

FOUR-FOLD



Door Operation & Maintenance Manual



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Important Notice

WARNING

To reduce the risk of **SEVERE INJURY** or **DEATH** to persons or damage to the door system:

Electrical Safety:

- **Disconnect and shut OFF main power** before servicing, repairing, or adjusting the door/operator.
- All electrical work should be performed by **qualified personnel**.
- Do not operate the door if **wiring or electrical components are damaged**.

Maintenance & Service:

- Only **qualified personnel** should service or maintain the door operator.
- If the door is **damaged, malfunctioning, or operating unusually, stop operation and have the door inspected**.
- **Never disconnect the connecting rods while the door is open**.
- Do not adjust the operator or safety devices while **electrical power is connected**.

After Adjustments:

- Make sure all **guards, covers, and components are secured**.
- Test the door to make sure it **opens, closes, and stops properly**.
- Confirm **all safety devices are working properly** before returning the door to normal operation.

Operations of Four-Fold Doors



Always keep the door travel area clear of people, equipment, and other obstructions before operating the door.

Step 1: Power Operation

1.1 Power Door Controls Operating Modes

- Electrically operated doors include an OPEN, CLOSE, and STOP button
- **Stop** is used to immediately stop door movement
- **These buttons can be located on the control panel and on a separate button station depending on equipment add ons**
- Some doors also have a Hand and Auto mode
 - **Hand** means the door is controlled by only the push buttons and **require constant pressure**
 - **Auto** means the door is controlled by other devices like **remotes, timers, or sensors** and the push buttons **require momentary pressure**

1.2 Open and Close Buttons

- The OPEN and CLOSE buttons may work in one of two ways.
 - **Constant Pressure:** In hand mode, hold the button down to keep the door moving. Let go of the button to stop the door.
 - **Momentary Pressure:** In auto mode, press and release the button once. The door will continue moving until it reaches the fully open or closed position.



Operations of Four-Fold Doors

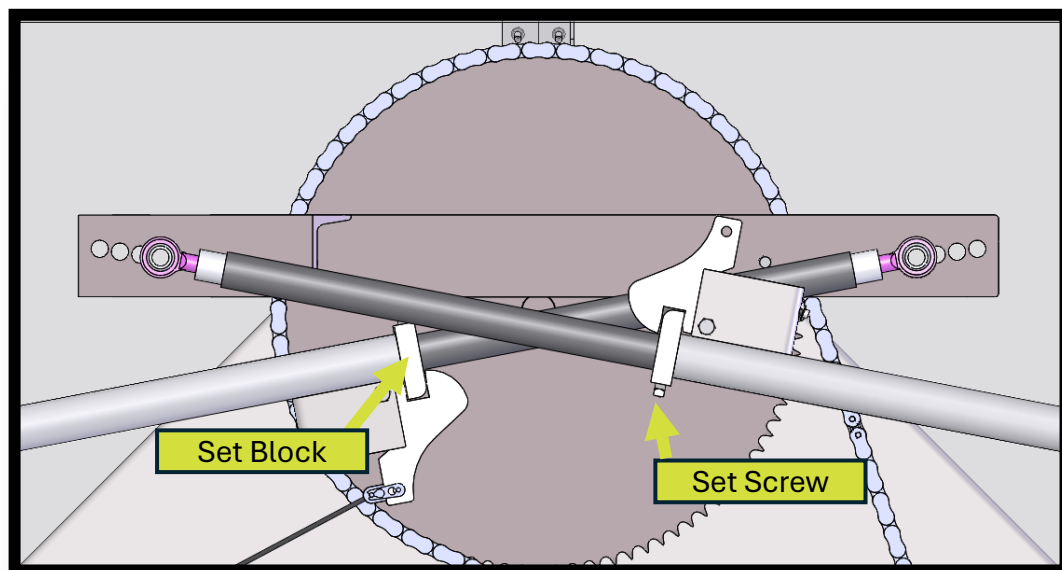
Step 2: Manual Operation

2.1 Switching from Power to Manual

- If needed, doors can be manually opened
- Use the **pull ring** to unlatch the connecting rod, you will see a **hook move at the top**, signifying that it's in **manual mode**
- You can return the door back to standard operation by **closing the doors**, this will **relatch** the hook to the system

2.2 Connecting Rod Set Screws and Set Block

- **Set screws** are located on the connecting rod, the main purpose is to **secure the length of the connecting rod**
- With the operator in the **fully closed position**, the set block should be adjusted so that the rods **keep** the door in the **fully closed position**



Operations of Four-Fold Doors

Step 3: Operator Adjustments

3.1 Torque Limiter Adjustment

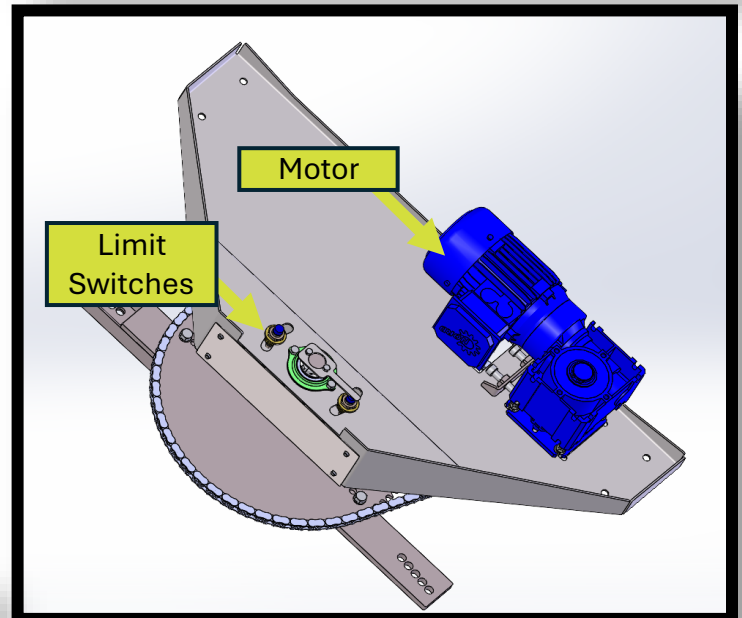
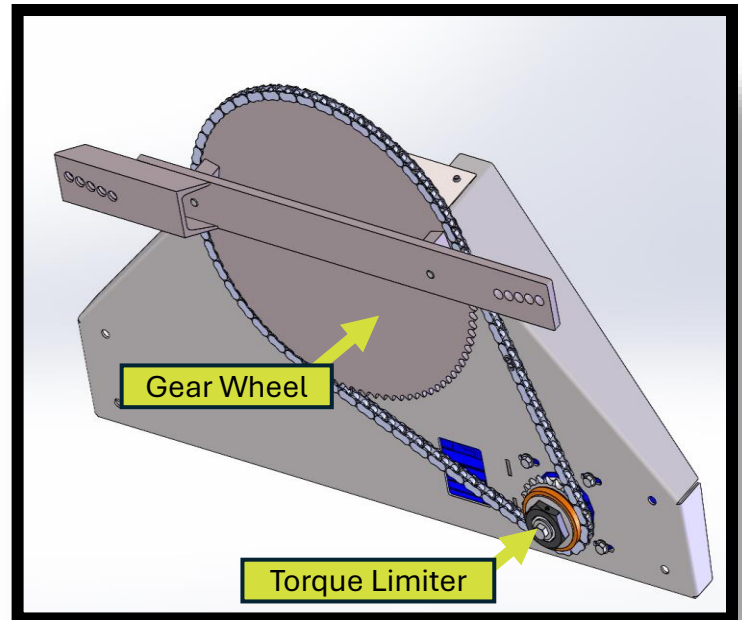
- The **torque limiter** helps protect the door and operator from excessive force.
- The door should **open and close smoothly** without slipping, stalling, or jerking
- If the door does not operate smoothly, **contact qualified service personnel or Door Engineering** for assistance.



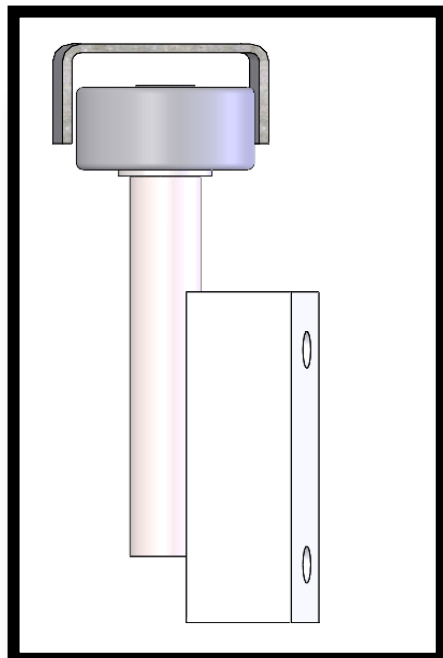
IF YOU HAVE ADJUSTED THE TORQUE LIMITER 5 OR 6 TIMES BECAUSE OF SLIPPING, REPLACE THE FRICTION DISCS

3.2 Limit Switches

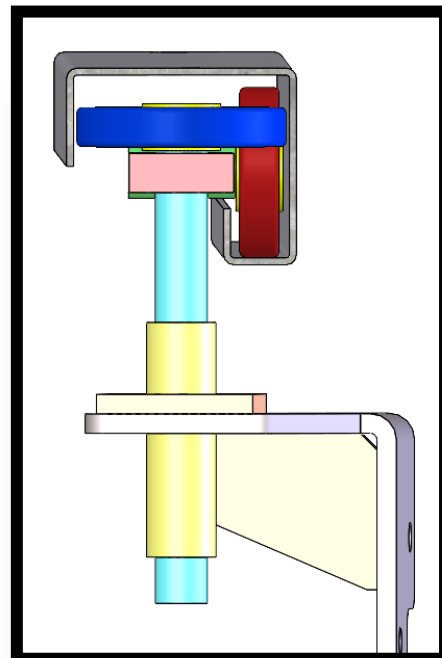
- The **Limit Switches** control the open and closed stopping positions of the operator
- The sensors are **set at the factory** and should **not require adjustment**.
- If the door is not opening or closing to the correct position, **contact qualified service personnel or Door Engineering** for assistance.



Operations of Four-Fold Doors



H Track & Trolley
FF30 Doors



HV1 Track & Trolley
Non-FF30 Doors

Step 4: Track and Trolleys

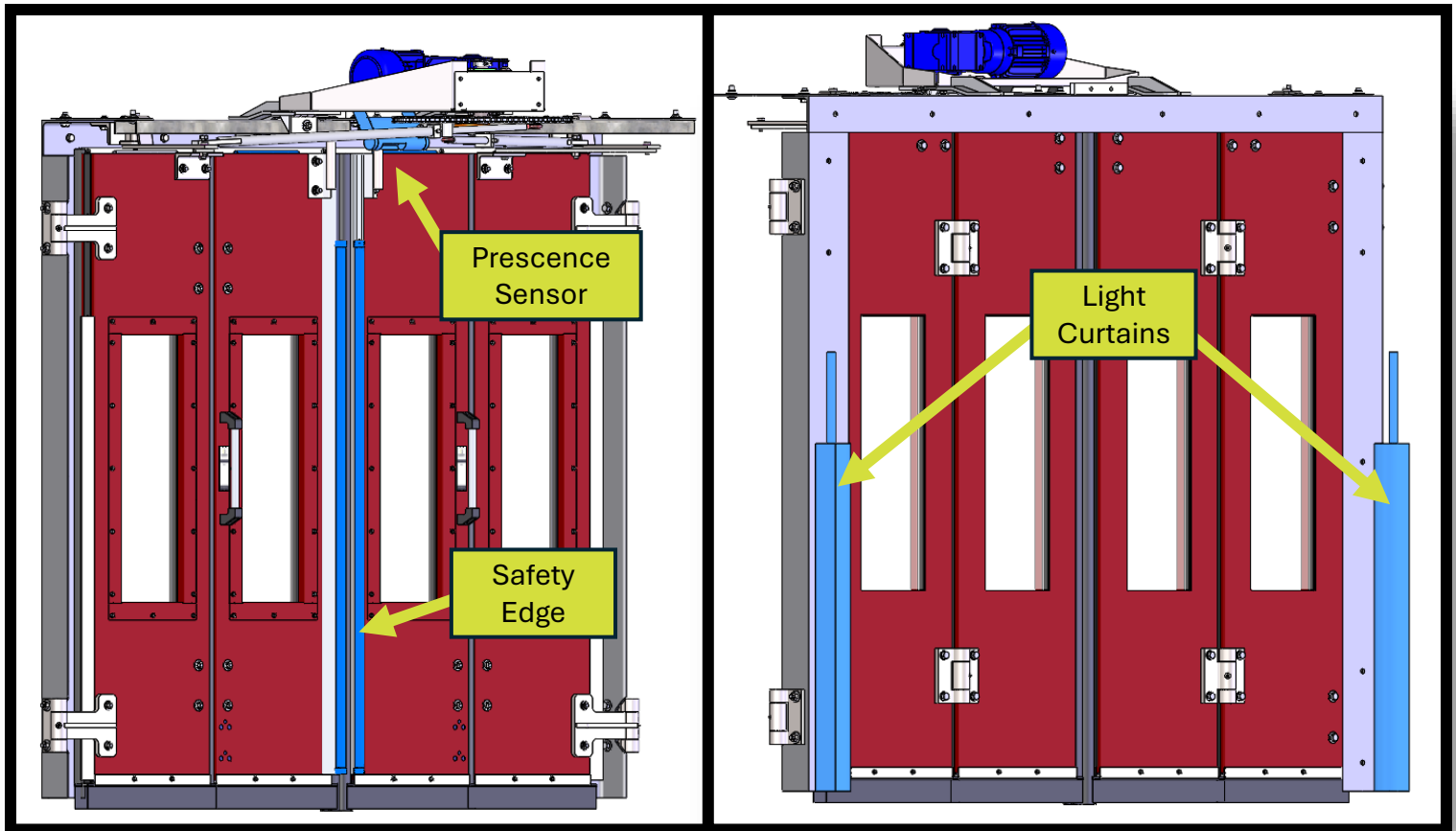
4.1 Tracks

- The track is mounted on the header and allows movement of the trolleys to open and close the doors
- There are **two** types of tracks
 - H Track for FF30 doors
 - HV1 Track for Non-FF30 doors
- If you notice any **dents, bumps, or cracks on the tracks**, contact qualified service personnel or Door Engineering for assistance.

4.2 Trolleys

- The trolleys guide the door as it opens and closes
- The trolleys should move **smoothly** through the track without binding
- If the door does not **open fully, close properly, or the trolley begins to bind**, contact qualified service personnel or Door Engineering for assistance.

Operations of Four-Fold Doors



Step 5: Electrical

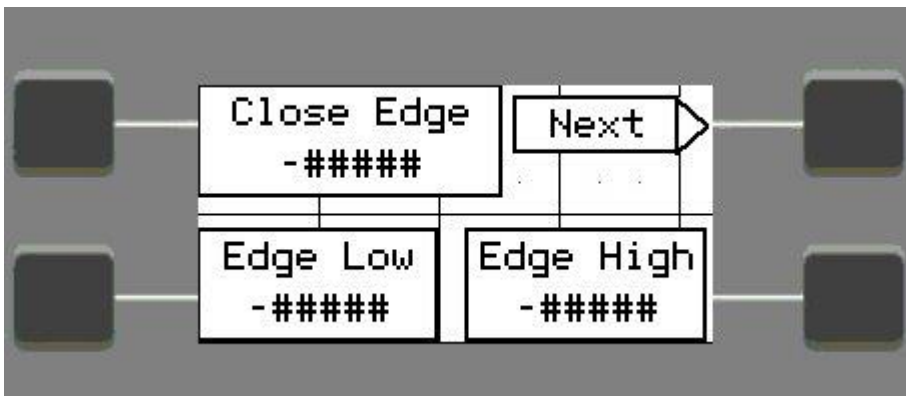
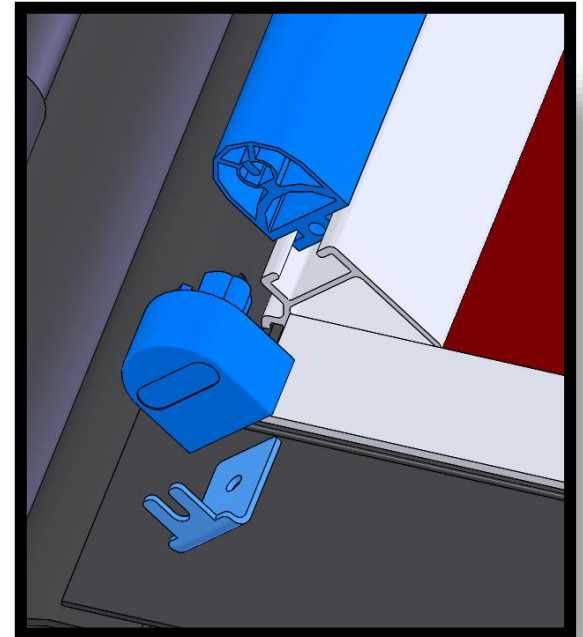
5.1 Electrical Safety Devices

- The door may include three main safety devices: **Safety Edges, Presence Sensors, and Light Curtains.**
- **Safety Edge:** Detects contact with an object while the door is closing.
- **Presence Sensor:** Detects objects in or near the door opening during closing cycle.
- **Light Curtains:** Create a detection zone across the doorway to help detect obstructions.
- These safety devices should be **kept clean and free of obstructions.**
- If a safety device is damaged or not working properly, **stop using the powered door and contact qualified service personnel or Door Engineering for assistance.**

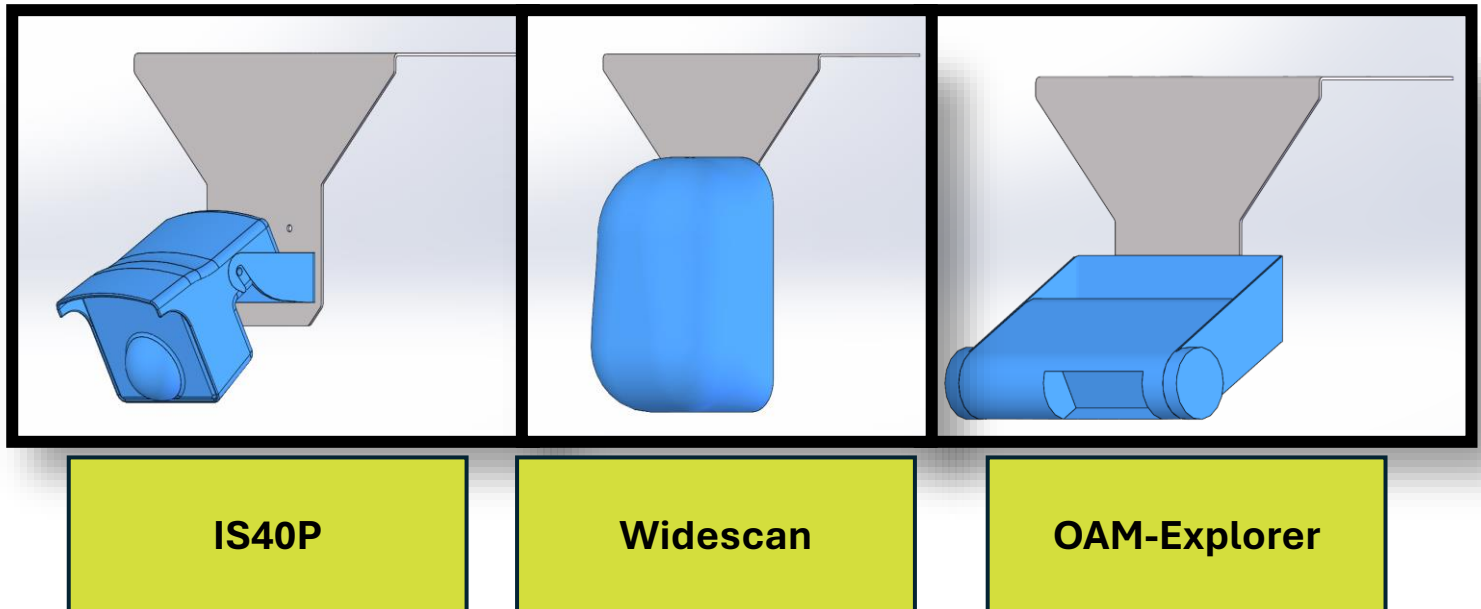
Operations of Four-Fold Doors

5.2 Safety Edge

- The **safety edge** helps protect people and equipment while the door is closing
- If the safety edge contacts an obstruction, the **door will stop and reverse**.
- There are two common signs that the safety edge may have a problem:
 - **Loose or Missing End Cap:** If the cap at the bottom of the safety edge is loose or has come off, the resistor may also become disconnected. **Contact qualified personnel for replacement parts.**
 - **Safety Edge Fault on the PLC:** Check the **Close Edge** value on the PLC screen. If either condition occurs, **contact qualified service personnel or Door Engineering for assistance.**
 - If the value is **above Edge High**, there may be a wiring fault.
 - If the value is **below Edge Low**, the safety edge or resistor may be damaged.



Operations of Four-Fold Doors



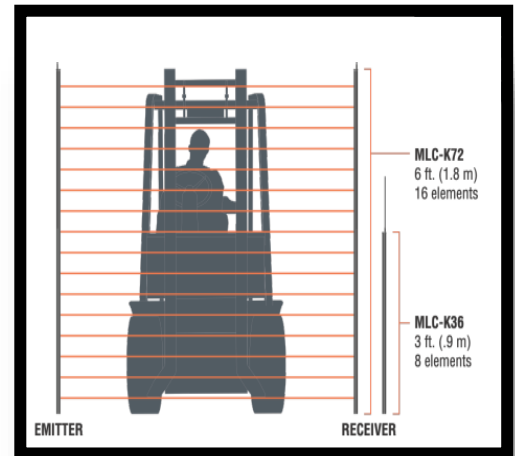
5.3 Presence Sensor

- The **presence sensor detects people or objects near the door opening.**
- If the sensor detects an obstruction, it will **prevent or stop door movement.**
- Three presence sensor models are commonly used: **ISO40P, OAM-Explorer, or Widescan.**
 - **ISO40P** settings can be changed using a remote.
 - **OAM-Explorer and Widescan** settings can be changed using their app.
- Keep the sensor **clean and free of obstructions.**
- **Signs of a Possible Sensor Issue:**
 - **“Safety Eye Exterior/Interior” appears on the PLC:** This may indicate a sensor or wiring issue. **Contact qualified service personnel or Door Engineering for assistance.**
 - **Sensor activates when nothing is in the doorway:** The detection area may need adjustment. Settings can be adjusted using the appropriate remote or app. **contact qualified service personnel or Door Engineering for setting adjustment.**

Operations of Four-Fold Doors

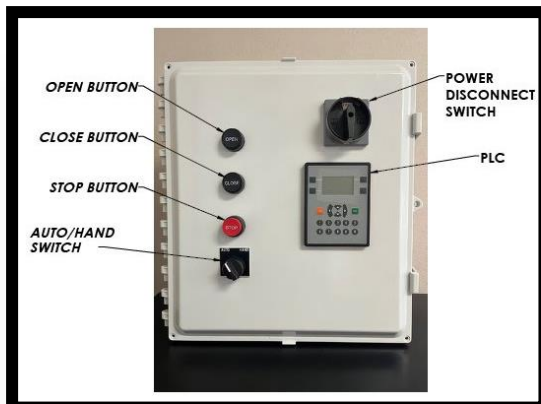
5.4 Light Curtains

- The **light curtains create a detection zone** across the doorway to help detect people or objects.
- If something breaks the detection zone, the **door will either stop or reverse depending on the setting selected.**
- A **red light on the receiver** may mean something is blocking the light curtain or the sensors are not aligned.
- Make sure the light curtains are **clean, clear of obstructions, and not damaged.**
- If the light curtain or wiring is damaged, **stop using the powered door and contact Door Engineering for service.**
- For additional troubleshooting, refer to the **Electrical Installation Guide.**



5.5 Control Panel

- The **control panel operates and communicates with the door's electrical components.**
- The **PLC screen** can be used to view the status of the door and its electrical components.
- Keep the control panel **closed, clean, and dry.**
- If any electrical wiring appears **loose or damaged, turn off power to the door and contact Door Engineering Customer Service.**
- **Additional information and programming instructions** can be found in the documentation located **inside the control panel.**



FOUR-FOLD MAINTENANCE

To ensure safe and reliable operation, routine maintenance should be performed annually or every 10,000 cycles, whichever comes first.

The following pages outline the recommended inspection and maintenance procedures for key door system components.

Four-Fold Maintenance

Maintenance Date							
Grease Jamb and Fold Hinges							
Test Safety Devices • Verify safety edges operate correctly • Verify light curtains function properly • Verify prescence sensor detects obstructions							
Test Torque Limiter							
Inspect Weathering							
Inspect Connecting Rods • Tighten nuts and bolts • Apply lubricant							
Inspect Trolleys/Tracks							
Inspect Control Arm Pivots • Tighten nuts and bolts • Apply lubricant							
Inspect Door Finish • Check for damage and corrosion							
Inspect Window Caulk • Repair any damaged or failing caulk							
Clean Door • Wash with mild detergent and water							
Current Door Cycles							
Initials							

Four-Fold Maintenance

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Current Door Cycles							
Initials							

Limited Warranty



Door Engineering and Manufacturing, LLC 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 Door Engineering and Manufacturing. Door Engineering and Manufacturing's obligation under said warranty is to cover the door and mechanical components for five

(5) years, liquid & prime paint one (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 workmanships.

Under said warranty, Door Engineering and Manufacturing 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 Door Engineering and Manufacturing'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 Door Engineering and Manufacturing

Limited Warranty



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. DOOR ENGINEERING AND MANUFACTURING SHALL NOT BE LIABLE IN THIS RESPECT NOTWITHSTANDING DOOR ENGINEERING AND MANUFACTURING'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 DOOR ENGINEERING AND MANUFACTURING OR ITS REPRESENTATIVES, IN ADDITION TO OR BEYOND THIS LIMITED WARRANTY, SHALL CONSTITUTE A WARRANTY.

THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF THIS LIMITED WARRANTY, AND THE SOLE AND EXCLUSIVE OBLIGATION OF DOOR ENGINEERING AND MANUFACTURING IN RESPECT OF ANY CLAIMS FOR BREACH OF THIS LIMITED WARRANTY, SHALL BE, AT DOOR ENGINEERING AND MANUFACTURING'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 DOOR ENGINEERING AND MANUFACTURING 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, INCLUDING WITHOUT LIMITATION ANY COSTS INCURRED IN CONNECTION WITH THE REMOVAL OR REINSTALLATION OF ALLEGEDLY DEFECTIVE PRODUCTS.

Limited Warranty cont.



CLAIMS

Every claim under this warranty shall be void unless it is made in writing and received by Door Engineering and Manufacturing 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:

- 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 Door Engineering and Manufacturing LLC,
- Written Permission and/or Return Material Authorization (RMA) is obtained from Door Engineering and Manufacturing LLC,
- Door Engineering and Manufacturing is given an opportunity to inspect the allegedly defective product, and
- At Door Engineering and Manufacturing's request, representative samples of the allegedly defective Product are returned to Door Engineering and Manufacturing in accordance with company 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 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 Door Engineering and Manufacturing'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. Door Engineering and Manufacturing 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 Door Engineering and Manufacturing

DOOR
ENGINEERING
A SENNECA BRAND

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Opening to Your Standards