

# Safe-T-Stopper

**Gas-Free Service Renewal or Abandonment for 3/4" to 2" Street Tees on a Coupling and Standard Tees on a TOE Nipple**



## Operating Manual

09/19/2018

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## Introduction

This work procedure has been developed to provide information on the correct use of the Safe-T-Stopper Tool on ¾" to 2" Street Tees on a coupling and Standard Tees on a TOE nipple. This technology enables gas free renewal or abandonment procedures on live gas services. You are expected to have this procedure with you at all times when carrying out work using this equipment.

## Limitations:

There are many different styles and variations of tees that have been installed in the ground over the years. The Safe-T-Stopper contains assemblies and adapters that are capable of handling specific tee types. Additionally, when tees are uncovered their structural integrity varies. It is the operator's responsibility to use the proper adapters and judge the condition of the tee before attempting the operation. Using the tool outside its capabilities or on a corroded tee is not recommended and may result in serious injury.

## Safety Statements:

**READ THE OPERATING INSTRUCTION:** Reading the setup and operating instructions prior to beginning the procedure will save valuable time and help prevent injury to operators or damage to equipment.

**INSPECT TOOL & ACCESSORIES:** Prior to setup, physically inspect the tool and its accessories. Look for worn parts, loose bolts or nuts, damaged o-rings, etc. A properly maintained tool will greatly decrease the chance of injury.

**SECURE LOOSE CLOTHING, LONG HAIR & JEWELRY:** These items could get caught in the rotating parts. Removing or securing them will reduce the chance for injury.

**KEEP WORK AREA CLEAR:** Be sure to keep the work area free of clutter and nonessential materials. Only those personnel directly associated with the work being performed should have access to the area.

**ALWAYS WEAR PROTECTIVE EQUIPMENT:** Impact resistant eye protection and any and all company approved personal protective equipment must be worn while operating or working near this tool.

**ALWAYS FOLLOW YOUR COMPANY PROCEDURES:** **Gas company procedures override anything presented in this document.**

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# OPERATING PROCEDURE

## Work Area Preparation

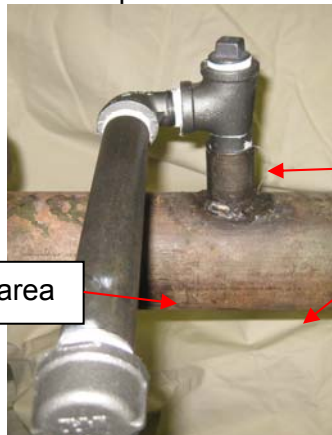
1. Clean all components of the Safe-T-Stopper equipment prior to use. Pay particular attention to any “O” rings, grooves and matching surfaces. Any dirt in these areas should be wiped off.
2. Clean the area of the tee where the aluminum disc will be positioned, removing all corrosion and scale so that the disc rubber will seal properly. Pay particular attention to the boss of the tee (Photo 1). It is important to make sure all the scale is completely removed and the integrity of the surface is intact. *If the boss of the tee is severely corroded and surface is uneven, do not attempt the Safe-T-Stopper operation.*



Clean this area

(Photo 1)

3. Clean the area around the pipe where the chains will contact it. Remove all scale. This will ensure the chains will seat correctly and not loosen when any scale under them is crushed. Also, clean the area around the coupling, so when the half collars are installed for the tee removal process, it will create an adequate seal.



Clean this area

Clean this area

(Photo 2)

4. Failure to carry out steps 1-3 may allow the tool assembly to move and gas to escape.

## Removing the Plug

5. **IMPORTANT: Loosen the plug to break the initial seal.** This will make the plug removal operation possible. If necessary, use penetrating oil and a long handle pipe wrench to loosen the plug taking care not round off the square head of the plug.

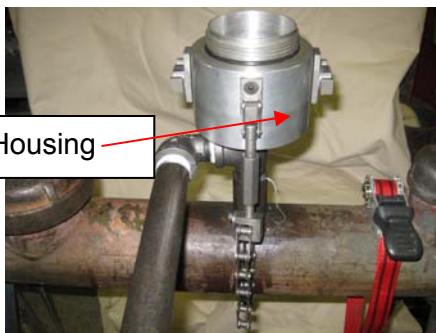
**Note: If plug is round or cannot be loosened, then do not attempt the Safe-T-Stopper operation or perform plug drilling operation on page 25.**

6. Select the correct size Aluminum Disc to match the tee size and place it over the boss of the tee. (Photo 3). Make sure the correct side with the imbedded o-ring matches with the boss of the tee in order to create the compression seal.



(Photo 3)

7. Install the Base Housing on top of the Aluminum Disc and secure it to the pipe using the chain.



Base Housing

(Photo 4)



(Photo 4A)

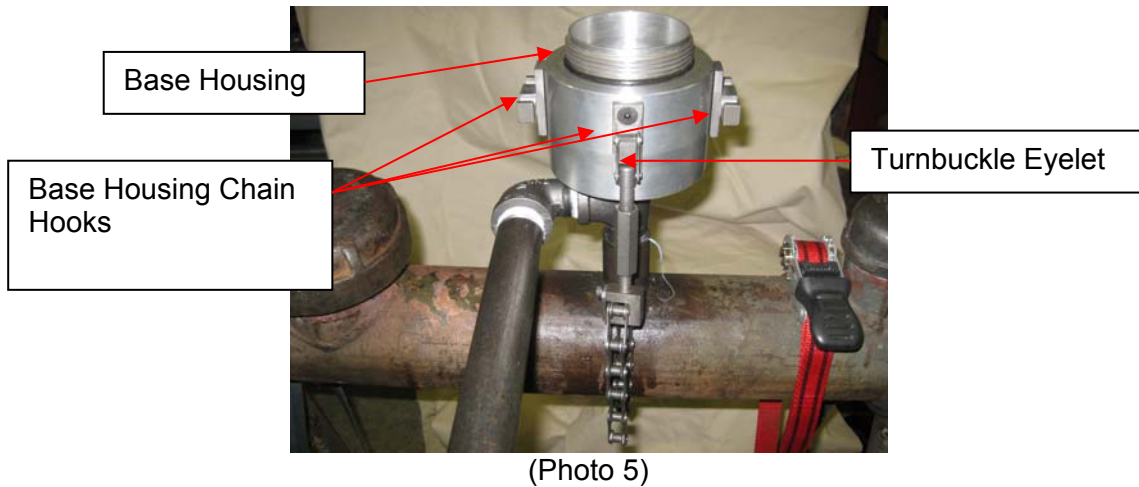


Poly Spacer

(Photo 4B)

- 7a. To secure the Base Housing with the chains on **1 1/4", 2" or 3" main**, fit the appropriate sized Poly Spacer under the main prior to tightening the chains. Make sure the Poly Spacer is centralized and the chain is placed in the Poly Spacer's groove. When securing the Base Housing with double chains use (2) Poly Spacers (Photo 4A and 4B).

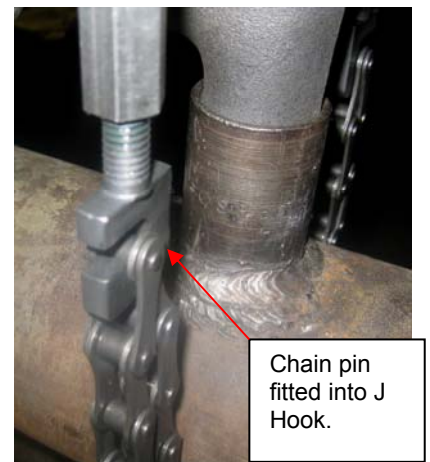
8. To fit the chains, hook each Turnbuckle Eyelet into the Base Housing Hooks (Photo 5).



9. Fit the chain pin into the Turnbuckle J Hook (Photos 6-9).



(Photo 6)



10. Tighten the chain equally and alternately using the wrench provided in the tool box until noticeable resistance is felt. Do not completely tighten one turnbuckle before tightening the other. Do not use a longer wrench as this may put too much tension on Base Housing.
11. Tap the chains around the pipe lightly with a hammer to ensure that all links lie flat against the pipe.
12. Re-tighten the chains making sure you do not twist the chains. Do not over-tighten.
 

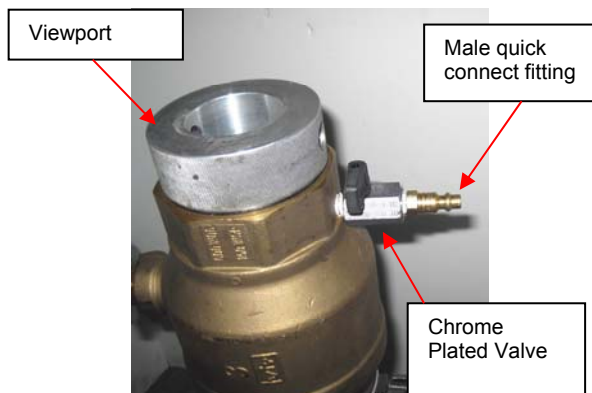
(Note - Check the condition of the chains frequently and lubricate with a light oil to prevent rusting. Occasionally clean with a wire brush.)
13. Once chains are fully tight, fit the Ball Valve on top of the Base Housing. Tighten the Ball Valve until it compresses the o-ring located at the bottom of the threads on the Base Housing (Photo 10).
14. Open and close the ball valve to ensure proper operation.



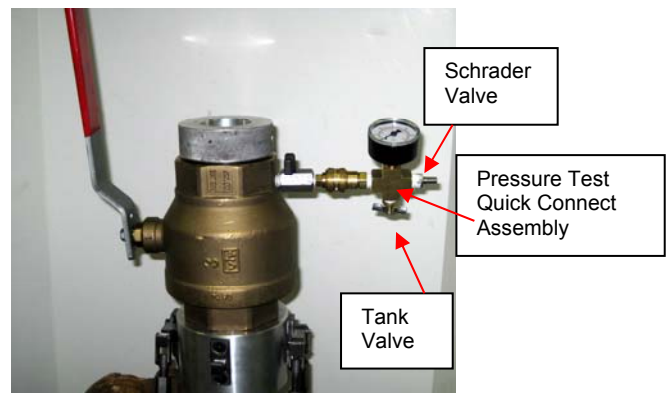


(Photo 10)

15. Fit and tighten the Viewport (Photo 11) onto the Ball Valve and leak test the entire assembly to mains operating pressure (Photo 12).
16. To install the Pressure Test Quick Connect Assembly, apply PTFE tape to the male quick connect fitting and tighten it into the small Chrome Plated Valve. Make sure to use two wrenches when tightening the fitting, one to tighten the male quick connect fitting and the other to hold back on the Chrome Plated Valve to prevent it from turning (Photo 11).
17. Push on the Pressure Test Quick Connect Assembly and open the Chrome Plated Valve. Introduce air through the Schrader valve and test to mains operating pressure. *Make sure the tank valve is fully closed.* (Photo 12).



(Photo 11)



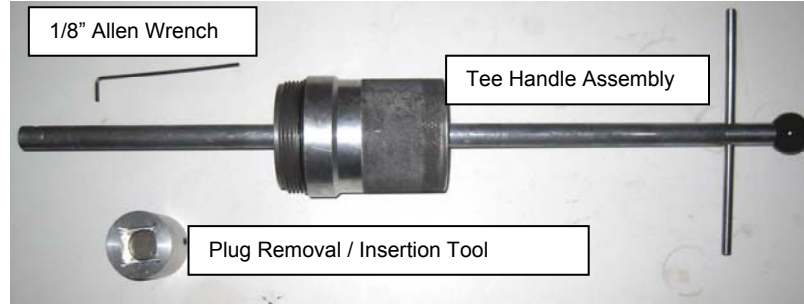
(Photo 12)

18. When leak test is complete, open Tank Valve to release air and remove Pressure Test Quick Connect Assembly.

Remove the malleable plug from tee using T-Handle Assembly fitted with the correct sized Plug Removal / Insertion Tool (Photo 13). Make sure the plug has been loosened to break the initial seal (step #5).

**IMPORTANT: Before starting the operation, thoroughly clean the T-Handle shaft and apply the recommended lubricant to the entire shaft. Move the housing up and down the shaft multiple times until little friction is felt. Wipe off any excess lubricant. Also, clean and re-lubricate the shaft prior to returning the part to the toolbox.**

19.



(Photo 13)

20. To remove plug, fit the Plug Removal / Insertion Tool onto the T-Handle Assembly shaft by lining up the shaft dimple with the grub screw (Photo 16). Tighten with the Allen Wrench. Do not over tighten (Photo 17).



(Photo 16)



(Photo 17)



21. Fully retract the Plug Removal / Insertion Tool into the T-Handle Assembly Housing and tighten onto the Ball Valve by hand so it compresses the o-ring located at the top of the threads on the T-Handle Assembly Housing (Photo 18). Make sure the Chrome Plated Valve is in the closed position.



(Photo 18)



(Photo 19)

22. Open the Ball Valve and push down with two hands to lower the T-Handle Assembly so it engages the square head of the plug. Begin loosening the plug. Make sure to keep slight downward pressure on the T-Handle, to prevent the gas pressure from pushing the shaft up unexpectedly. When the plug is felt or heard skipping over the threads of the tee, the plug is fully removed from the tee (Photo 19).
23. Retract the T-Handle with the captured plug to above the Ball Valve (Photo 20). Close Ball Valve and bleed off the excess gas using the Chrome Plated Valve. Remove the T-Handle Assembly and install Viewport (Photo 21).



(Photo 20)

24. Use a flashlight and look through the Viewport to make sure there are no obstructions within the tee so the Rubber Expander Plug or the Self Tapping Plug can be inserted into the tee (Photo 22)



(Photo 21)



(Photo 22)

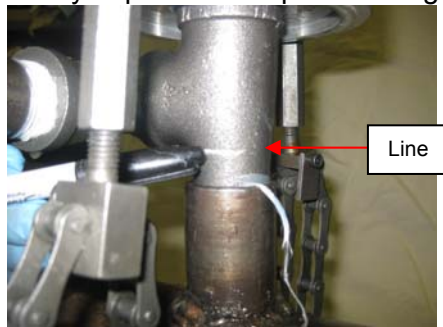
**Determine Best Method: Insert a Self-Tapping Plugs or Rubber Expansion Stopper**

- 25. **\*\*\*If the hole in the main is central and machine drilled a Self Tapping Plug can be inserted into the main. If this is the case go to step 60a or 60b\*\*\***

Otherwise insert the rubber Expander Plug into the throat of the tee and continue.

**Inserting Rubber Expansion Stopper**

- 26. Draw a straight line below the branch. This will make it easier to measure and reference the necessary travel needed to fully expand the Expander Plug below the branch.



(Photo 22)

Choose the correct size Expander Plug (Photo 23) and attach it to the Expander Plug Insertion / Removal Assembly. **IMPORTANT: Before starting the operation, thoroughly clean the T-Handle shaft and apply the recommended lubricant to the entire shaft. Move the housing up and down the shaft multiple times until little friction is felt. Wipe off any excess lubricant. Also, clean and re-lubricate the shaft prior to returning the part to the toolbox.** (Photo 24)



(Photo 23)

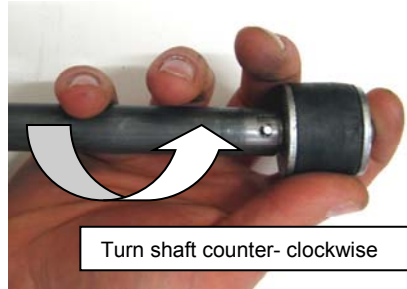


(Photo 24)

27. To attach the Expander Plug onto the shaft in order to **EXPAND** the plug into the throat of the tee, hold the Expander Plug with one hand and with the other hand hold the end of the shaft. Push the stem end of the Expander Plug into the hole inside the shaft (Photo 25) and turn the shaft counter-clockwise (Photo 26-27), so the Expander Plug pin engages the L-shaped slot.



(Photo 25)



(Photo 26)



Bayonet Mount  
Pin must engage the L-shaped slot.

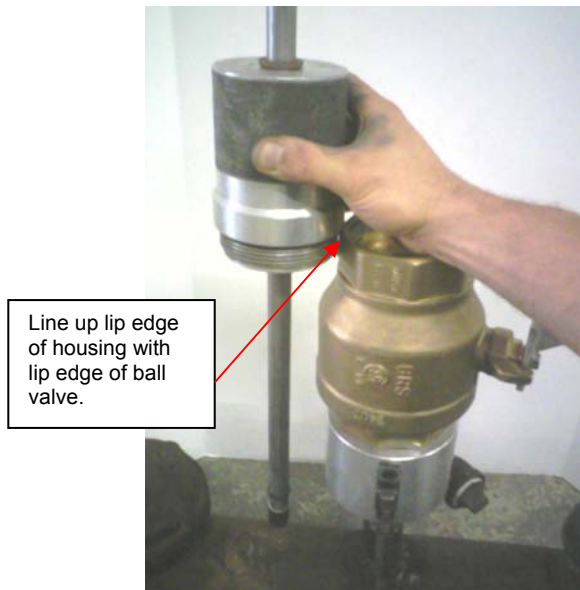
(Photo 27)

28. Gently turn the Small T-Handle clockwise until you hear it click (Photo 28). This indicates that the small pin inside the shaft fully engages the dimple on the Expander Plug and will EXPAND the plug when turning the Small T-Handle clockwise.

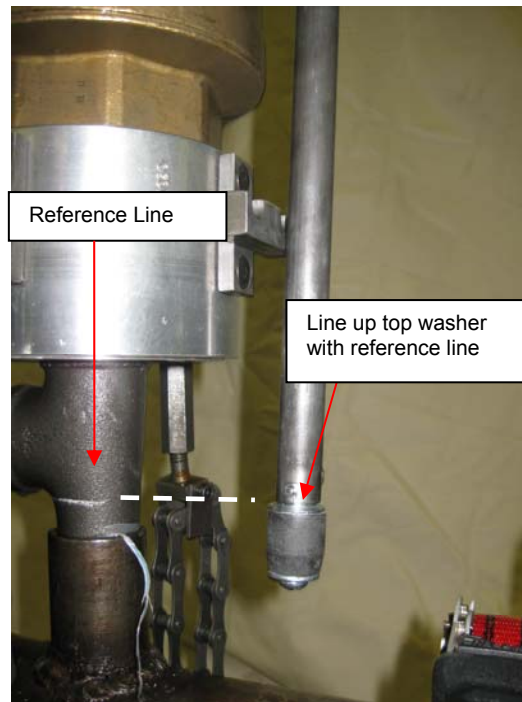


(Photo 28)

29. Measure the travel needed to expand the Expander Plug into the throat of tool by lining up the lip edge of the Expansion Plug Insertion / Removal Assembly with the lip edge of the Ball Valve (Photo 29). Push to extend the shaft so the top washer of the Expander Plug lines up below the service branch. Make sure to keep shaft straight (Photo 30).



(Photo 29)



(Photo 30)

30. Tighten the Collar on the shaft to reference the necessary travel (Photo 31).

31. Fully retract the shaft and fasten the Assembly onto the Ball Valve. Make sure the Chrome Plated Valve is in the closed position. Hold the shaft in the fully retracted position with one hand and slowly open the Ball Valve taking care to prevent the shaft from moving upwards unexpectedly. Push the shaft down to the Collar. Simultaneously hold the shaft into position and turn the Small T-Handle clockwise with two fingers to expand the plug. Tighten until noticeable resistance is felt. Do not over-tighten (Photo 32).



(Photo 31)



(Photo 32)

**NOTE:** In the unlikely event that the Expander Plug falls in the tee or in the Assembly. Use the Magnet Attachment to remove the plug. Fit Magnet (Photo 33) onto Expansion Plug Insertion / Removal Tool (Photo 34) and fasten to Ball Valve (Photo 35). Open Ball Valve and push down shaft until it captures the plug. Retract shaft, close Ball Valve and bleed off excess gas.



(Photo 34)



(Photo 35)

32. Open the Chrome Plated Valve and bleed off the excess gas until you stop hearing the sound of blowing gas.
33. Detach the Expander Plug from the shaft by following these steps:
  1. Loosen Shaft Reference Collar with Hex Wrench (Photo 31).
  2. Simultaneously, push down slightly on the shaft, pull up on Small T-Handle and turn shaft clockwise until plug disengages. (*If unable to push down, check to make sure Collar has been loosened.*)
  3. Retract shaft above Ball Valve, close Ball Valve and bleed off excess gas.
34. Fit Viewport and open Ball Valve. Look to check Expander Plug has been properly inserted into the throat of the tee before progressing to the next step.



(Photo 36)

**NOTE:** *If plug needs to be removed after it has been expanded while it is in the throat of the tee due to inadequate seal follow these steps:*

1. *Fasten the Plug Removal / Insertion Tool Assembly onto the Ball Valve*
  2. *Gently push down on until the shaft is felt over the threaded stem of the Expander Plug.*
  3. *Simultaneously push down on the shaft and turn the shaft clockwise so the side pin on the Expander Plug is captured within the shaft's off-set keyway. Gently pull up on shaft to verify pin is engaged.*
  4. *Hold shaft position and turn small T-Handle counter-clockwise until a click is felt. Do not turn small T-Handle until Expander Plug pin is fully engaged within the off-set keyway.*
  5. *Continue to turn small T-Handle counter-clockwise while gently pulling up on the shaft until plug releases from the throat of the tee.*
  6. *Retract shaft to above the Ball Valve, close Ball Valve and bleed off excess gas.*
  7. *Reinsert a new Expander Plug and follow steps 25-34.*
35. If plug looks properly inserted into the throat of the tee or in the TOE nipple, open Chrome Plated Valve to bleed off the gas that remains in the service. Once the sound of blowing gas stops, the service has been successfully stopped.

**Note:** *You may stop at step 36, if removing the tee is not required.*

**Standard Tee on a TOE Nipple:** *The operation is complete when an expansion stopper is inserted into the TOE nipple when working on Standard equal tees (F x F x F). The tee can be removed with a pipe wrench and replaced with a cap or welded closed according to company procedures.*



**Tee Removal-Procedure Only Used for 3/4"-1 1/4" Street Tees on a Coupling**

36. Fit the T-Handle fitted with the Plug Insertion / Removal tool, tighten onto the Ball Valve tighten the Expansion Safety Plug into the tee (Photo 37-38). This is an added safety precaution to prevent the Expander Plug from moving when the branch is cut. Expansion Safety Plug shown for illustration purposes (Photo 39-40)



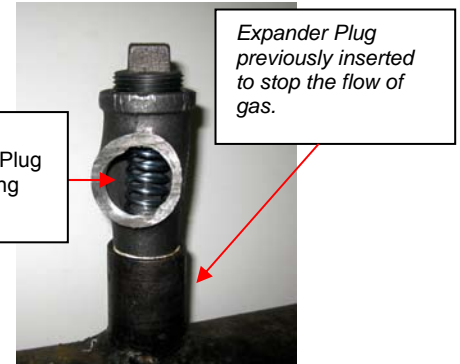
(Photo 37)



(Photo 38)



(Photo 39)  
Shown for illustration purposes



(Photo 40)  
Shown for illustration purposes

37. Remove the entire assembly.

38. Tighten plug with a pipe wrench (Photo 41).



(Photo 41)

39. Cut of the branch close to the chimney of the tee using a reciprocating saw (Photo 42). Also, if necessary make two vertical cuts on each side of the severed branch to ensure the tee will not rub the sides of the housing during the removal process (Photo 43).



(Photo 42)



(Photo 43)

40. Loosen the tee to break the initial seal. Please note that the plug must be tighter than the tee to complete the tee removal process.
41. Fit the correct size Molded Rubber Gasket (Photo 44) over the severed tee. If necessary use the Rubber Gasket Expanding Tool to stretch the gasket over the tee. Make sure Molded Rubber Gasket is placed around the even surface of the coupling and not over a weld or scale. Take care not to damage the Molded Rubber Gasket.



(Photo 44)

42. Fit the two Half Collars around the coupling and around the bottom portion of the gasket. Tighten the Half Collars using the hex wrench. Make sure the inside diameter ends of the Half Collars do not pinch the rubber when tightening (Photo 45-46).



(Photo 45)



(Photo 46)

43. Fit the Base Housing over the Half Collars and secure the assembly using the two chains. **Important: Tee must be centralized within the housing when tightening. If tee is not centralized, tee removal may be difficult and/or T-handle damage may occur** (Photo 47).



(Photo 47)



(Photo 48)

Optional  
Extension  
Housing

44. If the top of the tee sits above the assembly and impedes the Ball Valve operation, then fit an Extension Housing to make opening and closing the Ball Valve possible (Photo 48).
45. Fit the Ball Valve, Extension Housing, Viewport, and Pressure Test Assembly to mains operating pressure (Photo 49).



(Photo 49)

46. Remove Viewport.
47. Fit the T-Handle Assembly fitted with the correct size Plug Removal / Insertion Tool (Photo 50) onto the Extension Housing (Photo 51).

**IMPORTANT: Before starting the operation, thoroughly clean the T-Handle shaft and apply the recommended lubricant to the entire shaft. Move the housing up and down the shaft multiple times until little friction is felt. Wipe off any excess lubricant. Also, clean and re-lubricate the shaft prior to returning the part to the toolbox.**



(Photo 50)

48. Open the Ball Valve and push down on the T-Handle until the Plug Removal / Insertion Tool engages. Loosen the tee from the coupling. Make sure Chrome Plated Valve is in the closed position (Photo 51).



(Photo 51)

49. Once you feel or hear the threads on the tee skip, the tee is completely removed from the coupling.
50. Retract the T-Handle so the captured tee is above the Ball Valve. Close the Ball Valve and bleed off the excess gas by opening the Chrome Plated Valve.
51. Remove the T-Handle Assembly from the Ball Valve and remove the captured tee (Photo 52).



(Photo 52)

52. Remove the Extension Housing and choose the correct size square head plug to be tightened into the coupling. Roll a small piece of PLCS ThreadSeal (available from PLCS) into a small sausage and press into plug's threads prior to installing the plug.



(Photo 53)



(Photo 54)



(Photo 55)

53. Fit the square head plug onto the Plug Removal / Insertion Tool (Photo 53).
54. Retract shaft and fit the T-Handle Assembly onto the Ball Valve (Photo 54).
55. Open the Ball Valve and push down on the T-Handle until it stops at the coupling (Photo 54).
56. Turn the T-Handle counter-clockwise until you feel the thread skip, then turn clockwise to tighten the plug into the coupling. Take care not to cross thread the plug. Do not over tighten.
57. Open the Chrome Plated Valve and bleed of the excess gas. Once the sound of the blowing gas stops, the plug has successfully stopped the gas.
58. Fit the View Port to make sure the plug is properly in placed.
59. Remove the entire assembly (Photo 55).
60. If necessary, tighten the plug with a pipe wrench.
61. The operation is complete.



**61a. Self Tapping Plug Insertion using T-Handle Adapters:**

**NOTE: Go to step 60b. if using the one-piece x 24" hex adapter.**

1. When looking through the Viewport determine the size of the hole. The Hole **MUST** be centralized, machined drilled and concentric in order to create a seal (photo 56-58).



(Photo 56)



(Photo 57)



(Photo 58)

2. Choose the correct size Self Tapping Plug (Photo 59)
3. Roll a small length of ThreadSeal into a worm and push it uniformly into the threads of the Self Tapping Plug (Photo 60). Then tightly wrap 1-2 revolutions of thread sealant tape around the plug (Photo 60).
4. Choose the correct size Hex Adapter (5/16" or 1/2") (Photo 61) depending on Self Tapping Plug size and fit onto the T-Handle Shaft by lining up the shaft dimple with the grub screw. Tighten with the Hex Wrench. Do not over-tighten (Photo 62).



(Photo 59)



(Photo 60)



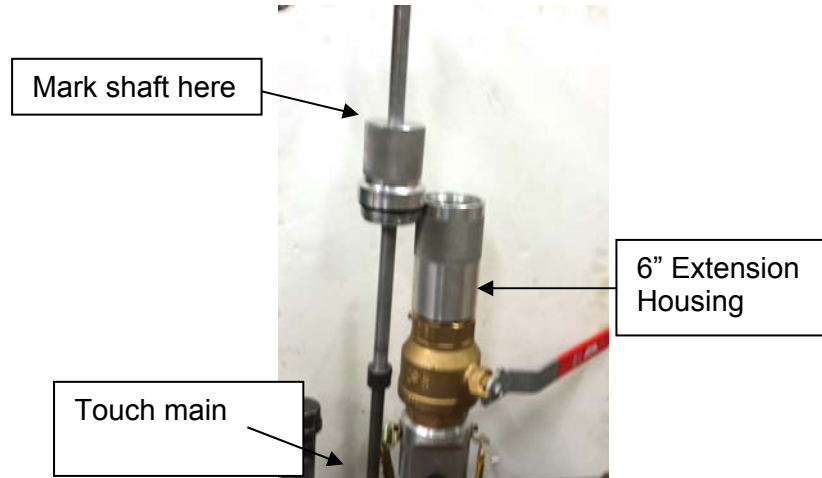
(Photo 61)



(Photo 62)



5. Clean and lubricate T-Handle shaft. Move housing up and down until little friction is felt.
6. Fit the 6" Extension Housing onto the Ball Valve (Photo 63)
7. Measure the travel needed to insert the Self Tapping Plug into the main by lining up the lip edge of the T-Handle Assembly with the lip edge of the Extension Housing. Push to extend the shaft so the bottom of the Self Tapping Plug touches the main. Make sure to keep shaft straight. Mark the shaft (Photo 63).



(Photo 63)

8. Fully retract the Hex Adapter into the housing and fasten the T-Handle Assembly onto the 6" Extension Housing (Photo 64).
9. Open the Ball Valve and push down the T-Handle with two hands to the reference mark. When the Self Tapping Plug enters the hole, there will be a positive stop (Photo 65).
10. Maintain downward pressure and turn the T-Handle clockwise to tighten the plug into main hole. The plug will cut its own threads.



(Photo 64)



(Photo 65)

11. When moderate resistance is felt open the Bleed Valve. Continue to tighten until the sound of blowing gas is no longer heard. This means the gas has fully stopped. Do not over tighten.
12. Retract the Hex Adapter to above the Ball Valve and close.
13. Fit the Viewport to visually check the Self Tapping Plug has been properly inserted.
14. The operation is complete. Tee can be removed from the welded coupling and replaced with a plug.

**61b. Self Tapping Plug Insertion using 24" One-Piece Shaft Hex Adapter**

1. When looking through the Viewport determine the size of the hole. The Hole **MUST** be centralized, machined drilled and concentric in order to create a seal (photo 66-68).



(Photo 66)



(Photo 67)



(Photo 68)

2. Remove the T-Handle from the housing and fit the Hex Adapter in its place. Push the hex end from inside the housing (Photo 69-70).



(Photo 69)



(Photo 70)

1. Choose the correct size Self Tapping Plug (Photo 71).
2. Roll a small length of ThreadSeal into a worm and push it uniformly into the threads of the Self Tapping Plug (Photo 72). Then tightly wrap 1-2 revolutions of thread sealant tape around the plug (Photo 73).

**Note: The Self Tapping Plug O-ring below the hex holds plug into socket. Replace O-ring if worn. Lightly lubricate O-ring**



(Photo 71)

ThreadSeal  
Mastic



(Photo 72)



(Photo 73)



(Photo 74)

4. Push to fit the Self Tapping Plug onto the Hex Adapter (Photo 74)
5. Fully retract the Hex Adapter into the housing and fasten the assembly onto the Ball Valve.
6. Fit a Socket Wrench with a 5/8" socket onto the Hex Adapter, then open the Ball Valve. Push the shaft down with two hands until the plug enters the hole. There will be a positive stop (Photo 75)
7. Maintain downward pressure and turn the Hex Adapter clockwise to tighten the plug into main hole. The plug will cut its own threads (Photo 75).
8. When moderate resistance is felt open the Bleed Valve. Continue to tighten until the sound of blowing gas is no longer heard. This means the gas has fully stopped. Do not over tighten (Photo 75).



Push down and turn clockwise the sound of blowing gas stops.

(Photo 75)

9. Retract the Hex Adapter to above the Ball Valve and close.
10. Fit the Viewport to visually check the Self Tapping Plug has been properly inserted (Photo 76).
11. If the Self Tapping Plug is properly inserted, the operation is complete. Renewal or abandonment operations can be completed according to company procedures and Safe-T-Stopper assembly removed.
12. The operation is complete. Tee can be removed from the welded coupling and replaced with a plug.



(Photo 76)

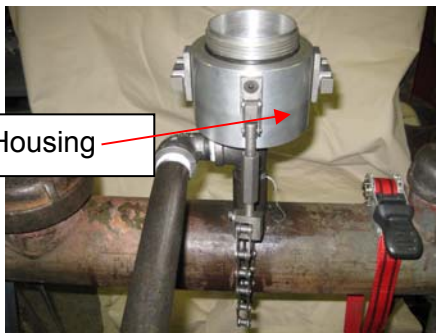
## Plug Drill Operation

1. Fit the correct size Plug Drill Bearing on top of the tee. Make sure top and bottom Quad O-Rings are firmly in the grooves to create a seal.



(Photo 1P)

2. Install the Base Housing on top of the Bearing and secure it to the pipe using the chains. **When possible secure using double chains.**



(Photo 2P)



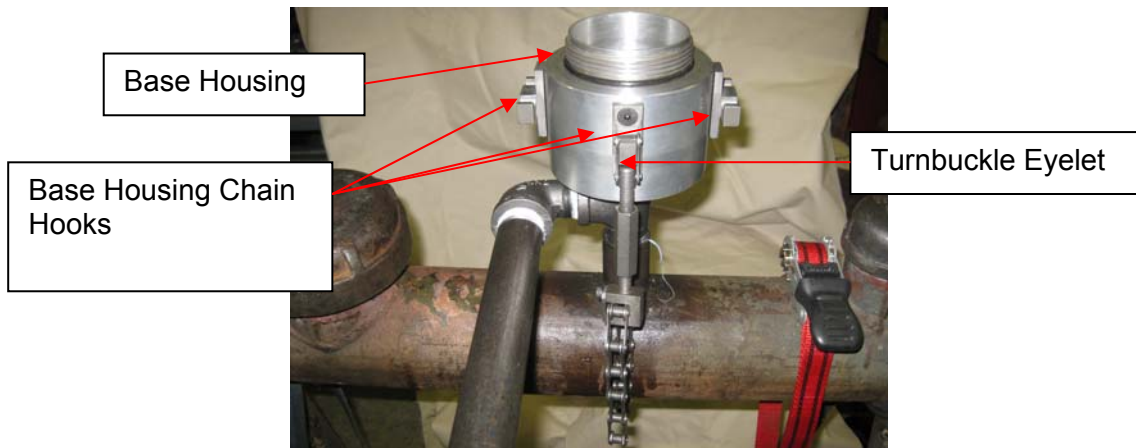
(Photo 3P)



(Photo 4P)

To secure the Base Housing with the chains on **Poly Spacer** " **main**", fit the appropriate sized Poly Spacer under the main prior to tightening the chains. Make sure the Poly Spacer is centralized and the chain is placed in the Poly Spacer's groove. When securing the Base Housing with double chains use (2) Poly Spacers (Photo 3P and 4P).

3. To fit the chains, hook each Turnbuckle Eyelet into the Base Housing Hooks (Photo 5).



(Photo 5P)

4. Fit the chain pin into the Turnbuckle J Hook (Photos 6P-9P).

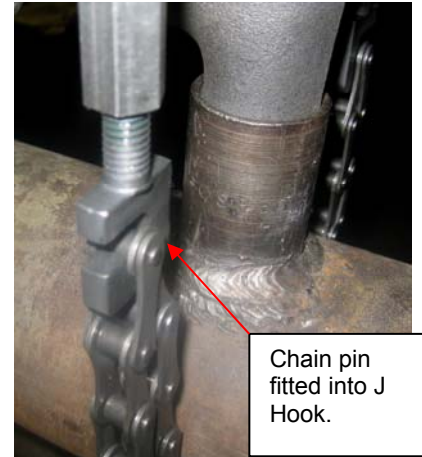


Turnbuckle J Hook

(Photo 6P)



(Photo 7P)



(Photo 9P)

5. Tighten the chain equally and alternately using the wrench provided in the tool box until noticeable resistance is felt. Do not completely tighten one turnbuckle before tightening the other. Do not use a longer wrench as this may put too much tension on Base Housing.
6. Tap the chains around the pipe lightly with a hammer to ensure that all links lie flat against the pipe.
7. Re-tighten the chains making sure you do not twist the chains. Do not over-tighten.  
  
(Note - Check the condition of the chains frequently and lubricate with a light oil to prevent rusting. Occasionally clean with a wire brush.)
8. Once chains are fully tight, fit the Ball Valve on top of the Base Housing. Tighten the Ball Valve until it compresses the o-ring located at the bottom of the threads on the Base Housing (Photo 10P).
9. Open and close the ball valve to ensure proper operation.



(Photo 10P)

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10. Fit Ball Valve on top of Base Housing and tighten by hand until moderate resistance is felt and the o-ring located on the housing compresses (Photo 11P). Do not over-tighten. Exercise the Ball Valve to ensure proper operation.
11. Tighten the Extension onto the Ball Valve (Photo 12P)
12. Lubricate the Drill Shaft. Note: The Drill Shaft and Housing is recommended not to be removed. **However, if it does always clean and lubricate the inside of Drill Shaft Housing and Drill Shaft prior to replacing it through the bore of the housing, hex end first. Be sure not to damage the internal o-rings (Photo 13P).**
13. Attached the correct size Drill Bit and tighten the cap screw with the 3/16" T-Handle Hex Wrench (Photo 18). Liberally apply cutting paste to annular cutter bit (Photo 14P)
14. Fully retract the Drill Shaft and tighten onto the Drill Shaft Extension (Photo 16P-17P).
15. Push to attach the Quick Connect Pressure Test Assembly onto the Bleeder Valve (Photo 17P).
16. Fully retract Drill Shaft and hold into place to prevent it from pushing upwards. Pressurize the assembly by introducing air or nitrogen through the Schrader valve and test to mains operating pressure. **Make sure the small valve is fully closed.**
17. Perform a leak test on the assembly. If necessary further tighten assembly and/or chains.
18. When leak test is complete, open small valve to release pressure.



(Photo 11P)



(Photo 12P)



(Photo 13P)



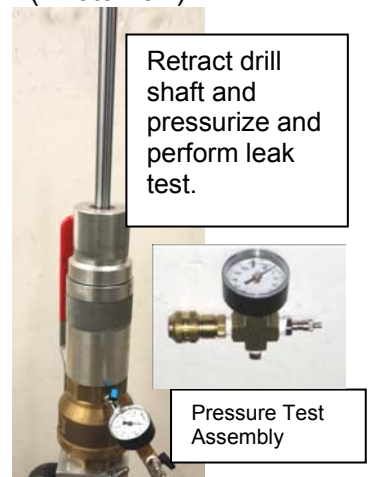
(Photo 14P)



(Photo 15P)



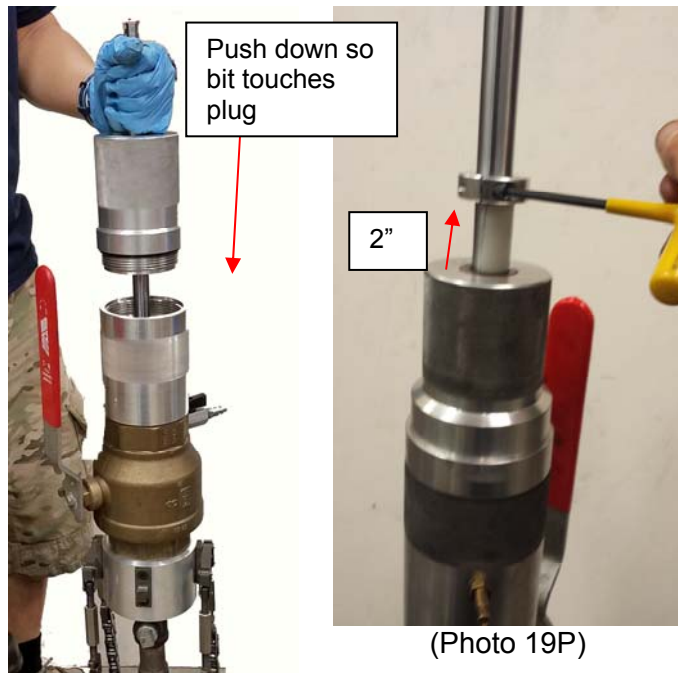
(Photo 16)



(Photo 17P)

19. Gently push the Drill Shaft down until it has traveled through the Plug Drill Bearing and is felt touching the top of the plug. Then, tighten Housing onto the Extension (Photo 18P).
20. Place the Shaft Collar 2" from the top of the Drill Shaft Housing. Tighten the Shaft Collar into place using the 3/16<sup>th</sup> T-Handle Hex Wrench. The collar prevents accidentally drilling too deep (Photo 19P)
21. Tighten the Air Drill directly onto the Drill Shaft hex using the Air Drill Chuck. Make sure the Air Drill is in the forward position (Photo 20P).
22. Lift up slightly on the Drill Shaft and depress the trigger (Photo 21P).
23. Gently lower the Drill Shaft so it comes in contact with the top of the plug (Photo 21P).
24. Do not push downward pressure onto the shaft. The weight of the shaft and drill is enough to drill through the plug.

**Note:** Keep in mind you are not drilling on a flat surface. At times, only half of the bit is drilling into the plug when starting. When starting to drill the cutter may jam. This is normal. Pull up slightly, take your time and let the cutter do the work.



(Photo 18P)

(Photo 19P)



(Photo 20P)



(Photo 21P)

**Safety Tip:** Hold the Air Drill with one hand so that it will be pulling away from you under load. If the cutter jams the Air Drill will be pulled from your grasp and will stop automatically as your fingers are released from the trigger. If operated towards you it may swing around and hit you before you can release the trigger.

25. A sudden increase in speed, reduction of load and a higher pitch note of the air motor indicates that the Bit is through the plug.
26. When drilling is complete, fully retract the drill shaft to above the Ball Valve. Close the Ball Valve. Open the bleeder valve and vent off the excess gas. Remove the Drill Shaft Housing and Extension.

**Maintenance Tip:** Always clean and remove all shavings from the cutter after each use and prior to storage. A pick tool is supplied with the kit and used to remove shavings from the inside of the cutter. Never drill with a dirty cutter.

27. Attach Viewport and check to see there are no obstructions and the hole was completely drilled (Photo 22P).

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(Photo 22P)

28. Attach the Magnet onto the Expansion Plug Tool. Push and turn the magnet attachment onto the bottom of the shaft. Make sure the pin is resting in one of the slots (Photo 23-24P).



(Photo 23P)



(Photo 24P)

29. Fully retract the Magnet into the housing and attached the assembly onto the Ball Valve (Photo 25P).
30. Open the Ball Valve and slowly push the shaft down near the edge of the knurled section (Photo 26P). Do not touch the small T-Handle when pushing down.
31. Then slowly retract the Magnet into the housing, close the Ball Valve, bleed off the excess gas and remove the assembly.
32. Attached the Viewport to ensure there are not any obstructions.
- 33. Continue to page 10, step 26 – Inserting the Rubber Expansion Stopper**



(Photo 25P)










(Photo 26P)

## Safe-T-Stopper

### 3/4" to 2" Street Tee / Std. Tee on a Coupling / TOE Nipple Welded on Steel Main Parts List

	<p>3" Ball Valve: <b>Part # 54-MSTS 1005A</b></p> <p><i>Note: Safe-T-Stopper Base Tool 3000 BV (includes: Ball Valve #54-MSTS 1005A, Expansion Plug Tool #54-MSTS1010-1007A, T-Handle Insertion / Removal Tool #54-MSTS1008-1007A, Magnet #54-MSTS 1015B, Wrench #54-916, Viewport 54-MSTS 1070, Lock-Out Cap #54-MSTS 1014A, Bleed Valve #54-PTSSQ, Flashlight #54-MFL, Grease #54-MSTS1225 and Hex Wrench #54-MSTS1221)</i></p>
	<p>1/8" Bleed Valve (Chrome Plated Ball Valve) with 1/4" x 1/8" NPT Quick Connect Fitting: <b>Part #54-PTSSQ</b></p>
	<p>Safe-T-Stopper Pressure Test Assembly: <b>Part #54-PTSS</b></p>
	<p>Expandable Plug Setting Tool with Threaded Housing: <b>Part #54-MSTS1010-1007A</b> O-Ring: <b>Part #54-MSTS1024</b></p>
	<p>1/2" Safe-T-Stopper Expander Plug : <b>Part #54-100178-10</b> 3/4" Safe-T-Stopper Expander Plug: <b>Part #54-100179-10</b> 1" Safe-T-Stopper Expander Plug: <b>Part #54-100180-10</b> 1-1/4" Safe-T-Stopper Expander Plug : <b>Part #54-100181-10</b> 1 1/2" Safe-T-Stopper Expander Plug: <b>Part #54-100182-10</b> 2" Safe-T-Stopper Expander Plug : <b>Part #54-100183-10</b></p>
	<p>3/4" Plug Removal Adapter: <b>Part #54-MSTS 1027</b> 1" Plug Removal Adapter: <b>Part #54-MSTS 1027A</b> 1 1/4" Plug Removal Adapter: <b>Part #54-MSTS 1027B</b> 1 1/2" Plug Removal Adapter: <b>Part #54-MSTS 102C</b> 2" Plug Removal Adapter: <b>Part #54-MSTS 1027D</b></p>
	<p>T-Handle Assembly with T-Handle and Threaded Housing (included in base tool 54-MSTS 3000BV): <b>Part #54-MSTS1008-1007A</b></p>
	<p>Street Tee and Saddle Clamp Housing (Base Housing): <b>Part #54-MSTS 1050</b></p> <p>Housing Turnbuckle Hook (single hook): <b>Part #54-MSTS 1035C</b></p> <p>Housing Turnbuckle Hook (double hook): <b>Part #54-MSTS 1035CD</b></p>

	<p>Extension Housing: <b>Part# 54-MSTS 1032</b></p>
	<p>3/4" Street Tee Reducer Ring (disc with quad o-ring): <b>Part #54-MSTS 1003DA</b>  1" Street Tee Reducer Ring (disc with quad o-ring): <b>Part #54-MSTS 1003E</b>  1 1/4" Street Tee Reducer Ring (disc with quad o-ring): <b>Part #54-MSTS 1003F</b>  1 1/2" Street Tee Reducer Ring (disc with quad o-ring): <b>Part #54-MSTS 1003G</b>  2" Street Tee Reducer Ring (disc with quad o-ring): <b>Part #54-MSTS 1003H</b></p>
	<p>1" Roller Chain for 4" – 8" Main (36" Long): <b>Part #54-MSTS A2040</b></p> <p><i>For larger main sizes, call PLCS for longer chain.</i></p>
	<p>Chain retainer Turnbuckle with "J" Style Hooks: <b>Part #54-MSTS 1035B</b></p>
	<p>Full Coupling Seal 3/4" (rubber gasket): <b>Part #54-FCS750</b>  Full Coupling Seal 1" (rubber gasket): <b>Part #54-FCS1000</b>  Half Coupling Seal 1" (rubber gasket): <b>Part #54-HCS1000</b>  Full Coupling Seal 1 1/4" (rubber gasket): <b>Part #54-FCS1250</b></p> <p><i>3/4" and 1 1/4" Half Coupling Seals are available. Please call PLCS.</i></p>
	<p>Coupling Half Collar 3/4": <b>Part #54-CHC 750</b>  Coupling Half Collar 1": <b>Part #54-CHC 1000</b>  Coupling Half Collar 1 1/4": <b>Part #54-CHC 1250</b></p>
	<p>Viewport: <b>Part #54-MSTS 1070</b></p>
	<p>Lock-Out Plug: <b>Part #54-MSTS 1014A</b></p>



	<p>Poly Spacer 5 ½" x 1 ¼" Pipe: <b>Part #54-PS1250</b></p> <p>Poly Spacer 5 ½" x 2" Pipe: <b>Part #54-PS2000</b></p> <p>Poly Spacer 5 ½" x 3" Pipe: <b>Part #54-PS3000</b></p>
	<p>Magnet: <b>Part #54-MSTS 1015B</b></p>
	<p>Security Plug Assembly ¾": <b>Part #54-SPA 750</b></p> <p>Security Plug Assembly 1": <b>Part #54-SPA 1000</b></p> <p>Security Plug Assembly 1 ¼": <b>Part #54-SPA 1250</b></p>
	<p>9/16" Wrench: <b>Part #54-916</b></p>
	<p>5/16" Allen Key: <b>Part #45-4973A19</b></p>
	<p>1/8" Hex Wrench: <b>Part #54-MSTS1221</b></p>
	<p>Mini Flashlight: <b>Part #54-MFL</b></p>
	<p>5/16 Hex Adapter: <b>Part #54-TPA312</b></p> <p>1/2 Hex Adapter: <b>Part #54-TPA500</b></p>
	<p>ThreadSeal Mastic, 0.5 Kg Stick: <b>Part# 10-A1910-1</b></p>
	<p>One Piece 1/2 Hex Adapter: <b>Part #54-TPA50024</b></p>



	<p>0.250"-0.350" Hex 5/16" (plug length 0.540") <b>54-MTP 375</b>  0.375"-0.450" Hex 5/16" (plug length 0.540") <b>54-MTP 500</b>  0.500"-0.580" Hex 1/2" (plug length 0.540") <b>54-MTP 625</b>  0.625"-0.710" Hex 1/2" (plug length 0.540") <b>54-MTP 750</b>  0.750"-0.830" Hex 1/2" (plug length 0.540") <b>54-MTP 875</b>  0.875"-0.950" Hex 1/2" (plug length 0.540") <b>54-MTP 1000</b>  1.150" Hex 1/2" (plug length 0.540") <b>54-MTP 1125</b>  1.220" Hex 1/2" (plug length 0.540") <b>54-MTP 1250</b>  1.320" Hex 1/2" (plug length 0.540") <b>54-MTP 1375</b>  1.450" Hex 1/2" (plug length 0.540") <b>54-MTP 1500</b>  0.500"-0.710" Double Length Hex 1/2" (length 1.00") <b>54-MTP 625750</b>  0.625"-0.830" Double Length Hex 1/2" (length 1.00) <b>54-MTP 750875</b></p>
	<p>3/4" Drill bit /adapter 54-MSLS 5090  1" Drill bit /adapter 54-MSLS 5100  1 1/4" Drill bit /adapter 54-MSLS 5110</p>
	<p>Drill Shaft Housing Part#: 54-MSLS 5130A</p>
	<p>Drill Bit Shaft 54-MSLS 5120A</p>
	<p>3/4" Reducer Ring with Bearing Drill Guide 54-MSTS 1003BRF  1" Reducer Ring with Bearing Drill Guide 54-MSTS 1003BRG  1 1/4" Reducer Ring with Bearing Drill Guide 54-MSTS 1003BRH</p>
	<p>Cutting Paste Part# 46-A5314</p>
	<p>Swarf Magnet 54-MSTS 1015C</p>
	<p>Air Chuck 54-ACK</p>

	<p>Air Drill 49-A3025</p>
	<p>Cantilever Tool Box: <b>Part #54-770298</b></p>
	<p>CP Safe-T-Stopper Tool Box: <b>Part #CPBOX1</b></p> <p><u>Note:</u> Part #: <b>54-CPBOX</b> includes both CPBOX1 (CP Tool Box) and <b>54-770298 (Cantilever Tool Box)</b></p>

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**Safe-T-Stopper**  
**3/4" to 1 1/4" Street Tee Threaded into (Full / Half) Coupling Welded on Steel Main**  
**Tool Box Assembly Illustration**

Tool Box Closed



Tool Box Open





Tool Box Open – Cantilever Tool Box and Tray Removed



Cantilever Tool Box Open

