



Safe-T-Stopper Operating Manual

**Gas-Free Service Renewal and Abandonment
3/4" to 2" Cap Tees Welded onto Steel Main**



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Introduction

This work procedure has been developed to provide information on correctly using the 3000BV and 2500BV Safe-T-Stopper Base Tool with the ¾" to 2" Cap Tee Adapter Packages for homemade or manufactured Tees welded onto steel main operating at a maximum of 80 PSI. The technology enables gas-free renewal or abandonment procedures on live gas services. The operator is always expected to follow this procedure when carrying out work using this equipment.

Limitations:

Many tee styles and variations have been installed in the ground. The Safe-T-Stopper contains assemblies and adapters capable of handling specific tee types. Additionally, when tees are uncovered, their structural integrity varies. It is the operator's responsibility to use the correct 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 before beginning the procedure will save valuable time and help prevent operator injury or equipment damage.

INSPECT TOOL & ACCESSORIES: Before 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 significantly 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 of injury.

KEEP THE WORK AREA CLEAR: Keep the work area free of clutter and unnecessary materials. Only those personnel directly associated with the work 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

Base Housing Assembly Installation

1. Clean all components of the Safe-T-Stopper equipment before use. Pay particular attention to any o-rings, grooves, and matching surfaces. Any dirt in these areas should be removed.
2. Clean the tee area down to bare metal where the Packing Seals, Cap Adapter, Half Collars, and Housing will be positioned. Remove all corrosion and scale so that the Packing Seals will seal properly. Ensure all scale is removed and the surface integrity is intact (Photo 1). **Failure to carry out this step may allow the tool assembly to move and gas to escape.**

WARNING: If the tee is severely corroded do not attempt the Safe-T-Stopper operation.



(Photo 1)

3. Before installing the Safe-T-Stopper, ensure the Cap Adapter fits appropriately over the service tee cap. The tool should bottom out on the cap with a strong magnetic attachment. Some hand filing or grinding may be necessary to remove the manufacturer's stamping or casting ridges. Many caps are not entirely round. Removing any excessive protrusion from the lower casting flange on the cap is good practice to reduce binding when traveling through the assembly (Photo 2-4).



Cap Adapter



(Photo 3)



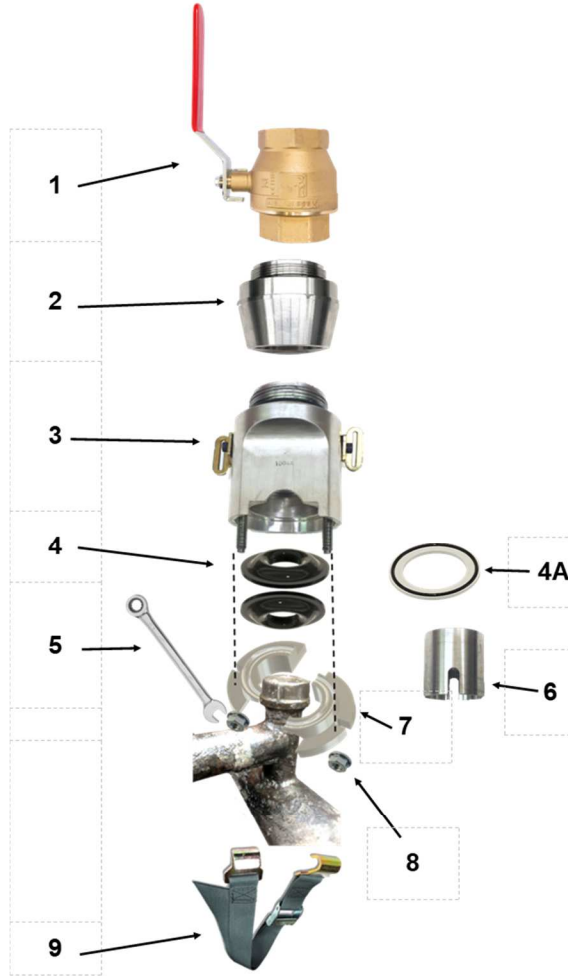
(Photo 4)

4. **IMPORTANT: Loosen the cap to break the initial seal.** This will enable the cap removal operation. Use penetrating oil and a long-handle pipe wrench to loosen the cap if necessary. Take care not to round off the raised castings located on the cap (Photo 5). **Note: Do not attempt the Safe-T-Stopper operation if the cap cannot be loosened.**



(Photo 5)

5. Gather the following parts for Base Assembly installation: Cap Housing, Packing Seals, Reducer Ring, Half Collars, Nuts, and Wrench. All are size-specific. (Photo 6).



Item#	Part#	Description
1	MSTS 1005A	3" BALL VALVE
2	TR3MX25F	3/4" - 1 1/4 PIPE TYPE TEE REDUCER ADAPTER
3	MSTS 1004A	3/4"-1" PACKING RETAINER (CAP HOUSING)
3	MSTS 1004B	1-1/4" PACKING RETAINER (CAP HOUSING)
3	MSTS 1004C	2" - 1 1/2" PACKING RETAINER (CAP HOUSING)
4	MSTS 1001A	3/4" PACKING SEALS (QTY 2)
4	MSTS 1001B	1" PACKING SEALS (QTY 2)
4	MSTS 1001C	1-1/4" PACKING SEALS (QTY 2)
4	MSTS 1001D	1-1/2" PACKING SEALS (QTY. 2)
4	MSTS 1001E	2" PACKING SEAL (QT. 2)
4A	MSTS 1003	3/4" REDUCER RING
4A	MSTS 1003A	1-1/2" REDUCER RING
5	916RW	9/16" COMBO WRENCH
6	MSTS 1009A	3/4" CAP REMOVAL ADAPTER
6	MSTS 1009B	1" CAP REMOVAL ADAPTER
6	MSTS 1009C	1-1/4" CAP REMOVAL ADAPTER
6	MSTS 1009D	1-1/2" CAP REMOVAL ADAPTER
6	MSTS 1009E	2" CAP REMOVAL ADAPTER
7	MSTS 1002A	3/4" PACKING RETAINER HALF COLLARS
7	MSTS 1002B	1" PACKING RETAINER HALF COLLARS
7	MSTS 1002C	1-1/4" PACKING RETAINER HALF COLLARS
7	MSTS 1002D	1-1/2" PACKING RETAINER HALF COLLARS
7	MSTS 1002E	2" PACKING RETAINER HALF COLLARS
8	MT 1001GM	FLANGE NUTS
9	MSTS 1018	SAFETY STRAP

(Photo 6)

6. Begin to assemble the Base Assembly onto the tee as shown in (Photo 7.)
7. Install the first Packing Seals with the round side facing down by taking a firm two-handed grip and stretching it over the service tee cap. Repeat with the second packing seal and fit it with the round side facing up (Photo 8).

7-A. For 3/4" and 1 1/4" Tees, use one Packing Seal facing down and one Reducing Disc with the o-ring facing up inside the Housing (Photo 7-A).

8. Place the two Half-Collars under the Packing Seals (Photos 9, *next page*).
9. **Ensure the two Half Collar edges come together or will not fit inside the Cap Housing.**
10. Place the Housing over the tee and Collars. Make sure the threaded studs fit through the slots. Push the Half Collars inside the Cap Housing until they touch the Packing Seals (Photo 9). Hand-tighten the assembly with the supplied nuts. Fasten the Safety Strap and pull tight (Photo 10).



(Photo 7)

3/4" & 1 1/2"



(Photo 7-A)

Filing tee contact surfaces may be necessary to ensure a seal and fit.



(Photo 8)



(Photo 9)

No gap.



(Photo 10)

Note: In some cases, on homemade tees, the branch outlet location is very close to the cap's bottom edge, making it difficult to fit two Packing Seals and the Half Collars. Hand filing under the cap or on the branch may be necessary. If filing is unsuccessful, one Packing Seal with the round side down may be used. However, exercise caution, and a successful assembly bubble-leak test must be performed before completing the operation.

If pressure does not hold or the assembly is not adequately secured, do not attempt the Safe-T-Stopper operation.

11. Using the hex wrench, assemble the Cap Adapter onto the T-Handle (Photo 11-12) and locate it over the cap (Photo 13). This is used to maintain assembly alignment while tightening.
12. Evenly tighten each nut on the Cap Housing with the 9/16" Wrench until moderate resistance is felt. This will compress the Packing Seal for a gas-tight fit (Photo 14).



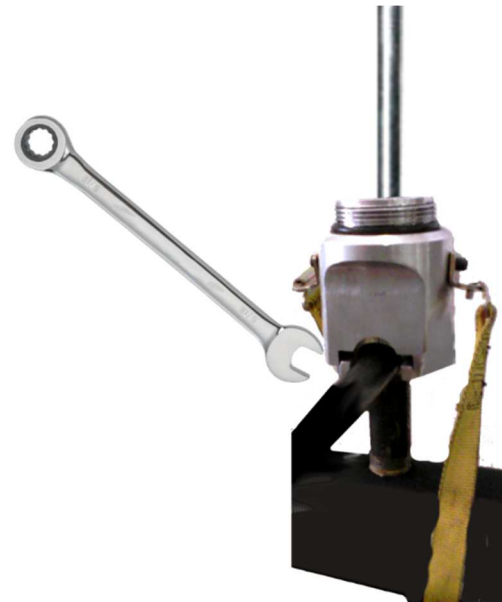
(Photo 11)



(Photo 12)



(Photo 13)



(Photo 14)

13. When using the 3000BV Ball Valve. Install the 2-1/2" to 3" Ball Valve Adapter (TR3MX25F) **This is only used for ¾", 1" and 1-1/4" tees that use Cap Housings MSTS1004A (¾"-1") and MSTS1004B (1-1/4").**

14. Tighten the Adapter with the bar wrench, so the Adapter bottoms out onto the housing, compressing the o-ring to create a seal.

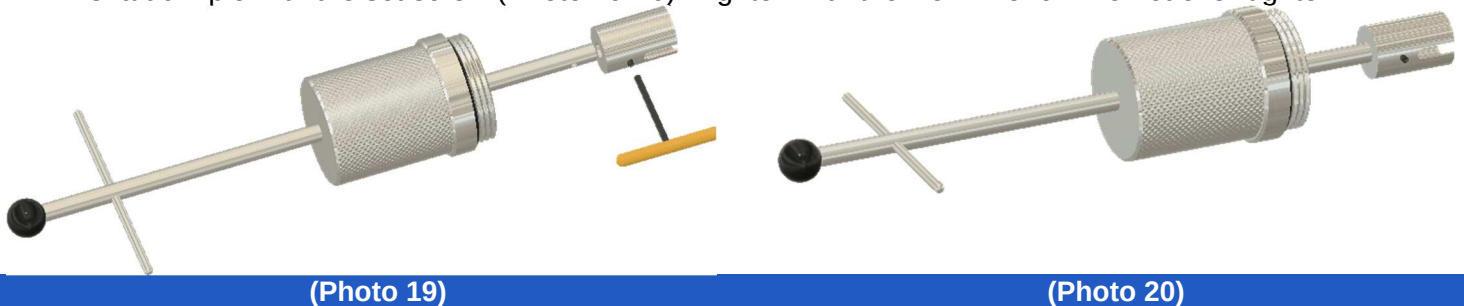


15. Install the Ball Valve in the same manner (Photo 18). Open and close the valve to ensure proper operation.

16. Retighten Half Collars before moving on to the next step.

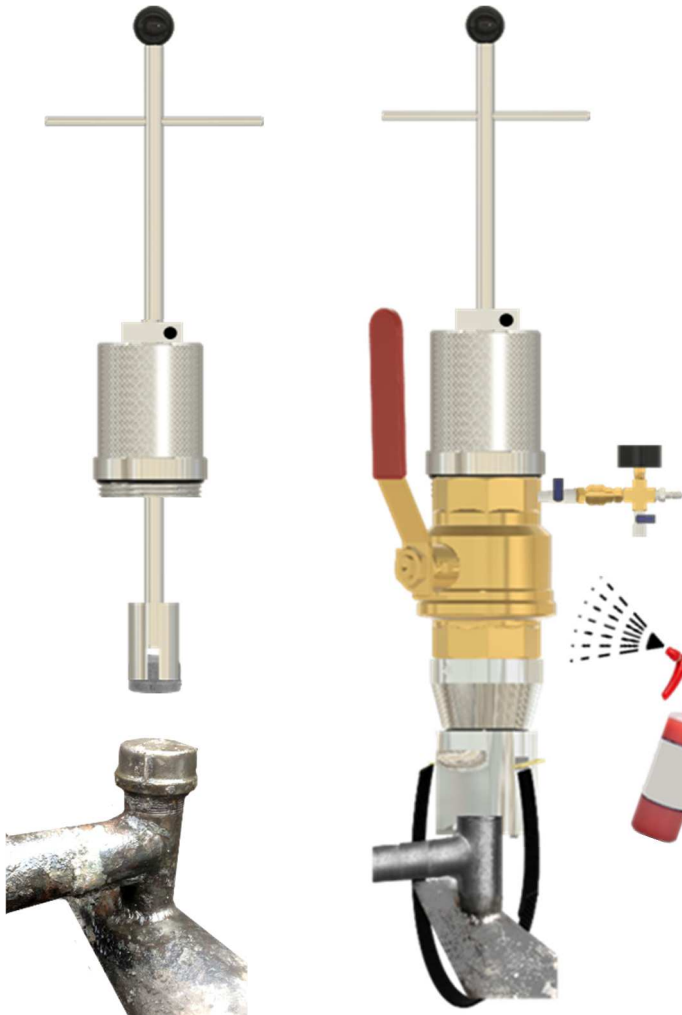
Cap Removal

17. To remove the cap, fit the Cap Removal Adapter onto the T-Handle Assembly shaft by lining up the shaft dimple with the set screw (Photo 19-20). Tighten with the Hex Wrench. Do not over-tighten.



18. Fit the slots on the Cap Removal Adapter over raised castings located on the cap.

19. Tighten the T-Handle Assembly 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. Make sure the Bleed Valve is in the closed position.



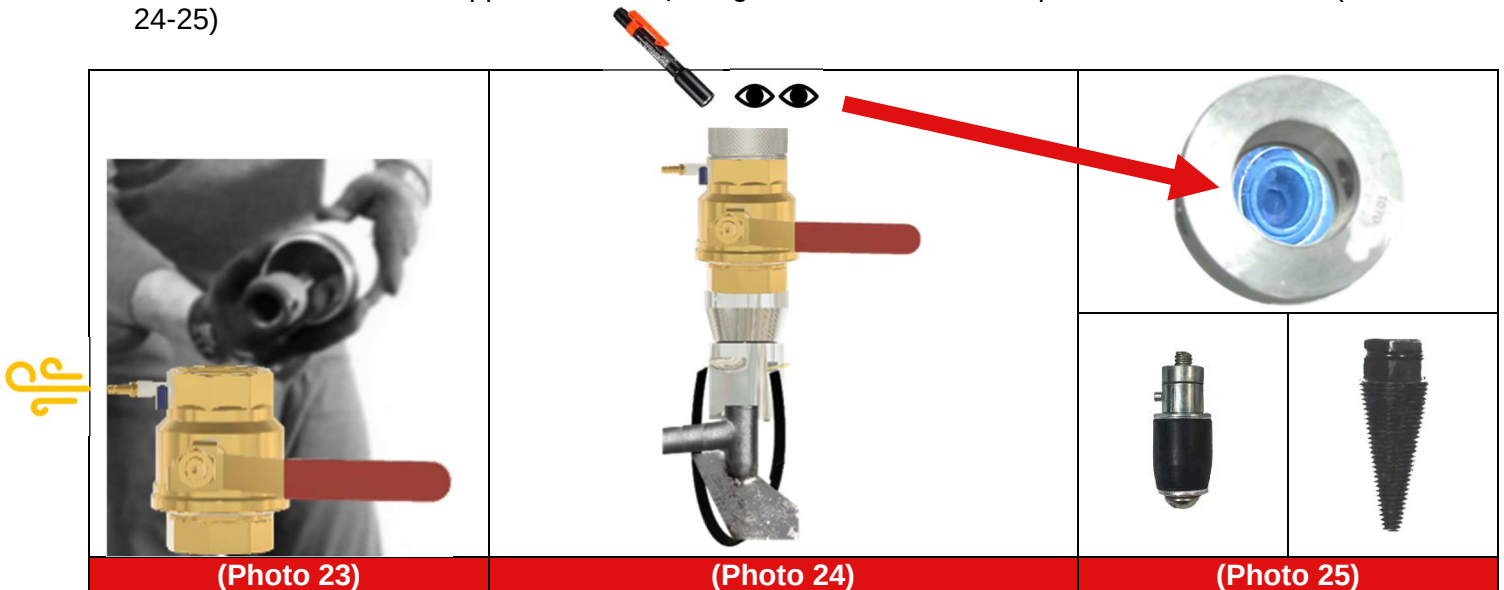
(Photo 21)

(Photo 22)

Before removing the Cap, perform an equipment integrity leak check.

20. Push on the Gauge Assembly and open the Bleeder Valve. Make sure the Gauge Relief Valve is fully closed.
21. Push down on the T-Handle and slightly loosen the cap to fill the chamber with gas.
22. Keep a slight downward pressure on the T-handle to prevent the gas pressure from pushing the shaft up unexpectedly.
23. Tighten Shaft Lock. Leak check all fittings. Tighten connections as necessary.
24. If all assembly connections are sealed, loosen the Shaft Lock, then remove the cap from the tee and retract it to above the Ball Valve.
25. When the cap is felt or heard skipping over the tee's threads, it is fully removed from the tee.
26. Retract the T-Handle with the captured cap above the Ball Valve.
27. Close the Ball Valve and bleed off the excess gas using the Chrome-Plated Bleeder Valve. Then, remove the T-handle Assembly (Photo 23).

28. Install the Viewport. Use a flashlight and look through the Viewport to ensure no obstructions within the tee so the Rubber Stopper or Self-Tap Plug can be inserted to stop off the service outlet (Photo 24-25)



(Photo 23)

(Photo 24)

(Photo 25)

34. Choose a method to stop the flow of gas.

METHOD A (Bookmark Link).

Rubber Plug

Steps 1A.-19A (Pages 10-12).



METHOD B (Bookmark Link)

Self Tapping Plug

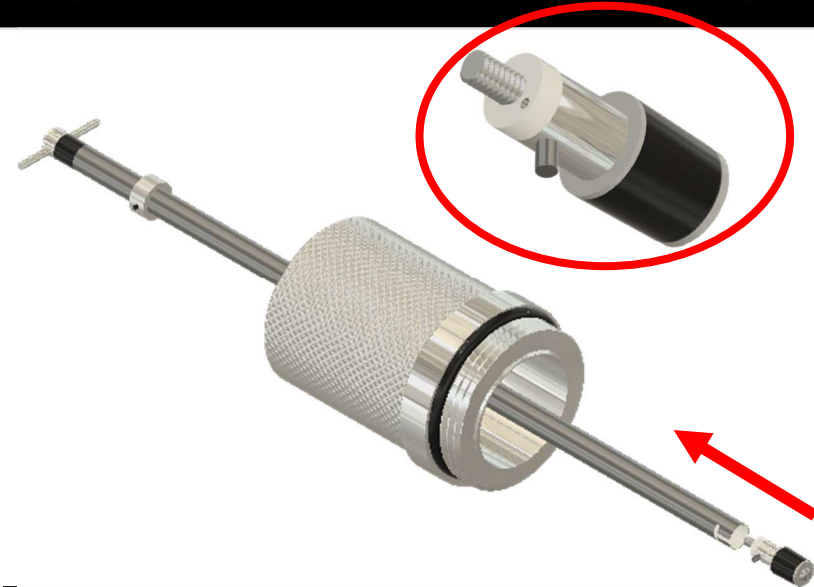
Steps 1B.-14B (Page 13).



IMPORTANT:

- Before starting the operation, thoroughly clean the Expansion Plug Insertion/Removal Assembly shaft and the Self-Tapping Plug Insertion shaft.
- Lightly apply 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.
- Clean and re-lubricate the shaft before returning the part to the toolbox to prevent the shaft from seizing when stored for extended periods.

Gas Flow Stop Method 1: Install Expansion Plug



(Photo 26)

1A. Choose the correct size Expander Plug and fasten it to the bayonet mount Expansion Plug Insertion/Removal Assembly.

2A. To attach and expand the Expansion Plug, push the stem end into the hole inside the shaft.

3A. Then push and turn the plug clockwise so the Expansion Plug pin engages the offset slot.

4A. Gently turn the Small T-Handle clockwise until you hear it click.

This indicates that the small pin inside the shaft fully engages the dimple on the Expansion Plug and will EXPAND the plug when turning the Small T-Handle clockwise.



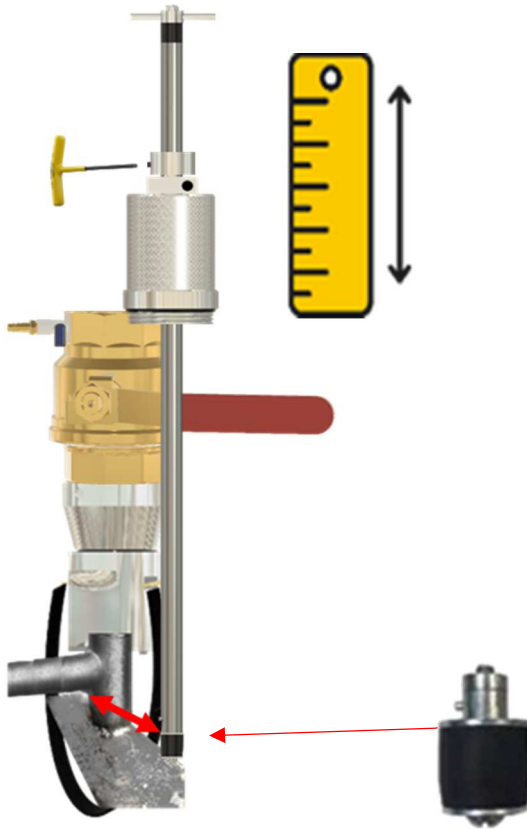
(Photo 27)



(Photo 28)



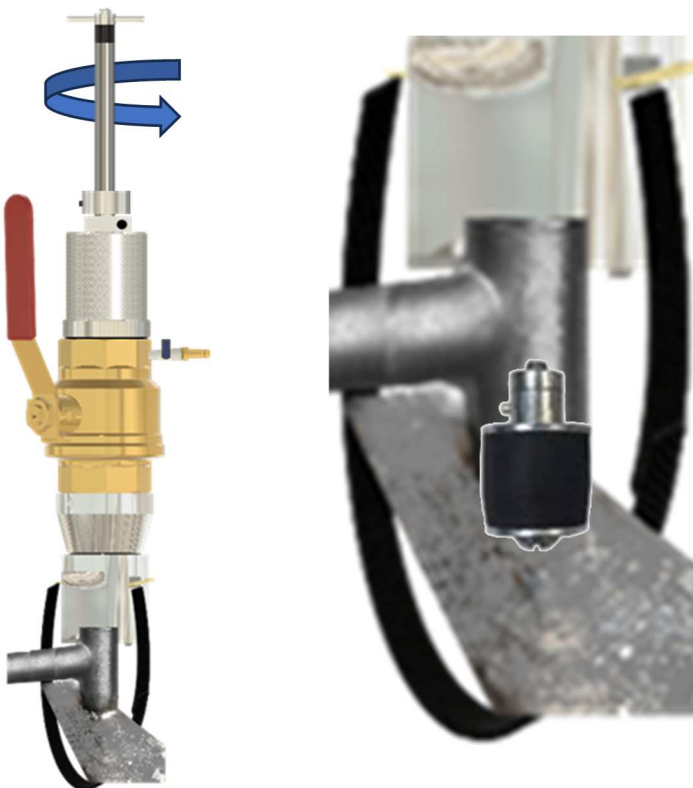
(Photo 29)



(Photo 30)

- 5A. Measure the travel needed to expand the Expansion Plug below the service branch by lining up the lip edge of the Housing Assembly with the lip edge of the Ball Valve.
- 6A. Push to extend the shaft so the bottom of the plug touches the main. Make sure the shaft stays straight.
- 7A. Tighten the Collar on the shaft to reference the necessary travel.
- 8A. Fully retract the shaft and fasten the Assembly onto the Ball Valve. Make sure the Bleed 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 not to allow the shaft to move upward unexpectedly.

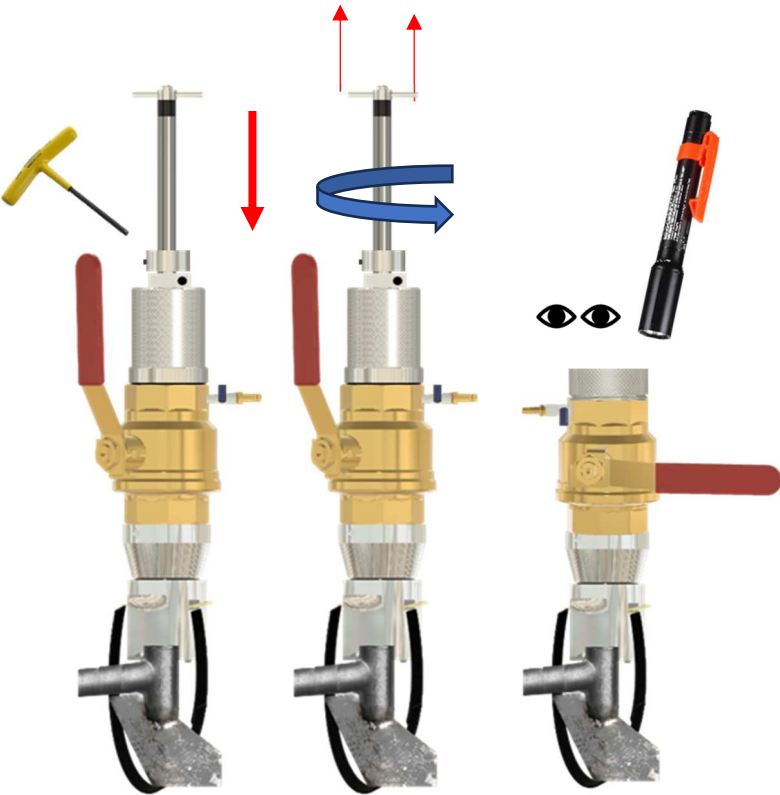
NOTE: The location of the branch outlet varies among homemade tees. Verify that the top washer of the Expansion Plug is below the service branch.



(Photo 31)

- 9A. Push the shaft down to the collar.
- 10A. Simultaneously hold the shaft into position and turn the Small T-Handle clockwise to expand the plug. Tighten until noticeable resistance is felt. Do not over-tighten.
- 11A. Open the Bleed Valve. If necessary, continue turning clockwise to expand the Expansion Plug until the sound of blowing gas has stopped, indicating that the service line has stopped.
- 12A. Tighten the Shaft Brake.
- 13A. Further verify downstream that the service is stopped, such as opening the meter valve or using other company-approved means.
- 14A. Complete renewal or abandonment procedures according to company standards.
- 15A. The operation is now complete.

To detach the Expansion Plug from the shaft, follow these steps:



(Photo 32)

(Photo 33)

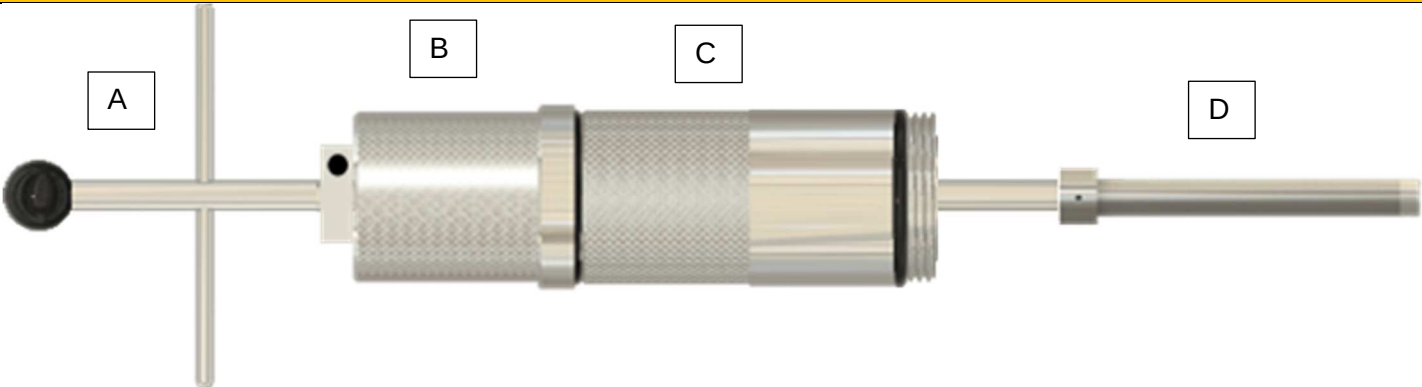
(Photo 34)

- 16A. Loosen Shaft Reference Collar with Hex Wrench (Photo 32)
- 17A. Simultaneously push down slightly on the shaft, pull up on the Small T-Handle, and turn the shaft clockwise until the plug disengages (Photo 33).

If unable to push down, check that the Depth Collar is loosened.

- 18A. Retract the shaft end above the Ball Valve, close the Ball Valve, and bleed off excess gas.
- 19A. Remove the Expansion Plug Insertion/Removal Tool and close the Ball Valve. Fit the Viewport and open the Ball Valve. Before proceeding to the next step, check that the Expansion Plug has been properly inserted into the throat of the tee.

NOTE: If the Expansion Plug accidentally disconnects from the shaft, use the Magnet Attachment connected to the T-handle shaft to remove the plug. The Extension Housing must be added to the T-Handle Housing to operate the Ball Valve.



A	B	C	D
2530 24" T-HANDLE SHAFT	T-Handle Housing	Extension Housing	Magnet Adapter
MSTS100824	MSTS1007A (3000BV) MSTS1007 (2500BV)	MSTS 1032 (3000BV) MSTS 1006 (2500BV)	MSTS 1015C

B. Gas Flow Stop Method 2: Insert a Self-Tap Plug into the Main

1B. Look through the Viewport to determine if the hole in the main is machine-drilled, concentric, and centralized within the tee. If yes, a Self-Tap Plug can be inserted into the main hole to stop the gas flow (Photo 35)

(Photo 35)

(Photo 36)

(Photo 37)

1/2" Hex Self Tap Plug use One Piece 1/2" Socket Adapter #TPA50024

(Photo 38)

Or

- #TPA312 -5/16"Socket Adapter
- #TPA250 1/4" Socket adapter

5/16" Hex Self Tap Plugs use T-Handle, Extension, and 5/16" Socket Adapter #TPA312

(Photo 39)

- 2B. Choose the correct size Self-Tap Plug to insert into the main to stop the gas flow to the service branch (Photo 36).

Note: Multiple Self-Tap Plug Hex Heads include ¼", 5/16", ½", and 7/8". All require a corresponding Socket Adapter. The most common are ½" and 5/16", which will plug most main holes to stop the gas.

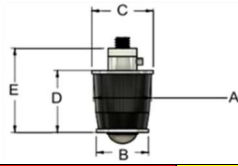
- 3B. Tightly wrap it with two revolutions of thread tape (Photo 37).
- 4B. (A) Insert the hex end first of the one-piece Socket Adapter Shaft (1/2", 7/8") into the Stopper Housing (Photo 38), or (B) attach the Socket Adapter (1/4", 5/16") onto the T-Handle Assembly (Photo 39).
- 5B. Use the T-Hex Wrench to secure the Adapter to the shaft end by tightening the hex screw (Photo 39).
- 6B. Attach the Assembly to the Ball Valve as shown in Photos 38 or 39.
- 7B. Open the Ball Valve and push down on the Shaft until the Self Tap Plug enters the hole in the main.
- 8B. Maintain downward pressure and tighten the Self Tap Plug by turning the hex clockwise.
- 9B. When noticeable resistance is felt. Open the bleed valve.
- 10B. Continue to tighten until the sound of blowing gas is no longer heard and the service outlet is safely stopped.
- 11B. Bleed off any remaining gas that may exist downstream, such as opening the meter valve or other approved company methods.
- 12B. Do not remove the equipment. Tighten the shaft lock and complete renewal or abandonment according to the company procedures.
- 13B. Reinstall the cap and remove the equipment.
- 14B. The operation is complete.

Line	TOOL PLATFORM	TOOL CAT	Photo	MAZCO#	Description
1	2530	BASE TOOL		375 STUD	Replacement Housing Studs 3/8" set (2)
2	2500	BASE TOOL		MSTS 1005	3/4" - 1" - 1 1/4" Ball Valve
3	3000	BASE TOOL		MSTS 1005A	1 1/2" - 2" Ball Valve
4	2500	BASE TOOL		MSTS 1006	6" Tool Housing Extension
5	2500	BASE TOOL		MSTS 1007	Tool Shaft Housing (2500BV)
6	3000	BASE TOOL		MSTS 1007A	Tool Shaft Housing (3000BV)
7	2500	BASE TOOL		MSTS 1007B	Expander Plug Housing (2500BV)
8	3000	BASE TOOL		MSTS 1007C	Expander Plug Housing (3000BV)
9	2530	BASE TOOL		MSTS 100824	24" Removal Tool Shaft
10	2530	BASE TOOL		MSTS 1010A	Expander Plug Shaft Only
11	2500	BASE TOOL		MSTS 1014	Lock-Out Plug 2500BV
12	3000	BASE TOOL		MSTS 1014A	Lock-Out Plug 3000BV
13	2530	BASE TOOL		MSTS 1015ADP	Magnet adapter .626" X 5.00"
14	2530	BASE TOOL		MSTS 1017	1/4" BLEEDER VALVE
15	2530	BASE TOOL		MSTS 1019	Ball for Removal Tool Shaft
16	2530	BASE TOOL		MSTS 1024	3/4" - 1 1/4" "O" Ring
17	2530	BASE TOOL		MSTS 1024A	1 1/2" - 2" "O" Ring
18	2530	BASE TOOL		MSTS 1025	Pipe to Valve Adapter Bar Wrench 1/2"
19	3000	BASE TOOL		MSTS 1032	Upper Housing Extension (3000BV)
20	2500	BASE TOOL		MSTS 1060	Viewport 2500BV and LS25
21	3000	BASE TOOL		MSTS 1070	Viewport 3000BV
22	2530	BASE TOOL		MSTS 1221	1/8" Allen Key
23	2530	BASE TOOL		MSTS 1222	3/16" Allen Key

24	2530	BASE TOOL		TPA 500	1/2" Tapered Plug Adapter
25	2530	BASE TOOL		TPA 50024	1/2" Socket Adapter - 24" Long
26	2530	BASE TOOL		TPA 500715	1/2" Chrome Socket Adapter .715 - .750 (1 pce)
27	2530	BASE TOOL		TPA 87524	7/8" Socket adapter and shaft, chrome one pce - 24"
28	3000	BASE TOOL		TR3MX25F	3000BV - 2500BV Threaded Reducer
29	2530	CAP TEES		BCA 1000	1" Round Barrell Cap Adapter
30	2530	CAP TEES		BCA 1250	1 1/4" Round Barrel Cap Adapter
31	2530	CAP TEES		DB 2332	23/32" Drill Bit Style Reamer
32	2530	CAP TEES		DB 2332	23/32" Drill Bit Style Reamer
33	2530	CAP TEES		MSTS 1001B	1" Packing Seals
34	2530	CAP TEES		MSTS 1001C	1 1/4" Packing Seals
35	2530	CAP TEES		MSTS 1001D	1 1/2" Packing Seals
36	2530	CAP TEES		MSTS 1001E	2" Packing Seals
37	2530	CAP TEES		MSTS 1002A	3/4" Packing Retainer Half Collars
38	2530	CAP TEES		MSTS 1002B	1" Packing Retainer Half Collars (Weld Branch)
39	2530	CAP TEES		MSTS 1002C	1 1/4" Packing Retainer Half Collars (Weld Branch)
40	2530	CAP TEES		MSTS 1002CT	1/2" x 5/8" Half Collars Continental Tee w/J Loop
41	2530	CAP TEES		MSTS 1002D	1 1/2" Packing Retainer Half Collars
42	2530	CAP TEES		MSTS 1002E	2" Packing Retainer Half Collars (Weld Branch)
43	2530	CAP TEES		MSTS 1003	1" - 3/4" Reducer Ring
44	2530	CAP TEES		MSTS 1003A	1 1/2" Reducer Ring

45	2530	CAP TEES		MSTS 1004A	1" - 3/4" Packing Retainer (Cap Housing)
46	2530	CAP TEES		MSTS 1004B	1 1/4" Packing Retainer (Cap Housing)
47	2530	CAP TEES		MSTS 1004C	2" Packing Retainer (Cap Housing)
48	2530	CAP TEES		MSTS 1009A	3/4" Cap Removal Adapter
49	2530	CAP TEES		MSTS 1009B	1" Cap Removal Adapter
50	2530	CAP TEES		MSTS 1009C	1 1/4" Cap Removal Adapter
51	2530	CAP TEES		MSTS 1009D	1 1/2" Cap Removal Adapter
52	2530	CAP TEES		MSTS 1009E	2" Cap Removal Adapter
53	2530	CAP TEES		MSTS 1018	Safety Strap
54	2530	CAP TEES		RBA 9375	15/16" Reamer Bit Fluted
55	2530	CAP TEES, PUNCH TEE		MSTS 1001A	3/4" Packing Seals
56	2530	CAP TEES, PUNCH TEE		MSTS 1009AA	3/4" Cap Removal Adapter (Inner 3000#)
57	2530	Other Adapters		HW 250	1/4" Hand Wrench
58	2530	Other Adapters		MSTS 1002AJ	3/4" Half Collars with J Loop
59	2530	Other Adapters		MSTS 1002BJ	1" Half Collars with J Loop (Weld Branch)
60	2530	Other Adapters		MSTS 1002CJ	1 1/4" Half Collars with J Loop (Weld Branch)
61	2530	Other Adapters		TPA 250	1/4" Tapered Threaded Plug Socket Adapter
62	2530	Other Adapters		TPA 250AW	1/4" Allen Wrench Adapter
63	2530	Other Adapters		TPA 312	5/16" Tapered Plug Adapter
64	2530	Other Adapters		TPA 312AW	5/16" Allen Wrench Adapter
65	2530	Other Adapters		TPA 375AW	3/8" Allen Wrench Adapter
66	2530	Other Adapters		TPA 500AW	1/2" Allen Key Adapter

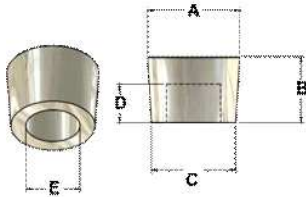
Safe T Stopper 3/4"-2" Cap Tees



Line	Image	PART #	DESCRIPTION	B Min Washer OD (IN)	C Max Washer OD (IN)	Minimum Pipe ID (IN)	Maximum Pipe ID (IN)	E Plug Length (IN)	D Rubber Length (IN)	A Rubber Min Diameter (IN)	A Rubber Max Expansion Diameter (IN)
1		MSTS 1011400D	1/2" EXPANDER PLUG CTS .400 OD	0.25	0.300	0.439	0.550	1.750	1.130	0.594	0.781
2		MSTS 1011585D	1/2" EXPANDER PLUG .585" OD	0.375	0.438	0.594	0.622	1.750	1.130	0.594	0.781
3		MSTS 1011600	3/4" EXPANDER PLUG 0.600" (3/4" SPECIAL)	0.595	0.605	0.625	0.710	1.750	1.130	0.590	0.750
4		MSTS 1011700	3/4" EXPANDER PLUG 0.700" (3/4" SPECIAL)	0.625	0.705	0.715	0.790	1.750	1.130	0.695	0.875
5		MSTS 1011735	3/4" EXPANDER PLUG 0.735" FOR ONE-PIECE EXPANDER	0.625	0.735	0.750	0.810	1.750	1.130	0.730	0.900
6		MSTS 1011735D	3/4" EXPANDER PLUG UNDERSIZED SCH 80 0.735" OD & 3/4" H17500 MUELLER	0.625	0.735	0.750	0.810	1.750	1.130	0.730	0.900
7		MSTS 1011	3/4" SPECIAL EXPANDER PLUG .740" OD	0.625	0.740	0.755	0.824	1.750	1.130	0.735	1.130
8		MSTS 1011A	3/4" EXPANDER PLUG .785" OD FOR ONE-PIECE EXPANDER	0.650	0.785	0.810	0.900	1.750	1.130	0.770	0.950
9		MSTS 1011AD	3/4" DETACHABLE EXPANDER PLUG .785" OD	0.650	0.785	0.810	0.900	1.750	1.130	0.770	0.950
10		MSTS 1011AM	PERFECTION PE TEE 3/4" EXPANDER PLUG 0.785"	0.650	0.937	0.810	N/A	1.750	1.130	0.770	0.950
11		MSTS 1011B	1" EXPANDER PLUG FOR ONE-PIECE EXPANDER	0.781	0.875	0.875	1.049	1.750	1.130	0.875	1.250
12		MSTS 1011BD	1" DETACHABLE EXPANDER PLUG 0.875 OD 1" H17500 MUELLER	0.781	0.875	0.875	1.049	1.750	1.130	0.875	1.250
13		MSTS 1011CD	1 1/4" DETACHABLE EXPANDER PLUG (27MM/1.06" OD) 1-1/4 MUELLER H17500	1.050	1.125	1.130	1.380	1.875	1.188	1.130	1.440
14		MSTS 1011CSW	1 1/4" EXPANDER PLUG 1.250" OD FOR ONE-PIECE EXPANDER 125PSI TOOL	1.245	1.255	1.275	1.380	1.875	1.188	1.235	1.440
15		MSTS 1011CSWD	1 1/4" DETACHABLE EXPANDER PLUG 1.250" OD	1.245	1.255	1.275	1.380	1.875	1.188	1.235	1.440
16		MSTS 1011D	1 1/2" EXPANDER PLUG FOR ONE-PIECE EXPANDER	1.280	1.375	1.380	1.610	1.810	1.188	1.380	1.750
17		MSTS 1011DD	1 1/2" DETACHABLE EXPANDER PLUG	1.280	1.375	1.380	1.610	1.810	1.188	1.380	1.750
18		MSTS 1011DSW	1 1/2" STRAIGHT WALL EXPANDER PLUG FOR ONE-PIECE EXPANDER	1.375	1.375	1.380	1.610	1.810	1.188	1.380	1.750
19		MSTS 1011E	2" EXPANDER PLUG FOR ONE-PIECE EXPANDER	1.820	1.910	1.940	2.067	1.880	1.188	1.940	2.310
20		MSTS 1011ED	2" DETACHABLE EXPANDER PLUG	1.820	1.910	1.940	2.067	1.880	1.188	1.940	2.310

Safe T Stopper 3/4'-2" Cap Tees

				24 TPI NITRIDE HARDENED 4140 STEEL		SELF TAP PLUGS							
Line	Photo	Part#	Description	Oring Size	Hex Size (IN)	Total Length	Min Grip (IN)	Max Grip (IN)	Top Hex Length	Groove Width	Bottom Hex	Total Hex	Total Threa
1		MTP 250375E	SELF TAP PLUG EXTENDED LENGTH 0.125"-0.375" HEX 1/4"	#006	1/4	1.387	0.125	0.375	0.100	0.077	0.1730	0.350	0.557
2		MTP 250375	SELF TAP PLUG 0.125"-0.375" HEX 1/4"	#006	1/4"	0.960	0.125	0.375	0.100	0.077	0.1730	0.350	0.610
3		MTP 375	SELF TAP PLUG 0.250"-0.350" HEX 5/16"	#009	5/16	0.960	0.125	0.375	0.100	0.077	0.1730	0.350	0.610
4		MTP 375500	SELF TAP PLUG 0.125"-0.450" HEX 5/16" (PLUG LENGTH 1.00", POINTED)	#009	5/16	1.231	0.125	0.469	0.100	0.077	0.1730	0.350	0.881
5		MTP 500	SELF TAP PLUG 0.362" - .470" HEX 5/16"	#009	5/16	0.883	0.362	0.470	0.100	0.077	0.1730	0.350	0.883
6		MTP 375625-312	SELF TAP PLUG 0.125"-0.580" HEX 5/16" X 1.69"L, POINTED)	#009	5/16	1.670	0.125	0.625	0.100	0.077	0.1730	0.350	1.320
7		MTP 375625	SELF TAP PLUG 0.125"-0.580" HEX 1/2" X 1.69"L, POINTED)	#012	1/2	1.670	0.125	0.625	0.100	0.077	0.1730	0.350	1.320
8		MTP 500625	SELF TAP PLUG .352" - .580" - HEX 1/2"	#012	1/2	1.237	0.352	0.580	0.100	0.077	0.1730	0.350	0.887
9		MTP 625	SELF TAP PLUG .487" - .585" - HEX 1/2"	#012	1/2	0.883	0.487	0.585	0.100	0.077	0.1730	0.350	0.533
10		MTP 695	SELF TAP PLUG .540" - .665" HEX 7/16	#011	7/16	0.883	0.540	0.665	0.100	0.077	0.1730	0.350	0.533
11		MTP 750	SELF TAP PLUG .602" - .720" HEX 1/2"	#012	1/2	0.883	0.602	0.720	0.100	0.077	0.1730	0.350	0.533
12		MTP 500750	SELF TAP PLUG .352" - .720" - HEX 1/2"	#012	1/2	1.591	0.352	0.720	0.100	0.077	0.1730	0.340	1.251
13		MTP625750	SELF TAP PLUG.500"-0.710" HEX 1/2" X 1"L	#012	1/2	1.237	0.465	0.750	0.100	0.077	0.1730	0.350	0.887
14		MTP 625875	SELF TAP PLUG .477" - .720" HEX 1/2"	#012	1/2	1.591	0.477	0.720	0.100	0.077	0.1730	0.350	1.241
15		MTP 875	SELF TAP PLUG .727" - .845" HEX 1/2"	#012	1/2	0.883	0.727	0.845	0.100	0.077	0.1730	0.350	0.533
16		MTP750875	SELF TAP PLUG 0.625"-0.830" HEX 1/2" X 1"L	#012	1/2	1.237	0.535	0.865	0.100	0.077	0.1730	0.350	0.887
17		MTP 1000	SELF TAP PLUG .850" - .950" HEX 1/2"	#012	1/2	0.883	0.850	0.950	0.100	0.077	0.1730	0.350	0.533
18		MTP 8751000	SELF TAP PLUG .727" - .970" HEX 1/2"	#012	1/2	1.237	0.727	0.970	0.100	0.077	0.1730	0.350	0.887
19		MTP 7501000	SELF TAP PLUG .602" - .970" HEX 1/2"	#012	1/2	1.591	0.602	0.970	0.100	0.077	0.1730	0.350	1.241
20		MTP 8751125	SELF TAP PLUG .727" - 1.095" HEX 1/2"	#012	1/2	1.590	0.727	1.095	0.100	0.077	0.1730	0.350	1.241
21		MTP 10001125	SELF TAP PLUG .850" - 1.095" 1/2" HEX	#012	1/2	1.237	0.850	1.095	0.100	0.077	0.1730	0.350	0.887
22		MTP 10001250	SELF TAP PLUG 0.850-1.255 HEX 1/2"	#012	1/2	1.237	0.816	1.250	0.100	0.077	0.1730	0.350	0.887
23		MTP 1125	SELF TAP PLUG .975" - 1.095" HEX 1/2"	#012	1/2	0.883	0.975	1.095	0.100	0.077	0.1730	0.350	0.533
24		MTP 11251375	SELF TAP PLG 1.125-1.375 7/8" HEX	#018	7/8	1.250	1.125	1.375	0.100	0.077	0.3125	0.500	0.750
25		MTP 1250	SELF TAP PLUG 1.1" - 1.220" 7/8" HEX	#012	1/2	0.883	1.125	1.250	0.100	0.077	0.1730	0.350	0.533
26		MTP 12501500	SELF TAP PLUG 1.1" - 1.47" 7/8" HEX	#018	7/8	1.741	1.125	1.500	0.100	0.077	0.3230	0.500	1.241
27		MTP 13751625	SELF TAP PLUG 1.23 - 1.595" 7/8" HEX	#018	7/8	1.741	1.230	1.600	0.100	0.077	0.3230	0.500	1.241
28		MTP950PFT	Permalock PE Self Tap Plug (1/2" Thread Engagement, coarse thread)	#012	1/2	1.225	0.950	0.950	0.100	0.077	0.1730	0.375	0.500



Tapered Weld Plugs

Line	Photo	Part#	Description	A (IN)	B (IN)	C (IN)	D (IN)	E (IN)	MATERIAL	Ref. STD. IMPERIAL PIPE ID (IN)
1		MSTS 1012A	3/4IN SCH 40 WELD PLUG	0.875	0.750	0.750	0.439	0.625	1018 Mild Steel	0.824
2		MSTS 1013A	3/4IN SCH 80 WELD PLUG	0.750	0.750	0.688	0.439	0.500	1018 Mild Steel	0.742
3		MSTS 1012B	1IN SCH 40 WELD PLUG	1.063	0.750	0.971	0.439	0.625	1018 Mild Steel	1.049
4		MSTS 1013B	1IN SCH 80 WELD PLUG	1.000	0.750	0.875	0.439	0.688	1018 Mild Steel	0.957
5		MSTS 1012C	1 1/4IN SCH 40 WELD PLUG	1.438	0.750	1.375	0.439	0.688	1018 Mild Steel	1.380
6		MSTS 1013C	1 1/4IN SCH 80 WELD PLUG	1.313	0.750	1.188	0.439	0.688	1018 Mild Steel	1.278
7		MSTS 1013D	1 1/2IN SCH 40 WELD PLUG	1.625	0.750	1.500	0.439	1.250	1018 Mild Steel	1.610
8		MSTS 1012D	1 1/2IN SCH 80 WELD PLUG	1.563	0.750	1.438	0.439	1.125	1018 Mild Steel	1.500
9		MSTS 1012E	2IN SCH 40 WELD PLUG	2.125	0.750	1.938	0.439	1.875	1018 Mild Steel	2.067
10		MSTS 1013E	2IN SCH 80 WELD PLUG	2.375	0.750	1.875	0.439	1.750	1018 Mild Steel	1.939

KIT	Base Kit Part#	Base Kit Description	
A	KIT 2500 BASE	2500 BV BASE TOOL KIT (3/4"-1-1/4")	
B	KIT 3000 BASE	3000 BV BASE TOOL KIT (1-1/2"-2")	
A/B	Part#	Base Tool Includes	Qty Per Kit
A1	MSTS 1025	Pipe to Valve Adapter Bar Wrench 1/2"	1
A2	38D625	3/8" drive x 5/8" socket	1
A3	12RW	1/2" Ratchet Wrench	1
A4	MSTS 1220	Ratchet Wrench (9/16")	1
A5	MSTS 1225	Grease	1
A6	MSTS 009	Cap Adapter Magnet	1
A7	MSTS 1222	3/16" Allen Key T Handle	1
A8	MSTS 1221	1/8" Allen Key T Handle	1
A9	MSTS 1006	6" Tool Housing Extension	1
A10	TPA 312	5/16" Tapered Plug Adapter	1
A11	TPA 50024	1/2" Socket Adapter - 24" Long Chrome Shaft	1
A12	MSTS 1015ADP	Magnet adapter .626" X 5.00"	1
A13	MSTS 1018	Safety Strap	1
A14	MSTS 1060	Viewport 2500BV and LS25	1
A15	MSTS 1014	Lock-Out Plug 2500BV	1
A16	MSTS 2500BVET	Detachable Expander Tool for the 2500BV Tool	1
A17	MSTS 1008E5	21.5" Extended Removal Tool Shaft	1
A18	MSTS 1007	2500 BV Tool Shaft Housing	1
A19	MSTS 1005	3/4" - 1" - 1 1/4" Ball Valve	1
A20	MSTS 2500BVC	2500 BV Pelican Case W/FOAM INSERT	1
B1	12RW	1/2" Ratchet Wrench	1
B2	38D625	3/8" drive x 5/8" socket	1
B3	TPA 50024	1/2" Socket Adapter - 24" Long Chrome Shaft	1
B4	TPA 312	5/16" Tapered Plug Adapter	1
B5	MSTS 1032	3000BV 5" Extension	1
B6	MSTS 1025	Pipe to Valve Adapter Bar Wrench 1/2"	1
B7	MSTS 009	Cap Adapter Magnet	1
B8	MSTS 1222	3/16" Allen Key T Handle	1
B9	MSTS 1220	9/16" Ratchet Wrench	1
B10	MSTS 1221	1/8" Allen Key T Handle	1
B11	MSTS 1225	Grease	1
B12	MSTS 1070	Sight Glass	1
B13	MSTS 1018	Safety Strap	1
B14	MSTS 1015ADP	Magnet Adapter	1
B15	MSTS 3000BVET	Detachable Expander Tool with Housing	1
B16	MSTS 100824	24" Removal Tool Shaft (t-handle)	1
B17	MSTS 1014A	Lock-Out Plug	1
B18	MSTS 1007A	Tool Shaft Housing	1
B19	MSTS 1005A	3" Ball Valve	1
B20	MSTS 3000BVC	3000 BV Carrying Case	1

NOTES

