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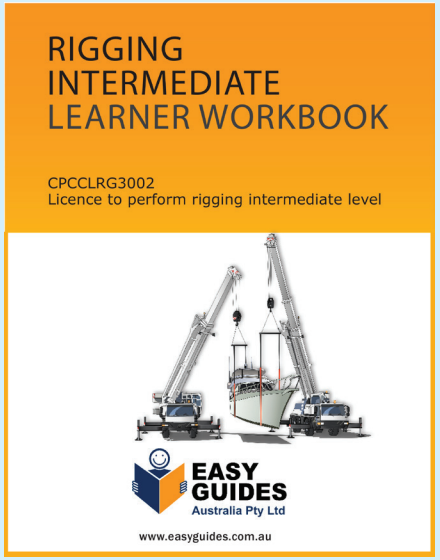

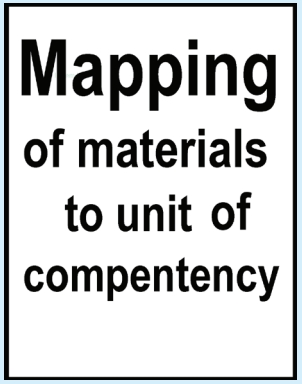

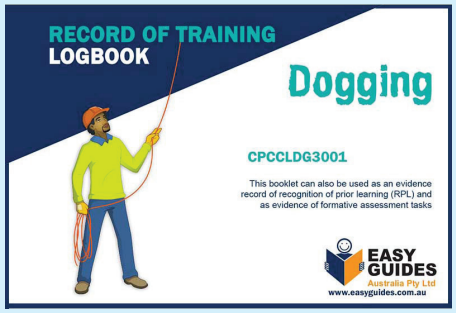

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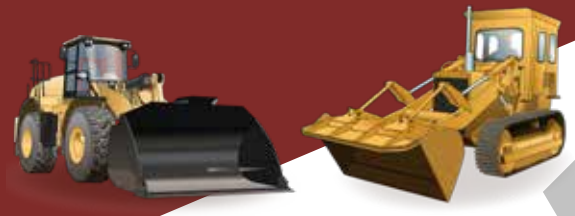


RIIMPO321F
wheeled front end loader

RIIMPO322E
tracked front end loader

RIIMPO318F
skid steer loader

RIIMPO319E
backhoe

RIIMPO320F
excavator

RIIHAN311F
integrated tool carrier

Contents

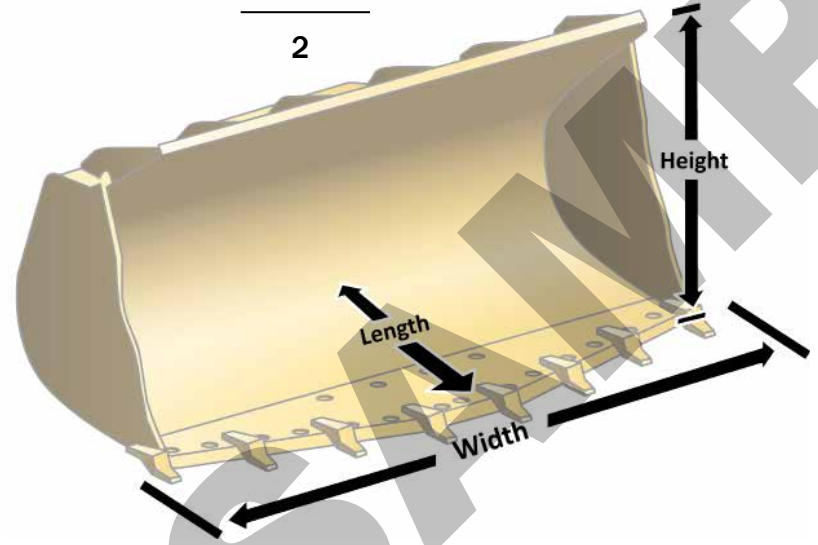
Plan and prepare for work

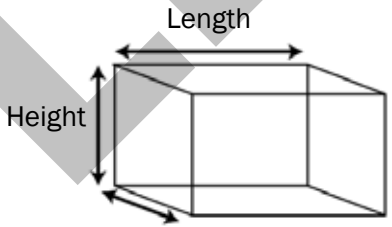
Calculations (continued)

How to find the cubic capacity of a bucket

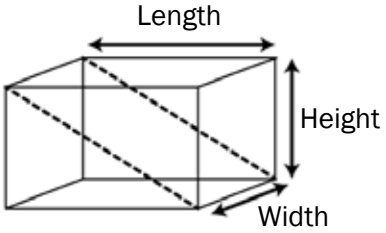
The planner must know the capacity of the loader bucket to be able to plan the job. For example, a machine with a larger bucket will move

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





Cubic capacity of cube
= L × W × H



Cubic capacity of bucket
= L × W × H ÷ 2

Cubic capacity is ÷ 2 because of the shape of the bucket (a triangular prism)

Identifying workplace hazards

A hazard is anything that can harm you or others while you are working. The first thing you need to do is to identify these hazards before you start work.

Take a good look at your workplace and decide if anything could possibly cause injury to you or anyone else in the area.

Above head height

You should check above eye level for:

- Powerlines
- Buildings
- Trees
- Other obstructions.

Ground to eye height

You should check around eye height for:

- Other equipment
- Machinery
- People
- Pedestrians
- Things in the path of travel
- Other obstructions.

Ground level (and below)

You should check the ground to see:

- If the surface is stable and level
- If there are spills or wet surfaces
- Is there debris/rubbish
- Is the surface strong enough to support the weight of any equipment or materials
- Are there trenches or recently backfilled trenches
- Is the ground unstable.

QUESTION 9

What kinds of PPE might you use when using earthmoving equipment?

You might use:

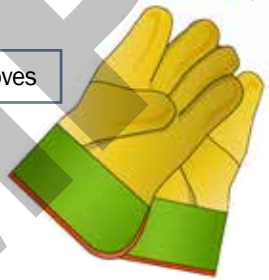
Hard hat

Dust mask

Safety vest

Ear muffs

Gloves



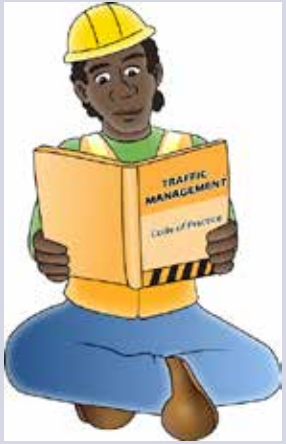
Boots that cover the whole foot

Sunscreen

Glasses/ googles

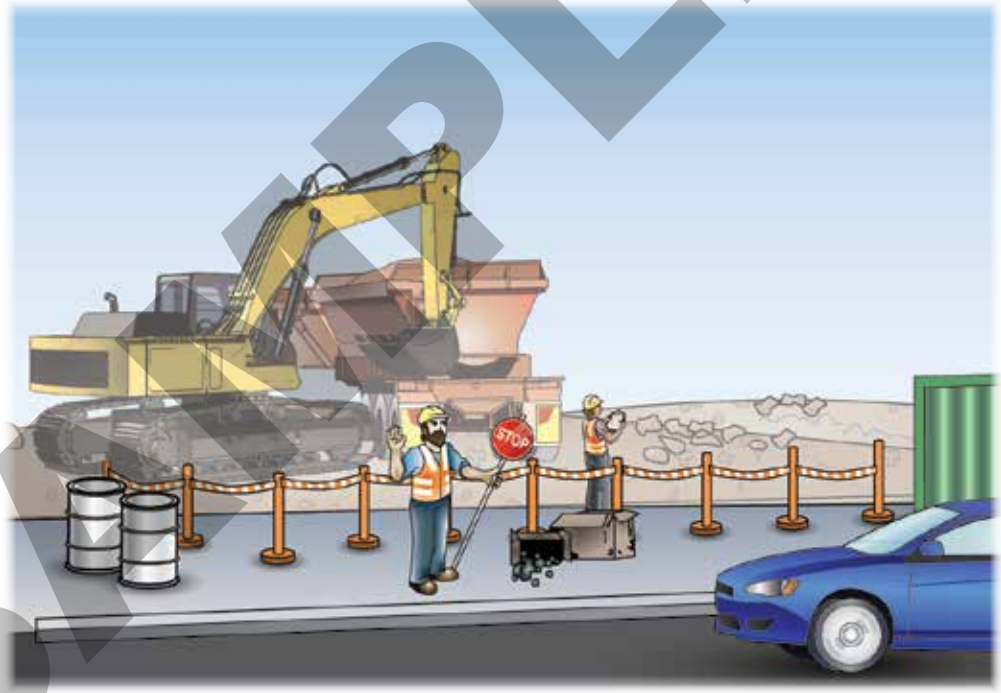
QUESTION 11

What does a traffic management plan (TMP) tell you?



It tells you how to control vehicles in and around the worksite. It helps keep the site safe for you and others.

You may require a traffic control qualification in your state or territory.



Operate earthmoving machinery

QUESTION 30

What kinds of tests should you do before using a machine for earthmoving?

Test brakes

Test attachment movements

Test controls

Test steering

Lift, carry and place materials

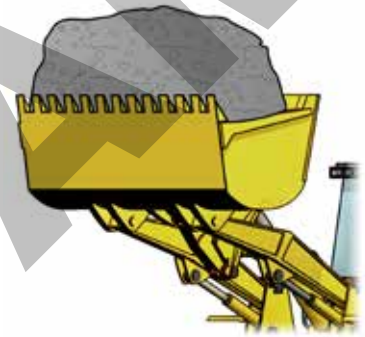
QUESTION 47

How can you find out the weight of a load?

Check the weighbridge note, consignment note, or other information.

Read the weight marked on the load

Estimate the weight of the load. For example,



Check the machine load scales if it has them fitted.

QUESTION 48

You want to use the excavator for lifting.

What must the earthmoving machinery have?

The earthmoving machinery must have an approved lifting lug and the SWL marked on the boom. The lug must be manufacturer approved.

Do not use the bucket to lift! If there is a quick-hitch type bucket, take off the bucket first.

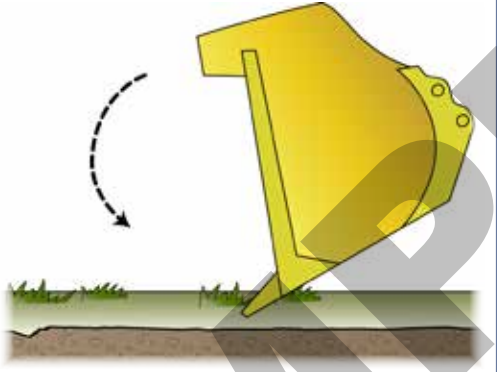
Do not lift from anything attached by the quick hitch system.

QUESTION 63

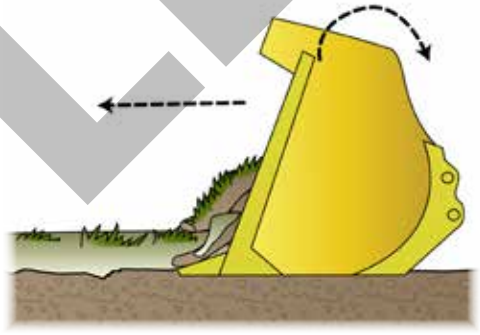
How do you strip topsoil?

Explain the steps.

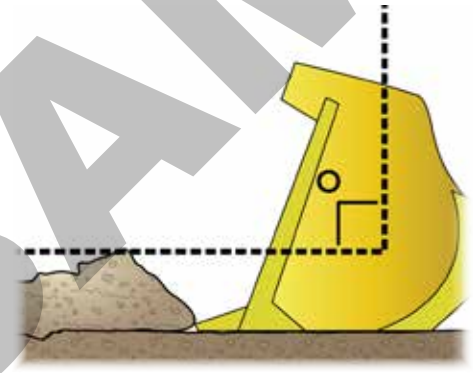
1. Tilt the bucket forward so the front of the cutting edge is in contact with the ground.



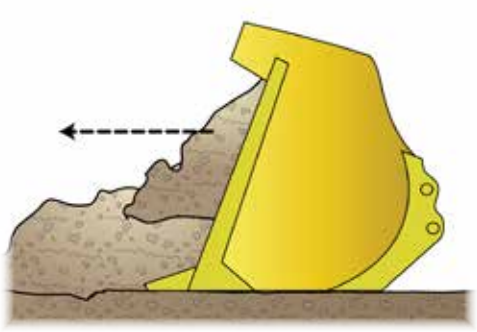
2. Drive forward to dig.



3. Roll the bucket back to level at the correct depth.



4. Move forward until the bucket is full.



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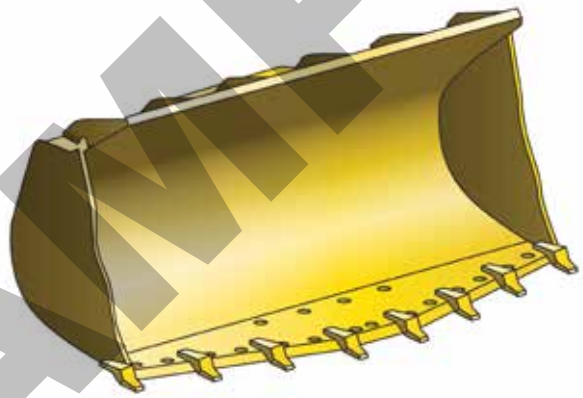
Select, remove and fit attachments

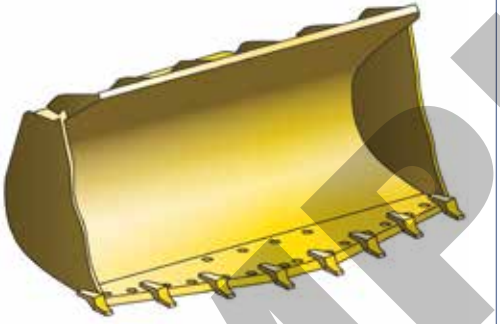


QUESTION 74

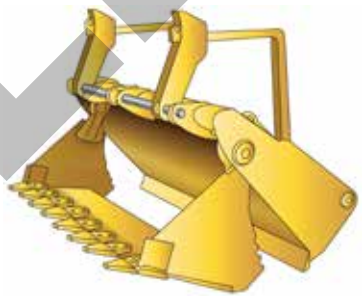
What kinds of buckets can you use on a front end loader / backhoe?

What do you use them for?

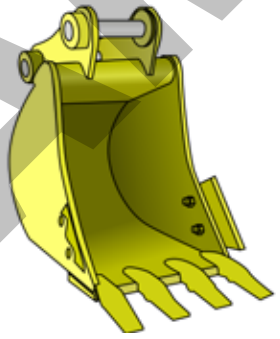
Rock bucket
This bucket has a straight or spade edge. You use this bucket for moving rocks.



Multi-purpose bucket (4-in-1)
This bucket has teeth and a blade. You use this bucket for dozing, clamping, loading, scraping and back blading for levelling.



Excavating bucket
This bucket has teeth and is used for general digging.

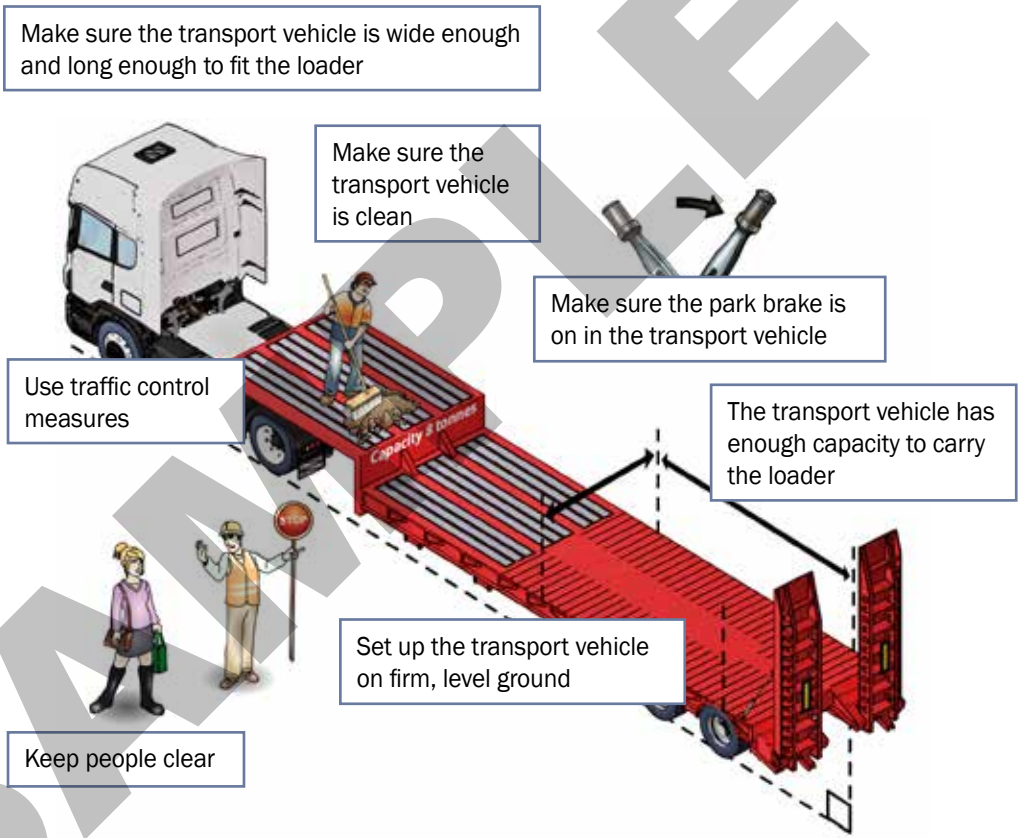


Trench bucket
This bucket is narrower than the excavating bucket and is used to dig trenches suitable for pipe or cable laying.

Relocate the machine

QUESTION 96

A loader is to be transported. How is the preparation done by the person responsible?



Carry out post-operational procedures

QUESTION 99

You've finished using earthmoving machinery.

What post-operational checks do you do?

Check for:

Correct fluid levels (once the integrated tool carrier has cooled down)

Any structural damage

Any fluid leaks

CIVIL CONSTRUCTION

Learner Workbook

(Formative assessment)

LLN READY

TRAINER'S MARKING GUIDE

This resource was developed by:

EASY GUIDES Australia Pty Ltd

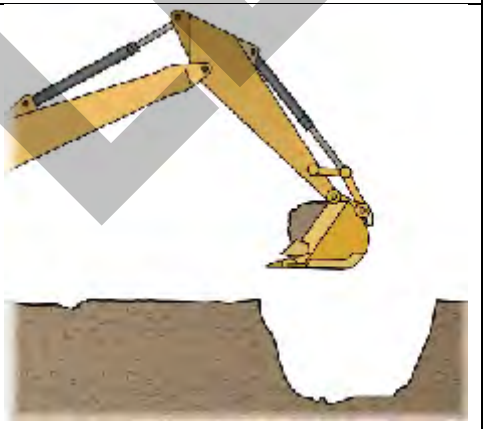
PROUDLY PRINTED IN AUSTRALIA

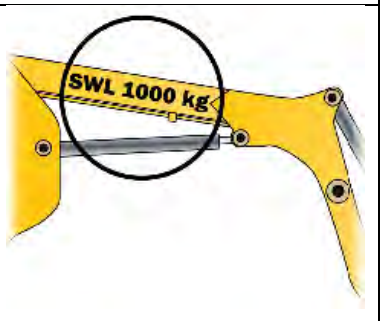
Learner Name: _____

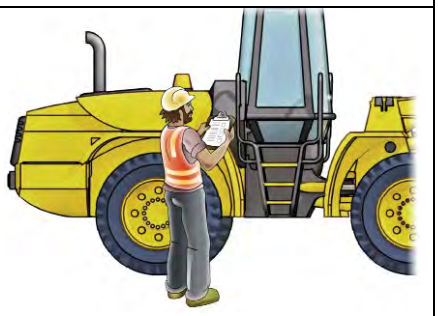
Student Number: _____ Date: ____/____/____

Contents

Question 17	
What does a traffic management plan (TMP) tell you?	
Answer may include but is not limited to: It tells you how to control vehicles in and around the worksite. It helps keep the site safe for you and others.	

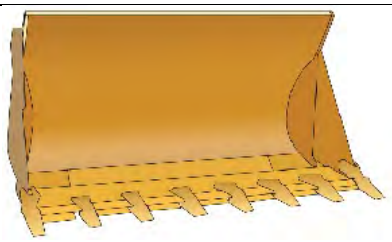
Question 18	
What kinds of jobs do you use earthmoving equipment for?	
Answer may include but is not limited to: • Digging an excavation • Loading a truck • Lifting logs • Rock breaking • Lifting loads • Mixing soil • Cutting • Digging a trench • Stripping and spreading topsoil.	

Question 19	
How mighty you check if the equipment is capable of doing the job?	
Answer may include but is not limited to: Evaluate whether the equipment's power, capacity, and performance align with the demands of the tasks. Check factors such as lifting capacity, horsepower, speed, and manoeuvrability.	

Question 23	
When do you test and inspect your earthmoving machinery?	
Answer may include but is not limited to: Everyday test and inspect before you use the loader.	

Question 24	
There are isolation requirements for earthmoving loaders. What is meant by isolation?	
Answer may include but is not limited to: Isolation in the context of earthmoving loaders refers to safety practices aimed at preventing accidental equipment startup or movement during maintenance or repair work. It involves: Lockout/Tagout: Physically locking or tagging energy sources to prevent machine activation. De-energisation: Turning off the loader's power source and depressurizing hydraulic systems. Verification: Confirming the equipment is safely immobilized. Training: Ensuring workers are trained in isolation procedures to prevent accidents.	

Question 25		
What pre-operational checks do you do before using earthmoving machinery?		
Answer may include but is not limited to: • Leaks • Tyre condition and pressure • Fuel level • Power steering fluid	• Hydraulic fuel • Transmission oil • Engine oil • Battery level • Engine coolant • Air filter • Air tank (if fitted)	

Question 53	
What are some examples of safety limits to remember when using an attachment?	
Answer may include but is not limited to: • Purpose of the attachment. The attachment should only be used to do the job it is designed for. • Safe working load (SWL) • Maximum hydraulic pressure the attachment can take • Capacity (how much the attachment can hold or lift).	

Question 54	
What is the chain of responsibility for loading and unloading of machinery onto a transport vehicle?	
Answer may include but is not limited to: The Chain of Responsibility (CoR) law ensures everyone who works with heavy vehicles – from the business that employs a driver to the place where goods are delivered – is accountable for safety.	

Question 55	
How do you prepare a machine for travel on a public road?	
Answer may include but is not limited to: • Park the machine in a suitable cleaning area. • Clean the machine of mud, soil, and stones. Remove any vegetation.	

Question 60	
Why should you remove the keys from earthmoving machinery when leaving it parked?	
Answer may include but is not limited to: To stop unauthorised people using the machine.	

Question 61	
What do you have to clean when you have finished using earthmoving machinery?	
Answer may include but is not limited to: • Clean the windows and cabin • Clean the mirrors • Clean tools and equipment, and put them back in their place.	

Question 62	
What are some items on earthmoving machinery that can be recycled?	
Answer may include but is not limited to: • Batteries • Oil • Gas cylinders	

Practical tasks

The skills and knowledge required to operate earthmoving machinery to load, distribute and place materials, work must be performed **on at least two occasions**. The two occasions could include the following:

Occasion 1 – Workbook (formative assessment)

Occasion 2 – Summative assessment instrument

Attachments:

Two different attachments must be used.

Practical Assessment 1 – Pre-Start

Observation performed when performing Practical Task 1 from work order provided (Job 1, Job 2) Candidate:	**Yes**	**No**	**N/A**	**Job 1**	**Job 2**
Located and apply relevant documentation, policies and procedures.					
❑ Locates operator's manual for earthmoving machinery and finds requirements for pre-start and start-up checks.				❑	❑
❑ Locates site policies and procedures for personal protective equipment requirements when operating earthmoving machinery.				❑	❑
❑ Candidate displays preparedness for emergency situations by outlining the steps to be taken in the case of a fire or accident.				❑	❑
❑ Interrupt work order or requirements before performing work task.				❑	❑
Selected and wear personal protective equipment.					
❑ PPE selected must be as per site policies and relevant to the task. As a minimum MUST include appropriate footwear, Hi-visibility workwear and hard hat.				❑	❑
❑ PPE must be checked for serviceability and correctly fitted.				❑	❑
Conducted pre-start inspection of earthmoving machinery.					
❑ Pre-start check is carried out as per operators manual and workplace policies and procedures. Where possible a completed pre-start checklist should be provided as supporting evidence.				❑	❑
❑ During inspection the candidate must identify and/or verbalise any common faults they are looking for.				❑	❑
❑ Faults and/or damage found during inspection must be managed as per workplace policies and procedures. This should include, tagging out faulty equipment, isolating faulty equipment, reporting to the appropriate person and recording in a logbook. If no faults or damage are found the candidate must verbalise the procedure for the worksite to the assessor.				❑	❑

Practical Assessment 2 – Drive and operate earthmoving machinery

Observation performed when performing Practical Task 2 from work order provided (Job 1, Job 2) Candidate:	**Yes**	**No**	**N/A**	**Job 1**	**Job 2**
Identifying and reporting all potential hazards, risks and environmental issues					
❑ The applicant must inspect the work area and identify any potential hazards and risks that exist including environmental hazards and risks. Where possible a completed site inspection checklist should be provided as supporting evidence.				❑	❑
❑ Hazard control methods consistent with the Hierarchy of hazard control and any existing environmental management plan must be used to manage the hazards. Site policies and procedures must also be followed.				❑	❑
❑ The applicant must inspect the work area and identify any potential hazards and risks that exist including environmental hazards and risks. Where possible a completed site inspection checklist should be provided as supporting evidence.				❑	❑
Starting the earthmoving machinery					
❑ Candidate must ensure any footsteps and handgrips are clear of mud, debris and slippery substances. The candidate must face the earthmoving machinery when mounting and dismounting and maintain three (3) points of contact at all times. Must not jump.				❑	❑
❑ Earthmoving machinery is started as per manufacturer's instructions and workplace policies and procedures. Post-start checks and tests must be carried out and any abnormalities rectified (where possible), reported and recorded.				❑	❑
Driving and operating the equipment					
❑ Candidate applies safe work practices when driving and operating the earthmoving machinery, including but not limited to using all warning devices and motion alarms, always checking travel direction is clear, continually monitoring ground and site conditions, monitoring the movement of the boom and bucket and travelling at a safe speed.				❑	❑
Monitored and managed equipment performance using indicators and alarms					
❑ Candidate identifies and monitors all indicators and alarms relevant to managing the performance of the earthmoving machinery.				❑	❑
❑ The candidate must react appropriately to any indicators or alarms and apply problem solving and troubleshooting techniques to rectify any problems when operating the earthmoving machinery.				❑	❑
❑ The candidate adjusts operating techniques to suit site conditions and/or as a direct response to any indicators or alarms.				❑	❑
Parked and secured earthmoving machinery					
❑ Candidate parks earthmoving machinery in an appropriate and safe location.				❑	❑

Performance Criteria of six units

RIIMPO320F Conduct civil construction excavator operations 	**RIIMPO322E Conduct civil construction tracked front end loader operations** 	**RIIMPO318F Conduct civil construction wheeled front end loader operations** 	**RIIMPO319E Conduct backhoe/loader operations** 	**RIIMPO318F Conduct civil construction skid steer loader operations** 	**RIIHAN311F Conduct operations with integrated tool carrier** 
1. Plan and prepare for excavator operations	1. Plan and prepare for tracked front end loader operations	1. Plan and prepare for wheeled front end loader operations	1.1 Access, interpret and apply backhoe/loader operations documentation	1. Plan and prepare for skid steer loader operations	1. Plan and prepare for integrated tool carrier operations
1.1 Access, interpret and apply excavator operations documentation	1.1 Access, interpret and apply tracked front end loader operations documentation and ensure the work activity is compliant	1.1 Access, interpret and apply wheeled front end loader operations documentation	1.1 Access, interpret and apply backhoe/loader operations documentation	1.1 Access, interpret and apply skid steer loader operations documentation	1.1 Access, interpret and apply integrated tool carrier documentation

1.2 Obtain, interpret, clarify and confirm work requirements	1.2 Obtain, interpret, clarify and confirm work instructions	1.2 Obtain, interpret, clarify and confirm work instructions	1.2 Obtain, interpret, clarify and confirm work instructions	1.2 Obtain, interpret, clarify and confirm work requirements	1.2 Obtain, interpret, clarify and confirm work requirements
1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	1.4 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies
1.4 Select and wear personal protective equipment required for work activities	1.4 Select and wear personal protective equipment required for work activities	1.4 Select and wear personal protective equipment required for work activities	1.4 Select and wear personal protective equipment required for work activities	1.4 Select and wear personal protective equipment required for work activities	1.3 Select and wear personal protective equipment required for work activities
1.5 Obtain, identify and implement traffic management signage requirements according to standard operating procedures and safe work practices	1.5 Identify, obtain and implement traffic management signage requirements	1.5 Obtain, identify and implement traffic management signage requirements according to standard operating procedures and safe work practices	1.5 Identify, obtain and implement signage traffic management requirements according to standard operating procedures and safe work practices	1.5 Obtain, identify and implement traffic signage requirements according to standard operating procedures and safe work practices	
1.6 Select required excavator equipment and/or attachments and confirm suitability for work activities	1.6 Select required tracked front end loader equipment and/or attachments and confirm suitability for work activities	1.6 Select required wheeled front end loader equipment and confirm suitability for work activities	1.6 Select required backhoe/loader equipment and confirm suitability for work activities	1.6 Select required skid steer equipment and confirm suitability for work activities	1.5 Identify and select any required tools and equipment and confirm suitability for work activities

1.7 Obtain and interpret emergency procedures for excavators, and be prepared for fires, accidents and emergencies	1.7 Obtain and interpret emergency procedures for tracked front end loaders, and be prepared for fires, accidents and emergencies	1.7 Obtain and interpret emergency procedures for wheeled front end loaders, and be prepared for fires, accidents and emergencies	1.7 Obtain and interpret emergency procedures for backhoe/loaders, and be prepared for fires, accidents and emergencies	1.7 Obtain and interpret emergency procedures for skid steers, and be prepared for fires, accidents and emergencies	1.7 Obtain and interpret emergency procedures, and be prepared for fires, accidents and emergencies
1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity	1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity	1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity	1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity	1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity	1.6 Communicate and coordinate planned activities with other equipment operators and personnel using approved communication methods
2. Operate excavator in line with established requirements	2. Operate front end loader in line with established requirements	2. Operate front end loader in line with established requirements	2. Operate backhoe/ loader in line with established requirements	2. Operate skid steer loader in line with established requirements	2. Operate integrated tool carrier to lift and move load to complete work activity
2.1 Carry out prestart and start-up checks in line with workplace procedures	2.1 Carry out prestart and start-up checks in line with workplace procedures	2.1 Carry out prestart and start-up checks in line with workplace procedures	2.1 Carry out prestart and start-up checks in line with workplace procedures	2.1 Carry out prestart and start-up checks in line with workplace procedures	2.1 Carry out pre-start and start-up checks in line with workplace procedures