

# RFD-60 Series Doors

Maintenance Manual



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**Revision Record**  
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# Table of Contents

<b>Notes, Cautions, and Warnings</b> .....	<b>iv</b>
<b>1.0 Transportation, Storage, Installation and Operating Conditions</b> .....	<b>5</b>
ETS-Lindgren Product Information Bulletin .....	6
<b>2.0 Maintenance</b> .....	<b>7</b>
Routine Maintenance Inspections .....	8
Contact Surfaces of the Door Leaf .....	8
Other Inspection items .....	8
Other Mechanical Parts of Door .....	9
For Pneumatic Doors .....	10
Contact Spring Care .....	12
Lubrication of Contact Springs .....	13
Contact Spring Replacement .....	14
Service Procedures .....	14
<b>3.0 Operation</b> .....	<b>15</b>
Door Handle Operation: Manual and Pneumatic Doors.....	16
Opening and Closing a Pneumatic Door .....	16
Door Opening .....	16
Door Closing.....	17
Emergency Opening .....	17
Troubleshooting Door Problems.....	17
Door Latches as soon as Open Button is Released .....	17
Door Does Not Latch .....	17
<b>Appendix A: Warranty</b> .....	<b>19</b>

## Notes, Cautions, and Warnings

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	<p><b>Note:</b> Denotes helpful information intended to provide tips for better use of the product.</p>
<p><b>CAUTION</b></p>	<p><b>Caution:</b> Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.</p>
<p><b>WARNING</b></p>	<p><b>Warning:</b> Denotes a hazard. Failure to follow instructions could result in SEVERE personal injury and/or property damage. Included text gives proper procedures.</p>



See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

## 1.0 Transportation, Storage, Installation and Operating Conditions

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To avoid damage or corrosion to RF shielding parts and components, all instructions and markings must be followed at all times during transportation and handling.

Failure to follow these instructions may cause damage from unfavorable conditions or misuse, resulting in a decrease of the attenuation level or system malfunction.



See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

The **ETS-Lindgren RFD-60 Series Doors** and door components must be stored and installed in a dry, clean, warm, and ventilated location.

- **Storage temperature:** 10°C–40°C
- **Storage humidity (relative humidity):** 20%–80%

The RFD-60 doors must be protected against humidity, water, dirt, and condensation at all times. If stored temporarily, make sure the temporary storage location(s) also meet these requirements, and that the doors are protected and away from external doors and windows where there may be a possibility of exposure to rain or high condensation.

## **ETS-Lindgren Product Information Bulletin**

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See the ETS-Lindgren *Product Information Bulletin* included with your shipment for the following:

- Warranty information
- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information

## 2.0 Maintenance

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### CAUTION

Before performing any maintenance, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.



Maintenance of the RFD-60 Series Doors is limited to the steps provided in this manual.

Use only replacement parts ordered from ETS-Lindgren. Failure to do so may void the warranty.

Do not make any modifications without prior approval from ETS-Lindgren.

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.



Only trained, qualified personnel should conduct maintenance inspections or perform maintenance.



Follow the manufacturer's maintenance instructions included with the customer-supplied compressor. A clean and dry air supply will minimize service times.

The extent and conditions of operation will determine the need for servicing and cleaning of the RFD-60 Series Door. In normal use, the doors maintain their attenuation level without any special measures. However, the opening and closing mechanisms of the door are mechanical devices and some minor wearing and variation requiring service measures may occur.

## Routine Maintenance Inspections

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Keep all metallic contact surfaces clean, especially the RF contact springs and knives.

Routine maintenance inspections should be performed on a monthly basis. Once consistent door requirements are determined, the maintenance intervals may be adjusted.

### CONTACT SURFACES OF THE DOOR LEAF



**There are moving parts inside the door leaf. Before performing inspection and maintenance with the inner cover of the door removed, verify that the air supply is turned off and pressure is released from the system.**

- Check the contact surfaces of the door leaf to make sure they are kept clean from dirt and grease.
- If the surfaces are dirty, greasy, or dusty, clean with a soft brush or a piece of cloth and a cleaning agent, such as isopropyl alcohol.
- Regularly inspect the operation of valve V4 (located in the top inside corner of the door leaf), checking the return spring of the lever and actuator tip. Clean and lubricate with light oil as required.

### OTHER INSPECTION ITEMS

- Make sure the door handles are firmly attached (or emergency handles are placed on their specified locations).
- Visually inspect for possible damage to the door and frame.
- Visually inspect that the operational space for the door is clear.
- Test for faultless operation of the door.
- Inspect the condition of the bearings at the ends of the rocker arms and mutual compatibility of the latching runners on the door frame.

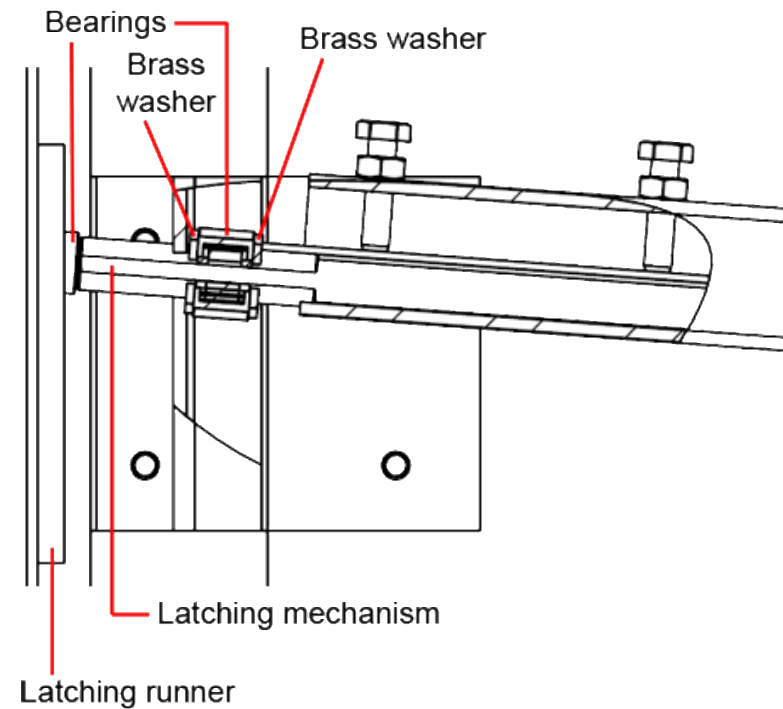


## OTHER MECHANICAL PARTS OF DOOR

- Check the screws of the door handle. If necessary, tighten to a maximum of 36.1 ft lb (49 Nm).
- Check that the door closes flush and in alignment with the door frame.



Remove cover before performing the following maintenance steps.  
Cover not shown in the following illustration.



- Annually check the screws of the U-profile (see the illustration on page 14). If necessary, tighten to a maximum of 0.737 ft lb (1 Nm).
- Check the shafts at the ends of the rocker arms on the latching mechanism. Check the bearings and the brass washers on both sides of the bearing.

- Annually check the pivot bushes of the cylinder for wear, and replace as necessary. The bushes are Teflon® coated and require no lubrication.

## FOR PNEUMATIC DOORS



The cylinder and pneumatic valves are maintenance-free and require no lubrication after manufacture.



Remove cover before performing the following maintenance steps.

In addition to the inspection and maintenance provided in this chapter, perform the following for doors equipped with pneumatic latching.

- Manual opening of the door.
- Inspect the pneumatic striker plate located at the top of the door to verify it engages properly with pilot valve (V4) during the closing operation; see *Pneumatic Schematic* in the center of this booklet for more information. Adjust as required, and then use LOCTITE®. Torque hardware to 1.66 ft lb (2.25 Nm).

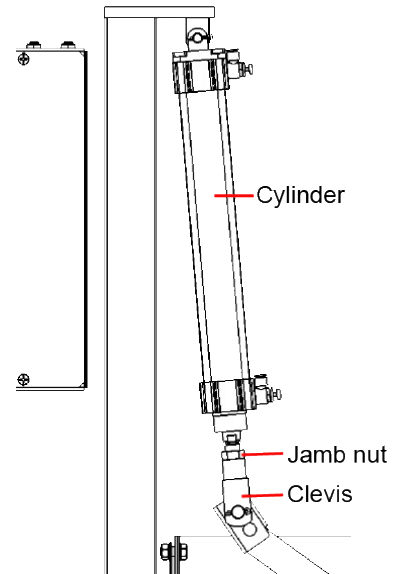


**CAUTION: Before performing the following maintenance steps, disconnect air from the door.**

- General cleanliness of the pneumatic system.
- Inspect the pneumatic connectors and tubing for wear and abrasions, particularly in places where they are subject to movement, e.g. tubes from the door frame to the door leaf, and tubes from the valves to the cylinder and under the rocker arms.
- Cleanliness of the air filters.

- Check the filter bowl of the filter and regulator unit for condensate and drain as required. The amount of condensate is relevant to the amount of usage and environmental conditions, so the frequency of drainage will vary. The condensate must not be allowed to rise to the level of the filter element.

- Check jamb nut and clevis for signs of loosening from cylinder. If loose, torque to 62.4 ft lb (84.6 Nm).



## Contact Spring Care

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When performing any maintenance, take care to not damage the contact springs.



For best results, keep the contact springs dry and clean. Do not grease or paint the contact springs or door knives.

Use the contents of the maintenance kit (part# 207147) provided with the door:

Part Number	Quantity (Each)	Item
104418	4	3M Pad
650294	1	Yellow Grease
100599	4	Wiping Cloth
204027	7	Door Fingers
650298	1	Tri-Flow Lube
207148	1	#6 L-Key Tool



You may use isopropanol (isopropyl alcohol or propan-2-ol) or similar as the cleaning agent.

1. Inspect the condition, cleanliness, and fastening of the contact springs.

Check that there are no foreign objects in the contact spring profiles.

Replace damaged contact springs or a decrease of the attenuation level will occur.



When using a vacuum cleaner, keep the nozzle at a safe distance to avoid damaging the contact springs.

2. Remove dirt, dust, and foreign particles from the door profiles, paying particular attention to the lower U-profile. A vacuum cleaner or compressed air (4-5 bar) may be used; if necessary, remove the contact fingers completely to gain clear access.
3. Clean the contact springs in the U-profile with a soft cloth. Apply the cleaning agent and carefully wipe the springs.

### **Lubrication of Contact Springs**

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In cases of high usage, a particularly harsh environment, or for some larger door applications, regular inspection, cleaning, and lubricating are crucial due to the contact surfaces becoming dirtier and retaining dirt more easily.

1. Lubricate the door contact surfaces with an agent such as Tri-Flow<sup>®</sup>.
2. Clean the contacts using a cloth and a cleaning agent, such as isopropyl alcohol.
3. To wash off all visible residues on the contact fingers, use a generous amount of a cleaning agent, such as isopropyl alcohol, to flush the contact fingers. Start across the top of the door frame and work down both sides, flushing the bottom last.

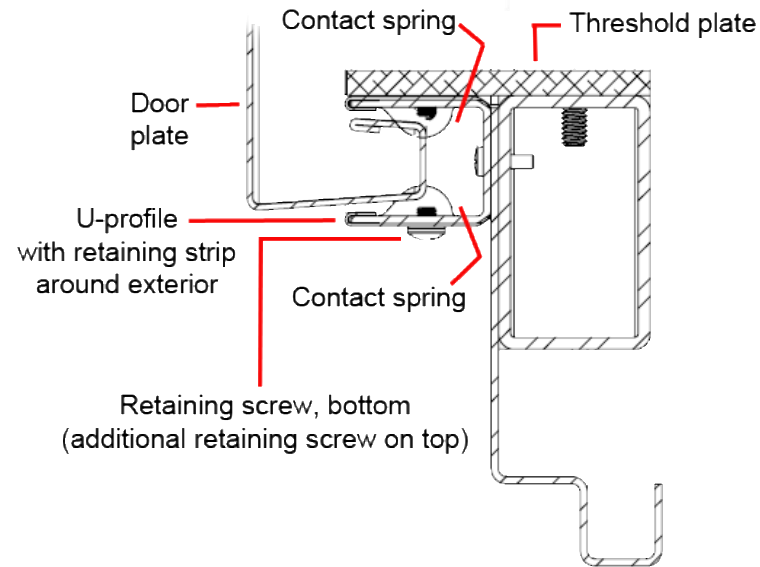
Remove all residue with a cloth, and wipe off the door knife edge with a clean cloth but wetted with a cleaning agent, such as isopropyl alcohol.

Use a cleaning pad, such as 3M<sup>™</sup> Scotch-Brite<sup>™</sup>, to clean any stubborn areas. Do not rub hard or the coating on the knife edge will be degraded; lightly coat the knife edges with the lubricating agent.

Open and close the door at least five times; a significant reduction in closing and opening force should be apparent.

## Contact Spring Replacement

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1. Remove the relative contact retaining strip by removing the associated retaining screws. If necessary, first remove the threshold plate to gain access.
2. Remove the damaged contact spring section (may be cut with scissors).
3. Clean the contact surfaces (see page 8) and under the spring (see page 12).
4. Position the replacement contact springs so that they overlap the existing contact springs by about 30 mm.
5. Replace the retaining strip and screws, tightening to a maximum of 0.737 ft lb (1 Nm).

## Service Procedures

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For the steps to return a system or system component to ETS-Lindgren for service, see the *Product Information Bulletin* included with your shipment.

### 3.0 Operation

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**CAUTION**

Before placing any components into operation, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

**CAUTION**

Do not operate the door with covers removed.

**CAUTION**

Do not put hands in the vicinity of the latching mechanism or trolley wheels and rails at any time.

**CAUTION**

Close manually-operated doors carefully to ensure that the latching mechanism is engaged at all points.

**CAUTION**

Do not use excessive force to close the door. This may damage the components of the latching mechanism, causing operational failure and decreasing the attenuation level.

Do not operate the door if it does not close properly.

**CAUTION**

Make sure the door handle is in the open position before closing the door.

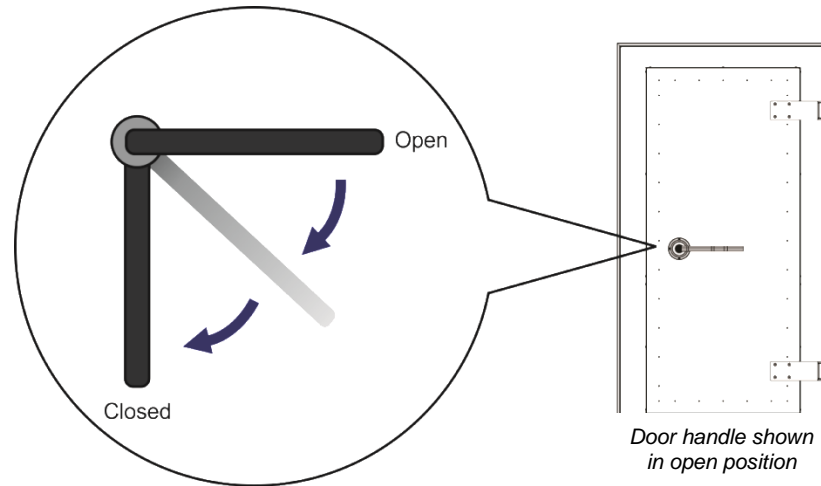


Control and operation of RFD-60 Series Doors varies by specific door model and selected options.

## Door Handle Operation: Manual and Pneumatic Doors



**CAUTION:** Door handle will move/rotate once the door is pushed or pulled into the close position. Additionally, it will move/rotate when the push button is depressed.



## Opening and Closing a Pneumatic Door

### **DOOR OPENING**

Manually-operated push buttons (V5) are provided on both sides of the door. The operation of either valve activates the unlatching mechanism of the door, after which the door may be pushed or pulled open.



## DOOR CLOSING

Manually push or pull the door to the latching position. In this position a mechanically operated pilot valve (V4), which is mounted in the door leaf, is operated. This pilot valve activates the cylinder (C1) which closes the RF seal. When the RF seal is complete, a valve (V6) is operated and the air pressure is removed from the cylinder, enabling the door to be manually opened if required.

## EMERGENCY OPENING

In case of pneumatic malfunction, manually open the door by turning the handle in the opening direction 90° as shown in the previous illustration.

## Troubleshooting Door Problems

### DOOR LATCHES AS SOON AS OPEN BUTTON IS RELEASED

**Possible Cause:** Valve V4 is dirty and sticking in the lock position.

**Remedy:** To open the door, push and hold either open button until the door is unlatched, open the door while keeping the button depressed, and then release the button when the door is open.

Clean valve V4 and call for maintenance.

### DOOR DOES NOT LATCH

- **Possible Cause:** Valve V4 is dirty and the toggle is stuck in the down position.

**Remedy:** Clean valve V4 and call for maintenance.

- **Possible Cause:** Valve V4 is not hitting the striker.

**Remedy:** Call for maintenance to perform adjustment.

- **Possible Cause:** There is no air pressure.

**Remedy:** Check pressure gauge. Call maintenance if no there is no pressure.

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## Appendix A: Warranty

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See the *Product Information Bulletin* included with your shipment for the complete ETS-Lindgren warranty for your RFD-60 Series Door.

### DURATION OF WARRANTIES FOR RFD-60 SERIES DOOR

All product warranties, except the warranty of title, and all remedies for warranty failures are limited to one year.

Product Warranted	Duration of Warranty Period
RFD-60 Series Door	1 Year

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# Pneumatic Schematic

