Fleet Maintenance & Replacement Optimizing Life-Cycle

Introduction:

This course is about making money-saving decisions. What's the best time to replace a vehicle? Is it more economical to buy a new unit than to repair the one you have? Is the size of our fleet too small, or too large, given the work it's required to do. Are we replacing component parts too often and throwing good running-time away — or too seldom, and running into costly emergency repairs. How can we stock the exactly-right number of spare parts so we have them when required but still not overstock them? It's possible to answer every one of those questions, and many more like them. By using proven, time-honored analytical tools fleet managers and engineers can make significantly better decisions and save considerable amounts of money. Invest in this two-day course for long-lasting returns.

Who Should Attend?

Anyone whose job relates to the maintenance and replacement of moveable capital assets, Managers and engineers responsible for fleets of trucks, buses, automobiles, or heavy equipment will benefit, executive-level managers and financial professionals as well as hands-on career fleet directors and their subordinates, any fleet operation will profit

from this program, including those from governments, Oil & Gas, mining and cartage, delivery, transportation and hauling operations

Course Objectives:

By the end of this course delegates will be able to:

- Determine the economic life of an asset when its utilization is fairly constant year to year
- Arrive at the economic life of an asset where its utilization declines as it ages
- Select which approaches to use for monitoring the performance of an individual asset
- Employ a sure-fire way to calculate your spare parts requirements
- Deal with the problem of inadequate data
- Establish the optimal inspection frequencies for your equipment
- Know when to buy a new asset and how to identify the best buy
- Make optimal repair-or-replace decisions
- Evaluate whether or not to take advantage of a technologically improved asset

Course Outline:

Fleet Management

- Setting your objectives
- The "scientific" approach versus "intuition"
- Problem areas — purchasing, maintaining and replacing vehicles
- Applying discounted cash flow in capital equipment replacement analysis
- Estimating the interest rate appropriate for discounting
- present-value calculations
- the effects of inflation in the analysis
- calculating the Equivalent Annual Cost (EAC)

- Vehicle

Replacement Decisions

- The "classic" Economic Life Model
- The effect of before- and after-tax calculations
- Tracking the economic life of a particular vehicle, or a "class" of vehicles
- Determining your optimal trade-in time
- Calculating the costs of trading in a the "wrong" time
- The Repair vs. Replace decision
- Life-Cycle costing — the crux of replacement decisions
- Factoring in technological improvement
- Determining your best fleet size
- Case studies, examples from trucking, transit, motor coach, materials handling (FLT), baggage handling using

Vehicle Component Replacement

- Analyzing vehicle component failures
- Using the right equations — Weibull Analysis
- The hazard function and the composite "bathtub curve"
- "Infant mortality" of components — what it means
- Using median ranks to estimate the risk of a component failure
- Testing the Goodness-of-Fit of your curves
- Reducing the number of on-the-road failures

Component Preventive Replacement

- Alternative policies explained — age versus block replacement
- Preventive replacement strategies
- Case studies, including transmissions, fuel pumps, water pumps, bearings, inspection procedures
- Maximizing fleet availability — keeping vehicles on the road
- Engine oil analysis — the use of Proportional Hazards Modeling (PHM)

- Case studies —Vehicle availability maximization (subject to ABC&D inspection schedules), Interpreting information from a Spectroscopic Oil
- Analysis Program (SOAP)
- Optimization of condition-based maintenance procedures
- Exercises in component and capital equipment replacement analysis

Stocking Spares

Fast-Moving Parts

- Bearings
- Pumps
- Filters
- Economic ordering quantity and quantity discounts