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WARNING: Before using this product, read owners manual and follow all Safety Rules and Operating Instructions.

**LJ1-25 – *LouieJR*[™]
Tapping Machine
OPERATIONS MANUAL
&
OPERATING INSTRUCTIONS**



**30230 Los Alamos Rd. Murrieta, CA 92563
800-279-5659 • FAX 951-926-2334
LouieJR.com**

*Thank you for purchasing 2LBin products.
2Lbin is committed to providing rugged, professional and safe products
for the pipeline industry. If you have any suggestions or comments to help
us meet this commitment, please contact us.*

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CAUTION:

2LBinTapping Machines perform connections under pressure without shut down of the pipeline system.

Most operators can use this product but similar to being trained in the art of welding all the training data can be available, but aptitude, art form, safety and experience is as important as the training instructions. It is the end users responsibility to determine whether you can incorporate the aptitude, art form, safety and determine whether you or your staff can perform the installation work described below.

1.0 SAFE OPERATING PRACTICES

DANGER – Your Tapping machinery was built to be operated according to rules for safe operation. As with any type of mechanical equipment, carelessness or error on the part of the operator can result in serious injury, death or damage to property. It is your responsibility as the customer to establish your own safe operating procedures that incorporate the following rules and post in a conspicuous place within your facility.

The LouieJR-Series machinery is a precision piece of field equipment that performs “pressurized” Hot tapping operations on pipelines within the limitations set forth in this manual.

Many hazards exist but some most noticeable hazards are the following:

- A) An added drive motor is a rotational member and can catch loose clothing. Keep all loose clothing away from machinery.
- B) Pressure test machinery and all connection assemblies prior to tapping.
- C) Tapping machine will get extremely hot when tapping high temperature pipelines and vessels.
- D) Do not use the machinery beyond recommended ratings and outside of intended use.

To follow are some regulations that must be incorporated into your safety and operating procedure.

Never allow an untrained operator to use any of the various tools!

If the machine is not working properly, STOP and advise your supervisor IMMEDIATELY. Never alter the machinery from original design.

Never use machine beyond specified safe working pressure and temperature.

Always use proper fittings, valves and equipment intended for this machine.

Never use this machine unless the tapping assemblies have been fully pressure tested before each hot tap is performed. Always use proper safety clothing and accessories for the environment in which you are to work.

Always use this machine in accordance with OSHA’s regulations.

Safety goggles, gloves and hearing protection are required at all times.

Always turn off power to tapping machine when changing hole-saws, adaptors, and servicing equipment. Stand in an area that provides sure footing and don’t let spectators stand too close.

If using an electric drive source, plug motor into a rated GFI (Ground Fault Protection)

Work from a scaffold or flat safe surface, preferably not from a ladder. Read and understand the entire operators manual prior to attempting your first tap. Each operator should practice on a test line until competent in safety and performance. Once you start a live tap you will be committed to finishing it, and your line may not be easily shut down to repair the damage if an error is made.

Inspect all pieces of equipment before each use. DO NOT assume that everything is still in operational condition after each tap is performed.

Determine the type of pipeline material you are tapping into, confirm what pressure and/or product prior to proceeding. Be sure you are trained in each special aspect prior to proceeding. If you need special assistance answering safety questions, contact your supervisor or call Oclude at the phone number listed on the front of this manual.

WARNING – Work on pressurized piping systems is potentially hazardous. Proper safety training on this equipment is necessary. Do not operate any tapping equipment unless you have been fully trained. Contact 2LBin for a list of Authorized and certified trainers.

2.0 2LBin WARRANTY

2LBin products sold to our customers are guaranteed to be of the quality as described by 2LBin. Any 2LBin product may be returned within 10 days from customers receipt and 2LBin will provide full compensation to the customer less shipping, packaging, possible restocking if required, less usage and any damage.

2LBin warrants its products to be free of defects in workmanship and material under normal use and service, when used for the purposes and under the conditions for which they are intended. Obligation under this Warranty is limited, at Company's option; to adjustment, repair or replacement of the defective product. Purchaser must immediately notify 2LBin in writing of the claimed defect. Company shall have the right to inspect said product and Purchaser shall, if requested, return the defective product to 2LBin, with transportation prepaid. Purchaser shall assume all responsibility and expense for removal, reinstallation, and freight charges in connection with the foregoing remedy. Any alteration of machinery voids all warranties.

NOTE: 2LBin shall not be liable for indirect, special, incidental or consequential damages or penalties and does not assume any liability of purchaser to others, or to others, for injury to persons or property.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, AND IMPLIED.

Section I: Introduction

1.0 Introduction

This manual is designed to provide the operator with recommended operation and maintenance instructions for safe and effective use of the 2LBin *LouieJR* Tapping Machine.

This equipment is designed with adequate safety factors; however, do not exceed the factory recommended specifications under any circumstances.

Understand and Practice all safety precautions and procedures to ensure operator safety and satisfactory results.

Read the entire manual before operating the LouieJR Tapping Machine. Follow the manual for all operation and maintenance procedure.

Use a test setup on a short length of pipe before going into the field for actual operations.

2.0 Specifications

The specifications of the hot tap machine are shown in table 1.

Table 1
Specifications

Description	Size/Rating
Maximum operating pressure	300 psi at 100 deg. F
Maximum operating temperature	250 deg. At 200 psi
Sizes:	
Using a solid drill	3/4", 1"
Using a hole saw	1 1/16", 7/8", 1 1/2", 2", 3", 4", 6" ** (normal size)
Maximum boring bar travel	12" for the LJ1-25 - <i>LouieJR</i>
Machine Weight	15 lbs. for the J1-25 - <i>LouieJR</i>
Rate of travel	Manual feed, 1/4" per revolution
Operation: Basic machine is manually operated. Can be operated with an optional air / electric motor and socket adapter.	

2.1 Equipment

Table 2 shows a list of equipment used in performing various options with the LJ1-25 LouieJR tapping machines

Table 2
Tapping Machine Equipment

Terms of Items	Description & Function	Sizes Available
LJ1-25 LouieJR Hot Tap Machine	Manual or power driven machine that taps into pipe. Provides means to plug tapped opening	
Valve Adapter (Threaded)	Element that attaches tapping machine threaded end to tapping valve and houses drills and cutters.	Treaded: 1", 1 1/4", 1 1/2", 2", 3"
Drill	High-speed steel twist drill that cuts into pipe.	11/16", 7/8", 1 1/8",
Hole saws	One-piece steel hole-saw. High speed, Carbide, Plastic design.	11/16", 7/8", 1 3/8", 1 7/8" Other size available
Small Boring bar Small Taps	Boring bar secures hole saws and drill bits Incorporates 1/4" Pilot drill – Retention style	11/16" through 1 1/8" Holesaws 11/16" through 1 1/8" Solid drills
Large Boring bar Larger Taps	Boring bar secures hole saws and drill bits Incorporates 1/4" Pilot drill – Retention style	1 3/8" through 2 3/8"
Line-stop Plug Holder	Enables user to set 1" - 3" 2LBin Completion Plugs	1" – 3"
Socket Adapter (optional)	Deep-socket adaptor that connects air motor to tapping machine to the hex drive.	11/16" size

3.0 Safety

Learn location and function of all safety features built into the LouieJR Tapping Machine and related equipment. Wear protective clothing, safety glasses and suitable gloves.

3.1 Bleeder Valve Connection

The bleeder valve connection is located on the Valve Adapters. The bleeder valves serves to purge air from fitting and serves to bleed off pressure after drilling is completed, the drill retracted and the tapping valve is closed.

3.2 Protective Clothing

Protective clothing is required whenever working around, machinery. Suggestions are: hard hat, suitable gloves, safety goggles, safety shoes, safety clothing to cover exposed areas of skin, and breathing apparatus when toxic atmosphere exists.

4.0 Tapping Valve Requirements

Tap-able valves require a through and round port. These valves can include most Gate valves, Ball valves, and some plug valves. Clearance or cutter size needs to be enough to allow the drill or cutter to easily pass through the valve and tapping saddle body without dragging.

5.0 LouieJR Tapping Machine Operation

To get a better understanding of how the drilling machine operates, the operator should remove the drilling machine from its case and try each of the following.

5.1 Feed

The LouieJR tapping Machine is a manual feed machine. A clockwise rotation of the feed tubes extends the boring bar and a counterclockwise rotation retracts the boring bar. One revolution of the hex drive will extend the boring bar apx. 1/4".

CAUTION: When tapping, be sure you do not overfeed. Overfeeding, along with underfeeding, will damage the drill or hole saw.

Section II: Tapping Operations

1.0 General Information

It is strongly recommended that the operator becomes familiar with all tapping machine operation procedures. Practice operating the machine to get the feel of the controls before doing an actual hot tap job out in the field. A test setup should be made on a short length pipe to practice with the tapping procedure.

2.1 Select Equipment

To select the correct drill confirm valve and saddle I.D. Match correct valve adapter. Remembered that 12" is the maximum travel distance of the *LouieJR* boring bar.

2.2 Assemble Equipment

A. After nipple has been connected to the pipe, wrap Teflon tread sealant tape or apply sealing compound to nipple threads. Next, thread tapping valve to nipple. Open valve fully. When a flanged valve is used, the center of the valve thru-bore must concentric with the flanged thru-bore.

B. Grab the tapping machines body tube and pull the boring bar "Bore Keeper Pin", at the top of the removing it and the washer. With gloves, grab cutter side of boring bar and pull boring bar completely out of the body tube.

Set body tube aside.

Determine the size and type of hole saw to be used. High speed steel for non-lined steel and copper pipe, and carbide tipped for most other types of pipe. Make sure cutter is sharp! and screw cutter onto the correct boring bar. Make sure it passes through valve without dragging at any point before inserting back into body tube.

Check pilot drill retaining wires. When wires are properly placed, you should not be able to work them loose by hand. They should hang out slightly further than the drill diameter to act as a retainer similar to a fish-hook.

The pilot drill must be installed so the retaining wires are set beyond the teeth of the cutter and tighten set screw to hold pilot drill. Pull on pilot drill to confirm it is being held in place. **Note: Especially on small size on size taps; confirm that the pilot does not stick out too far beyond the cutter to where the pilot will drill through the back side of the pipe before completing the Tap.**

Check this on every tap. Shorter pilot drills are available, please call office.

For the larger Boring Bar; screw cutter onto the boring bar as far as possible. Back off cutter slightly until the 2-holes in the cutter align with the boring bar mandrel pins. We suggest using two channel lock pliers to tighten advancing collar screw to move retaining pins through cutter holes and tighten collar screw to a snug position. Thus securing the cutter to the boring bar.

CAUTION: Use only 2LBin valve adapters to assure correct alignment of equipment. Misalignment can result in equipment damage.

Reinsert Boring bar into body tube. Re-install washer and “Bore Keeper pin”.

E. Hold the body tube of the tapping machine and rotate the feed tube counterclockwise until the feed tube is at the zero mark on the body tube. Drill is completely retracted.

2.3 Compute Travel Distance

A. Travel distance is the distance the drill must travel from the zero mark on the body tube to the point that the drill has fully penetrated the pipe. It has two components: lower-in distance and drilling distance.

WARNING: Improper measurements may result in tapping through bottom of the pipe.

B. Calculate the lower-in distance required for the drill tip to come into contact with the pipe. (Boring bar fully retracted and feed tube at zero mark on the body tube)

C. Measure and record distance, tip of drill to the valve adapter face. If threaded adapter is used, tip of drill to valve adapter face, must be adjusted for thread makeup between adapter and tapping valve. Thread makeup varies and must be measured each time. If:

1. The tip of the drill is inside the adapter, the thread makeup is subtracted from the, tip of the drill to the valve adapter face measurement, and the result added in determining the lower-in distance.
2. The tip of the drill extends outside the valve adapter face, thread makeup is added to, the tip of the drill to the valve adapter face measurement, and the result subtracted in determining lower-in distance.

D. Measure and record the distance of the valve face to the top of the pipe.

E. The sum of these two measurements should be the body tube reading when the drill contacts the pipe. Mark this measurement on the body tube.

F. Travel Distance (distance required to complete the tap) equals lower-in distance plus drilling distance. Add these figures and mark the body tube.

CAUTION: If the total of these figures is more than 12”, maximum boring bar travel, then the tap cannot be done with the LouieJR tapping machine.

2.4 Install Equipment

A. Attach the machine to the tapping valve. Close and open the valve to make sure that it works properly and that the drill does not interfere with the opening and closing of the valve. Be sure the valve is in full open position before continuing to the next step.

B. Thread bleeder valve into the valve adapter.

C. Test setup for pressure tightness of machine and assembly by pressuring through the bleeder valve. Leave bleeder valve open after test.

2.5 Perform the Tap

A. By rotating the feed tube clockwise, extend the drill until it contacts the pipe. The feed tube should be at the first mark on the body tube (lower-in distance). Rotate slowly during the last inch of travel to prevent damage to the drill tip. After the measurement has been checked, turn feed tube counterclockwise $\frac{3}{4}$ of a turn before proceeding to the next step.

B. Attach ratchet handle to 11/16” hex drive. While a ratchet handle is furnished, best results will be obtained if handle is rotated a full 360 deg. while cutting. Turn clockwise only. The advance of the feed tube determines the rate of advance for the drill. 4.5 revolutions of the feed tube will lower the drill one inch.

C. As the drill turns by rotating the ratchet handle, turn the feed tube clockwise to continue advancing the drill.

D. As the drill penetrates the pipe wall, allow the line fluid to completely fill valve and fitting to purge all air. Close bleeder valve.

WARNING: Vent pressure bleed valve away from work area and personnel. Stand clear of bleeder valve. Personal injury may result from blowing debris.

NOTE: If machine stalls during the tap, turn feed tube counterclockwise until drill is free. Resume tapping (with a slower feed), to clean burr from the hole by turning the ratchet handle and reducing the rate of turning the feed tube.

E. When second mark (total travel distance) is reached on the body tube, tap should be complete. At this point, the feed tube should turn with little effort. The “feel” and rate of feed confirm the tap to be complete. Rotate feed tube one complete revolution clockwise. Feed tube should turn freely.

WARNING: Do not tap through bottom of the pipe.

3.6 Remove Equipment

- A. By rotating feed tube counterclockwise, retract hole saw until feed tube is at the zero mark on the body tube or until it comes to a firm stop.
- B. Close tapping valve.
- C. Bleed off pressure trapped in valve adapter by opening bleeder valve on the tapping machine. Stand clear of the bleeder valve. If pressure does not stop bleeding off, do not remove tapping machine.
- D. Remove the bleeder valve.
- E. Remove the machine from the tapping valve.
- F. Remove boring bar, clean and lightly oil.
- F. Remove coupon by loosening pilot set screw, remove pilot from boring bar. Slide coupon away from pilot drill wires until off pilot drill. Replace pilot drill into boring bar and tighten set screw.

Section III: Maintenance

(This Section will be complete with photos soon)

1.0 General Maintenance

The LouieJR Tapping Machine have been designed for rugged service and require a minimum amount of maintenance. A reasonable amount of care will keep the machine in top operating conditioning for a long time. The following are recommended for proper care and handling.

- A. The boring bars should be removed and protected when the machine is not in use.
Boring bars need to be lightly coated and cleaned with a light oil after each use.
- B. Use open-end or an adjustable-type of flat wrench on the two flat surfaces provided when attaching the machine to a valve adaptor.
- C. After each use, clean dirt and any foreign material from the exterior of the machine.
- D. Care should be taken not to damage the hex drive at the top of the machine.
- E. Lubricate ratchet handle regularly with oil.
- F. After each tap, inspect the pilot for any damage. Make sure that the retainer-wires are not damaged.
- G. Disassemble and lubricate each part every six months or thirty taps, whichever comes first.

2.0 Machine Assembly/Disassembly

A. See section 2.2

2.1 Disassembly

A. Remove boring bar from body tube.

B. Hold body tube and rotate feed tube clockwise until the threaded tube disappears into body tube.

B. Remove bearing cap.

C. Below bearing cap remove and replace two o-rings on upper portion of threaded tube.

2.2 Machine Reassembly

Reassembly procedures are basically the reverse of steps A through C of Paragraph 2.1, Machine Disassembly. However, the following additional information is provided and refers to various steps in the disassembly procedures.

A. Lightly oil and clean all parts prior to assembly.