

# Super Tube Tugger

80-40200



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 Super 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.

- 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.
- Avoid Dangerous Environments. Do not use power tools in damp or wet locations
- Ensure all hydraulic connections are properly made and in good condition and be aware of the hydraulic power shut off valve. Always shut down the hydraulic power supply before changing tooling.
- 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 repellent, 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 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 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. For all repairs, insist on only identical replacement parts.
- Keep Hands Away from All Moving Parts.
- Stay Alert. Watch what you are doing, and use common sense. 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 Tool Carefully. Keep tools sharp and clean for best and safest performance. Follow instructions for lubrication, maintenance and changing accessories.
- Store Idle Tools. When not in use, store your tool in a dry, heated, secured place. For more information see "Maintenance" section.
- 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

# **SAFETY GUIDELINES**

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 Super 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 Super Tube-Tugger requires a hydraulic power source. The hydraulic power source supplied by Elliott will be an electric, pneumatic or manual pump.

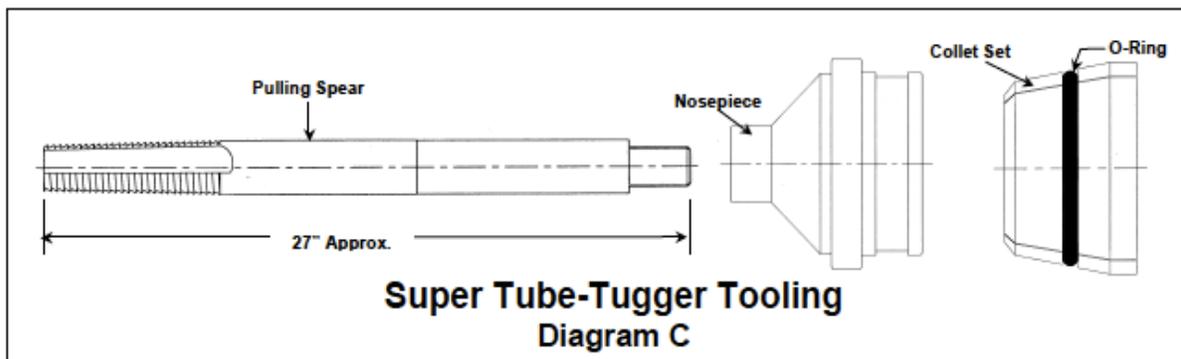
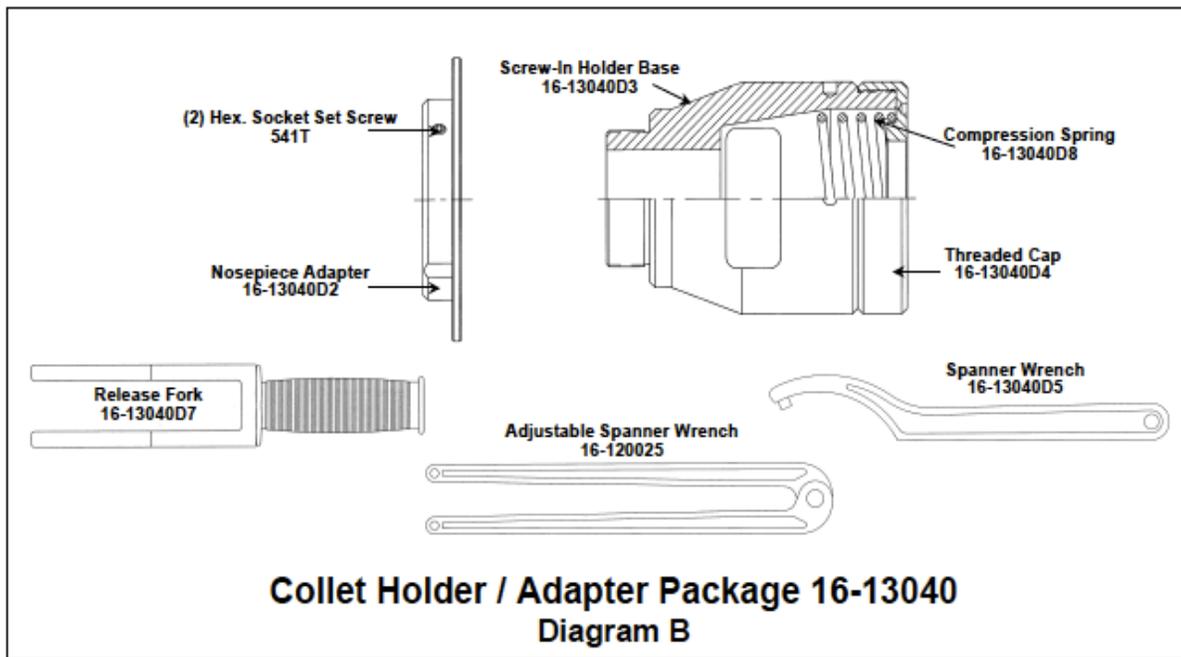
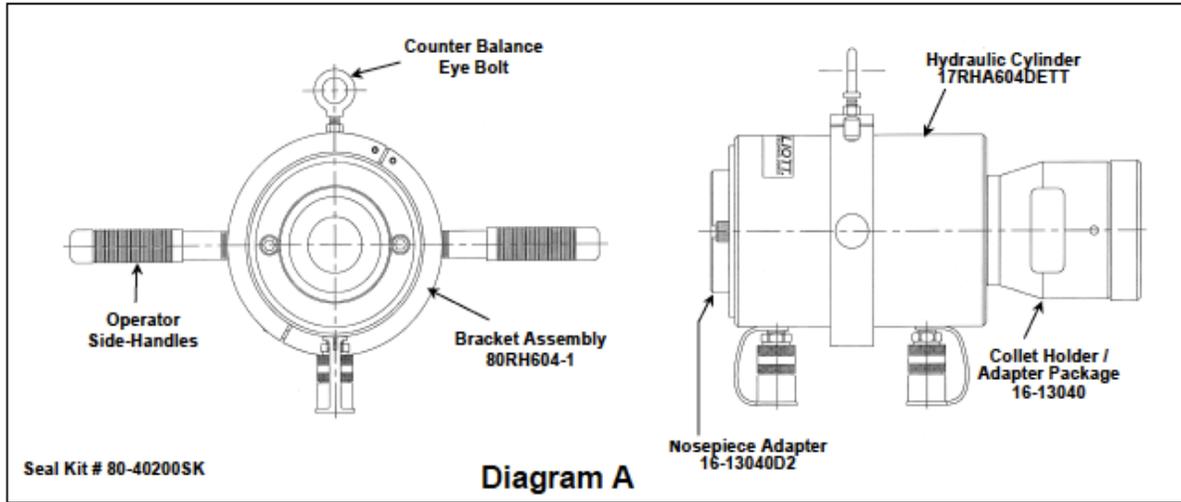
1. Position the Super Tube-Tugger and the hydraulic power source on a flat surface.
2. Connect counter balance eye bolt and fasten operator side handles.
3. Connect the two 15' hydraulic hoses to both units. Important: Make sure that the male hose fittings are totally in contact with female fitting shoulder on the tube pulling cylinder before threading down the locking fitting. Otherwise the cylinder's relief valve will activate and release a fog of hydraulic fluid and the cylinder will remain idle.
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. Follow the directions of the Elliott hydraulic pump manual to assure that hydraulic pump is working properly.
6. Cycle the Super Tube-Tugger several strokes to eliminate any air in the hydraulic lines.  
NOTE: The hydraulic hoses are pre-charged with oil by the factory.
7. The Super Tube-Tugger is ready for tool installation.

## **Removing the Hydraulic Hoses**

Neutralize the pressure before removing the hydraulic hoses.

NOTE: On the hydraulic power units with remote control, flip the switch on the top of the hydraulic pump from "Remote" to "Off". Cycle both "Advance" and "Retract" switches on the remote control, to neutralize the pressure.

# QUICK REFERENCE DIAGRAMS



# OPERATION INSTRUCTIONS

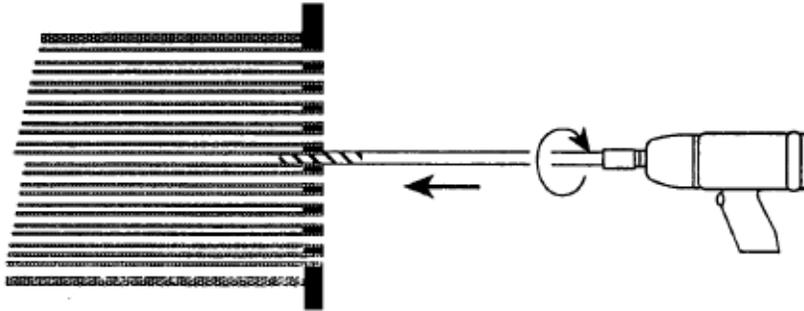
The Super Tube-Tugger has been designed for efficient use and optimum productivity.

The Super Tube-Tugger will extract tubes with outside diameters ranging from 1-1/2" to 2". Standard OD collet jaws and nosepieces are available for 1-1/2", 1-3/4" and 2" OD tubes.

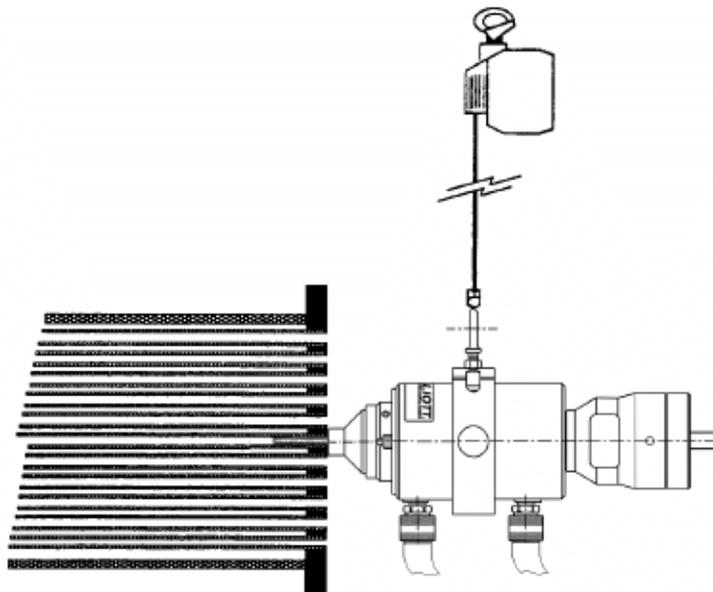
Pulling spears are sized for the tube ID. Nine standard spear sizes are available.

1. Determine the OD and ID of the tubes to be extracted.
2. Select the proper tools: Nosepiece, pulling spear and collet set (See Page 9).
3. Install the correct nosepiece and collet set on the Super Tube-Tugger.
4. Thread the spear into the tube ID using adapter with an impact drive or by hand.  
NOTE: Be careful not to impact the spear too deep, as this will cause difficulty in extracting the tubes.
5. Secure Super Tube-Tugger to counter balance.
6. Position the Super Tube-Tugger over the spear and hold against the tube sheet.
7. Initiate the stroke of the Super Tube-Tugger. When the Super Tube-Tugger has reached its maximum stroke, initiate the return stroke, keeping the Super Tube-Tugger in contact with the tube sheet. Repeat until the tube end is visible from the back end of the collet holder.
8. Once the spear has passed through the collet jaws, stop the Super Tube-Tugger and remove the spear from the tube.
9. Continue the extraction until the tube is fully extracted from the vessel. Once the tube is pulling freely the operator may hand pull the tube through the collet jaws to speed up the extraction process. NOTE: The release fork may be used to fully open the collet jaws if required.
10. Repeat steps 4 to 9 until all tubes are extracted.

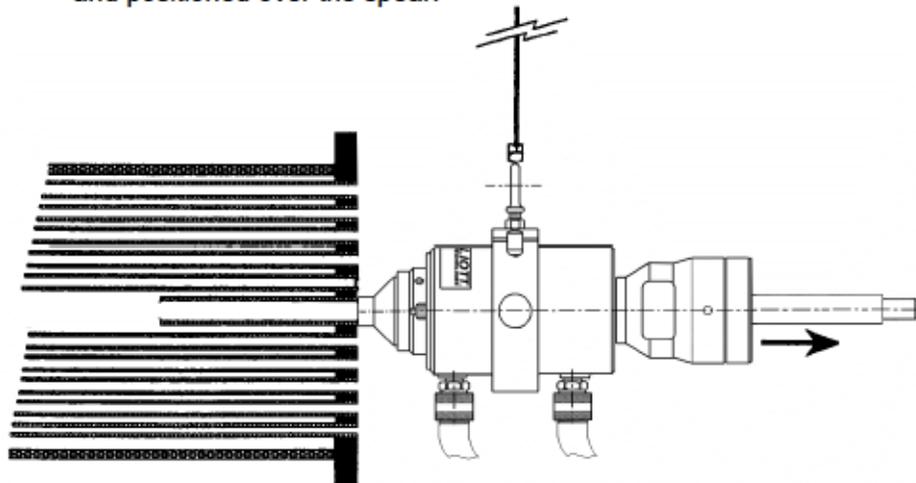
# OPERATION INSTRUCTIONS



Spear being impacted into tube.



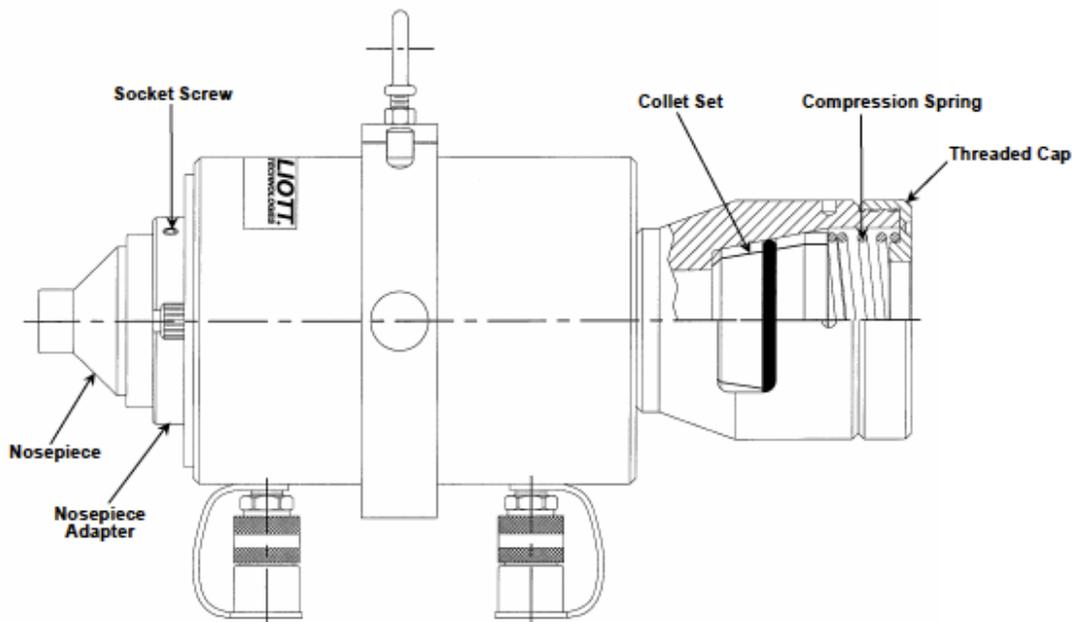
Super Tube-Tugger secured to counter balance and positioned over the spear.



# TOOL CHANGEOVER

## Changing The Nosepiece:

1. Loosen socket screws in nosepiece adapter with Allen wrench.
2. Loosen nosepiece from nosepiece adapter.
3. Insert new nosepiece into nosepiece adapter.
4. Make sure that the socket screw engages into slotted ring of the nosepiece.
5. Tighten socket screw to lock in nosepiece.



## Changing The Collet Set:

1. Engage spanner wrench into threaded cap and loosen cap.
2. Unthread cap from rear of Super Tube Tugger.
3. Remove compression spring.
4. Remove set of collet jaws from Super Tube Tugger.
5. Lubricate new set of collet jaws on the OD of the jaws.
6. Insert new set of collet jaws into Super Tube Tugger.
7. Insert compression spring.
8. Thread cap onto Super Tube Tugger.
9. Secure cap firmly using spanner wrench and release fork.

# TOOL SELECTION GUIDE

| Tube OD         | BWG   | Spear     |              | Minimum Spear *Diameter |      | Maximum Spear *Diameter |      | Male Sq. Size | Nose Piece   | *Collet Set with O-Ring |
|-----------------|-------|-----------|--------------|-------------------------|------|-------------------------|------|---------------|--------------|-------------------------|
|                 |       | 29" Reach | 48" Reach    | Inch                    | mm   | Inch                    | mm   |               |              |                         |
| 1-1/2" (38.1mm) | 7     | TT1500-7  | TT1500-7-48  | 1.120                   | 28.4 | 1.278                   | 32.5 | 1"            | 80-40200N150 | 80-40200C150            |
|                 | 8-9   | TT1500-8  | TT1500-8-48  | 1.155                   | 29.3 | 1.326                   | 33.7 |               |              |                         |
|                 | 10-12 | TT1500-10 | TT1500-10-48 | 1.217                   | 30.9 | 1.375                   | 34.9 |               |              |                         |
|                 | 13-15 | TT1500-13 | TT1500-13-48 | 1.300                   | 33.0 | 1.435                   | 36.4 |               |              |                         |
|                 | 16-18 | TT1500-16 | TT1500-16-48 | 1.360                   | 34.5 | 1.477                   | 37.5 |               |              |                         |
| 1-3/4" (44.5mm) | 7     | TT1750-7  | TT1750-7-48  | 1.370                   | 34.8 | 1.528                   | 38.8 |               | 80-40200N175 | 80-40200C175            |
|                 | 8-9   | TT1750-8  | TT1750-8-48  | 1.405                   | 35.7 | 1.576                   | 40.0 |               |              |                         |
|                 | 10-12 | TT1750-10 | TT1750-10-48 | 1.467                   | 37.3 | 1.625                   | 41.3 |               |              |                         |
|                 | 13-15 | TT1750-13 | TT1750-13-48 | 1.550                   | 39.4 | 1.685                   | 42.8 |               |              |                         |
|                 | 16-18 | TT1750-16 | TT1750-16-48 | 1.610                   | 40.9 | 1.727                   | 43.9 |               |              |                         |
| 2" (50.8mm)     | 7     | TT2000-7  | TT2000-7-48  | 1.620                   | 41.1 | 1.778                   | 45.2 |               | 80-40200N200 | 80-40200C200            |
|                 | 8-9   | TT2000-8  | TT2000-8-48  | 1.655                   | 42.0 | 1.826                   | 46.4 |               |              |                         |
|                 | 10-12 | TT2000-10 | TT2000-10-48 | 1.717                   | 43.6 | 1.875                   | 47.6 |               |              |                         |
|                 | 13-15 | TT2000-13 | TT2000-13-48 | 1.800                   | 45.7 | 1.935                   | 49.1 |               |              |                         |
|                 | 16-18 | TT2000-16 | TT2000-16-48 | 1.860                   | 47.2 | 1.977                   | 50.2 |               |              |                         |
|                 | 19-24 | TT2000-19 | TT2000-19-48 | 1.906                   | 48.4 | 2.000                   | 50.8 |               |              |                         |

**Specifications:**

- Tube OD Range: 1-1/2"-2" (38-50.8mm)
- Capacity: 60 Ton (54.4Mt).
- Stroke: 4.000" (101.0mm).
- Tugger Diameter: 8.500" (215.9mm).
- Lengths:
  - Collapsed: 18.000" (457.0mm).
  - Extended: 22.000" (559.0mm).
- Length Across Handles: 18.250" (464.0mm).
- Weight: 62 Lbs. (28.0Kg).
- Hydraulic Oil Type: ISO 32 Grade

| Recommended Pump |               |      |                                  |                   |        |      |            |
|------------------|---------------|------|----------------------------------|-------------------|--------|------|------------|
| Part Number      | Pump Type     | HP   | Maximum Operating Pressure (psi) | Power Requirement | Weight |      | Repair Kit |
|                  |               |      |                                  |                   | Lbs.   | Kg.  |            |
| M5773-00         | 110V Electric | 1.13 | 10,000                           | 25 Amps @110V     | 88     | 39.9 | 17-300332  |
| M5776-00         | 220V Electric |      |                                  | 15 Amps @220V     |        |      |            |
| M5775-00         | Pneumatic     | 3    |                                  | 50 cfm @80 psi    | 91     | 41.3 |            |

# 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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