



Innovation in Mobility

**RD02900 Series
Internal Power
Swing Door Operator**

PRINT

Operator Manual

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

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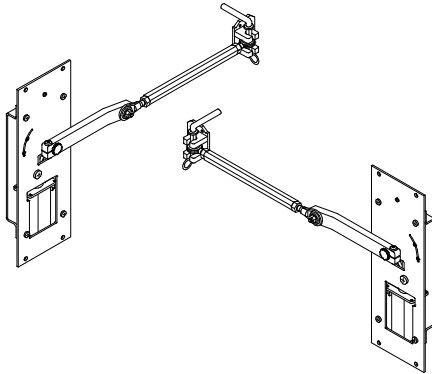
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I. INTRODUCTION

The RICON RDO2900 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 bell-cranks provide smooth operation, and a splined connection between the crank-arm and the motor output shafts provide wobble-free operation.



The power door operators work with wheel-chair lifts and ramps. As the lift or ramp is deployed, or extended from the vehicle, the power door operators automatically open the vehicle doors. After the lift or ramp has been used and is stowed and retracted into the vehicle, the door operators automatically close 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.

This manual contains operating and maintenance instructions for the power door operators. For installation instructions, please refer to the service manual. 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 the Ricon Service Department. 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 **Service Manual**, Chapter IV, "Spare Parts" for more details.

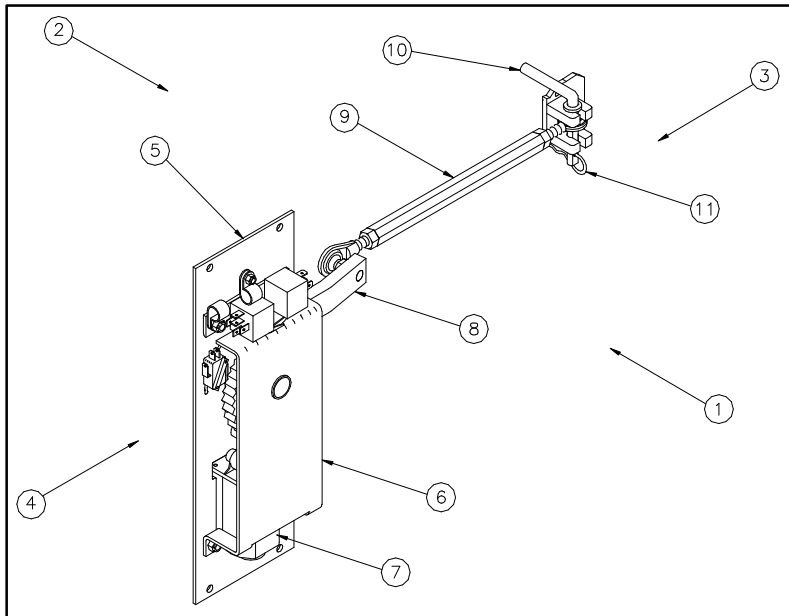


FIGURE 1-1: RDO2900 SERIES INTERNAL POWER DOOR OPERATOR (FOR RIGHT DOOR)

TABLE 1-1: RDO2900 SERIES COMPONENT TERMINOLOGY		
REF	NAME	DESCRIPTION
1	Right	Reference points from outside the vehicle looking inward.
2	Left	
3	Front	
4	Rear	
5	Main plate	Mounts the door operator assembly to the vehicle door.
6	Support plate	Encloses component parts and mounts onto main plate.
7	Gear motor	Electrically opens and closes the vehicle door.
8	Actuator arm	Connects hex-rod to motor assembly.
9	Hex-rod	Connects actuator arm to clevis bracket.
10	Quick release latch pin	Disconnects door operators in the event of power failure.
11	Clip-hitch pin	Releases latch pin to operate door normally.
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II. OPERATING INSTRUCTIONS

This chapter contains safety precautions, daily safety check instructions, control and indicator descriptions, and operating instructions for the RICON RDO2900 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 lift or ramp if the vehicle is parked on either a side or front-to-rear slope. Always operate the lift or ramp with the vehicle parked on level ground.

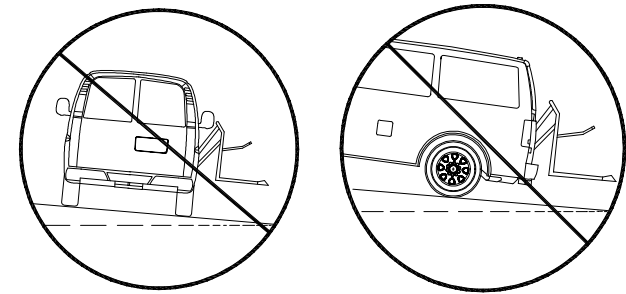


FIGURE 2-1: DO NOT DEPLOY LIFT WHEN VEHICLE IS ON SLOPED GROUND

- Vehicle must be safely parked with the engine turned off before using the lift 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 lift or ramp outside of vehicle and the vehicle door open. Always return lift 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 an authorized Ricon service technician for repair.
- No objects that may interfere with operation are present.
- General appearance and lubrication are satisfactory.
- All fasteners are tight.

C. CONTROLS AND INDICATORS

The power door operators are electrically connected to and operated with the controls for the Ricon wheelchair lift or ramp. As the lift-ramp is deployed, or extended from the vehicle, the power door operators automatically open the vehicle doors. After the lift/ramp has been used and is stowed, the lift-ramp retracts into the vehicle and the door operators automatically close the doors.

If so equipped, the door operators may also be controlled with a dash-mounted, momentary toggle switch. Maintain pressure on the switch in the appropriate direction until the vehicle door is either fully closed or fully opened.

1. LIFT OR RAMP CONTROL PENDANT

Refer to **Figures 2-2** and **2-3**. The power door operators are electrically interfaced with and automatically controlled by the lift or ramp control pendant. The control pendant is a hand-held, hard-wired remote device that controls lift or ramp functions. The pendant is 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.

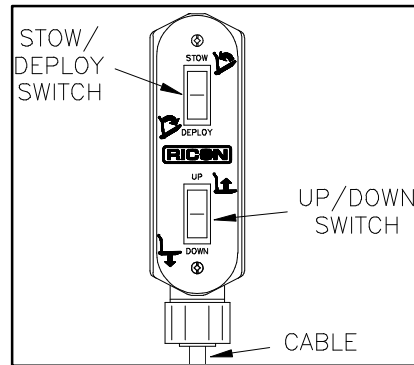


FIGURE 2-2: LIFT CONTROL PENDANT

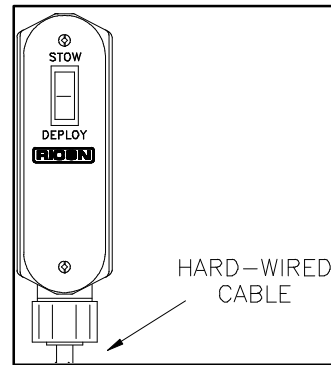



FIGURE 2-3: RAMP CONTROL PENDANT

2. ELECTRICAL CONTROLS AND INDICATORS

The power door operator electrical controls and indicators are on the top of the wheel-chair lift electrical cover. For detailed door operator electrical control and indicator descriptions, refer to the appropriate Ricon lift or ramp service manual. For overall descriptions of the electrical controls and indicators, refer to the following paragraphs:

 CAUTION!
REMINDER TO RICON SERVICE TECHNICIAN: Never replace any circuit breaker with a circuit breaker of greater amperage. Locate and repair short circuit to correct problem.

a. Power Door Operator Circuit Breaker

Refer to **Figures 2-4** and **2-5**. The circuit breaker for the power door operators is designed to interrupt electrical power to the door operators in case of a short circuit. The circuit breaker is either located on the lift Solenoid Bracket or on the top of the electrical box. In the event of a short circuit, the circuit breaker button will “pop-up”. If pressing and releasing the button does not reset/restore power, **DO NOT** press and hold. Contact an authorized Ricon service technician for repair.

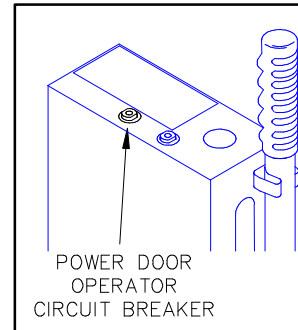


FIGURE 2-4: S-SERIES POWER DOOR OPERATOR CIRCUIT BREAKER

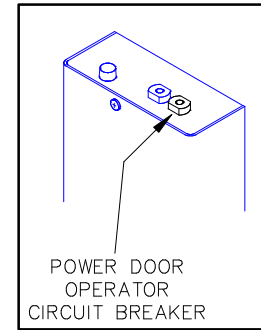


FIGURE 2-5: UNI-LITE POWER DOOR OPERATOR CIRCUIT BREAKER

b. Lift or Ramp Main Circuit Breaker

Refer to **Figures 2-6 and 2-7**. The lift or ramp main circuit breaker is located in the vehicle engine compartment and is designed to interrupt electrical power to the lift or ramp electrical system in case of a short circuit. In the event of a short circuit, the circuit breaker reset tab or button will “pop-down” or “pop-out”. If pressing and releasing the reset tab or button does not reset/ restore power, **DO NOT** press and hold. Contact an authorized Ricon service technician for repair.

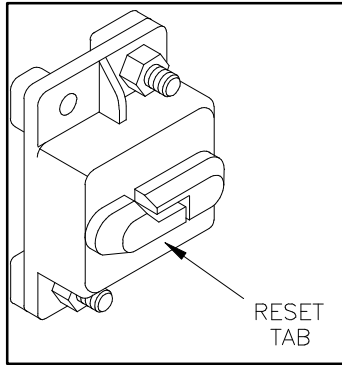


FIGURE 2-6: LIFT MAIN CIRCUIT BREAKER

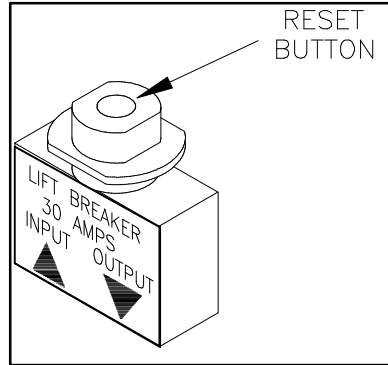




FIGURE 2-7: RAMP MAIN CIRCUIT BREAKER

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> <ul style="list-style-type: none">• 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>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 lift 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 lift/ramp. The lift/ramp *will not* operate until the safety interlock function has been engaged.
- Take special care to ensure the area is clear before deploying the lift/ramp.

 WARNING!
<p>ATTENDANT MUST REMAIN IN CLOSE PROXIMITY 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 IT FROM LOCKING AS THE PLATFORM RISES OR LOWERS).</p>

- If the vehicle **is** equipped with a dash-mounted, momentary toggle switch for the door operators, maintain pressure on the switch in the appropriate direction until the vehicle door is either fully closed or fully opened. Refer to the appropriate Ricon Service/Owner manual and follow the operating instructions carefully.
- If the vehicle **is not** equipped with a dash-mounted, momentary toggle switch for the door operators, follow the instructions below:

1. TO ENTER VEHICLE

- a. **OPEN DOORS/DEPLOY LIFT PLATFORM OR RAMP** - Press and hold control pendant DEPLOY/STOW switch in the DEPLOY position until the doors open and the lift platform fully deploys and stops automatically at the vehicle floor level or the ramp fully deploys.


- b. **LOWER LIFT PLATFORM** - Press and hold the UP/DOWN switch in the DOWN position until the platform reaches ground level and the outer rollstop opens completely.
- c. Carefully place wheelchair centrally on platform, facing outward, and **LOCK WHEELCHAIR BRAKES**. Be certain wheelchair is properly positioned on platform and does not contact outer rollstop and prevent it from locking as the platform rises.
- d. **RAISE LIFT PLATFORM** - Press and hold the UP/DOWN switch in the UP position until the platform raises and stops automatically at the vehicle floor level.
- e. **STOW LIFT PLATFORM OR RAMP/CLOSE DOORS** - Press and hold the DEPLOY/STOW switch until the lift platform or ramp fully stows and the doors close completely.

3. TO EXIT VEHICLE:

- a. **OPEN DOORS/DEPLOY LIFT PLATFORM OR RAMP** - Press and hold control pendant DEPLOY/STOW switch in the DEPLOY position until the doors open and the lift platform fully deploys and stops automatically at the vehicle floor level or the ramp fully deploys.
- b. **ALWAYS EXIT VEHICLE FACING OUTWARD**. Be certain platform is safely at vehicle floor level and platform rollstop is in an up and locked position.
- c. **LOWER LIFT PLATFORM** - Press and hold the UP/DOWN switch in the DOWN position until the platform reaches ground level and the outer rollstop opens completely.
- d. Release wheelchair brakes and carefully exit platform.
- e. **RAISE LIFT PLATFORM** - Press and hold the UP/DOWN switch in the UP position until the platform raises and stops automatically at the vehicle floor level.
- f. **STOW LIFT PLATFORM OR RAMP/CLOSE DOORS** - Press and hold the DEPLOY/STOW switch until the lift platform or ramp fully stows and the doors close completely.

4. 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 LATCH PIN WHILE VEHICLE IS IN MOTION, AS DOORS CAN OPEN CREATING A DANGEROUS SITUATION FOR PASSENGERS. NEVER ALLOW CHILDREN TO PLAY WITH THE HITCH PIN CLIPS OR LATCH PINS.</p>

- Remove the Hitch Pin Clips located beneath the Clevis Brackets used to secure the Latch Pin.
- Pull the Latch Pins UPWARD through the Clevis Brackets and Rod Ends and store in a safe place.
- Push doors open until clear of platform or ramp path.

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III. MAINTENANCE

Regular maintenance of the RICON RDO2900 Series Internal Power Swing Door Operators will provide optimum performance. During the Ricon warranty period, maintenance inspections must be performed by an authorized Ricon service technician at least once every 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. TO MAINTAIN THE WARRANTY, THIS PRODUCT MUST BE INSPECTED AT LEAST EVERY SIX MONTHS, OR SOONER DEPENDING ON USAGE.

A. MAINTENANCE INFORMATION

Additional maintenance information is available in the RDO2900 Series Internal Power Swing Door Service manual, part number 32DD006. 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.

A. MAINTENANCE SCHEDULE

TABLE 3-1: SIX-MONTH MAINTENANCE CHECK	
INSPECTION AREA	ACTION
Rod ends and hex rod.	Clean, tighten, and lubricate with light oil as needed.
Check door motion for complete travel.	Adjust as needed.
Check all fasteners for tightness.	Tighten as needed.
Check electrical crossover cable for interference with moving members.	Adjust and secure as needed.
Check manual operation of power door operators.	Verify proper operation.
THE FOLLOWING STEPS REQUIRE REMOVAL OF THE DOOR PANELS	
Check spur gear and bushings for signs of wear.	Replace if needed.
Check wiring and limit switches for proper connection and/or interface points.	Adjust as required.
END OF TABLE	

B. TROUBLESHOOTING GUIDE

The troubleshooting guide is designed to provide a logical starting point to locate general problems that could occur with the power door operators. However, not all possible problems or combinations of problems are listed. For troubleshooting the door operators, refer to **Table 3-2** on the following page. The guide does not incorporate routine safety precautions or preliminary procedures and assumes that the vehicle battery is fully charged and the battery terminals/connectors are clean and tight.



WARNING!

THE TROUBLESHOOTING GUIDE DOES NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. A TRAINED, AUTHORIZED RICON SERVICE TECHNICIAN MUST PERFORM TROUBLESHOOTING. AFTER THE WARRANTY PERIOD, IT IS RECOMMENDED THAT TROUBLESHOOTING CONTINUE TO BE PERFORMED BY AN AUTHORIZED RICON SERVICE TECHNICIAN.

TABLE 3-2: TROUBLESHOOTING GUIDE

TABLE 3-2: TROUBLESHOOTING GUIDE			
SYMPTOM	POSSIBLE CAUSE	REMEDY	
NO OPERATION	No power to door operators	Battery terminals dirty.	Clean/tighten.
		Ground connection.	Clean/repair.
		Power door operator circuit breaker "tripped".	Reset circuit breaker.
		Lift main circuit breaker "tripped".	
		Wiring short circuit.	Repair.
		Circuit breaker defective.	Replace.
		Loose connection.	Repair.
OPEN MOTION	No motion	Toggle switch defective.	Replace.
		Wiring connection.	Clean/repair.
		Limit switch at right door defective.	Replace.
		Right motor defective.	Replace.
		Ground connection.	Repair.
	Only right door opens	Limit switch at right door defective.	Adjust/replace.
		Loose connection.	Repair.

CLOSE MOTION	No motion	Toggle switch defective.	Replace.
		Wiring connection.	Repair.
		Limit switch at left door defective.	Replace.
		Left motor defective.	Replace.
		Ground connection.	Clean/repair.
	Only left door closes	Limit switch at left door defective.	Adjust/replace.
		Wiring connection.	Repair.
ONLY LEFT DOOR CLOSSES	Right motor defective.	Replace.	
	Ground connection.	Clean/repair.	
SEQUENCE IS CORRECT, BUT OPEN IS CLOSED	Actuator arm is installed upside-down.	Reverse actuator arm.	
	Motor wires reversed.	Motors are shipped with brown wire toward inside of vehicle.	
END OF TABLE			

C. LIFT DECALS

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

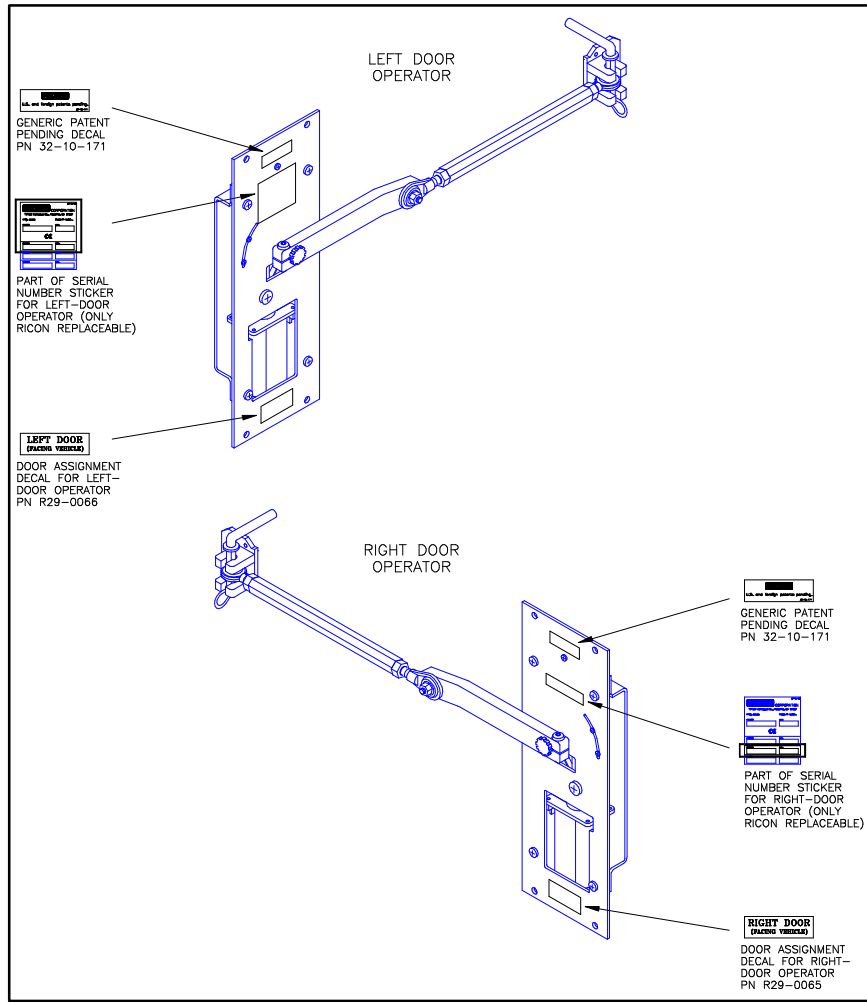


FIGURE 3-1: LIFT DECALS AND PART NUMBERS

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