

# Operator's/Installation/Service Manual



## **Braun** **Commercial** **RA300 Transit Ramp** for Low-Floor Transit Vehicles

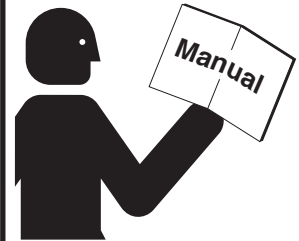
**Models:**  
**BF3248Y-2**  
**BF3255Y-2**  
**BF3262Y-2**  
**BF3462Y-2**

 **THE BRAUN CORPORATION**  
"Providing Access to the World"®

International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA  
1-800-THE LIFT® (574) 946-6153 FAX: (574) 946-4670



### **WARNING**



Read manual before operating, installing or servicing ramp. Failure to do so may result in serious bodily injury and/or property damage.

## **Congratulations**

We at The Braun Corporation wish to express our fullest appreciation on your new purchase.

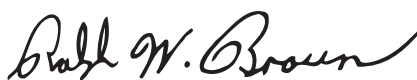
With you in mind, our skilled craftsmen have designed and assembled the finest ramp available.

This manual includes operating instructions, installation instructions, servicing instructions and instructions for troubleshooting, if needed.

Braun ramps are built for dependability and will provide years of service and mobility independence, as long as the ramp is installed and maintained as specified, and the ramp is operated by an instructed person.

Sincerely,

THE BRAUN CORPORATION

A handwritten signature in black ink that reads "Ralph W. Braun". The signature is written in a cursive style with a large, sweeping initial "R".

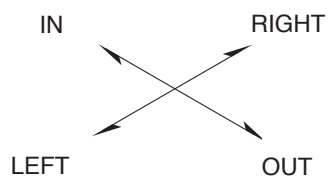
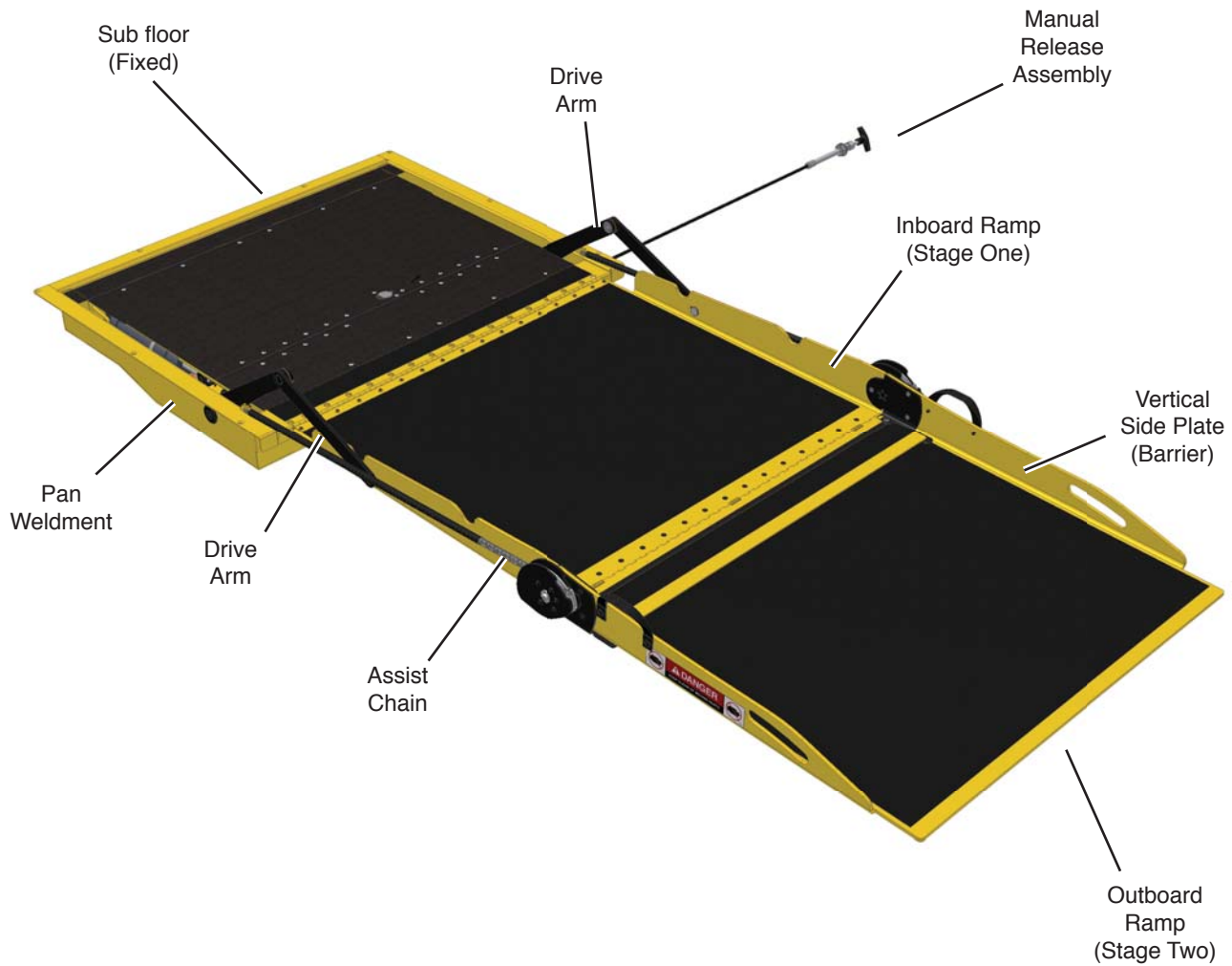
Ralph W. Braun  
Chief Executive Officer

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# RAMP TERMINOLOGY

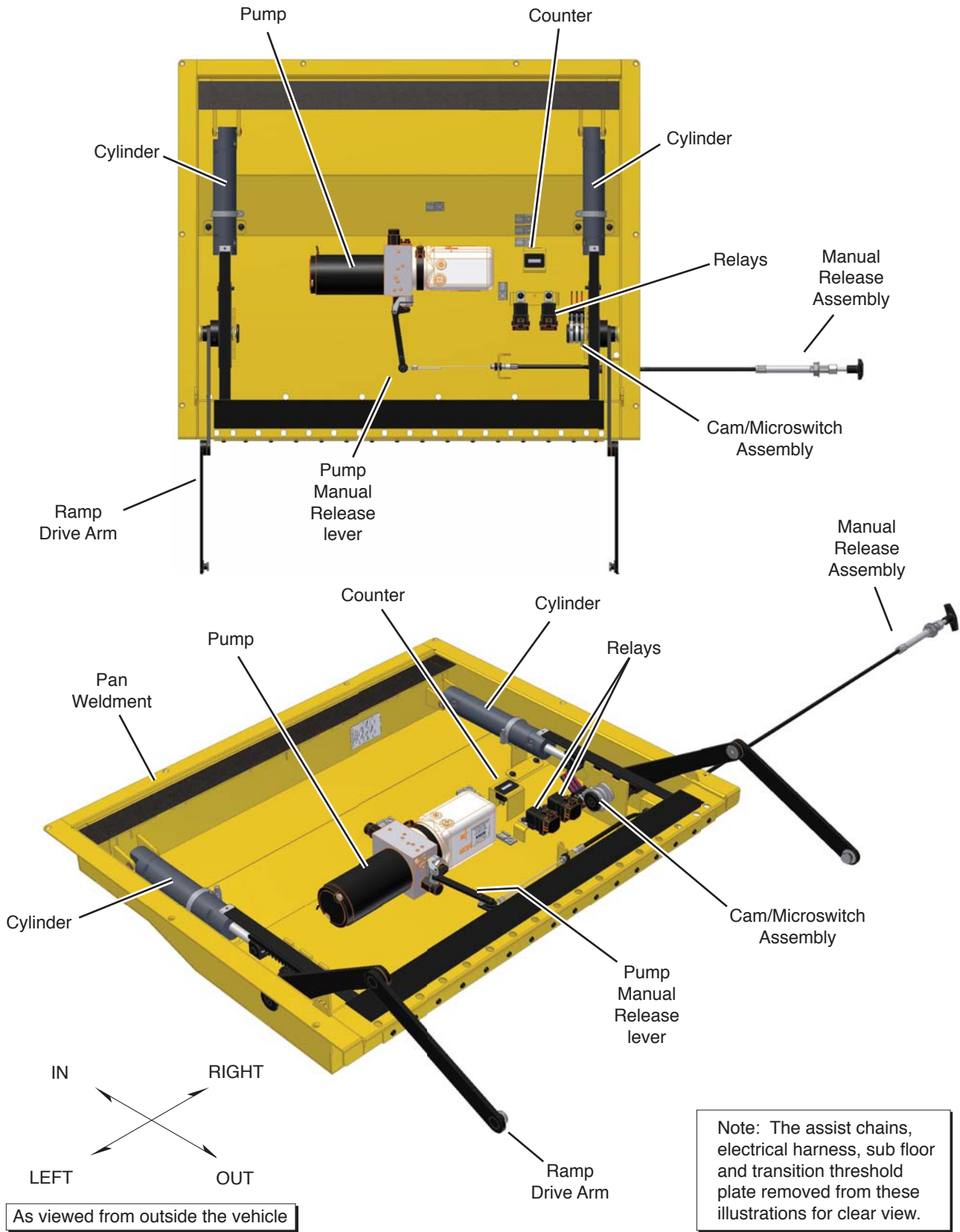
## Ramp Terminology Illustration

Refer to the illustration below and the illustrations on next page for identification of components and clarification of direction terminology. Details regarding lift model variations, terminology, direction and components are provided on pages 4 and 5.



As viewed from outside the vehicle

**Ramp Components Terminology Illustration**



# RAMP TERMINOLOGY

## Introduction

Braun RA300 Series transit ramps are designed for use in low-floor transit vehicles. The RA300 provides vehicle access to wheelchair passengers or standees using other type mobility aids. The commercial oriented ramp is ADA compliant (dependant upon installation height). See the Installation section for ADA specifications.

The self-contained "drop-in" unit requires no remote pump, external hydraulic lines or pre assembly. The hydraulic and electrical components are internal and easily accessible. A single electrical feed provides the power supply (12 volt), the ground, a ramp deploy signal (+), a ramp stow signal (+) and various indicator signals.

RA300 Series transit ramp feature a 32" wide ramp in a 34" wide package. Note: Model BF3462Y-2 features a 34" wide ramp in a 36" package. A "floor pocket" built into the chassis/floor system allows for simple installation (dimensional requirements specified in the Installation section).

The RA300 is specifically designed to be operated by an attendant. The installer provides an appropriate control switch for the end user. Consequently, the operating instructions contained in this manual are generic due to the limitless variables.

The RA300 provides fully automatic operation of ramp functions. The electric/hydraulic system is controlled by two relays which activate the hydraulic pump in opposite directions for deploy and stow functions (powering dual-acting hydraulic cylinders). No sensitive electronic controls or sensors are required for operation.

RA300 model numbers with suffix "Y" are hydraulic fold with gravity down "drift" feature when deploying and stowing. When deploying the ramp, the motor stops running when the ramp reaches an approximate 45° angle. The ramp continues to slowly lower the remaining distance by the force of gravity. When stowing the ramp and it folds inward beyond the 15° shut off point, gravity lowers the ramp to the pan.

The pressure relief valves built into the pump prohibit the ramp from lifting (raising) with approximately 40 pounds or more on the ramp.

Instructions are provided for manual operation of the ramp. See Manual Operation on the following page for further details.

Read and become familiar with all operation safety precautions, operation notes and details, operating instructions and manual operating instructions before attempting operation.

**Terminology:** Become familiar with the terminology that will be used throughout this manual. Become familiar with the identification of RA300 components and their functions. Contact your sales representative or call The Braun Corporation at 1-800-THE LIFT® if any of this information is not fully understood.

**Direction:** The terms "left", "right", "in" and "out" will be used throughout this manual to indicate direction (as viewed from the outside of the vehicle looking directly at the ramp). Refer to the Terminology Illustrations for clarification of direction terms.

## Ramp Components

Refer to the Terminology Illustrations on pages 2 and 3.

### **Pan Weldment (Housing):**

The pan is the stainless steel (casing) mounted in the vehicle floor system which contains the hydraulic pump and electrical components that power the ramp electric/hydraulic systems. The fixed sub-floor cover protects the

components from above. The cover is easily removed for access to drive components. The sub-floor provides an antiskid surface for entry and exit when the ramp is deployed. The RA300 stows (folds) onto the sub floor providing an unobstructed antiskid surface for entry and exit when the ramp is not in use.

**Ramp Assembly:** The ramp assembly is made of an inboard ramp section (stage one) and an outboard ramp section (stage two). Each aluminum ramp section features vertical side plates and full antiskid surface.

### **Drive Arm Assembly:**

The cylinder driven two stage drive arm assemblies deploy and stow the ramp assembly.

## Ramp Actions and Functions

**Deploy:** Deploy is the action of the ramp assembly extending and unfolding to ground level when the DEPLOY (OUT) switch\* is activated (\*installer supplied).

**Stow:** Stow is the action of the ramp assembly raising and folding inward to stow position when the STOW (IN) switch\* is activated (\*installer supplied).

**Stow Position:** Stow position is achieved when the two stage ramp assembly is fully retracted and folded (resting fully on the pan weldment).

**Manual Override:** A cable-activated manual release engages and disengages the hydraulic system. A T-handle is provided for activation of the manual release. Pulling the T-handle out

pushes a pump valve to release pressure (turn T-handle to lock in released position). Disengaging the hydraulic system allows the ramp to be manually deployed and stowed (hydraulic pressure released). See Ramp Manual Operation on page 11 for further details.

# RAMP OPERATION

## Safety Symbols

**SAFETY FIRST!** Know That....

**A** All information contained in this manual and supplements (if included), is provided for your safety. Familiarity with proper operation instructions as well as proper maintenance procedures are necessary to ensure safe, trouble free operation. Safety precautions are provided to identify potentially hazardous situations and provide instruction on how to avoid them.

**B**

**⚠ WARNING**

This symbol indicates important safety information regarding a potentially hazardous situation that could result in serious bodily injury and/or property damage.

**C**

**⚠ CAUTION**

This symbol indicates important information regarding how to avoid a hazardous situation that could result in minor personal injury or property damage.

**D** **Note:** Additional information provided to help clarify or detail a specific subject.

These symbols will appear throughout this manual. **Recognize the seriousness of this information.**

## Ramp Operation Safety Precautions

**⚠ WARNING**

If the ramp operating instructions, manual operating instructions and/or ramp operation safety precautions are not fully understood, contact The Braun Corporation immediately. Failure to do so may result in serious bodily injury and/or property damage.

**⚠ WARNING** Read manual and supplement(s) before operating ramp. Read and become familiar with all safety precautions, operation notes and details, operating instructions and manual operating instructions before operating the ramp. Note: All transit agency personnel (drivers and ramp attendants) must read and become familiar with the contents of this manual and supplement(s) before operation.

**⚠ WARNING** Load and unload on level surface only.

**⚠ WARNING** Engage vehicle parking brake before operating ramp.

**⚠ WARNING** Provide adequate clearance outside the vehicle to accommodate the ramp before opening lift door(s) or operating ramp.

**⚠ WARNING** Inspect ramp before operation. Do not operate ramp if you suspect ramp damage, wear or any abnormal condition.

**⚠ WARNING** Keep operator and bystanders clear of area in which the ramp operates.

**⚠ WARNING** Load and unload clear of vehicular traffic.

**⚠ WARNING** Open ramp door(s) fully and secure before operating ramp.

**⚠ WARNING** Do not overload or abuse. The rated capacity is 363 kilograms (800 pounds).

### Ramp Operation Safety Precautions

- ⚠WARNING** Do not activate control switch(es) when anyone is near the area in which ramp operates.
- ⚠WARNING** It is the responsibility of the attendant to oversee and assist ramp passengers.
- ⚠WARNING** The wheelchair passenger and/or attendant must ensure the ramp is fully deployed before exiting the vehicle.
- ⚠WARNING** Attendants must never operate the vehicle, the ramp or attend to passengers if intoxicated.
- ⚠WARNING** Intoxicated passengers should not be allowed to board the vehicle.
- ⚠WARNING** Wheelchair passengers must position and secure (buckle, engage, fasten, etc.) the wheelchair-equipped occupant seat belt before loading onto the ramp.
- ⚠WARNING** Be aware of the ramp slope (angle).
- ⚠WARNING** Wheelchair passengers should not raise front wheelchair wheels (pull wheelie) when on the ramp.
- ⚠WARNING** The wheelchair must be positioned in the center of the ramp when loading and unloading.
- ⚠WARNING** Keep ramp owner's manual in ramp-equipped vehicle at all times.
- ⚠WARNING** Maintenance and lubrication procedures must be performed as specified in this manual by authorized (certified) service personnel.
- ⚠WARNING** Never modify (alter) a Braun Corporation ramp.
- ⚠WARNING** Do not use accessory devices not authorized by The Braun Corporation.
- ⚠WARNING** Do not remove any guards or covers.
- ⚠WARNING** If the information contained in this manual is not fully understood, contact The Braun Corporation immediately.
- ⚠WARNING** Failure to follow these safety precautions may result in serious bodily injury and/or property damage.

## RAMP OPERATION

The RA300 provides vehicle access to wheelchair passengers or standees using other type mobility aids. The commercial oriented RA300 is operated by the transit vehicle driver/attendant. Unless your transit agency has a published policy stating that driver/attendants do not aid ramp passengers, safe entering and exiting of ramp passengers is the responsibility of the driver/attendant.

General instructions for safe operation of the ramp are provided. Ramp safety and ramp passenger safety information is included.

Read and become familiar with all ramp operation safety precautions, operation notes and details, operating instructions and manual operating instructions before attempting ramp operation procedures or assisting ramp passengers boarding and exiting the vehicle.

Do not operate the ramp if you suspect ramp damage, wear or any abnormal condition. Discontinue use immediately and contact The Braun Corporation at 1-800-THE LIFT®. One of our national Product Support representatives will direct you to an authorized service technician who will inspect the ramp.

### Ramp Access Doors and Interlocks

Attendants must become familiar with the vehicle ramp access door system and interlock(s), as well as the proper operation of the ramp.

Vehicle ramp access door configurations and operation procedures vary. Ensure the ramp door is fully open before activating the ramp (an interlock typically prevents ramp operation unless the door is fully open). Attendants and passengers must keep clear of the area in which the power

door operates. Ensure the path is clear before closing the door. Be sure the door is fully closed before attempting to drive the vehicle (interlocks typically ensure this).

Interlocks are required by nearly all transit authorities. Vehicle interlocks typically prevent vehicle motion if the ramp is not stowed. In some cases, the ramp cannot be operated if interlock conditions are not met. Multiple interlocks may exist.

Instructions for operation of interlocks and door systems are not be addressed in this manual due to the variety of procedures required for operating them.

It is the responsibility of the driver/attendant to properly open and close the ramp access door(s), to activate interlock(s) and to properly activate the ramp power functions.

## Operation Procedure Review

The Braun Corporation recommends that transit agency supervisors and driver/attendants review the safety precautions and operation procedures provided in this manual with the ramp sales representative (or vehicle converter) before attempting ramp operation.

Any questions or concerns can be addressed at that time. Operate the ramp through all functions to ensure proper use and operation is understood.

Transit agency supervisors should train and educate all driver/attendants on the proper use and operation of the vehicle, door system, interlock(s), ramp and ramp passenger safety.

The ramp owner's/service manual must be stored in the ramp-equipped vehicle at all times.

### **⚠ WARNING**

**Read and become familiar with all ramp operation safety precautions, pre-operation notes and details, operating instructions and manual operating instructions prior to operating the ramp. If this information is not fully understood, contact The Braun Corporation immediately. Failure to do so may result in serious bodily injury and/or property damage.**

## Preventive Maintenance

Maintenance is necessary to ensure safe and trouble free operation. General preventive maintenance consisting of careful inspections and cleaning the ramp system should be a part of the transit agency daily service program. Simple inspections can detect potential operational problems.

Regular preventive maintenance will reduce potential operation downtime and increase the service life of the ramp, as well as possibly detecting potential hazards.

Exposure to harsh weather, environmental conditions, or heavy usage may require more frequent maintenance and lubrication procedures.

Preventive maintenance visual inspections do not take the place of the procedures specified in the Maintenance and Lubrication Schedule provided in this manual. Refer to the Maintenance and Lubrication section for further details.

# RAMP OPERATION

## Ramp Power Operation

The power ramp is attendant operated and activated by the control switch provided by the vehicle converter (ramp installer). A momentary contact switch (center off) will typically be located near the driver. The control switch may be part of a panel providing other features and controls (power on/off indicators, LED's, etc.).

Before operating the ramp, park the vehicle on a level area, away from vehicular traffic. Place the vehicle transmission in "Park" and engage the parking brake. Meet all other interlock conditions (as equipped). Activate the vehicle "kneel" system to lower the vehicle (if so equipped). Lowering the vehicle reduces the slope of the ramp.

## Power Ramp Safety

### **⚠ WARNING**

**Provide adequate clearance outside of vehicle to accommodate ramp. Failure to do so may result in serious bodily injury and/or property damage.**

Be certain there is adequate clearance outside the vehicle before deploying the power ramp.

The ramp operator (attendant) and bystanders must keep clear of the area in which the ramp operates and clear of all mov-

ing parts. Attendants must ensure that passengers keep clear of the area in which the ramp operates. Do not attempt to grip or hold the ramp, ramp drive arm assemblies or the assist chains.

be aware of any special needs and/or procedures required for safe transport of wheelchair passengers. Do not attempt to load or unload a passenger in a wheelchair or other apparatus that does not fit on the ramp. Do not exceed the 800 pound (363 kilograms) load capacity of the ramp. Passengers should enter and exit one at a time. The attendant should not board the ramp with the passenger except when assistance is required and the load capacity is not exceeded. Always return the ramp to the stowed position when not in use.

If you are an attendant operating the ramp, it is your responsibility to oversee and/or assist in performing safe passenger loading and unloading procedures. Observe your passengers at all times when they are entering and exiting the vehicle. Attendants must



## Gravity Down Drift

### Deploy Gravity Down Drift:

When deploying (unfolding) the ramp, the ramp pump motor stops running when the ramp reaches an approximate 45° angle (shut off point). The ramp continues to slowly lower the remaining distance by the force of gravity (non-powered).

Allow the ramp to unfold (deploy) fully before boarding the ramp. Forcing the ramp out or down during the deploy (unfold) function, or boarding onto the ramp before it is fully-deployed may result in damage to the ramp and/or drive assembly.

### Stow Gravity Down Drift:

When stowing the ramp and it reaches an approximate 15° angle (shut off point), gravity lowers the ramp to the pan (floor).

Note: Pump motor shut off points are microswitch adjustable.

### **⚠ CAUTION**

**Allow ramp to deploy fully before boarding. Failure to do so may result in damage.**

## Ramp Manual Operation

### Cable-Activated Manual Release

A cable-activated manual release engages and disengages the hydraulic system. A T-handle is provided for activation of the manual release (see Figure A). Pulling the T-handle out pushes a pump valve to release pressure (turn T-handle to lock in released position). Disengaging the hydraulic system allows the ramp to be manually deployed and stowed (hydraulic pressure released).

### Before Power Operation

Ensure the manual release is re-engaged before power operation. Turn the T-handle and push the T-handle in fully after manually operating the ramp. The ramp cannot be power driven if the manual release is released (T-handle out).

### Manual Operation Safety

Two oval-shaped HAND HOLD slots are provided on the ramp (see Figure B). Carefully deploy (unfold) and stow (fold) the ramp using the HAND HOLDS.

Keep clear of the area in which the hinged ramp sections fold and unfold. Keep clear of the area where the inboard ramp side plates stow in the pan (floor). Keep clear of drive arms and assist chains. Remember to use good body mechanics when folding and unfolding the ramp.

The safety precautions addressed in the Ramp Power Operation section apply to manual operation of the ramp also. Read and become familiar with all ramp safety precautions.

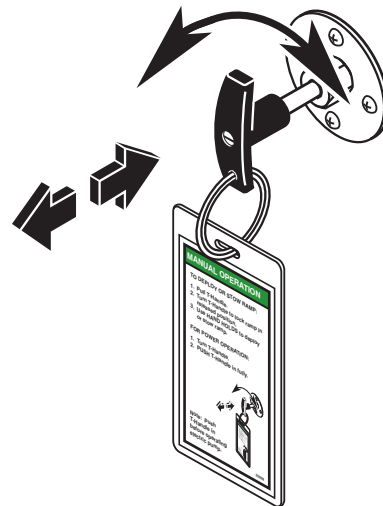
## T-handle Operation

### To Manually Deploy or Stow Ramp:

1. Pull T-Handle.
2. Turn T-Handle to lock ramp in released position.
3. Use HAND HOLDS to deploy or stow ramp.

### For Power Operation:

1. Turn T-Handle.
2. Push T-Handle in fully.



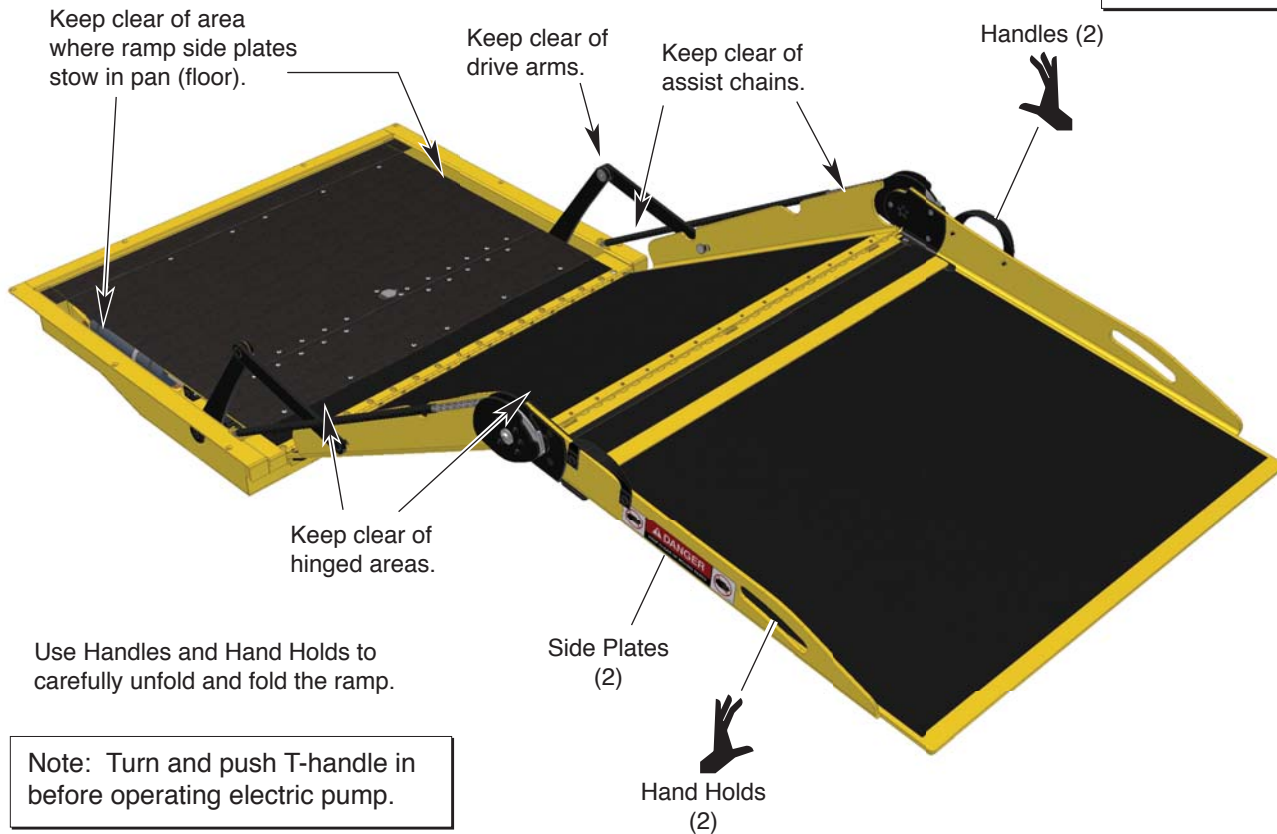
**Figure A**

**Note:** Turn and push T-handle in before operating electric pump.

## RAMP OPERATION

### Ramp Manual Operation (continued)

**Figure B**



### Ramp Passenger Safety

Unless your transit agency has a published policy stating that driver/attendants do not aid ramp passengers, it is the responsibility of the driver/attendant to ensure that ramp passengers enter and exit the vehicle on the ramp in the safest manner.

ADA requirements state that transit drivers/attendants must assist with attaching and removing wheelchair and occupant restraint belts.

Ramp passengers (wheelchair passengers and standees), and attendants must use common sense and good judgment regarding ramp safety. Each wheelchair passenger (or standee) has a unique set of physical abilities combined with the physical characteristics of his or her wheelchair (or other mobility aid) that dictate the method in which he or she will enter and exit the vehicle.

Wheelchair attendants should be instructed on any special needs and/or procedures required for safe transport of wheelchair passengers. Follow all safety instructions regarding torso restraints, stability, balance, weight distribution and use of attendants as specified in the owner's manual supplied with the passenger's wheelchair (or other mobility aid). Wheelchair passengers must determine, establish and practice ramp boarding and exiting procedures under the direction of their personal health care professional and wheelchair representative. Those procedures should be conveyed to the ramp attendant. Know your passengers abilities and needs for optimum safety.

Attendants must never operate the vehicle, the ramp or assist passengers if intoxicated. Intoxicated passengers should not be allowed to board or exit the vehicle.

## Ramp Passenger Safety

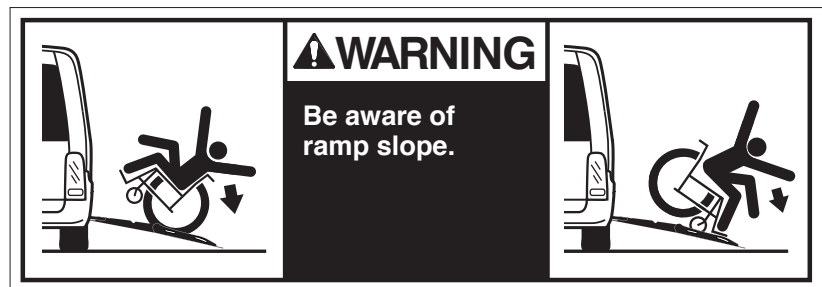
**⚠ WARNING**

Position and fasten the wheelchair-equipped occupant seat belt before loading onto the wheelchair ramp. Failure to do so may result in serious bodily injury and/or property damage.

Passengers should be positioned in the center of the ramp at all times. Attendants and ramp passengers must be able to clearly view the ramp whenever boarding and exiting the vehicle. The attendant and/or wheelchair passenger must ensure the ramp is fully deployed before exiting the vehicle. Observe your passengers at all times when they are entering and exiting the vehicle.

**Wheelchair-Equipped Occupant Seat Belts:** Wheelchair passengers should position and buckle their wheelchair-equipped seat belt (torso restraint), as specified by the manufacturer, before loading onto a wheelchair ramp.

Different types of disabilities require different types of wheelchairs and different types of wheelchair-equipped occupant restraint belt systems (torso restraint). It is the responsibility of the wheelchair passenger to have his or her wheelchair equipped with an occupant restraint (seat belt) under the direction of their health care professional.



**Stabilizing Wheelchairs:** Powered and manual wheelchairs are designed to remain upright and stable during normal operation. All activities which involve movement in a wheelchair have an effect on the combined center of gravity of the occupant and wheelchair. Be aware of the ramp slope (angle). The slope of the ramp has a direct effect on the center of gravity. The wheelchair passenger's center of gravity and their ability to maintain stability and balance must be kept in mind by the wheelchair passenger and the attendant.

The aid of an attendant stabilizing the wheelchair is recommended for optimum safety. Wheelchair passengers who are unable to maintain stability and balance should not board a ramp without assistance. Counterbalance devices (anti-tippers) may be available from the wheelchair representative to enhance stability and balance.

Wheelchairs should be operated at a slow and constant speed when on the ramp. Wheelchairs should not accelerate suddenly when on the ramp. Wheelchair passengers should not raise the front wheelchair wheels (pull wheelie) when on the ramp.

Wheelchair passengers who intend to enter and exit the vehicle without the assistance of an attendant must determine the safest and most practical method and orientation of entering and exiting based on the physical characteristics of their personal wheelchair and his or her physical capabilities to maintain stability while the wheelchair is in motion on the ramp.

**Wheelchair Attendants:** When assisting a wheelchair occupant, remember to use good body mechanics. When the wheelchair is on the ramp, the attendant must grasp the push handles (or other) securely. Detachable wheelchair parts such as arm or leg rests must never be used for hand holds or lifting supports. Doing so could result in the parts being inadvertently detached from the wheelchair resulting in possible injury to the wheelchair occupant and/or the attendant.

# RAMP INSTALLATION

## Safety Symbols

**SAFETY FIRST!** Know That....

**A** All information contained in this manual and supplements (if included), is provided for your safety. Familiarity with proper operation instructions as well as proper maintenance procedures are necessary to ensure safe, trouble free operation. Safety precautions are provided to identify potentially hazardous situations and provide instruction on how to avoid them.

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**D** **Note:** Additional information provided to help clarify or detail a specific subject.

These symbols will appear throughout this manual. **Recognize the seriousness of this information.**

## Installation / Service Safety Precautions

**⚠ WARNING**

If installation, maintenance or repair procedures cannot be completed exactly as provided in this manual or if the instructions are not fully understood, contact The Braun Corporation immediately. Failure to do so may result in serious bodily injury and/or property damage.

**⚠ WARNING** Read this manual and supplement(s) before performing installation, operation or service procedures.

**⚠ CAUTION** Installation specifications and dimensions must be met.

**⚠ WARNING** Remove any obstructions within the ramp mounting/operating area prior to beginning installation procedures.

**⚠ WARNING** Do not operate ramp prior to positive securement of the pan.

**⚠ WARNING** Check for obstructions such as gas lines, wires, exhaust, etc. before drilling or cutting during installation procedures.

**⚠ WARNING** Route all cables clear of exhaust system, other hot areas, moving parts, wet areas, etc.

**⚠ WARNING** Risk of electrical shock or fire! Use extra care when making electrical connections. Connect and secure as outlined in Installation Instructions and Wiring Diagrams.

**⚠ WARNING** Meet all ramp positioning and clearance specifications as detailed in the Installation Instructions before operating ramp.

**⚠ WARNING** Maintenance and repairs must be performed only by authorized service personnel.

**⚠ WARNING** Perform maintenance and lubrication procedures exactly as outlined in the Maintenance and Lubrication Schedule contained in this manual.

## Installation/Service Safety Precautions

- ⚠WARNING** Disconnect the power cable at the battery prior to servicing.
- ⚠WARNING** Keep hands, arms and all other body parts clear of moving parts.
- ⚠WARNING** Never modify (alter) a Braun Corporation ramp.
- ⚠WARNING** Replacement parts must be Braun authorized replacements.
- ⚠WARNING** Never install screws or fasteners (other than factory equipped).
- ⚠WARNING** Whenever replacing a hydraulic cylinder or seals, deploy ramp fully.
- ⚠WARNING** Failure to follow these safety precautions may result in serious bodily injury and/or property damage.

## Installation Requirements

Braun RA300 Series transit ramps must be installed and serviced by a Braun authorized service representative who has attended and been certified by The Braun Corporation Sales and Service School for Braun Mobility Products.

Read and become familiar with the contents of this manual before beginning installation, operation or service procedures.

### ⚠WARNING

**Read this manual, before performing installation, operation or service procedures. Failure to do so may result in serious bodily injury and/or property damage.**

## Chassis Requirements

The RA300 is designed for use in low-floor transit vehicles. A “floor pocket” (mounting hole) built into the chassis/floor system allows for simple installation (accepts “drop-in” unit). Floor Pocket Clear Opening Dimensions are specified on pages 16 and 17. See Figures C, D and E.

The installer must provide an appropriate framework in the vehicle (aligned center with door opening). See Figure E. Ramp assembly mounting hardware and/or brackets are directly dependant upon the vehicle chassis and “floor pocket”

configuration (not supplied).

**Slope:** The portion of the floor where the ramp mounts can range in slope from 0° to 9.5° (see Figure D).

**Outboard Support Tube:** An outboard support tube must be positioned under the outboard edge of the opening (minimum 1-1/2" x 2" steel tube). The recommended height of the support tube for each model is listed in the chart on page 17. Kneeling Vehicles: Measured with suspension lowered.

**ADA:** Installations with the support tube positioned above the recommended height from ground level may not comply with ADA ramp slope requirements.

Some OEM chassis meet these specifications. The RA300 is designed to conform to these specifications.

The ramp pan horizontal border (lip) sets on the floor pocket perimeter, (framework, sub floor, etc.). The finished flooring can be cut to conform to the border of the pan for a flush transition surface from ramp-to-floor.

# RAMP INSTALLATION

## Installation Requirements (continued)

**Door Opening:** Open the door(s) fully and check the clear door opening width dimension. Specified minimum clear door opening width must be provided (see next page).

Door(s) must open outward. When closed, the door(s) should align with and conform to the outboard edge of the ramp pan (rubber seal on bottom of door).

**Minimum Clear Door Opening Dimensions** are defined as finished door opening, including any intrusive door jambs, headers, sills or hinges.

**Obstructions:** Any intrusive obstructions within the door opening or the ramp mounting/operating area (such as seats, molding, lights, brackets, etc.) must be removed. Trim or

remove molding that creates an uneven mounting surface should be removed. The molding can be modified to fit around the ramp pan horizontal border (lip).

There must be a minimum 1/8" clearance between the deployed ramp assembly and the vehicle floor or any obstruction on the floor (such as a rubber sill or threshold).

## Floor Pocket

**Outboard Support Tube:** Recommended Height can be determined by using the chart on the following page. Kneeling Vehicles: Measured with suspension lowered.

**ADA:** Installations with the support tube positioned above the recommended height from ground level may not comply with ADA ramp slope requirements.

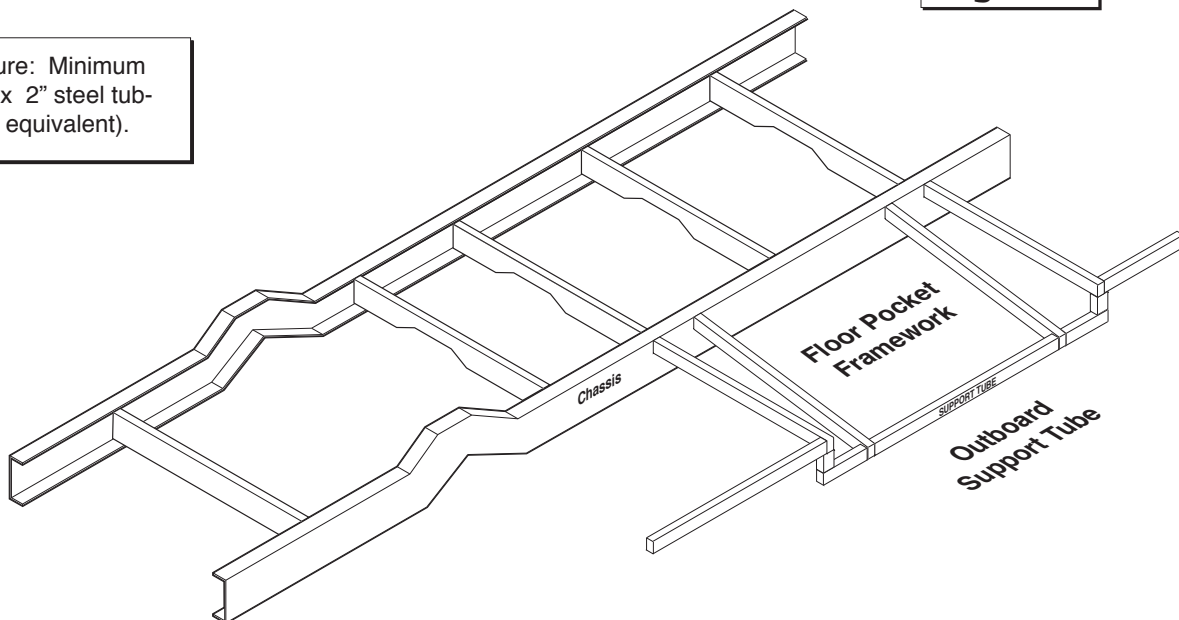
The portion of the floor where the ramp mounts can range in slope from 0° to 9.5°.

## Floor Pocket Framework

Note: Ramp assembly mounting hardware and/or brackets are directly dependant upon the vehicle chassis and "floor pocket" configuration (not supplied).

Structure: Minimum 1-1/2" x 2" steel tubing (or equivalent).

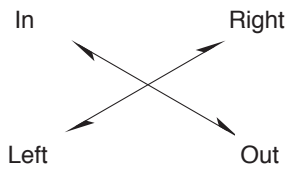
**Figure C**



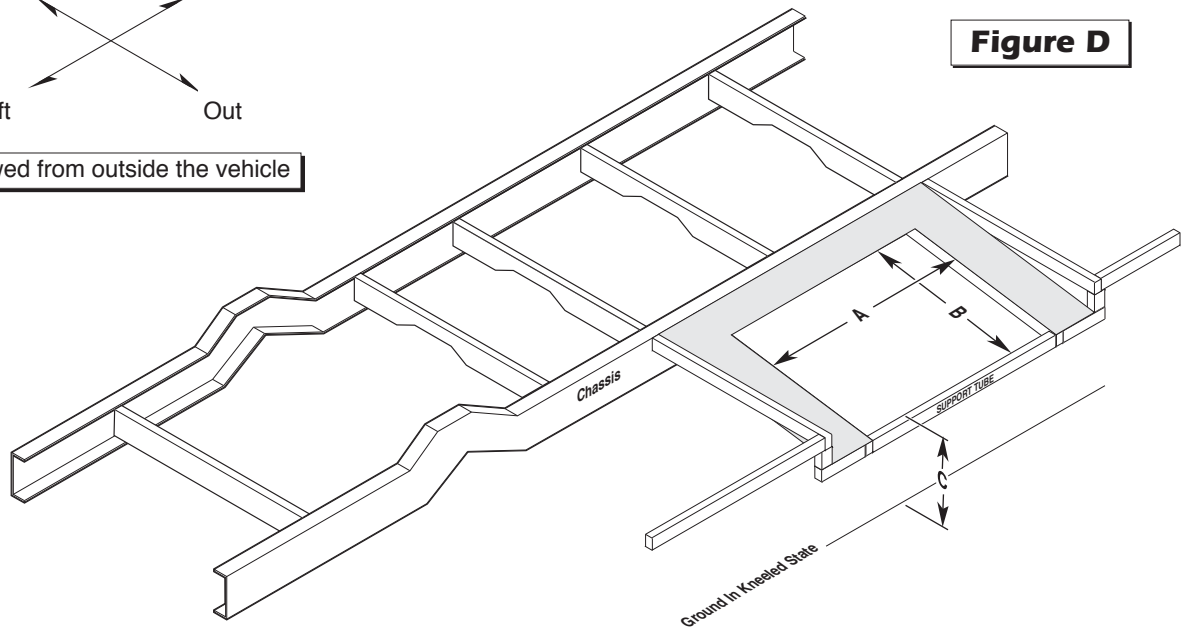
# RAMP INSTALLATION

## Floor Pocket Clear Opening Dimensions

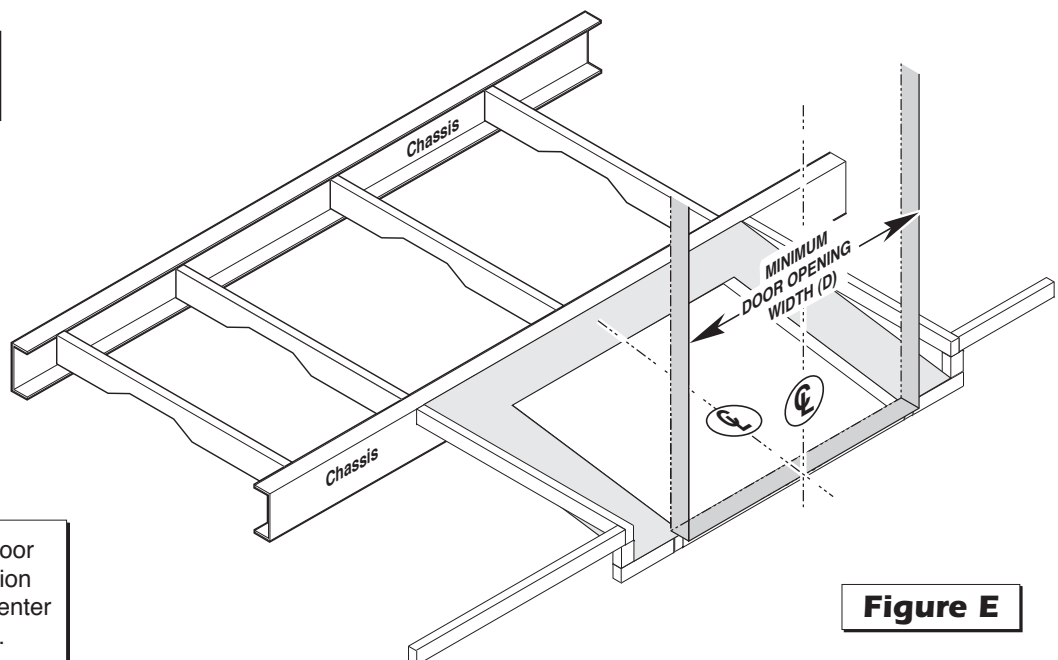
RA300 RAMP MODEL		BF3248Y-2	BF3255Y-2	BF3262Y-2	BF3462Y-2
A	Width	34-1/4"	34-1/4"	34-1/4"	36-1/4"
B	Depth	23-1/8"	26-3/16"	29-1/4"	29-1/4"
C	4:1 Slope Install Height	12"	13-3/4"	15-1/2"	15-1/2"
C	6:1 Slope Install Height	8"	9"	10-1/4"	10-1/4"
D	Door Opening Width	37"	37"	37"	39"



As viewed from outside the vehicle



Door(s) must open outward.

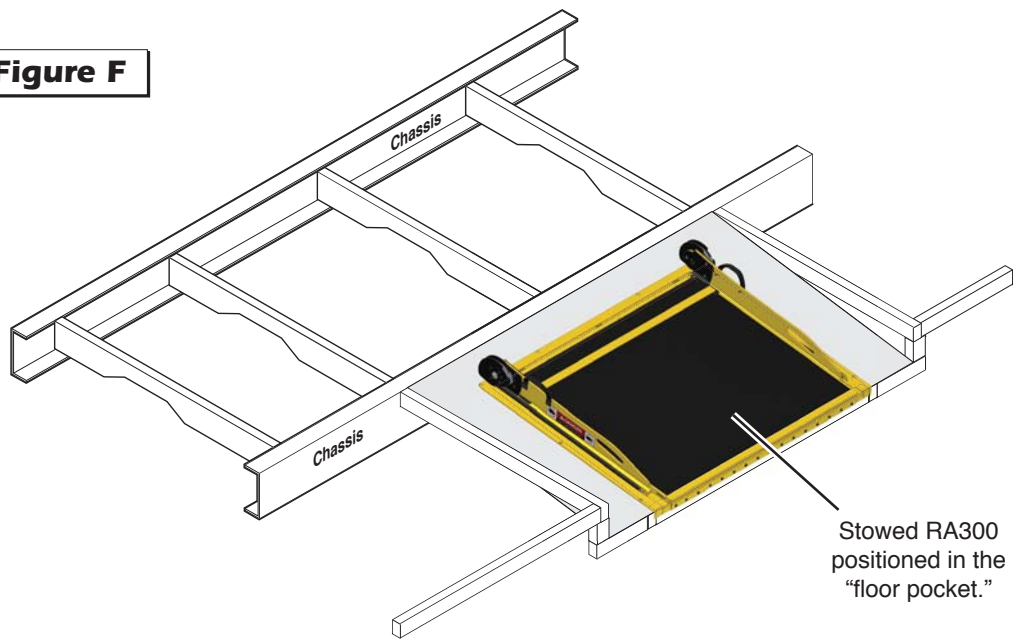


Vehicle chassis "floor pocket" configuration must be aligned center with door opening.

# RAMP INSTALLATION

## Installed Ramp - Stowed

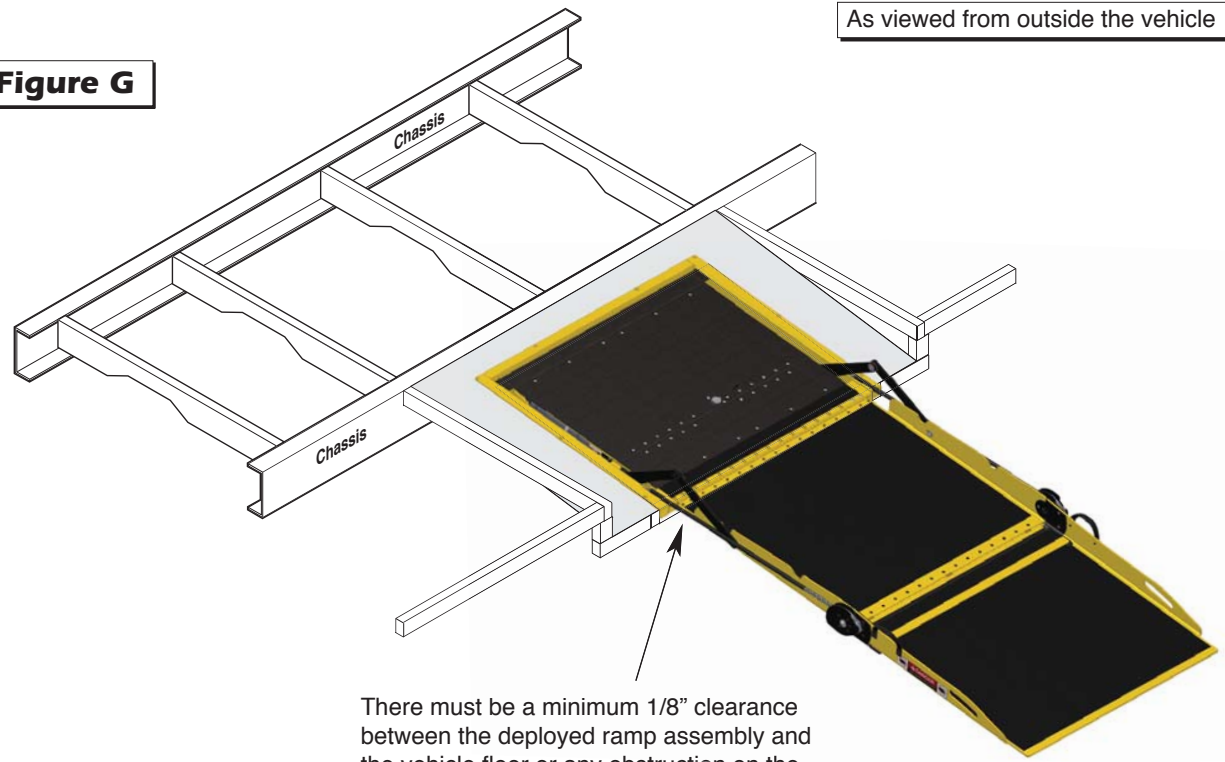
**Figure F**



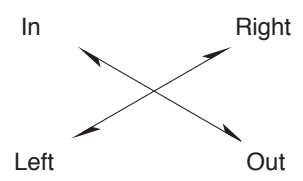
Stowed RA300 positioned in the "floor pocket."

## Installed Ramp - Deployed

**Figure G**



There must be a minimum 1/8" clearance between the deployed ramp assembly and the vehicle floor or any obstruction on the floor (such as a rubber sill or threshold).



As viewed from outside the vehicle



**BLANK for LAYOUT**

# RAMP INSTALLATION

## Electrical Connections

The ramp installer provides an appropriate control switch for the end user. A momentary contact ramp control switch (center off) will typically be mounted near the driver. The control switch may be part of a panel providing other features and controls (power on/off indicators, LED's, etc.).

The Positive (+) "battery" lead wire must be protected by an in-line 30 ampere fuse or circuit breaker (installer provided).

Do not connect the power "battery" lead wire to the battery until all other connections are made.

Connect the 8-pin Deutsch male plug to the mating Deutsch connector mounted at the front of the pan (details on page 21).

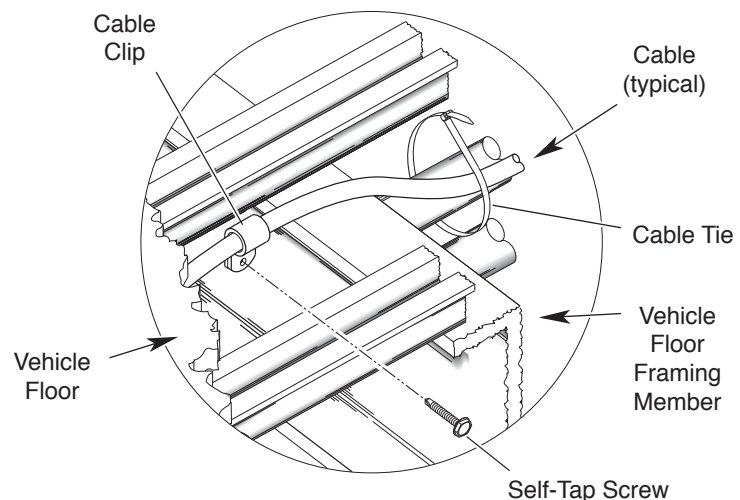
Carefully connect the power "battery" lead wire to the Positive (+) battery post.

### ⚠ WARNING

Route cables clear of exhaust system, other hot areas and moving parts. Failure to do so may result in serious bodily injury and/or property damage.

**Figure H**

Secure all cables using cable ties and/or cable clips (mount clips with self-tap screws).



### ⚠ WARNING



**Risk of electrical shock! Use extra care when making electrical connections.**

### ⚠ WARNING



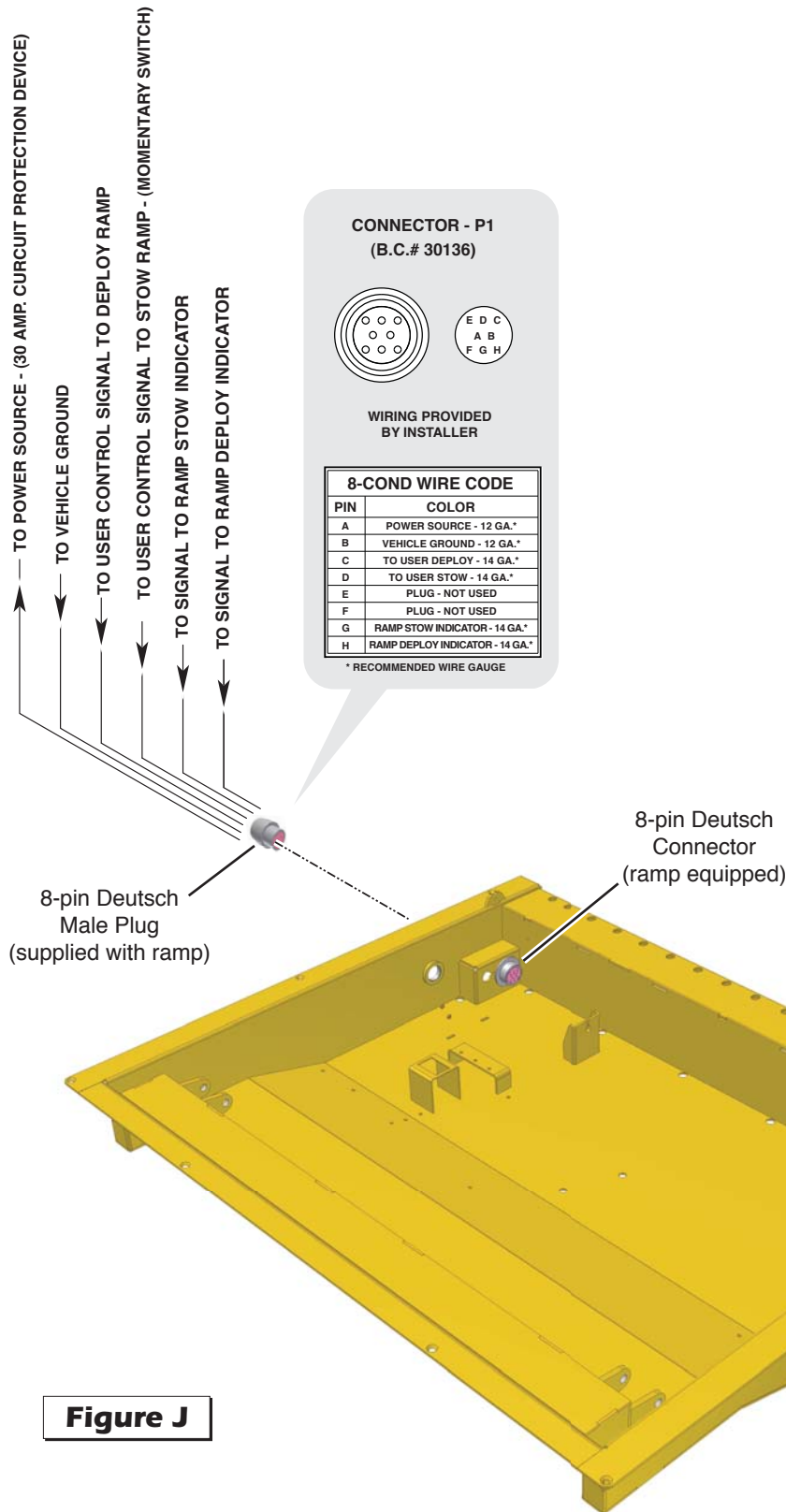
**Risk of electrical fire! Use extra care when making electrical connections.**

### Chassis Ground Corrosion:

When mounting chassis ground cables, remove undercoating, dirt, rust, etc. from the framing member around the mounting holes. Apply a protective coating to mounting holes to prevent corrosion. Failure to do so will void warranty of certain electrical components.

# RAMP INSTALLATION

## Electrical Connections



An 8-pin Deutsch connector is mounted at the front of the ramp pan (see Figure J). A mating 8-pin Deutsch connector (male plug) is supplied with the ramp.

Terminate the power supply, the ground, DEPLOY signal (+), DEPLOY indicator, STOW signal (+) and STOW indicator as specified in legend.

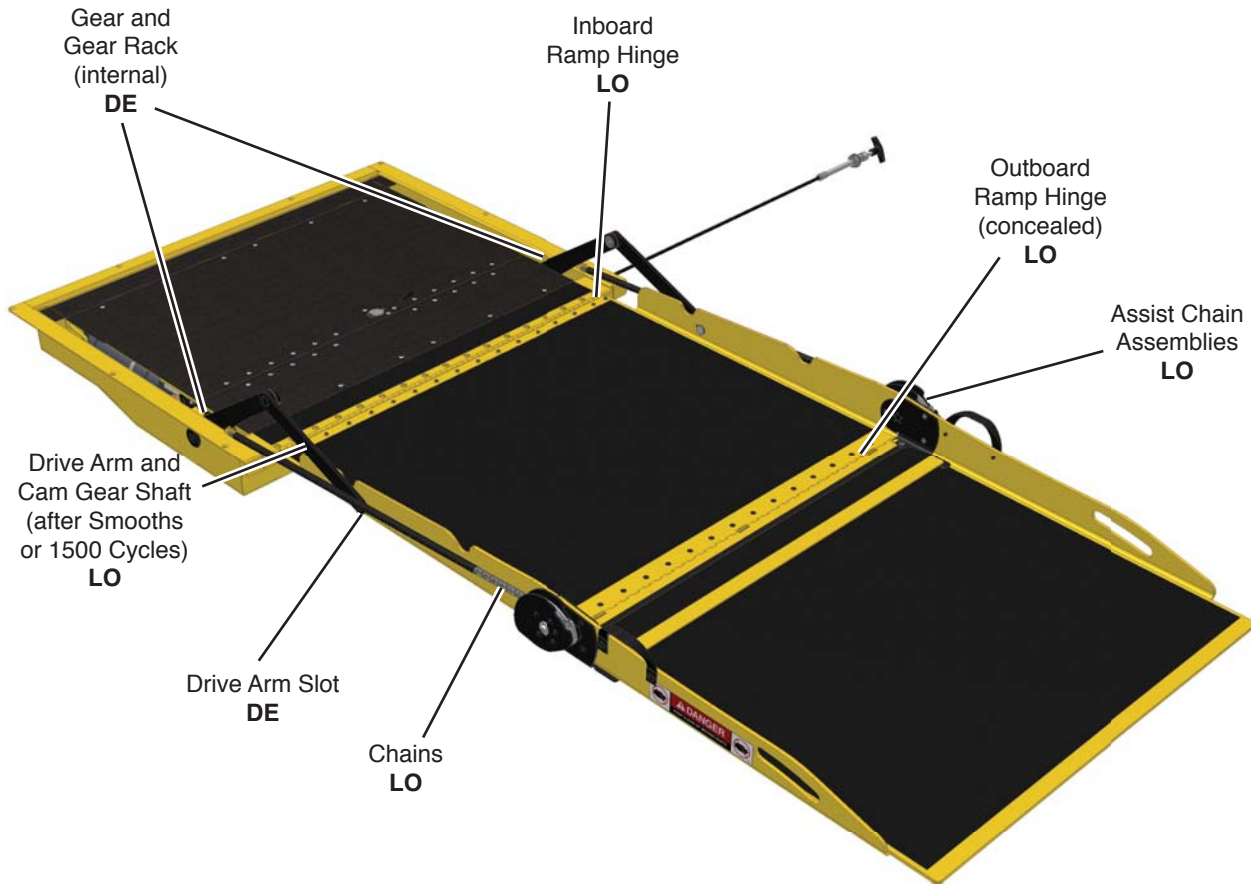
### WARNING

Positive (+) battery lead wire must be protected by installer-provided 30 ampere fuse or circuit breaker. Failure to do so may result in serious bodily injury and/or property damage.

**Figure J**

# MAINTENANCE and LUBRICATION

## Lubrication Diagram



Note: See the Maintenance/Lubrication Schedule for recommended applications per number of cycles or elapsed time.

Lubricant	Type	Specified (recommended) Lubricant	Available Amount	Braun Part No.
<b>LO - Light Oil</b>	Light Penetrating Oil (30 weight or equivalent)	LPS2, General Purpose Penetrating Oil	16 oz. Aerosol Can	15807
<b>DE - Door-Ease</b>	Stainless Stick Style (tube)	Door-Ease Stick (tube)	1.68 oz.	15806
<b>LG - Light Grease</b>	Light Grease (Multipurpose)	Lubricate	14 oz. Can	15805

# MAINTENANCE and LUBRICATION

## Maintenance and Lubrication Introduction

Proper maintenance is necessary to ensure safe, trouble-free operation. Inspecting the ramp for any wear, damage or other abnormal conditions should be a part of the transit agency daily service program. Simple inspections can detect potential problems.

Preventive maintenance visual inspections do not take the place of the procedures specified in this schedule.

The maintenance and lubrication procedures specified in this schedule must be performed by a Braun authorized service representative at the scheduled intervals according to the number of cycles or elapsed time, whichever comes first.

RA300 Series ramps are equipped with hardened pins and self-lubricating bearings to decrease wear, provide smooth operation and extend the service life of the ramp.

When servicing the ramp at the consecutive recommended intervals, inspection and lubrication procedures specified in the previous sections should be performed (repeated). Clean components and the surrounding area before applying lubricants. LPS2 General Purpose Penetrating Oil is recommended where Light Oil is called out. Use of improper lubricants can attract dirt or other contaminants which could result in wear or damage to the components. Ramp components exposed to contaminants when lowered to the ground may require extra attention. Specified lubricants are available from The Braun Corporation (part numbers provided).

All listed inspection, lubrication and maintenance procedures should be repeated at 750 cycle intervals following the scheduled 1500 cycle maintenance procedures. These intervals are a general guideline for scheduling maintenance procedures and will vary according to ramp use and conditions.

### **⚠ WARNING**

**Maintenance and lubrication procedures must be performed as specified by an authorized service technician. Failure to do so may result in serious bodily injury and/or property damage.**

Ramps exposed to severe conditions (weather, environment, contamination, heavy usage, etc.) may require inspection and maintenance procedures to be performed more often than specified.

Cycle Counter: RA300 Series ramps are equipped with a cycle counter located in the pan weldment. This cycle counter allows the service technician to track the number of cycles.

Discontinue ramp use immediately if maintenance and lubrication procedures are not properly performed, or if there is any sign of wear, damage or improper operation. Contact your sales representative or call The Braun Corporation. One of our national Product Support representatives will direct you to an authorized service technician who will inspect your ramp.

## Maintenance and Lubrication Schedule

<b>750 Cycles</b>	Inboard ramp hinge	Clean and lubricate. Apply Light Oil - See Lubrication Diagram
	Outboard ramp hinge	Clean and lubricate. Apply Light Oil - See Lubrication Diagram
	Drive arm pivot pins (screws, nuts and bearings)	Apply Light Oil - See Lubrication Diagram
	Drive arm and cam gear pivot shaft	Apply Light Oil - See Lubrication Diagram
<span style="border: 1px solid black; padding: 2px;">continued</span>		

# MAINTENANCE and LUBRICATION

<p>continued</p> <p><b>750 Cycles</b></p>	<p>Chains at gears and chain assist assemblies</p> <p>Drive arm slot</p> <p>Inspect drive arm pivot points (mounting screws, nuts and bearings) for positive securement, wear or damage</p> <p>Inspect drive arm slots for excessive wear or damage</p> <p>Clean ramp and ramp mounting area (ensure no debris in area to obstruct stowing/stacking)</p> <p>Cycle ramp and observe drift speed during deploy and stow functions</p> <p>Inspect ramp for wear, damage or any abnormal condition.</p>	<p>Clean and lubricate. Apply Light Oil - See Lubrication Diagram</p> <p>Apply Door-Ease. See Lubrication Diagram</p> <p>Tighten, replace or correct as needed.</p> <p>Correct as needed</p> <p>Clean and remove debris or obstructions</p> <p>If drifts too fast, adjust applicable Drift Micro-switch Cam so drift begins at reduced height.</p> <p>Correct as needed</p>
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<p><b>1500 Cycles</b></p>	<p><b>Perform all procedures listed in previous section also</b></p>	
	<p>Remove sub floor (pan cover) and clean dirt and other foreign debris</p> <p>Remove sub floor (pan cover) and lubricate drive arm gear and cylinder gear rack</p> <p>Remove sub floor (pan cover) and inspect:</p> <ul style="list-style-type: none"> <li>• Pump mounting bolts for securement (loose or missing)</li> <li>• Drive arm and gear rack weldment teeth for foreign objects, wear or damage (bent, deformed, misaligned), positive securement and proper operation</li> <li>• Gear rack weldment pin securement E-clip (loose or missing)</li> <li>• Hydraulic cylinder, hoses, fittings and connections for wear, damage or leaks</li> <li>• Harness cables, wires, terminals and connections for securement or damage</li> <li>• Relays for securement or damage</li> <li>• Microswitches and cams for securement and adjustment</li> <li>• Microswitch wires and terminals for securement or damage</li> </ul>	<p>Blow out with air compressor</p> <p>Clean and lubricate. Apply Door-Ease</p> <p>Resecure, adjust microswitches, replace damaged parts or otherwise correct as needed.</p>

## MAINTENANCE and LUBRICATION

<p>continued</p> <p><b>1500 Cycles</b></p>	<p>Hydraulic Fluid (Pump) - Check level. Note: Fluid should be changed if there is visible contamination. Inspect the hydraulic system (cylinder, hoses, fittings, seals, etc.) for leaks if fluid level is low.</p> <p>Inspect vehicle-to-ramp wiring harness</p> <p>Mounting</p> <p>Decals and Antiskid</p>	<p>Use Braun 32840-QT hydraulic fluid (Exxon® Unavis HVI 26). Do not mix with Dextron III or other hydraulic fluids. Check fluid level with ramp fully deployed. Fill to maximum fluid level indicated on reservoir (fill line molded in reservoir). Do not overfill.</p> <p>Resecure, repair or replace or otherwise correct as needed</p> <p>Check to see that the ramp is securely anchored to the vehicle and there are no loose bolts, broken welds, or stress fractures.</p> <p>Replace decals if worn, missing or illegible. Replace antiskid if worn or missing.</p>
<p><b>Consecutive 750 Cycle Intervals</b></p>	<p>Repeat all previously listed inspection, lubrication and maintenance procedures at 750 cycle intervals (or per vehicle maintenance schedule).</p>	

## MICROSWITCH ADJUSTMENT

### WARNING

Improper microswitch adjustment may result in serious bodily injury and/or property damage.

**Microswitches:** Three microswitches (limit switches) are incorporated in the RA300 electrical system. Ramp microswitches are: Drift-In, Drift-Out and Counter. Adjust microswitch(es) as detailed (if necessary only).

### Microswitch Sequence

**Stowed Position:** When the ramp is in the stowed position, the Drift-Out and Counter microswitches are deactivated (common and normally closed terminals have continuity). In contrast, the Drift-In microswitch is activated.

**Deploy Sequence:** When the ramp is in the stowed position, the Drift-Out microswitch is deactivated. Current is allowed to pass from the vehicle Deploy Relay, which directs current to the bidirectional pump motor (hydraulically drives cylinders to deploy ramp).

When the ramp platform reaches the Drift-In limit (approximately 45° above ground level), the

microswitch is activated (common and normally open terminals have continuity), and the current to the Deploy Relay is interrupted thus stopping the current to the pump motor. The platform then “drifts” downward to ground level, during which, at some position, the Drift-Out microswitch is activated. The Drift-In microswitch is deactivated during the deploy movement of the platform. Note: Neither of the other 2 microswitches have any bearing on the deploy sequence.

**Deployed Position:** When the ramp is in the deployed position, the Drift-Out and Counter microswitches are activated. In contrast, the Drift-In microswitch is deactivated.

**Stow Sequence:** When the ramp is in the deployed position, the Drift-In microswitch is deactivated, allowing current to pass from the vehicle Stow switch circuit and energize the ramp Stow Relay, which directs current to the bidirectional pump motor (hydraulically drives cylinder to stow ramp).

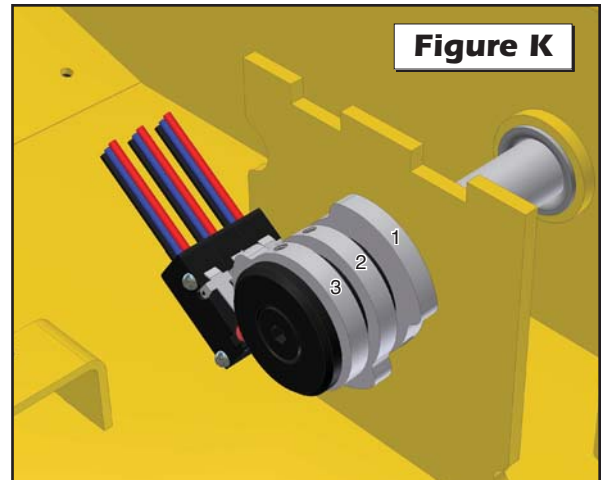
When the ramp platform reaches the Drift-Out limit (approximately 45° above ground level) and deactivates the microswitch, the current to the Stow Relay will be interrupted.

## MICROSWITCH ADJUSTMENT

### Drift In Microswitch (Cam 1)

Turn Cam 1 counter-clockwise to start Drift In function sooner (shut pump off).

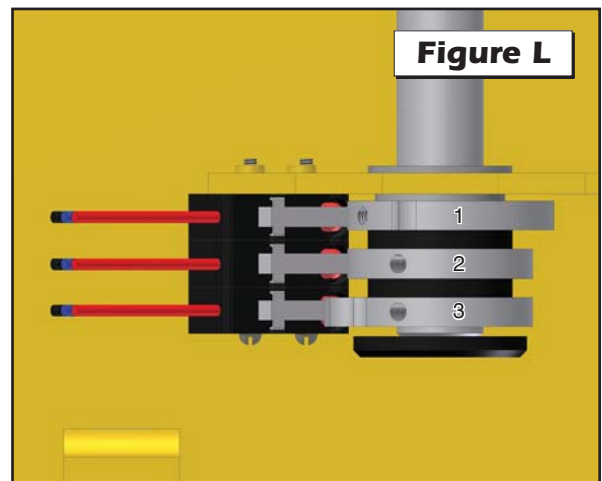
Turn Cam 1 clockwise to start Drift In function later (allow ramp to stow further before pump shuts off).



### Drift Out Microswitch (Cam 2)

Turn Cam 2 clockwise to start Drift Out function sooner (shut pump off).

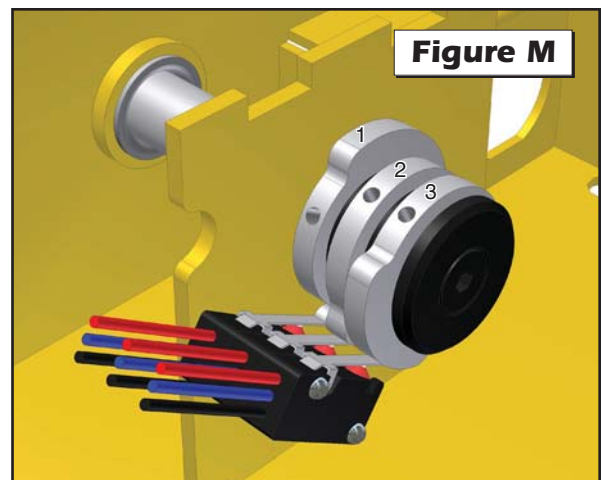
Turn Cam 2 counter-clockwise to start Drift Out function later (allow ramp to deploy further before pump shuts off).



### Counter Microswitch (Cam 3)

Turn Cam 3 clockwise to start Interlock sooner.

Turn Cam 3 counterclockwise to return Interlock signal later.



# DEPLOY and STOW PRESSURE ADJUSTMENT

## Hydraulics

### B-3202-0106 Hydraulic Pump:

Fixed displacement external gear type hydraulic pump with 12 VDC electric motor and 76 cubic inch fluid reservoir for 12V BF3462Y .

**Hydraulic Fluid:** Use Braun 32840-QT hydraulic fluid (Exxon® Univis HVI 26). Do not mix with Dextron III or other hydraulic fluids. Check fluid level with ramp

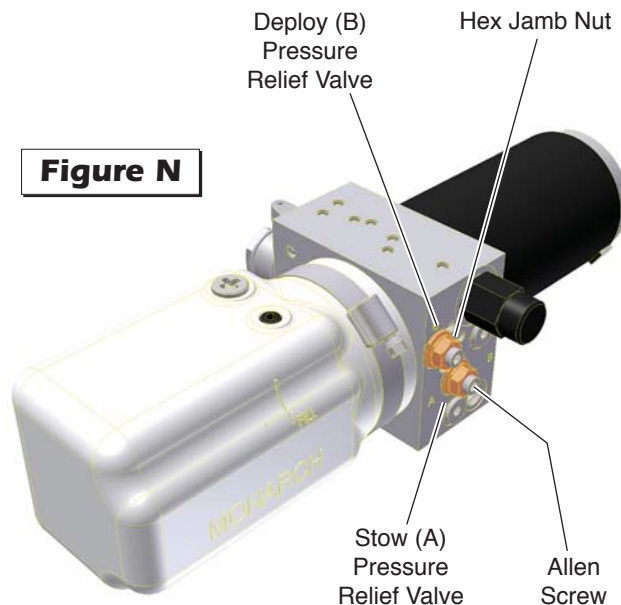
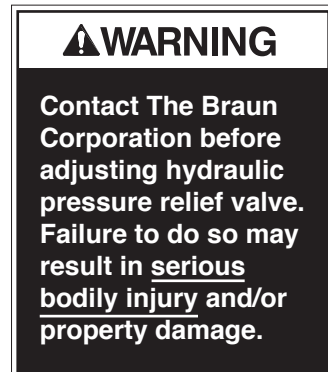
fully deployed. Fill to maximum fluid level indicated on reservoir (fill line molded in reservoir). Do not overfill.

### Deploy and Stow Pressure Relief Valves

Deploy and stow pressure relief valves are factory set and typically should not require adjustment. Adjustment procedure typical for both valves. The ramp pan cover (sub-floor) must be removed to access relief valves.

### Relief Valve Adjustment Procedure

1. Insert a 3/16" Allen wrench into the Allen adjustment screw. Secure the Allen screw and loosen the hex nut (do not remove hex nut).
2. Place 40 pound load on ramp (at center).
3. Turn the Allen screw clockwise until pump starts to lift the load.
4. Turn the Allen screw counterclockwise 1/4 turn.
5. Remove load from platform. Verify pump will lift empty ramp.
6. Secure the Allen head screw and tighten the hex nut securely.



## Troubleshooting Diagnosis Chart

### **⚠ WARNING**

**Troubleshooting and repair procedures must be performed as specified by an authorized service technician only. Failure to do so may result in serious bodily injury and/or property damage.**

If a problem occurs with your ramp, discontinue operation immediately! Contact your sales representative or call The Braun Corporation at 1-800-THE LIFT®. One of our national Product Support representatives will direct you to an authorized service technician who will inspect your ramp.

The cause of the problem can be determined by locating the lift function and related symptom in the Troubleshooting Diagnosis

Chart. The specific cause and remedy can then be determined by process of elimination. Wiring Diagrams, Electrical Schematics, Hydraulic Diagrams and Hydraulic Schematics are provided to aid in troubleshooting.

A Repair Parts section with an exploded view and corresponding parts list is also provided. Correct the problem if possible. If the problem continues, contact The Braun Corporation.

FUNCTION	SYMPTOM	POSSIBLE CAUSE	REMEDY
<b>1.00 NO OPERATION</b>	<b>1.10 No Power To Ramp (Circuit Problem)</b>	1.11 Battery terminals dirty 1.12 Chassis ground connection (frame ground cables) 1.13 Battery damaged 1.14 Battery discharged 1.15 30 ampere in-line fuse faulty 1.16 Power cable 1.17 Vehicle Interlock(s) circuit incomplete 1.18 Vehicle-to-ramp wiring harness	Clean and tighten Clean and tighten. See <b>Chassis Ground Corrosion</b> on page 20. Replace Charge battery Replace fuse Check for loose terminals or broken wire Correct or replace Disconnect harness from ramp. Using volt meter, test (probe) 8-pin Deutsch male plug terminals as follows: Pin A = + 12V Pin B = -Ground Pin C = V (when Stow switch is activated) Pin D = V (when Deploy switch is activated)
	<b>1.20 Power to Ramp But No Pump Operation</b>	1.21 Ramp wiring harness  1.22 Faulty relay(s) 1.22 Loose connection(s) 1.24 Broken wire(s) 1.25 Wire terminal(s)	Remove relays from sockets. Using volt meter, test (probe) wires/terminals at relay sockets: Red = + 12V Black = -Ground Blue = V (when Stow switch is activated) Orange = V (when Deploy switch is activated) Replace Clean and tighten Repair Crimp tightly to wire
<b>2.00 DEPLOY (Out)</b>	<b>2.10 No Operation</b>	2.11 See 1.00 2.12 Drift Out Microswitch out of adjustment or damaged 2.13 Drift Out Microswitch harness disconnected, damaged or otherwise damaged 2.14 Pump motor brushes worn	See Microswitches in Systems Descriptions for details Connect, repair or replace  Contact Braun Product Support - replace pump
<small>continued</small>	<small>continued</small>		

# TROUBLESHOOTING

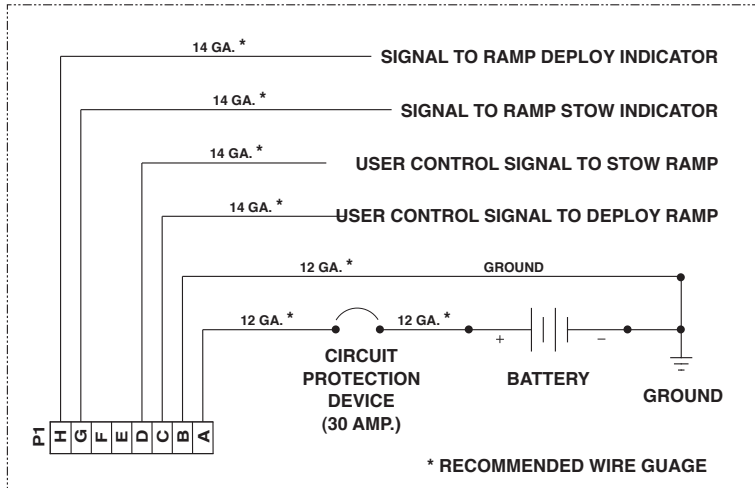
FUNCTION	SYMPTOM	POSSIBLE CAUSE	REMEDY
<b>2.00 DEPLOY (Out)</b>	<small>continued</small> <b>2.20 Locked in Intermediate Position</b> <small>(No Response to Deploy Switch/No Drift Out)</small>	2.21 Ramp was stopped within the Deploy "Drift Out" range during Stow function	Activate Stow function until ramp is out of the Deploy "Drift Out" range. Then activate Deploy function.  <b>OR</b> Pull Manual Release Cable slightly.
	<b>2.30 Pump Runs But Doesn't Deploy</b>	2.31 Physical obstruction (20 lb or more) on ramp 2.32 Mechanical binding 2.33 Deploy pressure relief valve setting too low 2.34 Low hydraulic fluid supply. <b>Note:</b> Fluid should be changed if there is visible contamination. Inspect the hydraulic system for leaks if fluid level is low.  2.35 Leak in hydraulic system 2.36 Cylinder leak 2.37 Deploy pressure relief valve stuck open due to contamination or otherwise damaged 2.38 Pump internal shuttle valve stuck or damaged	Remove obstruction  Check and correct Adjust relief valve setting. See Systems Descriptions for details. Use Braun 32840-QT hydraulic fluid (Exxon® Univas HVI 26). Do not mix with Dextron III or other hydraulic fluids. Check fluid level with ramp fully deployed. Fill to maximum fluid level indicated on reservoir (fill line molded in reservoir). Do not overfill. Repair Replace. Contact Braun Product Support - replace pump  Contact Braun Product Support - replace pump
	<b>2.40 Faulty or Sluggish Operation</b>	2.41 Lack of lubrication (drive arm assembly pivot pins and shaft) 2.42 Misalignment or damage to: • Drive arm and/or pivot pins • Linkage arms and/or pivot pins • Drive arm and cam gear shaft • Cylinder rack gear and/or cam gear 2.43 Mechanical binding 2.44 Restriction in hydraulic lines  2.45 Hydraulic fluid too thick due to cold climate	Lubricate pivot pins. See Maintenance and Lubrication Schedule and Diagram Correct/Replace/Lubricate. See Maintenance and Lubrication Schedule and Diagram  Check and correct Check for contamination or kinks - correct or replace Thin with Diesel fuel - 2 T. Change in spring. See Systems Descriptions for full-time cold climate specifications
	<b>2.50 Drifts Excessively Slow (or No Drift)</b>	2.51 See 2.38 and 2.40 2.52 Pump internal orifice plugged or damaged	Contact Braun Product Support - replace pump
	<b>2.60 Drifts Excessively Fast</b>	2.61 See 2.35 and 2.36 2.62 Pump internal orifice enlarged or damaged	Contact Braun Product Support - replace pump

FUNCTION	SYMPTOM	POSSIBLE CAUSE	REMEDY
<b>3.00 STOW (In)</b>	<b>3.10 No Operation</b>	3.11 See 1.00 3.12 Drift In Microswitch out of adjustment or damaged 3.13 Drift In Microswitch harness disconnected, damaged or otherwise damaged	Adjust or replace. See Microswitches in Systems Descriptions for details Connect, repair or replace
	<b>3.20 Locked in Intermediate Position (No Response to Stow Switch/No Drift In)</b>	3.21 Ramp was stopped within the Stow "Drift In" range during Deploy function	Activate Deploy function until ramp is out of the Stow "Drift In" range. Then activate Stow function.  <b>OR</b> Pull Manual Release Cable slightly.
	<b>3.40 Pump Runs But Doesn't Stow</b>	3.41 See 2.31, 2.32, 2.34, 2.35 and 2.36 3.42 Stow pressure relief valve setting too low 3.43 Stow pressure relief valve stuck open due to contamination or otherwise damaged	Adjust relief valve setting. See Systems Descriptions for details. Contact Braun Product Support - replace pump
	<b>3.50 Faulty or Sluggish Operation</b>	4.51 See 2.40	
	<b>3.60 Drifts Excessively Slow (or No Drift)</b>	4.61 See 2.40 and 2.50	
	<b>3.70 Drifts Excessively Fast</b>	4.71 See 2.35, 2.36 and 2.62	

# TROUBLESHOOTING

## Electrical Schematic

### POWER CONNECTIONS / CONTROL SIGNALS (PROVIDED BY INSTALLER)

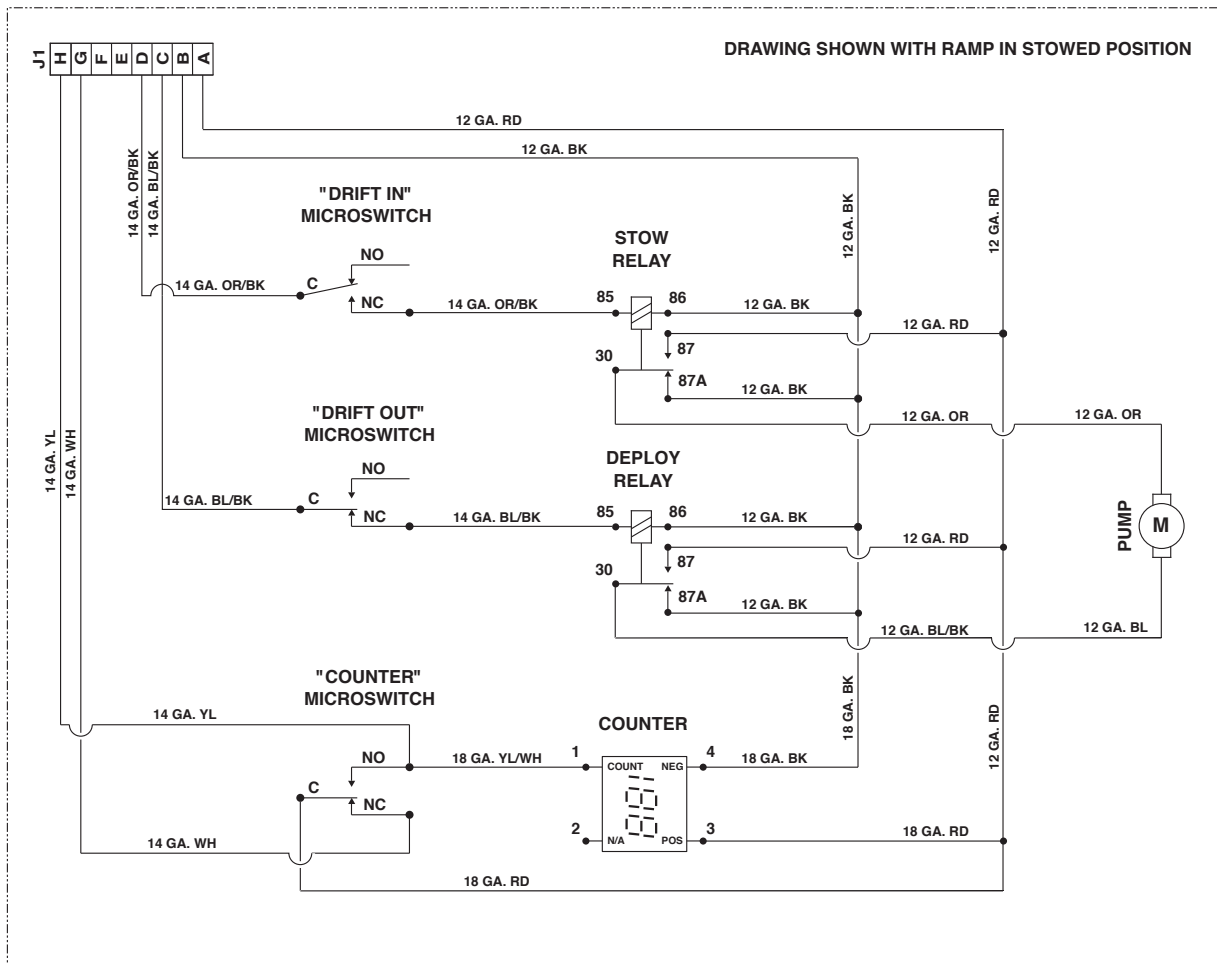


### SYMBOL KEY

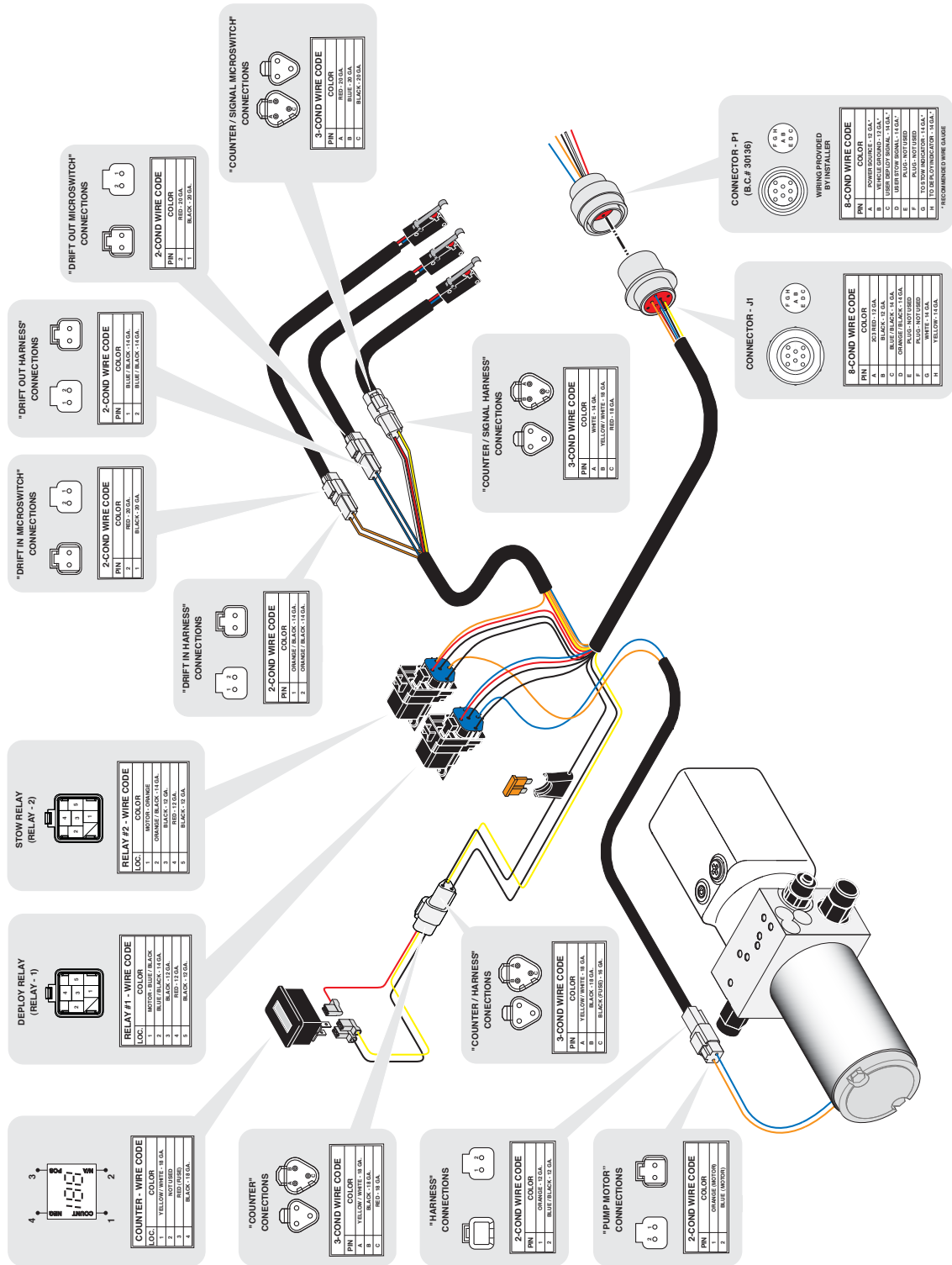
DESCRIPTION	SYMBOL
BATTERY	
CHASSIS GROUND	
CIRCUIT PROTECTION DEVICE	
JUNCTION	
MICROSWITCH	
RELAY	
MOTOR	
COUNTER	

### RA300 TRANSIT RAMP ASSEMBLY

DRAWING SHOWN WITH RAMP IN STOWED POSITION



## Wiring Diagram

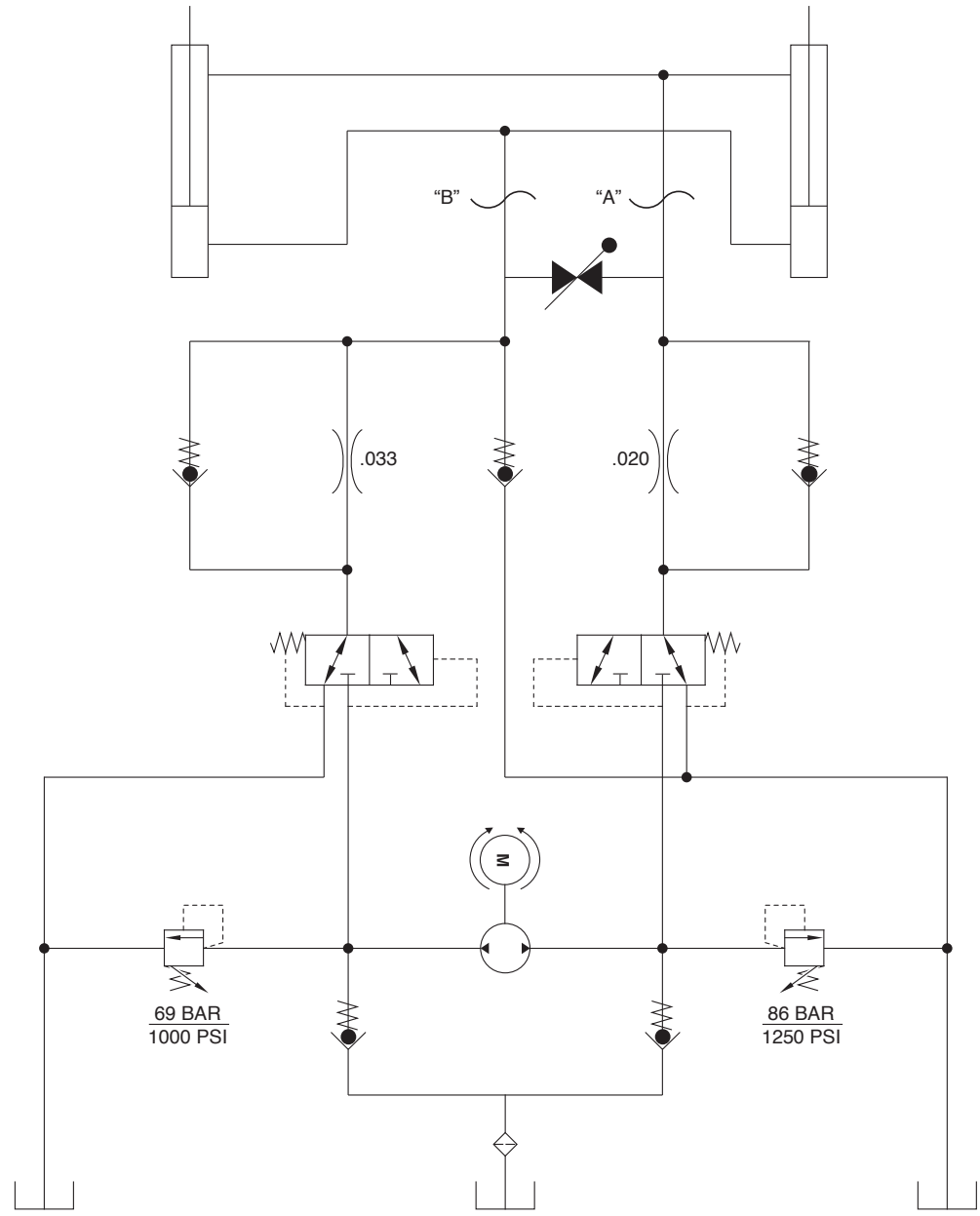


# HYDRAULICS

## Hydraulic Schematic

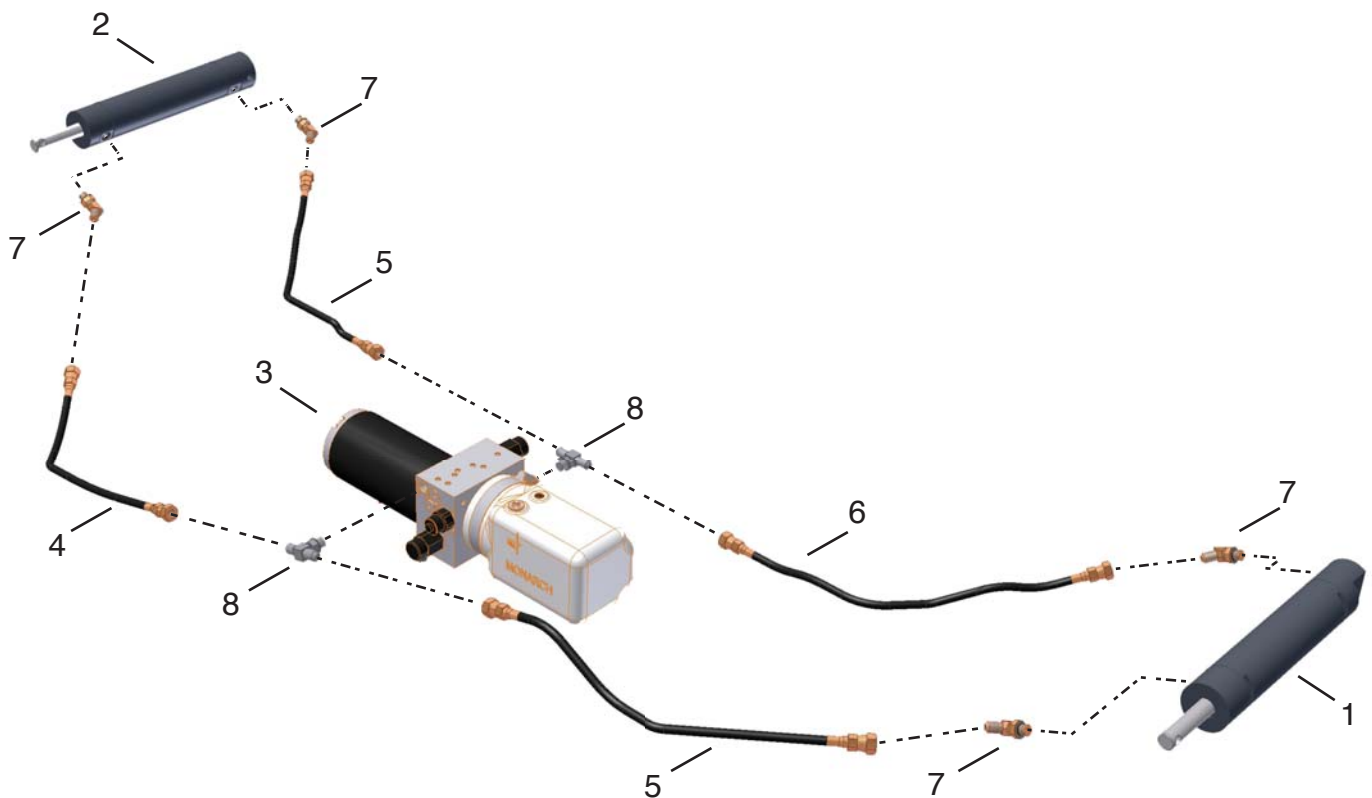
Description	Symbol
Pump, Bidirectional Displacement	
Pump Motor, Bidirectional	
Flow Control Valve	
Fixed Orifice	
3 Way 2 Position Shuttle Valve	

Cylinder, Double Acting	
Relief Valve	
Check Valve	
Hydraulic Port	
Filter Screen	
Reservoir, Vented	



## Hydraulic Diagram and Parts List

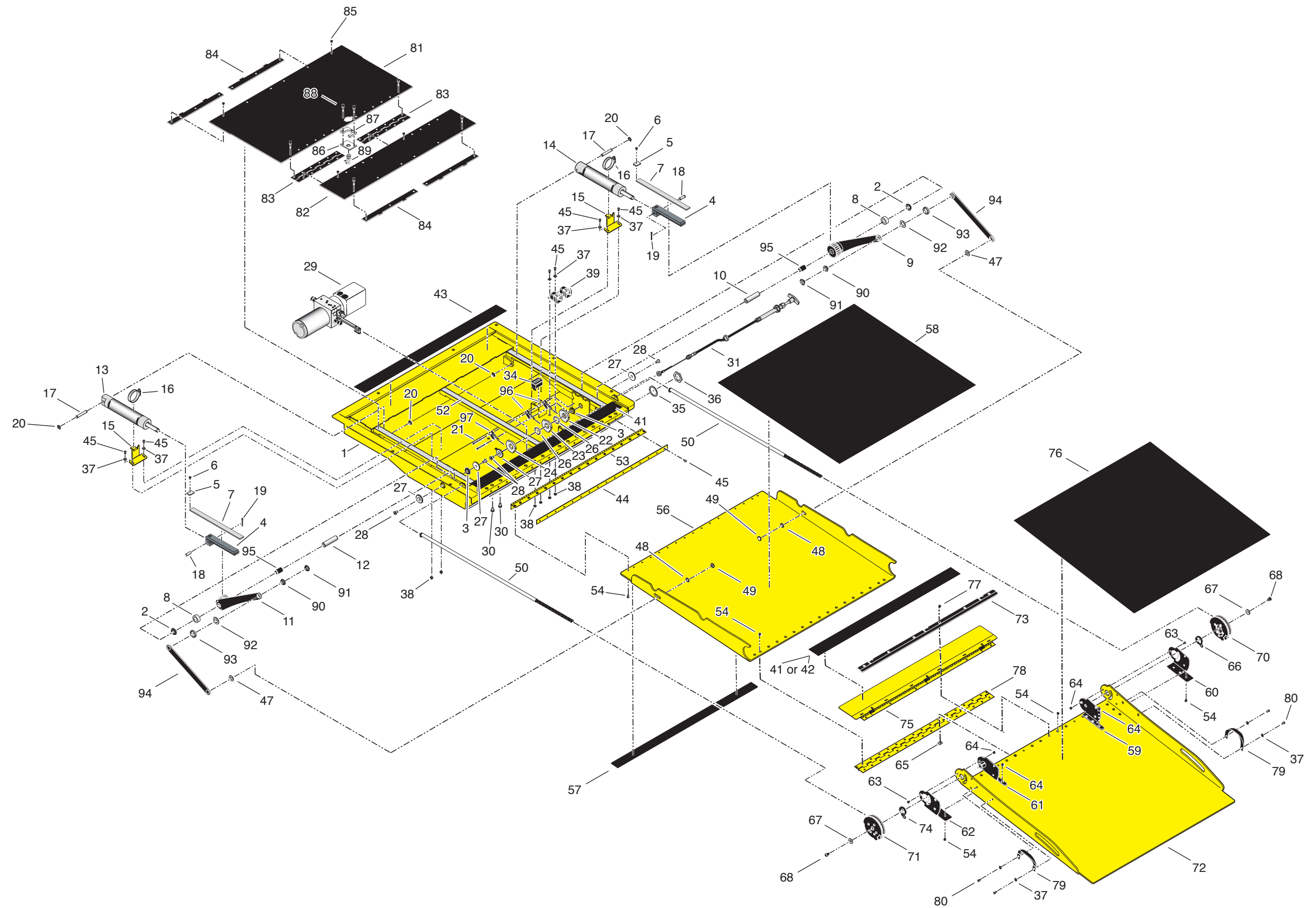
Item	Qty.	Description	Part Number
1	1	Cylinder - 1514.3 - Compact	C1514.3-9801
2	1	Cylinder - 1514.3 - Compact	C1514.3-9901
3	1	Pump - Power Unit - Hydraulic - RA300	35572-12V
4	1	Hose Assembly - 12" - 1/8" Dia - SW/SW	16004A-012
5	2	Hose Assembly - 14" - 1/8" Dia - SW/SW	16004A-014
6	1	Hose Assembly - 15" - 1/8" Dia - SW/SW	16004A-015
7	4	Elbow - 45° - 7/16-20 + 7/16-20 SAE Male O-Ring	24505
8	2	Tee - 7/16 O-Ring BRANCH - 7/16 M. JIC37*	87621



# REPAIR PARTS

Item	Qty.	Description	BF3248Y-2	BF3255Y-2	BF3262Y-2	BF3462Y-2
1	1	Pan Weldment	BF48202WY	BF55202WY	BF62202WY	BF34202WY
2	2	Bearing-Flange-3/4" x 3/8"-12FDU06	24011	24011	24011	24011
3	2	Bearing-Flange-3/4" x 1/4"-12FDU04	24012	24012	24012	24012
4	2	Gear Rack Weldment	FF00048WBKN	FF00048WBKN	FF00048WBKN	FF00048WBKN
5	2	Retainer-Gear Rack Bearing-Rear	BF00034	BF00034	BF00034	BF00034
6	2	Screw-#10-32 x 3/8" FHSCS SS	36293	36293	36293	36293
7	2	Bearing-UHMW-0.875" x 11.75" x 0.125"	36538	36538	36538	34966
8	2	Spacer-1.25" Od-0.766"ld x 0.53"-UHMW	36219	36219	36219	36219
9	1	Assy-Drive Arm-Front Side	BF34261FWBKN	BF34261FWBKN	BF34261FWBKN	BF34261FWBKN
10	1	Shaft-Main Pivot W/Keyway	35389	35389	35389	35389
11	1	Assy-Drive Arm-Rear Side	BF34261RWBKN	BF34261RWBKN	BF34261RWBKN	BF34261RWBKN
12	1	Shaft-Main Pivot W/Keyway	35400	35400	35400	35400
13	1	Cylinder-1514.3-Compact Cyl./BF	C1514.3-9801	C1514.3-9801	C1514.3-9801	C1514.3-9801
14	1	Cylinder-1514.3-Compact Cyl./BF	C1514.3-9901	C1514.3-9901	C1514.3-9901	C1514.3-9901
15	2	Bracket-Cylinder Mount	BF34205Y	BF34205Y	BF34205Y	BF34205Y
16	2	Clamp-Worm Drive 1.31 x 2.25 x .5	26400	26400	26400	26400
17	2	Pin-Cylinder Mount	BF00067	BF00067	BF00067	BF00067
18	2	Pin-Clevis-5/16 x 1.032" Len-Auto Black	28131	28131	28131	28131
19	2	Pin-Cotter 1/8 x 1"	12359	12359	12359	12359
20	4	E Clip-3/8 Shaft	84383	84383	84383	84383
21	2	Screw-#4-40 x 1 1/2" Rd. Hd.	11485	11485	11485	11485
22	1	Cam-Micro-Switch Stow Adjust	FF00003	FF00003	FF00003	FF00003
23	1	Cam-Micro-Switch Deploy Adjust	BF00076	BF00076	BF00076	BF00076
24	1	Cam-Micro Switch Adjust	RA40506	RA40506	RA40506	RA40506
* 25	3	Screw-#10-32 x 5/16" Set/Auto-Bk	11562	11562	11562	11562
26	2	Washer-Thrust-3/4"ld/GUS	EC40131	EC40131	EC40131	EC40131
27	4	Cap-Drive Arm	FF00007	FF00007	FF00007	FF00007
28	4	Screw-5/16-18 x 5/8" FHSCS / Blk Oxide	27233	27233	27233	27233
29	1	Assy-Pump-BF3462Y	BF34400A	BF34400A	BF34400A	BF34400A
30	2	Bolt-5/16-18 x 1/2" 316 SS Hex	BF00251	BF00251	BF00251	BF00251
31	1	Assy-Manual Release Cable	BF34401A	BF34401A	BF34401A	BF34401A
* 32	5	Mounting Clip-Deutsch DT Series 1011-0	36279	36279	36279	36279
* 33	5	Riv-Pop-SD64BS-3/16"-.13/.25/Auto-Bk	11513	11513	11513	11513
34	1	Cycle Counter-Lcd Without Reset	30547	30547	30547	30547
35	1	Washer-Lock- DT 114021	30031	30031	30031	30031
36	1	Nut-Panel- DT 114020-90	30030	30030	30030	30030
37	10	Washer-#10 Flat/Auto-Bk	11541	11541	11541	11541
38	6	Nut-#10-32 w/Lockwasher/Auto-Bk	18349	18349	18349	18349
39	2	Relay-Spdt 35A w/ Brkt-Weatherproof	36275	36275	36275	36275
* 40	2	CPA-Delphi#12052834	31835	31835	31835	31835
41	1	Antiskid Tape - 33.5" x 2.25"	35842	35842	35842	35842 (Qty = 2)
42	1	Antiskid Tape - 31" x 2.25"	30082	30082	30082	-
43	1	Antiskid Tape - 33.5" x 5"	-	35843	35843	35843
44	1	Plate-Hinge Support	BF00013Y	BF00013Y	BF00013Y	BF00013Y
45	22	Screw-#10-32 x 1/2 BHSCS/Auto Black	30375	30375	30375	30375
* 46	2	Spring-Disc-Stainless-Od .980/ld .525	35314	35314	35314	35314
47	2	Washer-Nylon-1/2"ld x 1"Od x 0.040	11913	11913	11913	11913
48	2	Washer-Nylon-.52"ld x .75"Od x .04"	35463	35463	35463	35463
49	2	Bolt-Ramp Fold Link-5/16-18	FF00208	FF00208	FF00208	FF00208
50	2	Assy-Chain-#35 w/Shrink Tube	BF48088A	BF55088A	BF00088A	BF00088A
* 51	4	Link-Chain #35	12454	12454	12454	12454
52	3	Tape-1" Wide S-Face Foam x 23"	82015R023	82015R023	82015R023	82015R023
53	1	Hinge-Full Swage-2" x 31"/Pem Nuts	35509PSY	35509PSY	35509PSY	35509PSY
54	56	Screw-#10-32 x 7/16"-Fhs Auto Black	35385	35385	35385	35385
* 55	1	Serial Tag Decal Assembly	34048A	34048A	34048A	34048A
56	1	Ramp Platform/Stage 1	BF48285Y	BF55285Y	BF62285Y	BF34285Y
57	1	Tape-Cap-1 1/2" x 31.5"	10416R031.5	10416R031.5	10416R031.5	10416R031.5
58	1	Antiskid Tape - Stage 1	35107	35107	34586	35840
59	1	Chain Mechanism Weldment-Front Side	BF34221FWBKN	BF34221FWBKN	BF34221FWBKN	BF34221FWBKN
60	1	Plate-Front Side-Chain Mechanism Support	BF34220FBKN	BF34220FBKN	BF34220FBKN	BF34220FBKN
61	1	Chain Mechanism Weldment-Rear Side	BF34221RWBKN	BF34221RWBKN	BF34221RWBKN	BF34221RWBKN
62	1	Plate-Rear Side-Chain Mechanism Support	BF34220RBKN	BF34220RBKN	BF34220RBKN	BF34220RBKN
63	6	Screw-#10-32 x 3/8" FJ Hd-Hx Skt /Auto-Bk	24537	24537	24537	24537
64	12	Nut-#10-32 x 0.20-Cable Retainer	BF00242	BF00242	BF00242	BF00242
65	6	Nut-Weld 10-32 x 9/32" Plain Slab Base	30209	30209	30209	30209
66	1	Spring-Torsion Left-Bifold Ramp	35852	35852	35852	35852
67	2	Washer-5/16 Flat	10063	10063	10063	10063
68	2	Screw-5/16-18 x 1/2" Bhsc-Blk/Auto-Bk	26281	26281	26281	26281
* 69	2	Decal-Danger Keep Clear	81819	81819	81819	81819
70	1	Assy-Chain Mechanism-Front Side	BF00098FA	BF00098FA	BF00098FA	BF00098FA
71	1	Assy-Chain Mechanism-Rear Side	BF00098RA	BF00098RA	BF00098RA	BF00098RA
72	1	Ramp Platform/Stage 2	BF48286Y	BF55286Y	BF62286Y	BF34286Y
73	1	Cover-Transition Plate	BF32288DS	BF32288DS	BF32288DS	BF34288DS
74	1	Spring - Torsion Right - Bifold Ramp	35853	35853	35853	35853
75	1	Transition Plate W/Antiskid Tape	BF32287A	BF32287A	BF32287A	BF34287A
76	1	Antiskid Tape - Stage 2	30083	35107	34586	35840
77	6	Screw-#10-32 x 7/16" Fhscs Ss/	36294	36294	36294	36294
78	1	Hinge-2" x 29"-Ss With Pem Nuts/2 Rows	36353PSY	36353PSY	36353PSY	29960PS-2Y
79	2	Nylon-Strap-Manual Assist	BF00045	BF00045	BF00045	BF00045
80	4	Riv-Pop-Sd66bs-3/16"-.25/.38/Auto-Bk	14993	14993	14993	14993
81	1	Plate-Pan Cover	BF32110DS	BF32110DS	BF32110DS	BF34110DS
82	1	Plate-Pan Cover	BF32113DS	BF32113DS	BF32113DS	BF34113DS
83	2	Hinge - 2" x 11" - Ss	36363	36363	36363	36363
84	4	Pan Cover-Mounting/Support Tabs	BF32112DS	BF32112DS	BF32112DS	BF32112DS
85	34	Riv-Pop-Sd64bs-3/16"-.13/.25	23827	23827	23827	23827
86	1	Pan Cover-Latch Mount Spacer	BF00112	BF00112	BF00112	BF00112
87	1	Pan Cover-Latch Mount	BF00113	BF00113	BF00113	BF00113
88	2	Riv-Pop-Ssd 68 Sbs-3/16"-.376/.500	23826	23826	23826	23826
89	1	Latch - Vise Action/ Slot Operated	36248	36248	36248	36248
90	2	Bearing-Flanged-5/8" Shaft	29754	29754	29754	29754
91	2	Nut-Pivot-7/16-20. Fold-N-Ramp	29756	29756	29756	29756
92	2	Bearing-Thrust-3/4" Shaft-1 1/4"Odx1/16	35326	35326	35326	35326
93	2	Drive Arm-Roller-Uhmw	FF00015	FF00015	FF00015	FF00015
94	2	Drive Arm Link Weldment	BF34201WBKN	BF34201WBKN	BF34201WBKN	BF34201WBKN
95	2	Bearing Sleeve-3/4"ld-7/8"Od-1 1/4 L	31661	31661	31661	31661
96	2	Horn-Stow/Deploy Microswitch	BF34002A	BF34002A	BF34002A	BF34002A
97	1	Horn-Counter/Signal Microswitch	BF34003A	BF34003A	BF34003A	BF34003A
* 98	1	Horn-Counter Adapter	BF34004A	BF34004A	BF34004A	BF34004A
* 99	1	Horn-Main Assy	BF34001A	BF34001A	BF34001A	BF34001A
* 100	1	Parts Package-RA300	BF34264A	BF34264A	BF34264A	BF34264A

\* Item not shown



Unfold for:  
RA300 Ramp  
Exploded View

## SPECIFICATIONS and DIMENSIONS

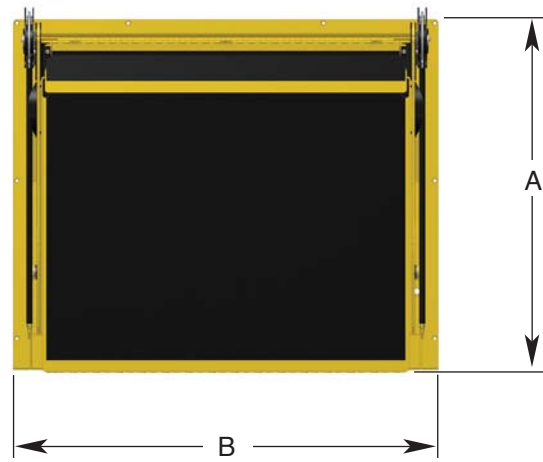
### Specifications

**Power Unit:** Hydraulic Pump Module  
**Voltage:** 12 VDC  
**Current:** 30 Amps (Max)  
**Inputs Required:** +12 Volt Supply  
 (-) Ground  
 Ramp "Out" Signal (+)  
 Ramp "In" Signal (+)  
 Interlock Signal

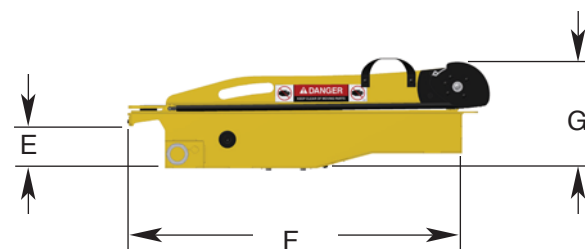
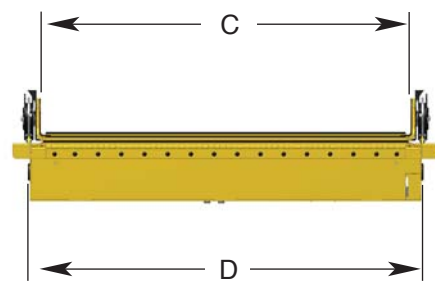
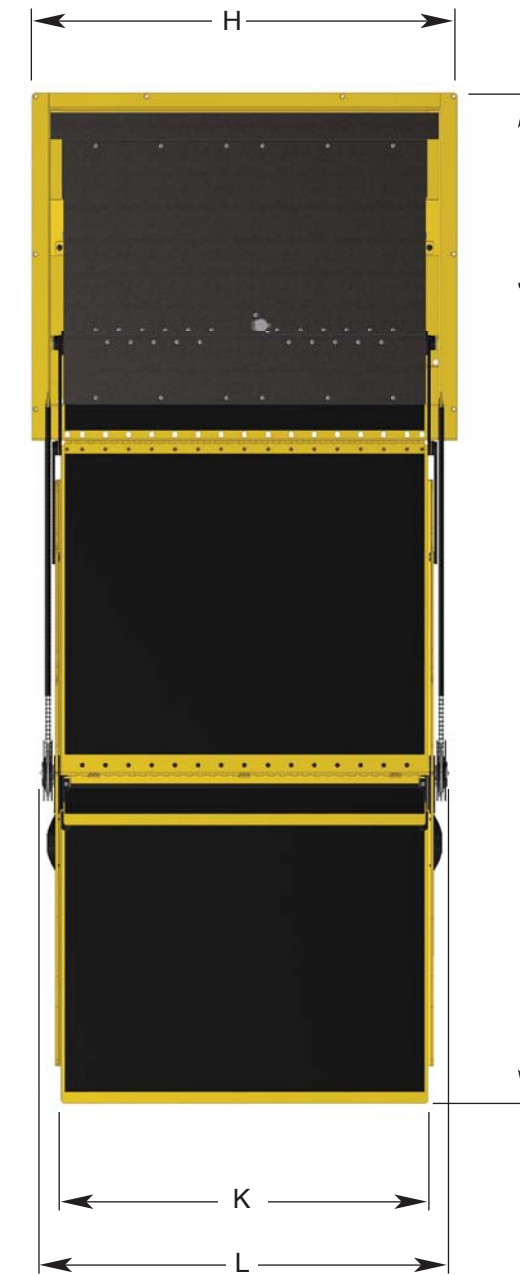
**Notes:** Mounting holes/brackets per application

### Deployed View Dimensions

### Stowed View Dimensions



RA300 DIMENSIONS	BF3248Y-2	BF3255Y-2	BF3262Y-2	BF3462Y-2
A	27.900"	30.370"	33.020"	33.020"
B	36.700"	36.700"	36.700"	38.700"
C	32.125"	32.125"	32.125"	34.125"
D	33.800"	33.800"	33.800"	35.800"
E	3.660"	3.660"	3.660"	3.660"
F	26.600"	29.070"	31.720"	31.720"
G	9.140"	9.140"	9.140"	9.140"
H	36.700"	36.700"	36.700"	38.700"
J	80.060"	87.480"	94.920"	94.920"
K	32.125"	32.125"	32.125"	34.125"
L	35.310"	35.310"	35.310"	37.310"
M	24.730"	25.820"	28.470"	28.470"
N	3.620"	3.620"	3.620"	3.620"
P	4.910"	4.910"	4.910"	4.910"



**"Providing Access to the World"**



**Over 300 Braun  
Dealers Worldwide**

 **THE BRAUN  
CORPORATION**  
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International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA  
1-800-THE LIFT® (574) 946-6153 FAX: (574) 946-4670

# Braun Commercial RA300 Transit Ramp

## Braun "Worry-Free" Limited Warranty

The Braun Corporation ("Braun") warrants its ramp against defects in material and workmanship for three years, provided the ramp is installed, operated and maintained in conformity with this manual. Warranted replacement parts are covered until the expiration of the Braun warranty or 90 days, whichever is longer. The Braun warranty covers the cost of labor for any repair or replacement covered under the warranty during the first year of the warranty period, if an approved Braun dealer completes the warranty work.

The warranty registration card accompanying this ramp is to be completed and returned to The Braun Corporation within 20 days of purchase. If Braun receives the warranty card, the warranty period begins on the day the ramp is put into service. If Braun does not receive the warranty card, the parts warranty will expire in three years, and the labor warranty will expire in one year from the manufacture date of the ramp.

The Braun warranty does not cover any defects in the motor vehicle on which the ramp is installed, or defects in the ramp caused by any defect in the motor vehicle. The warranty does not cover work deemed by Braun to be normal maintenance, service, or periodic adjustments necessitated by use or wear. The Braun warranty is null and void if any repair or maintenance work is completed during the warranty period using parts not authorized by Braun or if, as determined solely by Braun, the ramp is damaged through accident, misuse or abuse, or altered in any way.

THIS WARRANTY IS IN LIEU OF ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, PERFORMANCE, OR OTHERWISE, WHICH ARE HEREBY EXCLUDED. IN NO EVENT SHALL BRAUN BE LIABLE FOR ANY DAMAGES, WHETHER DIRECT, IMMEDIATE, INCIDENTAL, FORESEEABLE, CONSEQUENTIAL, OR SPECIAL, ARISING OUT OF OR IN CONNECTION WITH ITS PRODUCT.

To contact Braun or to obtain a list of Braun authorized dealers, call 1-800-THE-LIFT or visit our web site at [www.braunlift.com](http://www.braunlift.com).

The Braun Corporation  
Winamac, Indiana

## Return Authorization Procedure

When processing any warranty claims (parts, repairs, etc.), all requests must be processed through The Braun Corporation Product Support Department. Call 1-800-THE LIFT during normal working hours. Product Support will issue a Return Material Authorization (RMA) number and detail the procedures required for processing returns and/or authorizing credit.

The ramp identification information is provided on the Braun Serial No./Series No. identification tag and the two warranty cards (supplied with ramp). The lift identification information must be provided when filing a warranty claim or ordering parts.



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