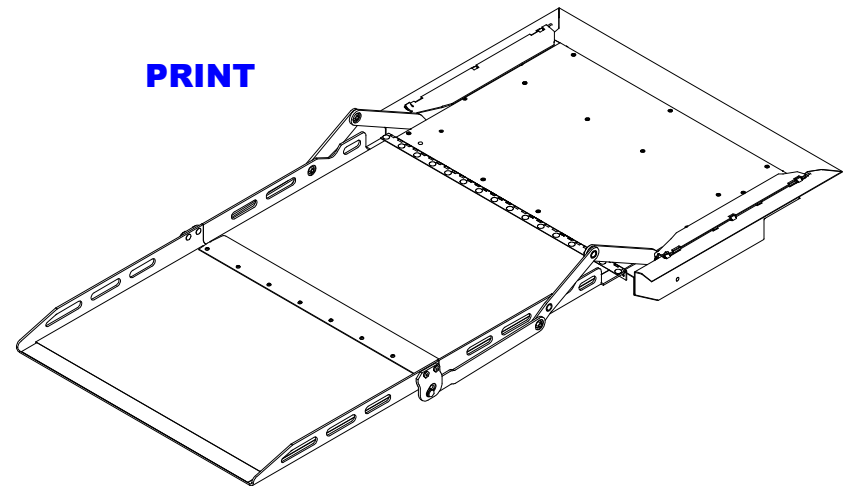




INNOVATION IN MOBILITY

FoldOver^ä
BR2-3000 Series
Low-Floor Vehicle Access Ramp
for
Transit Buses

PRINT



OPERATOR MANUAL

RICON authorized service technicians must install and service this RICON product.

Operator must refer to this manual for operating instructions, and retain it for future reference.

Customer Name: _____

Installing Dealer: _____

Date Installed: _____

Serial Number: _____

REVISION RECORD

REVISION	PAGES	DESCRIPTION	ECR/ECO
32DFR111. A	ALL	Initial Release	4334/5133

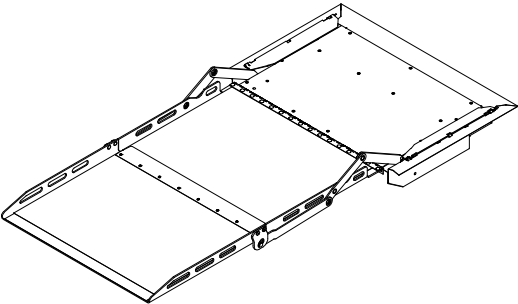
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I. FOLDOVER RAMP INTRODUCTION

This operator manual contains a product description, operating instructions, and a maintenance schedule for the Ricon BR2-3000 Series Low-Floor Vehicle Access ramp when installed in transit vehicles.



A. RICON PRODUCT SUPPORT

If you have questions about this manual, or you need additional copies, please contact Ricon Product Support at a location listed below. Also, refer to the Ricon website at:

www.riconcorp.com

Ricon Corporation
7900 Nelson Road
Panorama City, CA 91402

Telephone: (818) 267-3000
In US but outside 818 area code..... (800) 322-2884

Ricon U.K. Ltd.
Littlemoss Business Park,
Littlemoss Road
Droylsden, Manchester
United Kingdom, M43 7EF
Telephone:(+44) 161 301 6600

B. RICON TWO-YEAR LIMITED WARRANTY

The following warranty provides two years of limited coverage for the Ricon FoldOver Low-Floor Vehicle Access ramp.

RICON FOLDOVER RAMP TWO-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 because of defective material or workmanship as follows:

- Repair or replace parts for a period of two years starting from the in-service date. Obtain a complete list of parts covered by this warranty from Ricon Product Support.
- Labor costs for specified parts replaced under this warranty for a period of two years from date put into service. A Ricon rate schedule determines parts covered and labor allowed.

This Warranty Does Not Cover:

- Malfunction or damage of product parts caused by accident, misuse, lack of proper maintenance, neglect, improper adjustment, modification, alteration, 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 or repair should be performed at that time.

WARNING!

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

This Warranty is Void If:

- The product is not installed and maintained by an authorized Ricon service technician.
- The product is modified, in any respect from its original design, without written authorization from Ricon.

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

The Ricon 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 to validate the warranty. The warranty is not transferable.

The warranty gives specific legal rights. There may be other rights that vary in each state.

C. SHIPPING INFORMATION

Check the received product for freight damage. Make damage claims immediately to the freight carrier.

Be sure the ramp assembly contains all items listed on the included bill of material. Retain bill of material for future reference. Please report any missing items immediately to Ricon Product Support. Return the completed warranty and owner registration cards to Ricon within 20 days to validate the warranty.

D. GENERAL SAFETY PRECAUTIONS

Adhere to the following safety precautions during operation:

- Exercise caution when operating ramp. Keep hands, feet, legs, and clothing clear of the ramp path while it is unfolding or folding.
- Thoroughly understand operating instructions before using ramp.
- Inspect ramp before loading passengers. Do not use ramp if it exhibits any unusual noise or erratic movement.
- Do not exceed ramp weight capacity of 660 lbs (300kg).
- Keep others clear during ramp operation.
- The ramp requires regular maintenance. Ricon recommends a thorough inspection every six months. Maintain the product at its highest level of performance.

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II. DESCRIPTION

The Ricon BR2-3000 Series FoldOver Ramp is installed in transit vehicles to accommodate handicapped passengers who cannot easily climb steps or who are using mobility-aid equipment. The hydraulically powered ramp folds into the vehicle vestibule flooring.

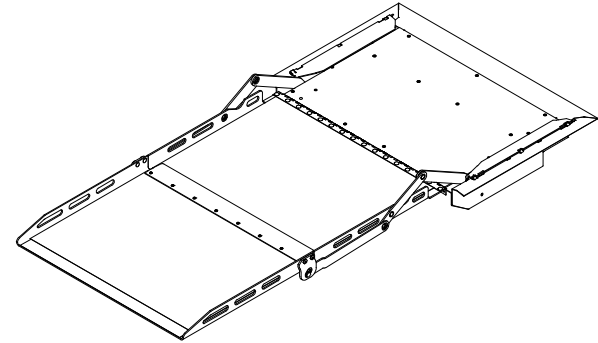


FIGURE 2-1: RICON BR2-3000 SERIES FOLDOVER RAMP

A. RAMP FEATURES

1. INTERLOCK SUPPORT

The ramp electronics can be interfaced with the vehicle interlock circuitry to prevent unintentional departure with ramp deployed. The ramp interlock circuitry senses the position of the ramp, stowed or deployed, and provides this information at the J1 harness connector. A typical vehicle interlock circuit might require that the following conditions be met before operating power is supplied to ramp:

- Park vehicle and set parking brake.
- Place transmission in neutral.
- Open vehicle door adjacent to ramp. Secure door so that it does not interfere with ramp operation.

2. AUDIBLE ALERT

The ramp supports an audible alert device that sounds while the ramp is in motion. (This optional feature may not have been connected during ramp installation.)

3. RAMP CONTROL PANEL

Refer to **Figure 2-2**. Ricon does not provide a ramp control panel. The ramp can be operated with one similar to that shown; however, the actual panel appearance will vary between transit authorities and vehicles. The control panel is normally installed in the driver area. It should have a power ON/OFF switch, a POWER ON indicator light, and a three-position ramp control switch (center-off). The ramp receives power from the vehicle when the power ON/OFF switch is ON and the interlock conditions are met. The control panel can then be used to transmit deploy or stow signals to the ramp hydraulic system.

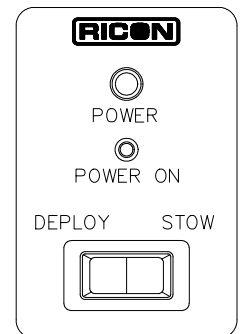


FIGURE 2-2: TYPICAL CONTROL PANEL

B. RAMP CLEARANCE AND CAPACITY

Refer to **Table 2-1**. Passengers are required to use ramp one at a time; **do not overload ramp**. Be certain that passenger mobility-aid equipment fits easily between the left and right side ramp barriers before allowing use of ramp.

TABLE 2-1: RAMP CAPACITY		
Load Limit:.....660 lb (300 kg)		
MODEL	USEABLE WIDTH	USEABLE LENGTH
BR2-3048	30 in (76 cm)	48 in (122 cm)
BR2-3248	32 in (81 cm)	48 in (122 cm)
END OF TABLE		

C. MAJOR COMPONENT DESCRIPTIONS

Figure 2-3 shows major components of the FoldOver Ramp. A description of each component is provided in Table 2-2.

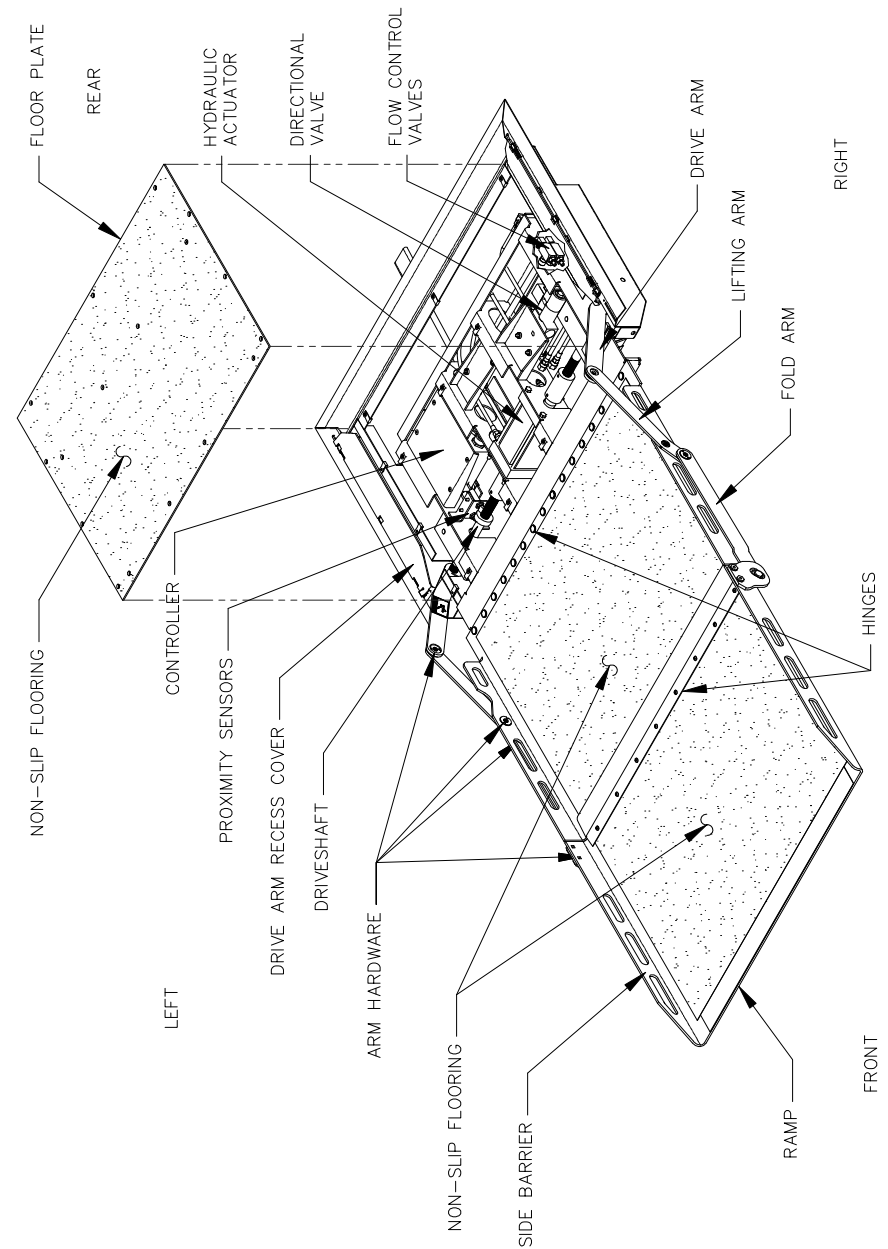


FIGURE 2-3: MAJOR RAMP COMPONENTS

TABLE 2-2: MAJOR RAMP COMPONENTS	
Name	Description
Drive arms (left & right)	Ramp linkage arms connected to driveshafts.
Lifting arms (left & right)	Ramp linkage arms connect drive arms to rear section of ramp; provide primary lifting force for entire ramp.
Fold arms (left & right)	Ramp linkage arms connect lifting arms to front section of ramp; provide folding action for front section.
Drive arm recess covers (left & right)	Folding covers protect passengers from tripping hazard.
Arm hardware (shoulder screws, bushings, thrust washers)	Pivoting, load-bearing parts at ends of drive arms and lifting arms.
Hydraulic components (not shown)	Control valves, rotary actuator, etc, which deploy and stow ramp.
Non-slip flooring	Bonded to ramp to reduce passenger slippage.
Ramp	Unfolds (deploys) to provide access for handicapped passengers; divided into front and rear sections; folds into vestibule floor.
Side barrier (left & right)	Vertical curbs help confine passenger to ramp area.
Vestibule floor	Vehicle area where ramp is installed; adjacent to entrance/exit.
END OF TABLE	

III. FOLDOVER RAMP OPERATING INSTRUCTIONS

Read the operating instructions carefully before operating the Ricon FoldOver Ramp in a transit vehicle.

A. SAFETY PRECAUTIONS

Comply with these safety precautions:

Perform the Daily Inspection described in **Table 3-1** (refer to Section B in this chapter).

Refer to **Figure 3-1**. Avoid using ramp on sloped or steeply crowned roadways because it may compromise the safety of ramp users.

Verify that the vehicle area is clear of obstacles.

Read and comply with all warning labels and symbols attached to the wheelchair ramp.

The operator must inspect ramp before use. If unusual noises, movements, or other unsafe conditions are noticed, do not use ramp and contact an authorized Ricon dealer for repair.

Do not operate with a load in excess of 660 lbs (300 kg).

The platform is intended for ONE wheelchair and its occupant. Do not overload ramp.

Wheelchair occupants must face outward when entering or exiting vehicle.

Do not place equipment or furniture inside vehicle that may prevent pivoting of your wheelchair. Being able to pivot assures that you can safely exit facing outward.

Wheelchair brakes are less effective if the wheels or ramp are wet. The operator must be extra careful in wet conditions.

Verify that the wheelchair fits safely on the ramp. The wheelchair cannot extend beyond the side barriers.

Keep arms, legs, and clothing away from moving ramp parts.

Keep others clear from ramp while operating it.

Return ramp to stowed position when not in use. Do not leave ramp outside of vehicle.

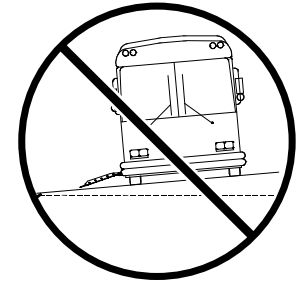



FIGURE 3-1: DO NOT USE RAMP WHEN VEHICLE IS PARKED ON SLOPED GROUND.

B. DAILY INSPECTION

Check ramp daily, following the Daily Inspection outlined in **Table 3-1**. Meet all inspection criteria before allowing passengers on ramp.

TABLE 3-1: DAILY INSPECTION	
Inspection Points	Check:
Ramp Controller	<ul style="list-style-type: none">• Power ON/OFF switch for correct operation.• Power On indicator lights when Power ON/OFF switch is ON and all interlock conditions are met.• DEPLOY and STOW switches for correct operation.• Indication of unusual noise or erratic movement when ramp is deploying or stowing.
Ramp and Surrounding Area	<ul style="list-style-type: none">• Verify that vestibule area, ramp drive arms and drive arm recesses are free of any debris or loose objects.
Ramp Non-slip Flooring	<ul style="list-style-type: none">• Verify that flooring is clean, and free of slippery or sticky substances that could compromise user safety.• Make sure non-slip flooring is intact and secure, and loose edges, if present, do not create a stumbling hazard.

C. RAMP OPERATION

 WARNING!
<p>IMPROPER USE OF RAMP CAN RESULT IN PERSONAL INJURY. OPERATOR MUST READ AND FOLLOW THE OPERATING INSTRUCTIONS IN THIS MANUAL. ADDITIONAL COPIES OF THIS MANUAL ARE AVAILABLE FROM:</p> <p style="text-align: center;">RICON CORPORATION 7900 NELSON ROAD PANORAMA CITY, CA 91402 (818) 267-3000 or (800) 322-2884 (in US)</p> <ul style="list-style-type: none">▪ CHECK RAMP AND RELATED COMPONENTS BEFORE USE FOR PROPER FUNCTION, REQUIRED MAINTENANCE, OR DAMAGE. DO NOT USE RAMP IF A PROBLEM EXISTS, AND SEEK AN AUTHORIZED SERVICE TECHNICIAN FOR INSPECTION.▪ DO NOT EXCEED RAMP LOAD CAPACITY OF 660 POUNDS (300 KILOGRAMS).▪ THE RAMP IS DESIGNED FOR USE BY THOSE WHO CANNOT CLIMB STEPS AND FOR PEOPLE WITH MOBILITY-AID EQUIPMENT (I.E., WHEELCHAIRS & WALKERS). <p>RICON CORPORATION DISCLAIMS LIABILITY FOR DAMAGE OR PERSONAL INJURY RESULTING FROM IMPROPER INSTALLATION, MODIFICATION TO THE RAMP OR OTHER COMPONENTS, LACK OF MAINTENANCE OR REPAIR, NEGLIGENCE, ABUSE OR FAILURE TO FOLLOW THE OPERATING INSTRUCTIONS.</p>

Perform the daily safety check described in **Table 3-1** before putting vehicle into service. If a problem exists, do not use ramp and seek an authorized service technician for repair.

Comply with the Safety Precautions at the beginning of this chapter.

Control of the vehicle transmission and brakes is removed while ramp is deployed; operation is restored when ramp is fully stowed.

1. OPERATING RAMP WITH CONTROL PANEL



WARNING!

MAKE SURE PEOPLE ARE A SAFE DISTANCE FROM RAMP AREA BEFORE OPERATING.

a. Prepare Vehicle

Park vehicle where deployment and use of ramp will be safe. Lower vehicle, if applicable.

Apply parking brake.

Put transmission in neutral and open door adjacent to ramp.

NOTE: You can deploy ramp **only** when the parking brake is set, the transmission is in neutral and the vehicle door adjacent to the ramp is open.

Caution people inside and outside to clear the area because you are about to deploy ramp.

b. Deploy Ramp

- 1) Apply power to ramp by activating power switch on ramp control panel; power on indicator should illuminate.

Refer to **Figure 3-2**. Move ramp control switch to DEPLOY position. Hold switch in DEPLOY until ramp has **passed** its travel midpoint (vertical), then release switch. After ramp passes the midpoint, it will continue to the ground without assistance.

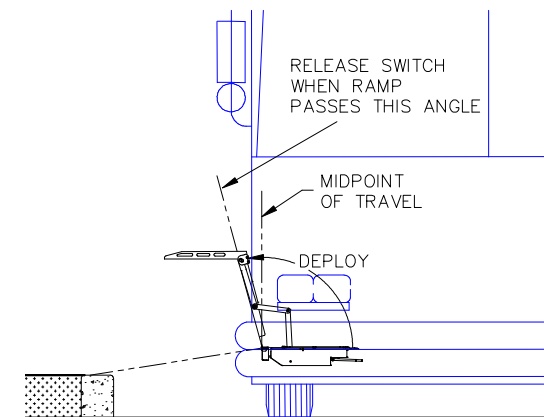


FIGURE 3-2: RAMP MIDPOINT DURING DEPLOY

NOTE: The audible alert sounds, if connected, while ramp is in motion.

NOTE: Reverse the direction of ramp movement, if necessary, by moving the control switch to the opposite setting (i.e., from DEPLOY to STOW, or from STOW to DEPLOY).

Ramp users are required to enter and exit vehicle **one at a time**. Passengers using mobility equipment (e.g., wheelchairs and scooters) should face **forward** when travelling on ramp. Do not move wheelchair backwards on ramp.

c. Stow Ramp



WARNING!

MAKE SURE PEOPLE ARE A SAFE DISTANCE FROM RAMP AREA BEFORE OPERATING.

- 1) Refer to **Figure 3-3**. Move control switch to STOW position. Hold switch in STOW until ramp has passed its travel midpoint (vertical), then release switch. After ramp passes midpoint, it will continue folding to the stowed position without assistance.

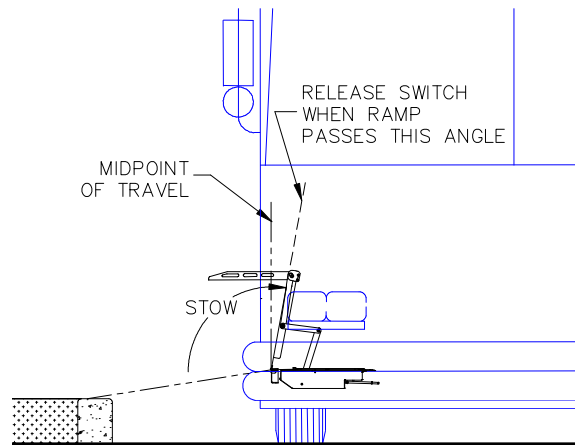


Figure 3-3: Ramp Midpoint during stow

NOTE: The audible alert sounds, if connected, while ramp is in motion.

NOTE: Verify that ramp is fully stowed before you close door or operate vehicle.

Close vehicle door.

Raise vehicle, if applicable.

2. OPERATING RAMP MANUALLY

NOTE: Manual operation should only be used to help unload passengers from vehicle. Once passengers have been unloaded, manually stow ramp and contact an authorized Ricon technician for assistance.

 WARNING!
COMPLY WITH SAFETY PRECAUTIONS AT BEGINNING OF THIS CHAPTER. AVOID SCRAPING OR PINCHING FINGERS WHEN MANUALLY LIFTING RAMP.

a. Prepare Vehicle

- 1) Park vehicle in a safe, level area. Lower vehicle, if applicable.

Apply parking brake.

Put transmission in neutral and open door adjacent to ramp.

b. Deploy Ramp

 WARNING!
KEEP YOUR BACK VERTICAL AND LEGS TOGETHER WHEN LIFTING RAMP.

 CAUTION!
Do not use excessive force to lift ramp; damage to ramp drive arms and hydraulic components can result.

- 1) Refer to **Figure 3-4**. Grasp side barriers. Lift ramp slightly to obtain a handhold on front edge of ramp.

Grip front edge of ramp with both hands. Unfold ramp from its stowed position.

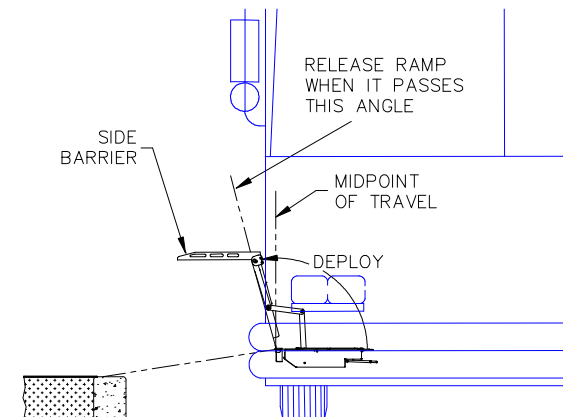


FIGURE 3-4: RAMP MIDPOINT DURING MANUAL DEPLOY

Release ramp after it passes its travel midpoint; it will continue unfolding without assistance. Unload passengers. Passengers using mobility equipment should face **forward** when travelling on ramp. Do not move wheelchair backwards on ramp.

c. **Stow Ramp**

- 1) Grasp front edge of ramp. Lift ramp slightly to obtain a handhold on front edge of ramp.



Refer to **Figure 3-5** on following page. Lift ramp and push it towards the stowed position. Release the ramp after it passes its travel midpoint and it will continue folding to the stowed position without assistance.

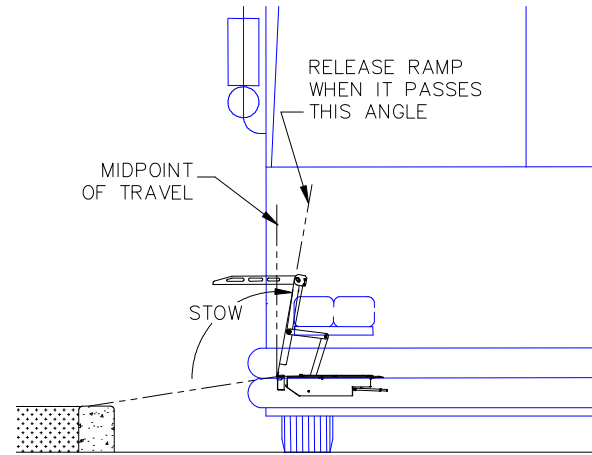


FIGURE 3-5: RAMP MIDPOINT DURING MANUAL STOW

NOTE: Be certain ramp is fully stowed before closing door or operating vehicle.

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IV. FOLDOVER RAMP MAINTENANCE

A. MAINTENANCE SCHEDULE

Regular maintenance and inspection of the Ricon FoldOver ramp provides optimum performance and reduces the need for repairs. Maintain the ramp as directed in **Table 4-1**, adhering to the cautions noted below. Perform ramp maintenance more frequently during heavy use (more than 20 cycles per day). Refer to the Ricon FoldOver Ramp Service Manual 32DFR112 for complete maintenance and troubleshooting information.

 CAUTION!
~ This Ricon product is complex ~
Do the maintenance and repairs required during the warranty period at a Ricon authorized facility. Improper maintenance, use of non-Ricon replacement parts, or product modification will void warranty and can result in unsafe operating conditions. We recommend that an authorized Ricon facility continue maintenance inspections when warranty expires.

TABLE 4-1: MAINTENANCE SCHEDULE	
Inspection Point	Action
<i>– 6,000 MILE INSPECTION –</i>	
Hydraulic system	<ul style="list-style-type: none"> • Check all hoses and fittings; tighten or replace as necessary. • Check hydraulic fluid level; refill as necessary. <p>NOTE: Refer to Service Manual for details.</p>
Setscrews	<p>Check for loose or missing setscrews at these locations:</p> <ul style="list-style-type: none"> • Driveshaft couplers (2 x 4 ea) • Sensor target (2 ea) • Pillow blocks (2 x 2 ea) <p>Tighten or replace as necessary.</p> <p>NOTE: Gain access to the above components by removing small cover on ramp floor.</p>
Drive arm hardware	Check for looseness. Tighten arm hardware as necessary; apply thread locker (such as Loc-tite blue) as necessary.
Ramp interior (for debris)	Check ramp interior area and remove accumulated dirt and debris.
Non-slip surfaces	Check for excessive wear, as well as loose edges; replace as necessary.
Decals	Check for illegibility or looseness; replace as necessary.
(continued)	

Inspection Point	Action
- 12,000 MILE INSPECTION -	
Wiring harnesses	<ul style="list-style-type: none"> ▪ Check wiring insulation for heavy abrasion or cuts; replace as necessary. ▪ Check connectors for looseness. Secure as necessary. <p>NOTE: Harnesses are routed below ramp floor and between ramp assembly and vehicle.</p>
Fasteners	Check all threaded fasteners for looseness, and retighten as necessary.
- 24,000 MILE INSPECTION -	
Pillow blocks	Lightly lubricate pillow blocks through grease fitting.
Drive arm bushings & thrust washers	Refer to Figure 2-3 and Table 2-2 . Carefully check these parts for excessive play, and replace if necessary.
END OF TABLE	

B. RAMP DECALS

Refer to **Figure 4-1**. Inspect decals at intervals in **Table 4-1**. Inspect for chipping, peeling, fading, and illegibility. Replace a decal by ordering the part number shown in figure, and applying it where shown. Surface must be clean and free of debris before applying decal.

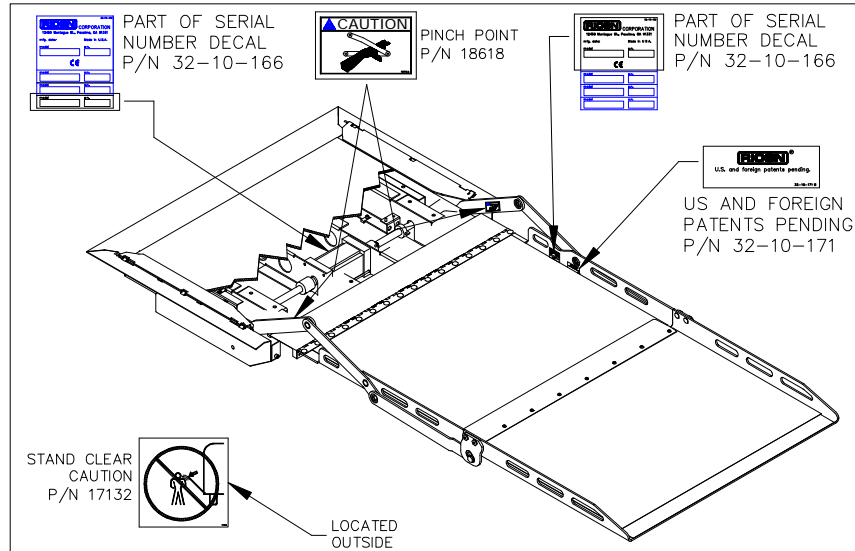


FIGURE 4-1: DECAL PART NUMBERS AND LOCATIONS