

Supplemental Insert

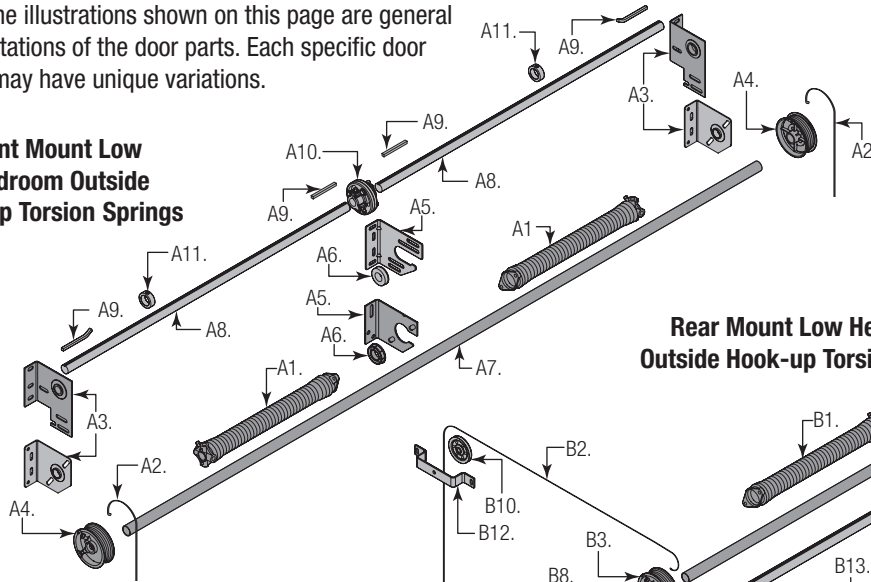
This supplemental installation instruction is to be used as a supplement to the main Installation Instruction and Owner's Manual provided with the door. The instructions included in this document are only those which deviate from the standard installation. All warnings and cautions listed in the main manual are applicable to this supplemental instruction as well.

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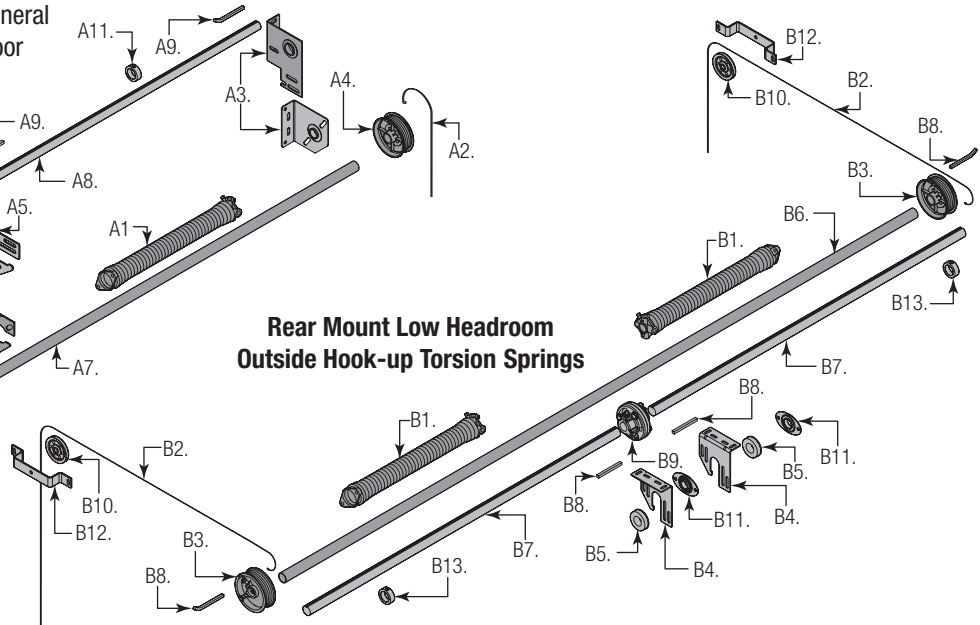
BREAKDOWN OF COUNTERBALANCE PARTS

NOTE: The illustrations shown on this page are general representations of the door parts. Each specific door models may have unique variations.

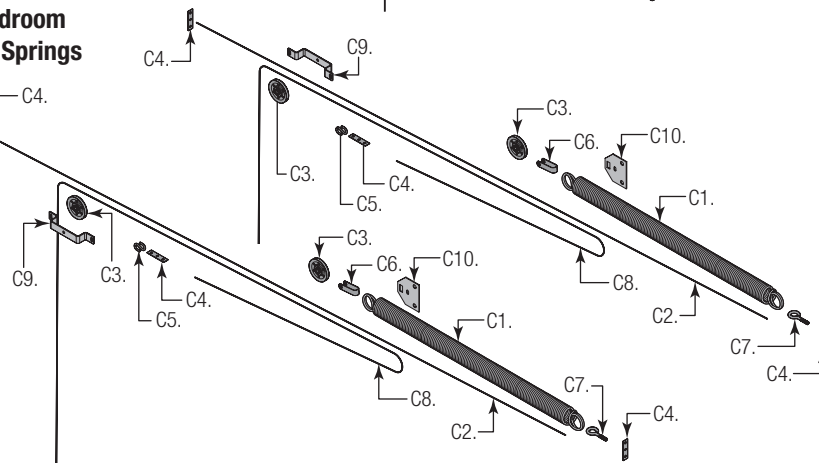
Front Mount Low Headroom Outside Hook-up Torsion Springs



Rear Mount Low Headroom Outside Hook-up Torsion Springs



Low Headroom Extension Springs



A. TORSION FRONT MOUNT LHR OUTSIDE HOOKUP:

- A1. Left Hand and Right Hand Torsion Springs (As Required)
- A2. Counterbalance Lift Cables
- A3. Left Hand and Right Hand End Bearing Brackets (As Required)
- A4. Left Hand and Right Hand Cable Drums
- A5. Center Bracket (As Required) / A6. Center Bracket Bearing
- A7. Torsion Shaft / Torsion Keyed Shaft / A8. Torsion Keyed Shafts (As Required)
- A9. Keys (As Required) / A10. Center Coupler Assembly (As Required)
- A11. Set Collars (As Required)

B. TORSION REAR MOUNT LHR OUTSIDE HOOKUP:

- B1. Left Hand and Right Hand Torsion Springs (As Required)
- B2. Counterbalance Lift Cables
- B3. Left Hand and Right Hand Cable Drums
- B4. Center Bracket (As Required) / B5. Center Bracket Bearing

- B6. Torsion Shaft / Torsion Keyed Shaft / B7. Torsion Keyed Shafts (As Required)
- B8. Keys (As Required) / B9. Center Coupler Assembly (As Required)
- B10. Cable Lift Sheaves
- B11. Oval Bearings (As Required)
- B12. Sheave Saddles (As Required)
- B13. Set Collars (As Required)

C. EXTENSION LHR:

- C1. Extension Springs
- C2. Spring Restraint Cables / C3. Cable Lift Sheaves
- C4. 3 Hole Clips (As Required) / C5. S-Hooks (As Required)
- C6. Sheave Forks (As Required)
- C7. 5/16" - 18 x 3-3/4" Eye Bolts (As Required)
- C8. Counterbalance Lift Cables
- C9. Sheave Saddles (As Required) / C10. Hook Plates (As Required)

INSTALLATION

1

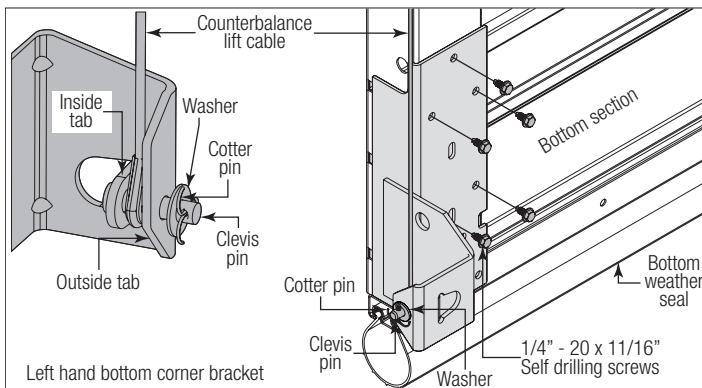
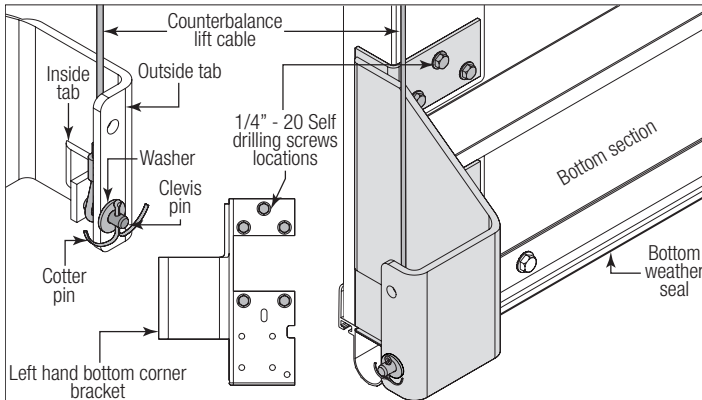
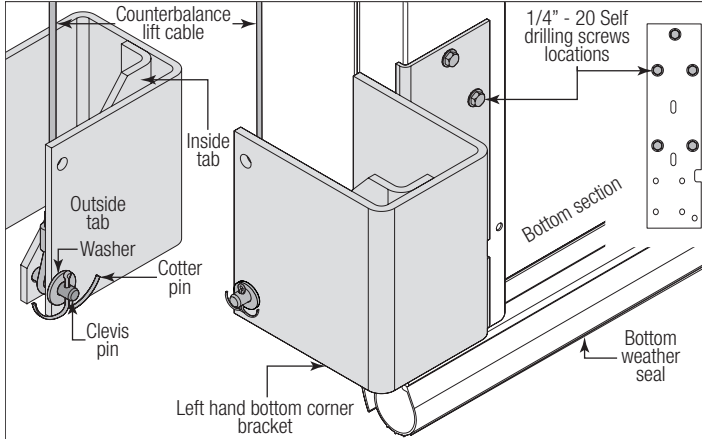
Attaching Bottom Corner Brackets

Tools Required: Power drill, 7/16" Socket driver, 7/16" Wrench, Tape measure, Saw horses, Leather gloves, Safety glasses

Using the illustrations shown, identify the low headroom bottom corner brackets provided with your door. Starting on left hand side of the bottom section, attach the counterbalance lift cable to the left hand bottom corner bracket using clevis pin. Secure the clevis pin to bottom corner bracket using a 5/16" flat washer and cotter pin, as shown. Position the bottom corner bracket up against the edges of the bottom section. Secure the bottom corner bracket to the bottom section using 1/4" - 20 self drilling screws, as shown. Repeat the same process for the right hand side.

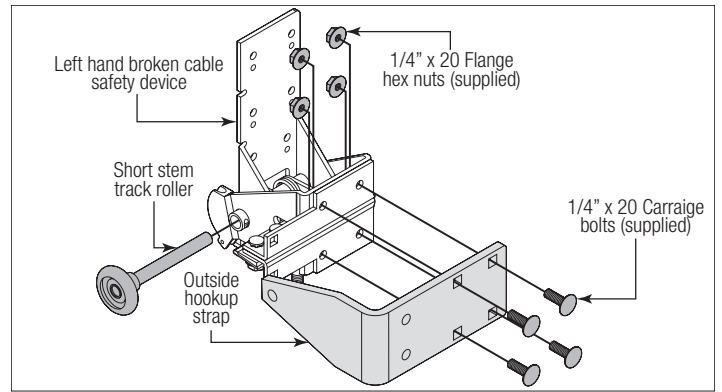
NOTE: Refer to the provided Installation Instructions And Owner's Manual for information regarding track roller carrier and track roller installation.

NOTE: Specific door models may utilize a different bottom bracket design.



NOTE: Broken cable safety devices are also available as an option on most commercial doors and are recommended to improve safety. If installing a broken cable safety device see instructions below.

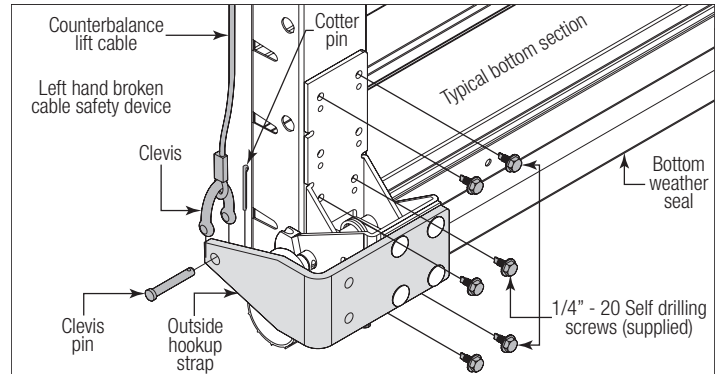
Starting on left hand side, insert a short stem track roller into the broken cable safety device and secure the outside hookup strap using 1/4" - 20 carriage bolts and 1/4" - 20 flange hex nuts, as shown.



Secure the counterbalance lift cable to the outside hookup strap using a clevis, clevis pin, and cotter pin. Position the broken cable safety device up against the edges of the bottom section. Secure the broken cable safety device to the bottom section using 1/4" - 20 self drilling screws, as shown. Repeat the same process for the right hand side.

NOTE: For double endstile applications a minimum of (10) 1/4" - 20 self drilling screws will be needed to be used to install broken cable safety device to the bottom section.

IMPORTANT: ENSURE THE CABLE ARM IS ABLE TO ROTATE FREELY.



2

Attaching Top Fixtures To Top Section

Tools Required: Power drill, 7/16" Socket driver, Leather gloves, Safety glasses

Starting with the left hand side, push the top section of door out against the jamb until the top section is parallel with the other sections of the door. Starting with the left hand side, Align the edge of the top fixture with the edge of the section, and position so that the top roller rides in the upper horizontal track.

NOTE: When installing the top fixtures, the top section must be vertically aligned with the rest of the sections from the side view. If needed reposition top fixture(s) to achieve vertical alignment.

NOTE: If your door came with two top fixtures, then one top fixture and a short stem track roller are required for each side. If your door came with four top fixtures, then two top fixtures and a long stem track roller are required for each side.

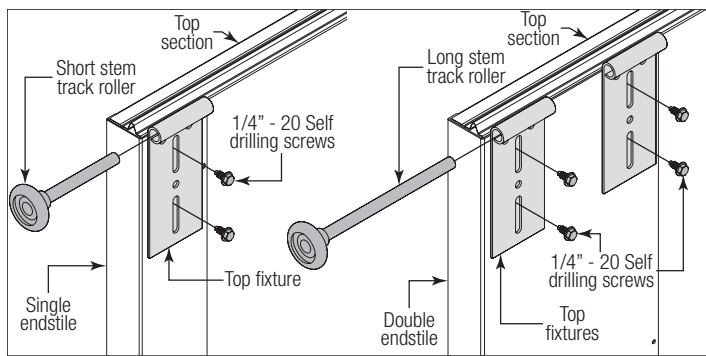
NOTE: Refer to the provided Installation Instructions And Owner's Manual for information regarding top section strutting installation.

Secure the top fixture and strut (if applicable) to the top section using 1/4" - 20 self drilling screws through the upper and lower slots of the top fixture, as shown. If you have four top fixtures, position the second top fixture next to the first installed top fixture and secure it to the top section using 1/4" - 20 self drilling screws through the upper and lower slots of the top fixture, as shown.

WARNING

DO NOT INSTALL THE TOP FIXTURE MORE THAN 1" ABOVE THE TOP EDGE OF THE TOP SECTION.

Insert a short / long stem track roller into the top fixture, as shown. Repeat the same process for the right hand side.



3

Attaching Horizontal Tracks

Tools Required: Ratchet wrench, 7/16" 9/16" Socket, 7/16" 9/16" Wrench, level, Step ladder, Leather gloves, Safety glasses

NOTE: Depending on your door, you may have Fully Adjustable Flag Angles, Riveted Vertical Track Assemblies or you may have Angle Mount Vertical Track Assemblies. Refer to Package Contents, to determine which Flag Angles / Angle Mount Vertical Track Assemblies you have.

NOTE: Refer to the chart below "Headroom requirements", to verify available headroom.

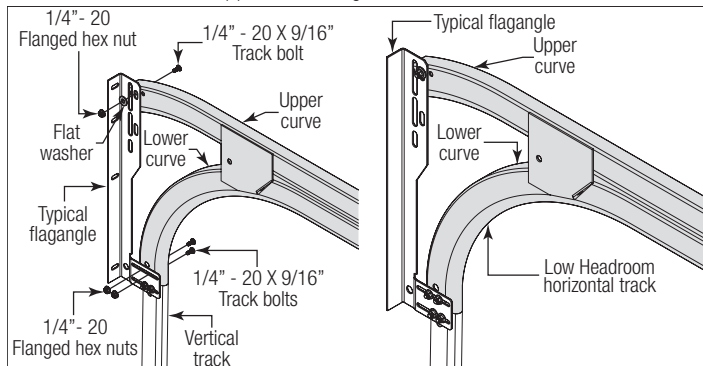
Headroom requirements		
Cable Drum	Front Mount	Rear Mount
400-8, 400-12	10"	6"
5250-18 (< 6" Springs)	10-1/2"	6-1/2"
5250-18 (6" Springs or Duplex Springs)	14"	N/A
800-32	14-1/2"	8**

* Not applicable for 2" Rear Mount

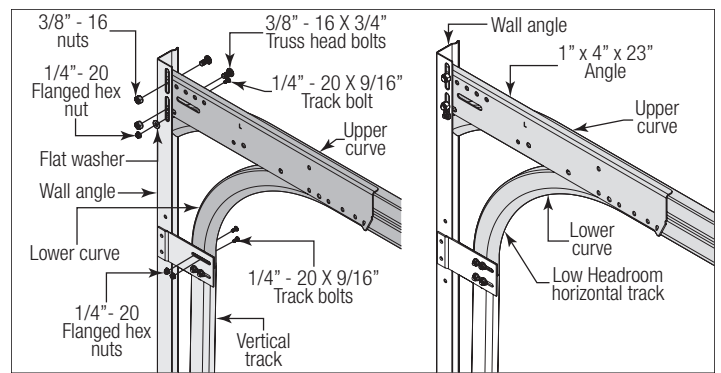
WARNING

DO NOT RAISE DOOR UNTIL HORIZONTAL TRACKS ARE SECURED AT REAR, AS OUTLINED IN REAR SUPPORT INSTALLATION, OR DOOR COULD FALL FROM OVERHEAD POSITION CAUSING SEVERE OR FATAL INJURY.

IF YOU HAVE FLAG ANGLES: To install horizontal track, place the top rail end over the top track roller of the top section. Align the bottom rail end of the horizontal track with the top of the vertical track. Tighten the bottom rail of the horizontal track to the flag angle with (2) 1/4" - 20 x 9/16" track bolts and (2) 1/4" - 20 flange hex nuts.



IF YOU HAVE ANGLE MOUNT VERTICAL TRACK ASSEMBLIES: To install horizontal track, place the curved end over the top roller of the top section. Align the bottom of the horizontal track with the top of the vertical track. Tighten the horizontal track to the Flag Angle / Angle Mount with (2) 1/4" - 20 x 9/16" track bolts and (2) 1/4" - 20 flange hex nuts.



Next level the horizontal track assembly and bolt the top rail of the horizontal track to the encountered slot in the Flag Angle / Angle Mount using (1) 1/4" - 20 x 9/16" track bolt, (1) 1/4" - 20 flange hex nut and (1) 5/16" washer. Repeat for other side. Next remove the nail that was temporarily holding the top section in place, installed in step, Top Section.

IMPORTANT: FAILURE TO REMOVE NAIL BEFORE ATTEMPTING TO RAISE DOOR COULD CAUSE PERMANENT DAMAGE TO TOP SECTION.

4

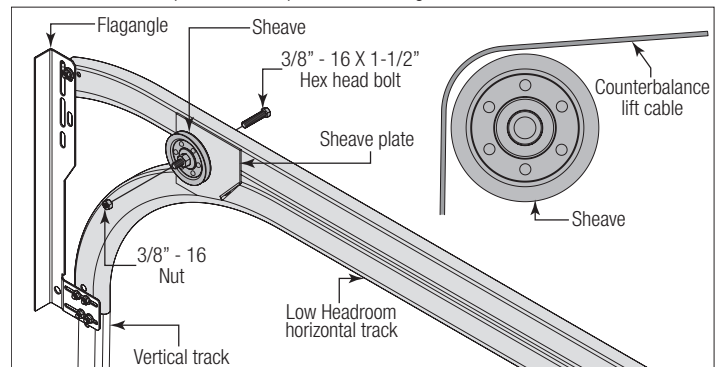
Attaching Cable Sheaves

Tools Required: Ratchet Wrench, 9/16" 1/2" Socket, 9/16" 1/2" Wrench, Leather gloves, Safety glasses

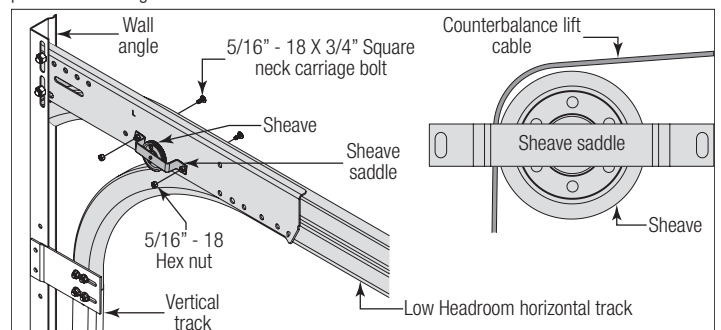
Using the illustrations below, identify the cable sheave assemblies provided with your door.

NOTE: If your door didn't come with cable sheave assemblies then skip this step and proceed to the next step.

Starting with the left hand side, place a 3/8" - 16 x 1-1/2" hex head bolt through the hole in the sheave plate. Next insert the sheave over the end of the bolt. Secure the sheave to the sheave plate with a 3/8" - 16 nut, as shown. Then loop the counterbalance cables over each sheave, as shown. Repeat the same process for the right hand side.



Starting with the left hand side, position the sheave saddle over the 1" x 4" x 23" angle and align the slots in the sheave saddle with the corresponding holes in the 1" x 4" x 23" angle. While holding the sheave saddle in place, insert (1) 5/16" - 18 x 3/4" square neck carriage bolt through each of the aligned holes and secure the assembly with 5/16" - 18 hex nuts, as shown. Then loop the counterbalance cables over each sheave, as shown. Repeat the same process for the right hand side.



5

Attaching Rear Back Hangs

Tools Required: 13/32" Drill bit, Ratchet wrench, Socket: 1/2" 9/16", Wrench: 1/2" 9/16", (2) Vice clamps, Tape measure, Level, Step ladder, Safety glasses, Leather gloves

FOR FRONT MOUNTED TORSION SPRINGS: Level and square the horizontal track and secure end of the lower horizontal track to the back hanger, using (1) 5/16" - 18 x 1-1/4" bolt and (1) 5/16" - 18 nut, as shown.

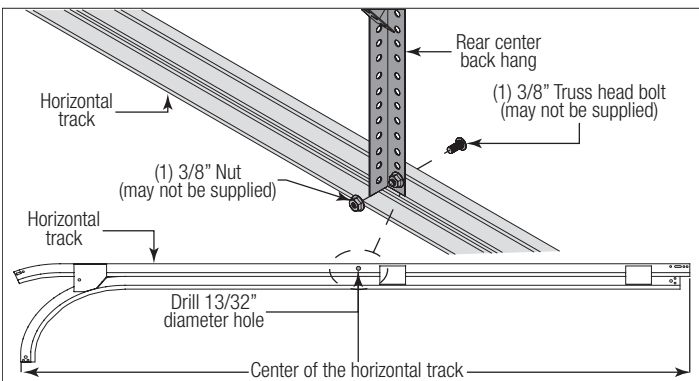
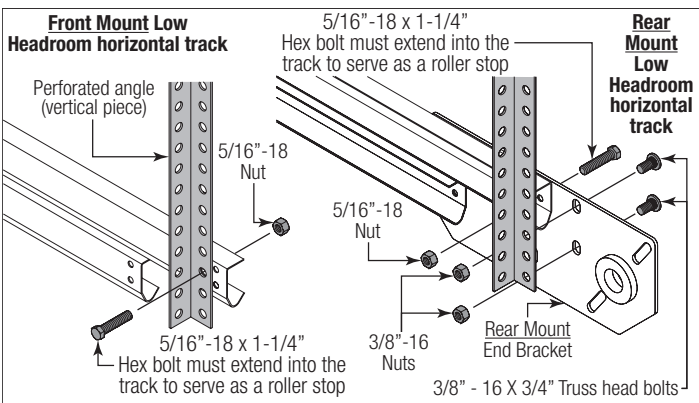
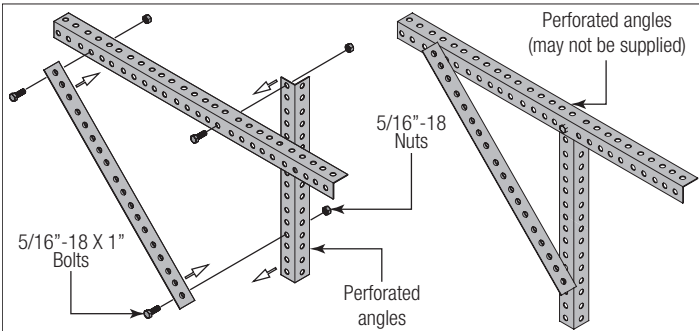
NOTE: Ensure the 5/16" - 18 x 1-1/4" hex head bolt are going through the vertical piece first, then through the rear support bracket and the 5/16" - 18 nut is in the inside of the horizontal track, as shown.

FOR REAR MOUNTED TORSION SPRINGS: Level and square the horizontal track and secure the end bearing bracket to the back hanger, using (2) 3/8" - 16 x 3/4" truss head bolts and (2) 3/8" - 16 nuts. Bolt the lower horizontal track to the end bearing bracket using a 5/16" - 18 x 1-1/4" bolt and (1) 5/16" - 18 nut, as shown.

NOTE: The Center Back Hang Assemblies are to be used for all doors over 11'0" door height and over 14'0" door width. One Center Back Hang Assembly, per side.

IMPORTANT: SPACING BETWEEN THE LEFT AND RIGHT HAND REAR MOUNT TORSION END BRACKET BRACKETS MUST BE DOOR WIDTH PLUS 5-3/8" (136MM).

IMPORTANT: LATERAL BRACE MUST ALWAYS BE USED TO PREVENT SWAYING OF THE HORIZONTAL TRACK.



COUNTERBALANCE INSTALLATION INSTRUCTIONS

NOTE: Refer to Breakdown of counterbalance parts, to determine what type of counterbalance you have.

NOTE: If your door has Torsion Front Mount LHR Outside Hookup, proceed to Step F1.

NOTE: If your door has Torsion Rear Mount LHR Outside Hookup, proceed to Step R1.

NOTE: If your door has Extension LHR, proceed to Step E1.

TORSION FRONT MOUNT LHR OUTSIDE HOOKUP

F1 **End Bearing Brackets**
 Tools Required: Power drill, Ratchet wrench, 3/16" Drill bit, 7/16" Socket driver, 9/16" Socket, 9/16" Wrench, Safety glasses, Ladder, Leather gloves

! WARNING
INSTALL END BEARING BRACKETS TO SOLID STRUCTURAL MEMBERS ONLY. DO NOT INSTALL OVER DRY WALL OR PANELING. FAILURE TO INSTALL END BEARING BRACKETS TO SOLID STRUCTURAL MEMBERS CAN CAUSE SEVERE OR FATAL INJURY.

! WARNING
FAILURE TO USE PROPER NUMBER OF FASTENERS CAN RESULT IN SUDDEN SPRING TENSION RELEASE, CAUSING SEVERE OR FATAL INJURY.

NOTE: Spring pads must be securely anchored before proceeding, as shown. The pads must be flush with the jambs

IMPORTANT: RIGHT AND LEFT HAND IS ALWAYS DETERMINED FROM INSIDE THE BUILDING LOOKING OUT.

NOTE: End bearing brackets are right hand and left hand.

Attach the left hand end bearing bracket through either the end bearing bracket's upper or lower slots to the left hand horizontal track angle using (2) 3/8" - 16 x 3/4" truss head bolts and (2) 3/8" - 16 nuts.

IMPORTANT: THE END BEARING BRACKET'S LOWER SLOTS ARE USED ON DOORS WITH 12" RADIUS TRACK; THE UPPER SLOTS ARE USED ON DOORS WITH 15" RADIUS TRACK.

SECURE THE END BEARING BRACKET TO THE JAMB USING ONE OF THE FOLLOWING SCENARIOS LISTED BELOW:

Wood jambs, using (3) 5/16" x 1-5/8" lag screws. Drill (3) 3/16" pilot holes into the wood jamb for the lag screws.

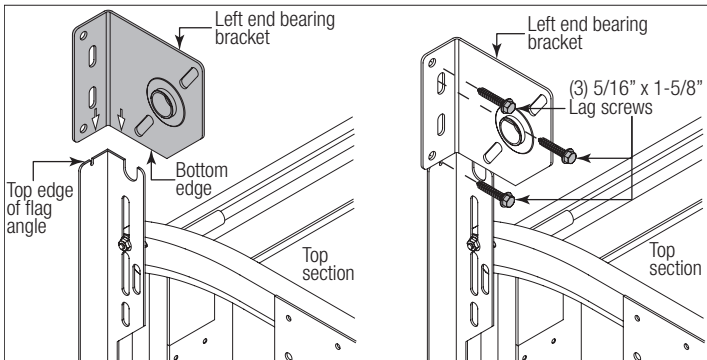
Steel jambs, using (3) 5/16" x 1" self drilling screws.

Pre-cast concrete, using (3) 3/8" x 3" sleeve anchors (not supplied).

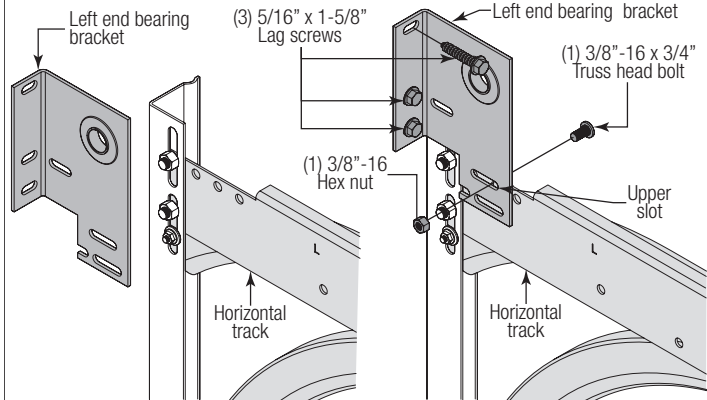
NOTE: Products being installed to pre-cast or block must use a 3/8" x 3" sleeve anchor to attach the wall angle to the building, as shown. Use the slots in the wall angle as a drill template and drill a 3/8" hole (3-1/2" deep) and secure to anchor.

! WARNING
DO NOT USE SLEEVE ANCHORS ON HOLLOW BLOCK.

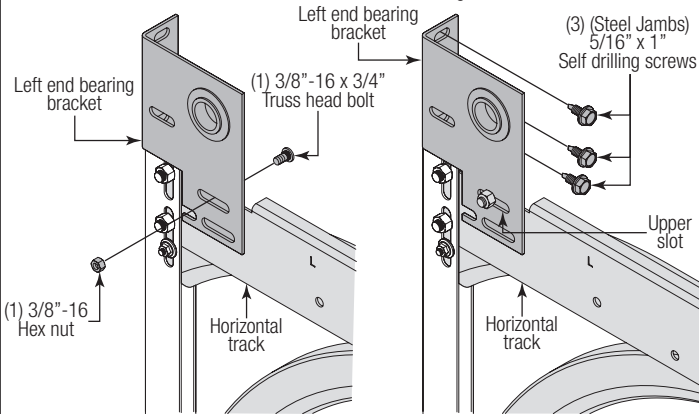
Repeat the same process for the right hand side.



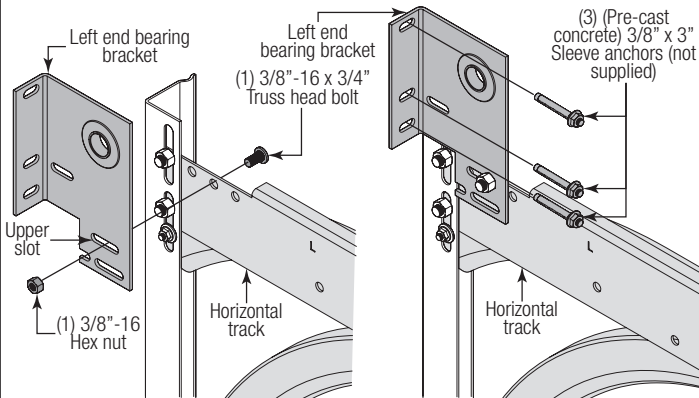
NOTE: This illustration shows 15" radius track with lag screws to Wood Jambs.



NOTE: This illustration shows 15" radius track with self drilling screws to **Steel**.

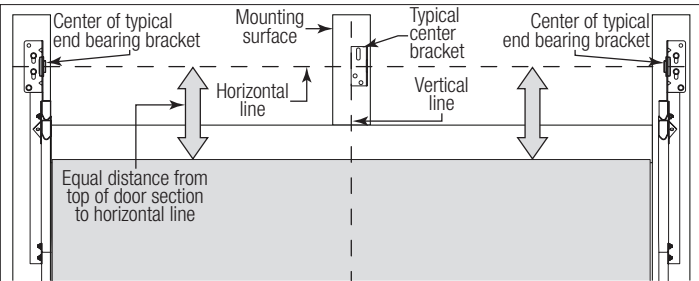


NOTE: This illustration shows 15" radius track with anchors to **Concrete**.



F2 Center Bracket(s)
 Tools Required: Power drill, 3/16" Drill bit, 7/16" 9/16" Socket driver, 7/16" 9/16" Wrench, Level, Tape measure, Pencil, Ladder, Safety glasses, Leather gloves

- NOTE:** When attaching the center bracket(s) to the spring pads, it has to be at the same elevation as the bearing in the end bearing brackets.
 - NOTE:** Additional center brackets may be required for doors with coupler assembly. Refer to Package Contents / Parts Breakdown, to determine if you have a coupler assembly.
 - NOTE:** If your door came with (4) or more springs, each of the outer springs mounting surface will need to be a minimum of 3" wide.
 - NOTE:** If needed, measure the diameter of your springs. If you have a one piece shaft with 3-3/4" or larger diameter springs, they do not share center brackets and do not have a coupler assembly.
 - NOTE:** On some single spring doors, the single spring can be longer than half the opening width. If your spring is longer, then the center bracket must be mounted off center for the spring to fit properly. Measure spring length to determine appropriate center bracket location.
- Locate the center of the door. Mark a vertical pencil line on the mounting surface above the door, at the center. Measure from the center of the bearing, in one of the end bearing brackets, downwards, to the top the door. Using that measurement, measure that distance upwards from the top of the door to the mounting surface and mark a horizontal pencil line which intersects the vertical pencil line.



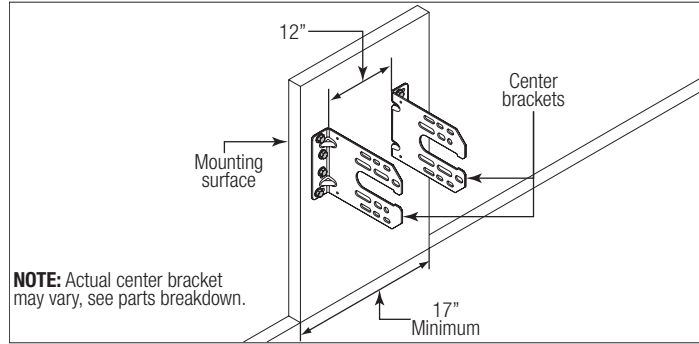
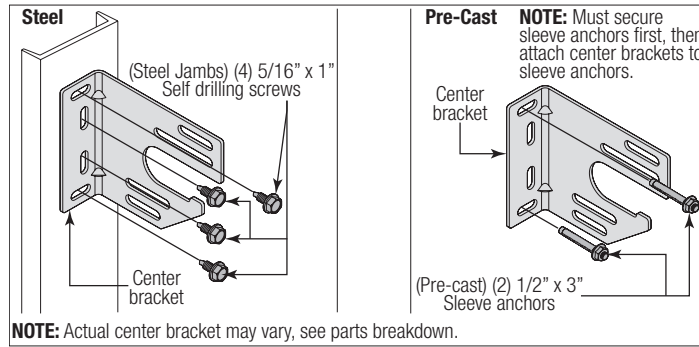
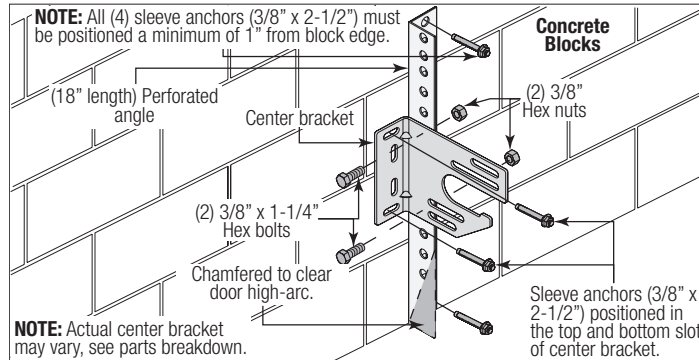
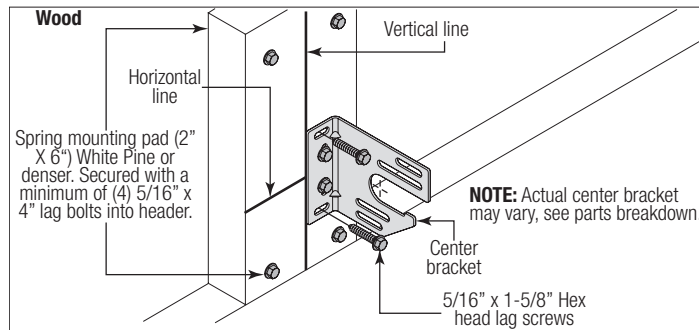
- WOOD:** Align the edge of the center bracket with the vertical pencil line and the center of the center bracket with the horizontal pencil line; this is to ensure the torsion shaft is level between the center and end bearing brackets. Attach the center bracket to the mounting surface, using 5/16" x 1-5/8" lag screws.
- NOTE:** Pre-Drill 3/16" pilot holes into the wood jamb for the lag screws.
- NOTE:** Depending on the construction, different fasteners must be used.
- STEEL:** Secure each center bracket using (4) 5/16" x 1" self-drilling and tapping screws, as shown.

PRE-CAST: Secure each center bracket using (2) 1/2" x 3" sleeve anchors (by others). This installation will require the 1/2" anchors to be secured to the building and then secure the brackets to the anchors, as shown.

NOTE: Pre-Drill 1/2" pilot holes into the Pre-Cast for the 1/2" x 3" sleeve anchors.

BLOCK CONSTRUCTION: Attach perforated angle 18" long to center bracket(s) using (2) 3/8" x 1-1/4" bolts and (2) 3/8" nuts. Chamfer angle to clear top section high arc. Secure center bracket(s) and perforated angle to block using (4) 3/8" x 2-1/2" sleeve anchors, as shown.

WARNING
DO NOT USE SLEEVE ANCHORS ON HOLLOW BLOCK.



ALTERNATE STEEL SPRING PAD APPLICATIONS:

WARNING
DO NOT BOLT TWO 3-3/4" OR LARGER DIAMETER SPRINGS TO ONE CENTER BRACKET.

WARNING

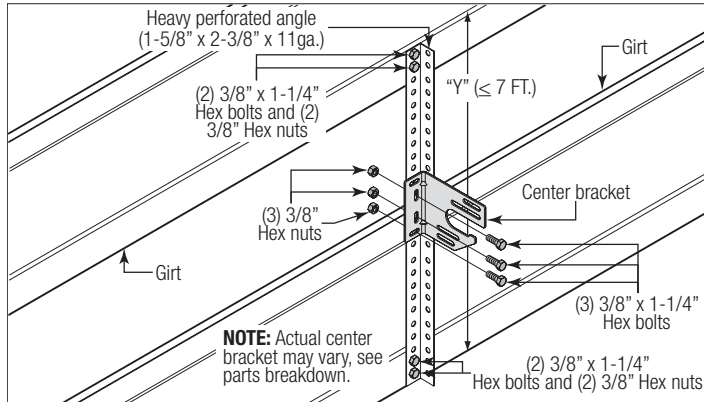
THESE SPRING MOUNTING TECHNIQUES ARE NOT SUPPORTED FOR 800-32 CABLE DRUMS. THESE INSTRUCTIONS ARE ALSO NOT APPLICABLE FOR 5750-120 CABLE DRUMS WITH 72" OR MORE HIGH-LIFT.

WARNING

MAXIMUM SPACING FOR DIMENSION "Y" IS 84" (7 FT.) THESE INSTRUCTIONS ARE NOT APPLICABLE FOR A SPAN GREATER THAN 84".

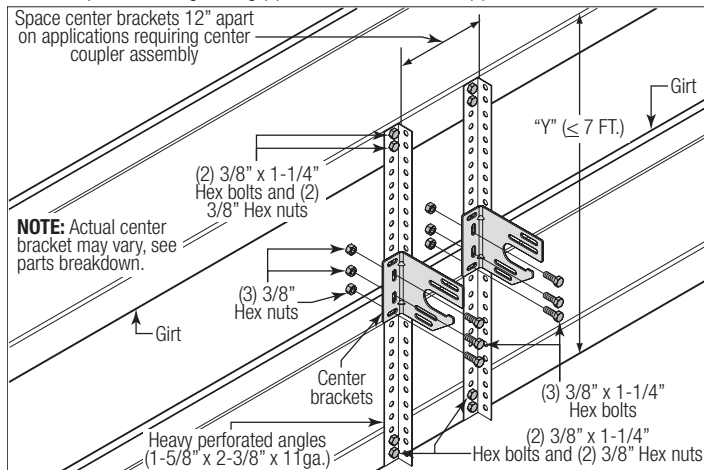
Maximum Door Size 9'0" x 9'0" (Maximum Door Weight 210 lb.)

Cut perforated angle (1-5/8" x 2-3/8" x 11 GA.) to Dim "Y". Thru-bolt top and bottom of angle to each girt using (4) 3/8" x 1-1/4" bolts and (4) 3/8" nuts. Thru-bolt center bracket to perforated angle using (3) 3/8" x 1-1/4" bolts and (3) 3/8" nuts, as shown.



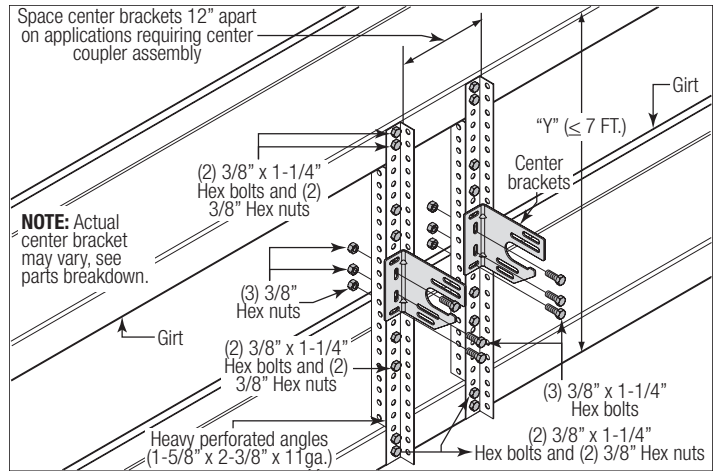
Maximum Door Size 14'0" x 12'0" (Maximum Door Weight 400 lb.)

Cut (2) perforated angle (1-5/8" x 2-3/8" x 11 GA.) to Dim "Y". Thru-bolt top and bottom of each angle to each girt using (4) 3/8" x 1-1/4" bolts and (4) 3/8" nuts. Thru-bolt each center bracket to perforated angle using (3) 3/8" x 1-1/4" bolts and (3) 3/8" nuts, as shown.



Maximum Door Size 14'-2" x 12'-1" (Maximum Door Weight 800 lb.)

Cut (2) pieces of perforated angle (1-5/8" x 2-3/8" x 11 GA.) to Dim "Y" and (2) more pieces at Dim "Y" minus 3". Bolt the angles together into a "Z" shape using (4) 3/8" x 1-1/4" bolts and (4) 3/8" nuts. Thru-bolt top and bottom of each "Z" shaped angle to each girt using (4) 3/8" x 1-1/4" bolts and (4) 3/8" nuts. Thru-bolt each center bracket to perforated angle assembly using (3) 3/8" x 1-1/4" bolts and (3) 3/8" nuts, as shown.



F3

Torsion Spring Assembly

Tools Required: Ladder, Safety glasses, Leather gloves

IMPORTANT: RIGHT AND LEFT HAND IS ALWAYS DETERMINED FROM INSIDE THE BUILDING LOOKING OUT.

NOTE: Torsion spring assemblies can be of several configurations depending on your door size and door weight.

NOTE: Set collars are only used if you have a 2 piece torsion shaft. The set collars are not used for 1.25" torsion shaft.

IMPORTANT: ON SINGLE SPRING APPLICATIONS, ONLY A RIGHT WOUND (BLACK WINDING CONE), WHICH GOES ON THE LEFT HAND SIDE IS REQUIRED.

NOTE: Identify the torsion springs provided as either right wound (red winding cone), which goes on the RIGHT HAND SIDE or left wound (black winding cone), which goes on the LEFT HAND SIDE.

Facing the inside of the door and referencing the illustrations shown, lay the torsion shaft / torsion keyed shaft(s) on the floor.

NOTE: If your door came with (2) torsion keyed shafts, one torsion keyed shaft should be on the left hand side of the floor and the other torsion keyed shaft should be on the right hand side of the floor.

Lay the torsion spring(s) with the red winding cone at the right end of the torsion shaft / torsion keyed shaft(s). Lay the torsion spring(s) with the black winding cone at the left end of the torsion shaft / torsion keyed shaft(s).

Slide the center bearing / torsion springs onto the torsion shaft / torsion keyed shaft followed by the set collars.

NOTE: The set screws used on all torsion winding cones and cable drums are colored red. DO NOT identify right and left hand by the set screw color.

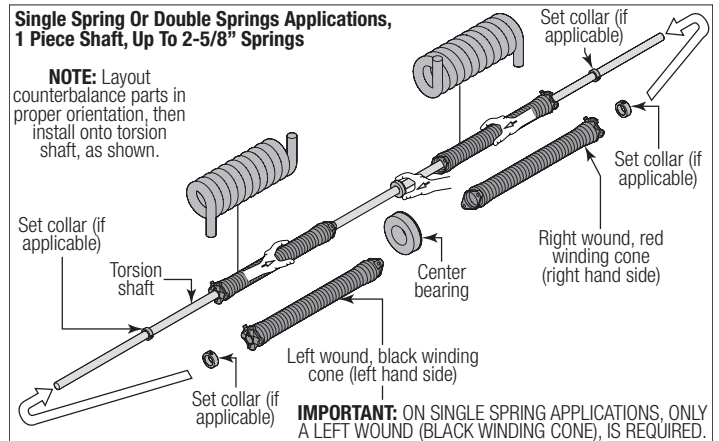
IF YOUR DOOR CAME WITH A COUPLER ASSEMBLY: Disassemble the coupler assembly by removing the (3) 3/8" - 16 x 1-1/2" hex head screws, (6) 3/8" Washers, (3) 3/8" lock washers and the (3) 3/8" - 16 hex nuts from the coupler halves. Loosen the set screws. Slide the flat edge of the coupler half flush with the side edge of the torsion keyed shaft. Insert (1) key into the slot of both the coupler halves and the slot in the torsion keyed shaft. Tighten the (2) set screws and the locking nut to secure the coupler half to the torsion keyed shaft, as shown. Repeat the same processes for the other coupler half.

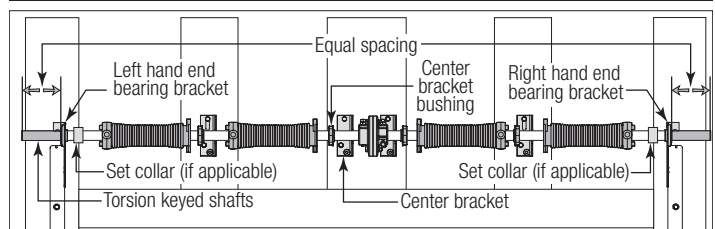
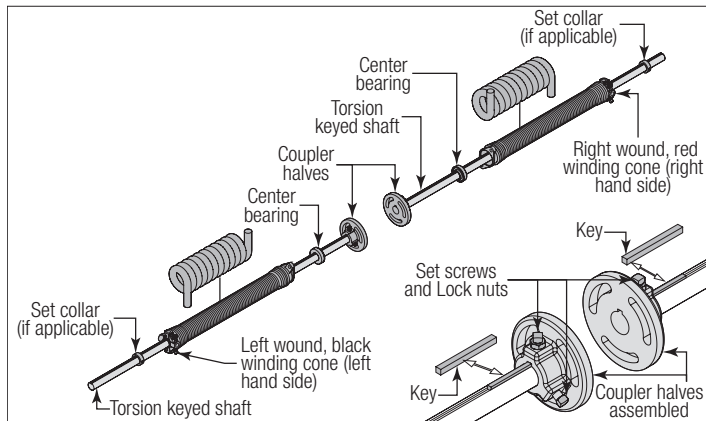
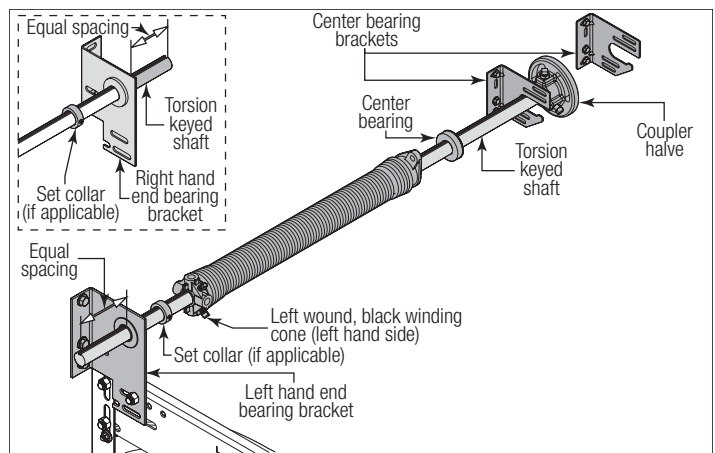
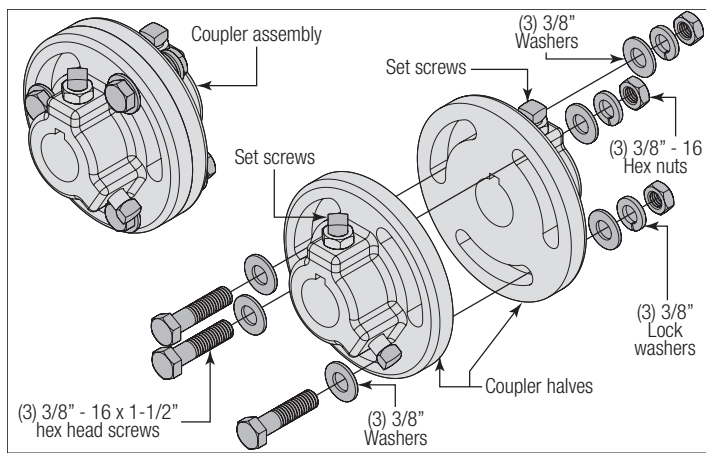
NOTE: Tighten the set screws to 14 - 15 ft. lbs. of torque (once set screws contact the shaft, tighten set screws one full turn).

IMPORTANT: THE COUPLER HALVES, CENTER BEARING(S), TORSION SPRINGS, AND CABLE DRUMS MUST BE POSITIONED, AS SHOWN IN THE ILLUSTRATIONS.

Single Spring Or Double Springs Applications, 1 Piece Shaft, Up To 2-5/8" Springs

NOTE: Layout counterbalance parts in proper orientation, then install onto torsion shaft, as shown.





F4 Attaching Torsion Spring(s)

Tools Required: Ladder, Ratchet wrench, 9/16" Socket, 9/16" Wrench, Tape measure, Safety glasses, Leather gloves

NOTE: Refer to Package Contents / Parts Breakdown, to determine which Center Bracket(s) came with your door.

NOTE: Refer to Package Contents / Parts Breakdown, to determine if your door came with a coupler assembly.

IMPORTANT: THE SPRING WARNING TAG(S) SUPPLIED MUST BE SECURELY ATTACHED TO THE STATIONARY SPRING CONE(S) IN PLAIN VIEW. SHOULD A REPLACEMENT SPRING WARNING TAG BE REQUIRED, CONTACT WAYNE DALTON FOR REPLACEMENTS.

NOTE: Measure the diameter of your springs. If your spring diameter is 3-3/4" or larger, the springs do not share center brackets. If your spring diameter is either 2" or 2-5/8", then two springs will share the same center bracket, unless a coupler assembly is provided.

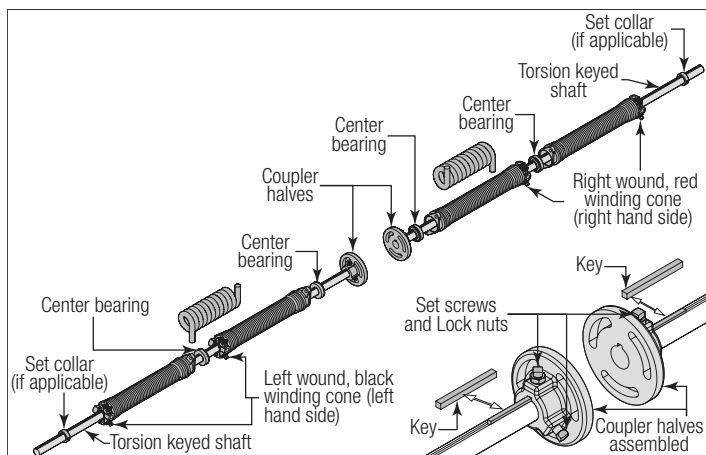
IF YOU DON'T HAVE A COUPLER ASSEMBLY: Slide center bracket bushing into the spring. Align the stationary spring cone(s) with the holes in the center bracket bushing assembly. Secure the torsion spring(s) to the center bracket bushing assembly with (2) 3/8" - 16 x 1-1/2" hex head bolts and (2) 3/8" - 16 nuts.

IF YOU HAVE A COUPLER ASSEMBLY: Slide center bracket bushing into the spring. Align the stationary spring cone with the holes in the center bracket. Secure the torsion spring to the center bracket with (2) 3/8"-16 x 1-1/2" hex head bolts and (2) 3/8" - 16 nuts. Repeat the same process for the other center bearing bracket.

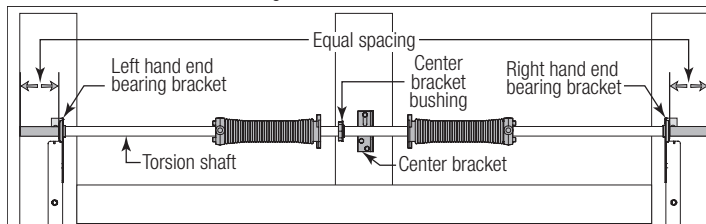
At the middle of the two center bearing brackets, re-assemble the coupler assembly by loosely fastening the coupler halves together using the (3) 3/8" - 16 x 1-1/2" hex head screws, (6) 3/8" Washers and the (3) 3/8" - 16 nylon hex lock nuts, as shown.

NOTE: Ensure both torsion keyed shafts have equal amounts of the shafts extending from each end bearing bracket.

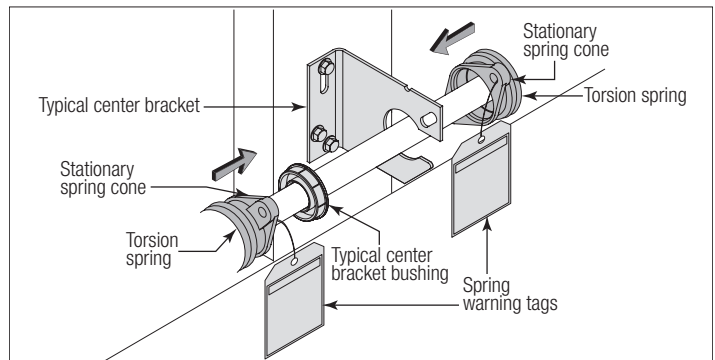
IMPORTANT: TORSION SPRINGS THAT SHARE CENTER BRACKETS CAN ONLY USE ONE BEARING. ATTEMPTING TO USE TWO BEARINGS WILL CREATE INTERFERENCE THAT CAN LEAD TO FAILURE.

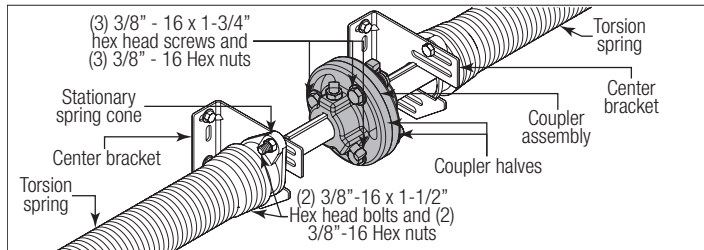
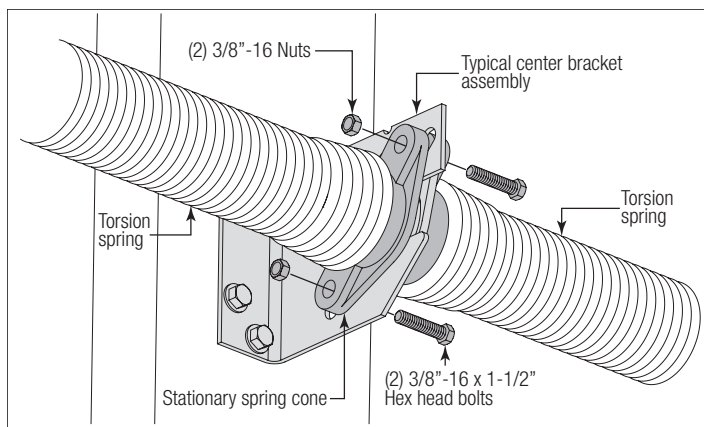


IF YOUR DOOR DOESN'T HAVE A COUPLER ASSEMBLY: With assistance, pick up the torsion spring assembly and slide one end of the torsion shaft / torsion keyed shaft through one end bearing bracket. Lay the middle of the torsion shaft / torsion keyed shaft into the center bracket. Slide the other end of the torsion shaft / torsion keyed shaft into the other end bearing bracket. Position the torsion shaft / torsion keyed shaft so that equal amounts of the shaft extend from each of the end bearing brackets.



IF YOUR DOOR HAS A COUPLER ASSEMBLY: With assistance and starting on the left hand side of door, pick up the left hand torsion spring assembly and slide one end of the torsion keyed shaft through the end bearing bracket. Lay the other side of the torsion keyed shaft into the center bracket. Repeat the same process for the right hand torsion spring assembly. Position both torsion keyed shafts so that equal amounts of the shafts extend from each of the end bearing brackets.





F5

Attaching Counterbalance Lift Cables

Tools Required: Ladder, Locking pliers, 3/8" Wrench, Tape measure, Safety glasses, Leather gloves

Starting on the left hand side, thread the counterbalance lift cable up and around the front side of the left hand cable drum.

IMPORTANT: VERIFY THAT THERE ARE NO COUNTERBALANCE LIFT CABLE OBSTRUCTIONS.

NOTE: Always assemble the left hand cable and cable drum first to help maintain equal cable tension on both sides of the door.

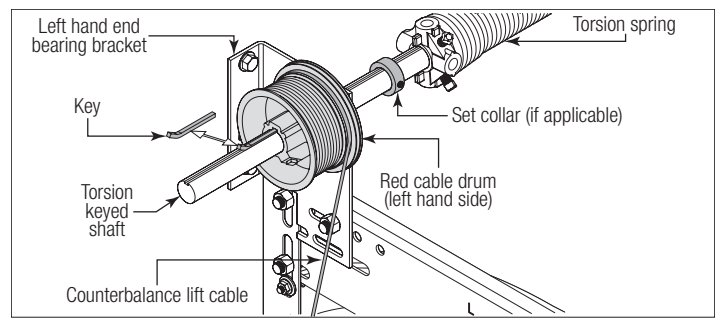
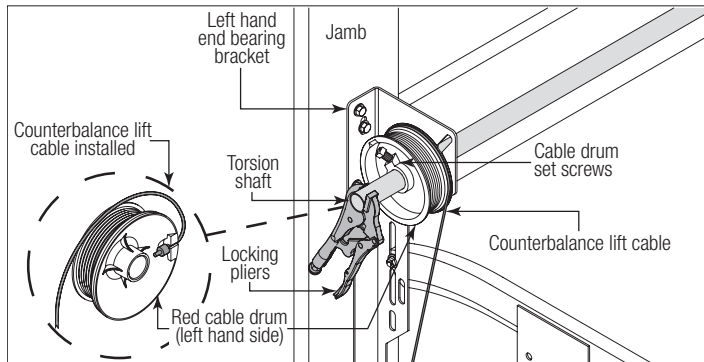
Starting on the left hand side, slide the red cable drum onto the torsion shaft / torsion keyed shaft(s). Hook the counterbalance lift cable into the left hand cable drum. Slide the left hand cable drum up against the left hand end bearing bracket. Counterbalance lift cable should terminate at the 3 o'clock position. Tighten the (2) set screws in the drum to 14-15 ft. lbs. of torque (once set screws contact the shaft, tighten screws one full turn).

NOTE: If you have torsion keyed shaft(s), insert (1) key into the slot of both the cable drum and the slot in the torsion keyed shaft, as shown.

Rotate the left hand drum and torsion shaft until counterbalance lift cable is taut. Now attach locking pliers to the torsion shaft and brace locking pliers up against jamb to keep counterbalance lift cable taut. Repeat for right hand side using the black cable drum.

IMPORTANT: INSPECT EACH COUNTERBALANCE LIFT CABLE MAKING SURE THEY ARE SEATED PROPERLY ONTO THE CABLE DRUMS AND THAT BOTH COUNTERBALANCE LIFT CABLES HAVE EQUAL TENSION.

Once the counterbalance cables are set and if applicable tighten the coupler assembly together by tightening the (3) 3/8" - 16 hex nuts to secure the coupler halves together.



F6

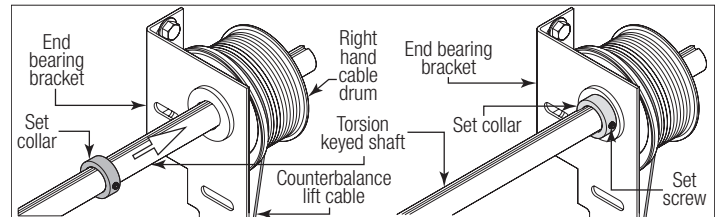
Securing Set Collars

Tools Required: Ladder, Safety glasses, Leather gloves, Allen wrench

NOTE: If your door did not come with set collars, then skip this step.

Slide each of the set collars up against the inside surface of the end bearing brackets, with the set screw facing directly away from the header. Tighten the set screw in each of the set collars to the torsion shaft to 14-15 ft. lbs. of torque (once set screw contacts the shaft, tighten set screw one full turn).

IMPORTANT: PRIOR TO TIGHTENING THE SET SCREWS IN THE SET COLLARS, AVOID PLACING THE SET SCREWS IN THE KEYWAYS OF TORSION KEYED SHAFT(S).



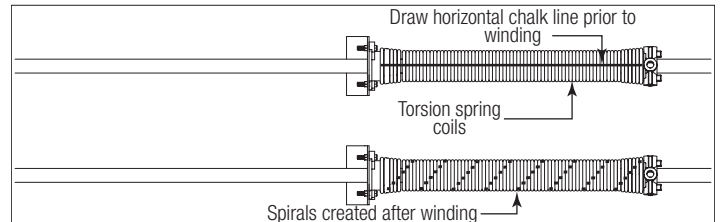
F7

Chalking Torsion Spring(s)

Tools Required: Ladder, Chalk, Safety glasses, Leather gloves

NOTE: If your torsion spring(s) have stenciling, then skip this step and proceed to the next step.

Draw a chalk line horizontally along the center of the torsion spring coil(s). As the torsion spring is wound, the chalk line will create a spiral. This spiral can be used to count and determine the number of turns that are applied on the torsion spring.



F8

Securing Door for Spring Winding

Tools Required: Vice clamps, Safety glasses, Leather gloves

With the door in the fully closed position, place vice clamps / c-clamps onto both vertical tracks just above the third track roller. This is to prevent the garage door from rising while winding springs.

NOTE: Check the following before attempting to wind torsion spring(s):

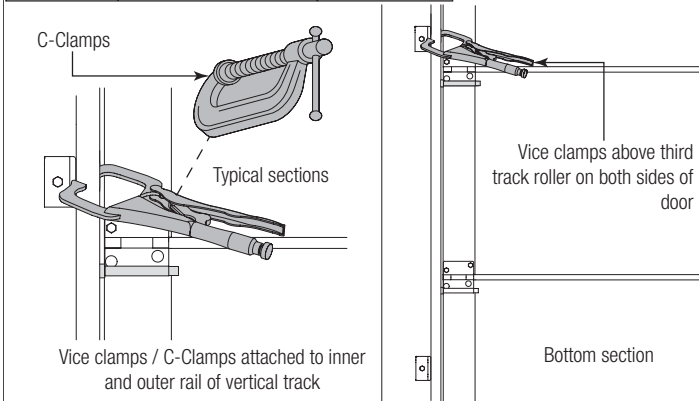
- Counterbalance lift cables are secured at bottom corner brackets.
- Counterbalance lift cables are routed unobstructed to cable drums.
- Counterbalance lift cables are correctly installed and wound onto cable lift drums.
- Counterbalance lift cables are taut and have equal tension on both sides.
- Cable lift drums are against end bearing brackets and set screws are tight.
- Torsion spring or springs are installed correctly.
- Review the label attached to the spring warning tag, to determine number of spring turns required.

NOTE: Door MUST be closed and secured when winding or making any adjustments to the torsion spring(s).

WARNING

FAILURE TO ENSURE DOOR IS IN A CLOSED POSITION AND TO PLACE VICE CLAMP ONTO VERTICAL TRACK CAN ALLOW DOOR TO RAISE AND CAUSE SEVERE OR FATAL INJURY.

Winding Bars (Steel Rods)	Size Of Winding Bar (Inches)	Spring Diameter Used On
	1/2" dia. x 18"	2" and 2-5/8"
	5/8" dia. x 24"	3-3/4" and 6"



F9 Winding Spring(s)

Tools Required: Ladder, Approved winding bars, 3/8" Wrench, Safety glasses, Leather gloves

WARNING

WINDING TORSION SPRING(S) IS AN EXTREMELY DANGEROUS PROCEDURE AND SHOULD BE PERFORMED ONLY BY A TRAINED DOOR SYSTEM TECHNICIAN USING PROPER TOOLS AND INSTRUCTIONS.

WARNING

USE ONLY SPECIFIED WINDING BARS, AS STATED IN STEP SECURING DOOR FOR SPRING WINDING. DO NOT SUBSTITUTE WITH SCREWDRIVERS, PIPE, ETC. OTHER TOOLS MAY FAIL OR RELEASE FROM THE SPRING CONE AND CAUSE SERIOUS PERSONAL INJURY.

WARNING

PRIOR TO WINDING OR MAKING ADJUSTMENTS TO THE SPRINGS, ENSURE YOU'RE WINDING IN THE PROPER DIRECTION AS STATED IN THE INSTALLATION INSTRUCTIONS. OTHERWISE THE SPRING FITTINGS MAY RELEASE FROM SPRING IF NOT WOUND IN THE PROPER DIRECTION AND COULD RESULT IN SEVERE OR FATAL INJURY.

Position a ladder slightly to the side of the spring so that the winding cone is easily accessible, and so your body is not directly in line with the winding bars.

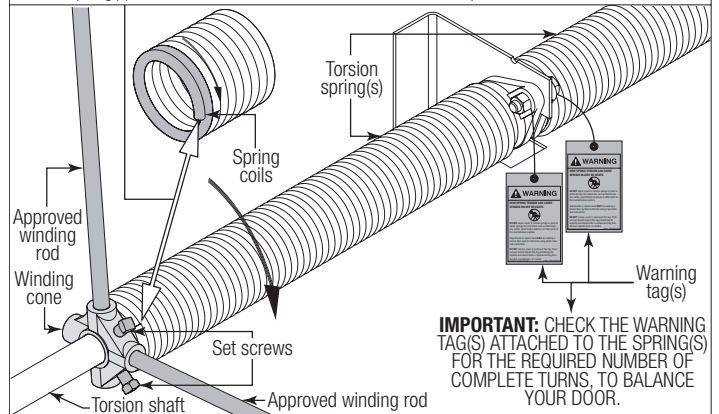
Check the label attached to the spring warning tag for the required number of complete turns to balance your door.

Alternately inserting the winding rods into the holes of the spring winding cone, rotate the winding cone downward toward the floor, 1/4 turn at a time, until the required number of complete turns for your door is achieved. As the last 1/8 to 1/4 turn is achieved, securely hold the winding rod and carefully stretch the torsion spring 1/8" - 1/4". Next while still securely holding the winding rod, tighten both set screws in the winding cone to 14-15 ft. lbs. of torque (once set screws contact the torsion shaft, tighten screws one full turn).

Carefully remove winding rod from winding cone. Repeat for other spring(s) if needed. While holding the door down to prevent it from raising unexpectedly in the event the spring(s) were over-wound, carefully remove the locking pliers from the torsion shaft and vertical tracks.

Adjustments to the number of turns stated may be necessary. If door rises off floor under spring tension alone, reduce spring tension until door rests on the floor. If the door is hard to rise or drifts down on its own, add spring tension.

Torsion spring(s) should be wound in the direction the end coil points.



TORSION REAR MOUNT LHR OUTSIDE HOOKUP

R1

Torsion Spring Assembly

Tools Required: 3/8" Wrench, 9/16" Wrench, Ladder, Tape measure, Safety glasses, Leather gloves

NOTE: Refer to Package Contents / Parts Breakdown, to determine if your door came with a coupler assembly. If your door came with a coupler assembly, the mounting surface needs to be a minimum of 17" wide. The two center bearing brackets will need to be spaced 12" to 14" apart at the center of the door, as shown.

IMPORTANT: RIGHT AND LEFT HAND IS ALWAYS DETERMINED FROM INSIDE THE BUILDING LOOKING OUT.

IMPORTANT: IDENTIFY THE TORSION SPRINGS PROVIDED AS EITHER RIGHT WOUND (RED WINDING CONE) OR LEFT WOUND (BLACK WINDING CONE).

NOTE: On some single spring doors, the single spring can be longer than half the opening width. If your spring is longer, then the center bracket must be mounted off center for the spring to fit properly. Measure spring length to determine appropriate center bracket location.

NOTE: If your door came with a center coupler assembly or if it utilizes 3-3/4" springs, the springs will not share a center bracket.

NOTE: If your door has (4) springs, split the distance between the center of the door and the end bracket on each side to locate the intermediate center brackets.

NOTE: The set screws used on all torsion winding cones and cable drums are now colored red. DO NOT identify right and left hand by the set screw color.

IMPORTANT: REFERENCE THE ILLUSTRATIONS FOR PROPER SPRING POSITIONING WHEN MORE THAN 2 SPRINGS ARE PROVIDED.

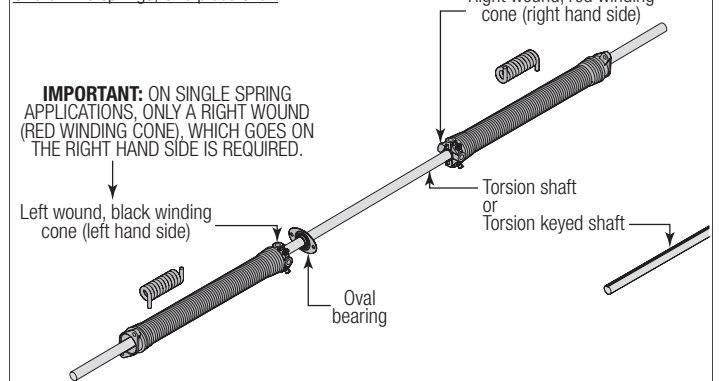
IMPORTANT: IN APPLICATIONS WHERE MORE THAN ONE SPRING SHARES A CENTER BRACKET, USE ONLY 1 BEARING IN THE SPRING. ATTEMPTING TO USE 2 BEARINGS CAN DAMAGE THE BEARINGS AND / OR SPRING CONES.

Facing the inside of the door, either lay the torsion shaft / torsion keyed shaft on the floor or lay the (2) torsion keyed shafts on the floor, one torsion keyed shaft on the left hand side and the other torsion keyed shaft on the right hand side.

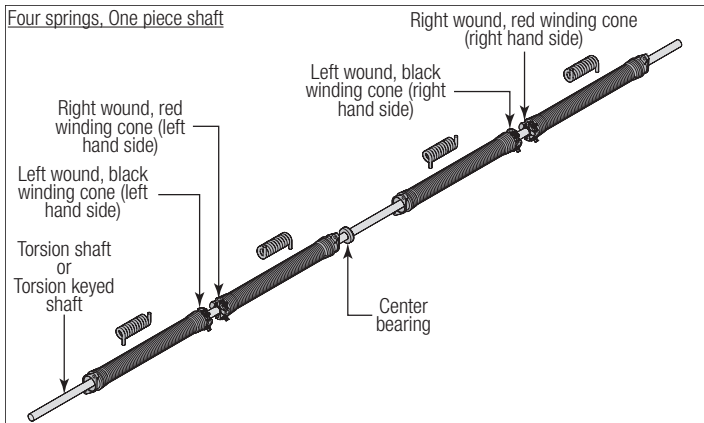
IMPORTANT: DEPENDING ON YOUR DOOR APPLICATION, USE ONE OF THE THREE ILLUSTRATION'S, SHOWN BELOW TO ASSEMBLE YOUR TORSION COUNTERBALANCE SYSTEM.

IF YOU HAVE ONE OR TWO TORSION SPRINGS AND ONE PIECE TORSION SHAFT:

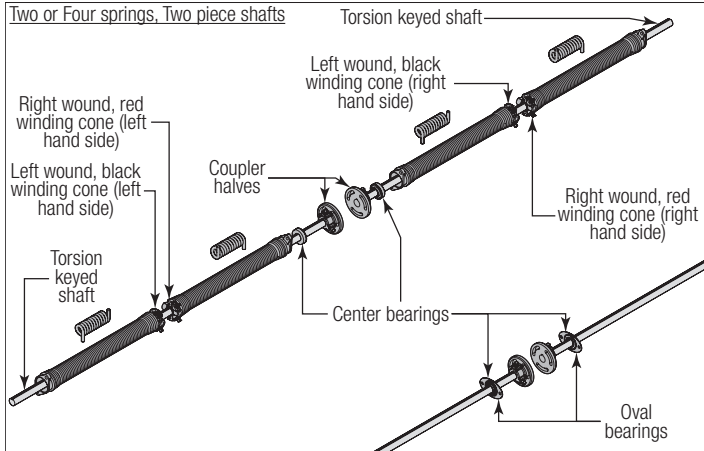
One or Two springs, One piece shaft



IF YOU HAVE FOUR TORSION SPRINGS AND ONE PIECE TORSION SHAFT / TORSION KEYED SHAFT:



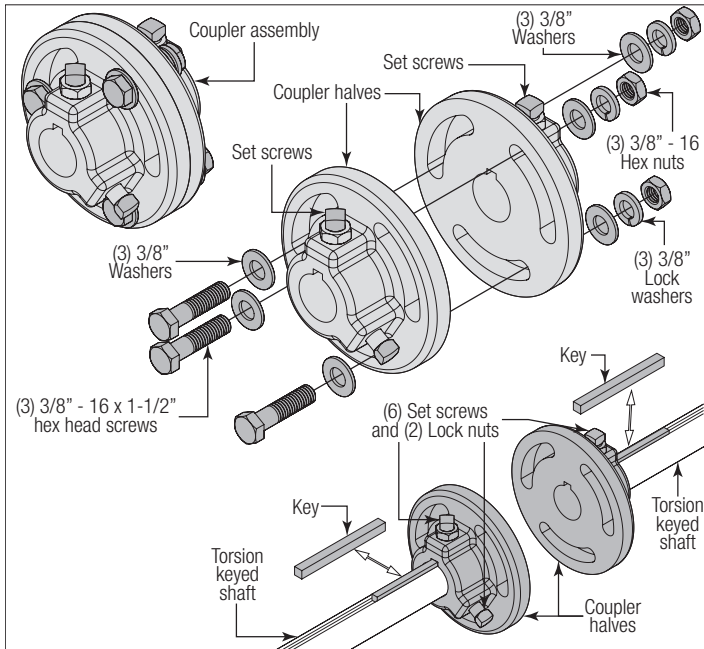
IF YOU HAVE TWO OR FOUR TORSION SPRINGS AND TWO PIECE TORSION KEYED SHAFTS:



Disassemble the coupler assembly by removing the (3) 3/8" - 16 x 1-1/2" hex head screws, (6) 3/8" Washers, (3) 3/8" lock washers and the (3) 3/8" - 16 hex nuts from the coupler halves. Loosen the set screws. Set the components aside. Next, slide the flat edge of the couple half flush with the side edge of the torsion keyed shaft. Insert (1) keyed shaft into the slot of both the coupler half and the slot in the torsion keyed shaft, as shown. Tighten the (2) set screws and the locking nut to secure the coupler half to the torsion keyed shaft.

NOTE: Tighten the set screws to 14-15 lbs. of torque (once set screws contact the shaft, tighten set screws one full turn).

Repeat the same process for the other side.



Slide either the center bearing bracket or the center bearing(s) or the oval bearing(s) onto the torsion shaft / torsion keyed shaft(s) followed by the torsion spring(s).

IMPORTANT: THE CENTER BEARING BRACKET, THE CENTER BEARING(S), THE OVAL BEARING(S), THE COUPLER HALF'S AND THE TORSION SPRINGS, MUST BE POSITIONED, AS

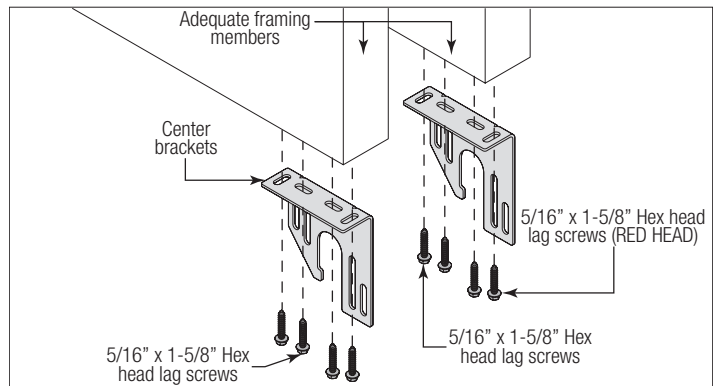
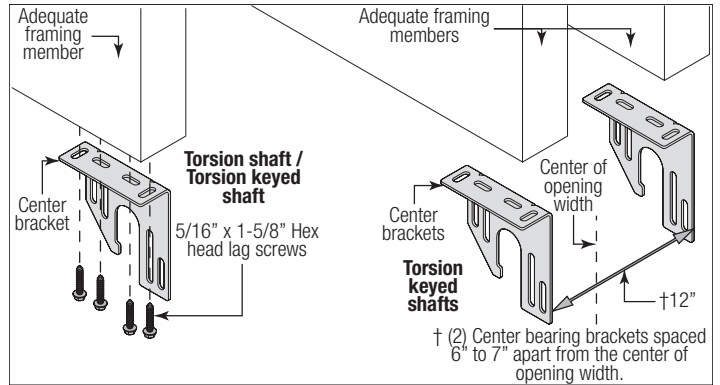
SHOWN.

WARNING

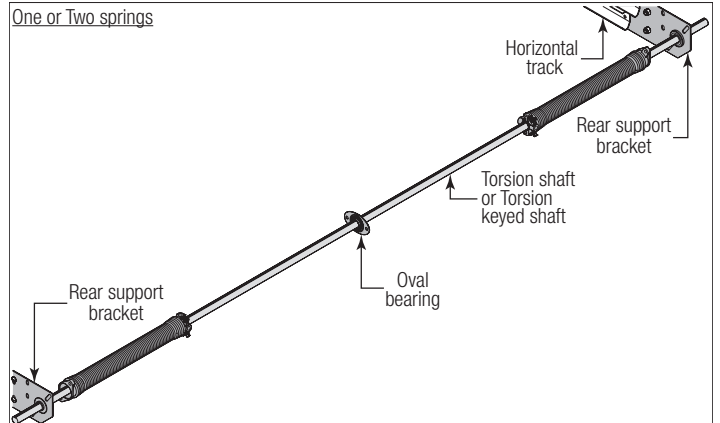
CENTER BEARING BRACKETS WITH SPRINGS MUST BE SECURELY FASTENED INTO SOLID STRUCTURAL MEMBERS ONLY AND MUST BE ADEQUATELY REINFORCED TO HOLD THE LOAD OF TORSION SPRING ASSEMBLIES. FAILURE TO DO SO CAN CAUSE SEVERE OR FATAL INJURY.

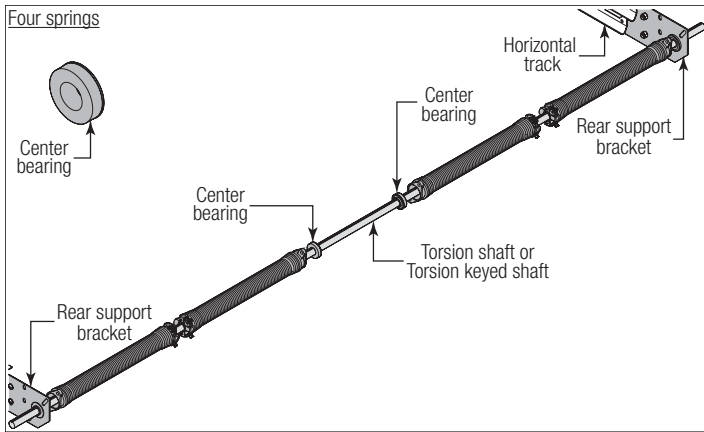
NOTE: Pilot drill all 5/16" lag screws using a 3/16" drill bit, prior to fastening.

Referring to Step, Rear Back Hangs either secure the center bearing bracket(s) to the ceiling using perforated angle at the center of the opening width using 3/8" - 16 x 3/4" hex head bolts and nuts (not supplied) or to wood blocking (adequate framing member(s)) at the center of the opening width using 5/16" x 1-5/8" Hex head lag screws.



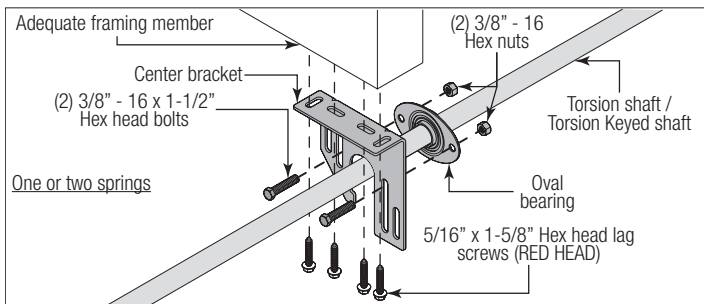
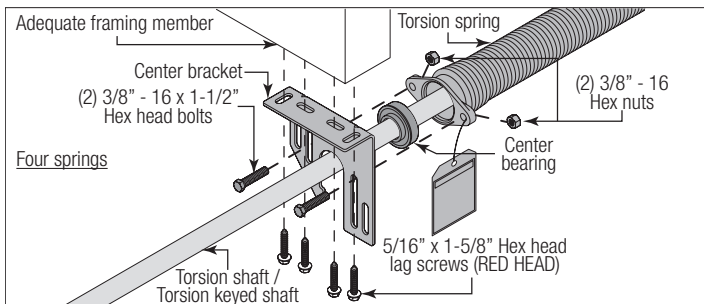
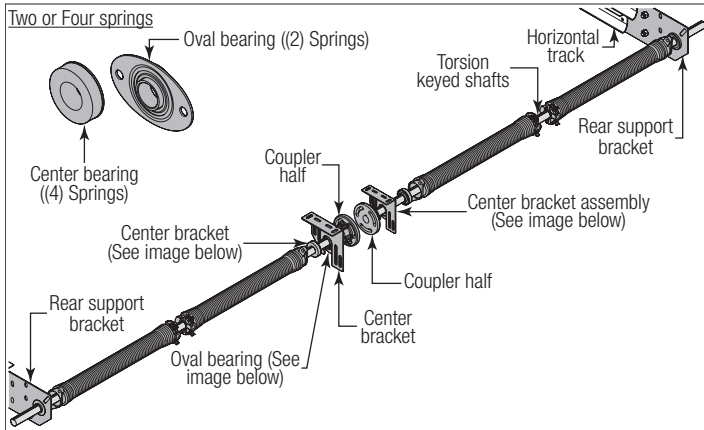
IF YOU HAVE A TORSION SHAFT OR A TORSION KEYED SHAFT: With assistance, pick up the torsion spring assembly and slide one end of the shaft through the rear support bracket. Extend the shaft through the bearing until the opposite end of the shaft can be inserted into the other rear support bracket. If your door came with oval bearing(s), loosely attach the oval bearing to the center bracket with (2) 3/8" - 16 x 1-1/2" hex head bolts and (2) 3/8" - 16 hex nuts, as shown. Repeat for others, if needed.





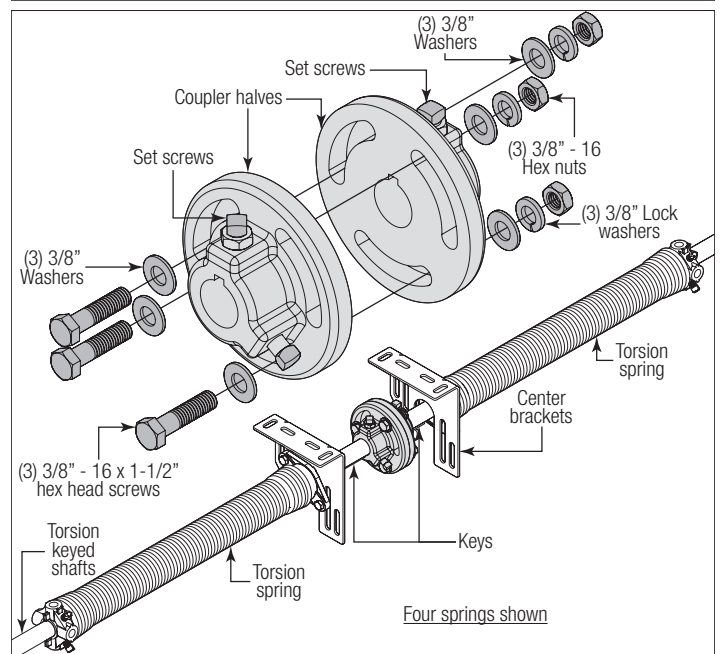
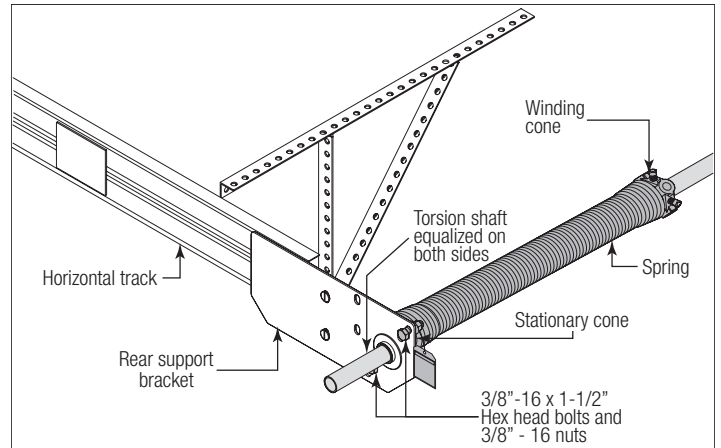
IF YOU HAVE TWO TORSION KEYED SHAFTS: With assistance, pick up the left hand torsion spring assembly and slide one end of the torsion keyed shaft through the end bearing bracket and loosely attach the oval bearing to the center bracket with (2) 3/8" - 16 x 1-1/2" hex head bolts and (2) 3/8" - 16 hex nuts, as shown. Repeat for others, if needed.

Repeat the same process for the right hand torsion spring assembly.



NOTE: Ensure both torsion keyed shafts have equal amounts of the shafts extending from each rear support bracket.

Next, align the stationary cone(s) of the torsion springs with the slots in the rear support brackets and secure using (2) 3/8" - 16 x 1-1/2" hex head bolts and nuts. Repeat for opposite side. Secure all oval bearing(s), to the center bracket with (2) 3/8" - 16 x 1-1/2" hex head bolts and (2) 3/8" - 16 hex nuts.



R3 Attaching Counterbalance Lift Cables

Tools Required: Ladder, Locking pliers, 3/8" Wrench, Tape measure, Safety glasses, Leather gloves

IMPORTANT: RIGHT AND LEFT HAND IS ALWAYS DETERMINED FROM INSIDE THE GARAGE LOOKING OUT.

Slide the black cable drum against the left hand rear support bracket. Thread the counterbalance lift cable up and over the cable sheave. Position the cable drum and counterbalance lift cable, as shown. Hook the cable into the drum.

NOTE: For doors with a torsion keyed shaft, insert (1) key into the slot of both the black cable drum and the slot in the torsion keyed shaft, as shown.

Tighten the set screws in the black cable drum to 14-15 ft. lbs. of torque (once set screws contact the shaft, tighten screws one full turn). Slide the red cable drum against the right hand rear support bracket. Rotate the left hand drum and torsion shaft until counterbalance lift cable is taut. Now attach locking pliers to the torsion shaft and brace locking pliers against the perforated angle of the rear back hangs to keep counterbalance lift cable taut. On the right hand side, thread the counterbalance lift cable up and over the red cable drum and position the cable drum and counterbalance lift cable, as shown. Hook the cable into the drum.

NOTE: For doors with a torsion keyed shaft, insert (1) key shaft into the slot of both the red cable drum and the slot in the torsion keyed shaft, as shown.

Tighten the set screws in the red cable drum to 14-15 ft. lbs. of torque (once set screws contact the tube, tighten screws one full turn).

IMPORTANT: CHECK EACH COUNTERBALANCE LIFT CABLE. MAKING SURE BOTH ARE SEATED PROPERLY ON THE SHEAVES, CABLE DRUMS, ARE SECURELY ATTACHED TO THE BOTTOM CORNER BRACKETS AND BOTH SIDES HAVE EQUAL COUNTERBALANCE LIFT TENSION.

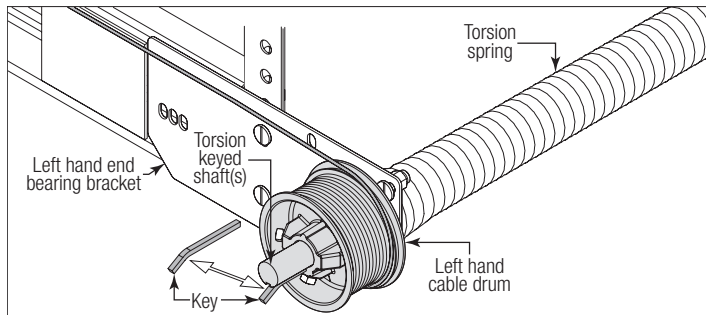
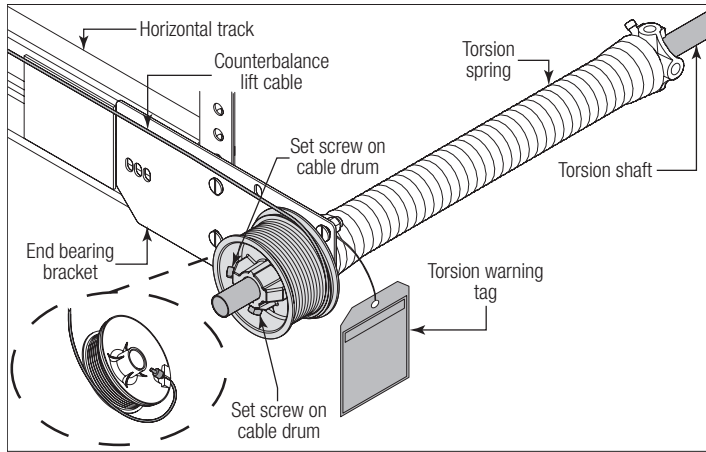
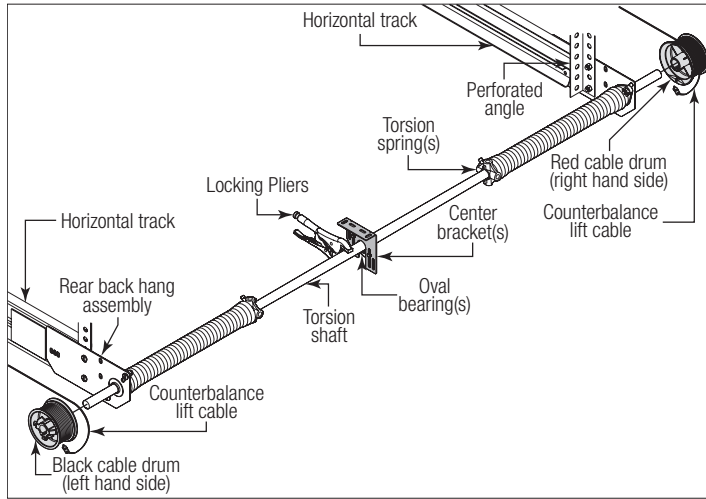
R2 Attaching Torsion Spring(s)

Tools Required: Ladder, Ratchet wrench, 9/16" Socket, 9/16" Wrench, Tape measure, Safety glasses, Leather gloves

FOR DOORS WITHOUT COUPLER ASSEMBLY: Equalize the amount that the torsion shaft / torsion keyed shaft protrudes on each side. Align the stationary cone(s) of the torsion springs with the slots in the rear support bracket and secure using (2) 3/8" - 16 x 1-1/2" hex head bolts and nuts.

FOR DOORS WITH A COUPLER ASSEMBLY: At the middle of the two center bearing brackets, re-assemble the coupler assembly by loosely fastening the coupler halves together re-using the (3) 3/8" - 16 x 1-1/2" hex head screws, (6) 3/8" Washers, (3) 3/8" lock washers and the (3) 3/8" - 16 hex nuts, as shown.

Now, secure the coupler assembly (if applicable) by tightening the (3) 3/8" - 16 hex nuts.



winding springs.

NOTE: Check the following before attempting to wind torsion spring(s):

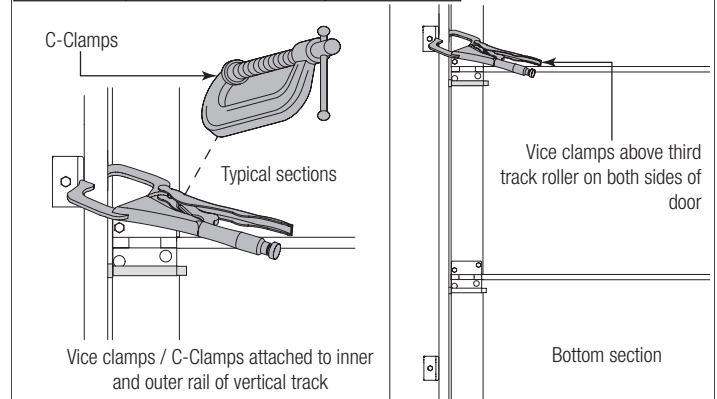
- Counterbalance lift cables are secured at bottom corner brackets.
- Counterbalance lift cables are seated properly on the cable sheaves
- Counterbalance lift cables are routed unobstructed to cable drums.
- Counterbalance lift cables are correctly installed and wound onto cable lift drums.
- Counterbalance lift cables are taut and have equal tension on both sides.
- Cable lift drums are against end bearing brackets and set screws are tight.
- Torsion spring or springs are installed correctly.
- Review the label attached to the spring warning tag, to determine number of spring turns required.

NOTE: Door MUST be closed and locked when winding or making any adjustments to the torsion spring(s).

⚠ WARNING

FAILURE TO ENSURE DOOR IS IN A CLOSED POSITION AND TO PLACE VICE CLAMP ONTO VERTICAL TRACK CAN ALLOW DOOR TO RAISE AND CAUSE SEVERE OR FATAL INJURY.

Winding Bars (Steel Rods)	Size Of Winding Bar (Inches)	Spring Diameter Used On
—	1/2" dia. x 18"	2" and 2-5/8"
—	5/8" dia. x 24"	3-3/4" and 6"



R6 Winding Spring(s)

Tools Required: Ladder, Approved winding bars, 3/8" Wrench, Tape measure, Safety glasses, Leather gloves

⚠ WARNING

WINDING TORSION SPRING(S) IS AN EXTREMELY DANGEROUS PROCEDURE AND SHOULD BE PERFORMED ONLY BY A TRAINED DOOR SYSTEM TECHNICIAN USING PROPER TOOLS AND INSTRUCTIONS.

⚠ WARNING

USE ONLY SPECIFIED WINDING BARS, AS STATED IN STEP SECURING DOOR FOR SPRING WINDING. DO NOT SUBSTITUTE WITH SCREWDRIVERS, PIPE, ETC. OTHER TOOLS MAY FAIL OR RELEASE FROM THE SPRING CONE AND CAUSE SERIOUS PERSONAL INJURY.

⚠ WARNING

PRIOR TO WINDING OR MAKING ADJUSTMENTS TO THE SPRINGS, ENSURE YOU'RE WINDING IN THE PROPER DIRECTION AS STATED IN THE INSTALLATION INSTRUCTIONS. OTHERWISE THE SPRING FITTINGS MAY RELEASE FROM SPRING IF NOT WOUND IN THE PROPER DIRECTION AND COULD RESULT IN SEVERE OR FATAL INJURY.

Position a ladder slightly to the side of the spring so that the winding cone is easily accessible, and so your body is not directly in line with the winding bars.

Check the label attached to the spring warning tag for the required number of complete turns to balance your door.

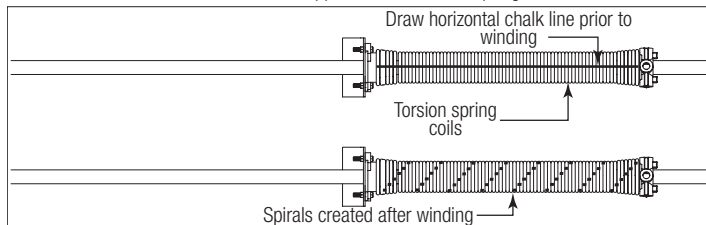
Alternately inserting the winding rods into the holes of the spring winding cone, rotate the winding cone in the direction as shown, 1/4 turn at a time, until the required number of complete turns for your door height is achieved. As the last 1/8 to 1/4 turn is achieved, securely hold the winding rod and carefully stretch the torsion spring 1/8" - 1/4". Next while still securely holding the winding rod, tighten both set screws in the winding cone to 14-15 ft.

R4 Chalking Torsion Spring(s)

Tools Required: Step ladder, Chalk, Safety glasses, Leather gloves

NOTE: If your spring(s) have stenciling, then skip this step.

Draw a chalk line horizontally along the center of the torsion spring coil(s). As the torsion spring is wound, the chalk line will create a spiral. This spiral can be used to count and determine the number of turns that are applied on the torsion spring.



R5 Securing Door for Spring Winding

Tools Required: Vice clamps, Safety glasses, Leather gloves

With the door in the fully closed position, place vice clamps / c-clamps onto both vertical tracks just above the third track roller. This is to prevent the garage door from rising while

lbs. of torque (once set screws contact the torsion shaft, tighten screws one full turn).

Carefully remove winding rod from winding cone. Repeat for the opposite spring(s), if applicable. While holding the door down to prevent it from raising unexpectedly in the event the spring(s) were over-wound, carefully remove the locking pliers from the torsion shaft and vertical tracks.

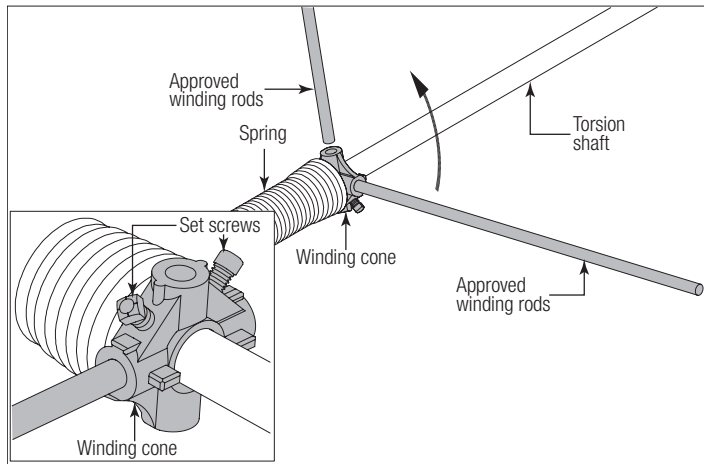
Adjustments to the number of turns stated may be necessary. If door rises off floor under spring tension alone, reduce spring tension until door rests on the floor. If the door is hard to rise or drifts down on its own, add spring tension.

To adjust spring tension, fully close door. Apply vice grips to track above third track roller. Insert a winding rod into the winding cone. On single spring doors, counterbalance lift cable tension must be maintained by placing vice grips on torsion shaft before loosening set screws in the winding cone. Push upward on the winding rod while carefully loosening the set screws in the winding cone. BE PREPARED TO SUPPORT THE FULL FORCE OF THE TORSION SPRING ONCE THE SET SCREWS ARE LOOSE. Carefully adjust spring tension 1/4 turn. Retighten both set screws in the winding cone and repeat for the other side. Recheck door balance. DO NOT ADJUST MORE THAN 1/2 TURN FROM THE RECOMMENDED NUMBER OF TURNS.

If the door still does not operate easily, lower the door into the closed position, UNWIND THE SPRING(S) FULLY (Reference the insert "Removing The Old Door / Preparing The Opening" section on torsion spring removal) and recheck the following the items:

- 1.) Check the door for level.
- 2.) Check the torsion shaft for level.
- 3.) Check the track spacing.
- 4.) Check the counterbalance cables for equal tension and proper wrap onto the cable drums.
- 5.) Check the track for potential obstruction of the track rollers.
- 6.) Clamp locking pliers onto track and rewind springs.

IMPORTANT: IF DOOR STILL DOES NOT OPERATE PROPERLY, THEN CONTACT A TRAINED DOOR SYSTEM TECHNICIAN.



EXTENSION LHR

E1

Attaching Rear Back Hangs

Tools Required: Ratchet wrench, Socket: 1/2" 5/8", Wrench: 1/2" 5/8", (2) Locking pliers, Tape measure, Level, Step ladder, Safety glasses, Leather gloves

NOTE: Temporarily support the horizontal track with rear back hangs as shown below, without lifting door and then proceed to Step E2. Adjust the rear back hangs after springs are installed.

Using the chart below, select the appropriate perforated angle (may not be supplied). Fabricate and install rear back hangs, as shown.

Perforated Angle Gauge Weight Limitations For Extension Springs:	
Perforated Angle Gauge	Door Balance Weight
2" x 2" x 12 Gauge	Less Than 400 lbs.
1-1/4" x 1-1/4" x 13 Gauge	Less Than 175 lbs.

WARNING

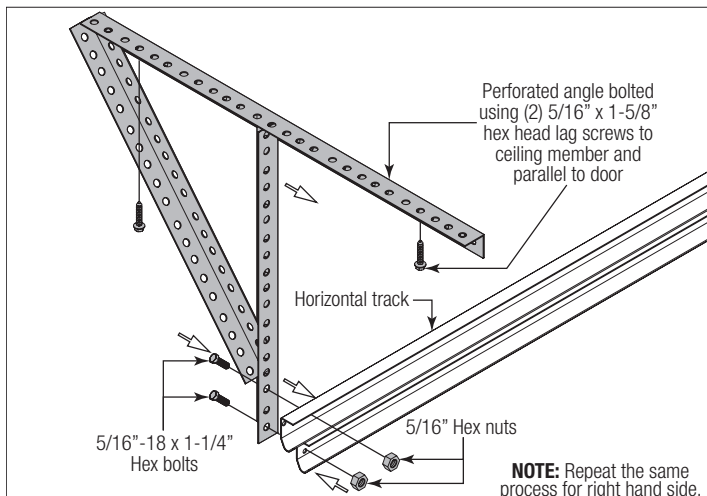
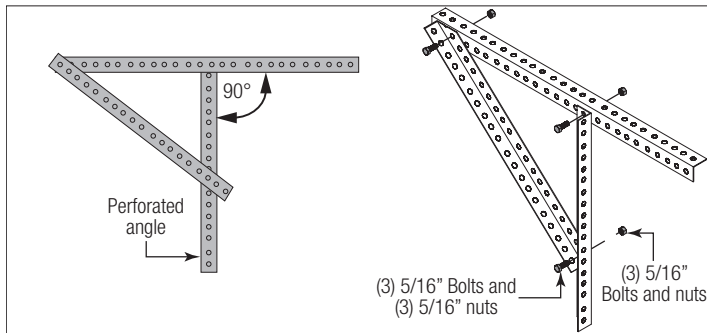
MAKE SURE BACK HANGS ARE BRACED SUFFICIENTLY TO RESIST ANY MOTION DURING SPRING APPLICATION AND DOOR TRAVEL. IF BACK HANGS PIVOT OR DEFLECT, ADD REINFORCEMENT UNTIL THEY REMAIN FIRM AND STATIONARY. ANY BACK HANG THAT HAS BENT MUST BE REPLACED.

WARNING

KEEP HORIZONTAL TRACKS PARALLEL AND WITHIN 3/4" TO 7/8" FROM DOOR EDGE, OTHERWISE DOOR COULD FALL, RESULTING IN SEVERE OR FATAL INJURY.

WARNING

FAILURE TO ASSEMBLE AND ATTACH REAR BACK HANGS PROPERLY ACCORDING TO THE ABOVE INSTRUCTIONS MAY RESULT IN DOOR FALLING WHEN RAISED, CAUSING SEVERE OR FATAL INJURY.



E2

Attaching Extension Springs

Tools Required: 9/16" Wrench, Locking pliers, Tape measure, Level, Step ladder, Safety glasses, Leather gloves

WARNING

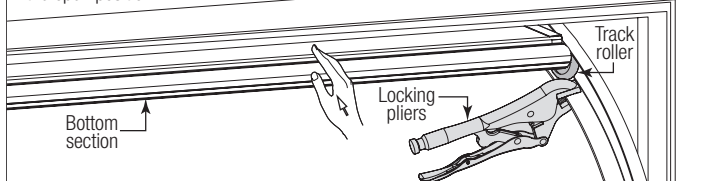
WITH ASSISTANCE, RAISE THE DOOR SLOWLY INTO THE OPEN POSITION MAKING SURE THE DOOR TRAVELS SMOOTHLY THROUGH THE TRACKS. CLAMP LOCKING PLIERS TO THE BACK LEG OF BOTH HORIZONTAL TRACKS, BELOW THE BOTTOM TRACK ROLLERS TO KEEP THE DOOR FROM LOWERING.

WARNING

FAILURE TO INSTALL SPRING RESTRAINT CABLES CAN RESULT IN SEVERE OR FATAL INJURY IN CASE OF SPRING BREAKAGE.

IMPORTANT: SPRING RESTRAINT CABLES MUST BE TAUT AND EQUALIZED.

NOTE: This illustration shows the outside of the door in the open position.



Position (1) 5/16" - 18 x 3-3/4" eye bolt and (1) 5/16" - 18 hex nut into the rear back hang, 6" to 8" above the horizontal track, as shown. Feed the spring restraint cable through the rear back hang and tie the special knot around the "room side" of the 3 hole clip, as shown.

Secure the eye bolt and 3 hole clip to the rear back hang using (1) 5/16" - 18 hex nut. Hook one end of the extension spring onto the eye bolt. Feed the spring restraint cable through the rear extension spring loop and center of the extension spring then front spring loop, pull the spring restraint cable taut and tie the special knot around the "jamb side" of the 3 hole clip.

ATTACH THE "JAMB SIDE" 3 HOLE CLIP TO THE JAMB NEAR THE FLAG ANGLE / WALL ANGLE USING:

Wood jambs, using 5/16" x 1-5/8" lag screws. Drill 3/16" pilot holes into the wood jamb for the lag screws.

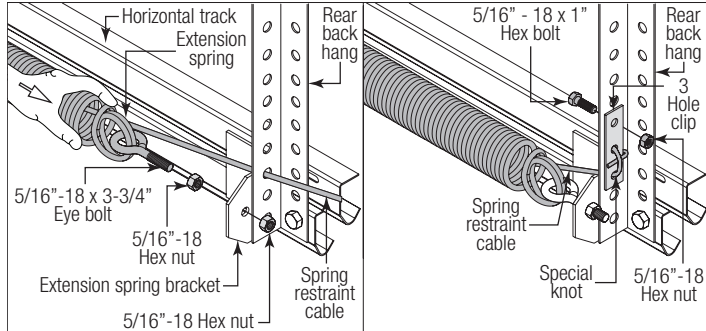
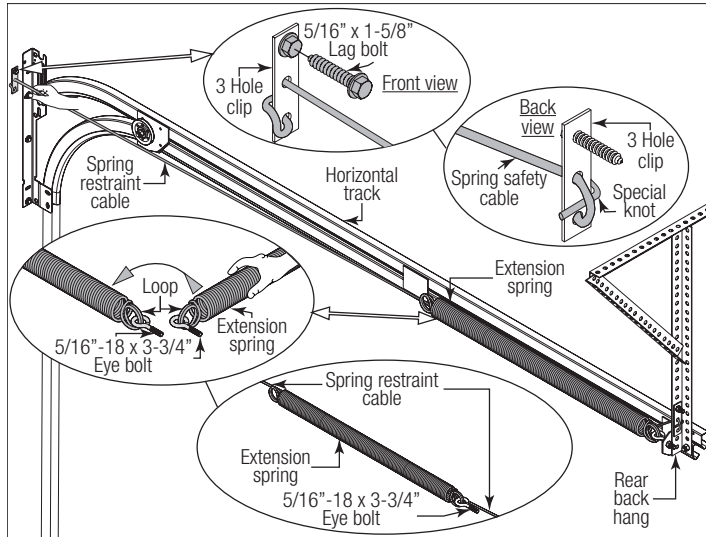
Steel jambs, using 5/16" x 1" self drilling screws.

Pre-cast concrete, using 3/8" x 3" sleeve anchor (not supplied).

NOTE: Products being installed to pre-cast or block must use a 3/8" x 3" sleeve anchor to attach the wall angle to the building, as shown. Use the slots in the wall angle as a drill template and drill a 3/8" hole (3-1/2" deep) and secure to anchor.

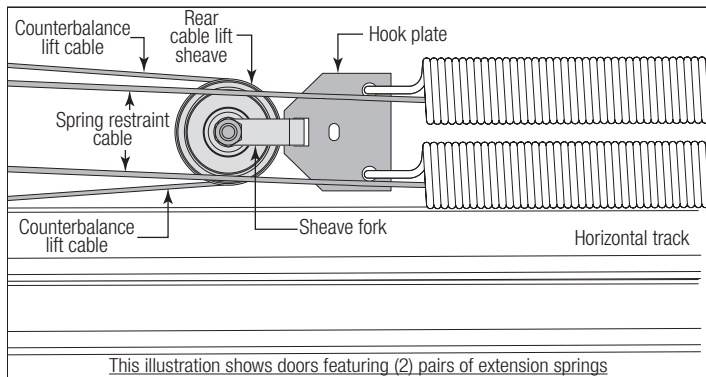
WARNING

DO NOT USE SLEEVE ANCHORS ON HOLLOW BLOCK.



NOTE: As an option, eyebolt may be fastened to rear back hangs and extension spring bracket left unused. The extension spring bracket is useful in applications where rear headroom is small, resulting in short rear back hangs.

NOTE: Some larger doors feature 2 pairs of extension springs. A spring restraint cable must be installed through each spring.



This illustration shows doors featuring (2) pairs of extension springs

Repeat the same process for the other side.

E3

Attaching Spring Sheaves

Tools Required: 9/16" Wrench, Tape measure, Level, Locking pliers, Step ladder, Safety glasses, Leather gloves

Hook the sheave fork through the front loop of the extension spring and attach the sheave fork to the rear cable lift sheave using (1) 3/8" - 16 x 1-1/4" hex head bolt and (1) 3/8" - 16 hex nut. Thread the counterbalance lift cable over the front cable lift sheave and around the rear cable lift sheave and tie the special knot around the "horizontal track" using a 3 hole clip, as shown.

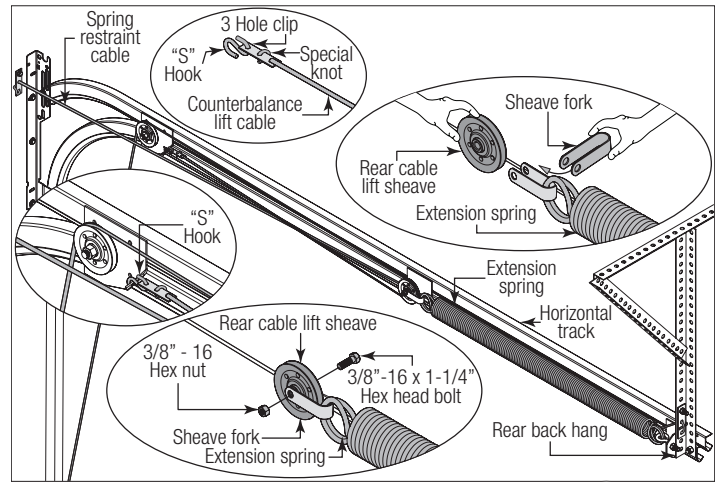
Insert one end of the large "S" hook into the 3 hole clip and the other end into the sheave plate of the horizontal track, as shown.

Repeat for the other side.

IMPORTANT: CLOSE "S" HOOKS AND EYE BOLTS WITH LOCKING PLIERS, TO PREVENT SPRINGS FROM COMING LOOSE.

WARNING

FAILURE TO CLOSE "S" HOOKS AND EYE BOLTS CAN RESULT IN SEVER OR FATAL INJURY IF SPRINGS COME LOOSE.



E4

Counterbalance Lift Cable Adjustments

Tools Required: 9/16" Wrench, Locking pliers, Tape measure, Level, Step ladder, Safety glasses, Leather gloves

Adjust counterbalance lift cables to create about 1" to 2" (25 mm to 50 mm) of pre-stretch on the extension spring, with the door in the fully opened position. Measure extension spring length (door open) and verify with the chart below. Spring length must be the same for both left hand and right hand extension springs to allow even door balance. Carefully remove the locking pliers from the horizontal track and lower the door into the closed position. Once the door is closed, measure the extension spring length for both sides. Using the chart, verify the spring length extended is correct for your door height.

Door Height	Spring Length (Door Open) (Does Not Include Pre-stretch)	Spring Length Extended (Door Closed) (Does Not Include Pre-stretch)
6' 0"	25" (635 mm)	61" (1549 mm)
6' 3"	25" (635 mm)	62-1/2" (1588 mm)
6' 6"	25" (635 mm)	64" (1626 mm)
7' 0"	25" (635 mm)	67" (1702 mm)
7' 6"	27" (686 mm)	72" (1829 mm)
7' 9"	27" (686 mm)	73-1/2" (1867 mm)
8' 0"	27" (686 mm)	75" (1905 mm)

E5

Balancing Door

Tools Required: Locking pliers, Tape measure, Step ladder, Safety glasses, Leather gloves

IMPORTANT: WHENEVER ADJUSTING EXTENSION SPRING LENGTH FOR DOOR BALANCE, ALWAYS OPEN THE DOOR TO THE FULLY OPEN POSITION AND RETURN THE LOCKING PLIERS, AS SHOWN IN F3 TO THE HORIZONTAL TRACKS BELOW THE BOTTOM TRACK ROLLERS.

If door raises more than 2 ft. under spring tension alone, reduce spring tension. Adjust extension spring length by loosening the special knot on the 3 hole clip and lengthen the counterbalance lift cable between the 3 hole clip and the extension spring about 1/2". If door is hard to raise or drifts down on its own, add spring tension. Adjust extension spring length by loosening the special knot on the 3 hole clip and shortening the counterbalance lift cable

between the 3 hole clip and the extension spring about 1/2". A poorly balanced door can cause garage door operator problems.

If the door still does not operate easily, raise the door into the open position, return the locking pliers, and recheck the following items:

- 1.) Is the door level?
- 2.) Are the flag angles level and plumb?
- 3.) Does the distance between the flag angles equal door width plus 3-3/8" to 3-1/2"?
- 4.) Do the counterbalance lift cables have equal tension? Adjust by re-tying the special knot, if necessary.
- 5.) Make sure door is not rubbing on jambs.

IMPORTANT: IF DOOR STILL DOES NOT BALANCE PROPERLY, THEN CONTACT A TRAINED DOOR SYSTEM TECHNICIAN.