

EQUIPMENT OVERVIEW

High capacity 30 Tonne hollow plunger hydraulic oil cylinder

- Hollow plunger design allows for both push & pull forces
- Single-acting, with hydraulic advance and spring return
- Manufactured from high-strength, durable alloy steel
- Anti-corrosive baked enamel finish
- With R2 3/8" Male quick connector and protective dust cap

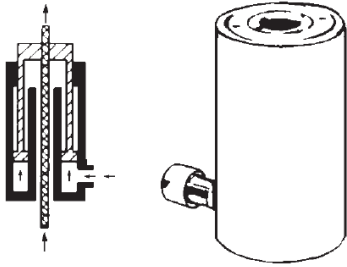


Fig1. Single-acting principle in the hollow plunger cylinder showing the push and pull mechanism, with hydraulic advance and spring return.

SPECIFICATIONS

| | |
|-----------------------------|---------------------------------|
| MODEL NUMBER | TUNHYDCY30-150HW |
| CYLINDER CAPACITY: | 30 TONNE / SINGLE ACTING |
| STROKE: | 150MM |
| EFFECTIVE AREA: | 47.7CM2 |
| OIL CAPACITY: | 715CM3 |
| HEIGHT (CLOSED / EXTENDED): | 312MM / 462MM |
| DIAMETER (OUTER / INNER): | 114MM / 90MM |
| PISTON ROD / BORE: | 63MM / 33MM |
| HOSE CONNECTION: | 3/8" |
| WEIGHT: | 20 KG |

EQUIPMENT IDENTIFICATION / PARTS

| | |
|----|----------------------------|
| 1 | O-ring |
| 2 | Plastic Gasket |
| 3 | Piston |
| 4 | Spring |
| 5 | Front Locking Nut |
| 6 | Back Locking Nut |
| 7 | O-ring |
| 8 | Plastic Gasket |
| 9 | Center Pillar (Piston Rod) |
| 10 | Cylinder Body |
| 11 | 3/8" Quick Coupler |

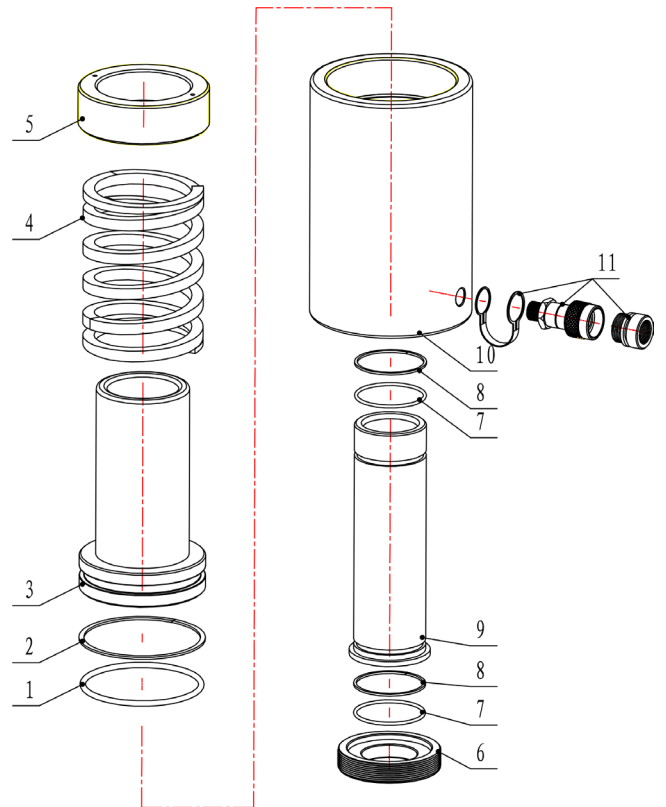



Fig 2. Parts identification

SAFETY GUIDELINES

 **IMPORTANT:** Please read all information carefully before use and keep these instructions in a safe place for future reference.

Important: Before first use, visually inspect all components for shipping damage. If any shipping damage is found, notify carrier at once. Do not use the equipment if any defect is found.

In order to integrate this equipment with other systems, care must be taken to select the proper components to insure appropriate compatibility with any existing equipment and that all safety measures have been taken to avoid the risk of personal injury and property damage. Regularly inspect and lubricate the cylinder to ensure it is in good working order and condition. Do not use the cylinder if damaged or a fault is suspected or if believed to have been subjected to abnormal load or shock. If necessary, immediately repair or replace damaged parts.

Use a qualified person to lubricate and maintain the cylinder. Ensure that only recommended hydraulic cylinder oil is used during maintenance. If replacing any damaged components use only Jefferson approved parts, the use of unauthorised parts may be dangerous and will invalidate your warranty.

Do not attempt to modify or use this equipment for applications other than it was designed for. Never exceed the rated capacity of the cylinder during operation.

Hydraulic cylinders must be properly connected to the source of hydraulic oil to operate. This source is generally a hand-operated or power-operated pump. The choice of pump will depend upon the requirements of your application. Contact Jefferson Tools for advice on the correct type of pump required to use with this cylinder

When not in use ensure that the cylinder is clean and store the cylinder with the piston rod in the down position. Do not leave the rod extended. Ensure stowage area is clean and dry and away from children.

Ensure the work area is clean, tidy and free from unrelated materials and has adequate lighting.

- Be sure all hydraulic connections, hoses, and fittings are rated for the highest pressure your system is capable of generating. Always use hoses and tubing recommended by the hydraulic component manufacturer.
- Ensure all connections are fully tightened. Seal all pipe connections with a high-grade pipe thread sealer.
- All connections should be snug and leak-free. Excessive tightening can strain threads and castings which could cause fitting failure at pressures below rated capacity. Do not over-tighten any connections.
- Fully tighten hydraulic couplers (avoid excessive force). Loose couplers will act as a partial or complete line restriction, causing little or no oil flow and may result in equipment damage or failure.
- Ensure all hydraulic hoses and fittings are connected to the correct inlet and outlet ports of the pump, cylinder, valves, and other system connections.



CAUTION Dirt and foreign matter may cause pump, cylinder, or valve failure. Use every precaution to guard against entrance of dirt. When coupler halves are disconnected, always screw on dust caps.

IMPORTANT : Use hydraulic gauges which indicate safe operating loads in each hydraulic system. Gauges are available for use with all hydraulic components (some gauges have a coloured band to indicate load ranges for each cylinder.) **Never exceed the safe limit of the lowest rated component used within your system.**

DO NOT OVER-EXTEND THE CYLINDER

The cylinder will take full load on the plunger stop ring. However, using the full stroke does not supply power and only adds unnecessary strain to the cylinder.



PROTECT THE HOSE FROM DAMAGE

A sharp impact may bend or break internal hose wire strands. Applying pressure to the damaged hose will cause internal flexing which will eventually break the hose strands, rupturing the hose. Never use the hydraulic hose to carry a hydraulic component (e.g. pumps, cylinders, and valves).



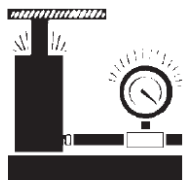
AVOID KINKS IN THE HOSE

Avoid sharp bends and kinks when routing hydraulic hoses. If pressure is applied to a bent or kinked hose, the oil flow will be restricted, causing severe back-pressure. Also, the sharp bends and kinks may internally damage the hose, leading to premature failure.



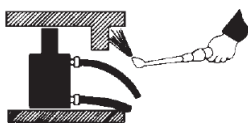
DO NOT OVERLOAD CYLINDER

Never attempt to lift a load which exceeds the capacity of a cylinder or cylinder. Overloading may cause equipment failure and possible personal injury.



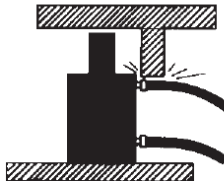
KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES AND HEAT

Excessive heat (above 150° F / 66°C) will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance never expose this equipment to temperatures of 150° F / 66°C or higher.



PROVIDE ADEQUATE CLEARANCE

Always provide clearance for hoses and couplers to avoid moving objects, abrasion, or sharp objects.



AVOID OFF-CENTER LOADS

Avoid situations where loads are not directly centered on the cylinder plunger. Off-center loads produce considerable strain on cylinder plungers and may slip or fall, causing potentially dangerous results. Avoid point loading—distribute loads evenly across the entire saddle surface.



EQUIPMENT SETUP

PUMP TYPES:

Hand Pumps – Use hand pumps for low speed cylinder applications.

Power Pumps – Use power pumps for applications requiring high speeds and for large cylinders.

VALVES:

For single-acting cylinders, use a pump with a 2-way or 3-way valve and one hose.

OIL CAPACITY:

Always use a pump that has an oil reservoir capacity sufficient to fully advance or retract the cylinder.

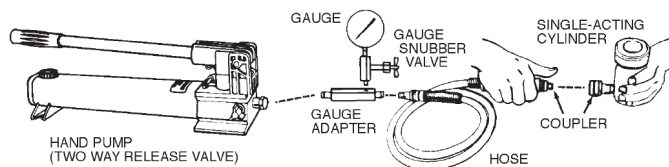


Fig 3. Assembling single-acting hydraulic cylinders to pumps

REMOVING AIR

When hoses, cylinders, and other components are connected to a hydraulic system, excess air can become trapped during operation. To function properly, the excess air in the system must be removed.

Important: The hand pump does require a quantity of air in the reservoir to prevent a vacuum. If the pump reservoir is totally filled and the vent cap is closed tight, the vacuum created will prevent an oil flow out of the pump.

It is important that you fill oil reservoirs only to the level indicated on the pump and cap to ensure the correct quantity of air remains in the system.

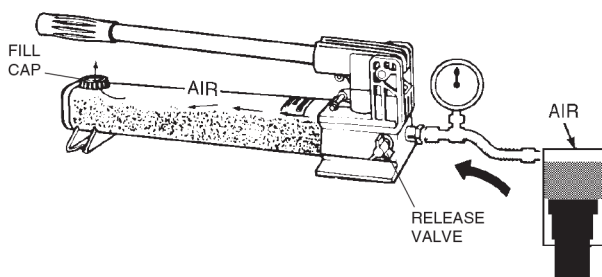


Fig 4. Air build-up in a simple hydraulic system

To remove excess air from a single-acting cylinder system:

1. After all system components are connected to the hand pump, check reservoir oil levels. Fill to indicator mark on the end cap. Replace the fill cap and be sure it is closed (not in vent position).

2. Turn the pump release valve to closed position. Operate the hand pump until the cylinder plunger is completely extended.

3. Invert the cylinder (plunger end down). Open the pump release valve. As the plunger retracts, the air in the system will be forced into the pump reservoir and replaced by oil. Close the release valve.

4. Turn the cylinder upright. Operate the pump to cycle the cylinder plunger. If air is out of the system, the plunger will advance and retract smoothly. If the plunger is erratic, repeat steps 1 through 4.

5. Open the pump fill cap and check the oil level. Fill to the indicator mark on the end cap.

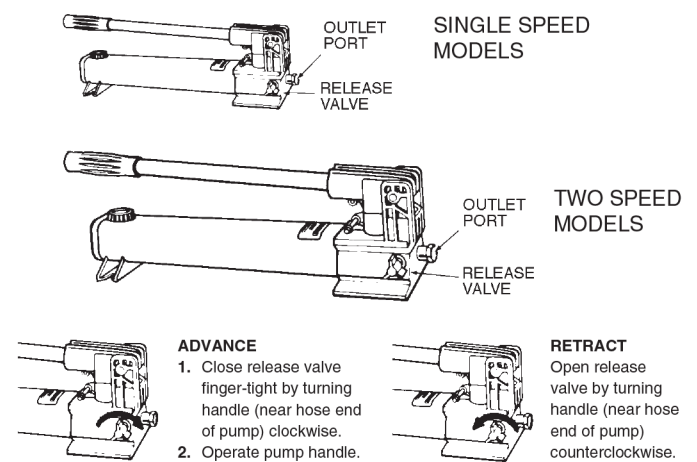


Fig 5. Hydraulic pumps with integral release valves

TROUBLESHOOTING

| PROBLEM | POSSIBLE CAUSE |
|---|--|
| 1. Cylinder will not advance | A. Pump release valve open B. No oil in pump C. Air bound D. Couplers not fully tightened E. Blocked hydraulic line F. Pump not operating |
| 2. Cylinder advances part way. | A. Oil level in pump is low B. Cylinder plunger binding C. Air trapped in cylinder |
| 3. Cylinder advances in spurts | A. Air in hydraulic system B. Cylinder plunger binding |
| 4. Cylinder advances slower than normal | A. Leaking connection B. Restricted hydraulic line or fitting C. Loose coupler D. Pump malfunctioning |
| 5. Cylinder advances but will not hold pressure | A. Cylinder seals leaking B. Leaking connection C. Pump malfunctioning D. Incorrect system set-up |
| 6. Cylinder leaks oil | A. Worn or damaged seals B. Loose connection C. Internal cylinder damage |
| 7. Cylinder will not retract or retracts slower than normal | A. Pump release closed B. Coupler not fully closed C. Blocked hydraulic line D. Broken retraction spring E. Pump reservoir over-filled F. Cylinder damaged internally |
| 8. Cylinder will not fully retract | A. Weak retraction spring B. Pump reservoir over-filled C. Partially blocked hydraulic line D. Damaged internally or externally |



USER MANUAL v.1.1

TUNHYDCY30-150HW

30T Hollow Plunger Hydraulic Oil Cylinder

LIMITED WARRANTY STATEMENT

Jefferson Professional Tools & Equipment ®, or hereafter "Jefferson" warrants its customers that its products will be free of defects in workmanship or material. Jefferson shall, upon suitable notification, correct any defects, by repair or replacement, of any parts or components of this product that are determined by Jefferson to be faulty or defective. This warranty is void if the equipment has been subjected to improper installation, storage, alteration, abnormal operations, improper care, service or repair.

Warranty Period

Jefferson will assume both the parts and labour expense of correcting defects during the stated warranty periods below. All warranty periods start from the date of purchase from an authorised Jefferson dealer. If proof of purchase is unavailable from the end user, then the date of purchase will be deemed to be 3 months after the initial sale to the distributor.

1 Year

- 30T Hollow Plunger Single Acting Hydraulic Oil Cylinder

90 Days

- All replacement parts purchased outside of the warranty period

Important: All parts used in the repair or replacement of warranty covered equipment will be subject to a minimum of 90 days cover or the remaining duration of the warranty period from the original date of purchase.

Warranty Registration / Activation

You can register and activate your warranty by visiting the Jefferson Tools website using the following address: www.jeffersonstools.com/warranty and completing the online form. Online warranty registration is recommended as it eliminates the need to provide proof of purchase should a warranty claim be necessary.

Warranty Repair

Should Jefferson confirm the existence of any defect covered by this warranty the defect will be corrected by repair or replacement at an authorized Jefferson dealer or repair centre.

Packaging & Freight Costs

The customer is responsible for the packaging of the equipment and making it ready for collection. Jefferson will arrange collection and transportation of any equipment returned under warranty. Upon inspection of the equipment, if no defect can be found or the equipment is not covered under the terms of the Jefferson warranty, the customer will be liable for any labour and return transportation costs incurred. These costs will be agreed with the customer before the machine is returned.

NOTE: * Jefferson reserve the right to void any warranty for damages identified as being caused through misuse *

Warranty Limitations

Jefferson will not accept responsibility or liability for repairs made by unauthorised technicians or engineers. Jefferson's liability under this warranty will not exceed the cost of correcting the defect of the Jefferson products. Jefferson will not be liable for incidental or consequential damages (such as loss of business or hire of substitute equipment etc.) caused by the defect or the time involved to correct the defect. This written warranty is the only express warranty provided by Jefferson with respect to its products. Any warranties of merchantability are limited to the duration of this limited warranty for the equipment involved.

Claiming Warranty Coverage

The end user must contact Jefferson Professional Tools & Equipment:
Tel: +44 (0)1244 646 048 (UK) or +353 (0)1473 0300 (ROI) or their nearest authorised Jefferson dealer where final determination of the warranty coverage can be ascertained.

Step 1 - Reporting the Defect

Online Method:

Visit our website www.jeffersonstools.com/warranty and complete the Warranty Returns form. You can complete the form online and submit it to us directly or download the form to print out and return by post.

Telephone Method:

Contact your Jefferson dealer or sales representative with the following information:

- Model number
- Serial number (usually located on the specification plate)
- Date of purchase

A Warranty Returns form will be sent to you for completion and return by post or fax, together with details of your nearest authorised Jefferson repair centre. On receipt of this form Jefferson will arrange to collect the equipment from you at the earliest convenience.

Step 2 - Returning the Equipment

It is the customer's responsibility to ensure that the equipment is appropriately and securely packaged for collection, together with a copy of the original proof of purchase. Please note that Jefferson cannot assume any responsibility for any damage incurred to equipment during transit. Any claims against a third party courier will be dealt with under the terms & conditions of their road haulage association directives.

NOTE: Jefferson will be unable to collect or process any warranty requests without a copy of the original proof of purchase.

Step 3 - Assessment and Repair

On receipt, the equipment will be assessed by an authorised Jefferson engineer and it will be determined if the equipment is defective and in need of repair and any repairs needed are covered by the warranty policy. In order to qualify for warranty cover all equipment presented must have been used, serviced and maintained as instructed in the user manual. Where repair is not covered by the warranty a quotation for repair, labour costs and return delivery will be sent to the customer (normally within 7 working days).

Note: If the repair quotation is not accepted Jefferson Professional Tools & Equipment will invoice 1 hour labour time at £30 per hour plus return carriage costs (plus VAT). In cases where no fault can be found with the equipment, or, if incorrect operation of the equipment is identified as the cause of the problem, a minimum of 1 hour labour at £30 per hour plus carriage costs will be required before the equipment will be despatched back to the customer.

Any equipment repaired or replaced under warranty will normally be ready for shipment back to the customer within 7 working days upon receipt of the equipment at an authorised Jefferson Repair centre (subject to part availability). Where parts are not immediately available Jefferson will contact you with a revised date for completion of the repair.

General Warranty Enquiries

For any further information relating to Jefferson warranty cover please call:
+44 (0)1244 646 048 (UK) or +353 (0)1473 0300 (ROI) or send your enquiry via email to warranty@jeffersonstools.com

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Name and address of manufacturer or authorised representative:

Tundra Industrial
24 Lisgorgan Lane, Upperlands, BT46 5TE

Telephone: +44 (0)1244 646 048 (UK)
+353 (0)1473 0300 (ROI)
Email: info@jeffersonstools.com

www.jeffersonstools.com