

Equipment Cost Problem

A scraper has a first cost of \$145,000 plus \$2,000 for transportation and preparation costs. The cost of new tires is \$15,000, and new tires are expected to last 5,000 hours. Annual property taxes and insurance are 3% and 2% respectively of scraper value at start of each year. You expect to receive a 25% return on your invested capital. Fuel costs = \$1.30/gallon. You estimate lubrication and oil together will cost \$0.40/hr. Additionally, you estimate annual tire repair will be 35% of annual tire wear. The output loss crew cost is estimated at \$170/hr. The cost downtime is expected to be \$100/hr. The income tax rate is 35%.

	Year of Life					
	0	1	2	3	4	5
end of year salvage value @ 1800 hr/yr (%)	100	70	50	40	30	20
fuel use (gallon/hr)		6.00	6.00	6.30	6.60	7.00
output loss: old vs. new (hr/hr)		0.00	0.01	0.03	0.06	0.10
output loss: new vs. replacement (hr/hr)		0.00	0.03	0.03	0.03	0.05
replacement cost multiplier	1.00	1.00	1.05	1.05	1.05	1.10
repair cost (\$/hr)		6.00	6.00	8.00	10.00	13.00
downtime (hr/hr)		0.03	0.03	0.04	0.06	0.08

Problem 1:

Using manual calculations (which can be based on numbers from the first page of spreadsheet), answer the following questions for a 3 year equipment life at 1,800 hours of annual use:

- Find the cost per hour that would be used in calculating the equipment economic life.
 - by discounted cash flow method
 - by average cost method
- Find the cost per hour to be charged when figuring estimates for competitive bidding situations.
 - by discounted cash flow method
 - by average cost method

Turn in calculations/formulas with your answers marked for each of the above questions.

Problem 2:

Using the spreadsheet provided at www.ricarr.com answer the following questions:

- Find the economic life of the loader at 1,800 hours of annual use.
 - by discounted cash flow method
 - by average cost method
- Find the cost per hour to charge when calculating estimates for competitive bidding situations.
 - by discounted cash flow method
 - by average cost method
- Find the incremental cost per hour for each hour of use additional to the 1800 hrs/yr budgeted, using the discounted cash flow method. (This includes only direct cost per hour.)
- Find the cost per hour to charge on projects that have cost reimbursable contracts, using the discounted cash flow method.

Turn in your spreadsheets and calculations, with answers marked for each of the above questions.