Instruction Manual

for

Allspeeds Ltd.

Royal Works, Atlas Street
Clayton Le Moors, Lancashire, UK.
BB5 5LW

HCV270

Allspeeds Product Code 980216

Allspeeds Document Revision 9. Issue 2

Mod. 21092

Date: 25/08/21

Original instructions

Table of Contents

1 Important Notice – Read Before Use

THIS IS AN INHERENTLY DANGEROUS PIECE OF CUTTING EQUIPMENT AND IS SUPPLIED WITHOUT GUARDING. IT IS VITAL THAT THE INSTALLER AND END USER PERFORM A RISK ASSESSMENT AND IMPLEMENT ANY SAFETY FEATURES THAT THEY DEEM NECESSARY AND ENFORCE A SAFE SYSTEM OF WORK BEFORE USE.

Do not operate the main cutter cylinder unless the anvil is fully closed.

Ensure that the auxiliary cylinders remain pressurised (200 bar) throughout the cut cycle to keep the anvil closed.

Read, understand and follow the instructions within the operating manual before deploying or operating the HCV270 cutter.

Failing to follow the instructions and operating the cutter with a partially closed anvil will result in serious damage to the HCV270.

IF IN DOUBT, ASK!

See section 8 for more details

2 Introduction

This manual covers the installation, operation and maintenance of a HCV270 as Allspeeds part number 980216

This is a double acting, hydraulically operated tool suitable for cutting cables and umbilical up to 270mm (10.5”) in diameter. It requires two separate dual line hydraulic supply (feed and return) for the main cutter activation and the hydraulically operated anvil.

3 Technical Data

HCV270 (part number 980216)

3.1 Physical

Weight of HCV270 in air	373.6 kg (excluding hydraulic fluid and hoses)
Weight of HCV270 in water	324.5 kg (excluding hydraulic fluid and hoses)
Overall Dimensions	706mm (883mm) x 250mm x 1148mm

3.2 Hydraulic Requirements

3.2.1 Main Cutter Cylinder

Cylinder Type	Double acting (feed and return ports)
Maximum Operating Pressure	690 Bar (10,000 PSI)
Swept Volume Cut Stroke	5.3 Litre
Swept Volume Return Stroke	2 Litre

3.2.2 Anvil Auxiliary Cylinders

Cylinder Type	Double acting (feed and return ports)
Maximum Operating Pressure	210 Bar (3,000 PSI)
Swept Volume Cut Stroke	0.132 Litre
Swept Volume Return Stroke	0.081 Litre

IMPORTANT – The maximum operating pressure stated above should not be exceeded during use of this tool. Ensure that all fittings and hoses used are suitable for use at this pressure and rated accordingly.

This HCV270 is compatible with the following hydraulic fluids:

Good quality hydraulic oil (e.g. Shell Tellus 32, 68 or similar)

Water glycol (e.g. Castrol Transaqua HT2).

Please note that whilst compatible, the use of water glycol fluids may reduce system life.

Ensure that the fluid used is cleaned to NAS Class 6 or better.

3.3 Environmental Considerations

This cutter should not be operated outside of the recommended temperature range of -5°C to +60°C.

This cutter is suitable for use subsea but should be regularly checked, cleaned and dewatered using a suitable dewatering spray.

3.4 Dimensions

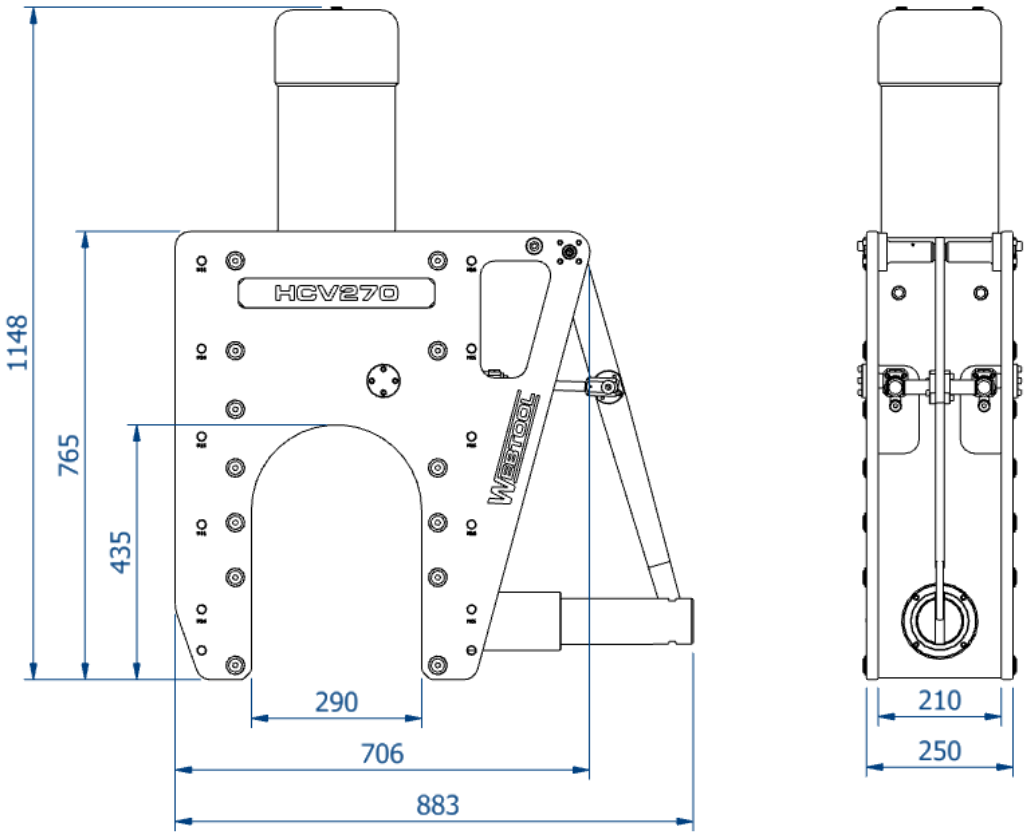

Figure 1 – Overall dimensions

4 Declaration of Conformity

CE	**DECLARATION OF CONFORMITY**	
Company name:	Allspeeds Ltd	
Company address:	Royal Works, Atlas Street, Clayton le Moors, Accrington, Lancashire BB55LW, UK	
Machinery covered by this declaration:	**Description:**	Hydraulic Cutting Tool
	Model:	980216
	Type:	HCV270
	Revision:	Rev 9
The machinery conforms to the following essential requirements of the Machinery Directive 2006/42/EC:		
The machinery also conforms to the following Directives:	N/A	
The following standards have been applied:	N/A	
This machinery must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the machinery directive		
The technical documentation is compiled in accordance with part A of Annex VII of the Machinery Directive 2006/42/EC		
Person authorised to compile the relevant technical documentation (based in the European Community):	**Name:**	Authorised Rep Compliance LTD.
	Address:	71 Baggot Steet Lower, Dublin, D02 P593, Ireland
The relevant authorised person undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the machinery. This information will be transmitted by: (email, post)		
Person authorised to make this declaration:	**Name:**	Keith Elliot
	Position in company:	Managing Director
	Signature :	
	Place of Declaration:	Accrington, Lancashire, UK
	Date of Declaration:	4th January 2021

5 General Safety Rules

5.1 Warnings

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

5.2 Important Information

It is vital that these instructions are available to the equipment users. It is also important that they are retained with the equipment if it is sold or transferred to another user.

5.3 Safety for Operation

IMPORTANT - This is an inherently dangerous piece of cutting equipment and is supplied without guarding. It is vital that the installer and end user perform a risk assessment and implement any safety features that they deem necessary and enforce a safe system of work before use.

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

- Make sure that 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 all operators are clear of the area before cutting commences

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

IMPORTANT - If the item being cut is under tension there is the risk of it recoiling when severed. Ensure that all operators are out of the immediate area before operation.

Any spilt oil or trailing hoses may create a slipping or tripping hazard. Care must be taken around the work area. Energised hoses may move during operation and should be fitted with whip-check devices to contain them in case of a burst.

5.4 Safety for Maintenance

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

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

5.5 Warning Symbols

	General hazard. Hydraulic cutting tool with inherently dangerous moving parts. Please read and understand this manual to avoid the risk of injury.
	Cut or severing hazard due to the cutting blade.

6 Installation

6.1 Mounting Holes

The cutter body contains a number of mounting holes, as shown on the drawing below:

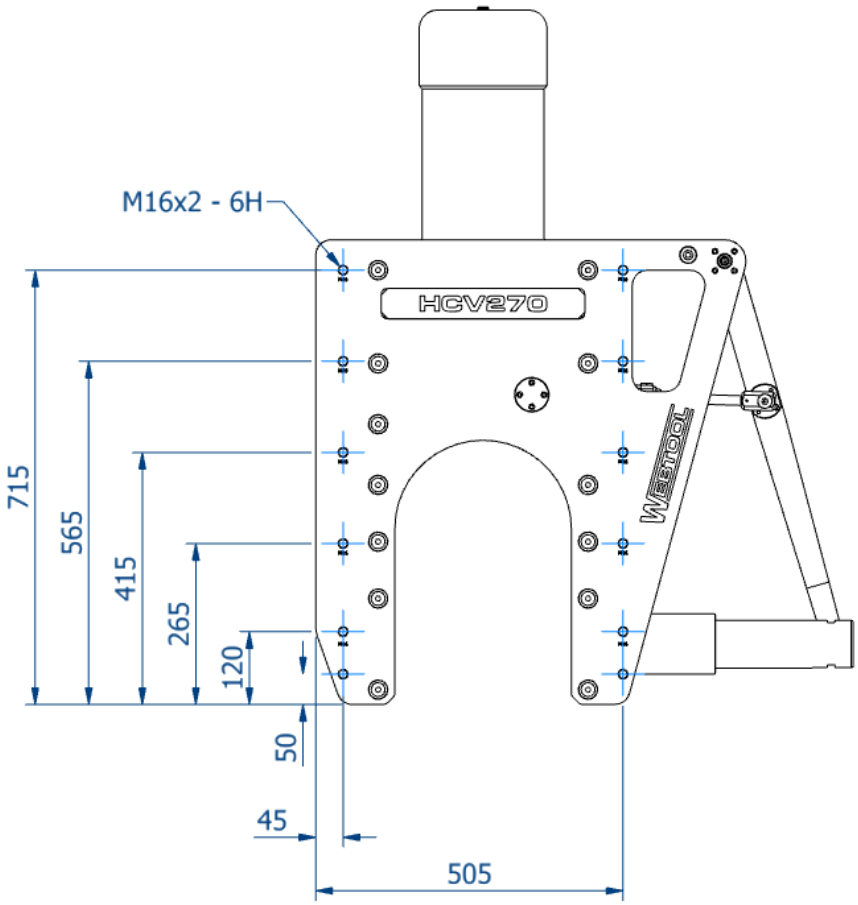

Figure 2 – Mounting holes

Ensure that the tool is securely mounted at multiple points and that mounting method is robust enough to support the tool. Consult tool mass in section 3.1 when considering mounting possibilities.

7 Hydraulic Connections

The HCV270 contains two double acting hydraulic circuits and should be connected to a suitable hydraulic supply (not supplied). Note that return port orientation may not be in line with cutter body as shown. Please allow ±15° when planning hydraulic connections.

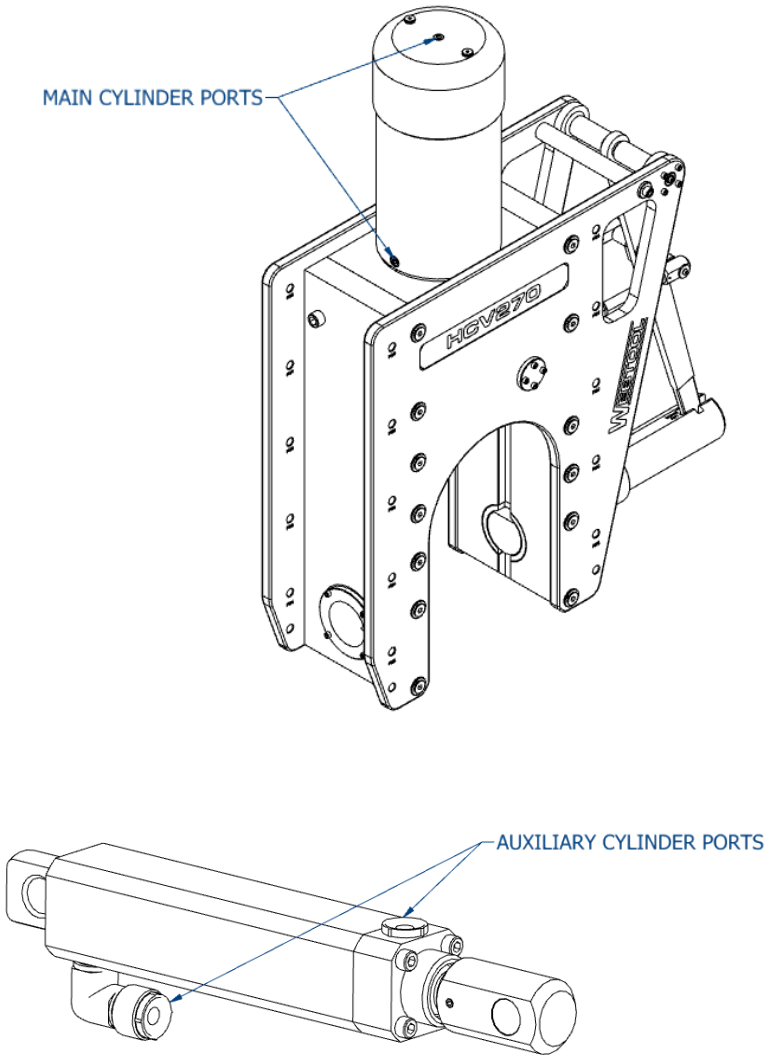

Figure 3 – Hydraulic ports

Main cylinder ports are 3/8” NPT

Auxiliary cylinder ports are 1/4” NPT

It is the responsibility of the end user to ensure that a suitable hydraulic supply is installed. It is recommended that a relief valve should also be incorporated in the return line to prevent excessively high pressures in the annular side of the hydraulic cylinders should the return to tank become blocked for any reason.

8 Operating Instructions

8.1 Before Use

With the hydraulic supply isolated, check the following parts of the cutter:

Item	Procedure
Check the condition of the anvil	As described in section 9.3
Check the condition of the blade	As described in section 9.4

Before use of the tool, ensure that all operators are at a safe distance from the cutter, and that any guarding or safety features are installed and operational.

Check that the hydraulic supply is set to an appropriate level for operation as stated in section 3.2.

8.2 Deploying the Tool

Begin the operation with the anvil fully retracted. To achieve this, pressurise the 'Anvil Out' port on the HCV270 auxiliary cylinder.

Place the cutter over the workpiece. Ensure that the workpiece is fully inserted into the mouth of the tool so that there is no risk of the anvil fouling against it as it is closed.

Close the anvil over the workpiece by pressurising the 'Anvil In' port on the HCV270 auxiliary cylinder. Ensure that the 'Anvil Out' port is open to tank.

Fully inspect the tool to ensure the anvil is fully closed before continuing.

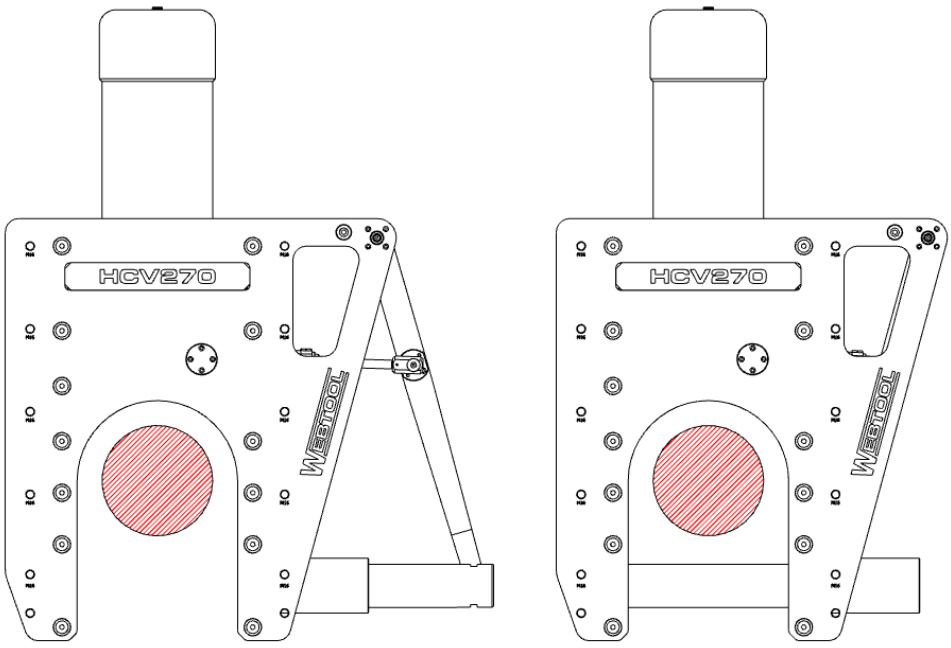

Figure 4 – Rope position

8.3 Pre-Cut Check

It is vital to ensure that the anvil is fully closed before any cut is attempted. Visually inspect the closed tool, ideally from multiple angles to ensure that the anvil Is fully inserted into the opposing anvil bush.

In its fully closed position the anvil lever should be parallel with the cutter body as shown below.

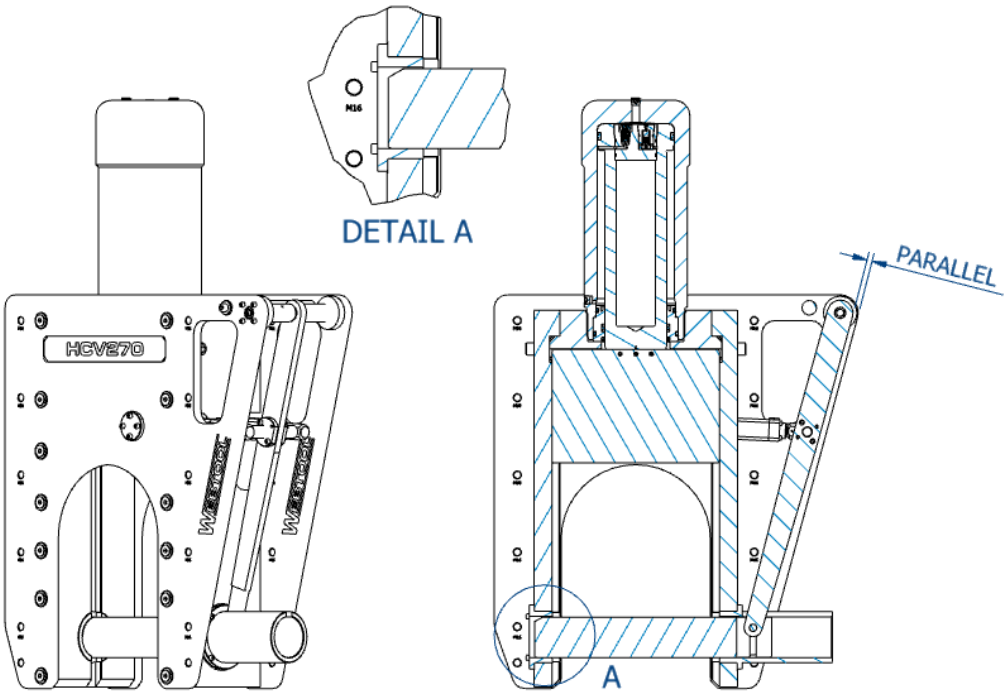

Figure 5 – Anvil check

IMPORTANT - Ensure that the anvil is fully closed before performing a cutting operation.

IMPORTANT - Maintain pressure on the auxiliary anvil instroke to keep the anvil closed throughout the cut cycle.

DO NOT OPERATE THE MAIN RAM IF THE ANVIL IS NOT FULLY CLOSED AND PRESSURISED

8.4 Extend the Blade (Cut Cycle)

To extend the blade, pressurise the 'Blade Down' port on the HCV270 main cylinder whilst ensuring that the 'Blade Up' port is open to tank. Do not exceed the maximum operating pressure. Continue to apply pressure until the cut is complete.

IMPORTANT – Do not attempt to open the anvil without first retracting the main ram.

8.5 Retract the Blade (Return Cycle)

To retract the blade, pressurise the 'Blade Up' port on the HCV270 main cylinder whilst ensuring that the 'Blade Down' port is open to tank. Do not exceed the maximum operating pressure.

9 Maintenance

It is unlikely that service would be required on the hydraulic piston of the tool under normal circumstances, but a seal spares kit is available (995288) and it is recommended to stock this at all times.

The only parts that would need intermittent replacement would be the anvil and blade depending on the frequency of use, materials being cut and the corrosive conditions present during operation.

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

9.1 Maintenance Notes

IMPORTANT – This cutter should only be serviced by qualified personnel. If in any doubt please contact Allspeeds Ltd or a distributor.

Most maintenance task can be carried out with standard tools.

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, including threads and sealing faces, as any damage or abrasive contamination could cause galling or seizing on re-assembly. Please note a suitable anti-galling paste should be used (we recommend Swagelok Silver Goop) on all stainless steel threads.

The main cylinder (728075) 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 a Stilson wrench to remove the cylinder is not recommended as damage will occur.

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

9.2 Maintenance Schedule

This tool requires the following operations or service tasks to be completed as listed:

Task	See section	Frequency
Visual inspection of blade and anvil	9.3, 9.4	14 days or after cut, whichever is soonest.
Function test (extend and retract ram)	8.4, 8.5	14 days if unused
Clean and dewater		7 days
Replace blade	9.4	As required
Replace anvil	9.3	As required
Replace seals	9.5	12 months

Table 1 – Maintenance schedule

9.3 Remove & Replace Anvil

IMPORTANT – The anvil may have sharp edges and imbedded material left behind from cutting operations. Wear suitable gloves when handling the anvil.

IMPORTANT – Ensure that the hydraulic supply is isolated before proceeding.

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

Begin the operation with the anvil fully retracted. To achieve this, pressurise the 'Anvil Out' port on the HCV270 auxiliary cylinder.

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

Loosen the M6 retaining screw (035073).

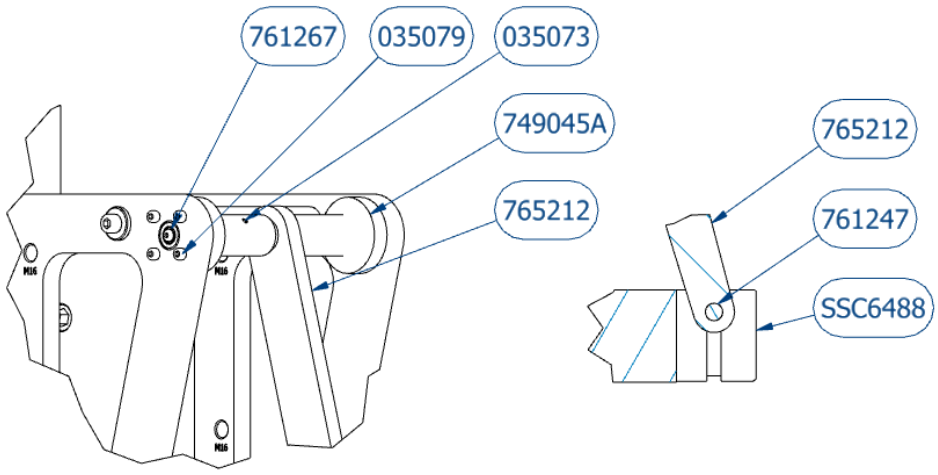

Figure 6 – Anvil Replacement

Withdraw the pivot pin (761267) far enough to release the lever arm. (There is an M6 tapped hole in the end of the pivot pin to assist in withdrawing)

The lever arm can now be moved upwards to separate it from the anvil (SSC6488). The anvil may now be slid out from the guide bush. Re-assembly is the reverse of the above process.

IMPORTANT – Mass of anvil (SSC6488) is 17.7kg. Ensure a safe system of work at all times.

9.4 Remove & Replace Blade

IMPORTANT - The cutting edge may be sharp following tool operation, extreme caution and care should be taken when checking it. Wear suitable gloves when handling the blade.

IMPORTANT - Ensure that the hydraulic supply is isolated before proceeding.

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

The blade edge should be regularly checked to ensure that it is in good condition. This would be a consistent blade edge with no chips or deformations noted along the entire cutting edge.

For safety we recommend that this operation is performed with the tool led down.

Begin with the anvil removed as described in section 9.3. The main cylinder should be in its fully extended position. To extend the blade, pressurise the 'Blade Down' port on the HCV270 main cylinder whilst ensuring that the 'Blade Up' port is open to tank

Remove the 3 off blade retaining pins (030636) using a suitably sized drift. Once blade retaining pins are removed the blade is free to slide in the tool, care must be taken to prevent the blade from falling or causing injury to operator.

IMPORTANT – Mass of blade (705050C) is 13kg. Ensure a safe system of work at all times.

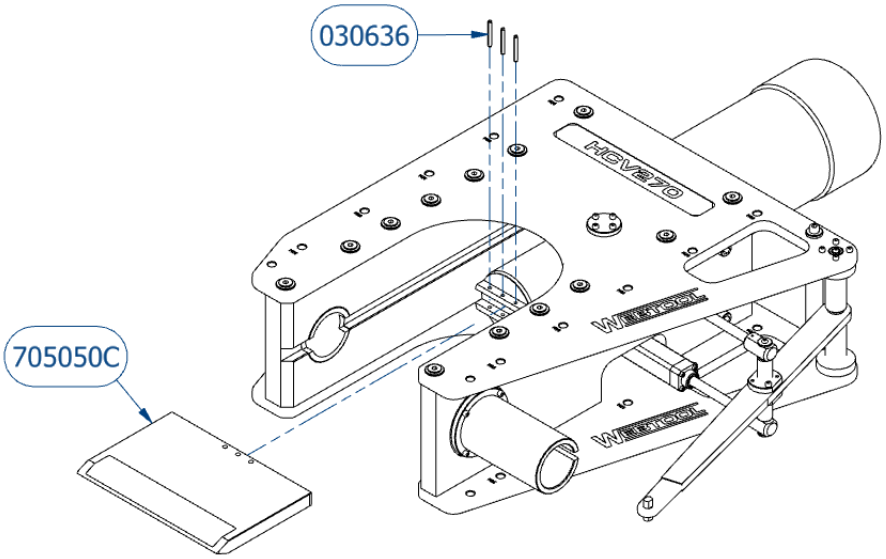

Figure 7 – Blade Removal

Blade replacement is the reverse of the disassembly procedure.

9.5 Seal Detail

IMPORTANT – Ensure that the hydraulic supply is isolated before proceeding.

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

IMPORTANT – Changing the seals will likely result in oil spills. Hydraulic oil spills present slip hazards. Ensure a safe system of work at all times.

If it is necessary to inspect or 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 x 12mm deep on 130mm PCD. Never use Stilsons or pipe clamps on the cylinder as damage may occur. If in doubt contact Allspeeds for advice.

A cylinder assembly tool is available if required from Allspeeds (SK4377A).

Begin operation with the blade removed. See section 9.4 for this procedure.

Firstly, remove the coupling, hose and blanking plugs (035256) from the top of the tool and attach the cylinder assembly tool (SK4377A). This can be used to loosen or re-tighten the cylinder.

IMPORTANT – Mass of Cylinder (728075) is 55.5kg and Ram (764113) is 26.7kg. Ensure a safe system of work at all times.

Unscrew the cylinder and remove from the assembly. Use M10 holes to facilitate safe lifting. Care should be taken as any contained oil within the cylinder will now be free to spill in the work area. The cylinder will come free but seal stiction may mean that the ram comes also. If this happens, carefully lay the cylinder assembly down in a safe location, connect a handpump or other hydraulic supply to the cylinder and pump the ram out of the cylinder. Again, care should be taken as any contained oil within the cylinder will now be free to spill in the work area.

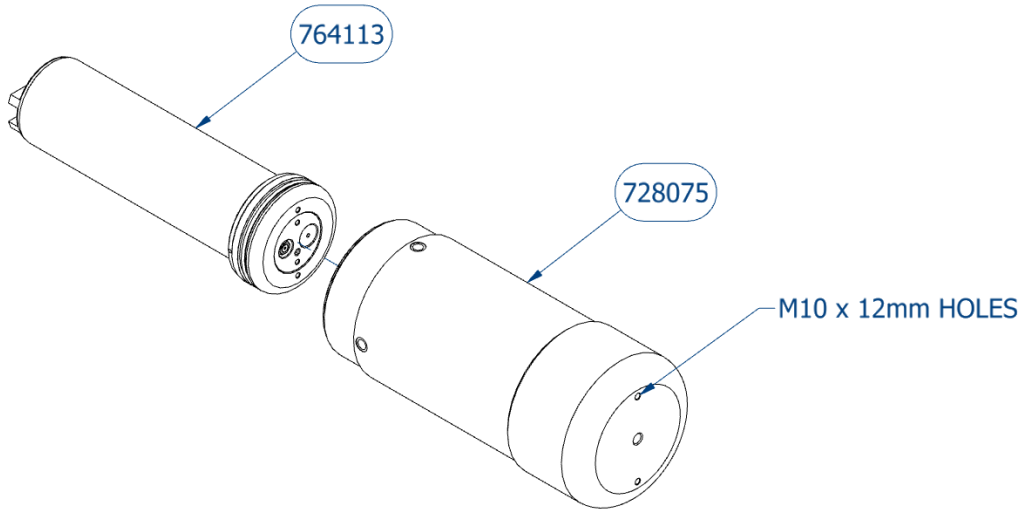

Figure 8 – Cylinder Removal

The ram is fitted with relief valve plug assembly (991015) which also contains seals. To remove this, locate off the two M8 x 12mm deep holes and unscrew the plug. The two relief valves have been carefully set to operate at a set pressure and care should be taken not to disturb the settings during removal. Remove these parts with a 17mm socket and 5mm hex bit.

With these parts now separate and the bearing ring (774032) now accessible, all main seals can be seen and replaced.

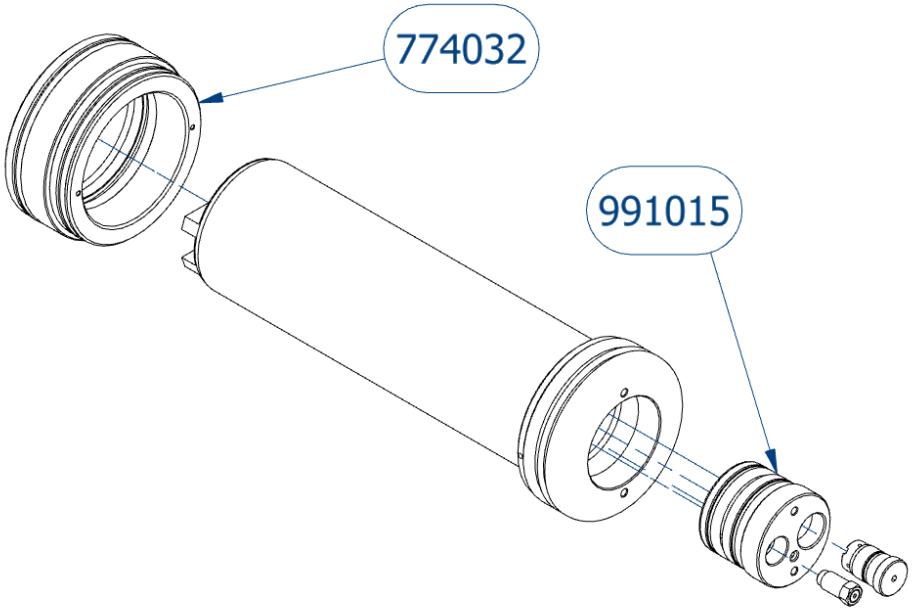

Figure 9 – Seal access

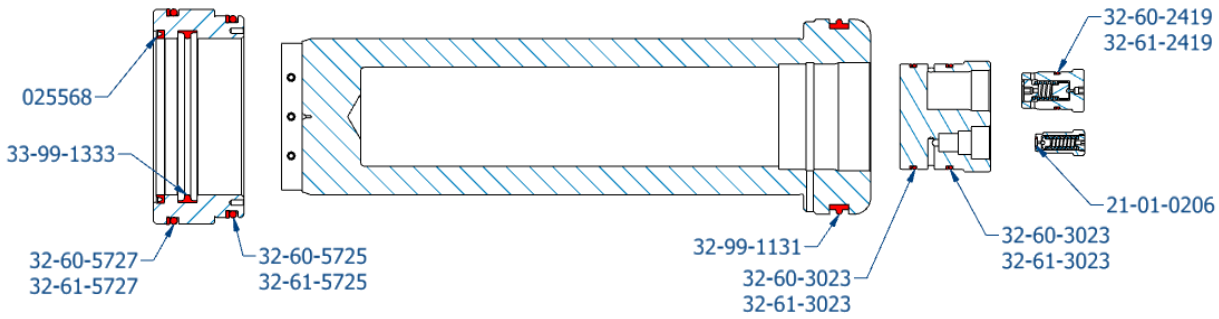

Figure 10 – Main seal assembly

10 Parts List

The cutter comprises the following components:

Part Number	Description	Qty
026701	Pellet	2
030636	Pin spring 1/4" x 2"	3
035066	Socket head cap screw M6 x 20	8
035067	Socket head cap screw M5 x 30	8
035073	Set screw cup point M6 x 10	1
035079	Socket head cap screw M6 x 25	16
035111	Socket head cap screw M6 x 35	4
035113	Socket button head screw M6 x 16	5
035256	M10 x thread plug	2
043206	Skt set screw - cup point - M4 x 6	2
079043	Auxiliary cylinder mounting stud	2
080971	Washer M6	4
082223	M12 bonded seal	2
31-99-2834	Eyebolt din 580 - M16	4
701195	90 degree elbow	2
705050c	Blade	1
709062	Auxiliary cylinder ram head	2
715345	Pivot pin lever bush	2
715348	Anvil guide bush	1
715350	Anvil bush	1
728075	Cylinder	1
728077	Auxiliary cylinder body	2
749045A	Pivot pin housing	1
749045B	Pivot pin housing	1
761247	Anvil pin	1
761249	Auxiliary cylinder rod pin	2
761267	Lever pivot pin	1
764113	Ram	1
764115	Auxiliary piston	2
765212	Lever	1
766047	Plastic plug for hydraulic anvil	4
774032	Bearing ring	1
982167	Body assembly	1
991015	Relief valve kit	1
SSC6476	Auxiliary cylinder end cap	2
SSC6488	Anvil	1

Table 2 – Parts list

11 Decommissioning

Major components are made from the following recyclable materials:

Description	Material
Body	Alloy steel
Cylinder	Alloy Steel
Ram	Alloy steel
Anvil	Stainless bronze
Blade	Tool steel
Guide Bush	Aluminium bronze

Table 3 – Materials of Construction

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.

Also available from Allspeeds

HTP - Hydrostatic Test Pump

- Hydrostatic test pump, complete with tank, skid, handle & gauge
- Available in a range of pressures up to 1000 bar (14,500 psi)
- Relief valve fitted as standard
- Compatible with a range of fluid media
- High and low pressure stages with manual change
- Ideal for testing Webtool™ and other hydraulic products

HP690A – Hydraulic Intensifier

- Features a unique safety circuit that automatically bleeds excess pressure back to tank
- Compatible with 2 port hotstabs
- Fitted with industry standard MiniBOOSTER™ intensifier
- Available in a range of intensification ratios boosting to a maximum 690 bar
- Factory set relief valve on output stage for additional safety

Hydraulic Interlock and Completion Kit

- Hydraulic interlock prevents damage to the tool due to improper hydraulic sequencing
- Supplied with hose complete routing for immediate deployment
- Tools can be supplied with onboard intensification circuits to customer specification
- Supplied with connection manifolds for ease of use.

CUTTING EDGE TECHNOLOGY

Webtool specialises in engineering powerful hydraulic tools for demanding environments and applications.

Our standard range of cutting, gripping and lifting tools for rope, cable and umbilical includes:

- Steel wire rope cutters up to 190mm diameter
- Cable, umbilical and flexible riser cutters up to 330mm diameter
- Softline cutters up to 165mm diameter
- Cable grippers up to 200mm diameter with 20 tonne lift capacity
- Emergency disconnection systems for both topside and subsea applications
- Long term subsea tools for deployment by R-ROV systems

APPLICATION SPECIFIC SOLUTIONS

Our experienced, in-house design and manufacturing team can quickly and efficiently develop a solution to suit your particular application. Contact us to discuss how we can help.

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