

Elliott offers a complete line of precision tube tools, including:



tube expanders

- Boiler Expanders
- Heat Exchanger Expanders
- Condenser Expanders
- Refinery Expanders

tube rolling motors & torque controls

- Electric
- Pneumatic

tube cleaners

- Air & Water Driven Motors (Internal/External Drives)
- Jiffy Guns ("Shoot-Thru" Devices)
- Roto-Jet (Rotating Flex Shaft)

additional products

- Tube and Joint Testers
- Tube Plugs (High & Low Pressure)

retubing tools

- Tube Gauges
- Tube Cutters
- Manual Tools
- Spear Type Tube Pullers
- Collet-Type Tube Pullers
- CYCLGRIP Tube Extractors
- Grooving Tools
- End-Prep Tools

metal working products

- Back Chamfering Tools
- Carbide Roller Burnishing Tools
- Diamond Burnishing Tools
- Elliptical Deburring Tools
- Fine Boring Tools
- Internal Recessing Tools
- Magic Vise
- Mechanical Joining Tools
- Roller Burnishing Tools
- Single Blade Reamers

“ Collet Style Tube Tugger® ”
Tube Extractor
For 5/8” – 1” Tube OD
(B10552-00)



Operating and Maintenance Instructions



www.elliott-tool.com

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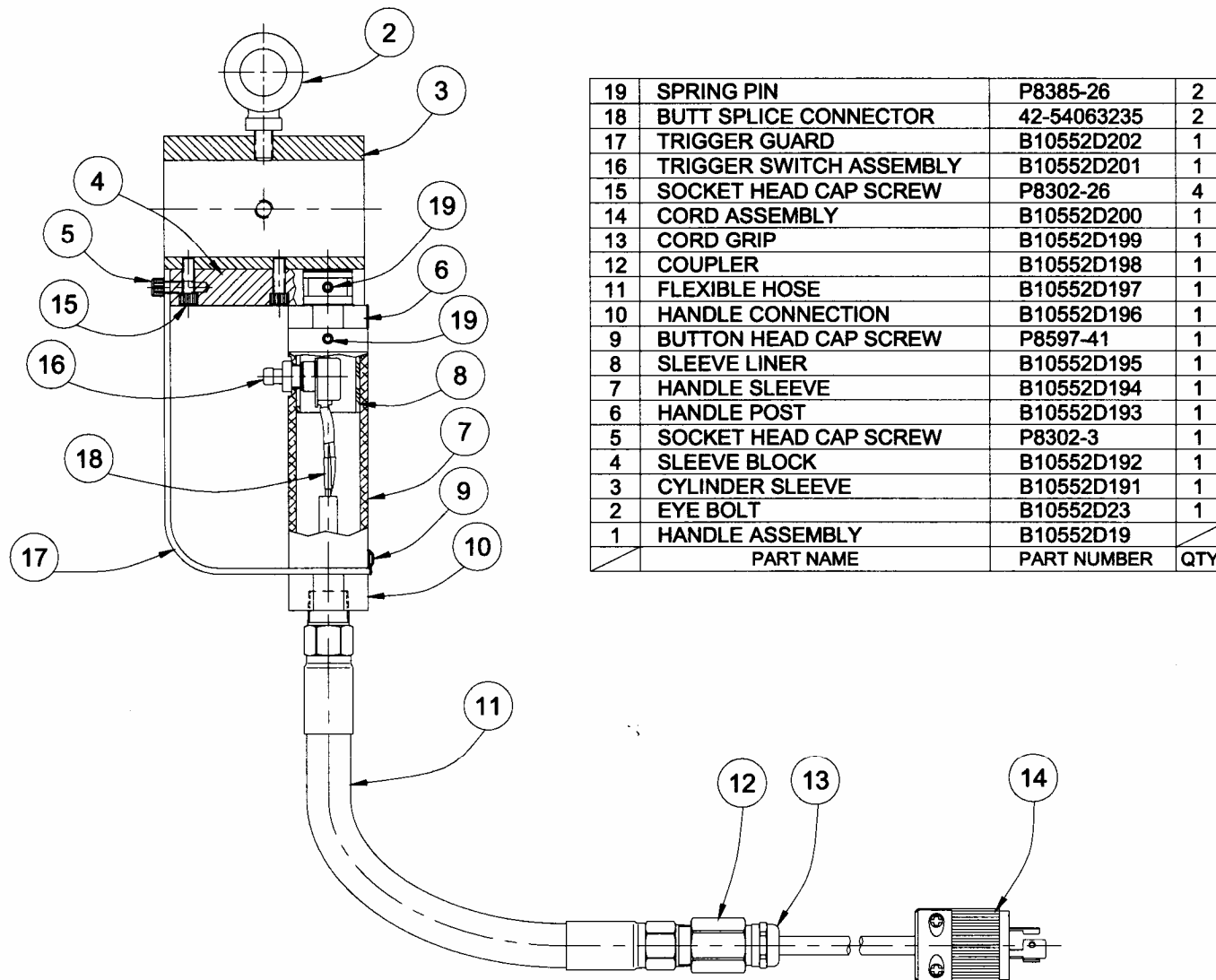
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HANDLE PARTS LIST

INTRODUCTION



19	SPRING PIN	P8385-26	2
18	BUTT SPLICE CONNECTOR	42-54063235	2
17	TRIGGER GUARD	B10552D202	1
16	TRIGGER SWITCH ASSEMBLY	B10552D201	1
15	SOCKET HEAD CAP SCREW	P8302-26	4
14	CORD ASSEMBLY	B10552D200	1
13	CORD GRIP	B10552D199	1
12	COUPLER	B10552D198	1
11	FLEXIBLE HOSE	B10552D197	1
10	HANDLE CONNECTION	B10552D196	1
9	BUTTON HEAD CAP SCREW	P8597-41	1
8	SLEEVE LINER	B10552D195	1
7	HANDLE SLEEVE	B10552D194	1
6	HANDLE POST	B10552D193	1
5	SOCKET HEAD CAP SCREW	P8302-3	1
4	SLEEVE BLOCK	B10552D192	1
3	CYLINDER SLEEVE	B10552D191	1
2	EYE BOLT	B10552D23	1
1	HANDLE ASSEMBLY	B10552D19	1
	PART NAME	PART NUMBER	QTY.

Thank you for purchasing this Elliott product. The design and manufacture of this machine represents 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 Elliott Collet Style Tube-Tugger® is a portable tube extractor for removing or extracting tubes or tube stubs from condensers and chillers. This tube/stub extractor is hydraulically driven and powered by a separate power source.

We at Elliott would like you to be completely satisfied with this machine and therefore recommend that this instruction manual be thoroughly read prior to use.

This machine has been designed and manufactured to the highest standards, using the latest in materials and technology. If the guidelines and maintenance schedules in this manual are followed, the Elliott Collet Style Tube-Tugger will provide many years of trouble free operation.

Elliott Tool Technologies Ltd shall not be liable for errors contained herein or for incidental or consequential damage in connection with the furnishing, performance, or use of this material.

READ AND UNDERSTAND ALL INFORMATION BEFORE OPERATING THIS TOOL

To reduce the risk of injury, everyone using or repairing this tool MUST read and understand these instructions before performing any such task.

Elliott Tool Technologies mission is "To be recognized by our customers as the world's best provider of application solutions".

The most important safety device for this or any tool is YOU. Your care and good judgment are the best protection against injury. All possible hazards cannot be covered with this manual, but we highlighted some of the important ones.

For additional safety information consult:

- U.S. Department of Labor, (O.S.H.A.); Council of the European Communities and or local codes.
- Your employer union and/or trade association.

GROUND ALL TOOLS. This tool should always be plugged into a three hole electrical receptacle. If an adapter is used to accommodate a two hole receptacle, the grounding ear must be attached to a known ground. **Never remove the third prong.**

Inspect power cord and plug each time prior to using the tool. Any torn or frayed cord must be immediately replaced.

- Do not abuse the power cord. Never yank the power cord to disconnect from the receptacle or power source.
- Always disconnect the tool from the power source before making any adjustments to tool accessories connected to the tool.
- Prevent body contact with grounded surfaces such as pipes and other structures.
- Always wear impact resistant eye protection when involved with or near the operation, repair or maintenance of the tool, or while changing accessories on the tool.
- Wear Gloves to protect hands.
- Operators and maintenance personnel must be physically able to handle the bulk, weight and power of the tool.
- This tool and its accessories MUST NOT be modified in any way.
- Slip-Trip-Fall is a major cause of serious injury or even death. Beware of excess Hydraulic hose and electrical cords left on the walking or work surface.
- High sound levels can cause permanent hearing loss. Use hearing protection as recommended by your employer or OSHA regulation (see CFR part 1910).

B10552-00 PARTS LIST

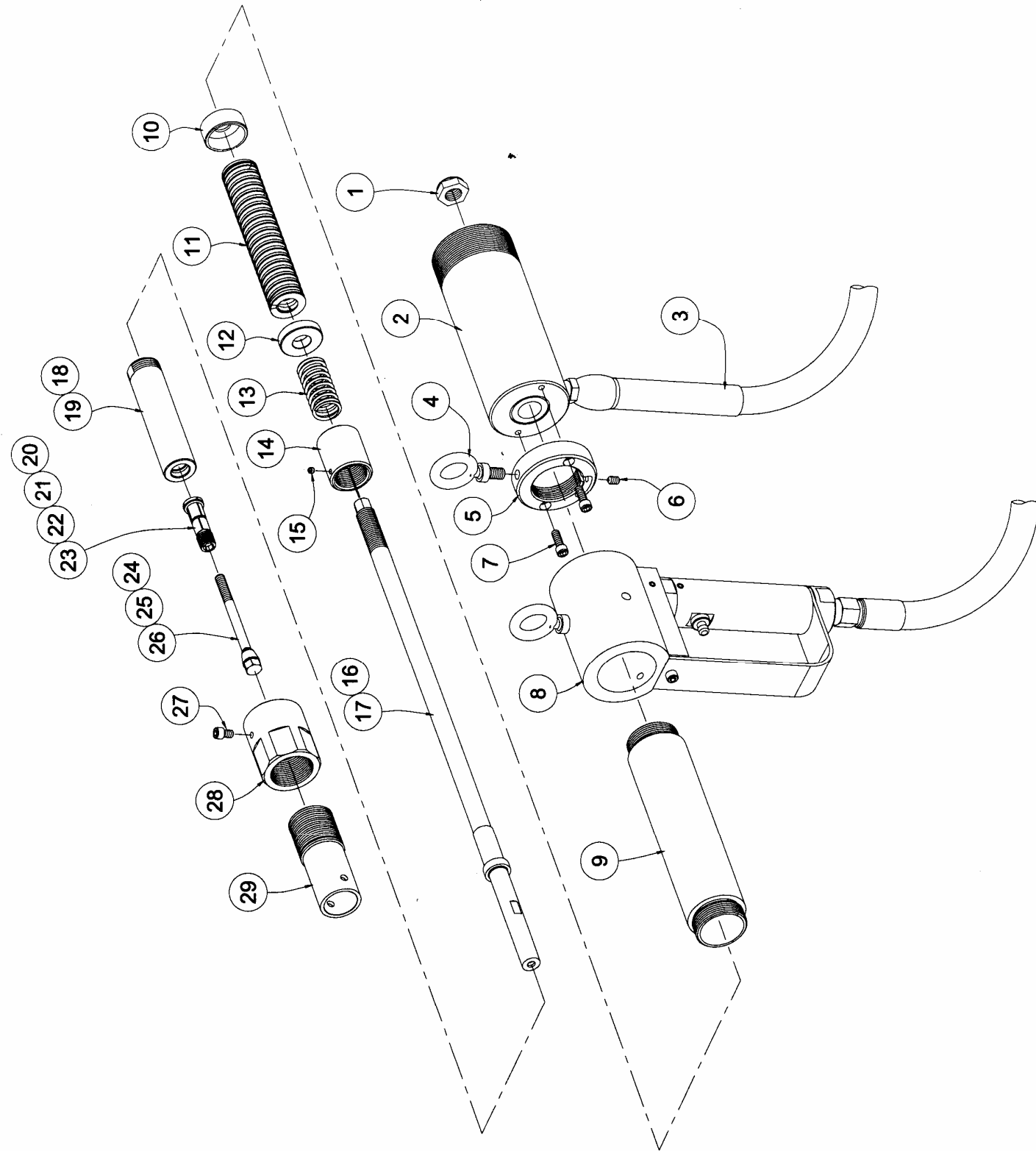
Item No.	Catalog No.	Part Description	Qty.
1	546R	Lock Nut	1
2	B10552D16	Cylinder Assembly*	1
3	B10552D20	15 Ft. Hydraulic Hose	1
4	B10552D24	Eye Bolt	1
5	B10552D14	Sleeve Adapter	1
6	128G	Hex. Socket Set Screw	1
7	P8302-26	Socket Head Cap Screw	2
8	B10552D19	Handle Assembly	1
9	B10552D9	Sleeve	1
10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

*Seal Kit Cat. No. 17-300576

TOOL SELECTION CHART

Tube O.D.	Wall Gage	Nosepiece	Collet Set (Includes O-Ring and Flat Spring)	Collet O-Ring	Collet Flat Spring	Draw Bolt	Pull Rod	Collet Retainer
5/8"	18-20	10552D4-625	B10552D3-625	P8309-8A	B10552D3-1-62	10552D2-625	10552D7-750	B10552D5-750
3/4"	14-20	10552D4-750	B10552D3-750	P8309-8A	B10552D3-1-62	10552D2-750	10552D7-750	B10552D5-750
7/8"	15-20	10552D4-875	B10552D3-875	P8309-11	B10552D3-1-87	10552D2-1000	10552D7-1000	B10552D5-1000
1"	14-20	10552D4-1000	B10552D3-1000	P8309-11	B10552D3-1-100	10552D2-1000	10552D7-1000	B10552D5-1000

B10552-00 PARTS LIST



READ AND UNDERSTAND ALL INFORMATION BEFORE OPERATING THIS TOOL

Safety Instructions Continued

- Maintain balanced body position and secure footing.
- Repetitive work motions, awkward positions and exposure to vibration can be harmful to hands and arms. If numbness, tingling, pain or whitening of skin occurs, stop using this tool and consult a physician.
- This tool is not intended for use in an explosive atmosphere and is not insulated for contact with electrical power sources.

Operating Voltage

The operating voltage must correspond with that on the identification plate of the hydraulic pump. This tube pulling cylinder operates with Elliott electric pump model M5783-00 110 volt, and model M5783-00-220 220 volt.

SPECIFICATIONS

	Collet Style Tube-Tugger Specifications	
	Inch	Metric
Standard Tube OD Range	5/8"-1"	15.9mm-25.4mm
Cylinder Capacity	6 Tons	
Length (Retracted)	(20.6")	(520.7mm)
Extended	21.8"	552.5mm
Weight	25lbs.	11.4Kg
Stroke	3"	76mm
Hydraulic Oil Type	ISO 32 Grade	

START-UP

Unpacking

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

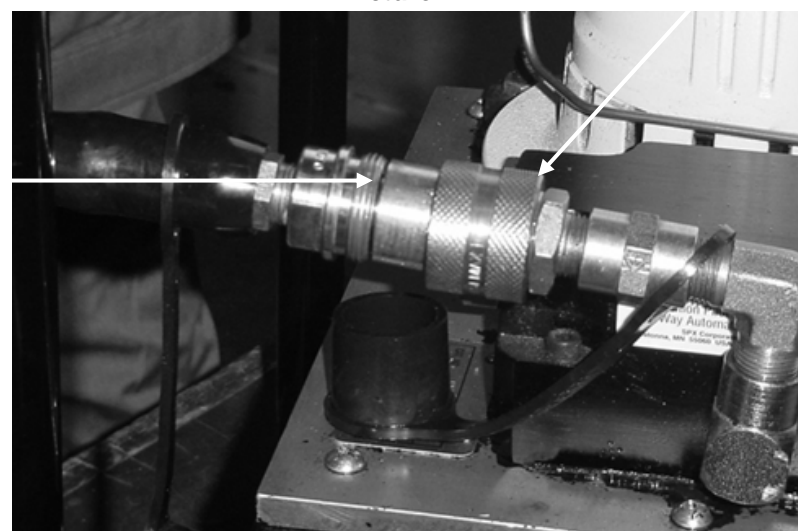
The Elliott Collet Style Tube-Tugger requires a hydraulic power source. The hydraulic power source supplied by Elliott will be an electric pump.

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. Connect the hydraulic cylinder power cord of the puller to the power cord on the pump; twist the plugs to lock-in the connection.
5. 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)
6. Move the pump switch from the off position to the remote position to initiate power to the pump.
7. 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.

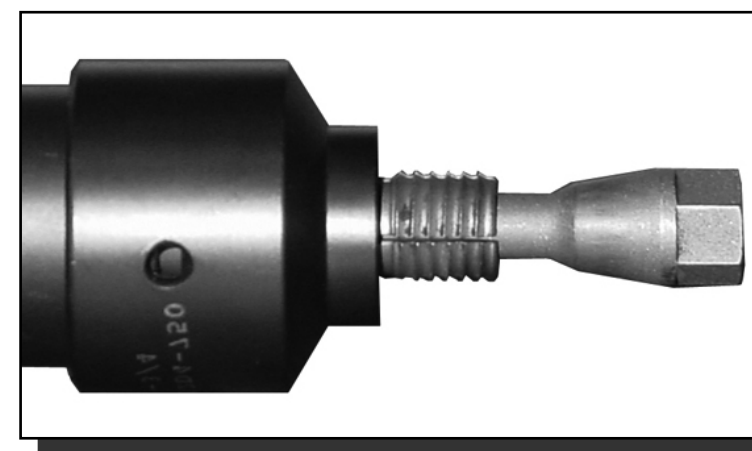


Elliott Collet Style Tube-Tugger

TOOL CHANGEOVER (Cont.)

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

TOOL CHANGEOVER

(See pages 10 and 11 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.

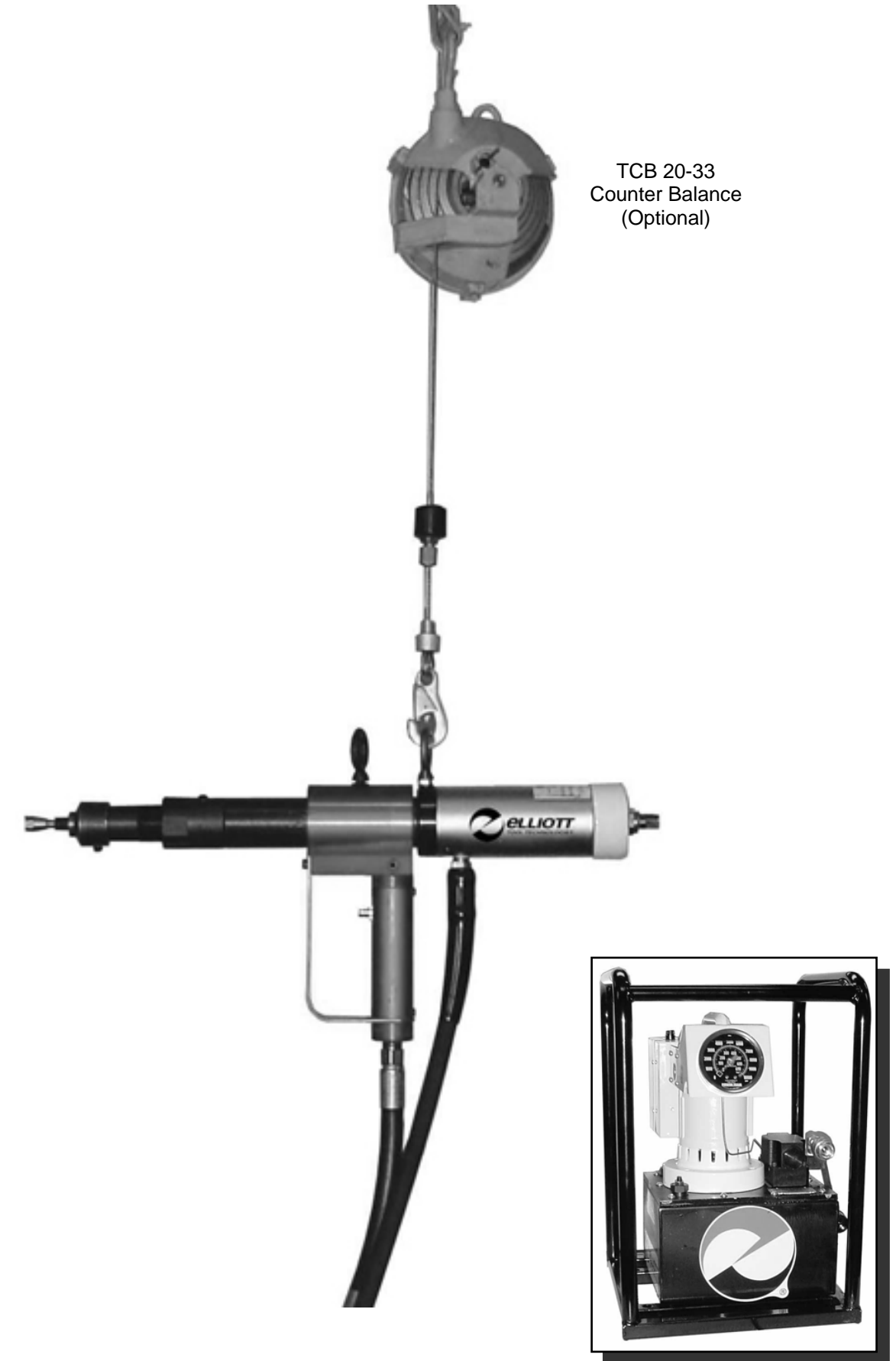
Changing the Draw Bolt

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).



OPERATION

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.

Four standard collet sizes are available. The tool selection guide for the Tube-Tugger is listed on page 11. **Refer to page 10 and 11 for parts list.**

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.

COLLET TUGGER OPERATION

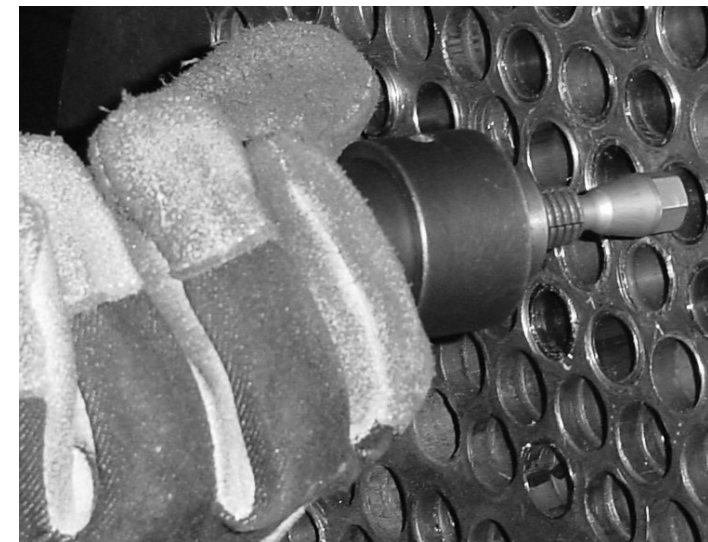
9. Once the tube joint has passed through the tube sheet, remove the tugger, and pull the tube by hand until the tube is completely extracted from the vessel.

TOOL TIP

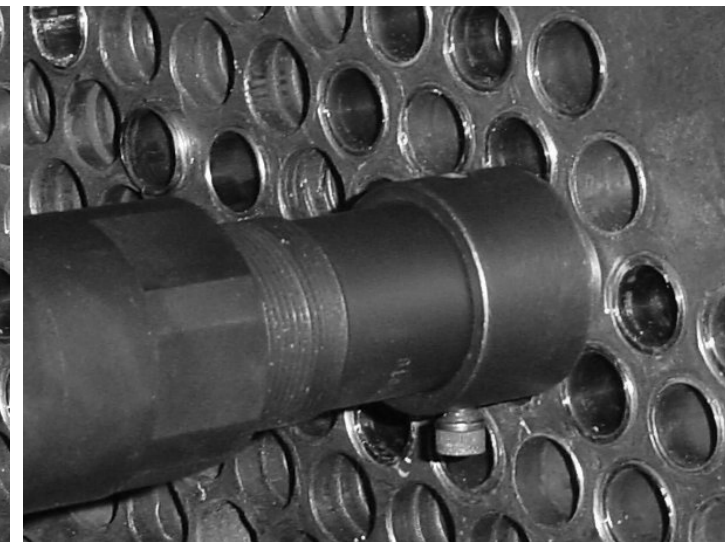
When removing pulled tube stubs from the collet, **DO NOT** rotate the stub on the collet. Rotating the stub will cause the draw bolt to rotate, which will change the collet diameter setting. Remove the stub by "rocking" the stub end until it's free from the collet.

Main Causes of Breakage:

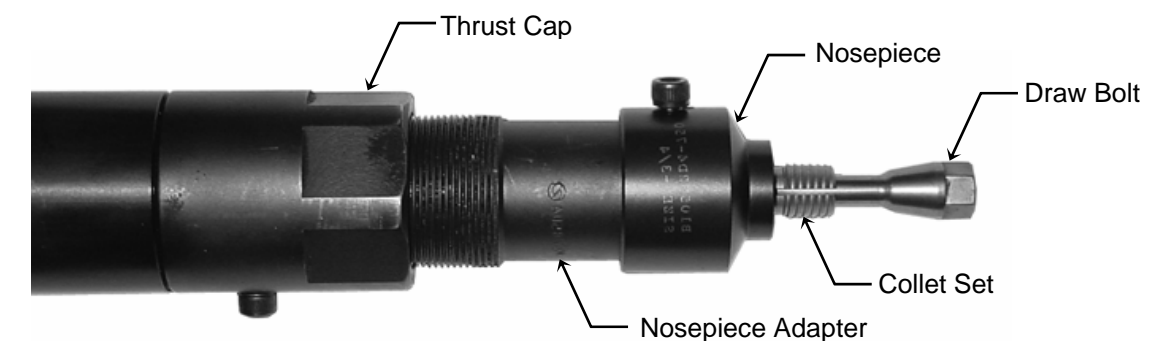
- A. Misalignment of the puller with the tube sheet. It is important to keep the unit straight. If tube projection is not a problem, the unit can be operated without the nosepiece, using only the nosepiece adapter. This allows a more stable base to pull from.
- B. Excessive pressure on the draw bolt / 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