



## **Product Costing Guide**

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# Product Costing Guide

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# 1 Introduction

## What does product costing do for you?

Product costing provides the means by which material, labor, subcontract service, and overhead costs are absorbed into item inventory costs and cost of goods sold. Product costing provides the following features and benefits:

- Conforms to general accepted accounting principles and IRS and other tax authority guidelines.
- Calculates the estimated cost of manufactured items.
- Absorbs material, direct labor, subcontract service, and manufacturing overhead costs into the inventory cost of your manufactured items.
- Tracks total WIP value in real time.
- Eliminates the need for associating specific purchases or payroll costs to specific jobs.
- Eliminates the need for period end adjustments to inventory and WIP.

## Our design is optimized for small business

We've designed our product costing system so that it can be successfully used by companies of any size, especially small businesses, for these reasons:

- Product costing occurs as processes are performed and requires none of the maintenance and adjustments required to adapt a non-WIP system to a manufacturing business.
- Hourly shop rates for direct labor and manufacturing overhead are automatically calculated based on historical job hours and actual costs.
- Absorbed costing occurs automatically as job processes are performed.

## Who is this guide for?

This guide is for the benefit of managers, accounting personnel, CPA's, production planners, and anyone who wants to learn how a WIP-based costing system works or is considering using DBA as a manufacturing solution.

## 2 Why You Need WIP-Based Product Costing

All manufacturing companies require a WIP-based product costing system because work in process is the core set of activities performed by a manufacturing business. When your accounting system is not WIP-based, time consuming, inefficient, and inadequate workarounds are required to address WIP accounting issues.

### **Non-WIP systems are one-dimensional**

Manufacturing consists of two dimensions – “material”, meaning the components that comprise each item, and “process”, which involves the labor and subcontract processes that comprise each item. Non-WIP systems only address the material dimension and ignore the vitally important process dimension.

### **Three of the four major cost elements are ignored**

Manufactured items consist of four major cost elements – material, labor, subcontract services, and manufacturing overhead. Non-WIP systems only deal with the material cost element and ignore the other three.

### **Item costs are not GAAP or IRS compliant**

Without all four cost elements, the inventory cost of individual items can never be GAAP or IRS compliant, which requires that the cost includes labor and overhead.

### **Labor and overhead cannot be applied at the item level**

Ideally, labor and manufacturing overhead costs should be applied to each item you make so that you have an accurate cost profile for pricing decisions and an accurate cost of goods sold for profitability analysis. With non-WIP systems, however, there is no good way to apply these costs at the item level.

### **Labor and overhead can only be applied to overall inventory at period end**

Even though non-WIP systems are inherently not GAAP or IRS compliant for manufacturing, companies using such systems must comply with reporting requirements within the limitations of the software. This requires accountants to make period end adjustments to overall inventory whereby direct labor and manufacturing overhead cost totals are added to total inventory value and then beginning and ending inventory values are compared to calculate a theoretical cost of goods sold.

### **WIP inventory cannot be separated from inventory on hand**

Work in process is actually a separate inventory and should be tracked with its own GL account. In non-WIP systems, however, no means is provided to isolate the value of WIP from inventory on hand.

### **Assembly builds do not isolate issued materials**

Most non-WIP systems use assembly builds that deduct components after the fact when finished items are received to inventory. Because components are deducted when items are completed instead of at the time they are issued to the shop floor, there is no way to know at any given time how much component stock is actually on hand or has been issued to jobs.

### **Issued materials must be accounted for manually**

Because non-WIP systems do not account for issued materials, whenever an accurate on hand inventory profile is required, it can only be achieved by manually adjusting inventory to account for materials issued to jobs. This often requires counting components in process out on the shop floor, which can be extremely difficult when components are already incorporated into manufactured items.

### **Non-WIP systems are inadequate, inefficient, and time consuming**

Using a non-WIP system in a WIP-based business is inadequate, inefficient, and time consuming, for these reasons:

- You cannot make sound pricing decisions when you do not know what your items cost to make.
- You cannot assess item profitability without an accurate cost of goods sold.
- You can never operate with a reliable and accurate on hand inventory without separate tracking of WIP.
- Stock counts are much more complicated and time-consuming when materials in WIP must be manually accounted for.
- Without a reliable inventory, shortages, high expediting costs, and over-stocking are unavoidable consequences.
- Time consuming and error prone period end adjustments are required to reflect labor and overhead in overall inventory value and cost of goods sold.

### **WIP-based product costing solves all these problems**

As you shall see in the rest of this guide, WIP-based product costing in DBA solves all these problems.

- Estimated item costs are broken out into four major cost elements – material, labor, subcontract services, and manufacturing overhead – so that you have an accurate cost profile for making pricing decisions.
- Labor, subcontract service, and manufacturing overhead costs are absorbed into the inventory cost of the items you make so that you get an accurate cost of goods sold at the item level.

- Components are deducted from inventory in real time when they are issued to jobs so that on hand inventory is always accurate and cleanly separated from materials in WIP.
- Stock counts can be freely performed without any consideration of materials in WIP.
- WIP and inventory accounts are self-adjusting and require no period end adjustments.

### 3 Product Costing Overview

This chapter explains what WIP-based product costing is and how it works.

 [Video - Product Costing Overview](#)

 [Absorbed Costs Screenshot Series](#)

#### **Manufacturing has special accounting requirements**

It is a requirement to reflect the cost of material, labor, manufacturing overhead, and subcontract services into the value of the items that you manufacture. All costs must flow through Work in Process into Inventory Value and ultimately get reflected in your Cost of Goods Sold when you sell the product.

#### **What is WIP-based product costing?**

WIP-based product costing refers to all general ledger transactions associated with job costing, WIP value, and inventory value.

#### **All product costing transactions are job-related**

All product costing transactions are made when the following job processes are performed – job issues, job labor, job subcontract receipts, job receipts, and job close.

#### **Job Issues**

Materials are issued to jobs in real time when needed by work centers at each components inventory cost for the quantity issued. This results in a debit (increase) to *Work in Process* and a credit (decrease) to *Inventory*.

#### **Job Labor**

Job labor hours, which can be actual or standard hours (recommended), are entered against jobs in as close to real time as possible at each work center's hourly rates for labor and manufacturing overhead. This results in debits (increase) to *Work in Process* and credits to *Absorbed Labor* and *Absorbed Mfg OH*.

#### **Hourly Rates**

Work center hourly rates for direct labor and manufacturing overhead are derived from the *Shop Rates* screen, which calculates suggested hourly rates at the total shop level based on past labor hours divided into past labor and overhead costs. These two shop rates can be factored up or down by work center to reflect exceptions in relative labor rates or share of overhead burden. See the *Absorption Costing and Shop Rates* chapter for details.

#### **Job Subcontract Receipts**

POs for outside services performed during the course of jobs – such as painting, plating, and heat-treating – are received and charged to jobs at the PO cost. This results in a debit (increase) to *Work in Process* and a credit to *Absorbed Subcontract Cost*.

### **Job Receipts**

Finished items are received to inventory and averaged with quantities on hand to establish inventory value. This results in a debit (increase) to *Inventory* and a credit (decrease) to *Work in Process*. *Job Receipt* provides the means by which material, labor, subcontract services and manufacturing overhead are absorbed into item inventory costs.

### **Job Close**

When a job is closed, its WIP balance is brought to zero by adjusting the *WIP* account up or down to account for any variance between the total actual job cost and the total job receipt cost to inventory. This results in a debit or credit to *Work in Process* and an offsetting debit or credit to *WIP Adjustments*.

### **Total WIP value is self-adjusting and always in balance**

The total value of the *Work in Process* account reflects the current WIP balance of all jobs in progress at any given time. Whenever a job is closed, its WIP balance is adjusted to zero and thus the overall *Work in Process* account value is always in perfect balance with the underlying jobs in progress.

### **The WIP account is never adjusted by journal entry**

Because it is self-adjusting, you never make journal entries to the *Work in Process* account. Any such journal entry will corrupt the account and cause it to be out of balance with the WIP balances in the underlying jobs in progress.

### **The Inventory account is never adjusted by journal entry**

The *Inventory* account is also self-adjusting and is never subject to journal entry except to establish its initial value on system startup. When manufactured items are received to inventory, the cost reflects labor, subcontract services, and manufacturing overhead and thus needs no further adjustment. Any cost adjustments are made at the item level through the *Change Inventory Cost* screen and never by journal entry.

### **WIP-based product costing is totally automated**

By contrast to the numerous workarounds required with a non-WIP system, WIP-based product costing is totally automated and occurs in the background as job transactions are made.

## 4 Material Costs

Material costs originate from the value of the raw material components that you purchase. Verifying supplier pricing and regular maintenance of your purchased items Estimated Costs followed by Cost Rollups of your manufactured items are essential tasks.

 [Material Costs Workflow](#)

### **Inventory value is an average cost based on PO Receipt value**

DBA will average in the PO receipt cost with any existing quantities on hand. For accurate costing, it is imperative that you verify PO prices prior to sending to suppliers.

### **Update your supplier prices before sending out Purchase Orders**

Methods of updating supplier prices:

1. Update supplier price in *MRP PO Generation* screen. This ensures that your default supplier price records are continuously updated and current.
2. By individual item in the *Inventory > Stock Item > Sources* tab
3. Group of Items by Supplier using the *File > Data Import > Item Sources > Item Suppliers*

### **Mass update estimated costs in BOM > Estimated Purchase Costs on a regular basis**

On at least a weekly basis or after any supplier price changes, you should run the *BOM > Estimated Purchase Costs Mass Replace* routine and update your estimated costs by Default Supplier Price.

### **Always perform a BOM Cost Rollup immediately after updating Estimated Purchase Costs**

Run *BOM>Cost Rollup* to reflect updated estimated material costs across all manufactured items

### **You must constantly work on your Estimated Costs and Inventory Costs for your purchased items**

Your estimated costs will flow through all of your manufactured items. Your inventory cost will be based on your PO receipt costs and this will affect your actual transaction costs in Jobs. If you do not pay attention to either your estimated or inventory costs you can cause widespread costing confusion.

### **Subassemblies used in a Job are considered material**

Subassemblies that are components in Jobs are considered material and are issued to WIP at inventory cost.

## 5 Absorption Costing

This chapter explains how absorption costing works and how work center hourly rates for direct labor and manufacturing overhead are established.

 [Absorbed Costing Screenshot Series](#)

### Topics:

-  [Overview](#)
-  [Cost of Sales Setup](#)
-  [Shop Rates](#)
-  [Work Center Cost Factors](#)
-  [Standard Hours](#)
-  [Subcontract Services](#)

## 5.1 Absorption Costing - Overview

### Direct costing is not possible

It is not possible to directly post the various direct labor and manufacturing overhead costs to specific jobs. Factory rent, for example, is a cost that is shared by all jobs. The same principle applies to all manufacturing overhead costs, as well as direct labor costs such as downtime, benefits, taxes, and insurance.

### Absorption costing is used instead

Even though direct costing is not possible, it is still vitally important to incorporate direct labor and manufacturing overhead into the estimated cost and inventory cost of your manufactured items. This is done using absorption costing.

### What is absorption costing?

Absorption costing is the process by which direct labor and manufacturing overhead costs are absorbed into the inventory cost of manufactured items. This is done by applying hourly rates for direct labor and manufacturing overhead to job labor transactions.

### Labor and overhead costs are investments in inventory

Absorption costing converts direct labor and manufacturing overhead costs into investments in inventory. Those costs are not reflected in your income statement until items are sold, in the form of cost of goods sold, which correctly aligns revenue with manufacturing costs.

### Costs are absorbed through hourly rates

The means by which direct labor and manufacturing overhead costs are absorbed into inventory is through work center hourly rates that are applied to job labor transactions.

### Absorbed costs can only approximate actual costs

Bear in mind that the work center hourly rates that determine absorbed costs can only approximate the actual costs and job hours that are likely to occur during the current accounting period. As such, absorbed costs can never be exactly equal to actual costs and therefore there will always be a variance between absorbed and actual costs. This is normal and expected and is properly handled by the chart of accounts structure. See the next chapter for details on cost variances.

## 5.2 Absorption Costing - Cost of Sales Setup

### Overview

The *Cost of Sales* section in your general ledger must be structured to accommodate absorption costing. All your direct labor cost accounts must be *Cost of Sales* accounts offset by an *Absorbed Labor* contra-account. All your manufacturing overhead cost accounts must be *Cost of Sales* accounts offset by an *Absorbed Mfg Overhead* contra-account.

### How are labor and overhead costs handled in a manufacturing company?

Labor and manufacturing overhead costing is handled completely differently in a manufacturing chart of accounts than in a generic chart of accounts.

#### Generic Chart of Accounts

In a generic chart of accounts, labor and manufacturing overhead costs are handled by *Expense* accounts and shop expenses are often blended with general expenses. For example, payroll expenses for shop and office employees are often lumped together into shared expense accounts. Shop and office expenses for rent, utilities, insurance, maintenance, utilities and other costs are often lumped into shared expense accounts.

#### Manufacturing Chart of Accounts

By contrast, in a manufacturing chart of accounts, labor and manufacturing overhead costs are handled by *Cost of Sales* accounts. Shop-related costs are isolated from general and administrative costs. Job labor and manufacturing overhead transactions post to contra-accounts that offset actual costs and thus “absorb” labor and overhead costs into the inventory costs of the items you make.

### You must restructure your labor and overhead accounts

To use your chart of accounts with financial transfer processes, you must restructure your direct labor and manufacturing overhead accounts to convert your generic chart of accounts into a manufacturing chart of accounts. See below for detailed instructions.

### You must restructure your payroll account assignments

After you restructure your direct labor and manufacturing overhead accounts, you must change your payroll system account assignments so that production worker costs are posted to direct labor accounts and shop management and non-production worker costs are posted to manufacturing overhead accounts. See below for detailed instructions.

## Add Absorbed Costs sub-sections to your Cost of Sales

Add the following *Absorbed Costs* sub-sections at the end of your *Cost of Sales* section.

## Cost of Sales - Absorbed Labor Costs

### What are direct labor costs?

Direct labor costs are the actual payroll costs associated with production worker employees, including benefits, taxes, and wages, as well as their share of workmans compensation insurance. Contract worker costs are also direct labor costs.

NOTE: Do not include payroll costs for manager, supervisor, shipping, receiving, warehouse, inspection, maintenance, and development employees, which are considered to be indirect labor costs.

### Direct labor costs are absorbed into your inventory

DBA is an absorption costing system where direct labor costs are absorbed into the inventory cost of the items you make. Instead of treating direct labor costs as *Expense* accounts, they are treated as *Cost of Sales* accounts that are offset by an *Absorbed Labor* contra-account.

### Actual costs establish your shop labor rate

Actual direct labor costs for a given period of time are periodically entered in the *Shop Rates* screen where they get divided by reported labor hours to calculate your overall shop rate for labor. The shop rate gets applied to your work center hourly rates, which provide the cost basis for the labor transactions that post to the *Absorbed Labor* contra-account. To make absorption costing work properly, it is vitally important that you isolate your direct labor costs in the *Cost of Sales* section of your chart of accounts.

### Create an Absorbed Labor set of accounts

Isolate your direct labor cost accounts and locate them in a new *Absorbed Labor* sub-section of your *Cost of Sales*. Here is the *Absorbed Labor* set of accounts in the DBA chart of accounts *Cost of Sales* section, which you can use as a guideline:

54000	Absorbed Labor
54100	Labor Payroll - Benefits
54200	Labor Payroll - Taxes
54300	Labor Payroll - Wages
54400	Labor Payroll - Workmans Comp
54400	Contract Labor

Let's now review each of these accounts and how it is set up:

### **Absorbed Labor**

Create this new account and locate it at the beginning of your direct labor sub-section. All job labor transactions credit this account, which is a contra-account that offsets the debit transactions associated with actual direct labor costs.

### **Labor Payroll - Benefits, Wages, Taxes**

In your payroll system, isolate payroll costs associated with your direct labor employees and post them to these accounts. In some payroll systems you can assign employees to groups and then assign cost accounts to the group. In QuickBooks payroll, you can use payroll items to represent payroll cost categories and assign cost accounts to those items.

### **Labor Payroll - Workmans Comp**

When you pay your workmans compensation insurance, allocate a portion of it to cover the amount associated with your direct labor employees.

### **Contract Labor**

If you hire contract labor, post those costs to this account.

## **Cost of Sales - Absorbed Subcontract Cost**

### **Absorbed Subcontract Cost**

Create this new account and locate it after your *Absorbed Labor* sub-section.

## **Cost of Sales - Absorbed Misc Cost**

### **Absorbed Misc Cost**

Create this new account and locate it after your *Absorbed Subcontract Cost* account.

## **Cost of Sales - Absorbed Mfg Overhead Costs**

### **What is manufacturing overhead?**

Manufacturing overhead includes all the indirect costs associated with the manufacturing process, including the factory's share of rent, utilities, maintenance, supplies, taxes, insurance, and depreciation, as well as payroll benefits, taxes, and wages for indirect labor, which includes shop manager, supervisor, shipping, receiving, warehouse, inspection, and maintenance employees.

NOTE: Manufacturing overhead should not include selling, general and administrative (SG&A) expenses.

### **Manufacturing overhead costs are absorbed into your inventory**

DBA is an absorption costing system where manufacturing overhead costs are absorbed into the inventory cost of the items you make. Instead of treating direct manufacturing overhead costs as *Expense* accounts, they are treated as *Cost of Sales* accounts that are offset by an *Absorbed Mfg Overhead* contra-account.

### **Actual costs establish your shop overhead rate**

Actual manufacturing overhead costs for a given period of time are periodically entered in the *Shop Rates* screen where they get divided by reported labor hours to calculate your overall shop rate for manufacturing overhead. The shop rate gets applied to your work center hourly rates, which provide the cost basis for the labor transactions that post to the *Absorbed Mfg Overhead* contra-account. To make absorption costing work properly, it is vitally important that you isolate your manufacturing overhead costs in the *Cost of Sales* section of your chart of accounts.

### **Create an Absorbed Mfg Overhead set of accounts**

Isolate your manufacturing overhead cost accounts and locate them in a new *Absorbed Mfg Overhead* sub-section of your *Cost of Sales* following the *Absorbed Misc Cost* account. Here is the *Absorbed Mfg Overhead* set of accounts in the DBA chart of accounts *Cost of Sales* section, which you can use as a guideline:

57000	Absorbed Mfg Overhead
58000	Factory - Depreciation - Equipment
58100	Factory - Depreciation - Vehicles
58200	Factory - Depreciation - Buildings
58300	Factory - Insurance - Other
58350	Factory - Insurance - Vehicles
58400	Factory - Leases
58500	Factory - Maintenance
58600	Factory - Property Taxes
58700	Factory - Rent
58800	Factory - Supplies and Expenses
58900	Factory - Utilities
59000	Indirect Payroll - Benefits
59100	Indirect Payroll - Taxes
59200	Indirect Payroll - Wages
59300	Indirect Payroll – Workmans Comp

Let's now review each of these accounts and how it is set up:

**Absorbed Mfg Overhead**

Create this new account and locate it at the beginning of your manufacturing overhead sub-section. All job labor transactions credit this account, which is a contra-account that offsets the debit transactions associated with actual manufacturing overhead costs.

**Factory - Depreciation - Equipment, Vehicles, Buildings**

All depreciation costs related to the factory should be posted to these accounts.

**Factory - Insurance - Other, Vehicles**

All insurance costs or portions of insurance bills related to the factory should be posted to these accounts.

**Factory - Leases**

All leasing costs related to the factory should be posted to this account.

**Factory - Maintenance**

All factory maintenance costs should be posted to this account.

**Factory - Property Taxes**

A portion of your property tax bills should be allocated to cover the factory's share of property tax cost.

**Factory - Rent**

A portion of rent cost should be allocated to cover the factory's share of rent cost.

**Factory - Supplies and Expenses**

Factory-related supplies and expenses should be posted to this account.

**Factory - Utilities**

A portion of utility bills should be allocated to cover the factory's share of utility costs.

**Indirect Payroll - Benefits, Taxes, Wages**

In your payroll system, isolate payroll costs associated with your indirect manufacturing labor (shop management, shop supervisors, and shipping, receiving,

warehouse, inspection, and maintenance personnel) and post them to these accounts. In some payroll systems you can assign employees to groups and then assign cost accounts to the group. In QuickBooks payroll, you can use payroll items to represent payroll cost categories and assign cost accounts to those items.

### **Indirect Payroll - Workmans Comp**

When you pay your workmans compensation insurance, allocate a portion of it to cover the portion associated with your indirect labor employees.

## **Inactivate labor and overhead Expense accounts**

In your chart of accounts, inactivate any labor and manufacturing *Expense* accounts that were replaced by the new *Cost of Sales* accounts set up above.

## **Cross-reference your accounts**

After your labor and overhead accounts are finalized, you must cross-reference each of your account numbers with the corresponding account in the DBA chart of accounts. This enables the *GL Summary Transfer* screen to post DBA account totals to the appropriate accounts in your general ledger.

To do so, go to the *GL – General Ledger Setup - Chart of Accounts* screen and on the *Detail* tab select each DBA account and enter your corresponding account number in the *X-Ref Account* field.

## **Start posting to the new Cost of Sales accounts**

Even if you have not yet activated the DBA system for live use, start posting your direct labor and manufacturing overhead costs to the new *Cost of Sales* accounts.

## **Income Statement Example**

It may help you conceptualize how absorption costing works by viewing the following sample income statement. Keep in mind that this is sample data, which does not include as many actual costs as would be listed in a real company, but it illustrates how absorbed costs and actual costs roughly offset each other.

Take note that the credit amount for the *Absorbed Labor* account is roughly offset by the actual direct labor cost debit amounts.

Take note that the credit amount for the *Absorbed Mfg Overhead* account is roughly offset by the actual manufacturing overhead cost debit amounts.

**Absorbed Costs**

Direct Labor		
54000	Absorbed Labor	(\$4,215.00)
54100	Labor Payroll - Benefits	\$600.00
54200	Labor Payroll - Taxes	\$300.00
54300	Labor Payroll - Wages	\$3,350.00
	Total Direct Labor	\$35.00
Factory Overhead		
57000	Absorbed Factory Overhead	(\$6,322.50)
58700	Factory - Rent	\$2,500.00
58900	Factory - Utilities	\$500.00
59000	Indirect Payroll - Benefits	\$650.00
59100	Indirect Payroll - Taxes	\$325.00
59200	Indirect Payroll - Wages	\$2,350.00
	Total Factory Overhead	\$2.50
	Total Absorbed Costs	\$37.50

Direct Labor Section

Take note of the *Direct Labor* section of the income statement. Job labor costs within this date range are posted to the *Absorbed Labor* account based on the shop labor rate applied to work center hourly rates. The objective of the hourly shop labor rate is for total *Absorbed Labor* to roughly offset the adjacent actual direct labor cost accounts, which neutralizes any effect on cost of sales. Job labor costs get absorbed into item inventory values with job receipts and ultimately affect cost of sales through cost of goods sold when items are invoiced.

Factory Overhead Section

Take note of the *Factory Overhead* section of the income statement. Job overhead costs within this date range are posted to the *Absorbed Factory Overhead* account based on the shop overhead rate applied to work center hourly rates. The objective of the hourly shop overhead rate is for *Absorbed Mfg Overhead* to roughly offset the adjacent actual overhead cost accounts, which neutralizes any effect on cost of sales. Job overhead costs get absorbed into item inventory values with job receipts and ultimately affect cost of sales through cost of goods sold when items are invoiced.

## 5.3 Absorption Costing - Shop Rates

### Shop Rates

(BOM – Shop Rates)

Use this screen to update an hourly shop rate for direct labor and an hourly shop rate for manufacturing overhead. These shop rates are applied to work center hourly rates, where they can be factored up or down for exceptions.

#### What is the purpose of the Shop Rates screen?

The purpose of the *Shop Rates* screen is to maintain a single shop hourly rate for direct labor and a single shop hourly rate for manufacturing overhead. The hourly shop rates get applied to work center hourly rates where they can be factored up or down for exceptions.

#### What are the benefits of the Shop Rates screen?

Self adjusting shop rates are a true DBA innovation. The overall goal of the costing system is for your absorbed costs for labor and manufacturing overhead to offset your actual payroll costs for your production workers and your actual costs for your manufacturing overhead. Many competing systems attempt to tie down their payroll hours with job reported hours. Matching hours to hours is nearly impossible to do and does not lead to more accurate absorbed costs. You run into major problems addressing the following common issues: attempting to track non production time (down time), handling partially attended sequences, accommodating workers that can run more than one sequence at a time, handling labor for rework, the requirement for perfect accuracy of your cycle times, etc.

Instead of worrying about payroll hours, DBA takes your *overall costs* for a given period of time and compares that to the production hours reported for that same period of time.

The strength of our approach is that you do not have to attempt to perfectly match your reported hours with actual clock hours. You can use *Standard* completion hours for reported time and the self calculated shop rate will automatically adjust accordingly. The end result will be that you will achieve reasonably accurate absorbed labor and manufacturing overhead costs without the need to be perfect in your labor time tracking.

#### How are shop rates determined?

The two shop rates are calculated using the following formulas from a recent date range of actual costs and reported labor hours. This enables future job labor transactions to be costed at hourly labor and overhead rates that fully absorb your actual costs into work in process, which ultimately flows into inventory value and cost of goods sold.

$$\text{Actual Direct Labor Costs} / \text{Reported Job Hours} = \text{Shop Labor Rate}$$

Actual Mfg Overhead Costs / Reported Job Hours = Ship Overhead Rate

### What are direct labor costs?

Direct labor costs are the actual payroll costs associated with production worker employees, including benefits, taxes, and wages, as well as their share of workmans compensation insurance. Contract worker costs are also direct labor costs.

NOTE: Do not include payroll costs for manager, supervisor, shipping, receiving, warehouse, inspection, maintenance, and development employees, which are considered to be indirect labor costs.

### What is the Absorbed Labor account?

The *Absorbed Labor* cost account gets updated by job labor transactions and is a contra-account that offsets actual direct labor costs over a given period of time. *Absorbed Labor* ideally washes out with actual direct labor costs so that there is no effect on current net income. Instead, absorbed labor costs flow from work in process into item inventory costs and only affect net income in the form of *Cost of Goods Sold* when items are invoiced.

The objective of the *Shop Rates* screen is to calculate a shop labor rate that enables *Absorbed Labor* to wash out with actual direct labor costs.

### What is manufacturing overhead?

Manufacturing overhead includes all the indirect costs associated with the manufacturing process, including the factory's share of rent, utilities, maintenance, supplies, taxes, insurance, and depreciation, as well as payroll benefits, taxes, and wages for indirect labor, which includes shop manager, supervisor, shipping, receiving, warehouse, inspection, and maintenance employees.

NOTE: Manufacturing overhead should not include selling, general and administrative (SG&A) expenses.

### What is the Absorbed Mfg Overhead account?

The *Absorbed Mfg Overhead* cost account gets updated by job labor transactions and is a contra-account that offsets actual manufacturing overhead costs over a given period of time. *Absorbed Mfg Overhead* ideally washes out with actual manufacturing overhead costs so that there is no effect on current net income. Instead, absorbed manufacturing overhead costs flow from work in process into item inventory costs and only affect net income in the form of *Cost of Goods Sold* when items are invoiced.

The objective of the *Shop Rates* screen is to calculate a shop overhead rate that enables *Absorbed Mfg Overhead* to wash out with actual direct labor costs.

### Income statement example

It may help you conceptualize how absorbed costs wash out with actual costs by reviewing the following *Cost of Sales - Absorbed Costs* section of a sample income statement.

NOTE: Keep in mind that this is simplified sample data and that in a real company many more actual cost accounts will be displayed, especially in regards to manufacturing overhead costs.

#### Absorbed Costs

Direct Labor		
54000	Absorbed Labor	(\$4,215.00)
54100	Labor Payroll - Benefits	\$600.00
54200	Labor Payroll - Taxes	\$300.00
54300	Labor Payroll - Wages	\$3,350.00
		\$35.00
Total Direct Labor		
Factory Overhead		
57000	Absorbed Factory Overhead	(\$6,322.50)
58700	Factory - Rent	\$2,500.00
58900	Factory - Utilities	\$500.00
59000	Indirect Payroll - Benefits	\$650.00
59100	Indirect Payroll - Taxes	\$325.00
59200	Indirect Payroll - Wages	\$2,350.00
		\$2.50
Total Factory Overhead		
Total Absorbed Costs		\$37.50

#### Direct Labor Section

Take note of the *Direct Labor* section of the income statement. Job labor costs within this date range are posted to the *Absorbed Labor* account based on the shop labor rate applied to work center hourly rates. The objective of the hourly shop labor rate is for total *Absorbed Labor* to roughly offset the adjacent actual direct labor cost accounts, which neutralizes any effect on cost of sales. Job labor costs get absorbed into item inventory values with job receipts and ultimately affect cost of sales through cost of goods sold when items are invoiced.

#### Factory Overhead Section

Take note of the *Factory Overhead* section of the income statement. Job overhead costs within this date range are posted to the *Absorbed Factory Overhead* account based on the shop overhead rate applied to work center hourly rates. The objective of the hourly shop overhead rate is for *Absorbed Mfg Overhead* to roughly offset the adjacent actual overhead cost accounts, which neutralizes any effect on cost of sales. Job overhead costs get absorbed into item inventory values with job receipts

and ultimately affect cost of sales through cost of goods sold when items are invoiced.

### **The recent past is used to predict the near future**

Shop rates are calculated from recent past data, which provides a reasonable prediction of future hourly rates because the near future is likely to resemble the recent past. By default the screen displays reported job hours for the past three complete months. When you use the financial transfer accounting configuration, you will manually enter total direct labor costs and total manufacturing overhead costs from your outside general ledger for the same time period.

### **We recommend quarterly updating**

We recommend updating shop rates once a quarter. If you recently implemented DBA and are still refining your numbers, you may wish to update shop rates more frequently, such as each accounting period, until they stabilize.

### **Variations are normal and expected**

Because hourly shop rates are a prediction of future costs and hours, there will always be an accounting variance between absorbed costs and your actual labor and overhead costs. Such variances are normal and expected and are automatically handled by the accounting system.

### **Screen Details**

Refer to the screen help for screen details.

#### **Link:**

 [Screen Help - Shop Rates](#)

## **Advance Setup**

Labor and manufacturing overhead costing is handled completely differently in a manufacturing chart of accounts than in a generic chart of accounts.

### **Generic Chart of Accounts**

In a generic chart of accounts, labor and manufacturing overhead costs are handled by *Expense* accounts and shop expenses are often blended with general expenses. For example, payroll expenses for shop and office employees are often lumped together into shared expense accounts. Shop and office expenses for rent, utilities, insurance, maintenance, utilities and other costs are often lumped into shared expense accounts.

## Manufacturing Chart of Accounts

By contrast, in a manufacturing chart of accounts, labor and manufacturing overhead costs are handled by *Cost of Sales* accounts. Shop-related costs are isolated from general and administrative costs. Job labor and manufacturing overhead transactions post to contra-accounts that offset actual costs and thus “absorb” labor and overhead costs into the inventory costs of the items you make.

### You must restructure your labor and overhead accounts

To use your chart of accounts with financial transfer processes, you must restructure your labor and manufacturing overhead accounts to convert your generic chart of accounts into a manufacturing chart of accounts.

### Labor and Overhead Accounts Setup

If you have not yet structured your chart of accounts to isolate direct labor and manufacturing overhead accounts as *Cost of Sales* accounts, refer to the following chapter in the *Financial Transfer* guide for setup details.

#### Link:

 [Financial Transfer Guide – Labor and Overhead Setup](#)

## 5.4 Absorption Costing - WC Cost Factors

### Work Center Cost Factors

By default, work center hourly rates for setup, labor, and manufacturing overhead are equal to the hourly rates specified in the *Shop Rates* screen. If you wish to make exceptions to shop rates at the work center level, you can use the following work center cost factors to adjust the shop rate up or down.

### Setup Cost Factor

This is a multiplier that is applied to the shop labor rate to calculate the work center *Setup Rate*. It is given a default value of '1', which makes the work center setup rate equal to the shop labor rate. If you wish to adjust the work center rate higher or lower than the shop rate, change this setting accordingly. For example, if you want the setup rate to be 25% higher than the shop labor rate, enter '1.25'.

### Labor Cost Factor

This is a multiplier that is applied to the shop labor rate to calculate the work center *Labor Rate*. It is given a default value of '1', which makes the work center labor rate equal to the shop labor rate. If you wish to adjust the work center rate higher or lower than the shop rate, change this setting accordingly.

### Examples - Using Standard Hours and Labor Cost Factor

#### Partially attended Work Center

Some work centers can be loaded and run without needing a worker to be present the entire time. Lets say the Work Center is attended 20% of the time. You can set the labor factor to .20 and the Mfg OH to 1 and this will adjust the absorbed labor costs but still provide the full burden rate for overhead.

#### One worker operating multiple machines

A work center may consist of four machines that are operated simultaneously by one worker. If you want to cost labor in this work center at 1/4 of the shop rate, you would enter a cost factor of '.25'. You can leave the Mfg OH factor at 1.

#### Fixed Team at the Work Center

Conversely, the work center might be a machine that is run by a team of four workers. All sequences should be set to Standard hours type. If you want to cost labor in this work center to reflect the cost of this team, you would enter a cost factor of '4'.

### Mfg OH Cost Factor

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This is a multiplier that is applied to the shop overhead rate to calculate the work center *Mfg OH Rate*. It is given a default value of '1', which makes the work center overhead rate equal to the shop overhead rate. If you wish to adjust the work center rate higher or lower than the shop rate, change this setting accordingly.

### Examples

A work center may consist of an expensive machine that occupies a larger share of floor space, consumes a higher share of electricity, and requires more maintenance than other work centers. In this case, you would enter a cost factor greater than '1' (such as '1.5' or '2') to allocate a larger share of the overhead burden to this work center.

## 5.5 Absorption Costing - Standard Hours

Set your routing sequence Hours Type to Standard for improved throughput and costing.

### BOM Routing Hours Type

This setting determines how labor hours for this sequence are to be processed. Two options are available

#### Standard (Recommended)

With this option, actual labor hours are not collected. Instead, standard hours from the job routing specifications are used for job costing purposes, based on completion quantities or finished status entered in the Job Labor screen.

#### Use Standard hours for partially attended processes

Some work center machines can be started and run without the need for a worker to be present the entire time. To handle this scenario, the cycle time should be for the complete run time for the process. You can adjust the labor costing using the *Labor Cost Factor* in the *BOM > Work Center > Details* tab. For example, if the work center process is attended 20% of the time you can set the *Work Center Labor Cost Factor* to .20 and the *Mfg OH Factor* to 1. The costing will adjust the absorbed labor rate and leave the mfg overhead rate fully intact.

#### Use Standard hours for work center processes that require a team of workers

Some work centers require a fixed team size to perform a process. To handle this scenario, the cycle time should be for the complete run time for the process. You can adjust the *Labor Cost Factor* in the *BOM > Work Center > Details* tab to adjust the labor cost rate to reflect the team. For example, if the process requires a team of 2 workers, you can set the Labor Cost Factor to 2 and you can optionally set the *Mfg OH Factor* to either 1 or 2.

#### Actual (Use Sparingly)

With this option, actual worker hours are to be collected against this sequence and entered in the *Job Labor* screen.

### Special Warning Regarding Actual Hours

Our experience has shown that it is very difficult to perform actual hours in most manufacturing environments. The reality of most shops are that once an item is finished it is shipped out as soon as possible regardless of whether all of the costing information has been submitted. It is very easy to make errors or omissions in labor entry that can have a very consequential effect on your cost of sales accounts and make your income

statement a challenge to interpret. Since the product is likely already out the door, there is not an opportunity to fix the costs after the fact. We strongly recommend *Standard* hours completions for most companies

### **Standard hours are recommended for improved throughput and consistent costing**

When the *Standard* hours type is used against job sequences, labor can be quickly updated in just a few clicks because standard setup and labor hours are applied instead of actual hours. Using standard hours eliminates all the mechanical processes that are required to collect and report actual labor hours. Our recommendation is to use *Standard* hour sequences and commit to reporting completions when sequences are finished.

### **Are Actual Hours more accurate for costing?**

Because actual hour reporting is time consuming, bureaucratic, and prone to timing errors, it is our experience that Actual Hours tracking can lead to frequent unintended costing errors. These errors can undermine the basic goal to reasonably reflect the cost of labor and manufacturing overhead in the value of the products you manufacture. Standard completions for costing can lead to a more stable inventory value and cost of goods sold.

### **Self-adjusting Shop Rates improves Standard completions costing**

Even if your *Standard* hours completions do not perfectly tie down to actual clock hours reported, the shop rate calculation will automatically take this into account and the rates will adjust accordingly. For example, if you under reported time based on completions, in the shop rate screen it will look at your labor costs and manufacturing overhead costs for a period of time versus the hours reported in DBA for that same period. If hours are under-reported versus reality, then the shop rate for labor and manufacturing overhead would automatically increase to compensate. Because of self-adjusting shop rates, you can achieve very reliable absorption costing with standard completions that are just reasonably "ballpark" accurate.

## 5.6 Absorption Costing - Subcontract Services

Manufacturing processes such as painting, plating, and heat-treating are commonly performed by outside suppliers. In DBA, Subcontract costs are handled through special Subcontract Routings that generate Subcontract Purchase Orders.

### **Subcontractors are a special kind of Work Center**

You define your subcontractors in the *BOM > Subcontractors* screen. From a workflow perspective, you can think of a Subcontractor as a Work Center that is located off site.

### **Subcontract services are handled through BOM Routings**

In the *BOM > Bill of Manufacturing > Routings* tab, you add a special routing for Subcontracting Processes.

- Supplier Price is in Supplier UM and used for the Subcontract Purchase Order
- Estimated Cost is reflected as the total cost per unit of output of the parent manufactured item. This is used for Cost Rollups for Subcon costs.
- PO Notes can be used for special instructions to the Subcontract Supplier
- Job Notes can be used for special instructions to the Job Traveler

### **Assign components to the Subcontract Routing Sequence in BOM**

The materials that you will be sending to the subcontractor should be defined as BOM components and assigned to the Subcontract routing sequence.

### **Subcontracting Workflow**

#### **Issue Material to be sent to Subcontractor to the Job**

The Job is released to production and you will perform Job Issues to issue the material cost to Work in Process.

#### **Generate the Subcontract PO to send with the materials you issued to the Job**

In *Jobs > Job Subcontracting*, you will generate a PO for the subcontract services. Any PO notes defined against the Subcontract routing will flow through to the PO. You can use the Job Issues batch issue report as a supporting document to the PO for the materials that are sent out. Make sure to verify your Subcontract pricing when sending out the PO to the Subcontract Supplier.

#### **Receive PO when subcontract services are completed an items are returned**

When the items are returned the PO is receipted. The PO receipt will absorb the Subcontract costs from the PO into Work in Process. It is important to note that it is the PO Receipt costs that are absorbed into Work in Process and not the Invoice Costs. It is therefore essential to always verify your PO prices prior to sending out the PO.

### **Complete processing of Job and receipt finished good output with complete costs**

Finish processing any remaining Job elements. When you perform the Job Receipt of the finished good output, the system will credit Work in Process and debit Inventory. The Inventory Value now includes the material costs for the components sent out and the subcontract service costs for services provided.

### **Close to Job to reconcile Work in Process**

After you have finished the Job it is imperative to Close the Job in a timely manner. Finished jobs are formally closed within the *Job Control Panel* screen. If there is any variance between total job costs issued and the total job receipt cost to inventory, the program automatically adjusts your *Work in Process* account by the variance amount, with an offset to *WIP Adjustments*, so that net WIP for the closed job is always zero. This job close balancing adjustment is what makes the *Work in Process* account self-adjusting and always in balance with the underlying jobs.

### **Enter PO Invoice for Subcon Services**

Enter the PO Invoice from the Subcontractor and this will reconcile the PO receipt costs with the Invoice costs and any differential will be booked to the Received Not Invoiced Adjustment account. This ensures that all costing involved is self balancing. PO Invoice costs do not affect inventory value.

## 6 Cost Rollup - Estimated Costs

Your estimated costs for your manufactured items are updated in the *BOM > Cost Rollup* screen. It is imperative that you have accurate estimated costs regardless of your style of manufacturing.

### Estimated Cost Benefits

- Estimated item costs are broken out into four major cost elements – material, labor, subcontract services, and manufacturing overhead – so that you have an accurate cost profile for making pricing decisions.
- Labor, subcontract service, and manufacturing overhead costs are absorbed into the inventory cost of the items you make so that you get an accurate cost of goods sold at the item level
- An accurate estimated cost on subassembly items (BOMs that go into other BOMs) is an important element in the calculation of estimated job costs for comparison with actual job costs.
- The cost management process – refining routing cycle times, refining shop hourly rates for direct labor and manufacturing overhead, and updating purchased item estimated costs – keeps you focused on costs and their implications.

### Cost Rollup does not affect inventory value

The *Cost Rollup* has no direct affect on inventory value or any other accounting numbers. Inventory value for your manufactured items is always based on the *Job Receipt* costs. Timely and continuous updates of your estimated costs does ensure that you estimated Job costs and *Job Receipts* more closely match your objectives.

### Estimated Costs Overview

#### Estimated Costs for Purchased items are updated on an ongoing basis

1. Verify pricing for your default supplier sources when you send out purchase orders from the MRP screen
2. After any changes in supplier prices, run *Mass Replace* the *Est Cost* based on the default supplier price in the *BOM > Estimated Purchase Cost* screen.

#### Estimated Costs for your Manufactured items are always rolled up in *BOM > Cost Rollup*

1. Material Costs come from estimated costs of purchased items (see above)
2. Labor and Mfg OH costs come from *Shop Rates* and cycle times in *Job Routings*

- Periodically (ie Quarterly) review your *Shop Rates* for Labor and Mfg Overhead
  - Update your Routing cycle times to reflect reality on an ongoing basis
3. Subcontract costs come from Subcon Routing sequences and can be managed in the *BOM > Estimated Subcontract Costs* screen

### **Constant Refinement of Estimated Costs**

Manufacturing is a practice of constant refinement and improvement. You will want to dedicate yourself to constant review and continual feedback of your estimated costs to improve and hone them over time. Your job estimated costs will serve as the basis for your receipt costs, inventory value, and cost of goods sold. You will want to regularly run *BOM > Cost Rollups* after you perform any of the above processes.

## 7 Job Receipts

This chapter explains how WIP-based product costing works when finished items are received to inventory and jobs are closed.

### Key Concepts

- All costs are absorbed into *Work in Process* of a Job in real time (*Job Issues* and *Job Labor*)
- At *Job Receipt*, the *Unit Cost* establishes the item's *Inventory Cost* (the cost is averaged with existing on hand values)
  - *Job Receipt* moves the costs from *Work in Process* into your *Inventory Value*
  - The *Inventory Value* will reflect your absorbed costs of Material, Labor, Manufacturing Overhead, Subcon Services, and Misc Costs.
  - The *Inventory Cost* is used as the *Cost of Goods Sold* when the product is sold and invoiced.
- *Job Close* auto-reconciles your *Work in Process* account, balancing your total input costs (material issues and labor) versus your total output receipt costs, with the difference booked to *WIP Adjustments*

### Estimated Job Costs

#### The cost rollup plays an important role in job costing

The cost rollup plays an important role in job costing because it provides the component cost inputs – purchased items and subassemblies -- that are used to calculate an estimated job cost when jobs are initially created. The estimated job cost is used for comparison with job transaction costs and is also the cost basis for all partial job receipts.

#### How the estimated job cost is calculated

When a job is initially created, the estimated job cost is comprised of these elements and is calculated as follows:

##### Setup and Labor

Current work center hourly rates for labor and setup are applied to the job routing labor processes to calculate estimated labor and setup costs.

##### Material

All job components are costed at each item's current *Estimated Cost*. It is therefore important that you update your estimated costs for purchase items (*BOM >Estimated Purchase Costs*) and perform cost rollups on a frequent basis so that estimated job costs reflect current component costs.

### **Subcon**

Routing sequences for subcontract services include the supplier price along with a conversion multiplier that translates the supplier price into a unit cost used to calculate estimated subcontract service.

### **Mfg OH**

Current work center hourly rates are applied to the job routing labor and subcontract processes to calculate these cost elements.

## **The estimated job cost is recalculated when job details are modified**

The estimated job cost is automatically recalculated when you modify the job routing or line item details. The recalculation is only applied to the particular process or detail line that gets changed.

## **Use the Job Inquiry to view job cost details**

You can view estimated and actual transaction job costs and underlying details in the *Job Costs* tab within the *Job Inquiry* screen.

## **Job Costing**

### **DBA balances your input costs (Work in Process) with your output receipt costs**

Job transaction input costs flow into *Work in Process*. Job receipt of output costs moves the value from *Work in Process* to *Inventory*. At Job close, *Work in Process* is auto-reconciled and any difference between total input costs versus total output receipt costs is booked to the *WIP Adjustments* account and net *Work in Process* is always zeroed.

### **Job Input Transaction Costs**

All input transaction costs flow into *Work in Process* for the Job.

#### **Cost Type**

#### **DBA Transaction**

Material

Job Issues of purchased items and subassembly items at *Inventory Cost* (average cost)

Labor and Mfg Overhead	Job Labor transactions based on Shop Rates - Standard Hours recommended
Subcontract Services	PO Receipt of Subcontract costs
Misc Costs	Job Issue of descriptor at estimated cost

### Final Job Receipt Preference (*Job Cost Defaults*)

The *Final Job Receipt* preference is a system setting that is maintained in the *Jobs Setup – Job Cost Defaults* screen. It determines the suggested unit cost when a *Final Receipt* is performed in the *Job Receipts* screen. Two options are available:

#### Estimated Job Cost

With this method all *Job Receipts* suggested unit costs are at the *Estimated Job Cost*. When the Job is Closed, the system will compare all of the input costs (material job issues and labor transaction costs) versus the value of the total *Job Receipt* output costs and it will post any difference to your *WIP Adjustments* account. The *Estimated Job Cost* preference, combined with *Standard* hour sequence routing completions, will approximate the functions of a standard costing system.

#### WIP Balancing Unit Cost

With this *Final Job Receipt* method, partial receipts are made at the *Estimated Job Cost* and, if your input costs are completely reported, the final receipt is given a suggested unit cost that exactly balances all input costs with the total receipt output costs, leaving a zero net WIP balance.

#### Final Receipt Balancing Cost Overview

- All partial receipts are performed at *Estimated Job Cost*. Partial receipts can lead to a very large and unexpected final receipt balancing cost for the final receipt. You may want to limit progressive receipts if you choose the *WIP Balancing Unit Cost* option for final receipt.
- You must be committed to having all material and labor accurately reported before you perform your final receipt. A balancing cost will only be suggested if you have green light for your sequence status indicators (Seq, Hours, issues, Subcon) in the *Job Receipt* screen. If you do not have all status indicators in green light condition, the suggested unit cost will be *Estimated Job Cost*.
- Use common sense judgment and realize that a suggested unit cost is only a suggestion. Do not blindly accept an output value that is not in line with your expectation or inventory value.

## Job receipt processing

The job receipts function, which is performed in the *Job Receipts* screen, is the most important process in the WIP accounting workflow because it determines the finished item's inventory value and ultimately its cost of goods sold.

### Make sure all status indicators are Green prior to Final Receipt

When finished items are received to inventory in the *Job Receipts* screen, make sure that you have completed all job transactions and are in green light status for status indicators for Sequence, Hours, Issues, and Subcon. You should always perform your material issues in real time and report labor as you complete routing sequences. Do not attempt to report labor hours after final receipt.

### Make sure the unit cost is realistic

When you receive a finished item, the program calculates a *Suggested Cost* and inserts it into the *Unit Cost* field, which is the cost that will be applied to the receipt transaction. When you make a partial receipt, the *Suggested Cost* will always be equal to the *Est Job Cost* directly above it.

When you make a final receipt, the *Suggested Cost* depends on your *Job Cost Basis* system setting.

- If your system is set to the *Estimated Job Cost* basis, the *Suggested Cost* will be equal to the *Est Job Cost*. Any amount in the *WIP Balance* field will be posted to your *WIP Adjustments* account.
- If your system is set to the *WIP Balancing Unit Cost* setting, the *Suggested Cost* is a calculated unit cost that balances all receipt costs with transaction input job costs (material issues and labor transactions). In this case the *WIP Balance* will be zero.

When you use the *WIP Balancing Unit Cost*, always make sure the *Suggested Cost* is realistic, meaning that it is within acceptable range to the *Est Job Cost* above it and is not affected by an obvious costing error.

If the *Suggested Cost* is not realistic, it could be due to an obvious costing error to one of the job inputs, which should be immediately corrected, or the job could have experienced a cost distortion caused by a one-off event such as a machine breakdown or some other unusual factor. In either case, override the suggested *Unit Cost* with a realistic cost. Any *WIP Balance* amount will be posted to *WIP Adjustments* and will be correctly accounted for.

### Typical sources of costing errors

When the *Suggested Cost* is not realistic, here are typical sources of costing errors:

- The status indicators at the top of the screen – *Seq Status*, *Hours Status*, *Subcon Status*, *Issues Status* – should all be displayed in green. If not, it means that some job processes may not be completed and therefore the cost profile is incomplete. In that case, see that those transactions are made.
- When the indicators are all displayed in green and the *Suggested Cost* differs greatly from the *Est Job Cost*, there is likely one input cost that has a gross error. Most typically this involves a bad labor hours entry, where it is easy to add an extra zero or make a mis-calculation that can grossly distort job labor cost. Review the *Job Costs* tab within the *Job Inquiry* screen and look for obvious errors and make appropriate corrections.
- Inaccurate estimated costs versus the inventory costs for your purchased items will also cause potential errors.

### **“Reasonably close” is the cost objective**

When it comes to manufactured item costing, “reasonably close” is the objective because true actual costing is not possible. This is because the majority of costs are absorbed costs that are estimates of anticipated actual costs.

Manufacturing overhead, for example, which is often the largest cost contributor, can only be an estimated cost. This is because overhead is a collection of costs that are not fully known at the time job transactions are made. Therefore, an estimated cost is used in the form of an hourly rate that anticipates the actual cost of manufacturing overhead.

Direct labor is similar in that it represents a collection of different wage rates among workers, as well as non-job downtime, taxes, benefits, and other costs. Attempting to apply all these costs to specific jobs is inefficient and impractical. As with overhead, an estimated cost is used, in the form of an hourly rate, that anticipates the actual cost of labor.

Because manufacturing overhead and direct labor are estimated costs, striving for some type of cost perfection is counter-productive. For efficient costing, simply use shop rates that are reasonably close and make sure that job receipts are given a reasonable unit cost. The variances that inevitably occur between actual and absorbed costs are handled automatically by the accounting system.

### **Job close zeroes out net WIP**

Finished jobs are formally closed within the *Job Control Panel* screen. If there is any variance between total actual job transactions cost and the total job receipt cost to inventory, the program automatically adjusts your *Work in Process* account by the variance amount, with an offset to *WIP Adjustments*, so that net WIP for the closed job is always zero. This job close balancing adjustment is what makes the *Work in Process* account self-adjusting and always in balance with the underlying jobs.

## 8 Job Close

Closing Jobs (*Jobs >Job Control Panel > Close Jobs*) in a timely manner is an essential step in reconciling your *Work in Process* and overall *Cost of Sales*.

### Job Close

When a job is closed, its WIP balance is brought to zero by adjusting the *WIP* account up or down to account for any variance between the total job input costs and the total job receipt output costs. This results in a debit or credit to *Work in Process* and an offsetting debit or credit to *WIP Adjustments (Cost of Sales)*.

### Total WIP value is self-adjusting and always in balance

The total value of the *Work in Process* account reflects the current WIP balance of all jobs in progress at any given time. Whenever a job is closed, its WIP balance is adjusted to zero and thus the overall *Work in Process* account value is always in perfect balance with the underlying jobs in progress.

### All Jobs must be closed in a timely manner

The goal should be to *Close* your Jobs as close to your *Finish Date* as possible. This will align your *WIP Adjustment (Cost of Sale)* value more closely with your final job receipts to inventory.

### All Jobs must be closed, without exception

Some companies delay or avoid closing Jobs with a large *WIP Adjustment* value. This is not the correct approach. The transactions that created this adjustment value (Job input costs versus Job output receipt costs) have already occurred in the system. The *WIP Adjustment (Cost of Sale)* posting is the correction to your overall Cost of Sales that is required to balance out your system.

### Will a large WIP Adjustment value adversely affect my profitability on the Income Statement?

No. Your overall *Cost of Sales* will be correct and will be neutral with regards to your profitability. Lets look at an example of a Job for a Qty of 100 that had a Job Estimate of \$1.00 per unit and the Job was received at \$10.00 per unit by accident. This led to *Inventory* value being overstated by \$900. The *WIP Adjustment (Cost of Sales) - Variance* value is \$900 in the *Job Control Panel - Close Job* screen due to the receipt cost being \$900 more than the input costs for the job.

#### Scenario 1 - The item was picked and shipped immediately

If the product was immediately picked and shipped, the *Cost of Goods Sold* was inflated by \$900. When the Job is Closed, the *WIP Adjustment (Cost of Sales)* for

\$900 would offset the *Cost of Goods Sold* and the overall net affect on your *Cost of Sales* would be zero.

### **Scenario 2 - The inflated value was discovered in Inventory and adjusted via Change Inventory Value**

In this case, it was discovered that the inventory value was much higher than usual. Prior to any transactions were made, the unit cost was adjusted from \$10.00 to the correct value of \$1.00 in the *Change Inventory Cost* screen. This would create a Cost of Sales entry into the *Inventory Adjustment Account* (Cost of Sales). When the Job is Closed, the *WIP Adjustment* (Cost of Sales) for \$900 would offset the *Inventory Adjustment* (Cost of Sales) \$900 and the overall net affect on your *Cost of Sales* would be zero.

### **When can I correct Job Costs for Finished Jobs?**

You have a very limited window of opportunity to correct your Job costs after your have completed your final job receipt and Finished a Job. If you recently finished the Job, it is in the same accounting period, and all of the quantities are still in inventory, you can reverse your Job Receipts and correct the Job costs and re-receipt the Job. For almost all other scenarios, it is best to Close the Job and post the *WIP Adjustment* (Cost of Sales) value to offset the transactions that have already occurred.

### **How to minimize costing errors**

Attempting to fix costs after the fact is a very frustrating process, especially once the item has been sold/issued and is no longer in inventory. The best way to improve your costing, is for your company to take a pro-active approach and eliminate errors altogether. Here are some tips for success:

#### **Prior to Job Creation**

- Verify your supplier prices when you send out your Purchase Orders (*MRP > PO Generation > Supplier Sources*)
- Regularly update your purchased items estimated costs (*BOM > Estimated Purchase Costs*) based on your default supplier prices
- Update your Routing cycle times to reflect reality on an ongoing basis
- Periodically (ie Quarterly) review your *Shop Rates* for Labor and Mfg Overhead
- Regularly rollup your estimated costs for your manufactured items (*BOM > Cost Rollup > Batch All*)

#### **After Job Creation**

- Always review your Job Costs (*Jobs > Job Inquiry*) prior to Job Release (*Job Control Panel - Job Release*) to ensure that your estimated job costs are reasonable
- Perform material issues in real time (*Jobs > Work Center Schedule - Material - Job Issues*)
- Report labor as sequences are completed (*Jobs > Work Center Schedule - Labor - Job Labor*)
- Job Receipt *Unit Cost* establishes *Inventory Cost* (*Jobs > Job Receipt*)
  - Make sure all job transactions are completed and the Job Receipt statuses (*Sequence, Hours, Issues, Subcon*) are colored green prior to performing the final receipt
  - Pay special attention to the *Unit Cost* and *WIP Balance* value at final receipt
- Close Jobs (*Job Control Panel > Job Close*) immediately after final Job Receipt to balance out your overall *Cost of Sales*

## 9 Absorbed Cost Variances

This chapter explains the concept of absorbed cost variances and the role they play with shop rates maintenance.

### **What is an absorbed cost variance?**

An absorbed cost variance is the difference within a given date range between an absorbed cost and its associated actual costs.

### **Absorbed and actual costs are grouped on the income statement**

Then you follow our general ledger setup guidelines (see chapter 3), the Cost of Sales section in your chart of accounts contains two account groups related to absorbed costs. Your *Absorbed Labor* account will be followed by its associated direct labor cost accounts and your *Absorbed Mfg OH* account will be followed by its associated manufacturing overhead cost accounts.

### **Absorbed accounts are contra accounts**

The *Absorbed Labor* and *Absorbed Mfg OH* accounts are “contra” accounts. A contra account receives credit entries instead of the debit entries that are normally posted to cost of sales accounts. The objective is for the contra account balance to offset the balances of associated standard accounts to achieve a zero cost for direct labor and manufacturing overhead on the income statement.

### **Labor and overhead costs are absorbed into inventory**

The purpose for zeroing out direct labor and manufacturing overhead costs is to absorb these costs through WIP into the inventory cost of finished items. The actual cost for labor and overhead are only realized on the income statement in the form of cost of goods sold when items are invoiced.

### **There is always a variance between absorbed and actual costs**

Absorbed costs will not exactly offset actual costs because the hourly work center rates that determine absorbed costing are estimates that can never exactly match actual costs. Also, actual costs vary from period to period depending on payroll frequency (some months have an extra payroll run) and the erratic nature of overhead costs such as plant maintenance. Therefore a variance of some degree will always exist between absorbed and actual costs, which is normal and expected.

### **Overall accounting is always correct**

So even though there are always variances between absorbed and actual costs, your overall accounting is always correct. If absorbed costs exceed actual costs, the excess amount is reflected in inventory with a slight reduction in overall cost of sales that will be offset later when items are sold. Conversely, if actual costs exceed absorbed costs,

overall cost of sales will be slightly higher, but will be offset later when items are sold, and the value received to inventory will be slightly lower. In a pure accounting sense, your balance sheet and income statement are always correct and require no corrective intervention on your part.

### **Use variances as feedback for refining shop rates**

The objective in WIP management is not to eliminate absorbed cost variances, which is not possible, but to keep them within an acceptable range. Keep in mind that “reasonably close” is the objective with manufacturing costing, so variances of 10-25% or so are not worrisome and can be minimized with ongoing refinement to your shop rates.

The variance amounts and percentages for direct labor and manufacturing overhead within a given date range are displayed in the *Shop Rates* screen. If you sense that your shop rates are over-absorbing or under-absorbing actual costs, it is your signal to adjust your shop rates. You should therefore review your shop rates at regular intervals, such as once per period, and make adjustments as needed.

### **Never attempt to adjust past costs**

Never attempt to adjust past costs even when large variances have occurred. The overall accounting, no matter the severity of the variances, remains correct, and past labor and overhead costs have long ago been co-mingled with other costs and often absorbed into the cost of other items. DBA is not designed with any provision for past cost correction and attempts at corrections will cause myriad accounting problems.

## 10 Inventory Value

This chapter explains how inventory value affects work in process and how it is properly established and maintained.

### **Inventory value is an average cost based on Receipt costs (PO Receipts and Job Receipts)**

Inventory value is always an average cost based on the value of PO Receipt costs and Job Receipt costs averaging with existing quantities on hand.

### **Item inventory values directly affect work in process**

Item inventory values directly affect work in process because raw materials, purchased components, and subassemblies are issued to jobs at their unit *Inventory Cost*, which is an average cost. It is therefore vitally important that each item is given a realistic unit cost at time of receipt to properly update its unit *Inventory Cost*.

### **Assign all PO lines a realistic supplier price**

Purchased items are received to inventory in real time at the PO unit cost, which is translated from the supplier price. Supplier invoice matching, which often occurs well after items are received and issued to jobs, does not update PO costs after-the-fact. It is therefore essential that all PO lines are assigned a supplier price at time of PO generation to establish a realistic inventory cost.

### **Receive finished items at a realistic cost**

When finished items are received to inventory in the *Job Receipts* screen, always make sure the unit cost is realistic, meaning that it is within acceptable range to the estimated job cost and is not affected by an obvious costing error.

### **Never make journal entry adjustments to your Inventory account**

Never make journal entry adjustments to your *Inventory* account. This is a self-adjusting account that is always fully reconciled with the total inventory value of stock on hand.

Two screens can be used to adjust the *Inventory* account balance:

#### **Change Inventory Cost**

The *Change Inventory Cost* screen is used to change an item's *Inventory Cost*. This is used to correct the value of stock on hand when an obvious costing error has been discovered after receipt transactions have been made.

NOTE: This screen only corrects the value of stock on hand and does not correct any past transaction costs.

#### **Reconcile Book Values**

The *Reconcile Book Values* screen is used to adjust total inventory value to account for decimal rounding discrepancies between inventory transaction costs, which are made with five decimal places, and GL posting amounts, which are made with two decimal places.

### **If you have been making journal entries to your Inventory account**

If you have been making journal entries to your *Inventory* account, stop doing so from this point forward. Run the *Inventory Value* report to determine your actual inventory value and compare that value with your current *Inventory* account balance.

If the report value differs from the account balance, calculate the difference and make the following one-time journal entry for the difference amount to get the *Inventory* account correctly established so that it can be self-adjusting from this point forward.

If the report value is greater than the account balance:

Debit	12000	Inventory
Credit	53100	Adjustments – Inventory

If the report value is less than the account balance:

Debit	53100	Adjustments – Inventory
Credit	12000	Inventory

After making this one-time journal entry, cease making any journal entry adjustments to the *Inventory* account from this point forward.

## 11 Cost of Goods Sold (COGS)

This chapter explains how *Cost of Goods Sold* (COGS) is derived and how to achieve realistic COGS values.

### What is COGS?

COGS is the inventory cost of items sold captured at time of order picking. Each item's inventory cost is derived from job receipt costs averaged into the value of any stock on hand. Job receipt costs reflect the following job input costs:

- Material costs from job issues
- Absorbed labor costs from job labor hours
- Absorbed manufacturing overhead costs from job labor hours
- Subcontract service costs from PO receipts to job sequences

### Inventory costing meets GAAP standards and IRS requirements

Inventory costing in DBA meets GAAP standards and IRS requirements in which direct labor and manufacturing overhead costs must be absorbed into inventory value and only realized as cost of sales expenses when items are sold.

### COGS is not actual job cost

COGS is an inventory cost that often differs from actual job cost. The inventory cost is an average cost where the cost of each job receipt gets averaged into the cost of any stock on hand. Job receipt costs also can differ from actual job cost such as when the estimated job cost is used for partial receipts or as the default job cost basis.

### Job receipt costs are approximate costs

The job receipt costs that update average inventory cost are always approximate costs because true actual costing is not possible. For example, actual supplier invoice costs for material and subcontract services are not fully knowable when POs are received, so the PO cost is used instead, even though it may differ later from actual invoice cost. Absorbed labor and absorbed manufacturing overhead costs are based on hourly rates that can never exactly match actual costs.

### Inventory costs are self-correcting through actual cost variances

The approximate costs that constitute inventory value and flow through to COGS are self-correcting through the following actual cost variances.

### Indirect Cost Accounts

The following adjustment accounts are located in the *Indirect Costs* account class within the *Cost of Sales* section of the income statement. These accounts adjust inventory value to reflect variances between actual costs and prior transaction costs.

### **RNI Adjustments**

During PO invoice matching, any variance between the PO receipt cost and supplier price gets posted to *RNI Adjustments* and washes out the over or under-absorption of material cost into inventory.

### **WIP Adjustments**

When a job gets closed, any variance between total job input costs and total job receipt costs gets posted to *WIP Adjustments* and washes out the under or over-absorption of costs into inventory.

### **Inventory Adjustments or Adjustments COGS**

When a change in quantity is made through a stock count or stock adjustment or an inventory cost change is made, the change in inventory value is posted to *Inventory Adjustments* and washes out the previously incorrect inventory value.

### **Absorbed Cost Accounts**

The following accounts are located in the *Absorbed Costs* account class within the *Cost of Sales* section of the income statement. Cost of sales is automatically adjusted by the variance between absorbed and actual costs.

#### **Absorbed Labor vs. Actual Labor Costs**

All job labor transactions credit *Absorbed Labor*, which offsets debits to direct labor payroll and associated expense accounts. This credit offset is the means by which actual labor costs are absorbed into work in process. Any variance between absorbed and actual labor costs washes out any over or under-absorption of labor costs into work in process.

#### **Absorbed Mfg Overhead vs. Actual Mfg Overhead Costs**

All job labor transactions also credit *Absorbed Mfg Overhead*, which offsets debits to manufacturing overhead expense accounts. This credit offset is the means by which actual overhead costs are absorbed into work in process. Any variance between absorbed and actual overhead costs washes out any over or under-absorption of overhead costs into work in process.

### **Total cost of sales is a blend of COGS and actual cost variances**

COGS in isolation does not represent your cost of sales. Total cost of sales is a blend of COGS and the actual cost variances listed above. When actual cost variances are within normally expected ranges, COGS is a realistic indicator of the inventory contribution to cost of sales. To the degree that actual cost variances exceed normally expected ranges, COGS becomes less realistic and less meaningful. .

### **Realistic COGS is achieved with realistic transaction costs**

COGS can only be as realistic as item inventory costs, which are derived from manufacturing transaction costs. If you apply realistic costs to all your transactions, you will achieve realistic inventory costs. If your transaction costs are inadequate, non-valid, or error-prone, inventory costs will not be realistic or meaningful.

### **COGS cannot be adjusted after the fact**

COGS derives from each item's inventory cost and cannot be adjusted after the fact when anomalies are detected after jobs are closed. Inventory cost is affected by numerous interdependent transactions, including customer payments, invoices, shipments, order picking, job receipts, job labor, job issues, supplier payments, PO invoices, and PO receipts. Many such transactions will be in closed accounting periods. There is no practical or safe way to reverse, adjust, and repost such a complex web of interconnected transactions.

### **Actual cost variances account for costing errors**

Costing errors, such as double entry of labor, have no impact on net income because any such errors that get incorporated into inventory value are offset by actual cost variances. So even though errors are not desirable and should be minimized as best you can, they do not affect the integrity of the income statement.

## **Achieving Realistic COGS**

To achieve realistic and meaningful COGS on the income statement, you must apply realistic costs to your manufacturing transactions. You can accomplish this by taking the following measures:

### **1. Make sure all PO lines have a realistic supplier price**

Make sure all PO lines are sent out with a realistic supplier price. We recommend that you maintain a *Supplier Price* against each item, which flows through to MRP, and update this price during PO Invoice matching whenever it changes. Never send out POs with a zero price unless there is a deliberate reason for doing so.

### **2. Update P item estimated costs on a regular basis**

Use the *Estimated Purchase Costs* screen to mass update P item estimated costs with your Default Supplier Price on a regular basis. If you always update your prices in the MRP PO Generation screen, you can immediately followup with a update of your *Estimated Purchase Costs* and a batch *Cost Rollup* and apply the changes to your NEW status Jobs. This will ensure that your Jobs created in MRP will be in sync with your most up to date pricing.

### **3. Use Standard Hours completions for labor**

With this option, actual labor hours are not collected. Instead, standard hours from the job routing specifications are used for job costing purposes, based on completion quantities or finished status entered in the Job Labor screen. Report labor completions as sequences are finished for timely costing and improved work center queue management.

#### **4. Maintain realistic cycle times**

Maintain realistic cycle times in your BOM routings. Never enter a routing sequence without a cycle time unless there is a deliberate reason for not doing so. You should continually refine your cycle times to keep your labor and mfg overhead costs accurate.

#### **5. Maintain accurate bills of material**

Material costing is dependent on accurate bills of material. Whenever actual job usage quantities differ from specified job quantities, be sure to correct component specifications in the BOM for accurate cost rollups and to provide future jobs with accurate specifications.

#### **6. Update shop rates on a periodic basis**

Use the *Shop Rates* screen to update hourly shop rates for labor and manufacturing overhead on a periodic basis, such as once a quarter.

#### **7. Run the cost rollup on a regular basis**

The *Cost Rollup* should be run weekly or whenever you've made changes to BOM routing details, shop hourly rates, or purchased item estimated costs. You can run the *Cost Rollup* as often as you wish because it has no effect on inventory value or any other accounting numbers.

#### **8. Enter job transactions in real time**

Enter job issues, job labor, job subcontracting, and job receipt transactions in real time as activities occur. Facilitate this by providing computer devices throughout the shop. Real time entry reduces errors and insures that all job costs are accounted for at time of job receipt.

#### **9. Receive finished items at a realistic cost with all status indicators Green**

If you have completed all of your transactions and your status indicators are all Green, the *Suggested Cost* calculated in the *Job Receipts* screen will provide a reliable and realistic cost suitable for updating inventory. Even so, whenever the *Suggested Cost* is obviously incorrect because input costs are not all accounted for or a significant input costing error has occurred, make appropriate corrections and then receive at a realistic cost.

## 10. Never reopen jobs to make cost adjustments

Never reopen jobs to make cost adjustments. One of the purposes of job closing is to examine costs and make timely corrections before the finished item gets issued to other jobs or picked for shipment. If a costing error gets discovered after job close, leave it be because the resultant higher or lower inventory cost that flows through to COGS washes out with actual cost variances.

## 11. Make sure your chart of accounts is structured properly

It is essential that the *Indirect Costs* accounts and *Absorbed Costs* accounts listed at the beginning of this chapter are located in your *Cost of Sales* section. In particular, locate your actual direct labor accounts following your *Absorbed Labor* account and locate your actual manufacturing overhead accounts following your *Absorbed Mfg Overhead* account. Refer to the chart of accounts in the sample company for guidance.

## Transitioning from a Non-Valid System to a Valid System

Even though your COGS and offsetting actual cost variances is always 100% correct in an accounting sense, you may discover at some point that you have been operating with a non-valid costing system.

### What is a non-valid costing system?

A non-valid costing system is one where your inventory and COGS has no meaningful value. This can be caused by a variety of bad practices, such as sending out POs with zero prices, not updating P item estimated costs, not using routing cycle times, not updating shop rates for labor and overhead, and not running cost rollups. Consequently, your inventory value and COGS may have no meaningful values, perhaps over a long period of time.

### Past periods cannot be adjusted

Because all manufacturing costs are transaction based, there is no practical way to go back into previous periods to reverse and adjust potentially thousands of transactions, including paid invoices. Therefore, your inventory value and COGS for past periods must remain as is.

NOTE: Keep in mind that even though your transaction costs have been non-valid, they do wash out with actual cost variances over time and have no long term effect on income. If you have been properly entering actual direct labor and manufacturing overhead costs through payroll and supplier bills, your total cost of sales over time will be correct.

### Transaction costs can be realistic from this point forward

If you implement the measures listed in the *Achieving Realistic COGS* section above, transaction costs from this point forward can be realistic. Over a period of time the existing non-valid work in process and inventory values will work themselves out of the system.

### You can change inventory costs for stock on hand

After you implement the measures in the *Achieving Realistic COGS* section and you have realistic rolled up costs for manufactured items, you can use the *Change Inventory Cost* screen to change the inventory cost of items with stock on hand to their estimated costs. Those items will then have realistic costs from this point forward that will be applied to job issue and order picking transactions.

NOTE: Inventory cost changes can significantly affect current income. For example, if you experience a major increase in *Inventory* value by replacing incomplete item costs with complete costs, the offsetting credit balance in *Inventory Adjustments* will abruptly increase current income. Conversely, if Inventory value decreases, you will experience an abrupt income reduction or loss.

## Common Questions

### Will a labor costing error affect my income?

A job costing error does not affect your income because if the error gets reflected in the job receipt cost, the resultant higher or lower inventory cost that flows through to COGS washes out with actual cost variances.

#### Example

Let's say job labor was accidentally entered twice. Instead of \$100 labor cost, the job was charged with a \$200 labor cost. The following postings demonstrate that this \$100 cost overrun has no effect on net *Cost of Sales*.

#### Initial Costing Error Occurs with Job Labor Entry

\$100	Debit	Work in Process
<b>\$100</b>	<b>Credit</b>	<b>Absorbed labor</b>

#### Error Flows through Job Receipt to Inventory

\$100	Debit	Inventory
\$100	Credit	Work in Process

#### Error flows to COGS through Invoicing

<b>\$100</b>	<b>Debit</b>	<b>COGS</b>
\$100	Credit	Inventory

*Cost of Sales* transactions are highlighted in blue. Note that the credit and debit amounts wash out so that there is no effect on net income.

### **Does direct labor payroll cost flow through to COGS?**

Direct labor payroll costs do not directly flow through to COGS. Actual payroll costs are used to establish an hourly shop labor rate in the *Shop Rates* screen. The shop labor rate is the basis for the work center hourly rates that are used for job labor costing.

### **What is the significance of WIP Adjustments?**

When a job is closed, any difference between total job input costs and total job receipt costs is posted to *WIP Adjustments* in order to keep the *Work in Process* account in balance. It is normal and expected for job variances to occur, especially when the *Estimated Job Cost* basis is selected in the *Job Cost Basis* screen, in which case a job close variance is expected with each job.

Over time the debits and credits to this account should be in rough balance because some jobs will close with a positive variance and some with a negative variance.

### **What does a large debit balance in Inventory Adjustments mean?**

An unusually large debit balance in *Inventory Adjustments* can indicate the following anomalies:

- Stock counts are consistently detecting less stock on hand than expected, which can indicate inaccurate BOM component usage quantities, not returning unused job material to stock, or shrinkage due to theft or other factors.
- You are using stock adjustments to issue or receive items instead of making transactions through the *Job Issues* and *Job Receipts* screens. Using stock adjustments in this manner is destructive to the costing system and must be immediately stopped.

### **What does a large credit balance in RNI Adjustments mean?**

An unusually large credit balance in *RNI Adjustments* indicates that you are issuing POs without supplier prices or with outdated supplier prices. This is harmful because your job material costs are understated, which ultimately results in understated and unrealistic COGS. The solution is to always send out POs with realistic supplier prices.



## 12 Period End

This chapter reviews period end procedures associated with WIP-based product costing.

### **No formal closing process is required**

DBA does not have a formal period end closing process. We recommend that you run two processes at period end -- the *Financial Cutoff Date* and *Reconcile Book Values*.

### **Update the Financial Cutoff Date**

At each period end, we recommend that you go to the *Financial Cutoff Date* screen and update the financial cutoff date to prevent financial transactions from being made to the prior period.

### **Run Reconcile Book Values**

At each period end, use the *Reconcile Book Values* screen to adjust total inventory value to account for decimal rounding discrepancies between inventory transaction costs, which are made with five decimal places, and GL posting amounts, which are made with two decimal places.

### **Never make journal entry adjustments to your Inventory account**

Never make journal entry adjustments to your *Inventory* account. This account is self-adjusting and is always fully reconciled with the total inventory value of stock on hand.

### **Never make journal entry adjustments to your Work in Process account**

Never make journal entry adjustments to your *Work in Process* account. This is a self-adjusting account that is always fully reconciled with underlying job costs.

### **Update estimated purchase costs**

In the *BOM > Estimated Purchase Costs* screen perform a mass update by default supplier price. Review your estimated cost versus inventory costs to spot any major discrepancies.

### **Review shop rates**

Review the variances for direct labor and shop overhead once per month for an appropriate date range (3 months trailing minimum) in the *Shop Rates* screen and adjust your shop rates as needed if you sense that an absorbed cost variance is trending in any direction away from actual costs.

### **Perform a batch cost rollup**

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Go to *BOM > Cost Rollup* and perform a batch rollup to update your estimated costs for all of your manufactured items.

## 13 Using a Mainstream Accounting Package

This chapter explains the benefits in using a mainstream accounting package for your financial processes.

### **Financial processes are outside the manufacturing workflow**

Financial processes – receivables, payables, banking, payroll, and financial reporting – are outside of the manufacturing process workflow and can be performed using an outside accounting system. Our *Financial Transfer* can be used to update the outside system with daily vouchers for AR/AP processing and period end account totals to reflect the activities of the manufacturing system.

### **Consider converting to a mainstream accounting package**

If you are using the *DBA Financials* accounting configuration, we advise you to consider converting your financial processes to one of the mainstream small business accounting packages such as QuickBooks, Xero, Sage, or MYOB. DBA will continue to be used for WIP accounting, but any of the mainstream accounting packages can offer substantial benefits when it comes to financial accounting.

### **Why we introduced the financial transfer**

Our three financial applications – *Accounts Receivable*, *Accounts Payable*, and *Banking* – were standard elements of the system when DBA Manufacturing was first introduced in 2004. By the end of the decade, however, it was apparent that the market for small business accounting software was increasingly dominated by a few popular products such as QuickBooks, Sage, and MYOB. In response, we introduced our *Financial Transfer* capability so that companies using these popular products could use DBA for manufacturing without requiring an accounting system conversion.

### **Our focus is on WIP accounting with financial transfer**

Our accounting expertise is in WIP accounting and absorption costing, which is a highly specialized type of accounting that is not addressed by mainstream small business accounting packages. Therefore, our developmental focus is on WIP accounting with financial transfer, which is where we add the greatest value and benefit to our customers.

### **The majors are unsurpassed at financial accounting processes**

The mainstream accounting packages are unsurpassed when it comes to financial processes -- tracking receivables and payables, receiving payments and paying bills, processing payroll, managing bank and credit card accounts, and financial reporting. These products are now highly advanced and link with credit card companies, banks, and payroll processors to provide online banking and other integrated services.

## **The majors specialize in payroll processing and services**

Payroll is a complex accounting process. It interacts with a great many liability and expense accounts and involves a variety of taxation, human resource, and regulatory issues and requirements. The mainstream small business accounting packages provide an in depth array of payroll features and services as well as linkages to outside processors such as ADP and Paychex.

## **We use QuickBooks for our financial accounting**

Here at DBA Software Inc. we use the latest version of QuickBooks for our own financial accounting. We find it to be an excellent product, especially when it comes to banking, payroll, and financial reporting.

## **Benefits of using a mainstream accounting package**

Because our design cleanly separates financial accounting from WIP accounting, you have the option of converting to one of the mainstream accounting packages, which provides the following benefits:

- Mainstream packages are widely used and supported in the accounting community.
- Mainstream packages stay abreast of payroll, taxation, and regulatory issues and requirements.
- Mainstream packages include integrated payroll and support services and also link with outside payroll processors.
- Mainstream packages link with banks to facilitate online banking and bank account reconciliation.
- Mainstream packages offer extensive financial reporting.
- Mainstream packages offer online editions for a low cost monthly subscription.

## **The Financial Transfer cleanly separates the two systems**

Although the mainstream accounting packages are superb for financial accounting, they are woefully inadequate for any type of manufacturing or inventory processes, including sales orders. Our *Financial Transfer* provides a clean separation of processes between the two systems that keeps the financial accounting system free of any inventory or line item detail.

## **Only a basic version is required for minimal cost**

You can convert to one of the mainstream accounting packages at minimal cost because only a handful of users is required for financial processes and you only need to purchase a basic version such as QuickBooks Pro.

**What will be different?**

When you use an outside system for financial processes, the only significant difference in your accounting activities will be a daily AR voucher transfer for any customer invoices and credit memos and a daily AP voucher transfer for any supplier invoices and credit memos. Account totals are transferred in a single batch transaction at period end.

**Spreadsheet transfer works with all the packages**

Our three data transfers – *AR Voucher Transfer*, *AP Voucher Transfer*, and *GL Summary Transfer* – are made by spreadsheet (CSV file) because it is a universal data transfer format that is supported by virtually all data import utilities.

**The ideal accounting solution for a manufacturing business**

Using DBA's manufacturing accounting system in combination with a mainstream small business accounting package gives you the ideal accounting solution for a manufacturing company.

**Financial Accounting Conversion Guide**

See our *Financial Accounting Conversion Guide* for complete details on how to convert the financial processes in DBA over to an outside accounting system.

## 14 Product Costing Guidelines

This chapter lists 11 basic guidelines that should be followed for product costing to work properly and provide good results.

### 1. Assign all PO lines a realistic supplier price when you send out POs

It is essential that all PO lines are assigned a realistic supplier price, which is translated into a unit cost that is applied to PO receipt transactions. The receipt cost updates the item's inventory cost and is the cost basis for any subsequent job issue or sales picking transactions.

NOTE: Be aware that any discrepancy between the supplier invoice price entered in the *PO Invoices* screen and the associated receipt cost gets posted to *Inventory Adjustments* and makes no cost correction to past inventory transactions.

### 2. Use Standard Hours completions for labor

With this option, actual labor hours are not collected. Instead, standard hours from the job routing specifications are used for job costing purposes, based on completion quantities or finished status entered in the Job Labor screen. Report labor completions as sequences are finished for timely costing and improved work center queue management.

### 3. Perform all job transactions in real time

Perform all job issues in real time and report labor as you complete labor sequences. This insures that all WIP costs are accounted for so that finished items can be received to inventory without delay to be available for immediate shipment or issue to other jobs.

### 4. Receive finished items at a realistic cost with all status indicators in Green

When finished items are received to inventory in the *Job Receipts* screen, make sure that you have completed all job transactions and are in green light status for status indicators for Sequence, Hours, Issues, and Subcon. If all transactions indicators are green, you can proceed to *Final Job Receipt* and always make sure the unit cost is realistic, meaning that it is within acceptable range to the estimated job cost and is not affected by an obvious costing error.

### 5. Perform cost rollups at frequent and regular intervals

Roll up estimated costs at frequent and regular intervals to insure that estimated job costs reflect current work center rates and component costs. Run a *Mass Replace* update to purchase cost items in the *Estimated Purchase Costs* screen after any supplier price changes, and immediately run a batch rollup in the *Cost Rollup* screen afterward to reflect these changes.

## 6. Review shop rates once per month

Review the variances for direct labor and shop overhead once per month for an appropriate date range (3 months minimum) in the *Shop Rates* screen and adjust your shop rates as needed if you sense that an absorbed cost variance is trending in any direction away from actual costs. The self-adjusting shop rates are a powerful tool used in conjunction with standard hours completions for labor.

## 7. Never attempt to adjust past costs

Even when large variances are reported in the *Shop Rates* screen, never attempt to adjust past costs by reopening jobs or reversing invoices or any other means. These are harmful practices that do not work and cause numerous accounting problems. Large variances are properly handled by variance accounts and do not require correction. Past labor and overhead costs are usually in closed accounting periods and have long ago been co-mingled with other costs and absorbed into the cost of other items.

## 8. Never make journal entry adjustments to your Inventory account

Never make journal entry adjustments to your *Inventory* account. This is a self-adjusting account that is always fully reconciled with the total inventory value of stock on hand.

## 9. Never make journal entry adjustments to your Work in Process account

Never make journal entry adjustments to your *Work in Process* account. This is a self-adjusting account that is always fully reconciled with underlying job costs.

## 10. Do not devise your own costing method

WIP accounting is not compatible with any other costing method. If you are accustomed to some other method in your previous system, do not attempt to replicate it in any form or fashion within DBA.

## 11. Do not use the sales order for costing or planning

Do not use the sales order for costing or planning purposes. This practice yields false numbers, promotes inefficient job planning, and compromises the integrity and effectiveness of DBA's WIP accounting system. Sales orders should only be used to establish sales demand in terms of quantities and required dates and to establish selling prices.

## 15 FAQs

### Isn't actual costing more accurate and therefore superior to absorbed costing?

DBA is an absorbed costing system in which all manufacturing costs – material, labor, subcontract services, and overhead – are absorbed rather than actual costs. Absorbed costs are approximate costs rather than actual costs.

Absorbed costing is highly efficient because it enables real time processing throughout the system workflow without introducing any delays for costing purposes.

Actual costing is the desire to apply actual costs to manufactured items with the idea that actual costs are inherently superior to approximate costs. In actual practice, however, actual costing is not practical, desirable, or achievable for these reasons:

- For many items, manufacturing overhead represents the largest cost element. There is no such thing as actual overhead costing. All overhead costing is an arbitrary allocation where general costs are applied to specific items using some type of formula. Our work center overhead rates, derived from an overall calculated shop rate, is superior to any method we know of.
- Attempting to apply actual labor costs, meaning worker wages and benefits, to specific jobs is impractical and not desirable. It would require collecting and entering actual labor hours on every single process, no matter how trivial, and accounting for overtime and downtime and synchronizing job hours with payroll hours. Jobs would be rewarded or penalized depending on which workers happened to be assigned. Instead, our work center labor rates, which are derived from a calculated shop rate, translate all this complexity into approximate hourly rates that provide a more consistent and useful labor costing basis.
- Attempting to have exact material costs would require waiting for supplier invoices to verify actual costs. Instead, we use PO costs so that received items are immediately available to jobs and sales orders. Minor cost variances between the receipt cost and supplier invoice cost get posted to *Inventory Adjustments* and have minor impact on overall item costs.

Actual costing is most commonplace in light manufacturing systems that do not offer absorbed costing. It is tedious and time-consuming and yields information of little practical value.

Absorbed costing, where you use calculated shop rates for labor and overhead and apply realistic costs to purchase orders, is far easier and much more efficient.

### Can we continue using the sales order for costing and job planning?

The sales order is commonly used in non-WIP systems to collect income and associated costs, often with the aid of non-inventory parts, to simulate a profit margin for each order. To assist this process multi-level job chains are created in a one-to-one relationship with the sales order to isolate costs to each order.

With DBA you should never use the sales order for costing or planning purposes. This yields false numbers, promotes inefficient job planning, and compromises the integrity and effectiveness of WIP accounting.

Absorption costing liberates you from reliance on the sales order for costing and planning. The majority of manufacturing costs are shared or variable costs such as manufacturing overhead, non-job downtime, overtime, and varying wage rates within work centers that are impossible in any practical sense to directly charge to specific sales orders. Instead, DBA uses hourly shop rates to apportion these shared and variable costs to jobs. This happens naturally as transactions are made and requires no special effort or intervention to achieve sophisticated and accurate costing.

Furthermore, the costs incurred by sales orders come from myriad sources, including make to order jobs, stock on hand, and multi-level subassemblies and purchased components that are interdependent across multiple product structures. In a non-WIP system it is not possible to apportion all these costs to one sales order unless jobs and subassemblies are made in a single job chain for each order. In DBA all these costs have been absorbed into each item's inventory cost, which means that each sales order has an accurate cost of goods sold regardless how and when items were made or sourced or whether subassembly costs were shared among multiple items.

Being liberated from sales order based costing and planning also gives you the option of making items to stock using a "forecast" order policy and *Supply Days* setting. When an item is standard and interchangeable from one order to another, it is capable of being stocked and freely shipped to any customer, in which case sales order restrictions are inefficient and unnecessary. Instead of generating numerous jobs, each made to order, it is more efficient to generate fewer and larger jobs at regular intervals and to fulfill sales orders immediately from stock. Fewer jobs simplify the master schedule and immediate shipments increase customer satisfaction and boost cash flow.

Absorption costing and net demand planning for standard items are the proper and time-tested means for performing manufacturing costing and planning and are used by virtually all WIP accounting and MRP planning systems.

### **Are alternative costing methods available?**

Any costing scheme other than absorption costing has no legitimacy within a WIP accounting system and has a destructive impact. In order for DBA to work properly and provide good results, it is imperative that you cease using other costing schemes and implement absorption accounting as prescribed in this guide.

### **Can we continue using non-inventory parts for costing and expensing?**

Non-inventory parts should never be used in a WIP accounting system for any purpose. All physical items must be set up as stock items.

Non-inventory parts are commonly used in non-WIP systems for direct costing and expensing and as a means for bypassing inventory costing. Using a non-inventory part (referred to as a "descriptor" in DBA) to represent a stock item compromises the manufacturing workflow.

The fundamental basis for WIP accounting is to absorb all production costs, including material, into the inventory cost of manufactured items. It is the inventory cost that provides an accurate cost of goods sold that reflects an approximation of each item's actual manufactured cost. Any substitution of descriptors for stock items anywhere in the manufacturing workflow compromises the integrity of absorption costing.

Absolutely under no circumstances should a stock item ever be represented by a descriptor.

### **Can we replicate our cost and profit reports in DBA?**

It is not possible or desirable to replicate cost and profit reports from a previous system in DBA because absorption costing totally changes the inputs from which costs are derived. It is also highly probable that your reports were of dubious accuracy and analytical value due to the workarounds that are required to simulate WIP costs.

Here are some reports in DBA that can replace your old cost and profit reports with more accurate and useful information:

- The cost of goods sold transactions that flow to the *Income Statement* are derived from invoice line items with accurate inventory costs that reflect absorbed labor, subcontract services, and overhead. This yields accurate gross margins at the item category or customer type level. Absorbed costs are offset by actual costs to provide an accurate overall gross profit margin.
- The *Sales Order Invoices* data view enables you to assess profit margins by customer and by item.
- The *Profit Margin by Item* report enables you to assess and rank profit margins by product.
- The *Profit Margin by Customer* report enables you to assess and rank profit margins by customer.
- The *Base Prices & Costs* report enables you to assess margins relative to selling price.

### **Does DBA provide for departmental accounting?**

DBA does not provide departmental accounting because it is not relevant to a WIP accounting system.

Departmental accounting in non-WIP systems attempts to transform work centers or shop departments into cost centers in which various expenses are allocated and charged to respective departments. Departmental accounting involves a great deal of manual intervention, including reporting labor hours and allocating overhead expenses and material usage to particular departments. These allocations are arbitrary, easily manipulated, error-prone, and of little analytical value.

In a WIP accounting system departmental accounting is replaced by absorption costing, which is far more efficient and useful. Instead of tediously reporting payroll costs to specific departments, labor is costed at work center hourly rates that are automatically

applied as job labor transactions occur. Instead of manually allocating overhead expenses to various work centers, hourly work center rates for manufacturing overhead are automatically applied as job labor transactions occur.

The hourly work center rates for direct labor and manufacturing overhead are not arbitrary amounts. They are derived from overall shop rates, which are calculated from past actual costs and reported labor hours. At the work center level these overall shop rates can be factored up or down by a percentage to reflect differences among work centers in pay levels or relative overhead burden.

Absorption costing is much more useful because work center costs and productivity can be assessed at both the item and work center level. The cost rollup and job cost data views and reports break out labor and overhead hours and costs by routing sequence and associated work center. The *Work Center Performance* data view tracks estimated and actual labor hours at the work center level.

To summarize, departmental accounting and all the manual intervention that goes with it is not possible or needed in DBA because it is replaced by absorption accounting, which occurs automatically as job labor transactions are made.

### **Are period end inventory adjustments needed?**

DBA maintains a perpetual real time inventory that does not require the period end quantity and cost adjustments that are typically made with non-WIP systems.

On hand quantities are updated in real time as items are received to stock or issued to jobs or picked for shipment. On hand quantities already reflect quantities in WIP and no period end quantity adjustment is required. Item receipt costs already reflect absorbed costs for direct labor and manufacturing overhead and no period end cost adjustment is required.

The *Inventory* and *Work in Process* accounts are self-adjusting and should never be subject to journal entry adjustment. Any such adjustments will sever the relationship with the underlying transactions and must be avoided.

### **Are payroll hours and costs to be linked or reconciled with job hours?**

Payroll is an independent application that has no direct link or reconciliation requirement with job hours in DBA. Job hours are entered in DBA and can be a mix of standard hours, actual hours, and multi-job hours, all of which are costed at work center hourly rates. Payroll hours are entered strictly for time and attendance purposes and are costed at employee wage rates. Payroll hours are not to be reconciled in any way with job hours.

The only information DBA uses from payroll is your total cost for direct labor – including wages, taxes, and benefits – which is used by the *Shop Rates* screen to generate a calculated shop rate for direct labor. If you do not already isolate direct labor costs from those of non-labor employees or contractors, you must restructure the account assignments within your payroll system to post direct labor costs to their own accounts.

**Why can't I wait for the supplier invoice to apply prices to POs after the fact?**

All inventory transactions in DBA are processed in real time. In the case of PO receipts, real time processing enables received items to be immediately issued to jobs or picked for sales orders.

The PO unit cost is applied to PO receipt transactions because in order for real time processing to work, each receipt must have a unit cost to update the item's inventory cost. The inventory cost is then applied to any job issue or sales order picking transactions.

The supplier invoice cost is not used because there can be a considerable delay between the time of actual receipt and the time you receive the invoice. In that intervening time the item may have already been used in multiple jobs or sales orders and its cost blended into other item costs.

Any discrepancy between the supplier invoice price entered in the *PO Invoices* screen and the associated receipt cost gets posted to *Inventory Adjustments* and makes no cost correction to past inventory transactions. Minor cost adjustments of this nature are normal and expected.