 10,000 of item A, and a P2 pallet contains 8,000 of item A.

When AIM attempts to put away a quantity of item A in location Bulk0101, it must first examine the quantity and UM of the received inventory, and then consider the inventory records for the location that show the quantities and UMs of the items already stored in the location.

One of the key elements AIM uses to perform these calculations is the sizing type.

Sizing Types

Each AIM unit of measure has a specified sizing type. You specify this in Alternate UM Maintenance. Table 7.1 lists the two possible sizing types.

Table 7.1
Sizing Types

Sizing Type	Explanation
blank	This sizing type is used for basic UMs to be applied to individual items or pieces. The blank sizing type indicates either that this unit is the base UM for the item, or that a conversion factor must be applied to convert to the base UM. In the example, the UM EA would have a blank sizing type.
R (reference)	This sizing type is used for UMs that are counted as a single quantity, regardless of the actual number of items contained. In the example, the pallets P1 and P2 would have a sizing type of R. Each reference type container is assigned a reference number, which can be used to identify the record that specifies the actual quantities of inventory held in the container.

You need to be careful when defining your units of measure to make sure that you assign each UM with the correct sizing type.

Example If you allow a carton to be split, you cannot then be sure that one carton represents 200 EA, as some may have been removed from the carton. In such cases, you would need to handle cartons like pallets, and assign a sizing type of R.

Calculating Location Capacities

When calculating location capacities and the available space in each location, AIM has to take into account the UM and the sizing type for each inventory record in the location. It would not work if the available capacity was calculated by simply converting every record into the base UM, and then adding them all up.

Taking the example location that holds 10 pallets of type P1, the situation could exist where the location contains 10 P1 pallets, each of which is part full. The total number of items in the location might be only 50,000, indicating that the location is only half full. However, if the required put-away is for another pallet, there is not any space for it.

The key element in AIM's location capacity calculations is to use a percentage full figure for each individual inventory record relating to the location. This is best understood by considering an example.

Sizing Definition for a Location

UM	Capacity	Sizing Type
EA (loose items)	100,000	
P1 (Pallet type 1)	10	R
P2 (Pallet type 2)	12	R

Inventory Records for the Location

Assume that items A and B both have the same sizing definition.

Record	Item	Lot	Ref.	Alt UM	Qty (in EA)	% Full
1	A	Lot1	67088	P1	10,000	10.00
2	A	Lot1	67090	P1	8,500	10.00
3	A	Lot1	67105	EA	30,000	30.00
4	B			EA	3,000	3.00
5	B	Lot2	67090	P1	1000	N/A
6	A	Lot1	67089	P2	9,200	8.33
Total:						61.33

Record 1. This record's alternate UM is P1, and the Reference field contains a value other than the item's default UM. This indicates that it is a pallet, which is counted as a single unit. The location can contain 10 of these pallets, so the percentage full is 10%.

Record 2. This is the same situation as Record 1, but the reference value is different, indicating a different pallet. Although the quantity of item A on this pallet is different, it still counts as 10% full (being a whole pallet).

Record 3. This record has a reference, but also has an alternate UM which is the same as the item's default UM. This indicates that the item is stored in EA, so the percentage full is 30%.

Record 4. This record has a blank reference, indicating that the item is stored in base UM of EA. The percentage full is 3%.

Record 5. This record has the same reference as Record 2. It is a pallet, but this pallet has already been counted, so this record does not have any effect on the percentage full.

Record 6. This record has an alternate UM of P2 and a reference. This indicates that it is a different sort of pallet. The Sizing definition for the location specifies that it can hold 12 of these pallets, so one pallet represents 8.33% full, regardless of the quantity in EA.

The Total Percentage Full for the location is obtained by summing the percentage for the individual records relating to the location.

Each time that AIM considers this location for put-away of inventory, it first adds the record for the new inventory to the existing location records and calculates the new Total Percentage Full. If this exceeds 100%, the new record cannot be accepted, and the inventory cannot be put away in this location. The exception to this is when the new inventory is received in base UM, in which case AIM could put away part of the inventory in the location.

Relative Sizing

Because you can specify the quantities of a particular item that make up a unit of measure, AIM can provide relative sizing for locations.

Example Consider three items, each of which can have an alternate UM of pallet type P1.

Item	Quantity (in EA) that Fit on a P1 Pallet
Item A	1000
Item B	1500
Item C	2000

If a location can contain 10 pallets of type P1, consider a receipt of 6,000 EA of each of the three items, assuming that full pallets are received.

Receipt	Number of Pallets	Percentage Full
6,000 of Item A	6	60%
6,000 of Item B	4	40%
6,000 of Item C	3	30%

Note Relative sizing plays an important role in reducing the number of records that AIM needs to maintain in to be able to calculate capacities for all possible combinations of items and locations. If you have 100 different items that can be stored in 2,000 different locations, without relative sizing you need 200,000 sizing definitions, one for each possible combination. If you use relative sizing, you can define each location's pallet capacity (2,000 records) and each item's quantity per pallet (100 records).

Alternate UM Maintenance

Define the units of measure for sizing definitions for locations and items using Alternate UM Maintenance (80.5.1). Alternate UM Maintenance lets you provide a description and a sizing type for each UM, and to specify additional fields, such as whether the unit can be split and the change action to take when converting from this UM to a new one.

Alternate UM Maintenance is shown in Figure 7.1.

Fig. 7.1
Alternate UM
Maintenance

Alternate UM Maintenance

User Menu Edit Queue Options Help

UM: CT
Description: Carton

Properties

Sizing Type: Sizing by Base UM

Print ID ? :

ID Quantity:

Allow Split ? :

Item Number:

Ship Type:

Conversion Rules

New UM:

Change Action:

Enter values in the following fields:

UM. Enter the two-character code for the unit of measure.

Description. Enter the description of the UM.

Properties

Sizing Type. Enter the code for the sizing type. Valid sizing types are as follows:

Blank	This sizing type is used for basic UMs to be applied to individual items or pieces. The blank sizing type indicates either that this unit is the base UM for the item, or that a conversion factor must be applied to convert to the base UM.
R (reference)	This sizing type is used for UMs that are counted as a single quantity, regardless of the actual number of items contained.

Print ID. This field controls the printing of ID labels for inventory measured in this UM. This is the main level of printing control. However, it is not mandatory to define an alternate unit of measure. If no alternate UM is defined, the printing control comes from the item-warehouse definition.

▶ See “Item-Warehouse Maintenance” on page 121.

Example If an alternate UM is defined for pallets with the Print ID field set to Yes and an item is received on a pallet, an ID label is printed. However, if the same item is received as a number of eaches, and no alternate UM is defined for EA, whether the ID is printed is determined from the item-warehouse.

ID Quantity. This field controls the quantity of ID labels to be printed.

Allow Split. Enter Yes if this unit of measure can be split into smaller units; otherwise, enter No. You can override the Allow Split setting for a selected storage location group using Storage Location Group Maintenance.

Item Number. This field is used when the unit of measure is also an item; for example, a pallet. Enter the item number for the unit. Leave this field blank for UMs that are not also items.

Ship Type. If the alternate UM is also an item, you can track the item in inventory.

Example An item number is defined for pallets. This item is entered as the alternate UM’s item number. Ship type determines if the item is to be considered as actual inventory or just as a memo item.

Leave the Ship Type field blank to maintain inventory levels for the item. When you enter a non-blank value—the convention is M for Memo—standard MFG/PRO inventory transactions are created to show the movement of the item, but no on-hand or other inventory details are maintained.

Conversion Rules

These fields specify what change action must be taken when changing from the UM specified at the top of the frame to another new UM. Typically, the change action is to clear the reference when changing from a pallet or other reference sizing type UM to a UM such as EA, and to generate a reference when changing from EA to a reference UM such as a pallet.

New UM. Enter the two-character code for the new unit of measure. This is the UM you are changing to.

Change Action. This field defines the action to be performed when the first UM is changed to the new UM. The options are as follows:

- 0 No change
- 1 Blank reference
- 2 Prompt user for reference (Other)
- 3 Prompt user for reference (Same/Other)
- 4 Prompt user for reference (Blank Allowed)
- 5 Automatic reference generation
- 6 NRM and prompt user for reference (Other)
- 7 NRM and prompt user for reference (Same/Other)
- 8 NRM and prompt user for reference (Blank Allowed)

When you have selected the change action for a change to this new UM, you can specify another new UM and continue to set up conversion rules. When you have finished specifying conversion rules, press End to move back to the Sizing Type field, and End again to move back to the UM field at the top of the frame.

UM-Group Maintenance

You can use UM-Group Maintenance (80.5.5) to simplify the process of generating the same conversion factors for a number of different items. To do this, follow these steps:

- 1 Define a UM group in UM-Group Maintenance, which specifies all the conversion factors from the selected base UM to a range of other alternate UMs.
- 2 Attach this UM group to the relevant items using Item Maintenance functions.
- 3 Run UM Conversion Generation to attach the required conversion factors to each of the items.

Note This option is not mandatory. It helps in defining conversion factors. They can still be defined using Alternative UM Maintenance (1.13).

UM-Group Maintenance is shown in Figure 7.2.

See “Defining Item Data for Sites and Warehouses” on page 115.

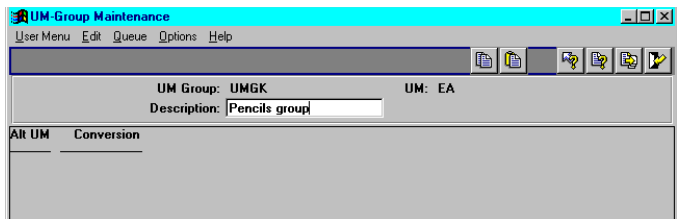


Fig. 7.2
UM-Group Maintenance (80.5.5)

Enter values in the following fields:

UM Group. Enter a code to identify the UM group you want to define.

UM. Enter the two-character code for the base UM.

All the conversions in the group are specified in terms of the base UM. If the base UM is EA and the group includes conversion factors for boxes, cartons, and P1 pallets, you define each of these alternate UMs in terms of the number of EA it represents. You do not set up a hierarchy, in which pallets convert to cartons, cartons convert to boxes, and boxes convert to EA.

Description. Enter a description of the UM group, which normally identifies the range of items to which it applies.

Alt UM. Enter the two-character code for the alternate UM.

Conversion. Enter the conversion factor. This is the number of base UM that equates to one of the alternate UM.

You can enter multiple lines of conversions. After each line, a new line displays, as shown in Figure 7.3.

Fig. 7.3
UM-Group Maintenance
(80.5.5), Multiple
Conversion Lines

The screenshot shows the 'UM-Group Maintenance' window. At the top, the title bar reads 'UM-Group Maintenance'. Below the title bar is a menu bar with 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. A toolbar with various icons is located below the menu bar. The main area displays 'UM Group: UMGK' and 'UM: EA'. Below this, the 'Description' is 'Pencils group'. A table with two columns, 'Alt UM' and 'Conversion', is shown. The table contains three rows: 'CT' with a conversion of '200,0000', 'P2' with a conversion of '9600,0000', and a blank row with a conversion of '0,0000'.

Alt UM	Conversion
CT	200,0000
P2	9600,0000
	0,0000

UM Conversion Generation

See “Defining Item Data for Sites and Warehouses” on page 115.

When you have defined the conversion factors between the base UM and a number of alternate UMs using UM-Group Maintenance and then assigned the UM group to the relevant items, the next step is to run UM Conversion Generation (80.5.9) to attach the conversion factors to the selected items.

UM Conversion Generation is shown in Figure 7.4.

Fig. 7.4
UM Conversion
Generation (80.5.9)

The screenshot shows the 'UM Conversion Generation' window. At the top, the title bar reads 'UM Conversion Generation'. Below the title bar is a menu bar with 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. A toolbar with various icons is located below the menu bar. The main area contains several input fields: 'Item Number' (001-4000), 'To' (001-5000), 'UM Group' (UMGA), 'To' (UMGK), and 'Warehouse Item Type'. Below these fields are three checkboxes: 'Check Base UM' (yes), 'Delete Old UM Definitions First' (no), and 'Create UM Conv?' (yes). At the bottom right, there are labels for 'Output:' and 'Batch ID:'.

You can run the conversion generation for a range of item numbers, a range of UM groups, and a range of warehouse item types. Enter the From and To values for these ranges in the fields at the top of the frame.

Check Base UM. Enter Yes to cause the system to check first that the base UM specified for the UM groups is the same as the base UM for the items to which the conversion factors are to be attached. If the base UMs are not the same, the conversions will not operate as planned, or there can be inconsistencies. This check is not mandatory, so you can enter No if you want to omit the check.

Note You can run this check separately without generating conversions by using UM Check Report (80.5.10).

Delete Old UM Definitions First. Enter Yes to delete any existing alternate UM definitions from the selected items before attaching the new alternate UM conversion factors. This eliminates any inconsistencies between previous conversions and those being generated. Enter No if you want to retain any existing alternate UM definitions for the items.

Create UM Conv. Enter Yes to generate the conversions and attach them to the selected items. Enter No to run the report only, without generating the actual conversions. This is the same as running the UM Check Report (80.5.10).

Output. Specify where you want the conversion results reported by selecting an option from the list.

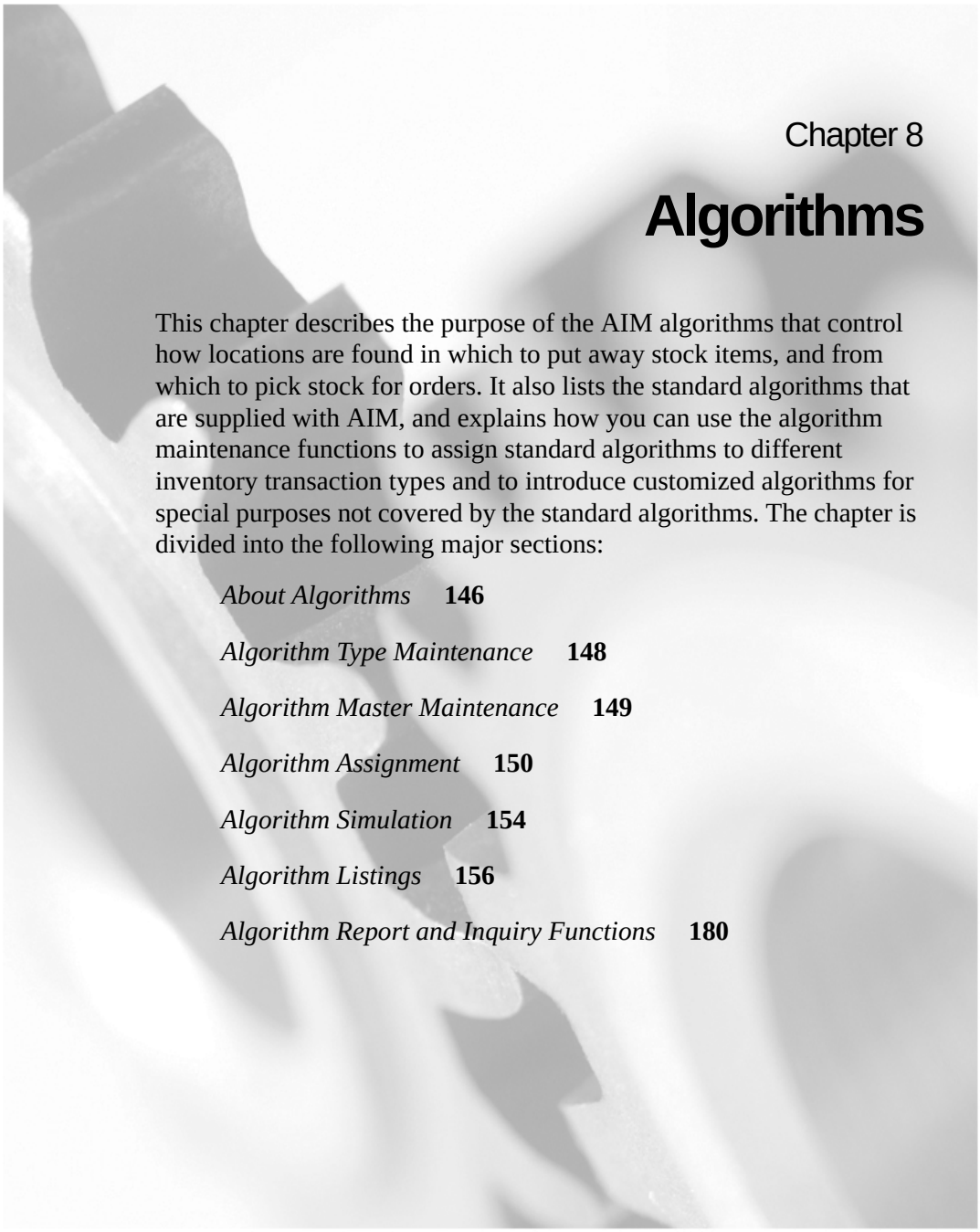
Batch ID. If required, enter a Batch ID for the printed report.

Sizing and UM Report and Inquiry Functions

Table 7.2 lists report and inquiry options available relating to Sizing and UM Maintenance.

Table 7.2
Sizing and UM
Reports and
Inquiries

Program	Description
Alternate UM Inquiry (80.5.2)	Lets you select the alternate UM, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current values of the fields that have been set up for the selected alternate UM.
Alternate UM Report (80.5.3)	Lets you select a range of alternate UMs, and then specify where you want the report results printed or displayed. The report shows the current values of the fields that have been set up for the selected alternate UMs.
UM-Group Inquiry per Group (80.5.6)	Lets you select the UM Group, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current values of the conversion factors that have been set up for the selected UM Group.
UM-Group Inquiry per Item (80.5.7)	Lets you select the item number, and then specify where you want the inquiry results displayed; for example, a window. The inquiry shows the current values of the UM group conversion factors that have been set up for the selected item.
UM-Group Report (80.5.8)	Lets you select a range of item numbers, UM groups, and warehouse item types, and then specify where you want the report results printed or displayed. The report shows the current values of the conversion factors that have been set up for the selected ranges.
UM Check Report (80.5.10)	Lets you select a range of item numbers, UM groups, and warehouse item types, and then specify where you want the report results printed or displayed. The report lists inconsistencies caused when the base UM specified for the UM groups is the not same as the base UM for the items to which the conversion factors are attached.



Chapter 8

Algorithms

This chapter describes the purpose of the AIM algorithms that control how locations are found in which to put away stock items, and from which to pick stock for orders. It also lists the standard algorithms that are supplied with AIM, and explains how you can use the algorithm maintenance functions to assign standard algorithms to different inventory transaction types and to introduce customized algorithms for special purposes not covered by the standard algorithms. The chapter is divided into the following major sections:

About Algorithms **146**

Algorithm Type Maintenance **148**

Algorithm Master Maintenance **149**

Algorithm Assignment **150**

Algorithm Simulation **154**

Algorithm Listings **156**

Algorithm Report and Inquiry Functions **180**

About Algorithms

AIM uses algorithms both for putting inventory away in warehouse locations and for selecting locations from which to pick inventory when filling sales orders or works orders. Each algorithm is an AIM program that takes into account a particular set of criteria for choosing the location. A wide range of standard algorithms are provided with AIM, but you can add custom programs to perform special functions if the standard algorithms do not meet your requirements.

Although the purpose of the algorithms is basically either putting inventory in locations or finding locations to take inventory out of, there are actually five types of AIM algorithm, listed in Table 8.1.

Table 8.1
Algorithm Types

Type	Description
Location Find	These algorithms are identified by the algorithm type code LF. The function of location-find algorithms is to find suitable locations for inventory in the functional storage locations—the receipt, inspection, packing, and dispatch areas. LF algorithms do not consider the quantity of the inventory or the capacity of the relevant locations.
Put Away	These algorithms are identified by the algorithm type code PA. The function of put-away algorithms is to find suitable locations for storage of inventory in the non-functional storage locations—your main storage and picking locations. PA algorithms always take into account the quantity of the inventory to be put away and the capacity of the relevant locations.
Picking	These algorithms are identified by the algorithm type code PK. The function of picking algorithms is to find suitable locations from which to pick inventory to fulfil orders. You can have designated picking areas, but you can also allow picking from locations in your bulk storage or other areas. Different PK algorithms consider the available picking locations in different sequences.

Type	Description
Shortage Clearance	These algorithms are identified by the algorithm type code SC. The function of shortage clearance algorithms is to cut out unnecessary inventory movements by identifying newly received stock that can be used to fill sales or work order shortages directly. Instead of finding suitable storage locations for the inventory, and then picking stock to fill the back orders, SC algorithms move the inventory directly from the receipt area to the packing or dispatch area. This function is also known by the name cross docking.
Inspection	These algorithms are identified by the algorithm type code QA. The function of quality sampling algorithms is to define whether inspection must take place. When conditions for inspection are met, a sample is sent to an inspection area. Based on the internal routing definition, an inspection tag is printed, and inventory status is changed—to a non-available status, for instance.

Within each of these categories, AIM provides a wide range of algorithms that perform the same basic activity, but satisfy different selection criteria.

Example During put-away, you can ask AIM to look for empty storage locations or you can ask AIM to select the most popular locations.

You can make sure that AIM uses the right criteria for any given circumstance by linking algorithms to inventory transaction types, and also specifying any combination of site, warehouse, item number, item type, and supplier or customer address. In this way, you can arrange to pick stock from one set of locations when the item is item A and the customer is customer X, but you can specify a different set of locations, or even a different site or warehouse, when another item number or another customer is involved.

All of these detailed adjustments to the way AIM puts away and picks inventory are made using the options on the AIM Algorithms menu, described in this chapter.

The standard algorithms supplied with AIM are all listed in “Algorithm Listings” on page 156. The descriptions associated with each algorithm provide a brief explanation of the precise function performed.

Note As part of the continuous development of AIM, additional algorithms are defined from time to time, so the number supplied with AIM can increase.

Algorithm Type Maintenance

The five basic types of algorithm are listed in Table 8.1 on page 146:

- LF: Location Find
- PA: Put-Away
- PK: Picking
- SC: Shortage Clearance
- QA: Quality Sampling (Inspection)

These codes are supplied with AIM. Normally you do not need any other algorithm types. If you do need to add another algorithm type code, you must create it and its description using Generalized Code Maintenance (36.2.13).

Use Algorithm Type Maintenance (80.6.1) to modify the verbosity level for any of the existing algorithm types. Algorithm Type Maintenance is shown in Figure 8.1.

Fig. 8.1
Algorithm Type
Maintenance
(80.6.1)



The frame shows a list of the existing algorithm types, with their descriptions and current verbosity level settings.

Enter values in the following fields:

Type. Enter the algorithm type code. When you select a code, the relevant description is shown in the Description field.

Verbosity Level. Enter a number to determine the importance level of messages that you want printed in AIM reports relating to algorithms of this type. You can set a different value (in the range 0 to 999), depending on the amount of message detail you want included in reports; for example, for use when solving problems.

- Setting a low value such as 10 or 20 causes only the most important system messages to be reported.

- Setting a value of 999 causes all system messages to be reported.
- Setting a value of 0 switches off the function; no messages are reported.

Algorithm Master Maintenance

Use Algorithm Master Maintenance (80.6.5) to modify the descriptions of individual algorithms within each of the algorithm type categories, or to add new algorithms to any of the categories. To add a new algorithm, you must first create the program that AIM runs to perform the algorithm tasks.

Algorithm Master Maintenance is shown in Figure 8.2.

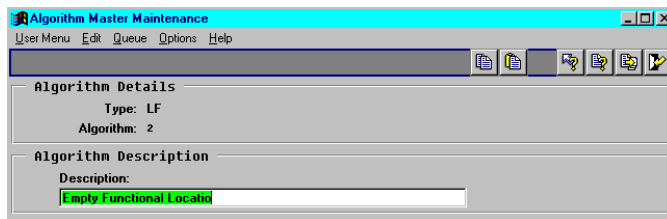


Fig. 8.2
Algorithm Master
Maintenance
(80.6.5)

Enter values in the following fields:

Type. Enter the algorithm type code.

Algorithm. Enter the number of an existing algorithm of this type if you want to modify its description.

To set up a new algorithm, enter an unused number in the range 0 to 999.

Description. For existing algorithms, the description is displayed; you can modify it if required. For new algorithms, enter the description of the algorithm.

Algorithm Assignment

Use Algorithm Assignment Maintenance (80.6.9) to link a specified sequence of algorithms—of one type per sequence—to a defined combination of the following:

- Transaction type
- Site
- Warehouse
- Item number or warehouse item type
- Address (supplier for received inventory, customer for shipped inventory)

Setting up as many combinations of these elements as you choose provides flexibility in the way you define the algorithms that AIM runs in any given situation.

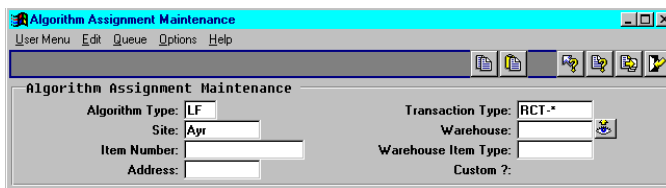
The reason for setting up a sequence of algorithms is so that you can specify the ideal method for selecting locations as the first step in the sequence. If AIM cannot meet the full requirements either of put-away or picking by running the first choice algorithm, it then runs the second algorithm in the sequence, and so on until the requirement has been met.

Include a very general algorithm as the last one in the sequence, so that AIM is always able to complete the task.

Example A general put-away algorithm merely asks AIM to look for any storage location that has available capacity. While this does not meet any specific requirements, including it as a last step in the sequence means that AIM can always put inventory away somewhere, preventing the task from failing.

Algorithm Assignment Maintenance is shown in Figure 8.3.

Fig. 8.3
Algorithm
Assignment
Maintenance
(80.6.9)



Enter values in the following fields:

Algorithm Type. Enter the two-character code for the type of algorithm you want to assign. The standard codes are LF, PA, PK, SC and QA.

Transaction Type. Enter the transaction type to which you want to assign algorithms. You can use an asterisk as a wild card if you want to assign the same algorithm to a range of transaction types.

Example The transaction type RCT-* covers all receipt transaction types, such as RCT-PO, RCT-UNP, RCT-WO, and so on.

Site. If this algorithm assignment is valid only for one site, enter the site name.

Warehouse. If this algorithm assignment is valid only for one warehouse, enter the warehouse name.

Item Number. If this algorithm assignment is valid only for one item, enter the item number. If you limit the assignment to an item number, you cannot also specify a warehouse item type; you can enter one or the other, but not both.

Warehouse Item Type. If this algorithm assignment is valid only for one item type, enter the warehouse item type code. If you limit the assignment to an item type, you cannot also specify an item number; you can enter one or the other, but not both.

Address. If this algorithm assignment is valid only for one supplier or customer address, enter the address code.

Custom. If you want to assign a custom program instead of a sequence of algorithms, enter Yes in the Custom field; otherwise, enter No.

If you enter Yes in the Custom field, the system displays the Custom Detail frame shown in Figure 8.4.

Fig. 8.4
Algorithm
Assignment
Maintenance,
Custom Detail

The screenshot shows the 'Algorithm Assignment Maintenance' window. The top menu bar includes 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. Below the menu is a toolbar with icons for file operations and navigation. The main area is divided into two sections. The top section, titled 'Algorithm Assignment Maintenance', contains the following fields: 'Algorithm Type: PK', 'Site: Ayr', 'Item Number:', 'Address:', 'Transaction Type: PICK-IC', 'Warehouse: arm01', 'Warehouse Item Type:', and 'Custom ? : yes'. The bottom section, titled 'Custom Detail', contains a single text field labeled 'Custom Program:'.

Custom Program. Enter the name of the custom program that AIM should run in place of any assigned algorithms. The custom program must exist before you can use this assignment.

If you enter No in the Custom field, the system displays the frame shown in Figure 8.5.

Fig. 8.5
Algorithm
Assignment
Maintenance,
Assignment Fields

The screenshot shows the 'Algorithm Assignment Maintenance' window. The top menu bar and toolbar are the same as in Figure 8.4. The main area is divided into two sections. The top section, titled 'Algorithm Assignment Maintenance', contains the following fields: 'Algorithm Type: PA', 'Site: Ayr', 'Item Number:', 'Address:', 'Transaction Type: RCT-PO', 'Warehouse: arm01', 'Warehouse Item Type:', and 'Custom ? : no'. The bottom section, titled 'Seq Algo Description', contains a table with the following structure:

Seq	Algo	Description
Seq: 10	Algorithm:	Description:

Enter values in the following fields:

Seq. For a new assignment, Sequence defaults to 10. Number sequences by 10's (10, 20, 30, and so on) so that additional steps can be inserted easily later, if required.

Algorithm. Assign algorithms of the type you selected at the top of the frame.

Example If you selected algorithm type PA, you can assign any of the put-away algorithms. You can either type in the required number, or use the Up and Down arrow keys to move through the list of algorithms.

Description. The system displays the description of each algorithm as its number is shown in the Algorithm field. You cannot modify the descriptions here.

Remember, AIM tries to use the first algorithm in the sequence first, typically sequence 10. If that fails to complete the transaction, it moves on to the second algorithm (20). You should, therefore, put your ideal solution first, and finish the sequence with a fail-safe option designed to prevent complete failure of the transaction.

As you enter the required algorithms in the assignment sequence, the system adds them to the list in the center of the frame, shown in Figure 8.6.

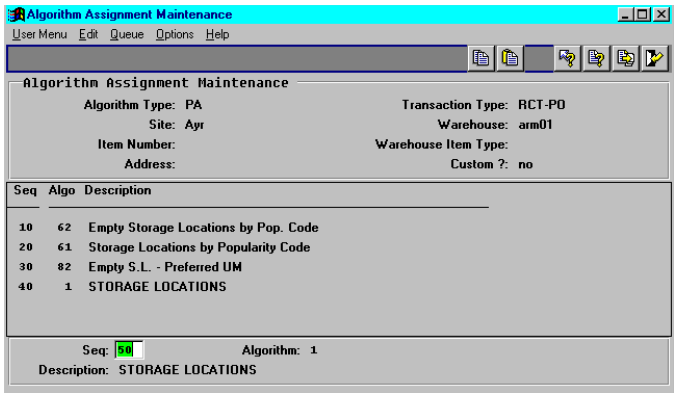


Fig. 8.6
Algorithm
Assignment
Maintenance

Algorithm Simulation

Algorithm Simulation (80.6.21) provides functions that enable you to test your algorithm assignments without actually altering the inventory records in your database.

- Put Away/Location Find Simulation lets you simulate the put-away of some received inventory
- Picking Simulation lets you simulate picking of inventory from your existing locations.

In each case, AIM displays or reports on the locations that would have been used by AIM if the simulation had been carried out as a real receipt or pick.

PA/LF Simulation

Put-Away/Location-Find Algorithm Simulation (80.6.21.1) is shown in Figure 8.7.

Fig. 8.7
PA/LF Simulation
(80.6.21.1)

The screenshot shows a window titled "PA/LF Simulation" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains the following fields:

Type:	RCT-PO
Site:	Ayr
Warehouse:	arm01
Internal Routing Group:	bulk01
Item Number:	001-4020
Lot/Serial:	
Ref:	
Qty On Hand:	230, 0 (Base UM)
Alternate UM:	PL

Enter values in the following fields:

Type. Enter the transaction type that you want to simulate. This must be a transaction type to which you have assigned PA or LF algorithms.

Site. Enter the site name.

Warehouse. Enter the warehouse name.

Internal Routing Group. Enter the name of the IRG into which the simulated inventory is to be received. If this is a functional IRG, the LF algorithm assigned to this transaction type is used for the simulation. If this is a non-functional IRG, the PA algorithm is used.

Item Number. Enter the item number of the simulated inventory to be received.

Lot/Serial. Enter the lot/serial number for the inventory, if applicable.

Ref. Enter the reference number for the inventory, if applicable.

Qty On Hand. Enter the quantity of the received inventory, in base UM.

Alternate UM. Enter the alternate unit of measure in which the inventory is to be received. Note that the quantity you entered in the previous field is the number of items in base UM, and not the number of, for example, pallets, if this is the alternate UM.

When you press Go to accept the simulation entries, the system runs the relevant algorithms and displays the results of the put-way or location-find.

The PA/LF Report (80.6.21.2) operates in the same way as PA/LF Simulation but provides a printed report giving more information about the simulation results.

Picking Simulation

Picking Simulation (80.6.21.4) is shown in Figure 8.8.

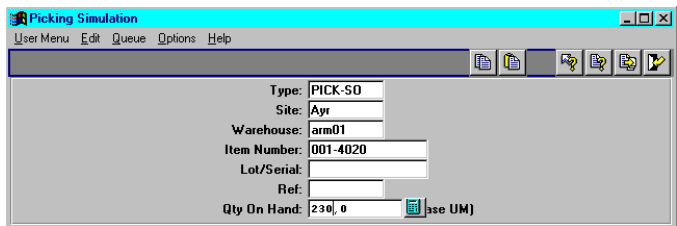


Fig. 8.8
Picking Simulation
(80.6.21.4)

Enter values in the following fields:

Type. Enter the transaction type that you want to simulate. This must be a transaction type to which you have assigned PK algorithms.

Site. Enter the site name.

Warehouse. Enter the warehouse name.

Item Number. Enter the item number of the simulated inventory to be picked.

Lot/Serial. Enter the lot/serial number for the inventory, if applicable.

Ref. Enter the reference number for the inventory, if applicable.

Qty On Hand. Enter the quantity of the inventory to be picked, in base UM.

When you press Go to accept the simulation entries, the system runs the relevant algorithms and displays the results of the picking.

The Picking Simulation Report (80.6.21.5) operates in the same way as picking simulation but provides a printed report giving more information about the simulation results.

Algorithm Listings

This section lists the existing algorithms that are shipped with AIM in each of the five categories: location-find (LF), put-away (PA), picking (PK), shortage clearance (SC), and quality inspection (QI).

Location-Find Algorithms

Table 8.2 lists the location-find algorithms that are supplied with AIM.

Table 8.2
Location-Find
Algorithms

	Algorithm	Description
1	First Location in First	Finds the first location in the first SLG in the internal routing group.
2	Empty Functional Location	Looks for a location containing no inventory
3	Merge with same order	Looks for a location containing inventory from the same order.
4	Merge with same order line	Looks for a location containing inventory from the same order line.
5	Merge with same part	Looks for a location containing inventory of the same item number.

	Algorithm	Description
6	Merge with same address	Looks for a location containing inventory destined for the same customer address.
7	Best Load by Ship Weight	Looks for a functional location with the least load weight in it.
8	Best Load by Number of Items	Looks for a functional location with the smallest number of items in it
9	Best Load by Number of Ref. Sized Items (such as pallets)	Looks for a location with the smallest number of items of sizing type R.
10	Find Work Center from Routing	For work orders, look at the work center coming from the routing of the operation linked to the component of the BOM. It is used to send raw material to the work center that requires this item for production.
11	Find first location different than work center	Look for the first location in a group that is not defined as a work center in MFG/PRO.
12	Find last work center of Routing	As a complement to algorithm 10, this algorithm finds the last work center defined on the production routing. It is used when making the work order receipt, so AIM creates a task to move stock from the last production step to a storage area.
13	Merge with same Bill of Lading	Looks for a location containing inventory from the same bill of lading.

Put-Away Algorithms

Table 8.3 lists the put-away algorithms that are supplied with AIM.

	Algorithm	Description
1	Storage Locations	Put-away looks for locations in the item's storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG.
2	Empty Storage Locations	Put-away looks for empty locations in the item's storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG.

Table 8.3
Put-Away
Algorithms

	Algorithm	Description
3	Storage Locations–Merge with Part	Put-away looks for locations in the item's storage location group, or list of SLGs. locations must already contain the item being put away. The locations are selected in popularity code order within each SLG.
4	Storage Locations–Merge with Lot/Serial	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain the lot/serial and item being put away. The locations are selected in popularity code order within each SLG.
5	Storage Locations–Merge with Reference	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain the reference, lot/serial, and item being put away. The locations are selected in popularity code order within each SLG.
6	Storage Locations–Merge with Any	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain inventory and are selected in popularity code order within each SLG.
7	Storage Locations–Merge with Rules	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain inventory and are selected in popularity code order within each SLG. Additional validation is performed to ensure that the merging rules are satisfied.
8	Storage Locations–Merge with Unit of Measure	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain inventory with the alternate UM being put away, and are selected in popularity code order within each SLG.
9	Storage Locations–Merge with UM and Part	Put-away looks for locations in the item's storage location group, or list of SLGs. Locations must already contain the item being put away with the same alternate UM as this put away, and are selected in popularity code order within each SLG.

	Algorithm	Description
10	Storage Locations–Merge with UM and Rules	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain inventory with the alternate UM being put away, and are selected in popularity code order within each SLG. Additional validation is performed to ensure that the merging rules are satisfied.
11	Storage Locations–Merge with Part and Rules	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain the item being put away. The locations are selected in popularity code order within each SLG. Additional validation is performed to ensure that the merging rules are satisfied.
15	Multi-Item Pallet split and Put-Away	When multi-item pallets, this algorithm makes put-away for each of the components of the pallet, and not put-away the pallet as a whole. Each item could eventually go in another location.
16	Multi-Item Pallet split and Put-Away – No Partial	When multi-item pallets, this algorithm makes put-away for each of the components of the pallet, and not put-away the pallet as a whole. Each item could eventually go in another location, but for a given item, it must go completely in one single location
21	Replenished Locations	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence.
22	Empty Replenished Locations	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence.
23	Replenished Locations–Merge with Part	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain the item being put away.

	Algorithm	Description
24	Replenished Locations–Merge with Lot/Serial	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain the lot/serial and item being put away.
25	Replenished Locations–Merge with Reference	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain the reference, lot/serial, and item being put away.
26	Replenished Locations–Merge with Any	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain inventory.
27	Replenished Locations–Merge with Rules	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain inventory. Additional validation is performed to ensure that the merging rules are satisfied.
28	Replenished Locations–Merge with Unit of Measure	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain inventory with the same alternate UM as this put away.
29	Replenished Locations–Merge with UM and Part	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain the item being put away, with the same alternate UM as this put away.

	Algorithm	Description
30	Replenished Locations–Merge with UM and Rules	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain inventory with the same alternate UM as this put away. Additional validation is performed to ensure that the merging rules are satisfied.
31	Replenished Locations–Merge with Part and Rules	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Locations must already contain the item being put away. Additional validation is performed to ensure that the merging rules are satisfied.
41	Reverse-Replenished Locations	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence.
42	Empty Reverse-Replenished Locations	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick level sequence.
43	Reverse-Replenished Locations–Merge with Part	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick level sequence. Locations must already contain the item being put away.
44	Reverse-Replenished Locations–Merge with Lot/Serial	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain the lot/serial and item being put away.

	Algorithm	Description
45	Reverse-Replenished Locations–Merge with Reference	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain the reference, lot/serial, and item being put away.
46	Reverse-Replenished Locations–Merge with Any	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain inventory.
47	Reverse-Replenished Locations–Merge with Rules	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain inventory. Additional validation is performed to ensure that the merging rules are satisfied.
48	Reverse-Replenished Locations–Merge with Unit of Measure	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain inventory with the same alternate UM as this put away.
49	Reverse-Replenished Locations–Merge with UM and Part	Put-away looks for locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain the item being put away, with the same alternate UM as this put away.

Put-Away Algorithms (Page 6 of 16)

	Algorithm	Description
50	Reverse-Replenished Locations–Merge with UM and Rules	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain inventory with the same alternate UM as this put away. Additional validation is performed to ensure that the merging rules are satisfied.
51	Reverse-Replenished Locations–Merge with Part and Rules	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick-level sequence. Locations must already contain the item being put away. Additional validation is performed to ensure that the merging rules are satisfied.
61	Storage Locations by Popularity Code	Put-away looks for locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
62	Empty Storage Locations by Popularity Code	Put-away looks for empty locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
63	Replenished Locations by Popularity Code	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.

	Algorithm	Description
64	Empty Replenished Locations by Popularity Code	Put-away looks for empty locations in the item's replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick-level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
65	Storage Locations by Descending Popularity Code	Put-away looks for locations in the item's storage location group, or list of SLGs, with the locations selected in descending popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
66	Empty Storage Locations by Descending Popularity Code	Put-away looks for empty locations in the item's storage location group, or list of SLGs, with the locations selected in descending popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
67	Replenished Locations by Descending Popularity Code	Put-away looks for locations in the item's replenished location groups, with the locations selected in descending popularity code order within each SLG, which are selected in pick-level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
68	Empty Replenished Locations by Descending Popularity Code	Put-away looks for empty locations in the item's replenished location groups, with the locations selected in descending popularity code order within each SLG, which are selected in pick-level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.

Put-Away Algorithms (Page 8 of 16)

	Algorithm	Description
69	Merge with Part–Ascending Popularity Code	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain the item being put away. The locations are selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
70	Merge with Part and Lot–Ascending Popularity Code	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain the item and lot being put away. The locations are selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range.
81	Storage Locations–Preferred Unit of Measure	Put-away looks for locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. The system considers only locations with a preferred UM the same as the UM of this put away.
82	Empty Storage Locations–Preferred Unit of Measure	Put-away looks for empty locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. The system considers only locations with a preferred UM the same as the UM of this put away.
83	Replenished Locations–Preferred Unit of Measure	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick level sequence. The system considers only locations with a preferred UM the same as the UM of this put away.
84	Empty Replenished Locations–Preferred UM	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick level sequence. The system considers only locations with a preferred UM the same as the UM of this put away.

	Algorithm	Description
85	Reverse-Replenished Locations–Preferred UM	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick level sequence. The system considers only locations with a preferred UM the same as the UM of this put away.
86	Empty Reverse-Replenished Locations–Preferred UM	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in descending pick level sequence. The system considers only locations with a preferred UM the same as the UM of this put away.
87	Storage Locations by Popularity Code–Preferred UM	Put-away looks for locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
88	Empty Storage Locations by Popularity Code–Preferred UM	Put-away looks for empty locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
89	Replenished Locations by Popularity Code–Preferred UM	Put-away looks for locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.

	Algorithm	Description
90	Empty Replenished Locations by Popularity Code–Preferred UM	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in popularity code order within each SLG, which are selected in pick level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
91	Storage Locations by Descending Popularity Code–Preferred UM	Put-away looks for locations in the item’s storage location group, or list of SLGs, with the locations selected in descending popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
92	Empty Storage Locations by Descending Popularity Code–Preferred UM	Put-away looks for empty locations in the item’s storage location group, or list of SLGs, with the locations selected in descending popularity code order within each SLG. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
93	Replenished Locations by Descending Popularity Code–Preferred UM	Put-away looks for locations in the item’s replenished location groups, with the locations selected in descending popularity code order within each SLG, which are selected in pick level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.

	Algorithm	Description
94	Empty Replenished Locations by Descending Popularity Code–Preferred UM	Put-away looks for empty locations in the item’s replenished location groups, with the locations selected in descending popularity code order within each SLG, which are selected in pick level sequence. Additional validation is performed to ensure that the selected locations are in the correct popularity code range. The system considers only locations with a preferred UM the same as the UM of this put away.
95	Merge with same Part – Preferred UM	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain the item being put away. Only locations with a preferred UM, the same as the item being put-away, are considered.
96	Merge with same Lot/Serial – Preferred UM	Put-away looks for locations in the item’s storage location group, or list of SLGs. Locations must already contain the item and lot/serial being put away. Only locations with a preferred UM, the same as the item being put-away, are considered.
101	Empty Dedicated Storage Locations	Put-away looks for empty dedicated locations in the item’s storage location group, or list of SLGs, with the locations selected in popularity code order within each SLG.
102	Dedicated Storage Locations–Merge with Part	Put-away looks for dedicated locations in the item’s storage location group, or list of SLGs. The locations must already contain the item being put away, and are selected in popularity code order within each SLG.
103	Dedicated Storage Locations–Merge with Any	Put-away looks for dedicated locations in the item’s storage location group, or list of SLGs. The locations must already contain inventory, and are selected in popularity code order within each SLG.
104	Dedicated Storage Locations – Merge with Part and Lot	Put-away looks for dedicated locations in the item’s storage location group, or list of SLGs. The locations must already contain the item and lot/serial, and are selected in popularity code order within each SLG.

	Algorithm	Description
106	Empty Dedicated Storage Locations – Ascending Popularity Code	Search for an empty dedicated location in the item’s storage location group, or list of SLGs. Locations are selected in popularity code order within each storage location group. Additional validation is performed to ensure that selected locations are in the correct popularity code range.
107	Dedicated Storage Location – Merge with Part – Ascending Popularity Code	Search for dedicated locations in the item SLG or the item list of SLG but locations that already contain the same item as the one being put-away. The locations are selected in popularity code order within each storage location group. Additional validation is done to ensure that the selected locations are in the correct popularity code range.
109	Dedicated Storage Location–Merge with part and lot – Ascending Popularity Code	Search for dedicated locations in the item SLG or the item list of SLG but locations that already contain the same item & lot as the one being put-away. Locations are selected in popularity code order within each storage location group. Additional validation is done to ensure that the selected locations are in the correct popularity code range.
111	Consume Reference Forecast	Consume any receipt forecasts that identify the specific order line, item number, lot/serial, and reference being received. The locations are selected in popularity code order within each SLG. Generally, this is used when all of the receipts details are known ahead of time, probably on an ASN.
112	Consume Lot/Serial Forecast	Consume any receipt forecasts that identify the specific order line, item number, and lot/serial being received. The locations are selected in popularity code order within each SLG. Generally, this is used when the lot/serial details are known ahead of time, probably on an ASN, but not details of specific pallets, containers, and so on. Any reference detail on the receipt or the forecast is ignored.

	Algorithm	Description
113	Consume Order Line Forecast	Consume any receipt forecasts that identify the specific order line being received. The locations are selected in popularity code order within each SLG. Generally, this is used when no details apart from the quantity are known ahead of time. Any lot/serial or reference detail on the receipt or the forecast is ignored.
121	Merge with Reference Forecast	This functions as per algorithm 111, except that the forecast is not consumed. The forecast quantity is left open. The forecast is simply used to identify the location.
122	Merge with Lot/Serial Forecast	This functions as per algorithm 112, except that the forecast is not consumed. The forecast quantity is left open. The forecast is simply used to identify the location.
123	Merge with Order Line Forecast	This functions as per algorithm 113, except that the forecast is not consumed. The forecast quantity is left open. The forecast is simply used to identify the location.
124	Merge with Order Forecast	This algorithm allows inventory received on an order line to be placed into a location with a forecast for the same order but a different order line. The locations are selected in popularity code order within each SLG. No consumption can occur as the forecast is for a different item with, potentially, different rules for sizing.
133	Merge with Item Outside of Storage Location Groups	Put-away looks for locations outside the item's storage location group, or list of SLGs. Locations must already contain the item being put away. The locations are selected in popularity code order within each SLG.
134	Use Last Item Number Transaction	The system looks for the last similar transaction for this item—transactions with the same from site, warehouse, and SLG as this put away. The destination location from that transaction is used for this put away.

	Algorithm	Description
135	Use Last Lot/Serial Transaction	The system looks for the last similar transaction for this lot/serial—transactions with the same from site, warehouse, and SLG as this put away. The destination location from that transaction is used for this put away.
136	Use Last Reference Transaction	The system looks for the last similar transaction for this reference—transactions with the same from site, warehouse, and SLG as this put away. The destination location from that transaction is used for this put away.
137	Use Storage Location Group From Last Item Number Transaction	Search for the location that was used with the last transaction referring to same item number. Look for location inside the same SLG starting from the location found.
138	Use Storage Location Group from Last Lot/Serial Transaction	Search for the location that was used with the last transaction referring to same lot/serial. Look for location inside the same SLG starting from the location found.
139	Use Storage Location Group from Last Reference Transaction	Search for the location that was used with the last transaction referring to same reference. Look for location inside the same SLG starting from the location found.
140	Storage Location by Popularity Code–UM in Capacity	Search for locations in the item SLG or the item list of SLG. The locations are selected in popularity code order each storage location group. Additional validation that the selected locations are in the correct code range. Only locations with a capacity defined for this UM are considered.
142	Storage Locations by Full%–UM in Capacity	Search for locations in the item SLG or the item list of SLG. The locations are selected in Full% order each storage location group. Additional validation that the selected locations are in the correct code range. Only locations with a capacity defined for this UM are considered.
150	Detail Overflow Location Put-Away–EXACT NEED	Put-away in the Overflow storage location group, used in simulations only. Only the needed quantity is put-away.

	Algorithm	Description
151	Detail Overflow Location Put-Away-INFINITE CAPACITY	Put-away in the Overflow storage location group, used in simulations only. Capacity in destination location is Infinite, so the total quantity is put-away in the location, for instance a full pallet, even if the requirement is less.
170	Storage Locations Merge with same Item/Lot in SLG	Search for locations in the item SLG or the item list of SLG. The locations are selected in popularity code order within each storage location group. Only select storage location containing same item/lot.
171	Storage Locations Merge with same Item in SLG	Search for locations in the item SLG or the item list of SLG. The Locations are selected in popularity code order within each storage location group. Only select storage location containing same item.
172	Storage Locations. Consider Only Empty SLGs	Search for locations in the item SLG or the item list of SLG. The locations are selected in popularity code order within each storage location group. Only select empty storage location.

Put-Away Algorithms (Page 16 of 16)

Picking Algorithms

Table 8.4 lists the picking algorithms that are supplied with AIM.

Table 8.4
Picking Algorithms

	Algorithm	Description
1	Pick by Location	Picking is sorted by location so that lower location values are picked first.
2	Pick by Lot/Serial	The lot/serial numbers sort picking so that lower lot/serial values are picked first.
3	Pick by Date	Picking is sorted by manufacture date so that inventory manufactured earlier is picked first.
4	Pick by Expiration Date	Picking is sorted by expiration date so that inventory due to expire earliest is picked first.
5	Pick by Location (Descending)	Picking is sorted by location so that higher location values are picked first.

Picking Algorithms (Page 1 of 7)

	Algorithm	Description
6	Pick by Lot/Serial (Descending)	Lot/serial numbers sort picking so that higher lot/serial values are picked first.
7	Pick by Date (Descending)	Picking is sorted by manufacture date so that inventory manufactured most recently is picked first.
8	Pick by Expiration Date (Descending)	Picking is sorted by expiration date so that inventory due to expire furthest into the future is picked first.
9	Pick by Level by Location	Picking is sorted, first, by the storage location group's picking level and then, within that, by the location with lower location values picked from first.
10	Pick by Level by Lot/Serial	Picking is sorted, first, by the storage location group's picking level and then, within that, by the lot/serial number with lower lot/serial values picked first.
11	Pick by Level by Date	Picking is sorted, first, by the storage location group's picking level and then, within that, by the manufacture date with the earliest manufactured inventory being picked first.
12	Pick by Level by Expiration Date	The storage location group's picking level sorts picking first and then, within that, by the inventory's expiration date with the inventory expiring earliest being picked from first.
13	Pick by Level by Location (Descending)	Picking is sorted, first, by the storage location group's picking level and then, within that, by the location with higher location values picked from first.
14	Pick by Level by Lot/Serial (Descending)	The storage location group's picking level sorts picking first and then, within that, by the inventory's lot/serial number with higher lot/serial values picked from first.
15	Pick by Level by Date (Descending)	Picking is sorted, first, by the storage location group's picking level and then, within that, by the manufacture date with the most recently manufactured inventory being picked first.

	Algorithm	Description
16	Pick by Level by Expiration Date (Descending)	The storage location group's picking level sorts picking first and then, within that, by the inventory's expiration date with the inventory expiring furthest into the future being picked from first.
17	Pick by Month	Picking is sorted by manufacture date so that inventory manufactured earlier is picked first. However, all inventory manufacture within the same calendar month is considered as having the same manufacture date.
18	Pick by Expiration Month	Picking is sorted by expiration date so that inventory expiring earliest is picked first. However, all inventory due to expire within the same calendar month is considered as having the same expiration date.
19	Pick by Month (Descending)	Picking is sorted by manufacture date so that inventory manufactured last is picked first. However, all inventory manufacture within the same calendar month is considered as having the same manufacture date.
20	Pick by Expiration Month (Descending)	Picking is sorted by expiration date so that inventory expiring furthest into the future is picked first. However, all inventory due to expire within the same calendar month is considered as having the same expiration date.
21	Pick by Level by Month	This algorithm functions as PK11 except that all inventory manufactured in the same calendar month is considered to have the same manufacture date.
22	Pick by Level by Expiration Month	This algorithm functions as PK12 except that all inventory due to expire in the same calendar month is considered to have the same expiration date.
23	Pick by Level by Month (Descending)	This algorithm functions as PK15 except that all inventory manufactured in the same calendar month is considered to have the same manufacture date.

Picking Algorithms (Page 3 of 7)

	Algorithm	Description
24	Pick by Level by Expiration Month (Descending)	This algorithm functions as PK16 except that all inventory due to expire in the same calendar month is considered to have the same expiration date.
25	Pick by Date Range	This algorithm picks inventory by manufacture date, with inventory manufactured first being picked first, but using the merge rules to determine ranges of dates that can be considered the same when picking.
26	Pick by Expiration Date Range	This algorithm picks inventory by expiration date, with inventory due to expire first being picked first, but using the merge rules to determine ranges of dates that can be considered the same when picking.
27	Pick by Date Range (Descending)	This algorithm picks inventory by manufacture date, with inventory manufactured last being picked first, but using the merge rules to determine ranges of dates that can be considered the same when picking.
28	Pick by Expiration Date Range (Descending)	This algorithm picks inventory by manufacture date, with inventory due to expire last being picked first, but using the merge rules to determine ranges of dates that can be considered the same when picking.
29	Pick by Level by Date Range	This algorithm functions as PK25 except that inventory is first selected and sorted by picking level.
30	Pick by Level by Expiration Date Range	This algorithm functions as PK26 except that inventory is first selected and sorted by picking level.
31	Pick by Level by Date Range (Descending)	This algorithm functions as PK27 except that inventory is first selected and sorted by picking level.
32	Pick by Level by Expiration Date Range (Descending)	This algorithm functions as PK28 except that inventory is first selected and sorted by picking level.

	Algorithm	Description
33	Pick Critical Inventory Only.	This algorithm only picks inventory that has fallen into its critical period that is now within the number of critical days, defined per item, of it's expiration date.
34	Pick By Date By Reference	Picking is sorted by manufacture date so that inventory manufactured earlier is picked first. If several references, such as pallets, have the same manufacture date, they are selected in ascending order
35	Pick By Reference	Picking is sorted by reference so that lower reference values, normally the oldest, are picked first.
36	Pick By Level by Reference	Picking is sorted, first, by the storage location group's picking level and then, within that, by the reference number with lower reference values picked first.
37	Pick By Date – Full Pallets Only	Picking is sorted by manufacture date so that inventory manufactured earlier is picked first. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there can not be any allocation on the pallet.
38	Pick By Level By Date – Full Pallets Only	Picking is sorted, first, by the storage location group's picking level and then, within that, by the manufacture date with the earliest manufactured inventory being picked first. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there can not be any allocation on the pallet.
39	Pick By Level By Date – FULL ALLOCATION (OverPick)	Picking is sorted, first, by the storage location group's picking level and then, within that, by the manufacture date with the earliest manufactured inventory being picked first. The entire quantity is allocated and selected for transfer, even if the requirement is less.

Picking Algorithms (Page 5 of 7)

	Algorithm	Description
40	Pick in Last Work Center from Routing	Picking is done in the work center associated with the last step of the routing for a given work order.
44	Pick By Date By Reference – FULL PALLETS ONLY	Picking is sorted by manufacture date so that inventory manufactured earlier is picked first. If several references, such as pallet, have the same manufacture date, they are selected in ascending order. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there can not be any allocation on the pallet.
45	Pick by Expiration Date – FULL PALLETS ONLY	Picking is sorted by expiration date so that inventory due to expire earliest is picked first. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there cannot be any allocation on the pallet.
47	Pick By Level (Descending) by Date – FULL PALLETS ONLY	Picking is sorted, first, by the storage location group's picking level from the biggest to the smallest and then, within that, by the manufacture date with the earliest manufactured inventory being picked first. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there can not be any allocation on the pallet.
48	Pick By Level (Descending) by Date	Picking is sorted, first, by the storage location group's picking level from the biggest to the smallest and then, within that, by the manufacture date with the earliest manufactured inventory being picked first.

	Algorithm	Description
49	Pick By Level (Descending) by Lot/Serial	Picking is sorted, first, by the storage location group's picking level from the biggest to the smallest and then, within that, by the lot/serial number with lower lot/serial values picked first.
50	Pick by Level by Lot/Serial – FULL PALLETS ONLY	Picking is sorted, first, by the storage location group's picking level and then, within that, by the lot/serial number with lower lot/serial values picked first. Only full pallets are picked, so the alternate UM must be the item/warehouse logistics UM, the pallet must have at least the quantity defined in the conversion factor between the alternate and base UM and there cannot be any allocation on the pallet.

Picking Algorithms (Page 7 of 7)

Shortage Clearance Algorithms

Table 8.5 lists the shortage-clearance algorithms that are supplied with AIM.

Table 8.5
Shortage-Clearance
Algorithms

	Algorithm	Description
1	Sales Order Clearance by Priority by Due Date	Clears short sales orders, highest priority first.
2	Sales Order Clearance by Due Date by Priority	Clears short sales orders, earliest due date first.
11	Work Order Clearance by Priority by Due Date	Clears short work orders, highest priority first.
12	Work Order Clearance by Due Date by Priority	Clears short work orders, earliest due date first.
21	Distribution Order Clearance by Priority by Due Date	Clears short distribution orders, highest priority first.
22	Distribution Order Clearance by Due Date by Priority	Clears short distribution orders, earliest due date first.
31	Unplanned Issue Clearance by Priority by Due Date	Clears short unplanned issues, highest priority first.
32	Unplanned Issue Clearance by Due Date by Priority	Clears short unplanned issues, earliest due date first.

	Algorithm	Description
41	Global Clearance by Priority by Due Date	Clears shortages regardless of order type, highest priority first.
42	Global Clearance by Due Date by Priority	Clears shortages regardless of order type, earliest due date first.

Quality Inspection Algorithms

Table 8.6 lists the quality inspection algorithms that are supplied with AIM.

	Algorithm	Description
1	Inspection of Item Every X Days	Inspection on a cyclic basis, using the frequency in days defined at the item/warehouse level or at the item/supplier level from the last receipt of a given item.
2	Inspection of Item from Given Supplier every X Days	Inspection on a cyclic basis, using the frequency in days defined at the item/warehouse level or at the item/supplier level from the last receipt of a given item from a given supplier.
3	Inspection if previous Item Inspection was bad	Inspection takes place if previous inspection failed for the item.
4	Inspection if previous Inspection from supplier was bad	Inspection takes place if previous inspection failed for <i>any</i> item coming from a given supplier.
5	Inspection if previous Item Inspection from supplier was bad	Inspection takes place if previous inspection failed for a <i>given</i> item coming from the given supplier.
6	Inspection if inspection required on order (PO,WO only)	Inspection takes place if the order field for Inspection Required has been set to Yes.
7	Inspection ID Quantity Received is greater Quantity Required (PO Only)	Inspection takes place if the quantity received is larger than expected. This algorithm only works with purchase orders.
8	Inspection of All Items with Inspection Required	Inspection takes place if the item is marked for inspection in Item/Warehouse Maintenance.
9	Inspection of Item every X receipts	Inspection frequency is based on the receipt frequency defined at the item/warehouse level or at the supplier/item level.

Table 8.6
Quality Inspection
Algorithms

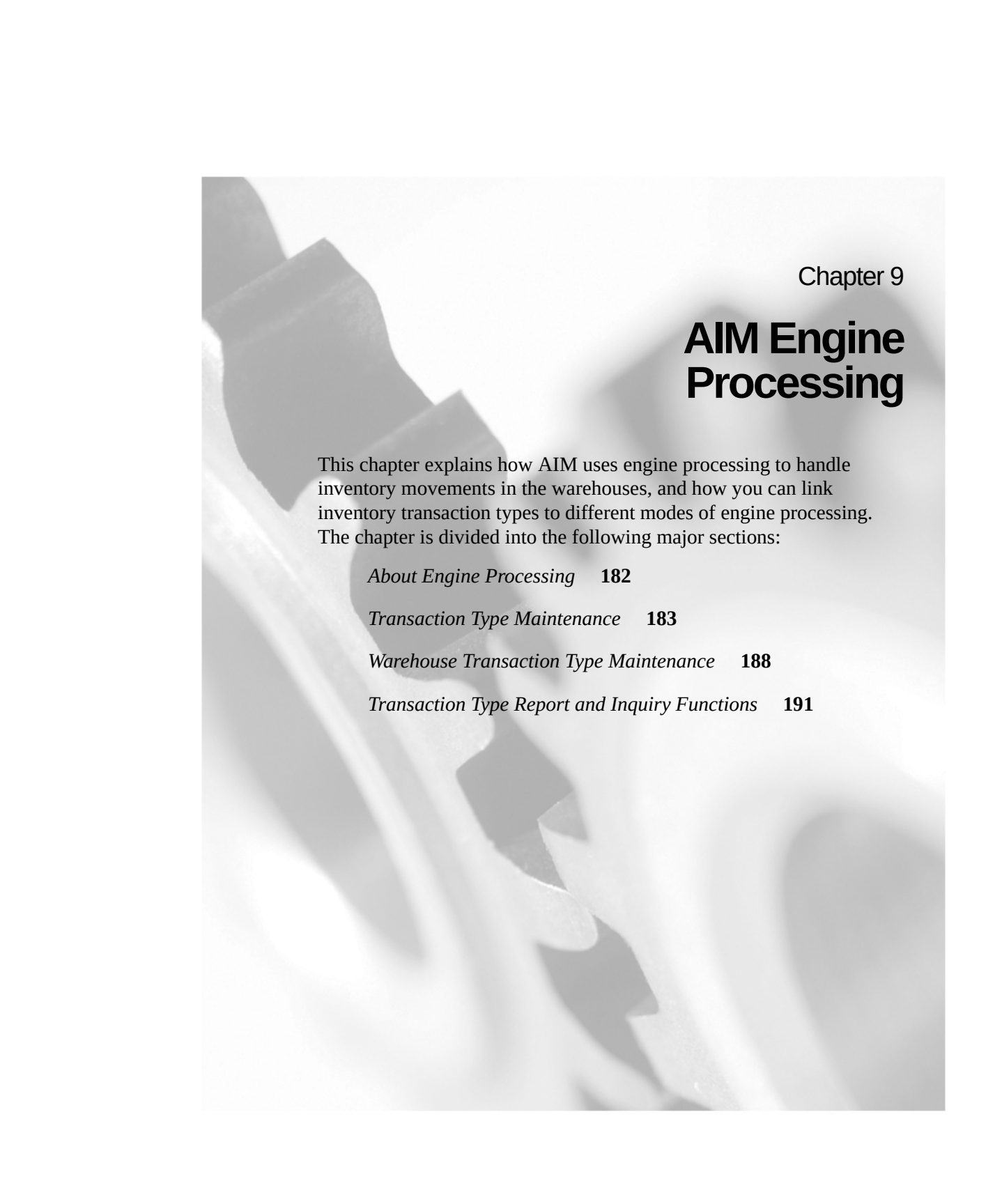
	Algorithm	Description
10	Random Inspection	Inspection is based on a random % defined at the item/warehouse level or at the item/supplier level. This percentage can be dynamically changed based on the results of the inspection.
11	Inspection if new Item (No existing PO Receipt)	Inspection takes place if no existing PO receipt exists made for this item; it is received for the first time.

Algorithm Report and Inquiry Functions

Table 8.7 lists report and inquiry options available relating to algorithms and their assignment.

Table 8.7
Algorithm Reports
and Inquiries

Program	Description
Algorithm Type Browse (80.6.2)	This option lets you review details of all the algorithm type codes that have been set up for the field AlgoType in Generalized Code Maintenance.
Algorithm Master Browse (80.6.6)	This option lets you enter an algorithm type code and review details of all the Algorithms that have been set up for that type.
Algorithm Master Report (80.6.7)	This option lets you select a range of algorithm type codes and algorithm numbers for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows the numbers and descriptions for each algorithm in the selected range.
Algorithm Assignment Browse (80.6.10)	This option lets you enter an algorithm type code and review details of all the algorithm assignment fields that have been set up for that type. The browse window does not list the individual algorithm numbers that have been assigned, only the selection fields that define the assignment.

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and mechanical complexity. The lighting is soft, highlighting the teeth of the gears and creating subtle shadows.

Chapter 9

AIM Engine Processing

This chapter explains how AIM uses engine processing to handle inventory movements in the warehouses, and how you can link inventory transaction types to different modes of engine processing. The chapter is divided into the following major sections:

About Engine Processing **182**

Transaction Type Maintenance **183**

Warehouse Transaction Type Maintenance **188**

Transaction Type Report and Inquiry Functions **191**

About Engine Processing

AIM handles all inventory movement transactions within the warehouses using devices called engines to process the transactions. AIM creates engine workfile records when processing any internal routing or picking process. AIM uses these records to track of transactions and to detect when a transaction has been confirmed. This enables AIM to prepare for the next transaction specified in the internal routing or picking process.

Engine workfile records are created with a specific mode. The mode options are as follows:

- **AUTO** mode specifies that the workfile transaction is processed immediately.
- **MANUAL** mode specifies that the workfile transaction is processed only when it is selected for processing by warehousing staff.
- **TIMED** mode specifies that the workfile transaction is processed a set time interval after the preceding transaction has been confirmed.

Example Use a **TIMED** engine workfile record when you have an inventory transaction to move stock to an Inspection area, where your procedures decree that it must remain for 24 hours to allow proper inspection before being moved to the next step in its internal routing. In this case, the engine processors would not be able to start the next stage of the routing until the specified time interval—24 hours—had elapsed after the movement into the Inspection area had been confirmed.

Note To set up a **TIMED** mode, you need a custom program. No program to handle this mode is currently provided with AIM.

Transaction Type and Warehouse Transaction Type Maintenance also let you define fields related to the way AIM consolidates similar records—such as the receipt of two separate shipments of the same item, which could be consolidated into a single put-away. You can also specify whether the controls that allow overpicking should have priority at the storage location group level or at the transaction type level. Overpicking occurs when your requirement is for less than the specified minimum picking quantity; allowing overpicking means you can take a box of 100, for example, when the requirement is for only 70, but the box cannot be split.

Warehouse Transaction Type Maintenance (80.7.6) lets you set up values for the same fields as Transaction Type Maintenance, but relating only to a specified warehouse at a specified site. At the warehouse level, you can also set values for picking level fields related to the transaction type.

The remaining options on the AIM Engine menu relate to the day-to-day management of the engine processes and the engine workfiles.

Transaction Type Maintenance

Each type of inventory transaction is identified by a transaction type code. Examples are a purchase order receipt (RCT-PO) or a sales order pick (PICK-SO). All the standard transaction types are already set up within AIM. You can add extra transaction type codes to define special types of inventory transactions that are not covered by the standard types. You can also modify the field settings for the standard transaction type codes so that AIM processes the transactions in the way you require.

Transaction Type Maintenance (80.7.6) is shown in Figure 9.1.

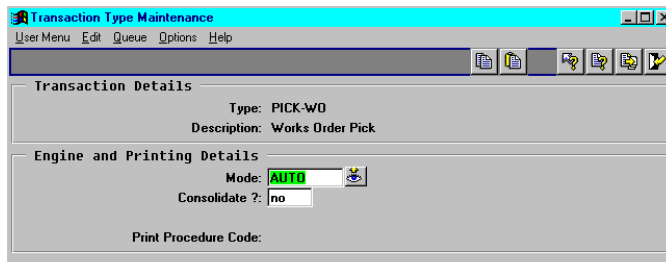


Fig. 9.1
Transaction Type
Maintenance
(80.7.6)

Enter values in the following fields:

Type. Enter the code that defines the transaction type.

Description. Enter the description of the transaction type.

Mode. Specify how processes involving this transaction type are initiated. The options are as follows:

AUTO	The next process in the routing sequence is started automatically as soon as the previous process is complete.
TIMED	The next process is started after a specified time interval, following completion of the previous process.
MANUAL	The next process is only started when it is manually selected for processing.

Consolidate. This option applies only to MANUAL mode. Enter Yes to allow AIM to consolidate similar records that are waiting to be processed.

Example If one manual record awaiting processing is to put away 100 of item A and a second record is to put away 50 of item A, consolidation lets AIM process one record to put away 150 instead of the two separate records.

Enter No if you do not want to consolidate records, or if the mode is not MANUAL.

Print Procedure Code. Enter a code to define the printing procedures to be carried out for this transaction type. Set up codes in Generalized Code Maintenance (36.2.13). The basic codes are AJ (adjustment), PK (picking), RC (receipt), and TF (transfer).

Together with the print flavor code defined at the work location group level, the print procedure code defines the name of the program to start to print a transaction task or a pallet ID for instance.

Example The print ID program, used when making a receipt, is called `whprirca.p`:

(wh + pr (print) + i (ID) + RC (Print Procedure Code for a Receipt) + A (Print Flavor))

The second Transaction Type Maintenance frame is shown in Figure 9.2.

Fig. 9.2
Transaction Type
Maintenance,
Second Screen

The fields in this frame apply only to transaction types that involve picking. You must enter shortage definition settings for these so that AIM can deal with shortages correctly, but you can ignore them for other transaction types.

Over Pick. Indicate whether transactions of this type can pick more stock from locations than is specified in the order. Enter Yes if overpicking is allowed; otherwise, enter No.

This field works in conjunction with the Allow Split field—specified at the storage location group level—to control whether stock can be picked from locations in the SLG in situations where the quantity required for the pick does not match the unit of measure in which the item is stocked in the location.

See “Allow Split”
on page 139.

Example If a location contains boxes of 100 of the item and the required picking quantity is 70 pieces, the following possibilities can be specified:

Over Pick?	Allow Split?	Result
Yes	Yes	Pick 70 by splitting a box
Yes	No	Over pick—take a box of 100
No	Yes	Pick 70 by splitting a box
No	No	No pick from this location

Control Over Pick at SLG. Enter Yes if over picking is to be controlled by the setting of the field at the SLG level, or No if it is to be controlled from the setting of the field for the transaction type. If you enter Yes, any entry in the preceding field is ignored.

Shortage Definition. For picking transaction types, enter a code from 0 to 10 to specify what constitutes a shortage. The options are as follows:

Code	Definition
0	A field is available on each AIM order detail record which can be manually set to Yes to indicate a shortage.
1	A field is available on each AIM order detail record which is automatically set to Yes when picking is attempted. This constitutes a shortage.
2	General allocation: an allocated quantity greater than zero that is not detail allocated indicates a shortage.
3	Open order quantity: an order quantity greater than the sum of the allocated quantity, picked quantity, and shipped quantity indicates a shortage.
4	Non-detail allocated quantity: an order quantity greater than the sum of any detail allocations and the picked quantity and shipped quantity indicates a shortage.
5	General allocation previously picked: as 2 except that the sum of the quantity picked and quantity shipped must be greater than zero.
6	Open order quantity previously picked: as 3 except that the sum of the quantity picked and quantity shipped must be greater than zero.
7	Non-detail allocated quantity previously picked: as 4 except that the sum of the quantity picked and quantity shipped must be greater than zero.
8	General allocation, other line previously picked: as 2 except that sum of the quantity picked and quantity shipped of a different line on the same order must be greater than zero.
9	Open order quantity, other line previously picked: as 3 except that sum of the quantity picked and quantity shipped of a different line on the same order must be greater than zero.
10	Non-detail allocated, other line previously picked: as 4 except that sum of the quantity picked and quantity shipped of a different line on the same order must be greater than zero.

Shortage Quantity Definition. For picking transaction types, enter a code from 0 to 2 to specify how the shortage quantity is calculated. The options are as follows:

Code	Definition
0	General allocated quantity
1	Open order quantity (ordered, less allocated, less picked, less shipped)
2	Non-detail allocated quantity (ordered, less total detail allocations, less picked, less shipped)

Shortage Action. For picking transaction types, enter a code from 0 to 2 to specify the action that AIM should take when a shortage is detected. The options are as follows:

Code	Definition
0	No action: Warehouse transactions are created.
1	Order line is general allocated; warehouse transactions are created.
2	Order line is detail allocated. These allocations are converted to detail picks that create warehouse transactions.

Shortage Window. Enter a number indicating the number of days before an order line due date that it can be considered short.

Example 1 indicates that an order line due tomorrow is short, but that one due the day after—2 days away—is not.

SLG Search Extension. When doing a transfer with a user-provided destination location, if the destination is full, the put-away takes place in the storage location group of the destination location given by the user.

SLG List Search Extension. When doing a transfer with a user-provided destination location, if the destination is full, the put-away takes place in the storage location groups linked to the list of SLGs defined at item/warehouse level of the destination location given by the user.

Note You can either first check in the SLG of the current destination location and then in the complete list of SLGs or only look at the current SLG for the given location. If you set the SLG List Search Extension field to Yes you must set the SLG Search Extension field to Yes also.

Warehouse Transaction Type Maintenance

▶ See “Transaction Type Maintenance” on page 183.

In addition to setting fields for each transaction type, you can also set fields that apply to a transaction type only in a particular warehouse. For example, if you need to set different shortage definitions for different warehouses, you can do so using Warehouse Transaction Type Maintenance.

Warehouse Transaction Type Maintenance (80.7.10) is shown in Figure 9.3.

Fig. 9.3
Warehouse Transaction Type Maintenance (80.7.10)

Enter values in the following fields.

Site. Enter the site.

Warehouse. Enter the warehouse.

Type. Enter the code that defines the transaction type.

Note You should use Transaction Type Maintenance to set up new transaction type codes. AIM displays a warning message if you enter a transaction type code that does not exist. The purpose of this option is to set up fields for an existing transaction type that apply only to the specified warehouse.

Engine and Printing Details Frame

The Mode, Consolidate, and Print Procedure Code fields are used in the same way as in Transaction Type Maintenance.

See “Warehouse Transaction Type Maintenance” on page 188.

Picking Details

The Over Pick and Control Over Pick at SLG fields are used in the same way as in Transaction Type Maintenance.

See “Warehouse Transaction Type Maintenance” on page 188.

The second Warehouse Transaction Type Maintenance frame is shown in Figure 9.4.

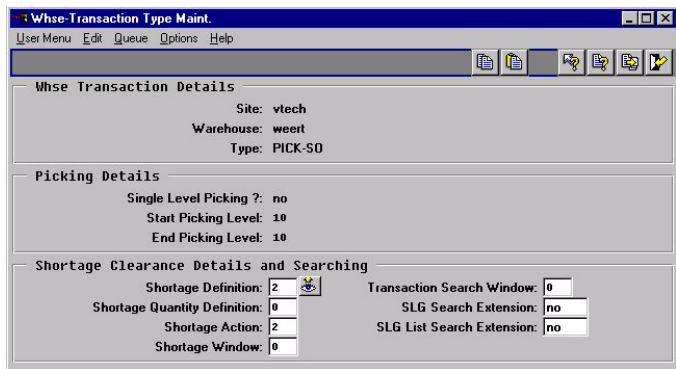


Fig. 9.4
Warehouse Transaction Type Maintenance, Second Screen

The fields in this frame define the picking levels associated with this transaction type. Each storage location group has an associated picking level value. For any picking transaction type, you can define the picking levels at which picking should start and end. AIM then looks in the relevant storage location groups that have the specified picking level.

Single Level Picking. Enter Yes if all the picking quantity must be taken from only one picking level; otherwise, enter No.

Start Picking Level. Enter the numerical code for the picking level at which picking is to start.

End Picking Level. Enter the numerical code for the picking level at which picking is to end.

Shortage Clearance Details and Searching

▶ See “Warehouse Transaction Type Maintenance” on page 188.

The Shortage Definition, Shortage Quantity Definition, Shortage Action, and Shortage Window fields are used in the same way as in Transaction Type Maintenance.

Transaction Search Window. To speed up processing, some of the picking algorithms consider the last location used for picking of a specific item when that item is to be picked again. The algorithm does this by searching backwards through previous transactions. However, you can limit the age of transactions that are searched in this way, because it is unlikely that the last location is still the most efficient for picking if the previous transaction is more than a few days old.

This field specifies the number of days that the algorithms should search backwards for previous transactions relating to the current item. For example, set this value to 1 if you want the algorithms to search only the transactions that were created today or yesterday.

SLG Search Extension. When doing a transfer with a user-provided destination location, if the destination is full, the put-away takes place in the storage location group of the destination location given by the user.

SLG List Search Extension. When doing a transfer with a user provided destination location, if the destination is full, the put-away takes place in the storage location groups linked to the list of SLGs defined at item/warehouse level of the destination location given by the user.

Transaction Type Report and Inquiry Functions

Table 9.1 lists report and inquiry options available on the AIM Engine Menu relating to transaction types and warehouse transaction types.

Program	Description
Transaction Type Browse (80.7.7)	Lets you review details of all the transaction types that have been set up on the system.
Transaction Type Report (80.7.8)	Lets you enter a range of transaction types for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows details of all the transaction types in the specified range.
Warehouse Transaction Type Browse (80.7.11)	Lets you enter a site and review details of all the warehouse transaction type fields that have been set up in warehouses in that site.
Warehouse Transaction Type Report (80.7.12)	Lets you enter ranges of sites, warehouses, and transaction types for inclusion in the report, and then to specify where you want the report results printed or displayed. The report shows details of all the transaction types in the specified ranges.

Table 9.1
Transaction Type
Reports and
Inquiries

Chapter 10

System Administration

This chapter describes AIM menu options that control how the system operates. These options enable you to:

- Maintain user access to warehouses and locations.
- Maintain background data for AIM.
- Assign tasks to different users and monitor progress.

For detailed information on the meaning of specific fields, refer to the online help.

Warehouse Security **194**

Utility Menu Options **194**

Interface Menu Options **195**

Warehouse Security

Warehouse Security Maintenance (80.24.13) enables you to control which users or groups of users can access data for a warehouse.

The frame contains three fields:

Site. Specify the site owning the warehouse being modified. Site security validation applies.

Warehouse. Specify the warehouse being modified. It must exist, in combination with the site, as a valid warehouse.

Group. Enter a list of users or user groups separated by commas. The default is an asterisk (*), which indicates all users can perform functions for this warehouse.

Important This user group is the same as that used in MFG/PRO and *not* an AIM user group. MFG/PRO user groups identify users with similar MFG/PRO security access requirements. AIM user groups identify users—typically in RF device environments—with similar task requirements.

Two further warehouse security options are provided:

- Warehouse Security Browse (80.24.14) enables you to review the security levels set for a specific warehouse.
- Warehouse Security Report (80.24.15) enables you to print a report showing the users/user groups for a specific warehouse or all warehouses.

Utility Menu Options

The Utility menu (80.24.21) provides three options not available in MFG/PRO:

- Re-calculate Location % Full (80.24.21.13). This option enables you to run a report to recalculate the percentage full for locations. You can also update the database with the results.

- Populate Order Maintenance Files (80.24.21.14). Use this option when first installing AIM or when installing a new version of AIM. It takes all outstanding orders in the system and populates the appropriate database tables with updated information.
- Re-Balance Expected In/Out Qtys (80.24.21.15). Use this option to recalculate balances if you think there are mistakes in the order quantities.

Interface Menu Options

The Interface menu (80.19) provides two options:

- User Group Maintenance (80.19.1) enables you to create user groups—for example, picking or dispatch—and assign users to them. This function is also accessible from the Labor Management menu as option 80.11.15.
- User-Work Location Group Maintenance (80.19.5) enables you to assign a user to a work location group and also set up print options specific to that user.

Group Maintenance

Group Maintenance (80.19.1) is an optional program that lets you group users into defines categories.

Example Two groups could be defined for picking. One group can have three members (morning shift calendar) and another group can have seven members (evening shift calendar). These groups can later be assigned to tasks.

This is extremely useful and can save valuable time, as groups of warehouse staff can be moved quickly from one location to another, and warehouse staff can be quickly added or removed from multiple warehouse groups.

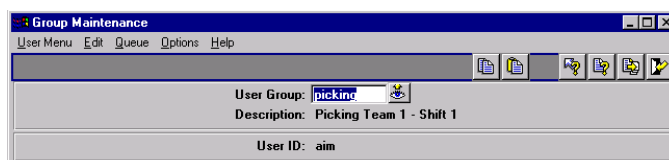


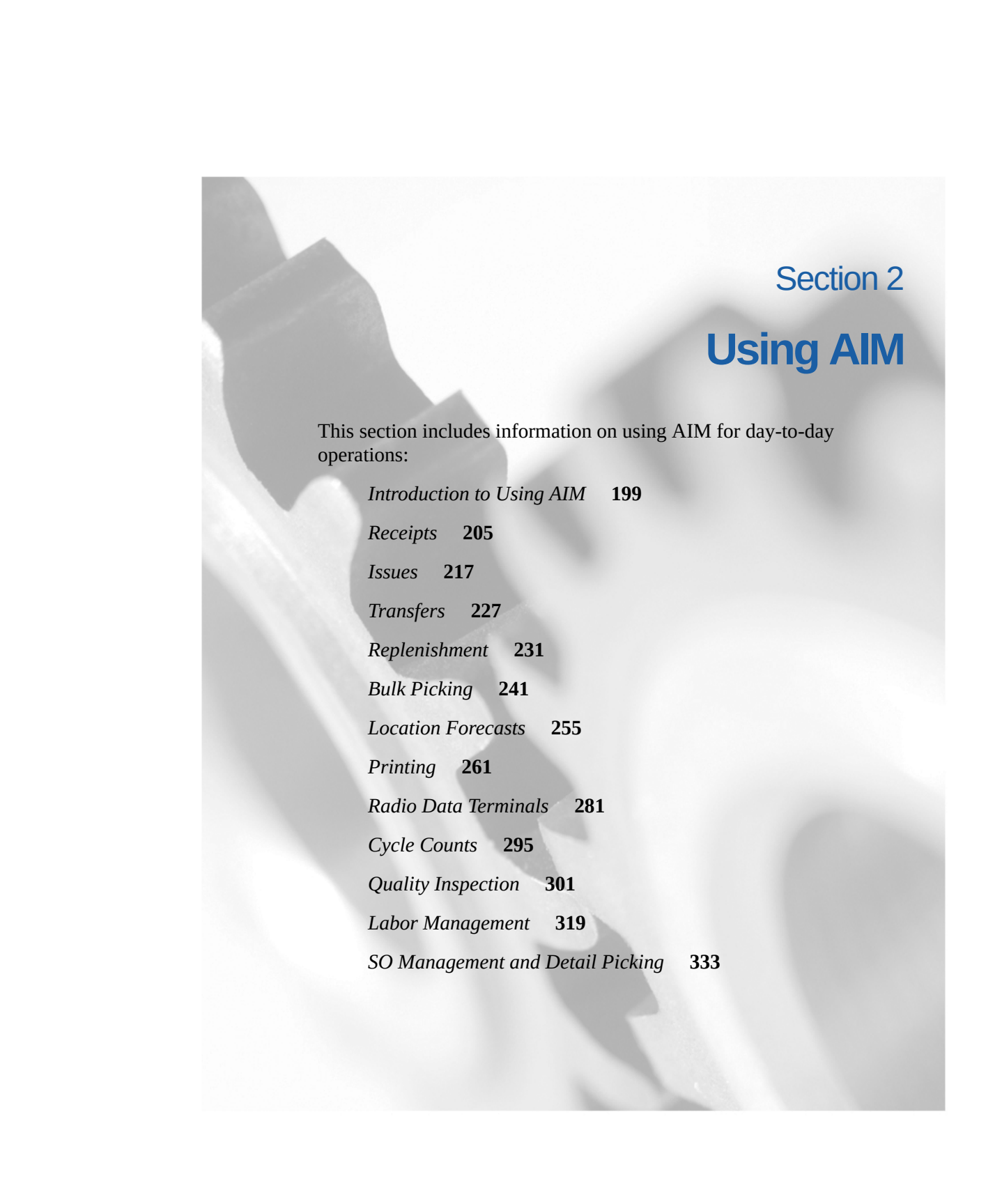
Fig. 10.1
Group Maintenance
(80.19.1)

Complete the fields as follows:

User Group. Defines the name of the warehouse group.

Description. Specify the description of the associated group. This description is typically related to labor management.

User ID. Defines the names of all the users that belong to this group.

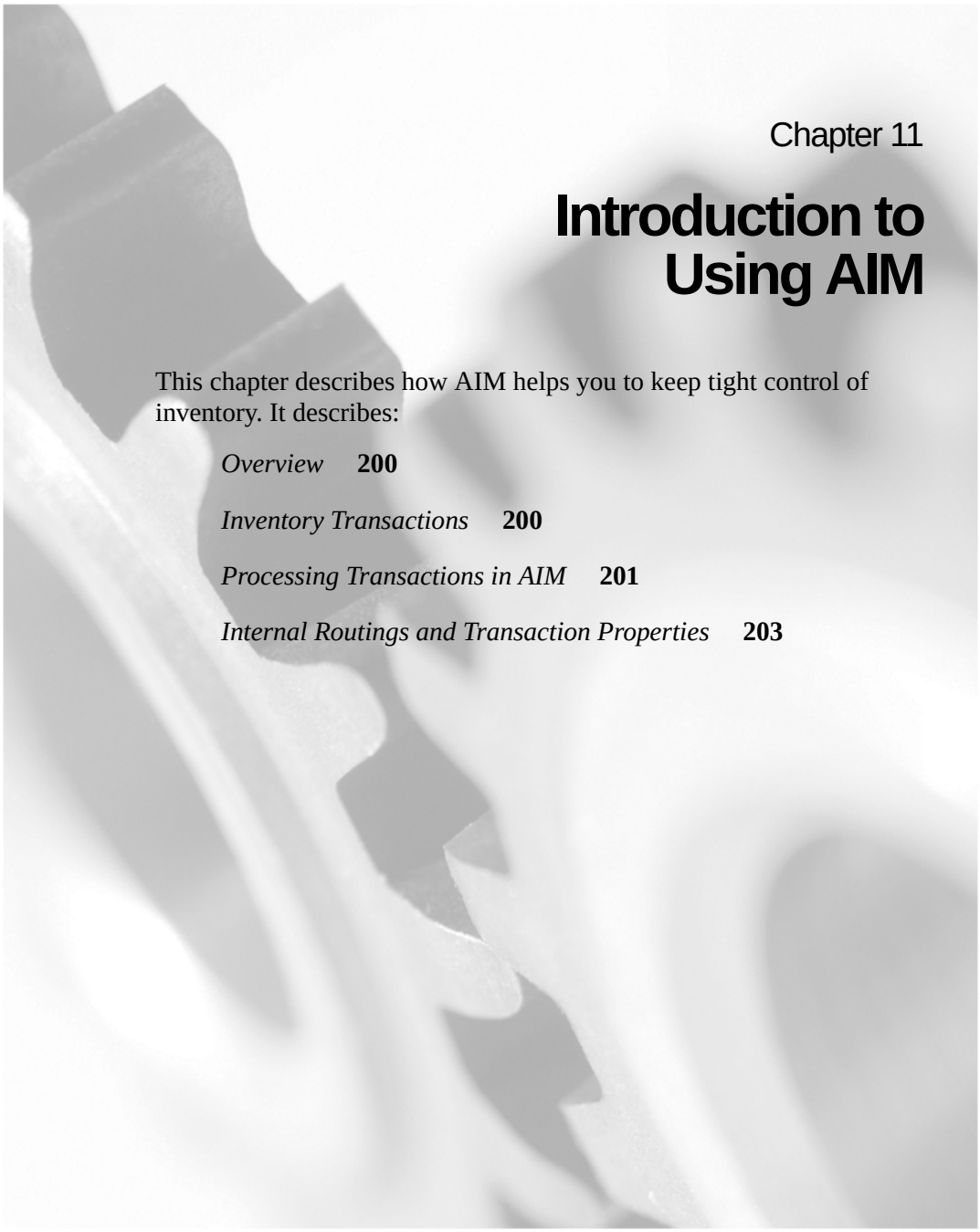


Section 2

Using AIM

This section includes information on using AIM for day-to-day operations:

<i>Introduction to Using AIM</i>	199
<i>Receipts</i>	205
<i>Issues</i>	217
<i>Transfers</i>	227
<i>Replenishment</i>	231
<i>Bulk Picking</i>	241
<i>Location Forecasts</i>	255
<i>Printing</i>	261
<i>Radio Data Terminals</i>	281
<i>Cycle Counts</i>	295
<i>Quality Inspection</i>	301
<i>Labor Management</i>	319
<i>SO Management and Detail Picking</i>	333



Chapter 11

Introduction to Using AIM

This chapter describes how AIM helps you to keep tight control of inventory. It describes:

Overview **200**

Inventory Transactions **200**

Processing Transactions in AIM **201**

Internal Routings and Transaction Properties **203**

Overview

Using AIM’s inventory control features, you can:

- Control all stock movements by a series of internal routings
- Specify storage requirements for inventory
- Request stock movements
- Monitor and authorize unplanned receipts and issues
- Control and report on inventory by warehouse

The transactions created by AIM produce printed documents, such as task lists, movement tags, and pallet labels that tell warehouse staff what to do and provide confirmation and auditing of what has been done. The documents can have barcodes printed on them, and can be used with Radio Data Terminals (RDTs).

This chapter begins by describing the following different types of basic inventory transactions:

- Receipts
- Transfers
- Issues

The final section provides an overview of how AIM processes the main types of transaction.

Inventory Transactions

Table 11.1 shows the five types of inventory transaction processed by AIM, and indicates where you can find detailed information about each one.

Table 11.1
Inventory
Transactions

Type of Transaction	Transaction	For full details, refer to ...
Receipts	Purchase order receipt	Chapter 12
	Work order receipt	Chapter 12
	Unplanned receipt	Chapter 12
	Distributed order receipt	Chapter 12
Transfers	Single item transfer	Chapter 14

Type of Transaction	Transaction	For full details, refer to ...
Issues	Multi-item transfer with pallet type	Chapter 14
	Clearing shortages in sales order or works orders	Chapter 14
	Inter-warehouse transfer	Chapter 14
	Stock optimization transfer	Chapter 14
	Works order issue	Chapter 13
	Unplanned issue (inventory)	Chapter 13
	Unplanned issue (warehouse)	Chapter 13
Shipments	Bulk picking confirmation	Chapter 13
	Sales order shipment	Chapter 13
	Distributed order shipment	Chapter 13
Returns		The standard MFG/PRO processing handles returns. Refer to <i>User Guide Volume 2: Distribution</i> .

Processing Transactions in AIM

Warehouse transactions are the key to AIM. Each transaction is an instruction, or task, for a user to take specified inventory from a specified location (the source) and deposit it in the location required or previously specified (the destination). Special transactions can be created that are from and to the same location. Generally, these are to perform some kind of inventory adjustment such as a cycle count.

Transactions are created in many different ways, but generally result from:

- A request to pick inventory to satisfy an order requirement such as a sales order or work order. Picking transactions can also result from inventory management functions such as replenishment, repetitive, unplanned issues, or inter-warehouse transfers.

- The receipt of inventory into the warehouse that must be put away. Usually this is as a result of a purchase order receipt but can also be from manufacturing, distribution orders, unplanned receipts, or inter-warehouse transfers.
- Inventory management such as stock transfers or cycle counts.

Every step in the movement of inventory is recorded by a transaction, from the moment it is received at a receiving point through put-away, storage, selection for requirement, and movement to an issue point.

All movements of inventory require that a transaction is created, indicating:

- The source and destination locations of the movement
- The inventory that requires moving
- The quantity that is required and multiple attributes that determine how the movement is to be carried out

Transactions are created with a status of OPEN, indicating that the transaction, or task, is yet to be carried out. Once the task is complete, the transaction is closed and the record is deleted. A copy is made, creating a transaction history record. The transaction is closed by the action of confirming that the task is complete. This can be done separately from the creation of the two-phase transaction or automatically at the time of single-phase creation.

▶ See Section 1, “Setting Up AIM,” beginning on page 5.

In general, all inventory within AIM is moved according to information that you enter when setting up AIM.

Although setup is time-consuming, the actual process of managing inventory in AIM is largely automated. Each inventory movement that you request within AIM is processed according to the internal routing and associated fields for the transaction type.

Internal Routings and Transaction Properties

When you define an internal routing, you:

- Define the movement of inventory between internal routing groups; for example, from IRG receipt to IRG bulk.
- Set the properties for the transactions that use this internal routing—creating the transaction, confirming the transaction, and printing the transaction/confirmation.

You only need to define a sequence of movements if the transaction involves moving inventory between IRGs, such as receipts or issues. If the inventory is being moved within an IRG such as a replenishment, you set up the internal routing only in order to define the transaction properties. The path for the inventory comes from the replenishment list and the known location/SLG.

Example Figure 11.1 shows how an internal routing (replen3) could be defined. There is a single step, which enables you to define the transaction properties for this particular replenishment of the IRG Bulk.

The screenshot shows a window titled "Internal Routing Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help). The window contains the following fields and sections:

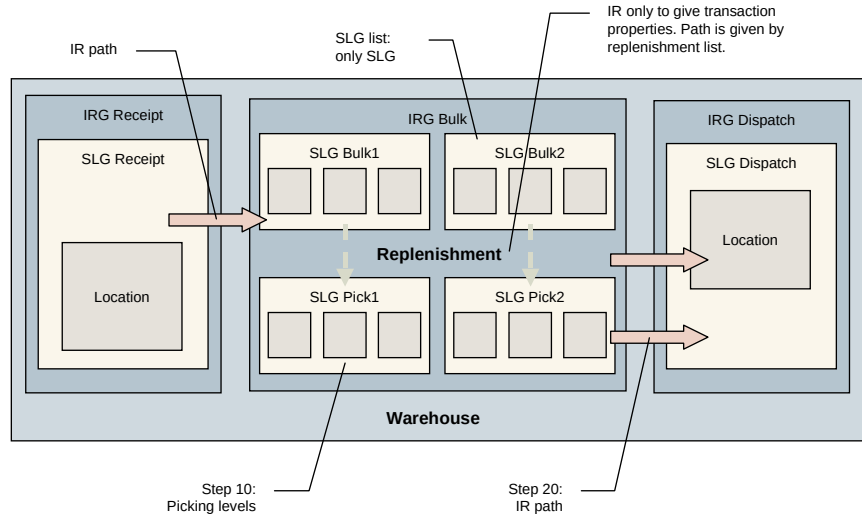
- Site:** aim-site
- Warehouse:** Raw
- Internal Routing:** replen3
- Description:**
- Sequence:** 10
- Internal Routing Group:** bulk
- Transaction Create**
 - Confirmed at Source?:
 - System Code:
 - Two Phase?:
 - Keep From Status?:
 - Task:
 - Priority:
 - Increment:
- Transaction Confirmation**
 - "From Location" Option: 0
 - "From Item" Option: 0
 - "From Lot/Serial" Option: 0
 - "From Reference" Option: 0
 - Allow Quantity Increase?: no
 - Allow Quantity Decrease?: no
 - Quantity Change Option: 0
 - "To Location" Option: 0
 - "To Item" Option: 0
 - "To Lot/Serial" Option: 0
 - "To Reference" Option: 0
 - Alternative UM Option: 0
 - Repick Type:

Fig. 11.1
Definition of
Routing Replen3

Similarly, whenever you define an IR for a movement between IRGs, the transaction properties do not come from step 10, but from step 20.

Figure 11.2 summarizes the relation between internal routings and transaction properties.

Fig. 11.2
Internal Routings
and Transactions



Chapter 12

Receipts

This chapter describes how AIM processes receipt transactions by using examples based on a typical warehouse layout. It includes the following major sections:

Processing Receipts in AIM **206**

Example: Unplanned Receipts **206**

Example: Purchase Order Receipts **209**

Work Order and Distribution Order Receipts **210**

Cross Docking **210**

Receipts of Multiple UM and Pallets **211**

Processing Receipts in AIM

▶ See Chapter 3, “Defining Internal Routings,” for information on internal routing and internal routing groups.

The key to processing receipts in AIM is the internal routing. The flexibility of the internal routing function means that any received inventory can move through any combination of locations before being put away.

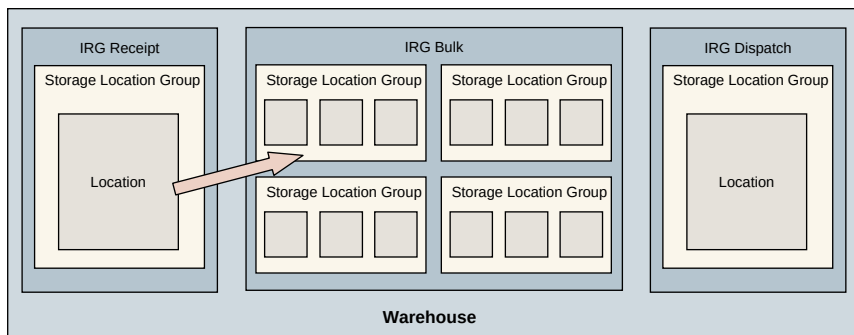
All receipts work in the same way:

- You create a transaction using MFG/PRO; for example, unplanned receipt.
- AIM looks for the internal routing associated with the item, transaction type, warehouse, or address.
- AIM runs the algorithms associated with the transaction type; for example, put-away.
- The receipt location can be a final location, a location in the receipt area, or a warehouse.
- Confirmations can be printed or sent to an RDT. The setup fields for this can be defined for the warehouse, the item, or the transaction type.

Example: Unplanned Receipts

Suppose you want to make an unplanned receipt of 200 EA of component A. Figure 12.1 shows the simplest route for this receipt—that is, from the Receipt area straight into Bulk.

Fig. 12.1
Sample Receipt



You would need to define the following:

- 1 Define the item component A using Item Master Maintenance (1.4.1). Provide a default location for the component—location, warehouse, or warehouse master list.
- 2 Link component A to a storage location group in IRG Bulk. Alternatively, link component A to a storage location group list. An SLG list is a list of SLGs that can be considered for storing items. You define an SLG using Storage Location Group Maintenance (80.3.5) You link an item to an SLG or SLG list using Item-Warehouse Maintenance (80.4.11).
 - ◆ See Chapter 4, “Defining Location Groups,” on page 79.
- 3 Define an internal routing for transaction type RCT-UNP using Internal Routing Maintenance (80.2.5) to move the inventory from receipt to bulk, the internal routing would consist of two steps; for example:
 - Step 10: Receipt
 - Step 20: Bulk
 - ◆ See “Internal Routing Maintenance” on page 67.
- 4 Assign the internal routing RCT-UNP to the transaction type RCT-UNP using Internal Routing Assignment Maintenance (80.2.9). At this point you could also specify an item, which would mean that all unplanned receipts of this item would in future follow the same internal routing. If you leave the Item field blank, this internal routing would be used for all items arriving as unplanned receipts.
 - ◆ See “Internal Routing Assignment Maintenance” on page 74.
- 5 Assign the location-find and put-away algorithms to the transaction type RCT-UNP using Algorithm Assignment Maintenance (80.6.9).
 - ◆ See “Algorithm Assignment” on page 150.

You would then receive 200 EA for component A using Receipts–Unplanned (3.9). Because of the information that you have entered linking the item and locations with an internal routing, the transaction is processed automatically and the inventory can be moved to one of the indicated storage locations.

Two-Phase or Single-Phase

With all transactions in AIM, you have a choice of defining whether the transaction is confirmed:

- Automatically, when you create the transaction. This is called single-phase.
- Manually, after you create the transaction and after you have had time to check the inventory movement. This is called two-phase.

You can define whether a transaction is single-phase or two-phase as follows:

♦ See page 32.

- Warehouse Maintenance (80.1.1). This sets the default for transactions for the warehouse.

♦ See page 67.

- Internal Routing Maintenance (80.2.5). The Two-Phase field enables you to specify whether transactions moved under a particular internal routing should be single-phase or two-phase.

Checking the Result

You can check that the inventory has been moved to the location using the Inventory Detail Inquiry (80.9.13).

Example: Purchase Order Receipts

Suppose that you want to make a purchase order receipt of 1000 EA of component A. Because of known problems with a particular supplier, you want to ensure that any receipts of component A always go through the inspection area before they are put away. In addition, you want to allow the receipt to be stored in two storage location groups, Bulk1 and Bulk2. Figure 12.2 illustrates this scenario.

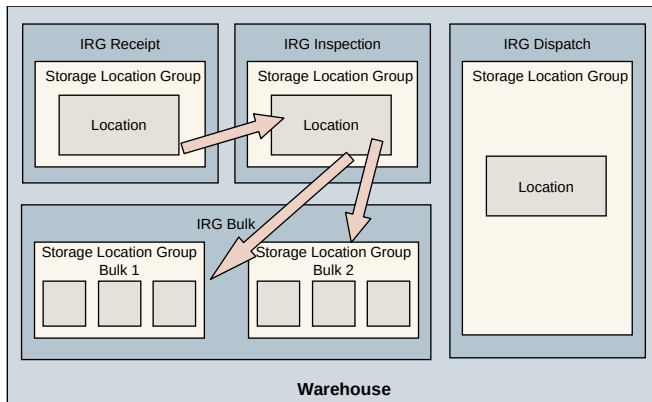


Fig. 12.2
Sample Purchase
Order Receipt

The setup would be exactly the same for this transaction as for an unplanned receipt, except that the internal routing would contain an extra step:

- Internal routing RCT-PO:
 - Step 10: Receipt
 - Step 20: Inspect
 - Step 30: Bulk

Also, you would need to:

- Define a storage location group list using Storage Location Group Maintenance (80.3.5).
- Link the storage location group list to the item using Item-Warehouse Maintenance (80.4.11).

You would then:

- 1 Create a purchase order using Purchase Order Maintenance (5.7) for 1000 of component A.
- 2 Create a receipt of the purchase order using Purchase Order Receipts (5.13.1).

AIM then uses the storage location group list associated with the item to look for a location for the put-away. The put-away would occur as follows:

- 1 Look at the first SLG on the list. If the entire receipt can be put in Bulk1, do the put-away and end the transaction.
- 2 If Bulk1 has no suitable locations, look in Bulk2. If the entire receipt can be put in Bulk2, do the put-away and end the transaction.
- 3 If the entire receipt cannot go into one location in Bulk1 or Bulk2 but you have space across several locations, divide the receipt between the locations.
- 4 If no locations are available, AIM displays a message on-frame and lets you select another location.

Work Order and Distribution Order Receipts

The setup procedures for these receipts and the way that AIM processes them are the same as for unplanned receipts and purchase order receipts.

Cross Docking

In situations where insufficient stock prevents the complete filling of an order, AIM keeps track of the order shortage quantities, item by item. To help you to fill the back orders with a minimum of inventory movements, AIM provides shortage clearance algorithms. When you link these algorithms to inventory receipt transactions, AIM automatically checks to see if the received stock can be used to fill back orders.

By linking the appropriate internal routings to the transaction types, you can route the relevant stock directly from the receipt dock to the shipping dock, thus removing the need for additional put away and picking activities. The remaining received stock that is not required for shortage clearance is put away using the normal routines.

You set up the definition of a shortage using Transaction Type Maintenance (80.7.6). You assign the shortage clearance algorithms to the appropriate transaction types using Algorithm Assignment Maintenance (80.6.9).

♦ See Chapter 8, “Algorithms,” on page 145.

Receipts of Multiple UM and Pallets

Standard MFG/PRO Receipts

All standard MFG/PRO receipt functions let users receive inventory items in either their normal stocking unit of measure (UM) or in a different UM. When items are received in a UM different than their stocking UM, MFG/PRO converts the quantity of items received in the receipt UM into the corresponding quantity of items in the stocking UM when it updates the MFG/PRO database. The conversion is done on the basis of:

- The unit of measure conversion factor that applies to the item being received
- Its stocking unit of measure
- The receipt unit of measure entered by the user

However, this unit of measure factor only acts as a default that you can modify.

Example In your system, a UM conversion of 1 PL = 12 EA is defined. You record a receipt of 2 PL of an item that is stocked in EA but override the default conversion factor of 12 with the value 13. In this case, MFG/PRO records the receipt of 26 EA (2 PL) in inventory when the transaction is completed.

Standard MFG/PRO receipt functions also provide multi-entry functionality. Setting this field to No during a single receipt transaction of a particular item means that the entire receipt quantity is received into the same site and location with the same lot or serial number and reference.

Setting it to Yes, on the other hand, means that when a single receipt of a quantity of an item is made, that quantity can be divided between different references, lot or serial numbers, locations or even sites.

Example The 2 PL = 26 EA of the item in the previous example could be received in standard MFG/PRO in a single transaction split between two sites each with two locations, where each location was split between two lot numbers and each lot number was split between two references. Doing this subdivides the single receipt into 16 separate multi-entry quantities. Standard MFG/PRO would hold information on each of these separately in the MFG/PRO database.

In standard MFG/PRO, receipt transactions can involve both a receipt UM different than the normal stocking UM and multi-entry. When this happens, all receipt quantities entered on the multi-entry frame are in the receipt UM (PL in the example).

AIM Receipts

In all receipt transactions in AIM, most of the standard MFG/PRO functionality described previous is still present. In addition to this, AIM lets you receive stock in the default item UM, alternate palletized receipt UMs, or alternate non-palletized UMs. Additionally, you can enter different alternate receipt UMs on different receipt detail lines when using purchase order receipts provided that none of the alternate receipt UMs used in multi-entry is palletized.

AIM enforces a rule that when receiving in a UM different than the stocking UM of an item, you can only override the default UM conversion when the receipt UM is sized by reference (palletized) or sized by blank.

With AIM, you have a fundamental difference in the interpretation of UM conversions when a receipt of a quantity of an item is made in a palletized UM. In this case, regardless of whether the palletized receipt UM used is the stocking UM of the item, one record is created automatically for each pallet being received. Therefore, if PL is a palletized UM and a receipt quantity of 2 PL is entered, two records are created. Each record created is assigned a unique reference number that identifies a particular pallet, and it holds all the receipt details relating to that pallet.

The difference in interpretation comes about because when these records are shown in purchase order receipts, the quantity field now denotes the number of eaches in a particular pallet reference, rather than a quantity in the receipt UM as in standard MFG/PRO.

Regardless of this difference, the correct unit of measure conversions have to be applied during a palletized receipt to enable the receipt quantity to be converted to the item stocking unit of measure and hence recorded correctly in the MFG/PRO database. Conversion to the item stocking unit of measure before MFG/PRO inventory update is also necessary for receipt quantities in alternate non-palletized units of measure.

Examples

The concepts associated with entering a palletized receipt and multiple units of measure on any AIM version of an MFG/PRO receipt frame are now examined in more detail through some examples.

Suppose that you have defined a default item stocking unit of measure of EA. You have also defined the alternate units of measure and conversion factors listed in Table 12.1.

Alternate UM	Conversion	Sizing Type
TN	1 TN = 10 EA	<blank>
DZ	1 DZ = 12 EA	<blank>
EU	1 EU = 1000 EA	Reference
PL	1 PL = 1200 EA	Reference

Table 12.1
Palletized Receipt
Example

Example 1

In one transaction in purchase order receipts, you enter the following:

- Receipt quantity of 5
- Receipt UM of PL
- Default conversion factor of 1 PL = 1200 EA

Because the receipt is for a palletized unit of measure, five records are created, each with its own unique pallet reference number, and a default quantity of items on the pallet and item unit of measure of 1200 EA.

These details are then shown on the frame automatically. You then attempt to override the default quantity and alternate UM values as shown in Table 12.2.

Table 12.2
Palletized Receipt
Example 1

Old Qty	Old Alt UM	Old Ref	New Qty	New Alt UM	New Ref	Swap Message	Valid
1200	EA	PL000001	115	TN	PL000001	No	Yes
1200	EA	PL000002	90	DZ	PL000002	No	Yes
1200	EA	PL000003	21	PK	PK	Yes	Yes
1200	EA	PL000004	11	BX	BX	Yes	Yes
1200	EA	PL000005	1	EU	N/A	No	no
1200	EA	PL000006	1	PL	N/A	No	no

Table 12.2 shows that the EA stocking unit of measure cannot be overridden by a size-by-reference unit of measure, but can be overridden by another unit of measure with a sizing type of blank. When a size-by-reference alternate unit of measure is entered, the following error message displays:

ERROR: CANNOT RECEIVE MORE THAN ONE PALLET UM. Please re-enter.

You are prompted to input another alternate unit of measure.

If the stocking unit of measure is overridden by a unit of measure with sizing type of blank, the pallet numbers generated in the Reference field remain unchanged.

Example 2

In another transaction, you enter:

- Receipt quantity of 5000
- Receipt UM of EA

Because the receipt is for a non-palletized unit of measure, no records holding pallet information are created, and you are not automatically taken into the multi-entry frame. You then manually set the multi-entry field to Yes. In this frame, only one record with a quantity of 5000 and an

alternate unit of measure of EA is shown. In the multi-entry frame, you attempt to override the default quantity and alternate UM values as shown in Table 12.3.

Old Qty	Old Alt UM	Old Ref	New Qty	New Alt UM	New Ref	Swap Message	Valid
5000	EA	<blank>	900	EA	<Blank>	No	Yes
			1	PL	<Blank>	No	no
			2	EU	<Blank>	No	no
			25	BX	BX	yes	Yes
			20	PK	PK	yes	Yes
			50	DZ	<Blank>	No	Yes

Table 12.3
Palletized Receipt
Example 2

Table 12.3 shows that the EA stocking unit of measure cannot be overridden by a size by reference unit of measure, but can be overridden by another unit of measure with a sizing type of blank or a sizing type of multiple.

This receipt is then processed in the same way as for example 1.

Example 3

In a third transaction, you enter:

- Receipt quantity of 500
- Receipt UM of TN

Because the unit of measure TN is a size by blank alternate UM, this means that the default unit of measure conversion factor between EA and TN (10) can be overridden at the start of the receipt transaction as per standard MFG/PRO.

Suppose that you override the default conversion factor of 1 TN = 10 EA by 1 TN = 11 EA. After you have manually set the multi-entry field to Yes, a single detail record is shown with an initial quantity of 500 and an alternate unit of measure of TN. From then on, this receipt is processed as for example 1.

Example 4

In a fourth transaction, you enter a receipt quantity of 50, and a receipt UM of BX. Because the receipt is for a non-palletized unit of measure, no records holding pallet information are created. Note that you cannot override the default conversion factor for this receipt unit of measure, because BX is a size by multiple unit of measure. You then manually set the multi-entry field to Yes. In this frame, only one record with a quantity of 50 and an alternate unit of measure of BX is shown at first. You would modify the record shown and manually enter the details in Table 12.4 using the multi-entry frame.

Table 12.4
Palletized Receipt
Example 4

Old Qty	Old Alt UM	Old Ref	New Qty	New Alt UM	New Ref	Swap Message	Valid
50	BX	<blank>	16	BX	BX	No	Yes
			2	PL		No	no
			3	EU		No	no
			40	PK	PK	Yes	Yes
			50	DZ	<Blank>	No	Yes
			50	TN	<Blank>	No	Yes
			300	EA	<Blank>	No	Yes

This receipt is then processed as per example 1.

The background of the page features a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and mechanical complexity. The lighting is soft, highlighting the teeth of the gears and casting gentle shadows.

Chapter 13

Issues

This chapter shows how AIM processes issue transactions. It includes the following topics:

Processing Issue Transactions **218**

Example: Sales Order Pick **220**

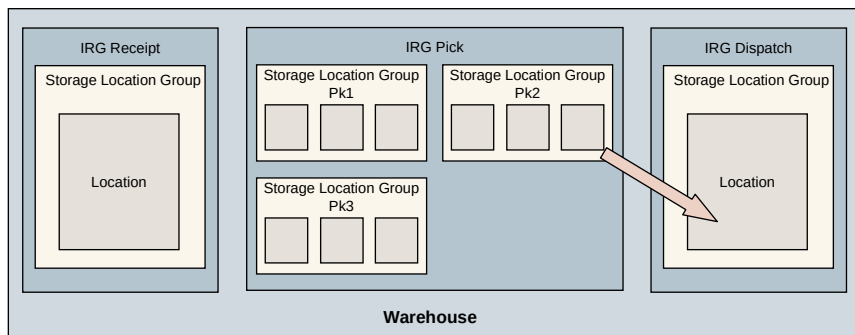
Example: Work Order Pick **221**

Repicking **224**

Processing Issue Transactions

► For full details of the setup procedures for AIM transactions, refer to Chapter 8, “Algorithms,” on page 145.

As with receipts, picking transactions are governed by the internal routing for the specific transaction. In addition, you need to define in advance a set of rules governing how inventory is picked for each transaction, known as *picking algorithms*.



The following is a brief outline of what you must define:

- Define the items to include in the pick using Item Master Maintenance (1.4.1).
- Define the picking properties for the transaction type and the storage location group. The main points are:
 - **Picking Levels:** The minimum and maximum amount of inventory that can be picked from a location. These can be set for the warehouse, the default warehouse transaction type, the storage location group, and the transaction type.
 - **Over Pick:** whether you can pick more inventory from a location than is specified in the order.
 - **Allow Split:** whether the UM for a storage location group can be split for an order; for example, whether a pallet can be split into boxes for an order.
 - **Pick by multiple UM:** Whether to allow picking in different UM—for example, both pallets and boxes to meet an order.
 - **Allow Multiple Transactions:** Whether AIM should create one transaction for the whole quantity to be picked, or allow multiple transactions using Storage Location Group Maintenance (80.3.1).

Example If Pick Multiple UM = BX, and one BX = 20 EA in the receipt, then allow multiple transactions could result in two transactions of 20 EA; while not allowing multiple transactions would result in one transaction of 40 EA.

- Define the internal routing for the transaction using Internal Routing Maintenance (80.2.5). The simplest would be a two-step movement from Bulk to Dispatch.
- Assign the internal routing to a transaction type using Internal Routing Assignment Maintenance (80.2.9).
- Assign a location-find and picking algorithm to the transaction type using Algorithm Routing Maintenance (80.6.9).

When you create an order, the following occurs:

- 1 AIM looks for the site/warehouse/location from which the inventory can be picked.
- 2 The algorithms for the transaction type are run until the quantities specified in the order have been picked.
- 3 Open AIM sales order pick inventory transactions, which are two-phase transactions, must be confirmed by one of the movement confirmation functions. Confirming such transactions records that the movement of inventory to the appropriate dispatch dock has been completed. The picked stock can then be shipped against the order for which it was picked. AIM single-phase transactions do not go through this process.

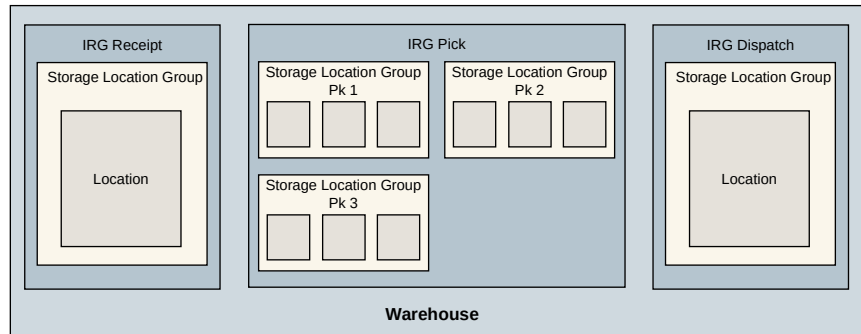
Note The shipping process uses standard MFG/PRO functions.

The picking flow described here specifically for sales orders is also used in all MFG/PRO functions where picking is performed, such as work orders, distribution orders, and the repetitive modules.

Example: Sales Order Pick

This example takes a simple sales order for 243 EA of component A, and considers how the inventory would be picked from the warehouse setup illustrated in Figure 13.1.

Fig. 13.1
Warehouse Setup
for Sales Order
Picking



The picking properties for storage location groups Pk 1, Pk 2, and Pk 3 have been set as shown in Figure 13.2.

Fig. 13.2
Example Picking
Properties

Storage Location Group Pk 1 Pick Level: 50 Overpick: No Pick Mult: EA Allow Split: Yes	Storage Location Group Pk 2 Pick Level: 40 Overpick: No Pick Mult: BX Allow Split: No
Storage Location Group Pk 3 Pick Level: 30 Overpick: No Pick Mult: PL Allow Split: No	

- One PL = 100 EA
- One BX = 20 EA

For the customer order of 243 EA, the result of the pick is shown in Table 13.1.

Table 13.1
Picking Results

Result	Reason
2 PL from SLG Pk 3	• Pick Level is 30, so look in this SLG first. • Picking multiple pallets is allowed, but pallet split is not. • Therefore, pick 2 pallets to get 200 EA.
2 BX from SLG Pk 2	• Pick level is 40, so look in this SLG after SLG 3. • Picking multiple boxes is allowed, so pick 2 BX to get 40 EA. • Splitting a BX is not allowed, so cannot get the remaining 3 EA from this SLG.
3 EA from SLG Pk 1	• Pick level is 50, so look in this SLG last. • Splitting is allowed, so take the last 3 EA from SLG 1.

Example: Work Order Pick

The principles of picking described in the previous section apply to all types of issue transactions. However, in order to illustrate the flexibility that internal routings give you, this section shows different routes that a work order pick could take.

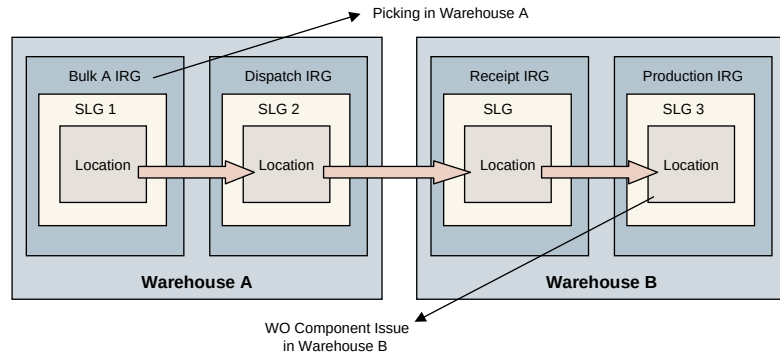
Using the Balance of a WO for Another WO

In this scenario, inventory is left over from one work order, so you want to:

- See whether the remainder can be used in warehouse B (Prod).
- If not, go back to warehouse A (Raw) and pick the inventory from there.

Figure 13.3 shows an example of work order picking setup.

Fig. 13.3
Work Order
Picking Example
Setup



In order to set up this movement, you would first need to define a warehouse master list using Warehouse Master List Maintenance (80.1.5), shown in Figure 13.4.

Fig. 13.4
Warehouse Master
List Maintenance

The screenshot shows the 'Whse Master List Maintenance' window. The window has a menu bar with 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. Below the menu bar is a toolbar with icons for file operations. The main area displays the following information:

Site: aim-site
Master List: listWO
Description:

Type	Seq	Whse	Description	Ultimate Site	Ultimate Whse
PICK-WO	1	prod			
PICK-WO	2	raw		aim-site	prod

At the bottom, there are input fields for 'Type' (set to PICK-WO), 'Seq' (set to 2), 'Ultimate Site' (set to aim-site), 'Warehouse' (set to raw), and 'Ultimate Warehouse' (set to prod). A status bar at the bottom shows keyboard shortcuts: F1=Help, F2=Go, ESC=End, *Next/Prev*, Ctrl-X/C/V=Cut-Copy-Paste.

The master list defines the source and destination warehouses for the work order pick. As you can see in Figure 13.4, a two-step sequence is created for the transaction:

- 1 Step 1 begins the pick in warehouse Prod.
- 2 If the inventory for the WO cannot be found in Prod, AIM goes to step 2 and picks the inventory from warehouse Raw. The Ultimate warehouse in step 2 tells AIM to make an inter-warehouse transfer from Raw to Prod after picking the inventory.

Next, you must set up the internal routings and algorithm assignments shown in the following table:

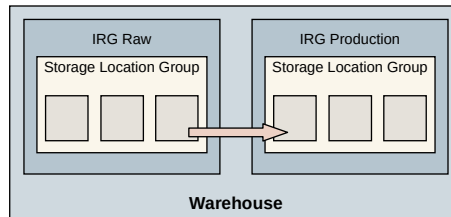
Picking in Prod	IR: No IR. Algorithm: PK for PICK-WO
Picking in Raw + Inter-Warehouse Transfer	1 — IR: PICK-WO Step 10: Bulk Step 20: Dispatch 2 — ER: ISRC-WO (No steps) 3 — IR: IWRC-WO Step 10: Receipt Step 20: Prod
Algorithm Assignments	PK for PICK-WO in Raw LF for PICK-WO in Raw LF for IWRC-WO in Prod PA for IWRC-WO in Prod

Because IRs are defined per warehouse, the IR in step 1 is defined in Raw, and the IR in step 3 is defined in Prod. The way that the transaction is created between each warehouse, from Dispatch in Raw to Receipt in Prod, cannot be described in any IR that relates to one warehouse only. Therefore, you must use an external routing to define the transaction properties for all movements that involve an inter-warehouse transfer.

Note The transaction type IWRC-WO (inter-warehouse receipt) is used to avoid confusion with RCT-WO. Furthermore, IWRC-WO designates an inter-warehouse receipt for the components of a WO, while RCT-PO is the receipt of the finished product after production.

Pick and Move Inventory Between 2 IRGs in Same Warehouse

This scenario covers the possibility of having the raw materials area and the production area in the same warehouse.

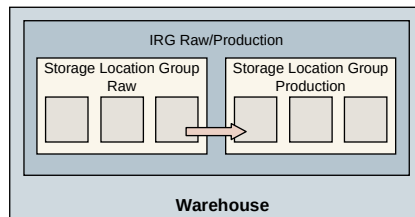


This would be a PICK-WO transaction with:

- An internal routing of two steps (Raw and Production)
- Algorithm assignments of PK, LF, and PA

Pick and Dispatch Within Same IRG

In this scenario, the warehouse has an IRG containing both raw materials and a production area.



The PICK-WO transaction would therefore, have no IR defined since no movement occurs between IRGs. Instead, you would only assign LF, PK, and PA algorithms to PICK-WO.

Repicking

For picking transactions with a detail allocation, you must repeat the picking process in case the pick fails. You do this using Internal Routing Maintenance (80.2.5). The Repick Type field enables you to specify the transaction type that is used for any resulting repicks. If you leave this field blank, the original transaction type is used.

The repick transaction type is important because it determines which internal routing is used for the repick.

Example You can choose whether repicks follow the same route as the original pick or go immediately to dispatch.

Repicking only works if the transaction type for the pick was PICK-*. This is the only way that AIM can identify that the type refers to a picking process.

If the transaction type for the pick is PICK-WO and you leave the Repick Type field blank, AIM uses the same transaction type PICK-WO to find the appropriate internal routing and picking algorithm for a repick. In other words, the repick works exactly the same way as the original pick.

Transfers

This chapter describes how AIM processes inventory transfers. The following transfer transactions are possible:

- Transfer by reference
- Transfer multiple items
- Transfer single item

Inventory transfers can take place:

- Inside one warehouse
- Between warehouses (inter-warehouse transfers)

The following sections provide a brief explanation of how AIM processes inventory transfers, as well as an example of an inter-warehouse transfer.

Processing Inventory Transfers **228**

Transfer Inside One Warehouse **228**

Inter-Warehouse Transfer **228**

Processing Inventory Transfers

Inventory transfers work within AIM in the same way as all other inventory movements. That is:

- You define internal routings for the transfer.
- You assign the internal routing to the transaction type, warehouse, item number, or address.
- You assign the appropriate algorithms to the transaction.

When you create an inventory transaction using AIM functions, the stock is moved according to the internal routing, and put away using the algorithm linked to the transaction type.

Transfer Inside One Warehouse

For transfers within a warehouse, the setup process is as follows:

- 1 Define an internal routing for transaction type PUT-TR, with one step set to BULK using Internal Routing Maintenance (80.2.5).
- 2 Assign the location-find and put-away algorithms to the transaction type PUT-TR using Algorithm Assignment Maintenance (80.6.9).

▶ See Chapter 12, “Receipts,” on page 205.

When you create a transaction for a stock transfer by reference, the movement would be exactly as for a receipt, except that there would be one movement within the Bulk storage location group.

Inter-Warehouse Transfer

An inter-warehouse transfer is processed by AIM using a sequence of internal routings, the same as other AIM transactions. The chief difference is that a movement between warehouses involves several transactions and the setup needs to reflect this.

Example A transfer of 100 EA from warehouse A (raw materials) to warehouse B (production) requires the following internal routings.

- 1 An issue transaction in warehouse A:
 - Transaction type: ISS-WH
 - Internal routing: ISS-WH

- Step 10: Bulk
 - Step 20: Dispatch
 - Algorithm Assignment: Location Find
- 2** An inter-warehouse receipt transaction in warehouse B:
- Transaction type: IWRC-WH
 - Internal routing: IWRC-WH
 - Step 10: Receipt
 - Step 20: Prod
 - Algorithm assignment: location-find and put-away
- 3** An inter-warehouse transfer transaction type:
- Transaction type ISRC-WH
 - Internal routing
 - Algorithm assignment

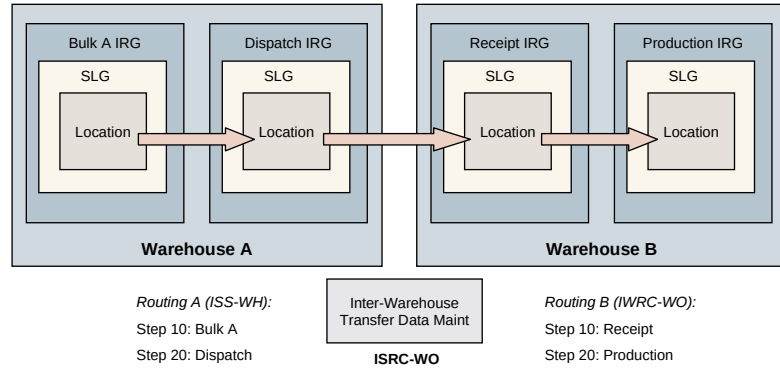
For sales order, work orders, and so on, you need to define a similar set of transaction types if the inventory movement involves an inter-warehouse transfer.

Example For a work order you would need to create:

- PICK-WO for warehouse A
- ISRC-WO
- IWRC-WO for warehouse B

Figure 14.1 summarizes the movement of 100 EA mentioned at the beginning of this section.

Fig. 14.1
Inter-Warehouse
Transfer Example



Replenishment

This chapter describes how AIM handles the replenishment process for a warehouse. The main topics covered are:

Defining Replenishment 232

Linking Replenishment Lists to Items 236

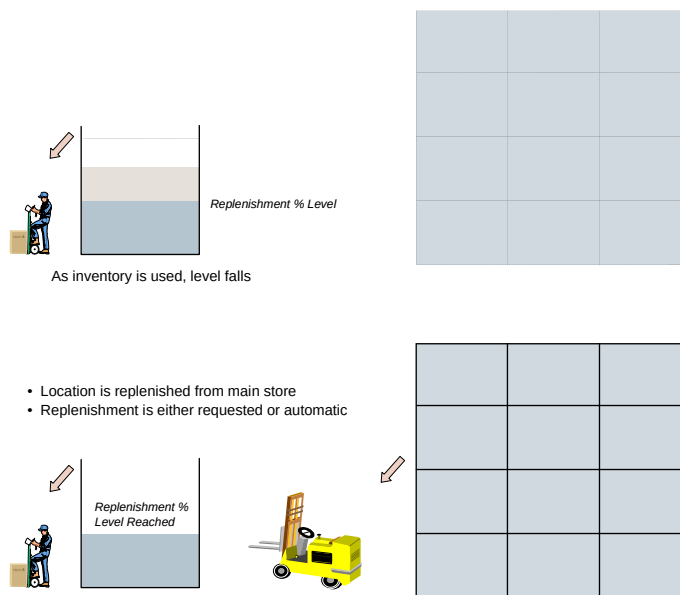
Replenishment Request 237

Defining Replenishment

AIM lets you define areas in the warehouse where the main picking activity occurs. In order for this area to be maintained at the optimum stock levels, the system uses a process called *replenishment*. The area in which stock is stored prior to picking is generally called the primary picking area. This area would typically contain the stock required for picking first and in quantities and locations that are easy to maintain.

You define the types of items and the quantities that can be stored in the replenishment, or primary picking, locations. Picking functions look in these locations first before searching the rest of the warehouse.

Fig. 15.1
Diagram of
Replenishment



Using the put-away algorithms and storage techniques, you can divide the stock into areas each consisting of common units of storage.

Example You can have an area holding pallets, one holding cartons, and one holding piece quantities. The carton locations are stocked from split pallets, and the piece locations from the carton area. This is performed by the replenishment functionality. Using this process optimizes the picking process and creates areas of the warehouse where fork-lift trucks can operate, and areas where people can walk and gather stock.

Note You can still mix pallets and pieces in the same location, if you want to.

AIM enables you to define:

- Replenishment for a given item and a given location.
- Replenishment for a given item in a storage location group. This means that a put-away is performed in the storage location group in order to place the items at the best suitable location inside this storage location group.
- Replenishment lists. A series of storage location groups in which the system looks for the item to replenish. Sequences allow looking in some storage location groups first and then others by order corresponding to the sequence.

You define a list using Replenishment List Maintenance (80.16.1), shown in Figure 15.2.

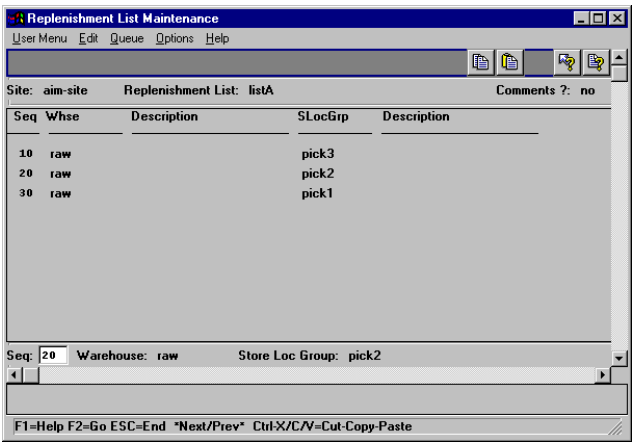
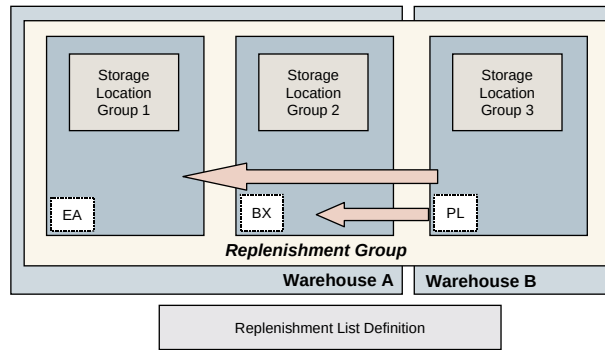


Fig. 15.2
Replenishment List
Maintenance
(80.16.5)

The following pages show examples of replenishment lists that you can set up in the maintenance frame.

Fig. 15.3
First Sample
Replenishment List



Replenishment list definition:

Warehouse	Storage Location Group	Sequence
Warehouse A	Group 2	20
Warehouse B	Group 3	30

See “Picking Multiple UM” on page 89.

This means that whenever storage location group 1 must be replenished, the system first looks in storage location group 3. If the item is available, it is replenished according to the picking definition associated with the storage location group.

If the item is not available in this storage location group, then the system looks in storage location group 2, which can be in another warehouse, as shown in Figure 15.3.

If storage location group 2 must be replenished from storage location 3, you would define the replenishment list as shown in the following table:

Warehouse	Storage Location Group	Sequence
Warehouse B	Group 3	20

The second replenishment list example is shown in Figure 15.4.

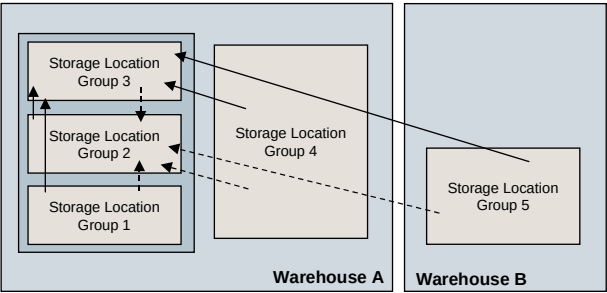


Fig. 15.4
Second Sample
Replenishment List

In this second example, storage location group 1 is replenished from storage location groups 2, 3, 4, and 5. Storage location group 2 can be replenished from storage location groups 1,3,4,5, and so on. To match this example, and define the replenishment for storage location group 1, you would have to define the following replenishment list:

Warehouse	Storage Location Group	Sequence
Warehouse A	Group 2	20
Warehouse A	Group 3	30
Warehouse A	Group 4	40
Warehouse B	Group 5	50

At the item/storage location group level, you must define the replenishment list to use in order to replenish the item from storage location group 1.

For storage location group 2, you would define the following replenishment list, attached in the item/storage location group record in the Replenishment List field.

Replenishment list definition:

Warehouse	Storage Location Group	Sequence
Warehouse A	Group 1	20
Warehouse A	Group 3	30
Warehouse A	Group 4	40
Warehouse B	Group 5	50

Linking Replenishment Lists to Items

When you have created a replenishment list, you must link it to the location/item or storage location group/item using either:

- Replenishment-Location Maintenance (80.16.13)
- Replenishment-SLG Maintenance (80.16.17)

In each of these functions, you can enter the information listed in Table 15.1.

Table 15.1
Replenishment List
Fields

Field	Meaning
Site	The site in which the location/SLG resides. You must complete this field.
Location/Storage Group Location	The name of the location or SLG. If you leave this field blank, the replenishment list is applied to all locations or SLGs at the site.
Item Number	The item to replenish.
Replenishment Type	A set of replenishment fields that you can apply to one or more items.
Start Date	If you want the location to be replenished on a specific date, enter the start date. Otherwise, leave the field blank.
End Date	If you want the location to be replenished by a specific date, enter the end date. Otherwise, leave the field blank.
Replenishment UM	The conversion factor between the UM for the location and the UM for the item. For example, you could have 1 PL = 100 EA, and you could define the Maximum Quantity = 2 PL. This would mean that the maximum quantity for the base UM of an item would be 200 EA.
Replenishment Point	Enter the quantity of stock at which the location should be replenished. See the next section for an explanation of the replenishment point.
Maximum Quantity	The maximum quantity by which the location can be replenished. Leave this field blank to allow any quantity.
Replenishment list	Enter the name of the replenishment list to link to this location.

Replenishment Request

When you have created a replenishment list and linked it to a location or storage location group, you can start a Replenishment Request (80.16.5).

Fig. 15.5
Replenishment
Request (80.16.5)

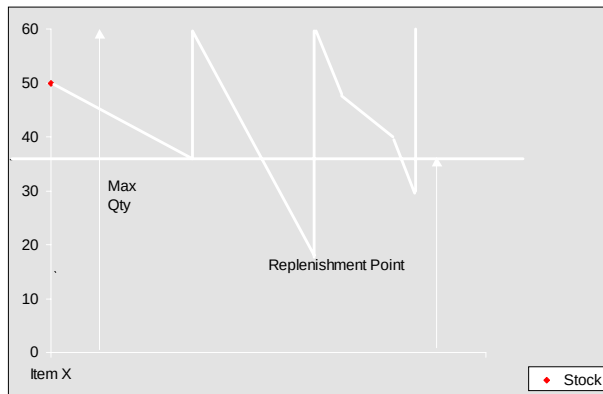
This frame enables you to:

- Run a simulation of the replenishment. By default, the Create Transactions field is set to No. You can then run a report to look at all the replenishments to be done, simulate a picking, and generate a list of all potential transactions, without actually creating the transactions. You can run this report several times using different percentages each time, until you select a quantity of work that can be handled by the current staffing levels.
- When you are satisfied that the replenishment report contains a manageable workload, change the Create Transactions field to Yes, and then run the report again.

The field Include Area Below Replenishment Point enables you to adjust the value of the replenishment point defined in Replenishment-Location Maintenance or Replenishment-SLG Maintenance.

Figure 15.6 explains the principle of replenishment for a location.

Fig. 15.6
Location
Replenishment



When the inventory for a given item in a given location stays above the replenishment points, running the replenishment has no effect. When an inventory movement makes the inventory in that location drop below the replenishment point, running the replenishment request with Create Transactions set to No tries to find available stock for the replenishment. The Include Area Below Replenishment Point field enables you to change the value of the replenishment point. This is a way to have fewer transactions to carry out if the load is too high.

Example Suppose the warehouse had an item A with the following details:

- Replenishment details:
 - Item A
 - Maximum quantity 100
 - Replenishment point 50
- Location details:
 - On-hand quantity 20

Therefore, if the stock is below the replenishment point—20 being less than 50—replenishment can take place.

If you change the value of the Include Area Below Replenishment Point field to 20%, the new replenishment point is:

$$20 / 100 * 50 = 10$$

This time, the on-hand quantity is greater than the replenishment point, so replenishment does not take place.

Bulk Picking

AIM provides the ability to group together several different works, sales or distribution orders containing the same item, and then to pick a bulk amount of stock, regardless of order. This process is called *bulk picking*.

This chapter describes how bulk picking works in AIM. The major sections cover these topics:

<i>About Bulk Picking</i>	242
<i>Processing Bulk Picks</i>	243
<i>Bulk Picking: Key Concepts</i>	244
<i>Setting Up the Bulk Pick Control File</i>	245
<i>Selecting Order Lines for a Bulk Pick</i>	248
<i>Approving Orders Ready for Picking</i>	251
<i>Bulk Pick Maintenance</i>	252
<i>More About the Pre-Shipper Function</i>	252

About Bulk Picking

In a warehouse, it is inefficient if staff have to visit the same area more than once in a short period of time. Picking stock needs to be managed so that this happens as little as possible. The orders that can be collected to form a bulk pick are sales, distribution, and works orders.

When orders are created, AIM can optionally group them together into *routes*. You can request orders by route, so that all orders for a particular delivery area can be picked together. When creating sales orders, the route can be defined by customer and the ship-to address. For distribution orders the route can be defined by customer and the ship-to site address. Works orders can be grouped together in a similar way.

These bulk picks accumulate the items together, and, using the defined picking rules, issue the instructions to the staff to pick the stock. Efficiency is improved by grouping the orders, since the detail allocations are examined and, if necessary, the allocations rationalized. There is no direct link between orders in a bulk pick, other than the fact that they have items in common and can thus be grouped together.

By using replenishment and viewing the planned bulk pick, the stock position can be viewed and stock moved so that the bulk pick is performed as efficiently as possible.

Orders that need packing are grouped by issuing instructions to the warehouse staff to group the orders prior to shipment. This allows pallets to be made up.

Sales orders for the same ship-to address or distribution orders for the same ship-to site address can be grouped, forming one consolidated pack list. This can then be used to decide the packing of the order.

By setting control fields, you can choose whether the bulk pick is either shipped or issued as part of the bulk pick process, or issued as individual orders using the standard MFG/PRO works order component issues and sales or distribution order shipment routines.

Bulk picking supports both two-phase and single-phase methods. At each step, the quantity picked, location, lot/serial, and reference can be modified by overwriting what is on the frame.

Bulk picking supports configured products for type KIT, but not for type ATO (Assembled to Order).

Bulk picking does not support Enterprise Material Transfer (EMT) order processing.

Processing Bulk Picks

The basic processing flow of bulk picking is as follows.

- 1 Select order lines for bulk picking. This involves changing the picking status from blank to S (for selected). Selected order lines are automatically general allocated. Selecting work order components results in the selected work order being upgraded to a status of A (Allocated).
- 2 Approve selected order lines. Do this at the time of selection or later. Once approved, detail allocations, bulk pick details, and warehouse transactions are created. When you approve selected work order components, you can upgrade the approved work order's status to R (Released).
- 3 Detail allocations created by bulk picking can be manipulated in the normal way.
- 4 Confirm warehouse transactions created by bulk picking as for any other transactions, except that the system does not let you repick.
- 5 When a warehouse transaction for a bulk pick is confirmed, the inventory is picked and moved according to the internal routing detail associated with the items. When no more bulk pick details are open, the bulk picking order is closed.

The system picks inventory in the same way it picks single items—the items in the detail allocations are picked and dispatched according to the associated internal routing.

► For details, see Chapter 13, “Issues,” on page 217.

Bulk Picking: Key Concepts

A major key to understanding how bulk picking works is the relationship between a bulk pick number, bulk pick details, temporary sequence IDs during order line selection, load IDs, and pre-shipper IDs.

Bulk Pick Details

Bulk pick details should simply be seen as a link between a warehouse transaction and one or more detail allocations. Bulk pick details are generated when you approve the order selection.

Load ID

All order lines with the same load ID are combined, if possible, in the same warehouse transaction. The load ID is automatically generated when you select the order line for inclusion in a bulk pick. Multiple bulk pick details can still result from a single load ID.

If different item numbers are grouped within one load ID, they generate separate warehouse pick transactions. The way transactions are created for multiple order lines for the same item number that are grouped within one load ID depends on the issue method:

- **DISCRETE:** Generates a separate transaction for each order line.
- **ADDRESS:** Generates a separate transaction per ship-to address.
- **ROUTE:** Generates a separate transaction per route code.
- **BULK:** Generates a single transaction for the entire load ID. This assumes that the entire requirement can be satisfied from a single location. If it cannot, then the requirement is satisfied according to the picking algorithms and rules.
- **ORDTYPE:** Generates a separate transaction per order type, grouping all the sales orders, work orders, and distribution orders together.

Temporary Sequence ID

When you select order lines, rather than generating all load IDs at the start, order lines are grouped by temporary sequence ID. This lets you group order lines together without having to assign them load IDs. When you accept the selections and groupings, the load IDs are generated, assigning one per temporary sequence ID.

Pre-Shipper ID

Pre-shipper IDs are not generated until you approve the order. One pre-shipper ID is assigned per load ID/site/order type/ship-to address combination. The pre-shipper IDs that are then associated with each order line are only effective and switched over to shipper IDs when the transfer of picked inventory reaches a step in an internal routing with the Create Shippers field set to Yes.

A single bulk pick number is generated to contain all bulk pick details resulting from a single approval.

Setting Up the Bulk Pick Control File

Use the Bulk Pick Control File (80.12.24) to set default values for the other bulk pick programs.

The screenshot shows a window titled "Bulk Pick Control File" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains two columns of settings, each with a label and a value field. The settings are as follows:

Setting	Value
Create Bulk Picking Orders ?	yes
Bulk Pick History ?	yes
Automatically Reselect BPs ?	no
Bulk Pick NR ID:	bulkID
Load NR ID:	LoadID
Select All ?	no
Auto Approve ?	yes
Select By:	0
Select by Priority ?	yes
Min Status for WD Selection:	F
Pre-Shippers ?	yes
Print Pre-Ship List ?	yes
Bulk Pick Sheets ?	yes
Release Work Orders ?	yes
Ship Weight UM:	
Net Weight UM:	
Volume UM:	
Quantity UM:	ea
Auto All Sales Orders ?	no
Allocate Components ?	yes
Override Partial OK ?	no

At the bottom, it shows "Created: 15/02/99" and "Modified: 04/05/99".

Fig. 16.1
Bulk Pick Control
File (80.12.24)

Complete the fields as follows:

Create Bulk Picking Orders. If set to Yes, (the default) bulk picking orders are created automatically in the Bulk Pick Selection and Approval programs.

Bulk Pick History. Defines whether history is kept of all bulk pick details processed.

Automatically Re-Select BPs. If set to Yes, whenever an order line has been approved but not picked, the order line is automatically reselected (pick status set to S) for future bulk pick approval.

Bulk Pick NR ID. Identify the NRM sequence ID to use for creating bulk picking order numbers. If not correctly defined, it is not possible to create bulk picking orders.

Load NR ID. Identify the NRM sequence ID to use for defining load IDs. If not correctly defined, it is not possible to automatically assign load IDs.

Select All. If set to Yes, the automatically calculated load ID assignments are used for selection. If set to No, a window is displayed in the Selection and Approval frames enabling you to include and exclude selected order lines, and to manipulate which order line is assigned to each load ID.

Auto Approve. If set to Yes, the selected order lines are automatically approved.

Select By. You can set this to A (Address), O (Order), P (Part), or R (Route).

Select by Priority. If set to Yes, order lines are selected within the address, order, part, or route selection by priority, and then by due date. If set to No, the subselection is by due date and the priority.

Min Status for WO Selection. This field enables you to enter the minimum status needed for work orders selection.

You can set this to A (Allocated), B (Batch), E (Exploded), F (Firm), P (Planned), or R (Released).

Pre-Shippers. If set to Yes (the default), a pre-shipper ID is automatically generated and assigned to each line in the Selection and Approval frames.

Print Pre-Ship List. If set to Yes (the default), the pre-ship list is automatically printed in the Selection and Approval frames.

Bulk Pick-Sheets. If set to Yes (the default), bulk pick sheets are automatically created in the Selection and Approval frames.

Release Work Orders. If set to Yes (the default), work orders are automatically released for the bulk pick.

Ship Weight UM. Enter the default UM for the shipping weight of bulk pick orders.

Net Weight UM. Enter the default UM for the net weight of bulk pick orders.

Volume UM. Enter the default UM for the volume of bulk pick orders.

Quantity UM. Enter the default UM for the quantity of bulk pick orders.

Auto All Sales Orders. If set to Yes, this performs general allocations for sales order lines that are not yet generally allocated at the time the bulk picking process is run. Allocations depend on the settings in the Sales Order Control File (7.1.24).

Selecting Order Lines for a Bulk Pick

To select order lines for a bulk pick:

1 Select Bulk Pick Order Line Selection (80.12.1):

The screenshot shows the 'Bulk Pick Order Line Selection' window with the following fields and values:

- Site: aim-site
- Active Load ID:
- Warehouse: raw
- Bulk Pick-Sheets?: yes
- Incl. Sales Orders?: yes
- Incl. Work Order Issues?: yes
- Incl. Distribution Orders?: yes
- Release Work Orders?: yes
- Pre-Shippers?: yes
- Auto Approve?: yes
- Print Pre-Ship List?: yes
- Select All?: no
- Target Ship Weight: 0,00
- Select By: 0 Order
- Target Net Weight: 0,00
- Select by Priority?: yes
- Target Volume: 0,00
- Create Bulk Picking Orders?: yes
- Target Quantity: 1.000,0 ea
- Load ID:
- To:
- Route:
- To: zzzzzzzz
- Item Number:
- To:
- Whse Item Type:
- To:
- Order:
- To:
- Due Date: / /
- To: / /
- Output:
- Batch ID:

The screenshot shows the 'Bulk Pick Order Line Selection' window with a context menu open over the 'Auto' field. The menu options are:

- Auto All Sales Orders?: no
- Allocate Components?: yes
- Override Partial OK?: no

The other fields and values in the window are the same as in the first screenshot.

2 Select the site and warehouse.

3 Most of the fields are set to default values, determined by the Bulk Pick Control File. You can change these defaults as needed; for example, you could choose to exclude certain kinds of orders.

- If the Auto Approve field is set to No, you must run Bulk Pick Selection Approval (80.12.12) in order to perform the picking.
 - If the Select All field is set to No, a window is displayed in which you can manually assign order lines to load IDs.
 - The field Select By lets you display the selected order lines by address (A), order (O), part (P) or route (R).
 - If the field Create Bulk Picking Orders is No, standard picking is performed with each created detail allocation resulting in a separate warehouse transaction. If set to Yes, the default, a bulk picking order is created that lets you regroup detail pickings on the same warehouse transaction at a later time. This is possible only if a valid NRM sequence ID is defined in the Bulk Pick Control File.
 - If the Bulk Pick-Sheets field is set to Yes, then the Bulk Pick Sheets Report is printed.
 - If the Auto All Sales Orders field is set to Yes, the system performs general allocation for sales order lines that are not yet general allocated at the time bulk picking process is run.
 - If the Release Work Orders field is set to Yes, approved work orders are released (status set to R).
 - If the Pre-Shippers field is set to Yes, the system automatically generates and assigns pre-shipper IDs to each selected sales and distribution order line.
 - If the Print Pre-Ship List field is set to Yes, the Pre-Shipper List Report is printed when you exit the program.
 - If you enter the target weight, volume, and quantity for the bulk pick, then a new load ID is automatically created after the target weight is reached.
- 4 The fields at the bottom of the frame let you specify the range of lines from the orders that should be included in the bulk pick:

Load ID. If you leave this field blank, AIM generates a load ID automatically. If you enter a value, any order lines that already have this load ID are selected. This is the case when reselecting orders lines already partially picked.

Route. Enter the route if you want to include orders only from specific routes.

Item Number. Enter an item number if you want to include only order lines containing this item in the bulk pick. Otherwise, leave this field blank.

Warehouse Item Type. Enter a warehouse item type if you want to include only order lines containing this group of items in the bulk pick. Otherwise, leave this field blank.

Order. Enter an order number if you want to include lines only from specific orders.

Due Date. Enter the date on which the bulk pick should be carried out.

- 5 In the Output field, select whether you want to save, display, or print the bulk pick details.

To deselect an order from a bulk pick, use Bulk Pick Order Deselection (80.12.22). This program is only for deselection and can only be used before approving the bulk pick selection.

Approving Orders Ready for Picking

Bulk Pick Selection Approval lets you approve a set of order lines that you have previously selected for a bulk pick, and to create bulk pick transactions for them. To do this:

- 1 Select Bulk Pick Selection Approval (80.12.12):

- 2 Enter the site and warehouse.
- 3 The load ID, route, item number, item type, order number, and due date fields enable you to enter previously selected order lines for approval.
- 4 Complete the fields at the bottom of the frame as follows:

Create Bulk Picking Orders. If set to No, standard picking is performed with each created detail allocation resulting in a separate warehouse transaction. If set to Yes (the default), a bulk picking order is created letting you regroup detail pickings for the same warehouse transaction. This is only possible if a valid NRM sequence ID is defined in Bulk Pick Control File.

Bulk Pick Sheets. If set to Yes, Bulk Pick Sheets Report is printed.

Pre-Shippers. If set to Yes, pre-shipper IDs are generated and assigned to each sales and distribution order line.

Print Pre-Ship List. If set to Yes, the Pre-Shipper List Report is printed after you exit the program.

- 5 Once you have selected the output method, AIM creates the pick transactions for the order lines, and prints the pick sheets.

Bulk Pick Maintenance

Bulk Pick Maintenance enables you to modify details of a previously saved bulk pick order. To do this:

- 1 Select Bulk Pick Maintenance (80.12.13).

- 2 Enter the order number for the bulk pick, then press Go.
As needed, you can delete the entire bulk pick by pressing Delete in the first Remarks field. If detail allocations exist for the bulk pick, a message is displayed asking whether you want to remove them.
- 3 Alternatively, select a line from the bulk pick. You can then change the details of the line, or delete the line by pressing Delete in the second Remarks field. Again, if detail allocations exist for the bulk pick, a message is displayed asking whether you want to remove them.

More About the Pre-Shipper Function

In Bulk Pick Order Line Selection, if the Print Pre-Shipper List field is set to Yes, a pre-shipper document is generated when you save the information you enter in the selection frame.

You can reprint this document in Bulk Pick Pre-Shipper Print (80.12.4) for a certain pre-shipper, helping you with the packing of all the confirmed item. By adding the number of pallets and boxes, you automatically get the total ship weight for your pre-shipper.

Bulk Pick Labels Print From Pre-Shipper (80.12.16) and Bulk Pick Shipping Label Print (80.12.17) let you print labels.

With Bulk Pick Shipping Forecast Report (80.12.5), you print the document that is sent to the carrier, who prepares the trucks.

Once you approve the bulk pick, AIM generates transactions. When you confirm the transactions. If the Create Shipper field is Yes in the Miscellaneous frame of Internal Routing Maintenance and the pre-shipper has already been generated, the confirmation of the transactions includes the confirmed items on a shipper.

▶ See “Create Shipper” on page 74.

You can print the shipper from Pre-Shipper/Shipper Print (7.9.4). You can obtain the shipper number and pre-shipper number to use from Sales Order Maintenance (80.14.3) or Order Detail Report (80.14.10). Bulk Pick Pre-Ship/Ship Inquiry (80.12.3) also helps you retrieve all the information you need to undertake the pre-shipper process.

You can then issue the goods using standard Pre-Shipper/Shipper Confirm (7.9.5).

This means that the following occurs:

- 1 When you create the bulk pick, the system creates a pre-shipper to send to the carrier.
- 2 All items are brought to the dispatch area.
- 3 Confirming the transactions includes the items on the shipper.
- 4 When all items are in the dispatch area, you can print a shipper.
- 5 The shipper document is used to organize the items according to customers, trucks, and so on.
- 6 You must then issue the goods from the system using Pre-Shipper/Shipper Confirm (7.9.5).

Location Forecasts

This chapter shows you how to use the Receipt Forecast options to reserve locations in advance for the receipt of inventory. The chapter contains the following sections:

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Generate Receipt Forecasts **256**

Internal Routings, Algorithms, and Transaction Types **257**

Receipt Forecast Maintenance **258**

Physical Receipt **259**

About Location Forecasts

Some warehousing situations require that locations are prepared for a specific receipt before the inventory is actually received. Such locations need to be reserved ahead of time to prevent their use for any other purpose. In other situations, running the put-away algorithms at the moment of receipt may not provide optimum system performance; for example, if receipts tend to occur during the day time when the system usage is highest.

If details of receipts are known in advance, locations can be identified and reserved ahead of time during periods when system use is low, such as at night. When the physical receipt is subsequently made, the locations to be used for storage are pre-identified, and the put-away processing is quicker and more efficient.

AIM provides facilities for running this kind of planned put-away using Generate Receipt Forecasts (80.10.1) and Receipt Forecast Maintenance (80.10.2). Special put-away algorithms are provided to search specifically for the reserved locations.

Generate Receipt Forecasts

Use Generate Receipt Forecasts (80.10.1) to create new location forecasts.

Fig. 17.1
Generate Receipt
Forecasts (80.10.1)

Select the order and due date range for which forecasts are generated. The default values for which types of orders to include and the number of days ahead for which orders due are considered and defined in the Location Forecast Control File (80.10.24). Forecasts are generated in locations identified by the defined internal routing and algorithm assignments.

Internal Routings, Algorithms, and Transaction Types

In order to determine which internal routings should be used to identify the receipt paths that enable location forecasts to be generated, a set of specific transaction types are provided. These are:

- FOR-PO for the receipt of purchase orders
- FOR-WO for the receipt of work orders
- FOR-DO for the receipt of distribution orders

This means that, though actual receipts can take many different routes, forecasts can be rationalized to only function on some or all of them. This is best explained using an example.

Two internal routings are defined:

- RECEIVE moves stock from the receipts area and puts the stock directly away.
- INSPECT moves stock from the receipts area to an inspection area before the stock is put-away.

Purchase order receipts (transaction type RCT-PO) for some item types are assigned to use the INSPECT routing, while the remainder use the RECEIVE routing.

However, locations need only be reserved in the main storage area. Therefore, all purchase order receipt forecasts (transaction type FOR-PO) are assigned to use the RECEIVE routing.

Note It should rarely be required to create a specific internal routing for receipt forecasts, only a specific internal routing assignment. Only two-step internal routings fully support location forecasts. In the previous example, where inventory is moved from receipts to inspection and then

on to stores, if location forecasts are assigned to this routing, the forecasts are only created in the Inspection area. Unfortunately, if this is what is required, no location-find algorithms can identify and consume the forecast.

Similar to the assignment of internal routings, the algorithms to be used to identify the locations for forecasting must be assigned using the FOR transaction types. While the system lets any algorithms be used for the FOR transaction types, any algorithm that does more than just identify a location fails when used to generate a forecast.

Example If an algorithm to consume location forecasts is assigned to be run when location forecasts are generated, the algorithm runs but does not do any processing or return any locations.

Receipt Forecast Maintenance

Receipt Forecast Maintenance (80.10.2) enables you to modify or delete previously generated forecasts, or to create new forecasts manually.

- 1 Select Receipt Forecast Maintenance (80.10.2).

- 2 In the fields in the top half of the frame, select the range of forecasts to modify. You can delete all selected forecasts by entering Yes in the Delete Selected Forecasts field.
- 3 A scrolling window is displayed. To create a new forecast, press Go when the scrolling window displays. Alternatively, highlight any specific record to modify it and press Enter.
- 4 The details of the record are displayed in the lower frame where you can make your changes.

To delete a forecast, enter a forecast quantity of zero.

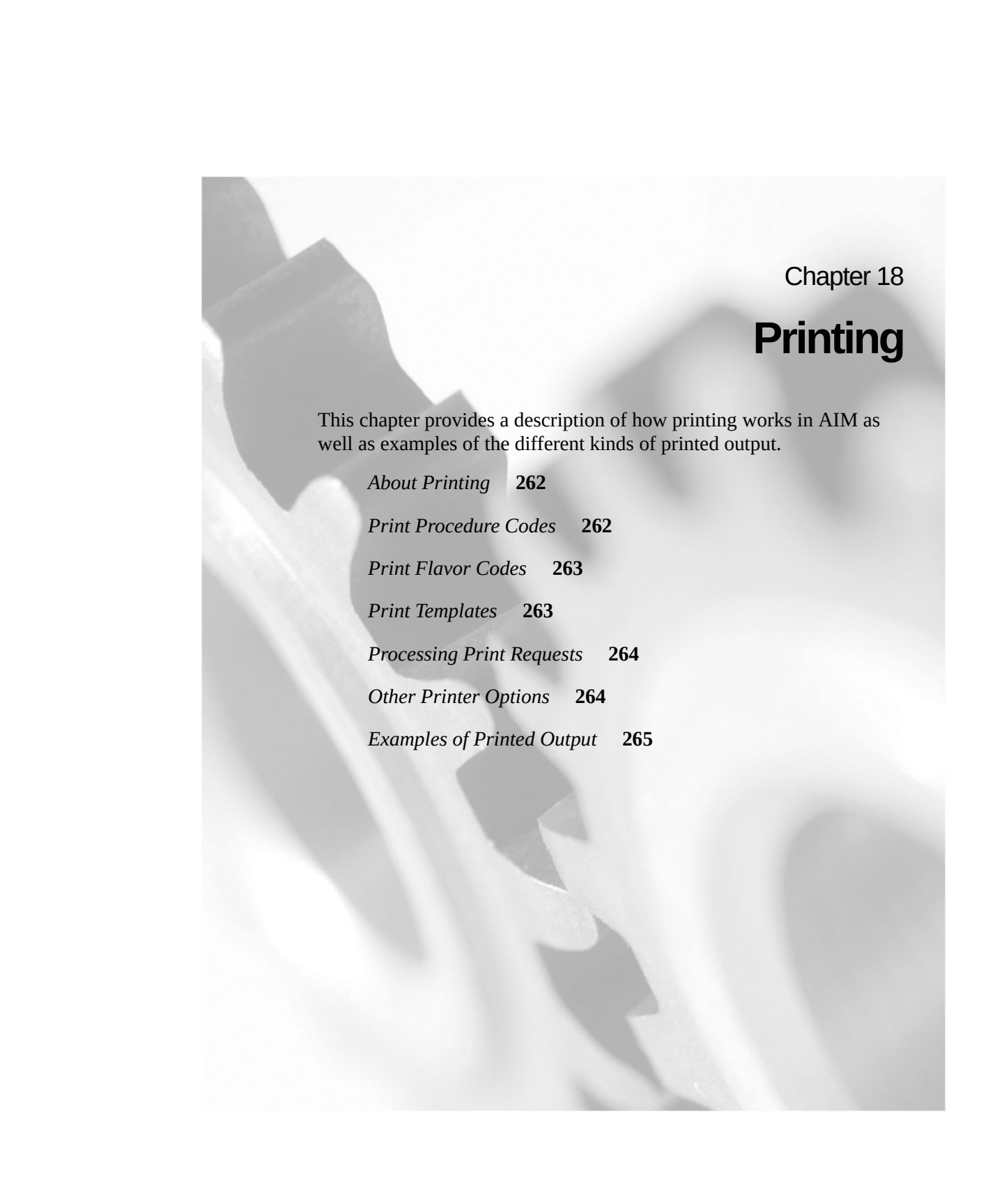
- 5 To return to the scrolling window, press End. You can then repeat steps 3 and 4.
- 6 To return to the initial selection frame, press End in the scrolling window.

The Location Forecast menu options also contain standard reports and inquiries that let you review existing receipt forecasts.

Physical Receipt

Location forecasts are created for an order line before that order line is physically received. If a location forecast is created, it must be used at the moment of the receipt to identify the locations to use. This is achieved by using put-away algorithms 111 through 124. These algorithms are described in Chapter 8.

▶ See Table 8.3, “Put-Away Algorithms,” on page 157.

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that they appear to be meshing together. The lighting creates highlights and shadows on the teeth of the gears, giving them a three-dimensional appearance. The overall tone is technical and mechanical.

Chapter 18

Printing

This chapter provides a description of how printing works in AIM as well as examples of the different kinds of printed output.

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<i>Print Flavor Codes</i>	263
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About Printing

AIM enables you to control the printing of tags, pallet labels, or exception tags from various menus within the system, with a flexible choice of format for the output.

You have the choice of printing at the following times:

- When creating transactions
- When confirming transactions
- When transactions do not complete successfully (exceptions)
- Identification of inventory coming into the warehouse

Some or all of these four fields can be set for:

- All warehouses (80.1.24)
- A specific warehouse (80.1.1)
- A work location group (80.3.9)
- An item (80.4.11)
- An individual step in an internal routing (80.2.5)
- A transaction type (80.7.6)

Note Inter-warehouse or inter-work location group transfers that are not associated with an internal routing take their control from the warehouse or work location group controlling the transaction.

For full details of how to complete the printer fields in these maintenance frames, refer to the online help. The following sections explain the most important fields.

Print Procedure Codes

Print procedure codes are defined per transaction type. The following codes are supported:

- PK (Picking)
- RC (Receipt)
- TF (Transfer)
- SH (Shortage)

Print Flavor Codes

These codes determine the format of the printed output. Two flavors are supported:

- A. Use the default print formats.
- B. Use a print template. AIM enables you to create your own templates from ASCII files. For more information, refer to the next section.

Print Templates

Templates are flat ASCII files that contain the layout of required printed output. Use Print Template Load (80.20.1) to load the template into MFG/PRO.

A template can contain the following elements:

- All the escape and control sequences required by specific printer types for specific functions such as bar coding, line drawing, font selection, and character position.
- Literal text that should appear as output such as field labels, headings, and banner messages.
- Token labels that are replaced by actual data when output is generated.

Token labels supported are:

- All base transaction fields. For transaction creation, all transaction detail fields are available.
- Associated fields. These are fields that are not on the base transaction but are related to it, such as item description or storage location group description.
- User-definable fields, values determined in a local exit routine.

Processing Print Requests

The Print Mode field determines how printed output is processed by AIM:

- **MANUAL** results in print requests being queued up until you run Print Request Maintenance (80.20.5). You can run this online or in a batch; for example, once every hour.
- **AUTO** means that as soon as the print request is made, output is printed.
- **AUTOSIG** creates print requests, queues them, then prints as soon as the last AUTOSIG request is received. This is particularly useful if, for example, a function results in multiple transactions being created that must be printed on tags three across each page.

Other Printer Options

The following options are also available on the Printer menu:

- **Print Template Inquiry (80.20.2)**. Select from a list of existing templates.
- **Print Template Report (80.20.3)**. Print details of selected templates.
- **User Printer Maintenance (80.20.7)**. Change the printer defined for you in a work location group. You can only change your own printer assignment, not that of another user.

Examples of Printed Output

Transaction Create, Flavor A, Print Procedure Code TF

Warehouse Task – 123

Site: 1000

Warehouse: RAW

Storage Location Group: STORES

Work Location Group: UPPER

From Location: ST0101 To: ST0305

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Create By: Jon Miller

At: 06/19/98 13:00:22

Transaction Confirm, Flavor A, Print Procedure Code TF

Confirmed Task – 123-1

Site: 1000

Warehouse: RAW

Storage Location Group: STORES

Work Location Group: UPPER

From Location: ST0101 To: ST0305

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Confirmed By: Jon Miller

At: 06/19/98 13:14:30

Transaction Create, Flavor A, Print Procedure Code PK

Warehouse Task – 123

Site: 1000

Warehouse: RAW

From Storage Location Group: STORES To: DISPATCH

From Work Location Group: UPPER To: DISPATCH

From Location: ST0101 To: SHIP01

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Issuing Order: (S0) S04444/3

Created By: Jon Miller

At: 06/22/98 09:58:00

Transaction Confirm, Flavor A, Print Procedure Code PK

Confirmed Task – 123-1

Site: 1000

Warehouse: RAW

From Storage Location Group: STORES To: DISPATCH

From Work Location Group: UPPER To: DISPATCH

From Location: ST0101 To: SHIP01

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Issuing Order: (S0) S04444/3

Confirmed By: Jon Miller

At: 06/22/98 10:03:00

Transaction Create, Flavor A, Print Procedure Code RC

Warehouse Task – 123

Site: 1000

Warehouse: RAW

From Storage Location Group: GOODS-IN To: STORES

From Work Location Group: GOODS-IN To: UPPER

From Location: RC01 To: ST0101

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Receipt Order: (P0) 59326/3

Created By: Jon Miller

At: 06/22/98 09:33:00

Transaction Confirm, Flavor A, Print Procedure Code RC

Confirmed Task – 123-1

Site: 1000

Warehouse: RAW

From Storage Location Group: GOODS-IN To: STORES

From Work Location Group: GOODS-IN To: UPPER

From Location: RC01 To: ST0101

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Receipt Order: (P0) 59326/3

Confirmed By: Jon Miller

At: 06/22/98 09:47:00

Transaction Create, Flavor A, Print Procedure Code SH

Warehouse Task – 123

Site: 1000

Warehouse: RAW

From Storage Location Group: GOODS-IN To: DISPATCH

From Work Location Group: GOODS-IN To: DISPATCH

From Location: RC01 To: SHIP01

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Receipt Order: (P0) 54293/1

Issuing Order: (S0) S04444/3

Created By: Jon Miller

At: 06/22/98 09:58:00

Transaction Confirm, Flavor A, Print Procedure Code SH

Confirmed Task – 123-1

Site: 1000

Warehouse: RAW

From Storage Location Group: GOODS-IN To: DISPATCH

From Work Location Group: GOODS-IN To: DISPATCH

From Location: RC01 To: SHIP01

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Alternate UM: PL

Quantity: 10.0 EA

Receipt Order: (P0) 54293/1

Issuing Order: (S0) S04444/3

Confirmed By: Jon Miller

At: 06/22/98 10:06:00

Identification, Flavor A, Print Procedure Code TF

Identification - 123

Site: 1000

Warehouse: RAW

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Quantity: 10.0 EA

Alternate UM: PL

Manufactured: 06/12/98

Expires: 06/12/99

Identification, Flavor A, Print Procedure Code PK

Identification - 123

Site: 1000

Warehouse: RAW

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Quantity: 10.0 EA

Alternate UM: PL

Manufactured: 06/12/98

Expires: 06/12/99

Destination: PICK-S0 - S01234 5

CUST001

JOE BLOW DISTRIBUTORS

Identification, Flavor A, Print Procedure Code RC

Identification - 123

Site: 1000

Warehouse: RAW

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Quantity: 10.0 EA

Alternate UM: PL

Manufactured: 06/12/98

Expires: 06/12/99

Source: RCT-P0 - P01234 5

VEND001

JOE SOAP'S SUPPLIES

Identification, Flavor A, Print Procedure Code SH

Identification - 123

Site: 1000

Warehouse: RAW

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Quantity: 10.0 EA

Alternate UM: PL

Manufactured: 06/12/98

Expires: 06/12/99

Destination: PICK-S0 - S01234 5

CUST001

JOE BLOW DISTRIBUTORS

Exception, Flavor A

NO STOCK PUT-AWAY

Site: 1000

Warehouse: RAW

Storage Location Group: GOODS-IN

Work Location Group: BAY01

Location: BAY01S01

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Total O/S Quantity: 100 EA

Alternate UM: PL

Expires: 06/12/99

Inventory Status: UNAVAIL

Reference, Flavor A

Identification

Site: 1000

Warehouse: RAW

Item Number: 10-1001

Lot/Serial:

Reference: R9810023

Quantity: 10.0 EA

Alternate UM: PL

Simple Template

~BANNER~

Transaction Number: ~TRNBR~ (~TYPE~)

Site: ~SITE~ ~SITEDS~

Location: ~LOC~ ~LOCDS~

Item Number: ~PART~ ~PARTDS~

Lot/Serial: ~SERIAL~

Reference: ~REF~

Quantity: ~QTY_CHG~ ~UM~

Simple Template Result

Identification

Transaction Number: 123 (RCT-P0)

Site: JONSITE Jon Miller's Site

Location: RC01 Receipt's Dock 1

Item Number: 100101 Box of Things

Lot/Serial:

Reference:

Quantity: 10 EA

JetForm Template

```

^COMMENT ^JOB id01.mdf -z/usr/jetform/mdf/send/inge2_00000039.fx
"
^REFORMAT NO
"
^GLOBAL LAB-PROPERTY
"
Property
"
^GLOBAL LAB-SPEC
"
Specification
"
^GLOBAL LAB-UNIT
Unit
^GLOBAL PAGE
@$PAGE
^GLOBAL LOT-COUNT
0
^GLOBAL TOTAL-LOTS
1
^GLOBAL FORM-TITLE
~BANNER~
^DEFINE signature_file /usr/jetform/sig/
^DEFINE idlogo_file /usr/jetform/pcx/
^GLOBAL EFF-DATE
~EFFDATE~
^GLOBAL ORD-NBR
~NBR~
^GLOBAL QTY
~QTY_CHG~ ~UM~
^GLOBAL PART
~PART~
^GLOBAL ADDR-CODE
~ADDR~
^GLOBAL PT-DESC1
~PARTDS1~
^GLOBAL LOT
~SERIAL~
^GLOBAL UM
(~UM~)
^GLOBAL REFERENCE
~REF~
^GLOBAL DATE-MAN
~DATE~
^graph @:idlogo_file
^position absolute 15.00 23.70 cm
^graph @:signature_file

```

JetForm Template Result

If the JetForm Template example was used to send output to an MFG/PRO printer that is defined with an initialization value of a UNIX script or other operating system, the following output would be sent to that script as input. This script would then redirect the data to the JetForm software.

```
^COMMENT ^JOB id01.mdf -z/usr/jetform/mdf/send/inge2_00000039.fx
"
^REFORMAT NO
"
^GLOBAL LAB-PROPERTY
"
Property
"
^GLOBAL LAB-SPEC
"
Specification
"
^GLOBAL LAB-UNIT
"
Unit
"
^GLOBAL PAGE
@$PAGE
^GLOBAL LOT-COUNT
0
^GLOBAL TOTAL-LOTS
1
^GLOBAL FORM-TITLE
Identification
^DEFINE signature_file /usr/jetform/sig/
^DEFINE idlogo_file /usr/jetform/pcx/
^GLOBAL EFF-DATE
06/21/98
^GLOBAL ORD-NBR
P01234
^GLOBAL QTY
100 EA
^GLOBAL PART
100101
^GLOBAL ADDR-CODE
VEND001
^GLOBAL PT-DESC1
Box of Things
^GLOBAL LOT

^GLOBAL UM
(EA)
^GLOBAL REFERENCE

^GLOBAL DATE-MAN
06/21/98
^graph @:idlogo_file
^position absolute 15.00 23.70 cm
^graph @:signature_file
```

Radio Data Terminals

This chapter describes how to set up the AIM fields for using RDTs and how RDTs operate within AIM.

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About RDTs

AIM supports the use of Radio Data Terminals (RDTs), also known as Radio Frequency Terminals (RFs). These are small terminals which communicate with the host AIM system by radio waves. The terminals are small enough to be hand-carried or mounted on a fork-lift. RDTs show the outstanding transactions for a work location group as soon as they are created. Employees can select the next transaction, or be informed of the next transaction in the task queue based on their location and the priorities of the transactions.

As a transaction is performed, you can use the AIM system to view its progress and status. When it is completed, the stock is updated and is immediately available in that location. This gives you an accurate picture of the stock, without any delays for confirmation of the stock movement within a warehouse.

Although the RDT hardware can be expensive, it lets you capitalize on the speed and accuracy that this technology offers, and can save warehouse staff valuable time.

RDF Technical Setup

You must define the following three OS variables before using AIM:

- An OS variable, `AIMSystemCode`, must be set with a value of RF. This is what tells the AIM startup procedures that this is not a regular full-screen session but an RF device session.
- Most RF device screens are unreadable when used with a width resolution of 80 characters. The AIM RF screens are designed to a screen width of 20 characters. However, standard MFG/PRO full-screen error and warning messages are still used. If only the first 20 characters of these messages are visible, they can be meaningless. If only 20 characters are visible on the implemented RF screens, an OS variable, `AIMShortMsg`, must be set with a value of Yes. This causes AIM to use only a special set of messages (numbers 10500–10600 in standard MFG/PRO Message Maintenance) that are a maximum of 20 characters in length.

- Multiple screen layouts are available for the Select Task function within the Work menu. Currently, only two are provided. An OS variable, AIMSelectType, determines which one is used. If no value is specified, then a scrolling window type of screen is available. Any non-blank value specifies a transaction prompt type of screen.

Define these variables using one of the following methods:

- From within the OS session startup script; for example, `.profile` in UNIX, `autoexec.bat` in Windows.
- From within the AIM execution script (UNIX only).
- From within the initialization file identified by the `-ininame` field (Windows only). The definitions must appear in the [Applications] section of the file.

In a GUI environment, by default, Progress and, therefore, MFG/PRO run using a proportional font for displaying text. This causes problems for the limited space available on RF screens. Therefore, it is strongly recommended that RF programs (those beginning `whmf`, `whrf`, and `whex`) are compiled with a non-proportional font. This is specified by the default font setting within the file identified by the `-ininame` option. The recommended font is Courier New, Bold, Size=8.

AIM Setup

This section describes the details that you have to enter in AIM before you can start using an RDT.

System Codes

Several AIM programs have a System Code field. Figure 19.1 shows Internal Routing Maintenance (80.2.5).

Transaction Create	
Confirmed at Source ? : no	Task: PUT-AWAY
System Code: RF	Priority: 100
Two Phase ? : yes	Increment: 1
Keep From Status ? : no	

Fig. 19.1
Internal Routing
Maintenance,
System Code Field

This defines where a created transaction is confirmed. Currently, only two values are supported: blank and RF. Leaving the field blank creates transactions that are confirmed by the Movement Confirmation screens. A value of RF creates transactions that are confirmed by the RF screens.

Note In AIM, this is independent of printing controls. It is possible to have tags printed when tasks are created and/or confirmed, regardless of whether they are processed by the RF screens or not.

System Procedure Codes

System Procedure Codes are defined for each task using Task Maintenance (80.11.1), shown in Figure 19.2.

Fig. 19.2
Task Maintenance
(80.11.1)

Task: PICK

Description: Picking

Procedure Code: PK

Confirmation Mode: AUTO

Comments ?: no

Created: jonm 15/09/98

Modified: jonm 15/09/98

They define the basic layout of the RF screen used to confirm this task. Currently, only three are provided:

- Picks (PK) displays the issue order number. It also defaults the From Location field to blank and the To Location field to the expected destination.
- Transfers (TF) does not display any order information. It defaults both the From Location and To Location fields to blank.
- Receipts (RC) displays the receipt order number. It defaults the From Location field to the expected source and defaults the To Location field to blank.

System Flavors

System Flavors are defined in Work Location Group Maintenance (80.3.9).

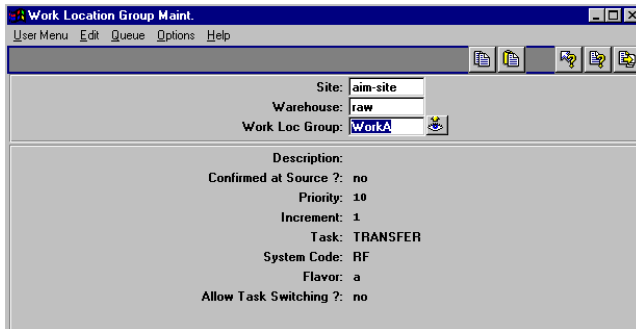


Fig. 19.3
Work Location
Group Maintenance
(80.3.9)

The flavor code allows for different screen layouts to be defined in different working areas of the warehouse.

Example The way that a fork-lift truck wants to identify what it is doing can be different than an employee wheeling a collection bin through an area.

The combination of system procedure codes and system flavors provides a flexible way of maintaining multiple screen styles within a single work environment. It also provides a solid starting point for multiple standard screen definitions to be distributed, and for specific custom screen definitions to be created without impacting the standard definitions.

Assigning Tasks

Task Assignment Maintenance (80.11.7) enables you to define:

- Multiple queues of tasks for the user. Queue 1 has the highest priority.
- The sequence of tasks within the queue.
- The tasks to assign to the user.
- The confirmation mode of the task; for example, AUTO.

The Task Assignment Maintenance screen is shown in Figure 19.4.

Fig. 19.4
Task Assignment
Maintenance
(80.11.9)

Queue:	Seq:	Task:	Confirmation Mode:
Queue 1	1	PACK	A
	2	PICK	A
	3	PUT-AWAY	A
	4	REPLEN	A
	5	TRANSFER	A

A confirmation mode of AUTO updates all inventory figures including the transaction, quantity on-hand, detail allocations, and so on. As soon as the user confirms the transaction, the RF terminal hangs until it is complete.

A confirmation mode of MANUAL could be required where RF response times are not adequate, and you want to create a deliberate delay in confirming. Setting the mode to MANUAL only updates the transaction to prevent its access by other users. Control is immediately returned to the RF terminal. All remaining updates are performed when the engine processor is manually instructed to do so. This could be within fractions of a second if rapid polling of engine requests is in effect, or it could be further delayed if so defined by the system administrator.

RDT Log-On

After logging on to MFG/PRO, you are asked to enter the following information:

Site	Mandatory. The site in which you are working.
Warehouse	Mandatory. The warehouse in which you are working.
Work Location Group	Optional. The WLG in which you are working. If you leave this field blank, AIM allocates tasks to you from anywhere in the warehouse
Task	Optional. Identifies your tasks. If you leave this field blank, AIM allocates any tasks available in the warehouse and, if entered, the work location group.
Location	Optional. The location is your current location. It is stored after you log off and updated as each task is confirmed. You can change the current location at any time by returning to this log-on program. It is only effective if travel sequences are in effect, so that AIM can allocate the task that is closest to your current location.

The system then validates the information you have entered:

- The user ID *must* exist as a standard MFG/PRO user. This is defined in User Maintenance (36.3.18) in Manager Functions. This is an additional level of security to ensure that unauthorized users cannot access the RF system.
- The site and warehouse must be valid. If effective, both site and warehouse level security must be passed.
- The work location group, task, and location are optional. If you have entered a value in one of these fields, it must be valid.

RDT Menus

The RF Menu system has four options:

- **WORK.** Contains options for accessing and confirming tasks.
- **PRINTING.** Contains options for changing your printer options and requesting reprints of tags, IDs, and so forth.

Note You can only change your printers if they have been defined at the user/work location group level. You cannot change the printers for another user or for the entire work location group.

- **MESSAGES.** This menu contains options for accessing AIM Instant Messages. This enables you to receive instructions from your supervisor or other users by the RF terminal.
- **Pro-Editor.** This option provides access to the Progress Editor. You should only let high-level users use the Progress Editor.

Accessing and Confirming Tasks

After assigning tasks to resources, the resources must be capable of informing AIM that these tasks have now been completed. This process is called movement confirmation, and can be undertaken using a number of different programs.

RF confirmation is achieved by selecting Next Task (option 1.1) on the RF menu.

Fig. 19.5
RF Confirmation

The figure displays three sequential screenshots of the AIM Device interface for RF Confirmation. Each window has a title bar that reads 'AIM Device'.

- First Screenshot:** Shows the task details: 'PICK 1317' and 'SO 10034'. Below this, it lists 'Loc: fgst03' and has two empty input fields labeled 'Loc:' and 'Check:'.
- Second Screenshot:** Shows the 'Item Number:' as 'AT1-ITEM-2' with an empty input field below it.
- Third Screenshot:** Shows the item identifier 'at1-item-2' and two reference fields. The first is labeled 'pl Ref: pal00137' and the second is labeled 'Ref: pal00137'.

The WORK menu has the following options:

- Next Task calculates the next task to be performed based upon priority, travel sequence, and so forth, and offers it to you for confirmation.
- Select Task displays the next task but lets you select a different one by transaction number.
- On-the-Fly Transfers enables you to start an inventory transfer.
- Location Audit enables you to start a cycle count of a bin location.

▶ See “Task Switching” on page 291.

The following rules apply to those tasks automatically selected by AIM and as validation for those selected manually:

- It must satisfy the log-in site, warehouse, work location group, and task and have the correct system code.
- It cannot be locked by another user.
- It cannot be assigned to another user.
- Tasks can be soft assigned or hard assigned. A soft assigned task is assigned to a user but can be manually selected by another user. A hard assigned task is assigned to one user and is not accessible by anybody else.
- If user/work location group (WLG) records are defined for the WLG of a specific task, only users defined for that WLG are able to access it. If no user/WLG records are defined for a WLG, all users are able to access tasks in that WLG.
- Before the user can access the task, the task associated with the transaction must be one that is on the list assigned to a user.

Cycle and Opportunity Counts

Cycle counts and opportunity counts are both used to monitor stock levels. Cycle counting is used on a regular basis to maintain inventory accuracy. You must request a cycle count manually using Cycle Count Worksheet Print (3.13). The Create Trans field must be set to Yes. Cycle counts use the ABC field in Item Maintenance (1.4.1). The more valuable items, and thus those which are counted more often, are those with a class of A, followed by those with class B, and then those with class C.

♦ See “OPC Threshold” on page 118 for details.

Unlike cycle counts, opportunity counts are triggered automatically by stock movements. Certain conditions—for example when stock is picked or transferred from a non-special storage location group—cause the system to check the opportunity count threshold for that item. If this is found to be at or below the level set using the Opp Cnt Threshold field, the system initiates a cycle count. This allows cycle counts to be performed on an on-going basis, reducing the need to do a large cycle count all at once.

Once a cycle count is initiated—either manually using Cycle Count Worksheet Print (3.13) or automatically from an opportunity count—a cycle count frame displays automatically on an RDT, prompting the employee to whom that transaction has been assigned to count the level of stock remaining in that location.

Options

In several maintenance programs, confirmation option fields are available; for example, Internal Routing Maintenance. These define which values can be changed during confirmation and the action resulting from any permitted change. When a task instructs a user to go to a specific location, can that user enter a different location? If they can, do they get a warning or have to confirm the change? In most cases, it is expected that these are set to not allow any changes to be made.

Some of the options provide a static outcome; for example, always blank the reference. These options are calculated and performed when the transaction is created. This improves performance and stability since the correct inventory is referenced throughout the life cycle of the transaction.

Task Switching

Work Location Group Maintenance displays the field Allow Task Switching. This is very important if any of the confirmation option fields are set to values that allow users to enter a value other than the expected one.

▶ See “Allow Task Switching” on page 94.

To understand the idea of task switching, it is important to consider the following question: if the user enters a different reference such as a pallet number than that on the original task, is the user changing the current task to reference the different pallet or does the user want to switch to a different task that uses the entered reference?

This question is answered by the Allow Task Switching field. If it is set to Yes and a value other than the expected one is entered during task confirmation, AIM checks to see if a task associated with that value exists. If one exists and it is valid according to the same rules that apply to task selection, then AIM switches the user from confirming the original task to the selected one.

If Allow Task Switching is No, then the same task is still confirmed by AIM, but it is modified to select the entered value. This can cause problems if the task is a requirement to satisfy an order, since allocated and picked quantities could be affected. For this reason, attempting to modify a task—that is, Allow Task Switching is equal to No—associated with a detail allocation results in an error and is prevented.

Transaction Status

As a task is being confirmed, its status is updated. This is largely invisible to the user but is included here as technical information. The status flow is listed in Table 19.1.

Table 19.1
Transaction Status
Flow

Status	Meaning
OPEN (Task is not locked)	Task has been created and is awaiting confirmation
ACTIVE (Task is not locked)	Task has been selected by a user but has not reached the point where it is confirmed the user completes it. The task is soft assigned to the user so that no other user is offered it as the next task, but a user can manually select it.
OPEN (Task is locked)	The user has reached the point where they have identified that the task is started. Physically, this would indicate that the user has picked up the identified inventory. Because the record is locked, no other user can access this task. The status is put back to a status of OPEN so that if a software, hardware, or communications failure occurs after the transaction is locked, the task is not hung in a state that cannot be accessed. If such a failure occurs, the task is soft assigned to the user who had started it, but still OPEN so other users can select it, if necessary.
PROCESS	A transaction is at a status of PROCESS only when a confirmation mode of MANUAL is in effect. It indicates that the transaction has been confirmed by a user but that it has not yet been processed by the engine processor.
CLOSED (Lock is released)	The confirmation of the task is complete and the transaction is deleted from the task queue and placed into transaction history.

Staging

Two fields in AIM Location Maintenance—Stage In and Stage Out—identify whether a location is staged. If both fields are blank, the location is not staged.

▶ See “Stage In” on page 107 and “Stage Out” on page 107.

A staged location is one that is not directly accessed. Instead, inventory coming in or going out of the location is placed on a temporary stage prior to the inventory movement. This type of environment is frequently used when fork-lift hand-offs must be performed, or when inventory is being taken out of, or placed into, an automated storage area. Within AIM, providing a stage for a location means that a task must be confirmed more than once before it is considered closed.

Example If a location has a value populated in the Stage Out field, stock is taken from the location, moved to its stage, and then on to the task’s destination. This requires that the transaction be confirmed twice:

- 1 From the location to its stage
- 2 From stage to the final destination

Similarly, a location with a Stage In must have tasks moving stock into it confirmed twice:

- 1 Onto the stage
- 2 From the stage to the location

If a transaction moves inventory from a location with a Stage Out to a location with a Stage In, the task has to be confirmed three times:

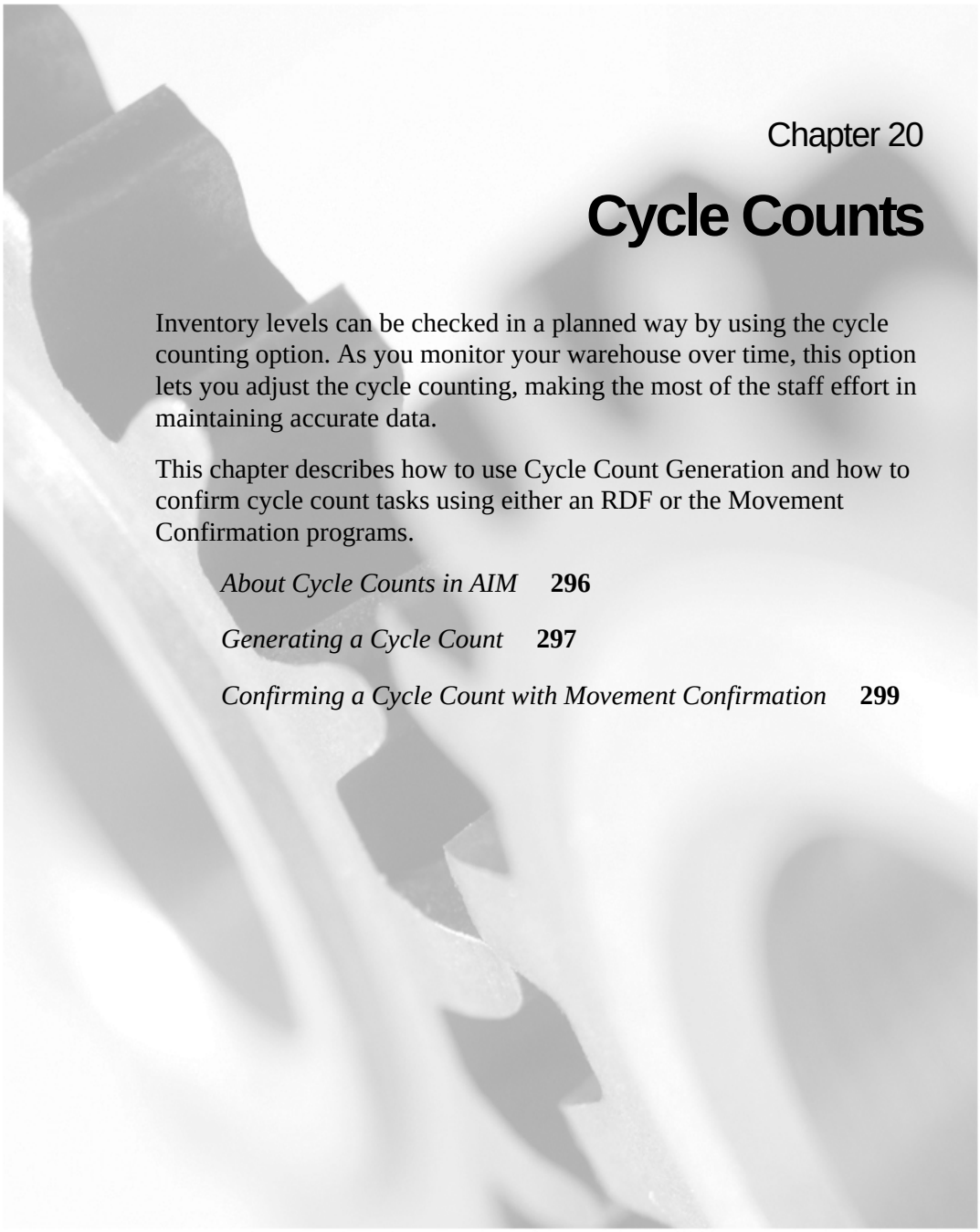
- 1 From the source location to its stage
- 2 Between the source location’s stage and the destination location’s stage
- 3 From the destination location’s stage into the destination location

Confirming a Cycle Count with an RDT

RDT screens identified with a system procedure code of AJ are supplied for confirming cycle counts. It is important that the tasks used to identify cycle counts and recounts are defined with a procedure code of AJ. Other tasks must *not* be defined with this procedure code; otherwise, for example, sales order picks would be processed as if they were cycle counts.

Location Audit

This function is available from the RDT menu and initiates and confirms a cycle count. If the count is within tolerance, the on-hand quantity is adjusted. If it is out of tolerance, a task is created.



Chapter 20

Cycle Counts

Inventory levels can be checked in a planned way by using the cycle counting option. As you monitor your warehouse over time, this option lets you adjust the cycle counting, making the most of the staff effort in maintaining accurate data.

This chapter describes how to use Cycle Count Generation and how to confirm cycle count tasks using either an RDF or the Movement Confirmation programs.

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About Cycle Counts in AIM

AIM introduces the following features for cycle counts:

- A Cycle Count Generation program that allows cycle count transactions/tasks to be generated.
- The ability to confirm or process cycle count tasks by RF devices or Movement Confirmation programs, with cycle count tags being automatically generated, if required.
- The ability to initiate an inventory adjustment from an RF device by the Location Audit function.
- Cycle counts that move out of preset boundaries automatically result in recount transactions/tasks being generated.
- Cycle counts and cycle recounts are defined independently to allow greater flexibility.
- Cycle counts can be generated automatically upon the failing of inventory. This usually results from short picks. AIM can automatically generate a task for somebody to inspect the inventory condition when a short pick occurs.
- The confirmation and completion of a cycle count can result in the modification of the counted inventory's status. This means that, for example, when a cycle count has been automatically generated from the failing of inventory and that cycle count has been performed, any remaining inventory is automatically available for further picking.
- Each different type of cycle count is given a reason code, associated with any transactions created. This allows any cycle count audit authorities to differentiate between true cycle counts and inventory adjustments.
- Cycle counts can be generated for empty locations. You can implement AIM with an empty warehouse and generate cycle count tasks for every location in the warehouse, populating the database with inventory.

Generating a Cycle Count

Use Cycle Count Generation (80.8.12) either to:

- Create a report showing the items and locations that are counted, or
- Create cycle count transactions

To do this:

1 Select Cycle Count Generation:

Cycle Count Generation

User Menu Edit Queue Options Help

Inventory Transaction

Create Transactions?: no Cycle Count Reason:

Item Number: CompA To:

Prod Line: To:

Item Type: To:

Site: aim-site To:

Warehouse: prod To:

Store Loc Group: bulkA To:

Work Loc Group: workA To:

Location: To:

Last Count: / / To: / /

ABC Class: To:

Number of Items: 99999999 Empty Locations: 0

A: 0% B: 0% C: 0% Other: 0%

Sort By: Item

Randomize Selection?: no

Past Due Only?: yes

Existing Counts?: no

Functional Locations?: no

Zero Quantity?: no

Negative Quantity?: no

Phantom Items: no

Output: window

Batch ID:

2 Complete the fields as follows:

Create Transactions. With this option set to No, a report is generated of the items and locations that are counted without transactions being created. With it set to Yes, transactions are created.

Note If the program is run with the Randomize Selection field set to Yes, items and locations selected need not match those of a previous run.

Cycle Count Reason. This value is attached to each transaction created, enabling cycle counts generated for a specific purpose—such as weekly random count—to be easily identified. This field defaults from the System Control File.

See “Cycle Count Reason” on page 29.

Selection ranges. Item, PL, item type, site, warehouse, SLG, WLG, location, last count date, ABC class. To select empty locations, selection criteria that apply only to items are ignored.

Number of Items. Specify the number of different items to select.

Empty Locations. Specify the number of empty locations to select. Empty locations are those that have no inventory record associated with them, even ones with zero or negative on-hand quantity.

ABC Percentages. These function in the same manner as standard MFG/PRO programs.

Sort by Item or Warehouse. Sorts the results by either item or warehouse.

Randomize Selection. If set to Yes, the identified number of items and/or empty locations are selected in a random order.

Past Due Only. Indicate whether to include only items that are passed their cycle count due date.

Existing Counts. Set to Yes to prevent AIM from creating transactions for inventory that already has open cycle count transactions. Other transactions—for example, picks—are not relevant to the cycle count process.

Functional Locations. If set to No, only locations within storage location groups that are in functional internal routing groups are selected; for example dispatch locations are not selected. If set to Yes, locations from all storage location groups are selected.

Zero Quantity. This does not mean empty locations. Locations with zero on-hand inventory detail records are not considered empty. If this field is set to Yes, zero on-hand inventory detail records are included in the count; otherwise, they are not.

Negative Quantity. This does not mean empty locations. Locations with negative on-hand inventory detail records are not considered empty. If this field is set to Yes, negative on-hand inventory detail records are included in the count; otherwise, they are not.

Phantom Items. Indicates whether phantom items should be included.

3 Press Go, and then select the output destination for the cycle count.

Depending on what you selected in the Create Transactions field, the system either produces a cycle count report without creating transactions, or a report plus an actual cycle count.

Confirming a Cycle Count with Movement Confirmation

You can confirm cycle count transactions using movement confirmation programs (80.8) or RDT. RDT confirmation is discussed in Chapter 19.

♦ For details, see page 281.

With the movement confirmation programs, cycle count transactions are created with an expected quantity of zero so that the Expected In and Out inventory quantities are not automatically updated. If cycle count transactions are confirmed without first modifying them, they are confirmed as zero counts. That is, if each transaction is not manually modified to reflect the counted quantity, the on-hand quantity of each piece of counted inventory is set to zero.

Quality Inspection

This chapter describes the steps involved in setting up AIM for quality inspection and managing quality controls with sampling.

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About Quality Inspection

AIM supports quality inspection with sample control, change of inventory status and creation of AIM transaction.

The principle of the Quality Inspection module is similar to the shortage clearance algorithms.

During a receipt, the quality algorithms are started. These determine if an inspection is required based on different criteria such as the receipt frequency, various field values at different levels, and more. For instance, an inspection takes place depending on the number of receipts from a given supplier and/or a given item, or if the previous receipt failed.

If the quality algorithm returns a sample quantity to be inspected, an AIM transaction or movement is created from the source location to an inspection area. After inspection, either by computer or by RDT, the sample is sent back to the inventory area, using a standard put-away algorithm.

Inspection Flows

▶ See “Quality Inspection Internal Routings” on page 306.

This section examines the flow of inspected inventory throughout the warehouse.

Example You have a receipt area (docking area), an inspection area, and a main storage area (bulk area). Because the Quality Inspection module is based on internal routings, other areas and combinations can be defined, and so different movements are possible.

In Figure 21.1, you receive a full pallet. The inspection algorithm identifies that an inspection is required and looks for an internal routing for the corresponding transaction type. The algorithm also calculates what quantity to control, and this sample quantity follows the quality inspection internal routing. The remaining items on the pallet continue the normal flow according to the receipt internal routing, and move to the Bulk Area.

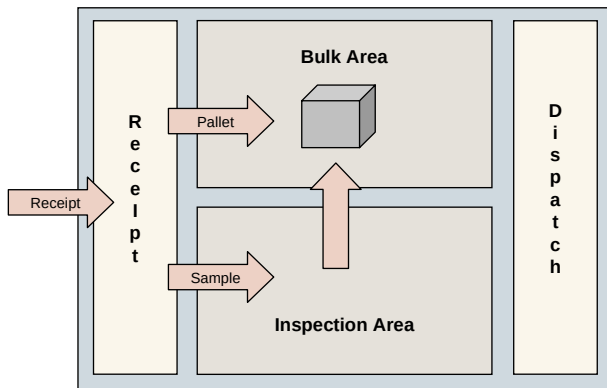


Fig. 21.1
Inspection Flows

After inspection has taken place, depending on the results (pass or fail) and depending on the destructive property of the test to perform on the item, the sample is sent back to inventory following another internal routing and using a put-away algorithm. If the algorithm is the merge with same reference algorithm, this means that the sample goes back on its original pallet. Of course, any other algorithm can be used for that movement.

Quality Algorithms

The objective of a quality algorithm is to decide whether an inspection is required, to create an inspection tag, fill in the inspection history table, and also create the transactions to move the sample to an inspection area, based upon an internal routing.

Quality algorithms are defined for the algorithm type QA. Like the put-away (PA) algorithms, the location-find (LF) algorithms, the picking algorithms (PK), or the shortage clearance (SC) algorithms, the quality algorithms are assigned to a combination of site, warehouse, item or item type, address code (supplier), and transaction type.

▶ See Table 8.6, “Quality Inspection Algorithms,” on page 179.

Quality inspection algorithms are listed in Chapter 8.

Quality Inspection Parameters

The inspection frequency, logical fields, and sample quantities are defined at different levels:

- Item Maintenance (80.4.7)
- Item-Site Maintenance (80.4.9)
- Item-Warehouse Maintenance (80.4.11)
- Supplier-Item Maintenance (80.4.13)

Item and item-site levels are not effective levels. They define the default values for the next levels. The two effective levels for Quality Inspection fields are the item-warehouse level and the supplier-item level.

▶ See “Item-Warehouse Maintenance” on page 121.

The main level is the supplier-item level, which means that if a record exists for a given item and a given supplier, quality inspection fields are used from this level. In any other case, the item-warehouse values are used. Note that this level is a mandatory level. If item-warehouse level is not defined, no put-away or picking of the item in the corresponding warehouse is possible.

An example Item-Warehouse Maintenance screen is shown in Figure 21.2.

The screenshot shows a window titled "Item-Warehouse Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is divided into two columns. The left column contains input fields for "Item Number" (compA), "UM" (EA), "Site" (aim-site), and "Warehouse" (jaw). The right column contains labels for "Item A Description", "AIM Site", and "Raw Material Warehouse". Below these fields is a large section with two columns of configuration parameters:

Location:	Single PA Trans: no
Store Loc Group:	Issue Method: bulk
SLG List: listA	Print ID?: yes
Warehouse Item Type:	ID Quantity: 1
Replenishment Type:	OPC Threshold: 0, 0
Popularity:	Logistics UM: pl
Logistics UM Tolerance: 100, 00%	Auto Replenish?: yes
Auto Replenish %: 0, 00%	Print Unpl. Issue Tag?: no
Inspection Required?: yes	Sample Quantity: 10
Insp. Frequency: 1	Sample %: 0
Destructive?: no	Insp Frequency (Days): 0

Fig. 21.2
Item-Warehouse
Maintenance
(80.4.11)

Following is a definition of all the fields that must be reviewed prior to implementing the Quality Inspection module. These fields remain the same across all levels.

Inspection Required. This field determines whether an inspection is to be performed (specific to algorithm 8).

Inspection Frequency (Number of Receipts). The value in this field determines the frequency at which inspections must take place (specific to algorithm 9) during receipt. For example, an inspection takes place every X receipts, X being the inspection frequency.

Inspection Frequency (Number of Days). This frequency is a number of days. It tells algorithms 1 and 2 that an inspection takes place if there was no inspection in the previous X days, X being the inspection frequency in days.

Note The inspection frequency counts the number of receipts. If you receive three pallets during a purchase order receipt, the system considers that as three receipts. The inspection frequency field must take that into account.

Destructive. This field informs the system if the test to apply to the sample is a destructive test or not. If the test is destructive, then the sample has to be issued using an unplanned issue. If the test is not

destructive and the inspection did not fail, the system generates a new transaction based on a new internal routing to put the sample back in stock.

Sample Quantity. This is the quantity (in the item’s base UM) of the item to inspect. Depending on the internal routing definition, the sample goes to an inspection area.

Sample %. This is another way to define the quantity to inspect. It is a percentage of the quantity being received. The system truncates the result if the percentage of the received quantity is not an integer.

Note If 3 pallets are received at the same time and the inspection frequency is set that an inspection occurs at every receipt, each pallet is considered and not the entire receipt quantity as a whole.

Quality Inspection Internal Routings

Several transaction types are used with the Quality Inspection module to define the internal routings required to send the sample to an inspection area and return it to the main inventory area after inspection.

Table 21.1 lists the first set of transaction types.

Table 21.1
QA Inspection
Transaction Types

Transaction Type	Description
INSP-UNP	Transaction type for quality inspection from an unplanned receipt
INSP-PO	Transaction type for quality inspection from a purchase order receipt
INSP-DO	Transaction type for quality inspection from a distribution order receipt
INSP-WO	Transaction type for quality inspection from a work order receipt
INSP-WH	Transaction type for quality inspection from an inter-warehouse receipt

The second set of transaction types is more specifically for the movement of inventory after the inspection has taken place. Table 21.2 lists these transaction types.

Table 21.2
QA Post-Inspection
Transactions

Transaction Type	Description
BACK-UNP	Transaction type for a sample return after inspection from an unplanned receipt
BACK-PO	Transaction type for a sample return after inspection a purchase order receipt
BACK-DO	Transaction type for a sample return after inspection from a distribution order receipt
BACK-WO	Transaction type for a sample return after inspection from a work order receipt
BACK-WH	Transaction type for a sample return after inspection from an inter-warehouse receipt

Example

Assume you make a purchase order receipt:

- The movement to put the stock from the receipt area to the main inventory area uses a RCT-PO transaction type.
- The movement to move the sample from the receipt area to an inspection area uses a INSP-PO transaction type.
- The movement to put the sample in the main inventory area after inspection uses a BACK-PO transaction type.

Internal Routings Definition

This section describes in detail the different inventory movements and internal routings that are required.

Based upon the example shown in Figure 21.1 on page 303, if you have a Receipt internal routing group, a Bulk internal routing group, and an Inspection internal routing group, you would define the receipt movement for the purchase order as follows:

- Internal Routing RCT-PO
 - Step 10: Receipt
 - Step 20: Bulk

See “Internal Routing Maintenance” on page 67.

If an inspection is to take place, you must inform the system that it has to check whether a quality algorithm must be started. A field on the internal routing definition of the main receipt movement does this. In this example, on step 20 of the internal routing for RCT-PO, the Check Inspection field must be set to Yes.

Figure 21.3 shows the Check Inspection field:

Fig. 21.3
Internal Routing
Maintenance
(80.2.5)

The screenshot shows the 'Internal Routing Maintenance' window. The title bar is 'Internal Routing Maintenance'. The menu bar includes 'User Menu', 'Edit', 'Queue', 'Options', and 'Help'. The window is divided into several sections:

- Site:** aim-site
- Warehouse:** raw
- Internal Routing:** receipt
- Description:**
- Sequence:** 20
- Internal Routing Group:** bulk
- Print Options:**
 - Print ID ? : yes
 - Print Created Tasks ? : no
 - Print Confirmed Tasks ? : no
 - Print Exceptions ? : no
 - Print Mode (ID): AUTO
 - Print Mode (Created Tasks): AUTO
 - Print Mode (Confirmed Tasks): AUTO
 - Print Mode (Exceptions): AUTO
- Miscellaneous Options:**
 - Mode: AUTO
 - NewUM: [empty field]
 - Clear Shortages ? : no
 - Create Shipper ? : yes
 - Check Inspection: yes

An arrow points from the text 'Check Inspection field' to the 'Check Inspection: yes' field in the Miscellaneous Options section.

The Quality Inspection algorithm is started to determine whether the inspection must take place and the sample quantity considered.

To move the sample, the system needs another internal routing:

- Internal Routing INSP-PO
 - Step 10: Receipt
 - Step 20: Inspection

The sample follows the internal routing steps and so, a transaction is created to move the sample to the Inspection Area (internal routing group). If the quantity being received does not go completely to the inspection area, then the remaining quantity continues to follow the RCT-PO internal routing.

After inspection, if the test was not a destructive test, the sample goes to the main inventory area (Bulk IRG). The internal routing to define is, for instance:

- Internal Routing BACK-PO
 - Step 10: Receipt
 - Step 20: Inspection

Algorithm Definition

All movements need to be able to find the most suitable location for the movement's destination. For the inspection movement, you need to find a location in the inspection area. For the return movement after inspection, you need to find a suitable location in the Bulk area.

If, for instance, the inspection internal routing group is a functional area, a location-find algorithm is defined for transaction type INSP-PO in order to find a suitable location in the Inspection area.

If the Bulk internal routing group is defined as a non-functional internal routing group, then a put-away algorithm is defined for transaction type BACK-PO in order to find a suitable location in the Bulk area for the sample's return movement after inspection.

Inspection Tag

Each sample is assigned a sample ID. That sample is linked to the original inventory. This means that if you make a receipt of 100 EA and the quality inspection algorithm sends 10 EA into the Inspection area, the sample is linked to the 90 EA in the Bulk area. The main reason is that it is possible to change the status of the received stock during the inspection and to release the status after inspection. This is only possible if you know what stock is related to the sample.

For each sample, the system prints an inspection tag. There is a special printer dedicated to the inspection tag printing, defined like any other AIM printer at the work location group level, at the warehouse level, and at the Warehouse Control File level. The effective level is the work location group level; other levels are used as default values.

Figure 21.4 illustrates the frame in Work Location Group Maintenance (80.3.9) where all printers are defined.

Fig. 21.4
Work Location
Group Maintenance
(80.3.9)

The screenshot shows a window titled "Work Location Group Maint." with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is divided into several sections for printer configuration:

- Printing** (Section Header)
- IDENTIFICATION**
 - ID Printer:
 - Number Across:
 - Lines of Each:
 - Width of Each:
 - 132 Mode?:
 - Use External?:
- TASKS**
 - Pr on Create?:
 - Print on Conf?:
 - Task Printer:
 - Number Across:
 - Lines of Each:
 - Width of Each:
 - 132 Mode?:
 - Print Mode (Cr):
 - Print Mode (Conf):
 - Use External?:
- EXTERNAL DEVICES**
 - External Device Printer:
 - Number Across:
 - Lines of Each:
 - Width of Each:
 - 132 Mode?:
 - Use External?:
- EXCEPTIONS**
 - Print Except.?:
 - Print Mode:
- QA SAMPLING**
 - Insp Printer:
 - Number Across:
 - Lines of Each:
 - Width of Each:
- FORMAT**
 - Form Printer:
 - Print Flavor:

A callout line points to the "QA SAMPLING" and "FORMAT" sections with the text "Fields for printer definition".

The inspection tag contains the sample ID information, the item to inspect, and other useful information. Based on the inspection tag, people control the sample, enter the test results, and initiate the return movement from the inspection area, if the inspection did not fail and the test is not a destructive test.

Quality Inspection

Quality Inspection is made using the options on the Quality Inspection Menu (80.22).

- Sample Inspection Maintenance (80.22.1) lets you enter the inspection results and generate the transaction to move the stock from the inspection area to the main storage area.
- Inspected Inventory Report (80.22.6) lists, for a given sample ID, all inventory records related to the sample as well as their inventory status.
- Failed Inspections Inquiry (80.22.10) lists all samples for which the inspection failed. With the sample ID, you can find the corresponding inventory using Inspected Inventory Report (80.22.6).

- Change Inspection Status Maintenance (80.22.13) lets you define the inspection status depending on the original status and the release status—the status after inspection if it does not fail—from the inspection status.
- Inspection History Maintenance (80.22.17) lets you modify or delete any inspection history record.
- Sample History Delete/Archive (80.22.23) is a standard procedure to delete/archive all inspection history records.
- Quality Inspection Control File (80.22.24) defines some fields used in the Quality Inspection module.

Sample Inspection Maintenance

This program is the main program to enter inspection results. It is an interactive program that lets you select the sample group to inspect and enter the inspection results.

The first frame lets you select a range of samples.



The screenshot shows a window titled "Sample Inspection Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays a form with fields for Site, Warehouse, Address, and Item Number, each with a "To:" field. Below this is a table with columns: ID, Address, Item Number, Lot/Serial, Reference, Insp Qty, and Fail ?.

ID	Address	Item Number	Lot/Serial	Reference	Insp Qty	Fail ?
168		compA		RF001365	10	no
170		compA		RF001367	10	no
171		compA		RF001368	10	no
172		compA		RF001369	10	no
169		compA		RF001366	10	no

Fig. 21.5
Sample Inspection
Maintenance
(80.22.1)

Note Samples display only if the sample has reached its destination location, the inspection location. If you have any open transaction for the sample, inspection results cannot be entered.

You can select a sample from the resulting list to view its details.

Fig. 21.6
Sample Inspection
Maintenance,
Sample Details

Sample Inspection Maintenance
User Menu Edit Queue Options Help

Sample Details

Sample ID: 170

Site: aim-site	Address:
Warehouse: raw	
Location: in0101	Data Set: unplan
Lot/Serial:	Order:
Reference: RF001367	Line/ID:
Sample Quantity: 10	Algorithm: 8
Sample %: 0	Destructive?: no
Created: 16/07/99	Created: root
Qty To Inspect: 10	Fail?: no
Remarks:	
Create Transactions: yes	
Return Quantity: 10, 00	

Enter details of the inspection status (Fail or Pass) and also additional information regarding the generation of return transactions and the quantity to be returned.

Note The Create Transaction field has its default value defined in the Quality Inspection Control File (80.22.24). The return quantity depends on the test. If some pieces are destroyed during the test, the return quantity is different than the sample quantity. If the return quantity is always the same as the sample quantity, the Return Quantity prompt can be skipped by setting the Update Quantity field in Quality Inspection Control File to No.

Fig. 21.7
Quality Inspection
Control File
(80.22.24)

Quality Inspection Control File
User Menu Edit Queue Options Help

Create Transaction Default: yes

Update Quantity: yes

Created: 07/07/99

Modified:

Table 21.3 lists the different actions that are performed depending on the test results.

Destructive Test	Inspection Failed	Create Transaction	Actions
No	No	Yes	- The sample is inspected. - A return transaction is created. - The release status is updated.
No	No	No	- The sample is inspected. - No transaction is created; the sample stays in the inspection area. - The release status is updated.
Yes	Yes/No	Yes/No	- The sample is inspected - No transaction is created; the sample stays in the inspection area and must be unplanned issue. - The release status is updated if the inspection does not fail.

Table 21.3
Inspection Results

Note If an inspection fails, the sample stays in the inspection area. The warehouse staff must perform an action in order to handle the inventory related to the sample. If the test is a destructive test, the warehouse staff must create an unplanned issue transaction. The sample does not automatically disappear from the system.

Inspected Inventory Report

The Inspected Inventory Report (80.22.6) lists all inventory records related to a sample. It is useful for displaying details of sample locations and their corresponding statuses; for example, the report could be used for displaying the location of samples within a group. The Failed Inspections Inquiry (80.22.10) provides the same functionality; however, it only displays samples that have failed.

An example Inspected Inventory Report is shown in Figure 21.8.

Fig. 21.8
Inspected Inventory
Report (80.22.6)

Site	Location	Item Number Lot/Serial	Reference Status	Qty On Hand	Alt UM	Fail ?
aim-site	bulk12	compA	bad	200,0	EA	no
aim-site	bulk20	compA	bad	300,0	EA	no
aim-site	bulk21	compA	bad	300,0	EA	no
aim-site	bulk22	compA	bad	300,0	EA	no

End of Report

whqainrp.p 80.22.6 Inspected Inventory Report Date: 16/07/99
Page: 2 Your Name Here Time: 15:59:16

REPORT CRITERIA: Report submitted by: root

Sample ID: 173 Output: window
Batch ID: □

F1=Help F2=Go ESC=End Ctrl-X=Cut Ctrl-C=Copy Ctrl-V=Paste

Failed Inspections Inquiry

The Failed Inspections Inquiry lists all sample IDs identified as bad (inspection failed).

Figure 21.9 shows an example Failed Inspections Inquiry screen.

Fig. 21.9
Failed Inspections
Inquiry (80.22.10)

ID	Item Number	Address	Location	Insp Qty
168	compA		in0101	10
171	compA		in0101	10
173	compA		in0101	10

Site: aim-site Warehouse: raw Output: terminal

Item Number: compA

Change Inspection Status Maintenance

While a sample is in the inspection area waiting inspection results, the inventory related to the sample can become physically blocked. This can be achieved within AIM by changing the inventory status. Change Inspection Status Maintenance lets you define the new status of this inventory, based on its original status.

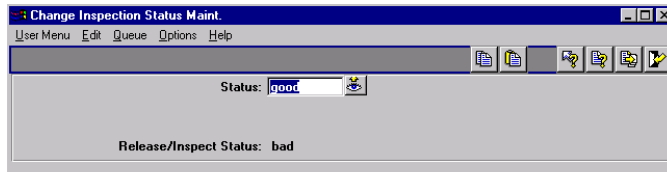


Fig. 21.10
Change Inspection
Status Maintenance
(80.22.13)

Similarly, after a successful inspection is performed, the status needs to be changed. The release status is used as the new status. Again, the release status is based on the current inventory status.

Inspection History Maintenance

Figure 21.11 illustrates Inspection History Maintenance (80.22.17).

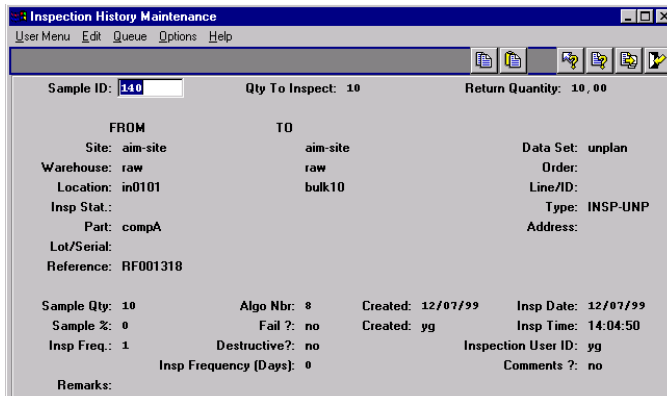


Fig. 21.11
Inspection History
Maintenance
(80.22.14)

You can maintain inspection records or delete them if necessary.

RDT Quality Inspection

The Radio Data Terminal (RDT) or Radio Frequency (RF) Quality Inspection frame (rf.5.1) lets you maintain and enter sample details during inspection.

The user must enter a valid sample ID. This can be done using the RDT/RF integrated keyboard or alternatively if a barcode scanner is attached and barcodes are being printed on the inspection tags, the user can scan the inspection tag corresponding to the sample, and the relevant information is entered automatically in the appropriate fields.

Fig. 21.12
RDT and RF
Quality Inspection

The screenshot shows a terminal window with a blue background and white text. At the top, it says 'MS RDT CHR US'. Below that, there are three lines of text: 'Sample ID: 172', 'Fail ? : No', and 'Ret. Qty: 10,00'. The 'Fail ? : No' and 'Ret. Qty: 10,00' fields are highlighted with a grey background.

The RDT screen works the same way as Sample Inspection Maintenance (80.22.1), but the screen is simplified.

The user is requested to enter the sample ID, reading the inspection tag, (scanning it if a barcode is printed on it).

The Fail field and the Returned Quantity field function in a similar manner to the non-RDT frames:

Fail. The Fail field is the result of the sample quality inspection. Depending upon the value of this field, the sample inventory and the corresponding parent inventory statuses are changed accordingly.

Example If the Fail field is set to Yes, the sample inventory and the corresponding parent inventory status is FAILED, irrespective of location.

The new inventory status comes from Change Inspection Status Maintenance (80.22.13).

Ret. Qty. This value is the remaining sample quantity after inspection has taken place. This is the quantity of inventory that is returned to the parent pallet.

Example 10 EA is taken from the parent pallet as a sample. 2 EA of 10 EA have been destroyed during quality inspection. Therefore, a quantity of 8 EA is returned to the original parent pallet.

This field can be modified only if the Quality Inspection Control File settings permit.

Labor Management

AIM provides the ability to manage resources. This is achieved by using resources and groups of resources and assigning tasks to these resources. Resources are simply individuals or users of the system, who work specifically within the warehouse.

This chapter describes how Labor Management works within AIM. The major sections cover these topics:

About Labor Management **320**

Labor Management Control File **321**

Defining Resources **322**

Defining Tasks **324**

Assigning Resources to Tasks **328**

Labor Management Workbench **329**

About Labor Management

In a warehouse, it is inefficient for staff to work in many different areas on many different types of tasks and on tasks located physically distant from each other.

Using labor management, the warehouse staff can be assigned the tasks most suited to their individual or collective skill sets or experience.

When movements occur within a warehouse, AIM generates warehouse transactions. These can be viewed using Warehouse Transaction Inquiry (80.9.1). These warehouse transactions are essentially tasks within the warehouse. It is to these tasks that you assign warehouse staff.

The basic flow of labor management is as follows:

- 1** Defining Resources. Define each warehouse staff, the warehouse groups, and optionally the warehouse shifts. Each warehouse staff member is a resource.
- 2** Defining Tasks. Define each variation of warehouse task (transaction), alternate tasks, and optionally the expected time required to complete these tasks.
- 3** Assigning Resources to Tasks. Use Task Assignment Maintenance and the labor management workbench to assign resources to the tasks.
- 4** Approving Tasks. Use the RF (Radio Frequency), RDT (Radio Data Terminal), or non-RF movement confirmation frames to approve the movement of inventory from one location to another (tasks).

Labor Management Control File

The Labor Management Control File (80.11.24) enables you to activate the Labor Management module and also set some default values for the other Labor Management frames.

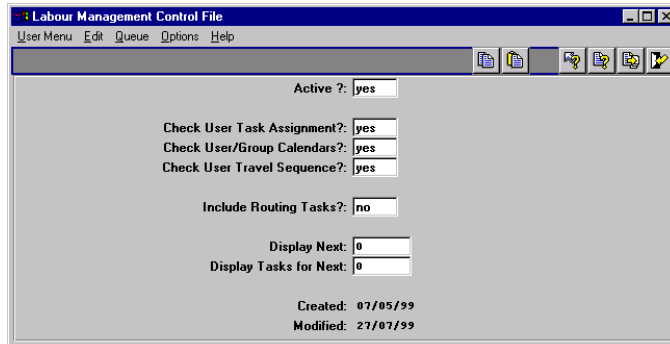


Fig. 22.1
Labor Management
Control File
(80.11.24)

Complete the fields as follows:

Active. If set to Yes, labor management functionality becomes active.

Check User Task Assignment. Defines whether the Labor Management Workbench should check user-task assignment lists, or assign tasks irrespective of skill sets or experience.

Check User/Group Calendars. Defines whether the Labor Management Workbench should check the user or group shift calendar, or assign tasks irrespective of time/date details.

Check User Travel Sequence. Defines whether the Labor Management Workbench should check the user's last known physical location prior to assigning tasks, or assign tasks irrespective of physical location within the warehouse.

Include Routing Tasks. Defines whether the Labor Management Workbench should calculate the times and tasks using the complete routing as opposed to the individual routing sequence.

Display Next. Defines how many tasks the Labor Management Workbench should display.

Display Tasks for Next (Minutes). Defines how many minutes worth of tasks the Labor Management Workbench should display.

Defining Resources

User Maintenance

Fig. 22.2
User Maintenance
(80.11.13)

The screenshot shows a window titled "User Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays the following information:

User ID:	aim
Description:	Aim Demo User
Calendar:	
Created:	27/07/99 paulw
Modified:	27/07/99 paulw
Task:	transfer
Type:	rct-unp
Internal Routing:	ir-rec
Description:	Standard Receipt
Actual Time:	60
Seconds:	0
Tasks Confirmed:	0
Created:	27/07/99 paulw
Modified:	27/07/99 paulw

Complete the Labor Management User Maintenance (80.11.13) fields as follows:

User ID. Defines the name of the warehouse staff. An entry should be made for each warehouse staff.

Note There must also be an entry within MFG/PRO User Maintenance (36.3.18).

Description. Enter the description of the associated user. Typically, description is related to labor management.

Calendar. Defines the calendar which this user is associated with.

Task. Defines the task. The values entered in this frame are used by the Labor Management Workbench to calculate the most efficient warehouse staff to allocate tasks. This frame is optional and is populated and updated automatically upon completion of every task.

Type. Defines the type of task.

Internal Routing. Defines the internal routing associated with this task.

Description. Defines the description of this task.

Actual Time (Seconds). Defines the actual time taken to complete this task. This field is updated automatically upon completion of this task by this user.

Tasks Confirmed. Displays the number of tasks this user has confirmed.

Note Task and Type are internal routing specific.

Calendar Maintenance

Labor Management Calendar Maintenance (80.11.17) is an optional program that can be used to define calendars or working shifts, which can be later associated with individuals. The Labor Management Workbench can be set up to consider all the user’s calendar details when assigning tasks to employees.

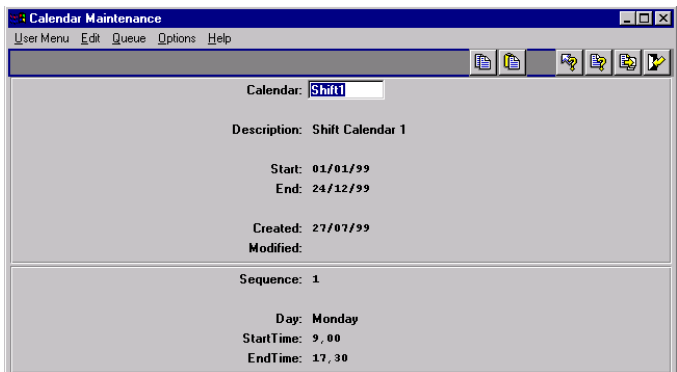


Fig. 22.3
Calendar
Maintenance
(80.11.17)

Complete the fields as follows:

Calendar. Defines the name of the calendar.

Description. Enter a description of the calendar. This description is typically related to labor management.

Start. Defines the start effective date range of this calendar.

End. Defines the end effective date range for this calendar.

Sequence. Defines the sequence of this calendar.

Day. Defines the day for this sequence. Valid entries are Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday.

Start Time. Defines the start time for this sequence.

End Time. Defines the end time for this sequence.

Defining Tasks

Task Maintenance

Use Task Maintenance (80.11.1) to create and update the tasks performed in a warehouse.

Fig. 22.4
Task Maintenance
(80.11.1)

The screenshot shows a window titled "Task Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays the following information:

Task: TRANSFER	
Description: Inventory Transfers	
Procedure Code: TF	
Confirmation Mode: AUTO	
Comments ? : no	
Created: jonm	01/01/98
Modified: jonm	10/01/98

Complete the fields as follows:

Task. Enter the task name, such as PICKING.

Description. Enter the description of the task. This description is typically related to labor management.

Procedure Code. Enter the 2-character procedure code such as PK for this task.

Confirmation Mode. Enter the default confirmation method for this task type.

- A confirmation mode of AUTO requires the user to perform a movement confirmation.
- A confirmation mode of MANUAL is confirmed by the confirmation engine.

See Chapter 19, "System Procedure Codes," on page 284.

- A confirmation mode of TIMED is confirmed at a predetermined time interval.

Comments. Enter additional comments as required for this task.

Alternate Task Maintenance

Alternate Task Maintenance (80.11.3) is an optional program you can use to define subcategories of tasks. Tasks are generally associated with specific movements within AIM.

Example Task Transfer has a subtask Transfer1 to cover a transfer of inventory between specific locations.

Fig. 22.5
Alternate Task
Maintenance
(80.11.3)

Example A receipt within a specific work location group or storage location group can be confirmed by a specific individual.

Within Alternate Task Maintenance, tasks can be set up for specific transactions. These alternate tasks can later be associated with individuals or specific groups. Alternate tasks are only necessary if not enough standard tasks can cope with the distribution of labor within the warehouse.

Complete the fields as follows:

Alternate Task. Defines the alternate task name.

Description. Defines the description of the alternate task defined above. This description should be typically labor management related.

Comments. Defines whether additional comments are required for this task.

Task. Defines the standard task for this alternate task.

Sequence. Defines the sequence in which the alternate tasks should be considered, as defined in Task Assignment Maintenance.

From/To Site. Defines the effective transaction from/to site. These fields are not range fields; they are the actual transaction from site and transaction to site.

From/To Warehouse. Defines the effective transaction from/to warehouse.

From/To Storage Location Group. Defines the effective transaction from/to storage location group.

From/To Work Location Group. Defines the effective transaction from/to work location group.

From/To Location. Defines the effective transaction from/to location.

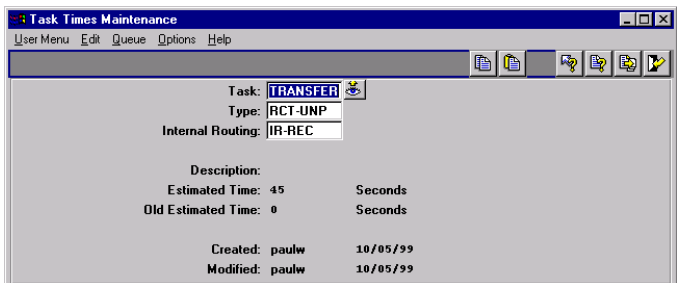
Confirmation Mode. Defines the default confirmation method for this alternate task type.

- A confirmation mode of AUTO requires the user to perform a movement confirmation.
- A confirmation mode of MANUAL is confirmed by the confirmation engine.
- A confirmation mode of TIMED is confirmed at a predetermined time interval.

Task Times Maintenance

Labor Management Task Times Maintenance (80.11.5) uses task times to calculate estimated resources required and estimated completion time for tasks. The workbench can also be used for reallocating resources and tasks to reduce times.

Example If current transactions are assigned to someone, the workbench can be used for calculating the most efficient staff and allocating work accordingly.



Task Times Maintenance	
User Menu Edit Queue Options Help	
Task: TRANSFER	
Type: RCT-UNP	
Internal Routing: IR-REC	
Description:	
Estimated Time: 45	Seconds
Old Estimated Time: 0	Seconds
Created: paulw	10/05/99
Modified: paulw	10/05/99

Fig. 22.6
Task Times
Maintenance
(80.11.5)

In order for this functionality to operate, standard task times must be assigned. This is done using Task Times Maintenance (80.11.5). Complete the fields as follows:

Task. Defines the standard or alternate task name.

Type. Defines the task type.

Internal Routing. Defines internal routing associated with this task.

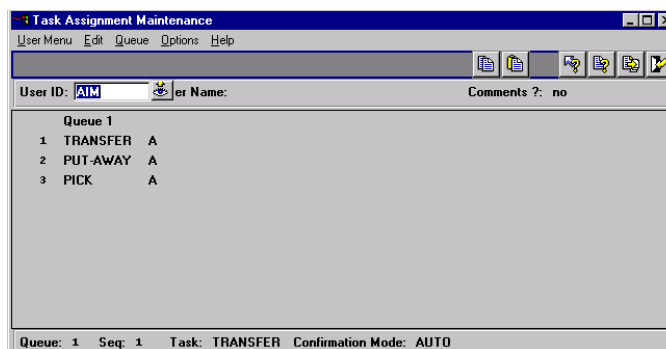
Description. Defines the description of the task defined above. This description should be typically labor management related.

Estimated Time. Defines the estimated task completion time. This value is used by the labor management workbench and is compared against the users estimated task completion time. This field can be updated automatically based upon all past transactions using Task Times Update (80.11.10).

Assigning Resources to Tasks

After defining the resources and tasks that are being undertaken within the warehouse, you must assign the tasks to the resources. This is achieved by using Task Assignment Maintenance (80.11.7).

Fig. 22.7
Task Assignment
Maintenance
(80.11.7)



Complete the fields as follows:

User ID. Defines the name of the warehouse staff. An entry should be made for each warehouse staff.

Comments. Defines whether additional comments are required for this task assignment.

Queue. Defines the queue for this task. The queue contains a number of sequences, and queues are examined incrementally. Therefore, when the system is assigning tasks to resources, it checks all the sequences in queue 1 before queue 2.

Sequence. Defines the order within the queue for examining tasks.

Task. Defines the tasks that are assigned to the specified employee (user).

Note This does not assign a specific task; it simply states to the system that the user can undertake this task, assuming some are available.

If two outstanding tasks exist within the warehouse—a pick and a receipt—and a user is defined with sequence 1 receipt and sequence 2 pick, the user is prompted to move the receipt first, as this has a higher priority within the queue.

Confirmation Mode. Defines the default confirmation method for this task type.

- A confirmation mode of AUTO requires the user to perform a movement confirmation.
- A confirmation mode of MANUAL is confirmed by the confirmation engine.
- A confirmation mode of TIMED is confirmed at a predetermined time interval.

Labor Management Workbench

Labor Management Workbench (80.11.20) is used to automatically or manually assign resources to tasks. Automatically, the workbench assigns tasks to the most suitable resource, depending upon task assignment, user/group calendars, and travel sequence. Manually, the workbench allows the operator to assign the resources to the tasks.

Fig. 22.8
Labor Management
Workbench
(80.11.20)

Complete the fields as follows:

From/To Site. Defines the From/To site range that should be included on the workbench.

From/To Warehouse. Defines the From/To warehouse range that should be included on the workbench.

From/To Work Location Group. Defines the From/To work location group range that should be included on the workbench.

From/To Location. Defines the From/To location range that should be included on the workbench.

From/To Item Number. Defines the From/To item number range that should be included on the workbench.

From/To Lot/Serial. Defines the From/To lot/serial range that should be included on the workbench.

From/To Reference. Defines the From/To reference range that should be included on the workbench.

From/To UM. Defines the From/To UM range that should be included on the workbench.

From/To Created. Defines the From/To create date range that should be included on the workbench.

From/To Transaction. Defines the From/To transaction number range that should be included on the workbench.

From/To Type. Defines the From/To transaction type range that should be included on the workbench.

From/To Priority. Defines the From/To transaction priority range that should be included on the workbench.

From/To Task. Defines the From/To transaction task range that should be included on the workbench.

From/To Created by. Defines the From/To transaction created by user ID range that should be included on the workbench.

From/To Order. Defines the From/To transaction order number range that should be included on the workbench.

From/To Line/ID. Defines the From/To transaction order line range that should be included on the workbench.

Check User Task Assignment. Defines whether the workbench should check the user or group task assignment.

Check User/Group Calendars. Defines whether the workbench should check the user or group calendars.

Check User Travel Sequence. Defines whether the workbench should check the user's last known physical location prior to assigning tasks, or assign tasks irrespective of physical location within the warehouse.

Include Routing Tasks. Defines whether the workbench should calculate the times and tasks using the complete routing as opposed to the individual routing sequence.

Display Next. Defines how many tasks the workbench should display.

Display Tasks for Next (Minutes). Defines how many minutes worth of tasks the workbench should display.

The Labor Management Workbench displays the current outstanding tasks based upon the selection criteria entered in the first frame, together with the currently assigned warehouse staff, priority, and estimated time required to complete the task.

The lower frame displays the actual time that the report was generated, together with the estimated total time for all displayed tasks, and the estimated completion time for all displayed tasks.

Trans	Task	Type	From Location	To Loc	Current	Pri	Est. Time
1317	pick	CK-SO	fgst03	fgde01		10	00:00:36
1318	pick	PICK-SO	fgst03	fgde01		10	00:00:36

Act. Time: 09:47:14	Act. Outstanding Tasks: 2
Est. Total Time: 00:01:12	Est. Tasks per Minutes: 1,67
Est. Completion Time: 09:48:26	Est. Outstanding Tasks: 0

Fig. 22.9
Labor Management
Workbench
(80.11.20)

The operator can select the required transaction to display a list of all valid warehouse staff that can undertake this task.

SO Management and Detail Picking

This chapter describes the sales order management and detail picking modules. Although closely related, these modules can be implemented independently. Detail picking is described first, followed by sections reviewing the combined use of sales order management and detail picking. This chapter covers:

<i>About Detail Picking</i>	334
<i>Detail Picking Setup</i>	334
<i>Picking and Packing</i>	337
<i>Palletization</i>	339
<i>Built Pallets Transfer</i>	340
<i>Built Pallets Shipping</i>	341
<i>About Sales Order Management</i>	341
<i>Sales Order Selection and Launch</i>	341
<i>Detail Replenishment Setup</i>	344
<i>Full Pallets Picking</i>	346
<i>Detail Replenishment Processing</i>	347
<i>Detail Picking Completion</i>	347

About Detail Picking

Not all areas in a warehouse necessarily have the same picking logic; some areas are dedicated to pallet storage while others are dedicated to perhaps boxes or partially filled pallets. To complete an order, you must partly pick stock from one picking area, perhaps in pallets, and also pick stock from another area, perhaps in boxes or each. Then all picked goods need to be gathered together, usually on one or several pallets, before being shipped to the customer.

The Detail Picking module of AIM lets you set up a complete picking and packaging flow prior to shipment. The system manages up to five levels of packaging, the final level normally being the pallet itself.

Example Individual pieces can be gathered into boxes. Boxes can be placed into larger boxes. Larger boxes can be placed onto pallets, and so forth. Once the final level is complete, the unit (pallet) is automatically sent to the dispatch area, together with all other associated units that belong to the same shipper. All the supplied orders can then be sent to the customer at the same time.

Detail Picking Setup

Detail picking is activated in Warehouse Maintenance (80.1.1).

Fig. 23.1
Warehouse
Maintenance
(80.1.1)

The screenshot shows the 'Warehouse Maintenance' window with the following details:

- Title Bar:** Warehouse Maintenance
- Menu Bar:** User Menu Edit Queue Options Help
- Site:** 10000
- Warehouse:** raw
- Picking Section:**
 - Start Picking Level: 100
 - End Picking Level: 999
 - Single Level Picking?: no
 - Flav C Hard/Soft Assign.: Hard
 - Multi-bin Pick flav C Sort: 0
 - Def. ID Print Flavor C: no
- Detail Picking Section:**
 - Active: ☒ yes
 - Pallet Picking: 100 / 100
 - Levels[1]: PL PALLET Print ID: n
 - Levels[2]: BX BOX Print ID: n
 - Levels[3]: EA Print ID: n
 - Levels[4]: Print ID: n
 - Levels[5]: Print ID: n
 - Print Mode: AUTO
 - Print Qty: 1
- Hold Defaults Section:**
 - Allow Issues?:
 - Allow Receipts?:
 - Allow Picking?:
 - Allow Incoming Returns?:
 - Allow Outgoing Returns?:
 - Allow Cycle Counts?:

The detail picking fields are described below:

Active. If set to Yes, the detail picking functionality becomes active.

Pallet Picking. Used with sales order management only.

Prior to generating the detail picking replenishment transactions, the system picks full pallets that suit (totally or partially) selected orders. The values given here represent the interval for the picking levels of storage location groups containing those full pallets.

Levels 1 to 5. These are the units of measure representing the packaging hierarchy. The name corresponding to every unit of measure is the item number as it is defined in Alternate UM Maintenance (80.5.1).

See Figure 23.2 for an example of the Alternate UM Maintenance screen.

Print ID. Specify for every packaging level whether an ID tag needs to be printed at picking time.

Print Mode. If set to Auto, the requested ID tag is printed automatically. If set to Manual, the requested ID tag is printed at user's action on print engines.

Print Qty. Specify how many IDs are printed for every picked items.

To link the detail picking areas with the levels defined above, the systems checks the options on Storage Location Group Maintenance (80.3.1).

Figure 23.2 shows the Alternate UM Maintenance screen.

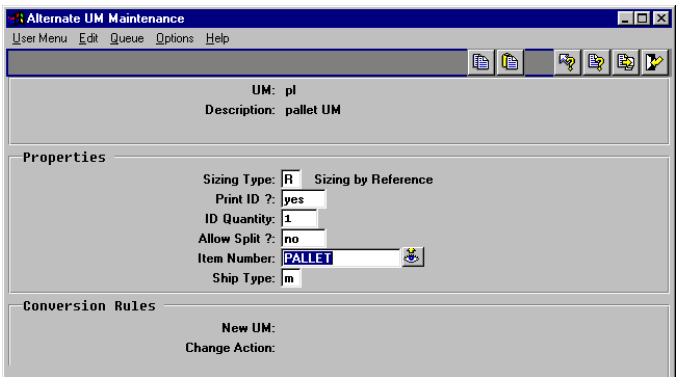


Fig. 23.2
Alternate UM
Maintenance
(80.5.1)

Fig. 23.3
Storage Location
Group Maint
(80.3.1)

Figure 23.3 shows the Storage Location Group Maint screen.

The fields are as follows:

Pick/Mult. Of. Tells the system to only consider this packaging multiple unit for picking.

Note The multiple unit field is only intended to receive units of measure that are not sized by reference. Picking rules for referenced units of measure apply through the Allow Split and Over-Pick properties only.

Multi-Trans. Tells the system if it should consider items as an entity (Multi-Trans set to No) or items as individual entities of 1 item (Multi-Trans set to Yes). This impacts the presentation of items on the pre-shipper/shipper tree.

Example If picking five items and Multi-Trans is set to No, the system sees an entity of five items. If Multi-Trans set to Yes, the system sees five individual entities of 1 item.

Det.Overflow Gr. The system uses this storage location group if the current storage location group does not have the material for stocking the detail picking area (replenishment transactions).

This overflow group should contain only one location as an overflow location. It is defined in Storage Location Group Maintenance (80.3.1) and used with Sales Order Management only.

The picking level of the storage location group should be chosen by keeping in mind the order that the system should follow for picking, for example, from the largest packaging unit to the smallest.

Note It is also important that the picking algorithms used take picking levels into consideration.

Picking and Packing

The sales order picking can be undertaken using Picklist/Pre-Shipper – Automatic (7.9.1). The system issues a pre-shipper list, which shows which locations the goods were picked from. Tags are printed according to the Detail Picking Print ID flags found in Warehouse Maintenance (80.1.1). Warehouse transactions are only created for the first picking level. Other goods that are picked can then follow a packaging process. This can be achieved through standard AIM programs or using hand-held Radio Frequency devices. Both methods are described below.

Full-Screen Detail Picking

Select Detail Picking (80.15.13).

The fields are as follows:

Site. The site you are working on.

Whse. The warehouse you are working on.

Pre-Shipper. The pre-shipper ID for which packing and regrouping should be done.

BoxRef. The ID of the box that is assembled.

Leave it blank to create a new box and let the system generate its ID according to the Packaging Seq ID defined in Warehouse Maintenance (80.1.1).

Begin Level/End Level. Lower and upper unit of measure levels to display items.

Merge Orders. Indicates whether several orders can be regrouped within one box or not. If set to No, first display shows all items for all orders. Once first item is packed, only the other items belonging to the same order are shown to the user.

RDT Detail Picking

Select Detail Picking (3.1).

Fig. 23.4
RDT Detail Picking

Detail Picking
 Begin Level: 2
 End Level: 2
 PreShipper: 00000061
 Box Ref: _____
 Merge Orders:

Fields are the same as described above. The system shows all picked entities that are comprised between the start and end levels selected.

Fig. 23.5
RDT Picking
Display

Location	Item Number	Qty	UM
VR001	testpra	1	EA
VR001	testpra	1	EA
VR001	testpra2	1	EA
VR001	testpra2	1	EA
BX001	testpra	1	BX
BX001	testpra	1	BX

Box now contains 7 items.

515, 20 VT400-7 - bruux01 via TELNET Compose Num Caps Hold

For both kinds of processing, the container item in which picked goods are packed does not directly depend on the start/end levels. The container is the level just above the highest level of all items making part of a packing.

Example If the start/end levels are chosen to display boxes and single items, picked goods are packed in a container (higher level than box) if at least one box is making part of the goods packed. If goods packed are single items only, they are all packed in a box.

The build status of the pre-shipper can be displayed using Pre-Shipper/Shipper Workbench (7.9.2) or Pre-Shipper/Shipper Inquiry (7.9.3).

Level	Order	Ln	Item Number	Quantity	UM	Container
.1	PALLET	0.0	REF00302	5.0	EA	
...2	amS020	1	amatest	0.0	00000001	
...3	amS020	1	amatest	1.0	EA	
...3	amS020	1	amatest	1.0	EA	
...3	amS020	1	amatest	1.0	EA	

Sales Order: amS020 Line: 1
Quantity: 1.0 UM: EA Site: cdc Loc: expd
Qty Picked: 1.0 Lot/Serial: Ref: REF00302 Type:
Net Weight: 0.0 Consume Req: no ID:
Gross Weight: 0.0 Description:
Volume: 3.0 CC Comments: no
Purchase Order:

Fig. 23.6
Pre-Shipper/
Shipper Workbench
(7.9.2)

Palletization

Once all the detail picked goods have been gathered into a larger packaging unit, the final step before shipment consists of building a pallet with all the entities created.

This can be done with Detail Packing (80.15.17) or using the RF terminal with Pallet Const (3.2).

Fields are as follows:

Packs. Pack ID.

Pallet. The pallet ID that is constituted. The system generates a new number automatically every time a new pallet is started.

Figure 23.6 shows an example of a pallet with entities created.

Order. The ID of the sales order associated with the items on the pallet.

Grp. The number of packs/items already regrouped on the pallet.

Left. The number of packs/items that are not yet regrouped. They can be regrouped on a single pallet or on several pallets.

Cust. Enter the description of the customer who has ordered the goods.

Cst Code. The customer code.

Fig. 23.7
RDT Shipper
Display



Once a pallet is complete, it must be closed. To close a pallet, select the same Pack ID twice. The system requests confirmation.

The RF method of closing a pallet is somewhat simpler. Answer 1 to close the pallet, or 0 (zero) to leave it open. A pallet is typically left open when more items are to be added to it later.

Once all pallets have been completed (Closed), the pallets follow the internal routing that has been assigned to the PICK-SO transaction type.

Built Pallets Transfer

If a pallet is not sent directly to the dispatch area after being built, Pallet Transfer (80.15.21) lets you move it. Pallet Transfer has the same functionality as Transfer by Reference (80.17.1), but is specially designed for pallets of allocated and picked goods. Transfer by Reference only allows transfer of unallocated goods.

Built Pallets Shipping

Once all the pallets that come from packaging as well as whole pallets that were picked (transactions) have reached the dispatch area, use Pre-Shipper/Shipper Print (7.9.4) and Pre-Shipper/Shipper Confirm (7.9.5) to perform shipment.

About Sales Order Management

The sales order picking simulation allows the user to manage the sales orders and sales order lines that are effectively handled, according to the total available stock. The total available stock is here all the stock that is in the system. Following the detail picking principle, whole pallets are picked prior the detail picking in the detail storage area. If several orders are handled at the same time, the detailed stock can become insufficient during the picking process. Replenishment movements for the detail picking area need then to be generated prior to the picking itself. An overflow area can be defined to contain the surplus that does not fit in the detail picking location themselves. Typically, these transactions create movements for entire pallets from the reserve area to the detail picking areas.

Once the replenishment transactions have been carried out, the standard detail picking process can continue.

Sales Order Selection and Launch

Select the sales order that should be filled and get the supply statistics, SO Picking Statistics & Management (80.15.1).

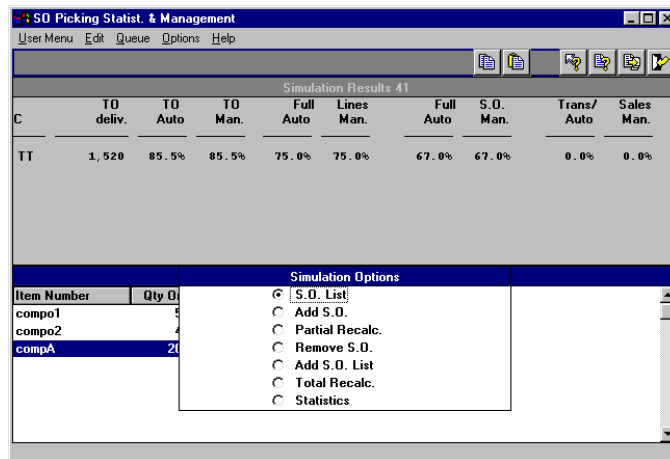
Selection can then be made with the following criteria:

Site	The site where you are working
Whse	The warehouse where you are working
Due-Date	Due-date of the sales order lines to include in selection
Sales Order	The sales order numbers to include in selection
Ship-to	The ship-to address for limiting the selected orders to.
Class	The customer class for limiting the selected orders.

When prompted for an output device. The user should select terminal, as the following frames output to browsers.

Several frames allow them to manage the sales orders and sales order lines, to get the best results as possible for picking to follow. The system shows the supplied orders in terms of turnover, % supplied, % of sales orders supplied, % of lines supplied.

The lower detail frame displays all the items ordered. Pressing Enter on a particular item, details all order lines containing this item. It becomes then possible to select or deselect a particular line (by pressing S) or to display all the lines of the sales order to which the selected line belongs (by pressing Enter). If the user presses Go when on the item detail frame, a pop-up window appears, displaying several options for the simulations.

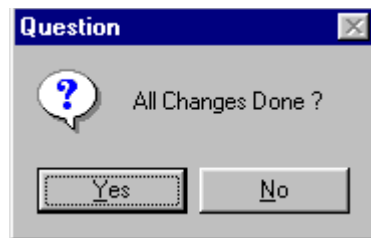


Those options are:

S.O. List	Displays all the sales orders that are currently making part of the simulation.
Add S.O.	Allows you to add an individual sales order to the simulation. Note: At this time, the system does not check anymore that the sales order entered satisfies the initial selection criteria.
Partial Recalc.	Recalculates the simulation statistics according to the modifications made on the item lines/sales orders/sales order lines.
Remove S.O.	Allows you to remove one or more sales order from the simulation.

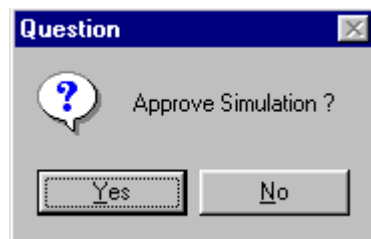
Add S.O. List	Allows you to add several sales order at a time to the simulation. Note: At this time, the system does not check anymore that the sales order entered satisfies the initial selection criteria.
Total Recalc.	Recalculates the simulation statistics with the initial selection data's. It does not re-select unselected orders however, and it keeps the modifications made so far. A Partial Recalc. then shows the situation back to its actual stage.
Statistics	Shows the total numbers of sales orders, sales order lines and backorders in simulation as well as the numbers of them currently selected.

Once all the modifications are correct, press End to come out of the item detail frame. The system asks first to confirm that all the modifications are done.



Answer No to go back to the previous detail frames and to perform further modifications.

Answering Yes shows the following:



Disapproving the simulation sends back to the 80.5.1 selection frame without taking any action on the simulation or picking.

Approving the simulation launches the picking and the detail replenishment process.

Detail Replenishment Setup

In order for the detail picking to provide enough goods to pick, detail replenishment needs to be set up correctly.

Detail replenishment that is part of the sales order management and detail picking process only uses storage location group replenishment definitions. Location replenishment definitions that could exist for picking locations for instance are not exploited by the detail replenishment. Location replenishment definitions are only intended for manual or automatic replenishments.

There are several ways to consider the detail replenishment:

- The system tries to replenish the detail picking storage location group first, and if locations become full, the system stores the remaining incoming goods in the overflow area. The system however replenish only the exact quantity that suits the selected orders to fill. Another put-away process sends then the excess quantity back in stock.
- The system tries to replenish the detail picking storage location group first, and if locations become full, the system stores the remaining incoming goods in the overflow area. The system however leaves all the remaining goods there. Once all the picking process is complete, those goods have to be transferred manually to empty the overflow area.
- The system does not try to replenish first the detail picking storage location group and directly sends the goods to the overflow area. The system replenishes there the exact quantity required by the selected orders and continues with a put-away of the remaining goods, eventually by looking first to fill up the detail picking area for later use.
- The system does not try to replenish first the detail picking storage location group and directly sends the goods to the overflow area. The system leaves all the goods there. Once all the picking process is complete, the remaining goods have to be transferred manually to empty the overflow area.

Generally speaking, the storage location groups to replenish are governed by the data defined in Replenishment-SLG Maintenance (80.16.17) while the quantity that should be stored is governed by the put-away algorithms assigned to the replenishment transaction type PICK-RE.

Storage Group Replenishment Maintenance

The system replenishes a storage location group only if it can find data for it in Replenishment-SLG Maintenance (80.16.17). Therefore, depending on the existence of this data for the detail picking storage location group, the system first tries to replenish this detail picking group.

The screenshot shows a software window titled "Replenishment-SLG Maintenance". It has a menu bar with "User Menu", "Edit", "Queue", "Options", and "Help". The main area contains several input fields and labels: "Site:" with value "10000", "Warehouse:" with value "raw", "Store Loc Group:" with value "bulkbx" and a magnifying glass icon, "Item Number:" with value "amatest", "Replenishment Type:" (empty), "Start Date:" (empty), "End Date:" (empty), "RepUM:" with value "bx", "Replenishment Point:" with value "0.0", "Maximum Quantity:" with value "0.0", and "Replenishment List:" with value "repllist".

Fig. 23.8
Replenishment–
SLG Maintenance
(80.16.17)

Specific setup for Detail Replenishment is as follows:

RepUM. The unit of measure to replenish.

Usually this unit is identical to the picking unit of measure defined on the storage location group.

Example A picking area for boxes is replenished by boxes. But it can be interesting in some cases to specify a RepUM smaller than the picking UM to allow the system to fill up possible incomplete picking UM packages found in the destination storage location group.

Replenishment Point. This value is changed dynamically by the system during the detail replenishment process according to the orders that are being handled.

The value should then only be specified according to eventual manual or automatic replenishments that could occur at other times.

Maximum Quantity. This value is changed dynamically by the system during the detail replenishment process according to the orders that are being handled.

The value should then only be specified according to eventual manual or automatic replenishments that could occur at other times.

See Chapter 15, "Replenishment," on page 231 for a general description of the fields found here.

This data is defined the same way for the overflow storage location group.

Fig. 23.9
Replenishment—
SLG Maintenance

The screenshot shows a software window titled "Replenishment-SLG Maintenance". It features a menu bar with "User Menu", "Edit", "Queue", "Options", and "Help". Below the menu is a toolbar with icons for file operations and help. The main content area is divided into two sections. The top section contains input fields for "Site" (10000), "Warehouse" (raw), "Store Loc Group" (bulkboxUF), "Item Number" (amatest), "Replenishment Type", "Start Date" (/ /), and "End Date". The bottom section contains fields for "RepUM" (bx), "Replenishment Point" (0.0), "Maximum Quantity" (0.0), and "Replenishment List" (replist).

Put-Away Algorithms for Overflow Areas

Specific algorithms allow to manage the way the system puts-away the goods in the dedicated overflow areas.

Those algorithms are:

- 150 Detail Picking OverFlow Location - EXACT NEED
Quantity to put-away is calculated to fit exactly the quantity required by the selected sales order.
- 151 Detail Picking OverFlow Location - INFINITE CAP
Quantity that is put-away is all incoming quantity.

Full Pallets Picking

The first step of picking consists of picking as many full pallets as possible to fill the selected orders and then sending them directly to the dispatch area—or more generally, to the appropriate routing group given by the sales order picking routing.

This pallet picking creates standard AIM transactions, one phase or two phases depending on the setup. If the transactions are two phases, they of course need to be confirmed using RDT devices for instance.

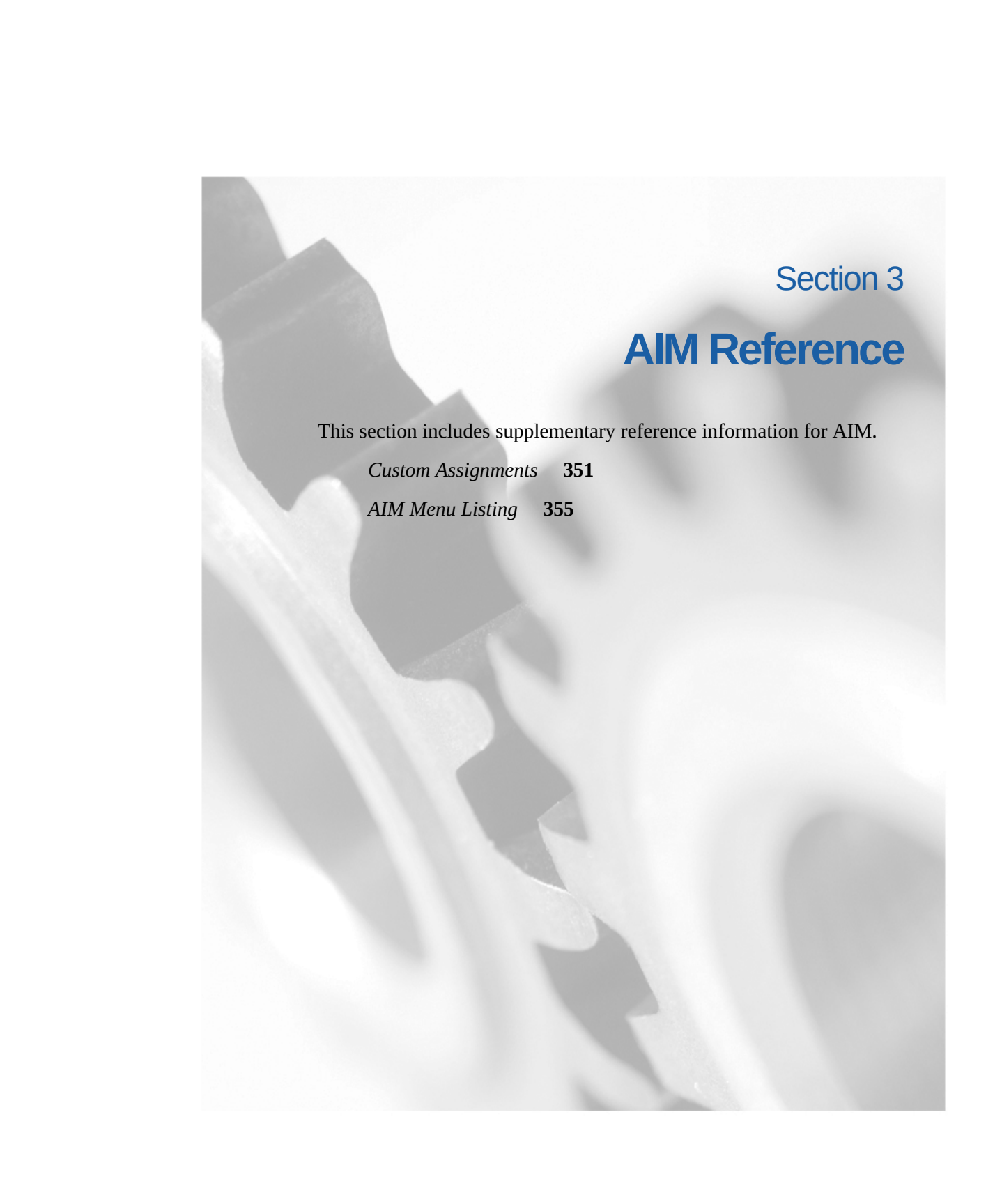
Detail Replenishment Processing

Depending on the orders selected and according to the quantity of goods supplied on full pallets, the system calculates the quantity remaining to be processed for the detail picking itself. If not enough inventory can be found in the detail picking area, replenishment transactions are created to provide additional stock into this detail area. According to the replenishment setup, the detail picking storage location group, the detail picking overflow area or both are replenished.

All the replenishment transactions created that way need to be confirmed before the detail picking itself can be performed.

Detail Picking Completion

Once all the replenishment transactions have been confirmed and all the goods are ready for detail picking, all the detail picking logic as exposed in the previous sections of this chapter applies.

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and mechanical complexity. The lighting is soft, highlighting the teeth of the gears.

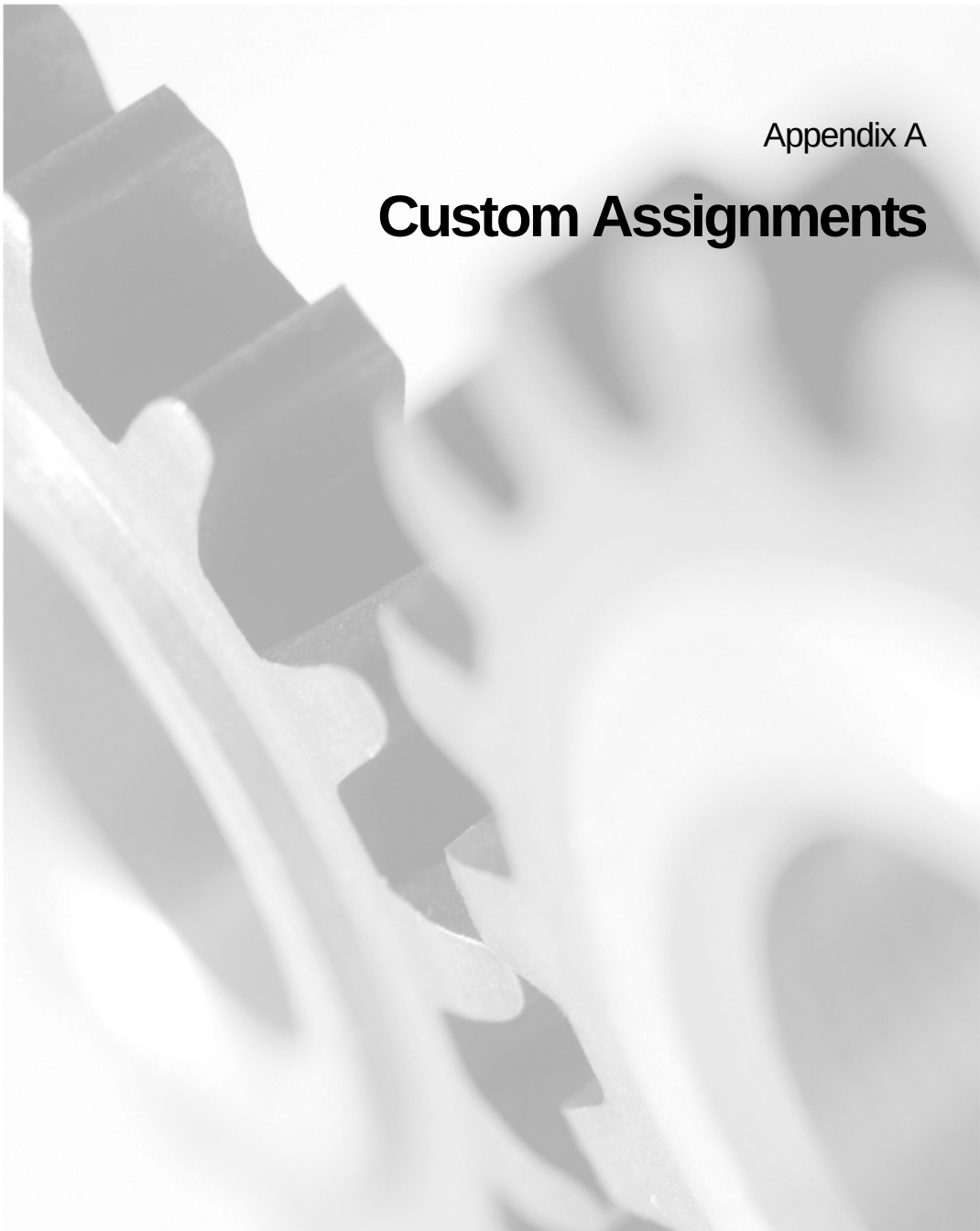
Section 3

AIM Reference

This section includes supplementary reference information for AIM.

Custom Assignments **351**

AIM Menu Listing **355**

A grayscale, close-up photograph of several interlocking mechanical gears. The focus is sharp on the teeth of the gears in the foreground, while the background gears are blurred. The lighting creates strong highlights and shadows, emphasizing the metallic texture and the complex geometry of the gear teeth.

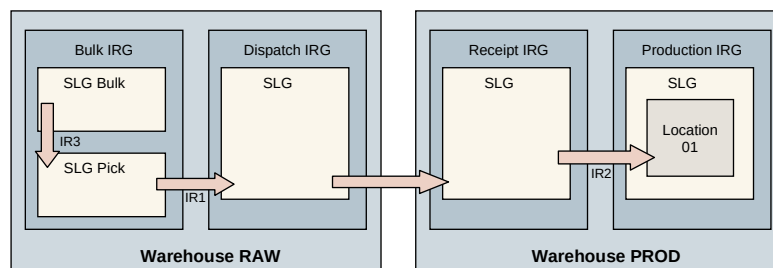
Appendix A

Custom Assignments

The custom assignment program exists to cover situations when you have a transaction type (such as PICK-RE) which could have two possible internal routing assignments. You would then run the program `whircust.p` in order to determine which internal routing AIM should use for the transaction type.

Figure A.1 shows a possible scenario.

Fig. A.1
Custom
Assignment
Scenario



Location 01 in warehouse Prod is replenished from SLG Pick in warehouse Raw.

There would be two IRs to cover this movement:

- IR1
 - Step 10 Bulk
 - Step 20 Dispatch
- IR 2
 - Step 10 Receipt
 - Step 20 Prod

But you also want to replenish SLG Pick from SLG Bulk in warehouse Raw. The IR would be as follows:

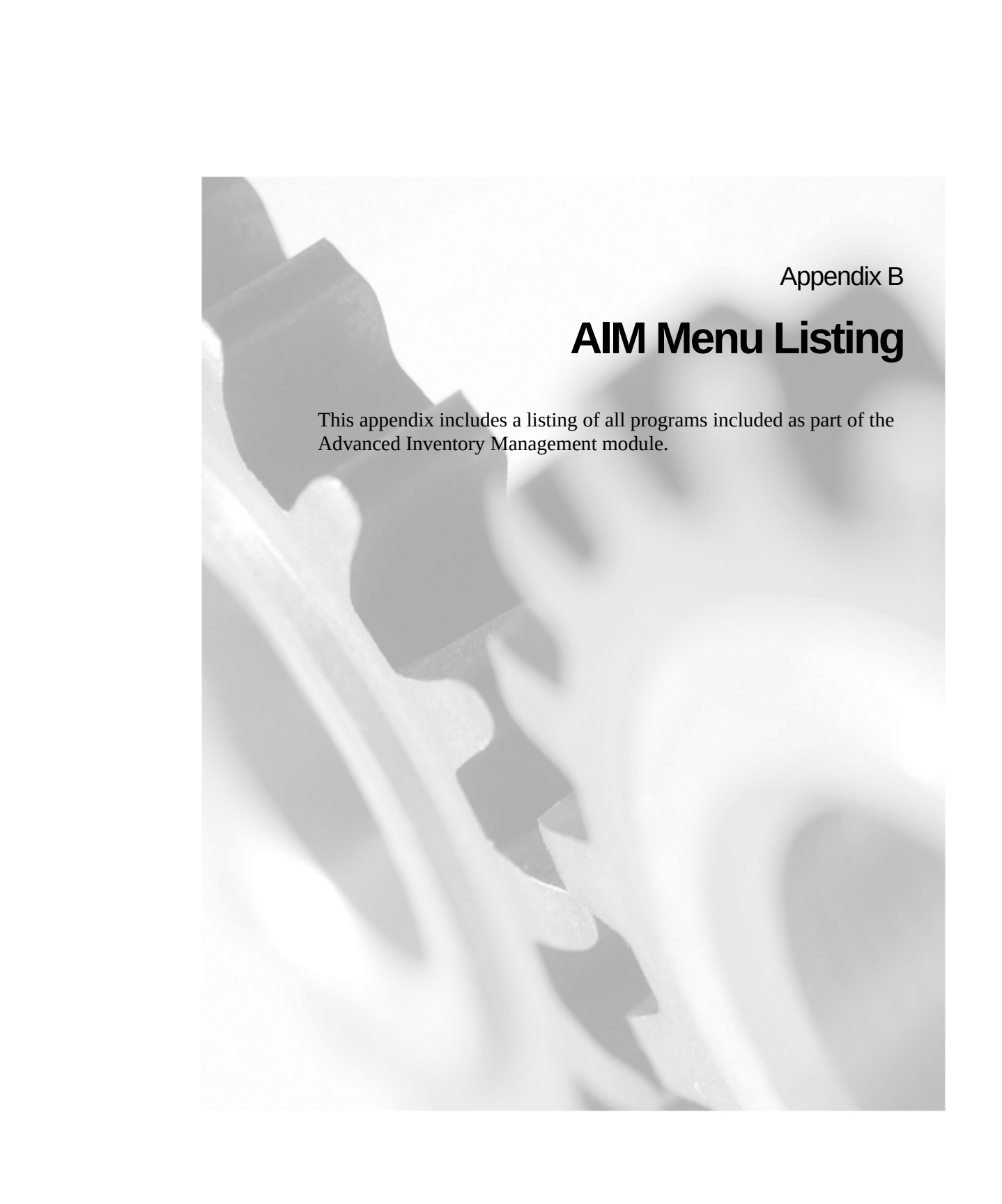
- IR3
 - Step 10 Bulk

When making the IR assignment for transaction type PICK-RE, IR1, and IR3 would have the same Item, site, warehouse, transaction type, and address. Yet you can only assign one IR to the transaction type. How would you choose whether to assign IR1 or IR3?

The solution is to use the custom assignment program, `whircust.p`. You supply a set of fields to the program, and then the program determines which IR to use by looking at the ultimate destination of the inventory movement.

To do this:

- Run `whircust.p` in the Progress editor.
- The following list shows the input fields that you must enter in the custom program file:
 - Tran Type
 - Site
 - Whse
 - Item
 - Lot
 - Ref
 - Dataset (sod_det = Sales Order, wod_det = Work Order, pod_det = Purchase Order, dsd_det = Distribution Order)
 - Order Nbr
 - Order Line
 - Ultimate Site
 - Ultimate Whse
 - Ultimate Location
- The output field of the program is the IR to use. In the example on the previous page, the program would use IR1 if the Ultimate Whse were Prod; otherwise, it would use IR3.
- Assign the output field in the Custom Program field of the IR Assignment Maintenance program.

The background of the page is a grayscale photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and motion. The lighting is soft, highlighting the metallic texture and the sharp edges of the gear teeth.

Appendix B

AIM Menu Listing

This appendix includes a listing of all programs included as part of the Advanced Inventory Management module.

Table B.1
AIM Warehouse
Menu

Menu	Menu Label	Program Name
80.1	Warehouse Menu...	
80.1.1	Warehouse Maintenance	whwhmt.p
80.1.2	Warehouse Inquiry	whwhiq.p
80.1.3	Warehouse Report	whwhrp.p
80.1.5	Whse Master List Maintenance	whwhlsmt.p
80.1.6	Whse Master List Inquiry	whwhlsiq.p
80.1.7	Whse Master List Report	whwhlsrp.p
80.1.13	Inventory Acct. Synchronization	whacsync.p
80.1.24	Warehouse Control File Maint	whwhpm.p
80.2	Routings Menu...	
80.2.1	Internal Routing Group Maint	whirgpm.p
80.2.2	Internal Routing Group Browse	whbr026.p
80.2.3	Internal Routing Group Report	whirgpr.p
80.2.5	Internal Routing Maintenance	whirmt.p
80.2.6	Internal Routing Inquiry	whiriq.p
80.2.7	Internal Routing Report	whirrp.p
80.2.9	Int Routing Assignment Maint	whirasmt.p
80.2.10	Int Routing Assignment Browse	whbr027.p
80.2.11	Int Routing Assignment Report	whirasrp.p
80.2.13	External Routing Maintenance	wherm.p
80.2.14	External Routing Inquiry	wheriq.p
80.2.15	External Routing Report	wherrp.p
80.2.17	Ext. Routing Assignment Maint	wherasmt.p
80.2.19	Inter-Work Location Group Maint	whinwlmt.p
80.2.20	Inter-Work Location Group Browse	whbr023.p
80.2.21	Inter-Work Location Group Report	whlgmrp.p
80.3	Location Menu...	
80.3.1	Storage Location Group Maint	whslgmt.p
80.3.2	Storage Location Group Browse	whbr034.p
80.3.3	Storage Location Group Report	whslrp.p
80.3.5	Storage Loc. Group List Maint	whsllsmt.p

Table B.1 — AIM Warehouse Menu — (Page 1 of 10)

Menu	Menu Label	Program Name
80.3.6	Storage Loc. Group List Inquiry	whsllsiq.p
80.3.7	Storage Loc. Group List Report	whsllsrp.p
80.3.9	Work Location Group Maint	whwlgmt.p
80.3.10	Work Location Group Inquiry	whwliq.p
80.3.11	Work Location Group Report	whwlrp.p
80.3.13	Location Maintenance Menu...	
80.3.13.1	Location Maintenance	whlomt.p
80.3.13.2	Location Inquiry	whloiq.p
80.3.13.3	Location Report	whlorp.p
80.3.13.5	Dedicated Location Inquiry	whlodeiq.p
80.3.13.6	Location By SLG Inquiry	whlosliq.p
80.3.13.7	Location By WLG Inquiry	whlowliq.p
80.3.13.21	Mass Location Maintenance	whlomamt.p
80.3.22	Hold Menu...	
80.3.22.1	Hold Maintenance	whichomt.p
80.3.22.2	Hold Inquiry	whichoiq.p
80.4	Item Menu...	
80.4.1	Item/SLG Properties Maintenance	whppslmt.p
80.4.2	Item-Storage Loc Group Inquiry	whsllsiq.p
80.4.3	Item-Storage Loc Group Report	whsllsrp.p
80.4.5	Item Master Maintenance	whppmt.p
80.4.6	Item Master Inquiry	whppiq.p
80.4.7	Item Maintenance	whppptmt.p
80.4.8	Item Inquiry	whppptiq.p
80.4.9	Item-Site Maintenance	whppsmt.p
80.4.10	Item-site Inquiry	whppsiiq.p
80.4.11	Item-Warehouse Maintenance	whppwhmt.p
80.4.12	Item-Warehouse Inquiry	whppwhiq.p
80.4.13	Supplier-Item Maintenance	whppidmt.p
80.4.14	Supplier-Item Browse	whbr009.p
80.4.15	Supplier-Item Report	whppvprp.p
80.4.17	Customer-Item Status Maint	whppcimt.p

Table B.1 — AIM Warehouse Menu — (Page 2 of 10)

Menu	Menu Label	Program Name
80.4.18	Customer-Item Status Browse	whcmiciq.p
80.4.19	Customer-Item Status Report	whcmicrp.p
80.4.21	Aim Item Number Change	whppptcg.p
80.5	Sizing Menu...	
80.5.1	Alternate UM Maintenance	whummt.p
80.5.2	Alternate UM Inquiry	whumiq.p
80.5.3	Alternate UM Report	whumrp.p
80.5.5	UM-Group Maintenance	whppugmt.p
80.5.6	UM-Group Inquiry Per Group	whppugiq.p
80.5.7	UM-Group Inquiry Per Item	whppupiq.p
80.5.8	UM-Group Report	whppugrp.p
80.5.9	UM Conversion Generation	whppugen.p
80.5.10	UM Check Report	whppburp.p
80.6	Algorithm Menu...	
80.6.1	Algorithm Type Maintenance	whaltymt.p
80.6.2	Algorithm Type Browse	whbr044.p
80.6.5	Algorithm Master Maintenance	whalmmt.p
80.6.6	Algorithm Master Browse	whbr043.p
80.6.7	Algorithm Master Report	whalrp.p
80.6.9	Algorithm Assignment Maintenance	whalasmt.p
80.6.10	Algorithm Assignment Browse	whbr045.p
80.6.11	Algorithm Assignment Report	whalasrp.p
80.6.21	Algorithm Simulation Menu...	
80.6.21.1	PA/LF Simulation	whpasim.p
80.6.21.2	PA/LF Report	whpasirp.p
80.6.21.4	Picking Simulation	whpksim.p
80.6.21.5	Picking Simulation Report	whpksirp.p
80.7	Engine Menu...	
80.7.1	Engine Processor - Order Display	whenpord.p
80.7.2	Engine Processor - Date Display	whenpdte.p
80.7.3	Engine Processor - LotSerial/Ref	whenplrf.p
80.7.6	Transaction Type Maintenance	whtrttmt.p

Table B.1 — AIM Warehouse Menu — (Page 3 of 10)

Menu	Menu Label	Program Name
80.7.7	Transaction Type Browse	whbr054.p
80.7.8	Transaction Type Report	whtrwtrp.p
80.7.10	Whse-Transaction Type Maint	whtrwtmt.p
80.7.11	Whse-Transaction type Browse	whbr055.p
80.7.12	Whse-Transaction Type Report	whwtmtrp.p
80.7.13	Engine Workfile Maint By Order	whenmt01.p
80.7.14	Engine Workfile Maint By Date	whenmt02.p
80.7.15	Engine Workfile Inquiry By Time	wheniq.p
80.7.16	Engine WorkFile Inquiry By Inv.	when1iq.p
80.7.17	Engine Workfile Report	whenrp.p
80.7.18	Failed Engine WorkFile	whenfarp.p
80.7.22	Engine History Menu...	
80.7.22.1	Engine History Inquiry By Time	whenhiq.p
80.7.22.2	Engine History Inquiry By Inv.	whenh1iq.p
80.7.22.3	Engine History Inquiry By Order	whenh2iq.p
80.7.22.4	Engine History Inquiry By Date	whenh3iq.p
80.7.22.5	Engine History Report	whenhrp.p
80.7.22.13	Engine History Archive	whenup.p
80.7.24	Engine Control Maintenance	whenpm.p
80.8	Process Menu...	
80.8.1	Movement Conf By Transaction	whtrcf11.p
80.8.2	Movement Conf By Location	whtrcf12.p
80.8.3	Movement Conf By Order	whtrcf13.p
80.8.4	Movement Conf Workbench	whtrcf04.p
80.8.5	Movement Conf Processor By Tran	whtrcfp1.p
80.8.6	Movement Conf Inquiry Format	whtrcf01.p
80.8.12	Cycle Count Generation	whicccgn.p
80.8.13	Transaction Maintenance	whtrmt.p
80.8.14	Inventory Detail Maintenance	whicldmt.p
80.8.15	Inventory Status Maintenance	whicismt.p
80.8.18	Trans. Priority Ctrl by PreShip.	whprsbst.p
80.8.23	Transaction History Archive	whtrup.p

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80.9	Reporting Menu...	
80.9.1	Warehouse Transaction Inquiry	whthiq.p
80.9.2	Warehouse Trans. History Inquiry	whthiq.p
80.9.3	Warehouse Trans. Time Inquiry	whtriq10.p
80.9.4	Transactions By Part Inquiry	whtriq01.p
80.9.5	Transactions By Pick Number	whtriq02.p
80.9.6	Transactions Reference Inquiry	whicref.p
80.9.7	Whse Transactions Inq By Ref	whtriq08.p
80.9.9	Trans. History By Part Report	whtrrp01.p
80.9.10	Trans. History By Order Inquiry	whtriq03.p
80.9.12	Reference Summary Inquiry	whicqliq.p
80.9.13	Inventory Detail Inquiry	whiciq01.p
80.9.14	Referenced Inventory Inquiry	whiciq02.p
80.9.15	Referenced Inventory History Inq	whiciq03.p
80.9.16	Percentage Full By Work Loc Grp	whlowliq.p
80.9.17	Percentage Full By Store Loc G.	whlosliq.p
80.9.18	Warehouse Full % Report	whlofurp.p
80.9.19	Location-Dedicated Item Inquiry	whlodeiq.p
80.9.21	Whse Inquiry By From Location	whtriq04.p
80.9.22	Whse Inquiry By To Location	whtriq05.p
80.10	Location Forecast Menu...	
80.10.1	Generate Receipt Forecasts	whfcrcgn.p
80.10.2	Receipt Forecast Maintenance	whfcrcmt.p
80.10.3	Receipt Forecast Order Inquiry	whfcicq01.p
80.10.4	Receipt Forecast Inventory Inq	whfcicq02.p
80.10.5	Receipt Forecast Report	whfcrcrp.p
80.10.24	Location Forecast Control File	whfcpm.p
80.11	Labour Management Menu...	
80.11.1	Task Maintenance	whlmtkmt.p
80.11.2	Task Browse	whbr101.p
80.11.3	Alternate Task Maintenance	whlmatmt.p
80.11.4	Alternate Task Browse	whbr100.p

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80.11.5	Task Times Maintenance	whlmtmt.p
80.11.6	Task Times Browse	whbr103.p
80.11.7	Task Assignment Maintenance	whlmtamt.p
80.11.8	Task Assignment Browse	whbr102.p
80.11.10	Task Times Update	whlmstmt.p
80.11.12	Priority Workbench	whlmtmgr.p
80.11.13	User Maintenance	whlmusmt.p
80.11.14	User Browse	whbr104.p
80.11.15	Group Maintenance	whsyugmt.p
80.11.16	Group Browse	whbr105.p
80.11.17	Calendar Maintenance	whlmcamt.p
80.11.18	Calendar Browse	whbr106.p
80.11.20	Labour Management Workbench	whlmtkwk.p
80.11.21	Labour Management Engine	whlmpren.p
80.11.23	Reporting Menu...	
80.11.23.1	Next Task Inquiry	whlmiq01.p
80.11.23.3	Task Time Inquiry	whlmiq02.p
80.11.23.5	Tasks Completed per Day Inquiry	whlmiq04.p
80.11.23.12	RDT/RF Operation Inquiry	whlmiq03.p
80.11.24	Labour Management Control File	whlmcmt.p
80.12	Bulk Picking Menu...	
80.12.1	Bulk Pick Order Line Selection	whbpsel.p
80.12.3	Bulk Pick Pre-Ship/Ship Inquiry	whbppsinq.p
80.12.4	Bulk Pick Pre-shipper Print	whbppsrrp.p
80.12.5	Bulk Pick Ship. Forecast Report	whbpfcs1.p
80.12.6	Open Trans. By Preshipper Inq	whbppoinq.p
80.12.8	B.P. Preshipper Print By Range	whbpp2rp.p
80.12.12	Bulk Pick Selection Approval	whbpapp.p
80.12.13	Bulk Pick Maintenance	whbpmt.p
80.12.16	B.P Labels Print From Pre-Ship.	whbps2rp.p
80.12.17	Bulk Pick Shipping Label Print	whbpslrp.p
80.12.18	Bulk Pick Preshipper Reprint	whbpphrp.p

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Menu	Menu Label	Program Name
80.12.22	Bulk Pick Order Deselection	whbpschg.p
80.12.23	Bulk Picking Delete/Archive	whbpup.p
80.12.24	Bulk Pick Control File	whbpbpm.p
80.13	Receipt Menu...	
80.13.1	Receipt Reference Generation	whprigen.p
80.13.13	PO Shipper Sequence Maintenance	whrfsipm.p
80.14	Order Management Menu...	
80.14.1	Order Maintenance	whommt.p
80.14.3	Sales Order Maintenance	whomsomt.p
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80.14.5	Inter-Site Request Maintenance	whomirmt.p
80.14.6	Distribution Order Maintenance	whomdomt.p
80.14.7	Works Order Issue Maintenance	whomwimt.p
80.14.8	Works Order Receipt Maintenance	whomwrmt.p
80.14.10	Order Detail Report	whomrp01.p
80.14.17	Address Detail Maintenance	whaddmt.p
80.14.18	Address Detail Browse	whbr051.p
80.14.19	Address Detail Report	whaddrp.p
80.15	Detail Picking...	
80.15.1	SO Picking Statist & Management	whpkscr.p
80.15.6	Detail Picking Launch	whpkpkit.p
80.15.13	Detail Picking	whrgpkdt.p
80.15.14	Detail Picking Inquiry	whrgpkiq.p
80.15.17	Detail Packing	whexpkpl.p
80.15.21	Pallet Transfer	whrgtfpl.p
80.16	Replenishment Menu...	
80.16.1	Replenishment List Maintenance	whrpgrmt.p
80.16.2	Replenishment List Inquiry	whrpgriq.p
80.16.3	Replenishment List Report	whrpgrrp.p
80.16.5	Replenishment Request	whrpreq.p
80.16.9	On-Line Replenishment	whrpolmt.p
80.16.13	Replenishment-Location Maint	whrplmt.p

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Menu	Menu Label	Program Name
80.16.14	Replenishment-Location Browse	whbr150.p
80.16.15	Replenishment-Location Report	whrplir.p
80.16.17	Replenishment-SLG Maintenance	whrpsimt.p
80.16.18	Replenishment-SLG Browse	whbr151.p
80.16.19	Replenishment-SLG Report	whrpsirp.p
80.17	Stock Transfer Menu...	
80.17.1	Transfer By Reference	whtrbref.p
80.17.3	Transfer With Reference	whtrspl.p
80.17.4	Transfer Single Item	whtrbite.p
80.17.8	Reference Management	whicrfwb.p
80.17.12	Optimization Transfer	whtropt.p
80.17.13	Unplanned Issue Request	whicunis.p
80.17.17	Logistic Palatalization/Transfer	whtrpll.p
80.17.18	DO Receipt Palletis./Transfer	whtrplld.p
80.17.20	Pallet Constitution/Transfer	whtrplcn.p
80.19	Interface Menu...	
80.19.1	User Group Maintenance	whsyugmt.p
80.19.2	User Group Inquiry	whsyugiq.p
80.19.5	User-Work Location Group Maint	whsyuwmt.p
80.19.6	User-Work Location Group Browse	whbr166.p
80.19.7	User-Work Location Group Report	whsyuwrp.p
80.20	Printing Menu...	
80.20.1	Print Template Load	whprtml.p
80.20.2	Print Template Inquiry	whprtmiq.p
80.20.3	Print Template Report	whprtmrp.p
80.20.5	Print Request Maintenance	whprmt.p
80.20.7	User Printer Maintenance	whprusmt.p
80.20.11	Reprint	whprprp.p
80.22	Quality Inspection Menu...	
80.22.1	Sample Inspection Maintenance	whqasmt.p
80.22.2	Sample Inspection Browse	whbr160.p
80.22.3	Sample Inspection Report	whqasrp.p

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Menu	Menu Label	Program Name
80.22.6	Inspected Inventory Report	whqainrp.p
80.22.10	Failed Inspections Inquiry	whqafaiq.p
80.22.13	Change Inspection Status Maint	whqastmt.p
80.22.14	Change Inspection Status Browse	whbr161.p
80.22.17	Inspection History Maintenance	whqainmt.p
80.22.23	Sample History Delete/Archive	whqaup.p
80.22.24	Quality Inspection Control File	whqapm.p
80.24	System Menu...	
80.24.1	Sequence Definition Maintenance	whsqmt01.p
80.24.2	Sequence Definition Inquiry	whsqiq01.p
80.24.5	Translation Menu...	
80.24.5.1	Translation Manager	whltutil.p
80.24.6	Release Bulletin Utility	whrbutil.p
80.24.7	Aim Dump/Load Menu...	
80.24.7.1	Dump/Load Program Utility	whmkdl.p
80.24.7.2	Database File Dump/Load Utility	whmgdl.p
80.24.7.3	Database File Dump/Load w/Batch	whdmpld.p
80.24.10	Verbosity Inquiry	whsyvbiq.p
80.24.11	Verbosity Report	whsyvbrp.p
80.24.12	Verbosity Archive	whsyvbup.p
80.24.13	Warehouse Security Maintenance	whwhsemt.p
80.24.14	Warehouse Security Browse	whbr040.p
80.24.15	Warehouse Security Report	whwhserp.p
80.24.17	Excel Menu...	
80.24.17.1	Excel Master Maintenance	whxlmmt.p
80.24.17.2	Excel Detail Maintenance	whxlrmt.p
80.24.17.3	Excel Control File	whxlcmt.p
80.24.19	Upgrade Menu...	
80.24.19.1	Whse To Aim Master Maintenance	whupgmmmt.p
80.24.19.2	Whse To Aim Master Inquiry	whupgmiq.p
80.24.19.3	Whse To Aim Master Report	whupgmrp.p
80.24.19.5	Whse To Aim Detail Maintenance	whupgdmmt.p

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Menu	Menu Label	Program Name
80.24.19.6	Whse To Aim Detail Inquiry	whupgdiq.p
80.24.19.7	Whse To Aim Detail Report	whupgdrp.p
80.24.19.11	Whse To Aim System Rename	whupgren.p
80.24.19.12	Whse To Aim System Copy	whupgcpy.p
80.24.19.13	Whse To Aim Data Transfer	whupgrun.p
80.24.19.15	Whse To Aim Data Validation	whupgval.p
80.24.19.17	Whse To Aim Data Loader	whupgldr.p
80.24.19.19	Whse To Aim Data Tidy Up	whupgtid.p
80.24.19.21	Whse To Aim Trigger Update	whupgtrg.p
80.24.19.24	Whse To Aim Control File	whupgcmt.p
80.24.21	Utility Menu...	
80.24.21.1	Generalized Codes Maintenance	whcodemt.p
80.24.21.2	Window Help Maintenance	whflhmt.p
80.24.21.5	Create AIM Diagnostic File	whsydiag.p
80.24.21.6	AIM Diagnostics Report	whsydirp.p
80.24.21.8	Re-Build InventM Records	whutinw1.p
80.24.21.10	Message Maintenance	whmsgmt.p
80.24.21.11	Message Inquiry	whmsgiq.p
80.24.21.12	Message Report	whmsgrp.p
80.24.21.13	Re-calculate Location %Full	whutfull.p
80.24.21.14	Populate Order Maintenance Files	whominit.p
80.24.21.15	Re-Balance Expected In/Out Qty's	whutldex.p
80.24.21.17	Persistent Procedure Inquiry	whsyppiq.p
80.24.21.19	CPD Control File Maintenance	cpdiprmt.p
80.24.22	Control Files Report	whsypmrp.p
80.24.23	Local Exit Routine Control File	whsylxpm.p
80.24.24	System Control File	whsypm.p

Table B.1 — AIM Warehouse Menu — (Page 10 of 10)

AIM Glossary

Account Synchronization. The AIM process that lets you specify GL accounts at a warehouse level, letting you set up different accounts for all inventories stored in a specific warehouse. Based on standard MFG/PRO features that support GL accounts at the location level, if you define Inventory accounts for a product line/site/warehouse combination, AIM automatically duplicates this definition for every location within that warehouse. You can then specify how you want your inventory accounts synchronized for the warehouse (full, partial, or blank).

Algorithms. The different routines that AIM uses when putting stock away in functional and non-functional areas. Each algorithm is a separate program that takes into account particular conditions before attempting to carry out an inventory movement transaction. AIM lets you choose which algorithm to use in any given situation. At the simplest level, you can just assign a particular algorithm to a particular transaction type. The five basic types of algorithms are:

- Location Find (LF)
- Put Away (PA)
- Picking (PK)
- Shortage Clearance (SC)
- Inspection (QA)

Cross-Docking. Another name for a shortage clearance (SC) algorithm. The function of shortage clearance algorithms is to cut out unnecessary inventory movements by identifying newly received stock that can be used to fill sales or work order shortages directly. Instead of finding suitable storage locations for the inventory and then picking stock to fill the back orders, SC algorithms move the inventory directly from the receipt area to the packing or dispatch area.

Cycle Count. Used to monitor stock levels, cycle counting is used on a regular basis to maintain inventory accuracy. Once a cycle count is initiated—either manually using Cycle Count Worksheet Print or automatically from an opportunity count—a cycle count frame is displayed automatically on an RDT, prompting the employee to whom that transaction has been assigned to count the level of stock remaining in that location. The more valuable items, and thus those which are counted more often, are those with a class of A, followed by those with class B, and then those with class C.

Engine Processing. Processing engines are run-time programs within AIM that select and process all the required inventory transactions. The way you set up your internal routings controls the way that inventory transactions are created and confirmed, and each step of an internal routing specifies the next step that is to follow when the current step is complete. By applying the different types of engine

processing, you can control whether inventory passes through an internal routing automatically, with intervention from warehouse staff, or with built-in delays at specific stages.

Flavor Codes — Print and System. Print flavor codes determine the format of printed output. System flavor codes allow different screen layouts to be defined in different working areas of a warehouse.

Frame. A means of accessing a program where you can add, delete, view, or modify data.

Functional Internal Routing Group. Refers to areas that have a particular warehousing function such as receipt or dispatch. In functional internal routing groups, AIM uses routines that simply find a location for the inventory, without considering capacity.

General Allocation. The needed quantity of an item is reserved from the available inventory at a specific site. Ensures that the quantity of inventory required by the order is available. Does not reserve specific items of inventory.

Inspection Algorithms. AIM uses inspection algorithms to determine when an inspection must take place.

Internal Routings (IR). AIM manages the movement of inventory within and between warehouses by defining pathways that take the inventory from one part of the warehouse to another. These pathways are called internal routings and defining them involves specifying a sequence of steps that define which part of the warehouse the next step should go to and any specific controls that should be applied at each step.

Internal Routings Group (IRG). The top-level grouping of the storage locations.

Location-Find Algorithms. AIM uses location-find algorithms in functional internal routing groups to find a location for the inventory without considering capacity.

Non-Functional Internal Routing Group.

Used for storing inventory. In non-functional areas, AIM uses put-away algorithms to select locations based on the capacity of the location and the size of the inventory. These are the standard criteria used in warehouse storage areas.

Opportunity Count. Used to monitor stock levels, opportunity counts are triggered automatically by stock movements. Certain conditions—for example when stock is picked or transferred from a non-special storage location group—cause the system to check the opportunity count threshold for an item. If this is found to be at or below the level set using the Opp Cnt Threshold field, the system initiates a cycle count. This allows cycle counts to be performed on an on-going basis, reducing the need to do a large cycle count all at once.

Optimization. Typically used when stock levels in a warehouse begin to get high, optimization is a method of determining the best way to find locations for a put-away. In optimized storage AIM tries to find locations to put away inventory by examining the available space within each available location, without regard for the number of put away transactions. You can specify optimized storage separately for a warehouse and for individual storage location groups within a warehouse, thus having different combinations of optimized storage settings at the warehouse and SLG level.

Overissue. Removal from stock and assignment to a schedule of a quantity higher than the schedule quantity.

Packing Slip. A document included with a shipment that itemizes and details the contents.

Pallet. A portable platform used to store and transport inventory. Some companies group items by pallet for operations planning.

Picking Algorithms. AIM uses picking algorithms to fill sales orders or work orders.

Popularity. Codes that represent ease of access by defining the relative priority AIM has for choosing a location in which to put away inventory. You assign a popularity code to each inventory item so that AIM can match popular inventory with popular locations, thus ensuring that fast moving items are stored in the most accessible locations.

Put-Away (PA) Algorithms. AIM uses put-away algorithms in non-functional internal routing groups to find locations in storage areas by considering size and available space. In put-away, you can choose different criteria, such as looking for empty locations, or popular locations, or finding locations where the inventory can be merged with existing stock.

Radio Data Terminal (RDT). Small terminals that are small enough to be hand-carried or mounted on a fork-lift, which communicate with the host AIM system by radio waves. RDTs show the outstanding transactions for a work location group as soon as they are created. Employees can select the next transaction, or be informed of the next transaction in the task queue based on their location and the priorities of the transactions. RDTs are also known as Radio Frequency Terminals (RFs).

Radio Frequency (RF) Terminals. Small terminals that are small enough to be hand-carried or mounted on a fork-lift, which communicate with the host AIM system by radio waves. RFs show the outstanding transactions for a work location group as soon

as they are created. Employees can select the next transaction, or be informed of the next transaction in the task queue based on their location and the priorities of the transactions. RFs are also called Radio Data Terminals (RDTs).

Replenishment Point. The quantity of stock below which an automatic replenishment is triggered.

Screen. A means of accessing a program where you can add, delete, view, or modify data.

Storage Location Group (SLG). The next level below the internal routing group which has the same basic function. The use of storage location groups enables you to group together all the locations in which a particular type of item is stored, or which have a common purpose, such as a primary picking area within bulk storage.

Shortage Clearance Algorithms. AIM uses shortage clearance algorithms when receiving stock that is immediately required to fill short orders. The inventory is moved directly from receipt to dispatch, while being stored in between. This type of movement is also known as cross-docking.

Verbosity. Determines the level of importance of messages that you want printed in AIM reports. A low value such as 10 or 20 causes only the most important system messages to be reported. A value of 999 causes all system messages to be reported. A value of 0 causes no messages to be reported.

Warehouse. An AIM warehouse consists of a group of storage locations. These can constitute a single building, an open space, or a number of separate buildings. To define it as an AIM warehouse, you identify the storage locations that you want to group together and manage in the same way.

Warehouse Location Groupings. A strategy of grouping together all the locations in which a particular type of item is stored or which have a common purpose, such as a primary picking area within bulk storage. Each storage location group is defined as being within an internal routing group.

Work Location Group (WLG). A way of grouping locations that enables you to take account of factors relating to working practices. When you have set up all the

groupings within a warehouse, every location is defined as being in a particular storage location group, and also as being in a particular work location group.

Workstation. Assigned location where a worker performs the job, such as a machine or workbench.

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