

Bulletin - Technical Services

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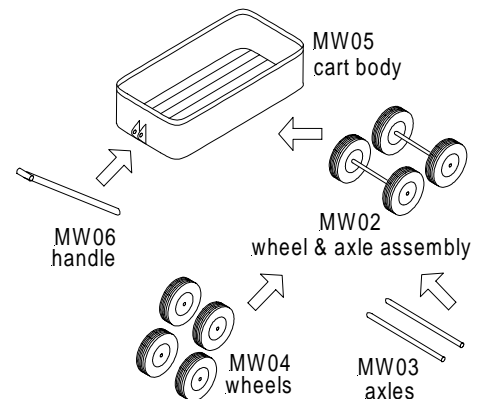
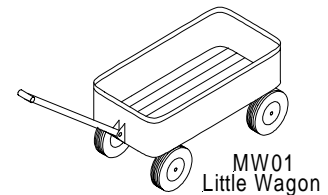
UNDERSTANDING THE COSTED BOM REPORT

The purpose of the Costed BOM report is to offer a way to predict the manufactured cost of an item. It accomplishes this by rolling up material, labor and overhead costs from the lowest levels of the BOM.

In order to work with Costed BOMs it is important to understand the differences behind "rolled up" costs and inventory costs. These two costs are used in distinctly different ways and are arrived at by fundamentally different methods.

Rolled up cost

A rolled up cost is made up of all the lower level costs that went into it. To illustrate we will use the wagon example shown here. For simplicity, only material costs will be used. No labor or overheads will be considered at this time.



Item	Indented BOM	Quantity	
MW01 Little Wagon			
. MW02 wheel & axle assembly		(1)	
.. MW03 axles		(2)	\$ 4.00
.. MW04 wheels		(4)	\$12.00
. MW05 cart body		(1)	\$20.00
. MW06 handle		(1)	\$ 3.00

The rolled up cost for the MW02 wheel and axle assembly is \$16.00 which is the total of the two components that go into it, MW03 (\$4.00) and MW04 (\$12.00).

The rolled up cost of the MW01 Little Wagon is \$39.00. This is arrived at by adding up all the components below it; MW02 (\$16.00) + MW05 (\$20.00) + MW06 (\$3.00).

A rolled up cost is used to predict the cost of a manufactured part. It is often used in the setting of standard costs and for projecting the cost of an item that has not been produced before.

Inventory cost

Inventory cost is the cost carried in general ledger for an item. Inventory costs are arrived at in several ways depending on the accounting method used. In a standard cost company inventory costs are set manually. In an average cost company inventory costs are the average weighted cost of the

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items in inventory. In LIFO and FIFO companies actual costs are retained in tiers (each part number has tiers associated with it that represent an inventory cost and a date).

It is important to realize that regardless of the accounting method used, rolled up costs are likely to be different from inventory costs. There are two main reasons for this;

- 1) Changes in the cost of lower level purchased parts
- 2) Variations in labor costs

Modular and Variable BOMs and the Costed BOM report

The costed BOM reports will function with BOMs containing Modular and/or Variable bill types. If a BOM containing these types is selected, a configuration screen will appear after the option grid has been completed. Once all the options have been configured, the report may be run. Option grid selections (i.e.; Roll-up, Location, etc.) apply as they would in a conventional BOM. Finished good configurations may be selected as well.

Option Grid Explanation

Part Number

Select the part number to run the report for. The part and any manufactured children must be identified as "Manufactured" items in inventory. For labor and overheads to be included each manufactured item must have a default route associated with it.

As of Date

This is the date for which the BOM is being run. A different revision of the BOM may be selected by specifying a date in the active period of that revision. The "As of date" defaults to today's date.

Example; Today is 3/15/2001. The current BOM is revision "06" which became active on 2/15/2000, and has an inactive date of 7/15/2001. By specifying a date of 2/14/2000 the report will be run using revision "05". By specifying a date of 7/16/2001 the future revision, "07" will be used.

Levels (0=ALL)

This specifies the number of BOM levels which the report will display. The entire BOM will be calculated.

Example: The report is being run for a roll-up of a BOM 5 levels deep. "Levels (0=ALL)" is set to 2. The report will show only the top 2 levels of the bill, but will calculate all 5 levels.

Build Quantity

Used to specify number being built. While it may appear an obvious field, it has implications when batch sizes and decimal places in BOMs are considered.

Batch size implications- Quantity should normally be set to multiples of batch size. If set to less than a full batch quantity, the labor for an entire batch will be applied.

Example - Bicycle water bottle holders are a painted item that are produced in batches of 50 (the rack for the paint system holds 50). Setup and cycle time for painting each batch of 50 is 1 hour (setup and cycle time for this step would be 1 hour whether there was 1 or 50 on the rack. 1 hour is the time



required for one rack to pass through the paint system). A special run is made for 25 water bottle holders. The Costed BOM is run for a quantity of 25. One hour of labor for the paint step will be accumulated to the cost.

Decimal place implications - the costed BOM shows three decimal places for cost. Running the Costed BOM for a higher quantity will effectively give higher accuracy if BOM quantities are tracked to greater than 3 decimal places.

Example - A manufacturer of small electronic parts tracks BOM quantities to 5 decimal places. By running the Costed BOM for a quantity of 1 they find that the costs are much higher than expected because numerous parts with fractional costs have been rounded up. By running the Costed BOM for a quantity of 100 instead they effectively get the costing of 5 decimal places.

Cost Basis

The settings in this pull down menu only have effect in situations where set up times are used in routes and where the quantity being built is less than the standard order quantity.

Standard- Production is assumed to be in standard order quantity lots based on the settings in the inventory module of your accounting package.

Example-Bicycle frames are built in quantities of 100 with a 1 hour setup and a 6 minute cycle time per frame. The costed BOM is run for a quantity of 50. Setup time is applied on a pro rated basis based on the standard order quantity. Total setup time applied would be 30 minutes. Total labor would be 5 hours (50 x 6 minutes).

Custom-Setup time is applied once regardless of the quantity set in the build quantity option of the report.

Example-Bicycle frames are built in standard order quantities of 100 with 1 hour setup and a cycle time of 6 minutes. The build quantity was set for 10 on the report options, setup would be applied once, 1 hour and total labor would be 1 hour (10 x 6 minutes). The total setup would be absorbed by the build quantity.

Report

Defines how components are arranged.

Indented - Costs are shown based on an indented bill structure. If a component is used in more than one parent, it will appear under every subassembly in which it is used.

Indented/Numeric- Same as Indented except the part numbers are aligned, and a number in front of them indicates the level.

Summarized - Costs are shown for all parts and their quantities. Unlike the indented bill structure, however, it does not list the levels of the BOM. Components are listed only once for the total quantity used.

Method

Allows selection of what is costed:



Mtl/Labor/OH - Master routes, BOM's, and inventory are used to calculate material, labor and overhead costs. Concurrently, the bill is costed solely based on inventory. The two methods will then be compared and the dollar and percent differences listed.

Note - You must have associated the parts/routes in the Route Module for each level manufactured item for material/labor/overhead to be calculated through all levels.

Mtl - Only the material costs are calculated and compared to the inventory costs.

Inventory Cost

Selects what type inventory costs are used.

Avg - The average inventory cost of components is used.

Std - The standard inventory cost of components is used.

Last - The last cost of components is used.

Type

Select whether or not to extend costs by the build quantity.

Extended - The costs are multiplied by the build quantity. Items with 0 quantity are ignored

Extended/Zero - The costs are multiplied by the build quantity. Items with 0 quantity are included

Unit - The costs are shown for quantities of one.

Roll-up

Select how costs are rolled up.

None - No roll-up takes place. The costs incurred at each level are shown. Material from lower levels is not shown on the higher level. See report samples included at the end of this document.

Single - At each indented level the material costs are taken from inventory. The costs for each manufactured item are calculated and shown, but the items inventory cost is then used in calculating the cost of the next item above

All - At each indented level the material, labor and overhead costs are the sum of the levels below. Note that the Material, Labor & OH are added up independently, and a lower level items total cost does not show as the material cost of the next higher level. The top item in the report shows the totals of Material, Labor, FOH, and VOH below it INCLUDING THE TOP LEVEL LABOR & OH WHICH IS NOT VISIBLE SEPARATELY! This is the normal method of running this report.



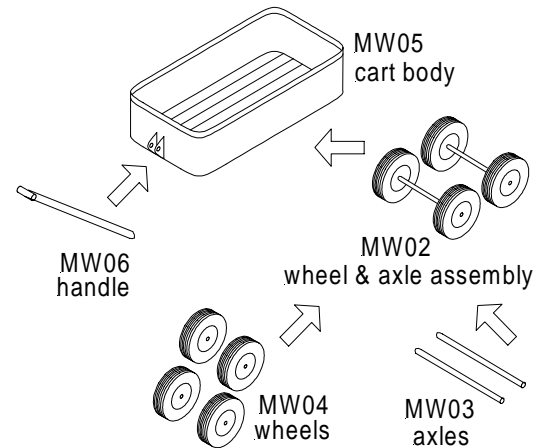
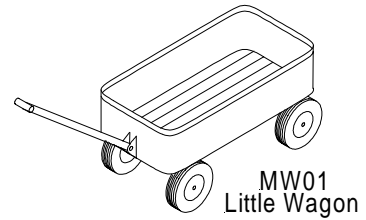
Cost Location

Select the location to use for material costs. Note that if an item does not exist at the location specified, the cost of that item will be drawn from Item Master. See report samples included at the end of this document.



REPORT EXAMPLES

The attached reports are based on a simple BOM for the small wagon example used earlier. There are routes established for building both the MW01 Little Wagon and the MW02 wheel & axle assembly. These routes each have some labor. A product class has been established that has both Fixed and Variable Overhead rates that will be applied in the sample.



Indented BOM	
Item	Quantity
MW01 Little Wagon	
. MW02 wheel & axle assembly	(1)
.. MW03 axles	(2)
.. MW04 wheels	(4)
. MW05 cart body	(1)
. MW06 handle	(1)



Report Example 1

This is an example of how this report is typically run. The selections made in the option grid are all shown in the report header.

Report Example 2

In this example, WH2 has been selected as the location. Some costs are different at WH2. Part MW04 wheels does not have a record at WH2. It's cost is being taken from Item Master.

Report Example 3

This report is similar to example 1 except that it is for Roll-up "single". A careful comparison between this and example 1 will reveal the differences between the roll-up types.

Report Example 4

This report is similar to example 1 except that it is for Roll-up "none". A careful comparison between this and example 1 will reveal the differences between the roll-up types.

FG Part # : MW01 As of mm/dd/yy Note '+' Indicates Roll-up
 BOM Part # : MW01 Build Quantity 1.000 '# Indicates LocCost

Part	Rev	Quantity	MTL	LAB	FOH	VOH	Total	Inventory Cost	Variance \$	%
MW01		1.000	39.000	11.667	0.093	0.020	50.780 +	50.000 #	0.780	1.6
. MW02		1.000	16.000	1.667	0.013	0.010	17.690 +	17.000 #	0.690	4.1
.. MW03		2.000	4.000	0.000	0.000	0.000	4.000	4.000 #	0.000	0.0
.. MW04		4.000	12.000	0.000	0.000	0.000	12.000	12.000 #	0.000	0.0
. MW05		1.000	20.000	0.000	0.000	0.000	20.000	20.000 #	0.000	0.0
. MW06		1.000	3.000	0.000	0.000	0.000	3.000	3.000 #	0.000	0.0
Totals			39.000	11.667	0.093	0.020	50.780	50.000	0.780	1.6

REPORT EXAMPLE 1

Indented BOM Extended Cost Report
 Order quantities: CUSTOM
 Inventory Cost: STD Loc: WH2
 Roll-up: ALL MTL/LABOR/OH
 Little Red Wagon Company Inc.

FG Part # : MW01 As of mm/dd/yy Note '+' Indicates Roll-up
 BOM Part # : MW01 Build Quantity 1.000 '#' Indicates LocCost

Part	Rev	Quantity	MTL	LAB	FOH	VOH	Total	Inventory Cost	Variance \$	%
MW01		1.000	32.000	11.667	0.093	0.020	43.780 +	50.000 #	-6.220	-12.4
. MW02		1.000	19.000	1.667	0.013	0.010	20.690 +	20.000 #	0.690	3.5
.. MW03		2.000	5.000	0.000	0.000	0.000	5.000	5.000 #	0.000	0.0
.. MW04		4.000	14.000	0.000	0.000	0.000	14.000	14.000 #	0.000	0.0
. MW05		1.000	10.000	0.000	0.000	0.000	10.000	10.00 #	0.000	0.0
. MW06		1.000	3.000	0.000	0.000	0.000	3.000	3.000 #	0.000	0.0
Totals			32.000	11.667	0.093	0.020	43.780	50.000	-6.220	-12.4

REPORT EXAMPLE 2

FG Part # : MW01 As of mm/dd/yy Note '+' Indicates Roll-up
 BOM Part # : MW01 Build Quantity 1.000 '#' Indicates LocCost

Part	Rev	Quantity	MTL	LAB	FOH	VOH	Total	Inventory Cost	Variance \$	%
MW01		1.000	40.000	10.000	0.080	0.010	50.090 +	50.000 #	0.090	0.2
. MW02		1.000	16.000	1.667	0.013	0.010	17.690 +	17.000 #	0.690	4.1
.. MW03		2.000	4.000	0.000	0.000	0.000	4.000	4.000 #	0.000	0.0
.. MW04		4.000	12.000	0.000	0.000	0.000	12.000	12.000 #	0.000	0.0
. MW05		1.000	20.000	0.000	0.000	0.000	20.000	20.000 #	0.000	0.0
. MW06		1.000	3.000	0.000	0.000	0.000	3.000	3.000 #	0.000	0.0
Totals			39.000		0.093		50.780		0.780	
				11.667		0.020		50.000		1.6

REPORT EXAMPLE 3

FG Part # : MW01 As of mm/dd/yy Note '+' Indicates Roll-up
 BOM Part # : MW01 Build Quantity 1.000 Note '#' Indicates LocCost

Part	Rev	Quantity	MTL	LAB	FOH	VOH	Total	Inventory Cost	Variance \$	Variance %
MW01		1.000	0.000	10.000	0.080	0.010	10.090	#		
. MW02		1.000	0.000	1.667	0.013	0.010	1.690	#		
.. MW03		2.000	4.000	0.000	0.000	0.000	4.000	#		
.. MW04		4.000	12.000	0.000	0.000	0.000	12.000	#		
. MW05		1.000	20.000	0.000	0.000	0.000	20.000	#		
. MW06		1.000	3.000	0.000	0.000	0.000	3.000	#		
Totals			39.000	11.667	0.093	0.020	50.780	50.000	0.780	1.6

REPORT EXAMPLE 4