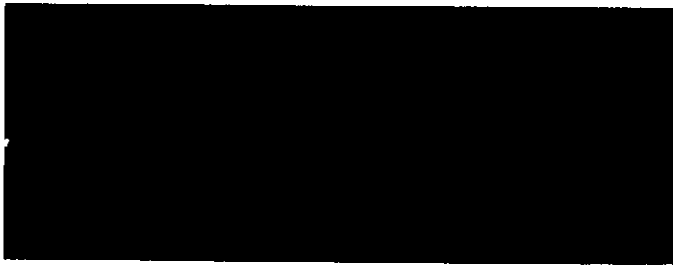


# BaanERP

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**BaanERP**  
**Bills of Material**

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Module Description

ERP-UIP048A-MD-9810-1



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Bills of Material

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Bills of Material  
II

**Baan**





## About this document

Read this document to get an overview of the Bills of Material (BOM) module's functionality and to learn more about the functional procedures that are related to BOM.

You need no detailed knowledge of the BaanERP software to read this document. However, you are more likely to understand the contents if you are familiar with:

- The overall structure of packages, modules, and sessions within the BaanERP software
- The general business procedures used in everyday business practice
- The basic concepts of enterprise resource planning

For detailed descriptions of this module's sessions, refer to BaanERP's comprehensive online Help.

## To use this document

Read Chapter 1, The Bills of Material (BOM) module in BaanERP, if you want to know more about:

- The module's functionality
- The relationship of the module with other modules
- The functionality of the module's business objects

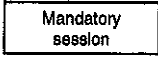

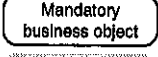




Read the remaining chapters if you want to know more about:

- The sessions in the procedures
- The results of the procedures
- The sessions that are related to the procedures
- The optional procedures that are related to the procedures

### Acronyms used in this document

ATP	Available to Promise
BOM	Bills of Material
CCP	Calendars and Periods
CF	Baan Configurator
CP	Baan Enterprise Planning
CPR	Cost Price Calculation
CST	Costing
CTP	Capable to Promise
EDM	Engineering Data Management
IBD	Item Base Data
INA	Inventory Analysis
INH	Inventory Handling
IPD	Item Production Data
PAT	Plan Aggregation and Transfer
PUR	Purchase Control
QM	Baan Quality Management
RMP	Resource Master Planning
ROU	Routing
RPD	Resource Planning Data
RPT	Repetitive Manufacturing
RRP	Resource Requirements Planning
SFC	Shop Floor Control
SLS	Sales Control
TRP	Tools Requirement Planning
WH	Baan Warehousing

### Legend

	Indicates a mandatory session
	Indicates an optional session
	Indicates a mandatory business object
	Indicates an optional business object
	Indicates a package
	Indicates a module
	Indicates a module that is described in the module procedure

## 1. The Bills of Material (BOM) module in BaanERP

This chapter gives information about:

- The BOM concept as applied in BaanERP
- BOM's functional procedures
- The modules related to BOM
- The functionality of BOM's business objects

### 1.1

### The BOM concept as applied in BaanERP

A production bill of material (BOM) is a description of a product's structure. It is a list of parts required to manufacture an item, together with details such as the first operation in which the item is used) and how many of the component items are required. Figure 1 shows a production bill of material for a simplified bicycle (multilevel structure).

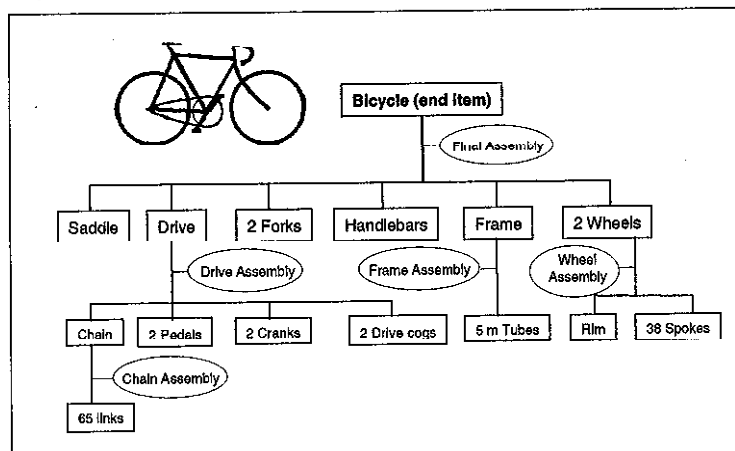


Figure 1, Diagrammatic production bill of material

The product structure that you define in the BOM module is used throughout BaanERP as the basis for manufacturing processes. When you define a bill of material, you define each level individually (for example, a chain is made of links). The lowest level in a bill of material is composed of purchased parts (for example, you do not define the components of the saddle, because you buy whole saddles).

The bill of material structure is also used to define generic (that is, generalized) product structures (in the Baan Configurator) aggregation relationships (also known as a planning bill of material) and bills of critical materials (which are single-level bills of material for components that you define as critical for a plan item).

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## 1.2

### The modules related to BOM

Figure 2 shows how the module is positioned in BaanERP.

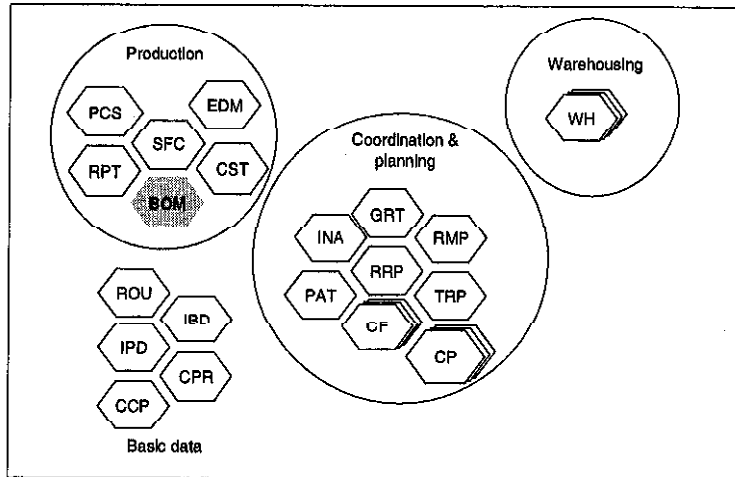


Figure 2, The BOM module within BaanERP

BOM is used to define the product structure of items and plans and data such as which (critical) components are used to make an item, what operations are used to assemble these components, and how plan items are related to each other.

The basic data that BOM uses include:

- The component items
- The operations in which the components are used (optional)
- Warehouses
- Planning items
- Which items are defined as critical

The modules that are related to BOM are shown in Figure 3.

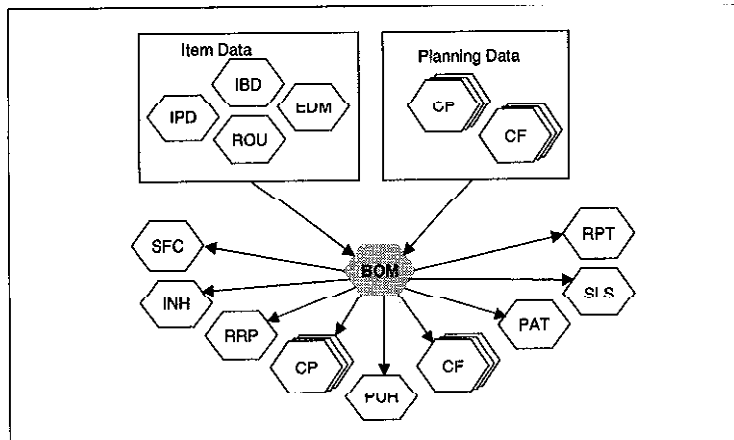


Figure 3, The modules related to the BOM module

#### Inputs

BOM uses item data from the Item Basic Data (IBD) module, Item Production Data (IPD), and operation data from routing (ROU). You can also use an engineering BOM (defined in Engineering Data Management (EDM)) to create a production BOM. You can also create bills of material with the Baan Configurator module (CF), but you cannot use that data in the BOM module.

#### Outputs

Planning bills of material are created with plan items from Baan Enterprise Planning (CP) and are used by CP to generate a master plan. Planning bills of material represent the aggregation of plan items.

Production bills of material are used to define the component structure of manufactured items and the relationship between planning items. Production bills of material are therefore used as basic data throughout Baan Manufacturing and Planning modules, as shown in Figure 3.

### 1.3

## BOM's functional procedures

#### 1.3.1

### The procedure to make a production bill of material

BOM contains a functional procedure that allows you to define the product structure of a manufactured item (see Figure 1). In addition to the main procedure, the following optional parallel procedures is related to the procedure to make a production bill of material: define reference designator locations.

### 1.3.2

#### Define aggregation relationships

BOM contains a functional procedure that enables you to model the relationships between plan items and subplan items by creating a planning bill of material used in master planning.

### 1.3.3

#### Create bill of critical materials

BOM contains a functional procedure that you can use to define relationships between plan items and critical items. This procedure allows you to plan for bottlenecks in the production process.

## 1.4

### The functionality of BOM's business objects

BOM contains the following business objects:

- Production Bill of Materials
- Planning Bills of Materials:
  - Bill of critical materials
  - Aggregate relationships

Figure 4 shows the main flow between the business objects.

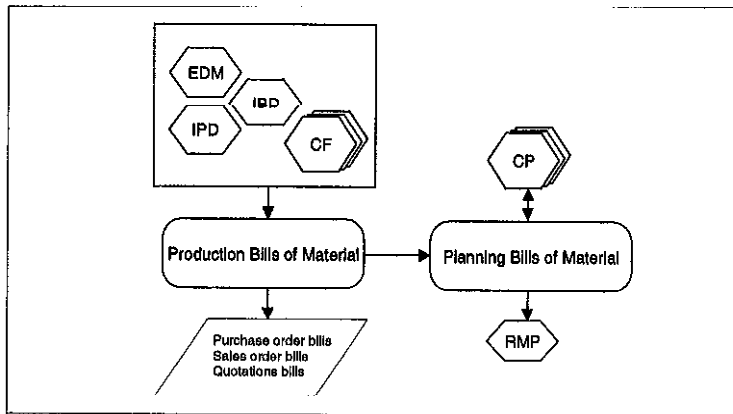


Figure 4, BOM's business objects

### **Production Bills of Material**

You can create a production bill of material by using one of the following methods:

- Manually create the bill of material within BOM
- Copy an existing production bill of material and edit it within BOM
- Create a bill of material in the Baan Configurator
- Create an engineering bill of material in the Engineering Data Management (EDM) module, and copy it to a production bill of material

You can also use the Production Bill of Material business object to define reference designator locations.

### **Planning Bills of Material**

Use the Planning Bills of Material business object to:

- Create bills of material for items critical to the production process
- Define an aggregation structure for a planning bill of material

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## 2. The procedure to make a production bill of material

This chapter describes how you can use BOM:

- To make a production bill of material
- To use the sessions that are related to the main procedure (reference designators)

### 2.1

### How to define a production bill of material

As outlined in section 2.1, you can create a production bill of material in four different ways. The following procedure describes how to manually create a BOM, using the sessions in the BOM module.

Figure 5 shows the steps in the procedure to manually define a production bill of material.

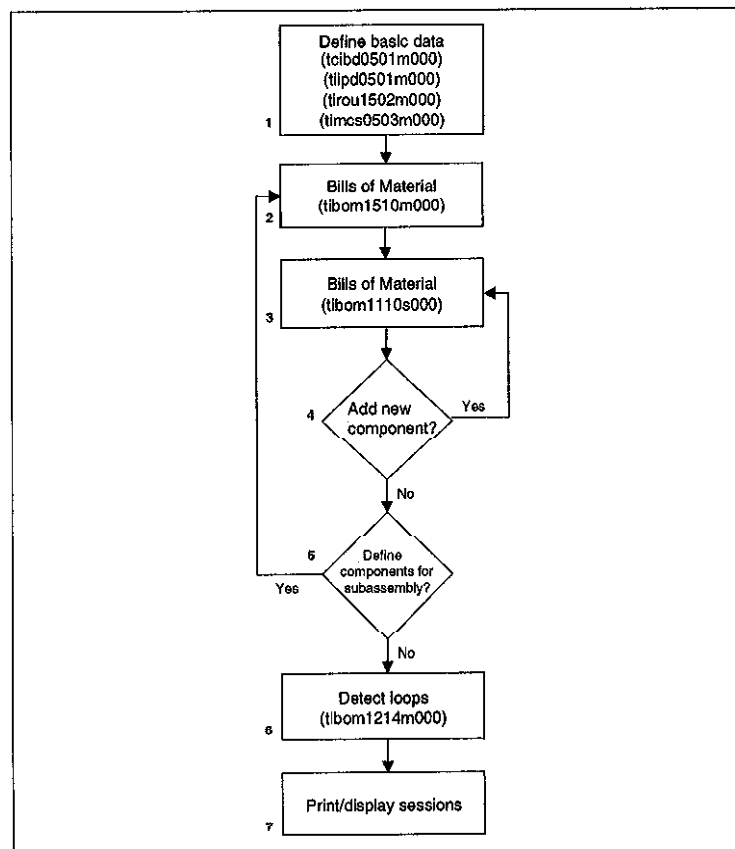


Figure 5, Procedure to manually create a production BOM

The procedure consists of the following steps:

**Step 1 Define the basic data**

Before you can define a product's BOM, you must first ensure that the appropriate item and routing data exists for the end item and all its components. You cannot add spokes to the bill of material for a wheel if BaanERP does not know what a spoke is.

The sessions you use to define basic data include:

- General Item Data (tcibd0501m000)
- Item Production Data (tiipd0501m000)
- Routing Operations (tirou1502m000) (optional)
- Warehouses (timcs0503m000)

**Step 2 Define the end item: Bills of Material (tlbom1510m000)**

When you create a bill of material, you start by inserting the final product (the Bicycle in Figure 1).

**Step 3 Insert a component item: Bills of Material (tlbom1110s000)**

In this details session, you can add component items to the main item, and also specify details for the component (and its assembly process) which includes:

- Operation
- Warehouse
- Dimensions
- Scrap and Yield
- Dates the item is valid (in that BOM)
- Lead Time Offset

**Step 4 Add another component: Bills of Material (tlbom1110s000)**

For example, in Figure 1, after you have added the saddle, you must then add the drive (and then the forks, and so on). After you have added all the components, you can go to the next step.

**Step 5 Add components to a subassembly: Bills of Material (tlbom1510m000)**

When you have added all the components of the end item, you must then:

- 1 Return to the Bills of Material main session (tlbom1510m000).
- 2 Select a subassembly that is not a purchased part (for example, the drive in Figure 1).
- 3 Add the components of that subassembly (chain, cogs, and so on).
- 4 If those components are in turn made up of other components, you must repeat the procedure (for example, add links to the chain) until all the component items are added, down to the level of purchased parts.

**Step 6 Detect Loops in Bills of Material (tibom124m000)**

You cannot define an item as a component of itself (see Figure 6). Use this step to check that you have not accidentally inserted an item at the wrong level in the bill of material.

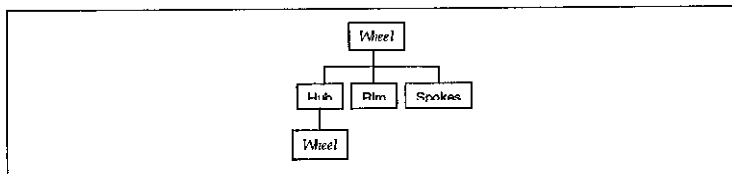


Figure 6, Example of a BOM loop

**Step 7 Print/Display sessions**

After you have defined the bill of material, you can produce a report that details the BOM with various sessions, which includes:

- Print Bills of Material (Multilevel) (tibom141m000)
- Print Bills of Material (Summarized) (tibom1414m000)
- Print Where-Used BOM Components (Multilevel) (tibom143m000)

**2.2****Other information related to the main procedure****To create a bill of material based on an existing bill of material**

If you are making an end item with many component items, defining a bill of material using the procedure described in section 2.1 (above) can be time-consuming. If the new end item is similar to an existing one, you can simply copy the existing BOM and modify it. Use the Copy Bills of Material (tibom1216m000) session.

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### To modify a bill of material

The session used to modify a bill of material depends on how many items you want to modify at the same time, as shown in Figure 7.

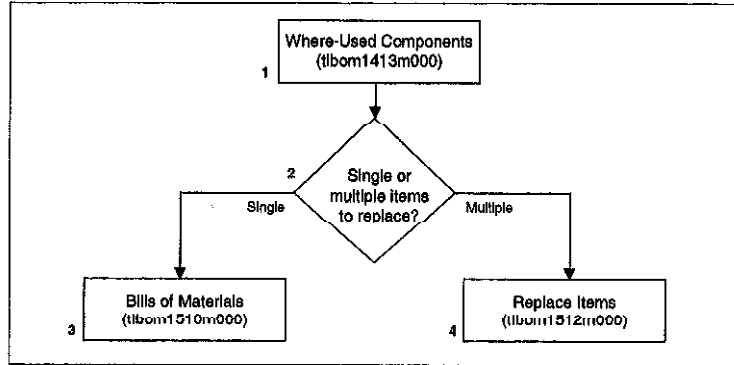


Figure 7, Procedure to modify a BOM

#### Step 1 Where used components (tlbom1413m000)

Before you replace component items of a bill of material, you can first check to see where the components occur within the product structure. You can use one any of several sessions you can use to do this, see section 2.3, for more information.

#### Step 2 Single or multiple items to replace?

If you only have one or two items to replace, use Step 3, otherwise you can use Step 4 to replace a range of items.

#### Step 3 Bill of materials (tlbom1510m000)

Use this step to replace individual items by manually editing the BOM.

#### Step 4 Replace Items (tlbom1512m000)

Use this step to select a range of component items and replace (or delete) them. When you replace an item with this step, you can retain old item with an updated expiry date and new BOM sequence number.

When you define a bill of material, you give the component items effective and expiry dates. In other words, you can predefine a component that will replace an item at a given date when you use this step.

## 2.3

**The sessions you can use to show where a component is used**

When you have defined a complete bill of material for a product, you can produce a report that shows where a particular item occurs in the product structure. You can use the following sessions:

- Print where-used BOM components (Single-Level) (tibom1412m000)
- Print where-used BOM components (Multilevel) (tibom1413m000)
- Print where-used BOM components (Summarized) (tibom1414m000)
- Where-used BOM components (tibom1512m000)

The single-level report just shows the component and its parent item (for example, link and chain in Figure 1), whereas the multilevel report shows the entire structure. The summarized report just shows the end item and purchased parts (the lowest BOM level).

## 2.4

**To define a reference designator location**

A reference designator indicates a location (that is, a position) on a manufactured item. Reference designators are typically used in the electronics industry to refer to the position of a component on a printed circuit board (PCB). The reference designator is the combination of location and item. For example the black square in Figure 8 indicates the chip's location (top left), and so the reference designator is top left on that particular PCB. If the whole PCB is a purchased part, you can use reference designators to specify the location of the PCB in the subassembly in which it is located.

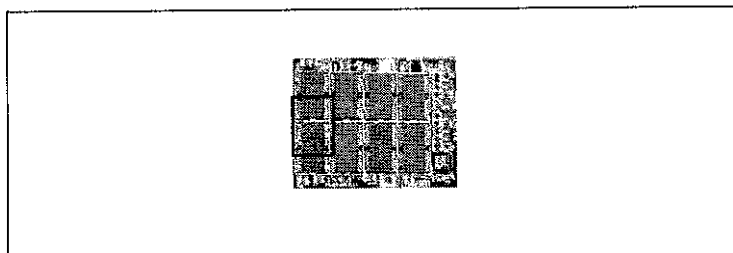


Figure 8, Reference designator location

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The procedure to define reference designators is shown in Figure 9.

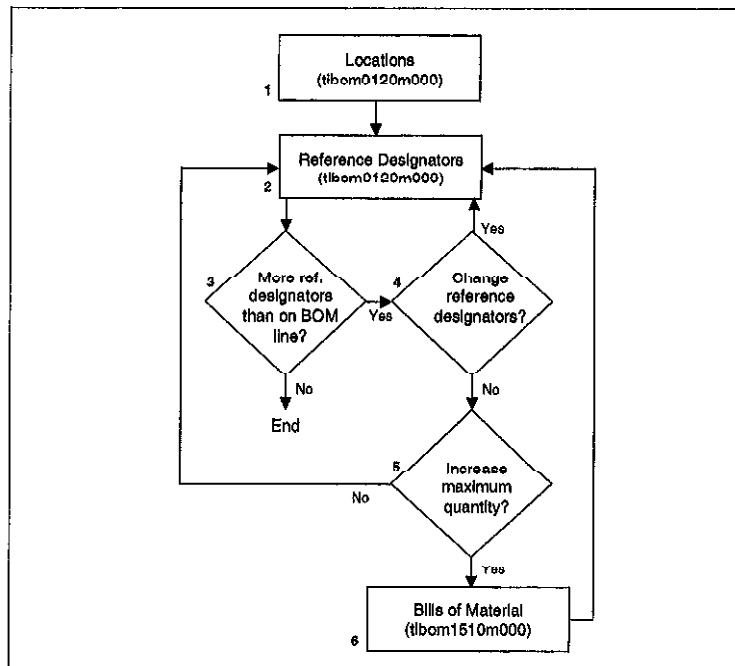


Figure 9, Reference designator procedure

**Step 1 Locations (tibom0120m000)**

Use this step to define a location (such as 'Top Right' or 'A1' in Figure 8).

**Step 2 Reference Designators (tibom0120m000)**

Use this step to link one or more locations to the component/parent item combination and to define the number of reference designators (that is, number of components per location). In Figure 8, the PCB has eight chips, but even if the chips are all identical (that is, they are on one BOM line), you can specify eight different locations using reference designators.

**Step 3 More reference designators than on BOM line?**

If the total number of reference designators you defined in Step 2 is greater than the number defined in the bill of material, BaanERP will prompt you. You can then decide whether to fix the problem by using Step 4 or Step 5.

**Step 4 Change reference designators?**

You can ensure that the number of reference designators on the BOM line and in the Reference Designators session (tibom0120m000) is the same by returning to the Reference Designators session (tibom0120m000) and altering the number of reference designators.

**Step 5 Increase maximum quantity?**

You can ensure that the number of reference designators on the BOM line and in the Reference Designators session (tibom0120m000) is the same by going on to Step 6. If you decline this option, you return to the Reference Designators session (tibom0120m000).

**Step 6 Bills of Material (tibom1510m000)**

You can ensure that the number of reference designators on the BOM line and in the Reference Designators session (tibom0120m000) is the same by altering the number of component items specified in the Bills of Material (tibom1510m000) session.

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### 3. The procedure to define aggregation relationships

When you make long-term plans, you do not always want to have to plan for each item individually. You can use aggregation relationships to combine the plans and orders for several items to make a more generalized plan. You can also disaggregate (that is, explode) from plan items back to subplan items. Aggregation (and disaggregation) is illustrated in Figure 10.

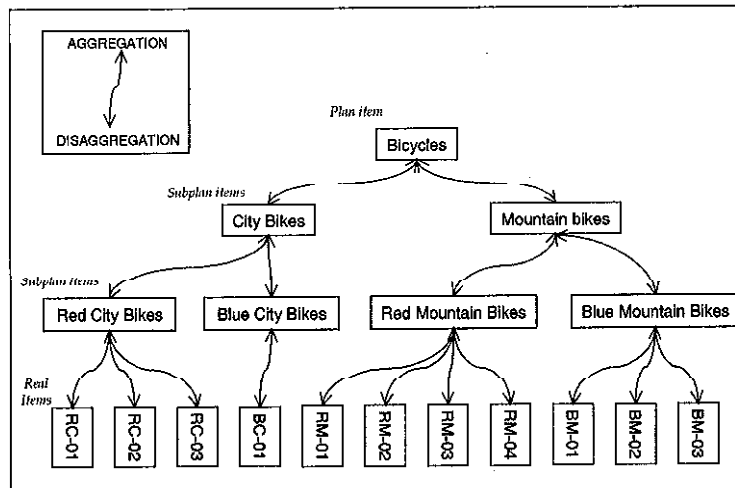


Figure 10, Aggregation relationships

You can aggregate and disaggregate different types of data (in the PAT module in the CP package), which can include:

- Demand plan
- Inventory plan
- Production plan
- Production orders
- Purchase plan
- Purchase orders
- Goods flow (aggregation only)

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You can use the Aggregation Relationships business object in BOM to define the plan structure (as in Figure 10) of plan items and subplan items. These relationships are defined in the procedure shown in Figure 11.

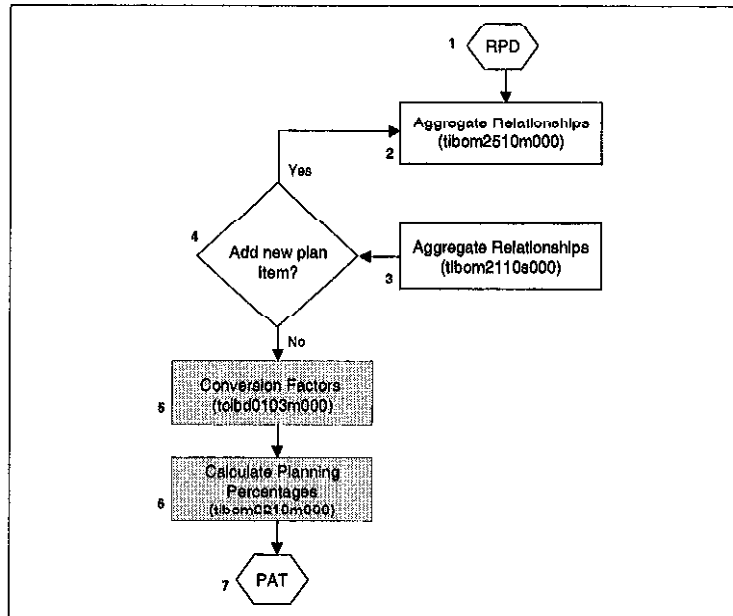


Figure 11, Aggregation relationships procedure

#### Step 1 Plan Item definition (RPD Module)

Before you can define aggregation relationships, you must first define the plan items. Plan items must first be defined as an item in the Item Base Data (IBD) module, but you do not need to define production BOMs, routings, or supplier data for the higher-level plan items. Use the Resource Planning Data (RPD) module in the Baan Enterprise Planning (CP) package to create the plan items between which you want to form relationships. See the RPD module procedures for further details.

#### Step 2 Aggregate Relationships (tlbom2510m000)

Define the relationships between plan items and subplan items in an analogous way to how you define an item and its components in a production bill of material. Start with the item on the highest plan level (Bicycles in Figure 10).

**Step 3 Aggregate Relationships (tibom2110s000)**

Link subplan items to plan items in this details session. When you form the link, you also define certain aspects of the relationship, such as:

- **Type of aggregation**  
State if the link you define is to aggregate, disaggregate, or both.
- **Type of data**  
You can (dis)aggregate a wide variety of data: See the list below Figure 10.
- **Cluster**  
A cluster is a group of entities such as warehouses. You can specify a different cluster for the plan item and subplan item in order to (dis)aggregate over multiple warehouses.
- **Channel**  
A channel is used to assign goods to groups of customers, and you can assign a maximum available to promise (ATP) to a channel. You can (dis)aggregate for a specified channel.
- **Effective and expiry date**  
In the same way that you can use items that are only valid on certain dates in a production bill or material, you can use effectivity control when you (dis)aggregate plan items.
- **Company**  
When you are using multisite functionality, you can specify (dis)aggregation for a certain company. You can specify a different company for a subplan item to aggregate from that company to your current company. Note that within BaanERP, a company is simply a data set, which does not have to be the same as an actual company.
- **Planning percentage**  
When BaanERP disaggregates from a plan item to more than one subplan items (for example, in Figure 10, from Mountain Bikes to Red Mountain Bikes and Blue Mountain Bikes), it needs to know how much of the data goes to each of the subplan items. You can specify that percentage in this step. You can either enter a percentage manually or BaanERP can calculate a planning percentage based on historical data using the Calculate Planning Percentages (tibom2210m000) session. However, when you actually disaggregate the data in the Baan Enterprise Planning package, you can choose how the percentage is calculated:
  - The percentage you have entered in the current step or in Step 6
  - Other disaggregation criteria

**Step 4 Add new plan item?**

If you want to add more subplan items, repeat Steps 2 and 3 until all the subplan items are added. When the structure is complete, continue with Step 5.

**Step 5 Conversion Factors (tclbd0103m000)**

You need to perform this step if the plan items have different units. For example, if (in Figure 10) the plan item Bicycles uses centimeters, but the subplan item Red City Bikes uses millimeters, you can define a conversion factor of ten to convert millimeters to centimeters.

**Step 6 Calculate Planning Percentages (tibom2210m000)**

You can use this optional step to calculate the planning percentages used by BaanERP for disaggregation, on the basis of historical data. If you do not use this step, you can either enter the planning percentage manually in Step 3, or use a different disaggregation criterion in PAT.

**Step 7 Plan Aggregation and Transfer**

When you have defined the relationships, they are used in the Plan Aggregation and Transfer (PAT) module in the Baan Enterprise Planning (CP) package. See the PAT module procedures for further details.

#### 4. The procedure to define a bill of critical materials

When you calculate a master plan for a product, this can take a long time if it is carried out for every component item. It is more efficient to plan just for items that are critical for production, that is items that form bottlenecks in the production process. For example, an item that has a long lead time and therefore determines the starting date of production, can be defined as critical. Figure 12 shows the procedure to make a bill of critical materials.

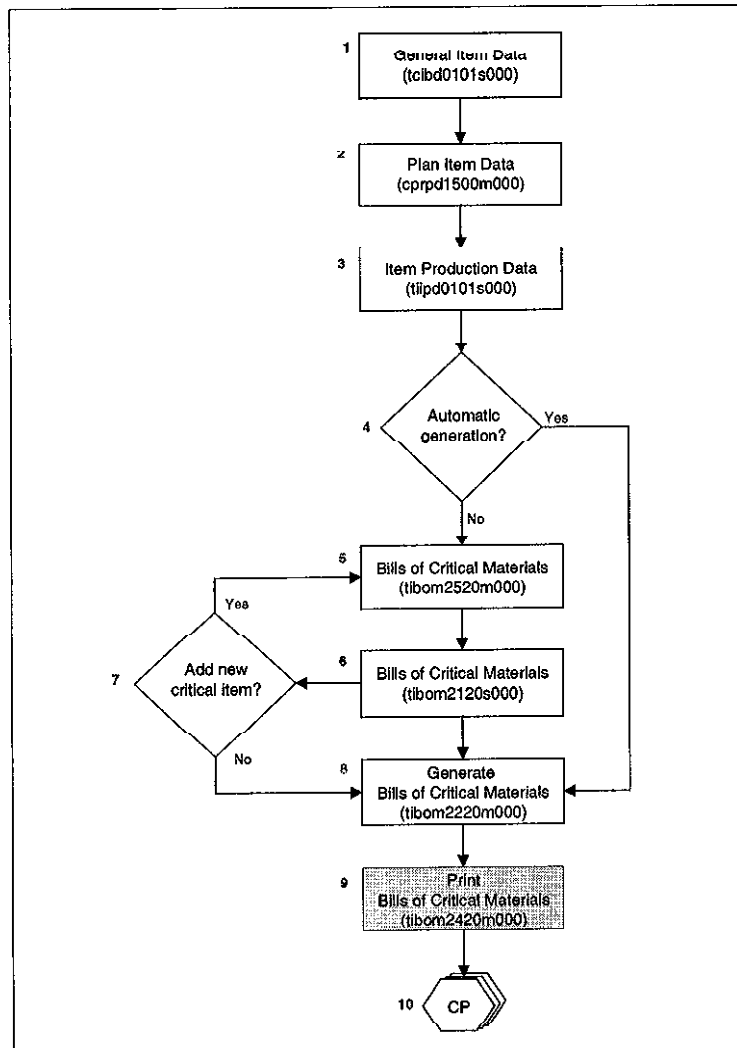
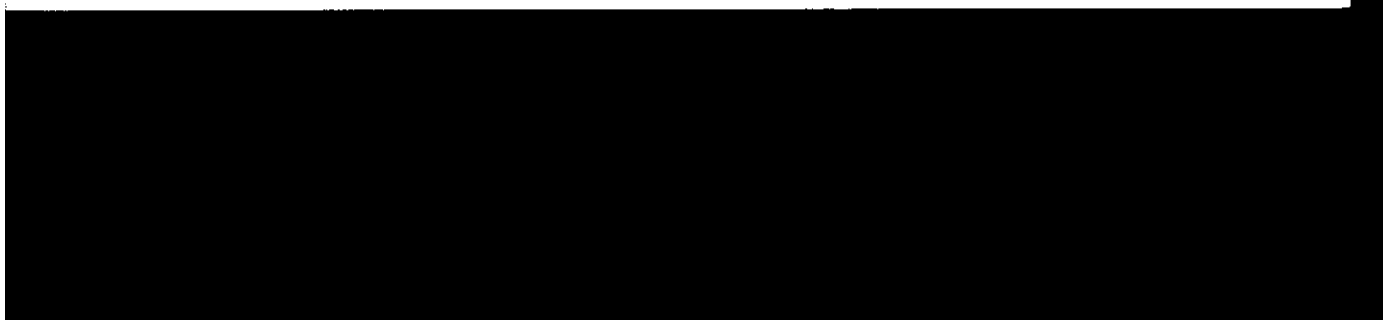


Figure 12, The procedure to define a bill of critical materials

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- Step 1 General Item Data (tclbd0101s000)**  
Create an item in the usual way. You can also make an item by copying an engineering item to an item (see the EDM module procedures).
- Step 2 Plan Item Data (cprpd1500m000)**  
Critical items must first be defined as plan items.
- Step 3 Item Production Data (tlipd0101s000)**  
Select the **Critical Item in Master Planning** check box.
- Step 4 Automatic generation?**  
You can either let BaanERP use the structure of the existing production bill of materials (in which case, proceed to Step 7), or you can manually define the relationships between critical plan items in the following steps.
- Step 4 Bills of Critical Materials (tlbom2520m000)**  
Define the relationship between critical items in the same way that you define a production bill of material (see Figure 1).
- Step 5 Bills of Critical Materials (tlbom2120s000)**  
Add critical items.
- Step 6 Add new critical item?**  
Continue to add critical items until the process is complete. The lowest level of the production BOM at which you add a critical item is the critical level. A critical BOM is only single-level.
- Step 7 Generate Bills of Critical Materials (tlbom2220m000)**  
When you have defined the product structure, generate the bill of critical materials.
- Step 8 Print Bills of Critical Materials (tlbom2420m000)**  
You can print out the structure you have defined in multilevel format.
- Step 9 Enterprise planning (CP)**  
Use the bill of critical materials in master-based planning in the Baan Enterprise Planning (CP) package.



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