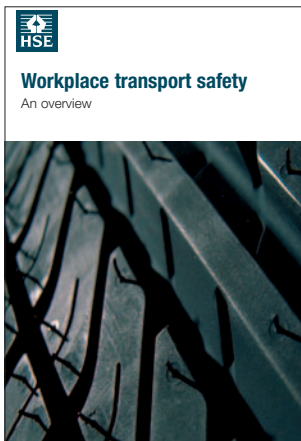


Workplace transport safety

An overview



Every year, a significant number of people are killed by accidents involving vehicles in the workplace, and many more people are injured. A lot of damage is also done to property and profit. Better planning, training and awareness, and the appropriate use of vehicles, can avoid most of these accidents.

This guidance has been produced by the Health and Safety Executive (HSE) to help people involved in transport in the workplace reduce the chances of accidents happening. It is aimed at both managers and operators and identifies some of the safety problems for common vehicle operations. More detailed information can be found in *Workplace transport safety: An employers' guide* HSG136.¹

Introduction

Responsibilities

By law, employers have a general duty to ensure that the health and safety of their employees and members of the public is not put at risk as a result of the work that they do. Employees also have a duty to look after their own health and safety, and that of anyone who might be affected by their work.

Reasonably practicable

The law requires that health and safety risks at work are controlled as far as is 'reasonably practicable'. For a control to be reasonably practicable, the cost must be sensible in proportion to the safety gain (reasonable) and it must be physically possible (practicable). Ultimately, only a court can decide whether what you did was reasonably practicable.

Workplace transport

Workplace transport means any vehicle that is used in a work setting, such as forklift trucks, compact dumpers, tractors or mobile cranes. It can also include cars, vans and large goods vehicles when these are operating off the public highway.

It specifically excludes transport on the public highway, air, rail or water transport, and specialised transport used in underground mining. However, a goods vehicle that is loading or unloading on the public highway is regarded as 'workplace transport' in this guidance.

Risk assessment

Managing for safety is about reducing risks, not eliminating them. Think about what accidents might happen, and take steps to try and make sure they are avoided. This is called a 'risk assessment, and every employer has to do it by law.

This publication will help you recognise the special hazards from transport in the workplace. General guidance on risk assessment is available in the HSE leaflet *Five steps to risk assessment*.²

First, identify the work activities involving vehicles (including visiting vehicles) over a reasonable period (eg over the course of a week). Activities may include:

- arrival and departure;
- travel within the workplace;
- loading, unloading and securing loads;
- sheeting;
- coupling; and
- vehicle maintenance work.

Next, identify the risks associated with these activities. Ask yourself what the possible dangers are, and what is causing those dangers. For example, could someone be hit by a moving vehicle? Could someone fall from a vehicle, eg while getting in or out, or during loading? Or be hit by an object falling from a vehicle? Could a vehicle tip over?

When looking for hazards, include:

- **The vehicles themselves.** Are they safe and suitable for their use? Are they properly maintained? Do they need to be replaced with new, safer vehicles?
- **The routes or roadways used by the vehicles.** Are they safe and suitable for the type and number of vehicles using them? Are they properly maintained? Have you considered nearby obstructions, curbs or edges?
- **What drivers are doing.** Are there pressures on operators that might encourage them to work less safely? For example, do they have to rush to complete their work on schedule? Is there a risk of drivers becoming over-tired? Are they working safely, eg when getting into or out of vehicles, during loading or unloading, and are they observing routes and speed limits? Look for 'short cuts' that drivers may be tempted to use in both routes and safety procedures.
- **What other people are doing.** Are other workers, customers, or members of the public kept clear of workplace vehicles wherever possible?

Ask drivers and any other workers at the site (including contractors and visiting drivers) for their views.

Remember, the risk assessment should always be kept up-to-date, regardless of any reviews that may be due 'soon'. If you introduce new vehicles, equipment or working practices, look at the risk assessment and see if it needs updating.

Organising for safety

All employees, contractors, maintenance personnel and visiting drivers must understand their responsibilities in the health and safety system. Include safety responsibilities in job descriptions and in training, raise safety issues in day-to-day contact with employees, and display safety notices and risk assessment results. Decide which methods best suit your business and monitor their use to make sure they are properly followed. The level of monitoring should reflect the seriousness of the risks involved, and the competence of employees to avoid them.

An accident reporting scheme is essential to enable employers to meet their legal obligations to report some accidents. Incidents and near misses that do not cause accidents should be included in the system. It can also be valuable when monitoring the effectiveness of safety measures. Make sure that safety problems, and solutions, can be reported up and down the management system, eg through regular safety meetings with employees or safety representatives, through safety newsletters, or by any other measures that suit your organisation. Report on good features as well as bad ones.

Communication

Good communication is essential for maintaining a safe workplace and helps ensure that safety information can be spread through the organisation and be put into use as effectively as possible. Managers should listen to the safety concerns of their employees and take appropriate action.

Contractors and subcontractors

The site operator should provide contractors with appropriate health and safety information, so that the work can be done safely. For example, share information about the workplace, routes to be used, vehicles and equipment on site, specific hazards, and other people on site, including other contractors or visiting drivers.

The site operator should check the suitability of the contractor and (through the contractor) any subcontractor. Check the contractor's employee selection and training procedures, their safety record on previous contracts and the suitability and maintenance standards of their vehicles.

The contractor should also be made fully aware of the penalties of unsafe working (eg make unsafe working a breach of contract). Supervise the contractor's work.

Informal licensing can be used to control how contractors and subcontractors work. For example, licences to operate on site can be issued for specified periods and only renewed if contractors have behaved properly. When a contractor takes on a subcontractor, the contractor should use similar checks and supervision to exercise control over their actions. The site operator will usually need evidence that adequate controls over subcontractors are in place.

Visiting drivers

Visiting drivers should be told the layout of the workplace, the route they need to take, and relevant safe working practices (eg for parking and unloading), as they may not have visited the site before. Consider printing site rules, directions, maps, approach information (eg narrow routes, weak bridges) on the back of order forms or invoices, so visiting drivers know what to expect before arriving on site.

Visiting drivers should not have to enter potentially dangerous areas to move to or from their vehicles or places such as the site office, or lavatory or washroom.

Foreign drivers may have different visibility from their cabs (if their vehicles are left-hand drive). They may be unfamiliar with UK signs or speed limits. It may be helpful to provide instructions in other languages.

Shared premises

The law requires all employers and self-employed people who share a workplace to co-operate in health and safety matters. They must:

- co-operate so everyone can comply with their health and safety duties;
- take all reasonable steps to co-ordinate the measures they take with those taken by other employers or self-employed people;
- take all reasonable steps to tell the other employers and self-employed about risks to their employee's health and safety as a result of their work activities.

Normally the site operator (or a main employer) controls the worksite, and will need to take responsibility for co-ordinating health and safety measures. Hold discussions with other employers; obtain health and safety information from them, and seek their agreement to site-wide arrangements. Make sure that everyone understands their legal duty to co-operate.

Vehicles on which employees of more than one company are working are considered shared workplaces, even if it is only for a brief period (eg during loading, unloading or sheeting). All the employers concerned are responsible for the safety of their own employees and those of the other employers involved. Anyone involved should agree at the start who will be responsible for what, including safety. The risk assessment for that operation may need to be reassessed.

If there is no employer in overall control, individual employers and self-employed people will still need to agree joint arrangements, eg by appointing a health and safety supervisor or co-ordinator, or by establishing a health and safety committee.

Deliveries

Deliveries and collections can be some of the most dangerous transport activities. A significant number of transport accidents in the workplace take place during deliveries.

As far as possible, parking, loading and unloading should be off the road or pavement, well away from the public. Where this is not possible, remember that health and safety law will still cover work activities on public roads or pavements, and all of the normal duties of employers and employees apply. Consider any risks to members of the public who drive or walk near the vehicle, and include this in the risk assessment.

Control risks during deliveries:

- where possible, present the side of the vehicle with easiest access to the workplace;
- where possible, lay the site out so that reversing is unnecessary;
- where reversing is unavoidable, make it as safe as possible (see *Reversing*), and consider using a competent and authorised signaller (banksman) with appropriate high-visibility equipment;
- when manoeuvring on public roads, remember that public traffic and pedestrians have priority and that signallers have no legal authority to stop traffic on the public highway. If cones or barriers are to be used, discuss this with the local police and highway authority, and don't direct pedestrians on to the road;
- if using lift trucks, make sure drivers are aware of increased risk of turnover from driving over kerbs or over road cambers, and make sure they know the correct driving procedures for these conditions;
- if articulated vehicles are being coupled or uncoupled, check that drivers know how to park them. Make sure drivers understand the correct use of parking and hand brakes, and that they use them;
- make sure drivers receive adequate safety information for each delivery or collection beforehand, such as restrictions on the type of vehicle the site can handle, or problems such as one-way systems or low bridges. If possible, provide a site plan including parking, location of reception, route through the site, location of unloading areas, driver waiting areas, and written information on procedures for visiting drivers (eg wearing high-visibility vests, limits on mobile phone use, prohibitions or special conditions for reversing such as using a banksman);
- set up simple systems for reporting any vehicle accidents, incidents, near misses and other safety concerns during delivery and collection. Exchange the information with all the other parties involved and take action on the reports;
- train drivers in general safety precautions so that they can deal with unexpected situations and they know what to do if they are not satisfied with safety arrangements when visiting sites. Give them simple safety checklists to help evaluate site safety;
- make sure drivers and site staff know what to do if a load appears to have shifted in transit;
- if you receive deliveries, consider giving responsibility for authorising unloading to a specific employee who will be present during the process. They should have the authority to refuse or halt unloading if there are safety problems, and should be confident that a decision to refuse delivery will be supported by management;
- employers of delivery drivers should give drivers the authority to refuse or stop unloading or loading on safety grounds, and should tell customers that their drivers have this authority;
- the law requires employers to ensure that all lifting operations are properly planned by a competent person, appropriately supervised and carried out in a safe manner. Make sure that lifting equipment is suitable for the use it is being put to, marked with its safe working load, properly maintained and inspected and receives a periodic thorough examination;
- everyone should be aware of what to do if they are not happy with safety arrangements and should have contact details for the other parties in case of problems.

If agreement on how significant safety issues will be dealt with cannot be reached, the delivery or collection should not take place. Delivery safety arrangements should be considered (and, if possible, agreed) before orders are taken or placed.

This will reduce the risk of an accident, and the waste of time and money when a delivery has to be delayed or sent back because a site cannot handle the load or the vehicle carrying it.

Assemble a general safety information sheet or pack (including the kind of information indicated above) which can be sent to anyone in the supply chain, along with any specific safety arrangements for specific deliveries.

If a site regularly receives deliveries from particular suppliers or carriers, it may be reasonable for the parties involved to assess the site in advance and produce agreed plans and procedures, including written instructions for drivers and site staff. However, if a particular delivery will be different from usual, it should not go ahead until the procedures have been reviewed, revised if necessary, and agreed by all parties involved.

The public

In some cases, the public may have access to sites, eg to visit a farm or factory shop or toilets. They should, as far as possible, be kept away from workplace vehicle routes and loading, unloading and parking areas. Safe routes for the public should be provided and clearly signposted.

Lift trucks are especially dangerous to the public, and as far as possible they should be kept apart. If lift trucks have to operate in public areas, a safe system of work should be developed, and its operation monitored.

A safe site

Every site is different and each site is likely to present hazards and risks that are not detailed here. It is a legal requirement that your risk assessment considers all foreseeable risks on your site, and not only the ones described here. Remember that drivers, vehicles and pedestrians rarely behave perfectly, so allow adequate safety margins wherever possible.

A well-designed and maintained workplace will make transport accidents less likely. Often, small, cheap things can make a difference, such as making sure visibility is good, lights are adequate and working, potholes are filled, markings and signs are clear, or spills are cleaned up quickly.

Keep vehicles and pedestrians separate whenever possible. Think about what kind of vehicles move around your site, including less-common vehicles (such as emergency services) and how much room they need to move safely. Then do what is practicable to keep vehicles in their areas, and pedestrians clear of them. Complete segregation is the ideal, although often not practicable, but the further apart you can keep vehicles and pedestrians the better.

Reversing vehicles are a major source of accidents. The best way of preventing reversing accidents is to make reversing unnecessary. A one-way system with drive-through loading/unloading areas can do this. If the site layout makes this impossible, you will need to take other measures to make reversing safe.

Make sure that equipment on your site that is used by drivers can be operated from a safe place, eg:

- gate/barrier buttons, intercom systems and security points that can be operated from the vehicle driving position;
- fill gauges that can be read without needing to climb on vehicles or structures;
- controls for dock levellers that can be used from several feet clear of the moving parts.

Wherever practicable, provide parking areas for all vehicles using the workplace – including private vehicles. Drivers leaving parked vehicles should not have to cross potentially dangerous areas.

While you can plan all of this yourself, professional help is available. If your site is complex, you may find it saves time and improves site efficiency if you get expert help.

If you do not own your site, you may also need to work with your landlord to provide safety features on site. Make sure that you have legal authority to make changes to the site. Remember that the landlord also has legal duties and the two of you should co-operate so that you can both meet your responsibilities.

Traffic routes

By law, every workplace must be organised so that pedestrians and vehicles can circulate safely. Workplace traffic routes must also be suitable for the people and/or vehicles using them, and pedestrian movement counts as 'traffic'. Where vehicles and pedestrians share a traffic route, they must be safely separated.

Every workplace traffic route must be constructed so that the driving surface is suitable for the purpose for which it is used. The build quality of outdoor traffic routes should be similar to that required for public highways.

General principles for safe traffic routes are:

- they should be wide enough for the safe movement of the largest vehicle permitted to use them (including visiting vehicles);
- they should take vehicle height into account. Remember that the height of a vehicle may vary, eg when the body of a tipper vehicle is raised. Potentially dangerous obstructions, such as overhead electric cables, or pipes containing hazardous chemicals, need to be protected using goal posts, height gauge posts or barriers;
- they should be planned to give the safest routes between calling places. Try to avoid routes that pass close to such things as unprotected fuel or chemical tanks or pipelines, unprotected road edges, unfenced edges of elevated weighbridges, loading bays or excavations, or anything that is likely to collapse or be left in a dangerous state if hit by a vehicle;
- they should be constructed of suitable material for the location, the type of traffic, the size of the route, and the ground or foundation it is laid on;
- they should have firm and even surfaces, and be properly drained;
- they should avoid steep slopes. If steep slopes are unavoidable, they should be properly signposted;
- they should avoid sharp or blind bends;
- they should be maintained to provide a good grip for vehicles and people, eg by roughening smooth surfaces, or applying sand to slippery ones.

The law that requires traffic routes to be wide enough for traffic to circulate freely came into effect on 1 January 2003 and is not retrospective, so it only applies to routes laid out on or after that date. On traffic routes that existed before that date, where it is not practicable to widen the road, traffic management systems or parking restrictions should be introduced if necessary.

By law, traffic routes must also keep vehicle routes far enough away from doors or gates used by pedestrians, or from pedestrian routes that lead to or from them, so that pedestrian safety is not threatened.

There have been major developments in materials handling machinery in recent years and routes need to be wide enough to accommodate these. Equipment will continue to develop in the future and if you are making changes to your site it would be sensible to allow for this. Pedestrian-operated equipment, such as pallet handlers and stackers, is also becoming more common and should be taken into account when planning traffic routes. Entrances and gateways need to be wide enough for your vehicles, and where possible, should be able to accommodate a second vehicle without causing a blockage. Routes should also be wide enough to allow traffic to pass oncoming or parked vehicles.

Vulnerable parts of the workplace (such as cast-iron columns, partitions or pipes) need to be protected from vehicles.

Temporary traffic routes

Temporary workplaces (eg construction sites, forestry operations and farms) often have routes for vehicles and pedestrians that change as work progresses, or 'unprepared' routes such as unsurfaced roads or open ground.

These routes should comply with the same basic safety standards applying to 'prepared' routes, ie they should be suitable for their purpose, have firm and even surfaces, be properly drained, and slopes that are too steep should be avoided. Try to make temporary routes follow natural contours of the ground where possible, so that natural drainage works for you, not against you.

Safety banks may be needed on some routes to prevent vehicles running over open edges, or to indicate a safe route. It is recommended that a bank should be 1.5 m tall or the axle height of the largest vehicle using the route (whichever is greater) and be strong enough to absorb a vehicle's impact.

Temporary roadways increase the risk of accidents. Consider:

- driver competence, particularly in dealing with the sorts of hazards encountered on unprepared sites;
- providing information and instructions to drivers, especially if they are not familiar with the temporary roadways;
- safe systems of work and traffic management, eg use temporary road signs and traffic lights;
- supervision of drivers, vehicle activities, and other employees.

More frequent preventative checks may also be necessary to ensure that vehicles do not develop faults while working on unprepared roadways.

Visibility

Forward visibility needs to be good enough to allow drivers to see and avoid hazards. Adequate visibility is related to vehicle speed and the distance drivers need to stop or change direction safely to avoid hazards. Additional factors affecting visibility are available light, dust, bad weather, the height of the driver above the road and the arrangement of vehicle windows.

There should be enough visibility at junctions and bends to allow drivers and pedestrians to see anything that might be dangerous. Avoid sharp or blind bends, and where they are unavoidable consider measures such as mirrors to aid vision around corners.

When visibility at a junction cannot be improved sufficiently, stop signs or traffic signals may be appropriate. Alternatively, consider using a one-way system.

Speed

Limiting vehicle speed is an important part of traffic control. The best way is to use fixed features (traffic calming features) that stop drivers travelling too quickly. Examples include speed humps (but see section *Avoiding overturns*), narrowing routes by use of bollards, raised kerbs or chicanes, and 'rumble' strips or areas. However, the wrong traffic calming feature can sometimes increase risk, eg by affecting the stability of vehicles or less-secure loads. You should assess the various features available and select those most appropriate for the traffic using your site.

Traffic calming measures should be clearly visible. Many features can be lit or made reflective.

Speed humps are often used to control speed but need to be used with care as they can create hazards of their own.

Speed limits are also widely used, but they need to be sensible and practicable, or drivers will be tempted to break them. Speed limits need to be appropriate for:

- the vehicles using the route;
- the types of load they carry and how they carry them;
- the driving surface;
- the route layout, including how tight the bends are, and visibility at junctions;
- hazards along the way;
- work being done on or near the route.

Common problems with speed limits are that they are inappropriate, poorly signed, or not enforced. They are often arrived at by guesswork, and may be unreasonable and difficult to enforce in practice. Often, vehicle speedometers don't work effectively at low speeds. Some internal site transport vehicles don't have speedometers at all.

To decide an appropriate speed limit, consider the route layout and road usage. For example, lower speeds will be appropriate where pedestrians are present or where fork-lift trucks and road-going vehicles share the roadway. Different limits may be needed for different parts of the site. Consider using professional advice.

Pedestrians

The most effective way of protecting pedestrians is to provide separate routes away from vehicles. Good examples of complete segregation include footbridges and subways. Protective barriers, clearly marked pedestrian and vehicle routes, and raised kerbs can all help.

Building entrances should have separate doorways for vehicles and pedestrians, with vision panels on all doors. Barriers or guard rails may be useful at building entrances and exits, at corners, and to prevent pedestrians walking straight onto roads.

Where pedestrian and vehicle routes cross, well-marked and signposted crossing points should be provided. Use dropped kerbs where the walkway is raised above the driving surface. Provide barriers, rails or deterrent paving to direct pedestrians to designated crossing points.

On routes used by both pedestrians and automatic (driverless) vehicles, take care that vehicles do not trap pedestrians. The vehicles should be fitted with safeguards to reduce the risk of injury if they do hit someone. Provide as much clearance as possible between vehicles and pedestrians, and make sure that fixtures along the route do not create trapping hazards.

Signs, signals and markings

The law requires that road signs used to warn or inform traffic in private workplaces should be the same as those used on public roads, wherever a suitable sign exists. Road signs are set out in *The Highway Code*.³

Use route markings to indicate traffic lanes, route edges, priority at junctions, stop lines, pedestrian crossings and so on, and to instruct drivers (eg 'SLOW'). Use warning signs to indicate hazards along the way. Traffic lights, speed sensors and flashing warning signs can be used to control traffic flow and speed.

White road markings should be used to regulate traffic flow, and yellow ones parking, using the same types of marking as on public roads. Markings can be made reflective for improved visibility.

Place signs so that people have time to see them, and take appropriate action before they reach the hazard. All signs should be clearly understandable, be easily noticed, clean and well-maintained so that they are visible at all times. Where overhead clearance is limited, consider the use of warning signs. Reflective (and preferably illuminated) signs should be used when they have to be visible in darkness.

Lighting

By law, every workplace must have suitable and sufficient lighting. Roads, manoeuvring areas, junctions, pedestrian routes and areas, and places where there is regular movement of vehicles or mobile plant all need particular attention.

Where lights are positioned is important, eg lights placed in the centre of loading bays may be blocked by tall vehicles. Lights placed between bays will often be more effective. Where drivers have to reverse towards strong lights, take care that the lights are not placed so that they dazzle the driver, either directly or through mirrors.

Measures may be needed to avoid sudden changes in lighting levels, eg when moving from a dark warehouse to bright daylight.

Further information can be found in HSG136¹ and on the HSE website at www.hse.gov.uk/workplacetransport.

Housekeeping

By law, traffic routes must, so far as is reasonably practicable, be kept free from obstruction and from anything that may make a person slip or fall. Keep your workplace clean and free from obstructions. Spilled loads, anything that falls from a vehicle, used packaging, and anything else that creates a risk of falling or tripping should be dealt with as soon as possible.

Safe vehicles

By law, every employer must make sure that work equipment (including vehicles) is suitable for the purpose for which it is provided or used. The law also requires that every employer, when choosing equipment, must take into account the working conditions and risks to the health and safety of people using the work equipment.

The design of vehicles used on public roads has to meet specific legal standards, set out in the Road Vehicles (Construction and Use) Regulations 1986. The overall construction and serviceability of vehicles used in workplaces should be at least as good as for public roads. In some cases, there are specific supply standards dealing with mobile plant in the workplace.

Some workplaces or types of work are particularly dangerous (eg building sites), and vehicles used in these places may need to be specially built or modified.

Workplace vehicles should be stable in use, and provide a safe way to get into and out of the cab and any other parts of the vehicle that need regular access. Vehicle access features, such as ladders, steps and walkways, should have the same basic safety features as site-based systems.

Vehicles should have seats and seat belts (or other restraints where necessary) that are safe and comfortable. Where appropriate, vehicles should have protection for drivers if they overturn, or against being hit by falling objects, including roll protection and restraints where necessary. Dangerous vehicle parts, such as power take-off, chain drives, exposed hot exhaust pipes, should have guards.

Drivers should be able to see clearly around their vehicle, so they can spot hazards and avoid them when moving. Closed circuit TV (CCTV) systems and special mirrors can help them see around and behind their vehicles.

Fitting vehicle lights, reversing lights, a horn and possibly other warning devices such as rotating beacons or reversing alarms, can help people near the vehicle know it is moving. Conspicuous painting and marking also helps a vehicle stand out.

Vehicles should be suitable for any loads carried, and there must be well-placed anchor points that are strong enough to allow the load to be properly secured. Loads should only be secured to proper anchorage points. The guide *Safety of loads on vehicles*⁴ gives detailed advice about vehicles carrying loads on the public highway, and much of the advice can be applied to securing loads on workplace vehicles.

When replacing worn load-retention strapping, demountable lifting chains or lifting cables, replace the entire set. This avoids any large differences in strength.

Where necessary, provide drivers with proper weather protection. Plastic sheeting rigged over part of the vehicle shows that properly engineered weather protection is needed. This is a particular problem with fork-lift trucks.

No one should be allowed to climb around on parts of the vehicle that are not designed to support them, and no one should do anything that might make them slip and accidentally operate the vehicle's controls.

Maintenance

By law, employers have to make sure that work equipment is in good working order. This includes workplace vehicles. Vehicles should be maintained so that they remain mechanically sound. Certain equipment, such as fork-lift trucks, tail lifts and lifting slings must be thoroughly examined by a competent person and a report kept.

Planned inspections are an important part of maintenance. These can range from basic safety checks by drivers before using the vehicle (such as checking that the tyres are properly inflated), to regular maintenance inspections carried out based on time or mileage. Provide drivers with a list of daily checks to sign off for their vehicles.

Preventive maintenance is also needed to help avoid failures during use. This should be thorough, regular and frequent enough to meet the manufacturer's guidance. Pay special attention to:

- the braking system;
- the steering system;
- tyres;
- mirrors;
- windscreen washers and wipers;
- any warning devices;
- specific safety systems;
- racking, securing points for ropes;
- any hydraulic or pneumatic systems.

If you find some failures happen frequently, you should look at why this is and how the frequency can be reduced. Look at the system of work, operator training and the maintenance schedule, and make appropriate changes.

Follow HSE's guidance in *Health and safety in motor vehicle repair*.⁵

Vehicle immobilisation

It is important that vehicles do not move when they are parked, during loading and unloading, and during any other operations when the vehicle should remain stationary. When vehicle runaway accidents happen, they often cause severe injuries because there are usually people around the vehicles. Even where no one is hurt, there is likely to be significant and expensive damage to the vehicle, or buildings or other plant.

All vehicles, whether road-going or specialist workplace vehicles, should have suitable brakes, both for general service and for parking. These should be used properly to immobilise the vehicle whenever there is a risk of it running away.

Trailers should always have the parking brake applied before uncoupling or coupling. **Never** rely on the emergency brakes.

If outriggers are provided to stabilise vehicles during loading/unloading, fitting them with plates rather than wheels will increase contact with the ground and make them more effective. On many vehicles, the outriggers are only intended to stabilise, so the wheels need to stay on the ground to support the load and provide braking. On these vehicles, make sure that operators do not over-extend the stabilisers and lift the wheels off the ground.

Where manufacturers provide wheel chocks, these should be used at all times when the vehicle is parked, or during loading or unloading. Information on chocking should be provided with the vehicle operating instructions.

Alarm systems are available that sound if the driver attempts to leave the vehicle cab without applying the handbrake. These systems can help make vehicle runaway accidents less likely when the tractive unit is connected. However, they will not make sure that the semi-trailer brakes are applied and are not a complete solution to preventing runaways. Also, a different tractive unit might be involved which is not fitted with an alarm, so driver checks for properly applied brakes are still important.

Privately owned vehicles

Site operators do not usually have much control over private vehicles (such as employee's cars) brought into the workplace. Nevertheless, their use can be regulated by restricting the type of vehicle allowed onto the site, restricting their routes, providing clearly signed parking areas away from main routes and dangerous areas, enforcing speed limits, and requiring visiting drivers to report to the site office.

Make it clear to everyone that driving in the workplace calls for the same or a higher standard of care as on public roads.

Managing the risks

HSE recommends that the same or higher standards be applied to workplace drivers as are applied to those allowed to drive on public roads. Every driver, and particularly younger or less experienced drivers, should be instructed to drive and work in a responsible and careful manner.

Drivers should be capable of operating the vehicle and related equipment safely, and should receive appropriate instruction and training. Employers and managers should never allow anyone who is unfit through drink or drugs to drive any vehicle. In a recent study of deaths and injuries involving site dumpers, less than half of the employers had bothered to check the drivers' competence.

Where the workplace has contractors or visiting drivers, the site operator or principal employer should check that they are competent to carry out their duties responsibly and carefully, eg by obtaining evidence of competence from the drivers or their employers.

Competence

There are two main ways of ensuring competence for a job, which should be used together:

- **Make sure new recruits are competent.** Have recruitment and placement procedures that ensure all your employees (and managers) are competent, or can learn the necessary competencies on the job.
- **Ensure the competence of existing employees.** Make sure that existing employees have the skills and experience needed for safety, and that they maintain them. If their work changes make sure they are competent for their new work.

Training drivers

Training needs will depend on an individual's previous experience and the type of work they will be doing. The risk assessment should help determine the level and amount of training needed for each task. Newly recruited drivers will usually have the greatest training needs, but you should have an ongoing programme of training and refresher training for all workers, to ensure their continued competence in a changing workplace.

Check the information given by employees about their work experience is true. For example, check that references to training schemes are supported by certificates. Test employees on site, even when they produce evidence of previous training or related work experience.

Training will often need to cover:

- general information about the job, eg route layouts, or how to report risks or accidents;
- training and/or checks to ensure that drivers can work safely, including making sure they know how to operate the vehicle safely, and information about particular dangers, speed limits, parking and loading areas and procedures etc;
- how supervision arrangements, including disciplinary measures for health and safety breaches, will be applied.

Always check that trainees understand what they have been told.

Keep training records for each employee. Consider keeping a central register of who in your workplace is competent to control which vehicle. This will make safely allocating tasks and keeping track of abilities much easier.

Reversing

Nearly a quarter of all deaths involving vehicles at work occur while vehicles are reversing. Many reversing accidents that don't result in injury cause costly damage to vehicles, equipment and premises.

The most effective way of reducing the risks from reversing is to remove the need for it altogether by setting up one-way systems, eg drive-through loading and unloading. Where reversing is unavoidable, organise routes to minimise the need for it. Any single measure is unlikely to be enough to ensure safety – you will probably need a combination of measures.

Make sure all visiting drivers report their arrival and receive instructions about the site layout and rules. If visiting drivers are unfamiliar with English, provide basic safety information in languages they use, or as graphics.

On sites where reversing is unavoidable:

- Reversing areas should be planned out and clearly marked, and visible to drivers and anyone else in the area.
- People who do not need to be in reversing areas should be kept well clear.
- Portable radios or similar communication systems can be helpful on some sites.
- Increase visibility for drivers and pedestrians, eg by:
 - increasing the area allowed for reversing;
 - installing fixed mirrors in smaller areas;
 - keeping vehicle mirrors clean and in good repair;
 - fitting refractive lenses to vehicle rear windows, or rear-view CCTV, to help drivers to see behind the vehicle.
- Vehicle reversing alarms can be fitted. These should be kept in working order and should be loud and distinct enough to be heard above background noise.
- In some circumstances, eg where a reversing alarm might not be easy to hear, visible systems such as flashing warning lights can be used.
- Other safety devices can be fitted to vehicles. For example, a 'sensing' or 'trip' system, which either warns the driver or stops the reversing vehicle when it comes close to or touches an obstruction.
- Physical stops, such as barriers or buffers at loading bays, can be used. They should be highly visible and sensibly positioned.
- Lateral white lines on the floor can help the driver position the vehicle accurately. Where vehicles reverse up to structures or edges, barriers or wheel stops can be used to warn drivers that they need to stop.
- When a vehicle has no rear-viewing aids to help reversing, the driver may only be able to check behind it by leaving the cab. Drivers should remember that this could be unsafe. In some industries, such as quarrying, employers may forbid drivers from leaving their vehicles, as it is especially dangerous. Visual checking can also be unreliable as someone may walk behind the vehicle after the driver has returned to the cab. If it is unavoidable, drivers should look to their own safety when leaving the cab, and take all possible care when reversing.

Signallers (banksmen)

Many employers use a trained signaller (banksman) to keep the reversing area free of pedestrians and to guide drivers. However, this is not always the preferred option as it places the banksman in the risk area. Some employers (eg in quarries) prohibit the use of signallers due to the size of vehicles involved and the difficulty that drivers have in seeing them. Signallers are always at risk because they must work close to moving vehicles. Before using one, employers should assess the risks they will be exposed to, and take precautions to protect them. Only properly trained signallers should be used. If a driver loses sight of a signaller they should stop the vehicle immediately.

A signaller should:

- use a clear system of signalling, agreed with the driver before starting;
- be visible to drivers at all times;
- stand in a safe position where they can guide the reversing vehicle without being in its way;
- wear highly visible clothing, such as reflective or fluorescent vests, and make sure that any signals are clearly seen.

Note: 'Banksman' and 'signaller' are often used to mean the same thing – a person who signals to a driver to guide the manoeuvring of their vehicle. Traditionally, a banksman would direct lifting operations for a crane operator, but the use of the term has widened, and now it is often used to refer to vehicle signallers.

Parking

Carelessly parked vehicles can create a risk of injury. Vehicles should preferably be parked in a dedicated parking area.

Pedestrian areas and walkways should be clearly marked, kept in good repair, and (as far as possible) segregated from vehicle routes.

Parking areas should be level, firm, well lit, well drained and clearly marked. Where vehicles have to be parked on a slope, they should have their parking brakes applied, be left in gear (where safe to do so) and wheel chocks should be used where appropriate.

Drivers should **never** leave their vehicle without ensuring that the vehicle and its trailer are securely braked, the engine is stopped, the starter key removed, and any mounted equipment lowered to the ground. Remember:

- brakes **on**;
- engine **off**;
- key **out**;
- equipment **safe**.

Make sure that drivers know that trailer parking brakes must be used. Use signs, instructions or any other measures you find necessary to make sure drivers brake their trailers properly.

On large goods vehicles, trailer emergency brakes should **never** be relied on in place of the parking brakes. Tractive unit brakes are not designed to make trailers safe.

If vehicles are left parked, make sure the keys are in a secure place.

Coupling and uncoupling

Coupling and uncoupling can have serious risks if not carried out safely.

Hauliers and site operators should ensure that areas where vehicles are coupled and uncoupled are well lit (by natural or artificial light), firm, and level. Vehicle stops, handholds and lighting (eg at the cab rear) should be provided and used where appropriate. Drivers should be properly instructed in coupling procedures and safety.

Where vehicles must be 'split coupled' or 'close coupled' because of lack of room between the trailer and tractive unit, the trailer parking brake **must** be properly applied before coupling or uncoupling.

When coupling trailers:

- The driver should check that the trailer parking brakes are applied. Air brakes should **never** be applied by detaching air hoses.
- For automatic coupling, the cab should be reversed slowly under the trailer, with the 'kingpin' lined up to the locking mechanism. Listen to hear the fifth wheel lock onto the kingpin.
- For manual coupling:
 - reverse the vehicle into place;
 - make sure that the parking brakes are applied;
 - manually attach the coupling mechanism.
- Do a 'tug test'. Try to drive forward slowly in a low gear to check that the fifth wheel is engaged.
- **Apply the tractive unit parking brakes** before leaving the cab.
- Inspect the locking mechanism to ensure it is secure and fit any safety ('dog') clips.
- Connect all brake hoses and the electrical supply to the trailer. Check that they are secure.
- Wind up any landing legs on the trailer and secure the handle.
- Fit any number plates and check that the lights work.
- Release the trailer parking brakes.

Uncoupling

When uncoupling, you should normally follow the coupling procedure in reverse. Make sure that the ground is hardstanding (ie firm enough to hold the trailer and its legs), and that the cab brakes are applied before getting out.

Loading and unloading

Loading and unloading can be dangerous. Heavy, hot, cold or corrosive loads, moving vehicles, overturning vehicles and working at height can all lead to injuries or death.

Loading and unloading areas should be:

- clear of other traffic, pedestrians and people not involved in loading or unloading;
- clear of overhead cables, pipes, or other dangerous obstructions;
- level. To maintain stability, trailers should be parked on firm level ground;
- fenced or provided with other edge protection where there is a danger of people falling;
- if necessary, protected against bad weather, eg strong winds can be very dangerous during loading.

Loads should be spread as evenly as possible, during both loading and unloading. Uneven loads can make the vehicle or trailer unstable. Loads should be secured or arranged so that they do not slide around. Racking may help stability.

Heavy loads are dangerous; think about what you need to do to control them. Special safety equipment (such as guards or skirting plates) may be necessary if there is a risk of anything being caught in machinery (eg dock levellers or tail lifts).

Ensure the vehicles and trailers have their brakes applied and all stabilisers properly positioned before beginning loading or unloading. The vehicle should be as stable as possible.

Other precautions may be necessary:

- In some workplaces, it may be possible to install a harness system to protect people working at height.
- Provide a safe place where drivers can wait if they are not involved. Drivers should not remain in their cabs if this can be avoided. No one should be in the loading/unloading area if they are not needed.
- Vehicles must never be overloaded. Overloaded vehicles can become unstable, difficult to steer or be less able to brake.
- Always check the floor or deck of the loading area before loading to make sure it is safe. Look out for debris, broken boarding etc.
- When loading a vehicle, think about how it will be unloaded. If it will be unloaded in stages make sure that this can be done as easily as possible and without making the remaining load unstable or badly distributed.
- Loads must be suitably packaged. When pallets are used, the driver needs to check that:
 - they are in good condition;
 - loads are properly secured to them;
 - loads are safe on the vehicle. They may need to be securely attached to make sure they cannot fall off.
- Tailgates and dropsides must be closed when possible. If overhang cannot be avoided, it must be kept to a minimum and clearly marked.
- Some goods are difficult to secure during transport. Hauliers and recipients will need to exchange details of loads in advance so that they can agree safe unloading procedures.
- Before unloading, check that loads have not shifted during transit, and are not likely to move or fall when restraints are removed.

- There must be safeguards against drivers accidentally driving away too early. This does happen, and is extremely dangerous. Measures could include:
 - traffic lights;
 - the use of vehicle or trailer restraints;
 - vehicle keys or paperwork can be held by the person in charge of loading or unloading until it is safe for the vehicle to be moved;
 - these safeguards would be especially effective where communication problems could arise, eg where drivers do not have English as their first language.

Tipping

Every year a number of vehicles overturn during tipping, with a high risk of serious or fatal accidents.

Visiting drivers should be required to report to the site office. The site operator and the visiting driver need to liaise and co-operate, eg make sure that everyone is aware tipping is about to happen, keep the area clear, and arrange for wheel stops to be used.

The site operator will need to ensure that tipping faces are suitable and safe, eg compacted tipping faces on landfill sites, and that there are no significant side slopes. Tipping sites should be:

- level;
- stable (the whole site should be able to hold the vehicle and load during tipping);
- clear overhead (eg no power cables or pipework).

Other precautions include:

- Articulated vehicles should always be tipped with the cab and trailer in line.
- Always check that the load is evenly distributed across the vehicle.
- The vehicle should remain level at all times, even if it has to be moved forward.
- Use wheel stops to help position vehicles. They should be large enough to let the driver know when to stop, and far enough from the edge to prevent the vehicle overloading the edge.
- Make sure that the tailgate is safe:
 - it should be released and secured/removed completely before tipping;
 - if the load discharges through an opening or chute, the tailgate latch needs to be strong enough not to be damaged by the full impact of the load when it is tipped;
 - check that the load will discharge smoothly and safely and that it will not jam.
- Never allow anyone to stand or walk immediately behind the vehicle when the body is raised.
- When raising or lowering the body, the driver should never leave the vehicle and should ensure that the cab doors are closed. The use of 'donkey engines' to drive the tipping mechanism is not recommended.
- Drivers should be sufficiently experienced to anticipate loads sticking:
 - the vehicle should never be driven to shake free a stuck load. Lower the body and free the remaining load before raising the body again;
 - **no one** should climb onto a raised vehicle to clear a stuck load;
 - aids such as mechanical 'vibratory discharge systems' can help;
 - the driver should always ensure that the body is completely empty after tipping;

- the driver should not drive more than a few metres forward to ensure the load is clear, and should only do this after checking that the load is at the bottom of the tipping body.
- Vehicles should not come into contact with **any** cables. It is not always clear what sort of cable might have been fouled, as some telephone and electricity cabling looks similar. If this does happen, and the situation cannot be made safe immediately:
 - the driver should leave the vehicle by jumping as far clear as possible;
 - while jumping, the driver should **never** make contact with the ground and the vehicle (or anything touching it) at the same time as this would complete an electrical circuit and may cause serious injury or death;
 - the driver should then ensure that no one else comes into contact with the vehicle (or anything touching it) while it is still touching the power cable;
 - the area should be secured, and the local electricity supplier contacted to arrange for the power supply to be cut off. If you do not know the supplier's number, call 999;
 - **do not risk it!**
- If the vehicle begins to topple over, the driver should brace themselves against the back of the driver's seat and hold firmly onto the steering wheel. The driver should never try to jump out of a vehicle that is falling over.

Avoiding overturns

Vehicle overturns cause nearly a fifth of all deaths in workplace transport accidents. Fork-lift trucks, compact dumpers, tipper lorries and tractors are all especially prone to overturning.

People responsible for a workplace need to examine which vehicles are being used, and where and how. There are many reasons vehicles might overturn, including:

- travelling on slopes that are too steep;
- slippery surfaces (such as oil patches);
- soft ground, potholes or uneven terrain, curbs, steps or other edges;
- being overloaded or, for lift trucks such as fork-lift trucks, under loaded or unevenly loaded;
- going too fast, especially around corners. Consider using (and enforcing) speed restrictions;
- vehicle unsuitable for the task;
- carrying loads at a dangerous height (eg with a lift-truck load fully raised). Loads should be carried in a lowered position wherever possible.

Make sure drivers have proper information regarding where and how seat restraints and other safety equipment should be used. This can include clear floor markings, signs in safety areas and/or on vehicles. Drivers should be trained to follow safety procedures, wear proper restraints, and to spot dangers in advance and avoid them. Monitor workers to make sure they are wearing seat restraints when they should, and don't take risks that might make vehicles overturn.

In many situations, the seat belt/restraint is simply to prevent the driver trying to jump off an overturning vehicle. The driver should never try to jump out of a vehicle that is falling over.

There is a legal requirement for many types of vehicle to have a roll-over protection system (ROPS), such as a roll cage, and restraints (eg a seat belt) fitted if there is a risk of them overturning. ROPS on some kinds of vehicle can reduce the risk of injury if it overturns, but are not fully effective unless the driver is also wearing an appropriate restraint. Drivers have been killed when vehicles with a ROPS and a restraint overturned, because they were not wearing the seat belt provided.

Avoiding falls

Falling from vehicles is a significant cause of workplace transport injuries. Employers have a legal duty to try to prevent falls.

Access onto vehicles should be restricted to those people who have to go there. As far as possible, provide systems and equipment that allow people to work from ground level. Make gauges and controls accessible from the ground. Use vehicles that do not require manual sheeting, either by using packaging that does not need sheeting (eg intermediate bulk containers) or by using mechanical sheeting systems. As well as reducing risks, mechanical sheeting systems can avoid the need for special gantries or platforms, as they are usually fixed to the vehicle.

Where work at height is unavoidable, avoid the need for a person to go on top of the load where possible by providing permanent platforms or gantries. If platforms are provided, instructions on their proper use should be given, their use should be monitored, and there should be enough of them. You may need to install a harness system to protect people working at height.

Where people have to gain access to the top of a vehicle, they should preferably use site-fixed steps or stairs. Mudguards and wheels should **not** be used. Where the means of access is fixed to the vehicle it should:

- be placed on the front or back of the vehicle, as close to the relevant part as possible;
- be of sound construction, properly maintained and securely fixed;
- be vertical or slope inwards towards the top if possible;
- have horizontal rungs that give plenty of toe or foothold.

Use walkways where people have to move around on vehicles. Walkways should be made of non-slip grating or another non-slip material. Extra protection can be given by using top and middle guard rails for protecting people working standing or crouching, or use collapsible handrails.

Consider fitting additional safety features, such as those described above if they are not already present, or use alternative methods of access. If features are retrofitted, ensure that the alterations do not affect the structural integrity of the equipment, and that the actual operation of retrofitting is safe (eg welding onto petrol tankers may create significant risks).

Work at height on vehicles should, where possible, be carried out in designated places, away from passing traffic and pedestrians and sheltered from strong winds and bad weather. Extra care will need to be taken in wet or icy conditions.

Vehicles should be parked on level ground, with their parking brakes on and the ignition key removed. Suitable footwear and (where necessary) hand, eye and head protection should be provided and used.

No one should ever attempt to climb onto a moving vehicle. This is a significant cause of accidents each year. Passengers should only be allowed on a vehicle if it is designed to accommodate them safely, with suitable seating and restraints.

Different employers working in the same place may have a legal obligation to co-ordinate their safety measures. For example, where work has to be done at height and where permanent, safe access to the top of the vehicle cannot be achieved, an alternative means of safe access should be provided, such as a suitable stepladder provided by the site operator at the destination.

References

- 1 *Workplace transport safety: An employers' guide* HSG136 HSE Books 2005 ISBN 0 7176 6154 7
- 2 *Five steps to risk assessment* Leaflet INDG163(rev1) HSE Books 1998 (single copy free or priced packs of 10 ISBN 0 7176 1565 0)
- 3 Driving Standards Agency *The Highway Code* The Stationery Office 2004 ISBN 0 11 552449 5
- 4 Department for Transport *The Safety of Loads on Vehicles: Code of Practice* The Stationery Office 2002 ISBN 0 11 552547 5
- 5 *Health and safety in motor vehicle repair* HSG67 HSE Books 1991 ISBN 0 7176 0483 7

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