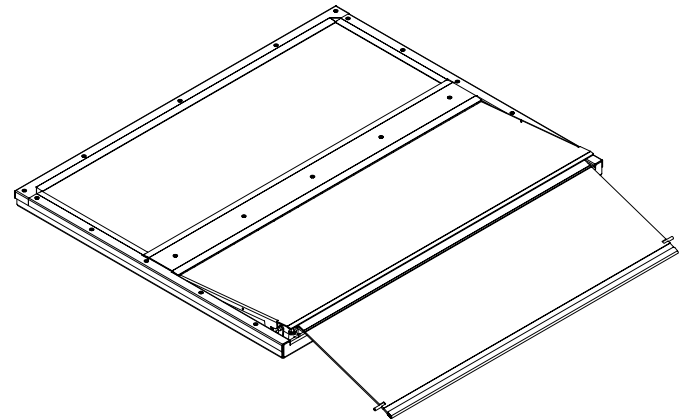




**PF7000 Series™
Low-Floor Vehicle
Access Ramp
for
Custom Installation**



Operator Manual



06-30-08

32DPF703.A

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U.S. Patent # 5,636,399; 5,832,555; Australian Patent No. 692683;
UK Patent No. GB 2,313,589B;
Other 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, and retain it for future reference.

Customer Name: _____

Installed by: _____

Date Installed: _____

Serial Number: _____

REVISION RECORD

REV	PAGES	DESCRIPTION OF CHANGE	ECR/ECO
32DPF703 A 06/30/08	ALL	NEW RELEASE	500229
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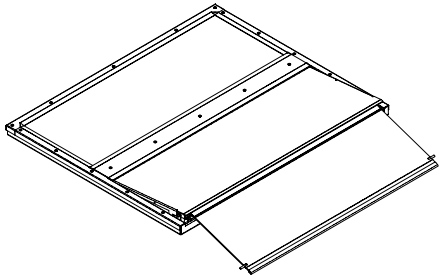
TABLE OF CONTENTS

<i>Chapter:</i>	<i>Page</i>
I. INTRODUCTION.....	1-1
A. RICON TWO-YEAR LIMITED WARRANTY.....	1-2
B. SHIPMENT INFORMATION.....	1-3
C. GENERAL SAFETY PRECAUTIONS.....	1-3
D. MAJOR RAMP COMPONENTS.....	1-4
II. OPERATING INSTRUCTIONS.....	2-1
A. SAFETY PRECAUTIONS.....	2-1
B. DAILY SAFETY CHECK.....	2-1
C. CONTROL PANEL.....	2-2
1. CONTROL SWITCHES.....	2-2
2. INDICATOR LIGHTS.....	2-2
3. AUDIBLE ALARM.....	2-3
D. RAMP OPERATION.....	2-5
1. NORMAL RAMP OPERATION.....	2-4
2. RESETTING RAMP AFTER ENCOUNTERING AN OBSTACLE.....	2-5
3. MANUAL RAMP OPERATION.....	2-5
4. OPERATION FLOW.....	2-9
III. MAINTENANCE.....	3-1
A. MAINTENANCE INFORMATION.....	3-1
B. MAINTENANCE SCHEDULE.....	3-1
C. RAMP DECALS.....	3-3

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I. INTRODUCTION

The RICON PF7000 Series Low-Floor Vehicle Access Ramp is an electrically operated ramp that provides vehicle access to people using mobility equipment (wheelchairs, scooters). The ramp has been designed for custom installations and is operated by the vehicle driver using a dashboard mounted control switch or an optional controller interface kit.



When the vehicle is safely parked with the doors open, and the driver holds the control switch in the DEPLOY position, the ramp extends from the vehicle and stops when it contacts the ground. As a safety function, movement will automatically stop if the ramp encounters an obstruction. After the passenger enters the vehicle, the driver holds the switch in the STOW position and the ramp retracts into the vehicle. The rated load capacity is 800 pounds (363 kilograms).

This manual contains operation and maintenance instructions for the ramp. For installation instructions please refer to the Service Manual. It is important to user safety that the vehicle operators be completely familiar with the operating instructions. Once the ramp is installed, it is very important that it 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.

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A. RICON TWO YEAR LIMITED WARRANTY

RICON CORPORATION TWO-YEAR LIMITED WARRANTY

Ricon Corporation (Ricon) warrants to original purchaser of this product that Ricon will repair or replace, at its option, any part that fails due to defective material or workmanship as follows:

- Repair or replace parts for a period of two years from the date of purchase. A complete list of parts covered by this warranty can be obtained from Ricon Product Support.
- Labor costs for specified parts replace under this warranty for a period of two years from the date of purchase. A Ricon rate schedule determines the parts covered and labor allowed.

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

This Warranty does not Cover:

- 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 DANGEROUS.

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

- When the product is received, unpack the product and check for freight damage. Claims for any damage should be made to the carrier immediately.
- Be sure the installation kit contains all items listed on the kit packing list. Please report any missing items immediately to Ricon Product Support. The warranty registration card 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 the user to be certain that they understand the safe operation of the product. Instruct the user to follow the 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 ramp, and be certain that hands, feet, legs, and clothing are not in the path of ramp movement.
- Read and thoroughly understand the operating instructions before attempting to operate.
- Inspect the product before each use. If an unsafe condition, unusual noise or movements exist, do not use until the problem is corrected.
- Keep other people clear during operation.
- The product requires 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. MAJOR COMPONENTS

The major components of the PF7000 Series Low-Floor Vehicle Access Ramp are shown in Figure 1-1. A description of each of the components is in Table 1-1.

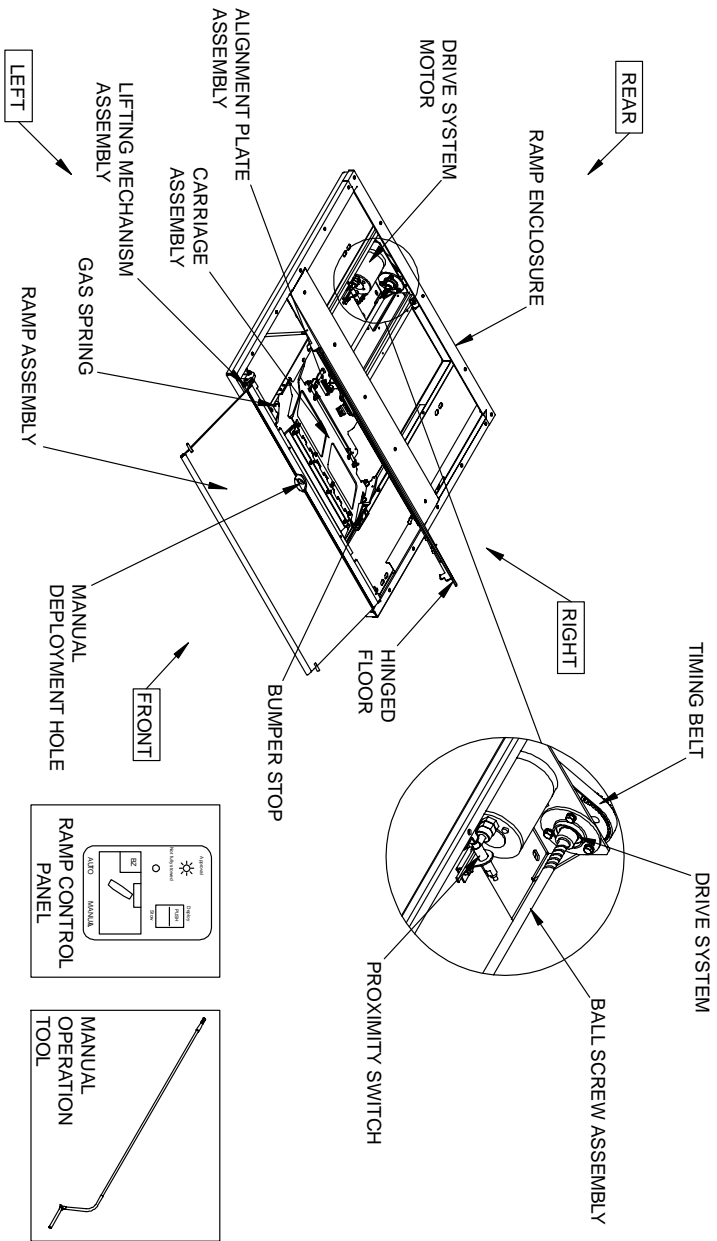


FIGURE 1-1: MAJOR COMPONENTS

TABLE 1-1: PF7000 MAJOR COMPONENT TERMS	
TERM	DESCRIPTION
Front, Rear, Right, Left	Reference point from outside the vehicle looking inward.
Alignment Plate Assembly	Assembly that keeps ramp aligned with frame during operation.
Ballscrew Assembly	Mechanical component of the drive system used to manually DEPLOY and STOW the ramp.
Carriage Assembly	Mechanical assembly that operates the ramp assembly.
Bumper Stop	(left and right) Soft rubber piece that stops advancement of carriage assembly during DEPLOY operation.
Drive System	Components used to DEPLOY and STOW the ramp.
Drive System Motor	Electric motor used to operate the ramp.
Hinged Floor	Floor panel that opens to allow ramp to deploy.
Lifting Mechanism Assembly	(left and right) Mechanism that lifts hinged floor and ramp out of enclosure during DEPLOY operation, and lowers ramp and hinged floor during STOW operation.
Manual Deployment Hole	Insertion point for the manual operation tool. Hole is located under ramp assembly.
Manual Operation Tool	Used to manually STOW and DEPLOY the ramp. Stored under hinged floor.
Proximity Sensor	Magnetic device used to signal the ramp controller when the ramp is in the fully stowed or deployed.
Ramp Assembly	Assembly that deploys from under the hinged floor during ramp operation.
Ramp Control Panel	Contains controls to automatically or manually STOW and DEPLOY the ramp and shows the status of the ramp with indicator lights.
Ramp Controller	(not shown) Electronically controls all of the ramp functions and safety features.
Ramp Enclosure	Cassette type enclosure, rigidly attached to the vehicle, which contains the ramp.
Gas Spring	(left and right) Assists in the deployment of ramp and locks the ramp in place when stowed.
Timing Belt	Rubber belt connected to ramp motor that turns ball screw assembly.
END OF TABLE	

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II. OPERATING INSTRUCTIONS

This chapter contains safety precautions, daily safety check, ramp control panel descriptions, and operating instructions for the RICON PF7000 Series Low-Floor Vehicle Access Ramp. This chapter must be read and thoroughly understood before attempting to use the ramp.

A. SAFETY PRECAUTIONS

The following safety precautions must be observed at all times:

- Vehicle must be safely parked with the parking brake set before using ramp.
- Always face outward when exiting the vehicle.
- People using other mobility equipment (e.g. scooters, walkers) should always enter or exit the vehicle slowly and carefully.
- Unusual noises or movements should be inspected immediately by an authorized Ricon service technician.
- Inspect the ramp prior to each use. Check for loose nuts and bolts. If any unsafe condition exists, or unusual noises or movements are noticed, **DO NOT** use the ramp. Return the vehicle to an authorized Ricon service technician for repair.
- Wheelchair and scooter brakes are less effective if the ramp and/or mobility equipment wheels are wet. Use extreme care in wet conditions.
- Keep other people clear while operating ramp.
- The ramp is designed for one user at a time. **DO NOT** overload the ramp. Be certain mobility equipment fits safely on the ramp before entering or exiting the vehicle.
- Never leave ramp outside of vehicle. Always return ramp to its stowed position after use.
- **DO NOT** allow children or others to play with the ramp, as this may be dangerous.
- Close supervision is necessary if the ramp is used near children.
- **DO NOT** place your arms or legs in or near any moving parts of the ramp or other components.
- Avoid operating ramp while vehicle is parked on a slope, since the ramp will also slope creating an unsafe condition.
- Be sure to follow proper operation procedures. Improper use or operation may result in injury and/or cause ramp damage.

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

B. DAILY SAFETY CHECK

Inspect the ramp each day prior to use and check that the following conditions are met before operating:

- All functions operate properly. If unusual noise or movements exist, **DO NOT** use ramp, and contact a Ricon service technician for repair.
- **DO NOT** apply 220V power for more than one hour continuously to the controller.
- No objects that may interfere with operation are present.
- General appearance and lubrication are satisfactory.
- All fasteners are tight.

C. CONTROLS AND INDICATORS

1. OPTIONAL RAMP CONTROL PANEL

Refer to **Figure 2-1**. The optional ramp control panel contains a two-position momentary function switch and two indicators. Refer to the following paragraphs for the descriptions of the Ramp Control Panel components:

Ramp Function Switch

When the switch is pushed and held in the STOW position, the ramp retracts into the vehicle. When the switch is pushed and held to DEPLOY, the ramp extends out of the vehicle.

Status Indicator

Refer to **Table 2-1**. The status indicator is a two-color light emitting diode (LED) capable of illuminating GREEN or RED. It illuminates when the ramp is in operation, is not fully stowed, or when an unsafe condition occurs. Unsafe ramp operating conditions occur when the vehicle is either moving or parked without the vehicle parking brake being set. The status of the ramp is determined by the indicator being GREEN or RED, and either flashing or continuous.

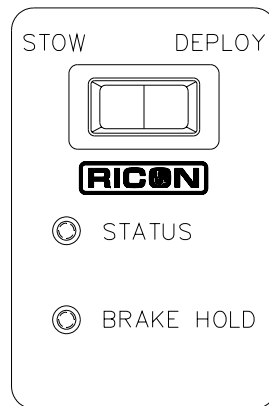


FIGURE 2-1: RAMP CONTROL PANEL

TABLE 2-1: STATUS INDICATOR		
COLOR	RAMP STATUS	OPERATOR ACTION
OFF	Ramp is fully stowed.	None required
CONTINUOUS GREEN	Ramp in operation.	<ul style="list-style-type: none"> Continue stowing ramp until fully stowed. Continue deploying ramp until adequately deployed.
FLASHING GREEN	Ramp is not fully stowed.	None required
CONTINUOUS RED	Ramp is not fully stowed and is automatically trying to stow. The duration for it trying to stow itself is three seconds.	None required
FLASHING RED	<ul style="list-style-type: none"> The ramp was unsuccessful in automatically stowing within three seconds. Conditions are unsafe (parking brake not set or vehicle is moving) to deploy the ramp. 	<ul style="list-style-type: none"> Stop the vehicle. Set the vehicle parking brake. Check the position of the ramp.
END OF TABLE		

Brake Hold Indicator

The BRAKE HOLD indicator is a yellow LED that illuminates when the ramp electrical system will not allow the vehicle parking brake to be released. The indicator illuminates when the manual operation switch is in the MANUAL position. When the indicator illuminates due to unsafe conditions, it is because the ramp is not fully stowed.

The status of the BRAKE HOLD is indicated by the LED being either OFF or ON. Refer to Table 2-2 for descriptions of the indicator state:

TABLE 2-2: BRAKE HOLD INDICATOR		
STATE	MEANING	ACTION
OFF	Normal operation of vehicle parking brake.	None required
ON	<ul style="list-style-type: none">• If the status indicator is OFF, the manual operation switch is in MANUAL position and the parking brake is set.• If the status indicator is flashing green, then the ramp brake is on, but the ramp is not fully stowed (If unable to stow the ramp, make sure the manual operations switch is in the POWER position).	<ul style="list-style-type: none">• The switch must be switched to POWER OP before the parking brake can be released.• Stop the vehicle and make sure the ramp is fully stowed.
END OF TABLE		

D. RAMP OPERATION (with optional controller interface kit)

WARNING!

IMPROPER USE OF THE RAMP CAN RESULT IN PERSONAL INJURY. USERS MUST READ AND FOLLOW THE OPERATING INSTRUCTIONS IN THIS SERVICE/OWNER MANUAL. ADDITIONAL COPIES OF THIS MANUAL ARE AVAILABLE FROM:

RICON CORPORATION
7900 NELSON ROAD
PANORAMA CITY, CA 91402 USA
TELEPHONE: +18182673000
FAX: +18182673001

- PRIOR TO USE, INSPECT RAMP AND OTHER RAMP COMPONENTS FOR PROPER FUNCTION, REQUIRED MAINTENANCE, OR DAMAGE. IF A PROBLEM EXISTS, DO NOT USE AND RETURN VEHICLE TO AN AUTHORIZED RICON SERVICE TECHNICIAN FOR REPAIR.
- DO NOT EXCEED RAMP RATED LOAD CAPACITY OF 800 LBS (363 KG).
- THE RAMP IS DESIGNED FOR USE ONLY BY PERSONS USING MOBILITY EQUIPMENT (e.g., WHEELCHAIRS, SCOOTERS, WALKERS).

RICON CORPORATION DISCLAIMS LIABILITY FOR DAMAGE OR PERSONAL INJURY RESULTING FROM MODIFICATION TO THE RAMP OR OTHER COMPONENTS, LACK OF MAINTENANCE OR REPAIR, NEGLIGENCE, ABUSE, OR FAILURE TO FOLLOW OPERATING INSTRUCTIONS.


- Before operating ramp, be certain the vehicle is safely parked and on level ground away from traffic. Allow enough space for ramp operation, passenger entering and exiting. Be certain there are no obstructions within three feet of the ramp that may interfere with its operation.
- Be certain that the vehicle parking brake is properly set before operating the ramp.
- The ramp will not deploy until the vehicle is completely stopped and the parking brake is set.
- The parking brake will not be released until the ramp is fully stowed.
- After operating the ramp for five continuous cycles, allow it to rest for one or two minutes before using it again.

1. NORMAL RAMP OPERATION

- a. **PREPARE VEHICLE:** Stop vehicle and, if applicable, kneel/lower vehicle. Set vehicle parking brake and open vehicle doors.
- b. **CHECK RAMP MANUAL OPERATION PANEL:** Make sure ramp manual operation switch is positioned to POWER OP.
- c. **CHECK RAMP CONTROL PANEL:** Make sure neither indicator is lit.


 **WARNING!**

A FULLY DEPLOYED RAMP DOES NOT GUARANTEE THAT THE TIP OF THE RAMP IS AT A SAFE CONDITION FOR PASSENGER BOARDING. ASSURE THAT THE TIP OF THE RAMP IS RESTING SAFELY ON THE GROUND BEFORE PASSENGERS USING MOBILITY EQUIPMENT (e.g., WHEELCHAIRS, SCOOTERS, WALKERS) ENTER OR EXIT THE VEHICLE.

 **CAUTION!**

Ramp does not need to be fully deployed to be used, however, it must be extended at least 24" (61cm), to prevent damage to ramp hinge.


- d. **DEPLOY RAMP:** At ramp control panel, press and hold ramp function switch in DEPLOY position until ramp is deployed at least 24" (61cm).
- e. **LOAD PASSENGER:** Allow wheelchair occupant and other ramp users to carefully enter or exit vehicle, facing direction of travel into or out of vehicle.

 **CAUTION!**

Do not allow use of ramp if an unsafe condition exists with the ramp or the mobility equipment being used by the passenger.

- f. **STOW RAMP:** At ramp control panel, press and hold ramp function switch in STOW position until ramp is fully stowed.
- g. **SECURE VEHICLE:** After passenger has safely entered or exited vehicle, close vehicle doors, release parking brake, and if applicable, unkneel/raise vehicle.

2. RESETTING RAMP AFTER ENCOUNTERING AN OBSTACLE

 **CAUTION!**

ASSURE THAT THE OBSTACLE IS REMOVED AND THAT THERE ARE NO PERSONS OR OBSTACLES NEAR THE RAMP BEFORE OPERATING THE RAMP.

If the ramp encounters an obstacle during deployment, the motor may experience an over-current condition which will disable the DEPLOY function. To restore DEPLOY function:

- a. Push STOW switch for one second.
- b. Push and hold the DEPLOY switch to deploy the ramp.

3. MANUAL RAMP OPERATION

- a. Stop vehicle and if applicable, kneel/lower vehicle. Set vehicle parking brake and open vehicle doors.
- b. Switch the AUTO/MANUAL switch to the MANUAL position.
- c. **DEPLOY RAMP:**
 - 1) Refer to **Figure 2-3**. Remove middle and rear cover strips using a Phillips screwdriver and save screws.

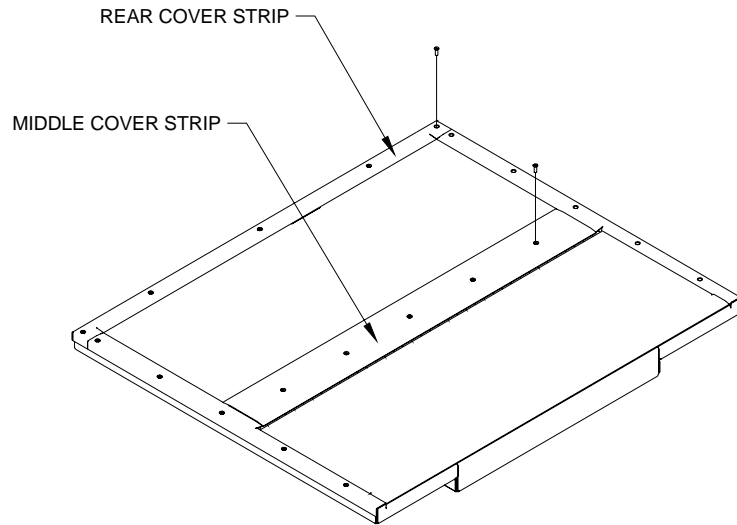


FIGURE 2-3: MIDDLE AND REAR COVER STRIPS

- 2) Refer to **Figure 2-4**. Manually turn timing belt counterclockwise (when standing at rear of ramp) to partially open hinged floor.

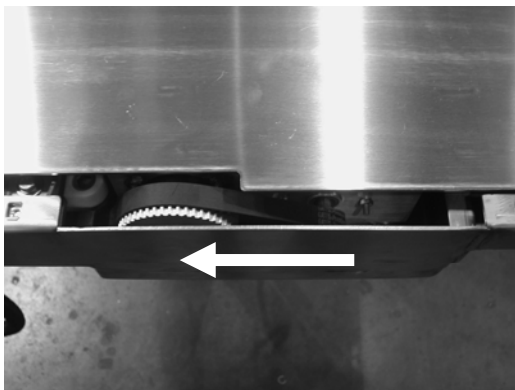


FIGURE 2-4: TIMING BELT

⚠ WARNING!

VERIFY HINGED FLOOR IS PROPERLY LOCKED IN A RAISED POSITION BEFORE ATTEMPTING TO STOW OR DEPLOY RAMP.

- 3) Refer to **Figure 2-5**. Lift hinged floor using rod to keep it open and remove manual operation tool located under hinged floor.
- 4) Refer to **Figure 2-5**. Insert hex end of the manual operation tool through the left hole under the ramp and onto the end of the ball screw assembly.

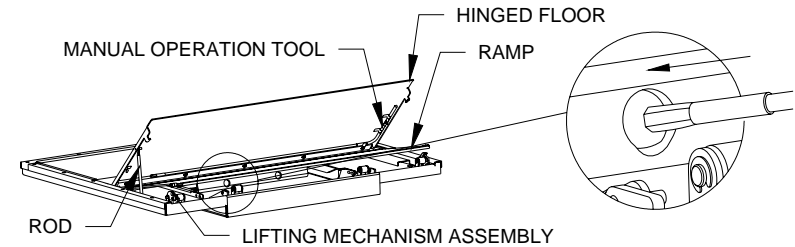


FIGURE 2-5: RAISED HINGED FLOOR

- 5) Refer to **Figure 2-6**: Turn manual operation tool clockwise (when standing in front of ramp) to deploy ramp.

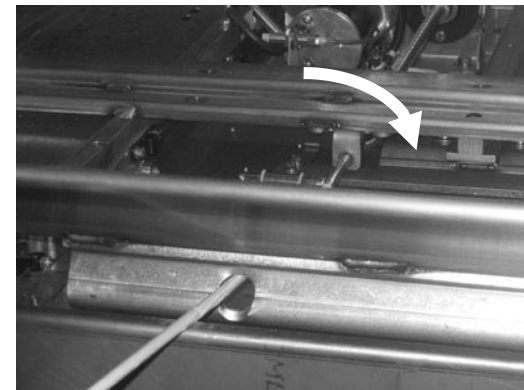


FIGURE 2-6: MANUAL OPERATION TOOL

- 6) With ramp fully deployed, place manual operation tool back under hinged floor. Disengage rod and lower hinged floor.

⚠ WARNING!

A FULLY DEPLOYED RAMP DOES NOT GUARANTEE THAT THE TIP OF THE RAMP IS AT A SAFE CONDITION FOR PASSENGER EXITING. ASSURE THAT THE TIP OF THE RAMP IS RESTING SAFELY ON THE GROUND BEFORE PASSENGERS USING MOBILITY EQUIPMENT, (e.g., WHEELCHAIRS, SCOOTERS, WALKERS) EXIT THE VEHICLE.

⚠ WARNING!

PASSENGERS USING MOBILITY EQUIPMENT (e.g., WHEELCHAIRS, SCOOTERS, WALKERS) SHOULD ALWAYS ALWAYS EXIT OR ENTER THE VEHICLE SLOWLY AND CAREFULLY.

⚠ CAUTION!

Do not allow use of ramp if an unsafe condition exists with the ramp or the mobility equipment being used by the passenger.

⚠ WARNING!

VERIFY HINGED FLOOR IS PROPERLY LOCKED IN A RAISED POSITION BEFORE ATTEMPTING TO STOW OR DEPLOY RAMP.

d. **STOW RAMP:**

- 1) Refer to **Figure 2-5**. Lift hinged floor using rod to keep it open and remove manual operation tool located under hinged floor.
- 2) Refer to **Figure 2-5**. Insert hex end of manual operation tool through left hole under hinged floor and onto end of ball screw assembly.
- 3) Refer to **Figure 2-7**. Turn manual operation tool counterclockwise (when standing in front of ramp) until ramp locking pins barely touch the lifting mechanism assembly.

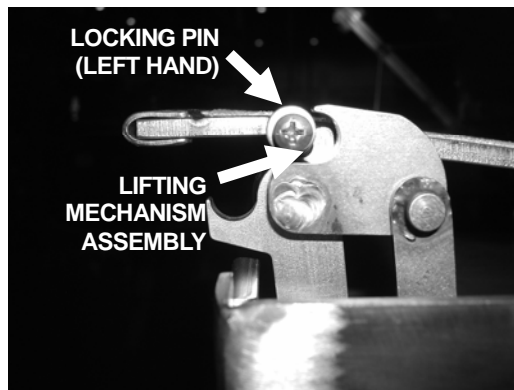
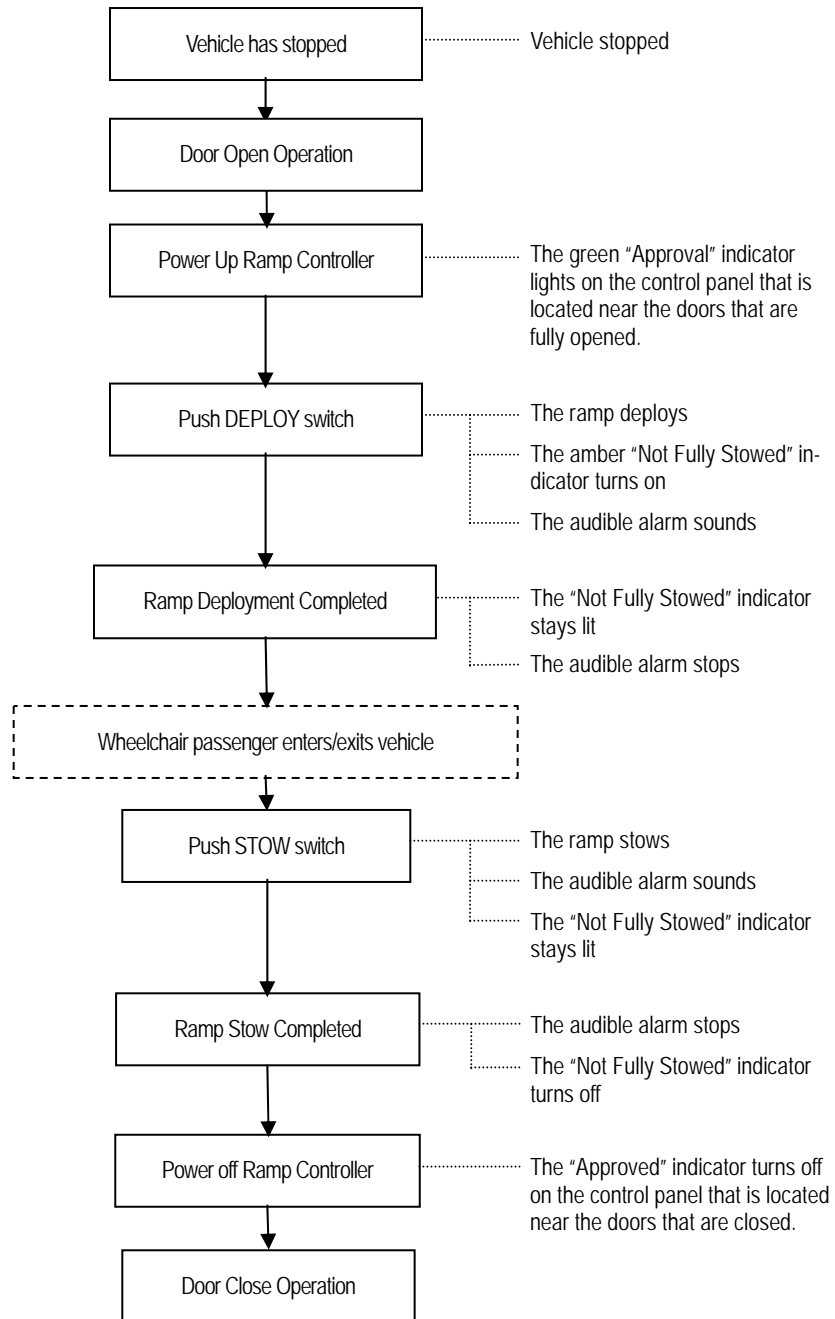


FIGURE 2-7: LIFTING MECHANISM ASSEMBLY

- 4) With ramp almost fully stowed, place manual operation tool back under hinged floor. Disengage rod and lower hinged floor.
- 5) Manually turn timing belt clockwise (when standing at rear of ramp) to fully stow ramp.
- 6) Replace rear and middle cover strips using the original screws and a Phillips screwdriver.
- 7) Switch the AUTO/MANUAL switch to AUTO.

2. OPERATION FLOW



III. MAINTENANCE

Maintenance instructions for the RICON PF7000 Series Low-Floor Vehicle Access Ramp consists of a maintenance schedule, and ramp decals location. As to the troubleshooting guide, repair instructions, and the electrical wiring diagram, please refer to the PF7000 Series Low-Floor Vehicle Access Ramp Service Manual, part number 32DPF704. Maintenance and repairs should be performed by an authorized Ricon service technician.

A. MAINTENANCE INFORMATION

Additional maintenance information is available in the PF7000 Series Low-Floor Access Vehicle Access Ramp Service Manual, part number 32DPF704. 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

Refer to **Table 3-1**. Under conditions of heavy use (in excess of 20 cycles per day), maintenance should be performed more frequently. Modifying or failing to properly maintain the ramp will void the warranty and may result in unsafe operating conditions for the users. Safety inspections should be performed according to the following intervals:

TABLE 3-1: MAINTENANCE SCHEDULE	
SERVICE POINT	DESCRIPTION
DAILY SAFETY CHECK	
General Appearance	<ul style="list-style-type: none"> • If abnormal noises exist, notify a Ricon authorized service technician immediately. Inspect underside of vehicle to verify that nothing is out of the ordinary. • Verify that the inside of the enclosure is free of debris.
Mounting Support Points	Refer to Figure 3-1 . Verify that mounting bolts are of proper grade and are sufficiently tightened (27-33Nm).
Main Pivot Points	Refer to Figure 3-1 . Verify carriage and ramp pivot pins are installed properly, free from damage and locked in position with proper fasteners.
EVERY 4-MONTH SAFETY CHECK	
Ramp Enclosure	Vacuum inside the ramp enclosure using an industrial vacuum cleaner. Do not use forced air or water to clean the inside of the enclosure.
Flutter Valve	Refer to Figure 3-1 . Verify no debris or dirt is clogging the valve from draining fluid. Remove debris or dirt if any exists. Inspect the valve rubber for any damages. Do not use forced air inside the enclosure.
CONTINUED ON PAGE 3-2	

TABLE 3-1: MAINTENANCE SCHEDULE CONTINUED	
SERVICE POINT	DESCRIPTION
ANNUAL SAFETY CHECK	
Ballscrew Assembly	Grease Ballscrew using Low Temperature Grease such as Aeroshell Grease #22, Starfak EP or equivalent.
END OF TABLE	

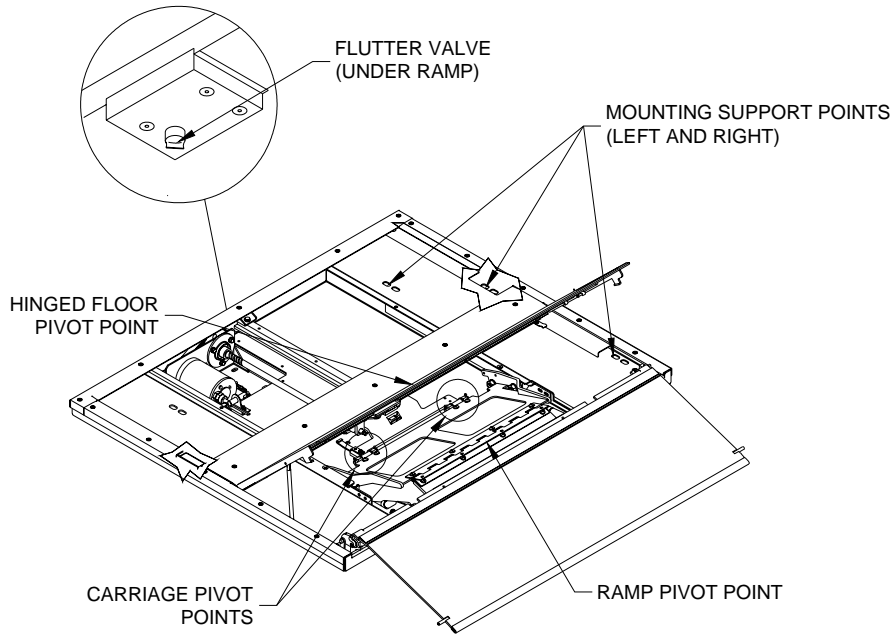


FIGURE 3-1: PIVOT AND SUPPORT POINTS

C. RAMP DECALS

Refer to **Figure 3-2**. Inspect decals at intervals in **Table 3-1**. Inspect for chipping, peeling, fading, and illegibility. Order replacement decals with part numbers given in **Figure 3-1**, and apply where shown.

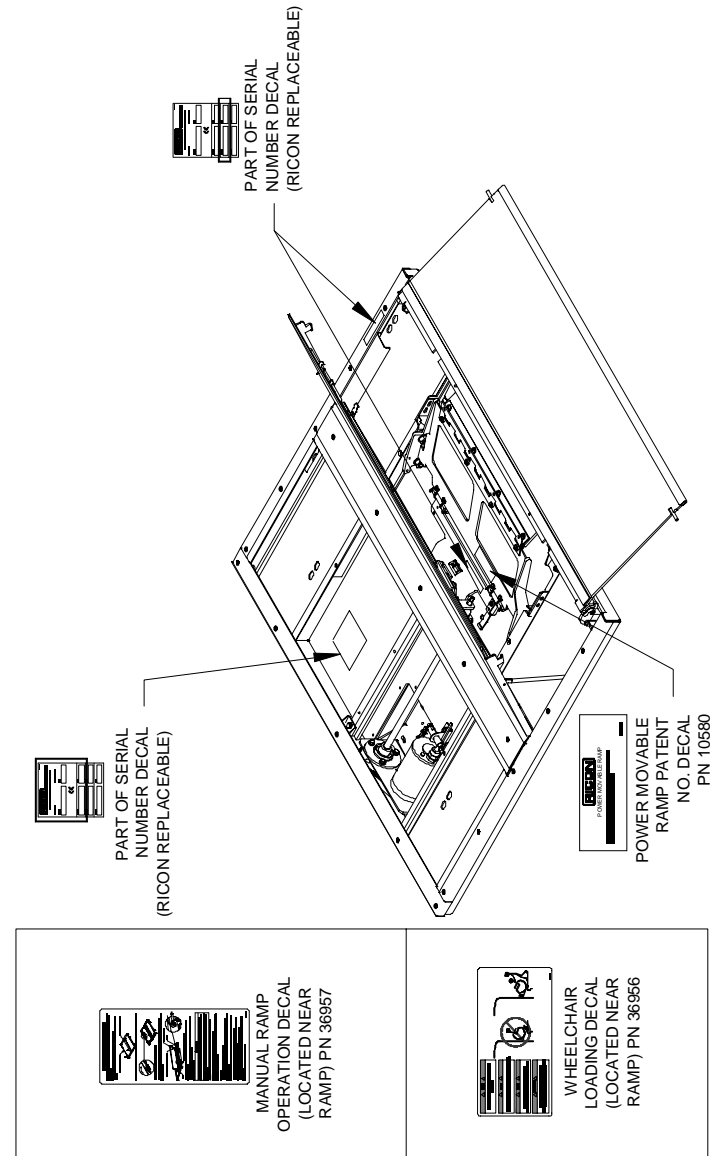


FIGURE 3-2: DECAL LOCATIONS AND PART NUMBERS

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