

**Problems of vehicle instability don't stop at mechanical breakdown, nor even resulting downtime. Andrew Woolfall points to legal ramifications, whether due to poorly maintained trucks or overloading**

# Stable

**E**ver since loads were first transported by commercial vehicles, right back to horse-drawn platforms and simple handcarts, items have fallen off. The transport industry has still not fully resolved this issue and every year operators are involved in incidents that can, at worst, have catastrophic consequences. And despite a plethora of guidance from various agencies, there are still common misconceptions about how loads can, and should, be secured.

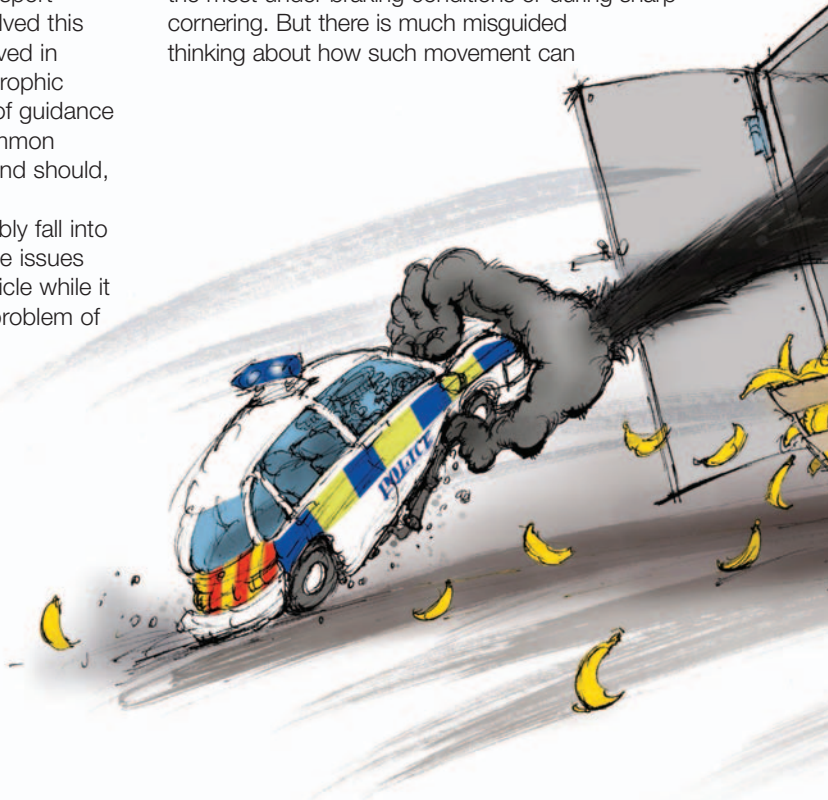
When problems do arise, they invariably fall into one of two categories. First, there are the issues resulting from a load falling from the vehicle while it is moving. Then, secondly, there is the problem of a load moving or shifting, resulting in difficulties arising during the loading or unloading processes. Both types of incidents have the potential to result in one of two types of consequence. First, there is the injury or damage ensuing as a direct result of the load moving – for example, the vehicle rolling over somebody, or someone or something being struck by the falling load. Alternatively, injury can be sustained as a secondary consequence, when somebody has an accident as a result of dealing with the spilt load. Examples include an employee falling from a trailer bed or someone driving into an object on the highway.

## **Damage outcomes**

Other issues can also arise, including damage to the product being transported, or damage to the vehicle or trailer transporting it. Where a load is discharged onto the highway, there are inevitably problems with regards to traffic disruption, as the load is recovered, and operators are often held accountable for costs involved in such operations.

Incidents that occur on the public road are often well publicised, but those that take place on private premises do not generally see public scrutiny. The HSE (Health and Safety Executive) recently estimated that more than 200 people every year are involved in loading or unloading incidents, where they are struck by falling materials. A number of these have been fatal accidents.

The key point is that, whenever a vehicle changes speed or direction, anything on or in it that is not properly secured is free to move. Loads usually shift the most under braking conditions or during sharp cornering. But there is much misguided thinking about how such movement can



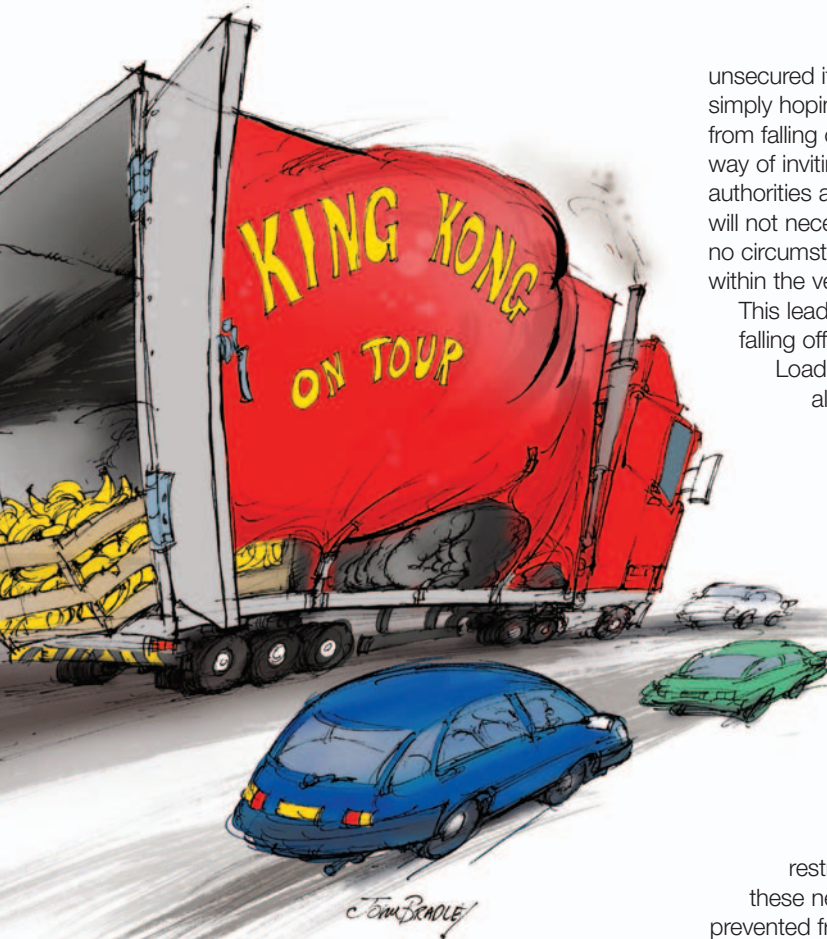
be minimised or, even better, prevented – and the popular, but entirely wrong, view that heavy loads are intrinsically safe and either do not move at all or do not move a great deal.

While heavy loads do, as a general rule, need a great deal of force to overcome surface friction, this alone cannot be relied upon to hold them in place. Drivers and operators are generally not qualified to calculate the coefficient of friction and frequently do not appreciate the issues that can reduce its effectiveness in preventing load movement.

The plain fact is that an unsecured heavy load can still move on a vehicle bed – for example, if it lifts slightly, even for a fraction of a second, during the course of a journey. Alternatively, if the trailer bed does not provide adequate grip, a heavy load can slip, with minimal changes in the angle of the vehicle, even at walking speed.

In one manslaughter prosecution, a 60-tonne

# environment



press fell from a trailer bed when the vehicle and trailer were reversed only a few yards to allow another vehicle to manoeuvre away. Everyone at the site had assumed that the weight of the press would be sufficient to prevent it from moving. None appreciated the very slight incline on the ground and the fact that the base of the press had been contaminated by oil. The combination of these two factors led to the press slipping from the trailer and crushing to death a site worker. The driver was prosecuted for manslaughter, and his employer was prosecuted for various health and safety offences.

## Missing the point

Other frequently encountered misconceptions include the view that the curtains on a curtainsided trailer form part of the load securing system. They do not. They are simply there to protect the load from the weather and to allow for easy access. Placing

unsecured items within a curtainsided vehicle and simply hoping that the curtains will prevent the load from falling off the vehicle is an almost guaranteed way of inviting close scrutiny by the enforcement authorities and a possible prosecution. The curtain will not necessarily prevent the load falling and under no circumstance will it prevent the load moving within the vehicle.

This leads to another issue: preventing loads from falling off a vehicle or trailer is not the only factor.

Load restraints and load containment should also be used to prevent loads from moving within the vehicle or trailer space.

Loads moving within a vehicle can lead to a loss of stability or balance, and the vehicle then rolling over. Backhouse Jones has dealt with numerous cases where the vehicle may not have immediately lost its load, but has turned over as a result of the load having moved. This includes loads carried in curtainsided vehicles, on rigid vehicles and even liquid loads containing live crabs.

It is clear that what actually prevents insecure loads from becoming a serious problem is a combination of load restraints and load containment. Both of these need to be used to ensure that loads are prevented from moving in any direction. Load restraint means preventing the load from moving, relative to the bed of the trailer or vehicle, while containment involves preventing the load leaving the vehicle.

Nevertheless, any system of restraint or constraint is dependent upon the strength of the structure to which that the load is attached. Again, another common misconception is that straps suspended from the roof of a trailer can provide sufficient means of preventing a load from moving. However, in many cases, they cannot.

Wherever possible, liquid loads should be transported in small containers. Equally, large tanks should contain baffles to minimise movement and momentum. There have been many cases whereby a liquid load has either moved substantially, causing the vehicle to roll over, or the movement has led to the liquid being spilt on the highway. Such incidents can involve anything from semi-liquid loads of animal by-products to tanks of oil. Where operators have



been convicted, the fines have been substantial, regulatory action has been brought and the operator has still had to pay clean-up costs.

### Available information

Much guidance has been issued in recent years in an attempt to prevent issues arising from load security. Look at the Department for Transport code of practice entitled 'Safety of Loads on Vehicles'. European best practice guidelines on cargo securing for road transport have also been issued, along with various guides produced by the HSE.

The latter organisation ran a campaign last year, directly aimed at tackling this issue, and all relevant materials are available online. Other organisations, such as the Freight Transport Association, have produced guides covering best practice in load safety for smaller vehicles, such as vans. So any organisation prosecuted for an offence involving load security cannot rely on a defence that suitable advice and guidance were not available.

Most guidance boils down to a number of simple rules. These begin with the idea that all loads should be individually risk assessed. Thought should be given to how the load will be transported and, in particular, to how it should be restrained and/or constrained. Wherever possible, trailers and vehicles should be filled tight to the front headboard or bulkhead.

This implies that the bulkhead needs to be sufficiently robust to resist movement of the load. If it is not possible to place the load against the front bulkhead, intermediate bulkheads or other methods of restraint should be used. However, all restraints have to be applied while bearing in mind the issues of weight distribution on axles (Transport Engineer, October 2011).

Loads should also be fastened to the bed of the vehicle or trailer. The load should be secured to the vehicle chassis. Rope hooks are for tarpaulins only

and should not be used to restrain loads. As has been outlined above, curtains should not be relied upon to restrain a load – they are only there to provide protection from the weather.

Even if you're lucky and the load doesn't fall off in transit, it could still fall when the curtain is opened. Remember, while there is a European standard for a curtain that forms part of the load restraint systems, such curtains and vehicles are uncommon within the UK, as they require a reinforced vehicle superstructure, which must be tested to certain standards.

In the end, it is considered best practice for drivers to keep a loading plan with them at all stages while making deliveries. Ideally, drivers should witness the loading of the vehicle and trailer, so that they can supervise load distribution and security. This does mean that drivers and loading staff should be properly trained in the principles involved.

### Loads better

As has been mentioned above, thought should also be given as to how a vehicle will be unloaded. A load may have been placed on the vehicle in a perfectly secure manner, but this does not necessarily mean that, once the restraints are removed, there is not still a potential for the load to fall.

The author recalls dealing with one fatal case that involved the transportation of pipes. The load had been placed on the vehicle and secured using straps that had indeed prevented any movement during transit. However, when the straps were released on slightly uneven ground, the absence of 'goal posts' on the sides of the vehicle allowed the pipes to fall from the trailer bed and crush the driver to death. Again, the operator was prosecuted, facing severe consequences.

Incidents involving loads shifting on vehicles or falling at some stage of the journey can easily be prevented by careful thought and planning. In 2010, VOSA confirmed that the vast majority of vehicles it prohibited at roadside with insecure loads were subsequently made safe for onward transport by the driver using restraining straps already carried on the vehicle. Almost 40% of the prohibitions issued for incidents of this nature were for inadequate load restraint. Incidentally, more than 15% were issued as a result of the straps being in a defective condition.

Put simply, incidents can be avoided by ensuring that: drivers and loading staff are properly trained; correct equipment is provided; and load security is addressed at all stages of the journey, from loading, through transportation and then removing the load from the vehicle. When all these issues are dealt with properly, if rare occurrences do arise, defences may be available. **TE**

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