CHRISTIE
TOTAL TORQUE SOLUTIONS

WCLW18TE
HYDRAULIC VERTICAL LIFTING WEDGE

OPERATOR INSTRUCTION MANUAL

Ref: WCOI.063 Date: June 2015 Issue: 2

CONTENTS

1 – INTRODUCTION

The Christie WCLW18TE Hydraulic Vertical Lifting Wedge is an aid for assisting with the lifting and installation of plant and heavy equipment.

- **Access gap required:** 9.5 mm (0.37”)
- **Lifting force:** 10,000 psi (700 bar) = 18 T (180 kN)

2 – SAFETY INFORMATION

The operator MUST read this manual prior to using the tools.

Failure to comply with the following cautions and warnings could cause equipment damage and personal injury; read the manual fully!

Read all the following instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation.

W. Christie (Industrial) Limited cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact W. Christie (Industrial) Limited when in doubt as to the safety precautions and applications. To protect your warranty, use only good quality hydraulic oil of the grade 32cSt.

Only people competent in the use of hydraulic equipment should use these tools.

In all installations the site safety requirements must be adhered to. ALSO the safety of the operator, and when present, any assisting personnel, is of paramount importance along with the safety of others including, when present, the general public.

These instructions are only to cover the safe operation of THE CHRISTIE WCLW18TE HYDRAULIC VERTICAL LIFTING WEDGE during normal maintenance/installation operations. All other safety aspects must be controlled by the operation supervisor.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.

IMPORTANT: Operator must be competent in the use of hydraulic equipment. The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the Christie equipment.

WARNING: To avoid personal injury and possible equipment damage, make sure all hydraulic components are rated to a safe working pressure of 700 bar (10,000 psi)

WARNING: Do not overload equipment. Overloading causes equipment failure and possible personal injury. The risk of overloading can be avoided by using the Christie Hand Pump, which has its safety valve set to 700 bar by the factory. If alternative pumps are used, ensure they are rated at a safe working pressure of 700 bar (10,000 psi).

CAUTION: Make sure that all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges and corrosive chemicals.

CAUTION: Avoid sharp bends and kinks that will cause severe back-up pressure in hoses. Bends and kinks lead to premature hose failure. Do not drop heavy objects onto hoses. A sharp impact may cause internal damage to hose wire strands; applying pressure to a damaged hose may cause it to rupture. Do not place heavy weights on the hoses, or allow vehicles to roll over the hoses; crush damage will lead to premature hose failure.

WARNING: Immediately replace worn or damaged parts with genuine Christie parts. Christie parts are designed to fit properly and withstand rated loads. For repair or maintenance service contact W. Christie (Industrial) Limited

DANGER: To avoid personal injury keep hands and feet way from the tool and workpiece during operation.

WARNING: Always wear suitable clothing and Personal Protective Equipment (PPE).

DANGER: Do not handle pressurised hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, seek medical attention immediately.

WARNING: Never pressurize unconnected couplers. Only use hydraulic equipment in a connected system.

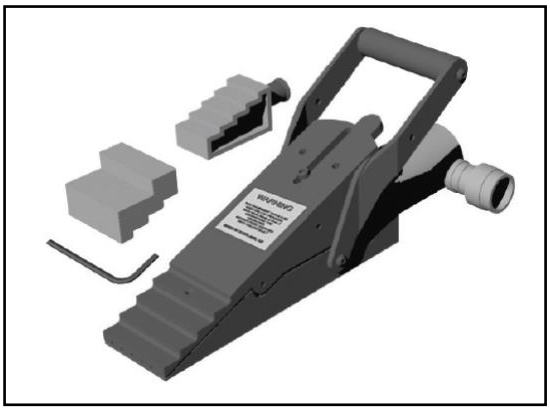
IMPORTANT: Do not lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport.

CAUTION: Do not operate the equipment without lubricating all moving parts as in section 7. Use only high pressure molybdenum disulphide grease.

3 – KIT COMPONENTS / KIT OPTIONS

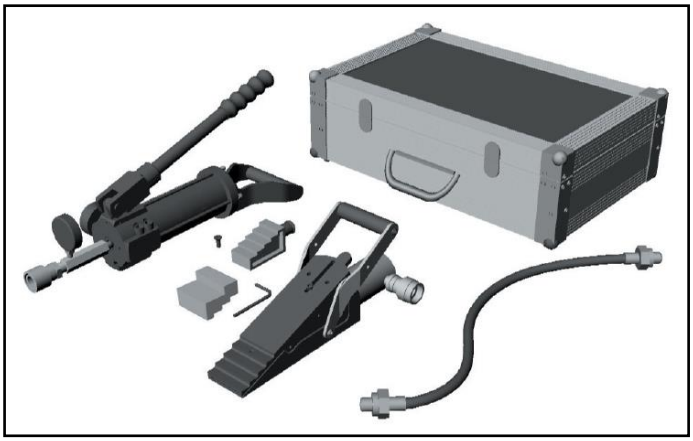
MINI KIT COMPONENTS

1 x WCLW18TE Wedgehead
1 x 10,000 psi (700 bar) Hydraulic Cylinder
1 x Safety Block
1 x Stepped Block
1 x Instruction Manual
1 x Hex Key
1 x Countersunk Screw
1 x Cardboard Packaging



STANDARD KIT COMPONENTS

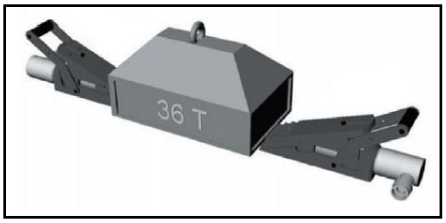
1 x WCLW18TE Wedgehead
1 x 10,000 psi (700 bar)
Hydraulic Hose, 2 m (78.75”)
1 x 10,000 psi (700 bar) Hydraulic Cylinder
1 x 10,000 psi (700 bar)
HP350S Sealed Hand Pump with Gauge
1 x Safety Block
1 x Stepped Block
1 X Hex Key
1 x Countersunk Screw
1 x Instruction Manual
1 x Carry-Case with Protective Foam Inserts



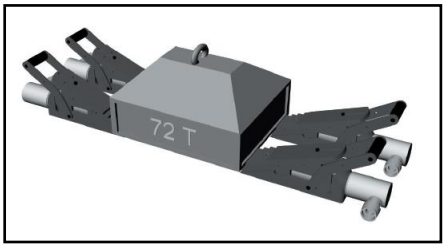
4 – TECHNICAL DATA

The CHRISTIE WCLW18TE Hydraulic Vertical Lifting Wedge will generate 18 Tons (180 kN) lifting force from 10,000 psi (700 bar) of hydraulic pressure. The tool requires a minimum access gap of 9.5 mm (0.37”) on the first step and will lift vertically.

Using two WCLW18TE wedges will allow a lift of 36 Tons

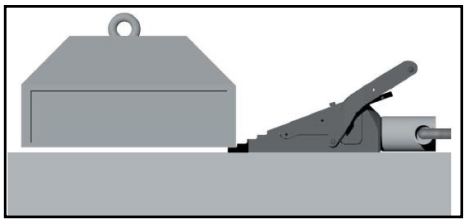


Using four WCLW18TE wedges will allow a lift of 72 Tons

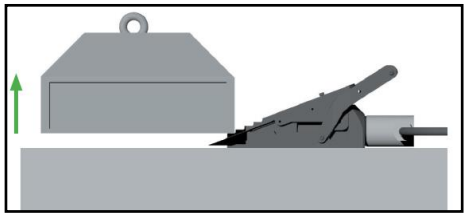


5 – HOW THE TOOL WORKS

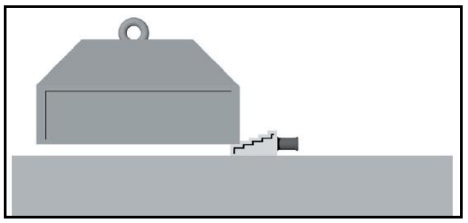
1) The hydraulic hose and hand pump are attached to the tool and the tool is inserted into the access gap



2) The hand pump is primed which powers the hydraulics that lift the load



3) The load is secured using the safety block

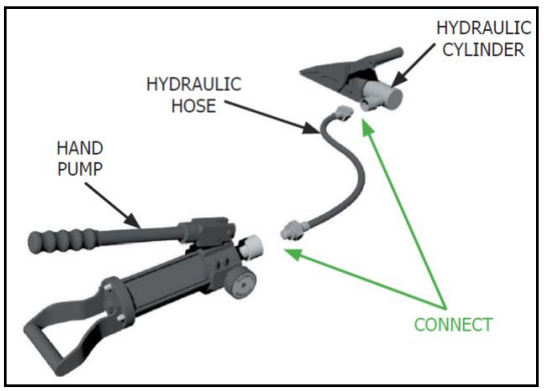


6 – INSTALLATION AND OPERATION

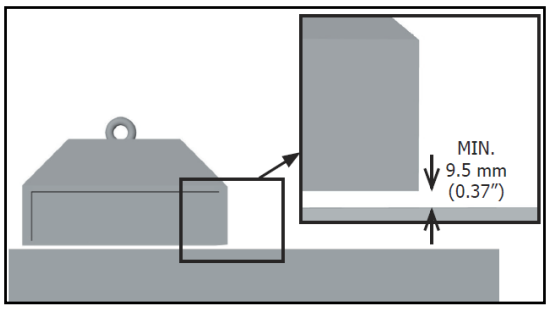
6.1 STANDARD INSTALLATION AND OPERATION

The operation procedure is exactly the same for both the WCLW18TE Mini and Standard Kits. The WCLW18TE Mini Kit does not contain either a 10,000 psi (700 bar) hydraulic hand pump or a 10,000 psi (700 bar) hydraulic hose. These items will come from the user's inventory.

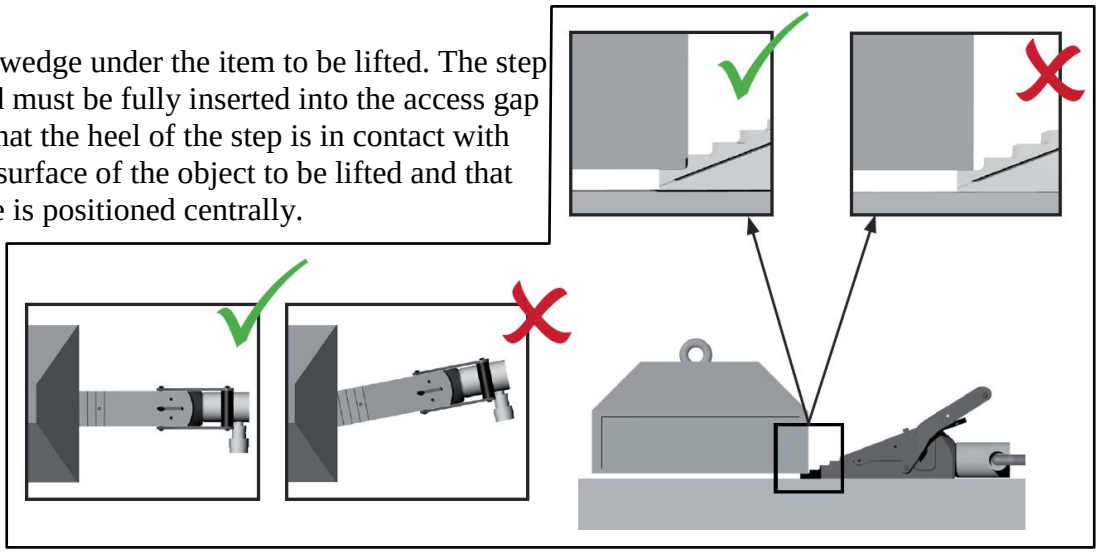
1) Assemble the kit by connecting one end of the hydraulic hose to the hand pump, and the other end to the hydraulic cylinder.



2) Ensure the access gap under the item to be lifted measures 9.5 mm (0.37") or greater.

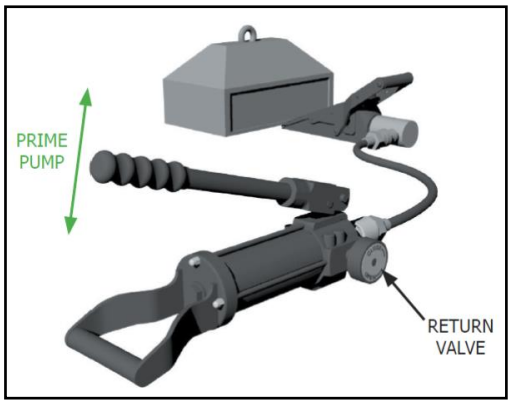


3) Place the wedge under the item to be lifted. The step to be used must be fully inserted into the access gap - ensure that the heel of the step is in contact with the outer surface of the object to be lifted and that the wedge is positioned centrally.

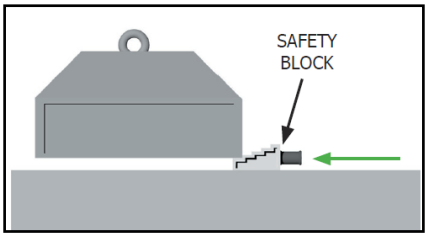


4) Close the return valve on the hand pump (by turning clockwise) and advance the wedge by priming the pump.

N.B. The HP350S Hand Pump has a self contained non-vented oil system. This means that the pump will function without the need for an air vent to be opened. This allows the pump to be used vertically, horizontally or upsides down should the situation require. Having no open vent eliminates the risk of hydraulic oil spillage during use.



5) Once the item has been lifted to the desired height, or to the maximum height on the step used, the safety block should be inserted into the gap. Secure the load by releasing the pressure onto the block.



6) If required, the wedge should then be re-inserted on the next step and steps 3 - 5 repeated to lift the item further.

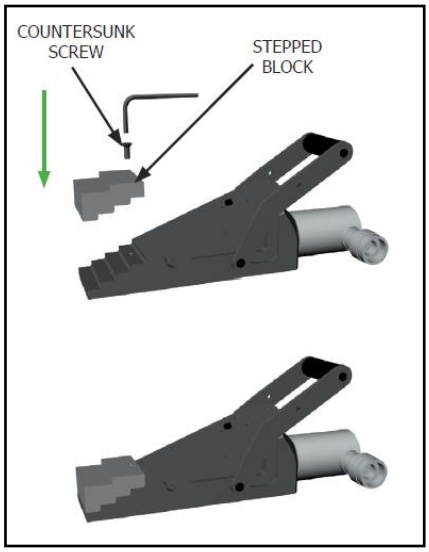
Never place fingers under an item being lifted. Always ensure that both the wedge and the safety block are inserted under the item until the heel of the step is in contact with the side of the item to be lifted and the step is positioned centrally (see Installation and Operation step 3)

Care should be taken not to drop any of the component parts when removing them from the lifted load. This action will prevent injuries to either the operator's lower limbs, or to passers by.

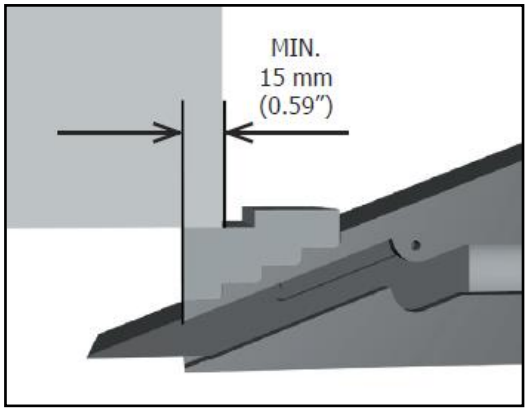
6.2 – USING THE STEPPED BLOCK ASSEMBLY

The Christie Stepped Block enables the WCLW18TE Hydraulic Vertical Lifting Wedge to be used to lift an item with a larger gap, and will lift the item further with less penetration

1) Attach the stepped block to the tool using the M6 countersunk screw.



2) Insert the tool under the item to be lifted. Ensure there is a minimum hold of 15 mm (0.59”) and that the full width of the block is used.



7 – EXAMINATION, MAINTENANCE AND STORAGE

- On return from each job and before allocation against subsequent work the completeness of the Christie WCLW18TE kit must be established and items examined to ensure that they are serviceable.

- Any missing or damaged items are to be replaced as soon as possible and prior to the tool being used again.

- Store the tool in a cool dry place and ensure all machined surfaces are greased

- Grease all moving parts each and every time the tool is used:

Greasing the wedge:

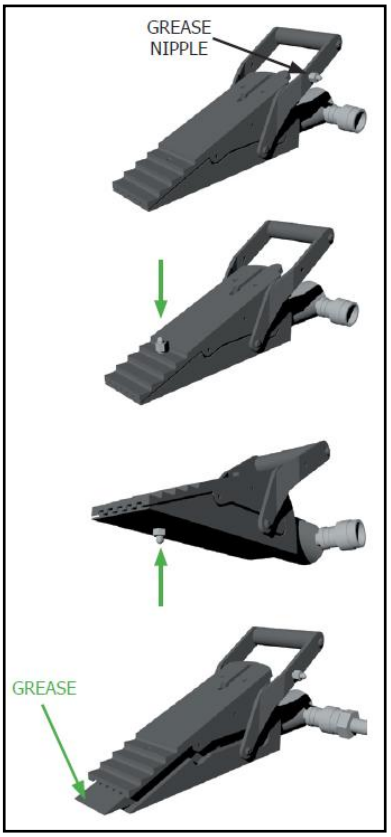
- Remove the grease nipple from the handle of the tool

- Screw the grease nipple into the jaw, attach the grease gun and squeeze grease into the wedge

- Screw the grease nipple into the base of the tool, attach the grease gun and squeeze grease into the wedge

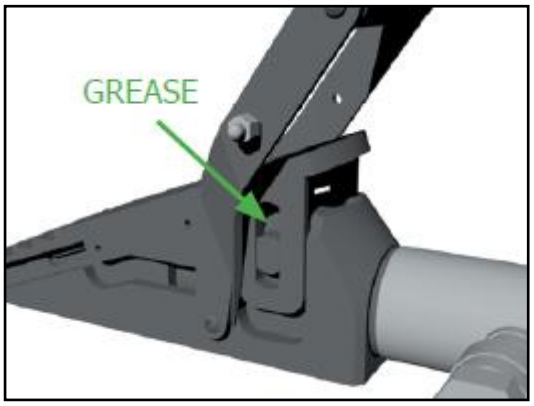
OR

- Connect the hose to the wedge and advance the wedge forward, smear grease onto the surfaces of the wedge



Greasing the slide pins:

- Simply smear some grease into the slots. Also ensure the slide pins are free from grit.

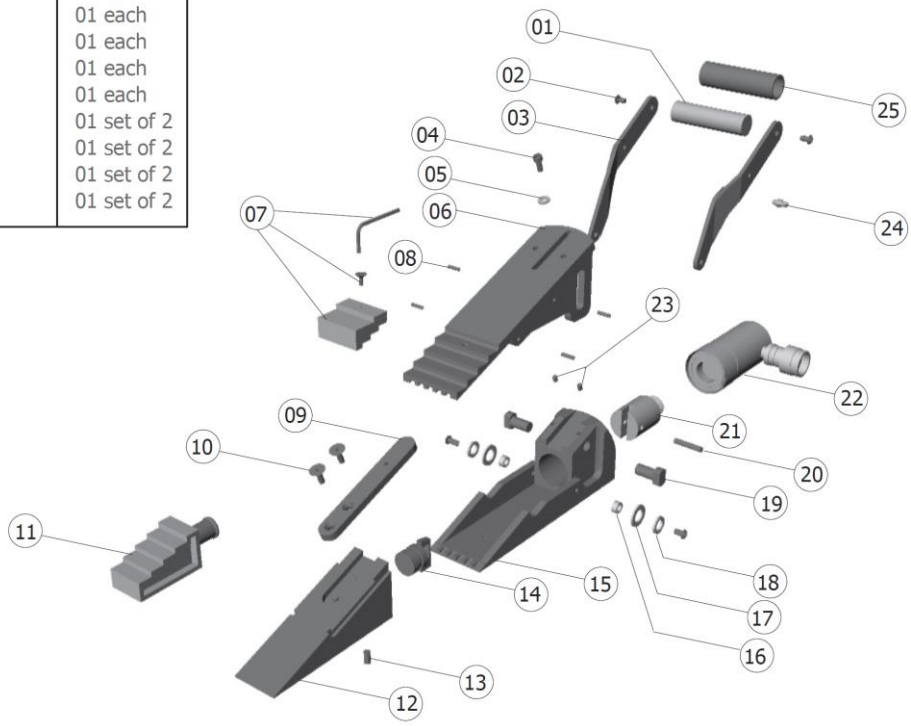


8 – PARTS LIST

WCLW18TE TOOL

ITEM	PART No.	DESCRIPTION	QUANTITY
01	501301-01	HANDLE BAR	01 each
02	402902-04	SCREW FOR HANDLE	01 set of 4
03	501001-02	SIDE PLATES FOR HANDLE	01 set of 2
04	402701-01	SCREW FOR TAIL	01 each
05	501601-01	WASHER FOR TAIL	01 each
06	500201-01	TOP PLATE	01 each
07	501901-01	STEPPED BLOCK (KIT)	01 kit
08	301201-04	ROLL PINS	01 set of 4
09	502001-01	TAIL	01 each
10	501501-02	SCREWS FOR TAIL	01 set of 2
11	501401-01	SAFETY BLOCK	01 each
12	500302-01	WEDGE	01 each
13	301301-01	GRUB SCREW	01 each
14	503201-01	SLOT PLUG	01 each
15	500102.01	MAIN BODY	01 each
16	503501-02	SPACER	01 set of 2
17	503301-02	WASHER 10 mm ID	01 set of 2
18	503401-02	WASHER 6 mm ID	01 set of 2
19	500401-02	SLIDE PINS	01 set of 2

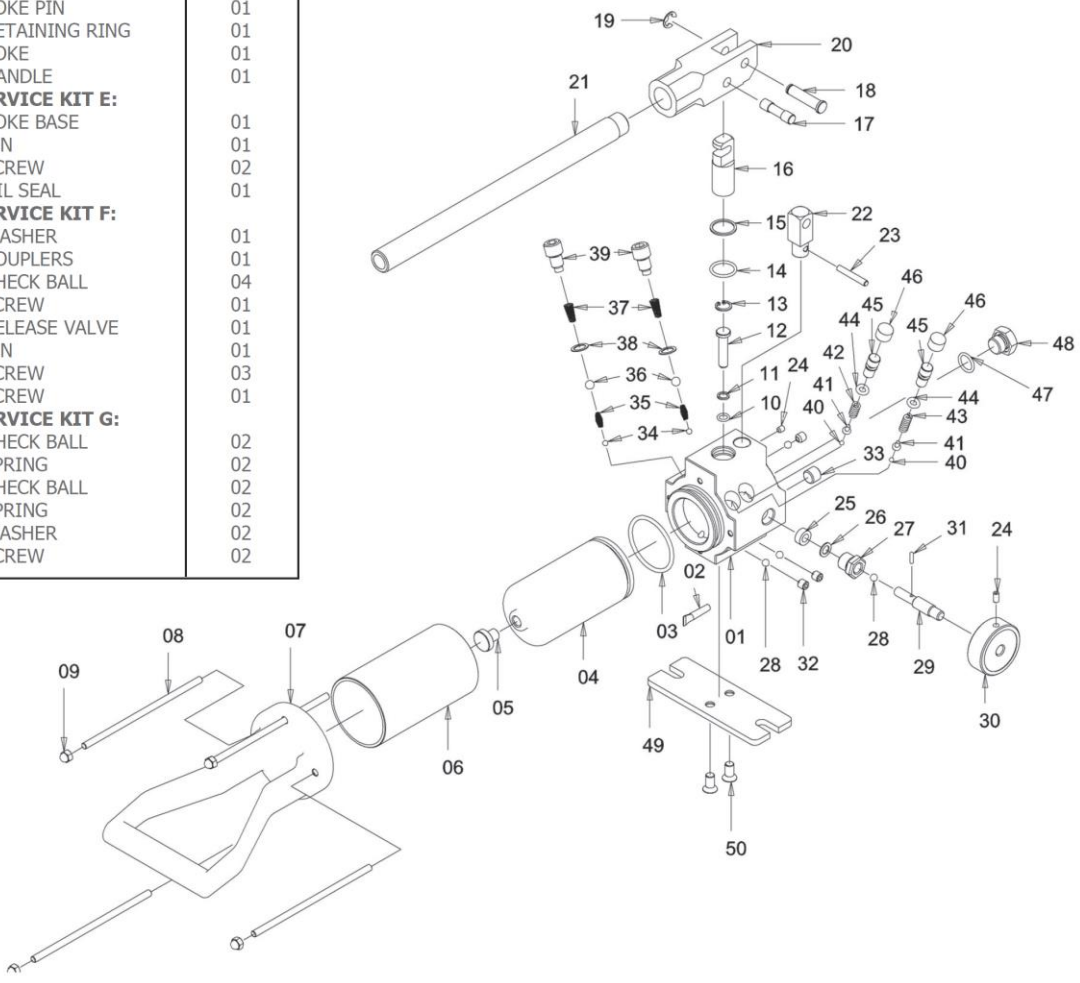
ITEM	PART No.	DESCRIPTION	QUANTITY
20	502301-01	M6 x 35mm GRUB SCREW	01 each
21	500503-01	PUSH PIN MK III	01 each
22	301002-01	HYDRAULIC CYLINDER	01 each
23	300401-02	GRUB SCREW FOR SLIDE PINS	01 set of 2
24	310601-01	GREASE NIPPLE	01 each
25	201201-01	RUBBER SLEEVE	01 each
26	301403-01	CYLINDER REPAIR KIT (Not Illustrated)	01 kit



HP350S HAND PUMP

ITEM	PART No.	DESCRIPTION	QUANTITY
01	710101-01	**PUMP HOUSING**	01
	715100-01	**SERVICE KIT A:**	
02		- OIL FILTER	01
03		- O-RING	01
04		- RESERVOIR BLADDER	01
05		- REFILLING PLUG	01
06	710601-01	**RESERVOIR**	01
	715200-01	**SERVICE KIT B:**	
07		- TAIL BASE	01
08		- SCREW	04
09		- NUT	04
	715300-01	**SERVICE KIT C:**	
10		- O-RING	01
11		- BACK-UP RING	01
12		- PUMP PISTON	01
13		- SNAP RING	01
14		- O-RING	01
15		- BACK-UP RING	01
16		- PUMP PISTON	01
	715400-01	**SERVICE KIT D:**	
17		- PISTON PIN	01
18		- YOKE PIN	01
19		- RETAINING RING	01
20		- YOKE	01
21		- HANDLE	01
	715500-01	**SERVICE KIT E:**	
22		- YOKE BASE	01
23		- PIN	01
24		- SCREW	02
25		- OIL SEAL	01
	715600-01	**SERVICE KIT F:**	
26		- WASHER	01
27		- COUPLERS	01
28		- CHECK BALL	04
29		- SCREW	01
30		- RELEASE VALVE	01
31		- PIN	01
32		- SCREW	03
33		- SCREW	01
	715700-01	**SERVICE KIT G:**	
34		- CHECK BALL	02
35		- SPRING	02
36		- CHECK BALL	02
37		- SPRING	02
38		- WASHER	02
39		- SCREW	02

ITEM	PART No.	DESCRIPTION	QUANTITY
	715800-01	**SERVICE KIT H:**	
40		- CHECK BALL	02
41		- SPRING END CAP	02
42		- SPRING	01
43		- SPRING	01
44		- O-RING	02
45		- SCREW	02
46		- CAP	02
47	714701-01	**O-RING**	01
48	714802-01	**SCREW**	01
	715900-01	**SERVICE KIT I:**	
49		- BASE PLATE	01
50		- SCREW	02



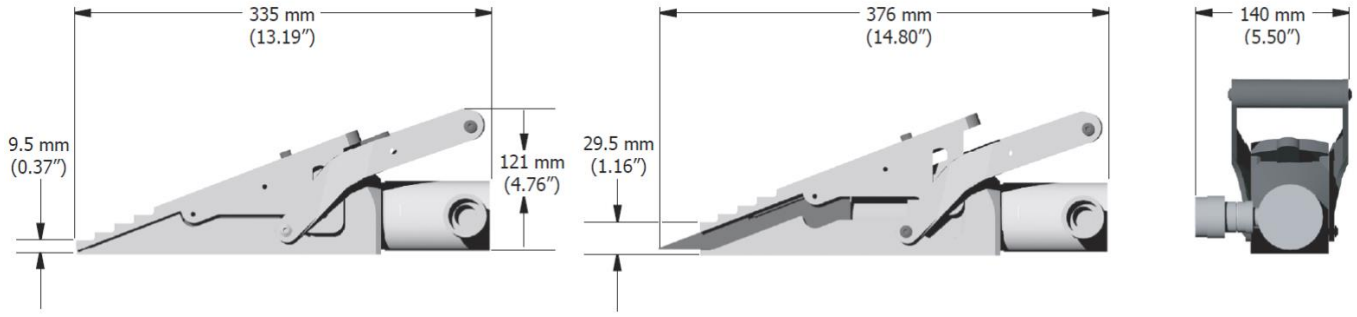
9 – WEIGHTS AND DIMENSIONS

WEIGHTS

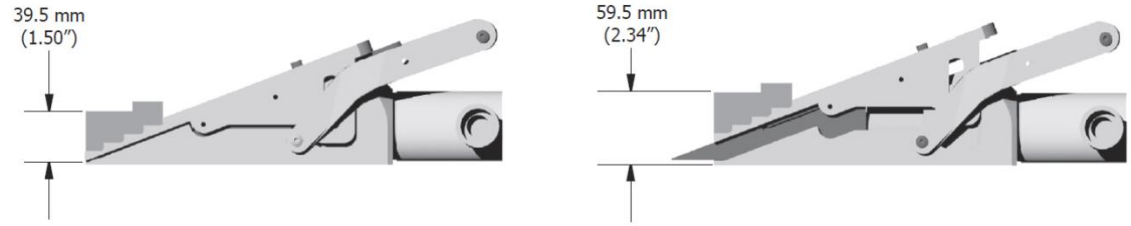
WCLW18TE Wedge with Hydraulic Cylinder = 8.5 kg (18.7 lbs)
Carry-Case with Protective Foam Inserts = 7.5 kg (16.5 lbs)

Gross Mini Kit Weight = 9.8 kg (21.5 lbs)
Gross Standard Kit Weight = 22.5 kg (49.6 lbs)

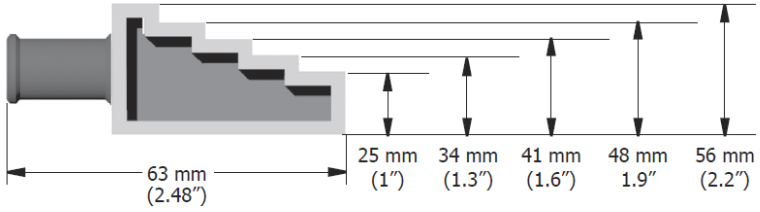
MINIMUM EXTENSION



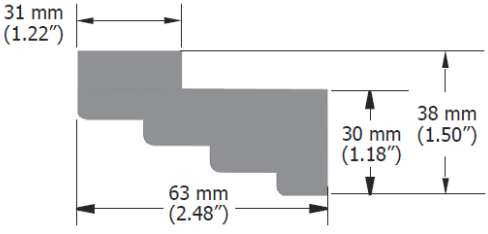
MAXIMUM EXTENSION (USING STEPPED BLOCK)



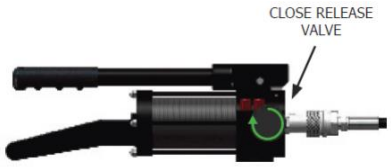
SAFETY BLOCK DIMENSIONS



STEPPED BLOCK DIMENSIONS

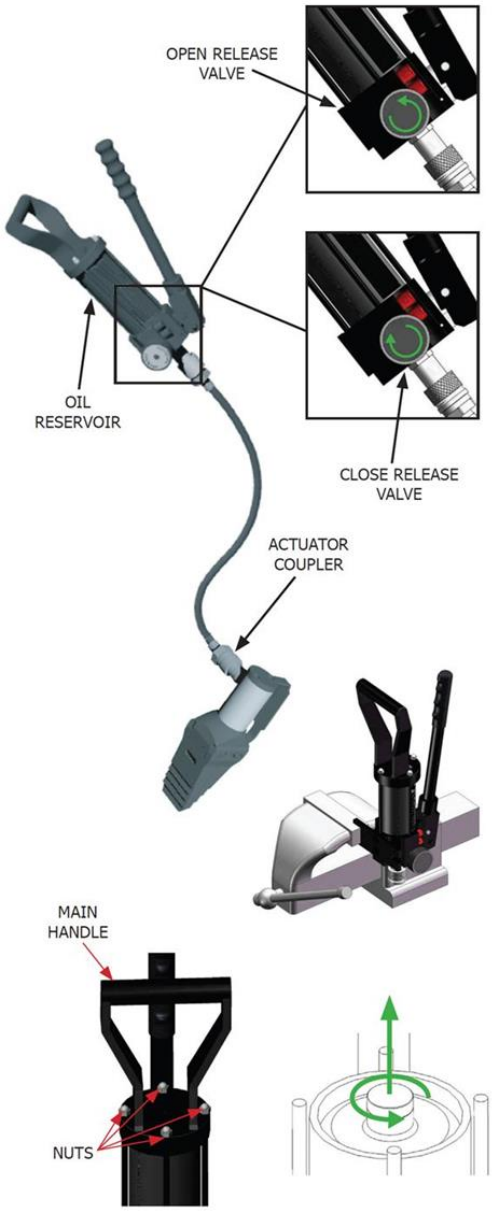


10 – TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Hoses are connected but the tool does not advance. The pressure on the pump handle is minimal.	The release valve is in the retract (open position).	Close the release valve. 
Hoses are connected and the pump quickly reaches maximum pressure but the tool has not advanced.	One or more of the connectors are not fully tightened and the hydraulic oil cannot pass through from the pump to the cylinder.	Check all connectors are fully tightened and the release valve is in the fully closed position.
Hoses are connected and the tool advances with maximum pressure on the pump handle but the load will not lift.	The pressure required to lift the load is greater than that of the tools you are using.	Add another tool and try again.
Hoses are connected and the tool advances but there is minimal pressure on the pump handle and the handle is rising back of its own accord.	There is dirt or a damaged valve seat within the pump unit.	The pump should be sent to W. Christie (Industrial) Limited for repair.

PROBLEM: The wedge is advancing but does not reach full pressure

• Air could be present in the hydraulic system	Use the airlock removal procedure as follows:- 1. Connect the hand pump to the tool with the hydraulic hose 2. Close the release valve on the pump, and prime the pump until the hydraulic cylinder is fully extended and a small pressure is achieved 3. With the hand pump held above the tool and the tool in an upright position, open the release valve causing any air that is within the system to be forced up through the pump and vented into the oil reservoir 4. Repeat steps 1 - 3 three or four times to ensure that all air is removed from the system and the tool will reach full working pressure 5. Disconnect the hand pump from the hydraulic hose, grip the base plate of the hand pump body in a vice with the pump body vertical and the main handle at the top 6. Remove the four nuts holding the main handle and lift off 7. Grip the refilling plug with pliers and extract it by pulling and twisting simultaneously. Ensure the reservoir body is held down when removing the refilling plug as pulling up on the reservoir body will release the bladder within, and oil will spill out. 8. Fill the reservoir to the top with a good quality hydraulic oil of the grade 32 cSt 9. Reinsert the refilling plug, wipe away any oil, and reassemble by reversing the disassembly process



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CE

E.C. DECLARATION OF CONFORMITY

MODELS COVERED: WCLW18TE

DESCRIPTION: Hydraulic Vertical Lifting Wedge

We hereby declare that the following machinery complies with the essential health and safety requirements of the European Machinery Directive 2006/42/EC published on the 9th June 2006

W Christie (Industrial) Ltd, Meadowbank Road, Rotherham S61 2NF, United Kingdom.

This machinery has been designed and manufactured in accordance with the following transposed harmonised European Standard:-

BS EN ISO 12100-1:2003 Safety of Machinery – Basic Terminology, Methodology

BS EN ISO 12100-2:2003 Safety of Machinery – Technical Principles

SIGNED: _____

NAME: R. G. Askham **POSITION:** Senior Applications Engineer

On behalf of W Christie (Industrial) Ltd

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