# Model 451/452 Aluminum FullView

## COMMERCIAL GARAGE DOOR INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL

**Read these instructions carefully before attempting installation. If in question about any of the procedures, do not perform the work. Instead, have a trained door systems technician do the installation or repairs.**

## ⚠ IMPORTANT

## SAFETY NOTICES

An overhead door is a large heavy object that moves with the help of springs under high tension. Moving objects and springs under tension can cause injuries. For your safety and the safety of others, follow these instructions:

1. Wear protective gloves during installation to avoid possible cuts from sharp metal edges.
2. It is always recommended to wear eye protection when using tools, other wise serious eye injury could result.
3. Operate door **ONLY** when properly adjusted and free of obstructions.
4. Keep door in full view while operating it. Watch the door open or close completely before leaving the area.
5. Should the door become hard to operate or completely inoperative, a qualified door agency should correct the problem to prevent damage to the door or serious personal injury.
6. **DO NOT PERMIT** children to play with the garage door or the electrical controls. Fatal injury could result, should the child become entrapped between the door and the floor.
7. To prevent serious injury or death, avoid standing in the open doorway or walking through the doorway while the door is moving.
8. Use lift handles/step plate when manually operating the door. **DO NOT** place fingers into section joints when operating the door.
9. Remove pull rope if door is operated by an electric opener.
10. Door is constantly under **EXTREME SPRING TENSION**. To prevent possible serious injury or death, adjustments, repairs, removal, or installation, **ESPECIALLY of SPRING ASSEMBLIES, CABLES, or BOTTOM BRACKETS**, should be performed **ONLY** by qualified door service people.
11. Check door and its hardware monthly for loose, worn, or broken parts. Have any repairs or adjustments made by a qualified door agency.
12. Have the door professionally inspected once a year.
13. Lubricate hinges, springs and rollers once a year.

**This manual MUST be attached to the wall in close proximity to the door.**

 Part No. 338306 New 5/27/2008

## OPERATING ZONE

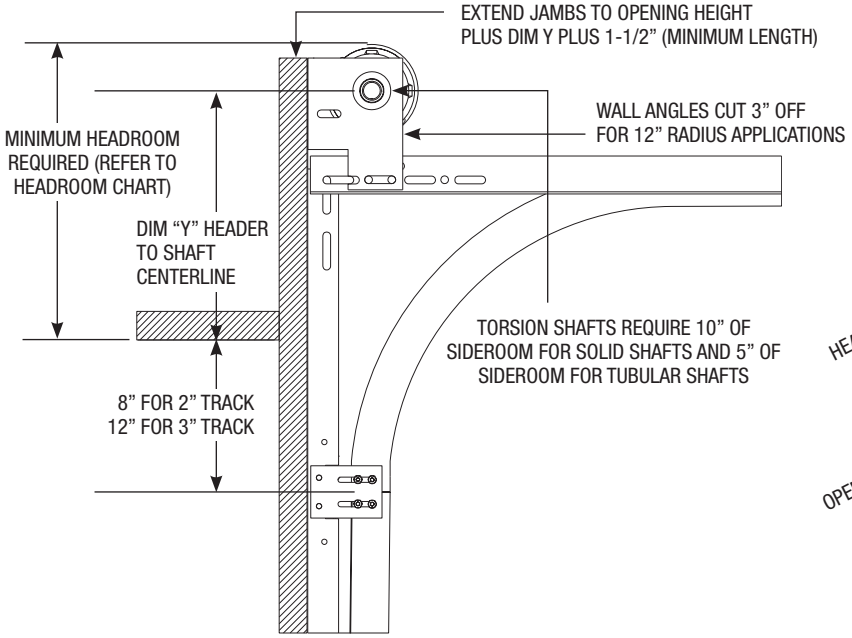
You Can Save Time And Effort If You First Establish **All** The Facts About The "Operating Zone". The **"** Operating Zone" is the area surrounding the door opening, extending upward and backward as far as the door will travel. We call it the Operating Zone because it is the area that the door will have to operate within and the dimensions are critical and must be known in advance of a door and operator installation.

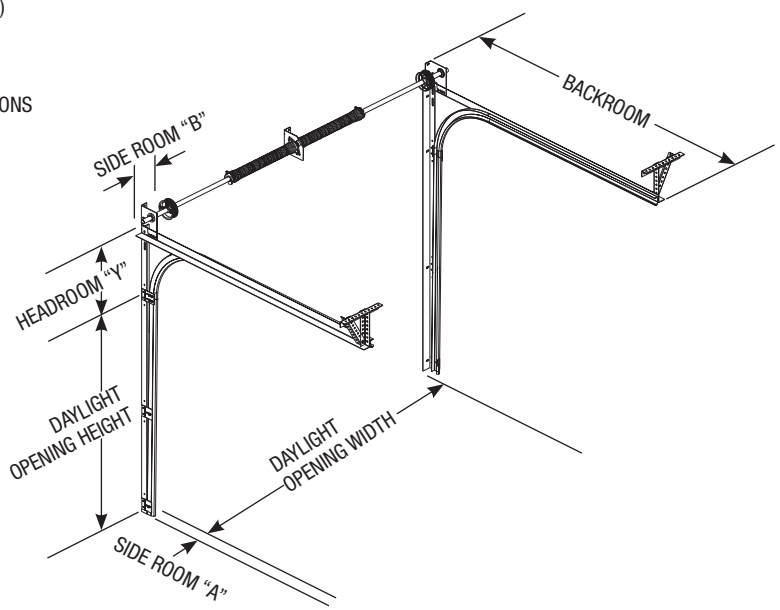
1. **Daylight Opening:** Exact size of finished opening.
2. **Sideroom:** required distance from the door opening to a wall or any obstruction. **Refer To Sideroom Requirements.**
3. **Headroom:** required distance from top of door opening to the ceiling or underside of joists. **Refer To Headroom Chart.**
4. **Backroom:** required distance from door opening header to the furthest back point to which the door track or operator unit, and their brackets, will extend. **Refer to Backroom Chart.**

Verify the operating zone dimensions.

1 - Exact size of finished daylight opening. Do you have the correct door size?
2 - Sideroom requirements for track and spring shaft. (Refer to sideroom chart)
3 - Headroom requirements. (Refer to headroom chart for standard lift track)
4 - Backroom (depth into room) Manual lift = Door height plus 18" ; Operators = Door height plus 48" (Standard Lift)
5 - Jambs must be plumb and solidly attached to the building. Floor must be level or exact gradeline established before you start.

Shipping tags show important information, door size, track size and type, spring size and hardware type. Verify that all material is present and correct before attempting installation.




**HEADROOM CHART For Standard Lift Track (Minimum Distance Required)**

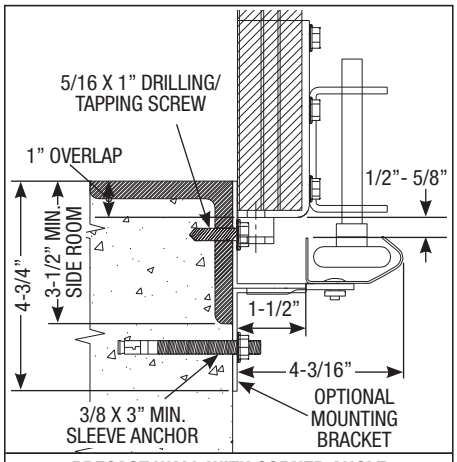
| DRUMS | DIMS | 3" TRACK, 15" RADIUS | 2" TRACK, 15" RADIUS | 2" TRACK, 12" RADIUS |
|---|---|---|---|---|
| 400-8, 400-12 | HEADROOM DIM Y | 15-1/2" 13" | 14-1/2" 12" | 12-1/2" 9" |
| 5250-18 | HEADROOM DIM Y | 19" 14-1/2" | 18" 13-1/2" | 15" 10-1/2" |
| 800-32 | HEADROOM DIM Y | 21" 16-1/2" | 20" 15" | 17" 12-1/2" |

**Dim. Y INDICATES THE DISTANCE FROM THE HEADER TO THE CENTER LINE OF TORSION SHAFT.**
**NOTE:** 2 1/2" OF ADDITIONAL HEADROOM IS REQUIRED FOR SINGLE TROLLEY OPERATOR INSTALLATIONS.
**NOTE:** HEADROOM CAN BE REDUCED 2-1/2" BY USING THE QUICK CLOSING TOP FIXTURE OR BY SHORTENING THE VERTICAL TRACKS BY 3" MAX.

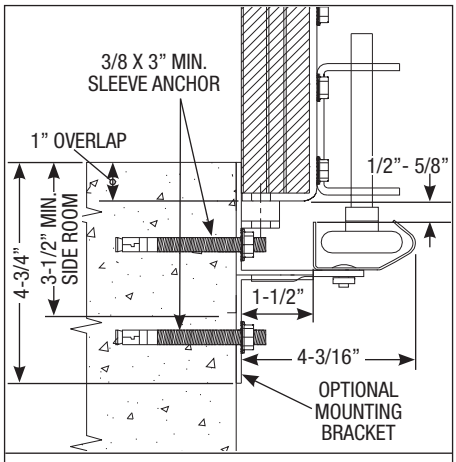
**BACKROOM CHART (Minimum Distance Required)**

| TRACK SIZE | MANUAL DEPTH INTO ROOM | DIM. A SIDEROOM TRACK | | DIM. B SIDEROOM TORSION SHAFT | |
|---|---|---|---|---|---|
| | | STEEL | MASONRY AND WOOD | SOLID | TUBE |
| 2" | DOOR HEIGHT PLUS 18" MOTOR PLUS 66" | 3-1/2" | 4" | 10" | 5" |
| 3" | DOOR HEIGHT PLUS 24" MOTOR PLUS 66" | 4" | 5" | 10" | 5" |

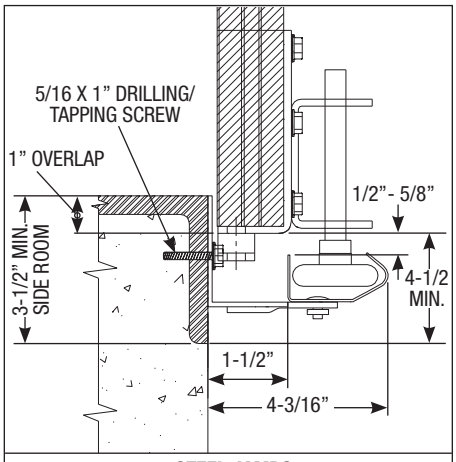
**SIDEROOM REQUIREMENTS**



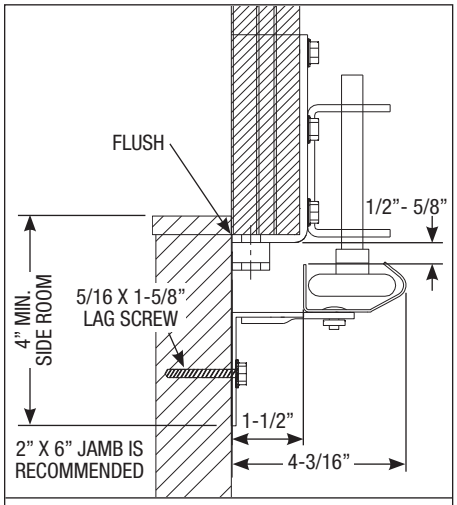

**PRECAST WALL WITH CORNER ANGLE**
**2" TRACK**



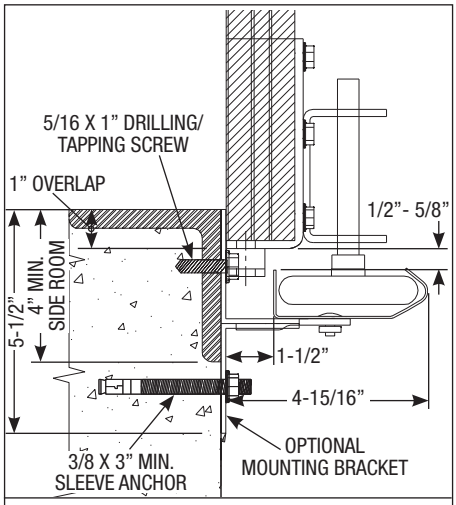

**PRECAST WALL WITHOUT CORNER ANGLE**
**2" TRACK**



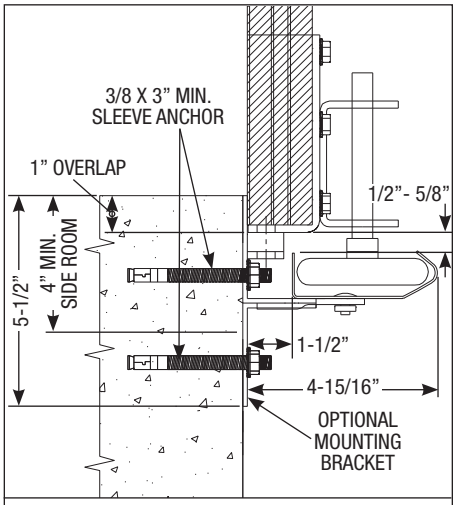

**STEEL JAMBS**
**2" TRACK**



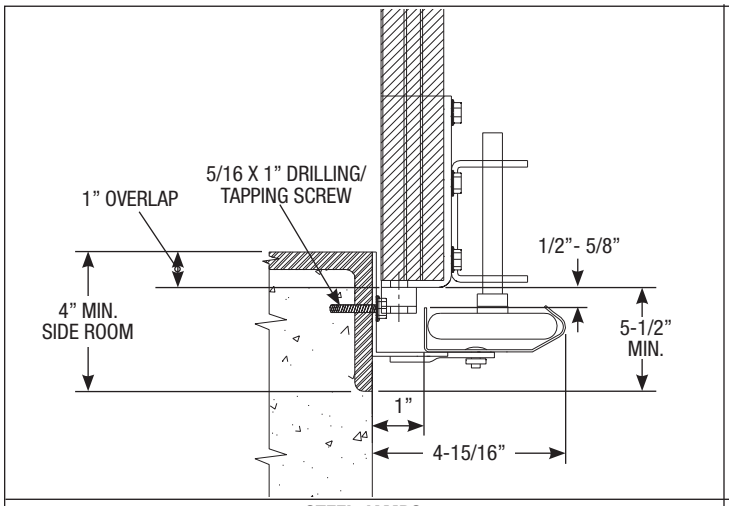

**WOOD JAMBS**
**2" TRACK**



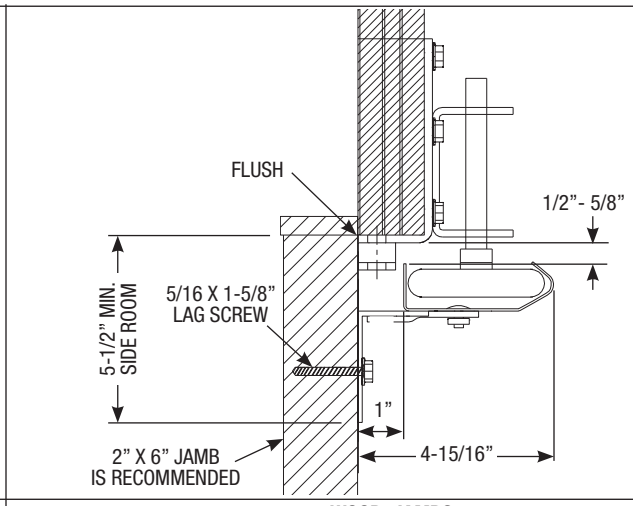

**PRECAST WALL WITH CORNER ANGLE**
**3" TRACK**




**PRECAST WALL WITHOUT CORNER ANGLE**
**3" TRACK**




**STEEL JAMBS**
**3" TRACK**




**WOOD JAMBS**
**3" TRACK**

## COUNTERBALANCE CABLES/ BOTTOM BRACKETS

For doors using the broken cable safety device, see page 19.

For Model 451 doors with the bottom bracket shown in **FIG A**, locate the bottom section and the left and right hand bottom brackets. Secure the counterbalance cables to the brackets using clevis pin, washer and cotter key as shown in **FIG A**. Secure bottom brackets to bottom section using (5) 1/4" x 7/8" self-drilling screws as shown in **FIG B**. Insert a roller into the bottom brackets as shown in **FIG C**.

For Model 451 doors with the bottom bracket shown in **FIG D**, Secure the counterbalance cables in the same manner as described above. Attach the bracket to the section with (5) 1/4" X 7/8" self drilling screws. Attach the roller carrier to the bottom bracket with (4) 1/4" X 7/8" self drilling screws. Insert a roller and 3/16" roller spacer into the roller carrier; the inner holes of the roller carrier are for 2" track; the outer holes of the roller carrier are for 3" track.

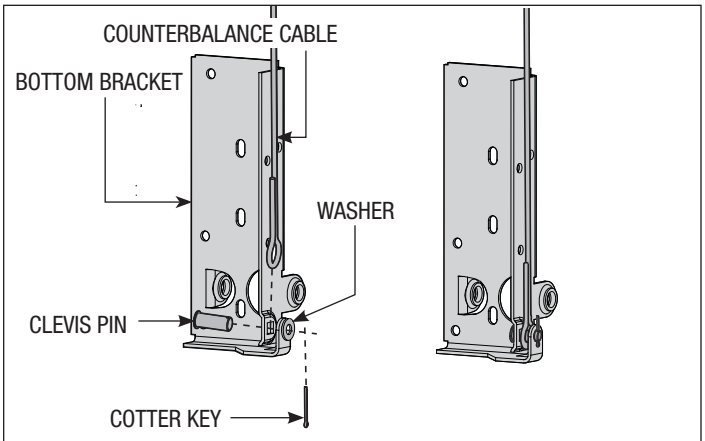



**FIG A**

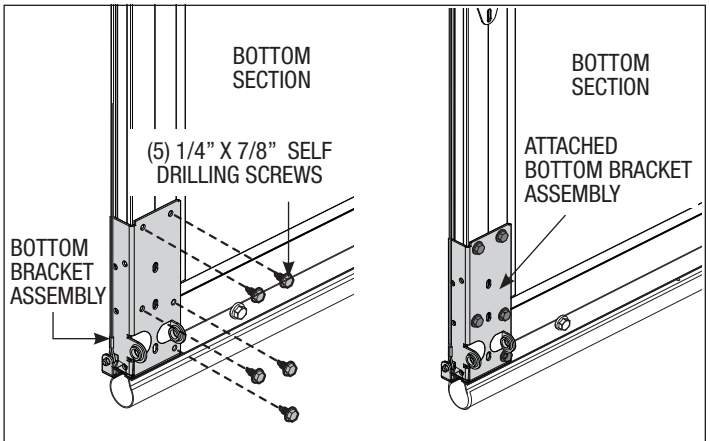



**FIG B**

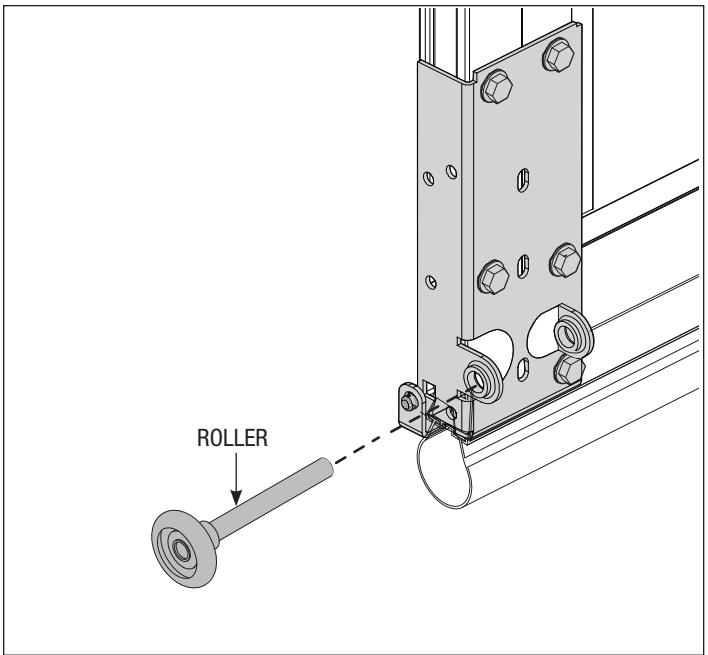



**FIG C**

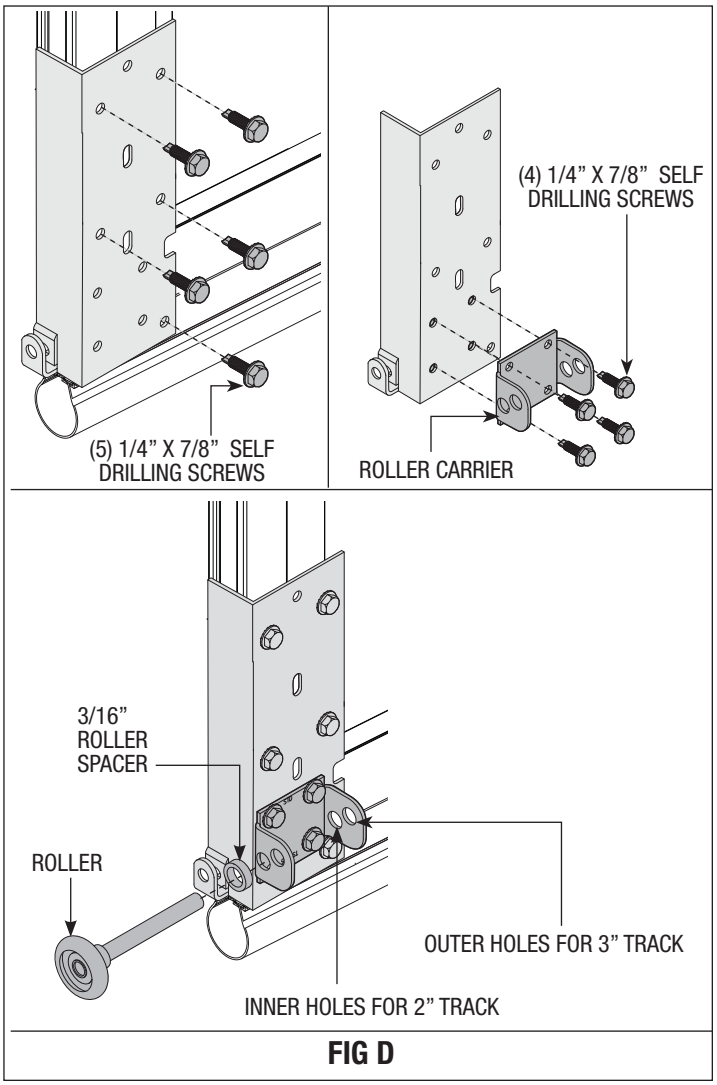



**FIG D**

## HINGES

**NOTE:** Top sections do not require hinges.
Use the **ENDHINGE CHART** to determine the proper endhinges for the proper section. Install only the left hand end hinge, as the right hand end hinge will need to be installed when the sections are stacked. Align the proper left hand end hinges to the proper sections using the center line of the endstile as a guide and the 2 punch marks in the endstile to locate the placement of the end hinge. Secure using (2) 1/4" x 7/8" self drilling screws as shown in **FIG E**. Sections with double end stiles require 2 end hinges per side on each section, as shown in **FIG F**.

The end hinge sequence is dependent on track size (2" or 3").
2" track applications begin with #1 hinges attached to the top corners of the bottom section.
3" track applications begin with #3 hinges attached to the top corners of the bottom section.

To install center hinges on doors without integral ribs, place the center hinge over the center stile(s), using the center line of the stile(s) as a guide, and secure to the section using (2) 1/4" x 7/8" self drilling screws, as shown in **FIG G.**

To install center hinges on doors with integral ribs, seat the bottom half of the half hinge(s) onto the integral rib above the center stile(s) and over the punch marks of each section, and secure to the rib with (2) 1/4"-20 x 5/8"carriage bolts and (2) 1/4" x 20 flange hex nuts, as shown in **FIG G**. Repeat for all remaining sections, except top section.

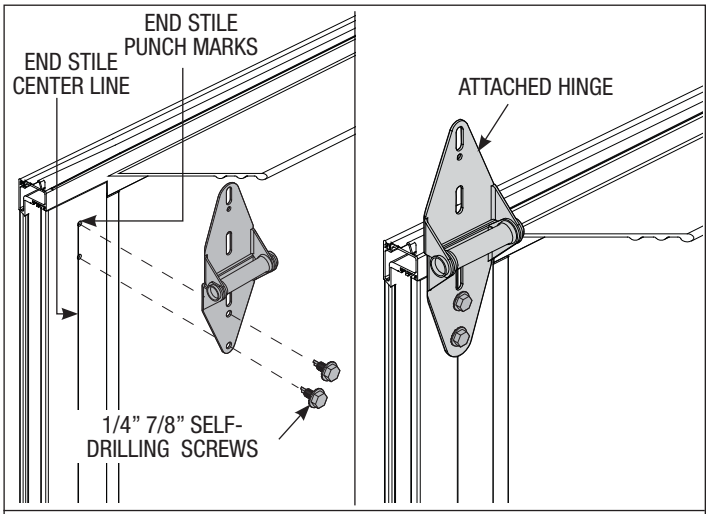



**FIG E**

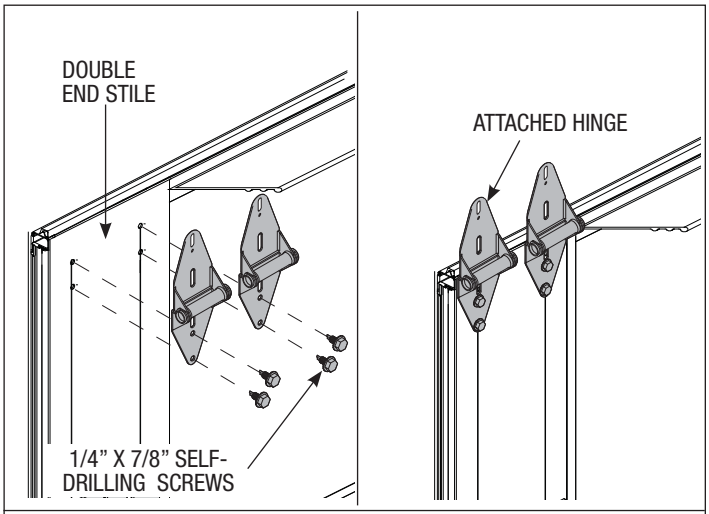



**FIG F**

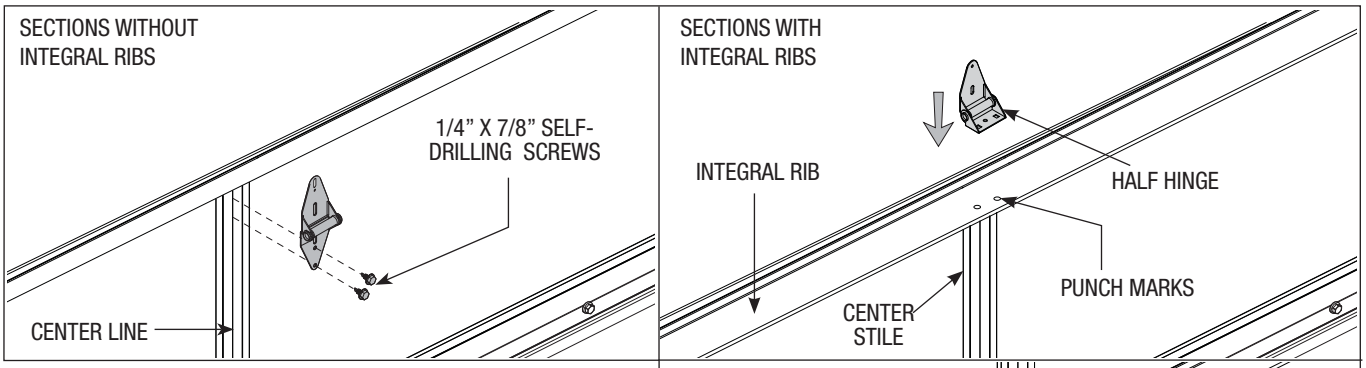



**FIG G**

| ENDHINGE CHART | | |
|---|---|---|
| Section | 2 inch track | 3 inch track |
| Bottom | #1 hinge | #3 hinge |
| Second | #2 hinge | #4 hinge |
| Third | #3 hinge | #5 hinge |
| Fourth | #4 hinge | #6 hinge |
| Fifth | #5 hinge | #7 hinge |
| Sixth | #6 hinge | #8 hinge |
| Seventh | #7 hinge | #9 hinge |

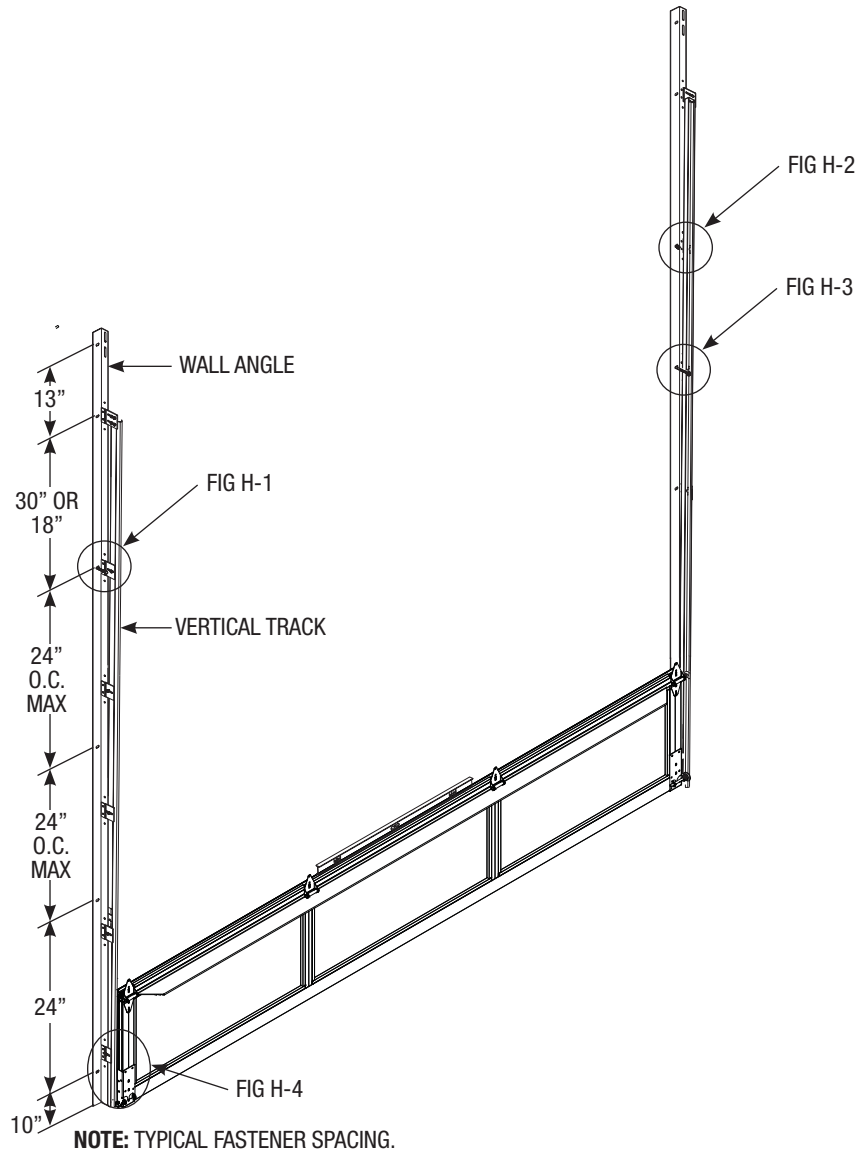
Hinges are stamped with their identification.

## BOTTOM SECTION/ VERTICAL TRACK

Center and level (or support to a known grade level) the bottom section in the opening, using shims if necessary, as seen in **FIG H**. Temporarily attach the wall angles to the jambs with the appropriate lag screws, as shown in **FIG H-1**, **FIG H-2** and **FIG H-3**. Allow 1/2" clearance between the section and the vertical tracks as illustrated in the sidereoom requirements illustrations on page 3. It is important that the top of each track is on the same plane.

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

Stack the bottom section into position by hooking the left hand roller into the left hand vertical track, as shown in **FIG H-4.** Insert a roller into the proper, uninstalled right hand end hinge, and place the roller into the right hand vertical track. Lower the roller and hinge into the proper position over the section, and attach to the section in the same manner the left hand end hinge was attached, as described on page 5.




**NOTE:** TYPICAL FASTENER SPACING.

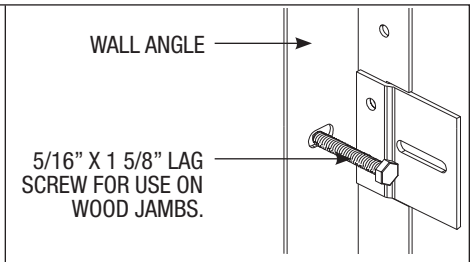



**FIG H-1**

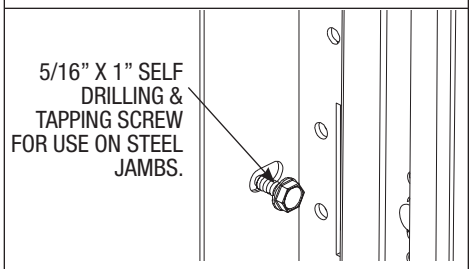



**FIG H-2**

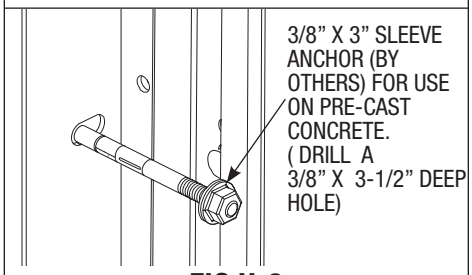



**FIG H-3**

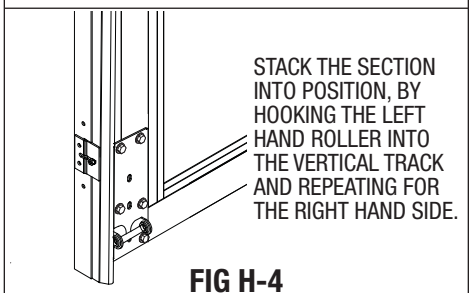



**FIG H-4**

**FIG H**

## STACKING SECTIONS

Locate the Lock Section (the second section) and insert a roller into the left end hinge. Stack this section into the opening by hooking the roller into the left hand vertical track and lowering the section onto the bottom section, as shown in **FIG I**. Insert a roller into the proper, uninstalled right hand end hinge, and place the roller into the right hand vertical track. Lower the roller and hinge into the proper position over the section, and attach to the section in the same manner the left hand end hinge was attached, as described on page 5. Verify section alignment, and flip up the upper hinge leaf(s) from the bottom section and secure to the lock section using 1/4"-20 x 7/8" self-drilling screws. Continue to stack the remaining sections in the proper sequence, except for the top section.

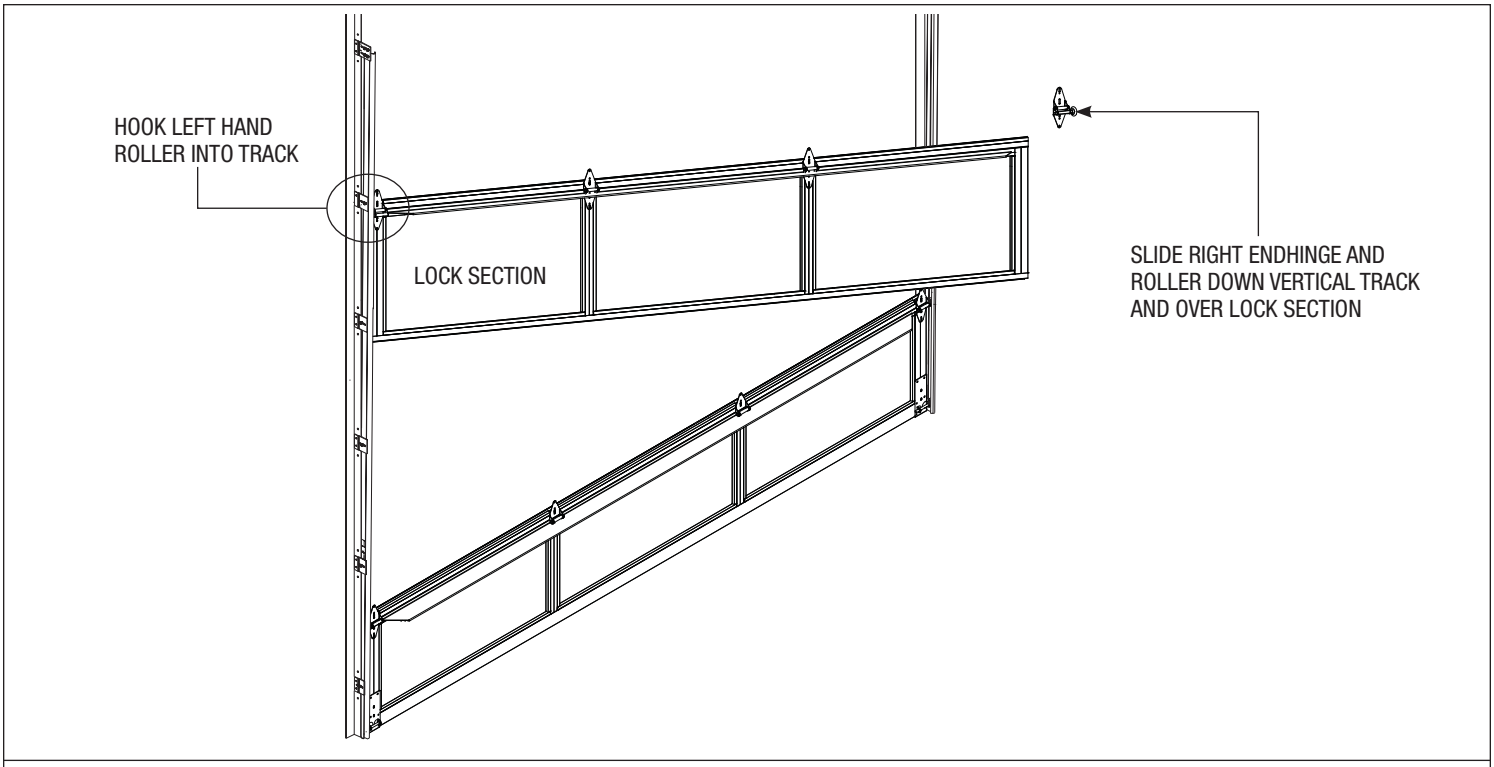



**FIG I**

## TOP BRACKETS/ TOP SECTION

Align upper-center hole of top bracket with vertical groove on the end stile and ensure top bracket is level and aligned with edge of top section. Secure with (4) 1/4"- 20 x 7/8" self drilling screws, one in each corner of the top bracket, as shown in **FIG J.** Loosely fasten top bracket slide with (1) 5/16" x 3/4" carriage bolt and flange hex nut. Insert roller into slide. Repeat for other side. If your door has double end stiles then it will require 2 top brackets; as shown in **FIG K**, in which case an additional top bracket will be installed in the same manner next to the first top bracket with one roller being placed through both top bracket slides. 2 reinforcement brackets will then be installed under the 2 top brackets and secured to the section with (2) 1/4"- 20 X 7/8" self drilling screws.

If your door is trolley operated; it is recommended that an optional strut be installed on the top rail.

Now stack the top section, take care to ensure it is aligned properly with the other sections.

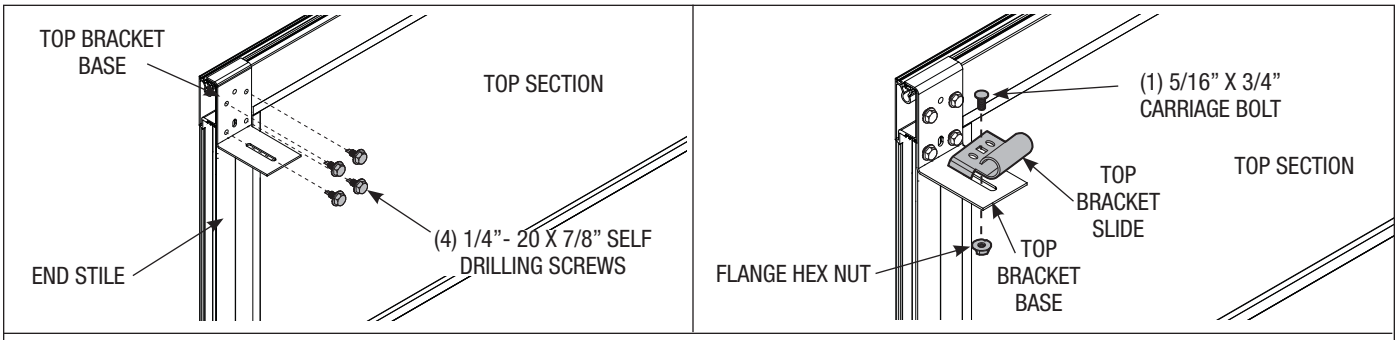



**FIG J**

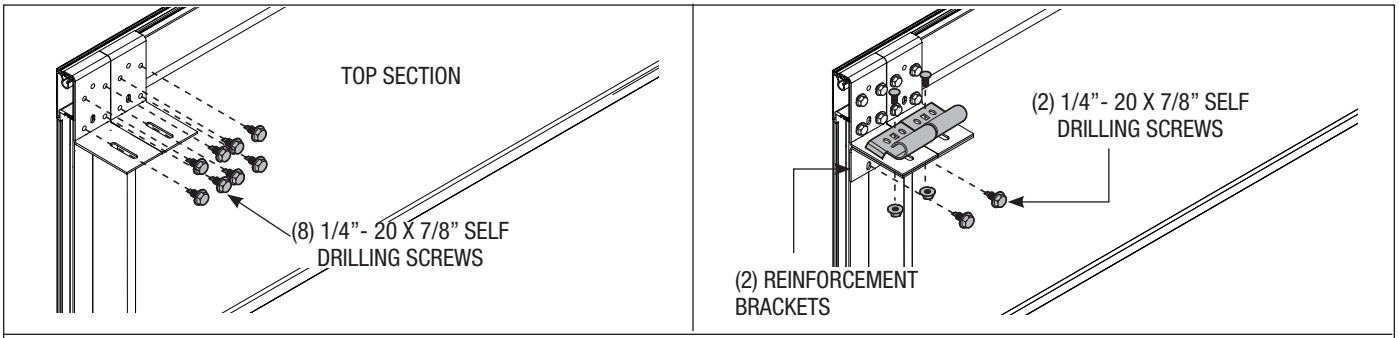



**FIG K**

## VERTICAL TRACK ADJUSTMENT

Adjust the spacing of the vertical tracks from 3/8"-5/8" spacing at the bottom section to 3/4"-7/8" spacing at the top section; refer to page 3. Permanently secure each vertical track to the jambs.

## HORIZONTAL TRACKS/ ADJUSTING TOP BRACKET

Use chain or cable to temporarily suspend the rear of the horizontal track assembly. Align the curved end of the horizontal track assembly with the top of the vertical track. Secure the horizontal track to the splice plate or flagangle using (2) 1/4" x 9/16" track bolts and hex flange nuts as shown in **FIG L-4**. Secure the horizontal reinforcing angle to the wall angle using (1) 3/8" x 3/4" truss bolt and nut as shown in **FIG L-3**; ignore the counterbalance hardware in this illustration; this hardware will be installed in the next step.

With tracks installed you can adjust the top brackets. Starting on one side, slide the top bracket roller(s) out against the horizontal track. Maintaining the slide's position, tighten the 5/16" x 3/4" carriage bolt(s) and flange hex nut(s) to secure the top bracket slide(s) to the top bracket base. Repeat for other side.

## COUNTERBALANCE

**⚠ WARNING**

**INSTALL SUPPORT BRACKETS TO SOLID STRUCTURAL MEMBERS ONLY. DO NOT INSTALL OVER DRY WALL OR PANELING. FAILURE TO INSTALL SUPPORT BRACKETS TO SOLID STRUCTURAL MEMBERS CAN CAUSE SEVERE OR FATAL INJURY.**

**⚠ WARNING**

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

**NOTE:** Spring pads must be securely anchored before proceeding, as shown in **FIG M-2**. The pads must by flush with the jambs.

Attach the EBF's (end bearing brackets) to the horizontal reinforcing angles using (2) 3/8" x 3/4" truss bolts and nuts, as shown in **FIG L1, L2, L3.**
Attach the EBF's to the jambs using (2) 5/16" x 1-5/8" lags (wood), (2) 5/16" x 1" self-drilling and tapping screws (steel), or (2) 3/8" x 3" sleeve anchors (precast) (anchors by others).

Install the Center Support Bracket(s) to the spring pads at the same elevation as the bearing in the EBF's. Depending on the construction different fasteners must be used.
**Steel:** Secure each center support bracket using (3) 5/16" x 1" self-drilling and tapping screws as detailed in **FIG M-3**.
**Pre-Cast:** Secure each center support bracket using (2) 1/2" x 3" sleeve anchors (by others). This installation will require the 1/2" anchors to be secured to the building, then securing the brackets to the anchors as detailed in **FIG M-4.**
**Block Construction:** Attach perforated angle 18" long to center support bracket(s) using (2) 3/8" x 1-1/4" bolts and nuts. Chamfer angle to clear top section high arc. Secure center support bracket(s) and perforated angle to block using (4) 3/8" x 2-1/2" sleeve anchors as detailed in **FIG M-1**.

**For 6" Springs:** Attach DSB wall angle(s) to the spring pads. Fasten the spring plate to the wall angle bracket, as shown in **FIG P**.
**NOTE:** 1" GRADE 5 bolts are provided and must be used with the flat and locking washers, to fasten the spring plate to the DSB wall angle.
**NOTE:** Additional center support brackets are not required for coupler support.

### Torsion spring assemblies:

Torsion spring assemblies can be of several configurations depending on door size and weight. Left or right hand spring(s) must be identified by the color of the winding cone (Refer to **FIG N, O and P**. Ensure that spring warning tags are securely wired to all stationary spring cones.
**NOTE:** All red winding cone springs will be on the left side and all black winding cone springs will be on the right side.
**NOTE:** All set screws on drums and winding cones are painted red.

Locate torsion shaft and lay it in front of door on garage floor. Assemble torsion shaft assembly components according to spring and torsion shaft type as shown in **FIG N, O, and P**.

**For 2" or 2-5/8" Spring(s) (Tubular Shaft Only):** Install the loose steel bearing onto shaft (1 per spring(s)) and insert into stationary cone.

**For 2-5/8", solid shaft with coupler, 1 spring per bracket or 3-3/4" springs:** Install the loose steel bearing onto shaft (1 per spring) and insert into the stationary cone. **NOTE:** Additional center support brackets are not required for coupler support.

Lift the torsion shaft assembly into place by placing one end of the shaft into the end bearing bracket followed by the other end. Make sure the torsion shaft assembly and it's components are positioned properly with respect to the end and center support brackets, as shown in **FIG N, O and P.** The torsion shaft should be level and held in place by the end and center support bracket(s). Secure the spring stationary cone(s) (dead end) to the center support bracket(s) using 3/8" bolts and nuts. Keep spring warning tags clearly visible.
**NOTE:** The center support brackets require (2) fasteners in the lower slot and hole, then (1) fastener in the top slot.
**NOTE:** Each 3-3/4", 6" and Duplex spring is secured to a separate center support bracket. DO NOT attach two springs of this size to one center support bracket.

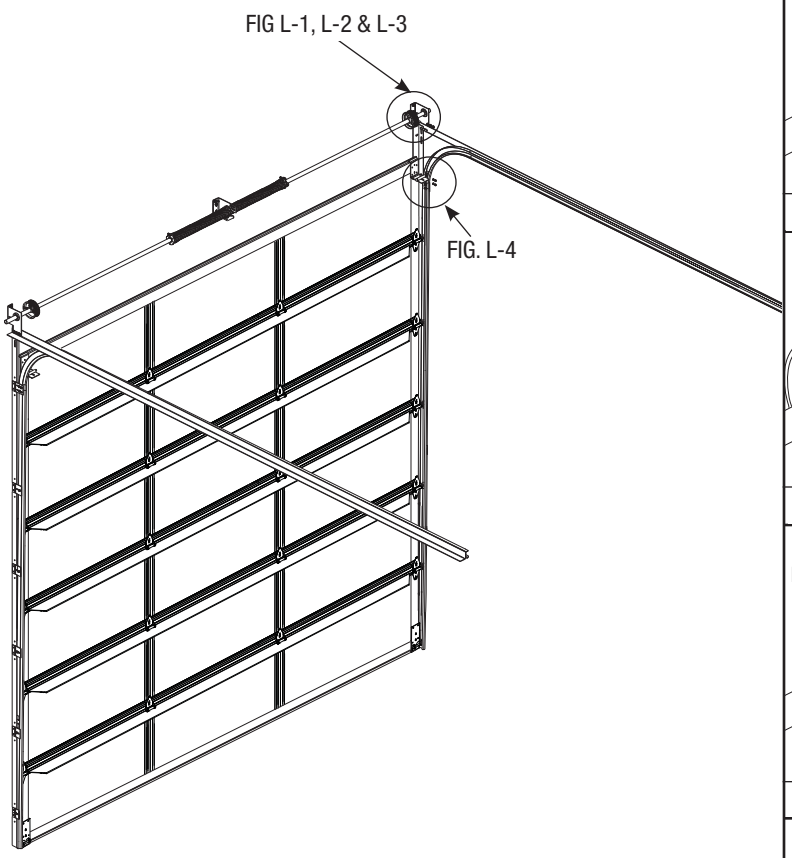



FIG L

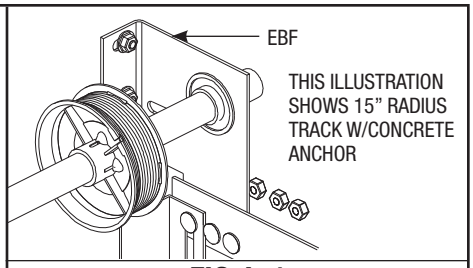



FIG. L-1

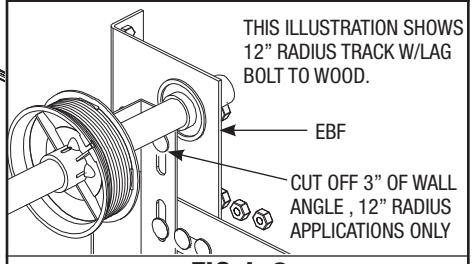



FIG. L-2

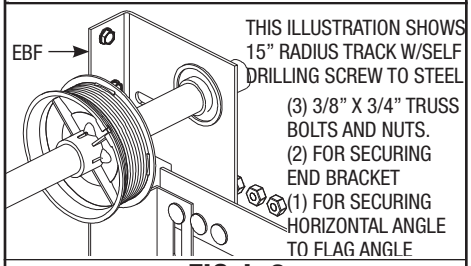



FIG. L-3

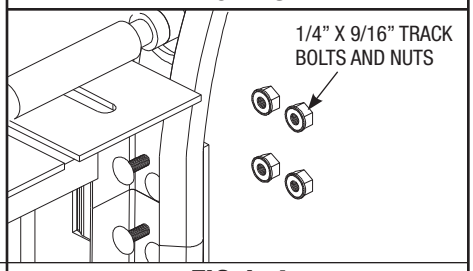



FIG. L-4

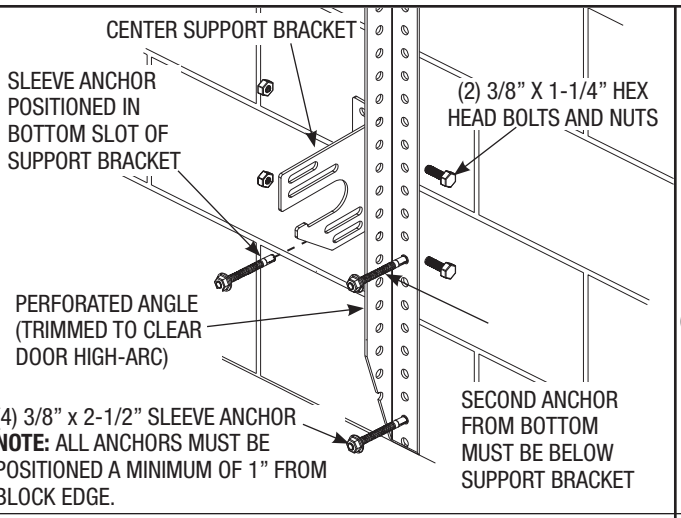



FIG M-1

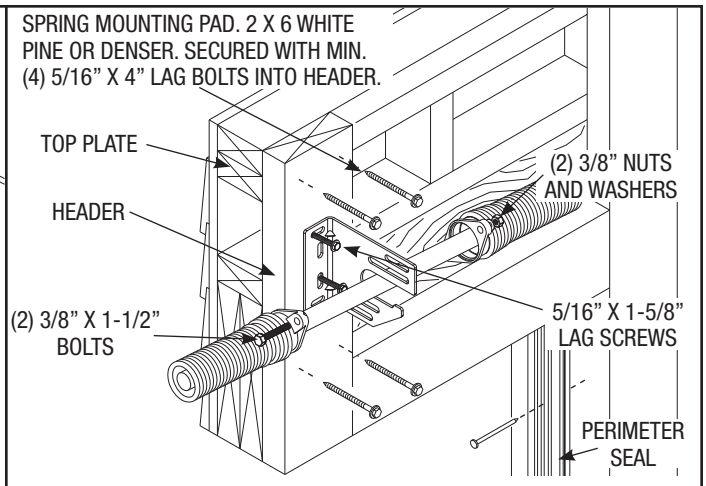



FIG M-2

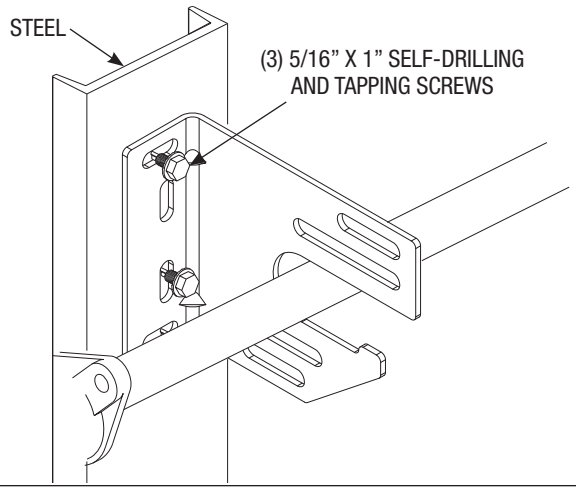



**FIG M-3**

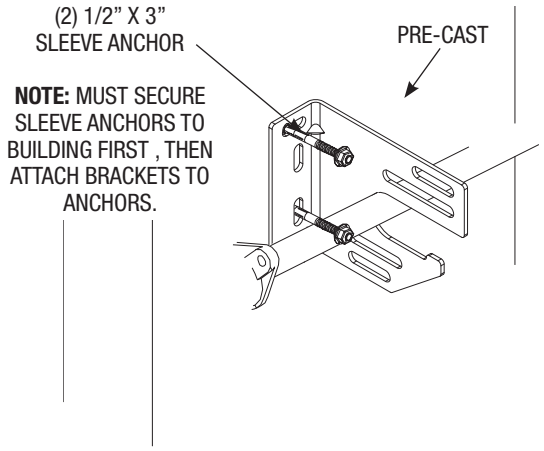



**FIG M-4**

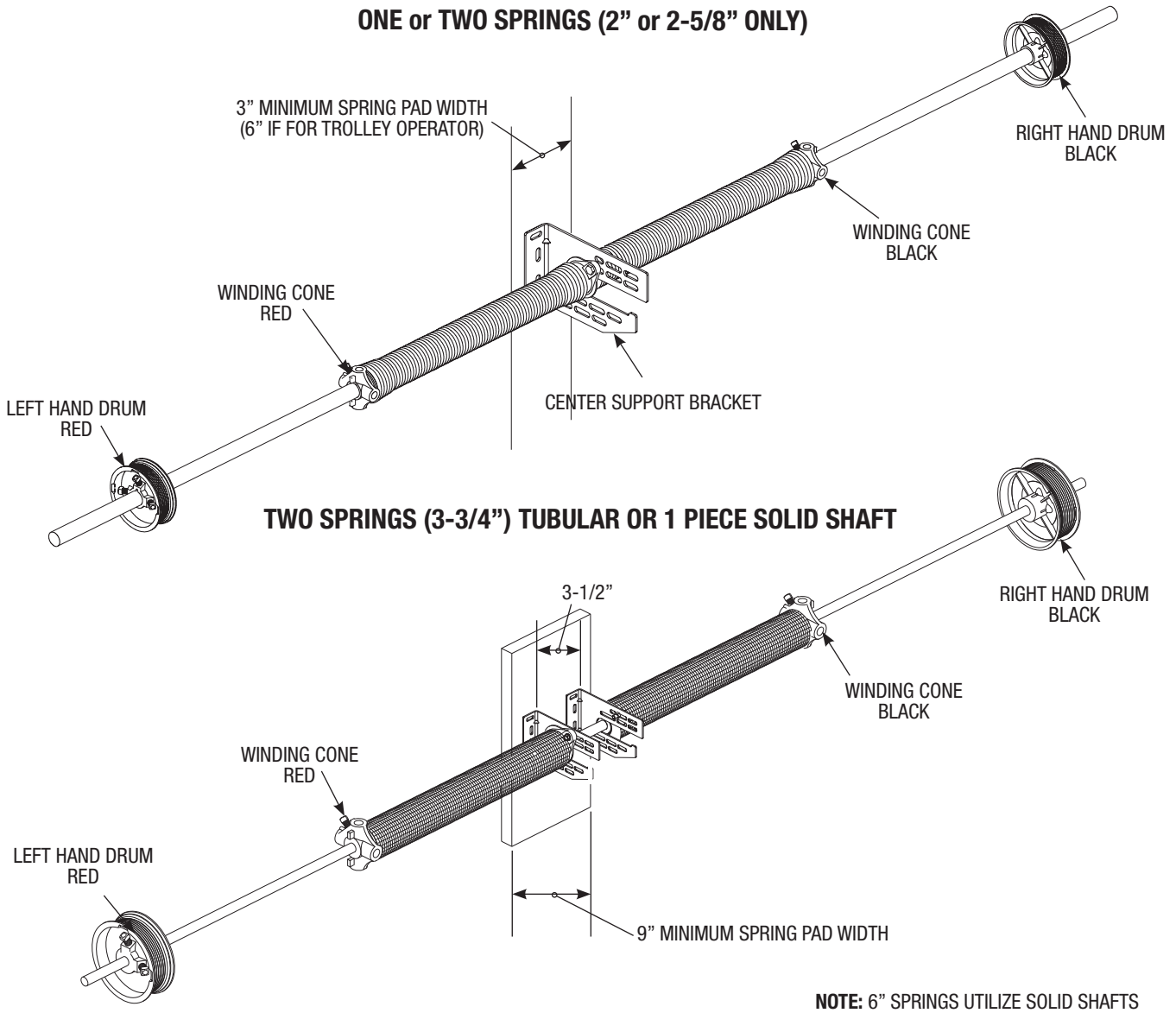



**FIG N**

## TWO OR MORE SPRINGS (2-5/8” or 3-3/4”) SPLIT SOLID SHAFT

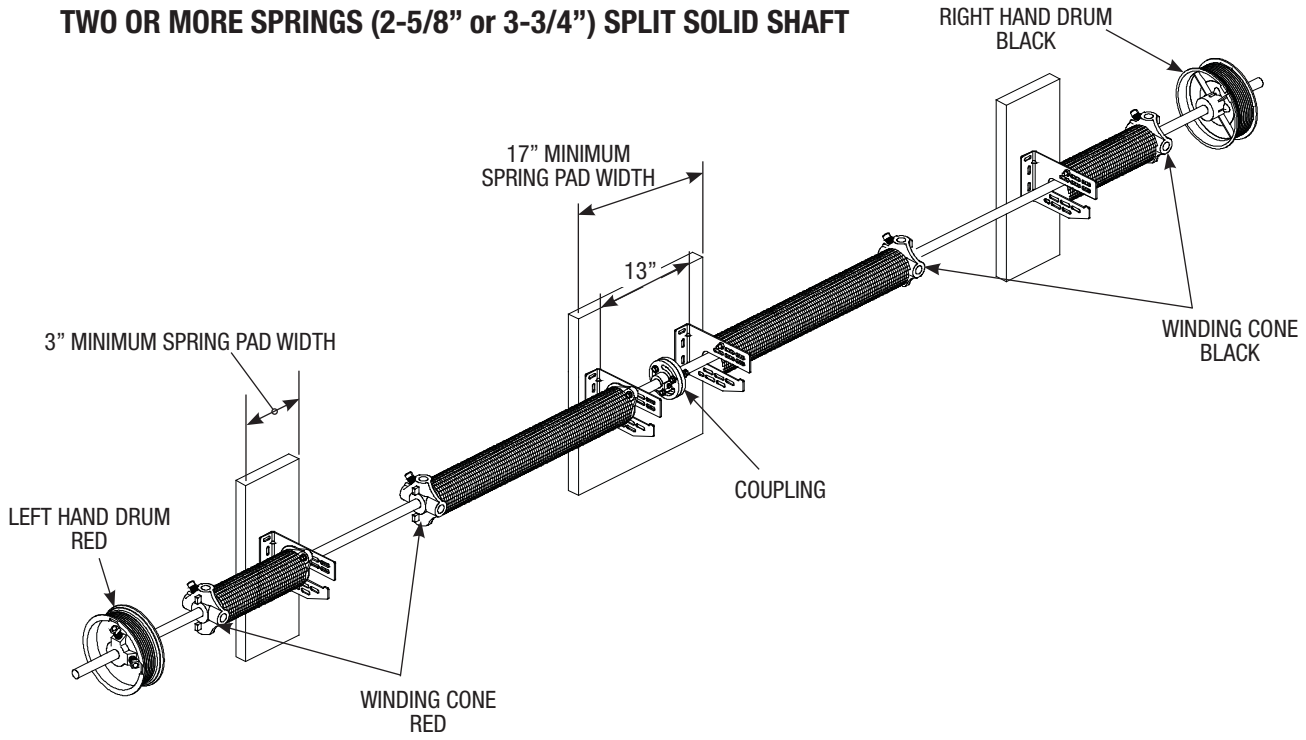



**FIG O**

## TWO OR MORE SPRINGS (6”) SPLIT SOLID SHAFT

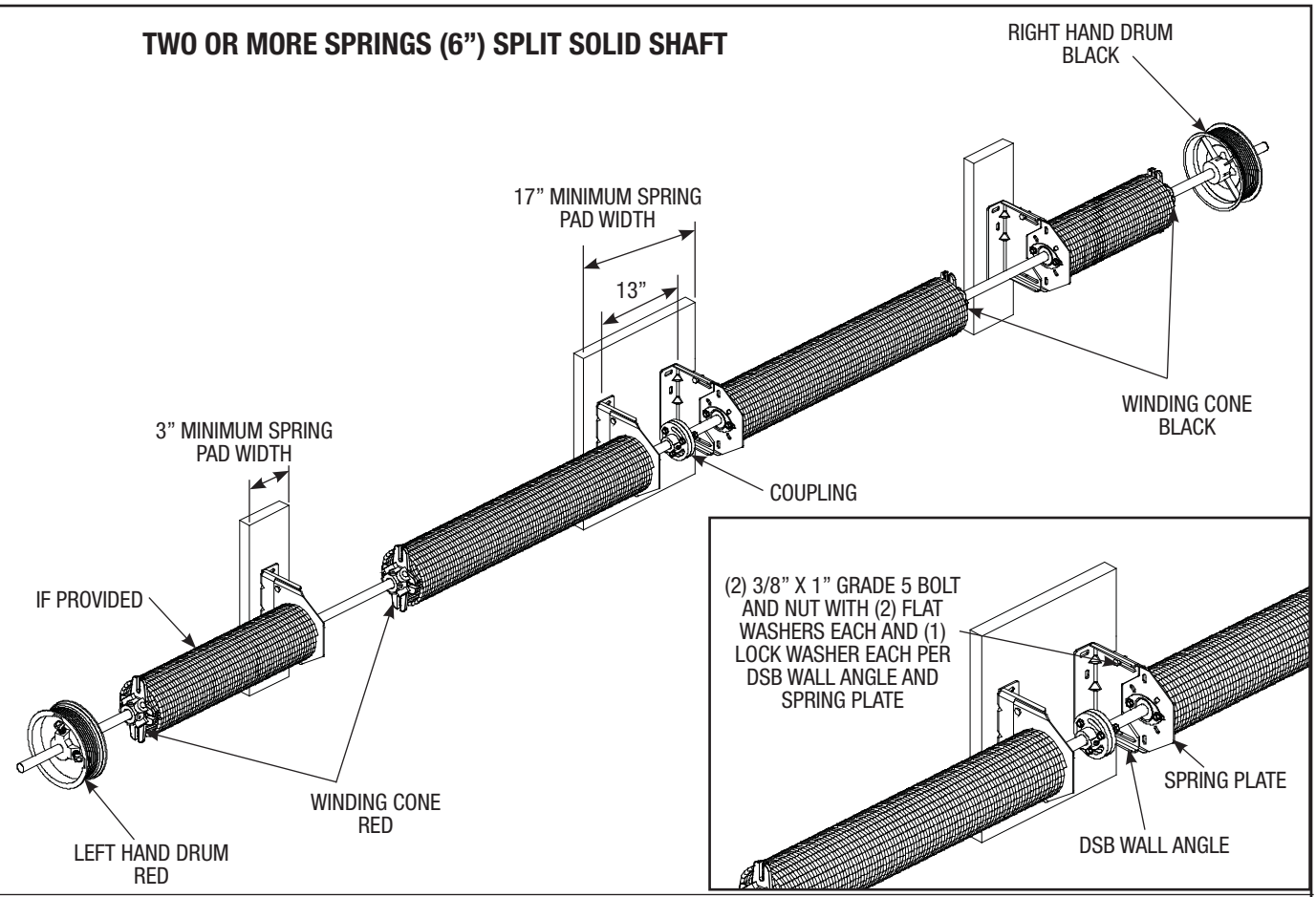



**FIG P**

## WINDING SPRINGS

## ⚠ WARNING

**APPLY LOCKING PLIERS TO THE TRACKS ABOVE THE THIRD ROLLER, OR LOCK DOOR IF APPLICABLE, BEFORE WINDING THE SPRING(S) TO PREVENT DOOR FROM RISING UNEXPECTEDLY, POSSIBLY RESULTING IN SEVERE OR FATAL INJURY.**

## ⚠ WARNING

**WINDING BARS MUST FIT SNUGGLY INTO HOLES IN SPRING WINDING CONES. ATTEMPTING TO WIND SPRINGS WITH LOOSELY FITTING RODS, SCREWDRIVERS OR OTHER IMPROPER TOOLS CAN RESULT IN SEVERE OR FATAL INJURY.**

Feed the cable attached to the left hand bottom bracket up the vertical track, behind the rollers and secure to the left hand drum. Push the drum up against the end bearing bracket and secure to the shaft by tightening the set screws (solid shafts use 1/4" key(s) and set screws to secure drums).

Rotate drum and shaft until cable is taut, then apply locking pliers to torsion shaft with end resting against header. This will hold cable taut and on drum. There must be at least 1/2 wrap of cable on the drum. If not, contact Wayne-Dalton for proper length cables. Attach other cable to right hand drum. Push drum against end bearing bracket and rotate drum until cable is taut. Secure drum to shaft by tightening the set screws. Cable tension must be equal on both drums on single shaft applications. On split shaft applications, apply locking pliers to both torsion shafts, and secure bolts in coupling after springs are fully wound.

Carefully, following spring winding instructions detailed in **FIG Q**, wind spring(s), using the appropriate 1/2", 5/8" or 3/4" diameter winding rods of sufficient length; wind spring 1/4 turn at a time to the number of complete revolutions recommended on the **spring turn chart**. When the proper number of turns is reached, tighten the set screws on the winding cone. Release the locking pliers from the spring shaft(s). Adjust the coupler on split solid shafts until drums are in line (check door level) and tighten coupler.

**NOTE:** Coupling used on solid shaft only. Tighten connecting bolts after winding springs.

### SPRING TURN CHART

| DOOR HEIGHT | 400-8 | 400-12 | 5250-18 | 800-32 |
|---|---|---|---|---|
| **6'6"** | 7.5 | 7.5 | | |
| **7'0"** | 7.875 | 7.875 | | |
| **7'6"** | 8.5 | 8.5 | | |
| **8'0"** | 8.875 | 8.875 | 6.75 | |
| **8'6"** | | 9.25 | 7.125 | |
| **9'0"** | | 9.5 | 7.375 | |
| **9'6"** | | 10.125 | 7.75 | |
| **10'0"** | | 10.5 | 8.125 | 5.375 |
| **10'6"** | | 11 | 8.375 | 5.625 |
| **11'0"** | | 11.5 | 8.875 | 5.875 |
| **11'6"** | | 12 | 9.125 | 6 |
| **12'0"** | | 12.5 | 9.5 | 6.25 |
| **12'6"** | | | 9.875 | 6.5 |
| **13'0"** | | | 10.25 | 6.75 |
| **13'6"** | | | 10.5 | 7 |
| **14'0"** | | | 10.875 | 7.375 |
| **14'6"** | | | 11.25 | 7.5 |
| **15'0"** | | | 11.5 | 7.625 |
| **15'6"** | | | 11.875 | 8 |
| **16'0"** | | | 12.25 | 8.125 |
| **16'6"** | | | 12.5 | 8.25 |

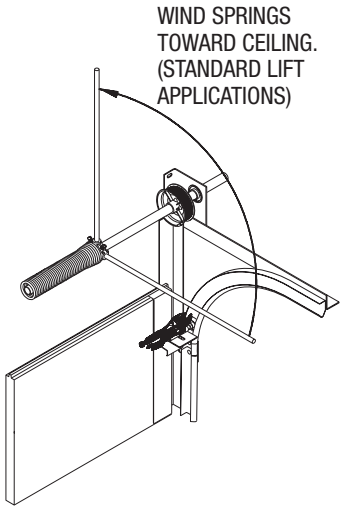



**FIG Q**

## REAR SUPPORTS

After spring(s) are wound, cautiously remove locking pliers from vertical tracks, while pushing downward on door to prevent it from raising unexpectedly, in case spring(s) were over wound. Carefully and slowly raise door, until one and a half sections are in the horizontal tracks. Lock door in this position using locking pliers attached to vertical tracks above bottom roller on one side and below bottom roller on other side of door.

Space the horizontal tracks 3/4"-7/8" from section edge and level. Using 1-5/8" x 2-3/8" x 12 Ga. angle, fabricate back hangers and attach them to building as shown in **FIG R** using 3/8" bolts and nuts. Laterally brace all drop angles once proper spacing is achieved.

Doors over 11 ft. high and over 14 ft. wide must have (1) intermediate drop hanger as shown in **FIG R**.
Doors over 16' high must have (2) intermediate drop hangers as shown in **FIG R.**

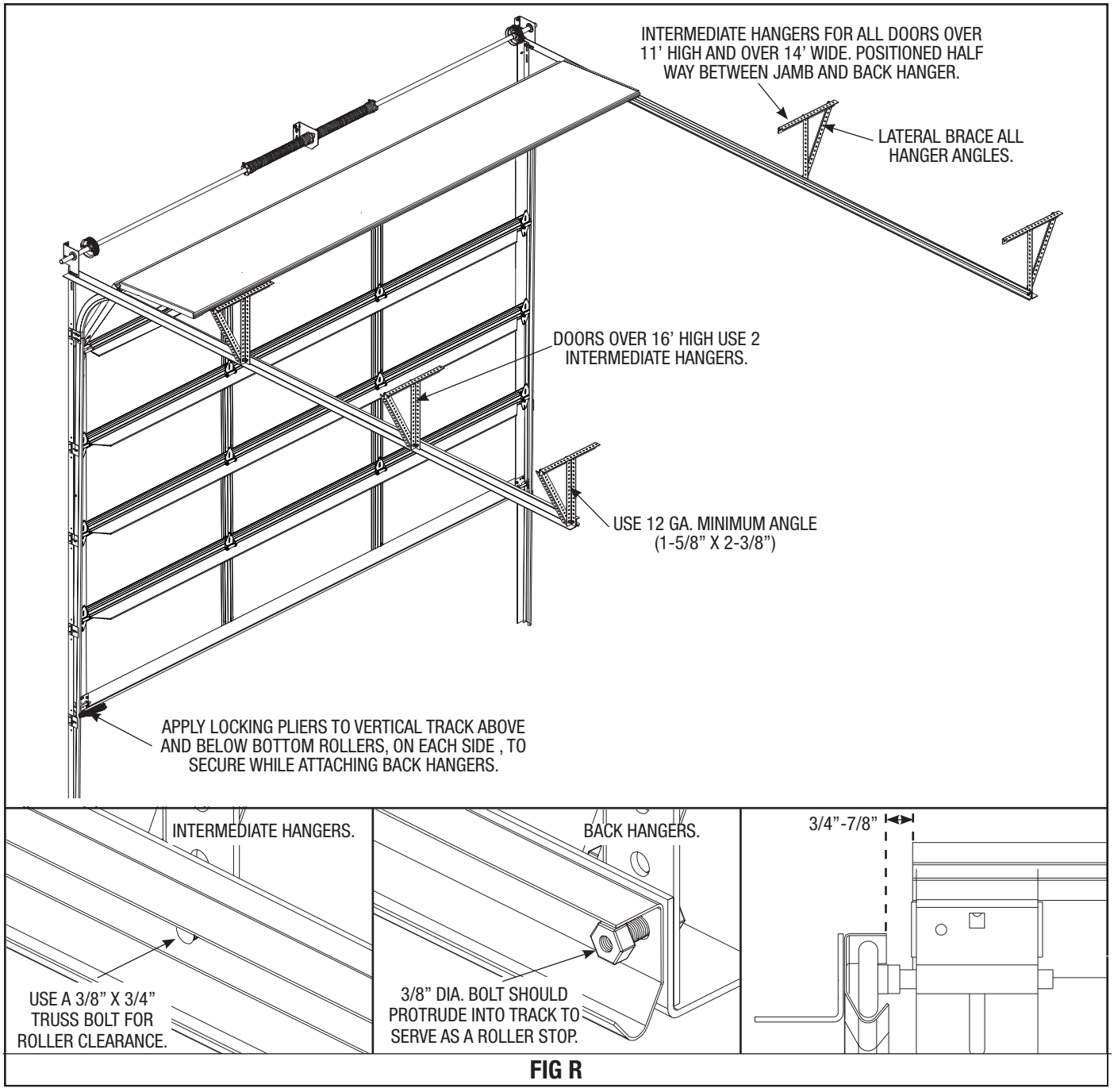



**FIG R**

## SPRING ADJUSTMENTS

Release the locking pliers from vertical tracks and check the door's counterbalance. Adjust springs if necessary. If door does not balance properly, verify that all supplied components such as struts are installed. Verify quantity, wire diameter, spring size & drums to the spring tag. Check Cable length. Add or subtract up to one turn on the springs. Contact Wayne-Dalton Corp. if problem persists.

## FINAL ADJUSTMENTS

Vertical tracks can now receive final adjustments. Open and close the door a few times, checking and adjusting side clearance (if necessary). Tighten jamb fasteners (lags, self drilling, or anchors) to permanently secure verticals. Adjust door in or out from jamb by loosening the track to obtain proper seal. Permanently tighten all track bolts.

Lubricate springs, rollers, and bearing with oil. **DO NOT GREASE THE INSIDE OF THE TRACK.**

## ALTERNATE STEEL SPRING PAD APPLICATIONS

**Contact Manufacturer For Applications Not Covered Below**

**Maximum Door Size 9' x 9' (Maximum Door Weight 210 lb.)**
Cut perforated angle (1-5/8 x 2-3/8" x 11 GA.) to Dim "Y". Thru-bolt top and bottom of angle to each girt using (4) 3/8" x 1-1/4" bolts and nuts. Thru-bolt center bracket to perforated angle using (2) 3/8 x 1-1/4" bolts and nuts (See **FIG S**).

**Maximum Door Size 14' x 12' (Maximum Door Weight 400 lb.)**
Cut (2) perforated angle (1-5/8 x 2-3/8" x 11 GA.) to Dim "Y". Thru-bolt top and bottom of each angle to each girt using (4) 3/8" x 1-1/4" bolts and nuts. Thru-bolt each center bracket to perforated angle using (2) 3/8 x 1-1/4" bolts and nuts (See **FIG T**).

**Maximum Door Size 14'-2" x 12'-1" (Maximum Door Weight 800 lb.)**
Cut (2) pieces of perforated angle (1-5/8 x 2-3/8" x 11 GA.) to Dim "Y" and (2) more pieces at Dim "Y" minus 3. Bolt the angles together into a "Z" shape using (4) 3/8" x 1-1/4" bolts and nuts. Thru-bolt top and bottom of each "Z" shaped angle to each girt using (4) 3/8" x 1-1/4" bolts and nuts. Thru-bolt each center bracket to perforated angle assembly using (2) 3/8 x 1-1/4" bolts and nuts (See **FIG U**).

**NOTE:** Do **NOT** Bolt (2) 3-3/4" Torsion Springs To ONE Center Bracket

**NOTE:** These spring mounting techniques are not supported for 800-32, 6375-164, 1100-18, 1350-28, & 800-120 drums. These instructions are also not applicable for 5750-120 drums with 72" Or more high-lift

**NOTE:** Maximum spacing for dimension "Y" is 84 in. (7 ft.) These instructions are not applicable for a span greater than 84 in.

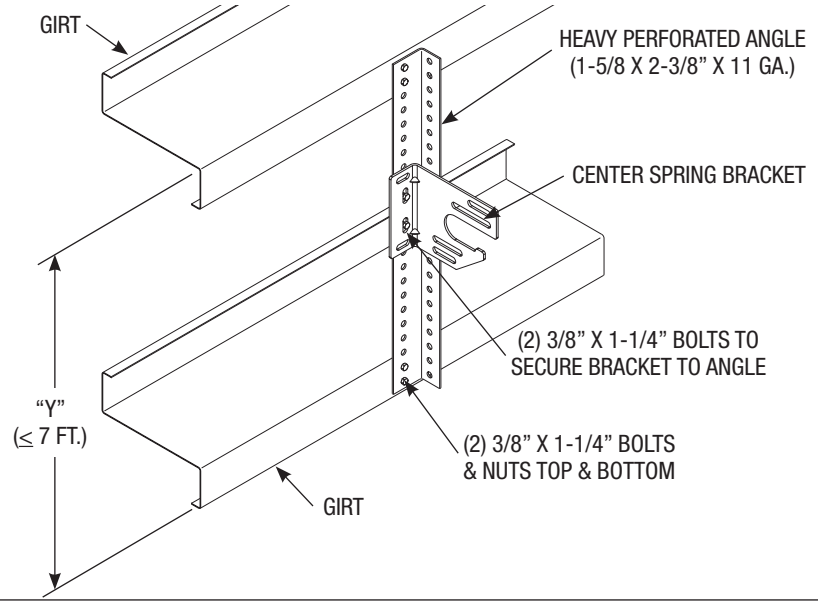



**FIG S**

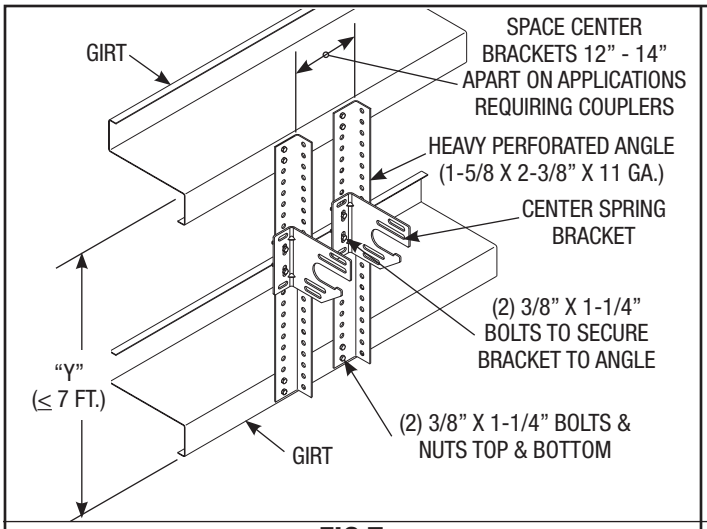



**FIG T**

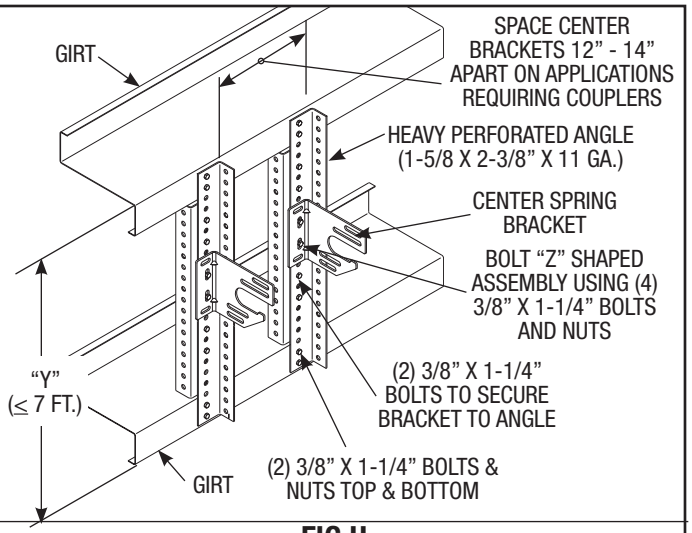



**FIG U**

## INSIDE SIDE LOCK INSTALLATION

Install lock on second section of door.

Secure the lock to the section with (4) 1/4"- 20 X 5/8" self drilling screws, as shown in **FIG V.**

The side lock should be spaced approximately 1/8" from the section edge. Ensure that lock is square with section and lock bolt aligns with lock hole in vertical track.

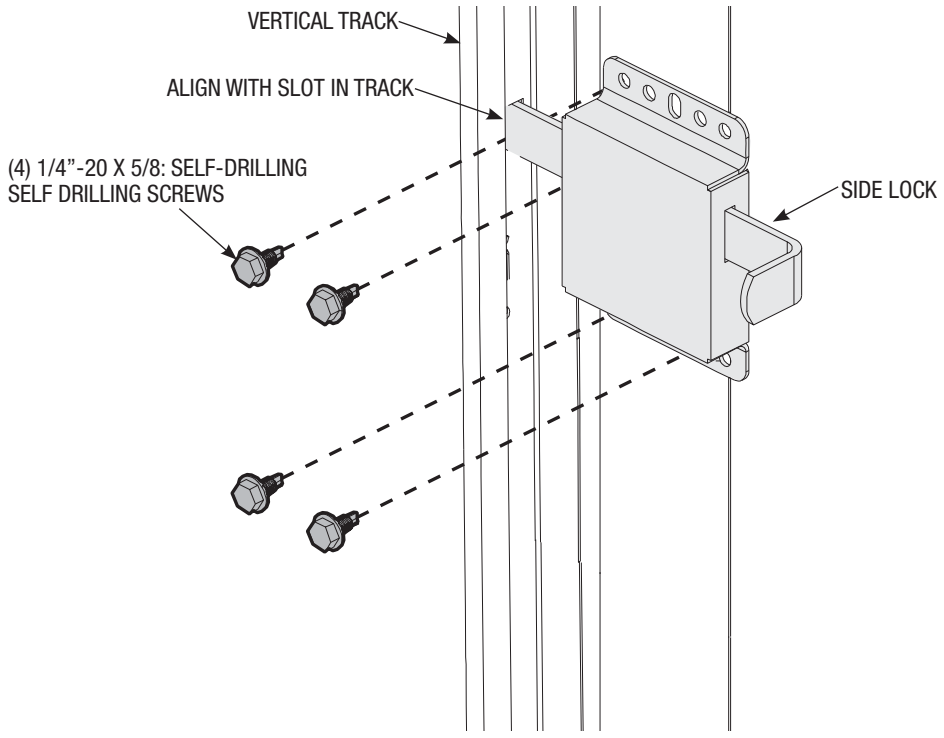



**FIG V**

## STEP PLATE INSTALLATION

Position your step plate, on the inside of the door, over the bottom section end stile on the side of the door containing the side lock. Secure step plate to endstile with (2) 1/4"-20 x 7/8" Self-drilling screws, as shown in **FIG W**. For doors ordered with non-keyed locks, a second step plate is provided. Install the second step plate in the same manner as the first, on the lock section (second section), below the side lock.

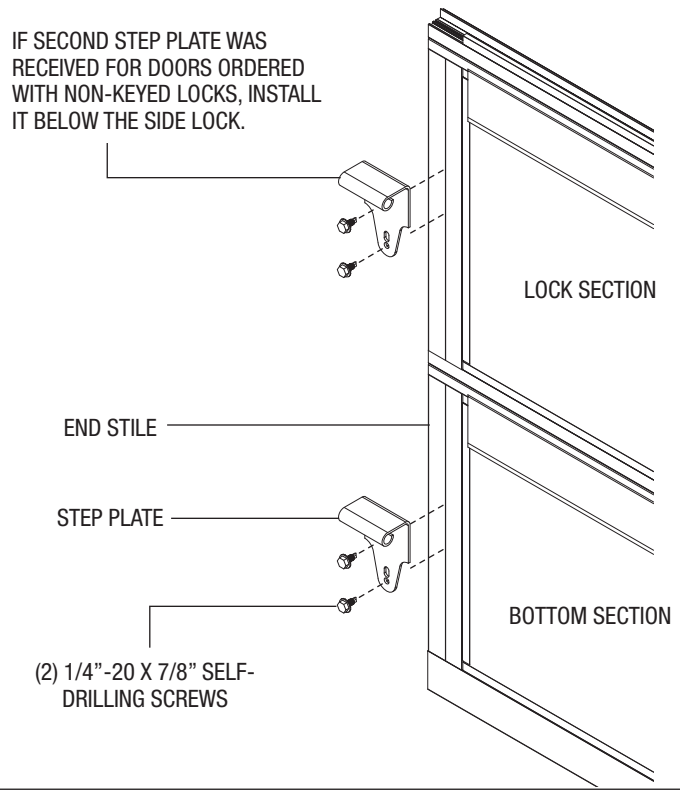



**FIG W**

## EXHAUST PORT INSTALLATION

Install the exhaust port using (3) #10 x 1-1/2" counter sunk bolts and nuts, as shown in **FIG X.**

Exhaust port goes on the inside of bottom section and can be installed into the aluminum panel or a double wide bottom rail.

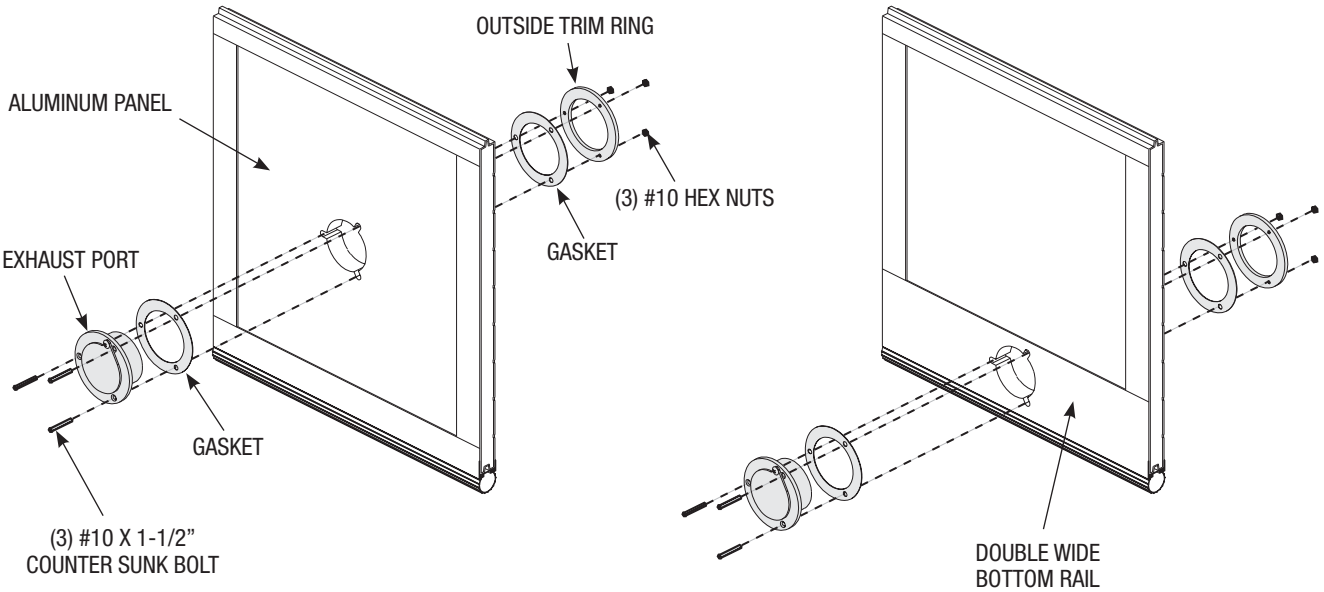



**FIG X**

## CABLE KEEPER INSTALLATION

Place cable keeper between roller carrier tabs. Insert roller through holes in the tabs and through cable keeper. Rotate arm up and hook around cable, letting cable keeper arm pull against the counterbalance cable, keeping it taut, as shown in **FIG Y.**

**NOTE:** Cable keepers are color coded, black for right hand and red for left hand.

**IMPORTANT:** Cable keepers are intended to keep cables from coming off drums on manually operated doors.

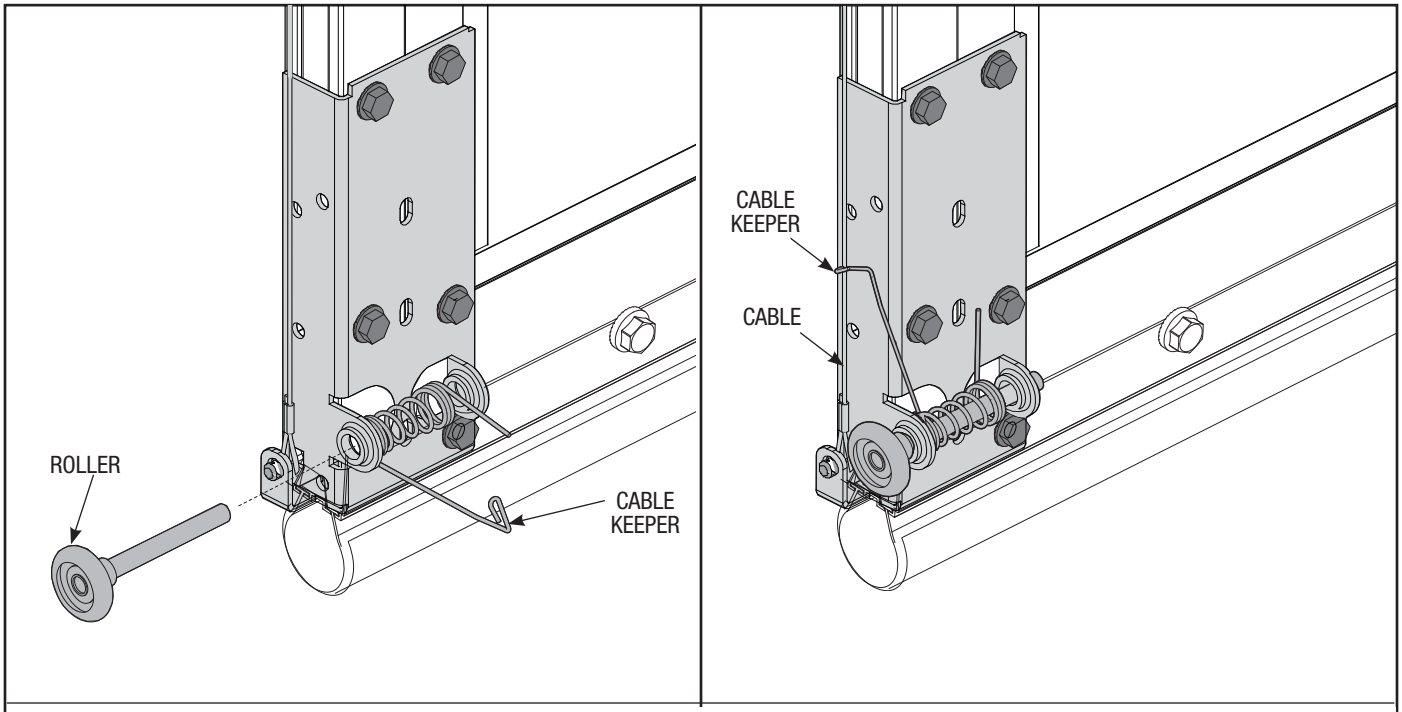



**FIG Y**

## CHAIN HOIST INSTALLATION (STANDARD LIFT APPLICATIONS)

**Chain Hoists and JackShaft Operators are limited to:**
1.) Standard Lift Doors with roof pitch track 2:12 or greater.
2.) High Lift track greater than or equal to 24".
3.) High Lift track 12" thru 24" with roof pitch track 1:12.

If your door is to be trolley operated, it is recommended that an optional strut be installed on the top section.

Wayne-Dalton recommends the use of a trolley rail(s) and auxiliary shaft for standard or high lift doors below these limits. Cable Keepers are recommended for all chain hoist or jackshafts operators. Install the chain hoist or sprocket as close to the end bearing bracket as possible, to minimize torsion shaft deflection, as shown in **FIG Z.** Chain tensioners are recommended for door over 144 sq. ft. with jackshaft operators.

Wayne-Dalton recommends the use of a trolley rail(s) coupled to an auxiliary shaft that is powered by a side mount type chain hoist as shown in **FIG Z.**

9'" of extra headroom are required for these installations.

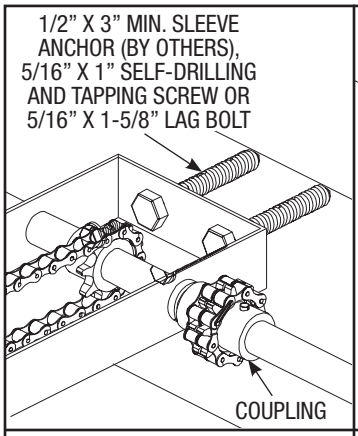
Assemble the trolley rail as per the manufactures installation instructions. Secure the trolley header bracket to the building using the appropriate fasteners (2-5/16" X 1-5/8" lags for wood, 2-5/16" X 1" self drilling and tapping screws for steel, and 2-3/8" 2-1/2" sleeve anchors for masonry.

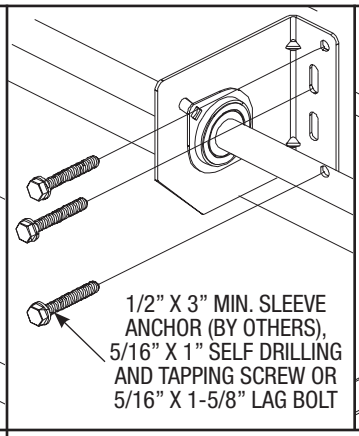
Back hang the trolley using angles, center hang supports are required for doors over 14' wide and 12' high.

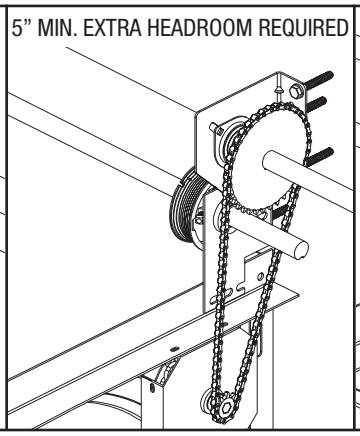
Attach the trolley arm to the bracket.

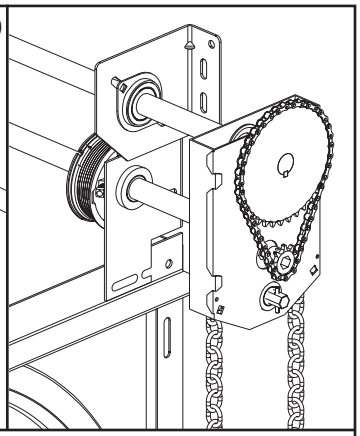
Secure the auxiliary shaft to the building with bearing brackets and couple the shaft to the trolley rail.

Assemble the chain hoist and secure to the auxiliary shaft.

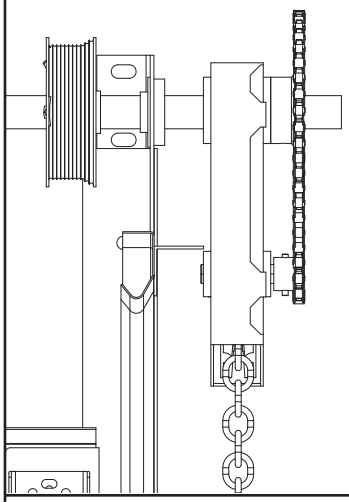


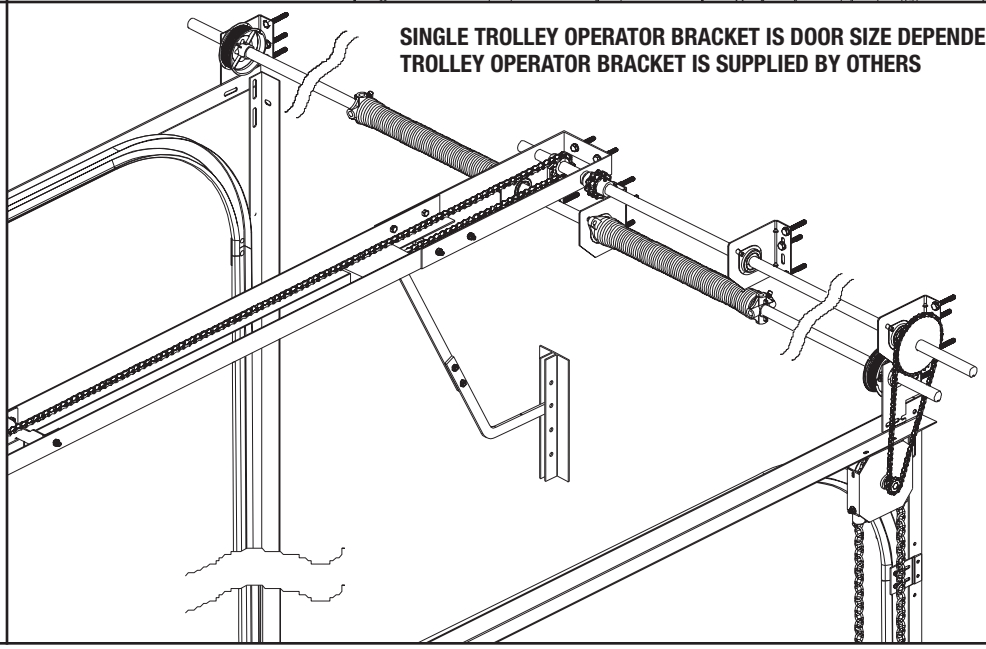



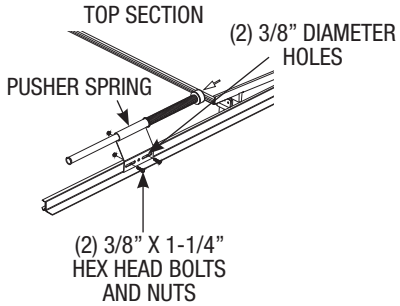



**NOTE:** Install Sprocket or chain hoist as close to track as possible, minimum of 3/4", to minimize shaft deflection.



**SINGLE TROLLEY OPERATOR BRACKET IS DOOR SIZE DEPENDENT. TROLLEY OPERATOR BRACKET IS SUPPLIED BY OTHERS**





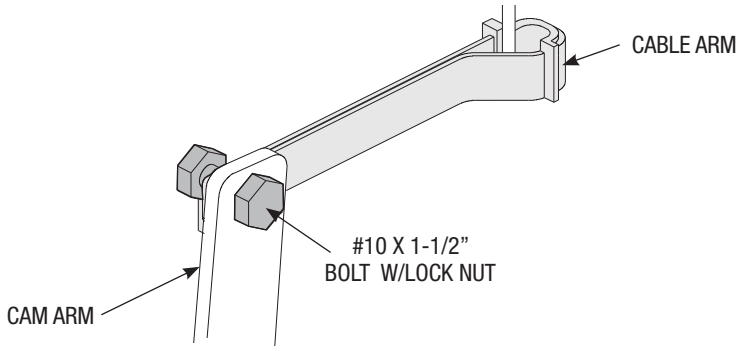

**Pusher Spring Installation:**
Raise door until bottom section is 3/4" below header. Align pusher spring with the top corner of the top section. (Compress against the top bracket flange.)

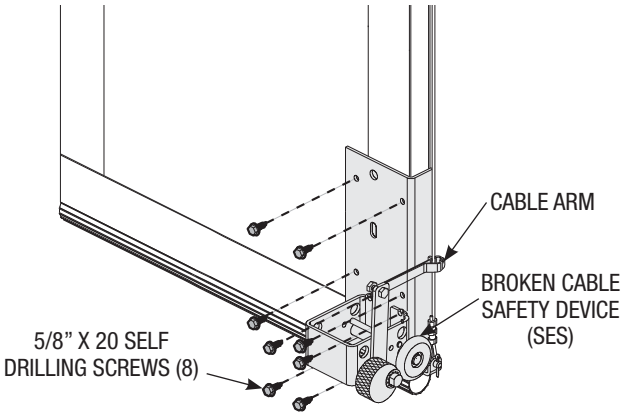
Drill (2) 3/8" holes in each track and secure using (2) 3/8" x 1-1/4" hex head bolts and nuts. (bolt may extend into track.)

**FIG Z**

# Broken Cable Safety Device Installation

1. Attach the broken cable safety device, with cable attached, to the section using (8) 1/4”-20 X 5/8” self drilling screws.
2. Place the bottom section in the opening.
3. Install the verticals over the rollers.
4. Follow the rest of the door installation per the instruction manual.
5. After the door installation is complete, rotate the cam arm up, and connect the cable arm to the cam arm with the bolt and locking nut.
6. Operate the door to verify that there is clearance between the track and section for the cable arm.
7. Adjust the track as needed.




## MAINTENANCE AND FINISHING INSTRUCTIONS

### MAINTENANCE

An occasional light cleaning will also help maintain an aesthetically pleasing appearance. The only regular maintenance necessary is that of annual washing. Mild solutions of detergents or household ammonia will aid in the removal of most dirt, and the following are recommended levels:
One cup of Tide™, or other common detergents, which contain less than 0.5% phosphate, dissolved into five gallons of warm water. **NOTE:** The use of detergents containing greater than 0.5% phosphate is not recommended for use in general cleaning of garage doors. NEVER BLEND CLEANSERS OR DETERGENTS WITH BLEACH.

### ACRYLIC GLAZING CLEANING INSTRUCTIONS:

1. To clean acrylic glazing wash with plenty of nonabrasive soap or detergent and water. Use the bare hand to feel and dislodge any caked dirt or mud. A soft, grit-free cloth, sponge or chamois may be used to wipe the surface. Do not use hard or rough cloth that will scratch the acrylic glazing. Dry with a clean damp chamois.
2. Grease and oil may be removed with kerosene or a good grade of naphtha (No aromatic content.). Users of these solvents should become familiar with their proper ties to handle them safely.
3. **Do not use:** Window cleaning fluids, scouring compounds, gritty cloths, leaded or ethyl gasoline, or solvents such as alcohol, acetone, carbon tetrachloride, etc.

# Limited Warranty
# Model 451, 452 & K-AL

Subject to the terms and conditions contained in this Limited Warranty, Wayne-Dalton Corp. ("Manufacturer") warrants the sections of the door for **FIVE (5) YEARS** with the exception of the following items. These items will be warranted for a period of **ONE (1) YEAR** from the date of installation against:

(i) Fading, cracking or chipping of the anodized or powder coated finish.
(ii) Fogging or condensation forming inside of the insulated glass unit.
(iii) Chipping, cracking, scratching, breaking, or discoloration of the glass due to defects in material or workmanship.

The Manufacture will not be responsible for glass chipping, breaking, or cracking resulting from any circumstances beyond the direct control of the manufacture.

The Manufacturer warrants the garage door hardware (except springs) and the tracks of the above-described door, for a period of **FIVE (5) YEARS** from the date of installation, against defects in material and workmanship, subject to all the terms and conditions below.

The Manufacturer warrants those component parts of the door not covered by the preceding provisions of this Limited Warranty against defects in material and workmanship for a period of **ONE (1) YEAR** from the date of installation.

This Limited Warranty is extended only to the original purchaser – property owner (where the door is installed).This Limited Warranty is not transferable, nor does it extend benefits to any other buyer (even when the property is sold). As a result this Limited Warranty does NOT apply to any person who purchases the product from someone other than an authorized Wayne-Dalton dealer or distributor.

The Manufacturer will not be responsible for any damage attributable to improper storage, improper installation, or any alteration of the door or its components, abuse, damage from corrosive fumes or substances, salt spray or saltwater air, fire, Acts of God, failure to properly maintain the door, or attempt to use the door, its components or related products for other than its intended purpose and its customary usage. This Limited Warranty does not cover ordinary wear. This Limited Warranty will be voided if any holes are drilled into the door, other than those specified by the Manufacturer.

THIS LIMITED WARRANTY COVERS A CONSUMER PRODUCT AS DEFINED BY THE MAGNUSON-MOSS ACT. NO WARRANTIES, EXPRESS OR IMPLIED (INCLUDING BUT NOT LIMITED TO THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE) WILL EXTEND BEYOND THE TIME PERIOD SET FORTH IN **UNDERSCORED BOLD FACE TYPE** IN THIS LIMITED WARRANTY, ABOVE.

- Some States do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

Any claim under this Limited Warranty must be made in writing, within the applicable warranty period, to the dealer from which the product was purchased. Unless the dealer is no longer in business, a written claim to the Manufacturer will be the same as if no claim had been made at all.

At the Manufacturer's option, pursuant to the dealer having notified the Manufacturer of a warranty claim, a service representative may inspect the product on site, or Buyer may be required to return the product to the Manufacturer at Buyer's expense. Buyer agrees to cooperate with any representative of the Manufacturer and to give such representative full access to the product with the claimed defect and full access to the location of its installation.

If the Manufacturer determines that the claim is valid under the terms of this Limited Warranty, the Manufacturer will cause the defective product to be repaired or replaced. The decision about the manner in which the defect will be remedied will be at the discretion of the Manufacturer, subject to applicable law. THE REMEDY WILL COVER ONLY MATERIAL. THIS LIMITED WARRANTY DOES NOT COVER OTHER CHARGES, SUCH AS FIELD SERVICE LABOR FOR REMOVAL, INSTALLATION, PAINTING, SHIPPING, ETC.

Any repairs or replacements arranged by Manufacturer will be covered by (and subject to) the terms, conditions, limitations and exceptions of this Limited Warranty; *provided, however*, that the installation date for the repaired or replaced product will be deemed to be the date the original product was installed, and this Limited Warranty will expire at the same time as if there had been no defect. If a claim under this Limited Warranty is resolved in a manner other than described in the immediately preceding paragraph, then neither this Limited Warranty nor any other warranty from the Manufacturer will cover the repaired or replaced portion of the product.

THE REMEDIES FOR THE BUYER DESCRIBED IN THIS LIMITED WARRANTY ARE EXCLUSIVE and take the place of any other remedy. The liability of the Manufacturer, whether in contract or tort, under warranty, product liability, or otherwise, will not go beyond the Manufacturer's obligation to repair or replace, at its option, as described above. THE MANUFACTURER WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, including (but not limited to) damage or loss of other property or equipment, personal injury, loss of profits or revenues, business or service interruptions, cost of capital , cost of purchase or replacement of other goods, or claims of third parties for any of the foregoing.

- 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.

No employee, distributor, dealer, representative, or other person has the authority to modify any term or condition contained in this Limited Warranty or to grant any other warranty on behalf of or binding on the Manufacturer, and anyone's attempt to do so will be null and void.

Buyer should be prepared to verify the date of installation to the satisfaction of the Manufacturer.

The rights and obligations of the Manufacturer and Buyer under this Limited Warranty will be governed by the laws of the State of Ohio, USA, to the extent permitted by law.

- This Limited Warranty gives you specific legal rights and you may also have other rights, which may vary from State to State.