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**IBM**

**General Information Manual**

**Basic Accounting Concepts and**

**Introduction to Punched Card Accounting Applications**

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## PREFACE

This manual contains a brief introduction to general accounting principles to provide the reader with a better background for the study of IBM punched card data processing applications. It also covers the basic objectives and terms used in seven common accounting applications. The material presented should prove helpful in fully understanding other manuals dealing with data processing procedures and should be referred to while reading them.

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# BASIC ACCOUNTING CONCEPTS

## INTRODUCTION

A knowledge of basic accounting principles is necessary for a full understanding of punched card data processing applications since these principles underlie most data processing procedures. For this reason, the initial section of this manual covers the basic principles of accounting. The material is presented in a simplified manner, but it applies to practically all businesses and should provide a good background for those not previously conversant with accounting principles.

Because the vast majority of American businesses use the double-entry system of accounting, we shall concern ourselves only with this principle. As the name implies, two entries are made to the accounting books for each transaction. For example, if a company bought \$100 worth of inventory and paid cash, one of the two entries would increase the inventory account by \$100 and the other would reduce the cash account by the same amount. The purpose of this type of accounting is to provide a standardized method of recording business transactions so that a company's financial condition and the results of its operations may be accurately determined.

## PRINCIPLES OF ACCOUNTING

### Basic Accounting Formula

To assist in the understanding of accounting, let us look at the basic accounting formula developed in 1494 by Luca Pacioli, a pioneer in double-entry book-keeping. Pacioli decided that everything owned by a business would be called 'property' — hence the equation:

$$\text{Property} = \text{Ownership}$$

Now, substituting a more familiar term than property, but one having the same meaning:

$$\text{Assets} = \text{Ownership}$$

Thus, if a business were to start with \$10,000 cash, the accounts would reflect the money in this manner:

$$\frac{\text{Assets}}{\$10,000} = \frac{\text{Ownership}}{\$10,000}$$

This equation must always balance; assets must equal ownership.

Now if the business buys some land worth \$3,000 and pays cash, the transaction would be represented like this:

$$\begin{array}{rcl} \frac{\text{Assets}}{\$10,000} & = & \frac{\text{Ownership}}{\$10,000} \\ \text{Land} + & 3,000 & \\ \text{Cash} - & 3,000 & \\ \hline \$10,000 & = & \$10,000 \end{array}$$

The business then buys \$2, 000 worth of inventory for cash:

	<u>Assets</u>	=	<u>Ownership</u>
	\$10, 000		\$10, 000
Land +	3, 000		
Cash -	3, 000		
Inventory +	2, 000		
Cash -	2, 000		
	\$10, 000	=	\$10, 000

A truck is now purchased for \$4, 000. But, rather than pay cash, the business decides to buy "on account" (pay at a later date). The term used for the amount that the business then owes is "liability" (accounts payable). The transaction would be illustrated as follows:

	<u>Assets</u>	-	<u>Liabilities</u>	=	<u>Ownership</u>
	\$10, 000				\$10, 000
Land +	3, 000				
Cash -	3, 000				
Inventory +	2, 000				
Cash -	2, 000				
Truck +	4, 000		+ 4, 000 (Accts Payable)		
	\$14, 000	-	\$ 4, 000	=	\$10, 000

Note that the equation is still equal. However, we have added the liability category. Because a liability is something the business owes, this amount must be deducted from the value of the assets to give the true equity of the ownership account. Therefore, we can state the accounting formula as:

$$\text{Assets} - \text{Liabilities} = \text{Ownership}$$

OR

$$\text{Assets} = \text{Liabilities} + \text{Ownership}$$

Ownership in modern accounting is usually called "net worth." Thus the most common form of the basic formula is:

$\text{Assets} = \text{Liabilities} + \text{Net Worth}$
---

## Posting to Accounts

The accounting transactions could be listed in this form for the entire accounting period; however, it would be difficult to see at a glance what transactions affected each particular type of account (such as cash on hand, accounts payable, etc.). Therefore, let us isolate each type of account, achieving the same overall result as in the previous illustration.

Inventory	+	Cash	+	Land	+	Trucks	=	Accounts Payable	+	Net Worth
2,000	-	10,000	+	3,000	-	4,000	-	4,000	+	10,000
		3,000								2,000

Now the various accounts are set up individually, in an arrangement which gives rise to the term "T account." This arrangement facilitates the posting of transactions. In the case of the asset accounts (those to the left of the equal sign above), posting to the left of the T increases the account and posting to the right decreases it. The reverse is true in the case of the accounts payable and net worth accounts (to the right of the equal sign): posting to the left of the T decreases the account and posting to the right increases it.

In accounting, posting to the left side of an account is called a debit entry and posting to the right side of an account is called a credit entry. For all practical purposes, the terms debit and credit essentially mean left and right postings, respectively. The procedure for posting to accounts may be summarized by stating that in asset accounts:

Increases are recorded by debits  
Decreases are recorded by credits

and in liability and ownership accounts:

Increases are recorded by credits  
Decreases are recorded by debits.

## Income and Expense Accounts

A company engaging in business to make a profit must sell its services or merchandise. Sales would be an increase to the net worth account. However, in the conduct of business, expenses will occur and must be subtracted from the net worth account. Rather than making all these sales and expense transactions directly to the net worth account, we shall establish individual T accounts which, at the end of the accounting period, we shall "close out," posting the net result (profit or loss) of each to the net worth account. Thus for each accounting period we can determine whether the business operation resulted in a profit or a loss.

If we consider only the income and expense accounts and their effect on the net worth account, we can use the T accounts shown on the next page to illustrate arithmetically why a transfer of money from either an income or expense account causes a corresponding plus or minus to the net worth account.

$$\begin{array}{c} \text{Net Worth} + \left( \begin{array}{c} \text{Sales} - \left( \begin{array}{c} \text{EXPENSE ACCOUNTS} \\ \text{Cost of Goods Sold} + \text{Electricity} + \text{Telephone} \end{array} \right) \end{array} \right) \\ \begin{array}{c} - \quad + \\ - \quad + \\ + \quad - \\ + \quad - \\ + \quad - \end{array} \end{array}$$

Note that the signs for the expense accounts (cost of goods sold, electricity, and telephone) are plus on the left side (debit), and minus on the right side (credit). Mathematically, when they are closed out to the net worth account the signs are reversed by the minus sign to the left of the parentheses.

As an illustration of the postings to these accounts, let us assume certain transactions:

1. The business makes a sale of \$300 for which it receives cash. The cost of the goods sold is \$150.
2. The business receives an electricity bill for \$25 and pays cash for it.
3. A telephone bill in the amount of \$50 is received but not paid now.

To account for these transactions, the following postings are made:

Cash is increased (debited) \$300.  
 Sales is increased (credited) \$300.  
 Cost of goods sold is increased (debited) \$150.  
 Inventory is reduced (credited) \$150.

Electricity is increased (debited) \$25.  
 Cash is decreased (credited) \$25.

Telephone expense is increased (debited) \$50.  
 Accounts payable is increased (credited) \$50.

$$\begin{array}{c} \text{Cash} + \text{Inventory} + \text{Land} + \text{Trucks} = \text{Accts. Payable} + \text{Net Worth} + \text{Sales} - \left( \begin{array}{c} \text{Elec.} + \text{Tel.} + \text{Cost of} \\ \text{Goods Sold} \end{array} \right) \\ \begin{array}{c} + \quad - \quad + \quad - \quad + \quad - \quad - \quad + \quad - \\ 300 \quad 25 \quad \quad \quad 150 \quad \quad \quad \quad \quad \quad \quad 50 \quad \quad \quad \quad \quad \quad \quad 300 \quad 25 \quad 50 \quad \quad 150 \quad - \end{array} \end{array}$$

### Trial Balance

Let us assume that these transactions, plus those made in prior examples, complete the activity for the accounting period. The first step taken at the end of the period is to prove the accuracy of the postings — that is, prove that the debits equal the credits — and this is accomplished by taking a trial balance. First the account balances are determined by individually adding the debit and credit columns of each account and then subtracting the smaller from the larger. The trial balance is then prepared by listing and totaling the resulting account balances.

TRIAL BALANCE		
Account	Debits	Credits
Cash	\$ 5,275	\$
Inventory	1,850	
Land	3,000	
Trucks	4,000	
Accounts Payable		4,000
		50
Net Worth		10,000
Sales		300
Cost of Goods Sold	150	
Electricity	25	
Telephone	50	
	\$14,350	\$14,350

After the trial balance is taken, adjusting entries are made to account for income that has been earned or for expenses that have been incurred for which no entries were recorded. An example of this type of transaction occurs when an accounting period ends in the middle of the week and an entry has to be made for payroll earned by the employees but not yet paid to them. An adjusted trial balance is then taken and the profit and loss statement and balance sheet are prepared.

### Closing Out Income and Expense Accounts

The next step is to close out the income and expense accounts. This is shown in the exhibit below where the sales account is closed out by debiting it and crediting the Profit and Loss account for the corresponding amount, and where the expense accounts are closed by crediting them and debiting the Profit and Loss account.

Sales	-	+	Cost of G. S.	+	Electricity	+	Telephone
-	+		+	-	+	-	+
300	300		150	150	25	25	50
			150	150			50
							50

  

	Profit & Loss Account
	(Expense)      (Income)
Cost of G. S.	150      300 Sales
Elec.	25
Telephone	50
	225      300
	* 75
	300      300

\*The difference between the income and the expense items is the profit or the loss.

After the closing journal entries are made and posted, a post-closing trial balance (which completes the accounting cycle) is taken. The illustrative accounting cycle described on the following pages will further explain the concepts covered thus far.

# ILLUSTRATIVE ACCOUNTING CYCLE

## The Journal

As transactions occur they are posted in the journal. This is the first recording on the company records. The journal can take the form of either a book or sheet and serves three primary purposes:

It shows the pertinent facts about all transactions in chronological sequence.

It shows the offsetting debit and credit entries for each transaction, and an explanation of them, thus providing a complete record of all transactions in one place.

It reduces the possibility of error by requiring that both the debit and credit entries be shown. If transactions were posted directly to the ledger there would be a greater possibility of omitting either the debit or credit entry.

JOURNAL #1				
Date	Description	LF	DR	CR
5/5	Inventory		100	
	Cash			100
5/5	Accounts Receivable		50	
	Sales			50
5/5	Cost of Goods Sold		20	
	Inventory			20
5/5	Electricity		10	
	Accounts Payable			10

## Ledger Accounts

Because at this point all transactions are listed on the journal in chronological order, we would find it difficult, for example, to find only those entries affecting the inventory. The next step is to post from the journal to individual ledger accounts. As a result of posting from the journal to the ledger, we can see at one glance all the transactions affecting that particular account during a specific period.

JOURNAL #1				
Date	Description	LF	DR	CR
5/5	INVENTORY	✓	100	
	CASH	✓		100
5/5	Accounts Receivable		50	
	Sales			50
5/5	Cost of Goods Sold		20	
	Inventory			20
5/5	Electricity		10	
	Accounts Payable			10

  

INVENTORY LEDGER				
Date	Description	REF	DR	CR
5/5	JOURNAL #1		100	

  

CASH LEDGER				
Date	Description	REF	DR	CR
5/5	JOURNAL #1			100

Rather than work with a ledger sheet for posting transactions, we shall work with T accounts in the illustrative accounting cycle to follow:

(Ledger)

INVENTORY LEDGER			
Date	Description	DR	CR
5/5	JOURNAL #1	100	

(T Account)

INVENTORY	
100	

### Assets and Liabilities

A business has certain things that it owns, such as cash, inventory, buildings, trucks and accounts receivable. Things that a company owns are called "assets." On the other hand, amounts owed by a company, such as money due for rents, merchandise purchased, etc., are called "liabilities." Both assets and liabilities are called "permanent accounts."

The difference between assets and liabilities is called net worth.

The following is a sample list of assets, liabilities and net worth:

<u>ASSETS</u>	=	<u>LIABILITIES</u>	+	<u>NET WORTH</u>
Cash		Accounts Payable		Capital Stock
Accounts Receivable		Notes Payable		Surplus
Inventory				
Land				
Buildings				
Equipment				

### Chart of Accounts

To facilitate assigning the transactions to the proper account ledgers, we shall use a system of numbers (more commonly called the chart of accounts).

The chart of accounts lists all of the accounts to which the company wishes to post transactions, and it should be kept in mind that these accounts will be used to prepare the various financial statements of the business. The posting of amounts to the various accounts is often referred to as the "distribution" of amounts. In many businesses the number of such transactions runs into the thousands every month, requiring much effort and expense to handle. A sample list of such accounts would be:

Cash	Net Worth
Accounts Receivable	Capital Stock
Inventory	Surplus
Land	Profit & Loss
Buildings	Sales
Equipment	Cost of Goods Sold
Accounts Payable	Utility Expenses
Notes Payable	Transportation

To classify these accounts, it would be helpful first of all to align them in broad categories, then break them down into finer classifications:

- |                |            |
|----------------|------------|
| a. Assets      | d. Income  |
| b. Liabilities | e. Expense |
| c. Net Worth   |            |

When the accounts are properly placed under the appropriate major classification, numbers are assigned to facilitate recording of entries.

100 Assets		
110		Current Assets
	111	Cash on Hand and in Banks
	112	Accounts Receivable
	113	Reserve for Bad Debts
	114	Notes Receivable
	115	Marketable Securities
	116	Inventory
120		Fixed Assets
	121	Buildings
	122	Depreciation Reserve for Buildings
	123	Land
	124	Equipment and Machinery
	125	Depreciation Reserve for Equipment and Machinery
200 Liabilities		
210		Current Liabilities
	211	Accounts Payable
220		Long Term Liabilities
	221	Notes Payable
300 Net Worth		
	331	Capital Stock
	332	Surplus
400 Operating Income and Expense		
410		Income
	411	Sales
420		Expense
	421	Cost of Goods Sold
	422	Fuel
	423	Electricity
	424	Telephone
430		Profit & Loss

Income and expense accounts are often referred to as "temporary" accounts because they reflect business activity over a fairly short period of time and are closed out at the end of the accounting period. Listed below are examples of income and expense accounts.

<u>Income</u>	<u>Expense</u>
Sales	Cost of Goods Sold
Interest Income	Rent
Other Income	Insurance
	Electricity
	Fuel

## Effect of Debit and Credit Entries

Debit and credit are terms used by accountants to indicate which side of the ledger account is being affected. In all accounts debits are on the left side and credits are on the right. In dealing with the assets and liabilities, the following rules will apply:

Debits		Credits	
Increase Assets		Decrease Assets	
Decrease Liabilities		Increase Liabilities	

To illustrate this in a different way:

Assets		Liabilities	
Increase	Decrease	Decrease	Increase

In dealing with income and expense accounts, keep in mind that these are the accounts which reflect a profit or a loss of the business operation. This profit or loss is then reflected in the net worth of the company.

Income		Expense	
Decrease	Increase	Increase	Decrease

## Practice Exercise

Here is an exercise in which we shall record the business transactions of a company on the journal and then post them to the ledger. Let us assume that the company:

1. Purchases \$100 worth of inventory and pays for it in cash.
2. Makes a sale of \$50, the cost of the goods sold being \$20.
3. Receives an electric bill of \$10.
4. Receives \$50 in cash from a prior sale.
5. Makes a sale of \$150, the cost of goods sold being \$75.
6. Buys inventory valued at \$5,000.
7. Receives a fuel bill for \$15.
8. Pays the \$10 electric bill.
9. Pays the \$5,000 due for the inventory purchase.
10. Makes a sale of \$75, cost of goods sold being \$35.
11. Pays the \$15 fuel bill.
12. Receives \$20 phone bill.

## Journalizing

As these transactions occur, they are recorded on the journal in the following fashion:

They are first analyzed to determine the way in which they affect the various asset, liability and net worth accounts. The date of the transaction is then entered in the date column. Next the accounts to be debited and credited and the amount of the transaction are entered. If required, an explanation is included and a blank line left after each journal entry.

An illustrated journal appears on the following page. The transactions have been journalized but the journal entries have not been posted to the ledger.

JOURNAL

Date	Account Debited	Account Credited	L.F.	DR	CR
May 5	Finished Goods Inventory	Cash		100	100
5	A/R	Sales		50	50
5	Cost of Goods Sold	Finished Goods Inventory		20	20
5	Electric	A/P		10	10
5	Cash	A/R		50	50
8	A/R	Sales		150	150
8	Cost of Goods Sold	Finished Goods Inventory		75	75
8	Finished Goods Inventory	A/P		5000	5000
8	Fuel	A/P		15	15
8	A/P	Cash		10	10
8	A/P	Cash		5000	5000
8	A/R	Sales		75	75
8	Cost of Goods Sold	Finished Goods Inventory		35	35
8	A/P	Cash		15	15
8	Telephone	A/P		20	20

Posting

The next step is posting from the journal to the individual ledger accounts. For simplicity we shall use T accounts, in which debits are posted to the left side and credits to the right side, rather than a ledger form. (Notice that there are certain balance amounts already in the permanent accounts shown on the next page. These are denoted by a single asterisk. They represent the amount of money left in the accounts at the close of the previous accounting period.)

1. The first entry is to debit inventory for \$100. Since inventory is an asset account and we now have \$100 more inventory, we debit the account to increase inventory. The offsetting entry is to credit cash for \$100, thus reducing our cash by that amount.
2. For the \$50 sale we debit (increase) accounts receivable (asset account) for \$50. The merchandise sold by the company cost \$20. Because this is an expense, we debit cost of goods sold for \$20 and reduce the inventory account by \$20 with a credit entry in that amount.
3. We debit the electricity account for the \$10 expense, since a debit entry increases expense. Because we are not paying this bill at present, we credit accounts payable for \$10, thus increasing our liability.



## Taking a Trial Balance

To assure the accuracy of all posting to the account ledgers, a listing is made for each account showing the debit and credit entries for all transactions posted during the current accounting period. This listing is called a trial balance and if the period's transactions are properly posted, the total of the debits shown on it will equal the total of the credits.

The following trial balance is based on the transactions that were posted to the T accounts during the current accounting period.

TRIAL BALANCE		
Account	Debit	Credit
SALES		\$ 50
		150
		75
COST OF GOODS SOLD	\$ 20	
	75	
	35	
FUEL	15	
ELECTRICITY	10	
TELEPHONE	20	
CASH	50	100
		10
		5,000
		15
ACCOUNTS RECEIVABLE	50	50
	150	
	75	
INVENTORY	100	20
	5,000	75
		35
ACCOUNTS PAYABLE	10	10
	5,000	5,000
	15	15
		20
	<u>\$10,625</u>	<u>\$10,625</u>

For instruction purposes, the above trial balance shows all transactions that have occurred during the period. This is slightly different from common accounting practice, which provides for first determining account balances by adding the debit and credit columns of each account, subtracting the smaller sum from the larger, and then taking the trial balance by listing and totaling the resultant balances.

## Closing Out the Books

Assuming that these are all the transactions for the accounting period, it is now a major concern of management to determine what profit, if any, was made. This involves closing out the books. To arrive at the profit or loss for a corporation during a given period, the temporary (income and expense) accounts are used. (For instruction purposes we shall show the preparation of statements by working directly from the T accounts. In actual practice, statements are prepared by working with the account balances developed on the trial balance.)

The first step is to add all of the figures in the sales T account. The total (\$275), when debited to the sales T account, closes it out. The offsetting entry is a credit to the profit and loss account.

The next area that concerns us is the cost of goods sold account. The total here is \$130. By crediting cost of goods sold in this amount and debiting it to the P & L account, we close out the cost of goods sold account. The same is done with the fuel account, electricity, and telephone.

The debits in the P & L account represent all the expenses for the accounting period. The difference between the debits and the credits, therefore, is the profit (or surplus) for the accounting period. In this example it amounts to \$100. To reflect the transfer of profit to the net worth section, we debit the P & L account with \$100 and credit the net worth section with \$100.

The profit and loss account (better termed, in modern day accounting, the "income statement") now shows management the profit made by the corporation during the accounting period. In this example, the profit, or surplus, represents an increase of \$100 in the net worth of the business.

#### TEMPORARY ACCOUNTS

Sales	Cost of Goods Sold	Fuel	Electricity
50	20	15	10
150	75	15	10
75	35	15	10
275	130	15	10
275	130	15	10
		Telephone	
		20	
		20	
		20	
		20	

#### PROFIT & LOSS

	\$130	\$275 (Sales)	
(Cost of Goods Sold)	15		
(Fuel)	20		
(Telephone)	10		
(Electricity)	175	\$275	
	100		
(Profit)	275	\$275	
	275	275	

  

	Net Worth
	36,400*
	100

### Preparing the Balance Sheet

The next step in the closing procedure is to post the asset and liability accounts to the balance sheet. The balance sheet shows the assets, liabilities and net worth of a company at a given point in time. To close out individual accounts to the balance sheet, we must add both the debits and the credits for each account. Then the smaller sum is subtracted from the larger sum to determine the balance for that particular account.

Our first step is to add all the debits in the cash account and subtract the total from the total of the credits. The debit balance for the cash account is then \$24,925. (Notice that this figure and all other totals of the various accounts are denoted by two asterisks. This is to indicate that these amounts are the closing balances for the current accounting period as well as the opening balances for the next period.)

The debit balance for the accounts receivable account is \$1,225.

As in the other accounts, so in inventory, we shall add the beginning balance of \$6,000 to the other entries, \$100 and \$5,000, arriving at total debits of \$11,100. We shall then total the credit side of the account by adding the entries for \$20, \$75 and \$35. The difference between total debits and total credits is \$10,970. This is our closing balance for the current period and our opening balance for the next.

The accounts payable credit balance is \$620.

The net worth account had a starting balance of \$36,400. When we add the surplus amount of \$100 for the current period, total net worth is increased to \$36,500.

Cash, accounts receivable and inventory (all asset accounts) are added to arrive at the total of \$37,120. This is shown on the left of the balance sheet. On the right side of the balance sheet we have accounts payable of \$620 (liabilities to others) and \$36,500 (liability to the stockholders), also totaling \$37,120. Thus, assets equal liabilities plus net worth, as they must.

#### PERMANENT ACCOUNTS

<table style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center; border-bottom: 1px solid black;">Cash</th></tr> <tr><td style="width: 50%;">* 30,000</td><td style="width: 50%; text-align: right;">100</td></tr> <tr><td style="text-align: right;">50</td><td style="text-align: right;">10</td></tr> <tr><td></td><td style="text-align: right;">5,000</td></tr> <tr><td></td><td style="text-align: right; border-bottom: 1px solid black;">15</td></tr> <tr><td>** 24,925</td><td></td></tr> </table>	Cash		* 30,000	100	50	10		5,000		15	** 24,925		<table style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center; border-bottom: 1px solid black;">Accounts Receivable</th></tr> <tr><td style="width: 50%;">* 1,000</td><td style="width: 50%; text-align: right;">50</td></tr> <tr><td style="text-align: right;">50</td><td></td></tr> <tr><td style="text-align: right;">150</td><td></td></tr> <tr><td style="text-align: right; border-bottom: 1px solid black;">75</td><td></td></tr> <tr><td>** 1,225</td><td></td></tr> </table>	Accounts Receivable		* 1,000	50	50		150		75		** 1,225		<table style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center; border-bottom: 1px solid black;">Inventory</th></tr> <tr><td style="width: 50%;">* 6,000</td><td style="width: 50%; text-align: right;">20</td></tr> <tr><td style="text-align: right;">100</td><td style="text-align: right;">75</td></tr> <tr><td style="text-align: right;">5,000</td><td style="text-align: right;">35</td></tr> <tr><td style="text-align: right; border-bottom: 1px solid black;">** 10,970</td><td></td></tr> </table>	Inventory		* 6,000	20	100	75	5,000	35	** 10,970	
Cash																																				
* 30,000	100																																			
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#### BALANCE SHEET

<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">Cash</td><td style="width: 50%; text-align: right;">\$24,925</td></tr> <tr><td>Accts. Receivable</td><td style="text-align: right;">1,225</td></tr> <tr><td>Inventory</td><td style="text-align: right; border-bottom: 1px solid black;">10,970</td></tr> <tr><td></td><td style="text-align: right; border-bottom: 3px double black;">\$37,120</td></tr> </table>	Cash	\$24,925	Accts. Receivable	1,225	Inventory	10,970		\$37,120	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">Accounts Payable</td><td style="width: 50%; text-align: right;">\$ 620</td></tr> <tr><td>Net Worth</td><td style="text-align: right; border-bottom: 1px solid black;">36,500</td></tr> <tr><td></td><td style="text-align: right; border-bottom: 3px double black;">\$37,120</td></tr> </table>	Accounts Payable	\$ 620	Net Worth	36,500		\$37,120
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## The General Ledger

When punched card data processing procedures are used, the general ledger entries are in the form of punched cards rather than in the form of manual postings as on a ledger. Thus, at the end of the accounting period, either just before or after the completion of the income statement and balance sheet, a machine-listed general ledger report is prepared. This report is a summary of all accounts and their balances and, in many cases, also shows the opening balance of each account and the total debits and credits posted to the account for the period.

GENERAL LEDGER					
Account Number	Account Title	Opening Balance	Debits	Credits	Closing Balance
	Assets				
110	Current Assets				
111	Cash	\$30,000	\$ 50	\$5,125	\$24,925
112	Accounts Receivable	1,000	275	50	1,225
116	Inventory	6,000	5,100	130	10,970
	Total Assets				\$37,120
	Liabilities				
210	Current Liabilities				
211	Accounts Payable	600	5,025	5,045	620
300	Net Worth	36,400		100	36,500
	Total Liabilities				37,120
	Operating Income & Expense				
410	Income				
411	Sales			275	
	Total Income				275
420	Expense				
421	Cost of Goods Sold		130		
422	Fuel		15		
423	Electricity		10		
424	Telephone		20		
	Total Expense				175
430	Profit & Loss				100

In order to provide a complete historical record in the form of general ledger accounts, the totals (debit and credit) of the activity in the temporary income and expense accounts are shown, even though these accounts were previously closed out to the P & L account and the profit from it, in turn, was closed out to the net worth account.

This completes the section on basic accounting concepts. Although the presentation has been simplified, the basic principles apply to most accounting procedures. In the following sections, covering the various application areas, we shall see how each particular application ties into the general accounting picture.

## GLOSSARY OF GENERAL ACCOUNTING TERMS

Asset. Something owned by a company (e.g., cash, accounts receivable).

Balance sheet. A statement showing in total all the assets owned by the company and all the liabilities owed by the company.

Capital account. The amount of money invested in a business by the owners (stockholders).

Chart of accounts. A listing of all accounts to which a company will post transactions.

Credit (cr). An amount posted to an account (the right-hand side, in the case of T accounts) in order to decrease the account, if an asset, or increase it, if a liability.

Debit (dr). An amount posted to an account (the left-hand side, in the case of T accounts) in order to increase the account, if an asset, or decrease it, if a liability.

Distribution. The allocation of amounts to desired accounts.

Fixed Asset. Something owned by a company and intended for long-time use, not acquired for resale, the investment in which will be recovered through future operations of the business.

Income statement. The financial report that shows the profit or loss made by a company during a particular accounting period.

Journal. The book or sheet to which transactions are first posted in chronological sequence. Also called "Book of Original Entry."

Ledger. The sheet to which entries from the journal are posted. These sheets are maintained by individual account classification (e.g., cash, inventory).

Liabilities. Money owed by a business.

Net worth. The stockholders' equity in the business. It represents the difference between assets and liabilities.

T accounts. Another name for ledger account. The T is made by the horizontal line under the account name and the vertical line separating debits from credits.

Trial balance. The listing and totaling of all accounts to insure accuracy. Debits must equal credits.

Voucher. A business form that shows all the details of a transaction and authorizes the entry of that transaction into accounting records.

# INTRODUCTION TO PUNCHED CARD ACCOUNTING APPLICATIONS

## PAYROLL AND LABOR DISTRIBUTION

### Definitions

Payroll — A procedure for recording time worked, computing wages and reporting money earned to the employee, the employer and the governmental and other related organizations.

Labor Distribution — The classification and summarization of labor costs by job number, account number or department number.

### Importance to Business

All companies must compute employee earnings and maintain records from which paychecks and tax reports are written. In many companies this is a voluminous record-keeping process involving the effort and expense of many people.

In many businesses, labor is the largest and most important single cost of doing business. If not properly analyzed and controlled it might well lead to unprofitable operation.

All companies are sensitive to proper employer-employee relationships; therefore, it is extremely important that employee wages be computed correctly and paid expeditiously.

The successful administration of many incentive payment plans, with benefits to both employer and employee, depends on a comprehensive payroll system.

### Procedural Steps in Payroll Accounting

The basic steps required to accomplish the objectives of payroll and labor distribution remain constant — no matter what the type or method of payment, or what tools are used to perform the record-keeping function. These steps may be summarized as follows:

#### PREPARE SOURCE RECORDS

Create source documents including basic employee information, deduction authorizations, and time and production records.

#### COMPUTE THE PAYROLL

Establish controls to assure that attendance records and other source data are received, and authorized payments are made.

Assign and verify rates.

Calculate gross earnings, including base, overtime, guarantee, and other allowances.

Maintain lists and controls of authorized deductions.

Calculate and maintain account balances of bond and other percentage deductions.

Calculate and record Social Security deductions, withholding tax deductions, and city and state taxes.

#### WRITE THE PAYROLL

Prepare records of individual earnings and deductions.

Prepare individual statements of earnings and deductions for each employee for each pay period.

Prepare employee checks or cash envelopes.

Prepare subsidiary records of employee deductions.

Prepare records of total earnings and deductions, for the reporting of this data to employees, management, and governmental agencies.

Perform bank account reconciliation.

Prepare management and control reports.

#### ANALYZE AND DISTRIBUTE PAYROLL CHARGES

Distribute charges to orders, accounts covering manufacturing and operating costs.

Analyze expense by controllable units and effect comparisons with budgets or standards.

### Basic Payroll Systems

#### HOURLY PAYROLL

A worker is paid on the basis of a fixed hourly rate that is related to the type of work he performs, for example, shear operator, drill press operator, material handler, lathe operator, stock clerk, etc. The computation of earnings is relatively simple, basically:  $\text{Hours Worked} \times \text{Hourly Rate} = \text{Gross Earnings}$ .

#### SALARY PAYROLL

An employee receives a fixed amount of money for a specified period of time. He may or may not be entitled to additional compensation for overtime work.

#### INCENTIVE PAYROLL

An employee's earnings are directly related to his productive output. This system is widely used in industry and varies tremendously in format and complexity.

## Accounting Entries

The relationship of payroll cost to the general accounts may be illustrated by the following transactions:

- (A). As payroll expense is incurred it is charged to the payroll control account. However, until such time as wages are paid, the company has incurred a liability, so the accrued payroll account is credited with the \$500 payroll cost.
- (B). Payroll expense must be recovered by charging it to work in process. In our example the assumption is made that \$400 of payroll cost was spent for direct labor. This can be charged directly to a work-in-process account.
- (C). The assumption also was made that \$100 of payroll expense was for indirect labor and is therefore not chargeable to a work-in-process account. Instead, it is charged to an actual burden account. At the end of the accounting period, all such costs will be distributed back to the various production departments and then worked into the cost of work in process, thus ultimately be added to the cost of work in process.
- (D). At the time wages are paid, we discharge the liability reflected up to this point in the accrued payroll account. Concurrently, this has the effect of lessening our cash position, as the credit to cash illustrates.

The net result of this series of transactions is that we have added the cost of labor to work in process while lessening our cash position. This temporary loss will be retrieved, of course, when the product is sold.

Payroll Expense	Work in Process
(A) 500   400 (B)   100 (C)	(B) 400
Accrued Payroll	Actual Burden
(D) 500   500 (A)	(C) 100
<div style="text-align: center; border-bottom: 1px solid black; margin-bottom: 5px;">Cash</div> <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px; margin: 0 auto; width: 100px;">           500 (D)         </div>	

## GLOSSARY OF PAYROLL AND LABOR DISTRIBUTION TERMS

Accrued payroll. The liability for earnings due to employees since the end of the previous pay period.

Actual cost. The purchase or contract price of goods and services used in manufacturing or other operations involving cost accounting records, as opposed to estimated or standard costs.

Advance. An amount of money paid to an employee before the customary time of payment.

Attendance card. A card showing the time an employee spends at his place of employment.

Base rate. The hourly rate of pay of an employee.

Bedaux plan. A wage incentive plan in which a standard is established for each job and operation in terms of the amount of work that may be finished in one minute by an average worker operating at normal speed.

Bonus. Increased earnings or some material reward in excess of regular earnings granted to an employee for accomplishing results equal to or in excess of a set standard, or for working less desirable hours or under less desirable conditions than others.

Burden. That part of the cost of producing goods and services which cannot be associated directly with the items produced.

Clock number. A number assigned to an employee and placed on his timecard for identification purposes.

Clock station. The location of a time recorder where the timecards for the employees in a specific section are placed.

Continuous job card. A card containing time worked and other pertinent facts concerning the work of one employee on one job order, process, department, or operation during successive days within a pay period.

Current earnings card. An IBM card used to accumulate an employee's earnings and other pertinent data for a pay period.

Daily time card. A card containing attendance time and other pertinent facts concerning one employee for one day.

Day shift. A period of working time for employees which begins in the morning and ends some time in the afternoon.

Deduction card. A card containing pertinent facts concerning an amount to be deducted from an employee's pay for such things as contributions, insurance premiums, bond purchases, dues, company purchases, and advances.

Deduction register. A list showing the amounts deducted from employee's earnings, as well as a reason for the deduction.

Denominating cash payroll. Determining the number of bills and coins of each denomination required to make up each employee's pay with a minimum number of bills and coins.

Direct labor cost. Employee's earnings that are directly applicable to a job order or process.

Distribution. Assignment of payroll data to the various accounts affected.

Earnings record. A record containing the accumulative earnings data of an employee and showing weekly earnings and taxes.

Earnings statement. A report given an employee, usually at the time he is paid, showing the factors pertinent to his earnings, deductions and net pay.

Employee number. A number assigned to an employee for identification purposes.

Gang job card. A card containing all pertinent facts concerning the work of several employees working as a unit on one job order, process, department or operation.

Gang-punched extensions. Products of multiplications punched into detail cards from prepunched master extension cards which contain the most frequently used multiplications.

Gross earning card. An IBM card containing an employee's total earnings before taxes or deductions.

Group bonus plan. A bonus plan whereby the earnings of each employee are increased when the production by a group of employees with whom he works is in excess of the set standard.

Idle time. The time during which an employee or machine is available for work but is not working.

Indirect labor. The work of those employees who contribute to the overall production of goods and services, but whose work is not applied directly to the product.

Individual job card. A card containing all pertinent facts concerning the work of one employee within one day on one job order, process, department or operation.

Job order. A written authorization to perform a specified task.

Master personnel card. An IBM card containing information concerning an employee's sex, education, marital status, age, company and occupational seniority, occupation, salary or hourly rate, and other factors of a permanent or semipermanent nature.

Master rate card. The master card containing identification data such as name and code number, other constant and semiconstant information, and the rate which applies to the person or thing identified.

Payroll advice. A memorandum prepared for the payroll department authorizing or giving notice of some change in the status of an employee.

Payroll deduction. Amount subtracted from an employee's earnings before payment is made to him by his employer.

Payroll master card. A card containing all constant or semiconstant data concerning an employee, such as name, serial number, Social Security number, occupation, rate of pay.

Payroll register. A detailed list prepared for each pay period, usually containing the same information as shown on the employee payroll checks or pay envelopes and earnings statements.

Reconciliation of bank statement. A comparison of the bank statement with the cash records of the business to see whether they are in agreement and to make the necessary adjustments for any differences.

Standard cost. An accounting system which uses predetermined costs of labor and material required to produce specified goods or services.

Time sheet. A list containing the names or man numbers of a group of employees, showing the time worked by each employee for a day, a week, or a pay period.

Unit cost. The purchase price or manufacturing cost of an item.

Variance. The difference between actual and standard measurement.

Work-in-process file. A file of IBM cards containing labor distribution and material requisition cards for commodities which are being manufactured.

## ACCOUNTS PAYABLE

The term "accounts payable" means the amount of money a business owes for goods received and services rendered. Accounts payable accounting is recording what is owed, paying it promptly to secure the benefit of any discounts offered for prompt payment, and keeping the management of the business informed regarding how much they are spending and for what purposes. Most businesses follow a general procedure which involves:

1. Initiating requisitions for goods or services.
2. Preparing purchase orders and forwarding them to suppliers as authority for shipping merchandise or performing services.
3. Receiving goods or services and invoices to cover charges.
4. Auditing invoices and purchase orders for agreement; also verifying actual receipt of goods or service.
5. Placing invoices in file for payment on due date.
6. Preparing checks and check register on due date.
7. Preparing distribution report showing expense by account number for later use in general ledger and cost accounting.
8. Preparing management reports such as purchases by vendor.

Accounts payable has a close relationship to many other accounting applications. The source data for accounts payable is usually entered on a voucher which consolidates all the data necessary for payments and distributions. After processing, the data developed provides entries into cost, plant and equipment, inventory and material, and general ledger accounting. Various accounts are affected by accounts payable transactions — for example:

(A). As goods are received, the invoice is audited and approved for payment on due date. Thus we credit A/P \$50.00 to increase the liability account, and debit inventory \$50.00 to increase the asset account.

(B). Payment is made on due date. Therefore, if by terms of the invoice we are entitled to cash discount, we debit A/P \$50.00 to decrease the liability account, credit cash \$49.00 to decrease cash, and credit discount with \$1.00 which is considered other income because we did not have to pay out \$50.00 but only \$49.00. The discount entry allows us to balance our double entry, making credits equal debits.

A/P	Inventory	Cash	Discount
(B) 50.00	(A) 50.00	49.00 (B)	1.00 (B)
50.00 (A)			

The accounts payable accounting application on an IBM system allows for greater and more accurate management control of a business. Accounting and management reports are prepared quickly, easily and accurately. Typical reports are as follows:

### Accounting Reports

Invoice Register  
Cash Disbursement Register  
A/P Distribution Report  
Check and Remittance Advice  
Trial Balance

### Management Reports

Cash Requirements Statement  
Purchase Analysis  
Discount Lost and Taken Report  
Expense to Budget Reports

## GLOSSARY OF ACCOUNTS PAYABLE TERMS

Accounts payable voucher. Document used to consolidate all data necessary for payment. Sources of data are purchase order, vendor's invoice, and material receipt.

Accounts payable distribution report. Distribution of paid expenses by account number (chart of accounts).

Allowances. Concessions or reductions against an invoice, brought about by varying conditions and reasons, and agreed to between the purchaser and the seller.

Anticipation discount. An amount (generally 6% of the invoice amount per annum) which a customer subtracts if he chooses to pay an invoice before its due date.

Apron. A form attached to vendors' invoices, with space for executive approval, vendor code number, voucher number, account distribution code and amount.

Cash disbursement register. Listing of paid vendors' invoices.

Cash discount. Discount earned on an invoice if it is paid by the due date.

Cash requirements report. List of unpaid invoices by due date, prepared in order to anticipate capital required.

Credit. An increase in indebtedness in a vendor's account.

Debit. A decrease in indebtedness in a vendor's account.

Due date. The date on which, according to the terms of and the date on the invoice, payment must be made.

Invoice register. Listing of vendors' invoices approved for payment (book of original entry).

Returns. Items of merchandise which are sent back to the vendor for one reason or another, and for which a credit is given for its corresponding value or original charge.

Short shipment. A shipment which, when checked by the receiving department against the vendor's invoice, proves to contain less than the quantity billed.

Sticker. Like an apron, but gummed so that it can be pasted either on the face or the back of the vendor's invoice.

Trade discount. Discount earned by special type of business. For example, an automobile parts manufacturer will give a discount to a wholesaler but charge the catalog price to a garage.

Trial balance. Listing of outstanding liabilities by vendor.

## INVENTORY CONTROL AND MATERIAL ACCOUNTING

Inventory control determines the amount and type of parts, supplies and finished goods which will most effectively protect the production, sales and the financial requirements of a business. Material accounting is concerned with the financial or money control of inventory. Since much of the capital of a business is tied up in inventory, management is keenly interested in having answers to the following questions to enable them to control their inventory:

- What is in stock?
- What is on order?
- Is it enough?
- When should we reorder?
- How much should we order?
- Is it too much?

Let us consider these questions and see how the answers affect business and industry.

### What is in Stock?

Basically there are two methods for finding the answer to this question:

1. Physical Count. Every piece in inventory is counted to determine how much is on hand. This system has its drawbacks in that constantly up-to-date figures would necessitate a physical count every time management asked, "What is in stock?" With large inventories this system is impractical because it takes too much time and thus costs too much money in terms of personnel. In most industries physical counts are taken once or twice a year.
2. Perpetual Book Inventory. This involves keeping a record for each item to be controlled. The primary record used is the inventory balance card, which is updated as transactions occur. When material is received the quantity received is added to what is already on hand. When material is issued from inventory the quantity is subtracted from what is on hand. The basic formula is:  $\text{Old Balance} + \text{Receipts} - \text{Issues} = \text{On Hand}$ .

### What is on Order?

In addition to maintaining records reflecting material on hand, it is necessary to keep track of material on order, for purchased items, or material to be manufactured, for manufactured items. This information is required since any decision to obtain additional inventory must, of course, be based on the knowledge of any open orders.

### Is it Enough?

Once the amounts on hand and on order are known, it must be determined whether they are great enough to meet orders and thus prevent the loss of sales and loss of customers that can result from out-of-stock conditions. In connection with this, a minimum allowable amount can be decided upon for each item of stock so that the item will not be completely depleted before more can be obtained. This leads to our next question.

## When Should We Reorder?

To provide positive assurance against out-of-stock conditions, certain reorder methods are used:

1. Stock clerks can watch the amount of stock on the shelves to see that it does not get too low. This method, however, is very inefficient, especially when the number of items is high.
2. Minimums can be established and recorded on stock balance cards, to signal when items should be reordered. Factors used to determine minimums are:
  - a. Past usage, such as average sales for a specified period.
  - b. The "lead time" necessary to place the order, process it and receive delivery.
  - c. A margin of safety that should be maintained in case the ordered amount does not arrive on time or in case usage is greater than expected.

The standard formula for establishing minimum order points is:

$$\text{Minimum} = \left( \frac{\text{total sales for a specified period} \times \text{lead time}}{\text{specified period}} \right) + \text{safety factor}$$

## How Much Should We Order?

In the retail and wholesale industries a standard quantity is usually ordered when the minimum order point is reached. Among the factors that determine this quantity are:

- Vendor discount for size of order
- Storage and handling cost
- Order processing cost
- Danger of obsolescence

In manufacturing industries an "economical order quantity" (EOQ) is frequently ordered when the minimum order point is reached. This quantity is determined by a formula which takes into account various factors to arrive at the most economical quantity to order at one time.

## Is It Too Much?

Because the yearly cost of maintaining inventory can be 25% or more of the total dollar value of the inventory, it is important not to stock too much.

The cost elements that make up the commonly quoted 25% figure are:

Obsolescence	10%
Interest	6%
Depreciation	5%
Miscellaneous	4%
Total	<u>25%</u>

## Costing

Up to this point we have been concerned only with quantity control. However, to complete the picture of inventory control, we must consider the cost aspect. Costing will give the answer to two questions:

What is the value of the inventory on hand?

How much should we cost each item when it is issued or sold?

In dealing with finished goods inventory, there are three predominant methods of costing:

1. Average cost. The total dollar value of an item in stock is divided by the total quantity. For example, if in inventory there are 100 pieces and their total value is \$100, the average unit cost is \$1.00. However, if 100 more pieces were purchased for \$120, the average unit cost would be \$1.10 (\$220 divided by 200 pieces).
2. FIFO (First In First Out). The material acquired first is used first and is costed accordingly. This method demands that each purchased lot be accounted for separately. For instance, assume there are three 100-piece lots of an item in inventory, with unit costs of \$1.00, \$1.20, and \$1.30, respectively.

If 110 pieces are sold, the costing of the sale is:

$$\begin{array}{r} 100 \text{ pieces @ } 1.00 \text{ each} = \$100 \\ 10 \text{ pieces @ } 1.20 \text{ each} = \quad 12 \\ \hline \$112 \end{array}$$

Therefore remaining in inventory are:

$$\begin{array}{l} 90 \text{ pieces @ } 1.20 \\ 100 \text{ pieces @ } 1.30 \end{array}$$

The FIFO costing method is especially applicable in those industries where receipts into inventory are relatively large quantities, since each lot is costed individually.

3. LIFO (Last In First Out). As the name implies, material sold is costed according to the lot most recently received. When that lot is exhausted, the cost of the next most recent lot is used. This requires that each incoming shipment be maintained as a distinct lot in keeping the records.

Under the LIFO method, if a sale of 110 pieces of the above item were made, the costing procedure would be:

$$\begin{array}{r} 100 \text{ pieces @ } 1.30 = \$130 \\ 10 \text{ pieces @ } 1.20 = \quad 12 \\ \hline \$142 \end{array}$$

The LIFO method has been used more and more widely in recent years. In periods of rising costs, this method tends to reduce the amount of stated profit and the resultant taxes.

## Accounting Entries

The value of the inventory must be reflected in the accounting books of a company. When merchandise is received, the inventory account is increased. Since inventory is an asset, a debit entry will increase that account.

<u>Finished Goods Inventory</u>	<u>Accounts Payable</u>
(Receipt) 200	200

When a sale is made we must decrease inventory and show how much the merchandise cost. So a sale of merchandise costing \$75 would be reflected on the books in the following manner:

<u>Finished Goods Inventory</u>	<u>Cost of Goods Sold</u>
75 (Issue)	75

## GLOSSARY OF INVENTORY TERMS

Available. The quantity of material on hand, plus the quantity on order, minus the quantity reserved for specific purposes.

Average cost. The cost of each piece of an item in inventory, arrived at by dividing the total dollar value of the item by the number of pieces in inventory.

Balance card. The IBM card in which the quantity of stock on hand is recorded. This card may also include other quantities, such as maximum and minimum, reservations, issues, receipts, and available stock.

Cycle inventory taking. A variation of complete physical inventory (and often used to augment it), in which checking of actual stock against stock records is done on a rotating basis, a portion of the inventory at a time.

EOQ (Economic Order Quantity). Used primarily in manufacturing organizations, EOQ is the result of a formula which incorporates the pertinent factors required to determine the most economical number of pieces to be ordered or manufactured when the stock reaches the reorder level.

FIFO (First In First Out). A method of costing goods issued using the cost of the goods received first as the cost of the goods issued first.

Finished stock. Items or products which have been manufactured or purchased, and are ready for sale or use without further manufacturing processing.

Issues. The amount of inventory released for production or sale.

Lead time. The number of hours or days necessary to place an order, process it and receive the material in inventory.

LIFO (Last In First Out). A method of costing goods issued, using the cost of the goods received last as the cost of the goods issued first.

Perpetual book inventory. Maintaining an up-to-date record of all inventory balances.

Physical count. An actual count of all pieces of stock in inventory.

Receipts. Merchandise or stock that is received in inventory.

Requisitions. Authorizations to release quantities of items from stock.

Reservation. A means of assuring that certain required quantities of stock will remain available for some definite future need.

Standard order quantity. A fixed number of pieces ordered when the reorder level for an item is reached.

Stock on hand. The quantity of any item or commodity actually located in a stockroom, and available for use or issue.

Stock status report. A report prepared on an IBM accounting machine which shows, by item, the quantity on hand, on order, reserved or set up as minimum inventory, and available for issue, and other pertinent data.

Transaction register. A list of transactions — issues, receipts, and adjustments — affecting the balance of material on hand.

## ORDER WRITING AND BILLING

### Order Writing

No company offering commodities or services for sale can operate at a profit without securing orders. Once an order is secured, the company's prime objective is to disburse to the buyer the commodities or services ordered in the fastest, most economical manner and be reimbursed accordingly.

In this section we are concerned with how an order is handled once it is received by the seller, and what means are taken to request reimbursement from the buyer.

#### REASONS FOR ORDER WRITING

An order is usually received by a vendor in written form, written either by the customer or by one of the vendor's sales representatives. When a vendor receives an order, he must notify the factory or warehouse to produce what is desired by the customer.

The source document to be used for this purpose is the order itself. Obviously, where these orders originate with the vendor's salesmen and many different customers, they are not going to follow any standard form. The results are bound to be poor legibility, confusion in nomenclature, incomplete description, and irregularity in appearance. It is easy to see that many problems are created when orders of this nature are forwarded directly to the factory or warehouse for processing. Being difficult to interpret, these orders may result in incorrect shipments, lost time, and a generally uneconomical operation.

To avoid this possibility many companies rewrite orders received from customers or sales representatives. This procedure is known as order writing, as it involves the preparation of a new document, also called an order, describing goods or services required by a customer.

A complete customer's order should include ship-to and sold-to name and address, date, order number, quantity ordered, description of merchandise, and such special information as shipping, packing and marking instructions.

#### ADVANTAGES

Some advantages that can be gained from order writing are:

- A standard order form easy to use
- Assured legibility
- Correct and complete description
- Correct pricing and packing

In addition, many by-products can be made available from an order writing procedure:

1. Acknowledgment to customers that their orders have been received. A

company with an order writing procedure will generally send the customer the original copy of the order when it is written.

2. Shipping list or packing list. Some companies require this before commodities are assembled and packed for shipment. The list shows the details concerning shipping units (number of cases, cans, carloads, etc.) for each item.
3. Shipping labels, usually attached to each shipping unit and showing the name and address of the customer.
4. A bill of lading, to authorize a transportation company (rail, motor, etc.) to move a commodity from vendor to customer. Document must show destination, routing, freight class and gross weight.
5. Back order control. When a customer's order cannot be filled, or can be only partially filled, the vendor may prepare a back order to advise the customer regarding items which will have to be sent at a later date. The material which will eventually fill the back order is either on order already or will have to be ordered. Upon receiving it the vendor will fill the back order.
6. Order analysis. This is one of the more important benefits gained by management from an order writing procedure. It usually consists of a daily tabulation of all orders received, showing totals by commodity, thus giving management an up-to-date picture of how sales are moving. In addition, the report gives ample warning so that production and/or purchasing can be geared to handle the volume of orders on hand. Order analysis can be combined with tabulations of shipments in order to report on efficiency in filling orders. Periodic reviews of this order-shipment report can greatly influence production and purchasing policies, produce a more efficient and economical operation, and help keep back orders to a minimum.

## Billing

When goods are shipped, or services rendered, to a customer, the vendor must notify the customer and state the charges. A document is needed which shows the goods (services) purchased by the buyer, name of buyer, amount of sale, seller's name and terms.

A typical invoice (for goods sold) is composed of essentially three types of information:

### Heading information

Customer name and address  
Customer number  
Terms  
Branch and warehouse  
Salesman  
How shipped

Miscellaneous data

Customer's order number  
Invoice number  
Date  
Special shipping instructions

Commodity information (body of the invoice)

Description of items  
Unit price and extension  
Quantity and pack

A survey of most billing applications will disclose that much of the information is repetitive in nature, since companies usually deal with the same customers over and over again and the products sold remain fairly constant.

Billing may be a by-product of order writing (where the order writing cards are re-used for billing), or it may be a separate procedure (where a separate set of cards is used to prepare invoices). Then, too, some companies produce an order and keep the original copy on file. When the items are shipped to the customer they pull the original order, type in quantity shipped, perform the extension of quantity times price, total the invoice, fill in such information as invoice number, invoice date and shipping instructions, and use the order as the invoice to be sent to the customer.

With any billing application there is always a method of handling credit memorandums. When merchandise is returned to the vendor for any legitimate reason, a credit memo is issued to the customer, along with a check for the credited amount or a statement reducing the indebtedness. The preparation of credit memos parallels that of invoices and usually takes much the same form. By the same token, a company will have to issue debit memos if a customer has been charged less than the correct amount.

### Accounting Entries

After an invoice is prepared, the following accounts are affected:

Accounts Receivable  
Invoice Total |

Sales  
| Invoice Total

Inventory  
| Cr.

Cost of Goods Sold  
Dr. |

As shown in the above T accounts, the sale of a commodity is reflected in many important accounting functions. For example, the totals appearing on the invoice and recorded in an accounts receivable register are shown on the customer statement of account (if statements are issued) and are included in the monthly aged trial balance of accounts receivable.

In addition, stock record of quantity on hand must be reduced by the quantity of the individual item sold, and this transaction is reflected in the stock status report. Finally, the desired sales analysis, reports by salesman, by customer, by product or by geographic classification, all stem from the one sales transaction. Because of this chain reaction, accuracy is extremely important.

## GLOSSARY OF ORDER WRITING AND BILLING TERMS

Acknowledgment. Notice to the customer that his order has been received by the vendor.

Back order. An order prepared to cover items which can not be included in the original shipment, but which will be sent when available.

Bill of lading. Document which the vendor must produce to give a transportation company (rail, motor, etc.) authority to move a commodity from vendor to customer. Document must show destination, routing, freight class and gross weight.

Credit memo. A document issued to the customer, detailing merchandise he has returned to the vendor, or other adjustments for which cash is owed by the vendor to the customer.

Debit memo. A document representing a charge to the customer for corrections, additions, special, or unusual charges.

Description. The details required to identify a given merchandise item or commodity.

Heading information. Customer data used in preparing the shipping order and invoice heading.

Invoice. The document that describes the commodities purchased by the buyer and indicates name of buyer and seller, terms, and amount of sale.

Miscellaneous data. Variable invoice details that are peculiar to a given sale and cannot be predetermined.

Order. Document describing goods or services required by a customer.

Order analysis. Classification and summarization of facts (about products or customers) from orders not yet filled.

Ship to. A heading which calls for the name and address to which merchandise will be delivered.

Shipping label. Form usually attached to each container in the shipment, showing the ship-to name and address.

Shipping list. List of commodities being packed or assembled for shipment, showing details concerning shipping units in question.

Sold to. A heading which calls for the name and address of the buyer.

Source document. The original record of a transaction.

Terms. The condition on which the sale is made.

Vendor. An alternate term for seller.

# ACCOUNTS RECEIVABLE

## Introduction

### DEFINITION

Accounts receivable is a system of records, maintained by a vendor, for recording and controlling customer indebtedness.

### IMPORTANCE TO MANAGEMENT

It is estimated that 90% of the nation's business is conducted on a credit basis — only 10% on a cash basis. Accounts receivable is one step removed from cash and must therefore be controlled accordingly. In many cases, it represents the lifeblood of a business.

Accounts receivable appears on a company's statement of condition as an asset, and may be sold, if desired. Many companies do this to raise working capital. For example, if a person bought a refrigerator from a local appliance dealer and signed a note for the unpaid balance, the dealer, in turn, could sell that note (his account receivable) to a bank at a 2% discount, thus converting it to cash almost immediately.

Customers have widely varying paying habits. If a business is to realize a satisfactory conversion of accounts receivable to cash, it must know the credit status of prospective customers and the payment habits of current customers.

## Objectives

### GENERAL

- A. Collect money owed in the shortest possible period of time.
- B. Reduce loss from bad debts.
- C. Maintain customer good will through prompt and accurate updating of his payment record.

### SYSTEMS OBJECTIVES

Regardless of the accounts receivable system used, the following objectives must be met:

- A. Establish the customer's account. This means creating a record which will be used to record transactions to the account as they occur.
- B. Control the accuracy of entries to the customer's account, so that:
  - 1. We will know at all times what the customer owes.
  - 2. All payments will be promptly credited to the customer's account.
- C. Maintain control of the total accounts receivable and provide a collection procedure.

D. Provide credit information on all customer accounts.

### Relationship to the Accounting System

We have established that accounts receivable is an asset which, in most cases, can be readily converted to cash. Let us examine how a typical accounts receivable transaction might be handled.

(A). A \$500 sale is made. We credit the sales account for \$500, reflecting income in that amount, and debit accounts receivable, which in this case indicates setting up an asset of \$500.

(B). The customer pays his bill and is entitled to a 10% discount. Since he has discharged his obligation to us, we credit accounts receivable for \$500. The payment has increased our cash account, so we debit it for \$450. The difference between cash and accounts receivable is represented by a discount of \$50. From our standpoint, this represents an expense of doing business. We reflect it on our books by debiting discounts allowed, which is an expense account.

(C). We make a sale of \$350.

If these three transactions represented our entire business for the month, the effect on our financial statements at the end of the month would be as follows:

Accounts receivable of \$350 would be closed out to the balance sheet as a current asset.

Cash of \$450 would be closed out to the balance sheet as a current asset.

Sales of \$850 would be closed out to the profit and loss statement as income.

Discounts allowed of \$50 would be closed out to the profit and loss statement as expense.

Accounts Receivable	
(A) \$500	(B) \$500
(C) \$350	
<hr/> \$850	<hr/> \$500
<hr/> <hr/> \$350	

Sales	
\$500	(A)
\$350	(C)
<hr/> \$850	

Cash	
(B) \$450	
<hr/> \$450	

Discounts Allowed	
(B) \$50	
<hr/> \$50	

## GLOSSARY OF ACCOUNTS RECEIVABLE TERMS

Accounts receivable ledger. The overall record of customer indebtedness, regardless of system. It might be a ledger book, a file of individual customer ledger cards, a file of IBM punched cards, a magnetic tape, etc.

Aged trial balance. Same as a trial balance, except that open items are listed in separate groups according to age — for example, all items billed 30 days ago or less, all items billed between 30 and 60 days ago, all items billed between 60 and 90 days ago, and all items billed in excess of 90 days ago. This report gives management the ability to quickly analyze problem accounts and take appropriate action.

Allowance. An adjustment to a customer's bill, generally authorizing additional credit.

Cashier. Generally, the person assigned the responsibility of accounting for and controlling customer payments, whether cash or check.

Control sheet. A document, generally posted daily with summary totals from other reports, which is used to prove that all entries affecting the accounts receivable ledger have been properly posted and that the accounts receivable ledger itself is correct.

Control tape. Generally an adding machine listing of amounts from source documents such as invoices, cash remittances, etc. The total from this tape, once proved, is used to assure that corresponding entries to the accounts receivable ledger are made correctly.

Credit memo. A document authorizing credit to a customer because of damaged merchandise, a billing error, returned goods, etc.

Current balance. The amount owed by a customer at any given time.

Cycle statement writing. The practice of subdividing the entire accounts receivable ledger by alphabetic groups, then rendering statements to each group on different dates. This eliminates peak loads that would occur if all statements were rendered at the same time.

Debit memo. A document increasing the original amount of an invoice because of a billing error, shipment error, etc.

Entry date. The date on which an invoice, payment or adjustment is entered into the accounts receivable file.

Invoice register. A daily listing of invoice totals by customer. It also shows indicative and classification data such as date, invoice number, terms, etc.

Journal voucher. An internal document used to make miscellaneous entries to accounts receivable.

Open item. A bill that has not been paid.

Partial Payment. A customer remittance covering only part of a bill.

Remittance statement. A document prepared by the customer, and enclosed with his check, to describe the invoice(s) being paid. It generally shows invoice number(s), invoice amount(s) and discount(s) and is used by the vendor to facilitate proper crediting of the customer's account.

Return. Merchandise returned by the customer to the vendor for credit.

Statement. A document periodically sent by the vendor to the customer (frequently at month end) which shows the total amount owed to the vendor on unpaid bills.

Trial balance. A periodic listing of all open items to prove that the accounts receivable ledger is in balance with the control sheet.

## COST ACCOUNTING

### Definition

Cost accounting concerns itself with the accumulation of the costs of manufacturing and marketing a product. We will deal only with the cost of manufacturing, which consists of:

- The cost of the material purchased and used in making the article.
- The cost of labor directly used in manufacturing the article.
- A fair share of the manufacturing overhead — that is, indirect labor, indirect material, power, heat, depreciation, etc.

This can be stated in formula form:

$$\text{Cost} = \text{Direct Material} + \text{Direct Labor} + \text{Apportioned Overhead.}$$

Though this appears to be simple, there are many ramifications as to the use of this data in providing management with pertinent facts and figures.

### Uses to Management

- A. Unit Costs. By accumulating unit costs for products, management can better analyze the profitability of these products in comparison with selling price, and can recognize inefficient production techniques or the need for revisions in regard to selling price.
- B. Historical Cost Data. If we have kept a record of our costs by each operation and each job, we could use this information for pricing new products, for estimating (in some industries where contracts are given on a bid basis), and for determining economical order quantities. By keeping track of our costs by department, we could use this for establishing budgets for coming periods.
- C. Current Cost Information. By comparing current cost figures to pre-established estimates or standards, inefficient areas can be highlighted and management can take corrective action while there is still time to do so.

### Objectives

- A. Accumulation of costs of production for each job completed.
- B. Accumulation of costs for each department.
- C. Making the proper entries to account for the work flow through the plant.
- D. Preparation of management reports.

### Relationship to Accounting System

As material moves from raw material inventory into work in process and ultimately into finished goods inventory, associated accounting entries are made to indicate the work flow. In like manner, entries must be made

to record the expending of labor and other expenses as they are incurred. The following four transactions illustrate this:

(A). As labor is expended in the production department, the value of the work in process is increased by the amount of this labor. The debit to direct labor work in process, an asset account, accomplishes this increase. The offsetting credit to payroll increases the accumulation of the amount owed to employees (a liability account).

(B). As material is entered into the production cycle it also increases the value of the work in process. The debit to direct material work in process reflects this increase. The offsetting credit to stores indicates a reduction in our raw material supply (an asset account).

(C). As expenses are incurred, such as heat and light, they also contribute to our production effort and increase the value of work in process. This is called overhead or burden and is the third cost factor. The debit to manufacturing overhead work in process increases this account to reflect the incurred overhead expenses. The offsetting credit to A/P increases the amount owed to the suppliers. Other sources for overhead would be indirect labor and indirect material.

(D). As products are completed and leave the production floor to be placed in stock and held for sale, corresponding accounting entries are made. The debit to finished goods inventory reflects an increase in this account. The offsetting credit to the three work-in-process accounts indicates a reduction of the work in process.

<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="border-top: 1px solid black; border-bottom: 1px solid black; padding: 2px 0;">Payroll</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 10px;"></td> <td style="padding: 5px 10px;">100 (A)</td> </tr> </table>	Payroll			100 (A)	<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="border-top: 1px solid black; border-bottom: 1px solid black; padding: 2px 0;">Direct Labor W/P</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 10px;">(A) 100</td> <td style="padding: 5px 10px;">80 (D)</td> </tr> </table>	Direct Labor W/P		(A) 100	80 (D)
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Finished Goods									
(D) 140									

## GLOSSARY OF COST ACCOUNTING TERMS

Applied manufacturing expense. Same as Overhead.

Burden. Same as Overhead.

Cost accounting. Maintenance of detailed records of expenditures incurred in producing goods or rendering services. All expenditures must ultimately be related to a finished product or service so that the total cost of each unit can be computed.

Direct labor. Labor which directly affects or changes the nature of the product on which it is performed.

Direct material. Any material which is used in the manufacture of a product and forms an integral part of that product. It can be easily identified and its usage in the product can be readily determined.

Indirect labor. Labor which is necessary to the operation of the factory, but which does not directly affect or change the product. Supervision, inspection, maintenance, clerical are examples.

Indirect material. Material which is used in the manufacture of a product but is not an integral part of the product and is used in indefinite quantities.

Job order costs. A system of cost accounting used in industries producing goods in production lots, each of whose specifications differs from those of the next lot.

Job record. The medium for recording information pertaining to a particular job, operation or process. It is contrasted to the attendance record, which records the time an employee spends in the plant.

Job time. The time an employee spends working on a particular job, operation or process.

Overhead. All expenses of factory operation not directly chargeable to a particular product. It includes indirect material, indirect labor, and other manufacturing expense. (Also called "Burden" and "Manufacturing Expense.")

Process costs. A system of cost accounting used in industries producing similar type goods in a relatively continuous flow.

Standard costs. Costs determined in advance of production and used as a measurement of efficiency of actual production.

## MANUFACTURING CONTROL

Manufacturing control is the function of expressing the desired output of a manufacturing enterprise in terms of the materials, facilities and manpower required and providing the means of controlling these factors.

Manufacturing is basically a problem of conversion: people and machines are required to change the form and value of goods. Manufacturing actually adds utility to material. As an example, several pounds of steel might have value only as a paperweight. Yet by undergoing several manufacturing processes, that same steel could be converted into razor blades, which would have considerably more utility and value.

### Objectives

The problems of production management are vast and cannot be solved on a day-to-day basis. The objectives are:

To provide the right amount and type of production workers.

To provide the right amount of materials and machines, at the right time.

To produce, on schedule, in the most economical manner, the products called for by the sales department. (For this, production must have a schedule of planned sales for a number of future months, then plan how much material will be required to produce the finished products.)

Since most companies carry some inventory, they must relate what they require to what they have on hand. If it is not sufficient, they must order additional material from their suppliers. This may take considerable time, since the supplier may, in turn, have to produce the components for delivery.

When the company has completed planning the materials that are needed, they must plan the time it will take to manufacture the products. They must consider:

The time to manufacture.

The quantity of machine tools required.

The amount and type of labor needed.

The existing jobs in the plant.

In addition, production management must plan some system of record keeping for the progress of each job as it moves through the plant.

### Management Functions

It should be apparent by now that manufacturing control is an area which must be extensively planned. Communications, delivery of material and availability of facilities preclude last-minute preparation and offer no choice but to plan ahead and to execute the plan. To do this the following basic management operations functions must be performed:

Forecasting, which initiates the cycle and produces the master plan on which all activity is based.

Materials Planning, which develops the master plan for materials.

Inventory Management, which completes the material plan and partially executes it.

Scheduling, which develops the master plan for machines and manpower and starts it into action.

Dispatching, which completes the execution of the plan.

Operations Evaluation, which is the planning function that replans the five preceding functions on the basis of an evaluation of execution.

### Basic Types of Manufacturing Industries

To accomplish these functions the Management Operating System using IBM data processing systems has been devised. This system, with varying emphasis given to each function, is applicable to the six basic types of manufacturing industries listed below:

1. The Basic Producer uses natural resources to produce materials for other manufacturers. A typical example is the steel company that processes iron ore and produces steel ingots. Others are those making wood pulp, glass and rubber.
2. The Converter changes the products of the basic producer into a variety of industrial and consumer products. An example is the firm which changes the steel ingots into bar stock, tubing or plate. Other converter products include paper, soap and dyes.
3. The Fabricator takes the product of the converter and transforms it into a larger variety of products. Steel rods become nuts, bolts and twist drills. Paper is made into bags or boxes.
4. The Standard Assembler transforms the products of fabricators into finished products, such as TV sets, automobile engines or kitchen appliances.
5. The Standard Assembler with Options assembles devices according to customer specifications. Examples include automobiles, airplanes and data processing equipment.
6. The Customer Specified Assembler manufactures products to the exact specifications or requirements of the customer. The products would include missiles, industrial control instrumentation, air-conditioning systems and industrial boilers.

## GLOSSARY OF MANUFACTURING CONTROL TERMS

Assembly. Two or more subassemblies and/or parts joined according to plan, to form a unit.

Engineering change. A record of changes in material components or production methods relative to a part or an assembly.

Labor specifications planning. The function of developing the start date for a job and the load for the machine tools.

Low-level code. A code designating the lowest level in which a component appears in a material explosion.

Machine tool load planning. The functions of planning the load in a plant, with consideration of the available machine tool capacities.

Manufacturing order. A list of the operational steps required in building a product. As an example, it might stipulate cut, stamp, broach, mill, and polish. This document is also called a master operation sheet, fabrication specification, process sheet, master labor specification and master routing.

Master bill of materials. A list of the components required to make one product or assembly.

Material or production explosion. The order quantity times the number of component parts to manufacture one product or assembly.

Parts list. A list of all the parts required to make one product or assembly.

Piece or component part. Raw material to which is added labor and burden to make one part.

Progress reporting. The routine of keeping a record of the status of a particular job in the plant.

Quick deck. A parts list in the form of IBM cards.

Raw material. Material in a raw state — for example, iron ore, wool, etc. In many cases material utilized by one company to fabricate into other products is termed raw material. This material could well be the finished product of another company. An example could be bar stock steel, which would be the end product of a steel mill, yet be raw material to a tool manufacturer.

Requirements planning. The process by which a manufacturer determines the necessary quantities of product components (parts or assemblies) so that they will be available in time for assembly of the desired number of finished products.

Requirements, gross. The total amount of material (i. e., raw materials, parts, subassemblies, etc.) required to manufacture a stated quantity of finished goods.

Requirements, net. Equal to gross requirements minus amount on hand (i. e., in process of being manufactured, on order or in inventory). The net requirement represents the additional amount of materials which must be obtained (manufactured, purchased, etc.) to manufacture a stated quantity of finished goods.

Sales forecast. An estimate of future sales based on historical, current and scientific data.

Subassembly. Two or more parts, joined according to plan, to form a portion of a subsequent assembly.

Where used file. A file in part-number sequence, showing on what products the parts are used.



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