

Ezyload Rod Loader

Hiab Mounted | 114mm to 243mm Rod size | Replaceable Inserts

ezyloadTM
ezy on...ezy off



**Operations, Training
& Safety Manual**

AIRDRILL

A **SCHRAMM** Company

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Purpose

1.1 Operations Manual

The purpose of this Operations Manual is to provide the frame work for the safe operation of the 'Ezyload Rod Loader Attachment'.

1.2 Overview

The Ezyload Rod Loader attachment has been designed for use with a Vehicle Mounted Crane.

1.2(a) Operating System

A patented 'Energise to Open Operating System' allows the 'Hands Free' loading and unloading of various sized Drill Pipe with complete safety.

1.2(b) Versatility

This versatile Attachment allows the Operator to pick up Drill Pipe from almost any position around the Truck and then position it to engage the Rotary Head.

1.2(c) Drill Pipe Safety

Drill Pipe can be added and removed from the Drill with complete safety and totally 'Hands Free'.

Purpose

1.2(d) Remote Controlled

Remote Control Functions remove the Operator from the work area and also from 'the line of fire'.

1.2(e) Safety Systems

Three (3) 'Safety Systems' have been incorporated into the Release Mechanism of the Attachment.

1.2(f) Release Mechanism

The Release Mechanism cannot be accessed from the Remote Control Unit, removing the chance of accidental release.

1.2(g) Clamping System

Our Clamping System differs from all other Hydraulic Clamping Systems as it requires System Pressure to open the Jaws and release the Drill Rod.

1.2(h) Mechanically Energised Jaws

Mechanical stored energy is used to hold each Jaw closed, each Jaw works independently.

Purpose

1.2(i) Gripping Jaws

Ezyload uses Eight (8) pairs of Gripping Jaws working independently to hold the Drill Pipe securely in place.

1.2(j) LED Clamping Status Lights

Two (2) LED Clamping Status Lights are mounted in clear view for the Operator, indicating the position of the Clamps.

*The jaws are either 'fully open or fully closed'.

RED - Clamps OPEN

GREEN - Clamps CLOSED

1.2(k) Control Panel Status Lights

Status lights are also visible on the Control Panel which is mounted on the rear of the truck.

Scope

2.1 Working Parameters

Pipe Sizes 4½ inch to 9⅝ inch

Pipe Length 900mm to 10m

S.W.L 2.2 tonnes

Load Distance Up to 8m loaded from the rear

Load Angle 60% to Vertical

Working Radius 360 Degrees

2.1(a) Safe Removal & Attachment of Pipe

The Ezyload Attachment has been designed to Safely move Drill Pipe from a Truck Tray direct to the Drill Rotary Head.

Suitable Rated Rear Mounted Crane

2.1(b)

The Ezyload Attachment is fitted to a suitably Rated Rear Mounted Crane.

Crane Truck Positioning

2.1(c)

The Crane Truck is Positioned to allow the Drill Pipe to be lifted and loaded directly from the rear.

Safe Work Procedure

3.1 Minimum requirements for Ezyload Operation

- H.R Vehicle License
- Vehicle Loading Crane Ticket(10M tonnes & above)
- Completion of Ezyload Training Module

3.1(a) Working Environment

Choose an area that has:

- Level Ground
- Stable Ground Conditions
- Good Visibility
- Where work can be delineated (coned off during operations)

3.1(b) Permit to work/site specific requirements

Before commencing work check the following:

- Have all the appropriate people been informed of your intended actions?
- Are all the required permits/paperwork completed?
- Have the whole team read and understood the procedure?
- Have you communicated your intended actions to/with the Drill Operator?

3.1(c) Site specific vehicle interaction rules

Site specific rules for Vehicle to Vehicle Interaction must always be followed.

3.1(d) Specific site procedures

Check requirements before proceeding — if you are unsure report to your supervisor immediately.

Safe Work Procedure

4.1 Drill Rig positioning and condition

The Drill should be positioned so the Crane Truck can be manoeuvred into position.

4.1(a) The Drill

The Drill should be:

- Drill turned off and isolated
- Mast up and locked
- Jacks down and levelled
- Tool joints cracked and then rethreaded to just make up the joint

***Note: It is very important that the tool joints have been broken and then rethreaded so the mating Surfaces ‘just meet’ prior to gripping the Rod with the Ezyload Attachment.**



Safe Work Procedure

5.1 Crane Truck Positioning

Always use a Spotter to assist with the positioning of the Crane Truck.

5.1(a) Crane Truck Set Up

The Crane Truck should be set up as follows:

- Reverse the Truck into position so the centre point of the Crane is in line with the centre of the drill string
- Position the rear of the Crane Table as parallel with the Drill Table as possible
- The distance from the Centre of the Crane Mounting Point and the Centre of the Drill String should be between 6.5M and 8.5M

***Note: Some experimentation may be required to ascertain the best distance between the Drill and Truck. (This distance will vary for different Drill types).**

Safe Work Procedure

5.1(b) Correct Truck & Drill Distance

- Lack of distance between the Truck and Drill will reduce the manoeuvrability
- Excessive distance may mean that the Operator lacks extension and cannot reach the required distance to attach onto the Rotary Head

***Note: Once the suitable distance has been established it should be recorded for future reference.**

Record Set Up Distance Here:

Drill ID Number	Set Up Distance
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Safe Work Procedure

5.1(c) Crane Setup

Follow the Crane manufacturer's recommendations to set up the Crane ready to carry out the lift:

- Out Riggers should be fully extended, Front and Rear
- The ground must be firm and be able to bear the Load
- Packing is placed under the Out Riggers to distribute the weight of the Crane and Load
- Packing should cover as much area as possible (see calculation table, p.11)
- Top layer of Packing should be in line with the Out Rigger Beam and at least 200mm Wide
- Packing needs to be Pig-styed with the first layer parallel to the Out Rigger Arm



Safe Work Procedure

5.1(d) Avoid Crane Malfunction

Ensure:

- Outriggers are fully extended
- Pack the Outriggers correctly
- Level the Truck
- Always keep the wheels of the Truck on the ground
- Ensure a sufficient amount of weight is distributed to each Outrigger
- Make sure the above conditions are met and regularly check the status during operations

5.1(e) Packing Area Calculation

$$\text{Area} = \frac{0.65 \times (\text{Cm} + \text{L})}{\text{V}}$$

L = Load Mass
Cm = Crane Mass
V = Bearing Pressure of the ground in tonnes / m²

***Note: Safety improvements have seen the implementation of sensors in the Outrigger Circuit. These sensors limit the Cranes capacity when the right conditions are not met.**

Safe Work Procedure

5.1(f) Ezyload Inspection Prior to Operation

*Note: The Ezyload Attachments uses different sized Jaw Inserts to accommodate different Rod diameters.

Inserts are Colour Coded and the details are listed below, details of the size range and the associated colours are also shown on an Information Decal that is affixed to the Control Panel.

Check to make sure you have the Correct Inserts fitted.

JAW INSERT COLOUR CODES (INCH)

WHITE	BLUE	YELLOW	RED
4½ to 5½	5½ to 6½	6½ to 7½	7½ to 8½

NO JAW INSERT FITTED
8½ to 9⅝

Safe Work Procedure

5.1(f) Ezyload Inspection Prior to Operation

Check the following items:

- Carry out a thorough prestart and visual Inspection
- Damage – Report any visible damage immediately to your supervisor
- Lubricate all the Grease Points
- Check the Dietongs are clean and in good condition (clean using a wire brush)
- Check Hose condition
- Check for Hydraulic Leaks
- Check Cylinder Condition
- Check Pins and Bushes are secure
- Pin Retainer in place and secure
- Lubricate the Drill Rod Pin End with Rod grease



Safe Work Procedure

6.1 Ezyload Clamping System

The Ezyload Clamping System is operated from the Control Panel and uses 3 separate Valves to open and close the Jaws.

The Picture below shows the Main Isolation Valve where the Operator can place his Tag and lock.



6.1(a) Once the Main Isolation Valve has been Isolated the Jaws remain Closed regardless of what other Valves are activated.

6:1(b) There are 2 additional Valves located in the Control Panel, these Valves are used in conjunction with the Main Isolation Valve to open the Jaws.

Safe Work Procedure

6.1(c) To Open the Jaws

- Main Isolation Valve must be open
- 2 Valves in Panel must be pulled out

Note: Activating the Valves in the following manner will cause the Red LED to illuminate and the jaws will open.

Gripper Jaw Control Knobs



Safe Work Procedure

6.1(d) To Close the Jaws

- Close Main Isolation Valve
- Push in both valves located in the panel

Note: Activating the Valves in this manner will close the jaws.

The Red LED light will remain illuminated until the jaws are fully closed - at this point the Green LED will illuminate.



Ezyload Control Panel



Safe Work Procedure

7.1 Picking up a Drill Rod

Follow these steps:

- Open the Jaws
- Maneuver the Attachment over the Drill Rod so it is both parallel and in line but approx 500mm away
- Use the Extension Function of the Crane to finally lower the Attachment onto the Drill Rod
- Do not force the Attachment over the Drill Rod – make sure the Attachment is presented correctly and little to no force is required
- Visually check that all the Inner Jaws are contacting the Drill Rod – small adjustments can be made with the Tilt Function
- It is always best to retract the Jib back in to make large alignment adjustments and then extend out again

Operator Correctly Positioned to Clamp Drill Pipe



Note: Operator is lowering the drill pipe into position with the JIB EXTEND Function of the crane.

Safe Work Procedure

7.1 Picking up a Drill Rod

- Once the Attachment has been positioned with all the Inner Jaws contacting the Drill Pipe the Jaws can be closed
- Follow the procedure detailed in 6:1(d) to close the Jaws
- Once the Green LED Light has illuminated you are ready to lift the Drill Rod

Note: Always position the attachment in the centre of the Drill Rod. Always Use JIB Extend for the last positioning movement. Always wait until the Green light is on before attempting to lift a Rod.

Safe Work Procedure

7.2 Test Lift

Always carry out a small Test Lift first using the JIB in Function of the crane.

Lift the Drill Rod approx 300mm and visually check that everything is correct.

Important Note: Lowering the Attachment onto the Drill Rod with the JIB Extend Function allows you to carry out a small Test Lift and clear all obstacles simply.

Having carried out the Test lift successfully the Drill Rod can now be maneuvered into the required position.



Safe Work Procedure

7.3 Moving Drill Pipe into Position

Suspended Loads.

The Remote Control Function allows the Operator to remove himself from the line of fire.

Never stand near or under a suspended load.

7.4 Maneuverability

The Ezyload Attachment offers a wide range of movement to allow the Operator to maneuver around fixed obstacles.

7.5 Functions

Always select the Snail or Slow Function on the Remote Control when moving the Rod around into position.

7.5(a) Step 1

Lift the Rod clear of the frame using the JIB In Function (discussed in Section 7:1).

Stay well clear while loading.



Safe Work Procedure

7.5(b) Step 2

Move the Drill Rod from the Horizontal position to the vertical position.

-WARNING-

Never Slew the Drill Rod around from the Truck Body in a horizontal position.

Failure to conform to the above may cause the Crane to sense an overload and cease to function.

7.5(c) Step 3

Slew Drill Pipe around to the rear of the truck.

- 1.** Position the Drill Pipe in a vertical position with the shortest working radius possible to clear any obstructions.
- 2.** Slew the Drill Pipe around in a Clockwise direction and position it at 180 Degrees to the Crane Base (In line with the Drill String of the Drill).
- 3.** Operator Collision Safety Function Fitted.
When the Crane is fitted with the above safety feature the Slewing Rotation must always be performed in a Clockwise direction from the Truck body as the Slewing function will stop when the load enters the exclusion zone located near the Manual Control Levers.
- 4.** Move Into Position
Move Drill Pipe into position under Rotary Head.

Safe Work Procedure

7.5(d) Communicate with Drill Operator

Communicate with the Drill Operator to ensure that the Tool Joints have been broken and retightened with Minimum Rotation Setting.

**Note: Ezyload is designed to grip the Drill Rod with enough force to hold the Drill Pipe it is not designed for breaking out Tool Joints – Continuous spinning in the Jaws will damage them.*

7.6 Rod Catchers

7.6(a) If a Rod Catcher is fitted some Maneuvering may be required to position the Drill Rod behind it.

7.6(b) In the event that the Drill Pipe cannot be manipulated behind the Rod Catcher it will need to be swung out of the way or removed while the Drill Rod is being loaded.

7.7 Bottom Drill Rod Support

7.7(a) Fit an appropriate hardwood block or steel plate over the Deck Bush in the Drill Table to allow the bottom of the Drill Pipe to be supported when threading onto the Rotary Head.

7.7(b) Move the Drill Pipe into position and Center the Bottom to align with the Opening in the Deck.

Safe Work Procedure

7.7(c) Lower the Drill Pipe onto the support placed over the Deck Bush Opening and adjust the Vertical Alignment so the top of the Drill Rod will meet the Drill Head Spindle.

***Important Note: Never attempt to FEED DOWN the Rotary Head onto the Drill Rod held in the Ezyload Attachment unless the bottom of the Drill Rod is Firmly grounded on the Table.**

7.7(d) Use a Spotter if required to assist with clearing the obstructions while positioning the Drill Pipe under the Rotary Head.

7.7(e) Make sure the Drill Head is well clear of the Top of the Drill Pipe.

7.8 Step 5 - Make Up Tool Joint

Communicate with the Drill Operator and ensure the following settings are selected for the Drill Feed and Rotation Circuit.

- Feed Pressure set to low
- Slow Feed lever will be used for this operation
- Rotation Pressure set to low
- Air Tap is off
- Compressor is set to Low Air
- Engine is just above Idle

Safe Work Procedure

- 7.8(a)** Lower the Rotary Head to 100mm above the Top of the Tool Joint
- 7.8(b)** Check that the Top Tool Joint and Spindle Sub are in alignment. Small adjustments can now be made to re align them if necessary.
- 7.8(c)** Once the alignment has been confirmed finally check that the Drill Rod is still seated at the bottom.
- 7.8(d)** Select Reverse Rotation
Feed down until the Tool Joints just meet
Stop Reverse Rotation
Select Slow Forward Rotation
Feed down slightly allowing the Tool Joints to make up
- Stop Feed and Rotation as soon as the Tool Joints meet and the Rod begins to spin in the Ezyload Jaws.



Safe Work Procedure

- 7.9 Step 6**
Release Ezyload Jaws and remove Attachment.
- Very Important Check**
- Confirm the Tool Joint is made up correctly before releasing the Jaws
 - Move to the Ezyload Control Panel and Pull Out both Control Valves
 - Deisolate the Main Isolation Valve and Turn it to the 'On' Position
- The Jaws will now open.**
- 7.9(a)** Take care when removing the Ezyload Attachment from the Drill Pipe as the alignment may have shifted slightly as the Tool Joints connected.
- 7.9(b)** Maneuver the Attachment away from the Drill Pipe taking care to avoid any Obstacles that may be present.
- Once the Ezyload Attachment is clear of the Drill Mast activate the Isolation Valves to close the Jaws.

Safe Work Procedure

8.1 Set Up For Transport

8.1(a) Reposition the Ezyload Attachment in the transport position with the Jaws closed.

8.1(b) During Transport make sure of the following:

- Main Isolation Valve is OFF
- Power Supply on Control Panel is OFF
- Jaws are closed

8.1(c) Height Restrictions during Transport.

- The Ezyload Attachment causes the Crane to be over height
- Always check the clearance from overhead Lines before transport
- Always secure the Attachment carefully before transport



Safe Work Procedure

9.1 Removing the Attachment from the Crane

The Ezyload Attachment must be made secure before any attempt is made to remove it from the Crane.

***Note:**The Inner Sleeve that attaches the Ezyload Attachment to the Crane Arm is approx 1200mm long – this is the length inside that you cannot see.

To make the Uncoupling process easy, place the Unit in position with at least 1500mm of the Jib Extended.

***WARNING:**The Attachment becomes unstable and will fall

9.1(a) Step 1

Park the Ezyload Attachment in Place with 1500mm of Jib Extended.

9.1(b) Step 2

Turn Off the Truck and Isolate.

9.1(c) Step 3

Disconnect the 5 Quick Couplers.

9.1(d) Step 4

Unplug the Single Deutz Electrical Plug Connection.

Safe Work Procedure

9.1(e) Step 5

Remove the Main Pin that secures the Attachment to the Crane.

9.1(f) Step 6

Start the Truck and set up ready to operate the Crane.

Operate the Jib In Function of the Crane until the full extent of the Inner Sleeve has been revealed.

The Crane is now free of the Attachment.

9.2 Using the crane without the attachment

Before using the Crane Without the Attachment carefully secure the Disconnected Hoses and Electrical Connection.

***Warning: Damage to the Quick Couplers May occur if they are not secured during Crane use.**

Safety

10.1 Identify The Hazards

Ezyload has been designed and built in Australia with a safety factor that is far above what is required under AS 4991—2004.

Ezyload is recommended, coupled to a crane that uses the latest overload safety features, these features further complement the overall safety of this attachment.

When operating this attachment always observe the fundamental safety points connected with using a Truck mounted Crane.

You as the operator are the key to your safety and the safety of those around you.

Take the time to look for any Hazards before you start work.

Make the necessary changes before you start and keep the work area safe for you and those around you.

The time to fix a Hazard is when it becomes evident – stop what you are doing and take the necessary steps to remove that hazard immediately.

- 10.1(a)** Do not operate this attachment unless you have been fully trained and are competent to operate it safely.

Safety

10.1(b) Do not operate the Attachment when:

Visibility is Poor

Think about where the sun will be positioned when you are looking up to align the tool joint – sun glare can be a Hazard.

Inclement Weather Conditions

- Lightening is present
- High Wind Speeds
- Heavy rain limits visibility

10.1(c) Ground Conditions are not Ideal

Ezyload is designed to work on level ground.

The ground under the Outriggers must be Competent and able to bear the load.

Always pack the outriggers to spread the load evenly, packing the outriggers correctly will eliminate crane de rating issues.

Safety

10.1(d) Safe Work Area

Pick an area that can be Coned off during the process.

Communication and Safety

When loading and Unloading Drill Rods you are Part of a team.

You are relying on the Drill operator to play his part – go through the operation together before you start - make sure the Drill Operator understands what you want him to do and when.

Safety Tip

After you have explained the process to the drill operator get him to explain it back to you – then you can be sure he understands.

Training Questionnaire

11.1 Ezyload Test Questions

What colour is the correct size insert to suit a 7 inch Rod?

Answer

What is the SWL of the Ezyload attachment?

Answer

Do you need a spotter to help you set up the crane truck?

Answer

Where should the Ezyload attachment be positioned on the Drill Rod?

Answer

Where will the operator Isolate and place his tag to ensure the jaws remain closed?

Answer

Is it O.K. to slew around with the Rod in a Horizontal Position?

Answer

Why must a small test lift be performed after the drill rod has been Gripped?

Answer

Can you break out Drill Rods with the ezyload attachment?

Answer

Training Questionnaire

Why must the Extend Out / Jib Out Function be used as the final movement when lowering onto a drill rod?

Answer

What must be done to support the bottom end of the drill rod before lowering the drill head to make up the tool joint?

Answer

What restrictions are there for Transport when the attachment is connected to the crane?

Answer

In what state should the Jaws be during transport – Closed or Open?

Answer

Where can you find out if you have the right Colour inserts to fit the Drill Rod?

Answer

Should the Master Isolation Valve be Open or Closed during Transport?

Answer

In what direction must you Slew from the Truck Tray to set up at the rear?

Tick Answer

Clockwise

Anti-Clockwise

Training Questionnaire

11.1 Ezyload Test Questions

What type of energy holds the Jaws closed?

Answer

What do the LED Lights tell us about the position of the Jaws?

Answer

Can the jaws be opened with the main Isolation valve Closed?

Answer

Why must Packing be placed under the Outriggers?

Answer

When Should the Drills tool joint be cracked?

Answer

How many pairs of gripping jaws are fitted to the Ezyload Attachment?

Answer:

What are the correct Drill settings for Making up the tool Joint?

Answer

Feed Pressure is set to	Rotation Pressure
Air Top is	Compressor
Slow	Engine speed
Lever to be used	

Training Questionnaire

What must be checked after making up the tool joint, but before releasing the jaws?

Answer

Where should the Ezyload operator stand when operating the attachment?

Answer

When moving the drill rod from the truck body to the drill when should the drill rod be moved from a horizontal position to a vertical position?

Answer

When removing the Ezyload attachment why is it important to place the attachment down with at least 1500mm of Jib Extended?

Answer

How many safety systems are fitted to the Ezyload Jaw release mechanism?

Tick Answer

One

Two

Three

How does the Ezyload Clamping system differ from other Clamping Systems?

Answer

List 3 Items that should be checked when carry out the Ezyload Inspection?

Answer

1.

2.

3.

Training Questionnaire

11.1 Ezyload Test Questions

You have lowered onto a drill rod and you find that the inner jaws only line up on one side – what should you do?

Answer

When operating with the Ezyload attachment on the crane which speed setting should you select?

Tick Answer: *Slow*
 Fast

When Slewing around from the Truck Tray to the rear of the Truck with a rod attached what is the best radius to aim for?

Answer

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