RIIMPO310F

Conduct Grader Operations

Learner Guide Instructions

Who is this document for?

The learner.

What is in this document?

- Course information that matches the PowerPoint presentation.
- Review questions.
- Practical assessment instructions for learners.

What do you need to do before you use it for the first time?

1. Rebrand the document.
2. Review the document as part of your validation process.
3. Set the reading and test time limits that are highlighted in pink at the end of the document.

See the 'Read Me First' document for a complete set of instructions on how to use these resources.

LEARNER GUIDE

RIIMPO310F Conduct Grader Operations

Learner Name:	
Learner ID:	
Learner Contact Number:	
Learner Email Address:	
Date Training Commenced:	

This Book Contains:

- ☐ Course Information.
- ☐ Review Questions.
- ☐ Practical Assessment overview and instructions.

Table of Contents

1.1 Introduction

This course is based on the unit of competency **RIIMPO310F Conduct Grader Operations.**

The information in this unit will be targeted at grader operations within the mining and extractive industries.

You will learn about:

- Planning and preparing for operations.
- Conducting routine checks.
- Operating graders.
- Carrying out post-operational procedures.

1.1.1 What is a Grader?

A Grader is a machine with a long blade used to create a flat surface.

Standard models have three axles, with the cab and engine above the rear axles at one end, a third axle at the front end, and the blade in between.

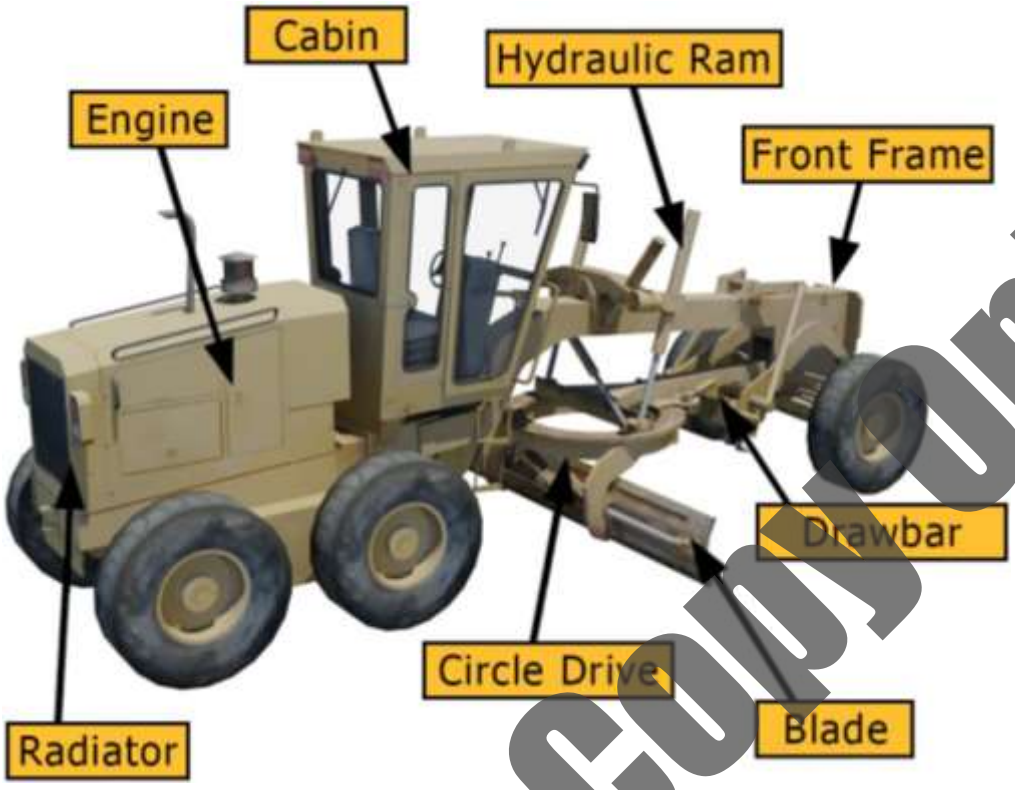
Graders are often used in the construction and maintenance of dirt and gravel roads to create a wide, flat surface.

They are also used to refine the work performed by scrapers and dozers to a finish grade level. Graders can also produce inclines and drainage ditches, and perform ripping and scarifying.

They can vary in size and capacity, but generally maintain similar functions. It is important to note that it is not permissible to carry a passenger on the grader.

1.1.2 Common Grader Components

The following diagram and table show the basic components on a Grader.



Component	Explanation
Engine	Engine of the machine. With a grader this is located behind the cab.
Radiator	Helps to maintain the temperature of the engine.
Cabin	Part where operator sits and operates the machine. Controls include: joy stick or control levers, transmission controls, brakes, emergency stop controls.
Blade	The pushing implement on the machine. It is used to push, level and shape materials.
Hydraulic Ram	Generic name given to all hydro-static drive units including hoses and rams.
Front Frame	The front frame is connected to the front wheel axle, and supports the structure of the entire grader. The front frame is designed to allow for the movement of the blade underneath.
Drawbar	Part of the blade and circle drive assembly system for the grader. Acts as a support system for the blade. Sometimes called a 'saddle'.
Circle Drive	Allows the blade to be rotated. May also be nicknamed a 'turn table'.

For exact details on the components for the machine you are operating, check your operator's manuals as different brands have different components.

1.1.3 Grader Abilities

As the grader is such a versatile machine, they can perform many specific movements to complete a task. Most of these movements happen with the front half of the grader.

Some of the main movements include:

Straight

Uses front wheel drive steering.

Most often used for long straight passes, finishing surfaces, small windrows and scarifying/ripping.

Articulated

Uses front wheel drive steering and the frame.

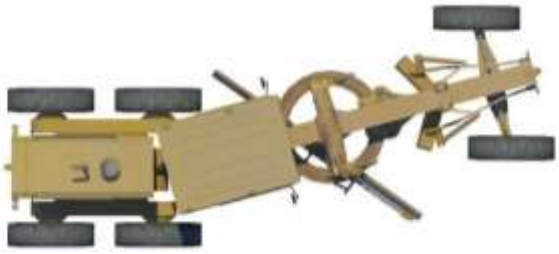
Often used on the side of windrows and to alter the blade cutting width.

Crab Steer

Both front and rear wheels travel in the same direction.

The front frame travels in an angled direction.

Most often used for levelling dumped materials without driving over the dumped pile in front.



1.2 Site Policies and Procedures

You must follow all safety rules and instructions when performing any work. If you are not sure about what you should do, ask your boss or supervisor. They will tell you what you need to do and how to do it in a safe way.

Before starting your work you need to make sure you have access to all operations documentation for the job. This will help you to do your work in the safest way and make sure all work is compliant.

Operations documentation includes:

Site Details
The information and safety requirements of the workplace environment (where you will be working).

Hazard Details
Any hazards in the work area or related to the work. This could also include instructions on how to handle dangerous or hazardous materials.

Task Details
Instructions of what the work is or what you will be doing (this can include diagrams or plans). Also instructions on how to safely do the job.

Faulty Equipment Procedures
Isolation procedures to follow or forms to fill out.

Signage
Site signage tells you what equipment you need to have, or areas that are not safe to be in.

Emergency Procedures
Instructions on what to do in emergency situations, for example if there is a fire, accident or emergency where evacuation or first aid is needed.

Equipment and Work Instructions
Details of how to operate plant and equipment and the sequence of work to be done.

Your worksite will also have instructions for working safely including:

- Emergency procedures, including using fire fighting equipment, first aid and evacuation.
- Handling hazardous materials.
- Safe operating procedures.
- Personal protective clothing and equipment.
- Safe use of tools and equipment.

Review Questions

1.	List 3 things that may be included in 'operations documentation'.	☐
1. 2. 3.		

1.3 Work Instructions

You need to be clear about what work you will be doing. Make sure you have everything about the job written down before you start. This includes what you will be doing, how you will be doing it and what equipment you will be using.

Make sure you have all of the details about where you will be working. For example:

- **The Site** – Is there clear access for all equipment? Are there obstacles in the way? What are the ground conditions like? Is the site ready for your work to begin? Are there any 'out of bounds' areas you need to avoid?
- **The Weather** – Is there wind, rain or other bad weather? Is it too dark?
- **Traffic** – Are there people, vehicles or other equipment in the area that you need to think about? Do you need to get them moved out of the area? Do you need to set up barriers or signs?
- **Hazards** – Are there dangerous materials to work around or think about? Will you be working close to other people or vehicles?

You also need to make sure you have all of the details about the kind of work you will be doing:

- **The Task** – What kind of material is being moved? How much is there to move? How long do you have to complete the work? Are there grades and levels that need to be achieved?
- **Plant** – What type of plant will be used? How big is it? How much room does it need?
- **Attachments** – What equipment will you need to move the materials safely? Is the equipment available?
- **Communications** – How are you going to communicate with other workers?
- **Procedures and Rules** – Do you need any special permits or licences? Are there site rules that affect the way you will do the work, e.g., contamination control requirements?

1.3.1 Reading and Checking Your Work Instructions

All work needs to follow worksite, environment and company safety procedures.

Procedures help to make sure that all work is done in a safe way, without damaging equipment or putting people in unsafe situations. They also help to make sure that work is done in the correct order and doesn't interrupt or get in the way of other work that is happening on the site.

Your work instructions will tell you the safest way to do the job, and the equipment that you will need to use. It is a good idea to check your work instructions with your boss or supervisor to make sure you know exactly what you need to do.

If you don't know where to get your instructions or you can't understand them, you can ask your boss or supervisor. They will tell you where to find your work instructions and explain what they mean.

1.3.2 Work Method Statements

Many worksites require a work method statement before any work can start. A work method statement is a list of steps that outlines how a job will be done. It also includes any hazards that occur at each step, and what you need to do about them.

These statements can also be known as Safe Work Method Statement (SWMS), Job Safety Analysis (JSA) or Safe Operating Procedure (SOP).

Work method statements are a great tool for organising your work activities and making sure you have completed everything. This is because they will outline the details of all tools, equipment and coordination with other workers relating to your job. Make sure all of these are available and ready before you start.

1.3.3 Plans and Specifications

Some of your work instructions might be given to you in plans, maps, reports and specifications. You will need to get the information out of these documents and use it to do your job.

Specifications will tell you the types, quantities, grades and classifications of materials you will be working with.

You need to check the floor clean up procedures to make sure you are able to achieve the specified levels and grades. These will be outlined in the project specifications and your instructions.

Plans are usually "scale drawings" that represent a large area on a small sheet of paper and show proportion at the same time.

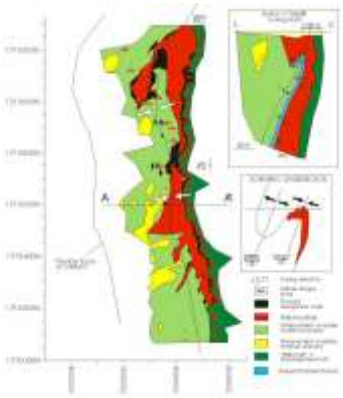
Project plans and maps give you an overview of the site, for example:

- The location of your work area in relation to the whole mine site.
- The position of stockpiles, work zones, roads and access areas.
- The location of environmentally sensitive or 'no go' areas.
- Contours, or the lay of the land, e.g. slopes, banks, depressions.

1.3.4 Geological and Survey Data

Geological and survey data is used to guide you through a job. It tells you what the area is like, what things you will need to think about and what work you need to complete.

1.3.4.1 Geological Data



Geological data gives you information about:

- Rock or material types and characteristics.
- Wet and dry areas.
- Water tables or other sources of water.
- Broken ground, faults or joints.
- Compaction levels.

All of this information will help you to decide on what equipment you need to use, where and how you should travel with equipment and areas to avoid.

1.3.4.2 Survey Data

Survey data covers information about job outcomes including:

- Bench heights and widths.
- Floor heights.
- Floor, ramp and bench grades.
- Underground working and voids.

Survey data can also be used to mark out:

- Work circuits.
- Pick up areas.
- Dump areas.
- Spill zones.
- Routes or traffic ways.

Review Questions

2.	What details about the work area can you get from your work instructions?	☐

3.	Why is it a good idea to check your work instructions with your boss or supervisor?	☐

4.	What is a work method statement?	☐

5.	What will geological data help you to decide?	☐

1.4 Emergency Procedures

Emergency procedures will vary depending upon the worksite. These procedures could include:

- Emergency shutdown.
- Evacuation.
- First aid.
- Fire fighting.

1.4.1 Emergency Shutdown of Equipment

If there is a fire, emergency or accident you might need to use the emergency stop on the equipment you are using. This will turn the equipment off immediately. You can also use the emergency stop if the equipment stops working properly or you lose control of the equipment.

1.4.2 Evacuation

Things to remember are:

1. Keep calm.
2. Move away from the danger to a designated evacuation point, sometimes called an emergency assembly area.
3. Do not let other people into the area.
4. Call emergency services in accordance with workplace procedures and policies.

1.4.3 First Aid

First Aid is the quick care given to an injured or ill person. Every site will have a First Aid Officer. If somebody needs first aid you must tell your supervisor or First Aid Officer. Do not try to give first aid if you have not been trained.

1.4.4 Fire Fighting Equipment

Fire fighting equipment on site could be anything from small fire extinguishers through to large water cannons. Different fire fighting equipment should be used for different types of fire. Always check the equipment for information on what type of fire it can be used on.

Steps for using a fire extinguisher:

1. Evacuate the area.
2. Isolate the area.
3. Call emergency services or other designated on site procedure.
4. If it is safe to do so, use an extinguisher to attempt to control the fire using the PASS system.

The **PASS** system:

P	**Pull** the pin.
A	**Aim** at the base of the fire.
S	**Squeeze** the trigger.
S	**Sweep** the base of the fire.

Contact your site emergency management team as soon as possible and call the fire brigade on 000.

Review Questions

6.	What emergency situations are generally outlined in site emergency procedures?	☐

1.5 Inspect and Prepare the Work Area

Before you start any work you need to look around the site. The inspection and preparation of the worksite includes:

- Working out the path of movement for plant, vehicles and materials.
- Identifying hazards, and taking suitable actions to deal with them.
- Making sure all equipment, resources and workers are available for the task.

It is important to coordinate with other workers when you are inspecting and preparing the site to make sure everyone knows what is going on, what you are planning to do and what they need to do.

All workers on site must understand their own role and the roles of others before starting work. It helps to make sure work is done safely and efficiently.

Workers you may need to coordinate with includes:

- Other mobile plant operators.
- Processing plant operators.
- Maintenance workers.
- Water truck/cart operators.
- Service vehicle operators.
- Crane and float operators.
- Contractors.
- Inspectors, both internal and external, including WHS, environmental and quality assurance officers.
- Supervisors.
- Site visitors.

1.5.1 Identify Hazards

Part of your job is to look around to see if you can find any hazards before you start any work.

A **hazard** is the thing or situation that causes injury, harm or damage.

When you start checking for hazards, make sure you look everywhere. A good way to do this is to check:

- Up high above your head.
- All around you at eye level.
- Down low on the ground (and also think about what is under the ground).