

Unit 3 Job Order Costing

ILO1. Job Order Costing: An Overview

ILO2. Computing Predetermined Overhead Rates

ILO3. Applying Manufacturing Overhead and Completing the Job Sheet

ILO1. Job Order Costing: An Overview

A company may employ a job order costing system when they produced a variety of products each period, and when products are made to order. As each order is unique it requires company's trace of allocate costs to each job, and maintain cost records for each. For example, aircraft manufacturers, large construction companies and movie studios all employ job costing system.

As manufacturing varies, so to does manufacturing costs. Such costs are assigned based on their characteristics; direct costs or indirect costs. Direct costs relate to materials and labour. The materials can be trace directly to each job as it's processed. For labour it's traced directly to job as it's performed. Indirect costs are manufacturing overheads. These overheads are indirect materials and indirect labour. These costs are allocated to jobs rather than directly trace to each job.

To help monitor direct and indirect costs, managers use a job cost sheet. A job cost sheet labels each job, and shows the accumulation of direct material, direct labour, and manufacturing overhead costs for each job. This job sheet is also part of the subsidiary ledger of the work in process account. We have included an example of the cost sheet below.

| Job Cost Sheet | | | | | | | |
|--------------------------------|--------|--------------|-------|------------------------------|------------------------|--------|---------|
| Job Number <u>A - 143</u> | | | | Date Initiated <u>3-4-17</u> | | | |
| Department <u>B3</u> | | | | Date Completed _____ | | | |
| Item <u>Wooden cargo crate</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 Product Cost | | | | | | | |

Fig 3.1 Job Cost Sheet

To measure direct materials cost we start by processing the sales and beginning the production process. The production department prepare a materials requisition form to determine the number, and total cost of materials needed, and the job number to which the costs will be assigned to.

For a regular product, or order, the production department can use a bill of materials which outlines the type and quantity of each resource required to produce a unit. We have an example below, where we illustrate the total direct material cost of \$116 on the job cost sheet. The material requisition number is included on the job cost sheet for easy reference.

| Materials Requisition Form | | | |
|----------------------------------|----------|----------------------|------------------|
| Requisition No. X7 - 6890 | | Date 3-4-17 | |
| Job No. A - 143 | | Department B3 | |
| Description | Quantity | Unit Cost | Total Cost |
| 2 x 4, 12 feet | 12 | \$ 3.00 | \$ 36.00 |
| 1 x 6, 12 feet | 20 | 4.00 | 80.00 |
| | | | \$ 116.00 |
| Authorized Signature | | | |

Fig 3.2 Materials Requisition Form

To assist in measuring the direct labour costs, company's often use time tickets to record the time workers spend on each job, and the total cost assigned to those jobs. For our example, the manager has recorded labour costs of \$120 from employee time tickets to the job cost sheet.

| Employee Time Ticket | | | | | |
|-------------------------------|-------------|-----------------|-----------------|------------------|--------------|
| Time Ticket No. 36 | | Date 3-5-17 | | | |
| Employee I. M. Skilled | | Station 42 | | | |
| Starting Time | Ending Time | Hours Completed | Hourly Rate | Amount | Job No. |
| 0800 | 1600 | 8.00 | \$ 15.00 | \$ 120.00 | A-143 |
| Totals | | 8.00 | \$ 15.00 | \$ 120.00 | A-143 |
| Supervisor _____ | | | | | |

Fig 3.3 Employee Time Ticket

ILO2. Computing Predetermined Overhead Rates

To assign manufacturing overhead to products, managers will use an allocation base. This base can be either direct labour hours, direct labour dollars or machine hours. The base is used because in many circumstances it's very difficult to near impossible to trace said costs to individual jobs. The complexity of costs is also a factor, for example manufacturing overhead has a very broad range, from a manager's salary to machine lubricant. And finally, manufacturing overhead costs are fixed, despite output fluctuations.

A predetermined overhead rate is found by dividing the estimated manufacturing overhead by the estimated quantity of the allocation base. The allocation base in this regard should be the cost driver of the overhead cost.

$$\text{POHR} = \frac{\text{Estimated total manufacturing overhead cost for the coming period}}{\text{Estimated total units in the allocation base for the coming period}}$$

Fig 3.4 Predetermined Overhead Rate Calculation

Predetermined overhead rates are often used because the actual overhead costs are not known until after the job is complete. And also because actual overhead cost can fluctuate between seasons distorting managers cost perceptions.

We calculate the predetermined overhead rate by following a simple four step procedure. First, we estimate the total amount of the allocation base necessary for the next production period. Second is to estimate the total fixed manufacturing overhead cost and the variable overhead cost per unit of the allocation base. Third, is to use a cost equation to estimate the total manufacturing overhead cost for the period. And finally, we calculate the predetermined overhead rate as demonstrated below.

| Job Cost Sheet | | | | | | | |
|-------------------------|--------|-----------------------|-------|---------------|------------------------|--------|---------|
| Job Number A - 143 | | Date Initiated 3-4-17 | | | | | |
| Department B3 | | Date Completed 3-5-17 | | | | | |
| Item Wooden cargo crate | | Units Completed 2 | | | | | |
| Direct Materials | | Direct Labor | | | Manufacturing Overhead | | |
| Req. No. | Amount | Ticket | Hours | Amount | Hours | Rate | Amount |
| X7-6890 | \$ 116 | 36 | 8 | \$ 120 | 8 | \$ 4 | \$ 32 |
| Cost Summary | | | | Units Shipped | | | |
| Direct Materials | | | | \$ 116 | Date | Number | Balance |
| Direct Labor | | | | \$ 120 | | | |
| Manufacturing Overhead | | | | \$ 32 | | | |
| Total Cost | | | | | | | |
| Unit Product Cost | | | | | | | |

Fig 3.5 Recording the Costs

ILO3. Applying Manufacturing Overhead and Completing the Job Sheet

Manufacturing overhead is then applied to each job using the aforementioned predetermined overhead rate, multiplied by the actual amount of the allocation base that is used. If we apply this process in context of company Pear Co. we can label the following details.

- Apply overhead to jobs based on direct labour hours
- Estimate 160,000 direct labour hours needed for the annual production activity level
- Estimate 200,000 of total fixed overhead cost and \$2.75 of variable overhead per direct labour hour
- Derive a total manufacturing overhead cost amount of \$640,000
- Calculate its predetermined overhead rate of \$4.00 per direct labour hour.
 - Overhead applied to the job cost sheet related to job A-143 is \$32
 - Eight direct labours hours were used
 - Predetermined overhead rate is \$4.00 per direct labour hour
 - 8 direct labour hours x \$4.00 per hour = \$32

To complete the job cost sheet we use the details from job A-143, namely the total direct materials, direct labour, and manufacturing overhead costs which amounts to \$268. As this job included two units, the average cost per unit is \$134. The fixed overhead will not change if additional units are produced, so the incremental cost of additional units must be less than \$134.

| Job Cost Sheet | | | | | | | |
|-------------------------|--------|--------------|-------|-----------------------|------------------------|--------|---------|
| Job Number A - 143 | | | | Date Initiated 3-4-17 | | | |
| Department B3 | | | | Date Completed 3-5-17 | | | |
| Item Wooden cargo crate | | | | Units Completed 2 | | | |
| Direct Materials | | Direct Labor | | | Manufacturing Overhead | | |
| Req. No. | Amount | Ticket | Hours | Amount | Hours | Rate | Amount |
| X7-6890 | \$ 116 | 36 | 8 | \$ 120 | 8 | \$ 4 | \$ 32 |
| Cost Summary | | | | Units Shipped | | | |
| Direct Materials | | | | \$ 116 | Date | Number | Balance |
| Direct Labor | | | | \$ 120 | | | |
| Manufacturing Overhead | | | | \$ 32 | | | |
| Total Cost | | | | \$ 268 | | | |
| Unit Product Cost | | | | \$ 134 | | | |

Fig 3.6 Complete Job Cost Sheet

References:

1. Managerial accounting, Ray Garrison-Eric Noreen-Peter Brewer - McGraw-Hill Education, 16 ed., 2018
2. Managerial accounting, John Wild-Ken Shaw - McGraw-Hill Education, 7ed, 2019
3. Management accounting, Will Seal-Carsten Rohde-Ray Garrison-Eric Noreen - McGraw-Hill Education, 6ed. - 2019

