



INNOVATION IN MOBILITY™

**RD03000 Series
Internal Power
Swing Door Operator
with
Auto Unlatch**

PRINT

Operator Manual

06/18/02

32DD0301.A

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U.S. and foreign patents pending
Printed in the United States of America

This RICON product must be installed and serviced by authorized RICON service technicians.

The operator must refer to this manual for operating instructions, then retain it for future reference.

Customer Name: _____
Installing Dealer: _____
Date Installed: _____
Serial Number: _____

REVISION RECORD

REV	PAGES	DESCRIPTION OF CHANGE	ECR/ECO
32DD0301. A	All	New release.	
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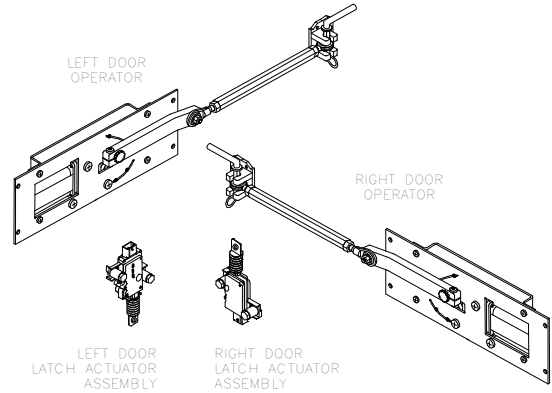
TABLE OF CONTENTS

<i>Chapter:</i>	<i>Page</i>
I. INTRODUCTION	1-1
A. RICON ONE-YEAR LIMITED WARRANTY	1-1
B. SHIPMENT INFORMATION	1-3
C. GENERAL SAFETY PRECAUTIONS	1-3
D. PRODUCT TERMINOLOGY	1-4
II. OPERATING INSTRUCTIONS	2-1
A. SAFETY PRECAUTIONS	2-1
B. DAILY SAFETY CHECK	2-2
C. CONTROLS AND INDICATORS	2-2
1. LIFT OR RAMP CONTROL PENDANT	2-2
2. CIRCUIT BREAKER LOCATIONS	2-3
D. POWER DOOR OPERATION	2-5
1. TO ENTER VEHICLE	2-5
2. TO EXIT VEHICLE	2-6
3. MANUAL OPERATION	2-6
III. MAINTENANCE	3-1
A. MAINTENANCE INFORMATION	3-1
B. MAINTENANCE SCHEDULE	3-1
C. TROUBLESHOOTING GUIDE	3-2
D. DOOR OPERATOR DECALS	3-3

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I. INTRODUCTION

The RICON RDO3000 Series Internal Power Swing Door Operators electrically open and close swing-type van doors. They have been designed to operate in most full size vans and provide up to 90° of motion for each door. The power door operators are installed within the doors. Adjustable rod ends provide smooth operation, and splined connections between the crank-arm and the motor output shafts provide wobble-free operation.



The power door operators work with wheelchair lifts and ramps. Before the platform or ramp is deployed (extended from the vehicle) the power door operators automatically unlatch and open the vehicle doors. After the platform or ramp has been used and is stowed and retracted into the vehicle, the door operators automatically close and latch the vehicle doors. The power door operators are installed onto two doors but for safety reasons only one door is allowed to operate at a time. The vehicle doors must be unlocked before using the power door operators.

This manual contains operating instructions, a maintenance schedule and brief troubleshooting instructions for the power door operators. For installation instructions, please refer to service manual 32DD0302. It is important to user safety that the installation is thorough and correct. Once the operators are installed, it is very important that they be properly maintained by following the Ricon-recommended cleaning, lubrication, and inspection instructions.

If there are questions about this manual, or additional copies are needed, please contact Ricon Product Support at one of the following locations:

Ricon Corporation
7900 Nelson Road
Panorama City, CA 91402.....(818) 267-3000
Outside (818) Area Code(800) 322-2884
World Wide Website www.riconcorp.com

Ricon U.K. Ltd.
Littlemoss Business Park, Littlemoss Road
Droylsden, Manchester
United Kingdom, M43 7EF(+44) 161 301 6000

A. RICON ONE-YEAR LIMITED WARRANTY (refer to following page)

RICON CORPORATION ONE-YEAR LIMITED WARRANTY

Ricon Corporation (Ricon) warrants to the original purchaser of this product that Ricon will repair or replace at its option any parts that fail by reason of defective material or workmanship as follows:

- Repair or replace parts for a period of one year from date of purchase. A complete list of parts covered can be obtained from a Ricon authorized dealer.

If You Need To Return a Product: Return this Ricon product to your installing dealer. Please give as much advance notice as possible and allow a reasonable amount of time for repairs.

If You Are Traveling: All authorized Ricon dealers honor this warranty. Consult telephone directory or call our Product Support department for the name of the nearest authorized Ricon dealer.

This Warranty Does Not Cover:

- Labor or service charges (may be covered separately by the installing dealer).
- Malfunction or damage to product parts caused by accident, misuse, lack of proper maintenance, neglect, improper adjustment, modification, alteration, the mechanical condition of vehicle, road hazards, overloading, failure to follow operating instructions, or acts of Nature (i.e., weather, lightning, flood).

NOTE: Ricon recommends that this product be inspected by an authorized Ricon service technician at least once every six months, or sooner if necessary. Any required maintenance should be performed at that time.

 **WARNING!**

THIS PRODUCT HAS BEEN DESIGNED AND MANUFACTURED TO EXACT SPECIFICATIONS. MODIFICATION OF THIS PRODUCT IN ANY RESPECT CAN BE HAZARDOUS.

This Warranty is Void if:

- The product has been installed or maintained by someone other than an authorized Ricon service technician.
- The product has been modified or altered in any respect from its original design without written authorization by Ricon.

Ricon disclaims liability for any personal injury or property damage that results from operation of a Ricon product that has been modified from the original Ricon design. No person or company is authorized to change the design of this Ricon product without written authorization by Ricon.

Ricon's obligation under this warranty is exclusively limited to the repair or exchange of parts that fail within the applicable warranty period.

Ricon assumes no responsibility for expenses or damages, including incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

Important: The warranty registration card must be completed and returned to Ricon within 20 days after installation of this Ricon product for the warranty to be valid. The warranty is not transferable. The warranty gives specific legal rights, and there may be other rights that vary from state to state.

B. SHIPMENT INFORMATION

Ricon does not sell directly to the user because of the specialized nature of this product. The product is distributed through a worldwide network of authorized Ricon dealers who perform actual installation.

- When the product is received, unpack it and check for freight damage. Claims for any damage should be made to freight carrier immediately.
- Be sure installation kit contains all items listed on kit packing list. Please report any missing items immediately to Ricon Technical Support. The warranty and owner's registration cards must be completed and returned to Ricon within 20 days for the warranty to be valid.

NOTE: The Sales/Service Personnel must review the Warranty and this Operator Manual with user to be certain they understand the safe operation of product. Instruct the user to follow operating instructions without exception.

C. GENERAL SAFETY PRECAUTIONS

The following general safety precautions must be followed during installation, operation, service and maintenance:

- To avoid injury, always exercise caution when operating and be certain that hands, feet, legs, and clothing are not in the path of product movement.
- Read and thoroughly understand the operating instructions before attempting to operate.
- Inspect the product before each use. If an unsafe condition, unusual noises or movements exists, do not use it until the problem is corrected.
- Keep others clear during operation.
- The product requires regular periodic maintenance. A thorough inspection is recommended at least once every six months. The product must always be maintained at the highest level of performance.

D. PRODUCT TERMINOLOGY

The references used throughout this manual are illustrated in **Figure 1-1** and defined in **Table 1-1**. Refer to the **Service Manual**, Chapter IV, "Spare Parts", for more details.

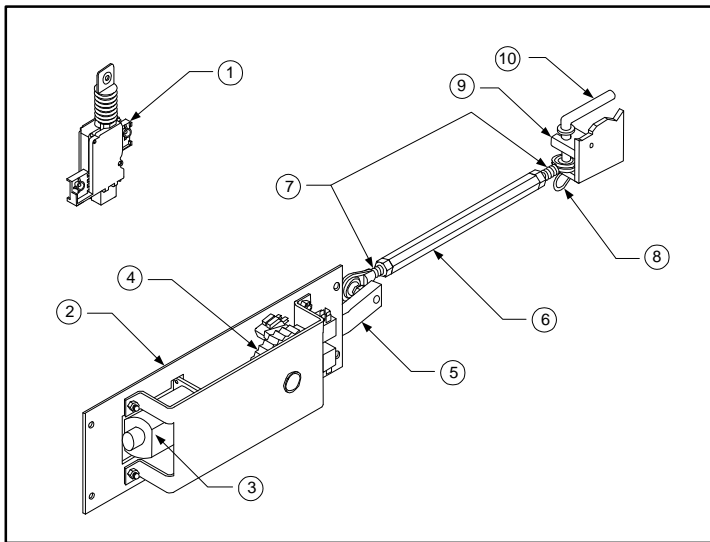


FIGURE 1-1: RDO3000 SERIES INTERNAL POWER DOOR OPERATOR (RIGHT SIDE DOOR SHOWN IN OPEN POSITION; LEFT DOOR INSTALLATION IS OPPOSITE)

TABLE 1-1: RDO3000 SERIES COMPONENT TERMINOLOGY		
REF	NAME	DESCRIPTION
1	Door latch actuator	Unlatches vehicle door.
2	Main plate	Mounts door operator assembly to vehicle door.
3	Gearmotor	Opens and closes the vehicle door.
4	Reduction gears	Link gearmotor to actuator arm.
5	Actuator arm	Rotates on gear reduction shaft.
6	Hex rod	Links actuator arm to clevis bracket.
7	Rod ends	Used to adjust length of the hex rod assembly.
8	Safety clip	Secures quick-release pin.
9	Clevis bracket	Anchors hex rod to vehicle chassis.
10	Quick release pin	Used to disconnect door operators in the event of power failure.
END OF TABLE		

II. OPERATING INSTRUCTIONS

This chapter contains safety precautions, daily safety check instructions, control and indicator descriptions, and operating instructions for the RICON RDO3000 Series Internal Power Swing Door Operator. This chapter must be read and thoroughly understood by the vehicle operator before attempting to use the power door operator.

A. SAFETY PRECAUTIONS

- Refer to **Figure 2-1**. A hazardous situation may exist when using the platform or ramp if the vehicle is parked on either a side or front-to-rear slope. Operate the platform or ramp with the vehicle parked on level ground.

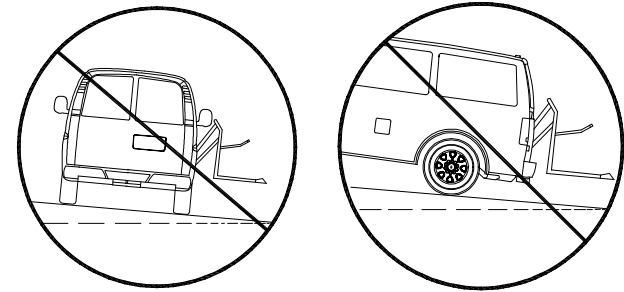


FIGURE 2-1: DO NOT DEPLOY LIFT WHEN VEHICLE IS ON SLOPED GROUND

- Vehicle must be safely parked with the engine turned off before using the platform or ramp.
- Inspect the power door operators prior to each use. If unusual noises or movements exist, DO NOT use and contact an authorized Ricon service technician for repair.
- Do not place arms, legs, or clothing in or near moving parts.
- Keep others clear while operating.
- Do not allow an untrained person to operate.
- Exercise supervision if used by or near children.
- Never leave the platform or ramp outside of vehicle and the vehicle door open. Always return platform or ramp to stowed position and allow the power door operators to close the doors after use.

Be sure that these safety precautions have been read and understood. Review them periodically, and ask any attendants or other vehicle operators to read them as well. If there are any questions, contact an authorized Ricon dealer or call Ricon Product Support.

B. DAILY SAFETY CHECK

Inspect the power door operators prior to each use and check that the following conditions are met before operating:

- All functions operate properly. If unusual noises or movements exist, DO NOT use and contact your Ricon dealer for repair.
- No objects that may interfere with operation are present.
- General appearance and lubrication are satisfactory.

C. CONTROLS AND INDICATORS

The power door operators are electrically connected to and operated with the controls for the Ricon wheelchair platform or ramp. Before the platform or ramp is deployed, or extended from the vehicle, the power door operators automatically unlatch and open the vehicle doors. After the platform or ramp has been used and is stowed and retracted into the vehicle, the door operators automatically close and latch the vehicle doors. The vehicle doors must be unlocked before using the power door operators.

If so equipped, the door operators may also be controlled with a dash-mounted, momentary toggle switch.

1. PLATFORM OR RAMP CONTROL PENDANT

Refer to **Figures 2-2** and **2-3**. The power door operators are automatically controlled by the platform or ramp control pendant. The control pendant is a hand-held, hard-wired remote device that controls platform or ramp functions. The pendant is typically mounted to a wall-clip inside the vehicle near the door opening. To operate the desired function, push and hold the appropriate switch in the labeled direction until the function is completed.

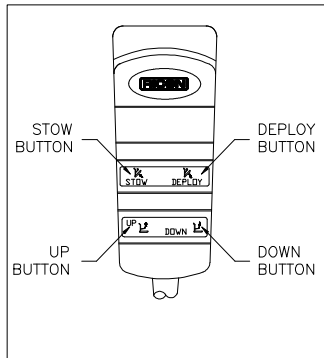


FIGURE 2-2: PLATFORM CONTROL PENDANT

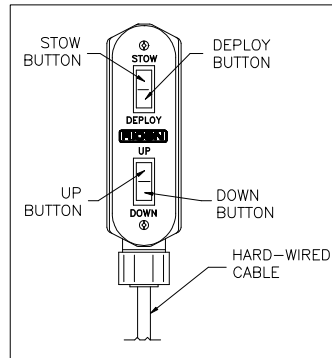


FIGURE 2-3: RAMP CONTROL PENDANT

CIRCUIT BREAKER LOCATIONS

a. Power Door Operator Circuit Breaker



In the event of a short circuit, the circuit breaker button will pop up. If pressing and releasing the button does not restore power, **DO NOT PRESS AND HOLD**. Contact an authorized Ricon dealer for repair.

The circuit breaker for the power door operators interrupts electrical power to the door operators in the event of a short circuit. If you use the Ricon S-series lift, the circuit breaker is located on the hydraulic power unit enclosure as shown in **Figure 2-4**. If you use the Ricon Uni-Lite series lift, the circuit breaker is located on top of the electrical box as shown in **Figure 2-5**. Press and release the circuit breaker to restore power to the door operators.

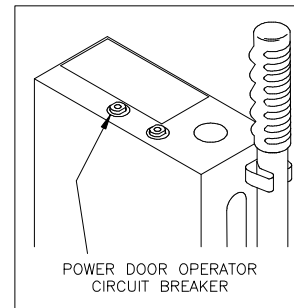


FIGURE 2-4: S-SERIES POWER DOOR OPERATOR CIRCUIT BREAKER

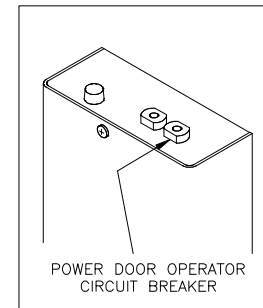


FIGURE 2-5: UNI-LITE POWER DOOR OPERATOR CIRCUIT BREAKER

b. Platform Or Ramp Main Circuit Breaker

The platform or ramp main circuit breaker is located in the vehicle engine compartment and interrupts electrical power to the platform or ramp electrical system if a short circuit occurs. In the event of a short circuit, circuit breakers equipped with a reset tab (shown in **Figure 2-6**) will rotate down; circuit breakers with a reset button (shown in **Figure 2-7**) will pop up. If pressing and releasing the reset tab or button does not restore power, **DO NOT PRESS AND HOLD**. Contact your authorized Ricon dealer for repair.

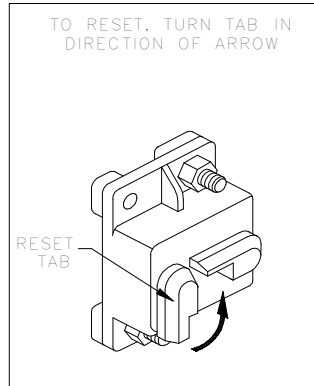


FIGURE 2-6: LIFT MAIN CIRCUIT BREAKER

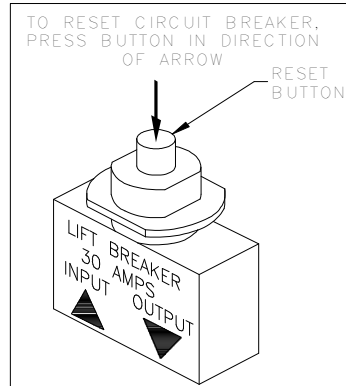




FIGURE 2-7: RAMP MAIN CIRCUIT BREAKER

D. POWER DOOR OPERATION

 WARNING!
<p>IMPROPER USE OF THE DOOR OPERATORS CAN RESULT IN PERSONAL INJURY. USERS MUST READ AND FOLLOW OPERATING INSTRUCTIONS IN THIS MANUAL. ADDITIONAL COPIES OF THE OPERATOR MANUAL ARE AVAILABLE FROM:</p> <p style="text-align: center;">RICON CORPORATION 7900 NELSON ROAD PANORAMA CITY, CA 91402 (800) 322-2884 or (818) 267-3100</p> <p>PRIOR TO USE, INSPECT THE DOOR OPERATORS FOR PROPER FUNCTION, REQUIRED MAINTENANCE, OR DAMAGE. IF A PROBLEM EXISTS, DO NOT USE AND CONTACT AN AUTHORIZED RICON SERVICE TECHNICIAN FOR REPAIR.</p> <p>RICON CORPORATION DISCLAIMS LIABILITY FOR DAMAGE OR PERSONAL INJURY RESULTING FROM MODIFICATION TO THE DOOR OPERATORS, LACK OF MAINTENANCE AND/OR REPAIR, NEGLIGENCE, ABUSE, OR FAILURE TO FOLLOW OPERATING INSTRUCTIONS.</p>

- Before operating the power door operators and platform or ramp, be certain vehicle is safely parked on a level area away from traffic. Allow enough space for operation and passenger boarding.
- Be certain vehicle safety interlock mechanism (e.g., emergency/power brake) is properly engaged before attempting to operate the platform or ramp. The platform or ramp **will not** operate until the safety interlock function has been engaged.
- Take special care to ensure the area is clear before deploying the platform or ramp.

 WARNING!
<p>ATTENDANT MUST REMAIN CLOSE TO PASSENGER TO RENDER IMMEDIATE ASSISTANCE, IF NECESSARY. KEEP OTHERS CLEAR WHEN OPERATING LIFT. MAINTAIN PRESSURE ON SWITCH UNTIL FUNCTION IS COMPLETE. BE CERTAIN WHEELCHAIR FITS PROPERLY ON PLATFORM AND DOES NOT CONTACT ROLLSTOP (PREVENTING ROLLSTOP FROM LOCKING IN THE CLOSED POSITION).</p>


1. TO ENTER VEHICLE:

- OPEN DOORS AND DEPLOY PLATFORM OR RAMP** – Ensure that vehicle doors are unlocked. Press and hold control pendant DEPLOY button until the doors open and either the platform fully deploys or the ramp fully deploys.
- LOWER LIFT PLATFORM** - Press and hold the DOWN button until the platform reaches ground level and the outer rollstop opens completely.
- LOAD PLATFORM** - Carefully place wheelchair in center of platform, facing outward, and lock the wheelchair brakes. Be certain wheelchair is properly positioned on platform and does not contact outer rollstop, which may prevent it from locking as the platform rises.

- d. **RAISE LIFT PLATFORM** - Press and hold the UP button until the platform rises and stops automatically at the vehicle floor level.
 - e. **ENTER VEHICLE** - Release wheelchair brakes and carefully enter vehicle.
 - f. **STOW PLATFORM OR RAMP AND CLOSE DOORS** - Press and hold the STOW button until the platform or ramp fully stows and the doors close completely.
- 2. TO EXIT VEHICLE:**
- a. **OPEN DOORS AND DEPLOY LIFT PLATFORM OR RAMP** - Press and hold control pendant DEPLOY button until doors open and either the platform fully deploys or the ramp fully deploys.
 - b. **LOAD PLATFORM** – Be certain platform is safely at vehicle floor level and platform rollstop is in an up and locked position. Carefully place wheelchair in center of platform, facing outward, and lock wheelchair brakes.
 - c. **LOWER PLATFORM** - Press and hold the DOWN button until the platform reaches ground level and the outer rollstop opens completely.
 - d. **EXIT VEHICLE** - Release wheelchair brakes and carefully exit platform.
 - e. **RAISE PLATFORM** - Press and hold the UP button until the platform rises and stops automatically at the vehicle floor level.
 - f. **STOW PLATFORM OR RAMP AND CLOSE DOORS** - Press and hold the STOW button until the platform or ramp fully stows and the doors close completely.

2. MANUAL OPERATION

In the event the power door operators become inoperable under their own power, they can be operated manually as follows:

	WARNING!
<p>NEVER REMOVE QUICK RELEASE PIN WHILE VEHICLE IS IN MOTION, AS DOORS CAN OPEN CREATING A HAZARDOUS SITUATION FOR PASSENGERS. NEVER ALLOW CHILDREN TO PLAY WITH THE SAFETY PINS OR QUICK RELEASE PINS.</p>	

- a. Remove the safety clips using the supplied quick release pin tool. The safety clips are located on the bottom of the quick release pins.
- b. Using the supplied quick release pin tool, pull the quick release pins UPWARD through the clevis brackets and rod ends. Save the pins for later reinstallation.
- c. Push doors open until they are clear of the platform or ramp path.
- d. Manually deploy the platform or ramp as shown in the Manual Operation section of the platform or ramp Operator Manual.

III. MAINTENANCE

Regular maintenance of the RICON RDO3000 Series Internal Power Swing Door Operators will help provide optimum performance. During the Ricon warranty period, maintenance inspections must be performed at least once each six months, or sooner depending on usage. After the warranty period, maintenance inspections are recommended at the same time intervals.

 WARNING!
THIS RICON PRODUCT IS HIGHLY SPECIALIZED. MAINTENANCE AND REPAIRS MUST BE PERFORMED BY AN AUTHORIZED RICON SERVICE TECHNICIAN USING RICON REPLACEMENT PARTS. MODIFYING OR FAILING TO PROPERLY MAINTAIN THIS PRODUCT WILL VOID THE WARRANTY, AND MAY RESULT IN UNSAFE OPERATING CONDITIONS.

A. MAINTENANCE INFORMATION

Additional maintenance information is available in the RDO3000 Series Internal Power Swing Door Service Manual, part number 32DD0302. This manual is available from Ricon in printed hard copy, or at the Ricon website in PDF format. The website is located at www.riconcorp.com.

B. MAINTENANCE SCHEDULE

TABLE 3-1: SIX-MONTH MAINTENANCE CHECK	
INSPECTION AREA	ACTION
Hex rod ends.	Clean, tighten, and lubricate with light oil.
Door motion for complete travel.	Adjust, as needed.
All fasteners for tightness.	Tighten, as needed.
Electrical harness for interference with moving parts.	Rearrange and secure, as needed.
Manual operation of power door operators.	Verify proper operation.
THE FOLLOWING AREAS REQUIRE REMOVAL OF THE DOOR PANELS	
Decals for legibility.	Replace decals, if needed. Refer to paragraph D of this section.
Reduction gear and bushings for signs of wear.	Replace, if needed.
Wiring for secure connections. Wires must be held in place.	Secure wiring, as required.
END OF TABLE	

C. TROUBLESHOOTING GUIDE

User troubleshooting is limited to inspecting the operator circuit breakers, wiring and exposed moving parts. Please see your Ricon dealer if you need assistance. This guide assumes that the vehicle battery is fully charged and all battery connections are clean and tight.



WARNING!

THE TROUBLESHOOTING GUIDE DOES NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. THE RDO3000 SERIES DOOR OPERATOR DOES NOT CONTAIN ANY USER-SERVICEABLE PARTS.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE		REMEDY
DOORS DO NOT OPEN	No power to door operators	Power door operator circuit breaker "tripped".	Reset circuit breaker.
		Lift or ramp main circuit breaker "tripped".	
	Circuit breakers have not tripped and wiring is intact, but doors do not operate	Vehicle doors are locked.	Unlock vehicle doors before using door operators.
		Dashboard-mounted OPEN/CLOSE switch is defective.	Take vehicle to your Ricon dealer for repair.
Door operator has internal electrical or mechanical fault.			
DOORS DO NOT CLOSE		Door operator mechanical linkage is defective.	Close doors manually as described in the Power Door Manual Operation section D4 of Chapter 2. Take vehicle to your Ricon dealer for repair.
		Door operator has internal electrical or mechanical fault.	
		Door operator mechanical linkage is defective.	
END OF TABLE			

D. DOOR OPERATOR DECALS

Refer to **Figure 3-1**. Inspect decals at intervals described in **Table 3-1** on page 3-1. Inspect for chipping, peeling, fading, and illegibility. Order replacement decals by part number given in figure, and apply where shown.

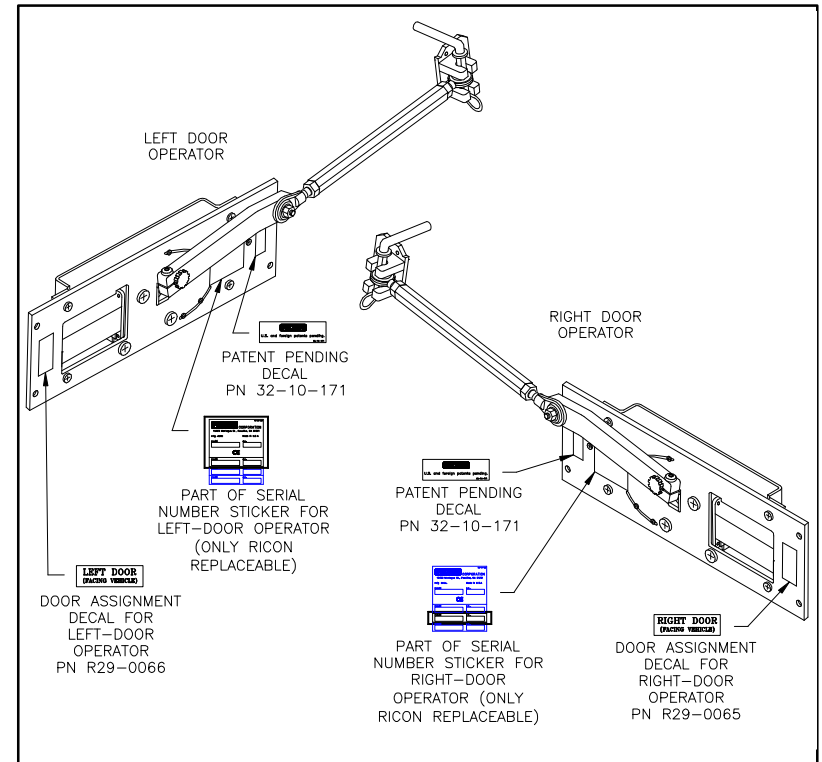


FIGURE 3-1: DOOR OPERATOR DECALS

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