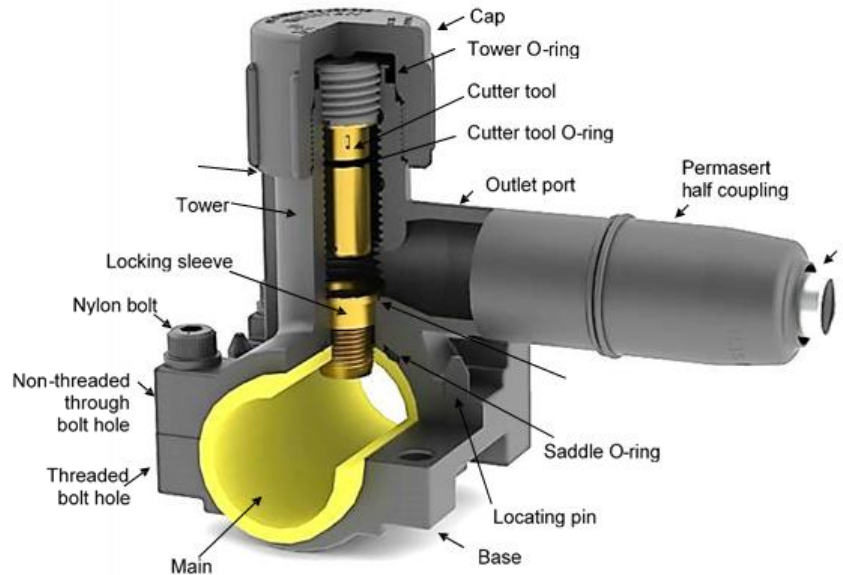


Mechanical PE Tee Abandonment Tool

Operating Manual

Gas-Free service abandonment for PE tees bolted to the main.
(60psig Maximum Allowable Operating Pressure)



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Introduction

This work guide provides information on the Mechanical PE Tee Abandonment Tool's correct use on bolted saddle PE Tees for plastic mains. This technology enables gas-free abandonment procedures on live gas services operating at a maximum of 60 psi. It is highly recommended to have this procedure with you when carrying out work using this equipment.

Limitations:

There are many different styles and variations of tees installed in the ground over the years. The tool contains assemblies and adapters that are capable of handling specific tee types. When uncovering tees and pipes, their structural integrity varies. On rare occasions, the tool may not be able to create an adequate seal. It is the operator's responsibility to use the proper adapters and judge the tee's condition before attempting the operation. Using the tool outside its capabilities or on corroded or unstable fittings 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.

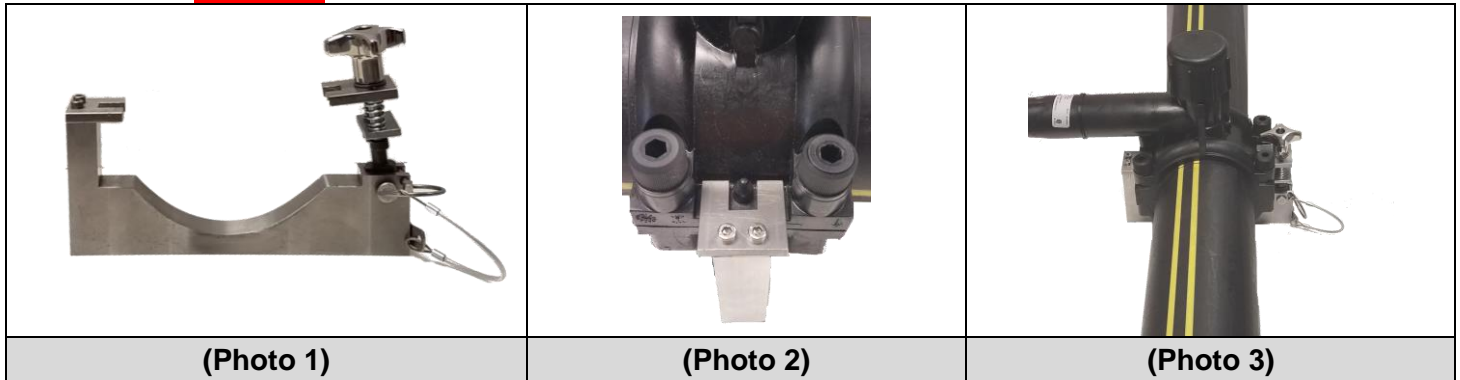
ALWAYS WEAR PROTECTIVE EQUIPMENT: Impact resistant eye protection and any company approved personal protective equipment must be worn while operating or working near this tool.

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

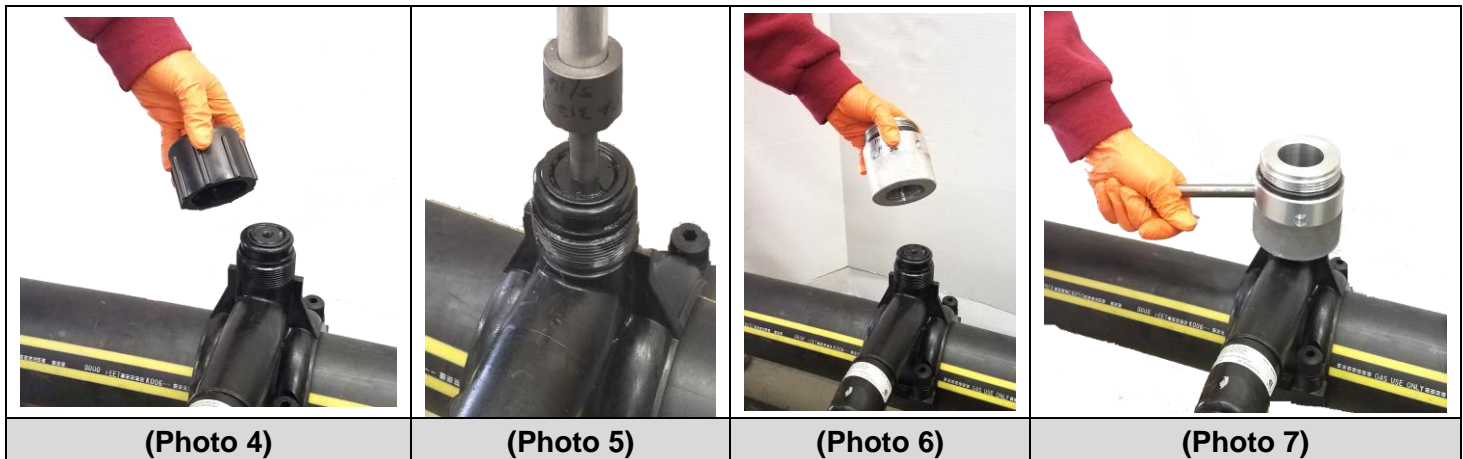
OPERATING PROCEDURE

Section 1: Fasten Tool onto the Tee

1. Clean all components of the PE Tee Tool 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 tee in order to make cap removal possible. Inspect the tee for structural integrity prior to removing the cap. ***If the tee is damaged do not attempt the PE Tee Tool operation.***



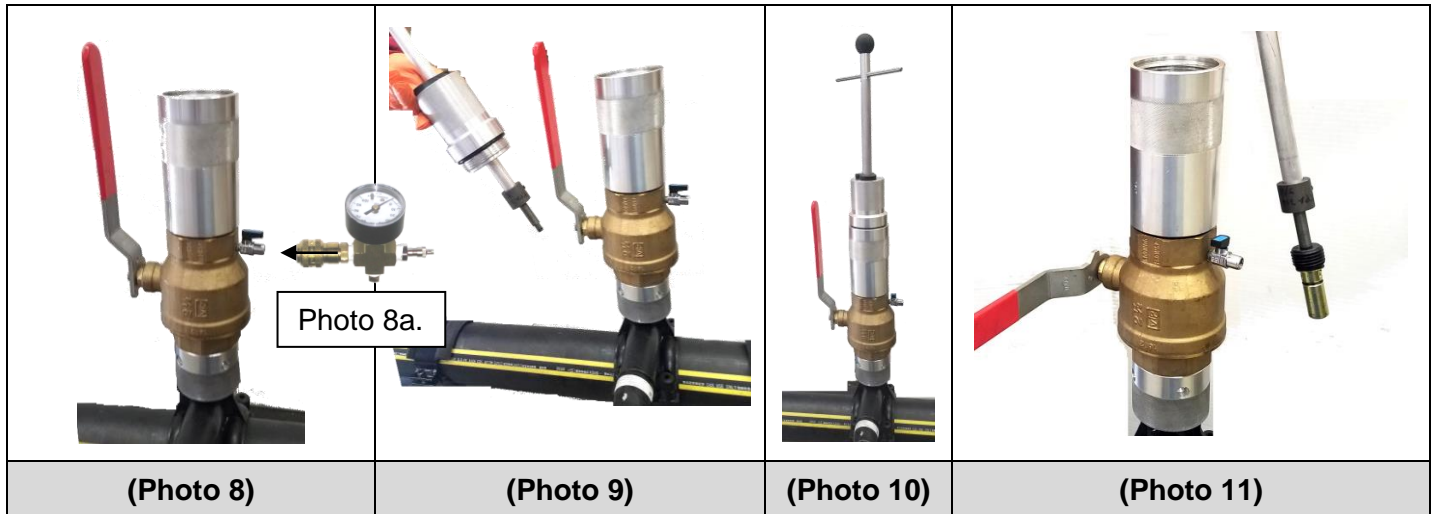
3. Install the correct size Safety Clamp (Photo 1-3) under the tee. Make sure the tee locating pins fit between the jaws (photo 2). Swing the moveable jaw onto the saddle flats and insert the tethered pin into the hole to lock the swinging jaw to the upward position. Tighten by hand. Do not overtighten.



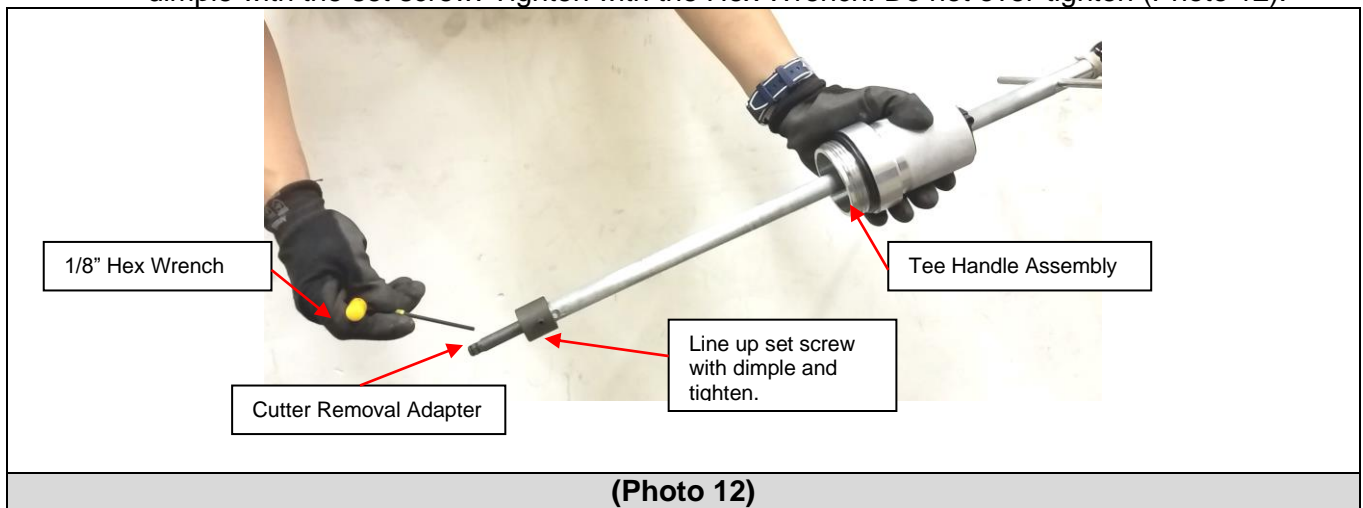
4. Remove cap and apply a small amount of silicone gel to plastic threads (Photo 4).
5. Check to ensure the Cutter Removal Adapter will fit the recessed hex and it will turn. If necessary, loosen the Cutter slightly so the hex is flush with the top (Photo 5)
6. Fasten Tee-to-Valve Adapter onto the PE tee. Slightly press down to make sure the leading thread fully seats on the plastic threads before tightening. The first complete clockwise turn should be very easy with no resistance. Check to make sure the Adapter is not cross threaded before fully tightening (Photo 6)
7. Use the Bar Wrench to fully tighten until the Adapter bottoms out on top tee. Do not cross threads and do not overtighten (Photo 7).

8. Fit and tighten the Ball Valve and Extension Housing (Photo 8). Exercise Ball Valve to ensure proper operation.
9. Push to connect the Pressure Test Assembly (Photo 8a.)

Section 2: Cutter Removal



10. Remove the Cutter from the tee by using the T-Handle Assembly fitted with the correct size Cutter Removal Adapter (Photo 9). Inspect the adapter o-rings for damage. Replace if necessary. **NOTE: If assembly begins to leak during cutter removal, stop and retighten cutter. Check all connection and retighten assembly if necessary.** **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 toolbox storage.**
11. Fit the Cutter Removal Adapter onto the T-Handle Assembly shaft by lining up the shaft dimple with the set screw. Tighten with the Hex Wrench. Do not over-tighten (Photo 12).



12. Fully retract the Cutter Adapter into the housing and tighten onto the Extension Housing. Push down on the T-Handle until the Cutter Adapter fully engages the Cutter Hex. Make sure the Bleeder Valve is in the closed position (Photo 13).
13. Turn the T-Handle counter-clockwise applying slight downward pressure. Loosen until you feel it disengage from the tee (Photo 13).
14. Retract the Cutter to above the Ball Valve. Close the Ball Valve and open the Bleeder Valve to bleed off any excess gas (Photo 13-14).
15. Remove the T-Handle Assembly with the captured Cutter (Photo 14).



(Photo 13)



(Photo 14)

Section 3: Sleeve Removal



(Photo 15)



(Photo 16)








(Photo 17)

16. Fit Sleeve Extractor into Housing, Hex end first (Photo 15).
17. Tighten Sleeve Extractor Assembly onto Ball Valve. Open Ball Valve and push firmly down until you feel the Extractor enters into the tee's internal sleeve (Photo 16).

18. Maintain downward pressure and turn the shaft clockwise using the socket ratchet until the sleeve is released from the tee (Photo 16).
19. Retract sleeve to above the Ball Valve and close the Valve. Bleed off the excess gas and remove the Extractor Assemble and Extension Housing (Photo 17).

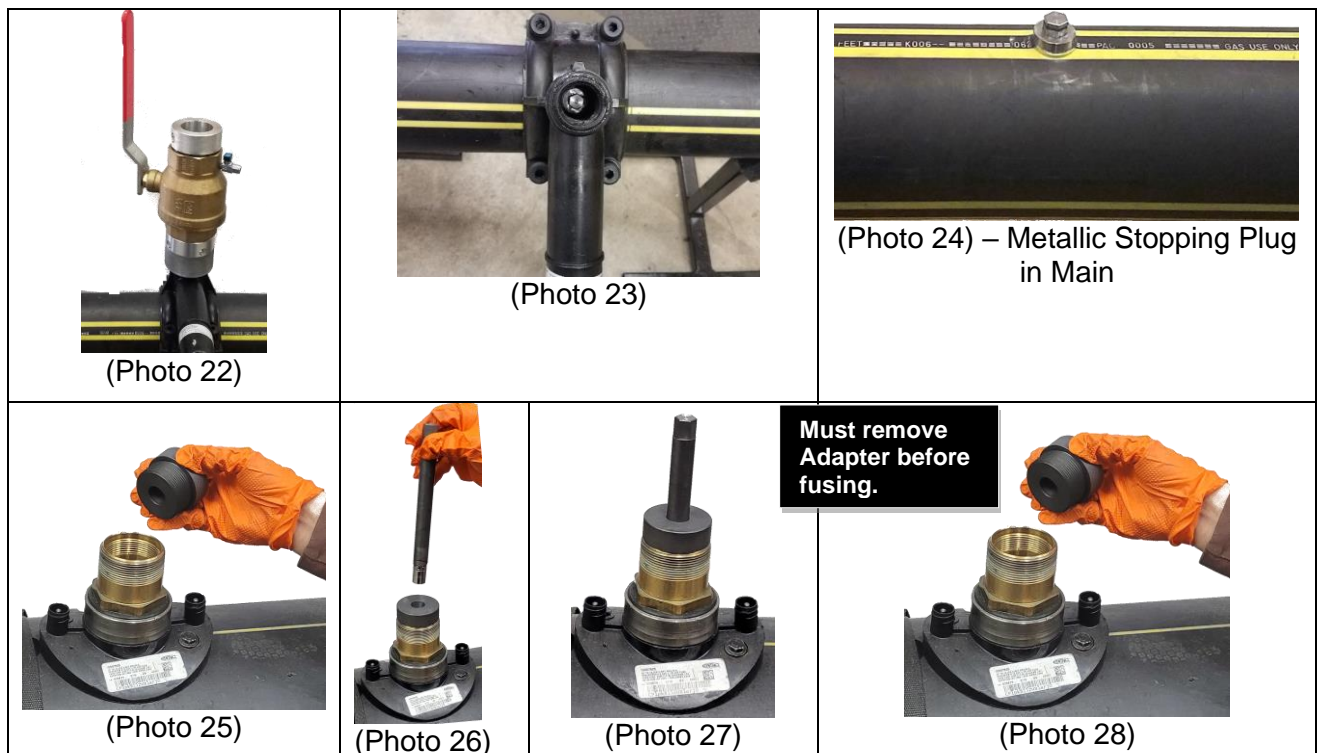
Section 4: Install Metallic Stopping Plug


20. Remove the T-Handle from the housing and fit the Hex Adapter in its place. Push the hex end from inside the housing (Photo 18-19).

	 <p style="text-align: center;">Socket Adapter</p>		 <p style="text-align: center;">Shaft Snap Ring</p>
(Photo 18)	(Photo 19)	(Photo 20)	(Photo 21)
		 <p style="text-align: center;">PE Stopping Plug</p>	<p>Note: Stopping Plug O-ring below the hex holds plug into socket.</p> <p>Replace O-ring if worn. Lightly lubricate O-ring</p>

21. Push to fit the Stopping Plug to the Socket. Apply a light coating of Loctite 572 PTFE liquid to plug threads. Withdraw the plug inside the Housing and tighten onto Ball Valve (Photo 19-21).
22. Fully retract the Socket Adapter into the housing and fasten the assembly onto the Ball Valve.
23. 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 sleeve hole. There will be a positive stop (Photo 21)
24. Maintain downward pressure and turn the Socket Adapter clockwise to tighten the plug into hole until the Shaft Snap Ring touches the top of the Housing (Photo 21).

25. Open the Bleed Valve to verify gas has stopped. Do not over tighten. *If gas has not entirely stopped, slowly turn the plug in quarter-turn increments until the sound of blowing gas is no longer heard.*
26. If gas is stopped, retract the Socket Adapter to above the Ball Valve and close.
27. Fit the Viewport to visually check the Stopping Plug is properly inserted (Photo 22).
28. The operation is complete. The Equipment and tee can be removed (Photo 23).
29. Complete company approved procedures to permanently abandon plug in the main (Photo 24 / Photo 24-A).
30. **OPTIONAL OPERATION:** If using a George Fisher EF Purge Saddle Fitting with a 2" Brass Outlet to abandon inserted plug (photo 24), an alignment tool is available to centralize the EF fitting over the plug before fusing.
31. Scrape and prepare the EF work area per company procedures.
32. Loosely hand tighten Alignment Adapter onto outlet internal threads (Photo 25).
33. Insert Alignment Hex Shaft through the hole to seat over the hex plug (Photo 26)
34. Remove the Alignment and Adapter before fusing (Photo 28).
35. Complete fusion, pressure / gas test, and abandonment procedures according to company procedures.



<p>If necessary, the tool can install on a completed 2" NPT outlet by using the threaded NPTF x 2-1/2" Adapter.</p>	 <p>2" NPTF Pipe to 2500 BV Valve Adapter (2" F X 2-1/2" M) #54-MSTS-1020JJ</p>
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(Photo 24-A) – Rubber Plug in main

Section 4-A: OPTIONAL - Install Rubber Expansion Plug

- A. Choose the correct size Expander Plug (Photo 29) 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 29)

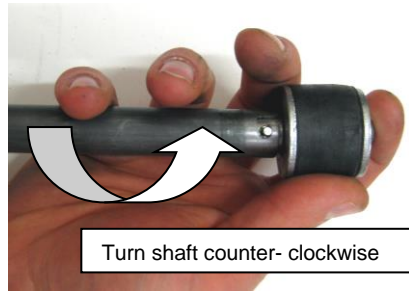


(Photo 30)

- B. 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 29) and turn the shaft counter-clockwise (Photo 29-30), so the Expander Plug pin engages the L-shaped slot.



(Photo 31)



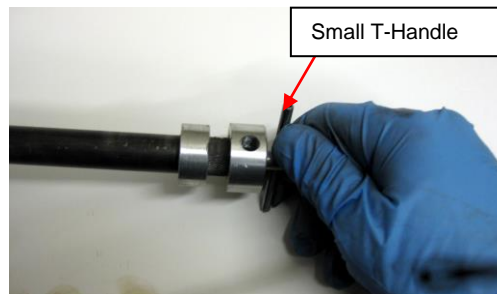
(Photo 32)



Bayonet Mount
Pin must engage the L-shaped slot.

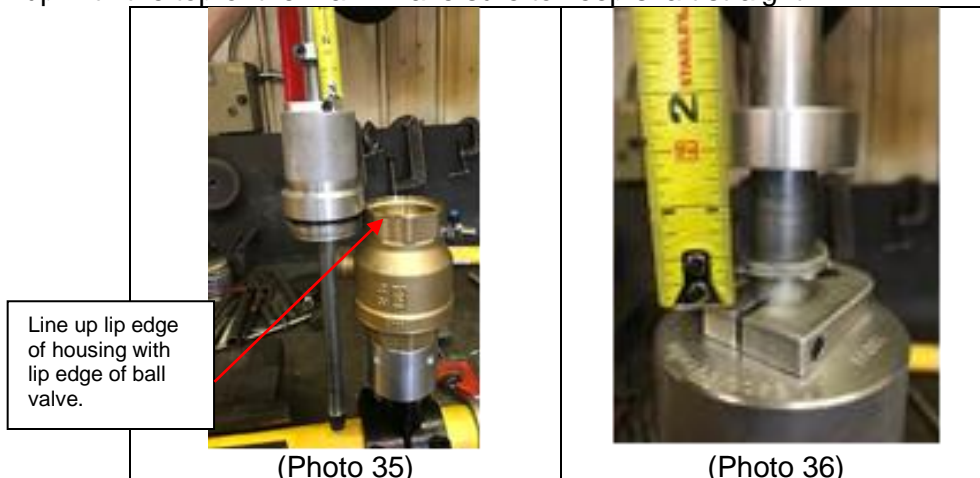
(Photo 33)

- C. Gently turn the Small T-Handle clockwise until you hear it click (Photo 34). 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 34)

- D. Measure the travel needed to expand the Expander Plug into the main by lining up the lip edge of the Expansion Plug Insertion / Removal Assembly with the lip edge of the Ball Valve (Photo 32). Push to extend the shaft so the top washer of the Expander Plug lines up with the top of the main. Make sure to keep shaft straight.



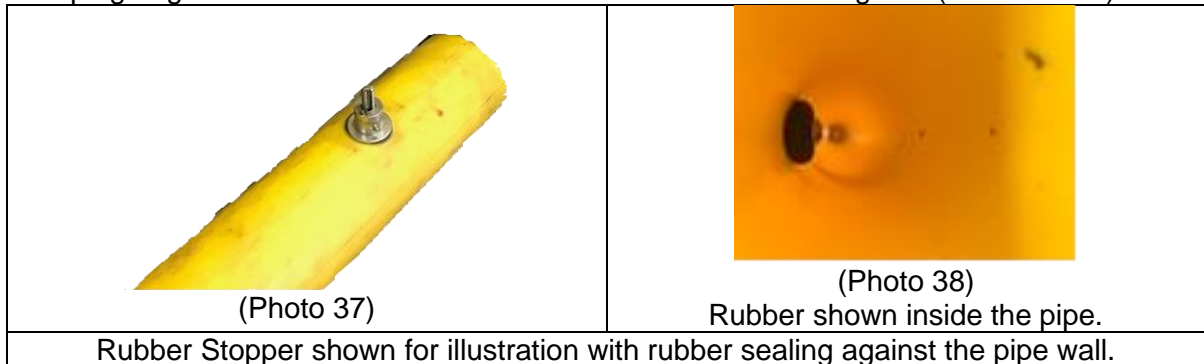
Line up lip edge of housing with lip edge of ball valve.

(Photo 35)

(Photo 36)

- E. Add 1-1/2" from the top of the housing. Tighten the Collar on the shaft to reference the necessary travel (Photo 35-3).

- F. 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 35-38).



- G. The Rubber Stopper should plug the hole in the main.
- H. Open the Chrome Plated Valve and bleed off the excess gas until you stop hearing the sound of blowing gas.
- I. Detach the Expander Plug from the shaft by following these steps:
1. Loosen Shaft Reference Collar with Hex Wrench.
 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.













J. Continue to Step 25 page 7.

Note #1: *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 onto the T-Handle Assembly and fasten to Ball Valve. Open Ball Valve and push down shaft until it captures the plug. Retract shaft, close Ball Valve and bleed off excess gas.*

Note #2: *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 A-J.*

Section 5: Parts List

#	Photo	Description	Part#
1		PE Tee to Valve Adapter	54-MSTS 1020PFT
2		2 1/2" Ball Valve	54-MSTS 1005
3		6" Tool Housing Extension	54-MSTS 1006
4		Housing for T Handle	54-MSTS 1007
5		Ball (top of T-Handle)	54-MSTS 1019
6		T-Handle Shaft - 24"L	54-MSTS 1008E5
7		Pressure Test Assembly	54-PTSS
8		EZ Out Sleeve Adapter Shaft 24" L	54-PFT EO
9		5/16" Cutter Removal Adapter	54-TPA 312AW
10		1/2" Socket Adapter - 24" Long with Housing and snap ring	54-TPA 50024
11		Perm PE Self Tap Plug (10 pack)	54-MTP 950PFT
12		Thread Sealant 572	54-1810A25
13		1" Modified Double Expansion Plug	54-100180MDL
14		Tool Housing for Expansion Plug tool	54-MSTS 1007B
15		Expandable Plug Setting Tool Shaft	54-MSTS 1010A
16		#006 O Ring Spares for Stopping Plugs (100 PK)	54-9452K14

17		Bar Wrench	54-MSTS 1004W
18		Magnet Adapter (6" long adapter)	54-MSTS 1015C
19		Viewport 2500BV (sight glass)	54-MSTS 1060
20		PLCS Lubricant	54-PLCSLUBE
22		1/8" T Handle Allen Key	54-MSTS 1221
23		3/16" T Handle Allen Key	46-A0017
24		3/8" Drive Ratchet (11" with 5/8 Socket)	54-sock1
25		Extended-Reach Hex Bit Socket	54-5570A62
26		Flashlight	54-MFL
27		PE Tool Custom Peli Case	54-PERCASE
28		1 1/4"-2" Bolt-On PE Saddle Tee Safety Clamp	71-2PERLOCLP
29		4" Bolt-On PE Saddle Tee Safety Clamp	71-4PERLOCLP
30		2" NPTF Pipe to 2500 BV Valve Adapter (2" F X 2-1/2" M)	54-MSTS-1020JJ
31	 	A. Hex Shaft Alignment Adapter (1/2" Hex Socket x 7-1/2" long)	54-PFTALSH
32		B. 2" GF EF Alignment Adapter	54-PFTALC

Toolbox Parts Identification		
8		27
		32B.
4,5,6		1
26		2
12		3
22,23		19
14,15		20
28,29		24
30		18
		7
31A.		25
		9
11,13, 16		17
10		