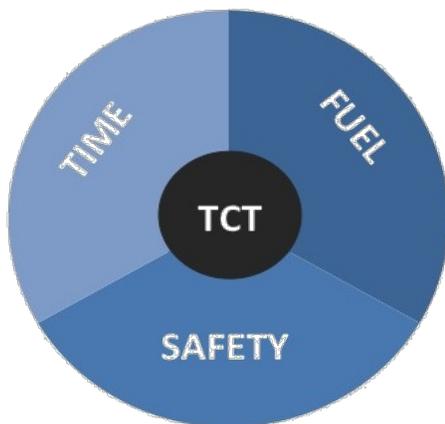




## TOTAL COST OF TRAILERING™ (TCT)



*How much is your hitch costing you?*



**What's Your TCT?**

TeleSwivel, LLC

# Table of Contents

---

EXECUTIVE SUMMARY .....	3
TYPICAL TRAILER CONNECTION PROCESS .....	3
Time .....	4
Fuel .....	4
Safety .....	4
Other TeleSwivel™ Benefits .....	5
TOTAL COST OF TRAILERING™ .....	5
EMISSIONS .....	6
CONCLUSION .....	6
BIBLIOGRAPHY .....	7

## EXECUTIVE SUMMARY

---

Fleet managers are driven to improve operational effectiveness and reduce costs. An April 2010 survey by GE Fleet showed that nearly half of respondents said that saving money was the most important initiative for C-level executives in the coming year.

TeleSwivel has identified a long-overlooked area to target for cost savings, environmental benefits, and employee safety: trailering operations.

Traditionally, connecting a truck and trailer is a time-consuming, fuel-wasting, accident-prone, emission-producing process. Our TeleSwivel™ brand proximity hitches are the fastest, easiest and safest way to connect a trailer. We have over 10 years experience providing these hitches (and other trailer safety components) to the US military, and launched our commercial product line in November 2009.

TeleSwivel™ brand proximity hitches save fleets hundreds of dollars per truck per month in reduced fuel and labor costs while simultaneously improving safety and reducing emissions.

## TYPICAL TRAILER CONNECTION PROCESS

---

Ideally, the typical process for connecting a truck and trailer involves two people (a driver and a guide) who coordinate a series of hand and voice signals to align a fixed ball mount with a trailer coupler. Deviations of as little as one-half inch can require another back-and-forth alignment attempt. Even under these ideal circumstances, a typical connection usually takes five minutes or more.

Unfortunately, circumstances are rarely ideal. Limited visibility, bad weather, and other adverse conditions make connections more difficult and take more time to complete. Often, an individual will have to make the connection unassisted, leading to longer times and greater possibility of equipment damage. The US Army realized the extent of this problem and has included TeleSwivel™ capability in tactical vehicle design requirements for over a decade. The technology developed for those requirements is what is at the core of our commercial product line.



The TeleSwivel™ brand of proximity hitches revolutionizes this process. With a little practice, a driver can single-handedly connect a trailer in a single pass with a TeleSwivel™ hitch. Just get close and the hitch telescopes out from the trailer, and swivels from side to side to create a target zone up to 25 times larger than the fixed ball mount alone. A typical TeleSwivel™ hitch connection is about one minute.



The four minutes or more saved per connection adds up over the course of a month. A single truck, making two connections a day, can save nearly three hours in a month.

## Time

As noted above, connecting a trailer is usually a two-person operation, and a time-consuming process as well. After just a bit of practice, one person can usually align a tow vehicle inside the TeleSwivel™ target zone. This can save the labor cost of the guide person, on top of the improved efficiency of the driver.



If we assume an hourly rate of \$15 for the driver, the value of each minute saved is \$0.25. If a five-minute connection is shortened to one minute, that is a dollar saved. (And, to paraphrase Benjamin Franklin, that is a dollar earned.)

## Fuel

A major truck Original Equipment Manufacturer (OEM) has studied the effect of extended idling on engine maintenance. They define extended idling as:

- More than 10 minutes per hour of normal driving
- Frequent low speed operation
- Sustained heavy traffic less than 25 MPH

If usage falls into any of these definitions, the vehicle is classified under “Severe Service Operations”. The OEM researchers concluded, based on their analysis of severe service operations, that one hour of idle time is equal to approximately 25 miles of driving.



The process of connecting a truck and trailer, with frequent stops and starts, back and forth movement, and periods of idling, qualifies as “extended idling”.

The IRS allows \$0.50 per mile as an estimate of the cost to operate a motor vehicle; Edmunds estimates a range from \$0.63 to \$0.84 for full-sized pickup trucks. We use the \$0.50/mile figure to be conservative; this means that each minute of idling is equivalent to 0.42 miles, or \$0.21 per minute. If a trailer connection can be shortened from five minutes to one minute with a TeleSwivel™ hitch, which saves \$0.84 each time.

## Safety

Connecting a trailer is an ideal environment for an injury, specifically a musculoskeletal injury, likely to the back. The leading cause is trying to use human strength to lift a trailer tongue onto the hitch in order to overcome misalignment.



Workplace injuries are expensive. First, the medical costs affect both the employee and the company. Lost time from work is an additional expense, comprised largely of backfilled labor.

The National Safety Council, in a 2009 report, reported that such accidents can cost employers up to \$48,000. Our research with employers places the average number at around \$12,000. Chronic injuries can cost much more, and may affect the earning power of employees. OSHA has recently issued an announcement for a plan to track the incidence of “soft tissue injuries”, a class of musculoskeletal disorders (MSD), in order to better quantify the magnitude of such injuries in the workplace.

If the incidence of injury is one per every 25,000 connections, at an average cost of \$12,000, the cost per connection is \$0.48.

## Other TeleSwivel™ Benefits

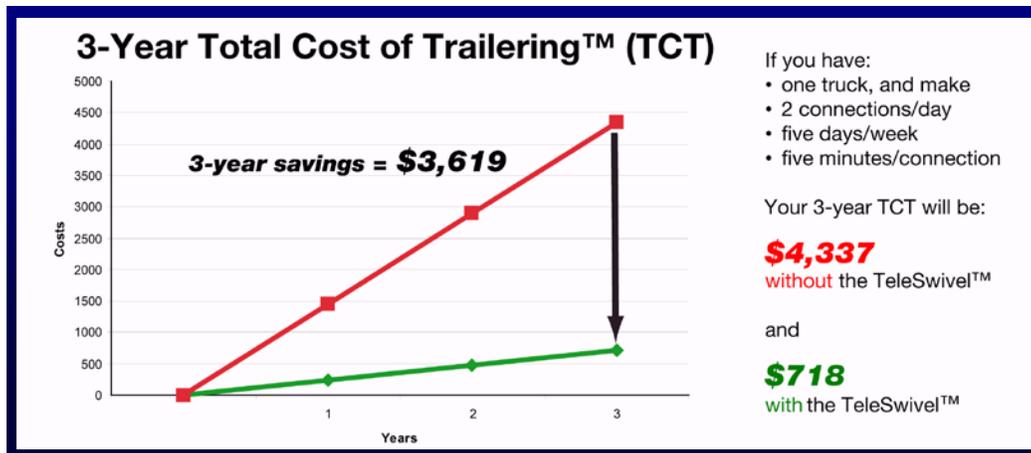
Using TeleSwivel™ brand hitches have other benefits not captured in the TCT calculation.

- There may be an opportunity for lowered Workman’s Compensation insurance rates by deploying a tool that enhances occupational safety.
- There are no missed opportunity costs for not having the right equipment on the tow vehicle. For example, a truck may be required to pull multiple trailers in multiple locations. If the trailers have a mixed set of coupler sizes, and the proper ball mount is not on the truck, then an opportunity is missed. The TeleSwivel™ completely eliminates this possibility.
- Equipment damage is common when connecting trailers – usually from the coupler hitting the tow vehicle because of overshooting when backing up. The TeleSwivel™ enables you to just get close, and move the hitch, not the truck.

## TOTAL COST OF TRAILERING™

These three components – time, fuel, and safety – are the hidden costs of connecting a trailer. For each connection, which can be reduced from five minutes to one minute, and the elimination of injury, there is a potential savings of \$2.32. For a truck that makes two connections per day, five days a week, that is a savings of \$1,206 per year, per truck.

A graph of the three-year Total Cost of Trailering™ appears below:



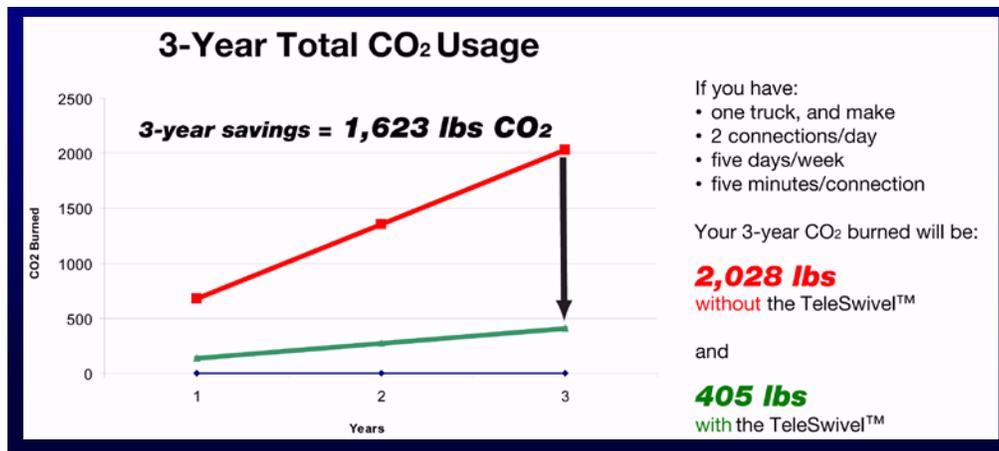
## EMISSIONS

Wasting fuel also means increased emissions of greenhouse gases such as carbon dioxide (CO<sub>2</sub>) and nitrous oxides (NO<sub>x</sub>). The Department of Energy (DoE) has an initiative called the “National Idling Reduction Network”; thirty states and the District of Columbia have laws on their books restricting excessive idling.

An idling V-8 engine, found in most fleet trucks, consumes 0.7 gallons of fuel per hour. Using data from the EPA, this translates to 0.26 pounds of CO<sub>2</sub> per minute.

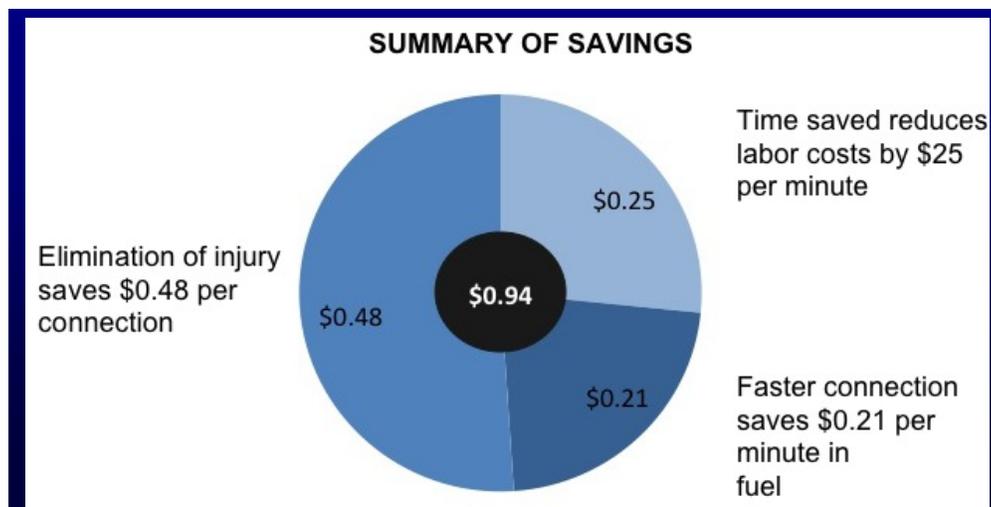
Using the same scenario as above, the reduction in CO<sub>2</sub> emissions is equal to 541 pounds of CO<sub>2</sub> per year, per truck.

The three-year reduction in CO<sub>2</sub> is shown below:



## CONCLUSION

Trailing operations are inherently inefficient. They waste time and money and cause unnecessary injuries and exhaust emissions.



We recommend that fleet managers understand their Total Cost of Trailing™, and employ TeleSwivel™ brand proximity hitches to save hundreds of dollars per truck per month in reduced fuel and labor costs while simultaneously improving safety and reducing emissions.

More information can be found at [teleswivel.com](http://teleswivel.com).

## BIBLIOGRAPHY

---

<https://www.fleet.ford.com/truckbbas/non-html/DieselTips/DLSIDLETIMESS.pdf>

[http://www.nsc.org/news\\_resources/injury\\_and\\_death\\_statistics/Pages/EstimatingtheCostsofUnintentionalInjuries.aspx](http://www.nsc.org/news_resources/injury_and_death_statistics/Pages/EstimatingtheCostsofUnintentionalInjuries.aspx)

[http://www1.eere.energy.gov/vehiclesandfuels/resources/fcvt\\_national\\_idling.html](http://www1.eere.energy.gov/vehiclesandfuels/resources/fcvt_national_idling.html)

**Study of Exhaust Emissions from Idling Heavy-Duty Diesel Trucks and Commercially Available Idle-Reducing Devices**, EPA420-R-02-025, October 2009

**Compilation of State, County, and Local Anti-Idling Regulations**, EPA420-B-06-004, April 2006