

LEARNER GUIDE



Wheeled Front End Loader

TICKET



RIIMP0321F

Conduct civil construction wheeled front end loader operations



**EASY
GUIDES**
Australia Pty Ltd

Industry Training Resources



Contents

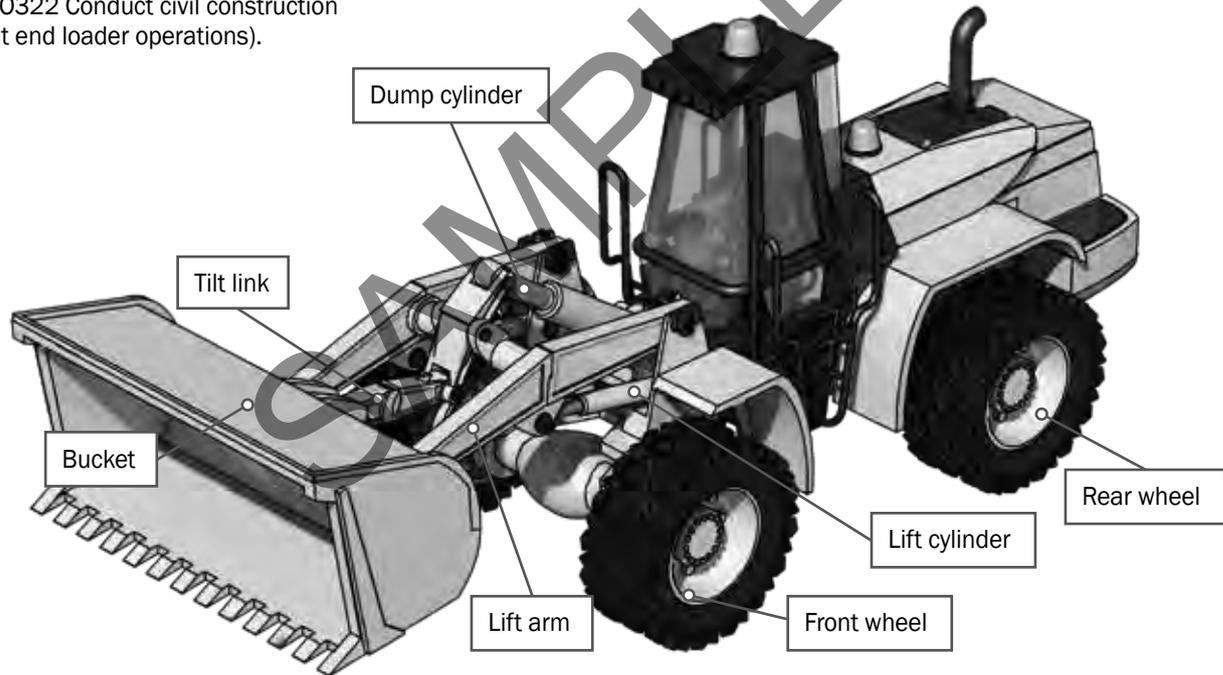
How to use this guide	4
Acknowledgements	6
Introduction to wheeled front end loader	7
General information	13
Chapter 1 Plan and prepare for work	57
Chapter 2 Identify and control hazards	73
Chapter 3 Check and monitor equipment	105
Chapter 4 Operate/use equipment	127
Chapter 5 Shut down and store equipment	169
Chapter 6 Maintain equipment	175
Chapter 7 Housekeeping	187
Chapter 8 Record keeping	193
Chapter 9 Relocate equipment	195

An example of a wheeled front end loader

A wheeled front end loader is a type of machine, that has a front-mounted square wide bucket connected to the end of two booms (arms) to scoop up loose material such as dirt, sand or gravel and move it from one place to another without pushing the material across the ground.

A wheeled front end loader is commonly used to move material from ground level and deposit it into an awaiting dump truck, stockpile or into an open trench excavation.

Front end loaders can also come in tracked models (refer RIIMPO322 Conduct civil construction tracked front end loader operations).



Who has duty of care?

You have a duty of care. So does anyone who has something to do with the worksite.

Duty of care applies to:

Employers/persons conducting a business or undertaking (PCBU). This includes managers, manufacturers/suppliers, importers, designers, inspectors, etc.



Workers. This includes employees, contractors and sub-contractors, employees of labour hire companies, outworkers, volunteers, etc.



General information



The basics of road construction

A surveyor will stake out the site according to the site plan. The stakes mark where the road will go and any drains or pits, which will help to drain water away from the road area.



An excavator or dozer removes the trees, shrubs and other plants and levels the area. Some trees may be protected with padding or fencing.



Sometimes contractors may use a borrow pit (also called a sand box). A borrow pit is an area where soil, sand or gravel (material) is dug out to be used in another area. Sometimes the borrow pit will become the drains, or water catchment areas at the end of the work.



The excavator or dozer may use material from the borrow pit to build up low areas in the road. They may also build up diversion blocks. Diversion blocks divert water away from the road and into drains.



The basics of road construction (continued)

As the operator shapes the ground, they will usually create drainage at the sides of the road area. They will also make sure there is enough fall (slope) on the road so that water drains away from the road.



Drains are installed to help take water away from the worksite.



A front end loader or dozer shapes the road base. This helps smooth out the surface ready for grading.



A water truck may wet down the ground. This helps the soil to bond.



Earthmoving site hazards

Checking for underground services

You should always check where services are before you start work. You may phone 'Dial before you dig on 1100'. You may look at the site plan or talk to your supervisor. You may need to look at the location of pits and meters to get an idea of where the services run. You may need to check with the local council or service company. You may even need to get underground detection equipment.

If you hit a service line, contact the provider immediately. You may need to organise to get the service disconnected while a qualified person fixes the problem.

You can sometimes tell there are services below by the types of ground. Some services are surrounded by a different type of soil, rock or sand. You may notice that the soil is looser, or does not match the soil around where you are digging. There may be a line of tape alerting you to the services.

If you suspect there are services underground, stop working. Check the ground. You may need to excavate the area by hand, or dig in another area.



Earthmoving hazards and risks (continued)

<p>Noise</p> 	<p>Dust</p> 	<p>Manual handling</p> 
<p>Contaminated soil</p> 	<p>Falling into trenches or excavations</p> 	<p>UV rays (radiation) from working in the sun</p> 

Confined space

A confined space is an enclosed or partially enclosed area. It is an area that was not designed for people to go into. It may have no natural or mechanical ventilation. It also has a hazard (such as a gas or flammable substance) that makes it dangerous.

Gasses in the atmosphere such as LPG, which are heavier than air, may enter spaces like trenches, underground tanks or pits displacing oxygen.

When you drive a petrol, gas, or diesel machine into a space like this you create a hazard. The exhaust gasses can fill the space. Dangerous gasses like carbon monoxide can build up in the area. You can't smell all dangerous gasses or fumes. You might breathe in a dangerous gas and not even know it. The gas could knock you out (make you unconscious) or even kill you.

You must be trained to work in a confined space, you must also have a permit. The permit makes sure you have thought about all hazards and controls, including a rescue plan, and that you have a team there to help you in case something goes wrong. You must get your permit approved by a supervisor.

If you are going to work in a confined space, you might need a catalytic converter installed. A catalytic converter takes out harmful gasses (like hydrocarbons, carbon monoxide and nitrogen oxides, and turns them into harmless gasses (like carbon dioxide, water and oxygen).



Clean up

Recycling items

Many environmentally sensitive items can be recycled. Items such as batteries, oil and gas cylinders can sometimes be recycled and reused.

Some oils can be taken to a recycling centre. With oil, bring your materials to the recycling centre in a clean, plastic container with a lid. The original container is a good container to return the oil in.



Pressure clean

You may need to pressure clean the wheels, tyres or attachments.

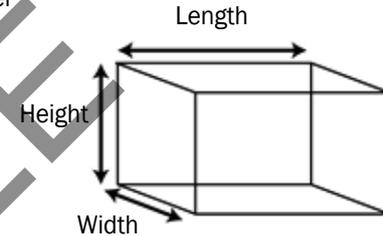
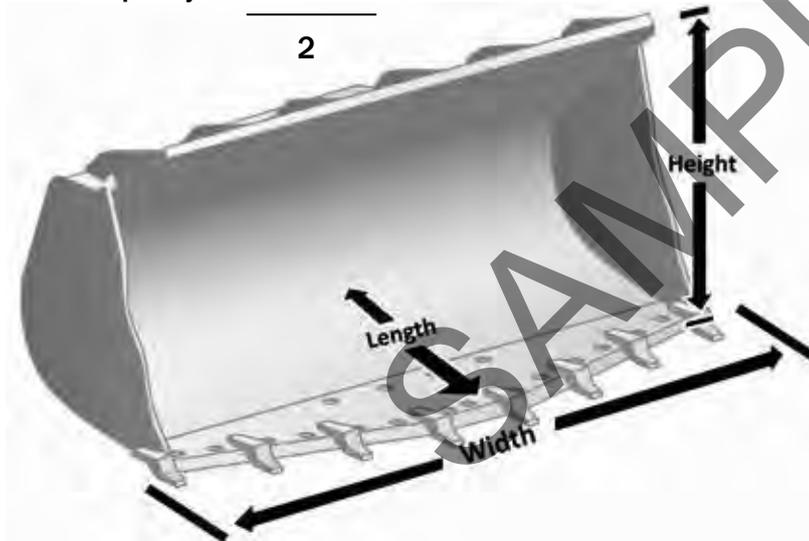


Calculations (continued)

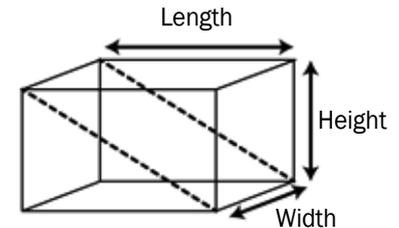
How to find the cubic capacity of a bucket

The planner must know the capacity of the loader bucket to be able to plan the job. For example, a machine with a larger bucket will move more material than a smaller bucket in the same number of loads.

$$\text{Capacity} = \frac{L \times W \times H}{2}$$



Cubic capacity of cube
= $L \times W \times H$



Cubic capacity of bucket
= $L \times W \times H \div 2$

Cubic capacity is $\div 2$ because of the shape of the bucket (a triangular prism)

Plan and prepare for work

Chapter 1

