

FORKLIFT SAFETY REDUCING THE RISK

2ND EDITION

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CONTENTS

Introduction	1
1. Forklift stability: the facts	2
2. Forklift instability: the risks	3
3. Speed and stopping distances	7
4. Getting on and off: The safe way	8
5. Load and load handling	10
6. Know your forklift	11
7. Simple safety tips for forklift operators	12
8. Know your workplace	13
9. Traffic management planning	14
10. Pedestrians and forklifts don't mix	16
11. Reducing risk	17
12. Policies and procedures	18

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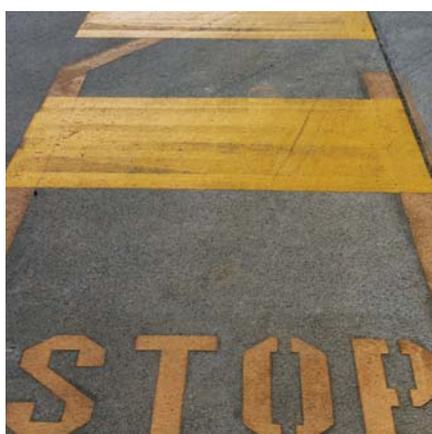
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INTRODUCTION



A medium sized forklift weighs about the same as your average dump truck – and can cause just as much damage and injury.

You would place tight controls on a heavy vehicle such as a dump truck travelling around your workplace, and the same must be done for a forklift.

Supervisors and managers must be aware of how a forklift is operated, and the serious impact incorrect safety procedures can have on lives, families and businesses.

WorkSafe Victoria has a zero tolerance approach to the unsafe use of forklifts – one of the most dangerous pieces of equipment found at Victorian workplaces.

Workplaces found to be using forklifts in an unsafe manner can expect WorkSafe to act swiftly and enforce compliance with workplace health and safety laws.

1

FORKLIFT STABILITY: THE FACTS



Deaths, injuries and workplace losses attributed to forklifts:

- In the period from January 1985 to January 2006, 56 forklift-related fatalities have been reported to WorkSafe Victoria.
- 30 of these involved pedestrians; 16 were hit by loads and 14 struck by a forklift.
- Ten of the other deaths were forklift operators who either jumped or fell from a forklift in a tipover and were then crushed between the forklift and the ground.
- Tipovers (forward or lateral overturning) are the second highest cause of forklift-related deaths.
- Forklifts tip over too often and cause too many workplace injuries.

These incidents are preventable.

In warehouses and factories, shipping yards and freight terminals across Victoria forklifts are used to lift, stack and transfer loads.

To be effective, a forklift must be manoeuvrable. To achieve manoeuvrability, forklifts are designed to be compact, making them less stable than other vehicles and mobile plant.

Forklift-related deaths and injuries continue to occur in Victorian workplaces. By now it should be clear, forklifts and pedestrians do not mix.

Safe work environments, effective employee training, well maintained machinery, systematic traffic management and effective supervision all play an important role in reducing the risks posed by forklifts in the workplace.

When work methods are unsafe or workplaces inflict demanding schedules on forklift operators, incidents occur.

All those employed as supervisors/managers at workplaces where forklifts are used must know the impacts these heavy pieces of machinery can have on their operators and passing pedestrians.

Forklifts have a range of limitations, from maximum load weight to speed. These factors affect the operator and the forklift itself, employers should ensure the workplace conditions suit the forklift and the tasks it performs.

This guidance material has been developed to extend the current state of knowledge on forklift safety in general, and on forklift stability in particular.



2

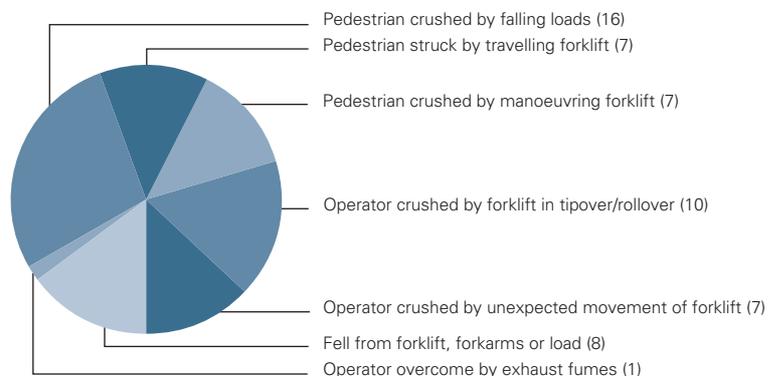
FORKLIFT INSTABILITY: THE RISKS

Driving with raised forks, cornering too fast, striking low doors or beams, driving across inclines and uneven ground are the main causes of forklifts overturning. Colliding with another vehicle, braking too quickly and towing disabled forklifts have also caused overturns and fatalities.

Forklifts tip over too often. Changes to workplace practices and people's behaviour in and around forklifts need to be made.

Make changes now.

56 REPORTED FATALITIES INVOLVING FORKLIFT TRUCKS – 01 JAN 1985 TO 30 JAN 2006



FORKLIFT INSTABILITY: THE RISKS

PUT SIMPLY, FORKLIFTS OVERTURN AS A RESULT OF:

- Travelling with forks raised and no load.
- Turning sharply.
- Travelling across an incline or uneven ground.
- Travelling with a raised load.
- Carrying a load forwards down a slope.
- Carrying an unevenly balanced load.
- Braking hard when loaded.

OVERTURNING AND TIPPING

Overturning poses the most danger to forklift operators in the workplace.

It is a leading cause of deaths involving forklifts, accounting for one in six deaths.

When an operator jumps or is thrown from an overturning forklift, more often than not they end up trapped under the overturned forklift and a fatality occurs.

A major cause of forklifts tipping over is when the forks are elevated with no load. This is made worse if the mast is tilted back. Forklifts tipping over contribute to a large proportion of forklift fatalities.

WorkSafe funded research identified 10 key concerns in relation to forklift stability:

1. Most rollovers involve unladen forklifts, making the truck more unstable than a laden forklift with the load being carried low.
2. When operators apply the brakes on a laden forklift they easily lose stability.
3. Even when stationary, forklifts have a small stability safety margin – 30-50% at rated load with the load down and 15-20% with a fully elevated load and mast vertical.
4. Manufacturers information does not always detail if the forklift's working capacity has been restricted by stability tests relating to (lateral) overturning or (longitudinal) tipover.
5. Manufacturers do not always include vital information, such as the forklift's capacity at full forward tilt of the mast and at maximum load elevation, in their sales information.
6. Uneven flooring, particularly with a height difference in excess of 20mm across the front wheels, can seriously impact on a forklift's stability when carrying its rated load at full height.
7. When undertaking high lifts, particularly over four metres, dual wheel forklifts should always be used.
8. When driving with a raised load or a raised empty load carriage, a forklift may become 'dangerously' unstable.
9. Loads attached to a forklift or suspended from a jib attachment are more likely to result in a full forward tipover when braking.
10. Forklifts can easily overturn if they make contact with overhead structures.

Lift capacity, the maximum load supported by the lift, and vertical lift travel are the most important forklift specifications to be considered in order to prevent forklift instability incidents.

FORKLIFT INSTABILITY: THE RISKS



MANAGING THE RISKS, IF YOU ARE AN OPERATOR

While every step must be taken to minimise the chance of a forklift incident, it is wise to be aware of what to do should you be involved in one.

When a forklift is travelling around a corner or down a slope, when it accelerates or brakes, forces are developed that can result in it rolling sideways, tipping forwards or backwards.

When a forklift overturns, the safest place for the operator is in the cabin with a seatbelt on. Body restraints should be fitted and worn. The operator is advised to hold on, stay with the truck and lean in the opposite direction of the overturn.

Almost every time an operator jumps from their forklift while it is overturning they are killed. While seatbelts can be a nuisance, they can also be a life saver.

In a reach truck or stand-up type forklift with rear access, seatbelts should be worn if fitted.



MANAGING THE RISKS, IF YOU ARE AN EMPLOYER

Employers have a primary duty to provide a safe workplace.

Providing a safe work environment, training, well maintained machinery and effective traffic management plans all play an important part in reducing the risks posed by forklifts in the workplace.

All employees, including managers and supervisors, have a duty to ensure the actions they take, or neglect to take, do not put themselves or others at risk.

When it can be proven that an employer's negligence has contributed to a third party's injury, such as a customer or delivery truck driver, the Victorian WorkCover Authority (VWA) can, and does, seek recovery of costs against the employer under the *Accident Compensation Act 1985*. These costs could potentially run to millions of dollars and have a devastating effect on any business.

MANAGING THE RISKS, IF YOU ARE A MANUFACTURER OR A SUPPLIER

There is a recognised need for manufacturers and suppliers to provide more information on a forklift's capabilities and limitations.

Often users are not aware of a truck's limitations. This can lead to a forklift being used close to its limits of stability.

In the design process, manufacturers can take steps to eliminate risks posed by forklifts in the workplace by introducing, and promoting, intelligent systems (Smart Forklifts) such as:

- mechanisms that prevent forklifts from starting when the driver is not restrained by a seatbelt or another device;
- limiting travel speeds to as low as 8km/h (9km/h for dual tyred forklifts), except where manufacturers can provide stability figures to show otherwise. This would assist in reducing the occurrence of side tipovers. (Uneven operating surfaces could require a lower speed limit);
- speed limiters to reduce the maximum speed of a forklift depending on the load, the height of the load and turning radius;
- systems to monitor and limit the number of wheel rotations while the forks are elevated to prevent forklifts being driven with raised forks; and
- load weighing devices supplied as standard equipment on forklifts.

FORKLIFT INSTABILITY: THE RISKS

Manufacturers should also provide information on a forklift's limitations on uneven surfaces and inclines.

Manoeuvring while stacking with off-centre loads at full height, especially on a surface with a 2% difference in gradient (20mm in 1 metre), can significantly impact on forklift stability.

When commissioning a new forklift, adjustments can be made to mast lift cylinders to prevent overloading. The maximum hydraulic pressure should be set at about 110% of the rated load at full height with the mast vertical.

Forklifts are often supplied with decals or numbers painted on the side that can be mistaken for the forklift's operating capacity. These should be removed or replaced with numbers that represent the correct capacity for Australian conditions.

Manufacturers should incorporate swivel seats where practicable on forklifts to ease the back strains caused to operators while turning to look behind.

Manufacturers should provide information and recommendations on dynamic effects on stability of different tyre types.

Selecting, using and maintaining attachments

When an attachment is fitted to a forklift the dynamic and operating characteristics may change, making it necessary to de-rate the forklift capacity and restrict some operating controls.

Attachments such as side shift devices, jibs and extension forks must have rated capacities and information on the type of forklift that is suitable for use in connection with such attachments.

The revised capacity when an attachment is used is to be endorsed on the load plate.

EMPLOYERS CAN HELP MITIGATE THE EFFECTS OF FORKLIFT INSTABILITY BY:

- Establishing appropriately sized pedestrian exclusion zones. The speed travelled and type of load carried will impact on the size of the exclusion zone.
- Design all new workplaces to ensure pedestrians and forklifts are completely separated.
- Ensuring seatbelts are fitted, correctly worn and by installing intelligent systems preventing forklifts being started unless a seatbelt is fastened.
- Purchasing forklifts with speed limiting devices.
- Removing incentives that may encourage forklift operators to drive too quickly.
- Reduce the speed limit around the workplace.
- Using forklifts with a greater capacity for a given load.
- Using dual wheeled forklifts that provide an extra margin of safety in lateral stability when lifting loads above 4.5 metres.
- Require suppliers to provide detailed information on all stability limitations, capacities at different lift height and lift positions and how the limiting capacity was obtained.
- Consider buying forklifts with a slightly higher capacity than actually needed at the workplace.
- When buying a forklift, look for stability-enhancing features.
- When hiring a forklift, don't settle for one that doesn't suit the workplace environment.
- Negotiate a good deal with your supplier – get a safer forklift for your money.

3

SPEED AND STOPPING DISTANCES



Prominently displayed signage



Intersections

A forklift's brakes are less reactive than other vehicles', but they can still cause a tipover or loss of load when applied heavily in an emergency.

Too many workplaces rely on the operator to apply 'just the right amount' of brakes to quickly stop the forklift without causing it to tip over. Usually, the only warning a driver will receive of this happening is when the back wheels come off the ground. This is unacceptable.

At all workplaces, speed limits should be prominently displayed, observed and enforced. Signs must be placed so that they can be easily seen by forklift operators.

Employers should purchase forklifts with speed limit devices and, where practicable, retro-fit older forklifts to ensure speed limits are observed and safety precautions taken.

The distance at which a forklift can stop in an emergency is determined by the speed at which it was travelling, the weight of its load and road surface. As such, forklift braking distances must be considered when planning for, and managing, forklift travel paths.

The emergency stopping distance of a fully loaded forklift is often significantly underestimated when planning for pedestrian safety. Monash University Accident Research Centre (MUARC) research showed that a laden forklift cannot use its maximum braking as the load will slide or fall from the forks, or the forklift will tip over forwards. The table below shows the minimum braking distance for common forklifts travelling on an even surface.

It also indicates typical 'reaction distance and total stopping distance' for an alert operator not distracted by other activities.

So, what does this data mean?

It tells us that at a speed of 14km/h, a forklift will travel four metres in one second and need at least 10 metres to stop safely. And that even at 6km/h (walking pace) a forklift needs at least three metres to stop.

It also indicates that emergency stopping distances must be taken into consideration when developing a traffic management plan.

Effective traffic management planning, intelligent systems fitted to forklifts (Smart Forklifts) and appropriate operator behaviour are the three major contributors to minimising the incident of pedestrian injuries.

REACTION DISTANCE AND TOTAL STOPPING DISTANCE

Speed (km/h)	6	12	14	16	18	20	22
Speed (m/sec)	1.7	3.3	3.9	4.4	5	5.6	6.1
Distance travelled while driver reacts and begins to apply the brakes in an emergency (m)	2.5	5	5.8	6.7	7.5	8.3	9.2
Total emergency stopping distance (m)	2.9-3.2	7-8	8-10	9.5-12	11-14	13-16.5	14.5-19

4

GETTING ON AND OFF: THE SAFE WAY

There's no excuse for not observing simple safety practices.

When getting off a forklift always check the parking brake is set, the forks are lowered and the controls neutralised.

See and be seen. Forklifts should not be operated in dimly lit areas or when an operator's vision is obstructed.

MANAGE RISKS ASSOCIATED WITH SLIPS, TRIPS AND FALLS BY:

- Training operators not to jump from a forklift.
- Providing information and training on correct techniques to get on and get off forklifts by ensuring three points of contact.
- Cutting the number of times workers get on and off their forklift.
- Ensuring forklift operating and parking areas are free of uneven surfaces and obstructions.
- Purchasing or retro-fitting forklifts with good footing, anti-slip surfaces and grab handles.



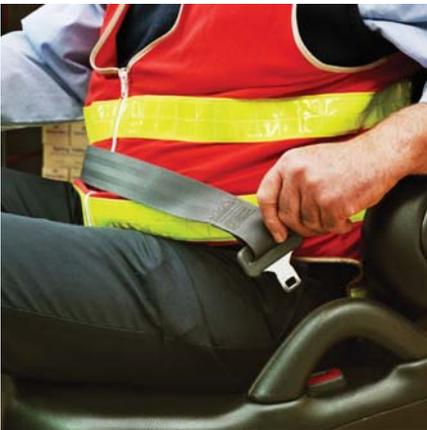
GETTING ON AND OFF: THE SAFE WAY



Grab rails



Anti-slip surfaces



Seatbelt

SLIPS, TRIPS AND FALLS

One in three forklift-related injuries occurs when an operator gets on or off a forklift, often resulting in musco-skeletal back injuries.

The design of access steps, grab rails and the positioning of controls and foot pedals should be reviewed to try to minimise this high injury rate.

Forklifts should have steps with good footing, anti-slip surfaces and grab handles to provide three points of contact while getting on and off the forklift. These factors should also be considered when purchasing a new forklift.

Reducing the number of times operators need to get on and off their forklift can also assist in reducing the number of slips, trips and falls.

SPRAINS AND STRAINS

Forklift operators often experience neck and back strains. Necks are often injured due to looking up when high stacking and looking behind whilst driving in reverse. Aids that limit neck 'craning' can assist in reducing these types of injuries.

Back strain may be caused by hitting bumps or driving on uneven surfaces. At workplaces where these injuries are common the quality and condition of forklift seats, together with road surfaces, should be reviewed and upgraded.

Sprains, strains and other soft-tissue injuries to the neck and back can cause long-term health problems. An employer's initial outlay in purchasing or leasing an 'operator friendly' forklift can be easily recouped by preventing these types of injuries.

MANAGE RISKS ASSOCIATED WITH SPRAINS AND STRAINS BY:

- Purchasing or retro-fitting forklifts with vision aids such as closed circuit video systems to reduce neck 'craning' and twisting.
- Maintaining level even surfaces in the forklift operating area.
- Ensuring the operator's seat and cabin are in good condition.
- Purchasing forklifts that are ergonomically designed to reduce the effort required to operate controls, steer and brake.

5

LOAD AND LOAD HANDLING

It is in an operator's interest to ensure all precautions are taken. Spend some time familiarising yourself with a new type of load or a new forklift. Not doing so could have tragic consequences.

When operating a forklift on an incline, the load must be tilted back and raised only as far as needed to clear the road surface. The rated capacity of a forklift should never be exceeded.

LOAD CARRYING

Even without a load, forklifts are heavy. Just like heavy vehicles (dump truck) they are weapons when not used correctly.

When travelling at low speeds forklifts can still cause injury. At higher speed, and fully laden, the risk is even greater.

Forklift operators must ensure each load is carried, lowered and set down in compliance with the manufacturer's recommendations and company procedures.

A forklift's capacity is the maximum weight it can safely carry at a specified load centre. Load capacity data plates are a useful tool, allowing manufacturers to detail the load each truck can safely lift.

The rated capacity of a forklift must always be noted and never exceeded. Marked weight, a weight gauge or scale can be used to weigh loads and ensure they do not exceed the forklift's capacity at a given load centre.

Overloading can damage the forklift as well as present additional health and safety risks to operators and pedestrians in the workplace.

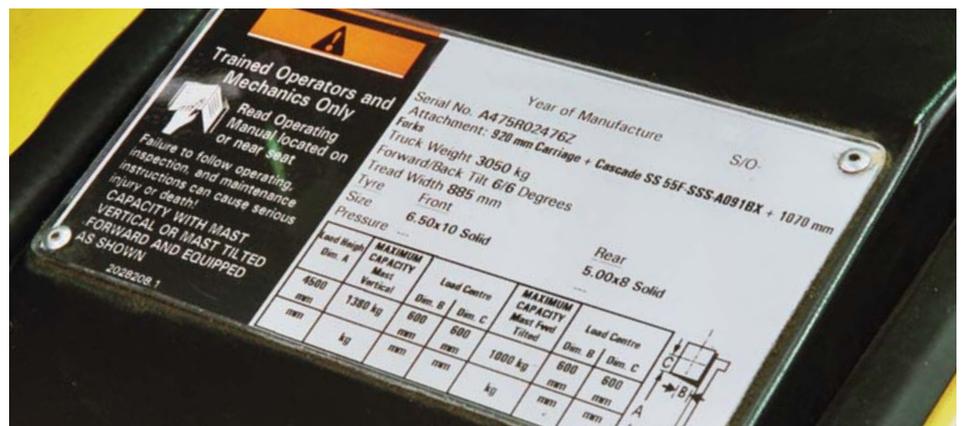
Together with the weight, the shape and size of a load affects the way it should be lifted.

When a load is raised, the forklift is less stable. Tilting forwards or backwards with a raised load will also affect stability.

Driving with a raised load is a dangerous practice impairing stability and easily leads to tipping, particularly if the forklift is being driven at speed or around a corner or over an uneven surface.

CHECK YOUR LOAD BEFORE YOU START YOUR ENGINE:

- If it's not placed correctly, reload it.
- Check that the load is within the forklift load limit listed on the load capacity plate.
- If it's particularly long or wide, check if you need to take an alternative route.
- If pallets are damaged, remove them.
- Ensure pedestrians are not present during forklift operations.



6

KNOW YOUR FORKLIFT

Completing the safety checklist should be part of every forklift operator's daily routine.

Before starting a shift all operators should check their forklift is in safe working order, ready to be used and capable of completing the tasks required of it.

If any damage or problems with a forklift are noticed, they should immediately be reported to a supervisor.

Conducting regular safety checks is also part of an effective forklift maintenance regime.

OPERATOR'S DAILY CHECKLIST

If a cross has been marked against any of the items on the checklist identifying an issue that could result in inefficient forklift practices or personal injury, then the necessary action must be taken. A supervisor must be notified whenever a cross is marked.

There are checklist stickers included at the back of this guide. Be sure to stick them onto your forklifts. They're made of wipe-clean plastic, so they're able to be reused again and again.

If you'd like more Operator's Daily Checklist stickers contact WorkSafe Victoria.

FORKLIFT SAFETY LET'S REDUCE THE RISK



If any of the below is deficient, **DO NOT OPERATE!**
Tag and notify your supervisor.

OPERATOR'S DAILY CHECKLIST

Operator _____ Forklift _____

S/No _____

If you notice any faults with any aspects of the forklift listed below do not use it.

Forklift operators must also look out for their own personal safety by wearing appropriate protective clothing, high visibility vests and enclosed shoes.

Before starting the forklift always check pedestrian exclusion zones are marked and that ground surfaces are even and clear. Then check the following is satisfactory:

- TYRES** check all tyres and look for any visual wear or damage
- FLUIDS** check oil, hydraulics, battery, fuel and coolant
- SEATING** check the condition and adjustment of seating
- WARNING DEVICES** check lights, horn and reversing beeper
- CAPACITY** check load-capacity plate is fitted, legible and correct
- MAST** check mast for any wear to lift chains and guides, inspect hydraulic cylinders, look for any leaks
- FORKS** inspect forks for any sign of damage
- SEATBELT** make sure your seatbelt is securely fastened

Once started, observe:

- CONTROLS** after start up, check all pedals and controls
- BRAKES** check brakes and parking brake for proper operation

*This pre-operational check is an example and should not be used in place of a thorough risk assessment of all workplace operations. It does not include all hazards related to the use of your forklift.

7

SIMPLE SAFETY TIPS FOR FORKLIFT OPERATORS

The forklift can be one of the most dangerous pieces of equipment in the workplace. To operate a forklift you must be trained and hold a relevant Certificate of Competency.

A series of checks should be undertaken each time a forklift is to be started. Use a checklist to check tyres, fluids, seating, warning devices, capacity, mast forks, controls and brakes.

- Seatbelts should be worn, speed limits and stop signs obeyed, use extra caution and avoid turning when negotiating grades, ramps and inclines.
- Slowing down and sounding your horn as you approach an intersection or corner is good, safe practice.
- When getting off a forklift ensure the parking brake is set, the forks are lowered and controls are neutralised.
- Most forklifts are one person vehicles, and unless an additional seat, footrest and seatbelt is available, passengers must not ride on the forklift.
- Forklifts are designed to lift and move loads, not people. Raising people on forks or pallets is extremely risky and is a prohibited work practice.
- Order picking platforms must have guard rails to prevent falls. If it is possible for a person to extend their body over the guard or step from the platform, then a safety harness should be provided and worn. The harness must be attached to a strong anchor point. Risk assessment should be performed to determine the type of travel restraint system or fall prevention system suited to the activity and workplace environment.
- Maintenance work platforms with a meshed in work area securely attached to the forks can be used to raise people performing minor maintenance tasks.
- Platforms should not be used by workers who have not completed the necessary safety training. These platforms should only be attached to a complying designated forklift with a load capacity data plate stating attachments that may be used. To use a forklift with a maintenance work platform it must have tilt levers locked out and restricting hydraulic valves fitted.
- Before anyone is raised on a forklift, safe work procedures must be in place to ensure they can be rescued if an incident or breakdown occurs.
- While every step must be taken to minimise the chance of an incident, it is important to know what to do in such a situation.
- If a side or forward tip over occurs, operators should not jump, instead they should stay in the cabin, hold on firmly and stay with the truck, leaning in the opposite direction of the overturn.
- A properly adjusted seatbelt will keep you safely in the cabin during an overturn.

8

KNOW YOUR WORKPLACE

As far as is reasonably practicable all employers should provide workplaces that are safe for all workers as well as any visitors to the workplace.

All workplace parties have a responsibility to ensure forklifts are used in a safe manner.

New workplaces should be designed to provide separate zones for pedestrians and forklifts.

Before operating a forklift the workplace and environment should be assessed to ensure it is safe and its conditions present no apparent risk of injury or damage to equipment or loads.

This checklist is an example and should be expanded to reflect individual forklifts and their operating environment. Use the checklist to ensure the forklift can be operated in a safe and efficient manner, minimise forklift-related injuries and ensure any inefficient or dangerous forklift practices are rectified.

WORKPLACE CHECKLIST

Before starting your forklift, familiarise yourself with the area in which you will be operating.

Before starting the forklift always check pedestrian exclusion zones are marked and that ground surfaces are even and clear of obstructions.

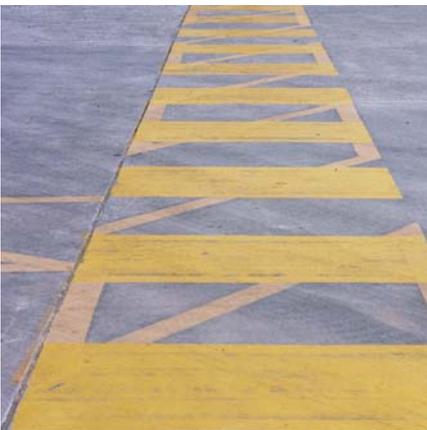
If you observe any hazards that may impact on the safe operation of a forklift notify your supervisor.

Take the time to walk around, assess the site and ensure you have checked the following and it is satisfactory:

• Pedestrian and vehicular traffic	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Restricted and poorly ventilated spaces	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Lighting conditions and noisy machines	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Uneven floors, ramps and railway tracks	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Overhead doorways, fittings, powerlines and obstructions	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Wet and dry areas	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Loading docks	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Storage racking	Y <input type="checkbox"/>	N <input type="checkbox"/>
• Forklift operating paths	Y <input type="checkbox"/>	N <input type="checkbox"/>

9

TRAFFIC MANAGEMENT PLANNING



Floor markings



Signage



Signage

A traffic management plan is essential to address many of the risks associated with the use of forklifts in the workplace.

Traffic management plans are the key to effectively separating powered mobile plant, such as forklifts, from pedestrians, including truck drivers, thereby reducing the risk of forklift-related injuries.

Safety of pedestrians is one of the most important aspects of a workplace traffic management plan.

The preferred way to develop a traffic management plan is to identify any hazards, assess the risks that may be caused by persons coming into contact with that hazard and then put in place risk control measures to eliminate or minimise any risks.

Consultation is central to developing a traffic management plan supported by all workplace parties.

Health and safety representatives (HSRs), forklift operators, other workers and employers should all play a part. This will result in a more informed decision, a boost in job satisfaction and morale, an improved commitment to health and safety and, by extension, fewer workplace injuries.

When identifying risk control measures consider the source of the risk and develop practical, workable controls. This could be achieved through a brainstorming session. Controls may include the most efficient route, traffic flows, reduced frequency of interaction with hazards, substituting a forklift with other suitable load shifting equipment and, where reasonably practicable, eliminating the risk altogether.

Once risk controls are in place they must be regularly reviewed to gauge effectiveness.

An effective traffic management plan can use a range of devices, including pedestrian and forklift exclusion zones, safety zones for truck drivers, safety barriers, containment fences and reduced speed limiting devices (Smart Forklifts) and signs. Please see the diagram of an example Traffic Management Plan for Truck Loading/Unloading.

All those at the workplace, including visitors, must be advised of the site's traffic management plan.

TRAFFIC MANAGEMENT PLANNING

Example Traffic Management Plan for Truck Loading/Unloading

Pedestrian Exclusion Zone

A pedestrian exclusion zone has been established for a distance of three metres around the forklift, plus an additional allowance for the nature of the load and the speed travelled. Forklift movements within this zone are stopped before pedestrians enter.

Safety Zone for Driver

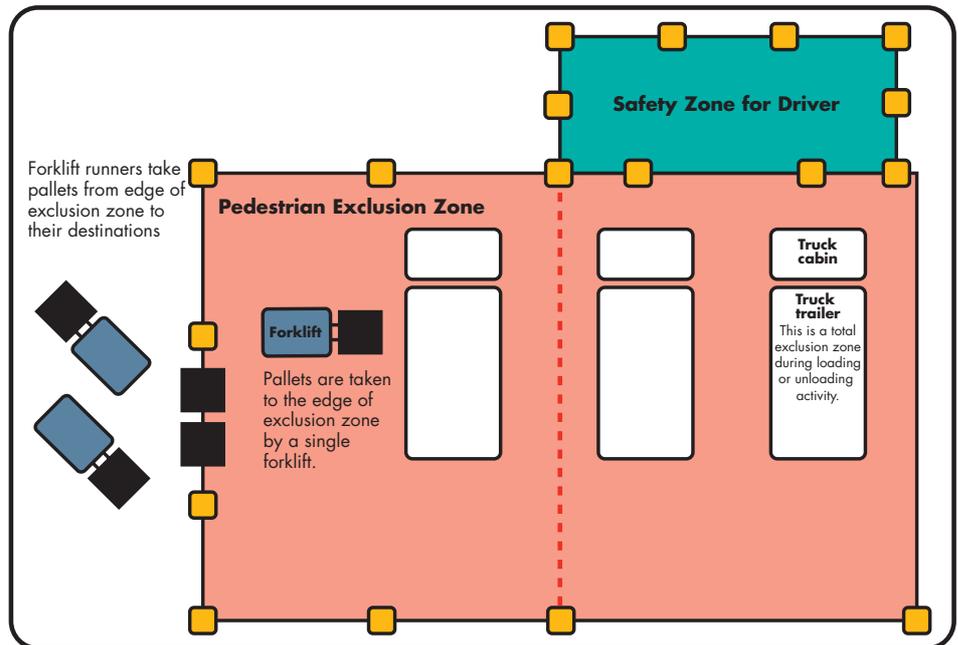
The driver must be in full view to a forklift operator. All loading or unloading activity must stop if the driver cannot be seen or needs to enter exclusion zone to inspect load. Alternatively, if it is safe to do so, the system of work can provide for the driver to stay in the truck cabin during loading and unloading.

Bollards/Witches Hats/Paint

Bollards marking the perimeter of the pedestrian exclusion zone have been installed.

Forklifts

Only one forklift operates in the pedestrian exclusion zone.



TIPS TO DEVELOP A TRAFFIC MANAGEMENT PLAN

All workplace parties should take decisive action to effectively separate pedestrians and forklifts.

Forklift movements, braking distance, stability, environment, height of load and the type of load being handled must be considered when introducing pedestrian exclusion zones and forklift exclusion zones.

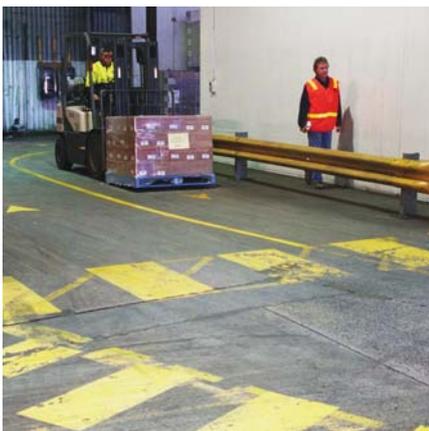
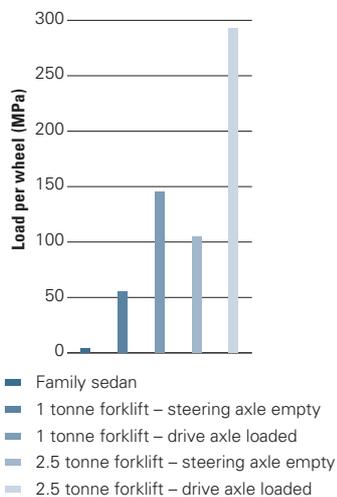
The optimum is to eliminate forklifts or substitute them with more pedestrian friendly load-shifting equipment. Workplaces should be designed to eliminate, or at least minimise, pedestrian access to areas where forklifts operate.

1. Study the frequency of forklift and pedestrian interaction and identify areas where they come into conflict.
2. Clearly mark 'No Go' exclusion zones for pedestrians and forklifts.
3. Erect barriers to protect marked pedestrian walkways and designated forklift operating areas.
4. Provide designated pedestrian crossings, ideally with risk control measures such as boom gates and overhead walkways.
5. Implement and enforce procedures, clearly indicating when pedestrians and forklifts must give way to each other.
6. Display clear warning and traffic management signs.
7. Use proximity devices to trigger signals, boom gates, warning signs and other 'smart' technologies.
8. Ensure forklift warning devices and flashing lights are functioning at all times.
9. Ensure pedestrians wear high visibility clothing (e.g. reflective vests).
10. Ensure all forklifts have high visibility markings and that the workplace is well lit.

10

PEDESTRIANS AND FORKLIFTS DON'T MIX

PRESSURE APPLIED TO TOP OF FOOT – FORKLIFTS



Barriers are the most effective way of separating forklifts and pedestrians.

Put simply, pedestrians and forklifts do not mix.

Forklifts are one of the most dangerous pieces of equipment found in the workplace. Almost half of all people injured by a forklift are pedestrians.

Simple measures can be put in place to separate foot and forklift traffic and help lower the injury rate.

Thinking strategically there are some obvious areas where forklift use should be prohibited or minimised, such as around tea rooms, time clocks, cafeterias, amenities and entrances.

Designate exclusion zones for pedestrians and forklifts. Pedestrian exclusion zones should be enforced within a three metre radius of a forklift. This distance should expand when the height of the forklift load or the speed travelled increases. If a pedestrian is within three metres of a forklift, employers are required to justify this practice through risk assessment and suitable risk control measures.

Pedestrian walkways must be clearly marked. Installing physical barriers ensures workstations are separated from forklift travel areas.

Audio warnings are just as important as visual ones. A mix of high volume alarms and horns coupled with flashing lights best warn pedestrians of approaching forklifts. Flashing lights are imperative in areas with high levels of ambient workplace noise.

Safety at intersections and blind corners can be enhanced by the addition of overhead dome mirrors, benefiting pedestrians and forklift operators. Avoid placing bins, racks or storage units that obstruct a forklift operator's view at intersections or around corners.

Crushing is the most common form of forklift-related injury sustained by pedestrians. When you consider the difference in the load per wheel weights of a fully laden forklift and a standard family sedan you can better understand the impact being crushed by a forklift would have.

Even when travelling at low speeds, forklifts present significant risk to the safety of pedestrians. Half the pedestrians killed were crushed by forklifts that were barely moving.

Don't wait until a forklift-related death or injury takes place at your workplace before better separating forklift and pedestrian zones.

Make changes today.

11

REDUCING RISK

SIMPLE STEPS TO REDUCE THE RISK

TOP SAFETY TIPS:

- Operators must be trained on safe forklift procedures and operators manual.
- Operators must hold a relevant Certificate of Competency.
- Forklifts must not carry passengers (unless a designated seat, footrest and seatbelt is available).
- Seatbelts must always be worn.
- Lower the load before moving or turning.
- Never lift people without a complying maintenance work platform and forklift.
- When moving, forks should be as close to the ground as is practicable.
- When leaving a forklift unattended, always lower the forks, apply the park brake, close the gas cylinder valve and remove the ignition key.

Simple safety practices like maintaining and obeying speed limits, observing stop signs, slowing down and sounding the warning device (horn) at intersections still apply.

Once a task is complete, forklift operators should ensure the forklift is parked, shut down and secured in line with traffic procedures and the manufacturer's recommendations. Ensure the key is removed from the ignition.

Employers, HSRs, forklift operators and other employees all have a part to play in ensuring safe forklift practices are observed.

Small changes in behaviour can deliver significant safety improvements.

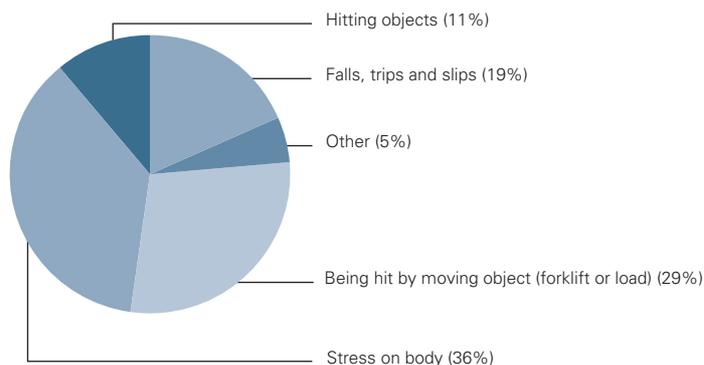
Too often, safe forklift practices are only introduced at a workplace after a worker has been killed or injured.

Action must be taken now to eliminate injuries and save lives.

Safe forklift operating procedures are often disregarded once an operator has gained a Certificate of Competency. A Certificate of Competency provides an operator with skills to operate a forklift in a safe manner, however, induction into a new workplace or changed environments, unfamiliar forklifts and safe work procedures is a must!

Take action today.

FORKLIFT RELATED CLAIMS – JULY 2000 TO JUNE 2005*



*Standardised claims reported July 2000 to June 2005.
Information extracted 30 September 2005.

12

POLICIES AND PROCEDURES

POLICIES, PROCEDURES AND LEGAL REQUIREMENTS

All workplaces should have policies and procedures in place that ensure all workplace parties involved in forklift operations have a clear understanding of how they can contribute to making the workplace safer.

Together with a traffic management plan, workplaces should have policies and procedures on hazard identification, risk assessment, risk control, purchasing of machinery, and incident reporting and investigation.

SELECTING A SUITABLE FORKLIFT

Each workplace is different. Before purchasing, hiring or leasing a forklift, be aware of what forklift safety and ergonomic design features are best suited to your workplace – the most effective way of avoiding safety problems and minimising operator injuries.

If a forklift is needed to work in a flammable or explosive atmosphere, ensure it suits this purpose by referring to the manufacturer's recommendations. Or if a forklift needs to be used in poorly ventilated areas, ensure it is electric.

Consultative arrangements should ensure HSRs, operators and other employees who may be affected should be consulted when purchasing new machinery. They are best placed to provide advice on good safety features and practices. Consultation at the outset can avoid problems later on.

INCIDENT REPORTING

All safety incidents involving forklifts must be promptly reported to a supervisor.

Workplaces should encourage a culture of incident reporting. Immediate reporting allows immediate changes to be made to redress the cause of the incident and prevent similar occurrences. Reporting allows all associated hazards to be identified, procedures to be reviewed and risks to be assessed. Consultation ensures effective risk controls are identified and maintained.

Incidents can be caused by a wide range of factors. Each incident must be investigated before the cause can be determined.

TRAINING AND CERTIFICATE OF COMPETENCY

A forklift operator must be trained and hold the relevant Certificate of Competency. Independent authorised assessors evaluate operators' skills against a national instrument of assessment. The Victorian WorkCover Authority is responsible for issuing Certificates of Competency for forklift truck operation in Victoria.

A record of training (logbook) should be maintained when undergoing training.

A Certificate of Competency indicates the holder has achieved basic standards of competency in safe forklift operation. Site-specific and refresher training should be provided by the employer to maintain and enhance the operator's skills.

Specific skills require specific additional training. Qualification is based on general use with a standard fork arm. Where attachments are used an equivalent level of skills training is required. Assessors are best placed to ensure an operator has the required level of competency to use attachments.

Refresher training is essential for operators to ensure they maintain their skill level.

When operators are required to use purpose-designed attachments, employers must ensure the operator has received sufficient additional instruction and training.

Uncertified trainees can operate forklifts provided they are under the direct supervision – within sight and hearing range – of an appropriately qualified forklift operator or assessor who holds the relevant Certificate of Competency.

A logbook detailing progression of skills gained can identify levels of supervision and additional training needs.

CONSULTATION

As with all aspects of workplace health and safety, employers need to consult with HSRs and employees on putting in place safe forklift practices.

Usually employees know their work environment better than anyone else, consultation with them will lead to identifying practical risk solutions.

Consultation ensures employees have a sense of ownership of safety changes. This will encourage employees to observe, maintain and include improved forklift safety practices as part of their daily work routine.

OPERATOR'S DAILY CHECKLIST STICKERS

There are checklist stickers included on the opposite page. Be sure to stick them onto your forklifts. They're made of wipe-clean plastic, so they're able to be reused again and again.

If you'd like more Operator's Daily Checklist stickers contact WorkSafe Victoria.

FORKLIFT SAFETY
LET'S REDUCE THE RISK



If any of the below is deficient, **DO NOT OPERATE!**
Tag and notify your supervisor.

OPERATOR'S DAILY CHECKLIST

Operator _____ Forklift _____

S/No _____

If you notice any faults with any aspects of the forklift listed below do not use it.

Forklift operators must also look out for their own personal safety by wearing appropriate protective clothing, high visibility vests and enclosed shoes.

Before starting the forklift always check pedestrian exclusion zones are marked and that ground surfaces are even and clear. Then check the following is satisfactory:

- TYRES** check all tyres and look for any visual wear or damage
- FLUIDS** check oil, hydraulics, battery, fuel and coolant
- SEATING** check the condition and adjustment of seating
- WARNING DEVICES** check lights, horn and reversing beeper
- CAPACITY** check load-capacity plate is fitted, legible and correct
- MAST** check mast for any wear to lift chains and guides, inspect hydraulic cylinders, look for any leaks
- FORKS** inspect forks for any sign of damage
- SEATBELT** make sure your seatbelt is securely fastened

Once started, observe:

- CONTROLS** after start up, check all pedals and controls
- BRAKES** check brakes and parking brake for proper operation

*This pre-operational check is an example and should not be used in place of a thorough risk assessment of all workplace operations. It does not include all hazards related to the use of your forklift.



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