

Falls from Vehicles

Presentation by Nina Day, Senior Engineer, Health and Safety Laboratory, Buxton

Nina introduced herself by describing her experiences during eight years in Accident Investigation, before moving on to two-and-a-half years in her current post, dealing with loading and unloading of lorries and safe working on roads.

The work was usually carried out for the HSE but a significant amount was also done for third parties.

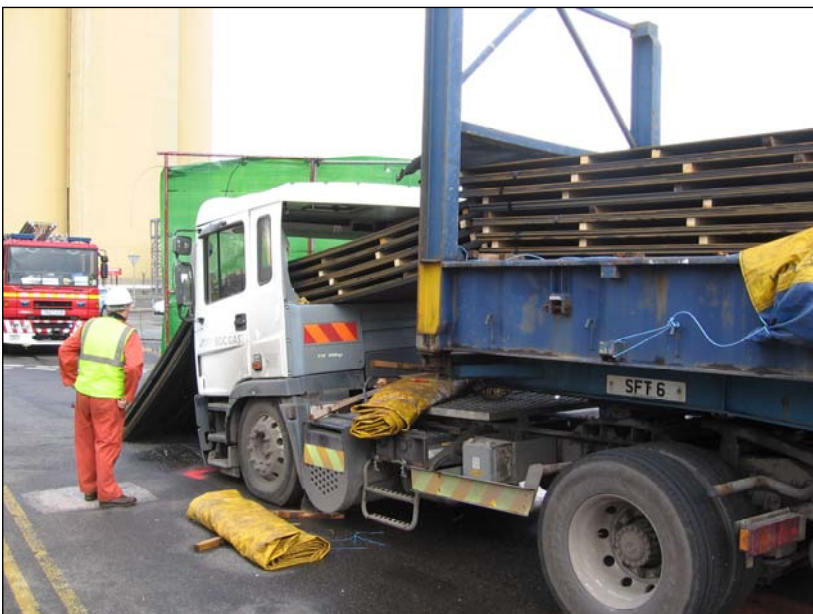


Nina Day, Senior Engineer, HSL, Buxton

Load shifting was an all too common occurrence that, in addition to causing accidents on the roads, at great inconvenience to other travellers, it could also present a risk of falls to other staff who had to deal the effects of an unstable cargo.

Sometimes it had fatal consequences for the driver, as in the case of a recent accident where a load of unsecured steel plates moved

forward into the cab of an articulated truck, braking from a slow speed, as it approached a roundabout in the Seaforth Docks.



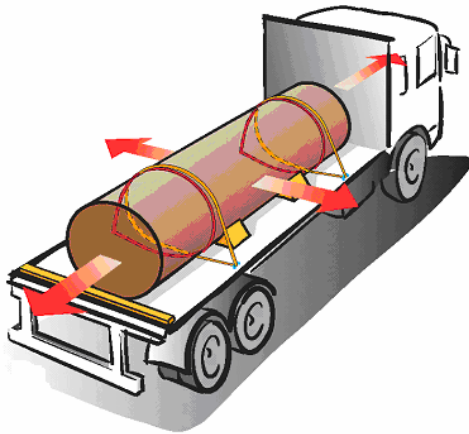
This resulted in a £150,000 fine for the company and is categorised as a “Direct Accident”. If the shift in load had not resulted in a fatality but, merely, a vehicle rollover then it may not have appeared in any set of statistics!

Even if a curtain stops a load from falling out during transport there is



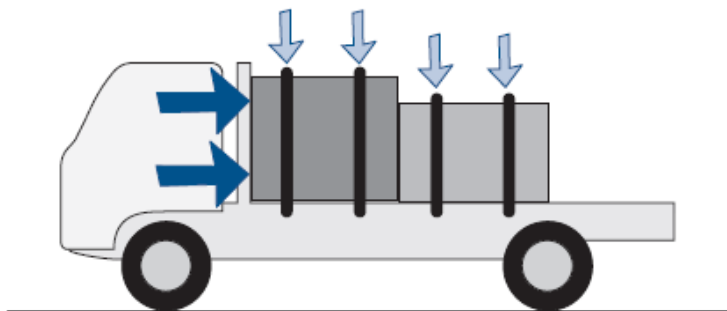
nothing to stop the load from shifting inside the trailer. Where a load shifts and someone has to climb onto the unstable load and falls off the load bed, then that is classified as an “Indirect Accident. Many such accidents have certainly appeared in RIDDOR statistics, showing that “load shift events” are often the cause of falls from vehicles.

This is because loads that have shifted within a trailer are more difficult to remove and the process is extremely time-pressured, with little time to carefully consider the unforeseen risks posed by an unstable load. For example, a load normally unloaded by fork lift truck may have to be manually unloaded. So, an important part of fall risk

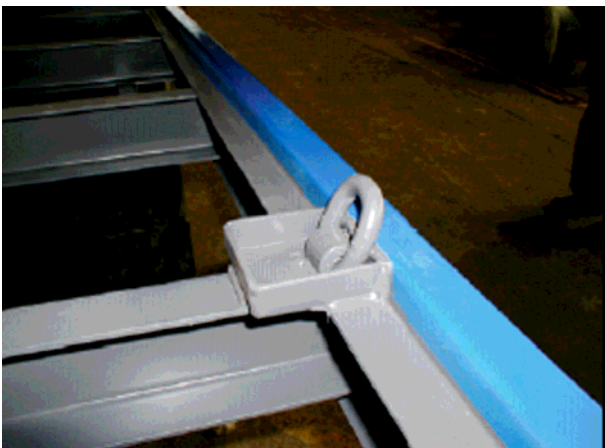


reduction is “Elimination” by preventing load slip in the first place. In this case, shrinkwrap was proven not to be a very effective load restraint device at all!

Loads need to be prevented from moving in every direction, including upwards, in order to resist the normal acceleration or deceleration and turning movements of the vehicle. Load restraint means preventing the load moving relative to the vehicle bed.



Usually, if the load restraint system can withstand the full weight of the load to the front and half the weight to the side, then the load will be secured. It can be secured by means of tie down lashings, like these, or direct lashings onto the load.



One of the most important requirements for a safe restraint system is for the lashings to be secured to a properly rated anchorage point, on a main chassis member, like the example on the left.

All too often, however, drivers attach the lashings to rope hooks, like the one below, that are not structural components and do not have any standard rating. In this example, the lashing hook is engaged in an unapproved way that downgrades its nominal rating.

The webbing lashing material should also be marked with a nominal rating to match the weight of the load and the loading arrangements. It should be checked regularly for damage or wear, as webbing is particularly vulnerable to damage and guidance on how to inspect it can be found in the HSE free leaflet, INDG367, Inspecting fall arrest equipment made from webbing or rope. Despite this being about fall arrest equipment, the principles are still the same. On no account should any damage be repaired by knotting the webbing, as even the slightest nick or defective stitching has a catastrophic effect on the nominal rating and renders it useless. Sub-standard lashings should appropriately labelled and sent for disposal.



Other essential principles are: -

- Use the right vehicle for the job, with risk control design features built-in
- Plan loading/unloading to eliminate risks
- Think about: load stability; what happens if it shifts in transit; site restrictions like sloping ground or narrow access
- Load to the headboard, if possible and fill any gaps with blocking material
- Protect webbing straps where they pass over sharp edges and, conversely,
- Protect the edge of fragile loads from pressure of the lashing

When working at heights, remember these important factors: -

- Wherever possible, work from ground level and provide low level controls and maintenance access
- If access to the load bed is necessary, consider: -
 - dock levellers
 - working platforms, both around and on the vehicle
 - access ladders and handholds
 - Fall arrest systems over the vehicle or attached to it
 - Fall mitigation like netting or air bags
- The vehicle surfaces can be very slippery in wet weather, so make good use of proprietary abrasive coverings to increase friction and keep them clean
- Provide good anti-slip footwear, with good ankle support.
- Check that the loadbed is sound, with no tripping hazards or holes and that it is firm enough to take the weight of a fork lift truck



Construction site load/unload bay



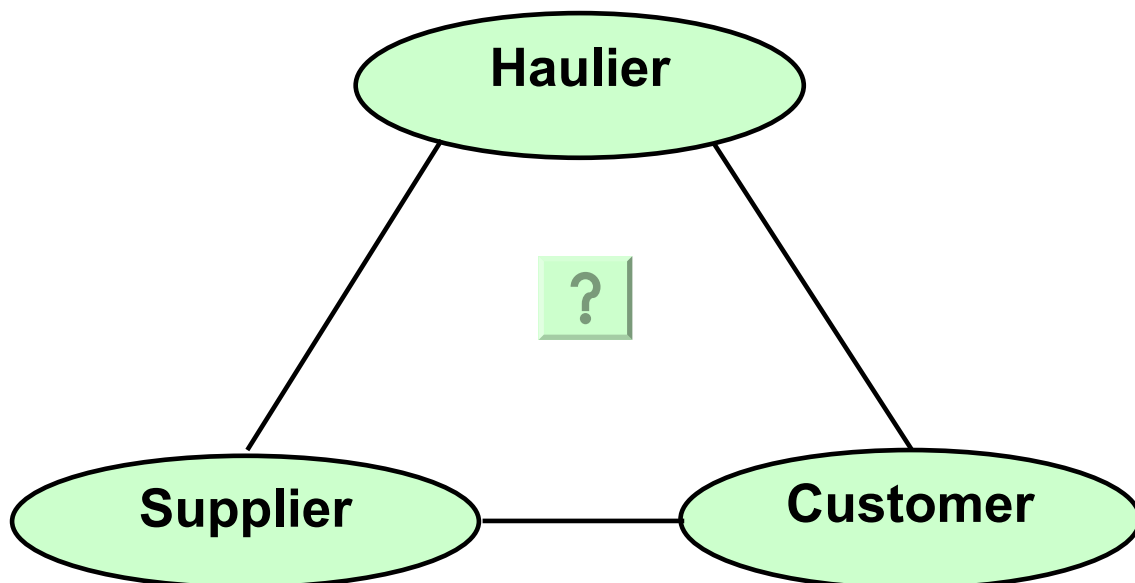
Improved ladder access with handhold to flatbed trailer

Nina then explained other important risk control measures, such as :-

- Separation of vehicles and pedestrians
- Provide clear signage – pictures speak louder than words!
- Keep drivers away from the loading area, or provide safe viewnuing area.
- Avoid gradients
- Provide good lighting
- Protect structures, especially racking or product stacks, which could become unstable



Nina concluded that the prevention of falls from a vehicle had to be achieved by teamwork between this group of key parties: -



- Responsibility for reducing fall risk is not just due to the driver
- The person loading the vehicle has to ensure that the load is stable and secure during loading, transit and unloading
- Employers also have to provide safe systems of work to protect their employees and others who may be affected by their work activity.
- Clear information must be passed on to the driver and key operatives at the delivery sites

Members' Questions

George Allcock, Consultant, asked if rope hooks were suitable for anchorage points on vehicles. Nina replied that they were not, as anchorage points must be secured to the vehicle chassis, or some equally substantial frame member. **The Secretary** commented that relevant design criteria existed in the Department for Transport, Code of Practice, Safety of Loads on Vehicles.

Mark Thompson, of ICDM, enquired if there were any suitable qualifications for safe loading. Nina replied that there were Eu Standards for loading techniques.

Robert Peabody, of Forum UK, asked if there were any statistics in the patterns of Road Traffic Collisions (RTCs) due to poor loading. Nina said that, unfortunately, reliable data on shifting loads were difficult to quantify as the police did not always obtain the information when investigating an accident.

George Allcock asked if any enforcement action had been taken under the Corporate Manslaughter and Corporate Homicide Act as a result of an unsafe load. Nina quoted her previous example of the steel plates which crashed through the driver's cab. She went

on to mention Police arrests of Haulage Managers in Ireland, where a driver was threatened with the sack, if he didn't cover up an incident. She went on to describe another accident where a fork lift truck driver was helping a HCV driver to arrange his load and was injured by the load. **Ed Friend** commented that his HSE experience had shown him that about one 1 in 10 professional drivers admitted that they had fallen whilst loading/unloading a vehicle and that this category was very under-reported.

Pam Folsom, HM Inspector, West Midlands Construction Group, asked if there was any specific Safe Loading training available. Nina said that the HSL had developed schemes with the Plastic Pipes Industry and Paper Industry and that the Freight Transport Association had co-operated with a joint publication. She added that industry groups were a good source of training and **Mark Hoare, of Brmingham University**, commented that large firms like Eddie Stobart would have developed standard operating rocedures, supported by in-house training. Nina went on to say that organisations carried very varied loads and developed specialised management procedures and structures to work safely within generic principles to suit their own situations. She mentioned European Guidelines, which were compatible with UK practices, and could be found on this link: - http://bookshop.europa.eu/eubookshop/bookmarks.action?target=EUB:NOTICE:KO7606419:EN:HTML&request_locale=EN

Nina continued on this theme of good practices that should be the basis of training programmes and mentioned an HSE research report on this link: - <http://www.hse.gov.uk/research/rrhtm/rr662.htm>

Tim Prestage, of Tim Prestage Ltd. commented that when he was obtained his HGV1 Licence in 1975, he did not receive any training on sheeting or loading and he posed the question "who is responsible for establishing safe loading and training?" This brought a response from **Richard Lockwood, HM Principal Inspector, West Midlands Construction Group**, that there would be a joint responsibility for a lifting plan to reduce fall risks. The **Secretary** commented that for a simple case of overloading, the driver would be prosecuted for the offence. In more serious accidents, the HSE might take action against the employers.

Secretary's Note:

Road Traffic Act 1991, Regulation 40A, Using vehicle in dangerous condition etc.,

"A person is guilty of an offence if he uses, or causes or permits another to use, a motor vehicle or trailer on a road when -

- (a) the condition of the motor vehicle or trailer, or of its accessories or equipment, or
- (b) the purpose for which it is used, or
- (c) the number of passengers carried by it, or the manner in which they are carried, or
- (d) the weight, position or distribution of its load, or the manner in which it is secured,

is such that the use of the motor vehicle or trailer involves a danger of injury to any person."

This confirms the views above, that enforcement action could be directed in a number of ways. There was a strong view, however, that a greater responsibility rested with the employer to establish safe working methods and instruct and train drivers appropriately. No different to general principles under most H & S legislation, then!

Gerry Mulholland commented that different vehicles and loads, combined with varied loading/unloading situations would dictate a variety of optimum methods of fall prevention. He identified vehicle attachments, Airbags around vehicles, cable anchorage systems and platforms as a small range of such solutions. Nina added that HSL had studied a number of cases where such solutions had been used cited one load that consisted of sand, transported in large fibreglass bags. Unfortunately, the sand settled in the bags and the lashings loosened as a result. The solution was to place the bags in metal stillages. Gerry summarised the situation for the Construction Industry by saying that his firm, Laing O'Rourke took a heuristic approach and considered the transport, loading and unloading requirements, as well as the construction needs, at their off-site manufacturing plant at Steetly. There it was very much a management-led responsibility and extended to route mileages and speeds, when considering driver safety.

As there were no further questions, Gerry thanked Nina for her presentation and asked the members to add their appreciation in the usual way.

Before closing the meeting, Gerry said he would like to welcome new members and asked if there was anyone attending for the first time today. **Simon Cox of Costain, Simon Langley of ISG Regions and Greg Jewkes of Dudley MBC** introduced themselves.