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READ THIS MANUAL CAREFULLY AND OBSERVE ALL WARNINGS WHEN INSTALLING, OPERATING OR MAINTAINING YOUR GARAGE DOOR.

RESIDENTIAL SECTIONAL GARAGE DOOR INSTALLATION INSTRUCTIONS SERIES 321, 323, 327, 329

Contents

Warnings and Safety Information	2
How to Use these Instructions	3
General Notes, Tools Needed.	4
Parts Identification and Key Drawings (Door, Sections).	5
Preparing for Installation	
1. Assemble Track	6
2. Pre-assemble Spring System	7
3. Pre-assemble the Sections	8-9
4. Preparing the Opening.	10
Door Section Installation	
5. Stack Sections in Opening.	11
6. Install Vertical Track.	12
7. Install Horizontal Track	12
8. Install Counterbalance.	13
Extension Springs.	14-15
Torsion Springs.	16-19
9. Install Backhang	20
10. Final Adjustments	21
Installing Optional Accessories	
Drawbar Plate, Locks and Step Plate	22-28
Track Angle Support	29
Low Headroom Track	29-30
Warranty	31

WARNINGS & SAFETY INFORMATION

SAFETY INFORMATION

OVERVIEW OF POTENTIAL HAZARDS

Overhead doors are large, heavy objects that move with the help of springs under high tension and electric motors. Since moving objects, springs under tension, and electric motors can cause injuries, your safety and the safety of others depend on you reading the information in this manual. If you have questions or do not understand the information presented, call your nearest service representative.




In this Section and those that follow, the words **Danger**, **Warning**, and **Caution** are used to emphasize important safety information. The word:

⚠ **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in injury or property damage.

The word **NOTE** is used to indicate important steps to be followed or important considerations.

POTENTIAL HAZARD	EFFECT	PREVENTION
 <p>MOVING DOOR</p>	<p>⚠ WARNING Could result in death or serious injury</p>	<p>Keep people clear of opening while Door is moving.</p> <p>Do Not allow children to play with the Door operator.</p> <p>Do Not operate a Door that jams or one that has a broken spring.</p>
 <p>ELECTRICAL SHOCK</p>	<p>⚠ WARNING Could result in death or serious injury</p>	<p>Turn off power before removing operator cover.</p> <p>When replacing cover, make sure wires are not pinching or near moving parts.</p> <p>Operator must be properly grounded.</p>
 <p>HIGH SPRING TENSION</p>	<p>⚠ WARNING Could result in death or serious injury</p>	<p>Do Not try to remove, repair or adjust springs or anything to which Door spring parts are fastened, such as wood blocks, steel brackets, cables or other like items.</p> <p>Repairs and adjustments must be made by a trained door system technician using proper tools and instructions.</p>

1. Read manual and warnings carefully.
2. Make sure support angles are strong enough to support door in horizontal position.
3. Check distance between horizontal tracks before raising door.

INSTALLATION INSTRUCTIONS

HOW TO USE THESE INSTRUCTIONS

These instructions have been designed to aid installation of a Residential Sectional Garage Door. You should have the tools necessary for this installation and be skilled in their use. It is very important that you read and understand these instructions and **WARNINGS** before attempting to install your door. If you do not understand an instruction or have a question, call your nearest Overhead Door Distributor at 1-800-929-DOOR

<p>1. Use "KEY DRAWINGS" on page 5 and 6 to locate and identify specific terminology.</p> <p>2. These instructions show the step-by-step procedures required to install the following:</p> <p>DOORS Non Insulated - 321, 327</p> <p>Insulated - 323, 329</p> <p>TRACK Standard 2" residential</p> <p>COUNTERBALANCE SPRINGS Extension Torsion</p> <p>Use only those instructions applicable to your particular installation.</p> <p>3. Each "STEP" will include:</p> <p>a. A brief statement of the procedure to be performed.</p> <p>b. Illustrations showing procedure in specific detail.</p> <p>c. Hardware and fasteners required.</p>	<p>DOOR JAMB REQUIREMENTS</p> <ol style="list-style-type: none">Jambs should be plumb and flush.Floor should be flat and level.Opening should be the same width as the length of the door section.Standard headroom - 12 inches Minimum headroom - 10-1/2 inches (Additional headroom required for door operator)Minimum sideroom - 1-1/2 inchesMASONRY WALLS: HEADER - should be cased with a wood 2 x 4 or 2 x 6. JAMB - should be cased with wood 2 x 4's or 2 x 6's which extend 12 inches above header. <p>NOTE: Casings should be flush with opening and secured with masonry anchors.</p>
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DEFINITIONS OF TERMS USED

HEADROOM - distance from top of door opening to ceiling.

NOTE: Door-to-ceiling clearance may be different than "headroom" if door overlaps top of opening.

SIDEROOM - distance from side of door opening to sidewall.

PLUMB - perpendicular to floor of structure. Measured with a plumb line.

CASE - attachment of wood 2 x 4's or 2 x 6's around the inside face (header & jambs) of door opening on masonry walls

CLINCH SCREW - Screw driven through End Stile into door jambs to temporarily hold door sections in mounting position. See General Note 4, page 4.

CLEARANCE HOLE - hole drilled through material and large enough to allow easy passage of a bolt or fastener being used.

PILOT HOLE - pre-drilled hole in material in which a screw is used. May be step to obtaining larger hole in thin material.

GENERAL NOTES

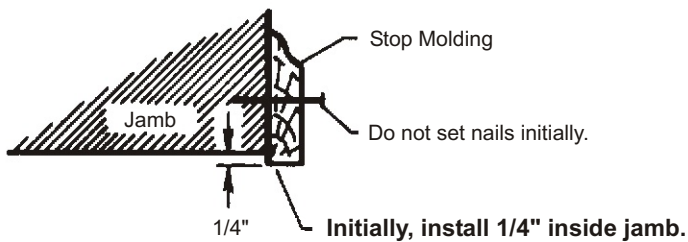
1. Nuts, bolts and screws should be tightened using hand tools to prevent thread stripping.

NOTE: Use care with power tool on steel door, do not exceed 100 in/lbs of torque.

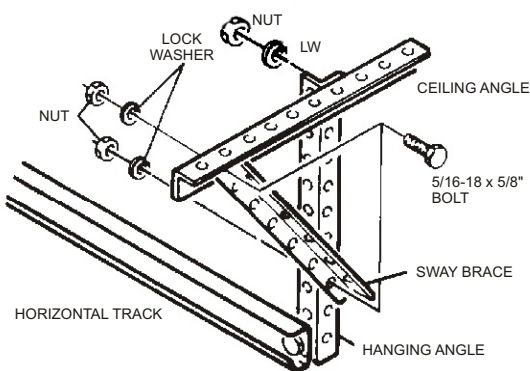
2. All required items are furnished except those noted. Additionally you will need:
 - 2x4 or 2x6 wood framing material.
 - Lag screws for attaching ceiling angle to ceiling joists.
 - 5/16" hex bolts, nuts & lockwashers used to secure hanging angles, sway braces & track.
 - #8 x 3.5" Wood Screws or 16p Nails.

The following items are available from your OHD representative:

 - Hanging Angle OHD P/N 607055
 - Stop molding. OHD P/N 407624
 - Stop Molding Nails. OHD P/N 607614
3. Stop molding (not furnished) is required to correctly install this door. It must be installed inside door opening on jambs and header.



5. Hanging angle fasteners shown in the details below are not supplied with your door. You will need approximately 6 feet of hanging angle to complete this project.



4. When stacking door sections in mounting position on door opening, temporarily "HOLD" sections to jamb using #8 x 3.5" wood screws or nails(not provided). Place the screw through the end stile and fasten into the door jamb until the section is held vertical but still has a little play in the horizontal direction. Do not overtighten, this could cause installation problems or damage the door section.



TOOLS NEEDED

You will need the following tools to perform this installation:

- Safety Glasses
- Tape Measure
- Stud Finder
- Winding Bar, OHD P/N 409152-0001 (Call your nearest Overhead Door representative) **For Torsion Springs Only**
- Chalk

Electric or Cordless Drill and Bits
 1/8" Drill Bit, 7/16" Socket with Drive
 5/16" Allen Hex Bit (Armortite only)
 Carpenter Level



Step Ladder

Saw Horses

Hack Saw

Locking Pliers (2)

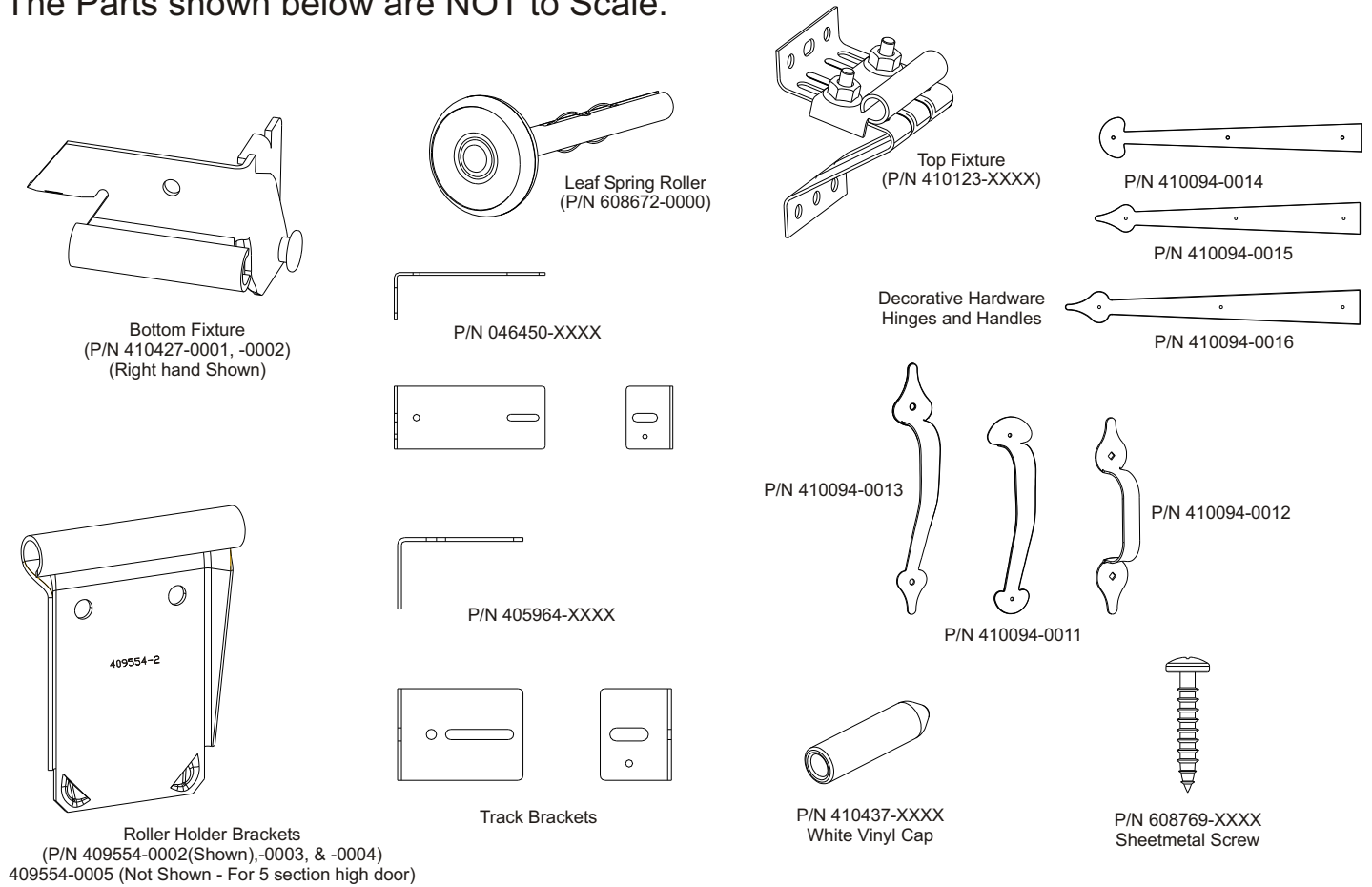
Hammer

Slotted Screwdriver

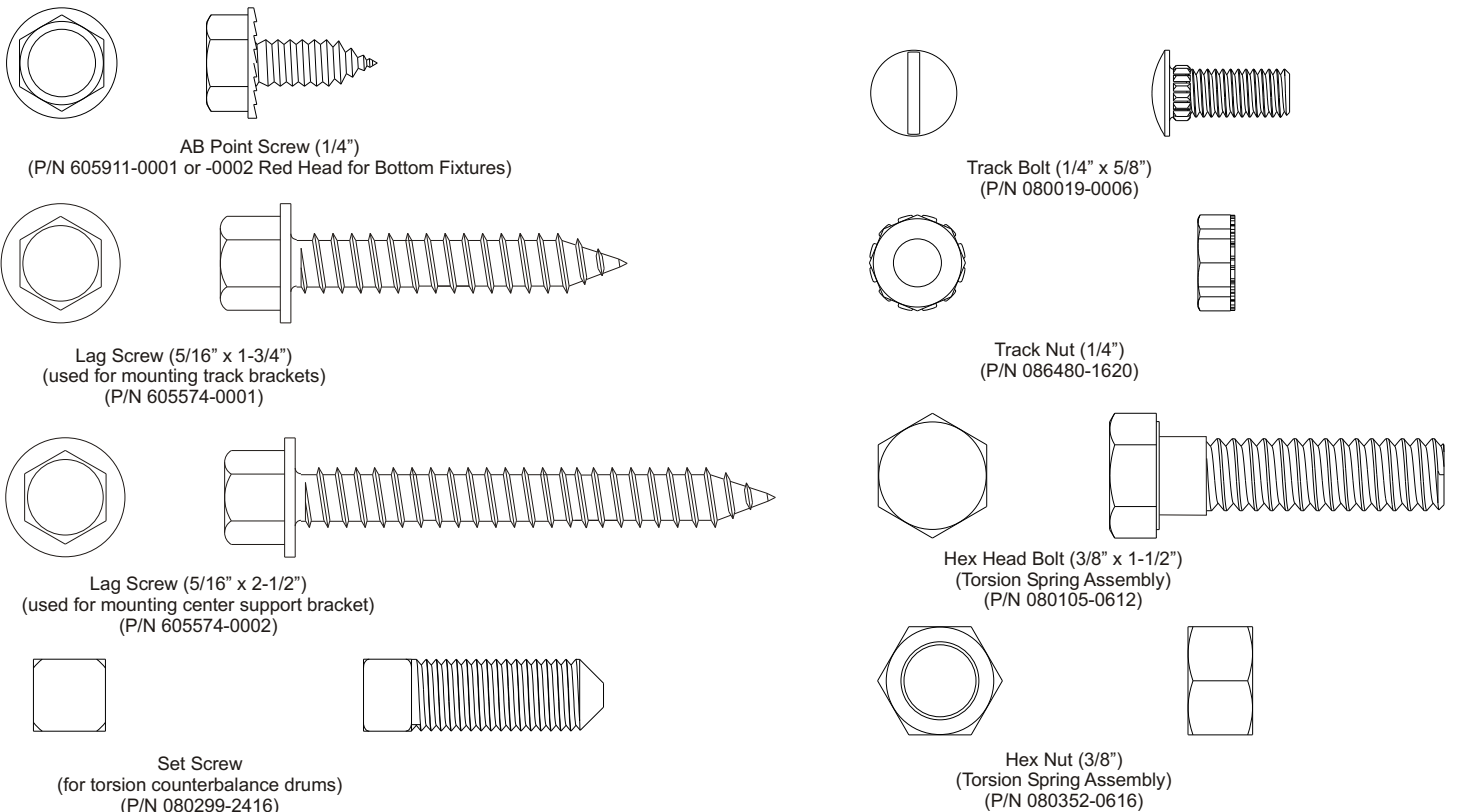
Wrenches
 3/8", 7/16", 1/2", 9/16"
 3/16" Allen Hex Wrench (Armortite only)

PARTS IDENTIFICATION

The Parts shown below are NOT to Scale.



The Parts shown below are Scaled 1:1.

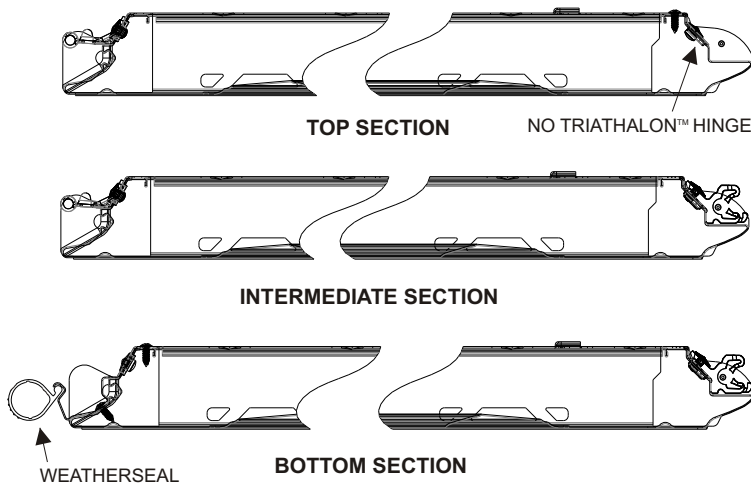


PREPARING FOR INSTALLATION

KEY DRAWINGS

NOTE: Refer to Key Drawing during installation for placement of hardware.

1. Identify the Sections by referring to Figure 1. Right and Left will be identified by looking at the door from the inside of the garage looking out. (See Figure 2)



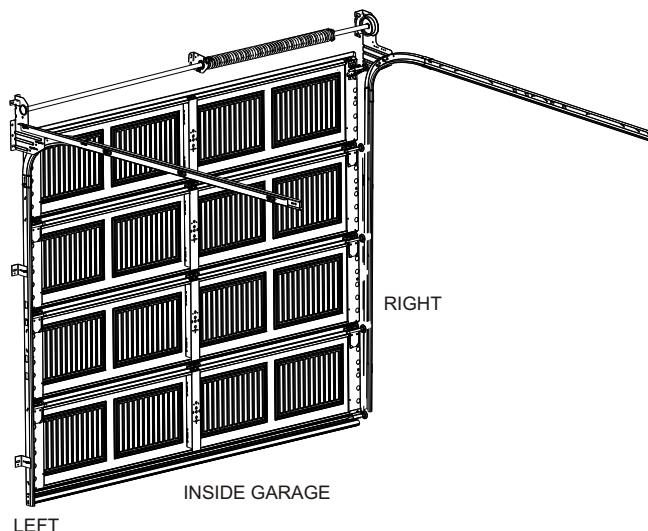
TOP SECTION

NO TRIATHALON™ HINGE

INTERMEDIATE SECTION

BOTTOM SECTION

FIGURE 1



KEY DRAWING

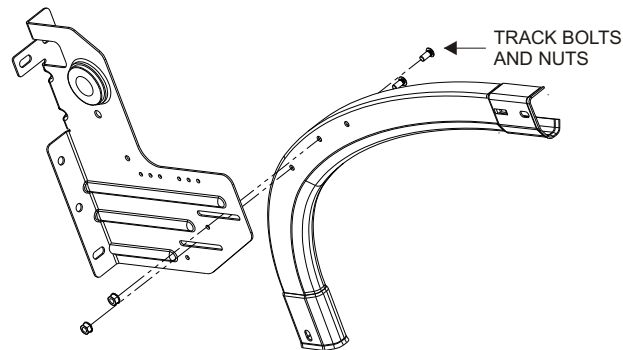
FIGURE 2

1. TRACK ASSEMBLY

1. Attach jamb brackets to the vertical track using track bolt and nut. (See Figure 1-1)

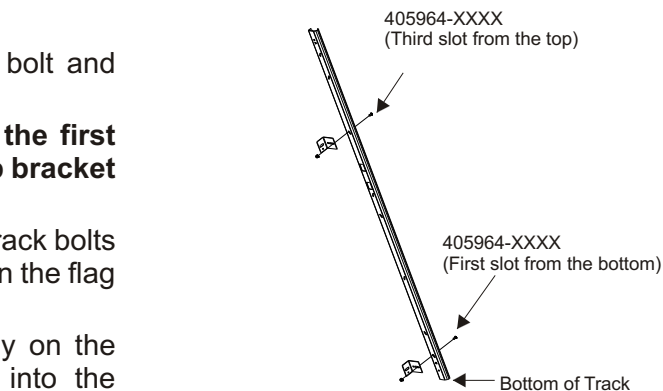
NOTE: Locate the jamb bracket(405964-XXXX) on the first slot hole from the bottom of track and the other jamb bracket on the third slot from the top.

2. Assemble the flag Bracket to the transition curve using track bolts and nuts from the inside of the track and through a slot on the flag bracket. (See Figure 1-2)
3. Install the transitional curve and flag bracket assembly on the vertical track assembly by sliding the vertical track into the swedged end of the curve track. (See Figure 1-3)
4. Assemble the Vertical tracks for the other side the same way and then set the tracks to the side while you get the door in place.



TRACK BOLTS AND NUTS

FIGURE 1-2

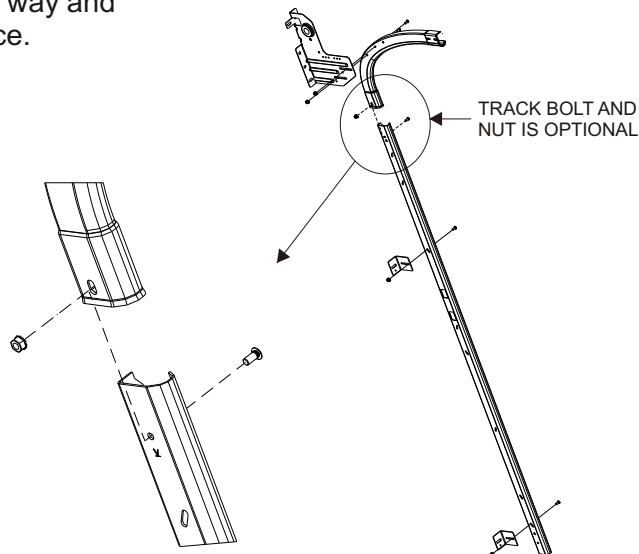


405964-XXXX
(Third slot from the top)

405964-XXXX
(First slot from the bottom)

Bottom of Track

FIGURE 1-1



TRACK BOLT AND NUT IS OPTIONAL

FIGURE 1-3

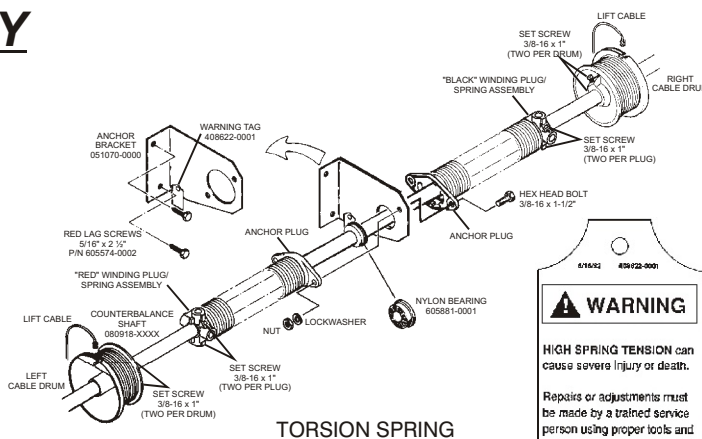
PREPARING FOR INSTALLATION

2. SPRING SYSTEM ASSEMBLY

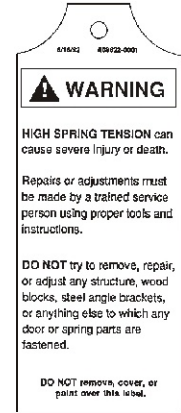
For Extension Springs, No pre-assembly is needed.

TORSION SPRING PRE-ASSEMBLY

For Torsion Springs, Use the Drawing to the Right as a guide for assembly of the components to the shaft. The drawing shows all components required to install single and dual torsion springs. Use only those parts supplied with your door.



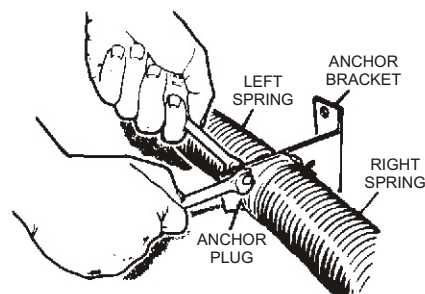
TORSION SPRING



- 1) Secure anchor plug(s) to anchor bracket.

NOTE:

- Single torsion spring: If spring is “Left” wound it should be located on the right side of the anchor bracket. If spring is “Right” wound it should be located on left of anchor bracket. See Figures 2-1 and 2-2 to determine if you have a right wound or left wound spring.
- Dual torsion springs: “Left” wound spring on right side of bracket and “Right” wound spring on left side.

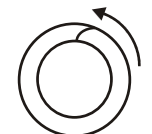
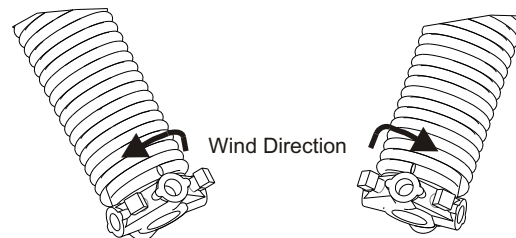


- 2) Slide torsion spring assembly onto the counterbalance shaft.

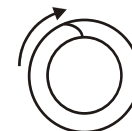
- 3) Install cable drums on shaft. Make sure left and right drums are on correct ends.

NOTE: Drums are marked “R” for right and “L” for left.

- 4) Set the spring assembly aside and move on to Step 3.



End View
RIGHT WOUND
FIGURE 2-1



End View
LEFT WOUND
FIGURE 2-2

3. DOOR SECTION PRE- ASSEMBLY

PREPARE BOTTOM SECTION

NOTE: Refer to Key Drawing during installation for placement of hardware.

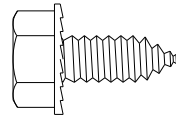
1. Attach one of the lift cables(P/N 409950-XXXX) to the Right Hand bottom fixture(P/N 410427-0002).(See Figure 3-1)
2. Place the Right hand bottom fixture on the bottom right hand side of the section. See Figure 3-2.
3. Fasten the bottom fixture to the bottom section with two AB Point screws(P/N 605911-0002, Figure 3-3) provided. Install the AB Point Screws(See Figure 3-4) into the Bottom Fixture until it is flush up against the end stile.
4. Repeat Steps 1-3 for Left hand bottom fixture(P/N 410427-0001).
5. Place Rollers into the Left and Right hand bottom fixtures.(See Figure 3-5)
NOTE: Pinch leading springs down when inserting rollers into the holders. (See Figure 3-6)



CABLE ASSEMBLY
FIGURE 3-1



FULLY SEATED BOTTOM FIXTURE
FIGURE 3-2



AB POINT SCREW 1/4-14 x 5/8"

FIGURE 3-3

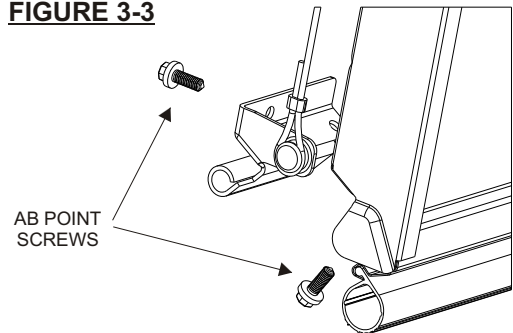


FIGURE 3-4

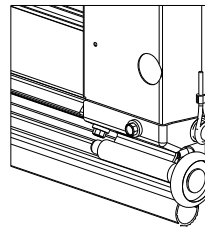


FIGURE 3-5



FIGURE 3-6

ROLLER HOLDER INSERTION

1. Stage the sections on sawhorses and insert roller holders(Part #'s 409554-xxxx) into the sections. Start with the -0002 roller holder on the top of the bottom section and working up from there. With the 1st intermediate section receiving the -0003 roller holder and so forth. Slide Roller holders down into the tabs on the end stile and snap the holder into place.
2. Secure the Roller Holders to the End Stile using two AB Point Screws provided. The holes on the roller holder will line up with the holes on the end stile.(See Figure 3-8)
3. Insert Rollers into the roller holders just installed. Remember to pinch the springs when inserting the rollers.

Snap Roller Holder
down into Tabs

(PART NUMBER LOCATION)
EXAMPLE: 409554 -0002

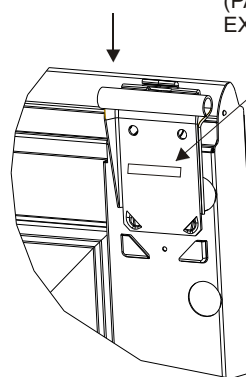
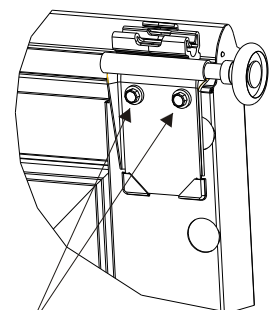


FIGURE 3-7



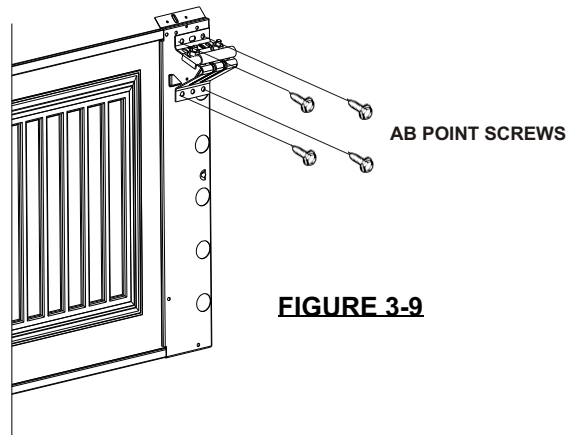
AB POINT
SCREWS

FIGURE 3-8

3. DOOR SECTION PRE- ASSEMBLY (con't)

TOP FIXTURE INSTALLATION

1. Secure the Top Fixture Assembly to the End Stile using AB Point Screws provided.



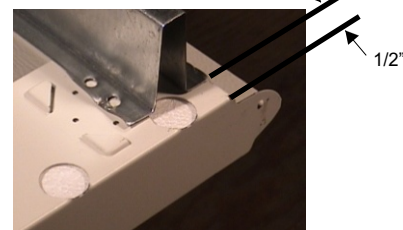
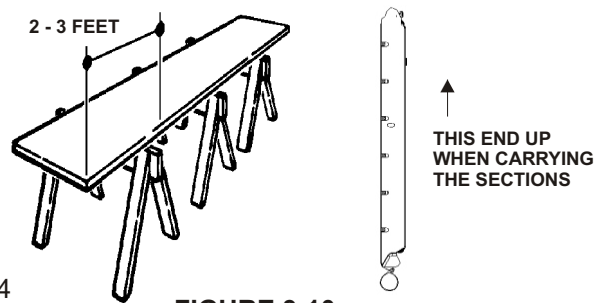
STRUT INSTALLATION

While working on door sections, lay sections flat on sawhorses. Position sawhorses approximately 2-3 ft. from the ends of the door section.

DO NOT LAY SECTIONS FLAT IF SUPPORT LOCATION IS NOT BETWEEN TWO TO THREE FEET AWAY FROM EACH END.

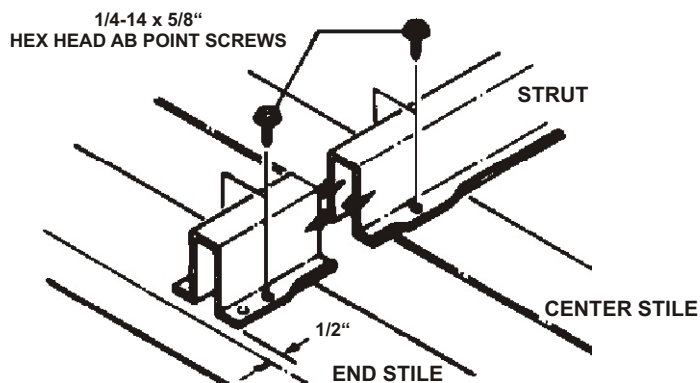
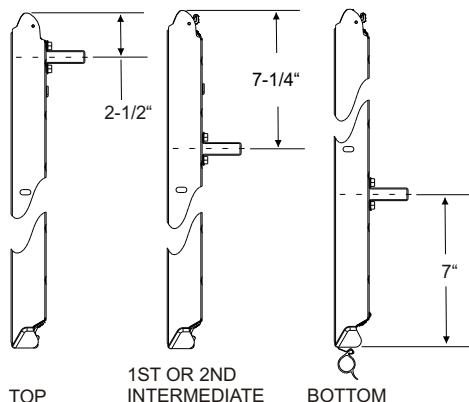
NOTE: Steel door sections, 16 and 18 ft. long, must be carried vertically (on edge).

- For 18 ft. Doors, Struts are to be installed on bottom, 1st Intermediate(4 section high) or 2nd Int.(5 high), and top sections.
- For 16 ft. Doors, Strut should be attached to top section only. Attach Struts to Intermediate and bottom sections if supplied.
- Strut Installation
 1. Position the Strut on the section using the drawings below as a guide to determine the correct location. (See Figure 3-13)
 2. Attach ends of strut to end stiles with 1/4-14 x 5/8" AB Point screws(P/N 605911).
 3. Attach the strut to the center stiles using the 1/4-14 x 5/8" AB Point screws(P/N 605911).



ATTACH STRUT APPROXIMATELY 1/2" FROM THE END OF THE STILE

FIGURE 3-11



4. PREPARING THE OPENING

•On the inside of the garage the door opening should be framed with wood jambs, 2 x 4's or 2 x 6's. The jambs should extend 12 inches above the header. If you have just removed an old door, the jambs should be inspected for the condition of the wood. If the wood is rotten it should be replaced now. The jambs should be plumb and the header level. If there are any bolts fastening the jambs to the wall, the heads should be flush so they don't interfere with the installation of the new door.

•NOTE: Opening width = Door Width

⚠WARNING TORSION SPRINGS

If the door has a torsion spring assembly, YOU MUST MAKE SURE THAT THE TORSION SPRING ANCHOR BRACKET WILL BE SECURELY FASTENED TO THE GARAGE WALL. Anchor into wood stud or structurally sound member. Failure to securely fasten the anchor bracket could allow the springs to break loose from the garage wall and cause severe personal injury.

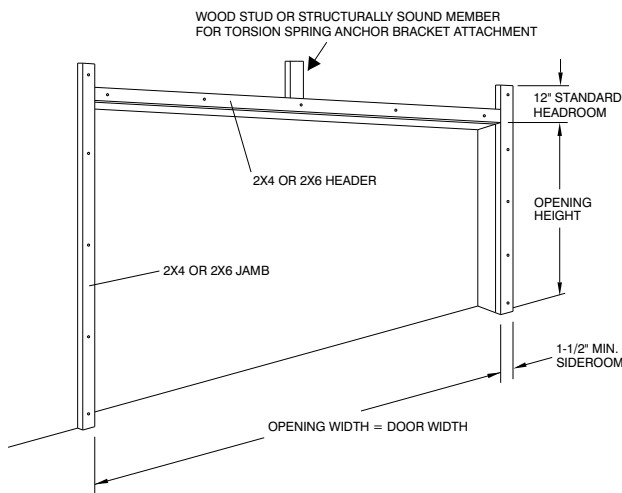


FIGURE 4-1

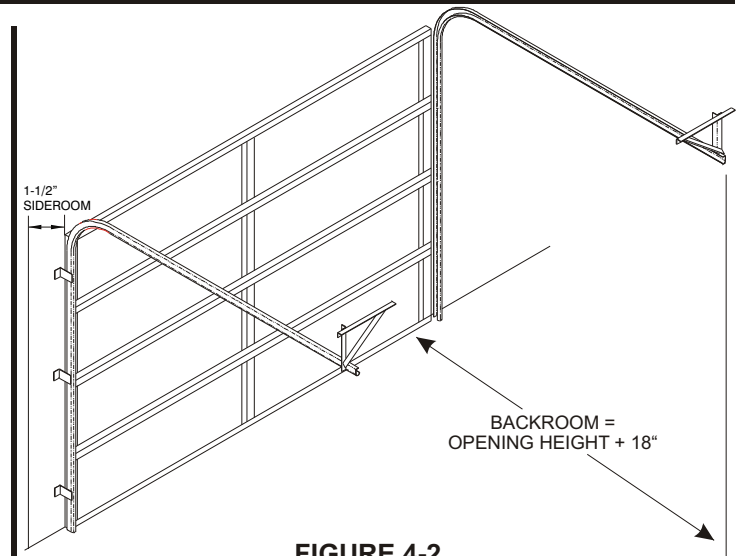


FIGURE 4-2

Check Headroom

- Headroom is the space needed above the top of the door opening for the door, the overhead tracks and the springs. Measure to check that there are no obstructions in your garage within that space. The standard headroom is 12 inches and the minimum headroom space requirement is 10-½ inches. If the Door overlaps the top of the opening, then measure the door-to-ceiling clearance. This should be a minimum of 10-1/2 inches.
- The backroom distance is measured from the back of the door into the garage, and should be at least 18 inches more than the height of the door.
- A minimum sideroom of 1-½ inches should be available on each side of the door.

NOTE: About three inches of additional headroom height at the center plus additional backroom is needed to install an automatic garage opener. Check door opener instructions.

Low Headroom- If you have restricted headroom, several remedies are available. For the correct product, contact your nearest Overhead Door distributor.

STOP MOLDING INSTALLATION

1. Stop molding is required to correctly install this door. It must be installed inside door opening on jambs and header. Refer to Figure 4-3 on proper location of the stop molding in reference to the jamb.

NOTE: Stop Molding and nails are not included in the standard door kit. Contact your nearest Overhead Door distributor for these parts.

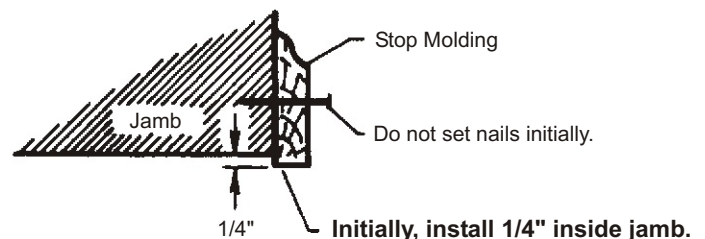


FIGURE 4-3

5. INSTALLING DOOR SECTIONS

1. Position assembled bottom door section in the opening. Center the section in the opening, the section should line-up with the edge of the jamb on the left and right side. Level the bottom section in the doorway. Use shims if required to level the section. See Figure 5-1
2. Secure the section in place by inserting clinch screws or nails (Not Provided, #8 x 3-1/2" wood screws recommended) through the pre-drilled holes in the end stile into the jamb as shown in Figure 5-2.

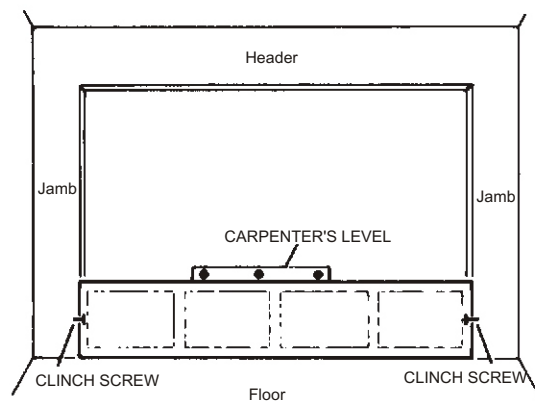


FIGURE 5-1

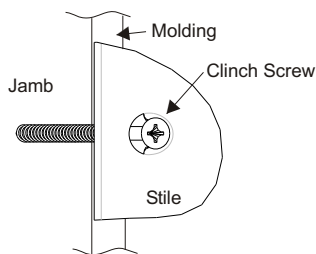
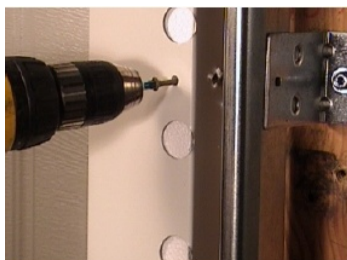


FIGURE 5-2

3. Position an Intermediate section on top of the bottom section, verify that the upper section end stiles are on the outside of the bottom section end stiles on each end and that both the steel upper hinge half and lower Triathlon™ hinge are aligned. Refer to Figure 5-3)
4. Snap the Intermediate section hinges into the bottom section hinges starting at one end and working your way across till all the hinges are in place.(See Figures 5-4 and 5-5) Push down on the bottom rail at the end stile or use vise grips to snap the hinges together.

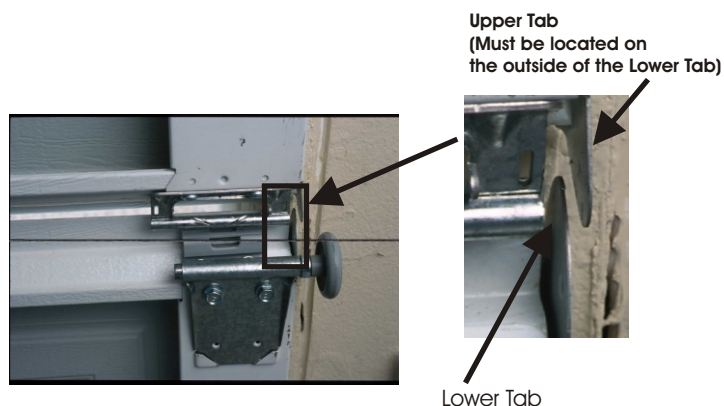
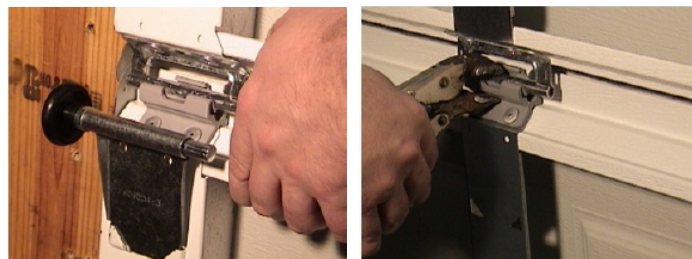


FIGURE 5-3



Start at one end and Work your Way across snapping sections into place

FIGURE 5-5



Fully Seated Triathlon™ Hinge

FIGURE 5-4

5. Rotate the entire section 90 degrees inward(See Figure 5-6) to insure that the sections are properly connected.
6. Secure the section in place by inserting #8 x 3-1/2" wood screws though the end stile into the jamb as shown in Figure 5-2.
7. Repeat Steps 3 through 6 for the remaining sections.



Rotate the Section 90 degrees to fully seat the hinges

FIGURE 5-6

6. INSTALLING VERTICAL TRACK

1. Identify the side of the door which has the bottom section touching the floor after leveling the bottom section.
2. Position Vertical Track Assembly over the Rollers.
NOTE: When positioning vertical track over rollers, space the track approximately 1" away from the end of the door.(See Figure 6-1)
3. Adjust the flag bracket such that it rests against the jamb. Secure it to the wall with lag screws and tighten the track bolts and nuts on the flag bracket. Make sure the track and curve are aligned vertically.
4. Adjust the position of the jamb brackets starting with the lowest one such that they are against the jamb and the track is touching the floor. Secure the jamb brackets to the jamb with the lag screws provided.
5. Repeat Steps 2 - 4 for the vertical track and flag bracket on the other side of the door.

NOTE: If the door was shimmed to level the section, then the track must be shimmed the same amount.

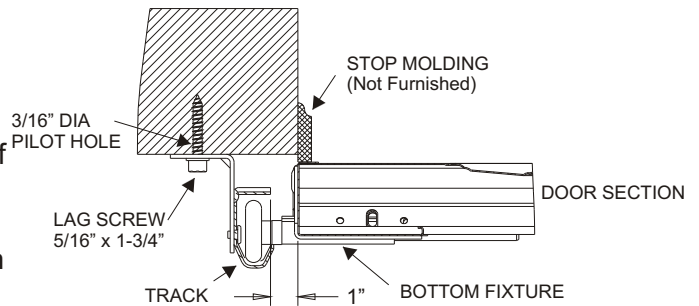
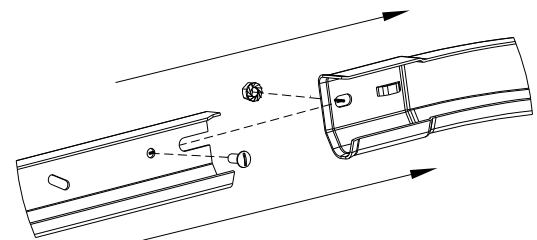


FIGURE 6-1

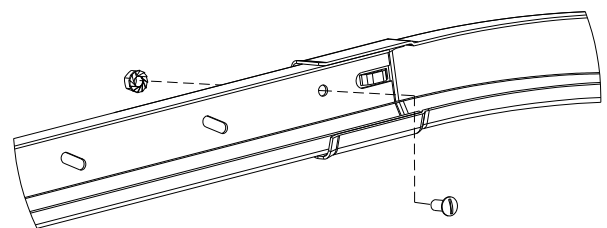
7. INSTALLING HORIZONTAL TRACK

1. Take one of the straight tracks to use for a horizontal. Position the end of the track in the swedged end of the transition curve nesting the u shape side of the track with the curve swedged end.(See Figure 7-1)
2. Push the track into the swedged end of the curve until the track is fully seated in the swedged end.(See Figure 7-2)
3. Secure the track and the curve using a track bolt and nut. (See Figure 7-2)
4. Repeat Steps 1-3 for the horizontal track on the other side of the door.
5. If the Door requires angle on the track refer to the section for installing Track Angle Support on page 29.



SLIDE HORIZONTAL TRACK INTO THE CURVE
(HORIZONTAL TRACK PIECES DO NOT HAVE
1" X 1-1/2" LOCK HOLES)

FIGURE 7-1



HORIZONTAL TRACK SHOULD BE FULLY SEATED
AND SECURE WITH TRACK BOLT AND NUT

FIGURE 7-2

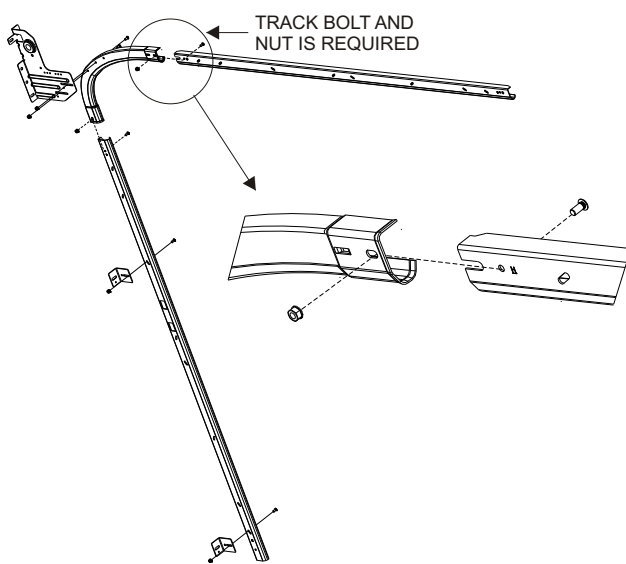


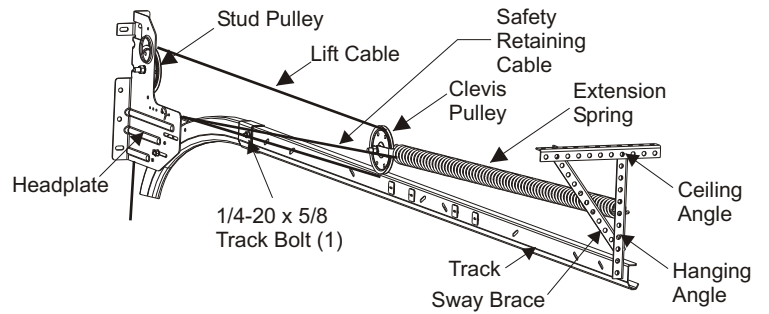
FIGURE 7-3

8. INSTALLING THE SPRING SYSTEM

Refer to the following Figures 8-1, 8-2 for the type of spring system being installed on this door.

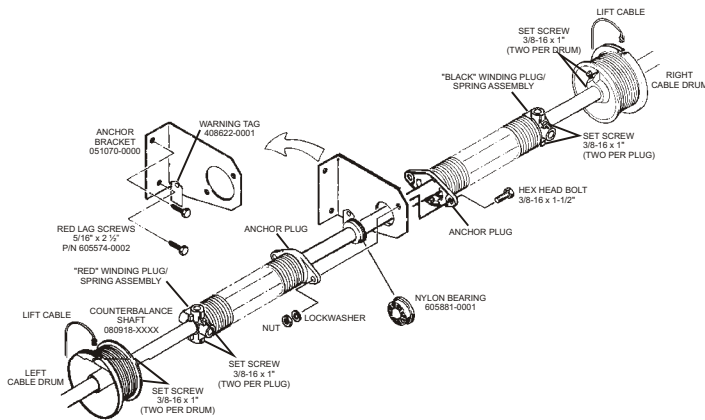
For Extension Springs (Figure 8-1) go to page 20 to install the backhang, then proceed to page 14.

For Torsion Springs (Figure 8-2) go to page 16.



EXTENSION SPRING

FIGURE 8-1



TORSION SPRING

FIGURE 8-2

EXTENSION SPRING COUNTERBALANCE INSTRUCTIONS

The drawing at right shows all components required to install left side extension springs. Right side will be similar.

Follow the step sequence for assembly, installation and adjustment.

The complete door must be raised into horizontal tracks before attaching lift cables to extension springs. Backhangs must be attached before raising the door. Proceed to page 20 to attach the backhangs before installing the extension springs.

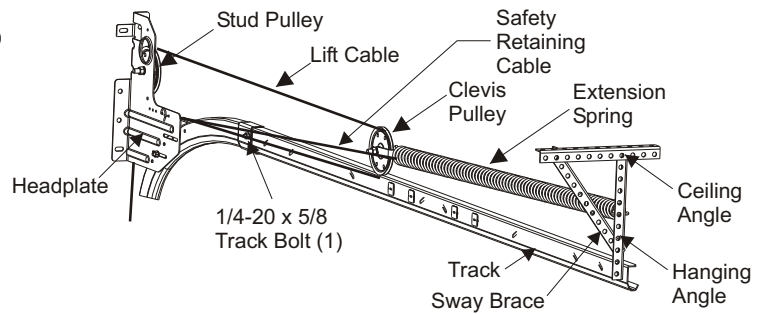


Figure A. Single Spring Assembly

⚠ WARNING

Falling door can cause serious injury. Before attempting to raise door:

Check distance between tracks. If tracks are too far apart, door could fall.

Put long track bolts through holes at end of each track to stop travel.

Get help to raise door. Door is very heavy. Raise door slowly.

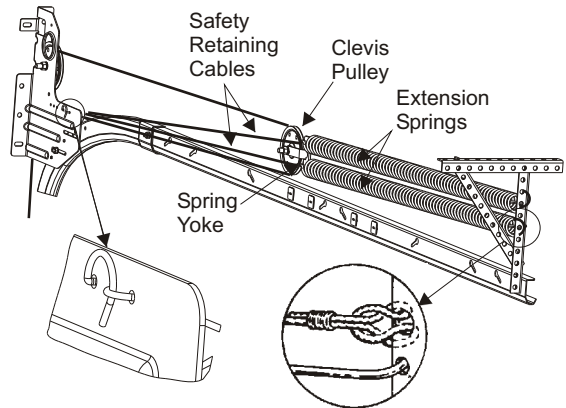
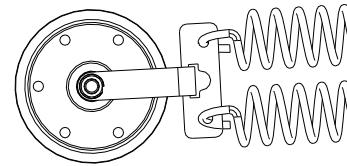


Figure B. Double Spring Assembly



Double Spring Assembly With Yoke

Step 1. Stud Pulleys

A. Install Stud pulleys on headplates. See Figure C.

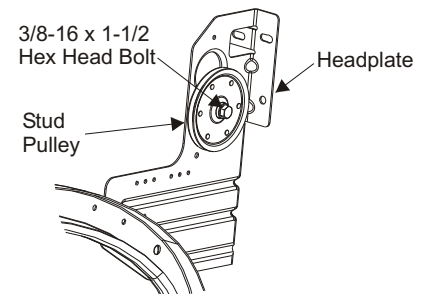


Figure C. Stud Pulley Assembly

EXTENSION SPRING INSTRUCTIONS

Step 2. Sway Brace Installation

- Raise door slowly. Watch top track rollers and horizontal tracks.
- Check spacing between ends of door and tracks. Maintain approximately 1" clearance.
- If tracks are set too far apart, lower door and make necessary adjustments.
- Cut sway braces from perforated angle (not supplied) and install using hex head bolts (not supplied).

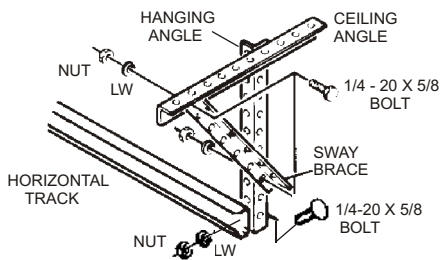


Figure D

Step 3. Raise door

- Raise door and install locking pliers to flat portion of track just below door to prevent door from accidentally closing.

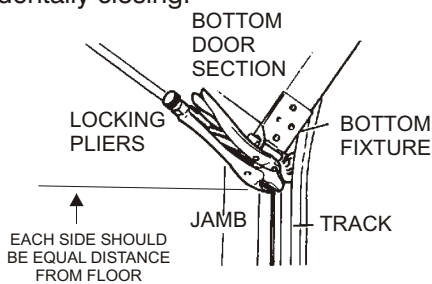


Figure E

Step 4. Attaching the Spring

- Hook one end of each extension spring into each hanging angle.
- Install clevis pulleys on opposite ends of springs.
- For double extension spring installation, refer to Extension Spring Counterbalance Assembly Drawing (page 14).

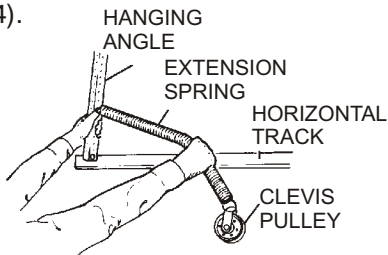


Figure F

Step 5. Retainer Cable Installation

NOTE: Proper installation of safety retainer cables is important. These cables help prevent personal injury or property damage by retaining the broken piece of the spring in cases of extension spring failure.

- Attach looped end of safety retainer cables to hanging angles and thread cables thru springs.
- Remove slack from retainer cables and secure to appropriate holes in headplate.
- See Extension Spring Counterbalance Assembly Drawing, page 14.

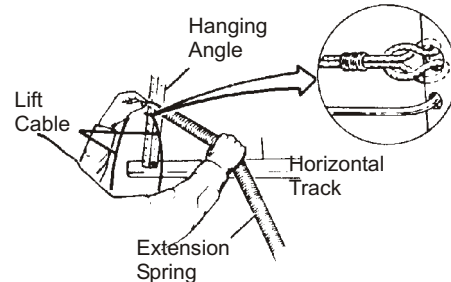


Figure G

Step 6. Cable Installation

- Route lift cables over stud pulleys, around clevis pulleys to holes in headplates.
- Pull equal tension on both springs and secure lift cables to headplates.
- See Extension Spring Counterbalance Assembly Drawing, page 14.

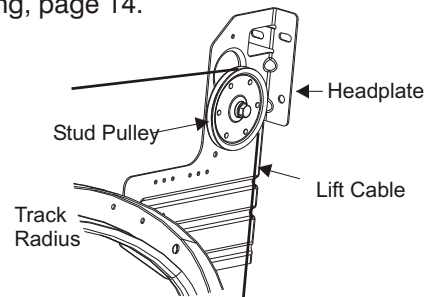


Figure H

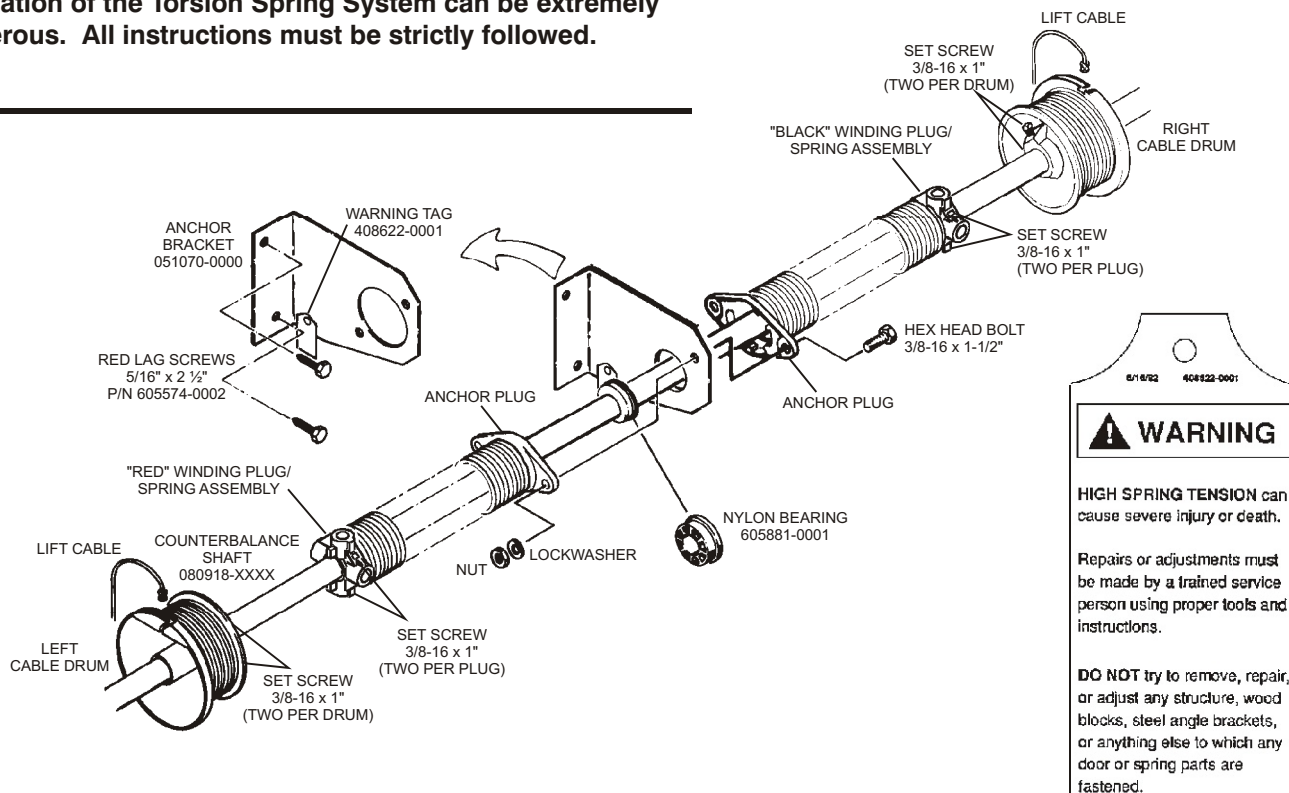
- Remove Locking pliers from tracks.
- Test door operation and re-adjust spring tension if necessary.
- Too much spring tension will not allow door to stay on floor when closed.
- Insufficient spring tension will make the door hard to open.
- Lightly lift cables using 30 wt. Oil. Wipe off excess oil.
- If door is painted after installation, extension springs will have to be readjusted to compensate for the added weight.

Go to Section 10, page 21.

TORSION SPRING INSTRUCTIONS

⚠ WARNING

Installation of the Torsion Spring System can be extremely dangerous. All instructions must be strictly followed.



6/14/22 408622-0001

⚠ WARNING

HIGH SPRING TENSION can cause severe injury or death.

Repairs or adjustments must be made by a trained service person using proper tools and instructions.

DO NOT try to remove, repair, or adjust any structure, wood blocks, steel angle brackets, or anything else to which any door or spring parts are fastened.

DO NOT remove, cover, or paint over this label.

- The drawing above shows all components required to install single and dual torsion springs. Use only those parts supplied with your door.
- Follow the step sequence below for assembly, installation and adjustment.

Step 1. Torsion Spring Pre-assembly

A. Secure anchor plug(s) to anchor bracket.

NOTE:

- Single torsion spring: If spring is "Left" wound it should be located on the right side of the anchor bracket. If spring is "Right" wound it should be located on the left side of the anchor bracket. See Figure A To determine if you have a right wound or left wound spring.
- Dual torsion springs: "Left" wound spring on right side of bracket and "Right" wound spring on left side.

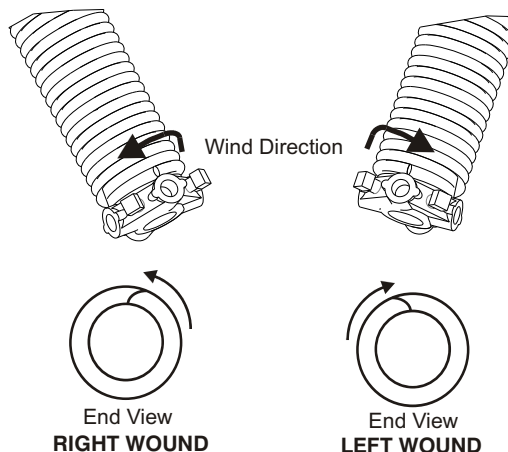
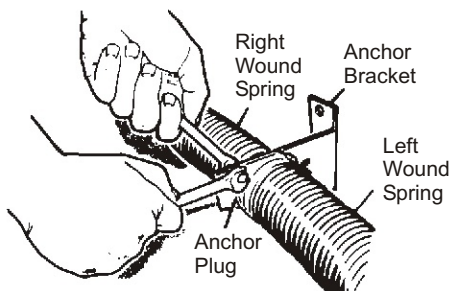


Figure A



TORSION SPRING INSTRUCTIONS

Step 2. Installing Torsion Shaft

- A. Slide torsion spring assembly onto counterbalance shaft.
- B. Install cable drums on shaft. Make sure left and right drums are on correct ends.

NOTE: Drums are marked "R" for right and "L" for left.

- C. Do not secure setscrews at this time.
- D. Lay counterbalance shaft assembly on the top edge of the headplate, then insert one end thru the headplate with largest amount of sideroom.

CAUTION: Do not insert shaft far enough to pull opposite end off its horizontal angle. Go to opposite end and insert shaft through remaining headplate. For double wide doors two people are recommended.

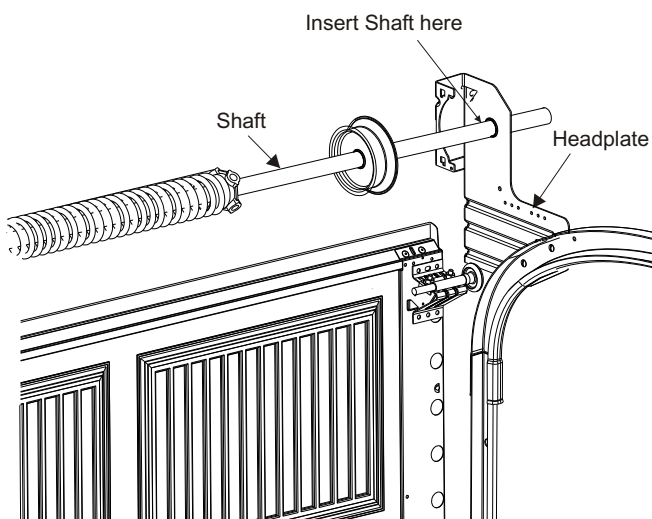


Figure B-1

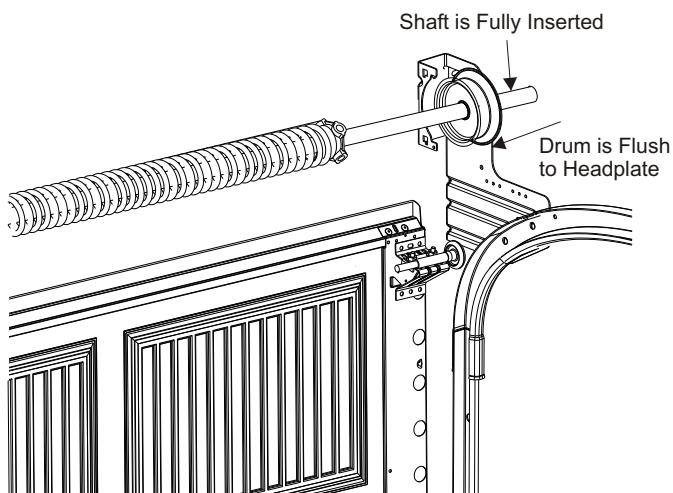


Figure B-2

Step 3. Anchor Bracket Installation

- A. Raise anchor bracket up to header until counterbalance shaft is level or slightly above.

NOTE: Anchor bracket must be mounted so that center of shaft does not sag below level.

- SINGLE SPRINGS - Locate winding plug near centerline of door.
- DUAL SPRINGS - Locate anchor bracket near centerline of door.

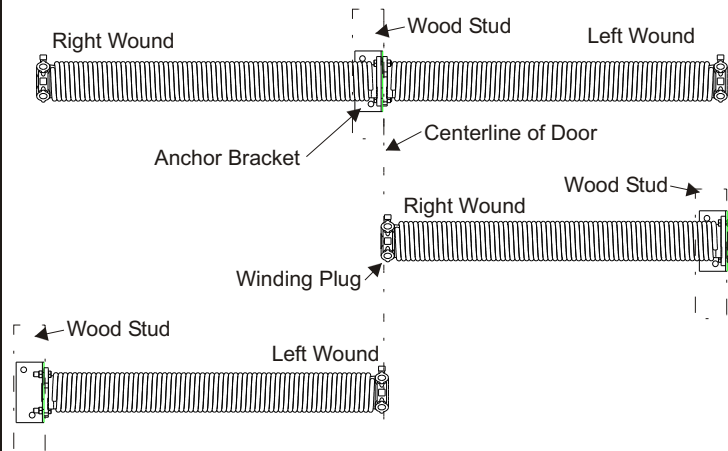


Figure C

- B. Secure anchor bracket to stud using 5/16 x 2-1/2" screws in 3/16" pilot holes.

⚠ WARNING

Anchor brackets will be under high spring tension and must be securely fastened to a structurally sound wood member or the bracket can break loose and cause severe personal injury.

Anchor into wood stud or structurally sound member. For wood studs on top of masonry or steel jambs, use 1-3/4" lags.

TORSION SPRING INSTRUCTIONS

Step 4. Cable Attachment - Left Side

- A. Route left side lift cable up to cable drum and insert into cable slot.
- B. Wind lift cable onto cable drum until all slack is removed.
- C. Position left cable drum against left headplate.
- D. Tighten set screws on drum into shaft and install locking pliers on shaft with handles against ceiling or header.

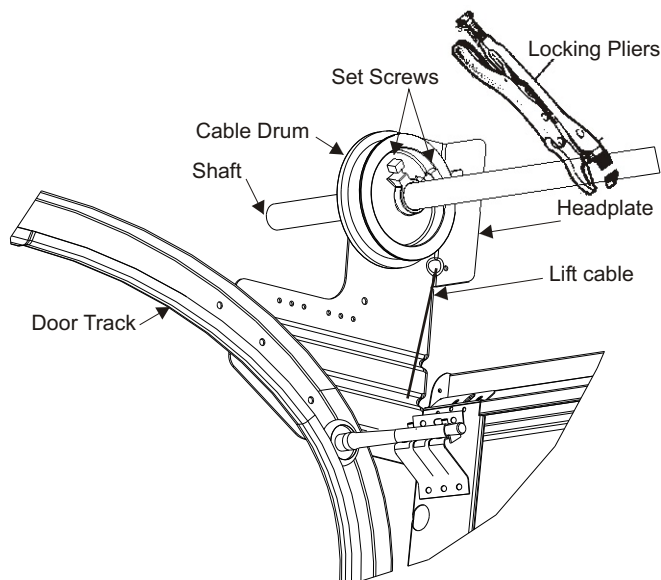


Figure D

Step 5. Cable Attachment - Right Side

- A. Route right side lift cable up to cable drum and insert into cable slot.
- B. Wind lift cable onto cable drum until all slack is removed.
- C. Position right cable drum against right headplate.
- D. Tighten set screws on drum into shaft.

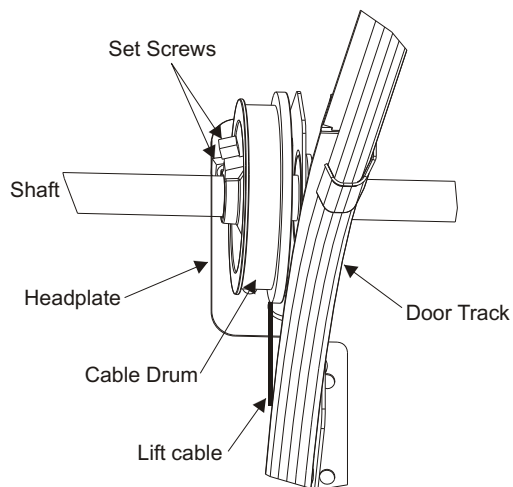


Figure E

Step 6.

- A. Check the following before attempting to wind torsion springs:

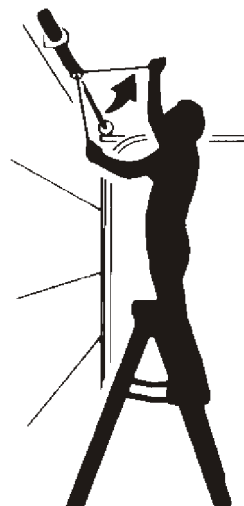
- Fasteners secure on bottom fixtures.
- Lift cables secure at bottom fixtures.
- Lift cables routed unobstructed to cable drums.
- Lift cables correctly installed and wound onto cable drums.
- Lift cables are taut.
- Cable drums are against headplates and setscrews are tight.
- Torsion spring(s) are installed correctly.

⚠ WARNING

Winding torsion springs is an EXTREMELY DANGEROUS procedure and should be performed by a trained technician or a mechanically experienced person using proper tools and following these instructions.

Should you elect to perform this procedure:

1. Read winding instructions thoroughly.
2. Make sure you understand the procedure.
3. Follow the instructions carefully.
4. Wear safety glasses.
5. Use only winding bars described in the "Tools Needed" section on page 4. DO NOT SUBSTITUTE with screwdrivers, pipe, etc. Other tools may fail and cause serious personal injury.
6. Door must be closed when winding or making any adjustments to torsion spring(s).
7. Sound footing is required. Before attempting to wind torsion spring(s) make sure stepladder is sturdy and positioned correctly.



NOTE: Clamp locking pliers to flat portion of door track just above door. This will prevent the door from rising quickly once torsion spring winding is complete.

TORSION SPRING INSTRUCTIONS

Step 7.

- A. Draw a chalk line horizontally along the center of the spring coil. As spring is wound, chalk mark will create a spiral. These can be counted to determine the number of turns on the spring.

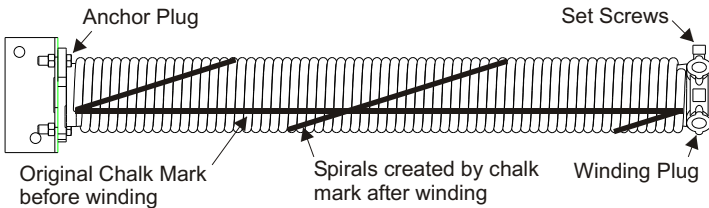


Figure F

Step 8.

- A. Insert winding bar into winding plug and rotate plug 1/4 turn upward.
B. Insert second winding bar into plug, take up torque load and remove first winding bar.

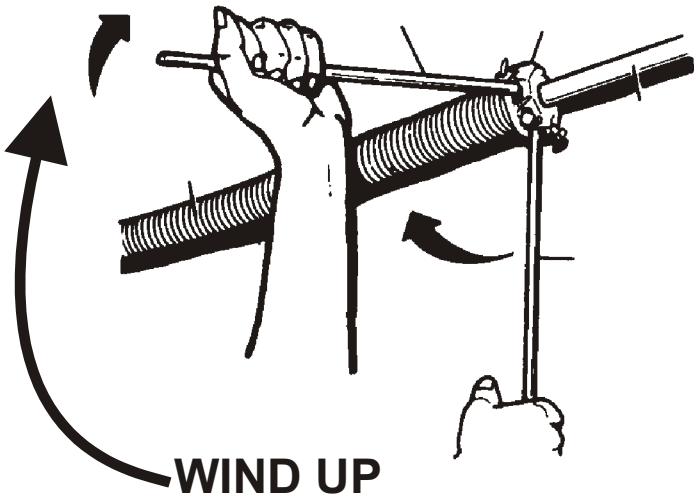


Figure G

⚠ WARNING

DO NOT remove a winding bar from winding plug until a second bar has been fully seated in plug and torque load has been assumed.

- C. Continue winding torsion spring until spring is wound the required number of turns.

6 Foot high doors - 7-1/8 turns
7 Foot high doors - 8-1/4 turns
8 Foot high doors - 9-1/8 turns

Step 9.

- A. After winding spring, keep winding bar fully seated in plug.
B. Secure winding plug setscrews and remove winding bar.
C. Remove locking pliers from counterbalance shaft.
D. If dual torsion springs are used, wind remaining spring the same as first.
E. Remove locking pliers from door track.

9. INSTALLING THE BACKHANG

⚠ WARNING

If horizontal tracks are set too far apart at rear, door may fall from tracks resulting in serious personal injury. Raise door slowly so that distance between tracks can be checked.

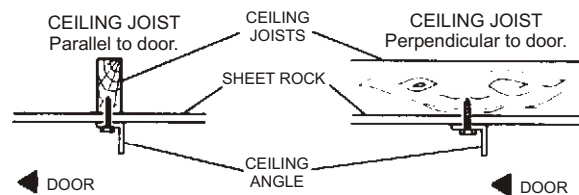
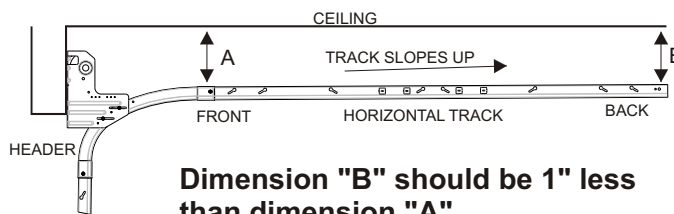


FIGURE 9-1



Dimension "B" should be 1" less than dimension "A".

1. Raise the Door slowly until it is halfway into the opening. Watch the top track rollers and horizontal tracks.
2. Clamp the door in place using vise grips.
3. Check the spacing between ends of door and tracks. Maintain a 1" clearance when setting the backhang.

INSTALLING CEILING ANGLE

4. Using a stud finder, locate ceiling joists nearest rear end of horizontal tracks. NOTE: Figure 9-1 should help to locate ceiling joists.
5. Cut two lengths as appropriate of perforated angle for ceiling angles (not supplied).
6. Secure ceiling angles to ceiling joists using lag screws (not supplied).

FIGURE 9-2

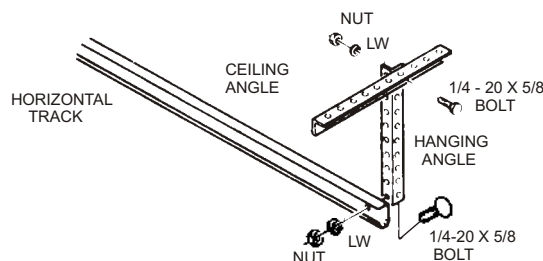


FIGURE 9-3

INSTALLING VERTICAL ANGLE

7. Measure distance from ceiling to horizontal tracks at front and rear.
NOTE: Rear of tracks should be elevated 1" higher than front. (See Figure 9-2)
8. Cut vertical hanging angles to length required from perforated angle (not supplied).
9. Secure hanging angles to ceiling angles and track using hex head bolts (not supplied). (See Figure 9-3)
DO NOT install sway braces at this time. Go to the next step first.

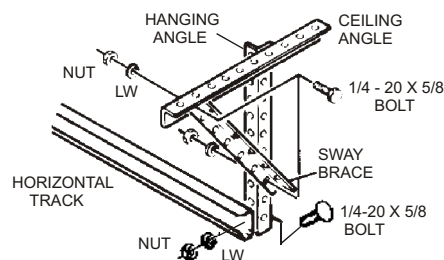


FIGURE 9-4

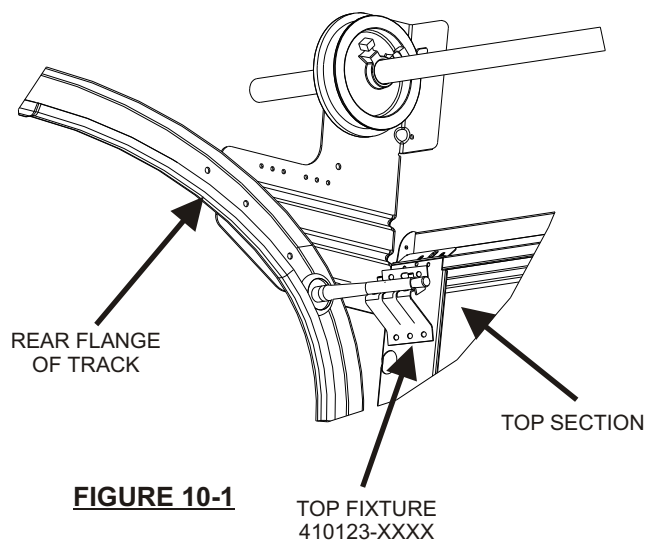
INSTALLING SWAY BRACES

10. Check spacing between ends of door and tracks. Maintain 1" clearance.
11. If tracks are set too far apart, lower door and make necessary adjustments.
12. Cut sway braces from perforated angle (not supplied) and install using hex head bolts (not supplied). (See Figure 9-4)

10. FINAL ADJUSTMENTS

1. Raise door to check spring tension.
 - Too much spring tension will not allow door to close fully.
 - Insufficient spring tension will make door hard to open.
2. If Necessary, Readjust spring tension as required.
Observe all previous WARNINGS.
3. For Torsion or Extension Springs, Lightly oil springs and lift cables using 30 wt. oil. Wipe off any excess oil.
4. If door is painted after installation, springs will have to be readjusted to compensate for the added weight.

5. Adjust stop molding against outside face of door and secure.



6. Adjust top fixtures until top section is flush against stop molding and track rollers are against rear flange of track.

COMPLETION CHECK LIST

• Make sure all fasteners are secure at:

- Bottom Fixtures
- Roller Holders
- Top Fixtures
- Struts (if required)
- Jamb Brackets
- Hanging Angles
- Track Bolts

INSTALLING OPTIONAL ACCESSORIES

DRAWBAR PLATE (Required with Installation of Operator)

1. Center the Drawbar plate on the Center Stile in the middle of the Door or wherever the Operator will be installed. For Insulated doors install the drawbar plate at the center of the door.
2. Install the Drawbar plate using Screws provided at the Four corner locations.
3. If a Strut is installed on the Door, the drawbar plate should be attached underneath the strut.
4. Drawbar plate is required on steel back insulated doors (323, 329). It is optional on a pan door.

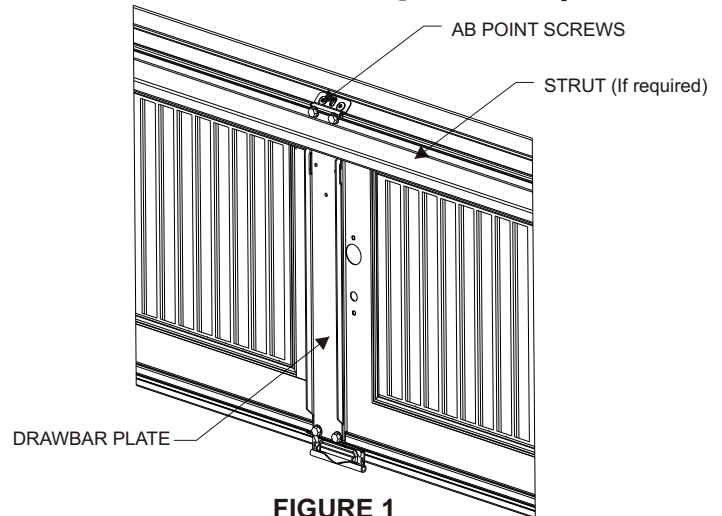


FIGURE 1

LOCK INSTALLATION

1. Center lock rod in track cutout. Retract lock rod and position so that end of lock rod extends 1/2" beyond edge of door section in unlocked position. See Figure 2.
2. Mark 4 holes indicated and drill 1/8" holes.
3. Attach lock assembly with four 1/4"-14 x 5/8" self-extruding screws.

For optional lock attachment, see page 23.

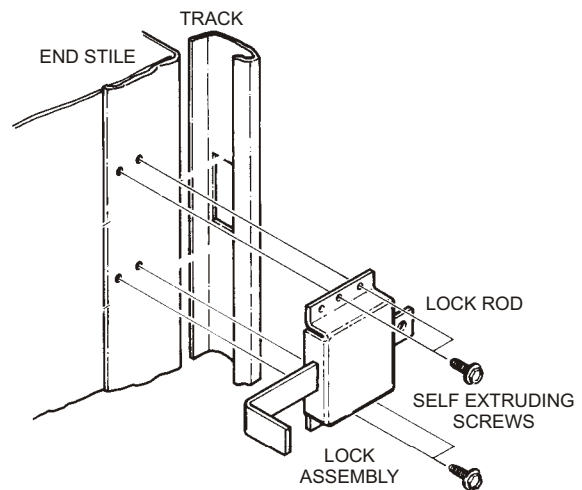


FIGURE 2

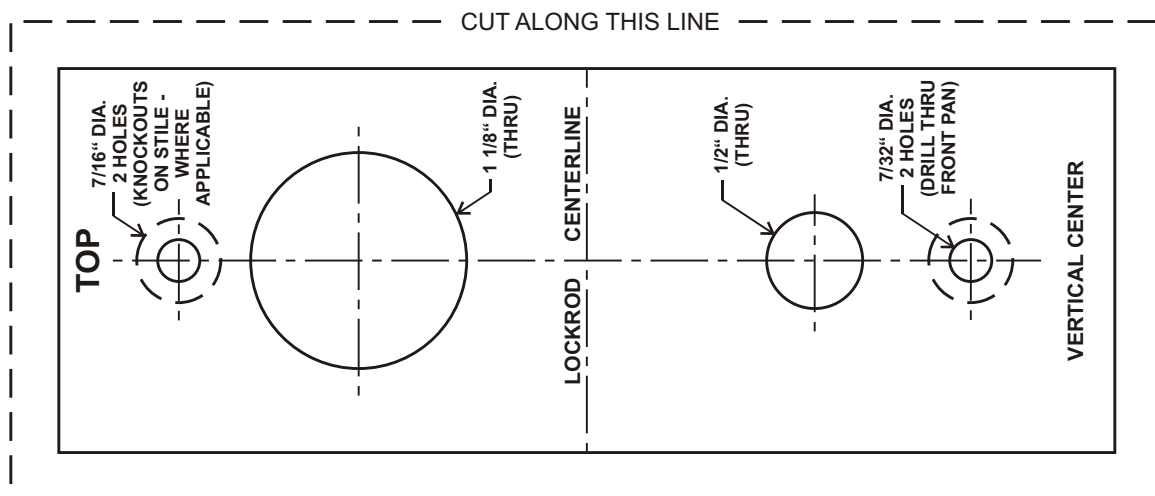


FIGURE 3

LOCK SECTION HOLE PATTERN TEMPLATE

OPTIONAL LOCK INSTALLATION INSTRUCTIONS

CAUTION

If electric operator is installed later, lock should be made inoperative.

LOCK INSTALL - Non-Insulated Doors

Lock Kits are pre-packaged with the specific hardware and fasteners required for the various types of doors.

Lock installation, on all types of doors, is very much the same procedure. Variations generally occur in the type of fasteners used.

Cut and use the Hole Pattern Template (Figure 3, page 22) from this manual as a guide for drilling the holes on the stile. Center punch all holes for drilling accuracy.

Lock handle assembly may be mounted in one of two (2) ways:

- (A) Handle assembly positioned as shown in Figure 4 where lockcase bar will have to be moved to right (locked).
- (B) Handle assembly mounted with handle held up in unlocked position. NOTE: Masking tape may be helpful to hold handle, screws and lock escutcheon to section while attaching lockcase.

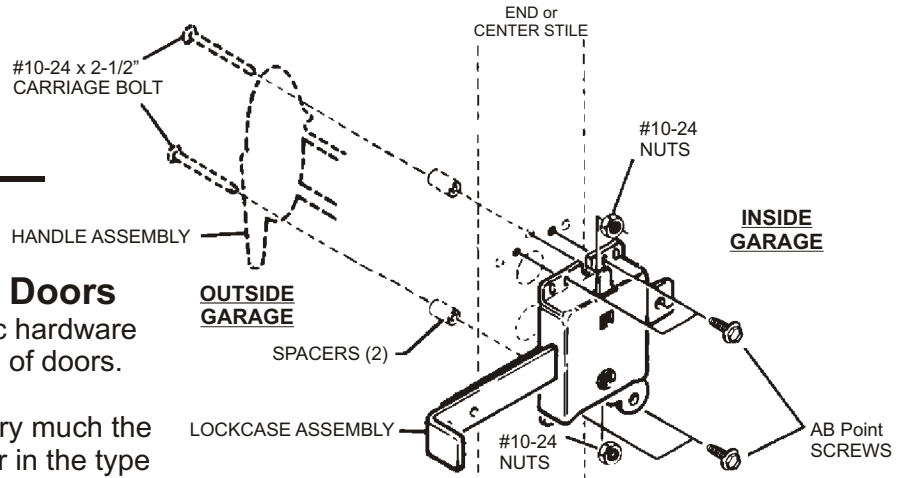


FIGURE 4

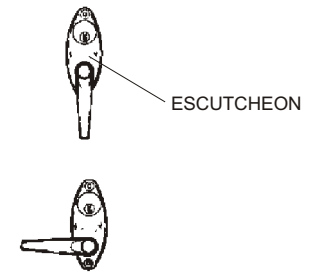
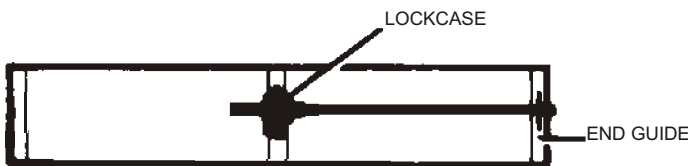


FIGURE 5

LOCKROD INSTALLATION - Non-Insulated Doors

- Secure lockrod(s) to lockcase assembly.
- Install guide(s) on lockrod(s).
- Position guide(s) on end stile(s). Align with slots in track.
- Drill mounting holes in end stile(s) per fastener requirements.
- Secure guide(s) to end stile(s).



8 FOOT DOOR SHOWN, LOCKCASE TO BE LOCATED ON CENTER STILE CLOSEST TO EDGE OF DOOR

FIGURE 6

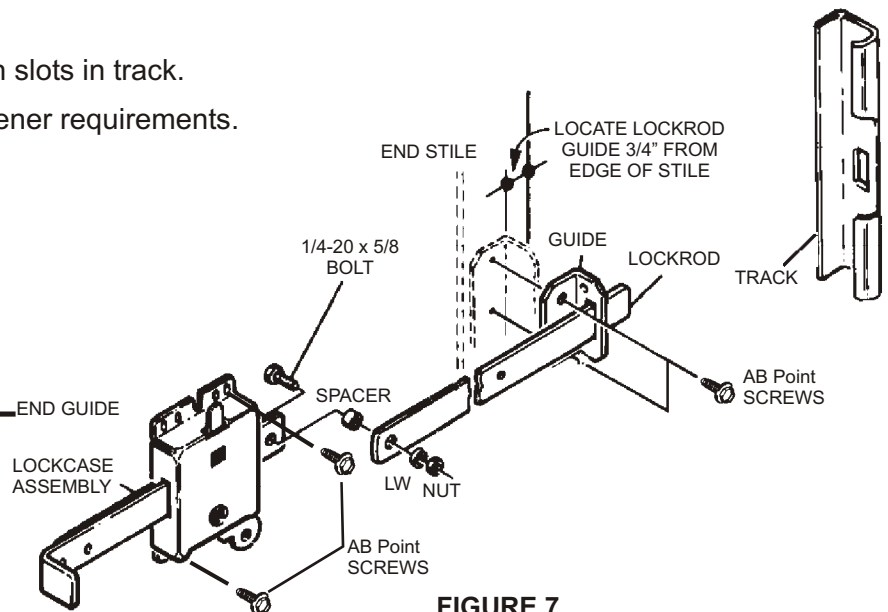


FIGURE 7

OPTIONAL LOCK INSTALLATION INSTRUCTIONS

NOTE: If electric operator is installed later, the pull down rope and lock rod should be removed.

The lock kit is pre-packaged with the specific hardware and fasteners required for installation.

Figure 8 shows the lock mounting location for this door. Lock should always be installed on second section (from ground).

"X" = Between 1st and 2nd Embossment

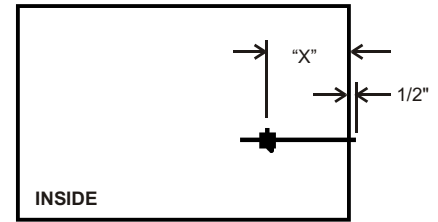


FIGURE 8

LOCK INSTALLATION (INSULATED)

Lock Case Assembly and Lock Rod should be assembled together prior to installation (See Figure 9).

1. Cut the Hole Pattern Template (Figure 3, page 22) from this manual. Position and tape the Template so that the Lock Rod Centerline is on a horizontal plane even with the Lock Rod Keeper Hole (in the track) and the vertical centerline is positioned between the 1st and 2nd embossment. Center Punch all holes for drilling accuracy.
2. Drill the specified through holes according to the Template. Use a hole saw to make the 1 1/8" dia. Lock cylinder hole. With a 7/16" bit, redrill the top and bottom holes through the inside face ONLY. Insulation should be cleared from all holes. Install Spacers in the top and bottom holes.
3. Place Lock Handle through holes from outside face of door. Install two 10-24 x 2 1/4" bolts through the Lock Handle Escutcheon and secure with tape. Bolts may need to be cut after installation. NOTE: Lock Handle Assembly may be installed so that handle is either down or to the left in the unlocked position (See Figure 10).
4. Place the Lock Case Assembly over the two Lock Handle mounting bolts protruding through the inside door face. Secure Lock Case Assembly to Handle with two 10-24 nuts. Install four 8-32 x 1/2" screws at the corner holes of the Lock Case.

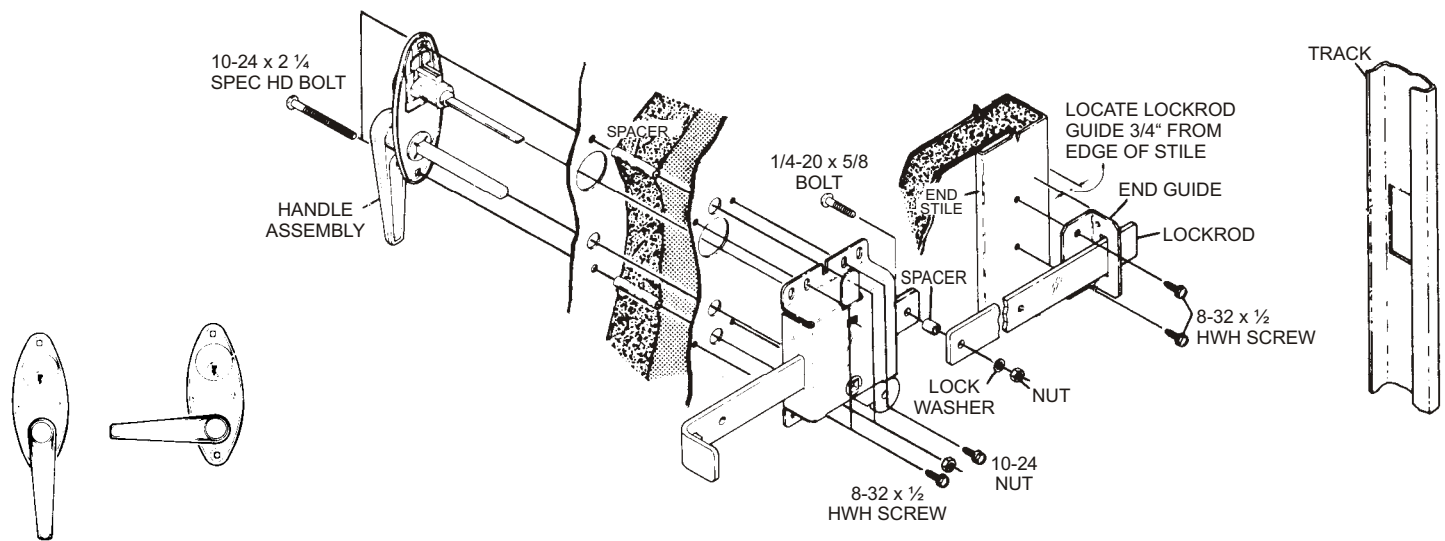


FIGURE 10

FIGURE 9

SNAP LATCH INSTALLATION INSTRUCTIONS

HANDLE AND LOCK ACTUATOR ASSEMBLY INSTALLATION

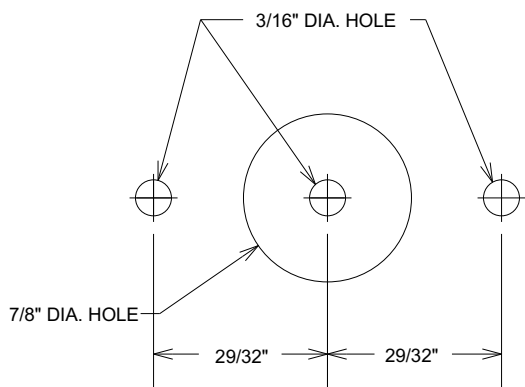
NOTE: To ease installation, the drilling operation and attachment of the Lock Actuator and "T" Handle Assemblies should be done before stacking the lock section in the opening.

1. At the appropriate height in lock section (2nd section from the floor, see Figure 4), drill three 3/16" pilot holes at the center of the door completely through the section from the inside of the door (See Figure 3).
2. Drill a 7/8" diameter hole at the center pilot hole through door face only. Use template on Figure 2, attached to outside of doors.
3. Drill 7/16" diameter holes (3) at the location of the 3/16" pilot holes on the inside of the door (See Figure 3).
4. Rotate "T" Handle Assembly and insert into the outside of the door section. Insert the two 2 1/2" long carriage bolts. Insert 3/8" O.D. spacer over carriage bolts from the backside of door (inside) (See Figure 5).
5. Place Lock Actuator Assembly on the inside of the door over the "T" Handle post, spacers and carriage bolts with inside release handle "up". Attach nuts and tighten (See Figure 6).
6. Cut off end of carriage bolts if necessary.



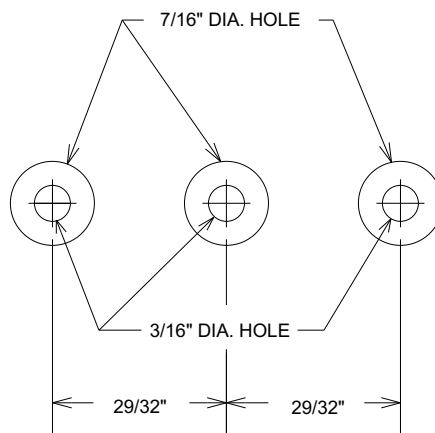
Snap Latch Lock Kit

FIGURE 1



DRILLING TEMPLATE
OUTSIDE OF DOOR

FIGURE 2



DRILLING TEMPLATE
INSIDE OF DOOR

FIGURE 3

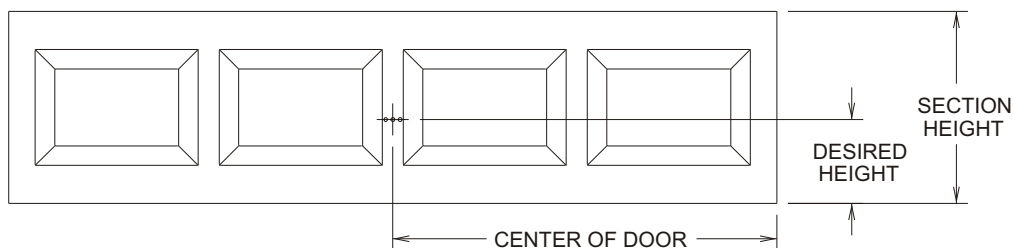


FIGURE 4

LOCK SECTION (2nd SECTION)

SNAP LATCH INSTALLATION INSTRUCTIONS

SNAP LATCH LOCK INSTALLATION

7. Assemble left-hand side Snap Latch Lock (See Figure 9).
 - a) Insert the left-hand side Snap Latch Striker(See Figure 7) into the Snap Latch Lock base through the lower square slot and through the middle square slot.
 - b) Hook the open end of the spring in the loop on the lock base and hook the other end on the hook on the Striker slide.
8. Assemble right-hand side Snap Latch Lock (See Figure 9).
 - a) Repeat Step 7.
9. Attach Latch Keeper to each vertical track (use the keyhole slots just above the pair of knockouts). Secure with a track bolt and nut (See Figure 10).
10. Align Snap Latch Striker slide in the middle of the Latch keeper square slot. Align the Snap Latch Lock Assembly flush with the side of the door. Secure with AB point screws (See Figure 11).
11. Insert the crimp lug end of the cable in the slot of the Striker slide (See Figure 12).
12. Thread cable through Lock Actuator. Insert cable in the hole on the lever pointing down first. Then, insert the cable on the handle pointing up (See Figure 6).
13. Put clamp (bolt, nut and u-washer) on Striker slide through the slot. Adjust cable tension. Loop cable on clamp and tighten bolt (See Figure 13).
14. Cut off any excess cable if necessary.

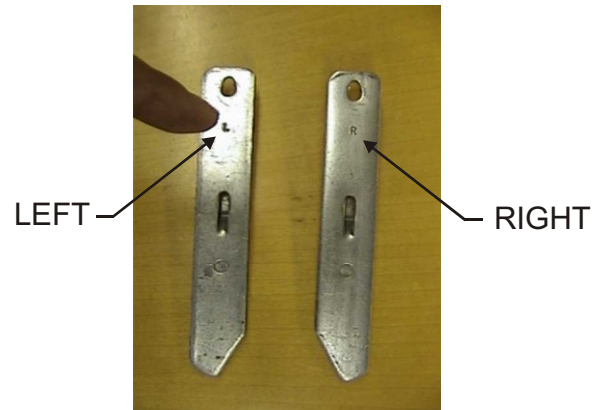


"T" Handle Assembly
FIGURE 5

INSIDE RELEASE
HANDLE
(UP POSITION)



Lock Actuator Assembly
FIGURE 6



Striker Slides
FIGURE 7



Snap Latch Lock Base
FIGURE 8

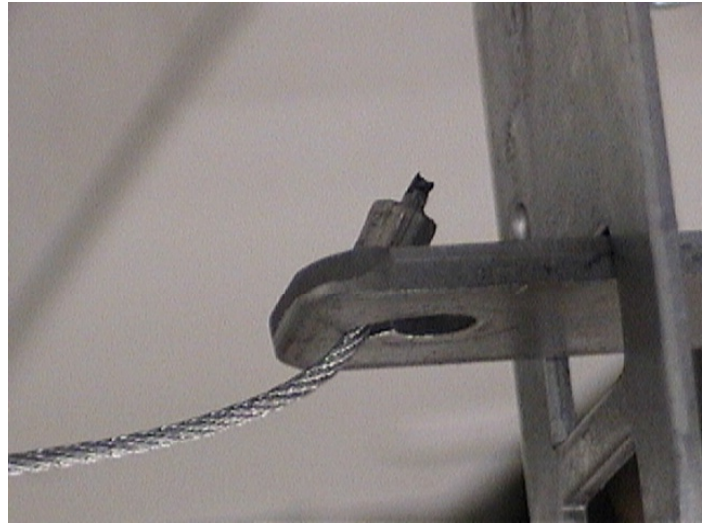


Snap Latch Assembly (left-hand)
FIGURE 9

SNAP LATCH INSTALLATION INSTRUCTIONS



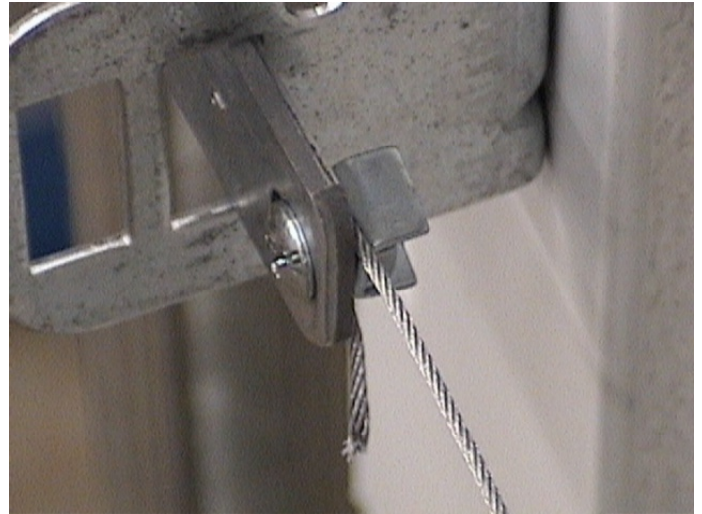
Latch Keeper
FIGURE 10



Crimp slug end of cable
FIGURE 12



Installed Snap Latch Lock
FIGURE 11



Clamp end of Cable
FIGURE 13

STEP PLATE INSTALLATION (Non-Insulated Sections)

1. Install Step-Plate Handle Kit (when furnished) according to the instructions below. Locate within 2 feet of the side of the door near where the lock assembly (See page 22 or 23) will be attached. For Insulated instructions see bottom of this page.
 - A. Non-Insulated door Sections (See Figure 11)
 1. The Step-Plate should be positioned approximately one foot from the end of the door and below the lock assembly.
 2. Slip the Step-Plate between the back rail and the door section.
 3. Using the Step-Plate as a guide, drill two 1/4" holes through the door section.
 4. From the inside of the door, Insert 1/4-20 x 1/2" bolts through the step plate, door section and Step-Lift handle. Secure using the 1/4" Lock washers and cap nuts provided.
 5. Drill two (2) 3/16" holes through the Step-Plate and door panel back leg.
 6. Secure Step-Plate to the back rail using two 1/4-14 x 5/8" AB Point screws provided. (See Figure 12 for finished product)

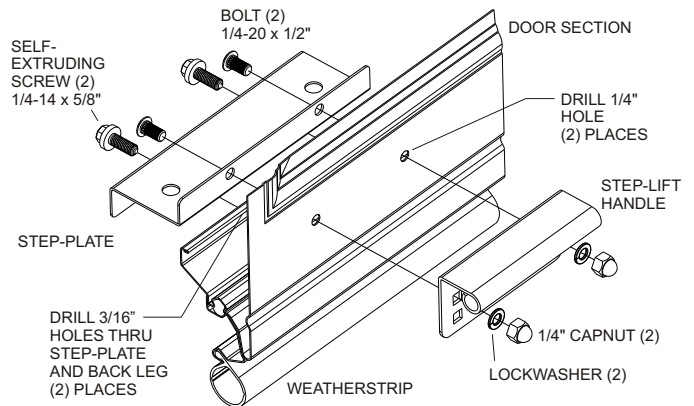


FIGURE 11 - EXPLODED VIEW

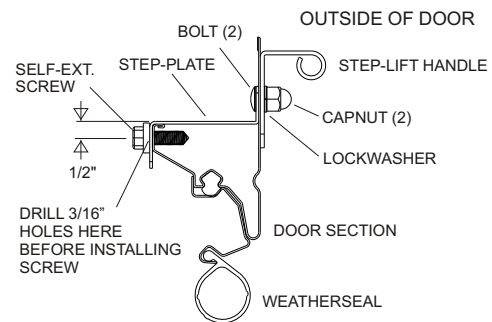


FIGURE 12 - ASSEMBLED VIEW

STEP PLATE INSTALLATION (Insulated Sections)

1. Install Step-Plate Handle Kit (when furnished) according to the instructions below. Locate within 2 feet of side of door near where the lock assembly (See page 22 or 24) will be attached. For Non-insulated instructions see above.
 - A. Insulated door Sections (See Figure 13)
 1. Drill two (2) 1/4" diameter holes through the door using holes in step-lift handle as a guide.
 2. Drill two (2) 3/8" diameter holes through inside of door only using 1/4" diameter holes as a pilot.
 3. Insert carriage bolts through outside handle and door.
 4. Slide spacers over carriage bolts from the inside until spacers are flush with the inside of the door.
 5. Secure handles to door with lockwashers and nuts. (See Figure 14 for finished product)

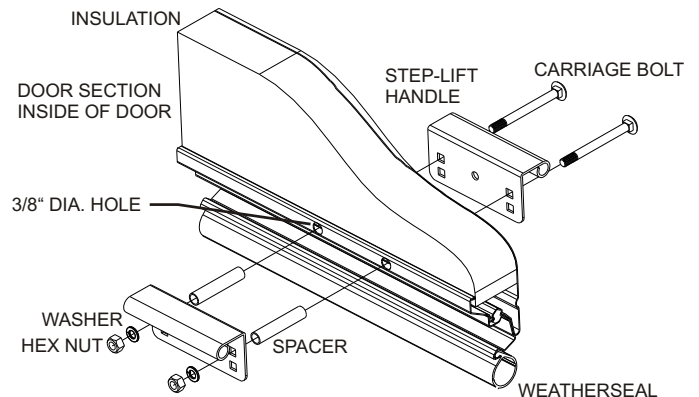


FIGURE 13 - EXPLODED VIEW

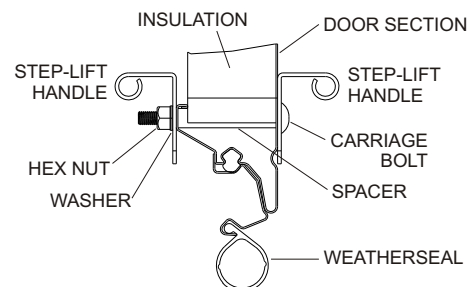


FIGURE 14 - ASSEMBLED VIEW

INSTALLING TRACK OPTIONS

TRACK ANGLE SUPPORT

1. Install Angle to the side of the track with the short leg toward the outside and non-embossed slot on the flag bracket.
2. Secure the angle to the flag bracket and track using track bolts and nuts.

WEIGHT LIMITS FOR V12 STANDARD LIFT HORIZONTAL							
TRACK GAGE	MATERIAL THICKNESS	ANGLE SIZE	LENGTH	7' HIGH		8' HIGH	
				MIN (>)	MAX	MIN (>)	MAX
16	0.057	NONE			100lbs		
14	0.068	NONE		100lbs	190lbs		162lbs
16	0.057	1.00" x 1.75"	35"	190lbs	230lbs	162lbs	200lbs
14	0.068	1.00" x 1.75"	35"	230lbs	275lbs	200lbs	235lbs
14	0.068	1.00" x 1.75"	92"	275lbs	400lbs		
14	0.068	1.00" x 1.75"	104"			235lbs	342lbs
14	0.068	1.38" x 2.38"	92"	400lbs	500lbs		
14	0.068	1.38" x 2.38"	104"			342lbs	500lbs

*18 GAGE (0.047") IS TO BE USED FOR VERTICAL TRACK ONLY



FIGURE 2

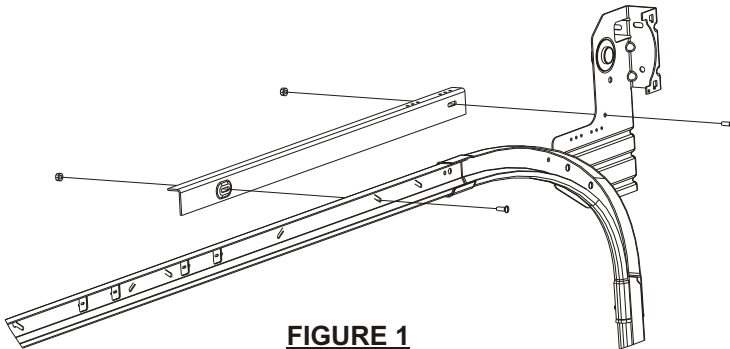


FIGURE 1

LOW HEADROOM TRACK

1. Vertical track, cut 2" from the top of the straight track pieces.
2. Vertical track should be assembled the same as in Section 1.
3. Assemble the low headroom headplate to the transitional curve using two track bolts and nuts from the inside of the track through the top round holes on the curve (loosely tighten). (See Figure 4)
4. Install the transitional curve and headplate assembly on the vertical track assembly by sliding the vertical track into the swaged end of the curve track. (See Figure 5)
5. Secure the transitional curve and the vertical with a track bolt and nut from inside the track and through the swaged end of the curve.
6. Install vertical track and headplate to the wall. Refer to Section 6 for Details.

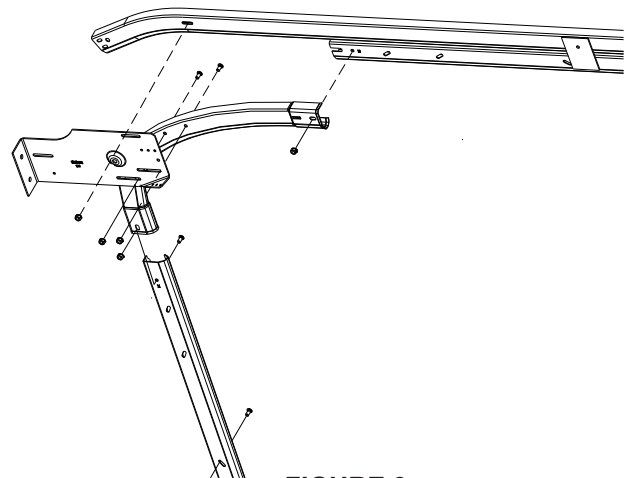


FIGURE 3

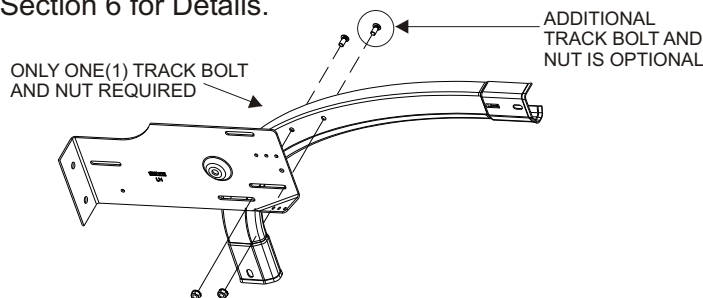


FIGURE 4

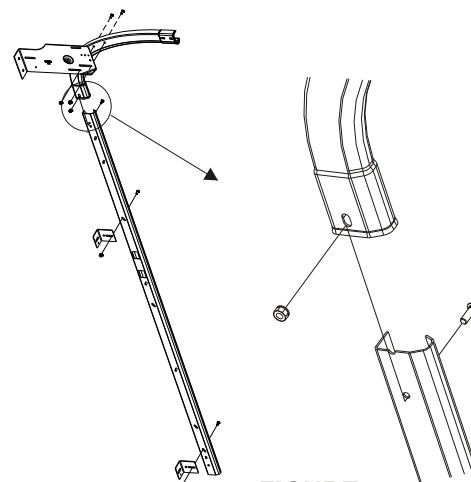


FIGURE 5

INSTALLING TRACK OPTIONS

UPPER HORIZONTAL TRACK

1. Install Horizontal Track into the transitional curve. Refer to Section 7.

NOTE: Secure the track and curve using a track bolt and nut.

2. Secure the upper horizontal track to the headplate using a track bolt and nut from the inside of the track through the headplate. (See Figure 6)

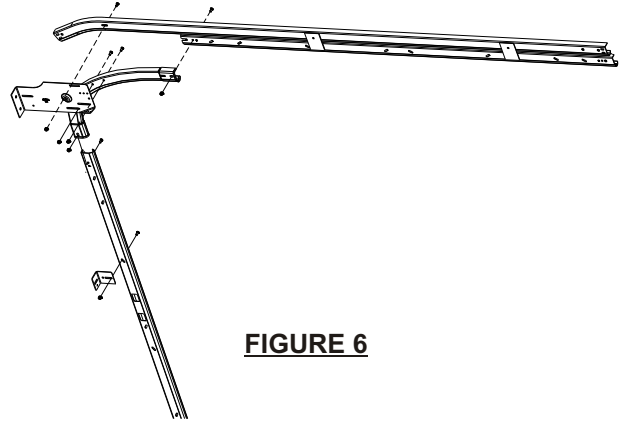


FIGURE 6

HEADPLATE INSTALLATION

LOW HEADROOM FRONT - STANDARD SPRING

1. Install the headplate on the inside of the low headroom headplate with a 3/4" of overlap between the headplates. (Figure 7)
2. Secure the headplate to the wall with two lag screws.

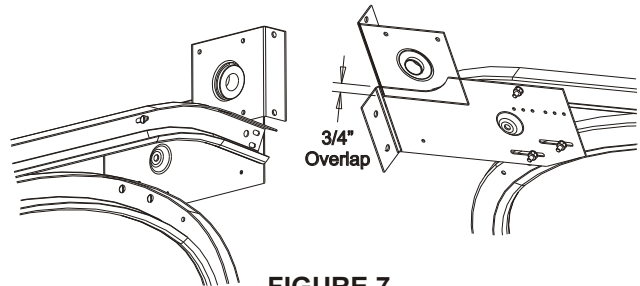


FIGURE 7

LOW HEADROOM REAR - STANDARD SPRING

1. Already pre-assembled, no installation required.

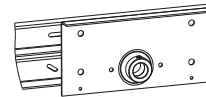


FIGURE 8

LOW HEADROOM EXTENSION SPRING

1. Follow the Extension Spring installation instructions for standard track on page 14. However, in Step 4A hook one end of each extension spring into each sway brace or ceiling angle. Space the spring approximately 3 inches from the hanging angle in order to clear the track bolts on the horizontal tracks. (See Figure 9)

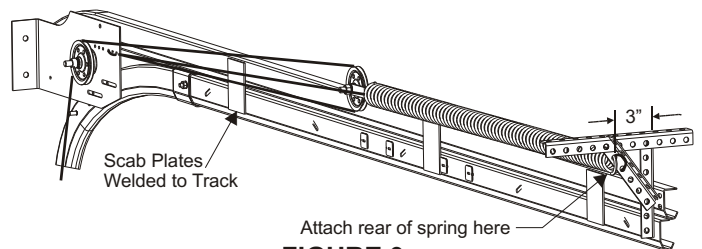


FIGURE 9

LIMITED WARRANTY

The authorized distributor of OVERHEAD DOOR CORPORATION products whose name appears below ("Seller") warrants the product sold under this warranty to be free from defects in material and workmanship under normal use and service. This warranty extends only to the original consumer ("Buyer"), and expires one year after the date of installation.

Seller's sole obligation under this warranty is limited to repairing or replacing any parts which shall be determined by Seller to be defective, and is conditioned upon Buyer giving notice of any such defect to Seller within the warranty period. If Seller concludes that repair or replacement is necessary, Seller will commence work within a reasonable time after the decision to repair or replace is made.

This warranty does not apply to any product which has been altered or repaired by any person not authorized by the Seller, or which has been subjected to misuse, neglect or accident.

THERE IS NO WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER IMPLIED WARRANTY BEYOND THE ONE-YEAR PERIOD DESCRIBED ABOVE. SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES NOR FOR ANY FURTHER LOSS WHICH MAY ARISE IN CONNECTION WITH ANY CLAIM.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Seller has not established any informal dispute settlement procedure of the type described in the Magnuson-Moss Warranty Act. Claims under this warranty must be made in writing to the Selling Distributor whose name and address appears below within the applicable warranty period. (Proof of purchase and identification as the original purchaser may be required.)

Inquiries to the Seller concerning this warranty should be directed to:

