



ELLIOTT
TOOL TECHNOLOGIES

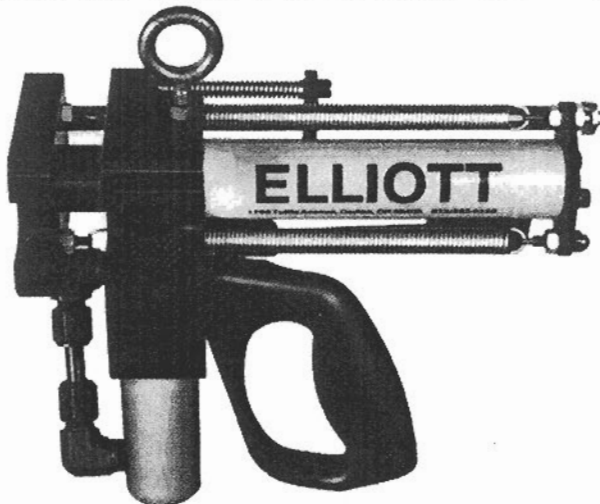
CYCLGRIP™

Continuous Tube Puller

Model No. M5630-00

- OPERATING RECOMMENDATIONS
- PARTS LISTING

Elliott's New CYCLGRIP™ Continuous Tube Puller Extracts Tubes from 1/2" to 1" O.D.



It Gives You Low Initial Cost, Easy Maintenance and Full Operator Controllability.

Elliott's engineers have designed the Cyclgrip Continuous Tube Puller for maximum operating efficiency:

- The unit extracts ferrous and non-ferrous tubes from 1/2" to 1" O.D.
- Adapts to these diameters without additional tooling.
- Grippers exert 2 tons of force at 4,000 PSIG
- Continuous 5-inch stroke operation as long as the pendant switch is depressed.
- Comfortable "D" handle grip reduces operator fatigue.
- In continuous operation a pulling rate of 120"/min. is produced.
- Small profile permits extraction of tubes close to the water jacket.
- Quick connect control cable and single hydraulic supply hose.
- May be operated with Elliott M5223D3A Hydraulic Power Unit or most hydraulic power units equipped with electrically operated hydraulic valves.

Elliott's simplified design minimizes moving parts and reduces maintenance cost.

- Efficient design for low initial cost.
- Parts subject to wear are minimized to reduce maintenance requirements.
- Grippers and other consumable parts are easily replaced with readily available, standard components.
- Hydraulic pressure is used for gripping and extracting only. Return springs cause retraction.
- Uses standard hydraulic cylinders and is adaptable to most hydraulic power units.
- Low voltage control.

Specifications:

Tube range: 1/2" to 1" O.D.
Tube projection required: 3" minimum
Face plate dimensions: 3.75" wide x 2.94" high
Stroke length: 5"
Pulling force: 1 lb./1 psig hydraulic pressure
Pulling rate: 120 in./min.
Capacity: 2 tons at 4,000 PSIG hydraulic supply
Height: 10.75"
Length: 8.44"
Width: 4.13"
Weight: 16 lb.
Included: Hydraulic hose, control cables and carrying case



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Elliott Company Ohio Operations
P.O. Box 1165, Dayton, Ohio 45401-3428
Phone: (937) 253-6133 Fax: (937) 253-9189
Phone: (800) 332-0447

Parts Listing

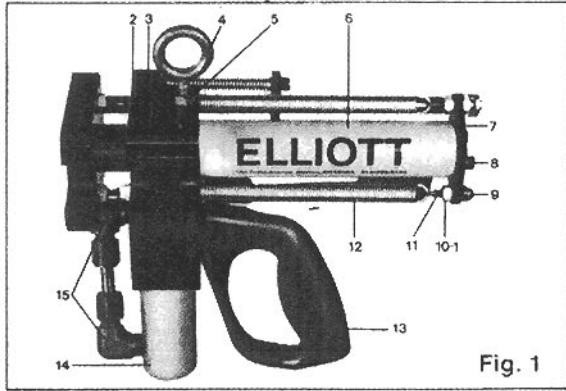


Fig. 1

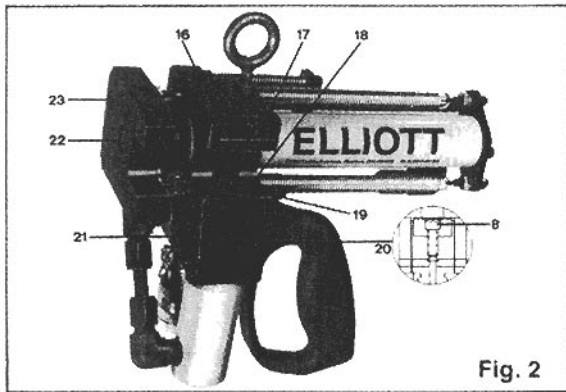


Fig. 2

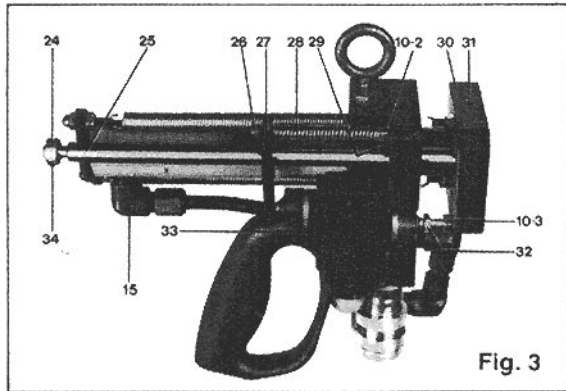


Fig. 3

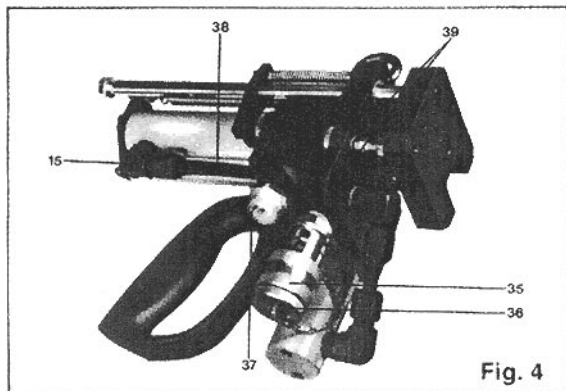


Fig. 4

Item No.	Description	Part No.	Quantity
1	Cyclgrip complete, including hydraulic hose, control cable and storage case	M5630-00	1
2	Body	M5630D27	1
3	Socket head cap screws	P8302-15	2
4	Eye bolt	PC49-0051618	1
5	Hex nut	171B	1
6	Pull cylinder	M5630D21	1
7	Spring retainer	M5630D4	1
8	Socket head cap screws	P8302-26	3
9	Acorn nuts	P8253-9	2
10	Hex nuts	171A	6
11	Spring anchors	M5630D2	4
12	Spring	M5630D7	2
13	Handle	M5630D37	1
14	Clamp cylinder	M5630D32	1
15	90 degree tube fitting	M5630D33	3
16	Square gripping inserts	M5630D29	2
17	Round gripping insert	M5630D30	1
18	Flow restrictor	M5630D36	1
19	Straight tube fitting	M5630D35	1
20	Plunger	M5630D31	1
21	Socket head cap screws	P8302-22	2
22	Rod extension	M5630D22	1
23	Button head socket screw	P8597-28	1
24	Collar	PC44 HK 15008	1
25	Guide rod	M5630D9	1
26	Socket head cap screw	P8302-125	1
27	Switch operator	M5630D11	1
28	Spring	M5630D12	1
29	Guide bushing	M5630D13	1
30	Lower plate	M5630D14	1
31	Socket set screw	128F	1
32	Hex head cap screw	130AC	1
33	Cycle switch	M5630D17	1
34	Socket head cap screw	P8302-70	1
35	Hydraulic coupling	M5630D25	1
36	Dust cap	M5630D26	1
37	Cord connector	M5630D18	1
38	Hydraulic tubing	M5630D34	1
39	Button head socket screws	P8597-23	2
40	Hydraulic hose assembly	M5630D40	1
41	Control cable assembly	M5630D41	1
42	Case	M5630D42	1

Accessories

10,000 psi hydraulic pump	80PER3405B
24 volt control unit for 80PR - PER 3042	M5705-00
Elliott collet style tube puller	M5360-00
Conversion kit to adapt existing Elliott collet style tube puller to accept Cyclgrip.	M5352-00

Set-up and Adjustment

Read all instructions carefully before attempting to assemble or operate the unit. Most malfunctions in new equipment result from improper operation or assembly.

1. Inspect the tube puller, hose and cables before each use. Repair or replace any damaged components.
2. Remove the dust cap [36] from the hydraulic coupling [35] and connect the hydraulic hose [40] to the coupling.
3. Connect the molded cable [41-3] to the cord connector [37] and the control cable [41-5]. Verify that the "twist lock" plug [41-6] is locked in place.
4. Connection to hydraulic power units:
Elliott M5223D3A Hydraulic Power Unit: Follow the instructions in the operating manual for power set-up. Connect the hydraulic hose [40] to the top hydraulic coupling marked with the red label. Connect the control cable to the electrical socket located on the hydraulic power unit. Verify that the "twist lock" plug [41-6] is locked in place.

Note: The unit can also be operated with most hydraulic power units which are equipped with electrically operated hydraulic valves. Contact the Elliott company at (513) 253-6133 for control unit/adaptor recommendations.

5. When connected for the first time, air will be trapped in the hydraulic system. To remove the air, cycle the unit 10 to 15 times. The unit will advance and retract smoothly when the trapped air is removed from the system. [Sluggish cylinder action usually indicates air in the system.]

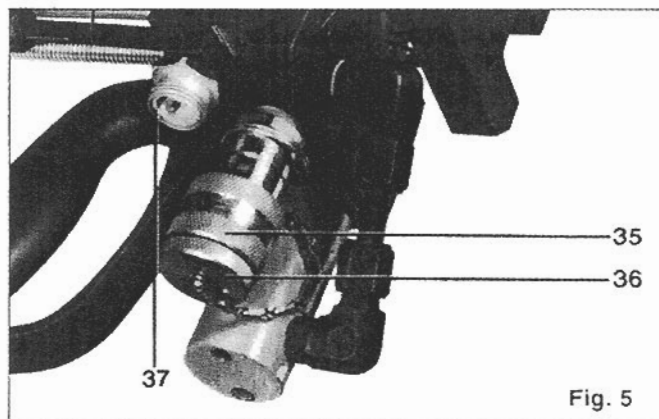


Fig. 5

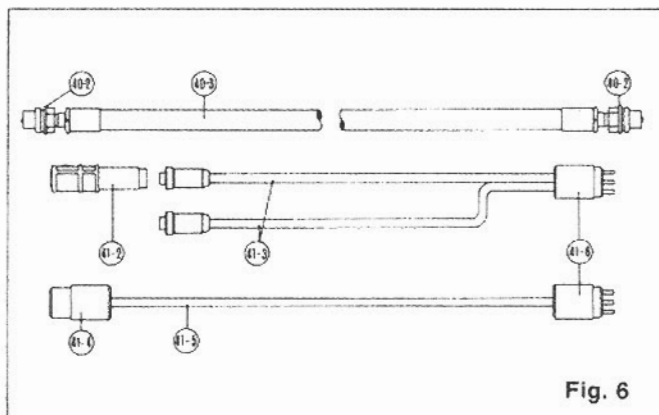


Fig. 6

Operating Instructions

1. Turn on hydraulic power unit and cycle the tube puller several times in "free air" to insure proper operation.
2. Position the Tube Puller over the tube to be pulled. Make sure the tube is in the slot on the side of the Tube Puller.
3. Hold the lower plate firmly against the tube sheet — depress and hold the pendant switch.
4. The Tube Puller will clamp the tube and extend to withdraw the tube from the tube sheet. The unit will repeat 5" strokes until the pendant switch is released by the operator. The operator should push the Tube Puller against the tube sheet at the end of each stroke.
5. The operator controls the number of cycles necessary to remove the tube — from one cycle to free a tube for removal by hand to multiple cycles to remove the entire length of a difficult tube. The Tube Puller will release and retract when the operator releases the pendant switch.

Note: The unit uses hydraulic pressure to clamp and extend only. Retraction is accomplished by return springs.

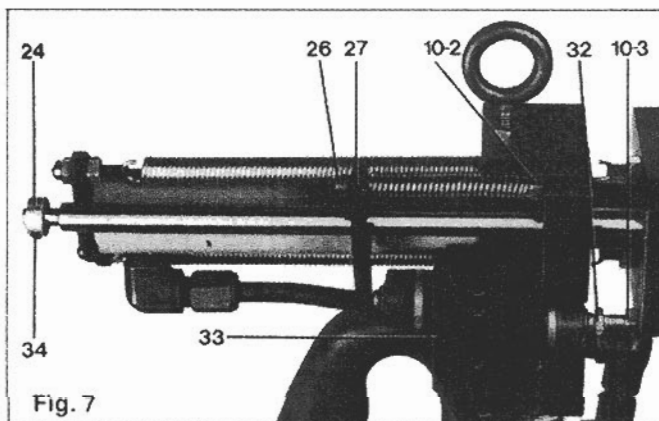


Fig. 7

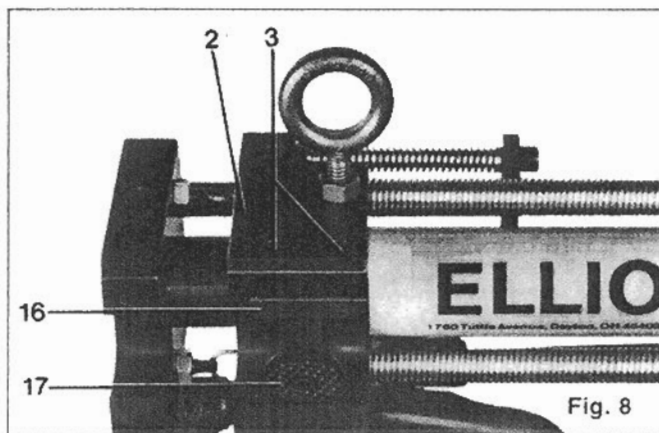


Fig. 8

Maintenance

1. Gripping inserts should be cleaned periodically using a stiff wire brush.
2. Inspect the unit prior to each use and replace worn gripping inserts, components, hoses or control cables.
3. Repair or replace leaking hydraulic cylinders.
4. Lubricate the plunger and guide rod after each use.
5. Apply rust preventative to all surfaces before storing "Cyclgrip."
6. For maximum operating efficiency, we recommend that the following spare parts be on hand: 1 set of 3 gripping inserts, one pendant switch and one cycle switch.
7. Adjusting the cycle switch.

If the unit does not extend:

- A. Verify that the unit is completely retracted.
- B. Turn off the hydraulic power unit and disconnect the molded cable [41-3] from the cycle switch.
- C. Attach a continuity meter to the pins on the connector [37] mounted to the switch. If the meter does not indicate continuity:
 - a. Loosen the lock nut [10-3].
 - b. Rotate the hex head screw [32] counter clockwise until the switch is tripped and the meter indicates continuity. [Do not overextend the hex head screw — switch damage may result.]
 - c. Tighten the lock nut [10-3].
- D. Connect the molded cable and turn on the hydraulic power unit.
- E. Cycle the unit to verify proper switch operation.
- F. There should be approximately 0.06" of clearance between the switch operator [27] and the switch [33]. If clearance is not sufficient:
 - a. Verify that the unit is completely retracted.
 - b. Turn off the hydraulic power unit.
 - c. Loosen the lock nut [10-2] and adjust the cap screw [26] to provide proper clearance.
 - d. Tighten the lock nut [10-2], turn on the hydraulic power unit and cycle the unit to verify proper operation.

If the unit does not retract:

- A. Turn off the hydraulic power unit.
 - B. Loosen the cap screw [34] and move the collar [24] downward approximately 0.06".
 - C. Tighten the cap screw [34], turn on the hydraulic unit and verify proper operation.
8. Replacing the cycle switch [33]:
 - A. Disconnect the unit from all power sources.
 - B. Remove two button head cap screws [39] (See Fig. 4) from the switch [33] and remove the switch.
 - C. Install the switch and replace the cap screws. Caution: Do not overtighten capscrews.
 - D. Cycle the unit to verify proper switch operation. Adjust if necessary.
 9. Replacing the gripper inserts [16 & 17]:
 - A. Disconnect the unit from all power sources.
 - B. Remove the two cap screws [3] that retain the square gripping inserts [16] and remove the square gripping inserts.
 - C. With hex wrench, rotate cap screw [8] clockwise until the hole in the body [2] aligns with the hole in the plunger [20]. (See Fig. 2)
 - D. Insert a temporary holding pin into the aligned hole.
 - E. Remove cap screw [8] and remove the round gripping insert [17] (See Fig. 2).
 - F. Clean all mounting surfaces.
 - G. Reverse steps F through A to install new gripping inserts. Note: Be sure that pin installed in step D has been removed prior to operation.

Trouble Shooting

Problem	Possible Causes
Unit will not advance	<ul style="list-style-type: none">• Cycle switch out of adjustment or defective.• No oil in hydraulic power unit.• Control cables not connected.• Pendant switch defective.• Hydraulic system air bound.• Blocked hydraulic hose.• Pump not running.• Couplers not fully tightened.
Unit advances part way	<ul style="list-style-type: none">• Oil level in pump is low.• Cylinder plunger binding.• Air trapped in cylinder.
Unit advances in spurts	<ul style="list-style-type: none">• Air trapped in hydraulic hose.• Cylinder plunger bent or binding.
Unit advances slower than normal	<ul style="list-style-type: none">• Leaking connection.• Restricted hydraulic hose or fitting.• Loose coupling.• Pump malfunctioning.
Unit advances but will not hold pressure	<ul style="list-style-type: none">• Cylinder seals leaking.• Leaking connection.• Pump malfunctioning.• Incorrect system set-up.
Cylinder leaking oil	<ul style="list-style-type: none">• Worn or damaged cylinder seals.• Loose connection.• Internal cylinder damage.
Unit will not retract, or retracts slower than normal	<ul style="list-style-type: none">• Cycle switch out of adjustment or defective.• Coupler not fully closed.• Blocked hydraulic hose.• Broken retract springs.• Pump reservoir over-filled.• Internal cylinder damage.
Unit will not retract fully	<ul style="list-style-type: none">• Weak retract springs.• Pump reservoir over-filled.• Partially blocked hydraulic hose.• Unit damage — external or internal
Unit slips or does not grip tube	<ul style="list-style-type: none">• Gripping inserts worn or dirty.• Tube O.D. too small for unit capacity.• Pump not producing sufficient flow or pressure.• Tube wall too thin to support gripping.

Safety Instructions

Important: Be sure to follow all safety instructions before attempting to assemble or operate the Elliott Cyclgrip Continuous Tube Puller or the hydraulic equipment used to operate the unit. Always follow basic safety precautions throughout the tube pulling operation to prevent personal injury. The Elliott Company cannot be responsible for damage or injury resulting from unsafe product use, lack of proper maintenance or incorrect product application. Contact the Elliott Company when in doubt about safety instructions, design criteria or product use.

1. Make sure all connections are properly tightened. [Do not over-tighten]
2. Inspect hose and cables before each use. Replace damaged components.
3. Never put fingers or hands into the tube puller mechanism while power sources are connected. Disconnect the Tube Puller from all power sources before making any repairs or adjustments.
4. Verify that all trapped air has been purged from the hydraulic system.
5. Always hold the puller by the handle and maintain a firm grip when pulling tubes. Use a tool balancer, when possible, to reduce operator fatigue.
6. Do not stand in the path of a tube being pulled. [Take precautions that no one else may stand in the path of the tube being pulled.]
7. The control button should be used by the operator only. [No one else should operate the control button.]
8. Always use a suitable hydraulic pressure gage. Do not exceed the pressure rating of the lowest capacity pressurized component in the system.
9. Keep oil lines clean. When coupler valves are disconnected, always screw on dust cap. Use every precaution to protect against dirt or foreign matter entering the hydraulic system.
10. Keep work area clean.
11. Do not alter the tube puller in any way.

The Elliott Company Supplies a Broad Range of Tube Installation and Maintenance Equipment for Boilers, Chillers, Condensers and Heat Exchangers

- Tube Cleaners
 - Tube Expanders
 - Tube Pulling Equipment
 - Tube Plugs
 - Pneumatic Torque Motors
 - Electronic Torque Controls
 - Pneumatic and Electric Tube Rolling Equipment and Controls
 - Hydraulic Tube Rolling Machines
 - Leak Testing Systems
 - Retubing Tools
 - Weld Removal Tools
 - Chamfering and Beveling Tools
 - Hand Hole and Man Hole Seat Grinders
 - Wiedeke® Roller Burnishing, Sizing and Finishing Tools
 - Roto-Jet™ Electric Tube Cleaners
 - Roto-Jet™ Pneumatic Tube Cleaners
 - Vacuums
 - Accessories for these and other brands of cleaning equipment.
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Please contact Elliott Company customer service for price and delivery information . . .
Call us at (937) 253-6133