## HILTON CHAPTER P5-54 & P 7-34 PROBLEM SOLUTIONS

## Problem 5-54

|  |  |  |
| --- | --- | --- |
| 1. | Activity Cost Pool | Type of Activity |
|  | I: | Machine-related costs | Unit-level |
|  | II: | Setup and inspection | Batch-level |
|  | III: | Engineering | Product-sustaining-level |
|  | IV: | Plant-related costs | Facility-level |
|  |
| 2. | Calculation of pool rates: |
|  |  |  |  |  |
|  | I: | Machine-related costs: |  |  |
|  |  |  | = | $100 per machine hr. |
|  |  |  |  |  |
|  | II. | Setup and inspection: |  |  |
|  |  |  | = | $9,000 per run |
|  |  |  |  |  |
|  | III. | Engineering: |  |  |
|  |  |  | = | $1,800 per change order |
|  |  |  |  |  |
|  | IV. | Plant-related costs: |  |  |
|  |  |  | = | $100 per sq. ft. |

## Problem 5-54 (Continued)

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| --- | --- | --- |
| 3. | Unit costs for odds and ends: |  |
|  |  |  |  |  |
|  | I: | Machine-related costs: |  |  |
|  |  |  | Odds: $100 per machine hr.8 machine hr. per unit | = | $800 per unit |
|  |  |  | Ends: $100 per machine hr.2 machine hr. per unit | = | $200 per unit |
|  |  |  |  |  |  |
|  |  |  |  |  |
|  | II: | Setup and inspection: |  |  |
|  |  |  | Odds: $9,000 per run ÷ 25 units per run | = | $360 per unit |
|  |  |  | Ends: $9,000 per run ÷ 125 units per run | = | $72 per unit |
|  |  |  |  |  |
|  | III: | Engineering: |  |  |
|  |  |  | Odds: |  |
|  |  |  |  |  |  |  |
|  |  |  | = |  | = | $270 per unit |
|  |  |  | Ends: |  |
|  |  |  | = |  | = | $18 per unit |
|  |  |  |
|  | IV. | Plant-related costs: |
|  |  |  | Odds: |  |
|  |  |  | = |  | = | $307.20 per unit |
|  |  |  | Ends: |  |
|  |  |  | = |  | = | $15.36 per unit |

## Problem 5-54 (Continued)

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| --- | --- |
| 4. | New product cost per unit using the ABC system: |
|  |  | Odds | Ends |
|  | Direct material  | $ 160.00 | $240.00 |
|  | Direct labor  | 120.00 | 180.00 |
|  | Manufacturing overhead: |  |  |
|  |  Machine-related  | 800.00 | 200.00 |
|  |  Setup and inspection  | 360.00 | 72.00 |
|  |  Engineering  | 270.00 | 18.00 |
|  |  Plant-related  |  307.20 |  15.36 |
|  | Total cost per unit  | $2,017.20 | $725.36 |
|  |
| 5. | New target prices: |
|  |  | Odds | Ends |
|  | New product cost (ABC)  | $2,017.20 | $725.36 |
|  | Pricing policy  | ×  120% | ×  120% |
|  | New target price  | $2,420.64 | $870.43 | (rounded) |
|  |  |
| 6. | Full assignment of overhead costs: |  |  |
|  |  | Odds | Ends |
|  | Manufacturing overhead costs: |  |  |
|  |  Machine-related  | $ 800.00 | $ 200.00 |
|  |  Setup and inspection  | 360.00 | 72.00 |
|  |  Engineering  | 270.00 | 18.00 |
|  |  Plant-related  |  307.20 |  15.36 |
|  | Total overhead cost per unit  | $1,737.20 | $ 305.36 |
|  | × Production volume  | ×  1,000 | ×   5,000 |
|  | Total overhead assigned  | $1,737,200 | $1,526,800 |
|  |  | Total = $3,264,000 |

## Problem 5-54 (Continued)

|  |  |  |  |
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| 7. | Cost distortion: |  |  |
|  |  | Odds | Ends |
|  | Traditional volume-based costing system: |  |  |  |
|  |  reported product cost  | $ 664.00 |  | $996.00 |
|  | Activity-based costing system: |  |  |  |
|  |  reported product cost  |  2,017.20 |  |   725.36 |
|  | Amount of cost distortion per unit  | $(1,353.20 | ) | $270.64 |
|  |  |  |  |
|  |  | Traditionalsystemundercostsodds by$1,353.20per unit |  | Traditionalsystemovercostsends by$270.64per unit |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |  |  |
|  | Production volume  | ×   1,000 |  | ×  5,000 |
|  | Total amount of cost distortion for entire |  |  |  |
|  |  product line  | $(1,353,200) |  | $1,353,200 |
|  |  |  |
|  |  | Sum of these two amounts is zero. |
|  |  |  |

## Problem 7-34

|  |  |
| --- | --- |
| 1. | Break-even point in sales dollars, using the contribution-margin ratio: |
|  |  |
|  |  |
| 2. | Target net income, using contribution-margin approach: |
|  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| 3. | New unit variable manufacturing cost | = $12 × 110% |
|  |  | = $13.20 |
|  | Break-even point in sales dollars: |  |
|  |  |

## Problem 7-34 (continued)

|  |  |
| --- | --- |
| 4. | Let *P* denote the selling price that will yield the same contribution-margin ratio: |
|  |  |
|  |  |
|  | Check: New contribution-margin ratio is: |
|  |  |