

# Multi-Adust® WrinkleSTOP® NO-BOW Spreader Roll

## OPERATING INSTRUCTIONS

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Manufactured under U. S. Patent No. 4862565 t.m. reg. US pat. & tm office

# **Multi-Adjust® WrinkleSTOP®**

## **OPERATING INSTRUCTIONS**

### **IMPORTANT:**

**READ THESE INSTRUCTIONS ENTIRELY BEFORE INSTALLING THE WrinkleSTOP® ROLL.**

**DO NOT LAY ROLL ON ITS FACE AS IT WILL CAUSE A FLAT SPOT AND/OR OTHER DAMAGE TO THE OUTER SLEEVE AND/OR THE INTERNAL CONSTRUCTION.**

**ALWAYS SUPPORT THE ROLL ON THE CENTER SHAFT ONLY.**

### **WrinkleSTOP® OPERATING PRINCIPLE**

The WrinkleSTOP® No-Bow Spreader Roll is essentially a dead shaft idler roll. The face of the roll is made up of a rubber sleeve, the ends of which are attached to ball bearings mounted to adjustable pivoting end caps. The sleeve is supported by a series of flexible disks which are mounted to a ball bearing mounted support tube.

The outer sleeve, disks, end caps and disk support tube all rotate together about a common center support shaft.

During the course of one revolution, the outer sleeve stretches from zero to preset stretch in 180 degrees and relaxes from preset stretch to zero in the remaining 180 degrees.

## **RULES OF THUMB**

There are four basic considerations that affect the spreading action of a WrinkleSTOP® Roll. They are:

A) Lead In Distance – The longer the lead in, the greater the spreading. Typically, the lead in should be double the lead out.

B) Wrap Angle – The more wrap (180 degrees maximum) the greater the spreading.

C) End Caps – The more angular displacement (5 degrees maximum) the greater the spreading.

D) Sleeve Stretch – The Multi-Adjust® WrinkleSTOP® has an adjustable sleeve stretch feature that allows for the optimum setting to suit your application. See “Setting the sleeve stretch” section.

When the end caps are parallel to the flow of material, a zero spreading condition exists. Angular displacement of the end caps will regulate the amount of spreading action.

The end caps are independently adjustable allowing for differential spreading from one side of the web to the other. Adjustment is made with Adjusting Screw 10 (see figure B).

- A= LEAD IN
- B= WRAP ANGLE
- C= END CAP ANGULAR DISPLACEMENT
- D= SLEEVE @ ZERO STRETCH
- E= SLEEVE @ MAX. STRETCH

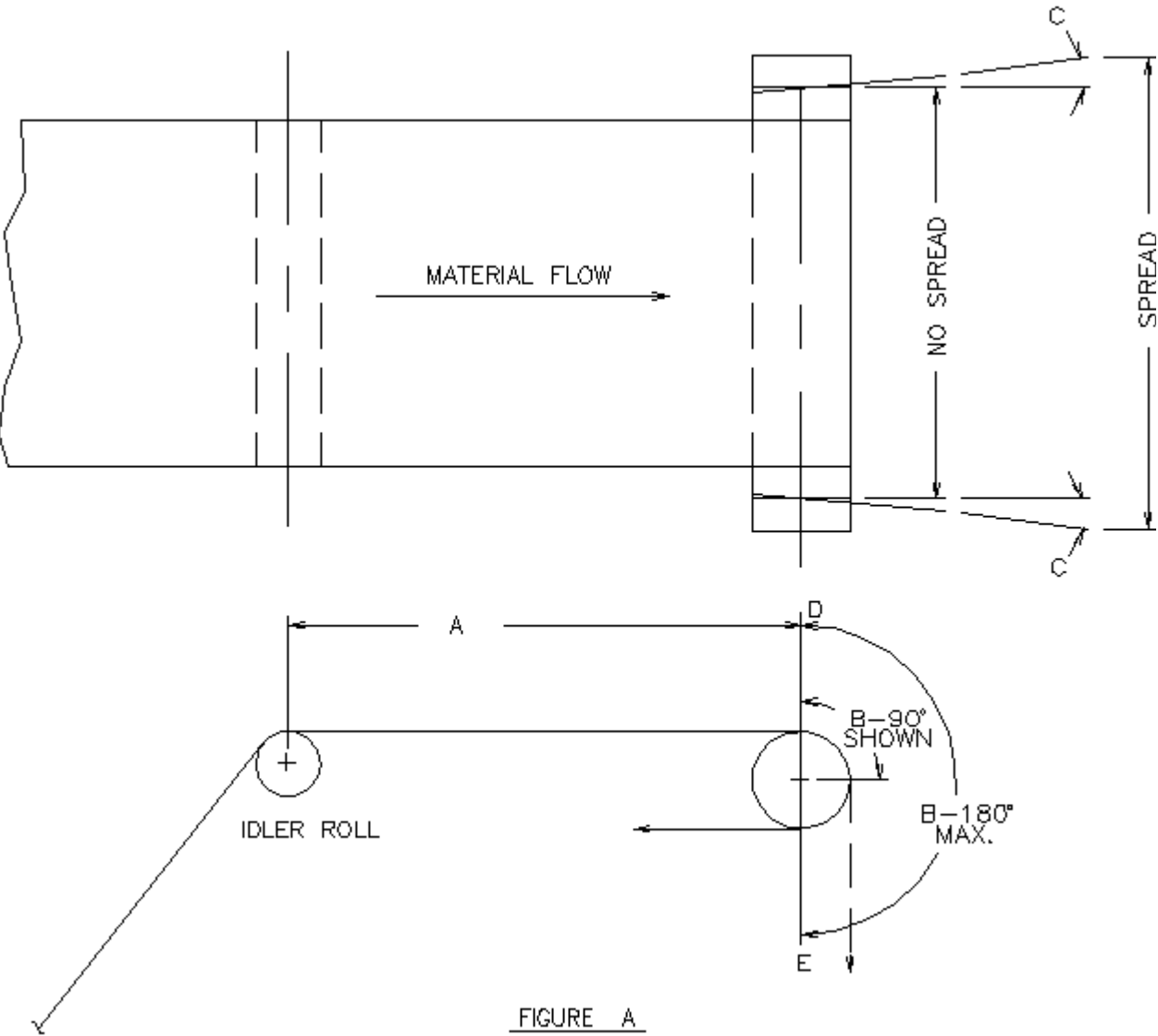


FIGURE A

As seen in Figure A spreading action will occur if the material enters the roll at point D and leaves the roll at point E. It is best to enter the roll slightly downstream of point D and exit just prior to point E.

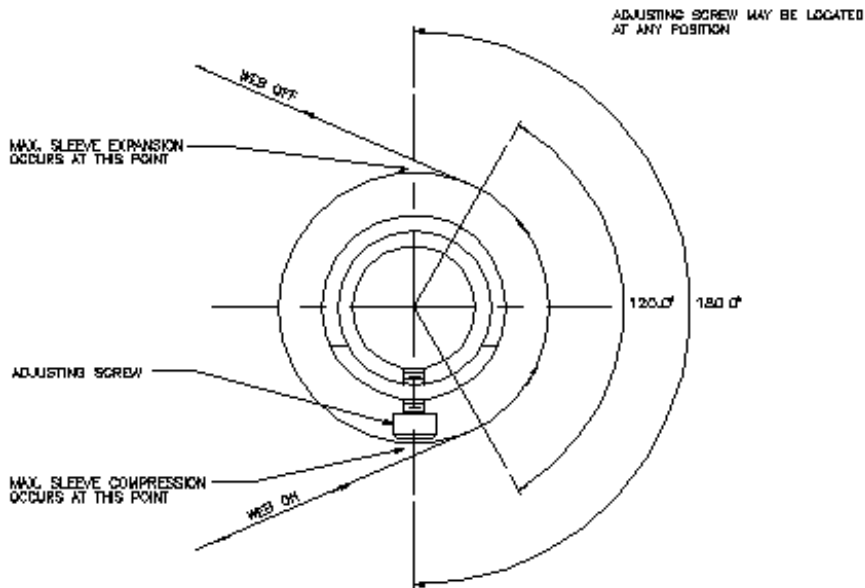
NOTE: The roll will spread with any wrap angle, 180 degrees is not required for every application. (see table)

<u>Spreading Action Table</u>		
<b>Wrap angle</b>	<b>% End Cap Displacement</b>	<b>% Spread</b>
90 deg	0	0
	50	25
	100	50
120 - 180 deg	0	0
	50	50
	100	100

The roll may be oriented so the stretch / relax cycle will occur wherever the machine design and/or material flow dictates. The center shaft is supported in split pillow block mounting brackets on each end. The spread position can be adjusted by loosening the top cap bolt in each bracket and rotating the center shaft.

**BE SURE TO RETIGHTEN THESE BOLTS WHEN THE ADJUSTMENT HAS BEEN COMPLETED.**

The two mounting brackets each have two slotted mounting holes to facilitate mounting to the existing machine frame.



## SETTING THE SLEEVE STRETCH

THE AMOUNT OF SLEEVE STRETCH FOR YOUR MULTI-ADJUST WRINKLESTOP HAS BEEN FACTORY PRESET FOR OPTIMUM PERFORMANCE WITH YOUR OPERATING SPECIFICATIONS. YOU SHOULD NOT HAVE TO ADJUST THE SLEEVE STRETCH.

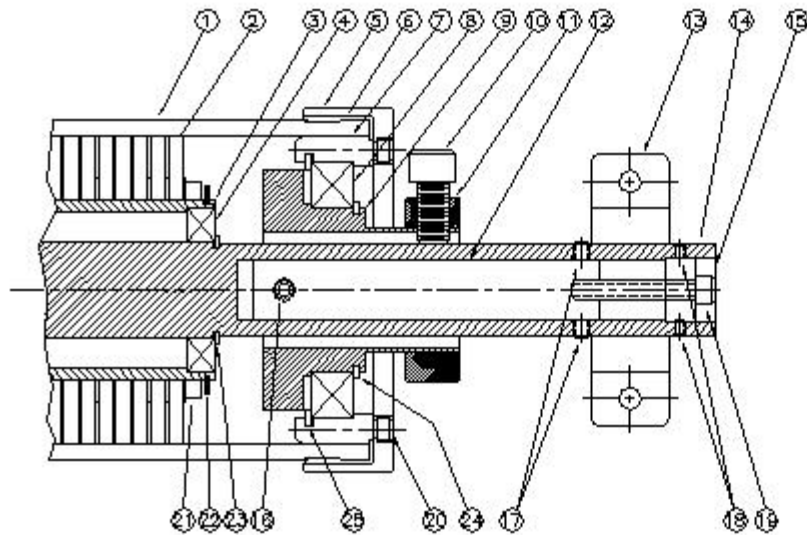
### IMPORTANT

DO NOT ADJUST PIVOT SLIDER ADJUSTING SCREW (#20). THIS ADJUSTMENT HAS BEEN PRE-SET FOR YOUR SPECIFICATIONS. SEE "RUBBER SLEEVE REPLACEMENT INSTRUCTIONS" IF RE-ADJUSTMENT IS REQUIRED.

DO NOT LAY ROLL ON ITS FACE AS THIS WILL CAUSE A FLAT SPOT AND/OR OTHER DAMAGE TO THE OUTER SLEEVE AND/OR THE INTERNAL CONSTRUCTION.

ALWAYS SUPPORT THE ROLL ON THE CENTER SHAFT ONLY.

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- 1 - RUBBER SLEEVE
- 2 - FLEXIBLE DISC
- 3 - DISC SUPPORT TUBE
- 4 - DISC SUPPORT TUBE BEARING
- 5 - END CAP
- 6 - SLEEVE CLAMP
- 7 - OUTER BEARING RING
- 8 - PIVOT BEARING
- 9 - PIVOT BEARING SUPPORT
- 10 - PIVOT ADJUSTING SCREW
- 11 - PIVOT SUPPORT COLLAR
- 12 - PIVOT SLIDER
- 13 - MOUNTING BRACKET
- 14 - CENTER SHAFT
- 15 - PIVOT SLIDER ADJ SCREW ASS'Y
- 16 - SET SCREWS
- 17 - SET SCREWS
- 18 - SET SCREWS
- 19 - PIVOT SLIDER ADJUSTING SCREW
- 20 - END CAP MTG. SCREW
- 21 - SPLIT RING
- 22 - SET SCREWS
- 23 - RETAINING RING
- 24 - EXTERNAL RETAINING RING
- 25 - INTERNAL RETAINING RING

PAT NO 5476437-5461760-4862565

FIGURE-B

<small>THIS DRAWING AND SPECIFICATIONS CONTAIN INFORMATION WHICH IS UNCLASSIFIED AND PUBLIC DOMAIN EXCEPT WHERE SHOWN OTHERWISE</small>			
<b>CONVERTER ACCESSORY CORP</b> <small>UNION DEP. PA.</small>			
<b>DESIGNER: MASTER DRAWING</b>			
<small>TITLES: INSTRUMENT MODEL, USE PAGE</small> <small>FOR 6-600 MULTI-JOIST WINDSTOP</small>			
<small>DRAWN BY</small> MJT	<small>SCALE</small> 1/2" = 1"	<small>DATE</small> 8-03-04	<small>REV. FILE</small> 21337-14WEBDWG. MASTER
<small>A</small> B-45-04	<small>DESIGNED BY</small> J. J. W.	<small>CHKD BY</small> J. J. W.	<small>APP'D BY</small> J. J. W.

# Multi-Adjust® WrinkleSTOP®

## REPAIR INSTRUCTIONS

### RUBBER SLEEVE REPLACEMENT

1. Remove roll from mounting blocks (#13) and support journal ends in “V” blocks.  
NOTE: DO NOT LAY ROLL ON ITS FACE. TO DO SO COULD CAUSE DAMAGE TO THE INTERNAL PARTS.
2. Remove pivot arm adjustment screw #10 (both ends).
3. Slide off pivot support collar #11 (both ends).
4. Remove two ¼-20 set screws (#17) closet to pivot support collar (#11).
5. Loosen pivot slider adjusting screws (#19) in each end of shaft by turning counter clockwise, to relax stretch of sleeve.
6. Insert centering bushings in both ends (supplied with repair kit) over center shaft (#14) and under pivot support collar (#11).
7. Remove three ¼-20 x ¾” long cap screws (#20) from end cap (#5) on both ends.
8. Insert three ¼-20 x 1 ½” long cap screws (supplied with repair kit) into the three holes provided in end cap (#5) that are **NOT** counter-bored.
9. Turn cap screws that were inserted in step 8, 1 ½ turns per screw, working in a clockwise rotation to remove end cap (#5) evenly.
10. Remove serrated sleeve clamp (#6) by lightly tapping the edge of the clamp with nylon or wooden block at each serration. (Do not tap in between serration’s – this will bend clamp in that location)
11. Cut or slide off old sleeve (#1). NOTE: If cutting sleeve off, be extremely careful not to cut into flexible disks (#2) located under sleeve. (Approximate thickness of sleeve is ¼”)
12. Slide new sleeve on so that it covers the outer bearing ring #7 (both ends of roll). NOTE: When installing sleeve, do not distort internal flexible disks (#2).
13. Trim excess sleeve (#1) so it is flush with the beginning of knurl on the outer bearing ring (#7).



14. Reinstall serrated sleeve clamp (#6) at both ends of roll, making sure that the sleeve slides between the outer bearing ring (#7) and the sleeve clamp (#6).

15. Reinstall end cap #5 (both ends) by lining up counter-bored holes with tapped holes in outer bearing ring. Then install three  $\frac{1}{4}$ -20 x  $1\frac{1}{2}$ " long cap screws and tighten evenly around in clockwise rotation. When the  $1\frac{1}{2}$ " screws bottom out, remove and install original  $\frac{1}{4}$ -20 x  $\frac{3}{4}$ " long cap screw (#20) and tighten clockwise until the end cap is drawn up tight to the outer bearing ring (#7).

16. Remove centering bushings.

17. Install pivot support collars #11 (both ends) with grooves facing outward and lining up with grooves in pivot bearing support (#9).

18. Reinstall pivot adjusting screws (#10), making sure they line up with clearance hole in pivot bearing support (#9).

19. To adjust sleeve stretch, first loosen  $\frac{1}{4}$ -20 set screws (#17) closest to pivot support collar (#11). Turn pivot slider adjusting screw (#19), located in the end of the shaft, clockwise (the number of turns are indicated in the chart below) to obtain the amount of stretch as shown in the rubber sleeve stretch chart.

# Multi-Adjust® WrinkleSTOP®

## REPAIR INSTRUCTIONS

### DISK SUPPORT TUBE BEARING REPLACEMENT

1. Remove previously installed centering bushings.
2. Remove two 3/8-18 x 3/8" long set screws (#17) from the pivot bearing support(#9). Then back out set screws underneath until entire pivot assembly (#9, #10 and #12) loosen enough to slide off the shaft (both ends).
3. Remove retaining ring (#23) on both ends.
4. Remove approximately ten flexible disks (#2) from each end of the disk support tube (#3) by removing disk tube set screws #22 (3 per end) and split ring (#21). Lay roll down on "V" support blocks. NOTE: Blocks MUST support tube where disks were removed, not on shaft. Take a block of wood (preferably a 2x4) and place at the end of the shaft (#14) and strike wood with hammer to drive shaft through disk support tube (#3). Slide shaft back and forth in opposite directions to remove bearings (#4).
5. Press new bearing onto one end of the shaft (#14) (be careful not to damage inner race). Partially press one bearing into disk support tube (#3) at opposite end from where you are working.
6. Slide shaft (#14) into disk support tube (#3), seat bearings (#4) at each end and install retaining rings (#23).
7. Reinstall flexible disks (#2), set screws (#22) and split rings (#21).

**RUBBER SLEEVE STRETCH CHART  
FACE LENGTH (IN INCHES)**

		<b>20-40</b>	<b>41-60</b>	<b>61-80</b>	<b>81-100</b>
MACHINE	0-300	1/16" = 1 1/8 TURNS EACH END	1/8" = 2 1/4 TURNS EACH END	1/4" = 4 1/2 TURNS EACH END	1/2" = 9 TURNS EACH END
SPEED	300- 700	1/16" = 1 1/8 TURNS EACH END	1/8" = 2 1/4 TURNS EACH END	1/4" = 4 1/2 TURNS EACH END	1/2" = 9 TURNS EACH END
(FPM)	700- 1000	1/8" = 2 1/4 TURNS EACH END	1/4" = 4 1/2 TURNS EACH END	1/2" = 9 TURNS EACH END	5/8" = 11 1/4 TURNS EACH END

NOTE: A BASIC RULE OF THUMB, THE MORE STRETCH APPLIED-THE BETTER THE SPREADING ACTION, HOWEVER, THE MORE STRETCH APPLIED-THE LESS SLEEVE LIFE.

DO NOT OVER ADJUST THE SLEEVE STRETCH! IF SLEEVE STRETCH IS TOO GREAT IT WILL DRASTICALLY REDUCE THE LIFE OF THE SLEEVE!

20. Tighten ¼-20 set screws (#17) once desired stretch is achieved.

# Multi-Adjust® WrinkleSTOP®

## REPAIR INSTRUCTIONS

### PIVOT ASSEMBLY BEARING REPLACEMENT

1. Remove the external retaining ring (#24) from each pivot assembly.
2. All pivot assembly parts are press fit, an arbor press is required to proceed with bearing replacement.
3. Support the outer bearing ring (#7) with 3 ½" long parallels and with the inner bearing ring groove facing up, press downward on the center of the pivot assembly.
4. Remove the internal retaining ring (#25) from the outer bearing ring (#7).
5. Support the outer bearing ring (#7) with parallels (internal retaining ring side face down) and press out bearing (#8).
6. Press new bearing into outer bearing ring (#7), with the internal retaining ring side face up (use of parallels is not needed).  
NOTE: When inserting the bearing, make sure it is pressed in straight and flush with the shoulder of the outer bearing ring (#7).
7. Reinstall internal retaining ring (#25).
8. Press pivot assembly (external retaining ring side face up) into outer bearing ring (#7) (groove side facing down).
9. Reinstall external retaining ring (#24).

## REINSTALLATION OF PIVOT ASSEMBLY

1. Insert centering bushing into pivot assembly.
2. Slide pivot assembly on to center shaft (#14) and rotate until groove in pivot assembly lines up with serial number stamped on center shaft.
3. Line up the pivot assembly adjustment screw (#16) with indentation in pivot slider (#12) (both ends). Tighten adjustment screw evenly. The centering bushing should be able to slide in and out of the pivot assembly easily, if not, back the screws out and retighten evenly on both ends of the roll.
4. Make sure the pivot assembly slides easily when adjusting screw (#19) is turned clockwise or counter-clockwise. Once it is determined that the assembly slides freely, turn the adjusting screw (#19) so the entire pivot assembly travels in the direction of the disk support tube (#3), until it stops. At this point, the set screws (#17) can be re-installed.
5. Be sure the pivot assembly screws are both facing in the same direction. EXAMPLE: Rotate the center shaft (#14) so that BOTH pivot adjusting screws (#10) are perpendicular to the floor.