

MUELLER®

**MAINTENANCE AND OPERATING INSTRUCTIONS
FOR THE
"J" DRILLING AND TAPPING MACHINE
"H" DRILLING AND TAPPING MACHINE
"H-W" DRILLING AND TAPPING MACHINE**

MAIN OFFICE and PLANT
500 West Eldorado Street
Decatur, Illinois 62522
www.muellercompany.com



WARNING

1. Read and follow instructions carefully. Proper training and periodic review regarding the use of this equipment is essential to prevent possible serious injury and/or property damage.
2. Do not exceed the pressure ratings of any components or equipment. Exceeding the rated pressure may result in serious injury and/or property damage.
3. Safety goggles and other appropriate protective gear should be used. Failure to do so could result in serious injury.

MUELLER® Drilling Machines and Equipment have been carefully designed and engineered to work together as a unit. The use of equipment manufactured by someone other than Mueller Co. may cause excessive wear or a malfunction of the MUELLER machines.

All warranties, express and implied, for Mueller Drilling Machines are rendered null and void if the machines are used with shell cutters or equipment manufactured by someone other than Mueller Co.

Mueller Co.

"J" DRILLING & TAPPING MACHINE

CAPACITY AND USE:

The "J" Drilling and Tapping Machine drills and taps holes from $\frac{1}{4}$ " to 3" inclusive in dry or open mains. Tools are offered for use with cast iron, steel or asbestos-cement mains from 2" to 48" inclusive. It can also be used for drilling and tapping columns, structural iron, or any machinable metal object around which a chain can be placed for attaching the machine.



EQUIPMENT FURNISHED WITH EACH MACHINE:

- Ratchet Handle
- Round Link Chain and Eyebolt with Nut
- Chain Hook and Nut
- Chain Straps
- Double End Box Wrench
- Cutting Grease

"J" MACHINE AND EQUIPMENT FURNISHED

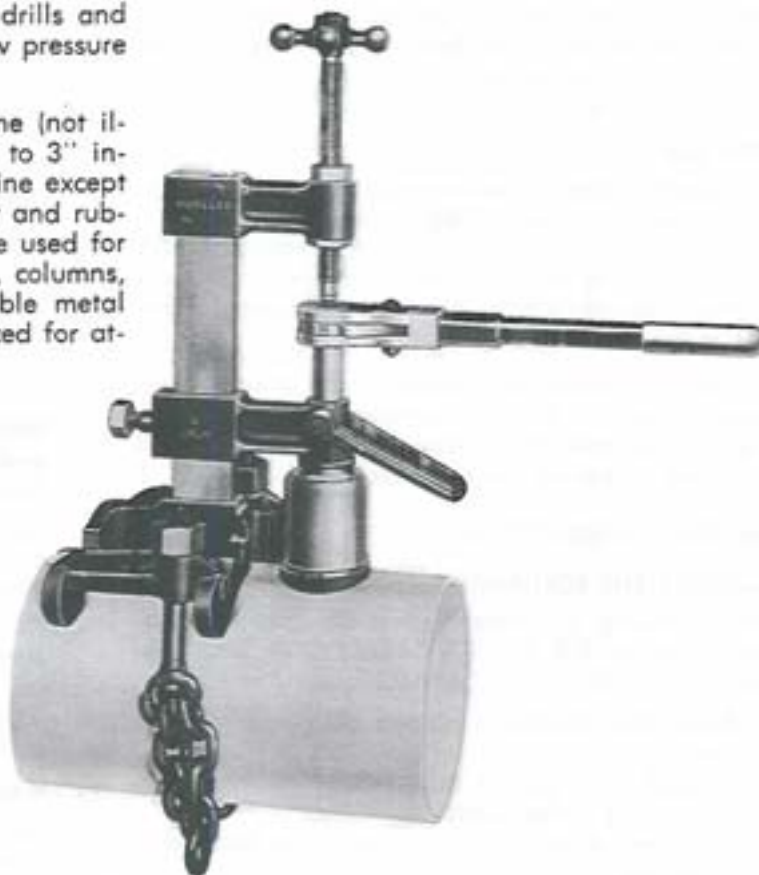
Shipped in Strong Wooden Box
Total Shipping Weight: 64 Pounds

"H" & "H-W" DRILLING & TAPPING MACHINE

CAPACITY AND USE:

The "H" Drilling and Tapping Machine drills and taps holes from 1/4" to 2" inclusive in low pressure gas mains under pressure.

The "H-W" Drilling and Tapping Machine (not illustrated) drills and taps holes from 1/4" to 3" inclusive. It is the same as the "H" Machine except that it does not have a pressure cylinder and rubber saddles. The "H-W" Machine may be used for drilling and tapping dry or open mains, columns, boilers, structural iron, or any machinable metal object around which a chain can be placed for attaching the machine.



Tools and saddles are offered for use with cast iron, steel, or asbestos-cement mains in sizes from 2" to 48" inclusive.

MAXIMUM WORKING PRESSURE OF "H" MACHINE:
10 p.s.i.

EQUIPMENT FURNISHED WITH EACH "H" MACHINE:

- Ratchet Handle
- Pressure Cylinder*
- 4", 6", and 8" Rubber Saddles* (unless otherwise specified)
- Round Link Chain and Eyebolt with Nut
- Chain Hook and Nut
- Chain Straps
- Double End Box Wrench
- Cutting Grease
- * Not furnished with the "H-W" Machine



"H" MACHINE AND EQUIPMENT FURNISHED

Shipped in Strong Wooden Box

Total Shipping Weight:

| | |
|---------------------|-----------|
| "H" Machine | 77 Pounds |
| "H-W" Machine | 74 Pounds |

OPERATING INSTRUCTIONS

"J", "H", AND "H-W" DRILLING AND TAPPING MACHINES

MAINTENANCE INSTRUCTIONS

BEFORE USE

Clean and lubricate all wearing and bearing surfaces, particularly the feed screw threads, the point of the feed screw, and the set screw. Inspect and clean all tools.

AFTER USE

Thoroughly clean the entire machine and all tools, and lubricate all machined surfaces.

The machine and all tools and equipment should be stored in the machine box. Carefully place tools in their individual compartments to prevent damage to their cutting edges.

To change the leather washer in the pressure cylinder of the "H" Machine, unscrew the brass stuffing nut. Remove the washer and replace with a new one. Screw on the brass stuffing nut.

OPERATING INSTRUCTIONS

A—SELECT THE EQUIPMENT REQUIRED

The following equipment must be selected from the latest WATER WORKS CATALOG or GAS DISTRIBUTION PRODUCTS CATALOG.

1. Select the proper combined drill and tap according to:
 - a. Size and type of inlet thread on stop, tee, or plug to be used.
 - b. Material from which pipe to be tapped is made.
 - c. Size of pipe to be tapped.
2. Select the proper saddle according to the size and type of pipe to be tapped. (For "H" Machine only.)

B—ATTACH THE MACHINE TO THE PIPE

1. Thoroughly clean the pipe at the location for the tap. See that nothing interferes with the firm seating of the machine at the point selected.
2. Place the machine on top of the main.
3. Unscrew the nuts on chain hook and eyebolt. Push bolts through the holes in chain straps, and screw up nuts until they are flush with the end of the threaded stem.
4. Place the chain strap containing the chain hook in the notches on one side of the machine base. Place the other chain strap containing the chain and eyebolt on the opposite side of the machine base. Use the inner notches for small pipe and the outer notches for larger pipe. Be sure that the shorter end of each chain strap is nearest the tool. (See illustrations.)

5. Bring the chain around under the pipe and connect it with the chain hook. Be sure the chain is not twisted. The link in contact with the chain hook should be turned lengthwise across the prongs of the chain hook.
6. Tighten the chain hook and eyebolt nuts hand tight.
7. Slide the machine around the pipe to the desired angle with the feed screw pointing to the spot where it is desired to make the tap.
8. Tighten the chain hook and eyebolt nuts evenly. Hammer the chain around the pipe to remove any twist in the chain. Continue tightening both chain hook and eyebolt nuts until the machine is solidly bearing against the pipe.

IMPORTANT—Do not tighten the chain hook and eyebolt nuts after starting to drill as it will throw the machine out of alignment.

NOTE—When tapping pipe 3" in size or smaller use Chain Spreader (part no. 40321) to spread the chain and permit a more direct pull on the chain straps.

The chain supplied with the machines is for use on pipe up to 12" in size. Use the proper length of extension chain when tapping pipe in larger sizes.

C—MARK THE PIPE (For "J" Machine only)

1. Loosen the feed screw guide set screw.
2. Lower feed screw guide as far as possible.
3. Tighten set screw again.
4. Screw down the feed screw until the point makes a slight indentation or mark on the pipe. **Figure 1.** Then unscrew again to raise it.

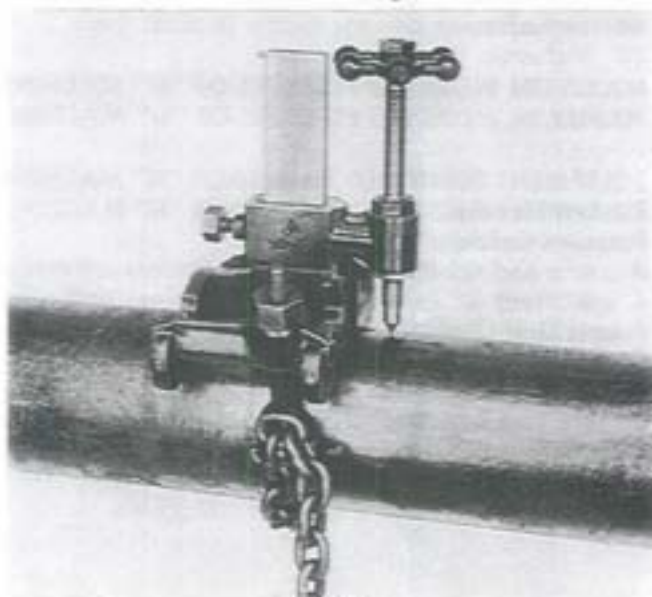


FIGURE 1

"J", "H", AND "H-W" DRILLING AND TAPPING MACHINES

OPERATING INSTRUCTIONS

5. Loosen the set screw.
6. Raise the feed screw guide as far as it will go.
7. Tighten the set screw.
8. With a hammer and center punch make a deep center in the place on the pipe marked by the point of the feed screw. This allows the tool to start easier and also prevents it from getting out of line with the feed screw.

D—ATTACH THE TOOL (For "J" Machine Only)

1. Thoroughly coat the tool with special MUELLER Cutting Grease. Do not use cutting grease when drilling and tapping A-C or concrete pipe.
2. Fit ratchet handle on the square of the tool.
3. Place the point of the tool in the center punch mark on the pipe.
4. Loosen the set screw.
5. Lower the feed screw guide to within one inch of the top of tool.
6. Tighten set screw again.
7. Screw down the feed screw until the point rests in the countersink in the end of the tool.

D—ATTACH THE TOOL AND PRESSURE CHAMBER (For "H" Machine only)

1. Turn the feed screw **counter-clockwise** until the feed screw point is high enough to permit the tool guide to be raised a distance greater than the length of the tool.
2. Loosen the tool guide set screw.
3. Thoroughly coat the tool with special MUELLER Cutting Grease.
4. Insert the tool in the pressure cylinder, pushing the shank through the hole in the upper end of the cylinder.
5. Raise the tool guide and insert the shank of the tool through the tool guide hole from the lower end of the hole.
6. Let the tool and pressure cylinder rest on the pipe and lower the tool guide to within one inch of the top of the pressure cylinder.
7. Temporarily tighten the tool guide set screw. This will bring the tool in line with the feed screw point.
8. Raise the pressure cylinder and the tool and slide the proper size saddle under the pressure cylinder.
9. Adjust the saddle to fit the contour of the pipe, and so position it that the pressure cylinder, when lowered upon it, will be centered on the saddle.
10. Lower the pressure cylinder and tool.
11. Loosen the tool guide set screw.

12. Lower the tool guide until it rests on top of the leather washer in the top of the pressure cylinder. Set screw to be loose at this point.
13. Raise the swinging yoke attached to the tool guide to a vertical position.
14. Turn the feed screw **clockwise** until the feed screw point contacts the countersink in the swinging yoke. Continue feeding downward on the feed screw which forces the tool guide downward making a pressure tight seal between the top of the cylinder and the shank of the tool and also between the bottom of the cylinder and the pipe. **Figure 2.**

IMPORTANT—The brass stuffing nut on top of the pressure cylinder is only used to hold the leather washer in place. Therefore it need not be touched except to put in a new washer. The shape of this washer is such that the pressure of the tool guide on top causes the washer to hug the shank of the tool, thus assuring a tight joint. When the pressure is removed the washer will let go, making it easy to remove one tool and put in another.

15. Tighten the tool guide set screw securely with a wrench.
16. Turn the feed screw **counter-clockwise** a few turns and drop the swinging yoke out of the way.
17. Place the ratchet handle on the square of the tool shank.
18. Turn the feed screw **clockwise** until the feed screw point contacts the countersink in the tool.

D—ATTACH THE TOOL (For "H-W" Machine only)

1. Turn the feed screw **counter-clockwise** until the feed screw point is high enough to permit the

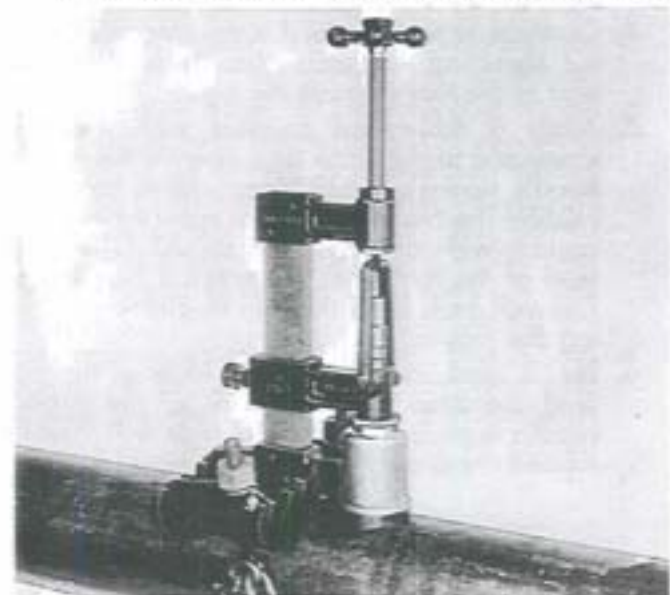


FIGURE 2

OPERATING INSTRUCTIONS

"J", "H", AND "H-W" DRILLING AND TAPPING MACHINES

tool guide to be raised a distance greater than the length of the tool.

2. Loosen the tool guide set screw.
3. Thoroughly coat the tool with MUELLER Cutting Grease.
4. Raise the tool guide and insert the shank of the tool through the tool guide hole from the lower end of the hole.
5. Let the tool rest on the pipe and lower the tool guide until just above the threads on the tool.
6. Tighten the tool guide set screw.
7. Place the ratchet handle on the square end of the tool shank.
8. Turn the feed screw **clockwise** until the feed screw point contacts the countersink in the tool.

E—MAKE THE TAP

1. Oil the feed screw threads, the countersink where the point makes contact, and, on the "H" and "H-W" Machines, oil the tool shank above the tool guide.
2. Drill the hole by operating the ratchet handle **clockwise** and turning the feed screw **clockwise** a little at a time. Use a light even feed at the start. If possible, pull the ratchet handle in an arc parallel to the axis of the pipe thereby reducing the tendency of the machine to slip on the pipe. It will be found convenient to turn the feed screw as the ratchet handle is being operated.
3. Apply a downward pressure with the feed screw and at the same time operate the ratchet handle **clockwise** until the drill is through the pipe.
4. Continue to turn the feed screw **clockwise** without operating the ratchet handle until the tap part of the tool contacts the pipe.
5. Apply a downward pressure with the feed screw and at the same time operate the ratchet handle **clockwise** until the tap takes hold.
NOTE—The feed screw point should remain in contact with the tool and should follow the feed of the tool after the tapping has begun. This will help keep the tool in alignment during the tapping.
6. For "J" and "H-W" Machines continue the tapping operation until about $\frac{3}{8}$ " of the threads remain outside the pipe. The hole will then be tapped the proper size.

F—REMOVE THE TOOL

1. When the tap is completed, reverse the ratchet dog.
2. Operate the ratchet handle **counter-clockwise** carefully and unscrew the tool. Do not force the tool when removing it as this may cause breakage of the teeth of the tool. The feed screw should be turned **counter-clockwise** gradually while backing out the tool to keep it in line, thus preventing the stripping of the threads.
3. When the tap part of the tool is out of the pipe, disengage the feed screw, lift off the ratchet handle, and remove the tool.

For the "H" Machine, after lifting off the ratchet handle, raise the tool as far as possible, loosen chain nuts and slide machine clear of tapped hole or remove machine. Quickly insert fitting into the main.* After tightening the fitting, loosen the tool guide set screw, raise the tool guide until clear of the tool shank, and remove the rubber gasket, pressure cylinder, and tool. Then remove the tool from the pressure cylinder.

***CAUTION:** If the pipe line is under pressure the fluid in the pipe will escape as soon as either the tool guide set screw or the chain nuts are loosened. Pipe line pressure will tend to force the tool and pressure cylinder away from the tapped opening.

For the "H-W" Machine, after lifting off the ratchet handle, unscrew the tool guide set screw, raise the tool guide until clear of the tool shank, and remove the tool.

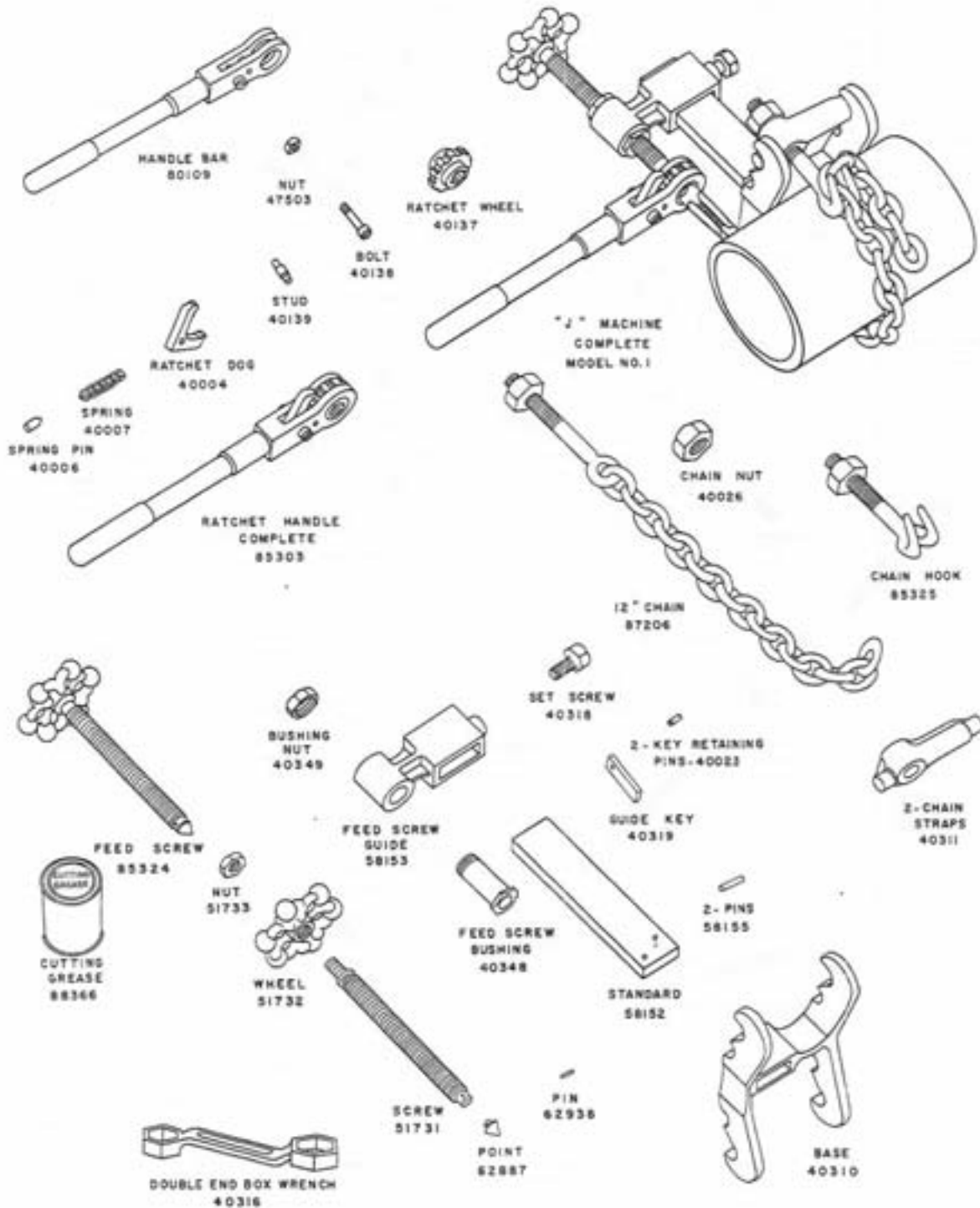
G—REMOVE THE MACHINE

1. Loosen the chain hook and eyebolt nuts.
2. Unhook the chain.
3. Remove the chain straps, chain, chain hook, and machine.
4. Clean the machine and tools used, oil all machined parts and tools to prevent rust, and return to their compartments in the machine box.

"J" DRILLING AND TAPPING MACHINE

PARTS

"J" MACHINE PARTS

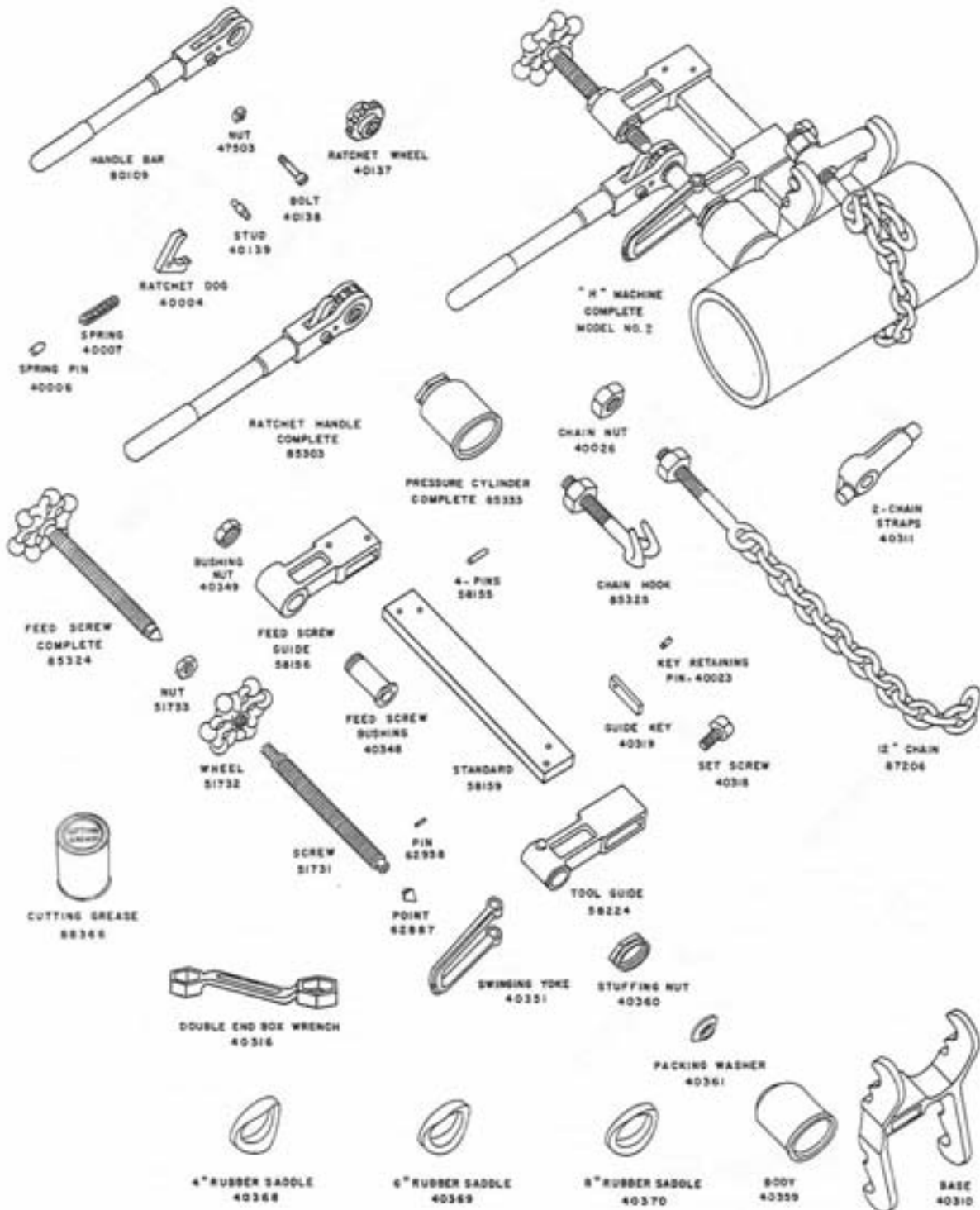


See the latest MUELLER Water or Gas Catalogs for complete information on ordering parts.

PARTS

"H" AND "H-W" DRILLING AND TAPPING MACHINES

"H" AND "H-W" MACHINE PARTS



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