

VLW18TE

VLW18TI

HYDRAULIC
VERTICAL
LIFTING WEDGES



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03/11/2017

1.

INTRODUCTION

The Equalizer VLW18TE/TI 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)

It is essential that the user familiarises themselves with the contents of this manual prior to using the tool.

This manual contains information for the following tools:

- VLW18TE Hydraulic Vertical Lifting Wedge
- VLW18TI Integral Hydraulic Vertical Lifting Wedge

2.

SAFETY INFORMATION

2.1

GENERAL SAFETY

These instructions cover the safe operation and maintenance of THE EQUALIZER VLW18TE and VLW18TI HYDRAULIC VERTICAL LIFTING WEDGES. The use of these tools should be as part of a broader task-based risk assessment, which should be carried out by the operation supervisor or other competent person.

Failure to comply with the safety information contained within this manual could result in personal injury or equipment damage. Read all instructions, warnings and cautions carefully, and follow all safety precautions.

The safety of the operator, any assisting personnel and the general public is of paramount importance. Always work in accordance with applicable national, local, site & company-wide safety procedures.

2.2

PERSONNEL COMPETENCY

Only personnel deemed competent in the use of mechanical and hydraulic equipment should use these tools.

2.3

DISCLAIMER

Equalizer cannot be held responsible for injury or damage resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. If in doubt as to the safety precautions and applications, contact Equalizer using the contact details at the back of this manual.

2.4

DEFINITION OF TERMS

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.



DO: an illustration showing how the tool should be used.



DON'T: an illustration showing an incorrect way to use a tool.

2.5

HAZARDS



WARNING: ensure all hydraulic components are rated to a safe working pressure of 700 bar (10 000 psi).



WARNING: Do not overload equipment. The risk of hydraulic overloading can be minimised by using the Equalizer Hand Pump, which has a factory-set safety valve preventing the safe working pressure being exceeded.

If alternative hydraulic pumps are used, ensure that there are adequate systems to limit the working pressure to 700 bar (10 000 psi).



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



CAUTION: Take care to avoid sharp bends and kinks in hydraulic hoses. Bends and kinks can cause severe back-up pressure and cause hose failure. Protect hoses from dropped objects; a sharp impact may cause internal damage to hose wire strands. Protect hoses from crush risks, such as heavy objects or vehicles; crush damage can cause hose failure.



WARNING: Applying pressure to a damaged hose may cause it to rupture.



WARNING: Immediately replace worn or damaged parts. Use only genuine Equalizer parts from approved distributors or service centres. Equalizer parts have been engineered and manufactured to be fit-for-purpose.



DANGER: To minimise risk of personal injury keep hands and feet away from the tool and workpiece during operation.



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



WARNING: Do not handle pressurised hoses; escaping oil under pressure can penetrate the skin, causing serious injury. Seek medical attention immediately if oil penetration is suspected.



WARNING: Only pressurize complete and fully connected hydraulic systems. Do not pressurize systems that contain unconnected couplers.



CAUTION: Do not lift hydraulic equipment by the hoses or couplers. Use only the designated carrying handles.



CAUTION: Lubricate tools as directed in this manual prior to operation. Use only approved lubricants of high quality, following the lubricant manufacturers instructions.

3.

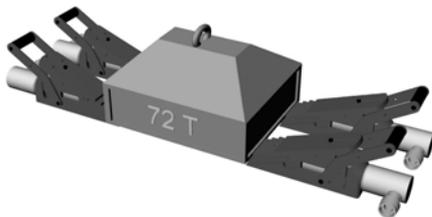
TOOL CAPABILITIES

The EQUALIZER VLW18TE and VLW18TI hydraulic vertical lifting wedges will generate 18 Tons (180 kN) lifting force from 10,000 psi (700 bar) of hydraulic pressure. The tools require a minimum access gap of 9.5 mm (0.37") on the first step and will lift vertically.

Using two VLW18TE/TI wedges will allow a lift of 36 Tons



Using four VLW18TE/TI wedges will allow a lift of 72 Tons



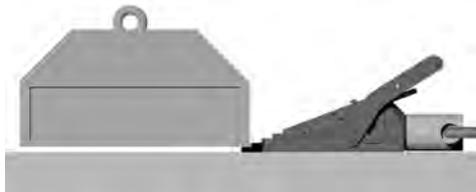
4.

VLW18TE

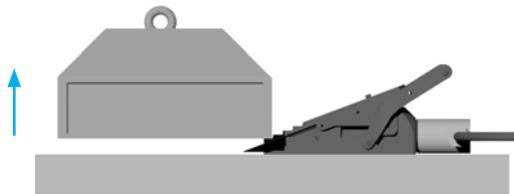
HYDRAULIC VERTICAL LIFTING WEDGE

4.1 HOW THE VLW18TE WORKS

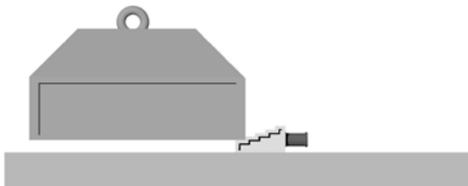
The hydraulic hose and hand pump are attached to the tool and the tool is inserted into the access gap



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



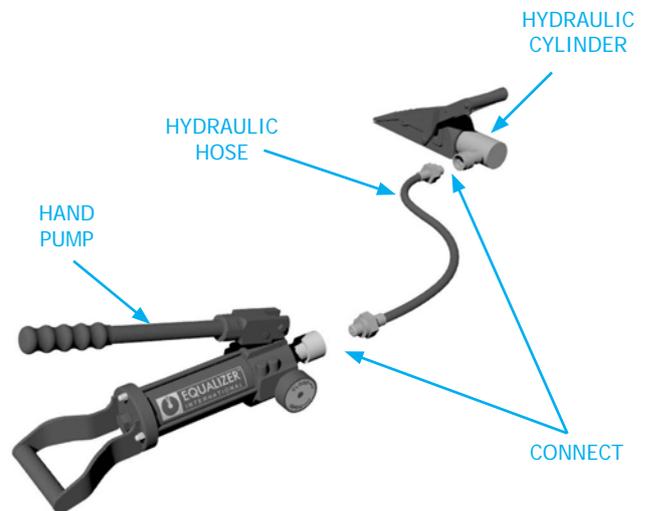
The load is secured using the safety block



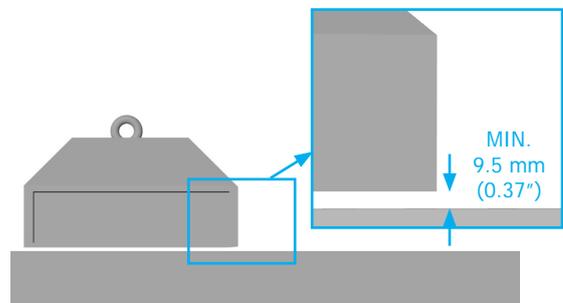
4.2 VLW18TE TOOL FUNCTION

The operation procedure is exactly the same for both the VLW18TE Mini and Standard Kits. The VLW18TE 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.

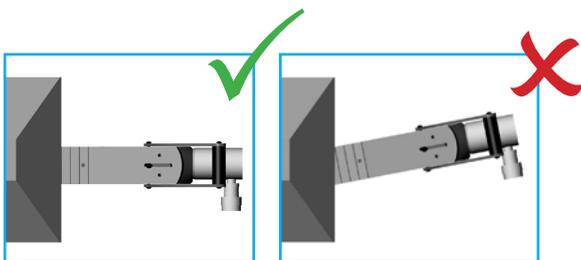
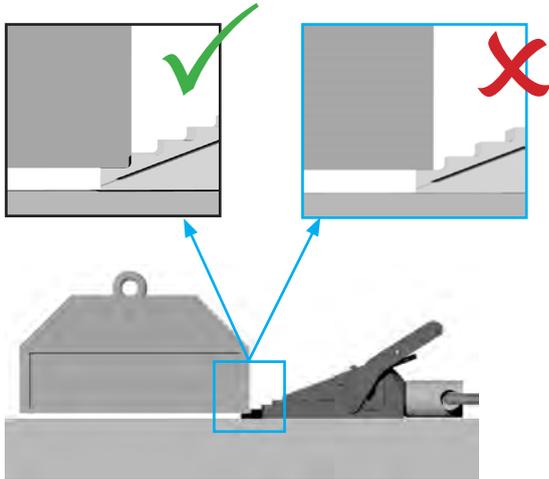
1. Assemble the kit by connecting one end of the hydraulic hose to the hand pump, and the other end to the hydraulic cylinder.



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

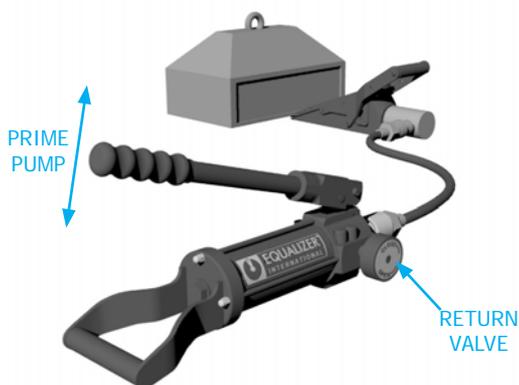


3. Place the wedge under the item to be lifted. The step to be used must be fully inserted into the access gap - ensure that the heel of the step is in contact with the outer surface of the object to be lifted and that the wedge is positioned centrally.

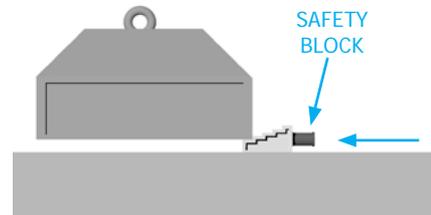


4. Close the return valve on the hand pump (by turning clockwise) and advance the wedge by priming the pump.

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 upside 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.



WARNING: 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 VLW18TE TOOL FUNCTION step 3)



WARNING: 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.

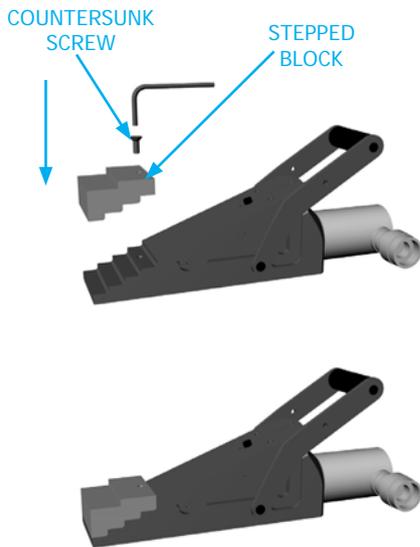
4.3

USING THE STEPPED BLOCK

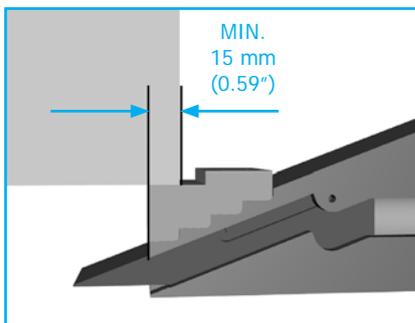
ACCESSORY

The Equalizer Stepped Block enables the VLW18TE Hydraulic Vertical Lifting Wedge to be used to lift an item with a larger gap, and will lift the item further with less penetration

Attach the stepped block to the tool using the M6 countersunk screw



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



4.4

VLW18TE KIT CONTENTS

MINI KIT COMPONENTS

Product Code: VLW18TEMIN

- 1 x VLW18TE 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



Packaging Dimensions:
145 x 170 x 365mm
(5.71" x 6.69" x 14.37")

Tool only Weight: 8.5 kg (18.7 lb)
Gross Kit Weight: 9.8 kg (21.5 lb)

STANDARD KIT COMPONENTS

Product Code: VLW18TESTDSPB

- 1 x VLW18TE 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



Carry Case Dimensions:
920 x 520 x 210mm
(36.22" x 20.47" x 8.26")

Tool only Weight: 8.5 kg (18.7 lb)
Gross Kit Weight: 21.5 kg (47.4 lb)

MAXI KIT COMPONENTS

Product Code: VLW18TEMAXSPB

- 2 x VLW18TE Wedgeheads
- 2 x 10,000 psi (700 bar) Hydraulic Hoses, 2 m (78.75")
- 2 x 10,000 psi (700 bar) Hydraulic Cylinders
- 1 x 10,000 psi (700 bar)
- HP350D Sealed Hand Pump with Gauges
- 2 x Safety Blocks
- 2 x Stepped Blocks
- 2 x Hex Key
- 2 x Countersunk Screw
- 1 x Instruction Manual
- 1 x Carry-Case



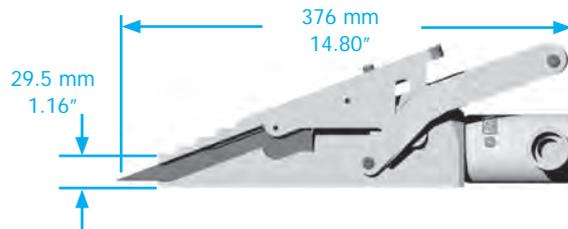
Carry-Case Dimensions:
 920 x 520 x 210mm
 (36.22" x 20.47" x 8.26")

Tool only Weight: 8.5 kg (18.7 lb)
 Gross Kit Weight: 33 kg (72.8 lb)

4.5

VLW18TE TOOL DIMENSIONS

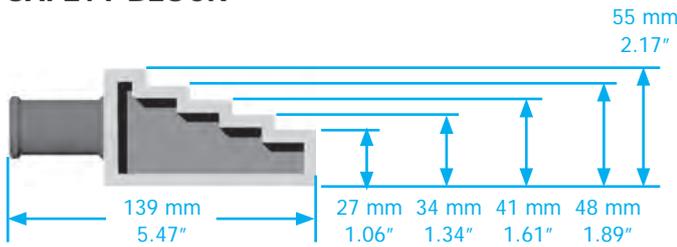
MINIMUM EXTENSION



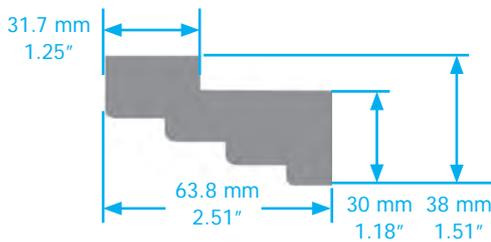
MAXIMUM EXTENSION (USING STEPPED BLOCK)



SAFETY BLOCK



STEPPED BLOCK



4.6

VLW18TE TOOL MAINTENANCE

- On return from each job and before allocation against subsequent work the completeness of the Equalizer VLW18TE 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

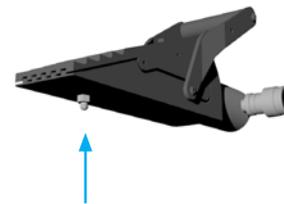
- Remove the grease nipple from the handle of the tool



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

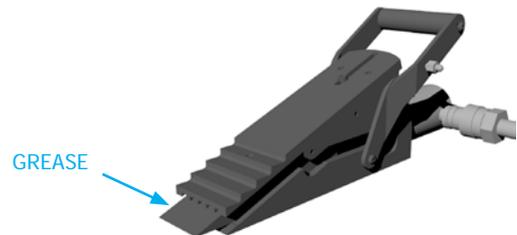


- Screw the grease nipple into the base of the tool, attach the grease gun and squeeze grease into the wedge



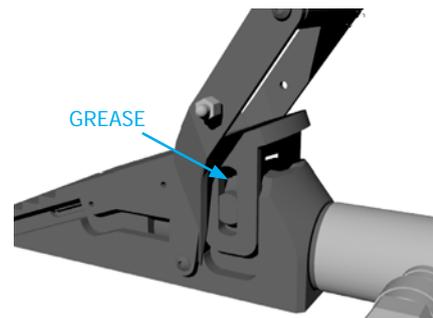
OR

- 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.



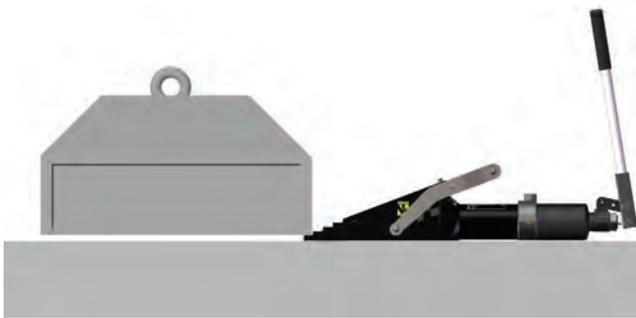
5.

VLW18TI

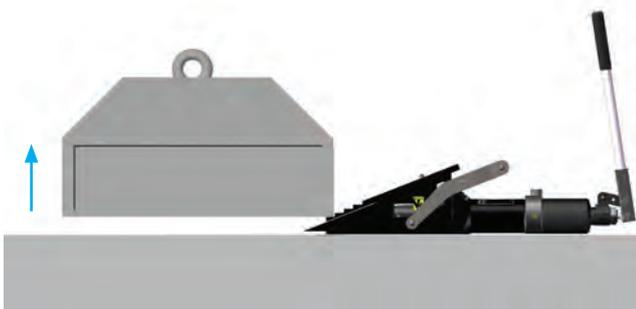
INTEGRAL HYDRAULIC VERTICAL LIFTING WEDGE

5.1 HOW THE VLW18TI WORKS

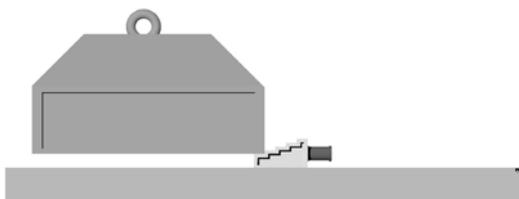
The tool is inserted into the access gap



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



The load is secured using the safety block



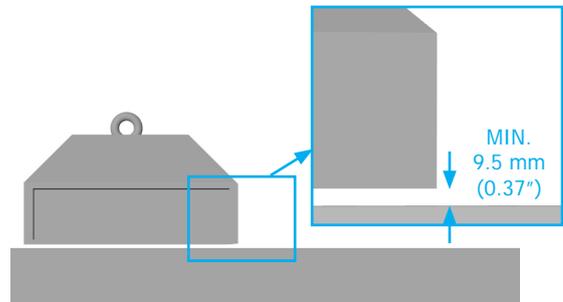
5.2 VLW18TI TOOL FUNCTION

1. Before installing the wedge, ensure that it is fully retracted and tighten the return valve in a clockwise direction to the closed position.

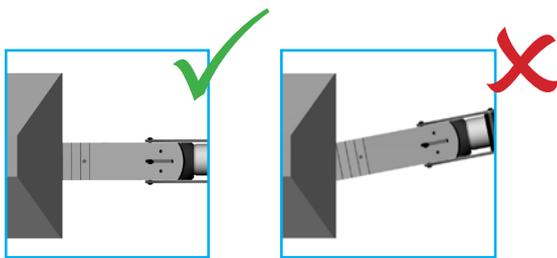
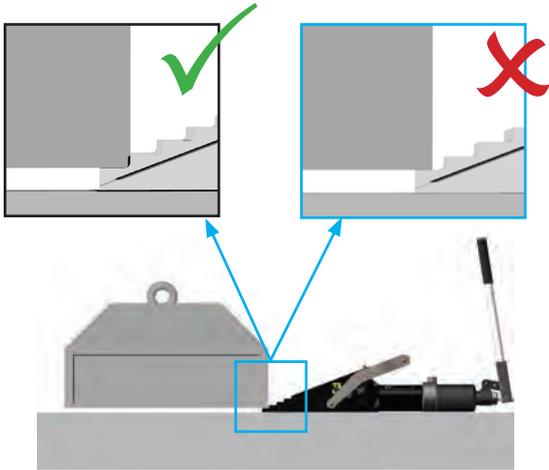
Also ensure the air vent is not obstructed in any way as this will result in a vacuum within the system and the wedge will not advance.



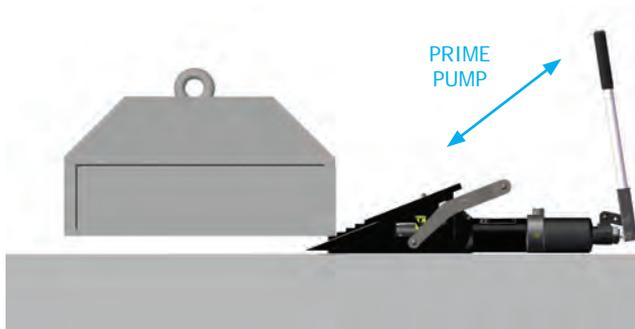
2. Ensure the access gap under the item to be lifted measures 9.5 mm (0.37") or greater.



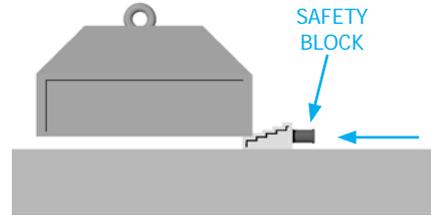
3. Place the wedge under the item to be lifted. The step to be used must be fully inserted into the access gap - ensure that the heel of the step is in contact with the outer surface of the object to be lifted and that the wedge is positioned centrally.



4. Advance the wedge by priming the pump.



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.



WARNING: 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 VLW18TI TOOL FUNCTION step 3)



WARNING: 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.

5.3

USING THE STEPPED BLOCK

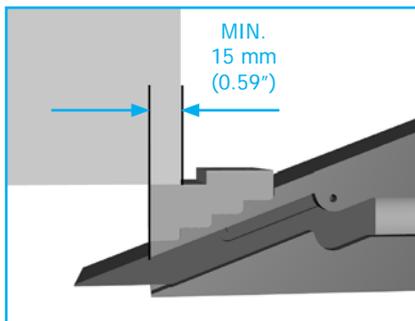
ACCESSORY

The Equalizer Stepped Block enables the VLW18TI Integral Hydraulic Vertical Lifting Wedge to be used to lift an item with a larger gap, and will lift the item further with less penetration

Attach the stepped block to the tool using the M6 countersunk screw



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



5.4 VLW18TI KIT CONTENTS

KIT COMPONENTS

Product Code: VLW18TISPB

- 1 x VLW18TI Wedgehead
- 1 x 10,000 psi (700 bar) Integral Hydraulic Pump/
Cylinder
- 1 x Safety Block
- 1 x Stepped Block
- 1 x Hex Key
- 1 x Countersunk Screw
- 1 x Instruction Manual
- 1 x Carry-Case



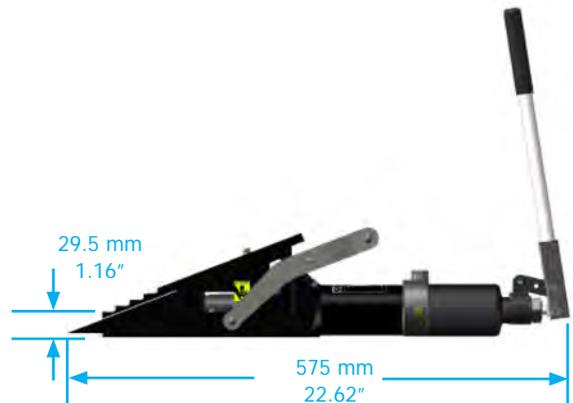
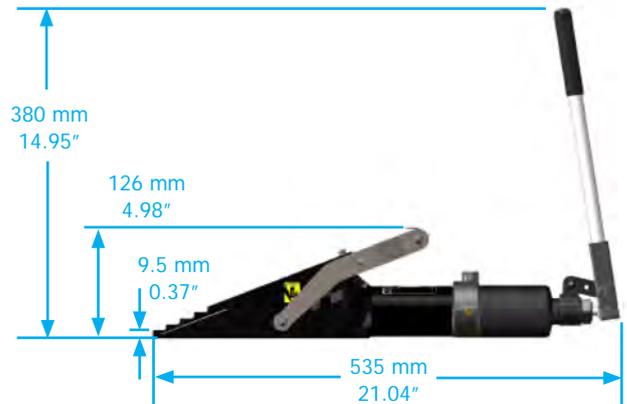
Carry Case Dimensions:

580 x 340 x 180mm
(22.8" x 13.4" x 7.1")

Tool only Weight: 10 kg (22 lbs)
Gross Kit Weight: 13.5 kg (29.8 lbs)

5.5 VLW18TI TOOL DIMENSIONS

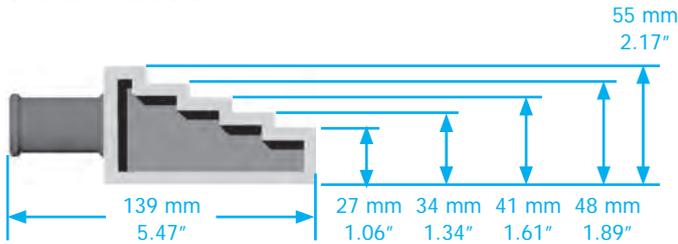
MINIMUM EXTENSION



MAXIMUM EXTENSION (USING STEPPED BLOCK)



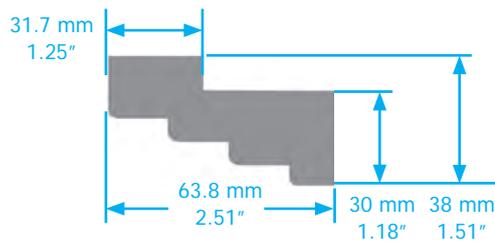
SAFETY BLOCK



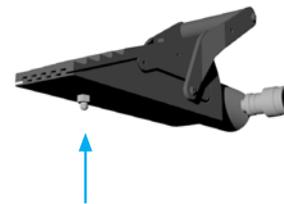
- Screw the grease nipple into the jaw, attach the grease gun and squeeze grease into the wedge



STEPPED BLOCK



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



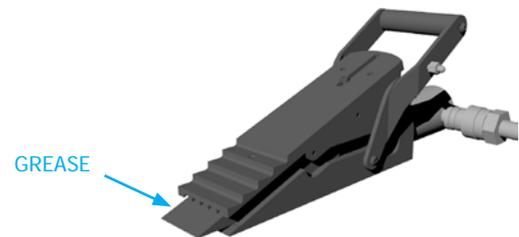
5.6

VLW18TI TOOL MAINTENANCE

- On return from each job and before allocation against subsequent work the completeness of the Equalizer VLW18TI 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:

OR

- Advance the wedge forward, smear grease onto the surfaces of the wedge

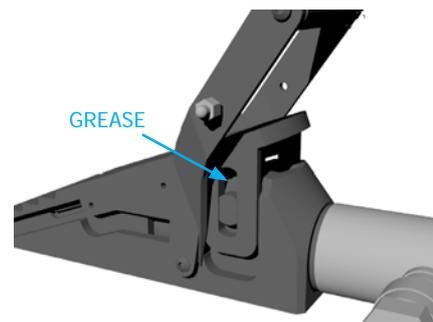


GREASING THE WEDGE

- Remove the grease nipple from the handle of the tool

GREASING THE SLIDE PINS

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



7.

TROUBLESHOOTING

7.1

VLW18TE TROUBLESHOOTING

HOSES ARE CONNECTED BUT THE TOOL DOES NOT ADVANCE. THE PRESSURE ON THE PUMP HANDLE IS MINIMAL

POSSIBLE CAUSE:

The release valve is in the retract (open) position.

RECOMMENDED ACTION:

Close the release valve .



HOSES ARE CONNECTED AND THE PUMP QUICKLY REACHES MAXIMUM PRESSURE BUT THE TOOL HAS NOT ADVANCED

POSSIBLE CAUSE:

One or more of the connectors are not fully tightened and the hydraulic oil cannot pass through from the pump to the cylinder.

RECOMMENDED ACTION:

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

POSSIBLE CAUSE:

The pressure required to lift the load is greater than that of the tools you are using.

RECOMMENDED ACTION:

Add another tool and try again.

HOSES ARE CONNECTED AND THE TOOL ADVANCES BUT THERE IS MINIMAL PRESSURE ON THE PUMP HANDLE; THE HANDLE IS RISING BACK OF ITS OWN ACCORD

POSSIBLE CAUSE:

There is dirt or a damaged valve seat within the pump unit.

RECOMMENDED ACTION:

The pump should be sent to an authorised Equalizer distributor for repair.

THE WEDGE IS ADVANCING BUT DOES NOT REACH FULL PRESSURE.

POSSIBLE CAUSE:

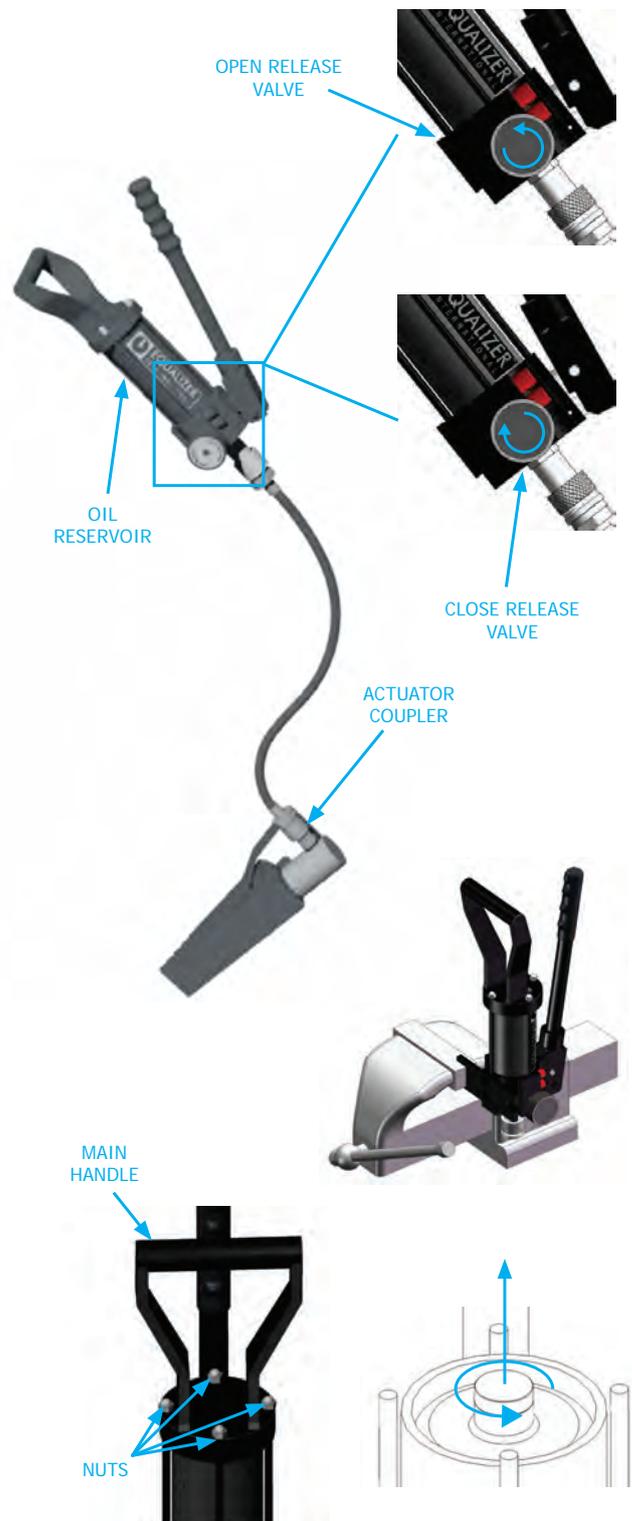
Air could be present in the hydraulic system.

RECOMMENDED ACTION:

Follow the airlock removal procedure:

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 baseplate 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 15 cSt
9. Reinsert the refilling plug, wipe away any oil, and reassemble by reversing the disassembly process

AIRLOCK REMOVAL PROCEDURE:



7.2

VLW18TI TROUBLESHOOTING

WEDGE ADVANCES 50% AND THEN STOPS FUNCTIONING

POSSIBLE CAUSE:

A sticker has been placed over the air vent

RECOMMENDED ACTION:

Remove sticker

POSSIBLE CAUSE:

The operator is covering the air vent with his finger while operating the pump

RECOMMENDED ACTION:

One hand should be on the handle of the tool while the other hand operates the pump handle

POSSIBLE CAUSE:

The air vent has become blocked with dirt

RECOMMENDED ACTION:

Carefully unblock the air vent using a small blunt object

NO WEDGE MOVEMENT

POSSIBLE CAUSE:

Air lock within system

RECOMMENDED ACTION:

Open release valve and prime pump to circulate oil around the system

POSSIBLE CAUSE:

Insufficient oil

RECOMMENDED ACTION:

Refill with clean oil and bleed system

POSSIBLE CAUSE:

Release valve open

RECOMMENDED ACTION:

Close release valve

POSSIBLE CAUSE:

Air accumulates around pump inlet when used upside down

RECOMMENDED ACTION:

Bleed out air from reservoir. Look for any oil leaks on reservoir which may indicate a perished bladder. Refer to an approved Equalizer distributor for further instructions.

POSSIBLE CAUSE:

Inlet check or intermediate valve ball stuck

RECOMMENDED ACTION:

Dismantle check valve, free and clean balls. Refer to an approved Equalizer distributor for further instructions.

WEDGE MOVES BUT UNDER LOAD FEELS AS IF IT IS NOT REACHING FULL PRESSURE

POSSIBLE CAUSE:

Intermediate valve not seating / relief valve leaking

RECOMMENDED ACTION:

Check ball for dirt then re-seat using a hammer and punch. Refer to an approved Equalizer distributor for further instructions.

PRESSURE LEAKS AWAY, HANDLE RISES OF ITS OWN ACCORD

POSSIBLE CAUSE:

Outlet check valve leaking

RECOMMENDED ACTION:

Check ball for dirt then re-seat using a hammer and punch. Refer to an approved Equalizer distributor for further instructions.

PRESSURE LEAKS AWAY, HANDLE REMAINS STATIC

POSSIBLE CAUSE:

Release valve leaking

RECOMMENDED ACTION:

Release lever may not be tight enough. Refer to an approved Equalizer distributor for further instructions.

POSSIBLE CAUSE:

Piston seal leaking

RECOMMENDED ACTION:

Look for oil leaking from cylinder bearing. Refer to an approved Equalizer distributor for further instructions.

POSSIBLE CAUSE:

Leaks on cylinder or pump body

RECOMMENDED ACTION:

Check blanking plugs for leaks, tighten. Refer to an approved Equalizer distributor for further instructions.

SPONGY ACTION

POSSIBLE CAUSE:

Air in system

RECOMMENDED ACTION:

Bleed system. Refer to an approved Equalizer distributor for further instructions.

8.

REGULATORY INFORMATION

8.1

REGISTERED HEAD OFFICE

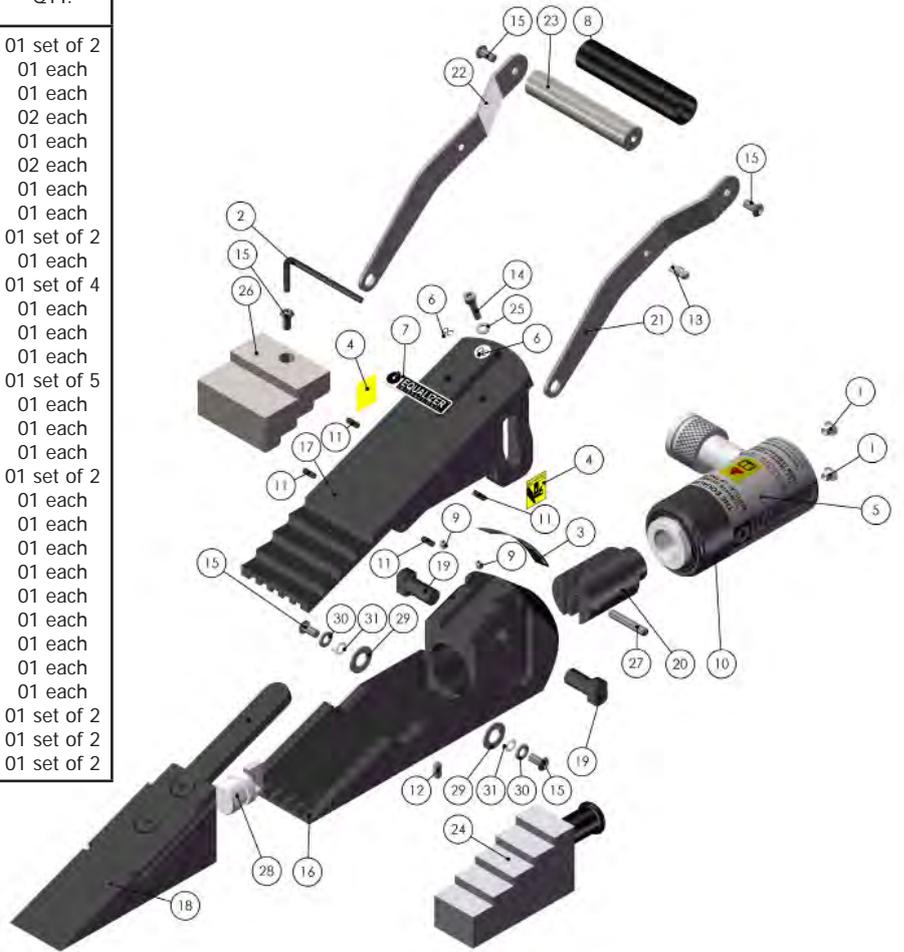
EQUALIZER INTERNATIONAL LTD.
Equalizer House
Claymore Drive
Aberdeen
Scotland
AB23 8GD

9.

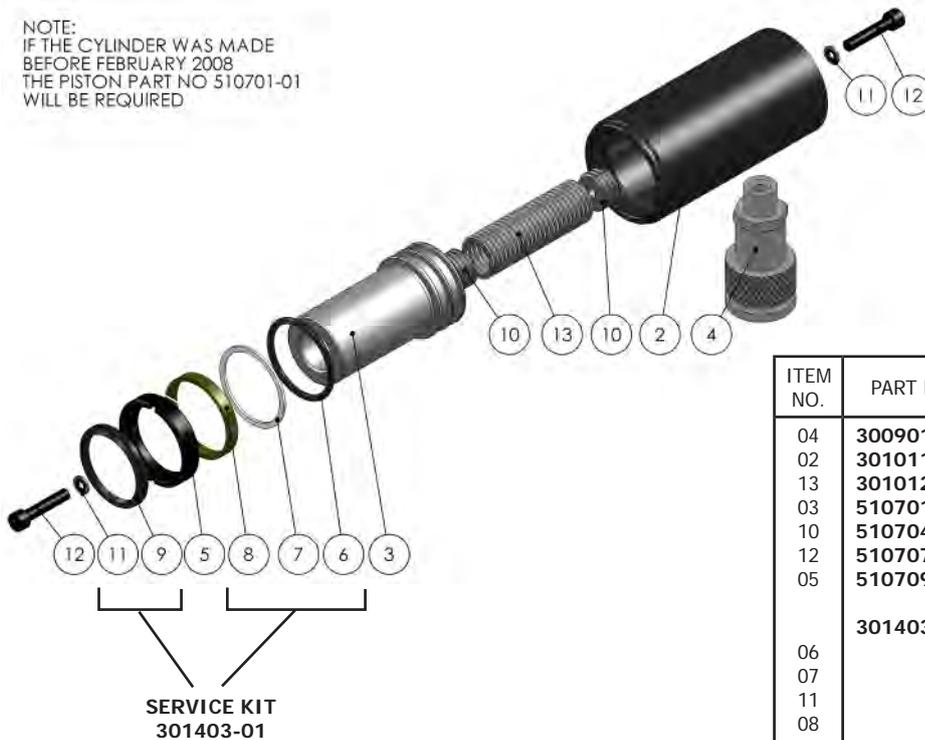
PARTS LISTS & SERVICE KITS

VLW18TE TOOL

ITEM NO.	PART NO	DESCRIPTION	QTY.
01	060101-01	WHITE PLASTIC CAP	01 set of 2
02	060701-01	4 MM ALLEN KEY	01 each
03	070012-01	SERIAL NO STICKER	01 each
04	070014-01	PINCH POINT STICKER	02 each
05	070053-01	WRAP AROUND STICKER	01 each
06	070054-01	QC SEALED TOP STICKER	02 each
07	070098-01	EQUALIZER LOGO	01 each
08	201203-01	BLACK HANDLE SLEEVE	01 each
09	300401-01	M5X6 SCKT SCREW	01 set of 2
10	301003-01	HYDRAULIC CYLINDER	01 each
11	301201-01	SPIROL PIN	01 set of 4
12	301301-01	M6X12 GRUB SCREW	01 each
13	310601-01	M6 GREASE NIPPLE	01 each
14	402701-01	M5 SCKT HEAD SCREW	01 each
15	402902-01	SCREW FOR HANDLE	01 set of 5
16	500101-01	MAIN BODY	01 each
17	500201-01	TOP PLATE	01 each
18	500302-01	WEDGE C-W TAIL	01 each
19	500401-01	GUIDE PIN	01 set of 2
20	500503-01	PUSH PIN MK III	01 each
21	501101-01	HANDLE LEFT	01 each
22	501201-01	HANDLE RIGHT	01 each
23	501301-01	HANDLE BAR	01 each
24	501401-01	SAFETY BLOCK	01 each
25	501601-01	WASHER FOR TAIL	01 each
26	501901-01	STEP BLOCK	01 each
27	502301-01	GRUB SCREW	01 each
28	503201-01	SLOT PLUG	01 each
29	503301-01	WASHER 10 MM	01 set of 2
30	503401-01	WASHER 6MM	01 set of 2
31	503501-01	SPACER	01 set of 2



NOTE:
IF THE CYLINDER WAS MADE
BEFORE FEBRUARY 2008
THE PISTON PART NO 510701-01
WILL BE REQUIRED



SERVICE KIT
301403-01

ITEM NO.	PART NO	DESCRIPTION	QTY.
04	300901-01	HYDRAULIC COUPLER	01
02	301011-01	CYLINDER BASE	01
13	301012-01	SPRING	01
03	510701-01	PISTON ROD	01
10	510704-01	SPRING LOCK	02
12	510707-01	SCREW	02
05	510709-01	FASTEN NUT	01
06	301403-01	SERVICE KIT:	
07		- O-RING	01
11		- BACK-UP RING	01
08		- GASKET SEAL	02
09		- SPLIT RING	01
		- WIPER	01

HP350S HYDRAULIC SINGLE PORT SEALED HAND PUMP

ITEM	PART No.	DESCRIPTION	KIT QUANTITY	PUMP QUANTITY
01	710101-01	PUMP HOUSING		01
02	715100-01	SERVICE KIT A:		
03		- OIL FILTER	01	01
04		- O-RING	01	01
05		- RESERVOIR BLADDER	01	01
06		- REFILLING PLUG	01	01
07	710601-01	RESERVOIR		01
08	725200-01	SERVICE KIT B:		
09		- TAIL BASE	01	01
10		- SCREW	04	04
11		- SPRING WASHER	04	04
12		- NUT	04	04
13	715300-01	SERVICE KIT C:		
14		- O-RING	01	01
15		- BACK-UP RING	01	01
16		- PUMP PISTON	01	01
17		- SNAP RING	01	01
18		- O-RING	01	01
19		- BACK-UP RING	01	01
20		- PUMP PISTON	01	01
21	715400-01	SERVICE KIT D:		
22		- HANDLE	01	01
23		- YOKE	01	01
24		- PISTON PIN	01	01
25		- YOKE PIN	01	01
26		- RETAINING RING	01	01
27		- HANDLE GRIP	01	01
28		- SCREW	01	01
29	715500-01	SERVICE KIT E:		
30		- YOKE BASE	01	01
31		- SPRING PIN	01	01
32	715600-01	SERVICE KIT F:		
33		- RELEASE VALVE	01	01
34		- SCREW	01	01
35		- WASHER	01	01
36		- SEAL	01	01
37		- SCREW	01	01
38		- RELEASE KNOB	01	01
39		- COUPLERS	01	01
40		- CHECK BALL	01	01
41	715700-01	SERVICE KIT G:		
42		- SPRING	02	02
43		- STEEL BALL	02	02
44		- OUTLET BALL SPRING	02	02
45		- COPPER WASHER	02	02
46		- VALVE COVER SCREW	02	02
47		- STEEL BALL	02	02

ITEM	PART No.	DESCRIPTION	KIT QUANTITY	PUMP QUANTITY
40	715800-01	SERVICE KIT H:		
41		- STEEL BALL	01	01
42		- SPRING END CAP	01	01
43		- L.P. SPRING	01	01
44		- O-RING	02	02
45		- OVERLOAD COVER	01	01
46		- SCREW	02	02
47		- CAP	01	01
48		- OVERLOAD COVER	01	01
49		- SCREW	01	01
50	715900-01	SERVICE KIT I:		
51		- BASE PLATE	01	01
52		- SCREW	02	02
53	716100-01	SERVICE KIT K:		
54		- SCREW	04	03
55		- SCREW	01	01
56		- SCREW	01	01
57		- CHECK BALL	04	03
58	716200-01	SERVICE KIT L:		
59		- GAUGE COUPLER	01	01
60		- MALE	01	01
61		- GAUGE	01	01
62	716300-01	SERVICE KIT M:		
63		- GAUGE COUPLER	01	01
64		- FEMALE	01	01
65		- COUPLER	01	01
66		- GAUGE PORT	01	01
67		- ADAPTOR	01	01



VLW18TI TOOL

ITEM NO.	PART NO	DESCRIPTION	QTY.
01	060701-01	4 MM ALLEN KEY	01 each
02	070012-01	SERIAL NO STICKER	01 each
03	070014-01	PINCH POINT STICKER	02 each
04	070054-01	QC SEALED TOP STICKER	02 each
05	070098-01	EQUALIZER LOGO	01 each
06	070249-01	READ INSTR. STICKER	01 each
07	201203-01	BLACK HANDLE SLEEVE	01 each
08	300401-01	M5X6 SCKT SCREW	01 set of 2
09	301201-01	SPIROL PIN	01 set of 4
10	301301-01	M6X12 GRUB SCREW	01 each
11	310601-01	M6 GREASE NIPPLE	01 each
12	402701-01	M5 SCKT HEAD SCREW	01 each
13	402902-01	SCREW FOR HANDLE	01 set of 5
14	500101-01	MAIN BODY	01 each
15	500201-01	TOP PLATE	01 each
16	500302-01	WEDGE C-W TAIL	01 each
17	500401-01	GUIDE PIN	01 set of 2
18	500503-01	PUSH PIN MK III	01 each
19	501101-01	HANDLE LEFT	01 each
20	501201-01	HANDLE RIGHT	01 each
21	501301-01	HANDLE BAR	01 each
22	501401-01	SAFETY BLOCK	01 each
23	501601-01	WASHER FOR TAIL	01 each
24	501901-01	STEP BLOCK	01 each
25	502301-01	GRUB SCREW	01 each
26	503201-01	SLOT PLUG	01 each
27	503301-01	WASHER 10 MM	01 set of 2
28	503401-01	WASHER 6MM	01 set of 2
29	503501-01	SPACER	01 set of 2
30	510701-01	INT. PUMP & CYLINDER	01 each



INTEGRAL HYDRAULIC PUMP/CYLINDER serial no: 11187 onwards



ITEM NO.	PART NO	DESCRIPTION	QTY.	ITEM NO.	PART NO	DESCRIPTION	QTY.	ITEM NO.	PART NO	DESCRIPTION	QTY.
01	372301-01	BLADDER HOUSING	01	19	375010-01	SERVICE KIT A	01	36	375020-01	SERVICE KIT C	01
02	342401-01	PISTON HOUSING CAP	01	20		OIL FILL SCREW	01	21		STEEL BALL	02
03	372501-01	SWIVEL CLEVIS	01	21		STEEL BALL	01	38		SPRING	02
04	372601-01	RETAINING NUT	01	22		O-RING	03	39		SCREW	01
05	372901-01	CLEVIS PIN	02	23		RELIEF VALVE SCREW	01	40		BACK-UP RING	01
06	373001-01	RETAINING RING	04	24		RELIEF VALVE KNOB	01	41		O-RING	01
07	373101-01	LINK CONNECTOR	01	25		WASHER	01	42		PIN	01
08	373201-01	CLEVIS SCREW	01	26		O-RING	02	43		GASKET SEAL	01
09	373301-01	ANTI-LOOSEN NUT	01	27		BACK UP RING	01	44		SPRING LOCK	01
10	373401-01	HANDLE ROD	01	28		RESERVOIR BLADDER	01	45		CONE SEAT	01
11	375101-01	CYLINDER BASE	01	29		O-RING	01	46		CONE	01
12	376901-01	PUMP PISTON HOUSING	01	30		PUMP PISTON ROD	01	47		LONG SEPARATOR SPRING	01
13	377101-01	HANDLE CLEVIS	01	31		OVERLOAD COVER SCREW	01	48	510700-01	SERVICE KIT D	01
14	510701-01	PISTON ROD	01	32		CAP	01	49		O-RING	01
15	510708-01	PULLER BODY	01	33		O-RING	01	50		BACK-UP RING	01
16	510709-01	FASTEN NUT	01	34		O-RING	01	51		SCREW	01
17	510712-01	ROLL PIN	01	35		FIXING SCREW	01	52		STOP COLLAR	01
18	510713-01	HANDLE GRIP	01					53		SPRING LOCK	01
								54		SPRING	01
								55		SPLIT RING	01
								56		SCREW	01
								57		WIPER	01



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