OPERATING INSTRUCTIONS MANUAL

MUELLER[®] GAS

DBS Gas Meter Set Maintenance System

A WARNING:

1. Read and follow instructions carefully. Proper training and periodic review regarding the use of this equipment is essential to prevent possible serious injury and/or property damage. The instructions contained herein were developed for using this equipment on fittings of Mueller manufacturer only, and may not be applicable for any other use.

DO NOT exceed the pressure ratings of any components or equipment. Exceeding the rated pressure may result in serious injury and/or property damage.

3. Safety goggles and other appropriate protective gear should be used. Failure to do so could result in serious injury.

4. Pressure test, check for and repair leaks in all fittings and components each time one is installed or any joint or connection is broken. Failure to find and repair a leak from any source in the fittings, by-pass lines or equipment could result in an explosion and subsequent serious injury and/or property damage.

5. MUELLER[®] Drilling Machines and Equipment have been carefully designed and engineered to work together as a unit. The use of equipment manufactured by someone other than Mueller Co. may cause excessive wear or a malfunction of the MUELLER machines.

TABLE OF CONTENTS PAGE

- General Information 2
- Installing DBS Machine 3-5
 - Maintenance 5
 - Parts Information 6-7



Reliable Connections

Customer Service Center Decatur, Illinois 800.798.3131 www.muellergas.com moreinfo@muellercompany.com

All warranties, expressed or implied, for Mueller Drilling Machines are rendered null and void if the machines are used with shell cutters or equipment manufactured by someone other than Mueller Co.

General Information

Stem Valve

Capacity and Use

The Mueller DBS System allows maintenance on the gas meter set or service line without interrupting the flow of gas to the customer. The system allows the regular flow of gas to be stopped and replaced by portable localized CNG delivery during the maintenance operations. The following safety requirements apply to these instructions:

1. Identify potential sources of ignition to prevent accidental ignition.

2. When working close to escaping gas, use adequate protection.

IMPORTANT: Caution should be taken to avoid overpressure or under pressure conditions on downstream systems while using this tool.

The DBS System is designed for use on natural gas services delivering up to 1 psi delivery pressure. A complete system consists of a kit of basic machines and tools, plus a combination Saddle/Control Chamber, and a Gas Bag which are purchased in addition to the kit. The Saddle/Control Chamber and Gas Bag are available in different sizes, and are matched to the type and size of gas line or fitting on which the DBS system will be used.

Main DBS Machine Kit Includes:

- · Hole Saw Tool w/Hole Saw and Pilot Tool
- Magnet Tool
- Tapping Tool w/Tap
- Bag Tool
- Completion Tool
- Tap Wrench
- Socket Wrench/Hex Socket

Other Equipment To Be Supplied By User

- Drill, ³/₈" Chuck Capacity
- · Teflon Tape or other Companyapproved Pipe Sealant
- Allen Wrench Multi-tool
- Synthetic Grease
- Mueller Cutting Grease (88366)
- · Approved Manometer or
- CNG Supply
- Measuring Tape
- · Personal Protective Equipment (PPE)



Installing DBS Machine

Installation Instructions

A-Attach Machine to Fitting

1. Clean fitting or pipe in location for tap to remove loose paint, corrosion or debris.

NOTE: Cleaning does not require the removal of paint or coating. Top of elbow is considered most acceptable location, but other locations can be used.

2. Secure Saddle/Control Chamber on pipe or fitting, and tighten screws wrench tight.

3. Verify that Control Chamber Valve is closed.

4. Connect approved manometer or calibrated gauge to Saddle.

5. Attach CNG supply to Control Chamber.

6. Turn on CNG supply and verify positive supply pressure.

B–Installing Line Stopper Fitting

Estimated Drilling Times:

- Straight pipe Pilot Drill 20 30 seconds, Hole Saw 30 – 40 seconds.
- Elbow Pilot Drill 10 20 seconds, Hole Saw 20 – 30 seconds.

1. Lubricate Hole Saw Cutter and Pilot Drill with Mueller Cutting Grease (88366).

2. Connect Hole Saw Tool to Control Chamber and lock in place by pushing locking cam arms to point away from the saddle.

3. Open Control Chamber Valve.

4. Attach drill to stem of Hole Saw Tool and push assembly down until Pilot Drill contacts elbow or piping.

5. Mark along exposed stem of Hole Saw Tool with marker or tape at a point above top of Hole Saw Tool Stuffing Box equal to 3/4 the OD of the elbow or pipe. Take this measurement on the pipe or elbow at the point where the hole will be drilled. This mark will indicate when to stop the drilling operation and assure the Pilot Drill and Hole Saw DO NOT drill too deeply.

6. Hold Control Chamber securely to prevent movement during drilling operation.

7. Set drill to **clockwise** rotation. Once Pilot Drill goes through wall of elbow/pipe, remove Hole Saw Tool.

8. Stop and retract Hole Saw and Pilot Drill into Control Chamber. Close Control Chamber Valve, then unlock and remove Hole Saw Tool.

9. Attach Magnet Tool and lock by pushing locking cam arms to point away from saddle.

10. Open Control Chamber valve then push magnet into pipe or fitting, and move it around in all directions for approximately five seconds.

11. Retract Magnet fully and close Control Chamber Valve – unlock and remove Magnet Tool and clean magnet of debris. Repeat steps **"B9"** through **"B11"** until all shavings are removed.

12. Reattach Drilling Tool and lock by moving cam arms to point away from saddle, open Control Chamber Valve and push drill and Hole Saw Tool forward while making sure it settles into drilled hole.

13. Resume drilling until tape mark on stem reaches top of Hole Saw Tool Stuffing Box – the sound of drill will also change slightly and speed will increase as the hole is completed.

14. Retract Hole Saw Tool fully and close Control Chamber Valve.

15. Unlock and remove Hole Saw Tool and check for coupon inside tool.

CAUTION: Use meter set shut-off valve to stop gas flow if any problem arises resulting in uncontrolled gas to the atmosphere.

C–Cleaning and Tapping

1. Connect Magnet Tool to the Control Chamber and lock by pushing locking cam arms to point away from saddle.

2. Open Control Chamber Valve and push Magnet Tool into elbow/pipe.

3. Sweep magnet tool around inside of elbow/pipe.

NOTE: If coupon was not recovered in step "B14", attempt to recover it with Magnet Tool. DO NOT sweep too aggressively, as this may result in movement of Control Chamber.

4. Retract Magnet Tool fully and close Control Chamber Valve – unlock and remove Magnet Tool and clean magnet of shavings.

5. Repeat Steps **"C1**" through **"C4**" at least 3 times or until shavings are no longer found.

6. Lubricate the Tap with Mueller Cutting Grease (88366).

7. Connect Threading Tool to Control Chamber and lock by pushing locking cam arms to point away from saddle.

NOTE: Tapping Tool must be hand operated – use Tap Wrench provided in kit.

8. Open Control Chamber Valve and lower Threading Tool until it contacts elbow/pipe – adjust tool slightly if needed to engage hole.

9. Apply downward force while turning until the tap grabs.

10. Turn an additional 10 complete revolutions.

NOTE: Tap Wrench (T-bar) has hole on one side of handle that can be used as reference to track turns.

11. Back Threading Tool out and retract to rearmost position, close Control Chamber Valve, and remove Threading Tool.

12. Repeat Steps "**C1**" through "**C4**" at least 2 times to remove shavings from threaded hole.

CAUTION: Use meter set shut-off valve to stop gas flow if any problem arises resulting in uncontrolled gas to the atmosphere.

D–Bagging-Off and By-Passing

1. Insert provided Wire into Bag inflation tube, with bent over end first, until $2^{\circ} - 3^{\circ}$ protrudes from end of tube. Take care to not puncture tube or bag.

2. Attach Hose Barb to launch tube of Bag Tool and tighten.

3. Observe natural curl of Bag, insert Hose Barb into Bag inflation tube such that Tool alignment arrow points in same direction as direction of curl – insert barb approximately ¹/₄" then apply one drop of CA glue at end of tube and barb juncture, finally slide tube fully onto barb or until glue adheres.

4. Bend Wire to approximate radius shown in chart.

Approximate Bend Radius for Bag Wire

Bag Size	Bend for Elbow	Bend for Straight Pipe
3/4"	2 ¹ / ₂ "	2"
1"	3"	2 ¹ / ₂ "
1 ¹ / ₄ "	31/2"	3"
1 ¹ /2"	4"	31/2"

5. Push inflation stem all the way into launch tube (gauge will be close to alignment arrow).

6. Pull Bag into launch tube until only crimped end of Bag is exposed.

7. Carefully pull launch tube until lower end is about even with bottom of Locking Mechanism, and note length of exposed launch tube above locking mechanism. [When launch tube is pulled back in step "**E5**", DO NOT pull it back more than observed amount otherwise launch tube could become separated from locking mechanism.]

8. Connect Bag Tool (with alignment arrow pointing upstream) to Control Chamber and lock by pushing locking cam arms to point away from saddle.

CAUTION: In steps "D9" and "D10", prevent inflation stem from rotating inside launch tube by grasping both parts where they meet while performing each step.

9. Open Control Chamber Valve and push launch tube forward, rotating slightly back and forth as guide pin at end enters threaded hole in elbow/pipe and then end of launch tool seats in hole. Launch tube will feel "tight" and no more forward progress will be possible when it is seated.

10. Make sure cap is in place on valve stem, then rock (DO NOT turn) inflation stem back and forth gently in direction of alignment arrow and push forward until Bag is in position up-stream of launch point.

NOTE: Cap keeps valve stem open to allow any pressure inside Bag to escape as it is launched.

11. Close Valve Stem by removing cap. Gauge on Bag Tool should read zero (0 to 5 psig acceptable).

12. Inject CNG through valve stem to inflate Bag to between 17 and 22 psig.

NOTE: Monitor delivery pressure using an approved manometer or calibrated gauge.

13. Shut off gas supply stream and perform work according to the service order.

A CAUTION: Shavings are likely to drop into meter during drilling and tapping process. Lower meter and sweep inside each connection using Magnet Tool

Installing DBS Machine

at least 3 times. If shavings or lost coupon cannot be removed: change out meter! Shavings not removed could cause damage to meter diaphragm. DO NOT turn meter upside down or shake to remove shavings or coupon. Use meter set shut-off valve to stop gas flow if any problem arises resulting in uncontrolled gas to the atmosphere.

E–Remove Bag and Return to System Supply

1. Restore system supply and purge as close to bag off point as possible.

NOTE: This will usually be outlet spud of meter or closest upstream fitting from bag off point.

2. Remove Bag CNG supply and deflate Bag by reattaching cap to stem valve.

3. Rock Bag Tool gently (DO NOT turn) and slowly pull Bag into Bag Tool launch tube.

CAUTION: In next step, DO NOT pull Bag Tool launch tube completely out of locking mechanism, which would allow gas to escape – if this should occur, close supply line and CNG source control valves.

4. Pull Bag Tool launch tube up above Control Chamber Valve (DO NOT pull out more than observed in step "**D8**"), then close valve and remove Bag Tool.

CAUTION: Use meter set shut-off valve to stop gas flow if any problem arises resulting in uncontrolled gas to the atmosphere.

F–Installing Completion Plug

1. Attach Completion Plug to Completion Tool.

2. Apply approved pipe sealant to Plug threads.

3. Connect Completion Tool to Control Chamber and lock by pushing locking cam arms to point away from saddle.

Installing DBS Machine / Maintenance

4. Open Control Chamber Valve.

5. Push down on Completion Tool until Plug contacts elbow/pipe, then turn **clockwise** to thread Plug into threaded hole. Apply light downward force and turn approximately 2 turns, or until it becomes more difficult to turn.

NOTE: If Plug threads are unable to engage, remove and try again. If threads cannot be engaged, close meter shut off valve and install Plug manually.

6. Pull up on Completion Tool to disengage from Plug.

7. Remove CNG supply.

Maintenance Instructions

Testing Bag

1. With Bag extended from the end of Bag Tool, visually inspect for obvious defects and abnormalities.

2. Attach CNG supply to valve stem and inflate Bag to approximately 4 – 6 psig.

3. Observe gauge on Bag Tool for dropping pressure, and look for indications of leakage (smell, hear, and/or feel).

NOTE: If any leakage is detected, replace Bag in accordance with Replacing Bag section of these instructions, below.

Replacing Bag

1. Extend Bag from Bag Tool.

2. Remove Bag and its inflator tube from Hose Barb on Bag Tool.

3. Select new, correctly sized Bag.

4. Insert provided Wire into Bag inflation tube, with bent over end first, until $2^{\circ} - 3^{\circ}$ protrudes from end of tube. Take care to not puncture tube or bag.

8. Retract Completion Tool to rearmost position, close Control Chamber Valve and remove Completion Tool.

9. Slowly open Control Chamber Valve to verify Plug is seated.

10. Remove Saddle/Control Chamber unit.

11. Tighten Plug with socket wrench.

12. Check for leaks using approved leak test fluid or soapy water (add glycerin in freezing weather) in accordance with Gas Company approved procedures.

NOTE: If leaking, repair leak in accordance with applicable Operating Standards and Field Procedures.

13. Touch up paint/coating in accordance with Gas Company approved procedures.

14. Clean and store tools.

CAUTION: Use meter set shut-off valve to stop gas flow if any problem arises resulting in uncontrolled gas to the atmosphere.

5. Observe natural curl of Bag, insert Hose Barb into Bag inflation tube such that Tool alignment arrow points in same direction as direction of curl – insert barb approximately ¹/₄" then apply one drop of CA glue at end of tube and barb juncture, finally slide tube fully onto barb or until glue adheres.

CAUTION: Applying more than (1) drip of glue could cause overflow to contact O-ring and cause bag leakage. Perform bag testing procedure to assure proper sealing of bag and inflator tube connection.

Saddle Gasket Replacement

1. Remove Saddle Gripper (or Grippers on straight pipe saddles).

2. Observe how old Gasket is shaped and located, then remove old gasket material and clean mounting surface with a wire wheel.

3. Check to see that mounting surface is free of any debris.

4. Peel protective cover from back of new Gasket.

5. Center new Gasket over bottom of Saddle, then press it lightly in place.

6. Press Gasket from its center out to remove any air bubbles.

7. Cut away any excess gasket material and cut hole in middle of new Gasket to duplicate old Gasket configuration.

Parts Information



DBS Machine Kit

ID	DESCRIPTION	PART No.
-	DBS Kit	682820
-	DBS Kit Contents:	
1	Hole Saw Tool	682821
2	Hole Saw Cutter	537928
3	Pilot Drill	537929
4	Magnet Tool	682822
5	Threading Tool	682823
6	Тар	537936
7	Tap Wrench	537930
8	Bag Tool	682824
-	Hose Barb (Not Shown)	537950
9	Gauge	537949
10	Stem Valve	537945
-	Internal Directional Bag Wire (Not Shown)	537917
11	Completion Tool	682825
12	Completion Plugs	312937
_	Socket Wrench	682826
-	Hex Socket	682827
-	Carrying Case	682828

Replacement Parts

12

ID	DESCRIPTION	PART No.
13	Completion Plug O-ring	312936
-	Hole Saw Rod Guide	537927
-	Threading Rod Guide	537937
-	Bag Launch Tube Guide	537952
-	Tee Handle Guide	537955

13



Saddle/Control Chamber

Parts Information

For Gas Service Component	Color on Saddle	Saddle Part No.
³ /4" elbow	Yellow	682799
1" elbow	Orange	682802
1 ¹ / ₄ " elbow	Red	682805
1 ¹ /2" elbow	Blue	682808
1" steel straight pipe	Gray	682811
1 ¹ / ₄ " steel straight pipe	Maroon (or Brown)	682814
1 ¹ / ₂ " steel straight pipe	Black	682817

Replacement Parts for Saddles

ID	DESCRIPTION	PART No.
-	Saddle Gasket	537904

Gas Bag Assemblies

Fitting/Pipe Size	Bag Size	Part No.
3/4"	1" wide	537918
1"	1 ¹ / ₂ " wide	537919
11/4"	2" wide	537920
1 ¹ /2"	2 ¹ /2" wide	537921
Replacement Wire (fits all bags)		537917
Quick Setting CA Glue		537977



Reliable Connections

Gas (North America) 1.800.798.3131 www.muellergas.com moreinfo@muellercompany.com

International 1.423.490.9555 www.mueller-international.com international@muellercompany.com

Copyright © 2017 Mueller Co., LLC. All Rights Reserved. The trademarks, logos and service marks displayed in this document herein are the property of Mueller Co., LLC, its affiliates or other third parties. Products marked with a section symbol (§) are subject to patents or patent applications. For details, visit www.mwppat.com. These products are intended for use in potable water applications. Please contact your Mueller Sales or Customer Service Representative concerning any other application(s).