

INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL

Models 8000 and 8200

RESIDENTIAL
LOW HEADROOM

EXTENSION

PLEASE DO NOT RETURN THIS PRODUCT TO
THE STORE

If you need assistance, please call 1-866-569-3799 (press Option 1) and follow the prompts to contact a customer service representative. They will be happy to handle any questions that you may have.

IMPORTANT NOTICES!

Carefully read and fully understand the enclosed instructions before installing and operating the garage door.

Pay close attention to all warnings and notes.

After installation is complete, fasten this manual near garage door for easy reference.

This Installation document is available at no charge from:

- Your local Wayne Dalton Sales Center
- Online at **www.Wayne-Dalton.com**
- By mailing a request to: Wayne Dalton, a division of Overhead Door Corporation, P.O. Box 67, Mt. Hope, OH., 44660

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Important Safety Instructions

DEFINITION OF KEY WORDS USED IN THIS MANUAL:

DANGER

INDICATES A HAZARDOUS SITUATION THAT, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

WARNING

INDICATES A HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

CAUTION

INDICATES A HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.

NOTICE

INDICATES INFORMATION CONSIDERED IMPORTANT, THAT IT IS NOT RELATED TO INJURY, BUT MAY RESULT IN PROPERTY DAMAGE.

IMPORTANT: Required key step for proper door operation.

NOTE: Information only.

Installation:

WARNING

INSTALLING THIS DOOR PROPERLY REQUIRES THE USE OF SPECIAL TOOLS AND TECHNIQUES. ALWAYS USE THE CORRECT TOOLS OR TECHNIQUES WHEN PERFORMING INSTALLATION. FAILURE TO USE PROPER TOOLS OR TECHNIQUES OR ADHERE TO SAFETY MESSAGES, COULD RESULT IN SEVERE OR FATAL INJURY.

DANGER

EXTREME CAUTION SHOULD BE USED WHEN WINDING SPRINGS AS FAILURE TO FOLLOW THE INSTRUCTIONS OR USE THE PROPER TOOLS CAN LEAD TO SERIOUS INJURY TO PERSONS AND PROPERTY. BEFORE ATTEMPTING TO WIND THE SPRING, MAKE SURE YOU HAVE READ AND UNDERSTAND THE INSTRUCTIONS. IF YOU ARE UNCLEAR ON ANY ASPECT OF THE INSTALLATION PROCEDURES, YOU SHOULD CONSULT A TRAINED DOOR SYSTEMS TECHNICIAN.

- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING INSTALLATION. IF YOU ARE IN QUESTION ABOUT ANY OF THE PROCEDURES, DO NOT PERFORM THE WORK. INSTEAD, HAVE A TRAINED DOOR SYSTEMS TECHNICIAN DO THE INSTALLATION OR REPAIRS.
- Wear protective gloves and eye protection during installation, to avoid possible injury.
- **DO NOT** install door in windy conditions. Door could fall during the installation, causing severe or fatal injury.
- Doors 12'-0" wide and larger should be installed by two persons, to avoid possible injury.
- On electrically operated doors, pull down ropes must be removed and locks must be removed or made inoperative in the open (unlocked) position, unless electrical interlocks are installed.
- Impact guns are not recommended. When installing 5/16" lag screws using an electric drill/ driver, the drill/ drivers clutch must be set to deliver no more than 200 in-lbs of torque. Fastener failure could occur at higher settings.
- Check with your local building official for wind load code requirements and building permit information.
- For windloaded doors, the wind performance is achieved via the entire door system and component substitution is not authorized without express permission by the manufacturer.

CAUTION

IF ANY PART OF THE DOOR IS TO BE INSTALLED ONTO PRESERVATIVE-TREATED WOOD, PTFE-COATED OR STAINLESS STEEL FASTENERS MUST BE OBTAINED AND USED. REPLACEMENT FASTENERS MUST BE OF AT LEAST EQUAL STRENGTH AND SIZE AS ORIGINAL FASTENERS. IF THE ORIGINAL FASTENER WAS RED-HEAD, THE REPLACEMENT FASTENER MUST BE RED-HEAD ALSO. CONTACT WAYNE DALTON FOR FASTENER STRENGTH VALUES IF NEEDED.

Operation:

⚠ WARNING

TO PREVENT DEATH OR SERIOUS INJURY WHILE OPERATING THE DOOR, ENSURE THE PATH OF THE DOOR IS NOT OBSTRUCTED BY ANY PERSON OR OBJECT AND ADHERE TO THE FOLLOWING SAFETY MEASURES.

- Operate door only when it is properly adjusted and free from obstructions.
- If a door becomes hard to operate, inoperative or is damaged, immediately have necessary adjustments and/ or repairs made by a trained door system technician using proper tools and instructions.
- **DO NOT** stand or walk under a moving door, or permit anybody to stand or walk under an electrically operated door.
- **DO NOT** place fingers or hands into open section joints when closing a door. Use lift handles/ gripping points when operating door manually.
- **DO NOT** permit children to operate garage door or door controls. Severe or fatal injury could result should the child become entrapped between the door and the floor.
- Visually inspect door and hardware monthly for worn and or broken parts. Check to ensure door operates freely. Test electric opener's safety features monthly, following opener manufacturer's instructions.
- **NEVER** hang tools, bicycles, hoses, clothing or anything else from horizontal tracks. Track systems are not intended or designed to support extra weight.

Potential Hazard	Effect	Prevention
 <p>Moving door</p>	<p>⚠ WARNING</p> <p>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 Opener.</p> <p>Do NOT operate a Door that jams or one that has a broken spring.</p>
 <p>High tension spring</p>	<p>⚠ DANGER</p> <p>Will result in Death or Serious Injury</p>	<p>Do NOT try to remove, install, 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>Installations, repairs and adjustments must be done by a trained door system technician using proper tools and instructions.</p>

IMPORTANT: RIGHT and LEFT hand is determined inside the building looking out.

REMOVING AN EXISTING DOOR AND PREPARING THE OPENING

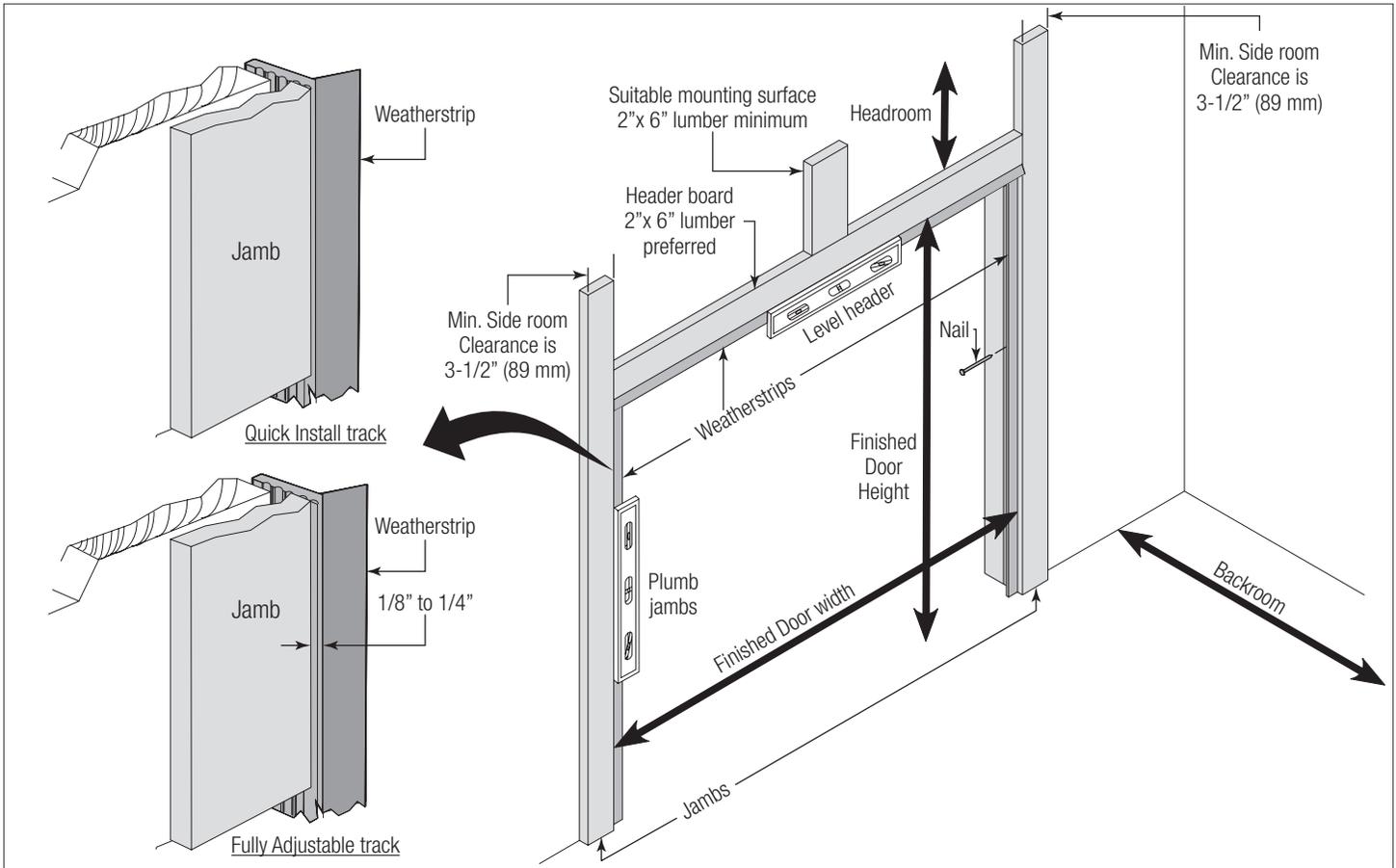


Figure 1

! DANGER

AVOID INJURY! A POWERFUL SPRING RELEASING ITS ENERGY SUDDENLY CAN CAUSE SEVERE OR FATAL INJURY. ALWAYS HAVE A TRAINED DOOR SYSTEMS TECHNICIAN, USING PROPER TOOLS AND INSTRUCTIONS, RELEASE THE SPRING TENSION.

! WARNING

TO AVOID POSSIBLE INJURY AND TO ENSURE PROPER INSTALLATION, IT'S HIGHLY RECOMMENDED THAT YOU READ AND FULLY UNDERSTAND THE COMPLETE INSTRUCTIONS ON REMOVING AN EXISTING DOOR & PREPARING THE OPENING. THESE ARE AVAILABLE FOR DOWNLOAD AT WWW.WAYNE-DALTON.COM OR AT YOUR LOCAL WAYNE DALTON SALES CENTER.

! DANGER

COUNTERBALANCE SPRING TENSION MUST ALWAYS BE RELEASED BEFORE ANY ATTEMPT IS MADE TO START REMOVING AN EXISTING DOOR. EXTREME CAUTION SHOULD BE USED WHEN UNWINDING SPRINGS AS FAILURE TO FOLLOW THE INSTRUCTIONS OR USE PROPER TOOLS CAN LEAD TO SERIOUS INJURY.

See Figure 1 for the following steps.

To ensure secure mounting of track brackets, side and center brackets, or steel angles to new or retro-fit construction, it is recommended to follow the procedures outlined in DASMA technical data sheets #156, #161 and #164 at www.dasma.com.

- The inside perimeter of your garage door opening should be framed with wood jamb and header material.
- The jambs and header must be securely fastened to sound framing members. It is recommended that 2" x 6" lumber be used. The jambs must be plumb and the header level.
- The jambs should extend a minimum of 12" (305 mm) above the top of the opening for TorqueMaster® Plus counterbalance systems.
- For low headroom applications, the jambs should extend to the ceiling height. Minimum side clearance required, from the opening to the wall, is 3-1/2" (89 mm).

NOTICE

CLOSELY INSPECT JAMBS, HEADER AND MOUNTING SURFACE. ANY WOOD FOUND NOT TO BE SOUND, MUST BE REPLACED.

For TorqueMaster® Plus counterbalance systems, a suitable mounting surface (2" x 6") must be firmly attached to the wall, above the header at the center of the opening.

NOTICE

DRILL A SUITABLE PILOT HOLE IN THE MOUNTING SURFACE TO AVOID SPLITTING THE LUMBER. DO NOT ATTACH THE MOUNTING SURFACE WITH NAILS.

Weatherstrips (Not Included):

Depending on the size of your door, you may have to cut or trim the weatherstrips to properly fit into the header and jambs.

NOTICE

IF NAILING PRODUCT AT 40°F, (4.4°C) OR BELOW, PRE-DRILLING IS REQUIRED.

1. For the header, align the weatherstrip with the inside edge of the header and temporarily secure it to the header with equally spaced nails, approximately 12" to 18" (305 mm - 457 mm) apart.

2. Starting at either side of the jamb, fit the weatherstrip up tight against the temporarily attached weatherstrip in the header and flush with the inside edge of the jamb.

3. Temporarily secure the weatherstrip with equally spaced nails. Repeat for other side. This will keep the bottom door section from falling out of the opening during installation.

Headroom requirement:

Headroom required is defined as the space needed above the top of the door for tracks, springs, etc. to allow the door to open properly.

If the door is to be motor operated, 2-1/2" (64 mm) of additional headroom is required.

TRACK TYPE	SPACE NEEDED
3" LHR	7" (178 mm)
6" LHR	8-1/2" (216 mm)

Backroom requirement:

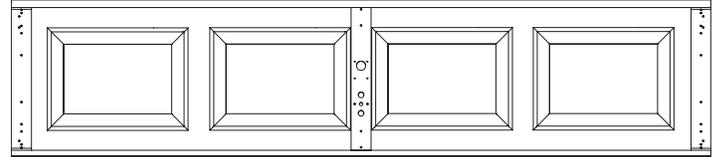
Backroom required is defined as the distance needed from the opening back into the garage to allow the door to open fully.

DOOR HEIGHT	TRACK	MANUAL LIFT	MOTOR OPERATED
6'0" to 7'0"	12" Or 15" Radius	102" (2591 mm)	125" (3175 mm)
7'1" to 8'0"	12" Or 15" Radius	114" (2896 mm)	137" (3480 mm)

Package Contents

NOTE: Depending on the door model, some parts listed may not be required, and will not be supplied.

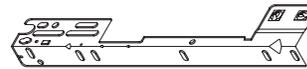
Components and Hardware



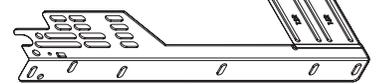
(E1. - E4.) Door sections (as required)



(L1.) Extension Springs



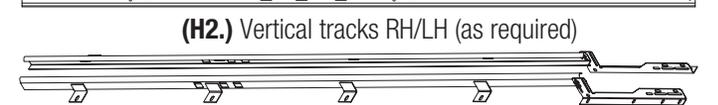
(A1.) Quick Install flag angles RH/LH (as required)



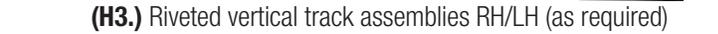
(A2.) Fully Adjustable flag angles RH/LH (as required)



(H1.) Horizontal tracks



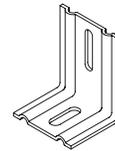
(H2.) Vertical tracks RH/LH (as required)



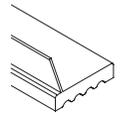
(H3.) Riveted vertical track assemblies RH/LH (as required)



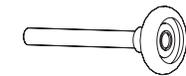
(B1.) Q.I. jamb brackets (as required)



(B2.) F.A. jamb brackets (as required)



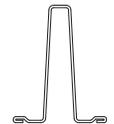
Weather seals & nails (if included)



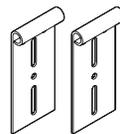
(C1.) (C2.) Track rollers (as required)



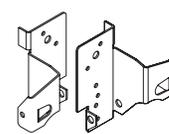
(G1.) 2" Strut (U-shaped) (if included)



(G2.) 3" Strut (U-shaped) (if included)



(F1.) Top Fixture Assemblies



(I1.) Bottom corner brackets RH/LH



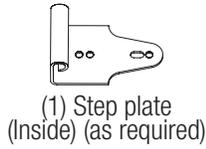
(D1.) (D2.) Graduated hinges (as required)



Pull Down rope (if included)



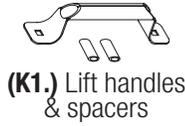
(J1.) Step plates (as required)



(1) Step plate (Inside) (as required)



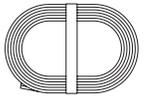
(1) Step plate (Outside) (as required)



(K1.) Lift handles & spacers



Inside lock (if included)



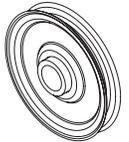
(L2.) Spring restraint cables



(L9.) Counterbalance lift cables



(L3.) (2) Front cable lift sheaves



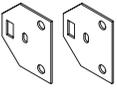
(L4.) (2) Rear cable lift sheaves



(L6.) Small S-hooks (as required)



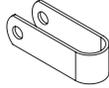
(L11.) Large S-hooks (as required)



(L10.) (2) Hook plates (as required)



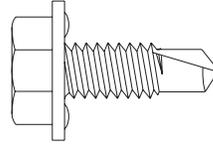
(L5.) 3 Hole clips (as required)



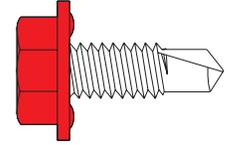
(L7.) Sheave forks (as required)

Figure 2

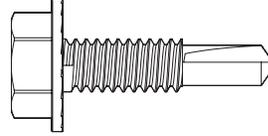
Fasteners



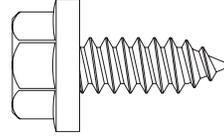
1/4"-20 x 11/16" Self drilling screws (as required)



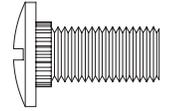
1/4"-20 x 11/16" Self drilling screws (RED HEAD) (as required)



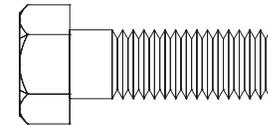
1/4"-20 x 1" Self drilling screws (as required)



1/4"-14 x 5/8" Self tapping screws (as required)



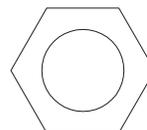
1/4"-20 x 9/16" Track bolts (as required)



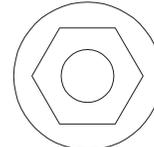
3/8" - 16 x 1-1/4" Hex head bolts (as required)



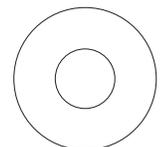
(L8.) 5/16"-18 x 3-3/4" Eye bolts



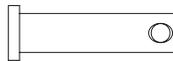
3/8" - 16 Hex nuts (as required)



1/4" - 20 Flanged hex nuts (as required)



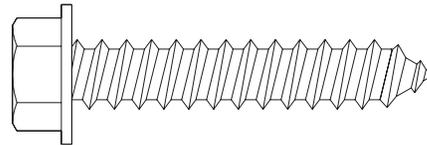
5/16" Washers (as required)



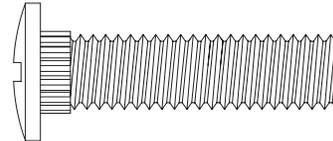
5/16" x 1-1/4" Clevis pin (as required)



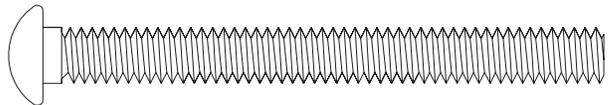
Cotter pin (as required)



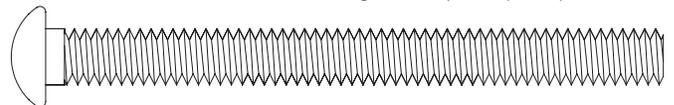
5/16" x 1-5/8" Hex head lag screws (as required)



3/8"-16 x 1-1/2" Truss head bolts



1/4" - 20 x 2-1/2" Carriage bolts (as required)



(2) 1/4" - 20 x 2-3/4" Carriage bolts (as required)

Figure 3

Door Section Identification

Section Quantity 4				
Door Height	Type Of Sections			Top
	Bottom	Lock	Intermediate Section	
6'0"			I	
			18"	
6'3"	21"		18"	
6'6"	21"		18"	21"
6'9"			21"	18"
7'0"			21"	

Section Quantity 5				
Door Height	Type Of Sections			Top
	Bottom	Lock	Intermediate(s) Section	
7'6"			I	II
			18"	
7'9"	21"		18"	21"
8'0"	21"		18"	21"

When installing your door you must use sections of the appropriate height in the right stacking order. What section heights you need to use in what order depends on the height of your door.

Unless your door is five sections in height, you will not receive an Intermediate II section.

The **BOTTOM SECTION** can be identified by the factory attached bottom weather seal and by the bottom corner bracket warning labels on each end stile.

The **INTERMEDIATE (INT) I SECTION** may have a warning label attached to either right or left hand end stile of the section. This section is always the 3rd section from the bottom of the door.

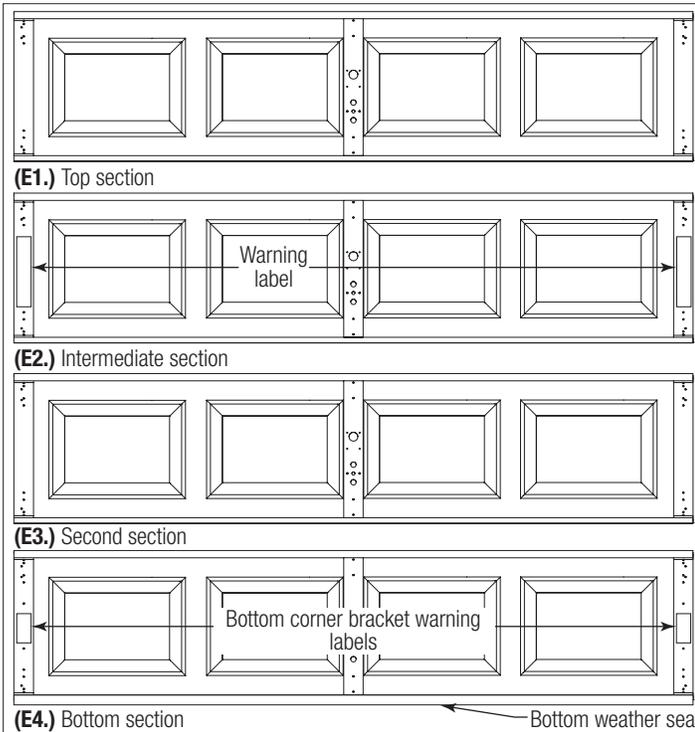


Figure 4

Tools Required

Personal Protection Equipment (PPE)



Figure 5

Hand Tools

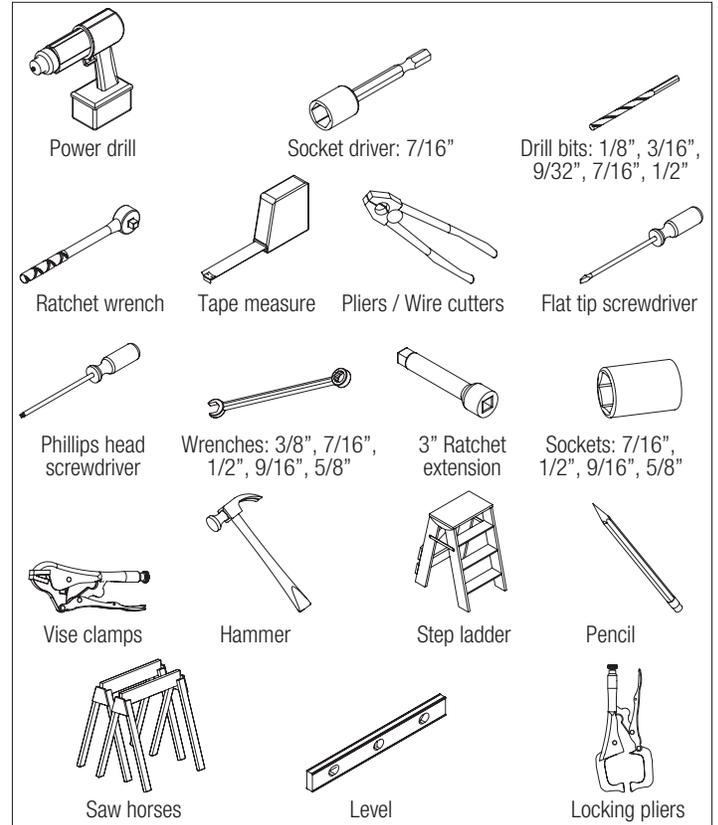


Figure 6

BREAKDOWN OF DOOR COMPONENTS

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

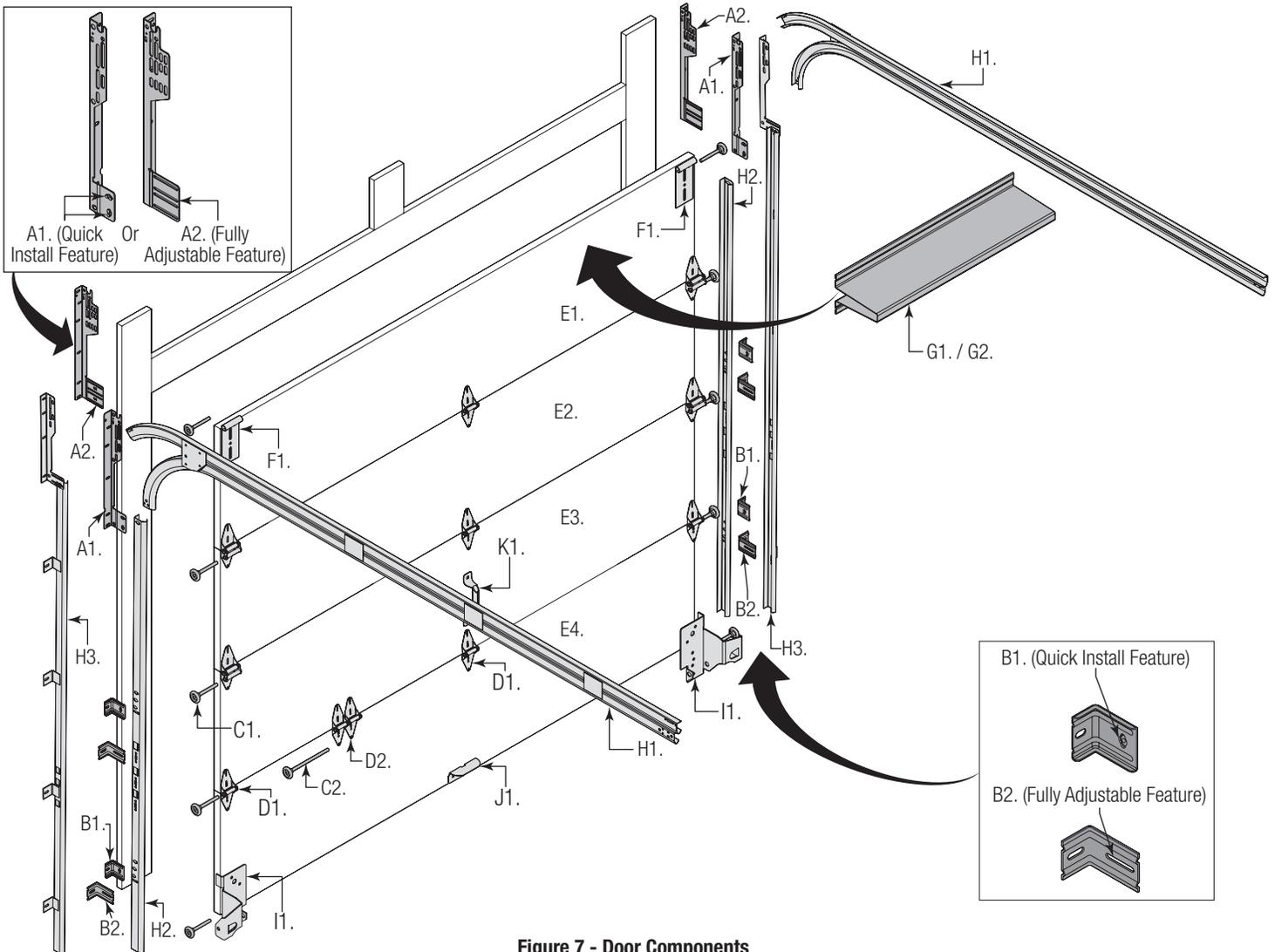


Figure 7 - Door Components

A. Flag Angles (As Required):

- A1. Quick Install (Q.I.) Flag Angles
- A2. Fully Adjustable (F.A.) Flag Angles

B. Jamb Brackets (As Required):

- B1. Quick Install (Q.I.) Jamb Brackets
- B2. Fully Adjustable (F.A.) Jamb Brackets

C. Track Rollers (As Required):

- C1. Short Stem Track Rollers
- C2. Long Stem Track Rollers

D. Graduated End Hinges:

- D1. Single Graduated End Hinges (S.E.H.), Industry Standard
- D2. Double Graduated End Hinges (D.E.H.), Industry Standard

E. Stacked Sections:

- E1. Top Section
- E2. Intermediate(s) Section
- E3. Lock Section
- E4. Bottom Section

F. Top Fixture Assemblies:

- F1. Top Fixtures

G. Strut(s) (As Required):

- G1. 2" Strut
- G2. 3" Strut

H. Tracks (As Required):

- H1. Left and Right Hand Horizontal Track Assemblies
- H2. Left and Right Hand Vertical Tracks
- H3. Left and Right Hand Riveted Vertical Track Assemblies

I. Bottom Corner Brackets (As Required):

- I1. Left Hand And Right Hand Bottom Corner Brackets

J. Step Plates:

- J1. Step Plates

K. Lift Handles:

- K1. Lift Handles

BREAKDOWN OF COUNTERBALANCE COMPONENTS

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

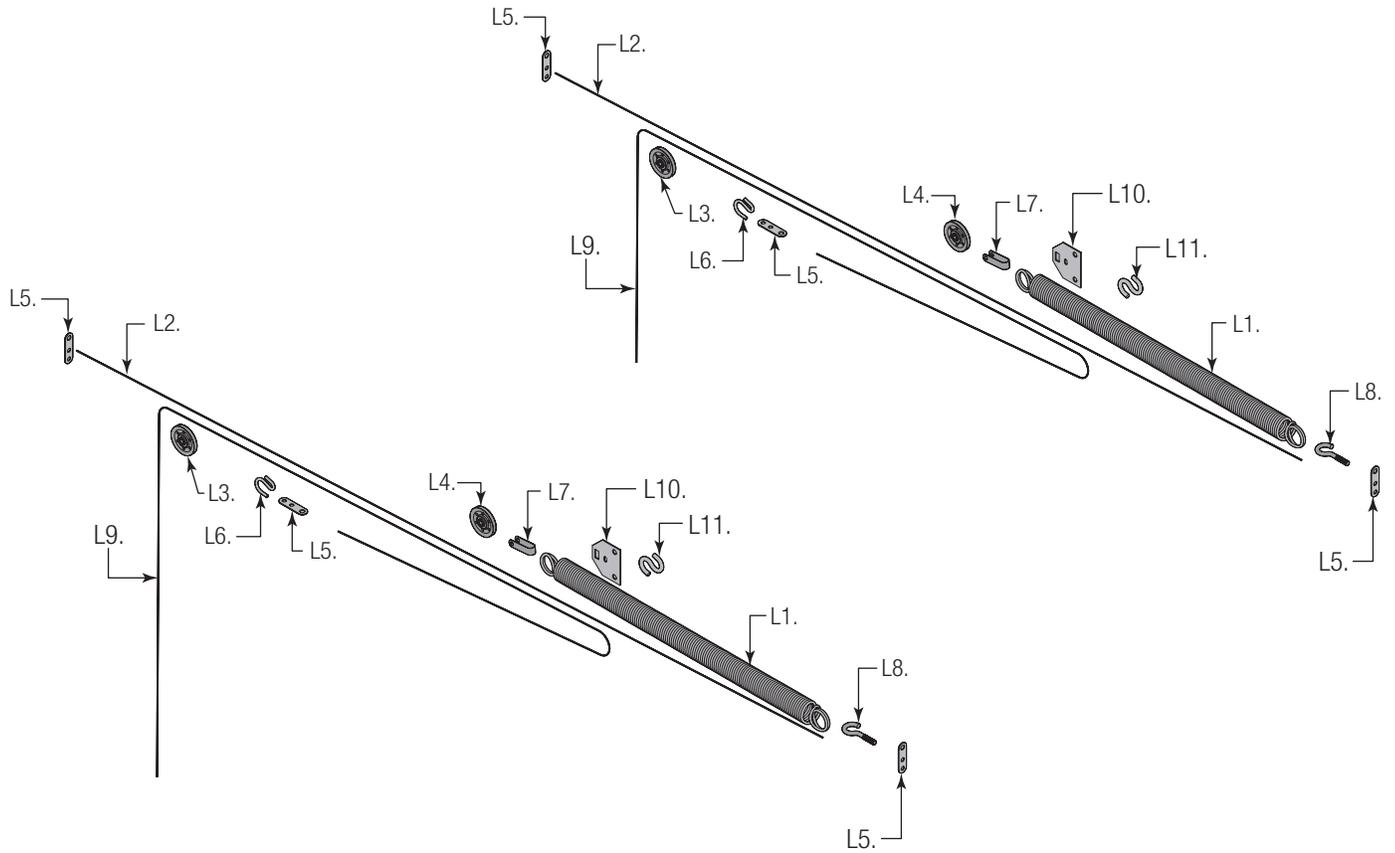


Figure 7 - Counterbalance Components

L. EXTENSION SPRING ASSEMBLY (AS REQUIRED):

- L1. Extension Springs
- L2. Spring Restraint Cables
- L3. Front Cable Lift Sheaves
- L4. Rear Cable Lift Sheaves
- L5. 3 Hole Clips
- L6. Small S-Hooks
- L7. Sheave Forks
- L8. 5/16" - 18 x 3-3/4" Eye Bolts
- L9. Counterbalance Lift Cables
- L10. Hook Plates (As Required)
- L11. Large S-Hooks

INSTALLATION INSTRUCTIONS

Door Installation Instructions

BEFORE INSTALLING YOUR DOOR, BE CERTAIN THAT YOU HAVE READ AND FOLLOWED ALL OF THE INSTRUCTIONS COVERED IN THE PRE-INSTALLATION SECTION OF THIS MANUAL. FAILURE TO DO SO MAY RESULT IN AN IMPROPERLY INSTALLED DOOR.

IMPORTANT: Reference TDS 160 for general garage door terminology at www.dasma.com.

NOTICE

IF THE DOOR WILL BE EXPOSED TO A SIGNIFICANT AMOUNT OF ROAD SALT, PAINT THE BOTTOM GALVANIZED STEEL WEATHER RETAINER TO INHIBIT RUSTING.

1 VERTICAL TRACK ASSEMBLY

IMPORTANT: If you have Riveted Track, skip this step.

NOTE: Refer to Package Contents or Breakdown Of Parts, to determine which type of jamb bracket you received.

NOTE: For clarity, all graphics shown are of the left side, right side will be the same.

IMPORTANT: The bottom jamb bracket is always the shortest bracket, while the center jamb bracket is the next tallest. If three jamb brackets per side are included with your door, you will have received a top jamb bracket, which is the tallest.

For Doors With Quick Install Flag Angles:

See Figure 8 and Figure 9 for the following steps.

1a. Locate the flag angle ① and align the lower Quick Install tab to the vertical track Quick Install feature ②. Rotate the flag angle 1/4 turn to lock in place ③.

IMPORTANT: Each jamb bracket will have a unique ID that starts with "QJJB" followed by a number. Use this number for the correct jamb bracket outlined in Table 1. Jamb Bracket Schedule. If not installed correctly, the jamb brackets won't fit up against the jamb correctly.

1b. Measure the length of the vertical tracks. Using the jamb bracket schedule in Table 1, determine the placement of the jamb brackets for your door height and track length. See Figure 8.

1c. To install the jamb brackets, align the Quick Install tab to the vertical track Quick Install feature. Rotate the jamb bracket 1/4 turn to lock in place ④.

IMPORTANT: Mounting flange is toward the back (flat) leg of the track.

1d. Repeat the same process for right hand side.

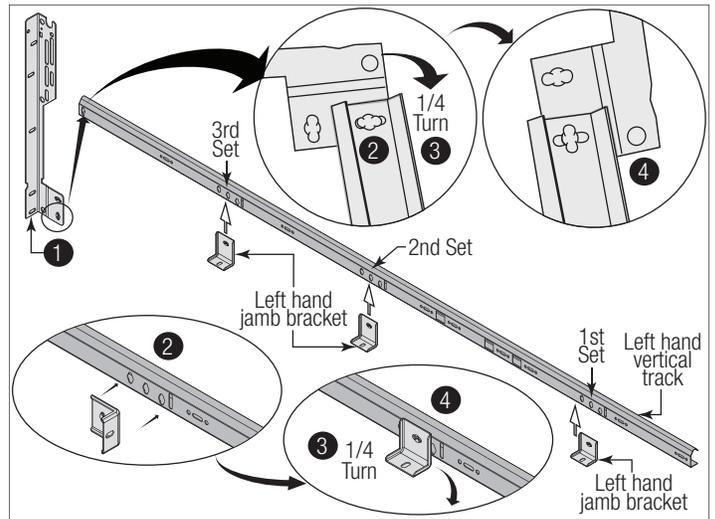


Figure 8, Left Side Shown

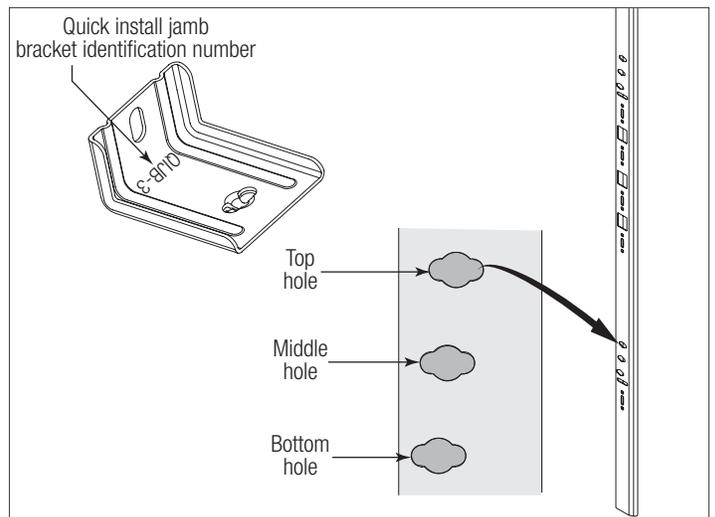


Figure 9, Left Side Shown For All Flag Angles

Table 1, Jamb Bracket Schedule

Door Height	Track Length	1st Set		2nd Set	
		Jamb Bracket	Hole Position	Jamb Bracket	Hole Position
6'0" - 6'3"	64.00" (1626mm) - 67" (1702 mm)	9	Middle	11	Bottom
6'6" - 7'0"	70.00" (1778mm) - 76" (1930 mm)	9	Middle	10	Bottom
7'6" - 8'0"	82" (2083 mm) - 88" (2236mm)	9	Top	10	Middle
1	Flag Angle	3	1/4 Turn		
2	Quick Install Feature	4	Lock In Place		

For Doors With Fully Adjustable Flag Angle:

See Figure 10 and Figure 11 for the following steps.

IMPORTANT: Each flag angle will have a unique ID "12R or 15R". Measure the radius of your horizontal track to determine if your horizontal track is 12" or 15" Radius.

1a. Hand tighten the flag angle ① to the vertical track ② using two 1/4" - 20 x 9/16" track bolts ③ and two 1/4" - 20 flange hex nuts ④.

1b. attach the shortest jamb bracket 5 by aligning the slot in the shortest jamb bracket with the lower hole of the hole/ slot pattern of the vertical track. Hand tighten the jamb bracket using (1) 1/4" - 20 x 9/16" track bolt and (1) 1/4" - 20 flange hex nut.

1c. Place the tallest jamb bracket 6 over the lower hole of the hole/ slot pattern that is centered between the bottom jamb bracket and flag angle of the 2nd hole set. Hand tighten the jamb bracket using (1) 1/4" - 20 x 9/16" track bolt and (1) 1/4" - 20 flange hex nut.

1d. Repeat this process for the right hand side.

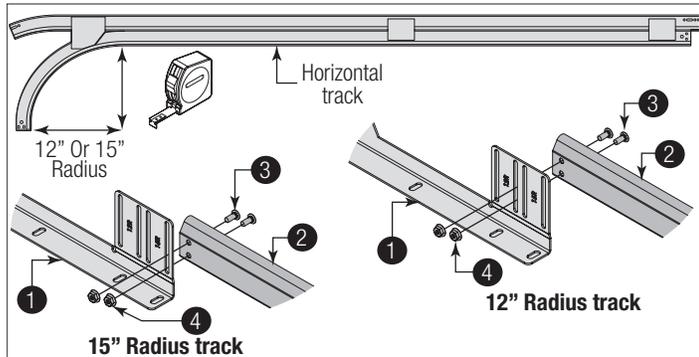


Figure 10, Left Side Shown

IMPORTANT: In Figure 10, observe the slot location in reference to the 12" or 15" radius.

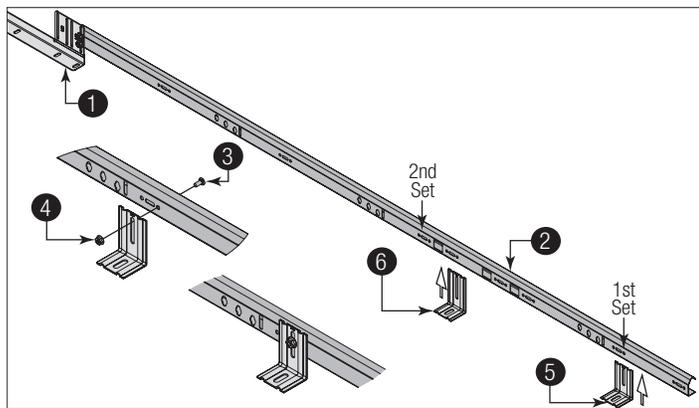


Figure 11, Left Side Shown

1	Flag Angle	4	1/4" - 20 Flange Hex Nut
2	Vertical Track	5	Shortest Jamb Bracket
3	1/4" - 20 x 9/16" Track Bolt	6	Tallest Jamb Bracket

2 ATTACHING BOTTOM CORNER BRACKETS

IMPORTANT: Refer to door section identification, located in the pre-installation section of this manual or refer to Breakdown of Parts.

WARNING

ENSURE TIGHT FIT OF CABLE LOOP OVER MILFORD PIN TO PREVENT COUNTERBALANCE LIFT CABLE FROM COMING OFF THE PIN, WHICH COULD ALLOW THE DOOR TO FALL AND RESULT IN DEATH OR SERIOUS INJURY.

See Figure 12 for the following steps.

2a. Uncoil the counterbalance lift cables 1.

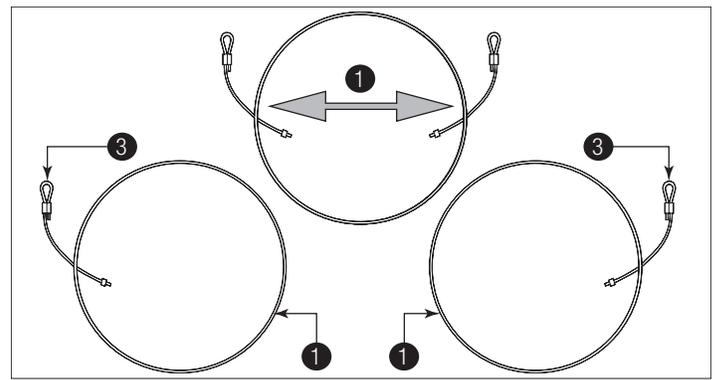


Figure 12

See Figure 13 through Figure 14 for the following steps.

2b. Secure the cable loop 3 to the clevis pin 4 and bottom corner bracket using a flat washer 5 and a cotter pin 6. Repeat this process for the opposite side.

2c. Starting on the left hand side, attach the left hand bottom corner bracket 2 to the left corner of the bottom section 7, making sure it is seated to the edges of the end cap 8, using (3) 1/4" - 20 x 11/16" RED HEAD self drilling screws 9, and (2) 1/4" - 20 x 11/16" self drilling screws 10.

IMPORTANT: The 1/4" - 20 x 11/16" red head self drilling screws must be installed through the holes of the bottom corner brackets.

2d. Insert a short stem track roller 11 into each of the bottom corner brackets.

2e. Repeat the same process for the right hand side.

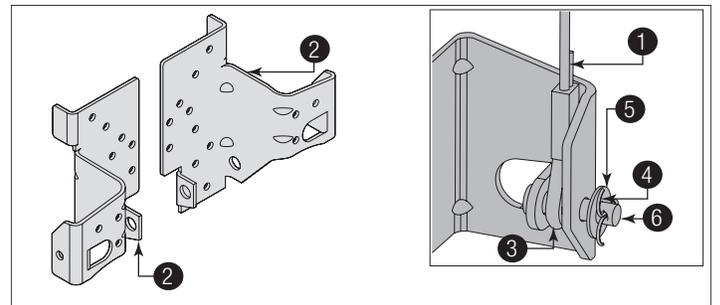


Figure 13, Left Side Shown

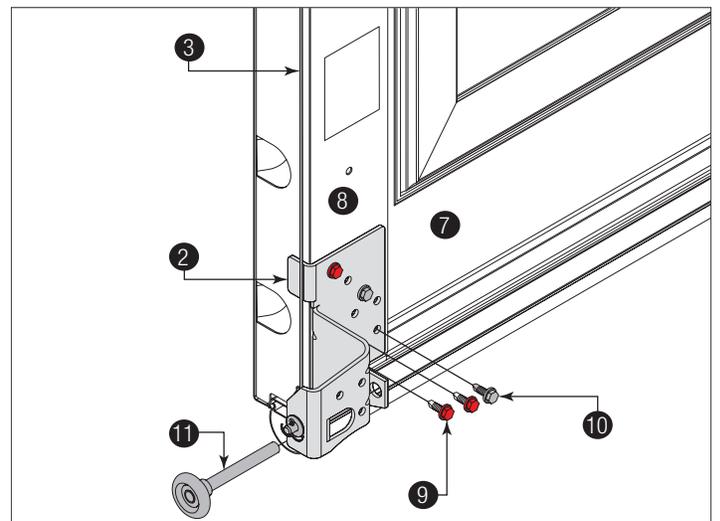


Figure 14, Left Side Shown

1	Counterbalance Lift Cables	7	Bottom Section
2	Bottom Corner Brackets	8	Endcap
3	Cable Loop	9	1/4" - 20 x 11/16" RED HEAD Self Drilling Screws
4	Clevis Pin	10	1/4" - 20 x 11/16" Self Drilling Screws
5	Flat Washer	11	Short Stem Track Roller
6	Cotter Pin		

3 ATTACHING TOP FIXTURES TO TOP SECTION

NOTE: The top fixture will be tightened and adjusted later, in step, Adjusting Top Fixture.

See Figure 15 for the following steps.

3a. Starting on the left hand side of the bottom section, align the lower slot of top fixture ① with the hole in the end cap ② of the top section ③ and even with the edge of the top section.

3b. Fasten to section using a 1/4" - 20 x 11/16" self drilling screw ④.

3c. Repeat same process for other right hand side.

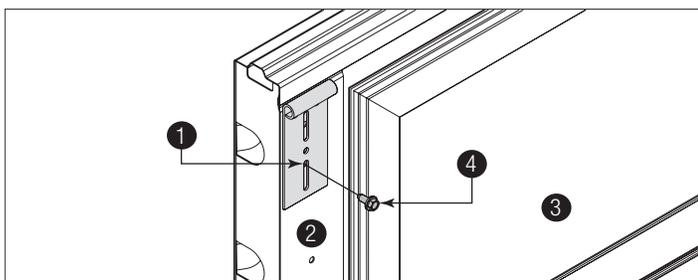


Figure 15, Left Side Shown

1	Top Fixture	3	Top Section
2	End Cap	4	1/4" - 20 x 11/16" Self Drilling Screws

4 ATTACHING HINGES TO SECTIONS

NOTE: Refer to door section identification, located in the pre-installation section of this manual or refer to Breakdown of Parts.

NOTE: The graduated hinges ① can be identified by the number stamped on the lower hinge leaf.

NOTE: The #1 graduated hinges ② serves as end hinges on the bottom section ⑥. The #1 graduated hinges also serves as center hinges on all sections, except for the top section.

NOTE: The #2 graduated hinges ③ serves as end hinges on the Second section ⑫.

NOTE: The #3 graduated hinges ④ serves as end hinges on the Intermediate section I ⑬.

NOTE: The #4 graduated hinges ⑤ serves as end hinges on the Intermediate section II ⑭.

See Figure 16 through Figure 19 for the following steps.

4a. Starting on the left hand side of the bottom section, align the lower hinge leaf of the #1 graduated hinge over the holes, located at the top of the end stile ⑦. Attach lower leaf to the end stile with (2) 1/4" - 14 x 5/8" self tapping screws ⑧.

4b. Repeat same process for the right hand side.

4c. Next, align the lower hinge leaf of the #1 center hinges with the pre-punched holes at each center stile location(s) ⑨, located at the top of the bottom section. Attach lower hinge leaf to the center stile with (2) 1/4" - 14 x 5/8" self tapping screws.

IMPORTANT: Once the 1/4" - 14 x 5/8" self tapping screws are snug against the lower hinge leaves, tighten an additional 1/4 to 1/2 turn to receive maximum design holding power.

4d. Insert a short stem track roller ⑩ into the hinge tube of the #1 graduated end hinges.

4e. Repeat graduated hinge attachment using the appropriate graduated hinges for all remaining sections except the top section.

IMPORTANT: When placing short stem track rollers into the #2 graduated end hinges and higher, the short stem track roller goes into hinge tube ⑪ furthest away from section.

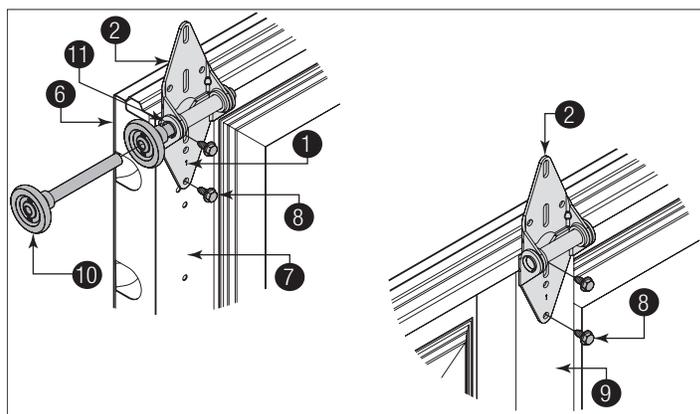


Figure 16

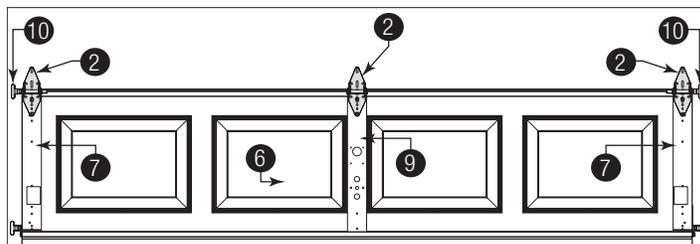


Figure 17

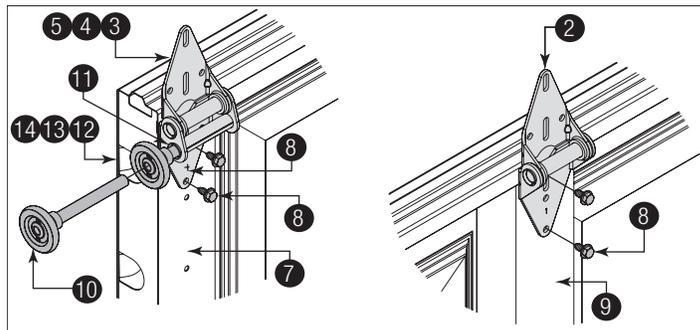


Figure 18

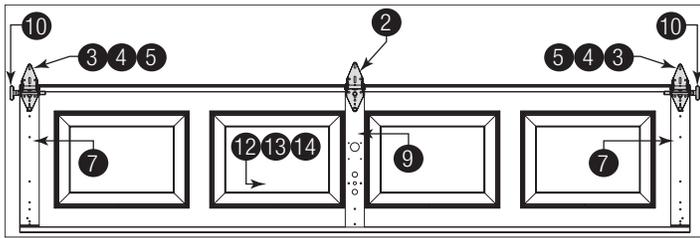


Figure 19

1	Graduated Hinges	8	1/4" - 14 x 5/8" Self Tapping Screws
2	#1 Graduated Hinges	9	Center Stile(s)
3	#2 Graduated Hinges	10	Short Stem Track Roller
4	#3 Graduated Hinges	11	Hinge Tube
5	#4 Graduated Hinges	12	Second Section
6	Bottom Section	13	Third (Int I) Section
7	End Stile	14	Fourth (Int II) Section

5 ATTACHING STRUT TO SECTIONS

NOTE: Refer to door section identification, located in the pre-installation section of this manual or refer to Breakdown of Parts.

IMPORTANT: All struts 1 are placed at the top of the sections and up against the bottom of hinges 2, for the Bottom Section 3, Lock (Second) Section 4, and Intermediate Section(s) 5 6.

IMPORTANT: Measure the height of your strut(s) to determine if you have 2" Struts 7 and or 3" Struts 8. See Figure 20.

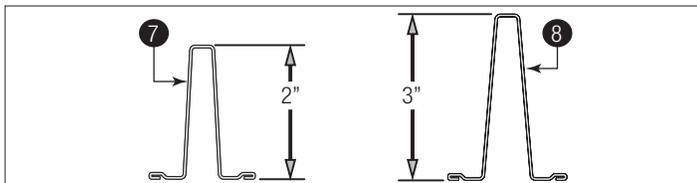


Figure 20

IMPORTANT: Referencing the strutting schedules below, determine the placement of the struts for your door width and door height.

Strutting Schedule Key:

TS = Top Section	LS = Lock (Second) Section
I2 = Intermediate Section #2	BS = Bottom Section
I1 = Intermediate Section #1	ES = Every Section gets a strut.

Strutting Schedule For Door Model 8000

Door Heights	Section Qty	Section Type	Door Widths		
			14'0" - 16'0"	17'0" - 18'0"	20'0"
6'0" - 7'0"	4	Solid	(1) TS	(3) TS, LS, BS	ES
		Windows	(1) TS	(1) 3" TS, (2) 2" LS, BS	ES
7'6" - 8'0"	5	Solid	(2) TS, BS	(3) TS, I1, BS	ES
		Windows	(1) 3" TS, (1) 2" BS	(1) 3" TS, (2) 2" I1, BS	ES

Strutting Schedule For Door Model 8200

Door Heights	Section Qty	Section Type	Door Widths		
			14'0" - 16'0"	17'0" - 18'0"	20'0"
6'0" - 7'0"	4	Solid	(2) TS, BS	(3) TS, LS, BS	ES
		Windows	(1) 3" TS, (1) 2" BS	(1) 3" TS, (2) 2" LS, BS	ES
7'6" - 8'0"	5	Solid	(2) TS, BS	(3) TS, I1, BS	ES
		Windows	(1) 3" TS, (1) 2" BS	(1) 3" TS, (2) 2" I1, BS	ES

Attaching Strut To Sections:

See Figure 21 for the following steps.

5a. Locate and center the strut onto the bottom section 3 surface and up against the bottom of hinges, as shown. Center the strut from side to side.

5b. Secure strut to the section surface using (2) 1/4" - 20 x 1" self drilling screws 9 at each end stiles 10 and at each center stile 11.

5c. Repeat the same process all remaining sections, except the top section.

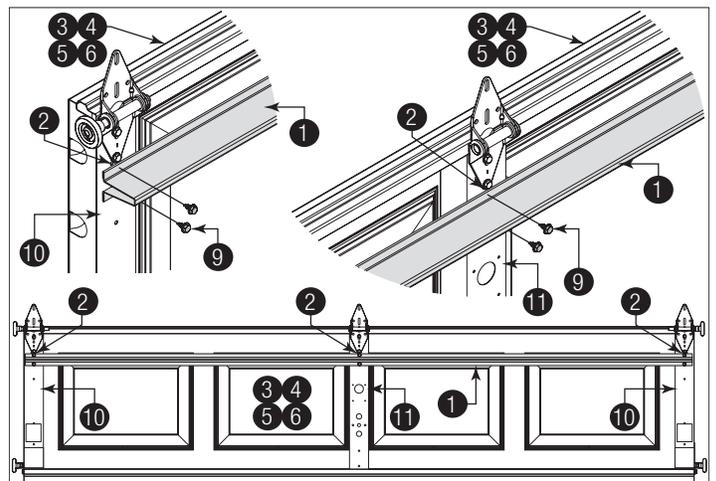


Figure 21

Attaching Strut To Top Section:

See Figure 22 for the following steps.

5d. Locate and center the strut onto the top of the top section surface 12, as shown.

5e. Secure strut to the top section using (2) 1/4" - 20 x 1" self drilling screws 9 at each end stiles 10 and at each center stile 11.

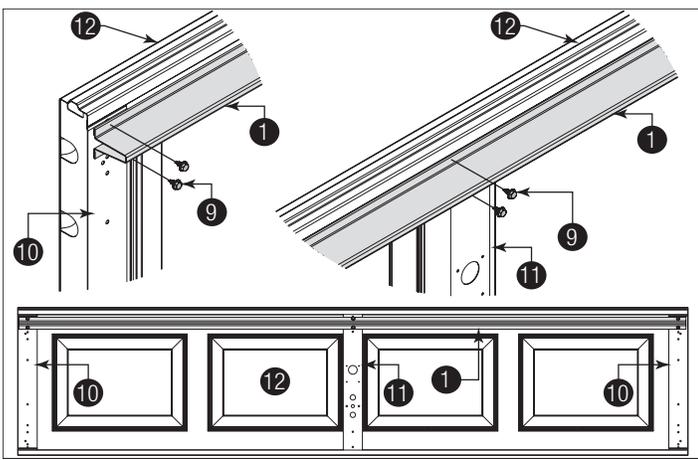


Figure 22

1	Strut	7	2" Strut
2	Bottom Of Hinges	8	3" Strut
3	Bottom Section	9	1/4" - 20 x 1" Self Drilling Screws
4	Second Section	10	End Stiles
5	Third (Int I) Section	11	Center Stile(s)
6	Fourth (Int II) Section	12	Top Section

6 ATTACHING STEP PLATES TO SECTION

IMPORTANT: Do not mount the step plate higher than 6" (1) from the bottom of the section (2).

See Figure 23 for the following steps.

- 6a. Locate the center most center stile (3) of the bottom section of the door.
- 6b. On the inside of the door (4), center the step plate (5) on the center most stile no higher than 6" from the bottom of the door.
- 6c. Using the step plate holes as a template, drill a 5/16" dia. hole (6) along each side of the center stile, through the face of the door (7).

IMPORTANT: Be extremely careful to keep drill straight.

- 6d. Mount the inside step plate and the outside step plate back to back, straddling the center stile. Secure with (2) 1/4" - 20 x 2-3/4" carriage bolts (8) and 1/4" - 20 hex nuts (9).

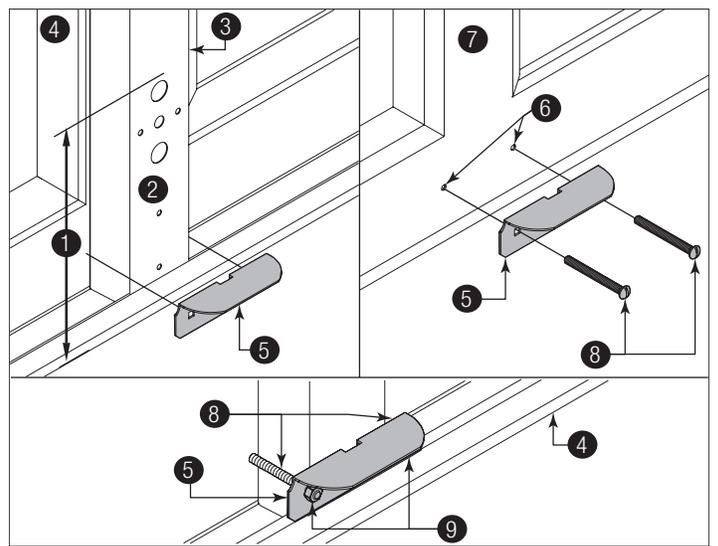


Figure 23

1	6"	6	5/16" Dia. Holes
2	Bottom Section	7	Face Of The Door
3	Center Stile	8	1/4" - 20 x 2-3/4" Carriage Bolts
4	Inside Of The Door	9	1/4" - 20 Hex Nuts
5	Step Plate		

7 ATTACHING LIFT HANDLES TO SECTION

NOTE: Doors with a Keyed lock do not require this lift handle.

See Figure 24 through Figure 26 for the following steps.

- 7a. Locate the inside center stile or the desired lift handle location (1) on the second section (2) of the door. Position the lower hole in the lift handle (3) 4" (4) from the bottom of the second section.

IMPORTANT: The distance between the step plate (5) and the middle of the lift handle must be 20" minimum to 30" maximum (6). If necessary, reposition the upper lift handle to stay within the required dimension.

- 7b. Using the lift handle holes as a template, drill (2) 9/32" dia. holes (7) through the second section. Enlarge the holes from the outside the door to 1/2" dia (8).

IMPORTANT: Be extremely careful to keep drill straight.

IMPORTANT: Do not drill through or enlarge holes on the inside of the door.

- 7c. Assemble the lift handles to the second section using (2) spacers (9), (2) 1/4" - 20 x 2-1/2" carriage bolts (10), and (2) 1/4" - 20 hex nuts (11).

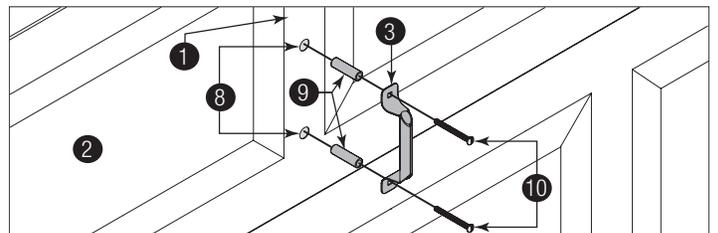


Figure 24

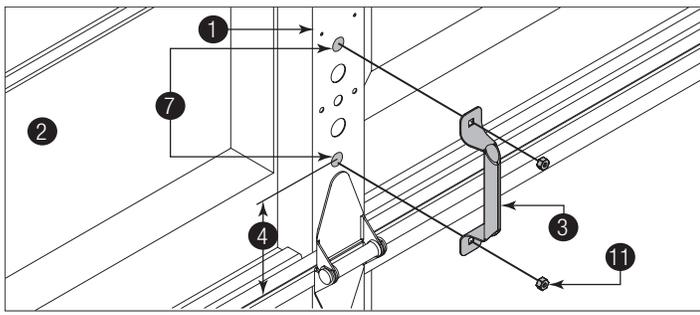


Figure 25

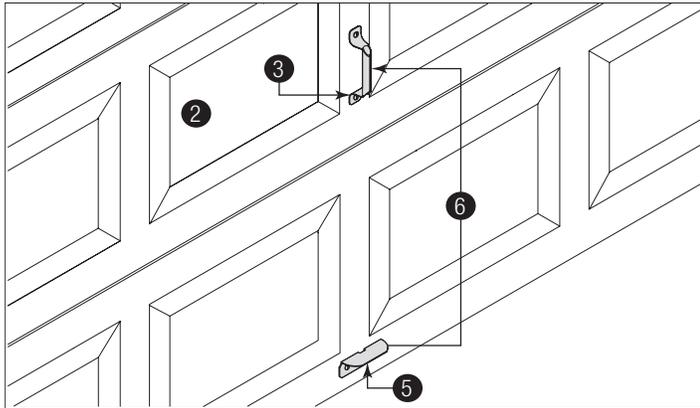


Figure 26

1	Inside Center Stile Or Desired Lift Handle Location	7	9/32" Dia. Holes
2	Second Section	8	1/2" Dia
3	Lift Handle	9	Spacers
4	4"	10	1/4" - 20 x 2-1/2" Carriage Bolts
5	Step Plate	11	1/4" - 20 Hex Nuts
6	20" Minimum To 30" Maximum		

8 POSITIONING BOTTOM SECTION

See Figure 27 for the following steps.

8a. Center the bottom section ① in the door opening.

8b. Use a level ② and wood shims ③ (if necessary) to level the bottom section. When the bottom section is leveled, temporarily hold it in place by driving a nail into the jamb and bending it over the edge of the bottom section on both sides.

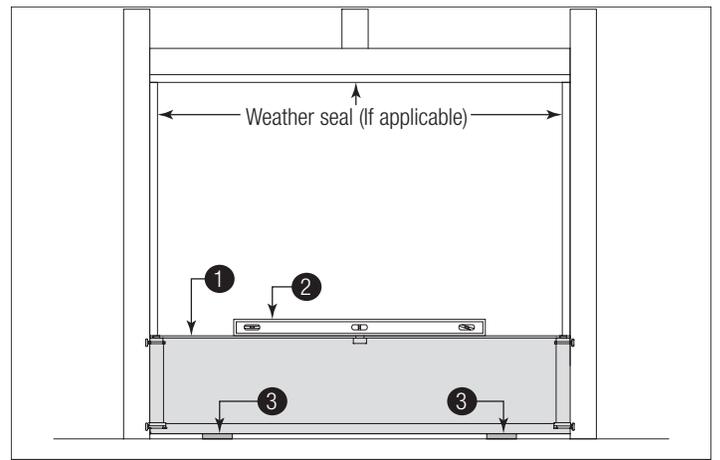


Figure 27

1	Bottom Section	3	Wood Shims
2	Level		

9 ATTACHING VERTICAL TRACKS TO JAMBS

IMPORTANT: Depending on your door, you may have Quick Install Flag Angles, Fully Adjustable Flag Angles or you may have Riveted Vertical Track Assemblies. Refer to Package Contents / Breakdown of Parts, to determine which Flag Angles / Vertical Track Assemblies you have.

IMPORTANT: If this door is to be installed prior to a finishing construction of the building's floor, the vertical tracks and the door bottom section assembly should be installed such that when the floor is constructed, no door or track parts are trapped in the floor construction.

IMPORTANT: If the bottom section was leveled with shims, the vertical track on the shimmed side must be raised the same height as the shim. Recheck the top of the vertical tracks to be level from side to side.

IMPORTANT: Make sure the counterbalance lift cable is located between the track rollers and the door jamb.

See Figure 28 and Figure 29 for the following steps.

9a. Starting on the left hand side of the bottom section ①, remove the nail. Position the left hand vertical track assembly ② over the track rollers of the bottom section and install, as shown. Drill 3/16" pilot holes into the door jamb for the lag screws.

IMPORTANT: For proper flag angle lag screw location, note the flag angle styles ③.

For Doors With Quick Install Flag Angle or Fully Adjustable Flag Angles:

9b. Loosely fasten jamb brackets ④ and flag angle ⑤ to the jamb using 5/16" x 1-5/8" lag screws ⑥.

9c. Tighten lag screws, securing the bottom jamb bracket to jamb, maintain 3/8" to 5/8" spacing ⑦, between the bottom section and vertical track.

9d. Hang counterbalance lift cable over flag angle. Repeat same process for other side.

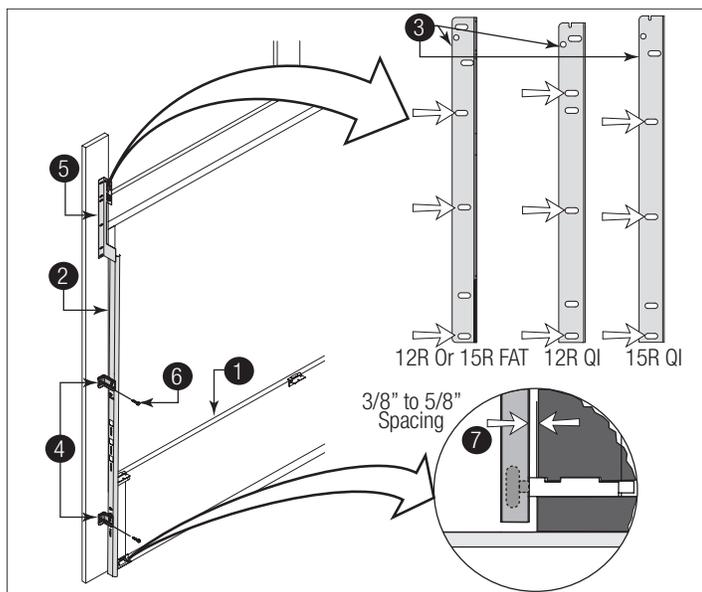


Figure 28, Left Side Shown

For Doors With Riveted Vertical Track Assemblies:

- 9b. Loosely fasten jamb brackets **4** and flag angle **5** to the jamb using 5/16" x 1-5/8" lag screws **6**.
- 9c. Tighten lag screws, securing the bottom jamb bracket to jamb, maintain 3/8" to 5/8" spacing **7** as shown, between the bottom section and vertical track.
- 9d. Hang counterbalance lift cable over flag angle. Repeat same process for other side.

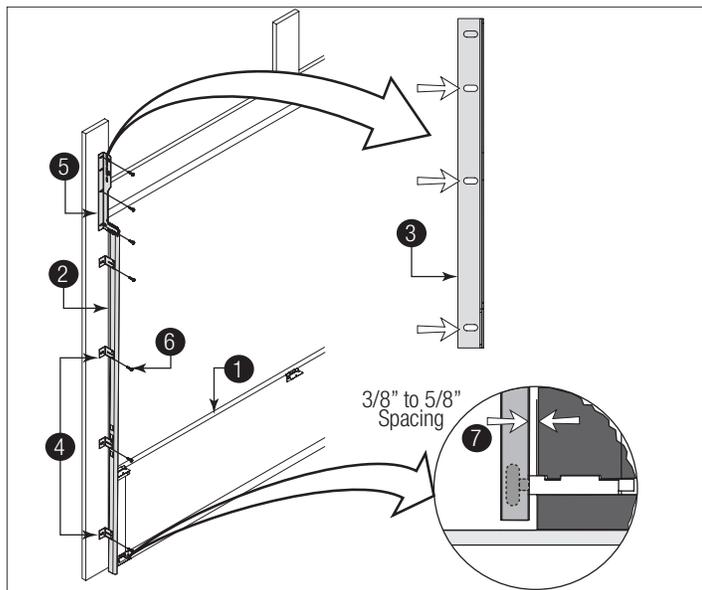


Figure 29, Left Side Shown

1	Bottom Section	5	Flag Angle
2	Vertical Track Assembly	6	5/16" x 1-5/8" Lag Screws
3	Flag Angle Styles	7	3/8" to 5/8" Spacing
4	Jamb Brackets		

NOTICE

BEFORE STACKING SECTIONS, MAKE SURE GRADUATED END AND CENTER HINGES ARE FLIPPED DOWN **1** TO AVOID POSSIBLE DAMAGE TO YOUR DOOR, WHEN STACKING ANOTHER SECTION ON TOP.

See Figure 30 and Figure 31 for the following steps.

10a. Install track rollers into graduated end hinges of remaining sections.

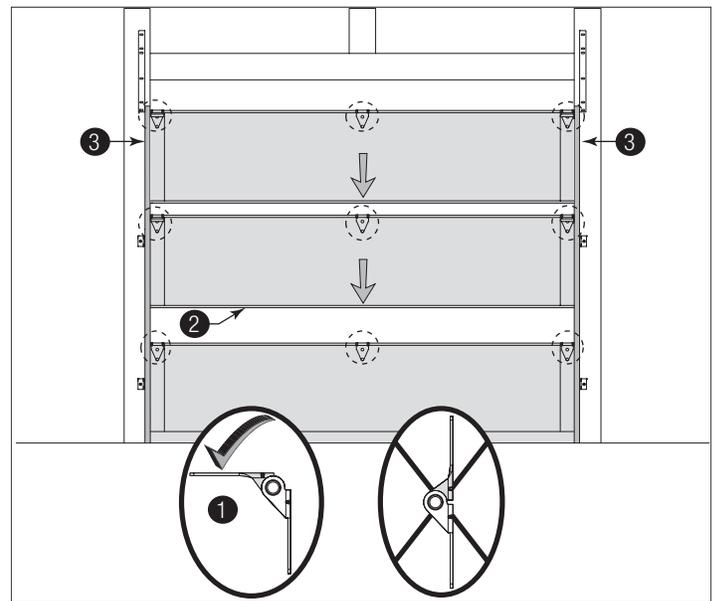
10b. With a helper, lift second section **2** and guide the track rollers into the vertical tracks **3**. Lower section until it is seated against bottom section.

10c. Flip hinges up **4**. Fasten center hinge(s) **6** first; then end hinges **5** **7** last using 1/4" - 14 x 5/8" self-tapping screws **8**.

10d. Repeat same process for other sections, except top section.

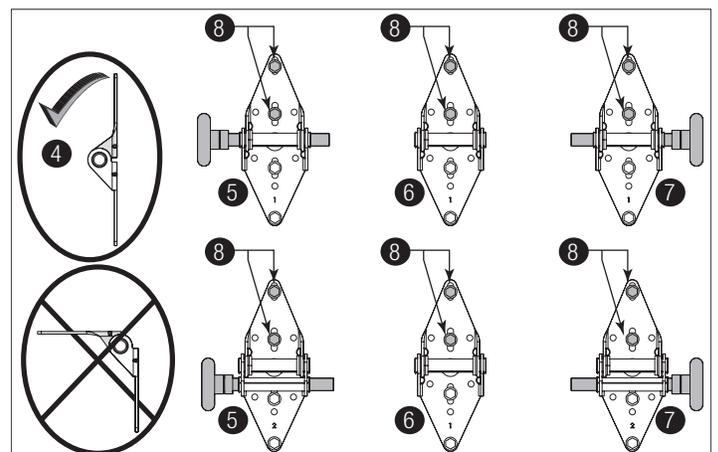
IMPORTANT: Push & hold the hinge leaves securely against the sections while securing with fasteners to it. There should be no gap between the hinge leaves and the sections.

IMPORTANT: When placing the track rollers into the #2 graduated end hinges and higher, the track roller goes into the hinge tube furthest away from the section.



See Figure 30, Stacking Sections

1	Hinge Flipped Down Position	3	Vertical Tracks
2	Second Section		



See Figure 31, Hinges after Stacking Sections

10 STACKING SECTIONS

NOTE: Refer to door section identification, located in the pre-installation section of this manual or refer to Breakdown of Parts.

4	Hinge Flipped Up Position	7	Right Graduated End Hinge with Short Stem Track Roller
5	Left Graduated End Hinge with Short Stem Track Roller	8	1/4" - 14 x 5/8" Self Tapping Screw Locations
6	Center Hinge(s)		

11 STACKING TOP SECTION

IMPORTANT: The dimension between the flag angles ① must be door width plus 3-3/8" - 3-1/2" (86 mm - 89 mm).

See Figure 32 for the following steps.

11a. Place the top section ② in the opening, on top of the section stacked.

11b. Install a nail ③ to temporarily hold the top section.

11c. Flip up the hinge leaves, hold tight against section, and fasten center hinges first and end hinges last (see Stacking Sections).

11d. Position flag angle or angle mount ④ between 1-11/16" to 1-3/4" (43 mm - 44 mm) from the edge of the door ⑤, then tighten the bottom lag screw. Flag angles or angle mount must be parallel to the door sections. Repeat for other side.

11e. Complete the vertical track ⑥ installation.

If you have quick install track: Secure the jamb brackets and tightening the other lag screws. Repeat for other side.

If you have fully adjustable track or riveted track: Secure the jamb bracket(s) and tightening the other lag screws. Push the vertical track against the track rollers so that the track rollers are touching the deepest part of the curved side of the track; tighten all the track bolts and nuts. Repeat for other side.

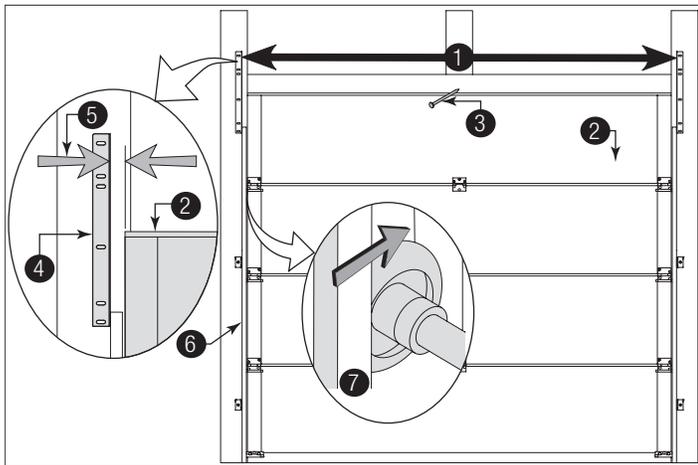


Figure 32

1	Clearance Measurement Between Both Flag Angles	4	Flag Angle
2	Top Section	5	Clearance Measurement Between Flag Angle and Door Edge
3	Nail	6	Vertical Track Against Track Rollers

12 ATTACHING HORIZONTAL TRACKS

NOTE: Depending on your door, you may have Quick Install Flag Angles, Fully Adjustable Flag Angles or you may have Riveted Vertical Track Assemblies. Refer to Package Contents / Breakdown of Parts, to determine which Flag Angles / Vertical Track Assemblies you have.

! WARNING

DO NOT RAISE DOOR UNTIL HORIZONTAL TRACKS ARE SECURED AT REAR, AS OUTLINED IN STEP 14, ATTACHING REAR BACK HANGS. THE REAR BACK HANGS OR DOOR COULD FALL FROM OVERHEAD POSITION CAUSING DEATH OR SERIOUS INJURY.

For Quick Install Flag Angles:

See Figure 33 for the following steps.

12a. Place upper rail of horizontal track ① over the top track roller of the top section.

12b. Align key slot in the lower rail of horizontal track ② with the Quick Install tab ③ of the flag angle. Push lower rail of horizontal track down to lock tab in place ④.

12c. Level ⑤ the horizontal track assembly and bolt the upper rail of the horizontal track to the encountered slot in the flag angle using one 1/4" - 20 x 9/16" track bolt ⑥, one 1/4" - 20 flange hex nut ⑦ and one 5/16" washer ⑧.

12d. Repeat same process for other side.

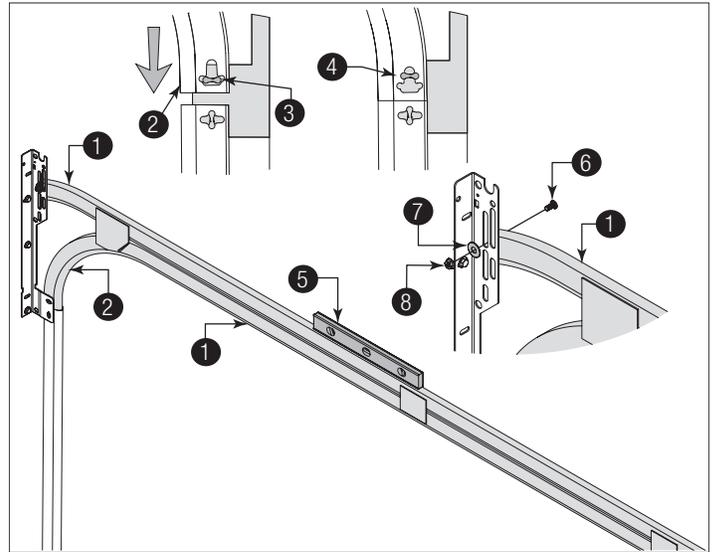


Figure 33, Left Side Shown

1	Upper Rail Of Horizontal Track	5	Level
2	Lower Rail Of Horizontal Track	6	1/4" - 20 x 9/16" Track Bolt
3	Quick Install Tab	7	1/4" - 20 Flange Hex Nut
4	Quick Install Tab in Locked Position	8	5/16" Washer

For Other Flag Angles:

See Figure 34 for the following steps.

12a. Place upper rail of horizontal track ① over the top track roller of the top section.

12b. Attach lower rail of the horizontal track ② to the flag angle ③ with two 1/4" - 20 x 9/16" track bolts ④ and two 1/4" - 20 flange hex nuts ⑤.

12c. Level **6** the horizontal track assembly and bolt the upper rail of the horizontal track to the encountered slot in the flag angle using one 1/4" - 20 x 9/16" track bolt **7**, one 1/4" - 20 flange hex nut **8** and one 5/16" washer **9**. Repeat same process for other side.

12d. Repeat for right side.

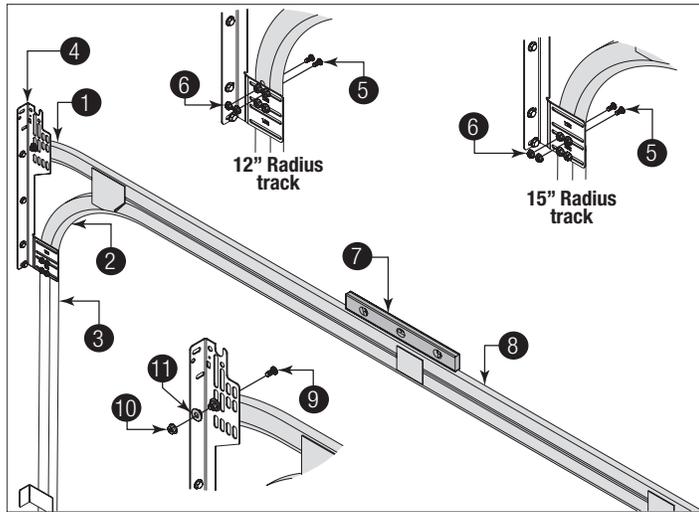


Figure 34, Left Side Shown

1	Upper Rail Of Horizontal Track	6	Level
2	Lower Rail Of Horizontal Track	7	1/4" - 20 x 9/16" Track Bolt
3	Flag Angle	8	1/4" - 20 Flange Hex Nut
4	1/4" - 20 x 9/16" Track Bolts	9	5/16" Washer
5	1/4" - 20 Flange Hex Nuts		

12e. When complete, remove the nail that was holding the top section in position.

NOTICE

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

13 ADJUSTING TOP FIXTURES

See Figure 35 and Figure 36 for the following steps.

13a. Vertically align the top section **1** of the door with the lower sections. Position the top fixture **2** with a track roller **3** against the horizontal track **4**.

13b. Maintaining the top fixture's position, install two 1/4" - 20 x 1" self drilling screws **5**.

13c. Tighten the previously installed 1/4" - 20 x 1" self drilling screw **6** to secure the top fixture to the top section.

13d. Repeat for the right side.

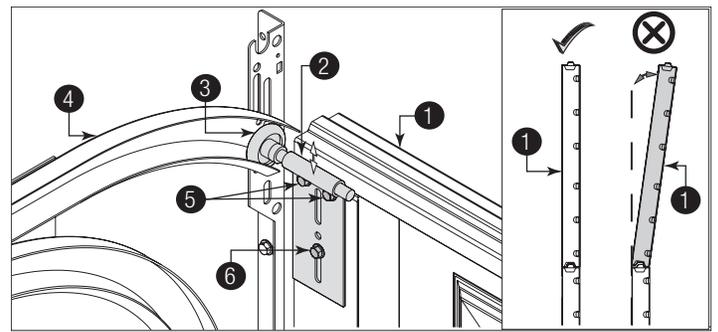


Figure 35, Left Side Shown

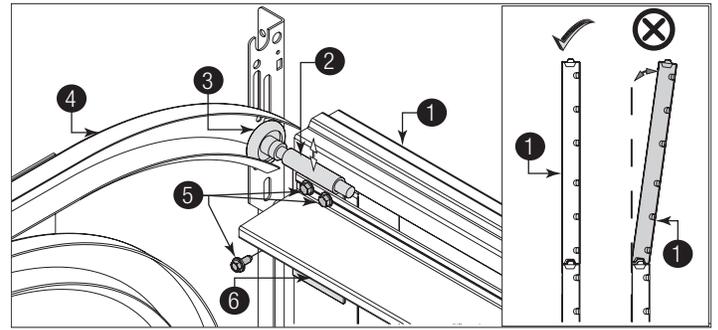


Figure 36, Left Side Shown

1	Door Top Section	4	Horizontal Track
2	Top Fixture	5	1/4" - 20 x 1" Self Drilling Screws
3	Track Roller	6	Previously Installed 1/4" - 20 x 1" Self Drilling Screw

COUNTERBALANCE INSTALLATION INSTRUCTIONS

11 ATTACHING REAR BACK HANGS (NOT INCLUDED)

See Figures 37, 38, and 39 for the following steps.

11a. Raise the door until the top section and half of the next section are in the horizontal track radius. Do not raise door any further since rear of horizontal tracks are not yet supported.

WARNING

RAISING THE DOOR FURTHER INTO THE LOOSE HORIZONTAL TRACKS CAN RESULT IN DOOR FALLING CAUSING DEATH OR SERIOUS INJURY.

IMPORTANT: If an opener is installed, position horizontal tracks one hole above level when securing them to the rear back hangs.

11b. Using the chart below, select the appropriate perforated angle. Fabricate and install rear back hangs, as shown.

Perforated Angle Gauge Weight Limitations:

Perforated Angle Gauge	Door Balance Weight
1-1/4" x 1-1/4" x 15 Gauge	220 lb. to 440 lb.
1-1/4" x 1-1/4" x 16 Gauge	175 lb. to 350 lb.

WARNING

KEEP HORIZONTAL TRACKS PARALLEL AND WITHIN 3/4" TO 7/8" (19 MM - 22 MM) MAXIMUM OF DOOR EDGE. OTHERWISE THE TRACK ROLLERS CAN COME OUT AND DOOR WILL FALL, RESULTING IN DEATH OR SERIOUS INJURY.

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 BEEN BENT MUST BE REPLACED. FAILURE TO SECURELY BRACE THE HORIZONTAL TRACK CAN RESULT IN DOOR FALLING CAUSING DEATH OR SERIOUS INJURY.

NOTICE

DO NOT SUPPORT THE WEIGHT OF THE DOOR ON ANY PART OF THE REAR BACK HANGS THAT IS 4" (102 MM) OR MORE BEYOND A SOUND FRAMING MEMBER.

NOTICE

IF REAR BACK HANGS ARE TO BE INSTALLED OVER DRYWALL, USE TWO 5/16" X 2" HEX-HEAD LAG SCREWS AND MAKE SURE LAG SCREWS ENGAGE INTO SOLID STRUCTURAL LUMBER.

DANGER

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

NOTICE

PERFORATED ANGLE MUST BE ATTACHED TO SOUND FRAMING MEMBERS AND NAILS SHOULD NOT BE USED.

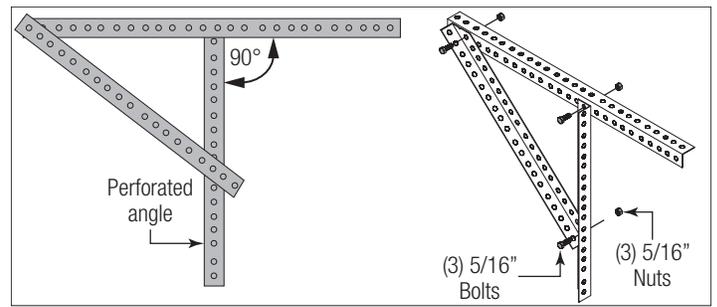


Figure 37

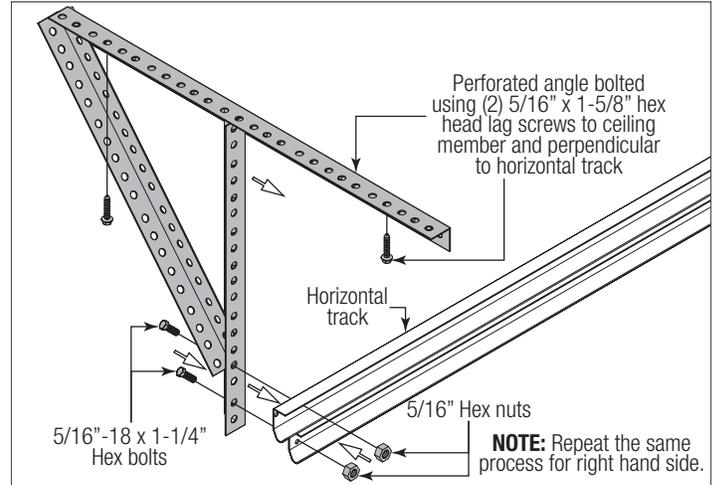


Figure 38

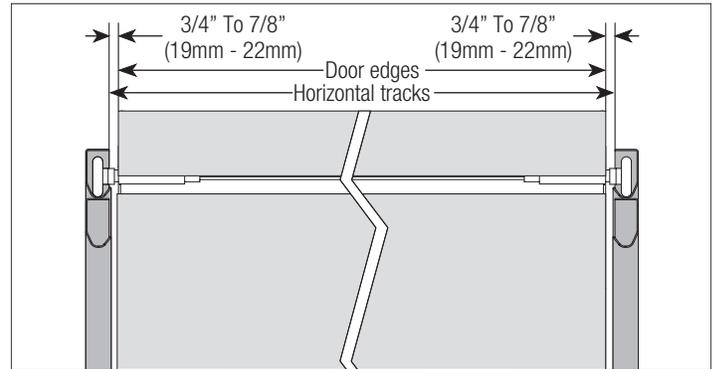


Figure 39

15 ATTACHING FRONT CABLE LIFT SHEAVES

See Figure 40 and Figure 41 for the following steps.

- 15a. Starting on the left hand side, place a 3/8" - 16 x 1-1/2" truss head bolt ① through the sheave plate hole ② in the horizontal track ③.
- 15b. Slide the sheave ④ over the end of the bolt.
- 15c. Secure the sheave using one 3/8" - 16 hex nut ⑤.
- 15d. Loop the counterbalance lift cable ⑥ over sheave.
- 15e. Repeat the same process for the right hand side.

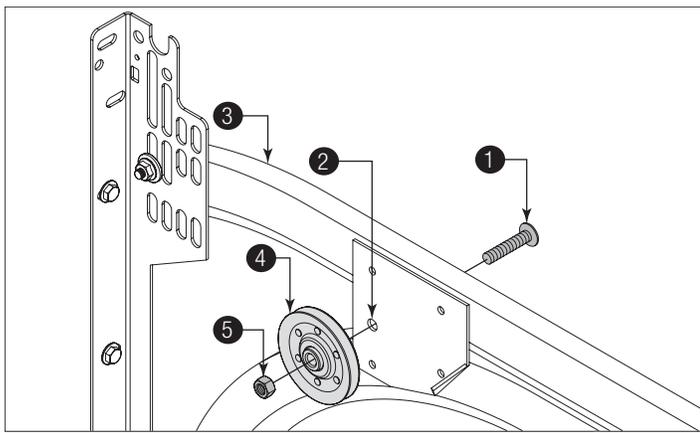


Figure 40, Left Side Shown

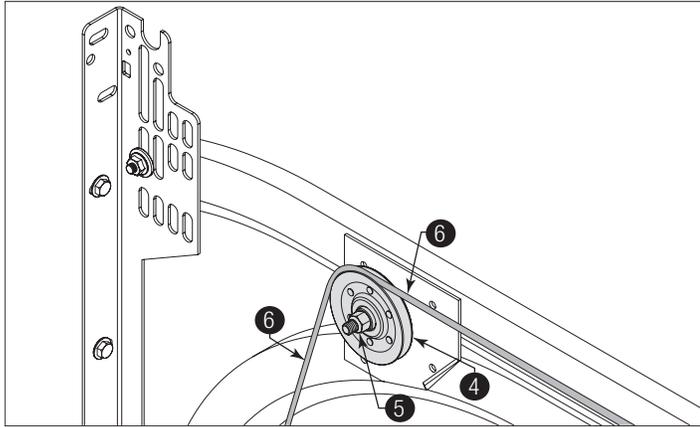


Figure 41, Left Side Shown

1	3/8" - 16 x 1-1/2" Truss Head Bolt	4	Sheave
2	Sheave Plate Hole	5	3/8" - 16 Hex Nut
3	Horizontal Track	6	Counterbalance Lift Cable

16a. Remove the locking pliers from the vertical tracks.

! WARNING

WITH ASSISTANCE, RAISE THE DOOR SLOWLY INTO THE OPEN POSITION MAKING SURE THE DOOR TRAVELS SMOOTHLY THROUGH THE TRACKS. CLAMP LOCKING PLIERS 1 TO THE BACK LEG OF BOTH HORIZONTAL TRACKS 2, BELOW THE BOTTOM TRACK ROLLERS 3. TO KEEP THE DOOR FROM LOWERING

16b. Position one 5/16" - 18 x 3-3/4" eye bolt 4 and one 5/16" - 18 hex nut 5 into the extension spring bracket 6.

16c. Feed the spring safety cable 7 through the rear back hang 8 and tie the special knot 9 around the "room side" of the 3 hole clip 10.

16d. Secure the 3 hole clip to the rear back hang using a 5/16" - 18 x 1" hex bolt 11 and a 5/16" - 18 hex nut.

16e. Secure the eye bolt and 3 hole clip to the rear back hang using one 5/16" - 18 hex nut.

16f. Hook one end of the extension spring 12 onto the eye bolt. Feed the spring safety cable through the rear extension spring loop and center of the extension spring then front spring loop, pull the spring safety cable taut and tie the special knot around the "jamb side" of the 3 hole clip.

16g. Attach the "jamb side" 3 hole clip to the jamb near the flag angle 13 using one 5/16" x 1-5/8" lag screw 14.

16h. Repeat the same process for the other side.

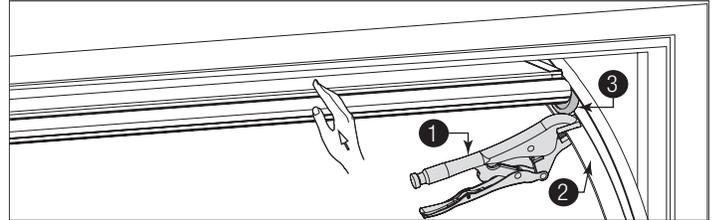


Figure 42, Outside Of The Door In The Open Position

1	Locking Pliers	3	Bottom Track Rollers
2	Back Leg Of Both Horizontal Tracks		

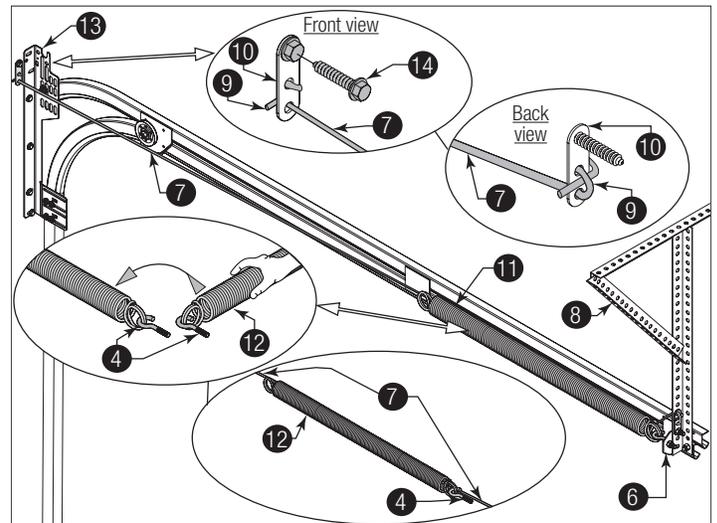


Figure 43, Left Side Shown

16 ATTACHING EXTENSION SPRINGS

! WARNING

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

NOTE: Some larger doors feature two pairs of extension springs 15. A spring restraint cable must be installed through each spring.

IMPORTANT: Spring restraint cables must be taut and equalized.

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.

See Figure 42 through Figure 45 for the following steps.

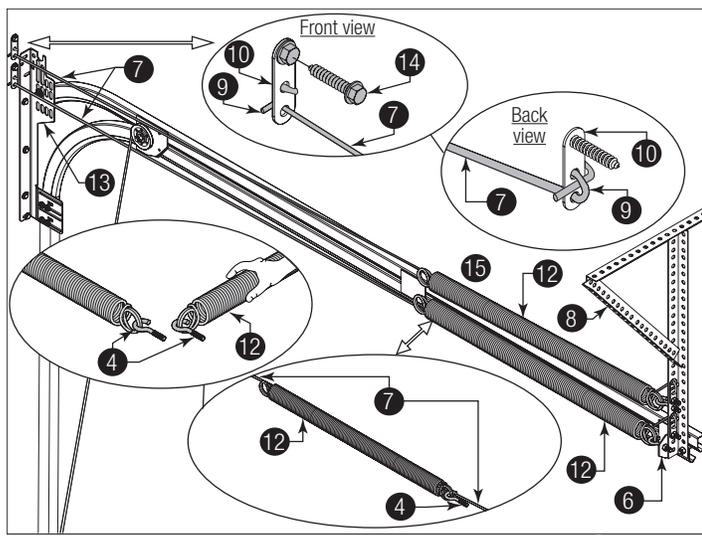


Figure 44, Left Side Shown

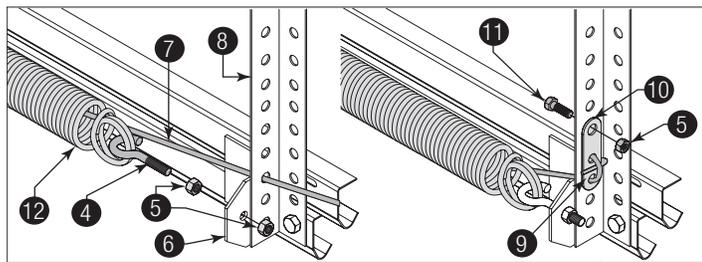


Figure 45, Left Side Shown

4	5/16" - 18 x 3-3/4" Eye Bolt	10	3 Hole Clip
5	5/16" - 18 Hex Nut	11	5/16" - 18 x 1" Hex Bolt
6	Extension Spring Bracket	12	Extension Spring
7	Spring Safety Cable	13	Flag Angle
8	Rear Back Hang	14	5/16" x 1-5/8" Lag Screw
9	Special Knot	15	Two Pairs Of Extension Springs

17b. Thread the counterbalance lift cable (6) over the front cable lift sheave (7) and around the rear cable lift sheave.

17c. Tie the special knot (8) on the opposite side of the 3 hole clip (9) and hook a small "S" hook (10) into it. Secure the small "S" hook into the horizontal track (11).

17d. Repeat same process for the other side.

If You Have Two Pair Of Extension Springs:

17a. Connect the two extension springs (2) to the two large "S" hooks (12) and the sheave fork (1) into the hook plate (13).

17b. Attach the sheave fork to the rear cable lift sheave (3) using one 3/8" - 16 x 1-1/4" hex head bolt (4) and one 3/8" - 16 hex nut (5).

17c. Thread the counterbalance lift cable (6) over the front cable lift sheave (7) and around the rear cable lift sheave.

17d. Tie the special knot (8) on the opposite side of the 3 hole clip (9) and hook a small "S" hook (10) into it. Secure the small "S" hook into the horizontal track (11).

17e. Repeat same process for the other side.

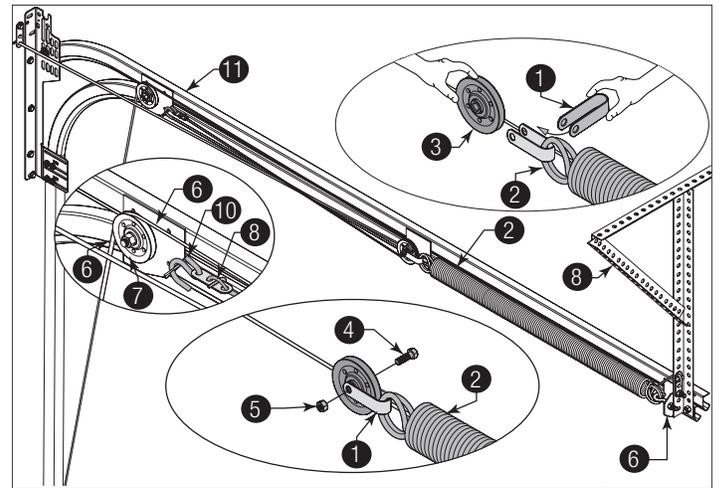


Figure 46, Left Side Shown

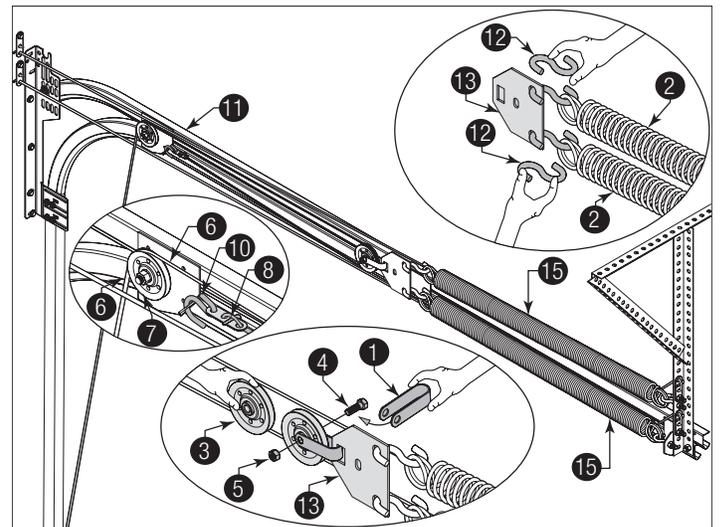


Figure 47, Left Side Shown

17 ATTACHING SPRING SHEAVES

NOTE: Some larger doors feature 2 pairs of extension springs (15). A spring restraint cable must be installed through each spring.

IMPORTANT: Close "S" hooks and eye bolts (14) with locking pliers, to prevent springs from coming loose.

WARNING

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

See Figure 46 through Figure 48 for the following steps.

If You Have One Pair Of Extension Springs:

17a. Hook the sheave fork (1) through the front loop of the extension spring (2) and attach the sheave fork to the rear cable lift sheave (3) using one 3/8" - 16 x 1-1/4" hex head bolt (4) and one 3/8" - 16 hex nut (5).

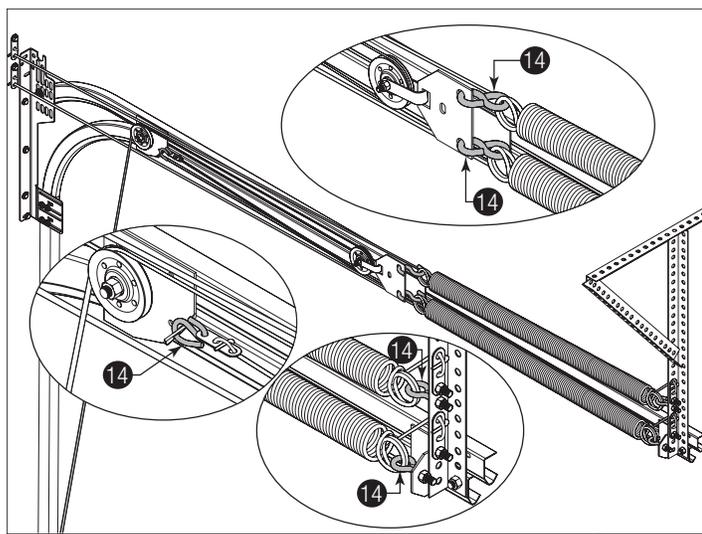


Figure 48, Left Side Shown

1	Sheave Fork	9	3 Hole Clip
2	Extension Spring	10	Small "S" Hook
3	Rear Cable Lift Sheave	11	Horizontal Track
4	3/8" - 16 x 1-1/4" Hex Head Bolt	12	Large "S" Hooks
5	3/8" - 16 Hex Nut	13	Hook Plate
6	Counterbalance Lift Cable	14	Close "S" Hooks And Eye Bolts
7	Front Cable Lift Sheave	15	Two Pairs Of Extension Springs
8	Special Knot		

18 COUNTERBALANCE LIFT CABLE ADJUSTMENTS

NOTE: It may be necessary to adjust spring length for proper door balance.

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 Figure 45 to the horizontal tracks below the bottom track rollers.

18a. Adjust counterbalance lift cables to create about 1" to 2" (25 mm to 50 mm) of initial extension spring stretch, with the door in the fully opened position.

18b. Measure relaxed extension spring length for your door height and verify with the chart below. Spring length must be the same for both extension springs to allow even door balance.

18c. 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 in tension for both sides. Using the chart, verify the spring length in tension is correct with your door height.

Door Height	Spring Length Relaxed (Door Open)	Spring Length Extended (Door Closed)
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)

19 BALANCING DOOR

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 Figure 34 to the horizontal tracks below the bottom track rollers.

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

19a. Lift door and check its balance. If door rises off floor more than 2 ft. under spring tension alone, reduce spring tension by adjusting extension spring length, moving the "S" hook backward (towards the rear back hangs) to a different hole in the horizontal track. If the door is hard to rise or drifts down on its own, adjust extension spring length by moving the "S" hook forward (towards the header) to a different hole in the horizontal track. A poorly balanced door can cause garage door operator problems.

19b. 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.

20 ATTACHING WEATHERSTRIPS (NOT INCLUDED)

NOTICE

WHEN PERMANENTLY ATTACHING THE WEATHERSTRIPS TO THE JAMBS, AVOID PUSHING THE WEATHERSTRIPS TOO TIGHTLY AGAINST THE FACE OF DOOR.

See Figure 49 for the following steps.

20a. Permanently attach the nails to the weatherstrips on both door jambs ① and the header ②. The weatherstrips were temporarily attached in Preparing the Opening, in the pre-installation section of this manual.

NOTE: For clarity, door isn't shown.

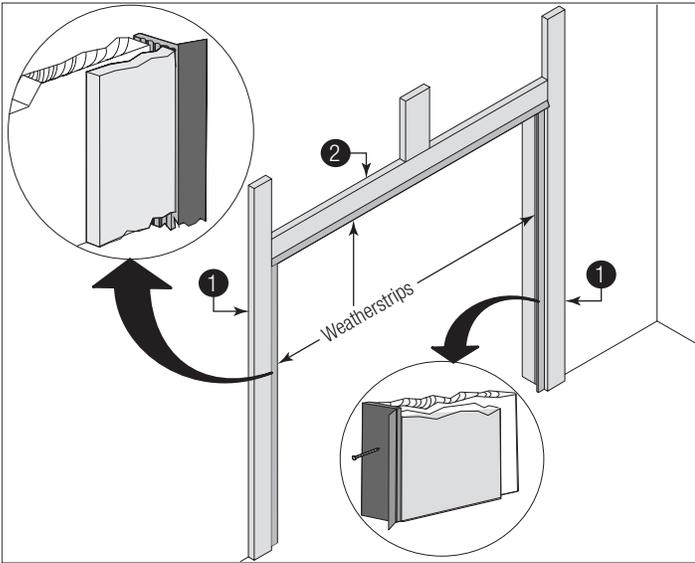


Figure 49, Weatherstrips

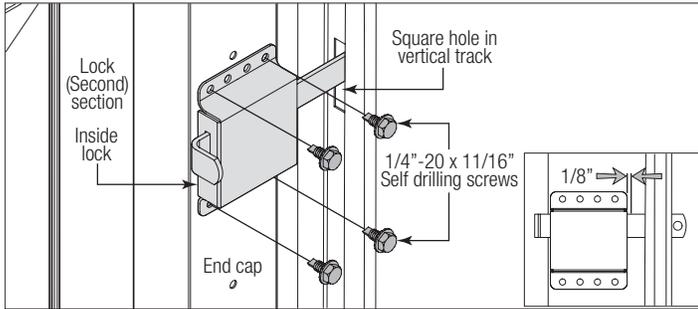
1	Door Jambs	2	Header
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OPTIONAL INSTALLATION

Inside Lock

Install the inside lock on the second section of the door. Secure the lock to the section with (4) 1/4" - 20 x 11/16" self drilling screws. Square the lock assembly with the door section, and align with the square hole in the vertical track. The inside lock should be spaced approximately 1/8" away from the section edge.

IMPORTANT: Inside lock(s) must be removed or made inoperative in the unlocked position if an operator is installed on this door.

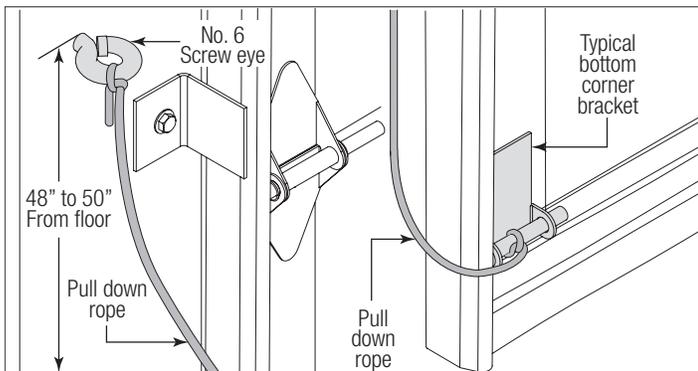


Pull Down Rope

WARNING

DO NOT INSTALL PULL DOWN ROPE ON DOORS WITH OPERATORS. CHILDREN MAY BECOME ENTANGLED IN THE ROPE CAUSING SEVERE OR FATAL INJURY.

Measure and mark the jamb approximately 48" to 50" (1220 to 1270 mm) from floor on the right or left side of jamb. Drill 1/8" pilot hole for no. 6 screw eye. Tie the pull down rope to the no. 6 screw eye and to the bottom corner bracket, as shown.



MAINTENANCE

Cleaning Your Garage Door

NOTICE

DO NOT USE A PRESSURE WASHER ON YOUR GARAGE DOOR!

While factory-applied finishes on garage doors are durable, it is desirable to clean them on a routine basis. Some discoloration of the finish may occur when a door has been exposed to dirt-laden atmosphere for a period of time. Slight chalking may also occur as a result of direct exposure to sunlight. Cleaning the door may help to restore the appearance of the finish. To maintain an aesthetically pleasing finish of the garage door, a periodic washing of the garage door is recommended.

The Following Cleaning Solution is Recommended:

A mild detergent solution consisting of one cup detergent (with less than 0.5% phosphate) dissolved into five gallons of warm water will aid in the removal of most dirt.

NOTICE

THE USE OF DETERGENTS CONTAINING GREATER THAN 0.5% PHOSPHATE IS NOT RECOMMENDED FOR USE IN GENERAL CLEANING OF GARAGE DOORS. BE SURE TO CLEAN BEHIND WEATHER-STRIPS ON BOTH SIDES AND TOP OF DOOR.

NOTICE

NEVER MIX CLEANSERS OR DETERGENTS WITH BLEACH.

NOTICE

DO NOT USE ANY WINDOW CLEANING FLUIDS, SCOURING COMPOUNDS, GRITTY CLOTHS OR SOLVENT-BASED CLEANERS OF ANY KIND.

To clean polycarbonate windows, see www.Wayne-Dalton.com.

Painting Your Garage Door

Refer to Instruction Insert "**Field Painting and Finishing Fiberglass or Steel Door Sections**".

Maintaining The Finish On Your Garage Door

If the factory finish is beginning to fade, the door may require a field applied top clear coat. Depending on environment and usage, this may be necessary after 1 to 3 years of use. Refer to Instruction Insert "**Field Painting and Finishing Fiberglass or Steel Door Sections**".

Operation And Maintenance

Operating Your Garage Door:

Before you begin, read all warning labels affixed to the door and the installation instructions and owner's manual. When correctly installed, your Wayne Dalton door will operate smoothly. Always operate your door with controlled movements. Do not slam your door or throw your door into the open position, this may cause damage to the door or its components. If your door has an electric opener, refer to the owner's manual to disconnect the opener before performing manual door operation below.

Manual Door Operation:

For additional information on manual garage door operation go to www.dasma.com and reference TDS 165.

CAUTION

DO NOT PLACE FINGERS OR HANDS INTO SECTION JOINTS WHEN OPENING AND/OR CLOSING A DOOR. ALWAYS USE LIFT HANDLES/SUITABLE GRIPPING POINTS WHEN OPERATING THE DOOR MANUALLY.

OPENING A DOOR: Make sure the lock (if present) are in the unlocked position. Lift the door by using the lift handles/suitable gripping points only. Door should open with little resistance.

CLOSING A DOOR: From inside the garage, pull door downward using lift handles/ gripping points only. If you are unable to reach the lift handles/suitable gripping points only, use pull-down rope (if present) affixed to the side of door. Door should close completely with little resistance.

Using An Electric Operator:

IMPORTANT: If present, Pull-down rope must be removed and locks must be removed or made inoperative in the unlocked position.

When connecting a drawbar (trolley-type) garage door operator to this door, a drawbar operator bracket must be securely attached to the top section of the door, along with any struts provided with the door. Always use the drawbar operator bracket supplied with the door. To avoid possible damage to your door, reinforce the top section with a strut (may or may not be supplied). The installation of the drawbar operator must be according to manufacturer's instructions and force settings must be adjusted properly. Refer to the owner's manual supplied with your drawbar operator for complete details on installation, operation, maintenance and testing of the operator.

Maintaining Your Garage Door:

Before you begin, read all warning labels affixed to the door and the installation instructions and owner's manual. Perform routine maintenance steps once a month, and have the door professionally inspected once a year. Review your Installation Instructions and Owner's Manual for the garage door. These instructions are available at no charge from Wayne Dalton, a division of Overhead Door Corporation, P.O. Box 67, Mt. Hope, OH, 44660, or at www.Wayne-Dalton.com. For additional information on garage door/operator maintenance go to www.dasma.com and reference TDS 151, 167 and 179.

Monthly Inspections:

1. Visual Inspection:

Closely inspect jambs, header and mounting surface. Any material found not to be structurally sound must be replaced. It may be necessary to uninstall part or all of the door assembly in order to replace defective material. Refer to the supplemental instructions "Removing an Existing Door/Preparing the Opening" at www.Wayne-Dalton.com. Inspect the spring(s), counterbalance lift cables, track rollers, pulleys, rear back hangs and other door hardware for signs of worn or broken parts. Tighten any loose screws and/or bolts, except on bottom corner brackets or on the counterbalance assembly. Check exterior surface of the door sections for any minor cracks. Verify door has not shifted right or left in the opening. If you suspect problems, contact a trained door system technician.

DANGER

GARAGE DOOR SPRINGS, COUNTERBALANCE LIFT CABLES, BRACKETS, AND OTHER HARDWARE ATTACHED TO THE SPRINGS ARE UNDER EXTREME TENSION, AND IF HANDLED IMPROPERLY, CAN CAUSE DEATH OR SERIOUS INJURY. ONLY A TRAINED DOOR SYSTEMS TECHNICIAN SHOULD ADJUST THEM, BY CAREFULLY FOLLOWING THE MANUFACTURER'S INSTRUCTIONS.

WARNING

NEVER REMOVE, ADJUST, OR LOOSEN THE BOLTS, SCREWS AND/OR LAG SCREWS ON THE COUNTERBALANCE (END BEARING BRACKETS, DRUMS OR SPRING SYSTEM) OR BOTTOM CORNER BRACKETS OF THE DOOR. THESE BRACKETS ARE CONNECTED TO THE SPRING(S) AND ARE UNDER EXTREME TENSION. TO AVOID POSSIBLE DEATH OR SERIOUS INJURY, HAVE ANY SUCH WORK PERFORMED BY A TRAINED DOOR SYSTEMS TECHNICIAN USING PROPER TOOLS AND INSTRUCTIONS.

Extension Springs:

The extension springs (located above the door) should only be adjusted by a trained door systems technician. **DO NOT** attempt to repair or adjust torsion springs yourself.

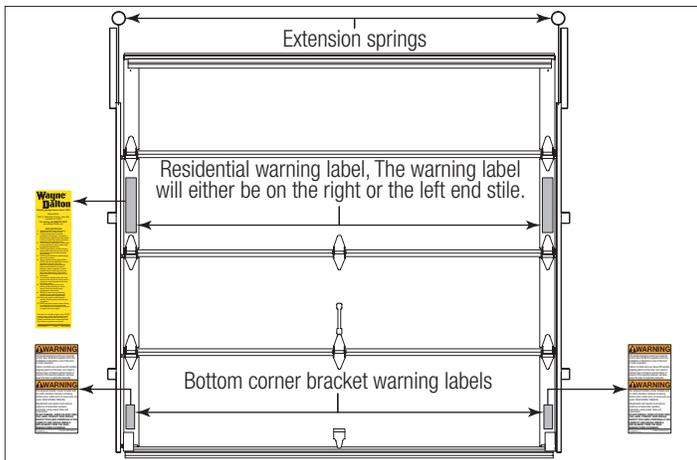
2. Door Balance:

Periodically test the balance of your door. If you have a garage door drawbar operator, use the release mechanism so you can operate the door by hand when doing this test. Start with the door in the fully closed position. Using handles or suitable gripping points, lift the door to check its balance. If door lifts by itself (hard to pull down) or if door is difficult to lift (easy to pull down), have it adjusted by a trained door systems technician. **DO NOT** attempt to repair or adjust Torsion Springs yourself.

3. Lubrication:

The door should open and close smoothly. Ensure the door track rollers are rotating freely when opening and closing the door. If track rollers do not rotate freely, clean the door tracks, removing dirt and any foreign substances. Clean and lubricate (use a non-silicon based lubricant) graduated end hinges, center hinges, steel track rollers, bearings and torsion springs (torsion spring coil surfaces). **DO NOT** lubricate plastic idler bearings, nylon track rollers, or the door track. **DO NOT** oil a cylinder lock. If actuation is difficult, use a graphite dust to lubricate.

Check for Presence of Safety Labels:





Models 8000, 8200, 8024 PO, & 8224 PO

Limited Warranty

Wayne Dalton, a division of Overhead Door Corporation ("Seller") warrants to the original purchaser of the Models 8000, 8200, 8024 PO, 8224 PO ("Product"), subject to all of the terms and conditions hereof, that the Product and all components thereof will be free from defects in materials and workmanship for the following period(s) of time, measured from the date of installation:

TEN (10) YEARS from the date of installation against:

- The Product becoming inoperable due to rust-through of the steel skin from the core of the Product section, due to cracking, splitting, or other deterioration of the steel skin, or due to structural failure caused by separation or degradation of the foam insulation.
- Peeling of the original paint as a result of a defect in the original paint or in the application of the original paint coating.

TEN (10) YEARS on Product hardware and tracks (except springs).

ONE (1) YEAR on all other component and parts.

Seller's obligation under this warranty is specifically limited to repairing or replacing, at its option, any part which is determined by Seller to be defective during the applicable warranty period. Any labor charges are excluded and will be the responsibility of the purchaser.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty is made to the original purchaser of the Product only, and is not transferable or assignable. This warranty applies only to Product installed in a residential or other non-commercial application. It does not cover any Product installed in commercial or industrial building applications. This warranty does not apply to any unauthorized alteration or repair of the Product, or to any Product or component which has been damaged or deteriorated due to misuse, neglect, accident, failure to provide necessary maintenance, normal wear and tear, acts of God, or any other cause beyond the reasonable control of Seller or as a result of having been exposed to toxic or abrasive environments, including blowing sand, salt water, salt spray and toxic chemicals and fumes.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE APPLICABLE WARRANTY PERIOD REFLECTED ABOVE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

IN NO EVENT SHALL SELLER BE RESPONSIBLE FOR, OR LIABLE TO ANYONE FOR, SPECIAL, INDIRECT, COLLATERAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, even if Seller has been advised of the possibility of such damages. Such excluded damages include, but are not limited to, loss of use, cost of any substitute product, or other similar indirect financial loss. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Claims under this warranty must be made promptly after discovery, within the applicable warranty period, and in writing to the authorized distributor or installer whose name and address appear below. The purchaser must allow Seller a reasonable opportunity to inspect any Product claimed to be defective prior to removal or any alteration of its condition. Proof of the purchase and/or installation date, and identification as the original purchaser, may be required. There are no established informal dispute resolution procedures of the type described in the Magnuson-Moss Warranty Act.

SELLER: _____

SELLER'S ADDRESS: _____

Thank you for your purchase.

PLEASE DO NOT RETURN THIS PRODUCT TO THE STORE

If you need assistance, please call 1-866-569-3799 (press Option 1) and follow the prompts to contact a customer service representative. They will be happy to handle any questions that you may have.

After installation is complete, leave this Installation Instructions And Owner's Manual with the homeowner, or fasten it near garage door for easy reference.

Product may be covered by one or more patents.
See **www.wayne-dalton.com/patents** for details.