



## Model “B” Mechanical Setting Tool

for “B” Sleeve Valve Cement Retainers and “B-1” Bridge Plugs

The Model B Mechanical Setting Tool is designed to run and set Alpha’s Model B Sleeve Valve Cement Retainer and Model B-1 Bridge Plug. It is easy to operate and has low maintenance.

This tool incorporates both a stinger seal and built-in snap latch allowing the tool to be latched into the retainer with set-down weight and released with up-strain and/or right-hand rotation. This tool can be run up to 3-times by moving the drive housing into the running position and installing new shear screws. Disassembly is not required every time. Visually inspect MST after each run.

The setting tool can be converted for 4 1/2 through 20” casing sizes.

### SPECIFICATIONS

CASING		SETTING TOOL		SETTING RANGE		MATCHING TOOL	
OD	WT. (LBS/FT)	PART NO.	O.D.	MIN.	MAX.	“B” Ret.	“B-1” Plug
4 1/2	9.5 - 16.6	017-3593-000	3.593	3.826	4.090	005-3593-000	005-3593-001
5	11.5 - 18	017-3593-000	3.593	4.154	4.560	005-3937-000	005-3937-001
5 1/2	13 - 23	017-4312-000	4.312	4.580	5.044	005-4312-000	005-4312-001
6	10.5 - 12	017-5687-000	5.375	5.595	6.135	005-5375-000	005-5375-001
6 5/8	17 - 34	017-5687-000	5.375	5.595	6.135	005-5375-000	005-5375-001
7	32 - 38	017-5687-000	5.375	5.595	6.135	005-5375-000	005-5375-001
7	17 - 35	017-5687-000	5.687	6.004	6.538	005-5687-000	005-5687-001
7 5/8	20 - 39	017-6312-000	6.312	6.625	7.263	005-6312-000	005-6312-001
8 5/8	24 - 49	017-7125-000	7.125	7.511	8.248	005-7125-000	005-7125-001
9 5/8	29.3 - 53.5	017-8125-000	8.125	8.435	9.063	005-8125-000	005-8125-001
10 3/4	54 - 81	017-9000-000	9.000	9.250	9.660	005-9000-000	005-9000-001
10 3/4	32.7 - 51	017-9437-000	9.437	9.660	10.192	005-9437-000	005-9437-001
13 3/8	77 - 102	017-1156-000	11.562	11.633	12.464	005-1156-000	005-1156-001
13 3/8	48 - 72	017-1200-000	12.000	12.175	12.715	005-1200-000	005-1200-001



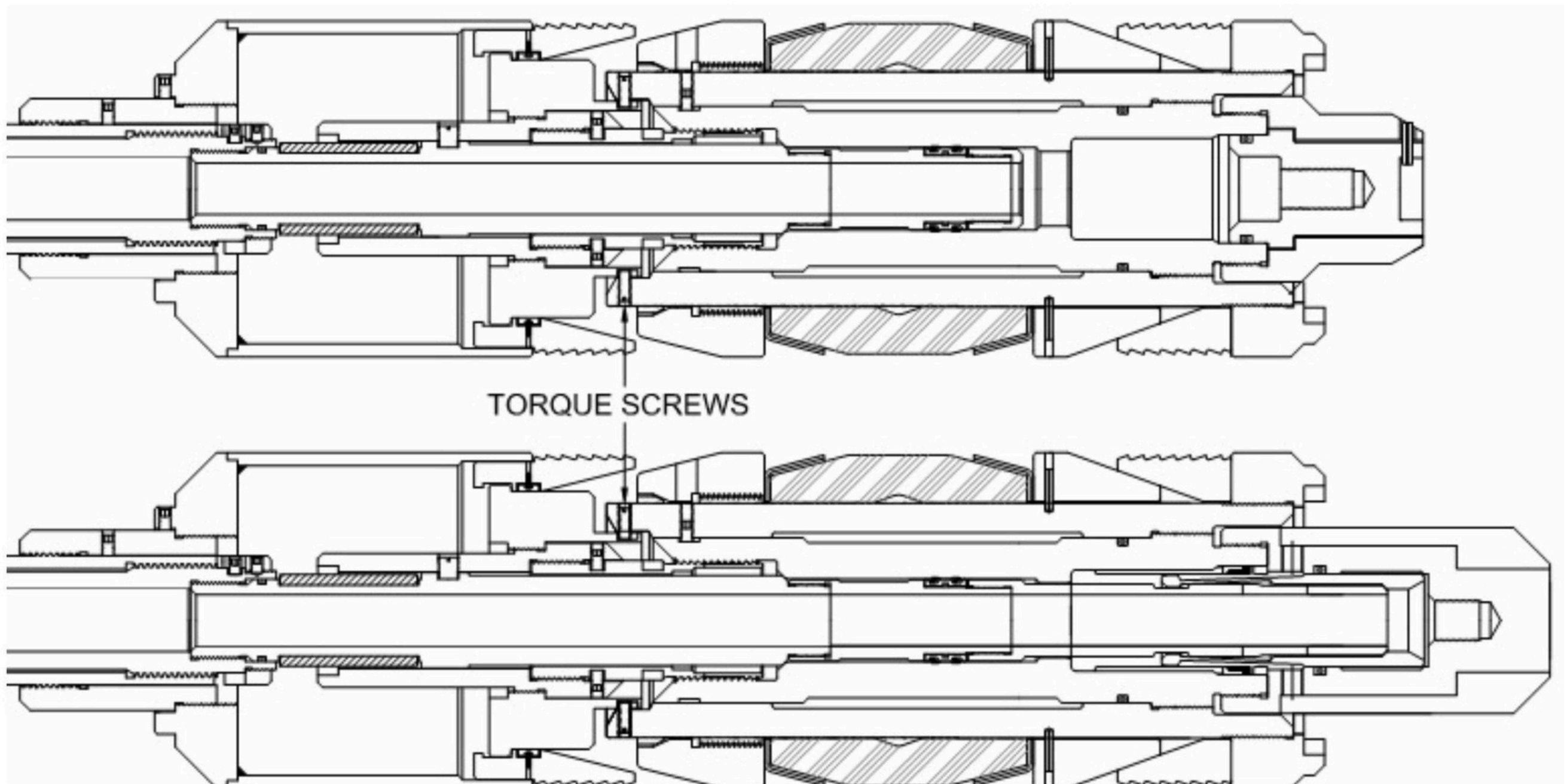
**This illustration does not reflect all sizes**



# Model “B” Mechanical Setting Tool

for “B” Sleeve Valve Cement Retainers and “B-1” Bridge Plugs

The Model B Mechanical Setting Tool is designed to run and set Alpha’s Model B Sleeve Valve Cement Retainer. Easy to operate and low maintenance are evident in the design. The tool incorporates both a stinger seal and built-in snap latch allowing the tool to be latched into the retainer with set down weight and released with up-strain or right-hand rotation. This tool can be run up to three times by moving the drive housing into place and installing new shear screws. NOTE: the molded seal must remain in tolerance and *not* be cut or worn. Disassembly is not required between runs on the same location, but is recommended upon returning to the shop. Tool sizes are available from 4 1/2 to 13 3/8 casing. Fewer moving parts and ease of operation make this tool a good addition to your line. The Model B-1 Mechanical Set Bridge Plug can be run with this tool by removing item 27 Shifter Sub. Add a 4 ft ported Tubing Sub for fill up while going in the hole if applicable.



## INSTALLATION OF MODEL “B” CEMENT RETAINER OR B-1 BRIDGE PLUG ON B MST

1. Place the mechanical setting tool in vise at the top sub. Place a steady rest under the adjuster sub (item 8) for support.
2. Apply grease to the stinger section of the setting tool.
3. Rotate drag housing and slip retaining sleeve up off the threads on the lower mandrel. Place slips up on slip nut.
4. Align CR with MST stinger then push CR on setting tool until it engages slotted end of latch thread. Support CR with steady rest for larger tools. Rotate CR left hand while pushing CR until it bottoms. Back off RH until torque screw holes line up. Install torque screws. If necessary, place a block of wood across the end of setting tool and strike with a sledge hammer. The stinger needs to go in until the latch threads snap into the retainer threads. Rotate drag housing and slip retaining sleeve over slips. Tighten the set screw in slip retaining sleeve.

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## RUNNING INSTRUCTIONS

1. The tool should be run at a moderate speed avoiding sudden stops.
2. Avoid right-hand rotation transmitted to the setting tool. As a precaution, after every 10 stands the tubing or drill pipe can be rotated to the left by hand until torque is felt.
3. At desired setting depth, rotate tubing to the right a minimum of seven turns, releasing the slips onto the cone.
4. Pull into the tubing in one continuous pull. See chart below to view the recommended tension. It is important to calculate this tension through tubing stretch. Do not rely on weight indicators.
5. After desired pull is reached, lock down the brake on rig to allow setting force to reach retainer. Hold the tension approximately five minutes, then slack off pipe and set approximately five to ten thousand pounds weight down insuring retainer or plug is securely set.

Retainer Size	Minimum Tension	Maximum Tension
3.593-4.312	22,000 lbs.	30,000 lbs.
5.375-6.312	30,000 lbs.	45,000 lbs.
7.125-12.00	35,000 lbs.	48,000 lbs.

## TEST OPTIONS

1. The tubing or drill pipe can be pressure tested by simply pulling up five thousand pounds at the tool and applying pump pressure to the tubing.
2. The retainer can now be tested for seal-off by applying pressure down the annulus or by slacking off five thousand pounds weight on retainer and applying pump pressure down the tubing and pumping into formation
3. These tests are performed before the setting tool is released from the retainer
4. If seal-off has not been accomplished, up-strain on the tubing can again be applied and the tools can be retested until seal-off is accomplished

## RELEASING RETAINER

1. Hold an up-strain of approximately one thousand pounds on the tubing.
2. Apply torque to the right until torque screws are sheared. Each screw requires 200 - 400 foot-pounds.
3. Continue right-hand rotation for ten turns or until latch is felt releasing
4. After releasing from retainer, the setting tool can be re-latched into the retainer with three to five thousand pounds set-down weight. This stabilizes at two thousand five hundred pounds with repetition.
5. The valve will open when the stinger is fully engaged into the retainer and will close with a 2-inch upward stroke at the tool. The stinger will remain sealed in the bore as long as snap-out force is not exceeded.



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## ASSEMBLY INSTRUCTIONS

1. Grease all threads and o-ring surfaces.
2. Slide the Upper Mandrel (item 2) through the Drag Housing (item 4), entering at the end of drag housing with external threads.
3. Screw the Top Coupling (item 1) onto the Upper Mandrel (item 2). Place the Top Coupling in the vise and tighten with wrench placed in the groove on the Upper Mandrel.



4. Slide on Stop Ring (item 11) then screw on Lock Nut (item 14). Install the Set Screw (item 13) but leave loose.



5. Screw the Drag Housing (item 4) toward the Stop Ring (item 11). Turn the Stop Ring with the Drag Housing until maximum surface engagement is obtained. Make certain it will not jam by backing off the Drag Housing one round. If holes in the Stop Ring and the Upper Mandrel are not aligned at this point, turn the Stop Ring to the right until alignment is obtained. Install the Set Screws (item 12). Tighten set screw (item 13).

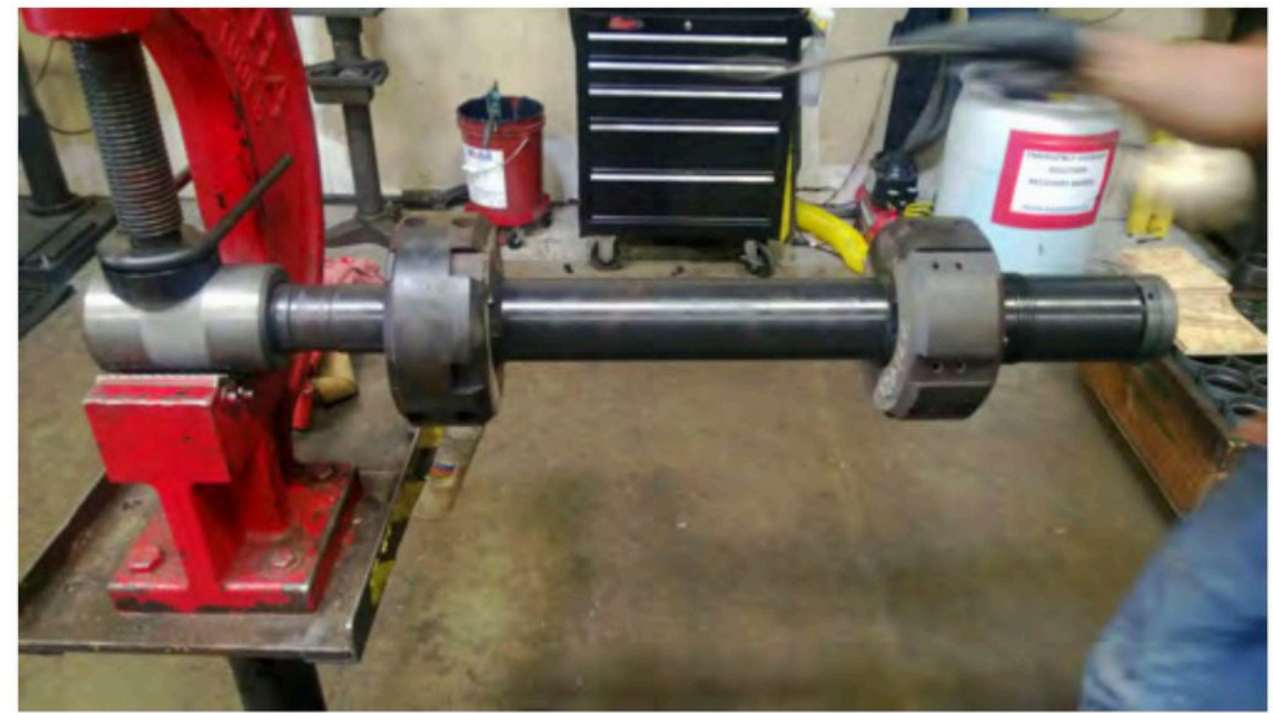




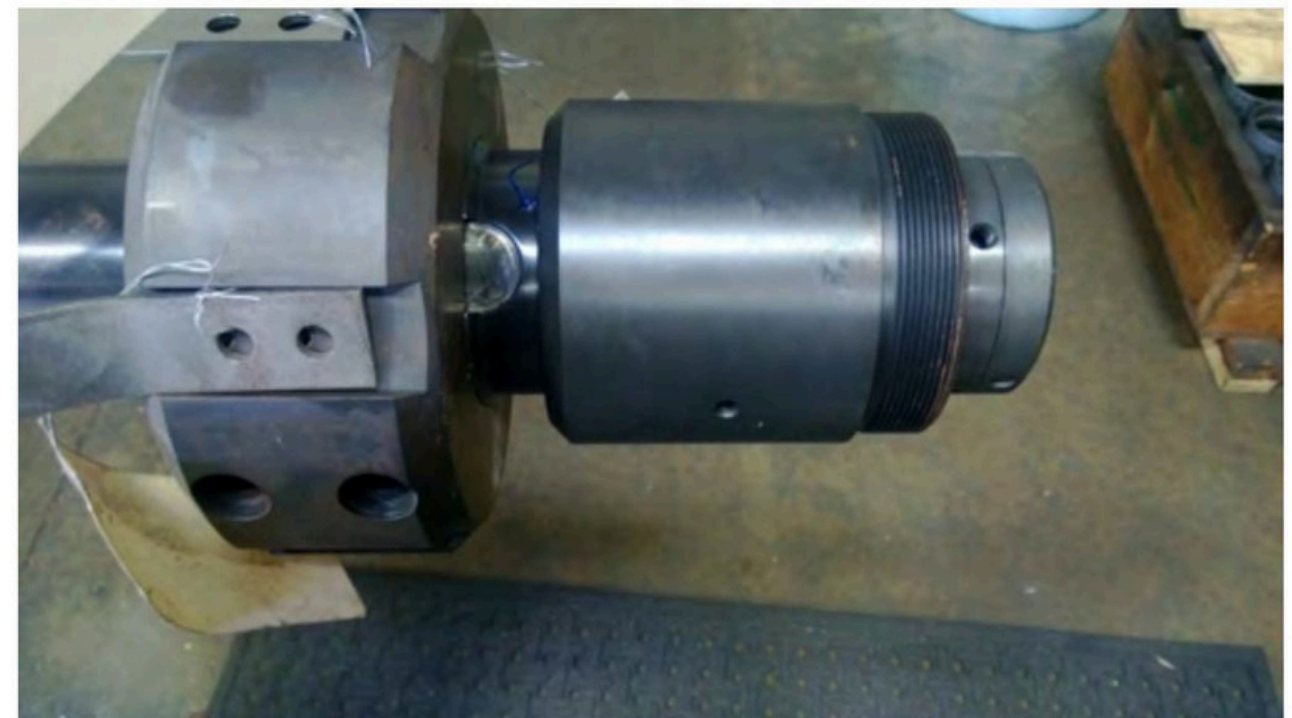
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6. *for 7" and Larger Sizes only*  
Slide the Upper Drag Bushing (item 3) over the Drag Housing (item 4) to the far end and insert the Set Screws (item 31). Repeat with the Lower Drag Bushing (item 6). Note location of tapped holes in lower bushing. Position as shown on assembly drawing.



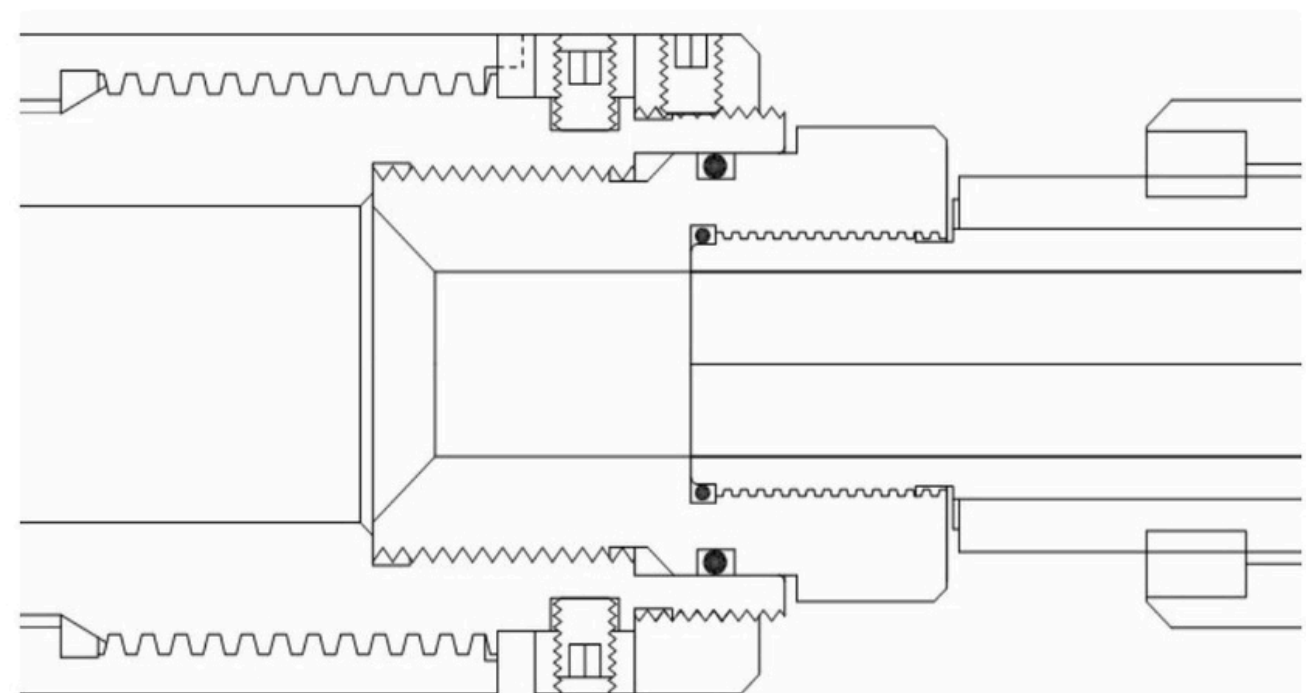
7. Screw the Adjuster Sleeve (item 8) onto the Drag Housing (item 4) as far as it can go. Start the Set Screw (item 9) but do not tighten.



8. Screw the Slip Retaining Sleeve (item 18) onto the Adjuster Sleeve (item 8) as far as it can go. Start the Set Screw (item 10), but do not tighten.



9. *for 4 1/2 and 5 1/2 Sizes only*  
Place the O-Ring (item 15) on outside of the Crossover (item 28). Place another O-Ring (item 29) on inside of the Crossover. Slide the Slip Nut (item 19) over the Lower Mandrel (item 22) and screw the Lower Mandrel into Crossover. Screw the Crossover into the Upper Mandrel and tighten.





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*For 7" and Larger Sizes only*  
10. Slide the Drive Housing over the Lower Mandrel (item 10). Install the O-Ring (item 15) on the Lower Mandrel.



11. Screw the Latch (item 21) into the Drive Housing, depending on size, and install Set Screws (item 20).



12. Place O-Ring (item 23) in the Seal Sub (item 24) and screw onto the Lower Mandrel.

Place the O-Ring (item 26) in the Molded Seal (item 25 "not shown") and slide onto Seal Sub.

Screw the Shifter Sub (item 27) onto Seal Sub and tighten. Pipe wrench placement for shifter sub is just above groove.

13. Install Shear Screws (item 17) in groove of lower mandrel (item 22) as shown.

14. Screw the Slip Nut (item 19) onto the Drive Housing (item 16).





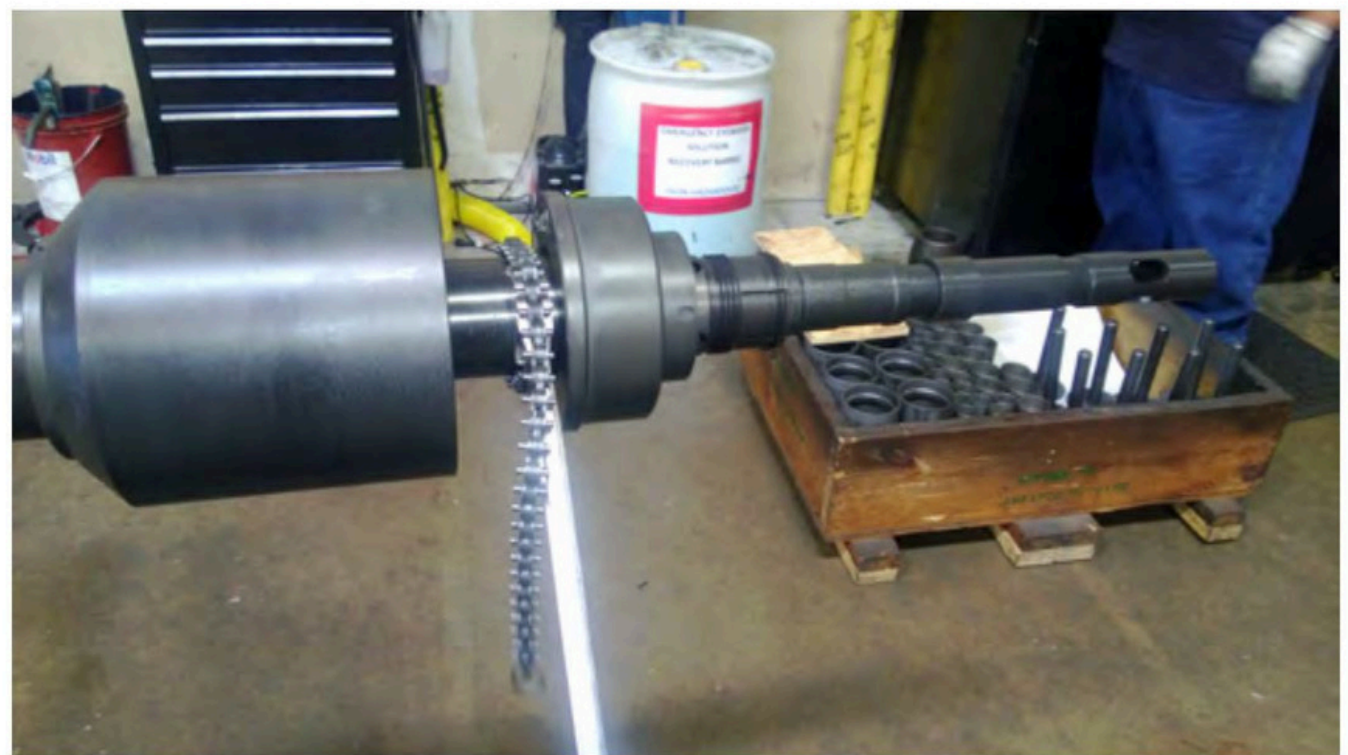
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15. Slide the Drag Spring (item 5) under the cover on the Upper Drag Bushing (item 3) and then align holes in the Drag Spring and the Lower Drag Bushing (item 6). Install Button Head Cap Screws (item 7) in each Drag Spring.



16. Screw the Lower Mandrel assembly into the Upper Mandrel and tighten. Wrench where shown.



17. When running a B-1 bridge plug remove shifter sub (item 27) and install thread protector



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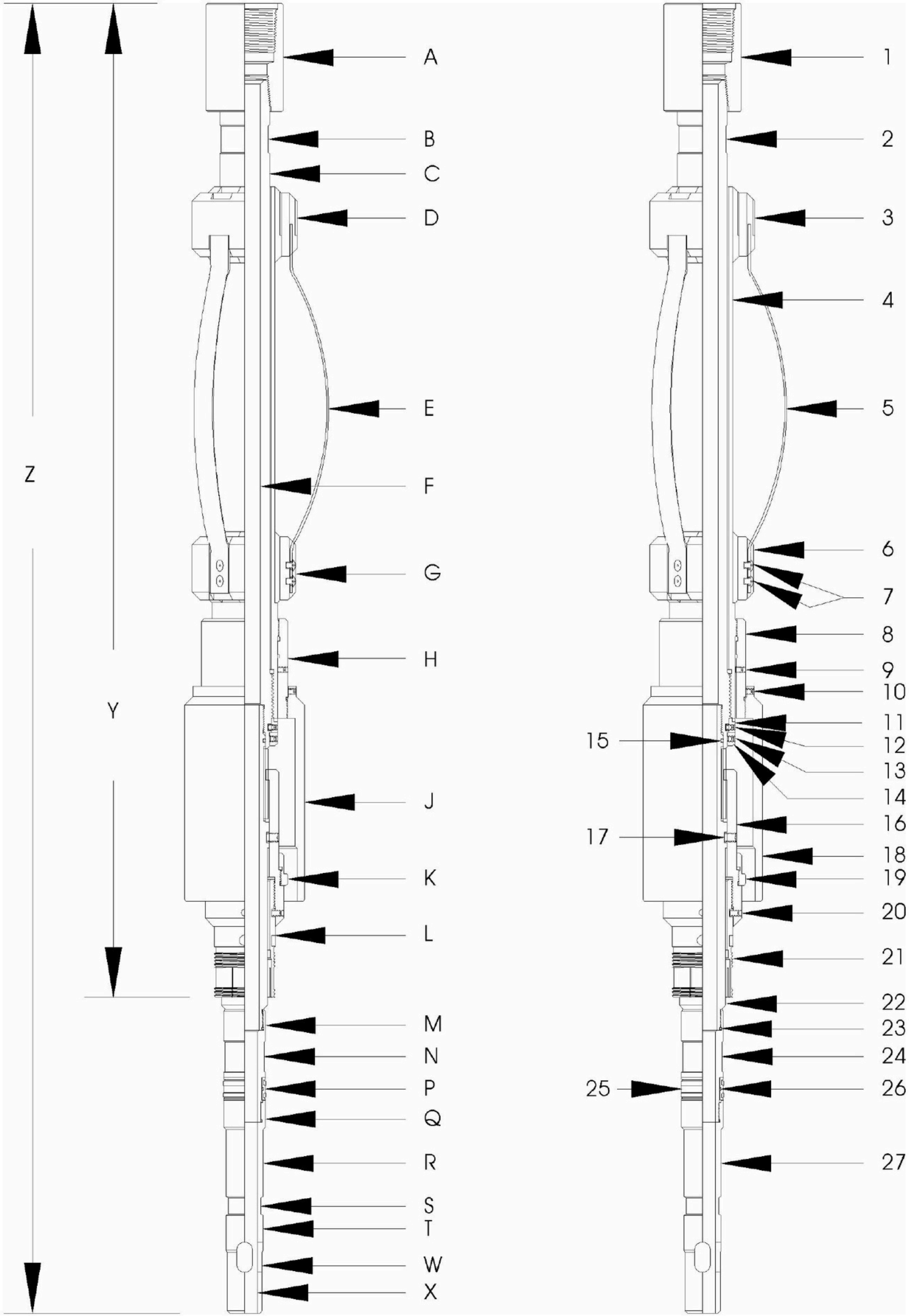
## DIMENSIONAL DATA

Callout	3.593/ 3.937	4.312	5.375/ 5.687	6.312	7.125	8.125	9.000	9.437	10.437	12.00
A	3.062		3.672							
B	2.250									
C	2.375									
D	3.500		5.000		5.875	7.218	7.812	8.656	9.593	11.156
E	6.250	6.959	8.374		9.260	10.600	11.194	12.038	12.960	14.535
F	1.500									
G	3.375		4.875		5.750	7.093	7.687	8.531	9.468	11.031
H	3.125		4.375							
J	3.745	4.312	5.375	6.312	7.125	8.125	9.000	9.437	10.437	12.000
K	2.750		4.125	4.593	5.593	6.593	7.593			10.093
L	2.000		2.900							
M	1.320		1.990							
N	1.250		1.875							
P	1.320		1.990							
Q	1.320		1.990							
R	1.250		1.875							
S	1.062		1.562							
T	1.218		1.750							
W	1.156		1.687							
X	.750		1.250							
Y	45.031		47.640							
Z	58.250		61.062							





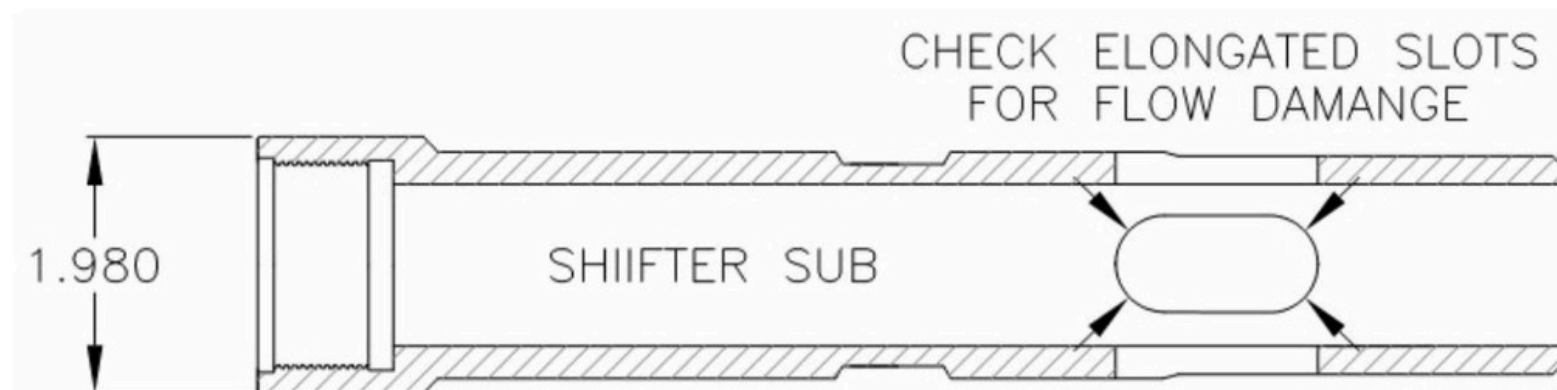
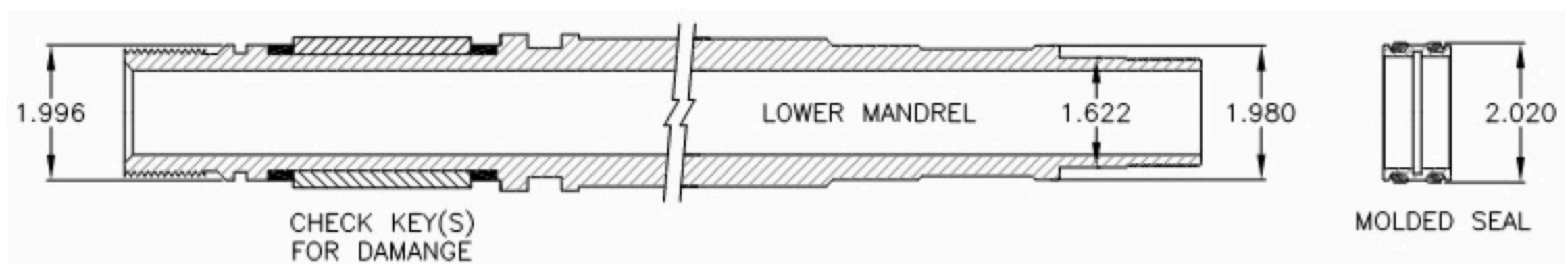
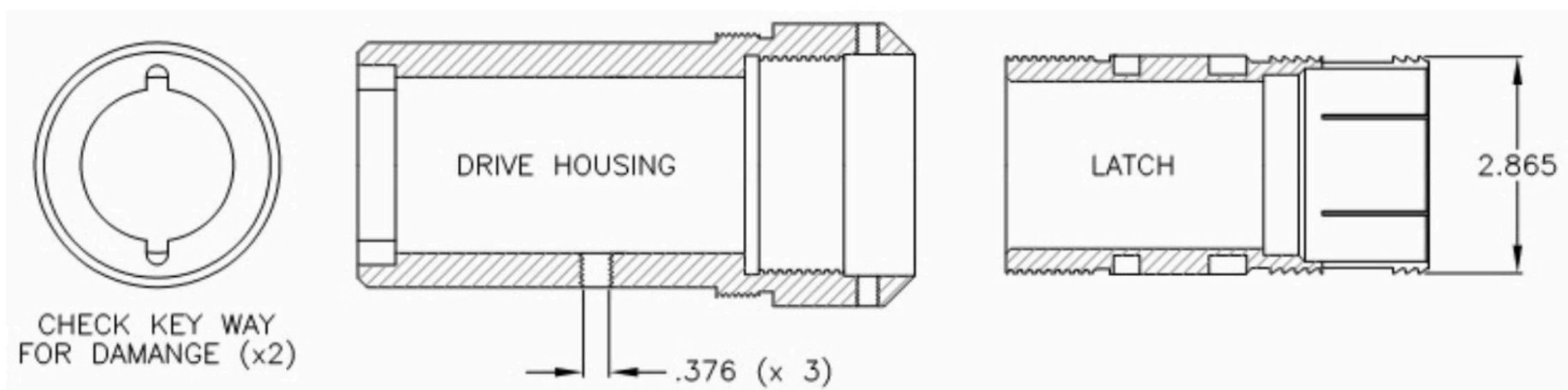
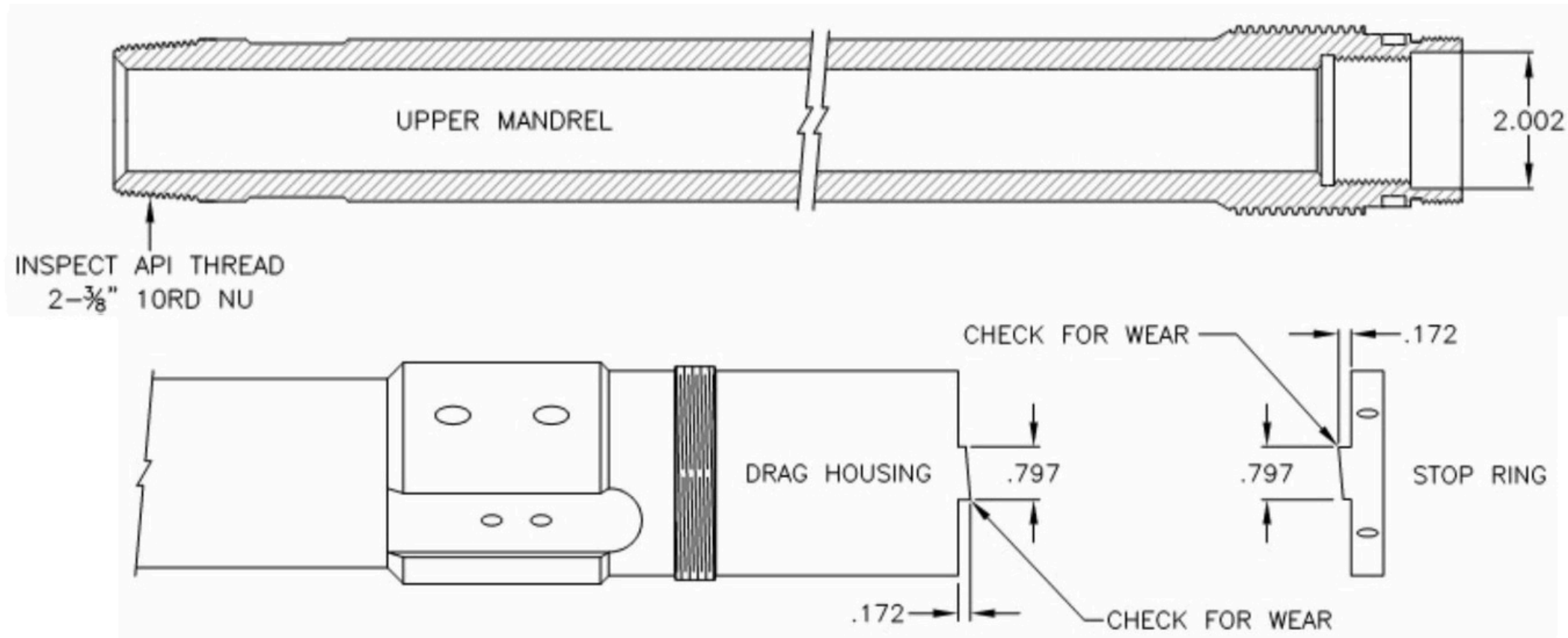




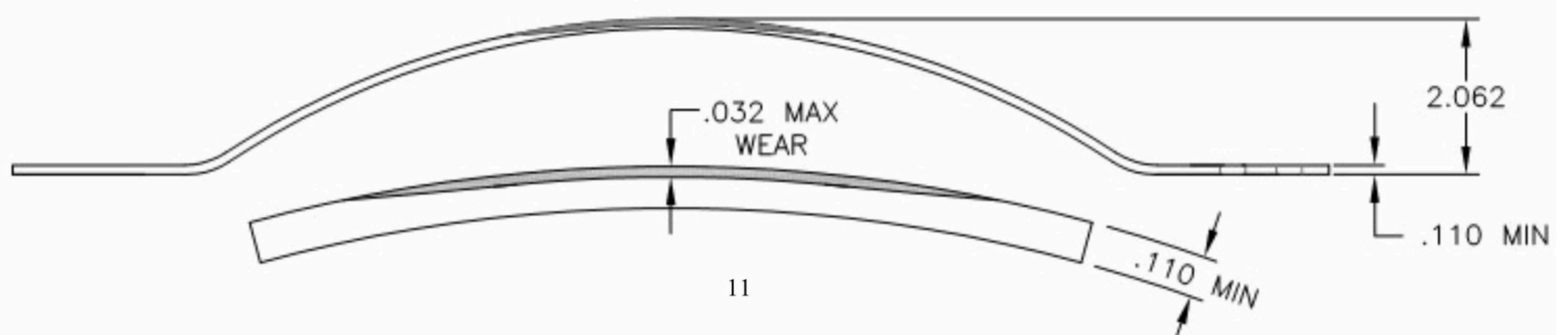


# Model "B" Mechanical Setting Tool

## Critical Dimensions for Periodical Inspection



DRAG SPRING





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Below are examples of Drag Springs worn beyond use that need to be replaced

