ALPHA 3812 #20 WIRELINE SETTING TOOL

The Alpha 3812 #20 Wireline Setting Tool is designed to efficiently set bridge plugs, cement retainers, and packers by utilizing combustion products to gradually generate force through pressure. The setting pressure is effectively directed to the appropriate area of the tool through the use of O-ring seals. It is essential that all O-rings be replaced after each operation to ensure optimal performance.

Applications:
Designed to run and set the Alpha Big Boy™ Bridge Plugs, Model B-1 Bridge Plugs, and model B Cement Retainer then squeeze or spot cement in two-trip.

CEMENT RETAINERS AND BRIDGE PLUGS

Model "B-1" Bridge Plug				
Bridge Plug	**Adapter Rod**	**Setting Sleeve**	**Lock Spring**	**Adjuster Sub**
005-3937-003	005-3937-205	005-3937-200	000-3500-203	000-4240-209
005-4312-003	005-3937-205	005-3937-200	000-4240-203	000-4240-209
005-5375-003	005-5687-205	005-5687-200	000-4240-203	000-4240-209
005-5687-003	005-5687-205	005-5687-200	000-4240-203	000-4240-209
005-6312-003	005-5687-205	005-6312-200	000-4240-203	000-4240-209
005-7125-003	005-5687-205	005-7125-200	000-4240-203	000-4240-209
005-8125-003	005-5687-205	005-8125-200	000-4240-203	000-4240-209
005-9437-003	005-5687-205	005-9437-200	000-4240-203	000-4240-209
005-9937-003	005-5687-205	005-9937-200	000-4240-203	000-4240-209
005-1200-003	005-5687-205	000-1200-200	000-4240-203	000-4240-209
005-1425-003	005-1725-205	000-1425-200	000-4240-203	000-4240-209

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Model "B" Cement Retainer						
Cement Retainer	**Adapter Rod**	**Setting Sleeve**	**Adapter Sub**	**Lock Spring**	**Stinger Locator**	**Stinger Snap Latch**
005-3937-002	005-3937-205	005-3937-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-4312-002	005-3937-205	005-3937-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-4750-002	005-3937-205	005-4750-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-5375-002	005-5687-205	005-5687-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-5687-002	005-5687-205	005-5687-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-6312-002	005-5687-205	005-6312-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-7125-005	005-5687-205	005-7125-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-8125-002	005-5687-205	005-8125-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9000-002	005-5687-205	005-9000-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9437-002	005-5687-205	005-9437-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9500-002	005-5687-205	005-9437-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9937-002	005-5687-205	005-9937-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1156-002	005-5687-205	005-1156-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1200-002	005-5687-205	005-1200-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1425-002	005-1725-205	005-1425-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1725-002	005-1725-205	005-1725-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080

Big Boy™ Bridge Plug				
Bridge Plug	**Setting Sleeve**	**Tension Mandrel**	**Adjuster Sub**	**Lock Spring**
000-4240-002	000-4240-200	000-4240-206	000-4240-209	000-4240-203
000-4750-002	000-4240-200	000-4240-206	000-4240-209	000-4240-203
000-5340-002	000-5610-200	000-5610-206	000-4240-209	000-4240-203
000-5610-002	000-5610-200	000-5610-206	000-4240-209	000-4240-203
000-6090-002	000-6090-200	000-5610-206	000-4240-209	000-4240-203
000-6960-002	000-6960-200	000-5610-206	000-4240-209	000-4240-203
000-7710-002	000-7710-200	000-5610-206	000-4240-209	000-4240-203
000-8690-002	000-8710-200	000-5610-206	000-4240-209	000-4240-203
000-8710-002	000-8710-200	000-5610-206	000-4240-209	000-4240-203
000-9500-002	000-9500-200	000-5610-206	000-4240-209	000-4240-203
000-1156-002	000-1156-200	000-5610-206	000-4240-209	000-4240-203
000-1200-002	000-1200-200	000-5610-206	000-4240-209	000-4240-203
000-1425-002	000-1425-200	000-5610-206	000-4240-209	000-4240-203
000-1725-002	000-1725-200	000-5610-206	000-4240-209	000-4240-203

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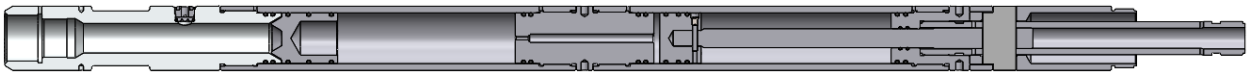
GENERAL INFORMATION

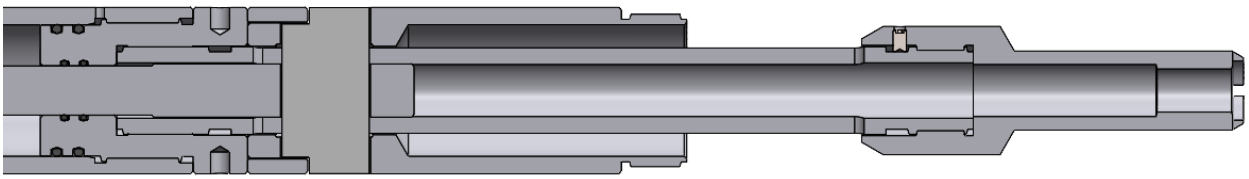
1. Use a casing scraper before running any equipment in the well to remove scale and other materials from the casing wall. Any tool that is expected to grip the casing wall has to first reach the casing wall.
2. Circulate the well to clean the well of debris and junk.
3. Drift the casing ID 80-100 feet below setting depth with a full OD gage ring and junk basket to ensure no restrictions or debris exist.
4. Use the correct Plug/Retainer for the temperature, pressure, casing size, casing weight and environment.
5. Never set the retainer in a casing collar or a location where milling has occurred.
6. Always set the retainer in static well conditions (no fluid or gas movement).
7. When perforating, the cement retainer should be protected with a minimum of ten feet of cement dumped directly on top of the retainer. Cement should be given sufficient time to harden before perforating.
8. Perforating should not be done closer than fifty feet of cement retainer without putting a minimum of 10 ft. of hard cement on top of retainer.

FIELD ASSEMBLY PROCEDURE

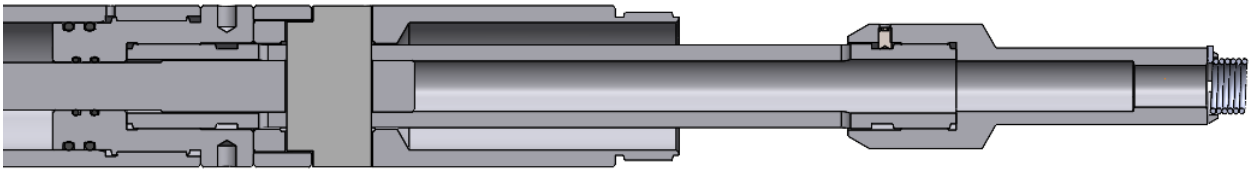
STEP 1: Place the #20 setting tool in vise at the top sub. Place a steady rest under the Cylinder Connector for support.



STEP 2: Install Adjuster Sub (000-4240-209) onto Setting Mandrel (item 13) and install one Set Screw 5/16-18x500 to secure it.



STEP 3: Install Lock Spring (000-4240-203) on the Adjuster Sub.



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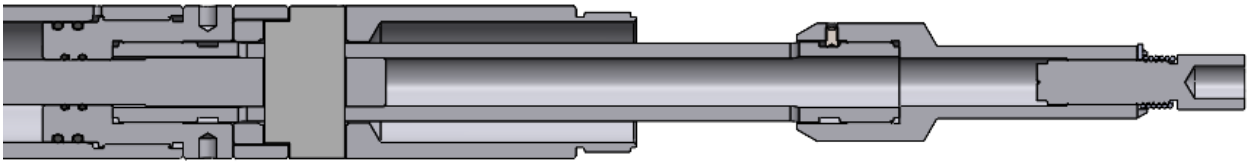
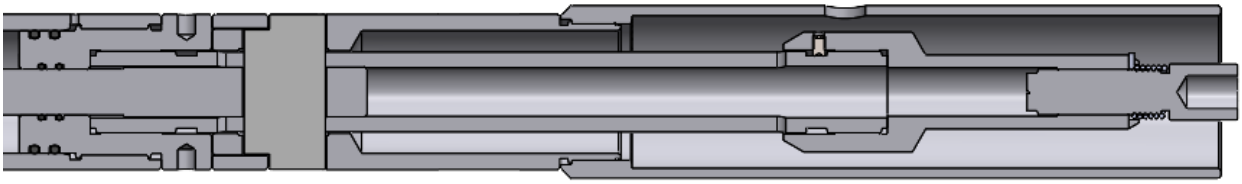
STEP 4: Install Tension Mandrel (000-4240-206) thru the Lock Spring into the Adjuster Sub.



STEP 5: Install and screw the Setting Sleeve (000-4240-200) onto the Cross Link Sleeve (item 14).



STEP 6: Install the Plug/Retainer into the Tension Mandrel and screw until Setting Sleeve touches the Lock Ring Back-up. Adjust the Setting Sleeve if needed.

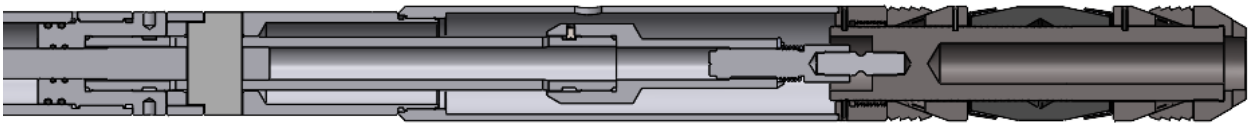


Illustration with 4240 Big Boy™ Bridge Plug.

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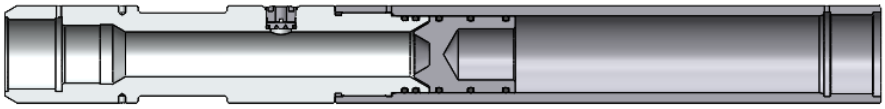
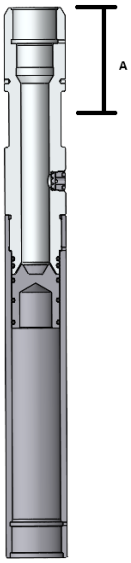
OPERATION PROCEDURE

1. Remove the Top Cylinder (item 4) from the Cylinder Connector (item 6) and set aside.

2. Use aluminum tube, towel rod, or broomstick to check that the Floating Piston (item 5) is completely bottomed out against the Pressure Chamber (item 1).



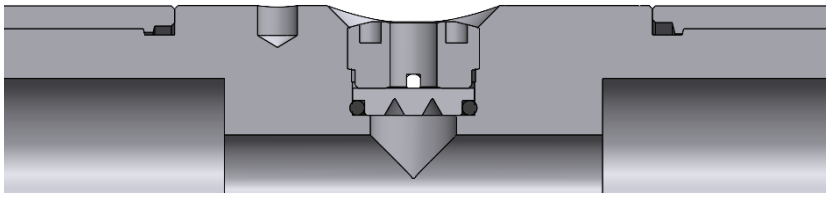
3. Fill Pressure Chamber (item 1) with clean oil to the proper level. Determine proper Oil Level line by chart shown below for your Well temperature at setting depth.



Temperature	Dimension “A” (in)
200°F or less	3-1/4
201°F - 275°F	
276°F - 350°F	3-1/2
351°F - 400°F	3-5/8

4. Pick up Lower Portion of Tool and thread into the Lower Cylinder (item 4) and tighten connection.

5. Check that the Rupture Disk (item 3) and Disk Retainer (item 4) are in place and tight.



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6. Install Firing head with igniter on Pressure Chamber (item 1). Check Firing Head for electrical continuity from the Connector to the Firing Pin. Check for shorting.

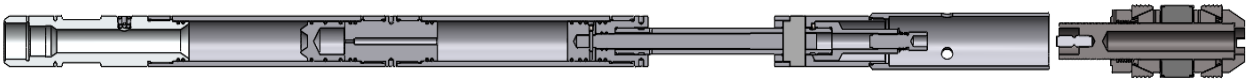
7. Pick up the tools, check zero and run in the hole at a speed no higher than 300 ft/min, being careful to slow down when approaching the fluid level. Continue running several feet past setting depth if possible. Check odometer and weight indicator and pick up slowly to setting depth.

8. Fire primary igniter.

9. Depending in depth, well fluid and other conditions as many as three distinct impulses can be felt manually on the electric line or observed on the weight indicator as the tools set and shear off.

10. Wait approximately one minute after the last weight indicator bobble to be sure the tool is set.

11. After Plug/Retainer is set, pick up slowly and note the setting depth by the weight increase, remembering that the setting tool will increase in length due to stroking out.



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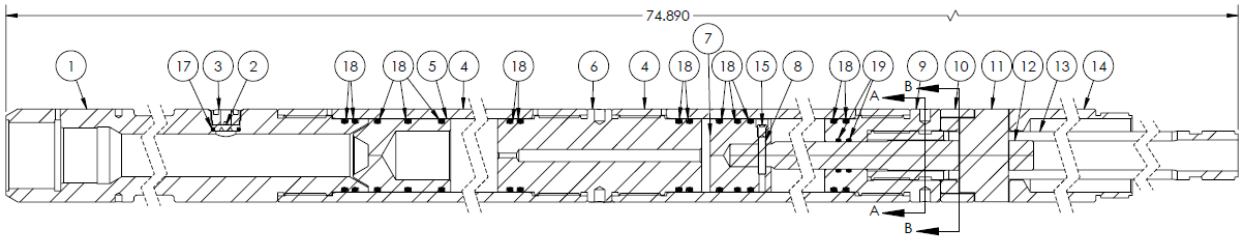
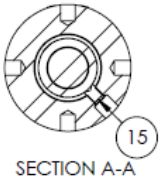
ASSEMBLY INSTRUCTIONS FOR ALPHA 3812 #20 WIRELINE SETTING TOOL

Anti-galling compound should be used on all threads. Downhole grease should be used on all O-rings. To avoid damage to parts, use a soft jaw vise and strap wrenches when tightening connections. Wrench on knurled areas or utilize spanner holes. File away wrench marks.

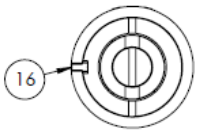
NOTE: Wrench tight means putting your weight on the end of a 24” pipe wrench. Screwdriver tight means hand tight with a medium blade 6” long screwdriver.

3812 #20 WIRELINE SETTING TOOL ASSEMBLY ILLUSTRATION





SECTION A-A



SECTION B-B

ITEM NO.	PART NUMBER	ALPHAPARTNAME	QTY.
1	024-3812-035	PRESSURE CHAMBER	1
2	024-2750-054	RUPTURE DISK	1
3	024-2750-055	DISK RETAINER	1
4	024-3812-038	CYLINDER	2
5	024-3812-037	FLOATING PISTON	1
6	024-3812-039	CYLINDER CONNECTOR	1
7	024-3812-041	PISTON	1
8	024-3812-042	RETAINING PIN	1
9	024-3812-043	CYLINDER HEAD	1
10	024-3812-044	LINK RETAINING RING	1
11	024-3812-045	CROSS LINK	1
12	024-3812-046	PISTON ROD	1
13	024-3812-048	SETTING MANDREL	1
14	024-3812-047	CROSS LINK SLEEVE	1
15	375S16X500	3/8 - 16 X .500 SET SCREW	2
16	313S18X500	5/16-18 X .500 SET SCREW	1
17	000-213N-090	213 O-RING	1
18	000-334N-090	334 O-RING	14
19	000-216N-090	216 O-RING	2

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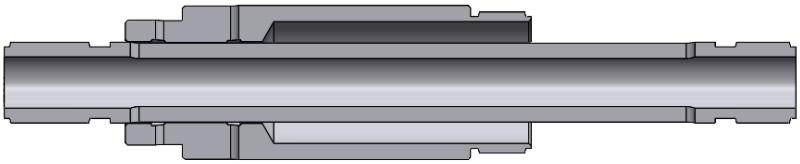
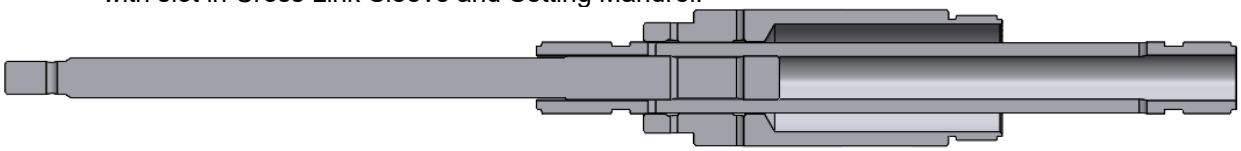
ALPHA 3812 #20 SETTING TOOL ASSEMBLY STEPS

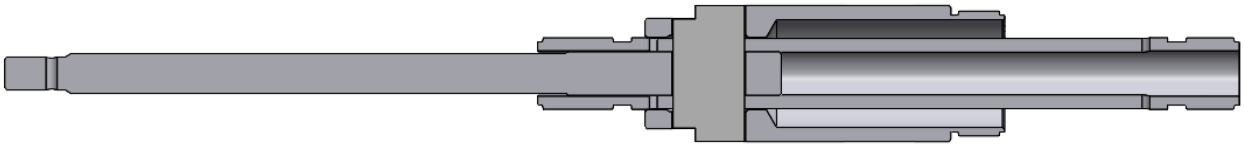
1. Grease all threads and O-ring surfaces.
2. Place Cross Link Sleeve (item 14) into a vise.
3. Lubricate Cross Link Sleeve (item 14) and Setting Mandrel (item 13) with downhole grease and slide Setting Mandrel into Cross Link Sleeve.



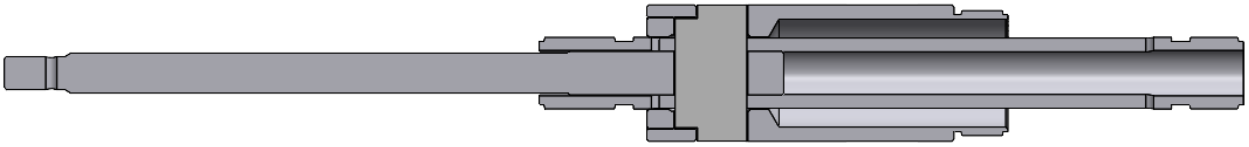
4. Lubricate Piston Rod (item 12) and slide into Setting Mandrel (item 13). Align Slot in Piston Rod with slot in Cross Link Sleeve and Setting Mandrel.



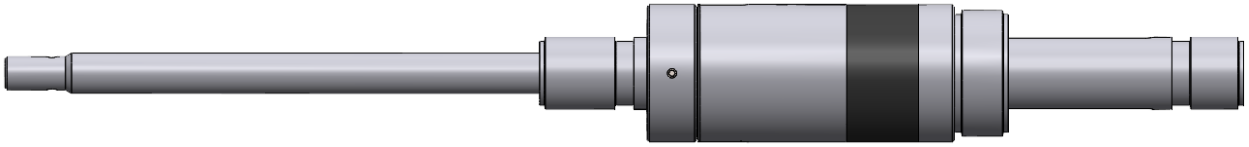
5. Insert Cross Link (item 11) into slots.



6. Slide Retaining Link Ring (item 10) over Cross Link Sleeve (item 14) until it shoulders.



7. Thread Set Screw (item 16) into Retaining Link Ring (item 10) making sure to align Set Screw hole with indention on Cross Link Sleeve.



8. Lubricate and install internal and external O-rings (item 18 & 19) onto Cylinder Head (item 9).

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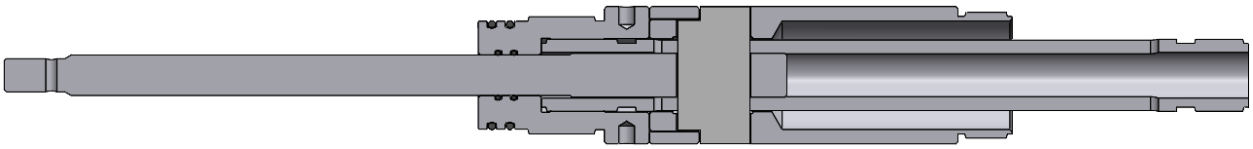
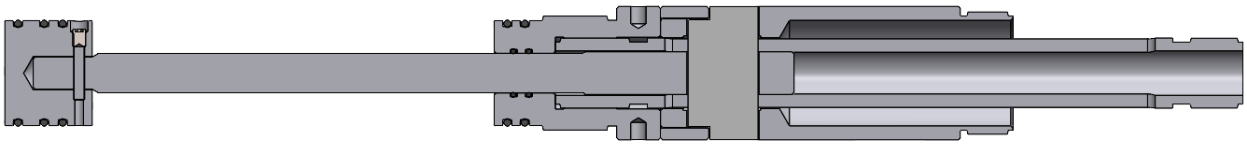
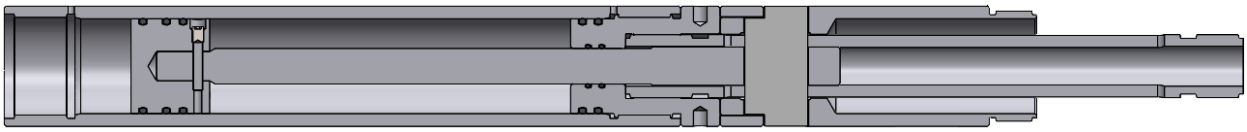
9. Thread Setting Mandrel (item 13) into Cylinder Head (item 9) and thread Set Screw (item 15) into Cylinder Head.



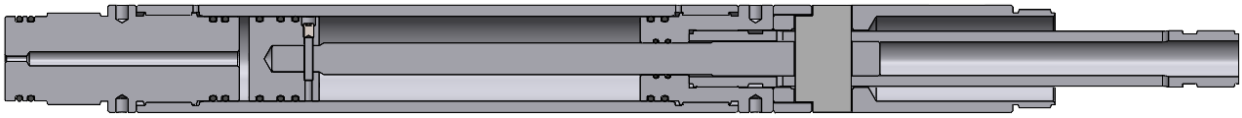
10. Lubricate and assemble O-rings (item 18) onto Piston (item 7) and connect to Piston Rod (item 12) with Retaining Pin (item 8) and Set Screw (item 15).



11. Push Cylinder Head (item 9) against Cross Link Sleeve (item 14), lubricate Piston (item 7), and slide Lower Cylinder (item 4) over Piston and thread onto Cylinder Head.

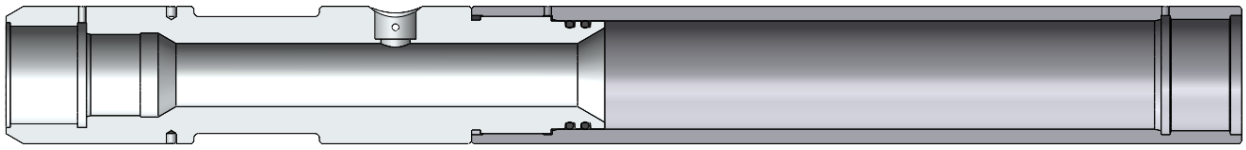


12. Assemble O-ring (item 18) on Cylinder Connector (item 6) and thread into Lower Cylinder (item 4).



13. Remove Assembly from vise, set aside and place Pressure Chamber (item 1) in vise. Lubricate and install O-rings (item 18) on Pressure Chamber.

14. Install Upper Cylinder (item 4) onto the Pressure Chamber (item 1).



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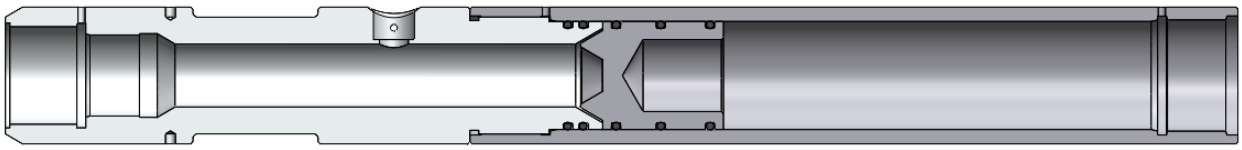
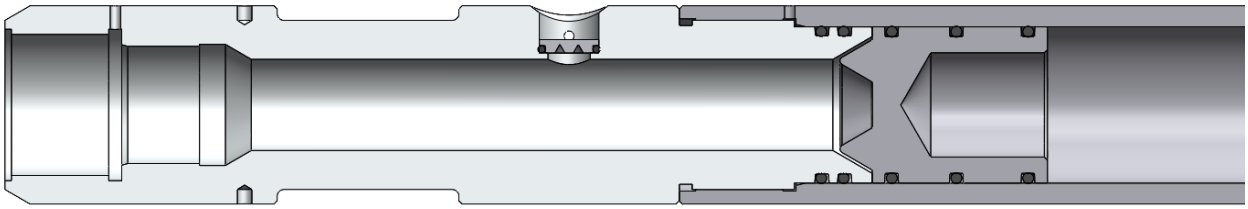
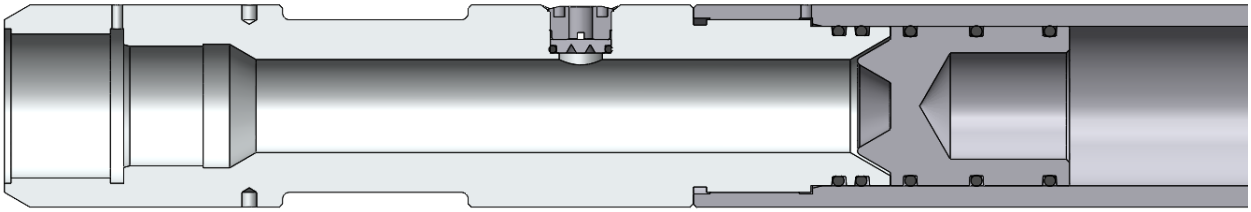
15. Lubricate and assemble O-rings (item 18) on Floating Piston (item 5) and place it into Top End of Upper Cylinder (item 4). Use aluminum tub, dowel rod, or broomstick to push Floating Piston down until it contacts the Pressure Chamber (item 1).



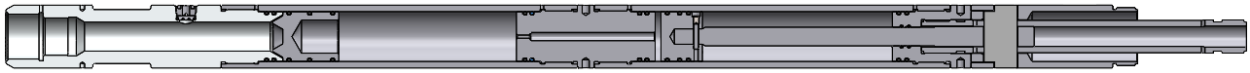
16. Lubricate and install O-ring (item 17) into Pressure Chamber (item 1).
17. Install Rupture Disk (item 2) into Pressure Chamber (item 1) being careful not to pinch O-ring.



18. Install Disk Retainer (item 3) into Pressure Chamber (item 1) to secure the Rupture Disk in place.



19. Thread lower half of tool onto upper half of tool. Place tool back in vise and tighten all thread connections.



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DISASSEMBLY OF THE 3812 #20 WIRELINE SETTING TOOL

1. Lay tools down, being careful not to damage the adapter kit.
2. Bleed the tool.
3. After bleeding tool make sure there is no pressure trapped inside the tool, a gap between the Cylinder Head (item 9) and Cross Link Sleeve (item 14) will be visible.
4. Place the tool in a vise anywhere between the Upper Cylinder (item 4) and the Cylinder Head (item 9) and secure in place.
5. Unscrew and remove Firing Head.
6. Remove Adapter Kit.
7. Use the Bleeder wrench to remove the Disk Retainer (item 3).
8. Use the screw extractor portion of the Bleeder wrench to remove the punctured Rupture Disk (item 2).
9. Remove Pressure Chamber (item 1).
10. Remove Upper Cylinder (item 5).
11. Using and aluminum tube, dowel rod, or broomstick, push burnt power charge from Upper Cylinder (item 5).
12. Push Floating Piston (item 5) out of lower end of Upper Cylinder (item 4).
13. Remove Set Screw (item 16) and slide Link Retaining Ring (item 10) up off Cross Link Sleeve (item 14).
14. Remove Cross Link (item 11).
15. Remove Cross Link Sleeve (item 14) and Link Retaining Ring (item 10).
16. Remove Set Screw (item 15) and remove Setting Mandrel (item 13)
17. Unscrew Cylinder Head (item 9) and remove along with Piston (item 7) and Piston Rod (item 12). Catch and discard oil from tool.
18. Remove Set Screw (item 15) from Piston (item 7).
19. Remove Retaining Pin (item 8) and separate Piston (item 7) from Piston Rod (item 12).
20. Pull Piston Rod (item 12) from lower end of Cylinder Head (item 19).
21. Remove Cylinder Connector (item 6).
22. Remove and discard all O-rings (item 17, 18 & 19).
23. Clean and inspect all parts for wear and damage.

REDRESS KIT (024-3812-110) FOR THE 3812 BT-20 WIRELINE SETTING TOOL

PART NUMBER	DESCRIPTION	QTY.
000-213N-090	213 O-RING	1
000-216N-090	216 O-RING	2
000-334N-090	334 O-RING	14
000-328N-090	328 O-RING	2
000-325N-090	325 O-RING	2
000-112N-090	112 O-RING	1
000-012N-090	012 O-RING	1
024-2750-054	RUPTURE DISK	1

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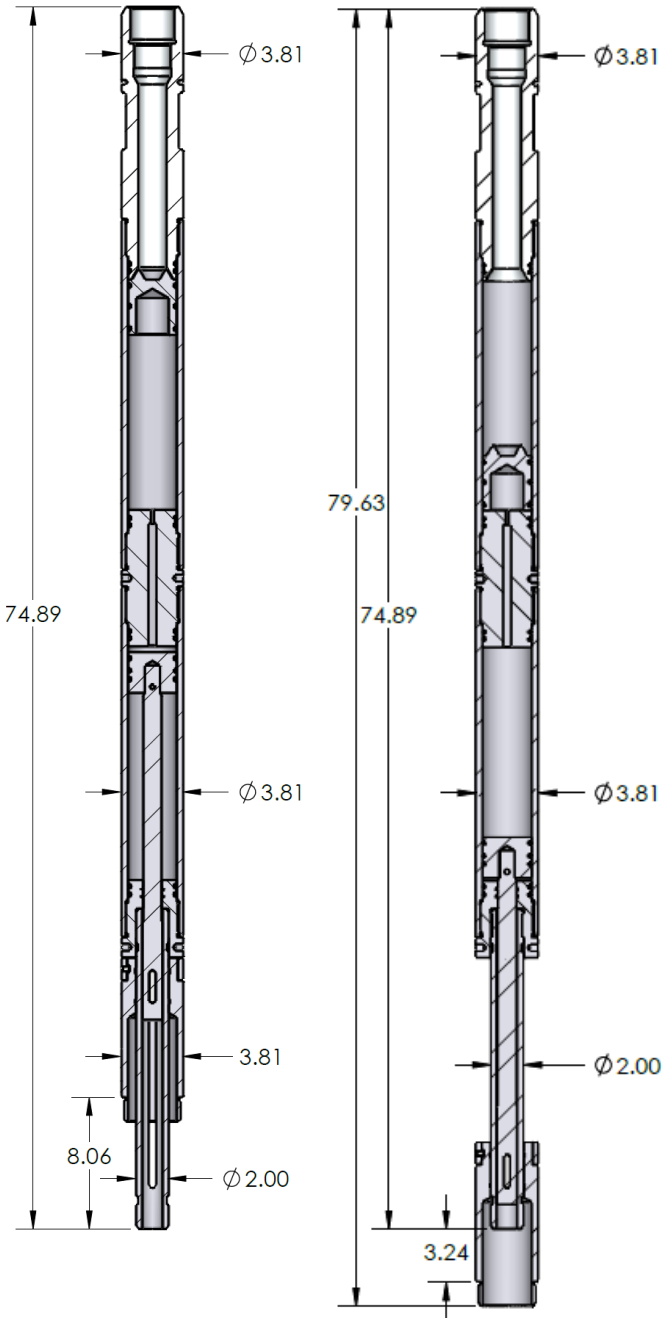
ALPHA #20 WIRELINE SETTING TOOL DIMENSIONAL DATA



RUNNING POSITION

FULLY STROKE POSITION

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