



Instruction Manual

for

Allspeeds Ltd.

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RCV215A System

Product Code 995102

Rev 1. Issue 3

Date: 07/05/2014

Original instructions

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1 Introduction

The RCV215A is a hydraulically powered cutting tool, primarily intended for use on steel sections although it can also be used to cut alternative materials such as wire rope, electrical power cables, communications cables and hydraulic umbilical.

The cutter is designed to cut steel channel with a maximum size of 8" x 3" (203.2mm x 76.2mm).

For information regarding the cutting capacity on alternative items or materials, please contact the manufacturer before proceeding.

This machine is not intended for use in an explosive environment.

1.1 Technical data

RCV215A Cutter including lift frame 995135

Weight of RCV215A	275 kg
RCV215A dimensions	750mm x 534mm x 1012mm
Hydraulic requirements - Blade	690 bar (10,000 psi)
Hydraulic requirements –Anvil	210 bar (3,000 psi)

Hydraulic Power Unit

Weight of HPU	140 kg
HPU Dimensions	600mm x 770mm x 1280mm
Tank Capacity	55 litre
Power supply	415 V, 3 Phase
Hydraulic output	Maximum 700 bar continuous @ 3 l/min

See Appendix A for the hydraulic power unit technical manual.

Note – Individual nameplates are attached to the RCV215A cutter and the HPU. Overall system nameplate is attached to the HPU.

1.2 Environmental Considerations

The cutter body is suitable for underwater use, up to a maximum depth of 3000m.

The hydraulic power unit is **not** suitable for underwater use, and should be located on level ground in a dry indoor environment.

The hydraulic power unit and cutter must not be operated outside of the recommended temperature range of 4°C to 40°C.

This tool can be operated in areas of low level radiation but a full risk assessment must be carried out on site before use.

1.3 Cutter Dimensions

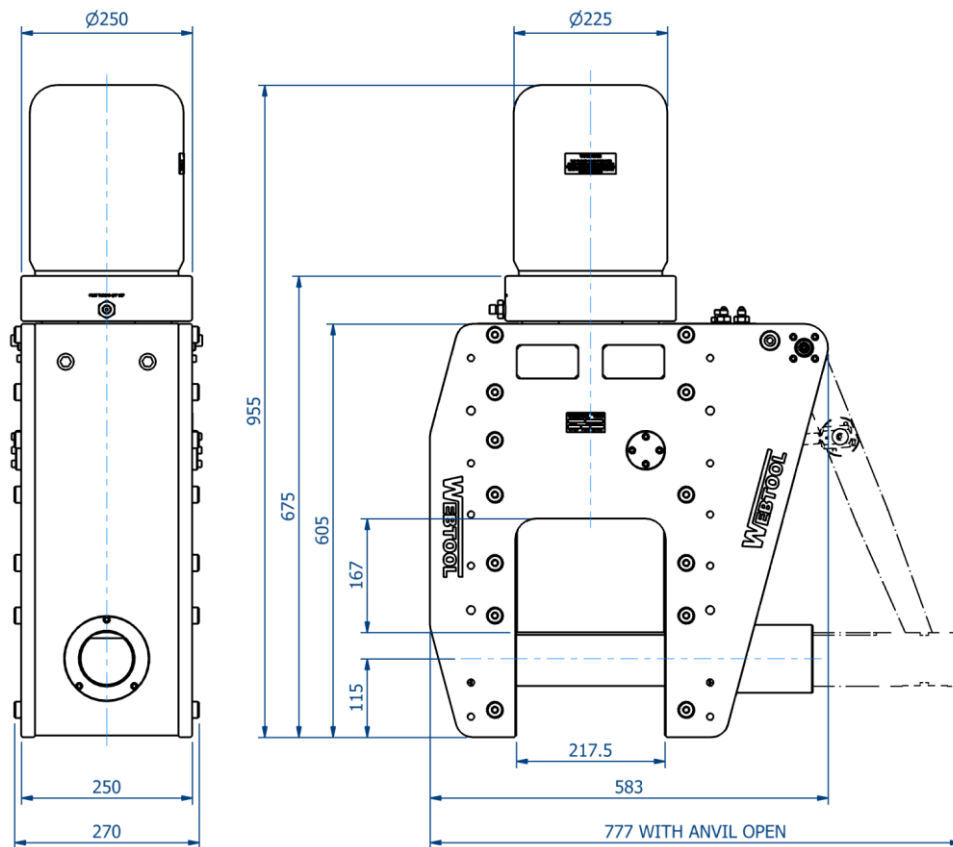


Figure 1 – Overall dimensions of cutter only (pipework and lifting frame excluded)

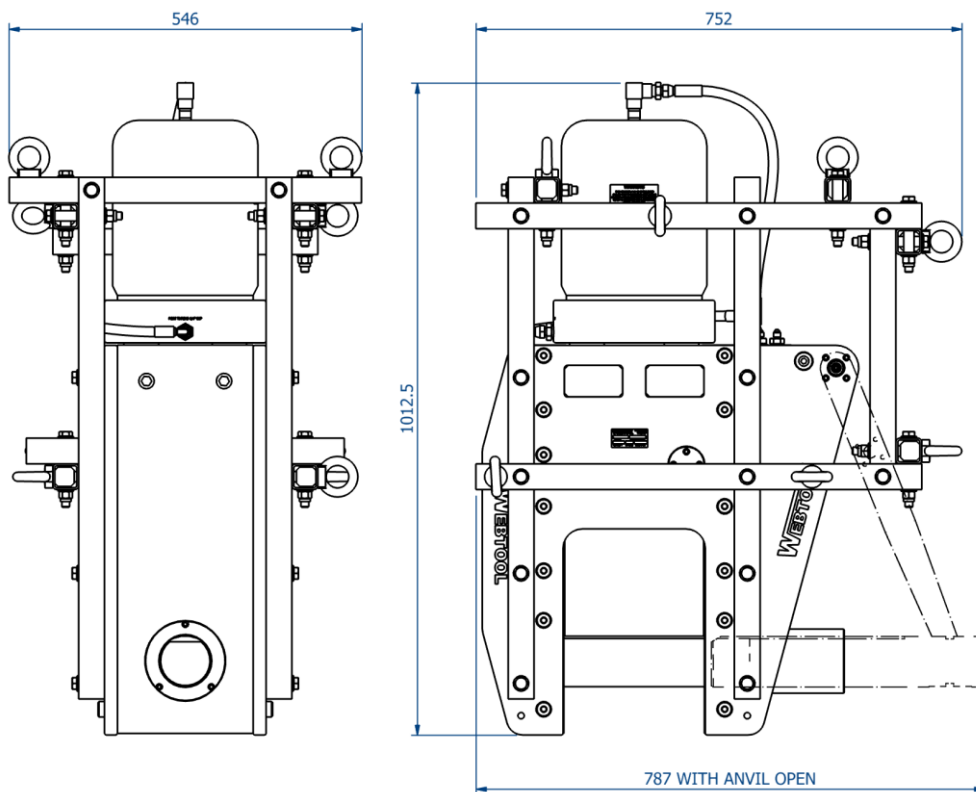


Figure 2 – Overall dimensions with lifting frame and pipework shown

1.4 Declaration of Conformity

1.5 General safety rules

1.5.1 Warnings!

These warnings are provided to improve safety and should be carefully read before installing, using or maintaining the machine.

1.5.2 Important Information

It is vital that these instructions are available to machine users. It is also important to retain with the machine if the machine is sold or transferred to another user.

1.5.3 Safety for operation

To prevent the risk of injury, the RCV215A should only be used by fully trained and competent operators.

Note – The RCV215A is designed for remote operation. It is an inherently dangerous cutting tool with a large open aperture and is not supplied with guarding or other safety devices. It is the responsibility of the operator to perform a risk assessment before use and to enforce a safe system of work.

Before operating the RCV215A there are several safety elements to take into account.

- Make sure all safety devices are in place and functioning correctly.
- Make sure the working area is free of any obstructions.
- Check that all hydraulic hoses are in good condition.
- Ensure that suitable pressure regulation equipment is used and that the output pressures of the powerpack are correct (as described in Appendix A).
- Ensure that all operators are clear of the area before cutting commences.
- No attempt should be made to cut any materials that are under tension.

The RCV215A must be monitored during the cutting process to ensure that it is correctly positioned on the item being cut and that the anvil is firmly closed. It is recommended that this is done by remote camera.

Regularly check and test the safety devices for correct function as described in section 7.3

Recommended PPE for operation and maintenance includes safety shoes, safety glasses, ear defenders and gloves.

IMPORTANT – Trailing hoses and cables may create a trip hazard. Care must be taken around the work area.

1.5.4 Safety for maintenance

Repairs carried out by untrained or unauthorised personnel may result in personal injury or serious malfunction of the RCV215A.

Ensure that the cutter is isolated from and drained of hydraulic pressure before any maintenance is carried out.

1.6 Warning labels

	<p>General hazard. Hydraulic cutting tool with inherently dangerous moving parts. Please read and understand this manual to avoid the risk of injury.</p>
	<p>Cut or severing hazard due to the cutting blade.</p>
	<p>Pinch or crush hazard due to the anvil and lever arm.</p>

2 Operating Instructions

2.1 Machine Description

The tool assembly consists of the following components:

- RCV215A cutter with lifting frame
- Hydraulic power unit (as appendix A) with control pendant

2.2 Control Pendant

The control pendant is on a 30m cable and contains 6 buttons as shown.

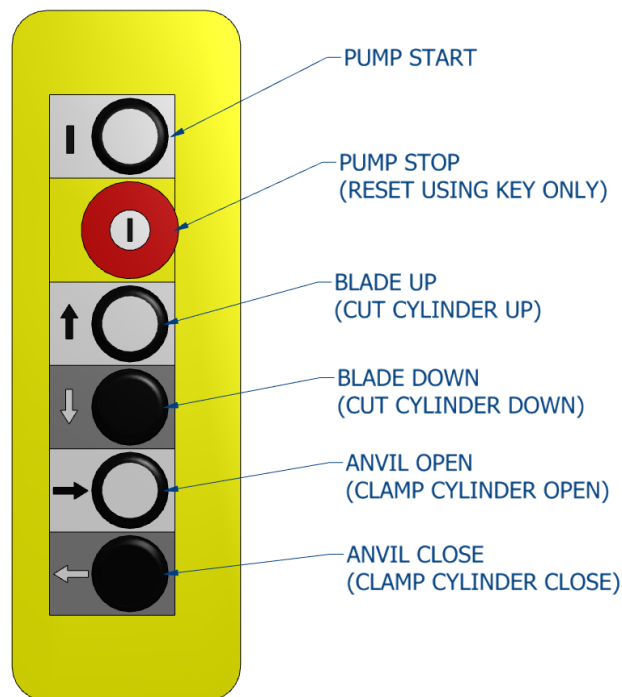


Figure 3 – Control pendant

2.3 Before Use

Before use of the tool, perform the following checks:

Item	Procedure
Check the correct function of safety devices.	Start and stop the hydraulic power unit using the "Pump Start" and "Pump Stop" buttons.
Check the condition of the blade	As described in section 7.1
Check the condition of the anvil	As described in section 7.2
Check the condition of the guide plates	As described in section 3.5

2.4 Operational Procedures

IMPORTANT – Ensure that the blade and anvil are in suitable condition before use as described in section 7 and that the tool and powerpack have been function tested as described in section 7.3

2.4.1 Start the Powerpack

Ensure that the powerpack is connected to a suitable electrical supply.

Press the “Pump Start” button on the control pendant to turn on the powerpack.

2.4.2 Retract the Blade

Retract the blade by holding down the Blade Up/Cut Cylinder Up button. Release the button once the blade is fully retracted.

2.4.3 Open the Anvil

Check that the anvil is fully open. If it is not, open it by pressing the “Anvil Open/Clamp Cylinder Open” button. Release the button once the anvil is fully open.

2.4.4 Position the Cutter

IMPORTANT - Ensure that the cutter assembly is lifted as described in section 6

Position the RCV215A over the channel to be cut, ensuring that it is oriented as shown below with the flanges facing towards the blade and the web of the channel facing towards the anvil.

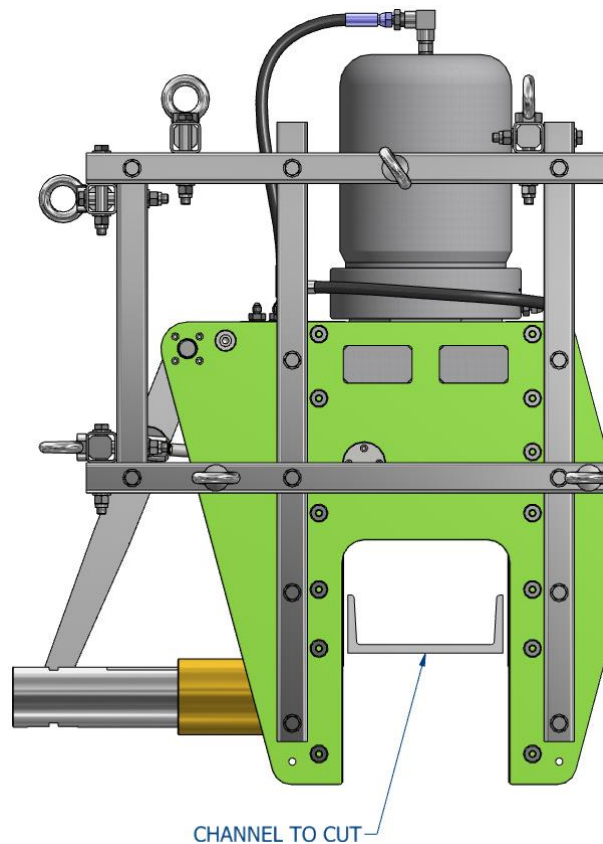


Figure 4 – Cutter position

2.4.5 Close the Anvil

Close the anvil by pressing down the “Anvil Close/Clamp Cylinder Close” button.

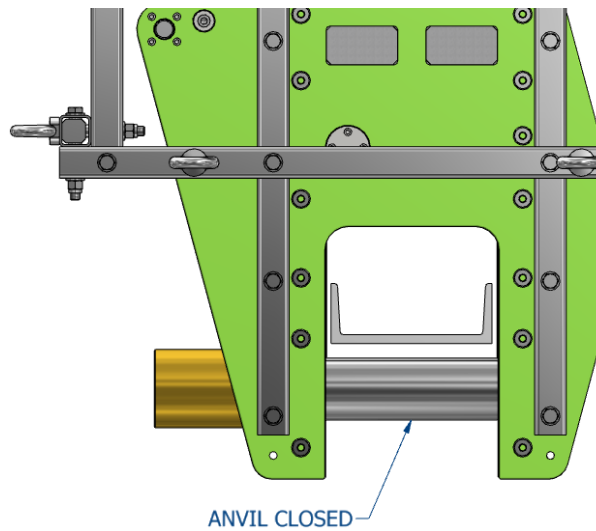


Figure 5 – Anvil Closed

IMPORTANT – Do not proceed without checking that the anvil is fully closed. Cutting with a partially engaged anvil will result in serious damage to the tool.

Visually inspect the anvil (preferably from multiple angles) to ensure that it is fully closed.

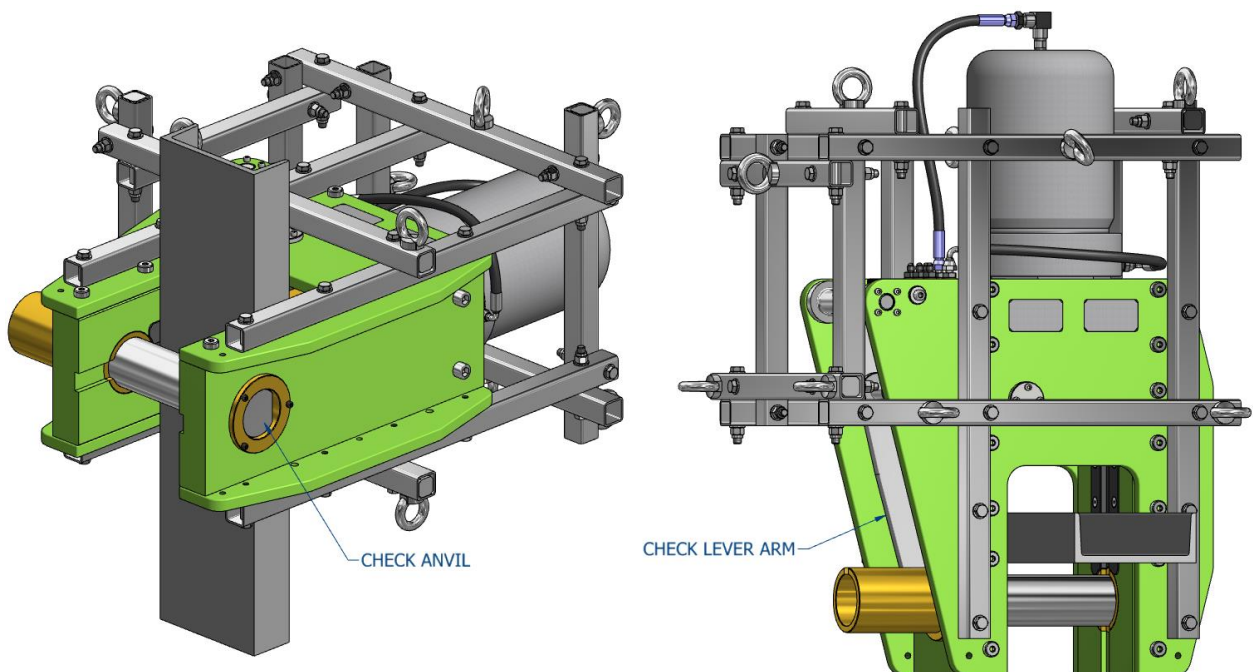


Figure 6 – Check anvil

2.4.6 Cutting

The HPU control system contains a logic circuit to ensure that the cutting stroke cannot begin unless the “Anvil Close/Clamp Cylinder Close” button has been pressed.

IMPORTANT – Cutting without the anvil fully closed may result in serious damage to the tool.

To perform a cut, first of all press the “Anvil Close/Clamp Cylinder Close” button. Check that the anvil is fully closed as previously described.

IMPORTANT – Do not attempt to open the anvil with the blade down. Always retract the blade before opening the anvil.

Hold down the “Blade Down/Cut Cylinder Down” button. The blade will begin to move towards the item to be cut.

As the blade begins to cut, the pressure in the “Blade Down/Cut Cylinder Down” line will begin to increase.

Hold down the button until the cut is complete.

IMPORTANT – The item being cut may be ejected from the tool with force. Ensure that operators are kept at a safe distance at all times.

IMPORTANT - A loud noise may be heard as the item is cut, ensure that suitable ear defenders are worn at all times. A risk assessment must be carried out by the operator before cutting.

2.4.7 After Cutting – Retract the Blade

Release all buttons on the control pendant.

Hold down the “Blade Up/Cut Cylinder Up” button to retract the blade. Release the button once the blade is fully retracted.

2.4.8 After Cutting – Open the Anvil

IMPORTANT – Do not attempt to open the anvil with the blade down. Always retract the blade before opening the anvil.

Hold down the “Clamp Cylinder Open/Anvil Open” button. Release the button once the anvil is fully open.

The tool is now ready to be reused.

If cutting is complete, press the “Pump Stop” button to turn off the HPU motor.

Caution – If using the tool as shown below, the anvil may close by itself under gravity once the hydraulic power unit is isolated.

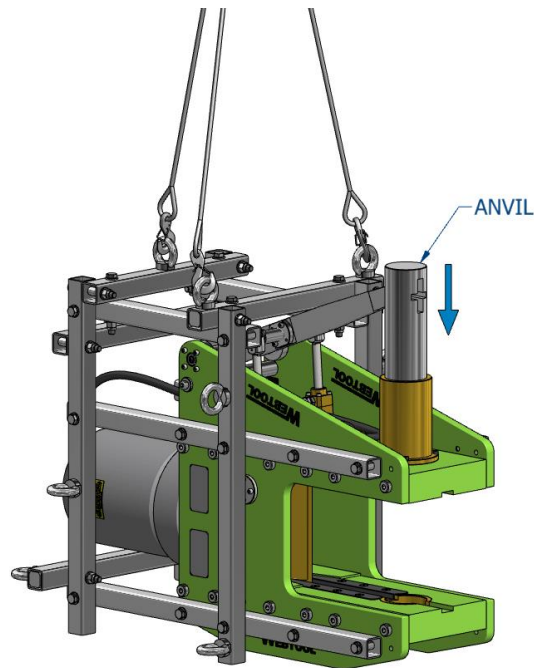


Figure 7 – Anvil closing

2.5 Safety Devices

The HPU is designed so that the blade of the RCV215A can only be powered down once the auxiliary cylinder closed circuit is pressurised. This is to ensure that cutting does not take place with the anvil open. See appendix A for more details.

2.5.1 Guards

IMPORTANT - There are no guards fitted to the RCV215A. It is an inherently dangerous cutting tool and at no times should personnel or operators place any part of the body within the cutting area or any other snag or trap points. Misuse of this tool can result in serious injury or death.

2.6 Emergency Stops

An emergency stop that requires a key to be reset is located on the control pendant of the HPU.

2.7 After Use

Ensure that the RCV215 is hosed off with clean water, allowed to drain and sprayed externally with a suitable de-watering fluid.

DO NOT hose down the hydraulic power unit or any other electrical equipment.

Before storage, inspect the general condition of the tool, paying particular attention to the blade and anvil as described in section 7.

3 Maintenance

Regular maintenance is very important to the operating efficiency of the RCV215A. Performance and safety will be affected if the tool is not regularly checked and maintained.

3.1 Maintenance Notes

IMPORTANT – The RCV215A and hydraulic power unit should only be serviced by qualified personnel. If in any doubt please contact Allspeeds.

See Appendix A for circuit diagrams for both the hydraulic and electrical control systems.

Most maintenance task can be carried out with standard tools.

Before carrying out any maintenance tasks ensure that the machine is fully isolated from the electrical supply and that there is no residual pressure in the system.

3.2 Replacing parts

See drawings / parts list for details of component parts.

IMPORTANT - Replacement parts must always be sourced from Allspeeds. The use of unofficial components will invalidate the system warranty and may lead to tool damage or system failure.

It is recommended that stock of the following components is kept:

Part Number	Description	Recommended Qty
705064CS	Blade	2
765350	Blade Guide	2
761321	Anvil	1
995133	Seal Kit	1

3.3 Anvil Replacement

Retract the blade.

Open the anvil fully by extending the auxiliary cylinders.

IMPORTANT - Isolate the hydraulic supply and relieve all pressure from the tool before proceeding.

Loosen the 8 off M6 screws 035079 holding pin housings 749045A & B.

Loosen the M6 retaining screw 035073.

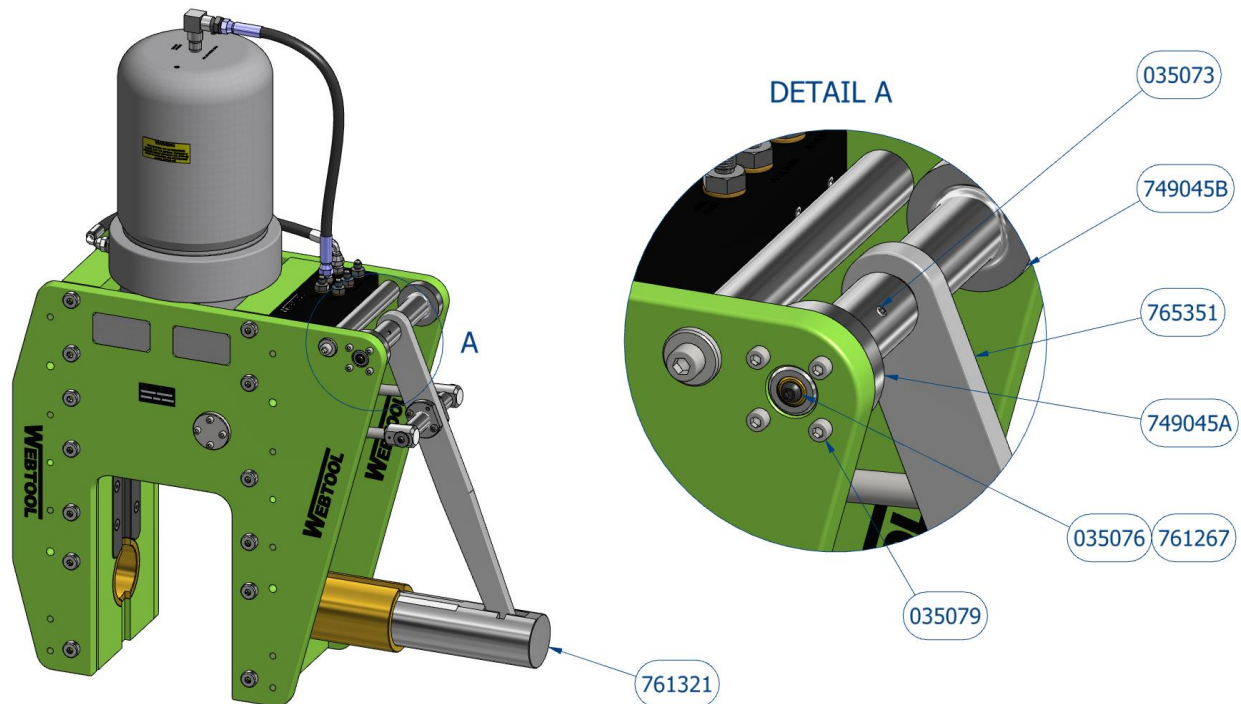


Figure 8 – Anvil retaining pin

Withdraw pivot pin 761267 far enough to release the lever arm. Note, there is an M6 tapped hole in the end of the pivot pin to aid in removal.

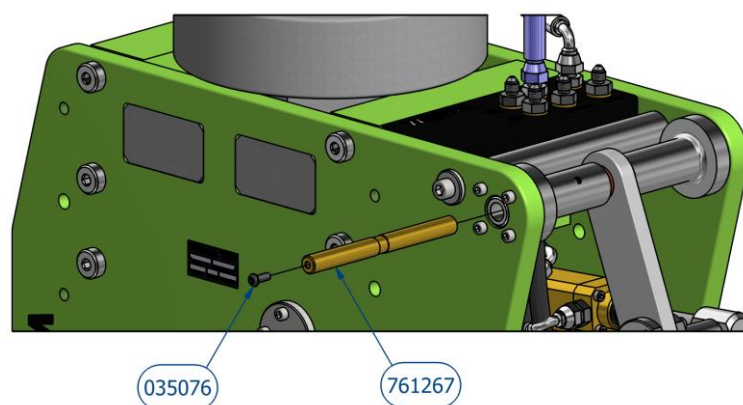


Figure 9 – Remove anvil pivot pin

The lever arm 765351 remains connected to the auxiliary cylinders, but can be lifted out of the anvil 761321. Once the lever arm is raised out of the anvil slot, slide out the anvil 761321 completely.

CAUTION - Care must be taken when performing this task as the anvil weighs approximately 16 kg and may have sharp edges from previous cuts that have been made. Protective gloves should be worn at all times.

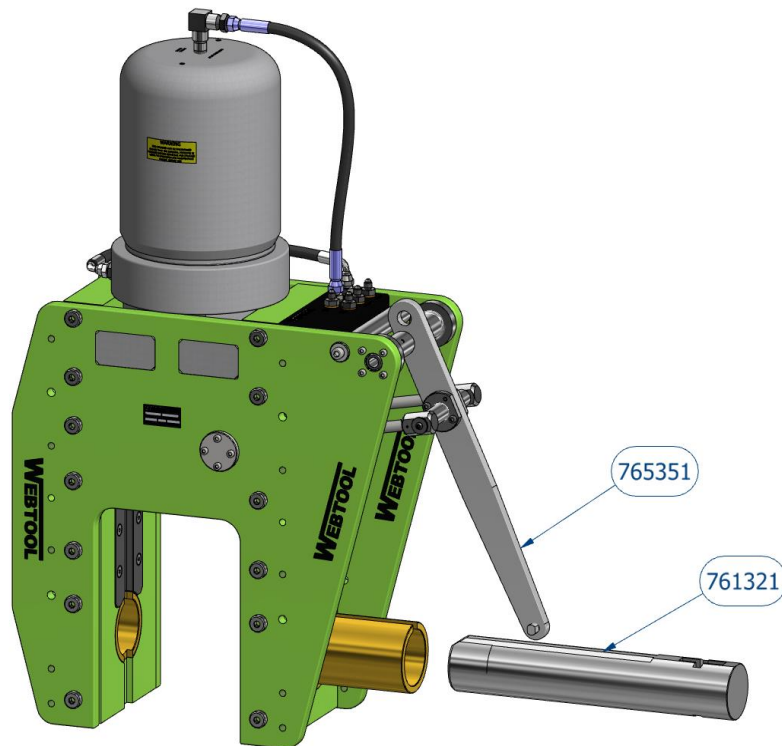


Figure 10 – Anvil Removal

Reassembly of the anvil is the reverse of the above procedure. Take care to ensure that the anvil is assembled with the flat facing towards the blade.

3.4 Blade Replacement

Retract the main ram and blade.

Fully open the anvil or remove it as described in section 3.3

Operate the main ram until it is fully extended and the blade spring pins 030636 can be accessed.

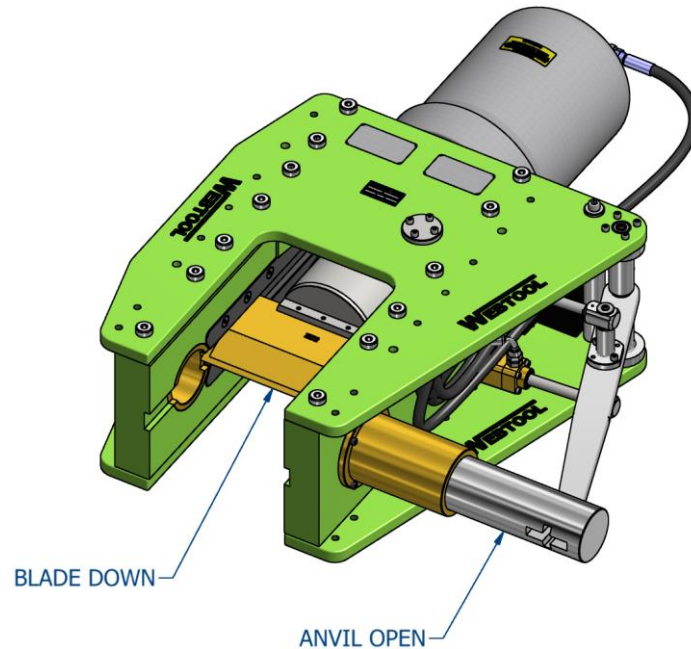


Figure 11 – Blade down, anvil open

IMPORTANT - Isolate the hydraulic supply and relieve all pressure from the tool before proceeding.

Using a suitable drift or punch, remove the three spring pins 030636 to release the blade 705064CS.

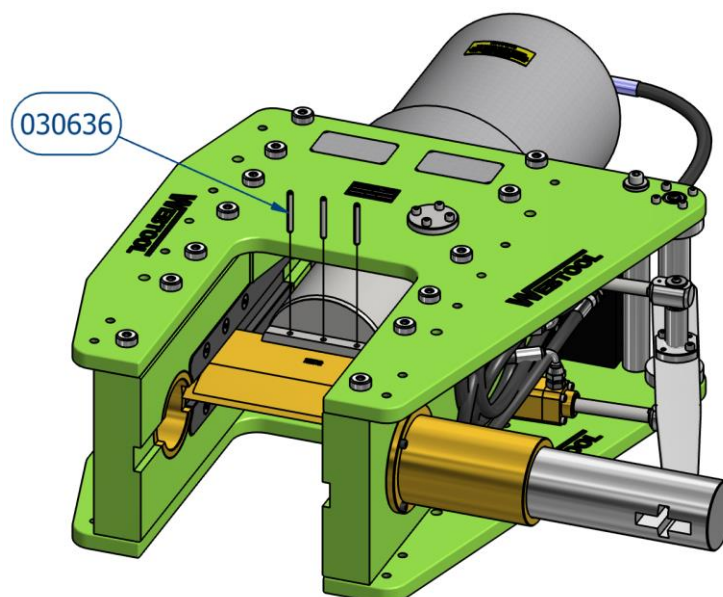


Figure 12 – Blade pin removal

Slide the blade out from the body as shown below.

CAUTION – The blade may have sharp edges so protective gloves should be worn at all times.

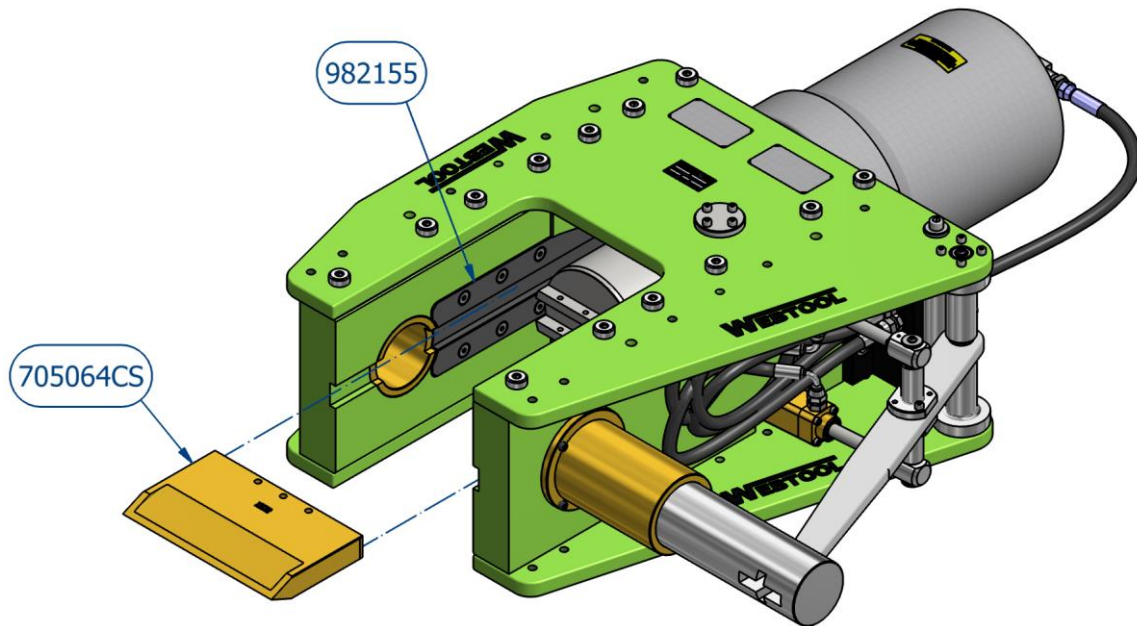


Figure 13 – Blade removal

With the blade removed, check the condition of the blade guides 765350.

The grooves should be free from obstruction and damage. If required, replace the blade guides as described in section 3.5

Replacement of the blade is the reversal of disassembly. Ensure that new spring pins 030636 are used on assembly.

3.5 Blade Guide Replacement

Remove the blade as described in section 3.4. Retract the ram as described in section 2.4.2.

IMPORTANT - Isolate the hydraulic supply and relieve all pressure from the tool before proceeding.

Remove 6 off M8 x 20 screws 045020.

Remove the blade guide 765350.

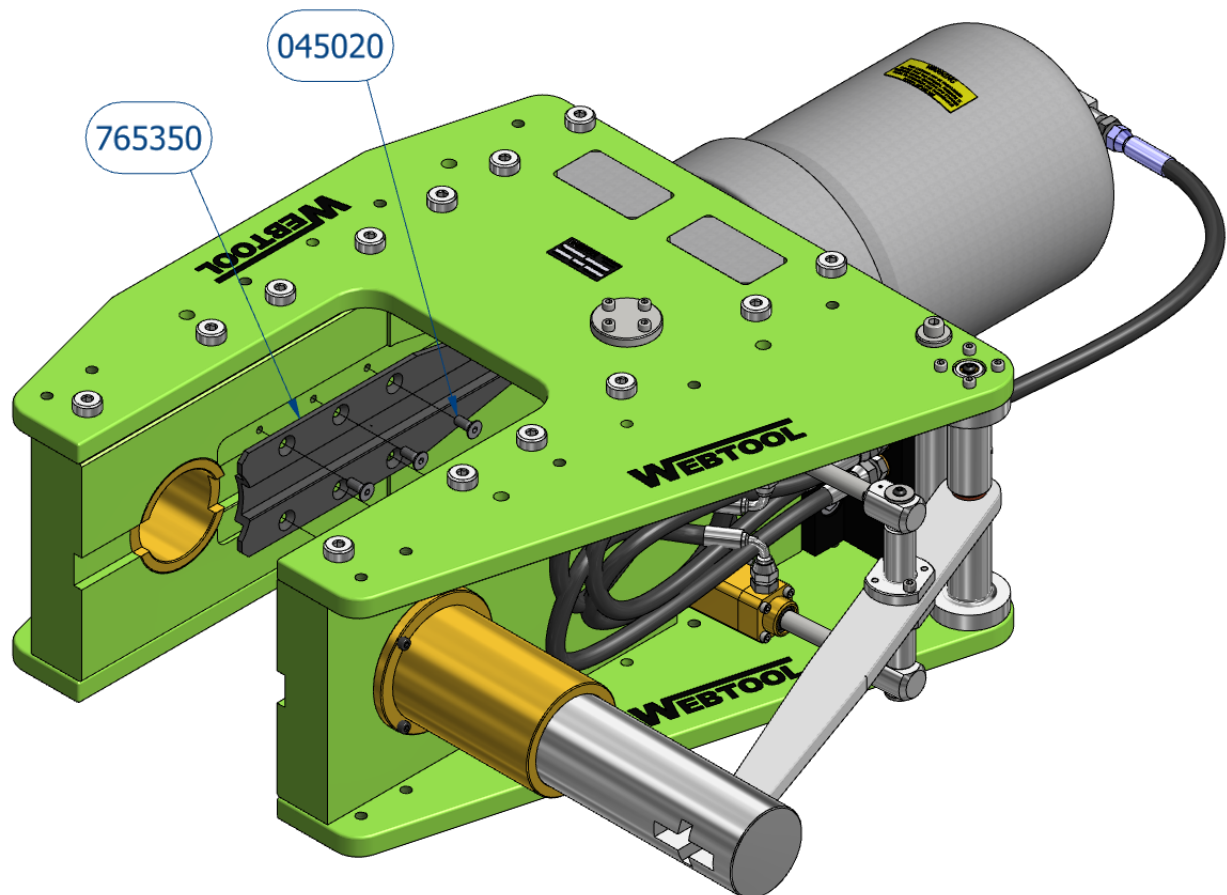


Figure 14 – Side plate removal

The blade guides can be dressed using a file to remove any small burrs or minor damage. Heavily damaged blade guides should be replaced.

Replacement is the reversal of disassembly.

3.6 Troubleshooting

3.6.1 Common Problems

Anvil will not open/close.

- Check the hydraulic supply from the HPU to the auxiliary cylinders. This should be set to a maximum of 210 bar.

Blade will not move down.

- The “Clamp Cylinder Closed/Anvil Close” line must be pressurised before cutting can commence.

Tool will not completely cut through the steelwork.

- Check the pressure setting from the hydraulic power unit to the main ram. This should be set to a maximum of 690 bar.

No hydraulic pressure from the HPU.

- Check if the thermal cut-out has been activated (lamp on control panel). If it has, allow the oil to cool before restarting.

4 Transportation

This chapter explains how to move and install the machine.

4.1 Transportation

The weight of the RCV215A (980510) with integrated lift frame (995135) is 275kg. This tool can be moved by fork lift truck, pallet truck or crane.

The weight of the hydraulic power unit 759001 (including oil) is 190 kg. This HPU can be moved by fork lift truck or pallet truck.

Components must be adequately secured to maintain stability during transportation.

4.2 Cutter Handling

The RCV215 is fitted with lifting frame 995135 to facilitate safe handling. NOTE do not use tool when being lifted in this way, this is for manoeuvring only. For lifting during operation turn to section 6.

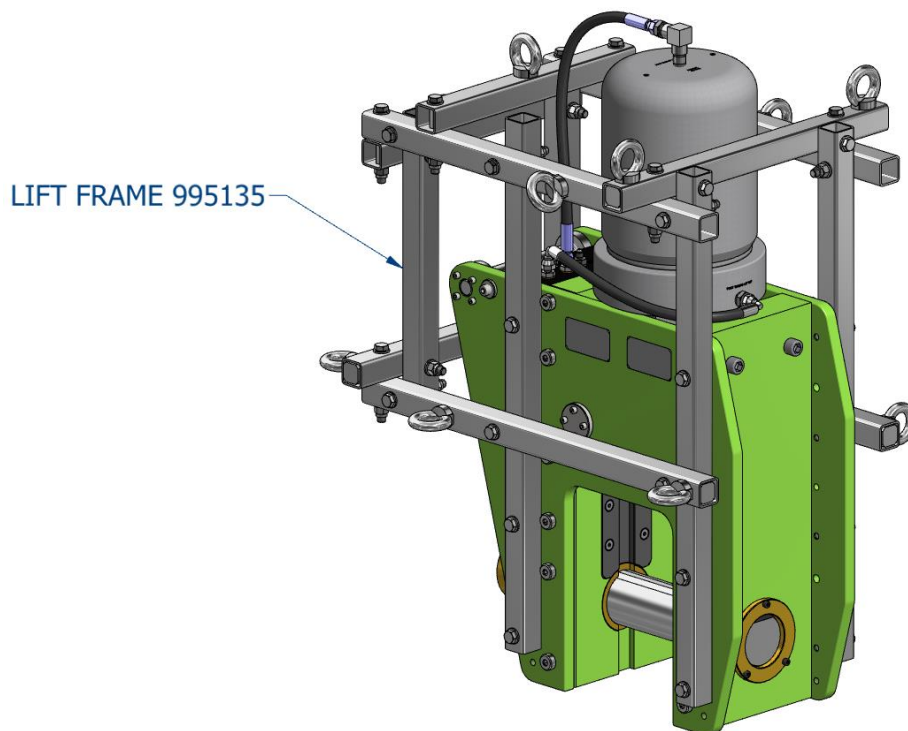


Figure 15 – Lifting frame

This lifting frame is designed to be used in conjunction with a 4 leg wire rope lifting sling as Allspeeds part number 784022.

Before lifting, ensure that all eyebolts are fully tightened and that all lifting equipment is correctly assembled as shown.

The lifting frame is fitted with eyebolts on four sides of the tool (3 off per set) and can be lifted in one of four orientations as shown:

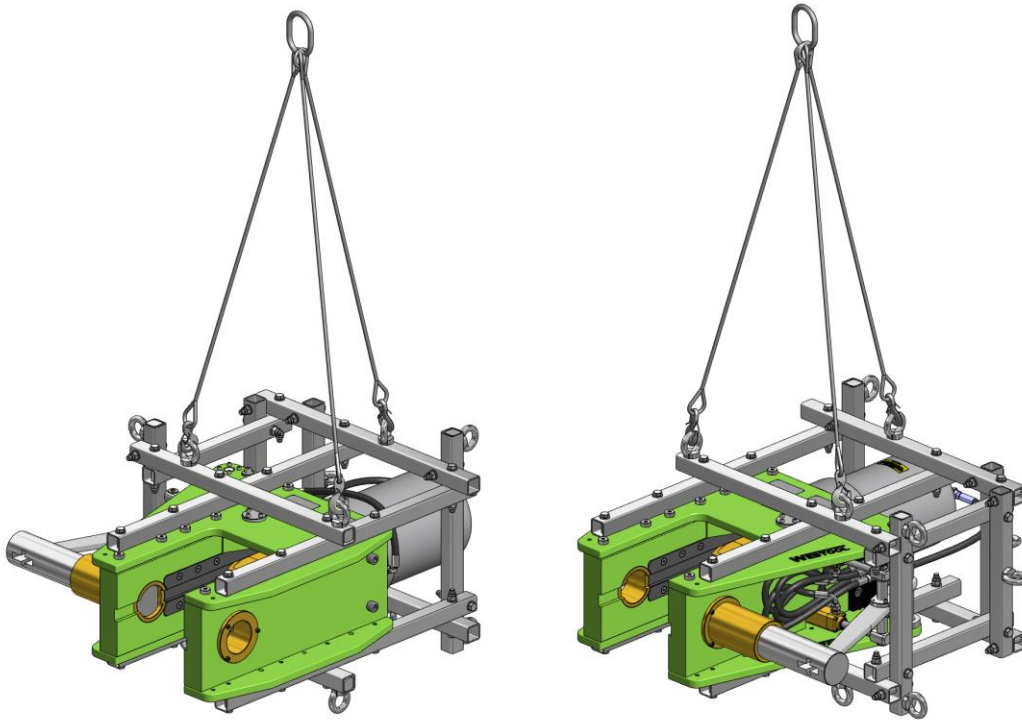


Figure 16 – Lifting orientation 1 & 2

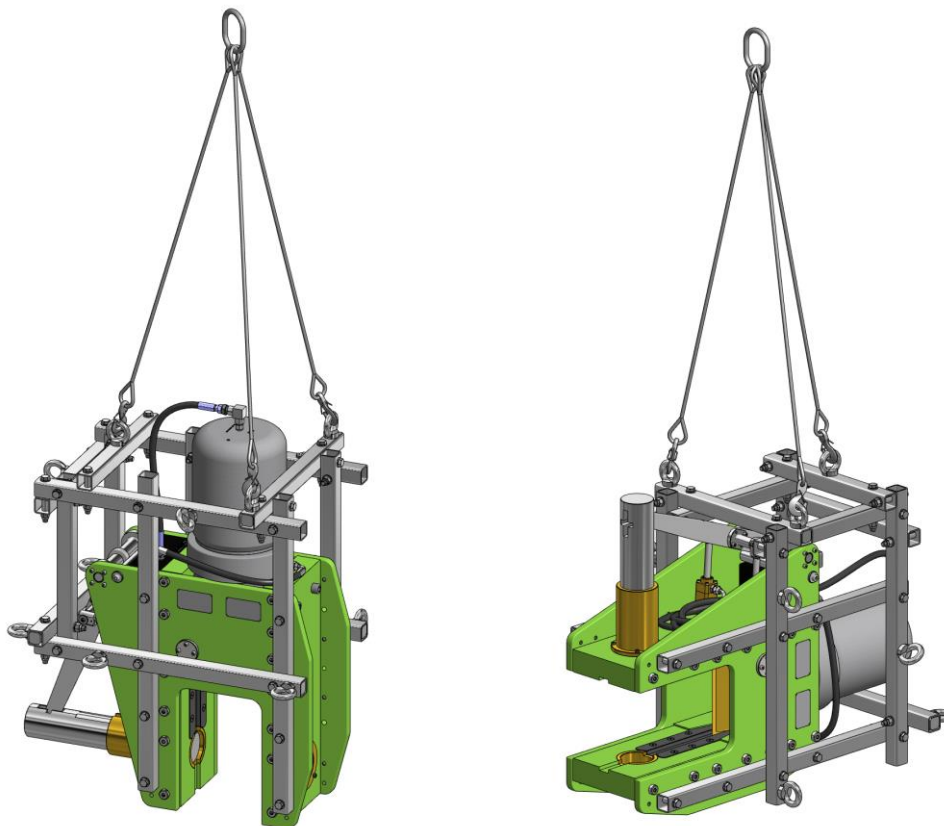


Figure 17 – Lifting orientation 3 & 4

5 Installation and Commissioning

5.1 Installation

IMPORTANT - Electrical and hydraulic connections should only be made by qualified and competent personnel.

5.2 Machine assembly

The RCV215A and lift frame are supplied in an assembled state. The hydraulic power unit is supplied in an assembled state.

5.3 Hydraulic Connections

The RCV215 is supplied with an integrated manifold block with the following connection points.

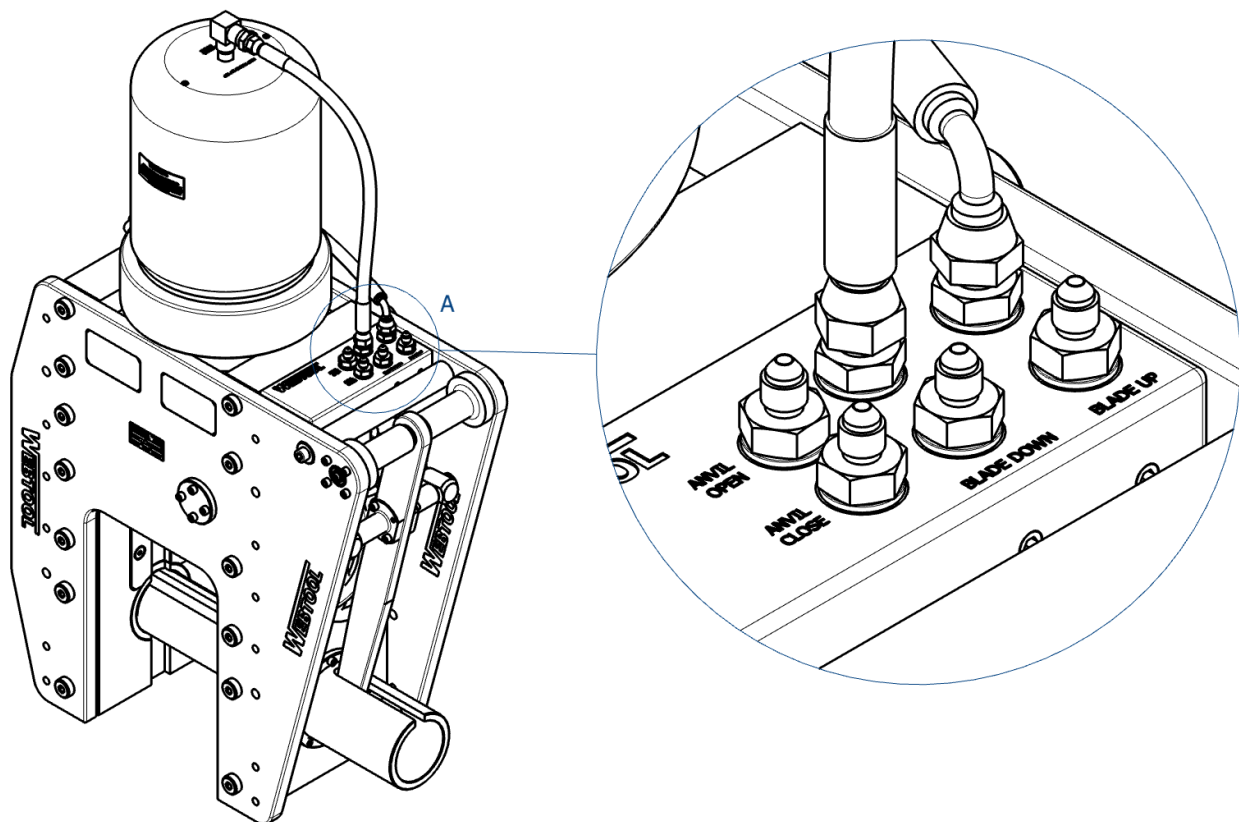


Figure 18 – RCV215A manifold block (Lifting frame removed for clarity)

IMPORTANT - The hoses are colour coded for easy identification. Ensure that matching ends are connected to the corresponding ports on the cutter and HPU.

The hydraulic connections and maximum input pressures are as follows:

Label	Description	Maximum Input Pressure	Replacement Hose Part No.
Blade Down	Main ram cutting stroke	690 bar (10,000 psi)	1241063
Blade Up	Main ram retract stroke	690 bar (10,000 psi)	1241064
Anvil Open	Auxiliary cylinders close	210 bar (3,000 psi)	1241065
Anvil Close	Auxiliary cylinders open	210 bar (3,000 psi)	1241065

Important – Do not exceed the pressures stated. Doing so may lead to damage to the tool or injury to operators.

All ports in the manifold block are tapped ¼” BSP and are fitted with a ¼” BPSS to 7/16” JIC male adaptor and face seal.

To avoid damage to the manifold block, hold this fitting steady using a suitable spanner when connecting or disconnecting hydraulic hoses to it.

IMPORTANT – Care must be taken when making or breaking connections to avoid oil spills as they may result in a slipping hazard.

Contact with hydraulic oil may result in skin irritation. Ensure that suitable protective equipment is used or worn.

5.4 Services

Services required for installation of the hydraulic power unit are:

Electrical supply:

- 3 phase, 415v, 50hz

6 Cutter handling during operation

This section details safe handling of the tool during operation and details the lifting kit and explains how it is assembled and used on the tool.

6.1 Assembly – Hose Guard

The kit contains a hose guard that reduces the risk of damage to the high pressure line during handling. It is assembled as shown below:

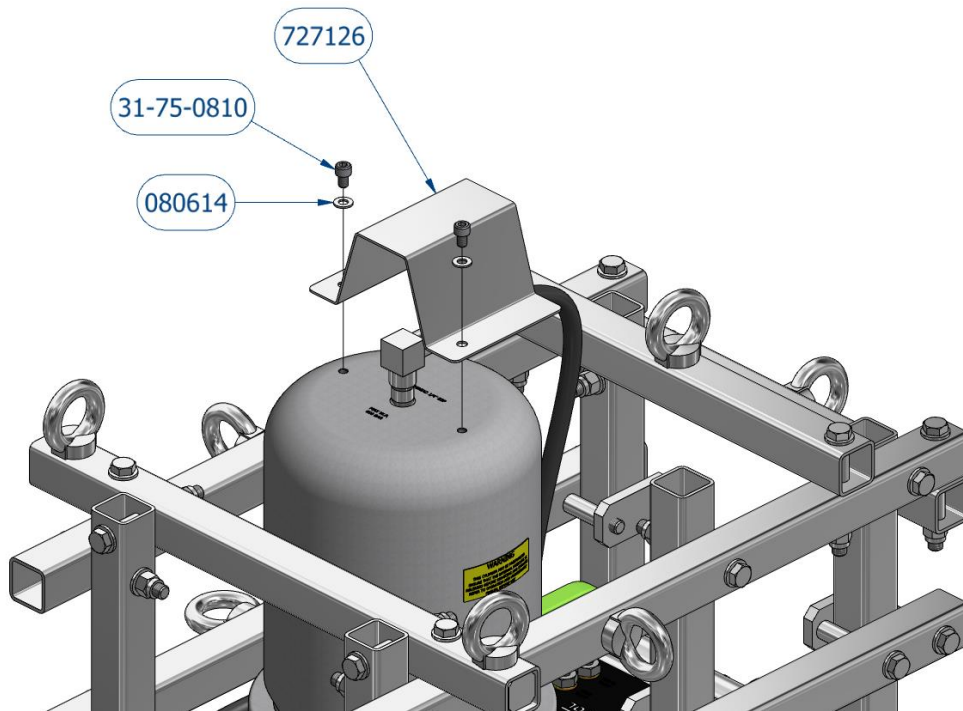


Figure 19 – Hose guard assembly

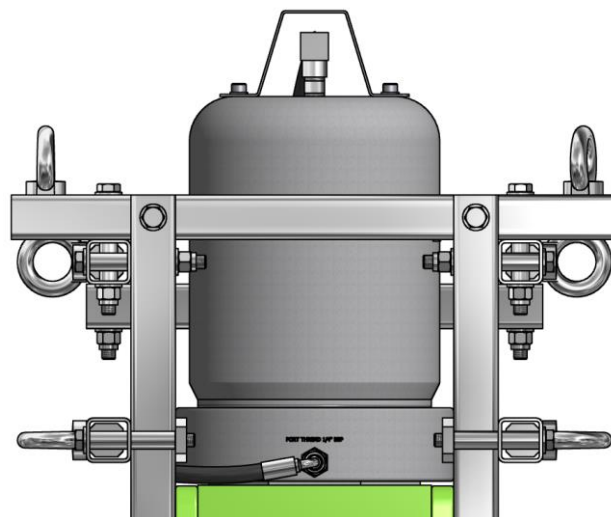


Figure 20 – Assembled hose guard

6.2 Assembly – Lifting Frame

The mounting bar is assembled to the existing lifting frame as shown below. Please note that the frame should be positioned at the 120mm dimension as shown.

Note – The same assembly of parts is also added to the opposite side of the tool.

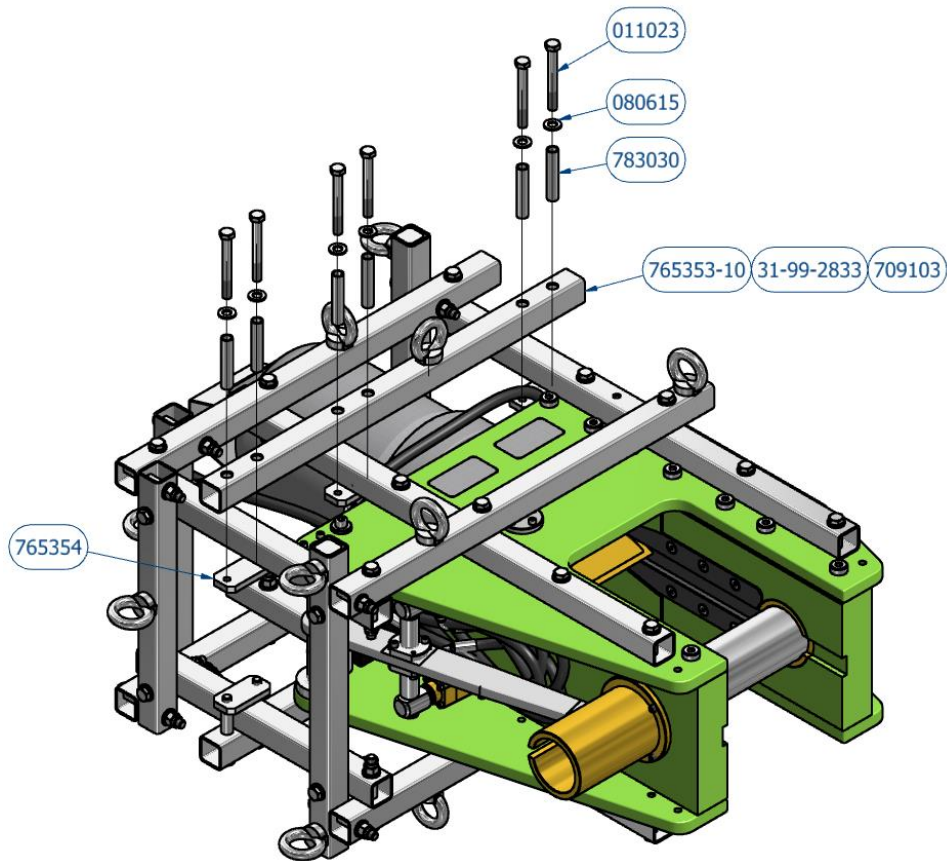


Figure 21 – Assembly of box section

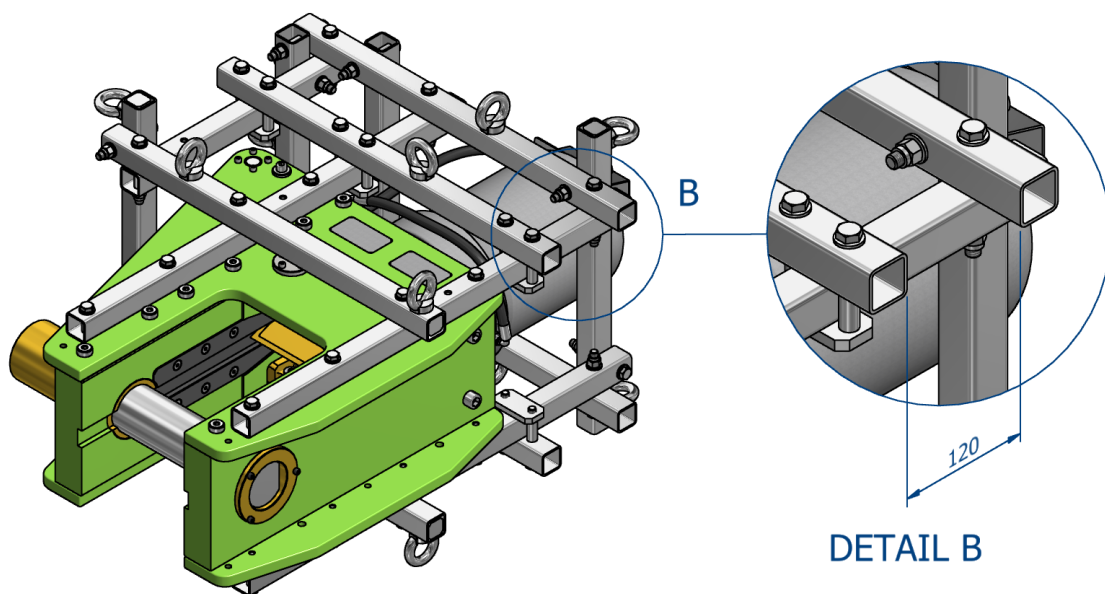


Figure 22 – Box section position

6.3 Assembly – Lifting Sling

The lifting sling is connected to the lifting frame as shown below.

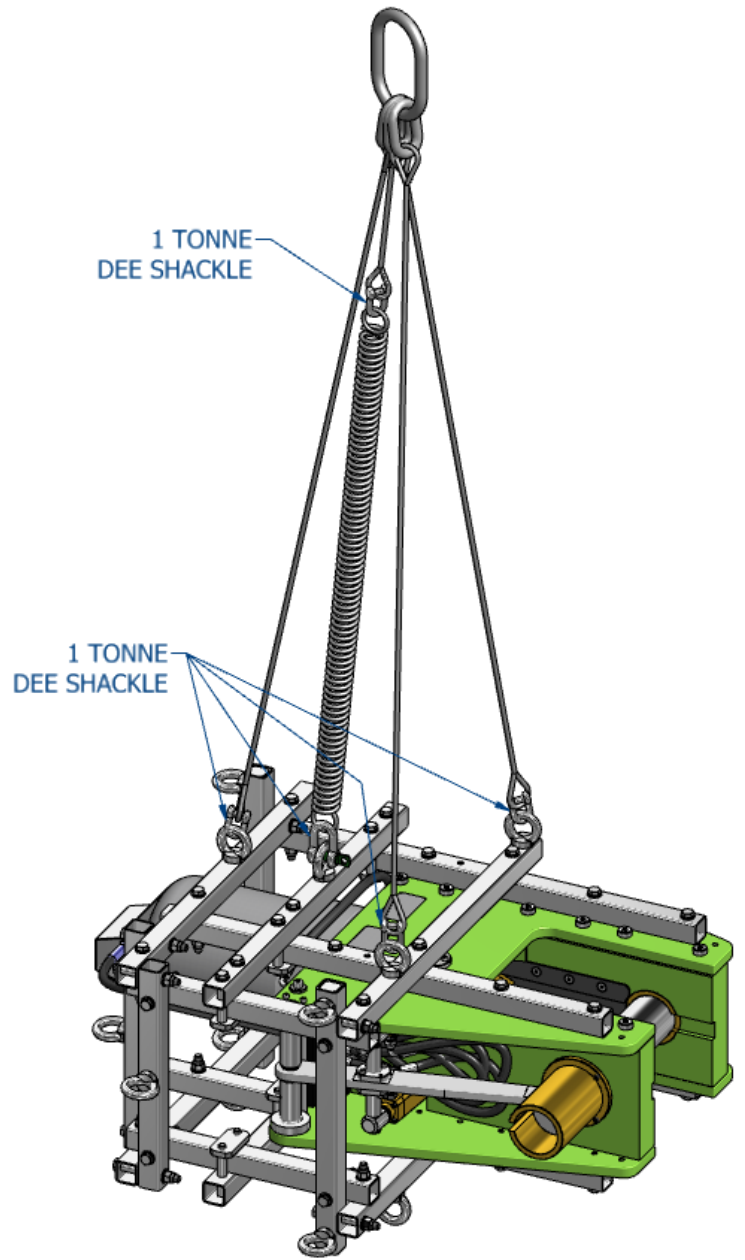


Figure 23 – Lifting sling assembly.

Ensure that all shackles and eyebolts are tightened fully before attempting to lift.

6.4 Operational Procedures

IMPORTANT – Ensure that the mounting bar, bolts, shackles and eyebolts are correctly tightened before lifting. Lifting the tool on a load cell is recommended. While the tool is in operation the weight on the load cell should be closely monitored and any weight drop below 250kg should be accounted for by raising the hoist.

6.4.1 Mounting Bar Checking

The mounting bar can be adjusted to balance the tool by increasing or decreasing the amount of preload in the spring.

Before adjusting this bar, the balance of the tool should be tested.

Connect the lifting sling and spring as shown in section 3.4.

Lift the RCV215A via the main lifting eye using a suitable crane or hoist.

As the tool is raised, the spring will extend until the 3 wire rope legs become taught.

The spring should now be in an extended state, but the wire rope legs should be fully extended and under tension with the tool sitting level as shown.

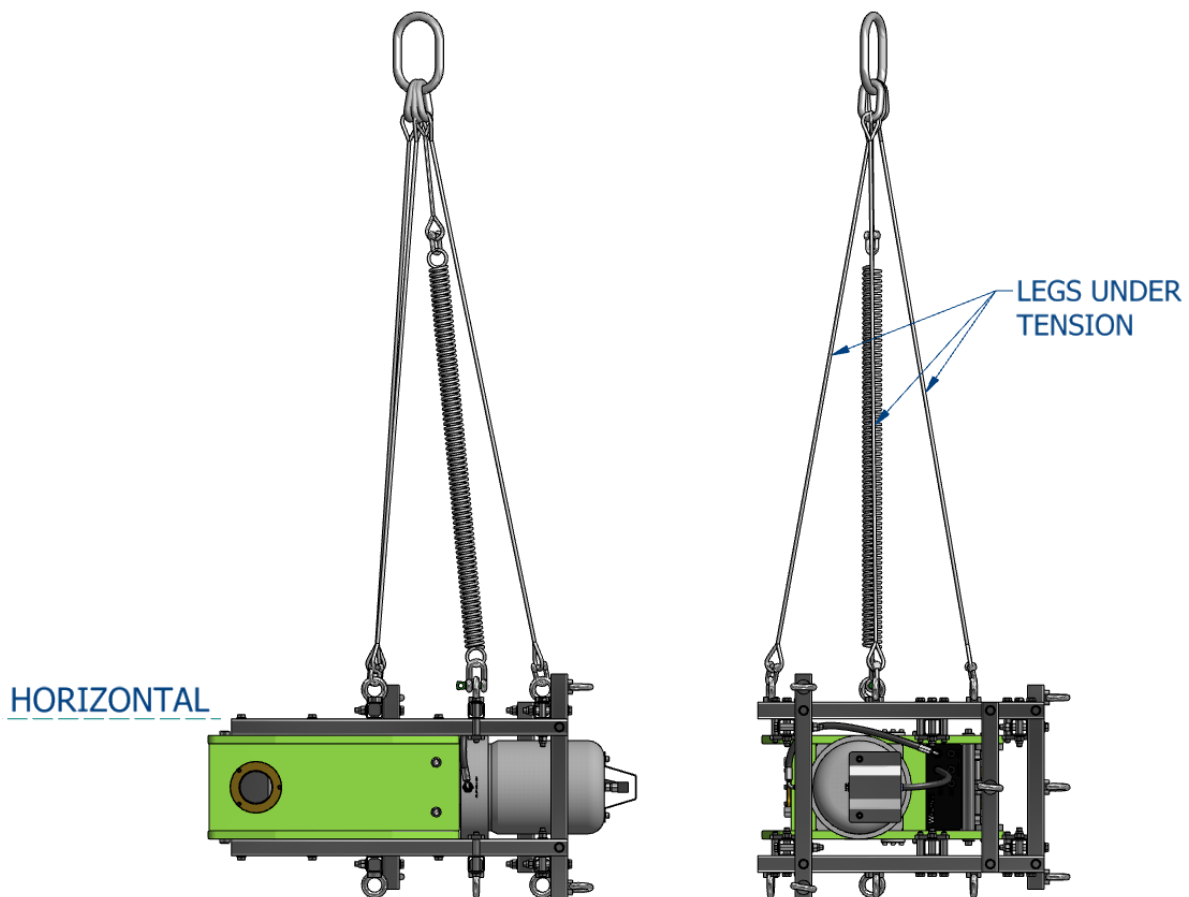


Figure 24 – RCV215A lifted by sling

Repeat this test with the tool immersed in water. Again, the RCV215A should be sat level.

6.4.2 Mounting Bar Adjustment

If the RCV215A is pulled upwards by the spring as shown below, the mounting bar can be adjusted to reduce the amount of tension in the spring.



Figure 25 – RCV215A not level

Lower the tool onto a stable platform (e.g the ground) and ensure that there is no tension in the lifting sling or spring.

Loosen the 6 off bolts (011023) so that the mounting bar is free to slide.

Slide the mounting bar in the direction shown, increasing the gap shown by 10mm.

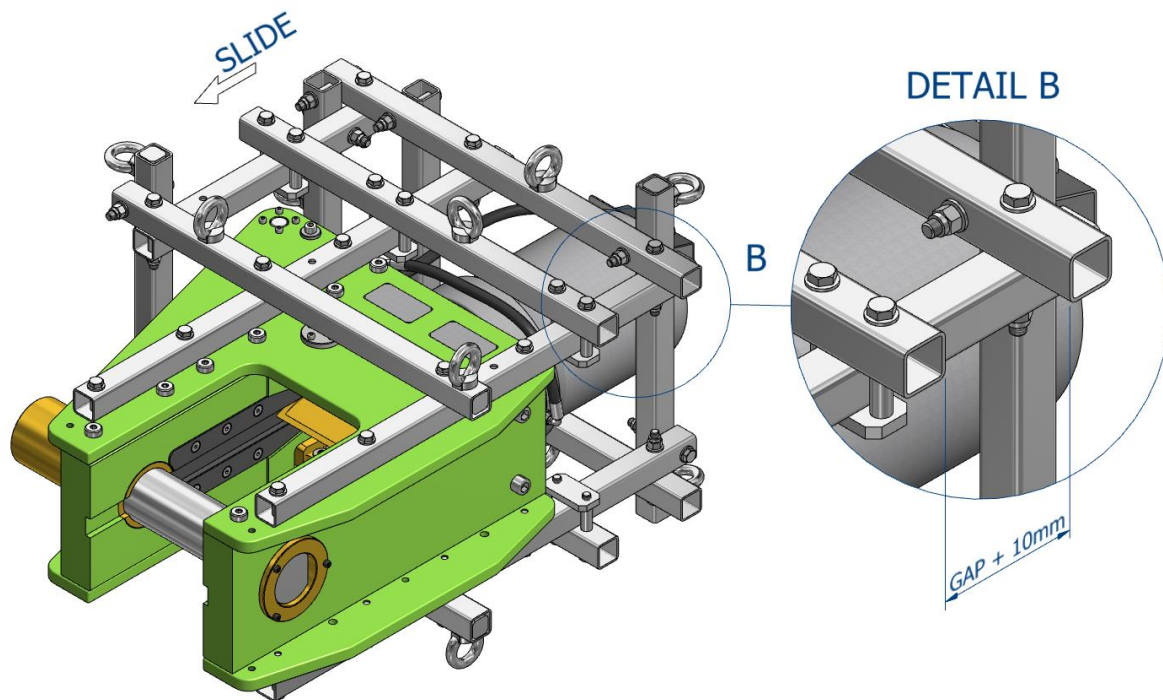


Figure 26 – Adjust lifting frame gap

Retighten the bolts, and repeat the tests as described in section 3.5.1 above. Repeat until the RCV215A sits level in both air and water.

7 Commissioning

Before putting the machine into service, the following checks must be carried out:

CAUTION – USE OF BLADES AND PARTS NOT SUPPLIED OR APPROVED BY WEBTOOL MAY RESULT IN TOOL FAILURE AND CONSEQUENTIAL DAMAGE

7.1 Blade inspection

With the cutter isolated from the hydraulic supply, check the condition of the blade edge.

Ensure that care is taken when checking the blade as the edge may be sharp. Protective gloves should be worn.

If the blade is damaged or blunt replace with a fresh blade before cutting.

Replacement is as described in section 3.4.

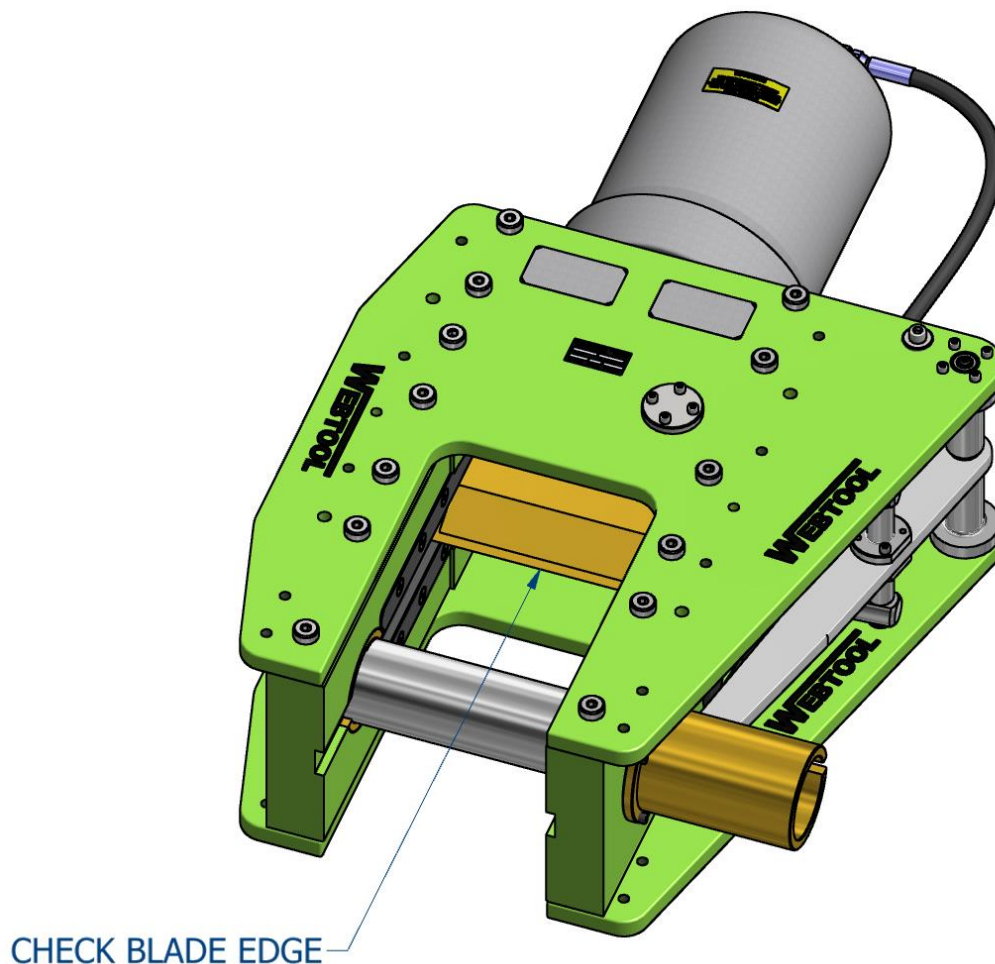


Figure 27 - Blade

7.2 Anvil inspection

Check the condition of the anvil.

It is normal that the anvil will show an indent where the blade has pressed down into it and can withstand multiple cuts, but any excessively damaged anvil should be replaced.

Replacement is as described in section 3.3.

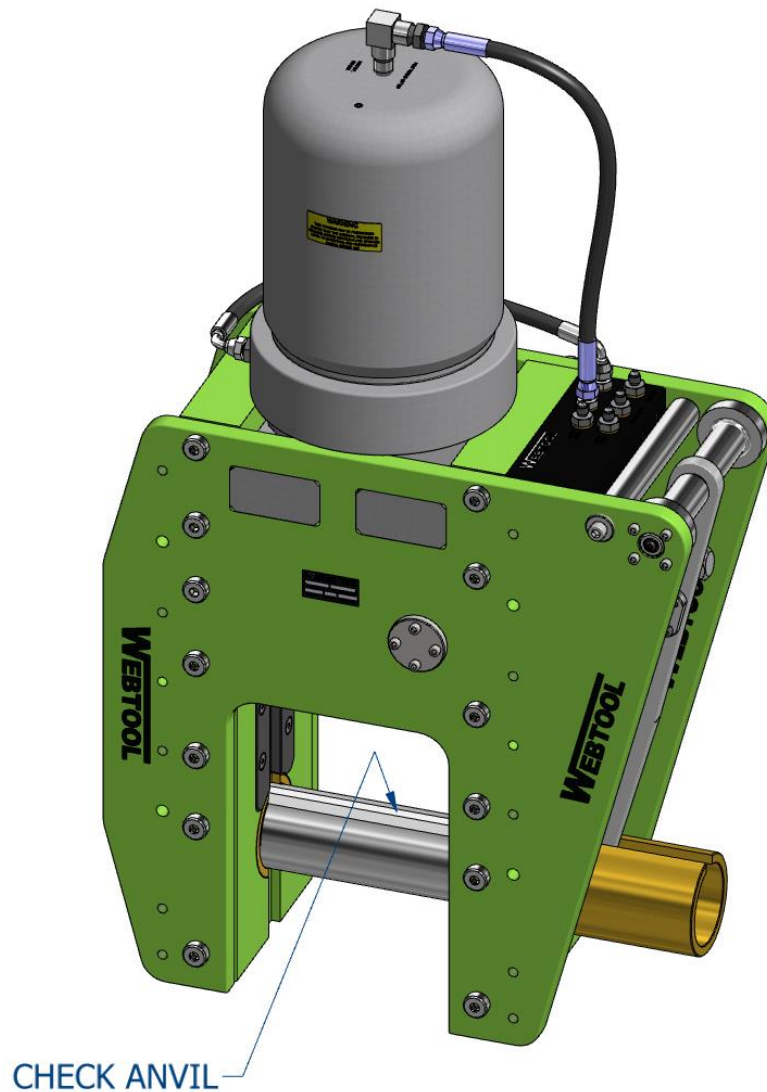


Figure 28 - Anvil

7.3 Function Testing

Before using the tool, it must be function tested as follows:

- Turn on the hydraulic power unit by pressing the “Pump Start” button.
- Close the anvil by pressing the “Clamp Cylinder Close/Anvil Close” button – Check that it moves freely.
- Check the blade travel by first pressing the “Clamp Cylinder Close/Anvil Close” button and then pressing the “Cut Cylinder Down/Blade Down” button. Check that the blade moves freely.
- Retract the blade by pressing the “Cut Cylinder Up/Blade Up” button. Check that it moves freely.
- Open the anvil by pressing the “Clamp Cylinder Open/Anvil Open” button. Check that the anvil moves freely.
- Turn off the hydraulic power unit by pressing the “Pump Stop” button.

7.4 Decommissioning

Major components are made from the following recyclable materials:

Part Number	Description	Material
765348 A & B	Side Plate	Aluminium
728090	Cylinder	Alloy Steel
765307	Housing	Alloy Steel
764138	Ram	Stainless Steel
761321	Anvil	Stainless Steel
705064CS	Blade	Tool Steel
765349 A & B	Anvil Plate	Aluminium
995135	Lift Frame	Stainless Steel

Remaining components should be disposed of in accordance with local current regulations.

Hydraulic fluid should be drained into a suitable container and disposed of in accordance with current local regulations.

8 Drawings

8.1 Cutter Assembly

Note – Lifting frame and hoses removed for clarity

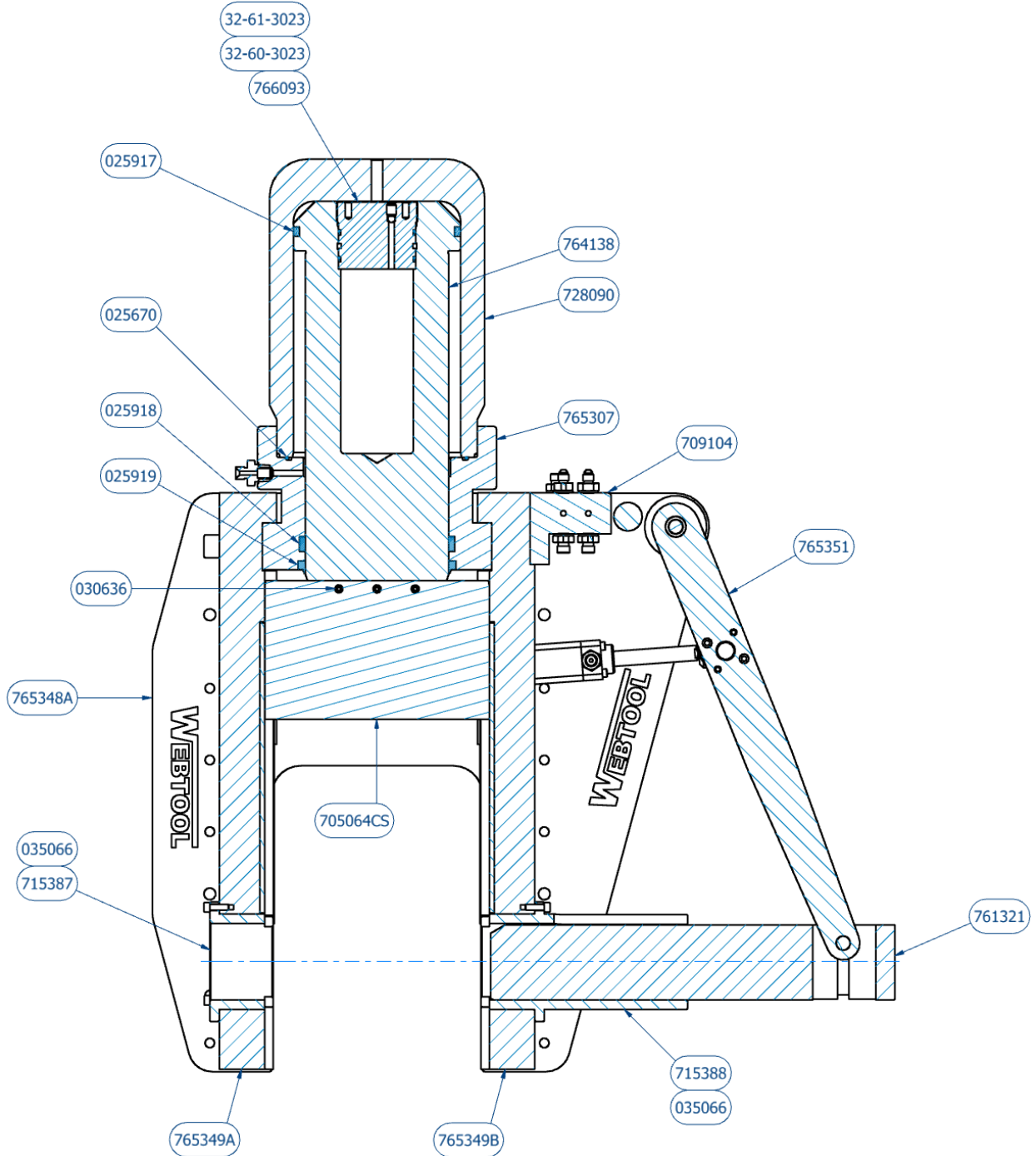


Figure 29 – Cross section through RCV215A

8.2 Auxiliary Cylinder Assembly

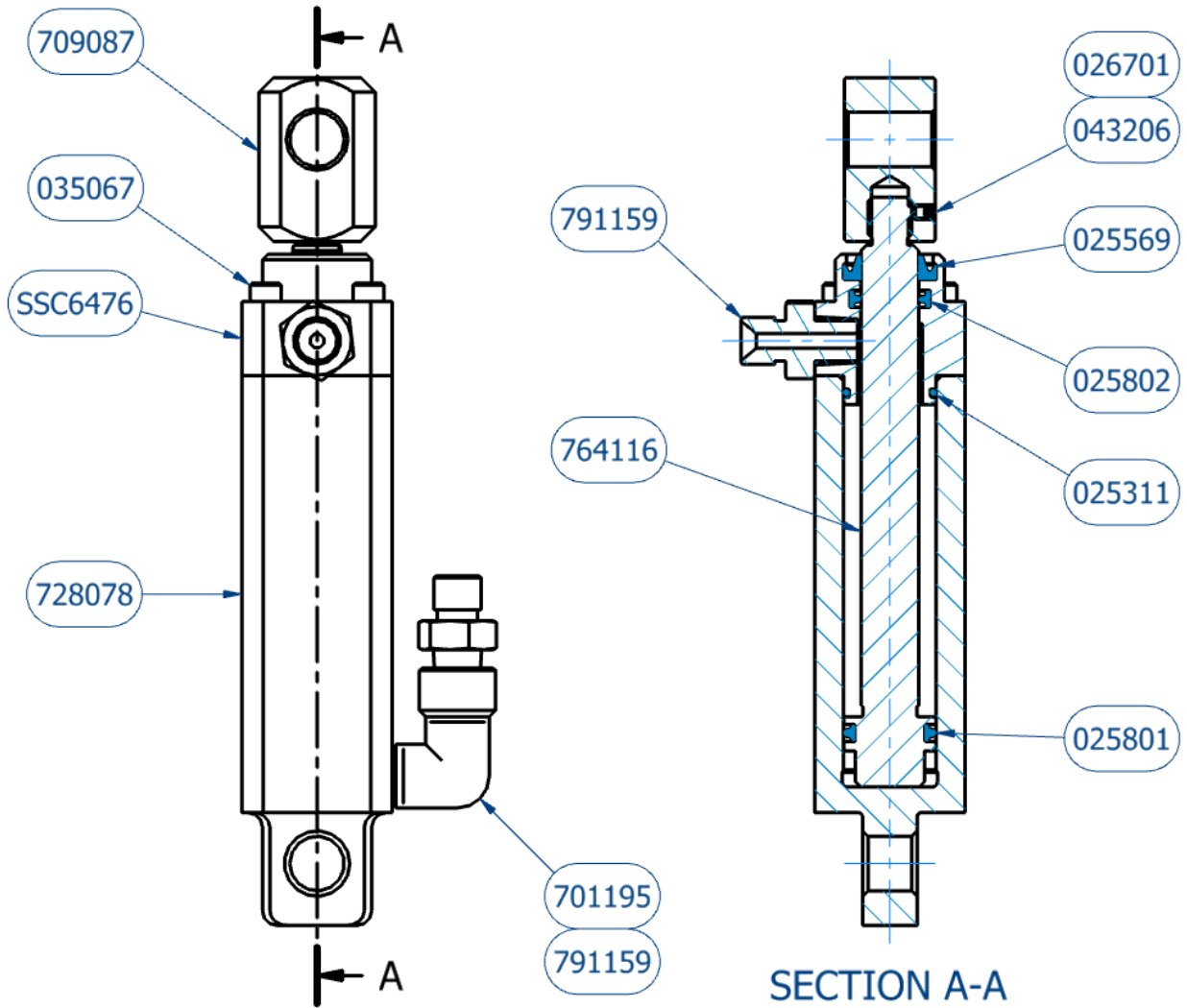


Figure 30 – Auxiliary Cylinder

9 Parts List

PART NUMBER	QTY	DESCRIPTION
025311	2	AUXILIARY O RING
025569	2	AUXILIARY WIPER
025670	1	O RING - 182.44 X 3.53
025801	2	AUXILIARY PISTON SEAL
025802	2	AUXILIARY ROD SEAL
025917	1	PISTON SEAL
025918	1	ROD SEAL
025919	1	WIPER SEAL
026701	2	ALUMINIUM PELLET 3 X 1
030636	3	PIN SPRING 1/4" X 2"
035066	6	ANVIL SCREW
035067	8	SKT HD CAP SCREW - M5 X 30
035073	1	SET SCREW - CUP POINT - M6 X 10
035076	5	BUTTON HD SCREW - M4 x 8
035079	16	SKT HD CAP SCREW - M6 X 25
035080	1	SET SCREW - CUP POINT - M10 X 12
035089	2	SKT HD CAP SCREW - M10 X 25
035111	4	SKT HD CAP SCREW - M6 X 35
035114	2	SKT HD CAP SCREW - M8 X 10
035129	26	SPECIAL SHOULDER SCREW 15 X 50 - M12
035150	4	SKT HD CAP SCREW - M16 x 70
042520	12	CSK SKT CAP SCREW - M8 X 20
043206	2	SKT SET SCREW - CUP POINT - M4 X 6
079044	2	MOUNTING STUD AUX CYLINDER
080971	4	WASHER M6
080985	2	TIE BAR WASHER HCV/RCV
701195	2	90 DEGREE ELBOW
709087	2	AUXILIARY PISTON BLOCK
709104	1	MANIFOLD BLOCK RCV215A
715345	2	BUSH, LEVER PIVOT PIN
715387	1	ANVIL BUSH
715388	1	PIVOT PIN HOUSING
728078	2	AUXILIARY CYLINDER
728090	1	CYLINDER
752342	1	NAMEPLATE
752573	1	PRESSURE WARNING LABEL

PART NUMBER	QTY	DESCRIPTION
761247	1	ANVIL PIN
761267	1	PIN, PIVOT, LEVER
761268	2	LEVER POST, AUX CYLINDER
761269	1	TIE BAR
761321	1	ANVIL
764116	2	AUXILIARY PISTON
764138	1	PISTON
765307	1	MOUNTING PLATE RCV190
765350	2	BLADE GUIDE
765351	1	LEVER
766093	1	RELIEF VALVE PLUG
766101	1	BLANKING PLUG
766102	1	RELIEF VALVE BODY
784001	1	WIRE ROPE SLING 3 LEG
791154	6	1/4" BSPP MALE ADAPTOR
791157	4	1/4" BSPP TO JIC 4 STRAIGHT ADAPTOR
791159	4	1/4" BSPP TO JIC 4 STRAIGHT ADAPTOR
995135	1	RCV215 LIFT FRAME ASSEMBLY
999022	1	HOSE COMPLETION KIT
1242059	1	ELBOW FEMALE 3/8" NPT
1242060	1	MALE STRAIGHT CONNECTOR 3/8" NPT
1242061	2	1/4" BSPP TO JIC 4 STRAIGHT ADAPTOR
31-47-0310	1	BALL 5/16" DIA
32-01-0206	1	O RING - BS009
32-07-0035	10	BONDED SEAL 1/4" BSP
32-60-2419	1	O RING - BS4518 0156-24
32-60-3023	2	O RING - BS4518 0745-30
32-61-2419	1	BACKUP RING - 16 X 20
32-61-3023	2	BACKUP RING - 76 X 81
33-99-1160	4	1/16" LEVI PLUG
705064CS	1	CUTTER BLADE
749045A	1	PIVOT PIN HOUSING
749045B	1	PIVOT PIN HOUSING
765348A	1	SIDE PLATE
765348B	1	SIDE PLATE
765349A	1	ANVIL PLATE A
765349B	1	ANVIL PLATE B
SSC6476	2	AUXILIARY END CAP
1241063	1	CUT PORT CONNECTION HOSE
1241064	1	RETURN PORT CONNECTION HOSE
1241065	4	AUXILARY CONNECTION HOSE

Appendix A – HPU Technical Manual