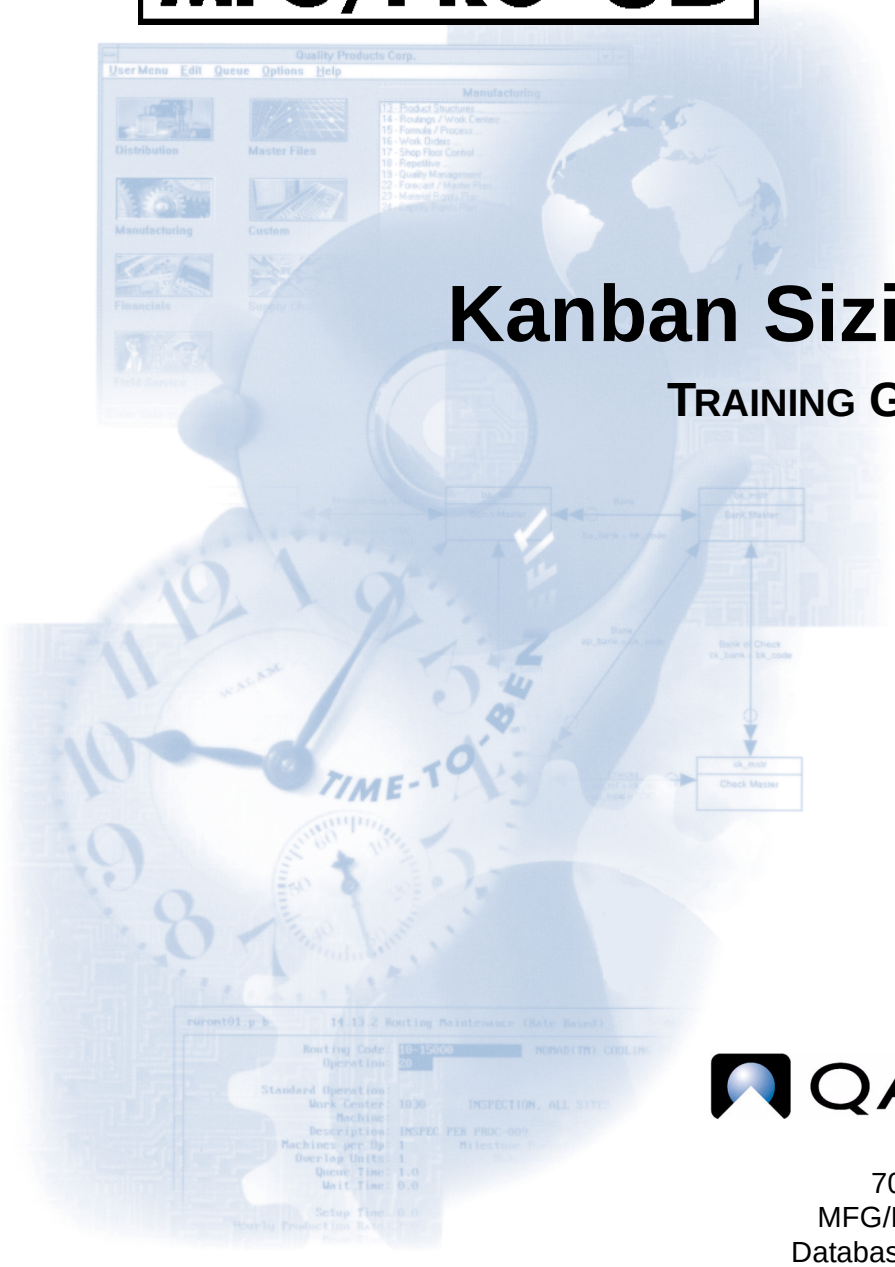
MFG/PRO® eB



Kanban Sizing

TRAINING GUIDE

QAD

70-2776A
MFG/PRO eB
Database: Train
January 2001

70-2776A

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Contents

QAD

About This Course

Course Description

QAD designed this course to cover the basics of preparing to implement Kanban Sizing in MFG/PRO eB. The course includes:

- An introduction to Kanban Sizing
- An overview of key business considerations
- Setting up Kanban Sizing
- Processing Kanban Sizing
- Activities and exercises

Students learn how to:

- Analyze some key business decisions before setting up Kanban Sizing
- Set up and operate Kanban Sizing

Who Should Attend This Course

- Implementation consultants
- Members of implementation teams
- Key users

Prerequisites

- *Initial MFG/PRO Setup* training course
- Basic knowledge of how MFG/PRO is used in the business
- Working knowledge of the manufacturing industry in general

Approximate Length of Course

- This course is designed to be taught in 1 day

Topics Covered

Set Up

  - Generalized Codes
  - Planning Periods

- Kanban Control File
- Controlled Items
- Maximum Demand

Processing

- Calculating Maximum Demand
- Number of Knaban or Quantity per Kanban
- Print Kanban Cards

Related Courses

- Shop Floor Control
- Work Orders
- Inventory Control
- Purchase Order Management

Certification Preparation

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

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

Using This Training Guide

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

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

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

Cross-Reference Icons

Additional Information


Directs students to another section of the current training guide


Cross-references another MFG/PRO training guide

Training Exercises

The following icon indicates appropriate places for students to work on training exercises:

Notes to Instructors

PowerPoint Slides

QAD created the slides using Microsoft® PowerPoint® 97. Instructors may want to animate text, graphics, and other objects on the slides to

- Focus on important points
- Control the flow of information
- Add interest and variety to the presentation

Clicking on *Animation Preview* on the *Slide Show* menu previews animation of text and objects. To customize slides, click on *Custom Animation* on the *Slide Show* menu.

PowerPoint Slide Icons

Informs instructors that another slide follows.

Directs students to training exercises.

Announces that a lesson is complete; there are no more slides in the section.

Class Kit

Kit for Students

- Kanban Sizing Training Guide, 70-2776A
- MFG/PRO eB US GUI demo CD, 10-0631
  - Install the Database: Train for the exercises in this training course

Self-study students will require the following additional materials:

- *MFG/PRO User Guides* (printed material and compact disk are available from QAD Fulfillment, and electronic copies are available on the QAD website)
  - Kanban Sizing User Guide, 78-0435

Kit for Instructors

The instructor kit is the same as the student kit with the addition of the PowerPoint slides.

Configuration and Setup for This Course

For hardware requirements, refer to the Readme files on the MFG/PRO demo CDs.

General Training Facilities Information

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

CHAPTER 1

Introduction to Kanban Sizing

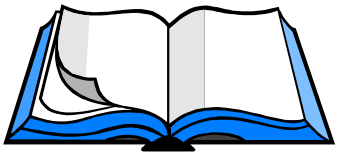
Course Overview

This course is designed to present Kanban Sizing in four sections:

- An overview introduction, to provide an initial acquaintance with the issues and topics of Kanban Sizing
- The business issues and considerations that need to be in place before using Kanban Sizing
- How to set up and prepare to use Kanban Sizing
- How to process Kanban Sizing in your manufacturing environment

Kanban Sizing Overview

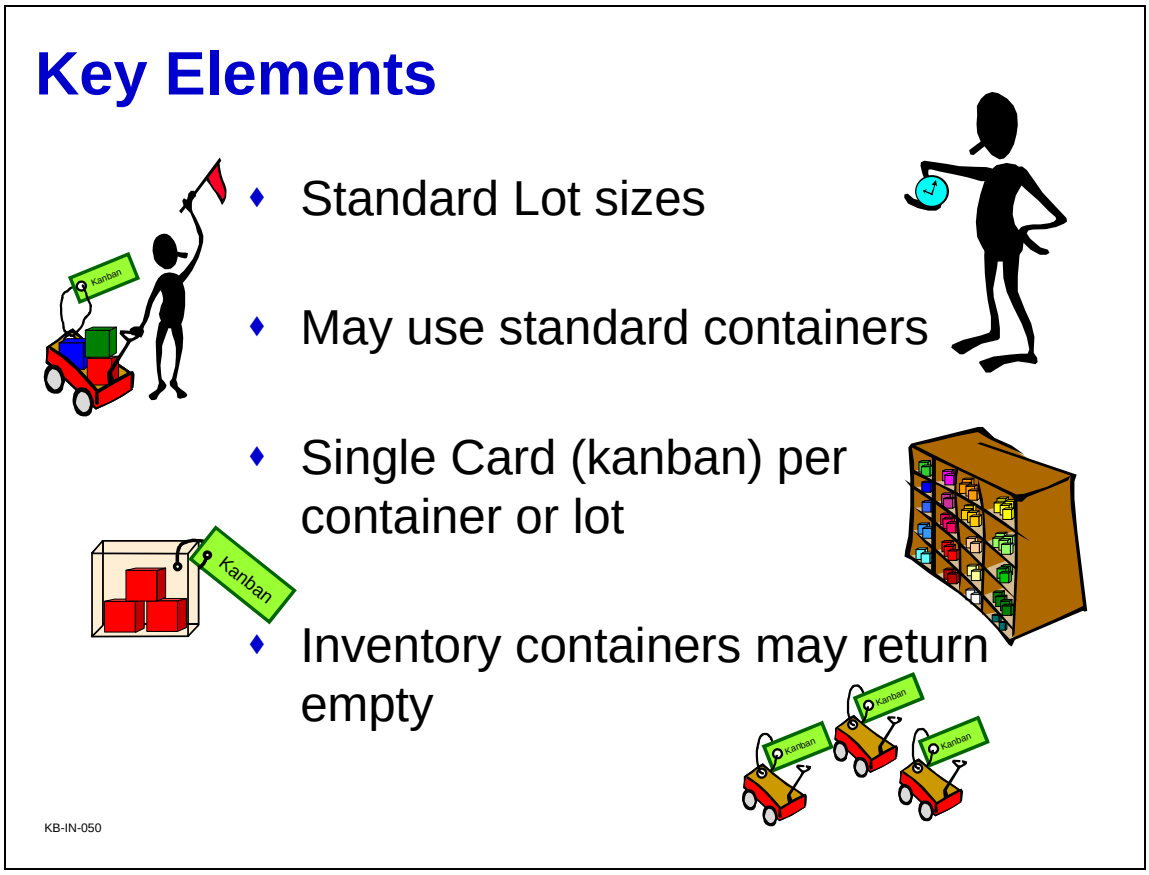
- What is Kanban?
  - Japanese term that means “card control”
  - Used to authorize production, shipment, and movement of goods
  - *Pull* not *Push* methodology



KB-IN-040

Kanban Overview

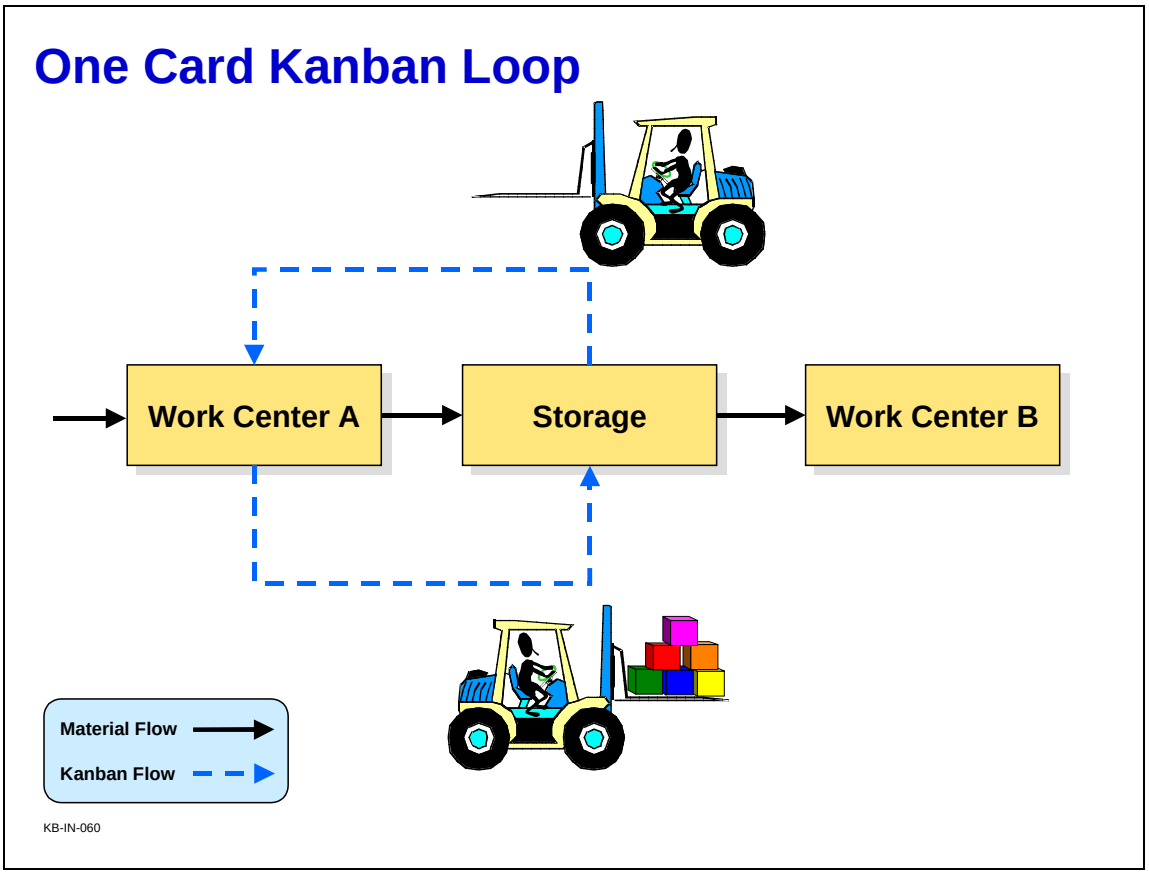
- The Japanese word *kanban*, loosely translated, means card, billboard, or sign
  - The term is often used synonymously for the specific scheduling system developed and used by the Toyota Corporation in Japan
- The Kanban method defines a communication signal or card
  - Kanban *pulls* material through the manufacturing process
  - This is a shift in manufacturing philosophy to *pull* material through production rather than *push*
  - Production waits for orders from customers and reacts quickly to these orders



Key Elements

Some typical elements of most Kanban-controlled systems include:

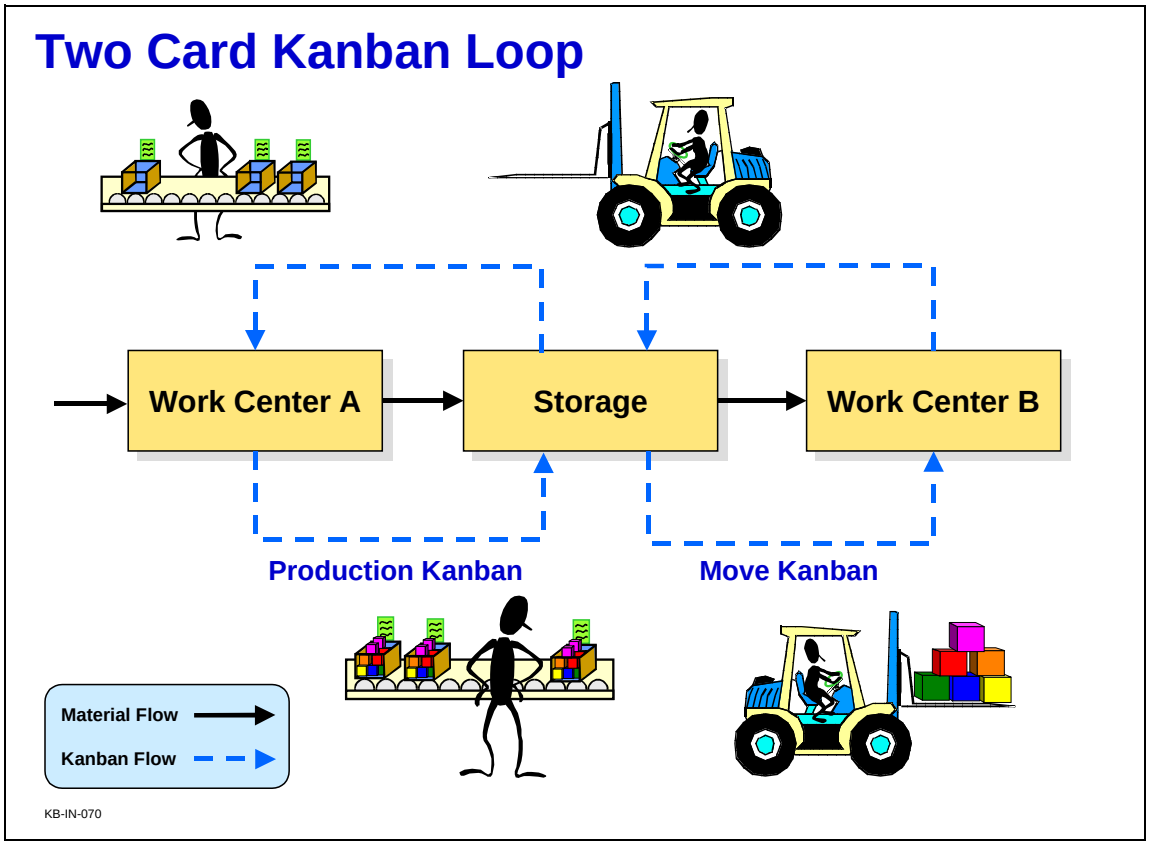
- Standard lot sizes or standard containers
- A single card per container
- Containers returning empty, usually as a signal that further material has been authorized for movement



One Card Kanban Loop

- MFG/PRO Kanban Sizing provides two methods: one card or two card loops
- The illustration above shows a single-card system using the withdrawal principle

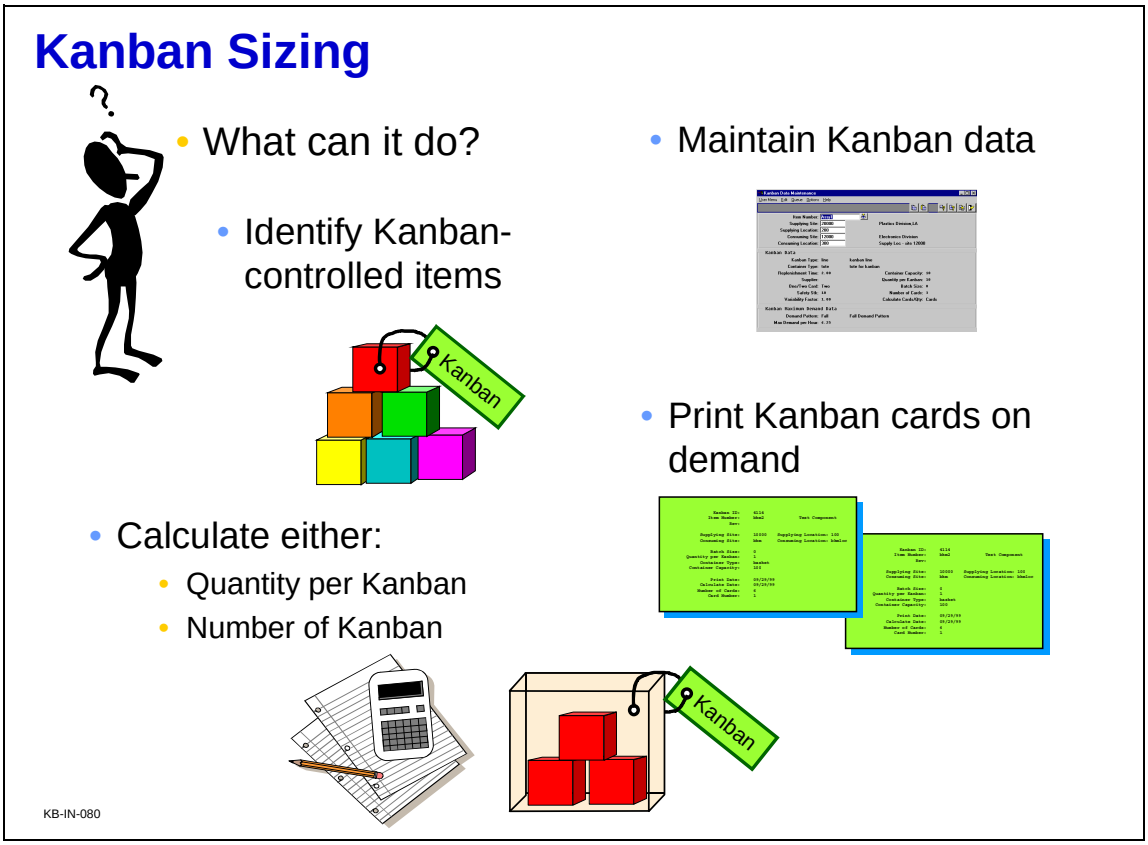
See in this training guide: *One Card Kanban Loop* on page 51



Two Card Kanban Loop

- A two-card system has a move kanban and a production kanban

See in this training guide: *Two Card Kanban Loop* on page 52



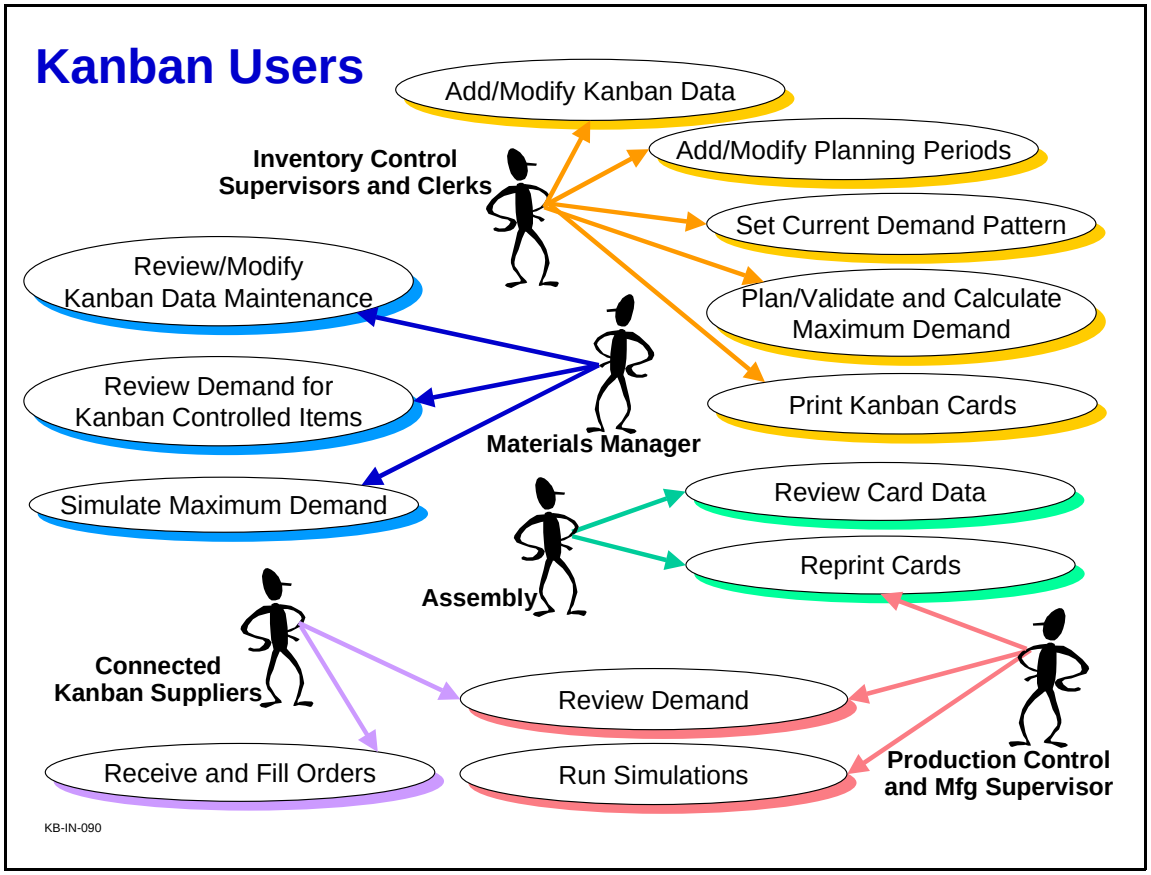
MFG/PRO Kanban Sizing Features

- Identify Kanban-controlled items
- Maintain Kanban data
- Calculate Quantity per Kanban or the Number of Kanban
- Print Kanban cards on demand

Some Benefits to Kanban Sizing

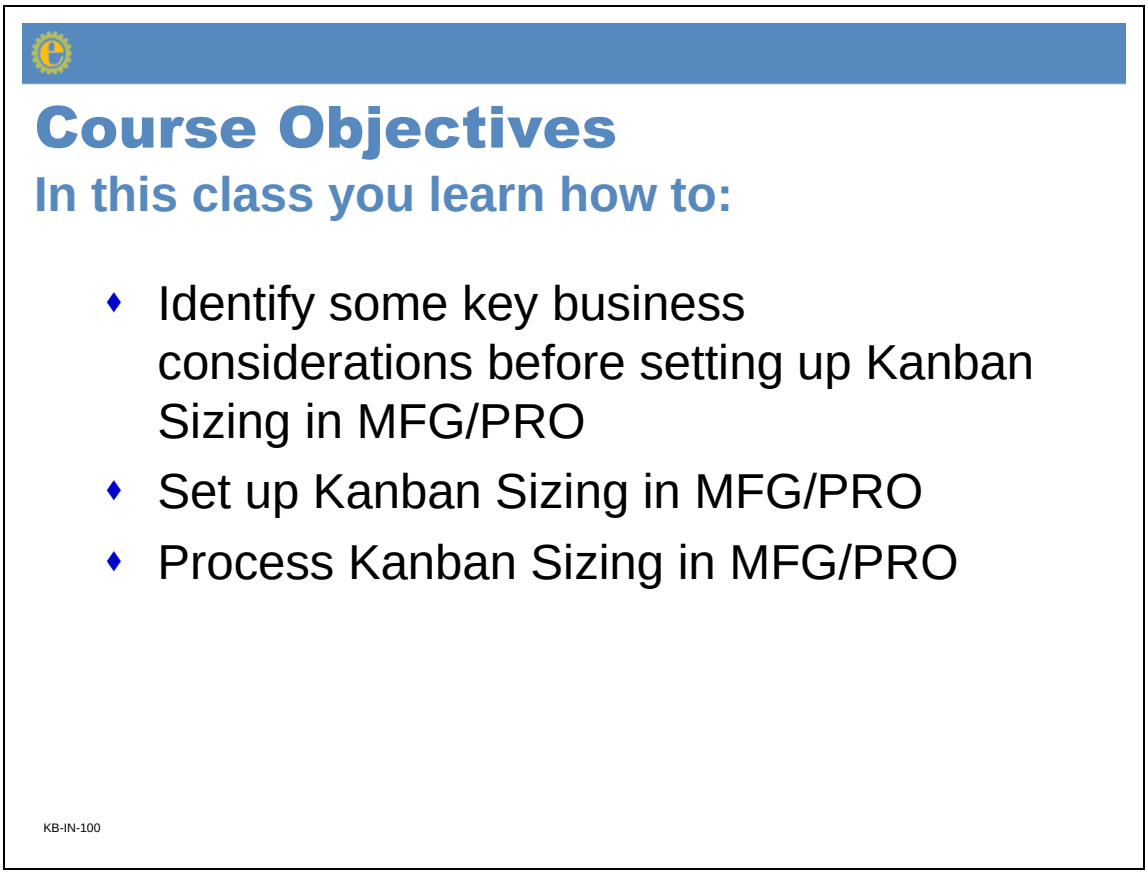
- Reduction in WIP
- Better inventory of components
- Reducing paper on the factory floor

Note Cannot do kanban control for alternate product structure types

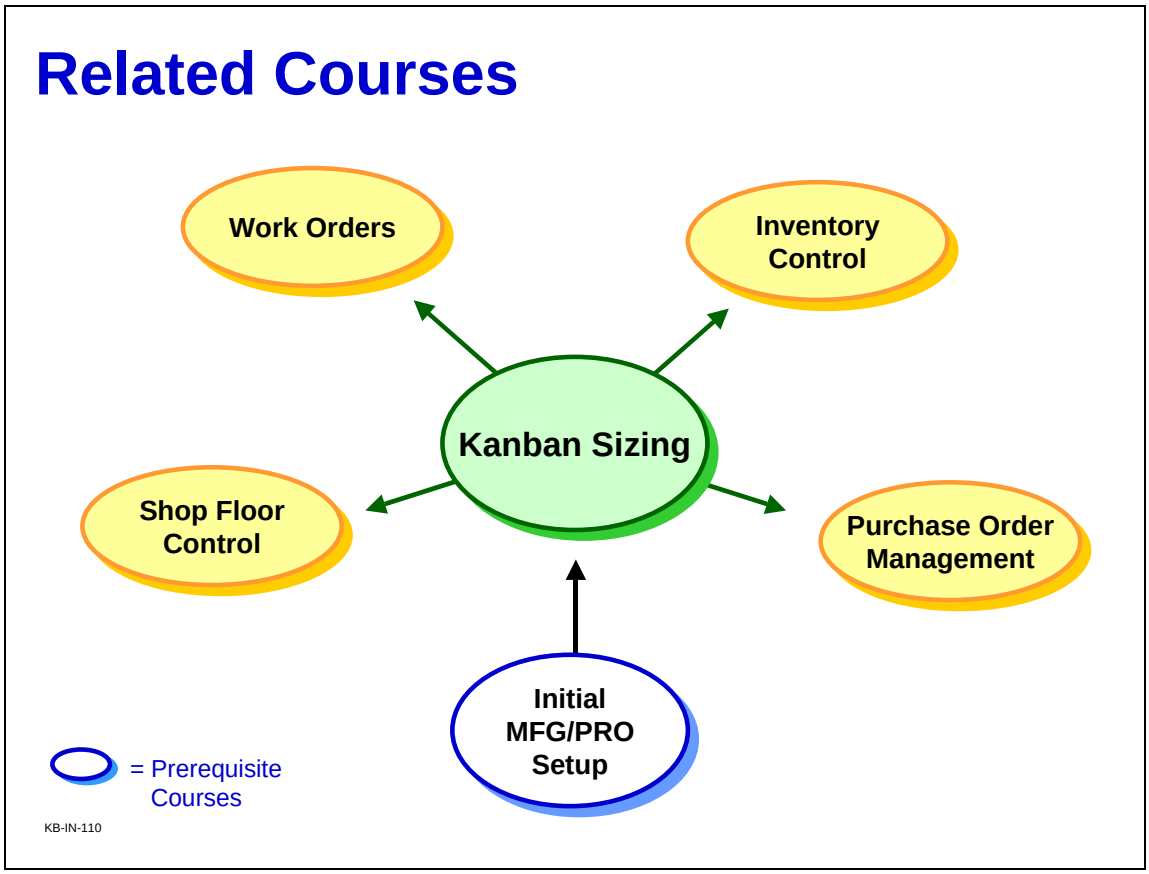


Kanban Users

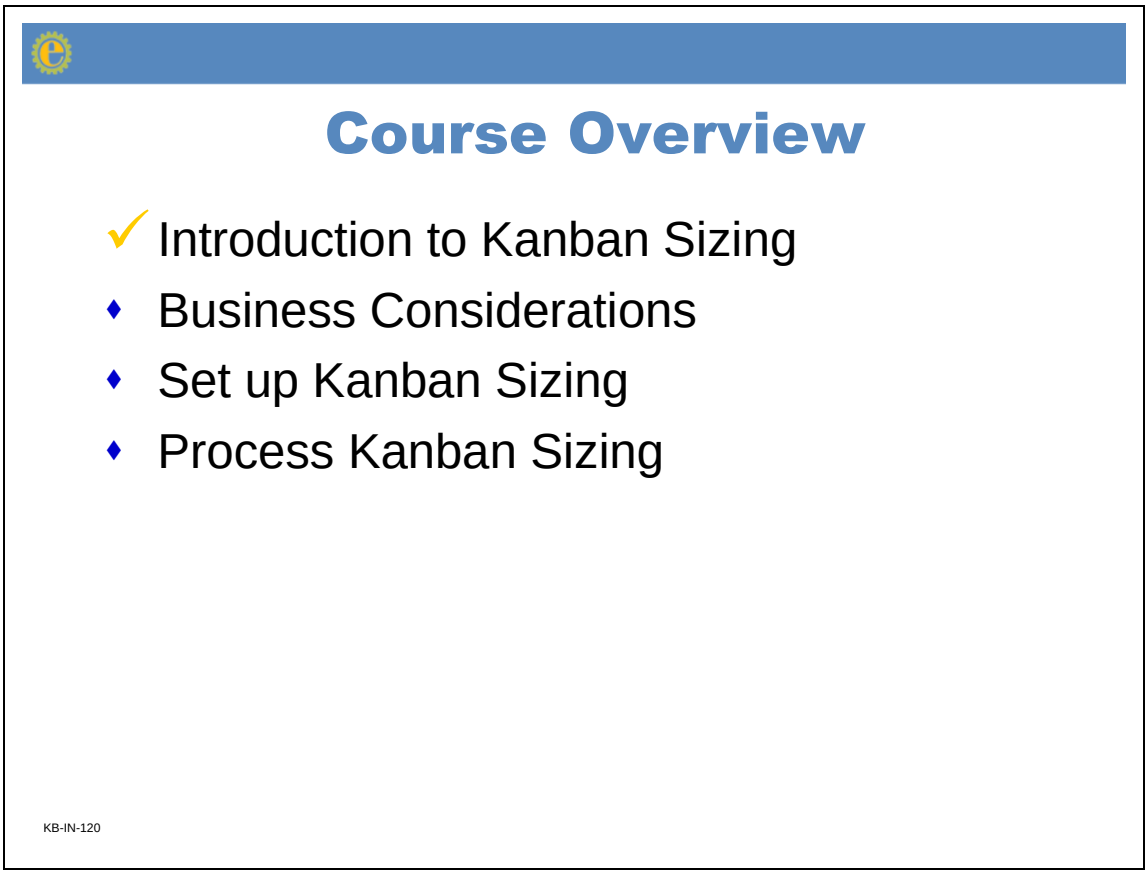
- Some typical users of Kanban include:
  - Inventory Control Supervisors and Clerks
  - Materials Managers
  - Assembly
  - Production Control and Manufacturing Supervisors
  - Connected Kanban Suppliers
- Typical tasks for each user are illustrated above



Course Objectives



Related Courses



CHAPTER 2

Business Issues

Business Issues

Business Considerations

Before you set up and use Kanban Sizing, it is assumed you have already considered the following:

- Supplier Relationships
- Shop Floor, Sites, and Locations
- Which Items to be Kanban-Controlled
- Maximum Demand for Independent-Demand Items

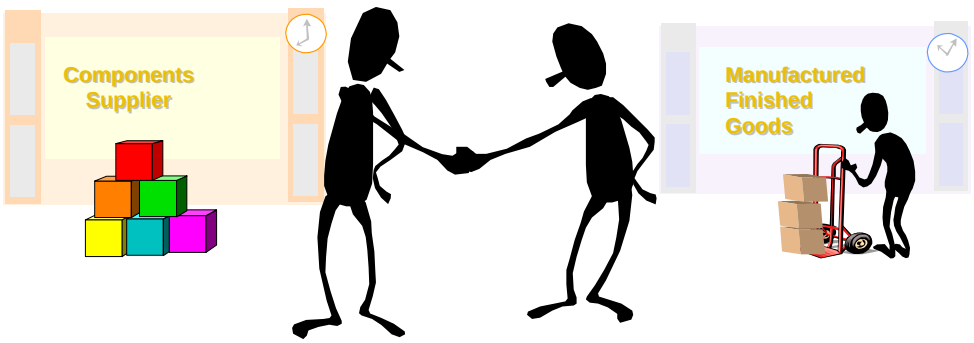
KB-BU-020

Pre-requisites

- There are several pre-requisites to using Kanban Sizing, which are only highlighted in this guide, not discussed in great detail
- These issues must be fully addressed in your manufacturing environment, and in MFG/PRO, before you can use Kanban Sizing

Supplier Relationships

- Suppliers must be already fully set up in MFG/PRO before assigning them in Kanban Data



KB-BU-030

Supplier Relationships

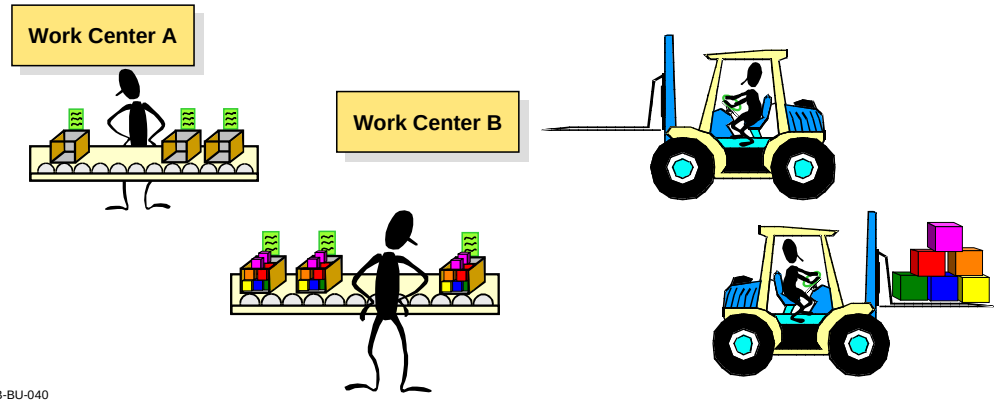
Kanban items need consuming and supplying relationships. Any Kanban-connected suppliers must be already entered into your database.

Setup Implications

- Supplier Data Maintenance 2.3.1

Shop Floor, Sites, and Locations

- Shop Floor Pre-Defined
  - ✓ Consuming and Supplying Sites and Locations must be already set up in MFG/PRO

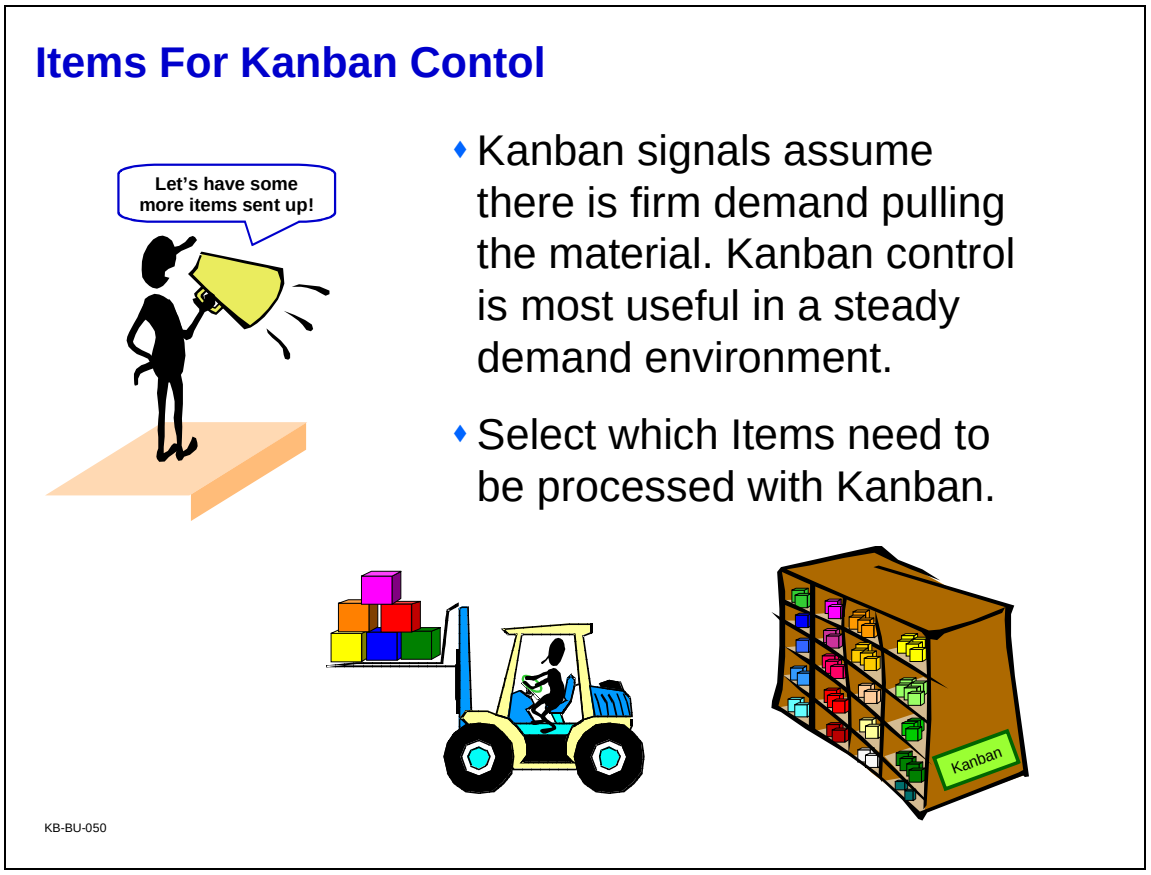


Shop Floor, Sites, and Locations

Kanban items need consuming and supplying sites and locations. Any Kanban-connected sites or locations must be already entered into your database.

Setup Implications

- Site Maintenance 1.1.13
- Location Maintenance 1.1.18



Items for Kanban Control

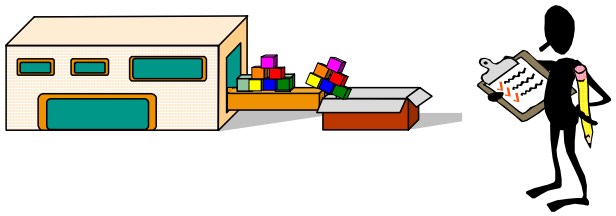
Kanban items moved based on firm demand. The items you select for Kanban control must be pre-defined in your database.

Setup Implications

- Item Master Maintenance 1.4.1
- Item Data Maintenance 1.4.3

Maximum Demand

- Maximum Demand is decided for Kanban-controlled independent-demand items (finished goods or service items)
- This is not “forecasting” maximum, but the highest demand you are likely to experience or that you want your system to be able to handle
- Kanban is best used in a steady demand environment



KB-BU-060

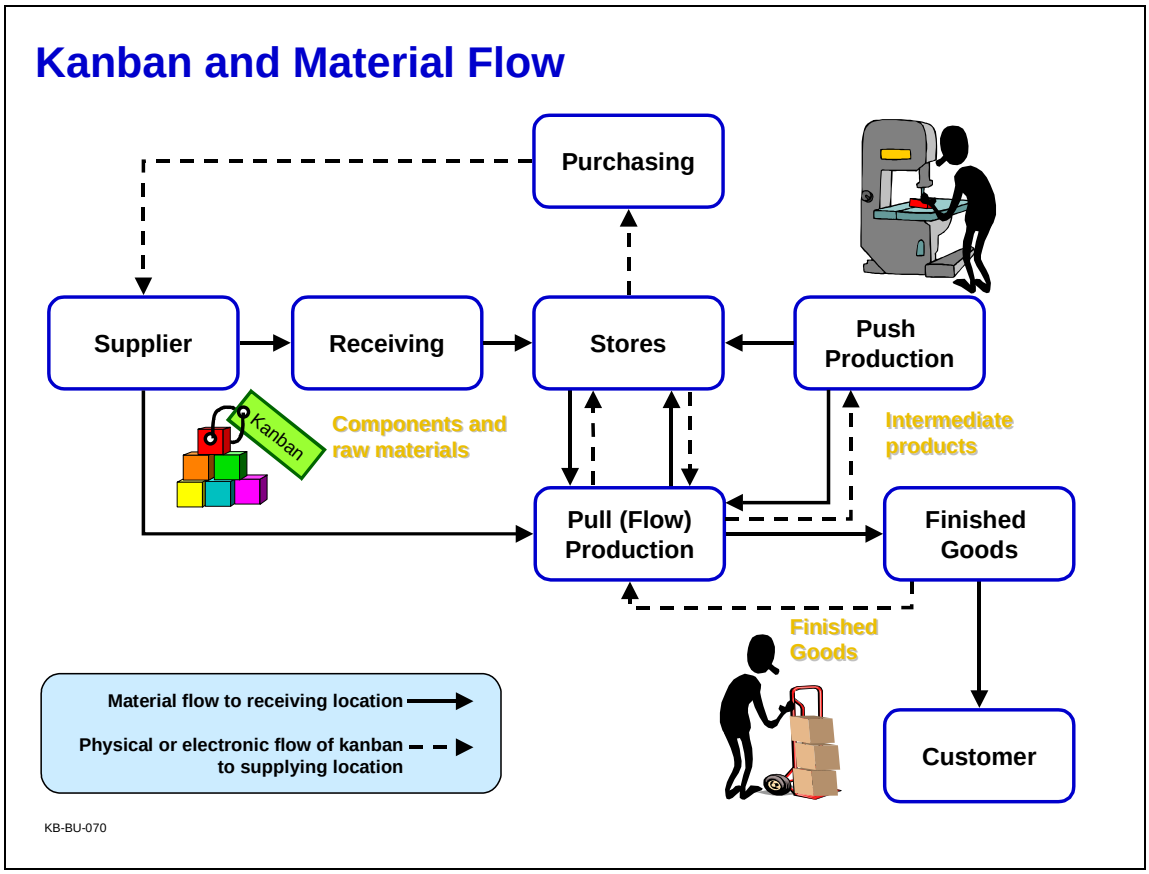
Maximum Demand

Kanban items need a maximum demand figure for sizing calculations. This data should be determined before completing Kanban setup.

Setup Implications

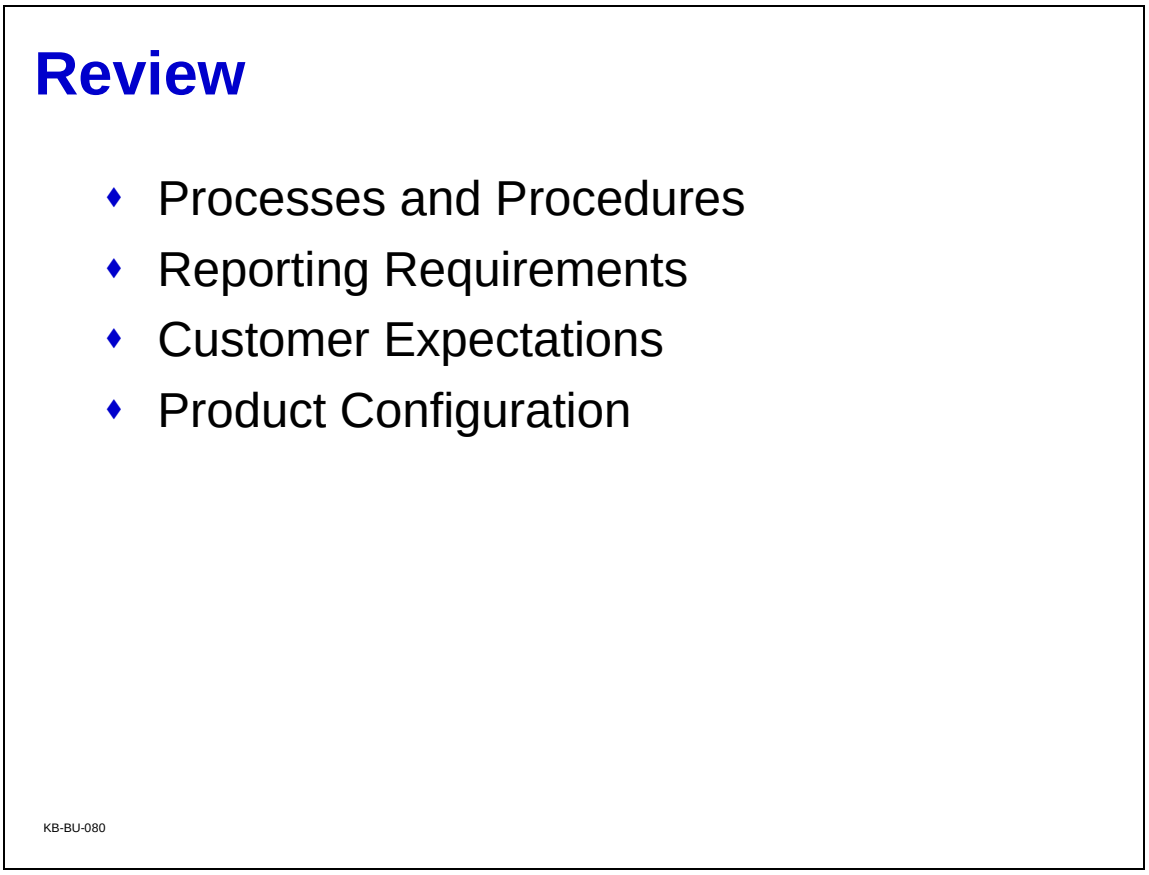
- Maximum Demand Maintenance 17.22.10

See in this training guide: *Maximum Demand Maintenance* on page 65



Kanban and Material Flow

The above illustration shows typical directions of both the material and kanban flow in manufacturing. Some setups may not use every flow illustrated.



Review

Course Overview

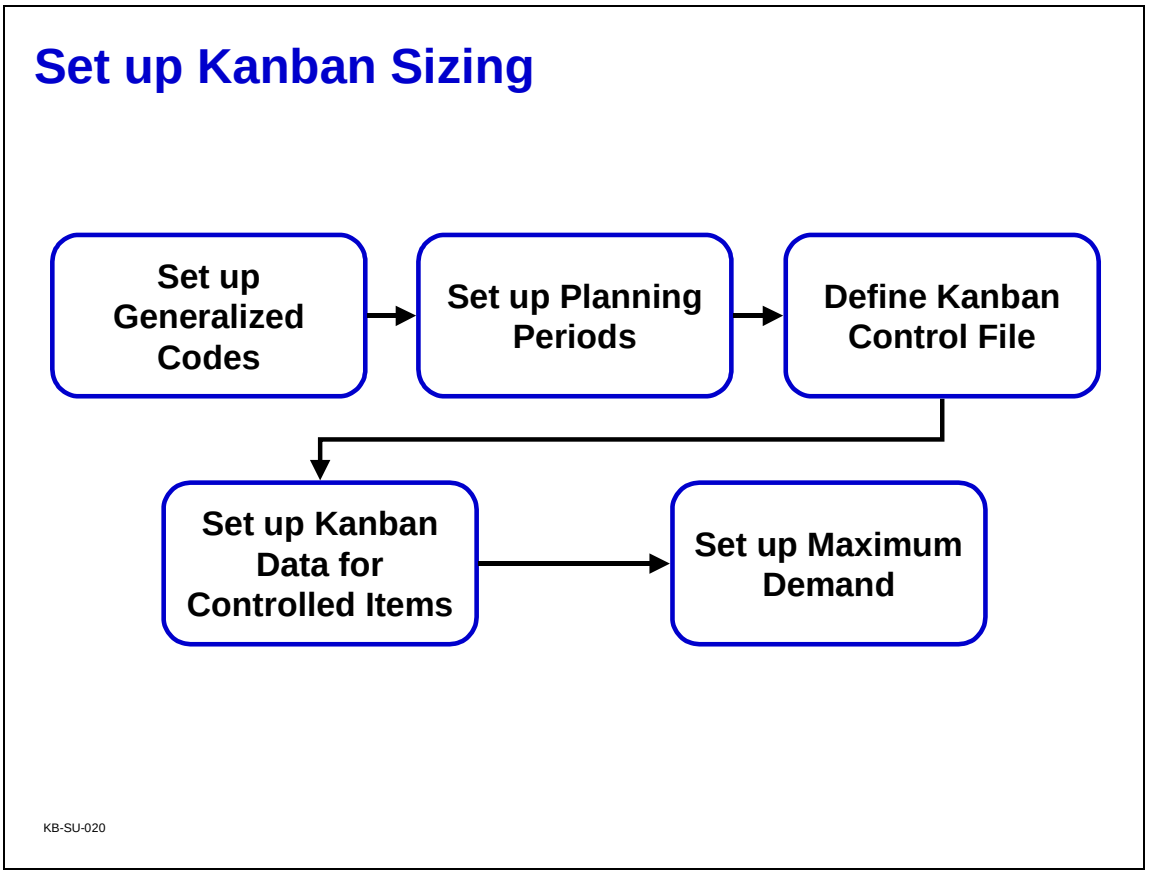
- ✓ Introduction to Kanban Sizing
- ✓ Business Considerations
- ♦ Set up Kanban Sizing
- ♦ Process Kanban Sizing

KB-BU-090

CHAPTER 3

Set Up Kanban Sizing

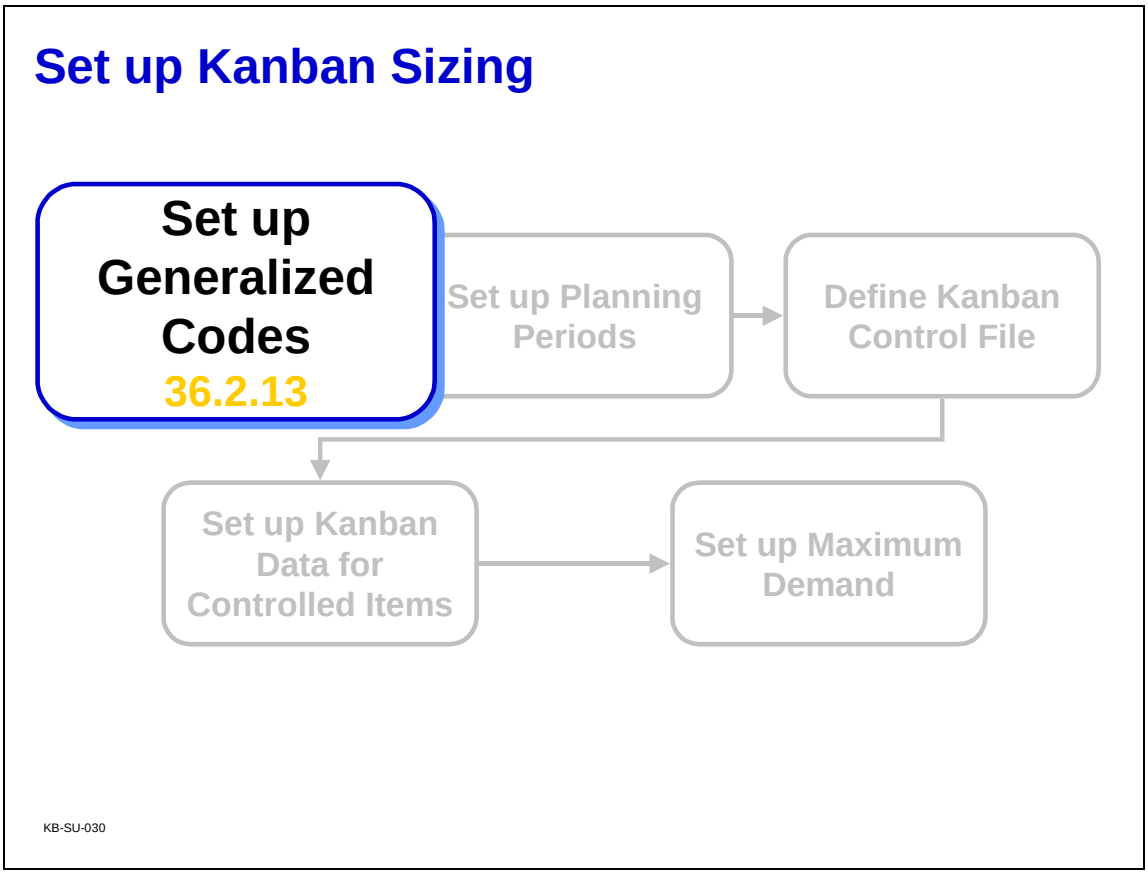
Set up Kanban Sizing



Kanban Sizing Setup

This illustration is a suggested setup sequence of master files for the Kanban Sizing module which is based on information that flows from one master file to another and prerequisites that need to be accomplished before setting up a file. Reading the illustration:

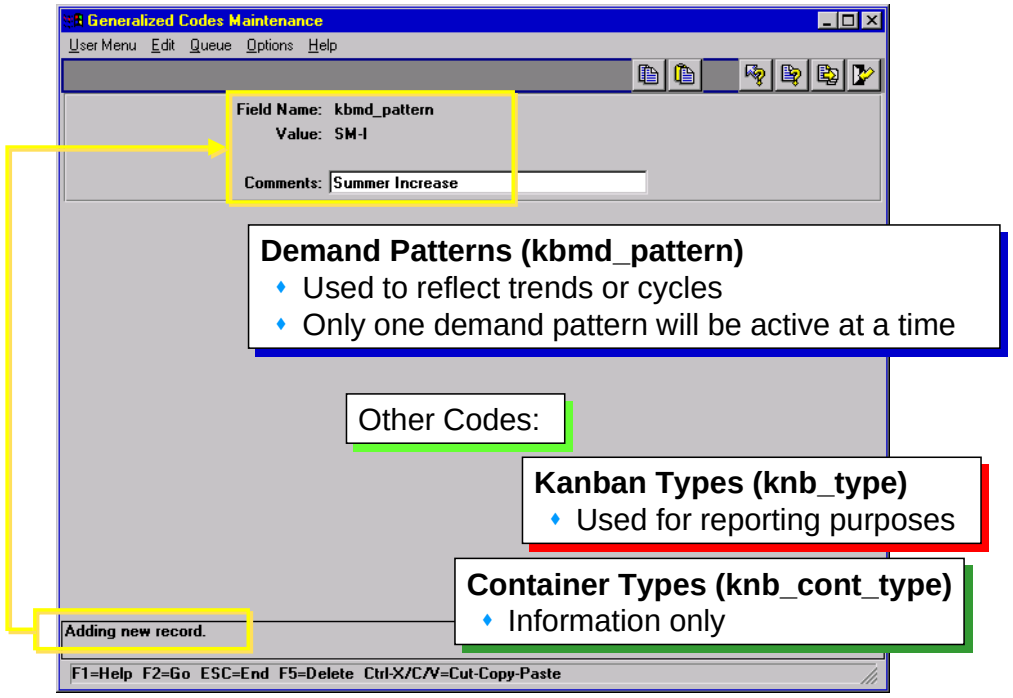
Boxes with solid lines are required to set up Kanban Sizing and are covered in this course.



Set up Generalized Codes

Generalized Codes give you flexibility in organizing and implementing functions, since you can define values that are meaningful in your own business environment.

36.2.13 – Generalized Codes Maintenance



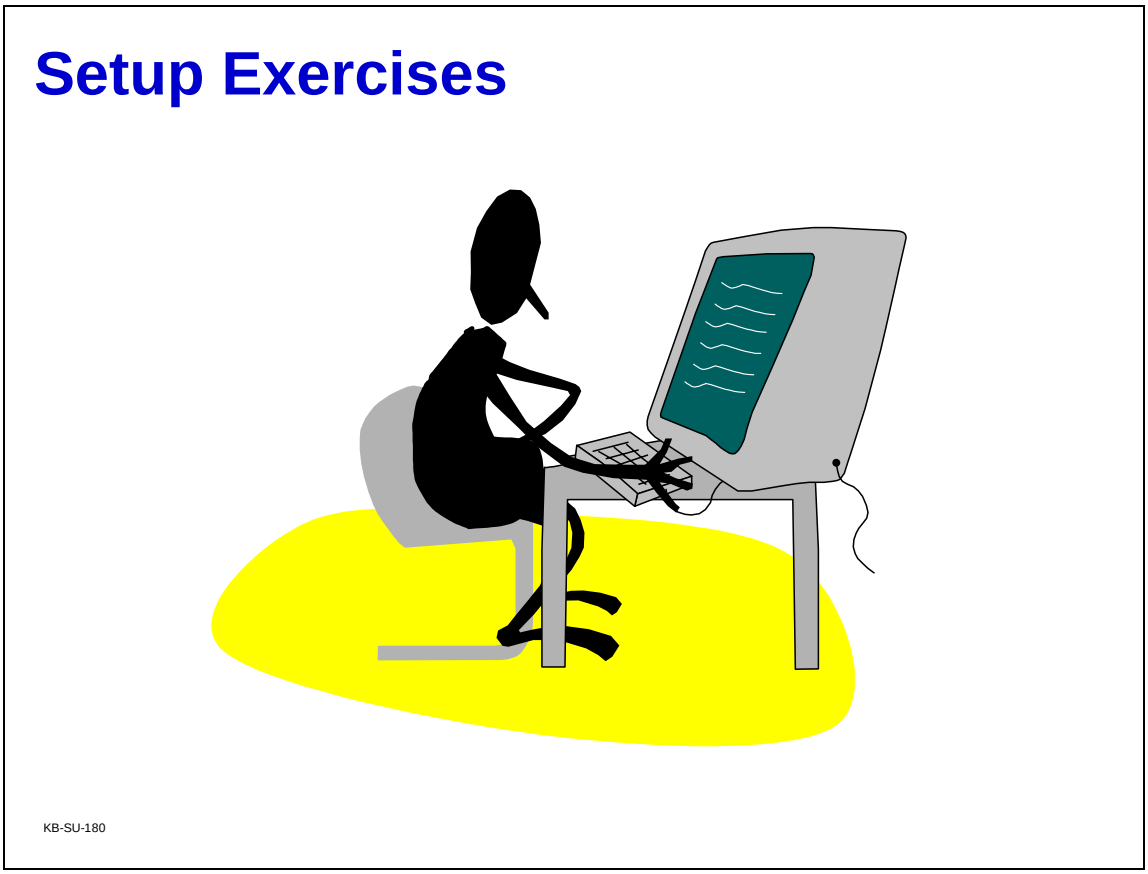
KB-SU-040

Generalized Codes Maintenance

Menu Number 36.2.13

- You can create as many Demand Patterns as you like, but only one demand pattern is active at a time

See in this training guide: *Summary of Generalized Codes* on page 97



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

Exercise: Define Generalized Codes

Description: In this exercise, you define generalized codes.

1 Set up one kanban type code, using the following values.

Use Generalized Codes Maintenance, 36.2.13

Field	Data
Field Name	knb_type
Value	test
Description	test kanban type

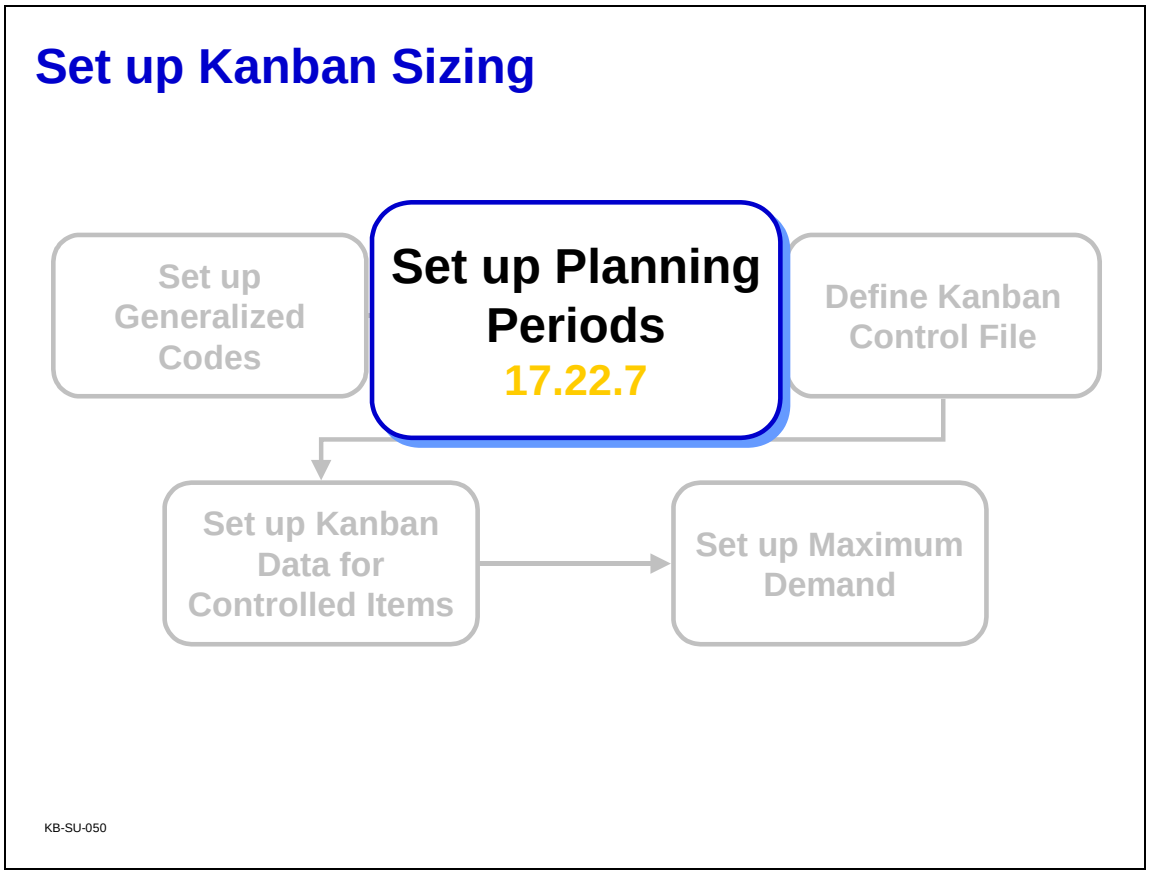
2 Set up one container type code, using the following values:

Field	Data
Field Name	knb_cont_type
Value	basket
Description	basket container type

3 Set up two demand patterns, using the following values:

Field	Data
Field Name	kbmd_pattern
Value	summer
Description	summer demand pattern

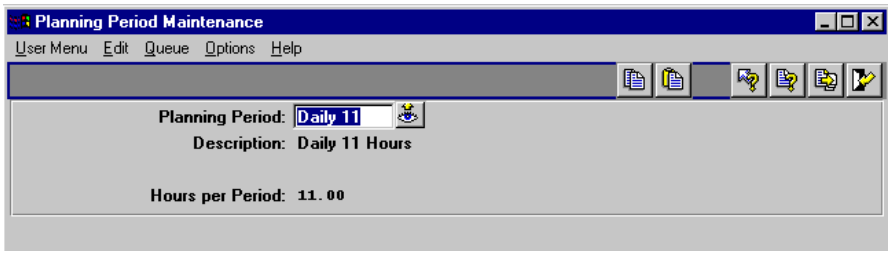
Field	Data
Field Name	kbmd_pattern
Value	winter
Description	winter demand pattern



Set up Planning Periods

- After defining generalized codes and setting up the control file, define the planning periods with Planning Period Maintenance 17.22.7
- Assign planning periods to combinations of item/consuming site/demand patterns in Maximum Demand Maintenance 17.22.10

17.22.7 – Planning Period Maintenance



- Planning Periods are used to calculate the maximum demand per hour
  - Description
  - Number of hours per planning period

KB-SU-060

Planning Period Maintenance

Menu Number 17.22.7

- You can set up as many planning periods as you like

Note You cannot delete a planning period associated with an existing maximum demand record.

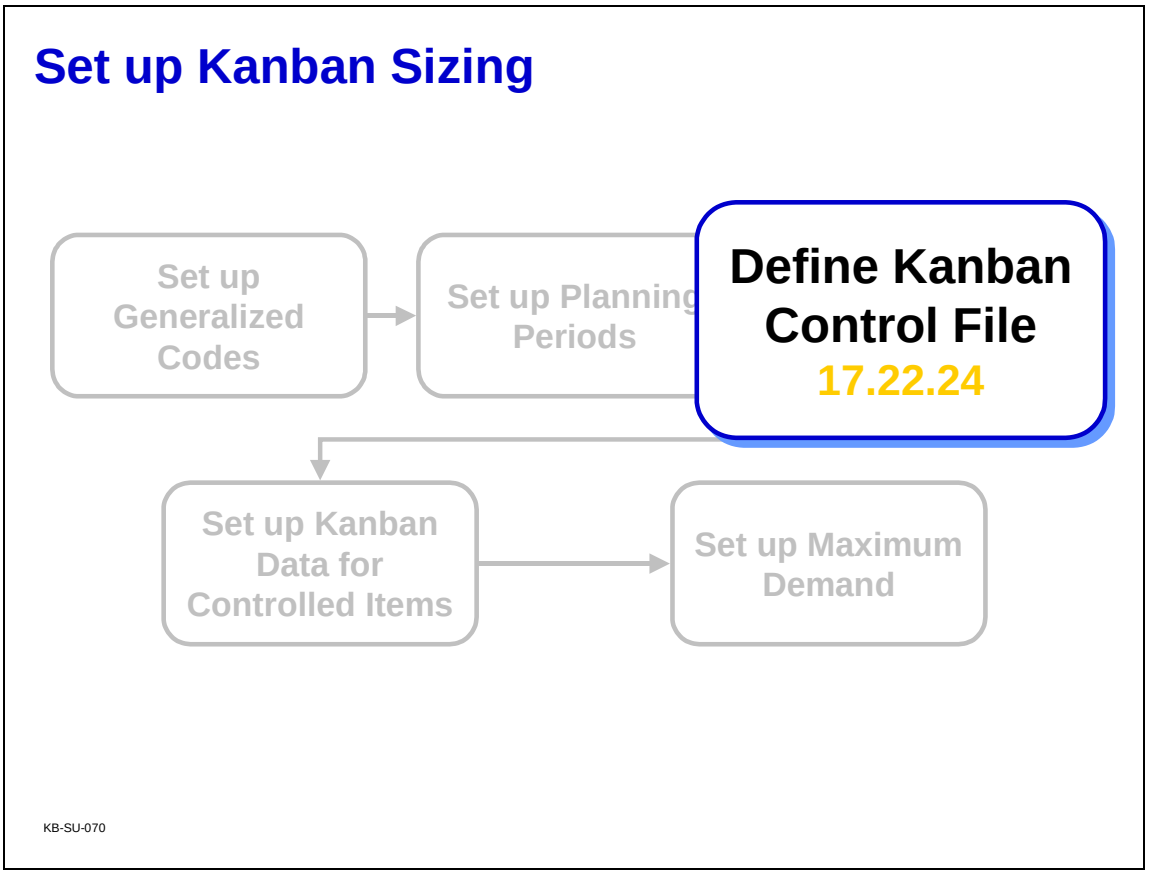
Exercise: Define Planning Periods

Description: In this exercise, you define two planning periods for your production.

1 Set up two planning periods, using the following values:

Use Planning Period Maintenance, 17.22.7

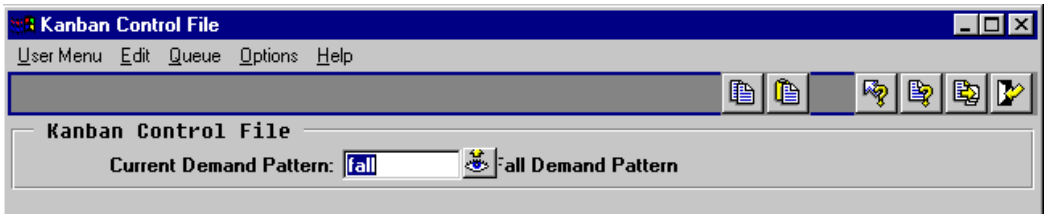
Field	**Data**
Planning Period	daily8
Description	daily 8 hours
Hours Per Period	8.00
Planning Period	daily12
Description	daily 12 hours
Hours Per Period	12.00



Define the Kanban Control File

The Kanban Control File indicates which Demand Pattern is used in current calculations.

17.22.24 – Kanban Control File



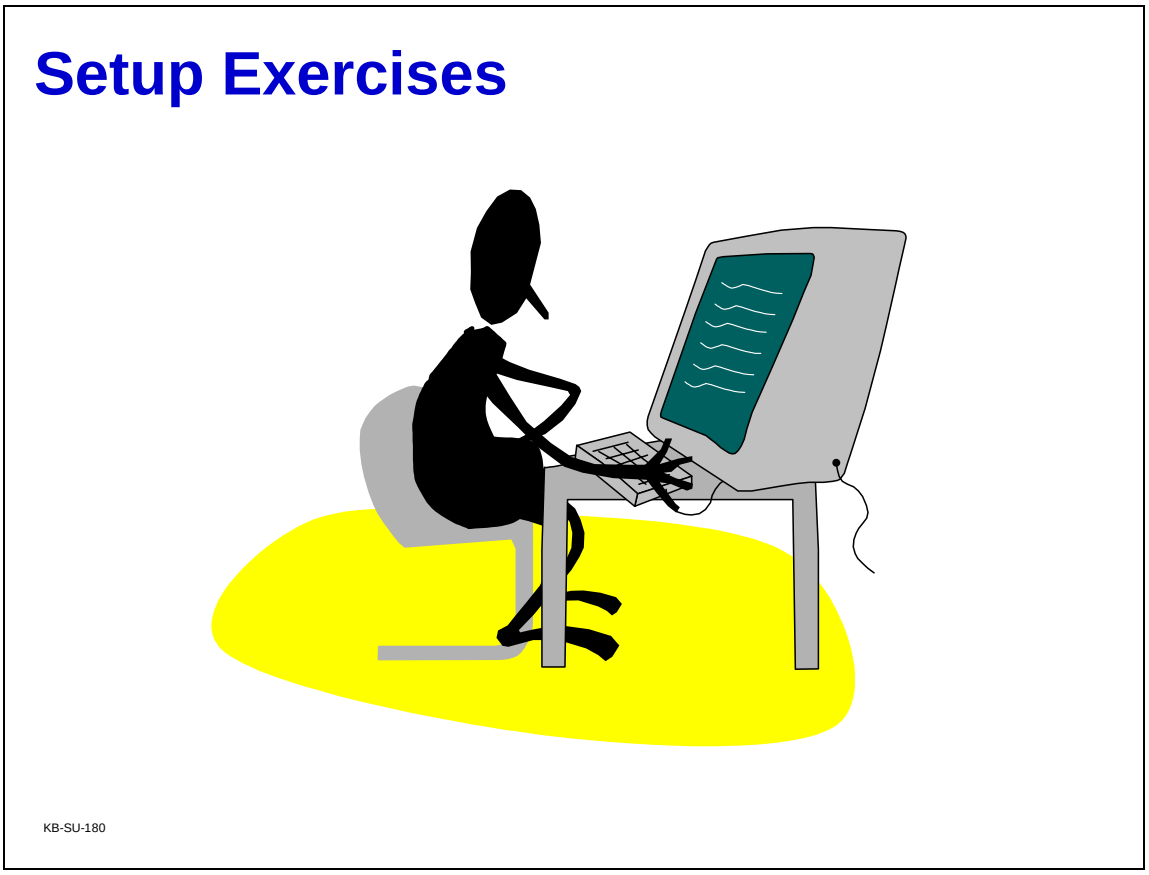
- Current Demand Pattern will be used in maximum demand calculations and kanban sizing calculations

KB-SU-080

Kanban Control File

Menu Number 17.22.24

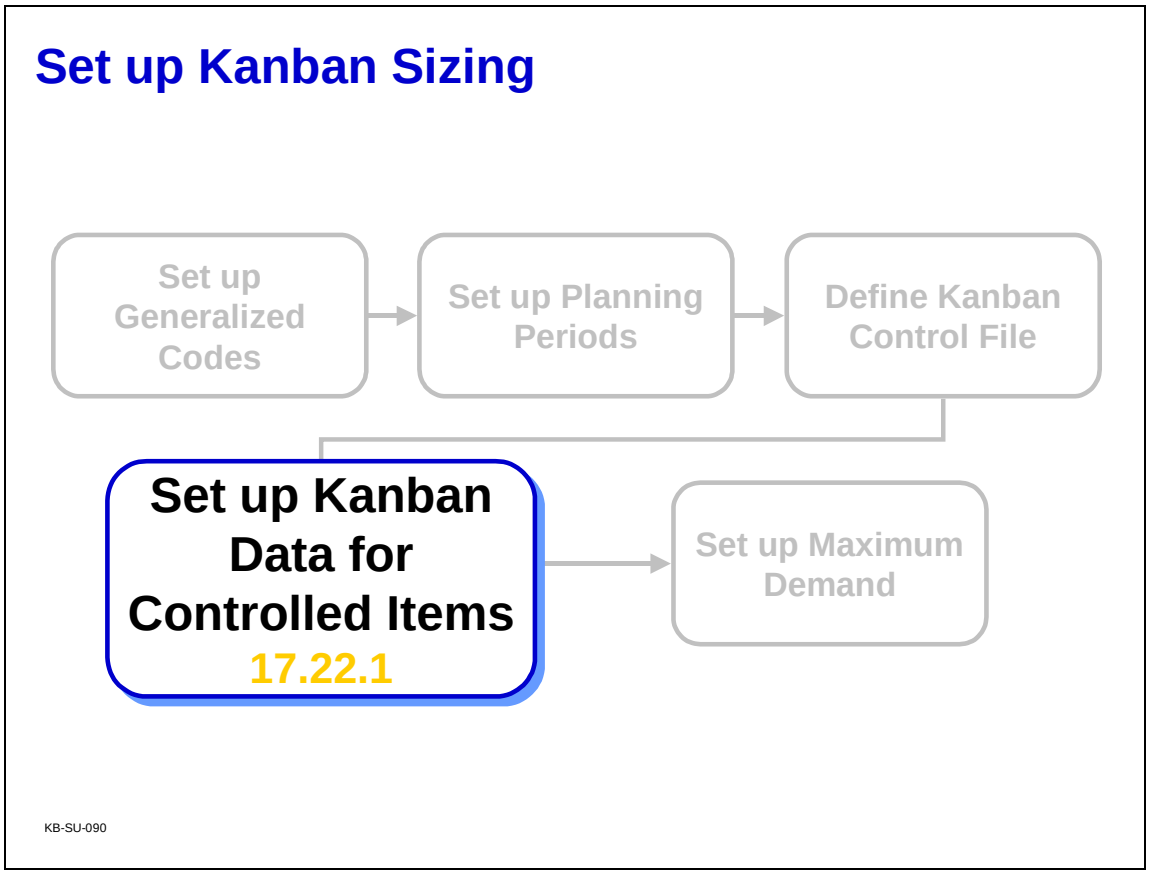
- Specify the current demand pattern
  - Used in Maximum Demand Calculation 17.22.13 and Kanban Card Size/Print 17.22.15
- This field is validated against codes set up in Generalized Codes Maintenance 36.2.13 for field `kbmd_pattern`



Exercise: Define Kanban Control File

Description: In this exercise, you define the kanban control file.

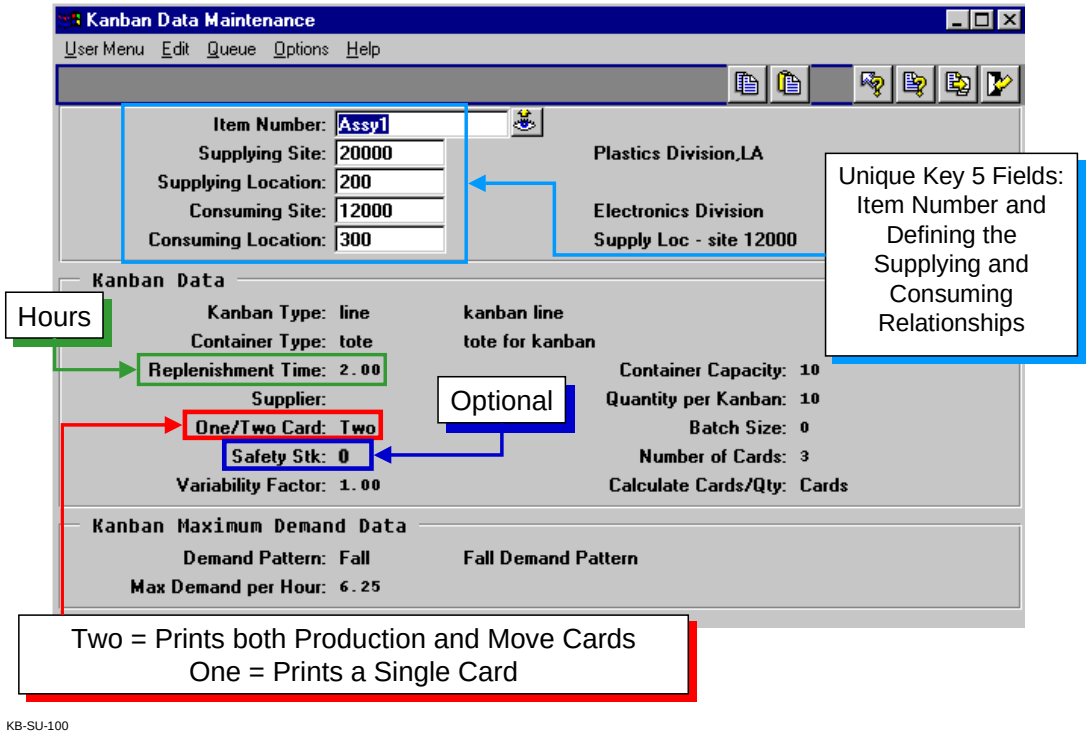
1 Select the summer demand pattern, set up in the exercise above.
Use Kanban Control File, 17.22.24



Set up Kanban Data for Controlled Items

After setting up the planning periods and control file, you can begin entering kanban data using Kanban Data Maintenance 17.22.1.

17.22.1 – Kanban Data Maintenance



KB-SU-100

Kanban Data Maintenance

Menu Number 17.22.1

Item Number

- Cannot have the Pur/Mfg Code of F (family) in Item Master Maintenance 1.4.1
- Cannot be a global phantom for either the item site or item master (`ptp_phantom` or `pt_phantom` cannot be Yes)

Replenishment Time

- Includes all relevant components of lead time and required slack time
  - Slack time is used for any producing cell that produces more than one item
- This field is a contract between supplying and consuming sites, reflecting *maximum turnaround time*

Safety Stock

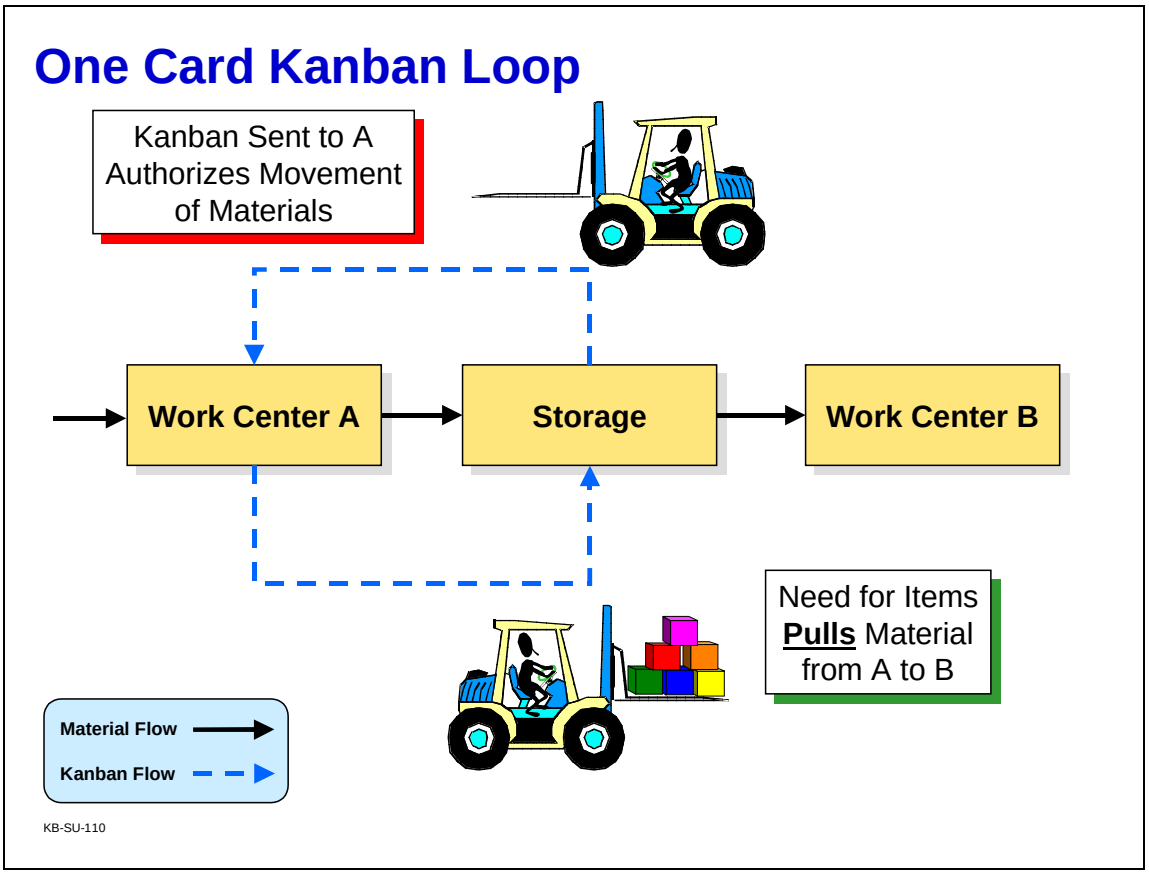
- Safety stock is optional, and defaults to zero

Variability Factor

- If you use two supply sites, you can split usage between sites by setting a fractional variability
- If more than one loop exists for the item and consuming site, this field can be used to show the percentage belonging to each loop (allowing better control of the number of cards per loop)

One / Two Card

- A detailed description of the one-card loop and two-card loop follows



One Card Kanban Loop

- The illustration above shows a single-card system using the withdrawal principle

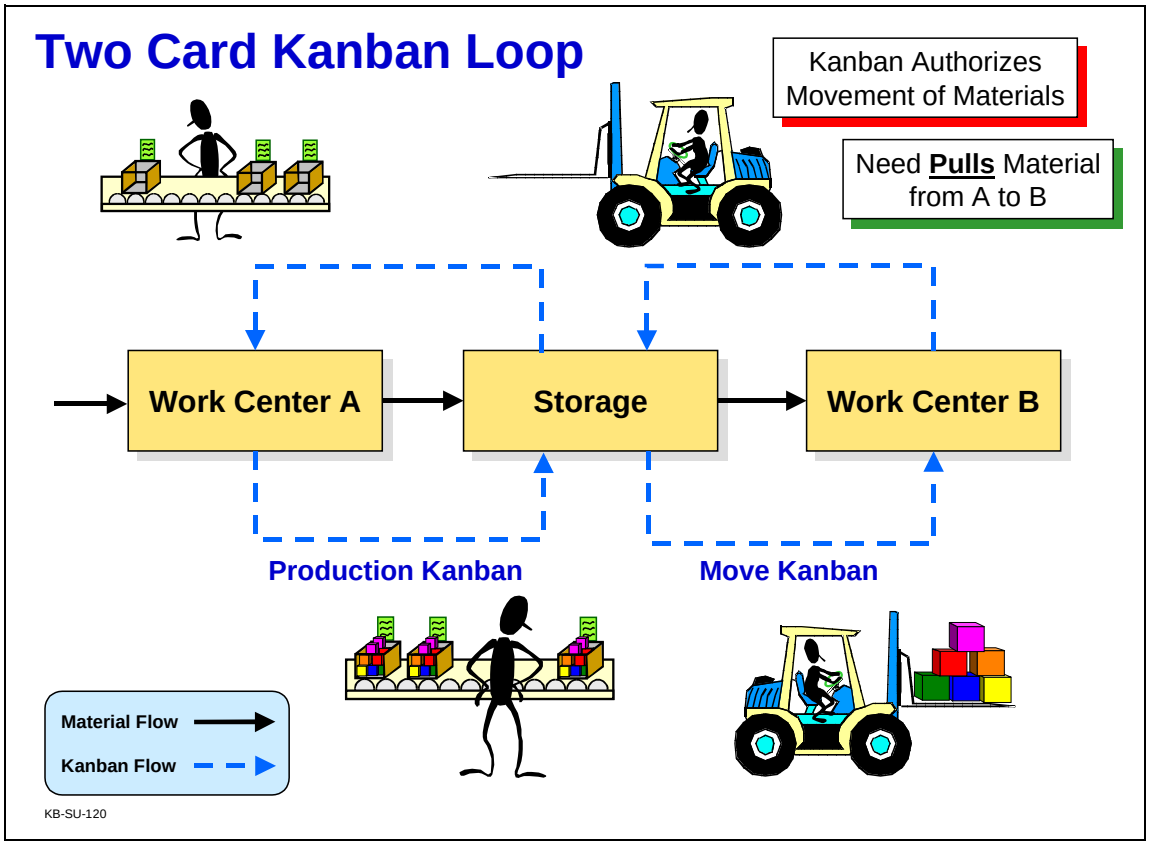
1 Work center A produces parts that move to a “storage area” in containers.

Important “Storage” is in quotes because this material does not remain here long. Do not confuse kanban storage with inventory storage—material moves only on demand.

2 Work center B pulls the containers from storage when it needs the material (and may return an empty container to the storage area).

3 When B pulls the container, the moved kanban is removed from the container and placed in the card rack at A.

4 The moved kanban in A indicates an authorization for A to produce another container of parts.



Two Card Kanban Loop

- A two-card system has a move kanban and a production kanban.

1 Work center B uses a container of parts that are next to B.

2 The move kanban pulled from the container goes to the storage area.

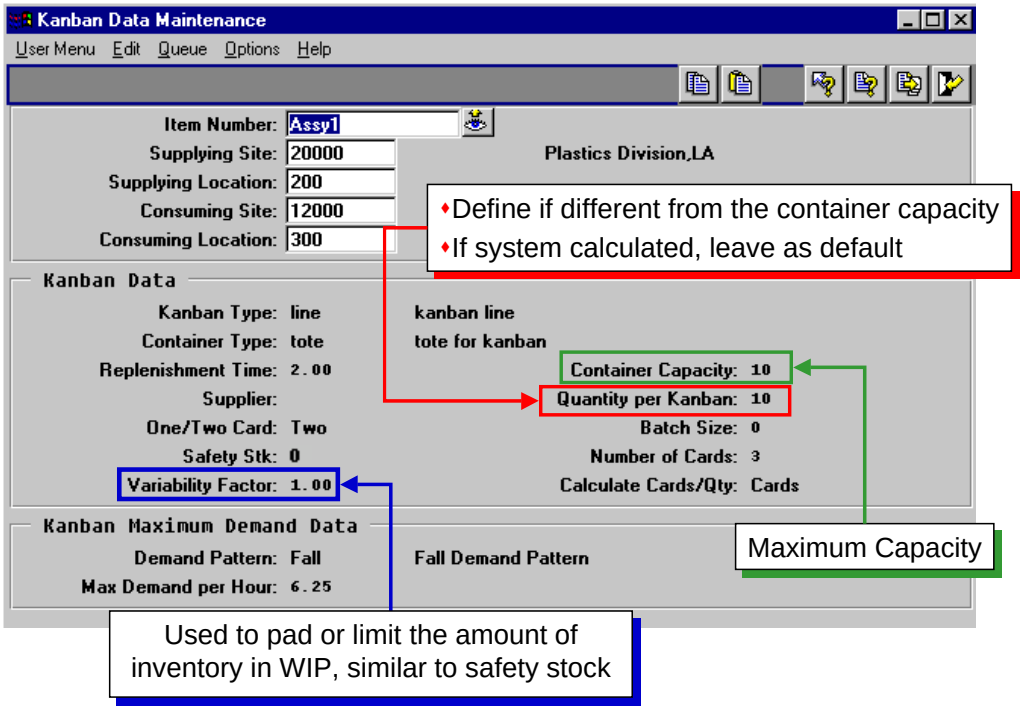
3 A full container is found, the production kanban is removed, and the move kanban is placed in the container.

  – This authorizes movement of the container from storage to work center B.

4 The production kanban is then placed near work center A as an authorization to produce another container of parts.

5 When work center A is done producing a full container of parts, the production kanban is then placed in this container and moved to storage.

17.22.1 – Kanban Data Maintenance (cont'd)



KB-SU-130

Kanban Data Maintenance (cont'd)

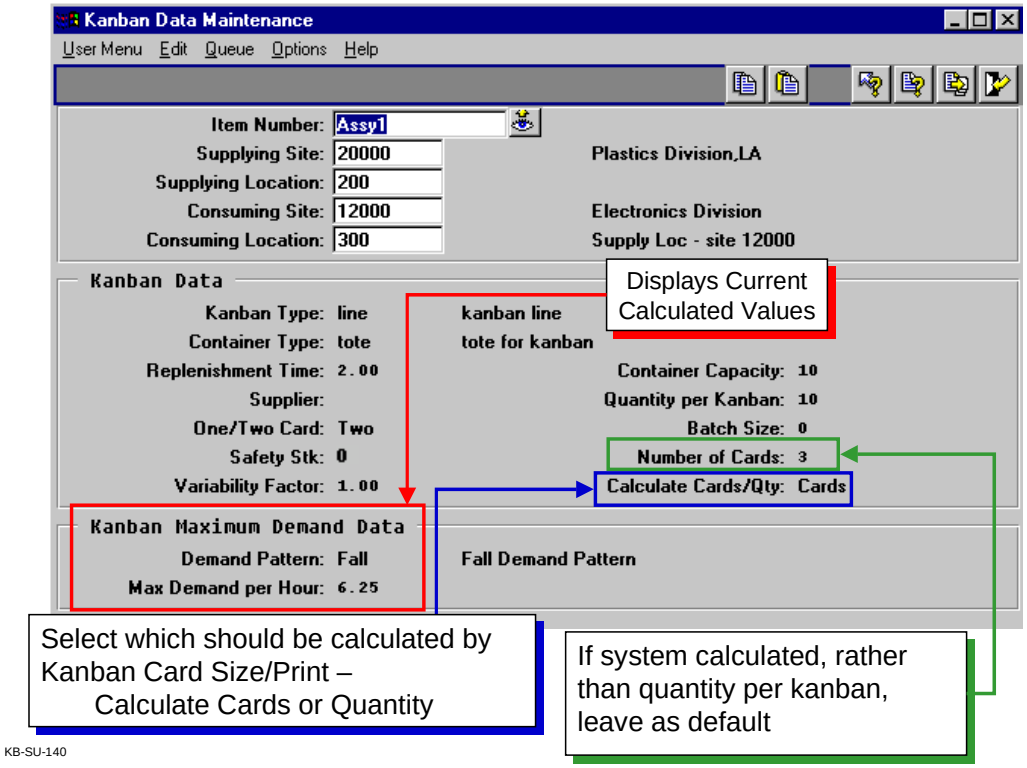
Container Capacity

- Enter the physical constraint placed on the container or item, which could be any of the following:
  - Maximum quantity held by a carton or container
  - Standard supplier package size
  - Production constraint such as size of an oven tray
  - For unwieldy or heavy items, maximum amount that can be handled
- Container Capacity must be greater than zero (0)

Quantity per Kanban (Optional)

- Enter the number of items per kanban
  - If Quantity per Kanban = 0, then the calculation only considers the container capacity
  - If Quantity per Kanban > 0, then this field represents the actual quantity to be placed in each container, regardless of the capacity of that container
- Quantity per Kanban must be less than or equal to the Container Capacity

17.22.1 – Kanban Data Maintenance (cont'd)



Kanban Data Maintenance (cont'd)

- The Kanban Maximum Demand Data Frame displays the current value based on the last run of Maximum Demand Calculation 17.22.13

Setup Exercises

KB-SU-180

Exercise: Define Sites and Locations

Description: In this exercise, you set up specific kanban sites and locations.

1 Set up two sites, using the following values:

Use Site Maintenance, 1.1.13

Field	**Data**
Site	kanban1
Description	kanban site 1
Site	kanban2
Description	kanban site 2

2 Set up two locations, using the following values:

Use Location Maintenance, 1.1.18

Field	**Data**
Site	kanban1
Location	kbloc1
Description	kanban location 1
Site	kanban2
Location	kbloc2
Description	kanban location 2

Exercise: Define Kanban Items

Description: In this exercise, you define your kanban items, both parents and components.

1 Set up the following items:

Use Item Data Maintenance, 1.4.1

Field	**Data**
Item	kbparent
Description	kanban parent item
Product Line	1000
Promo Group	PG1
Status	AC
Site	kanban1
Location	kbloc1
Pur/Mfg	M
Yield	100%

Field	**Data**
Item	kbassy1
Description	kanban assembly item 1
Product Line	1000
Promo Group	PG1
Status	AC
Site	kanban1
Location	kbloc1
Pur/Mfg	M
Yield	98%

Field	Data
Item	kbcomp1
Description	kanban component item 1
Product Line	1000
Promo Group	PG1
Status	AC
Site	kanban1
Location	kbloc1
Pur/Mfg	P
Yield	100%
Curent Cost Data:	
Material Cost	2.25
Labor Cost	1.10

Field	Data
Item	kbcomp2
Description	kanban component item 2
Product Line	1000
Promo Group	PG1
Status	AC
Site	kanban1
Location	kbloc1
Pur/Mfg	P
Yield	95%
Curent Cost Data:	
Material Cost	1.05
Labor Cost	0.55

Field	Data
Item	kbcomp3
Description	kanban component item 3
Product Line	1000
Promo Group	PG1
Status	AC
Site	kanban2
Location	kbloc2
Pur/Mfg	P
Yield	100%

Curent Cost Data:

Material Cost	5.25
Labor Cost	1.25

Exercise: Create Kanban Product Structures

Description: In this exercise, you define the product structure for your kanban items.

1 Set up the following product structure:

Use Product Structure Maintenance, 13.5

Field	**Data**
Parent	kbparent
Component	kbassy1
Quantity Per	1
Scrap	0%
Parent	kbparent
Component	kbcomp3
Quantity Per	3
Scrap	2%
Parent	kbassy1
Component	kbcomp1
Quantity Per	1
Scrap	0%
Parent	kbassy1
Component	kbcomp2
Quantity Per	2
Scrap	0%
Parent	kbassy1
Component	kbcomp3
Quantity Per	3
Scrap	2%

Exercise: Define Kanban Data

Description: In this exercise, you define the kanban data for each individual item.

1 Define the following values:

Use Kanban Data Maintenance, 17.22.1

Field	**Data**
Item	kbassy1
Supplying Site	kanban2
Supplying Location	kbloc2
Consuming Site	kanban1
Consuming Location	kbloc1
Kanban Type	test
Container Type	basket
Replenishment Time	1.4
Supplier	*<leave blank>*
One/Two Card	One
Safety Stock	0
Variability Factor	1.00
Container Capacity	1
Quantity Per Kanban	0
Batch Size	0
Number of Cards	2
Calculate Cards/Qty	Qty

Field	**Data**
Item	kbcomp1
Supplying Site	kanban2
Supplying Location	kbloc2
Consuming Site	kanban1
Consuming Location	kbloc1
Kanban Type	test
Container Type	basket
Replenishment Time	2.5
Supplier	002
One/Two Card	One
Safety Stock	10
Variability Factor	1.00
Container Capacity	80
Quantity Per Kanban	0

Batch Size	0
Number of Cards	6
Calculate Cards/Qty	Qty

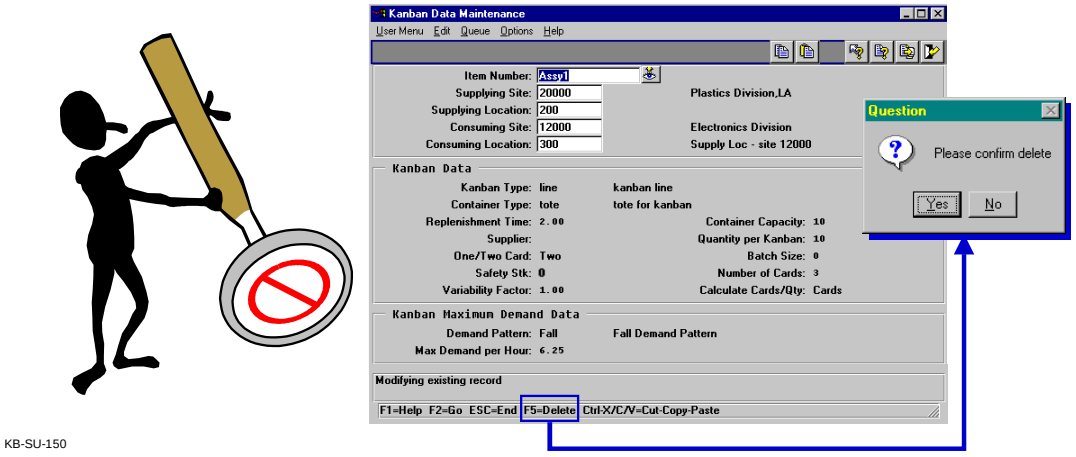
Field	**Data**
Item	kbcomp2
Supplying Site	kanban2
Supplying Location	kbloc2
Consuming Site	kanban1
Consuming Location	kbloc1
Kanban Type	test
Container Type	basket
Replenishment Time	3.5
Supplier	*<leave blank>*
One/Two Card	Two
Safety Stock	0
Variability Factor	1.20
Container Capacity	100
Quantity per Kanban	50
Batch Size	0
Number of Cards	0
Calculate Cards/Qty	Cards

Field	**Data**
Item	kbcomp3
Supplying Site	kanban2
Supplying Location	kbloc2
Consuming Site	kanban1
Consuming Location	kbloc1
Kanban Type	test
Container Type	basket
Replenishment Time	6.5
Supplier	002
One/Two Card	One
Safety Stock	0
Variability Factor	.75
Container Capacity	50
Quantity Per Kanban	50
Batch Size	0
Number of Cards	0
Calculate Cards/Qty	Cards

Field	Data
Item	kbcomp3
Supplying Site	kanban1
Supplying Location	kbloc1
Consuming Site	kanban1
Consuming Location	kbloc1
Kanban Type	test
Container Type	basket
Replenishment Time	10.5
Supplier	002
One/Two Card	One
Safety Stock	0
Variability Factor	.25
Container Capacity	150
Quantity Per Kanban	50
Batch Size	0
Number of Cards	1
Calculate Cards/Qty	Qty

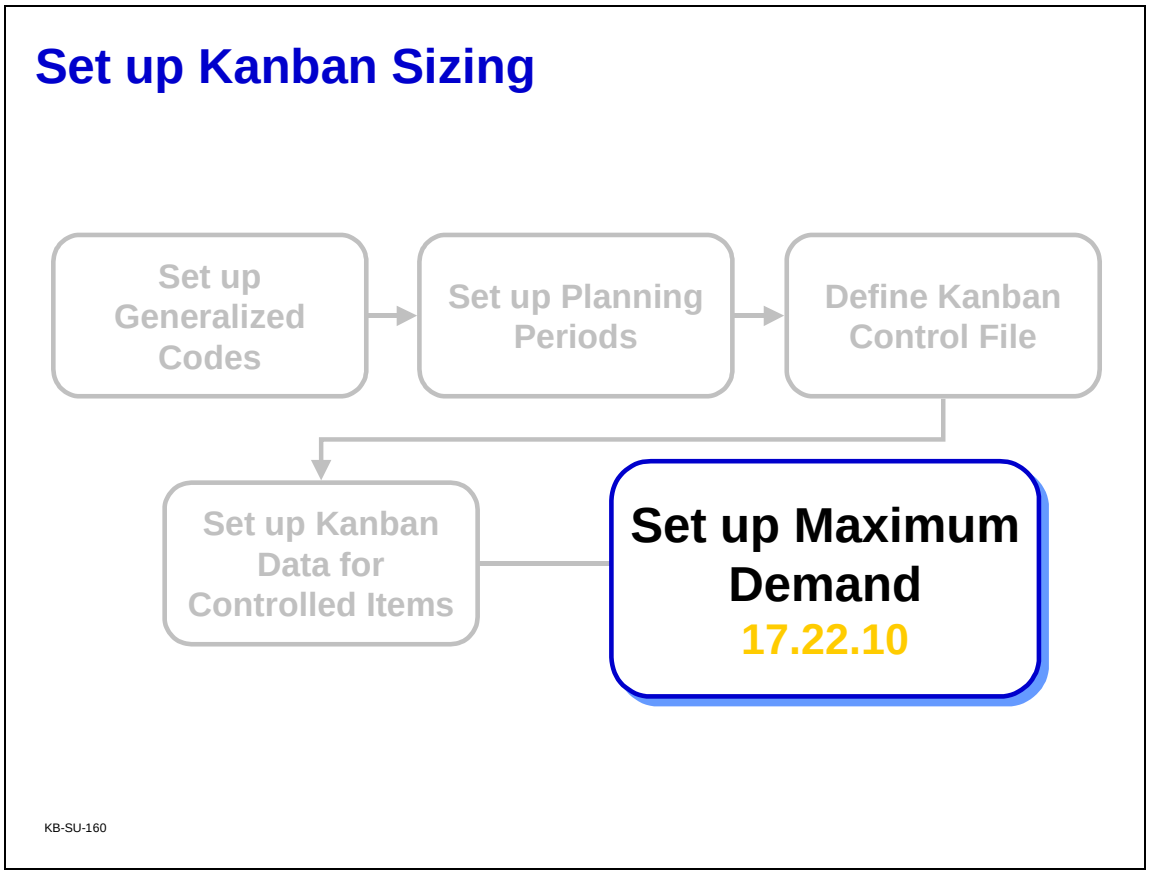
17.22.1 – Kanban Data Maintenance – Deleting Records

- The kanban master (knb_mstr) records maintained here can be deleted at any time
- When delete is selected, the associated kanban card detail (knbd_det) records, if any, will also be deleted



KB-SU-150

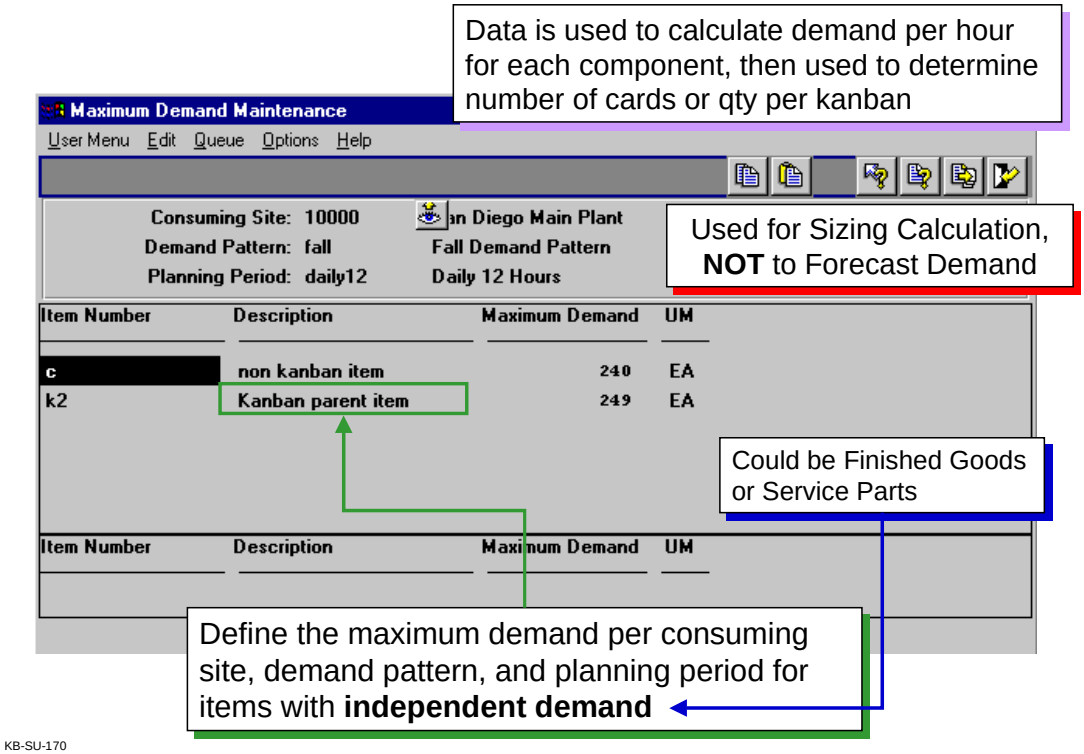
Deleting Kanban Records



Set up Maximum Demand

- Use Maximum Demand Maintenance 17.22.10 to maintain anticipated maximum demand quantities by item, consuming site, and demand pattern
- Items defined in this program do not need to be kanban-controlled
  - For example, you can define the maximum demand for a non-controlled end item so component requirements can be determined

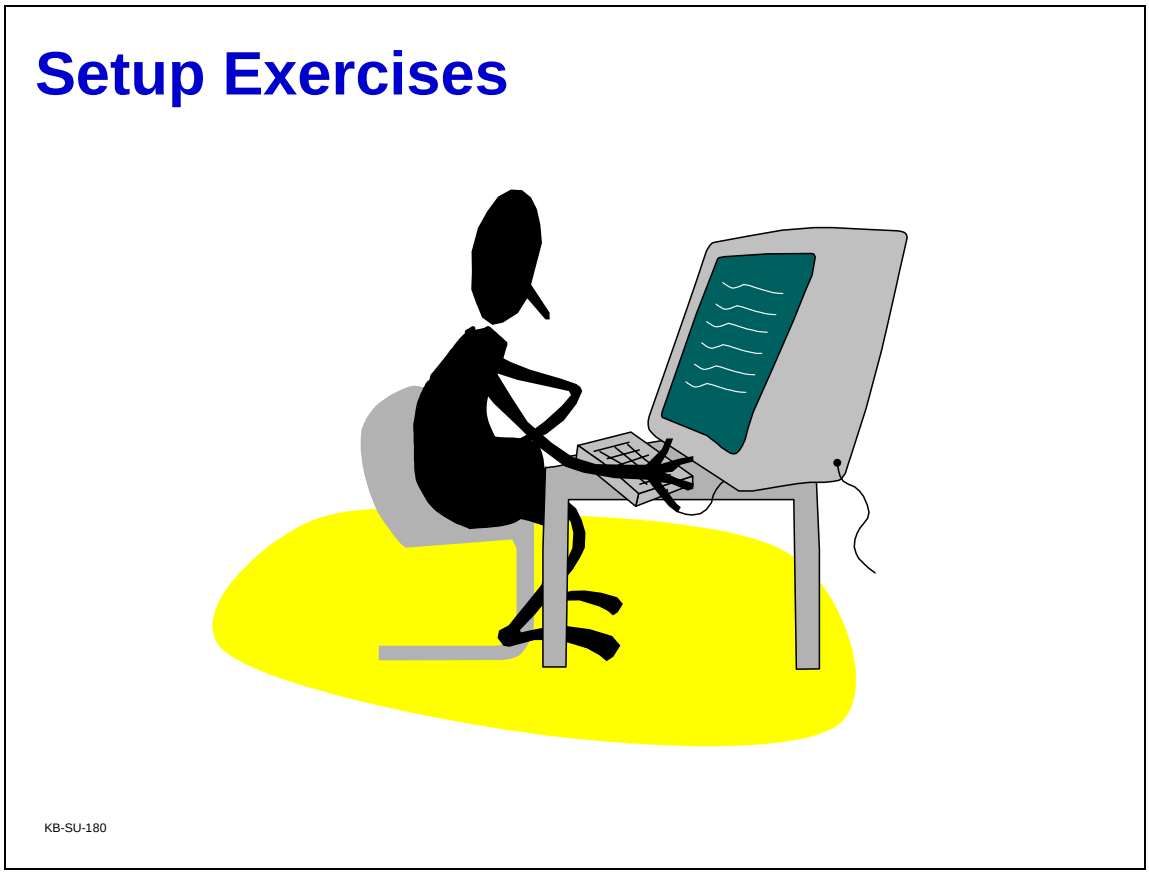
17.22.10 – Maximum Demand Maintenance



Maximum Demand Maintenance

Menu Number 17.22.10

- Both kanban-controlled and non-kanban items can be entered
- For complete setup, you need to define the maximum demand for all kanban items with independent demand



Exercise: Define Maximum Demand

Description: In this exercise, you define the maximum demand.

1 Set up the following data:

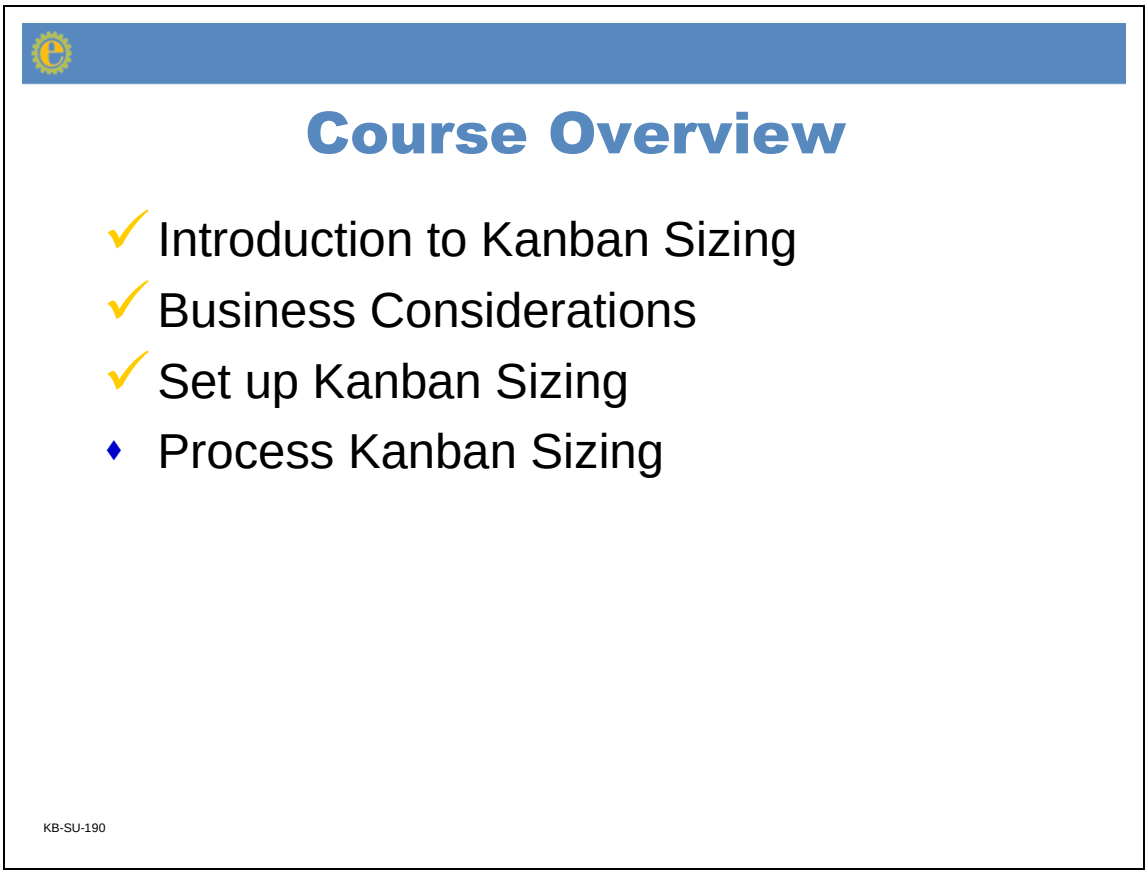
Use Maximum Demand Maintenance, 17.22.10

Field	Data
Consuming Site	kanban1
Demand Pattern	summer
Planning Period	daily8
Item	kbparent
Maximum Demand	1045

Consuming Site	kanban1
Demand Pattern	summer
Planning Period	daily12
Item	kbassy1
Maximum Demand	100

Consuming Site	kanban1
Demand Pattern	winter
Planning Period	daily12
Item	kbparent
Maximum Demand	690

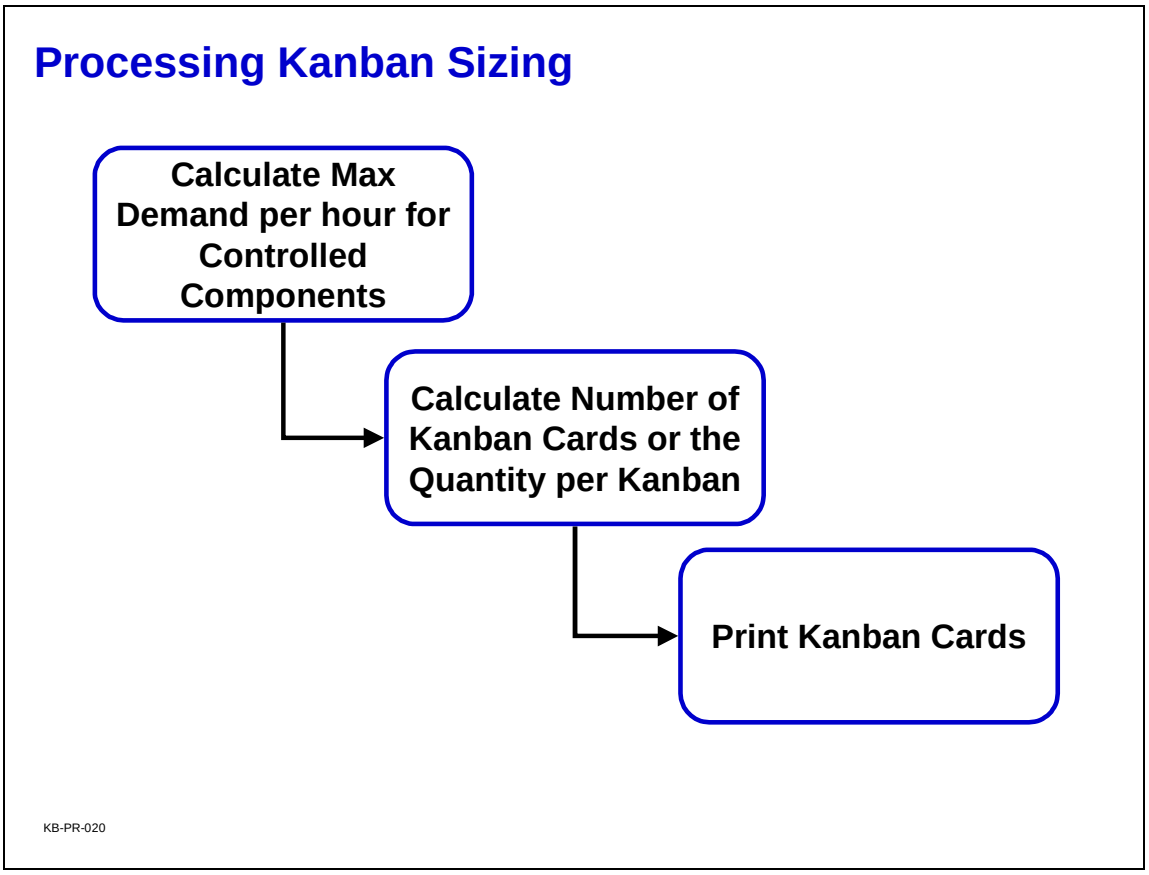
Consuming Site	kanban1
Demand Pattern	winter
Planning Period	daily12
Item	kbassy1
Maximum Demand	140



CHAPTER 4

Processing Kanban Sizing

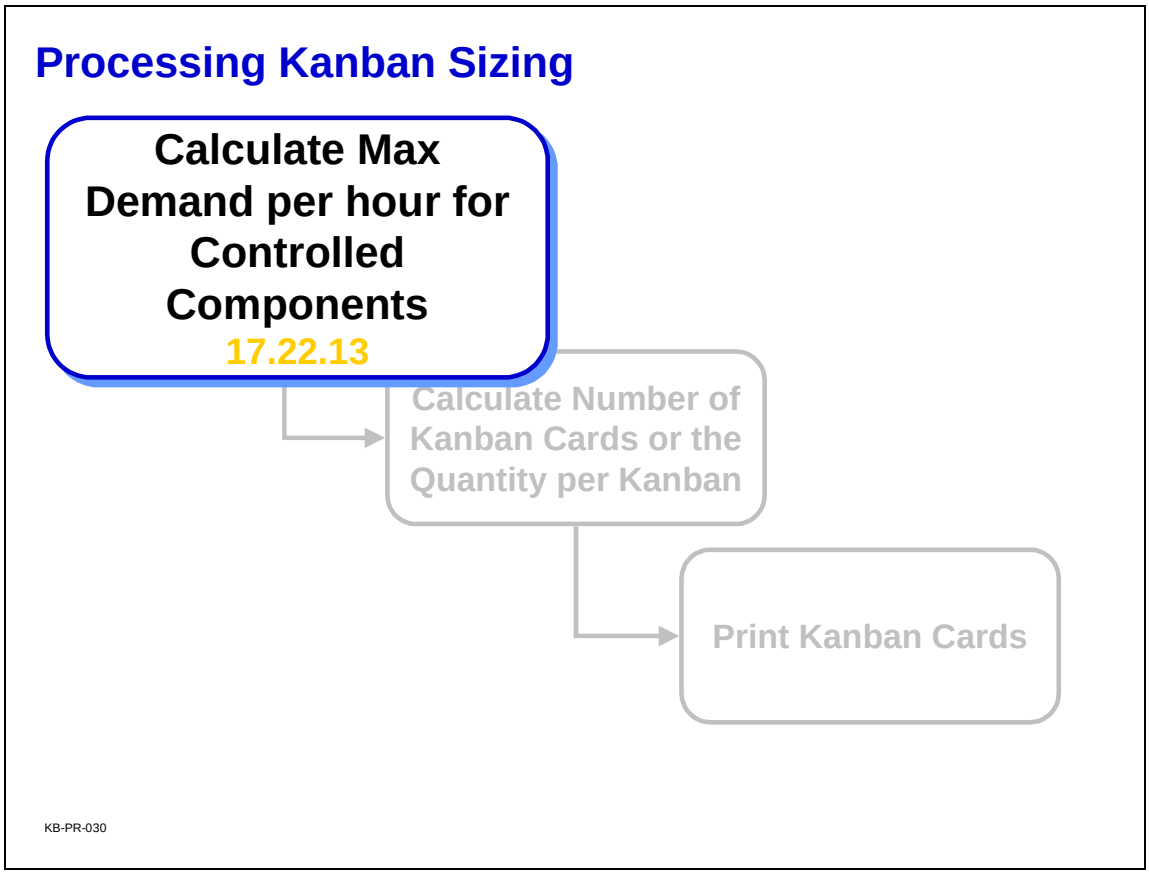
Process Kanban Sizing



Kanban Processing

This illustration is a suggested processing sequence of master files for the Kanban Sizing module which is based on information that flows from one master file to another. Reading the illustration:

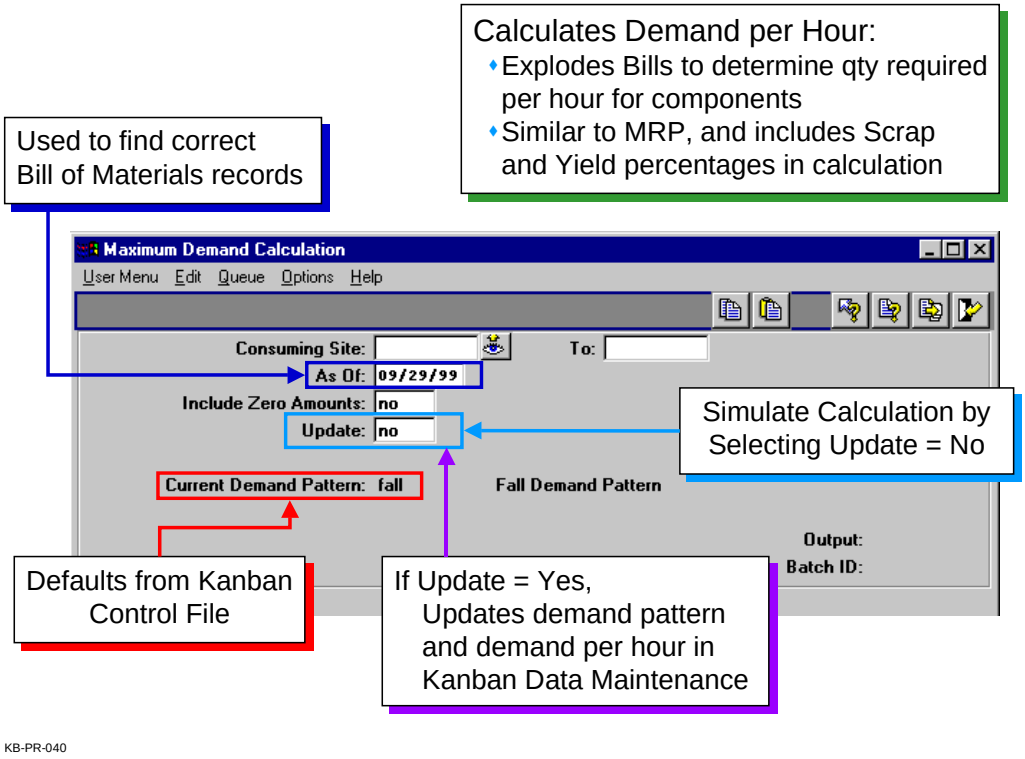
Boxes with solid lines are required to process Kanban Sizing and are covered in this course.



Calculate Maximum Demand

- Maximum Demand is the sum of:
  - Independent demand entered into Maximum Demand Maintenance 17.22.10, and
  - Dependent demand calculated by exploding the Bill of Material (BOM) of all maximum demand items
  - Reads component yield percentage like MRP does
- Alternate product structure A, co/by-product J, and data product structure D are ignored in the explosion
- Maximum demand for local phantoms is not included in the maximum demand per hour

17.22.13 – Maximum Demand Calculation



Maximum Demand Calculation

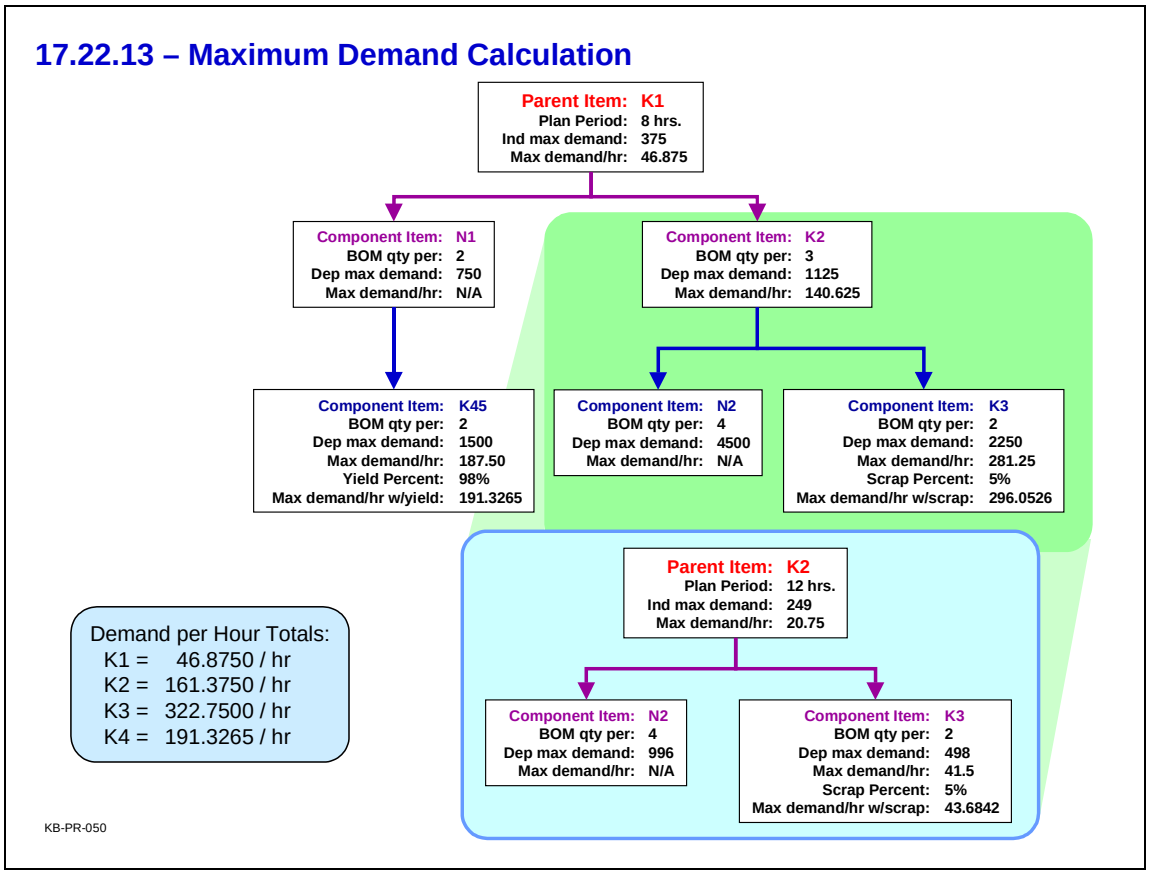
Menu Number 17.22.13

Include Zero Amounts

- Defaults to “No”

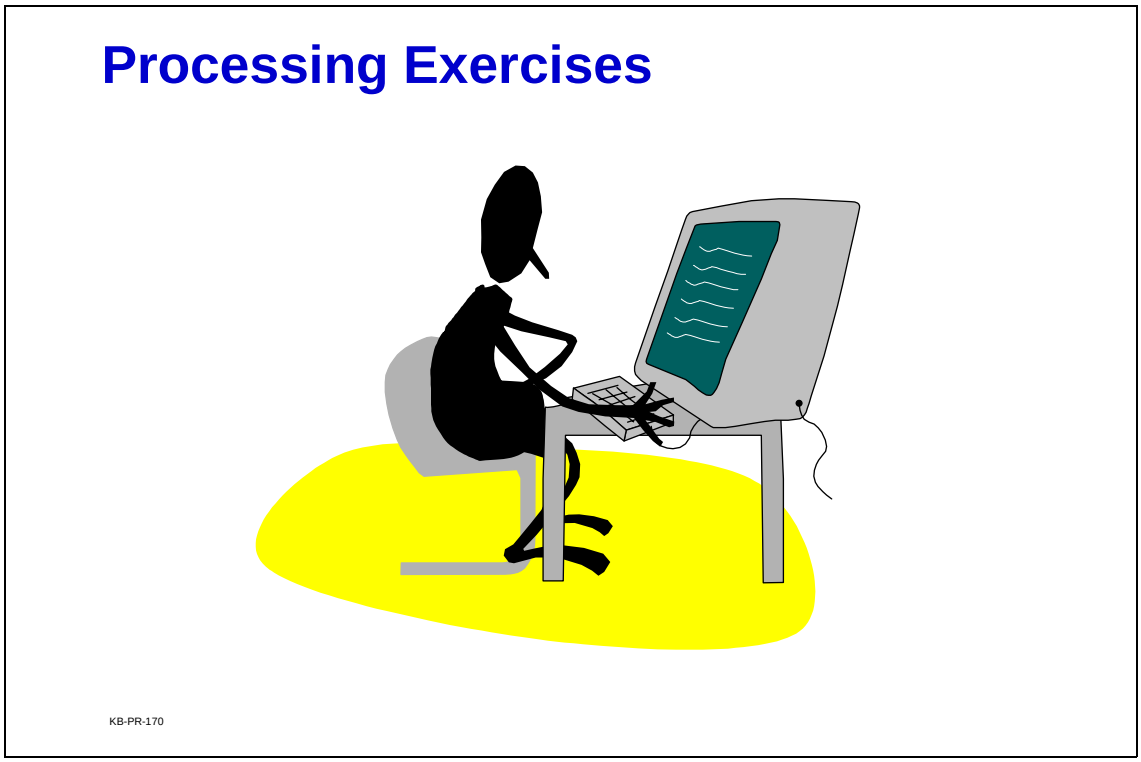
Update

- Defaults to “No”
  - When set to “No,” this runs a simulation often used for validating, or making changes to maximum demand
- Update = “Yes” then the records are calculated and replace the detail Kanban data maintenance records



Calculation Close-up

This illustration shows how multiple level calculations cascade.



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

Exercise: Calculate Maximum Demand

Description: In this exercise, you calculate the maximum demand for the kanban items created in the setup exercises.

1 Run the calculation with the following options:

Use Calculate Maximum Demand, 17.22.13

Field	**From**	**To**
Consuming Site Range	kanban1	kanban1
	Value	
As Of Date	*<use default>*	
Update	Yes	
Output	*<use the printer specified by your instructor, or print to window>*	

Note Calculation examples on the next page.

Calculate Maximum Demand

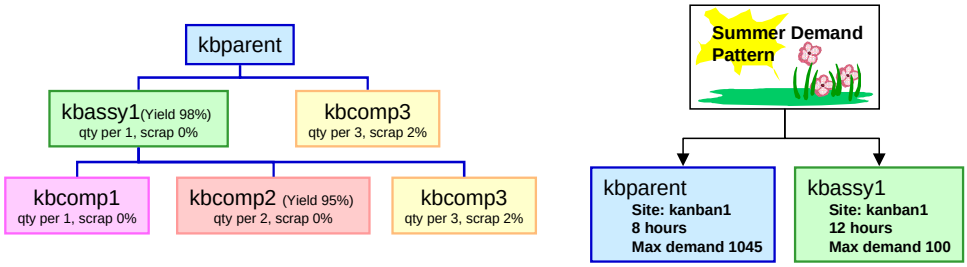
```
kbmdclc.p                    17.22.13 Maximum Demand Calculation                    Date: 10/05/99
Page: 1                                                                             Time: 10:31:04


                                Supplying  Supplying  Consuming  Consuming  Curr Demand   Max Demand
Item Number  Description       Site       Location   Site       Location   Pattern         per Hour
-----------  ---------------  ---------  ---------  ---------  ---------  -----------   ----------
kbassy1      Kanban Assembly  kanban2    kbloc2     kanban1    kbloc1     Summer          141.7942
kbcomp1      Kanban Comp 1    kanban2    kbloc2     kanban1    kbloc1     Summer          141.7942
kbcomp2      Kanban Comp 2    kanban2    kbloc2     kanban1    kbloc1     Summer          298.5141
kbcomp3      Kanban Comp 3    kanban2    kbloc2     kanban1    kbloc1     Summer          833.9364


End of Report
```

Explained in Next Slide

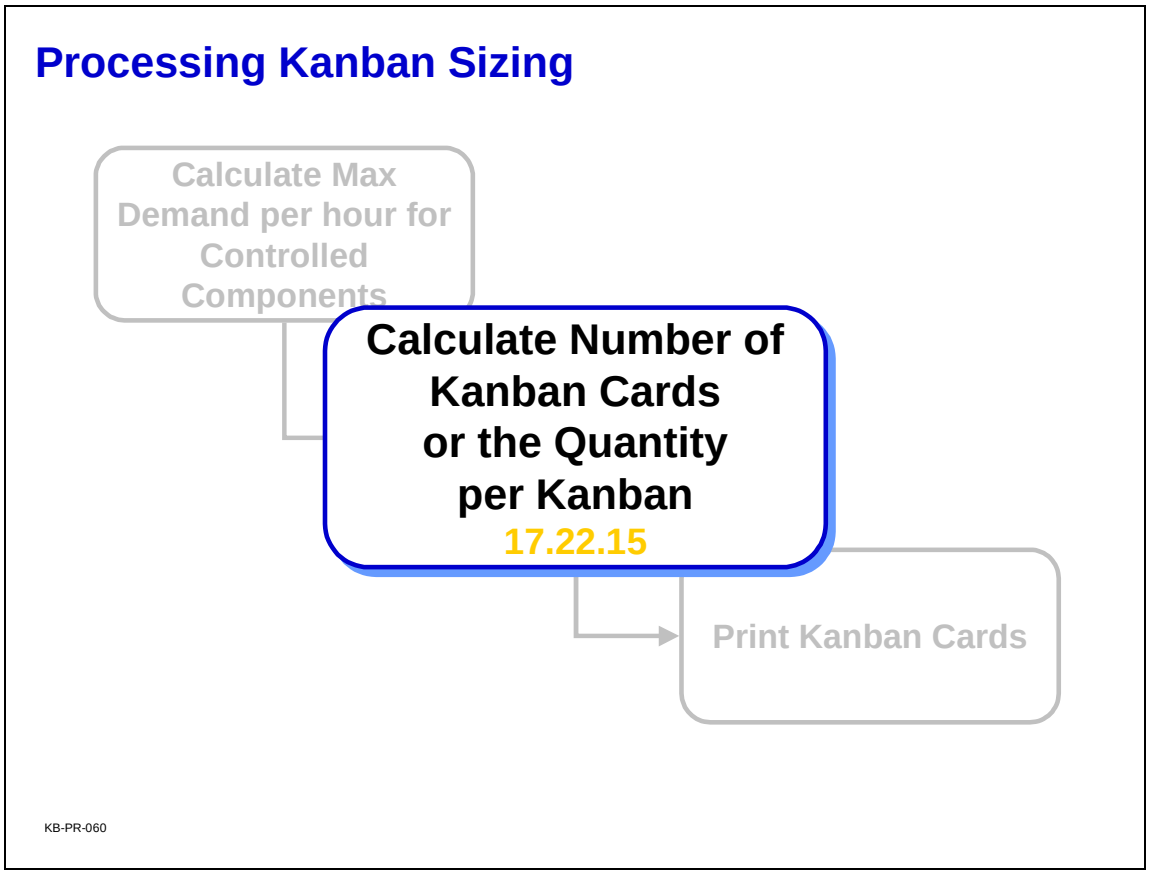
KB-PR-180

Calculation Explanations

kbassy1		
	From kbparent demand:	1,045 * 1 (qty per) / .98 (yield on kbassy1) / 8 (hours per) = 133.2908
	From kbassy1 demand:	100 / .98 (yield on kbassy1) / 12 (hours per) = 8.5034
	Total kbassy1 demand per hour:	141.7942
kbcomp1		
	From kbparent demand:	1,045 * 1 (qty per) / .98 (yield on kbassy1) / 8 (hours per) = 133.2908
	From kbassy1 demand:	100 / .98 (yield on kbassy1) / 12 (hours per) = 8.5034
	Total kbcomp1 demand per hour:	141.7942
kbcomp2		
	From kbparent demand:	1,045 * 2 (qty per) / .98 (yield on kbassy1) / .95 (yield on kbcomp2) / 8 (hours per) = 280.6122
	From kbassy1 demand:	100 * 2 (qty per) / .98 (yield on kbassy1) / .95 (yield on kbcomp2) / 12 (hours per) = 17.9019
	Total kbcomp2 demand per hour:	298.5141
kbcomp3		
	From kbparent demand (through kbassy1):	1,045 * 3 (qty per) / .98 (yield on kbassy1)*100/98 (scrap on kbcomp3) /8 (hours per) = 408.0331
	From kbparent demand:	1,045 * 3 (qty per) * 100/98 (scrap on kbcomp3) / 8 (hours per) = 399.8724
	From kbassy1 demand:	100 * 3 (qty per) / .98 (yield on kbassy1) * 100/98 (scrap on kbcomp3) / 12 (hours per) = 26.0308
	Total kbcomp3 demand per hour:	833.9363



KB-PR-190



Calculate Number of Kanban or Quantity per Kanban

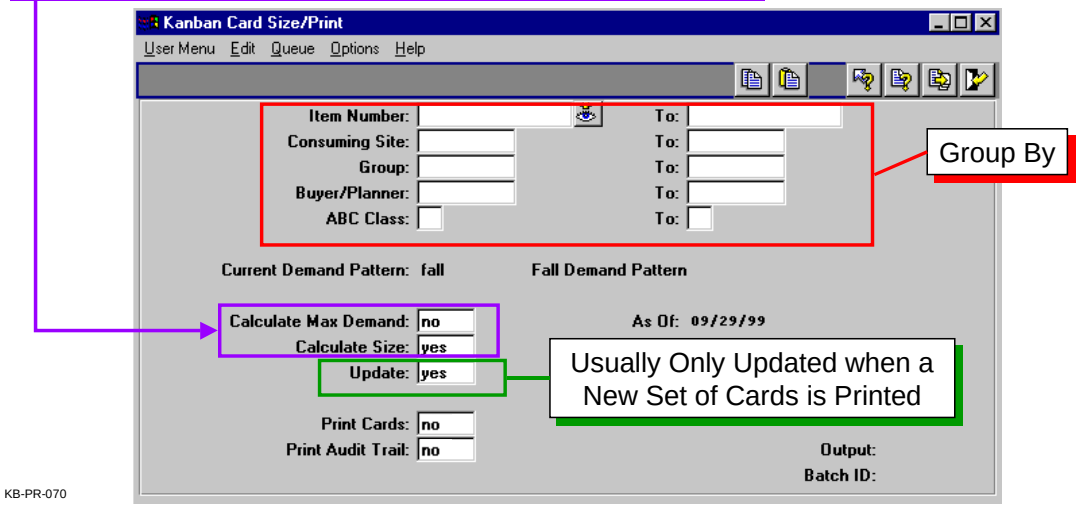
- Use Number of Cards when
  - You have fixed or limited capacity containers
- Use Quantity per Kanban when
  - You have unlimited capacity per container

17.22.15 – Kanban Card Size/Print

Calculates either:
- Number of kanban cards
  (if Calculate Cards/Qty = Cards in Kanban Data Maint)

or
- Quantity per kanban (if Calculate Cards/Qty = Qty)

Based on data in Kanban Data Maintenance and Maximum Demand Maintenance



Kanban Card Size/Print

Menu Number 17.22.15

- Cards remain in circulation until quantities required by the calculation change
  - Not printing new cards for new inventory requirements
  - Card sets might be printed as often as twice a year, or when there is a new demand pattern

17.22.15 – Kanban Card Size/Print

- Calculation if Calculate Cards/Qty = **Cards**:
  - Number of Cards = ({D x RT} + SS) x V / Q
    - D = Demand for the kanban-controlled item per hour (calculated by the Maximum Demand Calculation program)
    - RT = Replenishment Time
    - SS = Safety Stock
    - V = Variability Factor
    - Q = Container Capacity or Quantity per Kanban - If a quantity per kanban has been defined in Kanban Data Maintenance (knb_qty <> 0) then that value will be used in the calculation rather than the container capacity

KB-PR-080

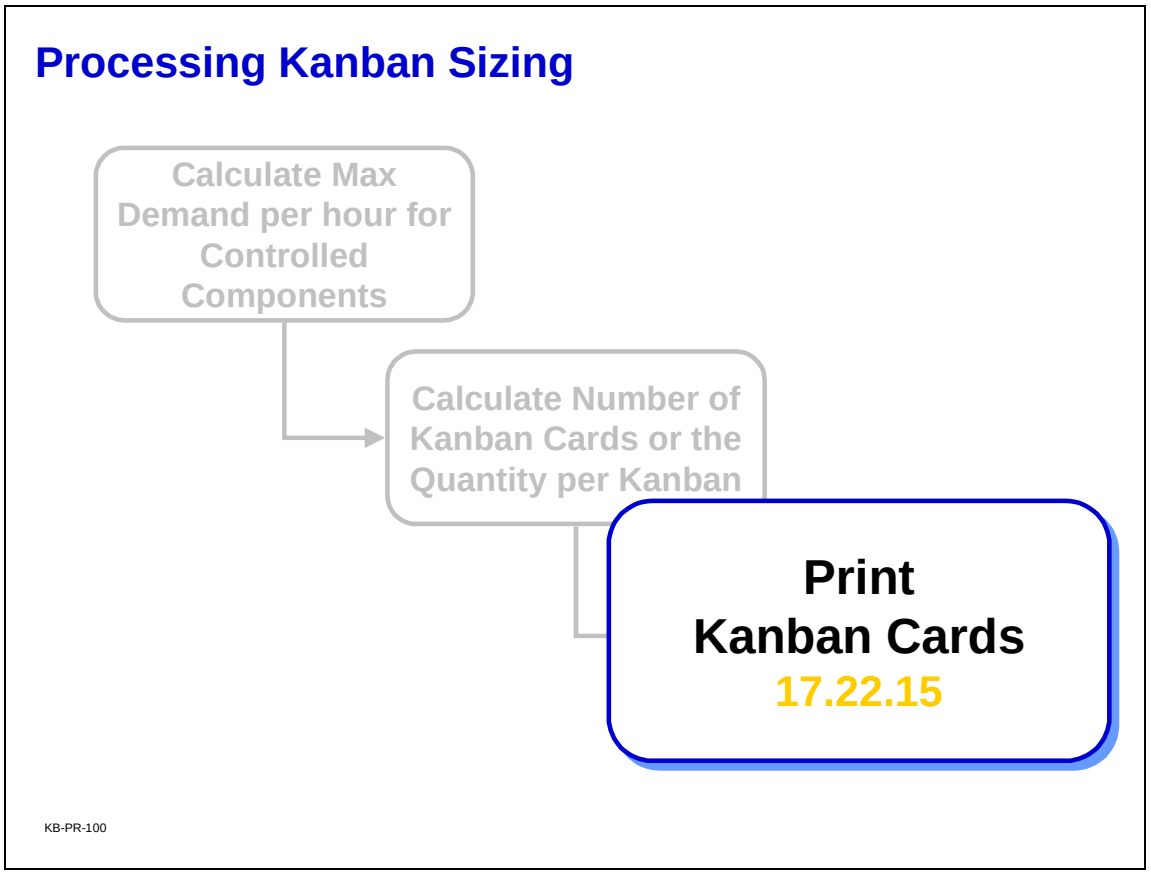
Number of Cards Calculation

17.22.15 – Kanban Card Size/Print

- Calculation if Calculate Cards/Qty = **Qty**:
  - Quanity per Kanban = ({D x RT} + SS) x V / C
    - D = Demand for the kanban-controlled item per hour (calculated by the Maximum Demand Calculation program)
    - RT = Replenishment Time
    - SS = Safety Stock
    - V = Variability Factor
    - C = Fixed number of cards if user has selected to calculate the quantity per kanban

KB-PR-090

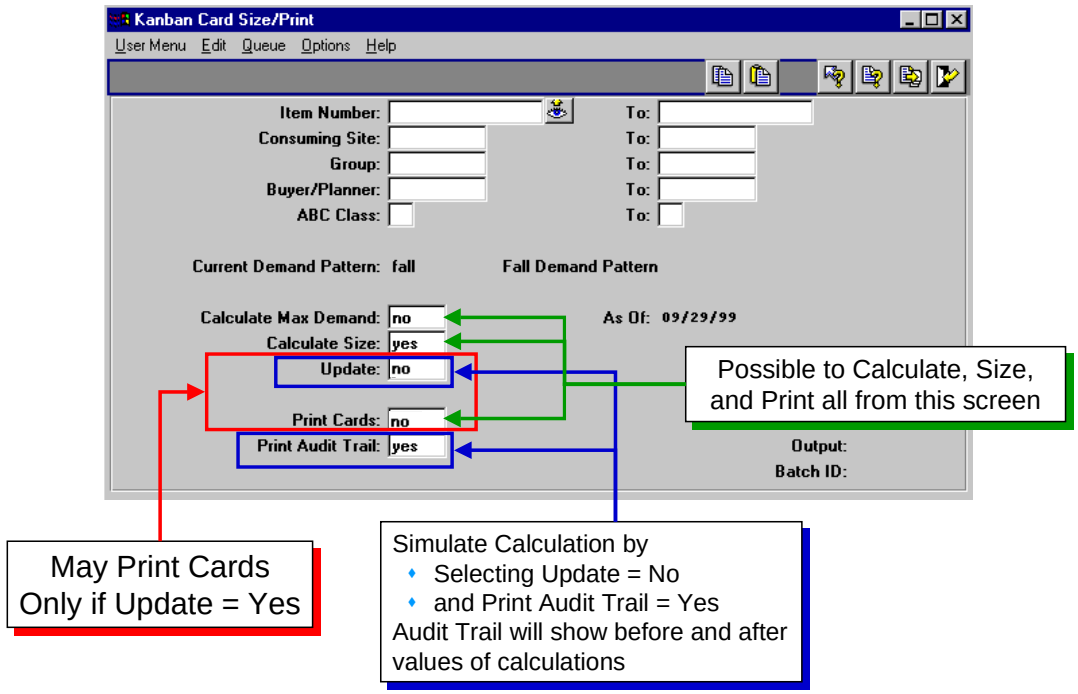
Quantity per Kanban Calculation



Print Kanban Cards

- Kanban Cards are usually printed out in the actual manufacturing areas
- Use Kanban Card Reprint 17.22.17 to reprint specific kanban cards

17.22.15 – Kanban Card Size/Print

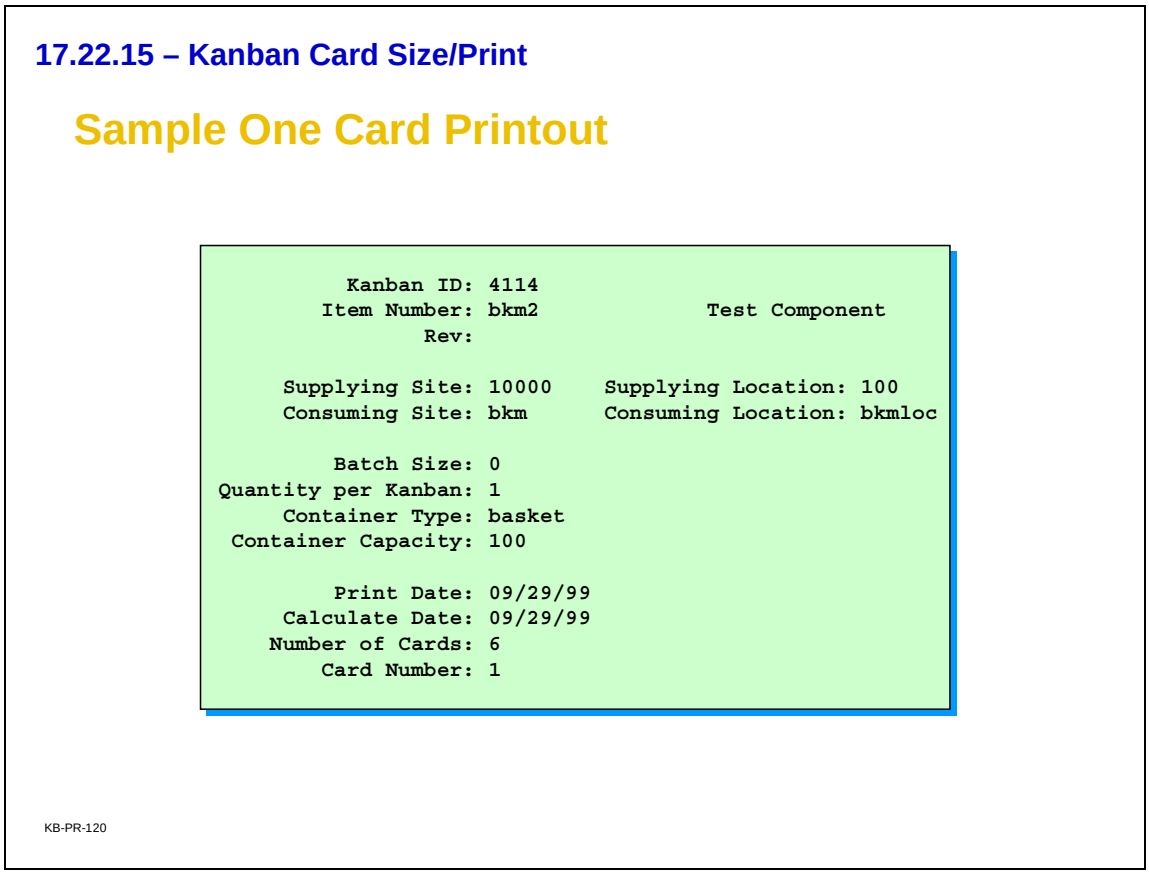


KB-PR-110

Kanban Card Size/Print

Menu Number 17.22.15

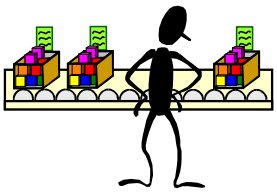
- Cards can only be printed when Update = Yes
- Simulations can be run by using the Audit Trail, to show before and after values of the calculations, without actually updating any records
- In addition to using Maximum Demand Calculation 17.22.13, you can run the calculation from this screen



Sample One Card Printout

17.22.15 – Kanban Card Size/Print

```
            Kanban ID:  4127
          Item Number:  Assy1
                  Rev:

       Supplying Site:  20000    Supplying Location: 200
       Consuming Site:  12000    Consuming Location: 300

Production/Move Card:  Prod
           Batch Size:  0
 Quantity per Kanban:  10
      Container Type:  tote
  Container Capacity:  10

          Print Date:  09/29/99
      Calculate Date:  09/29/99
     Number of Cards:  4
         Card Number:  1
```



```
            Kanban ID:  4128
          Item Number:  Assy1
                  Rev:

       Supplying Site:  20000    Supplying Location: 200
       Consuming Site:  12000    Consuming Location: 300

Production/Move Card:  Move
           Batch Size:  0
 Quantity per Kanban:  10
      Container Type:  tote
  Container Capacity:  10

          Print Date:  09/29/99
      Calculate Date:  09/29/99
     Number of Cards:  4
         Card Number:  2
```

KB-PR-130

Sample Two Card Printout

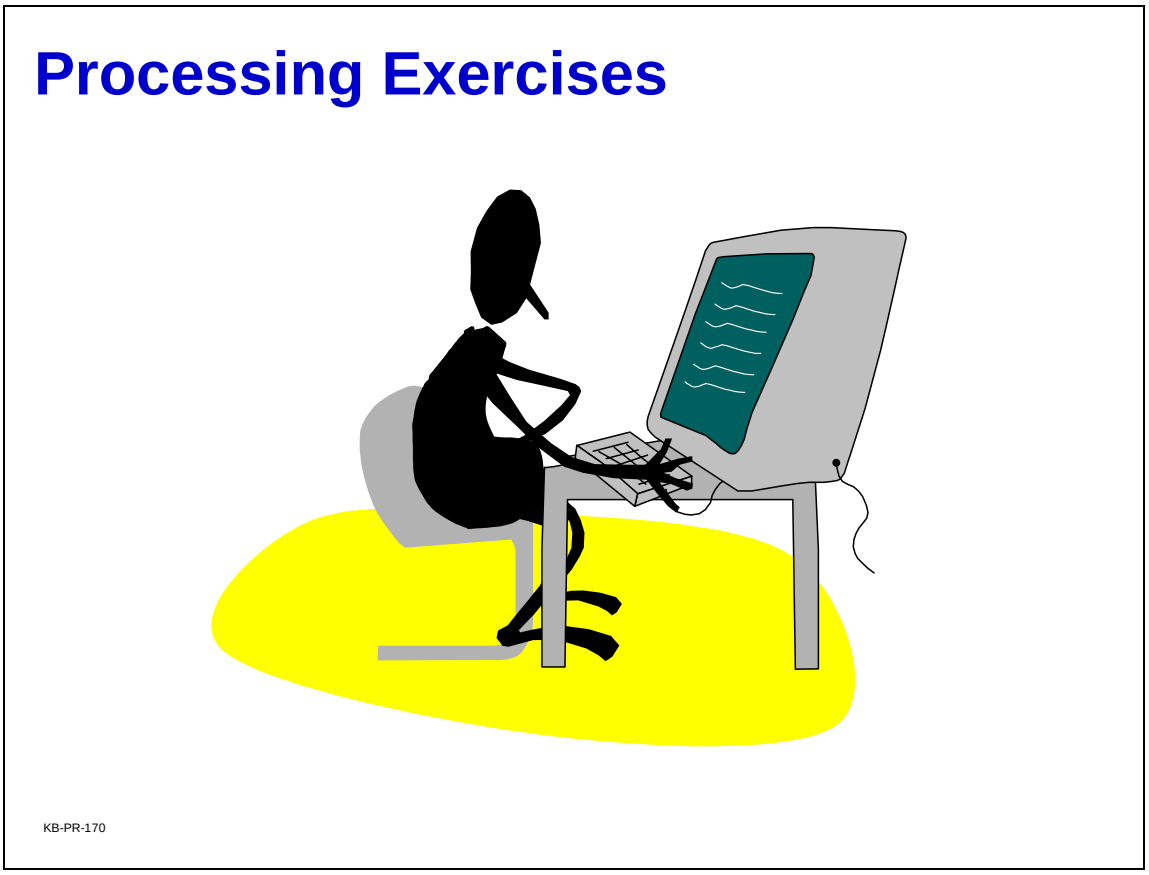
17.22.15 – Kanban Card Size/Print

Sample Audit Trail Output

```
kbszmt.p                              17.22.15 Kanban Card Size/Print
Page: 1                                    EIDG 9.1 Environment


                    Item Number:  bkm2     BK-M2 Component
                Supplying Site:  10000     San Diego Main Plant              Supplier:
             Supplying Location:  100      Raw Materials/Assemblies             Group:
                 Consuming Site:  bkm      BK-M Site                     Buyer/Planner:
             Consuming Location:  bkmloc   BK-M Location                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards         Cost   Exter
-------- ----------- ------- ---------- ----------- ----------- ----------- ----------- ------------ -------
Before      134.2342    4.00          0        1.00         100           1           6         3.45
After       137.5780    4.00          0        1.00         100           1           6         3.23



                    Item Number:  bkm3     BK-M3 Component
                Supplying Site:  10000     San Diego Main Plant              Supplier:
             Supplying Location:  100      Raw Materials/Assemblies             Group:
                 Consuming Site:  bkm      BK-M Site                     Buyer/Planner:
             Consuming Location:  bkmloc   BK-M Location                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards         Cost   Exter
-------- ----------- ------- ---------- ----------- ----------- ----------- ----------- ------------ -------
Before      110.8033    3.50          0        1.00          60           1           7         2.17
After       105.6767    3.50          0        1.00          60           1           7         2.25
```

KB-PR-140

Sample Audit Trail Output



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

Exercise: Print Cards and Audit Trail

Description: In this exercise, you calculate card size, update, print cards, and print an audit trail.

1 Run the calculation with an audit trail:

Use Run Kanban Card Size/Print, 17.22.15

Field	Value
Calculate Max Demand	No
Calculate Size	Yes
Update	Yes

Print Cards	Yes
Print Audit Trail	Yes
Output	*<use the printer specified by your instructor>*

Note Printout samples on the next two pages.

Print Cards

```
            Kanban ID:    1
          Item Number:    kbassy1          Kanban Assembly
                  Rev:
       Supplying Site:    kanban2          Supplying Location:   kbloc2
       Consuming Site:    kanban1          Consuming Location:   kbloc1
           Batch Size:    1
  Quantity per Kanban:    1
       Container Type:    basket
   Container Capacity:    120
           Print Date:    10/05/99
       Calculate Date:    10/05/99
     Number of Cards:     2
          Card Number:    1
```

```
            Kanban ID:    2
          Item Number:    kbassy1          Kanban Assembly
                  Rev:
       Supplying Site:    kanban2          Supplying Location:   kbloc2
       Consuming Site:    kanban1          Consuming Location:   kbloc1
           Batch Size:    1
  Quantity per Kanban:    1
       Container Type:    basket
   Container Capacity:    120
           Print Date:    10/05/99
       Calculate Date:    10/05/99
     Number of Cards:     2
          Card Number:    2
```

KB-PR-200

Print Audit Trail

```
kbszmt.p 99                                17.22.15 Kanban Card Size/Print                        Date: 10/05/99
Page: 1                                                                                           Time: 10:32:25
         Item Number: kbassy1  Kanban Assembly
       Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                        Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ----------- ------- ---------- ---------- ---------- ---------- ---------- -------------- --------------
Before           0.0    0.00          0        1.00          1          1          0           0.00           0.00
After       141.7942    1.40         10        1.00        120        105          2           0.00           0.00

         Item Number: kbcomp1  Kanban Component 1
       Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                        Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ----------- ------- ---------- ---------- ---------- ---------- ---------- -------------- --------------
Before           0.0    0.00          0        1.00          1          1          0           3.35           0.00
After       141.7942    2.50         10        1.00         80         26         15           3.35       1,306.50

         Item Number: kbcomp2  Kanban Component 2
       Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                        Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ----------- ------- ---------- ---------- ---------- ---------- ---------- -------------- --------------
Before           0.0    0.00          0        1.00          1          1          0           1.60           0.00
After       298.5141    3.50          0        1.20        100         50         26           1.60       2,080.00

         Item Number: kbcomp3  Kanban Component 3
       Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                        Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ----------- ------- ---------- ---------- ---------- ---------- ---------- -------------- --------------
Before           0.0    0.00          0        1.00          1          1          0           6.50           0.00
After       833.9364    6.50          0        0.75         50         50         82           6.50      26,650.00
```

KB-PR-210

Exercise: Change Current Demand Pattern

Description: In this exercise, you change the demand pattern, for the next calculation.

1 Change from the Spring demand pattern to the Winter pattern.

Use Kanban Control File, 17.22.24

Current Demand Pattern = Winter

Exercise: Recalculate Card Size

Description: In this exercise, you print an audit trail for your calculation, to compare to the first calculation. Notice the demand changes made by the Winter demand pattern versus the Summer demand pattern.

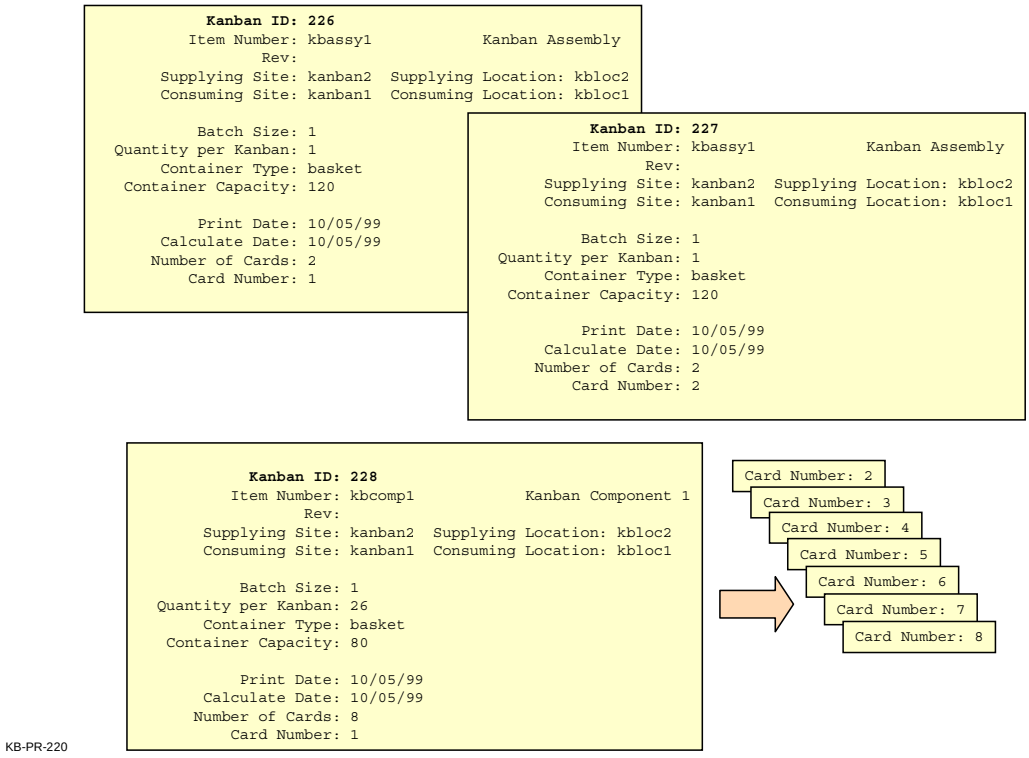
1 Run the calculation with an audit trail:

Use Run Kanban Card Size/Print, 17.22.15

Field	Value
Calculate Max Demand	Yes
Calculate Size	Yes
Update	Yes
Print Cards	Yes
Print Audit Trail	Yes
Output	*<use the printer specified by your instructor>*

Note Printout samples on the next two pages.

Recalculate: Print Cards



KB-PR-220

Recalculate: Print Audit Trail (1 of 2)

```
kbszmt.p 99                                  17.22.15 Kanban Card Size/Print                    Date: 10/05/99
Page: 1                                                                                         Time: 10:45:48
         Item Number: kbassy1  Kanban Assembly
       Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                         Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------- ---------- ---------- ---------- ---------- ---------- --------------- ---------------
Before      141.7942    1.40         10        1.00         120         105          2            0.00            0.00
After        70.5782    1.40         10        1.00         120          55          2            0.00            0.00

         Item Number: kbcomp1  Kanban Component 1
       Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                         Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------- ---------- ---------- ---------- ---------- ---------- --------------- ---------------
Before      141.7942    2.50         10        1.00          80          26         15            3.35        1,306.50
After        70.5782    2.50         10        1.00          80          26          8            3.35          696.80

         Item Number: kbcomp2  Kanban Component 2
       Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                         Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------- ---------- ---------- ---------- ---------- ---------- --------------- ---------------
Before      298.5141    3.50          0        1.20         100          50         26            1.60        2,080.00
After       148.5858    3.50          0        1.20         100          50         13            1.60        1,040.00


Continued on next slide
```

KB-PR-230

Recalculate: Print Audit Trail (2 of 2)

```
kbszmt.p 99                                  17.22.15 Kanban Card Size/Print                    Date: 10/05/99
                                                                                                Time: 10:45:48
(continued)

         Item Number: kbcomp3  Kanban Component 3
       Supplying Site: kanban1  Kanban Site 1                          Supplier: 002
   Supplying Location: kbloc1   Kanban Location 1                         Group:
       Consuming Site: kanban2  Kanban Site 2                      Buyer/Planner:
   Consuming Location: kbloc2   Kanban Location 2                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------- ---------- ---------- ---------- ---------- ---------- --------------- ---------------
Before            0.0   0.00          0        1.00           1           1          0            6.50            0.00
After       400.0778   10.50          0        0.25         150          50         22            6.50        7,150.00

         Item Number: kbcomp3  Kanban Component 3
       Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                         Group:
       Consuming Site: kanban1  Kanban Site 1                      Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------- ---------- ---------- ---------- ---------- ---------- --------------- ---------------
Before      833.9364    6.50          0        0.75          50          50         82            6.50       26,650.00
After       392.0762    6.50          0        0.75          50          50         39            6.50       12,675.00


End of Report
```


QAD

Exercise: Update Kanban Data

Description: In this exercise, you change the consuming site, location, and replenishment time of one of your components, and the maximum demand maintenance for the finished item.

1 Change the following item data:

Use Kanban Data Maintenance, 17.22.1

Field	Data
Item	kbcomp3
Supplying Site	kanban1
Supplying Location	kbloc1
Consuming Site	<*change to:*> kanban2
Consuming Location	<*change to:*> kbloc2
Replenishment Time	<*change to:*> 4.5

2 Change the maximum demand maintenance for the parent structure:

Use Maximum Demand Maintenance, 17.22.10

Field	Data
Consuming Location	kanban1
Demand Pattern	winter
Planning Period	daily12
Item	kbparent
Maximum Demand	540

Exercise: Recalculate as Simulation

Description: In this exercise, you recalculate the card sizing to compare before and after simulations.

Use Run Kanban Card Size/Print, 17.22.15

Field	Data
Calculate Max Demand	Yes
Calculate Size	Yes
Update	No
Print Cards	No
Print Audit Trail	Yes
Output	*<use the printer specified by your instructor>*

Note Printout samples on the next two pages

Recalculate as Simulation (1 of 2)

```
kbszmt.p 99                              17.22.15 Kanban Card Size/Print                          Date: 10/05/99
Page: 1                                                                                          Time: 10:50:16
         Item Number: kbassy1  Kanban Assembly
      Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                        Group:
      Consuming Site: kanban1  Kanban Site 1                       Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------ ---------- ---------- ---------- ---------- ---------- ---------- ----------
Before       70.5782    1.40         10        1.00         120          55           2            0.00            0.00
After        57.8231    1.40         10        1.00         120          46           2            0.00            0.00

         Item Number: kbcomp1  Kanban Component 1
      Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                        Group:
      Consuming Site: kanban1  Kanban Site 1                       Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------ ---------- ---------- ---------- ---------- ---------- ---------- ----------
Before       70.5782    2.50         10        1.00          80          26           8            3.35          696.80
After        57.8231    2.50         10        1.00          80          26           6            3.35          522.60

         Item Number: kbcomp2  Kanban Component 2
      Supplying Site: kanban2  Kanban Site 2                          Supplier:
   Supplying Location: kbloc2   Kanban Location 2                        Group:
      Consuming Site: kanban1  Kanban Site 1                       Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------ ---------- ---------- ---------- ---------- ---------- ---------- ----------
Before      148.5858    3.50          0        1.20         100          50          13            1.60        1,040.00
After       121.7329    3.50          0        1.20         100          50          11            1.60          880.00


Continued on next slide
```

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Recalculate as Simulation (2 of 2)

```
kbszmt.p 99                              17.22.15 Kanban Card Size/Print                          Date: 10/05/99
                                                                                                 Time: 10:50:16


         Item Number: kbcomp3  Kanban Component 3
      Supplying Site: kanban1  Kanban Site 1                          Supplier: 002
   Supplying Location: kbloc1   Kanban Location 1                        Group:
      Consuming Site: kanban2  Kanban Site 2                       Buyer/Planner:
   Consuming Location: kbloc2   Kanban Location 2                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------ ---------- ---------- ---------- ---------- ---------- ---------- ----------
Before      400.0778   10.50          0        0.25         150          50          22            6.50        7,150.00
After       321.1885    4.50          0        0.25         150          50           8            6.50        2,600.00

         Item Number: kbcomp3  Kanban Component 3
      Supplying Site: kanban2  Kanban Site 2                          Supplier: 002
   Supplying Location: kbloc2   Kanban Location 2                        Group:
      Consuming Site: kanban1  Kanban Site 1                       Buyer/Planner:
   Consuming Location: kbloc1   Kanban Location 1                     ABC Class:

Before    Max Demand    Repl            Variability   Container    Quantity      Number
/After      per Hour    Time Safety Stk      Factor    Capacity  per Kanban    of Cards            Cost   Extended Cost
-------- ---------- ------ ---------- ---------- ---------- ---------- ---------- ---------- ----------
Before      392.0762    6.50          0        0.75          50          50          39            6.50       12,675.00
After       314.7647    6.50          0        0.75          50          50          31            6.50       10,075.00

End of Report
```


QAD

All Kanban Sizing Menu Options

- Kanban Data Maintenance – 17.22.1
- Kanban Data Inquiry – 17.22.2
- Kanban Data Report – 17.22.3
- Kanban Data Copy – 17.22.5
- Planning Period Maintenance – 17.22.7
- Planning Period Browse – 17.22.8
- Maximum Demand Maintenance – 17.22.10
- Maximum Demand Browse – 17.22.11
- Maximum Demand Report – 17.22.12
- Maximum Demand Calculation – 17.22.13
- Kanban Card Size/Print – 17.22.15
- Kanban Card Inquiry – 17.22.16
- Kanban Card Reprint – 17.22.17
- Kanban Control File – 17.22.24

KB-PR-150

All Kanban Sizing Menu Options

Summary of Generalized Codes

Code	Label	Where Used
`kbmd_pattern`	Demand Pattern	Kanban Control File Maximum Demand Maintenance Kanban Data Maintenance Maximum Demand Calculation Kanban Size/Print
`knb_cont_type`	Container Type	Kanban Data Maintenance Kanban Data Copy
`knb_type`	Kanban Type	Kanban Data Maintenance Kanban Data Copy

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Summary of Generalized Codes

Course Overview

- ✓ Introduction to Kanban Sizing
- ✓ Business Considerations
- ✓ Set up Kanban Sizing
- ✓ Process Kanban Sizing

KB-PR-270

Glossary

A

ABC Class. An inventory classification and ranking system based on the annual dollar usage of the inventory. Three classes are used: A, B, and C. Class A items have the highest annual usage and receive the most attention. Class B items have lower annual usage and are controlled using reorder point. Class C items have the lowest annual usage. Inventory value is determined by annual usage, unit cost, lead time, space available for storage, and quality.

B

BOM Explosion. Demand for components of a parent item calculated by multiplying parent item requirements by component usage quantity specified in a bill of material.

Buyer. The individual responsible for purchasing. Buyer duties include vendor selection, negotiation, order placement, follow-up; evaluation of new materials, processes, or vendor performance; and value analyses.

C

Container. A packing item used to hold goods and subsets of other containers. For example, a box, pallet, rack, or trailer.

D

Demand Pattern. Seasonal pattern of demand such as summer, fall, Christmas.

G

Generalized Code. Enables users to define acceptable values for fields and have the system validate user entry. Codes can display in a look-up browse for selection.

J

Just in Time (JIT). A technique designed to result in minimum inventory by delivering the right items to the right place at the right time, all the time.

K

Kanban. A Japanese method of production and inventory control first developed and used at Toyota. Designed for day-to-day on-floor control of production and inventory, it relies on a series of control triggers, typically in the form of cards. Kanban is the predecessor of Just in Time.

Kanban Card. Card printed and placed on container.

Kanban Loop. Flow of kanban from supplying site and supplying location to consuming site and consuming location. When received at the consuming site, a new kanban card is requested from the supplying site.

M

Maximum Demand. Maximum number of items projected for a planning period.

Q

Quantity Per Kanban. Quantity of an item per container.

R

Replenishment Time. Maximum turnaround time between supplying and consuming sites.

S

Safety Stock. (1) The quantity of an item to be maintained in inventory as protection against fluctuation in demand and/or supply. (2) The average amount of stock on hand when a replenishment quantity is received. (3) In MPS, extra capacity or inventory added as protection against forecast errors and short-term changes in backlog.

Single-Card System. One kanban card is printed per container.

T

Two-Card System. Two kanban cards are printed per container.

V

Variability Factor. Limits or increases amount of inventory in WIP.

W

Work in Process (WIP). A product in production that is not yet completed. Stages include raw material released for manufacturing, through completely processed material awaiting final inspection.

Index

QAD