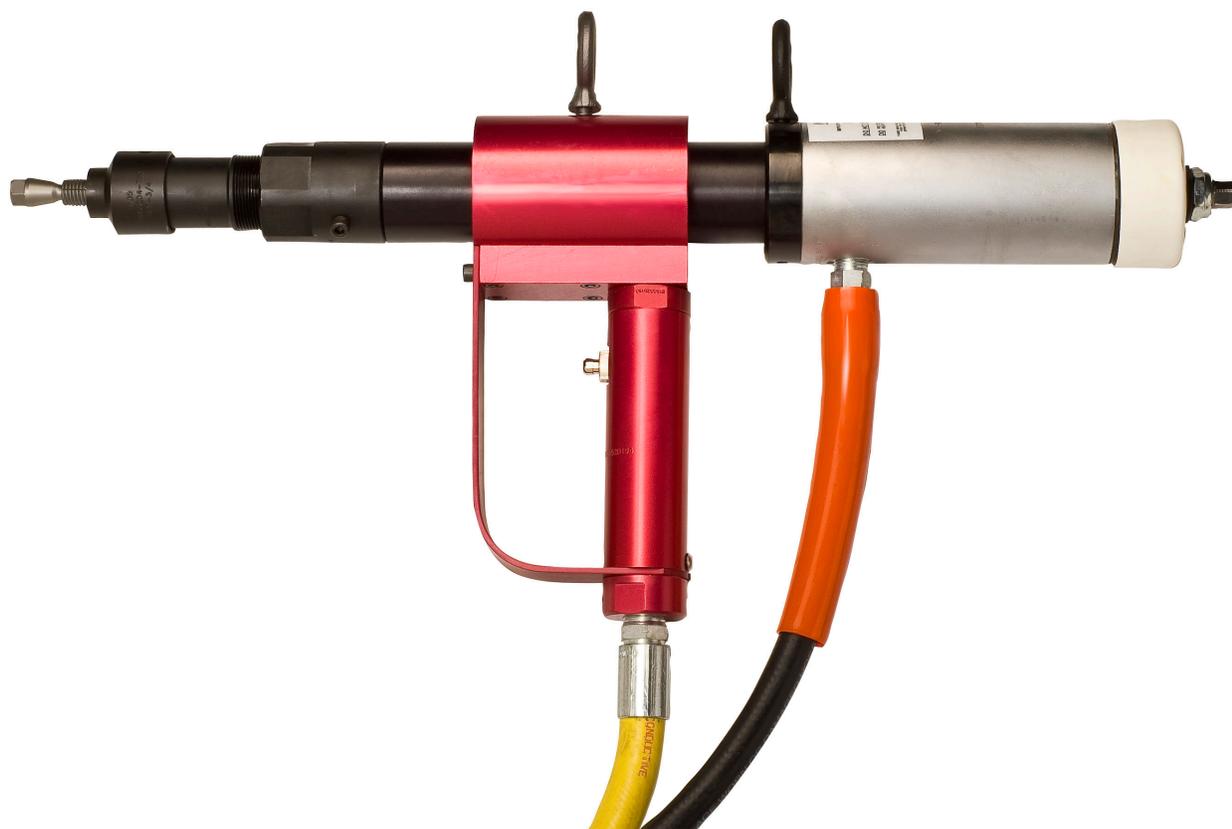


# Collet Style Tube Tugger

B10552-00



Tube & Pipe Cleaners ◦ Tube Testers ◦ Tube Plugs ◦ Tube Removal ◦ Tube Installation



## Operating and Maintenance Instructions



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# **INTRODUCTION**

Thank you for purchasing this Elliott product. More than 100 years of experience have been employed in the design and manufacture of this control, representing the highest standard of quality, value and durability. Elliott tools have proven themselves in thousands of hours of trouble-free field operation.

If this is your first Elliott purchase, welcome to our company; our products are our ambassadors. If this is a repeat purchase, you can rest assured that the same value you have received in the past will continue with all of your purchases, now and in the future.

The Collet Style Tube Tugger has been designed for the following types of equipment:

**Heat Exchangers**

**Condensers**

**Chillers**

If you have any questions regarding this product, manual or operating instructions, please call Elliott at +1 800 332 0447 toll free (USA only) or +1 937 253 6133, or fax us at +1 937 253 9189 for immediate service.

# SAFETY GUIDELINES

Read and save all instructions. Before use, be sure everyone using this machine reads and understands this manual, as well as any labels packaged with or attached to the machine.

## **WARNING**

When using electric tools, certain safety precautions are required to reduce the risk of electrical shock and personal injury.

## **WARNING**

To reduce the risk of injury, always unplug your machine before performing any maintenance. Never disassemble the machine or try to do any wiring on the electrical system. Contact Elliott for all repairs.

- **Know Your Elliott Tool.** Read this manual carefully to learn your tool's application and limitations as well as the potential hazards specific to this tool.
- **Ground Your Elliott Tool.** Always use properly grounded electrical outlets, and if using an extension cord, make sure that it is of the proper size for the electrical load and it is equipped with a ground wire and ground plug.
- **Avoid Dangerous Environments.** Do not use power tools in damp or wet locations
- **Keep Work Area Clean and Well Lit.** Cluttered, dark work areas invite accidents.
- **Dress Properly.** Do not wear loose clothing or jewelry. Wear a protective hair covering to contain long hair. It is recommended that the operator wear safety glasses with side shields or a full face shield eye protection. Gloves and water repellant, nonskid footwear are also recommended. Keep hands and gloves away from moving parts.
- **Use Safety Equipment.** Everyone in the work area should wear safety goggles or glasses with side shields complying with current safety standards. Wear hearing protection during extended use, respirator for a confined space and a dust mask for dusty operations. Hard hats, face shields, safety shoes, respirators, etc. should be used when specified or necessary. Keep a fire extinguisher nearby.
- **Use The Right Tools.** Do not force a tool or attachment to do a job or operate at a speed it was not designed for.
- **Use Proper Accessories.** Use Elliott accessories only. Be sure accessories are properly installed and maintained.
- **Check for Damaged Parts.** Inspect guards and other parts before use. Check for misalignment, binding of moving parts, improper mounting, broken parts or any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the

# **SAFETY GUIDELINES**

tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools “Do Not Use” until repaired. A damaged part should be properly repaired or replaced by an Elliott service facility. FKeep Hands Away from All Moving Parts.

- Stay Alert. DO NOT use a tool when you are tired, distracted or under the influence of drugs, alcohol or any medication causing decreased control.
- Unplug Tool. Unplug tool when it is not in use, before changing accessories or performing recommended maintenance.
- Maintain Labels and Nameplates. These carry important information and will assist you in ordering spare and replacement parts. If unreadable or missing, contact an Elliott service facility for a replacement.
- DO NOT attempt to adjust or service the rod end relief valve on a double-acting cylinder or ram. If oil leakage is detected from this relief valve, discontinue use of the cylinder or ram immediately and contact your nearest Authorized Hydraulic Service Center. If improperly adjusted, the cylinder or ram could develop excessive pressure and cause the cylinder, hose or couplers to burst which could cause serious injury or death.
- When extending a cylinder or ram under load, always ensure that the coupler(s) or port thread(s) has (have) not been damaged or do(es) not come in contact with any rigid obstruction. If this condition does occur, the coupler’s attaching threads may become stripped or pulled from the cylinder or ram resulting in the instantaneous release of high pressure hydraulic fluid, flying objects, and loss of the load. All of these possible results could cause serious injury or death.
- Should a hydraulic hose ever rupture, burst, or need to be disconnected, immediately shut off the pump and release all pressure. Never attempt to grasp a leaking pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.
- Do not subject the hose to potential hazard such as fire, sharp surfaces, extreme heat or cold, or heavy impact. Do not allow the hose to kink, twist, curl, crush, cut, or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear, because any of these conditions can damage the hose and possibly result in personal injury.
- Do not use the hose to move attached equipment. Stress can damage the hose and possibly cause personal injury.
- Keep the cylinder clean at all times. While at a job site, when the cylinder is not in use, keep the piston rod fully retracted and upside down.
- Use an approved, high-grade pipe thread sealant to seal all hydraulic connections. PTFE tape can be used if only one layer of tape is used and it is applied carefully (two threads back) to prevent the tape from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts.
- Always use protective covers on disconnected quick couplers.

# RECEIVING & INSTALLATION

## **Uncrating**

The Elliott Collet Style Tube-Tugger is shipped in a carton complete with all accessories listed. On arrival, check for external damage to the box. If damage is found, notify the carrier and the supplier so insurance inspectors can examine the box before it is unpacked. When opened, check the contents against the packing and parts list. Report any damage or shortage to Elliott.

Ensure that there is no packaging material left inside the openings of the machine, especially in the hydraulic inlets.

## **Connecting to Hydraulic Power Supply**

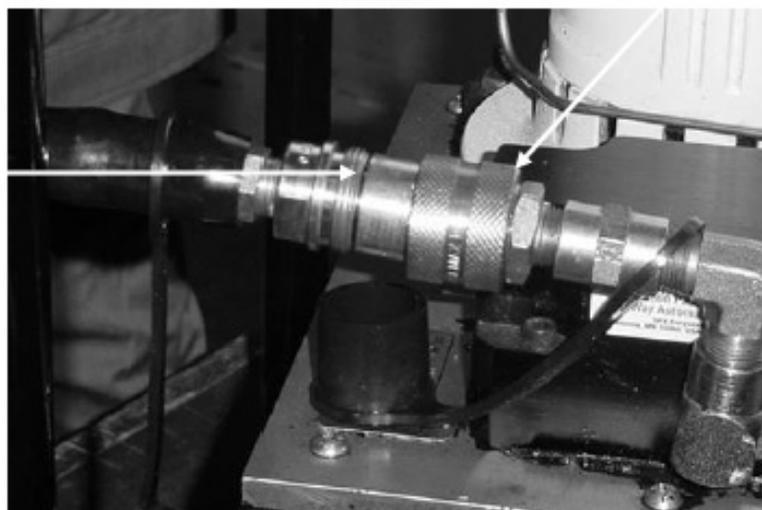
The Elliott Collet Style Tube-Tugger requires a hydraulic power source. The hydraulic power source supplied by Elliott will be an electric pump.

1. Place the Collet Style Tube-Tugger and the hydraulic power source on a flat surface.
2. Select proper tools for puller.
3. Connect the electrical power cord from the pump to a power source.
4. Before operating the pump, all hose connections must be tightened with the proper tools. Do not overtighten. Connections should only be tightened securely and leak-free. Overtightening can cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.
5. Connect the hydraulic cylinder power cord of the puller to the power cord on the pump; twist the plugs to lock-in the connection.
6. Connect the 15' hydraulic hose to the pump. Important: Make sure that the male hose fitting is totally in contact with female fitting shoulder on the tube pulling cylinder before threading down the locking fitting. (See Picture 1 on bottom of page)
7. Move the pump switch from the off position to the remote position to initiate power to the pump.
8. The Collet Style Tube-Tugger is now ready for operation.

**Picture 1**

**Coupling Lock Collar**

**Nipple and coupling must be assembled as shown before coupling lock collar is threaded on nipple.**



# OPERATION INSTRUCTIONS

The Collet Style Tube-Tugger has been designed for efficient use and optimum productivity. The unit is small, lightweight, and portable. The Collet Style Tube-Tugger will extract tubes, or tube stubs, with outside diameters ranging from 5/8" (15.9mm) to 1" (25.4mm). Standard O.D. collet jaws and nosepieces are available for 5/8" (15.9mm), 3/4" (19.1mm), 7/8" (22.2mm), and 1" (25.4mm) O.D. tubes.

1. Determine the O.D. and I.D. of the tubes to be extracted.
2. Select and install proper tools: Nosepiece, pull rod, draw bolt, collet, and collet retainer. (See chart on page 11.)
3. Secure Collet Style Tube-Tugger to counter balance, if desired.
4. Start the initial collet adjustment by unscrewing the draw bolt so that there is approximately 3/4" of the straight portion of the bolt appearing between the base of the draw bolt cone and the front of the collets. Initial adjustment of the nosepiece will position the front of the nosepiece approximately 3/16" behind the back collet tooth.
5. Insert the collet into one of the tubes to be pulled and press the trigger button to cycle the puller. The first pull will probably not bite the tube. Tighten the draw bolt 1/2 to 3/4 turn and repeat the operation. Repeat this sequence until the collets finally grab the inside of the tube. The collet will probably slide, or "broach", the tube I.D. on the last pull. Tighten the draw bolt 1/2 to 3/4 turn for a final adjustment. You are now ready to pull tubes. (Note: This adjustment sequence may seem awkward, but it allows the puller to operate at a minimum of pressure while efficiently pulling tubes. If an oversized tube is encountered, the draw bolt can be temporarily tightened and then returned to the original setting. The low- pressure setting also creates a minimum burr from the collet bite, allowing for easy stub removal.)
6. If needed, the handle can be adjusted 360° to fit working conditions. To adjust, loosen handle eyebolt and adjust handle and retighten eyebolt. Handle may also be removed to operate in close conditions. To remove handle, loosen handle eyebolt, remove screw (27) located on thrust cap (28), and remove nosepiece. Slide handle off adapter and replace screw (27) on thrust cap (28) and nosepiece. Two people may now operate the puller with the handle disconnected.
7. Insert the collet into tube (Picture 2) until nosepiece is positioned against the tube sheet (Picture 3).
8. To pull tube: (A) Tap trigger to straighten collet unit inside of tube and to align puller with tube sheet. Now the collet has proper contact with the tube I.D. (B) Press and hold trigger to initiate full stroke of the tugger and continue to extract the tube. The tube should now be extracted 2-1/4". (C) If it is necessary to extract further, re-engage draw bolt into tube and repeat (A) and (B). This should have extracted the tube approximately one additional inch.

**Tool Tip:** As the unit is operated, some of the residue from the tubes will accumulate under the collet segments. This will cause a slowing of the retraction cycle. When this is observed, spray a lubricant into the collet splits while cycling the unit in open air. This will flush some residue and lubricate the collets, assuring a smooth retraction.

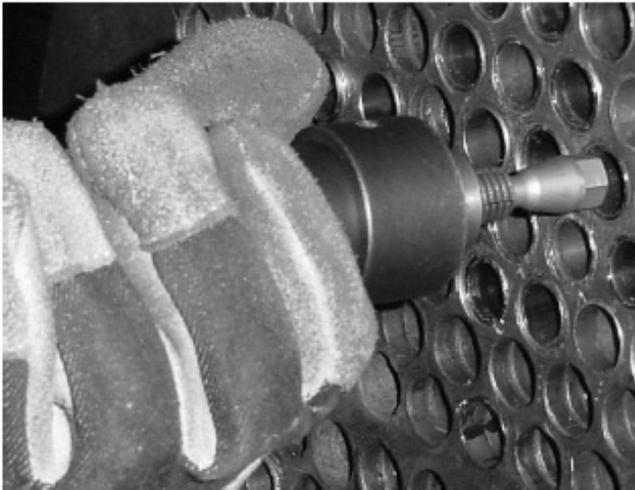
# OPERATION INSTRUCTIONS

9. Once the tube joint has passed through the tube sheet, remove the tugger, and pull the tube by hand until the tube is completely extracted from the vessel.

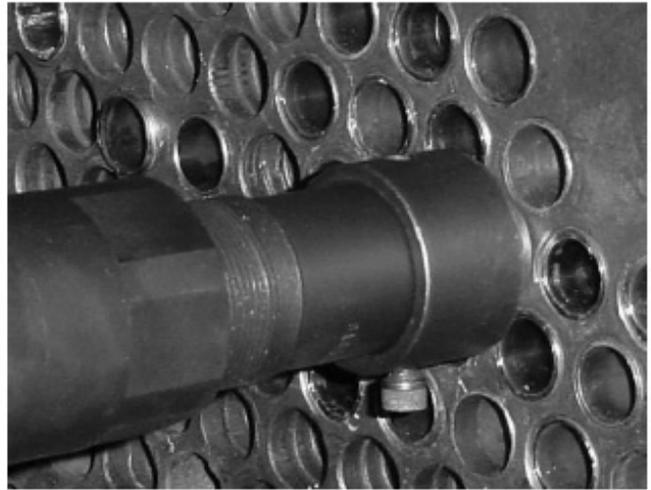
**Tool Tip:** When removing pulled tube stubs from the collet, DO NOT rotate the stub on the collet. Rotating the stub will cause the draw bolt to rotate, which will change the collet diameter setting. Remove the stub by “rocking” the stub end until it’s free from the collet.

## Main Causes Of Breakage

- a.) Misalignment of the puller with the tube sheet. It is important to keep the unit straight. If tube projection is not a problem, the unit can be operated without the nosepiece, using only the nosepiece adapter. This allows a more stable base to pull from.
- b.) Excessive pressure on the draw bolt/collet/tube interface caused by over-tightening the draw bolt. You will see higher pressure reading on the pump when this happens.



Picture 2



Picture 3



Picture 4

# **TOOL CHANGEOVER**

(See pages page 13 for parts list and illustration)

## **Changing the Nosepiece**

1. Loosen screw in nosepiece adapter with Allen wrench and slide nosepiece off adapter (29).
2. Insert appropriate nosepiece on to nosepiece adapter.
3. Make sure that the screw engages into hole in the adapter.
4. Tighten screw to lock in nosepiece.

## **Changing the Draw Bolt**

1. Rotate the draw bolt (26) counterclockwise until it is free from the pull bar.
2. Remove draw bolt by pulling it through the center of the collet set. (23).
3. Replace draw bolt by inserting the threaded end into the center of the collet set until it reaches the pull rod (17). Rotate clockwise until the draw bolt is secure into the pull rod. To achieve correct setting of draw bolt, (do a test pull), after the collet just makes contact with the tube ID, proceed to turn the draw bolt 1/2 to 3/4 clockwise revolution.  
Note: The 5/8" and 3/4" draw bolts only fit pull bar B10552D7-750 and the draw bolt (also used on 7/8") only fits pull rod (10552D7-1000).

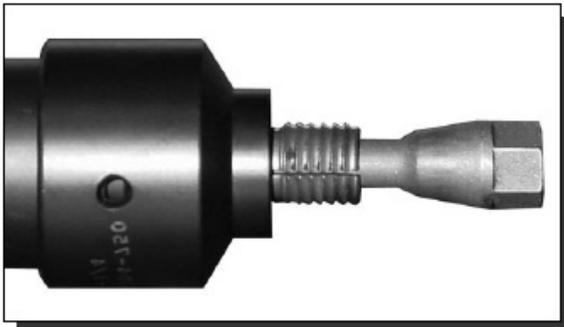
## **Changing the Pull Rod**

1. Remove nosepiece, draw bolt (26), and collet set (23).
2. Rotate thrust cap (28) counterclockwise until free from part (9).
3. Remove set screw in collet retainer (19) with 3/32 Allen wrench then rotate counterclockwise until free.
4. Loosen and remove pull rod nut (1) with 15/16" wrench while holding pull rod (17) hex with 1/2" wrench. Loosen pull rod by rotating counterclockwise, then remove pull rod by pulling from collet end of puller. Remove red components [pulling collar (14), compression spring (13), spacer (12), return spring (11), and spring seat (10)] from the pull rod by sliding off toward the threaded end of the rod. (Note: Keep these components in the same order as they were removed to ensure they are reassembled onto the replacement rod in the same order.)
5. Lubricate the replacement pull rod, slide the rod components back onto the pull rod, and insert complete pull rod assembly back into puller from the collet end.
6. Rotate pull rod clockwise until it is tight, put pull rod nut back on and tighten.
7. Insert appropriate sized collet retainer and rotate clockwise until tight, then back off approximately 1 to 1-1/2 turns. The set screw hole should line up with the flat spot on the retainer, then insert and slightly tighten set screw.
8. Install thrust cap (this part is spring loaded, it must be pushed in and rotated simultaneously). Thread thrust cap on until tight, then tighten screw on cap.
9. Insert appropriate sized collet and draw bolt.
10. Replace appropriate sized nosepiece and tighten nosepiece screw until front of nosepiece is approximately 3/16" behind collet teeth (picture 5).

# TOOL CHANGEOVER

## Changing the Collet Set

1. Remove nosepiece and draw bolt (26).
2. The collet set (23) must be removed by freeing one section at a time. Push one section inward past the retaining groove in collet retainer, then push section inward and pull out only past the retaining groove. Repeat this technique until each section has been removed.
3. Select appropriate collet set.
4. To replace collet set push one section of the collet out past the other sections (Picture 6) and place into retaining groove. Slide each of the remaining sections into place one at a time until the collet set is secure in the puller.
5. Replace appropriate draw bolt and then replace nosepiece.



Picture 5



Picture 6

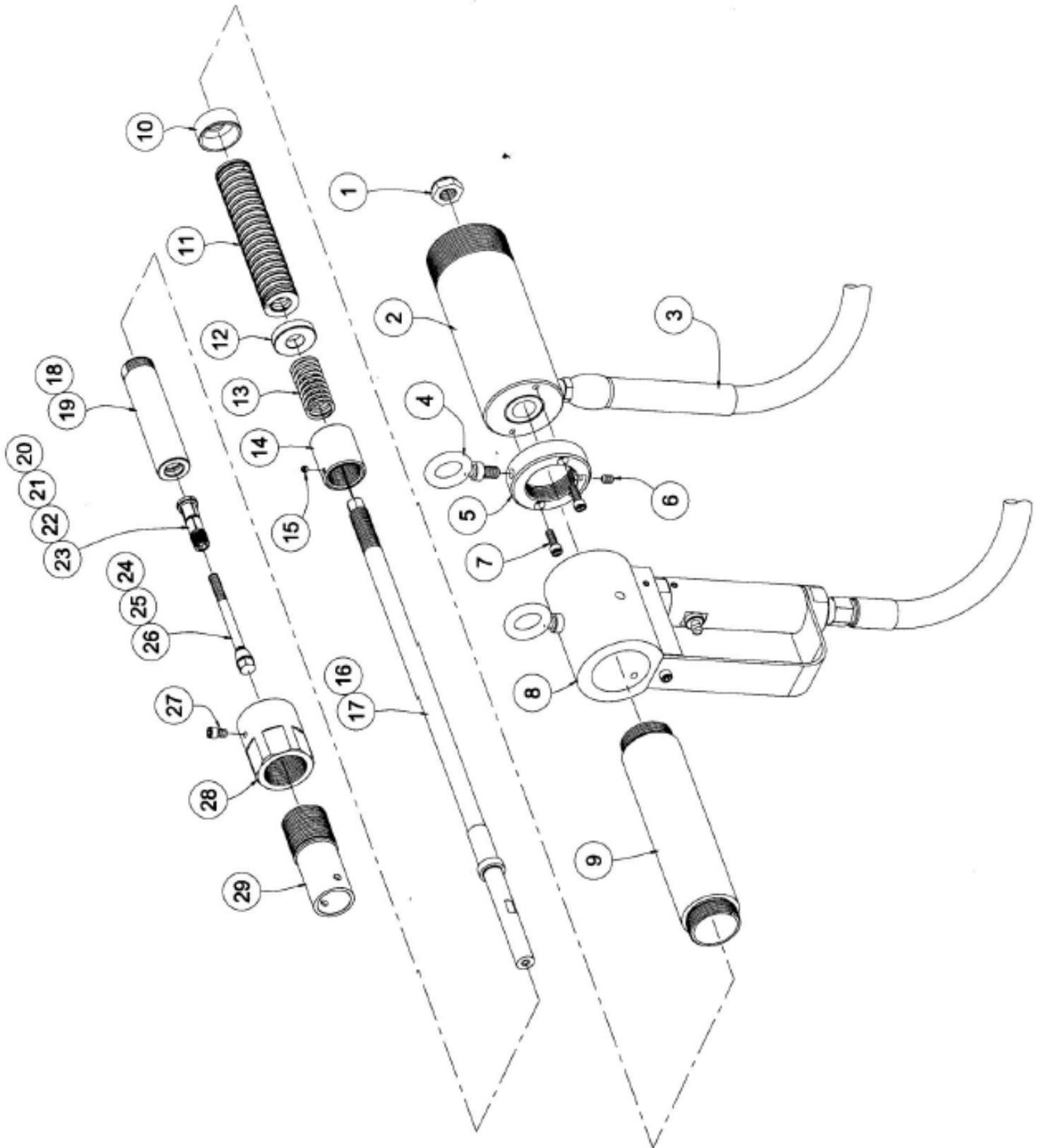
# TECHNICAL INFORMATION

<b>Specifications</b>	
<b>Tube OD</b>	5/8" - 1" (15.9 - 25.4mm)
<b>Cylinder Capacity</b>	6 Tons
<b>Length : Retracted Extended</b>	20.6" (520.7mm) 21.8" (552.5mm)
<b>Weight</b>	25 lbs (11.4Kg)
<b>Stroke</b>	3" (76mm)
<b>Hydraulic Oil Type</b>	ISO 32 Grade

<b>Tool Selection</b>							
<b>Tube OD</b>	<b>BWG*</b>	<b>Tool Kit</b>	<b>Collet Set</b>	<b>Draw Bar</b>	<b>Nose Piece</b>	<b>Flat Spring</b>	<b>O-Ring</b>
5/8" (15.9mm)	18-20	B10552-625KIT	B10552D3-625	B10552D2-625	B10552D4-625	B10552D31-62	P8309-8A
3/4" (19.1mm)	16-20	B10552-750KIT	B10552D3-750	B10552D2-750	B10552D4-750	B10552D31-62	P8309-8A
7/8" (22.2mm)	16-20	B10552-875KIT	B10552D3-875	B10552D2-1000	B10552D4-875	B10552D31-87	P8309-11
1" (25.4mm)	16-20	B10552-1000KIT	B10552D3-1000	B10552D2-1000	B10552D4-1000	B10552D31-100	P8309-11

\* NOTE: Softer metals could go up to 22 gauge.

# PARTS LISTS & DIAGRAMS



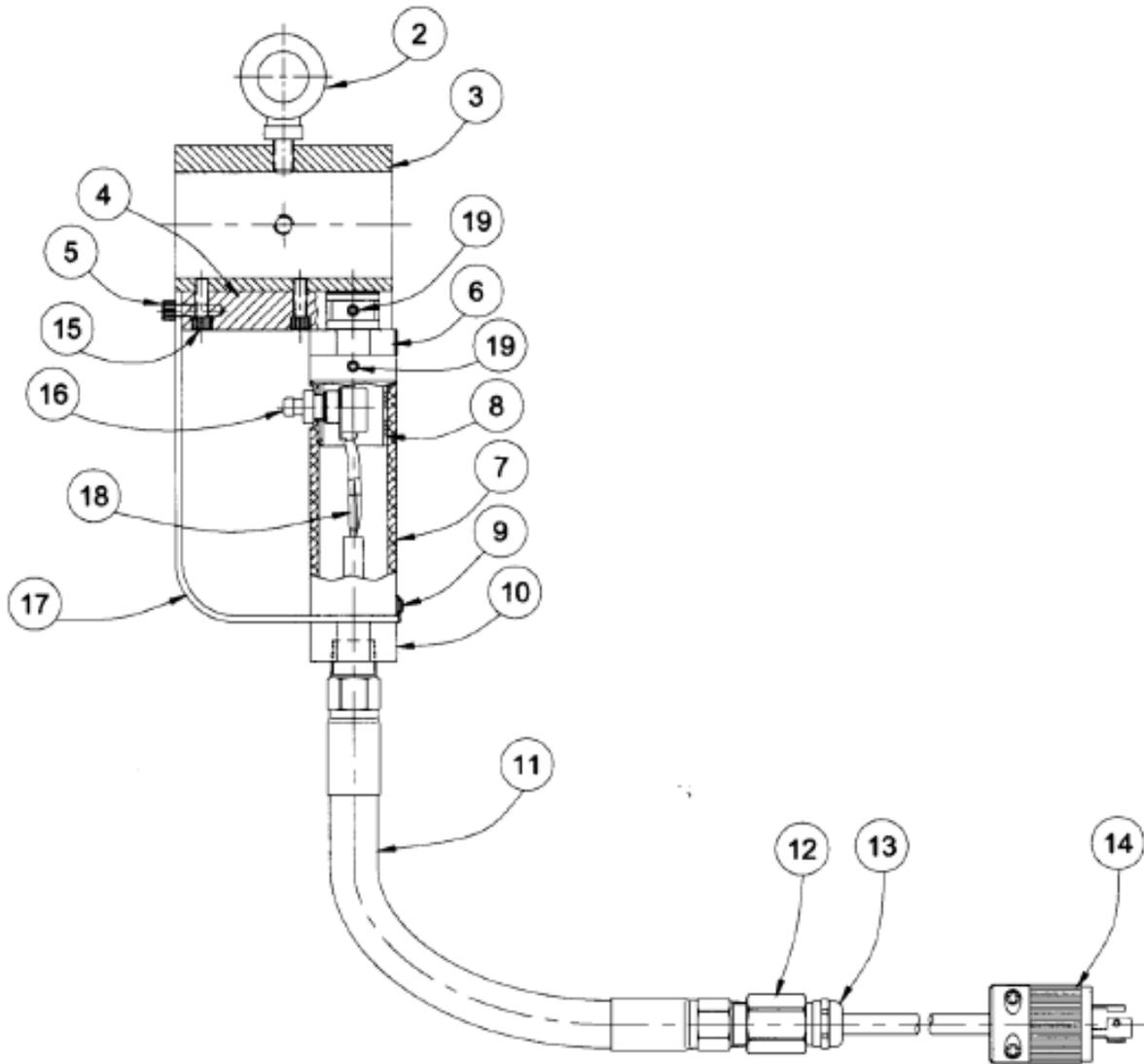
# PARTS LISTS & DIAGRAMS

Item No.	Part Number	Description	Qty
1	546R	Lock Nut	1
2	B10552D16	Cylinder Assembly*	
3	B10552D20	15 ft Hydraulic Hose	
4	B10552D24	Eye Bolt	
5	B10552D14	Sleeve Adapter	
6	128G	Hex. Socket Set Screw	
7	P8302-26	Socket Head Cap Screw	2
8	B10552D19	Handle Assembly	1
9	B10552D9	Sleeve	
10	B10552D15	Spring Seat	
11	37-D1155	Return Spring	
12	B10552D11	Spacer	
13	37-72420	Compression Spring	
14	B10552D8	Pulling Collar	
15	128R	Hex. Socket Set Screw	
16	B10552D7-750	Pull Rod (for 5/8" - 3/4")	
17	B10552D7-1000	Pull Rod (for 7/8" - 1")	
18	B10552D5-750	Collet Retainer (for 5/8" - 3/4")	
19	B10552D5-1000	Collet Retainer (for 7/8" - 1")	
20	B10552D3-625	5/8" Collet Set	
21	B10552D3-750	3/4" Collet Set	
22	B10552D3-875	7/8" Collet Set	
23	B10552D3-1000	1" Collet Set	
24	B10552D2-625	5/8" Draw Bolt	
25	B10552D2-750	3/4" Draw Bolt	
26	B10552D2-1000	1" Draw Bolt (for 7/8" - 1")	
27	P8302-82	Socket Head Cap Screw	
28	B10552D6	Thrust Cap	
29	B10552D4	Nosepiece Adapter	

\* Seal Kit Part # 17-300576

# PARTS LISTS & DIAGRAMS

## Handle Assembly



# PARTS LISTS & DIAGRAMS

## Handle Assembly

Item No.	Part Number	Description	Qty
1	B10552D19	Handle Assembly	1
2	B10552D23	Eye Bolt	
3	B10552D191	Cylinder Sleeve	
4	B10552D192	Sleeve Block	
5	P8302-3	Socket Head Cap Screw	
6	B10552D193	Handle Post	
7	B10552D194	Handle Sleeve	
8	B10552D195	Sleeve Liner	
9	P8597-41	Button Head Cap Screw	
10	B10552D196	Handle Connection	
11	B10552D197	Flexible Hose	
12	B10552D198	Coupler	
13	B10552D199	Cord Grip	
14	B10552D200	Cord Assembly	
15	P8302-26	Socket Head Cap Screw	4
16	B10552D201	Trigger Switch Assembly	1
17	B10552D202	Trigger Guard	1
18	B10552D235	Butt Splice Connector	2
19	P8385-26	Spring Pin	2

# TROUBLESHOOTING

Problem	Cause	Solution
Cylinders will not extend or retract but pump achieves full pressure.	Hose connector not properly seated or pressurized.	Disconnect hoses, relieve pressure in hoses by depressing ball into a rag on floor. To relieve pressure in female connector insert wooden dowel into fitting, wrap a rag around connector and tap with a hammer.

# WARRANTY

Should any part, of Seller's own manufacture, prove to have been defective in material or workmanship when shipped (as determined by Seller), Seller warrants that it will, at its sole option, repair or replace said part f.o.b., point of manufacture, provided that Buyer notifies, in writing, of such defect within twelve (12) months from date of shipment from the manufacturing plant.

On request of Seller, the part claimed to be defective will be returned, transportation, insurance, taxes and duties prepaid, to the factory where made, for inspection. Any item, which has been purchased by Seller, is warranted only to the extent of the original manufacturer's warranty to Seller. Seller shall not be liable for any damages or delays caused by defective material or workmanship.

No allowance will be made for repairs or alterations made by others without Seller's written consent or approval. If repairs or alterations are attempted without Seller's consent, Seller's warranty is void.

THE WARRANTIES PROVIDED IN THE OBLIGATIONS AND LIABILITIES OF SELLER HEREUNDER, AND THE RIGHTS AND REMEDIES OF BUYER HEREUNDER ARE EXCLUSIVE AND IN SUBSTITUTION FOR, AND BUYER HEREBY WAIVES ALL OTHER WARRANTIES, GUARANTEES, OBLIGATIONS, CLAIMS FOR LIABILITIES, RIGHTS AND REMEDIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY FOR MERCHANTABILITY AND FITNESS FOR PURPOSE.

Seller's total liability is limited to the lower of the cost of repair or replacement.





## Contact Us

Elliott Tool offers a complete line of precision tube tools to meet your needs. Contact us or your local support.

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