TM-74
3/25/04

Model 32-JM1700
Air Powered Tube Cleaner

Operating and Maintenance Instructions

Read and Understand Operating Instructions Before Operating Tool

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INDEX

Page No.

Safety 1
General Operating Procedure 2
Operating Suggestions 3
Brush Selection 3
Flexible Shafts 4
Maintenance After Every Use 4
Air Motor Maintenance 4
Storage 4
Service and Repair Parts 5

SAFETY

Safety precautions are essential when any electrical or mechanical equipment is involved. These precautions are necessary when using, storing, and servicing electromechanical equipment. Using this equipment with the respect and caution demanded will considerably lessen the possibilities of personal injury. If safety precautions are overlooked or ignored, personal injury or property damage may occur.

The symbols shown below are used extensively throughout this material. Always heed these precautions, as they are essential when using any electrical or mechanical equipment.

This warning symbol identifies specific instructions or procedures which if not correctly followed could result in personal injury or death.

This caution symbol identifies specific instructions or procedures which, if not observed, could result in damage to, or destruction of equipment.

This unit was designed for specific applications. It should not be modified and/or used for any application other than which it was designed. If there are any questions regarding its application, *write or call.* Do not use this unit until you have been advised. For more information, call Customer Service at *800-332-0447 or 937-253-6133.*

1 – Read this manual carefully – know your equipment. Consider the application, limitations, and the potential hazards specific to your unit.

2 – Remove air supply to the machine when not in use, before changing tools, or performing maintenance.

3 – Never use any object – like a brick – to hold foot switch "on".

4 – Water spray must never be directed towards any electric wiring or directly towards machine itself.

5 – Never carry by the air hose or flexible shaft. Do not pull hose or shaft to move machine.

6 – To prevent damage, the hose should not be crushed, placed next to sharp objects or near heat.

7 – Keep work area clean and well lighted. Cluttered, dark work areas invite accidents.

8 – 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

9 – 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.

10 – Keep Bystanders Away. Bystanders should be kept at a safe distance from the work area to avoid distracting the operator and contacting the flexshafting or machine. Only the operator of the machine should engage the foot switch control.

11 – Protect others in the work area from debris such as water exhaust and water spray. Provide barriers or shields as needed.

12 – Use the Right Cleaning Device. Do not use a cleaning device or attachment to do a job for which it is not recommended. Refer to the Elliott Tool catalog for all optional equipment. Do not alter the machine or cleaning device, this will void the warranty on the product.

13 – Use Proper Accessories. Be sure accessories are properly installed and maintained.

14 – 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 machine off immediately and have the problem corrected before further use. Do not use a damaged machine.

WARNING: Unrestricted compressed air hoses can whip, causing personal injury and equipment damage.

GENERAL OPERATING PROCEDURES

1 – Connect minimum 1/2" (12.7mm) I.D. air supply line to air nipple on back of machine.

- **Make sure air line is clean**
- **Minimum pressure required: 60 psi (4.1 Bar)**
- **Maximum pressure allowed: 100 psi (7 Bar)**

2 – Connect water supply hose to garden hose fitting on back of machine.

- **Make sure filter washer is in place**
- **Maximum water temperature: 120°F (49°C)**

3 – Air supply should be filtered and lubricated. Use detergent 10W automotive oil, or air tool oil.

- **Adjust to 1 drop per minute.**
- **Elliott 901717P Filter/Lubricator is recommended. (See details on separate sheet)**
- **See Maintenance section of these instructions for more details on lubricating the motor.**

4 – Connect the foot switch to the two quick couple fittings on the back of machine.

5 – Cut plastic ties from flexible shaft, uncoil shaft, positioning it in a large loop-as straight as possible.

DO NOT operate machine with the flexible shaft in a coiled position!

6 – Assemble the flexible shaft to the Manifold Coupler on the front of the machine. Make certain the o-ring seal is properly seated in the face of the coupler. Insert the square drive coupler of the flexible shaft into the square socket of the machine and tighten the large lock nut onto the face of the machine. This must be secure to prevent water leakage.

7 – Connect proper cleaning tool to other end of shaft.

8 – Turn on air and water supply – Note: Input air pressure must exceed input water pressure for the water pilot valve to operate.

9 – Adjust air pressure with the yellow regulator knob on the front of the machine. Pull out on the yellow knob – rotate left or right to adjust – push in to lock.

Maximum operating pressure is 100psi! The pressure regulator in this machine is designed not to exceed 100 psi. Do not tamper with/or try to increase pressure above 100 psi. You can damage the equipment and perhaps cause personal injury from excess pressure. You will also void the warranty.

Note: TORQUE: The air pressure controls the rotational torque on the flexible shaft. The lower pressure – the lower the torque – the less damage you may do to the flexible shaft and tools!

10 – Rotational Speed of the shaft is controlled by adjusting the "SPEED" knob on the front of the machine,

- **See the "Operating Suggestions" section of these instructions for guidance on operating speed.**

11 – Step on the foot petal, the shaft will rotate and water will flow around the brush/tool.

It is recommended you read the following section before cleaning the lst tube!

OPERATING SUGGESTIONS

Please read the following comments carefully; they will assist in the proper operation of the equipment, extend the life of your machine and cable, and make the tasks easier.

The most common problem reported to the factory is associated with an operator trying to use excess speed and/or a brush larger than the operator should be using.

Remember – it is not reasonable – or safe – nor practical – to expect to force a 3/4" brush into a 3/4"tube with any significant build-up of deposit, and clean the tube in "one pass". What happens is exactly what one would expect, the brush hangs up and stops. The shaft then twists and can damage the equipment or injure the operator.

In many cases, a slower speed and smaller brush actually accomplishes the job faster and safer! For best results we suggest the following:

1 – Keep the flexible shaft in as straight a line as possible, large curves are fine. Do NOT use the shaft in small loop, or coiled.

2 – Start at a low speed. We would suggest not over 50% of full dial speed to determine the condition of the tubes and what speed is the best for the situation.

> **There is no "perfect" speed to clean tubes. The "perfect" speed is the speed that works best for the situation presented on any job. The type of deposit, the thickness of deposit the diameter of tube, the type of brush or tool, etc, etc., all effect the speed at which the best results are achieved.**

BRUSH SELECTION

Brush selection is also critical. We recommend that you start with a brush ONE size smaller than the I.D. of the tube. After an initial pass, you can increase the brush diameter, if desired.

There are many brushes on the market, made of many different materials. You should select the brush material based on the composition of the tubes being cleaned. Consult Elliott's product **literature and price sheets for the proper selection.**

FLEXIBLE SHAFTS

This should be run in as straight a line as possible into the work. Avoid curving; or tight loops. Maximum bending: 6-inch radius. The shaft feeds itself into the work with minimum pressure from the operator if the brush or cutting/buffing tool is properly sized, and speed properly adjusted.

> **NOTE: Faster is not always better! It is recommended that you start with the speed control set at 25% to 50% of max speed for your initial pass thru a tube. After you have passed the brush thru the tubes, you may increase this speed for final cleaning and "polishing". This practice may reduce damage to the flexible** shaft and increase operator safety.

MAINTENANCE – After Every Use

1 – Disconnect air and water supply lines.
2 – Drop a small amount (5 to 10 drops) of #10W automotive oil, or air tool oil, into the air inlet port on the machine. Reconnect the air line and run unit for 2 or 3 seconds.
3 – Follow the instructions found in the Flexible Shaft Instructions for proper care and storage.
4 – Do Not Allow The Machine to Freeze. Water trapped in the system may expand, damage components – void the warranty

AIR MOTOR MAINTENANCE

1 – This unit utilizes the GAST 4AM Series Motor. The manufacturers operation and maintenance manual for this Air Motor is included with these instructions.
2 – The air motor is a precision built rotary motor. The vanes will take up their wear and should last 5,000 to 15,000 hours depending on speed, oiling, and operating pressures.
3 – For maximum service from this motor
- **Use an inline filter/lubricator as discussed on page 2 of these instructions.**
- **Follow the manufacturers instructions for proper maintenance of the 4AM Series motors.**

STORAGE

CAUTION: Always store your Roto-Jet **in a location where the temperature will not fall below 32°F. This machine is susceptible to permanent damage if frozen. FREEZE DAMAGE IS NOT COVERED BY THE WARRANTY.**

SERVICE & REPAIR PARTS

32-JM1700 Air Powered Tube Cleaner

Description	Part No.
Shaft Manifold Coupler Assembly	32-19175
Coupler Locking Rings	32-19177
Coupler O-Ring	32-18083
Shaft Flex Coupler	32-15011-1
Air Motor (1-1/2hp)	32-17004
Pressure Regulator	32-17005
Speed Control (Needle Valve)	32-17006
Solenoid Valves (Air & Water)	32-17007
Air Pressure Gauge	32-17008
Foot Switch Assembly	32-17009-1

Other parts available thru Elliott Customer Service.

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

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