

# **CHAPTER 14 QUALITY COST (Sheet 2)**

## **EXERCISES**

**14–4**

- 1. Internal failure**
- 2. Prevention**
- 3. Internal failure**
- 4. External failure**
- 5. External failure**
- 6. External failure**
- 7. Prevention**
- 8. Internal failure**
- 9. Appraisal**
- 10. Internal failure**
- 11. External failure**
- 12. Appraisal**
- 13. Prevention**
- 14. Prevention**
- 15. External failure**
- 16. Prevention**
- 17. External failure**
- 18. Prevention**
- 19. Prevention**
- 20. Appraisal**
- 21. External failure**
- 22. Prevention**
- 23. Appraisal**

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1. Activity rates:

Warranty:  $\$204,000/2,550 = \$80$  per unit

Scrap:  $\$153,000/4,250 = \$36$  per unit

Inspection:  $\$76,500/5,100 = \$15$  per hour

Training:  $\$42,500/170 = \$250$  per hour

Product cost: Carburetor A Carburetor B

Warranty:

$\$80 \times 1,700$ ..... \$ 136,000

$\$80 \times 850$ ..... \$ 68,000

Scrap:

$\$36 \times 3,400$ ..... 122,400

$\$36 \times 850$ ..... 30,600

Inspection:

$\$15 \times 3,400$ ..... 51,000

$\$15 \times 1,700$ ..... 25,500

Training:

$\$250 \times 85$ ..... 21,250

$\$250 \times 85$ ..... 21,250

Total assigned..... \$ 330,650 \$ 145,350

Divided by units.....  $\div 170,000 \div 340,000$

Unit cost..... \$ 1.95\* \$ 0.43\*

\*Rounded.

Carburetor A has more than four times the amount of quality costs assigned than Carburetor B. Thus, A appears to be the lower-quality product.

2. The unit quality cost can be used to rank products in order of the lowest quality to that of the highest. This information can then be used to determine where quality improvement efforts should be focused. It may reveal, for example, that products follow the Pareto Principle: 20% of the products are causing 80% of the quality problems. (The Pareto Principle claims that 20% of the people do 80% of the work in any organization.)

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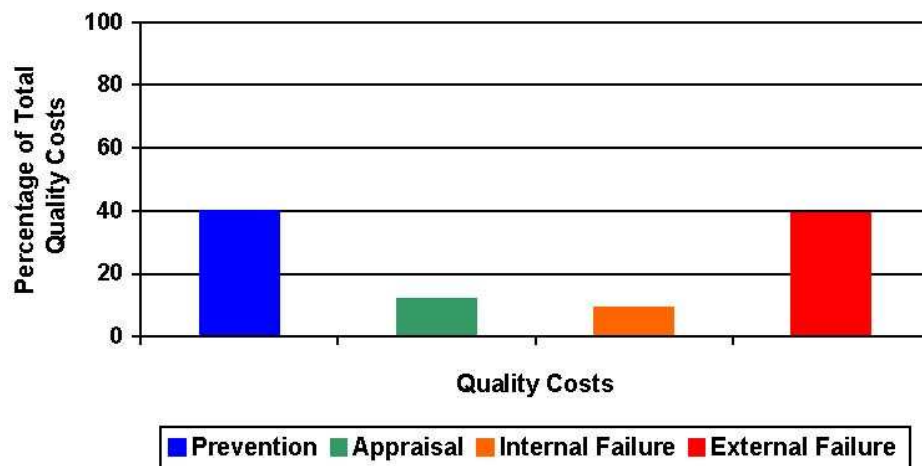
1. Benton Company  
Quality Cost Report

For the Year Ended December 31, 2007

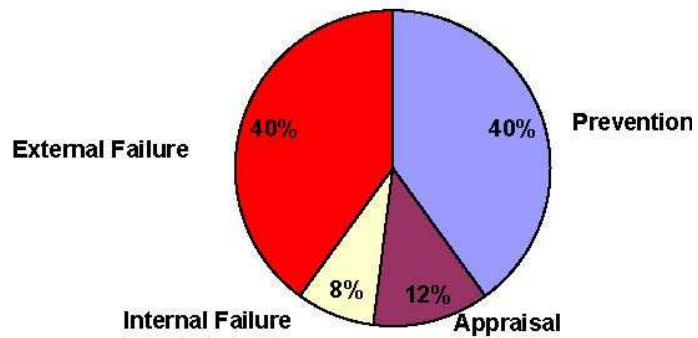
	Quality Costs	Percentag of Sales
<b>Prevention costs:</b>		
Design review.....	\$ 405,000	
Quality training.....	135,000	\$ 540,000
		6.67%
<b>Appraisal costs:</b>		
Materials inspection.....	\$ 54,000	
Process acceptance.....	67,500	
Product inspection.....	40,500	162,000
		2.00
<b>Internal failure costs:</b>		
Reinspection.....	\$ 67,500	
Scrap.....	47,250	114,750
		1.42
<b>External failure costs:</b>		
Recalls.....	\$ 135,000	
Lost sales.....	270,000	
Returned goods.....	128,250	533,250
		6.58
<b>Total quality costs.....</b>	<b>\$ 1,350,000</b>	<b>16.67%</b>

2.

Relative Distribution of Quality Costs



### Relative Distribution of Quality Costs



Failure costs are almost 50% of the total costs. This indicates that there is still ample opportunity for improving quality by investing more in prevention and appraisal activities.