

II. INSTALLATION

This chapter provides instructions for installing the RICON RDO3000 Series Internal Power Swing Door Operator into full-size 1992 and later Ford vans. Custom installations are also possible in other types of vehicles. If a question arises that is not covered in this manual, or by the Installation Instructions provided with this product, contact Ricon Product Support for assistance.

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WARNING!

THIS PRODUCT MUST BE INSTALLED BY A TRAINED, AUTHORIZED RICON SERVICE TECHNICIAN.

**NOTE:** Installation Instructions specific to the vehicle's make/model are included in the kit supplied with the power door operators. Refer to **Table 2-1** to verify the kit number and the serial number of the operators.

TABLE 2-1: VEHICLE DOOR OPERATOR AND INSTALLATION KIT NUMBERS			
VEHICLE TYPE	DOOR LOCATION	OPERATOR MODEL	KIT NUMBER
1992 & Later Full Size Ford Van	Side	RDO3009	22604
1992 & Later Full Size Ford Van	Rear	RDO3012	22630
END OF TABLE			

**NOTE:** Refer to **Figure 2-1**. Verify the serial number of this product. Record the serial number in the space provided on page i.

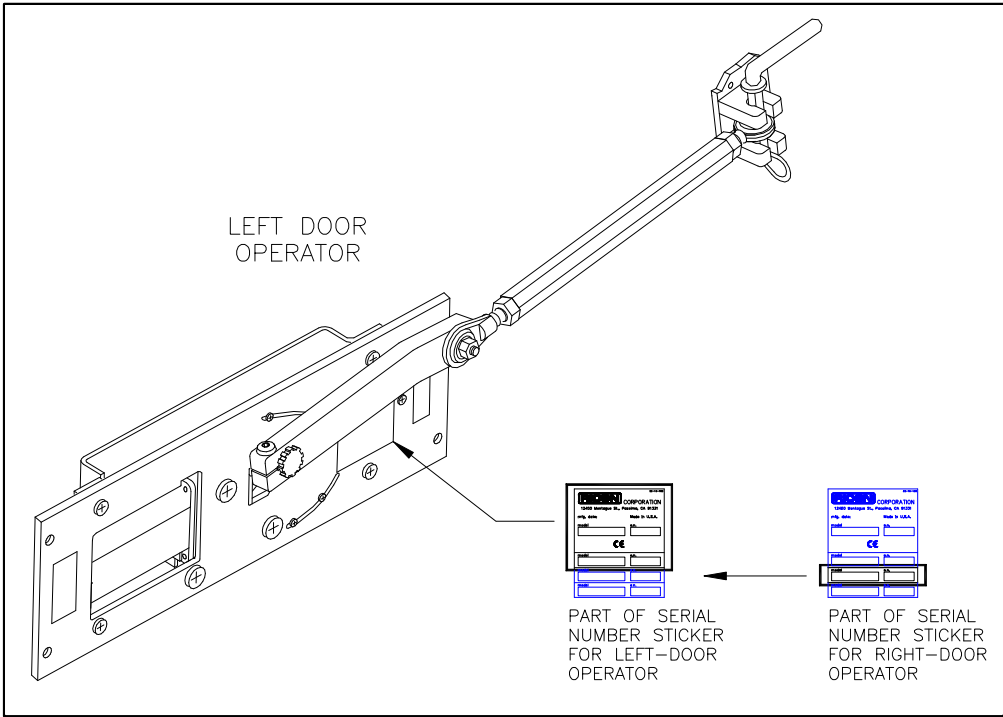


FIGURE 2-1: SERIAL NUMBER DECAL LOCATION (LEFT DOOR SHOWN; RIGHT DOOR DECAL LOCATION SIMILAR)

Power door operator installation consists of the following steps, each of which are briefly explained in this chapter. Refer to the kit installation instructions for more detailed installation information.

- Mechanical installation of the power door operators, door latch actuators and related hardware.
- Electrical installation of the power door operator and door latch actuators.
- Adjustment of the power door operator “door open” and “door closed” positions.
- Final operational check for proper deployment and stowing.


## A. MECHANICAL INSTALLATION

To install the power door operators, refer to the installation instructions. Perform the procedures carefully and in the order that they are presented. Detailed side-door installation instructions for the RDO3000 Series Power Door Installation Kit are contained in Ricon document number 32ii299, which is included in the installation kit. Detailed rear-door installation instructions are contained in Ricon document number 32ii303. Be certain that the installation instructions are followed exactly. Do not eliminate any steps or modify the product.

### 1. VEHICLE PREPARATION

Prepare the vehicle for installation:

- a. Safely park vehicle on a flat, level surface and turn engine off.

 <b>WARNING!</b>
<ul style="list-style-type: none"><li>▪ WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP.</li><li>▪ DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. WORK IN A PROPERLY VENTILATED AREA.</li><li>▪ DO NOT PLACE ANYTHING METALLIC ON TOP OF BATTERY.</li></ul>

- b. At vehicle engine compartment, disconnect the cable from the positive battery terminal.
- c. The power door operators must be mounted directly to the metal doors of the vehicle. Remove door trim, carpet, plywood, molding, wall paneling or any other material that may interfere with the installation.
- d. Remove plastic moisture barriers from doors.
- e. Remove all doorstops and latches, where applicable, from the vehicle.
- f. Remove interior panels from door post.
- g. If installing in side door, remove stepwell cover from vehicle.
- h. Doors should open and close freely.

### 2. POWER DOOR OPERATOR INSTALLATION

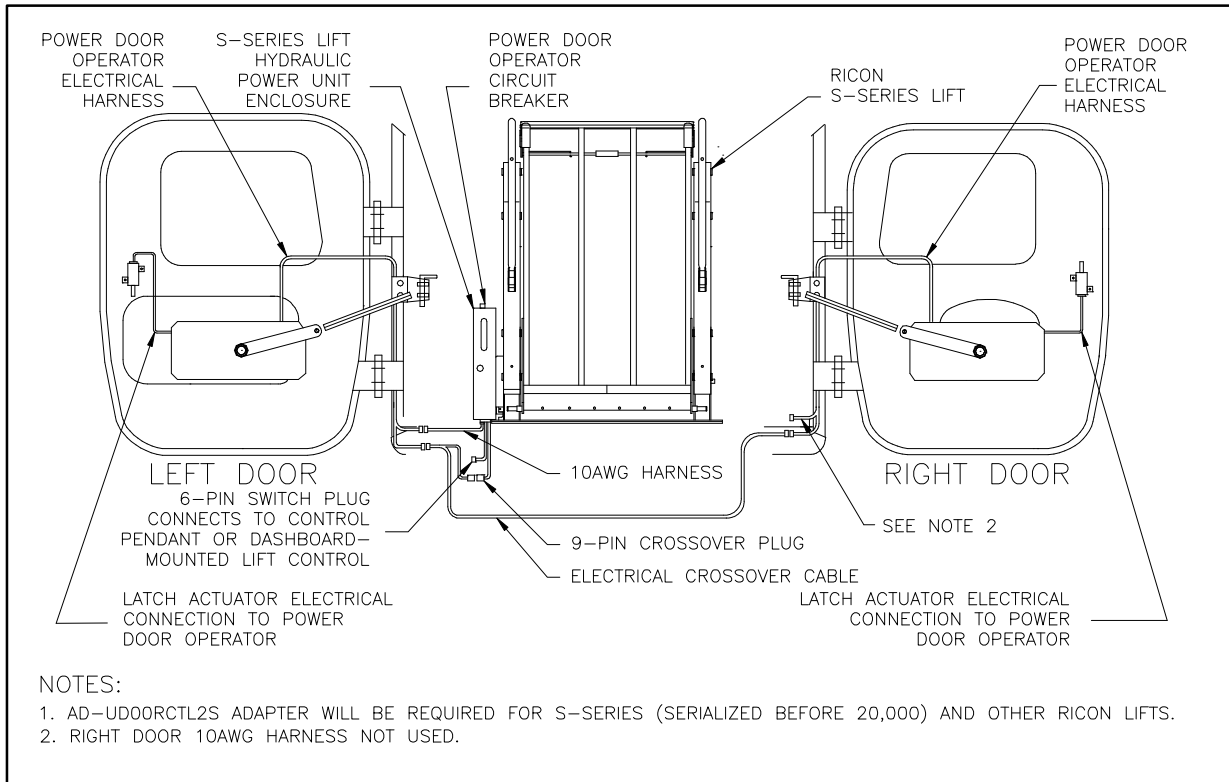
Refer to the kit installation instructions for detailed installation information. Mechanical installation of the power door operators consists of the following steps:

- Installation of the door latch actuators. Note that for side-door installations, two actuators are required for the left vehicle door. All other installations require one actuator per door.
- Installation of the angle and clevis brackets.
- Installation of the power door operators and operator mounting plates.
- Installation of the hex-rod assemblies and actuator arms.

## B. ELECTRICAL INSTALLATION

**Figure 2-2** shows a typical rear-door electrical installation. Refer to the kit installation instructions for detailed installation information. Electrical installation of the power door operators consists of the following steps:

- Connection of the door latch actuators to the power door operators.
- Routing of the power door operator electrical harness assemblies.
- Installation of the interconnecting electrical crossover cable.
- Connection of the power door operators to the interconnecting crossover cable.
- Connection of the power door operators to the vehicle lift.

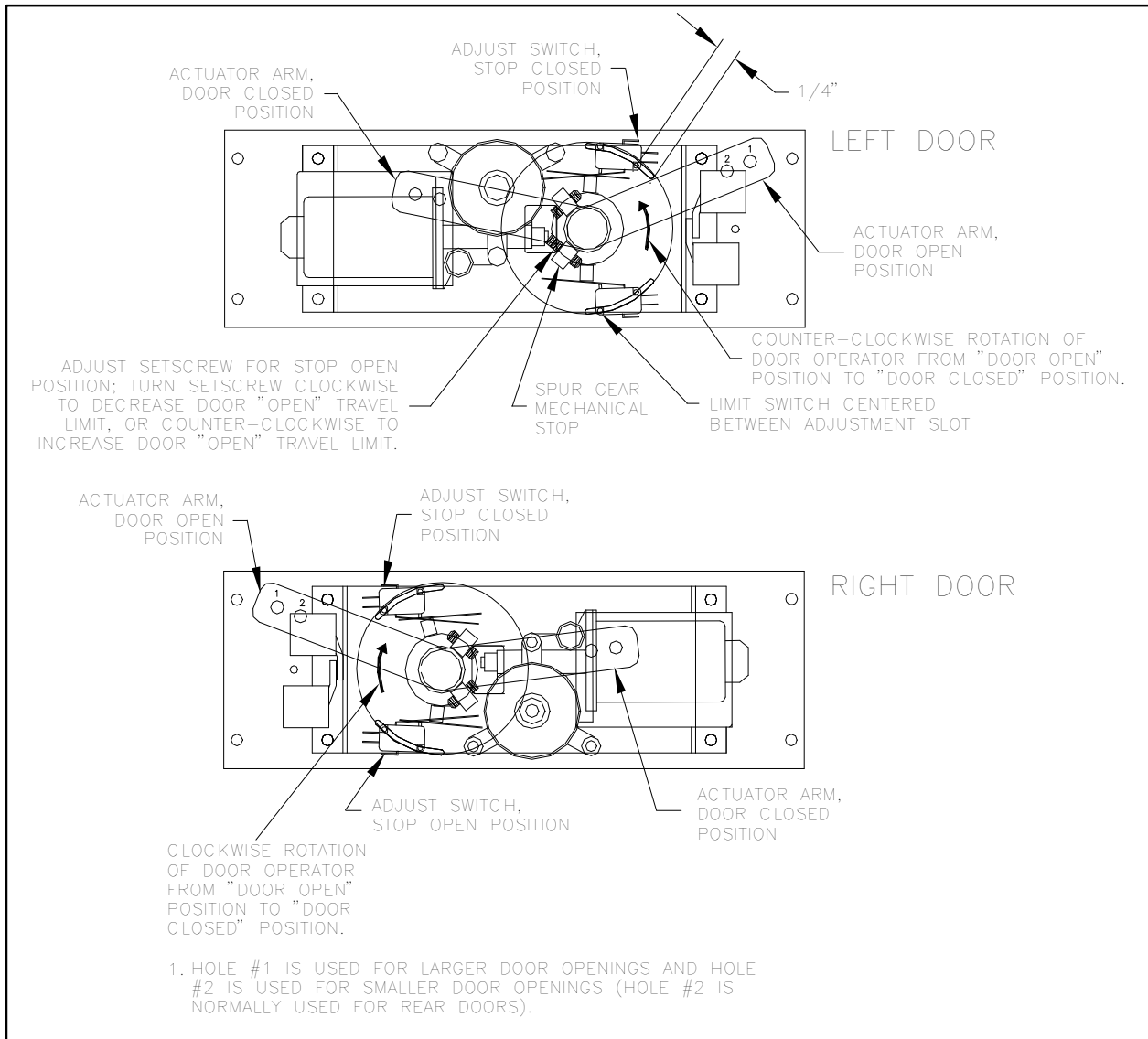


**FIGURE 2-2: REAR POWER DOOR OPERATOR AND S-SERIES LIFT INTERCONNECT DIAGRAM**

## C. FINAL ADJUSTMENTS

The power door operators are shipped with the actuator arms in the open position. To make certain that the vehicle doors are opened and closed properly, you may need to adjust the actuator hex rod length and limit switches. If more than one power door operator is installed in the same vehicle, adjust the operators one at a time and repeat the procedure for the other operator. To adjust the power door operators, follow this procedure:

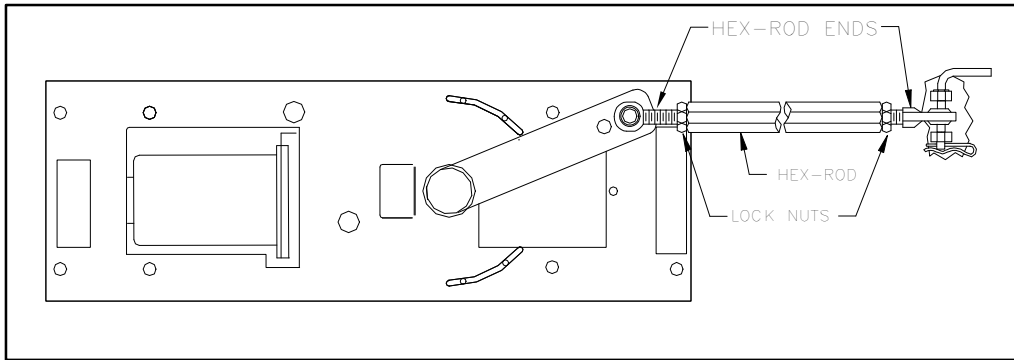
1. Refer to the kit installation instructions. Assemble hex rod assembly between the door operator actuator arm and clevis bracket.
2. Refer to **Figure 2-3**. With the actuator arm pointing inward INTO the door jamb (the "open" position), the door operator mechanical stop located on the spur gear should make contact with the main plate adjustable setscrew. If not, with the "open" limit switch mounting position centered between its adjustment slot, turn setscrew clockwise to decrease the "open" door travel limit, or counter-clockwise to increase the "open" door travel limit.



**FIGURE 2-3: REAR DOOR OPERATOR ADJUSTMENTS**

3. Deploy the platform or ramp with the control pendant. Verify proper "door open" position of the power door operator (the actuator arm is pointing inward INTO the door jamb as shown in **Figure 2-3**) and readjust set-screw as required. When open, the vehicle doors must allow the platform or ramp to deploy without interference of any kind.
4. Stow the platform or ramp with the control pendant. Verify proper "door closed" position of the power door operator (the actuator arm is pointing outward AWAY from door jamb as shown in **Figure 2-3**).
5. At the "closed" position, the limit switch should be tripped by the spur gear mechanical stop. If not, loosen the limit switch mounting screws and slide the switch up or down until it contacts the mechanical stop (the switch will "click"). The top limit switch mounting screw position should be approximately 1/4" from top of adjustment slot. Tighten mounting screws sufficiently to allow the switch to be adjusted.

6. Verify proper opening and closing by repeating the above steps.
7. Tighten limit switch mounting screws.
8. Refer to **Figure 2-4**. Adjust the length of the hex-rod assembly as required until the left door closes tightly. To adjust, loosen locknuts at ends of hex-rod, rotate the hex-rod, and then retighten the locknuts.



**FIGURE 2-4: HEX ROD ADJUSTMENT (LEFT REAR DOOR SHOWN; RIGHT DOOR OPPOSITE)**

9. Remove actuator arms from the operators. Leave hex-rod assemblies attached at clevis bracket assemblies.

#### **D. INSTALLATION COMPLETION**

**NOTE:** After installation, the vehicle doors must be unlocked before operating the power doors.

1. Verify that all door operator decals are properly located and affixed as shown in **Figure 4-1**.
2. If power door operators are installed in side doors, reinstall stepwell cover.
3. Reinstall all door stops and latches, where applicable.
4. Reinstall plastic moisture barriers on doors.
5. Use door flange washer to cover the interior panel exit holes for the actuator arms. Reinstall door interior panels, and then reinstall actuator arms on door operators.
6. Reinstall door trim, carpet, plywood, molding, wall paneling or any other material that was removed.
7. Ensure that vehicle doors are unlocked and perform several cycles of operation with the control pendant. During each cycle, check for the following conditions:
  - Operation must be smooth and free of wobble or hesitation.
  - When opening the vehicle doors, each latch actuator must unlatch its vehicle door. The right door must open first, followed by the left door.
  - When open, each vehicle door must provide sufficient clearance for the platform or ramp to deploy. The doors must not interfere with platform or ramp deployment in any way.
  - When closing the vehicle doors, the left door must close and latch first, followed by the right door.
  - The door operators must hold the vehicle doors firmly closed after each cycle of operation.

If you observe unusual movements or noise during any cycle of operation, stop the cycle immediately. Check that the power door operators are installed as specified in the installation instructions. Refer to the Maintenance chapter for detailed troubleshooting information.

#### **E. CUSTOMER ORIENTATION**

##### **IMPORTANT** - Customer Orientation -

**Ricon Sales/Service Personnel must review the Warranty and Operator Manual with the customer to be certain they understand safe operation of the equipment. Instruct the customer to follow the operating instructions without exception.**

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