

EXCAVATOR

Learner Workbook



STUDENT COPY

RIIMPO320F –

Conduct civil construction excavator operations



This resource was developed by:



Version 2.1 – June 2022



Learner Name: _____

Student Number: _____ Date: _____

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Training support materials

Training package: Resources and Infrastructure Industry Training Package

Unit of competency: RIIMPO320F - Conduct civil construction excavator operations

Application / Context of Assessment

This unit describes the skills and knowledge required to operate an excavator to load, distribute and place materials.

This unit applies to those working in site based roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors, and must be sourced from state jurisdictions prior to applying this unit.

Notes to Candidate:

Practical components of this assessment must be filmed on the operational use of a excavator, Distribution and placement of materials must be safely, effectively and efficiently follow workplace procedures to carry out work activity's on at least two occasions using at least two attachments on each occasion.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

Include access to:

- excavator
 - personal protective equipment
 - be conducted in a safe environment; and,
- be assessed in context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances

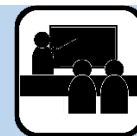
Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Knowledge Assessment



The assessor must be satisfied the candidate has successfully demonstrated each element and performance criteria contained in the Unit of Competency.

Knowledge Assessment Instructions



1. This assessment should be completed in writing (pen not pencil). However, where necessary it may be undertaken verbally. If verbal assessment is undertaken the candidates' responses must be clearly recorded by the assessor. The assessor must clearly note on the assessment that it was undertaken verbally.
2. Candidates should be allowed 10 minutes reading time before commencing the assessment and a further 180 minutes to complete the assessment.
3. The assessment should be completed in a quiet area free from distraction.
4. The assessment is to be completed without the assistance of learning resources. Students may ask the assessor for assistance to clarify questions they do not understand.
5. A pass mark of 90% (135/156) must be achieved for a satisfactory result. The assessor must provide feedback to the candidate to clarify any answers deemed to be incorrect.
6. Reasonable adjustment to the assessment is to be made by the assessor where deemed necessary.



Question 10

If a fire starts what are four (4) steps that should be taken?



Question 11

How do you choose and set up a location for a stockpile?



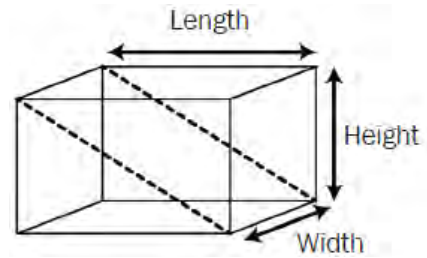
Question 12

**How can you find out the specifications and limits of the machine you will use?
Specifications include thing like:**

- **Load capacity**
- **Bucket height, volume and width**
- **Lift height**
- **Dump clearance.**

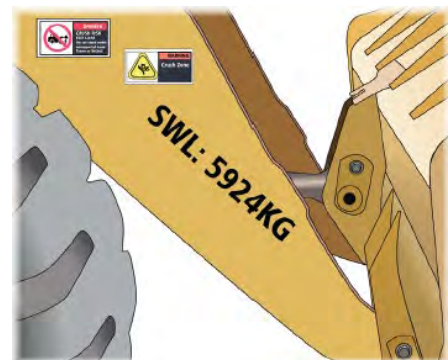
Question 13

How do you find the cubic capacity of an excavator bucket?



Question 14

How can you find out the maximum safe working load (SWL) of the excavator?



Question 15

Using the information provided on the load chart below, determine how much can the excavator lift in the following configuration?

- Radius = 4.6 m
- Hook height = 1.5 m over side.

Excavator load Chart										
22 tonne excavator fitted with a 3.05m long arm, 1m ³ bucket and 600mm slides										
Radius	Max reach		7.6m		6.1m		4.6m		3.0m	
Hook height	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
6.1 m	*3100	*3100	*3450	*3250						
4.6 m	*3150	2650	*3950	3250	*4100	*4100				
3.0 m	*3300	2400	*4450	3050	*5050	4500	*6450	*6450	*10750	*10750
1.5 m	3550	2300	4550	2950	*6050	4200	*8300	*6450	8450	*5450
0 m	3600	2300	4450	2850	6200	4000	*9650	6050	*6900	*6900
-1.5 m	3900	2500	4350	2750	6100	3850	*9650	6050	*10200	*10200
-3.0 m	4654	2950			6100	3900	9650	6000	*14900	12300
-4.6 m	6650	4250					9200	6100	*13800	12700

The ratings are based on 75% tipping load, stationary on firm level ground as per AS 1418.5.
 * The ratings do not exceed 87% of hydraulic lifting capacity of 75% of tipping load.
 For 'pick and carry loads' on firm level ground the load shall not be greater than 66.7% of tipping load as per AS1418.5 OR 89.9% of the SWL.
 Where ground is sloping, rough or not firm, the load must be dramatically reduced.

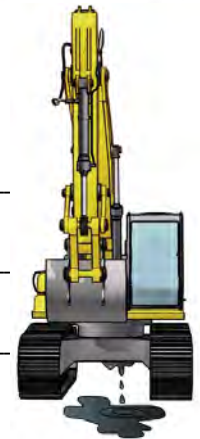
Question 62

When do you test and inspect the excavator?



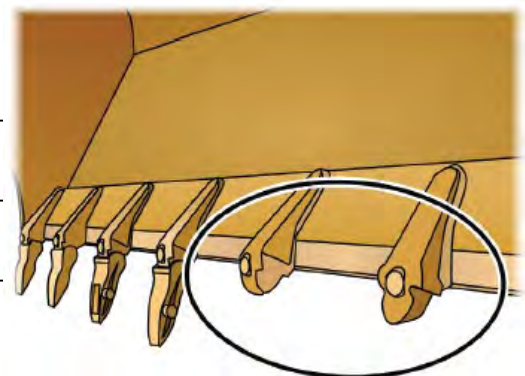
Question 63

What pre-operational checks do you do before using the excavator?



Question 64

What attachment checks do you do?

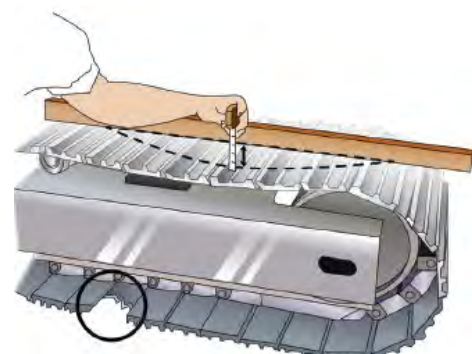


Question 65

What are some common parts that wear or get damaged on an excavator?

Answer may include but is not limited to:

- Teeth on the bucket or attachment
- Track wear and damage
- Drive belts
- Hoses



Practical Assessment



The assessor must be satisfied the candidate has successfully demonstrated each element and performance criteria contained in the Unit of Competency.

It is the assessor's responsibility to decide if the candidate has competently demonstrated a skill. The assessor may question a candidate further if their demonstration needs clarification.



Practical assessment instructions



Practical assessment should be performed in a normal working environment where possible. However, under some circumstances may occur in a simulated work environment (refer to assessment conditions for further information).

The Assessor must:

- Clearly explain to the candidate what is expected of them
- Check that the candidate has been provided with the necessary tools and equipment
- Complete checklists as the candidate goes through the tasks
- Only question a candidate during a practical task if it is safe to do so
- Stop the assessment immediately if the candidate is doing something dangerous
- Stop the assessment immediately if the machine or objects are likely to be damaged
- Inform the candidate of the result of the assessment

If an assessor needs to stop the assessment because of danger or possible damage, the candidate must be marked as not yet competent. If the assessment is stopped, further training would need to take place before a re-assessment can be undertaken.

Tasks in the assessment do not have to be assessed in isolation, they may be done as one continual task, a simple example of this may be to:

Summary of practical assessment task.



The candidate is to demonstrate the ability to:

- Operate an excavator,
- Distribute and
- Place Materials,
- Safely, effectively and efficiently following workplace procedures to carry out work activity on at least two occasions using at least two attachments on each occasion.

The assessor is to submit 2 work orders to candidate to follow which outlines work to be performed for at least 2 different material types such as the following:

- mixing materials
- stripping/spreading materials
- trench excavation
- backfilling
- lifting and carry materials
- loading dump trucks, wagons, hoppers or chutes
- cutting/boxing

Attachments that can be used are the following:

- extending devices
- tilt bucket
- buckets
- compaction wheel
- ripper, plate compactor
- rock breaker
- auger
- broom
- mower/slasher
- forklift
- 4 in 1 bucket and free/rock grab

Examples of a work order / job (requirements), might be the following;

Example 1 / Work Order 1. Dig a trench so that concrete sewerage pipe can be laid and place concrete pipe into trench then back fill in trench. Use rock breaker to break up concrete of foot path and drive way to place sewerage pipe.

Example 2 / Work Order 2. Move a large amount of gravel from front of a house to the back of a house to form a flat drive way. Then move any excess dirt from site into a dump truck.

Note: Performing the actual practical task must be filmed and noted of where the video file is stored.

Practical Assessment – Check List

The skills and knowledge required to operate an excavator to load, distribute and place materials, work must be performed on at least two occasions and carrying out the actual practical task must be filmed and noted of where the video file is stored.



Practical Assessment 1 – Pre-Start

Observation performed when performing Practical Task 1 from work order provided (Job 1, Job 2)	Yes	No	N/A	Job 1	Job 2
Candidate:					
Located and apply relevant documentation, policies and procedures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Locates operator’s manual for excavator and finds requirements for pre-start and start-up checks.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Locates site policies and procedures for personal protective equipment requirements when operating excavator.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Candidate displays preparedness for emergency situations by outlining the steps to be taken in the case of a fire or accident.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Interrupt work order or requirements before performing work task.				<input type="checkbox"/>	<input type="checkbox"/>
Selected and wear personal protective equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> 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.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PPE must be checked for serviceability and correctly fitted.				<input type="checkbox"/>	<input type="checkbox"/>
Conducted pre-start inspection of excavator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> 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.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> During inspection the candidate must identify and/or verbalise any common faults they are looking for.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 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.				<input type="checkbox"/>	<input type="checkbox"/>
Carried out vehicle refuelling requirements and procedures where applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Candidate must refuel the excavator when necessary. The candidate must refer to workplace policies and procedures for refuelling.				<input type="checkbox"/>	<input type="checkbox"/>