

# MUELLER® GAS

## T™ and TW™ Drilling Machines and H-17045 Completion Machine

**⚠ 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. The instructions contained herein were developed for using this equipment on fittings of Mueller manufacturer only, and may not be applicable for any other use.
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.
4. Pressure test, check for and repair leaks in all fittings and components each time one is installed or any joint or connection is broken. Failure to find and repair a leak from any source in the fittings, bypass lines or equipment could result in an explosion and subsequent serious injury and/or property damage.
5. 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.

**TABLE OF CONTENTS PAGE**

General Information	2-3
Installing Service Tees and Valve Tees	4-10
Installing and Stopping-Off Service Line Stopper Fittings	11-15
Installing Save-A-Valve Drilling Nipples	16-18
Parts for T and TW Drilling Machines	19
Parts for H-17045 Completion Machine	20



**Reliable Connections™**

Customer Service Center

Decatur, Illinois

800.798.3131

[www.muellergas.com](http://www.muellergas.com)

[moreinfo@muellercompany.com](mailto:moreinfo@muellercompany.com)

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.

# INSTRUCTIONS FOR INSTALLING "T" DRILLING MACHINE SERVICE TEES AND VALVE TEES

## AND H-17045 COMPLETION MACHINE

	Pages
INSTALLING SERVICE TEES AND VALVE TEES .....	4 to 10
INSTALLING AND STOPPING-OFF SERVICE LINE STOPPER FITTINGS .....	11 to 15
INSTALLING SAVE-A-VALVE DRILLING NIPPLES .....	16 to 18
PARTS FOR "T" AND "T-W" DRILLING MACHINES .....	19
PARTS FOR H-17045 COMPLETION MACHINE .....	20

## GENERAL INSTRUCTIONS

Use pipe thread "dope" on the threads of machines or equipment if required to make a pressure tight connection without using a gasket or "O" ring seal.

Examine rubber shut-off tools and replace rubbers if excessively worn or damaged. Lubricate the inside and all metal parts of rubber shut-off tool with a semi-liquid

mixture of graphite and glycerin. When not in use, store rubber shut-off tools away from sunlight in a cool, damp location.

Keep all machined and threaded surfaces of the machines and equipment well lubricated with oil at all times. **DO NOT USE OIL TO LUBRICATE RUBBER SHUT-OFF TOOLS.**

### BORING BAR PACKING REPLACEMENT

1. Remove ratchet knob screw (56178).
2. Remove ratchet knob (78853), ratchet handle (89068) and wheel (55617), feed sleeve connector (89063), thrust bearing (78855) and thrust washer (78856).
3. Position feed sleeve (78857) on body (78860) almost to lowest position, until one of the holes in the upper end of feed sleeve aligns with hole in packing cap (78859).
4. Hold body rigid, preferably in a vise. Insert a 1/4 " diameter pin thru feed sleeve hole into packing cap.
5. With pin held in position, rotate feed sleeve **counter-clockwise**, which removes packing cap from body.
6. Slip packing cap off boring bar and remove "O" ring packings (78858) from recess in cap at top end of body.
7. Clean boring bar (89072) and lubricate with machine oil.
8. Place new "O" ring packing (78858) in recess at top end of body (78860).
9. Place new "O" ring backing (78858) in internal recess in packing cap (78859).
10. Slide cap (78859) down onto boring bar until it contacts body.
11. Position hole in feed sleeve (78857) in alignment with hole in packing cap (78859).
12. With body held rigid, insert a 1/4 " diameter pin thru aligned feed sleeve and packing cap holes and rotate feed sleeve **clockwise** until packing cap is securely tightened onto body.
13. Replace thrust washer (78856), thrust bearing (78855) positioned with metal covering toward top, sleeve connector (89073) with pins to the lower side, ratchet handle (89068) and wheel (55617), knob (78853) and screw (56178).



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES



BRASS GATE VALVE



DRILL



MACHINE  
ADAPTER  
NIPPLE



TEST CAP



REDUCING BUSHING



MACHINE  
BODY  
EXTENSION



RUBBER  
SHUT-OFF  
TOOL  
COMPLETE



STEEL  
SHUT-OFF  
TOOL



DEFERRED  
COMPLETION  
STOPPER  
COMPLETE



COMPLETION  
PLUG WRENCH

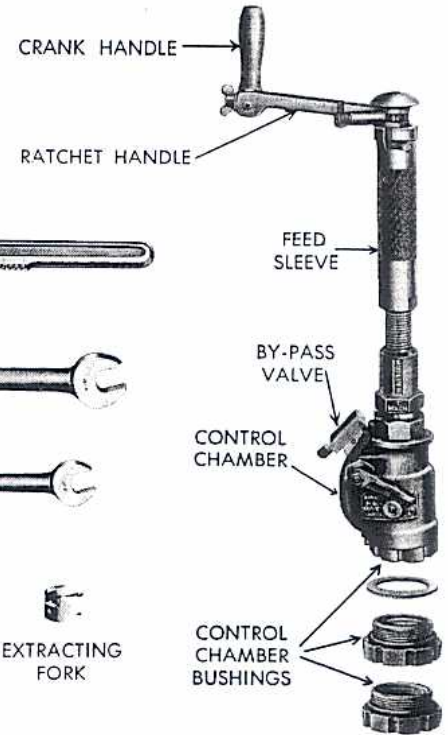


E-Z  
RELEASE  
INSERTING  
TOOL



DEFERRED  
COMPLETION  
STOPPER  
EXTRACTING  
TOOL

The "T" Drilling Machine Equipment shown above is for use with NO-BLO Tees, NO-BLO Service Line Stopper Fittings and NO-BLO Save-A-Valve Drilling Nipples. The proper selection of this equipment is arranged by "T" Machine Tool Kits. The required drilling tools and valve are listed separately with each tool kit; however, they are not a part of the tool kit.



"T" DRILLING MACHINE AND EQUIPMENT FURNISHED (The "T-W" Drilling Machine is the same as the "T" Drilling Machine except without the H-17025 Control Chamber.)

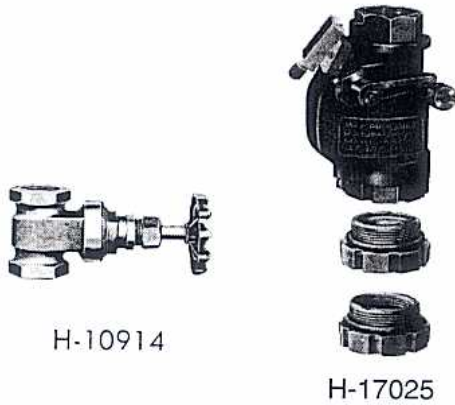


MACHINE ADAPTER NIPPLES

H-17045 COMPLETION MACHINE AND EQUIPMENT FURNISHED

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

## "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE



H-10914

H-17025

FIGURE 1



FIGURE 2



FIGURE 3

**NOTICE:** The By-Pass Valve on the Control Chamber 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.

These instructions are for using the "T" or "T-W" Drilling Machine and the H-17045 Completion Machine to do the following NO-BLO operations.

Item	Size of Inlet			NO-BLO Operations
	3/4"	1"	1 1/4"	
NO-BLO Service Tees	3/4"	1"	1 1/4"	Drill the Main Insert the Plug* Extract the Plug* Make Stop-Off
NO-BLO Valve Tees	3/4"	1"		Drill the Main Insert Stem and Bushing* Extract Stem and Bushing*

Rubber shut-off tools have a maximum working pressure of 100 p.s.i. Except for rubber shut-off tools, the maximum working pressure and temperature for these machines is as follows.

**125 p.s.i. Maximum Working Pressure at 100°F.  
250°F. Maximum Temperature Rating at 100 p.s.i.**

\*The "T" or "T-W" Drilling Machine or the H-17045 completion Machine may be used for these operations.

### A. SELECT THE EQUIPMENT REQUIRED

1. Determine the catalog number of the drilling machine and the valve to be used. The "T" Drilling Machine uses the H-17025 Control Chamber. The "T-W" Drilling Machine uses the H-10914 Gate Valve. See page 3 and FIGURE 1.
2. Select the proper "T" Machine Tool Kit according to the following.
  - a. Size and catalog number of the Tee to be installed.
  - b. Catalog number of the valve to be used.

The required tool kit number is listed in the GAS DISTRIBUTION PRODUCTS CATALOG along with the cataloging of the Tees. Each page of Tees includes the corresponding tool kit numbers. The contents of the Tool kit are listed with the cataloging of the "T" Drilling Machine.

3. Select the drilling tools to be used. The maximum size of drilling tools which can be used is listed in the GAS DISTRIBUTION PRODUCTS CATALOG directly under the proper Tool Kit. Also listed are alternate smaller drilling tools.
4. Select the proper size of valve or proper size of control chamber bushing. This is listed in the CATALOG in the same column as the Tool Kit being used and directly under the drilling tools.

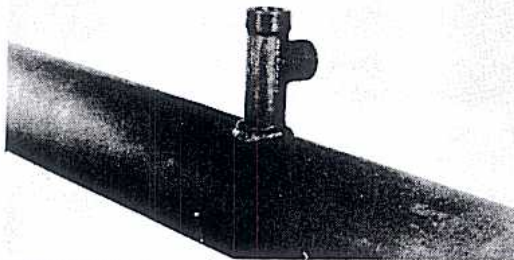


FIGURE 4

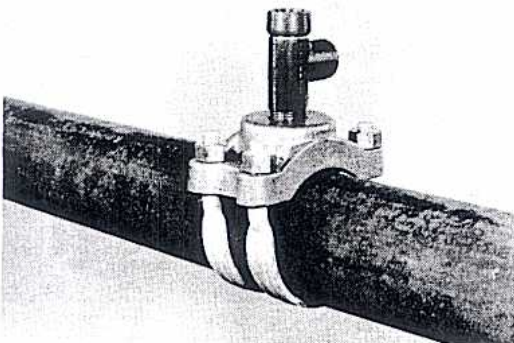


FIGURE 5



**B. ATTACH THE TEE TO THE MAIN**

1. Thoroughly clean the surface to which the Tee is to be attached.
- 2a. For Service Tees. Remove completion cap and completion plug. FIGURE 2.
- 2b. For Valves Tees. Remove completion cap and stem and bushing as a unit. FIGURE 3.
- 3a. For Tees having welding inlet. Place Tee in desired position and weld to pipe line. FIGURE 4.
- 3b. For Tees having an outside I.P. thread inlet. Attach Service Clamp at the desired position. Apply non-hardening pipe thread "dope" to the inlet threads of the tee and screw it into the body of the Service Clamp. FIGURE 5.

**NOTE: When using a Tee having a threaded inlet, it may be necessary to reduce the working pressure and temperature to that of the clamp or fitting to which the Tee is attached.**

4. Connect service pipe to the outlet of the Tee and extend this piping to the first shut-off in the service line such as a curb stop or meter stop. Close this curb stop or meter stop.
5. The H-17615 Center Locating Punch may be used to punch mark the pipe in the center of the Tee to aid in starting the drill. Screw the Center Locating Punch into the Tee and strike the head of the pin a solid blow. FIGURE 6.

**C. TEST THE INSTALLATION**

1. Screw test cap on Tee.
2. Apply air pressure and test for leaks with soapsuds (add glycerin in freezing weather) or bubble type leak detection fluid. FIGURE 7.
3. Remove test cap.
- 4a. The H-17618 Test Fitting may be used instead of the test cap. Screw the Test Fitting into the top of the Tee. The fitting has a handle and does not require a wrench. Attach air hose to one of the  $\frac{1}{4}$ " I.P. tapped openings and a gage or plug to the other  $\frac{3}{4}$ " tapped opening. FIGURE 8.
- 4b. The H-17617 Center Locating Punch and Test Fitting may be used. This is one item which performs the same functions as both the H-17615 Center Locating Punch and the H-17618 Test Fitting.

**D. ATTACH CONTROL CHAMBER OR GATE VALVE**

1. If using a "T" Machine and H-17025 Control Chamber.
  - a. Assemble proper size adapter bushing to the lower thread of the control chamber. Be sure the "O" ring is in place, lubricated and in good condition. Spanner wrench (part no. 44628) may be used for assembling this bushing.
  - b. Secure the bushing in place with the set screw.
  - c. Attach control chamber to top of Tee.
  - d. Loosen handle screw and open valve gate **fully**.
  - e. Push by-pass valve in all the way against the by-pass valve body, to the by-passing position. FIGURE 9.

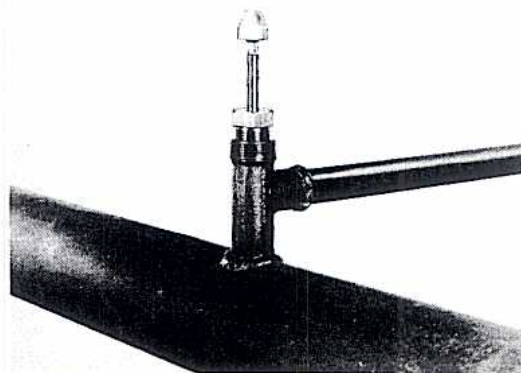


FIGURE 6

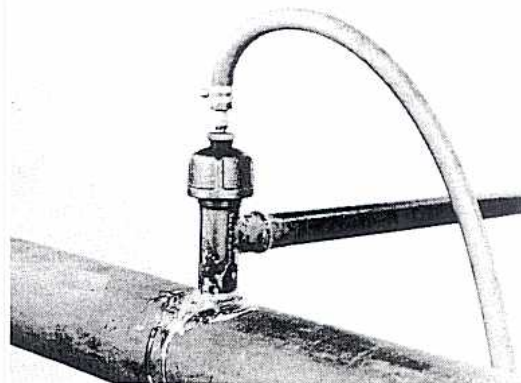


FIGURE 7

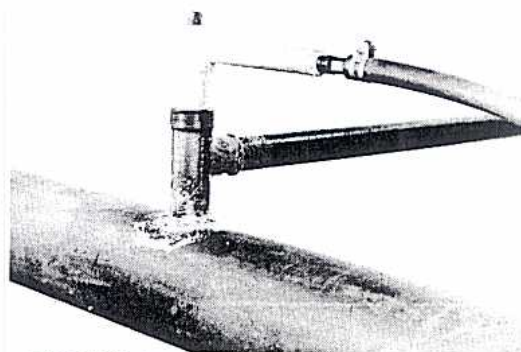


FIGURE 8

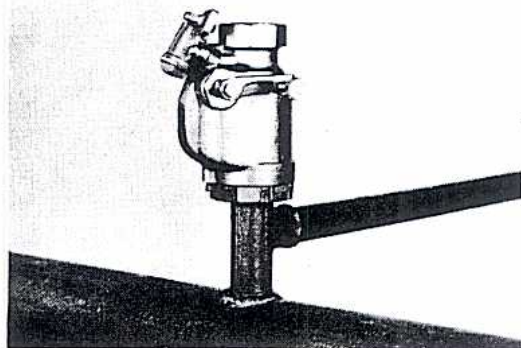


FIGURE 9



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

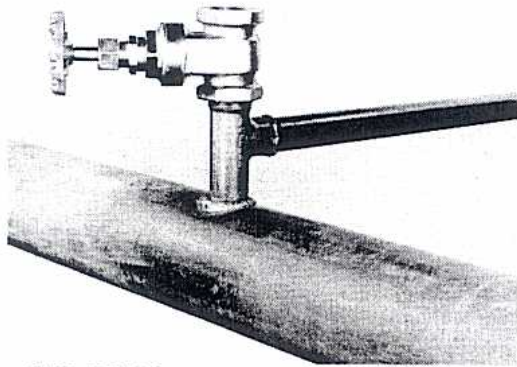


FIGURE 10

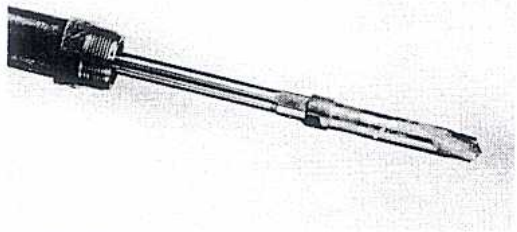


FIGURE 11

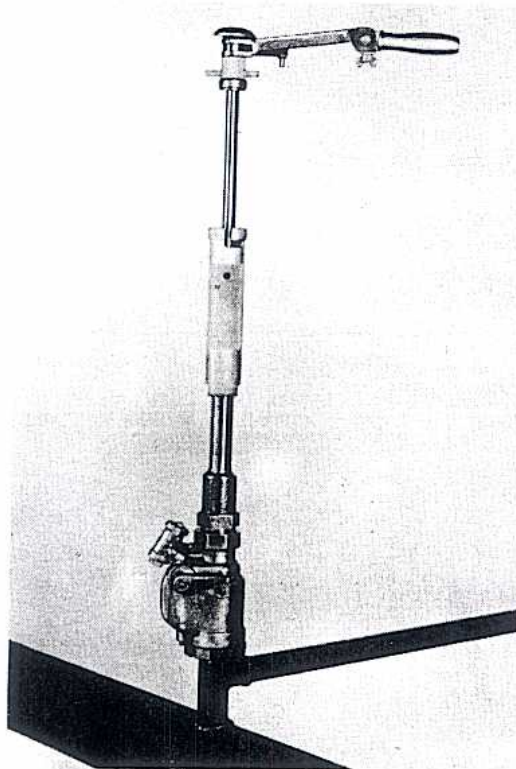


FIGURE 12

2. If using a "T-W" Machine and H-10914 Gate Valve.
  - a. Attach gate valve to top of Tee. (If installing a  $\frac{3}{4}$ " Service Tee, first attach the  $1\frac{3}{4}$ " x 1" bushing to the tee and then attach the gate valve to the bushing.) FIGURE 10.
  - b. Open gate valve **fully**.

## E. ATTACH DRILLING MACHINE

1. Remove extracting fork from boring bar of machine.
2. Assemble proper size drill or shell cutter to the boring bar of the machine.
3. If using "T-W" Machine and a gate valve, attach machine adapter nipple to the body of the machine. Be sure the gasket is in good condition and in place. A machine adapter nipple is always required if using a gate valve.
4. Coat drill thoroughly with MUELLER Cutting Grease. FIGURE 11.
5. Retract boring bar to its rearmost position.
6. If using a control chamber place the drilling machine on the control chamber and tighten the body of the machine directly into the top of the control chamber. Be sure "O" ring is in place, lubricated and in good condition. FIGURE 12.
7. If using a gate valve place the drilling machine on gate valve and tighten machine adapter nipple into gate valve. FIGURE 13.

## F. DRILL THE MAIN

1. Slowly advance boring bar until point of drill contacts the pipe. Then retract boring bar a slight amount.
2. Adjust feed sleeve so that the notch in the sleeve engaged the feed sleeve connector on boring bar.
3. Drill the hole by operating the ratchet handle **clockwise** and turning the feed sleeve **clockwise** a little at a time. FIGURE 14. Use a light even feed at the start, then a heavier feed and finish with a light even feed.  
When drilling small holes, the crank handle should be turned upward and rotated in continuous circles instead of ratcheting.
4. Continue drilling until a hole is drilled in the pipe. This can be determined by the feel of the feeding mechanism and the pull of the ratchet handle.

## G. REMOVE THE DRILLING MACHINE

1. When the drilling operation is completed, disengage the feed sleeve from the feed sleeve connector and retract the boring bar to its rearmost position. Be sure the point of the drill is above the valve gate of either the gate valve or the control chamber.  
**CAUTION: Do not reverse the rotation of the ratchet handle when retracting the boring bar. The pressure inside the machine will tend to raise the boring bar. Hold down on boring bar to control the upward motion of the boring bar thereby preventing shock or damage to the drilling machine.**
2. If using a control chamber.
  - a. Close the valve gate and secure in the closed position by tightening handle screw hand tight against the wrench flats of the control chamber.



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

- b. Pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position. This will release the pressure from above the valve gate and also indicate whether or not the valve gate is seated tightly.
3. If using gate valve, close it.
4. Remove drilling machine from control chamber or gate valve.
5. Advance boring bar.
6. Remove drill or shell cutter.

## H. INSERT PLUG OR STEM AND BUSHING

The "T" or "T-W" Drilling Machine or the H-17045 Completion Machine may be used for this operation.

1. Remove extracting fork from boring bar or shaft of machine.
- 2a. For Service Tees. Attach the completion plug to the boring bar shaft. Lubricate these threads and be sure that these threads screw together freely without binding. Apply non-hardening pipe thread "dope" to the completion plug threads. FIGURE 15.
- 2b. For Valve Tees. Unscrew stem approximately half way out of the bushing then attach the bushing to the boring bar or shaft. Lubricate these threads and be sure that these threads screw together freely without binding. Screw stem into bushing as far as possible by hand then back it out one-half of a turn. FIGURE 16.

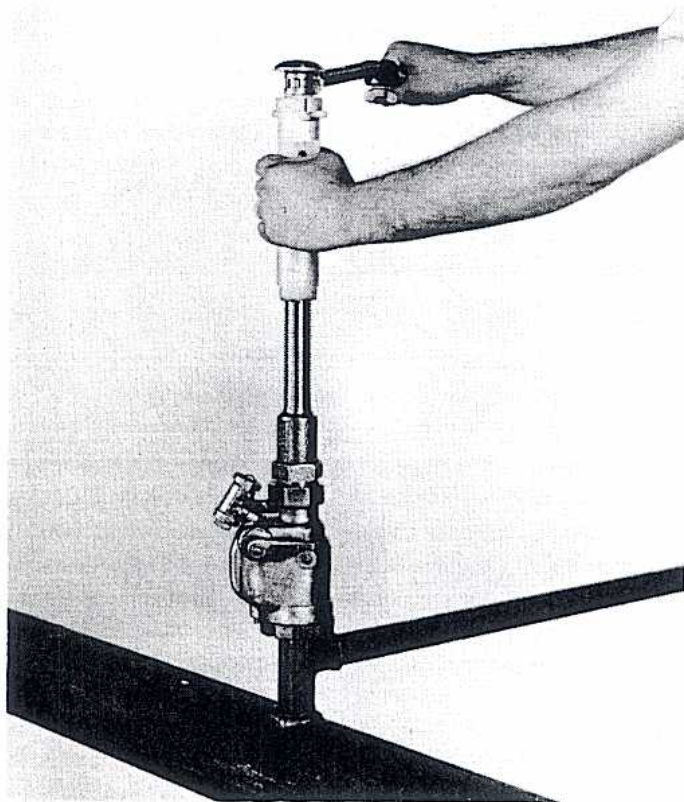


FIGURE 14

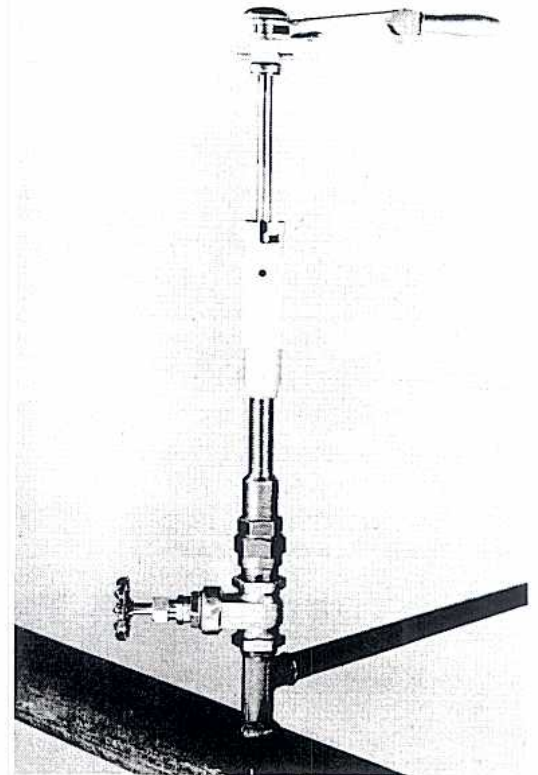


FIGURE 13

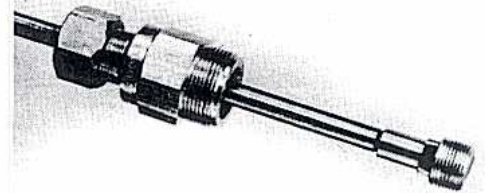


FIGURE 15



FIGURE 16



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

## "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

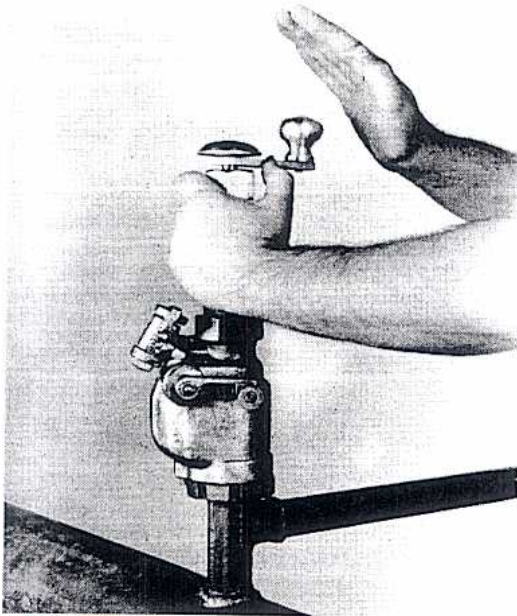


FIGURE 17

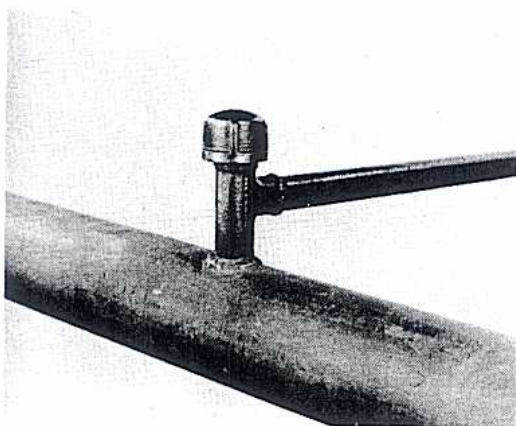


FIGURE 18

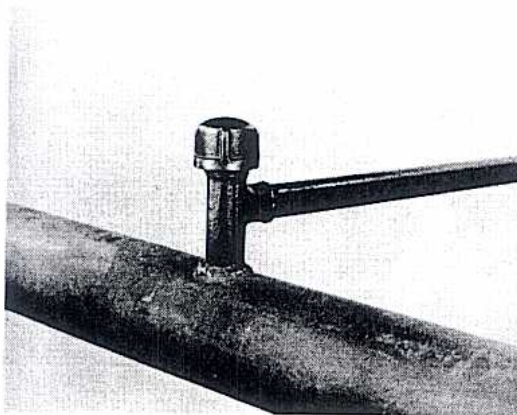


FIGURE 19

3. Retract boring bar to its rearmost position.
4. Attach machine to control chamber or gate valve.
5. If using a control chamber.
  - a. Push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
  - b. Loosen handle screw and open valve gate fully.
6. If using a gate valve open it **fully**.
7. Advance boring bar until the completion plug or bushing contacts the top thread in the Tee.
8. Rotate the handle **clockwise** until the completion plug or bushing is firmly screwed into the Tee.
9. Reverse ratchet on "T" or "T-W" Machines and turn the handle **counter-clockwise** to take up the slack. Hold in this position with one hand and strike the end of the handle a sharp blow **counter-clockwise** with the other hand. FIGURE 17.
10. Rotate the boring bar **counter-clockwise** until it is free from the completion plug or bushing.
11. If using control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position. If there is full flow from the by-pass valve at this point, rotate the handle **clockwise** and seat the completion plug or bushing more tightly.
12. Remove machine, control chamber or gate valve.
- 13a. **p** For Valve Tees. FIGURE 18.
  - (1) Tighten completion plug with completion plug wrench.
  - (2) Apply non-hardening pipe thread "dope" to completion cap threads and screw cap tightly on Tee.
- 13b. For Valve Tees. FIGURE 19.
  - (1) Tighten bushing with completion plug wrench.
  - (2) With screw driver turn stem **counter-clockwise** to back seat against the bottom of the bushing.
  - (3) Apply non-hardening pipe thread "dope" to completion cap threads and screw cap firmly on Tee.
14. Test the entire Tee with soapsuds.

### I. TO OPERATE A VALVE TEE

1. Remove completion cap.
2. Screw stem into Valve Tee as far as possible using a 4" screw driver.
3. Polish the seat by turning the stem back and forth several times against the seat.
4. Hold the stem in the closed position with the screw driver in one hand and **BACK OFF** the bronze bushing with a wrench held in the other hand. (Do not permit the stem to turn, however, turn the bushing approximately two full turns **counter-clockwise**.) Differential threads provide the seating force. FIGURE 20.
5. The Valve Tee is now shut off. Proceed with the work on the service line.
6. To open the valve hold the stem in the closed position with the screw driver in one hand and tighten the bushing into the Tee with a wrench held in the other hand. (Do not permit the stem to turn, however, turn the bushing as far as it will go **clockwise**.) This relieves the force created the differential threads.



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

7. Open valve by rotating the stem **counter-clockwise** with the screw driver. Continue rotating in this direction until the stem backseats against the bottom of the bushing.
8. Apply non-hardening pipe thread "dope" to the completion cap threads and screw cap tightly on Tee.
9. Test the entire Tee with soapsuds.

## J. TO REMOVE COMPLETION PLUG OR STEM AND BUSHING

The "T" or "T-W" Drilling Machine or the H-17045 completion Machine may be used for this operation.

- 1a. For Service Tees. Remove completion cap and loosen completion plug slightly with the completion plug wrench.
- 1b. For Valve Tees. Remove completion cap, close valve approximately halfway and loosen bushing slightly with completion wrench.
2. Attach extracting fork to boring bar or shaft of machine.
3. Move the fork away from the threads on the end of the boring bar or shaft.
4. **Fully** open control chamber or gate valve.
5. If using control chamber, push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
6. If using a gate valve, attach machine adapter nipple to the drilling machine or completion machine.
7. Attach machine to control chamber or gate valve.
8. Advance the boring bar or shaft of the machine as far as possible.
9. Align the machine with the Tee so that the end of the boring bar or shaft is in contact with the top of the completion plug or bushing.
10. Rotate the boring bar or shaft **clockwise** to engage the threads between the end of the boring bar or shaft and the threads in the completion plug or bushing.
11. Lower the extracting fork so that it engages the flats of the completion plug or bushing. FIGURE 21.
12. Lower the machine and attach the control chamber or gate valve to the Tee.
13. Rotate the boring bar or shaft **counter-clockwise** which will unscrew the completion plug or bushing from the Tee.
14. Retract boring bar to its rearmost position.  
**CAUTION: The pressure inside the machine will tend to raise the bar. Hold down on the handle to control the upward motion of the bar thereby preventing shock or damage to the machine.**
15. Close control chamber or gate valve. See instruction "G-2" pages 6 and 7.
16. If using control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position.
17. Unscrew machine from control chamber or gate valve.
18. Advance boring bar. FIGURE 22.
19. Slide extracting fork away from the completion plug or bushing.
20. Remove the completion plug or bushing from the boring bar or shaft.
21. Remove extracting fork from boring bar or shaft.

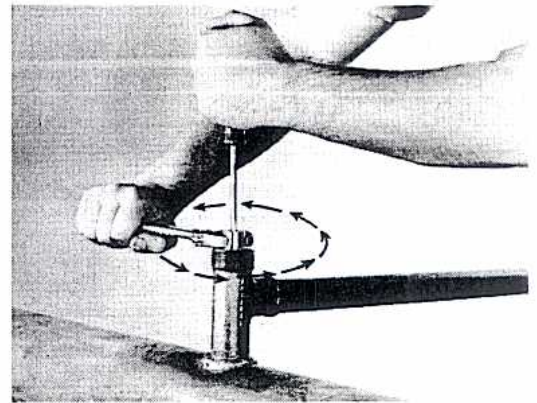


FIGURE 20

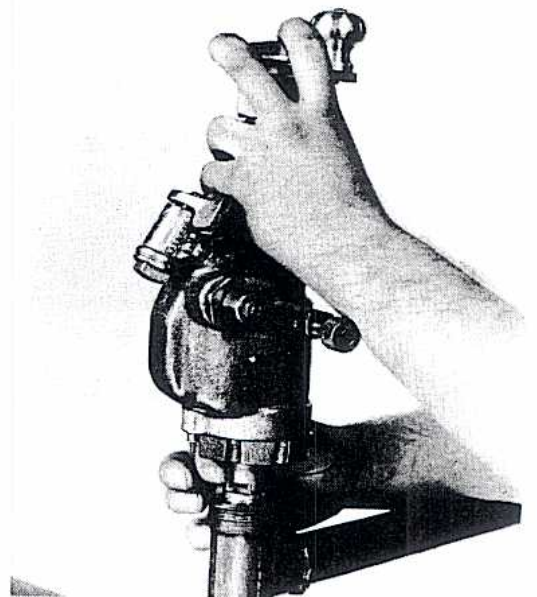


FIGURE 21

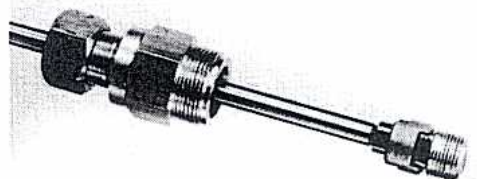


FIGURE 22



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE



RUBBER SHUT-OFF TOOL



STEEL SHUT-OFF TOOL

FIGURE 23

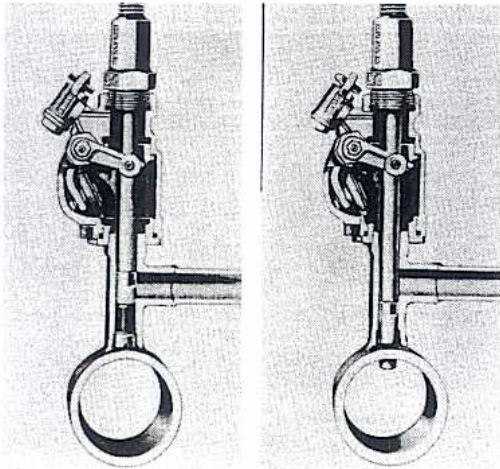


FIGURE 24

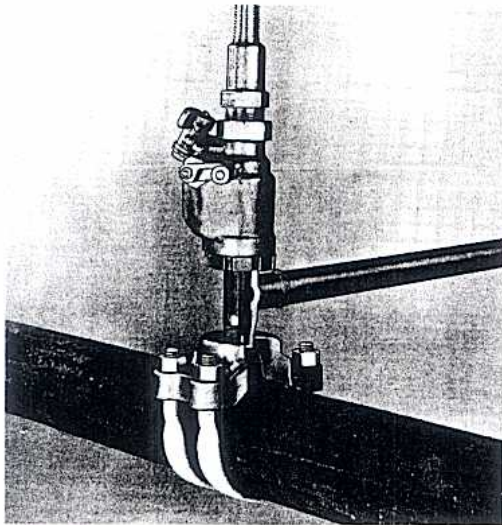


FIGURE 25

## K. TO STOP-OFF SERVICE TEE

A rubber shut-off tool is used to provide a positive shut-off in a service line at the Tee. It should not be used for repair welding on either the inlet or outlet connections of the Tee. (To use a deferred completion stopper to stop-off threaded inlet Service Tees, see **NOTE** on page 15.)

A steel shut-off tool is used to provide a temporary shut-off in a service line at the Tee. It should be used for repair welding on either the inlet or outlet connections of the Tee.

1. Assemble rubber shut-off tool or steel shut-off tool directly to the boring bar of the drilling machine. FIGURE 23. Lubricate the rubber with soapsuds.
2. Retract boring bar to its rearmost position.
3. Attach the drilling machine to the control chamber or gate valve.
4. If using control chamber, push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
5. Open control chamber or gate valve **fully**.
6. Advance boring bar.
  - a. If using a Service Tee with welding inlet. Advance boring bar until the lower end of the shut-off tool contacts the pipe. FIGURE 24.
  - b. If using a Service Tee with Outside I.P. Thread on inlet. Advance boring bar until the lower end of the shut-off tool contacts a ledge or shoulder on the inside and at the bottom of the Tee. A machined groove around the body of the Tee just below the completion cap indicates that the threaded inlet Tee has the ledge on the inside. FIGURE 25. Previous design threaded inlet Tees did not have the ledge or the identifying groove and require special tools.
7. Adjust the feed sleeve so that the notch in the sleeve engages the feed sleeve connector on boring bar.
8. Turn feed sleeve clockwise until the shut-off tool effectively shuts off the pressure. The boring bar should not rotate during this operation.
9. If using control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position. This will blow down the service line and also test the effectiveness of the shut-off.
10. Proceed with the work on the service line.
11. When the work on the service line is completed, if using a control chamber, push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
12. Turn feed sleeve **counter-clockwise** relaxing the downward force on the shut-off tool.
13. Disengage the sleeve and retract boring bar to its rearmost position.
14. Close control chamber or gate valve.
15. If using a control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position.
16. Remove drilling machine from control chamber or gate valve.
17. Advance boring bar and remove shut-off tool.



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

These instructions are for using the "T" or "T-W" Drilling Machine and the H-17045 Completion Machine to do the following NO-BLO operations.

Item	Size			NO-BLO Operation
NO-BLO Service Line Stopper Fitting	3/4"	1"	1 1/4"	Drill the Service Line Insert Plug* Extract Plug* Make Stop-Off

Rubber shut-off tools have a maximum working pressure of 100 p.s.i. Except for rubber shut-off tools, the maximum working pressure and temperature for these machines is as follows.

**125 p.s.i. Maximum Temperature Rating at 100°F.**

**250° F. Maximum Temperature Rating at 100 p.s.i.**

\* The "T" or "T-W" Drilling Machine or the H-17045 Completion machine may be used for these operations.

## A. SELECT THE EQUIPMENT REQUIRED

- Determine the catalog number of the drilling machine and the valve to be used. The "T" Drilling Machine uses the H-17025 Control Chamber. The "T-W" Drilling Machine uses the H-10914 Gate Valve. See page 3 and FIGURE 1.
- Select the proper "T" Machine Tool Kit according to the following.
  - Size and catalog number of the Service Line Stopper Fitting to be installed.
  - Catalog number of the valve to be used.

The required tool kit number is listed in the GAS DISTRIBUTION PRODUCTS CATALOG along with the cataloging of the fittings. The contents of the Tool Kit are listed with the cataloging of the "T" Drilling Machine.
- Select the shell cutter to be used. The proper size of shell cutter which can be used is listed in the GAS DISTRIBUTION PRODUCTS CATALOG directly under the Tool Kit.
- Select the proper size of valve or proper size of control chamber bushing. This is listed in the CATALOG in the same column as the Tool Kit being used and directly under the drilling tools.

## B. ATTACH THE FITTING TO THE SERVICE LINE

- Thoroughly clean the surface to which the fitting is to be attached.
- Remove completion cap and completion plug. FIGURE 26.
- Place the two halves of the fitting around the pipe with the trade mark on each half facing in the same direction. Be sure the two halves are in accurate alignment with each other.
- Tack weld four corners.
- Weld the two halves of the fitting together but free of the pipe.
- Locate the fitting in the desired position and weld each end permanently to the pipe. FIGURE 27.



FIGURE 26

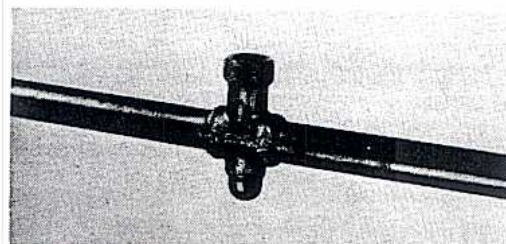


FIGURE 27

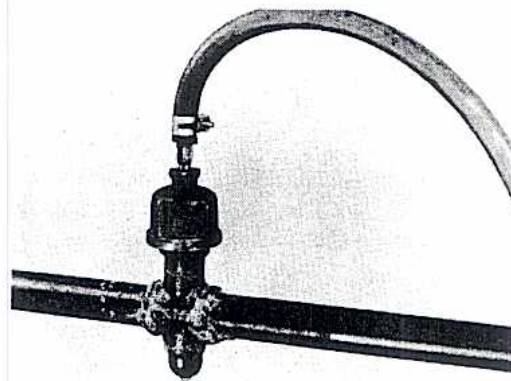


FIGURE 28

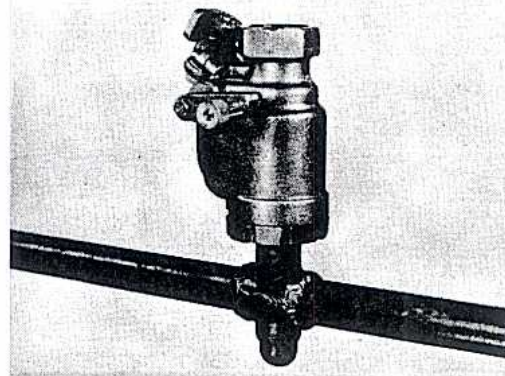


FIGURE 29



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

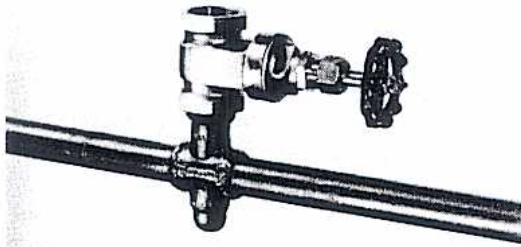


FIGURE 30

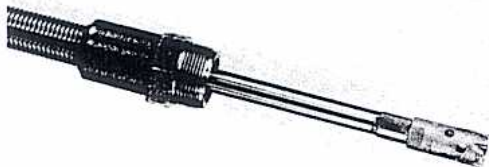


FIGURE 31

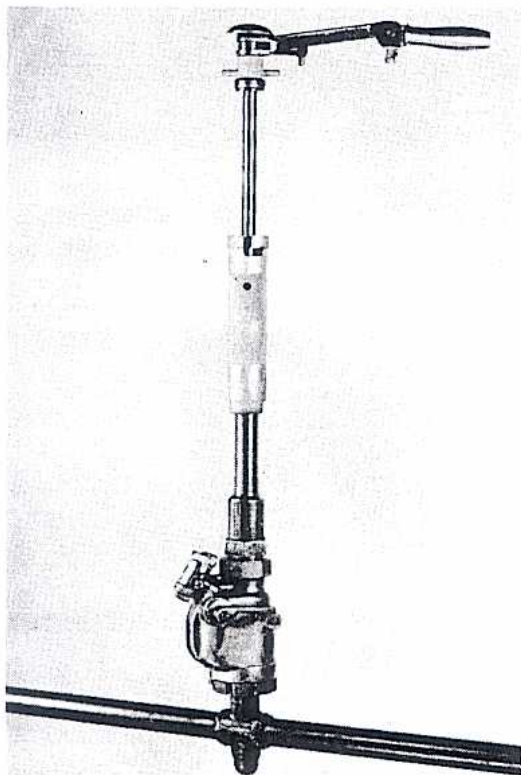


FIGURE 32

## C. TEST THE INSTALLATION

1. Screw test cap on fitting.
2. Apply air pressure and test for leaks with soapsuds (add glycerin in freezing weather) or bubble type leak detection fluid. FIGURE 28.
3. Remove test cap.
4. The following additional equipment may be used if desired.
  - a. H-17615 Center Locating Punch. See instruction "B-5" page 5.
  - b. H-17618 Test Fitting. See instruction "C-4a" page 5.
  - c. H-17618 Center Locating Punch and Test Fitting. See instruction "C-4b" page 5.

## D. ATTACH CONTROL CHAMBER OR GATE VALVE

1. If using a "T" Machine and H-17025 Control Chamber.
  - a. Assemble proper size adapter bushing to the lower thread of the control chamber. Be sure the "O" ring is in place, lubricated and in good condition. Spanner wrench (Part no. 44628) may be used for assembling this bushing.
  - b. Secure the bushing in place with the set screw.
  - c. Attach control chamber to top of fitting.
  - d. Loosen handle screw and open valve gate **fully**.
  - e. Push by-pass valve out all the way against the by-pass valve body, to the by-passing position. FIGURE 29.
2. If using a "T-W" Machine and H-10914 Gate Valve.
  - a. Attach gate valve to top of fitting. FIGURE 30.
  - b. Open gate valve **fully**.

## E. ATTACH DRILLING MACHINE

1. Remove extracting fork from boring bar of machine.
2. Assemble proper size shell cutter to the boring bar of the machine.
3. If using "T-W" Machine and a gate valve, attach machine adapter nipple to the body of the machine. Be sure the gasket is in good condition and in place. A machine adapter nipple is always required if using a gate valve.
4. Coat shell cutter thoroughly with MUELLER cutting grease. FIGURE 31.
5. Retract boring bar to its rearmost position.
6. If using a control chamber place the drilling machine on the control chamber and tighten the body of the machine directly into the top of the control chamber. Be sure "O" ring is in place, lubricated and in good condition. FIGURE 32.
7. If using a gate valve place the drilling machine on gate valve and tighten machine adapter nipple into gate valve. FIGURE 33.



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

## F. DRILL THE SERVICE LINE

1. Slowly advance boring bar until the shell cutter contacts the pipe. Then retract boring bar a slight amount.
2. Adjust feed sleeve so that the notch in the sleeve engages the feed sleeve connector on boring bar.
3. Measure and mark the travel required to complete the cut as shown in the following table.

### NECESSARY TRAVEL TO COMPLETE CUT

Size and Kind of Pipe	From Point of Shell Cutter Contact on Pipe
3/4" Steel	15/16"
1" Steel	19/16"
1 1/4" Steel	17/8"

4. Drill the hole by operating the ratchet handle **clockwise** and turning the feed sleeve **clockwise** a little at a time. FIGURE 34. Use a light even feed at all times.
5. Continue drilling until the pipe is drilled completely through. This can be determined by feel of the feeding mechanism, the pull on the ratchet handle or by the measured travel of the boring bar.

## G. REMOVE THE DRILLING MACHINE

1. When the drilling operation is completed, disengage the feed sleeve from the feed sleeve connector and retract the boring bar to its rearmost position. Be sure the shell cutter is above the valve gate of either the gate valve or the control chamber. **CAUTION: Do not reverse the rotation of the ratchet handle when retracting the boring bar. The pressure inside the machine will tend to raise the boring bar. Hold down on boring bar to control the upward motion of the boring bar thereby preventing shock or damage to the drilling machine.**
2. If using a control chamber.
  - a. Close the valve gate and secure in the closed position by tightening handle screw hand tight against the wrench flats of the control chamber.
  - b. Pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position. This will release the pressure from above the valve gate and also indicate whether or not the valve gate is seated tightly.
3. If using gate valve, close it.
4. Remove drilling machine from control chamber or gate valve.
5. Advance boring bar.
6. Remove shell cutter.

## H. STOP OFF THE FITTING – See Note on page 15.

1. Attach rubber shut-off tool to boring bar of drilling machine. FIGURE 35. Lubricate the rubber with soapsuds.

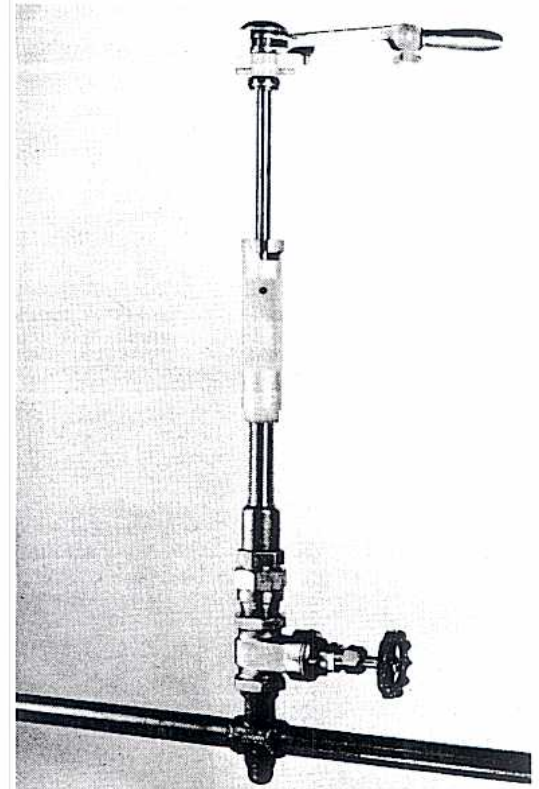


FIGURE 33

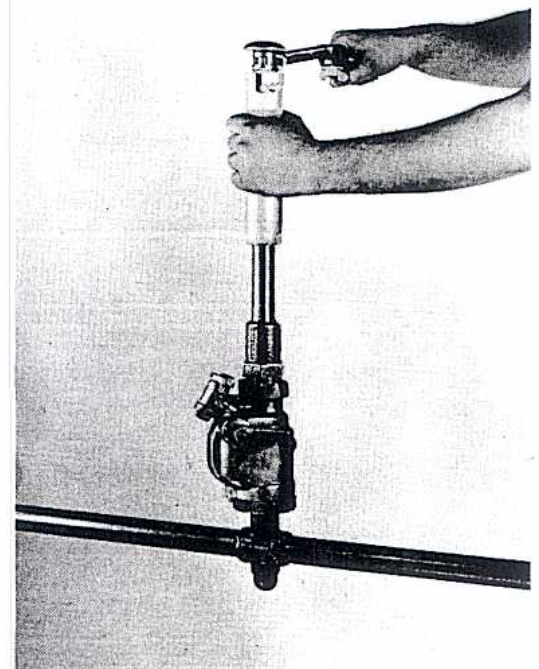


FIGURE 34



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

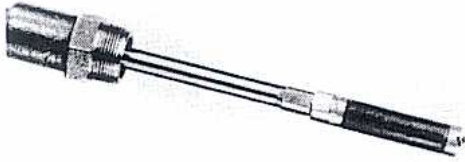


FIGURE 35

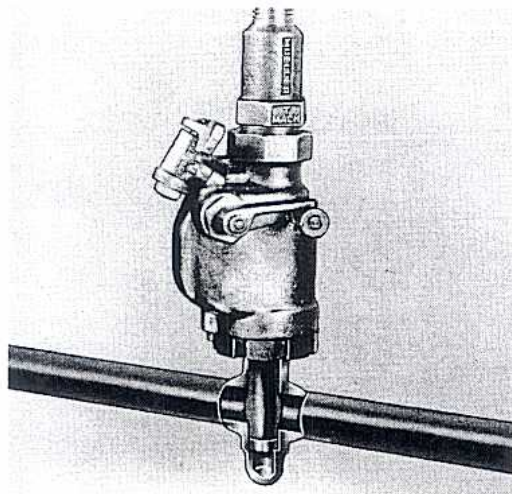


FIGURE 36

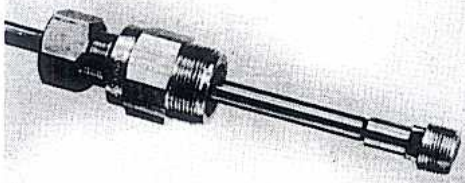


FIGURE 37

2. Retract the boring bar to its rearmost position.
3. Attach the drilling machine to the control chamber or gate valve.
4. If using a control chamber.
  - a. Push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
  - b. Loosen handle screw and open valve **fully**.
5. If using a gate valve, open it **fully**.
6. Advance boring bar until the lower end of the shut-off tool contacts the bottom of the fitting.
7. Adjust the feed sleeve so that the notch in the sleeve engages the feed sleeve connector on the boring bar.
8. Turn feed sleeve **clockwise** a little at a time with a short pause after each turn. Continue to compress the shut-off tool in this manner until the line is stopped off. FIGURE 36. Boring bar should not rotate during this operation. The maximum amount of downward travel of the boring bar is shown below.

3/4" Fitting..... 3/4" Downward Travel

1" Fitting..... 1 1/8" Downward Travel

1 1/4" Fitting..... 1 1/2" Downward Travel

9. Proceed with the work on the service line.

## I. RETRACT SHUT-OFF TOOL FROM FITTING

1. When all desired work has been done on the stopped off section of the service line, contract shut-off tool by turning feed sleeve **counter-clockwise** a little at a time with a short pause after each turn. Continue to contract the shut-off tool in this manner until it is fully released.
2. Disengage feed sleeve from feed sleeve connector on boring bar and slowly retract boring bar to its rearmost position. **CAUTION: The pressure inside the machine will tend to raise the boring bar. Hold down on the ratchet handle to control the upward motion of the boring bar thereby preventing shock or damage to the drilling machine.**
3. Close control chamber or gate valve. See instructions "G-2" pages 6 and 7.
4. If using control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position.
5. Remove drilling machine from control chamber or gate valve.
6. Advance boring bar
7. Remove shut-off too.

## J. INSERT COMPLETION PLUG – See NOTE on page 15.

The "T" or "T-W" Drilling Machine or the H-17045 Completion Machine may be used for this operation.

1. Remove extracting fork from boring bar or shaft of machine.
2. Attach the completion plug to the boring bar or shaft. Lubricate these threads and be sure that these threads screw together freely without binding. Apply non-hardening pipe thread "dope" to the completion plug threads. FIGURE 37.



3. Retract boring bar to its rearmost position.
4. Attach machine to control chamber or gate valve.
5. If using a control chamber.
  - a. Push by-pass valve in all the way against the by-pass valve body, to the by-passing position.
  - b. Loosen handle screw and open the valve gate **fully**.
6. If using a gate valve open it **fully**.
7. Advance boring bar until the completion plug contacts the top thread in the fitting.
8. Rotate the handle **clockwise** until the completion plug is firmly screwed into the fitting.
9. Reverse ratchet on "T" or "T-W" Machines and turn the handle **counter-clockwise** to take up the slack. Hold in this position with one hand and strike the end of the handle a sharp blow **counter-clockwise** with the other hand. FIGURE 38.
10. Rotate the boring bar **counter-clockwise** until it is free from the completion plug.
11. If using control chamber, pull by-pass valve out all the way until it stops, away from the valve body, to the relieving position. If there is full flow from the by-pass valve at this point, rotate the handle **clockwise** and seat the completion plug more tightly.
12. Remove machine, control chamber or gate valve.
13. Tighten completion plug with completion plug wrench.
14. Apply non-hardening pipe thread "dope" to completion cap threads and screw cap tightly on fitting. FIGURE 39.
15. Test the entire fitting with soapsuds.

**NOTE—TO USE DEFERRED COMPLETION STOPPER**

A Deferred Completion Stopper provides a stop-off in the Service Line Stopper Fitting (or threaded inlet Service Tee) and also screws into the top of the fitting. This permits the drilling machine and the gate valve or control chamber to be removed while maintaining a stop-off in the line.

The Deferred Completion Stopper may be installed by following these instructions using a "T" or "T-W" Drilling Machine E-Z Release type inserting tool and machine body extension. FIGURE 40. Lubricate the rubber with soapsuds. (When using the "T-W" Machine, a machine adapter nipple is also used.) The Deferred Completion Stopper may be removed from the fitting by following instruction "J" page 9 for removing completion plug from Service Tees.

**K. TO RE-USE SERVICE LINE STOPPER FITTING**

1. Remove completion plug. Follow instruction "J" page 9 for removing completion plug from Service Tees.
2. Refer back to instruction "H" page 13 and proceed with the use of the fitting.

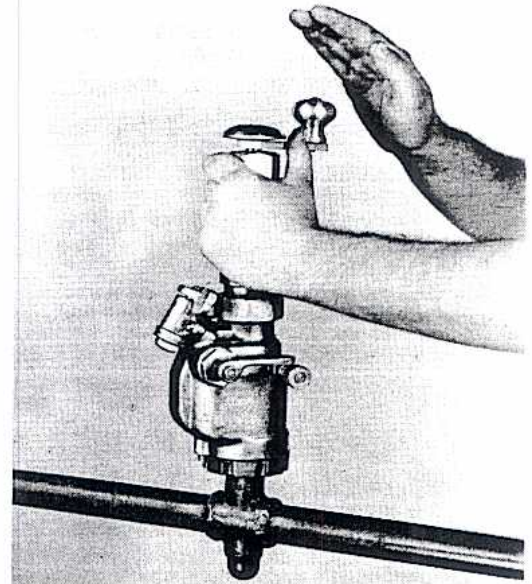


FIGURE 38

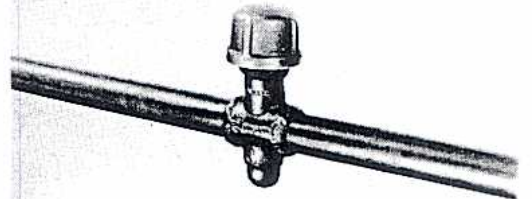


FIGURE 39

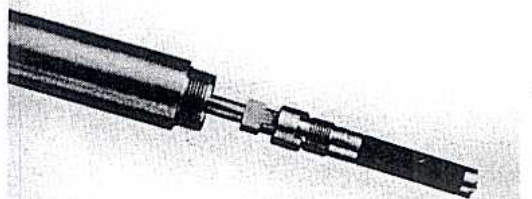


FIGURE 40



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

These instructions are for using the "T-W" Drilling Machine and the H-17045 Completion Machine to do the following NO-BLO operations.

Item	Size				NO-BLO Operation
	3/4"	1"	1 1/4"	1 1/2"	
NO-BLO Save-A-Valve Drilling Nipple					Drill the Pipe Insert Plug* Extract Plug*



FIGURE 41

**125 p.s.i. Maximum Working Pressure at 100°F.**

**250°F. Maximum Temperature Rating at 100 p.s.i.**

\*The "T-W" Drilling Machine or the H-17045 Completion Machine may be used for these operations.

## A. SELECT THE EQUIPMENT REQUIRED

1. Select the proper "T-W" Machine Tool Kit according to the size and catalog number of the Save-A-Valve Drilling Nipple to be installed.

The required tool kit number is listed in the GAS DISTRIBUTION PRODUCTS CATALOG along with the cataloging of the Save-A-Valve Drilling Nipples. The contents of the Tool Kit are listed with the cataloging of the "T" Drilling Machine.

2. Select the drill or shell cutter to be used. The maximum size of drill which can be used is listed in the GAS DISTRIBUTION PRODUCTS CATALOG directly under the listing of the contents of each Tool Kit. Also listed are alternate smaller drills.
3. Select the proper size of gate valve. This is listed in the CATALOG under the drilling tools and in the same column as the Tool Kit being used.

## B. ATTACH THE NIPPLE TO THE PIPE

1. Thoroughly clean the surface to which the nipple is to be attached.
2. Remove completion cap and completion plug. FIGURE 41.
- 3a. For nipples having welding inlet. Place nipple in desired location and weld to pipe line. FIGURE 42.
- 3b. For nipples having threaded inlet. Attach Service Clamp at the desired position. Apply non-hardening pipe thread "dope" to

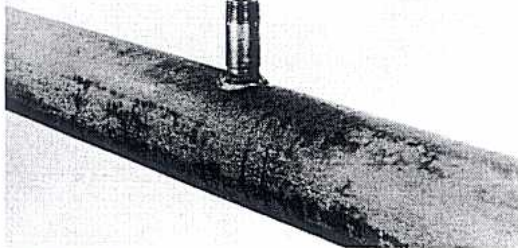


FIGURE 42

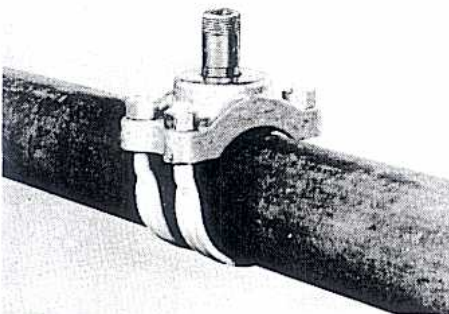


FIGURE 43

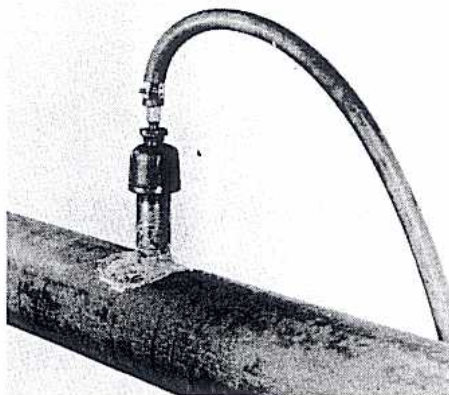


FIGURE 44



FIGURE 45



# "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

the inlet threads of the nipple and screw it into the body of the Service Clamp. FIGURE 43.

**NOTE:** When using a Save-A-Valve Drilling Nipple having a threaded inlet, it may be necessary to reduce the working pressure and temperature to that of the clamp or fitting to which the nipple is attached.

## C. TEST THE INSTALLATION

1. Screw test cap on nipple.
2. Apply air pressure and test for leaks with soapsuds (add glycerin in freezing weather) or bubble type leak detection liquid. FIGURE 44.
3. Remove test cap.
4. The following additional equipment may be used if desired.
  - a. H-17618 Center Locating Punch. See instruction "B-5" page 5.
  - b. H-17618 Test Fitting. See instruction "C-4a" page 5.
  - c. H-17617 Center Locating Punch and Test Fitting. See instruction "C-4b" page 5.

## D. ATTACH DRILLING MACHINE

1. Attach gate valve to top of nipple. (If installing a  $\frac{3}{4}$ " or a 1" nipple, first attach proper bushing to top of nipple and then attach gate valve to bushing.)
2. Open gate valve **fully**.
3. Remove extracting fork from boring bar of machine.
4. Assemble proper size drill or shell cutter to the boring bar of the machine.
5. Attach machine adapter nipple to the body of the machine. Be sure the gasket is in good condition and in place.
6. Coat drill thoroughly with MUELLER Cutting Grease. FIGURE 45.
7. Retract boring bar to its rearmost position.
8. Place drilling machine on gate valve and tighten machine adapter nipple into gate valve. FIGURE 46.

## E. DRILL THE MAIN

1. Slowly advance boring bar until point of drill contacts the pipe. Then retract boring bar a slight amount.
2. Adjust feed sleeve so that the notch in the sleeve engages the feed sleeve connector on boring bar.
3. Drill the hole by operating the ratchet handle **clockwise** and turning the feed sleeve **clockwise** a little at a time. FIGURE 47. Use a light even feed at the start, then a heavier feed and finish with a light even feed. When drilling small holes, the crank handle should be turned upward and rotated in continuous circles instead of ratcheting.
4. Continue drilling until a hole is drilled in the pipe. This can be determined by the feel of the feeding mechanism and the pull of the ratchet handle.

## F. REMOVE THE DRILLING MACHINE

1. When the drilling operation is completed, disengage the feed sleeve from the feed sleeve connector and retract the boring bar to

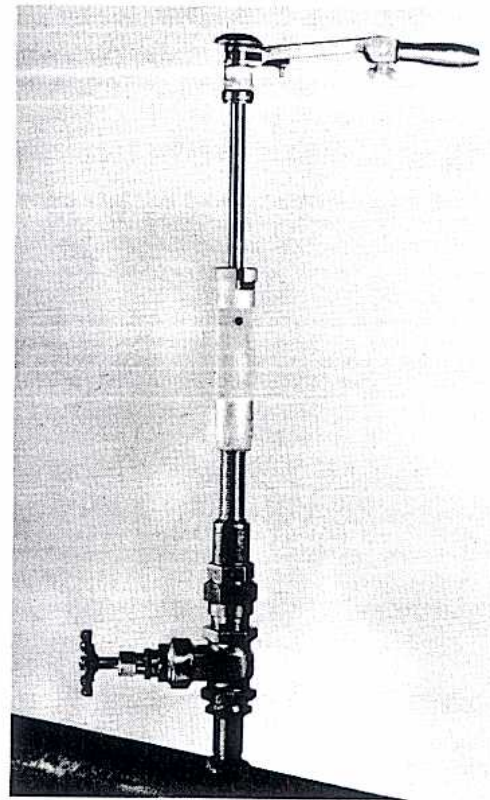


FIGURE 46

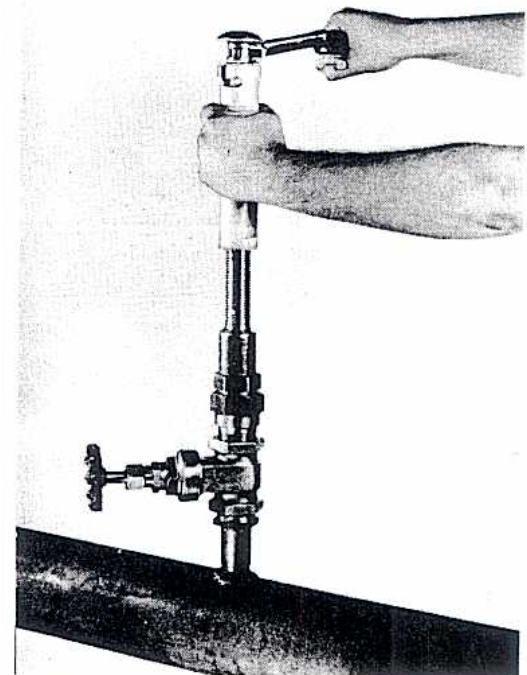


FIGURE 47



# INSTRUCTIONS FOR INSTALLING SERVICE TEES AND VALVE TEES

## "T" DRILLING MACHINE AND H-17045 COMPLETION MACHINE

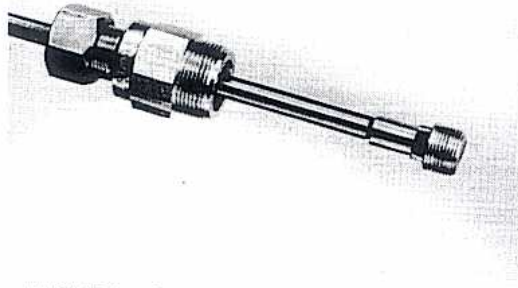


FIGURE 48

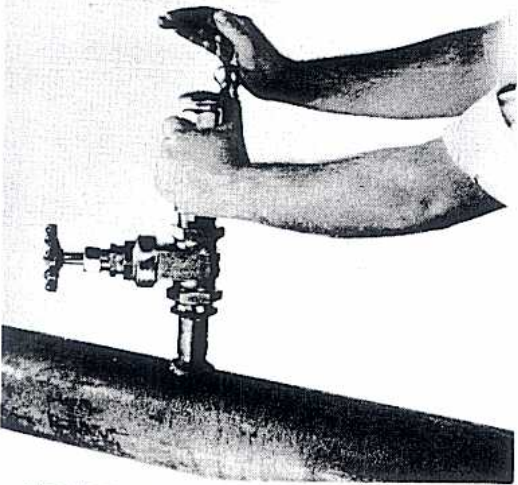


FIGURE 49



FIGURE 50

its rearmost position. Be sure the point of the drill is above the valve gate of the gate valve.

**CAUTION:** Do not reverse the rotation of the ratchet handle when retracting the boring bar. The pressure inside the machine will tend to raise the boring bar. Hold down on boring bar to control the upward motion of the boring bar thereby preventing shock or damage to the drilling machine.

2. Close gate valve.
3. Remove drilling machine from gate valve.
4. Advance boring bar.
5. Remove drill.
6. Attach required piping to gate valve.
7. Open gate valve when ready for flow through the Save-A-Valve Drilling Nipple connection.

### G. INSERT COMPLETION PLUG AND REMOVE GATE VALVE

The "T-W" Drilling Machine or the 17045 Completion Machine may be used for this operation.

1. When flow through Save-A-Valve Drilling Nipple connection is no longer required, close the gate valve.
2. Remove piping from gate valve.
3. Attach completion plug to the boring bar or shaft. Lubricate these threads and be sure that these threads screw together freely without binding. Apply non-hardening pipe thread "dope" to the completion plug threads. FIGURE 48. (If installing a  $\frac{3}{4}$ " nipple, first attach inserting and extracting tool, part no. 80084, to the boring bar or shaft and then attach the completion plug to the tool.)
4. Retract boring bar to its rearmost position.
5. Attach machine to gate valve.
6. Open gate valve **fully**.
7. Advance boring bar until the completion plug contacts the top thread in the nipple.
8. Rotate the handle **clockwise** until the completion plug is firmly screwed into the nipple.
9. Reverse ratchet on the "T-W" Machine and turn the ratchet handle **counter-clockwise** to take up the slack. Hold in this position with one hand and strike the end of the handle a sharp blow **counter-clockwise** with the other hand. FIGURE 49.
10. Rotate the boring bar **counter-clockwise** until it is free from the completion plug.
11. Remove machine and gate valve.
12. Tighten completion plug with completion plug wrench.
13. Apply non-hardening pipe thread "dope" to completion cap threads and screw cap tightly on nipple. FIGURE 50.
14. Test the entire nipple with soapsuds.

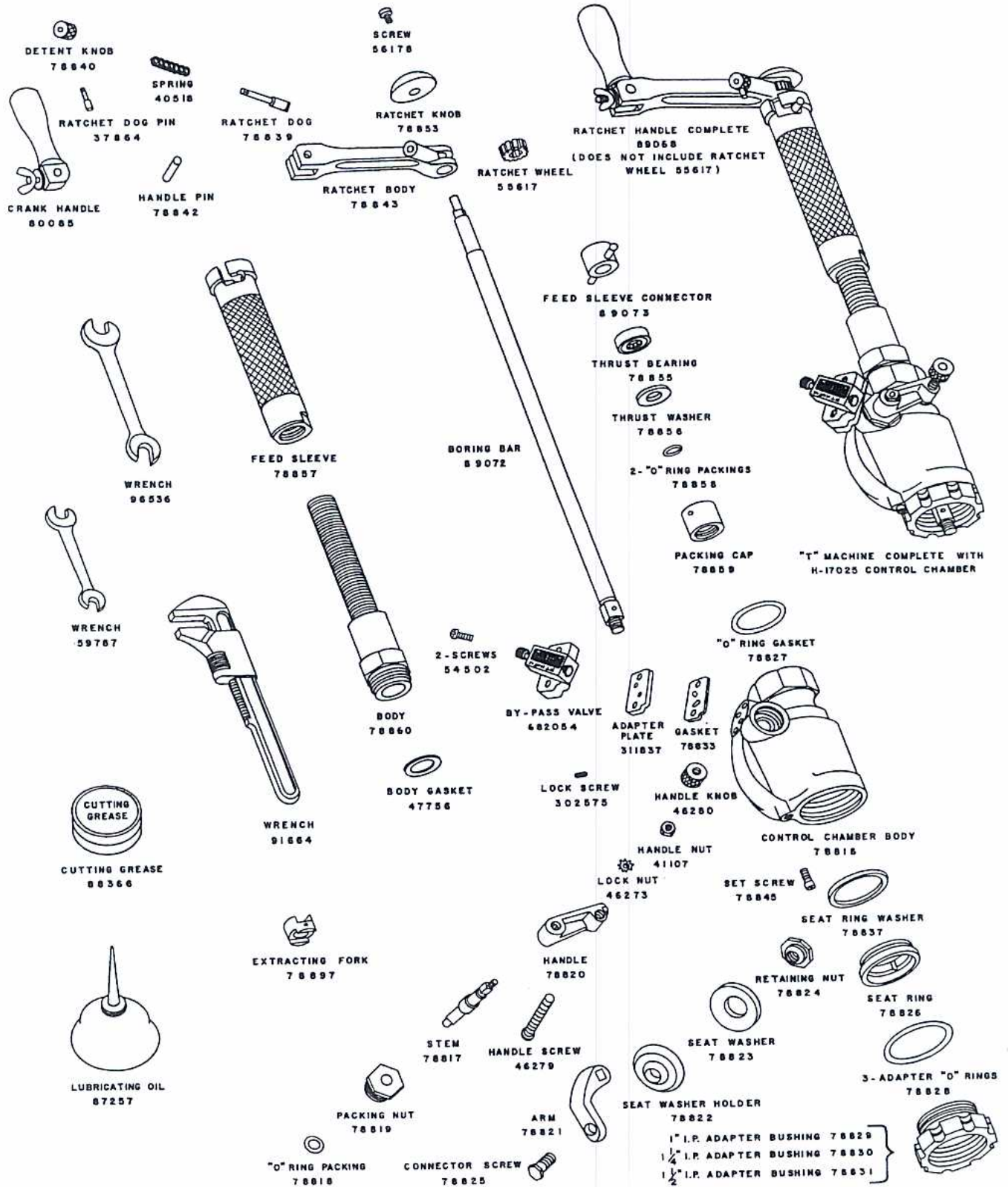
### H. TO RE-USE SAVE-A-VALVE DRILLING NIPPLE

1. Remove completion plug. follow instruction "J" page 9 for removing completion plug from Service Tees.
2. Attach required piping to gate valve.
3. Open gate valve when ready for flow through the Save-A-Valve Drilling Nipple connection.



# "T" AND "T-W" DRILLING MACHINES

# PARTS





# PARTS

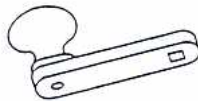
## H-17045 COMPLETION MACHINE



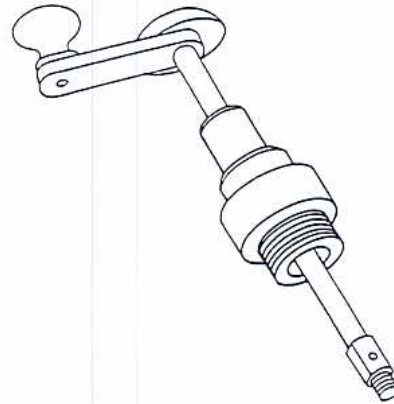
SCREW  
56178



KNOB  
78853



HANDLE COMPLETE  
80488



H-17045 COMPLETION MACHINE  
COMPLETE  
MODEL NO.2



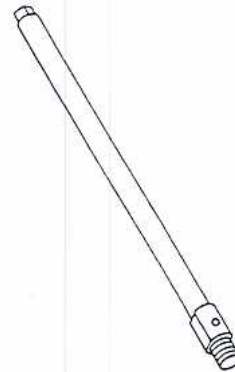
"O" RING  
72239



2 - GASKETS  
47756



BODY  
79181



SHAFT  
80492



1/2" ADAPTER  
33575



1/4" ADAPTER  
36733



EXTRACTING FORK  
78897





**Reliable Connections<sup>®</sup>**

Gas (North America)  
1.800.798.3131  
[www.muellergas.com](http://www.muellergas.com)  
[moreinfo@muellercompany.com](mailto:moreinfo@muellercompany.com)

International  
1.423.490.9555  
[www.mueller-international.com](http://www.mueller-international.com)  
[international@muellercompany.com](mailto:international@muellercompany.com)

Copyright © 2016 Mueller Co., LLC. All Rights Reserved.

The trademarks, logos and service marks displayed in this document herein are the property of Mueller Co., LLC, its affiliates or other third parties. Products marked with a section symbol ( § ) are subject to patents or patent applications. For details, visit [www.mwppat.com](http://www.mwppat.com). These products are intended for use in potable water applications. Please contact your Mueller Sales or Customer Service Representative concerning any other application(s).

**Form 8547 - Rev 09/16**