



## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet & Without Ratchet

111-0215 / Product Name with Details

Related Instructions,  
How-To Videos & More



[PDF: System Wind Matrix](#)



[PDF: Ratchet Operation & Replacement](#)



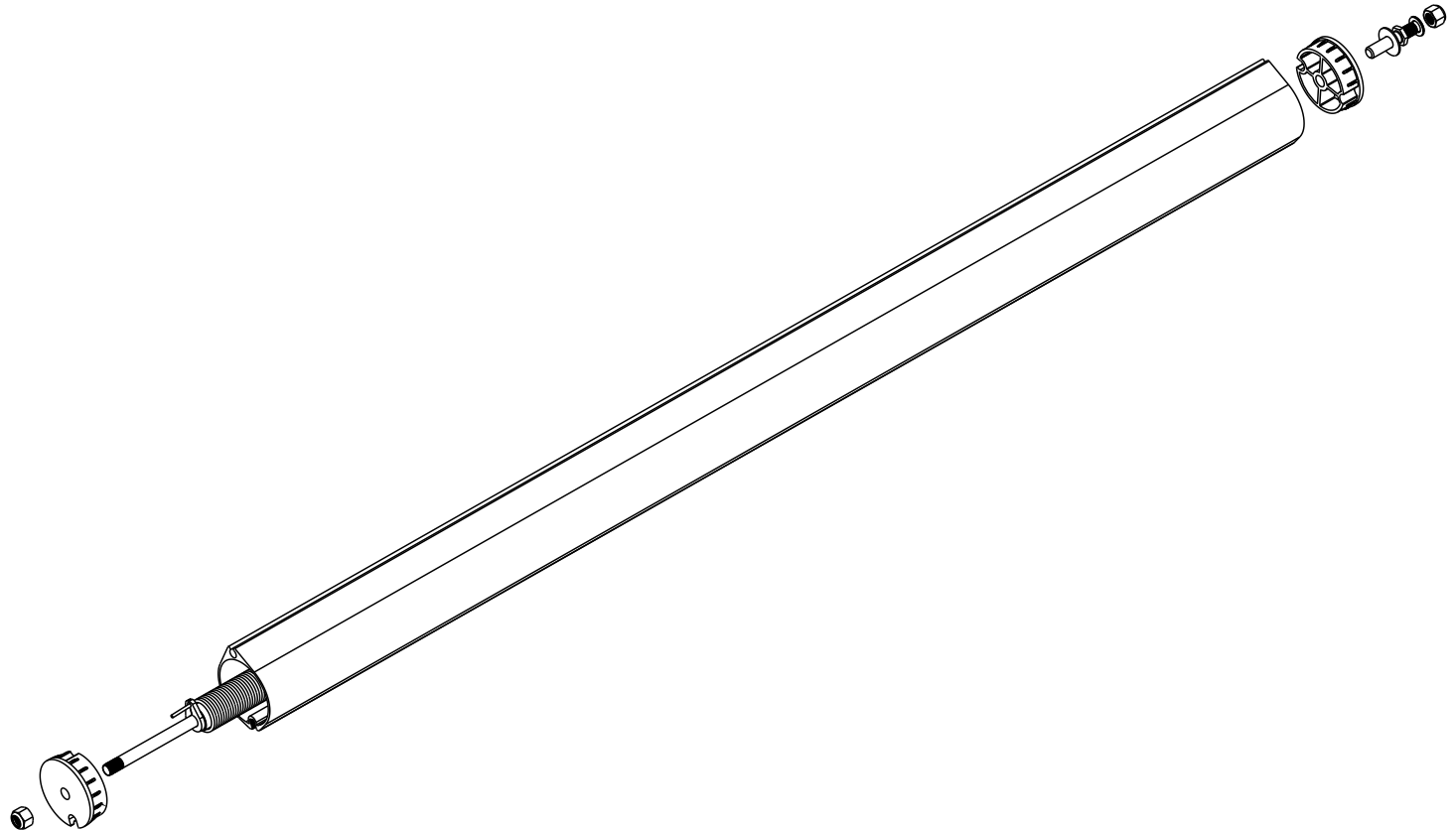
[PDF: Manual Arm Kits](#)



[PDF: Pulltarps Bolt-On Mounting System](#)



[Video: Ratchet Lock Operation](#)



DURING INSTALLATION, SOME FABRICATION MAY BE REQUIRED.

Document #: 607-0036  
Revised: 05/03/22 WLH



A Safe Fleet Brand



INSTALLATION INSTRUCTIONS

Semi-Automatic Spring Replacement - With Ratchet & Without Ratchet

Table of Contents

Tools, Diagrams & Parts	Spring Replacement with Ratchet
Recommended Tools & Spring Replacement Kit - #501-1408 ..... 2	Releasing Spring Tension with Tarp Installed (with Ratchet)..... 4
	Removing Roller Tube (with Ratchet) ..... 5
	Installing New Spring (with Ratchet) ..... 6-8
	Spring Replacement without Ratchet
	Releasing Spring Tension with Tarp Installed (without Ratchet) ..... 10
	Removing Roller Tube (without Ratchet) ..... 11
	Installing New Spring (without Ratchet) ..... 12-13



A Safe Fleet Brand



## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet & Without Ratchet

# TOOLS & PARTS




A Safe Fleet Brand



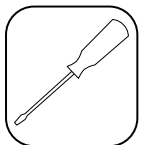
INSTALLATION INSTRUCTIONS

Semi-Automatic Spring Replacement - With Ratchet & Without Ratchet

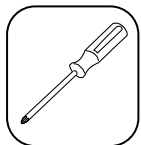
Recommended Tools



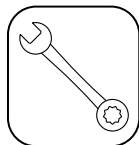
Safety Glasses and Gloves



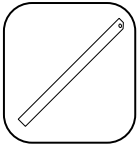
Flathead Screwdriver




#2 Phillips Screw Driver



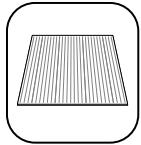
3/4" Box Wrench or Ratchet Tool




Spring Bending Tool



Vice Grips or Channel Locks

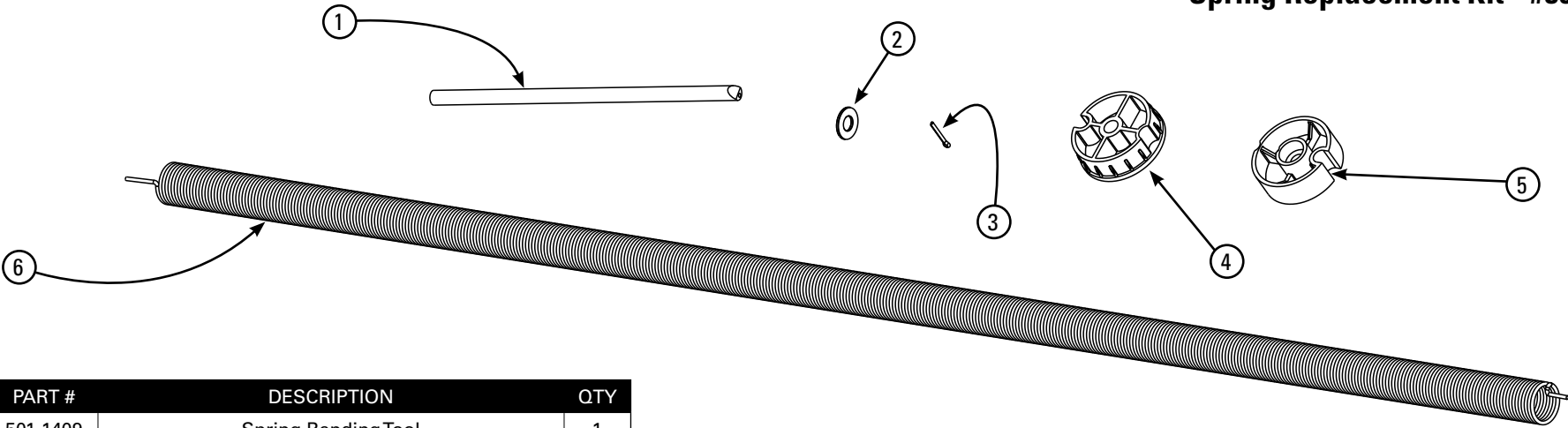


Approximately 2'x2' Cardboard



Red Lock Tight

Spring Replacement Kit - #501-1408

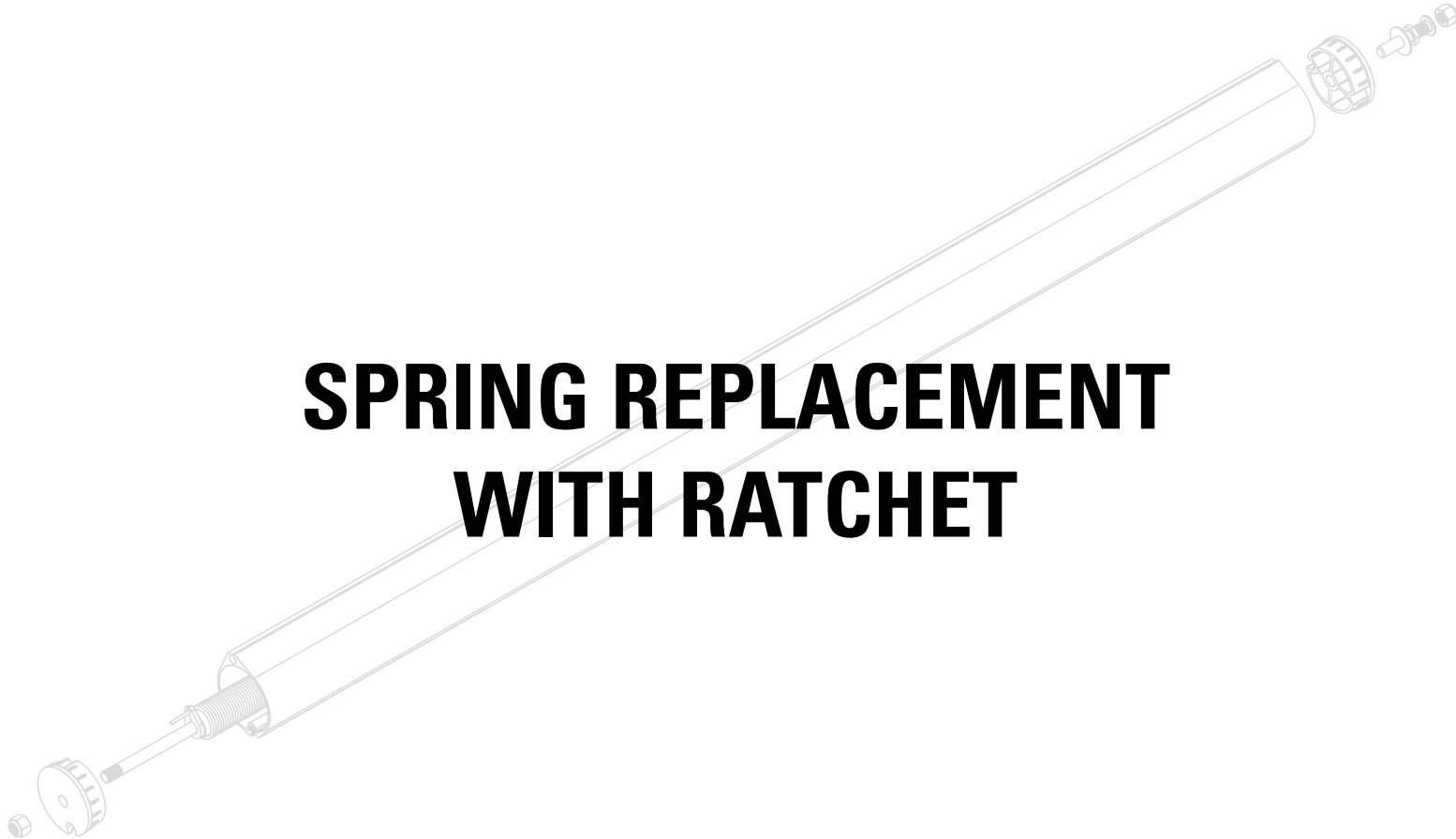


ITEM	PART #	DESCRIPTION	QTY
1	501-1409	Spring Bending Tool	1
2	505-5001	1/2" AN Washer 1/16"	1
3	506-1201	1/8" x 1" Cotter Pin	1
4	517-0102	Flanged End Cap	1
5	517-0104	Torque Block	1
6	517-9916	Main Spring	1

REV. 03/28/22 WLH



# SPRING REPLACEMENT WITH RATCHET



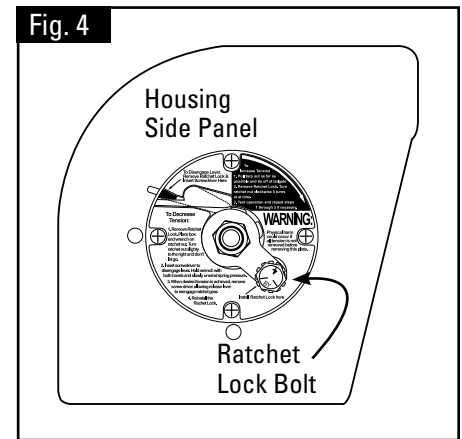
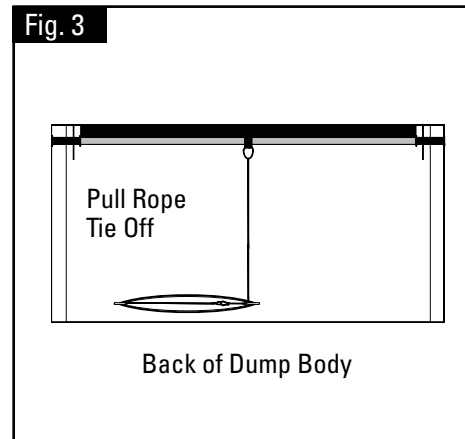
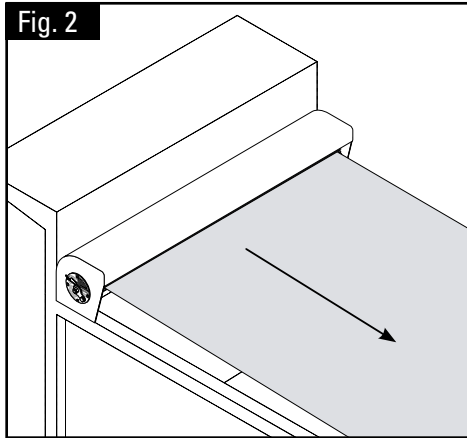
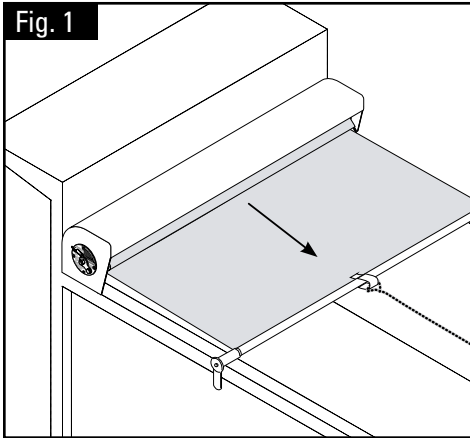


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet

### Releasing Spring Tension with Tarp Installed (with Ratchet)

**Step 1:** Extend tarp until it is completely unrolled from the roller tube (Fig. 1 & 2) and over the tail gate. Once tarp is fully extended, tie off at the end of the tail gate, so tarp will not roll back (Fig. 3).



Side View of Ratchet (Fig. 4).

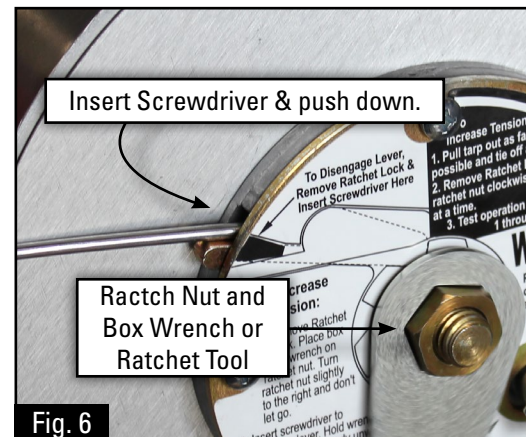
**Note:** The tarp system is to remain on box during entire conversion.

**Step 2:** Remove the Ratchet Lock Nut and Star Lock Washer (Fig. 5A & B).



**WARNING:** Do not remove the four Phillips head screws from the ratchet cover plate!

**Step 3:** Place 3/4" Box Wrench on Ratch Nut and insert screwdriver to disengage lever (Fig. 6).



**Step 4:** Hold wrench and slowly unwind spring pressure (Fig. 7).





## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet

### Removing Roller Tube (with Ratchet)

**Step 5:** When the tension is released from the rollertube, remove the screwdriver, allowing release lever to reengage ratchet gear (Fig. 8A & B).

Fig. 8A



Fig. 8A

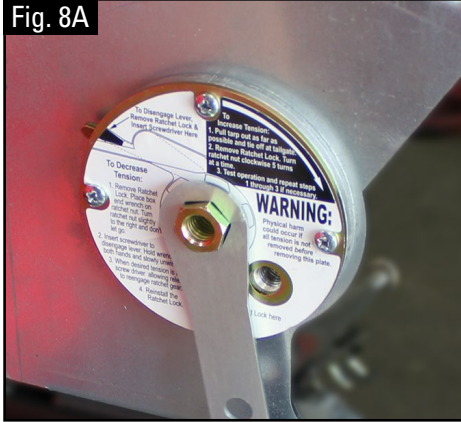


Fig. 11A

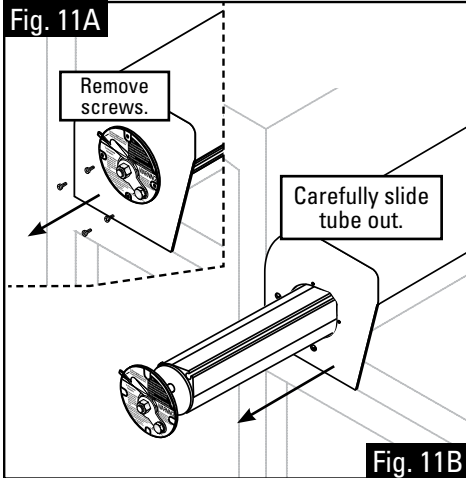


Fig. 11B

**Step 8:** Make sure all tension has been released from roller tube, remove four (4) Phillips Head Pan screws (Fig. 11A). After screws are removed, pull the entire roller tube assembly out of the side of the housing (Fig. 11B).

**Step 9:** Remove the retaining screw from the end cap (Fig. 12).

Fig. 12

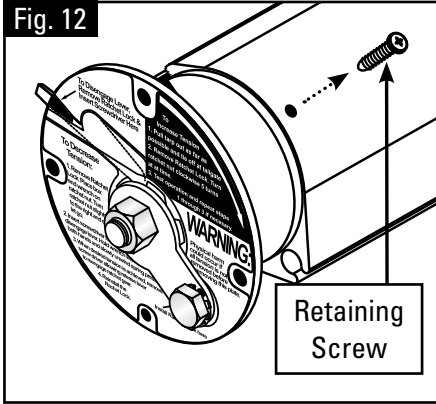
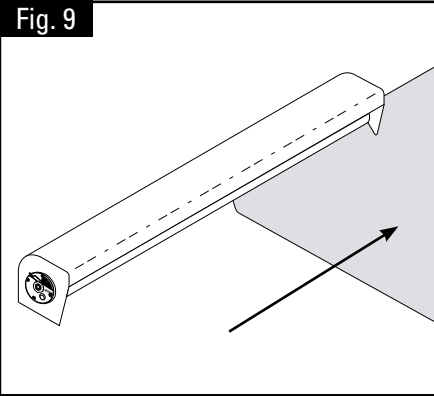
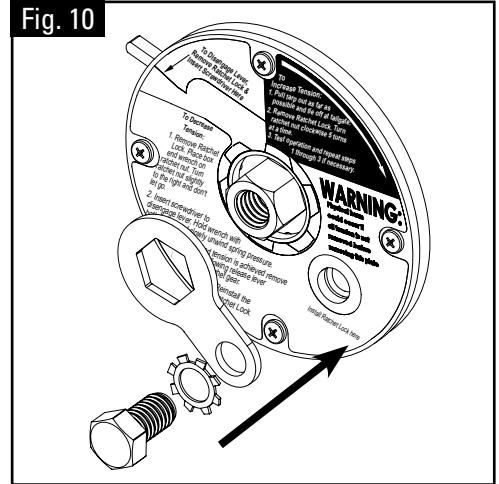


Fig. 9



**Step 6:** With the tension fully released from the roller tube, untie the tarp from the rope hooks and slide tarp out of roller tube on the side opposite of the ratchet (Fig. 9).

Fig. 10



**Step 7:** Reinstall the Ratchet Lock (Fig. 10).

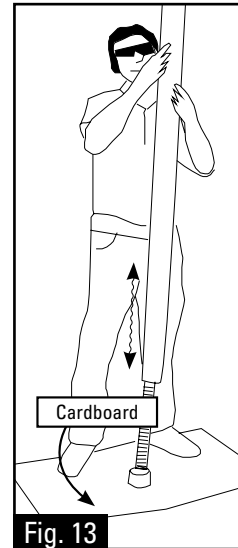


Fig. 13

**Step 10:** Place a piece of cardboard on the ground and hold the roller assembly vertically, with the ratchet assembly towards the ground. Shake the roller assembly up and down above the cardboard to pop the end cap and spring assembly free from the roller tube (Fig. 13).

**Note:** The cardboard is to protect the end of the spring shaft when it breaks free.

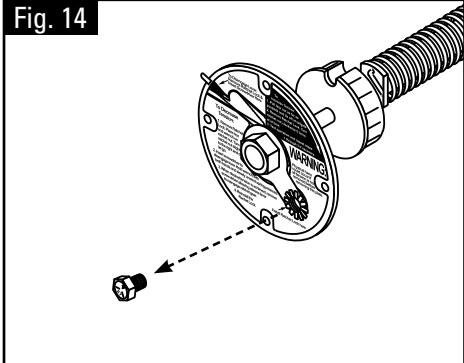


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet

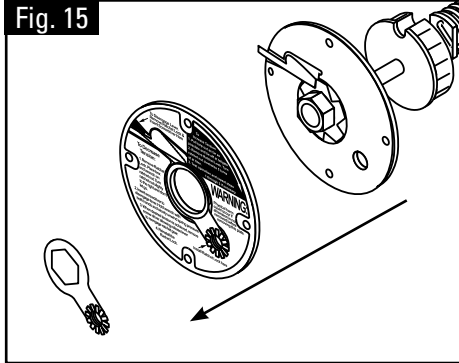
### Installing New Spring (with Ratchet)

Fig. 14



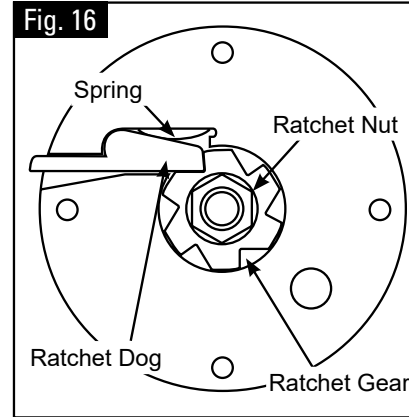
**Step 11:** After the spring has been removed from the roller tube, unscrew and remove the Ratchet Lock Bolt (Fig. 14). This will allow you to remove the Ratchet Cover.

Fig. 15



**Step 12:** Once the bolt is removed, pull the Ratchet Cover from the Ratchet Plate (Fig. 15). This will expose the Ratchet components.

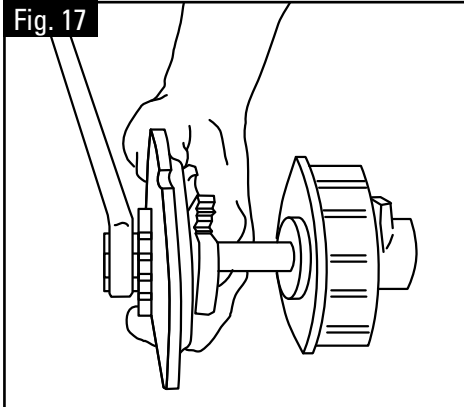
Fig. 16



**Step 13:** Remove ratchet dog and spring (Fig. 16). Spring is vital to proper operation of ratchet dog, DON'T LOSE IT!

**Step 14:** Use a pair of vise grips or channel locks to secure spring shaft and remove ratchet nut (Fig. 17).

Fig. 17



**Step 15:** Remove ratchet housing, nylon washer and end cap (Fig. 18).

Fig. 18

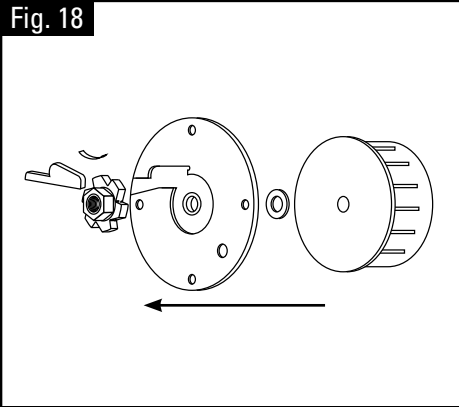
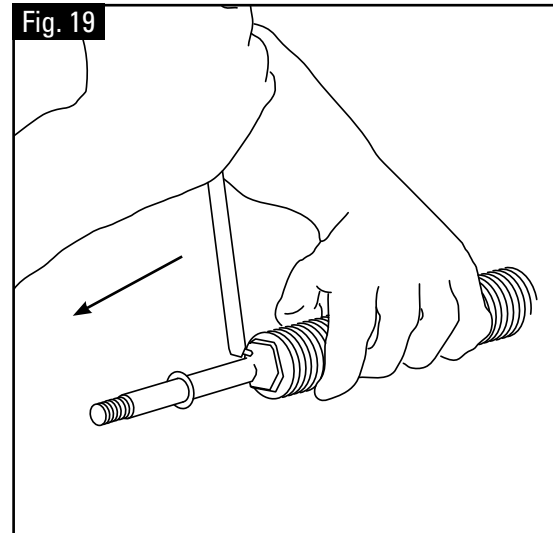


Fig. 19



**Step 16:** Locate the end of the spring that is attached to the tab welded to the shaft.

Using a screw driver, pry out the spring tang far enough to fit the spring tool provided over spring tang (Fig. 19).



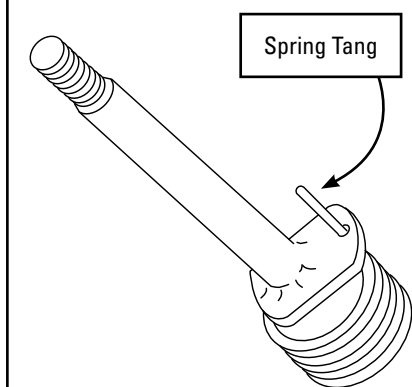


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - With Ratchet

### Installing New Spring (with Ratchet)

Fig. 20



**Step 17:** Using the spring tool provided straighten the spring tang so spring may be removed (Fig. 20).

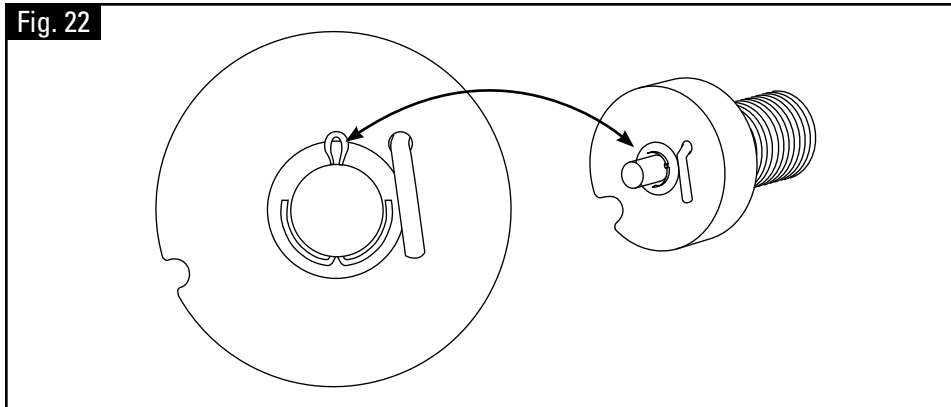
Turn the spring assembly around to the other end and remove the cotter pin. Remove washer, spring, torque block and second washer. Do not remove PVC pipe.

Slide spring or spring pieces off of shaft.

Slide replacement spring onto shaft and place spring tang through hole in spring rod flange. Be sure spring is seated over the collar and flush against the back of the flange.

**Step 19:** Turn shaft over and replace washer and cotter pin. Both sides of cotter pin must be bent around as close to shaft as possible (Fig. 22).

Fig. 22



**Step 18:** Slide spring tool as far onto spring tang as possible. With the beveled part of tool facing towards the flange, bend the tang down and to the right of the threaded shaft (Fig. 21).

Fig. 21

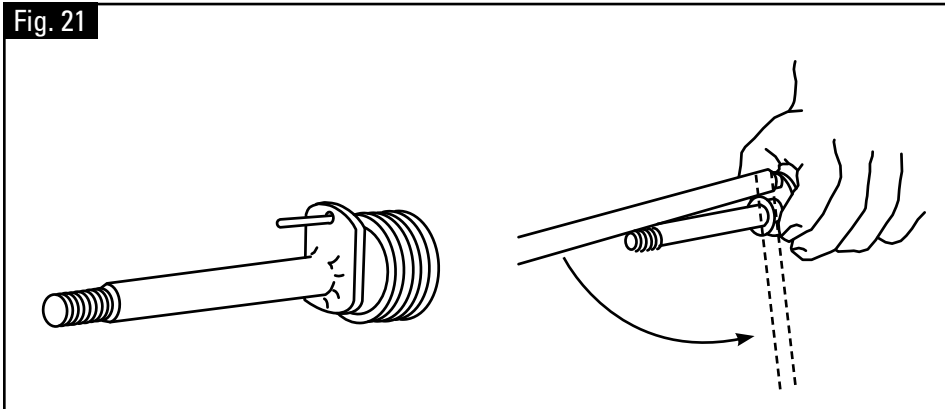
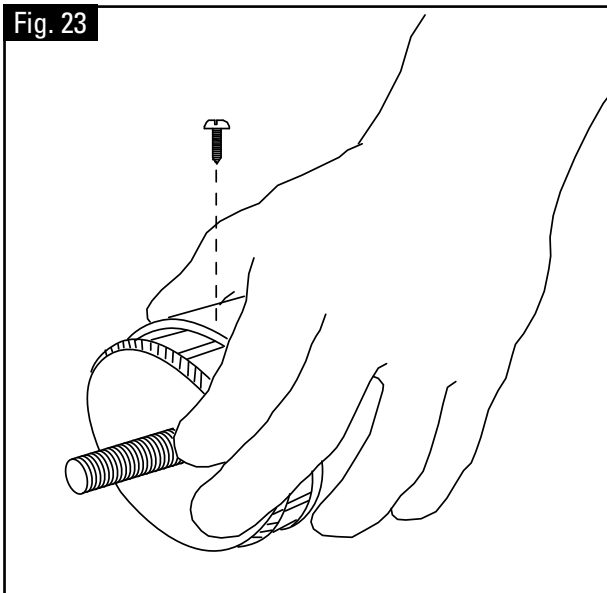


Fig. 23



**Step 20:** Replace washer, end cap, nylon washer onto spring shaft. Slide spring assembly into roller and press-fit end cap until the shoulder of the end cap sits flush against the roller tube. Replace the #506-9916 screw in the end cap (Fig. 23).

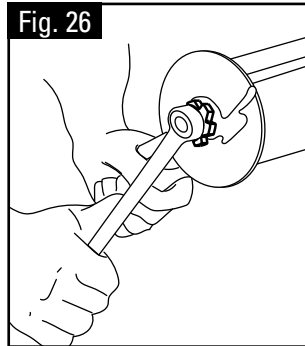
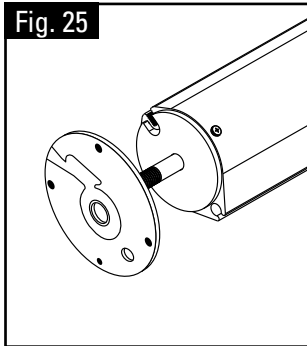
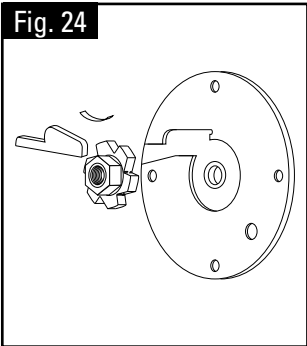


## INSTALLATION INSTRUCTIONS

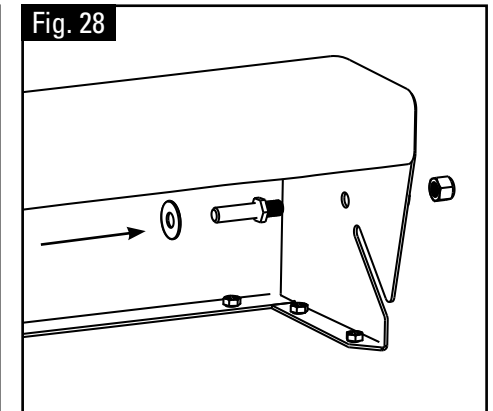
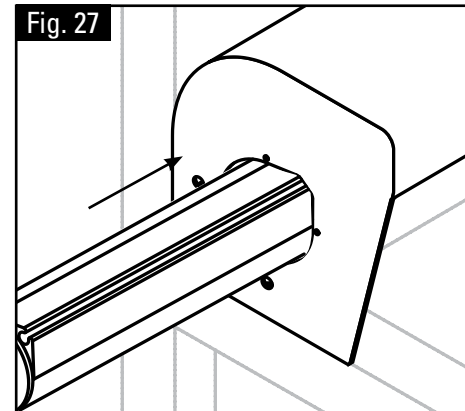
## Semi-Automatic Spring Replacement - With Ratchet

### Installing New Spring (with Ratchet)

**Step 21:** Replace ratchet housing and gear/nut on end of spring shaft by carefully following these steps. A. Inspect bushing in ratchet housing for any wear or damage (Fig. 24). B. Slide ratchet cover onto the end of the spring shaft (Fig. 25). C. Apply Red Lock-Tight to threads and tighten the ratchet gear/nut using a 3/4" box end wrench while holding the shaft with vise grips or channel locks. Tighten snugly but don't over tighten (Fig. 26).



**Step 22:** Slide roller assembly into roller housing and seat end cap onto stub shaft (Fig. 27 & 28). Be sure nylon washer is in place.



**LEARN MORE ABOUT  
THE NUMBER OF WINDS PER TARP TYPE**



**SYSTEM WIND MATRIX - NUMBER OF WINDS PER TARP TYPE**



# SPRING REPLACEMENT WITHOUT RATCHET



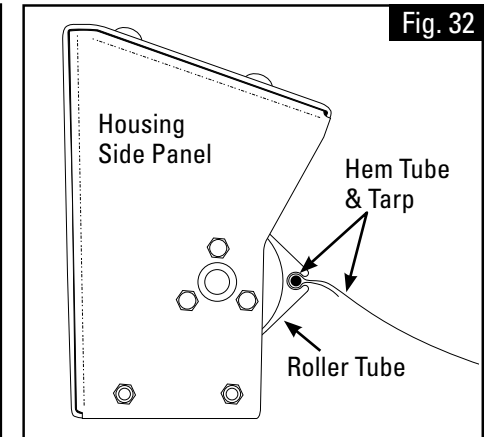
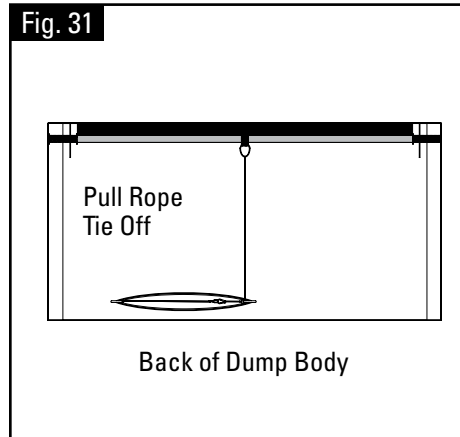
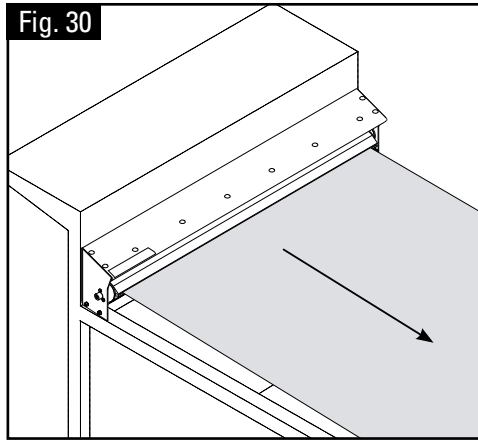
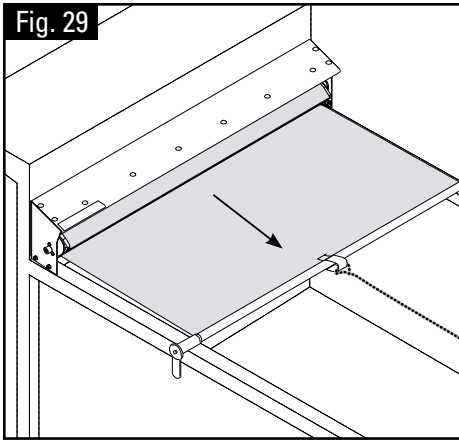


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - Without Ratchet

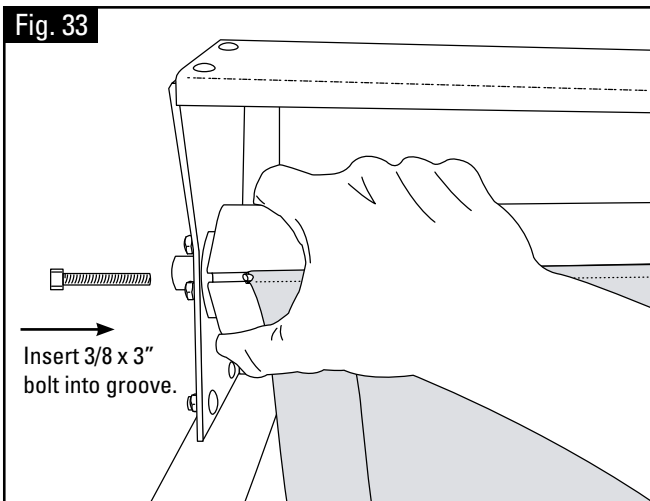
### Releasing Spring Tension with Tarp Installed (without Ratchet)

**Step 1:** Extend tarp until it is completely unrolled from the roller tube (Fig. 29 & 30) and over the tail gate. Once tarp is fully extended, tie off at the end of the tail gate, so tarp will not roll back (Fig. 31).

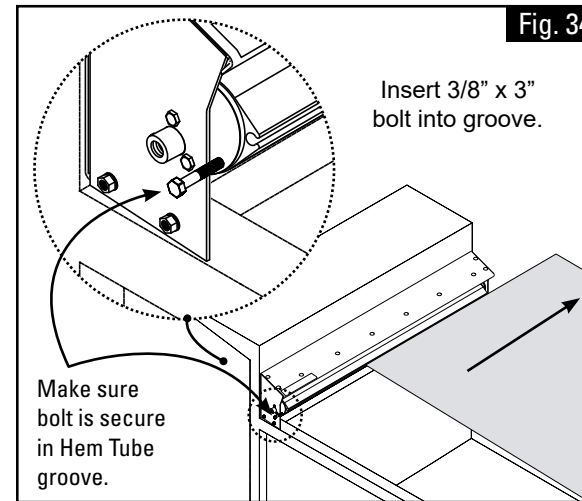


Side View with no Ratchet (Fig. 32).

**Note:** The Steel Protector is to remain on box during entire conversion.



**Step 2:** Roll the roller tube hem tube groove to allow for insertion of the included 3/8" bolt. When the two are aligned, hold the tube in place and insert the bolt into the hole and roller tube. This will assure that the roller tube will not rotate as the tarp is removed (Fig. 33).



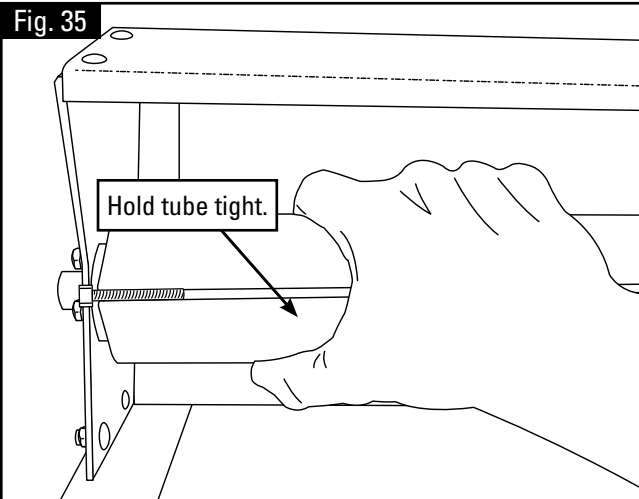
**Step 3:** Once roller tube is secure, remove tarp from groove through slot on the right side of the Steel Protector (Fig. 34) and set aside.



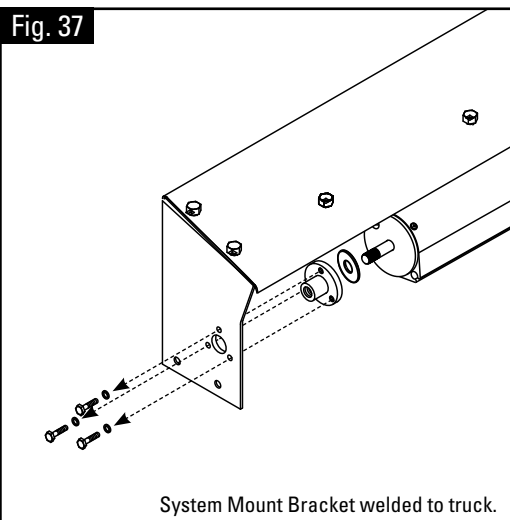
## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - Without Ratchet

### Removing Roller Tube (without Ratchet)

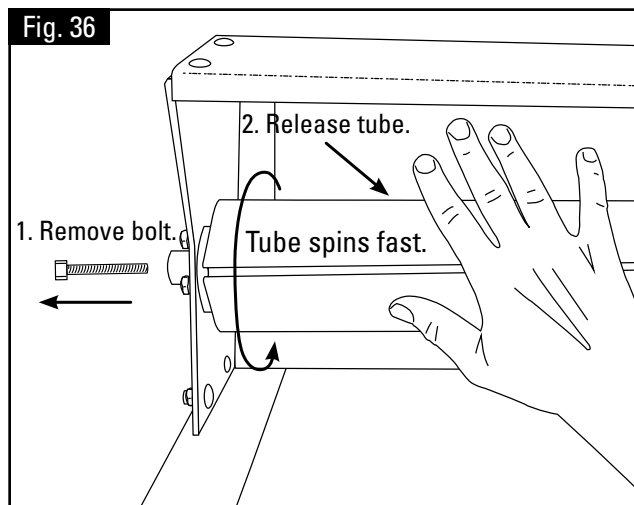


**Step 4:** With bolt in roller groove, hold roller tight with hand then use other hand to remove bolt (Fig 35).

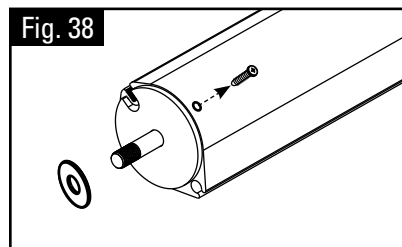


**Step 6:** Locate the Spring Shaft Anchor in the end plate, (left hand side when facing the front of the vehicle). Remove the three 1/4-20 bolts from the spring shaft anchor (Fig. 37).

**Note:** The mounting bracket will need to be reused with the new end plate.



**Note:** Mounting bolts not shown.

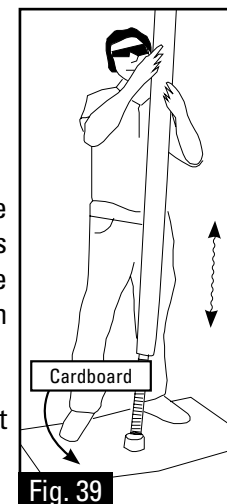


**Step 7:** Remove the #506-9916 screw from the roller tube. (Fig. 38)

**Step 8:** Place a piece of cardboard on the ground and hold the roller assembly vertically, with the ratchet assembly towards the ground. Shake the roller assembly up and down above the cardboard to pop the end cap and spring assembly free from the roller tube (Fig. 39).

**Note:** The cardboard is to protect the end of the spring shaft when it breaks free.

**Step 5:** Once the bolt is removed, let go of the roller to release the spring tension (Fig. 36 - 1 & 2). When released, the roller tube will spin rapidly until all tension is released.



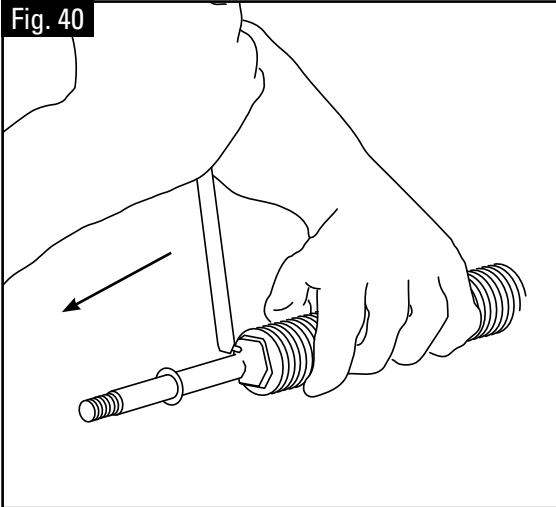


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - Without Ratchet

### Installing New Spring (without Ratchet)

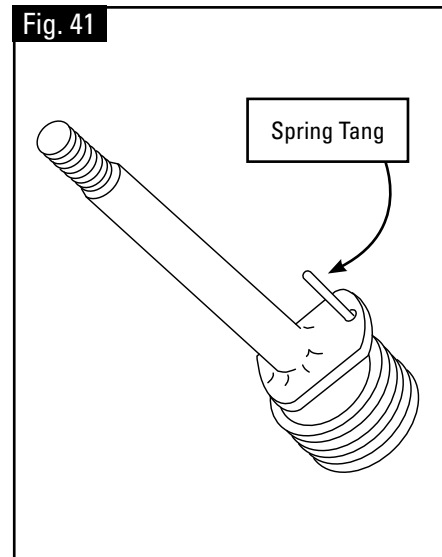
Fig. 40



**Step 9:** Locate the end of the spring that is attached to the tab welded to the shaft.

Using a screw driver, pry out the spring tang far enough to fit the spring tool provided over spring tang (Fig. 40).

Fig. 41



**Step 10:** Using the spring tool provided straighten the spring tang so spring may be removed (Fig. 41).

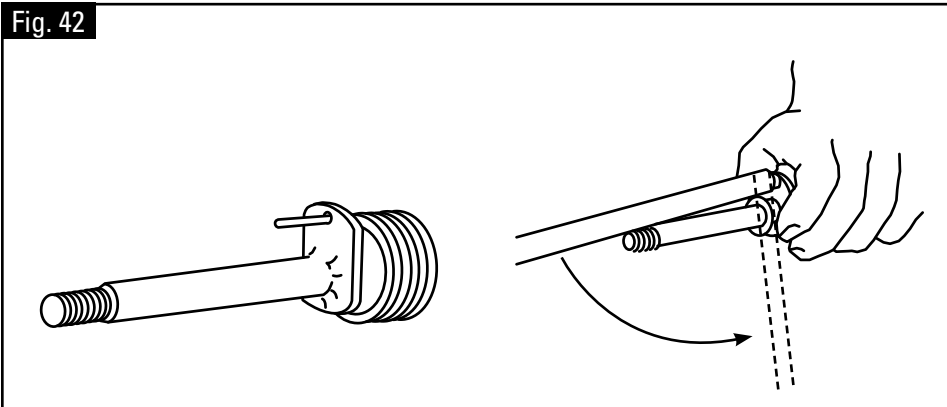
Turn the spring assembly around to the other end and remove the cotter pin. Remove washer, spring, torque block and second washer. Do not remove PVC pipe.

Slide spring or spring pieces off of shaft.

Slide replacement spring onto shaft and place spring tang through hole in spring rod flange. Be sure spring is seated over the collar and flush against the back of the flange.

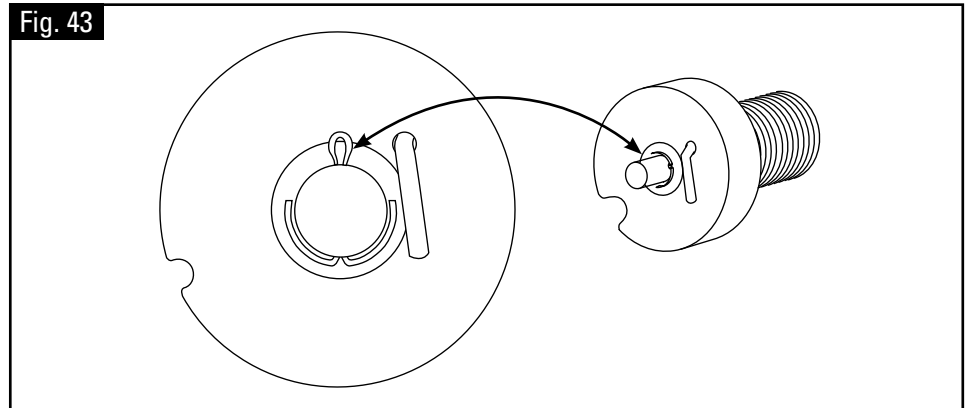
**Step 11:** Slide spring tool as far onto spring tang as possible. With the beveled part of tool facing towards the flange, bend the tang down and to the right of the threaded shaft (Fig. 42).

Fig. 42



**Step 12:** Turn shaft over and replace washer and cotter pin. Both sides of cotter pin must be bent around as close to shaft as possible (Fig. 43).

Fig. 43



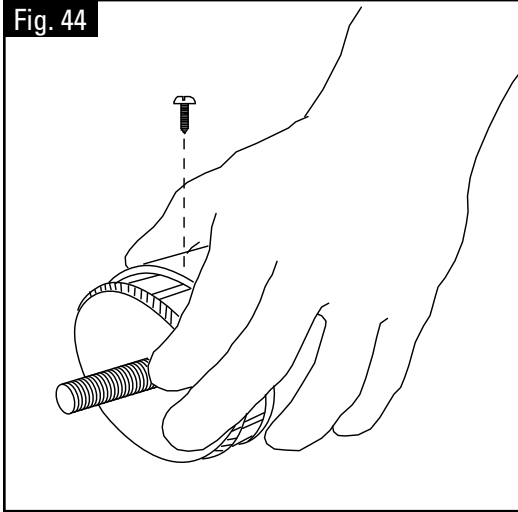


## INSTALLATION INSTRUCTIONS

## Semi-Automatic Spring Replacement - Without Ratchet

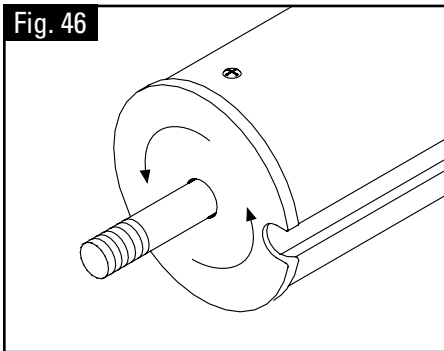
### Installing New Spring (without Ratchet)

Fig. 44



**Step 13:** Replace washer, end cap, nylon washer onto spring shaft. Slide spring assembly into roller and press-fit end cap until the shoulder of the end cap sits flush against the roller tube. Replace the #506-9916 screw in the end cap (Fig. 44).

Fig. 46



**Step 15:** Rotate the roller tube counter clockwise by hand 4 to 5 turns until you feel some spring resistance (Fig. 46).

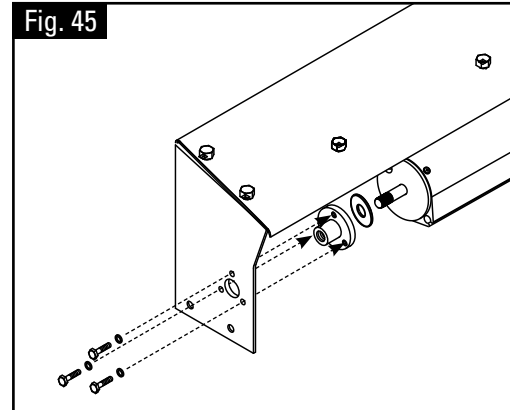
Count the number of turns from that point. Refer to the chart (Fig. 47) below for approximate number of turns required to preload the spring roller.

Insert a 3/8 bolt into the groove in the roller tube to hold the preload on the roller while the tarp is being reinstalled (Fig. 48).

Fig. 47 - APPROXIMATE PRE-LOAD TURNS

Tarp Length	13 Feet	18 Feet	25 Feet
---	4 Meters	5.5 Meters	7.5 Meters
Turns	25/30	30/35	35/40

Fig. 45

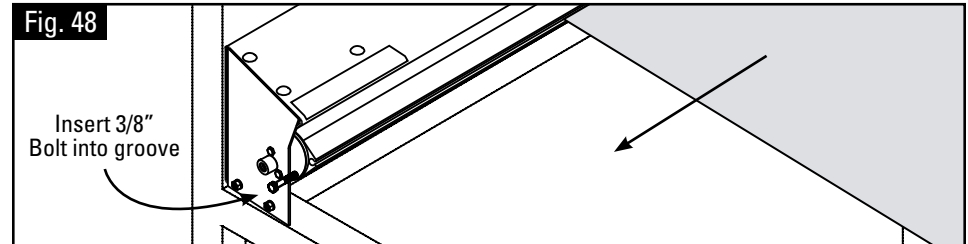


**Step 14:** Slide roller assembly into roller housing and seat end cap onto stub shaft (Fig. 45).

Be sure nylon washer is in place.

Thread the end of the spring shaft clockwise into the Spring Shaft Anchor as far as you can. This should be hand tight. Do not over tighten.

Fig. 48



**Step 16:** Reinstall the tarp in the roller tube (Fig. 48). Slide the front end of tarp (with beaded rod) into the groove in the roller from the opposite side of the shaft anchor. If needed, lubricate the edge of the tarp with soapy water so it will slide into the roller slot easy. After the tarp is in place, make sure that it is centered on the roller with an equal amount of space on each end, and that the bead tubing is also equally spaced. Secure the pullrod end of the tarp to the tailgate with the pullrope. Hold the roller with one hand and remove the locking bolt with the other. Release pullrope from tailgate and cycle the tarp 2 or 3 times.

**Note:** If the tarp doesn't wind up all the way add 5 turns at a time until tarp winds up completely. If the tarp still won't wind up after 60 turns call (800) 368-3075 for technical assistance.