Chapter 3 – Job-Order Costing: Cost Flows and External Reporting

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Exercise 3-1

Rhodes Company recorded the following transactions for the month of May.

a. $140,000 in raw materials were purchased on account.
b. $128,000 in raw materials were used in production. Of this amount, $104,000 was for direct materials and the remainder was for indirect materials.
c. Total labor wages of $176,000 were paid in cash. Of this amount, $162,000 was for direct labor and the remainder was for indirect labor.
d. Depreciation of $218,000 was incurred on factory equipment.

***Required**:*
Record the above transactions in journal entries.

[LO1]

Requirement: Record the transactions in journal entries.

General Journal

	Debit	Credit
(a) Raw Materials	140,000	
Accounts Payable		140,000
(to record purchase of raw materials on account)		
(b) Work in Process	104,000	
Manufacturing Overhead	24,000	
Raw Materials		128,000
(to record use of materials in production)		
(c) Work in Process	162,000	
Manufacturing Overhead	14,000	
Cash		176,000
(to record the payment of wages for the month)		
(d) Manufacturing Overhead	218,000	
Accumulated Depreciation		218,000
(to record actual overhead incurred)		

Exercise 3-2

Mishawaka Products is a manufacturing company that had no beginning inventories. A subset of the transactions that it recorded during a recent month is shown below.

a. $81,000 in raw materials were purchased for cash.
b. $78,000 in raw materials were used in production. Of this amount, $70,000 was for direct materials and the remainder was for indirect materials.
c. Total labor wages of $209,000 were incurred and paid. Of this amount, $185,000 was for direct labor and the remainder was for indirect labor.
d. Additional manufacturing overhead costs of $211,000 were incurred and paid.
e. Manufacturing overhead of $255,000 was applied to production using the company's predetermined overhead rate.
f. All of the jobs in process at the end of the month were completed.
g. All of the completed jobs were shipped to customers.
h. Any underapplied or overapplied overhead for the period was closed to Cost of Goods Sold.

***Required**:*

1. Post the above transactions to T-accounts.
2. Determine the adjusted cost of goods sold for the period.

[LO2, LO4]

Requirement 2: Determine the adjusted cost of goods sold for the period.

Cash		Raw Materials		Work in Process	
	(a) 81,000	(a) 81,000	(b) 78,000	(b) 70,000	
	(c) 209,000			(c) 185,000	
	(d) 211,000			(e) 255,000	(f) 510,000
		Bal. 3,000		Bal. 0	

Finished Goods		Manufacturing Overhead		Cost of Goods Sold	
(f) 510,000	(g) 510,000	(b) 8,000	(e) 255,000	(g) 510,000	(h) 12,000
		(c) 24,000			
Bal. 0		(d) 211,000		Bal. 498,000	
		(h) 12,000			

Cost of Goods Sold for the period is $498,000.

Exercise 3-3

Morse Corporation has provided the following data concerning last month's manufacturing operations.

Purchase of raw materials	$74,000	
Indirect materials used in production	$12,000	
Direct labor	$65,000	
Manufacturing overhead applied to work in process	$48,000	
Underapplied overhead	$9,000	
Inventories:	Beginning	Ending
Raw materials	$18,000	$10,000
Work in process	$59,000	$52,000
Finished goods	$94,000	$91,000

***Required**:*

1. Prepare a schedule of cost of goods manufactured for the month.
2. Prepare a schedule of cost of goods sold for the month. Assume the underapplied or overapplied overhead is closed to Cost of Goods Sold.

[LO3]

Requirement 1: Prepare a schedule of cost of goods manufactured for the month.

Schedule of Cost of Goods Manufactured			
Beginning work in process inventory			$ 59,000
Direct materials:			
Beginning raw materials inventory	$ 18,000		
Add: Purchases of raw materials	74,000		
Total raw materials available	92,000		
Deduct: Ending raw materials inventory	10,000		
Raw materials used in production	82,000		
Deduct: Indirect materials used in production	12,000		
Direct materials used in production		70,000	
Direct labor		65,000	
Manufacturing overhead applied to work in process		`48,000	
Total manufacturing costs added to production			183,000
Total manufacturing costs to account for			242,000
Deduct: Ending work in process inventory			52,000
Cost of goods manufactured			$190,000

Requirement 2: Prepare a schedule of cost of goods sold for the month.

Schedule of Cost of Goods Sold	
Beginning finished goods inventory	$ 94,000
Add: Cost of goods manufactured	190,000
Cost of goods available for sale	284,000
Deduct: Ending finished goods inventory	91,000
Unadjusted cost of goods sold	193,000
Add: Underapplied overhead	9,000
Adjusted cost of goods sold	$202,000

Exercise 3-4

Franklin Enterprises uses a predetermined overhead rate of $15.50 per direct labor-hour. This predetermined rate was based on a cost formula that estimates $421,600 of total manufacturing overhead for an estimated activity level of 27,200 direct labor-hours.

The company incurred actual total manufacturing overhead costs of $420,000 and 27,000 total direct labor-hours during the period.

***Required**:*

1. Determine the amount of underapplied or overapplied manufacturing overhead for the period.

2. Assume that the company's underapplied or overapplied overhead is closed to Cost of Goods Sold. Would the journal entry to dispose of the underapplied or overapplied overhead increase or decrease the company's gross margin? By how much?

[LO4]

Requirement 1: Determine the amount of underapplied or overapplied manufacturing overhead for the period.

Actual direct labor-hours	27,000
✖ Predetermined overhead rate	$ 15.50
= Manufacturing overhead applied	418,500
Less: Manufacturing overhead incurred	420,000
Manufacturing overhead underapplied	$ 1,500

Requirement 2: Assume that the company's underapplied or overapplied overhead is closed to Cost of Goods Sold. Would the journal entry to dispose of the underapplied or overapplied overhead increase or decrease the company's gross margin? By how much?

Because manufacturing overhead is underapplied, the journal entry would increase cost of goods sold by $1,500 and the gross margin would decrease by $1,500.

Exercise 3-5

The Searider Company uses a job-order costing system. The following transactions occurred in April:

a. Raw materials purchased on account, $180,000.
b. Raw materials used in production, $148,000 ($130,000 direct materials and $18,000 indirect materials).
c. Accrued direct labor cost of $75,000 and indirect labor cost of $105,000.
d. Depreciation recorded on factory equipment, $40,000.
e. Other manufacturing overhead costs accrued during April, $118,000.
f. The company applies manufacturing overhead cost to production using a predetermined rate of $6 per machine-hour. A total of 46,000 machine-hours were used in April.
g. Jobs costing $495,000 according to their job cost sheets were completed during April and transferred to Finished Goods.
h. Jobs that had cost $450,000 to complete according to their job cost sheets were shipped to customers during the month. These jobs were sold on account at 30% above cost.

Required:

1. Prepare journal entries to record the transactions given above.
2. Prepare T-accounts for Manufacturing Overhead and Work in Process. Post the relevant transactions from above to each account. Compute the ending balance in each account, assuming that Work in Process has a beginning balance of $39,000.

[LO1], [LO2]

Requirement 1: Prepare journal entries to record the transactions.

General Journal

	Debit	Credit
(a) Raw Materials	180,000	
Accounts Payable		180,000
(to record purchase of raw materials on credit)		
(b) Work in Process	130,000	
Manufacturing Overhead	18,000	
Raw Materials		148,000
(to record use of materials in production)		
(c) Work in Process	75,000	
Manufacturing Overhead	105,000	
Salaries and Wages Payable		180,000
(to record wages for the month)		
(d) Manufacturing Overhead	40,000	
Accumulated Depreciation		40,000
(to record actual overhead incurred)		

Requirement 1: Prepare journal entries to record the transactions.

General Journal

	Debit	Credit
(e) Manufacturing Overhead	118,000	
Accounts Payable		118,000
(to record overhead costs accrued)		
(f) Work in Process	276,000	
Manufacturing Overhead		276,000
(to record application of overhead)		
(g) Finished Goods	495,000	
Work in Process		495,000
(to record jobs completed)		
(h) Accounts Receivable	585,000	
Sales		585,000
Cost of Goods Sold	450,000	
Finished Goods		450,000
(to record sale of goods)		

Requirement 2: Prepare T-accounts for MOH & WIP.

f. The company applies manufacturing overhead cost to production using a predetermined overhead rate of $6 per machine-hour. A total of 46,000 machine-hours were used in April.

Manufacturing Overhead

(b)	18,000	(f)	276,000
(c)	105,000		
(d)	40,000		
(e)	118,000		
Bal.	5,000		

Work in Process

Bal.	39,000	(g)	495,000
(b)	130,000		
(c)	75,000		
(f)	276,000		
Bal.	25,000		

Manufacturing overhead has a debit balance of $5,000 , and Work in Process has a debit balance of $25,000

Exercise 3-6

The following data from the just completed year are taken from the accounting records of Kenton Company:

Sales		$975,000
Direct labor cost		$165,000
Raw material purchases		$229,000
Selling expenses		$48,750
Administrative expenses		$146,250
Manufacturing overhead applied to work in process		$180,000
Actual manufacturing overhead costs		$175,050
Inventories:	Beginning	Ending
Raw materials	$18,000	$17,500
Work in process	$20,000	$14,750
Finished goods	$9,000	$11,000

Required:

1. Prepare a schedule of cost of goods manufactured. Assume all raw materials used in production were direct materials.
2. Prepare a schedule of cost of goods sold. Assume that the company's underapplied or overapplied overhead is closed to Cost of Goods Sold.
3. Prepare an income statement.

[LO3]

Requirement 1: Prepare a schedule of cost of goods manufactured. Assume all raw materials used in production were direct materials.

Beginning work in process inventory			$ 20,000
Direct materials:			
Beginning raw materials inventory	$ 18,000		
Add: Purchases of raw materials	229,000		
Total raw materials available	247,000		
Deduct: Ending raw materials inventory	17,500		
Direct materials used in production		229,500	
Direct labor		165,000	
Manufacturing overhead applied to work in process		180,000	
Total manufacturing costs added to production			574,500
Total manufacturing costs to account for			594,500
Deduct: Ending work in process inventory			14,750
Cost of goods manufactured			$579,750

Requirement 2: Prepare a schedule of cost of goods sold. Assume that the company's underapplied or overapplied overhead is closed to Cost of Goods Sold.

Beginning finished goods inventory	$ 9,000
Add: Cost of goods manufactured	579,750
Cost of goods available for sale	588,750
Deduct: Ending finished goods inventory	11,000
Unadjusted cost of goods sold	577,750
Deduct: Overapplied overhead	4,950
Adjusted cost of goods sold	$572,800

Requirement 3: Prepare an income statement.

Kenton Company		
Income Statement		
Sales		$ 975,000
Cost of goods sold		572,800
Gross margin		402,200
Selling and administrative expenses:		
Selling expenses	$ 48,750	
Administrative expense	146,250	195,000
Net operating income		$ 207,200

Exercise 3-7

The following cost data relate to the manufacturing activities of Chang Company during the just completed year:

Manufacturing overhead costs incurred:		Other costs incurred:	
Indirect materials	$ 19,000	Purchases of raw materials (both direct and indirect)	$ 350,000
Indirect labor	145,000	Direct labor cost	$ 51,000
Property taxes, factory	7,500	Inventories:	
Utilities, factory	62,000	Raw materials, beginning	$ 8,000
Depreciation, factory	218,000	Raw materials, ending	$ 17,000
Insurance, factory	9,500	Work in process, beginning	$ 22,000
Total actual manufacturing overhead costs incurred	$ 461,000	Work in process, ending	$ 37,000

The company uses a predetermined overhead rate of $48 per machine-hour to apply overhead cost to jobs. A total of 9,700 machine-hours were used during the year.

Required:

1. Compute the amount of underapplied or overapplied overhead cost for the year.
2. Prepare a schedule of cost of goods manufactured for the year.

[LO3], [LO4]

Requirement 1: Compute the amount of underapplied or overapplied overhead cost for the year.

Actual machine-hours	9,700
× Predetermined overhead rate	$ 48
= Manufacturing overhead applied	465,600
Less: Manufacturing overhead incurred	461,000
Manufacturing overhead overapplied	$ (4,600)

Requirement 2: Prepare a schedule of cost of goods manufactured for the year.

Beginning work in process inventory			$ 22,000
Direct materials:			
Beginning raw materials inventory	$ 8,000		
Add: Purchases of raw materials	350,000		
Total raw materials available	358,000		
Deduct: Ending raw materials inventory	17,000		
Raw materials used in production	341,000		
Deduct: Indirect materials used in production	19,000		
Direct materials used in production		322,000	
Direct labor		51,000	
Manufacturing overhead applied to work in process		465,600	
Total manufacturing costs added to production			838,600
Total manufacturing costs to account for			860,600
Deduct: Ending work in process inventory			37,000
Cost of goods manufactured			$823,600

Exercise 3-8

The following information is taken from the accounts of Road Company. The entries in the T-accounts are summaries of the transactions that affected those accounts during the year.

Manufacturing Overhead			
(a)	630,000	(b)	611,000
Bal.	19,000		

Work in Process			
Bal.	32,000	(c)	1,115,000
	540,000		
	161,000		
(b)	611,000		
Bal.	229,000		

Finished Goods			
Bal.	50,000	(d)	1,050,000
(c)	1,115,000		
Bal.	115,000		

Cost of Goods Sold			
(d)	1,050,000		

The overhead that had been applied to production during the year is distributed among Work in Process, Finished Goods, and Cost of Goods Sold as of the end of the year as follows:

Work in Process, ending	$	48,880
Finished Goods, ending		97,760
Cost of Goods Sold		464,360
Overhead applied	$	611,000

For example, of the $229,000 ending balance in Work in Process, $48,880 was overhead that had been applied during the year.

Required:

1. Identify reasons for entries (a) through (d).
2. Assume that the underapplied or overapplied overhead is closed to Cost of Goods Sold. Prepare the necessary journal entry.
3. Assume that the underapplied or overapplied overhead is closed proportionally to Work in Process, Finished Goods, and Cost of Goods Sold. Prepare the necessary journal entry.

[LO1], [LO2], [LO4]

Requirement 1: Identify reasons for entries (a) through (d).

Manufacturing Overhead			
(a)	630,000	(b)	611,000
Bal.	19,000		

Work in Process			
Bal.	32,000	(c)	1,115,000
	540,000		
	161,000		
(b)	611,000		
Bal.	229,000		

Finished Goods			
Bal.	50,000	(d)	1,050,000
(c)	1,115,000		
Bal.	115,000		

Cost of Goods Sold			
(d)	1,050,000		

Journal entry (a) represents actual manufacturing overhead costs incurred.

Journal entry (b) represents overhead cost applied to Work in Process

Journal entry (c) is cost of goods manufactured.

Journal entry (d) is cost of goods sold

Requirement 2: Assume that the underapplied or overapplied overhead is closed to Cost of Goods Sold. Prepare the necessary journal entry.

General Journal

	Debit	Credit
Cost of Goods Sold	19,000	
Manufacturing Overhead		19,000
(to record closing manufacturing overhead to Cost of Goods Sold)		

Requirement 3: Assume that the underapplied or overapplied overhead is closed proportionally to Work in Process, Finished Goods, and Cost of Goods Sold. Prepare the necessary journal entry.

Work in Process, ending	$ 48,880	8.0%
Finished Goods, ending	97,760	16.0%
Cost of Goods Sold	464,360	76.0%
Overhead applied	$611,000	100.0%

General Journal

	Debit	Credit
Work in Process	1,520	
Finished Goods	3,040	
Cost of Goods Sold	14,440	
Manufacturing Overhead		19,000
(to record closing manufacturing overhead to Cost of Goods Sold)		

Exercise 3-9

Bamboo Company uses a job-order costing system that applies overhead cost to jobs on the basis of machine-hours. The company's predetermined overhead rate of $2.18 per machine-hour was based on a cost formula that estimates $239,800 of total manufacturing overhead for an estimated activity level of 110,000 machine-hours.

Required:

1. Assume that during the year the company works only 107,000 machine-hours and incurs the following costs in the Manufacturing Overhead and Work in Process accounts:

Manufacturing Overhead					Work in Process			
Maintenance	43,000	?			Direct materials	710,000		
Indirect materials	8,500				Direct labor	90,000		
Indirect labor	77,000				Overhead	?		
Utilities	36,500							
Insurance	9,200							
Depreciation	61,000							

Copy the data in the T-accounts above onto your answer sheet. Compute the amount of overhead cost that would be applied to Work in Process for the year and make the entry in your T-accounts.

2. Compute the amount of underapplied or overapplied overhead for the year and show the balance in your Manufacturing Overhead T-account. Prepare a journal entry to close the company's underapplied or overapplied overhead to Cost of Goods Sold.

3. Explain why the manufacturing overhead was underapplied or overapplied for the year.

[LO1], [LO2], [LO4]

Requirement 1: Compute the amount of overhead cost that would be applied to Work in Process for the year and make the entry in your T-accounts.

Machine hours worked	107,000	
Predetermined overhead rate	$2.18	per MH
Overhead applied to work in process	$233,260	

Manufacturing Overhead			
Maintenance	43,000	233,260	
Indirect materials	8,500		
Indirect labor	77,000		
Utilities	36,500		
Insurance	9,200		
Depreciation	61,000		

Work in Process			
Direct materials	710,000		
Direct labor	90,000		
Overhead	233,260		

Requirement 2: Compute the amount of underapplied or overapplied overhead for the year and show the balance in your Manufacturing Overhead T-account. Prepare a journal entry to close the company's underapplied or overapplied overhead to Cost of Goods Sold.

Manufacturing Overhead			
Maintenance	43,000	233,260	
Indirect materials	8,500		
Indirect labor	77,000		
Utilities	36,500		
Insurance	9,200		
Depreciation	61,000		
	1,940		

General Journal

	Debit	Credit
Cost of Goods Sold	1,940	
Manufacturing Overhead		1,940
(to close underapplied overhead to Cost of Goods Sold)		

Requirement 3: Explain why the manufacturing overhead was underapplied or overapplied for the year.

Exercise 3-10

Kamryn Products manufactures various machined parts to customer specifications. The company uses a job-order costing system and applies overhead cost to jobs on the basis of machine-hours. At the beginning of the year, the company used a cost formula to estimate that it would incur $3,640,400 in manufacturing overhead cost at an activity level of 239,500 machine-hours.

$$\text{Predetermined Overhead Rate} = \frac{\$3,640,400}{239,500} = \$15.20/\text{MH}$$

The company spent the er 2,0 machined parts. The comp rch. Cost data relating to March follow:

a. Raw materials purchased on account, $45 = $280,200
b. Raw materials used in production, $400,0 = $84,000 materials t materials).
c. Labor cost accrued in the factory, $210,000 (40% direct labor and 60% indirect labor).
d. Depreciation recorded on factory equipment, $105,000.
e. Other manufacturing overhead costs incurred on account, $88,000.
f. Manufacturing overhead cost was applied to production on the basis of 28,000 machine-hours actually worked during the month.
g. The completed job for 22,000 custome-made machined parts was moved into the finished goods warehouse on March 31 to await delivery to the customer.

Required:

1. Prepare journal entries to record items (a) through (f) above [ignore item (g) for the moment].
2. Prepare T-accounts for Manufacturing Overhead and Work in Process. Post the relevant items from your journal entries to these T-accounts.
3. Prepare a journal entry for item (g) above.
4. If 15,000 of the custom-made machined parts are shipped to the customer in April, how much of this job's cost will be included in cost of goods sold for April?

[LO1], [LO2]

Requirement 1: Prepare journal entries to record items (a) through (f)

General Journal

	Debit	Credit
(a) Raw Materials	450,000	
Accounts Payable		450,000
(to record purchase of raw materials on credit)		
(b) Work in Process	280,200	
Manufacturing Overhead	119,800	
Raw Materials		400,000
(to record use of materials in production)		
(c) Work in Process	84,000	
Manufacturing Overhead	126,000	
Salaries and Wages Payable		210,000
(to record wages for the month)		
(d) Manufacturing Overhead	105,000	
Accumulated Depreciation		105,000
(to record overhead costs accrued)		

Requirement 1: Prepare journal entries to record items (a) through (f)

General Journal

	Debit	Credit
(e) Manufacturing Overhead	88,000	
Accounts Payable		88,000
(to record actual overhead incurred)		
(f) Work in Process	425,600	
Manufacturing Overhead		425,600
(to record application of overhead)		

Requirement 2: Prepare T-accounts for MOH & WIP.

b. Raw materials used in production, $280,200, and indirect materials, $119,800.
c. Accrued direct labor cost of $84,000 and indirect labor cost of $126,000.
d. Depreciation recorded, $105,000.
e. Other manufacturing costs incurred during April, $88,000.
f. The company applies manufacturing overhead cost to production using a predetermined overhead rate of $15.30 per machine-hour. A total of 28,000 machine-hours were used in April.

Manufacturing Overhead

(b)	119,800	(f)	425,600
(c)	126,000		
(d)	105,000		
(e)	88,000		

Work in Process

	0		
(b)	280,200		
(c)	84,000		
(f)	425,600		

Requirement 3: Prepare the journal entry for item (g)

General Journal

	Debit	Credit
(g) Finished Goods	789,800	
Work in Process		789,800
(to record completion of the job)		

Requirement 4: If 15,000 of the custom-made machined parts are shipped to the customer in April, how much of this job's cost will be included in cost of goods sold for April?

$$Unit\ Product\ Cost = \$789{,}800 \div 22{,}000 = \$35.90$$

$$Cost\ of\ goods\ sold\ in\ April = \$35.90 \times 15{,}000 \text{ units} = \$538{,}500$$