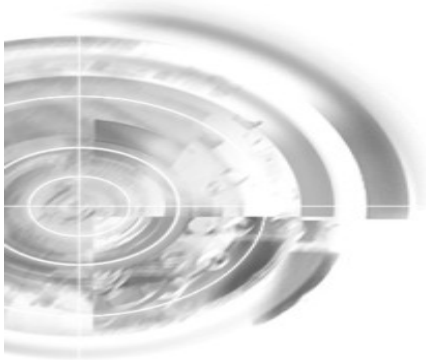
Mitrol



a Teamco Company

Mitrol MFG – Product Costing

Copyright Information

Product Costing Subsystem Overview

Purpose

Reliable cost information is essential in the ongoing effort to maximize company profits. Serving not only the pricing function, cost data find numerous uses throughout a manufacturing system. Cost figures help you translate inventory balances into consistent units for aggregation and provide the basis for prioritizing exceptions requiring attention.

The **Product Costing subsystem** provides the facilities needed to calculate reliable product costs. Using part, bill of material and routing information, MFG II supports the maintenance of frozen standards, while permitting «what if» queries that demonstrate the impacts of cost changes. MFG II also maintains separate cost values for

- material
- labor
- overhead, and
- outside processing.

Standard and current costs

The Product Costing subsystem maintains the two sets of part costs described in the table below.

Part Cost Type	Description
Standard	MFG II maintains standard costs in fields prefixed with PAR-STD. After recalculation at controlled intervals, standard costs are used as the basis for all cost analysis during the period.
Current	MFG II maintains current costs in fields prefixed with PAR-CUR. Current costs accommodate cost variations that may occur during the standard cost period. You can use current costs to • produce «what-if» simulations • monitor discrepancies between actual and projected costs, and • provide a more realistic basis for pricing decisions.

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Features

The Product Costing subsystem has the following features:

Calculating cost totals: You find a part's total standard or current cost by combining a variety of cost elements affecting a part's cost.

Extending lower level part costs: Using the manufacturing bills of material and the routings for an assembly, you may rollup or extend costs for lower level parts in the assembly throughout the product structure.

Reporting actual costs: The Product Costing subsystem accumulates actual labor and material costs for a part against a work order.

Flexible reporting and query capability: The Product Costing subsystem allows you to view information on your terminal through the Query transactions or on hardcopy reports produced through the Report Transactions. The information you may view includes:

- standard and/or current cost data for all, a range, or specified parts
- a single-level bill of material costed by standard or current costs
- a multi-level bill of material costed by standard or current costs, and
- a report detailing the cost impact (on all affected end items) of a set of cost changes to specified components.

Need more detail?

If you want more detail about the features described above or how to calculate costs using the Product Costing subsystem, see the pages which follow.

Determination of Cost Totals

Introduction

MFG II combines a variety of cost elements to obtain totals for the following cost components:

- labor
- material
- fixed overhead
- variable overhead
- outside costs, and
- material overhead.

You may also obtain a grand total for all costs.

Cost elements

MFG II maintains the cost elements described in the table below for both standard and current costs.

Cost Element	Maintained for	Description
Material	Purchased Parts	This is the cost of procurement. Shrinkage should be ignored when determining material costs of purchased parts, since you typically do not pay for rejected material.
	Manufactured Partts	If the bill of material for an assembly is to be loaded, its material cost need not be set; MFG II can compute the material cost from the material costs of the assembly's components and labor from the routings. When material costs for manufactured parts are determined, you should incorporate shrinkage in the manual calculation. For more information, see the pages which follow called «Cost Rollup».
Accumulated Material	Manufactured Assemblies	This is the total material value of all the assembly's components. The system computes this by rolling up the bill of material. **Purchased parts**: The accumulated material cost should be zero.
Assembly Labor	Manufactured Assemblies	This is the standard labor value added in producing one good assembly from its components. Production of an assembly usually requires a number of operations each having a standard setup cost and standard unit cost per piece produced.

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Cost elements (continued)

Cost Element	Maintained for	Description
Assembly Labor (continued)	Manufactured Assemblies (continued)	**Obtaining standard assembly labor cost**:: You would follow these steps to obtain the assembly labor of a unit produced. 1. Choose a «standard» lot size (PAR-COST-LOT) to use in apportioning the setup costs. 2. Use this lot size as the quantity to be started and the shrinkage rate to determine the quantity of good assemblies likely to be produced. 3. For each operation, multiply the per-piece cost by the typical number started. 4. Add the result in Step 3 to the setup cost for the operation. 5. • Sum the totals obtained in Step 4 for all operations of the assembly, and • divide by the quantity of good units produced. **Note**: If routings are loaded, the system performs all of the above steps for you. All you need to do is choose the standard lot size.
Accumulated Labor	Manufactured Assemblies	This is the total labor value of all the assembly's components. The system computes this by rolling up the bill of material. **Purchased parts**: For purchased parts, the accumulated labor cost should be zero.
Outside	Assemblies that require processing by outside vendors	This is the cost of outside processing per unit without considering shrinkage. If routings are loaded, this cost can be rolled from the routing for the part.
Accumulated Outside	Manufactured assemblies with outside processing	This is the total value of outside processing for all of the assembly's manufactured components. The system computes this when it rolls up costs through the bill of material.

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Cost elements (continued)

Cost Element	Maintained for	Description
Fixed Overhead	Each Part	This is the overhead incurred by the part as it passes through each work center. For each work center the part passes through, there is a fixed dollar amount per hour. MFG II rolls this cost from the routing for the part.
Accumulated Fixed Overhead	An Assembly	This is the sum of the fixed overhead costs incurred by all lower level make parts. MFG II rolls this cost from the bill of material.
Variable Overhead	Each Part	This is the overhead, as a percentage of labor dollars, incurred by the part as it passes through each work center. MFG II rolls this cost from the routing for each part.
Accumulated Variable Overhead	A Manufactured Assembly	This is the sum of variable overhead for a manufactured assembly incurred by all lower level make parts. This is calculated by MFG II as it rolls costs for the bill of material.
Material Overhead	--	This is the overhead associated with picking and stocking material. It is calculated as a percentage of material costs.
Accumulated Material Overhead Overhead	--	This is the total material overhead from lower level components of the assembly. This is calculated during the bill of material roll up.

Obtaining totals

MFG II obtains totals for the cost components in the table below using the displayed combinations. You may display these totals using the reporting options.

MFG II obtains this total...	By using...
Labor	Assembly Labor + Accumulated Labor
Material	Material Cost + Accumulated Material Cost
Fixed Overhead	Fixed Overhead + Accumulated Fixed Overhead
Variable Overhead	Variable Overhead + Accumulated Variable Overhead
Outside Cost	Outside Cost + Accumulated Outside Cost
Material Overhead	Material Overhead + Accumulated Material Overhead
Total Cost	All of the above totals from the lefthand column of the table

Cost Rollup

Introduction

Using the manufacturing bills of material and the routings for an assembly, MFG II can calculate (rollup) the cost of the assembly from the costs of its components and any labor applied at each level. You can use either the standard or current cost fields in the calculation.

Description of rollup

MFG II will rollup or extend costs for lower level parts in the assembly throughout the product structure after you have set or modified costs for parts at the lowest component level.

Setting costs

You use the CHGCOST transaction to set a part's cost. Typically, you will set standard costs once per fiscal year or at some other regular interval.

Verifying component costs: Since assembly costs are calculated from the costs of lower-level subassemblies and purchased parts, it is important to know if the costs going into the calculation have been set. MFG II maintains a field for each part to indicate whether costs have been set. The field contains the number of lower-level parts which participated in the part's cost calculation and were either

- purchased parts with a material cost of zero, or
- manufactured parts with an assembly labor cost of zero.

If this field indicates there are such lower-level parts (by containing a value greater than zero), you should treat the part's assembly costs with suspicion until investigating the component costs.

Rollup transactions

You use the following transactions to extend costs for lower level parts in the assembly throughout the product structure:

- ROLLSTD–to roll up standard cost data based on bill of material effectivity at the date given, and
- ROLLCUR–To roll up current cost data based on bill of material effectivity at the date given.

Applying shrinkage: By default, MFG II will take an assembly's shrinkage into account when performing one of the above rollup transactions. However, some companies prefer not to include shrinkage in computing standard costs. You may make a minor modification to the ROLLSTD or ROLLCUR transaction to eliminate shrinkage from the cost calculations.

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Costs included in the rollup calculation

MFG II includes the costs from the table below when calculating cost rollup for an assembly. The following table describes the required input and the calculations performed by MFG II transactions.

Cost	Required Input	Calculations
Material (cost for purchased parts)	You set material cost for a purchased part using the CHGCOST transaction.	(no additional calculations necessary)
Labor (cost for manufactured assembly)	MFG II determines these costs from the standard routing for each assembly. You enter expected run and setup times and labor rates for each assembly when creating routing operation records using the Routing Control subsystem.	The ROLLSTD and ROLLCUR transactions use this information to calculate the labor cost for a manufactured item.
Overhead rates	You maintain overhead rates for each work center by using the ADDWC or CHGWC transactions within the Work Center Control subsystem.	The ROLLSTD and ROLLCUR transactions calculate the amount of fixed and variable overhead incurred by a part.
Outside	You use the ADDOP transaction in the Routing Control subsystem to define a routing operation as an outside operation.	The ROLLSTD and ROLLCUR transactions roll costs for outside operations into the outside cost fields.

Trading rollups

Since costs of individual parts may be modified, it is important to know whether those changes have been rolled up to higher levels. To track this, MFG II records the date of the last cost rollup for each part (for both the standard and current cost fields).

Actual Costs

Background

MFG II also captures and reports actual costs and variances between these actual costs and the frozen standard costs or current standard costs described previously in this document.

Types of actual cost

MFG II accumulates the following types of actual costs against a work order for a part:

- actual labor costs incurred for a part, and
- actual material costs if you have implemented an interface between MFG II and an accounts payable system.

Accumulating actual labor costs

When you report actual labor against a work order, using the Production Activity Control subsystem OPACTV transaction, MFG II captures the employee ID of the person reporting the labor.

Using the employee ID, MFG II determines the actual dollars paid to the employee per hour.

The actual dollars of labor incurred against the work order is the extension of the time reported by the dollar value.

Note: You maintain the actual dollars per hour paid to the employee by using the CHGEMP or ADDEMP transaction.

Accumulating actual material costs

When material is picked and issued to a work order, MFG II

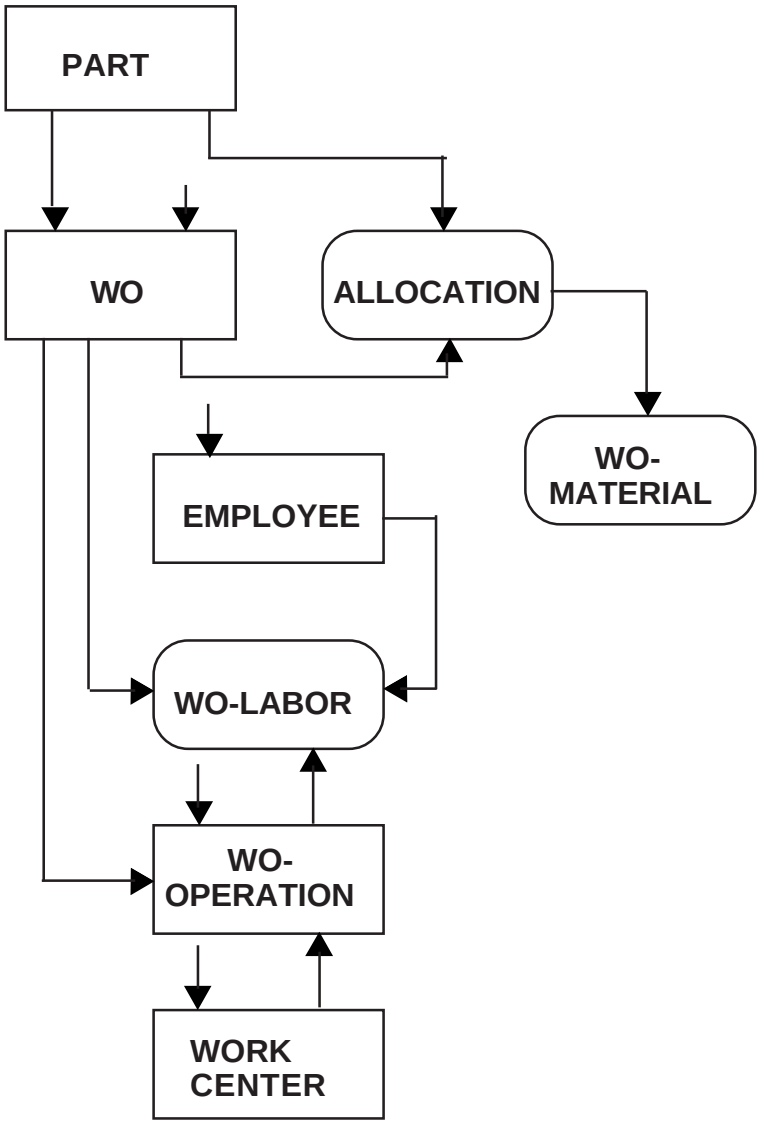
- picks up the cost of the material from the accounts payable interface file, and
- aggregates the material cost against the work order.

Displaying actual costs

You can use the following transactions to display the actual costs information below:

- QWOLBR to display detailed labor costs
- QWOHIST to display work order history data
- QOPLBR to display labor costs for a work operation.

Appendix A. Product Costing File Structure



Appendix B. Fields Used by the Product Costing Subsystem

Part file fields

FIELD	DESCRIPTION
Standard costs:	
PAR-STD-MAT-COST	A part's material cost. The default is zero.
PAR-STD-OUTSIDE	The cost of any outside processing by a vendor. The default is zero.
PAR-STD-COST	The derived total standard cost.
PAR-LAST-STD-CHG	The date of the last change to one of the part's standard cost fields (other than by a bill of material rollup). The default is LOW-DATE.
PAR-STD-COST-REV	The revision level used in calculating standard costs.
PAR-STD-NUM-ZERO	The number of components (at any level within this part's structure) which had a zero material cost or were make parts with zero STD-ASSY-LABOR at the time of the last cost rollup. The default is zero.
PAR-LAST-STD-TOT	The last date a cost rollup was performed for the standard costs of the part. The default is LOW-DATE.
PAR-ACCM-SFIX-OH	The total standard fixed overhead cost of all components.
PAR-ACCM-SMAT-OH	The total standard material handling overhead cost for all components.

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Part file fields (continued)

FIELD	DESCRIPTION
Standard costs (continued):	
PAR-ACCM-SVAR-OH	The total standard variable overhead cost of all components.
PAR-LAB-SVAR-OH$	The standard variable overhead cost per piece.
PAR-STD-ACCM-LAB	The total standard labor cost of all components.
PAR-STD-ACCM-MAT	The total standard material cost of all components.
PAR-STD-ACCM-OUT	The total standard outside cost for all components.
PAR-STD-ASSY-OUT	The standard cost of outside operations per piece.
PAR-STD-LAB	The standard labor cost per piece.
PAR-STD-MAT-OVHD	The standard material handling overhead per piece.
PAR-STD-SFIX-OH$	The standard fixed overhead cost per piece.
Current costs:	
PAR-CUR-MAT-COST	The part's material cost. The default is zero.
PAR-CUR-OUTSIDE	The cost of any outside processing by a vendor. The default is zero.
PAR-CUR-COST	The derived total current cost.
PAR-LAST-CUR-CHG	The date of the last change to one of the part's current cost fields (other than by a bill of material rollup). The default is LOW-DATE.

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Part file fields (continued)

FIELD	DESCRIPTION
PAR-CUR-COST-REV	The revision level used in calculating current costs.
PAR-CUR-NUM-ZERO	The number of components (at any level within this part's structure) which had a zero material cost or were make parts with zero CUR-ASSY-LABOR at the time of the last cost rollup. The default is zero.
PAR-LAST-CUR-TOT	The last date a cost rollup was performed for the current costs of the part. The default is LOW-DATE.
PAR-ACCM-CFIX-OH	The total current fixed overhead cost of all components.
PAR-ACCM-CMAT-OH	The total current material handling overhead cost of all components..
PAR-ACCM-CVAR-OH	The total current variable overhead cost of all components.
PAR-CUR-ACCM-LAB	The total current labor cost of all components.
PAR-CUR-ACCM-MAT	The total current material cost of all components.
PAR-CUR-ACCM-OUT	The total current outside cost of all components.
PAR-CUR-ASSY-OUT	The current cost of outside operations/piece.
PAR-CUR-CFIX-OH$	The current fixed overhead cost/piece.

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Appendix B. Fields Used by the Product Costing Subsystem, Continued

Part file fields (continued)

FIELD	DESCRIPTION
PAR-CUR-LAB	The current labor cost per piece.
PAR-CUR-MAT-OVHD	The current material handling overhead per piece.
PAR-LAB-CVAR-OH$	The current variable overhead cost per piece.

Constant file fields

FIELD	DESCRIPTION
CON-STD-OVHD-%	A single factor for all parts which is used to burden the material cost to account for overhead. The default is zero.
CON-CUR-OVHD-%	A single factor for all parts which is used to burden the material cost to account for overhead. The default is zero.
CON-LST-SOVHD	The date of the last change to the standard material overhead rate. The default is LOW-DATE.
CON-LST-COVHD	The date of the last change to the current material overhead rate. The default is LOW-DATE.
CON-LAST-STD-CHG	The date of the last change to a standard cost field of any part.
CON-LST-SYS-CUR	The date of the last change to a current cost field of any part.
CON-LAST-STD-TOT	The last date a cost rollup was performed for the standard costs of all parts. The default is LOW-DATE.

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Appendix B. Fields Used by the Product Costing Subsystem, Continued

Constant file fields (continued)

FIELD	DESCRIPTION
CON-LAST-CUR-TOT	The last date a cost rollup was performed for the current costs of all parts. The default is LOW-DATE.
CON-STD-TOT-EFF	The effectivity date used in the last standard cost rollup (ROLLSTD). The default is LOW-DATE.
CON-CUR-TOT-EFF	The effectivity date used in the last current cost rollup (ROLLCUR). The default is LOW-DATE.

Operation file fields

FIELD	DESCRIPTION
Current costs:	
OPE-SETUPL-CCOST	The current setup cost of labor at an operation within a work center.
OPE-SETUPM-CCOST	The current setup loss cost of an operation within a work center.
OPE-RUN-CCOST	The current labor cost of an operation for the lot size used for cost.
OPE-REWORK-CCOST	The current cost of rework at an operation within a work center.
OPE-CUR-LAB$	The total current labor cost of an operation in a work center for the lot size used for cost.
OPE-CVAR-OH$	The current variable overhead cost per cost lot.
OPE-CFIX-OH$	The current fixed overhead cost per cost lot.
OPE-COUTSIDE	The current outside cost per cost lot.

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Operation file fields (continued)

FIELD	DESCRIPTION
Standard costs:	
OPE-SETUPL-SCOST	The standard setup cost of labor at an operation within a work center.
OPE-SETUPM-SCOST	The standard material loss cost of an operation within a work center.
OPE-RUN-SCOST	The standard labor cost of an operation for the lot size used for cost.
OPE-REWORK-SCOST	The standard cost of rework at an operation within a work center.
OPE-STD-LAB$	The total standard labor cost of an operation in a work center for the lot size used for cost.
OPE-SVAR-OH$	The standard variable overhead cost per cost lot.
OPE-SFIX-OH$	The standard fixed overhead cost per cost lot.
OPE-SOUTSIDE	The standard outside cost per cost lot.

Update transactions

TRANSACTION	PURPOSE
CHGCOST	Modify a part's standard or current cost data.
CHSCOST	Enter or modify a part's standard cost data.
CHCCOST	Enter or modify a part's current cost data.
CHGOVHD	Enter or modify the standard or current material overhead rate.
CURTSTD	Copy the current cost values into the standard cost fields.
ROLLSTD	Rollup standard cost data, based on effectivity at the date given.
ROLLCUR	Rollup current cost data, based on effectivity at the date given.

Query transactions

TRANSACTION	PURPOSE
QSTDCST	Display standard cost data for specified parts.
QCURCST	Display current cost data for specified parts.
QCOST	Display standard and current cost data for specified parts.
QSTDBOM	Display a single level bill of material costed by standard costs.
QCURBOM	Display a single level bill of material costed by current costs.
QSTDIBM	Display a multi-level bill of material costed by standard costs.
QCURIBM	Display a multi-level bill of material costed by current costs.

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Appendix C. Product Costing Subsystem Transactions, Continued

Query transactions (continued)

TRANSACTION	PURPOSE
QWOLBR	Display detail labor cost for a work order.
QWOHIST	Display work order history data.
QOPLBR	Display labor cost for a work order operation.

Report transactions

TRANSACTION	PURPOSE
LSTSCST	Print a list of all, a range, or specified parts showing standard cost data.
LSTCCST	Print a list of all, a range, or specified parts showing current cost data.
LSTCOST	Print a list of all, a range, or specified parts showing standard and current cost data.
STDBOM	Print a single-level bill of material costed by standard costs.
CURBOM	Print a single-level bill of material costed by current costs.
STDIBOM	Print a multi-level bill of material costed by standard costs.
CURIBOM	Print a multi-level bill of material costed by current costs.
WHATIF	Print a report detailing the cost impact (on all affected end items) of a set of cost changes to specified components.