LETS COMPARE

Aluminum Fuel Tanks vs Steel

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Over the years the trucking industry has been working hard to reduce costs to become more competitive. As in many industries, the key to success is from making small improvements to a lot of little things.

One of the major expenses that impacts the balance sheet is fuel cost so it's no wonder that gaining fuel efficiency is one of the primary targets when it comes to cost reduction. This issue is of equal concern to the independent trucker and national fleet operators.

Truck manufacturers have been developing engines with greater efficiency and lighter components that are incorporated in tractors and trailers. Aluminum is one of the primary materials used for weight reduction. The problem is that many manufacturers have overlooked the opportunity to reduce weight in the fuel tanks due to the higher price tag. We're going to explore the financial case for replacing a damaged steel tank with aluminum when the occasion arises.

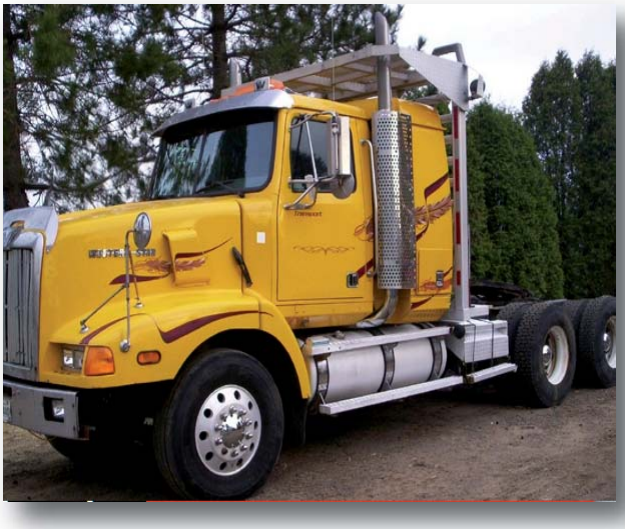
Because of their size and material thickness, steel fuel tanks add a substantial amount of weight. What we want to calculate is the added cost in fuel consumption for that extra weight. We will answer that question shortly but first, let's explore some of the added benefits of aluminum fuel tanks.

A CALCULATED DECISION

Another financial consideration about any asset is, "How long will it last?" We all know that nobody can accurately predict the lifespan of an aluminum fuel tank compared to a steel tank, however there are some factors that suggest we should expect significantly more from aluminum. Steel is susceptible to rust and corrosion caused by moisture. This is worsened when combined with salt. In some parts of the country road salt and salt from the sea air near coastal waters accelerates corrosion on steel fuel tanks. To combat the problem most reputable manufacturers will apply zinc-based or powder coat paint to inhibit rust. Although these coatings have been improving over the years they are not impervious to road debris or stone chips that ultimately expose the steel surface to the elements.

Another contributor to corrosion is a little-known fact about low-sulfur fuel. With the recent increased use of low-sulfur fuels we are starting to see an increase in corrosion from inside the tank. An explanation as to why this occurring is not within the scope of this article, however you can certainly appreciate the damage that corrosion may cause when the attack is coming from both the inside and the outside of the tank. Aluminum is not nearly as susceptible to corrosion - outside or inside.

Aside from being lighter, those are some additional advantages of aluminum fuel tanks; now let's explore how long the payback might take if you were to choose aluminum over steel tanks. The formula we used is based on a statement found on the US Environmental Protection Agency web site - epa.gov/smartway. They state that, "Every 10 percent drop in truck weight reduces fuel use between 5 and 10 percent."



Let's assume a scenario where a truck has a rusted tank in need of replacement. This vehicle is expected to remain in service for another 4 to 6 years. The fleet manager wants to make a smart business decision between replacing the tank with another steel tank or spending an additional $200 to upgrade to the aluminum tank. The question in the manager's mind is, "What is the break-even point based on fuel savings alone?"

The steel tank is about 75 pounds heavier than aluminum.

The loaded weight of the truck is approximately 75,000 pounds.

If a 10 percent reduction in truck weight can reduce fuel usage by as much as 10 percent then a 75 pound reduction can cut consumption by 0.1%. The truck gets around 8 miles to the gallon and typically travels about 2500 miles per week. That works out to about 312.5 gallons of fuel consumed each week. The average cost (at time of writing) of diesel fuel is about $4.00 per gallon which works out to $1250 spent on fuel each week.

We know this is starting to sound like one of those math questions that everybody in the class thought was useless and would never show up in real life, but it's here and it's proving to be very useful. The 0.1% reduction in weight converts to a savings of $1.25 per week. This truck operates 48 weeks of the year. The annual savings works out to $60 per year. The premium paid for the aluminum tank was $200 so the payback period works out to just over 3 years.

Since this vehicle will remain in service for more than 3 years it makes good financial sense to install the aluminum fuel tank instead of a steel one. Furthermore, the operator gets all the other benefits of aluminum that we discussed earlier. To can use the same calculation based on your truck's weight, mileage and travel distance to see if it makes sense in your case too. Reducing weight will save you fuel and money while reducing greenhouse gasses. The added benefit of the aluminum fuel tank is that it increases the lifespan and value of the asset which also makes it more desirable at resale.

Will you choose aluminum or steel? Now you have a tool to help you decide.

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