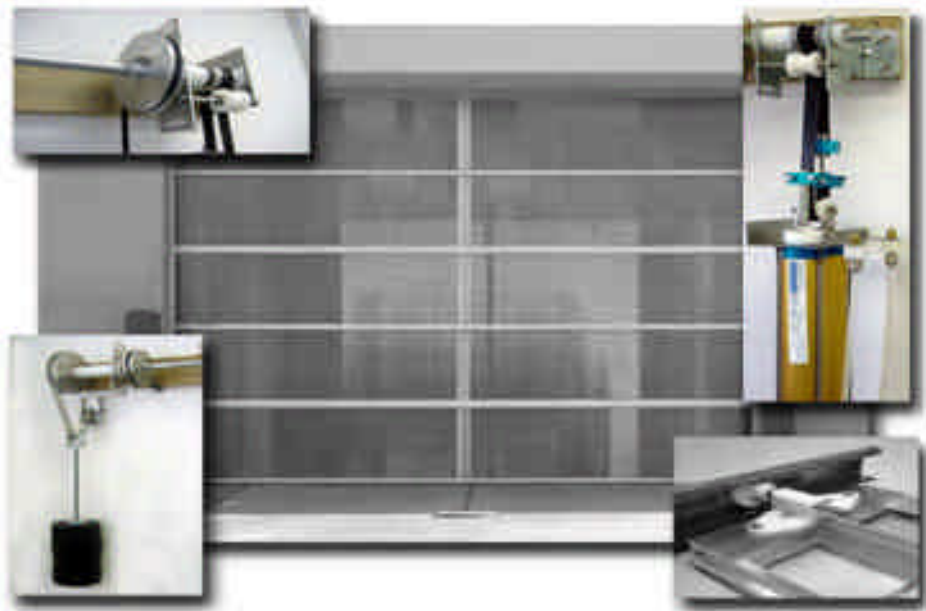


Illuminator Door



Installation & Maintenance Guide

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Tools Needed

*Vise Grips	*Set of Sockets with 3/8" drive 1/4" to 9/16"
*Hammer	*Hammer Drill
*Impact Wrench	*Ladder
*Sawall	*Saw Horses (2)
*Electric Cordless Drill	*Level 2' or 4'
*Set of drill bits 1/4" to 9/16"	*Screwdriver Set (Flat and Phillips)
*Set of Allen Wrenches	*3/8" Masonary bit
*Set of box-open end wrenches 1/4"to 9/16"	*18" Winding Bars (2) SPRING DOORS ONLY

Parts & Accessories



14 x 1"
Stainless or Zinc
Hinge Screw
(60 pcs.)



Clevis Pin
(3 pcs.)



Aluminum
Track
Bracket
(2 pcs.)



14 x 1"
Self-tapping
Screw
(20 pcs.)



Pick-up Drum
(2 pcs.)



End Bracket
(2 pcs.)



5/16" x 1 5/8"
Wood Lag
(24 pcs.)



Pick-Up Belt
(2 pcs.)



Adjustable
Center
Bracket
(1 pc.)



3/8" x 1 1/4"
Truss Bolt
(4 pcs.)



Counterweight Drum w/Belt
(1 pc.)



Counterweight Bracket
and 1/2" Pin



3/8" x 1 1/2"
Truss Bolt
(4 pcs.)



Counterweight
(Qty. depends
on weight of door)



1 1/2" Spacers
(4 pcs.)



3/8"
Zinc Nut
(8 pcs.)



Counterweight Rod



Washers
(3 pcs.)



Cotter Pin
(2 pcs.)



1/4" x 20 x 5/8"
Track Bolt



1/4" x 20
Track Nut

(Pieces Per Door)

Step 2

Check opening size and then check door size. Door sections should be 2" wider than opening, overlapping 1" on each side of opening. See Figure A2.

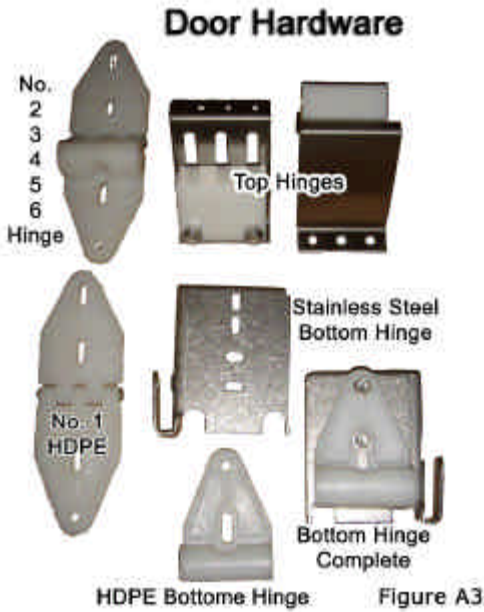


Figure A2

Hardware Installation

Step 3

Installing Door Hardware



Before installing hardware locate carton marked (F) for face hardware. Sort out hinges by placing them into pairs (#2, #3, so forth) – hinges are labeled. Hinges which require rollers are placed on outside and top of each section. All #1 hinges are placed on center styles of door. See Figure A4. Place bottom section onto sawhorse for this will be your first installed section. Bottom sections have rubber astragal and will be the top section in the box. All remaining sections are alike with the exception of the bottom section and sometimes the third section in box, which may be a clear paneled section.

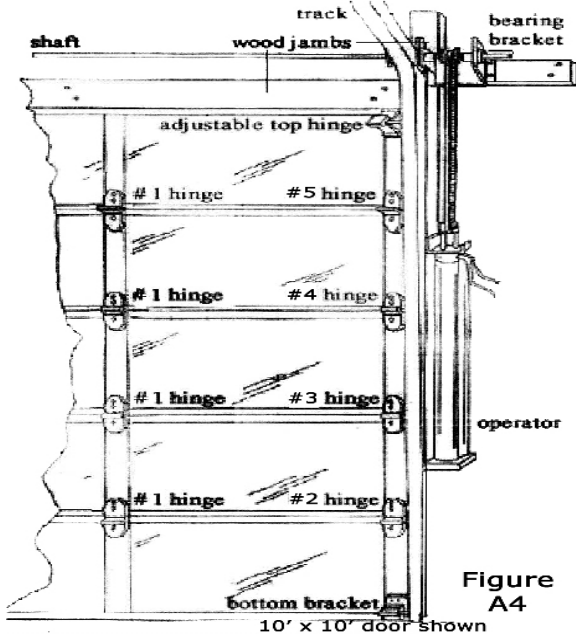


Figure A4

10' x 10' door shown

Separate right hand and left hand bottom hinges (bottom hinges are two parts, SS and HDPE). See Figure A3. Attach cable or belt to right and left hand stainless steel part of bottom hinge insert 1/4" clevis pin through back of bottom bracket and through eye of belt or cable and secure with cotter pin. See Figure A5, steps 1 and 2. **NOTE: If using belts, belt should roll off back side of drum.**

Figure A5 Step 1 and 2.



Step 4

Match four holes of stainless steel portion of bottom hinge with four holes on door section. Insert one stainless steel screw in bottom hole of stainless steel hinge and bottom section. Attach HDPE half of bottom hinge on top of stainless steel portion of bottom hinge. Insert two SS screws to secure. Follow same procedure for opposite side of section See Figure A6 steps 1, 2, and 3.

Bottom Section (Four Holes)

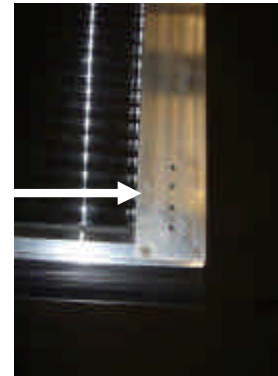
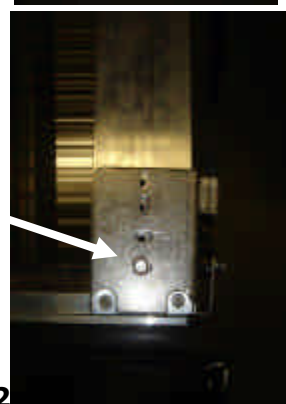


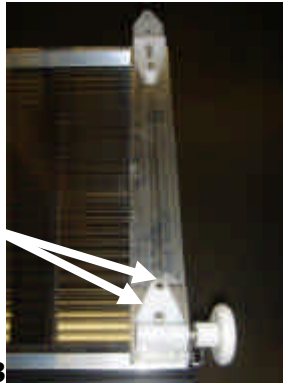
Figure A6 – Step 1

14 x 1" Stainless Hinge Screw



Step 2

14 x 1"
Stainless
Hinge Screws



Step 3

Step 5

Install #2 hinges on top and outside of same section. Install #1 hinge in the center.

NOTE: Intermediate Hinges have three (3) slots and one (1) hole. When installing hinges make sure hole is down.

Step 6

Continue installing hinges at top of each panel with #1 hinges remaining in center until only one section remains; this will be your top section.

NOTE: If you have clear vision section, it will be positioned where desired.

NOTE: Door Sections are tongue and groove, the male end of the section faces up and the female section faces down (Figure A7 & A7a).



Figure A7



Figure A7a

Step 7

Installing Top Hinges

Install adjustable top hinges on last section. Top sections has two holes on each side of panel. Align center hole of hinge with top hole of section. Install SS screws in center of top hinge and drill two holes on bottom outside of top hinge using 7/32" drill bits, insert SS screws. See Figure A8.



NOTE: Set last section aside until all sections and tracks are installed.

Step 8

Place bottom section in door opening with equal overlap on each side. Using a level to make sure section is level. Use shims if needed to level up bottom section. Refer to Figure A2, page 5.

NOTE: Door will not function properly if not level.

Step 9: **Track Installation**

NOTE: Check track size to be sure track will fit before installing.

To check track, measure from ceiling to floor, then subtract 26". The number you have should equal vertical track length. Example: 12' ceiling equals 144" minus 26" equals 118" vertical track. If you need to cut track, cut from bottom.

NOTE: Use same method for measuring 2" track.

Step 10

Install rollers into hinges of bottom section, belts and cables should remain behind rollers at all times.

NOTE: If you are using galvanized or SS hinges, insert roller in outside hole furthest from door for 3" track. Hole closest to door for 2" track. See example below.

Ex.



Step 11

Installing Vertical Track

Before mounting vertical track, loosen all track bolts, ($\frac{1}{4}$ " x 20 x $\frac{5}{8}$ ") and track nuts ($\frac{1}{4}$ " x 20) slide top of vertical track all the way out and tighten bolts at top. **DO NOT** tighten remaining bolts until all sections are in, with the exception of the top section. Position one side of vertical track down over rollers, maintain 1" gap between bottom section and vertical track. After track is plum and level, attach track to wall using necessary fasteners. Install other vertical track using same method. See Figure A9.



Figure A9

NOTE: If you are using belts, raise belts at top of track before installing doors sections.

Step 12

Next install rollers into sections with No. 3 hinges. Raise sections, with help, into top of track and then lower onto bottom section. Continue same procedure until all sections are in, with the exception of the top section.

Step 13

Leave top section out until horizontal tracks are installed. Before installing horizontals adjust vertical track so bottom section is a $\frac{1}{2}$ " off wall. Tighten all bolts on vertical track.

Step 14

Stack horizontal tracks onto vertical tracks, install two (2) $\frac{1}{4}$ " x 20 track bolts with nuts into bottom of track and using one (1) $\frac{3}{8}$ " x 1" carriage bolt attach horizontal angle onto vertical angle after leveling (see figure A10). Repeat same steps for opposite side.



Step 15

Stack last remaining section, disassemble top hinges and add rollers. Assemble top hinges back together with rollers into track, align section with other sections and tighten bolts on top hinges. Screw all sections together with 14 x 1" SS screws.

Step 16

Installing Shaft

Place shaft onto saw horses. If using cables, install center brackets, track brackets, and drums as shown in Figure A11.

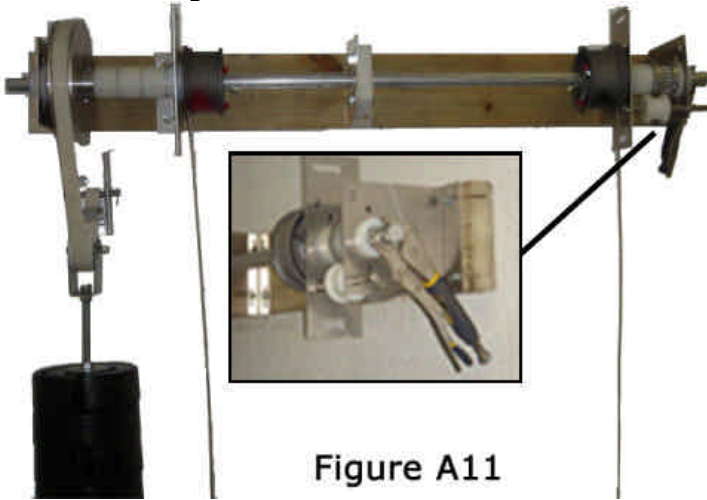


Figure A11

NOTE: Drums are color coded. Red is left hand, black is right hand looking at door from inside.

If using belts, install center adjustable bracket only. Position shaft on top of horizontal track, slide pick-up belts onto shaft and track brackets using 3/8" x 1" truss bolts and nuts, attach bottom of track bracket to horizontal and back of track brackets to wall with necessary fasteners. After leveling shaft, attach center adjustable bracket to wall.

NOTE: Track brackets should be installed on top and outside of horizontal angle. See example 1,



Ex.1

Correct



Incorrect

NOTE: Before tightening drums or belts determine which side counterweight assembly will be installed, have at least 15" of shaft extending outside of track bracket.

Step 17

Adjusting and Tightening Belts or Drums

If using belts, roll belts until snug. Tension should be the same on bolt sides. Slide belt drums up against track brackets, tighten belt drums down onto shaft, if you are installing pick up drums attach cables and wind around drum counterclockwise, slide key into keyway of drum and shaft, tighten bolts. Before installing counterweights, lock shaft with vise grips. See Figure A11 and A12.

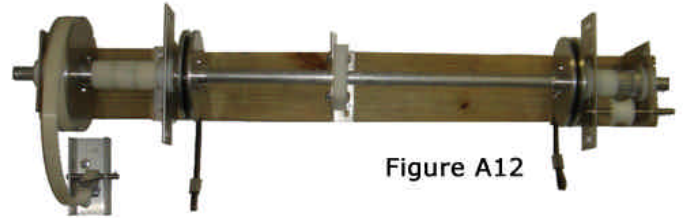


Figure A12

Step 18

Installation of Counterweight System

Determine which side counterweight system will be installed on. You should have at least 15" of shaft available. Assemble counterweight systems starting with one washer before and after each spacer. See Figure A13.

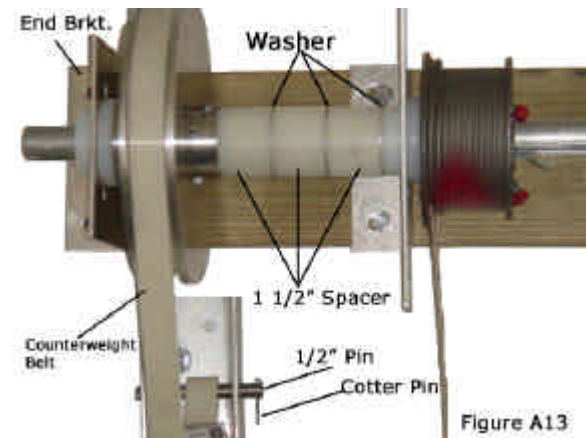


Figure A13

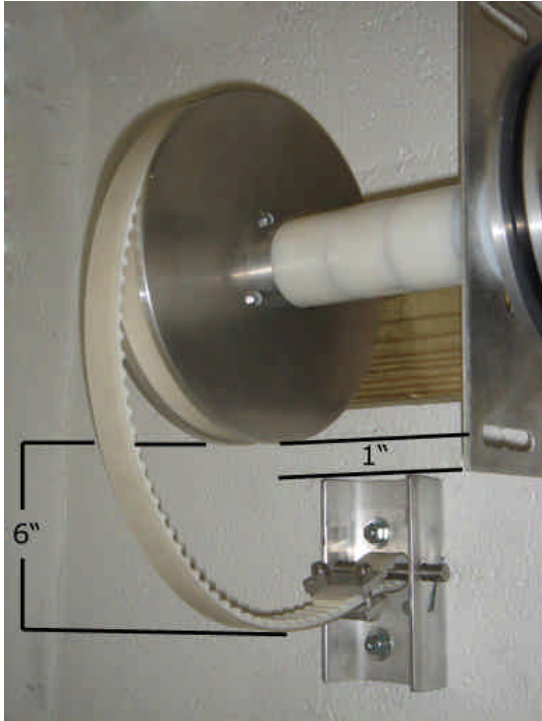
Slide counterweight drum on with belt rolling off front of drum. Install square key of counterweight drum into keyway of drum and shaft, tighten bolts on counterweight drum onto shaft. Add end bracket to outside of counterweight drum, attach to wall using necessary fasteners. Install counterweight mounting bracket center of counterweight drum with top of bracket 1" below counterweight drum. Install proper fasteners for counterweight brackets, as it will have to hold maximum weight

for balancing the doors. Insert 1/2" pin through counterweight bracket and through eye of belt.

Adjust belt and insert cotter pin into 1/2" pin of wall bracket. See Figure A13 and A14.

NOTE: Belt should not hang more than six inches below bottom of counterweight drum.

Figure A14



Step 19

Attaching Weight Rod

Disassemble roller off counterweight rod and sit roller on top of belt. Raise rod and bracket and attach bracket back to roller with belt running between roller and bracket. Insert 1/2" bolt through bracket and roller, secure with 1/2" nut. See Figure A15, steps 1, 2, 3, and 4. You are now ready to stack the weights.

Figure A15



Step 1



Step 2



Step 3



Step 4

Step 20

Stacking Weights

On counterweight rod raise one washer to top below $\frac{3}{4}$ " nut, clamp off with vise grips, See Figure A16 Step 1. Begin stacking weights offsetting slots until door is balanced. To determine if door is balanced raise the door 2'-4'. If door remains in raised position, it is balanced. If door travels back to floor add more weight. If door is rising (hot off floor) subtract weight. After door is balanced, remove vise grips and lower washer and $\frac{3}{4}$ " nut down onto top of weights, tighten. See Figure A16 Step 1 and 2. Cover weight with omega tube provided or PVC tube (if ordered).

Figure A16



Step 1

Step 2

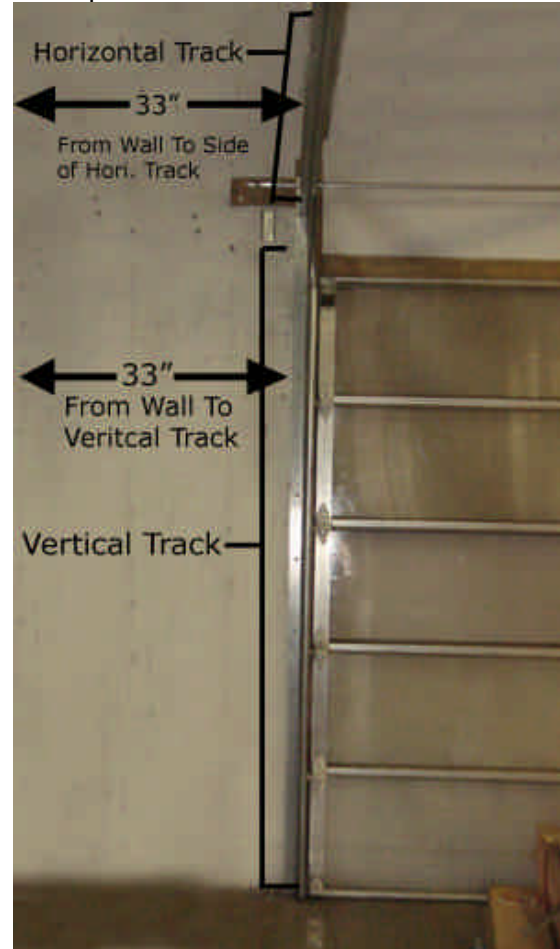
NOTE: If using counterweight system with cable drum, follow same procedure.

STEP 21

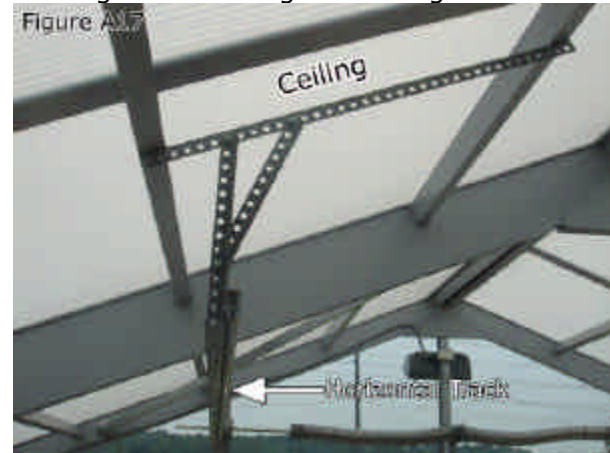
Securing Horizontal Track

Measure distance from wall to side of vertical track. Use same distance at top, measure from wall to side of horizontal.

Example:



Secure horizontal track using punched angle. Secure to ceiling and side of horizontal track bracing with 45° angle. See Figure A17.



Polycarbonate Overhead Doors with Springs Installation Instructions

Parts & Accessories



Shaft Spacer



5250-54 Hi-Lift Drums (2)



Door Cables (1 Set)



Cotter Pin (2)



Galv. Brackets (4)



**Galv. or SS Hinges
(HDPE optional)**



Clevis Pin (2)



Galv. Center Bracket (1)



Torsion Springs (1 Set)



Galv. Key (2)



Slide Lock



Door Handle



5250-18 Spring Drums (2)



Galv. Coupler

Polycarbonate Doors with Springs

NOTE: Spring door installation procedures are the same as counterweight doors, except you will always use cables and pickup drums. To begin installation follow steps 1-15 of counterweight installation as shown on pages 4-8.

STEP 15

After following step 1-15 place shaft on saw horses. Insert 1" spacer bearing onto center of shaft and slide spring or springs on shaft. Inside building, looking out place the red winding cone to the left side of door and black winding cone to right side of door. Place cable drums on the spring shaft. The drums are marked right and left and are also color coded red and black, same as springs. See Figure A18, steps 1 & 2.

Figure A18

Step 1



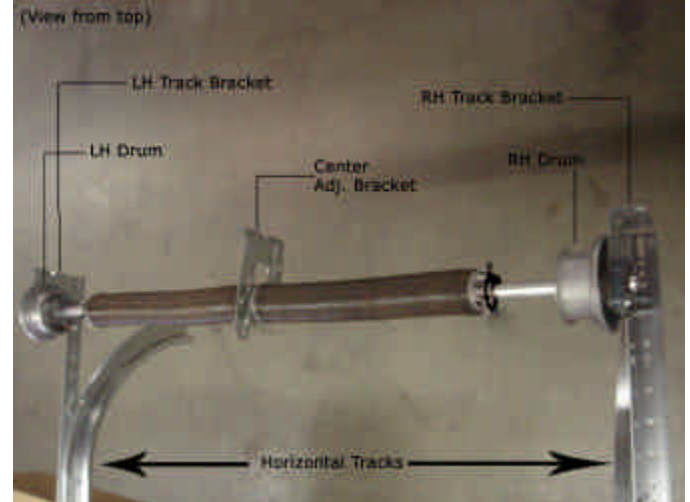
Step 2



STEP 16

With help, place shaft with spring drums and track brackets on top of horizontal track. Attach track brackets to horizontal track and wall with appropriate fasteners. Attach center adjustable bracket or brackets to wall. Center bearing brackets should be aligned with track brackets, so shaft line will be straight. See Figure A19.

Figure A19



STEP 17

Before attaching spring or springs to center bracket, slide 1" bearing in end of springs. See Step 1, Figure A18.

NOTE: If you are separating springs you will need (1) 1" bearings for each spring.

STEP 18

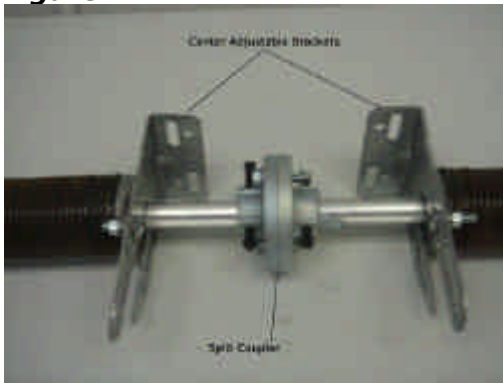
Bolt springs together on adjustable center brackets using 3/8" x 1 1/2" bolts w/nuts. See Figure A20.

Figure A20



If using split shaft, you will have to separate springs on your shaft see Figure A21.

Figure A21

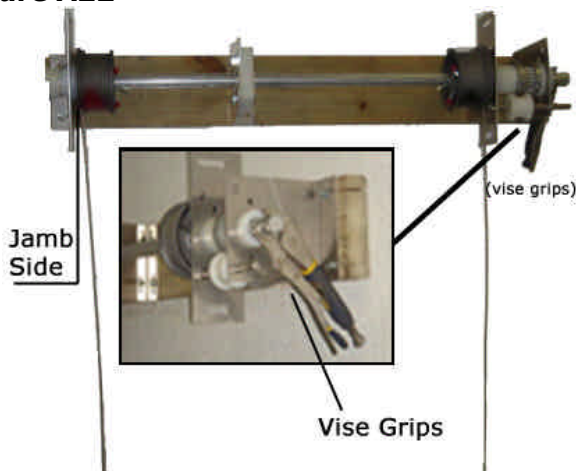


STEP 19 **Winding Door Cables**

NOTE: Make sure door cables are wrapped to jamb side of track.

Attach door cables on drums, wind up until snug and place key into keyway of drum and keyway of shaft. Before winding springs lock shaft by clamping with vice grips onto shaft and up against wall so cables will not unwind. See Figure A22.

Figure A22

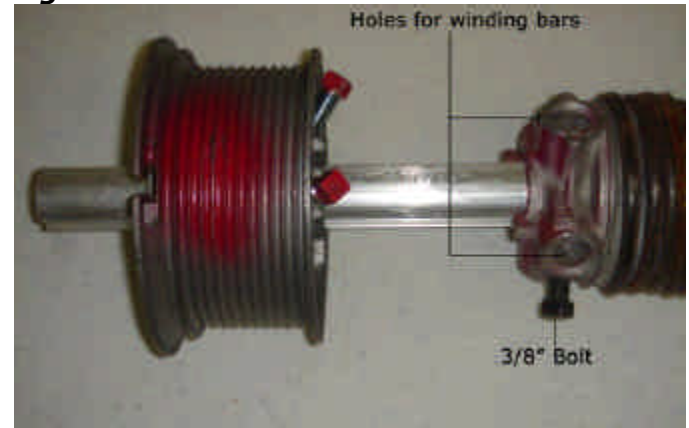


STEP 20 **Spring Winding**

To wind springs you will need (2) 1/2" x 18" winding bars. Place 1 winding bar into bottom hole in winding cone and push up or wind counterclockwise. Hold winding bar in until next winding bar is inserted. Pull top winding bar out and repeat same steps until you have completed number of turns necessary for spring or springs. When finished, tighten 3/8" bolts on winding

cones. When finished remove vice grips and check door for balancing. If door is hot off floor subtract some winds off each spring. If door is too heavy add winds to each spring. Add or subtract 1/2 turns until balanced. See Figure A23

Figure A23



STEP 21

After completion of door attach slide lock. See Figure A24

Figure A24



Maintenance Guide For Illuminator Polycarbonate Doors

Doors with zerk bearings, steel rollers, galvanized hinges and shaft.

1. **ONCE A MONTH:** Grease all zerk bearing with a grease gun.
2. **ONCE A MONTH:** Spray lubricant on all rollers, hinges and weight pulleys (or springs, depending upon your system.) Use white lithium grease. **DO NOT USE WD-40**
3. **ONCE A MONTH:** Inspect door cables for fraying. Replace them if necessary.
4. **ONCE A MONTH:** Check to see if the door is binding. Look for signs of rubbing such as shiny metal on the track or doors. This could indicate that the cables need replacing or adjusting.
5. **ONCE A MONTH:** Grease the bends of the track with white lithium grease. The track will last longer if it is kept lubricated.
6. **CLEANING:** Use only mild soap, detergent or cleanser AA1221, lukewarm water, and soft sponges or cloths. Rinse with warm water. Fresh paint and grease may be removed before drying by rubbing lightly with a good quality naphtha or isopropyl alcohol, followed by a wash with mild soap or detergent, and a final rinse. **Do not use abrasive or ammonia products.** To repair scratches and repel dirt order cleanser AA1221.

Doors with UHMW bearing, HDPE rollers and HDPE hinges.

NOTE: These hinges and bearing do not have to be greased.

1. **ONCE A YEAR:** Check the Ultimate UHMW bearings for wear.
2. **AS NEEDED** spray lithium grease on the roller stem where it rides inside the metal hinges. No lubrication is required for Ultimate HDPE hinges.
3. **PERIODICALLY:** Check to see if the door is binding. Look for signs of rubbing such as shiny metal on the track or doors. This could indicate that the cables need replacing or adjusting.
4. **CLEANING:** Use only mild soap, detergent or cleanser AA1221, lukewarm water, and soft sponges or cloths. Rinse with warm water. Fresh paint and grease may be removed before drying by rubbing lightly with a good quality naphtha or isopropyl alcohol, followed by a wash with mild soap or detergent, and a final rinse. **Do not use abrasive or ammonia products.** To repair scratches and repel dirt order cleanser AA1221.

GLOSSARY OF TERMS

Angle Mounted Track: A method of fastening vertical track to a door jamb using a full-height continuous angle.

Astragal: Weather-stripping added to bottom section of door to seal the opening along the floor.

Bottom Bracket: A structural support located on the bottom section of the door which provides for attachment of the lifting cables on the sectional doors. Also referred to as a Bottom Corner Bracket. (Note: Track rollers may have a separate door attachment in some door designs.)

Bracket Mounted Track: A method of fastening vertical track to a doorjamb using angle brackets. Also referred to as Mounted or Track Bracket.

Bumpers, Spring: A leaf spring installed at the end of the horizontal track. Especially useful on lift clearance or full vertical manually operated doors, acting as a cushion and stop.

Cables: Multi-strand wire used to attach the door, via bottom brackets, to the counter-balance mechanism.

Cable Drums: Grooved drums on the torsion spring shaft that lifting cables wind around when door is opened. Designed to allow cable to be accumulated or dispensed in an orderly manner and to prevent lapping, or cable chafing.

Clearances: The amount of side room, head room and

back room required to properly install a door.

Coupling: Adjustable cast iron connector in two halves for torsion solid shafts on wide doors. Eases installation and allows adjustment of cable lengths so doors will operate smoothly without cocking.

Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position again.

Door Frame: The frame into which the door fits, consisting of two upright members called door jambs, and a door header.

Door Size: Always specify the width first and the height second.

Head Plate: Structural bracket used to secure vertical and horizontal track, as well as counterbalance systems.

Headroom: A measurement from the top of the door opening upward to the lowest building obstruction on the inside of the header wall. Use this measurement for vertical clearance all the way back to the end of the horizontal track.

Jambs: The upright framing on each side of the door opening. When wood jambs are specified, the vertical track is mounted to the inside surface of the jamb and the stop molding is nailed to the side surface within the opening. For steel jambs, see Reverse Angle Mounting. Wood jambs, see Bracket Mounted or Continuous Angle Mounted.

Mounting Plates: Flat pieces of steel or wood placed on the wall to accommodate spring support, spring shaft bearings, chain hoist and mountings for operators.

NEMA: National Electrical Manufacturers Association. Established to provide standards for electrical components. Number designation refers to motor operator and controls to meet the ambient requirements.

Opening Size: Frequently called daylight opening or finished opening. Dimensions are taken between the walls or between steel jambs.

Opening Width: Distance between jambs of the door opening.

Panel: The area between vertical stiles in a door section.

Reverse Angle Mounting: An exceptionally sturdy method of track mounting used on all steel jambs. May be used for wood jambs as well.

Roller Assembly: The combination of wheel and axle that is used to guide a door through the track system.

Rollers: Ball-bearing wheels that allow sections to roll freely along door tracks.

Shafts, Tubular and Solid: A tubular or solid steel counterbalance shaft transmit lifting force of the torsion springs to the cable drums and lifting cables.

Spring Anchor Plates: Designed to transmit torque from the stationary end of torsion spring to the building

structure and, at the same time, support the weight of the torsion shaft in a level attitude.

Steel Jamb Mounting:

Continuous angle attached to vertical track and fastened to the jambs by welding, self-tappers, or bolts.

Steel Jambs: Door framing made from either channel or angle iron.

Stops: Bars or brackets mounted at top of guides to prevent bottom bar from traveling out of the guides when the door is fully raised.

Torque: The turning effect of a force acting from a distance.

Torsion Shaft: The shaft of a torsion spring assembly, which transmit lifting force of the torsion springs to cable drums and lifting cables.

Torsion Springs: Mounts above the door opening, the springs are manually wound or charged, the set to a shaft which runs through the spring. The spring turns the shaft, which raises or lowers the door via the cables winding on drums.

Torsion Spring Counterbalance

Assembly: Designed to provide a safe and durable conversion of spring torque to lifting force by balancing the weight of a sectional overhead door.

Track: Provide a guide for the roller wheels. The vertical track is mounted to the jambs with brackets on each side of

the door opening. The horizontal track contains a curved end called the radius. In the closed position, the door is resting in the vertical track. In the open position, the door is suspended from the horizontal track.

Wood Jambs: Upright piece forming the side of the door opening that is made of wood.

Wood-Jamb Mounted: Regular method of mounting vertical track to wood jambs.

For Sales, Part, or Service.
Contact Ultimate Products, Inc.
800.542.7221



800-542-7221 – 2319 Laurelbrook Street. – Raleigh, NC 27604

Contact us if you have questions about installation or maintenance. Technical assistance and salespeople are available Monday through Friday between 9am and 5pm, Eastern Standard Time. Ultimate Products is closed for national holidays.