Absorption costing problems

Absorption costing

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DeJure Scents

Problem details:

DeJure Scents manufactures an aftershave and uses **process costing**. All materials are added at the beginning of the process, and **conversion costs** are incurred uniformly over time. In May, DeJure started 15,000 gallons. There was no beginning inventory. May's ending inventory of work-in-process was 2,000 gallons, which were 50 percent complete with respect to conversion costs. In May, conversion costs were $28,000 and materials costs were $45,000.

Questions:

1. Calculate the equivalent units of conversion and materials.
2. Calculate the cost per equivalent unit of conversion and materials.
3. Calculate the cost of the ending inventory and the cost transferred to finished goods inventory.

Concepts:

1. Process costing
2. Conversion costs
3. Equivalent units

Setup:

Physical flow:	Gallons	E.U Conversion	E.U. Materials
WIP, begin.	0	0	0
Units started	15,000		
Units to account for	15,000		

WIP-Effective Units

	Gallons	E.U Conversion	E.U. Materials
Work-In-Process, ending (50%)	2,000	?	?

WIP-Effective Units

	Gallons	E.U Conversion	E.U. Materials
Work-In-Process, ending (50%)	2,000	?	2,000

All materials are added at the beginning of the process.

WIP-Effective Units

	Gallons	E.U Conversion	E.U. Materials
Work-In-Process, ending (50%)	2,000	.5 $\times$ 2,000	2,000

conversion costs are incurred uniformly over time.

Units accounted for

	Gallons	E.U Conversion	E.U. Materials
Work-In-Process, ending (50%)	2,000	1,000	2,000
Completed	13,000	13,000	13,000
Units accounted for	15,000	14,000	15,000

Cost per equivalent unit

	Total	E.U. Conversion	E.U. Materials
Units	15,000	14,000	15,000
Costs	\$73,000	\$28,000	\$45,000
per equi. unit		\$2.00	\$3.00

Cost of inventory and transfer to finished goods

	Gallons	E.U Conversion	E.U. Materials
Work-In-Process, ending	$ 8,000	$2,000	$6,000
		(2×1000)	(3×2000)
Finished goods inventory	$65,000	$26,000	$39,000
		($2 \times 13,000$)	($3 \times 13,000$)
Total costs	$73,000	$28,000	$45,000

Kitchen Rite

Kitchen Rite is considering outsourcing the production of a steel chassis that is used in a kitchen appliance. Two thousand chassis are produced per month. An outside vendor will supply an identical chassis for $9.90. The chassis is manufactured in two steps. A stamping press punches out the part from sheet metal, bends the sides, and cuts holes in it, all in one operation. Then a welding machine welds the corners. Both the welding and stamping machines are used to produce only this one chassis model.

Job cost sheet

The following job order cost sheet summarizes the costs of producing a single chassis.

	Cost per Unit
Steel Plate	$4.75
Direct Labor:	
- Stamping ($20/hr)	1.60
- Welding ($30/hr)	2.50
Overhead:	
- Stamping (depreciation)	3.60
- Welding (lease payment)	2.15
General plant	5.90
	$ 20.50

Machine details

The stamping machine is old and has little economic value. A used equipment dealer is willing to remove the machine and haul it away at no cost. The stamping machine was purchased 13 years ago for $1,728,000. For both tax and reporting purposes, it is being depreciated using a 20-year life, straight-line method, and it has zero salvage value. The welding machine is leased for $4,300 per month,

and the lease can be canceled at any time and the machine returned. However, an early termination penalty of $1,800 per month for the next 42 months must be paid.

Plant overhead

General plant overhead consists primarily of the allocated cost of depreciation on the plant, property taxes, and fire insurance on the plant. Kitchen Rite currently has excess plant space. The manufacturing space freed up if the chassis is outsourced has no other use.

Labor

Employees are unionized and have a clause in their contract that prevents the firm from firing them if their jobs are eliminated due to outsourcing. The employees working on the stamping machine will be placed on indefinite furlough at 75 percent of their current pay. The employees operating the welding machine can be reassigned to other positions in the firm as job openings occur. Given the high demand for welders, these reassignments will occur within a few weeks of outsourcing the chassis.

Taxes

Kitchen Rite has a tax loss for the current and the previous two years.

Questions

Should Kitchen Rite outsource the chassis? Support your recommendation with a clear financial analysis of the facts.

Consider:

This problem illustrates that not all direct labor costs are incremental and not all fixed overhead costs are sunk.

Current cash flows

The current cash flows of manufacturing the chassis per unit are:

Direct material	$ 4.75
Direct labor	
Stamping	1.60
Welding	2.50
Overhead	
Stamping	0
Welding ($4,300 ÷ 2,000)	2.15
Total	$11.00

Cash flows if we out source

Purchased chassis	$ 9.90
Stamping labor (75% × 1.60)	1.20
Welding lease early termination ($1,800 ÷ 2,000)	.90
Total	$12.00

Recommendation:

Do not outsource because the net cash flows of outsourcing are lower than continuing to manufacture the chassis internally.