HSWA

QUICK GUIDE

Safe reversing and spotting practices

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New Zealand Government

WORKSAFE
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NOTES

Use of ‘must’ and ‘should’

The words ‘must’ and ‘should’ indicate whether an action is required by law or is a recommended practice or approach.

TERM	DEFINITION
Must	Legal requirement that has to be complied with
Should	Recommended practice or approach

Key terms

The glossary at the back of this guide has a list of the technical words, terms, and abbreviations used in this guide and explains what they mean.

Lists

Lists of examples are not intended as complete lists. They may contain some but not all possible examples.

Images

Images are a guide only. They are not intended to provide technical specifications.

1.0 Introduction

What is this guide about

This guide offers practical advice on how you can manage the risks of reversing vehicles and mobile plant.

This guide is written for:

- PCBUs (persons conducting a business or undertaking) who manage a work site where there may be reversing vehicles or mobile plant
- PCBUs whose workers work on or near vehicles or mobile plant (at a site they manage, or any other site)
- workers that are involved with directing or operating reversing vehicles or mobile plant.

Under the Health and Safety at Work Act 2015 (HSWA) PCBUs have a duty to make sure the health and safety of workers, contractors, visitors and members of the public are not put at risk as a result of the work that they do. This includes a duty to make sure people are safe around vehicles and mobile plant while at work.

Workers also have a duty to take reasonable care for their own health and safety and make sure their actions do not cause harm to others.

This guide applies to all work sites (dynamic and static sites), vehicles and mobile plant, across all industries. For example:

WORK SITE EXAMPLES	VEHICLES/MOBILE PLANT EXAMPLES
– Inwards/outwards goods zones	– Trucks, such as,
– Timber yards	- Dump trucks
– Postal/courier depots	- Truck and trailers
– Construction sites	- Articulated trucks
- Civil construction	– Vans/Buses
- Residential construction	– Tractors
– Farms	– Excavators
– Forestry sites	– Bulldozers
– Trucking yards	– Rollers/graders
– Waste transfer stations	– Forklifts

TABLE 1: Work site and vehicle examples

In this guide the term **vehicle** will be used to refer to all relevant types of vehicles and mobile plant. The term **driver** will be used to refer to all drivers and operators of vehicles and mobile plant.

Worker consultation

When deciding how to manage the risk of reversing vehicles, PCBUs must engage with their workers. Workers can provide valuable insights into what the biggest risk areas are, and which control measures might be most effective.

See our website for more information on Worker Engagement, Participation and Representation: worksafe.govt.nz

Working together with other PCBUs

PCBUs that share the same duties at a work site, must consult and coordinate with each other to manage the shared risk.

One PCBU cannot push the responsibility to manage risk on to another PBCU and they cannot contract out of their responsibilities to manage risk.

PCBUs should decide together how the risks will be managed. For example they could agree that the PCBU that manages the work site could focus on control measures related to their site layout, while the PCBU whose vehicles visit the site could focus on control measures related to their vehicles and drivers. Both should work together to establish safe practices for activities that involve workers from both PCBUs – such as providing spotting assistance for reversing vehicles.

See our website for more information regarding Overlapping duties and how PCBUs can work together to manage risk: worksafe.govt.nz

This guide should be read in conjunction with WorkSafe good practice guidelines: Managing work site traffic

2.0
Managing the risks of reversing vehicles

This section provides examples of ways you can control the risks associated with reversing vehicles. As a PCBU, you will need to assess your individual situation to decide what controls will be the most effective, and reasonably practicable for your situation. This may mean adopting a combination of control measures to manage the risk.

Eliminate the need for vehicles to reverse

The best control measure is to eliminate the need for vehicles to reverse. This can be achieved through good site design such as creating a one way system, dedicated turning area, or by using multi-directional vehicles or vehicles with rotating cabins.

However, historical site layouts, smaller sites, and other factors, may not allow for this.

Where elimination is not reasonably practicable, you should consider:

- creating a dedicated **reversing area** where people and other vehicles cannot enter
- **improving visibility and awareness** by using devices like reversing sensors, reversing cameras, lights, and mirrors
- using a **spotter** to help guide the driver.

Create a dedicated reversing area

Dedicated reversing areas should have the following features:

- barriers around the area to prevent people from entering the area. Barriers can be either fixed or temporary depending on the type of site (see Figures 1 and 2)
- be clearly marked and signposted where reversing is allowed, and that anyone not directly involved in the reversing activity should stay away
- be well lit
- be on firm level ground.

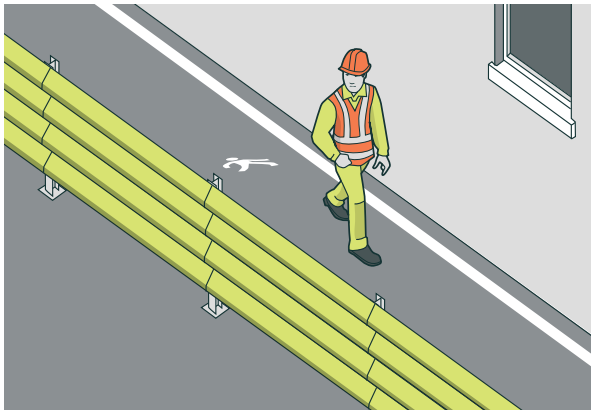


FIGURE 1:
Example of a permanent barrier

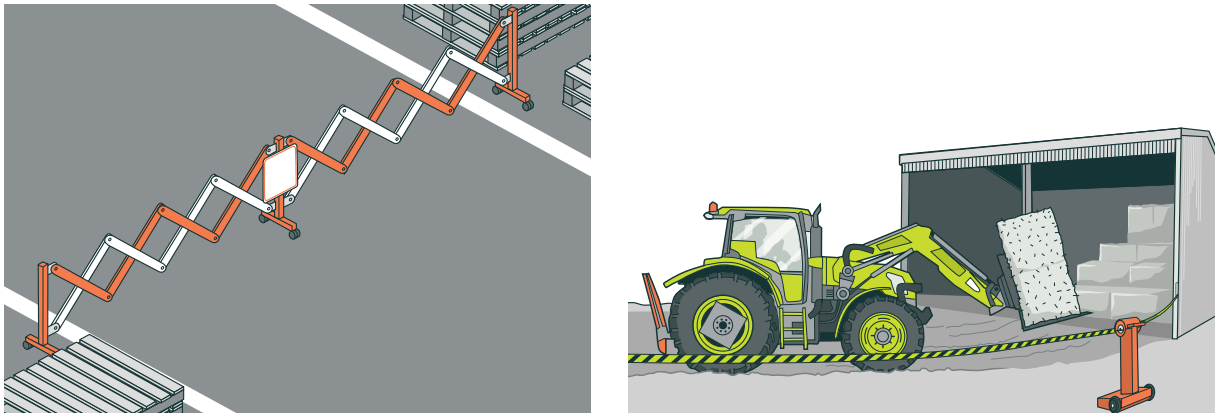


FIGURE 2: Examples of temporary barriers

Improve visibility and awareness

Driver visibility and awareness

Consider using vehicles that have additional features to remove blind spots and that help drivers navigate when visibility is limited. For example:

- additional lighting (if the vehicle is operating at night)
- extra mirrors (see Figure 3)
- reversing cameras (see Figure 4)
- proximity warning devices that can alert the driver when they are getting too close to people or objects.

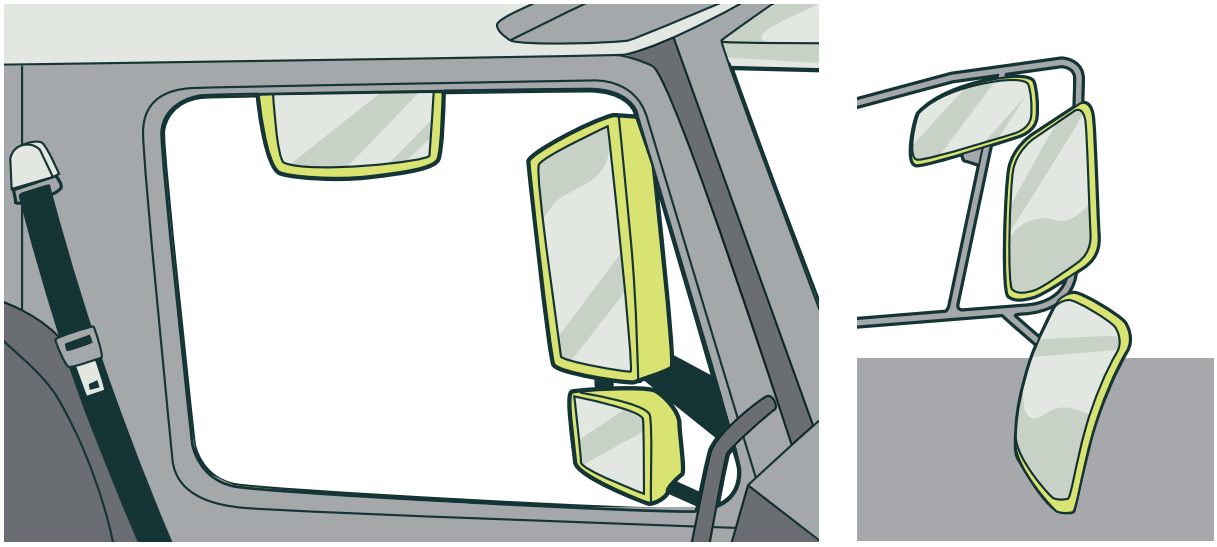


FIGURE 3: Example of additional mirrors

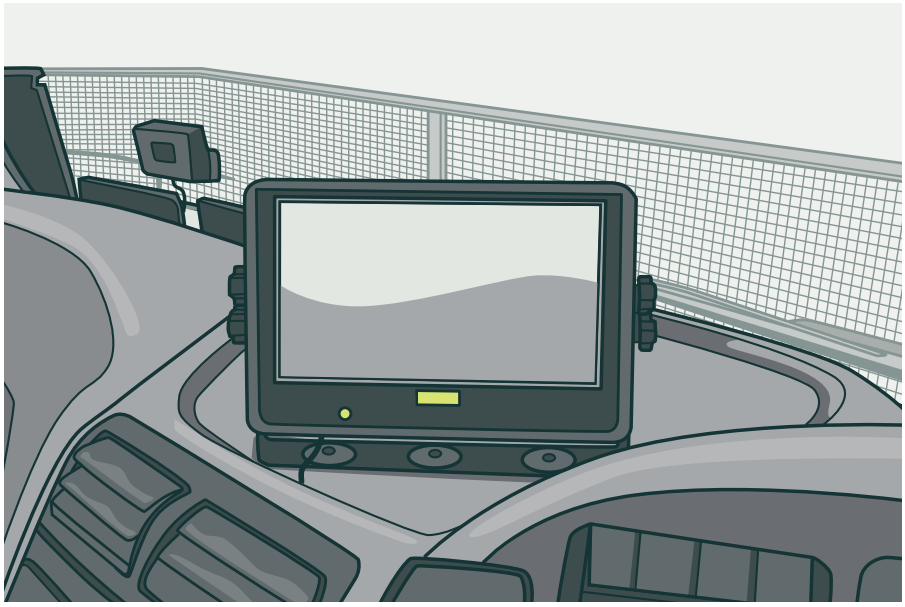


FIGURE 4:
Reversing camera

Pedestrian visibility and awareness

To help people be aware and stay clear of reversing vehicles, consider adding the following features to vehicles (if not already present):

- lights
- reflectors
- flashing or rotating beacons
- a horn
- laser projected proximity lines – these show how far away a person should be from the vehicle while it is in operation.

Retrofitting safety features

If you choose to retrofit safety features to existing vehicles or mobile plant, make sure those features do not introduce new risks (such as additional mirrors creating new blind spots).

Make sure that their installation does not compromise the integrity of any operator protective structure (OPS). You may need to have the operator protective structure re-certified if additions or alterations are made.

Use spotters to guide reversing vehicles

Where vehicles have no option but to reverse you should consider using a spotter to help guide the driver. Spotters can be especially helpful when:

- the driver does not have full visibility
- the manoeuvring area is small
- there are other hazards in the area that cannot be removed or isolated.

Sometimes two spotters may be needed. See Using two spotters in the next section of this guide for more details.

FIGURE 5:
A spotter helping a reversing truck

Vehicles that are frequently or routinely reversing

It may not be practical to have a spotter always on hand to guide vehicles that are frequently or routinely reversing (such as forklifts in a warehouse)

In these cases, you may need to rely on other control measures such as:

- creating exclusion zones to keep people out of the area where the vehicle will be operating (using signs, and permanent or temporary barriers)
- adding features to the vehicle to improve visibility and awareness (see Improve visibility and awareness above)
- installing speed limiting devices to make sure the vehicle does not exceed a safe speed for the conditions it is operating in.

General reversing good practice

Before reversing (even when using a dedicated reversing area and/or a spotter), drivers should:

- familiarise themselves with the area
- always check behind them before they start moving
- check that all mirrors are intact, functional, clean, and properly adjusted for the best view
- check that all reversing devices (if fitted) are functional, for example lights and alarms
- turn off or silence phones and vehicle radios (except two-way radios)
- check that everyone nearby is aware that reversing is about to take place
- visually locate people on foot to make sure that they are clear of the vehicle's path
- if necessary, put up temporary barriers to stop people from re-entering the area.

While reversing, drivers should:

- reverse only if the way is clear
- stop reversing immediately if anyone disappears from view (including any spotters)
- resume reversing only when visual contact is restored with people and you have reconfirmed that the path is clear
- check both side mirrors repeatedly (and any other visual aids such as cameras).

3.0
Safe practices for vehicle spotting

A spotter uses hand or light signals to guide a driver while reversing or turning and makes sure the reversing area is free of people or other obstacles.

Before starting a reversing operation using a spotter, the driver and spotter should:

- make sure they both know and agree on the standard systems for communication. See Hand signals for day-time spotting and Light signals for night-time spotting
  - they should discuss and confirm exactly what signals will be used. This is to make sure both spotter and driver interpret signals the same way
- walk over the intended reversing path and agree where the vehicle will end up
- discuss where the blind spots are for that vehicle. The driver will rely on the spotter to be aware of any obstructions in the blind spots to the left and right of the vehicle as well as behind it (see Figure 6)
- make sure the spotter has a good understanding of how much space the turning vehicle will need (including the way articulated vehicles and trailers may move when being reversed)
- make sure they are both fit for work (they are not suffering from fatigue[1] or under the influence of any substances that could impair their ability[2]).

In industries where vehicles can be very large (such as quarrying), radio contact should be used, with the spotter in a safe location further away from the vehicle but still able to see what is happening.

Driver responsibilities when using a spotter

When reversing using a spotter for guidance, the driver should:

- be able to recognise and interpret the agreed signals the spotter will be using. See Hand signals for day-time spotting and Light signals for night-time spotting
- follow the spotter's instructions
- stop the vehicle if in doubt about the spotter's instructions
- stop reversing immediately when a spotter or any other person[3] in the reversing area disappears from view. Resume reversing only when visual contact is restored with the spotter or other person
- stop the vehicle if the spotter needs to change their position.

[1] See WorkSafe's fatigue web page for more information: worksafe.govt.nz

[2] See WorkSafe's impairment web page for more information: worksafe.govt.nz

[3] Only people directly involved in the reversing operation should be in the area.

Spotter responsibilities when guiding a driver

When spotting for a driver the spotter should:

- use the agreed signals. See Hand signals for daytime spotting and Light signals for night-time spotting
- wear reflective high visibility clothing at all times (and any other personal protective equipment required at the work site)
- stand in a position that:
  - makes them visible at all times to the driver (see Figures 7, 8 and 9)
  - is not in the path of the reversing/turning vehicle
  - allows them to clearly see the area surrounding the vehicle, specifically the driver's blind spots (which are often to the side of the vehicle as well as behind it (See Figure 6).
- avoid walking backwards
- avoid walking behind a reversing vehicle
- never stand on the trailer side of a truck and trailer unit while it is jack-knife tipping
- make sure no one is behind the vehicle before signalling the driver/operator to start reversing
- immediately signal the driver to stop if any person or object enters the vehicle movement area
- signal the driver to stop when the spotter needs to change positions.

Using two spotters

If the vehicle is particularly long or large, you may need to use two spotters to make sure all areas around the vehicle can be seen.

When two spotters are being used, they should discuss beforehand with each other and the driver what each spotter will be doing and how the three will communicate during the operation. The two spotters should always be visible to each other and the driver.

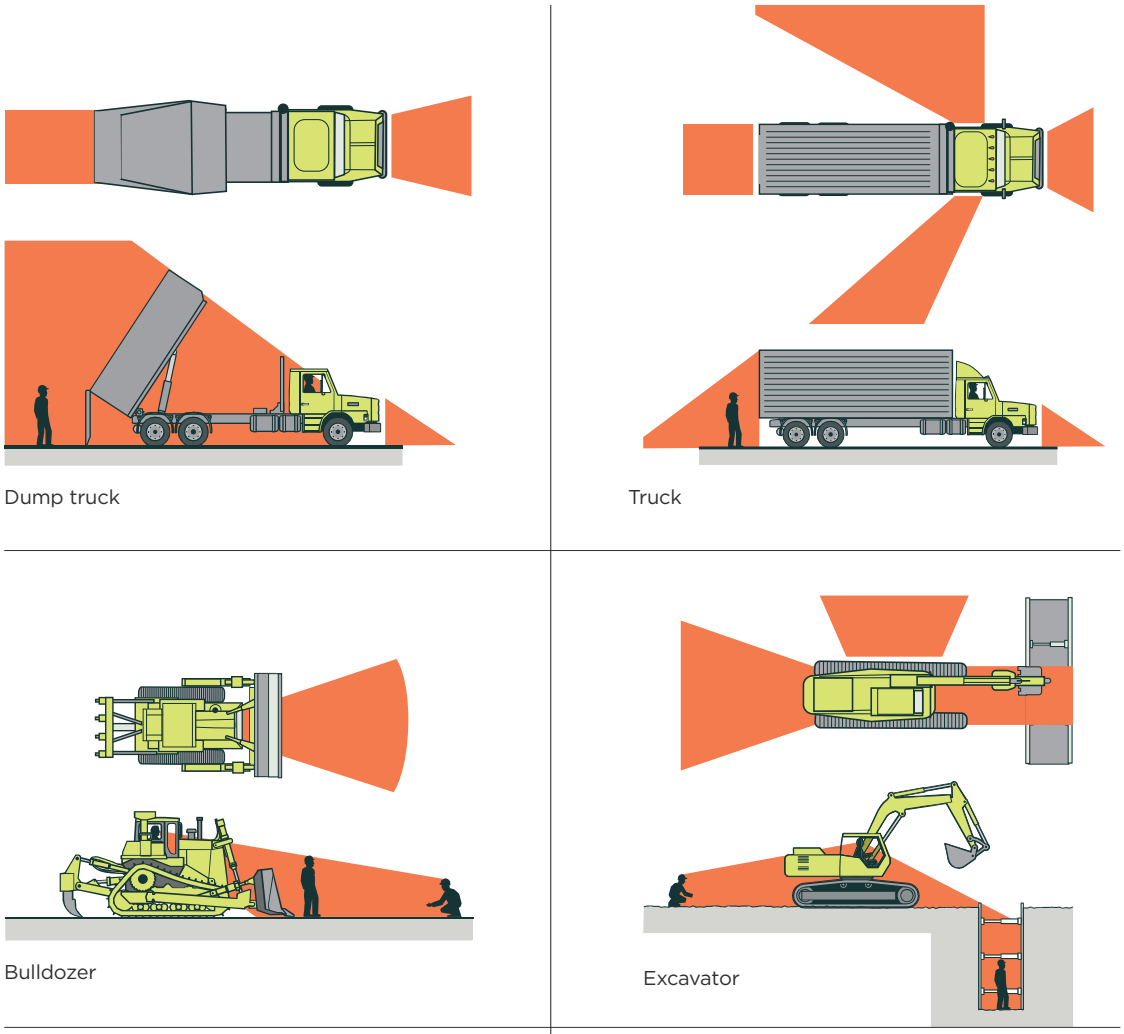


FIGURE 6: Examples of vehicle and mobile plant blind spots

The spotter can see the driver and the driver has a clear view of the spotter in their mirror.

FIGURE 7: The correct place for a spotter to stand

The mirror is out of sight of the spotter, and the driver does not have a clear view of the spotter.

FIGURE 8: The wrong place for a spotter to stand

FIGURE 9: The view the driver should have of the spotter

Hand signals for day-time spotting

The table below shows the signals that spotters should use to help drivers to reverse their vehicles safely during day-time operations. The signals should be slow, deliberate and clear.

STOP REVERSING

Extend your arm with your open palm facing forward.

START REVERSING (move backwards)

With the palm of your hand facing **towards** you, use a back and forth motion towards your body.

MOVE FORWARD

With the palm of your hand facing **away** from you, use a back and forth arm movement away from your body.

CLEARANCE

This signal tells the driver how much room is behind when the vehicle is getting close to any kind of object.

Hold your hands apart and bring them together as the driver gets closer to the object. When close enough use the stop signal.

TURN LEFT OR TURN RIGHT

Hold your arm out straight and point in the direction (left or right) that you want the driver to go.

The signals for turn left and right should be interpreted by the driver who is reversing, to turn the wheel in the direction the spotter is indicating – left if spotter points with his left arm, or right if his right arm.

EMERGENCY STOP

Extend both hands with palms facing forward.

FIGURE 10: Spotting signals for day-time operations

Light signals for night-time spotting

Ideally work sites should be well lit so reversing should not have to take place in the dark. However for situations where the light is not good enough, use traffic wands or a torch to instruct the driver. The signals should be slow, deliberate and obvious. The spotter should stand in the line of sight of the driver's side mirror (see Figure 9). If using a torch, the spotter should keep the torch pointed slightly downwards to avoid mirror blinding the driver.

Spotters should not wear headlamps while spotting, as these could blind the driver and head movements could be mistaken for spotting signals.

Spotters should wear high visibility night-glo vests or jackets.

STOP REVERSING

Hold the traffic wand or torch in the centre of your body and turn it off.

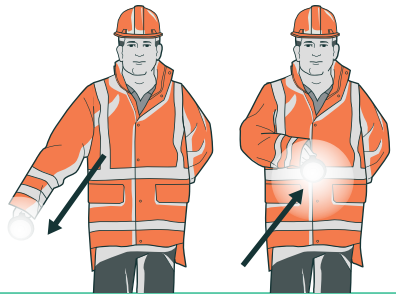
START REVERSING (move backwards)

Make a circle in a **clockwise** direction (clockwise from the spotters perspective).

MOVE FORWARD

Hold the traffic wand or torch in the centre of your body and move it **up and down**.

STEP 1 STEP 2



TURN RIGHT

Hold the traffic wand or torch in your right hand and move it from the centre of your body down to your right side with a fully extended arm, and back.

STEP 1 STEP 2

TURN LEFT

Hold the traffic wand or torch in your left hand and move it from the centre of your body to your left side with a fully extended arm, and back.

CONTINUE

Hold the traffic wand or torch still in the centre of your body.

PREPARE TO CHANGE DIRECTION

Hold the traffic wand or torch in the centre of your body and more from left to right.

FIGURE 11: Spotting signals for night-time operations

4.0
More information

WorkSafe guidance

Good practice guideline

Managing work site traffic

Special guide

Introduction to the Health and Safety at Work Act

Quick reference guide

Health and safety at work

Fact sheet

Reasonably practicable

Other

PCBUs working together – overlapping duties

Worker engagement, participation and representation

Legislation

Primary duty of care
Section 36 of the Health and Safety at Work Act 2015

Reasonably practicable
Section 22 of the Health and Safety at Work Act 2015

Appendix 1: Glossary

TERM	DEFINITION
Blind spot	An area around a vehicle or mobile plant that is partly or completely concealed from the driver or operator's vision, even with the help of mirrors.
Control measure	A way of eliminating or minimising risks to health and safety.
Dynamic site	A work site where the layout may change from time to time, for example: – farms – construction sites – forestry sites – trucking yards.
Exclusion zone	An area that is set aside or designated for a particular activity. Only authorised people should enter an exclusion zone.
Fatigue	A physiological state where someone is unable to mentally and physically function as they usually would. This is caused by four main factors: – missing out on sleep – being awake for too long – working and sleeping in the wrong parts of the body clock cycle – workload (mental and physical).
Hazard	A potential source of harm. It could include an object, situation or behaviour.
HSWA	Health and Safety at Work Act 2015. The key work health and safety legislation in New Zealand. HSWA applies to all work and workplaces unless specifically excluded. You can find the full text of the Act on the New Zealand Legislation website: www.legislation.govt.nz
Jack-knife tipping	Jack-knife tipping refers to the folding of a tipping truck and trailer so that it resembles the acute angle of a folding pocket knife. The tipping trailer is tipped first then jack-knifed so that the tail gate of the tipping truck is facing the pile and able to be tipped. Jack-knife tipping should only be done by drivers that are trained and experienced in the practice.
Mobile plant	Machines or equipment that are self-propelled. Examples include bulldozers, mobile cranes, forklifts, elevating work platforms, trucks, and tractors.
Operator protective structure (OPS)	A structure attached to, or part of, mobile plant that is designed to protect the operator from being harmed. For example: – falling object protective structure (FOPS) – roll over protective structure (ROPS) – cabin operator protective structure (COPS) – tip over protective structure (TOPS).
PCBU	In most cases a PCBU will be a business entity, such as a company. However, an individual carrying out business as a sole trader or self-employed person is also a PCBU. A PCBU does not include workers or officers of a PCBU, volunteer associations with no employees, or home occupiers that employ or engage a tradesperson to carry out residential work. See section 17 or HSWA
PPE	Anything used or worn by a person (including clothing) to minimise risks to the person's health and safety. For example: – protective clothing such as helmets, eyewear, boots and gloves – high-visibility clothing – respiratory protective equipment – hearing protection – sunhats, sunscreen and lip protection.

TERM	DEFINITION
Reasonably practicable	What is or was reasonably able to be done to ensure health and safety taking into account and weighing up relevant matters including: – the likelihood of the risk concerned occurring or workers being exposed to the hazard – the degree of harm that might result – what the person concerned knows, or ought reasonably to know, about: - the hazard or risk - ways of eliminating or minimising the risk - the availability and suitability of ways to eliminate or minimise the risk – after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk. See our fact sheet *Reasonably practicable* for more information: worksafe.govt.nz
Risk	Risks arise from people being exposed to a hazard (a source of harm).
Signaller/signalling	Another term used to describe spotter/spotting.
Spotter/spotting	Person who assists drivers or operators when manoeuvring vehicles or mobile plant. Spotters use specific hand or torch/light signals. Often used when visibility is limited or there are other hazards present.
Static site	A work site where the layout generally stays the same. For example: – warehouse inwards/outwards good zones – factories – supermarket loading bays – postal/courier depots.
Worker	An individual who carries out work in any capacity for a PCBU. A worker may be: – an employee – a contractor or sub-contractor – an employee of a contractor or sub-contractor – an employee of a labour hire company – an outworker (including a homeworker) – an apprentice or a trainee, a person gaining work experience or on a work trial – a volunteer worker. Workers can be at any level (for example, managers are workers too). A PCBU is also a worker if the PCBU is an individual who carries out work in that business or undertaking.

Notes

Disclaimer

This publication provides general guidance. It is not possible for WorkSafe to address every situation that could occur in every workplace. This means that you will need to think about this guidance and how to apply it to your particular circumstances.

WorkSafe regularly reviews and revises guidance to ensure that it is up-to-date. If you are reading a printed copy of this guidance, please check worksafe.govt.nz to confirm that your copy is the current version.

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