HOW TO AVOID RUNNING A TRUCK UNTIL IT'S WHEELS FALL OFF

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The life cycle of any piece of equipment is completely predictable. This is a fool proof way to estimate appropriate capital and maintenance budget requests for your company's fleet.

Depreciation of the principal (original purchase price) is your fleet's largest cost, but even fully depreciated a vehicle still has significant value. That ends the moment cumulative maintenance cost (parts and labor) equals purchase price, excluding interest. This threshold is so consistent it's been a benchmark since the earliest days of the automotive industry.

For example, the **Operating Costs for an $18,500 Light-Duty Truck** table reveals the wheels will fall off the truck (economically speaking) in Year 8 because that's when cumulative maintenance cost surpasses purchase price. Because this is so predictable, it makes sense to budget for and replace the truck in Year 7, before the asset loses all value (forget resale value in this scenario).

Note the truck is cheaper to operate in Years 5, 6, and 7 than in Years 1 through 4 because there's no depreciation cost. The key to maximizing operational life is to stretch out Years 5 through 7 with regular maintenance and configure the vehicle to do its work within its capability.

The numbers also help make a proactive choice to repair, replace, rebuild, sell, or scrap a vehicle. I believe the choice must be made when maintenance cost for the previous 12 months is 30% of residual value (Year 6). At that point, the vehicle is in Year 7 and maintenance cost is 49% of residual value. Obviously, maintenance cost will exceed purchase price in Year 8, at which point ownership will cost more than the vehicle is worth: 228% of residual value. This will have

other consequences; namely, the headaches associated with a less reliable vehicle.

As fleet manager, you're responsible for determining and funding future repair, replacement, and rebuild costs. I recommend making a decision at the 30% threshold because it takes a year to gather the data to use in proposing capital (depreciating asset) and operating (consumables) budgets for the next year. Using 30% gives you time to identify the situation and start the process. You can still take advantage of the lower operating cost over the next year, but will have money in your budget for the year after that. You can always defer the decision to spend; but if you crash and burn without a cushion, you may not be able to get emergency funding.

As the **Operating Costs for a $70,000 Vocational Truck** table illustrates, the process applies regardless of vehicle type. The only difference is the timing of the 30% tipping point, which occurs for this vehicle at Year 7. To be proactive, for either capital or operating funding, use 30% of residual value (maintenance costs divided by resale value) as the optimal time to decide whether to continue to repair, rebuild, replace, sell, or scrap the vehicle.

Conveniently, cumulative maintenance cost reaches 30% of purchase price at the same time (Year 6) annual maintenance cost reaches 30% of residual value. This 30% benchmark is the ideal decision-making time because it gives you a year or two to plan for replacement.

There's a caveat to this. If a vehicle is in an accident during the first six years and repair will cost more than 50% of residual value, an analysis should be done to see if it's worth fixing. In most cases, it won't be.

Rebuilding makes sense if spending half the cost of a new vehicle provides two-thirds to three-fourths the life of a new vehicle. (The key to making this work is ensuring the vehicle is configured correctly to do its job.) Let's say a new replacement for a $18,500 truck is $24,000. If you can afford to spend $12,000 to rebuild it instead of replacing it after seven years, and get an additional five years of life from it, this option is cost-effective.

I encourage you to use this numbers-based process to make informed decisions about your fleet so you don't face a situation where the wheels are falling off.

Operating Costs for an $18,500 Light-Duty Truck

	Year 1 ($)	Year 2 ($)	Year 3 ($)	Year 4 ($)	Year 5 ($)	Year 6 ($)	Year 7 ($)	Year 8 ($)
Depreciation of principal	4,400	4,400	4,400	4,400	740	0	0	0
Interest	925	703	486	259	37	0	0	0
Maintenance (parts+labor)	360	735	1,095	1,215	1,380	1,560	1,665	6,200
Fuel	480	480	480	480	500	500	500	500
Operating cost (cents/mile)*	0.414	0.423	0.433	0.426	0.197	0.137	0.144	0.446
Residual value	12,950	10,360	8,288	6,630	5,304	4,243	3,395	2,716
Maintenance/residual**	3%	7%	13%	18%	26%	37%	49%	228%
Cumulative maintenance**	360	1,095	2,190	3,405	4,785	6,345	8,010	14,210

Operating Costs for a 70,000 Vocational Truck

	Year 1 ($)	Year 2 ($)	Year 3 ($)	Year 4 ($)	Year 5 ($)	Year 6 ($)	Year 7 ($)	Year 8 ($)	Year 9 ($)	Year 10 ($)
Depreciation of principal	14,000	14,000	14,000	14,000	14,000	0	0	0	0	0
Interest	3,500	2,800	2,100	1,400	700	0	0	0	0	0
Maintenance (parts+labor)	1,455	2,475	3,780	3,690	3,495	3,375	3,800	4,500	8,500	22,425
Fuel	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Operating cost (cents/mile)*	1.50	1.53	1.57	1.51	1.45	0.47	0.49	0.54	0.81	1.74
Residual value	49,000	39,200	31,360	25,088	20,014	14,056	12,845	10,276	8,221	6,577
Maintenance/residual**	3%	6%	12%	15%	17%	21%	30%	44%	103%	341%
Cumulative maintenance**	1,445	3,920	7,700	11,390	14,885	18,260	22,060	26,560	35,060	57,485

** Based on 15,000 miles per year*

*** Cumulative maintenance cost will equal one-third of purchase price at about the same time annual maintenance cost is 30% of residual (resale) value*