

125 PSI 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 Safe-T-Stopper Tool on ¾" to 2" Cap Tees (homemade or manufactured) Tees welded onto steel main operating at a maximum of 125 PSI. The technology enables gas-free renewal or abandonment procedures on live gas services. The operator is expected always to have 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

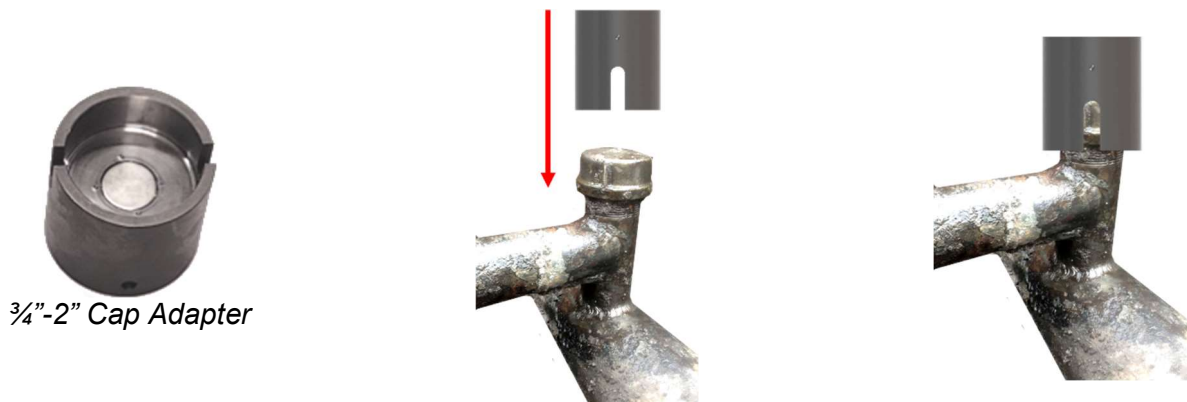
1. Clean all components of the Safe-T-Stopper equipment before use. Pay particular attention to any o-rings, grooves, and matching surfaces. Any dirt in these areas should be removed.
2. Clean the tee area down to bare metal where the Packing Seals, Half Collars, Chains, and Housing will be positioned. Remove all corrosion and scale so that the Packing Seals will seal properly. Ensure all the scale is removed and the integrity of the surface 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 and the surface is uneven, 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 good magnetic attachment strength. Some hand filing or grinding may be necessary to remove the manufacturer's stamping or casting ridges. Grind the lower casting flange on the cap to reduce cap-binding chances in the Housing. Many caps are not entirely round and may cause cap binding once inside the cap housing (Photo 2-4).



(Photo 2)

(Photo 3)

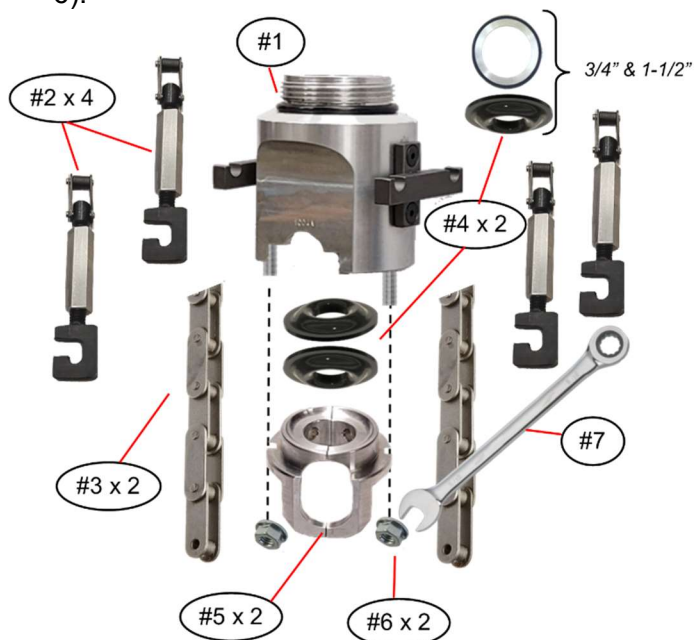
(Photo 4)

4. **IMPORTANT: Loosen the cap to break the initial seal.** This will make the cap removal operation possible. Use penetrating oil and a long-handle pipe wrench to loosen the plug 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: the correct size Cap Housing, Turnbuckles, Chains, size-specific Packing Seals, Reducer Ring, J-Loop Half Collars, Nuts, and Wrench (Photo 6).



1. **Cap Housing (Three sizes)**
 - 54-MSTS1004ADH 3/4"-1"
 - 54-MSTS1004BDH 1-1/4"
 - 54-MSTS1004CDH 2"-1-1/2"
2. **Chain Turnbuckles (4) 54-MSTS1035B**
3. **Chain (2) 54-MSTSA2040**
4. **Packing Seals (2) or (1) seal + (1) Disc**
 - 54-MSTS 1001A 3/4" PACKING SEALS
 - 54-MSTS 1003 3/4" REDUCER RING
 - 54-MSTS 1001B 1" PACKING SEALS
 - 54-MSTS 1001C 1-1/4" PACKING SEALS
 - 54-MSTS 1001D 1-1/2" PACKING SEALS
 - 54-MSTS 1003A 1-1/2" REDUCER RING
 - 54-MSTS 1001E 2" PACKING SEAL
5. **J-Loop Half Collar Set of (2)**
 - 54-MSTS1002AJ 3/4" J-LOOP HALF COLLAR
 - 54-MSTS1002BJ 1" J-LOOP HALF COLLAR
 - 54-MSTS1002CJ 1 1/4" J-LOOP HALF COLLAR
 - 54-MSTS1002DJ 1 1/2" J-LOOP HALF COLLAR
 - 54-MSTS1002EJ 2" J-LOOP HALF COLLAR
6. **3/8" Nuts (2) 54-94612A103**
7. **9/16" Combo Wrench 54-916**

(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).



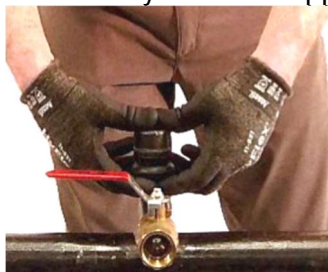
(Photo 7)
3/4" & 1 1/2"

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 J-Loop Half-Collars under the Packing Seals (Photos 7 & 9).
9. **Ensure the two J-Loop Half Collar edges come together, or it will not fit inside the Cap Housing.**
10. Place the Housing over the tee and J-Loop 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 (Photo 10).



(Photo 7-A)



(Photo 8)



(Photo 9)



(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 is exercised, and a successful assembly bubble leak test must be carried out 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 3/4" drive shaft (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. Fit all (4) J-Hook Turnbuckles and secure the Assembly with the (2) Chains (Photo 15-16).
14. Tighten the Turnbuckles in a diametrically opposed sequence to secure the assembly evenly. Do not over-tighten (Photo 16).
15. Install the 2-1/2" to 3" Ball Valve Adapter (54-TR3MX25F). This is only used for 3/4", 1" and 1-1/4" tees that use Cap Housings 54-MSTS1004ADH (3/4"-1") and 54-MSTS1004BDH (1-1/4).
16. Tighten the Adapter with the bar wrench so the Adapter bottoms out onto the housing, compressing the o-ring to create a seal.



(Photo 15)



(Photo 16)



(Photo 17)

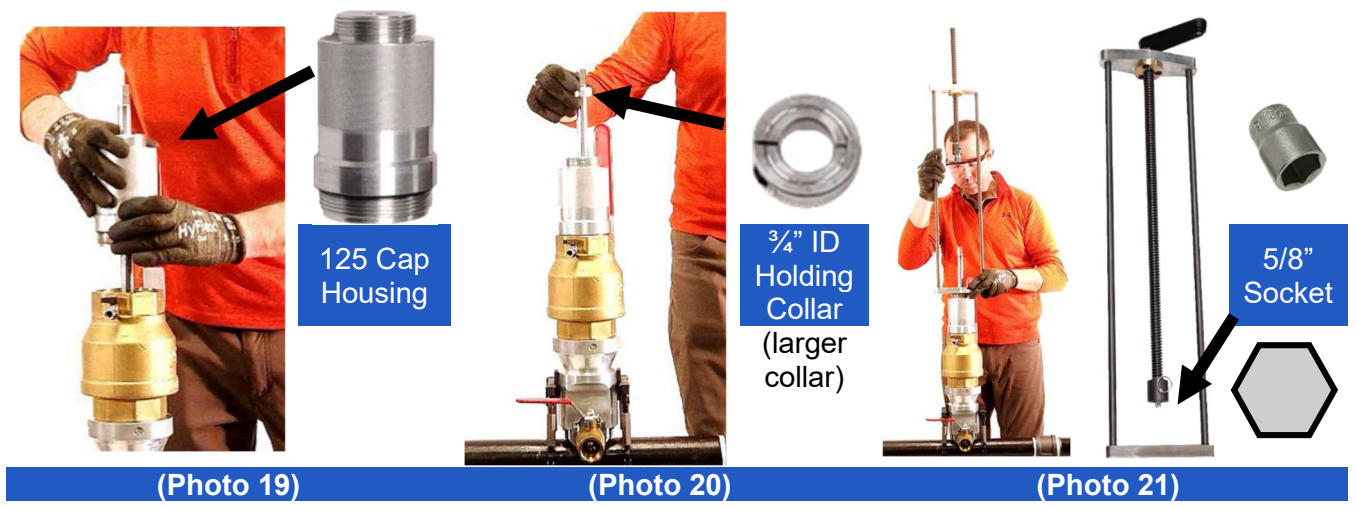


54-TR3MX25F
2-1/2" to 3"
Ball Valve
Adapter Use
w/ 3/4" 1 1/4"
tees



(Photo 18)

17. Install the Ball Valve in the same manner (Photo 18). Open and close the valve to ensure proper operation.
18. Carefully slide the 125 Cap Housing over the shaft and tighten it (Photo 19).
19. Slide the 3/4" ID Shaft Holding Collar over the shaft. Do not tighten at this time (Photo 20).
20. Connect the 5/8 socket to the end of the Acme Screw 3/8 Square Drive.
21. Install the Safety Feed assembly if operating above 80psi. The 5/8" Socket will fit over the shaft hex.



Assembled Equipment Leak Check

22. Push on the Pressure Test Assembly and open the Bleeder Valve. *Make sure the Gauge Relief Valve is fully closed.*
23. Fit the Long-Closed End Wrench onto the shaft hex, then wind down the Safety Feed until the 5/8" Socket seats onto the shaft hex.
24. Perform an Assembly Leak test by slightly loosening the cap to fill the chamber with gas. Leak check all fittings. Tighten connections as necessary.



Cap Removal

25. Once you fit the wrench over the shaft hex and wind down the feed clockwise so the socket fits firmly over the hex, begin loosening the cap. You may need to maintain slight downward pressure to start loosening, but eventually, as the cap travels upwards and disconnects from the tee, turn the hand crank slowly counterclockwise to bring the cap above the Ball Valve (Photo 24).
26. When the cap is above the Ball Valve, tighten the shaft collar to hold the shaft in place to prevent the captured cap and adapter from damaging the ball within the valve (Photo 25).
27. Close the Ball Valve and bleed off the excess gas (Photo 26).
28. Remove the Feed Assembly (Photo 27).
29. Remove the Cap Adapter Housing and Shaft (Photo 27).
30. 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 28)



(Photo 24)



(Photo 25)



(Photo 26)



(Photo 27)



(Photo 28)



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

a. Steps 32-42 – Rubber Plug

b. Steps 43-53 – Self Tapping Plug

A. Gas Flow Stop Method 1: Expand a One-Piece Rubber Stopper Tool Below the Outlet

35. Choose the correct size rubber Stopper to insert into the tee's throat to stop the gas flow to the service branch (Photo 29).
36. Insert the Stopper Shaft into the Stopper Housing (Photo 30).
37. Locate the end of the rubber stopper so it touches the top of the main. Then, line up the lip edge of the ball valve with the top housing thread and tighten the collar. This will ensure the rubber stopper will deploy at the proper depth (Photo 31).
38. Install the Safety Feed assembly and connect the 1/4 socket. Fit the 1/4" socket onto the Stopper's small shaft hex. Open the Ball Valve (Photo 32).
39. Turn the crank arm clockwise to lower the Stopper to the desired location (Photo 32).
40. Once the collar touches the housing, begin tightening the stopper by turning the drive nut clockwise until noticeable resistance is felt.
41. Open the bleed valve.
42. Once the sound of blowing gas is no longer heard, the service outlet is safely stopped.
43. Do not remove the equipment—complete renewal or abandonment procedures.
44. Reverse the previous operation steps to reinstall the cap and remove the equipment.



45. The operation is complete.

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

46. 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 gas flow.



(Photo 33)

(Photo 34)














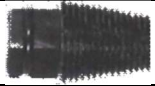

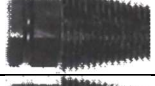

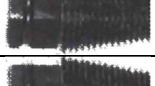

(Photo 35)

(Photo 36)

47. Choose the correct size Self-Tap Plug to insert into the main to stop the gas flow to the service branch (Photo 34 B) and tightly wrap it with two revolutions of thread tape (Photo 35).
48. Insert the Socket Adapter Shaft into the Stopper Housing (Photo 34 A).
49. Install the Safety Feed assembly and connect the 5/8" socket. Fit the 5/8" socket onto the Socket Adapter shaft hex. Open the Ball Valve (Photo 36).
50. Turn the crank arm clockwise to lower the Self Tap Plug until you feel a positive stop (Photo 35).
51. Begin tightening the Self Tap Plug by turning the hex clockwise while maintaining until noticeable resistance is felt (Photo 36).
52. Open the bleed valve.
53. Once the sound of blowing gas is no longer heard, the service outlet is safely stopped.
54. Do not remove the equipment—complete renewal or abandonment procedures.
55. Reverse all previous operation steps to reinstall the cap and remove the equipment.
56. The operation is complete.

Parts List			
LINE	PHOTO	PART#	DESCRIPTION
1		54-MSTS 1005A	3" BALL VALVE
2		54-3019-12	3019 CASE
3		54-DDCAP125	FOAM 125 CAP DOUBLE DECK CASE
4		54-STSMF 3000	125 MANUAL FEED ASSEMBLY
5		54-MSTS1004ADH	125 3/4-1 CAP HOUSING
6		54-MSTS1004BDH	125 1-1/4" CAP HOUSING
7		54-MSTS1004CDH	125 2-1 1/2"CAP HOUSING
8		54-MSTS1035B	CHAIN RETAINER TURNBUCKLE SET (2 EACH)
9		54-MSTSA2040	1" ROLLER CHAIN SET FOR "-8" MAIN (36"L)
10		54-PTSS	PRESSURE TEST ASSEMBLY
11		54-MSTS 1070	VIEWPORT 3000BV
12		54-TR3MX25F	3/4" - 1 1/4 PIPE TYPE TEE REDUCER ADAPTER
13		54-MSTS1007ATH	125 HOUSING CAP/PLUG REMOVAL TOOL
14		54-MSTS1007CTH	125 HOUSING EXPANDER TOOL
15		54-TPA75020SQ	125 3/4" SQUARE DRIVE (20"L)
16		54-TPA50024	1/2IN HEX ADAPTER (1 PIECE 24INL SHAFT)
17		54-94612A103	FLANGE NUTS 10 PACK
18		54-MSTS 1004W	BAR WRENCH
19		54-MSTS 1221	1/8" T HANDLE HEX WRENCH
20		46-A0017	3/16" T HANDLE HEX WRENCH

LINE	PHOTO	PART#	DESCRIPTION
21		54-PPBRK	PIPE BREAK
22		54-PLCSLUBE	PLCS LUBRICANT
23		52-WF05E	INTRINSIC PEN FLASHLIGHT
24		54-5461A41	5/8 EXTENDED BOX WRENCH
25		54-916	9/16" COMBO WRENCH
26		54-5553A13	125 5/8" SOCKET - CAP REMOVAL ADAPTER
27		54-5553A21	125 1/4" SOCKET - EXPANDER INNER SHAFT
28		54-MSTS 1001A	3/4" PACKING SEALS (QTY 2)
29		54-MSTS 1001B	1" PACKING SEALS (QTY 2)
30		54-MSTS 1001C	1 1/4" PACKING SEALS (QTY 2)
31		54-MSTS 1001D	1 1/2" PACKING SEALS (QTY 2)
32		54-MSTS 1003	3/4" REDUCER RING
33		54-MSTS 1003A	1-1/2" REDUCER RING
34		54-MSTS1009AS	3/4" STEEL CAP ADAPTER
35		54-MSTS1009BS	1" STEEL CAP ADAPTER
36		54-MSTS1009CS	1 1/4" STEEL CAP ADAPTER
37		54-MSTS1009DOBS	1-1/2" STEEL CAP ADAPTER
38		54-MSTS1009ES	2" STEEL CAP ADAPTER
39		54-MSTS1002AJ	3/4" J LOOP RETAINER HALF COLLAR
40		54-MSTS1002BJ	1" J LOOP RETAINER HALF COLLAR

LINE	PHOTO	PART#	DESCRIPTION
41		54-MSTS1002CJ	1 1/4" J LOOP RETAINER HALF COLLAR
42		54-MSTS1002DJ	1 1/2" J LOOP RETAINER HALF COLLAR
43		54-MSTS1002EJ	2" J LOOP RETAINER HALF COLLAR
44		54-EXP125740	125 3/4" STD 1PC STOPPER .74"
45		54-EXP125875	125 1" STD/MULR 1PC STOPPER .875"
46		54-EXP125125	125 1 1/4" 1PC STOPPER 1.25"
47		54-EXP1251375	125 1 1/2" 1PC STOPPER 1.375"
48		54-EXP125190	125 2" STD 1PC STOPPER 1.9"
49		54-TPA312	5/16" HEX ADAPTER
50		54-TPA50024	1/2" HEX ADAPTER (1 PIECE 24"L SHAFT)
51		54-TPA50024	1/2" HEX ADAPTER (1 PIECE 30.5"L 6.5" TURNED DOWN TO .715)
52		54-TPA87524	7/8" SOCKET X 24"L ADAPTER
53		54-MTP500375	0.125"-0.450" HEX 5/16" (PLUG LENGTH 1.00", POINTED)
54		54-MTP625750	SELF TAP PLUG .500"-0.710" HEX 1/2" X 1"L
55		54-MTP625375	SELF TAP PLUG 0.125"-0.580" HEX 1/2" X 1.36"L, POINTED)
56		54-MTP750875	SELF TAP PLUG 0.625"-0.830" HEX 1/2" X 1"L
57		54-MTP12501000	SELF TAP PLUG 0.850-1.255 HEX 1/2" (LENGTH 1.25")
58		54-MTP11251375	SELF TAP PLG 1.125-1.375 7/8" HEX
59		54-MTP12501500	SELF TAP PLUG 1.250-1.500 7/8" HEX

3/4"-2" 125 Cap Kit Case (Two Layers)



