

RFD-60 and RFD-100 Series Doors Maintenance Manual



RFD-60



RFD-100

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NOTES, CAUTIONS, AND WARNINGS

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

SAFETY INFORMATION

	Refer to Manual: When product is marked with this symbol, see the instruction manual for additional information. If the instruction manual has been misplaced, download it from ETS-Lindgren.com or contact ETS-Lindgren Customer Service.
	Before servicing: contact ETS-Lindgren – servicing (or modifying) the unit by yourself may void your warranty. If you attempt to service the unit by yourself, disconnect all electrical power before starting. There are voltages at many points in the instrument which could, if contacted, cause personal injury.
	Qualified Personnel Only: Only trained service personnel should perform adjustments and/or service procedures upon this instrument. Capacitors inside this instrument may still be CHARGED even when instrument is disconnected from its power source.



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

1.0 TRANSPORTATION, STORAGE, INSTALLATION AND OPERATING CONDITIONS



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.

1.1 Transportation

The transportation- and handling instructions marked on the package must be followed.

1.2 Storage, Installation and Operating Conditions

The ETS-Lindgren RFD-60 and RFD-100 Series Doors and door components must be stored / installed / placed, in a dry, clean, warm, and ventilated location.

Environmental Specifications	
Storage temperature	10° - 40° C
Storage humidity (relative humidity)	rh 20% - 80 %

The RFD-60 and RFD-100 doors must be protected against humidity, water, dirt, and condensation at all times. If stored temporarily, ensure 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.

2.0 MAINTENANCE

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 and RFD-100 Series Doors is limited to the instruction 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.

Frequency of use and environmental conditions of RFD-60 and RFD-100 Series Door operation will determine frequency of required maintenance. RFD-60 and RFD-100 Series Doors maintain their attenuation level during regular use without any required maintenance. The mechanical opening and closing mechanisms of the door may require maintenance during regular use due to normal wear over time.

2.1 Routine Maintenance Inspections



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.

2.1.1 Contact Surfaces of the Door Leaf

CAUTION

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.

2.1.2 Additional Points of Inspection

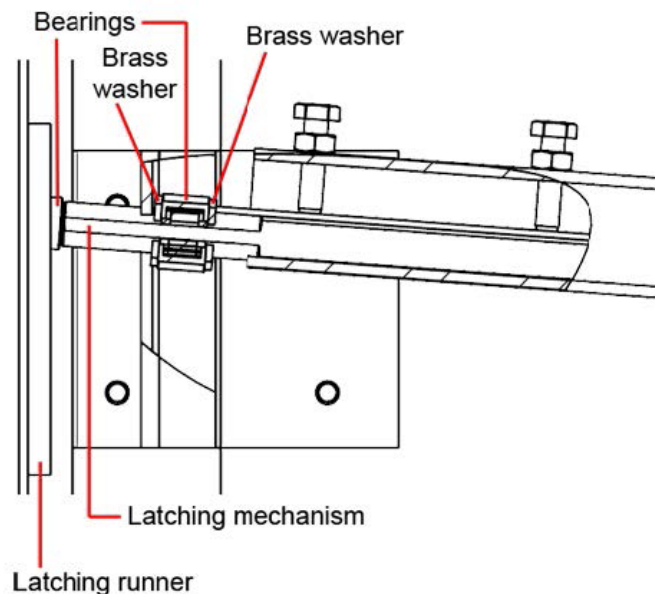
- Ensure door handles are securely attached (or emergency handles are placed in their specified locations).
- Visually inspect for possible damage to the door and frame.
- Visually inspect the operational space for the door and ensure it is clear of obstructions.
- Test for faultless operation of the 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.

2.1.3 Additional Mechanical Parts of Door

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



Cover will need to be removed before performing the following maintenance steps.



- Annually inspect the screws of the U-profile.
If necessary, tighten to a maximum of 0.737 ft lb (1 Nm).
- Inspect the shafts at the ends of the rocker arms on the latching mechanism and the bearings and brass washers on both sides of the bearing.
- Annually inspect the pivot bushes of the cylinder for wear. Replace as necessary.

2.1.4 Pneumatic Doors



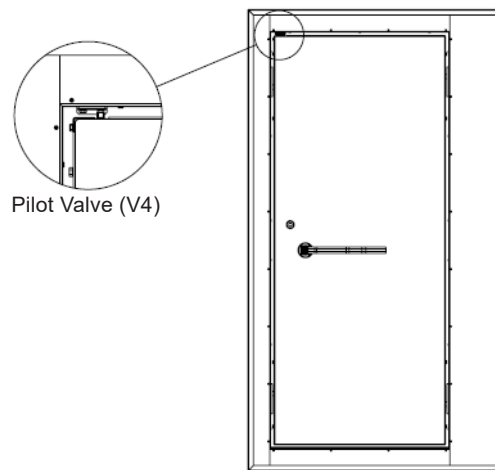
The cylinder and pneumatic valves are maintenance-free and require no lubrication.



Cover will need to be removed before performing the following maintenance steps.

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

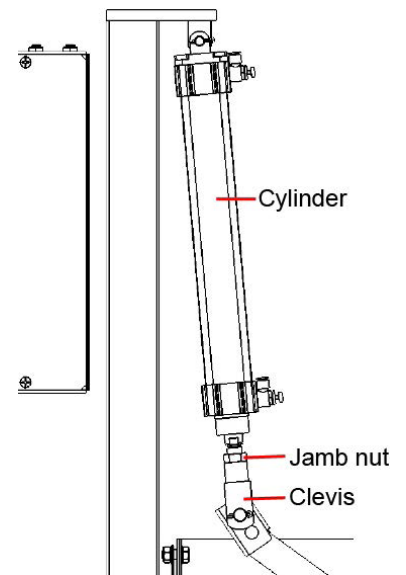
- Manual opening of the door.
- Inspect the pneumatic striker plate located at the top of the door to verify it engages properly with pilot valve (V4) during the closing operation. Adjust as required, then apply LOCTITE®. Torque hardware to 1.66 ft lb (2.25 Nm).



CAUTION

Verify air supply is disconnected from the door before performing the following maintenance steps.

- Inspect pneumatic system to ensure general cleanliness.
- Inspect pneumatic connectors and tubing for wear and/or abrasions, particularly in places where they are subject to movement such as tubes from the door frame to the door leaf, and tubes from the valves to the cylinder and under the rocker arms.
- Inspect air filters for cleanliness.
- Inspect the filter bowl and regulator unit for condensation. Drain as necessary. The amount of condensation is dependent upon frequency of usage and environmental conditions, therefore frequency of drainage will vary. The condensation must not be allowed to rise to the level of the filter element.
- Inspect jamb nut and clevis for signs of loosening from cylinder. If loose, torque to 62.4 ft lb (84.6 Nm).



2.1.5 Contact Spring Care



Take care to not damage the contact springs when performing maintenance.



Keep contact springs dry and clean. Do not grease or paint the contact springs or door knives.

Use contents of maintenance kit (part# 1705297) provided with the RFD-60 or RFD-100 Door:

Part Number	Quantity (Each)	Item
104418	4	3M Pad
890706	1	Grease
100599	4	Wiping Cloth
204027	7	Door Fingers
650298	1	Tri-Flow Lube
207148	1	#6 L-Key Tool



Isopropanol (isopropyl alcohol or propan-2-ol) or similar may be used as the cleaning agent.

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

Ensure no foreign objects are in the contact spring profiles.

Replace damaged contact springs. A decrease of the attenuation level will occur if damaged contact springs are not replaced.



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

2. Remove dirt, dust, and foreign particles from 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 contact fingers completely to gain clear access for cleaning.
3. Clean contact springs in the U-profile with a soft cloth. Apply cleaning agent and carefully wipe springs.

2.1.6 Lubrication of Contact Springs

RFD-60 and RFD-100 Doors that have a high frequency of use or a harsh environment will retain dirt more easily. Regular inspection, cleaning, and lubricating is crucial to maintain proper door function.

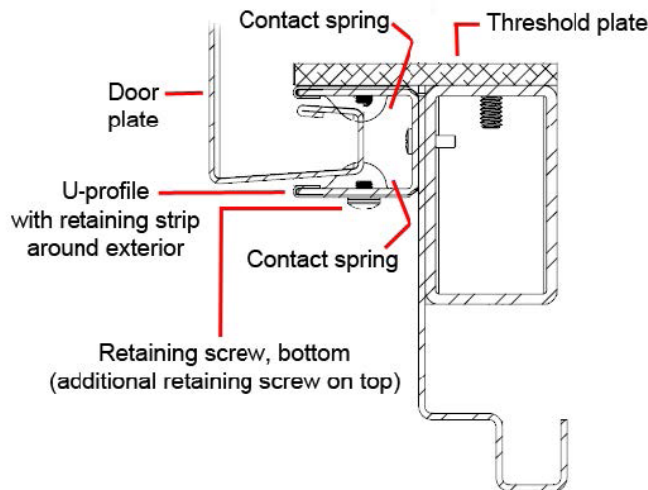
1. Lubricate door contact surfaces with an agent such as Tri-Flow®.
2. Clean contacts using a cloth and cleaning agent such as isopropyl alcohol.
3. A generous amount of cleaning agent may be used to flush contact fingers to wash off all visible residue. Start across the top of the door frame and work down both sides, flushing the bottom last.

Remove all residue with a cloth. Wipe door knife edge with a clean cloth wet with a cleaning agent, such as isopropyl alcohol.

Use a cleaning pad, such as 3M™ Scotch-Brite™, to clean any stubborn areas. Applying heavy pressure while cleaning may degrade the coating on the knife edge. Lightly coat the knife edges with the lubricating agent.

Open and close door a minimum of five times. A significant reduction in force necessary to open and close door should be apparent.

2.1.7 Contact Spring Replacement



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

3.0 DOOR OPERATION

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

Do not operate door with covers removed.

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

CAUTION

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

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

Do not operate door if it does not close properly.

Ensure door handle is in the open position before closing door.

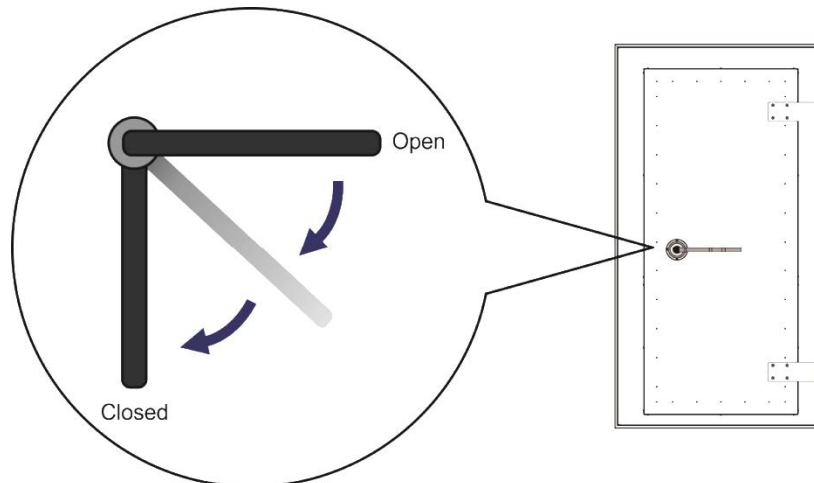


Control and operation of RFD-60 and RFD-100 Series Doors varies by specific door model and selected options.

3.2 Door Handle Operation: Manual and Pneumatic Doors

CAUTION

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



3.3 Opening and Closing a Pneumatic Door

3.3.1 Door Opening

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

3.3.2 Door Closing

Manually push or pull door to the latching position. In this position, a mechanically operated pilot valve (V4), which is mounted in the door leaf, is operated. The 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.

3.3.3 Emergency Opening

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

3.4 Troubleshooting Door Problems

3.4.1 Door Latches as Soon as Open Button is Released

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

Remedy: To open door, push and hold either open button until the door is unlatched. Open door while keeping the button depressed, then release the button when door is open.
Clean valve V4 and contact ETS-Lindgren for maintenance.

3.4.2 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 ETS-Lindgren for maintenance.

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

Remedy: Call for ETS-Lindgren for maintenance to perform adjustment.

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

Remedy: Check pressure gauge. Call ETS-Lindgren for maintenance if there is no pressure.

4.0 APPENDIX

4.1 Pneumatic Schematic

