

BALANCER DOOR WITH GEARBOX TENSIONER



ORDER OF ASSEMBLY AND INSTALLATION

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IMPORTANT: READ THIS MANUAL THOROUGHLY BEFORE BEGINNING INSTALLATION.

C.R. Laurence, Inc. (CRL) warrants all products manufactured by it and supplied hereunder to be free from defects in material and workmanship in accordance to our contract.

This warranty shall not apply to any products not manufactured by CRL, nor to any products which have been repaired or altered by others without CRL's written consent. This warranty shall not include failure of parts and materials due to improper installation, inadequate support of surrounding structures, and/or lack of proper maintenance.

INTRODUCTION

Thank you for choosing the Premium Balanced Door System by C.R. Laurence. We have made every effort to assure the utmost quality in materials and craftsmanship. Each unit has been fully assembled and factory tested prior to shipping. Please read this manual thoroughly before beginning installation.

STEP 1: CONFIRM YOUR SHIPMENT

Carefully open the shipping container and look for any damaged parts. Most orders are shipped knocked down and will require on-site assembly. Confirm that the height and width of the door(s) are approximately the same as the rough opening. Your package should include:

- Fully Glazed Door(s)
- Hinge Tube with Top and Bottom Pivot Arms
- Header Assembly
- Floor Mounted Gearbox
- Threshold and Side Jambs

Refer to your packing list for details.

If any parts are missing or damaged, call the C.R. Laurence Technical Sales Department immediately at **(800) 421-6144**. Refer to the order number on the packing list.

STEP 2: CHECK ROUGH OPENING

Verify that the rough opening is square and plumb. Refer to C.R. Laurence shop drawings to confirm rough opening dimensions. It should be slightly larger than the finished door frame (including header and threshold).

If automatic door options are required, make sure that all electrical wiring is completed to the rough opening and **NOT ENERGIZED**. Refer to the C.R. Laurence "Site Preparation" drawing and/or your job drawings to confirm all required electrical connections.

STEP 3: VERIFY FLOOR CONDITION

The floor directly below the rough opening should be clean and in good condition. It is critical that the floor be sound and level. The Premium Balanced Door threshold and pivot Gearbox mounts directly to the floor or sub floor surface. It must be able to support the system's weight and firmly hold the fasteners in place for the lifetime of the installation. It is also necessary for the floor to be level and square to the jambs to allow a smooth operation of the Balanced Door.

STEP 4: ASSEMBLE THE FRAME

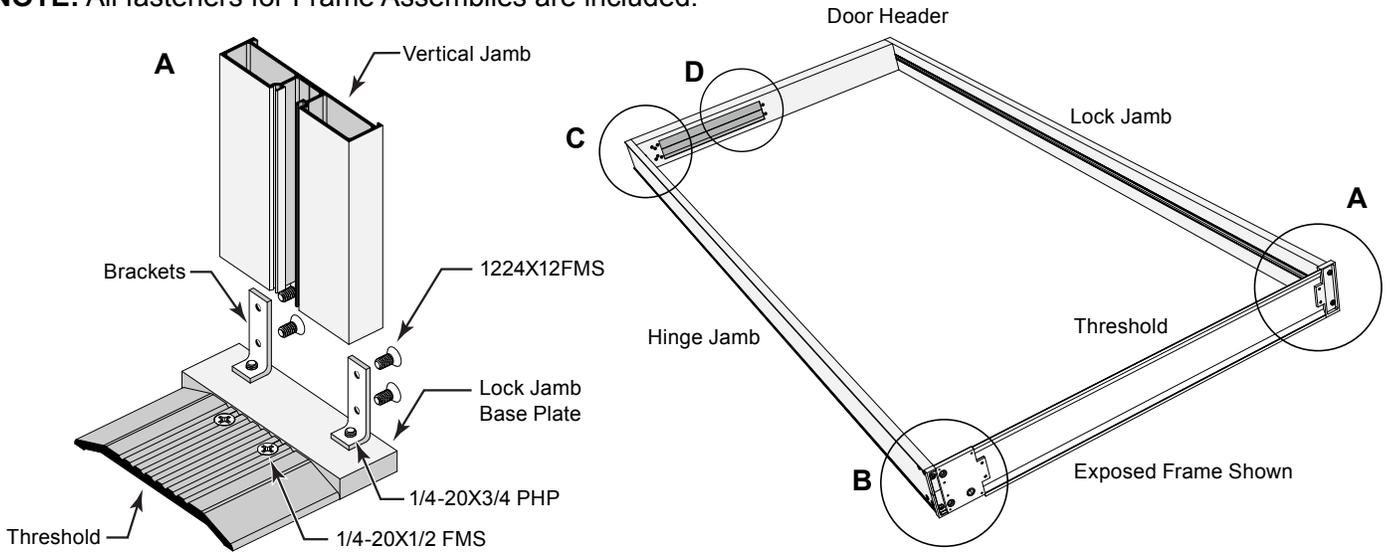


NOTE: Medium to heavy usage of specified components may cause critical fasteners to loosen over time. C.R. Laurence recommends the use of **Cat. No. 24221** Loctite® 242® Threadlocker. It is designed for the locking and sealing of threaded fasteners which require normal disassembly with standard hand tools. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. Suitable for applications on less active substrates such as plated surfaces, where disassembly with hand tools is required for servicing.

STEP 4: ASSEMBLE THE FRAME (CONTINUED)

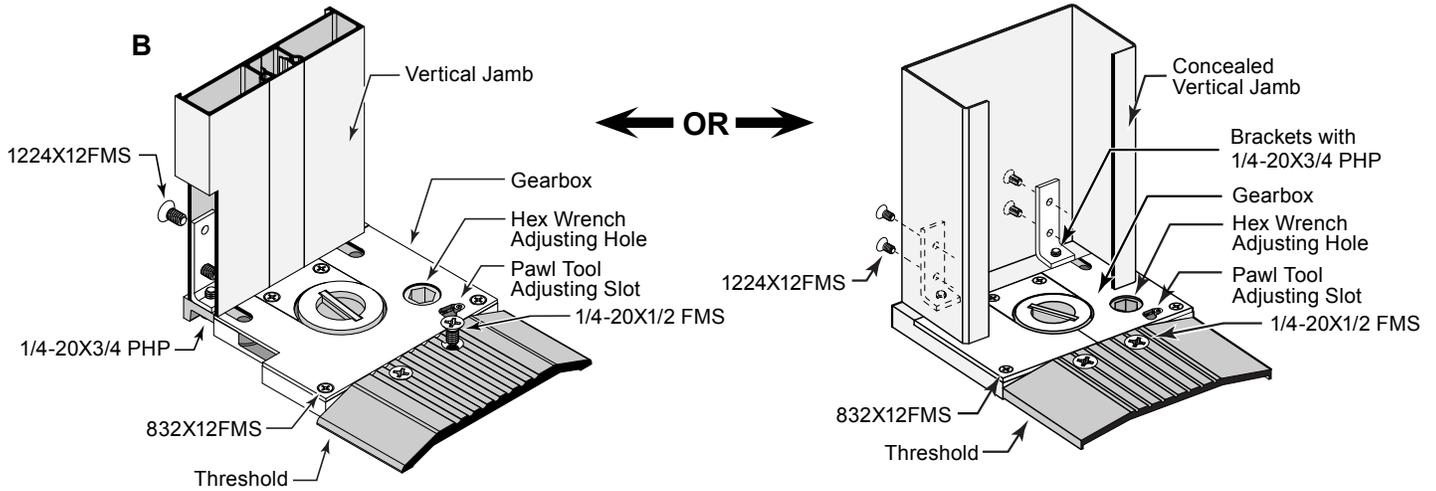
Lay the frame component parts on the floor and assemble with the fasteners specified below. Although the illustration shows a single door frame with Exposed Hinge Tube Jamb, the assembly is similar for Double Door Frames and Concealed Hinge Tube versions.

NOTE: All fasteners for Frame Assemblies are included.



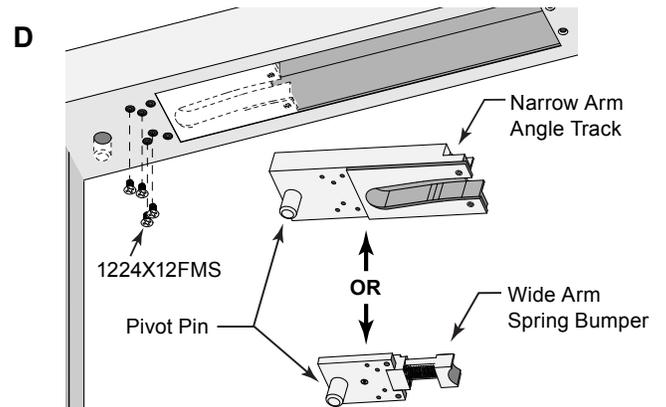
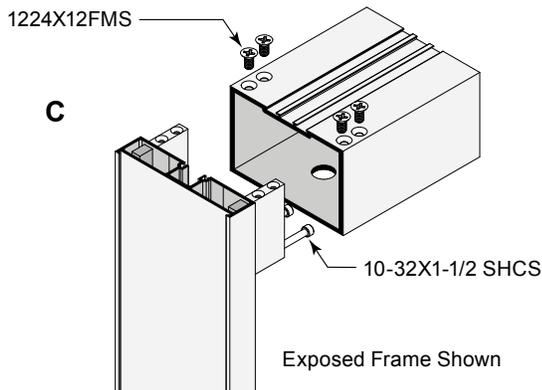
EXPOSED HINGE TUBE VERSION

CONCEALED HINGE TUBE VERSION



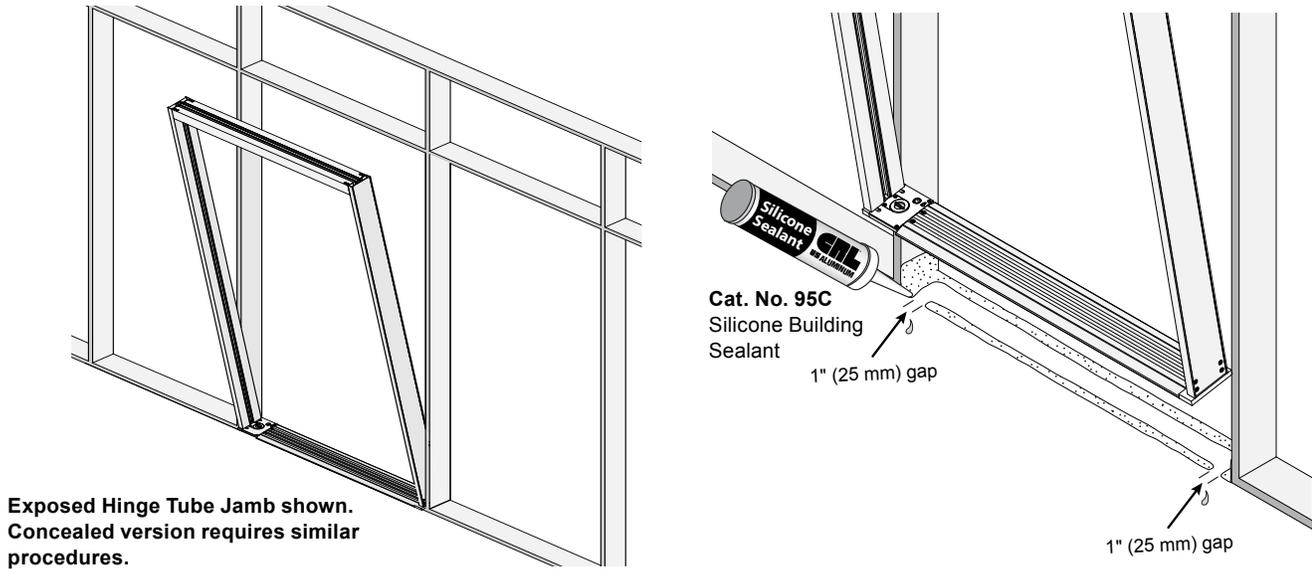
SHEAR BLOCK CORNER CONNECTION

TOP HINGE PIVOT ASSEMBLY

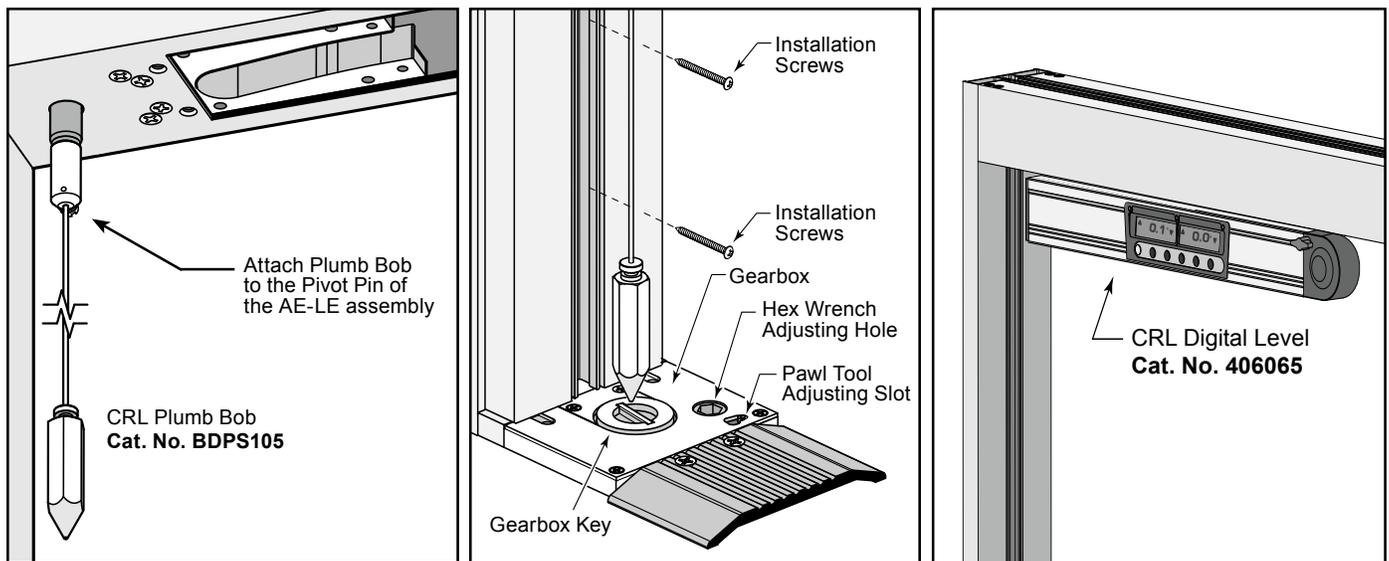


STEP 5: INSTALL THE FRAME

Dry fit fabricated frame into the opening to test for size and sill flatness, also allowing for shim space. Remove frame and clean substrate. Apply **Cat. No. 95C** Silicone Building Sealant to the floor substrate leaving two 1" gaps on the exterior side as shown below. Reposition frame back into opening and press threshold into wet silicone. Shim sill as needed.

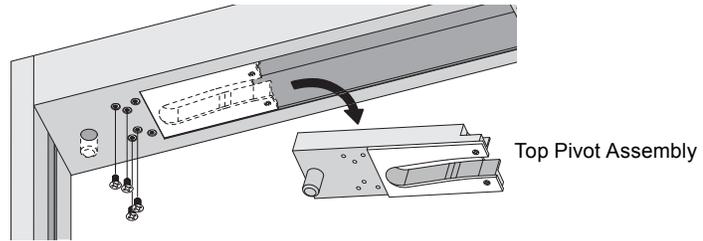


Attach the **Cat. No. BDPS105** Magnetic Plumb Bob to the Pivot Pin of the assembly in the header. Lower the Plumb Bob until it is just above the Gearbox Key. Adjust the Hinge Jamb, Head and Threshold until the Pivot Pin and Gearbox Key are vertically aligned. Attach the Hinge Jamb to the opening with the appropriate fasteners. Using a spirit level or the **Cat. No. 406065** Digital Level, square and plumb the remaining frame members. Shim and permanently mount the frame to the opening with the appropriate fasteners.

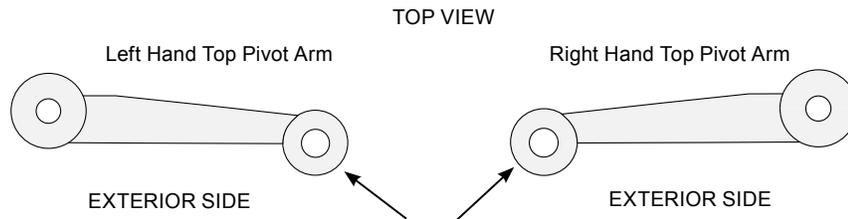


STEP 6: INSTALL THE HINGE TUBE

1. Remove the top pivot assembly before proceeding. This will ease the installation of the hinge tube.

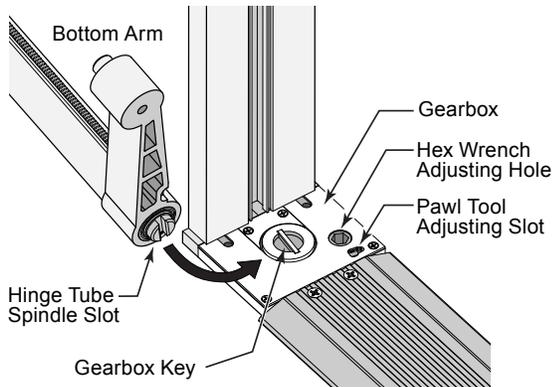


The Hinge Tube Assembly carries the full weight of the glazed door and acts as an intermediate hinge for the Balanced Door System. It is very important to install and adjust it properly to achieve free and unrestricted movement. If double doors are supplied, use the shape of the Pivot Arms to identify the left and right Hinge Tubes as depicted below.

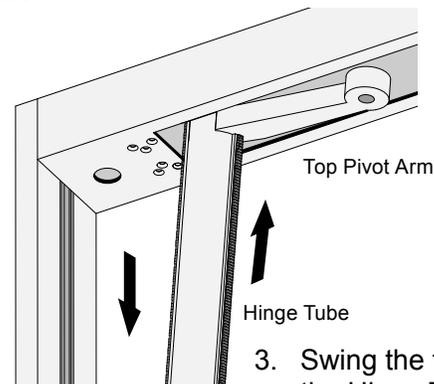


HINT: The offset lobe of the pivot arm always faces the exterior.

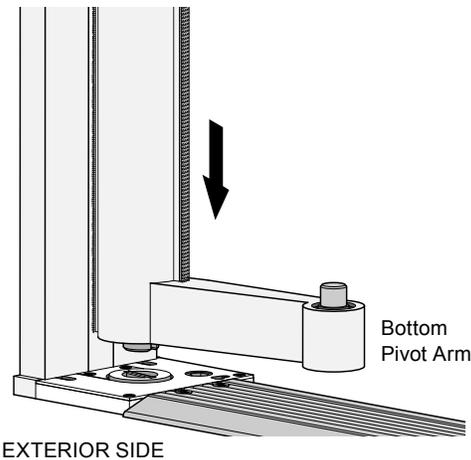
2. Orient the Gearbox Key and the Hinge Tube Spindle Slot the same direction.



NOTE: Hinge Tube Spindle Slot must line up with Gearbox Key upon installation. Key can be rotated to align with Spindle Slot with 1/2" (13 mm) Hex Wrench (Not provided).



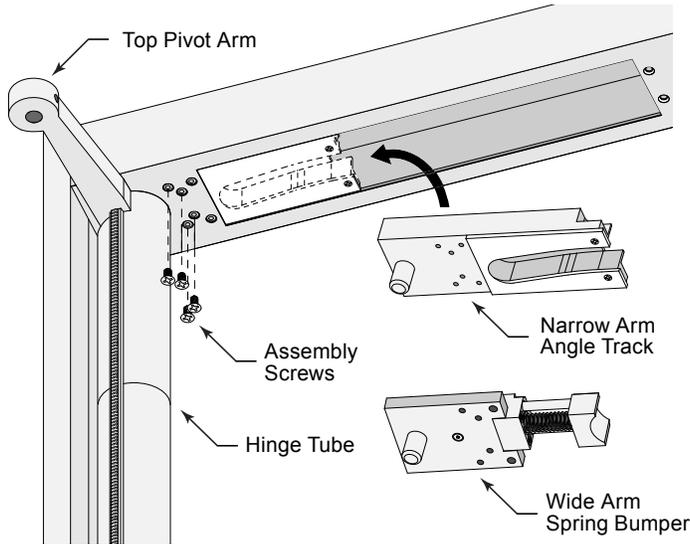
3. Swing the top arm of the Hinge Tube into the cutout for the Top Pivot Arm Assembly.



4. Lower Hinge Tube onto Gearbox ▶

NOTE: Hinge Tube Spindle Slot will straddle the Gearbox Key and drop into place when properly aligned.

STEP 6: INSTALL THE HINGE TUBE (CONTINUED)



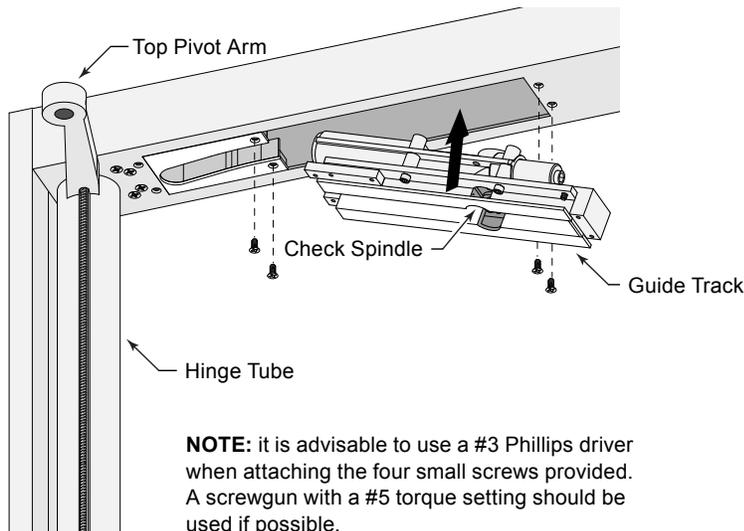
NOTE: it is advisable to use a #3 Phillips driver when attaching the four small screws provided. A screwgun with a #5 torque setting should be used if possible.

5. Re-Install The Top Pivot Assembly by dropping the pivot pin down through the hole in the frame head and into the top of the Hinge Tube. This creates a top pivot point for the Hinge Tube.

Attach with the four fasteners as before with the addition of **Cat. No. 24221** Loctite® 242® Threadlocker.

Do not attach the screws to the two holes closest to the cutout. These holes are used to accommodate the installation of the Guide Track Assembly.

STEP 7: INSTALL THE GUIDE TRACK

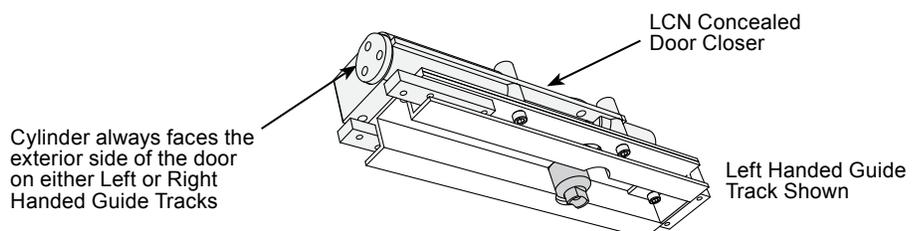


NOTE: it is advisable to use a #3 Phillips driver when attaching the four small screws provided. A screwgun with a #5 torque setting should be used if possible.

1. Install Guide Track Assembly with four short screws provided. Insert the assembly up into the head at an angle and drop back down onto the fastener holes.

The Guide Track should be oriented so that the Check Spindle is farthest from the Hinge Tube.

Because the Guide Track is handed but will fit on either side, you must verify it is installed correctly.

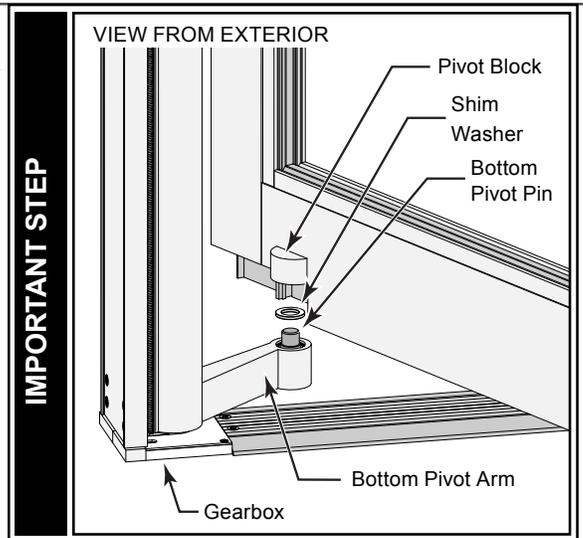


STEP 8: INSTALL DOOR PANEL

1. Place a Shim Washer on the Bottom Pivot Pin for proper gap spacing. Turn the Bottom Pivot Arm 45 degrees to the interior side of door jamb. Adjust the spring tension at the gearbox if necessary.

Have an assistant hold the Bottom Pivot Arm to keep the Hinge Tube stationary while installing the door.

Lift the door at an angle and set the bottom cup of the pivot block onto the Pivot Arm Pin as shown. Hold the top of the door at an angle so it clears the header. Make sure the door is securely seated onto the Bottom Pivot Arm by gently rocking it.

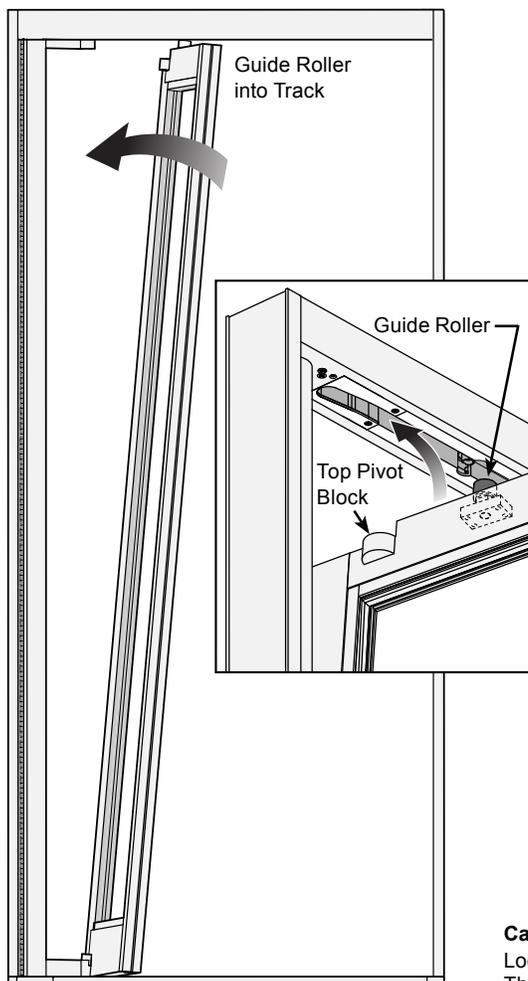


NOTE: A Shim Washer **MUST ALWAYS** be used on the Bottom Pivot Pin. Door failure may result without it. The spacing between the Pivot Block and the Pivot Arm is 3/32"-1/8" (2-3 mm).

REF222 .031" Shim Washer

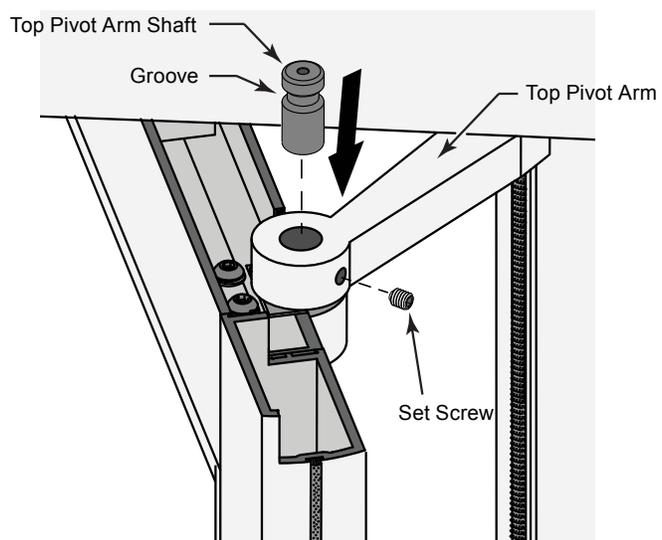
REF221 .062" Shim Washer

REF22 1/16" Shim Washer



2. Swing the door upwards as you maneuver the Guide Roller into the track. If necessary, pry the Top Pivot Arm up slightly until it clears the Pivot Block. Have an assistant hold the door vertical while you align the Top Pivot Arm with the Top Pivot Block.

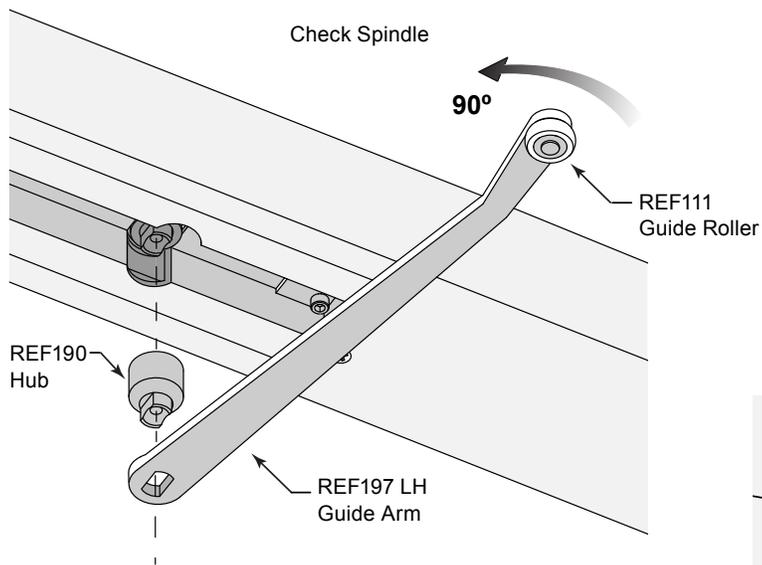
3. Insert the Top Pivot Arm Shaft into Top Pivot Arm as shown. The set screw fits into the groove to hold the Top Pivot Arm Shaft in place. Apply **Cat. No. 24221** Loctite® 242® Threadlocker to set screw and tighten securely.



Cat. No. 24221
Loctite® 242®
Threadlocker

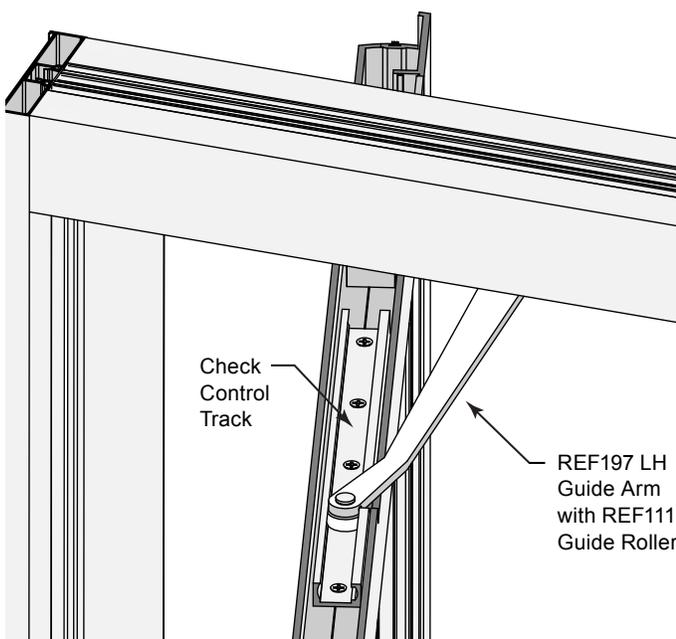
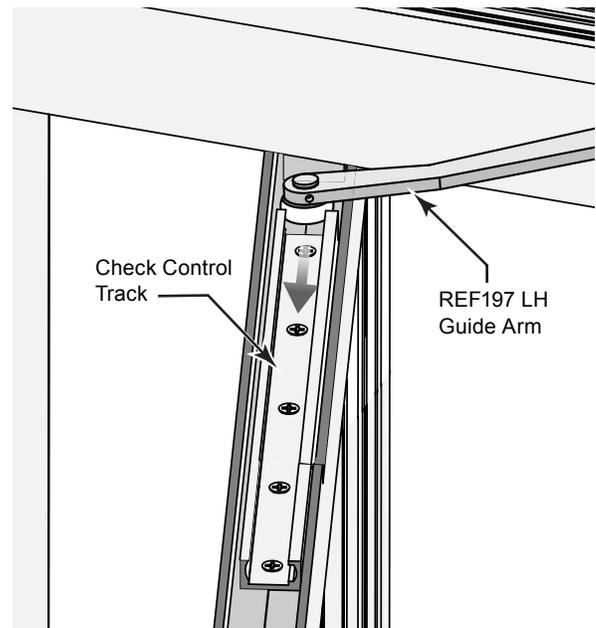
4. Make sure the closing speed and latching speed valves are FULLY OPENED to allow the door to swing unrestricted. (See page 10, Step 9.)

STEP 8: INSTALL DOOR PANEL (CONTINUED)

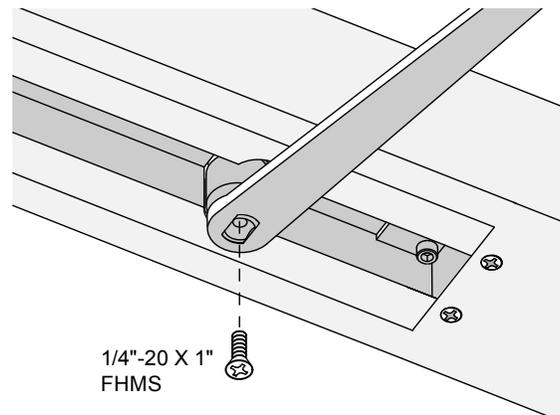


5. Place the REF190 Hub and REF197 LH Guide Arm onto the Check Spindle, align and hold in place with your hand. Using the Guide Arm, turn the Spindle until it is 90 degrees with the head. Remove the Guide Arm and Hub before continuing to the next step.

6. Insert the Guide Roller into the Guide Track on top of the door. The bend in the Guide Arm always points back towards the door frame. Roll the Guide Arm back and forth in the track a few times to make sure it's free of obstructions.

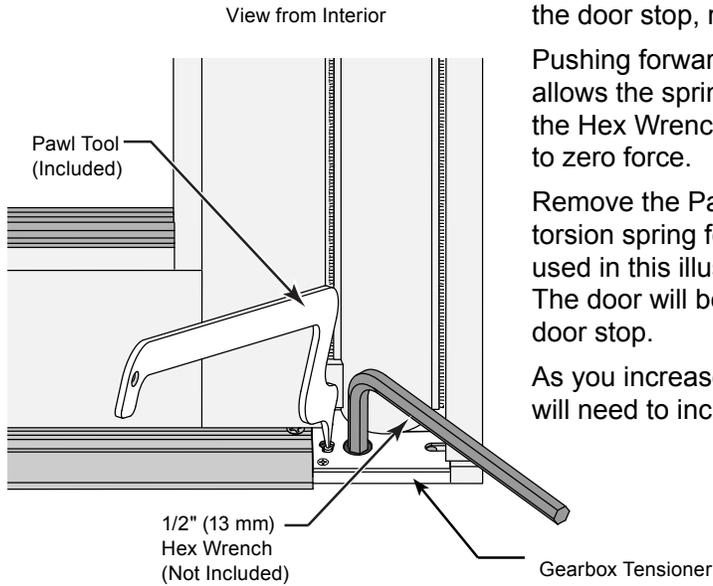


7. Attach the Guide Arm and Hub to the Check Spindle once again by opening or closing the door until the oval slots align. Secure arm with the 1/4"-20 X 1" FHMS using **Cat. No. 24221** Loctite® 242® Threadlocker.



Adjusting the door's closing characteristics require back-and-forth changes to the Gearbox Tensioner and the LCN Concealed Closer attached to the top of the Check Track. You will need to set a medium amount of spring force at the Gearbox before making adjustments to the LCN closer. As you increase the hydraulic closing resistance, you will also need to increase the spring tension of the Gearbox.

STEP 9: ADJUST CLOSING FORCE



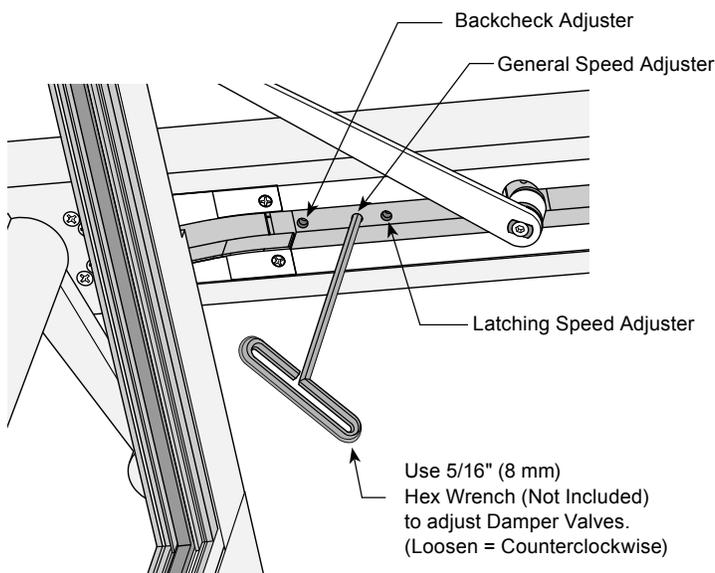
With the Balancer Door centered over the threshold or against the door stop, release any tension by using the Pawl Tool.

Pushing forward on the Pawl Tool while holding the Hex Wrench allows the spring tension to relax in a controlled manner. Without the Hex Wrench in place the torsion spring could rapidly unwind to zero force.

Remove the Pawl Tool and use the Hex Wrench to ratchet up the torsion spring force to the desired level. For our left handed door used in this illustration, turn the Hex Wrench counterclockwise. The door will begin to move towards you or tighten against the door stop.

As you increase the resistance of the LCN device in Step 9, you will need to increase the spring tension slightly at the Gearbox.

STEP 10: ADJUST CLOSING SPEED



The LCN Overhead Concealed Closer serves as a speed check device with three adjustments.

1. Backcheck Adjustment: Adjust slightly to obtain a very light Backcheck Setting. It should not be noticeable under average slow opening but should resist rapid opening movement that could occur during high winds CW = Slower and CCW = Faster.

2. Closing Speed Adjustment: Adjust as desired. CW = Slower and CCW = Faster.

3. Latch Speed Adjustment: Adjust so that the door does not "bounce" off of the jamb when it closes. CW = Slower and CCW = Faster.

NOTE: Adjusting the screws too far open (CCW) can result in oil leakage.

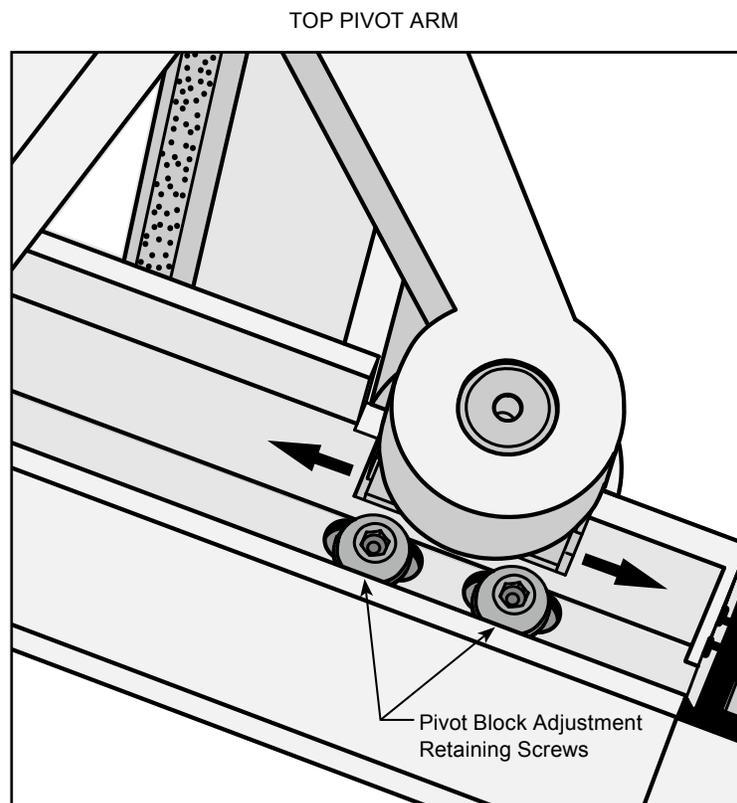
Use a 5/16" (8 mm) T-Handle Hex Wrench (Not Included) to make all adjustments.

STEP 11: ADJUST PIVOT BLOCK

The Adjustable Pivot Blocks located on the top and bottom of each door can be used to reduce small gaps and misalignments. The Retaining Screws are easily accessible without removing the door.

Open the door 45 degrees and block the bottom outside stile up off the floor with tapered wood shims. Only adjust one Pivot Block at a time. Loosen but **DO NOT REMOVE** the retaining screws. Adjust to the desired gap by adding or removing shims. Tighten the Retaining Screws, close door and check gaps. Misalignments up to 1/4" can be corrected with this procedure.

WARNING: Do not attempt this procedure without an assistant. Heavy, uncontrolled doors can cause serious injuries. **DO NOT REMOVE** the Retaining Screws.



NOTE: After adjusting door alignment, remove one screw at a time, apply **Cat. No. 24221** Loctite® 242® Threadlocker to threads and re-insert.

MAINTENANCE

Proper maintenance is critical to the life and operation of the Balancer Door System. It is important to regularly clean environmental debris from areas adjacent to moving parts such as bearings, roller tracks and gear assemblies.

DO NOT LUBRICATE MOVING PARTS. Each component is shipped from the factory with ample lubrication which, if kept clean, will provide a long service life. Compressed air, soft clean towels, and a small brush are recommended for most cleaning and maintenance procedures.



*Inspection intervals are suggestions. Inspection and maintenance should be based on actual cycle levels and environmental conditions.

JOB SITE ESSENTIALS

Helpful Tools and Supplies for Installing CRL–U.S. Aluminum Entrances, Storefronts, Windows, and Curtain Wall Systems



CRL Digital Laser Level Tool
CAT. NO. 406065



CRL Plumb Bob Alignment Tool for Premium Balanced Doors
CAT. NO. BDPS105



CRL .34 Fl. Oz. (10 ml) Bottle Loctite® 242® Threadlocker
CAT. NO. 24221



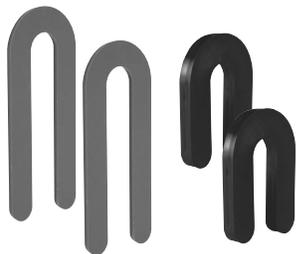
CRL Glass Cleaner
CAT. NO. 1973



CRL Glass Wipes
CAT. NO. 1550



CRL 95C Silicone Building Sealant



CRL PHS Series Plastic Horseshoe Shims



CRL Sure-Grip Vacuum Lifter
CAT. NO. S338



CRL 12:1 Ratio Strap Frame Caulking Gun
CAT. NO. GA1203



CRL M64 Modified Smooth Polyurethane Construction Sealant



CRL M66 Modified Grainy Polyurethane Construction Sealant



CRL Door Jack
CAT. NO. DJ1



CRL 18 Volt Cordless Variable Speed Impact Driver/Drill Kit
CAT. NO. LD147