

Module 5:

Loading the goods – Standard loads



Start Module



Learning objectives

At the end of 'Module 5: Loading the goods – Standard loads' you will be able to:

1

Describe safe load positioning methods

2

Explain how to load goods safely using correct manual handling techniques



3

Describe how to load goods safely using specialised equipment

4

Reduce risks during loading activities



Module overview

Earlier

Prepare standard loads such as:



This module

Load standard loads onto an appropriate vehicle

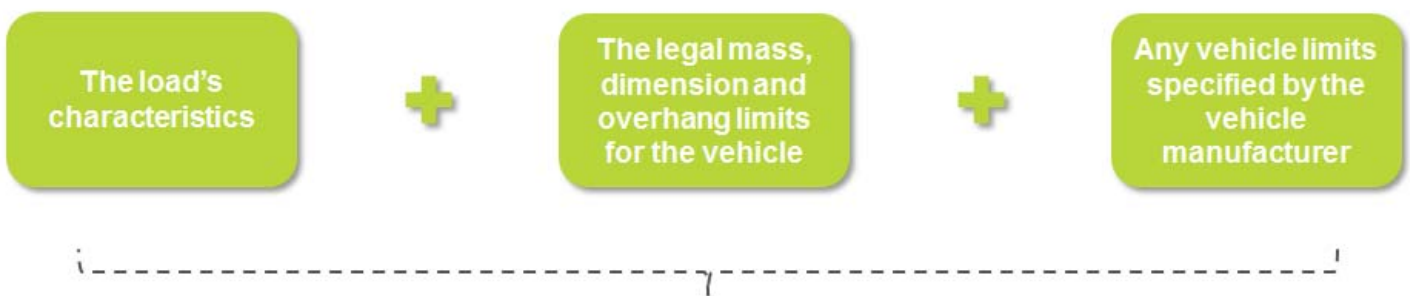


General loading methods and risks



Loading and positioning the goods

You must take a number of factors into account:

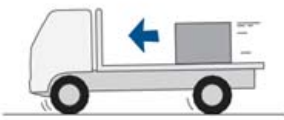


Help you to **position** the load **safely**, and **reduce** the **risk** of potentially dangerous **load shift**

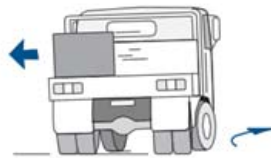
Types of load shift

Load has the potential to **shift** if it is **unrestrained** or **not adequately restrained**

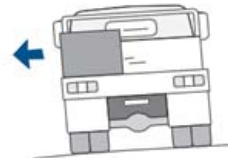
BRAKING



CORNERING



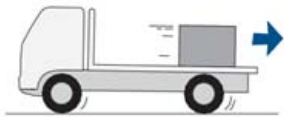
SLOPED ROADS



AIR FLOW



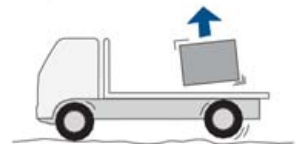
ACCELERATING



HILLY ROADS



UNEVEN ROADS



(Images © 'The Load Restraint Guide', 2nd edition, 2004)



Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.

Click each rule to find out more.

[1](#)[2](#)[3](#)[4](#)[5](#)[6](#)[7](#)[8](#)

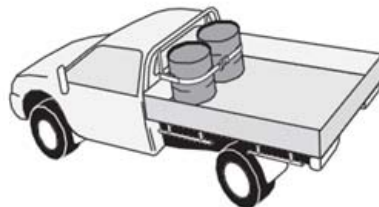
Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.



You should position **light** loads against the **headboard** where possible.

This is also useful for **securing unstable loads** such as drums, to prevent them from tipping.



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Replay 

« Prev Page

Next »

Correct load positioning

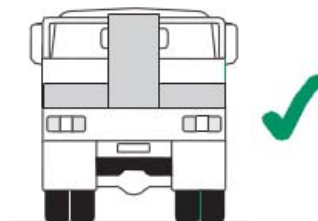
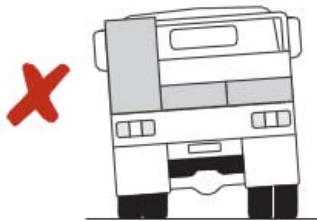
Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.

- 1 ✓
- 2 ✓
- 3 ✓
- 4 ✓
- 5 ✓
- 6 ✓
- 7 ✓
- 8 ✓

You should position the load so that:

It is **not offset** to one side of the vehicle

Heavy items are along the **centreline** of the platform



Reduce the potential for the vehicle to overturn when cornering

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Replay 

« Prev Page

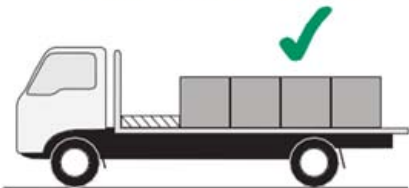
Next »

Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.

- 1 ✓
- 2 ✓
- 3 ✓
- 4 ✓
- 5 ✓
- 6 ✓
- 7 ✓
- 8 ✓

You should ensure the load's **centre of mass** is as **low** as possible and as near as possible to the **centreline** of the platform.



For loads with a high **centre of mass**, a vehicle with a **low platform height** or good **roll stability** should be used.



Remember, the overall height of a loaded vehicle **must not exceed** the **legal limit** or the **height** of any **obstructions** such as bridges that are located along the transport route.

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Replay

« Prev Page

Next »

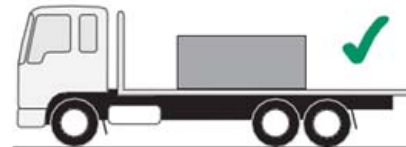
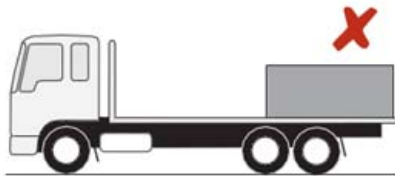
Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.



You should check that the load's **centre of mass** is in **front** of the **centre of the rear axle** or rear axle group.

This will ensure there is **sufficient weight** on steer axles to ensure **safe steering** and **not overload the rear axle**.



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Replay 

« Prev Page

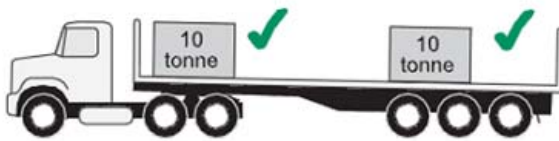
Next »

Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.

- 1 ✓
- 2 ✓
- 3 ✓
- 4 ✓
- 5 ✓**
- 6 ✓
- 7 ✓
- 8 ✓

You should position **heavy** items **evenly** across the deck and **shared** between axles for better weight distribution and to ensure there is sufficient weight on the steer axles to enable safe steering.



This will also **prevent excessive flexing** of the middle of long trailers



And ensure **enough weight on the drive axles** of prime movers, for traction and stability



(Images © 'The Load Restraint Guide', 2nd edition, 2004)

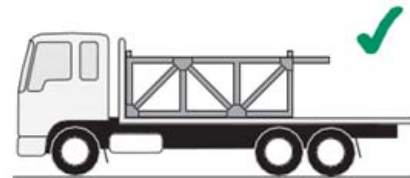
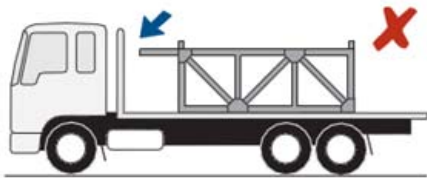
Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.



You should position loads with any **potentially dangerous projection** in a way that **minimises** the **risk** to the driver or other **persons**, if the load shifts or there is a collision.

Remember to follow the requirements of the **Oversize and Overmass Regulations 2006**, covered earlier in this course.



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Replay 

« Prev Page

Next »

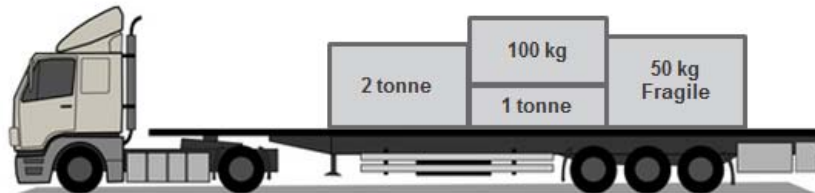
Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.



You should always **load heavy items first** and place them at the **bottom** of the load, along the **centreline** of the vehicle platform.

This will increase the **stability** of the vehicle and **avoid crushing** fragile or light items underneath heavy items.

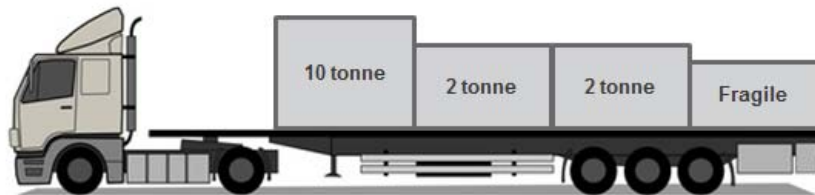


Correct load positioning

Key **rules** you should follow when you are **positioning** the load or **re-distributing** a load.
Click each rule to find out more.



You should position **heavy** items **in front** of **fragile** items so they do not get crushed during heavy braking.



Check the distribution of the load

Once you have positioned the load on the vehicle platform, you need to **double-check** the distribution of the load:

The load's
characteristics



The legal mass,
dimension and
overhang limits
for the vehicle



Any vehicle limits
specified by the
vehicle
manufacturer

Tips to make safely positioning loads easier:

- Using a **loading diagram** or **loading plan** for different types of loads to ensure axle weight limits are not exceeded
- Fitting **scales** to **loading equipment** so that a running total of the weight of the load can be kept and verified
- **Under-loading** the vehicle if you cannot verify the weight of the load

Lifting the load

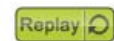
It is important to use an appropriate method to **lift** the load.



Manually



**Specialised
equipment**



Lifting loads manually

You must make sure that you use **correct manual handling techniques** to help **prevent injury**

Have the potential to become a **hazardous manual task** that causes injury, if they are combined with one or more **risk factors**



Replay 

« Prev Page

Next »

Hazardous manual tasks – Risk factors

Repetitive or sustained force

Amount of **muscular effort** required to perform a movement or task and can damage muscles, tendons, joints and discs



Repetitive force

Using force **repeatedly** over a **period** of time

Sustained force

When force is applied **continually** for a **period** of time

High or sudden force



High force

Task that a worker describes as physically **demanding** or requires **multiple** people

Sudden force

Unexpected movements while handling an item

Repetitive movement

Using the **same** parts of the body to **repeat** similar movements over a **period** of time

Sustained or awkward posture

Sustained posture

Where part or all of the body is kept in the **same** position for a **prolonged** period

Awkward posture

Where any part of the body is in an **uncomfortable** position

Exposure to vibration

Can occur through the **whole** body

Or through vibrating **equipment**

The **more risk factors** a manual task has, the **more hazardous** it becomes and the **more potential** there is for **injury**



Hazardous manual tasks – Injuries

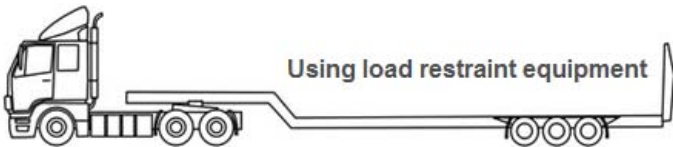
Common **causes** of manual task injuries during **loading**:

Lifting heavy gates

Pulling taut liners curtains

Handling freight

Using load restraint equipment



Common manual task **injuries**:

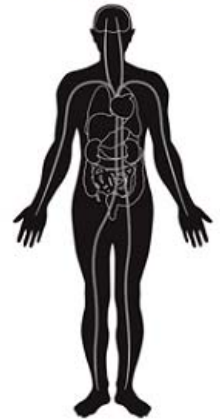
Damage to the spine, back muscles and ligaments

Muscle strains and joint wear

Hernias

Crushed limbs

Amputations



These injuries can be **avoided** by implementing a range of **risk controls**

Replay 

« Prev Page

Next »

Hazardous manual tasks – Risk controls

Click each type to find out more.



Replay 

« Prev Page

Hazardous manual tasks – Risk controls

Click each type to find out more.

You can reduce the risk of injury by **changing the characteristics of the load**, to remove or **reduce** one or more of the **risk factors**.



Break a **heavy** load down into **smaller** parts (if possible) to **reduce** the **force** required to move it
Prepare loads as **well balanced** packs, so they do not need to be carried in an **awkward** position
Unitise **multiple** items into **one pack** to **reduce** the **repetitive** movements required to load them



Hazardous manual tasks – Risk controls

Click each type to find out more.

Workplace design can also **remove** or **reduce** risk factors



When **storing** items on a **shelf**, ensure that heavier or more frequently used items are stored at **waist height**

When **lifting** a load from a **low** to **high** position or vice versa, use an **intermediate platform** to rest the load and change your grip

When **designing** the workplace **layout**, ensure there are clear **pathways** and related activities are **grouped** together



Hazardous manual tasks – Risk controls

Click each type to find out more.



LIFTING	CARRYING	PUSHING	PULLING	TEAM HANDLING	JOB ROTATION
<ul style="list-style-type: none"> Stand close to the load Adopt stable footing Secure your grip on the load Bend your knees Keep your back straight as you lower yourself Slowly push up with your legs and keep your back straight 	<ul style="list-style-type: none"> Keep the load close to your body No more than waist height Keep your back straight Take short steps 	<ul style="list-style-type: none"> Place your feet apart with one foot behind the other Lean forward Apply your body weight gradually Push forward with your back foot 	<ul style="list-style-type: none"> Place your feet apart with one foot behind the other Lean back Apply your body weight gradually Push backwards with your front foot 	<ul style="list-style-type: none"> Select team members of similar height and strength Communicate the timing of the lift so that everyone can move together Share the load for the duration of the lift, carry and set down 	<ul style="list-style-type: none"> Reduce the duration and repetition of the task per person

Replay 

« Prev Page

Next »

Hazardous manual tasks – Risk controls

Click each type to find out more.



Range of **equipment** available to **assist** with **loading** and **unloading**:

- hand trolleys
- pallet trucks
- forklifts
- cranes
- hydraulic tailgates
- sideloaders
- conveyors

Choice of equipment will depend on:

- characteristics of the **load**
- specifications of the **equipment**
- **vehicle** where the load is being loaded



Lifting loads with specialised equipment

You will usually require one or all of the following:

LICENCE

PERMIT

TRAINING

SUPERVISION



Remember to always follow your workplace procedures when operating specialised equipment.



Lifting loads with pallet trucks

Have a hydraulic jack system which is either **manually** or **electrically** operated

They **lift** the pallet load **just clear** off the ground and **do not** have **forward reach** capacity like a forklift.

Commonly used to lift and load **palletised** goods:



Always check the **weight** of the **load** before using this equipment



Reduce the height of the pallet load so that it **does not obstruct** your view



Ensure the load is **balanced** evenly and the jack slides are **completely under** the pallet



Always **pull** the load to the destination, **do not push** the load by the handle



Lifting loads with forklifts

Most **widely used** equipment for lifting and loading heavy loads

There are many types of forklifts. Some common types include:

Electric warehouse equipment



Use the **correct forklift** for the **type** and **weight** of **load** you are lifting

Electric counterbalance forklifts



Ensure the load is **balanced evenly** and the **forks** are completely **under the pallet** before moving

Internal combustion engine forklifts



Tilt the forks **backwards** slightly if the load you are lifting is **top-heavy**

Big trucks



Drive with the lifting forks approximately **one foot** off the ground

Replay

« Prev Page

Next »

Lifting loads with cranes

Used to **lift** and **lower** loads and move them **horizontally**

Common **types** of cranes include:

Overhead cranes or bridge cranes



Mobile cranes



Fixed cranes



Cranes are generally fitted with a **sling**, which can be made of a **variety** of **materials**.

Size **+** **Type and shape of the load** **+** **Environmental conditions**

Know the **Safe Working Load** (or SWL) of the sling you are using.

New sling: SWL **=** Working Load Limit **Older sling:** SWL **≠** Working Load Limit

Common types of slings **→** Natural fibre rope Flexible steel wire rope Metal mesh
 Synthetic fibre rope Synthetic fibre webbing Alloy steel chain

Lifting loads with cranes

Range of **hazards** associated with the use of **cranes**:


**Dropping
or spilling
the load**


**Injuring
someone
with the
load or
equipment**

**The crane
overturning**

 Select the **appropriate crane** and **sling** for the load and environment

 Regularly **inspect** the condition of cranes and slings and **record** this in a Sling Register

 Only use a crane or sling if you are properly **trained** and **competent**

 Be **aware** of the movements of cranes and **stay out of the way**

Replay 

« Prev Page

Next »

Reducing risks during loading

Range of **risks** involved when **loading** the goods onto the vehicle.

Click each risk for some tips on how to reduce that risk.

Injury to the loader

Injury to a driver or
pedestrian

Damage to the load or
equipment

Loading delays



Reducing risks during loading

Range of **risks** involved when **loading** the goods onto the vehicle.

Click each risk for some tips on how to reduce that risk.

Injury to the loader ✓



Managers:

- Ensure a safe **site layout**
- Develop and communicate a **traffic management plan**
- Ensure adequate **lighting** and **ventilation**
- Provide appropriate loading **equipment** and ensure loaders are trained

Injury to a driver or pedestrian ✓



Damage to the load or equipment ✓

Loading delays ✓

Loaders:

- Select the correct loading **equipment** for the load
- Conduct an **inspection** of the equipment before using it
- Use safe **manual handling** techniques
- Wear appropriate **personal protective equipment**
- Carry **radios** for easy communication with other workers or pedestrians
- **Drive** the forklift **safely**:
 - Check the load before starting the engine
 - Always wear a seatbelt
 - Follow all road markings and signage
 - Don't drive with the load raised
 - Drive slowly and carefully and be aware of what's happening around them. Drive around corners slowly
 - Avoid turning when negotiating grades, ramps or inclines



Reducing risks during loading

Range of **risks** involved when **loading** the goods onto the vehicle.

Click each risk for some tips on how to reduce that risk.

Injury to the loader ✓



Managers:

- **Loading and Unloading Exclusion Zone (LUEZ)** guidelines are implemented in the workplace
- **Traffic management plan** separates pedestrians and forklifts
- Pedestrian **safety zones** and **exclusion zones** are **clearly marked**
- Established and communicated **right-of-way rules**

Injury to a driver or pedestrian ✓



Drivers or pedestrians:

- Stay **IN** the pedestrian safety zones and **OUT** of the pedestrian exclusion zones
- Wear any required **personal protective equipment**

Damage to the load or equipment ✓



Loading delays ✓

Loaders:

- Follow the **LUEZ guidelines**
- Communicate '**loading in progress**' warnings to other operators, drivers and pedestrians
- Use **safe forklift behaviour**:
 - Follow all road markings and signage that indicate pedestrian crossings or pedestrian zones
 - Slow down and sound the horn when approaching an intersection or corner
 - Minimise the need to reverse
 - If reversing is unavoidable, then flashing reversing lights, radio communication or a signaller should be used

Replay 

« Prev Page

Next »

Reducing risks during loading

Range of **risks** involved when **loading** the goods onto the vehicle.

Click each risk for some tips on how to reduce that risk.

Injury to the loader ✓

Injury to a driver or pedestrian ✓

Damage to the load or equipment ✓

Loading delays ✓



Loaders:

- Select the **correct** loading **equipment** for the type, size, shape and weight of the load and the environmental conditions
- Use the loading **equipment safely** and in line with the manufacturer's requirements
- Follow all workplace **procedures** for safe loading practices

Replay ↺

« Prev Page

Next »

Reducing risks during loading

Range of **risks** involved when **loading** the goods onto the vehicle.

Click each risk for some tips on how to reduce that risk.

Injury to the loader ✓

Injury to a driver or pedestrian ✓

Damage to the load or equipment ✓

Loading delays ✓



Loaders:

- **Monitor** their loading activities and check they are on track based on the **planned schedule**
- **Report** any potential **delays immediately** to the loading manager so the impact on driver fatigue can be minimised.

Replay 

« Prev Page

Next »

Reducing risks during loading

There are a number of steps that **everyone** can take to help **reduce risks** during loading activities.



Work **collaboratively** with others in your workplace



Adapt to **cultural differences** in your workplace



Communicate clearly with those around you during loading activities



Report and resolve any issues that arise immediately



Have **contingency plans** in place for any **unexpected** situations



Summary

Congratulations! You have now completed 'Module 5: Loading the goods – Standard loads'.

You should now be able to:

- ✓ Describe safe load positioning methods
- ✓ Explain how to load goods safely using correct manual handling techniques
- ✓ Describe how to load goods safely using specialised equipment
- ✓ Reduce risks during loading activities



You can now return to the home page and move on to the next module which will look at loading unusual loads.

[Replay](#) [« Prev](#) PageFinish [»](#)