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WIRE ROPE CUTTER RCV135

PRODUCT CODE No. 980212

**INSTRUCTIONS FOR INSTALLATION,
OPERATION & MAINTENANCE**

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Description

The cutter is intended for use on steel wire rope having a maximum tensile strength of 1770N/mm and will cut ropes up to 135mm diameter. It may be used on alternative materials, such as electrical power or communication cables, again up to a maximum of 135mm diameter. Where smaller diameters are to be cut, every effort should be made to place the material centrally along the anvil to minimize any offset loading.

IMPORTANT

If it is required to extend the recommended use of the cutter, for instance to cut solid steel bar or wire rope with greater strength, please refer to the manufacturer, Allspeeds Ltd, with full details of material size and tensile strength. Cutting unsuitable materials could result in damage to the tool.

1. SAFETY

Before operation, read and understand this operations manual.

Whilst the tool is intended for remote or local operation sub-sea, there is no reason why it should not be used above surface.

Ensure that the tool, hoses and pump are in good condition and properly connected.

Ensure that suitable pressure regulation equipment is used and that the unit is not subjected to pressures higher than those stated in section 3

In all cases, where an operator is present, the safety aspects must be reviewed before the cutting operation is commenced.

No attempt should be made to cut any material that is under tension.

Ensure that the operator is shielded from the cutting blade during the cutting operation.

When cutting near the very end of hose fragments can be expelled from the tool, please ensure that the operator is shielded from these.

If in doubt please contact the manufacturer (Allspeeds Ltd) or an authorized distributor for assistance.

If at any time it is necessary to carry out proof tests on the tool, e.g. after service on the hydraulic cylinders, it must be returned to the supplier for testing where the following procedures apply.

The maximum proof test pressure should not exceed 125% of the maximum working pressure and this should only be done by Allspeeds using our specially adapted test rig.

The tool should be guarded during the proof test operation, and be carried out in a safe working environment.

The proof pressure should be applied gradually, until the maximum pressure is reached.

Important: Please note this tool is designed for intermittent subsea use. Please refer to the manufacturer (Allspeeds Ltd) or an authorized distributor should you wish to use this tool subsea for any period over 14 days.

CAUTION – Any modification made to this tool will invalidate the warranty and may lead to equipment failure or personal injury. If in doubt please contact the manufacturer (Allspeeds Ltd) or an authorised distributor for assistance.

INSPECT THE TOOL BEFORE USE

With the cutter isolated from the hydraulic supply, check the condition of the blade edge. If the blade is damaged or blunt replace with a fresh blade before cutting. This procedure is as described in section 8.

Ensure that care is taken when checking the blade as the edge may be sharp

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. This procedure is as described in section 7

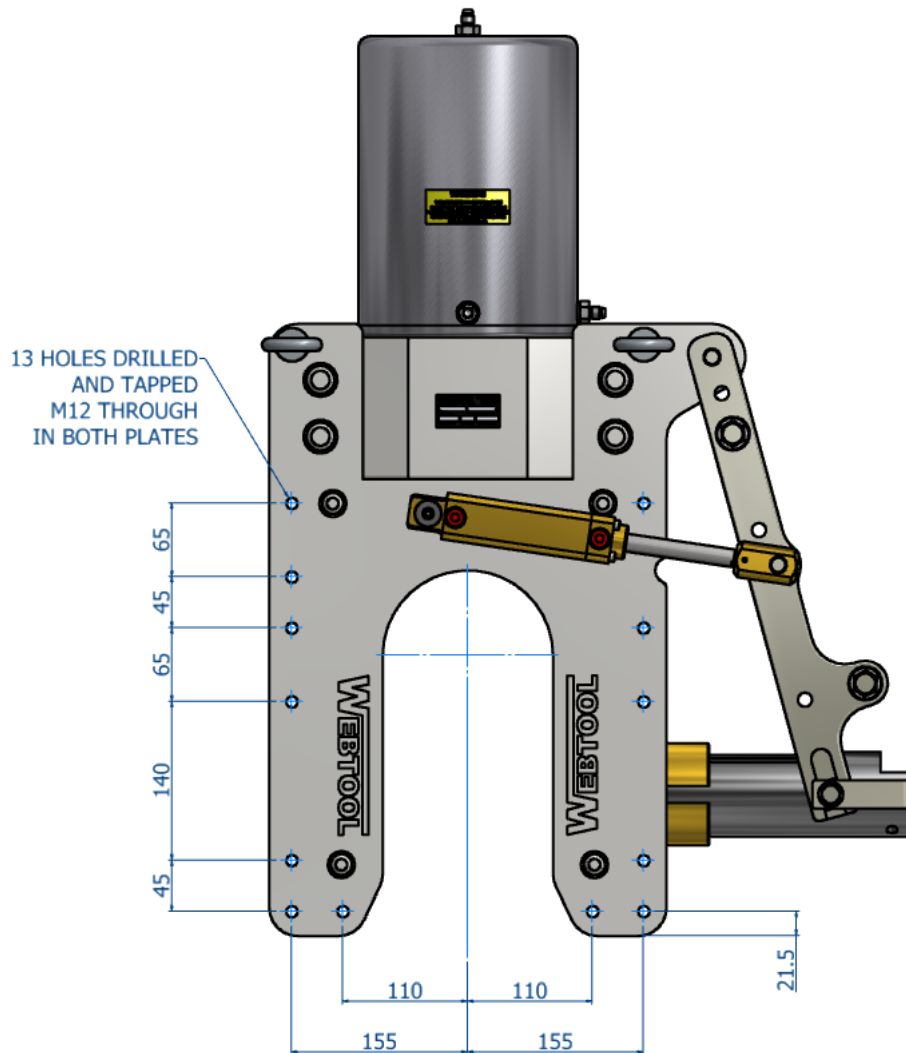
CAUTION – USE OF BLADES AND PARTS NOT APPROVED BY WEBTOOL MAY RESULT IN TOOL FAILURE AND CONSEQUENTIAL DAMAGE

2. CUTTING CAPACITY

The cutter is primarily intended for use on steel wire rope, having a maximum tensile strength of 1770N/mm and will cut ropes up to 135mm diameter. It may be used on alternative materials, such as electrical power or communication cables, again up to a maximum of 135mm diameter. Where smaller diameters are to be cut, effort should be made to place the material centrally along the anvil to minimise any offset loading.

3. INSTALLATION

Tapped Holes, M12, are provided in the tool body (see sketch) which can be used for any attachment necessary to mount the cutter. The cylinder is a pressure vessel and is not recommended as a mounting point, the cylinder should not be drilled, machined, mutilated or damaged in any way, any warranty could be invalidated by such actions.



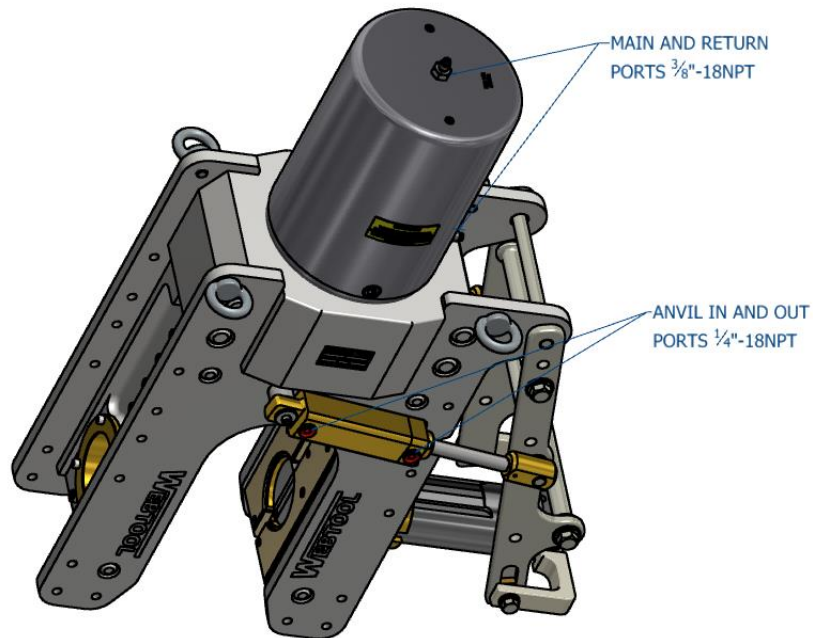
Two hydraulic supplies are required, ported as shown below. The maximum working pressures are shown in the table below and pressure limiting valves must be fitted into the supply to limit the pressures to these levels.

The weight of the tool is 179kg.

TABLE 1.

Function	Max. Working Pressure		Swept Volume		Port Tapping
	psi	bar	ml.	U.S. Gallon	
Main Ram Working Stroke	10,000	690	2900	(0.766)	$\frac{3}{8}$ " NPT
Main Ram Return Stroke	10,000*	690*	1045	(0.276)	$\frac{3}{8}$ " NPT
Auxiliary Cylinders Out Stroke (to retract anvil)	2,750	190	100	(0.026)	$\frac{1}{4}$ " NPT
Auxiliary Cylinders Instroke (to reset anvil)	2,750	190	60	(0.016)	$\frac{1}{4}$ " NPT

***N.B.** Actual pressure required to return Ram < 200 psi (14 bar)

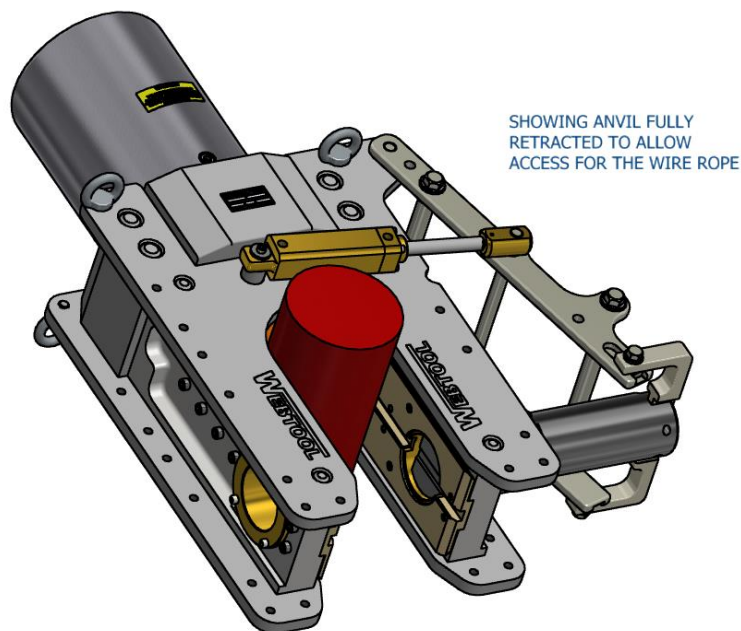


4. OPERATION

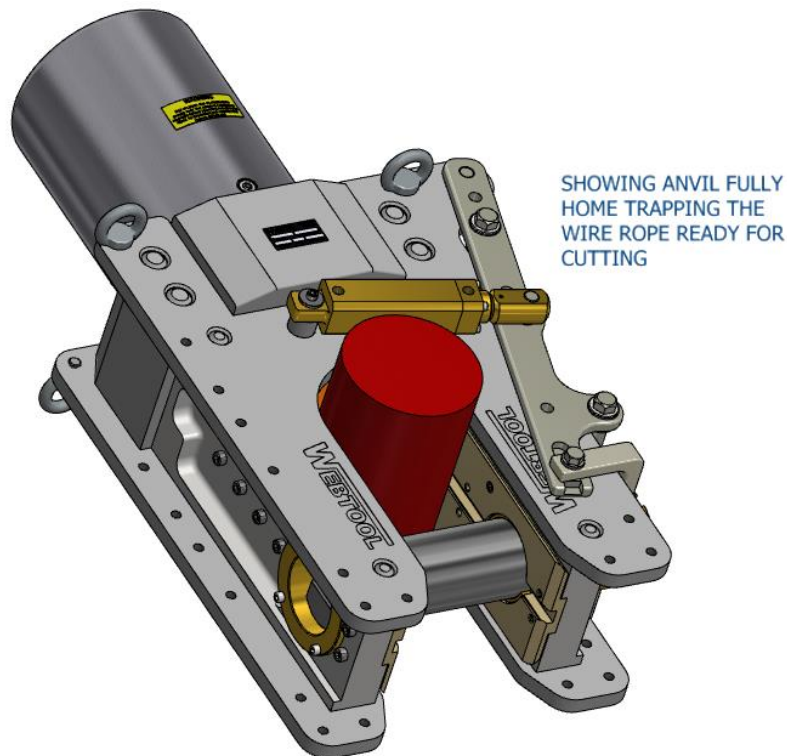
Before deployment, function test the tool and ensure that all operators are familiar with this procedure. ROV observation of the tool should be maintained at all time during operation. Prior to use, ensure no damage has occurred to the blade or anvil. Ensure the anvil is fully retracted.

DEPLOYMENT

Prior to use, the auxiliary cylinder outstroke should be operated to withdraw the anvil. This clears access for the cutter to be placed over the wire rope. Place the cutter over the wire rope. Ensure that the wire rope is as far into the cutter as possible so that the anvil does not foul as it is reset. Place the cutter over the wire rope. Ensure that the wire rope is as far into the cutter as possible



Operate the auxiliary cylinder instroke to position the anvil fully home under the wire rope, the main ram should not be activated until the auxiliary cylinders are operated to the full extent of their stroke.



Operate the main ram down-stroke to sever the wire rope. Once the wire rope is severed, Pressurize the main ram retract port to withdraw the cutting blade. Then, and only then, retract the anvil. It is important not to operate the anvil cylinder whilst the main ram and blade are in the fully extended position.

If a further cut is required, the above procedure should be repeated.

N.B. Do not operate the auxiliary cylinders when the main ram is fully extended since this would damage the anvil.

TROUBLESHOOTING

If the wire rope does not cut through completely on the first attempt, cycle the blade by retracting it slightly and then attempting the cut again.

If the wire rope does not completely cut after multiple cycles of the blade, check the Input pressure to the main input of the cylinder. This can be a maximum of 700 bar (10,000psi).

If the wire rope to be cut is still not severed after multiple cycles and at a pressure of 700 bar, Retract the blade and then the anvil and return the tool to the surface for inspection of the blade and anvil, replace if necessary.

IMPORTANT NOTE – ENSURE THAT THE BLADE IS FULLY RETRACTED AND THAT ALL PRESSURE TO THE CUTTER IS RELIEVED AS IT IS RAISED TO THE SURFACE. FAILURE TO DO THIS CAN LEAD TO A DANGEROUS BUILD UP OF PRESSURE IN THE CYLINDER.

5. AFTER USE

When the tool is retrieved, it should be hosed off with clean water, allowed to drain and sprayed externally with a de-watering fluid. Before storage, inspect the general condition of the tool. Particular attention should be paid to the anvil and blade. The anvil should be clean and free from any damage or bruising on the outside diameter that would prevent it from retracting properly. The blade edge should be smooth and free from any serrations. Note that a slight ripple to the blade edge is acceptable and will not cause problems. Any minor damage can be smoothed off with an oil stone if necessary.

6. SERVICE

It is unlikely that service would be required on the hydraulic components of the tool under normal circumstances, but a seal spares kit is available if required. The only parts that would need intermittent replacement would be the anvil, blade and wear plates, depending on the frequency of use and materials being cut. These parts can be ordered up on the following spares reference numbers, but in addition please quote the tool serial number.

Seal Kit	Part Number	995 288	
Anvil	Part Number	SSC 6485	
Blade	Part Number	705 047C	
Wear plates	Part number	765 181	2 off

We advise that any servicing should be carried out by an authorised distributor only. If required, the tool can be returned to the manufacturer, Allspeeds Ltd, for servicing and testing.

If servicing is to be undertaken by the user, please see note on proof testing under SAFETY (Chapter 1), and the following:-

All servicing operations should be carried out in a clean environment to prevent contamination of the oil and mating components.

Care should be taken with all mating areas ie. threads and sealing faces, as any damage or abrasive contamination could cause galling or seizing on re-assembly.

The cylinder is a pressure vessel and should not be drilled, machined, mutilated or damaged in any way for mounting purposes or to assist in its removal for servicing, any warranty could be invalidated by such actions.

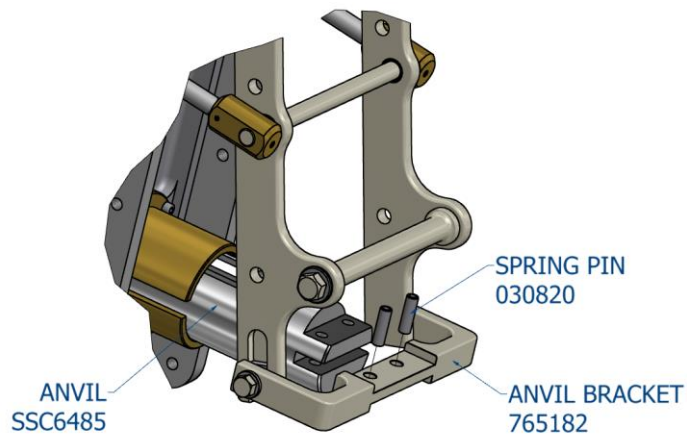
The use of stilsons to remove the cylinder is not recommended as damage will occur.

IMPORTANT: Please note this tool is designed for intermittent subsea use. Please refer to the manufacturer should you wish to use this tool subsea for any period over 14 days.

7. REPLACEMENT OF THE ANVIL

Disconnect the anvil SSC6485 from the anvil bracket 765182 by removing the spring pins 030820. The anvil SSC6485 can now be passed through the body and removed.

Re-assembly is the reverse of the above process.



8. REPLACEMENT OF THE CUTTING BLADE

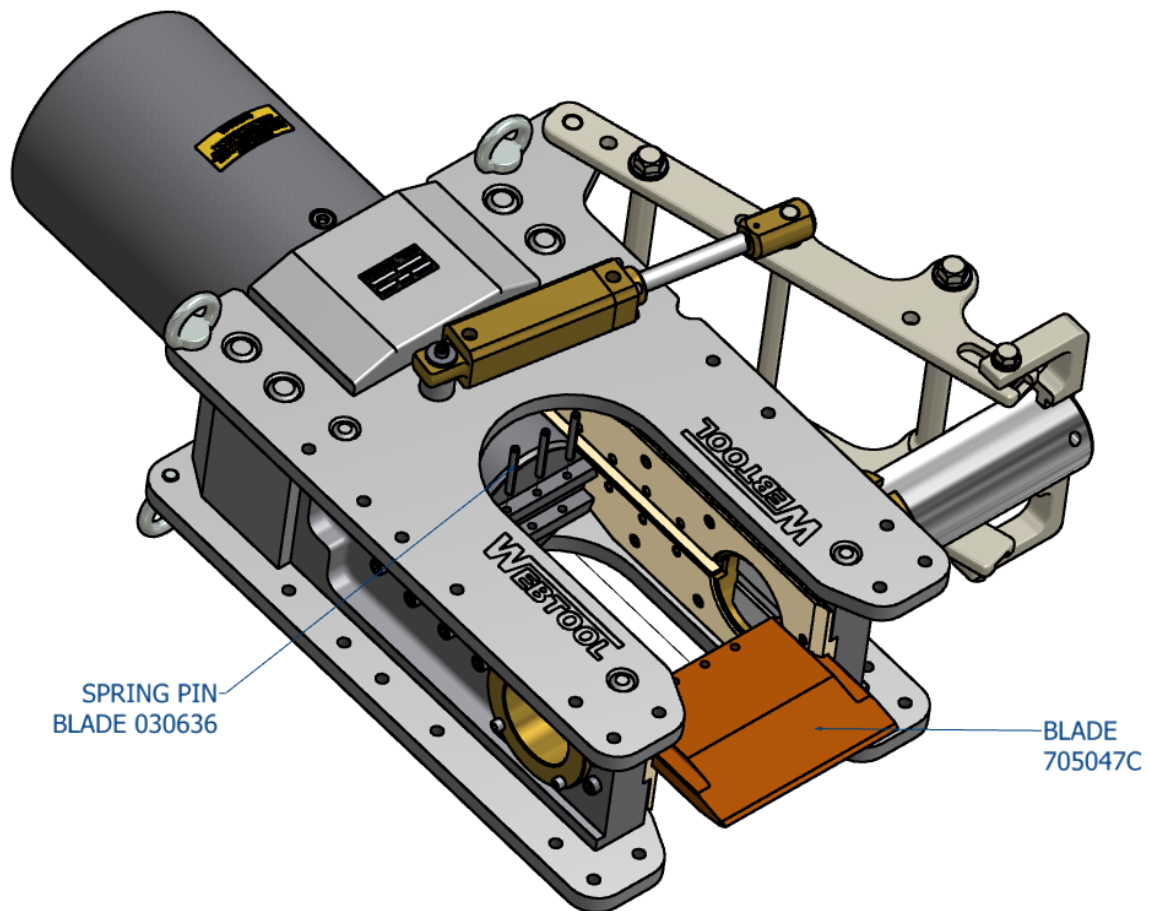
First withdraw the anvil as described above.

Pump out the main ram until the blade retaining pins 030636 can be seen in the opening of the cutter body.

The three pins are ¼" (6.35mm) diameter and they should be knocked out enough to release the blade.

Re-assembly is the reverse of the above process.

N.B. Alternatively, the blade may be removed without moving the anvil, operate the auxiliary cylinders out to full stroke, the blade can now slide out of the tool, as shown below.

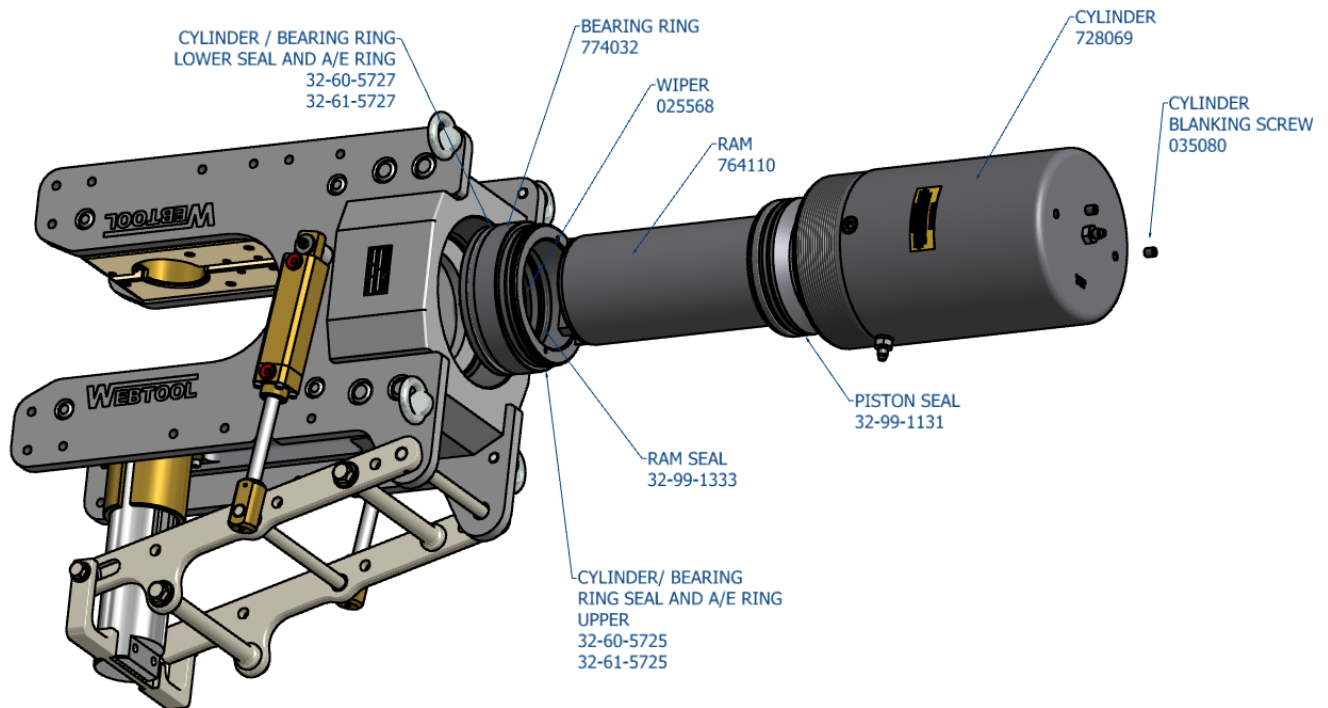


9. REMOVAL OF THE MAIN CYLINDER

If it is necessary to renew the hydraulic seals, the cylinder must be removed from the tool. As an aid to this, 2 off tapped holes are provided in the cylinder end face. These are M10 x12 deep on 130mm centres.

First, remove the pins and blade as described above, remove the cylinder blanking screws 035080, use the holes in the top of the cylinder and fasten a piece of flat bar, typically 30x10mm section and 900mm long centrally to the top of the cylinder. This can be used to loosen or re-tighten the cylinder. Do not use Stilsons to remove the cylinder as damage will occur.

Unscrew the cylinder 728069 and remove from the assembly, it will come free but still attached will be the ram 764110 and bearing ring 774032.



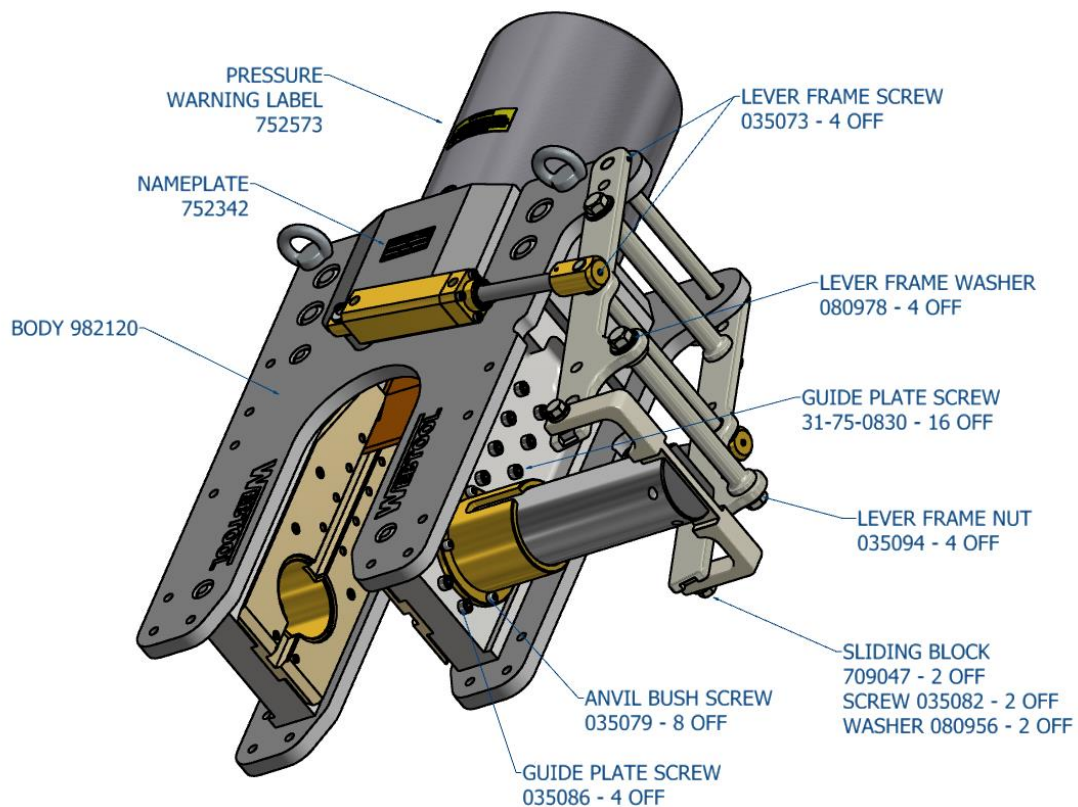
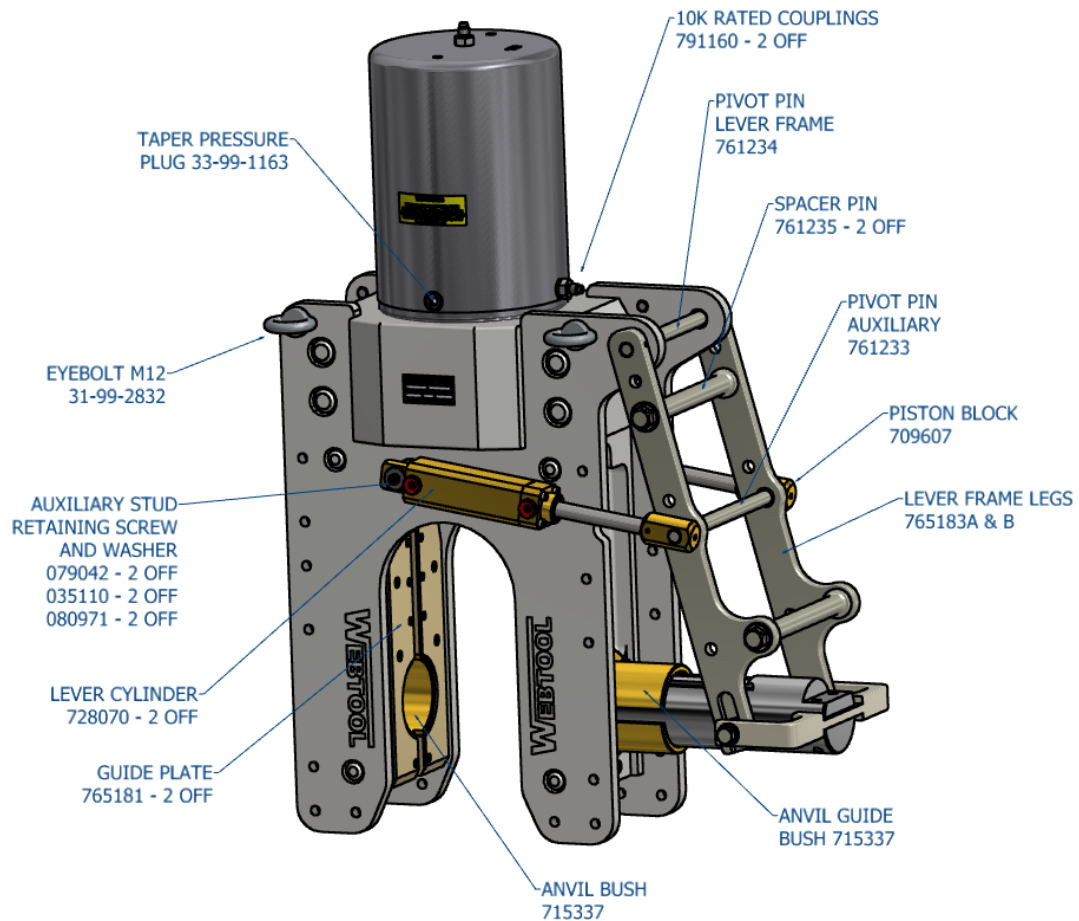
Put the assembled parts into a plastic dust bin or similar vessel, attach an oil supply to the coupling to the top of the cylinder, attach a hand pump to the coupling and pump out the ram, importantly, **by hand**.

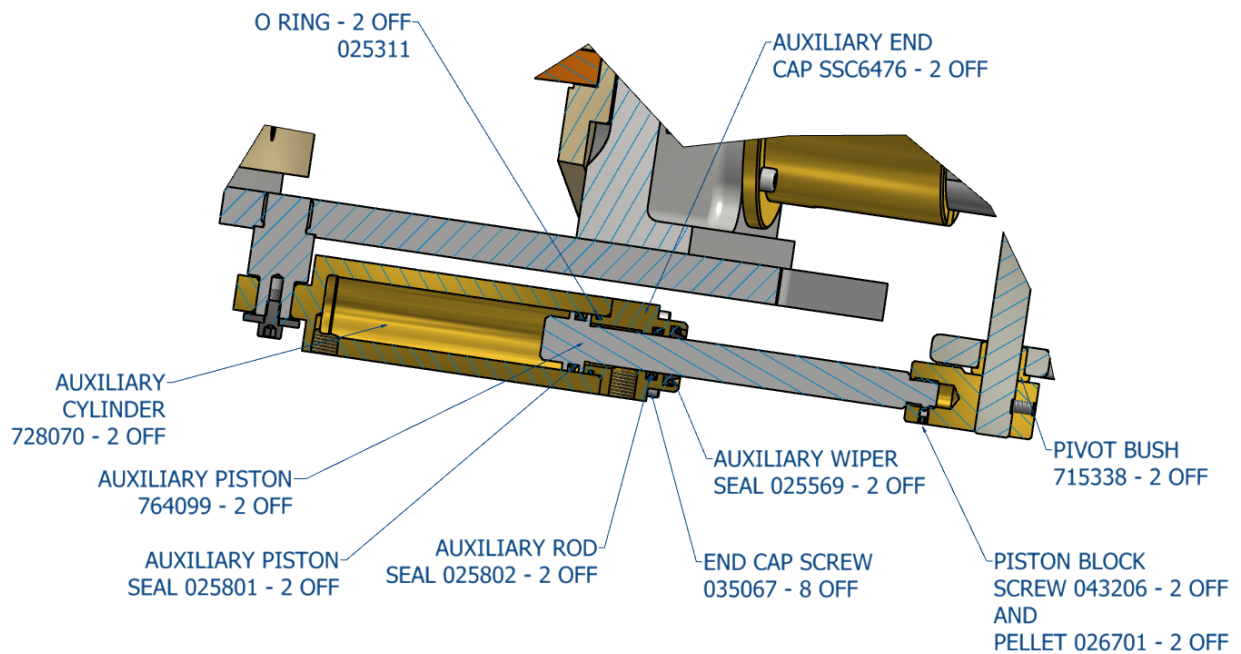
The ram can now be removed from the bearing ring and all seals will be accessible.

To re-assemble, fit the bearing ring in the body, add the piston and connect the blade. Position the cylinder on top of the cutter, put grease on the threads and screw in the cylinder using the two tapped holes and the flat bar, remove the bar and replace the screws.

A cylinder assembly tool is available if required part number SK4377A. See optional attachments mentioned later in these instructions.

Below are detailed views showing other components of the cutter and their part numbers

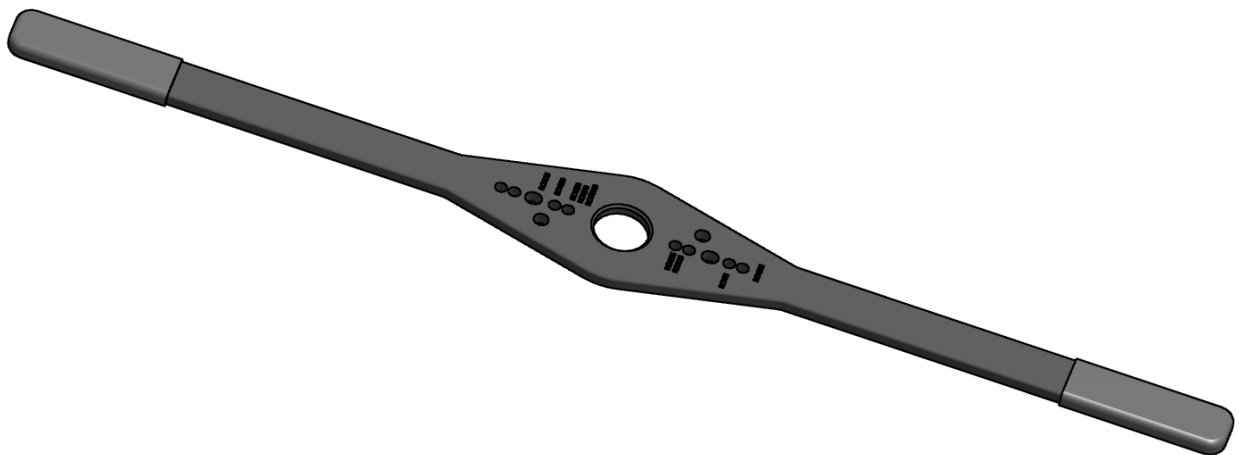




This RCV135 cutter is compatible with the following optional extras, not supplied as standard.

Cylinder Assembly Tool - SK4377A

This tool can be used on RCV75, RCV75HD, RCV115, RCV135, RCV155, RCV190, HCV100, HCV120, HCV250 and HCV270 cutting tools



Webtool Hydraulic Intensifier – HP690A (available in a range on intensification ratios)



For further information contact the manufacturer (Allspeeds Ltd) or an authorised distributor

Auxiliary Cylinder, Sub-Assembly – Part List		982 119
Part No.	Description	Qty.
709607	Piston block	1
728070	Cylinder	1
SSC6476	End cap	1
764099	Piston	1
026701	Pellet, aluminium, 3Ø	1
025311**	Seal, 'O' ring, end cap**	1
025569**	Scraper, rod**	1
025801**	Seal, piston**	1
025802**	Seal, rod**	1
043206	Screw, socket set, M4 x 6, piston block	1
035067	Screw, sock cap, M5 x 30, end caps	4

** These parts are in the auxiliary seal kit 995122 and also in full seal kit 995288

RCV135 Wire Rope Cutter		980212
Part No.	Description	Qty.
728069	Cylinder	1
764110	Ram	1
774032	Bearing ring, main ram	1
SSC6485	Anvil	1
715336	Bush, anvil guide	1
715337	Bush, anvil	1
765182	Anvil bracket	1
765181	Guide plate, blade	2
765183A	Lever frame leg, handing A	1
765183B	Lever frame leg, handing B	1
709047	Sliding block	2
761233	Pivot pin, auxiliary cylinder	1
761234	Pivot pin, lever frame	1
035082	Screw, special, sliding block	2
079042	Stud, auxiliary cylinder mounting	2
080956	Washer, sliding block screw	2
080971	Washer, auxiliary cylinder retaining	2
31-99-2832	Eye bolt, collared, M12	4
705047C	Blade	1
715338	Bush, pivot	4
080978	Washer, lever frame	4
761235	Spacer pin, lever frame	2
32-99-1131*	Seal, piston head*	1
32-99-1333*	Seal, rod*	1
32-60-5725*	Seal, 'O' ring, cylinder/ram bearing upper*	1
32-61-5725*	AE ring, cylinder/ram bearing upper*	1
32-60-5727*	Seal, 'O' ring, cylinder/ram bearing lower*	1
32-61-5727*	AE ring, cylinder/ram bearing lower*	1
025568*	Seal, Wiper*	1
030820	Spring pin, anvil	2
030636	Spring pin, blade	3
035079	Screw, sock cap, M6 x 25	8
31-75-0830	Screw, sock cap, M8 x 30	16
035086	Screw, sock cap, M8 x 50	4
035073	Screw, sock set, M6 x 10	4
035080	Screw, sock set, M10 x 12	10
035094	Screw, Hex head, M10 x 20	4
33-99-1163	Screw, taper pressure plug, 3/8 NPTF	1
035110	Screw, sock cap, M6 x 10	2
752342	Nameplate	1
766047	Plug, blanking, 1/4" BSP, red plastic	4
791160	3/8"NPT to JIC coupling	2
791161	Cap for coupling	2
982120	Body sub-assembly	1
982119	Auxiliary cylinder sub assembly (see separate parts list)	2

* These parts are in the seal kit along with the auxiliary seals in seal kit 995288

WEBTOOLTM

CUTTING EDGE TECHNOLOGY

Webtool specialises in engineering powerful hydraulic tools for cutting and gripping rope, cable and umbilicals.

Models designed for use in subsea environments by ROV's, and surface applications in hostile environments.

- Wire rope cutters (WCS and WCOS) – capable of cutting steel wire rope up to 75mm diameter
- Wire Rope Cutters (RCV) – capable of cutting steel wire rope up to 190mm diameter
- Cable Cutters (HCV) – capable of cutting cable, umbilical and armoured flexible pipe lines up to 330mm diameter
- Softline Cutters (SL) – capable of cutting fibre ropes in various sizes
 - Wire Rope / Cable Grippers
 - Wire Rope Clamps
 - Automatic Shackles

Application specific solutions

Our in house design and manufacturing capability means we can quickly and efficiently develop a solution to suit your particular application. Contact our engineering department to discuss how we can help.