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 Total Control Workflow

Product Costing is one of the eight phases that comprise DBA’s “Total Control” process workflow. This chapter provides an overview of the process workflow and how all eight phases contribute to your manufacturing efficiency.

DBA is an integrated MRP and shop control system

DBA Manufacturing is an integrated MRP and shop control system. DBA replaces manual planning and expediting with a coordinated master schedule and process workflow that enables you to fulfill customer orders quickly and reliably using the least amount of inventory and WIP possible.

Most small businesses rely on manual planning and expediting

Most small businesses rely on manual planning where jobs and POs are created from shortage reports using BOM explosions and job chaining, and shipping dates are guesstimated. To meet required dates, jobs get expedited at the expense of other jobs and precious time is squandered on investigating problems and putting out fires.

DBA replaces manual planning and expediting with a master schedule

DBA replaces manual planning and expediting with a coordinated self-adjusting master schedule for jobs, POs, and work centers that provides total control over your workflow processes. You always know when you can ship, when and what to make and buy, and what to do next out on the shop floor.

The “Total Control” workflow executes the master schedule

DBA’s “Total Control” workflow is a set of standard processes that generates and executes the master schedule so that customer orders are fulfilled efficiently and on time. The workflow progresses through eight phases:

Phase 1 – Bill of Manufacturing
The bill of manufacturing (BOM) is used to define the work centers, subcontractors, processes, components, and outputs that comprise each of the items you make. The BOM provides the specifications needed for job generation.

Phase 2 – Inventory Control
Inventory control maintains the accuracy of on hand quantities that is absolutely essential for MRP generation and job release. Accuracy is enhanced through location control, lot and serial control, real time receipts, issues, and picking, and cycle counts.

Phase 3 – Sales Orders
The ultimate purpose of the manufacturing system is to fulfill customer orders. Sales orders provide the top-level demand that drives MRP generation. Sales orders are also used for order picking, shipping, and invoicing.

**Phase 4 – Custom Manufacturing**
Custom manufacturing uses quotes to generate one-off items for customized products. One-off items and BOMs can be generated by copying and modifying a model BOM or can be generated and entered from scratch. After BOM details are completed, quotes are converted to sales orders, which MRP uses to generate custom jobs.

**Phase 5 – MRP**
MRP compares sales order demand with stock on hand and generates the master job and PO schedule based on item order policies. Items can be made or purchased to order or to a target supply days based on a monthly forecast.

**Phase 6 – Shop Control**
Shop control is used to execute the master schedule. Jobs are released to production in the correct order of multi-level assembly based on material availability. Job sequences are assigned to workers in job priority order within work centers. Materials are issued to jobs in real time and job labor is updated as job sequences are finished. Subcontract service POs are generated and received in real time as needed. Finished items are received to stock and jobs are closed to complete the job processing cycle.

**Phase 7 – Product Costing**
WIP-based product costing is used to calculate work center hourly rates for labor and manufacturing overhead. These rates get applied to standard and actual job labor hours to calculate job costs for labor and overhead. Those job costs, along with material and subcontract service costs, are absorbed into the inventory cost of finished items to provide accurate inventory value and cost of goods sold.

**Phase 8 – Financial Transfer**
The financial transfer is used to transfer daily AR and AP vouchers to your financial accounting system for receivables and payables processing. At period end, account totals are transferred to update your main general ledger to reflect the activities of the manufacturing system.

**Total control applies to any manufacturing company**
Manufacturing companies differ in the types of items they make, but the core processes that comprise the “Total Control” workflow do not vary and can be applied universally to any manufacturing company or industry type.
4  Product Costing Overview

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

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, 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 at the actual or estimated job cost. This results in a debit (increase) to Inventory and a credit (decrease) to Work in Process. The actual or estimated job cost reflects actual or estimated costs for material, labor, subcontract services, and manufacturing overhead. Job receipt provides the means by which these costs 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.
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
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.
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.

### Absorbed Costs

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Labor</strong></td>
<td></td>
</tr>
<tr>
<td>54000 Absorbed Labor</td>
<td>($4,215.00)</td>
</tr>
<tr>
<td>54100 Labor Payroll - Benefits</td>
<td>$600.00</td>
</tr>
<tr>
<td>54200 Labor Payroll - Taxes</td>
<td>$300.00</td>
</tr>
<tr>
<td>54300 Labor Payroll - Wages</td>
<td>$3,350.00</td>
</tr>
<tr>
<td><strong>Total Direct Labor</strong></td>
<td>$35.00</td>
</tr>
<tr>
<td><strong>Factory Overhead</strong></td>
<td></td>
</tr>
<tr>
<td>57000 Absorbed Factory Overhead</td>
<td>($6,322.50)</td>
</tr>
<tr>
<td>58700 Factory - Rent</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>58900 Factory - Utilities</td>
<td>$500.00</td>
</tr>
<tr>
<td>59000 Indirect Payroll - Benefits</td>
<td>$650.00</td>
</tr>
<tr>
<td>59100 Indirect Payroll - Taxes</td>
<td>$325.00</td>
</tr>
<tr>
<td>59200 Indirect Payroll - Wages</td>
<td>$2,350.00</td>
</tr>
<tr>
<td><strong>Total Factory Overhead</strong></td>
<td>$2.50</td>
</tr>
<tr>
<td><strong>Total Absorbed Costs</strong></td>
<td>$37.50</td>
</tr>
</tbody>
</table>
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.

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.

\[
\frac{\text{Actual Direct Labor Costs}}{\text{Reported Job Hours}} = \text{Shop Labor Rate}
\]

\[
\frac{\text{Actual Mfg Overhead Costs}}{\text{Reported Job Hours}} = \text{Ship Overhead Rate}
\]

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.
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.

**Variances 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](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

A work center may consist of four machines that are operated simultaneously by one worker. If you wish to cost labor in this work center at 1/4 of the shop rate, you would enter a cost factor of ‘.25’.

Conversely, the work center might be a machine that is run by a team of four workers. Such a team is represented by a “virtual” worker when entering job labor. If you wish to cost labor in this work center to reflect the cost of this virtual worker, you would enter a cost factor of ‘4’.

NOTE: In this second example, if you collect actual labor hours against this “virtual” worker, only the team leader should submit hours.

Mfg OH Cost Factor

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.

Example

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.
6  Job Receipts and Job Close

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

Job Receipts Cost Basis

The Job Receipts Cost Basis is a system setting that is maintained in the Jobs Setup – Job Cost Basis screen. It determines the costing used to update the item’s inventory cost when receipts are made in the Job Receipts screen. Two options are available:

- Actual Job Cost
  With this costing method partial receipts are made at the estimated unit job cost and the final receipt is given a unit cost that exactly balances all receipt costs with actual job costs. This cost basis can be used with standard and custom items.

- Estimated Job Cost
  With this costing method all receipts are made at the estimated unit job cost. When the job is closed, any difference between total job receipt cost and actual job cost is posted to your WIP Adjustments account. This method is appropriate for standard items and is similar to standard costing.

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 actual job cost 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 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 recalculate 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 job costs and underlying details in the *Job Costs* tab within the *Job Inquiry* screen.

**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 ultimate cost of goods sold.

**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 *Actual Job Cost* basis, the *Suggested Cost* is a calculated unit cost that balances all receipt costs with actual job costs. In this case the *WIP Balance* will be zero.

When you use the *Actual Job Cost* basis, 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.

**“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 cost and the total job receipt cost to inventory, which is almost always the case when you use the Estimated Job Cost basis, 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.
7 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.
8 Inventory Value

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

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.
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

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 an 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 on a regular basis, such as weekly or monthly.

3. 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.
4. 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.

5. 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.

6. Run the cost rollup on a regular basis

Use the Cost Rollup screen to roll up estimated costs for manufactured items on a regular basis, such as once a week.

7. 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.

8. Receive finished items at a realistic cost

If you take all the previous measures, 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.

NOET: A good way to insure realistic receipt costs is to use the Estimated job Cost basis (selected in Jobs – Jobs Setup – Job Cost Basis) in which case all receipts are made at estimated job cost instead of a calculated actual cost.

9. 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.

10. 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

<table>
<thead>
<tr>
<th></th>
<th>Debit</th>
<th>Work in Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td></td>
<td>Work in Process</td>
</tr>
<tr>
<td>$100</td>
<td>Credit</td>
<td>Absorbed labor</td>
</tr>
</tbody>
</table>

Error Flows through Job Receipt to Inventory

<table>
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<tr>
<th></th>
<th>Debit</th>
<th>Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td></td>
<td>Inventory</td>
</tr>
<tr>
<td>$100</td>
<td>Credit</td>
<td>Work in Process</td>
</tr>
</tbody>
</table>

Error flows to COGS through Invoicing

<table>
<thead>
<tr>
<th></th>
<th>Debit</th>
<th>COGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td></td>
<td>Inventory</td>
</tr>
</tbody>
</table>

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.
10 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.
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


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.
12 Product Costing Guidelines

This chapter lists 10 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

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. Perform all job transactions in real time

Perform all job transactions in real time. 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.

3. 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.

4. 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 update to purchase item costs in the Estimated Purchase Costs screen at least once per month and run a batch rollup in the Cost Rollup screen at least once a week.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.
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. See chapter 4 for details.
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.