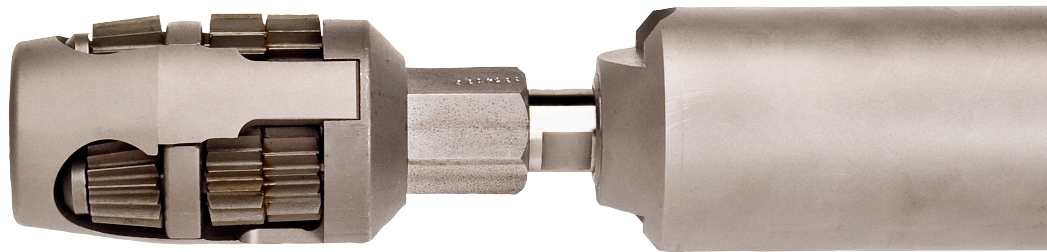
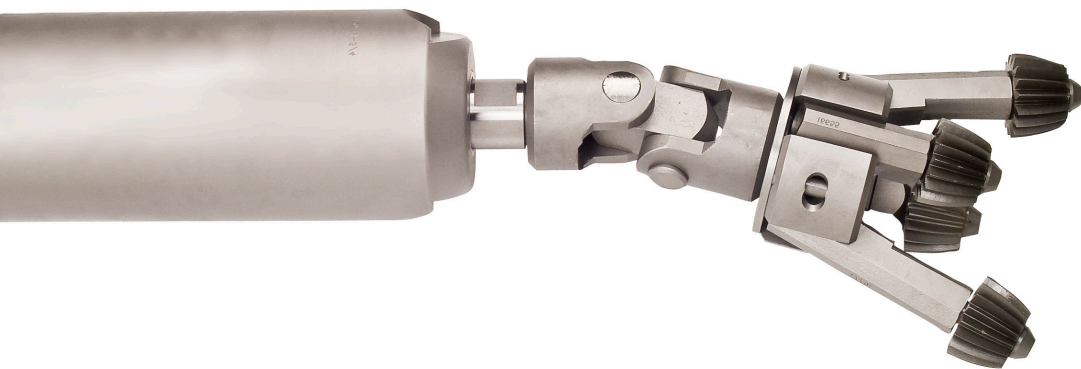


Turbine Style Tube Cleaners

1100 Series



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 1100 Series Turbine Style Tube Cleaner has been designed for the following types of equipment:

Heat Exchangers

Watertube Boilers

Firetube Boilers

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.
- Never grab or attempt to stop the cleaner motor, rotor, or the cleaning heads while they are rotating. Operator injury could occur.
- Exhaust air or water will exit the tube being cleaned. Make sure that no one is near the end of the tubes being cleaned before you activate the cleaner in any tube. Rope, signs, and safety tape are all good devices to assure that no one enters this area.
- 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 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.
- Keep Bystanders Away. Bystanders should be kept at a safe distance from the work area to avoid distracting the operator and contacting the blade.
- 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 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.
- Do Not Overreach. Maintain Control. Keep proper footing and balance at all times.
- 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.

SAFETY GUIDELINES

Follow instructions for lubrication, maintenance and changing accessories. For more information see “Maintenance” section. Periodically inspect the tool cord and extension cords for damage. Have damaged parts repaired or replaced by an Elliott service facility.

- **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.

RECEIVING & INSTALLATION

Tool Function

Elliott internal tube cleaners are mechanical devices that remove minerals, scale, soot, or other deposits from the ID of tubular heat exchangers, including but not limited to water tube or fire tube boilers. The basic cleaner consists of a drive motor, cutter head or brush head, head coupling or universal joint, and an operating hose to supply the source of power. This power source may be compressed air of 90 to 100 PSI (125 PSI Maximum), or water of 140 to 150 PSI (175 PSI Maximum) depending upon the design of the motor. The volume (CFM or GPM) will be determined by the physical diameter of the motor. Refer to page 9 for those individual specifications. The drive motor, powered by either water or air as designed, rotates and turns the cutter head or brush which has been coupled to the motor via a straight head coupling or a universal joint. As the cleaning head rotates the operator forces it through the tube or, if of a self-feed design, it pulls it's self through the length of the tube ID. This rotational action allows the cleaning heads to pulverize the deposits or to scrape them away. Removal of these deposits allow the tube to transfer heat in a more efficient way, increasing the efficiency of the heat exchanger it is part of.

Set-Up:

Connect the drive motor to the male thread (NPT) of the operating hose. It is important to remember that any compressed air must be as dry as possible, yet be lubricated. A filter lubricator should be installed between the compressor and the operating hose for pneumatic cleaners. Elliott offers an in-line shut off valve that is connected between the motor and the operating hose. A second shut off valve should also be installed between the compressor or pump and the operating hose. The cutter head or brush head is connected to the drive motor via a threaded coupling. Straight couplings are used for straight tubes while universal joints are used for curved tubes. Make sure all threaded connections are tightened securely as the equipment will be subjected to severe vibration during operation. The internal tube cleaner is now ready for use.

OPERATION INSTRUCTIONS

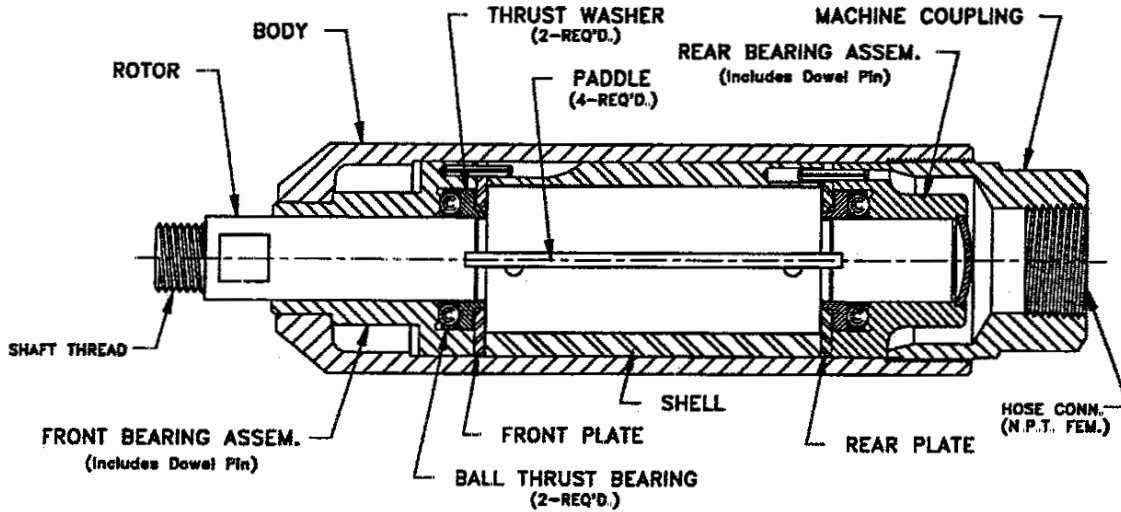
CAUTION

CAUTION: Never let the cleaning head exit either end of the tube while it is still rotating. Operator injury or cleaner damage may result. Measure the length of the tube and mark the operating hose to avoid this.

1. Insert the cleaning head and motor into the tube to be cleaned. Open the shut off valve at the compressor or pump and the operating hose will become pressurized. Regulate the lubricator to drip 15 to 30 drops per minute into the operating hose (pneumatic only) to lubricate the compressed air. An oil mist should be seen in the exhaust air. The in-line shut off valve can now be opened to activate the drive motor. This will cause the cleaning head to rotate which will start the cleaning process.
2. The operator feeds the operating hose into the tube allowing the cleaning head and motor to travel into the tube. Some cleaning heads are a self-feeding design and will pull themselves through the tube. The operator must control the rate of advancement of both types of cleaning heads. Too fast a rate of feed will cause the cleaner to miss sections of deposit or possibly load up with deposit. Too slow of a feed rate will allow the cleaning heads to rotate in a clean section of tube. Both conditions can lead to cleaner damage or tube damage. The operator must determine the optimum feed rate based on the type of cleaning equipment being used as well as the amount and type of deposit encountered. Listening to the pitch of the motor and the sound of the cleaning head in the tube is one way to determine if the cleaner is operating in a clean section of tube or in a dirty section of tube. Each will have a distinct sound.

PARTS LISTS & DIAGRAMS

1100 Series Air Driven Motors For Straight Tubes



Motor Dia.	Motor Assembled	Motor Parts											
		Body	Rotor	Shell	Paddle	Front Bearing	Rear Bearing	Front Plate	Rear Plate	Dowel Pin	Thrust Washer	Ball Thrust Bearing	Machine Coupling
2-1/16	111900-2062	111902-2062	111905	D44906	D44908	111950	111909	111907	111927	P8381-11	111937	111954	D44931
2-5/16	112000-2312	112002-2312	112005	112006	112008	112050	112009	112007	112027	125-7/8	112037	112054	112031
2-9/16	112100-2562	112102-2562	112105	D45208	D45208	112150	112109	112107	112127	P8383-12	112037	112054	D45231
2-13/16	112200-2812	112202-2812	112205	D45106	D45108	112250	112209	112207	112227	P8383-16	112237	P112254	D45131
3-1/16	112300-3062	112302-3062	112305	D45606	D45108	112350	112309	112307	112327	P8383-16	112237	P112254	D8031
3-1/4	112400-3250	112402-3250	112405	D45006	D45008	112450	112409	112407	112427	P8383-16	112437	P112454	D45031
3-1/2	112500-3500	112502-3500	112505	D45406	D45408	112550	112509	112507	112527	P8383-16	112637	112554	D45431
3-3/4	112600-3750	112606-3750	112605	D45706	D45708	112650	112609	11607	112627	P8383-16	112637	112554	D45731
4-3/4	112800B4750	112802-4750	112805	D45806	D24508	112850B	112809B	112807B	112807B	112815	112837	112854	D45831A

Motor Assembled	Shaft Wrench	Data		
		Shaft Thread	Hose Conn.	Air Consumption (CFM @ 80psi)
111900-2062	149C	5/8-11	3/4	80
112000-2312	149C	3/4-10	3/4	90
112100-2562	149C	3/4-10	1	125
112200-2812	149F	7/8-9	1	140
112300-3062	149F	7/8-9	1	150
112400-3250	149F	1-14	1	160
112500-3500	149E	1-1/8-12	1	170
112600-3750	149E	1-1/8-12	1	190
112800B4750	149E	1-3/8-12	1-1/4	200

MAINTENANCE INSTRUCTIONS

WARNING

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

The proper performance and service life of every machine depends on how well it is maintained. The following should become a regular routine of operations.

1. Before using any tube cleaner, inspect all components for any signs of wear or damage.
 - a.) Replace any components that are worn or damaged.
 - b.) Lubricate the motor with clean, lightweight machine oil and rotate the rotor by hand. If any drag or rubbing is felt, or if the rotor hangs up at any point, the motor should be disassembled for further inspection.
2. After each use, and especially if the equipment will not be used for a prolonged period of time, lubricate the internal components of the motor. If possible, store the cleaner components in a container of clean oil. Excess lubrication will not damage the motors or the cleaning heads.

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.

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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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