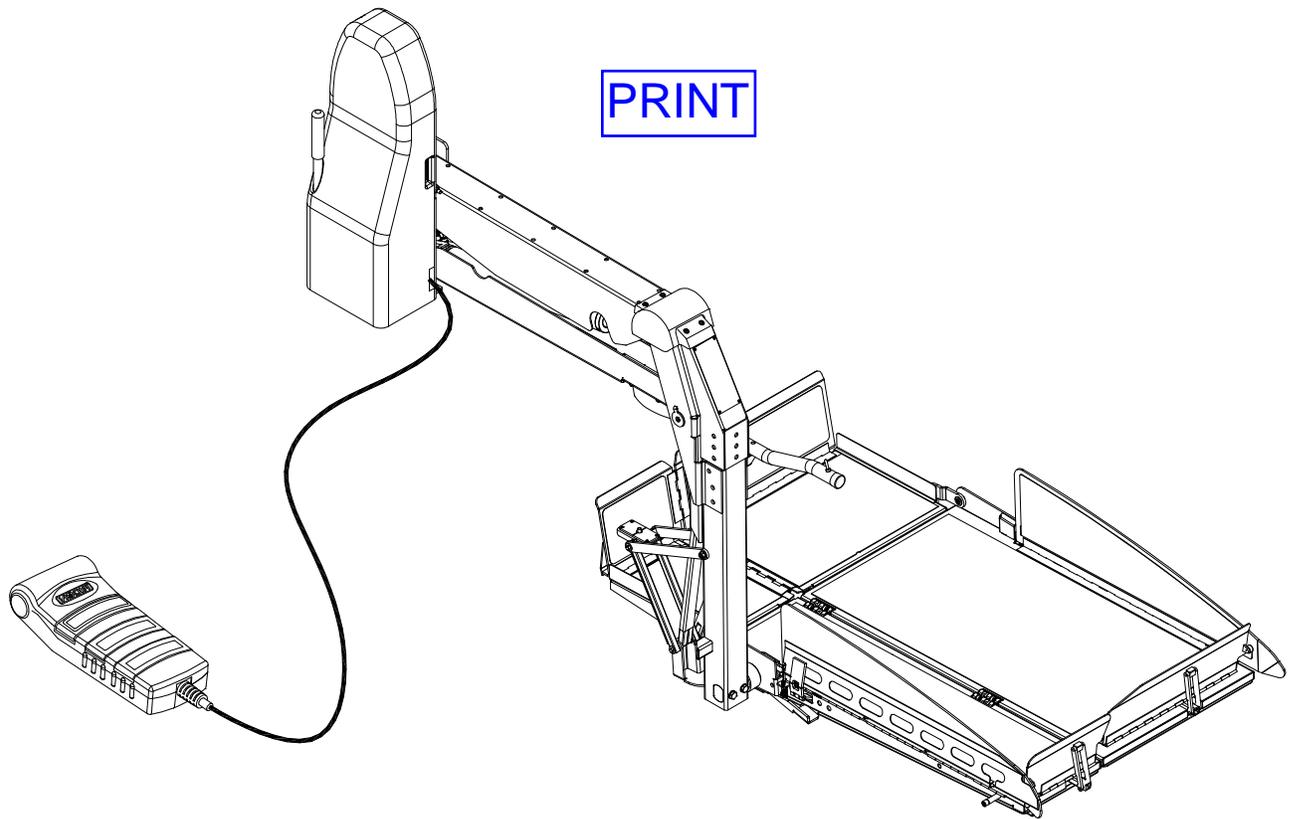


RICON[®]

INNOVATION IN MOBILITY

Innovator™ Personal Use Wheelchair Lift



Service Manual

This Ricon service manual is for use by qualified service technicians, and is not intended for use by non-professionals (do-it-yourselfers). The manual provides essential instructions and reference information, which supports qualified technicians in the correct installation and maintenance of Ricon products.

Qualified service technicians have the training and knowledge to perform maintenance work properly and safely. For the location of a Ricon authorized service technician in your area, call Ricon Product Support at 1-800-322-2884.

Customer Name:	_____
Installing Dealer:	_____
Date Installed:	_____
Serial Number:	_____

REVISION RECORD

REV	DATE	PAGES	DESCRIPTION OF CHANGE	ECO
32DFL02. E	10/13/03	3-1	Edited Table 3-1. "Maintenance Checklist".	5191 5123 5067
		3-3	Edited Table 3-2, "Troubleshooting Guide".	
		3-7	Edited section C.2 "Electrical System Diagnostic Display".	
		3-10	Added Table 3-4 "Numerical Display Descriptions".	
		3-11	Edited Table 3-5 "Display Number Descriptions for Deploy Motion".	
		3-12	Edited Table 3-6 "Display Number Descriptions for Down Motion".	
		3-13	Edited Table 3-7 "Display Number Descriptions for Up Motion".	
		3-14	Edited Table 3-8 "Display Number Descriptions for Stow Motion".	
		4-5	Changed p/n for the following items: 2- from 21205 to 29080; 10- from 19066 to 29297; 14- V2-ES-93 to offering it in kit V2-ES-61. Added item 20- V2-ES-82.	
		4-8/4-9	Changed p/n for item 13- from 29241 to 25550. Callouts for Items 12-15 were missing from the drawing. Removed item 16-29051 from list.	
		4-15	Switched item 1 with item 2. Switched item 4 with item 13.	
		4-16	Changed items 8 and 15.	
		4-17	Switched item 10 with item 11.	
		4-19	Changed item 8- from 24581 to 29745.	
		4-21	Changed item 5- from 29216 to 29747.	
4-28 & 4-29	Added figure and parts list for pump assembly.			
		4-2	Changed part number for item 2, from 21205 to PM212000008.	5191 5198
END OF TABLE				

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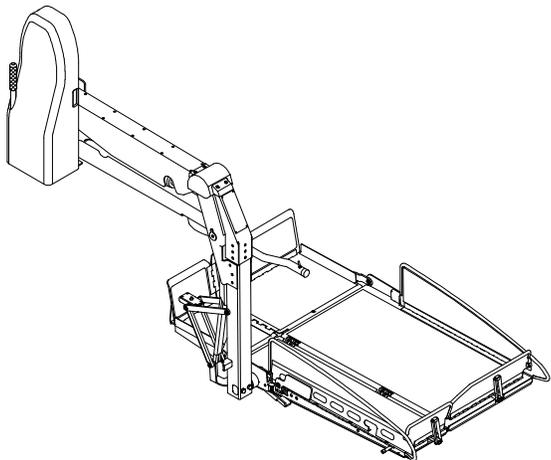
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I. INNOVATOR INTRODUCTION

This manual provides basic descriptions and maintenance instructions for the Ricon Innovator Wheelchair Lift. The platform on the Innovator is raised and lowered by a single arm. The single-arm design keeps the vehicle doorway clear, which maximizes available space inside the vehicle and allows the front passenger seat to fully recline. The front rollstop and side barriers on the platform automatically lower when the platform contacts the ground. The lowered side barriers allow entry onto the platform from a wide angle. The Innovator lift is operated by either a trained attendant or the wheelchair occupant.



Force to raise the platform is provided by a self-contained electro-hydraulic pump, which has a minimum lifting capacity of 660 pounds (300 kilograms). The pump assembly houses a built-in manual backup pump that is used to raise the platform if the lift loses power.

The platform is unfolded from the vehicle (deployed) by pressing a switch on the control pendant. A second switch is then pressed to lower the platform to the ground. An auxiliary switch located on the platform handrail can be used to raise or lower the platform independently of the control pendant.

When the wheelchair lift is no longer needed, the platform is raised and folded into the vehicle (stowed). If necessary, the platform can be stowed in a partially folded position, allowing a wide object to be placed inside the vehicle.

The operating instructions must be read thoroughly to promote passenger and operator safety (operating instructions are in the Ricon operator manual 32DFL01). It is important to follow the Ricon recommendations for cleaning, inspecting, and lubricating the wheelchair lift.

A. RICON SERVICE SUPPORT

If there are questions about this manual, or you need copies, please contact Ricon Product Support:

Ricon Corporation

7900 Nelson Road

Panorama City, CA 91402

Telephone:..... (818) 267-3000

Outside (818) Area Code (800) 322-2884

World Wide Websitewww.riconcorp.com

B. RICON ONE-YEAR LIMITED WARRANTY (refer to following page)

RICON CORPORATION

ONE-YEAR LIMITED WARRANTY

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

- Repair or replace parts for a period of one year from date of purchase.
- Labor costs for specified parts replaced under this warranty for a period of one year from date of purchase. A Ricon rate schedule determines the parts covered and labor allowed.

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

This Warranty Does Not Cover:

- Malfunction or damage to product parts caused by accident, misuse, lack of proper maintenance, neglect, improper adjustment, modification, alteration, the mechanical condition of vehicle, road hazards, overloading, failure to follow operating instructions, or acts of Nature (i.e., weather, lightning, flood).

NOTE: Ricon recommends that this product be inspected by an authorized Ricon service technician at least once every six months or sooner if necessary. Any required maintenance should be performed at that time.



WARNING!

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

This Warranty is Void if:

- Product has been installed or maintained by someone other than an authorized Ricon service technician.
- Product has been modified or altered in any respect from its original design without written authorization by Ricon.

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

Ricon's obligation under this warranty is exclusively limited to the repair or exchange of parts that fail within the applicable warranty period.

Ricon assumes no responsibility for expenses or damages, including incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

Important: The warranty registration card must be completed and returned to Ricon within 20 days after installation of this Ricon product for the warranty to be valid. The warranty is not transferable.

The warranty gives specific legal rights, and there may be other rights that vary from state to state.

C. SHIPMENT INFORMATION

Ricon does not sell directly to the user because of the specialized nature of this product. Instead, the product is distributed through a worldwide network of authorized Ricon dealers who perform the actual sale and installation.

- When the product is received, unpack the product and check for freight damage. Claims for any damage should be made to the carrier immediately.
- Be sure the installation kit contains all items listed on the included packing list. Please report any missing items immediately to Ricon Product Support. Save packing list for future reference. The warranty and owner registration cards must be completed and returned to Ricon within 20 days to validate the warranty.

D. GENERAL SAFETY PRECAUTIONS

The following general safety precautions must be followed during installation, operation, service, and maintenance:

- Under no circumstances should installation, maintenance, repair, or adjustments be attempted without the immediate presence of a person capable of rendering aid.
- An injury, regardless of how slight, must be attended to. Administer necessary first aid or seek medical attention immediately.
- Protective eye shields and appropriate clothing must be worn at all times.
- To avoid injury, always exercise caution when operating and be certain that hands, feet, legs, and clothing are not in the path of platform movement.
- Batteries contain acid that can burn. If acid comes in contact with skin, flush affected area with water and wash with soap immediately.
- Always work in a properly ventilated area. Do not smoke or use an open flame near battery.
- Do not place anything metallic on top of battery.
- Check under vehicle before drilling to avoid drilling into frame, subframe members, wiring, hydraulic lines, fuel lines, fuel tank, etc.
- Read and thoroughly understand the operating instructions before attempting to operate.
- Inspect the product before each use. If an unsafe condition, unusual noises or movements exists, do not use the product until the problem is corrected.
- Keep others clear during operation.
- The product requires regular periodic maintenance. Ricon recommends a thorough inspection at least once every six months. The product must always be maintained at the highest level of performance.

E. INNOVATOR COMPONENT TERMS

The references used throughout this manual are illustrated in **Figure 1-1** and defined in **Table 1-1**. **Figure 1-2** shows electrical and hydraulic control details on the lift tower. **Figure 1-3** shows the lift with its platform in the folded position (with the platform not wrapped). **Figure 1-4** shows the lift fully stowed (with platform folded and wrapped). Refer to Chapter IV, SPARE PARTS, for more details. Refer to **Figure 1-5** for locations of the limit switches that provide input signals to the two controllers.

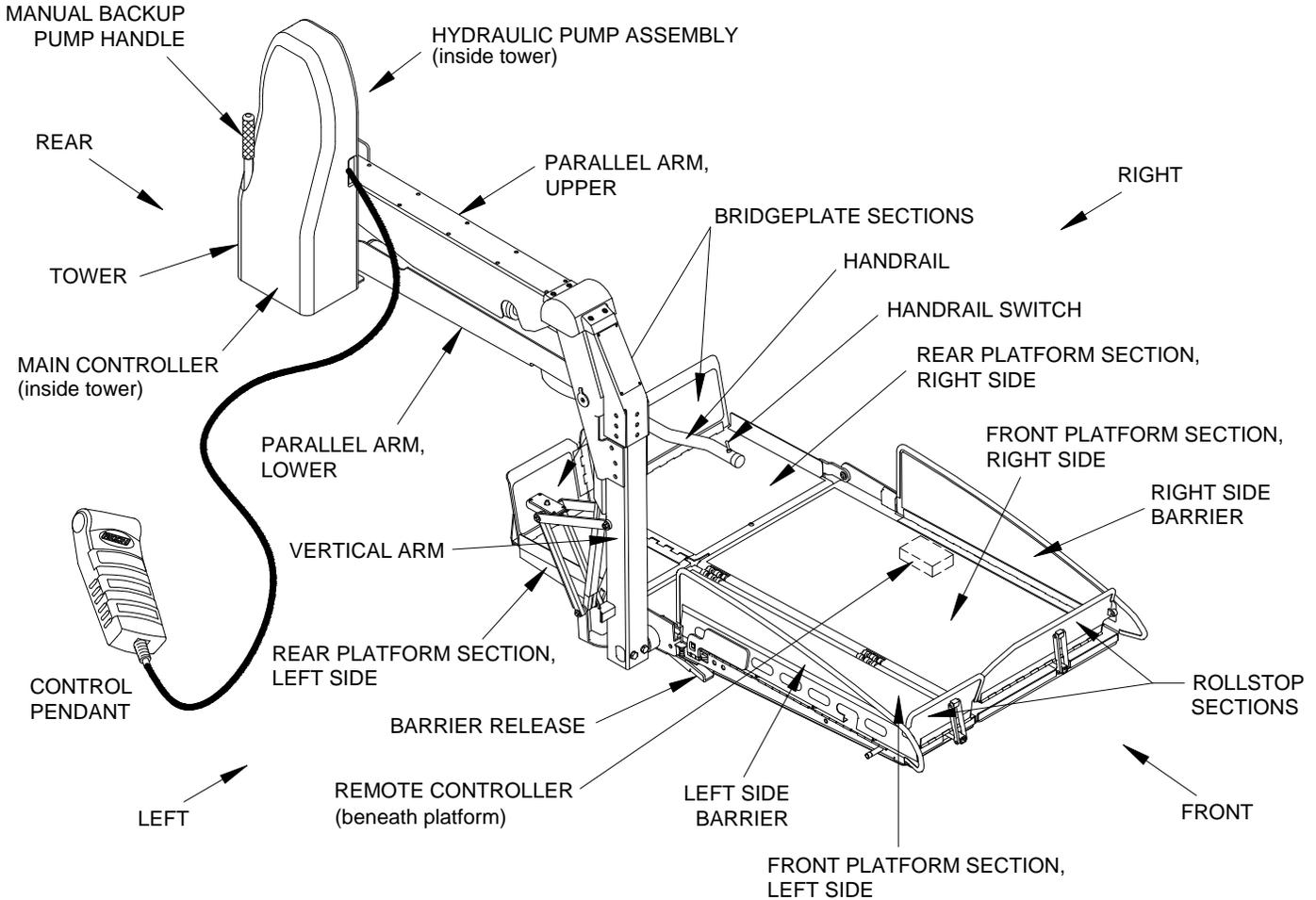


FIGURE 1-1: INNOVATOR LIFT COMPONENTS

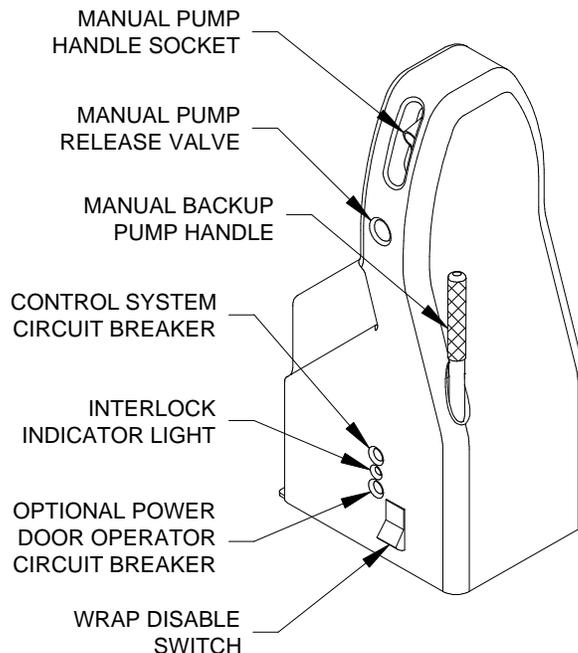


FIGURE 1-2: INNOVATOR TOWER DETAILS

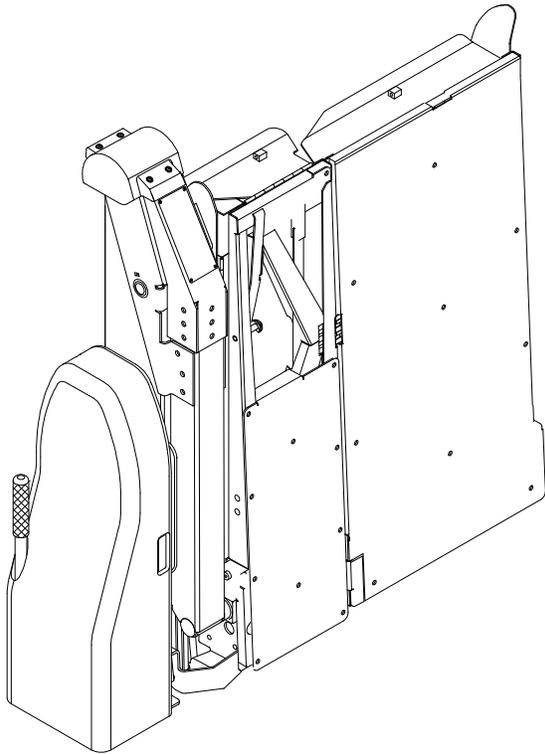


FIGURE 1-3: INNOVATOR FOLDED BUT NOT WRAPPED

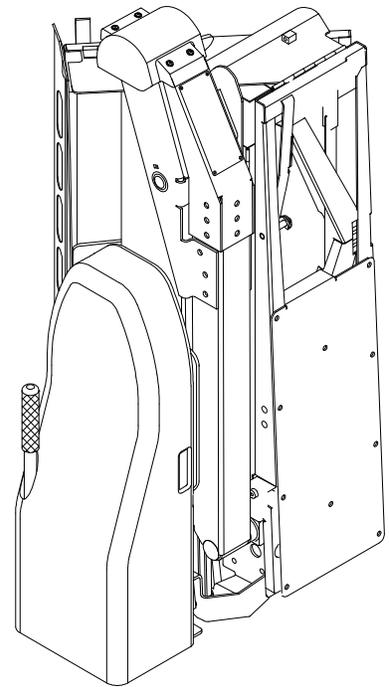


FIGURE 1-4: INNOVATOR FOLDED AND WRAPPED

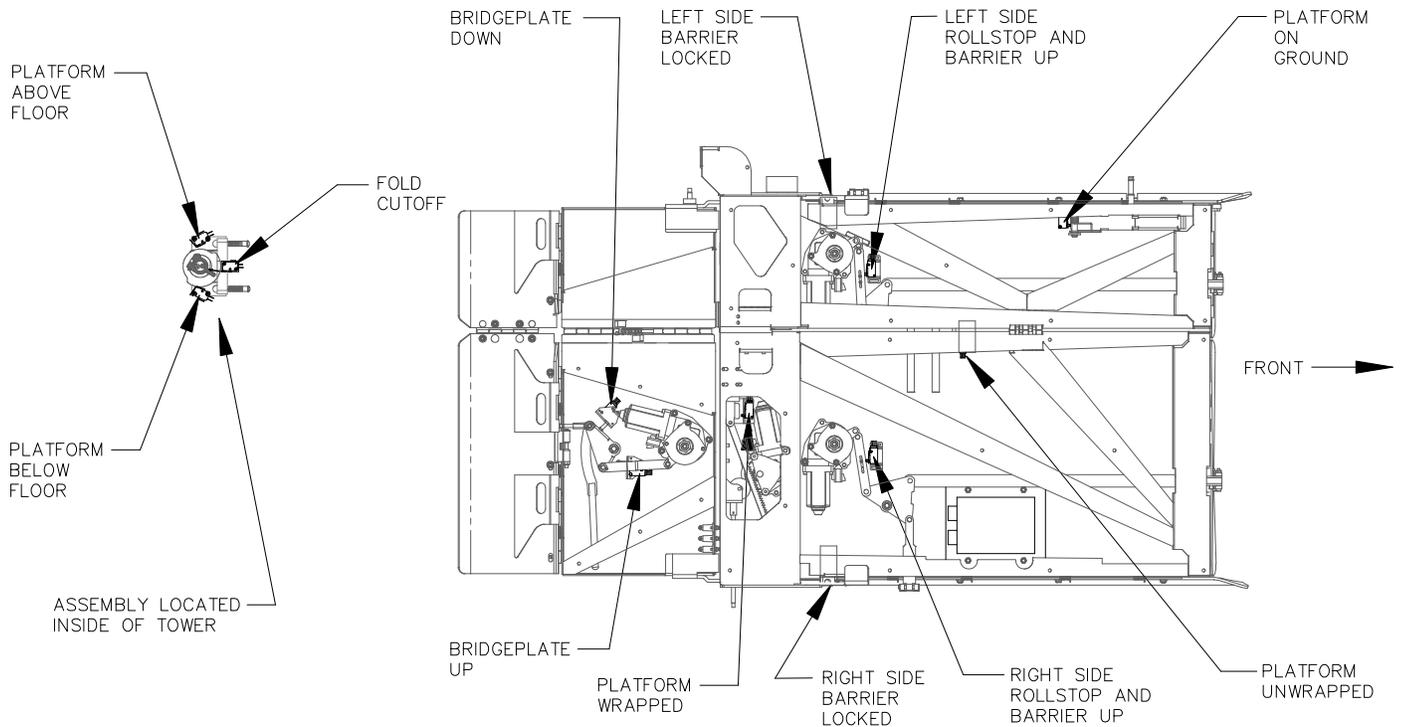


FIGURE 1-5: LIMIT SWITCH LOCATIONS

TABLE 1-1: INNOVATOR LIFT MAJOR COMPONENTS

NAME	DESCRIPTION
Left, Right, Front, and Rear	Lift reference when viewing installation from outside of vehicle.
Control pendant	Hand-held control box used to operate lift.
Tower	Houses hydraulic pump assembly, circuit breakers, and manual back-up pump.
Hydraulic pump assembly	Electric motor driven hydraulic pump that produces pressure used to raise platform; includes a manual backup pump.
Manual backup pump handle	Used to operate the manual back-up pump (located on hydraulic pump assembly).
Parallel arms	Upper and lower links connecting vertical arm to tower.
Vertical arm	Connects platform to parallel arms.
Handrail	Provides handhold for user. Handrail may vary from that shown.
Handrail switch	Toggle switch allows platform occupant to raise and lower platform. Switch does not stow or deploy platform.
Bridgeplate	Plate that bridges gap between platform and lift baseplate when platform is at floor level. Also acts as a rear rollstop when platform is in motion.
Platform sections	Curbed area for passenger; transports passenger between ground and vehicle floor; breaks into four sections.
Side barriers	Side barriers help confine passenger to platform. They unfold automatically when platform contacts ground, allowing access to platform from sides.
Barrier release	Mechanical latch that holds side barriers in vertical position. One per barrier.
Front rollstop	Front barrier prevents wheelchair from slow, inadvertent rolling off of platform. Unfolds automatically when platform contacts ground. Two sections.
Manual pump handle socket	Accepts manual backup pump handle used to operate manual backup pump.
Manual pressure release valve	Relieves hydraulic pressure in hydraulic system.
Control system circuit breaker	Provides electrical power to lift.
Power door operator circuit breaker	Provides electrical power to optional power door operator (if door operator is installed).
Wrap disable switch	Rocker switch at base of tower selects one of two available platform stow positions. When switch is ON, platform folds into vertical (upright) position and stops (Figure 1-3). When switch is OFF, platform stows fully into vehicle (Figure 1-4).
Controllers	Two electronic controllers process input signals from the pendant and limit switches and send command signals to the hydraulic pump, motors, valves, etc. The main controller is located in the base of the tower and the remote controller is on the bottom right side of the front platform section.

END OF TABLE

II. INNOVATOR INSTALLATION

This chapter contains instructions for installing the RICON Innovator Series Personal Use Wheelchair Lift. The installation kit for the Innovator Series Lift (provided with lift) contains detailed installation instructions. Contact Ricon Product Support for applications not covered by the included installation instructions or the instructions that follow. Be certain that installation instructions are followed exactly and do not eliminate any steps or modify product.

WARNING!

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

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

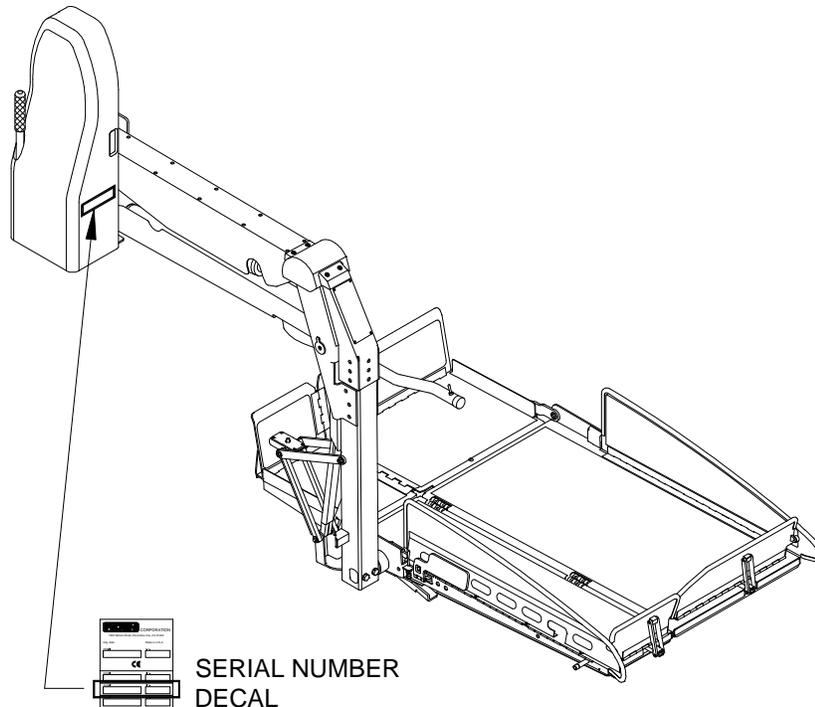


FIGURE 2-1: SERIAL NUMBER LOCATION

Lift installation consists of the following four steps, each of which is briefly explained in this chapter. Refer to the kit installation instructions for more detailed installation information.

- A. Mechanical installation
- B. Electrical installation
- C. Final adjustments
- D. Installation verification

A. MECHANICAL INSTALLATION

1. VEHICLE PREPARATION



WARNING!

- WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP.
- DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. WORK IN A PROPERLY VENTILATED AREA.
- DO NOT PLACE ANYTHING METALLIC ON TOP OF BATTERY.

- The lift is designed to carry the weight of one wheelchair and its passenger. The vehicle structure must be capable of supporting all loads produced during lift operation, as well as those forces caused by motion of the vehicle when it is driven.
- Safely park vehicle on a flat, level surface and turn engine off.
- Disconnect the cable from the negative battery terminal at vehicle engine compartment.
- The lift installation surface must be flat, with a total variation of less than ¼”.
- Perform the procedures in the order that they are presented here.
- Remove vehicle stepwell cover.
- Install power door operators, if used, before installing lift; door operators may influence lift location. Refer to power door operator installation instructions for more information.

2. LIFT INSTALLATION NOTES

The correct lift mounting is very important. Improper mounting and/or fastening of lift can adversely affect lift performance. Although installation details vary amongst vehicle makes, the following principle applies to all vehicles:

- The lift must be fastened directly to the vehicle floor. Remove door trim, carpet, plywood, molding, wall paneling or any other material that may interfere with the installation. If subflooring is present, you must cut out an area in the subfloor of sufficient size to accommodate the stepwell bracket and baseplate. Use the bracket as a template to determine the size of the area to be cut.

NOTE: Refer to vehicle-specific installation instructions for appropriate dimensions and fastening details.

3. LIFT INSTALLATION

- a. Install power door operators, if used. Refer to the installation instructions provided with the door operators for more information.

NOTE: Refer to installation instructions, as necessary.

- b. Assemble aluminum baseplate to lift as shown in installation instructions.
- c. Check location of lift.



CAUTION!

CHECK VEHICLE BEFORE DRILLING. DO NOT DRILL INTO FACTORY WIRING, HYDRAULIC LINES, FUEL LINES, FUEL TANK, ETC.

- d. If necessary, cut a hole in subflooring to accommodate baseplate installation.
- e. Refer to installation instructions. Using stepwell bracket as a template, drill mounting holes for baseplate as follows:
 - 1) Drill two ¼” holes in side of stepwell. Install two ¼” screws to secure bracket.
 - 2) Drill four 3/8” holes in stepwell. Install four 3/8” screws in stepwell.
 - 3) Drill two ½” mounting holes.
 - 4) Cut two 1-1/8” holes using hole saw as shown in the installation instructions.
- f. Install the wall mounting brackets.



WARNING!

LIFT WEIGHT IS APPROXIMATELY 330 LBS. USE EXTREME CARE WHEN POSITIONING. POSITIONING MUST BE PERFORMED BY AT LEAST TWO PEOPLE.

- g. Position lift; align the rear mounting holes of lift with holes in floor bracket.
- h. Secure lift:
 - 1) Insert two $\frac{1}{2}$ -13 screws through holes.
 - 2) Loosely install below-floor reinforcement brackets.
 - 3) Install the front $\frac{3}{4}$ -10 x 4" studs through the reinforcement brackets and secure with flat washers, lock washers, and nuts.
 - 4) Tighten all $\frac{1}{2}$ " and $\frac{3}{4}$ " hardware.
- i. Install mounting support bracket.
- j. Install vertical support.

B. ELECTRICAL INSTALLATION

CAUTION!

- DISCONNECT BATTERY BEFORE STARTING WORK.
- ROUTE ELECTRICAL CABLES AWAY FROM ANY MOVING PARTS, FUEL/HYDRAULIC LINES AND EXHAUST SYSTEM. ATTACH SECURELY TO VEHICLE.
- USE SUITABLE GROMMETS TO PROTECT CABLES FROM DAMAGE WHEN ROUTING THEM THROUGH VEHICLE FLOOR OR WALLS.
- CHECK VEHICLE BEFORE DRILLING. DO NOT DRILL INTO FACTORY WIRING, HYDRAULIC LINES, FUEL LINES, FUEL TANK, ETC.
- MOUNT MAIN CIRCUIT BREAKER WITHIN 12" OF BATTERY.
- WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP.
- DO NOT SMOKE OR USE OPEN FLAME IN THE VICINITY OF BATTERY. WORK IN A PROPERLY VENTILATED AREA.
- DO NOT PLACE ANYTHING METALLIC ON TOP OF BATTERY.

1. CONTROL INTERFACE AND DOOR OPERATOR

- a. Connect appropriate RICON lift interface control (control pendant, etc.) to lift connector. Secure interface control cable to lift bracket with supplied strain relief kit.
- b. Connect power door operator to lift connector. If a power door operator is not used, install a shorting plug (included in installation kit) here.

CAUTION!

Check control interface and door operator cables for interference with moving lift parts.

- c. Route control interface and door operator cables and secure them so that moving lift parts or lift users will not entangle them. Use nylon cable ties and cable clamps to secure cables.
- d. Install the pendant mounting clip on interior wall. Locate the clip where it will be accessible from either inside or outside of vehicle.

2. MAIN CIRCUIT BREAKER

- a. Disconnect battery ground lead.
- b. Mount main circuit breaker within 12" of battery and use no more than 12" of cable to connect. Locate it as near to battery as possible to minimize length of unprotected cable.

CAUTION!

Do not over tighten circuit breaker mounting hardware.

- c. Fasten circuit breaker to supplied bracket. Fasten bracket to vehicle structure with sheet metal screws or blind rivets.

3. MAIN POWER CABLE

CAUTION!

Check vehicle before drilling. Do not drill into factory wiring, hydraulic lines, fuel lines, fuel tank, etc.

- a. Refer to installation instructions. Using hole saw, drill two 1.0" dia. holes through vehicle floor to provide routing for heavy power cables to power terminals located on base at left side of lift tower. Use split plastic grommets (supplied) to protect cable.
- b. Crimp #4 ring terminal (supplied) on each end of short power cable (minimum 12" long). Connect one end of cable to BAT terminal on circuit breaker; leave other end disconnected.
- c. Install one ring terminal on end of long 4 AWG power cable.



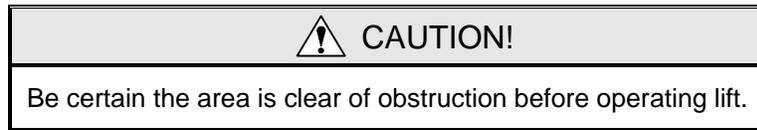
CAUTION!

Route electrical cables away from moving parts, fuel/ hydraulic lines, and exhaust system.

- d. Connect long power cable to main circuit breaker AUX terminal. Route power cable beneath vehicle floor, back to lift and up through hole near lift baseplate. Secure cable to vehicle with nylon clamps and/or cable ties.
 - e. Cut cable about one foot beyond power terminals (located at base of tower). Install ring terminal on cable and fasten it to red (positive) power terminal.
 - f. Connect short cable from main circuit breaker BAT terminal to positive battery terminal.
- 4. LIFT ELECTRICAL GROUNDING**
- a. Refer to installation instructions. Connect the black (negative) power terminal (located at lower left of lift) to vehicle chassis. Grounding point on chassis must be free of paint and other material.
 - b. Make connection using an appropriate length of 4 AWG cable. Install two #4 ring terminals (supplied) on cable, and fasten one end to black (negative) power terminal on lift. Route other end through vehicle floor, using a grommet to protect cable.
 - c. Fasten ground cable to chassis with a #14 (1/4") hex head sheet metal screw. Clean area of electrical contact to bare metal before fastening.

C. FINAL ADJUSTMENTS

It may be necessary to adjust the PLATFORM ABOVE FLOOR and PLATFORM BELOW FLOOR limit switches after installation if the platform does not deploy and stow properly. The ANTI-STOW PRESSURE SWITCH may require adjustment after replacement or when major lift repair work is done.



1. PLATFORM LIMIT SWITCHES

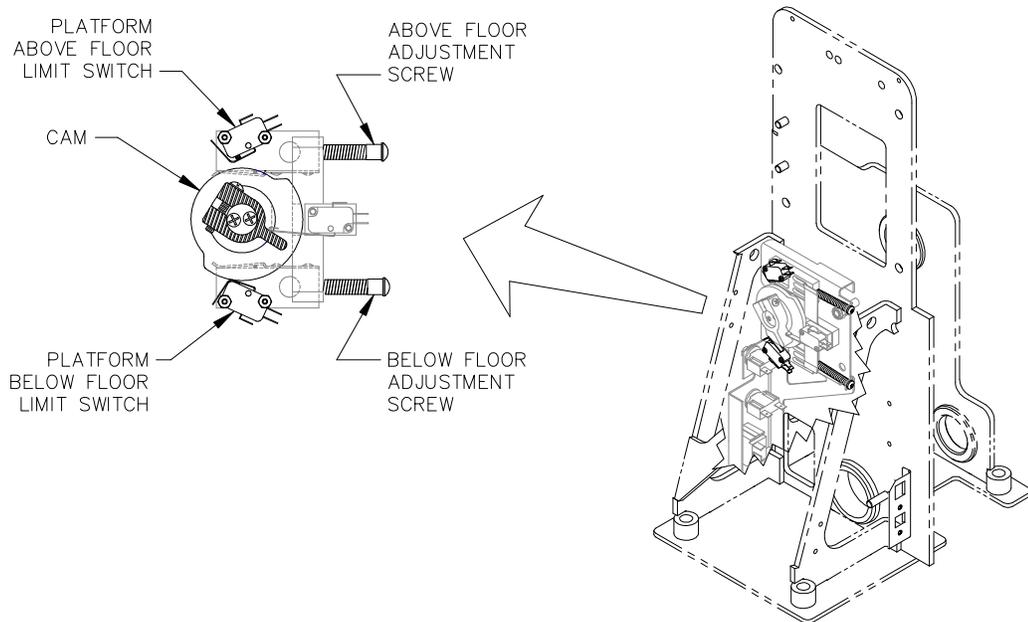
NOTE: To avoid operational “dead spots”, always adjust PLATFORM ABOVE FLOOR switch before PLATFORM BELOW FLOOR switch.

NOTE: When loosening adjustment screws, apply enough pressure to screw to move block instead of screw. (The block might stick if insufficient pressure is applied to screw.)

NOTE: If lift does not operate after 1-2 full turns of adjustment screw, cycle platform UP and DOWN (the PLATFORM BELOW FLOOR switch is less sensitive than the PLATFORM ABOVE FLOOR switch).

NOTE: Contact Ricon Product Support for assistance, if needed.

- a. Be certain that area is clear and the vehicle is parked on a flat, level surface.
- b. Deploy lift using control pendant DEPLOY button until lift platform is at vehicle floor level.
- c. Refer to **Figures 2-2 and 2-3**. Rotate PLATFORM ABOVE FLOOR and PLATFORM BELOW FLOOR adjustment screws 6-8 turns counter-clockwise, and then slowly push both screws toward rear of lift (interior of vehicle) until they hit the mechanical stops.



NOTE: TOWER CASE AND HYDRAULIC PUMP ASSY OMITTED FOR CLARITY.

FIGURE 2-2: PLATFORM ABOVE FLOOR AND BELOW FLOOR LIMIT SWITCHES

- d. Push control pendant STOW button, then push and hold control pendant DEPLOY button until platform stops moving.
- e. Push and hold control pendant DEPLOY button. Slowly turn PLATFORM ABOVE FLOOR adjustment screw clockwise until platform moves down to vehicle floor level.
- f. Push and hold control pendant DOWN button until platform is at ground level.
- g. Push and hold control pendant UP button until platform stops moving.
- h. Push and hold control pendant UP button. Slowly turn PLATFORM BELOW FLOOR adjustment screw clockwise until platform moves up to vehicle floor level. Release UP button.
- i. Repeat steps d-h until platform stops at floor level.
- j. Cycle platform through all functions (DEPLOY, DOWN, UP, and STOW) to verify correct adjustment.

2. ANTI-STOW PRESSURE SWITCH

An adjustable, pressure-sensitive, electrical switch is installed in the body of the hydraulic pump. When properly adjusted, the switch protects platform occupants by preventing the accidental stow or deploy of the platform; the platform cannot be stowed if a weight of 50 pounds, or greater, is on the platform. The switch changes state when a 50 lb load is on the deployed platform.

a. CHECK SWITCH

- 1) Apply power to lift and deploy platform.
- 2) Lower platform to ground, and place a 50 lb weight in center of platform.
- 3) Press STOW button. Platform should stop at stow height but not enter enclosure. Proceed to next step if platform moves into enclosure.

b. ADJUST SWITCH

- 1) Refer to **Figure 2-3**. The adjusting screw is on the end face of the pressure switch body, between the two lead wires. There is a setscrew locking the adjustment screw in place, and this setscrew must be removed before you can access the adjustment screw.

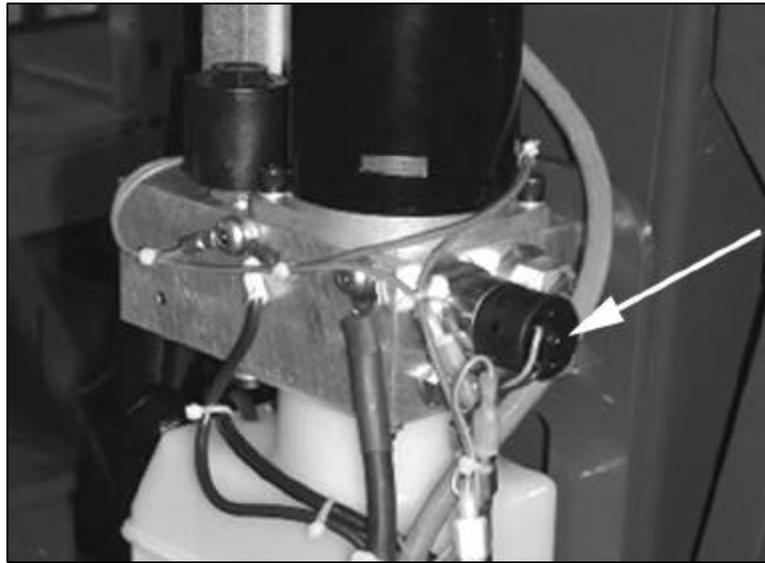


FIGURE 2-3: ANTI-STOW PRESSURE SWITCH

- 2) Remove locking setscrew (requires hex key) and turn adjustment screw 1/8 turn CCW to increase sensitivity.
- 3) Repeat above steps until the 50 lb weight inhibits stowing of platform. Repeat test from floor height; platform should stop at stow height and not enter enclosure.
- 4) Remove test weight and check platform stow function from ground height and floor height. Platform should stow properly from either level. Replace locking setscrew.

NOTE: Normal platform operation (platform does not stow when a weight that is significantly less than 50 lb is present) is not possible if the pressure switch adjustment is too sensitive. Turn adjusting screw CW to decrease pressure switch sensitivity. Also, if erratic platform movement occurs because the setting of the pressure switch is marginal, correct this by turning adjusting screw 1/16 turn in the appropriate direction.

D. VERIFY INSTALLATION

1. LOAD TEST

CAUTION!

- This load test is designed to test the vehicle structure and the lift mounting method, not the lift capacity.
- **Do not** operate lift while test weight is on platform. Remove test weight immediately after test.
- Vehicle suspension will compress and vehicle will lean when test weight is placed on platform. If weighted platform contacts ground, remove weight, raise platform, and retest.
- Test weight requirement is 825 lbs. Use great care when handling weight. Positioning must be performed by at least two people.

- a. Verify that neither the vehicle structure nor any other components interfere with movement of the platform.
- b. Verify integrity of lift installation by test loading the platform at 125% of its rated load capacity of 660 pounds. Position lift platform 2" - 6" above ground. Place 825 pound test weight in center of platform and inspect lift mounting points for deformation or loosening of hardware. **REMOVE TEST WEIGHT.**

2. DECAL INSPECTION

Verify that all decals are properly located and affixed as shown in **Figure 2-4** on following page.

3. MISCELLANEOUS

- Reinstall stepwell cover.
- Reinstall plastic moisture barriers on doors.
- Reinstall door trim, carpet, plywood, molding, wall paneling, or any other material that was removed.
- Perform several cycles of operation with the control pendant. During each cycle, check for the following conditions:
 - Operation must be smooth and free of wobble or hesitation.
 - If power door operators are installed, doors must open and close in proper sequence.
 - Bridgeplate must deploy when platform reaches vehicle floor level. Bridgeplate must be stowed at all other positions.
 - Front rollstops and side barriers must lower when platform contacts ground. Rollstops and barriers must be raised at all other platform positions.

NOTE: If you observe unusual movements or noise during any cycle of operation, stop the cycle immediately. Check that the lift is installed as specified in the installation instructions. Refer to Chapter III for detailed troubleshooting information.

- Set WRAP DISABLE switch to on position. Perform one cycle of operation (deploy, lower, raise, stow) while observing lift. When STOW button is pressed, the platform must fold into vertical position and move into vehicle, but not wrap.
- Set WRAP DISABLE switch to off position. Perform one cycle of operation while observing lift. Platform must fully fold and wrap into vehicle when control pendant STOW button is pressed.

E. CUSTOMER ORIENTATION

IMPORTANT CUSTOMER ORIENTATION

Ricon Sales or Service personnel must review the Warranty and Operator Manual with customer to be certain he or she understands the safe operation of lift. Instruct customer to follow operating instructions without exception.

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III. MAINTENANCE AND TROUBLESHOOTING

Regular maintenance of the Ricon Innovator Wheelchair Lift will reduce the frequency of repairs and contribute to optimum performance and safe operation. This chapter contains cleaning and lubrication instructions, a maintenance schedule, a troubleshooting section, plus hydraulic and electrical diagrams.



WARNING!

THIS RICON PRODUCT IS HIGHLY SPECIALIZED. MAINTENANCE AND REPAIRS MUST BE PERFORMED BY A RICON AUTHORIZED SERVICE TECHNICIAN USING RICON REPLACEMENT PARTS. MODIFYING OR FAILING TO PROPERLY MAINTAIN THIS PRODUCT WILL VOID THE WARRANTY, AND MAY RESULT IN UNSAFE OPERATING CONDITIONS. AFTER THE WARRANTY PERIOD, RICON RECOMMENDS THAT TROUBLESHOOTING BE CONTINUED BY A RICON AUTHORIZED SERVICE TECHNICIAN.

A. CLEANING

Regular cleaning with mild soap and water (i.e. liquid dish soap or liquid car wash soap) and then drying thoroughly will protect painted lift surfaces. Cleaning the lift is especially important in areas of the country where roads are salted in winter or when dirt, mud, snow, etc. can be tracked into vehicle.

B. MAINTENANCE CHECKLIST

Under normal operating conditions, maintenance inspections are required at least every six months (1750 cycles) and a thorough inspection should be performed as specified in **Table 3-1**. Service should be more frequent when the lift is used ten times per day, or more.

TABLE 3-1: MAINTENANCE CHECKLIST

SERVICE POINT	ACTION TO PERFORM
Decals	Refer to Figure 2-5 . Verify that all lift decals are properly affixed, clearly visible, and legible. Replace if necessary.
Overall condition	Inspect lift for damaged or missing parts.
Control pendant	Check control pendant for damage and verify that its cable connections are secure.
Electrical wiring	Inspect all accessible electrical wiring for damaged wires (cut, frayed, unsecured) and loose connectors.
Handrail	Verify that handrail fasteners are properly tightened.
Lift mounting points	<ul style="list-style-type: none"> •Verify that the mounting hardware is secure and undamaged. •Verify that mounting bracket screws are properly tightened.
Main lifting pivots	Check that all traveling frame pins are in place, free from damage, and locked in position.
Hydraulic system	<ul style="list-style-type: none"> •Check for hydraulic fluid leakage along all lines. •Check that backup pump manual release valve is lightly closed. •Check hydraulic cylinder for leaks. •Inspect hydraulic hoses for damage. •Verify that all fittings are tightly secured.
	CAUTION
	Add hydraulic fluid when platform is at ground level. Filling reservoir when platform is above ground level will result in overflow from reservoir when platform is lowered.
	<ul style="list-style-type: none"> • Lower platform to ground level and check hydraulic fluid level. If level is below FULL mark, add Texaco 01554 Aircraft Hydraulic Oil, or equivalent fluid per U.S. Mil Spec H5606G.

TABLE 3-1: MAINTENANCE CHECKLIST

SERVICE POINT	ACTION TO PERFORM
Operation	<ul style="list-style-type: none"> • Operate lift through several full cycles (deploy, lower, raise, stow) using control pendant. Note unusual noises or movements. • Deploy lift to floor level. Set <i>Wrap Disable</i> switch to on position and stow lift using control pendant. Platform must fold into vertical position and move into vehicle, but not wrap (Figure 1-3). • Deploy lift to floor level. Set <i>Wrap Disable</i> switch to off position and stow lift using control pendant. Platform must fully fold and wrap into vehicle (Figure 1-4).
Handrail mounted control switch	<ul style="list-style-type: none"> • Verify switch moves platform from floor level to ground when held in <i>Down</i> position. • Verify switch moves platform from ground to floor level when held in <i>Up</i> position.
Platform rollstop	Check for proper rollstop operation when platform contacts ground; side barriers and front rollstop must deploy (unfold) fully and lay flush against ground.
Manual operation	<ol style="list-style-type: none"> 1) Manually unfold platform by using manual release T-handle as specified in Chapter III of the Operator Manual. Platform must unfold smoothly, with no binding or jamming. 2) Lower platform to vehicle floor level using manual backup pump release valve. Close release valve when platform reaches vehicle floor level. Platform must deploy smoothly, with no binding or hesitation. 3) With platform at floor level, attempt to lower (unfold) bridgeplate without pushing bridgeplate release lever. Bridgeplate must resist unfolding. Push bridgeplate release lever and deploy bridgeplate to its horizontal position. Check that bridgeplate moves into horizontal position. Raise and lock bridgeplate in vertical position. 4) Verify that side barriers and front rollstop resist deployment (unfolding) when not at ground level. 5) Verify that side barriers and front rollstop can be fully deployed (unfolded) manually when platform is at ground level. 6) Manually stow platform as specified in Chapter III of the Operator Manual. Platform must lock in place when T-handle is released.
Cleaning and lubrication	Clean exposed lift surfaces with mild soap and water; dry thoroughly. Inhibit rust by using a clean, soft cloth to apply a light film of oil to all surfaces. Remove excess oil.
END OF TABLE	

C. TROUBLESHOOTING

1. TROUBLESHOOTING GUIDE

The troubleshooting guide is intended to provide a logical starting point for general lift problems. However, not all possible problems or combinations of problems are listed. The guide assumes that the vehicle battery is fully charged and its connections are clean and tight.

 WARNING!
<p>THE TROUBLESHOOTING GUIDE DOES NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. TROUBLESHOOTING MUST BE PERFORMED BY A TRAINED, AUTHORIZED RICON SERVICE TECHNICIAN DURING THE RICON WARRANTY PERIOD. IT IS RECOMMENDED THAT TROUBLESHOOTING ALSO BE PERFORMED BY AN AUTHORIZED RICON SERVICE TECHNICIAN AFTER THE WARRANTY PERIOD.</p>

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Lift does not operate when <i>Deploy</i> button is pressed	<i>Main Circuit Breaker</i> (located in engine compartment) has tripped.	Reset circuit breaker.
	<i>Control System Circuit Breaker</i> (located on lift tower) has tripped.	Reset circuit breaker.
	Faulty lift power wiring.	Repair wiring.
Lift does not operate when <i>Deploy</i> button is pressed; circuit breakers have not tripped	Safety interlock not engaged.	Engage safety interlock.
	Control pendant <i>Stow–Deploy</i> switch is defective (deploy contacts open).	Replace stow/deploy switch.
	Lift wrap motor is defective.	Replace motor.
	Controller unwrap circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Lift unwraps but does not unfold when <i>Deploy</i> button is pressed	<i>Down Valve</i> is defective.	Replace down valve.
	Controller down valve circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Platform does not unfold or fold completely	Platform folding linkage (connected to fold bracket) requires adjustment.	Adjust linkage rod ends.
	Debris between folding platform cam follower and track (part of platform folding bracket).	Clean cam follower and track.
Wrap motor continues to run when platform is fully unwrapped	<i>Platform Unwrapped</i> limit switch is defective (contacts open) or out of adjustment.	Replace switch.
	Faulty <i>Platform Unwrapped</i> limit switch wiring.	Repair wiring.
	Controller platform wrapping circuit is defective.	Replace controller.
Lift moves down automatically from floor	Control pendant <i>Up–Down</i> switch is defective (down contacts shorted).	Replace switch.
	Handrail-mounted control switch is defective (down contacts shorted).	Replace switch.
	Faulty pendant or control switch wiring.	Repair wiring.
Platform stops above or below vehicle floor level when <i>Deploy</i> button is pressed	<i>Platform Above Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	<i>Platform Below Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	Loose or faulty floor level switch wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Up function inoperative; pump motor does not operate	Hydraulic pump motor is defective.	Replace motor.
	Front and rear platform contacts are dirty or do not touch.	Clean or adjust platform contacts.
	<i>Rollstop and Barrier Up</i> limit switch is defective (left or right side) or out of adjustment.	Repair or adjust switch.
	<i>Side Barrier Locked</i> limit switch (left or right side) is defective or out of adjustment.	Repair or adjust switch.
	Loose or faulty wiring.	Repair wiring
	Controller pump circuit is defective.	Replace controller.
	Control pendant <i>Up–Down</i> switch is defective (up contacts open).	Replace control pendant.
	Handrail-mounted control switch is defective (up contacts open).	Replace control switch.
Up function inoperative; pump motor operates	Platform overloaded.	Load must not exceed 660 lbs (300 kg).
	Backup pump manual release valve open.	Close valve lightly, taking care not to over-tighten.
	Hydraulic fluid level low.	Check fluid level; add fluid as necessary.
	Down valve open.	Replace down valve.
	Air in hydraulic system.	Cycle lift several times or bleed system.
	Leak in hydraulic system.	Check lines and fittings; repair or tighten as necessary.
Bridgeplate does not stow or does not deploy	Bridgeplate motor is defective.	Replace motor.
	<i>Platform Above Floor</i> or <i>Platform Below Floor</i> limit switches are defective or out of adjustment.	Repair or adjust switches.
	Controller bridgeplate circuit is defective.	Replace controller.
	Bridgeplate mechanism is jammed or defective.	Repair or replace bridgeplate mechanism.
	Loose or faulty bridgeplate motor wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Rollstop does not open	Rollstop motor is defective.	Replace rollstop motor.
	<i>Platform On Ground</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
	Rollstop mechanical linkage is defective.	Repair rollstop linkage.
	Controller rollstop lowering circuit is defective.	Replace controller.
	Loose or faulty rollstop motor wiring.	Repair wiring.
Rollstop does not close	Rollstop motor is defective.	Replace motor.
	Controller rollstop circuit is defective.	Replace controller.
	Rollstop mechanical linkage is defective.	Repair rollstop linkage.
	Loose or faulty rollstop motor wiring.	Repair wiring.
Rollstop does not latch	Debris in latch mechanism (part of actuator shoe assy).	Remove debris.
Lift operates with rollstop open	<i>Rollstop</i> and <i>Barrier Up</i> limit switches (left or right side), is defective or out of adjustment.	Repair or adjust switch.
Rollstop opens at any lift position	<i>Platform On Ground</i> limit switch, is defective or out of adjustment.	Repair or adjust switch.
Lift moves up automatically from ground	Control pendant <i>Up–Down</i> switch is defective (up contacts shorted) or handrail-mounted control switch is defective (up contacts shorted).	Replace switch.
	Control pendant or control switch faulty wiring.	Repair wiring.
Platform stops above floor level when <i>Up</i> button is pressed	<i>Platform Below Floor</i> limit switch is defective or out of adjustment.	Repair or adjust switch.
Pump solenoids chatter	Poor electrical connection between negative bus bar, pump block, or solenoid plate.	Tighten or clean connections.
Lift will not stow	<i>Fold Cutoff</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Control pendant <i>Stow–Deploy</i> switch is defective (stow contacts open).	Replace switch wiring.
	<i>Platform Pressure Switch</i> is defective.	Replace pressure switch.
	Loose or faulty wiring.	Repair wiring.
Lift stows automatically when at floor level or above	Control pendant <i>Stow–Deploy</i> switch is defective (stow contacts shorted).	Replace switch.
	Faulty control pendant wiring.	Repair wiring.

TABLE 3-2: TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Pump motor runs after lift is stowed	<i>Fold Cutoff</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Faulty <i>Fold Cutoff</i> limit switch wiring.	Repair wiring.
	Controller <i>Fold Cutoff</i> circuit is defective.	Replace controller.
Wrap motor runs after lift is stowed	<i>Platform Wrapped</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Controller platform wrapping circuit is defective.	Replace controller.
	Loose or faulty wiring.	Repair wiring.
Platform folds into vehicle but does not wrap when <i>Stow</i> button is pressed	<i>Wrap Disable</i> switch set to ON.	Set <i>Wrap Disable</i> switch to OFF.
	<i>Wrap Disable</i> switch, or its wiring, faulty.	Repair switch or wiring.
Platforms fully wraps into vehicle with <i>Wrap Disable</i> switch set to ON	<i>Wrap Disable</i> switch, or its wiring, faulty.	Replace switch.
Power door operators do not open vehicle doors	Power door operator circuit breaker (located on lift tower) is tripped.	Reset circuit breaker.
	Left power door operator motor is defective.	Replace power door operator.
	Loose or faulty wiring.	Repair wiring.
	Power door operator mechanical linkage is defective.	Repair door operator linkage.
	Controller vehicle door operator circuit is defective.	Replace controller.
Power door operators do not close vehicle doors	Power door operator mechanical linkage is defective.	Repair door operator linkage.
	Loose or faulty wiring.	Repair wiring.
	<i>Platform Wrapped</i> limit switch is defective or out of adjustment.	Repair switch or wiring.
	Controller vehicle door operator circuit is defective.	Replace controller.

END OF TABLE

2. ELECTRICAL SYSTEM DIAGNOSTIC DISPLAYS

Observe the LED display on the main controller board (located at the lower front of the tower) to monitor electrical events that occur in the lift. These lights provide an indication of what the lift status is, such as the position of components (rollstop up, platform wrapped, platform below floor level, etc), or occurrence of output signals that energize electrical components (hydraulic pump, rollstop motor, etc), or the need for precaution (high current in certain circuits, vehicle door open, etc). Refer to **Figure 3-1** and **Table 3-3** on the following pages for the location of each light and a description of what each light indicates.

Refer to **Tables 3-4** through **3-8** on the following pages. Also located on the main controller board is a numerical LED display that is useful for troubleshooting electrical problems. Each platform motion (deploy, lower, raise, stow) can be divided into a series of steps, and one or more events occur during that step. Each event has input and output signals associated with it. If a problem occurs during one of those steps, a number representing the step will be shown on the display.

Table 3-4 describes the main controller's numerical display. **Tables 3-5** through **3-8** describe each platform motion. When one of the motions begins, all of the numbers listed at the top of the appropriate platform motion table will quickly flash in sequence. If a problem occurs during that motion, the number for the faulty step will be displayed continuously. Refer to the table column below the number displayed for the events that occur during that step. The problem could be caused by one of the controllers, an input signal switch, an output component (motor, valve, etc), or the related wiring and connectors.

Each platform motion table is formatted to reflect lift operation. The table has a status number at the top of a column with a list of input switches, controller commands, and output relays. The state of each input and output is specified for a given step. If the state is specified as ON, then the switch must be closed, the controller command must be active, or the output relay coil must be energized during that step. If the state is specified as OFF, then the switch must be open, the controller command must be inactive, or the output relay coil must be de-energized (no power applied). A blank space means that the input or output is ignored during that step.

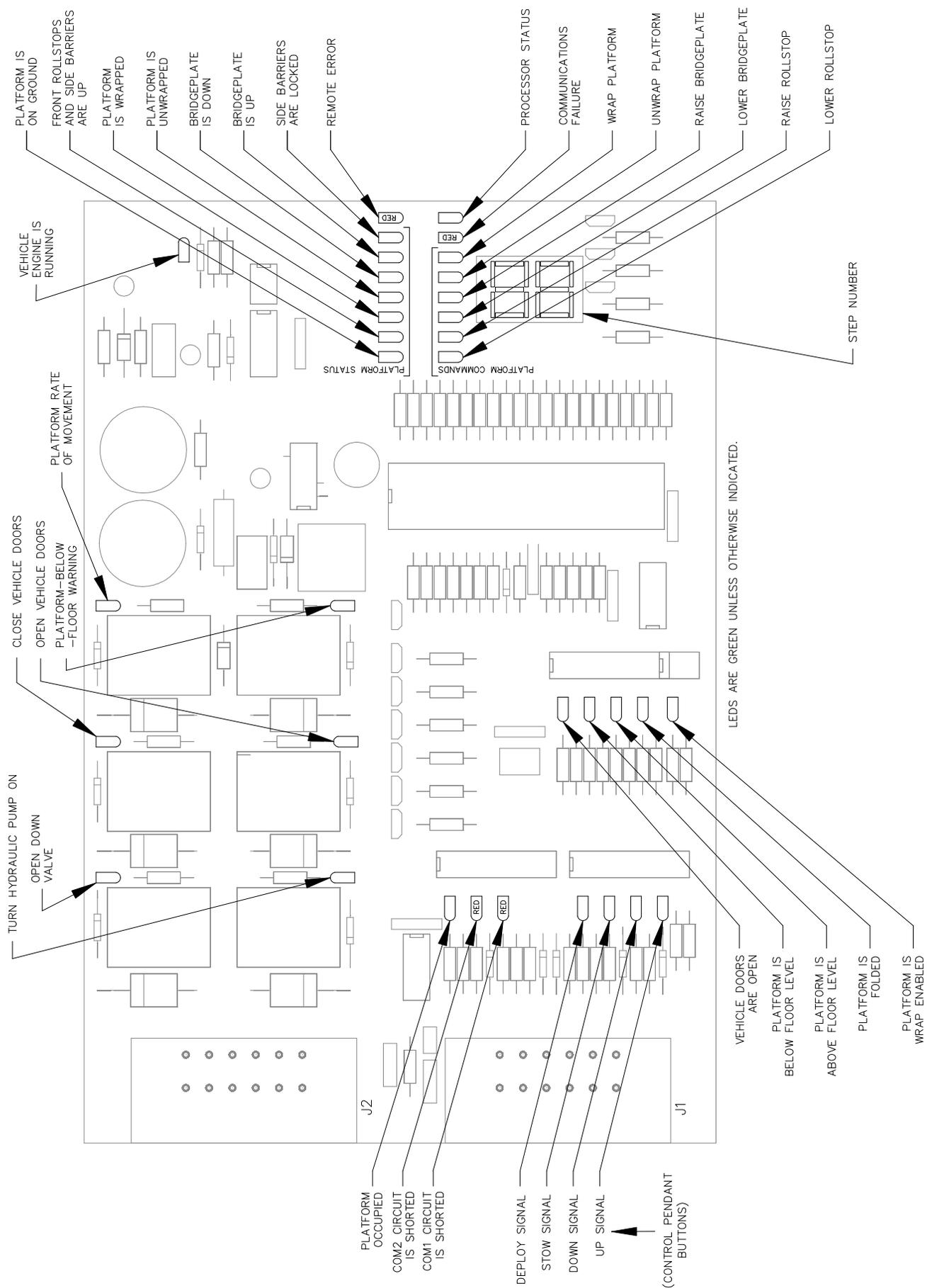


FIGURE 3-1: MAIN CONTROLLER DIAGNOSTIC LED LAYOUT

TABLE 3-3: DIAGNOSTIC LED DISPLAY GUIDE

LED LABEL	DESCRIPTION
Bridgeplate is down	On when bridgeplate is fully lowered.
Bridgeplate is up	On when bridgeplate is fully folded (perpendicular to platform).
Close vehicle doors	On when controller sends a close signal to door operators.
Com 1 circuit is shorted	On when a high-current condition occurs in COM1 circuit.
Com 2 circuit is shorted	On when a high-current condition occurs in COM2 circuit.
Communications failure	On if remote controller does not respond to commands from main controller.
Deploy signal	On when <i>Deploy</i> button is pressed on control pendant.
Down signal	On when <i>Down</i> button is pressed on control pendant.
Lower bridgeplate	On when controller sends a lower signal to bridgeplate motor.
Lower rollstop	On when controller sends a lower signal to left and right rollstop motors.
Lift status	Counter display provides lift status number.
Open down valve	On when controller energizes the down valve.
Open vehicle doors	On when controller sends an open signal to power door operators.
Platform-below-floor warning	On when platform is lower than floor level; 12VDC will be available at pin 5 of P2.
Platform is above floor level	On when platform is higher than floor level.
Platform is below floor level	On when platform is lower than floor level.
Platform is folded	On when platform is fully folded.
Platform is on ground	On when platform has fully settled on ground.
Platform is unwrapped	On when the platform is fully folded but not wrapped.
Platform is wrapped	On when platform is fully folded and wrapped.
Platform occupied	On when there is no weight present on platform; off when 50 lbs, or more, is present.
Processor status	Blinks when controller microprocessor is operating normally.
Raise bridgeplate	On when controller sends a raise signal to bridgeplate motor.
Raise rollstop	On when controller sends a raise signal to left and right rollstop motors.
Remote error	On if main controller receives a communications error signal from remote controller (commands not accepted).
Rollstop is up	On when both front rollstops are raised.
Side barriers are locked	On when both side barriers are raised and locked.
Stow signal	On when <i>Stow</i> button is pressed on the control pendant.
Turn hydraulic pump on	On when controller energizes hydraulic pump solenoids.
Unwrap platform	On when controller sends an unwrap signal to the platform wrap motor.
Up signal	On when <i>Up</i> button is pressed on the control pendant.
Vehicle doors are open	On when power door operator (if installed) detects that vehicle doors adjacent to lift are open, indicating that lift can be deployed. This light is on continuously when the power door operator jumper is connected to J5.
Vehicle engine is running	On when vehicle engine speed is at idle, or higher.

TABLE 3-3: DIAGNOSTIC LED DISPLAY GUIDE

LED LABEL	DESCRIPTION
Wrap enable	On when wrap disable switch is off. When switch is off, the platform wraps normally.
Wrap platform	On when controller sends a wrap signal to the platform wrap motor.

TABLE 3-4: NUMERICAL DISPLAY DESCRIPTIONS

STATUS NUMBER	FUNCTION	LIFT CONDITION
00	None selected	Default display; control pendant and handrail control switch are not in use. Platform is at rest in any position.
05	UP	Platform on ground; rollstops in transition (moving from horizontal to vertical position).
07	UP	Front platform assembly not in contact with ground; rear platform assembly still in contact with ground.
10	UP	Platform off ground and moving up to vehicle floor level.
15	UP	Platform at vehicle floor level; bridgeplate moving from vertical to horizontal position.
20	UP	Platform at vehicle floor level; bridgeplate is in horizontal position.
26	DOWN	Platform in motion from vehicle floor level to ground level.
30	DOWN	Rear platform assembly in contact with ground; front platform assembly settling to ground level.
35	DOWN	Platform is on ground; rollstops are down (horizontal).
50	DEPLOY	Displayed only if vehicle door operators are installed. Platform is fully wrapped; <i>Open Door</i> command sent to vehicle door operators.
60	DEPLOY	Platform in motion from fully wrapped to fully unwrapped position.
62	DEPLOY	Platform fully unwrapped and still in vertical position.
65	DEPLOY	Platform unfolding from vertical to horizontal position.
70	DEPLOY	Platform at vehicle floor level.
75	STOW	Error message; displayed only when platform is at floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
76	STOW	Error message; displayed only when platform is below vehicle floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
77	STOW	Platform in motion from floor level to vertical position.
78	STOW	Platform in vertical position and is unwrapped.
80	STOW	Platform in motion from fully unwrapped to fully wrapped position.
82	STOW	Platform fully wrapped.
85	STOW	Platform fully wrapped. <i>Close Door</i> command sent to door operators (if installed).

TABLE 3-5: DISPLAY NUMBER DESCRIPTIONS FOR DEPLOY MOTION					
STATUS NUMBER	50 (SEE NOTE 5)	60	62	65	70
INPUT SWITCHES (SEE NOTE 4)					
GROUND CONTACT					
ROLLSTOP IS UP		ON	ON	ON	ON
PLATFORM IS WRAPPED (SEE NOTE 1)		ON			
PLATFORM IS UNWRAPPED			ON	ON	ON
BRIDGEPLATE IS DOWN					ON
BRIDGEPLATE IS UP					
ROLLSTOP IS LOCKED		ON	ON	ON	ON
REMOTE ERROR					
PLATFORM OCCUPIED				ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 6)	ON	ON	ON	ON	ON
PLATFORM BELOW FLOOR LEVEL					
PLATFORM ABOVE FLOOR LEVEL		ON	ON	ON	OFF
PLATFORM IS FOLDED		ON	ON		
WRAP ENABLE (SEE NOTE 2)		ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 3 AND 4)					
CLOSE DOORS					
OPEN DOORS	ON				
LOWER ROLLSTOP					
RAISE ROLLSTOP					
LOWER BRIDGEPLATE					
RAISE BRIDGEPLATE					
UNWRAP PLATFORM		ON	ON		
WRAP PLATFORM				OFF	
OUTPUT RELAYS (SEE NOTE 4)					
OPEN DOWN VALVE				ON	OFF
HYDRAULIC PUMP ON					
CLOSE DOORS					
OPEN DOORS	ON	ON	ON	ON	ON
BELOW FLOOR ALARM					
SPEED					ON

NOTES:

1. Lit momentarily at beginning of sequence if platform is fully wrapped.
2. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
3. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
4. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
5. Displayed only when power door operators are installed.
6. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-6: DISPLAY NUMBER DESCRIPTIONS FOR DOWN MOTION				
STATUS NUMBER	25	26	30	35
INPUT SWITCHES (SEE NOTE 3)				
GROUND CONTACT				ON
ROLLSTOP IS UP		ON	ON	OFF
PLATFORM IS WRAPPED				
PLATFORM IS UNWRAPPED		ON	ON	ON
BRIDGEPLATE IS DOWN				
BRIDGEPLATE IS UP			ON	ON
ROLLSTOP IS LOCKED		ON	ON	OFF
REMOTE ERROR				
PLATFORM OCCUPIED		ON	ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 4)		ON	ON	ON
PLATFORM BELOW FLOOR LEVEL			ON	ON
PLATFORM ABOVE FLOOR LEVEL	OFF			
PLATFORM IS FOLDED				
WRAP ENABLE (SEE NOTE 1)		ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 2 AND 3)				
CLOSE DOORS				
OPEN DOORS				
LOWER ROLLSTOP				ON
RAISE ROLLSTOP				
LOWER BRIDGEPLATE				
RAISE BRIDGEPLATE		ON		
UNWRAP PLATFORM				
WRAP PLATFORM				
OUTPUT RELAYS (SEE NOTE 3)				
OPEN DOWN VALVE		ON	ON	OFF
HYDRAULIC PUMP ON				
CLOSE DOORS				
OPEN DOORS				
BELOW FLOOR ALARM			ON	ON
SPEED		ON	ON	ON

NOTES:

1. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
2. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
3. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
4. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-7: DISPLAY NUMBER DESCRIPTIONS FOR UP MOTION					
STATUS NUMBER	05	07	10	15	20
INPUT SWITCHES (SEE NOTE 3)					
GROUND CONTACT	ON				OFF
ROLLSTOP IS UP		ON	ON	ON	ON
PLATFORM IS WRAPPED					
PLATFORM IS UNWRAPPED	ON	ON	ON	ON	ON
BRIDGEPLATE IS DOWN					ON
BRIDGEPLATE IS UP	ON	ON	ON		
ROLLSTOP IS LOCKED			ON	ON	ON
REMOTE ERROR					
PLATFORM OCCUPIED	ON	ON		ON	ON
VEHICLE DOORS ARE OPEN (SEE NOTE 4)	ON	ON	ON	ON	ON
PLATFORM IS BELOW FLOOR LEVEL	ON	ON	ON		OFF
PLATFORM IS ABOVE FLOOR LEVEL					OFF
PLATFORM IS FOLDED					
WRAP ENABLE (SEE NOTE 1)	ON	ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 2 AND 3)					
CLOSE DOORS					
OPEN DOORS					
LOWER ROLLSTOP					
RAISE ROLLSTOP	ON	ON			
LOWER BRIDGEPLATE				ON	
RAISE BRIDGEPLATE					
UNWRAP PLATFORM					
WRAP PLATFORM					
OUTPUT RELAYS (SEE NOTE 3)					
OPEN DOWN VALVE					
HYDRAULIC PUMP ON		ON	ON		
CLOSE DOORS					
OPEN DOORS					
BELOW FLOOR ALARM	ON	ON	ON		
SPEED	ON	ON	ON	ON	ON

NOTES:

1. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
2. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
3. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
4. Lit continuously when the power door operator jumper is connected to J5.

TABLE 3-8: DISPLAY NUMBER DESCRIPTIONS FOR STOW MOTION

STATUS NUMBER	75 (SEE NOTE 1)	76 (SEE NOTE 2)	77	78	80	82	85
INPUT SWITCHES (SEE NOTE 8)							
GROUND CONTACT							
ROLLSTOP IS UP		ON	ON	ON	ON	ON	ON
PLATFORM IS WRAPPED						ON	ON
PLATFORM IS UNWRAPPED	ON	ON	ON	ON			
BRIDGEPLATE IS DOWN	ON (SEE NOTE 5)	ON					
BRIDGEPLATE IS UP							
ROLLSTOP IS LOCKED	ON	ON	ON	ON	ON	ON	ON
REMOTE ERROR							
PLATFORM OCCUPIED	ON (SEE NOTE 6)	ON		ON	ON		
VEHICLE DOORS ARE OPEN (SEE NOTE 9)	ON	ON	ON	ON	ON	ON	ON
PLATFORM BELOW FLOOR LEVEL	OFF						
PLATFORM ABOVE FLOOR LEVEL	ON (SEE NOTE 7)		ON	ON	ON	ON	ON
PLATFORM IS FOLDED				ON	ON	ON	ON
WRAP ENABLE (SEE NOTE 3)	ON	ON	ON	ON	ON	ON	ON
CONTROLLER COMMANDS (SEE NOTES 4 AND 8)							
CLOSE DOORS							ON
OPEN DOORS							
LOWER ROLLSTOP							
RAISE ROLLSTOP							
LOWER BRIDGEPLATE							
RAISE BRIDGEPLATE							
UNWRAP PLATFORM							
WRAP PLATFORM					ON	ON	
OUTPUT RELAYS (SEE NOTE 8)							
OPEN DOWN VALVE							
HYDRAULIC PUMP ON			ON				
CLOSE DOORS							ON
OPEN DOORS							
BELOW FLOOR ALARM							
SPEED							

NOTES:

1. Error message is displayed only when platform is at floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
2. Error message is displayed only when platform is below vehicle floor level and there is no communication between front and rear platform assemblies (contact switch assembly is open).
3. Lit continuously when WRAP DISABLE switch is in the OFF (wrap enabled) position.
4. Command LEDs illuminate only while controller sends command to lift and are off at all other times.
5. LED is turned off when spring-loaded contacts open.
6. LED will blink momentarily, and then is turned off.
7. LED will illuminate when platform is above vehicle floor level.
8. When marked **ON**: switch must be closed, controller command must be active, or relay must be energized. When marked **OFF**: switch must be open, controller must not issue command, or relay must not be energized. **Blank**: Don't care.
9. Lit continuously when the power door operator jumper is connected to J5.

HYDRAULIC SYSTEM

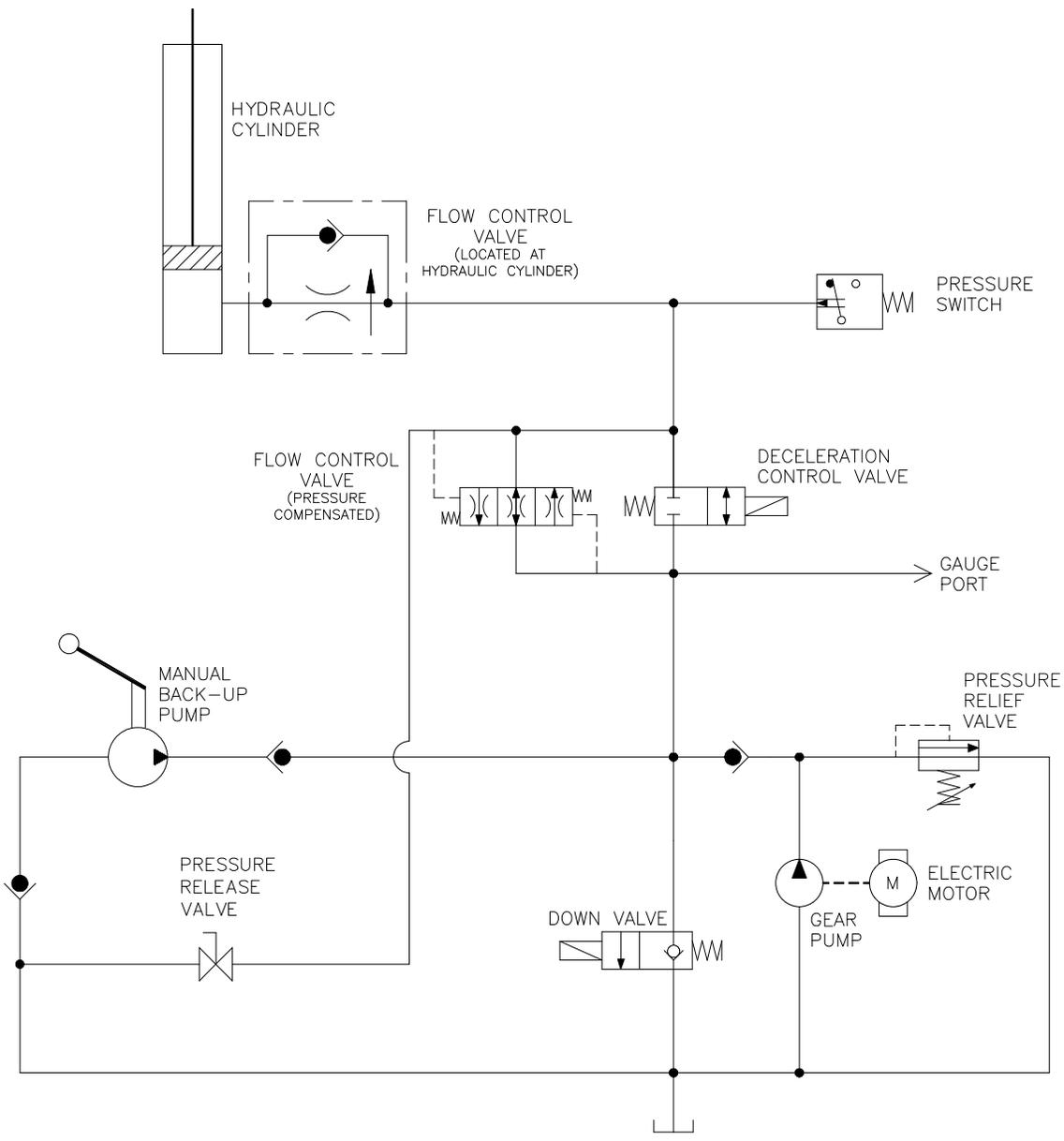


FIGURE 3-2: HYDRAULIC SYSTEM

D. LIFT ELECTRICAL WIRING

1. DIAGRAM LEGENDS

a. Wire Color Codes

TABLE 3-4: WIRE COLOR CODES			
LETTER	COLOR	LETTER	COLOR
BLK	Black	RED	Red
BLU	Blue	WHT	White
BRN	Brown	YEL	Yellow
GRN	Green	YEL/BLK	Yellow w/ black stripe
VIO	Violet	ORG	Orange
WHT/ORG	White w/ orange stripe	GRY	Grey
GRN/BLK	Green w/ black stripe		
END OF TABLE			

b. Electrical Symbols

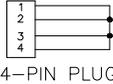
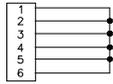
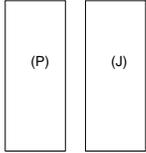
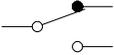
 <p>DOWN VALVE</p>	 <p>4-PIN PLUG</p>	 <p>BATTERY</p>
 <p>CIRCUIT BREAKER (AMPERAGE INDICATED)</p>	 <p>6-PIN PLUG</p>	 <p>SPADE TERMINAL CONNECTION</p>
 <p>PRESSURE SWITCH</p>	<p>WIRING CONNECTIONS</p>  <p>NOT CONNECTED CONNECTED</p>	<p>SWITCH CONTACTS</p> <ul style="list-style-type: none"> □ - COMMON ● - NORMALLY CLOSED ○ - NORMALLY OPEN
 <p>THREADED TERMINAL POST</p>	 <p>P = PLUG J = RECEPTACLE</p> <p>HARNESS CONNECTOR</p>	 <p>LIMIT SWITCH</p>
 <p>PUMP SOLENOID</p>	 <p>ELECTRIC MOTOR</p>	

FIGURE 3-3: ELECTRICAL SYMBOLS

2. ELECTRICAL CONNECTORS

Refer to **Figure 3-4** for standard pin arrangements of several plugs and receptacles used in the lift electrical wiring. Note that receptacles are designated on the electrical diagram with the letter J, and plugs with the letter P.

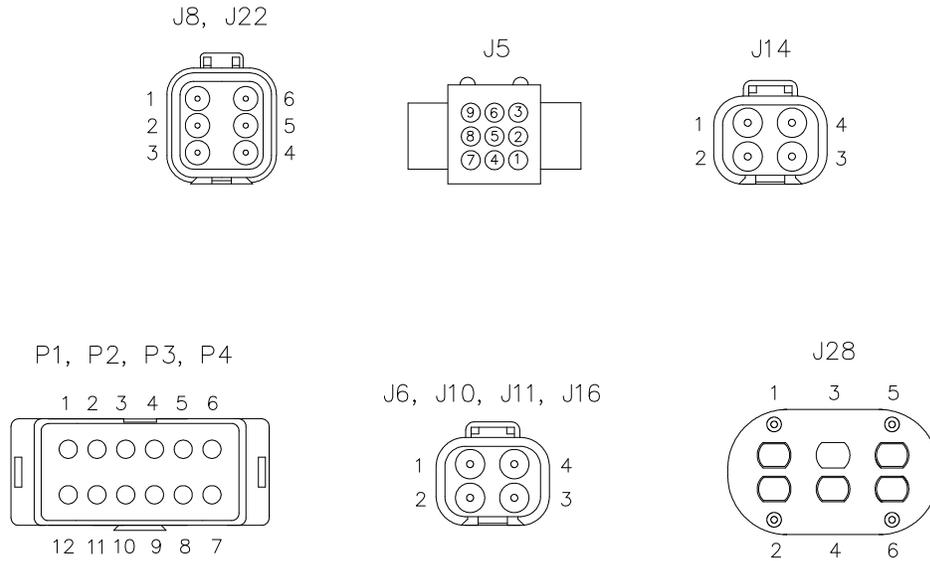


FIGURE 3-4: PIN ARRANGEMENTS FOR ELECTRICAL CONNECTORS

3. WIRING DIAGRAM LABELS

TABLE 3-5: WIRING DIAGRAM LABEL DEFINITIONS

LABEL	DESCRIPTION
+12 VDC	System operating voltage.
BRIDGEPLATE	Electric motor; raises and lowers bridgeplate.
BRIDGEPLATE DOWN	Limit switch; closes when bridgeplate is lowered (horizontal).
BRIDGEPLATE UP	Limit switch; closes when bridgeplate is fully stowed (perpendicular to platform).
CLOSE VEHICLE DOOR	Signal; from controller to power door operator; closes doors adjacent to lift.
CONTROL PENDANT	Hand-held device; controls platform motions of deploy, stow, up, and down.
DEPLOY SIGNAL	Signal; from control pendant; unfolds platform and lowers it to floor height.
DOWN SIGNAL	Signal; from control pendant or handrail switch; lowers platform from any height.
DOWN VALVE	Signal; from controller; opens down valve.
FOLD CUTOFF	Limit switch; closes when platform is fully folded.
GROUND	Common point for electrical system.
HYDRAULIC PUMP	Electric motor; coupled to hydraulic pump.
HYDRAULIC PUMP SOLENOIDS	Signal; from controller to pump solenoids; solenoids provide current to hydraulic pump motor.
LEFT ROLLSTOP	Electric motor; raises and lowers left side barrier and left front rollstop.
LEFT SIDE BARRIER LOCKED	Limit switch; closes when barrier on left side is upright and locked.
LEFT SIDE ROLLSTOP AND BARRIER UP	Limit switch; closes when rollstop is fully raised (upright).
MAIN CONTROLLER	Electronic component; located in base of tower; controls lift functions and processes inputs from limit switches. Linked to remote controller by data bus.

TABLE 3-5: WIRING DIAGRAM LABEL DEFINITIONS

LABEL	DESCRIPTION
OPEN VEHICLE DOOR	Signal; from controller to power door operator; opens doors adjacent to lift.
PLATFORM ALARM	Signal; +12 VDC 1A output available to vehicle for passenger warning.
PLATFORM OCCUPIED	Pressure switch; opens when platform is loaded with 50 lbs or more.
PLATFORM ON GROUND	Limit switch; closes when platform contacts ground.
PLATFORM UNWRAPPED	Limit switch; closes when platform is fully unwrapped (Figure 1-3).
PLATFORM UP-DOWN	Toggle switch; mounted on handrail; raises or lowers platform.
PLATFORM WRAP	Electric motor; unwraps or wraps platform.
PLATFORM WRAPPED	Limit switch; closes when platform is fully wrapped in stow position.
POWER DOOR OPERATOR JUMPER	Connector; installed in absence of power door operator; enables deploy function.
REMOTE CONTROLLER	Electronic component; located on bottom side of platform; controls lift functions and processes inputs from limit switches. Linked to main controller by data bus.
RIGHT ROLLSTOP	Electric motor; raises and lowers right side barrier and right front rollstop.
RIGHT SIDE BARRIER LOCKED	Limit switch; closes when barrier on right side is upright and locked.
RIGHT SIDE ROLLSTOP AND BARRIER UP	Limit switch; closes when rollstop is fully raised (upright).
RX+, RX-, TX+, and TX-	Signals; data bus signals transfer data between main and remote controllers.
STOW SIGNAL	Signal; from control pendant; raises platform and folds it into vehicle.
UP SIGNAL	Signal; from control pendant or handrail switch; raises platform from any height.
VEHICLE DOORS ARE OPEN	Signal; from power door operator; enables deploy function.
WRAP DISABLE	Control switch; user operated to prevent platform from wrapping after it has been folded.
END OF TABLE	

4. WIRING DIAGRAMS

Refer to **Figures 3-5** and **3-6** on the following pages.

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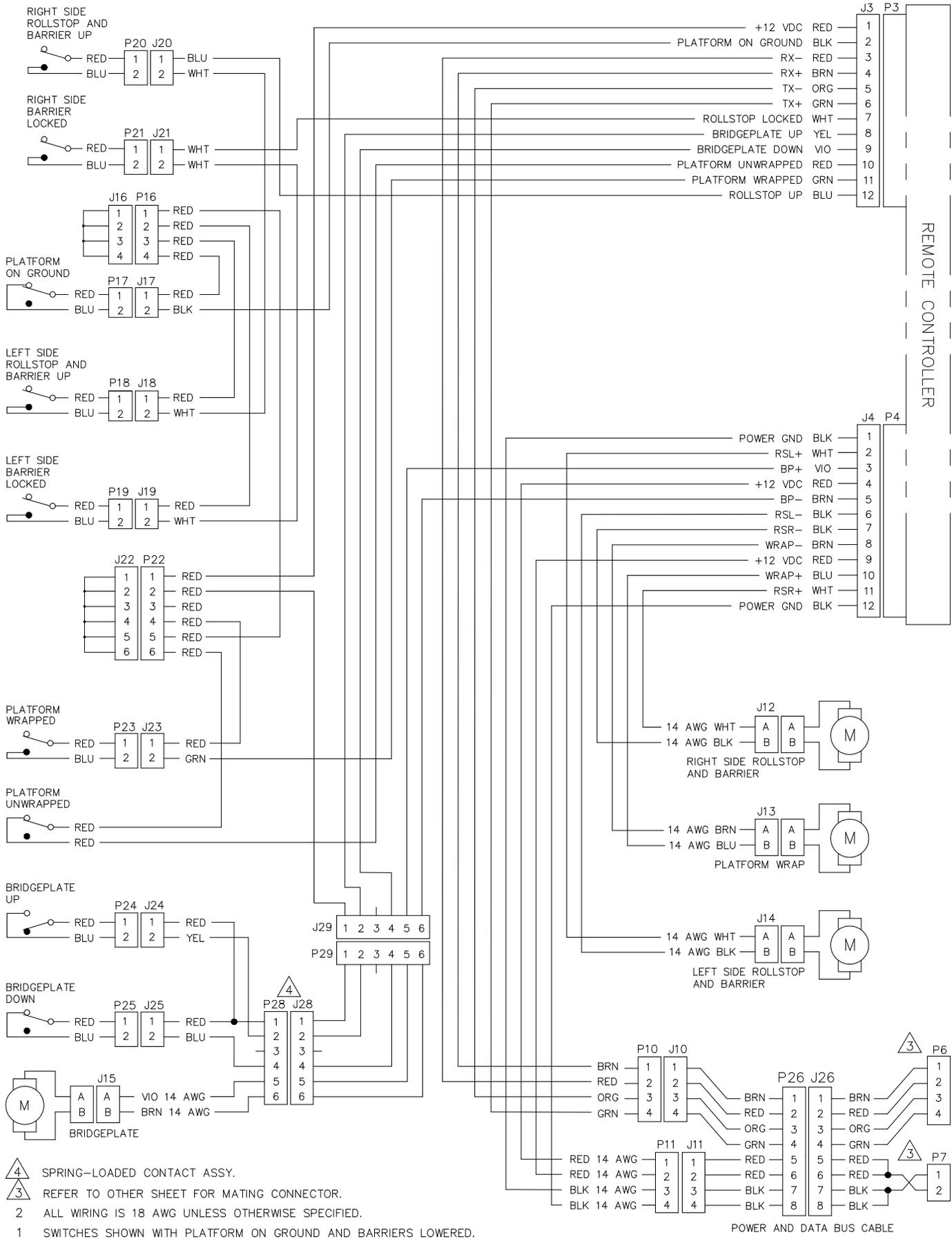


FIGURE 3-5: INNOVATOR ELECTRICAL WIRING (SHEET 1 OF 2)

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IV. SPARE PARTS

This chapter contains parts diagrams and parts list for the RICON Innovator Wheelchair Lift. Each exploded view of a major lift assembly shows individual components, or components that comprise an assembly or kit, referenced by a number. On each associated list is the reference number, a part description, the quantity used, and the Ricon part number.

NOTE: To order a part: Locate the part or assembly on an exploded view, note its reference number, find this number on the associated parts list (following page), and order the part number in the far right column. Most kits contain a single part (plus hardware). Therefore, you may need to order more than one kit if the part is used more than once on a major assembly.

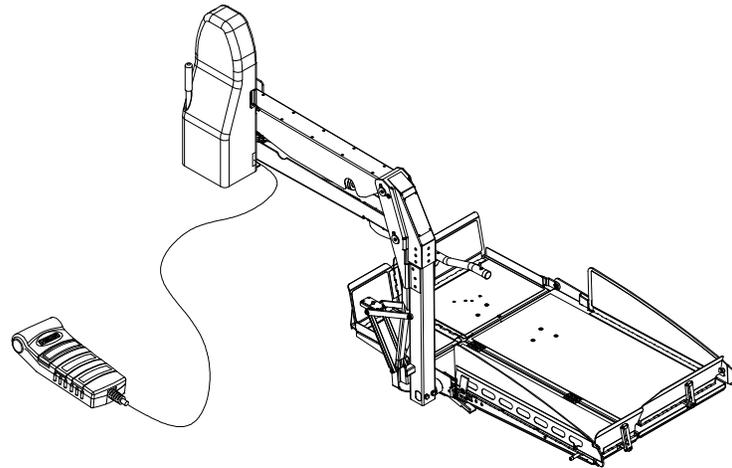


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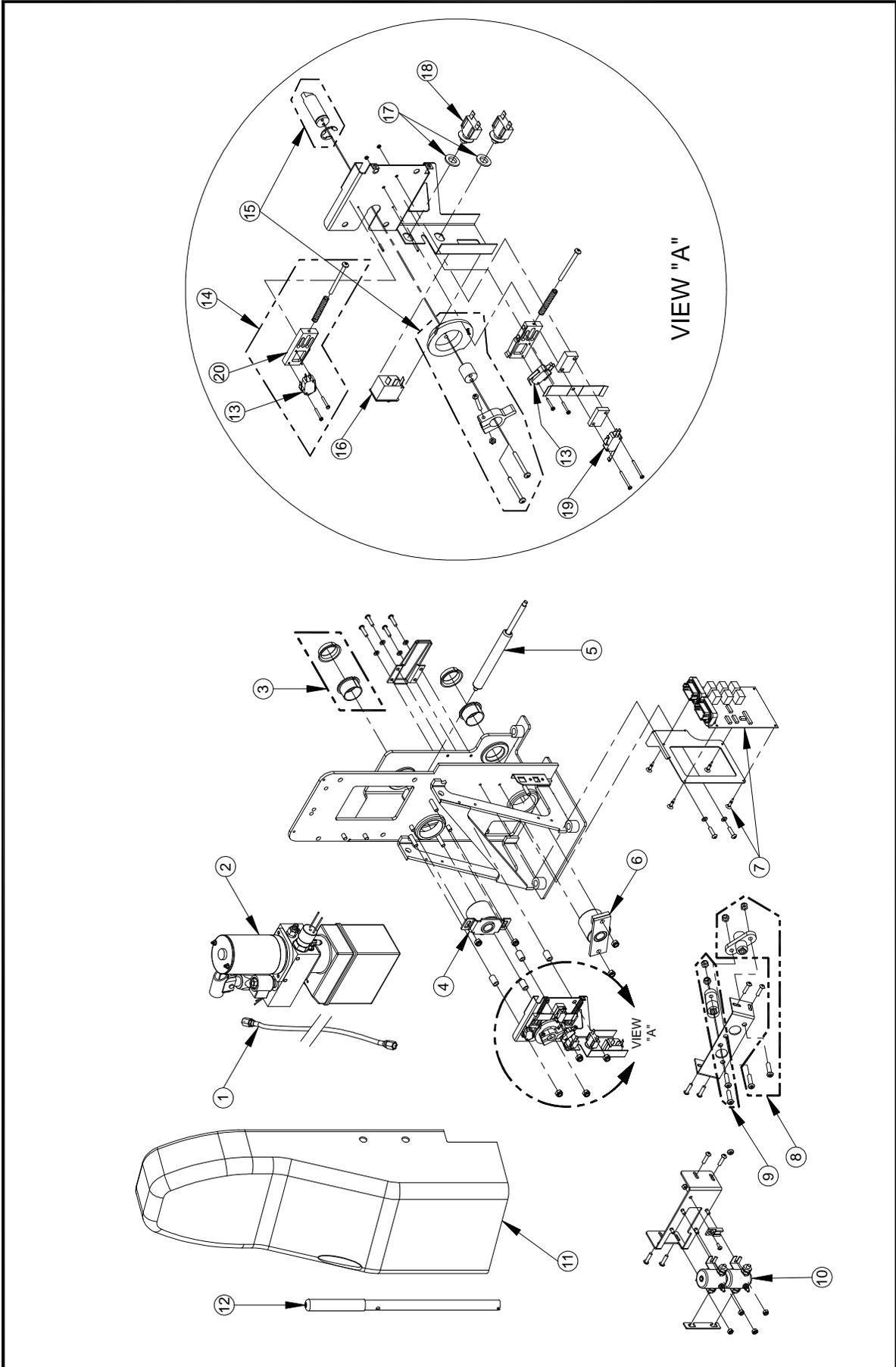


FIGURE 4-2: TOWER ASSEMBLY

FIGURE 4-2: TOWER ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	HYDRAULIC HOSE, HYDRAULIC PUMP ASSEMBLY	1	28690
2	PUMP ASSEMBLY, 12V	1	PM212000008
3	KIT, BUSHINGS, FLANGED, TOWER	1	28733
4	BUSHING RETAINER, TOP	1	24591
5	GAS SPRING, 22MMOD	1	23539
6	BUSHING RETAINER, BOTTOM	1	24593
7	KIT, MAIN CONTROLLER	1	28734
8	KIT, TERMINAL, BLACK	1	28731
9	KIT, TERMINAL, RED	1	28732
10	KIT, SOLENOID, 12V, SGL POLE SGLTHROW	2	29297
11	COVER, TOWER, PLASTIC	1	22841
12	HANDLE, MANUAL BACK-UP PUMP	1	V2-SH-111
13	SWITCH, LIMIT, PLATFORM-FLOOR	2	V2-ES-110
14	KIT, LIMIT SWITCH BLOCK REPLACEMENT	2	V2-ES-61
15	KIT, ACTUATOR, LIMIT SWITCH	1	29238
16	SWITCH, ROCKER, SPST	1	28530
17	ADAPTOR, .625 D-HOLE TO .484 ROUND	2	V2-ES-059
18	CIRCUIT BREAKER, 30 AMP	2	26510
19	SWITCH, LIMIT, FOLD CUTOFF	1	V2-ES-111
20	SWITCHBLOCK ASSY	2	V2-ES-82

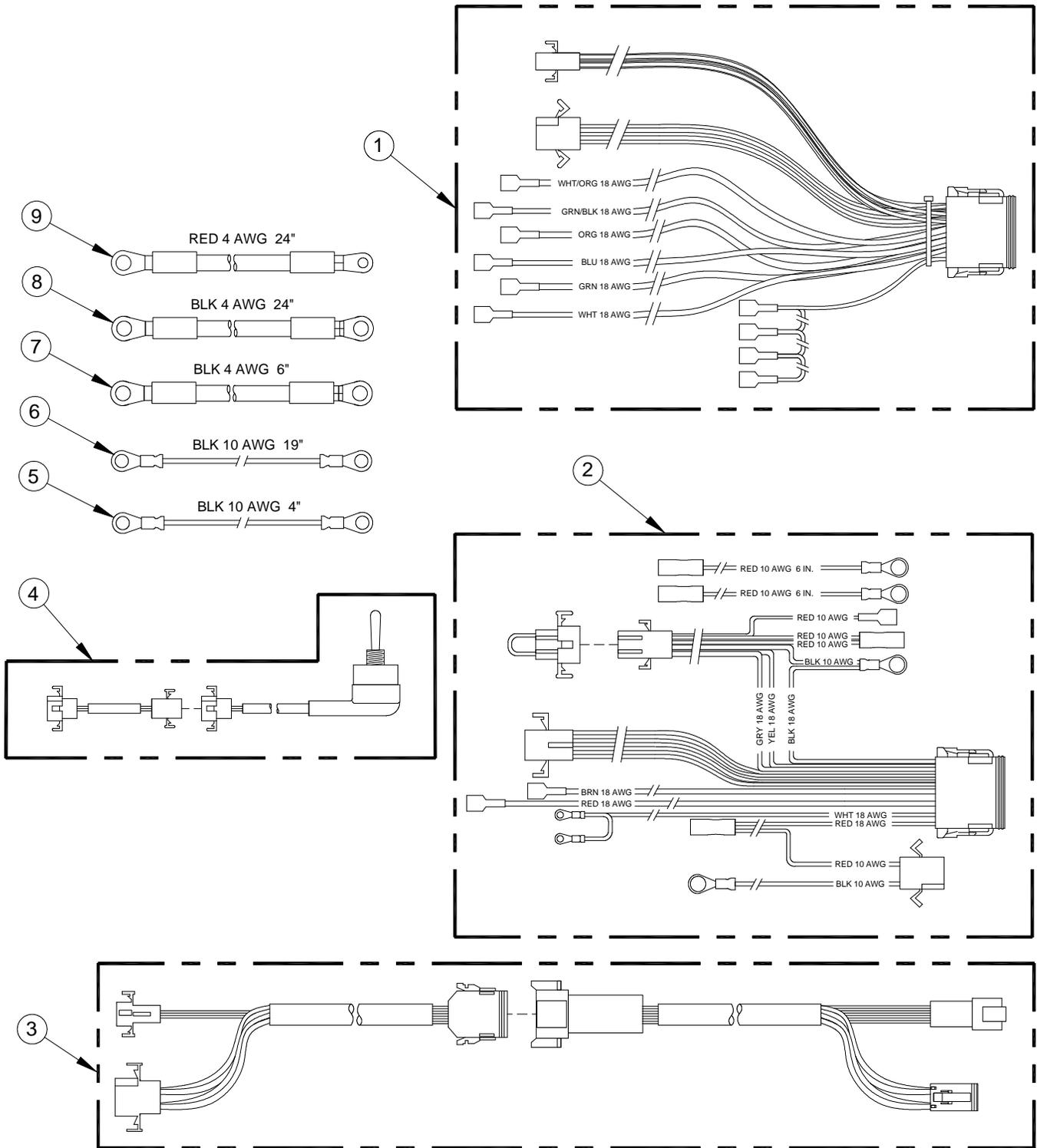


FIGURE 4-3: TOWER ELECTRICAL CABLES

FIGURE 4-3: TOWER ELECTRICAL CABLES

REF NO.	DESCRIPTION	QTY	PART
1	HARNESS, MAIN CONTROLLER–CONTROL PENDANT, J1	1	24332
2	HARNESS, MAIN CONTROLLER–HYDRAULIC PUMP, J2	1	24331
3	HARNESS, POWER AND DATA BUS	1	24327
4	HARNESS, HANDRAIL SWITCH	1	23941
5	CABLE ASSY, SOLENOID GND, 10 AWG BLK, 4”	1	24338
6	CABLE ASSY, SOLENOID GND, 10 AWG BLK, 19”	1	24337
7	CABLE ASSY, SOLENOID PWR, 4 AWG RED, 6”	1	24315
8	CABLE ASSY, PUMP GND, 4 AWG BLK, 24”	1	24314
9	CABLE ASSY, PUMP PWR, 4 AWG RED, 24”	1	24313

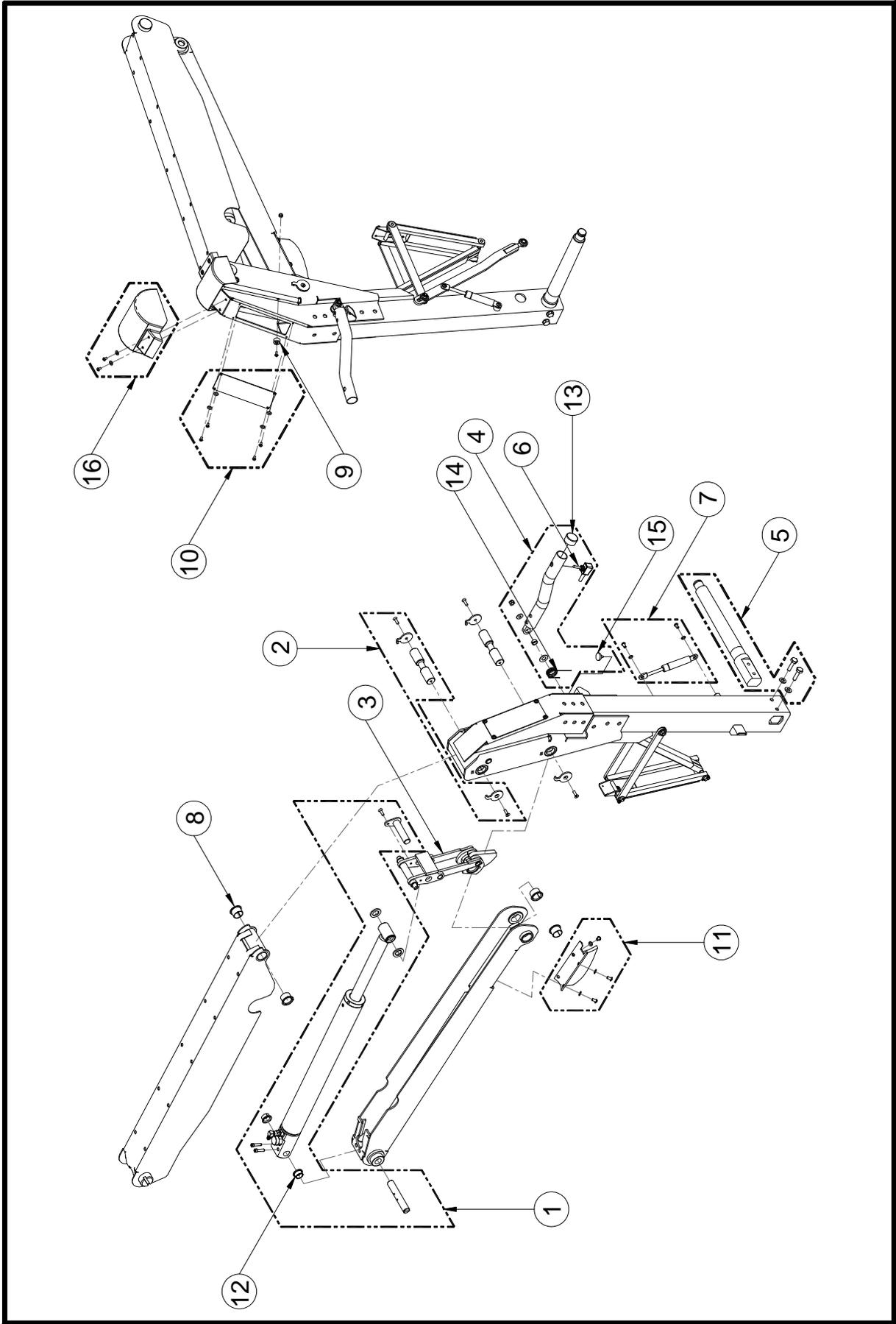


FIGURE 4-4: TRAVELING FRAME ASSEMBLY

FIGURE 4-4: TRAVELING FRAME ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	KIT, HYDRAULIC CYLINDER ASSY	1	27511
2	KIT, PIVOT PIN, 1.0OD	2	27512
3	LINK ASSY, HYDRAULIC CYLINDER	1	27061
4	KIT, HANDRAIL ASSY	1	27513
5	KIT, SHAFT, PLATFORM PIVOT	1	27514
6	HARNESS, HANDRAIL, W/SWITCH	1	23941
7	KIT, GAS SPRING	1	28735
8	BUSHING, FLANGED, 1.00IDx.75W,	4	27071
9	BUMPER, RUBBER, BAG OF 10	1	19784
10	KIT, ACCESS COVER	1	28736
11	KIT, FOLD CAM	1	28737
12	BUSHING, FLANGED, .75IDx.5W	2	27074
13	CAP, ROUND, BLK, CAPLUG MFG. NO, FCR-2	1	25550
14	SPRING, TORSION	1	27068
15	BUMPER, RUBBER, BAG OF 10	1	20653
16	KIT, COVER, VERTICAL ARM	1	30115

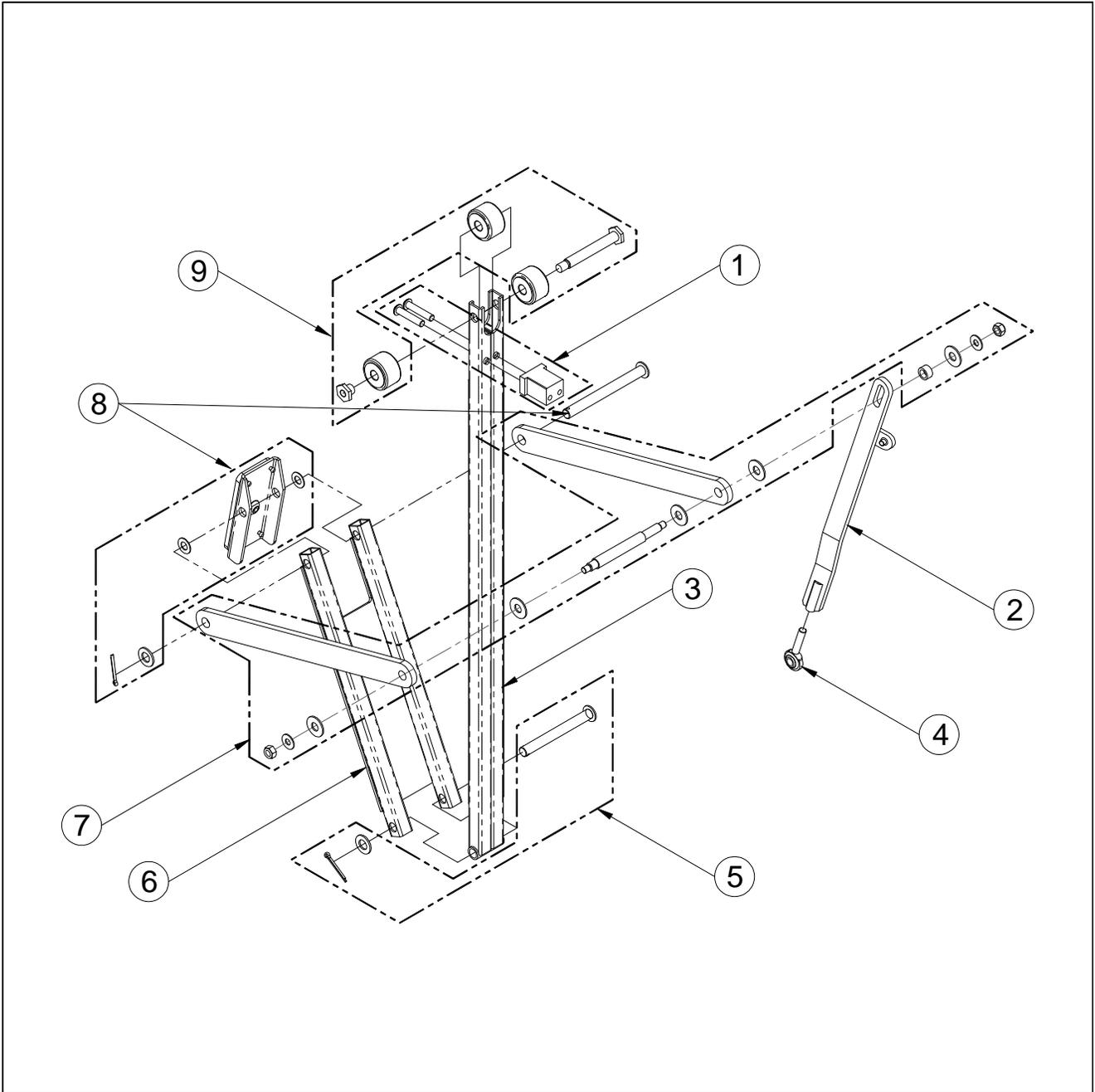


FIGURE 4-5: PLATFORM LEVELING ASSEMBLY

FIGURE 4-5: PLATFORM LEVELING ASSEMBLY

REF NO.	DESCRIPTION	QTY	PART
1	KIT, BLOCK, ALIGNMENT	1	28738
2	LINK, PLATFORM, FOLD, REAR	1	21553
3	PUSHROD, FOLD LINKAGE	1	22875
4	ROD END, .375 ID, LH THD	1	24596
5	KIT, PIN, W/HDWR	1	27518
6	BRACKET, FOLD LINKAGE	1	23544
7	KIT, LINKS, PLATFORM FOLD, W/PIN	1	27517
8	KIT, KNEE ASSY, FOLD ACCELERATOR	1	27516
9	KIT, ROLLERS, PLATFORM FOLD CAM	1	27515

FIGURE 4-6: REAR PLATFORM ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	KIT, BRIDGEPLATE, LEFT SIDE SECTION	1	27519
2	KIT, BRIDGEPLATE, RIGHT SIDE SECTION	1	27520
3	KIT, HINGE, BRIDGEPLATE	1	27521
4	PLATFORM ASSY, REAR, LEFT SIDE AND RIGHT SIDE SECTIONS	1	21442
5	SAFETREAD, PLATFORM, REAR, RIGHT SIDE	1	21438
6	SAFETREAD, PLATFORM, REAR, LEFT SIDE	1	21439
7	KIT, HINGE, BRIDGEPLATE, LEFT SIDE SECTION	1	28720
8	KIT, SWITCH ASSY, BRIDGEPLATE UP	1	28721
9	KIT, SWITCH ASSY, BRIDGEPLATE DOWN	1	28722
10	KIT, HINGE, BRIDGEPLATE, RIGHT SIDE SECTION	1	28723
11	KIT, COVER, REAR PLATFORM, BOTTOM	1	28724
12	MOTOR ASSY, W/CLUTCH	1	29055
13	KIT, RODENDS, W/SCREW	1	28725
14	KIT, BELLCRANK, W/OFFSET LINK AND HDWR	1	28726
15	KIT, WHEEL, REAR PLATFORM	1	28727
16	KIT, ELECTRICAL CONTACTS, SPRING-LOADED	3	28728
17	SAFETREAD, BRIDGEPLATE, LEFT SIDE SECTION	1	21448
18	SAFETREAD, BRIDGEPLATE, RIGHT SIDE SECTION	1	21449
19	SPRING, TORSION, BRIDGEPLATE	4	25463

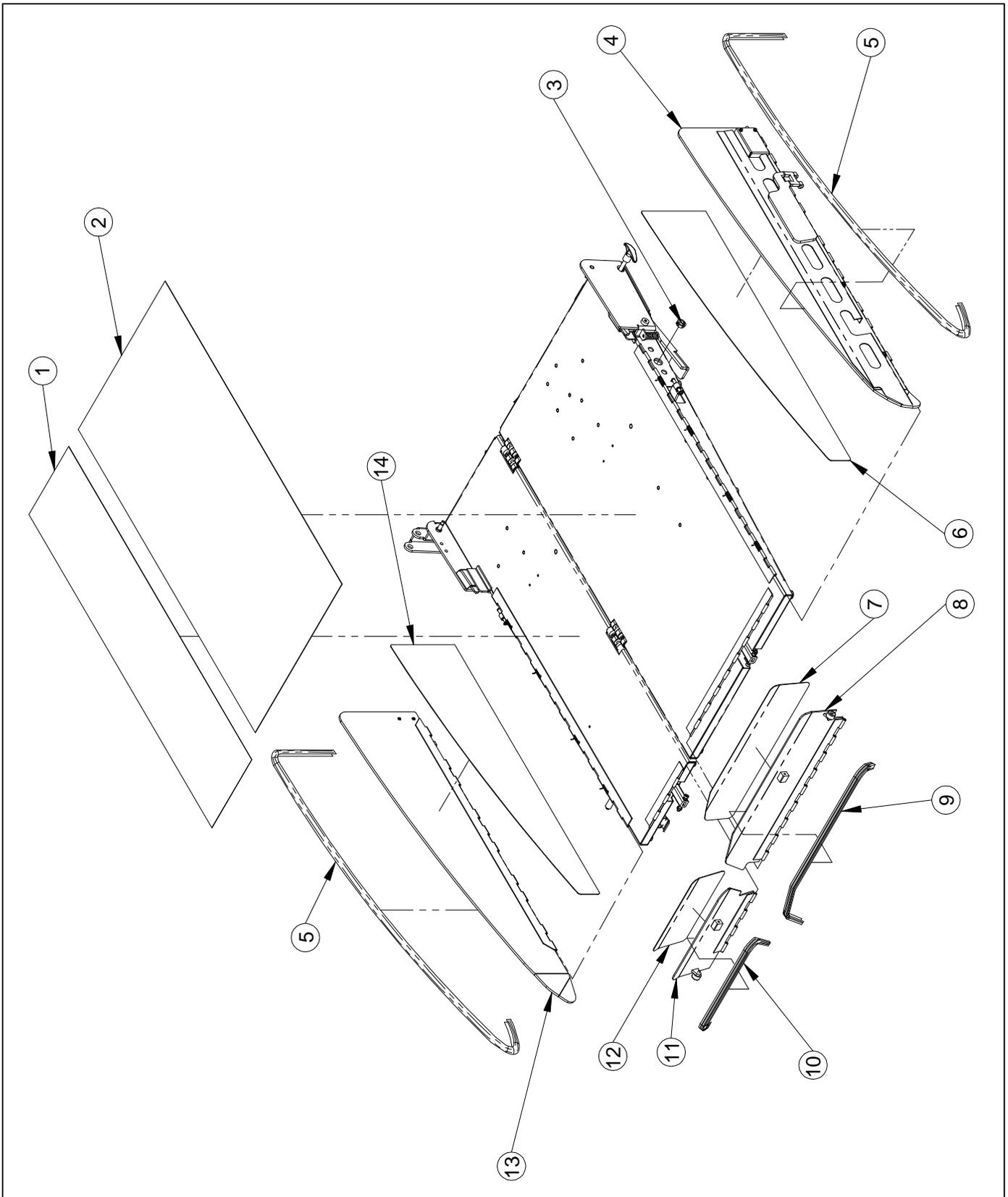


FIGURE 4-7: FRONT PLATFORM ASSEMBLY – SHEET 1

FIGURE 4-7: FRONT PLATFORM ASSEMBLY – SHEET 1

REF	DESCRIPTION	QTY	PART NO.
1	SAFETREAD, LEFT SIDE PLATFORM, FRONT	1	21435
2	SAFETREAD, RIGHT SIDE PLATFORM, FRONT	1	21434
3	GROMMET, SPLIT, 1", BAG OF 10	1	19778
4	BARRIER, LEFT SIDE	1	23243
5	EDGING, PROTECTIVE, SIDE BARRIER	2	29039
6	SAFETREAD, RIGHT SIDE BARRIER	1	21447
7	SAFETREAD, RIGHT SIDE ROLLSTOP	1	21450
8	ROLLSTOP, RIGHT SIDE	1	21465
9	EDGING, PROTECTIVE, RIGHT SIDE ROLLSTOP	1	29057
10	EDGING, PROTECTIVE, LEFT SIDE ROLLSTOP	1	29058
11	ROLLSTOP, LEFT SIDE	1	21436
12	SAFETREAD, LEFT SIDE ROLLSTOP	1	21451
13	BARRIER, RIGHT SIDE	1	21529
14	SAFETREAD, LEFT SIDE BARRIER	1	21446

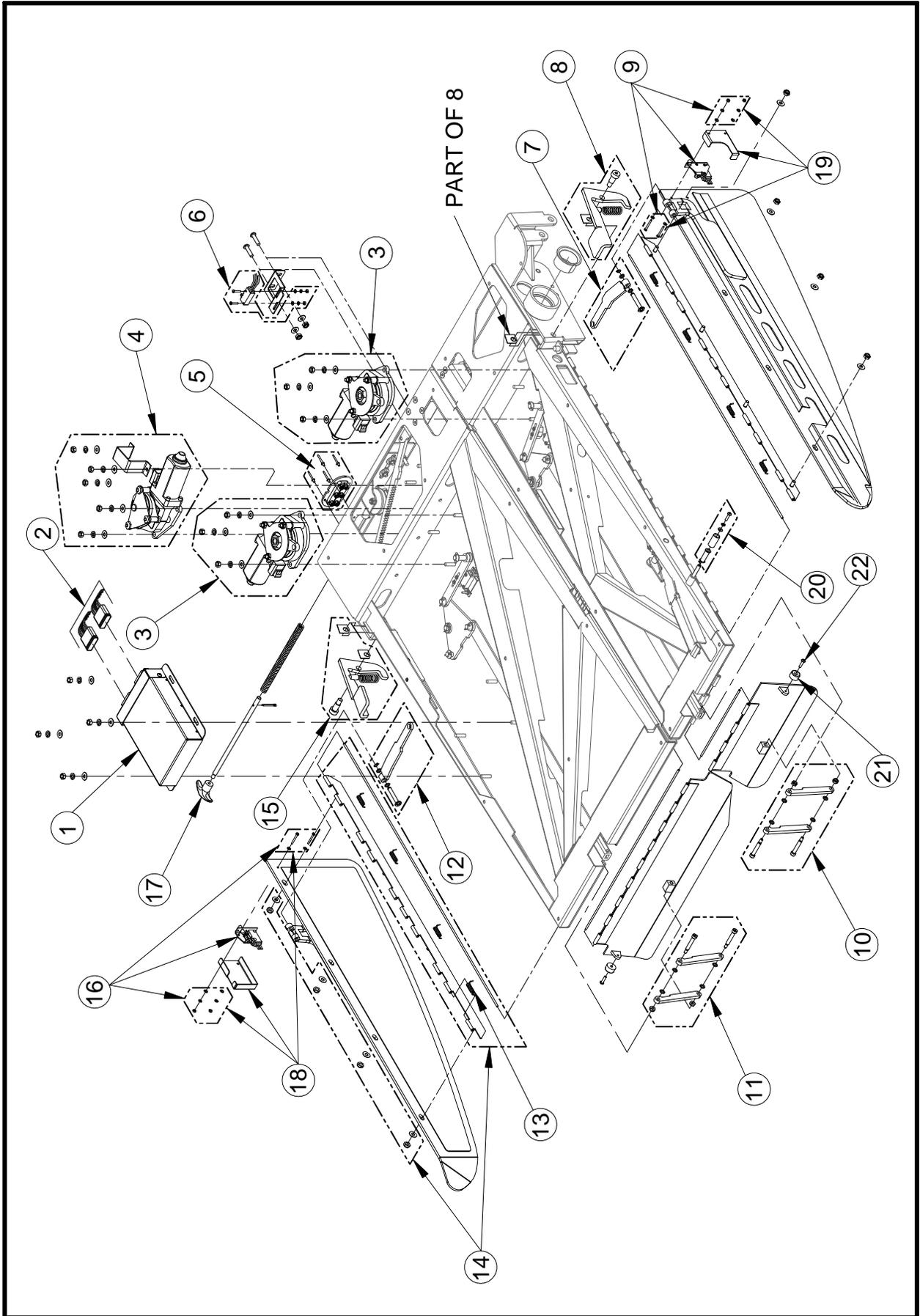


FIGURE 4-8: FRONT PLATFORM ASSEMBLY – SHEET 2

FIGURE 4-8: FRONT PLATFORM ASSEMBLY – SHEET 2

REF	DESCRIPTION	QTY	PART NO.
1	CONTROLLER, ELECTRONIC	1	28515
2	HARNES, PLATFORM	1	24328
3	KIT, MOTOR ASSY, ROLLSTOP & SIDE BARRIER, W/HDWR	2	29212
4	KIT, MOTOR ASSY, PLATFORM WRAP, W/HDWR	1	28761
5	KIT, CONTACT ASSY, PLATFORM, W/HDWR	1	29235
6	KIT, SWITCH ASSY, PLATFORM UNWRAPPED, W/HDWR	1	28758
7	KIT, PIVOT LINK, LEFT SIDE BARRIER	1	28745
8	KIT, RELEASE FOOT, LEFT SIDE BARRIER	1	28762
9	KIT, SWITCH ASSY, LEFT SIDE BARRIER LOCKED, W/HDWR	1	29232
10	KIT, PIVOT LINKS, RIGHT ROLLSTOP	1	28764
11	KIT, PIVOT LINKS, LEFT ROLLSTOP	1	28741
12	KIT, PIVOT LINK, RIGHT SIDE BARRIER	1	28746
13	SPRING, TORSION, SIDE BARRIER	8	25463
14	KIT, HINGE, SIDE BARRIER	2	28739
15	KIT, RELEASE FOOT, RIGHT SIDE BARRIER	1	28763
16	KIT, SWITCH ASSY, RIGHT SIDE BARRIER LOCKED, W/HDWR	1	29233
17	T-HANDLE, MANUAL RELEASE, PLATFORM	1	24915
18	KIT, COVER, SENSOR W/HDWR, LH	1	30116
19	KIT, COVER, SENSOR W/HDWR, RH	1	30117
20	KIT, REST, ARM HANDRAIL	1	30118
21	BUMPER, RUBBER #315-009 (BAG OF 10)	2	19784
22	SCREW, BHS M4X12MM, SST (BAG OF 10)	2	30119

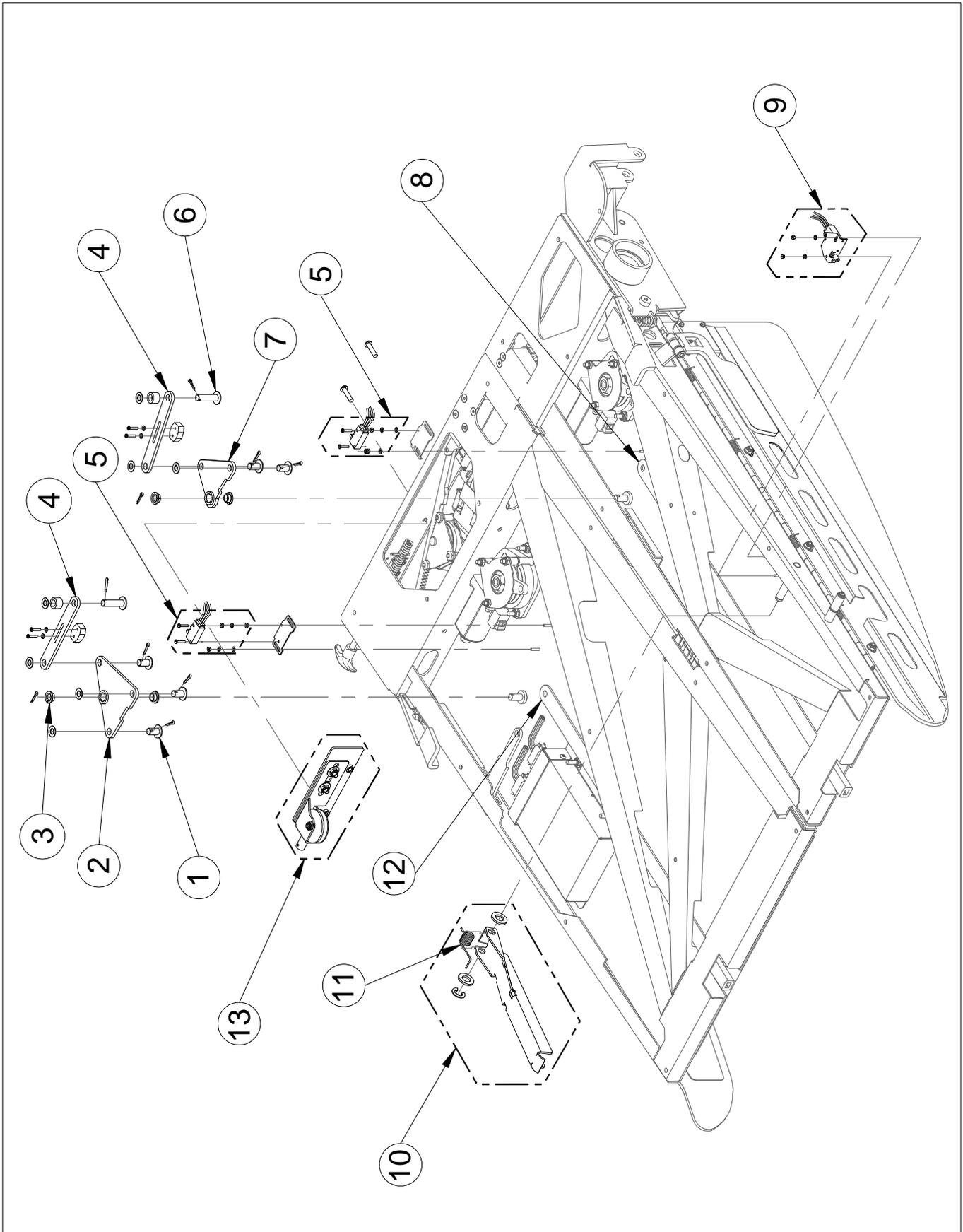


FIGURE 4-9: FRONT PLATFORM ASSEMBLY – SHEET 3

FIGURE 4-9: FRONT PLATFORM ASSEMBLY – SHEET 3

REF	DESCRIPTION	QTY	PART NO.
1	PIN, .38ODx.65L	5	23555
2	BELLCRANK, RIGHT SIDE PLATFORM	1	21481
3	BUSHING, FLANGED, .38IDx.25L	4	253845
4	LINK, BELLCRANK, PLATFORM	2	24521
5	KIT, SWITCH ASSY, ROLLSTOP & BARRIER UP, W/HDWR	2	28758
6	PIN, .38ODx1.38L	2	23553
7	BELLCRANK, LEFT SIDE PLATFORM	1	21482
8	LINK, ASSY, FRONT ROLLSTOP R/H	1	29745
9	KIT, SWITCH ASSY, LEFT SIDE BARRIER LOCKED	1	29232
10	KIT, RELEASE FOOT, ROLLSTOP	1	28757
11	SPRING, TORSION	1	27078
12	LINK ASSY, FRONT ROLLSTOP, LH	1	29746
13	MANUAL PLATFORM RELEASE ROLLER ASSY	1	29001

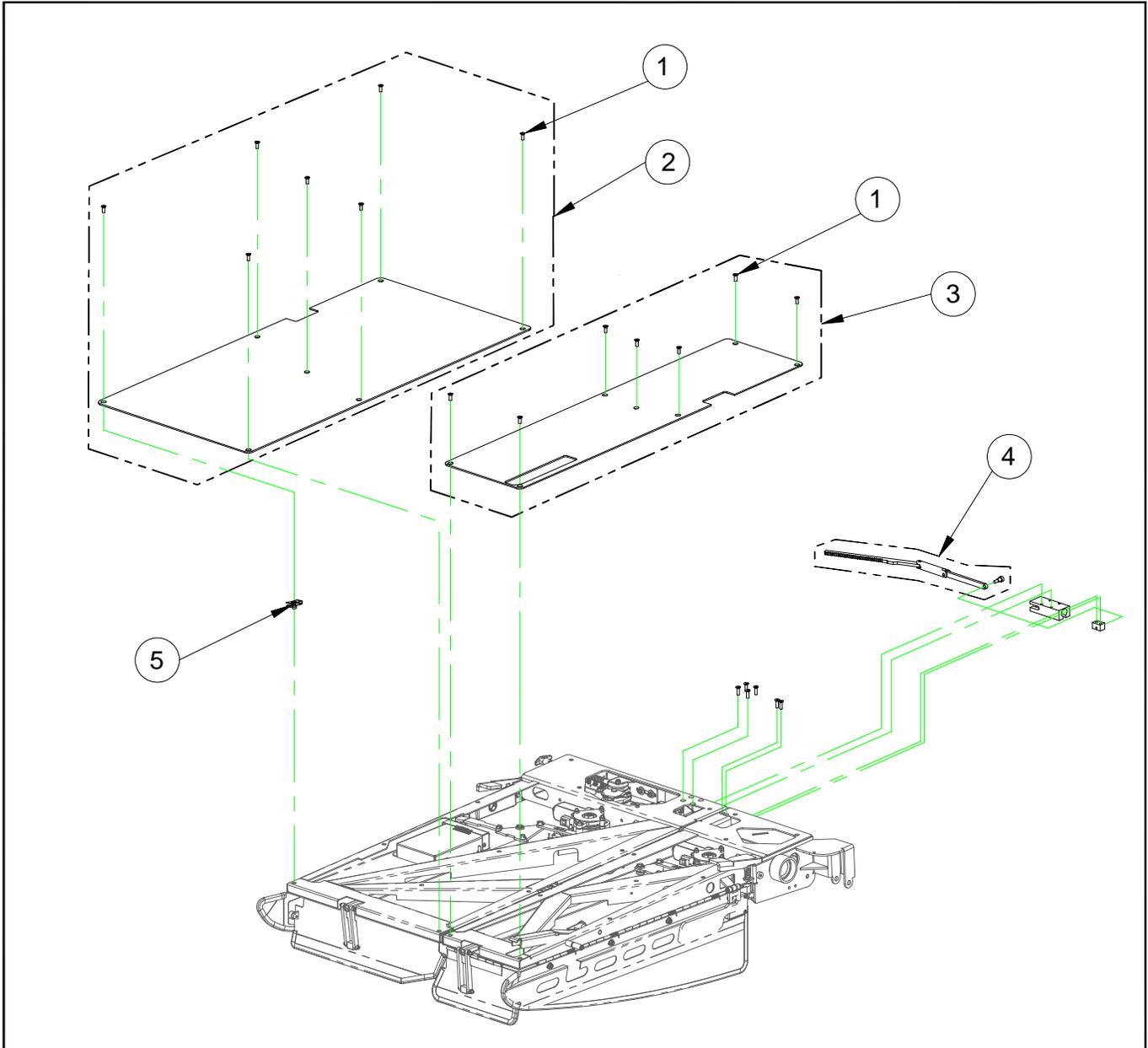


FIGURE 4-10: FRONT PLATFORM ASSEMBLY – SHEET 4

FIGURE 4-10: FRONT PLATFORM ASSEMBLY – SHEET 4

REF	DESCRIPTION	QTY	PART NO.
1	SCREW, FHP, M6-1.0x16MM, (BAG OF 10)	14	29240
2	KIT, COVER, PLATFORM, BOTTOM, RIGHT	1	29237
3	KIT, COVER, PLATFORM, BOTTOM, LEFT	1	29236
4	KIT, LINKAGE, PLATFORM, WRAPPING	1	28760
5	NUT, TRI-LOBULAR, FOLDOVER, M6-1.0	14	29747

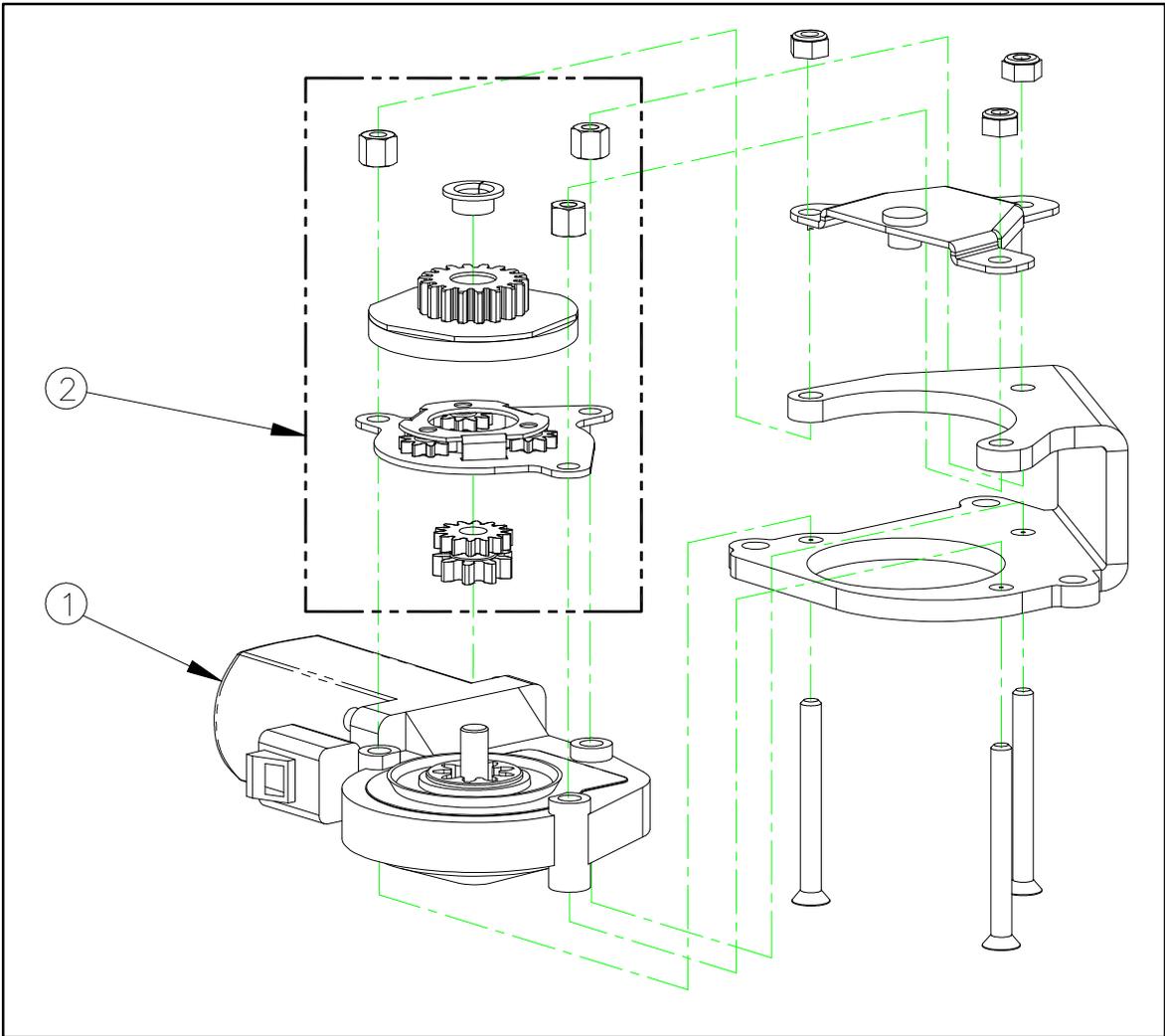


FIGURE 4-11: PLATFORM WRAP MOTOR ASSEMBLY

FIGURE 4-11: PLATFORM WRAP MOTOR ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	GEARMOTOR, HIGH TORQUE	1	27069
2	KIT, TRANSMISSION, PLATFORM FOLD MOTOR	1	29213

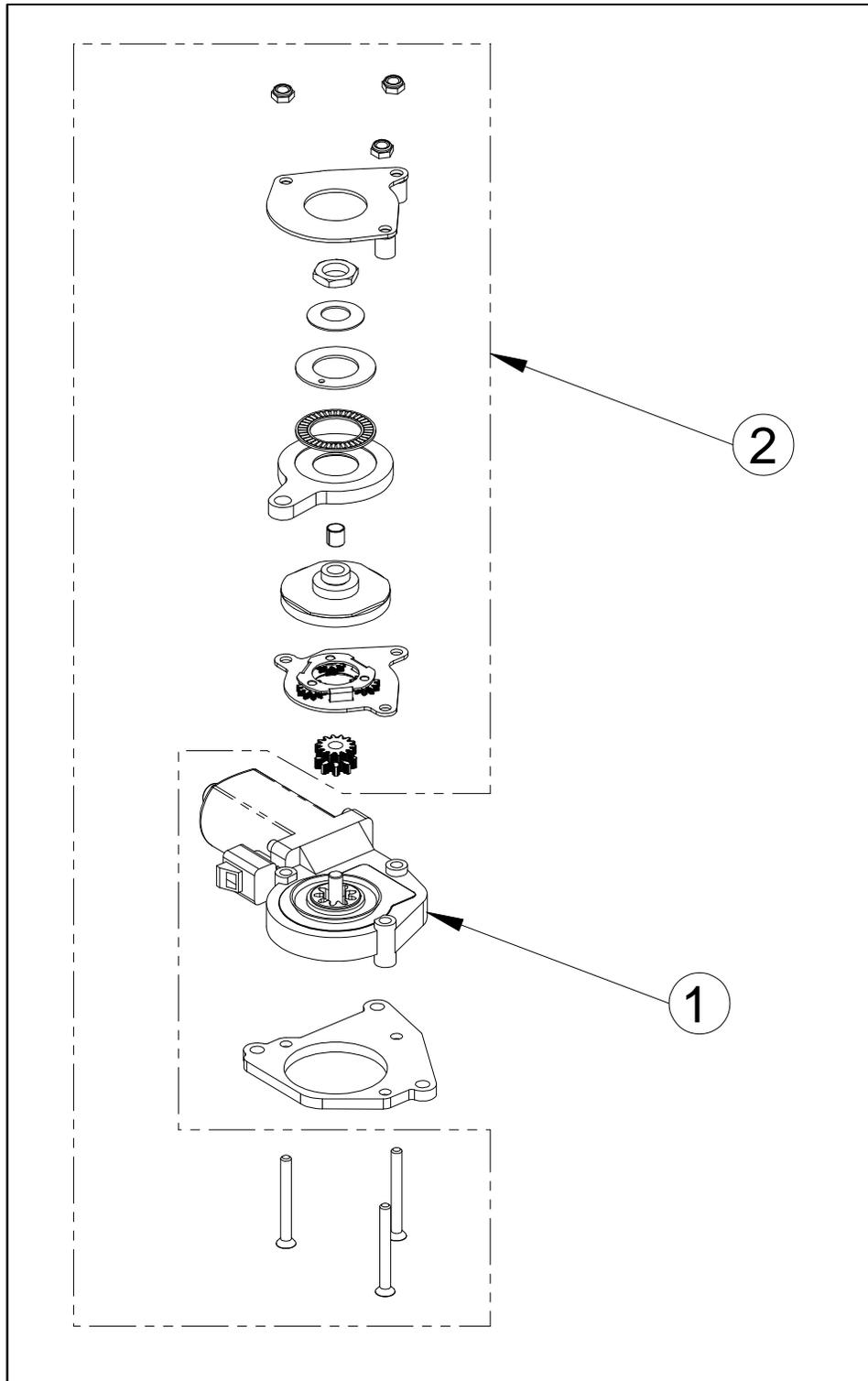


FIGURE 4-12: SIDE BARRIER MOTOR ASSEMBLY

FIGURE 4-12: SIDE BARRIER MOTOR ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	GEARMOTOR, HIGH TORQUE	1	27069
2	KIT, TRANSMISSION, SIDE BARRIER MOTOR	1	29214

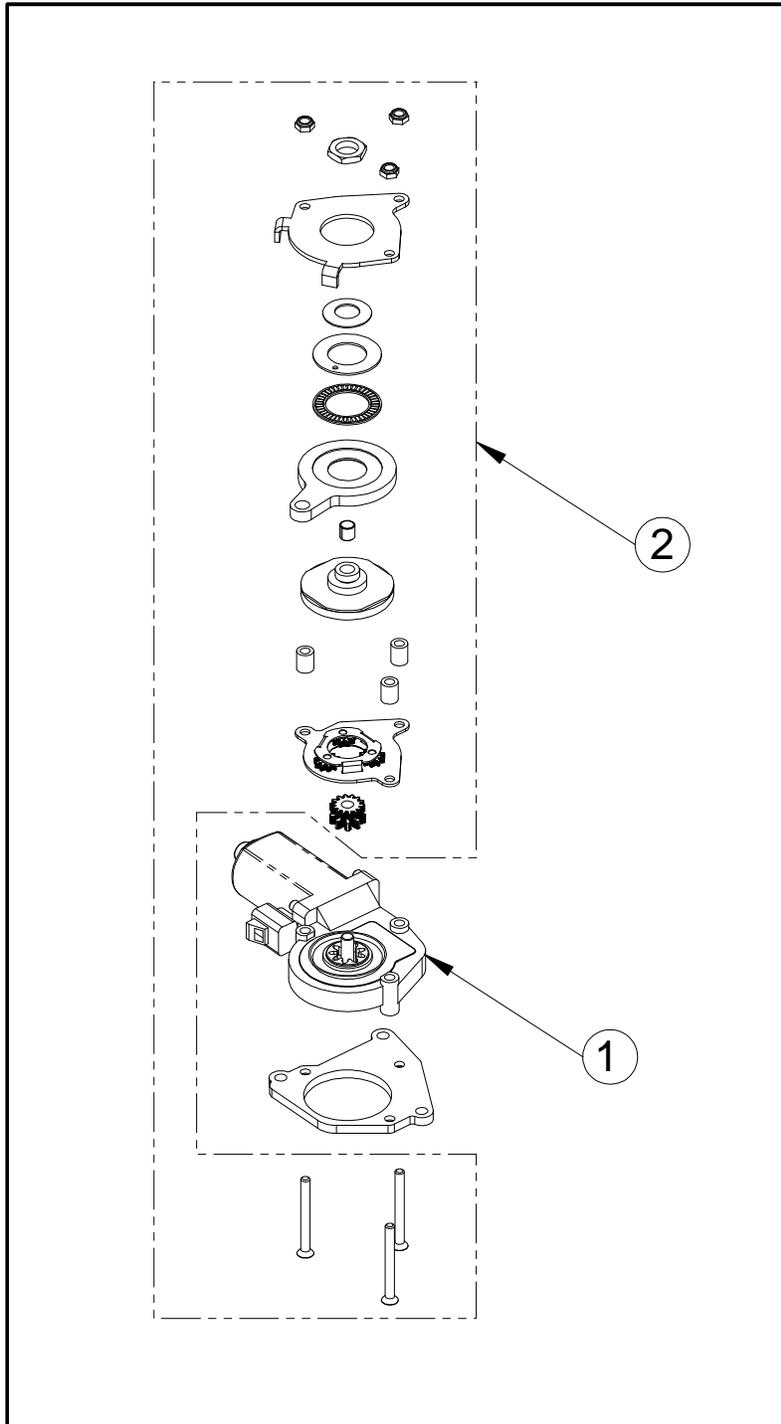


FIGURE 4-13: BRIDGEPLATE MOTOR ASSEMBLY

FIGURE 4-13: BRIDGEPLATE MOTOR ASSEMBLY

REF	DESCRIPTION	QTY	PART NO.
1	GEARMOTOR, HIGH TORQUE	1	27069
2	KIT, TRANSMISSION, BRIDGEPLATE, MOTOR	1	29215

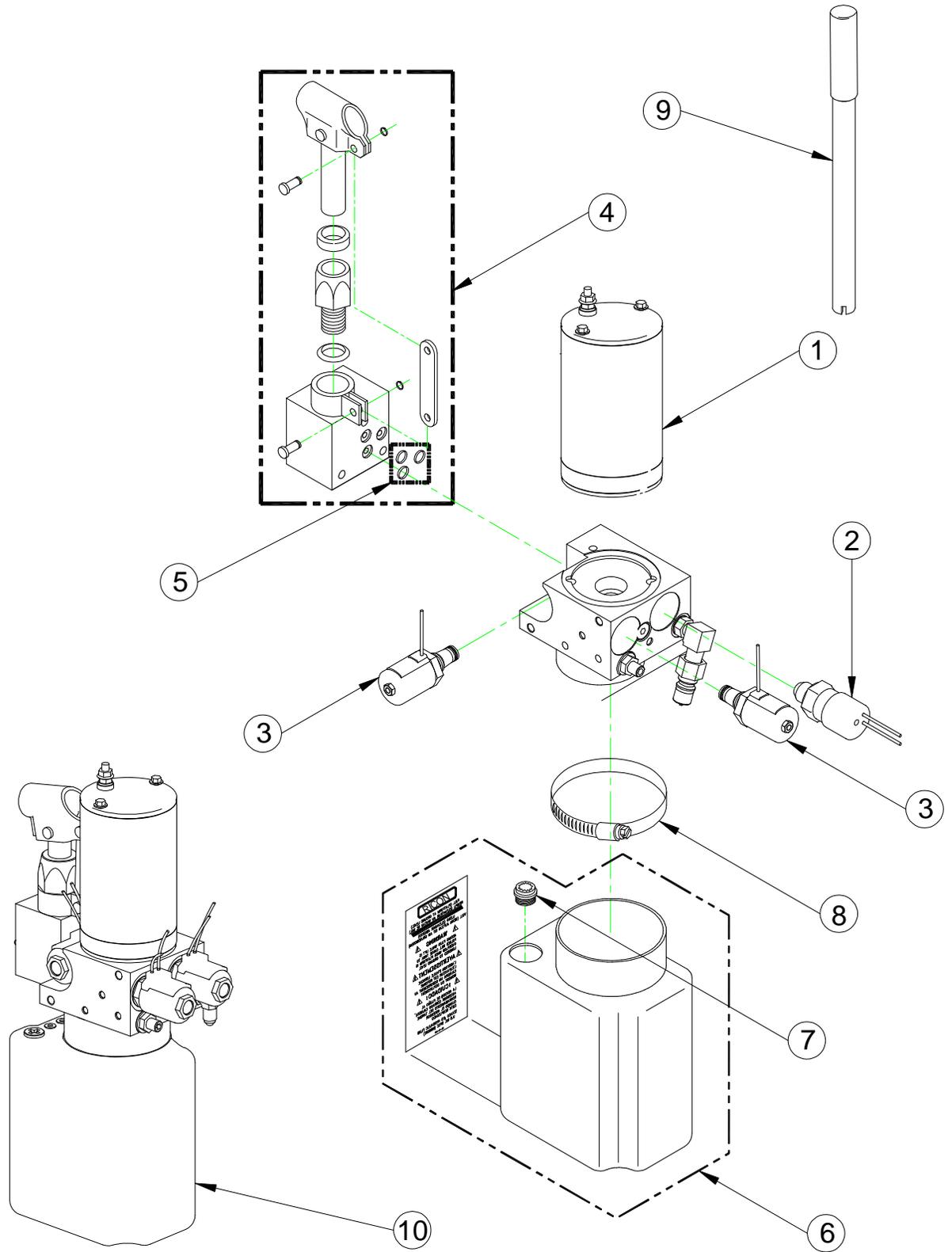


FIGURE 4-14: PUMP ASSEMBLY

FIGURE 4-14: PUMP ASSEMBLY

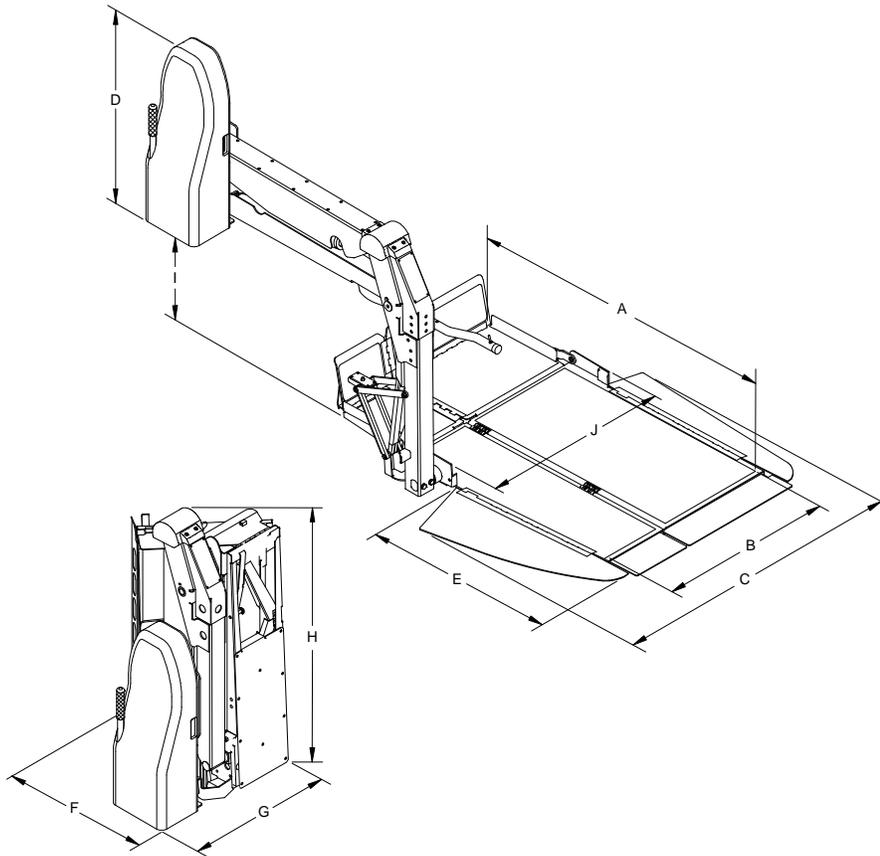
REF	DESCRIPTION	QTY	PART NO.
1	MOTOR ASSY, 12V, 3", ISKRA	1	14332
2	KIT, RETRO, SWCH, PRESS, ADJ 300-13000 PSI	1	16640
3	KIT, SPOOL VALVE, W/DCLR, 12V	1	01176
4	MANUAL BACK-UP PUMP ASSY	1	V2-SH-210
5	SEAL KIT, MANUAL BACK-UP PUMP	1	V2-SH-220
6	RESERVOIR, PUMP, PLASTIC W/DECAL AND PLUG	1	30938
7	PLUG, 3/8 NPT, PLASTIC	1	10333
8	CLAMP, WORM, #52 SST	1	V2-SH-109
9	MANUAL PUMP HANDLE	1	V2-SH-111
10	PUMP ASSEMBLY, 12V	1	PM212000008

APPENDIX 1

LIFT SPECIFICATIONS

INNOVATOR LIFT

Lifting system.....	electro-hydraulic pump and hydraulic cylinder
Hydraulic pump rating.....	1250±25 PSI
Operating voltage	12VDC
Current, max.....	120 amps
Current peak (inrush)	350 amps
Load capacity, max	660 lbs (300kg)
Lift weight, typical.....	350 lbs (159kg)



DIMENSIONS – inches (cm)

MODEL	A	B	C	D	E
INNOVATOR	Usable Platform Length	Usable Platform Width	Overall Width	Tower Height	Side-entry Width
	51.5 (130.8)	30.5 (77.5)	48.6 (123.4)	30.0 (76.2)	40.0 (101.6)
	F	G	H	I	J
	Install Depth	Install Width	Install Height	Travel, Floor-to-Ground	Traveling Frame Width
	22.5 (57.2)	27.0 (68.6)	48.0 (121.9)	31.0 (78.7)	32.0 (81.3)

