

**EN**

Original Instructions

Version 2

**DRAPER**<sup>®</sup>

1 & 2 TONNE

# ENGINE CRANE

93509, 93510



UK  
CA CE

# 1. Preface

These are the original product instructions. This document is part of the product; retain it for the life of the product, passing it on to subsequent holders. Read this manual in full before attempting to assemble, operate, or maintain this product.

This Draper Tools manual describes the purpose of the product and contains all the necessary information to ensure its correct and safe use. Following all the instructions and guidance in this manual will ensure the safety of both the product and the operator and increase the lifespan of the product.

All photographs and drawings within this manual are supplied by Draper Tools to help illustrate correct operation of the product.

Every effort has been made to ensure the information contained in this manual is accurate. However, Draper Tools reserves the right to amend this document without prior warning. Always use the latest version of the product manual.

## 1.1 Product Reference

**User Manual for:** 1 Tonne Engine Crane, 2 Tonne Engine Crane

**Stock No:** 93509, 93510

**Part No:** EC1001-B, EC2002-B

## 1.2 Revisions

**Version 1:** May 2022  
First release

**Version 2:** October 2022  
Updates to part listings and assembly  
Combined manual

As our manuals are continually updated, always ensure that the latest version is used.

**Download the latest version from:**  
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## 1.3 Understanding the Safety Content of This Manual



**WARNING!** – Situations or actions that may result in personal injury or death.



**CAUTION!** – Situations or actions that may result in damage to the product or surroundings.

**Important:** – Information or instructions of particular importance.

## 1.4 Copyright © Notice

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### 3. Warranty

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Draper Tools products are carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, return the complete tool to your nearest distributor or contact Draper Tools directly. Contact information can be found at the back of this manual.

Proof of purchase must be provided.

If, upon inspection, it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This warranty period covers parts and labour for 12 months from the date of purchase. Where tools have been hired out, the warranty period covers 90 days from the date of purchase.

This warranty does not apply to any consumable parts, batteries or normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper Tools repair agent.

In all cases, to make a claim for faulty workmanship or materials within the standard warranty period, please contact or return the product to the place of purchase. Proof of purchase may be required.

If the place of purchase is no longer trading or if you experience any difficulties with your warranty, please contact Customer Services with the product details and your proof of purchase. Contact details can be found at the back of this manual.

If the tool is not covered by the terms of this warranty, repairs and carriage charges will be quoted and charged accordingly.

This warranty supersedes any other guarantees expressed or implied and variations of its terms are not authorised.

Your Draper Tools guarantee is not effective until you can produce, upon request, a dated receipt or invoice to verify your purchase within the guarantee period.

Please note that this warranty is an additional benefit and does not affect your statutory rights.

#### **Draper Tools Limited**

## 4.1 Scope

This engine crane is designed to raise engines of up to the rated weight for installation into vehicles and other machines. Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

**Important:** This is a lifting device **ONLY** and should not be used to support raised equipment for prolonged periods.

Part of our core range, this product is suitable for regular use by enthusiasts and tradespersons alike.



**WARNING! This product is not a toy and must be respected.**

Read this manual in full before attempting to assemble, operate or maintain the product, and retain it for later use.

## 4.2 Specification

Stock No.	93509	93510
Part No.	ES1001-B	ES2001-B
Rated capacity:	1,000kg	2,000kg
Position 1:		
Capacity:	1,000kg	2,000kg
Max. jib length:	910mm	638mm
Max. job height:	2,010mm	2,250mm
Position 2:		
Capacity:	750kg	1,500kg
Max. jib length:	1,000mm	458mm
Max. job height:	1,930mm	2,110mm
Position 3:		
Capacity:	500kg	1,000kg
Max. jib length:	1,090mm	278mm
Max. job height:	1,850mm	1,950mm
Position 4:		
Capacity:	250kg	500kg
Max. jib length:	1,190mm	98mm
Max. job height:	1,780mm	1,800mm
Chain length:	210mm	210mm
Standing dimensions:	W 1,420 x H 1,520 x D 930mm	W 1,000 x H 1,393 x D 1,496mm
Folded dimensions:	W 1,420 x H 1,520, x D 600mm	W 611 x H 1,305 x D 500mm
Net weight:	66.9kg	79.4kg

**Important:** Read all the Health and Safety instructions before attempting to operate, maintain or repair this product. Non-compliance with these instructions may result in injury or damage to the user, the product or the load.

## 5.1 General Health and Safety Instructions for this Product



**WARNING! DO NOT lift the engine if it may result in the spillage of dangerous substances, including fuel or battery acid.**

- Only personnel who have read and understood this manual and are trained in the use of this product and the relevant forces are authorised to operate this device.
- Observe all standard safety precautions and good practices in a workshop environment.
- Keep your work environment clear and well-lit, with bystanders at a safe distance.
- Before every use, inspect the crane for broken, cracked, loose or corroded parts.

**Important:** **DO NOT** use this product if it is damaged in any way. Contact Draper Tools to discuss repair and replacement options.

- Use the product only in the manner instructed in this manual and **DO NOT** modify it in any way.
- **ONLY** use spare parts supplied by Draper Tools,
  - The fixings on this product are high-strength bolts that **MUST NOT** be replaced by lower-grade counterparts.
- **DO NOT** use this product if you are tired or under the influence of alcohol, drugs or other medication.
- **ALWAYS** wear eye protection and protective gloves and footwear when assembling or using the crane.
- The wheels of this product **DO NOT** lock.
  - Ensure that the crane will not roll once positioned for use.
- Before moving the crane, **ALWAYS** inspect the intended route and ensure that it is clear of obstructions.
- Take care when moving the crane.
  - **ALWAYS** ensure that all parts are secured before moving the crane.
  - **DO NOT** use the crane on uneven surfaces that may cause it to tip over.

- **NEVER** leave the crane unattended when it is in use or under load.
- When not in use, ensure that the boom arm is lowered to its lowest position, the pump handle is stored in the storage socket and the release valve is fully closed.
- This product does not emit noise that exceeds a level of 70 dB(A) during operation.

## 5.2 Correct Use of the Crane



**CAUTION! This product is a lifting device ONLY and MUST NOT be used to hold, suspend or support equipment for any prolonged period of time.**

- **ALWAYS** bleed the piston before use.
- **ONLY** operate the crane on solid, level and horizontal surfaces.
  - A concrete surface is recommended, where possible.
  - The four outermost wheels of the crane should be in contact with the operating surface when in use.



**WARNING! NEVER use the crane on any surface that is slippery or may sink or rock.**

- **NEVER** attempt to lift any load that exceeds the rated capacity of the crane.
- **NEVER** attempt to lift any load higher than the maximum height of the crane.
- **DO NOT** use excessive force when opening and closing the release valve as this may damage the piston.
- **ALWAYS** ensure that both legs and the boom arm and jib are locked in place before attaching, raising or lowering a load.
- When attaching the crane to the load, **ALWAYS** use the manufacturer's recommended lifting point.
- Ensure that the lifting point is not dirty, greasy or corroded.
- **ALWAYS** ensure that the load is fully detached from its surroundings before lifting it.
- **NEVER** allow anyone to position themselves beneath the load during raising and lowering or below any load supported only by the crane.
- **DO NOT** stand or climb on the crane.
- **NEVER** remove the pump handle when the crane is under load.

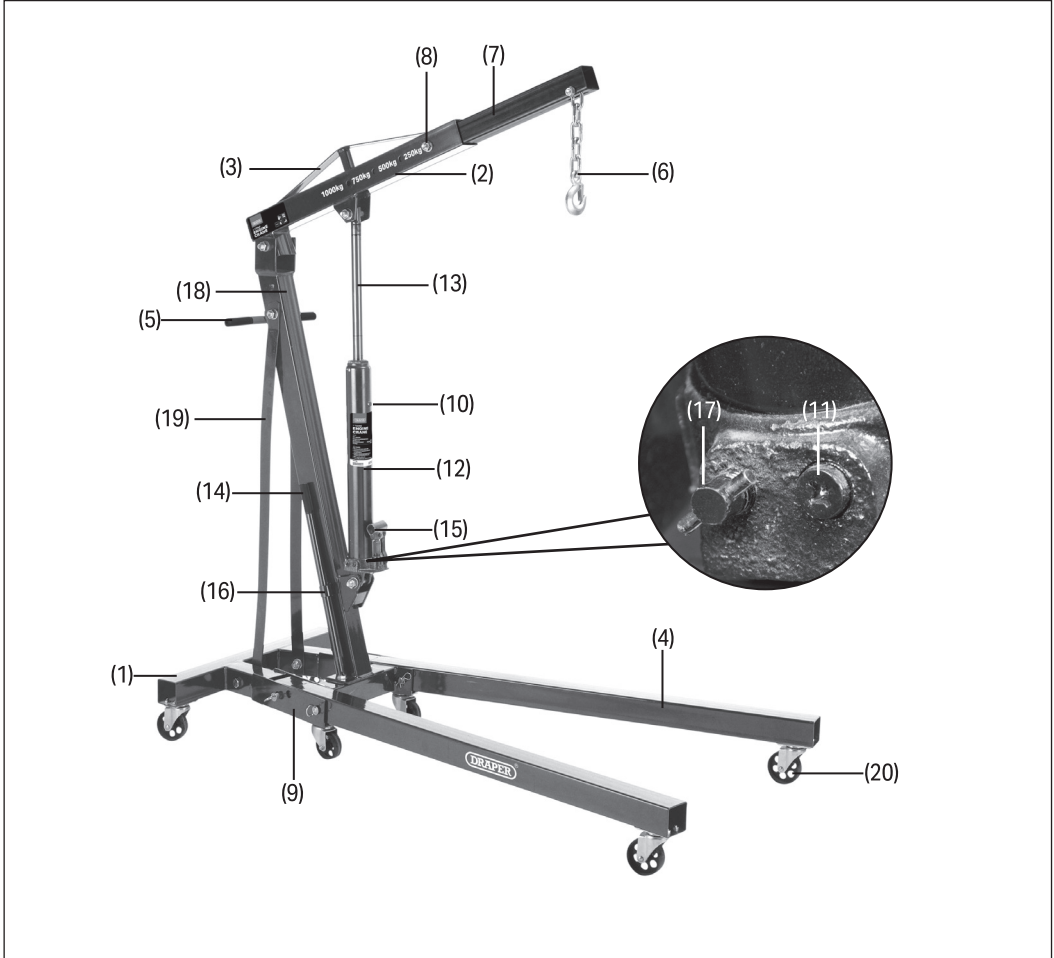
- To prevent overloading, the crane is fitted with an overload valve set at the factory.  
**Important:** The overload valve should **NOT** be adjusted under any circumstances. If the capacity of the crane is exceeded, the valve will prevent the lifting operation.
- Take **all** precautions to prevent movement of the load during raising and lowering.
  - Be aware that external forces may cause the load to rock.
- Stay alert to external interference that may cause the raised load to rock during preparation and operation.
  - Should any dangerous conditions occur, cease **all** operation until these conditions have been rectified.
- Stay alert to the possibility of the load slipping from the hook and remain observant at all times.
- If lifting the engine into or from a vehicle:
  - Ensure that the vehicle is in gear (for manual transmission) or "park" (for automatic transmission).
  - Take any necessary precautions to prevent the vehicle from sliding, including chocking the wheels (Rubber Wheel Chocks, Stock No. 54500, for example).
- Position the engine as close as possible to its next destination in preparation for lifting.
  - **DO NOT** move the crane further than is absolutely necessary while under load.
  - **ALWAYS** ensure that the route from the location of engine to its destination is clear of obstructions and as short as possible.

**Important:** This engine crane is **NOT** suitable for use with aircraft parts.

### 5.3 Residual Risk

The safety instructions in this manual cannot account for all possible conditions and situations that may occur. Exercise common sense and caution when using this product and protect against any additional conceivable risks.

## 6.1 Product Overview



- (1) Base frame
- (2) Boom arm
- (3) Boom arm support
- (4) Folding legs
- (5) Frame handle
- (6) Hook and chain
- (7) Jib
- (8) Jib locking bolt
- (9) Leg brackets
- (10) Oil bung

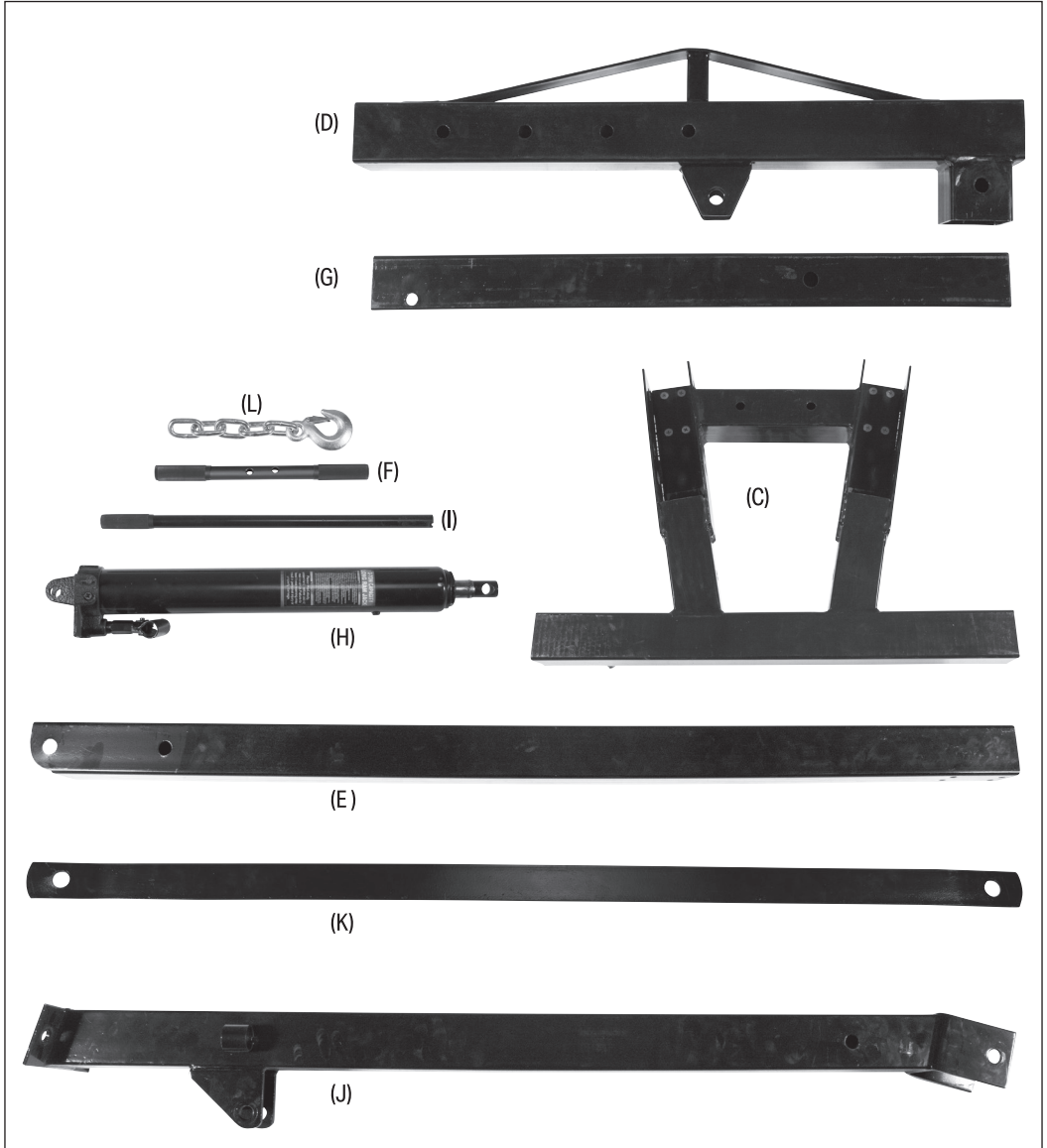
- (11) Overload valve
- (12) Piston
- (13) Piston ram
- (14) Pump handle
- (15) Pump handle socket
- (16) Pump handle storage socket
- (17) Release valve
- (18) Vertical frame
- (19) Vertical frame supports
- (20) Wheel castors

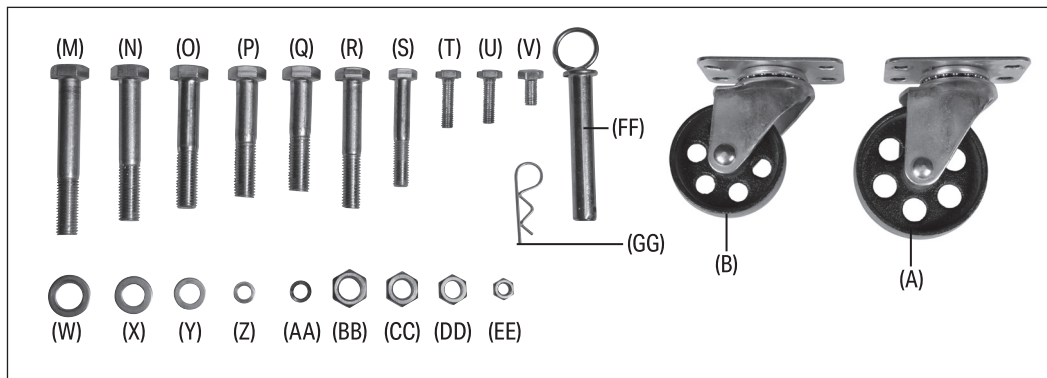


## 6.2 What's in the Box?

Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment.

Before assembling the product, lay the contents out and check them against the parts shown below. If any part is damaged or missing, do not attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.





- |                                 |                             |
|---------------------------------|-----------------------------|
| (A) 4 x 3½" swivel castors      | (V) 8 x M8 x 12mm hex bolts |
| (B) 2 x 3" swivel castors       | (W) 6 x M16 washers         |
| (C) 1 x Base frame assembly     | (X) 3 x M14 washers         |
| (D) 1 x Boom arm                | (Y) 1 x M12 washer          |
| (E) 2 x Folding legs            | (Z) 24 x M8 washers         |
| (F) 1 x Frame handle            | (AA) 24 x M8 spring washers |
| (G) 1 x Jib extension           | (BB) 6 x M16 nuts           |
| (H) 1 x Piston assembly         | (CC) 3 x M14 nuts           |
| (I) 1 x Pump handle             | (DD) 1 x M12 nut            |
| (J) 1 x Vertical frame          | (EE) 16 x M8 nuts           |
| (K) 2 x Vertical frame supports | (FF) 4 x Leg locking pins   |
| (L) 1 x Hook and chain          | (GG) 4 x Split pins         |
| (M) 1 x M16 x 120mm hex bolts   |                             |
| (N) 1 x M16 x 110mm hex bolt    |                             |
| (O) 2 x M16 x 100mm hex bolts   |                             |
| (P) 1 x M16 x 90mm hex bolt     |                             |
| (Q) 1 x M16 x 80mm hex bolt     |                             |
| (R) 3 x M14 x 100mm hex bolts   |                             |
| (S) 1 x M12 x 75mm hex bolt     |                             |
| (T) 16 x M8 x 20mm hex bolts    |                             |
| (U) 2 x M8 x 16mm hex bolts     |                             |

Please visit [drapertools.com](http://drapertools.com) for our full range of accessories and consumables.

## 6.3 Packaging

Keep the product packaging for the duration of the warranty period in case the product needs to be returned for repair.



**WARNING! Keep packaging materials out of reach of children. Dispose of packaging correctly and responsibly and in accordance with local regulations.**

**Important:** Read and understand all the safety instructions listed in this manual before attempting to assemble this product. Some parts may be assembled before shipment. During installation, tighten all fixings by hand, then tighten them securely once installation is complete.

**⚠ WARNING! Some parts of this product are heavy and may require assistance to lift. Take all necessary precautions when lifting heavy parts and DO NOT overexert yourself.**

1. Attach two 3 1/2" wheel castors to the base frame assembly.
  - a. Position the base frame assembly (C) upside down so that the holes to attach the wheels are directed upwards.
  - b. Align a 3 1/2" wheel castor (A) with the four holes at one end of the crossbar.
  - c. Insert four M8 x 20mm hex bolts (T) down through the castor and base frame assembly.

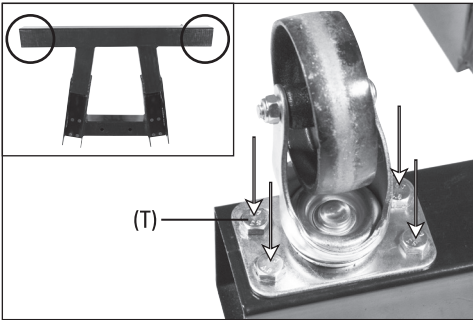


Fig. 1

- d. Tighten each bolt in place with an M8 spring washer (AA), an M8 washer (Z) and an M8 nut (BB) inside the base frame.

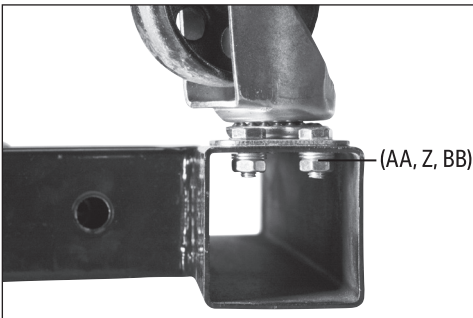


Fig. 2

- e. Repeat these steps for the second wheel.
2. Attach the 3" wheel castors to the leg brackets of the base frame.
  - a. Align a 3" wheel castor (B) with the four holes on one of the base frame leg brackets (9).
  - b. Pass four M8 x 12mm hex bolts (V) each through an M8 washer (Z) and an M8 spring washer (AA) and insert them through the castor and base frame assembly.

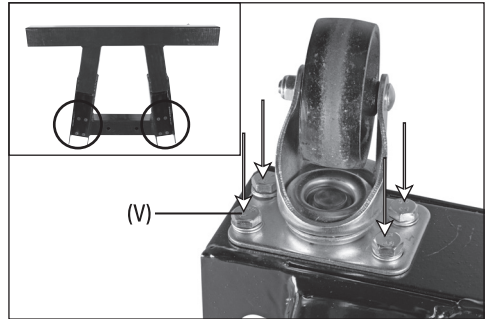


Fig. 3

3. Attach a wheel castor to each folding leg.
  - a. Position a folding leg (E) so that four small holes are visible at one end of the bar.
  - b. Align a 3 1/2" wheel castor (A) with the four holes and insert four M8 x 20mm hex bolts (T) down through the castor and folding leg.

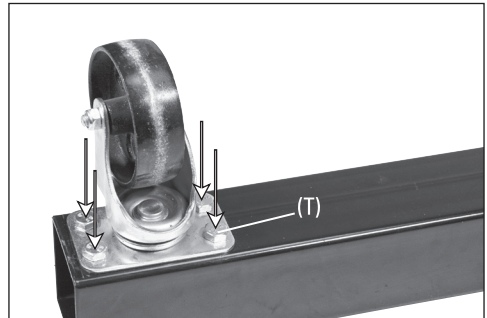


Fig. 4

- c. Tighten each bolt in place with an M8 spring washer (AA), an M8 washer (Z) and an M8 nut (BB) inside the folding leg.

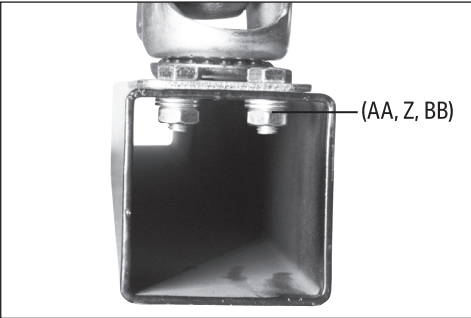


Fig. 5

- d. Repeat these steps for the other folding leg.
4. Attach the folding legs to the base frame assembly.
- Position the base frame assembly and folding legs so that they are resting on their wheels.
  - Slide a folding leg into one of the openings in the base frame until the holes align.

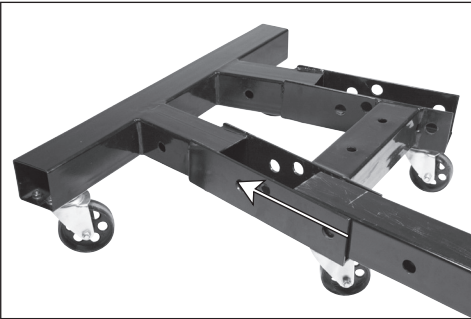


Fig. 6

- c. Insert a leg locking pin (FF) inwards through the left-most hole of the leg bracket so that it passes through the base frame and folding leg.
- Important:** It may be necessary to lift the base frame assembly slightly to allow the holes to align.
- d. Insert a split pin (GG) through the leg locking pin to secure it in place.

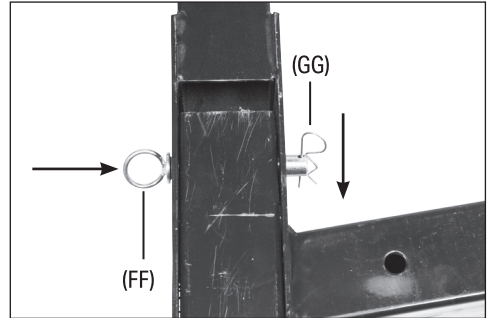


Fig. 7

- e. Insert a leg locking pin (FF) through the hole above the middle wheel and secure it in place using a split pin (GG).

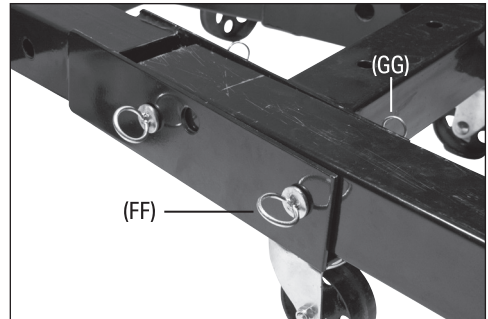


Fig. 8

- f. Repeat these steps for the other folding leg.
5. Use the two M8 x 16mm hex bolts (U) to fix the frame handle (F) to the back of the vertical frame (J).

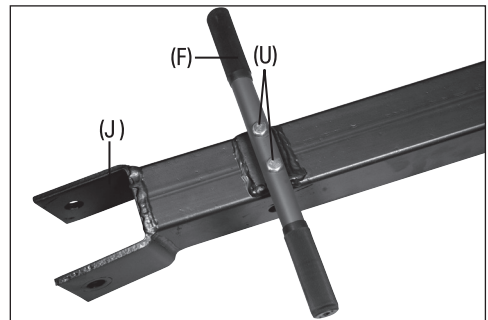


Fig. 9

# 7. Assembly

6. Attach the vertical frame to the base frame assembly.

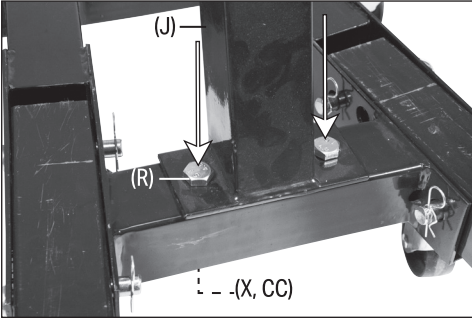


Fig. 10

- a. Stand the vertical frame (J) on the short crossbar of the base frame assembly so that the holes of the perpendicular plate align with the base and it leans away from the outstretched legs.
- b. Insert two M14 x 100mm hex bolts (R) down through the vertical frame and base frame assembly.
- c. Secure the bolts in place with an M14 washer (X) and an M14 nut (CC).

7. Attach the vertical frame supports.

- a. Align a vertical frame support (K) with the outside edge of the base frame assembly and the hole near the top of the vertical frame.
- b. Insert the M16 x 110mm hex bolt (N) through the top of the support and the vertical frame, and secure it loosely in place with an M16 washer (W) and an M16 nut (BB).

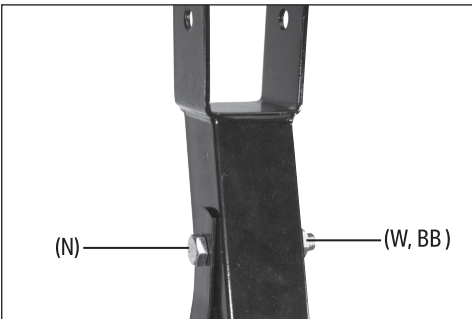


Fig. 11

- c. Insert a M16 x 100mm (O) through the bottom of the support and the base frame and secure it in place with an M16 washer (W) and an M16 nut (BB).

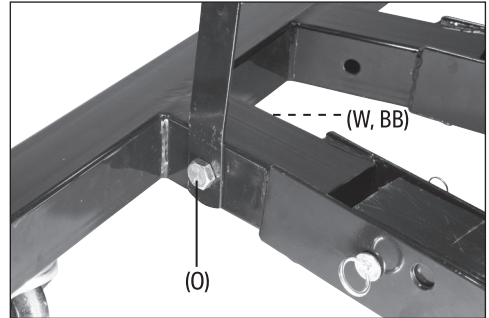


Fig. 12

- d. Repeat these steps for the other vertical frame support, using the same bolt, washer and nut inserted at step b. to secure it to the vertical frame.

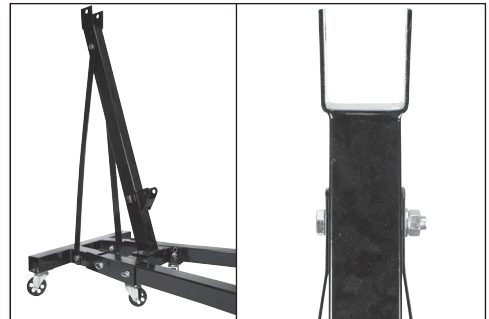


Fig. 13

8. Attach the boom arm (D) to the vertical frame.

- a. Insert the square attachment of the boom arm into the U-shaped bracket at the top of the vertical frame.



Fig. 14

- b. Insert the M16 x 120mm hex bolt (M) through the bracket and boom arm and secure it in place with

an M16 washer (W) and an M16 nut (BB).

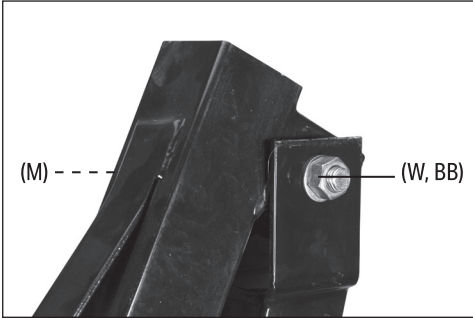


Fig. 15

9. Attach the piston assembly.

- a. Position the brackets beneath the piston assembly (H) between the brackets near the base of the vertical frame.

When in an upright position, the piston ram (13) should point upwards and the oil bung (10) should face outwards, away from the vertical frame.

- b. Insert the M16 x 90mm hex bolt (P) through the brackets of the vertical frame and piston, and secure it in place with an M16 washer (W) and an M16 nut (BB).

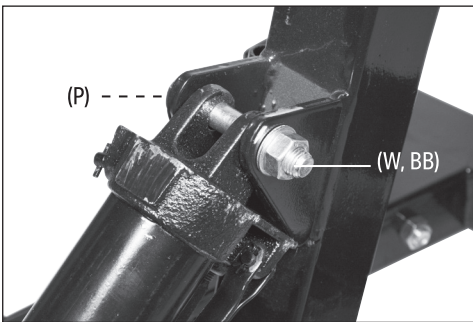


Fig. 16

- c. Move the piston assembly into an upright position and position the boom arm so that the brackets align with the hole in the piston ram.

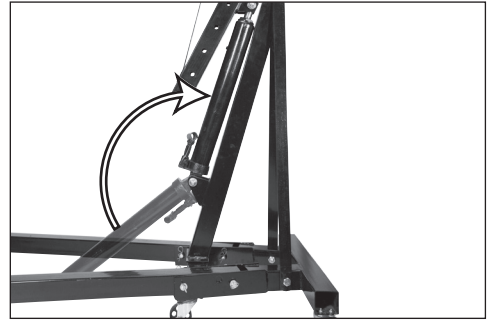


Fig. 17

- d. Insert the M16 x 80mm hex bolt (Q) through the brackets of the boom arm and the piston ram, and secure it in place with an M16 washer (W) and an M16 nut (BB).

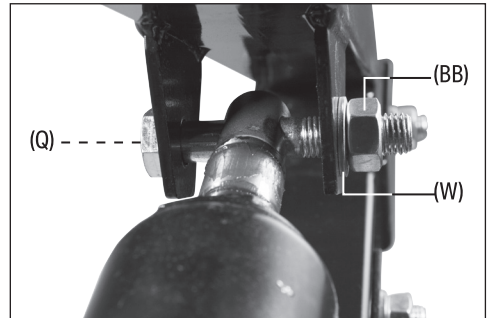


Fig. 18

10. Attach the jib extension to the boom arm.

- a. With the slot on the downward-facing side and away from the boom arm, slide the jib extension (G) all the way into the open end of the boom arm until the larger hole aligns with the greatest weight location.

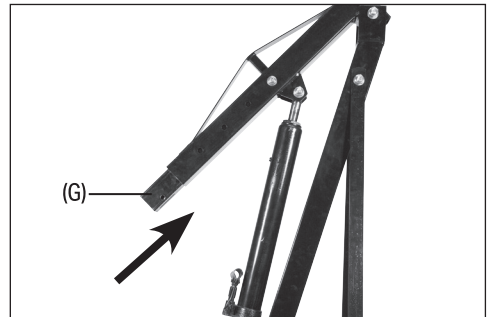


Fig. 19

- b. Insert an M14 x 90mm hex bolt (R) through the boom arm and jib extension, and secure it in place with an M14 washer (X) and an M14 nut (CC).

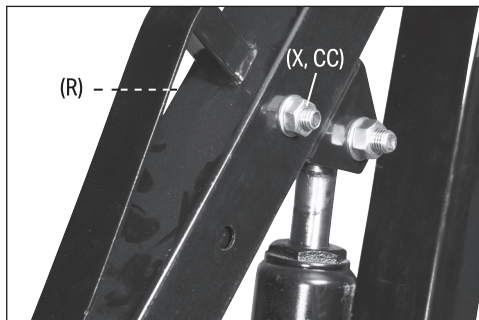


Fig. 20

- c. Insert the chain (L) up into the slot of the jib extension.
- d. Insert the M12 x 75mm hex bolt (S) through the jib extension and the chain link and use the M12 washer (Y) and M12 nut (DD) to secure it in place.

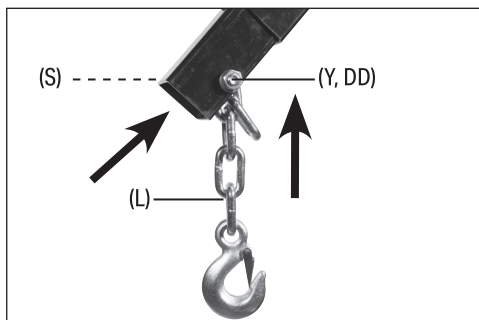


Fig. 21

- 12. Insert the pump handle (I) into the pump handle socket (16).

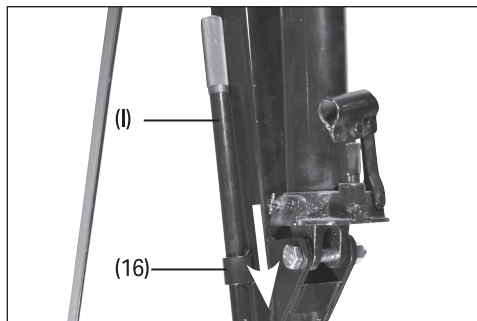


Fig. 22

- 11. Ensure that the crane is level and tighten all fixtures with an appropriate spanner.

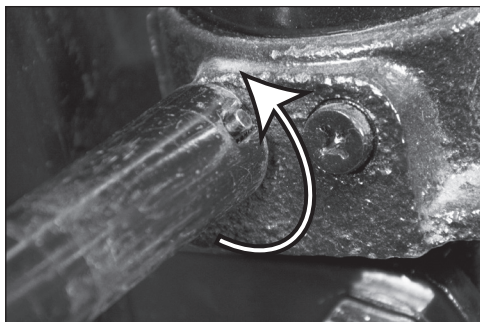


Fig. 23  
Twisting the release valve anticlockwise opens the valve and lowers the boom arm.

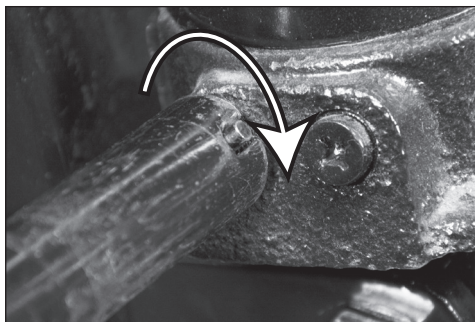


Fig. 24  
Twisting the release valve clockwise closes the valve.

**Important:** Before lifting any load, read and understand all the safety instructions listed in this manual. **ALWAYS** test the crane thoroughly, bleed the piston and ensure that all bolts and attachments are securely fastened before use.

**CAUTION!** This product is for lifting engines **ONLY**. **DO NOT** use this product to suspend equipment for prolonged periods.

## 8.1 Preparing the Crane for Use

Prepare the crane correctly before each use:

1. Check the crane for bent, broken, cracked or loose parts, and oil leaks; ensure that the wheel castors rotate freely.  
**WARNING! Do not use the product if defects are present. If it is suspected that the crane has been subjected to abnormal loads or has suffered any knocks, withdraw it from service until the product has been repaired.**
2. Bleed the crane piston:
  - a. Remove the pump handle (14) from the pump handle storage socket (16) and use the notched end to carefully turn the release valve (17) anticlockwise slightly.
  - b. Allow the boom arm (2) to drop slowly to its lowest position, then open the release valve a little further.
  - c. Insert the pump handle into the flat end of the pump handle socket (15), ensuring that the notches correctly engage with the socket interior.

- d. Apply downward force to the boom arm while rapidly pumping the handle down and up at least ten times using the full stroke range to lubricate the piston and expel any accumulated air.
  - e. Use a small flat-headed screwdriver to push the rubber oil bung (10) to one side and allow any additional air to escape.  
**Important: DO NOT** remove the oil bung unless topping up the piston oil.
  - f. Remove the pump handle from the socket and use the notched end to rotate the release valve clockwise until strong resistance is felt.
3. Test the crane:
    - a. With the release valve fully closed, insert the pump handle into the pump handle socket and pump it down and up to raise the boom arm to its highest position.
    - b. Observe the boom arm to check that it does not drop.
  4. If the boom arm begins to drop without intervention:
    - a. Open the release valve and allow the boom arm to drop to its lowest position.
    - b. Pump the handle down and up another ten times.



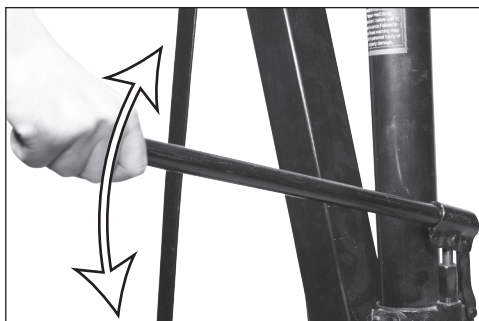


Fig. 25

Pumping the handle down and up when in the pump socket raises the boom arm if the release valve is closed.



Fig. 26

- c. Manually raise the boom arm and force it downwards as quickly as possible several times.

**⚠ WARNING! The boom arm will not be held in place by the piston when it is manually raised. The downward motion may cause the crane to roll.**

- d. Close the release valve.

- 5. Test and purge the piston several more times. If the issue is not resolved after several attempts, contact Draper Tools for assistance.

## 8.2 Raising a Load

1. Ensure that the legs are fully unfolded and secured in position (see **8.4 Unfolding and Folding the Legs**).
2. Using the rated capacity markings, identify the appropriate load position on the boom arm (2). **Important:** The load position capacity should be the lowest value that is **GREATER** than the load. The maximum load decreases as the boom arm extends.
3. Remove the jib locking bolt (8) and extend the jib (7) until it aligns with the required load position.
4. Pass the jib locking bolt through the load position opening and secure it tightly with the washer and nut.
5. Holding the boom arm support (3) and the vertical frame (18), carefully move the crane so that the hook (6) is directly above the lifting point of the load.
6. Attach the hook to the lifting point of the load and ensure that it is securely fastened.

7. Remove the pump handle (14) from the pump handle storage socket (16) and use the notches at the open end to ensure that the release valve is fully closed by rotating it clockwise as far as possible.
8. Insert the pump handle into the flat end of the pump handle socket (15), ensuring that the notches engage correctly with the socket interior.
9. Pump the pump handle down and up until the load has reached the required height.
10. Return the pump handle to the storage socket.

**⚠ WARNING! DO NOT move the crane further than is absolutely necessary while under load.**

**⚠ CAUTION! This product is a lifting device ONLY. NEVER leave a load suspended for prolonged periods as the weight may cause it to lower over time. Loads to be raised for extended periods MUST be held in place by suitable supports positioned as appropriate for the load.**

## 8.3 Lowering a Load

1. Ensure that no persons or objects are positioned beneath the load.
2. Remove the pump handle (14) from the pump handle storage socket (16) and place the handle notches over the release valve.

# 8. Operating Instructions

- 3. Slowly and carefully use the pump handle to rotate the release valve anticlockwise to lower the load.  
**Important: DO NOT** rotate the release valve more than a quarter turn at any one time.

- 4. Use the pump handle to rotate the release valve clockwise to secure the piston ram.

## 8.4 Unfolding and Folding the Legs

**Important: ALWAYS** ensure that the crane is fully lowered and detached from any load before changing the position of the legs. **NEVER** fold the legs while the crane is under load or the piston ram is extended.

- 1. To unfold the legs:
  - a. Remove the split pin (GG) from the raised hole beside the base of one of the folding legs and slide out the leg locking pin (FF).

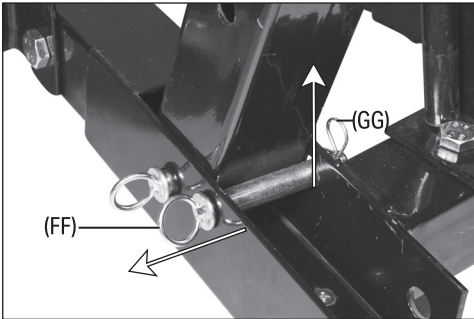


Fig. 27

- b. Carefully lower the leg to the ground.

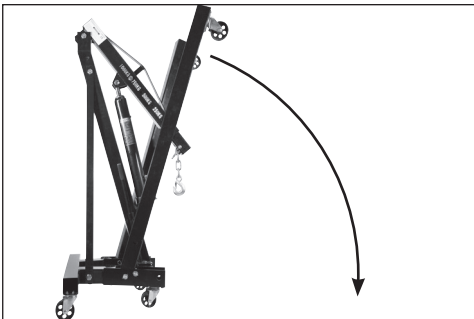


Fig. 28

- c. Insert the locking pin through the leg bracket (9) and the leg in its horizontal position and secure it in place with the split pin.

**Important:** The crane frame may need to be tilted slightly to allow the openings in the leg and leg

bracket to align correctly. Exercise caution when tilting the crane frame and seek assistance if necessary.

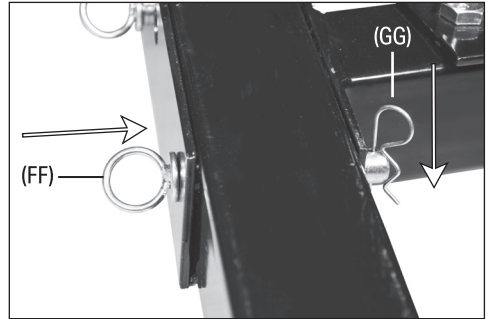


Fig. 29

- d. Repeat this process for the other folding leg.

**Important:** When unfolded, the central castors should not be in contact with the ground.

- 2. To fold the legs:
  - a. Ensure that the piston ram (13) is fully lowered before folding the legs.
  - b. Remove the split pin (GG) above the central wheel of the the leg bracket and slide out the leg locking pin (FF).

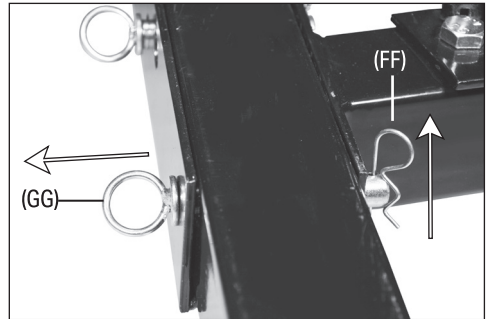


Fig. 30

- c. Carefully lift the leg and raise it as far as possible so that the hole beside the base of the leg is clear.

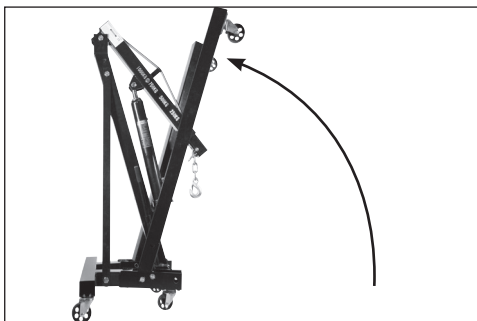


Fig. 31

- d. Insert the locking pin into the hole beside the base of the folded leg and secure it in place with the split pin. This will prevent the folded leg from falling.

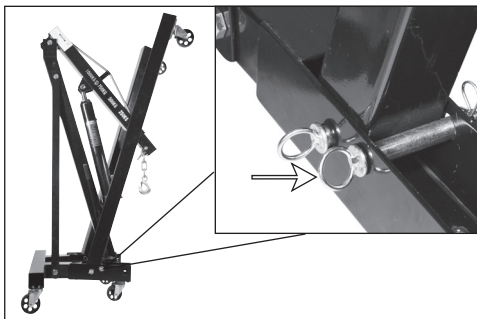


Fig. 32

**Important:** The folded leg may still move and tip slightly while locked in this position. To prevent the crane for tipping over, **ALWAYS** ensure that the legs are titled backwards against the vertical frame supports (19) when folded.

- e. Repeat this process for the other folding leg.

**Important:** Maintenance and repair of the crane must only be performed by qualified personnel with sufficient knowledge of the hydraulics systems used in these devices. All maintenance should be performed in accordance with these instructions.

**Important:** ALWAYS drain the crane of oil before returning it to Draper Tools for repair.



**WARNING! DO NOT attempt to perform any maintenance on the crane while it is under load. Safely lower and remove any load from the crane before proceeding.**

## 9.1 General Maintenance

- Keep the crane clean and regularly lubricate all moving parts.
  - Dust and debris may cause components to become clogged or jammed, and the product may not perform at its best.
- Protect the crane and its components from adverse environmental and weather conditions, both during use and when stored.
  - The components may rust if exposed to water or damp air for prolonged periods.
- Before each use, check the crane for signs of damage or disrepair.

## 9.2 Checking and Replacing the Oil

To extend the working life of the product, keep the oil at an appropriate level and replace it after periods of prolonged intensive use or at least once every three years.



**CAUTION! Use AW 22 hydraulic oil. Never use brake or engine oil. DO NOT pump the piston while topping up the oil.**



**WARNING! Oil spillage may cause the operating surface to become slippery. Do not operate the crane on oily surfaces.**

1. Place the crane on a level, horizontal surface.
2. Use the notched end of the pump handle to open the release valve (17) and fully lower the boom arm (2).

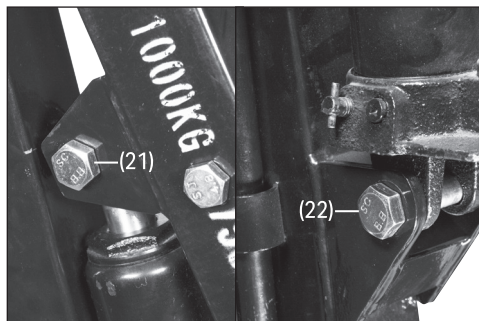


Fig. 33

3. To drain the oil, if necessary:
  - a. Carefully unscrew and remove the bolt (21) that fixes the piston ram (13) to the boom arm.  
**Important:** Be aware that the boom arm will drop when the piston is moved.
  - b. Carefully unscrew and remove the bolt (22) that fixes the piston assembly to the vertical frame and lift the piston away from the crane.
  - c. Remove the rubber oil bung (10), tip the piston horizontally and allow the oil to drain from the opening into an appropriate container.
  - d. Wipe the piston clean and reinsert the oil bung.
  - e. Use the bolts, washers and nuts to reattach the piston to the vertical frame and boom arm.
4. To refill or top up the oil:
  - a. Remove the rubber oil bung (10) from the piston.
  - b. Add oil into the opening until the chamber is full.
  - c. Replace the oil bung.
5. Ensure that all fixings are tight, then bleed and test the crane (see 8.1 Preparing the Crane for Use).

Dispose of oil according to local regulations.

## 9.3 Storing the Crane

When the crane is not in use:

- Place the pump handle (14) in the pump handle storage socket (16) and fold the legs away securely to prevent a trip hazard.
- Ensure that the boom arm is fully lowered and apply an anti-corrosion product to the piston if appropriate.
- Store the crane in a clean and dry location, out of reach of children.

## 9.4 Troubleshooting

Problem	Possible Cause	Remedy
The boom arm does not raise when the pump handle is pumped.	The release valve is not fully closed.	Use the notched end of the pump handle to turn the release valve clockwise until strong resistance is felt. Bleed the piston if necessary.
	The maximum load has been exceeded.	Use an appropriately rated crane or reduce the weight of the load. <b>DO NOT</b> adjust the overload valve.
	The piston system is corroded.	<b>DO NOT</b> use the jack. Contact Draper Tools to discuss repair or replacement options.
	The piston oil level is too low.	Top up the oil; see section <b>9.2</b> .
The chain and hook drop once lifted or will not lift to their full height.	The release valve is not fully closed.	Use the notched end of the pump handle to turn the release valve clockwise until strong resistance is felt. Bleed the piston if necessary.
	The hydraulics mechanism is damaged.	<b>DO NOT</b> use the jack. Contact Draper Tools to discuss repair or replacement options.
	There is air in the hydraulic system.	Bleed the piston; see <b>8.1</b> .
The pump handle socket is stiff or the piston raises the saddle slowly.	The piston system is not appropriately lubricated.	Follow the steps in section <b>8.1</b> .
Oil is leaking from the piston oil bung.	The oil level is too high.	Follow the steps in <b>9.2</b> to remove the piston and oil bung. Allow the excess oil to run out of the piston, then reinstall.
	The oil bung is damaged and cannot create an airtight seal.	<b>DO NOT</b> use the crane. Contact Draper Tools for repair and replacement options.

## 10. Returns and Disposal

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For spare parts, servicing, and repair and replacement options, please contact the Draper Tools Product Help-line for details of your nearest authorised agent.

Draper Tools will endeavour to hold any spare parts, if applicable, for seven years from the date that it sells the final matching stock item.

Any servicing or repairs carried out by unauthorised personnel or installation of spare parts not supplied by Draper Tools will invalidate your warranty.

**Important:** For safety, **ALWAYS** drain and clean the product of any oil before returning it to Draper Tools or its authorised agent. Store these materials in suitable containers and dispose of them in accordance with local regulations. Draper Tools and its agents cannot be responsible for the disposal of these substances.

At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

Dispose of oil separately and in accordance with local regulations; **DO NOT** abandon it in the environment.





Read the instruction manual



Wear suitable eye protection



Wear protective footwear



Wear protective gloves



Do not abandon in the environment



Keep out of the reach of children



**Warning!**



Lifting capacity (example)



Machine weight (example)



This product complies with  
EN 1494:2000+A1:2008



UK Conformity Assessed



European conformity

## Contact Details

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Please contact the Draper Tools Product Helpline for repair and servicing enquiries.