

TRUCK ROLLOVER PREVENTION

Part One



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Recently I came across a video clip put out by the U.S. Department of Transportation - Federal Motor Carrier Safety Administration. Having recently dealt with a series of rollover claims, including a couple of Tankers, I thought it very relevant to reproduce a condensed version of the video transcript.

This item focuses on tankers but it relates equally to all trucks, particularly those with a higher centre of gravity.

This article will be a two part series and I will provide a web link to the video clip at the end of Part Two next month as it is definitely worth playing.

So – what causes a rollover?

The answer you get most often is driving too fast for road and weather conditions. And that's true sometimes, but that's not the only reason. By the end of this article you will know how they happen, why they happen and how YOU can avoid them.

Rollovers can happen anywhere but more often on straight roadways and light curves.

ROLLOVER RISK FACTORS:

Let's start with the **design and performance of tankers.**

The first thing you need to know is the impact of a high centre of gravity. Everything has a centre of gravity. It's the place where an object is balanced in all directions. Anything with a high centre of gravity relative to its width is less stable and tankers have a high centre of gravity. That means a unit will lean when it enters a turn. How much it leans depends on the vehicle's speed, the sharpness and banking of the turn and the unit's centre of gravity.

So the truck starts to lean and what happens is that its centre of gravity shifts towards the outside. When it does that the

liquid in the tank moves sideways. We call that sloshing. If this happens too suddenly and too strongly it can roll the vehicle.

If you hit the brakes suddenly the liquid will surge forward. That can also cause you problems. If you do things more slowly you reduce the risk of problems.

All drivers should understand the design and performance of their vehicles. But as a tanker driver you also have to understand how your liquid load can and will contribute to rollovers.

Then **load effects.**

Drivers who have rolled over will often tell you their load shifted. They will say the load shift caused the rollover. But the load, especially a fluid load will always shift. It is responding to the way you, as the driver are handling the trailers movements.

How much load you are carrying affects how your vehicle handles. With a tank full of liquid one wrong move can mean a rollover. The most important thing you can do to keep the vehicle and the load under control is manage your speed. Manage your speed to adapt to driving conditions. When the road and the weather call for it slow down.

As difficult as it can be to drive a full tank of liquid, **partial loads** are even more challenging because there is more room for the liquid to move. Over 94% of rollovers occur in trucks with a partial load.

Liquid slosh and surge are a big factor in those rollovers. Slosh and surge are caused by speed, by turning radius, sudden braking or taking off, by sudden manoeuvres and by load distribution.

Surges also occur in a tanker following a sudden manoeuvre. This can be something like sudden braking to avoid an obstacle, trying to get back on the road after you drift off the road, moving the trailer too quickly for the conditions or shifting or missing a shift on a turn.

We should also take a look at several vehicle **maintenance issues.** Things

like poor brake performance, a damaged suspension, under inflated tyres and load dynamics. They could all contribute to a rollover.

You can eliminate some of them with an adequate pre-trip inspection. If you have any questions about your vehicle tell someone in Maintenance or in despatch. Don't leave with a vehicle that you are not confident will perform safely.

"It takes a few extra minutes to check all these things and it could be your life if you don't"

Now lets look at potential **road factors**, these include sharp curves, steep downhill grades, soft shoulders, berms, mounds and curbs, narrow driveway entrances or exits and limited visibility areas that can reduce eye lead time for turns or hills.

It is important to survey and identify high risk sections of the route travelled. Remember you are the professional on the roads you travel. If there is a road design condition that makes you feel uneasy report it to your company. Changes in despatch or additional warning signs in locations like that could help prevent rollovers.

The 'recommended speed' signs on corners are not for you. They are for passenger cars travelling in good weather. Fleet safety experts say that when you enter the corner you should drop your speed at least 10 KPH below what you see on the sign.

We all know that long downhill grades can lead to excessive speed. So, are your brakes properly adjusted? Have you shifted to a lower gear? The only acceptable time to deal with downhill grades is before you start down them. Don't rely on the 'feel' to estimate your speed. Remember that the larger the vehicle the slower the driver thinks it's moving so always check your speedometer before you enter curves, ramps or downhill grades.

And remember, newer trucks don't have the same engine retarding as older models.

Part 2 following next month. 



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