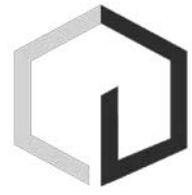


Raymond D Hall

Digitally signed by Raymond D Hall
Date: 2017.03.30 16:29:23 -04'00'



DOOR
ENGINEERING
AND MANUFACTURING
Opening to Your Standards.



Four-Fold Door System FF700 Hurricane Rated Manually Operated

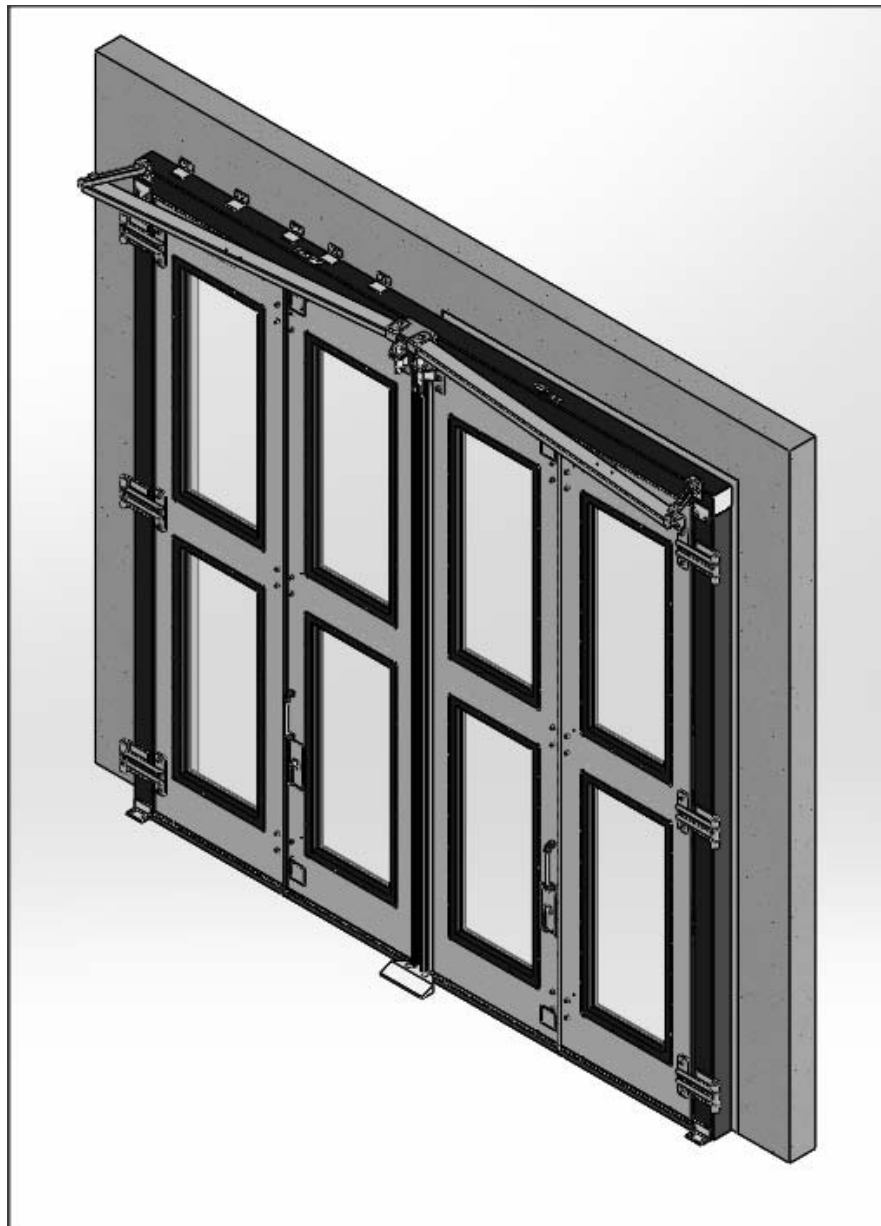


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WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH TO PERSONS:

1. READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.
2. Install only on a properly operating and balanced door. A door that is operating improperly could cause severe injury. Have qualified service personnel make repairs or adjustments to panels and other hardware before installing the operator.
3. Place and constrain door panels in the closed position **before** connecting operator.
4. Installation of this door operator must be done by a qualified installer.
5. Install the door operator at least 8 feet or more above the floor.
6. Do not connect the door operator to the source of power until these instructions indicate.
7. Locate the control panel:
 - a) In sight of the door
 - b) At a minimum height of 5 feet
 - c) Away from all moving parts of the door
8. Install the "Entrapment Warning Label" next to the control station in a prominent location.
9. Check clearance around the door for any person or object that may be in the door's path every time before operating. Never store items in or near the area of door travel.
10. If you have any questions about the safety of the door operating system, do not install the operator, contact Door Engineering & Manufacturing at 1-800-959-1352.

Installation Instructions

1 Four-Fold Door Installation

Check the door panels and operator(s) for any shipping damages immediately upon arrival. Go through the shipping list and check off all the hardware parts specified for your operator. The shipping list is located in the hardware crate. If any equipment or optional item is missing or damaged, call the transport company or your direct supplier.

1.1 Preparation

The Four-fold door is assembled at the factory as complete as possible to minimize field installation time. The door sections have the following items factory installed:

- Hinges, both jamb and fold
- Weathering
- All hardware that does not protrude from the door surface so as to restrict door shipment

Holes are pre-drilled in the door for any hardware that is not installed. The Four-fold door is shipped in halves stood on edge in a rack.

Recommended Installation Equipment:

- Lull/forklift/boomtruck
- 2X4 lumber for shims
- Assorted length straps
- Pry bar
- Lifting lugs/clevis
- Hammer drill (when attaching to masonry)
- Water level and laser level
- Glass cleaner (to install windows)
- Towels/blankets (to protect finish paint)

1. Review the drawings, *Four-fold Door General Layout (-1)*, *Operator Layout (-2)*, and the *Shipping List* included with the door shipment.
2. Measure and inspect the door opening(s) for width and height dimensions which should correspond with those on the drawing. Check for plumb jambs and a level header. The door(s) must be plumb when installed. Any deviations from the door dimensions and being plumb will affect the fit of the door sections in the opening(s). Door-to-floor and door-to-door at center clearances will tolerate a maximum 1/2-inch total deviation.

Installation Instructions

1.2 Installation With A Surface Mounted Frame

Before beginning, verify that the floor is level. If the floor is not level, install the first assembled door half to the side of the opening which is higher. (the other side will have to be shimmed to the same elevation)

1. Create two stacks of lumber on the floor on the interior side of the opening and cover with towels or moving blankets. The stack furthest from the door opening should be roughly one foot taller. Lay the first assembled door half on the lumber with the jamb hinges down. (Figure 1.2.1)
2. Remove the top fold hinge and bolt the installation bracket to the interior side (facing the floor) of the assembled door half.

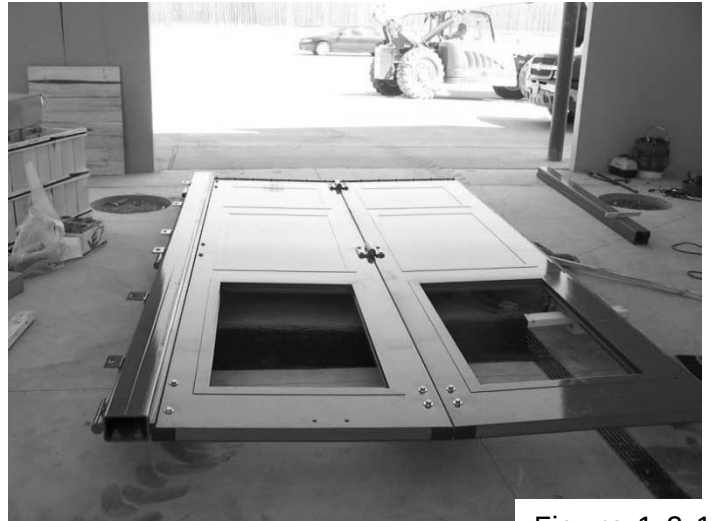


Figure 1.2.1

3. Attach a clevis pin to the installation bracket and strap the clevis pin to the lifting machinery. (Figure 1.2.2)

Notes For Attaching Lifting Machinery:

- Remove All Forks
- Minimize space from machinery to door
- If the door has window openings, attach a looser safety strap between window openings and lifting machinery

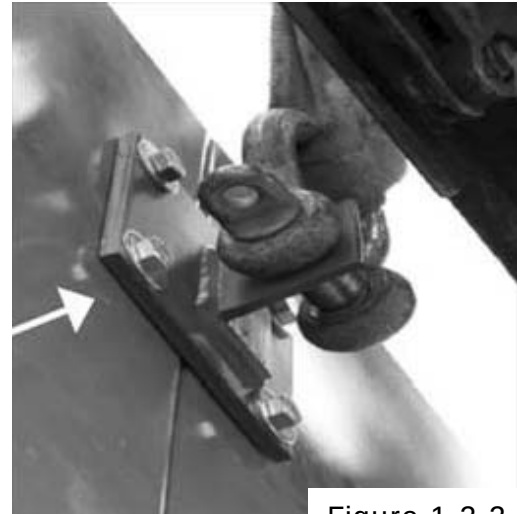


Figure 1.2.2

4. Lift the assembled door half onto the building wall. (lifting options shown on next page)

Operation & Maintenance

4b. Lifting Options:

Option 1: Lift using provided installation bracket. (Figure 1.2.3)



Figure 1.2.3

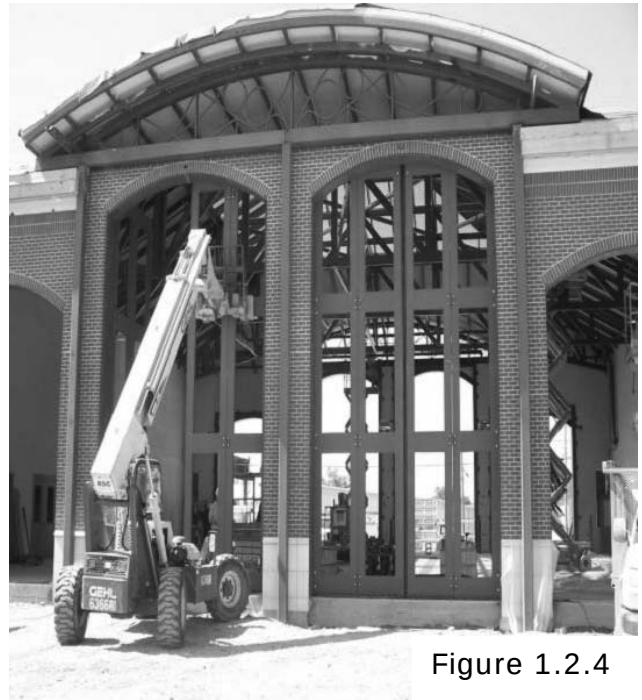


Figure 1.2.4

Option 2: Window lift from exterior. (Installation bracket is still used to prevent the doors from hinging) (Figure 1.2.4) DANGER: Do not lift directly on steel window frames. Cut and install wood frames for protection; clamp wood to both faces of door.

5. Cut wood shims to insert at the bottom of the door to shim it up from the floor. (Figure 1.2.5)

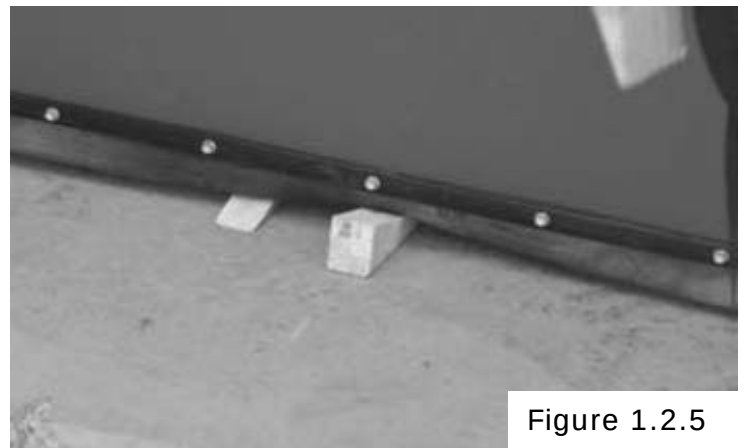


Figure 1.2.5

Operation & Maintenance

6. Drill and anchor the surface mounted frame to the wall at the horizontally slotted clip (typically second from the top) and one slot on the floor clip. (Figure 1.2.6 & 1.2.7) *This will allow slight adjustment to align the header with the jambs; the remaining clips are to be anchored at a later time.*



Figure 1.2.6

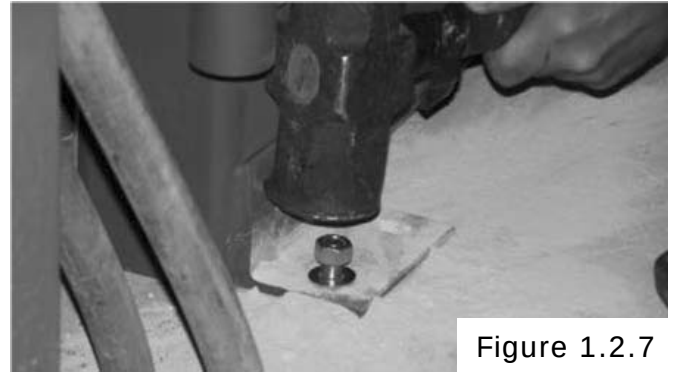


Figure 1.2.7

7. Verify that the first half of the door is level and properly secured. Repeat steps 1-6 for the second half of the door.
8. Lift the surface mounted frame header and place it on top of the surface mounted frame jambs. (Figure 1.2.8)
9. Align the side plates of the header with the holes in the surface mounted frame jamb tubes. Bolt the header to the jambs. (Figure 1.2.9)
10. Verify the doors meet properly at the center of the opening. If they do not shimming of the frame may be required.
11. Anchor the remaining surface mounted frame clips to the wall and floor.
12. Bolt the control arms to the jamb door panels. (refer to the operator layout for additional details)



Figure 1.2.8

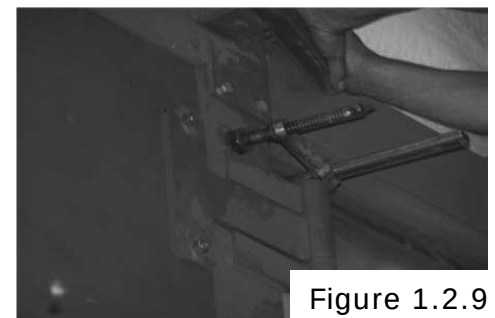


Figure 1.2.9

Operation & Maintenance

1.3 Track And Trolley Installation And Adjustment

1. Bolt the angle track sections with the downward angle (located away from the header) to the center track hanger and end track hanger, leaving the fasteners finger tight.

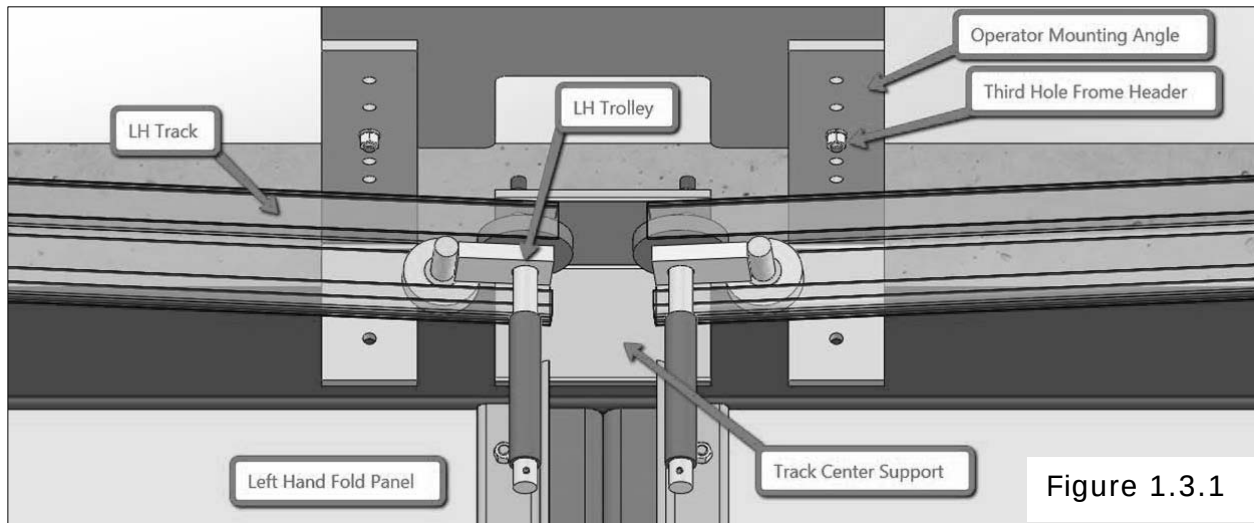
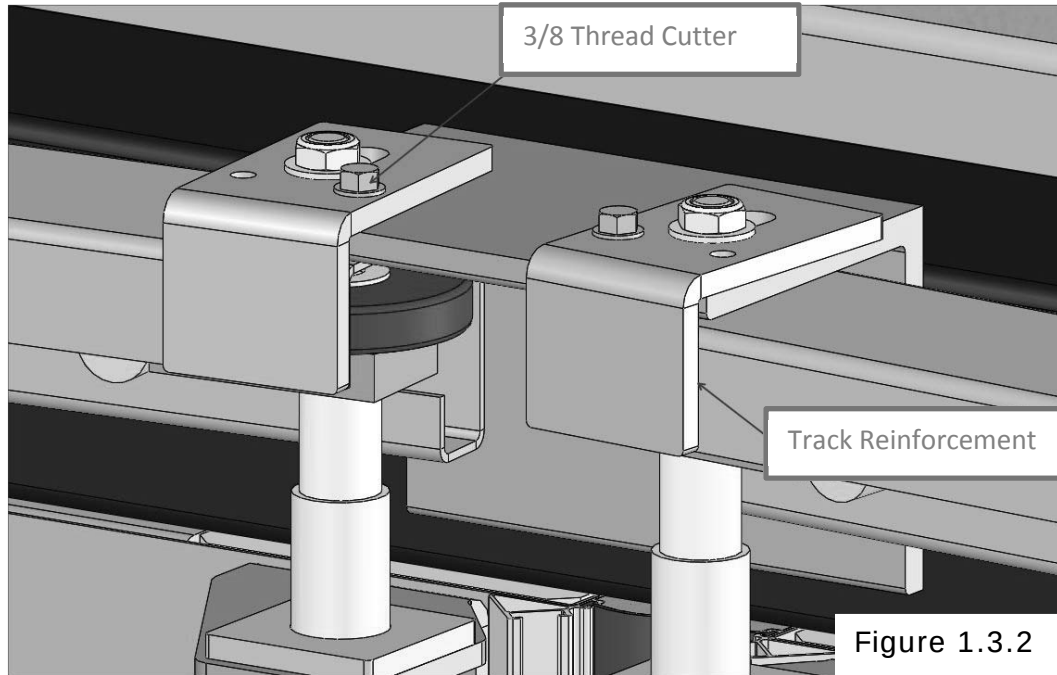


Figure 1.3.1

2. Slide the left hand trolley (double rollers to the exterior side) onto the left hand track, and bolt the trolley to the door. (Figure 1.3.1) Repeat for the right hand side.
3. Close the door and measure the distance the trolley stem extends below the trolley tube.
4. Open the door manually so that the jamb panel is just past perpendicular to the wall and the fold panel is parallel to the jamb panel. It may be necessary to "muscle" the door into this position because you are also moving the track and end hanger into position.
5. Measure the distance the trolley stem extends below the trolley tube in the open position. It may be necessary to add washers to level the track.
6. If the fold panel does not open clear of the opening, the track should be moved toward the wall at the end track hanger. This will allow the door sections to fold closer together. *Warning: The track must be out far enough from the wall to prevent binding and allow the jamb panel to swing back. This is especially important with limited side room and power operation.*
7. With the door panels still in positions indicated in step (4), tighten all track hardware.
8. Open and close the door manually to check that the final track adjustment allows the door panels to rest in positions as indicated in step (4).

Operation & Maintenance

9. Reinforce the Track at the Center Support Bracket using the Track Reinforcement Angle. The Angle should be flush to the front surface of the HV1 Track. Fix the angle in position using a 3/8" Thread Cutter Screw. This requires an 11/32" pilot hole through the Center Support Brack. (See Figure 1.3.2)



Operation & Maintenance

1.4 Window Installation (if applicable)

1. Remove the window frame from the door and set it aside.

2. Wipe the window edge clean with glass cleaner to remove any dust or dirt.

3. Lay butyl tape around the window edge as close to the edge as possible. (Figure 1.4.1) Start in a corner, leaving the tape extending beyond the corner slightly to allow overlap. Notch the butyl tape wrapper to allow the tape to cover the corners and insure a complete seal.

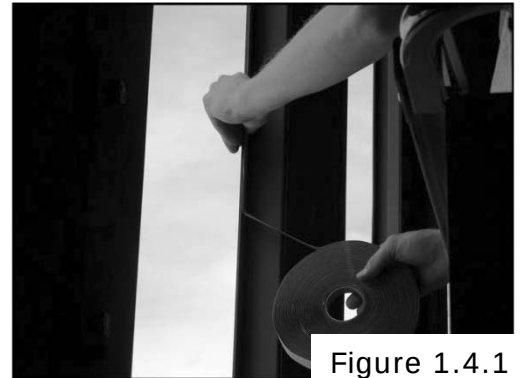


Figure 1.4.1

4. Place two setting blocks on the bottom window edge, one near each corner. (Figure 1.4.2)
(8 blocks are typically provided for each window)

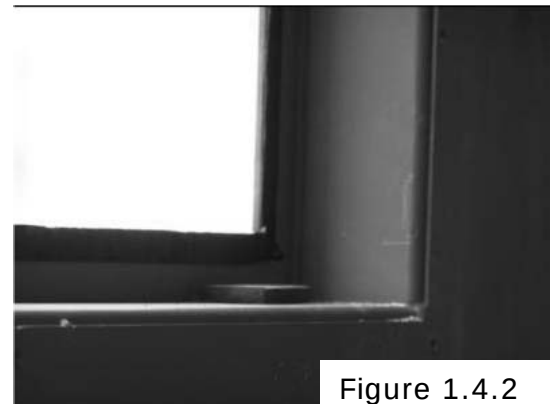


Figure 1.4.2

5. Spray glass cleaner over the butyl tape and set the glass in the window. *Once the glass touches the tape it will immediately adhere and cannot be adjusted. Spraying glass cleaner on the glass allows for slight re-adjustment and does not hinder adhesion or sealing capabilities.*

6. Clean the interior side of the window frame with glass cleaner. Apply foam tape to the window frame, close to the edge. Cut the corners square of the tape square. (do not overlap the corners of the tape)

7. Spray glass cleaner over the foam tape and place the frame into the window opening. Screw the window frame into place.

8. Caulk all interior and exterior seams.

Operation & Maintenance

1.5 Floor Guide Installation

Refer to Section A-A on drawing *General Layout* FF700-1 and sill section on drawing *General Layout Details* FF700-2. Verify that doors are aligned properly at the center of the opening. Allow approximately 1/8" between door and floor guide. If doors do not meet at center properly, door guide can be used to force doors into alignment. In this case the guide will press firmly against one door panel. anchor with 1/2" x 5 1/2" wedge anchor bolts

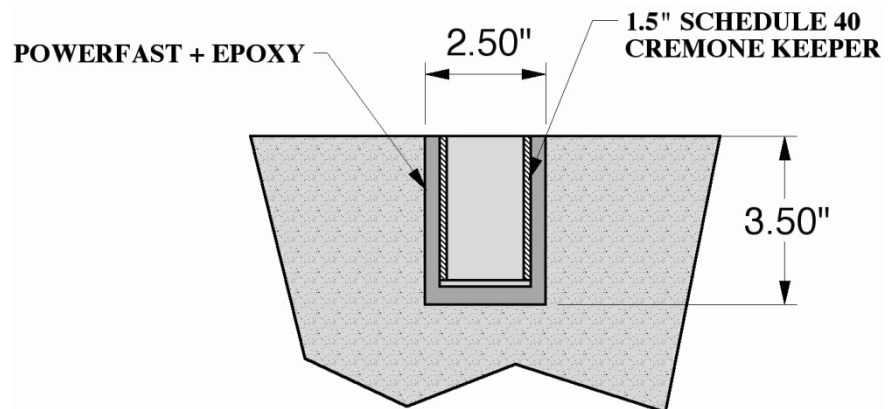
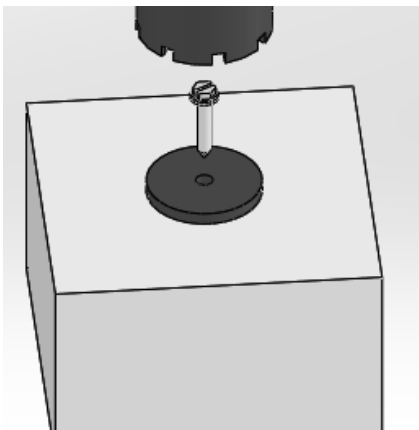


1.6 Cremone Keeper Installation

Cremone keepers are to be installed after door has been fully installed and adjusted, door must be in the closed position.

Top cremone keeper is field located and welded to surface mounted frame header tube. Refer to detail on drawing *General Layout Details* FF700-2 for location and welding requirements.

Floor cremone keeper is field located and inserted in floor. Pre drill hole for tapcon, secure centering washer in place with tapcon, Core drill floor with 2 1/2" diameter core bit, 3 1/2" deep, using the centering washer to hold bit in place. Fill hole 1/3 full with Power-Fast + Epoxy Adhesive and press in cremone keeper until level with floor. Remove excess adhesive, or add additional adhesive as needed.



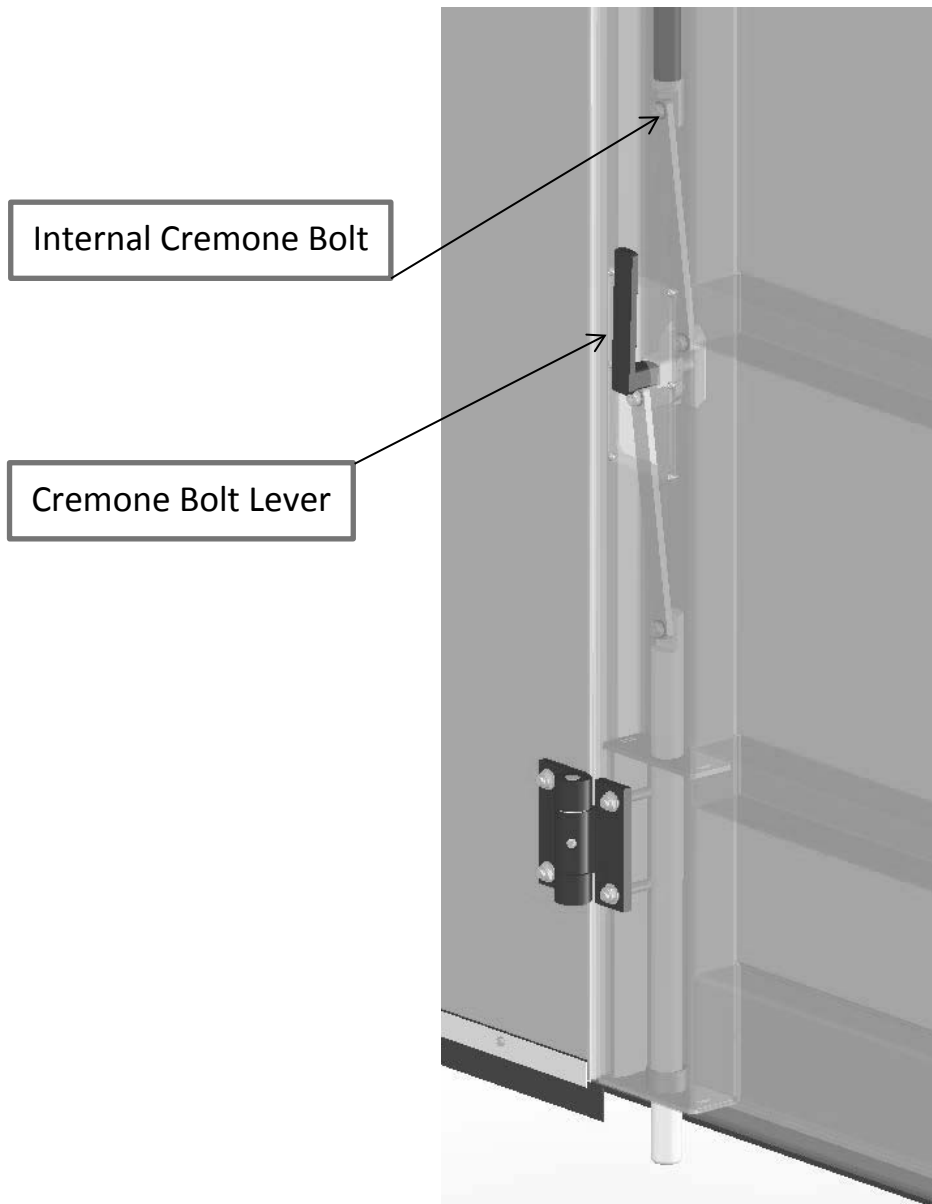
CREMONE INSTALLATION DETAIL

Operation & Maintenance

2 Door Operation

2.1 Manual Operation

The doors are opened and/or closed by manpower. Doors should not be moved faster than is possible under electrical power. Doors may be secured using the cremone bolts actuated by the levers located on the Fold Panels.



Operation & Maintenance

3 Maintenance Schedule

3.1 Mechanical Inspection

The door area should always be kept clear of dirt, rocks, or any other objects for optimal operation. Maintenance of the door operator should be performed according to the schedule in Table 3.1.1

Table 3.1.1 – Mechanical Inspection Guide

Component	Cycle Count	Action	Inspect..(action)
Jamb Hinges	EVERY 10,000	Grease (Δ)	..for wear (*)
Fold Hinges	EVERY 10,000	Grease (Δ)	..for wear (*)
Weathering	EVERY 10,000	Check	..for wear, puncture or rips (*)
Trolley/Tracks	EVERY 10,000	Check	..for wear and noise (*,Δ)
Hardware	EVERY 10,000	Check	..ensuring all is secure

*if excessive wear is found contact Door Engineering & Mfg. Co

Δ Use a quality grade EP0 or EP00 grease, do not over lubricate as it causes dust to collect

Troubleshooting Guide

PROBLEM: Door opens but seems to jam.

SOLUTION:

Refer to Section 1.3 for track adjustment. Check for bent trolley or track parts, worn bearings in trolleys, etc.

Limited Warranty

Door Engineering and Manufacturing, LLC (hereby referred to as Company) warrants that all products manufactured by it shall be free from defects in materials and workmanship for a period of one (1) year from thirty (30) days of the date of shipment of product from Company. Company's obligation under said warranty is to cover the door and mechanical components for five (5) years, liquid & prime paint 1 year (excluding fading and normal wear), electrical and safety components for one (1) year, weather seals and brake pads for one (1) year and labor one (1) year. Materials will be covered in the repair or replacement of products proven to be defective in material or workmanship.

Under said warranty, Company must receive back supposed defective part within thirty (30) days of discovery and allowed to properly investigate part to determine if defective. If said part is proven to not be defective, said warranty will not be applicable and Partner will be responsible for all costs incurred. Said warranty excludes any materials which require repair or replacement due to normal wear and operation or abuse.

This limited warranty excludes any Product defects or failures caused after shipment by:

- Improper installation (including, without limitation, misalignment)
- Use in improper applications or conditions or in conjunction with improper materials (including, without limitation, improper lubricants, pastes, solvents or sealants)
- Contact with aggressive chemical agents
- Structural shifting of building
- U.V. degradation
- Failure to adhere to Company's instructions concerning the proper handling, installation, and use of the Product
- Failure to adhere to applicable standards set forth by local laws, codes, or regulations and the applicable industry standards
- Any other improper activities not listed above or damage caused by the fault or negligence of anyone other than Company.

LIMITATION OF LIABILITY

THE WARRANTIES IN THIS LIMITED WARRANTY ARE THE ONLY WARRANTIES APPLICABLE TO THE PRODUCTS. THERE ARE NO OTHER WARRANTIES, REPRESENTATIONS OR CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE PRODUCTS SUPPLIED HEREUNDER INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED COMPANY SHALL NOT BE LIABLE IN THIS RESPECT NOTWITHSTANDING COMPANY'S ACTUAL KNOWLEDGE OF THE PRODUCT'S INTENDED USE OR ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY DOOR ENGINEERING CONCERNING THE DESIGN, MANUFACTURE, FABRICATION, SALE, USE, INSTALLATION OR PROVISION OF THE PRODUCTS. NO STATEMENT, CONDUCT OR DESCRIPTION BY COMPANY OR ITS REPRESENTATIVES, IN ADDITION TO OR BEYOND THIS LIMITED WARRANTY, SHALL CONSTITUTE A WARRANTY.

Limited Warranty

THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF THIS LIMITED WARRANTY, AND THE SOLE AND EXCLUSIVE OBLIGATION OF COMPANY IN RESPECT OF ANY CLAIMS FOR BREACH OF THIS LIMITED WARRANTY, SHALL BE, AT COMPANY'S SOLE DISCRETION, (1) THE REPLACEMENT OF THE SAME TYPE, SIZE AND LIKE QUANTITY OF NON-DEFECTIVE PRODUCT, AT THE ORIGINAL POINT OF DELIVERY, OR CREDIT, OR A COMBINATION THEREOF, FOR THE WHOLESALE PURCHASE PRICE OF THE DEFECTIVE PRODUCT. IN NO EVENT SHALL COMPANY BE LIABLE FOR PERSONAL INJURY, LOST PROFITS, LOSS OF GOODWILL, LOSS OF BUSINESS OPPORTUNITIES, DAMAGE TO REPUTATION, SPECIAL DAMAGES, INDIRECT DAMAGES, DELAY DAMAGES, PUNITIVE DAMAGES, EXEMPLARY DAMAGES, CONSEQUENTIAL DAMAGES OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY COSTS INCURRED IN CONNECTION WITH THE REMOVAL OR REINSTALLATION OF ALLEGEDLY DEFECTIVE PRODUCTS.

CLAIMS

Every claim under this warranty shall be void unless it is made in writing and received by Company within thirty (30) days of the date the defect was discovered and, in any event, within one (1) year of the date of invoice. Claims for Product defects that affect the appearance of the Product, such as U.V. degraded Product, however, must be made within thirty (30) days of the date of the receipt of the Product. No claim under this limited warranty will be valid unless (1) proof of purchase with the date thereof as well as a description of the alleged defect in reasonable detail is presented to the satisfaction of Company, (2) written permission and/or a Return Material Authorization (RMA) is obtained from Door Engineering, (3) Company is given an opportunity to inspect the allegedly defective Product and (4) at Company's request, representative samples of the allegedly defective Product are returned to Company in accordance with Company's instructions.

GENERAL

In the event that any provision of this limited warranty is held to be illegal or unenforceable by any court of competent jurisdiction, the remaining provisions of this limited warranty shall remain in full force and effect. This limited warranty shall be governed by the laws of the Minnesota, without regard to such state's conflicts of law principles that would require the application of the law of any other jurisdiction. Any and all disputes arising out of or relating to this limited warranty shall be subject to the exclusive jurisdiction of the state or federal courts located in the state of Minnesota or, at Company's sole election, to binding arbitration before a single arbitrator pursuant to the American Arbitration Association's Commercial Dispute Resolution Procedures, with such arbitration to take place in the state of Minnesota. Company reserves the right to revise this Limited Warranty and Limitation of Liability without notice at any time.

This limited warranty may only be modified or altered in a writing signed by the President of Company.

This image shows a full page of primary-ruled paper. It features ten sets of horizontal dashed lines, each set consisting of three parallel lines. These lines are evenly spaced across the entire page, providing a guide for handwriting practice. The background is white, and there are no margins or additional markings present.



**READ AND FOLLOW ALL INSTRUCTIONS.
SAVE THIS DOCUMENT AND RETAIN FOR
END-USER.**

Job #: _____

Wiring Diagram #: _____

Project Name: _____

Door Name: _____