

AC 202 Management Accounting

Job-Order Costing

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Learning Objectives

- Garrison et. al (2015): Chapter 8
- After studying this topic, you should be able to:
 - Distinguish between job-order costing and process costing and identify companies that would use each costing method.
 - Identify the documents used in a job-order costing system.
 - Compute predetermined overhead rates and explain why estimated overhead costs (rather than actual overhead costs) are used in the costing process.
 - Apply overhead cost to Work in Process using a predetermined overhead rate.
 - Understand the flow of costs in a job-order costing system.

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Types of Costing Systems Used to Determine Product Costs

■ Job-order costing system:

- Products are manufactured to order.
- Many different products are produced each period.
- The unique nature of each order requires tracing or allocating costs to *each job*, and maintaining cost records for each job.
- Therefore, the job represents the *cost object**



*Cost object → Anything for which a separate measurement of costs is desire



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Types of Costing Systems Used to Determine Product Costs

■ Process costing system

- A company produces many units of a single product. (For mass production of *identical or similar products* or services, i.e., cereal, beer, etc.)
- One unit of product is indistinguishable from other units of product.
- The identical nature of each unit of product enables assigning the same average cost per unit.



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Job-Order vs. Process Costing



Which of the following companies would be likely to use job-order costing rather than process costing?

Scott Paper Company for kleenex

Architects

Heinz for ketchup

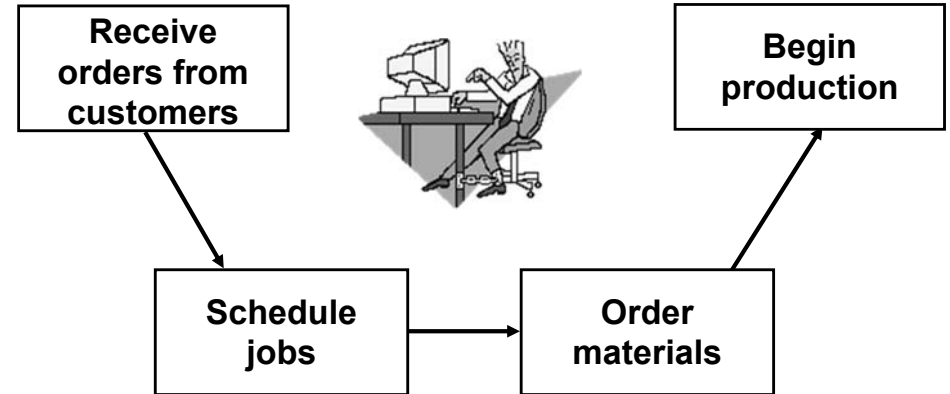
Caterer for a wedding reception

Boeing (aircraft manufacturing)

Walt Disney Studios (movie production)

Job Order Costing

- The entire accounting process begins when a sales order is received from a customer.
- Once the sales order is received, a production order is drafted to initiate work on a job.



Job Order Costing

Work-in-Process

Subsidiary ledger account is used to accumulate costs for each individual job

Job 1 WIP

Job 2 WIP

Job 3 WIP

WIP Control

Control account is used to summarize transactions from subsidiary accounts

Example: The Bridal Shop



Order # 1



Order # 2

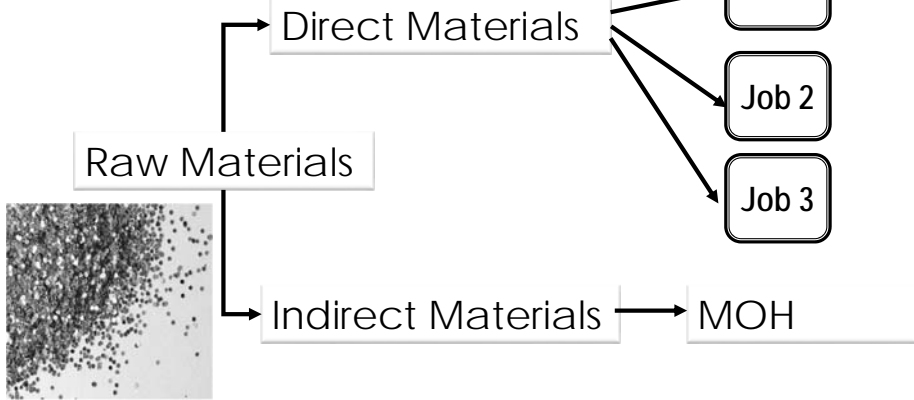


Order # 3

Job Order Costing: Materials



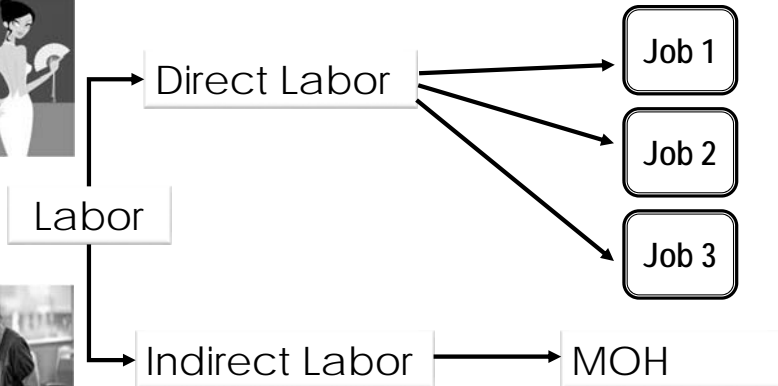
Work-In-Process



Job Order Costing: Labor



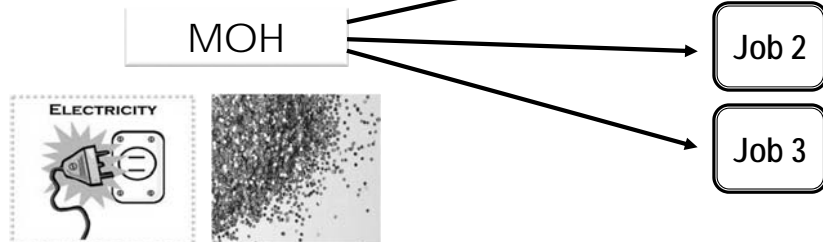
Work-In-Process



Job Order Costing: Manufacturing Overhead



Work-In-Process



Manufacturing overhead (MOH) costs are applied (allocated) to each job using either (1) actual or (2) predetermined MOH rates

The Job Cost Sheet



The *job cost sheet* is used by the accounting department to track the direct and indirect costs associated with a given job. A job number uniquely identifies each job.



Bridal Shop Job Cost Sheet							
Job Number <u>1</u>				Date Initiated <u>May 1, 20x1</u>			
Department: _____				Date Completed _____			
Item <u>Green wedding gown</u>				Units Completed _____			
Direct Materials		Direct Labor			Manufacturing Overhead		
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount
Cost Summary					Units Shipped		
Direct Materials					Date	Number	Balance
Direct Labor							
Manufacturing Overhead							
Total Cost							
Unit Cost							

Materials Requisition Form

Bridal Shop Materials Requisition Form

Requisition No. R-12 Date May 1, 20x1
 Job No. 1 Green Wedding Gown Cost of material is charged to
 Department: _____ job # 1.

Description	Quantity	Unit Cost	Total Cost
Green cloth	12 yards	\$ 3.00	\$ 36.00
Gold Thread	20 pieces	4.00	80.00
			\$ 116.00

Type, quantity, and total cost of material charged to job # 1.

Authorized Signature Will E. Delite

The Production Department prepares a materials requisition form to specify the type, quantity, and total cost of materials.

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The Job Cost Sheet



Bridal Shop Job Cost Sheet

Job Number 1 Date Initiated May 1, 20x1
 Date Completed _____
 Units Completed _____

Department: _____
 Item Green wedding gown

Direct Materials		Dir
Req. No.	Amount	Ticket
R-12	\$ 116	

Since they are direct costs, the costs of materials are charged to the job cost sheet for job number # 1

Cost Summary		Units Shipped		
		Date	Number	Balance
Direct Materials	\$ 116			
Direct Labor				
Manufacturing Overhead				
Total Cost				
Unit Cost				

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Employee Time Ticket

Bridal Shop Employee Time Ticket

Time Ticket No. 36 Date May 20x1
 Employee Mary Bells

Date	Starting Time	Ending Time	Hours Completed	Hourly Rate	Amount	Job No.
5/1	0800	1600	8.00	\$ 11.00	\$ 88.00	1
5/2	0800	1200	4.00	\$ 11.00	\$ 44.00	2
5/2	1300	1600	3.00	\$ 11.00	\$ 33.00	3
Totals					\$ 165.00	

Supervisor C. M. Workman



Workers use time tickets to record the amount of time that they spent on each job.

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The Job Cost Sheet



Bridal Shop Job Cost Sheet

Job Number 1 Date Initiated May 1, 20x1
 Date Completed _____
 Units Completed _____

Department: _____
 Item Green wedding gown

Direct Materials		Direct Labor			Manufa
Req. No.	Amount	Ticket	Hours	Amount	Hours
R-12	\$ 116	36	8	\$ 88	

The Accounting Department records the labor costs from each time ticket onto the job cost sheet

Cost Summary		Ur		
		Date	Number	Balance
Direct Materials	\$ 116			
Direct Labor	\$ 88			
Manufacturing Overhead				
Total Cost				
Unit Cost				

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Why use an Allocation Base for MOH?

- We use an allocation base because:
 - Manufacturing overhead consists of many different items ranging from the grease used in machines to production manager's salary.
 - It is *difficult* to trace overhead costs to particular jobs.

Manufacturing overhead is **applied (or allocated)** to all jobs that are in process. We apply overhead using a base we believe causes overhead costs to be incurred (*cost driver*). Some companies allocate manufacturing overhead using direct labor hours or machine hours.

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Actual Costing vs. Normal Costing

	DM	DL	MOH
Actual Costing	Actual DM rates x Actual DM Used	Actual DL rates x Actual hours Used	<i>Actual MOH rates</i> x Actual quantities of cost allocation bases
Normal Costing	Actual DM rates x Actual DM Used	Actual DL rates x Actual hours Used	<i>Budgeted MOH rates</i> x Actual quantities of cost allocation bases

Both methods assign Direct costs to a cost object the *same way*: by using actual direct-cost rates times actual consumption

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Actual Costing vs. Normal Costing

- Actual costs are sometimes not available until a job is complete. Thus, Using a predetermined rate makes it possible to estimate total job costs sooner.



Electricity Generating Authority of Thailand

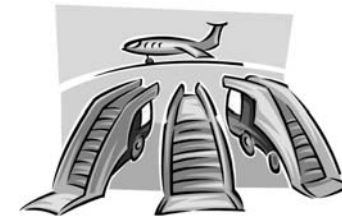


☺ *We assume a normal costing system* ☺

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Determining Predetermined Overhead Rates

Predetermined overhead rates (POHR) are calculated using a three-step process.



1
Estimate the level of production for the period.

2
Estimate total amount of the allocation base for the period.

3
Estimate total manufacturing overhead costs.

$$\text{POHR} = \mathbf{3} \div \mathbf{2}$$

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MOH Application Rate



- The bridal shop applies overhead based on direct labor hours. Total estimated overhead for the year is \$640,000. Total estimated labor cost is \$1,400,000 and total estimated labor hours are 160,000. What is predetermined overhead rate (POHR) per hour?

$$\text{POHR} = \frac{\text{Estimated total MOH}}{\text{Estimated total units in the allocation base}}$$

$$\text{POHR} = \frac{\$640,000}{160,000 \text{ direct labor hours (DLH)}} = \$4.00 \text{ per DLH}$$

For each direct labor hour worked on a job, \$4.00 of MOH will be applied to the job. 21

Application of Manufacturing Overhead



Based on estimates, and determined before the period begins.

$$\text{MOH applied} = \text{POHR} \times \text{Actual activity}$$

Actual amount of allocation is based upon the actual level of activity.



The Job Cost Sheet

Bridal Shop Job Cost Sheet

Job Number 1 Date Initiated May 1, 20x1
 Date Completed May 12, 2001
 Department _____ Units Completed 1
 Item Green wedding gown

Direct Materials		Direct Labor		Manufacturing Overhead			
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount
R-12	\$ 116	36	8	\$ 88	8	\$ 4	\$ 32

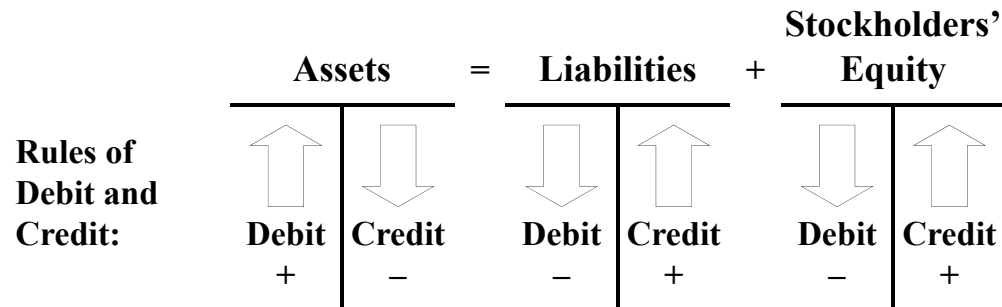
Cost Summary		Units Shipped		
	Amount	Date	Number	Balance
Direct Materials	\$ 116			
Direct Labor	\$ 88			
Manufacturing Overhead	\$ 32			
Total Cost	\$ 236			
Unit Product Cost	\$ 236			

Quick Check ✓

Job # 2 at NW, Inc. required \$200 of direct materials and 10 direct labor hours at \$15 per hour. NW, Inc. applies overhead based on direct labor hours. Estimated total overhead for the year was \$760,000 and estimated direct labor hours were 20,000. What would be recorded as the cost of job # 2?

- a. \$200
- b. \$350
- c. \$380
- d. \$730

Job-Order Costing: The Flow of Costs



$$\text{Assets} = \text{Liabilities} + \text{Stockholders' Equity}$$

Debit balances = Credit balances

Double Entry Accounting

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Job-Order Costing - The Flow of Costs

- ABC Corporation has two jobs in process during January, the first month of its fiscal year.
 - Job A was started during December to produce 1,000 units of product. By the end of December, \$30,000 in manufacturing costs had been recorded for the job.
 - Job B was started in January to produce 10,000 units of product.

Job Cost Sheet <i>Job A</i>
Balance.....\$30,000

Job Cost Sheet <i>Job B</i>
Balance..... \$0

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Cost Flows - Material Purchases

- On January 1, ABC Corporation had \$7,000 in raw materials on hand. During the month, ABC purchased on account an additional \$60,000 in raw materials.

Raw Materials		Accounts Payable	
Beg. 7,000		(1) 60,000	
(1) 60,000			

$$\text{Assets} = \text{Liabilities} + \text{Stockholders' Equity}$$

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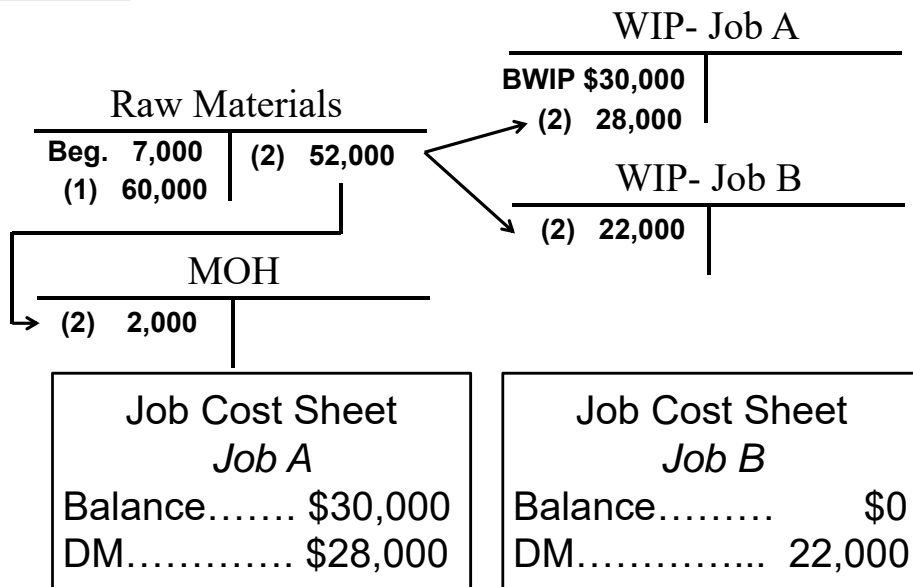
Cost Flows - Material Usage

- During January, \$52,000 in raw materials were requisitioned from the storeroom for use in production.
 - \$28,000 and \$22,000 in raw materials were used in Job A and Job B, respectively. \$2,000 of materials were used as indirect.

Direct costs = Indirect costs =

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Cost Flows – Material Usage



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The Recording of Labor Costs

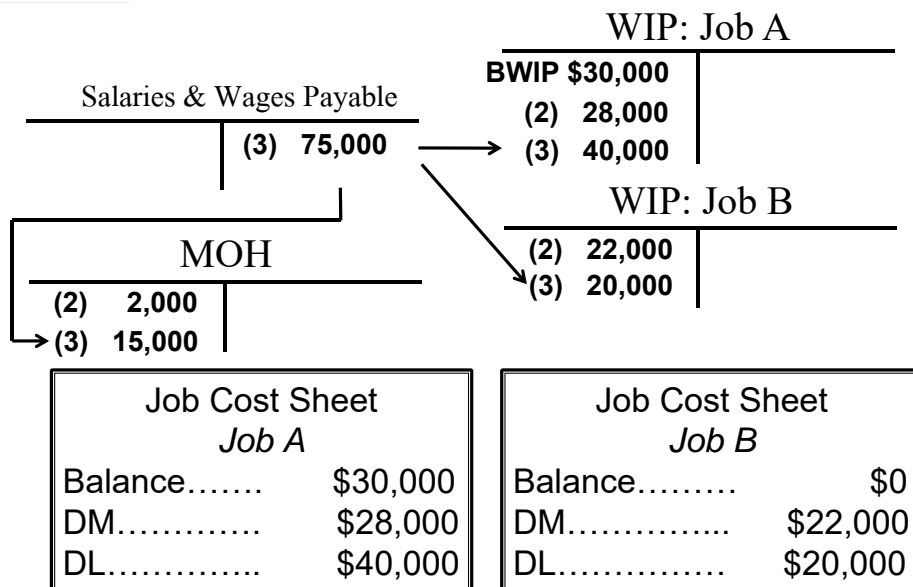
- ③ In January, \$60,000 was recorded for direct labor and \$15,000 for indirect labor.
 - \$40,000 of DL cost was charged to Job A and the remaining \$20,000 was charged to Job B.

Direct costs =

Indirect costs =

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The Recording of Labor Costs



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Recording Actual MOH

- In addition to indirect materials and indirect labor, other manufacturing overhead costs are charged to the Manufacturing Overhead account as they are incurred.
- ④ ABC incurred the following factory costs during January:

Utilities (heat, water and power)	\$21,000
Rent on factory equipment	16,000
Property taxes	13,000
Prepaid insurance expired	7,000
Depreciation on factory equipment	18,000
Miscellaneous factory overhead costs	<u>3,000</u>
Total	<u>\$78,000</u>

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Recording Actual MOH

MOH	
(2)	2,000
(3)	15,000
(4)	78,000

Actual MOH costs are charged to the Manufacturing Overhead account rather than to WIP.

MOH costs are assigned to WIP using the *predetermined MOH rate*, which is established at the beginning of each year (normal costing).

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Applying Manufacturing Overhead

- 5 Assume that ABC's predetermined MOH rate is *\$6 per machine hour*. During January, 10,000 MHs were worked on Job A and 5,000 MHs were worked on Job B.

Manufacturing Overhead Applied:

Job A = \$6 × 10,000 MH	= \$60,000	} \$90,000
Job B = \$6 × 5,000 MH	= \$30,000	

Job Cost Sheet: Job A

Balance.....	\$30,000
DM.....	\$28,000
DL.....	\$40,000
MOH Applied (\$6 × 10,000)	<u>\$60,000</u>
Total.....	<u>\$158,000</u>

Job Cost Sheet: Job B

Balance.....	\$0
DM.....	\$22,000
DL.....	\$20,000
MOH Applied (\$6 × 5,000)	<u>\$30,000</u>
Total.....	<u>\$72,000</u>

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Applying Manufacturing Overhead

WIP: Job A		MOH	
BWIP \$30,000		(2) 2,000	(5) 90,000
(2) 28,000		(3) 15,000	
(3) 40,000		(4) 78,000	
(5) 60,000			



WIP: Job B	
(2) 22,000	
(3) 20,000	
(5) 30,000	

The *actual* amount of overhead incurred during the period on the *debit side* of the account may not equal the amount *applied* to work in process on the *credit side* of the account.

This requires a year-end adjustment.

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Accounting for Nonmanufacturing Cost

- Nonmanufacturing costs (period expenses) are charged to expense as they are incurred.
- 6 ABC Co. incurred the following nonmanufacturing costs during January:
 - \$30,000 in selling and administrative salary
 - \$7,000 in depreciation on office equipment
 - \$42,000 in advertising expense
 - \$8,000 in other selling and administrative expense

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Accounting for Nonmanufacturing Cost

Salary		Depreciation Expense	
(6)	30,000	(6)	7,000
Advertising Expense		Other Expenses	
(6)	42,000	(6)	8,000

These expenses are reported in the Income Statement.

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Transferring Completed Units

- As jobs are completed, the *Cost of Goods Manufactured* is transferred to *Finished Goods* from Work in Process.
- Assume that **Job A** was completed during January

WIP: Job A		FG	
BWIP \$30,000	(7) 158,000	→	(7) 158,000
(2) 28,000			
(3) 40,000			
(5) 60,000			
WIP: Job B			
(2) 22,000			
(3) 20,000			
(5) 30,000			

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Transferring Completed Units

- Total costs of Job A = \$158,000
Unit cost of Job A = $\$158,000 \div 1,000 \text{ units}$
= \$158
- Job B** was not completed, so its cost will remain in the *Work in Process account* and carry over to the next month.
- If a Statement of Financial Position is prepared at the end of January, costs of Job B will appear as the asset "*Work in Process Inventory*"

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Transferring units sold

- When finished goods are sold, two entries are required: (1) to record the sale, and (2) to record the Cost of Goods Sold. (Assume that the company uses a *perpetual inventory system*.)
- Assume that 750 of the 1,000 units of product in Job A were shipped to customers by the end of the month for \$300 per unit. (All sales were on account.)

Revenues	= 750 units x \$300	= \$225,000
Cost of goods sold	= 750 units x \$158	= \$118,500

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Transferring units Sold

Accounts Receivable		Sales	
(8) 225,000		(8) 225,000	
FG		COGS	
(7) 158,000	(8) 118,500	(8) 118,500	
EFG 39,500			

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End-Of-Period Adjustments

- The difference between the overhead cost applied to Work in Process and the actual overhead costs of a period is referred to as either *underapplied* or *overapplied* overhead.
- Applied MOH < Actual MOH → *underapplied* MOH
- Applied MOH > Actual MOH → *overapplied* MOH

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Underapplied/Overapplied overhead

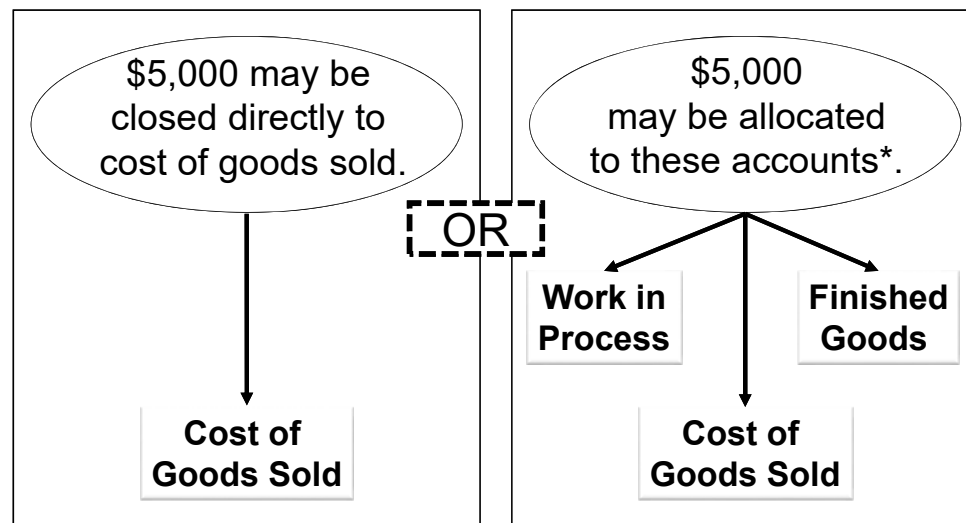
- ABC's actual MOH for the period = \$95,000
- ABC's applied MOH ($\$6 \times 15,000$ MH) = \$90,000
- Underapplied MOH = \$ 5,000

This requires adjustment at the end of the period!

MOH							
95,000	<table border="1"> <tr> <td>(2) 2,000</td> <td>(5) 90,000</td> </tr> <tr> <td>(3) 15,000</td> <td></td> </tr> <tr> <td>(4) 78,000</td> <td></td> </tr> </table>	(2) 2,000	(5) 90,000	(3) 15,000		(4) 78,000	
(2) 2,000	(5) 90,000						
(3) 15,000							
(4) 78,000							

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Underapplied/Overapplied overhead



*Based on the proportion of ending balances

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Closed Out to Cost of Goods Sold

MOH		COGS	
(2) 2,000	(5) 90,000	(8) 118,500	
(3) 15,000	(9) 5,000	(9) 5,000	
(4) 78,000			
0		123,500	

Underapplied MOH → COGS will increase

Overapplied MOH → COGS will decrease

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Allocated between Accounts

- The allocation is in proportion of the ending balances of WIP, COGS, FG.
- The ending balances of WIP, COGS, and FG at the end of January and the allocation amounts are as follows:

Accounts:	End. Bal.	Prop.	Allocation
WIP inventory, Jan 31 (Job B)	\$ 72,000	31.3%	\$1,565
FG inventory, Jan 31 (Job A)	\$39,500	17.2%	859
COGS, Jan 31 (Job A)	<u>118,500</u>	<u>51.5%</u>	<u>2,576</u>
Total costs	<u>\$230,000</u>	<u>100.0%</u>	<u>\$5,000</u>

Underapplied MOH → WIP, FG, COGS will increase

Overapplied MOH → WIP, FG, COGS will decrease

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Allocated between Accounts

MOH		COGS	
(2) 2,000	(5) 90,000	(8) 118,500	
(3) 15,000	(9) 5,000	(9) 2,576	
(4) 78,000			
0		121,076	

FG		WIP	
(7) 158,000	(8) 118,500	BWIP \$30,000	(7) 158,000
(9) 859		(2) 50,000	
		(3) 60,000	
		(5) 90,000	
EFG 40,359		(9) 1,565	
		EWIP \$73,565	

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