All warranties, expressed or 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.
B-101™ AND B-100™ DRILLING AND TAPPING MACHINE

CAPACITY AND USE:
The B-101 drilling and tapping machine drills and taps mains, and inserts stops, tees or plugs into the tapped hole in the main under pressure.
The B-101 machine has a special mechanism that permits the boring bar to be locked to the feed nut and yoke to prevent the drill from spiraling into the hole before the hole is completely drilled. It also prevents the drill from dropping to the threaded section of the combined drill and tap. This design eliminates unnecessary tool damage and is recommended for low pressure drillings.

Tools and equipment for the B-101 and earlier B-100 machines are the same. The following items can be inserted with the B-101 or B-100 machine.

See notice on page 14 regarding use of Blow-off Valve.

<table>
<thead>
<tr>
<th>Corporation Stops, sizes</th>
<th>1/2&quot;</th>
<th>5/8&quot;</th>
<th>3/4&quot;</th>
<th>1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Main Stops, sizes</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>NO-BLO Machine Inserted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve-Tees, size</td>
<td></td>
<td></td>
<td>3/4&quot;</td>
<td></td>
</tr>
<tr>
<td>Pipe Plugs, sizes</td>
<td>1/2&quot;</td>
<td>5/8&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 1/4&quot;</td>
<td>1 1/2&quot;</td>
</tr>
</tbody>
</table>

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

RECOMMENDED MINIMUM SIZE OF CAST IRON MAIN FOR EACH SIZE OF TAPPING FOR SERVICE CONNECTION*

<table>
<thead>
<tr>
<th>Size of Tapping</th>
<th>1/2&quot;</th>
<th>5/8&quot;</th>
<th>3/4&quot;</th>
<th>1&quot;</th>
<th>1 1/4&quot;</th>
<th>1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
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<tbody>
<tr>
<td>Smallest Size of Main</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>4&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Approximate Number of Full Threads</td>
<td>5&quot;</td>
<td>4 1/4&quot;</td>
<td>4 1/2&quot;</td>
<td>4 1/2&quot;</td>
<td>4 1/2&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td></td>
</tr>
</tbody>
</table>

* Corporation Stops, Service Tees, and Gas Main Stops with MUELLER Compression Joint Inlet may be used with smaller sizes of pipe.

B-101 AND B-100 MACHINE AND EQUIPMENT FURNISHED
Shipped in Metal Case.
Total Shipping Weight 113 Pounds.

EQUIPMENT FURNISHED WITH EACH MACHINE:
- Ratchet Handle
- Chain Hook Nut and Tool Retaining Screw Wrench
- E-Z Release
- Screw Plug Wrench
- Body Cleaning Chisel
- Cutting Grease
- Small Saddle Gasket
- Large Saddle Gasket
- Round Link Chain
- Chain Hooks and Nuts
- Chain Washers
- Blow-off Valve

MAXIMUM WORKING PRESSURE
90 p.s.i. without power clevis
250 p.s.i. with power clevis
FOR B-101" AND B-100" DRILLING AND TAPPING MACHINE

MAINTENANCE INSTRUCTIONS

NOTICE: The machine used to illustrate this manual may differ somewhat in appearance from currently produced machines. If one of these differences is of significance, it will be referred to in the instructions.

BEFORE USE
Clean and lubricate all wearing and bearing surfaces and threads EXCEPT the boring bar thrust collar which requires no lubrication.

NOTE: If lubricated, service life of boring bar thrust collar may be shortened.

Boring bar is lubricated between upper and lower "O" ring seal in feed sleeve and cap by a reservoir containing light machine oil. Remove oil plug in feed sleeve near lower end and occasionally fill with light oil.

Inspect and clean all tools, particularly the shank ends, and remove any burrs or scale which would prevent proper alignment with the boring bar.

Inspect and clean the socket in the end of the boring bar and remove any burrs or scale which would prevent the tool from seating properly.

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

Remove all chips from inside of body, including the flop valve recess. A special body cleaning chisel is furnished for this purpose. If chips are permitted to accumulate in the machine, they will rust and become caked and will interfere with the operation of the flop valve.

NOTE: Do not bump machine on hard surface to shake chips out of body. Saddle gasket surface is damaged by this type of operation.

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

BORING BAR PACKING

Machine is equipped with "O" ring packings, which are nonadjustable. When leakage occurs, replacement is necessary.

These packings are replaced in the following manner:

1. Remove ratchet handle and feed nut and yoke from boring bar.
2. Punch out boring bar thrust collar retaining pin. Slide collar off bar.
3. Unscrew feed sleeve and cap from cylinder and slide feed sleeve and cap off bar.
4. Remove wiper ring and "O" rings from recess in top and bottom of feed sleeve and cap.

5. Check wiper ring and "O" ring packing recesses to be sure they are clean before placing new rings in these grooves. New wiper ring and "O" ring packings should be lubricated with machine oil or light cup grease before they are placed in the feed sleeve and cap.

6. Be sure the top end of boring bar at squared end has no rough edges or burrs that would damage the new wiper ring and "O" ring packings as the feed sleeve and cap are replaced on the boring bar. Screw feed sleeve and cap back on cylinder.

7. Replace boring bar thrust collar and replace retaining pin.

8. Remove oil hole plug in feed sleeve and fill recess between "O" rings with light machine oil. Move bar up and down while filling to remove air pockets.

9. Replace oil hole plug.

AUTOMATIC FEED DRILLING ATTACHMENT

The only maintenance required for the automatic drill feed gear case (furnished with the H-603 Electric Power Operator, or H-604 Air Power Operator) is the occasional check to see that it has sufficient lubrication.

The gear case contains one pint or one pound of SAE 90 gear oil (multipurpose grease). The oil level may be checked by removing the small oil plug located on the side of the gear case when the gear case is positioned level with the driving sockets on the bottom. Oil should be level with this plug hole. Oil may be added through the plug located on top of the gear case.
**MAINTENANCE INSTRUCTIONS**

**BY-PASS VALVE – FIGURE 1**

A push-pull type valve is used on B-101 Machines for by-passing and relieving pressure. (The valve is available as a separate part to replace the ground-key style valve used on older B-101 and B-100 machines.) The valve is attached to the machine by two screws and can be removed easily for cleaning the valve or machine body passages.

**A. OPERATION**

1. Bypass: push the knurled knob in all the way against the by-pass valve body.
2. Relief: pull the knob out all the way until it stops, away from the valve body.

**B. MAINTENANCE**

The spool should be periodically removed and cleaned

1. Remove retaining ring.
2. Pull spool out of by-pass valve body.
3. Clean the spool and O-rings of old lubricant and foreign matter.
4. Clean the bore inside the valve body and examine for deep scratches that could cause leakage or abrade the O-rings. Replace the entire valve and its sealing gasket if necessary. (Gasket is supplied attached to valve body.)
5. Examine the O-rings for damage and replace if necessary. Lubricate the O-rings with a silicone grease.
6. Reassemble the spool and retaining ring.

**NOTE:** It is recommended that a spare Repair Kit, part number 682078, be kept available for timely repairs.
A. SELECT THE EQUIPMENT REQUIRED

1. Select the proper combined drill and tap according to:
   a. Size and type of inlet thread on stop, tee, or plug to be inserted.
   b. Material from which the pipe to be tapped is made.
   c. Size and class of pipe to be tapped.
2. Select the proper saddle according to the size and type of pipe to be tapped.
3. Select the proper screw plug.
   a. For corporation stops according to the size and type of outlet.
   b. For tees according to the size of the outside thread at the top of the tee.
   c. For plugs according to the size.
4. Select the proper extracting tool.
   a. For corporation stops according to the size and type of outlet.
   b. For tees according to the size of the outside thread at the top of the tee.
   c. For plugs according to the size.
5. Select the items of special equipment which may be required because of special operating conditions.

B. ATTACH THE MACHINE TO THE PIPE

1. Thoroughly clean the pipe at the location for the tap; include an area greater than the large saddle gasket.
2. Place the large saddle gasket on top of the pipe even with the location for the tap, with the raised projection up away from the pipe.
3. Place the saddle on the large saddle gasket.
4. Place the small saddle gasket in the recess in the top of the saddle. FIGURE 2.
5. Unscrew the feed sleeve and cap containing the boring bar assembly from the cylinder of the machine (21/2 turns).
   **NOTE:** This can be done more conveniently if the boring bar is in the retracted position.
6. Place the body and cylinder of the machine on top of the small saddle gasket. Position the machine so that the by-pass valve is on the upper side, if the machine is to be operated in any position other than vertical. Flop valve lever handle will be on the lower side of machine.
7. Unscrew nuts on chain hooks until nuts are flush with end of threaded stem.
8. Hang chain hooks and washers in chain yoke.

9. Attach chain to chain hooks. Hook chain into one hook and bring under the pipe and hook to nearest link. FIGURE 3.
10. Tighten chain hook nuts evenly hand tight.
11. Slide machine on pipe to desired position or angle.
12. Tighten the chain hook nuts evenly, using wrench furnished with machine. A “cheater” or extension handle should not be used on this wrench. Hammer the chain around the pipe to remove any twist in the chain and continue tightening both chain hook nuts until the machine is bearing solidly against the pipe. New type chain hooks and washers prevent rotation of chain hooks and provide a better grip for round link chain.
   **IMPORTANT:** Do not tighten chain hook nuts after starting to drill as it will throw the machine out of alignment.
NOTE: Use chain spreader (Part No. 40321) when tapping pipe 3" in size and smaller to spread the chain so that it will clear the lower edge of the body of the machine.

B-101 and B-100 Machine chain is for use on pipe up to 12" in size.

Use the proper length and type of extension chain when tapping pipe in larger sizes.

C. ATTACH TOOL TO BORING BAR

1. Slide knockout pin in boring bar socket to its outward position using pin extending through bottom of boring bar bearing as a handle.
2. Insert shank end of combined drill and tap into boring bar socket aligning driving pins on tool with slots in end of boring bar. FIGURE 4.
3. Strike tool on drill end with a block of wood to be sure it fits tightly in socket.
4. Tighten tool retaining screw in boring bar using small socket end of chain hook nut and tool retaining screw wrench. FIGURE 5.
5. Retract boring bar to its rearmost position in feed sleeve and cap.
6. Coat drill end and tap threads with Mueller cutting grease. Do not use cutting grease when drilling or tapping asbestos-cement or concrete pipe.

D. ASSEMBLE THE MACHINE

1. Open flap valve to its wide open position by pushing lever handle down. If desired, handle screw may be engaged into socket on side of body to retain flap valve in open position during this operation. FIGURE 6.
2. Attach boring bar, feed sleeve and tool assembly to cylinder of machine and tighten cap securely (2½ turns).
3. Push boring bar down by hand until tool contacts pipe.
4. When using B-100 machine, adjust feed nut and yoke on feed sleeve and cap so that the yoke engages thrust collar on boring bar.
When using B-101 machine, adjust feed nut and yoke in the same manner and raise the pivot arm of locking mechanism on side of yoke so that it is positioned under the collar, then lock in place with operating screw and lock nut.

NOTE: Spring loaded detents in yoke will keep yoke from falling away from the bar.
NOTE: The socket in the end of the chain hook nut and tool retaining screw wrench may also be used to turn the handle on the by-pass valve.

E. DRILL AND TAP THE MAIN – HAND OPERATED METHOD
1. Place ratchet handle on boring bar and set for clockwise rotation by pulling outward on ratchet detent knob and adjusting it for clockwise rotation.
NOTE: The standard ratchet handle length is 18 11/32”. When making cuts larger than 1” an optional handle bar is available which increases the length to 30 11/32”.
2. Drill the main by operating the ratchet handle clockwise and turning the feed nut and yoke clockwise a little at a time. Use a light even feed at the start. If possible pull the ratchet handle in an arc parallel the 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 nut as the boring bar is being turned. FIGURE 7.
NOTE: See instructions and illustration on page 14 for removing drilling chips from the main while drilling and tapping.
3. Continue the drilling operation until the boring bar feeds easily and rotates easily, indicating the drill portion of the tool is through the pipe.
4. Rotate ratchet handle clockwise and rotate feed nut clockwise to engage tap part of tool into main. Continue to rotate feed nut until tap is securely started into main and feed yoke is no longer needed to take thrust of boring bar. At this point, the feed yoke may be removed from contact with the thrust collar and allow the tool to feed itself. When using the B-101 machine, turn the operating screw on locking mechanism counter-clockwise to unlock the pivot arm and remove the feed yoke from contact with the thrust collar.
NOTE: Feed yoke should remain in contact with boring bar thrust collar and follow the thrust collar when machine is being used on high pressure mains, thin wall steel pipe, or asbestos-cement pipe.
DO NOT OVERFEED FASTER THAN THE TAP IS CUTTING BECAUSE THIS WILL STRIP THE

THREADS BEING TAPPED IN THE MAIN.
5. Continue tapping operation until tapping line on boring bar is flush with the top of the feed sleeve part of the cap. FIGURE 9. When tapping asbestos-cement pipe, it may be advisable to tap about 1/8” beyond the tapping line to provide more engagement of corporation stop threads when using one piece Cem-Res® tools.
E-A. DRILL & TAP THE MAIN - POWER OPERATED
METHOD USING MUELLER H-603 ELECTRIC
POWER OPERATOR, OR H-604 AIR POWER
OPERATOR
The B-101 and B100 drilling and tapping
machines have been designed to permit the
addition of a power operator with no modification
of the standard machine. The power operator will
drive the combined drill and tap and provide
automatic feed during the drilling operation.

Extra precautions are required when using a power
operator with the B-100 machine and working on a
pipe which is not under pressure. The power
operator weighs approximately 35 pounds. Its
weight bears directly on the boring bar tending to
push the bar downward. Normally, the pressure in
the machine counter balances this downward thrust
caused by the extra weight and therefore does not
adversely affect the operation of the machine.

This precaution is not necessary on the B-101
machine when the special locking mechanism is
engaged with the boring bar, as this locking
mechanism controls the downward motion of the
boring bar.

The power operator consists of a gear case and
motor using either an electric or air motor for the
power source.

IMPORTANT - WHEN USING H-604 AIR MOTOR
POWER OPERATORS-MAINTAIN PRESSURE OF
90 P.S.I. WE RECOMMEND THE USE OF A GAUGE
AT THE THROTTLE TO DETERMINE THE ACTUAL
PRESSURE OF AIR AT THE AIR MOTOR.

NOTE: Either unit is suitable for:
Power drilling with automatic feed 1/2" through
1 1/4" inclusive with combined drill and tap.
Power cutting with automatic feed 1 1/4"
through 2 1/2" inclusive with shell cutter and
tap.
Power tapping by hand feed.

The gear case attaches to the machine by the means
of two sockets. The inner or small socket drives the
boring bar. The outer or large socket drives the feed
yoke through a gear reduction as the boring bar is
rotated. The resulting feed on the drill is .010" per
revolution of the boring bar.

The operator takes the torque of the motor resulting
from the drilling operation, so the motors are
equipped with a squeeze type trigger throttle. If for
some reason a drill should stick, the motor can be
shut off quickly.
1. Place the gear case and motor on the drilling and tapping machine aligning the sockets with the square shanks on the boring bar and feed yoke. Socket which contacts feed yoke should be closed and wing nut tightened securely. FIGURE 10.

2. Set position of air or electric motor switch to give clockwise rotation of boring bar. 

NOTE: See instructions and illustration on page 14 for removing drilling chips from the main while drilling and tapping.

3. Start drilling operation (FIGURE 11 shows the H-603 Electric Power Operator and FIGURE 12 shows the H-604 Air Power Operator) and continue drilling until drilling operation is completed. Completion of drilling operation can be easily detected by torque required to resist power unit and sound of power unit.

NOTE: The tapping line is located just below the thrust collar on the boring bar. A distance of 1 1/4" below the tapping line is limit for use of automatic feed. Actual drilling is always completed before this distance is reached.

When using the B-100 machine and drilling metal pipe, use extra precaution to control the downward movement of the boring bar just before the drilling operation is completed. This is necessary to prevent the drill point from breaking through into the pipe just before the hole is completely drilled. This is particularly important when drilling pipe with low pressure or no pressure. When using the B-101 machine, the lacking mechanism will automatically control this downward movement.

4. Loosen wing nut on feed yoke drive socket and swing open socket. FIGURE 13.

5. Start motor and rotate feed nut clockwise by hand to engage top part of tool into main. Continue to rotate feed nut until tap is securely started into main and feed yoke is no longer needed to take thrust of boring bar. At this point, the feed yoke may be removed from contact with thrust collar (on the B-101, turn the operating screw counter-clockwise to unlock the pivot arm and remove the feed yoke) allowing the boring bar to move downward and the tool to feed itself. FIGURE 14.
NOTE: Feed yoke should remain in contact with the boring bar thrust collar and follow the thrust collar when machine is being used on high pressure mains, thin wall steel pipe, or asbestos-cement pipe. DO NOT OVERFEED FASTER THAN THE TAP IS CUTTING BECAUSE THIS WILL STRIP THE THREADS BEING TAPPED IN THE MAIN.

During the tapping operation with either the B-101 or B-100 machines, extra precaution is required because the additional weight of the power operator tends to cause overfeeding of the tap resulting in stripped threads. This is more serious when tapping asbestos-cement pipe - dry.

IMPORTANT: We recommend only hand operation of the B-101 or B-100 machines during the tapping operation of asbestos-cement pipe which is not under pressure.

6. Continue tapping until tapping line on boring bar is flush with the top of the feed screw part of the cap. See FIGURE 9. When tapping asbestos-cement with one piece Cem-Res® combined drills and taps, it is advisable to exceed the tapping line enough to allow corporation stops to be inserted with only one to three threads exposed. The exact amount may be determined by making a "shop-tap" ahead of time. Use 50 to 80 foot pounds of torque to tighten stop into main after removal of machine.

F. REMOVE THE TOOL FROM MAIN

1. If hand ratchet was used to make the tap, reverse ratchet handle by pulling outward on ratchet detent knob and adjusting it for counter-clockwise rotation. Rotate the ratchet handle counter-clockwise carefully and back-out the tool. Do not force the tool when removing it, as this may cause breakage of the tap teeth.

CAUTION: When this machine is under pressure, control the piston action of the boring bar to prevent bodily injury or damage to machine.

2. If power operation has been used to make the tap, reverse the motor and back out the tool. Control the upward movement of the boring bar by maintaining a firm hold on the gear case and motor for the same reason described above under the Caution Note.

3. When the tap is entirely free from the pipe, withdraw the boring bar to the uppermost position again applying some downward pressure to prevent uncontrolled withdrawal of the boring bar.

If the pressure in the main is 90 p.s.i. or over, a power clevis, H-10802, may be used to control the upward movement of the boring bar. FIGURE 15.
A power devise is used as follows to allow the upward movement of the boring bar to be done under controlled conditions. If a power drive unit has been used to tap the main, the power unit is removed and a hand ratchet used to replace the gear case.
a. Hook the bent hook ends of the standard over the cap handles of the machine.
b. With the ratchet handle in place on the boring bar, bring the center point of the control screw down into contact with the center hole in end of boring bar.
c. Rotate the ratchet handle counter-clockwise and the control screw on the power devise at the same rate. As the tap backs out of the pipe, the power devise controls the upward movement.
d. When the tap threads are out of the main, rotation of the ratchet handle can stop while the control screw is rotated to raise the boring bar to its uppermost position.

4. With the boring bar in its uppermost position, close flop valve by loosening handle screw (if lever handle was locked open) and raising upward on lever handle.
If machine is being operated on low pressure, it is advisable to retain flop valve in closed position by use of handle screw on lever handle. The handle screw in lever handle is tightened against wedge on side of body. FIGURE 16.

5. With flop valve closed, pull by-pass valve to "relieve" position. See FIGURE 1. This relieves the pressure above the flop valve and allows the line pressure to keep flop valve closed, which is assisted by handle screw if it is used.

6. Retain boring bar in its uppermost position, while feed sleeve and cap and boring bar assembly is removed from cylinder of machine.

7. Remove combined drill and tap from boring bar by first loosening the tool retaining screw with the socket end of the chain hook nut and tool retaining screw wrench, but do not remove screw.

8. Strike the head of the knockout pin a light blow which loosens the combined drill and tap. FIGURE 17.

9. Remove combined drill and tap from boring bar socket.

G. ATTACH STOP, TEE, OR PLUG TO BORING BAR
IMPORTANT: Check to be sure that the stop or tee to be inserted is full closed.

1. Screw together the proper screw plug and the stop, tee, or plug to inserted. See instruction
5. Push the cap down on the boring bar as far as possible.
6. Coat the inlet threads of the corporation stop or tee with heavy grease or nonhardening pipe "dope" FIGURE 19 and 19A.
7. Replace feed sleeve and cap and boring bar assembly onto cylinder of machine and tighten cap securely so that a pressure tight joint is formed.

FIGURE 18A

FIGURE 19

FIGURE 19A

H. INSERT THE STOP, TEE OR PLUG
1. Hold boring bar assembly in uppermost position and push by-pass valve to "by-pass" position. See FIGURE 1.
2. Attach ratchet handle and set for clockwise rotation.
3. Open flap valve by loosening handle screw, if it was tightened, and pushing lever handle all the way down.
   If desired, handle screw may be engaged into socket on side of body to retain flap valve in open position during this operation. See FIGURE 6.
4. Push the boring bar down until the inlet threads of stop, tee, or plug contact the pipe. For pressures greater than 90 p.s.i. use a power clevis to force the boring bar down. Refer to instruction F-3.
5. Adjust feed nut and yoke and slip yoke over thrust collar on boring bar.
6. Rotate boring bar clockwise while feed nut is also carefully rotated clockwise.
   After the threads on the stop, tee or plug have engaged the tapped hole in the main, rotation of the feed nut may be stopped and the yoke removed from contact with the thrust collar, while the fitting is screwed into its seat. When the stop, tee or plug is being inserted in thin wall or asbestos-cement pipe or into pipe under high pressure, the feed yoke should be used to follow the collar all the way down.
7. Screw the stop, tee, or plug into the tapped hole until it feels solid. DO NOT ATTEMPT TO FORCE IT TO ITS PERMANENT TIGHTNESS WITH THE MACHINE.

I. RELEASE THE SCREW PLUG
1. Pull out on ratchet detent knob and adjust it for counter-clockwise rotation.
2. Turn the ratchet handle counter-clockwise to take out the play and strike the end of the handle a sharp blow counter-clockwise with palm of the other hand. FIGURE 20. This will release the threaded connection between the screw plug and the stop, tee, or plug. If using an E-Z Release screw plug, this will release the threaded connection between the two parts of the screw plug.
3. Rotate ratchet handle counter-clockwise until screw plug is completely free.
4. Pull the by-pass valve to "relieve" position which will release the pressure from the machine and indicate the tightness of the connection between
the stop, tee, or plug and the pipe. If there is full pressure flow from the by-pass valve, the screw plug has not released and the stop, tee, or plug should be screwed in again a little tighter than before and another attempt be made to release the screw plug.

J. REMOVE THE MACHINE
1. Loosen the chain hook nuts.
2. Unhook the chain and remove hooks and chain.
3. Remove machine, saddle and gaskets.
4. Tighten stop, tee, or plug to final tightness with a suitable wrench on the inlet side. FIGURE 21.
   NOTE: If the fitting being installed is a machine inserted valve tee or corporation stop with compression type inlet gasket, clean chips from under gasket before tightening compression nut to a pressure tight joint on the main using wrench (Part No. 37137).
5. If using an E-Z Release screw plug, remove the nut part from the stop or tee with the E-Z Release screw plug wrench furnished with the machine.

K. TO REMOVE A STOP, TEE, OR PLUG INSTALLED IN PIPE UNDER PRESSURE
1. Shut off the stop or tee.
2. Disconnect service line piping.
3. Slightly loosen the stop or tee using a wrench on the inlet side.
4. Separate the two parts of the extracting tool.
5. When using an extracting tool having inside threads, screw the nut into the outside threads of stop or tee very securely using the right hand thread. FIGURE 22. When using an extracting tool having outside threads, screw the plug into the inside threads of stop or plug very securely using the right hand threads.
6. Unscrew the feed sleeve and cap containing the boring bar assembly from the cylinder of the machine (2½ turns).
7. Open flop valve to its wide open position by pushing lever handle down. If desired, handle screw may be engaged into socket on side of body to retain flop valve in open position during this operation.
8. Assemble large saddle gasket, saddle, small saddle gasket, and the body and cylinder of the machine centrally over the installed stop, tee or plug.
9. Place chain hooks and washers into chain yoke and attach chain.

11. Attach the shank part of the extracting tool into the boring bar socket being sure the knockout pin is in its outward position and the drive pins align with slots in the boring bar. See FIGURE 22.
12. Tighten tool retaining screw in boring bar using small socket end of chain hook nut and tool retaining screw wrench.
13. Push the feed sleeve and cap down on the boring bar as far as possible.
OPERATING INSTRUCTIONS

FOR B-101™ AND B-100™ DRILLING AND TAPPING MACHINE

14. Attach boring bar, feed sleeve and tool assembly to cylinder of machine and tighten cap securely (2½ turns). Be sure boring bar is held in its upper position while cap is being attached.

15. Slowly move boring bar downward to engage left hand thread of extracting tool shank with mating thread in nut part attached to corporation stop or tee. Attach ratchet handle to boring bar, pull outward on ratchet detent knob and adjust it for counterclockwise rotation.

16. As soon as the extracting tool shank contacts the nut part on corporation stop or tee, slowly rotate the ratchet handle counterclockwise to engage the left hand threads. This is a very sensitive operation and extreme caution must be taken to be sure threads properly engage. It is very likely it will be necessary to slightly shift the machine during this operation to get proper alignment.

17. As soon as boring bar is permanently attached to extracting tool, chain hook nuts can be tightened, but her also, considerable caution is required to bring the machine down evenly on the pipe. If machine is tightened down unevenly, a strain will be placed on boring bar and if old corporation stop or tee is removed under these conditions, the new one will not start in the old hole.

18. Push by-pass valve to “by-pass” position and rotate ratchet handle counterclockwise to extract the stop or tee. Raise boring bar to upper position as soon as old stop or tee becomes disengaged from main.


20. Proceed with the use of the machine as described in previous instructions.

NOTICE
The tapping machine body has a boss with ⅛” I.P. tapping and is shipped with a brass plug installed. A blow-off valve is also shipped with each machine. The blow-off valve provides a means to prevent pipe chips and other drilling and tapping residue from entering the main during pressure taps.

To properly use the blow-off valve, follow these instructions:

1. Remove the brass plug from the boss of machine body.

2. Apply non-hardening dope to the inlet threads of the blow-off valve and install the valve in the tapped boss of machine body. The valve should be tightened sufficiently to provide a pressure tight joint and then positioned so that the valve key does not interfere with the pipe saddle.

3. Attach a length of hose to the blow-off valve outlet. Valve outlet is ⅜” National Hose Thread (regular garden hose coupling size).

4. When starting to drill and tap the main, open the valve. Main pressure will flush the chips out through the hose outlet.

5. Close the valve after the tapping operation has been completed.

Parts for the B-101 machine (Model No. 1) are the same as the B-100 machine except for the parts shown below.
### For B-101™ and B-100™ Drilling and Tapping Machine Parts

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Part Name</th>
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<td>1</td>
<td>500851</td>
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NOTE: These illustrations are for parts identification only. DO NOT use these illustrations for assembly or disassembly of machine. MUELLER CO. offers a machine repair service, and field tapping service. Contact MUELLER® Customer Service Center for details.

TO ORDER SPECIFY QUANTITY, PART NUMBER AND PART NAME (include catalog number and model number of machine)
TO REMOVE THE BEARING:
NOTE: It is not necessary to remove the Boring Bar from the Feed Sleeve and Cap.

1. Punch or pull out the Retaining Pin (part no. 48130) from the Knockout Pin (part no. 500693).
2. Remove the Knockout Pin.
3. Remove the Tool Retaining Screw (part no. 500694) from the Bearing Sleeve (part no. 500691).
4. Slide the Bearing and Bearing Sleeve off the lower end of the Boring Bar.
5. Slide Bearing (part no. 500692) off the Bearing Sleeve (part no. 500691) with a twisting motion.

TO REPLACE THE BEARING:
1. Place Bearing on Bearing Sleeve. When the Bearing is placed on the Bearing Sleeve the bottom of the Bearing should rest on Bearing Sleeve Shoulder and the top of the Bearing should be flush with the top of the Bearing Sleeve. Knockout Pin holes in both Bearing and Bearing Sleeve will then be easily aligned.
2. Slide Bearing and Bearing Sleeve on Boring Bar, align holes and replace Tool Retaining Screw.
3. Align Knockout Pin holes in Bearing with holes in Bearing Sleeve and replace Knockout Pin - keep the flattened portion in the middle of the Knockout Pin facing the lower end of the Boring Bar.
4. Replace Retaining Pin through bottom hole in Bearing and into hole in the Knockout Pin.