CHRISTIE
TOTAL TORQUE SOLUTIONS

THE WEDGE

FLANGE SPREADING SYSTEM
WC9TM, WC14.5TI, WC15TE

OPERATOR INSTRUCTION MANUAL

Ref: WCOI.059 Date: June 2015 Issue: 2

CONTENTS

1 – INTRODUCTION

The Christie wedge WC9TM, WC14.5TI and WC15TE are aids for use in normal maintenance and installation procedures, and allow the spreading of flanges with an access gap of 6 mm (0.24") or greater. For example, they may be used to assist in the replacement of ring and other type joints. The use of these instructions will promote safe use, and maximize the service life of the tools. It is recommended that the operator read the relevant sections of this instruction manual for the particular flange spreading wedge to be used.

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 mechanical and 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 Christie wedge WC9TM, WC14.5TI AND WC15TE Flange Spreading Wedges, 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 5. Use only high pressure molybdenum disulphide grease.

3 – TECHNICAL DATA

MODEL	SPREADING FORCE
WC9TM	9.4 T (94 kN) from 150 lbf.ft (203 Nm) of torque
WC14.5TI	14.5 T (145 kN) from 10,000 psi (700 bar) of hydraulic pressure
WC15TE	15.5 T (155 kN) from 10,000 psi (700 bar) of hydraulic pressure

4 – HOW THE FLANGE SPREADING WEDGES WORK

1. The flange spreading wedge is placed between the flanges to be spread with the full step area fully inserted as far as the heel of the chosen step.

   NB. When spreading a flange joint, it is recommended to use two wedges set 180 degrees apart on the joint. This will ensure that the flange joint can be opened evenly.

2. The flange is spread using either mechanical (WC9TM) or hydraulic power (WC14.5TI & WC15TE).

3. Once the joint has been opened to the desired distance, the safety blocks are inserted into the flange joint and the pressure released gradually back onto them.

4. The wedges can then be re-inserted using the next step and the flange joint can be opened further.

5. Repeat this procedure until the flange joint has been opened wide enough to carry out the remedial work (e.g. gasket change-out).

5 – EXAMINATION, MAINTENANCE AND STORAGE

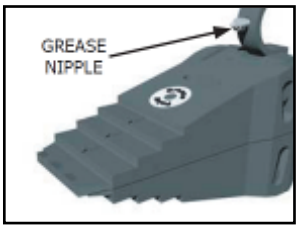
- On wedge return from each job and before allocation against subsequent work the completeness of the Christie WC9TM, WC14.5TI or WC15TE kit must be established and items examined to ensure that they are serviceable.

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

- Store the WC9TM, WC14.5TI or WC15TE in a cool dry place and ensure all machined surfaces are greased

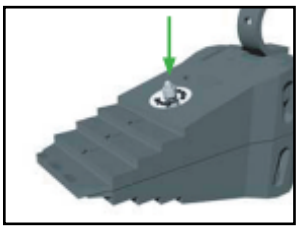
- Grease all moving parts prior to use.

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

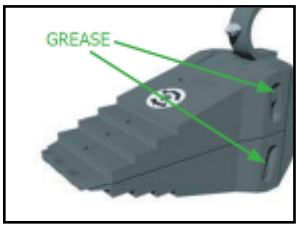


OR

- 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.



6.1 – KIT COMPONENTS

1 x WC9TM Wedgehead

1 x 150 lbf.ft (203 Nm) Torque Wrench with 22 mm Socket

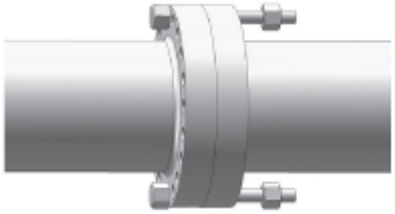
1 x Safety Block

1 x Instruction Manual

1 x Cardboard Packaging

6.2 – INSTALLATION AND OPERATION

Before attaching the tool ensure at least two flange bolts remain in place 180 degrees apart with nuts loosened sufficiently enough for flange work to be carried out. These bolts will reduce lateral flange movement during flange spreading.

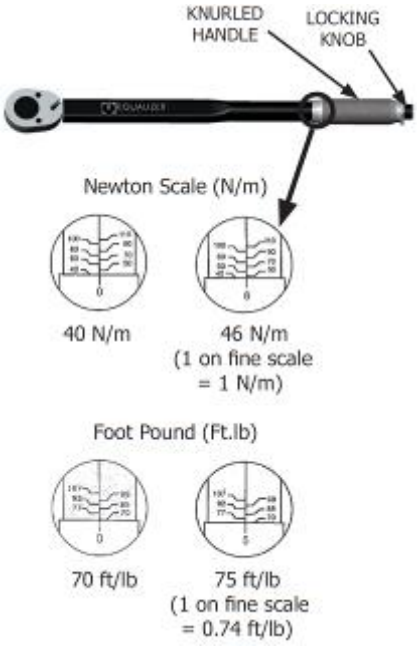


How to use the torque wrench:-

Balance the wrench in your left hand and unlock the knurled handle by turning the locking knob anti clockwise. Set the torque amount by turning the knurled handle - see example 40-46 Nm

1. Turn the handle till 0 on fine scale reach 40 Nm on base scale
2. To set 46 turn handle till fine scale reach 6
3. Lock handle by turning the locking knob clockwise

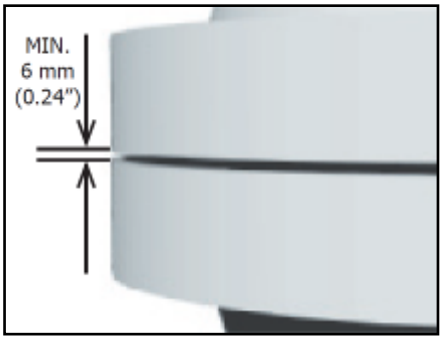
Install the proper socket and attach to the tool. Pull handle till you feel and/or hear the wrench click. Setting of lbf.ft scale is done in the same way as above.



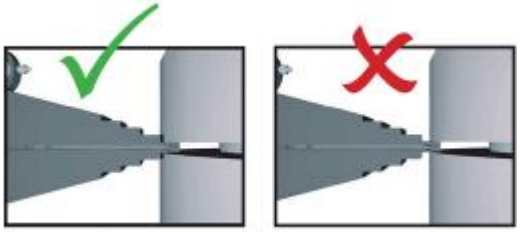
Do not pull after the wrench clicks. Use special care at low torque settings. If the wrench has not been used for some time: operate it several times at low torque to allow internal lubricant to recoat. When not in use set to lowest torque setting. Don't turn handle below lowest torque setting. Your torque wrench is a precision measuring instrument and should be treated as such. Clean only by wiping, do not use any type of cleaner which may affect the special internal lubricant with which this wrench is packed at the factory.

1. Do not attempt to turn the grip while it is locked
2. Do not turn the grip more than one turn below the lowest scale reading or above the highest scale reading

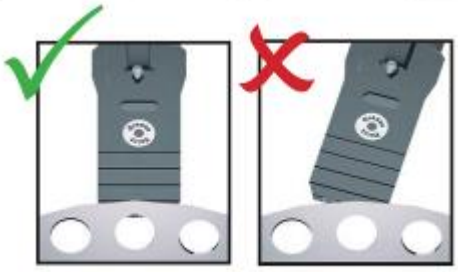
1. Determine the flange joint access gap - a minimum access gap of 6 mm (0.24”) is required.



2. Insert the wedge into the joint until the heel of the step is in contact with the outer surface of the joint.



Ensure that the full step is used and that the jaw is positioned centrally.

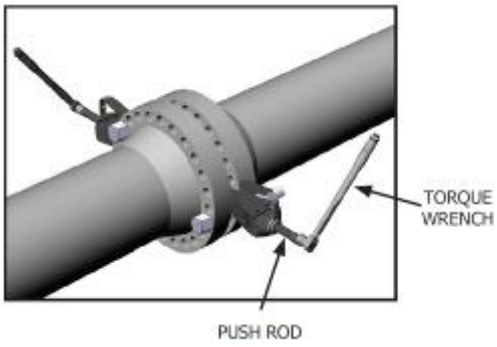


Inserting the wedge incorrectly may result in tool breakage and render the warranty void.

The rotating handle on the WC9TM allows ease of access to the joint and can be rotated out of the way of any obstructions present.

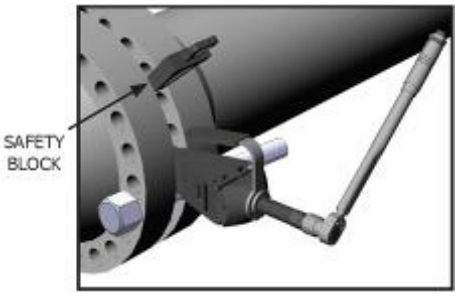
3. It is strongly recommended that two WC9TM wedges be used on the flange joint positioned 180 degrees apart.

   Turn each push rod in a clockwise direction using the torque wrench. Do this on each wedge in turn, ensuring the joint opens evenly. The torque wrench should be set at staged increases, ensuring both tools are applying similar forces e.g. 20 lbf.ft, 40 lbf.ft etc. until the maximum setting of 150 lbf.ft is reached.



Max. torque wrench setting	N/m	203
	Lbf.ft	150
Max. spreading force	T	9
	kN	90

4. When the joint has been opened to the desired spreading distance, or the maximum spreading distance on the current step is reached, the safety block should be inserted into the joint and the pressure released back onto it.



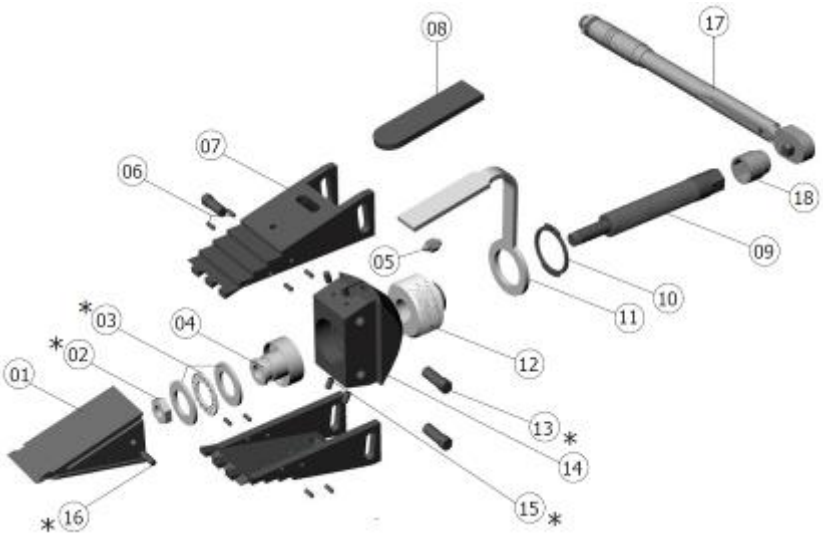
5. The wedge can then be re-inserted on its next step and the joint opened further.

6. Once the joint has been spread and all work completed, the wedges should be removed by reversing steps 3-5. Ensure the wedges are released evenly until completely closed.

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

6.3 – PARTS LIST

ITEM	PART No.	DESCRIPTION	QUANTITY
01	300101-01	WEDGE	01 each
02*	301502-01	NUT	01 each
03*	301601-01	THRUST BEARING SET	01 set
04	301802-01	BEARING HOUSING	01 each
05	310601-01	GREASE NIPPLE	01 each
06	301201-08	ROLL PINS	01 set of 8
07	300203-02	JAWS	01 set of 2
08	312301-01	HANDLE SLEEVE	01 each
09	302202-01	PUSH-ROD	01 each
10	302101-01	CIRCLIP FOR HANDLE	01 each
11	302001-01	HANDLE	01 each
12	301901-01	MALE / FEMALE ADAPTOR	01 each
13*	300501-04	SLIDE PINS	01 set of 4
14	301102-01	BODY	01 each
15*	300401-04	M5 X 6 GRUB SCREWS	01 set of 4
16*	301301-01	M6 X 10 GRUB SCREW	01 each
17	634001-01	TORQUE WRENCH	01 each
18	320901-01	22mm ½" DRIVE SOCKET	01 each



* Items 02, 03, 13, 15 & 16 are supplied in repair kit part No: 310501-01

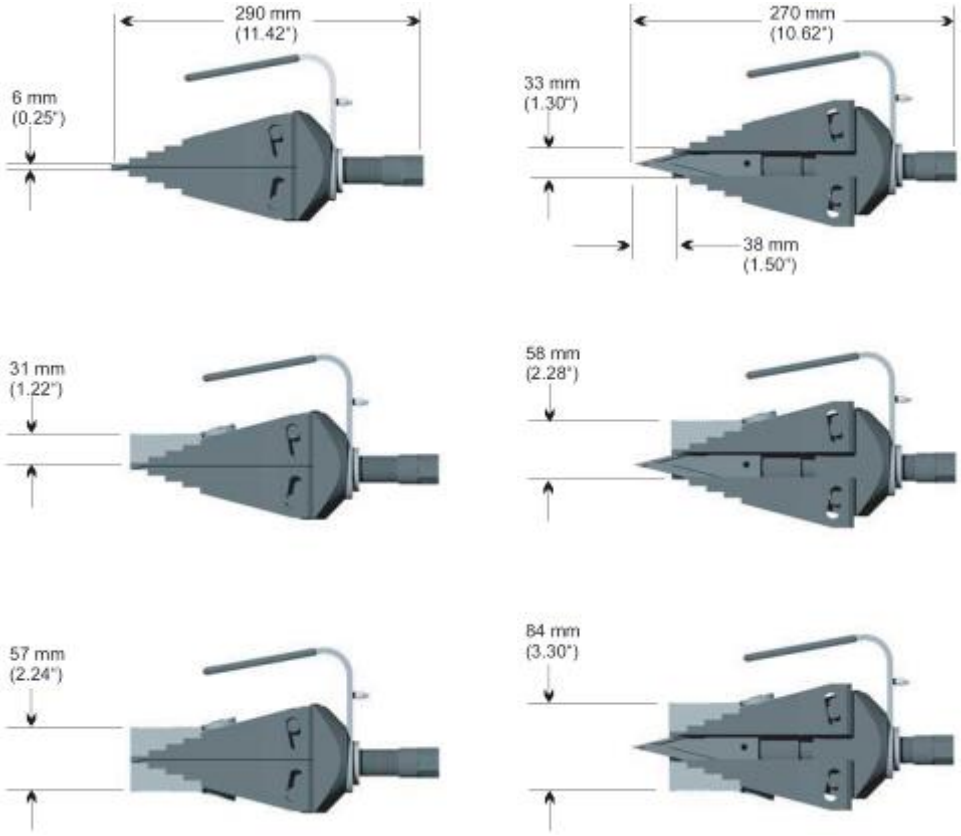
6.4 – WEIGHTS AND DIMENSIONS

WC9TM Wedgehead = 5.5 kg (12.13 lbs)

GROSS KIT WEIGHT = 7.5 kg (16.53 lbs)

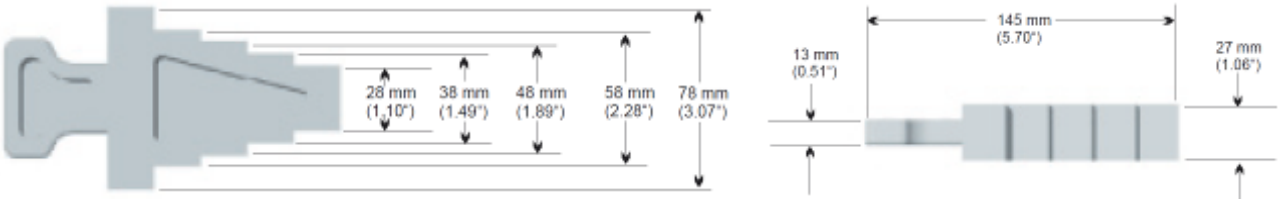
Packaging Dimensions: 190 x 180 x 320 mm (7.48” x 7.09” x 12.60”)

MINIMUM EXTENSIONS **MAXIMUM EXTENSIONS**



OVERALL DIMENSIONS

SAFETY BLOCK DIMENSIONS



7 – WC14.5TI INTEGRAL HYDRAULIC FLANGE SPREADING WEDGE

7.1 – KIT COMPONENTS

1 x WC14.5TI Wedgehead

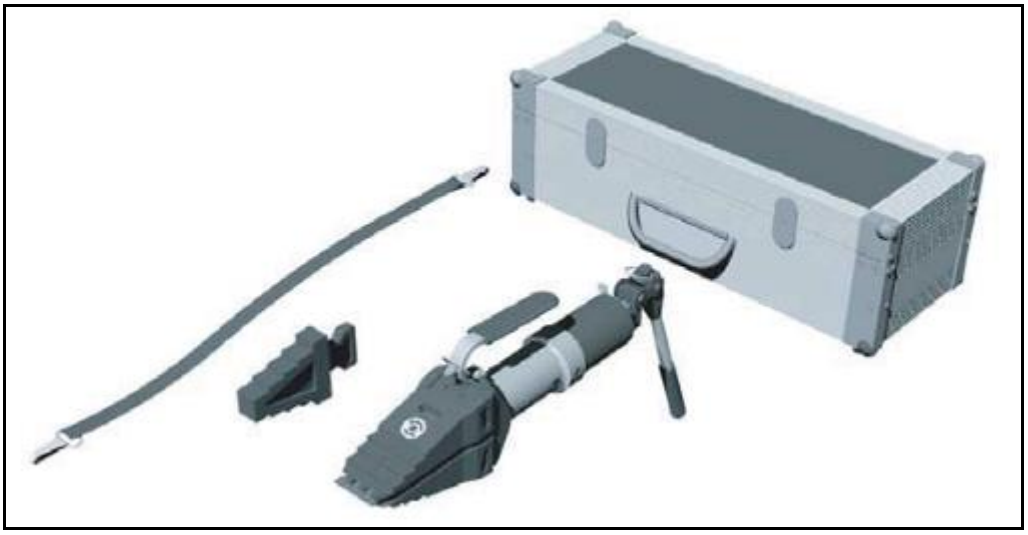
1 x 10,000 psi (700 bar) Integral Hydraulic Pump/Cylinder

1 x Safety Block

1 x Carry-Strap

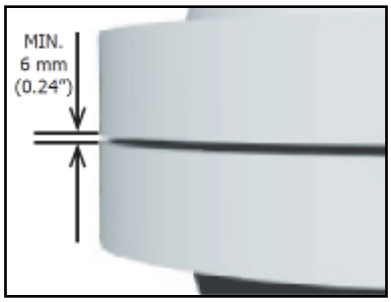
1 x Instruction Manual

1 x Carry-Case with Protective Foam Inserts



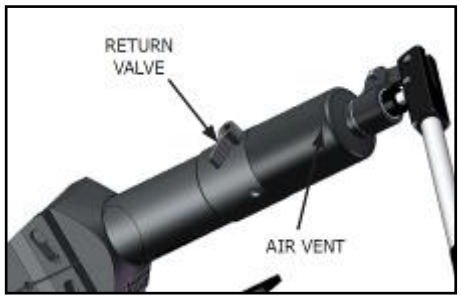
7.2 – INSTALLATION AND OPERATION

1. Determine the flange joint access gap - a minimum access gap of 6 mm (0.24”) is required.

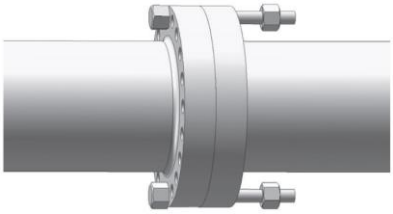


2. Before installing the wedge, ensure that it is fully retracted and tighten the return valve in a clockwise direction to the closed position.

   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.



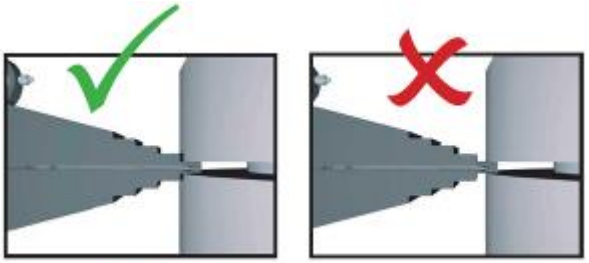
Before attaching the tool ensure at least two flange bolts remain in place 180 degrees apart with nuts removed. These bolts will reduce lateral flange movement during flange spreading.

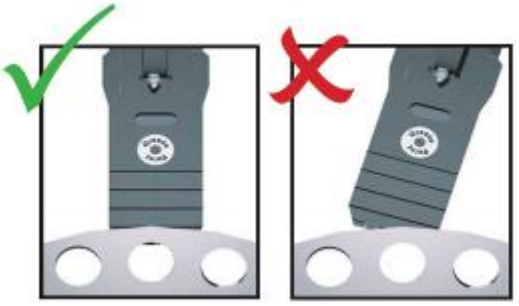


3. Insert the wedge into the joint until the heel of the step is in contact with the outer surface of the joint.

   Ensure that the full step is used and that the jaw is positioned centrally.

   Inserting the wedge incorrectly may result in tool breakage and render the warranty void.

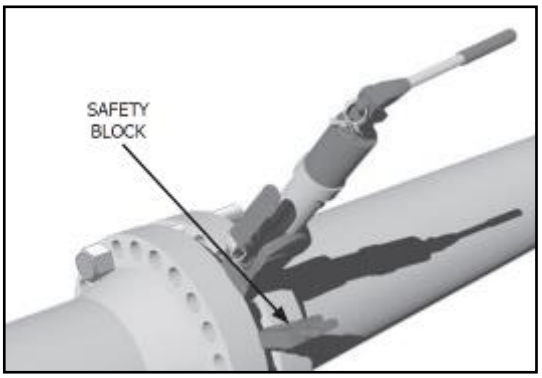




4. It is strongly recommended that two WC14.5TI wedges be used on the flange joint positioned 180 degrees apart.

   Prime each pump individually ensuring that the flange joint opens evenly.

5. When the joint has been opened to the desired spreading distance, or the maximum spreading distance on the current step is reached, the safety block should be inserted into the joint and the pressure released back onto it.



6. The wedge can then be re-inserted on its next step and the joint opened further.

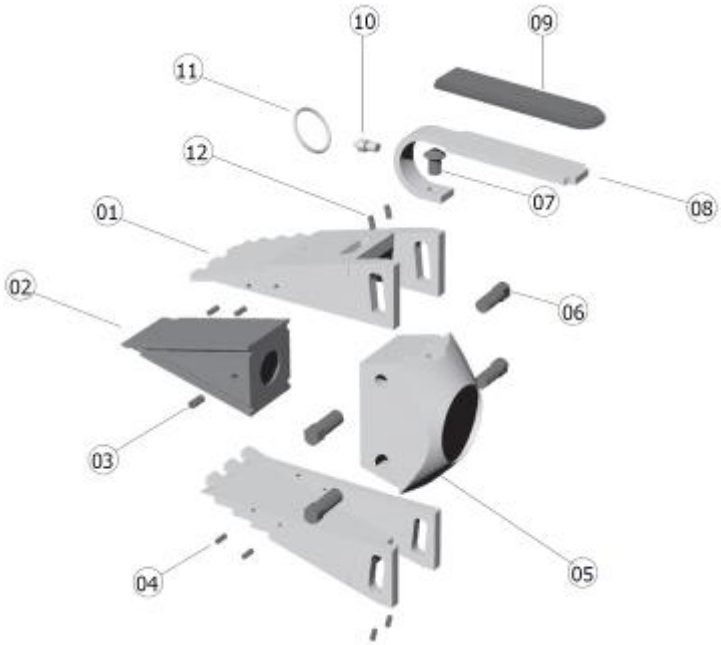
7. Once the joint has been spread and all work completed, the wedges should be removed by reversing steps 4 - 6. Release the wedges by turning the return valve anti-clockwise. Ensure the wedges are released evenly until completely closed.

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

7.3 – PARTS LIST

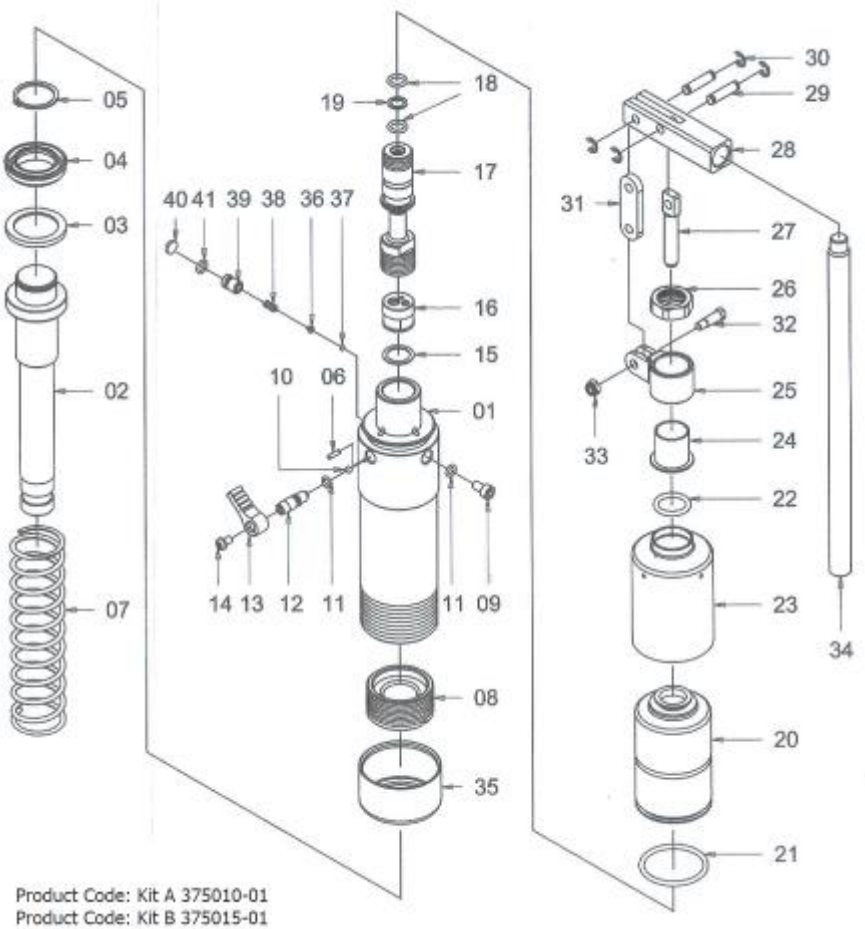
WC14.5TI WEDGEHEAD

ITEM	PART No.	DESCRIPTION	QUANTITY
01	300203-02	JAWS	01 set of 2
02	300101-01	WEDGE	01 each
03	301301-01	GRUB SCREW	01 each
04	301201-08	ROLL PINS	01 set of 8
05	301102-01	BODY	01 each
06	300501-04	SLIDE PINS	01 set of 4
07	401801-01	RETAINING SCREW	01 each
08	308201-01	HANDLE	01 each
09	312301-01	HANDLE SLEEVE	01 each
10	310601-01	GREASE NIPPLE	01 each
11	311601-02	RING	01 set of 2
12	300401-04	GRUB SCREWS	01 set of 4



INTEGRAL HYDRAULIC PUMP / CYLINDER
Serial no: up to 7915

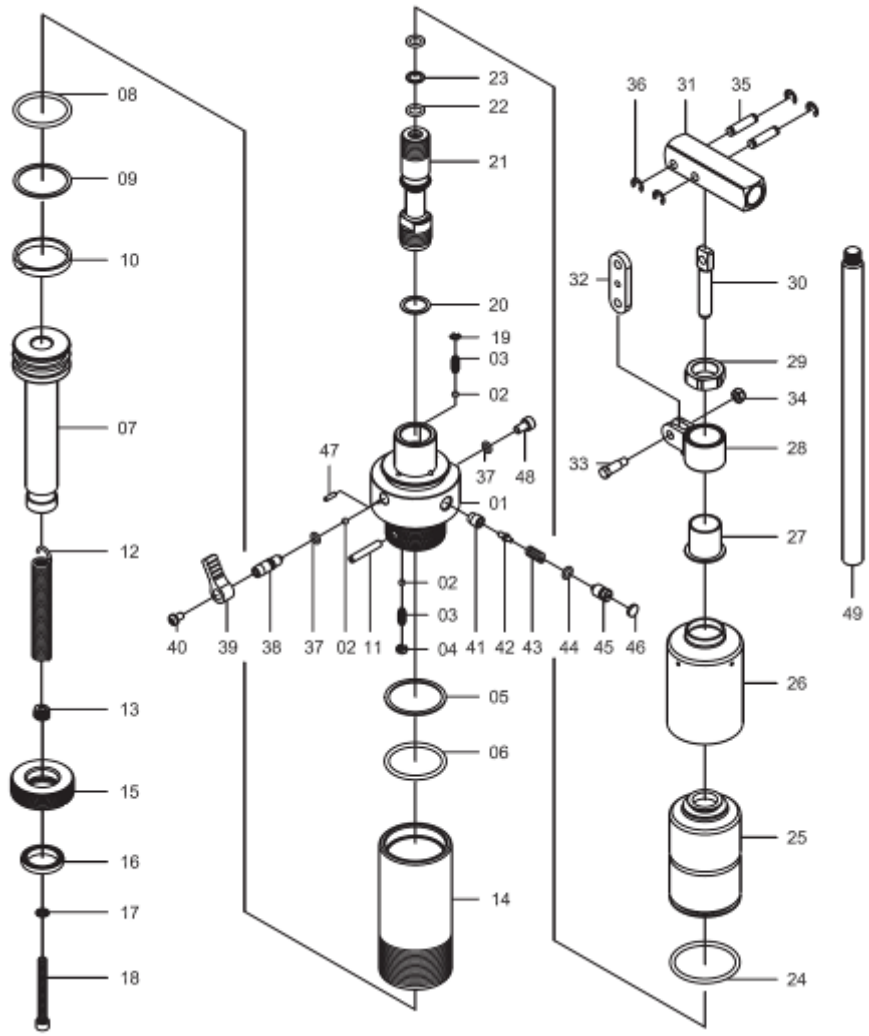
ITEM	PART NO	DESCRIPTION	QUANTITY
01	370101	PULLER BODY	01 ea
02	370201	PULLER PISTON ROD	01 ea
03	KIT B	BACK-UP RING	01 ea
04	KIT B	U-CUP SEAL	01 ea
05	KIT B	RETAINING RING	01 ea
06	370601	PIN	01 ea
07	370701	COMPRESS SPRING	01 ea
08	KIT B	ROD WIPER	01 ea
09	KIT A	OIL FILL SCREW	01 ea
10	KIT A	STEEL BALL	01 ea
11	KIT A	O-RING	02 ea
12	KIT A	RELIEF VALVE SCREW	01 ea
13	371301	RELIEF VALVE KNOB	01 ea
14	KIT A	FIXING SCREW	01 ea
15	KIT A	COPPER WASHER	01 ea
16	KIT B	SAFETY VALVE	01 ea
17	371701	PUMP PISTON HOUSING	01 ea
18	KIT A	O-RING	02 ea
19	KIT A	BACK-UP RING	01 ea
20	KIT A	RESERVOIR BLADDER	01 ea
21	KIT B	O-RING	01 ea
22	KIT B	O-RING	01 ea
23	372301	BLADDER HOUSING	01 ea
24	372401	PISTON HOUSING CAP	01 ea
25	372501	SWIVEL CLEVIS	01 ea
26	372601	RETAINING NUT	01 ea
27	KIT A	PUMP PISTON ROD	01 ea
28	372801	HANDLE CLEVIS	01 ea
29	372901	CLEVIS PIN	02 ea
30	373001	RETAINING RING	04 ea
31	373101	LINK CONNECTOR	01 ea
32	373201	CLEVIS SCREW	01 ea
33	373301	ANTI-LOOSEN NUT	01 ea
34	373401	SOLID HANDEL LEVER	01 ea
35	373501	RAM SLEEVE	01 ea
36	KIT B	SPRING END CAP	01 ea
37	KIT B	STEEL BALL	01 ea
38	KIT B	SPRING	01 ea
39	KIT A	OVERLOAD COVER SCREW	01 ea
40	KIT A	CAP	01 ea
41	KIT B	O-RING	01 ea



Product Code: Kit A 375010-01
Product Code: Kit B 375015-01

INTEGRAL HYDRAULIC PUMP / CYLINDER
Serial no: 7916 onwards

ITEM	PART NO	DESCRIPTION	QUANTITY
01	375101	CYLINDER BASE	01 ea
02	KIT A	STEEL BALL	03 ea
03	KIT C	SPRING	02 ea
04	KIT C	SCREW	01 ea
05	KIT C	BACK-UP RING	01 ea
06	KIT C	O-RING	01 ea
07	375601	PISTON ROD	01 ea
08	KIT C	O-RING	01 ea
09	KIT C	BACK-UP RING	01 ea
10	KIT C	SPLIT RING	01 ea
11	KIT C	PIN	01 ea
12	376101	SPRING	01 ea
13	376201	SPRING LOCK	01 ea
14	376301	PULLER BODY	01 ea
15	376401	ROD WIPER	01 ea
16	KIT C	WIPER	01 ea
17	KIT C	GASKET SEAL	01 ea
18	376701	SCREW	01 ea
19	KIT C	SPRING LOCK	01 ea
20	KIT A	WASHER	01 ea
21	376901	PUMP PISTON HOUSING	01 ea
22	KIT A	O-RING	02 ea
23	KIT A	BACK UP RING	01 ea
24	KIT C	O-RING	01 ea
25	KIT A	RESERVOIR BLADDER	01 ea
26	372301	BLADDER HOUSING	01 ea
27	372401	PISTON HOUSING CAP	01 ea
28	372501	SWIVEL CLEVIS	01 ea
29	372601	RETAINING NUT	01 ea
30	KIT A	PUMP PISTON ROD	01 ea
31	377101	HANDLE CLEVIS	01 ea
32	373101	LINK CONNECTOR	01 ea
33	373201	CLEVIS SCREW	01 ea
34	373301	ANTI-LOOSEN NUT	01 ea
35	372901	CLEVIS PIN	02 ea
36	373001	RETAINING RING	04 ea
37	KIT A	O-RING	02 ea
38	KIT A	RELIEF VALVE SCREW	01 ea
39	371301	RELIEF VALVE KNOB	01 ea
40	KIT A	FIXING SCREW	01 ea
41	KIT C	CONE SEAT	01 ea
42	KIT C	CONE	01 ea
43	KIT C	LONG SEPARATOR SPRING	01 ea
44	KIT C	O-RING	01 ea
45	KIT A	OVERLOAD COVER SCREW	01 ea
46	KIT A	CAP	01 ea
47	370601	PIN	01 ea
48	KIT A	OIL FILL SCREW	01 ea
49	373401	HANDLE ROD	01 ea



Product Code: Kit A 375010-01
Product Code: Kit C 375020-01
Note:- Kits A, B and C can be bought together as WC14.5TI complete service kit 375001-01

7.4 – WEIGHTS AND DIMENSIONS

WC14.5TI Wedgehead with Integral Hydraulic Pump/Cylinder = 9.0 kg (19.8 lbs)
Carry-Case with Protective Foam Inserts = 6.0 kg (13.2 lbs)

GROSS KIT WEIGHT = 17.5 kg (38.6 lbs)

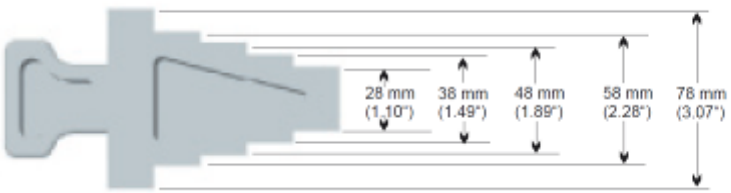
Carry-Case Dimensions: 520 x 375 x 165 mm (20.47” x 14.76” x 6.50”)

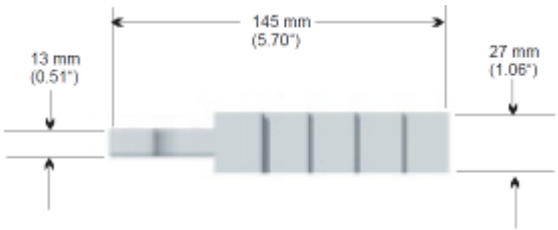
MINIMUM EXTENSIONS

MAXIMUM EXTENSIONS

OVERALL DIMENSIONS

SAFETY BLOCK DIMENSIONS





7.5 - TROUBLESHOOTING

Problem: Wedge advances 50% and then stops functioning

• A sticker has been placed over the air vent	• Remove sticker
• The operator is covering the air vent with his finger while operating the pump	• One hand should be on the handle of the tool while the other hand operates the pump handle
• The air vent has become blocked with dirt	• Carefully unblock the air vent using a small blunt object

Problem: No wedge movement

• Air lock within system	• Open release valve and prime pump to circulate oil around the system
• Insufficient oil	• Refill with clean oil and bleed system
• Release valve open	• Close release valve
• Air accumulates around pump inlet when used upside down	• Bleed out air from reservoir. Look for any oil leaks on reservoir which may indicate a perished bladder. Refer to WC14.5TI Repair Manual or contact W Christie (Industrial) Limited for further instructions.
• Inlet check or intermediate valve ball stuck	• Dismantle check valve, free and clean balls. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.

Problem: Wedge moves but under load feels as if it is not reaching full pressure

• Intermediate valve not seating / relief valve leaking	• Check ball for dirt then re-seat using a hammer and punch. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.

Problem: Pressure leaks away, handle rises of its own accord

• Outlet check valve leaking	• Check ball for dirt then re-seat using a hammer and punch. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.

Problem: Pressure leaks away, handle remains static

• Release valve leaking	• Release lever may not be tight enough. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.
• Piston seal leaking	• Look for oil leaking from cylinder bearing. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.
• Leaks on cylinder or pump body	• Check blanking plugs for leaks, tighten. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.

Problem: Spongy action

• Air in system	• Bleed system. Refer to WC14.5TI Repair Manual or contact W. Christie (Industrial) Limited for further instructions.

8 – WC15TE HYDRAULIC FLANGE SPREADING WEDGE

8.1 – KIT COMPONENTS / KIT OPTIONS

MINI KIT

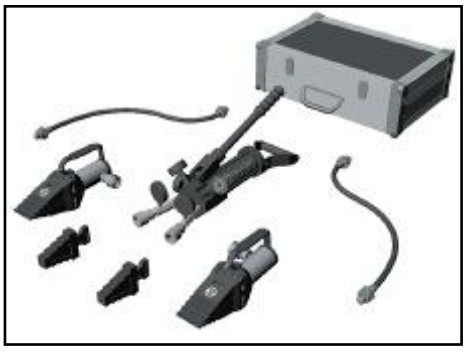
1 x WC15TE Wedgehead
1 x 10,000 psi (700 bar) Hydraulic Cylinder
1 x Safety Block
1 x Instruction Manual
1 x Cardboard Packaging

STANDARD KIT

1 x WC15TE 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 Instruction Manual
1 x Carry-Case with Protective Foam Inserts

MAXI KIT

2 x WC15TE Wedgeheads
2 x 10,000 psi (700 bar) Hydraulic Hoses, 2 m (78.75”) each
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
1 x Instruction Manual
1 x Carry-Case with Protective Foam Inserts

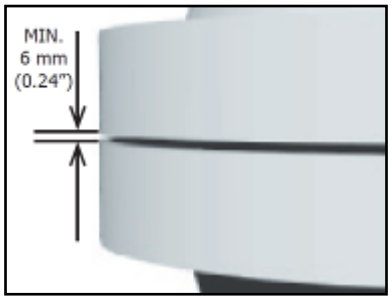


8.2 – INSTALLATION AND OPERATION

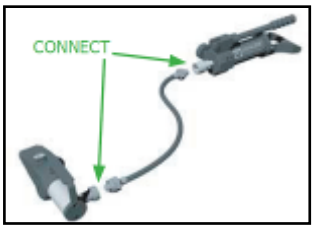
MINI AND STANDARD KIT

The operation procedure is exactly the same for both the WC15TE Mini and Standard Kits. The WC15TE 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.

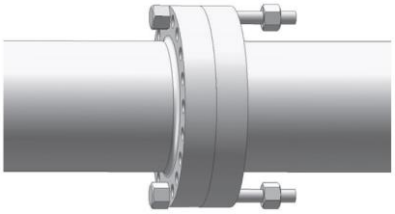
1. Determine the flange joint access gap - a minimum access gap of 6 mm (0.24") is required.



2. Before installing the wedge, the hose should be connected to the respective couplings on the pump and cylinder.



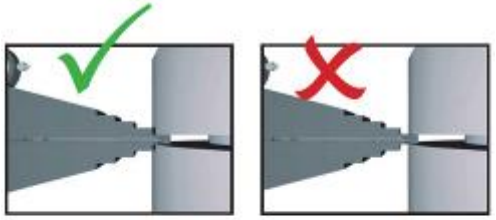
Before attaching the tool ensure at least two flange bolts remain in place 180 degrees apart with nuts removed. These bolts will reduce lateral flange movement during flange spreading.



3. Insert the wedge into the joint until the heel of the step is in contact with the outer surface of the joint.

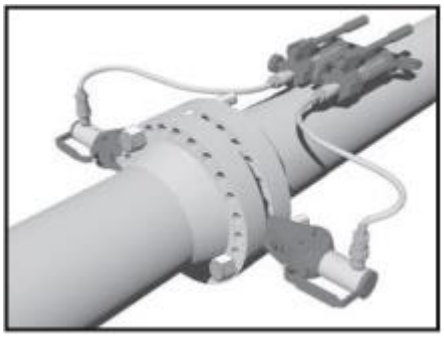
   Ensure that the full step is used and that the jaw is positioned centrally.

   Inserting the wedge incorrectly may result in tool breakage and render the warranty void.

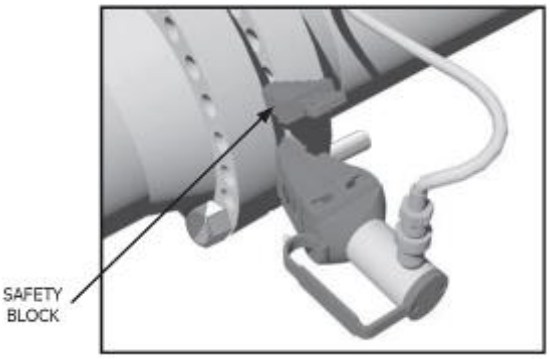


4. It is strongly recommended that two WC15TE wedges be used on the flange joint positioned 180 degrees apart.

   Prime each pump individually ensuring that the flange joint opens evenly.



5. When the joint has been opened to the desired spreading distance, or the maximum spreading distance on the current step is reached, the safety block should be inserted into the joint and the pressure released back onto it.



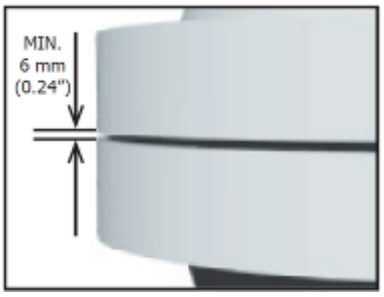
6. The wedge can then be re-inserted on its next step and the joint opened further.

7. Once the joint has been spread and all work completed, the wedges should be removed by reversing steps 4 - 6. Release the wedges by turning the release valve on the pump anti-clockwise. Ensure the wedges are released evenly until completely closed.

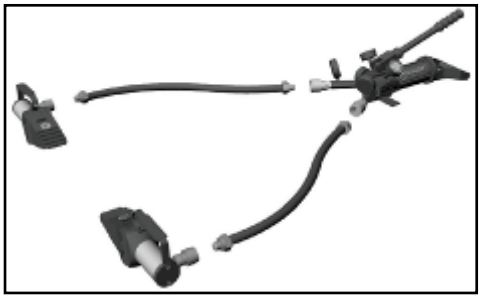
   Care should be taken not to drop any of the component parts when removing them from the flange joint. This action will prevent injuries to either the operator's lower limbs, or to passers-by.

MAXI KIT

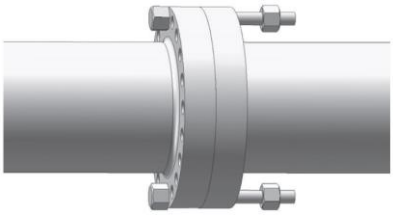
1. Determine the flange joint access gap - a minimum access gap of 6 mm (0.24”) is required.



2. Before installing the wedge, the hoses should be connected to the respective couplings on the pump and cylinders.



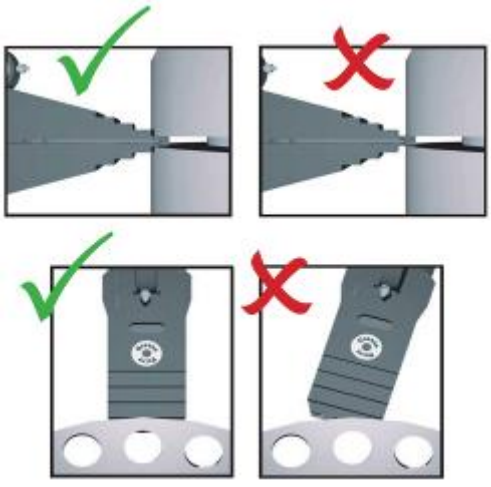
Before attaching the tool ensure at least two flange bolts remain in place 180 degrees apart with nuts removed. These bolts will reduce lateral flange movement during flange spreading.



3. Insert the wedge into the joint until the heel of the step is in contact with the outer surface of the joint.

   Ensure that the full step is used and that the jaw is positioned centrally.

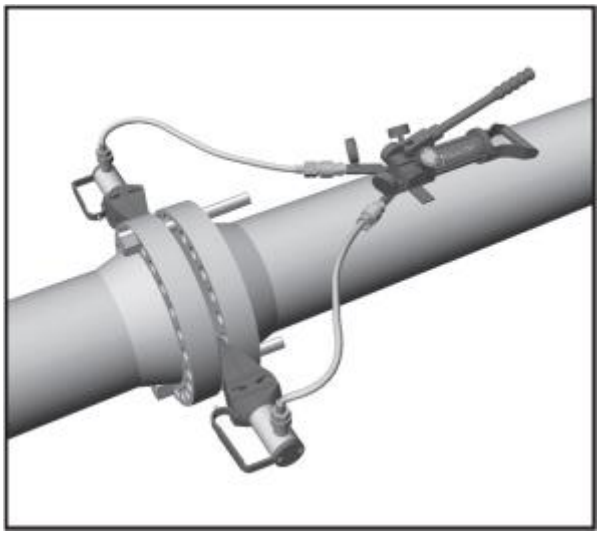
   Inserting the wedge incorrectly may result in tool breakage and render the warranty void.



4. Position the wedges 180 degrees apart on the flange joint.

   Open both upper valves on the pump and close the release valve (located on the side of the pump). Advance the wedges by priming the pump.

   If one side of the joint seems to be spreading more than the other, close the upper valve on the pump which corresponds to that side and carry on priming until the opposite side catches up.

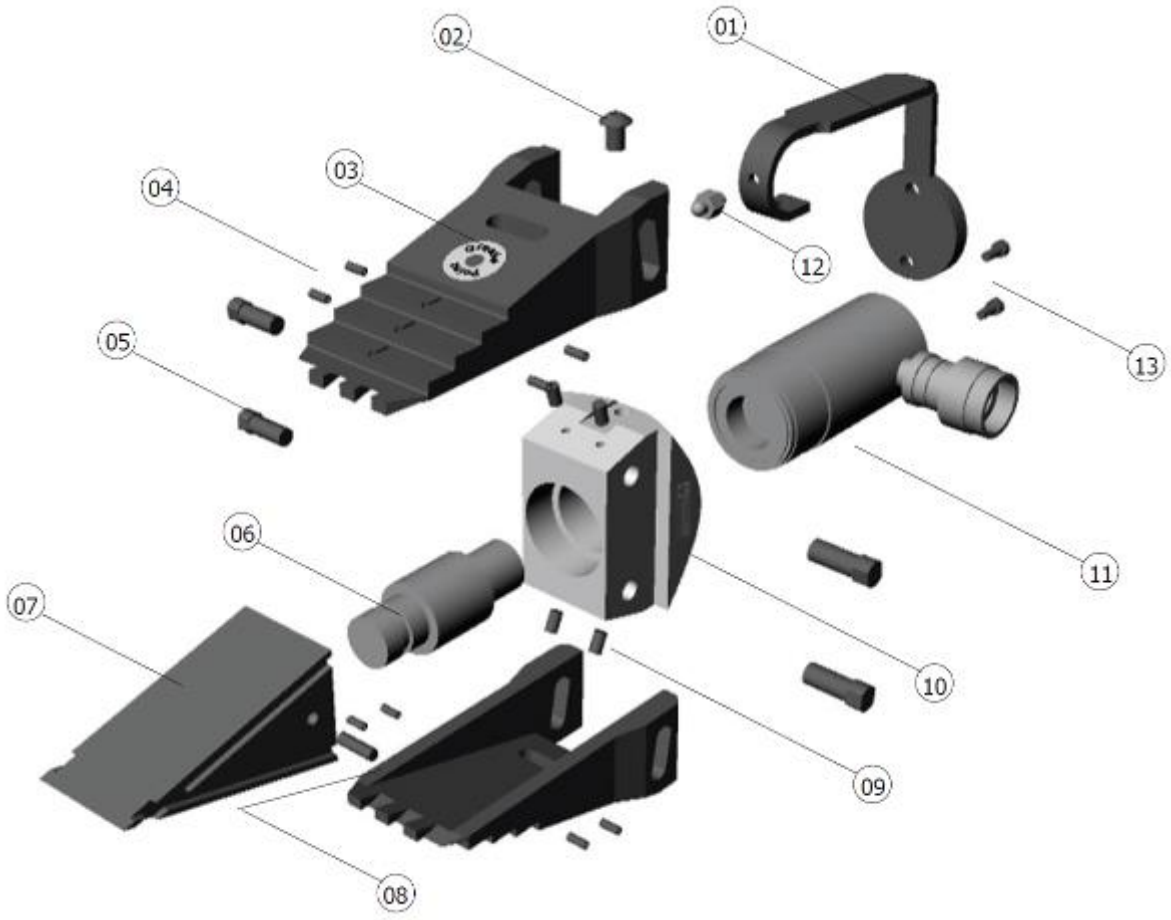


The procedure can now be completed by following steps 5 - 7 of the Mini and Standard Kit installation procedure (see previous section)

8.3 – PARTS LIST

WC15TE WEDGEHEAD

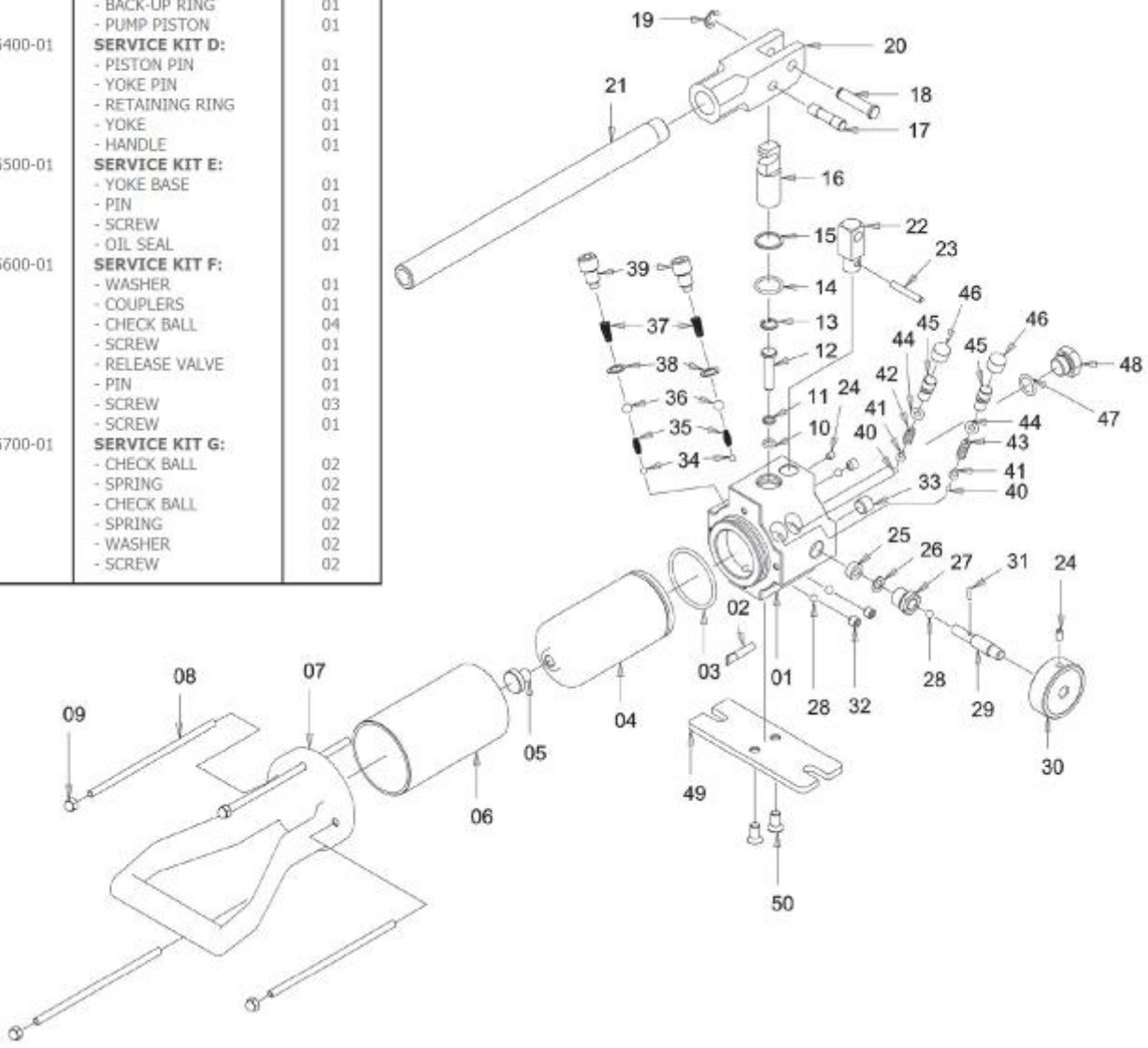
ITEM	PART No.	DESCRIPTION	QUANTITY
01	300701-01	HANDLE	01 each
02	401801-01	RETAINING SCREW FOR HANDLE	01 each
03	300203-02	JAWS	01 set of 2
04	301201-08	ROLL PINS	01 set of 8
05	300501-04	SLIDE PINS	01 set of 4
06	300301-01	CONNECTOR / PUSH ROD	01 each
07	300101-01	WEDGE	01 each
08	301301-01	GRUB SCREW	01 each
09	300401-04	GRUB SCREW	01 set of 4
10	301102-01	BODY	01 each
11	301002-01	HYDRAULIC CYLINDER	01 each
12	310601-01	GREASE NIPPLE	01 each
13	300801-02	BASE SCREWS FOR HANDLE	01 set of 2
14	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

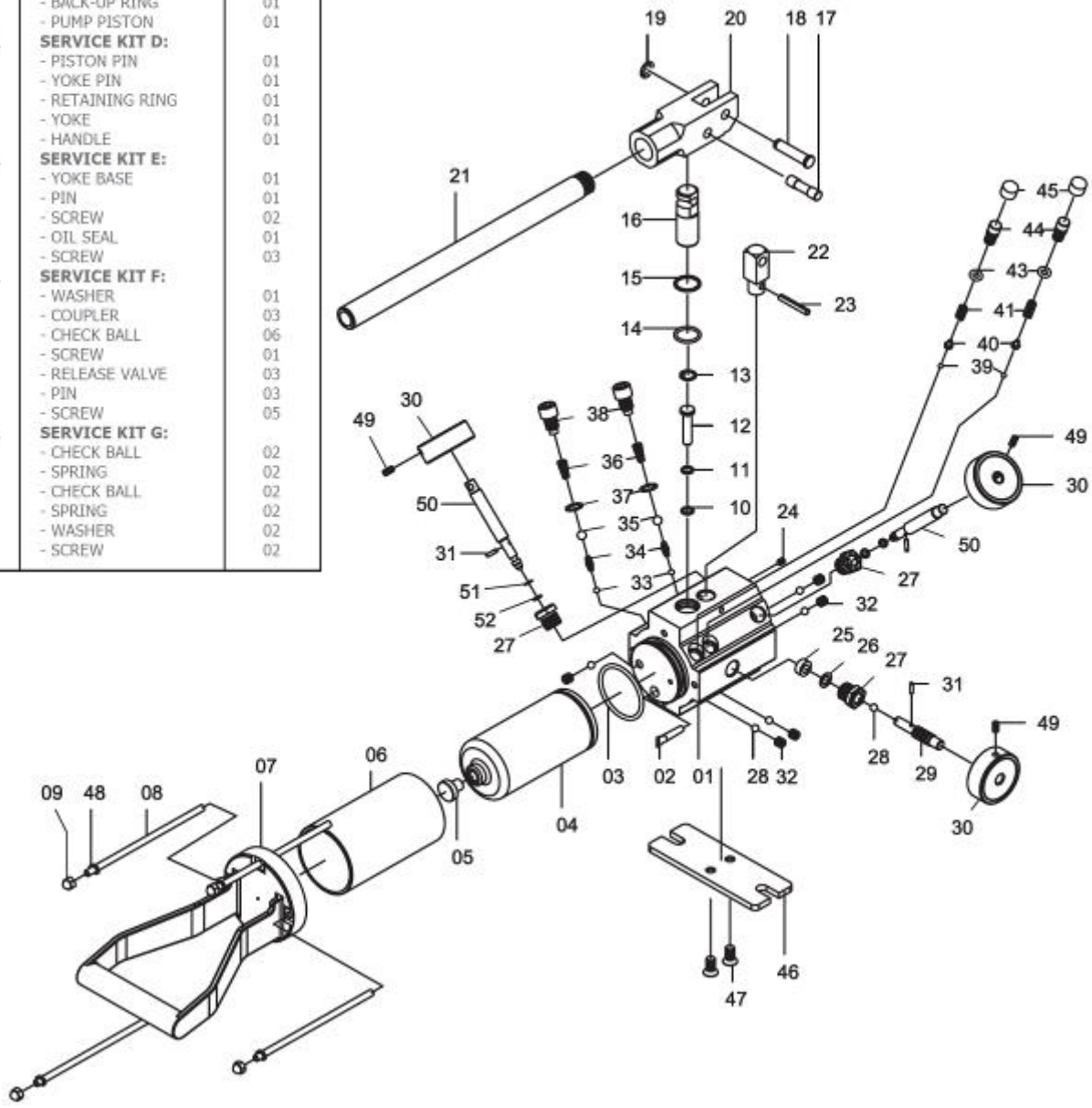
ITEM	PART No.	DESCRIPTION	QUANTITY
	715800-01	**SERVICE KIT H:**	
40		- CHECK BALL	02
41		- SPRING END CAP	02
42		- SPRING	01
43		- SPRING	01
44		- O-RING	02
45		- SCREW	02
46		- CAP	02
47	714701-01	**O-RING**	01
48	714802-01	**SCREW**	01
	715900-01	**SERVICE KIT I:**	
49		- BASE PLATE	01
50		- SCREW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



HP350D HAND PUMP

ITEM	PART No.	DESCRIPTION	QUANTITY
01	720101-01	**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
	725200-01	**SERVICE KIT B:**	
07		- TAIL BASE	01
08		- SCREW	04
09		- NUT	04
48		- SPRING WASHER	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
	725500-01	**SERVICE KIT E:**	
22		- YOKE BASE	01
23		- PIN	01
24		- SCREW	02
25		- OIL SEAL	01
49		- SCREW	03
	725600-01	**SERVICE KIT F:**	
26		- WASHER	01
27		- COUPLER	03
28		- CHECK BALL	06
29		- SCREW	01
30		- RELEASE VALVE	03
31		- PIN	03
32		- SCREW	05
	715700-01	**SERVICE KIT G:**	
33		- CHECK BALL	02
34		- SPRING	02
35		- CHECK BALL	02
36		- SPRING	02
37		- WASHER	02
38		- SCREW	02

ITEM	PART No.	DESCRIPTION	QUANTITY
	715800-01	**SERVICE KIT H:**	
39		- CHECK BALL	02
40		- SPRING END CAP	02
41		- SPRING	01
42		- SPRING	01
43		- O-RING	02
44		- SCREW	02
45		- CAP	02
	715900-01	**SERVICE KIT I:**	
46		- BASE PLATE	01
47		- SCREW	02
	726000-01	**SERVICE KIT J:**	
50		- VALVE SCREW	02
51		- BACK-UP RING	02
52		- O-RING	02



8.4 – WEIGHTS AND DIMENSIONS

WC15TE Wedgehead with Hydraulic Cylinder = 7 kg (15.4 lbs)

Carry-Case with Protective Foam Inserts = 7.5 kg (16.5 lbs)

MINI KIT GROSS WEIGHT = 7.5 kg (16.5 lbs)

STANDARD KIT GROSS WEIGHT = 16.5 kg (36.5 lbs)

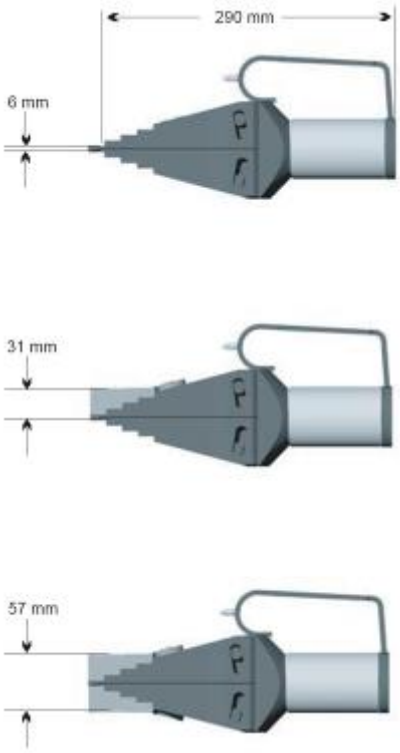
MAXI KIT GROSS WEIGHT = 27.5 kg (60.6 lbs)

Mini Kit Packaging Dimensions: 190 x 180 x 320 mm (7.48” x 7.09” x 12.60”)

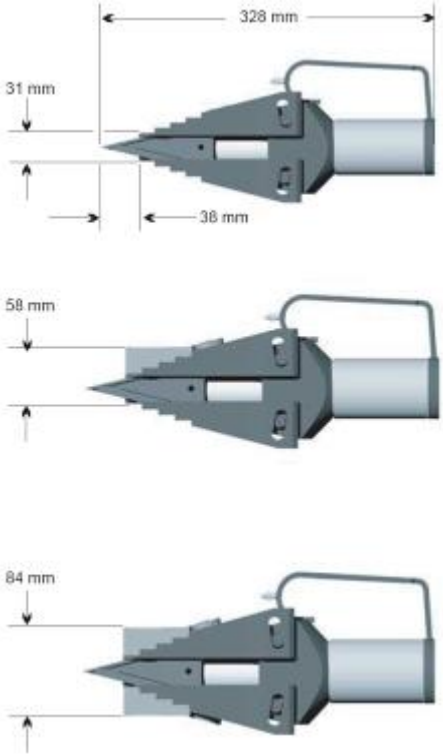
Standard Kit Carry-Case Dimensions: 640 x 540 x 165 mm (25.20” x 21.26” x 6.50”)

Maxi Kit Carry-Case Dimensions: 640 x 540 x 165 mm (25.20” x 21.26” x 6.50”)

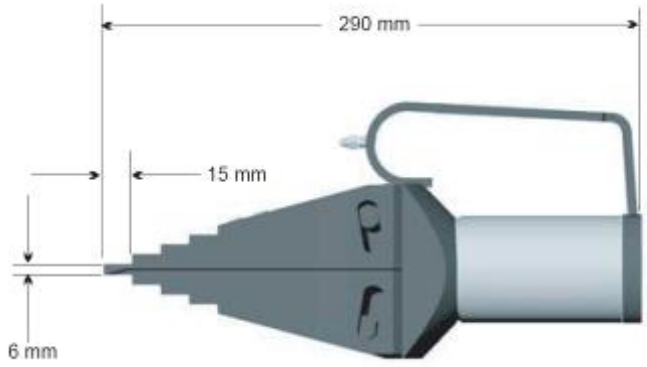
MINIMUM EXTENSIONS

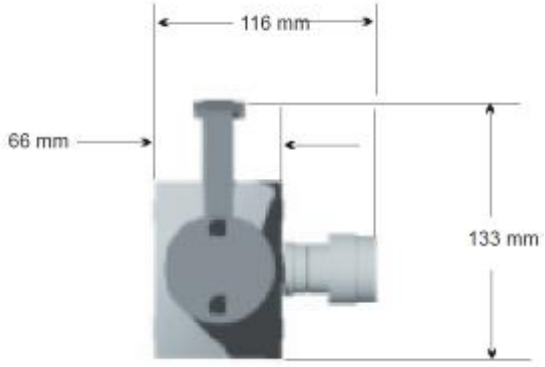


MAXIMUM EXTENSIONS

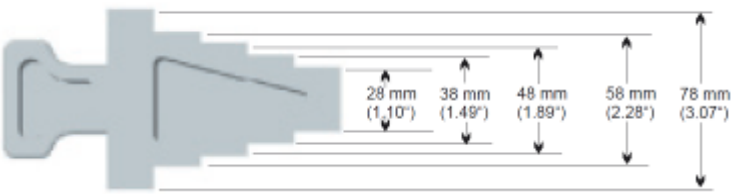


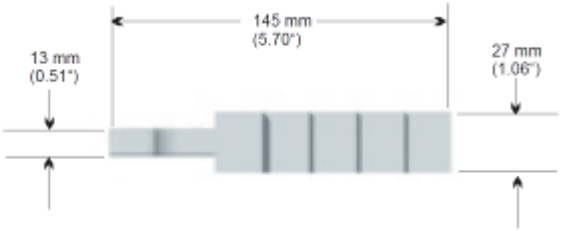
OVERALL DIMENSIONS





SAFETY BLOCK DIMENSIONS

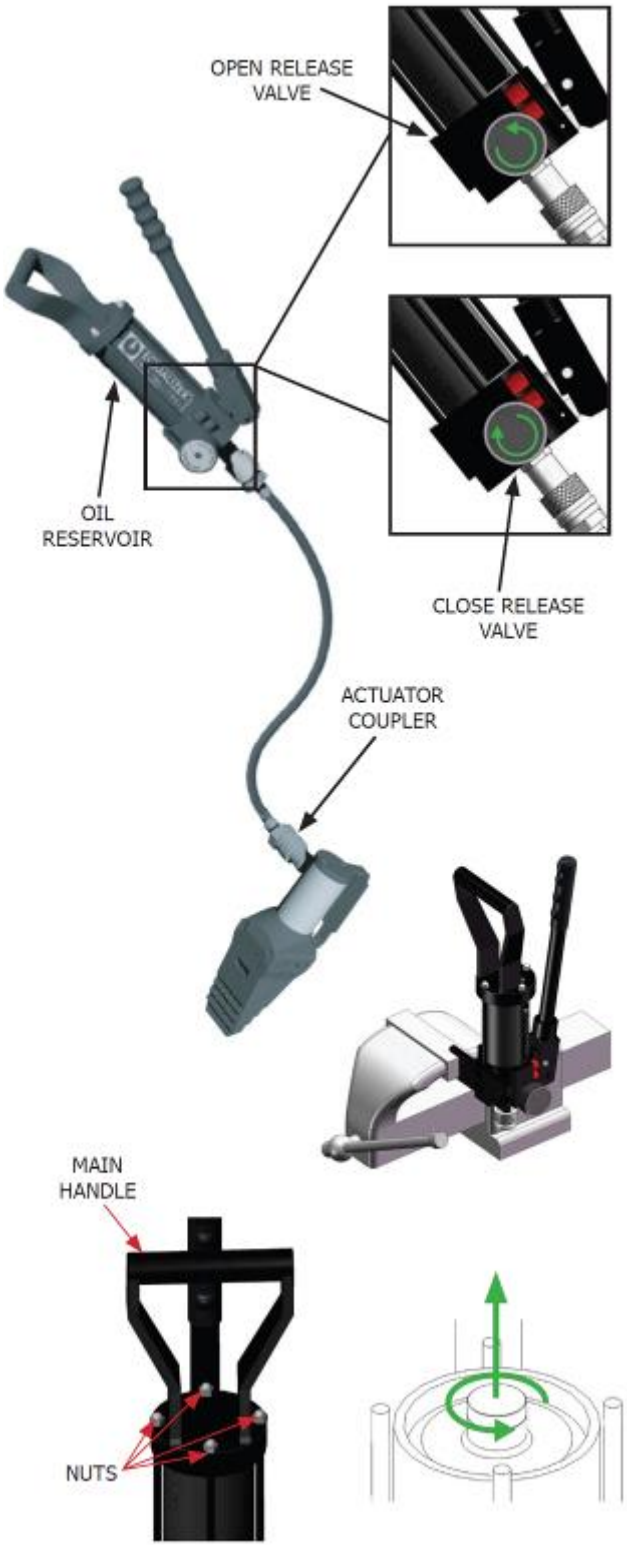




8.5 – TROUBLESHOOTING

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

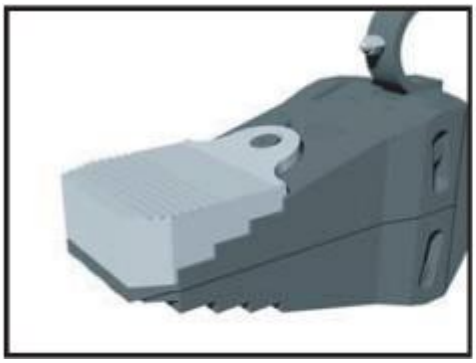


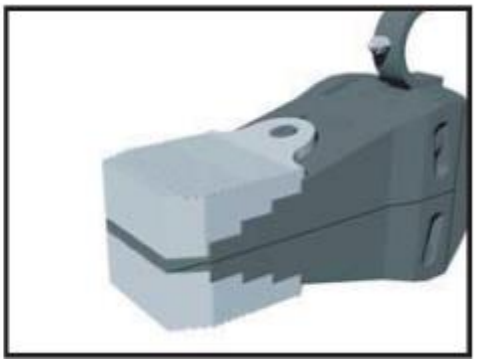
9 – STEPPED BLOCK ACCESSORY

9.1 – INSTALLATION AND OPERATION

The Christie Stepped Block enables the WC9TM, WC14.5TI and the WC15TE to be used in a joint with a larger gap, and to be used to open a joint further with less penetration (allowing, for example, spectable blinds to be change with ease).

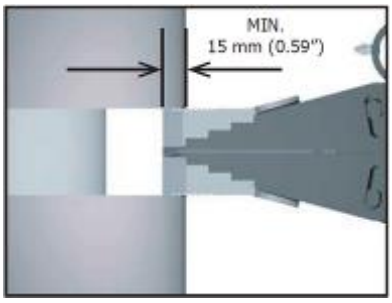
The stepped blocks can be used individually or as a pair.





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

2. Insert the tool into the joint. Ensure there is a minimum hold of 15 mm (0.59”) and that the full width of the block is used



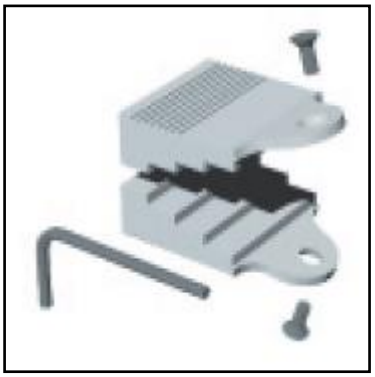
9.2 – KIT COMPONENTS

2 x Stepped Blocks

2 x M6 Countersunk Screws

1 x 4 mm Hex Key

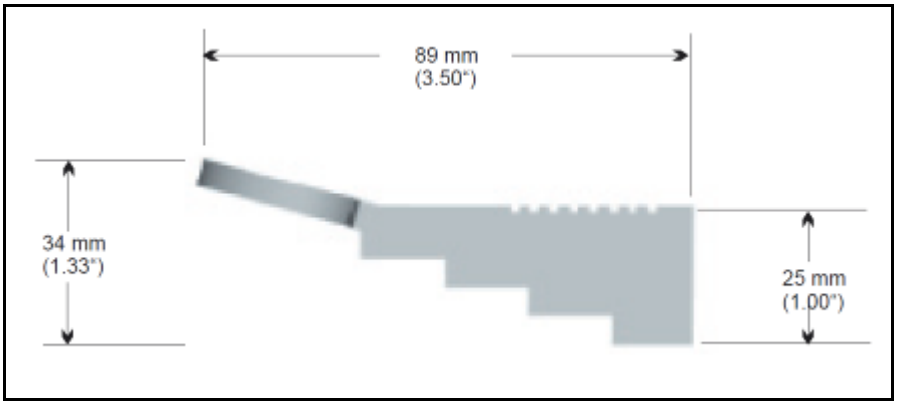
Product Code: 303301-01



9.3 – WEIGHTS AND DIMENSIONS

Stepped Block = 0.52 kg (1.14 lbs)

GROSS KIT WEIGHT = 1.5 kg (3.5 lbs)



CHRISTIE
TOTAL TORQUE SOLUTIONS

CE

E.C. DECLARATION OF CONFORMITY

MODELS COVERED: WC9TM – Mechanical Flange Spreader
WC14.5TI – Integral Hydraulic Flange Spreader
WC15TE – Hydraulic Flange Spreader

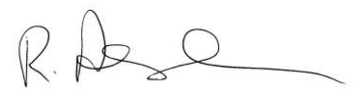
We hereby declare that the following machinery complies with the essential health and safety requirements of the European Machinery Directive 2006/42/EC published on the 9th June 2006

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

W. CHRISTIE (INDUSTRIAL) LTD
Christie House, Meadowbank Road,
Rotherham, South Yorkshire, S61 2NF

t: +44(0)1709 550088
e: info@wchristie.com
f: +44(0)1709 550030
w: www.wchristie.com

CHRISTIE
TOTAL TORQUE SOLUTIONS