TORQUEMASTER® PLUS REPLACEMENT SPRING(S)

Installation Instructions

Wayne-Dalton, a Division of Overhead Door Corporation
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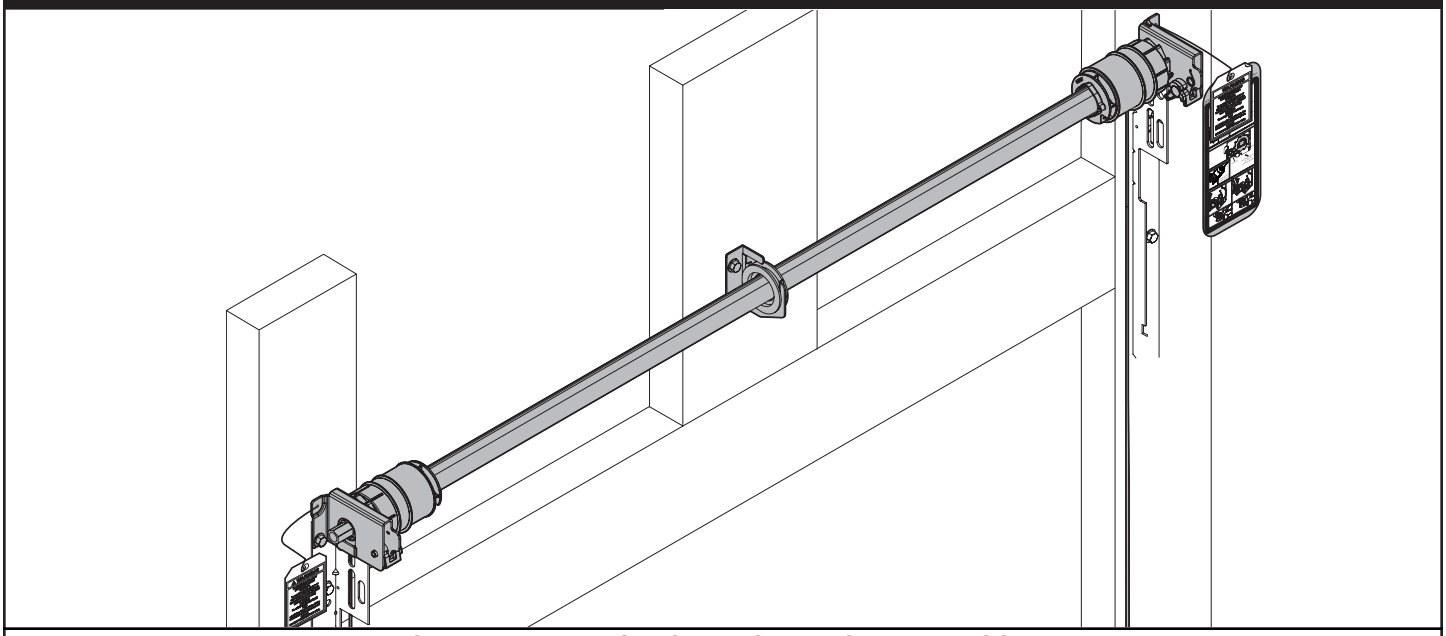
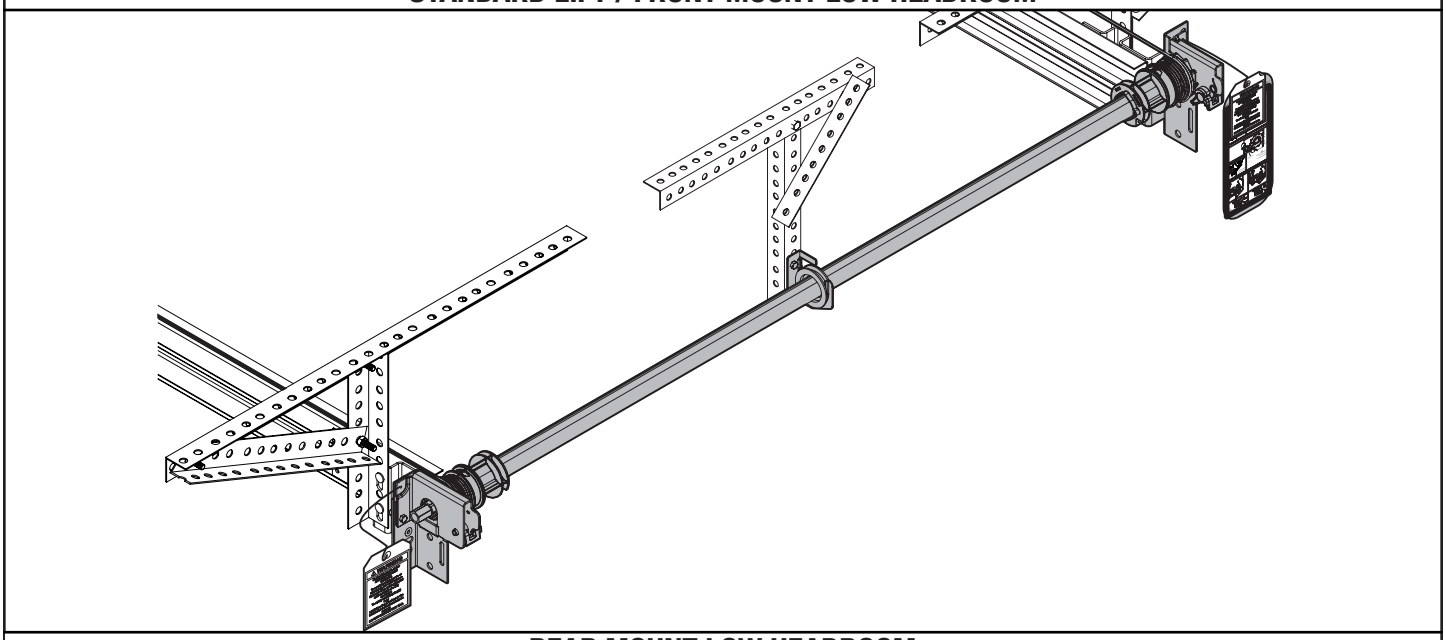
These installation instructions are to be used as a supplement to the main Installation Instructions and Owner's Manual provided with the door. The instructions included in this document are ONLY those which deviate from the standard installation. All WARNINGS and CAUTIONS listed in the main manual are applicable to these instructions as well.

TORQUEMASTER® PLUS



STANDARD LIFT / FRONT MOUNT LOW HEADROOM



REAR MOUNT LOW HEADROOM

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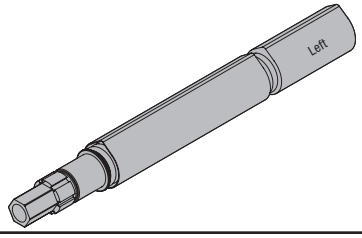
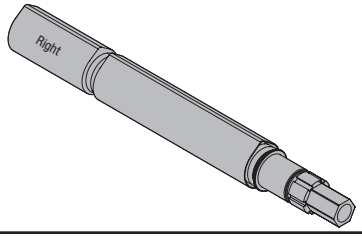
TORQUEMASTER® PLUS REPLACEMENT SPRING COMPONENTS FOR LEFT HAND AND RIGHT HAND ASSEMBLIES

1. Left Hand Spring Assembly:

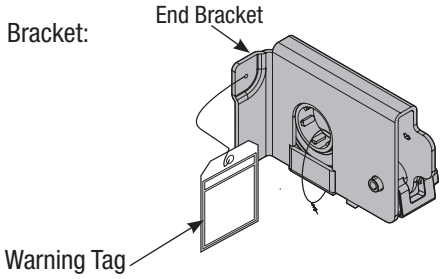


2. Right Hand Spring Assembly:

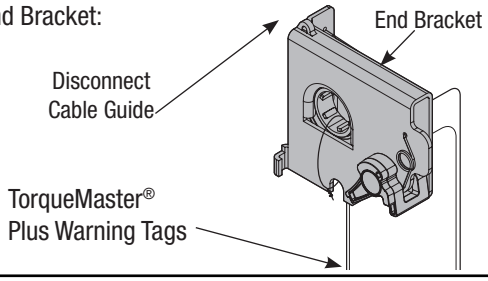


TORQUEMASTER® PLUS END BRACKET IDENTIFICATION

1. Left Hand End Bracket:

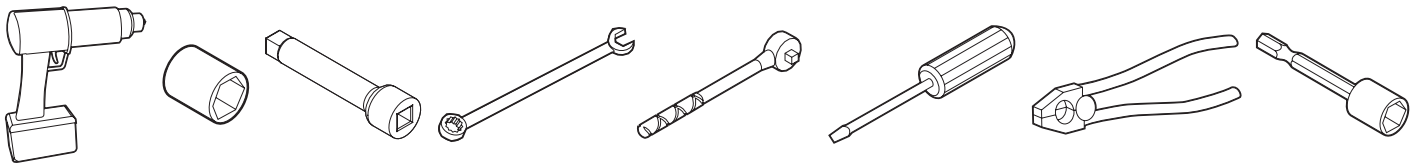


2. Right Hand End Bracket:

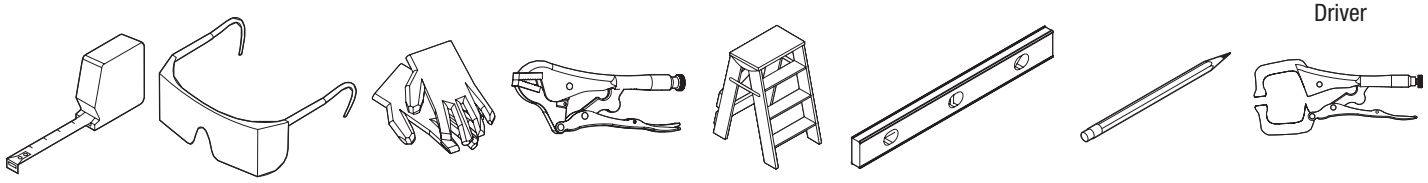


NOTE: A TorqueMaster® Plus single spring system can be identified by the end brackets. You can identify the right hand end bracket by the disconnect cable guide hole in the top of the bracket, as shown above. The left hand end bracket will have no disconnect cable guide hole in the top of the bracket.

TOOLS NEEDED



Power Drill | 5/8" Socket | 3" Extension | 7/16" Wrench | Ratchet Wrench | Flat Head Screwdriver | Pliers/Wire Cutters | 7/16" Socket Driver



Tape Measure | Safety Glasses | Gloves | Locking Pliers | Step Ladder | Level | Pencil | Vice Clamps

Single and Double Spring TorqueMaster® Plus Removal

IMPORTANT! Right and left hand is always determined from inside the building looking out.

⚠ WARNING

COUNTERBALANCE SPRING TENSION MUST BE RELIEVED BEFORE REMOVING ANY HARDWARE. A POWERFUL SPRING RELEASING ITS ENERGY SUDDENLY CAN CAUSE SEVERE INJURY.

Remove the drum wraps from cable drums (if installed) by twisting the drum wrap while pulling it away from the drum, as shown in **Fig. 1.1**.

Check for spring tension by pulling the counterbalance cable on the right hand cable drum away from the header, as shown in **Fig. 1.2**.

STEP 1: If there is no spring tension the cable will be loose. In addition, the torque tube should be free to rotate in either direction. If there is no spring tension, proceed to Step 3. If the counterbalance cable is still taut and the torque tube is difficult to rotate, that is an indication that spring tension still exists, proceed to Step 2.

⚠ WARNING

IT IS RECOMMENDED THAT LEATHER GLOVES BE WORN WHILE UNWINDING THE TORQUEMASTER® PLUS SPRINGS. FAILURE TO WEAR GLOVES MAY CAUSE INJURY TO HANDS.

STEP 2: If there is spring tension and starting with the right hand side, ensure ratchet pawl knob is in upper position, as shown in **Fig. 1.3**.

IMPORTANT! PAWL KNOB MUST BE IN UPPER POSITION TO REMOVE SPRING TENSION, AS SHOWN IN **FIG. 1.3**.

Place a ratchet with a 5/8" socket on the winding shaft, as shown in **Fig. 1.4**.

NOTE: A 3" extension is recommended for added clearance from the horizontal track assembly.

To remove spring tension, ensure the ratchet and socket is set so that it will add tension (counter clockwise) on the right hand side and (clockwise) on the left hand side. Rotate ratchet to relieve pressure between the pawl and the ratchet wheel. Push in on the pawl to allow the ratchet wheel teeth to pass by.

CAUTION: BE PREPARED TO HOLD THE FULL TENSION OF THE SPRING.

Gently let the ratchet rotate upward, while watching the number of teeth on the ratchet wheel pass by the pawl. Remove 3/10 of a turn (watch the 3 teeth of the ratchet wheel pass the pawl) at a time.

Release the pawl to allow it to engage with the ratchet wheel. Repeat this process until all spring tension has been removed from spring.

For Double Springs, repeat the same process for the left hand side. Cables should be loose and the torque tube should be free to rotate in either direction.

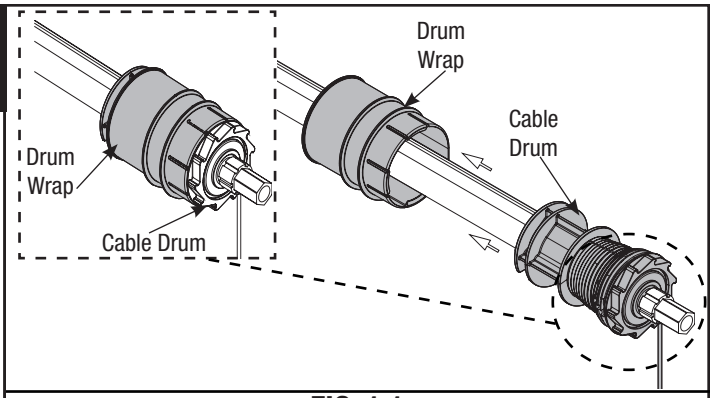


FIG. 1.1

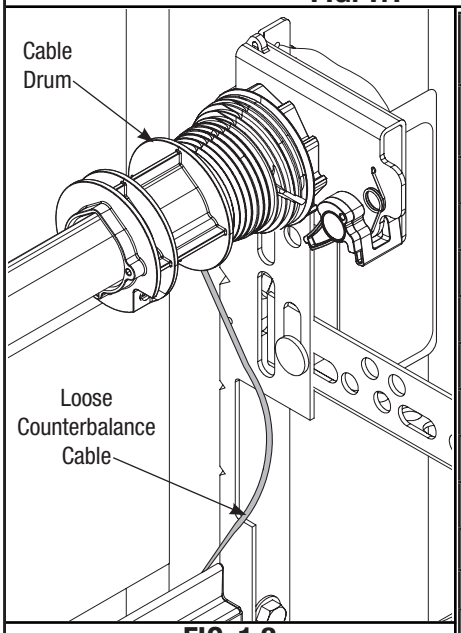


FIG. 1.2

RECOMMENDED SPRING TURNS	
Door Height	**Spring Turns**
6'-0"	14
6'-3"	14-1/2
6'-5"	15
6'-6"	15
6'-8"	15-1/2
6'-9"	15-1/2
7'-0"	16
7'-3"	16-1/2
7'-6"	17
7'-9"	17-1/2
8'-0"	18

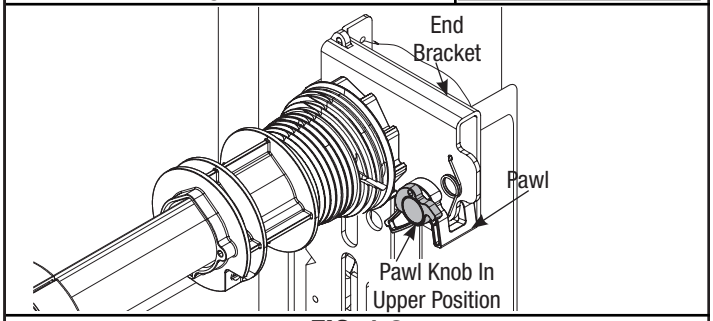


FIG. 1.3

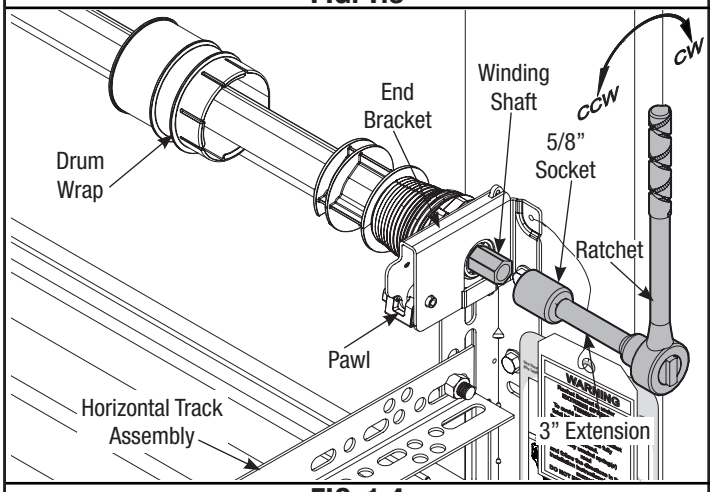


FIG. 1.4

Single and Double Spring TorqueMaster® Plus Removal - Continued

NOTE: Spring(s) are fully unwound when counterbalance cables have no tension.

STEP 3:
Standard Lift/Front Mount Low Headroom Applications:
Starting with the right hand end bracket, first remove the 5/16" - 18 x 3/4" carriage bolt and one 5/16" - 18 hex nut, then remove the 5/16" x 1-5/8" lag screw from the end bracket, as shown in **Fig. 1.5**.

Rear Mount Low Headroom Applications: Starting with the right hand end bracket, first remove the 1/4" - 20 x 9/16" track bolt and one 1/4" - 20 nut, then remove the shim, the 5/16" - 18 x 1" hex head screw and the 5/16" - 18 nut from the end bracket, as shown in **Fig. 1.6 and Fig. 1.7**.

NOTE: DO NOT discard the shim.

Holding the end bracket with a pair of locking pliers, carefully pry the end bracket from the flagangle/rear support bracket and winding shaft with a flat head screwdriver, as shown in **Fig. 1.8**. Repeat for left hand end bracket.

CAUTION: THE WINDING SHAFT MAY ROTATE WHEN REMOVING THE END BRACKET AND DRIVE GEAR.

Now take note on how many cable drum wraps have been applied to your cable drum, because your cable drum will need to be rewrapped later. Cable drums require either 1/2 to 3/4 wraps or 1 1/2 to 1 3/4 wraps.

Bend the center bracket tab over, as shown in **Fig. 1.9**. Lift right hand side of the TorqueMaster® tube and slide the cable drum off the tube.

NOTE: The cable drums and springs may be difficult to remove. If so, twist the cable drum and TorqueMaster® tube to aid removal.

Realign the groove in the winding shaft with the round notch in the flagangle/rear support bracket and drape the counterbalance cable with drum over the flagangle/rear support bracket, as shown in **Fig. 2.0**. Repeat for the other side. Remove TorqueMaster® tube and gently lay it on the floor, as shown in **Fig. 2.1**. Remove the left and right hand spring(s) from the torque tube, as shown in **Fig. 2.2**.

NOTE: Single spring application will have no spring on the left hand side, only a loose winding shaft.

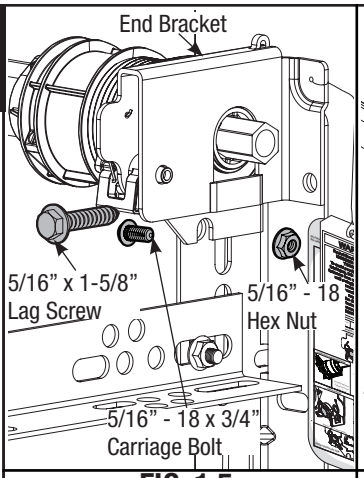


FIG. 1.5

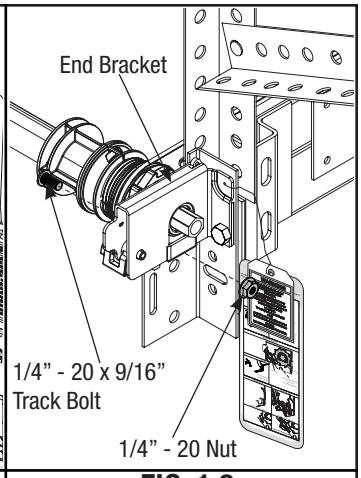


FIG. 1.6

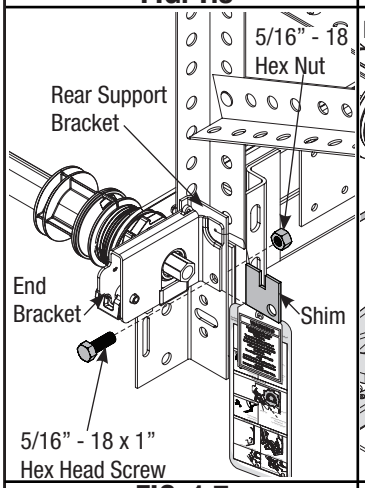


FIG. 1.7

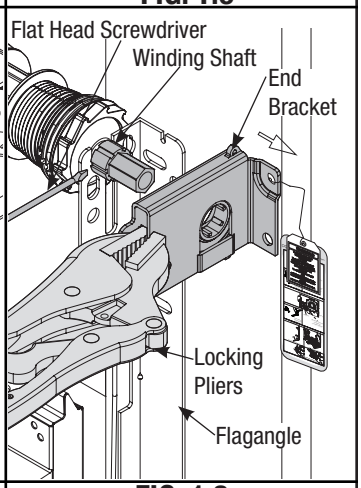


FIG. 1.8

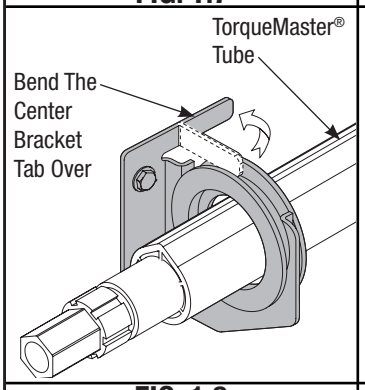


FIG. 1.9

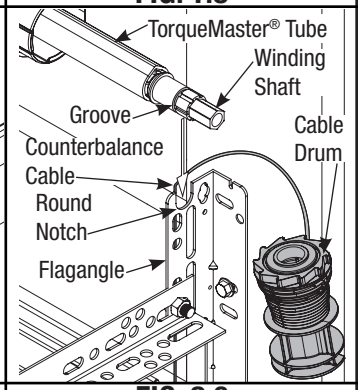


FIG. 2.0

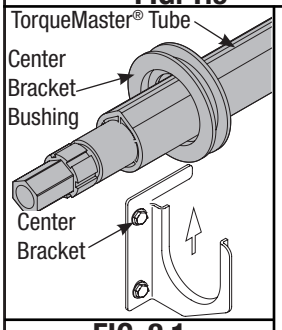


FIG. 2.1

FIG. 2.2

TorqueMaster® Plus Single and Double Spring Replacement

IMPORTANT! RIGHT AND LEFT HAND IS ALWAYS DETERMINED FROM INSIDE THE BUILDING LOOKING OUT.
Slide the new spring(s), perch end first, into the torque tube (each spring is identified as to right and left hand, on the perch), as shown in **Fig. 2.3**. For single spring applications, there will be no left hand spring inserted into the TorqueMaster® spring tube assembly.

STEP 1:
If you have a rear mount low headroom counterbalance system, which has no drum wrap, skip this step and proceed with **STEP 2**.
NOTE: Drum wraps must be installed prior to installing the TorqueMaster® Plus end bracket. Drum wrap installation after the end bracket is installed, is not possible without removing the end bracket and it's components.

Drum wraps are identified as right and left. Slide the left hand drum wrap over the left side of the TorqueMaster® spring tube assembly with the tabs facing left. Continue sliding the left hand drum wrap towards the center of the TorqueMaster® spring tube assembly.

STEP 2:
Slide the right hand drum wrap over the right side of the TorqueMaster® spring tube assembly with the tabs facing right. Continue sliding the right hand drum wrap towards the center of the TorqueMaster® spring tube assembly, as shown in **Fig. 2.4**.

Shake the TorqueMaster® spring tube assembly gently to extend the winding shafts out about 5" on each side, as shown in **Fig. 2.5**. Lift the torque tube assembly up and align the center bushing into the center bracket. Check torque tube for level and adjust if necessary. Bend the center bracket tab back over the center bushing, as shown in **Fig. 2.6**.

Cable drums and TorqueMaster® spring tube assembly are cam shaped to fit together only one way. To install the cable drum, slide the correct cable drum over the winding shaft until the cable drum seats against the TorqueMaster® spring tube assembly, as shown in **Fig. 2.7**.

Standard Lift/Front Mount Low Headroom Applications:
The winding shaft must extend past the cable drum far enough to expose the splines and the groove. Align the winding shaft groove with the round notch in the flagangle, as shown in **Fig. 2.9**.
Rear Mount Low Headroom Applications:
The winding shaft must extend past the cable drum far enough to expose the splines and the groove. Align the winding shaft groove with the round notch in the adapter bracket, as shown in **Fig. 3.0**.

For single spring applications: Insert the loose winding shaft into the left hand cable drum prior to sliding the cable drum over the TorqueMaster® spring tube assembly, as shown in **Fig. 2.9**.
NOTE: On single spring applications, take care in handling the loose winding shaft (left side) so that it does not slide back into the TorqueMaster® spring tube assembly, as shown in **Fig. 2.9**.
Adjust the cable drum assembly by rotating the cable drum to the same amount of cable drum wraps that was previously made.
NOTE: Cable drums require either 1/2 to 3/4 or 1 1/2 to 1 3/4 wraps.
If cable tension is slack, loosen the set screw no more than 1/2 turn and pull on the end of the cable to remove all slack. Snug the set screw, then tighten an additional 1-1/2 turns, as shown in **Fig. 2.8**.
IMPORTANT! ENSURE THE CABLE IS ALIGNED AND SEATED IN THE FIRST GROOVE OF THE CABLE DRUM.

For double spring applications: Repeat for opposite side.

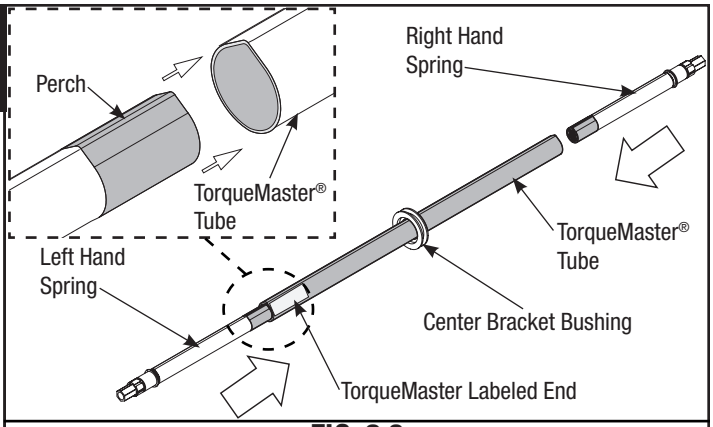


FIG. 2.3

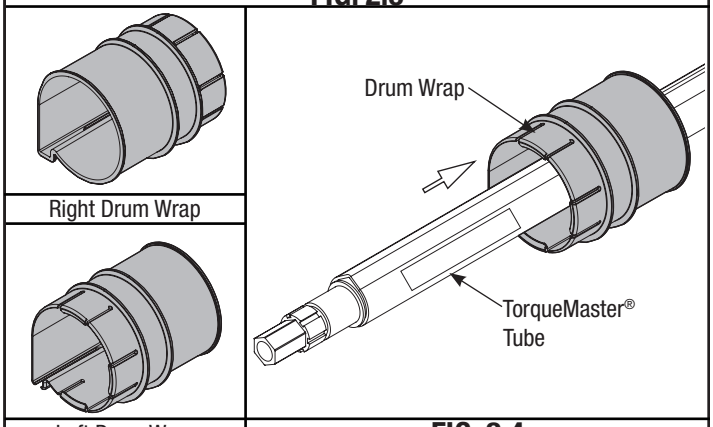


FIG. 2.4

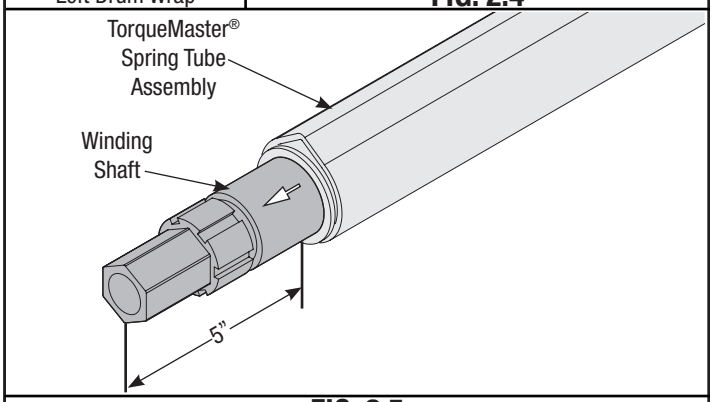


FIG. 2.5

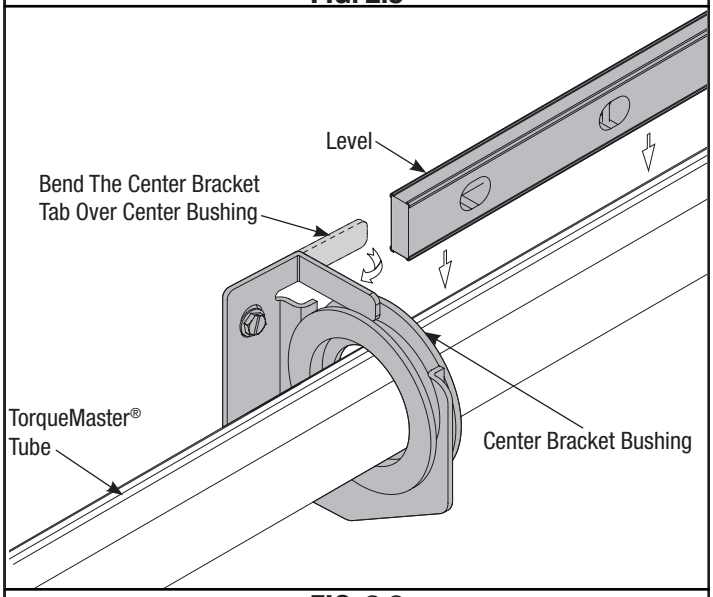


FIG. 2.6

TorqueMaster® Plus Single and Double Spring Replacement - Continued

IMPORTANT: WARNING TAGS MUST BE SECURELY ATTACHED TO BOTH END BRACKETS, AS SHOWN IN **FIG. 3.1**.

End brackets are right and left hand. You can identify the right hand end bracket by the disconnect cable guide hole in the top of the bracket. Beginning with either side, slide the end bracket onto the winding shaft so that the grooves in the ratchet wheel fit onto the winding shaft splines.

Standard Lift/Front Mount Low Headroom Applications:
Secure end bracket to the flagangle using (1) 5/16" - 18 x 3/4" carriage bolt and (1) 5/16" - 18 hex nut. Now secure end bracket to the jamb using (1) 5/16" x 1-5/8" hex head lag screw. Repeat for other end bracket.

NOTE: Ensure the 5/16" - 18 x 3/4" carriage bolt is going through the flagangle first, and the 5/16" - 18 hex nut is on the outside of the end bracket, as shown in **Fig. 3.2**.

Rear Mount Low Headroom Applications:
Slide the TorqueMaster® shim in between the end bracket and the adapter bracket. Secure end bracket / shim to the adaptor bracket using one 5/16" - 18 x 1" hex head bolt and 5/16" - 18 nut, as shown in **Fig. 3.4**.

NOTE: Ensure the 5/16" - 18 x 1" hex head bolt is going through the end bracket first, then through the shim and the 5/16" - 18 nut is on the outside of the opposite side of adaptor bracket, as shown in **Fig. 3.4**.

Secure end bracket to the adaptor bracket using one 1/4" - 20 x 9/16" track bolt and 1/4" - 20 flange hex nut, as shown in **Fig. 3.5**. Repeat for other end bracket.

NOTE: Ensure the 1/4" - 20 x 9/16" track bolt is going through the adaptor bracket first, and the 1/4" - 20 flange hex nut is on the outside of the adaptor bracket, as shown in **Fig. 3.5**.

⚠ WARNING

THE TORQUEMASTER® TUBE IS NOT INTENDED TO SUPPORT WEIGHT. TO AVOID SEVERE OR FATAL INJURY, DO NOT HANG ANY OBJECTS FROM REAR MOUNTED TORQUEMASTER® TUBE.

IMPORTANT: IF RATCHET GEAR SLIPS OUT OF END BRACKET, ENSURE THE TEETH ON RATCHET WHEEL ARE POINTING UPWARD IN A CLOCKWISE POSITION WHEN SLIDING IT BACK INSIDE THE END BRACKET, AS SHOWN IN FIG. 3.3.

IMPORTANT: ENSURE THE CABLE IS ALIGNED AND SEATED IN THE FIRST GROOVE OF THE CABLE DRUM PRIOR TO WINDING SPRINGS.

Place vice clamps onto both vertical tracks just above the third roller. This is to prevent the garage door from raising while winding counterbalance springs.

⚠ WARNING

FAILURE TO PLACE VICE CLAMPS ONTO VERTICAL TRACK CAN ALLOW DOOR TO RAISE AND CAUSE SEVERE OR FATAL INJURY.

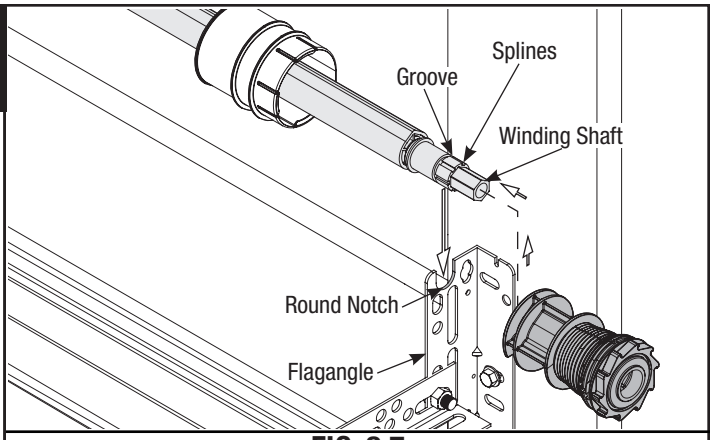


FIG. 2.7

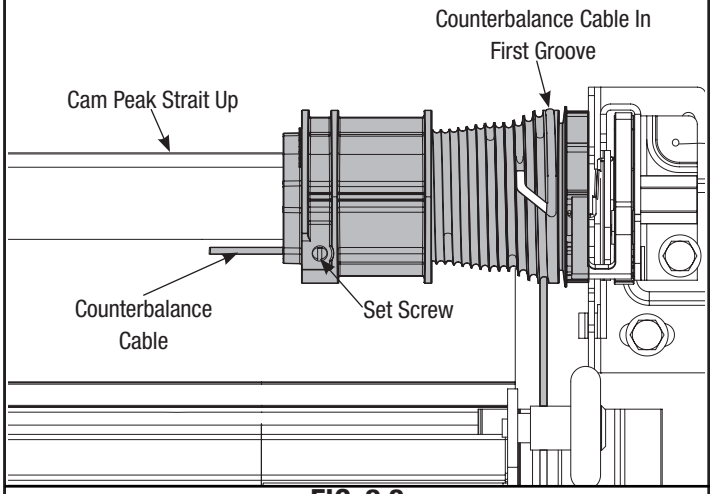


FIG. 2.8

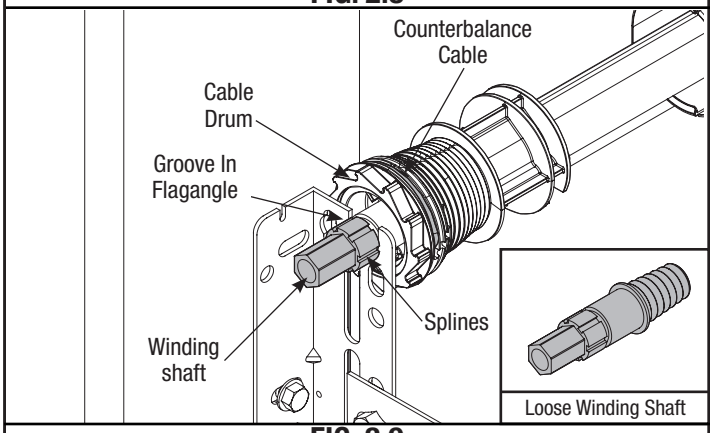


FIG. 2.9

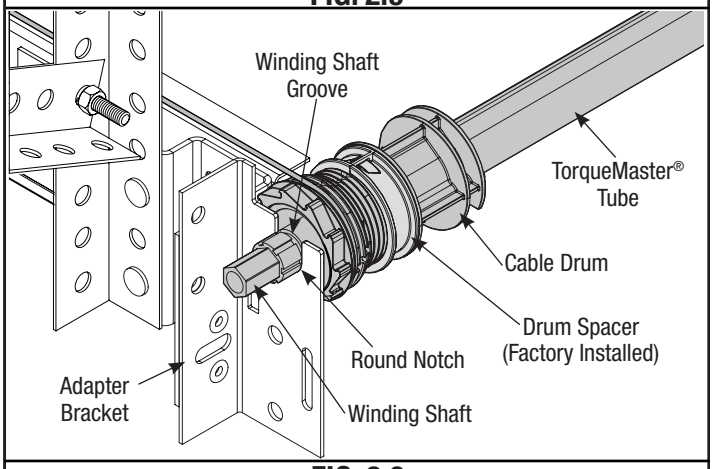


FIG. 3.0

⚠ WARNING

IT IS RECOMMENDED THAT LEATHER GLOVES BE WORN WHILE WINDING THE TORQUEMASTER® PLUS SPRINGS. FAILURE TO WEAR GLOVES MAY CAUSE INJURY TO HANDS.

Starting with the right hand side, place a mark on winding shaft (or 5/8" socket) and end bracket. Turn the pawl knob on the end bracket to the upper position. Using a ratchet wrench with a 5/8" socket, wind the spring by rotating the winding shaft counter clockwise, while watching the mark on the winding shaft, as shown in **Fig. 3.6**.

NOTE: A 3" extension is recommended to provide added clearance from the horizontal angle, as shown in **Fig. 3.6**.

IMPORTANT: PAWL KNOB MUST BE IN UPPER POSITION TO ADD / REMOVE REQUIRED NUMBER OF SPRING TURNS, AS SHOWN IN **FIG. 3.9**.

After 2-3 turns, remove the ratchet wrench and adjust the cable on the left side, to ensure the cable is in the first groove of the cable drum.

NOTE: Single spring applications require no spring winding on the left hand side, but does require cable adjustment.

IMPORTANT: COUNTERBALANCE CABLE TENSION MUST BE EQUAL ON BOTH SIDES PRIOR TO FULLY WINDING SPRINGS.

SEE THE SPRING TURN CHART FOR THE REQUIRED NUMBER OF TURNS, AS SHOWN IN FIG. 3.7

For single spring applications:
Return to the right hand and continue winding the spring to the required number of turns for your door. Place pawl knob in lower position, as shown in **Fig. 4.0**.

For double spring applications:
Place a mark on the winding shaft and end bracket. Place the ratchet with 5/8" socket onto the left hand winding shaft end. To wind the spring, rotate the winding shaft clockwise, while watching the mark on the winding shaft. Rotate the winding shaft to the required number of turns for your door.

Then return to the right hand side and wind the right hand spring to the required number of turns. Place pawl knob in lower position on both sides, as shown in **Fig. 4.0**.

IMPORTANT: MARK NUMBER OF SPRING TURNS ON TORQUEMASTER® PLUS END BRACKET WARNING TAG(S), as shown in **Fig. 3.8**.

NOTE: Since total turns to balance door may deviate from SPRING TURN CHART values by ± 1/2 turn, adjustments to the recommended number of turns may be necessary.

IMPORTANT! HOLD THE DOOR DOWN TO PREVENT IT FROM RAISING UNEXPECTEDLY IN THE EVENT THE SPRING WAS OVERWOUND AND CAUTIOUSLY REMOVE VICE CLAMPS FROM VERTICAL TRACKS.

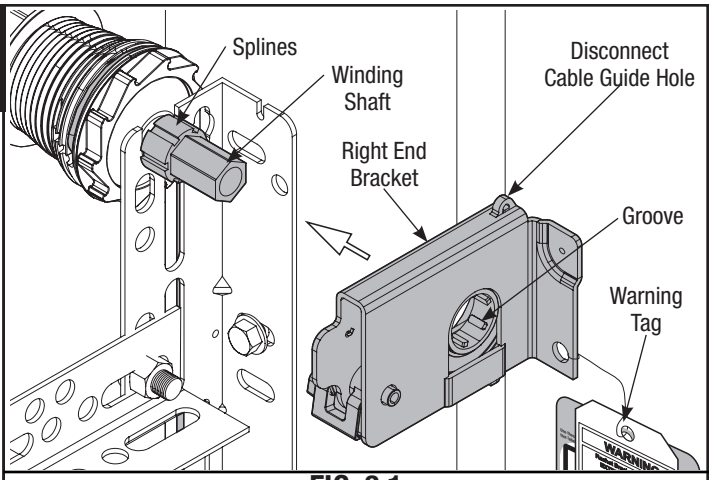


FIG. 3.1

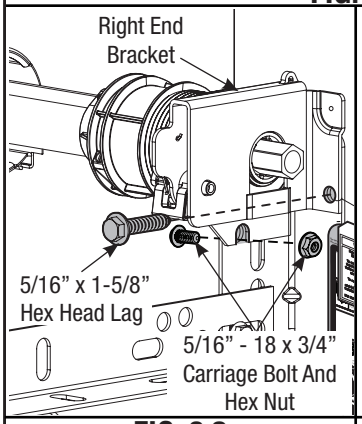


FIG. 3.2

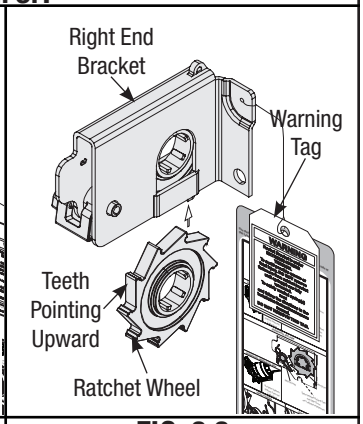


FIG. 3.3

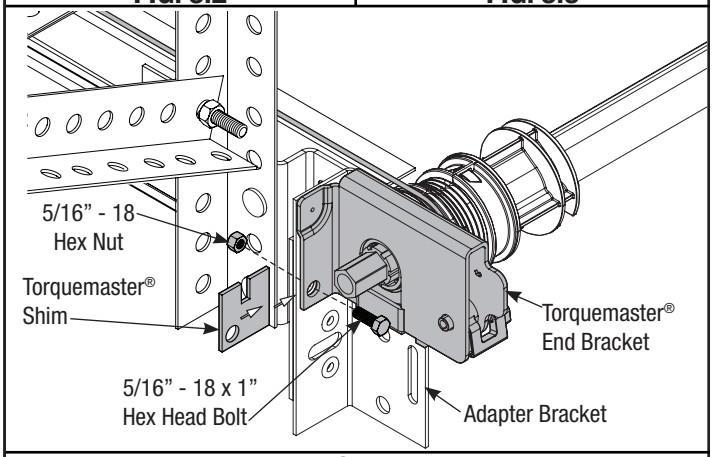


FIG. 3.4

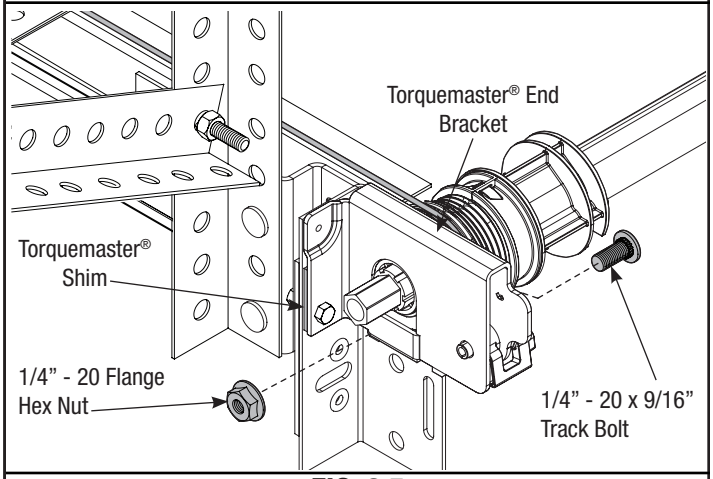


FIG. 3.5

TorqueMaster® Plus Single and Double Spring Replacement - Continued

Now, lift door and check it's balance. If door raises off the floor under spring tension alone, then reduce spring tension until door rest on the floor. If the door is hard to raise or drifts down on its own, then add spring tension. Anytime spring adjustments are made, ratchet pawl knob must be in the upper position to add/remove required number of spring turns. To adjust springs, only add or remove a maximum of 3/10 of a turn (three teeth of ratchet wheel) at a time. Both sides need to be adjusted equally on double spring doors.

IMPORTANT: BE PREPARED TO HOLD THE FULL TENSION OF THE SPRING, WHEN ADJUSTING SPRING TENSION.

IMPORTANT: DO NOT ADD OR REMOVE MORE THAN 1 SPRING TURN (1 SPRING TURN EQUALS 10 TEETH ON RATCHET WHEEL) FROM THE RECOMMENDED NUMBER OF TURNS SHOWN ON THE SPRING TURN CHART.

Add Spring Tension: The ratchet wheel is made of 10 teeth. To add spring tension, ensure the ratchet and socket is set so that it will tighten counter clockwise on the right hand side, and clockwise on the left hand side. Place the ratchet with 5/8" socket onto the winding shaft, pull down to add 3/10 of a turn. Watch as three teeth of the ratchet wheel pass over the pawl, creating three "clicks".

Remove Spring Tension: To remove spring tension, ensure the ratchet and socket is set so that it will tighten counter clockwise on the right hand side and clockwise on the left hand side. It is recommended that a regular 5/8" wrench be used. Place the wrench onto the winding shaft. Pull down on the wrench to relieve pressure between the pawl and the ratchet wheel. Push in on the pawl to allow the three ratchet wheel teeth to pass by the pawl, as you carefully allow the wrench to be rotated upward by the spring tension. Release the pawl to allow it to engage with the ratchet wheel.

If the door still does not operate easily, lower the door into the closed position, UNWIND SPRING(S) COMPLETELY, and recheck the following items:

1.) Check the door for level.

2.) Check the TorqueMaster® tube and flagangles for level and plumb.

3.) Check the distance between the flagangles. It must be door width plus 3-3/8" to 3-1/2".

4.) Check the counterbalance cables for equal tension. Adjust if necessary.

5.) Rewind the spring(s).

6.) Make sure door isn't rubbing on jambs.

To install drum wraps, position the left hand drum wrap over the left hand drum, align with counterbalance cable; slide groove in drum wrap towards the left until tabs snap over drum in between drum and ratchet gear, as shown in **Fig. 4.1**. Repeat for right hand side.

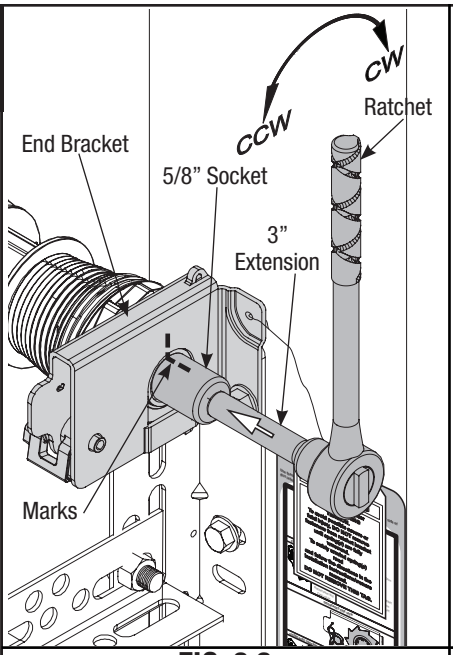


FIG. 3.6

RECOMMENDED SPRING TURNS	
Door Height	**Spring Turns**
6'-0"	14
6'-3"	14-1/2
6'-5"	15
6'-6"	15
6'-8"	15-1/2
6'-9"	15-1/2
7'-0"	16
7'-3"	16-1/2
7'-6"	17
7'-9"	17-1/2
8'-0"	18

FIG. 3.7

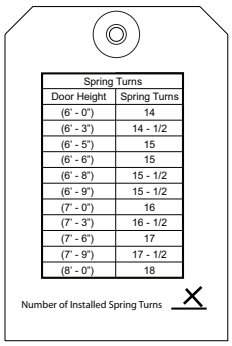


FIG. 3.8

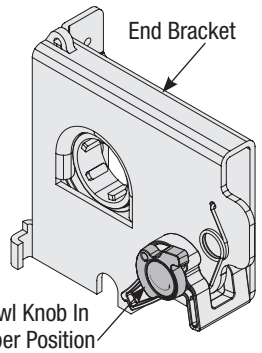


FIG. 3.9

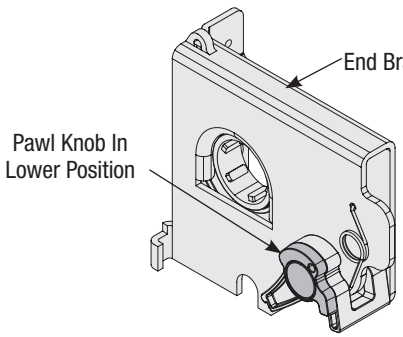


FIG. 4.0

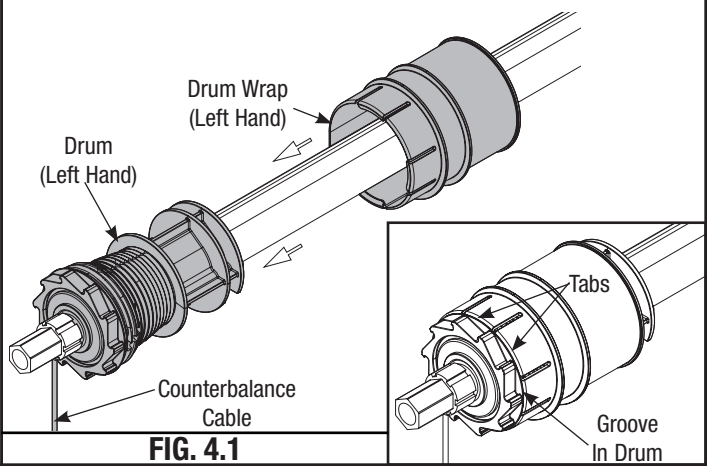


FIG. 4.1