Industry-specific

QAD SOLUTIONS

Manufacturing Applications

MFG/PRO eB2 User Guide Volume 11
PRO/PLUS

WIP Lot Trace
Container and Line Charges
Self-Billing
Supplier Performance
Shipment Performance
Supplier Shipping Schedules
Customer Sequence Schedules

78-0567A
MFG/PRO eB2
September 2002

78-0567A

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Contents

About This Guide

This guide presents the features of the PRO/PLUS package. Use this guide to learn and to begin using the software. The following modules make up the PRO/PLUS package. Each module's user guide begins on the corresponding page.

Other MFG/PRO Documentation

- For an overview of new features and software updates, see the *Release Bulletin*.
- For software installation instructions, refer to the appropriate installation guide for your system.
- For conversion information, refer to the *Conversion Guide*.
- For instructions on navigating and using the QAD Desktop interface, see *User Guide: QAD Desktop.*
- For instructions on navigating the MFG/PRO Windows and character environments, refer to *User Guide Volume 1: Introduction*.
- For information on using MFG/PRO, refer to the *User Guides*.
- For technical details, refer to *Entity Diagrams* and *Database Definitions.*

- For information on using features that let MFG/PRO work with external applications, see the *External Interface Guides*. Each book in this set describes a separate interface such as the Warehousing application program interface (API) and Q/LinQ, the tool set for building and using data exchange tools.
- To view documents online in PDF format, see the *Documents on CD* and *Supplemental Documents on CD*. The CD-ROM media includes complete instructions for loading the documents on a Windows network server and making them accessible to client computers.

  Note MFG/PRO installation guides are not included on a CD. Printed copies are packaged with your software. Electronic copies of the latest versions are available on the QAD Web site.

Online Help

MFG/PRO has an extensive online help system. Help is available for most fields found on a screen. Procedure help is available for most programs that update the database. Most inquiries, reports, and browses do not have procedure help.

For information on using the help system in the different MFG/PRO environments, refer to *User Guide Volume 1: Introduction* and *User Guide: QAD Desktop*.

QAD Web Site

QAD's 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 MFG/PRO 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 screen. 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 on 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 MFG/PRO 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.

Conventions

MFG/PRO is available in several interfaces: Desktop (Web browser), Windows, and character. To standardize presentation, the documentation uses the following conventions:

- MFG/PRO screen captures show the Desktop interface.
- References to keyboard commands are generic. For example, choose Go refers to:
  - The forward arrow in Desktop
  - 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. In Desktop, alternate commands are listed in the right-click context menu.

  For complete keyboard command summaries for each MFG/PRO interface, refer to the appropriate chapters of *User Guide Volume 1: Introduction* and *User Guide: QAD Desktop*.

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.
`italicized monospaced text`	A variable name for a value you enter as part of an operating system command; for example, *`YourCDROMDir`*.
`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

WIP Lot Trace

This section includes user information for the PRO/PLUS WIP Lot Trace (WLT) module. The first chapter gives a general overview of this module. The following chapter discusses implementation planning and outlines setup procedures. The next chapter describes in detail the frames used to support WIP lot and serial data entry and recording. It discusses integration and use of WLT in each manufacturing module. The final chapter reviews reports and inquiries that display WLT-related information.

Chapter 1

Introduction to WIP Lot Trace

The PRO/PLUS WIP Lot Trace Module (WLT) allows you to monitor and trace work in process (WIP) inventory at each operation in the manufacturing process easily and accurately. It facilitates tracking of WIP material lot/serials processed by multiple subcontractors and supports serial tracking of WIP material as needed. This module maintains detailed historical records, including which components produced a finished item and which finished items went to a customer.

Overview

The WIP Lot Trace (WLT) module can be used in manufacturing environments supported by the Repetitive, Advanced Repetitive, or Work Orders modules. It adds WIP lot and serial tracing and reporting functions to MFG/PRO. Tracing records are created at the operation level whenever registered resources are consumed or produced.

Data recorded includes the lot numbers and optionally the serial numbers and references of:

- Component material consumed
- WIP material consumed
- WIP material scrapped
- WIP material produced
- Finished material produced

Cumulative WIP quantity-on-hand (QOH) balances are maintained for all traced lots and serials at each operation queue at the site/work center/machine location where the lot/serial resides.

While you can use this module to trace specific items throughout the manufacturing process, it can be used most efficiently to trace the component and WIP material consumed in the manufacturing of parent items. Use it to trace component, WIP material, and finished goods based on parent items, product structures, and routings.

WIP Lot Trace and Compliance

See *User Guide Volume 6: Master Data*.

The PRO/PLUS WIP Lot Trace module and the MFG/PRO Compliance module trace material at different stages in the manufacturing process.

With Compliance lot control, you trace inventory and the consumption of component material lots into finished-material lots. With WLT, you trace consumption of component material lots into WIP material lots, and the consumption of WIP and additional component material lots into finished-material lots.

The two modules can work together or individually. Performance is seamless when using one or both of these related, but different, modules. Each module requires separate setup and operation.

When using automatic lot numbering features of Compliance, the finished item lot/serial number is automatically created when the item is moved into finished item inventory. Automatic lot numbering occurs even if you are using WLT. If you are not using automatic lot numbering, you can assign a new lot/serial number to the finished item or use the WIP lot/serial for the finished item.

Features

Using the WIP Lot Trace module, you can:

- Trace lot and serial numbers of WIP material throughout the manufacturing process, including WIP material processed by multiple subcontractors.
- Create flexible registrations to activate or deactivate WIP lot/serial tracking for all or specific BOMs, routing codes, parent items, component item, routings, and routing operations.
- Maintain complete WIP tracing history.
- Generate reports providing visibility of WIP lot/serial numbers and quantities.
- Optionally generate and assign WIP lot/serial numbers automatically using Number Range Management (NRM) features.
- Control the lot sizes for all traced material.
- Control combining and splitting of lot and component material being traced.
- Control the WIP inventory quantity-on-hand balances for WIP material lot/serials being traced.
- Trace component material lots consumed at any operation in a routing to WIP or finished material lots.
- Trace WIP material lots from operation to operation.
- Renumber lot/serials from one operation to the next, or retain the same numbers throughout all operations.

- Determine the constituent WIP or component material lots of finished or WIP material lots.
- Maintain up-to-date cumulative scrapped, consumed, and produced quantities for traced WIP lot/serials at the operation level.
- Maintain quantity-on-hand balances at the operation level for traced WIP lot/serials.

Subcontract Processing Features

With WIP Lot Trace, you can track all subcontracted WIP material. With the subcontract tracing features, you can:

- Capture WIP lot/serial information and maintain quantity-on-hand balances for WIP material sent to multiple subcontractors.
- Print WIP lot numbers in subcontract shippers.
- Move WIP lots to subcontract operations during shipper confirm.
- Print WIP lot numbers on subcontract POs.
- Backflush subcontracted WIP lots as part of the PO receipts process.

Changes to MFG/PRO

When activated, the WLT module adds a number of similar data collection frames and fields to the programs in the following modules:

- Inventory Control
- Purchasing
- Work Orders
- Shop Floor Control
- Repetitive
- Advanced Repetitive

WLT also modifies some reports and inquiries to include WLT information. These frames, their use, and their locations are discussed in Chapter 3. Most frames function identically whenever they are used.

Inventory Control

Table 1.1 shows the Inventory Control programs modified by the WIP Lot Trace module.

Table 1.1 Inventory Control Programs Modified by WLT

Menu	Description	Program
3.4.3	Transfer With Lot/Serial Change	iclotr03.p
3.4.4	Batchload Transfer With Lot/Serial Change	iclotr04.p
3.21.1	Transaction Detail Inquiry	ictriq.p

Purchasing

Table 1.2 shows the Purchasing programs modified by the WIP Lot Trace module.

Table 1.2 Purchasing Programs Modified by WLT

Menu	Description	Program
5.7	Purchase Order Maintenance	popomt.p
5.10	Purchase Order Print	poporp03.p
5.13.1	Purchase Order Receipts	poporc.p
5.13.7	Purchase Order Returns	porvis.p
5.13.13	PO Container Maintenance	rsctmt.p
5.13.14	PO Shipper Maintenance	rsshmt.p
5.13.20	PO Shipper Receipt	rsporc.p

Work Orders

Table 1.3 shows the Work Orders programs modified by the WIP Lot Trace module.

Table 1.3 Work Orders Programs Modified by WLT

Menu	Description	Program
16.9	Work Order Split	wowosp.p
16.10	Work Order Component Issue	wowois.p
16.11	Work Order Receipt	woworc.p
16.12	Work Order Receipt Backflush	wowoisrc.p
16.19	Work Order Operation Backflush	wobkfl.p

Shop Floor Control

Table 1.4 shows the Shop Floor Control programs modified by the WIP Lot Trace module.

Table 1.4 Shop Floor Programs Modified by WLT

Menu	Description	Program
17.1	Labor Feedback By Work Order	sfoptr01.p
17.2	Labor Feedback By Employee	sfoptr02.p
17.3	Labor Feedback By Work Center	sfoptr03.p
17.6	Operation Move Transaction	sfoptr06.p
17.7	Operation Scrap Transaction	sfscrap.p
17.13.8	Operation Transaction Browse	sfbr001.p
17.13.9	Operation Transaction Detail Inquiry	sfopiq12.p
17.13.13	Operations by Work Center Report	sfoprp11.p
17.13.14	Operations by Work Order Report	sfoprp12.p
17.13.15	Operations by Employee Report	sfoprp13.p

Standard Repetitive

Table 1.5 shows the standard Repetitive programs modified by the WIP Lot Trace module.

Table 1.5 Repetitive Programs Modified by WLT

Menu	Description	Program
18.4.2	Repetitive Transaction Detail Inquiry	reopiq12.p
18.13	Repetitive Setup Transaction	reoptr07.p
18.14	Repetitive Labor Transaction	reoptr10.p
18.16	Repetitive Rework Transaction	reoptr13.p
18.17	Repetitive Reject Transaction	reoptr11.p
18.18	Repetitive Scrap Transaction	reoptr14.p

Advanced Repetitive

Table 1.6 shows the Advanced Repetitive programs modified by the WIP Lot Trace module.

Table 1.6 Advanced Repetitive Programs Modified by WLT

Menu	Description	Program
18.22.4.2	Operation Transaction Detail Inquiry	reopiq02.p
18.22.4.11	WIP Status Report	reworp05.p
18.22.5.4	Sub Container Maintenance	rectmt.p
18.22.5.5	Sub Shipper Maintenance	reshmt.p
18.22.5.9	Sub Shipper Print	rerp11.p
18.22.5.11	Sub Shipper Issue	resubis.p
18.22.10	Cumulative Order Close	reclose.p
18.22.12	WIP Status Inquiry	rewoiq05.p
18.22.13	Backflush Transaction	rebkfl.p
18.22.14	Run Labor Transaction	relbr.p
18.22.15	Setup Labor Transaction	reset.p
18.22.16	Reject Transaction	reject.p
18.22.17	Rework Transaction	rework.p
18.22.18	Scrap Transaction	rescrap.p
18.22.19	Move Transaction	remove.p
18.22.21	WIP Adjust Transaction	rewadj.p

QOH and Cumulative WIP Balances

When the WIP Lot Trace module is active, some Repetitive, Advanced Repetitive, and Work Orders programs maintain WIP inventory and QOH balances by lot. QOH and WIP cumulative balance records are maintained for quantities scrapped, consumed, and produced for each lot processed at every traced operation.

Table 1.7 Programs That Maintain WIP QOH Inventory Balances by Lot/ Serial

Menu	Description	Program
5.13.1	Purchase Order Receipts	poporc.p
5.13.7	Purchase Order Returns	porvis.p
16.10	Work Order Component Issue	wowois.p
16.11	Work Order Receipt	woworc.p

Menu	Description	Program
16.19	Work Order Operation Backflush	wobkfl.p
17.1	Labor Feedback By Work Order	sfoptr01.p
17.2	Labor Feedback By Employee	sfoptr02.p
17.3	Labor Feedback By Work Center	sfoptr03.p
17.6	Operation Move Transaction	sfoptr06.p
17.7	Operation Scrap Transaction	sfscrap.p
18.14	Repetitive Labor Transaction	reoptr10.p
18.16	Repetitive Rework Transaction	reoptr13.p
18.17	Repetitive Reject Transaction	reoptr11.p
18.18	Repetitive Scrap Transaction	reoptr4.p
18.22.13	Backflush Transaction	rebkflmt.p
18.22.14	Run Labor Transaction	relbr.p
18.22.15	Setup Labor Transaction	reset.p
18.22.16	Reject Transaction	reject.p
18.22.17	Rework Transaction	rework.p
18.22.18	Scrap Transaction	rescrap.p
18.22.19	Move Transaction	remove.p
18.22.21	WIP Adjust Transaction	rewadj.p

WIP Lot Trace in MFG/PRO

WIP Lot Trace programs are located on the 3.22.13 menu. This module adds the following menu-level programs.

Table 1.8
WIP Lot Trace Programs

Menu	Description	Program
3.22.13.1	Routing Registration Maintenance	wlrmmt.p
3.22.13.2	Routing Registration Inquiry	wlrmiq.p
3.22.13.4	BOM Registration Maintenance	wlbmmt.p
3.22.13.5	BOM Registration Inquiry	wlbmiq.p
3.22.13.13	WIP Lot Inventory Status Report	wlrp01.p
3.22.13.14	Item Lot Ship Transaction Report	wlrp04.p
3.22.13.15	WIP Lot Convert Transaction Report	wlrp06.p
3.22.13.16	WIP Lot Non-Convert Transaction Report	wlrp07.p

Menu	Description	Program
3.22.13.17	WIP Lot Inquiry	wliq01.p
3.22.13.18	Supplier Lot Transaction Report	wlrp08.p
3.22.13.19	WIP Lot Where-Used Report	wlrp02.p
3.22.13.20	WIP Lot Actual Bill Report	wlrp03.p
3.22.13.23	WIP Lot Delete/Archive	wldel.p
3.22.13.24	WIP Lot Trace Control	wlpm.p

Chapter 2

Setting Up WIP Lot Trace

This chapter details how to set up WIP Lot Trace Control and registration programs.

Planning for Setup

Setup of the WIP Lot Trace (WLT) module depends greatly on how much tracing your manufacturing environment requires. Having clearly defined tracing requirements simplifies the setup process.

This section discusses the issues you should resolve and the types of information that you should collect before you set up WLT. This information about your manufacturing environment will facilitate the setup and use of this module.

Deciding Which Material to Trace

This module traces material based on parent item routing. Routings define where component items to be traced are consumed and where the WIP material to trace is produced. WLT also traces material based on parent item BOM codes when the component item is part of the BOM. Tracing does not occur on an item-per-item basis.

You should begin setup by first considering and listing which parent items need to have component and WIP material traced. From this list, derive the routings and BOMs used to manufacture the parent items. You need these routing and BOM codes to set up this module.

You should also note whether any special tracing requirements exist, such as operations in a routing where tracing should begin, or specific BOMs for which component items should not be traced. You should have this information prepared before you begin to set up WLT.

Knowing exactly which routings and BOMs consume components and create the WIP material you need to trace lets you configure the WIP Lot Trace module effectively. This is because you can configure the module to trace components and WIP for all routings and BOMs, with the exception of only a few, or you can configure it to trace components and WIP for only a few routings and BOMs.

Milestone and Non-Milestone Operations

WLT cannot be used to track WIP material at non-milestone operations. WIP lot/serials are produced only by milestone operations. Additionally, WIP quantity-on-hand (QOH) balances cannot reside in the input queue of the first milestone operation of any routing. This is true even if the first milestone operation is not the first operation in the routing.

To track WIP material, including the component material consumed and parent items produced, routing operations that consume and produce that material must be milestone operations. Use Routing Maintenance (14.13.1) to update routings for use with WLT.

Before Tracing Subcontracted WIP Material

If you plan to trace WIP material at multiple subcontractor locations, you should follow these steps before beginning to set up WLT:

- Create and plan to maintain detailed records of subcontractors qualified to perform each operation. You should note whether they maintain the WIP lot/serial numbers you assign or if they assign new ones for the material they process for you. For example, you send WIP lot AA to one of your subcontractors and the subcontractor later sends you the processed material with a new lot number.
- List all your subcontractors. Use Work Center Maintenance (14.5) to create a work center for each subcontractor.
- Use Routing Maintenance (14.13.1) to create or modify existing routing codes that have subcontracted operations. These routings should reference an appropriate subcontractor work center.

Lot Sizing Restrictions

With WIP Lot Trace, you can restrict the size of lots processed by a routing or routing operation. Lot-size restrictions are useful when work centers can process only certain quantities of material, or when specific operations require certain lot sizes. For example, if machine capacity allows you to produce only 50 items at operation 30, then the maximum lot size would be 50.

If any lot-sizing restrictions apply in your manufacturing environment, you should list these restrictions, organized by routing, operation, and work center. It is very important to note any lot-size restrictions that differ at operations within the same routing.

The lot-size information you collect facilitates configuring the WIP Lot Trace module. You use it to create records in Routing Registration Maintenance (3.22.13.1) that limit the size of lots processed by a routing or routing operation.

Inventory Lot Quantity Issuing Restrictions

Tip
WIP inventory is the amount of WIP material that resides at an operation.

Some manufacturing environments allow WIP inventory quantities to be driven negative by overissuing of material; others do not. If these types of restrictions apply in your manufacturing environment, sort them by routing. Then sort any restrictions within each routing by operation.

Example You have WIP lot 5A with 50 items at operation 30 of routing 101. At operation 40, you issue WIP lot 5A with 100 items. This issue would result in an overissue of 50 items, giving you a negative WIP QOH of 50 items at operation 30. You note that for routing 101, overissuing of WIP is allowed.

Use the information you collect regarding issuing restrictions to create records in Routing Registration Maintenance (3.22.13.1) that prevent or allow WIP lot overissuing based on the routing or routing operation.

Inventory References

In addition to tracing component and WIP lot/serials, use this module to trace component lot inventory references.

Example Lot 3A of steel wire comes in three spools. Each spool is separately identified in inventory using the Reference field as Sp1, Sp2 and Sp3. When consuming steel wire in manufacturing, enter the spool number in the Reference field during backflush. The inventory references are recorded in tracing history records. WLT reports that display references show the spool reference consumed into each finished item.

If inventory reference tracing is required in your manufacturing environment, you should first set up naming and usage standards for references. References are not validated within the system, but a clearly defined system facilitates data entry and reporting during and after manufacturing processes.

Note You must trace component material in order to trace references.

Lot Splitting and Combining

WIP Lot Trace manages lot splitting and combining.

- Lot splitting occurs when processing a single material lot at an operation results in two or more output lots.
- Lot combining occurs when two or more input lots are combined at an operation, resulting in one output lot.

If lot splitting or combining is an issue in your environment, clearly define your requirements. Consider whether you have a single requirement—you can or cannot split or combine lots, or multiple requirements—you can split or combine some lots, but not others. List these requirements by routing code and note any requirements that differ within each routing by operation.

Example Routing 101 has five operations. Operation 30 can only process lots of 50 items. The lots produced by operation 20 consist of 100 items. This requires that lots of 100 be split into two new lots of 50 items each. All operations after operation 30 continue to process 50-item lots. You note in routing 101 that lot splitting is allowed for operation 30.

Allowing lots to be combined should be carefully considered. As lots are combined through the manufacturing process, quality control risks become greater and more expensive. For example, if you combine lots at an early operation and later determine that the material from one of those lots is defective, you may need to rework or scrap all WIP material and finished material that was manufactured with the defective material. The more lot combining that occurs, the more material is affected in this manner.

When you complete your analysis, use this information to create records in Routing Registration Maintenance (3.22.13.1) and BOM Registration Maintenance (3.22.13.4). The system uses these records to allow or restrict splitting and combining of WIP and component material lots.

Custom Lot/Serial Number Formats

See *User Guide Volume 9: Manager Functions.*

If you have specific lot/serial number format requirements, create Number Range Management (NRM) sequence IDs using Number Range Maintenance (36.2.21.1). You can use one NRM sequence ID to generate all lot/serial numbers for WIP Lot Trace. Optionally, you can designate specific NRM IDs for individual routing codes.

Note WLT requires that NRM-generated numbers be no longer that 18 characters. Generated lot/serial numbers are not checked against existing manually entered or NRM-generated lot/serial numbers.

Maintaining Accurate System Configuration Information

In environments where strict tracing records are kept, such as manufacturing of pharmaceuticals, you should maintain detailed and dated records of control program settings, routing registration records, and BOM registration records. These records are important for product recall and for quality assurance.

You should also set up procedures like the following to help you record and regulate any changes to these WLT control settings.

- Consider restricting WLT control programs with menu security.
- Maintain an external system where you can record any control changes. This might be a simple spreadsheet, or an automated data-mining utility that records any control changes automatically.
- Avoid making manual changes to routing or BOM registrations. Instead, you should use the registration start and end dates to manage changes.

Example When lot/serial number formats change, create a WLT routing registration with the new NRM ID. Set the effective date for the new registration to a date immediately following the effective end date of the registration being changed. When a change needs to be expedited, change the effective end date of the registration being changed to correspond with the new registration's start effective date.

In addition to control records, you should also create, maintain, and adhere to a delete/archive schedule for all WLT historical information. Set up procedures that let you maintain correct and accurate historical tracing records that have been deleted from your system and archived elsewhere. Consider setting up procedures that let you easily locate and extract tracing records from archived tracing records.

Setting Up WIP Lot Trace

Setting up WLT involves the same process whether you are using the Repetitive, Advanced Repetitive, or Work Orders module.

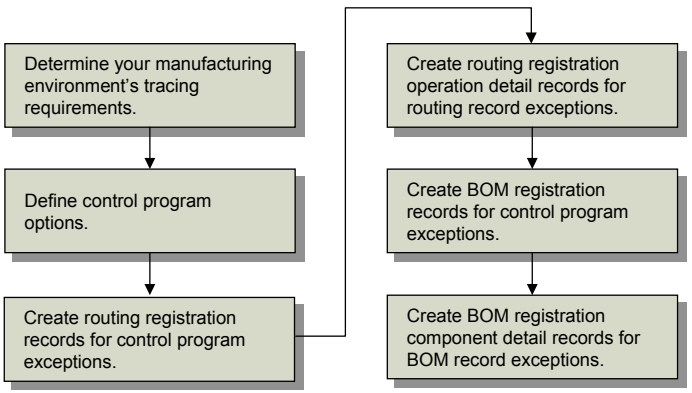
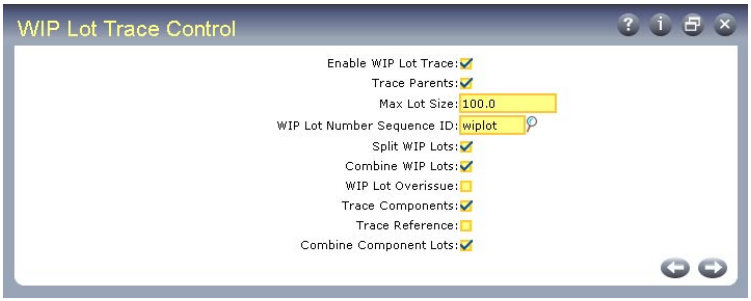


Fig. 2.1
WIP Lot Trace Setup Work Flow

Defining Control Program Settings

To begin setting up WIP Lot Trace, activate it by setting Enable WIP Lot Trace to Yes in WIP Lot Trace Control (3.22.13.24).

Fig. 2.2
WIP Lot Trace Control (3.22.13.24)



See page 29 and page 33.

Control program settings apply to all routings and BOMs used throughout your manufacturing environment. Specify the most common BOM and routing settings in the control program. These values depend greatly on the information you collected when planning how you will use WLT.

You can create exception records to override these settings for specific routings and BOMs. For example, in an environment where most parent items are traced, the Trace Parents value is set to Yes. To disable tracing for specific parent items that do not need it, use Routing Registration Maintenance to create a record for each of those parent items. Set the Trace Parents value to No for those records.

Use the following field descriptions and any data you collected as discussed in the planning section to guide you through the control program setup.

Enable WIP Lot Trace. Enter Yes to activate the WIP Lot Trace module.

See page 12.

When WIP Lot Trace is active, new fields and frames display in programs such as Backflush Transaction, Reject Transaction, and Rework Transaction.

Trace Parents. Enter Yes to trace all parent items; otherwise, enter No.

You cannot trace components or references unless Trace Parents is Yes in the control program or for the routing.

This value defaults to Trace Parents in Routing Registration Maintenance.

Max Lot Size. Enter the maximum size for WIP lots produced at any operation. A warning message displays when the cumulative WIP lot size exceeds this quantity.

Enter 0 (zero) to indicate that lot size is not restricted and to prevent warning messages from displaying.

This value defaults to Max Lot Size in Routing Registration Maintenance.

WIP Lot Number Sequence ID. Enter an optional sequence ID defined with Number Range Maintenance (36.2.21.1). The system uses this sequence to generate output WIP lot/serial numbers automatically.

NRM-generated WIP lot/serial numbers cannot exceed 18 characters.

This value defaults to WIP Lot Number Sequence ID in Routing Registration Maintenance.

If an NRM sequence is not specified, you must manually enter output WIP lot/serial numbers. However, when an NRM sequence ID is specified in WIP Lot Trace Control or in the routing registration record, you can leave the fields blank. The system automatically generates a lot/serial number based on this sequence ID.

Split WIP Lots. Enter Yes if an input WIP lot can be divided into multiple output WIP lots.

Example One WIP lot of blank bolt studs goes into a threading machine. The lot being consumed should not be split into separate output WIP lots, such as one lot of metric-thread bolts and one lot of standard-thread bolts. To prevent lot splitting, enter No.

This value defaults to Split WIP Lots in Routing Registration Maintenance.

Combine WIP Lots. Enter Yes if multiple input WIP lots can be combined into a single output WIP lot.

Example At operation 20, input WIP lot L1 is consumed into output WIP lot M1 using the backflush transaction. On the next backflush, you try to consume input WIP lot L2 into output WIP lot M1. If Combine WIP Lots is No, the second backflush transaction cannot proceed.

This value defaults to Combine WIP Lots in Routing Registration Maintenance.

WIP Lot Overissue. Enter Yes if a quantity can be issued for a WIP lot even when that issue results in a negative WIP lot quantity on hand (QOH).

Example With a WIP lot/serial QOH of 5, the system lets you issue a quantity of 7 when WIP Lot Overissue is Yes. A warning tells you that this issue will result in a negative QOH balance of –2. If WIP Lot Overissue is No, the system displays an error message. This situation can occur when a later operation is reported before an earlier one.

This value defaults to WIP Lot Overissue in Routing Registration Maintenance.

Trace Components. Enter Yes to trace component lots consumed in manufacturing operations; otherwise, enter No.

To trace component lot/serials, you must also trace their corresponding parent items.

This value defaults to Trace Components in BOM Registration Maintenance.

Trace Reference. Enter Yes to trace references assigned to traced component-item inventory.

To trace inventory references, you must also trace their corresponding component and parent items.

Example Lot 3A of steel wire comes in three spools. Each spool is separately identified in inventory using the Reference field as Sp1, Sp2, and Sp3. When steel wire is consumed, you must enter the spool number in the Reference field during backflush. If Trace Reference is Yes, the spool numbers are recorded in tracing history and display in the Lot Where Used and Lot Actual Bill reports. They also appear in transaction detail reports and inquiries.

This value defaults to Trace Reference in BOM Registration Maintenance.

Combine Component Lots. Enter Yes if multiple lots of the same component or raw material can be consumed into a single WIP lot/serial.

Example Combine Component Lots is No for steel. Two lots of steel, lot A and lot B, are in the storeroom. Lot A is processed at the first operation, becomes WIP lot W1, and is backflushed accordingly. If you try to backflush steel lot B into WIP lot W1, the system displays an error. Only one lot of steel can be consumed into WIP lot W1.

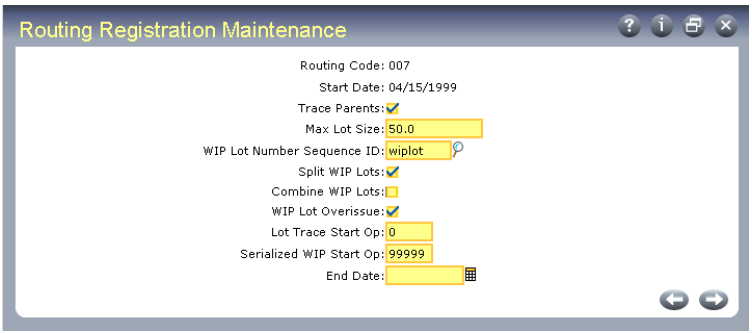
This value defaults to Combine Component Lots in BOM Registration Maintenance.

Registering Routing Exceptions

Use Routing Registration Maintenance (3.22.13.1) to define exceptions to the control program settings by creating new settings for parent item routings and routing operations that need different values than those defined in the control program.

Example In WIP Lot Trace Control you indicate that the maximum WIP lot size is 150 because, in general, lot sizes must stay below this quantity in your manufacturing operations. However, for routing 007, you do not want the WIP lot size to exceed 50. Use Routing Registration Maintenance to specify this maximum lot size for routing 007.

Fig. 2.3
Routing Registration Maintenance (3.22.13.1)



Some field values default from the control program. Additional fields are described below. Use these descriptions and any data you collected as discussed in the planning section to register control program exception records for specific routings and routing operations.

Routing Code. Enter the routing code for which you are creating a routing registration record.

Start Date. Enter the date when this routing registration record is effective. When a start date is not specified, this registration record becomes effective immediately.

When multiple registration records have overlapping effective dates, the registration with the start date closest to the transaction effective date is used.

Lot Trace Start Op. Enter the operation where WIP lot tracing should begin for the specified routing code. The default is 0 (zero). Leave this value to begin WIP lot tracing at the first operation in this routing.

Any component material consumed at operations prior to the operation specified here is not traced. The system does not prompt for input WIP lots at this operation. It prompts for input and output WIP lots at the operations that follow.

Serialized WIP Start Op. Enter the operation at which serial tracing should begin. WIP serial tracing cannot begin before WIP lot tracing begins. It must begin on or after the operation specified in Lot Trace Start Op.

Leave the default value of 99999 to indicate that serial tracing should not occur.

For WIP lots to be serial traced, transaction quantities can only be –1, 0, or 1, and WIP lot quantity-on-hand (QOH) balances must be 0 or 1.

Example For a manufacturer of a pharmaceutical, serial tracing begins at the bottling operation, but WIP lot tracing begins at the first operation where lot-controlled ingredients are consumed. For a manufacturer of specialized components for medical equipment, serial tracing begins at the first operation that consumes a serial-controlled component.

End Date. Enter the last date that this routing registration record is effective. Leave blank to indicate that this registration should be effective indefinitely.

Once routing defaults are set, you can further define whether to allow lot splitting, combining, and overissuing per operation in the defined routing. This is done in the second frame of this program.

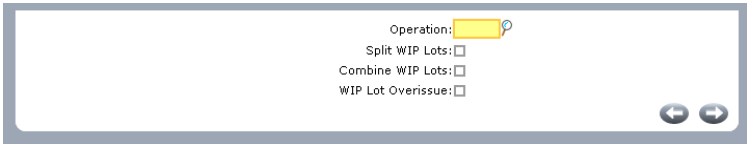


Fig. 2.4
Routing Registration Operation Frame

Operation. Enter the operation for which you are creating a routing operation registration record.

Split WIP Lots. Enter Yes if WIP lots produced by this operation can be divided into multiple lots by the next operation.

This value only affects WIP material produced by this operation.

Example Because Split WIP Lots is No for operation 30, WIP lots produced by operation 30 cannot be split at operation 40. One WIP lot of blank bolt studs produced by operation 30 goes into a threading machine at operation 40. The lot to be consumed at operation 40 cannot be split into separate WIP lots, such as one WIP lot of metric-thread bolts and one WIP lot of standard-thread bolts. To allow lot splitting, set this field to Yes.

This value defaults from the first frame.

Combine WIP Lots. Enter Yes if multiple input WIP lots for this operation can be combined into a single WIP output lot before being processed by the next operation.

This value only affects WIP material produced by this operation.

Example Because Combine WIP Lots is No for operation 30, WIP lots produced by operation 30 cannot be combined at operation 40. Two WIP lots of blank bolt studs produced by operation 30 go into a threading machine at operation 40. The lots to be consumed at operation 40 cannot be combined into a single WIP lot. To allow lot combining, set this field to Yes.

This value defaults from the first frame.

WIP Lot Overissue. Enter Yes if a quantity can be issued for a WIP lot even when that issue results in a negative WIP lot quantity on hand (QOH) at this operation. This value defaults from the first frame.

This value only affects WIP material produced by this operation.

This value affects the output queue of this operation and the input queue of the following operation. When the output queue of the current operation is driven negative by a backflush at the following operation, the system must also allow for the input queue of the following operation to be driven negative.

Example A routing has 10 operations. In this manufacturing environment, the output of operation 5 must be allowed to have negative WIP lot balances. A backflush at the next operation consumes from its input queue as well as from current operation's output queue. For this reason, the input queue of the following operation must also be allowed to have negative WIP balances.

To do this, set WIP Lot Overissue to No in the first frame, indicating that for this routing registration record, WIP lot balances cannot be negative. In the second frame, specify Operation 5 and set WIP Lot Overissue to Yes. The value you set for operation 5 overrides the general routing value set in the first frame.

Registering BOM Exceptions

BOM Registration Maintenance (3.22.13.4) is similar to Routing Registration Maintenance. Use this program to create exceptions to the control program settings by creating new settings for BOMs.

Example In WIP Lot Trace Control you indicate No in Trace Reference because you typically do not trace inventory references in your manufacturing operations. However, for BOM code 007 you need to trace references. Use BOM Registration Maintenance to indicate that references need to be traced for BOM 007.

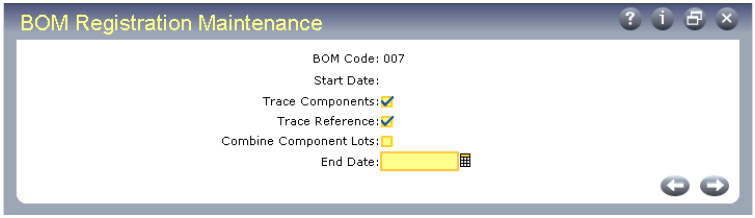


Fig. 2.5
BOM Registration Maintenance (3.22.13.4)

Some field values default from the control program. Additional fields are described below. Use the following field descriptions and any data you collected as discussed in the planning section to register control program exception records for specific BOMs or BOM components.

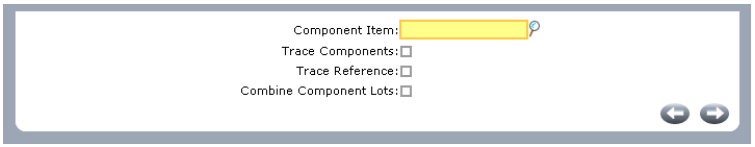
BOM Code. Enter a BOM code for which you are creating a registration record.

Start Date. Enter the date when this BOM registration record is effective. When a start date is not specified, this registration is effective immediately. When multiple registration records have overlapping effective dates, the registration with the most recent start date is used.

End Date. Enter the last date that this BOM registration record is effective. Leave blank to indicate that this registration should not end.

Optionally, use the second frame to further define whether to trace components or references and whether to allow combining of component lots for specific component items in the BOM.

Fig. 2.6
BOM Registration Component Item Detail Frame



Component Item. Enter the component for which you are creating a detail BOM-registration record.

In the first frame of this program, you set up control fields that apply to all components of the specified BOM. In this frame, you can override these settings for specific components.

Trace Components. Enter Yes to trace lots of this component consumed in manufacturing operations; otherwise, enter No. To trace component items, you must also trace their corresponding parent items.

When Trace Components is Yes in WIP Lot Trace Control but this field is No, tracing does not occur when this component is consumed under this BOM code.

This value defaults from the first frame of this program. Changes you make here override the value set in the first frame for this component item in this BOM code only.

Trace Reference. Enter Yes to trace references assigned to lots of this component item.

To trace references, you must also trace corresponding component and parent items.

Example Lot 3A of steel wire comes in three spools. Each spool is separately identified in inventory using the Reference field as Sp1, Sp2, and Sp3. When steel wire is consumed, you must enter the spool number in the Reference field during backflush. If Trace Reference is Yes, the spool numbers are recorded in tracing history and display in the Lot Where Used and Lot Actual Bill reports. They also display in transaction detail reports and inquiries.

This value defaults from the first frame of this program. Changes you make here override the value set in the first frame for this component item in this BOM code only.

Combine Component Lots. Enter Yes if multiple lots of this component can be consumed into a single WIP lot/serial.

Combine Component Lots is No for steel. Two lots of steel, lot A and lot B, are in the storeroom. Lot A is processed at the first operation, becoming WIP lot W1, and is backflushed accordingly. If you try to backflush steel lot B into WIP lot W1, the system displays an error. Only one lot of steel can be consumed into WIP lot W1.

This value defaults from the first frame of this program. Changes you make here override the value set in the first frame for this component item in this BOM code only.

Chapter 3

Using WIP Lot Trace

Introduction

Before you begin using WLT, you should note that some order processing procedures are slightly modified to support WLT data entry. Additionally note that:

- WIP material cannot be traced at non-milestone operations.
- WIP lot/serial balances can reside only at milestone operations.
- Some normally editable fields are not editable. Instead, WLT frames are used to record that information.
- WIP quantity-on-hand (QOH) balances cannot reside in the input queue of the first milestone operation, even if the first milestone operation is not the first operation.
- Any information entered in WLT frames is used to update QOH balances and WLT tracing history records.
- Before processing any WLT-modified transactions, the system checks for associated WLT routing or BOM registrations that include lot splitting, combining, and size restrictions. If none are found, the system then looks for related restrictions in WIP Lot Trace Control.

Using WLT Data Collection Frames

Depending on your particular tracing needs and system configuration, various Repetitive, Advanced Repetitive, Work Orders, Shop Floor Control, and Purchasing programs use WIP Lot Trace frames to collect, record, and update tracing records. The following sections discuss when these frames are activated and how they are used within each program.

Routing and routing operations become WLT controlled when:

- Trace Parents is Yes in WIP Lot Trace Control (3.22.13.24) and a routing registration does not exist for the routing being used. All operations for that routing become WLT controlled.
- A WLT routing registration is active for the routing. WLT control begins at the start operation specified in the registration record.

A component item becomes WLT controlled when it is consumed at a WLT-controlled operation and either of the following is true:

- Trace Components is Yes in WIP Lot Trace Control, or
- Trace Components is Yes in WLT BOM registrations for any BOMs that use the component.

Destination Work Center and Machine

The Destination Work Center and Machine frame appears in Repetitive, Advanced Repetitive, and Work Orders programs. Use it to specify where to move the WIP material produced at the current operation. The information entered in this frame is used to update QOH balances for the affected queues.

Example In your Advanced Repetitive environment you have three machines in a work center that do the same job for operation 30. To trace WIP material processed by a machine, backflush the WIP material at operation 20 and use this frame to specify the machine where that WIP material will be processed during operation 30.

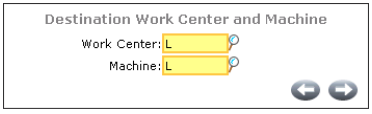


Fig. 3.1
Destination Work Center and Machine Frame

When using Reject Transaction (18.22.16), this frame appears only when the reject-from queue is WLT controlled. When using Rework Transaction (18.22.17), this frame appears only when the rework-from queue is WLT controlled. For all other programs, this frame appears when:

- The current operation output queue is WLT controlled.
- The current operation is not the last operation.
- Move To Next Op is Yes.

Table 3.1 lists the material transfer programs that use this WLT frame.

Table 3.1 Programs Displaying Destination Work Center and Machine Frame

Menu	Program
16.19	Work Order Operation Backflush
17.1	Labor Feedback by Work Order
18.14	Repetitive Labor Transaction
18.16	Repetitive Rework Transaction
18.22.13	Backflush Transaction
18.22.16	Reject Transaction
18.22.17	Rework Transaction
18.22.19	Move Transaction

WIP Lot Input Queue Issue Data

Use the WIP Lot Input Queue Issue Data frame to register lot/serials of the WIP material being consumed at the current operation. This frame appears when the previous operation's output queue and the current operation's input queue are WLT controlled. Table 3.2 lists the programs where this frame appears.

Table 3.2 Programs Displaying WIP Lot Input Queue Issue Data Frame

Menu	Program
5.13.1	Purchase Order Receipts
16.10	Work Order Component Issue
16.19	Work Order Operation Backflush
18.14	Repetitive Labor Transaction
18.17	Repetitive Reject Transaction
18.22.13	Backflush Transaction

If the current operation's output queue is WLT controlled, these WIP lot/serials default to the WIP Lot Output Queue Receipt Data frame, (Figure 3.3). That output frame appears immediately after this input frame.

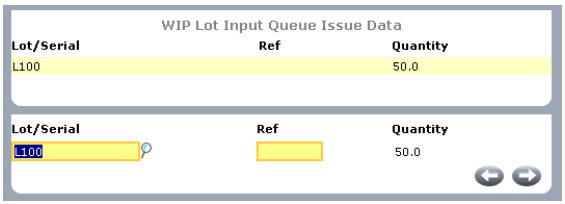


Fig. 3.2
WIP Lot Input Queue Issue Data

Updates to QOH and Tracing Records

The current operation's WIP QOH balances are updated to reflect the issue or receipt of this WIP material. The WIP lot/serials entered are recorded in tracing history as being consumed from the input queue of the current operation and produced into the output queue WIP lot/serials entered in the WIP Lot Output Queue Receipt Data frame.

WIP Lot Output Queue Receipt Data

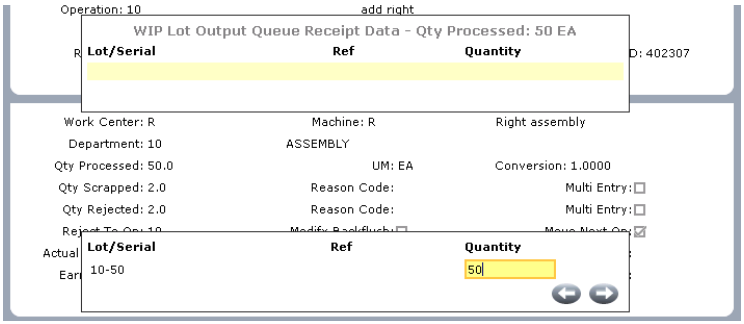
Use the WIP Lot Output Queue Receipt Data frame to report the WIP lot/serial numbers, references, and quantities of the WIP material produced by an operation.

This frame appears in:

- Purchase Order Receipts (5.13.1) when the output queue of the current operation is WLT controlled.
- Repetitive Labor Transaction (18.14) when the output queue of the current operation is WLT controlled and is not the last routing operation.
- The programs listed in Table 3.3 if the previous two conditions are true, and only one lot/serial was entered.

If the current input queue is WLT controlled, the WIP lot/serial entered in the Input Queue WIP Lot Issue Data frame defaults to this frame. Assign this lot/serial, or assign a new one to the WIP material being produced.

Fig. 3.3
WIP Lot Output Queue Receipt Data



For Advanced Repetitive, the total processed is the number entered in Qty Processed. This total includes the reject and scrap quantities. For Repetitive, the quantity processed is the number entered in Qty Completed. This quantity does not include scrap or reject quantities.

Table 3.3
Programs Displaying WIP Lot Output Queue Receipt Data Frame

Menu	Program
5.13.1	Purchase Order Receipts
16.19	Work Order Operation Backflush
17.1	Labor Feedback by Work Order
17.2	Labor Feedback by Employee
17.3	Labor Feedback by Work Center
18.14	Repetitive Labor Transaction
18.22.13	Backflush Transaction

Reporting Reject Data

Use the WIP Lot Reject Data frame to report the WIP lot/serial numbers, references, reject codes, and quantities of rejected material. The quantity is moved from the operation's output queue to the reject queue.

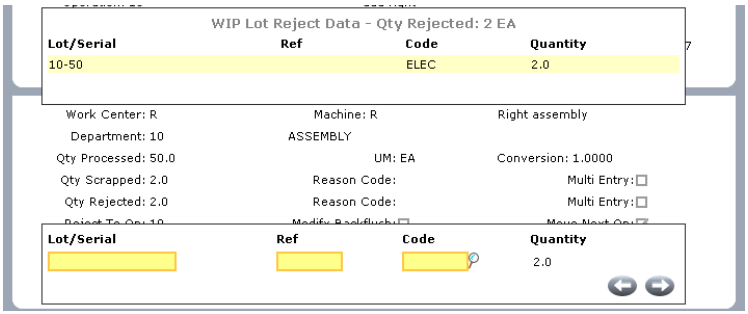


Fig. 3.4
WIP Lot Reject Data

This frame appears in the following programs when the output queue of the operation for which labor is being reported is WLT controlled and a quantity is entered in Qty Reject:

- Backflush Transaction (18.22.13)
- Repetitive Labor Transaction (18.14)
- Reject Transaction (18.22.16)
- Repetitive Reject Transaction (18.17)

Reporting Scrap Data

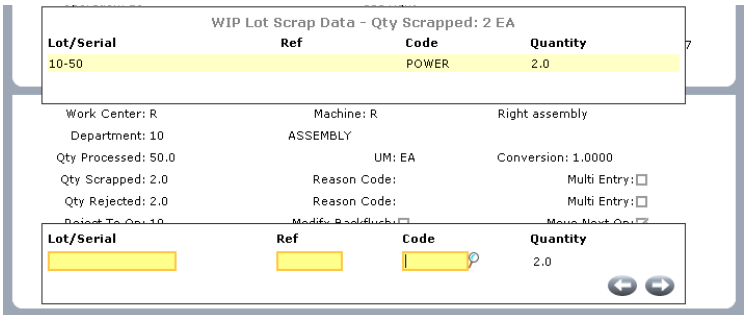
Four WLT frames are used to record lot/serials, references, scrap codes, and quantities of WLT-controlled material being scrapped from an operation's input, output, or reject queues:

- WIP Lot Scrap Data
- WIP Lot Reject Queue Scrap Data
- WIP Lot Input Queue Scrap Data
- WIP Lot Output Queue Scrap Data

WIP Lot Scrap Data

Backflush Transaction (18.22.13) uses this frame when the output queue of the operation for which labor is being reported is WLT controlled and a quantity is entered in Qty Scrapped.

Fig. 3.5
WIP Lot Scrap Data

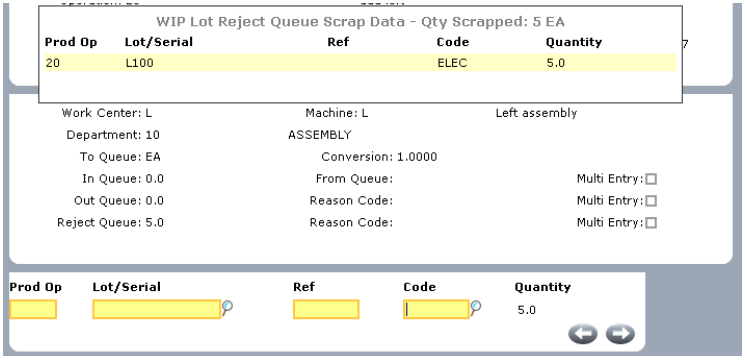


The quantity scrapped is deducted from the lot quantity entered in the WIP Lot Output Queue Receipt Data frame. It is added to the cumulative scrapped quantity.

WIP Lot Reject Queue Scrap Data

Use the WIP Lot Reject Queue Scrap Data frame to record WIP material being scrapped from an operation's reject queue. This frame displays in Scrap Transaction (18.22.18) when a reject quantity is entered in Rjct Queue and the reject queue is WLT controlled. It also displays in Repetitive Scrap Transaction (18.18).

Fig. 3.6
WIP Lot Reject Queue Scrap Data



The quantity scrapped is deducted from the WIP QOH balance for the current operation's reject queue. It is added to the cumulative scrapped quantity.

WIP Lot Input Queue Scrap Data

Use the WIP Lot Input Queue Scrap Data frame to record the WLT-controlled material being scrapped from an operation's input queue. It displays in Backflush Transaction (18.22.13).

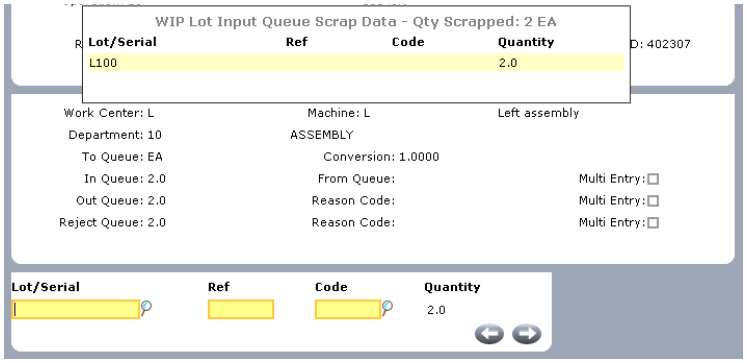


Fig. 3.7
WIP Lot Input Queue Scrap Data

The quantity scrapped is deducted from the WIP QOH balance for the current operation's input queue. It is added to the cumulative scrapped quantity.

WIP Lot Output Queue Scrap Data

Use the WIP Lot Output Queue Scrap Data frame to record the WLT-controlled material being scrapped from an operation's output queue. It displays in Scrap Transaction (18.22.18).

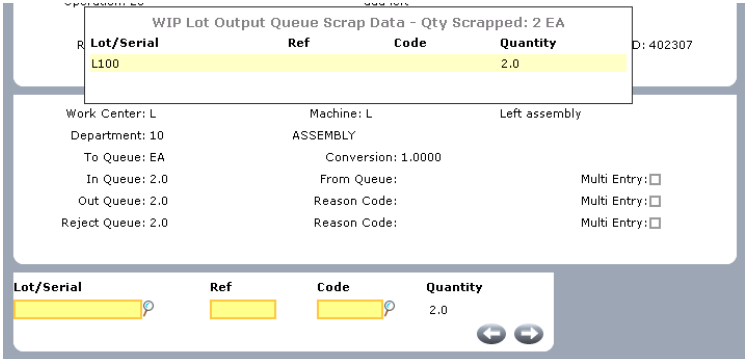


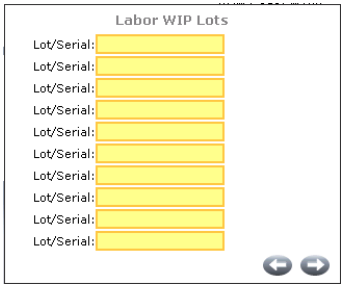
Fig. 3.8
WIP Lot Output Queue Scrap Data

Recording Labor Data

Use the Labor WIP Lots frame to associate run and setup labor time with corresponding lot/serials. This frame appears in the following programs when the output queue of the operation being processed is WLT controlled:

- Repetitive Setup Transaction (18.13)
- Run Labor Transaction (18.22.14)
- Setup Labor Transaction (18.22.15)

Fig. 3.9
Labor WIP Lots



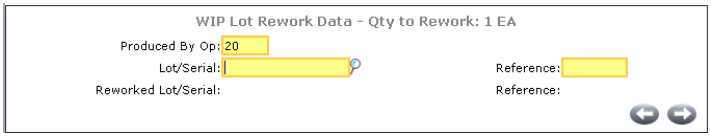
Labor time reporting is not required. Any labor WIP lot/serial numbers entered are not validated. This frame links the labor and employee to the specified WIP lot/serial numbers. Labor time is reported as produced material by WLT reports.

Recording Rework Data

Use the WIP Lot Rework Data frame to specify the WIP lot/serial to rework. Optionally, use this frame to assign new WIP lot/serials to that WIP material.

The WIP Lot Rework Data frame appears in the Repetitive Rework Transaction (18.16) and Rework Transaction (18.22.17) when the reject-from queue is WLT controlled. This frame appears immediately after the Destination Work Center and Machine frame.

Fig. 3.10
WIP Lot Rework Data



Items reworked can come from a previous operation's reject queue. Use the lookup on the Lot/Serial field to select the correct value.

Before moving the reworked WIP lot/serial to the destination locations, the system checks the following settings in WIP Lot Trace Control or in the corresponding WLT routing and BOM registrations:

- Split WIP Lots
- Combine WIP Lots
- Max Lot Size

When you move reworked WIP lot/serial quantities to the last operation in a routing, you must enter material receipt information for the reworked WIP lot/serial. Receipt information is entered using the Receipt Data Input data frame. Values for Qty, UM, and Lot/Serial default from the values you previously entered in the transaction; Multi Entry is not editable. Lot/Serial and Ref default from the values you entered in the WIP Lot Rework Data frame.

QOH and Queue Balances

The information you enter in the WLT frames is used to adjust QOH balances and cumulative accounts for the input and output queues of the affected operations. The reject queue from where material was moved is reduced by the quantity reworked. The quantity reworked is added to the cumulative reworked, consumed, and produced quantities for the WIP lot/serial. When you receive reworked material into finished material inventory, that quantity is reduced from the QOH of the output queue of the last operation.

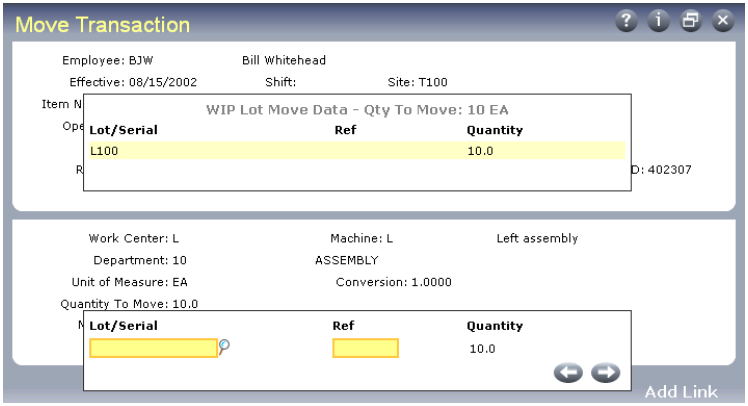
WIP Lot Move Data

Use the WIP Lot Move Data frame to record the WIP lot/serials, references, and quantities of material being moved. This frame does not appear if you are moving WIP quantities to finished goods inventory. Instead, the Receipt Data Input frame appears for receipt of finished goods into inventory.

Tip
Lot groups are a feature of the Compliance module.

You can use a WIP lot/serial number as the finished item lot/serial number. If you are using lot groups to create automatic lot numbers, that function creates and assigns the lot/serial number for this finished item. The lot/serial assigned to the finished item is saved to WLT tracing history.

Fig. 3.11
WIP Lot Move Data Frame



The WIP Lot Move Data frame follows the Work Center and Machine frame in Move Transaction (18.22.19). Use the frame to specify quantities to move from the output queue of the indicated operation to the input queue of the next operation.

This frame appears in Sub Shipper Maintenance (18.22.5.5) and Sub Container Maintenance (18.22.5.4) when moving WLT-controlled WIP material to a subcontract operation. The lot/serial quantities you enter are moved to the subcontract location when you confirm the shipper using Sub Shipper Issue (18.22.5.11).

This frame also appears in Operation Move Transaction (17.6) immediately after the Source/Destination Work Center and Machine frame. The WIP lot/serials you specify in the WIP Lot Move Data frame are moved from the source location to the destination location you specify in the Source/Destination Work Center and Machine frame.

Current Work Center and Machine

Use this frame to specify the work center and machine location from which input WIP lot/serials will be consumed by the operation. For example, using Work Order Component Issue (16.10), this frame appears after you indicate the work order number, ID, and operation from where the components or WIP material will be issued.

The Current Work Center and Machine frame appears in Work Order Receipt (16.11) and Work Order Component Issue (16.10) when the operation being processed is WLT controlled.

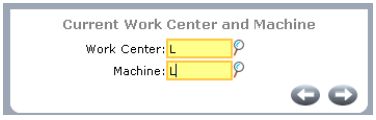


Fig. 3.12
Current Work Center and Machine Frame

Using WLT with Work Orders

When using WIP Lot Trace (WLT) in a Work Orders manufacturing environment, you should be aware of the following points:

- Work Order Receipt Backflush (16.12) is disabled because it does not let you report production on an operation-per-operation basis.
- You must specify an operation when processing a receipt, issue, or labor transaction for a WLT-controlled work order.

The following sections describe the programs in the Work Orders module affected by WLT changes.

Processing a Work Order

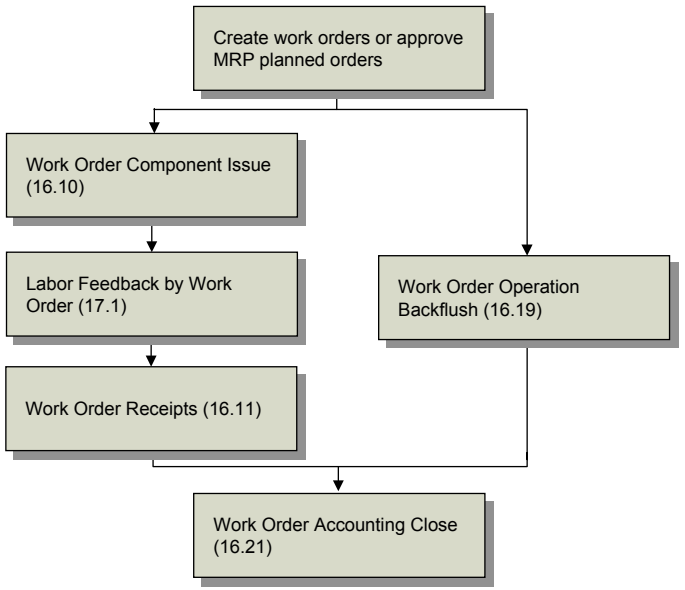
The work flow in Figure 3.13 shows two alternative methods of processing a work order. The process consists of three steps:

- Issue components to the work order.
- Report labor performed.
- Receive finished goods.

WLT frames are used to collect information at each of these steps when you process a WLT-controlled work order. A work order is WLT controlled when:

- Trace Parents is Yes in WIP Lot Trace Control, or
- A WLT BOM registration is active for the parent item being manufactured and Trace Parents is Yes for that registration.

Fig. 3.13
Work Orders Work Flow



Assume that you trace WIP material through all work order operations. First, issue components to the first operation using Work Order Component Issue (16.10).

Use these three WLT frames to collect WIP lot/serial tracing information:

See page 52.
- Issued to WIP Lots

See page 49.
- Current Work Center and Machine

See page 41.
- WIP Lot Input Queue Issue Data

Note Issued to WIP Lots is the only frame used when issuing components to the first operation of a routing.

After components are issued and the operation is complete, use Labor Feedback by Work Order (17.1) to report labor for the operation. Use the Destination Work Center and Machine and WIP Lot Output Queue Receipt Data frames to collect WIP lot/serial tracing information.

See page 39 and page 42.

Issue components and report labor for the remaining operations. After all operations are complete, receive the finished goods into inventory using Work Order Receipts (16.11). Use the Current Work Center and Machine frame to indicate where the WIP lots or serials being received currently reside.

You can use Work Order Operation Backflush (16.19) as an alternative to following separate steps. It incorporates the functions of the three programs previously described. The WLT frames that display in the three separate programs also appear in Work Order Operation Backflush.

Issuing Component and WIP Material

Use Work Order Component Issue (16.10) to issue component and WIP material to WLT-controlled work orders. This program performs the following WLT functions:

- Prompt for WIP lot/serials to issue.
- Prompt for WIP lot/serials to be produced from the issued lot/serials.
- Consume WIP lot/serials from WIP lot inventory balances.
- Update and record WIP lot/serial QOH balances for all affected operation queues.

This program issues the WIP and component material you specify to the WIP lots you also specify. It updates WIP QOH balances and generates tracing records for components, WIP material issued, and WIP material produced. Location and tracing information is entered in three WLT frames:

- Current Work Center and Machine

See page 49.

- WIP Lot Input Queue Issue Data

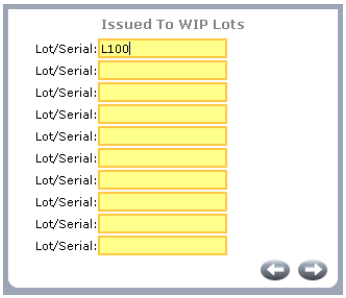
See page 41.

- Issued to WIP Lots

Issued to WIP Lots

The Issued to WIP Lots frame appears when the operation's output queue is WLT controlled. This WLT frame appears only in Work Order Component Issue. Use it to specify the produced WIP lot/serials to which the specified components and WIP material are being issued. The WIP material to be issued is specified in the WIP Lot Input Queue Issue Data frame that appears immediately before this frame.

Fig. 3.14
Issued To WIP Lots Frame



Reporting Labor

See page 39 and page 42.

The three Shop Floor Control labor feedback programs use the WLT Destination Work Center and Machine and WIP Lot Output Queue Receipt Data frames to capture tracing information for the labor being reported:

See *User Guide Volume 3: Manufacturing.*

- Labor Feedback By Work Order (17.1)
- Labor Feedback By Employee (17.2)
- Labor Feedback By Work Center (17.3)

These labor feedback programs perform the following WLT functions:

- Prompt for WIP lot/serial produced.
- Update and record WIP lot/serial QOH balances for affected queues.
- Record labor feedback and lot/serial tracing information.

Receiving Finished Goods

Use Work Order Receipt (16.11) to receive finished goods manufactured with WLT-controlled routings. Use the detail fields to specify the lot/serial, reference, and other details of the WIP material being received. This program consumes the WIP lot/serials being received into finished goods inventory. Then it updates WLT tracing history, WIP QOH balances, and receipt and issue information.

Use the Current Work Center and Machine frame to specify the work center and machine from where the WIP lot/serial inventory should be consumed. The WIP Lot Output Queue Issue Data frame is used to enter a list of the WIP lot/serials that should be consumed from the previous operation's output queue in the specified work center and machine. The WIP Lot Output Queue Issue Data frame appears only in Work Order Receipt.

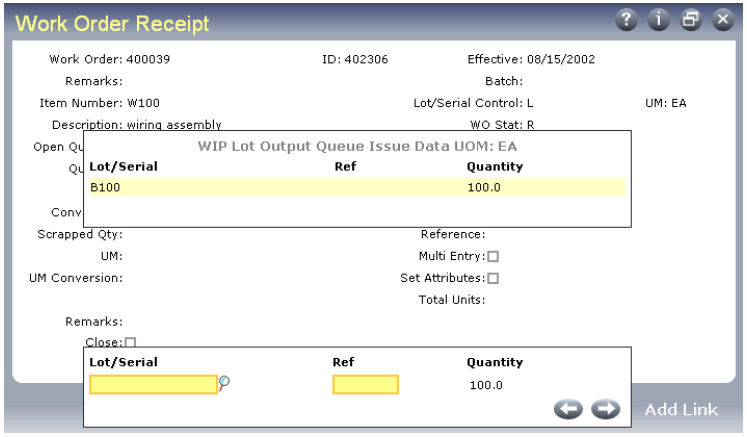


Fig. 3.15 WIP Lot Output Queue Issue Data Frame

Calculating WIP QOH Balances

The system calculates and records WIP QOH balances for standard work orders in three steps:

- Each finished material lot/serial quantity moved into inventory is deducted from the corresponding QOH balance for the WIP lot/serial specified in the WIP Lot Output Queue Issue Data frame.

- The system checks QOH balances against settings in WIP Lot Trace Control.
- QOH balances are recorded to tracing history.

Work Order Operation Backflush

See *User Guide Volume 3: Manufacturing.*

Work Order Operation Backflush (16.19) combines:

- The issuing functions of Work Order Component Issue (16.10)
- The labor reporting functions of Labor Feedback by Work Order (17.1)
- The receipt functions of Work Order Receipts (16.11)

Three WLT frames are used to collect WIP tracing information:

See page 41.

- WIP Lot Input Queue Issue Data

See page 39.

- Destination Work Center and Machine

See page 42.

- WIP Lot Output Queue Receipt Data

Managing Scrap

Scrap refers to unusable materials. In the manufacturing process, there can be two kinds of scrap:

- Component materials issued to the work order that are unusable, known as *component item scrap*
- Item materials built by the work order that are unusable, known as *finished item scrap*

When additional component material is required for a work order because item material was lost or unusable, the replacement component materials should be issued to the work order with Work Order Component Issue (16.10). This correctly results in an unfavorable material usage variance for the order.

Reporting Scrap in Work Orders

Record finished material scrap using Work Order Receipt (16.11). Use Operation Scrap Transaction (17.7) to remove scrap WIP material from a work order operation. Use the WIP Lot Input Queue Scrap Data and WIP Lot Output Queue Scrap Data frame to record scrap lot/serials for material at WLT-controlled work order operations.

See page 45.

The program generates WO-SCRAP operation history records for transactions. It reduces QOH balances for the operation input and output queues for the lot/serial quantities specified in the WLT frames. The scrapped quantities are also added to the cumulative scrapped quantities for the lot/serials. The cumulative scrapped quantity for each queue is also increased by the lot/serial quantity scrapped.

You can report reject materials at the operation level using Shop Floor Control. However, only units recorded as scrap during work order receipt affect the general ledger (GL), debiting Scrap and crediting WIP. Rejects recorded in Shop Floor Control are for reporting only, and have no GL effect.

Processing a Subcontract WO Operation

Processing a subcontract work order operation when using WLT adds a few minor steps to the normal procedure.

1 Create a subcontract purchase order for the work order operation using Purchase Order Maintenance (5.7).

See “Purchase Order Maintenance” on page 59 for details.

   a Set Type to S for subcontract.

   b Use the work order subcontract information frame to optionally specify the work order, ID, and operation where the subcontract services are required.

   c Optionally specify the WIP lot/serial of that material. This lot/serial prints on reports generated by Purchase Order Print (5.10).

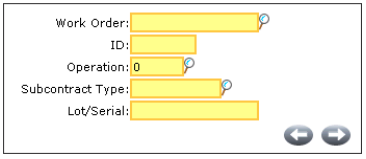


Fig. 3.16 Work Order Subcontract Information

2 Use Work Order Component Issue (16.10) to issue the components for the operation. For example, many manufacturers send component item kits and WIP to their subcontractors or subcontract assemblers. In these situations, you issue the components and WIP.

   a Use the WLT Current Work Center and Machine frame to specify the subcontract work center and machine to which components will be issued for this subcontract operation.

   b Use the WIP Lot Input Queue Issue Data frame to specify the lot/serials sent to the subcontractor.

   c Use the Issued to WIP Lots frame to specify the lot/serials processed and returned by the subcontractor.

3 Report completed subcontract labor using Labor Feedback by Work Order (17.1).

   a Operation Complete should be No.

   b Move Next Op should be Yes.

   c Use the WIP Lot Output Queue Data frame to specify the WIP lot/serials produced. Lot/serials default from the lot/serials entered in the Issued To WIP Lots Data frame.

See "Receiving Subcontract POs" on page 60 for details.

4 Register the subcontract processing performed when you receive the subcontract material using Purchase Order Receipt (5.13.1). The work order operation is automatically closed.

Processing Subcontract Operations for Multiple Subcontractors

See "Processing a Subcontract WO Operation" on page 55.

Follow the procedure for a single subcontractor with the following additional steps:

- Create a separate subcontract purchase order for each subcontractor being used at the work order operation.
- When you issue the components and WIP for the subcontract operation, use the WLT Current Work Center and Machine frame to specify the specific subcontractor that will process the operation.

Use the WIP Lot Inventory Status Report (3.22.13.13) to see where specific WIP and item component material reside during manufacturing.

Using WLT with Advanced Repetitive

The following sections describe the Advanced Repetitive programs affected by WLT changes.

Backflushing WIP Material

Use Backflush Transaction (18.22.13) to report production activity. This program uses five frames to collect WLT information. WLT frames appear and are used only when backflushing operations for WLT-controlled routings.

Use the WLT frames to record WIP material lot/serial information for the current operation's input, output, scrap, and reject queues. Use the Destination Work Center and Machine frame to specify where the produced WIP material will be moved. This frame appears only when Move to Next Op is Yes. WLT frames added to Backflush Transaction appear in this order when the corresponding queue is WLT controlled:

- WIP Lot Input Queue Issue Data See page 41.
- Destination Work Center and Machine See page 39.
- WIP Lot Output Queue Receipt Data See page 42.
- WIP Lot Reject Data See page 43.
- WIP Lot Scrap Data See page 44.

Reporting Run and Setup Labor

WLT adds the Labor WIP Lots frame to Run Labor Transaction (18.22.14) and Setup Labor Transaction (18.22.15). Any run or setup labor you report for WLT-controlled operations is associated with the WIP lot/serials you indicate in this frame. See page 46.

Use WIP Lot Convert Trans Report (3.22.13.15) or Operation Trans Detail Inquiry (18.22.4.2) to review the labor associated with any WIP lot/serial.

Reworking Rejected Material

See page 39 and page 46.

Use Rework Transaction (18.22.17) to move previously rejected WLT-controlled material back into production. Use the WIP Lot Rework Data frame to indicate which lot/serials were reworked. The reworked WIP material is moved to the location you indicate in To Operation and To Queue in the work center and packing list you specify in the Destination Work Center and Machine frame.

Scrapping Reject Material

Use Scrap Transaction (18.22.18) to scrap or remove WIP quantities from any queue of an operation without backflushing. If you scrap quantities from a WLT-controlled queue, use the WLT frames to specify the lot/serials of the WIP material you are scrapping. Depending on which queue you are scrapping material from, these WLT frames can appear:

See page 45.

- WIP Lot Input Queue Scrap Data

See page 45.

- WIP Lot Output Queue Scrap Data

See page 44.

- WIP Lot Reject Queue Scrap Data

The WIP QOH at each queue is reduced by the quantity scrapped at the indicated work center and machine. Additionally, the quantity scrapped is added to the cumulative scrapped quantity for the indicated lot/serials.

Adjusting WIP Quantities for WLT-Controlled Queues

Use WIP Adjust Transaction (18.22.21) to adjust quantities at an operation's input, output, or reject queues. The current queue balances display when you run the program.

When adjusting quantities for WLT-controlled operations, Reason Code and the three queue quantity fields are not editable. Use the WLT frames to specify adjustments to QOH balances for the WIP lot/serials in each queue. You can create entries for new lot/serials and optionally enter reason codes as needed. One WLT frame is used for each queue.

The three WLT frames appear in this order:

- WIP Lot Input Queue Adjust Data
- WIP Lot Output Queue Adjust Data
- WIP Lot Reject Queue Adjust Data

Using WLT with Purchasing

Various purchasing programs used to support subcontracting let you trace subcontract WIP material only when using the Advanced Repetitive module. The following points should be noted:

- You can enter the lot/serial of subcontract material when creating the PO. This lot/serial prints on the report produced by Purchase Order Print (5.10).
- PO Shipper Maintenance (5.13.14), PO Container Maintenance (5.13.13), and PO Shipper Receipt (5.13.20) cannot process any subcontract PO line item that references a WLT-controlled operation.

Purchase Order Maintenance

Part of the subcontracting process is to use Purchase Order Maintenance (5.7) to create a subcontract PO for the subcontract operation. When creating a subcontract PO for line items that reference Advanced Repetitive cumulative orders, use the lot/serial field to enter the WIP lot/serial number of the material being sent for subcontract processing.

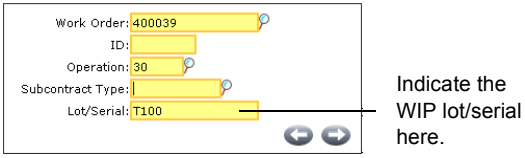


Fig. 3.17
Purchase Order Maintenance WLT Lot/Serial Field

The lot/serial entered in this field defaults as the input lot/serial number in the WIP Lot Input Queue Issue Data frame in Purchase Order Receipts when the order is being received. This value also prints on reports generated by Purchase Order Print (5.10).

Receiving Subcontract POs

Purchase Order Receipts (5.13.1) captures line item receipt data for subcontract-type lines that reference Advanced Repetitive cumulative order operations that are WLT controlled.

This program cannot be used to backflush lot/serial controlled components, or components that cannot be issued from the default issue location. Use Backflush Transaction (18.22.13) to manually backflush the operation for the component material received. If you attempt to receive this type of component material, only the extended subcontract cost for the PO is added to the cumulative order operation's cumulative subcontract cost.

Use the WIP Lot Input Queue Issue Data frame to enter details of the WIP material being consumed from the input queue of the subcontract operation. Use the WIP Lot Output Queue Receipt Data frames to record details of the material being produced and moved to the output queue of this subcontract operation.

The system backflushes these WIP lot/serial numbers. The input WIP lot/serials are consumed, and the output WIP lot/serials are produced. WIP lot/serial QOH balances, cumulative totals, and tracing history records are updated accordingly. The supplier ID is used as the work center ID to update WIP lot/serial QOH balances.

When WIP Lot Trace (WLT) is active, all of the inventory-related fields in the purchase order receipt detail are disabled, including Site, Location, Lot/Serial, Ref, Supplier Lot, Multi Entry, and Change Attributes. All lot/serial information should be specified using the WLT frames that display.

Note If Move to Next Op is Yes, then the WIP lot/serials specified in the WIP Lot Output Queue Receipt Data frame are moved to the input queue of the next milestone operation.

Returning Purchased Materials

Purchase Order Returns (5.13.7) updates QOH balances, cumulative totals, and WLT tracing history to reflect the return of materials at a subcontract operation. The WIP Lot Input Queue Issue Data and WIP Lot Output Queue Receipt Data frames appear when processing WLT-controlled material. Any material being returned is reverse backflushed.

For example, instead of receiving material to WIP, material is removed from WIP. The system basically processes a PO receipt with all negative quantities.

If Move To Next Operation is Yes, the system removes WIP lot/serials from WIP inventory at the input queue of the first milestone operation following the subcontract operation. When this value is No or a milestone operation does not exist after the subcontract operation, then the system removes the WIP lot/serials from the output queue of the subcontract operation.

Processing a Subcontract Operation

Processing a subcontract operation when using WIP Lot Trace and Advanced Repetitive adds a few minor steps to the subcontract procedure.

Note This procedure assumes that you have already backflushed all operations previous to the subcontract operation.

1. Create a scheduled order in Scheduled Order Maintenance (5.5.1.13). Specify the appropriate cumulative work order ID and subcontract operation.
2. Create a subcontract shipper in Sub Shipper Maintenance (18.22.5.5).
   a. Use the parent item site as the ship-from and the supplier as the ship-to.
   b. Use the cumulative order ID and subcontract operation used on the scheduled order.
   c. Specify the WIP lot/serials and quantity being sent to the subcontractor in the WLT WIP Lot Move Data frame. Select Help to display a list of WIP lot/serials produced at the previous operation.

See page 47.

3. Print the subcontract shipper using Sub Shipper Print (18.22.5.9). The WIP lot/serials entered in the WIP Lot Move Data frame display as Lots Shipped.

4 Confirm the subcontract shipper using Sub Shipper Issue (18.22.5.11). This moves the indicated WIP lot/serials from the output queue of the previous operation to the input queue of the indicated operation.

5 Receive the scheduled order in Purchase Order Receipts (5.13.1).

See page 40.

a Use the WIP Lot Input Queue Issue Data frame to specify the WIP lot/serials that were sent to the subcontractor. Select Help to display a list of WIP lot/serials as they appeared on the subcontract shipper.

See page 41.

b Use the WIP Lot Output Queue Receipt Data frame to specify the WIP lot/serials being received from the subcontractor. The lot/serial you entered in the input queue frame defaults to the output queue frame.

Processing a Subcontract Operation for Multiple Subcontractors

Follow the procedure outline above, with the following additional steps:

- Create a separate subcontract scheduled order for each subcontractor being used at the work order operation.
- Create, confirm, and print separate subcontract shippers for each subcontractor.
- When you backflush the next operation, the subcontract WIP lot/serials you received in the Purchase Order Receipts Output Queue Receipt Data frame appear on the WIP Lot Input Queue Issue Data frame browse.

Use the WIP Lot Inventory Status Report (3.22.13.13) to display the operation and queue where specific WIP and item material is located during manufacturing.

Using WLT with Repetitive

The following sections describe the Repetitive programs affected by WLT changes.

WLT in Repetitive and Advanced Repetitive

WLT makes many of the same changes to Repetitive and Advanced Repetitive programs.

See page 57.

- The changes made to Rework Transaction (18.22.17) are also made to Repetitive Rework Transaction (18.16).
- Likewise, Repetitive Setup Transaction (18.13) is modified in the same way as the Advanced Repetitive module's Setup Labor Transaction (18.22.15).

When you use these programs to process any WLT-controlled material, the same WLT frames appear.

Reporting Labor

Repetitive Labor Transaction (18.14) uses the same WLT frames as Backflush Transaction (18.22.13). WLT frames appear and are used only when processing WLT-controlled material.

See page 57.

The WLT frames are used to enter input, output, and reject WIP lot/serials and quantities. This information is used to record the appropriate tracing records and update WIP lot/serial QOH balances.

Use the WLT frames to enter WIP material lot/serial information for the current operation's input, output, and reject queues. Use the Destination Work Center and Machine frame to specify where the backflushed material will be moved. This frame appears only when Move to Next Op is Yes.

WLT frames added to this program appear in this order when the corresponding queue is WLT controlled:

- WIP Lot Input Queue Issue Data See page 41.
- Destination Work Center and Machine See page 39.

See page 42.

- WIP Lot Output Queue Receipt Data

See page 43.

- WIP Lot Reject Data

Handling Reject Material

See page 41 and page 43.

The Repetitive Reject Transaction (18.17) displays the WIP Lot Input Queue Issue Data and WIP Lot Reject Data frames. Use these frames to enter the input lot/serials to issue and reject WIP lot/serials to produce. The information entered in these frames updates tracing history records and WIP lot/serial QOH balances.

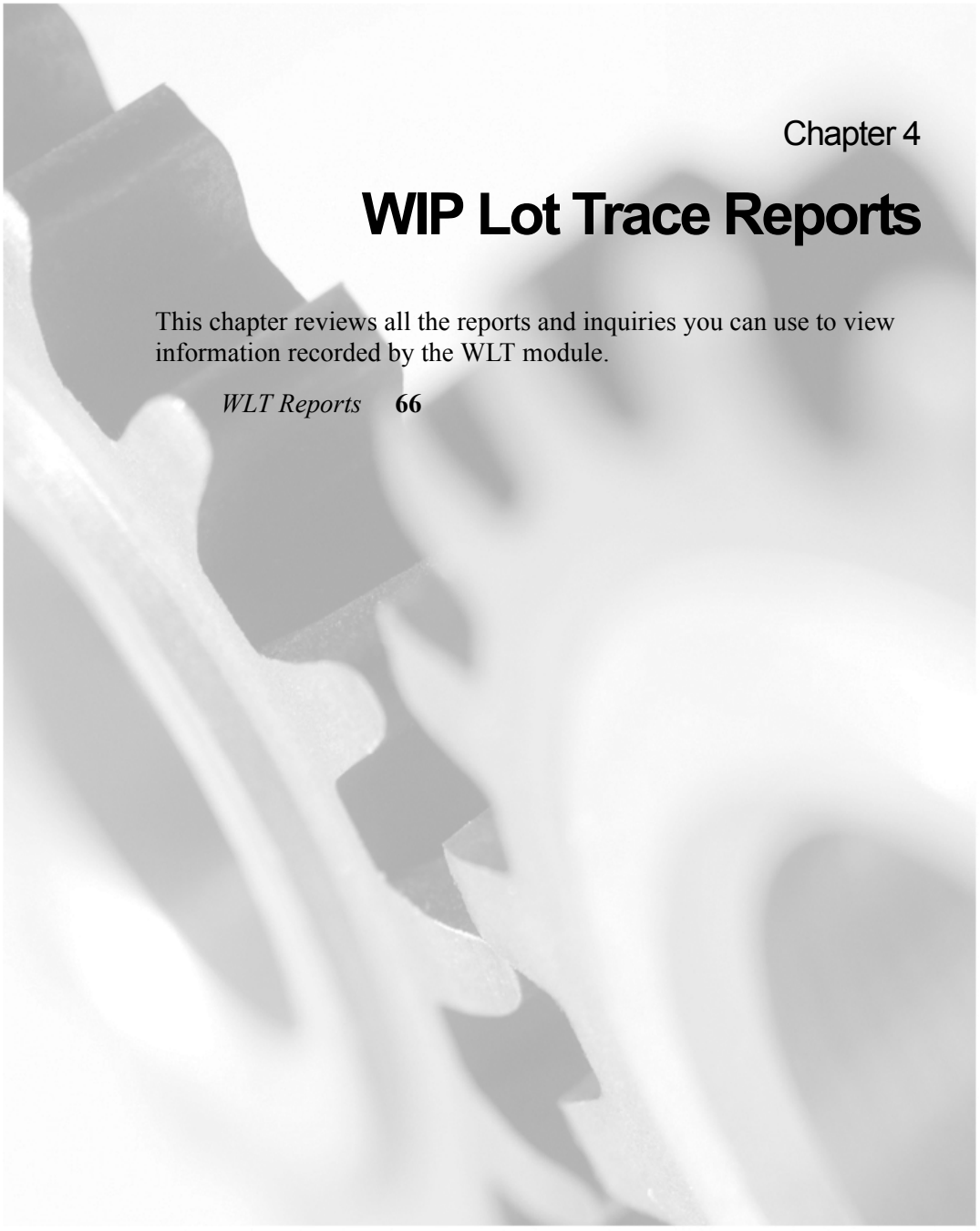
Tracing Scrap Material

See page 44.

When scrapping WLT-controlled material, the Repetitive Scrap Transaction (18.18) displays the WIP Lot Reject Queue Scrap Data frame. Use it to enter the WIP lot/serial and quantity of the material being scrapped. The information you enter updates tracing history records and WIP lot/serial QOH balances.

Reporting Repetitive Transaction History

The Repetitive Trans Detail Inquiry (18.4.2) is modified to display WIP lot/serial information connected with an operation history record. Any tracing records associated with the operation history record are displayed. Additionally, any WIP lot/serials recorded by a scrap, reject, rework, or adjust transaction are also displayed.



Chapter 4

WIP Lot Trace Reports

This chapter reviews all the reports and inquiries you can use to view information recorded by the WLT module.

WLT Reports

The WIP Lot Trace module provides 10 reports and inquiries for reviewing WLT data. These reports and inquiries are designed to clearly show consumption and production data at the operation and WIP lot/serial level.

Some existing reports and inquiries also display WLT data.

Using WLT Reports

When using WLT, you should use the WLT reports to report any WLT-controlled WIP and item component material. WLT does not trace WIP at non-milestone operations even if those operations belong to a WLT-controlled routing.

If you use Advanced Repetitive reports to view QOH balances for WLT-controlled routings or BOMs, the report may show that there is WIP material in the input queue of non-milestone operations. If you report for the same routing or BOM using WLT reports, these reports will show that the WIP lot/serial QOHs are in the input queue of the following milestone operation.

WIP Lot Inventory Status Report

Use WIP Lot Inventory Status Report (3.22.13.13) to view the status of WIP lot inventory. The report displays the WIP lot inventory associated with each discrete work order, or repetitive cumulative work order.

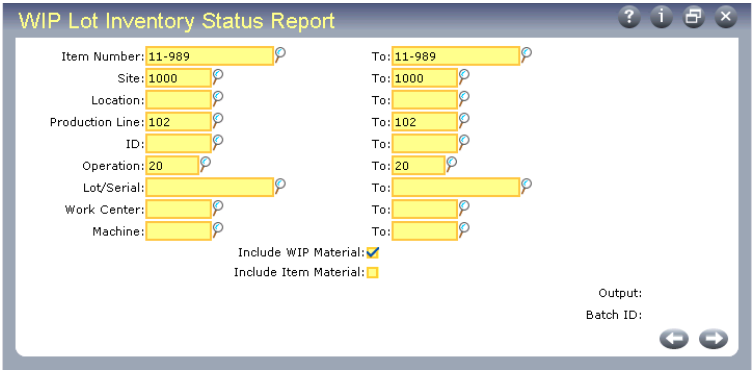


Fig. 4.1
WIP Lot Inventory Status Report (3.22.13.13)

Item Lot Ship Transaction Report

The Item Lot Ship Transaction Report (3.22.13.14) produces a report showing ISS-SO transaction history (tr_hist) records created by Sales Order Shipments (7.9.15) or Pre-Shipper/Shipper Confirm (7.9.5) for a selected finished material lot. With this information, you can easily identify the customer or ship-to where the finished material lot was shipped.

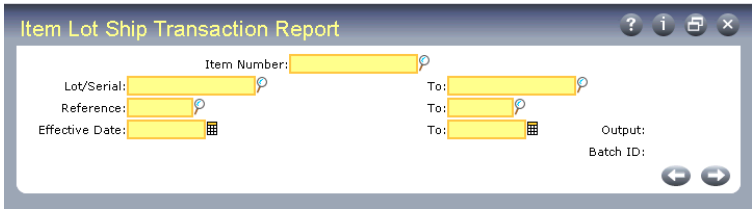


Fig. 4.2
Item Lot Ship Transaction Report (3.22.13.14)

WIP Lot Convert Transaction Report

The WIP Lot Convert Trans Report (3.22.13.15) shows operation history (op_hist) data and tracing information for transactions where material conversion occurred. This refers to, for example, any operation where a component is introduced and becomes part of the WIP material, or where a rejected WIP material was reworked and assigned to a different lot/serial.

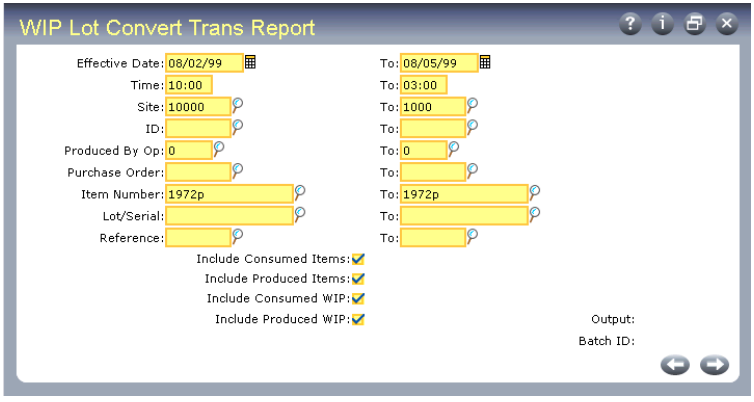


Fig. 4.3
WIP Lot Convert Trans Report (3.22.13.15)

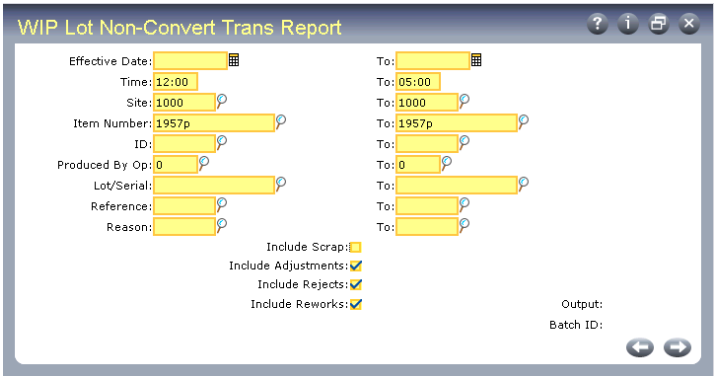
The report shows the data recorded in these programs:

- Purchase Order Receipts (5.13.1)
- Purchase Order Returns (5.13.7)
- Work Order Component Issue (16.10)
- Work Order Receipt (16.11)
- Work Order Operation Backflush (16.19)
- Labor Feedback by Work Order (17.1)
- Labor Feedback by Employee (17.2)
- Labor Feedback by Work Center (17.3)
- Repetitive Setup Transaction (18.13)
- Repetitive Labor Transaction (18.14)
- Repetitive Rework Transaction (18.16)
- Repetitive Reject Transaction (18.17)
- Backflush Transaction (18.22.13)
- Run Labor Transaction (18.22.14)
- Setup Labor Transaction (18.22.15)
- Rework Transaction (18.22.17)

WIP Lot Non-Convert Transaction Report

The WIP Lot Non-Convert Trans Report (3.22.13.16) shows operation history data that references WIP lot and serial numbers, but does not include records where material was converted.

Fig. 4.4
WIP Lot Non-Convert Trans Report (3.22.13.16)



WIP lot and serial numbers recorded during transactions in the following programs are reported:

- Repetitive Reject Transaction (18.17)
- Reject Transaction (18.22.16)
- Repetitive Rework Transaction (18.16)
- Rework Transaction (18.22.17)
- Repetitive Scrap Transaction (18.18)
- Scrap Transaction (18.22.18)
- WIP Adjust Transaction (18.22.21)

Note Information recorded in the rework transaction is reported only if the WIP lot or serial numbers remained the same for the reworked material.

WIP Lot Inquiry

Use WIP Lot Inquiry (3.22.13.17) to display WIP lot cumulative quantities by lot or work order ID at each operation. The cumulative totals displayed at each operation are:

- Cumulative quantity produced
- Cumulative quantity consumed
- Cumulative quantity scrapped
- Cumulative quantity adjusted
- Cumulative quantity rejected
- Cumulative quantity reworked
- Cumulative quantity transferred in
- Cumulative quantity transferred out

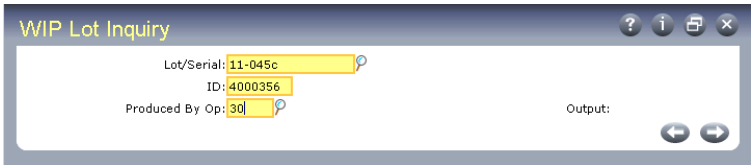
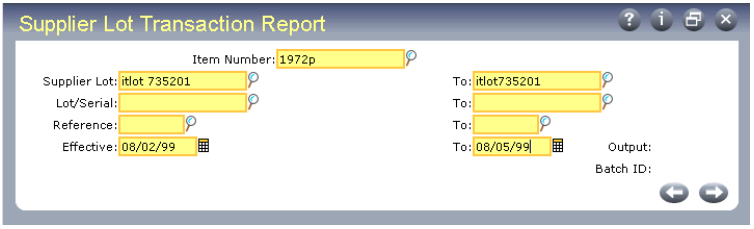


Fig. 4.5
WIP Lot Inquiry (3.22.13.17)

Supplier Lot Transaction Report

Use Supplier Lot Transaction Report (3.22.13.18) to generate a report of PO Receipt transactions for the selected item, where a supplier's lot number was entered into the Supplier Lot number field. Use the report to identify the supplier lot associated with an internally assigned lot.

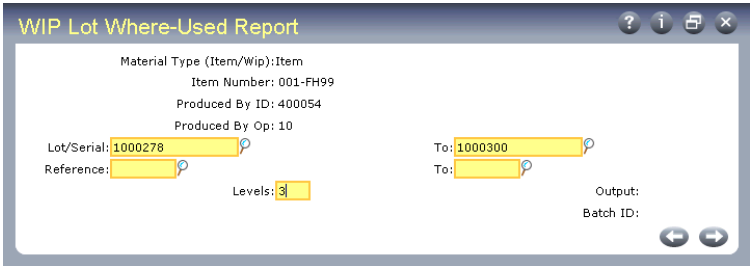
Fig. 4.6
Supplier Lot Transaction Report (3.22.13.18)



WIP Lot Where Used Report

Use the WIP Lot Where-Used Report (3.22.13.19) to generate a where-used report for selected component or WIP material lots. The report shows where WIP material or component lots were consumed, and what material lots were produced from them.

Fig. 4.7
Lot Where Used Report (3.22.13.19)



WIP Lot Actual Bill Report

Use the WIP Lot Actual Bill Report (3.22.13.20) to generate a report that shows what material was used to make a WLT-tracked finished or WIP lot. The report shows issue and receipt transactions related to the WIP or parent material.

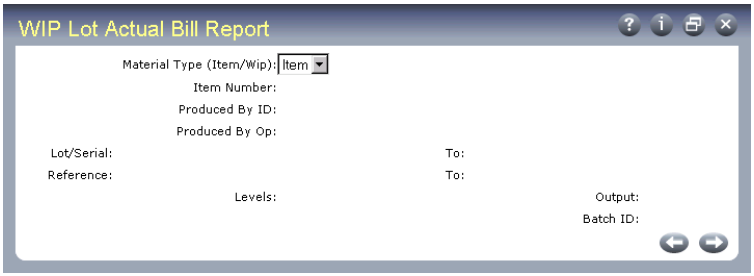


Fig. 4.8
WIP Lot Actual Bill Report (3.22.13.20)

SECTION 2

Container and Line Charges

This section includes information on the PRO/PLUS Container and Line Charges module.

Chapter 5

Container and Line Charges

This chapter describes features of the Container and Line Charges (CLC) module. It describes the setup prerequisites, the setup procedure, and how the module is used.

Overview

Business Need

In a highly competitive marketplace, the ability to track and invoice shipping containers associated with sales order lines, as well as tracking and invoicing other miscellaneous charges, are essential elements in an effective supply chain. Companies need a simple, fast, and effective mechanism to capture, review, and invoice shipping expenditures and miscellaneous information at the order-line level.

MFG/PRO Solution

The Container and Line Charges (CLC) module provides suppliers a way to track and invoice customers for:

- Shipping containers, such as pallets, crates, or bins
- Extra line charges, such as shipping, painting, and detailing

Line charges and container charges are added at the order line-item level.

This module also supports the setup of flexible data entry points during the shipping process for recording and tracking shipping codes or related shipping information.

Container Charges

Container charges can be assessed for any kind of container used during shipment, such as expendable containers or any container not already accounted for on the sales order line. You can predefine container charge amounts for each container item or for a specific container being sent to a specific customer. Container charges can also be calculated per unit, at a flat rate, or at a user-defined rate using customized external calculation routines.

Example A produce packing house ships oranges to a juice-processing plant in returnable wooden crates. When the processing plant does not return the crates in a timely manner for reissue, the packing house must ship the oranges in disposable re-enforced cardboard crates. Because the customer did not return the wood crates in a timely manner, the packing house shipping clerk assesses a container charge at the line level for each disposable cardboard crate shipped to that customer.

You can assess container charges in the following functions:

- Sales Order Maintenance (7.1.1)
- Pending Invoice Maintenance (7.13.1)
- Scheduled Order Maintenance (7.3.13)

The system references container information in the following functions:

- Container Workbench (7.7.1)
- SO Container Maintenance (7.7.5)
- Sales Order Shipper Maintenance (7.9.8)
- Pre-Shipper/Shipper Workbench (7.9.2)

Line Charges

Line charges are any general or miscellaneous charges assessed on a sales order line. When you apply a line charge, you must specify a trailer code, and you may specify a corresponding line charge type code. Line charge amounts can be specified at the line-item level or calculated by an external user-created calculation or validation program associated with the charge type code.

Line charges display on the invoice with the trailer code associated at the time the charge was assessed. Trailer codes let you track line charges for General Ledger (GL) purposes and reporting.

See *User Guide Volume 6: Master Data*.

Example An engine supplier sends assembled engines to a customer site in returnable shipping crates. If the customer does not return the crates in a timely manner, the supplier runs out of shipping crates. In order to continue shipping the engines, the supplier requires additional time and labor to package and secure the engines on regular pallets. Using the line charge functions, the supplier can assess charges at the line level for the added labor costs associated with packaging each engine for shipment.

You can always assess additional charges on an order line item in the following maintenance programs:

- Sales Order Maintenance (7.1.1)
- Scheduled Order Maintenance (7.3.13)
- Pending Invoice Maintenance (7.13.1)

You can also use Order Line Charge Maintenance (7.22.13) at any time to update line charges directly.

Depending on control program settings, you may also be able to add and modify line charges while maintaining containers and shippers in:

- Container Workbench (7.7.1)
- SO Container Maintenance (7.7.5)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Sales Order Shipper Maintenance (7.9.8)

Charge Type Codes

When a container charge or a line charge is assessed, a corresponding charge type code is assigned. Charge type codes apply to either container charges or line charges and reference an external calculation or validation program to execute.

See “Create Container Charge Type Codes” on page 86.

You can define as many charge type codes as you need using Charge Type Maintenance (7.22.1). You assign a Progress program to each charge type that the system runs to perform an extended price calculation for the charge.

Trailer Codes

See “Set Up Trailer Codes for Line Charges” on page 96.

When a line charge is assessed, a corresponding trailer code is also assigned to the line item. When an invoice is printed for a sales order, the line charges appear on the trailer with the associated trailer codes. Using specifically defined trailer codes, you can easily group your line charges for tax or reporting purposes.

User Fields

User field functions let suppliers track various shipping codes such as Authorized Excess Transportation Codes (AETC), airport codes, or airfreight codes on scheduled orders, shippers, and advance ship notices (ASNs). The system can be set up to prompt users for specific codes at any point in various shipping programs, or codes can be predefined for sales orders for specific ship-to addresses and items.

See “Setting Up Shipper User Fields” on page 99.

Features

Using container and line charge functions, you can:

- Create unique container items based on items currently defined in the system.
- Create price lists for container items or ship-to and container item combinations.
- Create customized calculation methods to find extended prices for container or line charges.
- Set specific control options based on ship-from and ship-to combinations.
- Add miscellaneous line charges to sales orders, pending invoices, and scheduled orders. Optionally add them in container and shipper programs.
- Add container item charges to sales orders, pending invoices, and scheduled orders. Reference sales order line items and associated container charges in container and shipper programs.
- Track shipping codes such as AETC on scheduled orders, shippers, and ASNs.
- Create customized validation programs to validate shipping codes.
- Optionally include container charge and line charge details on ASNs.
- Specify the level of detail to print on invoices for container charges and line charges.

Changes to MFG/PRO

When you activate this module, features are added to various MFG/PRO programs, including CLC data collection frames and fields. The added features help capture, maintain, invoice, and report CLC data. When you deactivate this module, the modified programs again operate as in standard MFG/PRO.

Table 5.1 shows the programs modified for use with this module.

Table 5.1
Programs Modified for CLC Module

Menu	Description	Program
7.1.1	Sales Order Maintenance	sosomt.p
7.1.3	Sales Order Print	sosorp05.p
7.3.13	Scheduled Order Maintenance	rcsomt.p
7.7.1	Container Workbench	rcctwb.p
7.7.5	SO Container Maintenance	rcctmt.p
7.9.1	Picklist/Pre-Shipper – Automatic	sososl.p
7.9.2	Pre-Shipper/Shipper Workbench	rcshwb.p
7.9.4	Pre-Shipper/Shipper Print	rcrp13.p
7.9.5	Pre-Shipper/Shipper Confirm	rcsois.p
7.9.8	Sales Order Shipper Maintenance	rcshmt.p
7.9.9	Sales Order Shipper Print	rcrp11.p
7.9.15	Sales Order Shipments	sosois.p
7.9.20	Undo Shipper Number Assignment	rcslrb.p
7.9.21	Shipper Unconfirmed	rcunis.p
7.9.22	Shipper Gateway	rcshgw.p
7.9.23	Shipper Delete/Archive	rcscdel.p
7.13.1	Pending Invoice Maintenance	soivmt.p
7.13.2	Pending Invoice Register	soivrp.p
7.13.3	Invoice Print	sosorp10.p
7.13.4	Invoice Post	soivpst.p
7.13.8	Invoice History Report	soivrp09.p
7.13.23	Invoice History Delete/Archive	soivup.p
35.4.1	Shipment ASN Export	edomasn.p

Table 5.2 lists MFG/PRO reports modified to include CLC data.

Table 5.2 Reports Modified for CLC Module

Menu	Description	Program
7.3.14	Scheduled Order Inquiry	rcsoiq.p
7.3.15	Scheduled Order Report	rcsorp.p
7.7.2	Container Inquiry	rciq03d.p
7.9.3	Pre-Shipper/Shipper Inquiry	rciq03.p
7.13.8	Invoice History Report	soivrp09.p
7.13.12	Closed Invoice Reprint	soivrp10.p
7.15.1	Sales Order by Order Report	sosorp.p
7.15.2	Sales Order by Customer Report	sosorp01.p
7.15.7	Sales Order Pricing Report	sopirp01.p
7.15.9	Unconfirmed Sales Order Report	sosorp16.p

Table 5.3 lists the programs on the Container and Line Charges (7.22) menu.

Table 5.3 Container and Line Charges Programs

Menu	Description	Program
7.22.1	Charge Type Maintenance	cctmt.p
7.22.2	Charge Type Inquiry	cctiq.p
7.22.5	Ship-To/Container Charge Maintenance	ccscmt.p
7.22.6	Ship-To/Container Charge Inquiry	ccsciq.p
7.22.7	Ship-To/Container Charge Report	ccscpr.p
7.22.10	Container Item Maintenance	ccpmt.p
7.22.11	Container Inquiry	ccpiq.p
7.22.12	Container Data Report	ccprp.p
7.22.13	Order Line Charge Maintenance	rcslcmt.p
7.22.15	Ship-To Control Maintenance	cclspm.p
7.22.16	Ship-To Control Inquiry	cclsiq.p
7.22.17	Ship-To Control Report	cclspr.p
7.22.19	Container Usage Report	ccurp.p
7.22.24	Container/Line Charge Control	cclpm.p

Implementation Planning

This section discusses the tasks you must complete before you can begin tracking and invoicing container and line charges or assigning and tracking shipping codes and shipping information.

Before you begin setup tasks, review all module information. Once you understand the features and setup requirements, collect the information detailed in the following sections. Only then should you proceed with the setup steps outlined in the next section.

The complexity of setting up this module depends greatly on your shipping environment. Clearly defined requirements simplify the setup process. The following sections explain and show examples of the information you need to collect before you can set up this module.

Container Charge Requirements

Compile a list of all items in your shipping environment used as containers for which you need to charge your customers or that you need to track through your shipping environment. Containers may include shipping pallets, crates, bins, or special packaging materials.

This shipping container information is used to create *container items*. These items are defined in the item master (pt_mstr) but have additional container details, including:

- A container description
- Whether to apply a charge when the container is used
- A charge type code
- A container item type code

After compiling the list of containers used in your environment, add the following details to the items on your list:

See “Setting Up Container Charges” on page 85.

- The amount you normally charge your customers when this item is used as a container, rather than sold as an item. These prices are used when defining the container item.

- Any special pricing agreements you may have with specific customers. For example, you charge out-of-town customers $15.00 per pallet used to ship their orders. A pallet charge is not imposed on local customer deliveries because pallets are returned upon delivery.

  This information is used to create ship-to control records.

See "Create Control Program Exceptions" on page 94.

- Any charge calculations used to find extended prices for a container item. For example, the charge for a shipping bin is the greater of $15.00 or $.50 times the number of items shipped in the bin.

  This information is used to design and code custom Progress programs that determine the extended price for containers affected by special pricing agreements.

See "Create Container Charge Type Codes" on page 86.

- Any price variations a container item is subject to due to seasonal or time-related constraints. For example, in the food and beverage industry, raw materials may require more expensive packaging during hot summer months, but less expensive packing materials in more temperate months.

  This information is used to create ship-to/container charge records.

See "Set Up Container Charge Amounts" on page 90.

Line Charge Requirements

Compile a list of all the types of charges and amounts that are applied to line items. These charges are known as *line charges*, which are additional fees imposed on a line item. They can include any type of charge at the line-item level, such as painting, polishing, setup, handling fees, or special order fees such as hazardous material handling charges.

Example A quantity of 1,000 pieces of item B is sold for a price of $1.00 per unit. The extended price is $1,000. In addition, item B has a special handling charge of $20; this is a line charge. A setup charge of $30 is also applied as a line charge. The total line-item charge for item B is:

$1,000 + $20 + $30 = $1050

Of this amount, $50 is the additional line charge amount.

Like container charges, you can use an external calculation or validation program with line charges. In the previous example, you could create an external program to find the extended price each time the specific charge is made on a line item, or to validate that the customer can be charged for these services according to predefined contractual agreements.

If this is a requirement in your environment, collect these calculation or validation requirements along with your charge type records.

Shipping Code Requirements

The user field functions let you collect and assign shipment-related codes for any shipment or shipment line while working on the shipper. You can set up default codes, or prompt users for code values. Data can be collected for all or specific ship-to addresses or containers.

Example Some of your customers require that you indicate airbill numbers for each sales order. With user fields, you can set up the system to prompt the shipping clerk for this number when the shipper is confirmed.

If your shipping environment has any shipment code collection requirements, you should compile a list of these requirements based on the codes, form numbers, or type of information needed by each customer. For example, note whether any customers require AETC codes, or airbill numbers for their shipments. Note whether those codes should be associated with the shipper header, shipper lines, specific shipper fields, or should have other reference information included.

You can collect any shipment-related codes and numbers. Different industries require various types of codes or numbers, such as:

- Airbill numbers
- Pull point numbers
- Carrier reference numbers
- Airport codes
- Freight bill numbers
- Packing list numbers

Setting Up CLC Features

Setting up this module requires careful planning. Before you proceed with the tasks in this section be sure you have collected the information detailed in the planning section.

This module has three distinct features:

- Container charges let you assess, trace, and invoice container charges for specific order lines.
- Line charges let you assess, trace, and invoice line charges for specific order lines.
- User fields let you assign, modify, or delete shipping codes for shipper headers or lines.

You can choose to activate only container charges, only line charges, or both. Activating either container or line charges activates user field features.

The following sections discuss the setup of each feature individually, even though they share some setup tasks. This makes it easier to implement only the features you need.

Note You must activate either the container charge or line charge functions in order to use the user field functions.

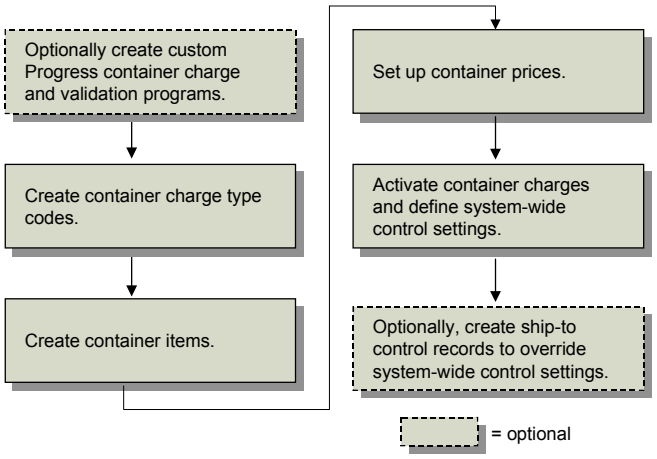
Setting Up Container Charges

Setting up the container charge functions involves the following tasks:

- Design and code custom Progress container charge and validation programs.
- Create container charge type codes.
- Create container items and associate them with optional container groups.
- Set up container prices.
- Activate container charges in the control program and define system-wide control settings.
- Create ship-to control records to override control program container charge settings.

Figure 5.1 shows a typical container charge setup work flow. Some environments do not require every setup step. For example, in some environments the control program settings apply throughout the system to all ship-to addresses and containers. In other environments, control program settings need to be changed for specific combinations of ship-to address and container. In these environments, additional setup steps are required to create ship-to control records to override the control program container charge settings.

Fig. 5.1
Container Charges Setup Work Flow



Create Container Charge Type Codes

Charge type codes are used when applying a line charge or container charge to manage and calculate the line and container charge amounts. Each code consists of a unique name, a short description, an indicator specifying whether it is used for line charges or container charges, and an optional external calculation or validation program to execute.

Use Charge Type Maintenance (7.22.1) to create charge type codes. Each charge type references a Progress program used to calculate the charge amount. The program calculates the charge amount before the extended price is posted on the invoice.

Since calculating a container charge amount can be a highly customized, multistep process, you can use your own custom Progress programs or either of two system-supplied charge type calculation programs to calculate the extended container charges.

When the shipper is confirmed, the container base price and charge type is retrieved from the container price table. Container prices are defined in Ship-To/Container Charge Maintenance (7.22.5) for combinations of ship-to addresses and container items. If a price list has not been defined, the price in the item master is used.

The Progress program associated with the charge type is used to calculate the extended price of the container. The two system-supplied charge type calculation programs are:

See “Sample Programs” on page 112.

- `cctflat.p` calculates the container flat charge by multiplying the container price by the number of containers.

  *Charge = Container Price * No. of Containers*

- `cctunit.p` calculates the container unit charge by multiplying the number of items in a container by the container price. This amount is then multiplied by the number of containers.

  *Charge = (Items in Container * Container Price) * No. of Containers*

You can use these two system-supplied programs as models for building your own calculation programs. All your custom programs must be compiled and placed in the appropriate two-character directory where your MFG/PRO code is located. For example, the custom program `linesort.p` goes in the `us\li` directory. The custom program `contsort.p` goes in the `us\co` directory.

See the installation guide for your system for the location of MFG/PRO code.

Example The `cctunit.p` program is specified in the Run Program field. As input, it receives a price from the price list defined in Ship-To/Container Charge Maintenance (7.22.5). It takes the number of items placed in the container and calculates the extended price as the number of item multiplied by the price on the price list.

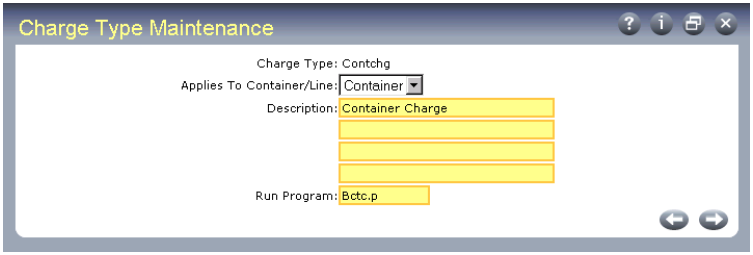


Fig. 5.2 Charge Type Maintenance (7.22.1)

Charge Type. Enter an eight-character code identifying a charge type. Some examples of charge types are FlatFee, PerUnit, and Fragile.

Applies To Container/Line. Enter Container to indicate the charge type applies to containers.

After you define the charge type as a container, it must always be applied that way. For example, you cannot apply a container charge type to a line item or a line charge type to a container.

Description. Enter a brief description of the container charge type.

See page 87.

Run Program. Enter the name of the Progress program used to calculate the extended price for containers that reference the charge type. If you have not created your own programs, enter either of the two system-supplied programs.

Create Container Items

If a container item is not already in the system, you must first create it in Item Master Maintenance (1.4.1). Once the item is defined, you can associate container information with it using Container Item Maintenance (7.22.10). Container information is saved in the container item detail table (ptc_det).

Container information is used only when the container item is associated with an order line using the container charge functions. If a container item is placed on an order as an item, the container information is disregarded and the information in the item master is used instead.

You can optionally group container items by container type. The field is not validated. Container type displays on reports and inquiries.

Note When you use Item Master Copy (1.4.12) to create a new item, only data from the item master is copied. If the source item has also been defined as a container item, container item detail is not copied. You must re-enter container information for items created by copying container items.

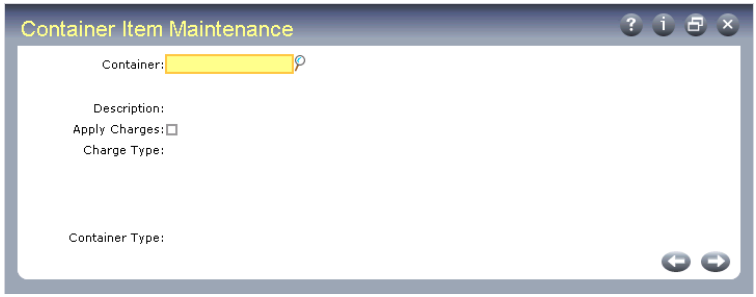


Fig. 5.3. Container Item Maintenance (7.22.10)

Container. Enter the item previously defined in Item Master Maintenance (1.4.1) to define as a container item.

Description. Optionally enter a description (up to 24 alphanumeric characters) for this container item.

The container description prints before the item description on various reports and inquires.

Apply Charges. This field indicates whether charges should be applied when the container is used.

No: Charges are not applied when the container is used.

Yes: The charge type is applied to all order lines using this container.

Set Apply Charges to No for container items that are invoiced without a charge amount. This might include returnable containers not requiring a deposit or nonreturnable containers when the container cost is included in the product's price.

Charge Type. Enter the charge type to use to calculate the charge amount for the container. Use Charge Type Maintenance (7.22.1) to create charge types.

When Apply Charges is Yes, you must specify a value. When Apply Charges is No, entering a charge type has no effect.

Container Type. Optionally enter a user-defined type code (up to 16 alphanumeric characters) associated with this container. Codes are not validated. They display on some reports and inquiries.

Set Up Container Charge Amounts

Use Ship-To/Container Charge Maintenance (7.22.5) to create records defining the amount charged for specific container items or specific container items used at specific ship-to addresses. You can set up these records in different currencies and with different charge amounts based on one or multiple date ranges. Typically, the charge amount is per container.

Each record is defined by a combination of ship-to, container, and currency:

- Define records with a blank ship-to address to indicate that the charge amount applies to the specified container regardless of where it is shipped.
- Define records with a ship-to address to indicate that the charge amount applies to the container only when used for shipments to that address.

The charge type you specify in this program overrides the charge type associated with the container item in Container Item Maintenance (7.22.10).

Each record has an associated pricing schedule, defined in the Price Detail Data frame. The schedule indicates the charge amount based on a date range specified in the Start and Expire date fields. To delete a date range, press Delete in the Price or Reference field.

When a container charge applies to an order line, the system searches for a charge amount for the ship-to and container item using the document currency and current date. An extended price calculation program associated with the charge type uses the charge amount to calculate the extended price.

A pricing schedule is useful when charge amounts change according to predefined seasonal time periods or other time-related factors. If you apply a charge during a period not covered on the schedule, the system uses the item master price for the container item to calculate the extended price.

Use these steps to set up a charge schedule:

1. Optionally enter a ship-to address on the header.
2. Enter the container, currency, and charge type.

3 Enter the start and expire date for the date range. Use the mm/dd/yy format; for example, October 19, 2002, is noted as 10/19/02.

4 Enter the price for the date range. You can optionally enter reference data.

Warning When entering multiple date ranges, make sure they do not overlap.

Example The price for item 003 is $4.25 in Item Master Maintenance (1.4.1). The container price you typically charge for this item is $4.50. For production year 2002, the price will fluctuate as follows: $4.75 in June, $5.00 in July, $5.25 in August, and $4.25 in October. Enter the date ranges for this requirement as shown in Table 5.4:

Table 5.4 Sample Date Ranges in mm/dd/yy Format

Start	Expire	Price
01/01/02	05/31/02	4.50
06/01/02	06/30/02	4.75
07/01/02	07/31/02	5.00
08/01/02	08/31/02	5.25
09/01/02	09/31/02	4.75
11/01/02	12/31/02	4.50

Note Since a date range is not indicated for October, the price defined in Item Master Maintenance is used that month.

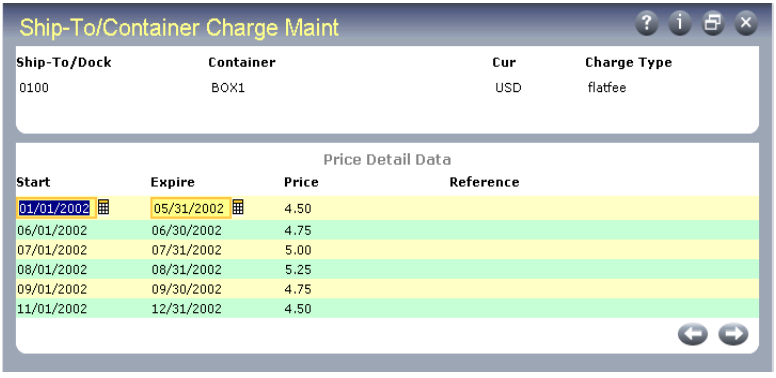


Fig. 5.4 Ship-To/Container Charge Maintenance (7.22.5)

Ship-To/Dock. Optionally enter the ship-to or dock address to use as part of the ship-to/container record. Leave this field blank if you want the price details to apply to all ship-to addresses without associated ship-to/container records.

Container. Enter the container item to use as part of the ship-to/container record. You must specify an item previously defined in Container Item Maintenance (7.22.10). This field is required.

The price details apply to the specified container only. When both a ship-to and container are specified, the price details apply to the container only when shipped to the specified ship-to.

Cur. Enter the currency of the price schedule. Currency codes identify monetary units and form the basis of exchange rate relationships.

This field defaults from the base currency specified in System/Account Control (36.1). When container charges are added to sales orders and scheduled orders, the system searches for prices using the order currency.

Charge Type. Enter a container charge type to associate with this record. The value of Applies To Container/Line in Charge Type Maintenance (7.22.1) must be set to Container for the charge type specified.

If Apply Charges is No for the charge type, it can be used as a reporting identifier.

Start. Enter the first date (in mm/dd/yy format) when this record should be considered active.

Expire. Enter the last date (in mm/dd/yy format) when this record should be considered active.

Price. Enter the container price for the associated date range. Price is expressed in the currency specified in the Currency field.

During the date range, the amount specified in Price is used by the program associated with the charge type to find the extended container price. If Apply Charges is No for the charge type, the prices are not applied.

Price defaults from the item master (pt_mstr) record.

Reference. Optionally enter a reference (up to 30 alphanumeric characters) for the active date range and price amounts. For example, enter a purchase order number or any general comment indicating why the price was set for the associated date range.

This value can display on various reports.

Set Up System-Wide Default Container Information

Use Container/Line Charge Control (7.22.24) to activate container charge functions.

Note Container charge and line charge functions can be used separately or together. You must activate one or the other in order to use the user field functions.

The values you define here default to corresponding fields in Ship-To Control Maintenance (7.22.15). Use that program to change this value for specific combinations of ship-from sites and ship-to addresses

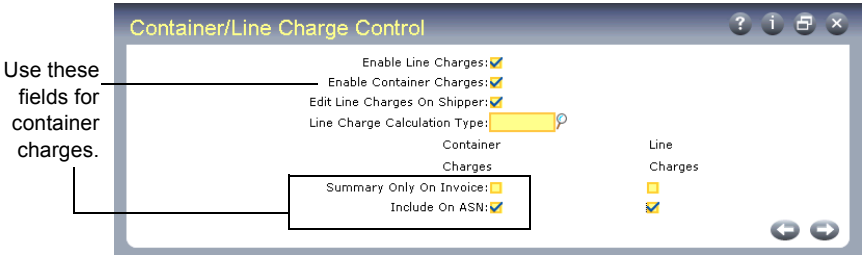


Fig. 5.5 Container/Line Charge Control (7.22.24)

Use the following descriptions to enter values for the container-related fields:

Enable Container Charges. Enter Yes to activate the container charge functions.

For a list of program changes that take place when you enable container charges, refer to Container Charges.

See page 76.

Enabling container charges also lets you set up and use user fields.

See page 99.

Summary Only on Invoice: Container Charge. Indicate how container charges display on invoices.

No. Container charge details print at the end of the invoice, including the container item number, the quantity of container items used, the price per container item, and the total charges. The charge amounts are subtotaled and display in the Container trailer field. This subtotal is included in the invoice total.

Yes: Container charge details do not print on the invoice. Container charge amounts are subtotaled and display in the Container trailer field. This subtotal is included in the invoice total.

Include on ASN: Container Charge. Indicate whether to include the container charge and description on the ASN.

No: The container charge information is not sent.

Yes: A detail line for each container charge is sent on the ASN. Currently, the ASN does not include pricing information.

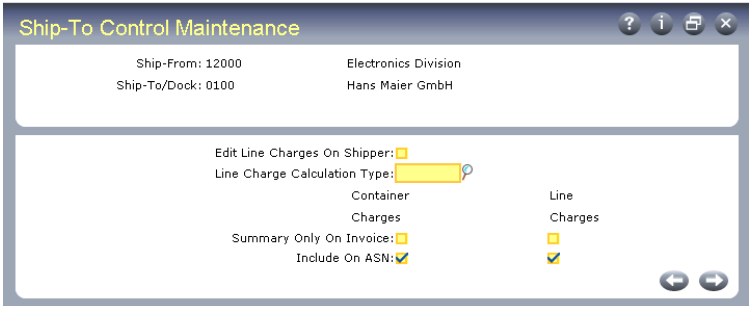
Create Control Program Exceptions

Use Ship-To Control Maintenance (7.22.15) to create control records that override the settings in Container/Line Charges Control for specified ship-from and ship-to combinations.

Most of the field values in this program default from corresponding fields in the control program. The field descriptions in the control program also apply to the fields in this program.

Note The settings in this program only apply to the specific ship-from/ship-to combination specified in the header frame.

Fig. 5.6
Ship-To Control Maintenance (7.22.15)



Setting Up Line Charges

Setting up the line charge functions is very similar to setting up the container charge functions. It involves the following tasks:

- Design and code custom Progress line charge and validation programs.
- Optionally create line charge type codes.
- Set up trailer codes for use with line charges.
- Activate line charges in the control program and define system-wide control settings.
- Optionally, create ship-to control records to override control program line charge settings.

Figure 5.7 shows a typical line charge setup work flow. Some environments do not require every setup step. For example, in some environments the control program settings apply throughout the system to all ship-to addresses. In other environments, control program settings need to be changed for specific ship-to addresses. In these environments, additional setup steps are required to create ship-to control records to override the control program line charge settings.

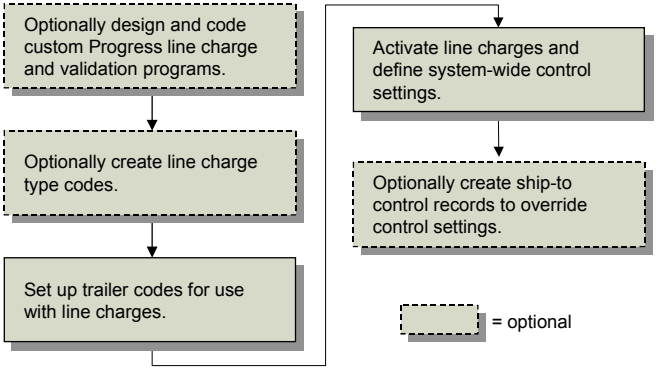


Fig. 5.7
Line Charges Setup Work Flow

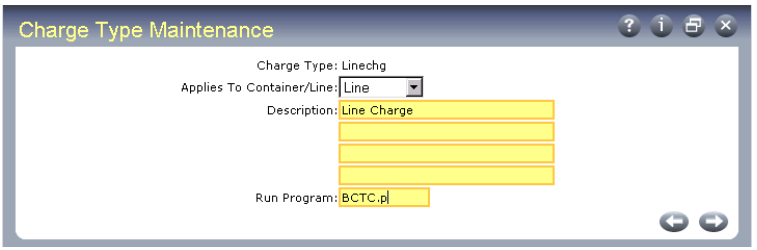
Create Line Charge Type Codes

Charge type codes can be used when applying a line charge as well as a container charge. However, while charge types are required with container charges, they are optional with line charges. If you decide to

implement them, use Charge Type Maintenance (7.22.1) to create charge type codes for line charges.

Specify Line for Applies To Container/Line to indicate that the charge type is used for line charges.

Fig. 5.8
Charge Type Maintenance (7.22.1)



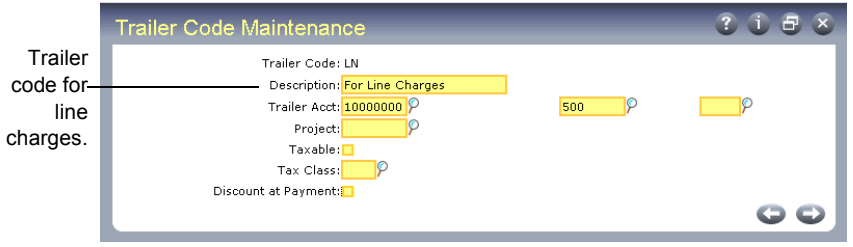
Line charges can be calculated similarly to container charges by associating a Progress program with the line charge type to calculate the extended charge amount. Unlike container charges, you cannot define price lists for line charge. Line charge amounts are specified at the line level when the charge is applied.

When you apply a line charge, a trailer code must be entered, but a charge type is optional. As with container charges, the charge type can reference an external calculation or validation program. The trailer code is used to manage GL and tax details for the charge.

Set Up Trailer Codes for Line Charges

An additional line charge is a special kind of trailer code that applies to a line rather than to an entire order. Use Trailer Code Maintenance (2.19.13) to create trailer codes for your line charges.

Fig. 5.9
Trailer Code Maintenance (2.19.13)



The trailer code details let you specify a GL account for reporting line charge amounts and let you indicate if the charge is taxable.

Set Up System-Wide Default Line Charge Information

Use Container/Line Charge Control (7.22.24) to activate line charge functions.

Note Container charge and line charge functions can be used separately or together. You must activate one or the other in order to use the user field functions.

The values you define here default to corresponding fields in Ship-To Control Maintenance (7.22.15). Use that program to change this value for specific combinations of ship-from sites and ship-to addresses.

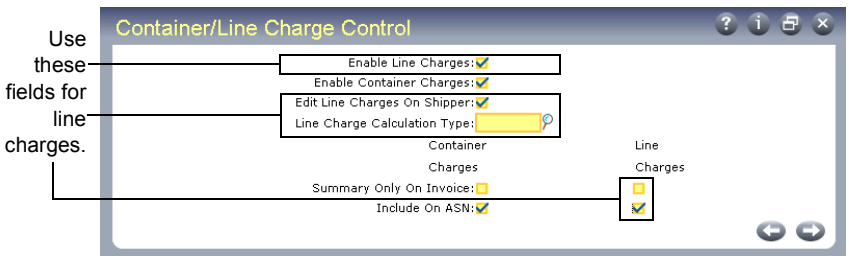


Fig. 5.10 Container/Line Charge Control (7.22.24)

Use the following descriptions to enter values for the fields in the first frame:

Enable Line Charges. Enter Yes to activate the line charge functions of the Container and Line Charges module.

When set to Yes, you can associate up to 999 additional line charges with a line item on a sales order or shipper.

When the system applies line charges to an order, you can specify charge type and charge amount (charge type is optional). The extended charge can be calculated using the charge type. Line charges associated with sales orders can be defined as one time only or recurring. Line charges on shippers are always one time only.

For a list of program changes that take place when you enable line charges is included in the overview.

See “Line Charges” on page 77.

Enabling line charges also lets you set up and use user fields.

Edit Line Charges on Shipper. Indicate whether line charges can be modified on shippers:

No: Only the line charges from the sales order apply to the shipper. Deleting or modifying existing line charges or adding new line charges is allowed only in Sales Order Maintenance (7.1.1), Pending Invoice Maintenance (7.13.1), Scheduled Order Maintenance (7.3.13), and Order Line Charge Maintenance (7.22.13).

Yes: The line charges from the sales order are added to the shipper. You can delete, modify, and add new line charges when building the shipper.

When this field is Yes, the Additional Line Charges frame displays in the following programs:

- Container Workbench (7.7.1)
- SO Container Maintenance (7.7.5)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Sales Order Shipper Maintenance (7.9.8)

See "Create Line Charge Type Codes" on page 95.

Line Charge Calculation Type. Enter the default charge type to use to calculate the charge amount applied to new line charges added to sales orders or shippers.

Summary Only on Invoice: Line Charge. Indicate how additional line charges display on invoices:

No: Line charge details print on the invoice, including the charge description, the charge amount, whether the amount is taxable, and the extended price. Line charge amounts are subtotaled and display in the Line Charges trailer field. This subtotal is included in the invoice total.

Yes: Line charge details do not print on the invoice. Line charge amounts are subtotaled and displayed in the Line Charges trailer field. This subtotal is included in the invoice total.

Include on ASN: Line Charge. Indicate whether to include additional line charge data on the ASN. Each additional line charge displays as a new ASN line.

No: The additional line charge information is not sent.

Yes: A detail line for each additional line charge is sent on the ASN. Currently, the ASN does not include pricing information.

Create Line Charge Control Exceptions

Use Ship-To Control Maintenance (7.22.15) to create control records that override the settings in Container/Line Charges Control for specified ship-from and ship-to combinations.

Field values in this program default from corresponding fields in the control program. The field descriptions in the control program also apply to the fields in this program.

Note The settings in this program only apply to the specific ship-from/ship-to combination specified in the header frame.

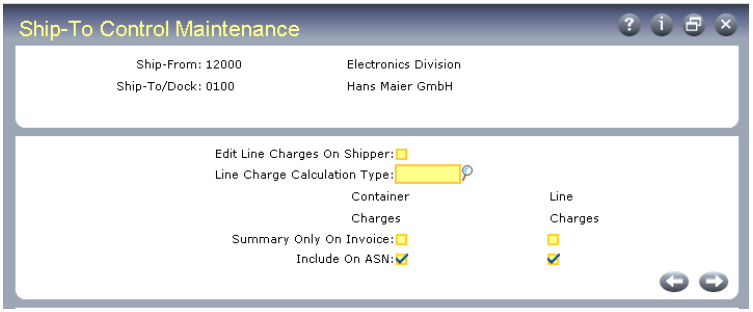


Fig. 5.11 Ship-To Control Maintenance (7.22.15)

Setting Up Shipper User Fields

Use the Shipper User Fields frame in Container and Line Charges Control (7.22.24) and in Ship-To Control Maintenance (7.22.15) to associate custom information with containers and shippers and include this information on printed documents. The user fields defined in the control program apply to all shippers. The user fields defined in Ship-To Control Maintenance apply to the specific ship-from/ship-to combination.

Example As an automotive industry OEM manufacturer, your customers require you to include Authorized Excess Transportation Codes (AETC) for each shipper line item. To meet this requirement, set up the user field functions to prompt for an AETC code for each shipper line.

Organize User Field Requirements

See "Implementation Planning" on page 82.

To set up user fields, use the shipping code requirements and information you collected in the planning section. Use the following guidelines to help you enter the correct information.

Do all, most, or only a few of your customers require shipping codes, such as AETC codes?

- If all or most customers require shipping codes, enter the most common parameters in the control program. Create ship-to control records in Ship-To Control Maintenance (7.22.15) for the sites that do not require the information.

  Example Most of your customers require that you associate an airbill number with each shipper. Set up your system to prompt for the number when the shipper header is complete. To do this, create a user field entry in the control program.

- If only a few customers require the shipping codes, create ship-to control records for those customers.

  Example Two customers require an AETC for each shipper line received. Set up the control program without user field requirements. Then create ship-to control records for the two customers. Each ship-to control record is set up to prompt for the AETC whenever a new shipper line is entered.

During shipper maintenance, when is the best time to enter the required shipping codes? Does your customer require that codes be associated with specific shipper fields? Are there default shipper code values that should not be modified?

Review the preshipper/shipper functions to find the field label and name for each header and line-item field to associate with a shipping code. Note whether the user field should be associated with the shipper header or body rather than a specific field, and whether users should be allowed to modify the field on the shipper.

Example You need to associate an AETC with the Inventory Movement Code field on the Pre-Shipper/Shipper Workbench header. Note the field label is Inventory Movement Code, and the field name is inv_code. Enter inv_code in the Shipper Field Name field.

Shipper User Fields Frame

Figure 5.12 illustrates the Shipper User Fields frame in the control program. The values you define here default to corresponding fields in Ship-To Control Maintenance (7.22.15). Use that program to change values for specific combinations of ship-from sites and ship-to addresses.

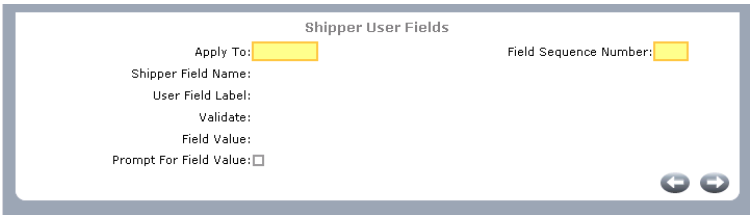


Fig. 5.12
Shipper User Fields Frame

Apply To. Enter Header if this user field applies to the shipper header. Otherwise, enter Line if it applies to shipper line items.

This field is used in conjunction with Shipper Field Name and Prompt for Field Value.

- When a shipper field name is specified and Prompt for Field Value is Yes, the User Fields frame displays after leaving the indicated field.
- When a shipper field name is not specified and Prompt for Value is Yes, the User Fields frame displays either after the header or the line items, depending on the setting of Apply To.

When Prompt for Field Value is No, the value defined for the user field is applied automatically and the User Fields frame does not display.

Field Sequence Number. Enter the sequence in which this user field should print on the shipper header or line-item section. This value also determines the display order for the user field in the User Field data entry frame.

Specify one sequence for the header user fields and a second sequence for the line-item user fields.

Sequence numbers must be between 1 and 999.

Shipper Field Name. To prompt for this user field value when the user leaves a specific field in the shipper maintenance program, enter that field name. This value is not validated.

See “Creating User Field Records” on page 102.

User Field Label. Enter a field label to associate with the user field. The label displays next to the user field when the user is prompted to enter a value and prints on the shipper next to the value entered.

You must enter a label, but this value is not validated.

Validate. This field determines if and how the value entered by users for this user field is validated:

- Leave blank to indicate that no validation of user input occurs.
- Enter a generalized code field name to validate user input against predefined generalized codes. Create generalized codes in Generalized Codes Maintenance (36.2.13).
- Enter the name of a custom Progress program for validating user input.

Field Value. Optionally enter a default value for this user field. If Prompt for Value is Yes, this default displays and the user can change it. If Prompt for Value is No, this value is always associated with the user field and prints on the shipper.

The default value may be validated during user input, depending on the setting of Validate.

Prompt for Field Value. Indicate if this user field should display for input:

No: The system assigns the value in Field Value to the indicated user field. That value cannot be edited on the shipper.

Yes: The User Fields frame displays so the user can supply a value.

Creating User Field Records

Use the following instructions to create user field records in the Shipper User Fields frame:

1. In Apply To, select Header or Line to determine where the user field should be applied. This is where the User Field data entry frame displays. This is also where the value is printed on the shipper.
2. Enter an integer in Field Sequence Number. When multiple user fields are associated with a program field, header, or line, the sequence values determines the display order for the user field in the

User Field data entry frame. Additionally, it indicates the order in which the user field prints on the shipper in relation to the other user field values.

3 Enter the name of the field where the User Field data entry frame should display. For example, to display the User Field frame after the Inventory Movement Code field is accessed, enter `inv_code` in Shipper Field Name.

To find the field name, go to the field in the shipper program and press Ctrl+F. If you leave this field blank, the User Field frame displays when you exit the shipper maintenance header or line-item frames, as defined in Apply To.

Note In QAD Desktop field names display as field tips; you do not need to use Ctrl+F.

4 Enter a label to display next to the user field in the User Fields data entry frame. For example, enter a prompt that reminds the user what value to enter in the user field.

See Figure 5.18 on page 109 for an example.

5 Optionally enter a generalized code field name in Validate to use for validating the code entered in the User Field data entry frame. A Progress program name can also be specified. When a Progress program is specified, it is used for validating the user input.

6 Optionally enter a default value to associate with the user field in Field Value. Use this option when you need to default a value to the user field. You can then specify whether the user should be allowed to edit this field by setting Prompt for Field Value appropriately.

Using Container and Line Charges

When container or line charge features are activated, additional fields and frames display for user input. In some cases, additional calculations are performed based on data defined earlier.

Working with Scheduled and Discrete Sales Orders

Multiple features may be enabled during order maintenance:

- Specifying container items
- Specifying additional line charges

Specifying Container Items

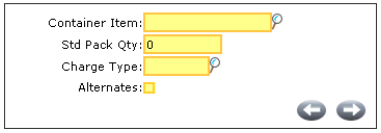
You can specify container and line charge information during order entry in the following programs:

- Sales Order Maintenance (7.1.1),
- Pending Invoice Maintenance (7.13.1)
- Scheduled Order Maintenance (7.3.13).

Figure 5.13 illustrates the Container Item frame in Sales Order and Pending Invoice Maintenance. This frame displays after you enter a line item.

When you specify a container item, the charge type associated with the container item defaults to the Charge Type field. This information is used to calculate the charge amount.

Fig. 5.13
Container Item Frame in Sales Order Maintenance (7.1.1)



Container Item. Enter the number of the primary container item to be used for packaging the order line item.

If container charges are enabled in Container/Line Charges Control (7.22.24), you must enter a valid container item defined in Container Item Maintenance (7.22.10).

Std Pack Qty. Enter the multiple in which orders for this item are usually shipped. Leave the default to use the order multiple associated with the item in Item Master Maintenance (1.4.1).

Order multiples are used to calculate shipment quantities so that they conform to packaging configurations and transportation constraints. MRP uses the order multiple from the item record to determine the

quantity of planned orders. The net requirement is rounded up to a multiple of this number. For example, if order multiple is 50 and the net requirement from the customer is 432, MRP creates a planned order for 450.

For scheduled orders, Required Ship Schedule Update (7.5.5) rounds orders based on the standard pack quantity specified on the scheduled order. If you plan to enter the standard pack quantity on scheduled orders, make sure that an order multiple is not defined for the item or the two planning functions update orders differently.

On discrete sales orders, this field is for reference only.

Charge Type. Enter the charge type to use when calculating charges that apply to this container.

This field defaults first from Ship-To/Container Charge Maintenance, if a record has been defined for the ship-to address and container item combination. Otherwise, it defaults from Container Item Maintenance

Alternates. Enter Yes to add, edit, or delete alternate containers for this container item. Otherwise, enter No.

Setting Alternates to Yes in any of these order maintenance programs displays the Alternate Containers frame.

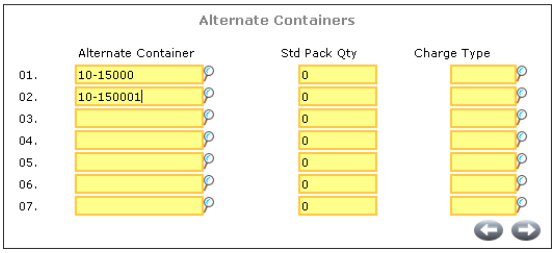
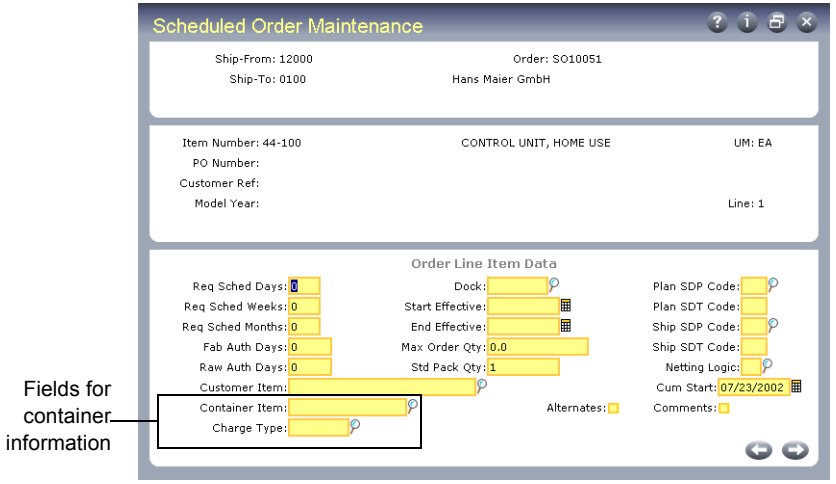


Fig. 5.14 Alternate Containers Frame

You can specify up to seven alternate container items to be used if a sufficient quantity of the primary container is not available.

In Scheduled Order Maintenance, a special pop-up is not required since the Container Item field is already available. However, the Charge Type field has been added to the screen.

Fig. 5.15
Container Fields in Scheduled Order Maintenance (7.3.13)



Specifying Additional Line Charges

Figure 5.16 illustrates the Additional Line Charges frame as it displays in Sales Order Maintenance. Exactly the same frame displays in Pending Invoice Maintenance and Scheduled Order Maintenance.

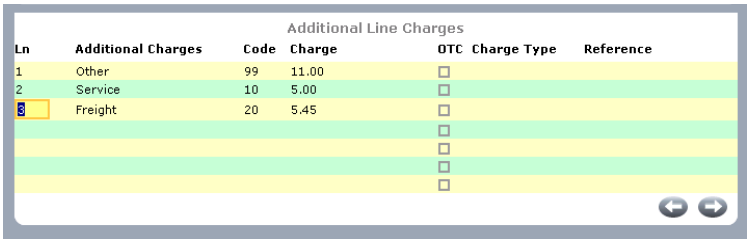
If Edit Line Charges on Shipper is Yes in Container/Line Charges Control or in Ship-To Control Maintenance, the Additional Line Charges frame also displays in:

- Container Workbench (7.7.1)
- SO Container Maintenance (7.7.5)
- Pre-Shipper/Shipper Maintenance (7.9.2)
- Sales Order Shipper Maintenance (7.9.8)

See page 111.

Line charges can also be edited directly in Order Line Charge Maintenance (7.22.13).

Fig. 5.16
Additional Line Charges Frame



To delete an existing line charge, select the line charge to delete, move to the Code field and press Delete. To modify a line charge, select the line and modify the fields as needed. To enter a new line charge, enter a new line number, then specify values for the other fields.

Ln. Enter the line charge record number. Additional charges print on the shipper in line sequence order.

You can associate up to 999 additional charge lines with each sales order or shipper line.

Additional Charges. This output-only field displays the description of the trailer code after you enter the trailer code and save the line.

Code. Enter a valid trailer code to associate with the additional line charge. The trailer code description displays in the Additional Charges column after you save the line.

You can specify more than one charge for each order line as long as the trailer code is different. You cannot add more than one additional charge referencing the same trailer code for a specific order line.

Charge. Enter the amount of this line charge. If you specify a charge type, the executable program associated with it is used to calculate an extended price based on this amount. Otherwise, the charge amount is used as is.

Depending on the setting of Summary Only on Invoice, line charge descriptions and amounts can display on the invoice.

One Time Charge (OTC). Indicate if this charge is one time only or recurring:

No: This line charge is accessed every time shipment of items on this line is invoiced.

Yes: This line charge is accessed only once for the order line item.

This field does not display when additional line charges are edited on shippers. Additional charges on shippers are always considered one time charges. Recurring charges only occur on sales order shipments.

Charge Type. Optionally enter a charge type to associate with this charge amount. The charge type indicates how the charge amount is applied. The charge type can reference an executable Progress program.

See “Create Line Charge Type Codes” on page 95.

Reference. Optionally enter a reference (up to 24 alphanumeric characters) for this line charge. For example, enter the purchase order number for the line item. Reference can appear on selected reports.

Using Container Functions

When container and line charges are enabled, additional features are enabled in Container Workbench (7.7.1) and SO Container Maintenance (7.7.5).

Calculating Container Charges

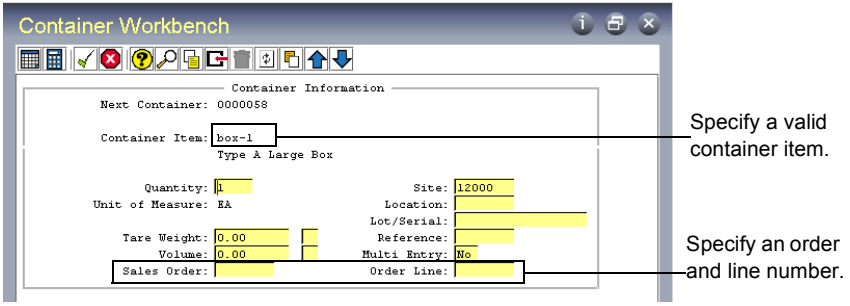
First, you must specify a valid container item, defined in Container Item Maintenance (7.22.10).

You can also specify a sales order and order line in the Container Information frame. The system then tries to match container information with the sales order line. It retrieves the charge type if the container item specified in the workbench matches the primary or an alternate container item associated with the order line. If no match is found, the system looks for a charge type in Ship-To/Container Charge Maintenance or Container Item Maintenance.

If defined, the ship-to/container price is used. Otherwise, the item master price is used.

Figure 5.17 illustrates Container Workbench. SO Container Maintenance is very similar.

Fig. 5.17
Container Charge Fields in Container Workbench (7.7.1)



Entering Line Charges

The Additional Line Charges frame displays if Edit Line Charges on Shipper is Yes in either Ship-To Control Maintenance or Container/Line Charges Control. You can add, delete, or modify line charges when building the container.

This frame is exactly the same as the one that displays in Sales Order Maintenance, except that the system assumes that the charge is one time only and does not prompt for this value.

See Figure 5.16 on page 106.

Entering User Field Data

The User Fields frame prompts the user for entry of shipping-related codes and numbers as defined in Container/Line Charges Control or in Ship-To Control Maintenance. If default codes have been set up in the control record, they display in this frame.

See “Creating User Field Records” on page 102.

Depending on the specific control record definitions, a value can be entered, modified, or deleted from this frame as needed. Additionally, generalized codes validation can be set up for fields in this frame. User field values print on the shipper.

Depending on how user fields are defined, this frame can appear multiple times while entering container information: Once for the shipper header, once for the shipper body, and once for each specific field that has been defined.

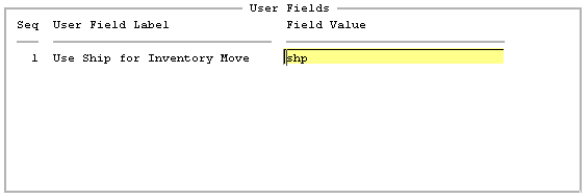


Fig. 5.18
User Fields Frame

Seq. Enter the sequence number of an existing user field to update its value. Enter a new sequence number to create a new user field for this shipper.

User Field Label. If you are creating a new user field for this shipper, enter a field label to associate with it. The label prints on the shipper next to the valued entered.

If the user field was set up using Container/Line Charges Control or Ship-To Control Maintenance, the label displays and cannot be changed.

You must enter a label, but this value is not validated. Enter a label that will make the shipper easy to understand. For example, if the user field value is an AETC code, the label name can be AETC Code. When you print the shipper, the label AETC Code displays next to the user field value entered.

Field Value. Enter a value for this user field. Your entry is validated based on settings in Ship-To Control Maintenance or Container/Line Charges Control.

User field values print on the shipper.

Working with Packing Lists and Pre-Shippers

Charge details from a sales order are automatically added to the picklist/preshipper when it is created using Picklist/Pre-Shipper Automatic (7.9.1). You cannot edit the charge details if you generate the picklist/preshipper using this function. To edit the order-line charge details before they are added to a picklist/pre-shipper, use Pre-Shipper/Shipper Workbench (7.9.2) or Sales Order Shipper Maintenance (7.9.8).

See “Using Container Functions” on page 108.

These programs function in the same way as Container Workbench (7.7.1) and SO Container Maintenance (7.7.5). You must enter a valid container item. When you specify a sales order and number, the system searches for charge information associated with that line.

In addition, the Additional Line Charges frame displays if Edit Line Charges on Shipper is Yes in either Ship-To Control Maintenance or Container/Line Charges Control. You can add, delete, or modify line charges when building the shipper.

If user fields are associated with shipper fields, the User Fields frame displays for input.

Shippers printed from the workbench or from Shipper Print (7.9.4) include any user fields associated during the order process. Confirmed shippers include any associated charges and user field values associated during the order process.

Transmitting a shipper using Shipper Gateway (7.9.22) includes the container and line charge and user field values for the transmitted shipper.

If you use EDI ECommerce, separate settings in the control program determine whether container and line charge information is sent on an advance ship notice (ASN).

Working With Charges on Invoices

Once the sales order life cycle reaches the invoicing stage, add or modify container and line charges to an invoice in Pending Invoice Maintenance (7.13.1) using the Container Item and Additional Line Charges frames.

When you register the invoice with Pending Invoice Register (7.13.2) or print it with Invoice Print (7.13.3), any container or line charge information is automatically included. Posting an invoice with Invoice Post (7.13.4) updates the order information, including container and line charge details.

The amount of detail included on the printed invoice is determined by separate control program settings (Summary Only on Invoice) for container charges and line charges.

Various shipping reports and other MFG/PRO functions include container and line charge and user field information. See Table 5.1 on page 80 and Table 5.2 on page 81 for a complete listing of MFG/PRO reports and programs modified to include container and line charge and user field data.

Maintaining Order Line Charges

Use Order Line Charge Maintenance (7.22.13) to add, modify, or delete additional line charges for a specified sales order or scheduled order.

This program lets you update the same fields that display in Sales Order Maintenance (7.1.1) or Scheduled Order Maintenance (7.3.13) without having to go through the entire maintenance sequence. In addition, it provides direct access to line charge data when security is in place on those programs.

See Figure 5.16 on page 106.

Note This program cannot be used to edit header or line-level order information; you can only edit line charge information.

Fig. 5.19
Order Line Charge Maintenance (7.22.13)

Specify the ship-from site, ship-to address, and order number. Then specify the order item and its associated line number.

The system displays any additional charge lines associated with the current order line. You can modify field values, add new lines, or delete existing lines.

Sample Programs

Using the Container and Line Charges module, you can create and use custom Progress programs for two functions:

- Customized validation programs to validate user field entries. These programs are specified in the Validate field of the Shipper User Fields frame in Container/Line Charge Control or in Ship-To Control Maintenance.
- Customized charge calculation programs to calculate container and line charges. These are specified in the Run Program field of Charge Type Maintenance.

These programs can perform any validation or calculation required in your business. However, the input and output parameters must be set up to fit with the requirements of the programs that call them and receive their output.

The following sections include a portion of a sample validation program and a sample charge type program. Use these samples to determine the input and output parameters that you need to include in your custom programs.

Sample User Field Validation Program

```
/* THIS IS AN EXAMPLE OF THE INPUT PARAMETERS REQUIRED FOR A
 * USER FIELD VALIDATATION PROGRAM AND THE EXPECTED OUTPUT.
 * ALL ERRROR HANDLING MUST BE PERFORMED WITHIN THIS PROGRAM.
 * WHEN THE VALUE RETURNED TO THE CALLING PROGRAM IS TRUE
 * THEN THE TRANSACTION IS ROLLED-BACK.
*/

/* PARAMETERS:
 * ip_absd_recid - recid of the Shipment Line Item Detail (absd_det).
 *                  User field record being edited.
 *
 * ip_fld_value  - value that the user entered for the "Field Value"
 *
 * op_error     - logical value returned to calling program indicating
 *                  if transaction should be rolled back.
 */

       define input parameter ip_absd_recid as recid no-undo.
       define input parameter ip_fld_value as character no-undo.

       define output parameter op_error as logical no-undo.

   /*****
       * op_error = yes.
       *
       * DO SOME TYPE OF PROCESSING *
       *
       * If Validation succeeds then set
       * op_error = no.
       *

       *****/
```

Sample Charge Type Program

```
/* PARAMETERS:
 *  ip_price      - unit price to be used in calculations. When pricing
 *                  containers this value is from Item Master (pt_mstr)
 *                   or Ship-To Container Price List (cclscd_det). When
 *                  doing a Line Charge calculation, this value is from
 *                  the Sales Order Line Charge (sodlc_det) or Shipment
 *                     Detail Line Charge (absl_det).
 *
 * ip_so_recid    - recid of the Sales Order Master (so_mstr).
 *                     Valid recid at Sales Order Maintenance and
 *                     Sales Order Print. All other times "?".
 * ip_sod_recid   - recid of the Sales Order Detail (sod_det)
 *                     Valid recid at Sales Order Maintenance and
 *                     Sales Order Print. All other times "?".
 * ip_sodlc_recid - recid of the sales order Line Charge (sodlc_det)
 *                     Valid recid at Sales Order Maintenance and
 *                   Sales Order Print when calculating line charges.
 *                     All other times "?".
 * ip_abs_recid   - recid of the ASN/BOL Shipper Master (abs_mstr)
 *                    Valid recid when calculating container charges
 *                     during shipper and invoice functions.
 *                     All other times "?".
 * ip_absl_recid  - recid of the Shipment Det Line Charge (absl_det)
 *                    Valid recid when calculating line charges for
 *                     shipper. All other times "?".
 * op_price       - extended price of the container or line charge,
 *                     returned to the calling program.
 */

/* THIS PROGRAM RETURNS THE UNIT PRICE TO THE CALLING PROGRAM WITHOUT
 * ANY ADDITIONAL CALCULATIONS THUS REPRESENTING A "FLAT" CHARGE
 */

   define input parameter ip_price like pt_price no-undo.
   define input parameter ip_so_recid as recid no-undo.
   define input parameter ip_sod_recid as recid no-undo.
   define input parameter ip_sodlc_recid as recid no-undo.
   define input parameter ip_abs_recid as recid no-undo.
   define input parameter ip_absl_recid as recid no-undo.

   define output parameter op_price like pt_price no-undo.
   op_price = ip_price.
```

SECTION 3

Self-Billing

This section contains information on the PRO/PLUS Self-Billing module. The following chapters are included:

Chapter 6

Introduction to Self-Billing

This chapter introduces Self-Billing functions and features.

Overview

Use the Self-Billing module to process customer-initiated payments by applying payment to invoices based on line-item shipper details, including:

- Customer details
- Purchase order (PO) number
- Kanban number
- Release authorization number (RAN)
- Evaluated receipt settlement (ERS) payment references

See *User Guide Volume 4A: Financials* for a discussion of ERS.

With Self-Billing you can:

- Automatically enter customer remittance information using Document Import (35.13).
- Automatically enter remittance information based on hard-copy customer remittance advice.
- Manually enter remittance information into MFG/PRO.
- Apply under- or over-payment credit to accounts receivable based on such documents.
- Apply batch payments to invoices and memos referenced on self-bills.

Reviewing Traditional Self-Billing

In the automotive industry, suppliers often do not send invoices to their customers. Instead, the customer remits a self-bill. This document details shipments received and amount due to the supplier for these shipments. The amount also reflects any deductions for defective or damaged parts, and any other pertinent credits due. This document is called a self-bill because the customer decides the payable amount instead of relying on an invoice from the supplier.

Figure 6.1 shows the traditional self-bill work flow.

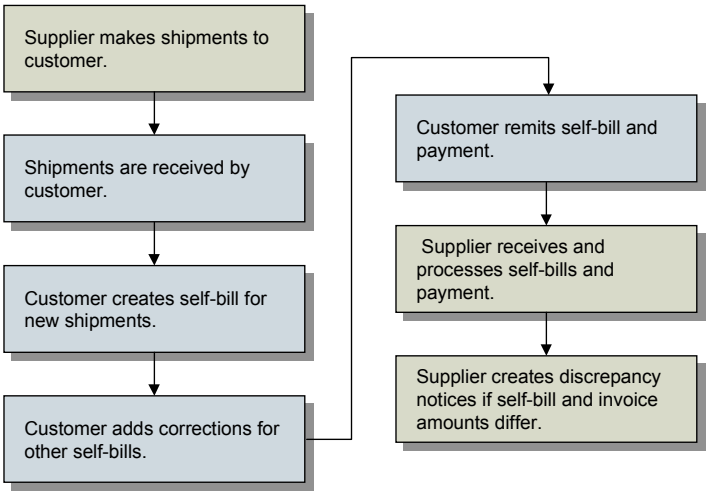


Fig. 6.1
Traditional Self-Bill Work Flow

The self-bill is remitted to the supplier, who then processes it and compares it with open invoices. When the self-bill information is entered into the system, it is mapped to an invoice.

If the supplier notes any discrepancy between the self-bill and their records, the customer must be notified within a predefined period for corrections to be made. In some situations, a self-bill is remitted and only later is the payment made. In other situations, payment may accompany the self-bill.

The payment remitted reflects the self-bill and any agreed-upon corrections from previous self-bills. Each supplier-customer relationship usually sets up specific rules for reconciling discrepancies. Sometimes these must be written off as losses by either the supplier or the customer.

Customer-Initiated Payments

Self-Billing lets you process customer-initiated payments based on the various types of information remitted on the customer's document. Reconciliation is not limited to just the document number.

Many industries do not use the traditional self-billing methodology. In some situations, suppliers do send invoices to their customers. However, customers disregard these and, as in the traditional self-billing environment, send their own type of remittance advice document to their supplier. This customer remittance document contains different details, based on the specific industry. These details can include customer bill-to, PO numbers, kanban numbers, RANs, shipper numbers, invoice line-item numbers, sales order (SO) numbers, and others.

The customer remittance document must always include an amount payable to the supplier. This can also be in the form of an ERS payment. The amount can reflect any adjustments for defective or damaged parts and any other pertinent credits due.

Unlike the traditional self-bill process, other industries do not necessarily rely on the customer-remitted document number as reference to the original supplier invoice. Instead, the supplied information must be used to reconcile the customer's remittance document to the supplier's invoice records.

Self-Bill Document

See *User Guide Volume 7: Release Management* for information on EDI ECommerce.

A customer remittance or self-bill can be remitted in two forms: hard copy or an EDI transaction. For example, if your customers also use MFG/PRO and EDI ECommerce, they can use Supplier Self Billing Export (35.4.11) to export payment voucher information to you. In either case, the information received on the self-bill should be the same in either form.

The information on a self-bill can, but does not need to, include the following types of information:

- Adjustments and corrections from previous self-bills
- Partial payment for a shipment
- Full payment for a shipment
- Trailer charges on selected invoices (trailer charge self-bill lines)

  Freight and special handling charges are grouped into this category.
- Tax charges on select invoices (tax self-bill lines)

Self-Billing Programs

The Self-Billing module uses the following programs.

Table 6.1 Self-Billing Programs

Menu Number	Description	Program Name
27.6.12.1	Self-Bill Maintenance	arsbmt.p
27.6.12.4	Self-Bill Auto Create	arsbac.p
27.6.12.7	Self-Bill Payment Application	arsbpap.p
27.6.12.8	Self-Bill Payment Undo	arsbpu.p
27.6.12.10	Self-Bill Discrepancy Report	arsbrp02.p
27.6.12.11	Invoice/Memo AR Balance Report	arsbrp03.p
27.6.12.13	Self-Bill Report	arsbrp.p
27.6.12.15	Shipment-Invoice Crossref Report	arsbsirp.p
27.6.12.23	Self-Bill Delete/Archive	arsbdel.p
27.6.12.24	Self-Billing Control	arsbpm.p
35.1	Document Import	edixsnf.p

Chapter 7

Preparing to Use Self-Billing

This chapter describes how to prepare your system to use Self-Billing programs, and how to activate self-billing functionality.

Introduction

AR Self-Billing uses processed shipping information to match incoming customer-initiated payments. The system must first process shipping information for the incoming remittance.

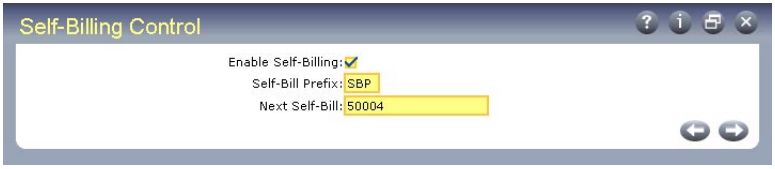
Shipment details are captured at the time a shipper is confirmed. Invoice, tax, order-level discount, and trailer information is captured at the time of invoice posting.

Note The sales order shipment program does not capture self-billing information.

Activating Self-Billing

To use Self-Billing, you must activate it in Self-Billing Control (27.6.12.24).

Fig. 7.1
Self-Billing Control (27.6.12.24)



In Self-Billing Control, set the following parameters:

1. Set Enable Self-Billing to Yes.
2. Define the three-character, self-bill numbering prefix according to your MFG/PRO environment.
3. Enter the next self-bill number (maximum 20 characters).

Setting Up Customers

Prior to processing customer-initiated payments, you must set Capture Self-Billing Information to Yes in Customer Maintenance (2.1.1) for all relevant bill-to addresses (see Figure 7.2). Self-billing information is captured only for bill-to addresses with this field set to Yes. This field is the only indicator that self-bill information should be collected. The Capture Self-Billing Information field displays only after you activate self-billing in Self-Billing Control.

To activate self-billing data collection in Customer Maintenance for customers already in your system, enter the customer ID and press Go. The Capture Self-Billing Information pop-up appears as you proceed through the maintenance frames.

When this field is Yes, the system captures data for both discrete and scheduled orders when Pre-Shipper/Shipper Confirm (7.9.5) is run.

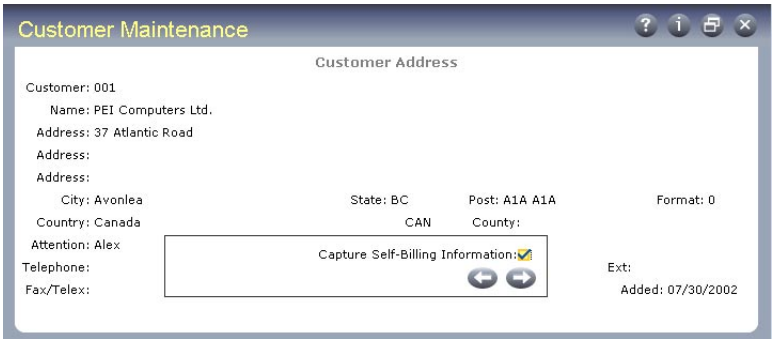


Fig. 7.2
Customer Maintenance Self-Billing Pop-Up (2.1.1)

Capturing Self-Billing Data

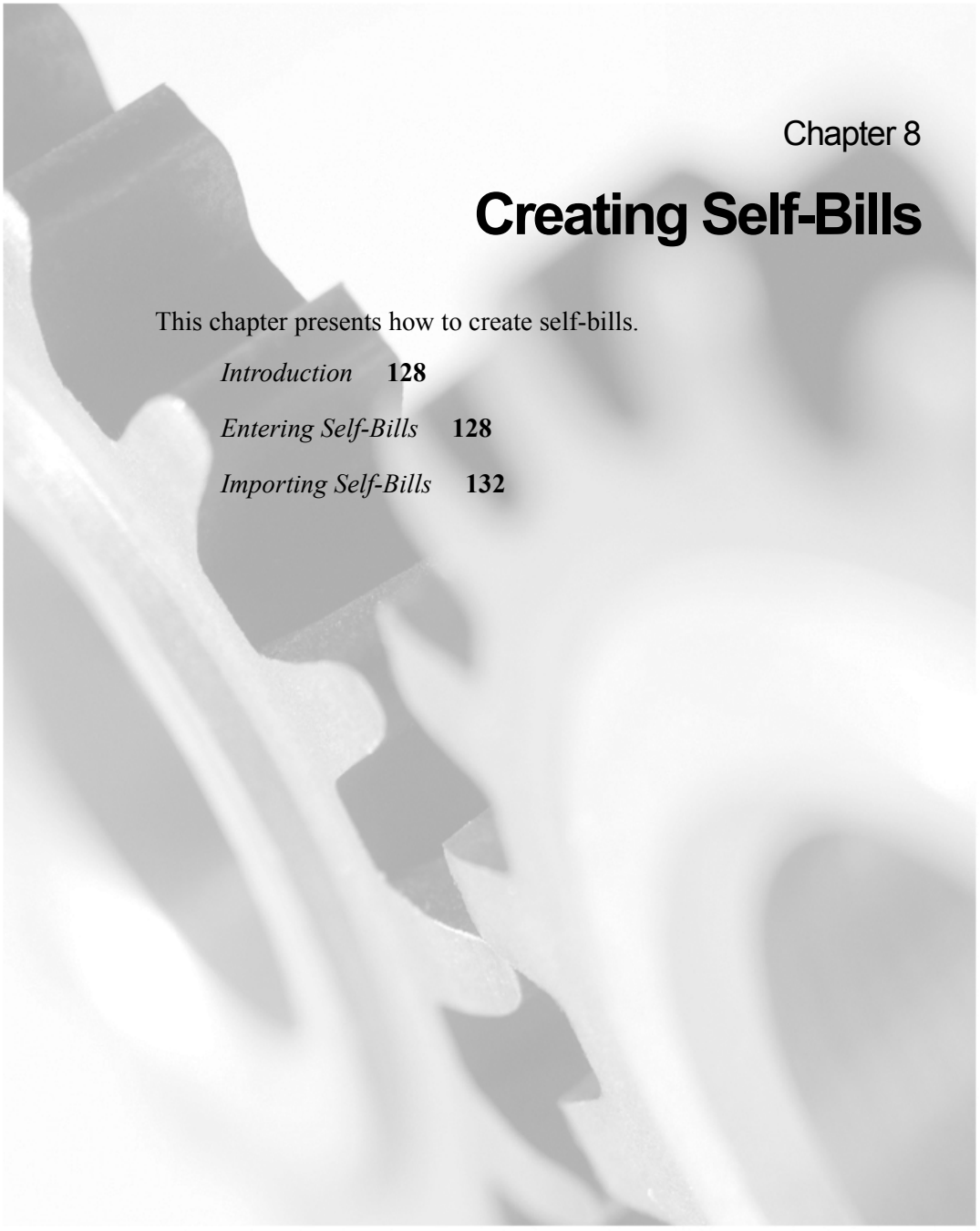
Once you have activated Self-Billing and set up the customers that use it, you must allow sufficient time for your system to capture required customer data before you can begin to process customer-initiated payments.

To begin capturing self-billing data:

1 Use shippers to process all shipments that may be referenced on future self-bills.

2 Invoice and post to AR all shipments that may be referenced on a future self-bill.

Note The item numbers to be referenced on future self-bills must be used on the original sales order. These items are either the customer's item numbers or your internal item numbers, whichever appear on the customer-remitted document. On customer schedules, the system uses the combination of the customer's purchase order number, the item number, and optional customer reference information to identify unique order quantities that have been shipped and invoiced.



Chapter 8

Creating Self-Bills

This chapter presents how to create self-bills.

Introduction

See Chapter 7, “Capturing Self-Billing Data,” on page 125.

Before you can begin to process customer-initiated payments, the corresponding shipping data must be collected for discrete sales orders and scheduled orders by Pre-Shipper/Shipper Confirm (7.9.5). You must allow a period of time for this shipping data to be captured before you begin to process any self-bills. During this time period, post all invoices to AR for shipments to customers that use self-bills.

Entering Self-Bills

Self-Bill Auto Create (27.6.12.4) facilitates the task of entering customer remittance advice into your system. With this program, you specify a range of selection criteria as shown on the customer’s remittance advice. You can then associate the payment information with the correct invoice. You assign a self-bill number, or the system generates a self-bill number and assigns it to the document you are creating.

See Chapter 9, “Matching Adjustment Self-Bill Lines,” on page 141.

In certain situations, you may not be able to associate some lines from a customer’s remittance advice to the self-bill you are creating. These lines are labeled adjustment self-bill lines. You must manually associate these lines with the corresponding invoice lines using Self-Bill Maintenance (27.6.12.1).

Once you create the self-bill using Self-Bill Auto Create, Self-Bill Maintenance is automatically invoked so you can associate any adjustment self-bill lines with the corresponding invoice shipment.

The auto-create process consists of four steps:

1. Create a new self-bill by defining selection criteria.
2. Use the Self-Bill Workbench to refine the selection by deselecting any lines that should not be referenced on this self-bill.
3. Print, review, and add selections to the self-bill.
4. Use Self-Bill Maintenance to further define these selections so that they correctly reflect the information on the customer-remitted self-bill.

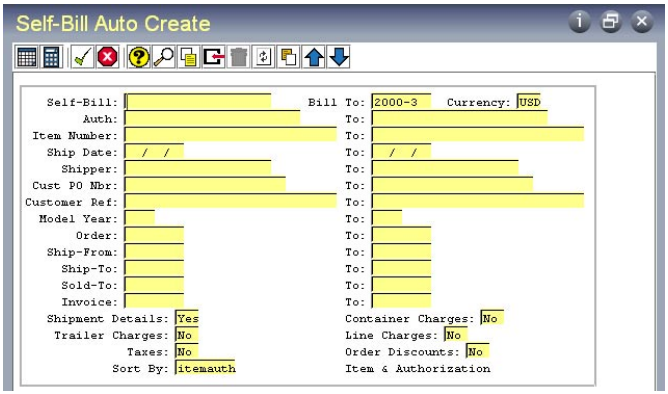


Fig. 8.1
Self-Bill Auto Create (27.6.12.4)

Entering Auto Create Fields

Self-Bill. Enter the self-bill to which the selections are to be added.

When left blank, a self-bill number is generated using control program default information.

Specifying an existing self-bill number adds selections to that self-bill. Specifying any other number in this field creates a new self-bill for that number and selections are added to it.

Bill-To. Enter the bill-to for which the selection is to be made. This is the customer's address.When entering information for an existing self-bill, you must also enter that bill-to.

All shipments referenced on the shipper must be paid by the same bill-to.

Currency. Enter the currency for this self-bill document.

All shipments referred to on the self-bill must be invoiced in the same bill-to currency. Only this currency can be used on this self-bill.

Currency is mandatory. When a self-bill is specified in the Self-Bill field, data defaults from that self-bill's bill-to.

Authorization. Enter the authorization number sent by the customer to identify a shipment. Release Authorization Number (RAN), Dealer Order Number (DON), and kanban numbers are examples of authorization numbers.

See “Shipment-Invoice Cross-Reference Report” on page 151.

When you add detail lines, you can enter an authorization number to select shipments from the shipment-invoice cross-reference table.

Sort By. Specify the display order for information on the Self-Bill Workbench. The four sort orders are:

- Item Number and Authorization Number
- Authorization Number and Item Number
- Shipper Number and Item Number
- Customer PO and Item Number

Additional logical fields let you specify whether the self-bill includes the following types of charges:

See Chapter 5, “Container and Line Charges,” on page 75.

- Container charges
- Line charges
- Trailer charges
- Taxes

Using Self-Bill Auto Create

Follow these steps to create a new self-bill or to add lines to an existing self-bill using Self-Bill Auto Create (27.6.12.4).

1. Enter a previously created self-bill number, or leave Self-Bill blank when creating a new self-bill.
2. Enter any identifying information in the auto-create selection screen. Enter as much or as little information as you have from the customer’s remittance advice you are re-creating. Significant information you should enter is:
   - Shipper number
   - Sold-to
   - Ship-to
   - Item number
   - Date of shipment
   - Authorization number

   Note The more selection criteria you provide, the narrower and more accurate your selection becomes.

3 Specify whether to include shipment details, trailer charges, taxes, container charges, line charges, or order discounts on the selection display screen.

4 Select a sort order for the resulting workbench report.

5 Press Go.

The system analyzes your customer's shipment data and displays a list of possible shipper numbers that might be associated with the customer's remittance advice document. This information is displayed in the workbench according to the sort order you previously indicated.

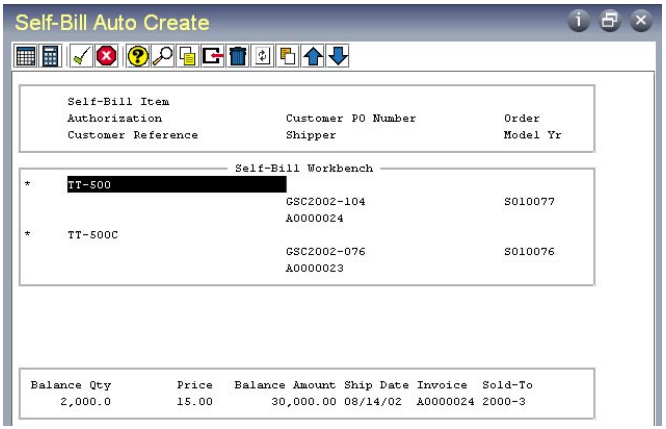


Fig. 8.2 Self-Bill Workbench

6 Use the workbench to refine your selection by deselecting any lines that should not be referenced by this self-bill. Item number is the customer's item number, which was originally used on the order.

- Use Next/Previous functions to navigate from entry to entry.
- Deselect any entry that does not belong on the self-bill. An asterisk (*) indicates selection.

7 Press Go to continue with your selection.

8 Print and review the selection. You are prompted to continue.

- If you continue, either all selections are added to an existing self-bill or a new self-bill is created and selections are added to it.
- If you do not continue, selections are not added to the self-bill.

See “Maintaining Self-Bills” on page 134.

9 Self-Bill Maintenance (27.6.12.1) is automatically invoked to let you edit these selections to correctly reflect the information on the remittance advice. In the Self-Bill Maintenance header, you cannot edit the Self-Bill, Bill-To, or Currency fields, which default from Self-Bill Auto Create.

Importing Self-Bills

For more details on EDI ECommerce, see *User Guide Volume 7: Release Management.*

Use Document Import (35.1) to import EDI self-bills into the system with EDI ECommerce. This function loads self-bill information from an EDI file and processes it to create a self-bill document in your MFG/PRO database.

During import, the system tries to associate incoming electronic self-bill data with invoice data. Once loaded into your database, the information can be manually modified using Self-Bill Maintenance.

See “Matching Adjustment Self-Bill Lines” on page 141.

EDI self-bill lines should always be associated with an MFG/PRO invoice number. However, the system may not be able to make this association for some self-bill lines due to incorrect or incomplete information in the EDI file. These problems are reported in the EDI load report produced during import.

Lines that the import process cannot associate are tagged as adjustment entry lines. You can manually associate adjustment self-bill lines to the correct invoice in Self-Bill Maintenance.

Chapter 9

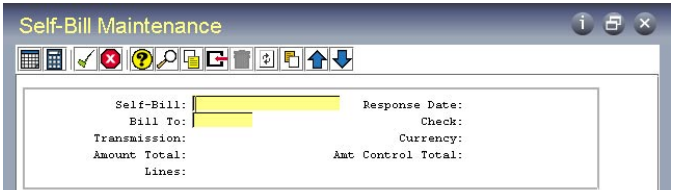
Maintaining Self-Bills

Once a customer remittance advice has been entered into your database, it must be maintained and updated. This chapter presents the self-billing maintenance process.

Maintaining Self-Bills

Use Self-Bill Maintenance (27.6.12.1) to manually enter new self-bills and delete and maintain existing self-bills. Use this function to reconcile any adjustment lines that result from processing a self-bill using Self-Bill Auto Create (27.6.12.4) or Document Import (35.1).

Fig. 9.1
Self-Bill Maintenance (27.6.12.1), Header



Entering Header Values

Self-Bill. Enter the self-bill to which the selections are to be added. When left blank the system generates a self-bill number.

By entering an existing self-bill number, you specify a self-bill to which selected details are added. Specifying any other number in this field creates a self-bill for that number and adds the selection to it.

Bill-To. Enter the bill-to for which the selection is to be made. The bill-to is required. You cannot change the bill-to once you have created a self-bill in the system.

All shipments referenced on the shipper must be paid by the same Bill-To and with the same currency.

Transmission. Enter the transmission that identifies the batch of EDI self-bills received from this customer.

This field is used to group a number of EDI self-bills.

Amount Total. This field displays a running total amount of all shipments and other entries referenced on this self-bill. This total is maintained by the system and cannot be changed.

Lines. This field displays the running total number of lines on this self-bill. This system-maintained field is for reference only and cannot be edited.

Response Date. Enter the date by which you need to communicate any discrepancies found within the self-bill back to your customer.

This is a previously agreed-upon date between you and your customers. It defaults to the current date.

Check. Enter the check number used for the self-bill.

If a payment has been applied to this self-bill with Self-Bill Payment Application (27.6.12.7), then the check used for that transaction defaults here.

Currency. Enter the currency for this self-bill document. All records included on this self-bill must be invoiced using this currency. For new self-bills, currency defaults from the bill-to address of the customer.

Amt Control Total. Enter the control total of all shipments and other entries referenced on the self-bill. This control total is usually the total on the hard-copy self-bill.

Tip
Total is expressed in terms of the currency specified for this customer.

This total is used to reconcile the total amount of the self-bill. In order to make a payment for a self-bill, the Amt Control Total must match the Amt Total of the self-bill.

If any entries on the self-bill are incorrectly entered, the amount will not match the self-bill Amount Total. You are warned about the discrepancy when exiting this maintenance function. The two totals must match to apply payment to the self-bill.

Creating a New Self-Bill

Normally, you would not use Self-Bill Maintenance (27.6.12.1) to create a new self-bill. Use Self-Bill Auto Create or Document Import to create a new self-bill. However, under some circumstances you may have to use Self-Bill Maintenance to create a new self-bill.

Follow these steps to create a new self-bill using Self-Bill Maintenance. In the program header do the following:

1 Enter a new self-bill number.

Leave blank for the system to create a new number from the information in the control program.

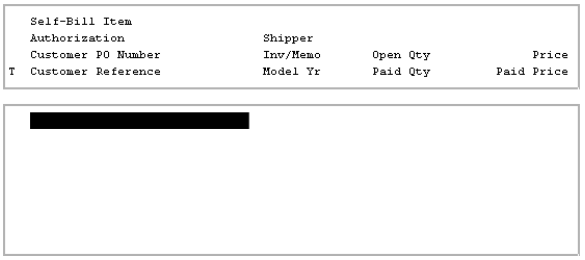
2 Enter or select a customer bill-to address.

On a new self-bill, information defaults for Response Date and Currency.

3 Edit Transmission, Response Date, and Amt Control Total as needed. Press Go.

A self-bill line selection frame appears.

Fig. 9.2 Self-Bill Maintenance, Line Selection Frame

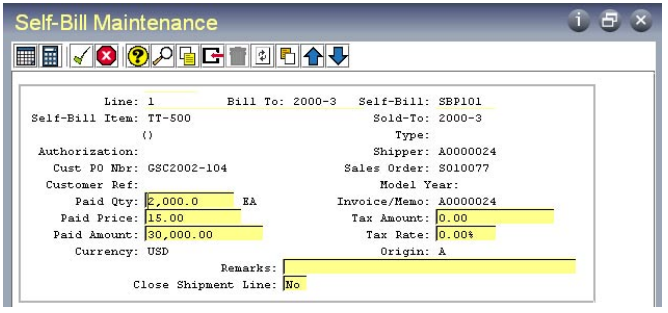


Follow these steps to create a new self-bill line:

1 On the blank self-bill line, press Insert.

The self-bill line edit frame appears. Line indicates the new self-bill line.

Fig. 9.3 Self-Bill Maintenance, Line Edit Frame



2 You must enter the Self-Bill Item or Sold-To.

3 Enter any other identifying information available. If you enter an item number associated with a customer item in Customer Item Maintenance (1.16), the customer item number displays below the Self-Bill Item field.

When you press Go, the system matches shipment invoice records based on the information in these fields.

For Type:

- Leave blank if entering a shipment line.
- Enter A for an adjustment line. Use this code when creating an adjustment line to reference a write-off memo.
- Enter C for trailer charges line.
- Enter D for discount line.
- Enter T for tax line.
- Enter L for line charges line.
- Enter X for container charges line.

4 When the system finds multiple matches for the information you enter, a shipment selection frame appears. Use this frame to select the correct line.

- Use the arrow keys to scroll from line to line.
- Press Enter to select the correct line.

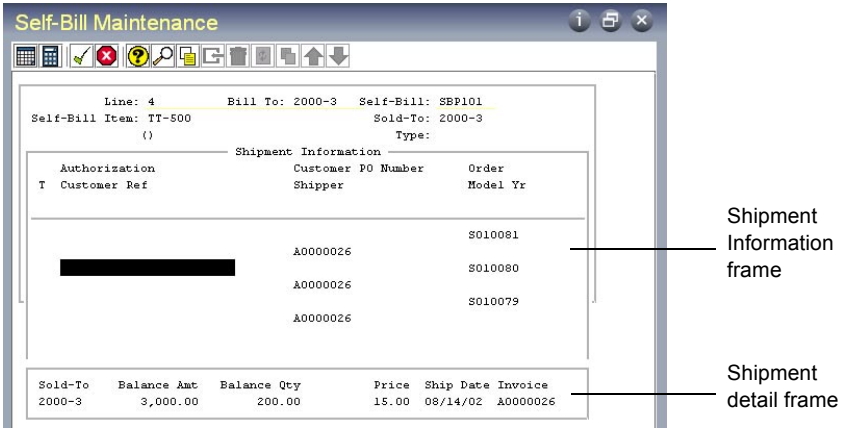


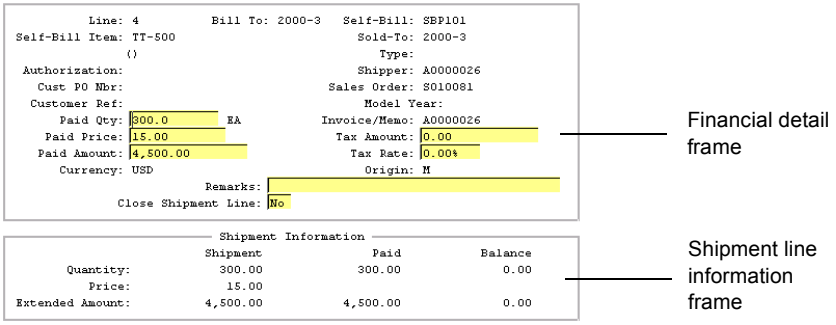
Fig. 9.4 Self-Bill Maintenance, Shipment Information Frame

If only one match is found, or after you select the correct shipment line from the line match frame, the financial detail frame appears.

5 Enter or edit financial details and remarks for the line. Press Go.

6 Matching shipment information is displayed in the last frame.

Fig. 9.5
Self-Bill Maintenance, Shipment Detail Frames



Working with Self-Bill Lines

The self-bill lines that are created in Self-Bill Auto Create (27.6.12.4) or Document Import (35.1) must be modified to correctly reflect what has been paid on each self-bill. The lines on the newly created self-bill include the entire unpaid quantity and expected price.

After using Document Import to process EDI self-bills, use Self-Bill Maintenance to reconcile any adjustment lines. After using Self-Bill Auto Create, you are automatically brought to the Self-Bill Maintenance header.

See “Matching Adjustment Self-Bill Lines” on page 141.

Once the header information has been entered into the Self-Bill Maintenance header or you have finished the initial auto-create procedure, the line selection frame appears. Use this frame to edit, delete, or add new self-bill lines. Use this frame to link adjustment self-bill lines to shipments, in effect changing self-bill adjustment lines to shipment self-bill lines.

To modify self-bill line details:

1 Select the self-bill line to modify.

Fig. 9.6
Self-Bill Maintenance, Line Selection Frame

Use the arrow keys to navigate up and down the self-bill lines. Press Enter to select the line to be modified.

The self-bill line edit frame appears.

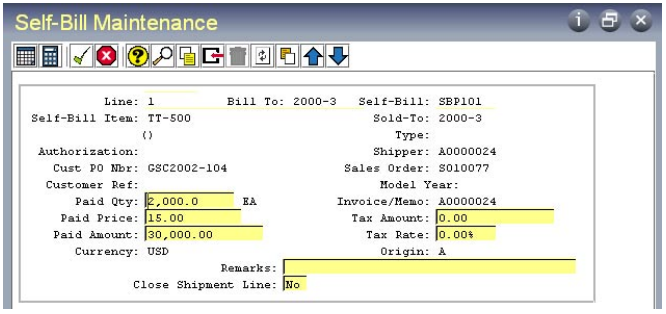


Fig. 9.7
Self-Bill Maintenance, Line Edit Frame

2 Add or modify the fields according to the information from the EDI file or the customer remittance advice document.

Note The field values entered in the Line Edit frame are the same values displayed in the Line Selection frame. When entering a new line, you must enter values. When editing an existing line, the values displayed were defined when the line was originally created.

Self-Bill Item. This is the item referenced on the customer remitted correspondence—either the customer item number specified on the scheduled or discrete sales order line or your internal item number.

If specified on the sales order line, the customer item number takes precedence over your item number.

Tip
On the Line Selection frame, the Type field label is T.

Type. This is the code identifying this line type:

- Blank indicates shipment lines.
- A indicates adjustment lines.
- T indicates tax.
- C indicates trailer charges.
- D indicates discount.
- L indicates line charges.
- X indicates container charges.

Authorization. This is the authorization number sent by the customer to identify a shipment. Release Authorization Number (RAN), Dealer Order Number (DON), and kanban numbers are some examples of authorization numbers.

During the addition of detail lines, you can enter an authorization number to select shipments from the shipment-invoice cross-reference table.

Invoice/Memo. This is the memo or invoice associated with this line.

When this self-bill line is an adjustment line and Inv/Memo is left blank, an unapplied cash entry is created for the amount referenced.

Open Qty. The line selection frame displays the quantity not yet paid on any self-bill. This field applies only to shipment self-bill lines and does not display for adjustment self-bill lines. Open Qty is expressed in terms of order unit of measure.

Paid Qty. Enter the total number of items that have been paid for.

Price. This is your listed price for the item.

Paid Price. Enter the price paid by the customer for each item.

Matching Adjustment Self-Bill Lines

Follow these steps to match adjustment self-bill lines with corresponding shipment information:

1 Go through the self-bill line modification steps outlined on page 139.

2 Select the adjustment self-bill line to match.

The self-bill line detail edit frame appears with all the adjustment line details.

3 Press Insert.

The shipment information frame appears.

Fig. 9.8 Self-Bill Maintenance, Shipment Information Frame

4 Navigate to the corresponding shipment.

5 Press Enter to match the shipment with the adjustment line.

Deleting Self-Bills

You can use Self-Bill Maintenance (27.6.12.1) to delete an entire self-bill or a specific self-bill line. When a self-bill or a self-bill line is deleted, any shipment-invoice cross-reference records associated with it are released and the invoice lines can be selected on another self-bill.

See “Shipment-Invoice Cross-Reference Report” on page 151.

Note A self-bill or self-bill line cannot be deleted if payment has been applied to it.

To delete a self-bill line:

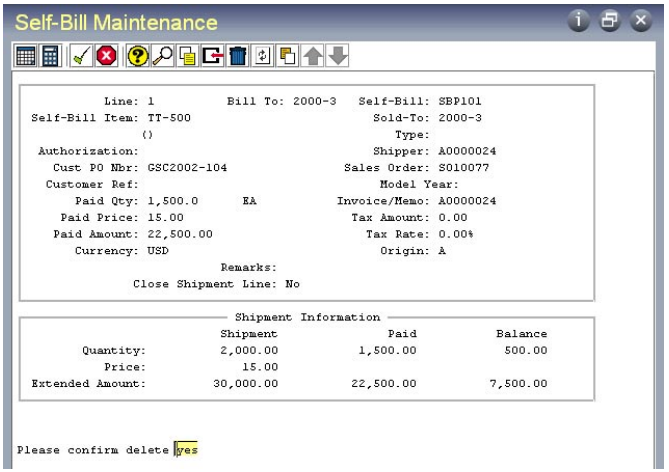
1 Select the self-bill that has the line you want to delete.

2 In the line selection frame, select the line to delete.

3 Press Delete.

4 The self-bill line detail frame and a delete confirmation prompt appear.

Fig. 9.9
Self-Bill Line Detail Frame and Delete Line Confirmation Prompt



5 Choose Yes to delete the selected line.

To delete an entire self-bill:

1 In the maintenance header, select the self-bill to delete. Press Go.

2 When the second set of fields are highlighted, press Delete.

3 You are prompted to continue with the deletion. Choose Yes to delete the selected self-bill.

Applying Payment to Self-Bills

Once a self-bill has been created and payment has been received, payment must be credited to the appropriate MFG/PRO invoices. Use Self-Bill Payment Application (27.6.12.7) to apply payment to all of the invoices and memos that are referenced by a self-bill document.

Important You cannot apply payment to a self-bill if the Amt Total does not equal the Amt Control Total.

When you use this program to apply payment, the payment is applied to the invoice or memo specified on the self-bill detail line.

When a payment is applied, four different situations are possible:

- Payment is credited to the invoice or memo.
- When no invoice or memo is specified—Invoice/Memo is blank—the amount paid is applied to unapplied cash with a reference to the self-bill and the self-bill line.
- When payment is greater than the amount open on the invoice, the overpayment amount is applied to unapplied cash with a reference to the invoice.
- When payment is greater than the invoice line, the overpayment is applied to unapplied cash with a reference to the self-bill and self-bill line.

Reconciling Self-Bills

Self-Bill Payment Application (27.6.12.7) lets you reconcile discrepancies between the self-bill document and MFG/PRO invoices. You can reconcile discrepant lines in the following ways:

- Manually match discrepant lines to the correct invoice shipment.
- Correct any open quantities or amounts on the affected invoice.
- Correct any price differences between the self-bill and the invoice information.
- Match any adjustment line with the correct invoice shipment information.
- Write off a discrepant amount by creating a debit or credit memo.

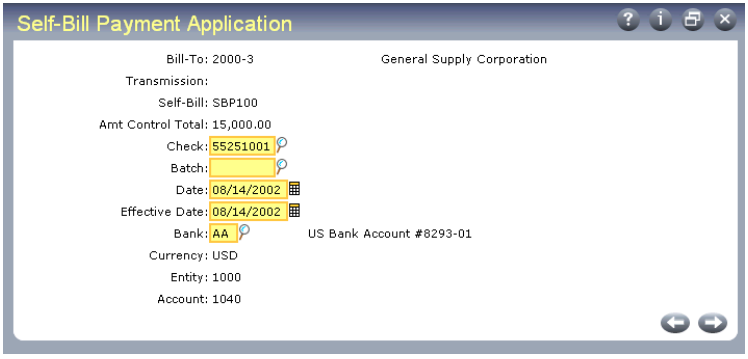
When you write off a discrepancy:

1 Create a debt/credit memo in DR/CR Memo Maintenance (27.1) for the write-off amount.

2 Create an adjustment line for the amount.

3 Enter the debt/credit memo in Invoice/Memo on the detail line for the adjustment.

Fig. 9.10
Self-Bill Payment Application (27.6.12.7)



Applying Payments

Before you can execute Self-Bill Payment Application successfully, you must ensure that the Amount Total that displays in the header of Self-Bill Maintenance and the Amt Control Total for that self-bill are the same.

To apply self-bill payments to all associated invoices:

1 Enter the customer bill-to address.

2 Enter the transmission or self-bill number.

The Amt Control Total and other customer financial information display.

3 Enter the associated check or batch number and correct dates.

4 You can also specify the bank to use. The bank must use the same currency as the self-bill.

5 You are prompted to continue with the payment application. Choose Yes and press Go to continue.

Payment is applied to the associated invoices, and the associated self-bills are updated with the correct check number.

Note Choosing No returns you to the program header without updating any information.

Reversing Payment

If you need to reverse a payment, use Self-Bill Payment Undo (27.6.12.8). This program reverses payments made in Self-Bill Payment Application (27.6.12.7).

Payments cannot be reversed if:

- Unapplied cash related to the self-bill has been used to pay another invoice or memo.
- The payment period is not a valid, open GL period.

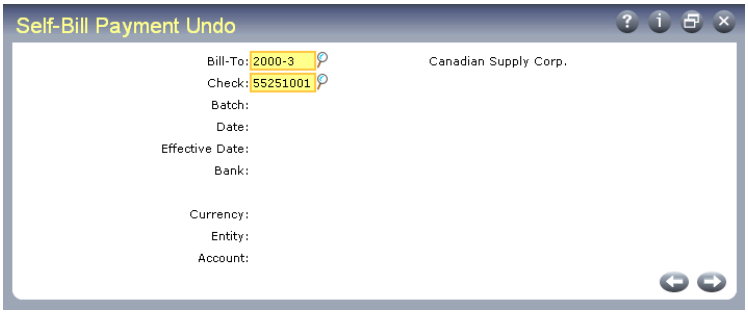


Fig. 9.11
Self-Bill Payment Undo (27.6.12.8)

To undo a payment:

1 Enter the bill-to address and check number.

2 Press Go. Financial information for that check is displayed.

3 You are prompted to confirm the update. Choose Yes to reverse the payment.

The check number in Check is completely removed from all system self-bills referencing it. This is equivalent to deleting a payment record in Payment Maintenance (27.6.4).

Chapter 10

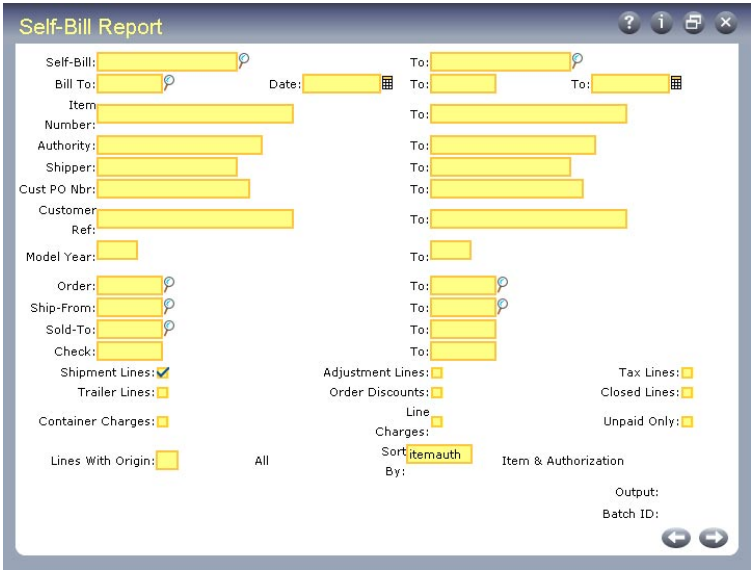
Self-Billing Reports and Inquiries

This chapter presents the remaining reports, browses, and functions in the Self-Billing module.

Self-Bill Report

Use Self-Bill Report (27.6.12.13) to review self-bill detail information. There are various ways the report can be produced to view the self-bill details. Use the selection criteria and sort options to sort and narrow down the information reported.

Fig. 10.1
Self-Bill Report (27.6.12.13)



Invoice/Memo AR Balance Report

Use Invoice/Memo AR Balance Report (27.6.12.11) to determine what portion of invoices referenced by the self-bill have been paid. Internally, the system maintains a map between every self-bill line and an invoice. Applying payment to a self-bill means applying payment to the associated invoices.

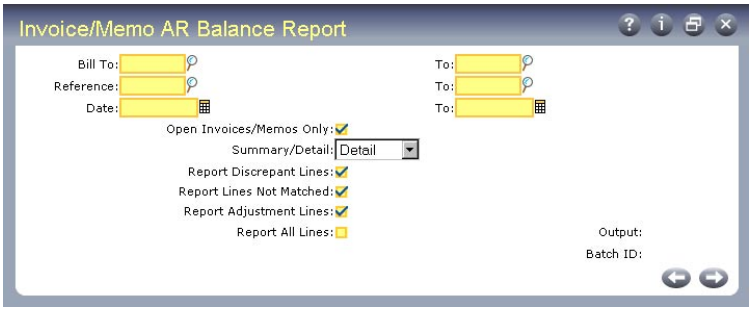


Fig. 10.2
Invoice/Memo AR Balance Report (27.6.12.11)

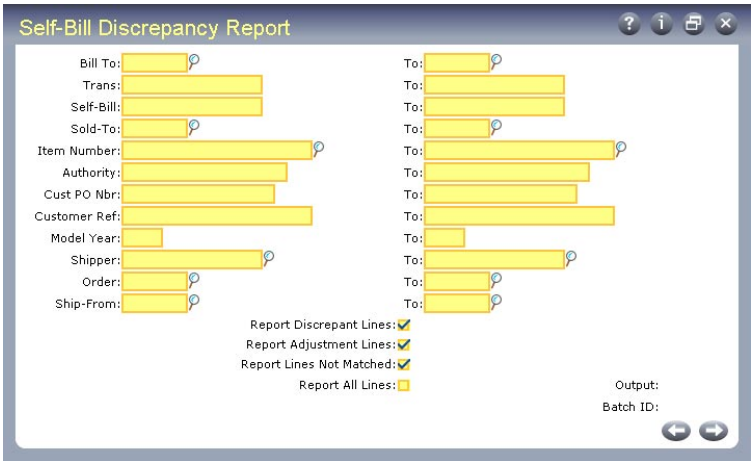
Use this report in summary mode to determine if an invoice related to a self-bill has any outstanding amounts. The detail mode lets you drill down to find which shipments have been fully paid and which have not.

Self-Bill Discrepancy Report

Use Self-Bill Discrepancy Report (27.6.12.10) to view discrepancy details associated with a self-bill document. Use the details provided by this report to reconcile discrepancies in self-bills. This report shows the three types of discrepancies that prevent you from applying payment to a self-bill.

- Discrepant Lines: Lines matched to invoice shipment data where the invoice shipment data has an open quantity, an open amount, or a price difference.
- Adjustment Lines: Lines marked with a type A. These lines could not be matched when the self-bill was originally created.
- Lines Not Matched: Lines that can be matched to invoice shipment data, but for some reason were not. These are marked as type blank.

Fig. 10.3
Self-Bill Discrepancy Report (27.6.12.10)



See “Applying Payments” on page 144.

For each self-bill, the discrepancy total is displayed first, followed by the detailed sub-totals by reason for each account. These amount details can be used to create discrepancy memos to apply credit to the proper accounts. The discrepancy memo must be created and registered with the self-bill in order to apply payment to the self-bill.

Discrepancies can occur for various reasons, such as the following:

- Differences between quantities shipped and received
- Unit price differences
- Special (trailer) charges in your invoices not included in the customer self-bill
- Special charges included in the customer self-bills but not included in your invoices

Use this report as reference for reporting any discrepancies to the customer.

Self-Bill Delete/Archive

Self-Bill Delete/Archive (27.6.12.23) is very similar to other delete/archive functions. It can copy (archive) or remove (delete/archive) closed records from your database. Archived self-bills can be returned to an MFG/PRO database using Archive File Reload (36.16.5).

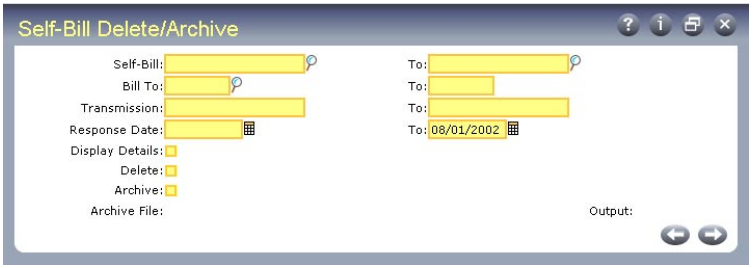


Fig. 10.4 Self-Bill Delete/Archive (27.6.12.23)

Delete. Indicates whether to delete the specified information from the system. Select Yes to remove the data. No will leave specified information in the system.

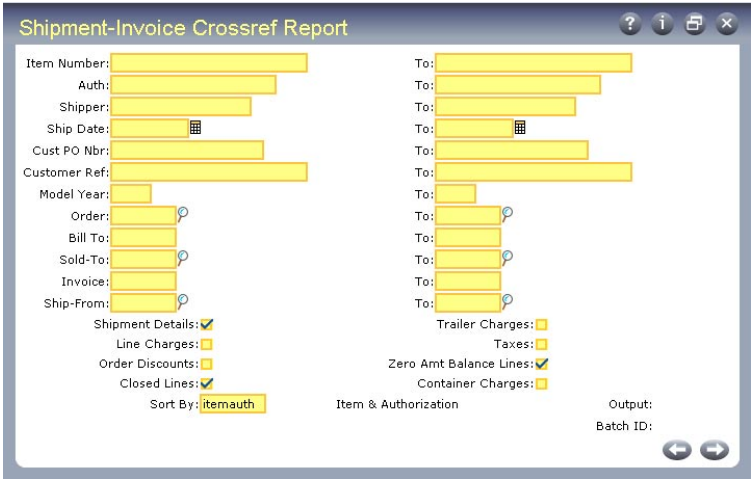
Archive. Indicates whether to archive the specified information. Select Yes to save the specified information on tape or other storage media. If you select No, any information you delete during this process cannot be recovered.

Shipment-Invoice Cross-Reference Report

The shipment-invoice cross-reference structure holds the map between shipment-related details such as shipper number or authorization number and associated MFG/PRO invoice numbers.

Shipment-Invoice Crossref Report (27.6.12.15) facilitates inquiries into the self-bill cross-reference structures in the system.

Fig. 10.5
Shipment-Invoice Crossref Report (27.6.12.15)



SECTION 4

Supplier Performance

This section contains information on the PRO/PLUS Supplier Performance module. The following chapters are included:

Chapter 11

Introduction to Supplier Performance

This chapter introduces the functions and features of the Supplier Performance module.

Overview

The Supplier Performance module enables manufacturers to monitor the performance of their internal and external suppliers. Depending on your manufacturing environment, you can customize the way your system collects performance data as well as how you report performance metrics. You can create your own data collection points or use the ones predefined in the system.

This module provides flexible automatic and manual data collection. You can optionally record any nonroutine events or modify or add to any existing event with the maintenance functions. Finally, you can tailor performance reports—both internal and external—to meet your needs.

Features

Flexible Registration

With the Supplier Performance module, you can enable or disable data collection for any registration. A *registration* in Supplier Performance is the record used to specify the supplier, site, item, corporate commodity code, date, or combination of these for which performance data is collected.

You can explicitly define when, where, and for what registration you want data to be collected. You can further define the data you want to collect by specifying a date or date range when the data collection should occur or be disabled.

Flexible Event/Category Definitions

This module gives you broad control of the performance activities you want to count, where you want to count them, and for which registration you want to collect data. You can use system events as measurements, or you can define the specific nonsystem events to be counted. Supplier Performance automatically collects data during the following transactions:

- Schedule Update from MRP (5.5.3.1)
- Purchase Order Receipts (5.13.1)

- PO Shipper Receipt (5.13.20)
- RTS Receipts (11.7.3.13)
- Distributed Order Receipt (12.15.20)
- Document Import (35.1)

Using category and event definitions, tell the system what data you want reported, and how you want that data to be reported. Although the system has predefined categories and events, you must create corresponding category and event definitions. Your category and event definitions tell the system how much each system category and event is worth, whether to report data for that event or category, and how to report that data.

Use Performance Category Maintenance (5.15.1) and Performance Event Maintenance (5.15.5) to create category and event definitions for each system category and event. Use System Category/Event Maint (5.15.22) to link system categories and events with the category and event definitions you create.

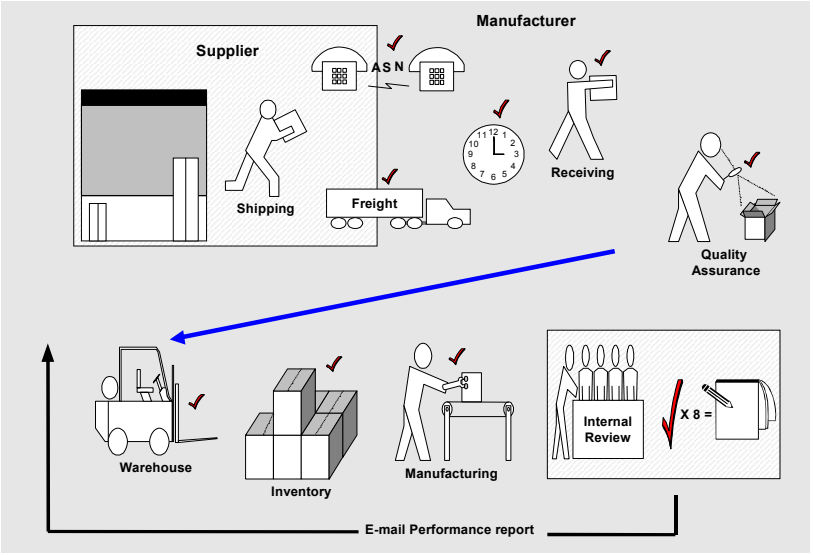
When you create category and event definitions, you can specify if you want optional data collection to occur during the following system transactions:

- Inventory Transfers
  - Transfer–Single Item (3.4.1)
  - Transfer–Multi Item (3.4.2)
  - Transfer with Lot/Serial Change (3.4.3)
  - Batchload Transfer with Lot/Serial Change (3.4.4)
- Purchase Order Returns (5.13.7)
- RTS Shipments (11.7.3.16)

Figure 11.1 shows some events you can track. You can create nonsystem event definitions that you can manually enter into the system. For example, you can define events to track supplier performance by:

- Freight type or cost
- Product quality
- Service quality
- On-time scheduled-order delivery

Fig. 11.1
Sample Supplier Performance Data Collection Points



Multiple Rating Systems

See "Using the Computational Methods" on page 170 for more details.

Supplier Performance offers three performance calculation and rating methods.

Discrete method. Counts points associated with each performance event. For example, 100 points earned for 100 on-time deliveries.

Proportional method. Assigns a percentage rating based on the actual number of satisfactory events completed divided by the total possible number of events.

Parts-per method. Similar to the proportional method, but uses a large factoring number to assign a rating.

You are not limited to using only one method in your system. Apply any method to each of the registrations you are tracking.

Supplier Performance Work Flow

Figure 11.2 shows a typical Supplier Performance work flow.

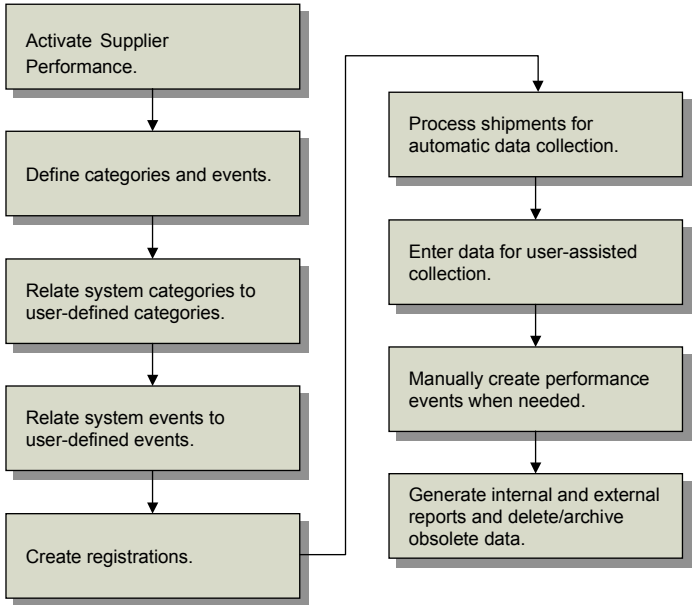


Fig. 11.2 Supplier Performance Work Flow

Supplier Performance Programs

The Supplier Performance module uses the programs listed in Table 11.1.

Table 11.1 Supplier Performance Programs

Menu Number	Description	Program Name
5.15.1	Performance Category Maintenance	povecmt.p
5.15.2	Performance Category Inquiry	poveciq.p
5.15.3	Supplier/Category Maintenance	povescmt.p
5.15.4	Supplier/Category Inquiry	povesciq.p
5.15.5	Performance Event Maintenance	poveemt.p
5.15.6	Performance Event Inquiry	poveeiq.p
5.15.7	Performance Weight Factor Maint	povewmt.p
5.15.8	Performance Weight Factor Inquiry	povewiq.p
5.15.10	Registration Maintenance	povesimt.p
5.15.11	Registration Report	povesirp.p

Menu Number	Description	Program Name
5.15.13	Performance Data Maintenance	povepmt.p
5.15.14	Performance Data Report	povedrp.p
5.15.15	Performance Report Card	povedrp2.p
5.15.17	Missed Shipment Event Generator	povemsrq.p
5.15.19	Summary Data Extract	povesmex.p
5.15.20	Summary Data Report	povesmrp.p
5.15.22	System Category/Event Maint	poveecmt.p
5.15.23	Delete/Archive Menu ...	
5.15.23.1	Performance Data Delete/Archive	poveup.p
5.15.23.2	Summary Data Delete/Archive	povesup.p
5.15.23.3	Supplier Cross-Reference Maint	povexmt.p
5.15.23.4	Supplier Cross-Reference Report	povexrp.p
5.15.24	Supplier Performance Control	povepm.p

Supplier Performance Program Types

The Supplier Performance module consists of four program types:

- Setup programs
- Registration programs
- Data collection and maintenance programs
- Reports and inquiries

Each step of the supplier performance process is detailed in the following chapters.

Chapter 12

Setting Up Supplier Performance

This chapter details the steps you must take when setting up your Supplier Performance system. This chapter discusses the following topics:

Planning a Supplier Performance System

Before you begin the supplier performance setup, you should first plan your system. Basic information you should decide and plan before setting up a supplier performance system includes:

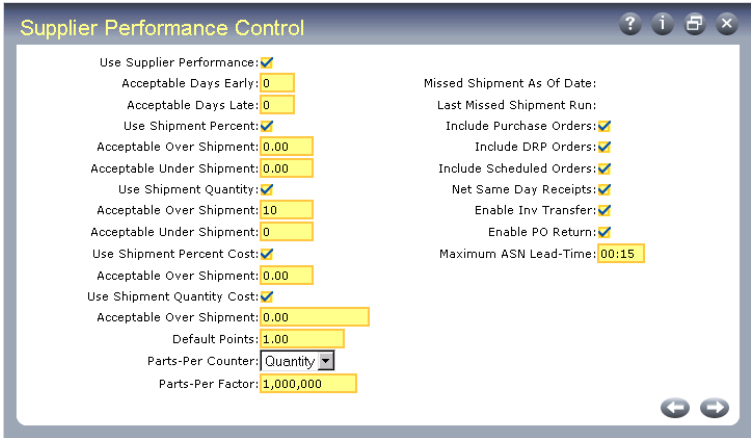
- The categories and events to monitor
- The impact or value of events
- The suppliers, items, sites, and/or commodity codes to monitor
- The impact or value of events for specific registrations

  For example, does registration A in another country receive the same late penalties as registration B, located across town?
- The computational system to use for each category
- Which suppliers should receive e-mail performance reports

Configuring Control Program Settings

To set up the supplier performance system, you must first activate it and define default information in Supplier Performance Control (5.15.24).

Fig. 12.1
Supplier Performance Control (5.15.24)



Use the following field descriptions to guide you through the control program setup.

Use Supplier Performance. Enter Yes or No (the default) to indicate whether Supplier Performance is enabled.

When disabled, information related to supplier performance is not captured by the system. This field overrides all other Supplier Performance fields.

Acceptable Days Early. Enter the acceptable number of days a shipment can be early without generating an early shipment event.

This value sets the default for the same field in Registration Maintenance (5.15.10).

Acceptable Days Late. Enter the acceptable number of days a shipment can be late without generating a late shipment event.

This value sets the default for the same field in Registration Maintenance.

Use Shipment Percent. Specify whether the system should evaluate the incoming receipts against a user-specified value.

No: Evaluation does not occur. The values in the corresponding Acceptable Over Shipment and Acceptable Under Shipment fields are not used.

Yes: The system evaluates whether incoming receipts are over or under a user-specified percentage value. The evaluation is based on a comparison of quantity received to quantity expected.

This value sets the default for the same field in Registration Maintenance.

Acceptable Over Shipment. Enter the maximum percentage by which an incoming shipment can be over the expected quantity without generating an overshipment event.

Tip
This field is used when Use Shipment Percent is Yes.

This value sets the default for the same field in Registration Maintenance.

Tip
This field is used when Use Shipment Percent is Yes.

Acceptable Under Shipment. Enter the maximum percentage by which an incoming shipment can be under the expected quantity without generating an undershipment event.

This value sets the default for the same field in Registration Maintenance.

Use Shipment Quantity. Specify whether to use the shipment quantity to calculate supplier performance.

No: Evaluation does not occur. The values in the corresponding Acceptable Over Shipment and Acceptable Under Shipment fields are not used.

Yes: The system evaluates whether incoming receipts are over or under the user-specified quantity.

This value sets the default for the same field in Registration Maintenance.

Tip
This field is used when Use Shipment Quantity is Yes.

Acceptable Over Shipment. Enter the maximum quantity by which an incoming shipment can be over the expected quantity without generating an overshipment event.

This value sets the default for the same field in Registration Maintenance.

Tip
This field is used when Use Shipment Quantity is Yes.

Acceptable Under Shipment. Enter the maximum quantity by which an incoming shipment can be under the expected quantity without generating an undershipment event.

This value sets the default for the same field in Registration Maintenance.

Use Shipment Percent Cost. Specify whether the system should evaluate the incoming receipts based on the percentage of item cost.

No: Evaluation does not occur. The value in the corresponding Acceptable Over Shipment field is not used.

Yes: The system evaluates whether incoming receipts are over or under the specified percentage value. The evaluation is based on a comparison of quantity received to quantity expected.

Example An item might cost $1,000 each, and you receive 12 instead of 10. The overshipment based on quantity might not generate a supplier performance event, but if the percent of cost is 10%, then an overshipment is recorded.

This value sets the default for the same field in Registration Maintenance.

Acceptable Over Shipment. Enter the maximum cost by which an incoming shipment can be over the expected cost based on a percentage.

Tip
This field is used When Use Shipment Percent Cost is Yes.

This value sets the default for the same field in Registration Maintenance.

Use Shipment Quantity Cost. Specify whether to use the total value of the shipment quantity to calculate supplier performance.

No: Evaluation does not occur. The value in the corresponding Acceptable Over Shipment field is not used.

Yes: The system evaluates whether incoming receipts are over a specified cost based on quantity. The evaluation is based on a comparison of the cost of the quantity received and the cost of the quantity expected.

This value sets the default for the same field in Registration Maintenance.

Acceptable Over Shipment. Enter the maximum cost by which an incoming shipment can be over the expected cost based on quantity.

Tip
This field is used when Use Shipment Quantity Cost is Yes.

This value sets the default for the same field in Registration Maintenance.

Default Points. Enter the default point value to use when creating events in Performance Event Maintenance (5.15.5).

This value sets the default for the Points field in Performance Event Maintenance.

Parts-Per Counter. Enter the parts-per calculation method:

Quantity: The parts-per calculation is based on the total quantity received.

Events: The calculation is based on the number of events a receipt has generated.

This value sets the default for the same field in Performance Category Maintenance (5.15.1).

Parts-Per Factor. Enter the factor used to calculate supplier performance rank when the parts-per rating method is used. The default is 1,000,000.

This value sets the default for the same field in Performance Category Maintenance.

Missed Shipment As Of Date. This field displays the date entered for the same field in the Missed Shipment Event Generator (5.15.17) when that program was last executed. This is the beginning date the system uses when searching for missed shipments. This field is for reference only and is not editable.

Last Missed Shipment Run. This field displays the last date the Missed Shipment Event Generator was run. This field is for reference only and is set by the system each time Missed Shipment Event Generator is run.

Include Purchase Orders. Enter Yes or No to specify whether the Missed Shipment Event Generator should consider purchase orders. This value sets the default for the same field in Missed Shipment Event Generator.

Include DRP Orders. Enter Yes or No to specify whether the Missed Shipment Event Generator should consider distribution orders. This value sets the default for the same field in Missed Shipment Event Generator.

Include Scheduled Orders. Enter Yes or No to specify whether the Missed Shipment Event Generator should consider scheduled orders. This value sets the default for the same field in Missed Shipment Event Generator.

Net Same Day Receipts. Enter Yes or No (the default) to indicate whether multiple same-day receipts should be netted as one receipt when calculating the supplier's overall report card score.

Enable Inv Transfer. Enter Yes or No (the default) to specify whether the system should prompt the user for supplier performance data during inventory transfers.

Yes: A supplier performance data pop-up appears in the inventory transfer programs when transferring material from the inspection location specified in Purchasing Control (5.24).

Transfer programs are:

- Transfer–Single Item (3.4.1)
- Transfer–Multi Item (3.4.2)
- Transfer with Lot/Serial Change (3.4.3)
- Batchload Transfer with Lot/Serial Change (3.4.4)

Enable PO Return. Enter Yes or No (the default) to specify whether the system should prompt the user for supplier performance data during purchase order returns.

Tip
This field also controls the RTS pop-up.

Yes: A supplier performance data pop-up appears in Purchase Order Returns (5.13.7) and RTS Shipments (11.7.3.16).

Maximum ASN Lead-Time. Enter the maximum lead time for advance ship notices (ASN).You must use the standard hour and minute time format (HH:MM).

This field determines the amount of time allowed between the time a shipment leaves the supplier's dock and the time the ASN for that shipment is created and sent to the customer.

Example The maximum ASN lead time is 00:20. If a shipment leaves the supplier's dock at 9:00 AM, the supplier must create and send the ASN for that shipment before 9:20. If the supplier sends the ASN after 9:20, the lead time has been exceeded and a late-ASN event is recorded.

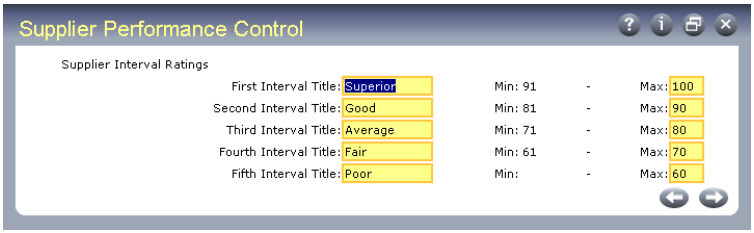
This value sets the default for the same field in Registration Maintenance.

Defining Supplier Interval Ratings

See "Performance Report Card" on page 186.

Use the Supplier Interval Ratings frame to create a reference table that appears on the supplier's performance report card. The table shows performance levels and is used as a guide for interpreting supplier ratings.

Fig. 12.2 Supplier Performance Control, Supplier Interval Ratings Frame



To set up the interval ratings table, enter the interval titles with their corresponding maximum score. The system generates the appropriate minimum score numbers for each level and displays the results in descending order.

Defining Performance Categories

The next step in setting up Supplier Performance is to define categories in Performance Category Maintenance (5.15.1). Supplier performance uses four predefined system categories to capture and associate event data.

- ASN Information
- PO Receipts
- DO Receipts
- RTS Receipts

You must create category definitions to use the data captured by system categories. The system uses the details from the category definitions you create to sort, calculate, and report on data captured by the corresponding system categories.

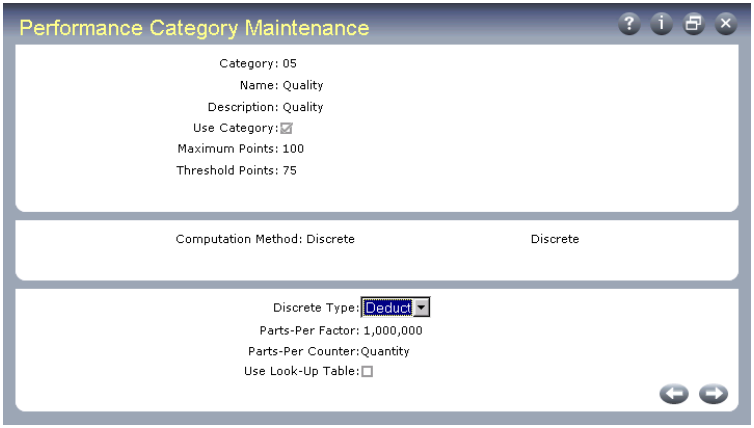


Fig. 12.3 Performance Category Maintenance (5.15.1)

Aspects of the category you can customize include:

- Naming the category

  You can use the predefined system category names or create names to fit your environment.

- Activating or deactivating categories

  You can have multiple categories in your system but use only a subset of these. If you want to stop using a category without deleting it from your system, deactivate it in the Use Category field. If you want to stop reporting for a category without stopping data collection, use Supplier/Category Maintenance (5.15.3).

- Defining point values

  Use Maximum Points to indicate the maximum allowable points for the category. Use Threshold Points to define the minimum number of points a supplier can have in the category before that supplier is considered deficient.

- Defining computational methods

  Use Computational Method to indicate how performance points are calculated for the category.

- Setting lookup table ranges when applicable

See “Understanding the Lookup Table” on page 170.

Use Performance Category Inquiry (5.15.2) to view the categories you create using Performance Category Maintenance.

Using the Computational Methods

Categories are scored using one of three computational methods, each with its own attributes and purpose.

Discrete method. This method involves adding or deducting points from a category's starting value or maximum points. The Discrete Type field determines if the event adds to or deducts from the supplier's score. This method is commonly used with subjective categories, but can be used by all categories.

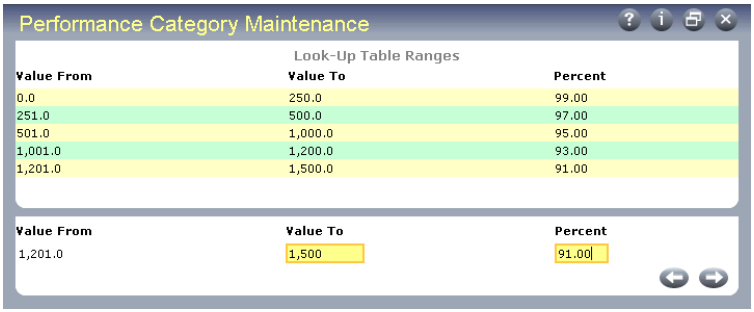
Proportion method. This method distributes the total points based on a number of occurrences captured. It takes into account the number of occurrences captured and the number of events captured. This supports manufacturers who, for example, determine that the number of deliveries should be factored into the rating on delivery.

Parts-per method. This method uses a factoring value (typically 1 million) to extrapolate the points awarded and produces a result that helps differentiate suppliers having almost perfect scores. The parts-per method includes a lookup table. The table contains the range of values for lookup and an associated percentage of category points.

Understanding the Lookup Table

When you are using the parts-per computational method you can create a reference look-up table. Set Use Look-Up Table to Yes to create and use a look-up table for a supplier. The values you set up in this table are used by the Performance Report Card (5.15.15) to calculate the supplier's score percentage.

Fig. 12.4 Performance Category Maintenance, Lookup Table Ranges Frame



Many manufacturing companies set specific performance guidelines for their suppliers. The look-up table is used when these guidelines indicate a parts per number.

One example of the look-up table's use is:

- A company requires a supplier to have no more that 50 defective parts per million.
- For that company, the category Quality is worth 50 points on the report card.
- To manually calculate the parts per number, you take the actual number of defective parts and the total number of parts and put them into terms of the Part-per value (in this case a million) using the following formula:

  *[part per number= (defective parts/total parts shipped) * 1,000,000]*

When a supplier ships 100,000 parts with 34 defective, the supplier's part per number is 340, calculated as:

*[parts per=(34/100,00)*1,000,000]*

This part per number (340) still needs to be related to the points the supplier should receive for the category. This is the purpose of the look-up table.

In Figure 12.4, the 340 part per number fits into the interval of 251-500, so the Quality category would receive 97% of 50 points, or 48.5 points.

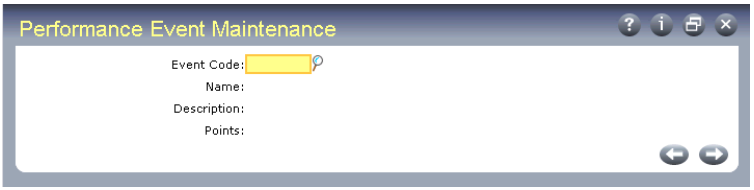
Defining Performance Events

After setting up category definitions, create event definitions in Performance Event Maintenance (5.15.5). Events are actions—positive or negative—that the system records and uses as supplier performance data. Examples of events are on-time delivery, quality of items, undershipment, or overshipment.

Event points are used by the discrete computational method only. The proportional and parts-per computational methods use ratios to rate suppliers based on activity.

As events occur, points are awarded to the supplier. These events are termed *system events* because the system can automatically recognize and count them. You must create event definitions to use the data captured by the system events. The details from the event definitions you create are used to sort, calculate, and report on data captured by the corresponding system events.

Fig. 12.5
Performance Event Maintenance (5.15.5)



See “Creating Category and Event Relationships” on page 173.

You define the points corresponding to the events during setup. Once your system is active, it automatically recognizes the event, and the event definition indicates how to award point values. This reduces the amount of manual data entry needed during the normal business flow.

Events of a subjective nature are termed *subjective events*, since it takes a user decision to determine the event. These user-interpreted events are captured manually using the various Supplier Performance pop-up windows or using Performance Data Maintenance (5.15.13).

System events are negative events such as late shipment, overshipment, or duplicate ASNs. Subjective events can be positive, such as good phone support or sharing research costs. They can also be negative, such as wrong labeling or excess freight charges.

You can update the definition of both system and subjective events at any time. Changes take effect immediately.

Use Performance Event Inquiry (5.15.6) to view the event definitions you create using this program.

Creating Category and Event Relationships

After defining categories and events, use System Category/Event Maint (5.15.22) to relate system categories and events with the category and event definitions you created in Performance Event Maintenance and Performance Category Maintenance.

As automatic data collection takes place, these category and event code cross-references are used to relate the system activities to the supplier report card using your category and event definitions. The category and event definition codes tell the system where to place the data.

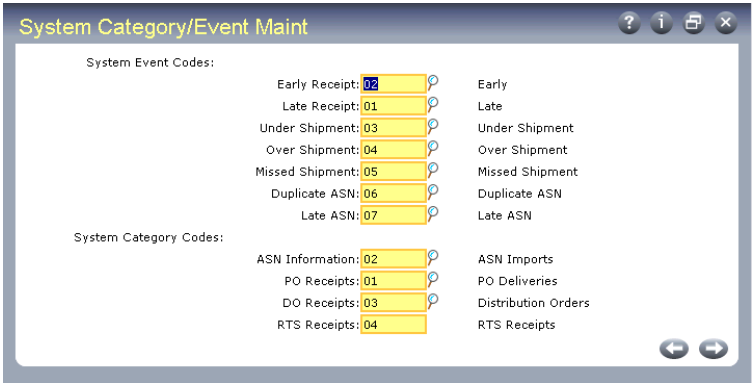


Fig. 12.6 System Category/ Event Maint (5.15.22)

In some situations, not all system categories and events are used; leave these references blank. Entries in all fields are optional. When you leave a field blank, the automatic data collection process does not create events for that system category or event. If you modify a field and remove the value, the system stops collecting data for these categories and or events.

Defining Weight Factors

After relating categories and events, define weight factors for your system using Performance Weight Factor Maint (5.15.7).

Weight factors are multipliers used to affect the value of an event by compounding its severity. Weight factors are only applied to discrete categories. The weight factors you create should reflect the type of impacts you want to have on your suppliers' ratings. Some examples of weight factors you can apply to the quality of a commodity delivered to you are normal, excellent, and poor.

Weights are typically used for negative events to indicate the level of disruption to a normal routine. You predefine weight factors in order to provide consistency in their use. Applying a weight to an event is a manual task and is done in Performance Data Maintenance (5.15.13). The system is designed to allow weights to be applied to events at any point after the events have been recorded.

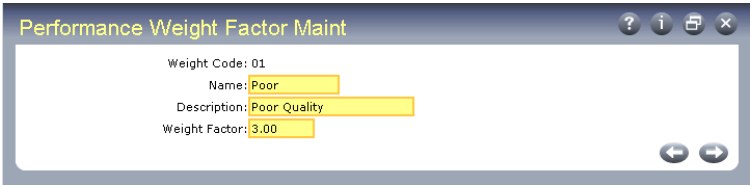


Fig. 12.7 Performance Weight Factor Maintenance (5.15.7)

Weight factors are optional measurements, but can be an important part of the performance measurement system. The weight factors you create will vary depending on your manufacturing environment.

Example A supplier provides you with uncommonly poor-quality goods. The associated Poor Quality event code is worth 1 point. However, you apply the Extremely Poor weight factor, which has a value of 3.00. The system calculates the new weighted performance event score as 3 (1 x 3.00). The weighted performance event score displays on the supplier's report card.

Use Performance Weight Factor Inquiry (5.15.8) to view the weight factors created using this program.

Creating Registrations

The final step in setting up the Supplier Performance system is to register the suppliers, items, commodity codes, or sites to be monitored. Use Registration Maintenance (5.15.10) to create registrations that indicate the items, suppliers, commodity codes, sites, or combination of these to track and rate. You can also use Registration Maintenance to exclude any registration from performance tracking by setting Use Supplier Performance to No.

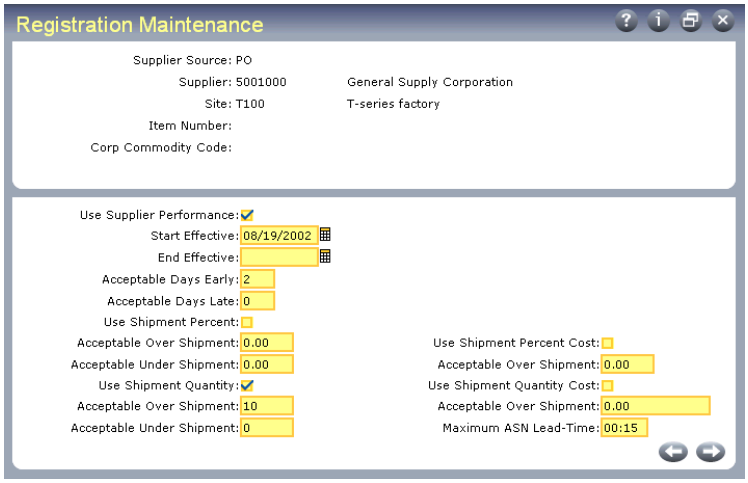


Fig. 12.8 Registration Maintenance (5.15.10)

To create a registration, enter identifying information in the first frame. You can fill in all of the fields to measure performance for very specific suppliers that meet the criteria. A very specific registration could be for a certain item, from a specific supplier, at a specific site.

You can specify only one field to collect data for a broader range. If you specify a commodity code only, for example, performance data is collected for both PO and DO suppliers from all sites that supply any item belonging to the commodity code you specify.

The data in the second frame defaults from Supplier Performance Control (5.15.24). Modify the default information according to the specific need of the registration you are creating.

See “Configuring Control Program Settings” on page 162 for details.

Use Registration Report (5.15.11) to view all details associated with the registrations you create in this program.

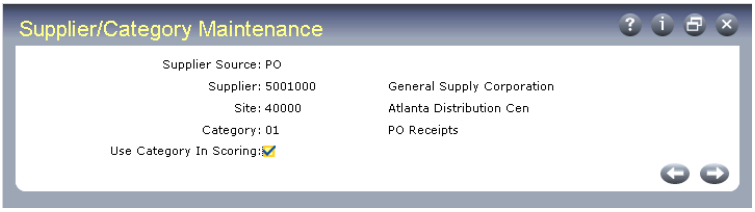
Collecting Data Without Reporting

Use Supplier/Category Maintenance (5.15.3) to disable the reporting of data for a particular supplier, site, or any site and supplier combination.

This program can create exceptions to the normal registration. By turning off a category for a supplier, the category is still registered, but the information gathered is not used in the score calculation. In effect, you give the category full points on the supplier's report card.

You can disable category data reporting for a supplier and all the sites it serves by leaving the Site field blank. You can disable data reporting for a site regardless of the supplier that serves it by leaving the Supplier field blank.

Fig. 12.9
Supplier/Category Maintenance (5.15.3)



Chapter 13

Collecting Performance Data

This chapter reviews the Supplier Performance data collection functions.

Introduction

This chapter reviews how and where performance data is captured. The following items are discussed:

- Automatic data collection
- User-assisted data collection
- Manual data collection
- Updating captured data with comments, weights, and other information
- Finding missed shipments and how they are handled

Collecting Data Automatically

Performance data can be collected automatically during the following transactions:

- Schedule Update from MRP (5.5.3.1)
- Purchase Order Receipts (5.13.1)
- PO Shipper Receipt (5.23.20)
- RTS Receipts (11.7.3.13)
- Distributed Order Receipt (12.15.20)
- Document Import (35.1)

Each time a measurable transaction occurs, the system checks for associated registrations. Once a registration is confirmed, the performance data is recorded. Figure 13.1 shows the automatic data collection cycle.

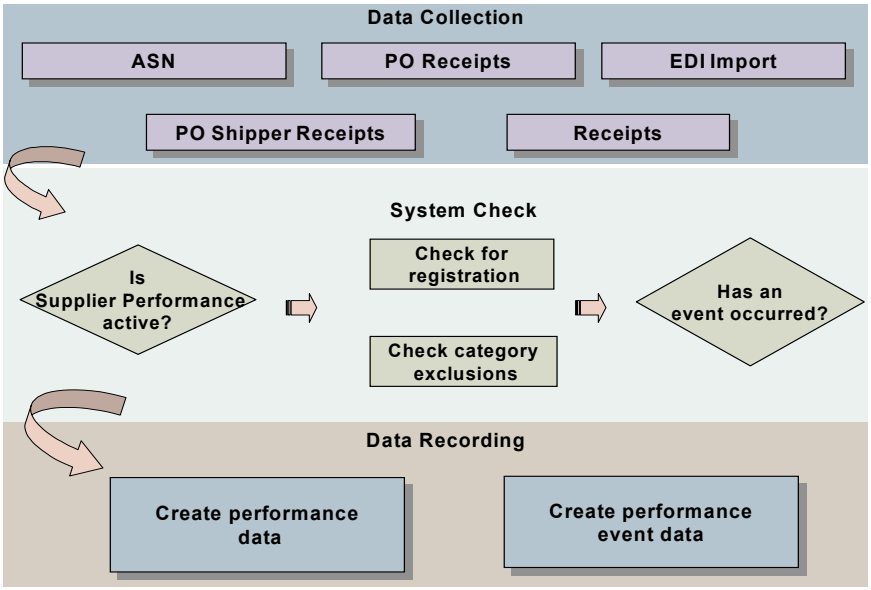


Fig. 13.1
Automatic Data Collection Cycle

When receipts and imports are processed for valid registrations, the system evaluates each receipt and EDI document import to determine if a performance event should be recorded.

Table 13.1 shows all the automatically created performance events and where they are generated. As events are recorded and stored in the your database, you can run the Performance Report Card (5.15.15) or the Performance Data Report (5.15.14) to gauge the supplier's performance against the system-defined categories used during automatic data capture.

Table 13.1
Automatic Data Collection Events and Where They Are Captured

Captured During	Possible Events	
PO Receipts	Early Receipt	Overshipment
	Late Receipt	Undershipment
DO Receipts	Early Receipt	Overshipment
	Late Receipt	Undershipment
RTS Receipts	Early Receipt	Overshipment
	Late Receipt	Undershipment
ASN Import	Late ASN	Duplicate ASN
Schedule Update From MRP	Missed Shipment	

Understanding Automatic Data Collection

Several types of events are automatically generated during various transactions, as shown in Table 13.1 on page 179. These transactions, the possible events, and how the events are captured are discussed here.

PO, DO, and RTS Receipts

During a PO receipt, DO receipt, or RTS receipt, an early, late, overshipment, or undershipment event can be automatically generated, based on the following calculations:

For field information, see "Configuring Control Program Settings" on page 162.

1. The receipt date is compared with the planned receipt date. If the receipt is early or late, that number of days is compared with the values specified in Acceptable Days Early or Acceptable Days Late in the control program. When an acceptable value is exceeded, a late or early event is automatically created.

2. The receipt quantity is compared with the open quantity. If the receipt quantity is under or over the open quantity, that quantity is converted to a percent. The difference and difference percent are compared with the values in Acceptable Over Shipment (quantity), Acceptable Under Shipment (quantity), Acceptable Over Shipment (percent), and Acceptable Under Shipment (percent) in the control program. When one of these values is exceeded, an event is automatically created.

3. The cost of the quantity received is compared with the cost of the open quantity. If the quantity-received cost is more than the open-quantity cost, the cost difference is converted to a percent.The cost difference and cost difference percent are compared with the values in Acceptable Over Shipment (cost) and Acceptable Under Shipment (percentage). When one of these values is exceeded, an event is automatically created.

Advance Ship Notice

Late ASN events are recorded when the lead time for ASNs specified in Maximum ASN Lead-Time in Supplier Performance Control is exceeded. ASN lead time is the amount of time allowed between the time a shipment

leaves the supplier's dock and the time the ASN for that shipment is created and sent to the customer. Both of these times are contained within the EDI transaction.

Schedule Update from MRP

During Schedule Update from MRP only missed shipment events are generated. If any overdue quantity exists on the prior schedule as a new schedule release is being generated, that quantity is moved to the cumulative required portion of the schedules, and is seen as a missed shipment. A missed shipment event is automatically created. When the missed shipment arrives it is netted against the schedule and the missed shipment event is replaced with a late shipment event.

User-Assisted Data Collection

User-assisted data collection can happen in five areas:

- Inventory Transfers (3.4 menu)
- Purchase Order Returns (5.13.7)
- Performance Data Maintenance (5.15.13)
- Missed Shipment Event Generator (5.15.17)
- RTS Shipments (11.7.3.16)

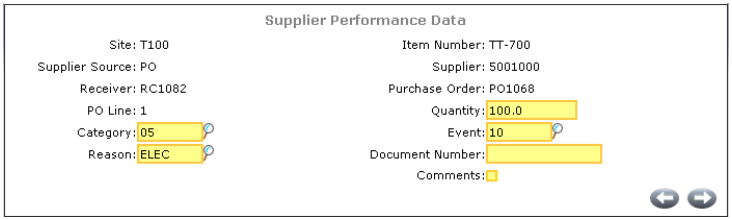
Purchase Order Returns and RTS Shipments

When material is returned, a pop-up window lets you enter a performance event. This pop-up appears only if Supplier Performance is activated in Supplier Performance Control (5.15.24) and Enable PO Returns is Yes.

Note RTS shipments are handled in the same way as PO Returns. The same control program field controls both the PO Returns and RTS pop-up windows.

The vendor and order information defaults to the pop-up but cannot be changed. The Category, Event, Quantity, and Reason fields can be updated. Recording of the event is optional. The pop-up is intended to capture information regarding material quality. To continue without entering an event, press Go.

Fig. 13.2
Supplier Performance Data in PO Returns



To correct an incorrectly entered receipt that creates a performance event, reverse the entire receipt. Reversing the entire receipt also removes all other performance events associated with that receipt. If you do not reverse the entire receipt, then you must remove any performance events manually. To remove a performance event manually, use Performance Data Maintenance (5.15.13).

Inventory Transfer

The Supplier Performance Data pop-up lets you capture data when using any of the three inventory transfer programs:

- Transfer–Single Item (3.4.1)
- Transfer–Multi Item (3.4.2)
- Transfer with Lot/Serial Change (3.4.3)

See “Configuring Control Program Settings” on page 162.

This pop-up appears only if Supplier Performance is activated in Supplier Performance Control, Enable Inv Transfer is Yes, and the inventory is being moved from the Inspection Location defined in Purchasing Control (5.24).

You can use the pop-up to create a performance event. The pop-up screen works similarly in the three inventory transactions. Because the inventory transactions are generic and not PO/DO related, you must enter the supplier, order, and receiver numbers manually.

Creating and Modifying Performance Data

When performance data is generated for any registration, that data is saved for future reporting. The data is identified by a system-generated transaction ID.

Use Performance Data Maintenance (5.15.13) to access, add, and modify details of the captured performance data. Use this program to manually create performance data. This program displays similar information as Transaction History (27.21).

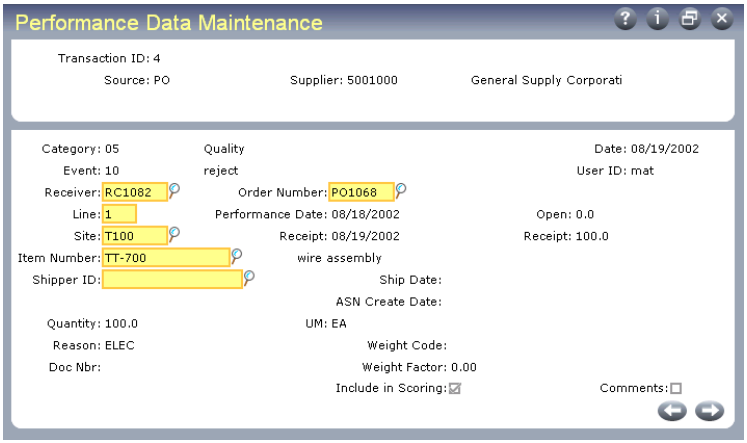


Fig. 13.3
Performance Data Maintenance (5.15.13)

The system-generated transaction ID identifies specific events associated with the corresponding registrations and the particular performance details.You can use this program to search for specific performance records. Each time this program is accessed, the first screen appears without data. Enter the Transaction ID, or browse existing IDs using the up and down arrows. Pertinent performance data is also displayed.

Modify captured performance data by adding performance weight factors or updating other fields.

1. Identify and select the corresponding Transaction ID.
2. Navigate to the fields you need to edit.
3. Enter any new information or comments, or add the appropriate performance weight factor codes.

You can manually create new performance data—for example, add a note about performance that is not captured by the system, such as bad telephone service or lack of professionalism.

1. Leave Transaction ID blank.
2. Enter the new data in the appropriate fields.

3 Save the new record.

A new Transaction ID is generated and assigned to the new data.

Missed Shipment Event Generator

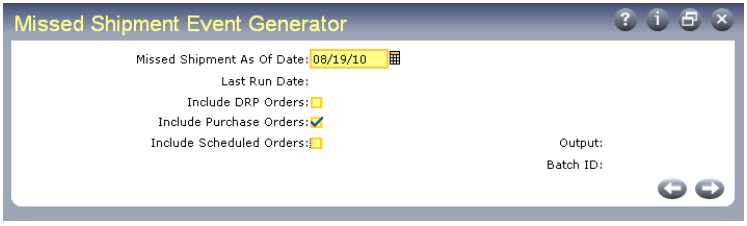
Use Missed Shipment Event Generator (5.15.17) prior to generating performance reports. This program updates performance data with the most current results. It evaluates open POs, DOs, and scheduled orders, then creates missed shipment events for any orders not fully reconciled by the missed shipment as of date indicated.

See “Configuring Control Program Settings” on page 162.

Indicate the type of orders evaluated by specifying defaults in the control program or making changes in this program. Missed shipment events are created for valid registrations only.

Note Missed shipment events do not remain in the system. They are removed upon receipt of the associated late shipment.

Fig. 13.4
Missed Shipment Event Generator (5.15.17)



Chapter 14

Reporting and Managing Data

This chapter presents the reporting and data consolidation features of Supplier Performance, which also include delete and archive functions.

Introduction

The output of a successful supplier performance system is a detailed supplier performance report. Supplier Performance uses various reports. This chapter discusses the reporting, data consolidation, and delete/archive functions of Supplier Performance.

The performance reports are:

- Performance Category Inquiry (5.15.2)
- Registration Report (5.15.11)
- Performance Data Report (5.15.14)
- Performance Report Card (5.15.15)
- Summary Data Report (5.15.20)

The data consolidation programs and reports are:

- Summary Data Extract (5.15.19)
- Performance Data Delete/Archive (5.15.23.1)
- Summary Data Delete/Archive (5.15.23.2)
- Supplier Cross-Reference Maint (5.15.23.3)
- Supplier Cross-Reference Report (5.15.23.4)

Performance Reports

Performance Report Card

Ideally, this is the system report you give to your suppliers to indicate their performance as measured by your system. You can automatically e-mail this report to your suppliers.

The Performance Report Card (5.15.15) is a snapshot in time of a supplier's overall rating. The program generates supplier ratings by examining performance data based on selection criteria you enter. This data is then scored according to parameters associated with categories, events, and weights.

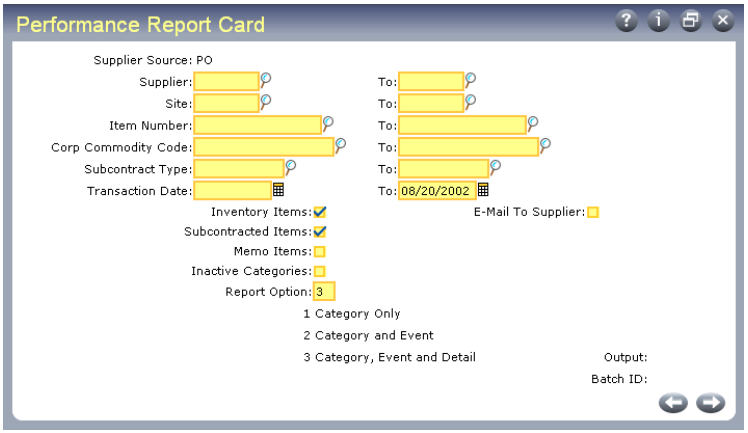


Fig. 14.1
Performance Report Card (5.15.15)

This report can be produced with various information. Set Inactive Categories to Yes to include all categories in the system, even those not currently being used. You can indicate what other types of items to include, and the report is printable with three levels of detail. Each report option displays a new level of information detail for the report card:

- Category
- Category and Event
- Category, Event, and Detail

Performance Data Report

Use the Performance Data Report (5.15.14) to examine raw performance data.

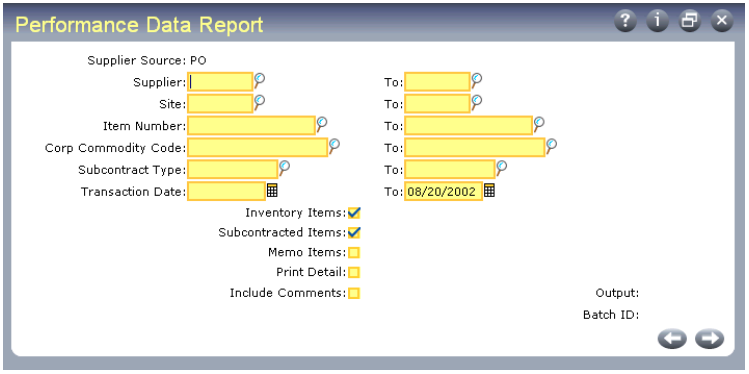


Fig. 14.2
Performance Data Report (5.15.14)

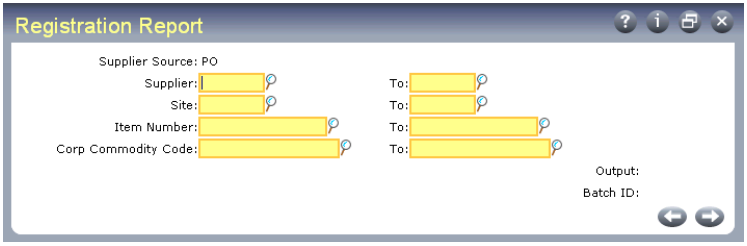
With this flexible report you can:

- View data in multiple detail and summary formats.
- Select data by multiple selection criteria.
- View event comments.

Registration Report

Use Registration Report (5.15.11) to view all details associated with the registrations you create in Registration Maintenance (5.15.10). When you enter a value in a selection criteria field, the report finds and reports the complete details of any registration that has that value.

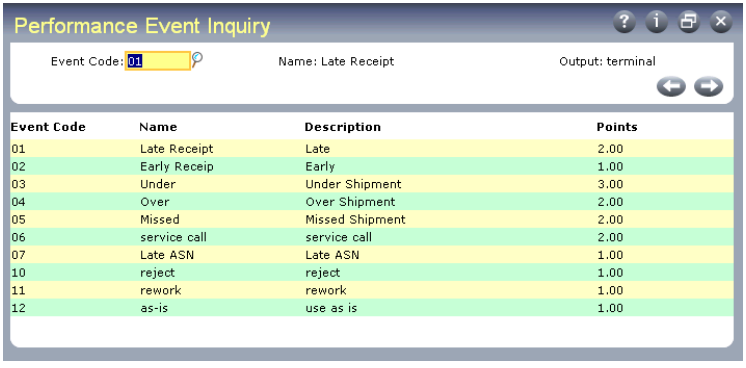
Fig. 14.3
Registration Report (5.15.11)



Performance Event Inquiry

Use Performance Event Inquiry (5.15.6) to view the event definitions you create using Performance Event Maintenance (5.15.5). This inquiry displays the indicated event definition followed by subsequent definitions that reside on the system.

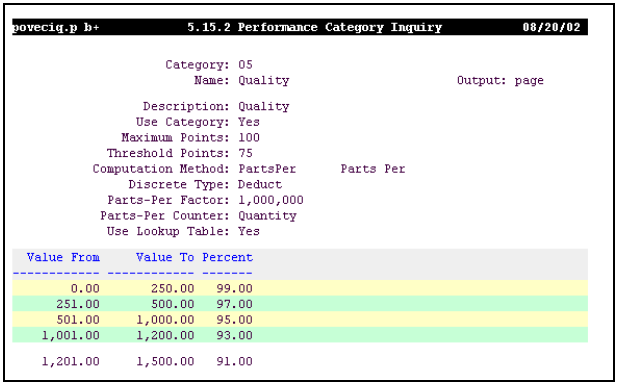
Fig. 14.4
Performance Event Inquiry (5.15.6)



Event Code	Name	Description	Points
01	Late Receipt	Late	2.00
02	Early Receip	Early	1.00
03	Under	Under Shipment	3.00
04	Over	Over Shipment	2.00
05	Missed	Missed Shipment	2.00
06	service call	service call	2.00
07	Late ASN	Late ASN	1.00
10	reject	reject	1.00
11	rework	rework	1.00
12	as-is	use as is	1.00

Performance Category Inquiry

Use Performance Category Inquiry (5.15.2) to view the category definition details you create using Performance Category Maintenance (5.15.1). When a lookup table has been defined for a category, its values also display.



```
povecig.p b+          5.15.2 Performance Category Inquiry          08/20/02

                    Category: 05
                        Name: Quality                    Output: page

                 Description: Quality
                Use Category: Yes
              Maximum Points: 100
             Threshold Points: 75
          Computation Method: PartsPer      Parts Per
               Discrete Type: Deduct
             Parts-Per Factor: 1,000,000
            Parts-Per Counter: Quantity
             Use Lookup Table: Yes

  Value From     Value To Percent
------------ ------------ -------
        0.00       250.00   99.00
      251.00       500.00   97.00
      501.00     1,000.00   95.00
    1,001.00     1,200.00   93.00

    1,201.00     1,500.00   91.00
```

Fig. 14.5 Performance Category Inquiry (5.15.2)

Consolidating Data from Multiple Sites

You can consolidate performance data from multiple sites to one central database using Archive File Reload (36.16.5) to load files produced by Performance Data Delete/Archive and Summary Data Delete/Archive.

See “Delete/ Archive Functions” on page 194.

Supplier Cross-Reference Maintenance

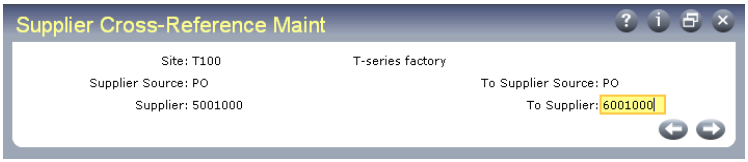
When you consolidate performance data or summary performance data from multiple sites to one local database, performance data labeling variations may occur. Use Supplier Cross-Reference Maint (5.15.23.3) at each reporting site to help you resolve any supplier name inconsistencies.

In this program, you indicate:

- The supplier source and name you gave the supplier, and
- The supplier source and name that is used at the corporate site

When data is archived using these cross-references, the archive data is saved with the correct corporate name, instead of the name used at the reporting site.

Fig. 14.6
Supplier Cross-Reference Maint (5.15.23.3)



Supplier Source. Enter DO or PO to differentiate the type of source supplier being referenced.

PO: Only suppliers previously defined in Supplier Maintenance can be specified in the Supplier field.

DO: Only sites previously defined in Site Maintenance can be specified in the Supplier field.

Supplier. Enter the supplier name as recognized at the local site.

To Supplier. Enter the corporate name for the local supplier.

When performance data or performance summary data is archived and Use Cross-Reference is Yes, the local site name is changed to this corporate site name in the archive file only.

Example Site 2000, 3000, and 4000 all track performance for their suppliers. ABC Inc. is a supplier for all three sites, but each site identifies ABC Inc. with a different supplier code (001, 505, and 100).

These three sites must produce monthly supplier performance data for their corporate headquarters. The corporate headquarters uses the name ABC Inc. to consolidate the monthly data. To resolve the supplier name inconsistencies when consolidating data from these sites, each site uses Supplier Cross-Reference Maintenance to map their supplier names (001, 505, and 100) to the corporate name (ABC Inc.).

When the archive functions are used at site 2000, 3000, and 4000, the performance data is archived using the defined supplier cross-references. The archive files with the corporate supplier name are then sent to the corporate headquarters where they are consolidated into one database using Archive File Reload (36.16.5).

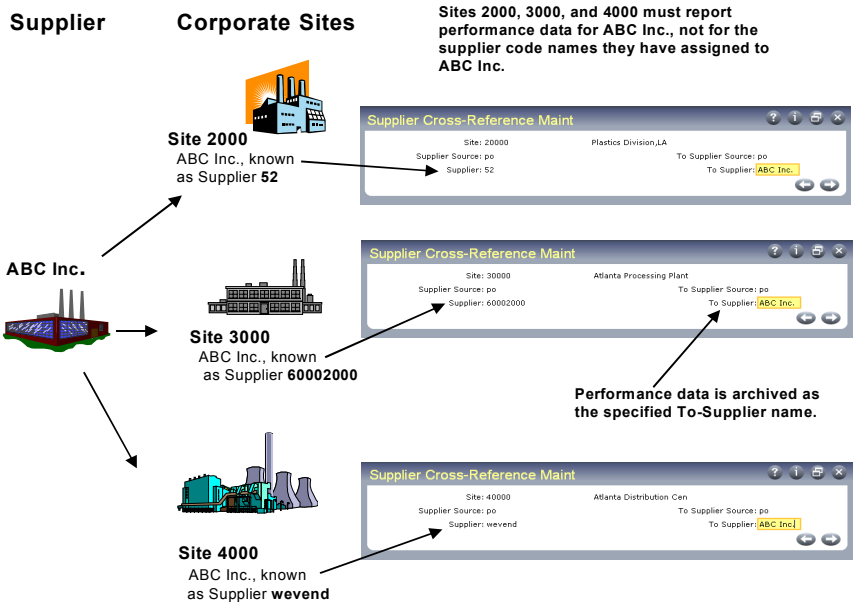


Fig. 14.7
Cross-Reference Example

Supplier Cross-Reference Report

Use Supplier Cross-Reference Report (5.15.23.4) to examine the cross-references created in Supplier Cross-Reference Maint.

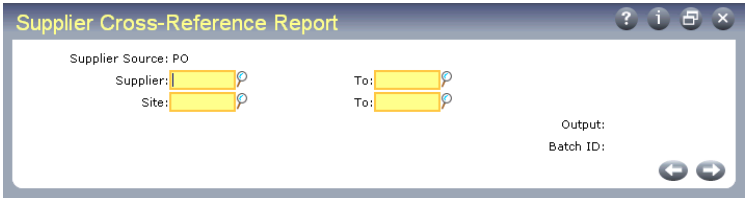


Fig. 14.8
Supplier Cross-Reference Report (5.15.23.4)

Figure 14.9 shows the report output.

Fig. 14.9
Supplier Cross-Reference Report Output (5.15.23.4)

```
povexrp.p          5.15.23.4 Supplier Cross-Reference Report  Date: 08/16/02
Page: 1                          Quality Products Inc.        Time: 16:51:26
                  From      1000                                 To    10010

Site     Source Supplier Description                Supplier
-------- ------ -------- ------------------------   --------
10000    PO     77000    Waycombe                    77-A
10000    PO     77001    Carl Tech                   77-B
10000    PO     77002    AB&E Enterprise             77-C
10000    PO     77003    Kitty Inc.                  77-D
10000    PO     77004    Guileful Co                 77-E
10000    PO     77005    Jamaica metals              77-F
10000    PO     77006    Mato Inc.                   77-G
12000    DO     33003    Dsite12000 ooo              6766
10000    DO     77000    R10003se                    787-A
10005    DO     00002    AB&E site 1000e             778-C
10006    PO     45603    Kitco Inc.                  778-D
10007    PO     98764    Jolopie Manufacturers       778-E
10008    PO     73245    JannaCo metals              778-F
10009    PO     34568    RG Labels Inc.              778-G
```

Summary Data Extract

Use the Summary Data Extract (5.15.19) to collapse and compress supplier performance data for the purpose of historical reporting. A date range is used for the selection criteria of the extract. The summarized data retains enough information to match the criteria used in the Performance Report Card (5.15.15).

Fig. 14.10
Summary Data Extract (5.15.19)

Summary Data Extract takes the information in your database and, based on the selection criteria, summarizes and saves the data as a separate record in the database. After you run this program multiple times, you can use these individual records for data reports.

Example If you run this program every month for six months and retain the information in your system, at the end of the six-month period you can run the Summary Data Report (5.15.20) to view the six summary reports you created during the reporting period.

Depending on reporting policies in your MFG/PRO environment, you can use the summarized data as the basis for your long-term reports. When combining data from multiple reporting sites, use Supplier Cross-Reference Maint (5.15.23.3) at each site to solve supplier name inconsistencies between sites.

See “Supplier Cross-Reference Maintenance” on page 189.

Summary Data Report

Use the Summary Data Report (5.15.20) to review a supplier’s overall rating for the date range originally extracted using the Summary Data Extract. The format is the same as that of the Performance Report Card (5.15.15). The date range determines which sets of summary records are included in the report. Each set of records produces a separate report card for the date range indicated.

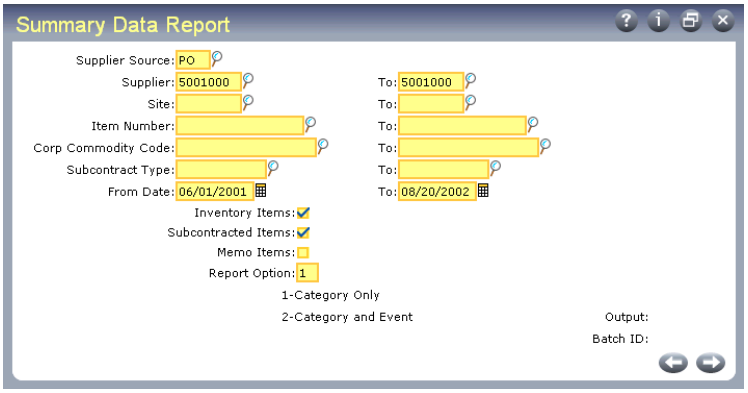


Fig. 14.11 Summary Data Report (5.15.20)

You can run this report with two levels of detail:

- Category only
- Category and event

You can also include or exclude inventory, subcontract, or memo items from the report.

Delete/Archive Functions

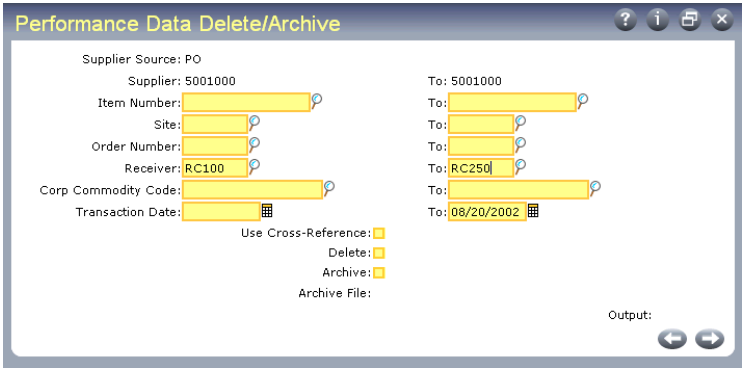
Supplier Performance delete and archive functions are similar to other delete/archive functions. The archive file produced by the delete/archive functions is also used for data consolidation from multiple sites.

Performance Data Delete/Archive

Use Performance Data Delete/Archive (5.15.23.1) to delete and archive performance data. You cannot delete performance data in any other Supplier Performance program. You can also archive performance data without deleting it from your system.

For data consolidation purposes, the archive file produced can be reloaded using Archive File Reload (36.16.5). You can also archive performance data using the corporate standardized supplier names you defined in Supplier Cross-Reference Maintenance (5.15.23.3).

Fig. 14.12
Performance Data Delete/Archive (5.15.23.1)



Summary Data Delete/Archive

Use Summary Data Delete/Archive (5.15.23.2) to delete and/or archive summary performance data created by Summary Data Extract. You can also archive summary data without deleting it from your system. For data consolidation purposes, the archive file produced can be reloaded using Archive File Reload (36.16.5). You can also archive summary data using the corporate standardized supplier names you defined in Supplier Cross-Reference Maintenance (5.15.23.3).

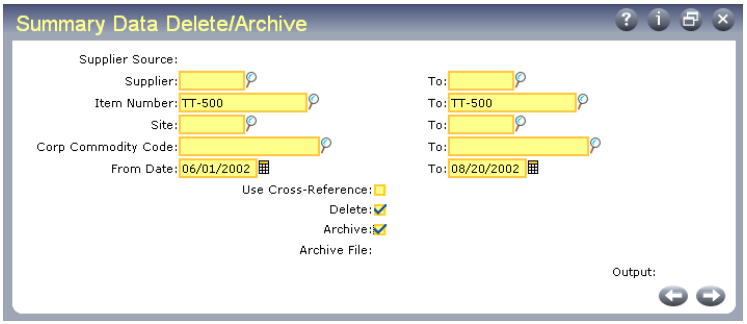


Fig. 14.13
Summary Data Delete/Archive (5.15.23.2)

SECTION 5

Shipment Performance

This section includes information on the PRO/PLUS Shipment Performance module. It tells you how to plan and set up Shipment Performance as well as how to work with and report Shipment Performance data.

Chapter 15

Shipment Performance

This chapter describes how to set up and use features of the PRO/PLUS Shipment Performance module.

Overview of Shipment Performance

Business Need

In a highly competitive marketplace, the ability to meet performance and required ship dates is an essential element in an effective supply chain. Companies need detailed shipment information to improve their current processes and remain competitive.

In some industries, companies are required to comply with performance criteria in order to continue in a business relationship. Well-defined metrics are needed to meet regulatory and quality standards.

MFG/PRO Solution

With the Shipment Performance module, you can monitor shipping effectiveness by measuring how a shipping department meets customer-requested ship dates and quantities. You can choose which date to use for measuring performance based on your business practices: the line-item performance date, due date, or required date.

You can collect shipment performance data for a wide variety of shipment types including discrete and scheduled sales orders, return material authorizations (RMA), distribution orders, and material orders. Performance is measured by comparing planned ship dates and quantities to actual ship dates and quantities. Using these comparisons, the system automatically assigns two types of predefined status codes to shipments:

- Status codes that measure timeliness of shipments are called *time-based status codes*. These codes measure timeliness based on hours or days a shipment is early or late.
- Status codes that measure the completeness of shipments are called *quantity-based status codes*. These codes measure the shipment quantity or percentage either over or under the required shipment quantity.

You can optionally add reason codes to each performance transaction record. You can enter further information on status code and reason code assignment and related issues as comments. For additional tracking, you can specify categories for all shipment line items.

Example Shipment transactions that are fed through your company's warehouse system will be delayed one day due to unexpected freeway closure. You can define a time-based status code for a one-day delay and a related reason code using shiptime as the reason type and Traffic as the reason code. Shipper personnel at the warehouse use Pre-Shipper/Shipper Workbench to enter the Traffic reason code during the actual shipper transaction to indicate why shipment timeliness is impacted. In the Comments field, they can enter specific information about the delay.

You can also use Shipment Performance with Change Tracking Maintenance (36.2.22). You can track changes to line item details in Sales Order Maintenance (7.1.1), such as when the due date or quantity changes.

See *User Guide Volume 9: Manager Functions* for details on change tracking.

Shipment performance reports and the information they provide can improve shipping processes by letting you monitor shipping efficiency at one or more sites. Multiple reports are available, including a performance report for reviewing the timeliness and completeness of shipments.

Shipment performance reports support *pareto analysis*. This type of analysis is based on the idea that only a vital few factors are responsible for producing most problems. The principle can be applied to shipment improvement by determining the few key problems that cause a majority of the problems (80%). These reports can help your company comply with industry standards that require shipment performance analysis.

Also available are item, customer, and reason code analysis reports for reviewing the timeliness and completeness of shipments based on items shipped, customers shipped to, and reason codes assigned. You can optionally export shipment performance data for use with external reporting systems.

Features

Using shipment performance functions, you can:

- Monitor performance for multiple MFG/PRO shipping functions including:
  - Sales order shipments
  - Scheduled sales order shipments
  - Return material authorization (RMA) shipments

- Distribution order (DO) shipments
- Material order (MO) shipments

- Measure shipment performance based on required date, performance date, due date, and shipment quantity.
- Create status codes that indicate various measures of timeliness and completeness for use system wide or for specific combinations of customer, ship-from, receive address, and item number.
- View assigned shipment performance statuses or change assigned statuses.
- Enable and disable shipment performance recording:
  - At the system level
  - At the customer/receiving address level
  - At the item level
  - At the ship-from site level
  - For scheduled order shipments
  - For distribution order shipments
  - For discrete sales order shipments
  - For RMA order shipments
  - For material order shipments
- Create and assign reason codes to describe why shipments were assigned status codes. You can manually assign reason codes:
  - Before shipment in Pre-Shipper/Shipper Workbench (7.9.2)
  - After completing a shipment using Shipment Reason Code Entry (7.9.17.9) or Shipment Performance Data Maintenance (7.9.17.13)
- Measure shipment performance for customer schedules based on the current active or prior schedule release. This can be set system wide or at the customer, ship-from, receive address, and item level.
- Export historical performance data for manipulation with external reporting tools.
- Create shipment performance reports that:
  - List shipments that have no assigned reason codes.
  - Produce detailed performance analysis.

- Display detailed line-item category information.
- Display performance impact by reason code, item, customer, and other types of information ranked from most to least significant.
- Display shipment lines with subtotals by customer, site, item, unit of measure, and currency.

Changes to MFG/PRO

When you activate this module, new features are added to some existing MFG/PRO programs. The added features help capture, maintain, and report performance data. When you deactivate this module, the modified programs again operate as in standard MFG/PRO.

Table 15.1 shows MFG/PRO programs modified for use with the Shipment Performance module.

Table 15.1 Modified MFG/PRO Programs

Menu	Description	Program
7.1.1	Sales Order Maintenance	sosomt.p
7.3.13	Scheduled Order Maintenance	rcsomt.p
7.9.2	Pre-Shipper/Shipper Workbench	rcshwb.p
7.9.5	Pre-Shipper/Shipper Confirm	rcsois.p
7.9.15	Sales Order Shipments	sosois.p
7.9.21	Shipper Unconfirm	rcunis.p
7.13.1	Pending Invoice Maintenance	soivmt.p
10.7.1	Material Order Maintenance	fseomt.p
10.7.6	Material Order Shipments	fseops.p
11.7.1.1	RMA Maintenance	fsrmamt.p
11.7.1.16	RMA Shipments	fsrmash.p
11.11.1	Material Order Maintenance	fseomt.p
11.11.6	Material Order Shipments	fseops.p
12.17.13	Distribution Order Workbench	dsdomt01.p
12.17.14	Distribution Order Maintenance	dsdomt.p
12.17.22	Distribution Order Shipments	dsdois.p

Shipment Performance in MFG/PRO

This module adds two reports to standard MFG/PRO:

See page 229.

- Backlog/Missed Shipment Report (7.9.18)

See page 230.

- Fill Rate Report (7.9.19)

Table 15.2 lists programs included in the Shipment Performance module.

Table 15.2 Shipment Performance Programs

Menu	Description	Program
7.9.17.1	Performance Controls Maintenance	sospcmt.p
7.9.17.3	Time-Based Status Code Maintenance	sosttmt.p
7.9.17.4	Time-Based Status Code Browse	sobr028.p
7.9.17.6	Quantity-Based Status Code Maintenance	sostqmt.p
7.9.17.7	Quantity-Based Status Code Browse	sobr029.p
7.9.17.9	Shipment Reason Code Entry	sorsnent.p
7.9.17.10	Missing Reason Code Report	soshprp6.p
7.9.17.13	Shipment Performance Data Maintenance	soshpmt.p
7.9.17.15	Shipment Performance Report	soshprp.p
7.9.17.17	Reason Code Analysis Report	soshprp1.p
7.9.17.18	Item Analysis Report	soshprp2.p
7.9.17.19	Customer Analysis Report	soshprp3.p
7.9.17.22	Performance Data Extract	soshpex.p
7.9.17.23	Performance Data Delete/Archive	soshpup.p
7.9.17.24	Shipment Performance Control	soshppm.p

Planning and Setup Overview

Setup of the Shipment Performance module depends on how much performance monitoring is required in your shipping environment. Clearly defined requirements simplify the setup process. Figure 15.1 illustrates the basic Shipment Performance module planning and setup flow.

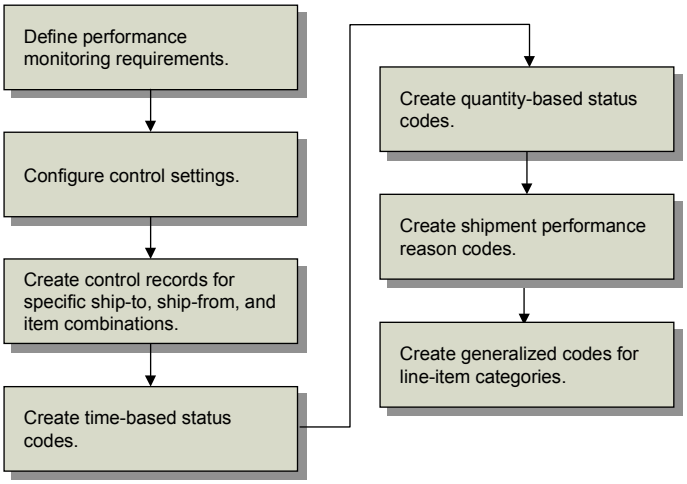


Fig. 15.1 Shipment Performance Setup Flow

Determining Monitoring Parameters

Before beginning module setup, consider the following questions:

- Are you setting up a shipment performance system for one ship-from site or multiple sites?
- Will you monitor shipment performance for shipments to all receive addresses or only specific ones? (When monitoring shipment performance for a sales order, receive addresses are customer address codes; for a distribution order, receive addresses are site codes.)
- Will you monitor shipment performance for shipments of all items or selected items?
- Will you monitor shipment timeliness, completeness, or both?
- Do you want to apply the same shipping standards for all receive addresses, ship-froms, and items, or do your shipping standards vary?

Determining Shipments to Monitor

See “Defining Control Program Exceptions” on page 209.

Before you begin setting up the system, you must determine which shipments need to be monitored based on these four elements:

- Customer source of the shipment.
  - Sales order shipments
  - Scheduled sales order shipments
  - RMA shipments
  - Distribution order shipments
  - Material order shipments
- Site where the shipment was made. If you have multiple ship-from sites, determine which of these you want to monitor.
- Address receiving the shipment. Compile a list of the sites (if DO is your source) or customer addresses receiving shipments (if SO is your source) that should be monitored.
- Item being shipped. Compile a list of the items you want to monitor.

Use this information to set up Shipment Performance Control (7.9.17.24) and to create control records as needed.

Setting up Shipment Performance

This section describes the tasks you must complete before you can begin monitoring shipment performance:

- Define control program settings.
- Create control program exceptions.
- Set up status codes.
- Define reason codes.
- Define line-item categories.

Defining Control Program Settings

Use Shipment Performance Control (7.9.17.24) to activate this module and to create system-wide shipment performance default settings. The system-wide defaults should reflect the information you compiled in the planning stage. They represent the typical way your business environment operates.

Note Once this module is activated, the system creates performance transaction records for all shipments matching control records, even when applicable status codes are not found.

See "Establishing Performance with Status Codes" on page 214.

Most of the values you define in the control program default to Performance Controls Maintenance (7.9.17.1). In that program, you can override control program settings for specific combinations of customer source, receive address, ship-from, and item number.

Fig. 15.2 Shipment Performance Control (7.9.17.24)

After you activate Shipment Performance, enter appropriate values for the following control program settings:

Measurement Sub Type. Indicate whether the due, required, or performance date should be the default date for the Performance Date field in the following shipment performance reports:

- Missing Reason Code Report (7.9.17.10)
- Shipment Performance Report (7.9.17.15)
- Reason Code Analysis Report (7.9.17.17)
- Item Analysis Report (7.9.17.18)
- Customer Analysis Report (7.9.17.19)

Measurement Sub Types are predefined in Language Detail Maintenance (36.4.3). They do not need to be set up before using the Shipment Performance module.

You cannot specify the performance date in every program that Shipment Performance analyzes:

- You can specify the due date, required date, and performance date in Sales Order Maintenance (7.1.1) and RMA Maintenance (11.7.1.1).
- You can specify due date or required date in Material Order Maintenance (10.7.1 or 11.11.1).
- You can specify due date only in Distribution Order Maintenance (12.17.3).

When performance date is not available, Shipment Performance uses the due date as the performance date, regardless of which date you enter here.

See "Creating and Entering Reason Codes" on page 222.

Enter Reason Codes in Workbench. You create shipment performance reason codes in Reason Code Maintenance (36.2.17). You can define reason codes with shiptime as the reason type for time-related reason codes and shipqty as the reason type for quantity-based reason codes. Reason codes are stored in the shipment history.

When you set the value of this field to Yes, a data collection frame displays in Pre-Shipper/Shipper Workbench during maintenance of a shipper, letting users enter reason codes. Otherwise, you can use two other programs to enter codes:

- Use Shipment Reason Code Entry (7.9.17.9) to quickly enter reason codes for performance transactions that do not have assigned reason codes.
- Use Shipment Performance Data Maintenance (7.9.17.13) to enter reason codes for records that have at least one assigned reason code or if you are authorized, to change previously assigned reason codes.

Select the type of orders to monitor by entering Yes or No for sales orders, distribution orders, RMA shipments, material orders, and scheduled orders. The settings you indicate here should reflect the most common needs across your system.

If you choose to monitor scheduled orders, enter values for the next two fields.

Schedule Type. Enter the schedule type used to calculate shipment performance for scheduled orders:

1: Planning schedule

2: Shipping schedule

3: Required ship schedule (the default value)

To assign status codes for shipment performance, the system compares the actual ship date and quantity to the ship date and quantity on the indicated schedule.

Use Current Release. Indicate Yes to use the current schedule release or No to use the *prior* schedule release to measure shipment performance when shipping against scheduled orders. Typically, you select a *prior* schedule when you are in an environment that packs orders a day ahead of the actual shipment.

Defining Control Program Exceptions

Use Performance Controls Maintenance (7.9.17.1) to create control records that override general settings in Shipment Performance Control. The detailed control records are used to collect performance data for unique key combinations of customer source, ship-from, receive address, and item number.

- Customer source refers to where the order originates. There are two types of customer source: distribution orders (DO) or sales type orders (SO). Sales type orders include sales orders, scheduled orders, RMA shipments, and material orders.
- Ship-from site is the site where the shipment originates.
- Receive address values depend on the customer source you enter. If you select DO, then define the control record with a receiving site. If you select SO, then define the control record with a customer receive address.
- Item number refers to the item being shipped.

Only one control record definition can have the same combination of key values. When more than one control record might apply during shipment, the system uses the most specific record for the appropriate customer source. Records are chosen from most to least specific in the sequence listed in Table 15.3.

Table 15.3
Search Order for Control Records

Order	Ship-From	Receive Address	Item
1	✓	✓	✓
2	✓	✓	
3	✓		✓
4		✓	✓
5	✓		
6		✓	
7			✓
8			

Transit Lead Time

Tip
Transit lead time does not apply when source is DO.

When the source is SO, you can enter a transit lead time for a shipment in Performance Controls Maintenance (7.9.17.1). You specify the number of days it takes for a shipment to reach the end customer from the time it leaves your dock in the Transit Lead Time field.

See *User Guide Volume 2A: Distribution.*

Transit lead time differs from the shipping lead time you specify in Sales Order Control (7.1.24). Shipping lead time is added to the order due date to account for the number of days it takes to prepare an order for shipment. Transit lead time is the number of days it takes a shipment to travel to a customer.

See *User Guide Volume 6: Master Data.*

The transit lead time that you enter in Shipment Performance is not associated with the time that you enter in Delivery Transit Time Maintenance (2.16.1). Delivery transit time is used in automatic date calculations on order lines when the Calculate Promise Date field is set to Yes in Sales Order Control (7.1.24).

The transit lead time in Shipment Performance is used to assign status codes for the required delivery dates and performance dates specified when shipping discrete sales orders. The system uses the value you enter

in Shipment Performance to determine if a shipment arrives at a customer site on time. This supports more accurate shipment performance calculations related to performance and required dates.

Defining Control Program Exceptions for a Sales Order

The appearance of Performance Controls Maintenance varies, depending on the order source. When the source is SO, you can specify the following for each control record:

- Enable or disable shipment performance monitoring.
- Specify shipment transit time.
- Indicate types of sales orders to monitor or not monitor.
- Change the schedule type being used for scheduled order calculations.
- Indicate whether to use the current or previous schedule to determine shipment performance.

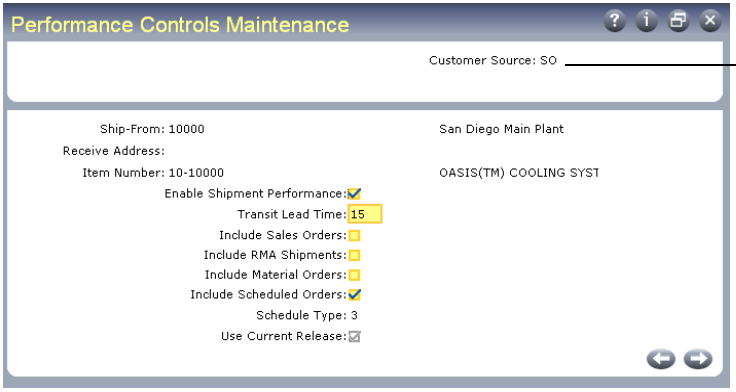


Fig. 15.3 SO Source in Performance Controls Maintenance (7.9.17.1)

Enable Shipment Performance. Enter Yes to collect performance data for the specified combination of customer source, ship-from site, receiving address, and item number. Enter No if you do not want performance data for this key combination.

Transit Lead Time. Optionally enter the number of days it normally takes a shipment to reach the receive address after that shipment leaves your dock.

Refer to “Transit Lead Time” on page 210.

Leave the default 0 (zero) to indicate that transit time should not be considered.

Select the types of orders (sales, RMA shipments, material, and scheduled) you want to track for this control record. If you select scheduled orders, enter values for the next two fields.

Schedule Type. Enter the schedule type that should be used to calculate shipment performance for this control record:

1: Planning schedule

2: Shipping schedule

3: Required ship schedule (the default value)

You can update this field only when Include Scheduled Orders is Yes.

To assign status codes for shipment performance, the system compares the actual ship date and quantity to the ship date and quantity on the indicated schedule.

This value defaults from Shipment Performance Control.

Use Current Release. Indicate Yes to use the current schedule release or No to use the prior schedule release to measure shipment performance when shipping against scheduled orders.

You can update this field only when Include Scheduled Orders is Yes.

This value defaults from Shipment Performance Control.

Defining Control Program Exceptions for a Distribution Order

When the source is DO, the Performance Controls Maintenance screen appears differently than when the source is SO. For a DO source, you can specify the following for each control record:

- Enable or disable shipment performance monitoring.
- Indicate whether to include distribution orders in shipment monitoring.

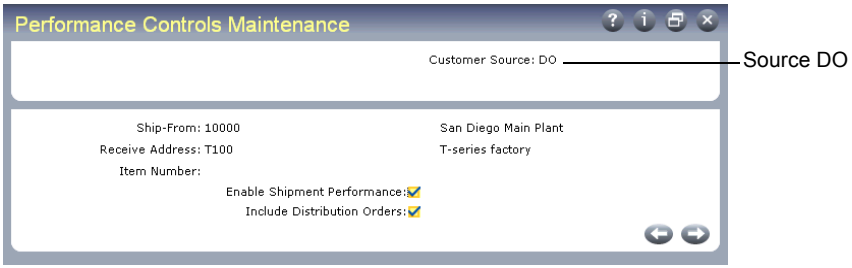


Fig. 15.4 DO Source in Performance Controls Maintenance (7.9.17.1)

Enable Shipment Performance. Enter Yes to collect performance data for the specified combination of customer source, ship-from site, receiving address, and item number. Enter No if you do not want performance data for this key combination.

Include Distribution Orders. Enter Yes to include distribution orders in shipment monitoring.

Monitoring Selective Shipments

To monitor a selective set of shipments only, you need to activate shipment performance, turn off performance monitoring of all sales orders and distribution orders, then turn on performance monitoring for only those areas you want to monitor. To do this, follow these steps:

1. Use Shipment Performance Control (7.9.17.24) to activate the Shipment Performance module. Indicate the most common values to use. This allows shipment tracking to begin.
2. Use Performance Controls Maintenance (7.9.17.1) to create a record with a customer source of SO. Leave the other key values blank. Set Enable Shipment Performance to No. This turns off shipment tracking to customers.
3. Create a second record with a customer source of DO. Leave the other key values blank. Set Enable Shipment Performance to No. This turns off shipment tracking to sites.
4. Use Performance Controls Maintenance again to create performance control records that indicate key value combinations (such as a few receive addresses or specific items) for shipments that should be monitored. This time, make sure to set Enable Shipment Performance to Yes for these control records.

The two blank records tell the system that no performance monitoring should occur system wide. Performance records with the appropriate combination of key values override the blank records. This supports shipment performance monitoring for only these limited control records.

Monitoring General Shipments

To set up performance monitoring for general shipments, you need to activate shipment performance, then optionally turn off performance monitoring of selective areas. To do this, follow these steps:

1. Use Shipment Performance Control (7.9.17.24) to activate shipment performance. Indicate the most common values to use.
2. Use Performance Controls Maintenance (7.9.17.1) to create performance control records that indicate the key value combinations for shipments that should not be monitored. Make sure to set Enable Shipment Performance to No for these control records.

Establishing Performance with Status Codes

When the system processes shipments, it automatically assigns status codes in the following programs:

- Pre-Shipper/Shipper Confirm (7.9.5)
- Sales Order Shipments (7.9.15)
- Pending Invoice Maintenance (7.13.1)
- Material Order Maintenance (10.7.1)
- Material Order Shipments (10.7.6)
- RMA Maintenance (11.7.1.1)
- RMA Shipments (11.7.1.16)
- Material Order Maintenance (11.11.1)
- Material Order Shipments (11.11.6)
- Distribution Order Processing (12.17.21)
- Distribution Order Shipments (12.17.22)

The system is designed to capture two types of status codes: one based on ship time and one based on shipment quantity.

The following subsections tell you how to plan and create time- and quantity-based status codes.

Planning Time-Based Status Codes

When defining time-based status codes, you should establish a baseline first. Once you establish a status code baseline, you can define status codes for combinations of specific elements of a shipment, thereby setting up a tiered approach to monitoring performance.

You establish a status code baseline by selecting codes to represent the minimum and maximum amount of time that a shipment can be late or early.

You can begin by selecting a code for an on-time delivery. Then, you can select a code to indicate one day late, two days late, and so on, and conversely, codes to represent one day early, two days early, and so on.

In your baseline, you should define the minimum and maximum days that a shipment must be late or early before the system applies the code to a shipment. Although days were used here, you can use either days or hours to define your codes.

Use Table 15.4 as a guide to creating a time-based status code baseline for your system.

Table 15.4 Time-Based Status Code Baseline Example

Status Code	Status Code Description	Minimum Early	Maximum Early	Minimum Late	Maximum Late
01	On time	0	0	0	0
02	1 day late			1	1
03	1 day early	–1	–1		
04	2 days late			2	2
05	2 days early	–2	–2		
06	More than 2 days late			3	999
07	More than 2 days early	–999	–3		

In your baseline, create status codes that cover all shipment situations. For example, even if you do not normally make shipments more than five days late, you should create a status code to address that possibility. For

this status code, the minimum late value would be 5. The maximum late value would be 999. The system assigns this status code to all shipments made more than five days late.

See "Modifying Performance Transaction Records" on page 227.

If you do not create contingency status codes and the system encounters a shipment where none of the available status codes apply, the performance transaction record is created with a blank status code. Use Shipment Performance Data Maintenance (7.9.17.13) to add status codes to these transaction records.

Once you establish a baseline, you can specify codes for unique combinations of shipment areas, like a specific customer or item, so that you can monitor performance trends. Setting up these types of status codes lets you build a tiered approach to monitoring. Table 15.5 presents an example of tiered shipment performance monitoring with status codes.

Table 15.5
Example Tiered Approach

Code	Specifies...	Monitors...
010	Ship-From 1000, Customer A, Item AB-100	This specific combination
011	Ship-From 1000, Item AB-100	Shipments of Item AB-100 to any customer
012	Ship-From 1000, Customer A	Shipments of everything to Customer A
013	Ship-From 2000	Shipments from site 2000
014	<Blank>	All shipments

Based on the example data Table 15.5:

- When a shipment of AB-100 is sent from 1000 to Customer A, the system applies code 010. This is the most specific code.
- When a shipment of YY-250 is sent from 2000 to Customer B, the system uses status code 013.

Creating Time-Based Status Codes

Use Time-Based Status Code Maintenance (7.9.17.3) to create and maintain the status codes that measure shipment timeliness. Use Time-Based Status Code Browse (7.9.17.4) to review time-based status codes in your system.

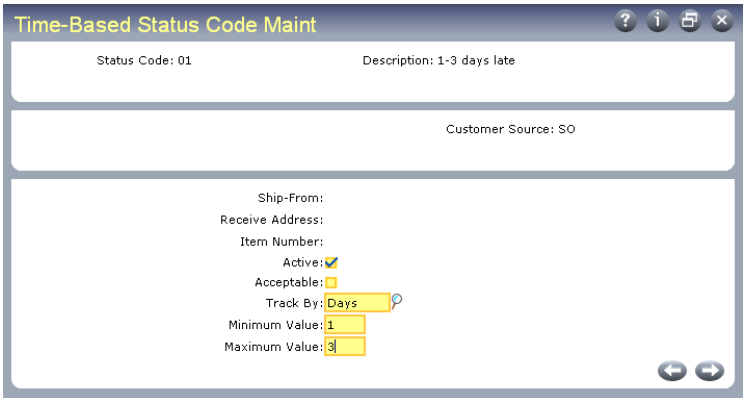


Fig. 15.5
Time-Based Status Code Maintenance (7.9.17.3)

Status Code. Enter a code (up to 8 alphanumeric characters).

Note Status codes must be unique for a customer source. For example, you can create a DO status code 010 and an SO status code 010, but you cannot have two SO status codes 020.

Description. Enter a brief description (up to 16 alphanumeric characters) of this status code.

Do not leave this field blank. Most shipment performance reports display the status code description, not the status code name.

Customer Source, Ship-From, Receive Address, Item Number. Enter values for these four fields. The status code is applied only for shipments that match these values.

See “Defining Control Program Exceptions” on page 209.

Active. Indicate whether this status code is active. Only active status codes are assigned by shipment performance functions.

Inactive status codes are maintained in the system and can be activated for use at any time by setting this value to Yes.

Status codes can be deleted at any time, but you should consider setting Active to No instead. If you delete a status code, make sure you create a new status code or that another active status code is available to take its place. If you delete status codes without providing new status codes for similar shipment situations, the system may create transaction records with blank status codes for those shipments.

Acceptable. Indicate whether shipments assigned this status code are considered shipped on time.

Yes: This code indicates an on-time status.

No: This code indicates an *exception status*, such as late or early.

Shipments assigned an acceptable status code always appear on shipment performance reports unless the Show Exceptions Only field is Yes. In this case, only shipments with exception status codes are reported.

Track By. Enter Days or Hours to indicate status codes based on hour or day measurements.

The value you specify determines the unit of measure for Minimum and Maximum fields.

Minimum. Enter the minimum number of hours or days a shipment can be early or late to be assigned this status code. This value must be the same or less than the value entered in Maximum.

If you specified Hours in Track By, the values in Minimum and Maximum represent hours. If you specified Days, the values represent days.

To designate an early status code, use negative numbers. To designate a late status code, use positive numbers.

Example To designate a status code for shipments between 5 and 10 days early, enter –10 in Minimum and –5 in Maximum. To designate a code for shipments between 5 and 10 days late, enter 5 in Minimum, and 10 in Maximum.

When the number of hours or days a shipment is early or late falls within the range specified for the status code, the system assigns this status to that shipment.

When Track By is days, beginning and ending ranges associated with status codes cannot overlap. When Track By is hours, the beginning or ending range for one status code can overlap with another.

Example Status code ST1 has 4 as the minimum and 6 as the maximum. Status code ST2 has 6 as the minimum and 8 as the maximum. The ending of the hour range for ST1 and the beginning of the hour range for status code ST2 is 6. A shipment that is 6 hours late is assigned code ST1. A shipment that is 6.5 hours late is assigned code ST2.

Maximum. Enter the maximum number of hours or days a shipment can be early or late to be assigned this status code. This value must be the same or greater than the value in Minimum.

Assigning Time-Based Status Codes

Once status codes are created, the system uses criteria to locate any applicable status codes before assigning them to shipment transactions. The system searches key values from most specific to least specific, using the same order used for performance control records.

See Table 15.3 on page 210.

When the system assigns time-based status codes for a discrete order, it compares the shipment date to the due date, performance date, and required date on the order line. Based on the comparisons, the system assigns the corresponding time-based status codes to the shipment. It can assign the same or different status codes for each date. For example, if the performance and due dates are not the same, the system may assign different status codes based on those dates.

Note If an order is missing the ship date, the current system date is used. If the due, required, or performance date is missing, the ship date is used.

When the system assigns time-based status codes for a scheduled order, it first reviews whether the scheduled order specifies a scheduled ship time. If one is specified, the system finds the most appropriate time-based status code based on hours.

If an applicable hour-defined status code is not available, the system uses available day-defined status codes to evaluate the shipment. If no scheduled ship time is specified, the system compares the shipment date to the schedule date to find the correct status code.

Planning Quantity-Based Status Codes

You should plan quantity-based status codes just as you planned the time-based status codes. Quantity-based status codes are defined exactly as time-based status codes, but are based on the amount or percentage a shipment is under or over the planned shipment quantity.

You should establish a baseline for the quantity-based status codes. You can begin with a code for a planned shipment; then assign codes for shipments that are percentages (or a certain quantity) over or short of the planned shipment.

For example, 00 can be a planned shipment, while 01 indicates 10% over, 02 indicates 20% over, and so on. You can use negative numbers to establish a baseline for shipments that are a certain percentage or quantity under a complete shipment. Plan for contingency status codes, also.

See “Planning Time-Based Status Codes” on page 215.

You can combine codes of varying percentages or quantities with other criteria such as ship-from, receive address, or items to create a tiered approach to monitoring your shipments.

Creating Quantity-Based Status Codes

Use Quantity-Based Status Code Maintenance (7.9.17.6) to create and maintain status codes that measure shipment completeness. Use Quantity-Based Status Code Browse (7.9.17.7) to review quantity-based status codes in your system.

Similar rules apply to creating quantity-based status codes as time-based status codes. Use the same key values to assign status codes for specific shipping situations.

You create quantity-based *exception status codes* by setting Acceptable to No.

See “Creating Time-Based Status Codes” on page 216.

You indicate how the system should measure shipment completeness by entering Number or Percent in the Track By field. Shipment percent is calculated as the actual shipment quantity, divided by the required ship quantity.

When Track By is set to Number, beginning and ending ranges associated with status codes cannot overlap. When Track By is set to Percent, the beginning or ending range for one status code can overlap with another.

The Minimum and Maximum field range indicates an overshipped and undershipped quantity or percentage range for each status code. To designate an undershipment status code, use negative numbers. To designate an overshipment status code, use positive numbers.

Example To designate a status code for shipments between 5 and 10 percent under the open ship quantity, enter –10 in Minimum and –5 in Maximum. To designate a code for shipments between 5 and 10 percent over the open ship quantity, enter 5 in Minimum, and 10 in Maximum.

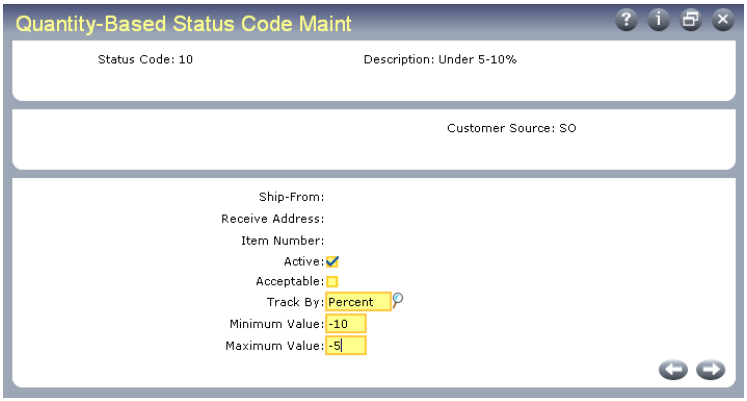


Fig. 15.6 Quantity-Based Status Code Maintenance (7.9.17.6)

Applying Quantity-Based Status Codes

When the system assigns quantity-based status codes to an order, it compares the quantity being shipped to the open quantity on the order to determine how much of the open quantity has been satisfied. The system also calculates the percentage of the open quantity shipped.

As the system reviews the possible status codes, it checks to see if the codes are based on the actual ship quantity or a percentage of the open quantity for an order line. If the code is based on the actual ship quantity, the quantity shipped is used to locate the correct status code record. If the code is based on a percentage, the percentage of the open quantity shipped is used to locate the correct status code.

Once the correct code is found, the system assigns it to the performance transaction record.

Quantity-based status codes are assigned based on the open quantity at the time of shipment. This is true even when partial shipments occurred previously and the open quantity is no longer the original order quantity. When the shipment quantity is over or under the open shipment quantity by a percentage that falls within the specified range for a status code, the system assigns that status code to the shipment.

Creating and Entering Reason Codes

Reason codes provide a quick way to note special requirements or other predefined comments related to shipments. You can associate time and quantity-based reason codes with any monitored shipment or performance transaction record.

Use Reason Codes Maintenance (36.2.17) to create reason codes for shipment performance history.

- Use *shipqty* as the reason type for quantity-based reason codes.
- Use *shiptime* as the reason type for time-based reason codes.

Enter reason codes prior to making a shipment or assign them to a performance transaction record after a shipment has been completed.

See “Enter Reason Codes in Workbench” on page 208.

- When using shippers, assign reason codes while adding or modifying shipper lines in Pre-Shipper/Shipper Workbench (7.9.2). This feature is controlled by the setting Enter Reason Codes in Workbench to Yes in Shipment Performance Control.
- Use Shipment Reason Code Entry (7.9.17.9) to enter shipment performance reason codes for shipments that have been processed and do not have reason codes associated with them.
- Use Shipment Performance Data Maintenance (7.9.17.13) to assign reason codes or change previously assigned codes for any performance transaction record.

Entering Reason Codes in Pre-Shipper/Shipper Workbench

To enter reason codes in Pre-Shipper/Shipper Workbench (7.9.2), Enter Reason Codes in Workbench must be Yes in Shipment Performance Control (7.9.17.24). When you add a shipper line or modify an existing shipper line in the workbench, you can then use the Shipment Performance Data frame to enter reason codes and comments.

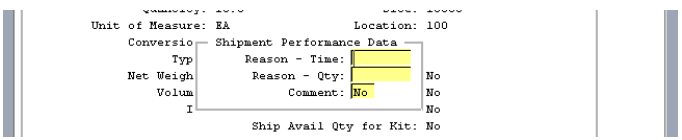


Fig. 15.7 Pre-Shipper/ Shipper Workbench (7.9.2), Shipment Performance Data

Assigning Reason Codes to Performance Transaction Records

Use Shipment Reason Code Entry (7.9.17.9) to assign reason codes to performance transaction records. Transactions previously assigned reason codes cannot be modified with this program.

Note Use the Missing Reason Code Report (7.9.17.10) to review shipment performance transactions without associated reason codes.

This maintenance function has three frames: header, Shipment Details, and Reason Codes. Specify data to identify shipments in the header frame.

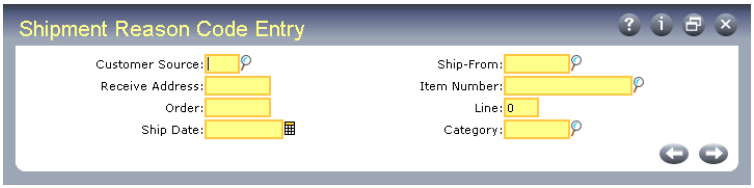


Fig. 15.8 Shipment Reason Code Entry (7.9.17.9)

The Shipment Details frame displays transaction detail records that match the header selection criteria. Select a shipment transaction ID for assigning reason codes and updating comments.

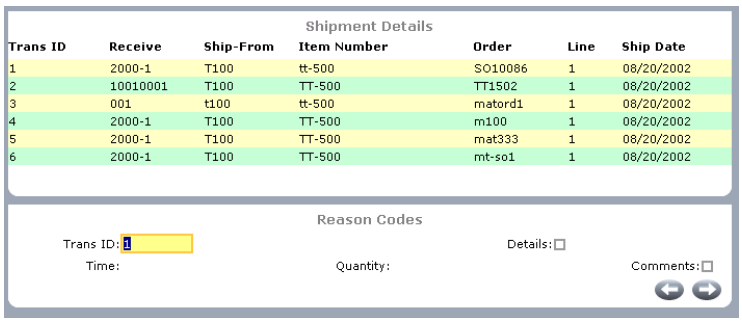
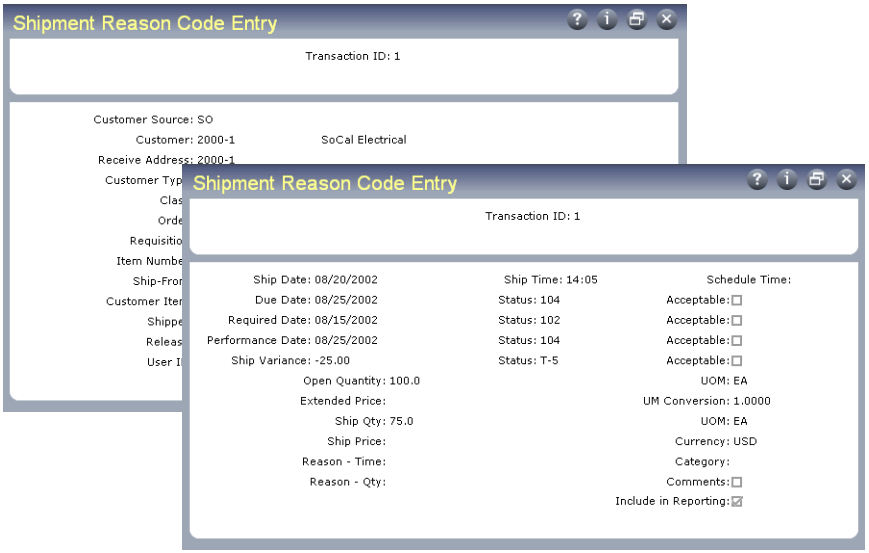


Fig. 15.9 Shipment Details and Reason Codes Frames

In the Reason Codes frame, set Details to Yes to see all details associated with the transaction ID you selected. After the detail frames display, enter reason codes and any associated comments.

Figure 15.10 illustrates the transaction detail frames.

Fig. 15.10
Transaction Record Detail Frames



Creating and Entering Line-Item Categories

You can optionally assign categories to line items on sales and distribution orders. This feature is available to all users of MFG/PRO. When you use the Shipment Performance module, the line-item category is included in the performance transaction record and can have special significance for performance reporting.

Use categories to group similar line items and support detailed shipment performance reporting. Create categories in Generalized Codes Maintenance (36.2.13) for field name line_category. You can define any number of categories to describe an order line, such as:

- Rush
- Emergency
- Special stock
- Regular stock

Enter a category at the line-item level in the following programs:

- Sales Order Maintenance (7.1.1)
- Pending Invoice Maintenance (7.13.1)

- Scheduled Order Maintenance (7.3.13)
- Material Order Maintenance (10.7.1)
- RMA Maintenance (11.7.1.1)
- Material Order Maintenance (11.11.1)
- Distribution Workbench Maintenance (12.17.13)
- Distribution Order Maintenance (12.17.14)

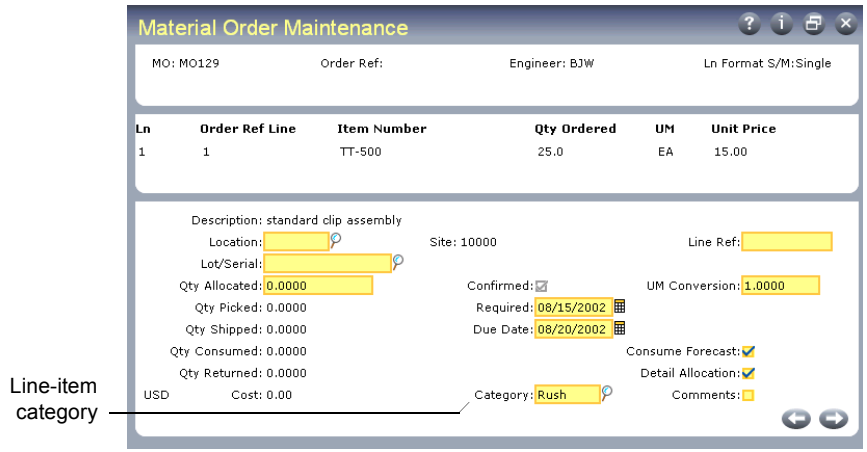


Fig. 15.11
Material Order Maintenance (11.11.1 or 10.7.1), Line-Item Category Field

When a performance transaction record is created for an order line item, the category becomes part of the transaction record. You can analyze shipment performance data based on line-item categories using the following reports:

- Missing Reason Code Report (7.9.17.10)
- Shipment Performance Report (7.9.17.15)
- Reason Code Analysis Report (7.9.17.17)
- Item Analysis Report (7.9.17.18)
- Customer Analysis Report (7.9.17.19)

Use Shipment Performance Data Maintenance (7.9.17.13) to modify line-item categories for performance transaction records.

See page 227 for details.

Working with Shipment Performance Data

Once you have completed the setup tasks, the system automatically collects performance data during shipping functions. It creates a shipment performance transaction record for all registered ship-froms, receive addresses, and items.

Creating Performance Transaction Records

Transaction records are created by the following shipment-processing functions:

- Pre-Shipper/Shipper Confirm (7.3.19)
- Sales Order Shipments (7.9.15)
- Pending Invoice Maintenance (7.13.1)
- Material Order Maintenance (10.7.1)
- Material Order Shipments (10.7.6)
- RMA Maintenance (11.7.1.1)
- RMA Shipments (11.7.1.16)
- Material Order Maintenance (11.11.1)
- Material Order Shipments (11.11.6)
- Distribution Order Processing (12.17.21)
- Distribution Order Shipments (12.17.22)

The system reviews Shipment Performance Control settings for the particular activity. For example, if you are processing a discrete order, it checks Shipment Performance Control to see if shipment performance should be monitored for discrete orders. Before assigning shipment performance status codes to scheduled orders, the system checks to see which schedule release should be used for shipment time and quantity comparisons.

The system creates performance transaction records even when no status codes are assigned. For example, if a shipment is processed and no predefined status codes apply, the system creates a transaction record with blank status codes. Use Shipment Performance Data Maintenance (7.9.17.13) to add status codes to these transaction records. Make sure you create new status codes for use with similar future shipments.

Note Whenever you unconfirm a shipper using Shipper Unconfirm (7.9.21), associated performance transactions are removed from the system. Shipper Unconfirm deletes shp_hist and associated shpd_det records.

Modifying Performance Transaction Records

Use Shipment Performance Data Maintenance (7.9.17.13) to modify performance data and add comments to any performance transaction record. You cannot use this program to delete existing records or to create new ones.

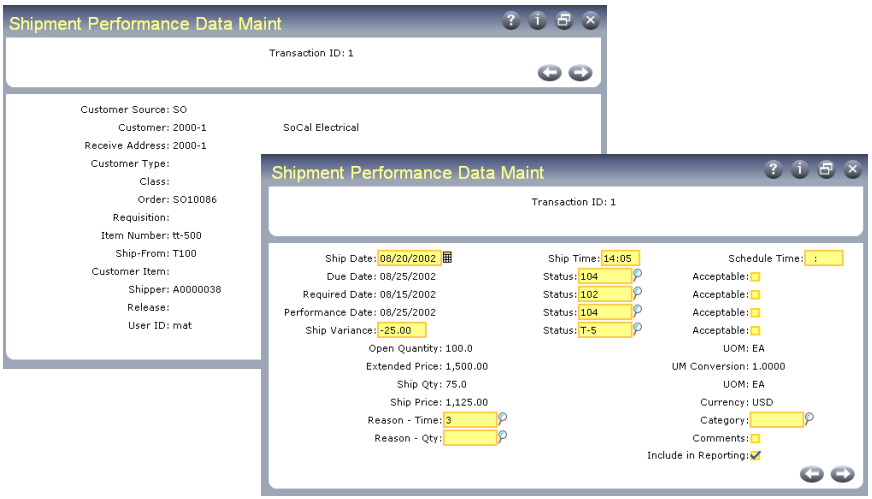


Fig. 15.12 Shipment Performance Data Maintenance (7.9.17.13)

Most of the fields in this program display data that cannot be modified. This section discusses only the fields you can update.

Note When you change values, the system does not recalculate and assign new status codes for a shipment. You must manually update related fields that should also change.

Transaction ID. Enter the transaction ID of the performance transaction record to modify. Transaction IDs are assigned by the system when a record is initially generated. Optionally use next/previous to find the transaction ID to modify.

See "Deleting and Archiving Historical Data" on page 239.

Performance transaction records are created by the system in numerical order, ranging from 00000000 to 99999999. When the last record is created, the system recycles unused transaction numbers beginning with the first available record number. You can archive or delete transaction records.

Ship Date. The system displays the date the shipment was made. You can optionally modify the ship date.

Ship Time. The system displays the time the shipment was made. You can optionally modify the ship time.

Schedule Time. The system displays the scheduled time associated with the schedule requirement shipped against. This is used only for scheduled or sequence scheduled orders.

You can optionally modify the schedule time for most shipments.

Due, Required, and Performance Date. The system displays the due, required, and performance dates for this shipment.

Ship Variance. The system displays the percentage that the actual ship quantity was over or under the open quantity. This number is calculated by comparing the shipment quantity to the open quantity at the time the shipment was processed. You can optionally change the ship variance percentage.

Status. The system displays the status codes assigned to this shipment based on comparisons between the ship date and the due date, required date, performance date, or ship variance. You can optionally change the status code. This change affects this shipment record only.

Acceptable. This value indicates whether the assigned status code was defined with Acceptable set to Yes or No. You can change the value of this field.

Status codes are defined as acceptable or unacceptable in Quantity-Based Status Code Maintenance (7.9.17.6) or Time-Based Status Code Maintenance (7.9.17.4).

Reason – Time. The system displays any reason code related to the timeliness of the shipment.

This field is validated against values defined in Reason Code Maintenance for a reason type of shiptime.

Category. The system displays the category assigned to the order line.

You can optionally delete or change order-line category. This field is validated against values defined in Generalized Codes Maintenance for field name line_category.

Reason – Qty. The system displays the reason code related to the completeness of the shipment.

This field is validated against values defined in Reason Code Maintenance for a reason type of shipqty.

Include in Reporting. Enter No to exclude this record from shipment performance reports. Otherwise, leave the default Yes.

When Yes, this information is included by the following Shipment Performance reports:

- Shipment Performance Report (7.9.17.15)
- Reason Code Analysis Report (7.9.17.17)
- Item Analysis Report (7.9.17.18)
- Customer Analysis Report (7.9.17.19)

Reporting Shipment Performance Data

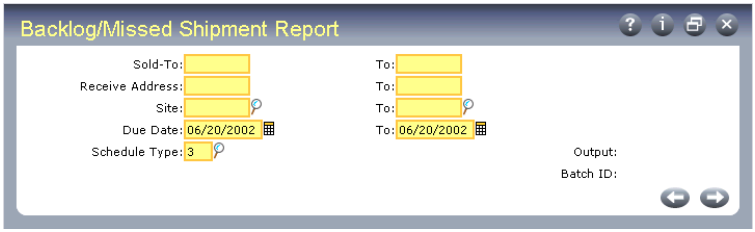
Two new reports that can be used to display shipment-related data have been added to base MFG/PRO. The other reports described in this section are available with the Shipment Performance module.

Backlog/Missed Shipment Report

Use Backlog/Missed Shipment Report (7.9.18) to display order data for sales orders and scheduled orders that have not been shipped. It displays the customer, order and line number; line-item due, performance, and required dates; quantity ordered; unit of measure; and ship quantity for each order.

Tip
This report is in base MFG/PRO.

Fig. 15.13
Backlog/Missed Shipment Report (7.9.18)



Fill Rate Report

Tip
This report is in base MFG/PRO.

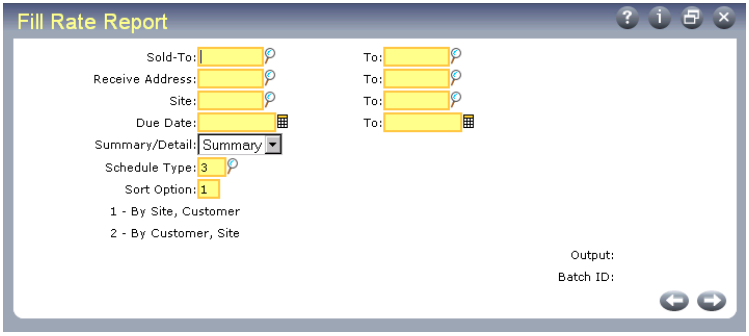
Use Fill Rate Report (7.9.19) to calculate and display the delivery performance based on the due date. The delivery performance measurement is expressed as two percentages:

- Number of lines with a quantity to be shipped compared to the total number of lines
- Quantity of items shipped compared to the order quantity

Both percentage calculations are based on the due date. The performance and required dates are not considered.

The summary report provides data based on the selected sort option. The detailed report provides the summary and additional information about each order line selected.

Fig. 15.14
Fill Rate Report (7.9.19)



Missing Reason Code Report

Use Missing Reason Code Report to generate a list of shipment performance transactions that do not have associated reason codes. After finding shipments with missing reason codes, use Shipment Reason Code Entry (7.9.17.10) or Shipment Performance Data Maintenance (7.9.17.13) to enter the missing reason codes.

See page 222.

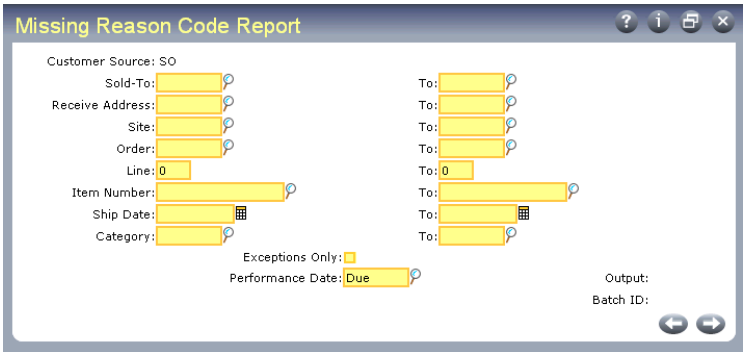


Fig. 15.15 Missing Reason Code Report (7.9.17.10)

Shipment Performance Report

The Shipment Performance Report (7.9.17.15) displays the overall shipping performance by time-based status code. It calculates and displays item totals for each unit of measure and currency combination. Depending on sort option, it shows totals for items, customers, sites, and reason codes by time-based status code.

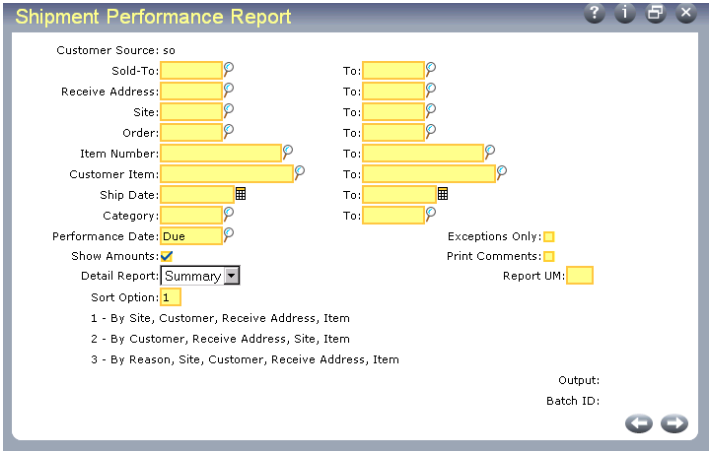


Fig. 15.16 Shipment Performance Report (7.9.17.15)

Performance Date. Enter Due, Required, or Performance to indicate the performance transaction records to display based on the date used to calculate the associated status codes.

The due, required, or performance date is displayed on the report as the Perf Date.

Note You cannot enter performance date in every program analyzed on this report. When this is the case, due date is used as the performance date, regardless of which date type is entered.

See "Measurement Sub Type" on page 207.

This field defaults from Shipment Performance Control.

Exceptions Only. Enter either No or Yes.

No: The report displays all shipments, including early, late, undershipped, and overshipped shipments.

Yes: The report displays only performance transaction records with exception status codes. These status codes have Acceptable set to No. All other records are omitted.

Show Amounts. Enter Yes to show all currency totals; otherwise, leave the default No. This option lets you produce reports with zero currency amounts, allowing for greater confidentiality of your finances.

Print Comments. Specify whether to include reason and status code comments associated with each performance transaction record. Comments are printed only when the report is run in detail mode.

Detail Report. Enter Detail to generate a detailed report; otherwise, leave the default Summary to produce a summary report.

The summary report shows the item, customer, and site totals, as well as the currency total, quantity, and unit of measure.

The detail report shows the summary totals as well as details for all associated transaction records.

Report UM. Enter a valid unit of measure defined in Unit of Measure Maintenance (1.13). The system uses this unit of measure for item totals at the customer and site levels.

A report UM is needed when the quantities represented by various shipments are expressed in more than one unit of measure. The system converts these quantities to the common unit of measure you specify so that totals can be compared meaningfully.

For this conversion to work correctly, a conversion factor must be defined between each shipment unit of measure and the report unit of measure in Unit of Measure Maintenance.

Item Analysis Report

The Item Analysis Report (7.9.17.18) displays the items from shipments with exception status codes. You can run this report in detail or summary mode:

- Summary mode displays the total shipments of each item and the number of shipments with exception status codes. Figure 15.18 illustrates a summary report.
- Detail mode shows detailed shipment information, including the receive address, transaction ID, and applicable dates.

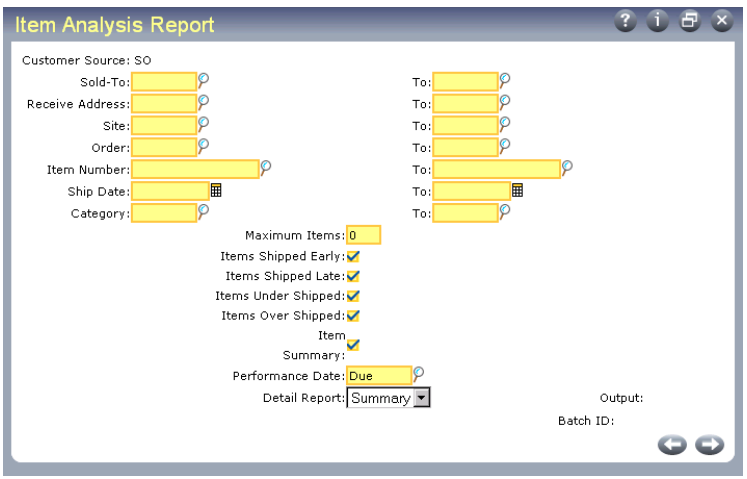


Fig. 15.17
Item Analysis Report (7.9.17.18)

The total shipments and the number of shipments with exception status codes are compared to calculate an unacceptable percentage for each item. Item information on each section of the report is displayed from the

highest to the lowest occurrence percentage. As shown in Figure 15.18, the Item Summary section of the report displays the percentage in the Summary% column.

If information for a particular section of the report is not available, that section does not display. Data for all sections of the report displayed in Figure 15.18 were available.

Additionally, the percentage in the Summary% section can exceed 100% if multiple status codes are assigned to a shipment. For example, a shipment that is undershipped and shipped late has two status codes assigned. If this is the only shipment of that item, then the report shows two occurrences for that shipment. Summary% for the shipment displays 200.

Fig. 15.18
Item Analysis Summary Report Layout

Items Shipped Early

Item Number	Description	Occurrence	Total Shipments	Early%
22-100	CORD,POWER,UK	1	6	16.67

Items Shipped Late

Item Number	Description	Occurrence	Total Shipments	Late%
consign-p3	Consignment Power3	1	1	100.00

Items Under Shipped

Item Number	Description	Occurrence	Total Shipments	Under%
22-100	CORD,POWER,UK	3	6	50.00
10-10000	OASIS(TM) COOLING SYSTEM	2	4	50.00
2003-mfd	mfd Item 2	1	4	25.00

Items Over Shipped

Item Number	Description	Occurrence	Total Shipments	Over%
10-10000	OASIS(TM) COOLING SYSTEM	2	4	50.00
22-100	CORD,POWER,UK	1	6	16.67

Item Summary

Item Number	Description	Occurrence	Total Shipments	Summary%
consign-p3	Consignment Power3	1	1	100.00
10-10000	OASIS(TM) COOLING SYSTEM	4	4	100.00
22-100	CORD,POWER,UK	5	6	83.33
2003-mfd	mfd Item 2	1	4	25.00

Customer Analysis Report

Customer Analysis Report (7.9.17.19) is similar to Item Analysis Report. It displays customers that receive shipments with exception status codes.

You can run the report in either summary or detail mode:

- Summary mode shows the total number of shipments received by each receive address or receiving site and the total shipments with exception status codes.
- Detail mode also shows every shipment and all ship quantities, including assigned status codes.

The report layout is similar to the Item Analysis Report layout, but is based on customer occurrences rather than item occurrences. See Figure 15.18 for a model of the summary report layout.

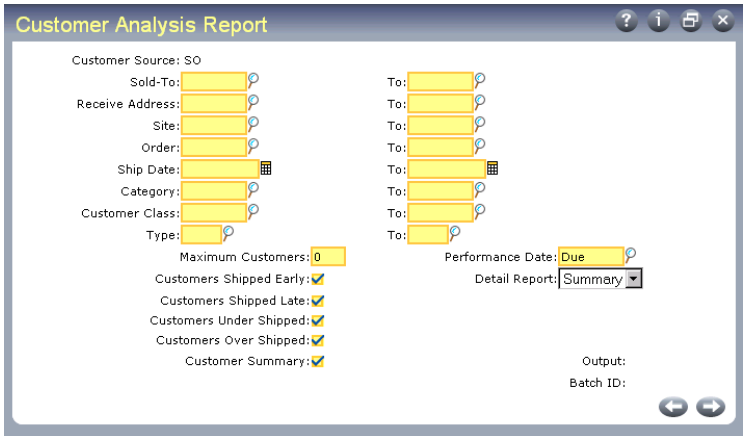


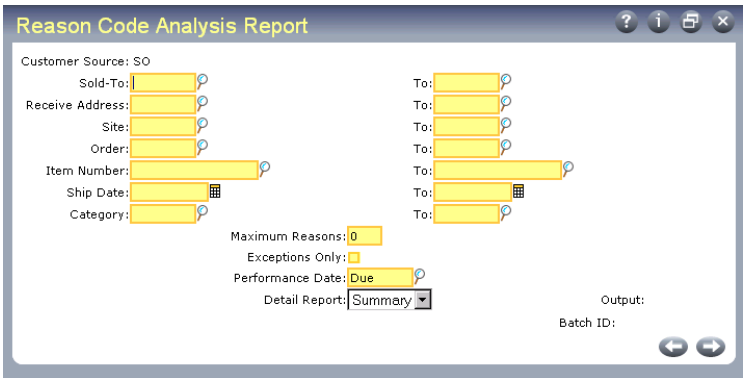
Fig. 15.19 Customer Analysis Report (7.9.17.19)

Reason Code Analysis Report

The Reason Code Analysis Report (7.9.17.17) displays the most commonly occurring time-based and quantity-based reason codes recorded during shipment. You can optionally indicate the number of reason codes to display. Results display separately for time-based and quantity-based reason codes.

You can also run this report in detail mode. Details include the transaction ID, site, customer, line item, delivery dates, and other pertinent information.

Fig. 15.20
Reason Code Analysis Report (7.9.17.17)



Exporting Historical Performance Data

Use Performance Data Extract (7.9.17.22) to generate a space-delimited file containing shipment performance history (shp_hist) and shipment performance history detail (shpd_det) data. The export file lists each complete shp_hist record, followed by the related shpd_det records, which are followed by the next shp_hist record and so on.

Using data management software, such as a spreadsheet application, you can import the data file for sorting and additional calculations.

Set Report to Yes to view a summary of the records being exported. The summary report shows the transaction ID, customer, receive address, site, order, and line-item number for each exported history record.

Fig. 15.21
Performance Data Extract (7.9.17.22)

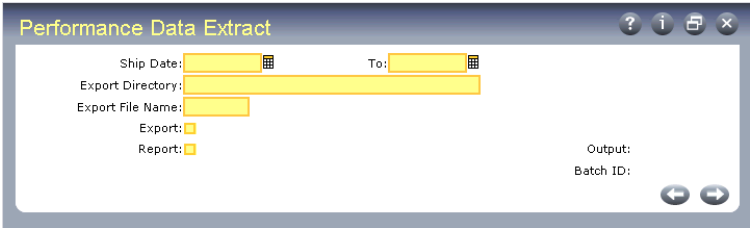


Table 15.6 shows the format for the shp_hist record.

Table 15.6 Export File Format for shp_hist Records

Order	Field Name	Data Type	Format
10	shp_nbr	character	x(8)
20	shp_line	integer	>>9
30	shp_shipfrom	character	x(8)
40	shp_part	character	x(18)
50	shp_cust_part	character	x(30)
60	shp_open_qty	decimal-10	->,>>>,>>9.9<<<<<<<
70	shp_ext_price	decimal-10	->>>>,>>>,>>9.9<<<
80	shp_due_date	date	99/99/99
90	shp_req_date	date	99/99/99
100	shp_perf_date	date	99/99/99
110	shp_ship_date	date	99/99/99
120	shp_cust	character	x(8)
130	shp_ship_qty	decimal-10	->,>>>,>>9.9<<<<<<<
140	shp_ship_price	decimal-10	->>>>,>>>,>>9.9<<<
150	shp_abs_id	character	x(20)
160	shp_include	logical	yes/no
170	shp_tran_id	integer	>>>>>>>9
180	shp_mod_date	date	99/99/99
190	shp_mod_userid	character	x(8)
200	shp_shipto	character	x(8)
210	shp_ship_time	character	99:99
220	shp_rel_id	character	x(30)
230	shp_cmtindx	integer	>>>>>>>9
240	shp_order_category	character	x(8)
250	shp_customer_source	character	x(3)
260	shp_ship_um	character	x(2)
270	shp_ship_um_conv	decimal-10	>>>>9.9999<<<<
280	shp_currency	character	x(3)
290	shp_ord_um	character	x(2)
300	shp_ord_um_conv	decimal-10	>>>>9.9999<<<<
310	shp_sched_time	character	99:99

Order	Field Name	Data Type	Format
320	shp_do_req	character	x(8)
330	shp__qadc01	character	x(8)
340	shp__qadc02	character	x(8)
350	shp_user1	character	x(8)
360	shp_user2	character	x(8)
370	shp_qty_pct	decimal-2	->>9.99

Table 15.7 shows the space-delimited file format for the shpd_det record.

Table 15.7
Export File Format for shpd_det Records

Order	Field Name	Data Type	Format
10	shpd_tran_id	integer	>>>>>>>>
20	shpd_measurement_ type	integer	>
30	shpd_status_code	character	x(8)
40	shpd_rsn_code	character	x(8)
50	shpd_acceptable	logical	yes/no
60	shpd_rsn_type	character	x(8)
70	shpd_meas_subtype	integer	9
80	shpd__qadc01	character	x(8)
90	shpd__qadc02	character	x(8)
100	shpd_mod_userid	character	x(8)
110	shpd_mod_date	date	99/99/99
120	shpd_user1	character	x(8)
130	shpd_user2	character	x(8)

In Table 15.7, note the following:

- shpd_measurement_type includes:

  1–date measurement

  2–quantity measurement

- shpd_meas_subtype defines the date measurement for shpd_measurment_type as:

  1–due date

  2–required date

  3–performance date

- shpd_status_code refers to status code master (sttq_mstr)
- shpd_rsn_code refers to reason code master (rsn_ref)

Deleting and Archiving Historical Data

The system does not automatically delete historical information at period or year end. You can delete this information as often as you want.

Performance Data Delete/Archive (7.9.17.23) is similar to other delete/archive functions in the system. The archive file name is automatically generated. The prefix is *sh*, followed by the year, month, and day.

Example A file archived July 4, 2002, is named `sh020704.hst`. No other identifying information is attached to the archive file.

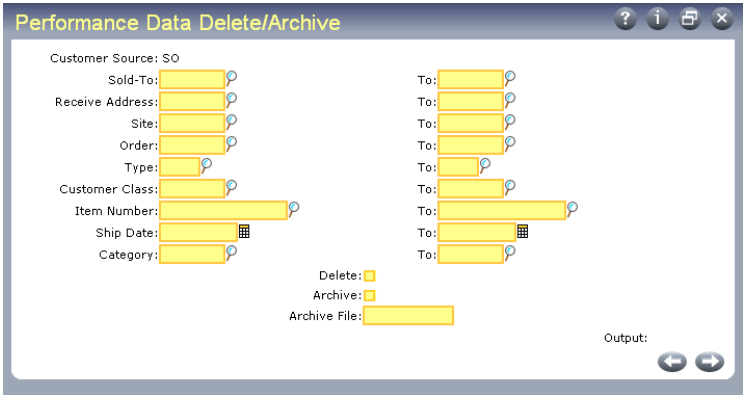


Fig. 15.22 Performance Data Delete/Archive (7.9.17.23)

SECTION 6

Supplier Shipping Schedules

This section includes information on the PRO/PLUS Supplier Shipping Schedules module. When you use this module, this section of the PRO/PLUS User Guide supplements the chapter on supplier schedules in *User Guide Volume 7: Release Management*.

Note Some standard supplier schedule functions are disabled when this module is activated in Supplier Shipping Schedule Control (5.5.7.24).

Chapter 16

Supplier Shipping Schedules

This chapter describes how to set up and use features of the PRO/PLUS Supplier Shipping Schedules module.

Introduction

Standard MFG/PRO supports one type of supplier schedule (type 4) that combines short-term and long-term requirements. The PRO/PLUS Supplier Shipping Schedules module lets you generate separate supplier planning and shipping schedules. To facilitate this, this module adds two additional supplier schedules types:

Type 5: Supplier Planning Schedules

Type 6: Supplier Shipping Schedules

Note This module does not affect customer schedule functions.

Type 4 schedules are described in *User Guide Volume 7: Release Management*.

When the Supplier Shipping Schedules module is active, only supplier schedules of type 5 and 6 can be edited using maintenance programs. Standard supplier schedules (schedule type 4) continue to exist, but are maintained by the system.

Supplier shipping schedules and supplier planning schedules can be used alone or in coordination with each other. They communicate requirements for multiple deliveries from a supplier who may need to adjust production to accommodate your orders.

Planning schedules are used to record weekly and monthly item requirements, while shipping schedules record daily item requirements divided into hour and minute buckets.

Companies with long-term supplier contracts that require regular weekly, daily, or even hourly deliveries typically use both planning and shipping schedules.

By themselves, planning schedules can be used in the same way standard supplier schedules are used in MFG/PRO. For example, some manufacturing environments do not require the detailed bucketing features of the shipping schedule for all of their suppliers. When this is true, the planning schedule is used instead. When you generate a planning schedule without generating a corresponding shipping schedule, the planning schedule includes the daily item requirements, but without the automatic time bucketing of the shipping schedule.

Supplier shipping and planning schedules can be created manually. However, typically they are generated automatically based on item requirements from Material Requirements Planning (MRP).

Note When supplier shipping and planning schedules are updated manually, MRP is not directly affected. However, any manual changes to a shipping or planning schedule are used to automatically update the system-maintained supplier schedule (type 4). The next time MRP is run, the modified schedule data are considered by MRP.

Types of Purchase Orders

Table 16.1 contrasts the characteristics of PRO/PLUS supplier schedules with other kinds of purchase orders.

Table 16.1 Summary of Purchase Order Characteristics

	Supplier Shipping Schedules	**Supplier Planning Schedules**	**Supplier Schedules**	**Purchase Orders**	**Blanket Orders**
Delivery Dates	Multiple	Multiple	Multiple	Single for order/item	Multiple
Delivery Times	Multiple—System-Generated	Multiple—Entered Manually	Multiple—Entered Manually	No	No
Seen by MRP	Indirectly, through type 4 schedule	Indirectly, through type 4 schedule	Yes	Yes	No
Receipts	Yes	Yes	Yes	Yes	No
Duration	Short- and Medium-Term	Medium- and Long-Term	Short-, Medium-, and Long-Term	One-Time	Short- and Medium-term
Elements	Header Shipping Schedule Trailer	Header Planning Schedule Trailer	Header Planning Schedule Shipping Schedule Trailer	Header Line Items Trailer	Header Line Items Trailer POs

Supplier Schedules Example

A manufacturer of circuit boards needs blank boards supplied on each day of the week. The manufacturer knows the exact quantities they require for the next few days, can estimate their requirements for the next few weeks, and knows the approximate requirements for the next 12 months.

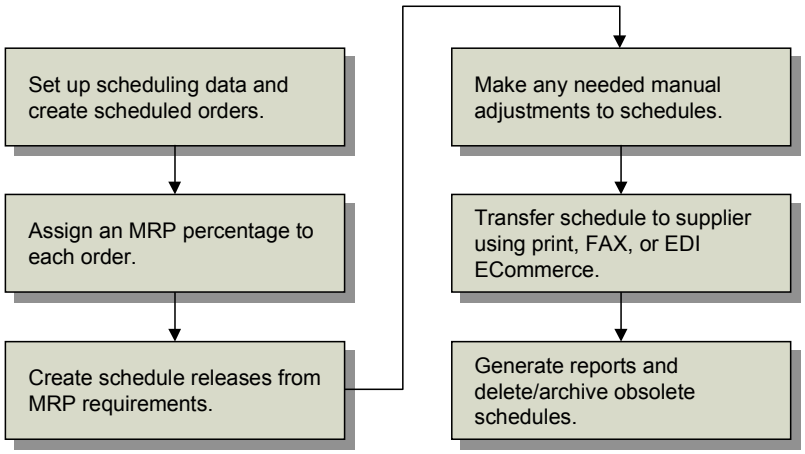
The supplier of these circuit board blanks uses the planning information provided by the manufacturer to place its orders for raw materials and to plan production. It can use planning schedules to help define its delivery and planning schedules and shipping schedules to schedule the day-to-day deliveries required by the circuit board manufacturer.

The same manufacturer also needs to order the solder used to weld circuits to the board. Since the solder is sold in bulk quantities and a large supply is always on hand, the manufacturer does not generate shipping schedules for it. Instead, a planning schedule for solder requirements is generated for the next twelve months. The planning schedule indicates that solder should be delivered only once per week.

Supplier Schedules Work Flow

Figure 16.1 illustrates the steps required to set up and process supplier planning and shipping schedules. Each of these steps is described in detail in the following sections.

Fig. 16.1
Supplier Schedules Work Flow



Menu Listing

The PRO/PLUS Supplier Schedules Menu (5.5.7) is a submodule on the Purchasing menu at the same level as the standard MFG/PRO Supplier Schedules module.

See *User Guide Volume 2A: Distribution* for details about Purchasing.

Table 16.2 lists the programs added to MFG/PRO by the Supplier Shipping Schedules module.

Table 16.2 PRO/PLUS Supplier Shipping Schedules (5.5.7)

Menu Number	Description	Program Name
5.5.7.1	Ship Delivery Time Maintenance	rssdtmt.p
5.5.7.2	Ship Delivery Time Inquiry	rssdtiq.p
5.5.7.4	Supplier Controls Maintenance	adssmt.p
5.5.7.6	Supplier Planning Schedule Maint	rspsmt.p
5.5.7.7	Supplier Shipping Schedule Maint	rsssmt.p
5.5.7.13	Ship Schedule Variance Compare	rsrp10.p
5.5.7.14	Ship to Plan Schedule Compare	rsrp11.p
5.5.7.24	Supplier Schedule Control	rspm.p

When you activate this module, new features are added to some existing programs, and Schedule Maintenance (5.5.3.3) cannot be used to maintain schedules. The added features help to create, process, export, and report data for supplier shipping and planning schedules.

For information on how to activate Supplier Shipping Schedules, see page 249.

When you deactivate the Supplier Shipping Schedules module, the modified programs again operate as they did before, and Schedule Maintenance can be used to modify type 4 schedules. When Supplier Shipping Schedules is inactive, you cannot update supplier schedules of type 5 or 6.

Programs modified by Supplier Shipping Schedules are listed in Table 16.3.

Table 16.3 PRO/PLUS Supplier Shipping Schedules, Modified Programs

Menu Number	Description	Program Name
5.5.1.13	Scheduled Order Maintenance	rspomt.p
5.5.3.1	Schedule Update from MRP	rssup.p
5.5.3.3	Schedule Maintenance	rssmt.p
5.5.3.4	Schedule Inquiry	rsiq01.p
5.5.3.5	Schedule History Inquiry	rsiq02.p

Menu Number	Description	Program Name
5.5.3.8	Schedule Print	rsrp05.p
5.5.3.9	Schedule Print in Fax Format	rsrp09.p
5.5.3.13	Schedule Report	rsrp01.p
5.5.3.15	Schedule Comparative	rsrp02.p
5.5.3.17	Schedule Authorization Report	rsrp03.p
5.5.3.23	Schedule Delete/Archive	rsdel.p
35.4.8	Supplier Shipping Schedule	edomsch.p

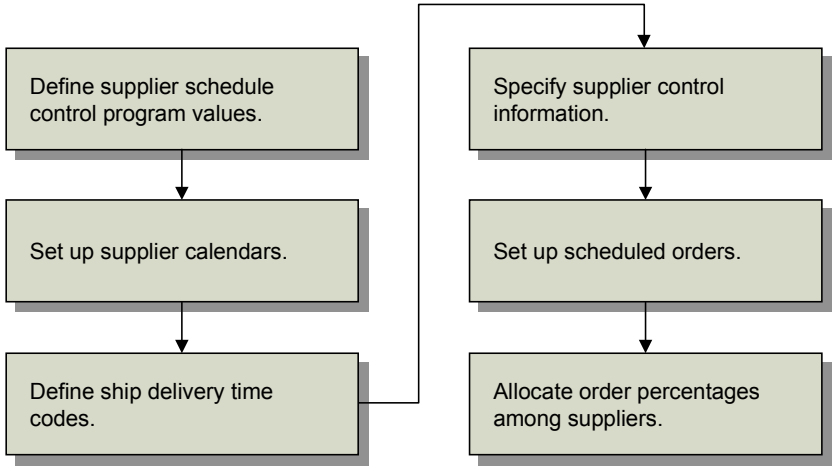
Setting Up Supplier Schedules

For information on setting up and running MRP, see *User Guide Volume 3: Manufacturing*.

To use supplier shipping and planning schedules, you must set up the same base data required for purchase orders, including purchased items and supplier addresses. In addition, to automatically generate schedules based on item requirements from MRP, you must set up the base data and parameter values required by MRP, including item planning data.

Figure 16.2 illustrates a typical work flow for setting up the additional schedule-related data required to use supplier planning and shipping schedules. Each of these steps is discussed in detail in the following sections.

Fig. 16.2
Supplier Schedules Setup Flow



Setting Control Program Values

Use settings in Supplier Schedule Control (5.5.7.24) to activate the PRO/PLUS Supplier Shipping Schedules module and define generic default values for scheduled orders and generated schedules.

Many of the field values in Supplier Schedule Control default to corresponding fields in Supplier Controls Maintenance (5.5.7.4). The control program values also default to scheduled orders for suppliers that do not have supplier-specific defaults. You can modify the defaults you define here as needed for individual suppliers and scheduled orders.

See “Defining Scheduled Order Defaults for Specific Suppliers” on page 252.

Fig. 16.3 Supplier Schedule Control (5.5.7.24)

Enable Shipping Schedule. Enter Yes to activate the Supplier Shipping Schedules module.

Note When this value is Yes, you cannot manually update standard supplier schedules (type 4).

Generate Ship Schedule From MRP, Firm Days, Schedule Days, Schedule Weeks, Schedule Months, Fab Auth Days, Raw Auth Days. These fields set the default values for their corresponding fields in Supplier Controls Maintenance. In addition, they default to corresponding fields in scheduled orders created for suppliers that do not have supplier-specific defaults set up in Supplier Controls Maintenance.

See “Creating Scheduled Orders” on page 254.

Auto Update Plan From Ship. This field indicates whether planning schedules are automatically updated by the system when you make manual changes to their associated shipping schedules.

No: Planning schedules are not updated when their associated shipping schedules are changed.

Yes: When a requirement on a shipping schedule is manually changed, the requirement on the associated planning schedule for the active release ID is automatically updated.

Automatic update occurs only when the shipping and planning schedules have the same release ID and have not been sent to the supplier.

Entering Yes ensures that the requirements in the two schedules always correspond.

Example On a typical Monday, you generate both a planning schedule for weeks and months and a shipping schedule for the next one or two weeks. One of your customers sends a rush order, and you must adjust the shipping schedule. As a result, the current shipping schedule no longer corresponds to the planning schedule. When Auto Update Plan From Ship is Yes, the system automatically updates your planning schedule with the changes you made to the shipping schedule.

See "Defining Scheduled Order Defaults for Specific Suppliers" on page 252.

Send Zero Requirements, Generate Zero Schedules. These fields set the default values for their corresponding fields in Supplier Controls Maintenance.

Setting Up Supplier Calendars

See "Quantity and Date Calculations" on page 266.

If your supplier works different days than you do, set up a supplier-specific calendar for them in Supplier Calendar Maintenance (5.5.1.1). Schedule Update from MRP considers these calendars when generating schedule releases. For suppliers that do not have supplier-specific calendars, the system uses the applicable shop calendar defined in Calendar Maintenance (36.2.5).

Defining Ship Delivery Time (SDT) Codes

Use Ship Delivery Time Maintenance (5.5.7.1) to define ship delivery time (SDT) codes and associate one or more delivery times with them.

SDT codes specify exact delivery times on supplier shipping schedules. Daily item requirements are divided into hour and minute buckets based on these delivery times.

Note SDT codes are not used on supplier planning schedules. You can specify an interval code, as needed.

Associate SDT codes with individual scheduled orders to avoid having to manually enter delivery times on supplier shipping schedules. You can also use Supplier Controls Maintenance (5.5.7.4) to associate default SDT codes with individual suppliers. Schedule Update from MRP (5.5.3.1) uses the delivery times associated with SDT codes on scheduled orders to bucket daily item requirements on supplier shipping schedules.

See "Requirement Bucketing" on page 264.

Residual quantities from multiple deliveries are always added to the first delivery of the day. Also, pack quantities are not split. For example, if an item is delivered in lots of 50 and your delivery time buckets indicate that 25 items should be delivered in the morning and 25 in the afternoon, the standard lot of 50 is planned for the morning delivery.

See "Quantity and Date Calculations" on page 266.

Use Ship Delivery Time Inquiry (5.5.7.2) to review SDT codes and their associated delivery times.

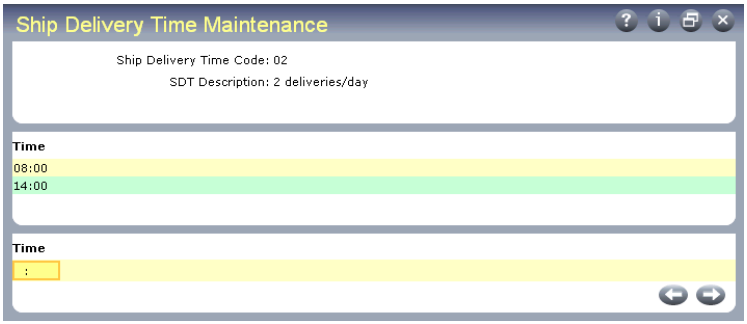
Fig. 16.4 Ship Delivery Time Maintenance (5.5.7.1)

Ship Delivery Time Code. Specify a one- to three-character identifier for this SDT code.

SDT Description. Optionally enter a description for this SDT code.

Press Go to proceed to the next frame. When you are modifying an existing SDT code, this frame displays the delivery times already associated with the SDT code. To associate delivery times with an SDT code, press Insert in this frame and specify a new delivery time in the Time field that displays.

Fig. 16.5
Ship Delivery Time Maintenance, Second Frame



Time. Specify a delivery time to associate with this SDT code using the 24-hour time format. For example, 9:00 AM is 09:00, 3:00 PM is 15:00, and 9:00 PM is 21:00.

In the example shown in Figure 16.5, for supplier shipping schedules with SDT code 02, you expect deliveries to be made twice per day, once at 8:00 AM and once at 2:00 PM.

Defining Scheduled Order Defaults for Specific Suppliers

See “Line Items” on page 255.

Use Supplier Controls Maintenance (5.5.7.4) to define scheduled order defaults for individual suppliers. Most of the values you enter here default to fields in the order line data frame of Scheduled Order Maintenance (5.5.1.13).

See “Setting Control Program Values” on page 249.

You should define scheduled order defaults to avoid repetitive entry of the same supplier shipping and authorization information when creating scheduled orders. However, you only need to define supplier-specific control records for suppliers with special processing requirements. When you create a scheduled order for a supplier that does not have an associated set of defaults in Supplier Controls Maintenance, the system uses the default values defined in Supplier Schedule Control (5.5.7.24).

The Send Zero Requirements and Generate Zero Schedules values do not default to scheduled orders. These values indicate:

- Whether schedules that contain no item requirements are generated for the associated supplier by Schedule Update from MRP (5.5.3.1)
- Whether schedule detail lines with quantities of zero are included in schedules sent to the associated supplier

Most of the field values in this program initially default from Supplier Schedule Control.

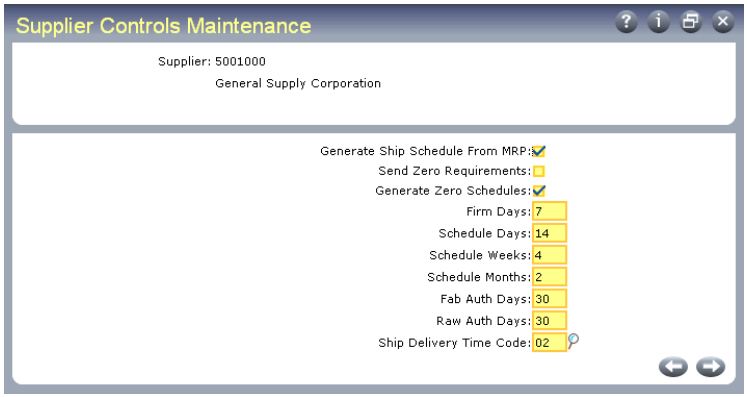


Fig. 16.6. Supplier Controls Maintenance (5.5.7.4)

Generate Ship Schedule From MRP. This value indicates whether you typically generate shipping schedules for this supplier based on item requirement data from MRP. It sets the default for the corresponding field on scheduled orders created for this supplier.

See “Generate Ship Schedule From MRP” on page 260.

Send Zero Requirements. This field indicates whether schedule detail lines that do not contain item quantities (requirements) are included when a schedule is sent to this supplier using:

- Schedule Print (5.5.3.8)
- Schedule Print in Fax Format (5.5.3.9)
- Supplier Shipping Schedule (35.4.8)

Yes: Schedules sent to suppliers can contain detail lines with zero requirements.

No: Only detail lines with nonzero quantities are included.

Generate Zero Schedules. This field indicates whether a schedule is created for this supplier when all detail line quantities (requirements) on that schedule are zero.

No: The system does not generate a supplier schedule when no detail line-item requirements exist.

Yes: The system generates supplier schedules even when no detail line requirements exist. These schedules are called zero schedules.

When a zero schedule is generated, only one line of data is printed on it. This detail line has a quantity of zero. Zero schedules are generated only once for an item and supplier combination. Additional schedules are not generated for that item unless requirements exist for it.

In many environments, sending a zero schedule to a supplier indicates that the associated items are no longer needed. If this is true in your manufacturing environment, set this field to Yes.

See "Line Items" on page 255.

Firm Days, Schedule Days, Schedule Weeks, Schedule Months, Fab Auth Days, Raw Auth Days, Ship Delivery Time Code. These fields set the default values for their corresponding fields in Scheduled Order Maintenance (5.5.1.13) when a scheduled order is created for this supplier.

Creating Scheduled Orders

Scheduled orders define the parameters used to generate planning and shipping schedules for individual items that have been entered on separate scheduled order lines. They provide the framework for a shipping contract between customer and supplier, but have no delivery dates. When you run Schedule Update from MRP, the system uses item demand data from MRP to create planning and shipping schedules for scheduled order line items.

Use Scheduled Order Maintenance (5.5.1.13) to set up scheduled orders. After you enter an order ID and supplier code, five frames display. The first contains shipping and credit information for the whole order. The next four contain line item information such as item numbers, ship-to data, line item details, schedule details, and optional comments.

Header

See *User Guide Volume 7: Release Management* for details.

Several values in the header frame indicate how schedules generated based on this order will be delivered to suppliers. Schedules can be printed, transmitted using EDI ECommerce, or sent via FAX, depending on the values you specify.

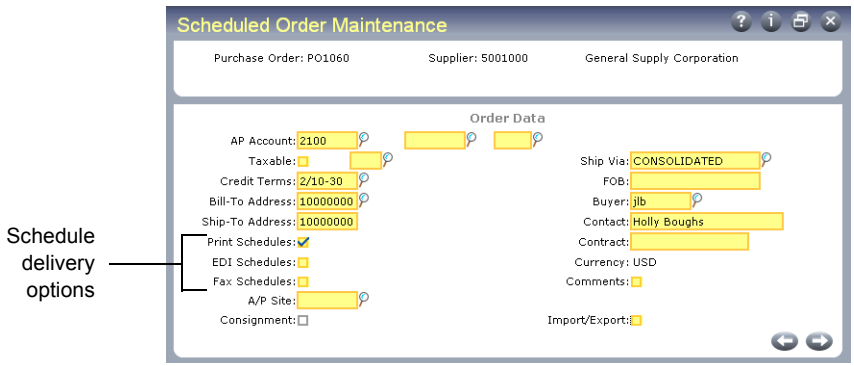


Fig. 16.7 Scheduled Order Maintenance (5.5.1.13), Header Frame

When you are finished entering values in the header frame, press Go to display the line item frame.

Line Items

Use fields in the first line item frame to specify an item to be ordered from the supplier and the site to receive that item. Unique line numbers enable you to enter more than one schedule line for the same item, if needed, as long as each line has a different ship-to site.

Fig. 16.8 Scheduled Order Maintenance, Item and Ship-To Site

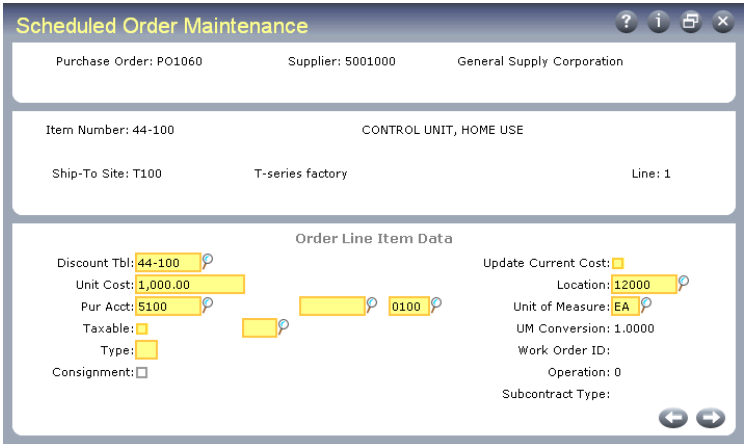
First Order Line Item Data Frame

Use fields in the first Order Line Item Data frame to specify pricing and inventory data for the item referenced in the previous frame.

Use the list/discount table pricing functions in the PO/RTS/Sched/RMA Rcpt Price Menu (1.10.2) to set up price lists for scheduled orders. The price from the applicable list displays in the Unit Cost field. Effective prices can be updated in Purchase Order Receipts (5.13.1) and PO Shipper Receipt (5.5.5.11). Set Update Current Cost to Yes to update current costs for inventory items during receipt.

See *User Guide Volume 6: Master Data* for details on price lists.

Fig. 16.9
Scheduled Order Maintenance, First Order Line Item Data Frame



Type. This value determines whether the associated line item is received into inventory and considered by planning.

- When Type is blank, the associated line item is received into inventory. When the receipt is processed, inventory balances are increased and a GL transaction debits the inventory account.
- A Type value of S indicates a subcontract operation. A work order number and operation are specified on the order and on the receipt. Rather than updating inventory, the receipt updates the work order operation status and creates a GL transaction debiting the WIP account from the work order. Use Subcontract Type to describe the type of operation performed by the subcontractor.

Second Order Line Item Data Frame

Use fields in the second Order Line Item Data frame to record data that impact the requirements and schedules generated for the associated line item. When you are finished specifying values in this frame, press Go to display the Shipping Schedule Info pop-up.

See “Defining Scheduled Order Defaults for Specific Suppliers” on page 252.

The values in Firm Days, Schedule Days, Schedule Weeks, Schedule Months, Fab Auth Days, and Raw Auth Days default from Supplier Controls Maintenance (5.5.7.4), if a record exists for the supplier. Otherwise, these field values default from Supplier Schedule Control (5.5.7.24).

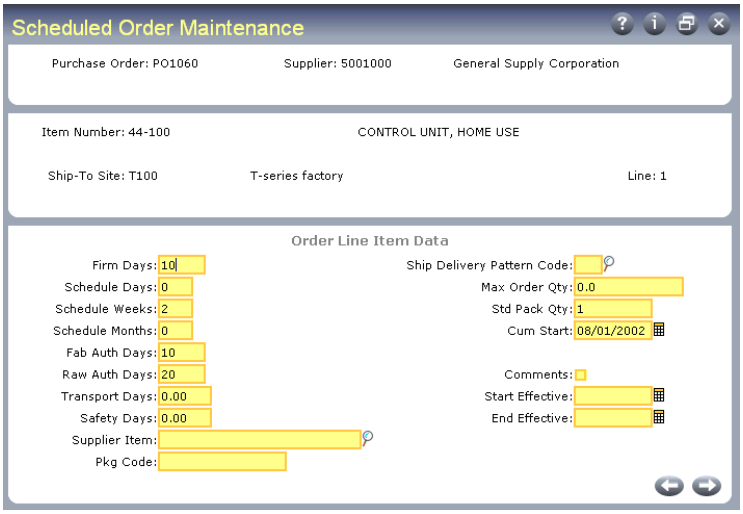


Fig. 16.10 Scheduled Order Maintenance, Second Order Line Item Data Frame

Firm Days. Specify the number of days in the schedule firm interval. For supplier shipping schedules, quantities and dates within this period are not changed by Schedule Update from MRP. These days should not exceed the number specified in Schedule Days.

For further details, see “Firm and Planned Requirements” on page 262.

Enter a positive value in this field if you want to explicitly track cumulative received quantities, or if you have an agreement with your supplier stipulating that requirements cannot change within a specific interval.

Note This value does not affect how MRP uses the Time Fence value defined for the item. Firm Days controls order releases by date and quantity. The item master Time Fence field controls planned orders by date and quantity.

Schedule Days, Schedule Weeks, Schedule Months. Schedule Update from MRP uses these values to determine the number of days, weeks, and months that display on schedules based on this order line. Shipping schedules are generated for the number of days specified in the Schedule Days field for this line. Planning schedules are generated to cover the sum of schedule weeks and schedule months.

For details on how these fields are used, see “Requirement Bucketing” on page 264.

When Schedule Days is zero on an order line, supplier shipping schedules are not generated for that line. When both Schedule Weeks and Schedule Months are zero for an order line, supplier planning schedules are not generated for that line.

Fab Auth Days, Raw Auth Days. These fields indicate the number of days the system uses to calculate fabrication authorization quantities (fab quantities) and raw authorization quantities (raw quantities) on supplier planning schedules. The values you specify here are called *authorization horizons*.

Fab and raw quantities represent cumulative item requirements within the specified number of days since the active start date of their associated planning schedules. These authorization quantities help protect suppliers against sudden and unforeseen reductions in demand.

- Raw quantity is the quantity of product you commit to covering the component costs.
- Fab quantity is the quantity of product you commit to covering manufacturing costs.

These data are sent to the supplier as part of the planning schedule.

Note Schedule Update from MRP uses these values only if scheduled requirements extend beyond the number of days in the authorization horizon. Otherwise, authorization horizons are equal to the number of schedule days specified on the applicable scheduled order line.

Transport Days. This field is normally blank. Specify a value for suppliers who do not ship or take responsibility for shipping, but from whom you pick up or schedule the pickup of orders. Entering a value in Transport Days converts all order dates from receipt dates to shipment dates.

Schedule Update from MRP uses this value to set shipment dates based on delivery dates (delivery date – transport days). It then checks the supplier's calendar, if one exists, to verify that the shipment date is a workday for the supplier. If not, the update back-schedules to the next supplier workday.

All reports and inquiries check this field to verify whether to print or display delivery dates or shipment dates. When this value is positive, the system uses shipment dates.

Ship/Delivery Pattern Code. This code specifies the default ship/delivery pattern (SDP). These industry-defined codes indicate the days of the week or month that a supplier is open to make shipments.

Ship/delivery patterns are used by Schedule Update from MRP to calculate the actual required dates that are used on supplier schedules. Once the required ship dates have been calculated, the required quantities are divided into daily buckets according to the ship/delivery pattern specified on the scheduled order, if any.

See “Quantity and Date Calculations” on page 266.

SDP codes support both the Organization for Data Exchange by Teletransmission in Europe (ODETTE) and the Automotive Industry Action Group (AIAG) ship/delivery patterns. They are translated to the appropriate industry-standard codes during EDI conversion and transmission.

Std Pack Qty. Enter the multiple in which orders for this item are shipped. This is similar to Order Multiple in the item master. It displays here because the standard shipment multiple for an item can vary among suppliers. Schedule Update from MRP rounds order quantities up to this multiple.

Order Multiple should generally be blank in the item master for items that are referenced on scheduled orders, since both values are applied to orders during different planning functions (MRP and Schedule Update from MRP).

Cum Start. Enter the date on which this order began to accumulate quantities. This may or may not be the date on which the order was created in your database.

When a line item is first scheduled, the cumulative receipt quantity is zero and the cumulative start date is set to the active start date of the schedule. As receipts are processed, the system updates the cumulative receipt quantity.

Sometimes cumulative receipt quantities must be adjusted manually, usually as dictated by policy. For example, you may reset them to zero at the start of your new fiscal year using Cum Received Reset to Zero (5.5.5.14). The affected cumulative start dates are then changed to that date.

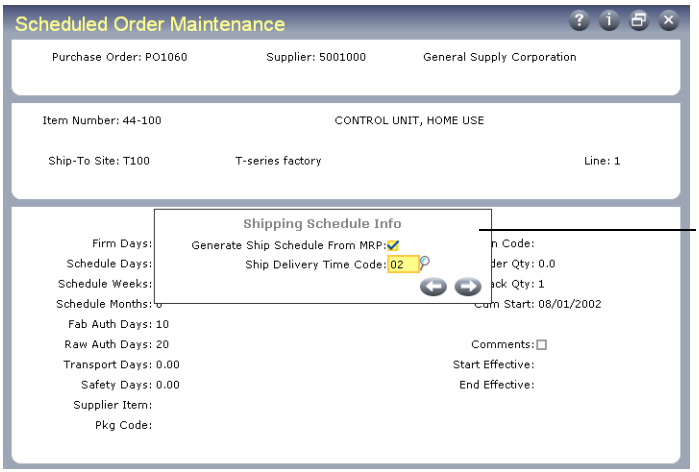
You can also adjust cumulative receipts manually to reflect returned or defective items or losses due to theft using Cumulative Received Maintenance (5.5.5.13). For example, when defective items are returned to the supplier, you may want to process a return and credit without decreasing cumulative quantity.

Shipping Schedule Info Pop-Up

Tip
The pop-up displays only when the Supplier Shipping Schedules module is active.

After the second order line item data frame, the Shipping Schedule Info pop-up displays. Values in this pop-up default from the corresponding fields in Supplier Controls Maintenance (5.5.7.4) when values have been defined for the supplier on the order. Otherwise, they default from Supplier Schedule Control (5.5.7.24).

Fig. 16.11
Shipping Schedule Info Pop-Up



This pop-up displays when Supplier Shipping Schedules is active.

See "Creating a Schedule Release from MRP" on page 261.

Generate Ship Schedule From MRP. This field indicates whether you generate supplier shipping schedules based on this order line.

Important To generate a shipping schedule for a scheduled order line, Schedule Days must have a nonzero value for that line.

Yes: When you run Schedule Update from MRP (5.5.3.1) with Generate Shipping Schedules set to Yes, a supplier shipping schedule is generated for this line. This shipping schedule covers item requirements for the specified number of schedule days.

No: Only planning schedules are generated for this line.

Note When you run Schedule Update from MRP with Generate Shipping Schedules set to No, shipping schedules are not generated for any scheduled order lines, regardless of how this field is set.

See page 250.

Ship Delivery Time Code. Enter the SDT code for Schedule Update from MRP to use to calculate exact delivery times on supplier shipping schedules.

Allocating Percentages for MRP

After you have set up the required supplier data and scheduled orders for each item, you must allocate order percentages among suppliers using Scheduled Order MRP % Maint (5.5.1.17). Total percentages for each item must equal 100%.

Schedule Update from MRP (5.5.3.1) uses the percentages you define for an item to allocate MRP planned orders for that item among suppliers.

See “Quantity and Date Calculations” on page 266.

Creating a Schedule Release from MRP

Use Schedule Update from MRP (5.5.3.1) to create releases of supplier schedules. A release is a set of item quantities (requirements) and requirement dates identified by a release ID number, which is then sent to your supplier. A single schedule release can include both planning and shipping schedules.

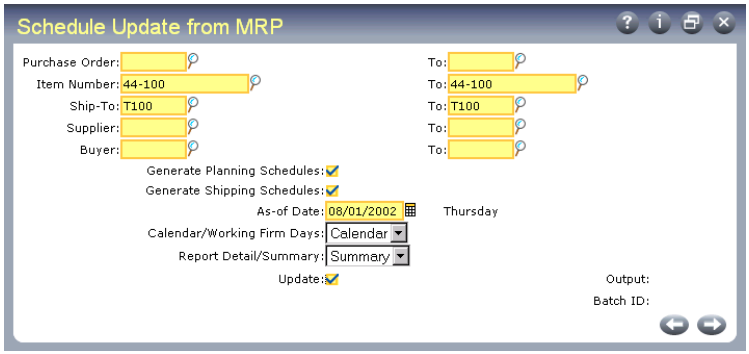
Schedule Update from MRP generates releases based on the following data:

- Planned purchase orders generated by MRP based on item requirements and due dates
- Item planning data, such as safety days
- Scheduled order percentages defined for items and ship-to sites in Scheduled Order MRP % Maint (5.5.1.17)
- Scheduled order data from Scheduled Order Maintenance (5.5.1.13)
- Supplier calendars, defined in Supplier Calendar Maintenance (5.5.1.1)

Note MRP planned orders for a co-product/by-product or a base process item cannot be used to update supplier schedules.

You can run Schedule Update from MRP for combinations of items, suppliers, scheduled orders, receiving sites, or buyers.

Fig. 16.12
Schedule Update from MRP (5.5.3.1)



Firm and Planned Requirements

On supplier schedules, item requirements can be either *firm* or *planned*. Requirements designated as firm are:

- Not replanned when Schedule Update from MRP is run
- Visible to MRP as scheduled supply, like discrete purchase orders

Requirements designated as planned are not considered sources of supply by MRP and may change when MRP is rerun. The schedules you send to suppliers can contain firm requirements only, planned requirements only, or a combination of both.

The schedule update process automatically applies a status of firm to item requirements that are:

See page 257.

- Within the number of firm days (firm interval) specified on the associated scheduled order line

See page 257.

- Within the schedule days specified on the scheduled order line

See “Manually Updating a Schedule Release” on page 268.

Schedule Update from MRP only designates shipping schedule requirements as firm. It does not designate item requirements on planning schedules as firm, even when planning schedule active dates are within the schedule firm interval. However, you can manually designate detail line quantities as firm on individual planning schedules, if required.

Any unreceived firm requirements from one release are automatically carried forward to the next release during schedule update. These quantities are maintained as a prior cumulative requirement.

Planned orders outside the firm days period are approved, but maintained as planned requirements. This means that they are not seen by MRP as sources of supply and can be replanned. When you rerun MRP, it plans or replans orders for scheduled requirements that are now within its planning horizon. Executing Schedule Update from MRP adds the new and updated planned orders, designating as firm any requirements that now fall within the Firm Days period.

If requirements change, you may need to manually adjust firm quantities in Supplier Shipping Schedule Maint (5.5.7.7) or Planning Schedule Maint (5.5.7.6).

See “Manually Updating a Schedule Release” on page 268.

- When increased demands create additional requirements within the Firm Days period, MRP creates planned orders in that period. When you regenerate the schedule, the system does not select any planned orders falling within the firm period covered by a schedule. The warning message `Order not selected` displays in the report.
- When requirements decrease due to decreased demands, MRP sees the supply as excessive and produces action messages.

You can avoid rescheduling problems due to fluctuations in short-term MRP data by setting Firm Days to zero on scheduled order lines. When Firm Days is zero:

See “Firm Days” on page 257.

- Firm requirements are not generated or carried forward from one release to the next.
- The system sets Prior Cum Req equal to Prior Cum Received.
- Each schedule release is based on the most recent MRP planned-order data available.

Use a positive number in the field if you have an agreement with this supplier that requirements will not change within a specified time period.

Important To avoid schedule discrepancies between printed bucketed schedules and the actual required schedule, firm days should never exceed the number of days specified in the Schedule Days field.

Requirement Bucketing

For information on type 4 schedules, see *User Guide Volume 7: Release Management*.

Item requirements on standard supplier schedules (type 4) are maintained as discrete dates and quantities in the database. The system does not bucket item requirements on these schedules until they are printed or transmitted to the supplier. Item requirements on supplier planning (type 5) and shipping schedules (type 6), however, are stored differently than those for type 4 schedules.

See "Schedule Days, Schedule Weeks, Schedule Months" on page 257.

When Schedule Update from MRP generates a schedule release, it uses the Schedule Days, Schedule Weeks, and Schedule Months values defined for applicable scheduled order lines to:

- Determine the length of time covered by the item requirements in planning and shipping schedules.

  Shipping schedules cover item requirements for the specified number of schedule days, while planning schedules cover requirements for the sum of schedule weeks and schedule months.

- Bucket item quantities on planning and shipping schedules.

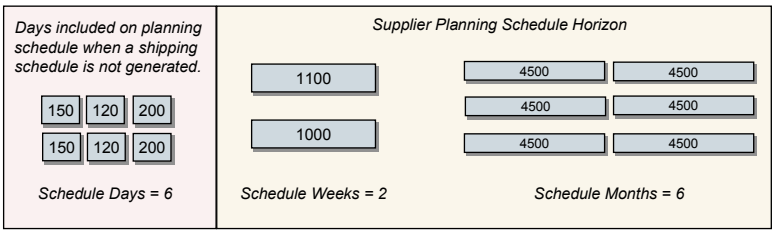
  Requirement buckets display on planning and shipping schedules as schedule detail lines. On shipping schedules, daily requirements are further divided into hour and minute buckets based on the SDT code associated with the applicable order line.

See "Defining Ship Delivery Time (SDT) Codes" on page 250.

Planning schedule requirements for the number of schedule weeks and months specified on the applicable order line reside in discrete bucketed quantities, as shown in Figure 16.13.

Note When you generate only planning schedules, applicable schedule days requirements are also included on each planning schedule.

Fig. 16.13
Supplier Planning Schedule Bucketing



See "Setting Up Supplier Calendars" on page 250.

Schedule Update from MRP always assigns the entire quantity in each weekly requirement bucket to the first day of the week on which the supplier is available, based on the supplier calendar set up in Supplier

Calendar Maintenance (5.5.1.1). For suppliers that do not have supplier-specific calendars, the standard shop calendar set up in Calendar Maintenance (36.3.5) is used.

When both Schedule Days and Schedule Weeks are positive on a scheduled order line, the number of daily buckets may extend beyond the number of schedule days defined on that line. This occurs so that the first schedule week will always begin on the first day the supplier is available.

Example A scheduled order, SCD 128, is created for supplier SUP886. For line 1 on this order, Schedule Days is 14 and Schedule Weeks is 4. Schedule Update from MRP is run with As-of Date set to 03/09/99, a Tuesday. The supplier calendar for SUP886 indicates that the first day of the week on which the supplier is available is Monday. So that weekly bucketing will start on a Monday, the system generates a shipping schedule covering 20 days rather than just 14.

For each monthly requirement bucket on a planning schedule, the system assigns the entire item quantity to the first Monday of the applicable month. When schedule weeks do not end on the last Sunday of the month, the number of weekly buckets on the planning schedule may extend beyond the number of schedule weeks specified for the applicable scheduled order line.

Shipping schedule requirements are stored in time buckets based on the SDT code for the number of schedule days indicated on the associated order line. An example is shown in Figure 16.14.

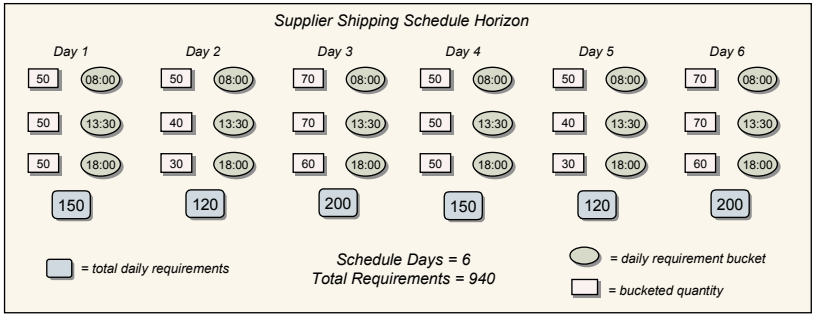


Fig. 16.14 Supplier Shipping Schedule Bucketing

Quantity and Date Calculations

Schedule Update from MRP performs the following calculations:

1. Back-schedule for safety days from planned order due dates.

See page 258.

2. Back-schedule for ship/delivery pattern from safety day schedule.

See page 250.

3. Back-schedule for supplier calendar from ship/delivery schedule.

See page 261.

4. Allocate planned order quantities by percentage to each supplier based on Scheduled Order MRP % Maint (5.5.1.17) to create new quantities by planned order.

See page 259.

5. Revise quantities to Std Pack Qty multiple.

6. Display any unfulfilled prior cumulative requirements.

See page 267.

7. Create a release, assign a Release ID and determine whether quantities are firm (within the Firm Days time fence) or planned.

See page 258.

8. Calculate fabrication and raw authorization quantities and start and end dates.

   The start date is the active start date. The end date is calculated by adding the number of days specified in Raw Auth Days and Fab Auth Days to this date. The quantity requirements between the active start date and the calculated end date are the schedule quantities displayed on the shipping schedule.

9. Generate a shipping schedule containing daily requirements. When an SDT code is specified, bucket quantities into the ship delivery times for each day.

   Shipping schedules are generated only when:

   - Scheduled days are specified in the scheduled order.
   - Generate Ship Schedules from MRP is Yes on the scheduled order line.
   - Generate Shipping Schedules is Yes in Schedule Update from MRP.

10. Allocate quantities using ship/delivery pattern.

See page 253.

11. Generate zero schedules if Generate Zero Schedules is Yes in Supplier Controls Maintenance (5.5.7.4). Once a zero schedule is created, it is not regenerated by any subsequent runs of Schedule

Update from MRP, unless MRP finds demand for the item. Zero requirement schedules are sent to the supplier only when Send Zero Requirements is Yes in Supplier Controls Maintenance.

12 Generate a planning schedule.

When you create a planning schedule but not the corresponding shipping schedule, the daily requirements display on the planning schedule as planned requirements. This only occurs when Schedule Days is greater than 1 on the applicable scheduled order line.

Release IDs

When Generate Date Based Release ID is Yes in Purchasing Control (5.24), Schedule Update from MRP generates supplier schedule release IDs based on the date their associated schedules were created or updated.

Tip
Date-based release IDs are not generated for manually created supplier schedules.

Eleven-digit date-based release IDs of the form YYYYMMDD-xxx are generated using the following components:

- The four-digit year (YYYY)
- The two-digit month (MM)
- The two-digit day (DD)
- A three-digit incrementing release number (-xxx)

Example A schedule is generated on November 24, 2001, using Schedule Update from MRP. Based on this date, the system generates the following release ID: 20011124-001. If you generate a second release of the same schedule on that same day, the release ID is set to 20011124-002.

Report Options

When Report Detail/Summary is set to Detail, an audit report of the entire calculation is printed. Execute the function with Update set to No to preview the results before generating any schedules.

When Update is Yes, selected planned orders are automatically approved and a release is created. The new release can then be modified in Supplier Planning Schedule Maint (5.5.7.6) or Supplier Shipping Schedule Maint (5.5.7.7), or sent to your supplier.

Note Schedules cannot be updated in Schedule Maintenance (5.5.3.3) when the Supplier Shipping Schedules module is active.

Manually Updating a Schedule Release

Use Supplier Planning Schedule Maint (5.5.7.6) or Supplier Shipping Schedule Maint (5.5.7.7) to modify planning or shipping schedules. You can change schedule detail data such as requirement dates, quantities, firm or planned status, and fab and raw authorization quantities and dates.

Typically, Schedule Update from MRP (5.5.3.1) is used to generate planning and shipping schedules, but these two maintenance programs can also be used to manually create them.

See “Auto Update Plan From Ship” on page 249.

When Auto Update Plan From Ship is Yes in Supplier Schedule Control (5.5.7.24), supplier planning schedules are automatically updated by the system when you make changes to their associated shipping schedules.

When manual changes are made to the shipping schedule or the planning schedule, these changes are used to automatically update the corresponding type 4 supplier schedule so they can be taken into account by MRP the next time it is run. This update takes place regardless of any control program setting.

The following discussion focuses on Supplier Planning Schedule Maintenance. Navigation and data entry in Supplier Shipping Schedule Maintenance is almost the same. Any differences are noted.

1 In the first frame, use the Purchase Order, Item Number, Supplier, Ship-To, and Line fields to identify a scheduled order. Enter the release to modify or leave Release ID blank and the current release ID defaults. If you are manually creating a new release for this schedule, enter a new release ID.

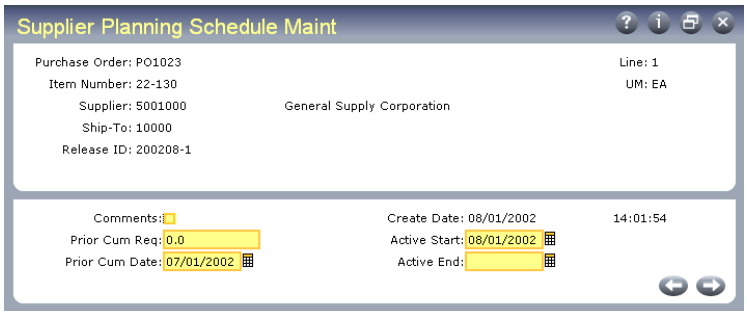


Fig. 16.15
Cumulative Information Frame

The next frame shows the prior cumulative required and cumulative date. This is the total quantity you have requested from the supplier as of a certain date. The active start and end dates show when this release was active. The current active release has no date in the Active End field.

2 The Schedule Detail Data frame displays next. In Supplier Shipping Schedule Maint this frame displays without the Int field.

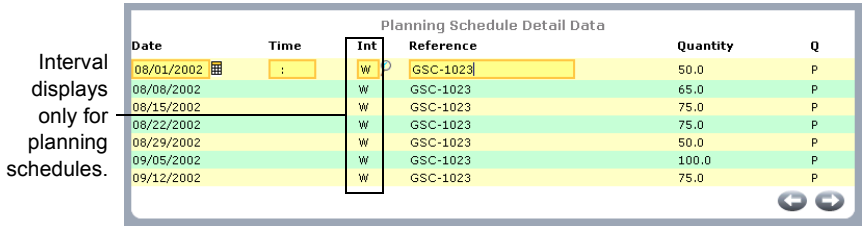


Fig. 16.16
Planning Schedule Detail Data Frame

Use this frame to create or modify schedule delivery dates, times, references, and firm or planned quantities. For planning schedules, you can also change the delivery interval type.

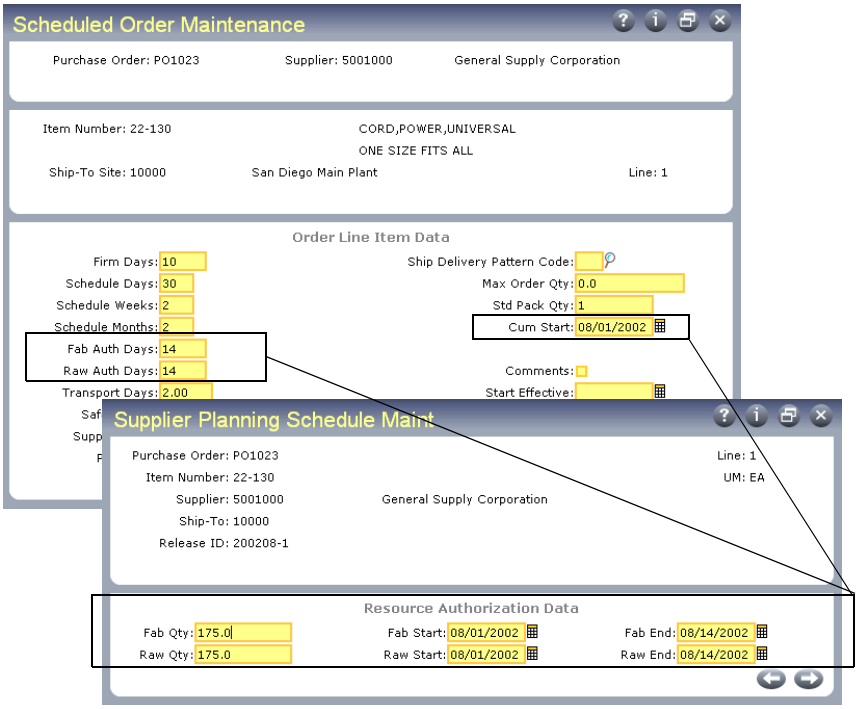
This is the last frame of Supplier Shipping Schedule Maint.

3 For planning schedules, the Resource Authorization Data frame displays next. The dates and quantities in this frame default from information in the scheduled order header (see Figure 16.17).

The fab and raw start and end dates indicate when the supplier is authorized to begin manufacturing or to begin purchasing raw materials to fill this order.

The Fab Qty indicates the quantity of finished items the supplier is authorized to produce for the time period. The Raw Qty indicates the quantity of manufactured items for which the supplier is authorized to purchase raw materials for the time period.

Fig. 16.17
Scheduled Order Maintenance (5.5.1.13) and Resource Authorization (5.5.7.7) Frames



Any changes you make in the Resource Authorization Data frame are applied only to this release of the planning schedule. To make changes that affect other releases, update the order in Scheduled Order Maintenance.

Transmitting Supplier Schedules

Transmitting a schedule release is the last step of the release process. You can transmit a release in various ways: using EDI ECommerce, sending it as hard copy, or via FAX.

Transmit the schedule release using:

- Supplier Shipping Schedule (35.4.8)
- Schedule Print (5.5.3.8)
- Schedule Print in Fax Format (5.5.3.9)

A schedule that has been transmitted electronically using Supplier Shipping Schedule is considered sent by the system. When you print a schedule release with Schedule Print or Schedule Print in Fax Format, you can optionally designate the printed schedule release as sent.

You cannot edit schedule releases designated as sent. This ensures that the release received by the supplier and the release in your system are identical.

Exporting Supplier Schedules

Use Supplier Shipping Schedule (35.4.8) to export the schedule release to an ASCII text file that can be used for an EDI system transaction.

See *User Guide Volume 7: Release Management* for more information on supplier schedules and EDI ECommerce.

Only supplier schedule type 5 and type 6 can be exported when the Supplier Shipping Schedules module is active. Only schedule type 4 can be exported when this module is not active.

Schedules are exported only when EDI Schedules is Yes in the header of Scheduled Order Maintenance (5.5.1.13). Set up supplier-specific EDI information in Trading Partner Parameter Maintenance (35.13.10) by specifying Yes for the appropriate logical parameter:

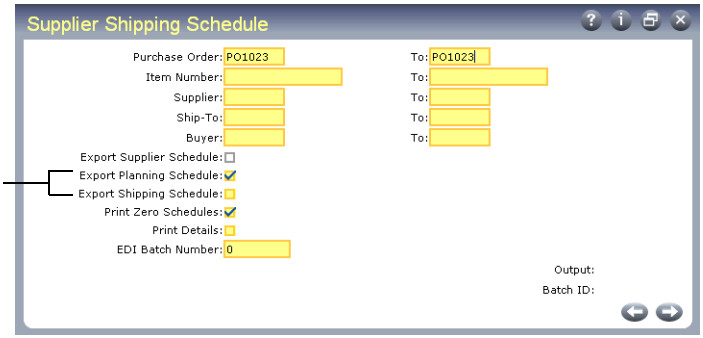
Send EDI Plan Schedules

Send EDI Ship Schedules

If either schedule export parameter is Yes in the supplier's record, EDI Schedules defaults to Yes in Scheduled Order Maintenance.

Fig. 16.18
Supplier Shipping Schedule (35.4.8)

These fields can be updated only when Supplier Shipping Schedules is active.



Export Supplier Schedule. This value determines whether standard MFG/PRO supplier schedules are exported via EDI. When the Supplier Shipping Schedules module is activated, this field is always No and cannot be updated. When the Supplier Shipping Schedules module is disabled, the default is Yes.

Export Planning Schedule. Enter Yes to export supplier planning schedules that match the selection criteria. When the Supplier Shipping Schedules module is deactivated, the default value is No and cannot be updated. When the Supplier Shipping Schedules module is activated, the default is Yes.

Export Shipping Schedule. Enter Yes to export supplier shipping schedules that match the selection criteria. When the Supplier Shipping Schedules module is deactivated the default value is No and cannot be updated. When the Supplier Shipping Schedules module is activated, the default is No.

Printing Supplier Schedules

Use Schedule Print (5.5.3.8) to print a schedule release as a material release to the supplier. Use the Schedule Type field to print type 5 or type 6 schedules. When the Supplier Shipping Schedules module is inactive, selection is limited to type 4 schedules only.

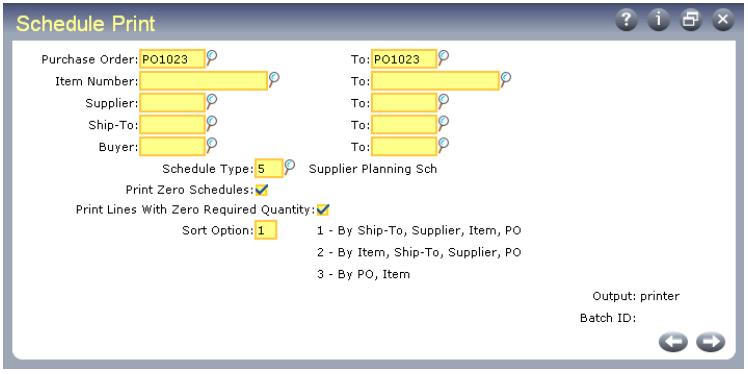


Fig. 16.19
Schedule Print (5.5.3.8)

You can print and review a schedule release any number of times before you actually transmit it. Indicate when the schedule has been sent to the supplier by responding Yes when prompted to update the Schedule Sent field. To transmit the release, you can mail or deliver it.

Schedule Print creates the printed supplier schedule. The header of this document includes supplier and ship-to information, the release ID, purchase order number, item number, receipt quantity, and cumulative receipts. The ship/delivery pattern displays, then the order detail. The detail shows any prior open quantities, including quantities in transit, and then each scheduled requirement.

For each line on the printed schedule:

- Req Qty is the discrete or bucketed quantity for that schedule line.
- Cum Req Qty is the total cumulative requirement, including that line quantity, for the entire life of the order.
- Net Req Qty is the total open quantity including that line quantity.

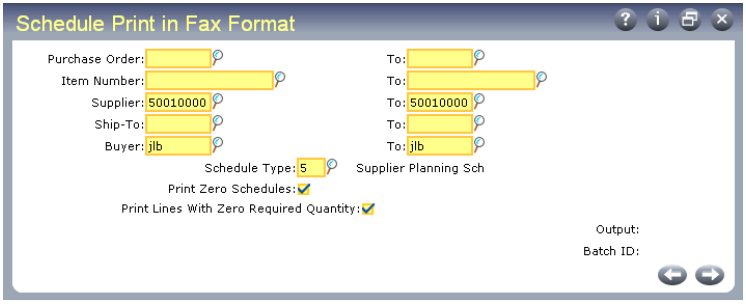
Fig. 16.20
Supplier Schedule Print Output

```
SUPPLIER SHIPPING SCHEDULE

   Supplier: 10032                              Ship-To: 10000
                                                Quality Products Inc.
                                                Manufacturing Division
                                                One World Way
                                                Consolidated Business Plaza
                                                Mount Laurel, NJ
                                                United States of America
   Attention:                                   Attention:
   Telephone:                                   Telephone:
   Fax/Telex:                                   Fax/Telex:

    Release ID: supt1s2                         Release Date: 02/18/02
Purchase Order: supt1                                 Buyer:
   Item Number: car-0              UM: EA     In Transit Qty: 0.0
                                                Receipt Date:          13:15
                                                 Receipt Qty: 0.0
 Supplier Item:                                 Cum Received: 0.0
       Contact:
                                  Packing Slip/Shipper:

         Deliver  Deliver
Interval Date     Time     Reference  Q      Req Qty   Cum Req Qty  Net Req Qty
-------- -------- ------- ---------- - ------------ ------------- ------------
         Prior                                              0.0           0.0
         02/21/02                    f         500.0       500.0         500.0
         02/22/02                    f          60.0       560.0          60.0
         02/23/02                    f          30.0       590.0          30.0
         02/24/02                    f          55.0       645.0          55.0
         02/25/02                    f          30.0       675.0          30.0
```

Transmitting the Release by FAX

When you need to transmit a schedule release by FAX, use Schedule Print in Fax Format (5.5.3.9) to produce it. The orders printed by this program are sorted by supplier rather than by site/supplier. At the top of the first schedule for each supplier, a pound sign (#) prints, followed by the supplier's FAX number. The remainder of the information is the same as Schedule Print.

Fig. 16.21
Schedule Print in Fax Format (5.5.3.9)



Reviewing and Comparing Releases

PRO/PLUS offers updated review and comparison reports for viewing and analyzing schedule releases. Activating the Supplier Shipping Schedules module lets you use the Schedule Type field in the following programs to select the type of schedule to review.

- Schedule Comparative (5.5.3.15)
- Schedule Inquiry (5.5.3.4)
- Schedule Report (5.5.3.13)
- Schedule History Inquiry (5.5.3.5)

Note When the Supplier Shipping Schedules module is inactive, these programs continue to display PRO/PLUS-specific fields, but these fields are not editable.

In addition, the following reports and inquiries are added by this module:

- Ship Delivery Time Inquiry (5.5.7.2)
- Ship Schedule Variance Compare (5.5.7.13)
- Ship to Plan Schedule Compare (5.5.7.14)

Comparing Shipping to Planning Schedules

Use Ship to Plan Schedule Compare (5.5.7.14) to compare active shipping schedules with their corresponding active planning schedules.

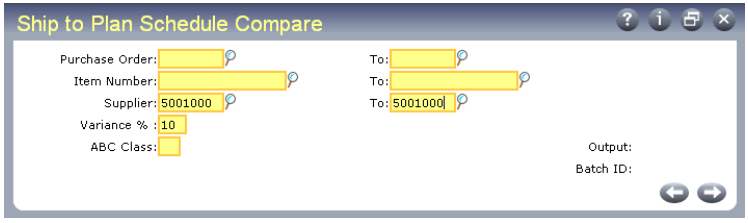


Fig. 16.22
Ship to Plan Schedule Compare (5.5.7.14)

Variance %. Optionally specify a variance percentage (1 to 99 percent) to report only item quantities on schedule detail lines that differ by this percentage or more. When this value is 0 (zero), any quantity variance is reported, regardless of variance percentage.

Variance percentage indicates the extent to which one schedule detail line varies from another, expressed as a percentage value. For example, if you execute a comparison program with all fields left blank, but with Variance % set to 5, the resulting report only includes releases where the schedules differ by five percent or more.

Tip
Assign ABC class codes to individual items using Item Master Maintenance (1.4.1).

ABC Class. Optionally specify an item ABC class to compare only schedule detail lines containing items that belong to that class. Valid values are A, B, or C.

You can combine this code with a variance percentage for reporting. For example, class A items might be reported at a two-percent variance while class C items are reported at a ten-percent variance.

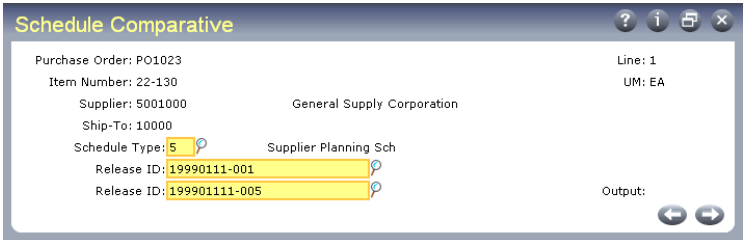
Fig. 16.23
Ship to Plan Schedule Compare Output (5.5.7.14)

```
rsrp11.p            5.5.7.14 Ship to Plan Schedule Compare            Date: 08/01/02
Page: 1                          Quality Products Inc.                Time: 16:49:06


Order     Ln Item Number        Ship Release Id                Plan Release Id
--------- -- ------------------ ------------------------------ ------------------------------
PO1014     1 862b               19990118-001                   19990118-001

Date     Ship Discrete Qty Plan Discrete Qty  Qty Diff Variance% Ship Cum Qty  Plan Cum Qty Cum Qty Diff Variance%
-------- ----------------- ----------------- --------- --------- ------------ ------------ ------------ ----------
07/29/02             105.0             100.0      -5.0        05        105.0        100.0         -5.0         05

Order     Ln Item Number        Ship Release Id                Plan Release Id
--------- -- ------------------ ------------------------------ ------------------------------
PO1127     1 kwc-a              19990118-005                   19990118-005
```

Comparing Schedule Releases

Use Schedule Comparative (5.5.3.15) to compare any two releases of the same schedule that reside in the system.

Fig. 16.24
Schedule Comparative (5.5.3.15)



Purchase Order: PO1023 Line: 1
Item: 22-130 UM: EA
Supplier: 5001000 General Supply Corporation
Ship-To: 10000

				Release ID		Release ID			
				19990111-001		19990113-005			
Date	Time	Int	Reference	Discrete Qty	Cumulative Qty Q	Discrete Qty	Cumulative Qty Q	Qty Diff	Cum Qty Diff
Prior					0.0		0.0		
06/11/02		W		0.0	0.0 P				
06/13/02	08:00	D		0.0	0.0 F				
06/14/02	08:00	D		0.0	0.0 F				
06/18/02						75.0	75.0 F	75.0	75.0
07/18/02		W		75.0	0.0 P			-75.0	75.0
07/25/02						100.0	175.0 F	100.0	175.0
07/25/02		W		100.0	0.0 P			-100.0	175.0
07/01/02						80.0	255.0 P	80.0	255.0
07/01/02		W		80.0	0.0 P			-80.0	255.0
07/08/02						70.0	325.0 P	70.0	325.0
07/08/02		W		70.0	0.0 P			-70.0	325.0
07/15/02						100.0	425.0 P	100.0	425.0
07/15/02		W		100.0	0.0 P			-100.0	425.0
07/22/02						80.0	505.0 P	80.0	505.0

Fig. 16.25 Schedule Comparative Output

Use Schedule Type to select which schedule type to compare. You must specify two specific release IDs for the schedule releases you are comparing.

Note When the Supplier Shipping Schedules module is inactive, you cannot compare type 5 or type 6 schedules.

Comparing the Current Release with the Prior Release

Use Ship Schedule Variance Compare (5.5.7.13) to compare the current type 6 shipping schedule release with the prior shipping schedule release.

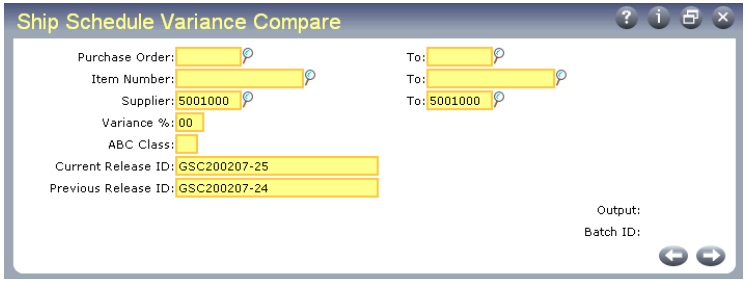
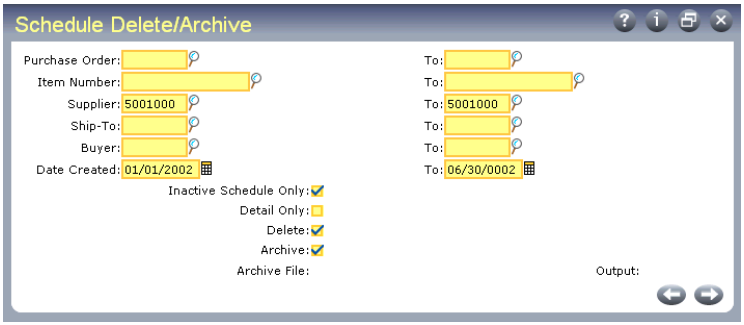


Fig. 16.26 Ship Schedule Variance Compare (5.5.7.13)

Deleting and Archiving Schedules

Use Schedule Delete/Archive (5.5.3.23) to delete and archive unneeded or inactive schedule releases. When you delete or archive schedules while the Supplier Shipping Schedules module is active, your changes affect all three supplier schedule types. When this module is inactive, the delete/archive program affects only supplier schedules (type 4).

Fig. 16.27
Schedule Delete/Archive (5.5.3.23)



SECTION 7

Customer Sequence Schedules

This section includes information on the PRO/PLUS Customer Sequence Schedules module.

Note Some standard functions are disabled when this module is activated in Sequence Schedule Control (7.5.4.24).

Chapter 17

Customer Sequence Schedules

This chapter explains how to set up and use the PRO/PLUS Customer Sequence Schedules module.

Overview

MFG/PRO supports customer shipping and planning schedules, which convey short-term and long-term customer requirements. The PRO/PLUS Customer Sequence Schedules (CSS) module lets you receive and process shorter term, more detailed customer sequence schedules—EDI document type 866.

A customer sequence schedule provides a detailed, short-term view of a customer's planned requirements. These requirements typically span no longer than a week, and are sent to you, the supplier, in the order that your customer's manufacturing environment plans to consume them.

Customer Sequence Schedules Features

With the CSS module, you can:

- Set up default customer schedule details, and then tailor defaults for individual customers as needed.
- Receive incoming customer sequenced schedules using EDI ECommerce.
- Selectively include sequenced requirement information on:
  - Picklists
  - Pre-shippers
  - Shippers
  - Invoices
  - Advance ship notices (ASN)
  - Required ship schedules
- View variances between shipping or planning schedules and sequence schedules or between different releases of a sequence schedule.
- Generate sequence packing lists automatically when creating pre-shippers and shippers. Print sequence packing lists in forward or reverse order.
- Maintain detailed picking records for all sequenced requirements.
- Maintain multiple sequence schedule releases.

Additionally, you can use the Self-Billing module to receive payments based on the customer reference number associated with each sequence.

See Section 3, "Self-Billing," on page 115.

Reviewing Sequence Schedules

Sequence schedules have specific characteristics.

- The schedule is typically made up of one or more days. Each day contains a sequenced list of items to be delivered.
- The schedule contains one or more items. The sample schedule in Table 17.1 contains different types of seats, by color and style. For other suppliers, such as an air-conditioner supplier with a single product, the schedule contains one item.
- Each item in the schedule is a separately orderable item and is already defined by a customer scheduled order line. Scheduled order number and line are not part of the sequence schedule transmission. The customer purchase order number is part of the transmission.
- Each sequence within the schedule contains one or more items. In Table 17.1, since a vehicle needs both front and rear seats, the schedule identifies both items as a combination by giving them the same sequence number. Notice that the vehicle identification numbers (VIN) are the same for matching sequences.
- Each item within the sequence can be delivered to different line feed locations. The schedule in Table 17.1 has two line feeds, one for the front seats (LF210) and one for the back seats (LF211). The seats are required at the same time, but must be sent to separate locations on the assembly line.
- The schedule can contain one or more exception items. The schedule in Table 17.1 has a sequence 9990, which contains a special order item. Exceptions are usually indicated in the schedule by customer-specified status codes. The exceptions are handled outside the normal sequence processing and are delivered separately.

Table 17.1 Sample Customer Sequence Schedule

Sequence	Quantity	Item	VIN	Line Feed
1	2	red bucket seat	ABC123	LF210
1	1	red rear seat	ABC123	LF211
2	2	green bucket seat	DEF435	LF210
2	1	green rear seat	DEF435	LF211

Sequence	Quantity	Item	VIN	Line Feed
3	1	blue bench seat	XYZ789	LF210
3	1	blue rear seat	XYZ789	LF211
4	1	green bench seat	AEG434	LF210
4	1	green rear seat	AEG434	LF211
5	2	blue bucket seat	JWZ551	LF210
5	1	blue rear seat	JWZ551	LF211
...				
499	2	green bucket seat	ZTV331	LF210
499	1	green rear seat	ZTV331	LF211
500	2	blue bucket seat	UIV331	LF210
500	1	blue rear seat	UIV331	LF211
9990	1	plaid prototype	IWV515	LAB

Sequence Schedule Programs

PRO/PLUS Customer Sequence Schedules adds the menu-level programs listed in Table 17.2.

Table 17.2
CSS Programs

Menu	Label	Program
7.5.4.1	Customer Controls Maintenance	adccmt.p
7.5.4.2	Customer Controls Inquiry	adcciq.p
7.5.4.5	Sequence Schedule Maintenance	rcsqscmt.p
7.5.4.6	Sequence Schedule Inquiry	rcsqsciq.p
7.5.4.7	Sequence Schedule Report	rcrp05.p
7.5.4.10	Sequence Pre-Shipper–Automatic	sosqsl.p
7.5.4.11	Sequence Shipper Report	rcsqrp03.p
7.5.4.13	Sequence Cross-Ref Maintenance	rcsqsxmt.p
7.5.4.14	Sequence Cross-Ref Report	rcsqsxrp.p
7.5.4.16	Sequence Schedule Variance Rpt	rcsqrp01.p
7.5.4.17	Plan/Ship Sequence Variance Rpt	rcsqrp02.p
7.5.4.22	Sequence Schedule Detail Delete	rcsqscdl.p
7.5.4.24	Sequence Schedule Control	rcsqpm.p

PRO/PLUS Customer Sequence Schedules modifies the programs listed in Table 17.3.

Table 17.3 Programs Modified by CSS

Menu	Label	Program
7.3.13	Scheduled Order Maintenance	rcsomt.p
7.3.14	Scheduled Order Inquiry	rscoiq.p
7.3.15	Scheduled Order Report	rcsorp.p
7.5.5	Required Ship Schedule Update	rcrsup.p
7.5.6	Selective Required Ship Schedule Update	rcrssup.p
7.5.20	Shipment History Report	rcrp08.p
7.5.23	Schedule Delete/Archive	rcdel.p
7.7.5	SO Container Maintenance	rcctmt.p
7.9.1	Picklist/Pre-Shipper–Automatic	sososl.p
7.9.2	Pre-Shipper/Shipper Workbench	rcshwb.p
7.9.3	Pre-Shipper/Shipper Inquiry	rciq03.p
7.9.4	Pre-Shipper/Shipper Print	rcrp13.p
7.9.5	Pre-Shipper/Shipper Confirm	rcsois.p
7.9.6	Pre-Shipper/Shipper Report	rcshrp01.p
7.9.8	Sales Order Shipper Maintenance	rcshmt.p
7.9.9	Sales Order Shipper Print	rcrp11.p
7.9.15	Sales Order Shipments	sosois.p
7.9.20	Undo Shipper Number Assignment	rcslrb.p
7.9.21	Shipper Unconfirm	rcunis.p
7.9.22	Shipper Gateway	rcshgw.p
7.13.2	Pending Invoice Register	soivrp.p
7.13.3	Invoice Print	sosorp10.p
7.13.4	Invoice Post	soivpst.p
7.13.12	Closed Invoice Reprint	soivrp10.p
27.6.12.1	Self-Bill Maintenance	arsbmt.p
27.6.12.4	Self-Bill Auto Create	arsbac.p
27.6.12.10	Self-Bill Discrepancy Report	arsbrp02.p
27.6.12.13	Self-Bill Report	arsbrp.p
27.6.12.15	Shipment-Invoice Crossref Report	arsbsirp.p
35.1	Document Import	edixsnf.p
35.4.1	Shipment ASN Export	edomasn.p
35.4.3	Invoice Export	edominv.p

Setting Up the CSS Module

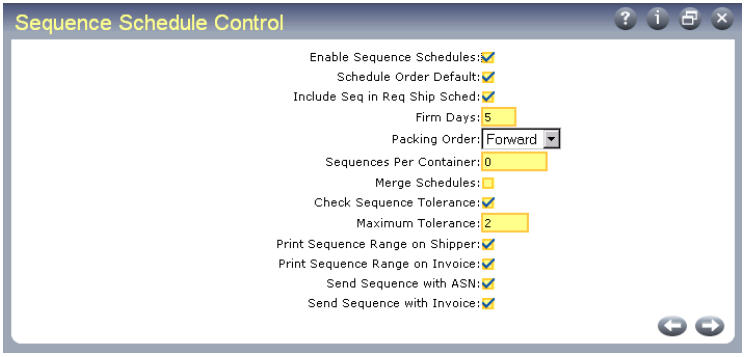
With this module, you set up system-wide defaults in Sequence Schedule Control (7.5.4.24). You then use Customer Controls Maintenance (7.5.4.1) to set up customer control records for customers that should have different values than the system-wide control program values.

When you initially activate the CSS module, various programs are automatically updated to be used with this module (Table 17.3). If you deactivate CSS after you initially activate it, the modified programs function as they did before they were updated.

Setting Control Program Values

Use Sequence Schedule Control (7.5.4.24) to activate the Sequence Schedules module and define general default values for all customers that use sequence schedules.

Fig. 17.1
Sequence Schedule Control (7.5.4.24)



Schedule Order Default sets a default value for the Sequenced field in Scheduled Order Maintenance (7.3.13). All other field values in Sequence Schedule Control default to corresponding fields in Customer Controls Maintenance (7.5.4.1). You can modify the defaults you define here as needed for individual customers in Customer Controls Maintenance.

Use the following field descriptions to guide you through the control program setup.

Enable Sequence Schedules. Enter Yes to enable the Customer Sequence Schedules module.

Schedule Order Default. Enter Yes if you typically create customer schedules with sequence information in your manufacturing environment.

The value you specify here defaults to the Sequenced field in Scheduled Order Maintenance, where it determines whether the scheduled order contains sequence information. You can change it as needed for individual orders.

Include Seq in Req Ship Sched. Enter Yes to include sequence schedule data in required ship schedules (RSS).

This sets the default value for the same field in the Sequenced Delivery Data frame in Scheduled Order Maintenance, unless a customer control record has already been created for the ship-to on the scheduled order. In this case, the value defaults from the customer control record.

Firm Days. Enter the number of work days from the sequence schedule that should be used to create the required ship schedule for planning purposes.

Tip
This field applies only when Include Seq in RSS is Yes.

Enter 0 (zero), the default, to use the entire sequence schedule to generate the required ship schedule. When you specify more days than are available on the sequence schedule, the entire schedule is used.

Example One of your customers works 6-day weeks. That customer sends 8 weeks of sequenced shipping data, but you want to consider only the first 2 weeks as firm shipping requirements. In this case, you would enter 12 in the Firm Days field.

This value defaults to Customer Controls Maintenance, when you set up control records for specific ship-to addresses. It also defaults to Scheduled Order Maintenance if a customer control record is not available.

Packing Order. Indicate the order in which to print packing lists for sequenced requirements, Forward or Reverse.

Sequences Per Container. Specify the maximum number of sequences that can fit in a container. This value is used by Pre-Shipper/Shipper–Automatic and Sequence Pre-Shipper–Automatic to display breaks between multiple containers.

This value must be the default 0 (zero) or any positive number.

Example A customer uses uniform containers that can hold 10 sequences each and a pre-shipper is built containing 50 sequences. The sequence packing list will display 5 groups of 10 sequences. This is a guide to help the loading-dock worker know how many containers to pack.

Merge Schedules. Specify whether the open requirements of the currently active schedule should be combined with the new incoming schedule during EDI ECommerce document import.

This option is used when customers send future requirements to add to the current schedule but do not send existing requirements previously sent on another schedule.

Yes: The incoming schedule is combined with the currently active schedule to create a new release containing the open requirements from both schedules.

No: The incoming schedule becomes the active schedule. The open requirements from the previous release are not considered.

Check Sequence Tolerance. Enter Yes to have the system check schedule sequence numbers for gaps. Specify the size of acceptable gaps in Maximum Tolerance. The system issues a warning if it detects numbering gaps greater than the value specified.

When set to Yes, the system checks for gaps when you:

- Import a sequence schedule
- Manually add sequences to a schedule in Sequence Schedule Maintenance

Example This field is Yes and Maximum Tolerance is 2. You process a schedule with sequences 1, 2, 5, 6, 7. No warning message displays because only two numbers are missing. However, with Maximum Tolerance set to 1, the same sequence generates a warning.

Some environments use alphanumeric sequence numbers. In these cases set Check Sequence Tolerance to No because the system cannot check alphanumeric sequence range integrity. The system issues a warning whenever the value is set to Yes and an alphanumeric sequence number is processed.

Maximum Tolerance. Enter the maximum allowable size of the gap in consecutive sequence numbers on a schedule. When Check Sequence Tolerance is Yes, the system issues a warning when it detects numbering gaps greater than the value specified.

Enter 0 (zero) to issue a warning whenever any gaps in sequence number are found.

Tip
When Check Sequence Tolerance is No, the system disregards this field.

Print Sequence Range on Shipper. Specify whether to print the range of sequence numbers when printing shippers. The range of sequence numbers included on the shipper prints immediately following the list of items being shipped.

Example You confirm and print a shipper that has 111 sequences. The sequences included on the shipper are sequences 1 to 10, 20, and 25 to 125. Set this value to Yes to print the following three sequence ranges on the shipper.

01 to 10

20 to 20

25 to 125

Print Sequence Range on Invoice. Specify whether to print the range of sequence numbers included on the invoice. This is the same range printed on the shipper.

Send Sequence with ASN. Specify whether sequences should be included when advanced ship notices (ASN) are transmitted using EDI ECommerce.

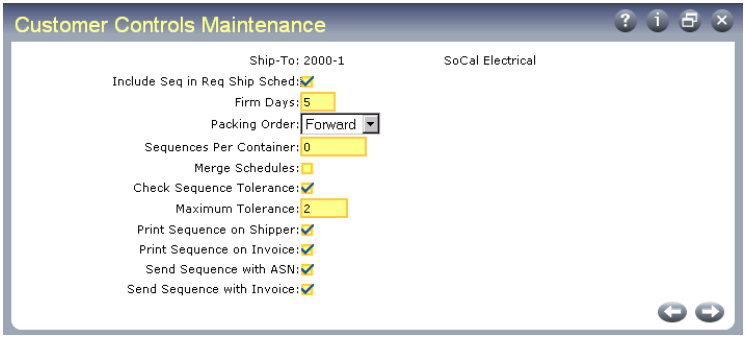
Send Sequence with Invoice. Specify whether sequences should be included when invoices are transmitted using EDI ECommerce.

Creating Customer-Specific Defaults

Use Customer Controls Maintenance (7.5.4.1) to create customer control records. These are customer-specific default values that are different from those specified in the control program. You normally set up customer control records when the values in the control program do not match the needed values for a specific customer.

Example The value in the control program indicates that packing lists are always printed in reverse order. However, you have a customer who requires packing lists printed in forward order. In this case, create a record in this program for this customer, indicating Forward in Packing List. When a packing list is generated for this customer, it is printed in forward order.

Fig. 17.2
Customer Controls Maintenance (7.5.4.24)



See “Setting Control Program Values” on page 286.

Except for Ship-To, all fields in this program are identical to the corresponding fields in the control program. All field values default from the control program. The control program values represent the system-wide settings. The settings here represent the values for the indicated ship-to only. These values default to any sequence schedules created for the ship-to address.

Using Sequence Schedules

The CSS module can be efficiently used for just-in-time manufacturing environments, such as high production repetitive environments. As a supplier, you can use the added sequence details to optimize planning and the sequenced shipping and delivery of your customer’s requirements.

For example, in a just-in-time manufacturing environment such as automotive manufacturing, the supplier provides seating and interior systems directly to the original equipment manufacturer (OEM). The OEM schedules the production of vehicles, including colors and options. These requirements as well as the order in which they are required, are sent to the supplier in a production sequence schedule, or 866 document.

Figure 17.3 shows a typical customer sequence schedule work flow in a supplier’s environment.

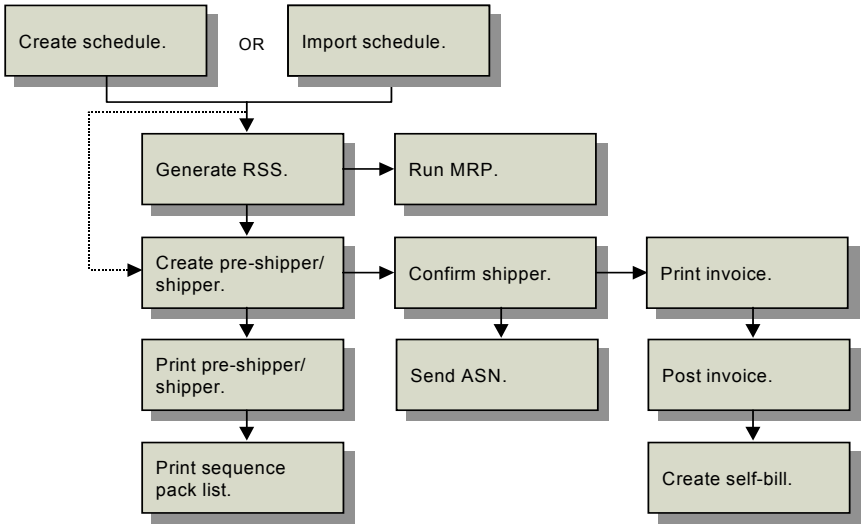


Fig. 17.3 Customer Sequence Schedules Work Flow

The supplier normally receives sequence schedules into the system using EDI ECommerce. Then the supplier uses the sequence schedule to plan and pick material to be shipped to the customer. Using the information contained on the customer sequence schedule, the supplier packs and ships the material when the OEM needs it and in the order the OEM plans to consume it.

Including sequence information on the ASN or invoice gives both the supplier and customer better visibility of the goods being shipped and received. Sequence information on the ASN or invoice can be used for self-billing purposes.

Importing Shipping Data from External Systems

Some environments use external systems to manage and maintain detailed sequence information that includes sequence numbers. When you import that information, the system looks for the corresponding sequence to pick from the internal scheduled order. If the corresponding sequence is not found, then it picks the next available sequence.

You can use two methods to import sequence information into MFG/PRO:

See *User Guide Volume 2A: Distribution.*

- Use Shipper Gateway (7.9.22) to import an ASCII-formatted file containing records that represent containers, pre-shippers, shippers, and sequence schedule lines. To support importing of sequence information, the format for the shipper gateway file includes fields for customer sequence information.

See *User Guide Volume 7: Release Management.*

- In an electronic document interchange (EDI) environment, use Document Import (35.1) in the EDI ECommerce module to import customer sequence schedules.

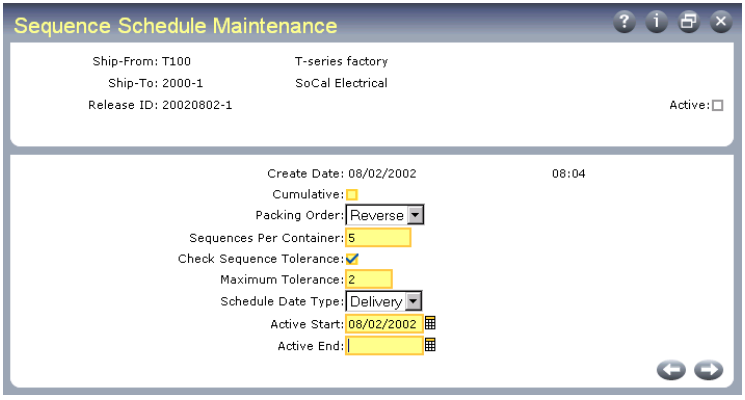
Modifying a Sequence Schedule Release

Use Sequence Schedule Maintenance (7.5.4.5) to create a new sequence schedule release or to modify an existing schedule imported using Document Import (35.1) or Shipper Gateway (7.9.22).

Use the first frame to identify the sequence schedule, including the ship-from, ship-to, and release ID. A scheduled order must already exist for the ship-from and ship-to combination. Create a new release of an existing schedule by indicating a new release ID. Enter an existing release ID to modify a schedule release already in the system.

Use the next frame to edit or enter new schedule details such as create date, packing order, and the number of sequences per container. Use the active start and active end dates to activate or deactivate the schedule release.

Fig. 17.4
Sequence Schedule Maintenance Header (7.5.4.5)



Release ID. Enter the customer sequence schedule release ID (up to 30 characters). Release ID is normally transmitted to you by the customer.

If you leave this field blank, the current active release ID is used.

When you create a new schedule release by entering a new release ID for an existing ship-from and ship-to combination, special processing occurs.

- The system prompts you to copy data from the active schedule to the new schedule.
- If you respond Yes, the system checks whether any sequences from the active release have already been picked.
- If sequences have been picked, the system prompts you to create cross-references between the sequences on the new release and the corresponding references on the active release.

If you modify an inactive schedule, the system prompts you to make that schedule active.

Active. This value indicates whether this schedule is the active schedule. There can be only one active schedule at any time for a ship-from/ship-to combination.

Cumulative. Indicate whether schedule quantities are cumulative or discrete.

No: Schedule quantities are discrete quantities. Quantity can be updated in the schedule detail.

Yes: Schedule quantities are cumulative quantities. Cum Quantity can be updated in the schedule detail.

Packing Order. Specify whether sequence packing lists for this customer ship-to should be printed in forward or reverse order on schedule reports.

Sequences Per Container. Specify the maximum number of sequences that fit in a container. This value is used by Picklist/Pre-Shipper–Automatic (7.9.1) and Sequence Pre-Shipper–Automatic (7.5.4.10) to display breaks between multiple containers.

Example A customer uses uniform containers that can hold 10 sequences each and a pre-shipper is built containing 50 sequences. The sequence packing list will display 5 groups of 10 sequences. This is a guide to help the loading-dock worker know how many containers to pack.

Check Sequence Tolerance. Enter Yes to have the system check schedule sequence numbers on this schedule for gaps. Specify the size of acceptable gaps in Maximum Tolerance. The system issues a warning if it detects numbering gaps greater than the value specified.

Example For example, this field is Yes and Maximum Tolerance is 2. You process a schedule with sequences 1, 2, 5, 6, 7. No warning message displays because only two numbers are missing. However, with Maximum Tolerance set to 1, the same sequence generates a warning.

Tip
When Check Sequence Tolerance is No, the system disregards this field.

Maximum Tolerance. Enter the maximum size of the gap in consecutive sequence numbers that is allowable for schedules associated with this customer ship-to. When Check Sequence Tolerance is Yes, the system issues a warning if it detects numbering gaps greater than the value specified. See the example above.

Note Some environments use alphanumeric sequence numbers. In these cases, set Check Sequence Tolerance to No because the system cannot check alphanumeric sequence range integrity. The system issues a warning whenever the value is set to Yes and an alphanumeric sequence number is processed.

Enter 0 (zero) to issue a warning whenever any gaps in sequence number are found.

Schedule Date Type. Specify whether the dates referenced on the sequence schedule are delivery or shipment dates.

- Shipment date indicates the date when the customer's truck or delivery service will pick up the shipment from your shipping dock.
- Delivery date indicates the dates when the shipment must arrive at the customer's site or dock.

Note When setting up ship/delivery dates you should always check for manufacturing and delivery lead times. These lead times can delay delivery to the customer site. Programs that create or update the required ship schedules consider lead times when calculating ship/delivery dates.

Modifying and Adding Sequences and Details

Use the Sequence Detail Data frame to edit or create new sequence records. You can also mark existing sequences as Deleted. The system allows you to delete any sequence record that is not picked or cross-referenced to a picked sequence on another schedule release.

When you mark a sequence as deleted, the system makes that record inactive for the schedule. To permanently delete a sequence record from a schedule, use Sequence Schedule Detail Delete (7.5.4.22).

When you create a new schedule release by entering a new release ID in the first frame, the system prompts whether to copy data from the active schedule to the new schedule. If you accept, it checks whether any sequences from the active release have already been picked. It prompts whether to create cross-references between the sequences on the new release and the corresponding references on the active release.

See “Managing Duplicate Sequence Requirements” on page 297.

You cannot pick references from the new release that are cross-referenced to sequences on the active release. These cross-referenced sequences have already consumed their requirements. Any sequences that have Deleted set to Yes are not copied to the new schedule.

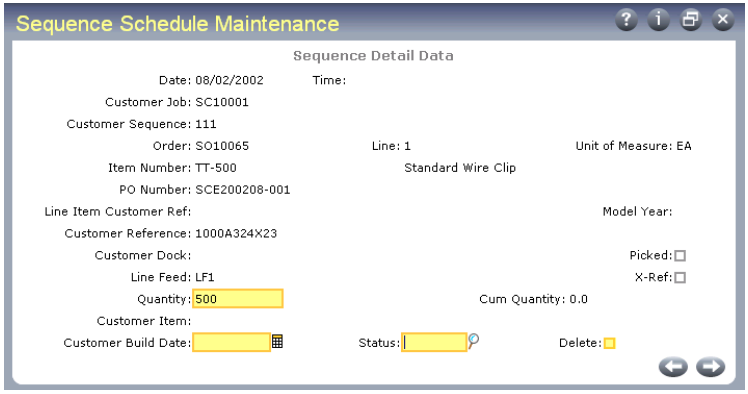


Fig. 17.5 Sequence Detail Data Frame (7.5.4.5)

See "Managing Duplicate Sequence Requirements" on page 297.

If you indicate that cross-references should not be created, then the system copies all sequences from the active schedule to the new schedule. Any sequence records previously marked as picked or cross-referenced are reset. By resetting these sequences, the system considers them as open requirements. When you finish creating the new schedule release, the system prompts you to make the new schedule active.

Normally, sequences are not created at the supplier site. Most customer delivery sequence information is imported into the system using EDI ECommerce. Many of the fields in the Sequence Detail Data frame are used as reference by the customer, and have little impact on your processing of the order.

You can optionally use the customer-defined Customer Dock and Line Feed field values as sort criteria when generating pre-shippers and shippers.

The combination of Item Number, Customer Dock, Line Feed, and Customer Reference must be unique. Customer Reference is a required field. This is the customer-assigned reference number for this sequence schedule line. For example, in the automotive industry, the customer reference is typically the Vehicle Identification Number (VIN).

See *User Guide Volume 7: Release Management*.

The Line Item Customer Ref field is a similar field; however, you use it to enter the customer-assigned reference number for the line item. This is typically the number the customer uses to refer to the item identified by the MFG/PRO item number. If Customer Ref is Customer Item is Yes for the scheduled order, the line-item reference must be a valid customer number defined in Customer Item Maintenance (1.16).

Reporting Sequence Schedule Information

Use the following reports to review and compare sequence schedule information:

- Use Sequence Schedule Inquiry (7.5.4.6) to display all sequences on a sequence schedule release.
- Use Sequence Schedule Report (7.5.4.7) to review a complete sequence schedule release.
- Use Sequence Schedule Variance Report (7.5.4.16) to compare two sequence schedule releases.

- Use Plan/Ship Sequence Variance Report (7.5.4.17) to compare specific item requirements on the active sequence schedule to those on the active shipping or planning schedule release.

Managing Duplicate Sequence Requirements

In some situations, the same sequence may be reported on separate schedule releases. For example, you send the last requirements of the day, but your customer creates and sends the new sequence schedule while those requirements are in transit. The new schedule will contain some of the same requirements again, since they have not arrived at the customer site.

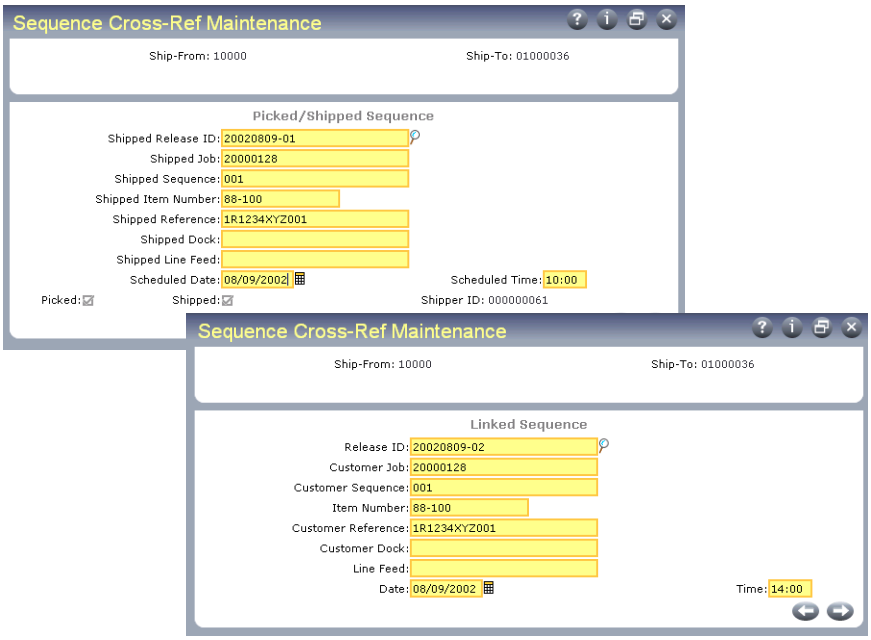
Normally, the system automatically creates a cross-reference from the new duplicate sequence to the picked sequence when the sequence schedule is initially imported into the system. However, if the item number, customer reference, customer dock, or line feed on the new duplicate sequence does not match the picked/shipped sequence values, the cross-reference is not created.

Creating Cross-References

Use Sequence Cross-Ref Maintenance (7.5.4.13) to manually create cross-references from duplicate sequences on one schedule release to the picked/shipped sequence on another schedule release. You can also create cross-references to sequences marked as deleted, or sequences that have already been cross-referenced to previously picked/shipped sequences.

After indicating the ship-from and ship-to sites, use the selection criteria on the Picked/Shipped Sequence frame to select the sequence that was previously picked. Use Next/Previous to scroll through all the sequence schedule releases and lines that exist for the ship-to and ship-from site combination.

Fig. 17.6
Sequence Cross-Ref Maintenance (7.5.4.13)



The Linked Sequence frame displays next. The field values on this frame refer to the information for the duplicate sequence on the new sequence schedule release. Enter the appropriate values as needed. The system creates a cross-reference link from the picked sequence to the duplicate sequence. The new cross-referenced sequence cannot be picked. The system considers this sequence to be a closed requirement.

Use Sequence Cross-Reference Report (7.5.4.14) to report the cross-reference records you create manually as well as any cross-reference records created automatically when sequences are imported through EDI ECommerce or the shipper gateway.

Referencing Sequence Lines on Scheduled Orders

Use Scheduled Order Maintenance (7.3.13) to create scheduled orders that reference sequence schedule lines. Use the Sequenced field in the Order Data frame to indicate that the scheduled order references sequence schedule lines. You cannot update the Sequenced field unless CSS is active.

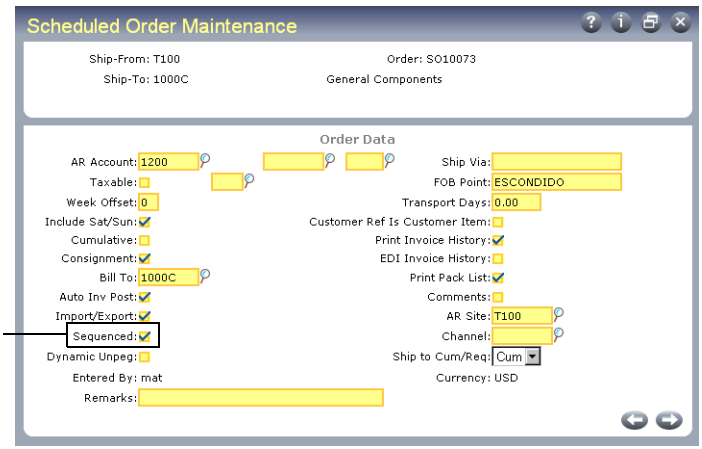


Fig. 17.7
Sequenced Field in Scheduled Order Maintenance (7.3.13)

When you update a scheduled order that has Sequenced set to Yes, the Sequenced Delivery Data frame displays. Use this frame to specify whether sequence schedule data should be included when generating the required ship schedule (RSS), and if so, how many firm days of that data should be used.

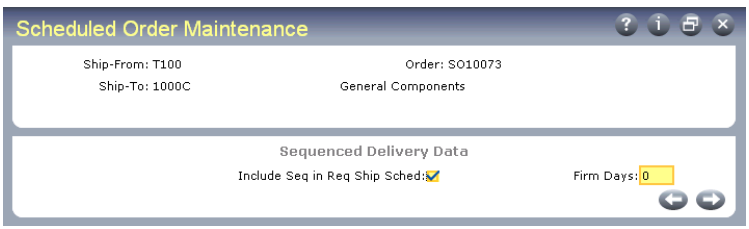


Fig. 17.8
Sequenced Delivery Data Frame

Include Seq in Req Ship Schedule. Indicate whether sequence delivery data should be included when the RSS is generated. This value defaults from the customer control record, if one exists, or Sequence Schedule Control.

Firm Days. When Include Seq in Req Ship Schedule is Yes, this field indicates the number of firm day requirements from the sequence schedule that Required Ship Schedule Update or Selective Req Ship Sched Update should include when generating the RSS.

Firm Days defaults from the customer control record, if one exists, or Sequence Schedule Control.

When you enter more days than are available on the sequence schedule, the maximum available days are used. Enter 0 (zero) to indicate that all available sequence schedule days should be included.

This value affects the way requirements are bucketed on the RSS. When the Req Sched Days value indicated on the scheduled order line exceeds the days indicated here, the system does the following:

- Calculates the difference between this value and the value indicated on the scheduled order line
- Buckets the daily sequenced requirements on the RSS, for the number of days indicated on the scheduled order line

Updating the Required Ship Schedule

Use Required Ship Schedule Update (7.5.5) to generate a new release of the RSS. If Include Seq in Req Ship Schedule is Yes on the scheduled order, the number of firm days indicated are included in the new RSS release. This program updates the RSS release with sequence schedule data only if Sequenced is Yes in the scheduled order being processed.

When you process a scheduled order line, the system checks whether it is associated with a sequence schedule line. This is determined by the Sequenced field setting in Scheduled Order Maintenance. If the scheduled order line is part of a sequence schedule and Sequenced is Yes, sequence schedule-specific netting logic is used to create the RSS release. Netting logic methods work differently when sequences are associated with the scheduled order line.

Option 1: Use Shipping Schedule

The RSS is made up of the sequence schedule days specified in Firm Days in the Sequence Delivery Data frame in Scheduled Order Maintenance. The shipping schedule is appended to the end of these sequence schedule days. The beginning of the ship schedule is replaced by the number of days specified in Firm Days on the scheduled order.

Option 2: Use Planning Schedule

The RSS is made up of the sequence schedule days specified. The planning schedule is appended to the end of the sequence schedule dates. The beginning of the planning schedule is replaced by the number of days specified in Firm Days on the scheduled order.

Option 3: Replace Logic

The RSS is made up of the sequence schedule days specified, followed by the shipping schedule, then the planning schedule.

If you are using this option and Use Ship/Plan PCR is Yes in Customer Schedules Control (7.3.24), the system maintains cumulative quantities for the sequence, shipping, planning, and required ship schedules.

The cumulative quantity for the previous week's planning schedule (prior cumulative quantity) is compared with the current RSS cumulative quantity. If there is a difference because the planning schedule cumulative quantity is greater, then the system adds this difference to the current week's planning schedule cumulative quantity. This assures that the current week's planning schedule cumulative quantity is always up to date.

Option 4: Consume Logic

The RSS is made up of the sequence schedule days specified, followed by the shipping schedule, then the planning schedule. The system maintains cumulative quantities for the sequence, shipping, planning, and required ship schedules. The cumulative quantities of the sequence and shipping schedules are used to ensure that the weekly requirements from the planning schedule are accounted for or consumed.

The system follows these steps when generating the RSS:

- The sequence schedule is processed first. Cumulative quantities are calculated for the sequence schedule.
- The shipping schedule is processed next. The dates and quantities from the shipping schedule are appended to the end of the sequence schedule.

- The planning schedule is processed next. The cumulative quantities for each week of the planning schedule are compared to the weekly quantity of the sequence and shipping schedule.
- If the weekly cumulative quantity of the sequence or shipping schedule is less than the weekly planning quantity, then that schedule is updated to match weekly planning quantity. To do this, the system adjusts the last entry in the week by the difference of the two schedules. The remaining dates and quantities from the planning schedule are appended to the end of the shipping schedule.
- If the weekly cumulative quantity of the sequence/shipping schedule is greater than or equal to the planning schedule for the week, then no adjustments are made.
- The dates and quantities from the planning schedule are appended to the end of the sequence/shipping schedule.

Calculations with Netting Logic 1, 2, or 3

If you are using netting logic 1, 2, or 3 and a sequence or shipping schedule ends in the middle of the weekly planning interval, any open requirements on the planning schedule are moved to the next available open date using the following steps:

- The system first calculates the amount of weekly requirements from the sequence/shipping schedule.
- It then compares this to the weekly planning requirements. If the weekly requirements exceed the sequence and/or shipping scheduled requirements, then the difference is added to the next open date.
- The system calculates the next open date using the customer calendar and adding one day to the last sequence or shipping requirement in the week.
- A new requirement is created on this day and contains the open requirements from the weekly planning schedule. If the next open date falls into the following week, then no adjustments are made because the week has ended.

Note This applies only if SDP codes are not being used for the schedule.

Example The planning schedule begins on Monday, the first day of the week. The sequence/shipping schedule ends on Wednesday. The schedules overlap three days: Monday, Tuesday, and Wednesday. The system finds the difference between the three-day requirements from the sequence/shipping schedule and the three-day requirements for the planning schedule. If the planning schedule requirements exceed the sequence/shipping schedule requirements, it moves that amount of planning requirements to Thursday, the next available open date.

When you generate an RSS release that contains sequences, these sections appear on the RSS report:

- Customer Sequence Schedule Required Quantities
- Netting Options
- Seq Schedule Adjustment For Plan Schedule Overlap
- Combined Schedule
- Schedule Dates Backward Adjusted for Customer or Ship-To Calendar

Updating Specific Required Ship Schedules

Use Selective Required Ship Schedule Update (7.5.6) to create a specific RSS release that includes any associated sequence schedule. Specify the sequence schedule release ID to use in Sequence Schedule Release ID. Only sequence lines associated with the specific scheduled order lines are used. Required ship schedules that include sequence schedule data are generated as described in the previous section.

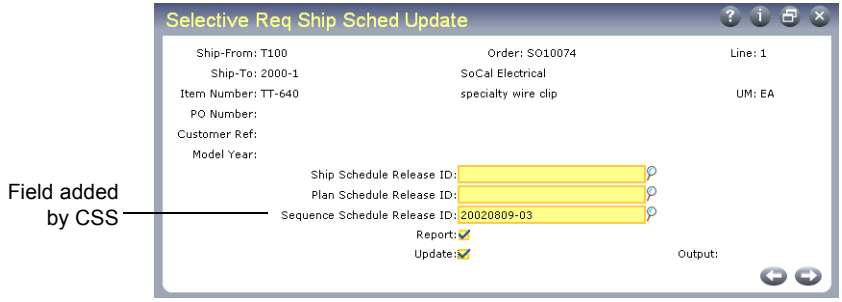


Fig. 17.9 Sequence Schedule Release ID Field

Including Sequences on Picklists and Pre-Shippers

Use Picklist/Pre-Shipper–Automatic (7.9.1) to build shippers with or without sequence data.

To generate a shipper containing sequences, the system follows these steps:

- Determines the open quantity from the unpicked sequences in the sequence schedule using the number specified in Firm Days to limit the number of sequences from the active release to include. The open quantity does not include any sequences that have been picked, cross-referenced, or have Deleted set to Yes.
- Performs allocations and picks inventory for the open quantity, marking each sequence as picked.
- Moves picked sequences into multiple pre-shippers if either or both line feed and customer dock are specified.
- Prints each pre-shipper with the first section displaying gross quantities by part. The following section displays the sequences in sequential order and any related information. If the sequences are being delivered to a customer dock or line feed, then that information prints on the first section of the pre-shipper.
- Prints the sequenced packing list in forward or reverse order, as indicated in the customer control record, or if one does not exist, as specified in Sequence Schedule Control.
- Shows breaks between sequences as specified in Sequences Per Container in the customer control record or if one does not exist, as specified in Sequence Schedule Control.

When creating a sequenced picklist, the Picklist/Pre-Shipper Sequence Pack List section on the printed document displays sequence information.

Creating Sequenced Pre-Shippers

Use Sequence Pre-Shipper–Automatic (7.5.4.10) to create pre-shippers for one or a range of sequence schedules. The selection criteria for this program applies only to sequence schedules. To create pre-shippers for ranges of both sequenced and non-sequenced schedules, use Picklist/Pre-Shipper–Automatic (7.9.1).

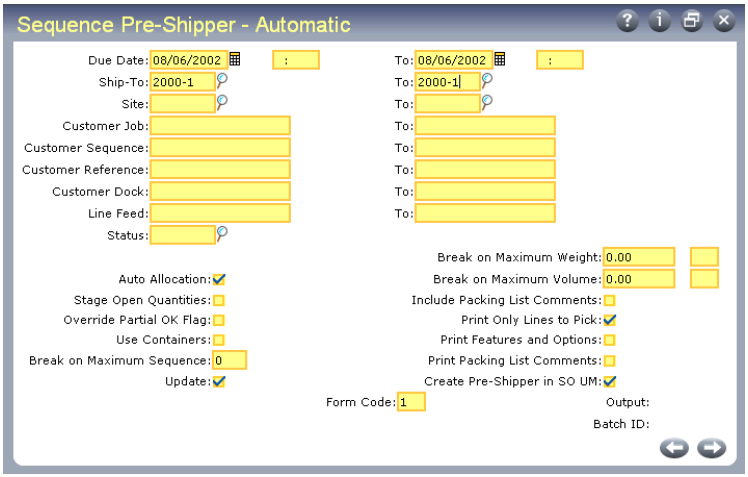


Fig. 17.10
Sequence Pre-Shipper–Automatic (7.5.4.10)

Sequence Pre-Shipper–Automatic selects sequences from active schedules. The sequences must match the selection criteria, and cannot be marked as deleted, picked, or cross-referenced. It arranges the sequences by ship/delivery date and destination and creates the pre-shippers as needed. All processing occurs as in Picklist/Pre-Shipper–Automatic (7.9.1).

Sequenced pre-shippers are printed as two documents:

- The first document displays the total gross requirements. This is the same as the one produced by Picklist/Pre-Shipper–Automatic.
- The second document shows all the sequence information in order by sequence.

Status and the selection criteria ranges refer to sequence schedule information. Most of the fields on the bottom half of the screen are the same fields found in Picklist/Pre-Shipper–Automatic.

See *User Guide Volume 2A: Distribution.*

Break on Maximum Sequence. This is an optional control field used to specify the maximum number of sequences allowed on a shipper.

The default is 0 (zero). Leave this value to indicate that the shipper can contain an unlimited number of sequences.

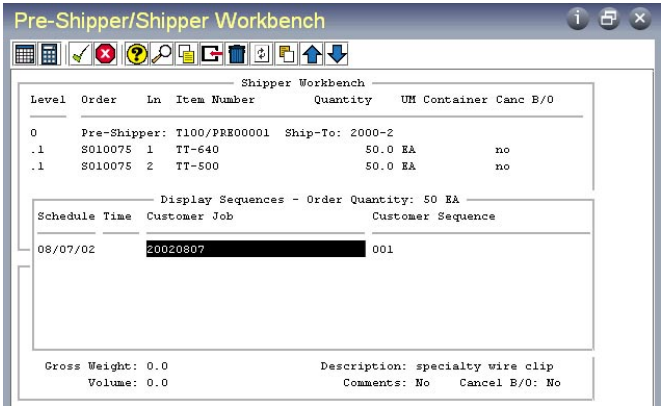
When adding a sequence to a shipper, the system first checks to make sure that this number of sequences has not been reached on the shipper. When a shipper reaches this number of sequences, a new shipper is created. Any additional sequences are added to the new shipper.

Maintaining Sequences on a Pre-Shipper/Shipper

Use Pre-Shipper/Shipper Workbench (7.9.2) to view and add or delete sequences from a pre-shipper/shipper.

The Display Sequences frame shows all the sequences on the pre-shipper/shipper. This frame displays only if the pre-shipper/shipper contains sequences. If it does not, but the scheduled order does contain sequences, the Add Sequences frame displays (See Figure 17.12).

Fig. 17.11
Display Sequences Frame



To remove any of these sequences from the pre-shipper/shipper, scroll to the sequence to delete and press Delete. Once you confirm the delete, the system removes the sequence from the list and updates the sequence record, setting it as an open requirement.

Tip
Use the up/down arrows to scroll the sequence list.

When you initially add a shipper line to a pre-shipper/shipper using this program, the system always displays the Add Sequences frame. This frame is used to add sequences to the pre-shipper/shipper.

To add additional sequences to the pre-shipper/shipper, press Add; the Add Sequences frame appears. Use the Customer Job, Sequence, Reference, Dock, and Line Feed fields to indicate the sequence that should be added to the pre-shipper/shipper.

Only sequences from the active schedule release that are not marked as deleted, picked, or cross-referenced can be added to the pre-shipper/shipper. When you add a new sequence to the pre-shipper/shipper, that sequence is marked as having been picked.

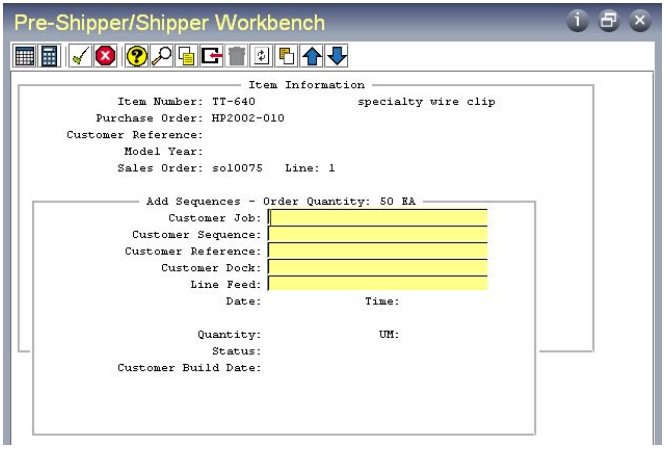


Fig. 17.12
Add Sequences Frame

To review sequence details, scroll to the sequence and press Enter. The Display Sequence Detail frame shows related details for the sequence selected.

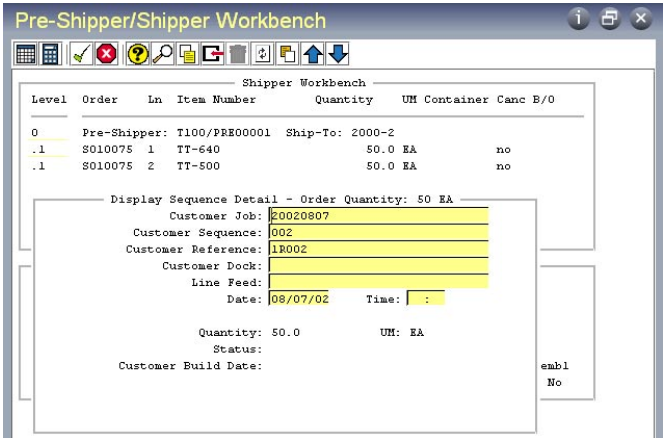


Fig. 17.13
Display Sequence Detail Frame

With Pre-Shipper/Shipper Workbench, you can optionally print the completed pre-shipper/shipper. A range of sequence numbers associated with the pre-shipper/shipper prints on the document as indicated in Print Sequence Range on Shipper in the customer control record for the ship-to, or Sequence Schedule Control. After the pre-shipper/shipper is printed, a sequence packing list is also printed automatically on a separate page.

You can also use Pre-Shipper/Shipper Print (7.9.4) to print the pre-shipper/shipper. It also prints a separate packing list and can include the associated range of sequence numbers. When you print the pre-shipper, you can optionally convert it to a shipper by setting Assign Shipper Numbers to Yes. Any sequences on the shipper are updated with the shipper number. This program processes the printing of the pre-shipper/shipper in the same way as Pre-Shipper/Shipper Workbench.

Use Undo Shipper Number Assignment (7.9.20) to reverse shipper number assignments for unconfirmed shippers. This restores the original pre-shipper number and changes the document type from shipper back to pre-shipper. It also updates the pre-shipper/shipper number on sequences associated with the shipper.

See “Maintaining Sequences on a Pre-Shipper/Shipper” on page 306.

Maintaining Sequences in Containers

Use SO Container Maintenance (7.7.5) to view and add or delete sequences from a sales order container. The frames used in Pre-Shipper/Shipper Workbench (7.9.2) also display here. You view, add, and delete sequences for a container the same way you would for pre-shipper/shippers.

Maintaining Sequences on Sales Order Shippers

Use Sales Order Shipper Maintenance (7.9.8) to view and add or delete sequences from a sales order shipper.

See “Maintaining Sequences on a Pre-Shipper/Shipper” on page 306.

The frames used in Pre-Shipper/Shipper Workbench (7.9.2) also display here. You view, add, and delete sequences from a SO shipper the same way you would for pre-shipper/shippers. This program processes the printing of the sales order shipper the same way as Pre-Shipper/Shipper Workbench.

You can also use Pre-Shipper/Shipper Print (7.9.4) to print the completed sales order shipper, which includes the associated sequences. Printing of the sales order shipper is processed in the same way Pre-Shipper/Shipper Workbench processes the printing of a pre-shipper/shipper.

Confirming and Unconfirming Shippers

Use Pre-Shipper/Shipper Confirm (7.9.5) to record shipments of orders and to:

- Convert pre-shippers into shippers.
- Create, print, and post invoices based on shipments.

See *User Guide Volume 2A: Distribution.*

You can export a confirmed shipper as an advance ship notice (ASN) to inform your customer that an order has been shipped. Export ASNs using EDI ECommerce.

See *User Guide Volume 7: Release Management.*

When you confirm a sequenced order, the associated sequences are marked as confirmed. If you create an invoice for a sequenced order, then a range of the sequence numbers included on the order may print on the invoice. Additionally, this sequence number range may also be included when you export a shipper as an ASN. The inclusion of sequence number ranges is dependent on the customer control record or Sequence Schedule Control settings.

Use Shipper Unconfirm (7.9.21) to reverse all the sequence related actions performed by the system at confirmation, returning the shipment to its pre-confirmed state and allowing it to be subsequently modified, canceled, reprinted, or reconfirmed.

Sending ASN Documents with Sequence Information

Use Shipment ASN Export (35.4.1) to export the ASN from your system. An exported ASN can optionally include any sequence information associated with it. The inclusion of sequence information is dependent on the setting in Send Sequence with ASN in a ship-to's customer control record, or in Sequence Schedule Control.

See *User Guide Volume 7: Release Management.*

Posting, Exporting, and Printing Invoices

When you post an invoice using Invoice Post (7.13.4), the system checks whether any sequences are associated with that invoice. If the invoice references shipments of sequenced items, then the sequence shipper records are updated with a reference to the invoice number being posted.

This reference is used to print a range of sequence numbers on the invoice whenever it is printed with Invoice Print (7.13.3), or any other function that prints invoices. The inclusion of the range of associated sequence numbers on the printed invoice is dependent on the customer control record or Sequence Schedule Control settings. The range prints at the end of the invoice, once all invoice lines have been printed.

See *User Guide Volume 7: Release Management.*

When you export an invoice that is associated with sequence schedule lines, that invoice can optionally include the sequence information associated with it. The inclusion of sequence information is dependent on the customer control record or Sequence Schedule Control settings. Use Invoice Export (35.4.3) to export invoices with EDI ECommerce.

Fig. 17.14
Sequence Number Range Printed on an Invoice

```
Item Number        UM    Shipped Backorder Tax            Price         Ext Price
------------------ -- ---------- ---------- --- --------------- ---------------
item x              EA       10.0        0.0 no            100.00         1,000.0
  Item x
  Purchase Order:  po101

Customer Job: job1

                                Sequence Ranges
         Customer Sequence              To
         ------------------------------ ------------------------------
         seq2                           seq2
```

The following programs also print a range of sequence numbers on the invoice based on the customer control record or Sequence Schedule Control settings.

- Closed Invoice Reprint (7.13.12)
- Pre-Shipper/Shipper Confirm (7.9.5)
- Shipper Unconfirm (7.9.21)

Removing Historical Sequence Data

Use Schedule Delete/Archive (7.5.23) to selectively delete/archive inactive sequence schedules and any associated inactive detail and cross-reference records. Use the Sequence field to indicate whether sequence schedules that fit the selection criteria should be deleted/archived.

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