

CHAPTER 4 JOB COSTING

4-26 (20–30 min.) Job costing; actual, normal, and variation of normal costing.

1. Actual direct cost rate for professional labor	= \$58 per professional labor-hour	
Actual indirect cost rate	$\frac{\$744,000}{15,500 \text{ hours}}$	= \$48 per professional labor-hour
Budgeted direct cost rate for professional labor	$\frac{\$960,000}{16,000 \text{ hours}}$	= \$60 per professional labor-hour
Budgeted indirect cost rate	$\frac{\$720,000}{16,000 \text{ hours}}$	= \$45 per professional labor-hour

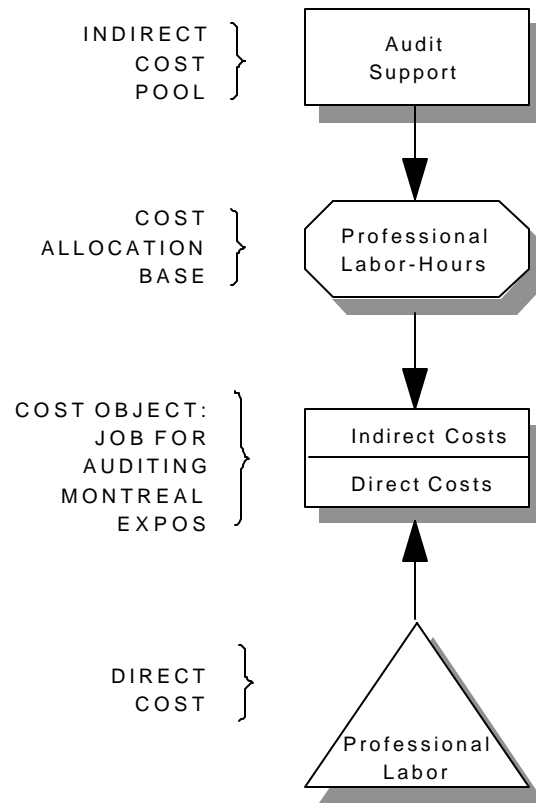
	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct-Cost Rate	\$58 (Actual rate)	\$58 (Actual rate)	\$60 (Budgeted rate)
Indirect-Cost Rate	\$48 (Actual rate)	\$45 (Budgeted rate)	\$45 (Budgeted rate)

	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct Costs	$\$58 \times 120 = \$ 6,960$	$\$58 \times 120 = \$ 6,960$	$\$60 \times 120 = \$ 7,200$
Indirect Costs	$48 \times 120 = \underline{5,760}$	$45 \times 120 = \underline{5,400}$	$45 \times 120 = \underline{5,400}$
Total Job Costs	<u>\$12,720</u>	<u>\$12,360</u>	<u>\$12,600</u>

All three costing systems use the actual professional labor time of 120 hours. The budgeted 110 hours for the Montreal Expos audit job is not used in job costing. However, Chirac may have used the 110 hour number in bidding for the audit.

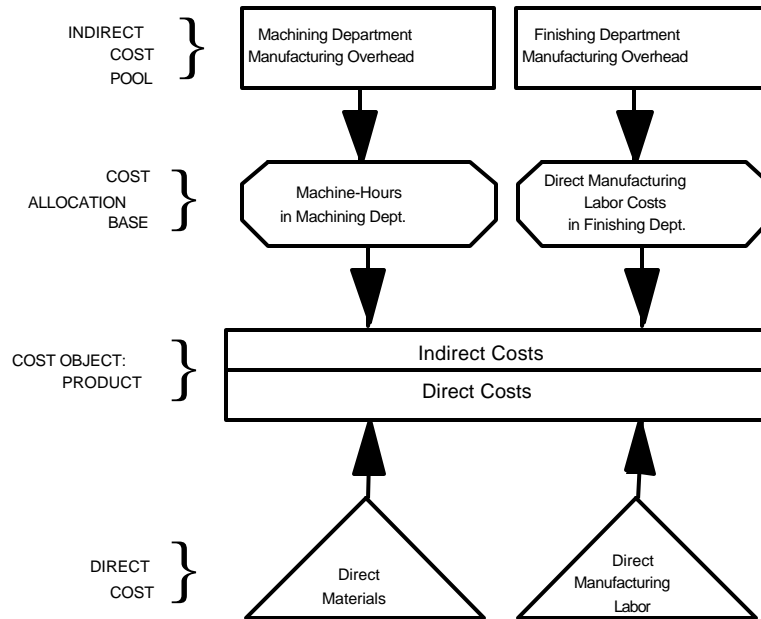
The actual costing figure of \$12,720 exceeds the normal costing figure of \$12,360, because the actual indirect-cost rate (\$48) exceeds the budgeted indirect-cost rate (\$45). The normal costing figure of \$12,360 is less than the variation of normal costing (based on budgeted rates for direct costs) figure of \$12,600, because the actual direct-cost rate (\$58) is less than the budgeted direct-cost rate (\$60).

Although not required, the following overview diagram summarizes Chirac's job-costing system.



4-28 (20–30 min) Job costing; accounting for manufacturing overhead, budgeted rates.

1. An overview of the job-costing system is:



2. Budgeted manufacturing overhead divided by allocation base:

a. Machining Department:

\$10,000,000

200,000

= \$50 per machine-hour

b. Finishing Department:

\$8,000,000

\$4,000,000

= 200% of direct manufacturing labor costs

3. Machining overhead, $\$50 \times 130$ hours	\$6,500	
Finishing overhead, 200% of \$1,250	<u>2,500</u>	
Total manufacturing overhead allocated	<u>\$9,000</u>	

4. Total costs of Job 431:

Direct costs:

Direct materials—Machining Department	\$14,000	
—Finishing Department	3,000	
Direct manufacturing labor —Machining Department	600	
—Finishing Department	<u>1,250</u>	\$18,850

Indirect costs:

Machining overhead, $\$50 \times 130$	\$6,500	
Finishing overhead, 200% of \$1,250	<u>2,500</u>	<u>9,000</u>
Total costs		<u>\$27,850</u>

The per-unit product cost of Job 431 is $\$27,850 \div 200$ units = \$139.25 per unit

5. The point of this part is (a) to get the definitions straight and (b) to underscore that overhead is allocated by multiplying the actual amount of the allocation base by the budgeted rate.

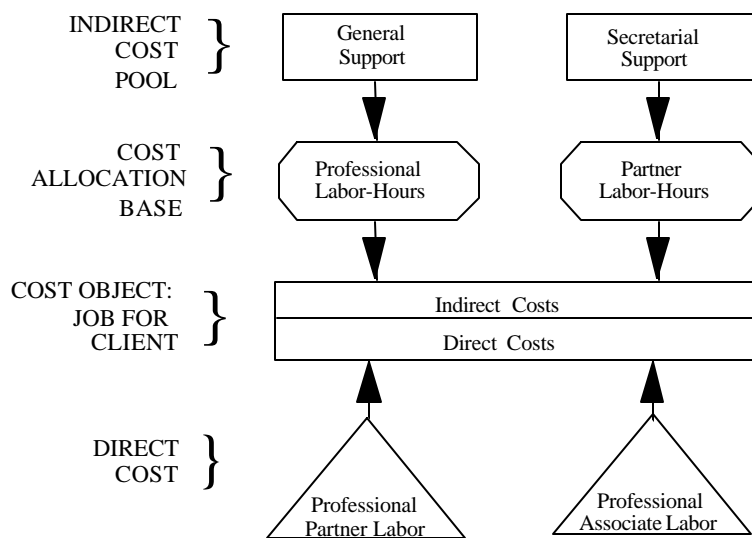
Machining	Finishing
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Manufacturing overhead incurred (actual)	\$11,200,000	\$7,900,000
Manufacturing overhead allocated		
220,000 hrs. × \$50	11,000,000	
200% of \$4,100,000		<u>8,200,000</u>
Underallocated manufacturing overhead	<u>\$ 200,000</u>	
Overallocated manufacturing overhead		<u>\$ 300,000</u>
Total overallocated overhead = \$300,000 – \$200,000 = \$100,000		

6. A homogeneous cost pool is one where all costs have the same or a similar cause-and-effect or benefits-received relationship with the cost-allocation base. Solomon likely assumes that all its manufacturing overhead cost items are not homogeneous. Specifically, those in the Machining Department have a cause-and-effect relationship with machine-hours, while those in the Finishing Department have a cause-and-effect relationship with direct manufacturing labor costs. Solomon believes that the benefits of using two cost pools (more accurate product costs and better ability to manage costs) exceeds the costs of implementing a more complex system.

4-30 (25-30 min.) **Service industry, job costing two direct- and two indirect-cost categories, law firm.** (Continuation of 4-29)

Although not required, the following overview diagram is helpful to understand Keating's job-costing system.



1.	Professional Partner Labor	Professional Associate Labor
Budgeted compensation per professional	\$200,000	\$80,000
Budgeted hours of billable time per professional	1,600	1,600
Budgeted direct-cost rate	\$125 per hour*	\$50 per hour [†]

*Can also be calculated as $\frac{\text{Total budgeted partner labor costs}}{\text{Total budgeted partner labor - hours}} = \frac{\$200,000 \times 5}{1,600 \times 5} = \frac{\$1,000,000}{8,000} = \$125$

†Can also be calculated as $\frac{\text{Total budgeted associate labor costs}}{\text{Total budgeted associate labor - hours}} = \frac{\$80,000 \times 20}{1,600 \times 20} = \frac{\$1,600,000}{32,000} = \$50$

2.	General Support	Secretarial Support
Budgeted total costs	\$1,800,000	\$400,000
Budgeted quantity of allocation base	40,000 hours	8,000 hours
Budgeted indirect cost rate	\$45 per hour	\$50 per hour

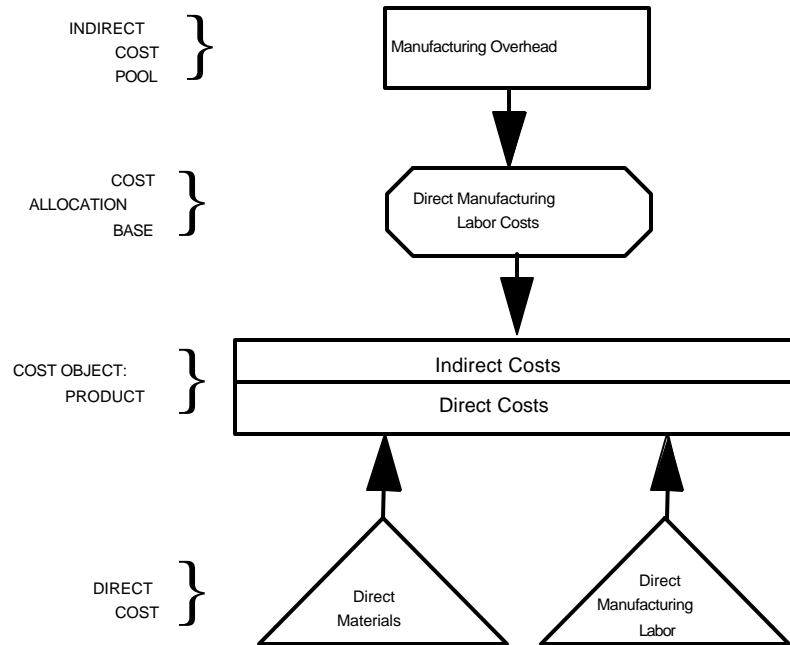
3.	Richardson	Punch
Direct costs:		
Professional partners, \$125 × 60; 30	\$7,500	\$3,750
Professional associates, \$50 × 40; 120	<u>2,000</u>	<u>6,000</u>
Direct costs	\$ 9,500	\$ 9,750
Indirect costs:		
General support, \$45 × 100; 150	4,500	6,750
Secretarial support, \$50 × 60; 30	<u>3,000</u>	<u>1,500</u>
Indirect costs	<u>7,500</u>	<u>8,250</u>
Total costs	<u>\$17,000</u>	<u>\$18,000</u>

4.	Richardson	Punch
Single direct - Single indirect (from Prob. 4-29)	\$12,000	\$18,000
Multiple direct - Multiple indirect (from requirement 4 of Prob. 4-30)	17,000	18,000
Difference	\$5,000	no change
	undercosted	

The Richardson and Punch jobs differ in their use of resources. The Richardson job has a mix of 60% partners and 40% associates, while Punch has a mix of 20% partners and 80% associates. Thus, the Richardson job is a relatively high user of the more costly partner-related resources (both direct partner costs and indirect partner secretarial support). The refined-costing system in Problem 4-30 increases the reported cost in Problem 4-29 for the Richardson job by 41.7% (from \$12,000 to \$17,000).

4-36 (30 min.) **Allocation and proration of manufacturing overhead.**

1. Although not required, an overview of the product costing system follows:



$$\frac{\$252,000}{\$420,000} = \$0.60 \text{ per direct manufacturing labor dollar}$$

The Work-in-Process inventory breakdown at the end of 2001 for Jobs 1768B and 1819C is:

	Job 1768B	Job 1819C	Total
Direct materials (given)	\$22,000	\$ 42,000	\$ 64,000
Direct manufacturing labor (given)	11,000	39,000	50,000
Manufacturing overhead allocated, 60% × DML\$	<u>6,600</u>	<u>23,400</u>	<u>30,000</u>
Total manufacturing costs	<u>\$39,600</u>	<u>\$104,400</u>	<u>\$144,000</u>

The finished goods inventory at the end of 2001 is \$156,000 (given). A direct manufacturing labor cost of \$40,000 implies a budgeted manufacturing overhead costs component of \$24,000.

The COGS is \$1,600,000 (given). The total direct manufacturing labor of \$400,000 implies direct manufacturing labor in COGS of \$310,000 (\$400,000 – \$11,000 – \$39,000 – \$40,000). Hence, manufacturing overhead allocated in COGS is 60% × \$310,000 = \$186,000. Direct materials in COGS is \$1,104,000 (\$1,600,000 – \$310,000 – \$186,000).

The summary account information is:

Direct Materials	Direct Manufacturing Labor	Manufacturing Overhead Allocated	Total
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Work in process	\$ 64,000	\$ 50,000	\$ 30,000	\$ 144,000
Finished goods	92,000	40,000	24,000	156,000
Cost of goods sold	<u>1,104,000</u>	<u>310,000</u>	<u>186,000</u>	<u>1,600,000</u>
Total	<u>\$1,260,000</u>	<u>\$400,000</u>	<u>\$240,000</u>	<u>\$1,900,000</u>

2.

$$\begin{aligned}
 \text{Overallocated manufacturing overhead} &= \text{Manufacturing overhead allocated} - \text{Manufacturing overhead incurred} \\
 &= \$240,000 - \$186,840 \\
 &= \$53,160
 \end{aligned}$$

3a.

Account	End-of-Year Balance (before Proration) (1)	Proration of \$53,160 Overallocated Manuf. Overhead (2)	End-of-Year Balance (after Proration) (3)=(1)+(2)
Work in process	\$ 144,000 (144/1,900 = 7.58%)	\$(4,030)	\$ 139,970
Finished goods	156,000 (156/1,900 = 8.21%)	(4,364)	151,636
Cost of goods sold	<u>1,600,000</u> (1,600/1,900 = <u>84.21%</u>)	<u>(44,766)</u>	<u>1,555,234</u>
Total	<u>\$1,900,000</u>	<u>\$(53,160)</u>	<u>\$1,846,840</u>

b.

Account	End-of-Year Balance (before Proration)	Allocated Overhead in End-of-Year Balance (before Proration)	Proration of \$53,160 Overallocated Manufacturing Overhead	End-of-Year Balance (after Proration)
Work in process	\$ 144,000	\$ 30,000 (12.5%)	\$(6,645)	\$ 137,355
Finished goods	156,000	24,000 (10.0%)	(5,316)	150,684
Cost of goods sold	<u>1,600,000</u>	<u>186,000</u> (77.5%)	<u>(41,199)</u>	<u>1,558,801</u>
Total	<u>\$1,900,000</u>	<u>\$240,000</u> <u>100.0%</u>	<u>\$(53,160)</u>	<u>\$1,846,840</u>

4. The COGS amount when the overallocated overhead is immediately written off to COGS is \$1,546,840 (see below) compared to \$1,555,234 in 3(a) and \$1,558,801 in 3(b) Thus, with a lower COGS, there is a higher operating income.

Account	End-of-Year Balance (before Proration)	Proration of \$53,160 Overallocated	End-of-Year Balance (after Proration)
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Work in process	\$ 144,000	\$ 0	\$ 144,000
Finished goods	156,000	0	156,000
Cost of goods sold	<u>1,600,000</u>	<u>(53,160)</u>	<u>1,546,840</u>
Total	<u>\$1,900,000</u>	<u>\$(53,160)</u>	<u>\$1,846,840</u>

5. The adjusted allocation rate approach would adjust the cost of job 1819C for the amount of manufacturing overhead overallocated to it. For 2001, manufacturing overhead is overallocated to each job by 22.15% ($\$53,160 \div \$240,000$). Hence, the cost of job 1819C would be decreased by $22.15\% \times \text{Manufacturing overhead allocated to 1819C} = 22.15\% \times \$23,400 = \$5,183.10$.

Cost of Job 1819C would then appear as follows:

Direct materials	\$42,000.00
Direct manufacturing labor	39,000.00
Manufacturing overhead allocated	23,400.00
Adjustment for manufacturing overhead overallocated	<u>(5,183.10)</u>
Cost of job after adjustment for overallocation	<u>\$99,216.90</u>