KlearVue™

K-Series® Folding Platform

Personal and Transit Use

Wheelchair Lift

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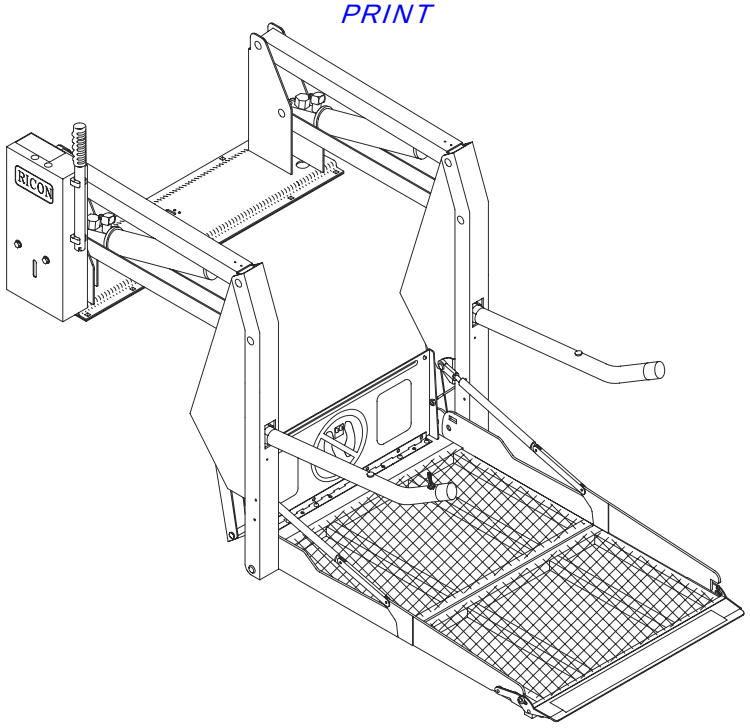

Service Manual

03/31/10

32DSS102.D.1

HOME

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 qualified 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	PAGES	DESCRIPTION OF CHANGE	ECO
32DSS102. D.1	2-17	Note added for installation to utilize Kit P/N 43453 for Adjuster Link	

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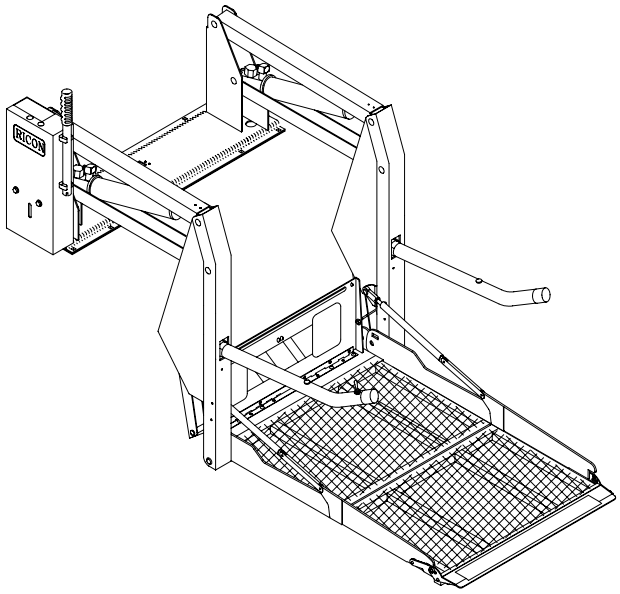
I. INTRODUCTION

The RICON KlearVue™ Series wheelchair lift provides wheelchair access to vans and buses. The patented movement provides smooth, safe entry and exit, and can lift up to 800 pounds (354 kilograms). The platform is raised with a powerful electro-hydraulic pump. The pump has a built-in manual backup pump, so that it can be raised or lowered manually.



By using the lift control switches, the platform is unfolded from the vehicle (deployed). The passenger boards the large non-skid platform and the operator uses the control switches to gently lower the platform to the ground. After the passenger departs, the platform is raised and folded into the vehicle (stowed). The lift platform splits and folds horizontally when stowed.

This manual contains operation and maintenance instructions and a troubleshooting guide for the lift. It is important to user safety that the lift operators be completely familiar with the Operating Instructions chapter of the operator manual (32DSS101). Once the lift is installed, it is very important that the lift be properly maintained by following the Ricon recommended cleaning, lubrication, and inspection instructions.

If there are questions about this manual, or additional copies are needed, please contact Ricon Product Support at one of the following locations:

Ricon Corporation
7900 Nelson Road
Panorama City, CA 91402 ..... (818) 267-3000
Outside (818) Area Code ..... (800) 322-2884
World Wide Website ..... www.riconcorp.com

Ricon U.K. Ltd.
Littlemoss Business Park, Littlemoss Road
Droylsden, Manchester
United Kingdom, M43 7EF ..... (+44) 161 301 6000

RICON CORPORATION
FIVE-YEAR LIMITED WARRANTY

Ricon Corporation (Ricon) warrants to the original purchaser of this product that Ricon will repair or replace at its option any parts that fail because of defective material or workmanship as follows:

- Repair or replace parts for a period of one year starting from the date of purchase. A complete list of parts covered by this warranty can be obtained from an authorized Ricon dealer or qualified service technician.
- Labor costs for specified parts replaced under this warranty for a period of one year from the date put into service. A Ricon rate schedule determines parts covered and labor allowed.
- Repair or replace lift power train parts for a period of five years from date of purchase. A complete list of parts covered can be obtained from your authorized Ricon dealer or qualified service technician.

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

If you are traveling: All authorized Ricon dealers honor this warranty. Consult the telephone directory or call our Product Support department for the name of the nearest authorized Ricon dealer.

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 the vehicle, road hazards, overloading, failure to follow operating instructions, or acts of nature (i.e., weather, lightning, flood).

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

This Warranty Is Void If:

⚠ WARNING

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

- The product has been installed or maintained by someone other than a Ricon dealer or a qualified service technician.
- The product has been modified or altered in any respect from its original design without written authorization by Ricon.

Ricon disclaims liability for any personal injury or property damage that results from operation of a Ricon product that has been modified from the original Ricon design. No person or company is authorized to change the design of this Ricon product without written authorization by Ricon. Ricon's obligation under this warranty is exclusively limited to the repair or exchange of parts that fail within the applicable warranty period.
Ricon assumes no responsibility for expenses or damages, including incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.
Important: The warranty registration card must be completed and returned to Ricon within twenty days after installation of this Ricon product for the warranty to be valid. The warranty is not transferable.
The warranty gives specific legal rights. There may be other rights that vary from state to state.

A. SERVICE TECHNICIAN INFORMATION

Because of the specialized nature of this product, Ricon does not sell directly to the user. Instead, the product is distributed through the woldwide network of authorized Ricon dealer or qualified Service Technicians, who perform the actual 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 the items listed on the kit packing list. **Please report any missing items Immediately to** the **Ricon Product Support Document.** The warranty and owner's registration cards must be completed and returned to Ricon within 20 days to validate the warranty.

  NOTE: The Sales or Service Personnel must review the Warranty and the Operator Manual with the user to be certain that they understand how to safely operate the product. Instruct the user to follow the operating instructions without exception.

B. GENERAL SAFETY PRECAUTIONS

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

- Under no circumstances should installation, maintenance, repair, and adjustments be attempted without the immediate presence of a person capable of rendering aid.
- An injury, no matter how slight, must be attended to. Administer first aid or seek medical attention immediately.
- Protective eyeshields and appropriate clothing should be worn at all times.
- To avoid injury, exercise caution when operating lift 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, immediately flush affected area with water and wash with soap.
- Always work in a properly ventilated area. Do not smoke or use an open flame near battery.
- Do not lay 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 operating lift.
- Inspect the lift before each use. If an unsafe condition, unusual noises or movements exist, do not use lift until the problem is corrected.
- Never load or stand on the platform until the installation is complete. Upon completion of installation, test load the lift mounting integrity at 125% of its rated load capacity.
- Stand clear of doors and platform and keep others clear during operation.
- The product requires regular maintenance. A thorough inspection is recommended at least every six months. The lift must always be maintained at the highest level of performance.

C. PRODUCT TERMINOLOGY

The references used throughout this manual are illustrated in **Figure 1-1** and defined in **Table 1-1**. Refer to **Chapter IV** for more details.

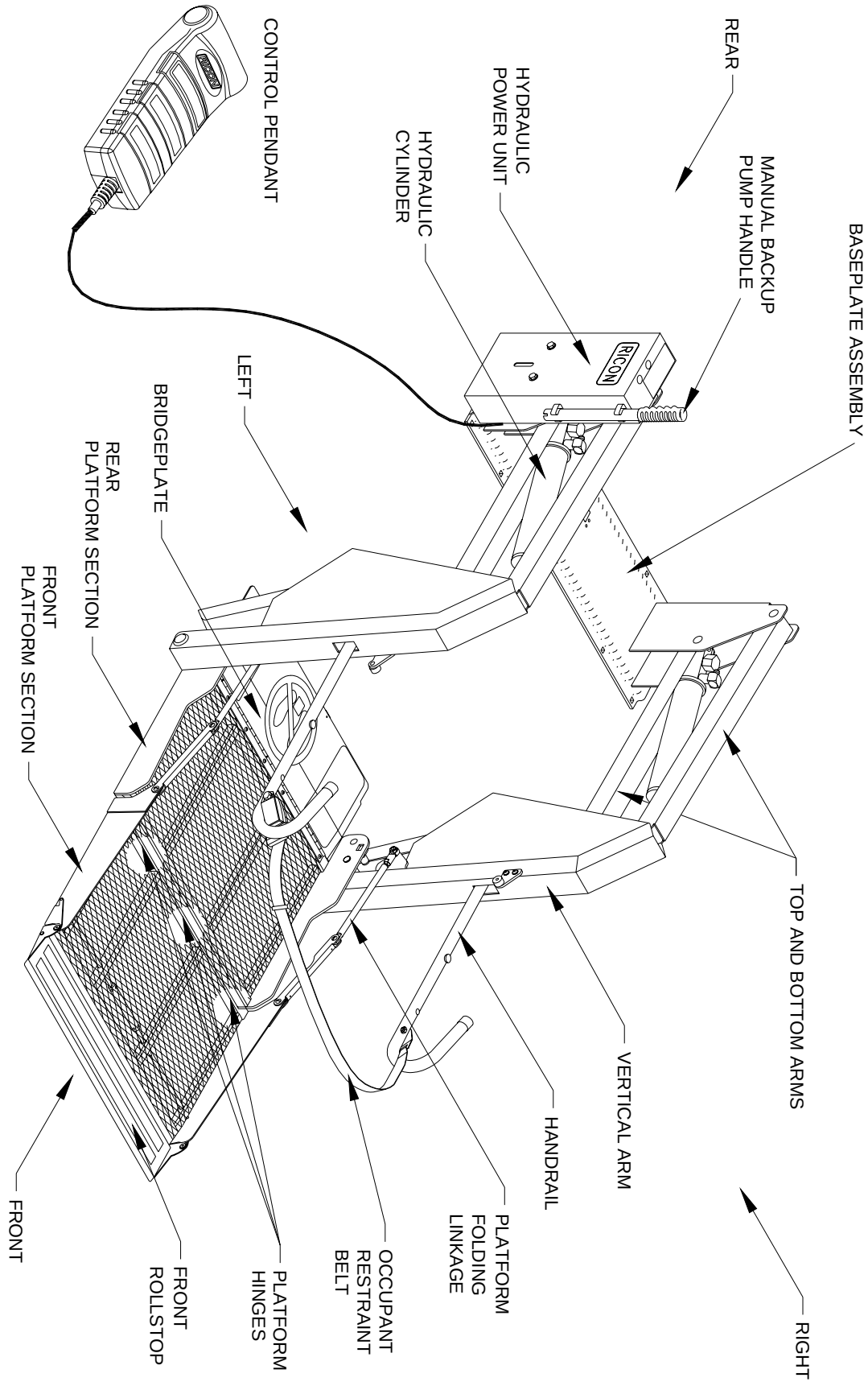


FIGURE 1-1: KLEARVUE LIFT REFERENCES

TABLE 1-1: KLEARVUE SERIES WHEELCHAIR LIFT TERMINOLOGY	
NAME	**DESCRIPTION**
Left	Lift references when installation is viewed from outside of vehicle.
Right	
Front	
Rear	
Top and bottom arms (left/right)	Pair of parallel links connecting vertical arm to base plate assembly.
Vertical arm (left/right)	Connects platform to top and bottom arms.
Handrail (left/right)	Provides a handhold for platform occupant.
Occupant restraint belt (K-2005 ADA model)	Electronically interlocked safety belt that helps to prevent a wheelchair from moving off of platform. Lift will not operate unless belt is properly engaged.
Front rollstop	Front barrier prevents wheelchair from slowly or inadvertently rolling off of platform during lift operation.
Front platform section	Portion of platform that unfolds during “deploy” operation and folds during “stow” operation.
Rear platform section	Fixed portion of platform with hinges along its front edge that front section pivots on.
Platform folding linkage	Folds front platform section as platform is stowed.
Platform hinges	Three hinges welded to bottom side of platform; join front and rear platform sections together.
Bridgeplate (inboard rollstop)	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.
Hydraulic cylinder (left/right)	Telescoping steel tube, which converts hydraulic pressure into lifting force.
Hydraulic power unit	Contains electric motor driven pump that produces hydraulic pressure to raise and fold lift, and a pressure release valve to unfold and lower it.
Control pendant	Hand-held device used to control the lift operating functions.
Manual backup pump handle	Used to operate manual back-up pump.
Baseplate assembly	Assembly that is securely bolted to the vehicle floor.
END OF TABLE	

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II. INSTALLATION

This chapter contains information for installing the RICON KlearVue Series platform wheelchair lift into most vans and buses, although custom installations are also possible in other types of vehicles. Due to the wide range of applications of lift, specific information for every possible application is not available. The following general procedures will apply to most installations. Contact Ricon Product Support for instruction about installations not covered. To install lift, refer to following sections and perform procedures carefully and in the order they are presented. Be certain that installation instructions are followed exactly and do not eliminate any steps or modify product.

A. MECHANICAL INSTALLATION

1. LIFT LOCATION

The installation surface must be flat and level. It is recommended that the lift be installed on a ½" minimum, high-grade plywood sub-floor. However, this additional installation height may not be acceptable in cases where overhead clearance is limited.

Be certain to check for proper travel clearance through the doorway.

a. With doors fully open, place/position lift in vehicle doorway as close as possible to door, with lift's baseplate assembly parallel to side of vehicle.
b. Be sure to allow a distance of ¾", if possible, between door and the part of lift closest to it. Adjust lift's left and right-side locations to accommodate subframe members.
c. Verify proper clearance of door frame, passenger seats, and outer edge of vehicle floor and possible interference with wires, fluid lines, subframe members, etc.

2. LIFT INSTALLATION GUIDELINES

The mounting of lift is a very important step. Lift performance can be greatly affected by improper mounting and/or fastening of lift. Although fastening details may vary from one vehicle to the next, some general principals always apply:

- Be certain that all mounting screws are properly installed and tightened. Screws used to fasten baseplate assembly to vehicle floor must be SAE Grade 5, or greater, and torqued to 28 ft. lbs, dry.
- Keep in mind that the most important screws are those at the rear of the lift, since they retain most of the load.

> ⚠ CAUTION
>
> Refer to **Figure 2-1**. Improper fastening sequence or torquing of screws can result in a warped or bowed baseplate, which would cause platform to operate unevenly.

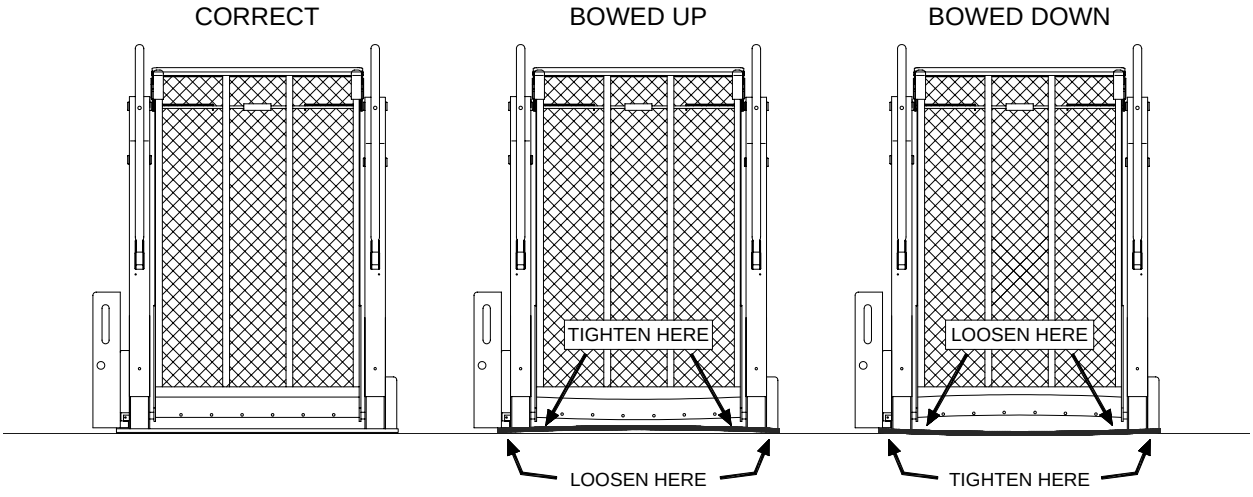

FIGURE 2-1: BASEPLATE WARPAGE

- Refer to **Figure 2-2**. On Ford van installations, clamping bars must be used to help distribute floor loading and should only be cut if needed to clear a subframe member. Use the flange of the subframe member as a support for the clamping bar.

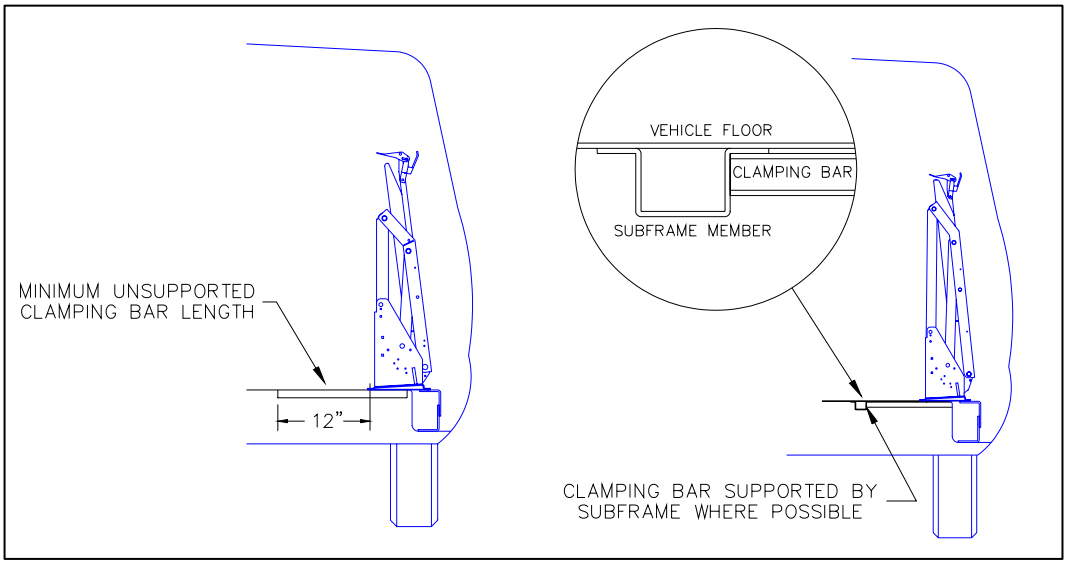

FIGURE 2-2: FORD VAN CLAMPING BAR ARRANGEMENT

3. LIFT INSTALLATION INTO VANS

a. Refer to **Figure 2-3**. Using four 1" x 3/8" screws, 3/8" washers, 3/8" lock washers and 3/8" hex nuts, assemble two bracket assembly kits.

NOTE: The top bracket must overlap bottom bracket, and both slots must face outward.

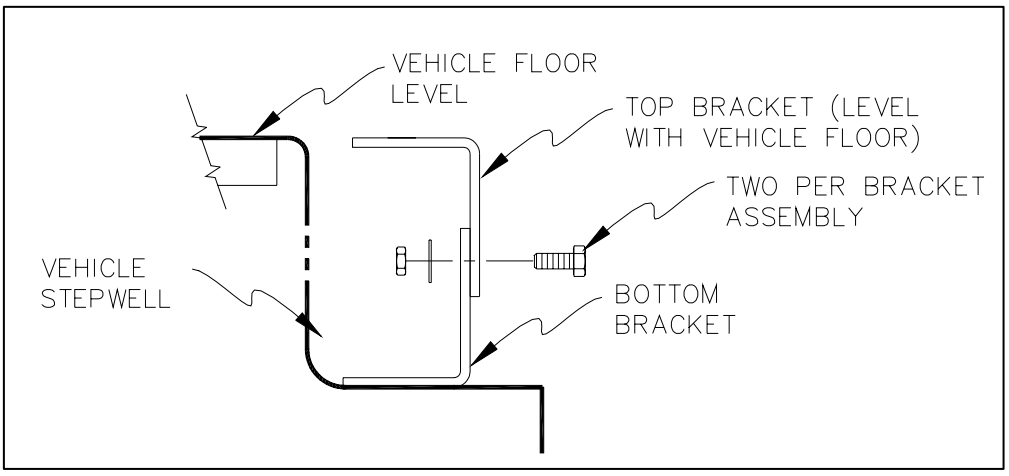

FIGURE 2-3: STEPWELL BRACKET

b. Position and adjust height of both bracket assemblies so that top bracket is level with vehicle floor. Tighten bracket assembly screws.

c. Be certain that lift is fully closed with handrails folded tight against vertical arms. If necessary, use manual pump.

⚠ WARNING
LIFT WEIGHT IS APPROXIMATELY 350-375 LBS. USE GREAT CARE WHEN POSITIONING. DO NOT POSITION ALONE.

d. Refer to **Figure 2-4** on following page. With doors fully open, position lift in vehicle doorway so that the back is supported by vehicle floor and front is supported by both bracket assemblies.

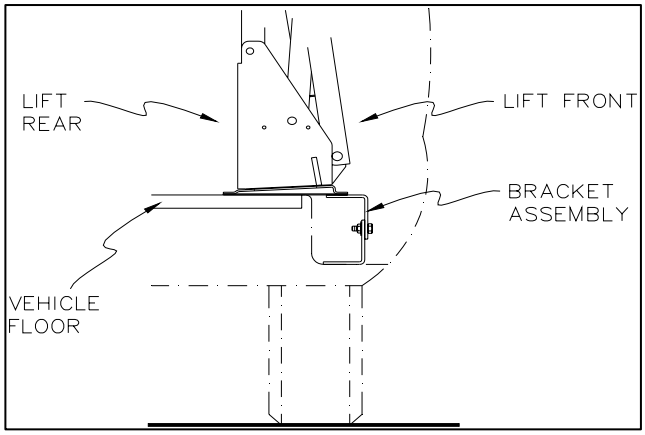

FIGURE 2-4: BRACKET ASSEMBLY

e. Adjust Base Assembly:

NOTE: If Ricon power door operators are used, install them first. They can influence the location of the lift.

- Be certain baseplate assembly is parallel with vehicle floor. The baseplate assembly may be slightly offset in door opening to provide proper clearance for passenger seats.

⚠ CAUTION

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

f. Mark and drill holes:

1.) Refer to **Figure 2-5**. Mark and drill four 25/64" dia baseplate assembly mounting holes (1, 2, 3 and 4) through vehicle floor. (On Dodge and GM vans, you must drill through vehicle floor and subframe.)

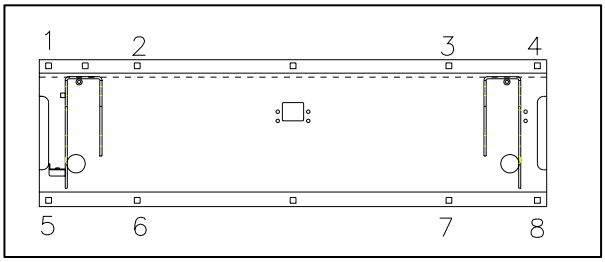

FIGURE 2-5: VAN BASEPLATE HOLES

2.) Place four 8" x 3/8" carriage screws (4" x 3/8" screws on Ford vans) into holes to secure position.

3.) Refer to **Figure 2-6**. Align the top bracket holes 5, 6, 7 and 8 with baseplate assembly holes 5, 6, 7 and 8. Mark bracket assembly mounting holes 9, 10, 11, and 12 onto vehicle step.

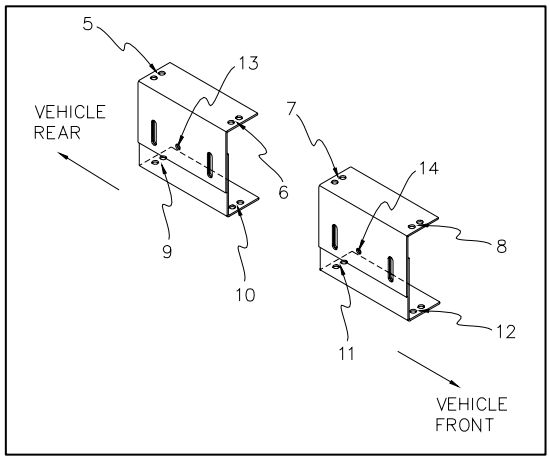

FIGURE 2-6: TOP BRACKET HOLES

4.) Remove carriage screws installed in step 2 and carefully push lift back into vehicle interior.

5.) Drill ¼" dia holes through marked locations 9, 10, 11 and 12.

g. Fasten Bracket Assemblies/Lift:

1.) Using 1-1/2" x 5/16" sheet metal screws with 5/16" lock washers, secure lower brackets to vehicle step holes 9 through 12.

NOTE: Do not install screw in position 12 if it interferes with proper door operation.

2.) Reposition lift on brackets. Verify that surface supporting lift is free of debris.

3.) Reinsert four 8" x 3/8" carriage screws through mounting holes at rear of baseplate assembly, and insert four 1-1/2" x 3/8" carriage screws through baseplate and bracket assemblies. Place 3/8" washers, lock washers, and nuts under bracket assemblies, and finger tighten nuts.

4.) On Dodge and GM vans, place four 4" x 4" plates, 3/8" washers, lock washers and hex nuts on 8" x 3/8" carriage screws under van and finger tighten. On Ford models, reinforce vehicle floor with clamping bars. They are to be bolted in positions 1, 2, 3 and 4 and run across width of baseplate towards center of van.

5.) Before tightening carriage screws, verify that lift is level with vehicle floor. Adjust bracket assembly screws if necessary.

6.) Tilting lift towards inside of van may hinder its initial unfolding. Install lift with its baseplate assembly as level as possible.

7.) Tightening carriage screws requires special care to keep baseplate assembly from warping when secured to vehicle floor. If baseplate assembly warps, the vertical arms will not be parallel. Corrections can be made by shimming at appropriate locations. Refer to **Figure 2-5**. To help prevent warping, tighten the eight carriage screws (six on Dodge van with sliding door) to 28 ft-lbs in the following sequence:

DODGE WITH SWING DOORS, ALL FORD AND GM VANS: **2, 3, 6, 7, 1, 4, 5, 8**

DODGE WITH SLIDING DOORS: **2, 3, 5, 8, 1, 4**

NOTE: Vertical Arms must be parallel for proper operation. Adjust screws as required. Best results are obtained when lift is mounted on plywood. Shims, although best avoided, may be used if required.

8.) Refer to **Figure 2-6.** Make certain that holes 13 and 14 on front of each bracket assembly are drilled through and 5/16" screws are inserted to lock position of bracket assemblies.

4. LIFT INSTALLATION INTO BUSES

Refer to **Figure 2-7**. Since clamping bars are used on most bus installations, they help distribute floor loading and should only be cut if needed to clear a subframe member. The flange of a subframe member must be used to support clamping bar.

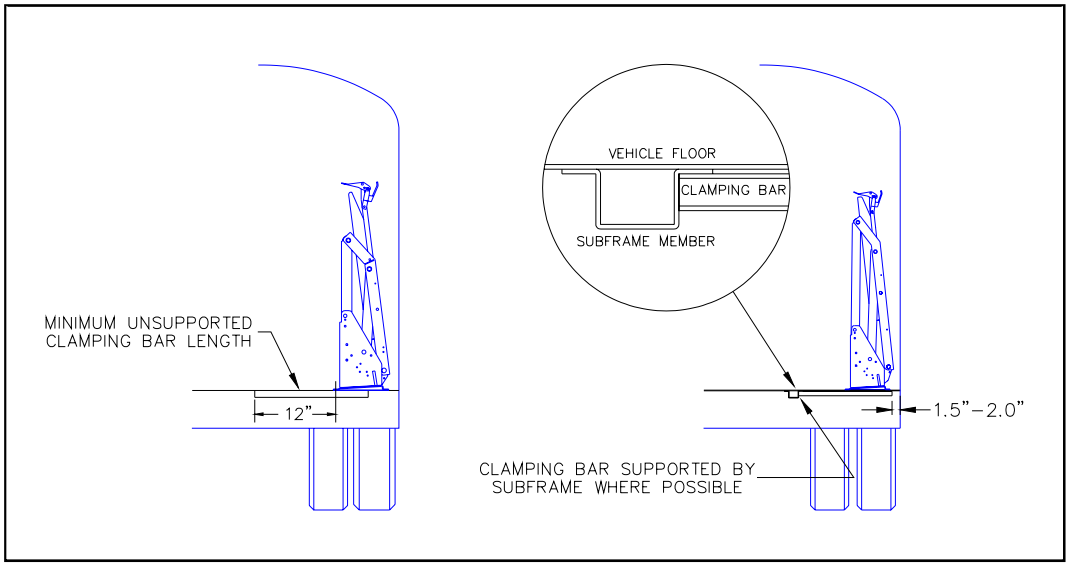

FIGURE 2-7: BUS CLAMPING BAR ARRANGEMENT

⚠ WARNING

LIFT WEIGHT IS APPROXIMATELY 350-375 LBS. USE GREAT CARE WHEN POSITIONING. DO NOT POSITION ALONE.

a. Open doors fully. Position lift so that it is centered in vehicle doorway and setback 1½ "- 2" from edge of doorsill. The lift baseplate must be parallel to side of bus.

b. Turn manual pump release valve CCW and allow folded platform to fully settle on lift baseplate. Close doors and verify that no interference is present between lift and doors. Reposition lift, if necessary. Close pump release valve.

c. Refer to **Figure 2-8**. Mark and drill eight 25/64" baseplate assembly mounting holes (1 thru 8) through vehicle floor.

⚠ CAUTION

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

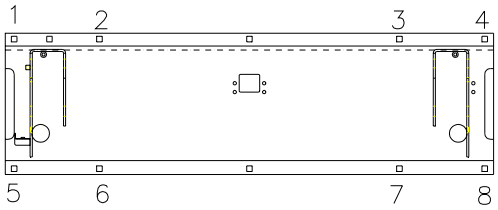

FIGURE 2-8: BUS BASEPLATE HOLES

d. Fasten Lift:

1.) Insert eight 4" x 3/8" carriage screws through baseplate and vehicle floor.

2.) Install support tubes, 4 ea to screws underneath vehicle floor across baseplate, i.e., from 1 to 5, 2 to 6, etc, and secure lift to vehicle floor with 3/8" washers, lock washers and hex-nuts.

3.) Tightening carriage screws requires special care to keep baseplate assembly from warping when secured to vehicle floor. If baseplate assembly warps, vertical arms will not be parallel. Corrections can be made by shimming at appropriate locations. To help prevent warping, tighten the eight carriage screws to 28 ft-lbs in following sequence:

2, 3, 6, 7, 1, 4, 5, 8

NOTE: Vertical Arms must be parallel for proper operation. Adjust screws as required. Best results are obtained when lift is mounted on plywood. Shims, although best avoided, may be used if required.

B. ELECTRICAL INSTALLATION

⚠ CAUTION

- Do not route a wire while it is connected to the battery.
- Route wires clear of moving parts, brake lines, and the exhaust system. Secure to the vehicle.
- When routing an electrical wire through vehicle floor or walls, use a grommet to protect wires from chafing.
- Check underside of vehicle before drilling to avoid damage to fuel lines, vent lines, brake lines, or wires.

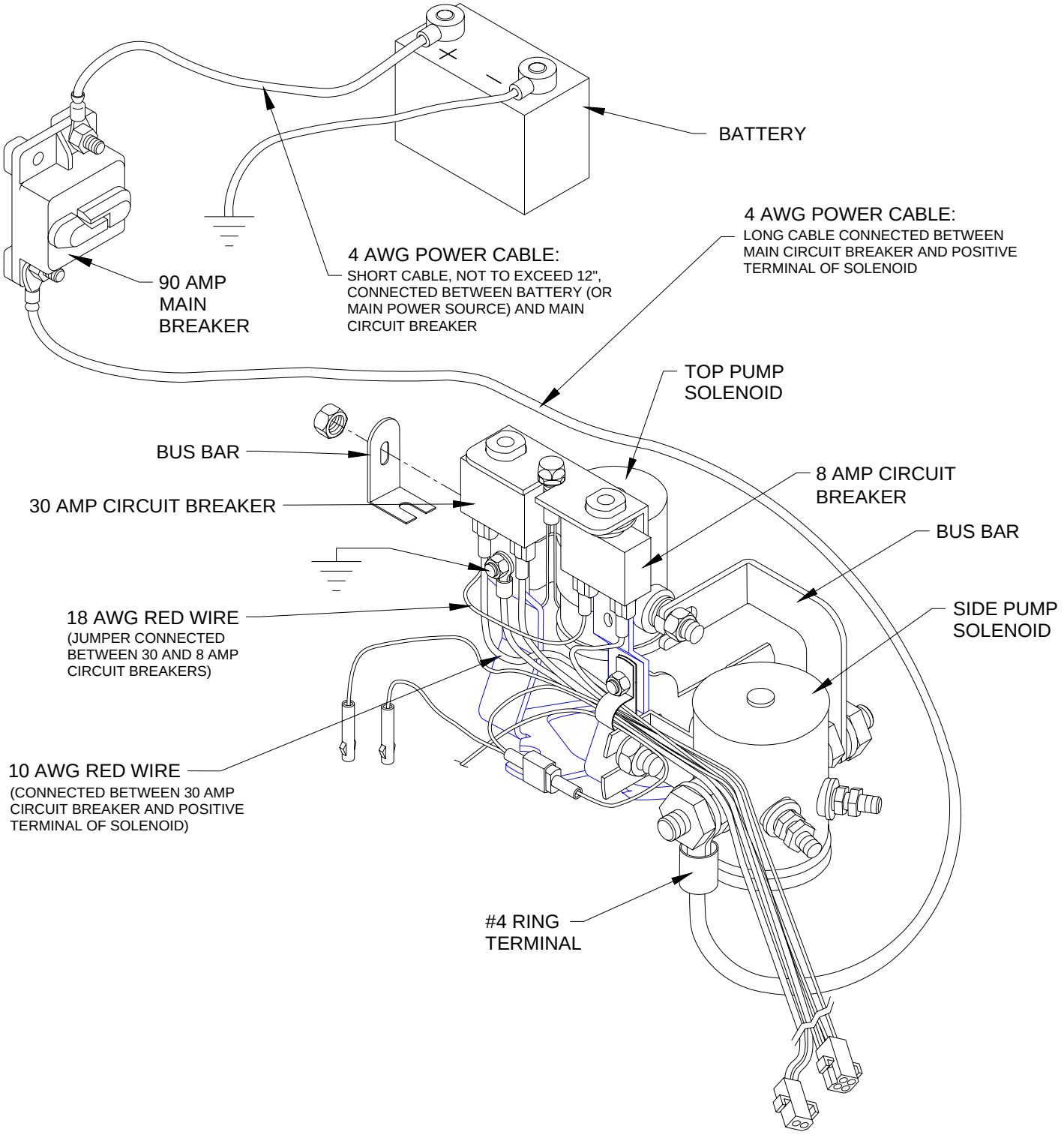

FIGURE 2-9: ELECTRICAL INSTALLATION DIAGRAM

1. INSTALL MAIN CIRCUIT BREAKER

a. Disconnect battery. Avoid heat sources.

b. Mount main circuit breaker inside engine compartment as near to battery as possible (within 12 inches) to minimize exposure of unprotected cable.

2. ROUTE/CONNECT MAIN POWER CABLE

> **⚠ WARNING**
>
> CHECK UNDERSIDE OF VEHICLE BEFORE DRILLING TO AVOID DAMAGE TO FUEL LINES, VENT LINES, BRAKE LINES, OR ELECTRICAL WIRING.

NOTE: For applications where power cable is to pass through sheet metal, drill a ¾" hole and use wire clamp provided. For applications where cable is to pass through plywood, drill a 1" hole and use black plastic grommet provided.

a. Refer to **Figure 2-10**. Locate and drill hole through the vehicle floor near or under pump cover so power cable may reach positive pole of solenoid, the side opposite to where the solenoid is connected to the pump motor. The hole should be drilled so that it will be hidden by pump cover.

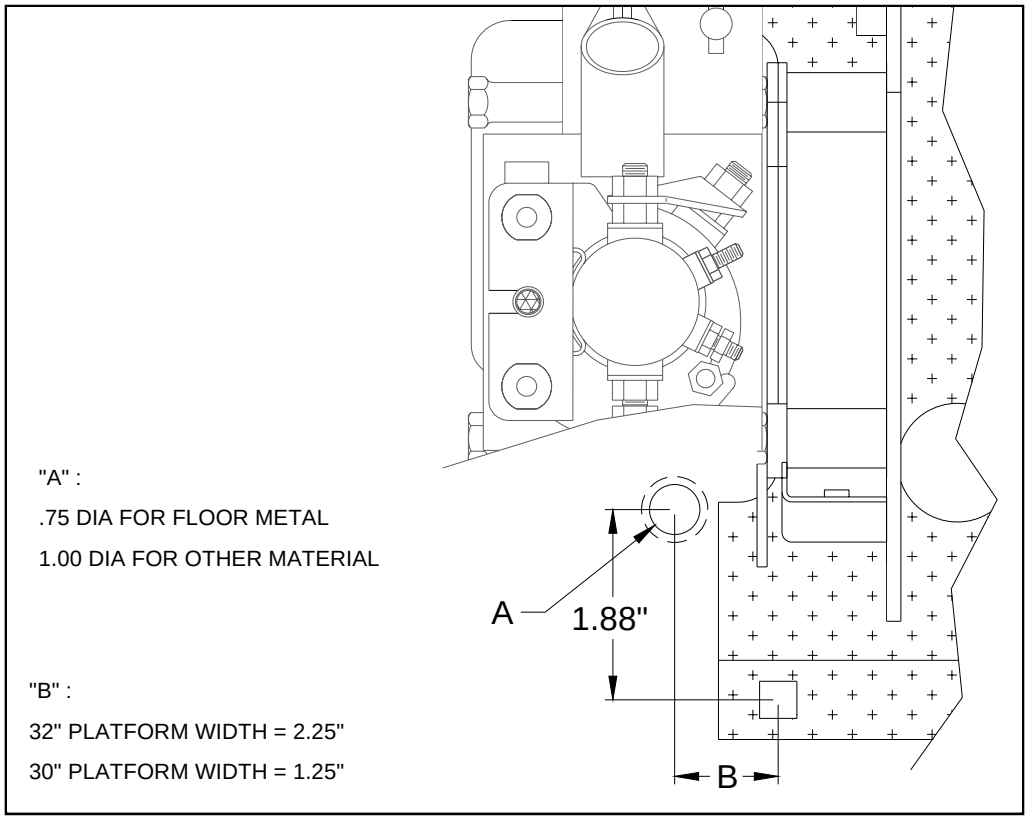

FIGURE 2-10: POWER CABLE ACCESS HOLE

NOTE: Two circuit breakers, one 30 amp and one 90 amp, are provided for lift as circuit protection devices. Whatever circuit interface is supplied by the OEM, it should be capable of carrying the additional current used by lift.

b. Install ring terminals (supplied) to each end of 12" power cable, and also one ring terminal to one end, only, of long power cable using an appropriate crimp tool (such as Ricon P/N 26553.)

c. Connect end of the long 4 AWG power cable (with ring terminal) to main circuit breaker, then route power cable underneath vehicle floor and up through hole in floor.

> **⚠ WARNING**
>
> VERIFY THAT VEHICLE PARTS DO NOT INTERFERE WITH POWER CABLE, OR ASSOCIATED WIRES, IN ANY WAY.

d. Be certain that power cable is secure. Secure power cable to pump assembly harness and to pump motor using cable ties. Avoid pinch points, exhaust system, moving parts, and brake lines.

e. Refer to **Figure 2-11**. Cut any excess wire from long cable, install remaining heavy ring terminal to unterminated end of long cable, and to connect it to live side of solenoid. Be certain that red wire from main circuit breaker (if applicable) is connected to positive solenoid pole.

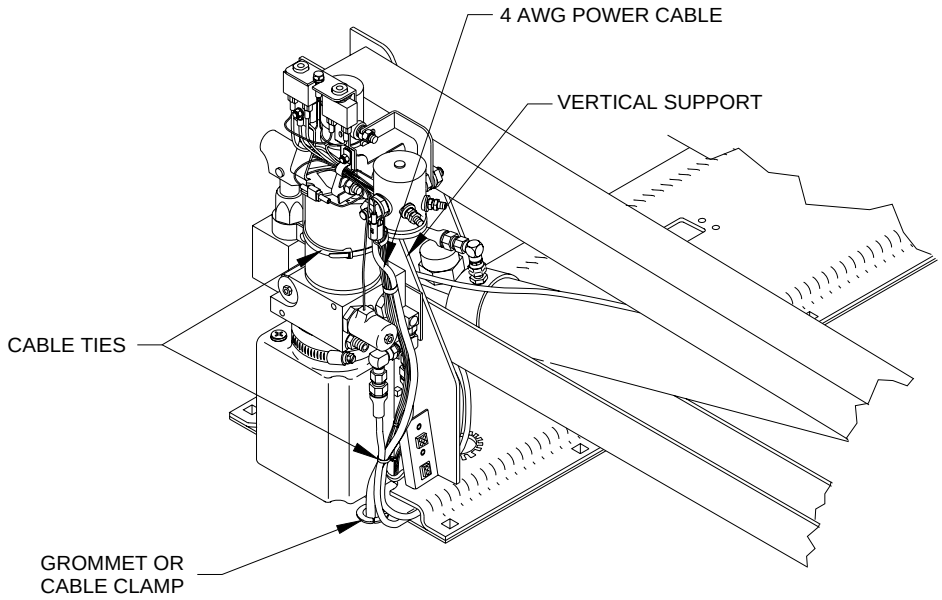

FIGURE 2-11: CABLE ROUTING

f. Refer to **Figure 2-12**. Connect supplied RICON lift control pendant to lift and secure with supplied bracket and cable clamps.

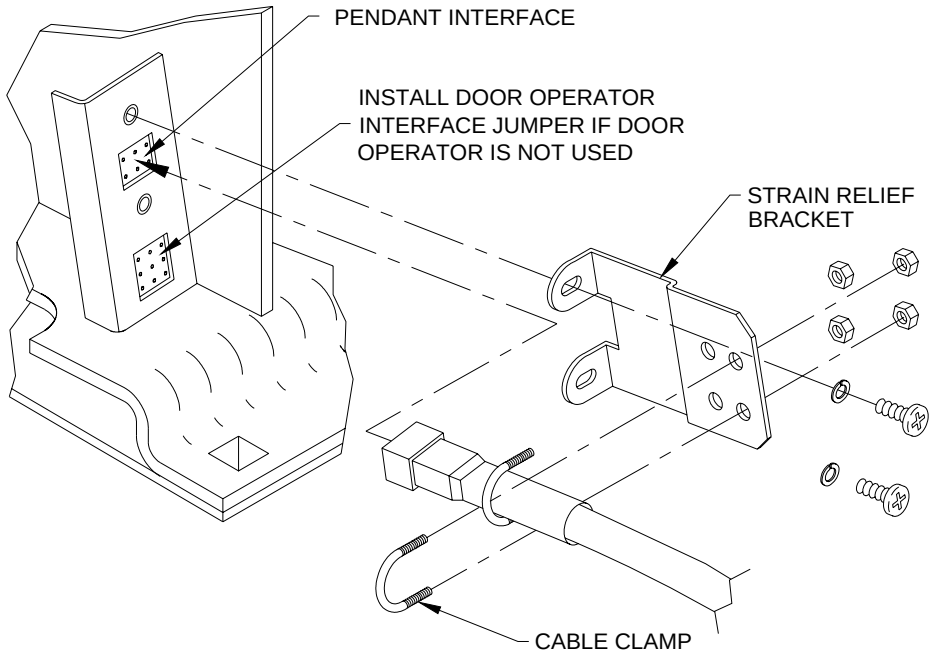

FIGURE 2-12: CONTROL INTERFACE AND STRAIN RELIEF

NOTE: For applications where a hand-held control pendant is used, it is essential that strain relief be installed.

⚠ CAUTION
Be sure that harness does not interfere with any moving parts, or binds against any parts, or is pinched in any way.

g. Connect 12” cable from battery positive terminal to main breaker terminal closest to battery.

h. Install wall portion of pendant dovetail clip in a convenient location near the lift.

3. GROUND CONNECTIONS

a. 12VDC Systems

12VDC powered lifts can be chassis grounded and therefore do not require a separate ground cable connection to battery.

NOTE: If lift electrical system is grounded to chassis, the ground cable must be attached in a manner that provides a reliable electrical connection. If cable is attached to an existing ground circuit, the circuit must be capable of conducting an additional 90 amps to the negative battery terminal.

b. 24VDC Systems

1.) Ricon recommends that a dedicated ground cable be used in 24VDC installations. A 4GA cable, or heavier, must be used.

2.) Refer to **Figure 2-13**. The ground cable is routed from the negative stud (-) on pump motor to the negative battery terminal.

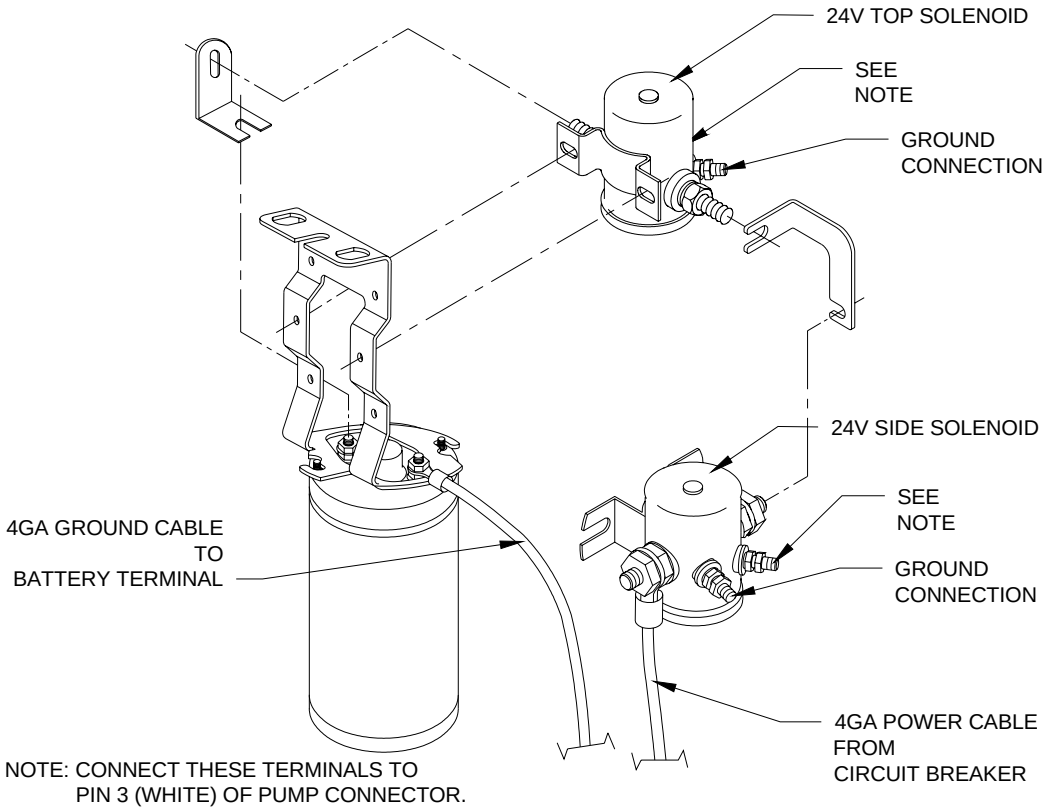

FIGURE 2-13: 24VDC WIRING

4. RICON UNSUPPORTED INTERLOCK DEVICE INSTALLATION

An interlock device can be installed that prevents operation of lift or vehicle when it is unsafe to do so. The interlock is supplied by the installing Ricon service technician and **is not** a Ricon product.

Some interlock devices lock vehicle transmission in PARK when lift is deployed, or do not allow lift to be deployed unless vehicle transmission is in PARK **and** emergency brake is set. Other devices will stall vehicle's engine if lift is deployed and emergency brake is released or transmission is shifted from PARK. There may be other types of interlock devices that disable lift or vehicle and prevent unsafe lift operating conditions.

Because these devices are non-Ricon products, Ricon is not aware of all that are available. For this reason it is **very important** that interlock device be properly installed, such that it does not interfere with safe operation of lift or create an electrical or fire hazard.

The installer should always be certain that none of the original equipment electrical circuit breakers, fuses, or solenoids are bypassed, removed, or altered. Be sure no wires are left frayed or hanging loose after installation of the interlock device. If you have **any** questions about proper installation of these interlock devices, please contact our Product Support Department immediately. DO NOT OPERATE LIFT UNLESS YOU ARE CERTAIN THAT INTEGRITY OF LIFT'S ELECTRICAL CIRCUITS, AS DESIGNED, HAS BEEN MAINTAINED.

⚠ CAUTION
Wiring attached directly to a battery's positive terminal is not protected against short circuits. Wiring attached directly to a battery must be kept as short as possible (12" or less) and must be routed so that there is no risk of pinching. Wires for interlock circuit should be routed from an appropriately protected power source such as a dedicated accessory on an existing fuse panel.

Ricon recommends using one of three possible installation methods:

a. **Interlock Method #1 (Signal interrupt, feed from lift)**

Refer to **Figure 2-14**. This method interrupts power to lift's hand control pendant. It does not require additional circuit protection, but does require a modification to lift harness.

1.) Disconnect battery.

2.) Remove piggyback spade connector wire from OUTPUT side of 8 amp circuit breaker (refer to decal on circuit breaker.)

NOTE: The OUTPUT side of breaker must be used to avoid possibility of an electrical short.

3.) Connect female spade connector of interlock circuit provided by installer to OUTPUT side of 8 amp breaker using 16 AWG or larger wire.

NOTE: All connectors provided on interlock circuit must be fully insulated type.

4.) Cut piggyback connector from light assembly and female spade connector from signal power wire. Strip both wires about ½" being careful not to nick connector. Crimp both wires in a single ¼" fully insulated female spade connector designed for use on 14-16 AWG wire.

5.) Connect male spade connector of interlock circuit to female spade connector added to harness in above step.

6.) Dress wires in such a way as to not allow rubbing or chafing of insulation, and so there is no strain at any terminals or body of light.

b. **Interlock Method #2 (Signal interrupt, feed from vehicle)**

Refer to **Figure 2-15**. This method interrupts power between lift's 8 amp breaker and vehicle's battery. It requires circuit protection to be provided by installer.

1.) Disconnect battery.

2.) The cable leading to applicable circuit protection from battery must be at least 16 AWG or larger, and must not exceed 12" in length.

3.) Connect INPUT side of interlock circuit to OUTPUT side of circuit protector using 16 AWG or larger wire.

4.) If an optional 30 amp circuit breaker has been installed next to 8 amp breaker, completely remove 18 AWG wire connecting INPUT sides of 30 amp and 8 amp circuit breakers. To do this, the spade connector must be removed from 8 amp INPUT and 18 AWG wire must be cut as close as possible to 30 amp INPUT connector, since it is crimped to that connector along with a 10 AWG wire.

5.) Connect OUTPUT side of interlock circuit to INPUT side of lift's 8 amp circuit breaker using 16 AWG or larger wire.

6.) Re-connect battery.

c. **Interlock Method #3 (Power interrupt; preferred method)**

Refer to **Figure 2-16**. This method interrupts power between interlock's solenoid and battery. This cuts all power to lift. It requires circuit protection to be supplied by installer.

1.) Disconnect battery.

2.) Disconnect 4 AWG power cable from main breaker at pump solenoid.

3.) Connect cable to one of terminal posts of interlock solenoid.

4.) Connect other terminal post of interlock solenoid to empty terminal post of pump solenoid using 4 AWG wire.

5.) Connect circuit protector provided by installer (should be 8 amp, maximum) to main power cable coming from battery (which should be disconnected at this time) using wire at least 16 AWG or larger, not to exceed 12" in length. Be sure that wiring cannot pinch or chafe.

6.) Connect OUTPUT side of circuit protector to INPUT side of interlock circuit provided by installer using 16 AWG or larger wire.

7.) Connect OUTPUT side of interlock circuit to coil terminal of solenoid using 16 AWG or larger wire.

8.) Be sure that interlock is properly grounded. If a separate grounding post is provided, connect a 16 AWG wire from ground post to a suitable chassis ground. If coil is grounded through body of solenoid, be sure that solenoid is mounted to a suitable chassis ground.

9.) Reconnect the battery.

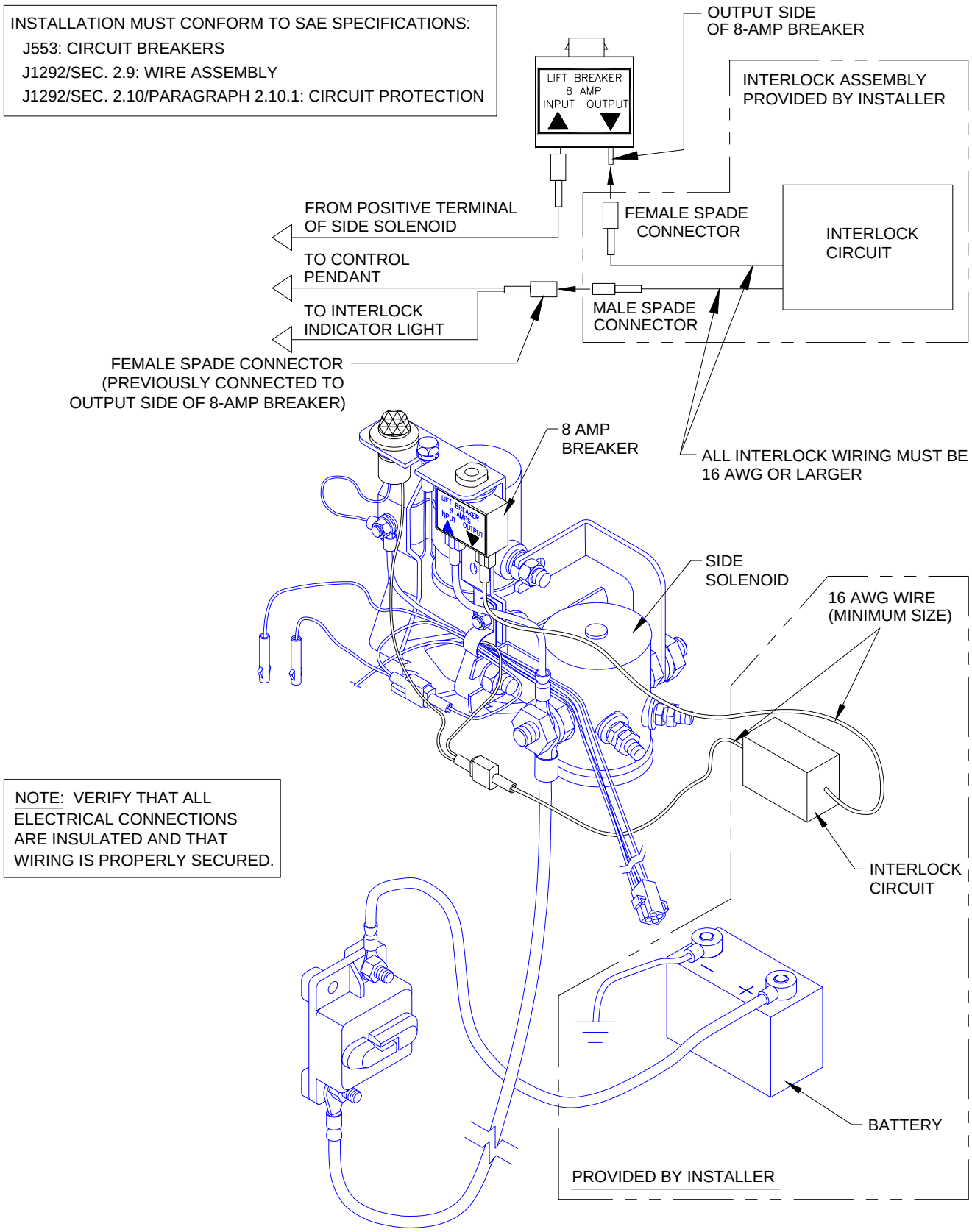

FIGURE 2-14: INTERLOCK METHOD #1

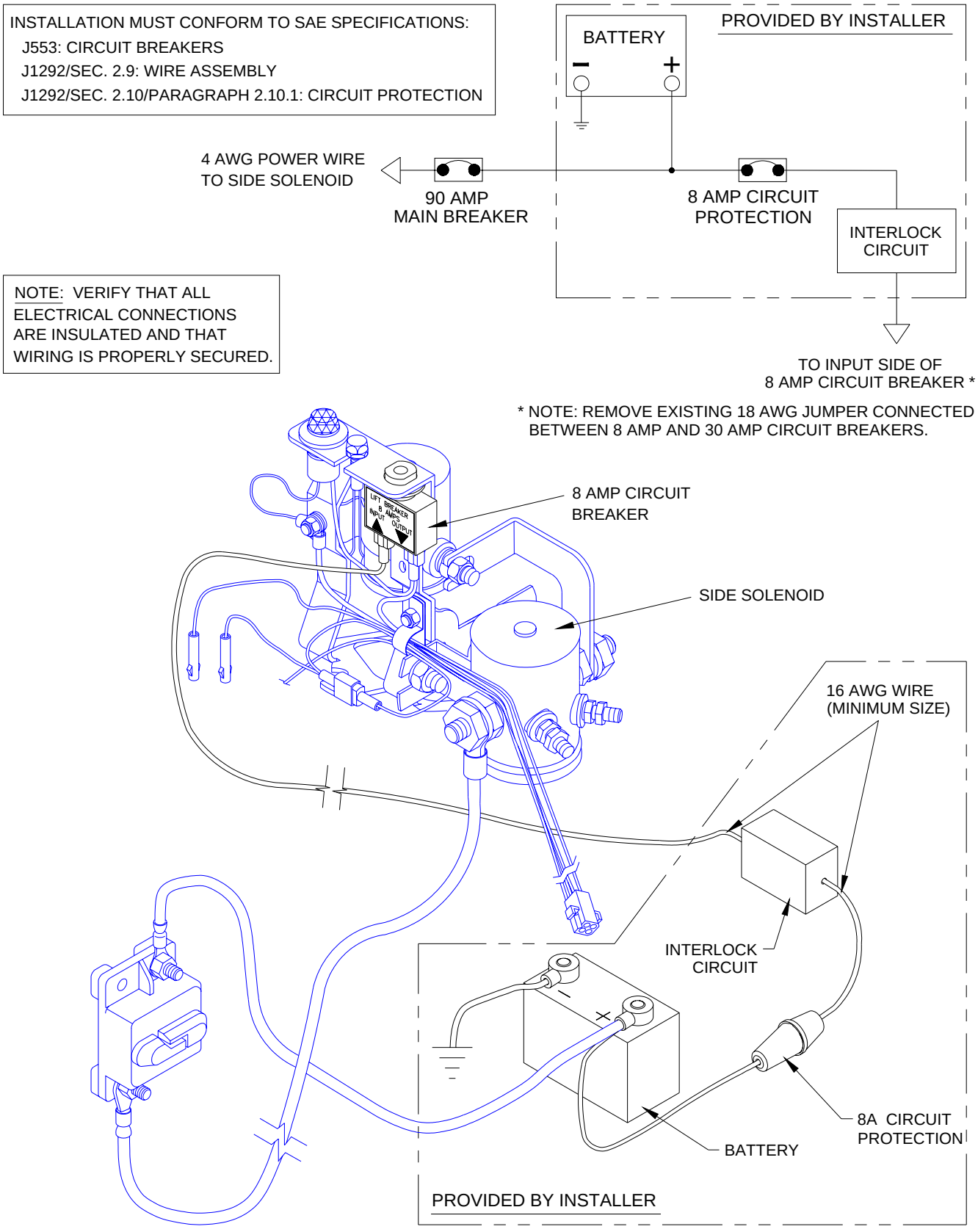

FIGURE 2-15: INTERLOCK METHOD #2

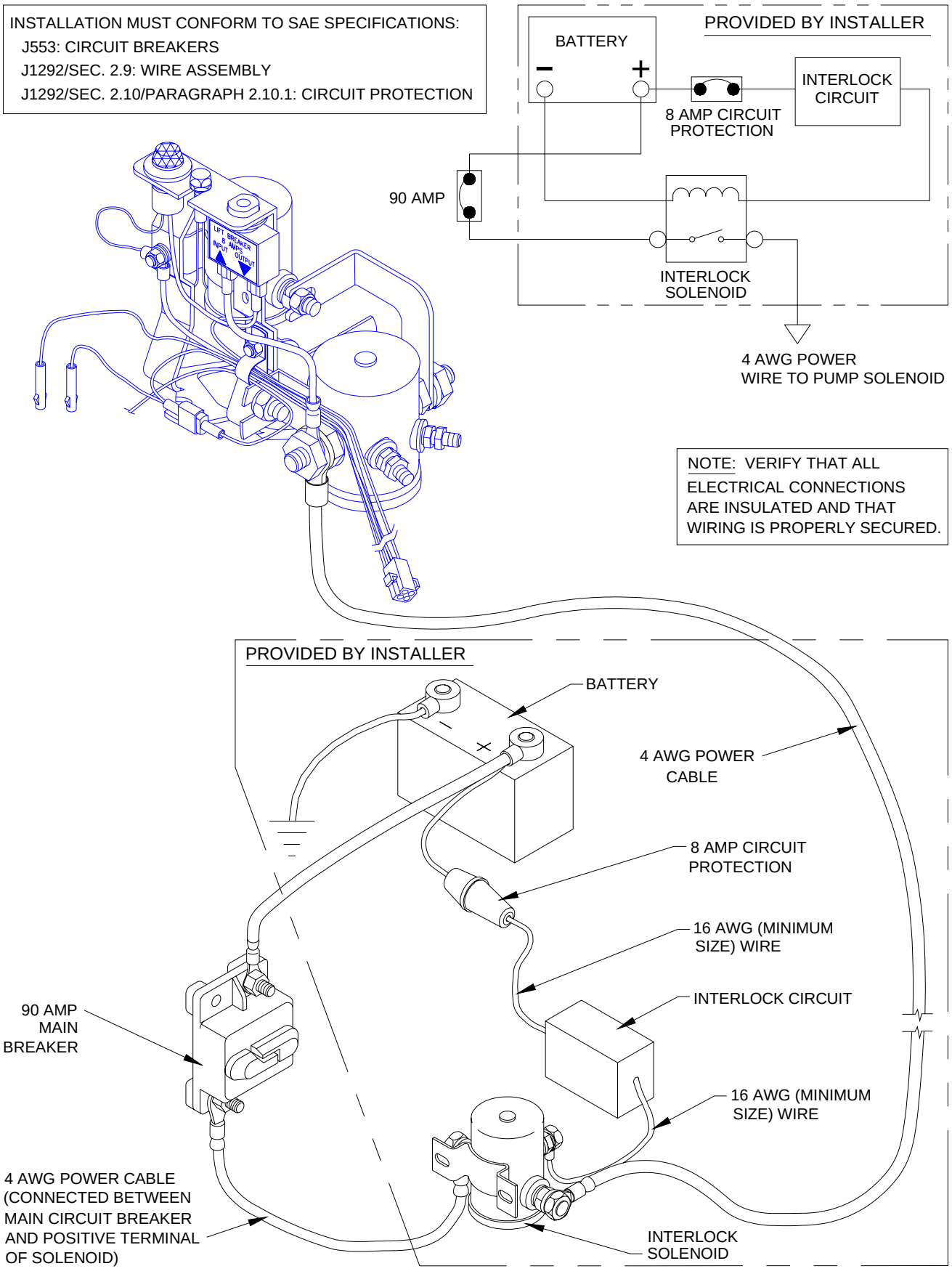

FIGURE 2-16: INTERLOCK METHOD #3

C. FINAL ADJUSTMENTS

1. LIMIT SWITCH ADJUSTMENT

For lift limit switch adjustment, refer to **Figures 2-17**, **2-18,** and the following procedure. Contact the Ricon Product Support Department for assistance, if needed.

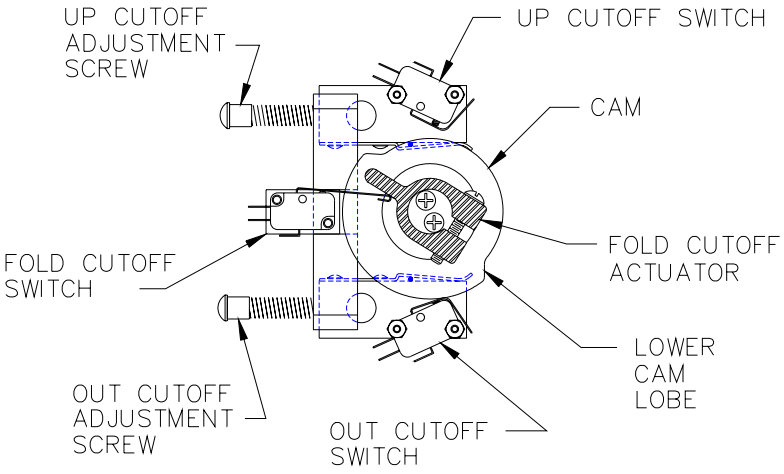

FIGURE 2-17: LIMIT SWITCH ADJUSTMENT DIAGRAM

NOTE: To avoid operational "dead-spots", adjust OUT CUTOFF SWITCH **before** UP cutoff 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).

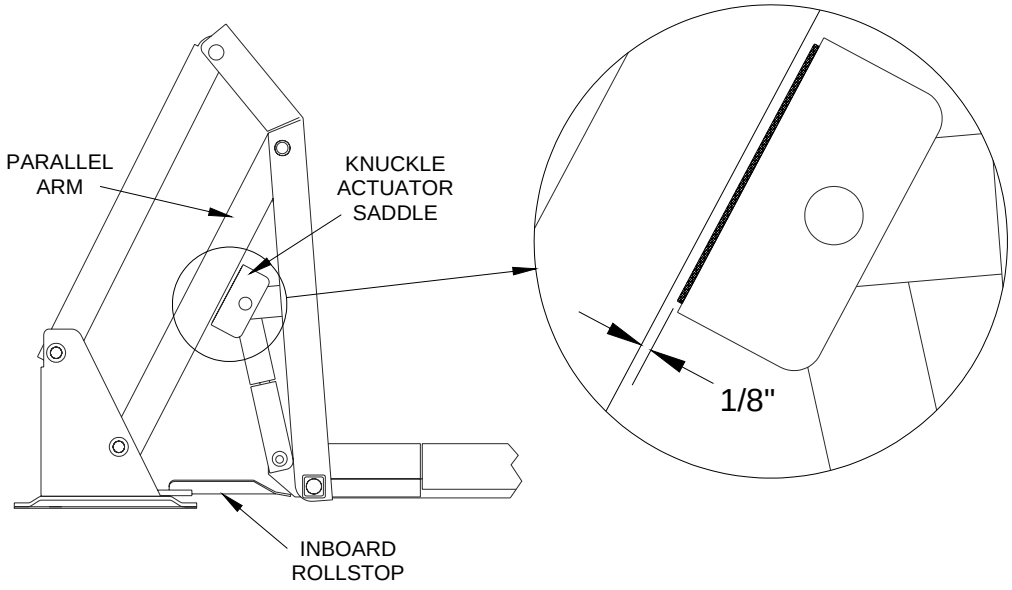

FIGURE 2-18: KNUCKLE ACTUATOR SADDLE MINIMUM CLEARANCE

a. Fully DEPLOY platform.
b. Adjust UP CUTOFF ADJUSTMENT SCREW and OUT CUTOFF ADJUSTMENT SCREW 6-8 turns **counter-clockwise** and then push screws FORWARD.
c. Cycle platform to STOW and DEPLOY.
d. When in DEPLOY position, platform should stop at an angle and NOT even with vehicle floor. If not, turn OUT CUTOFF ADJUSTMENT SCREW an additional 2-3 turns **counter-clockwise**, push screw forward, STOW and DEPLOY platform, then repeat this step.
e. Cycle platform to UP position.

f. When in UP position, platform should stop short of vehicle floor level. If not, turn UP CUTOFF ADJUSTMENT SCREW an additional 2-3 turns **counter-clockwise**, push screw forward, cycle platform DOWN then UP, then repeat this step.

g. Cycle platform to STOW and DEPLOY.

h. Push and hold control pendant DEPLOY switch. Slowly turn UP CUTOFF ADJUSTMENT SCREW clockwise until platform "jogs" down to vehicle floor level. Make sure that clearance between knuckle actuator saddle and parallel arm is 1/8" minimum (distance may be ½" maximum and unequal from left or right arm), stop turning screw and release DEPLOY switch.

i. Cycle platform DOWN to ground level then UP until it stops.

j. Push and hold pendant UP switch. Slowly turn UP CUTOFF ADJUSTMENT SCREW **clockwise** until platform "jogs" up to vehicle floor level. Verify that clearance between knuckle actuator saddle and parallel arm is 1/8" minimum (distance may be ½" maximum and unequal from left or right arm), stop turning screw and release UP switch.

NOTE: If lift does not operate after 1-2 full turns of adjustment screw, cycle platform UP and DOWN (The UP CUTOFF SWITCH is less sensitive than OUT CUTOFF SWITCH.)

k. Cycle platform through all functions (DEPLOY, DOWN, UP, and STOW) to verify correct adjustment. Refer to **Table 2-1**, if necessary.

TABLE 2-1: LIMIT SWITCH ADJUSTMENT CHART

COMPONENT	SYMPTOM	CORRECTIVE ACTION	ADJUSTMENT PROCEDURE
Fold cutoff actuator	Lift does not fold tightly.	Rotate collar counter-clockwise.	With lift fully folded (handrails should be folded tight against vertical arms), rotate actuator so that fold cutoff leg barely trips fold cutoff switch.
	Pump runs continuously.	Rotate collar clockwise.	Test lift. Pump should cutoff when lift is folded tight.
Up cutoff adjustment screw	Lift stops low.	Adjust screw clockwise.	Adjust up cutoff switch so that lift stops just before first knuckle actuator saddle or roller touches underside of lower parallel arm. (Saddle or roller should be about 1/8" from lower parallel arm.)
	Lift stops high.	Adjust screw counter-clockwise.	
Out cutoff adjustment screw	Lift stops low.	Adjust screw counter-clockwise.	Adjust lower limit switch so that lift stops just below "Up" cutoff described in above step. This will give the necessary overlap to avoid "dead" spots.
	Lift stops high.	Adjust screw clockwise.	

END OF TABLE

2. PLATFORM TILT ADJUSTMENT

The platform tilt adjustment is crucial for proper rollstop operation, but cannot be adjusted at the factory. Factors such as vehicle floor height, lift tilt angle, and stiffness of vehicle springs will vary installation geometry.

a. Deploy and lower the lift platform to a position halfway between vehicle floor level and ground level.

b. Refer to **Figure 2-19**. Adjust the left and right platform setscrews to level platform. Turn setscrews clockwise to angle front end of platform upward, or counterclockwise to angle front end downward.

NOTE: Evenly adjust set screws at both sides of platform to maintain platform level.

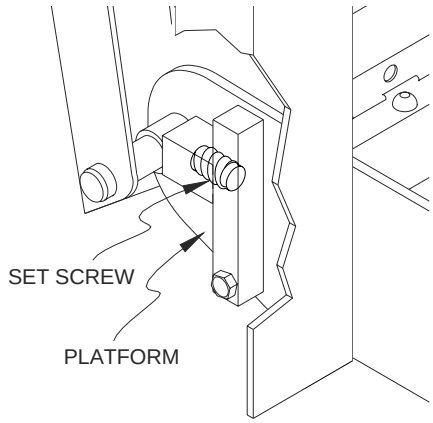

FIGURE 2-19: PLATFORM SET SCREWS

c. Lower the platform towards ground level. Stop lowering at the moment when the rollstop is fully open. The distance between the rear of platform and the ground should be ¾" to 1".

d. Repeat steps **a** and **b** as required to achieve proper platform tilt.

3. ADJUSTMENT OF PLATFORM FOLDING LINKAGE

The front portion of the platform is connected to the rear portion with a hinge. The front portion is folded with linkages located at the right and left sides of the platform. The length of the linkage might require adjustment after installation of the lift or after disassembly of the platform.

NOTE: Perform the PLATFORM TILT ADJUSTMENT procedure before adjusting the linkage.

a. Deploy and lower the platform to a position about halfway between floor level and ground level.

b. Refer to **Figure 2-20**. Loosen the jam nuts (right and left sides) and use the adjusters to set the length of the linkages so that the front and rear portions are in the same plane; the two surfaces of the platform portions must be flat without any apparent folding along the hinge. Verify that the tension of both linkages is the same by sighting along the outer edge of the platform (arrow in figure). Tighten jam nuts.

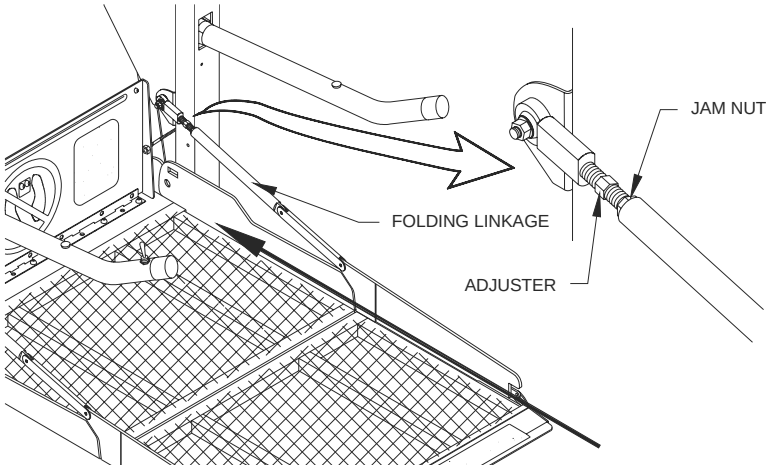

FIGURE 2-20: ADJUSTMENT HARDWARE FOR PLATFORM FOLDING LINKAGE

⚠ CAUTION
Adjuster link of platform folding linkage must be replaced with Kit P/N 45453 if the wheelchair lift baseplate is installed with a shim that will tilt the lift back more than 1/4-Inch.

c. Lower platform until it settles on the ground. Verify that a slight amount of slack is present in both linkages. If either linkage is under tension, repeat steps a and b.

4. PLATFORM PRESSURE SWITCH CHECK AND ADJUSTMENT (SERIAL NUMBERS 104,000 TO PRESENT)

Correct adjustment of this pressure switch is required to prevent platform from folding into vehicle when there is a load of 50 lbs, or more, on the platform.

a. Refer to **Figure 2-21**. Deploy and lower platform to ground. Place a 23Kg (50 lb.) load in center of platform and then raise platform to floor level. Press and hold STOW switch.

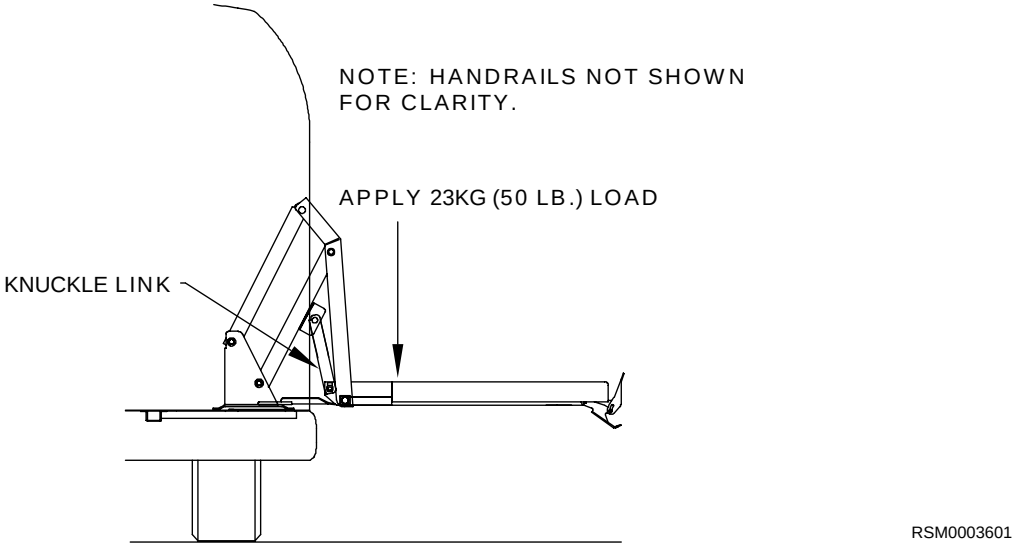

FIGURE 2-21: PRESSURE SWITCH TEST AT FLOOR LEVEL

NOTE: Weight must be 23kg (50 lbs.) and placed 152mm (6 inches) from rear edge of platform mesh as shown in **Figure 2-23**.

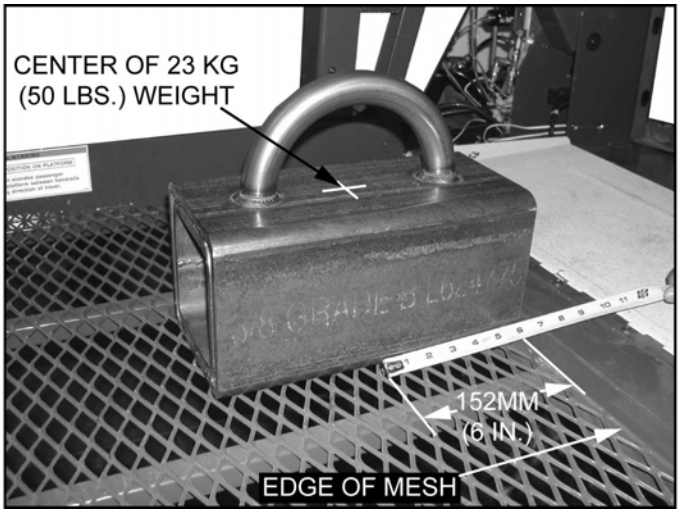

FIGURE 2-23: 23KG (50 LBS.) WEIGHT PLACEMENT ON PLATFORM

b. Place a 152mm (6 in.) x 152mm (6 in.) x 305mm (12 in.), 23kg (50 lbs.) load on the rear, center portion of platform then stow platform by pressing and holding the STOW switch.

c. Refer to **Figure 2-24**. If an alternate weight is to be used, the center of the weight must be 152mm (6 in.) from the rear edge of the platform mesh.

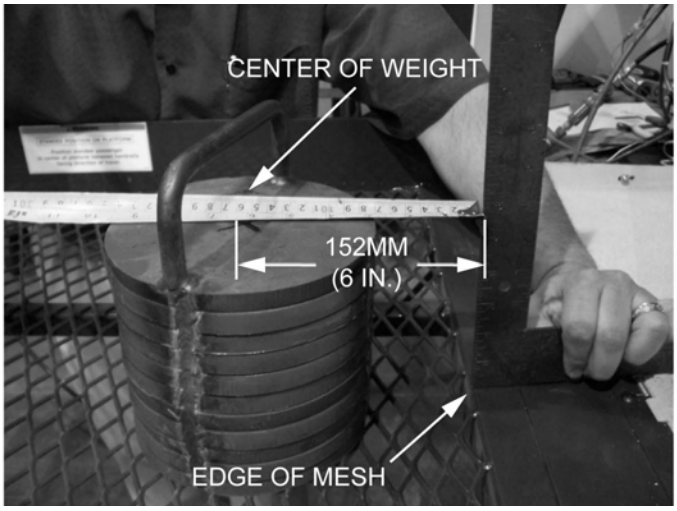

FIGURE 2-24: ALTERNATE 23KG (50 LB.) WEIGHT

d. The pressure switch is correctly set if pump motor shuts off when attempting to stow the lift, preventing inward movement of the platform.

e. The pressure switch is not correctly set if pump motor does NOT shut off and there is inward movement of the platform. Adjustment of the pressure switch will be required.

NOTE: If adjustment is necessary then pressure switch must be adjusted as shown in **FIGURE 2-25**.

f. Refer to **Figure 2-25**. Remove the 1/4-20 x 1.00" set screw (with hex recess) from end of pressure switch to gain access to adjustment screw. Save screw for reinstallation.

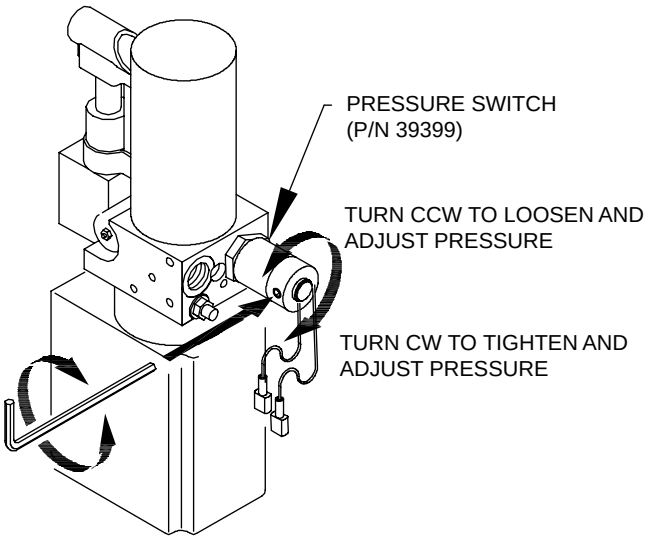

FIGURE 2-25: HYDRAULIC PUMP WITH PRESSURE SWITCH

g. Turn the hydraulic pressure switch enclosure 1/8 of a turn **counterclockwise** (CCW), by hand to reduce the pressure.

NOTE: Turn the hydraulic pressure switch enclosure **clockwise** (CW) to increase pressure and **counterclockwise (**CCW) to decrease pressure, by hand.

h. Stow platform and observe if the motor shuts off.

i. If the motor does not shut off, turn the hydraulic pressure switch enclosure 1/8 of a turn **counterclockwise** (CCW), by hand to reduce the pressure.

NOTE: The lift should NOT stow or have inward movement with the weight on the platform.

j. Repeat pressure switch adjustment as necessary to achieve correct setting.

k. Tighten the locking set screw when the correct pressure setting is achieved.

D. VERIFY INSTALLATION

- Verify there is no interference with operation of the lift by interior or exterior components.
- The lift is designed to carry the weight of a wheelchair and its passenger. The vehicle structure must be adequate to support all loads produced during lift operation, as well as forces incurred by motion of vehicle when driven.
- The lift must be test loaded to 125% of its rated 800 pound load capacity to verify integrity of installation.

⚠ CAUTION

Do not operate lift during load test. The load test is intended to test lift installation mounting points, not lifting capacity. Remove test weight immediately after test.

When test weight is placed on platform, the vehicle suspension will compress and vehicle will lean. If weighted platform touches ground, remove weight, raise platform, and retest.

1. Raise lift platform 2" – 6" above ground, place **1000** pounds in center of platform, then inspect lift mounting points. REMOVE TEST WEIGHT.
2. Run lift through several complete cycles while checking for proper operation.

CUSTOMER ORIENTATION

IMPORTANT

- Customer Orientation -

Ricon Sales or Service personnel must review the warranty and operator manual with the customer to be certain customer understands how to safely operate lift. Instruct customer to follow operating instructions without exception.

- Refer to Figure 2-23 on next page, and be certain that all decals are secure and located as shown.

NOTE: The installing dealer must affix the Operating Instructions decal to vehicle in a location that is clearly visible to the lift operator.

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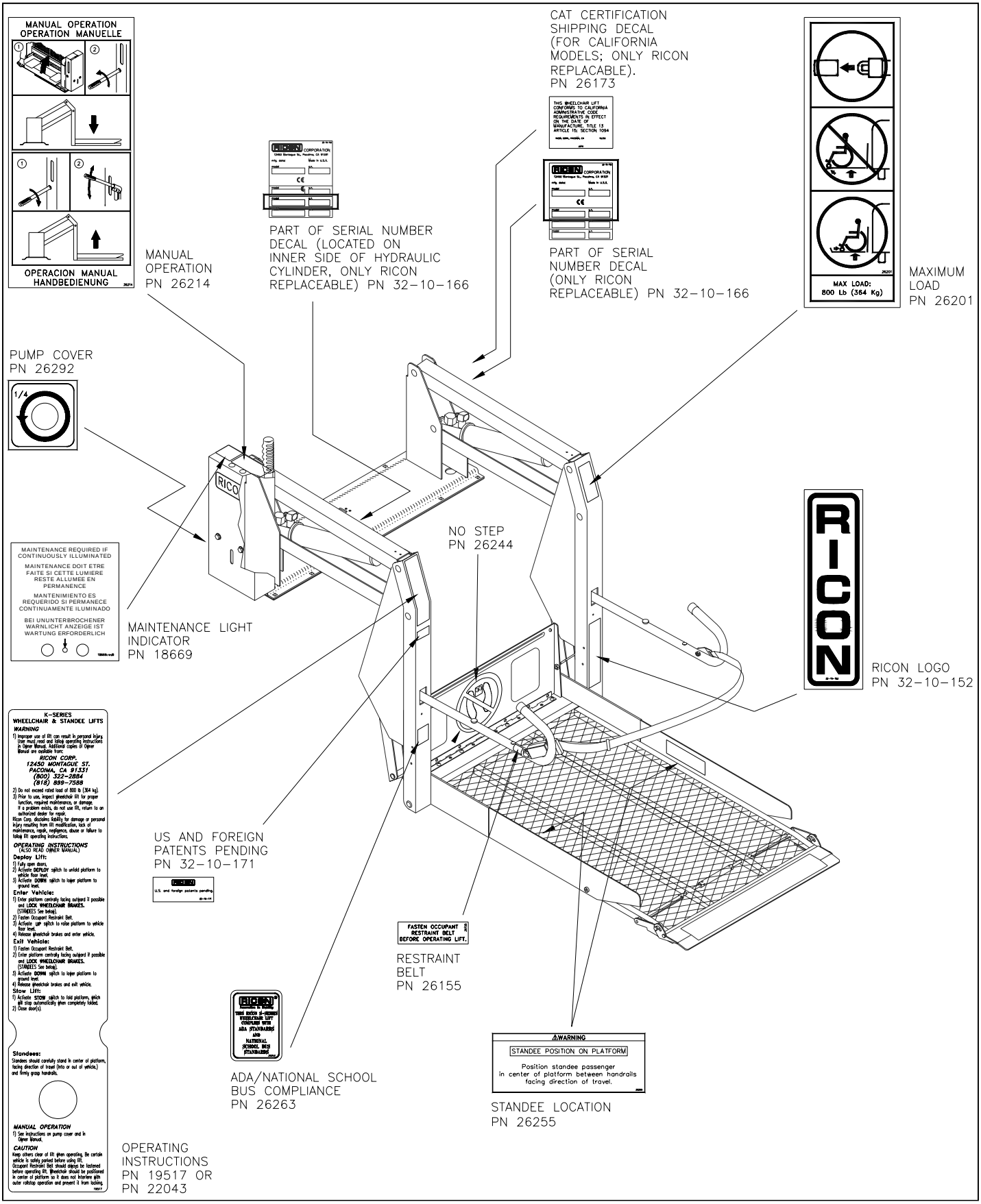


FIGURE 2-23: DECAL LOCATIONS AND PART NUMBERS

III. MAINTENANCE AND REPAIR

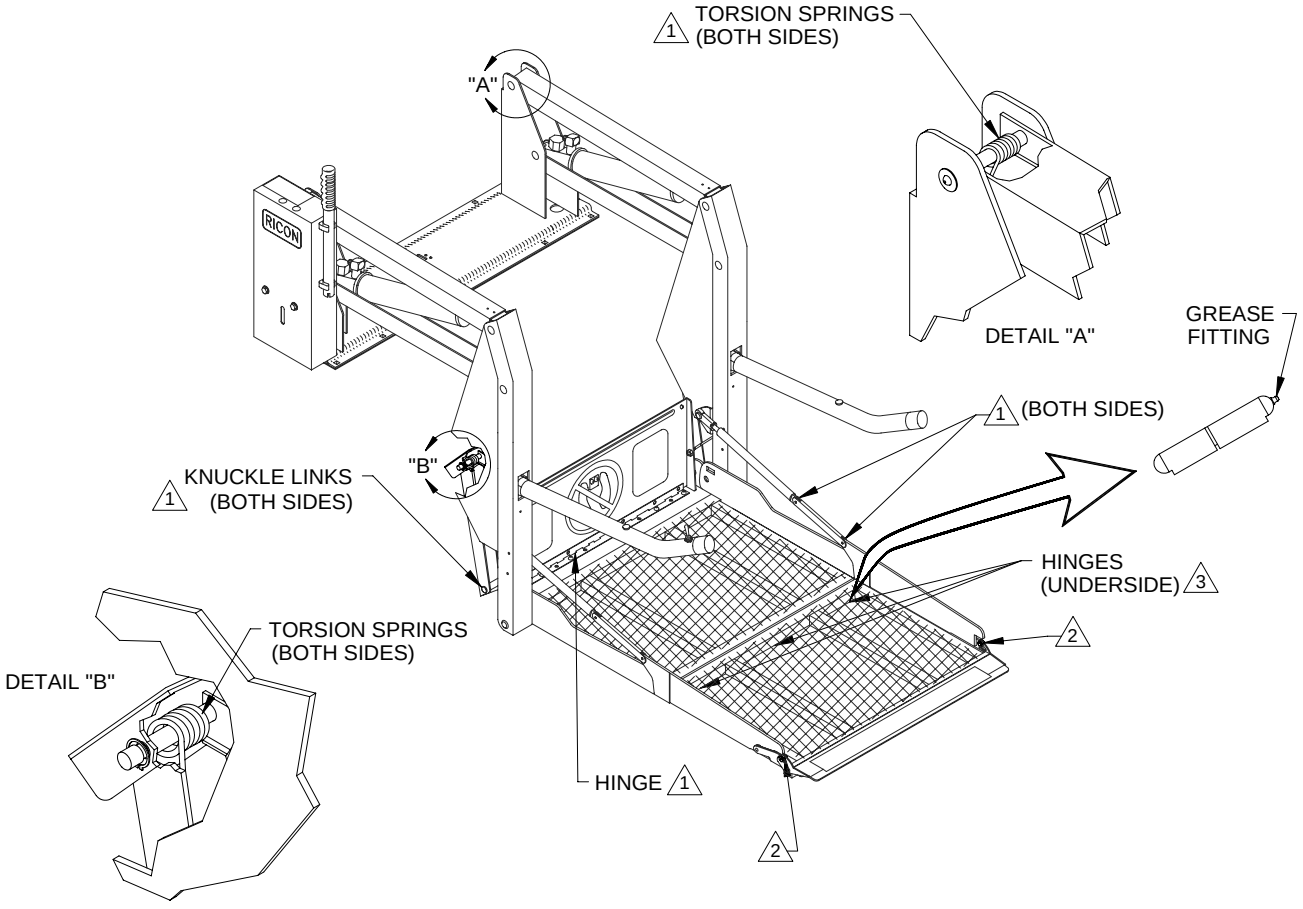
Regular maintenance of the Ricon KlearVue Series platform wheelchair lift is required to help optimize its performance and reduce the need for repairs. This chapter contains lubrication and cleaning instructions, a maintenance schedule, troubleshooting section, and maintenance diagrams.

> **⚠ CAUTION**
>
> This Ricon product is highly specialized. Maintenance and repairs must be performed by an authorized Ricon dealer or qualified service technician using Ricon replacement parts.

A. LUBRICATION

> **⚠ CAUTION**
>
> Do not lubricate motor or other electrical components. Lubrication of electrical components may collect dirt and debris, causing short circuits.

Lubrication should be performed at least every six months or sooner depending on usage. Refer to **Figure 3-1** and the following Maintenance Schedule. Lubricate lift at points indicated with lubricants specified.



1 LUBRICATE WITH PENETRATING OIL.
2 LUBRICATE WITH DRY LUBRICANT (GRAPHITE).
3 LUBRICATE WITH COPPER-BASED ANTISEIZE LUBRICANT.

NOTE:
HANDRAILS AND PLATFORM MAY DIFFER FROM ILLUSTRATION.

FIGURE 3-1: LIFT LUBRICATION POINTS

B. CLEANING

Regular cleaning with mild soap (i.e. hand soap, car wash liquid) and drying thoroughly will protect lift painted surfaces. Cleaning is especially important in areas where roads are salted in winter. Make sure that lift pivot points remain clear and clean prior to lubrication.

C. MAINTENANCE SCHEDULE

Under normal operating conditions, maintenance inspections are required at least every six months (1750 cycles) and a thorough inspection should be performed at service intervals referenced in **Table 3-1**. Service should be increased under conditions of heavy use (more than 10 cycles per day.)

TABLE 3-1: MAINTENANCE SCHEDULE

SERVICE POINT	ACTION TO PERFORM
DAILY SAFETY CHECK	
Overall condition	Listen for any abnormal noises as lift operates (i.e. grinding or binding noises).
Control pendant	Check that control pendant is not damaged and cable connectors are tight.
TWO-WEEK SAFETY CHECK	
Overall condition	▪ Listen for any abnormal noises as lift operates (i.e. grinding or binding noises). ▪ Inspect underside of vehicle to be certain nothing is out of the ordinary.
Electrical wiring	Inspect electrical wiring for frayed wires, chaffed wires, loose connectors, etc.
Vehicle interlock	Place vehicle in NON-INTERLOCK mode and attempt to operate lift.
Decals	Verify that all lift decals are affixed properly, clearly visible and legible. Replace if necessary.
Handrails	Verify that all handrail fasteners are properly tightened.
Lift mounting and support points	▪ Verify that all lift mounting and support points are in proper order and free from damage. ▪ Verify that all mounting screws are sufficiently tight.
Main lifting pivots	Verify all arm pins are installed properly, free from damage, and locked in position.
Platform and platform attachment points	Verify platform operates without binding during lift functions.
Bridgeplate	▪ Verify that bridgeplate operates without binding during lift functions. ▪ Verify that bridgeplate deploys fully when platform stops at vehicle floor level. ▪ Verify bridgeplate rests flat against baseplate.
Platform rollstop	Verify that rollstop opens completely, without binding, when platform contacts ground..
Hydraulic power unit	▪ Check for visible hydraulic fluid leakage. ▪ Verify backup pump manual release valve is lightly closed.

<table>
<tr><th colspan="2">SIX-MONTH SERVICE CHECK (or @ 1750 cycles of operation)</th></tr>
<tr><td>Handrails</td><td>Verify that all handrail fasteners are properly tightened.</td></tr>
<tr><td>Cleaning and lubrication</td><td>▪ Clean lift with a mild soap and wipe dry. Rub down all surfaces with a light oil using a soft cloth to avoid rusting of material. Wipe away excess oil.
▪ Following directions on container, spray lubricants specified in Lift Lubrication Points figure at points prescribed. Wipe excess lubricant from surrounding areas.</td></tr>
<tr><td rowspan="3">Hydraulic power unit</td><td>⚠ CAUTION</td></tr>
<tr><td>Do not add fluid until platform is lowered to ground level. Adding fluid while platform is elevated will cause reservoir to overflow when platform is lowered.</td></tr>
<tr><td>With platform at ground level, be certain that pump hydraulic fluid level is at FULL level. Add only Texaco hydraulic fluid or equivalent U.S. mil spec H5606G fluid, as necessary.</td></tr>
<tr><td colspan="2">⚠ CAUTION</td></tr>
<tr><td colspan="2">This safety check must be performed by an authorized Ricon dealer or qualified service technician.</td></tr>
<tr><th colspan="2">ANNUAL SAFETY CHECK (or @ 3500 cycles of operation)</th></tr>
<tr><td>Hydraulic cylinder, hoses, and fittings</td><td>▪ Check hydraulic clinder for evidence of leaks.
▪ Inspect hydraulic hoses for damage.
▪ Verify that all fittings are tightly secured.</td></tr>
<tr><td colspan="2">END OF TABLE</td></tr>
</table>

D. TROUBLESHOOTING

The troubleshooting guides are designed to provide logical starting points to locate general problems that could occur with lift. However, not all possible problems or combinations of problems are listed. For troubleshooting lift, refer to **Tables 3-2** and **3-3**. The guides do not incorporate routine safety precautions or preliminary procedures and assume that vehicle battery is fully charged and battery terminals/connectors are clean and tight.

⚠ WARNING

THE TROUBLESHOOTING GUIDES DO NOT INCORPORATE ROUTINE SAFETY PRECAUTIONS OR PRELIMINARY PROCEDURES. DURING THE RICON WARRANTY PERIOD ONLY A TRAINED, AUTHORIZED RICON DEALER OR QUALIFIED SERVICE TECHNICIAN CAN PERFORM TROUBLESHOOTING. AFTER THE WARRANTY PERIOD, IT IS RECOMMENDED THAT TROUBLESHOOTING CONTINUE TO BE PERFORMED BY AN AUTHORIZED RICON DEALER OR QUALIFIED SERVICE TECHNICIAN.

1. INTERLOCK INDICATOR DIAGNOSTICS

The purpose of a vehicle interlock system is to prevent operation of lift if an unsafe condition is present. When vehicle interlock systems are interfaced with lift circuitry, the interlock indicator shows whether or not interlock is providing power to lift, or not. It does not indicate proper operation of the interlock. The light is interfaced with the electrical system so that no matter which interlock system/method is used, the light will be ON when interlock allows electrical power to lift and OFF when interlock has disabled power to lift. When there is no interlock system installed, the light stays illuminated at all times.

A light-assembly is installed in the position where door operator circuit breaker would normally be mounted on all lift assemblies **without** optional door operator. The light indicates power is supplied to signal portion of electrical system, and will aid in diagnosing electrical problems.

TABLE 3-2: INTERLOCK INDICATOR TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE
Light is not lit, lift does not operate.	Control system circuit breaker is tripped.
	Interlock system is not allowing power to lift due to an unsafe condition or a faulty interlock.
Light is not lit, lift operates.	Light needs to be replaced.
Light is lit, lift works in an unsafe condition.	Interlock is not functioning.
Light is lit, lift does not operate.	There is a problem with electrical system, either with power or signal side. Both will have to be checked, but start with power side since it is less complicated.

END OF TABLE

2. LIFT TROUBLESHOOTING

TABLE 3-3: LIFT OPERATIONAL TROUBLESHOOTING GUIDE

SYMPTOM		POSSIBLE CAUSE	REMEDY
Hydraulic fluid leaks		Loose hydraulic fitting.	Make sure fitting is PROPERLY tightened.
		Hydraulic component defective.	Discontinue use of lift until repairs are made by an authorized Ricon dealer or qualified service technician.
Rollstop does not open		Obstruction of rollstop release latch.	Raise lift and remove obstruction.
Lift functions	Abnormal operation.	Obstruction in lifting frame.	Remove obstruction and check for any damage
		Backup pump manual release valve OPEN.	Turn manual release valve CLOCKWISE until lightly-snug.
		Hydraulic fluid may be low.	While platform is at GROUND LEVEL, be certain that pump hydraulic fluid level is maintained at required FULL level. Add only Texaco 01554 Aircraft Hydraulic Oil or equivalent U.S. mil spec H5606G fluid.
		Air may be trapped in hydraulic system.	Purge hydraulic system by operating lift through its maximum range of travel for at least four complete cycles. (For vehicles that do not use full travel of lift, the maximum range of travel is accomplished by raising vehicle on a service hoist or ramp.)
	No operation.	Control System Circuit Breaker tripped.	Reset circuit breaker.
		Backup pump manual release valve OPEN.	Turn manual release valve CLOCKWISE until lightly-snug.
		Hydraulic hose or fitting leak.	Contact an authorized Ricon dealer or qualified service technician for repair.
		Hydraulic fluid may be low.	While platform is at GROUND LEVEL, be certain that pump hydraulic fluid level is maintained at required FULL level. Add only Texaco 01554 Aircraft Hydraulic Oil or equivalent U.S. mil spec H5606G fluid.
		Air may be trapped in hydraulic system.	Purge hydraulic system by operating lift through its maximum range of travel for at least four complete cycles. (For vehicles that do not use full travel of lift, the maximum range of travel is accomplished by raising vehicle on a service hoist or ramp.)

END OF TABLE

E. HYDRAULIC CIRCUIT DIAGRAM

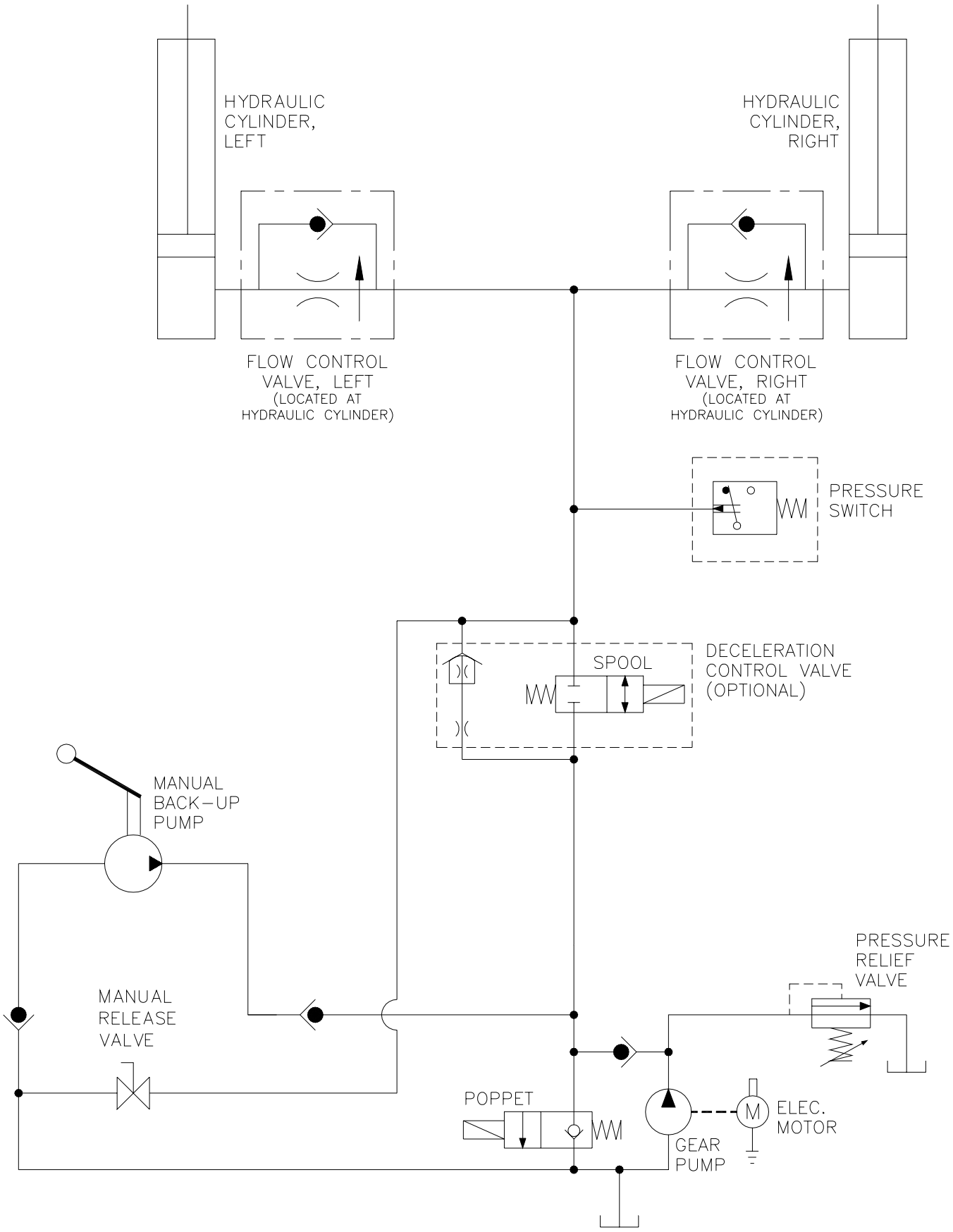


FIGURE 3-2: K-SERIES HYDRAULIC CIRCUIT DIAGRAM

F. ELECTRICAL WIRING DIAGRAMS

1. DIAGRAM LEGENDS

a. Wire Color Codes

TABLE 3-4: WIRE COLOR CODES			
LETTER	**COLOR**	**LETTER**	**COLOR**
BK	Black	R	Red
BL	Blue	VI	Violet
BR	Brown	GY	Gray
GN	Green	W	White
O	Orange	Y	Yellow
END OF TABLE			

b. Electrical Connector Description

Refer to **Figure 3-3**. The standard electrical connectors, used by Ricon are Molex .062" Series. These connectors have terminal numbers molded onto the back; use these numbers and colors to identify wires.

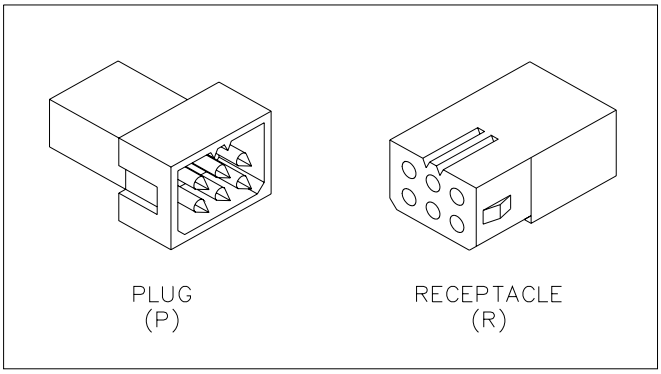


FIGURE 3-3: MOLEX CONNECTORS

c. Diagram Labels

12V	12 Volts – Circuit current rating is also given
DC	Door Close – Direct command
DO	Door Open – Direct command
DOE	Door open Enable – From Door Open cutoff switch
DWN	Pump Down – Used by OUT and DWN
DWNA	Down Attempt – Must be enabled
FAST	Signal to speedup valve for UP and DOWN
GND	GROUND
OUTA	Out Attempt – Out must be enabled
SDA	System Deploy Attempt – DO followed by OUT
SSA	System Stow Attempt – IN followed by DC
UP	Pump Up – Used by UP and IN
UPA	Up Attempt – Up must be enabled

FIGURE 3-4: DIAGRAM LABEL CHART

d. Electrical Symbols

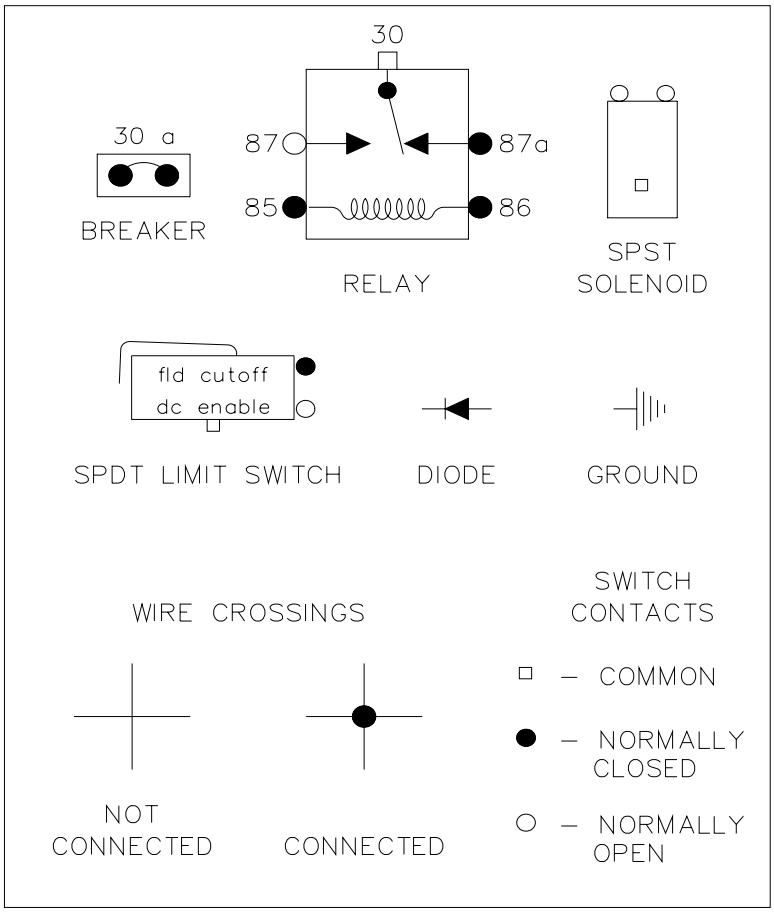


FIGURE 3-5: ELECTRICAL WIRING DIAGRAM SYMBOLS

2. K-SERIES LIMIT SWITCH STATES

Refer to **Figure 3-6**. The limit switch actuation diagram shows state of all limit switches as platform travels from fully closed, to vehicle floor level, and to ground level. The solid (▬) line indicates normally CLOSED portion of switch is operational, while the two thin lines (=) indicates normally OPEN portion of switch is operational. The dotted lines (■■■) are used to show switch states beyond normal travel boundaries of platform. This is useful in showing the operation of switches which change states at folded or ground level positions. For proper operation of lift, the switch actuations must overlap as shown.

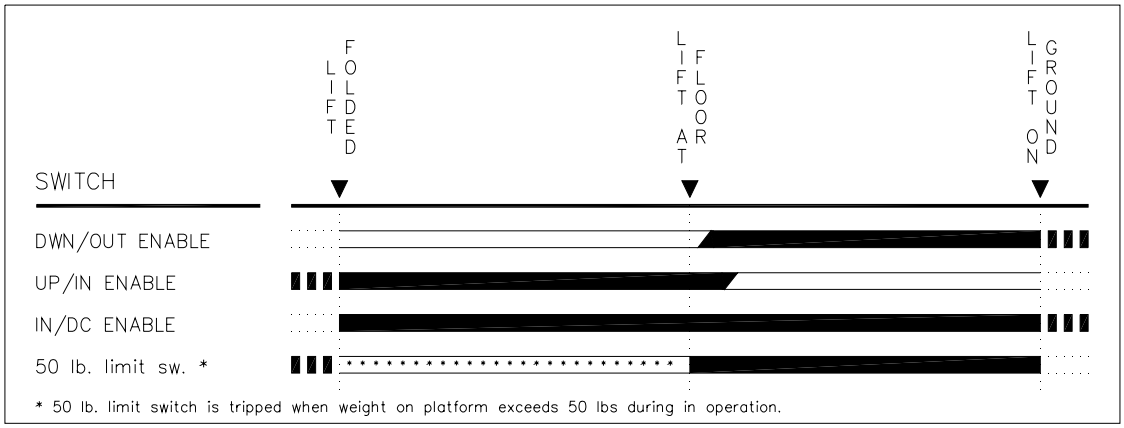


FIGURE 3-6: LIMIT SWITCH ACTUATION DIAGRAM

3. WIRING DIAGRAMS

Refer to following pages.

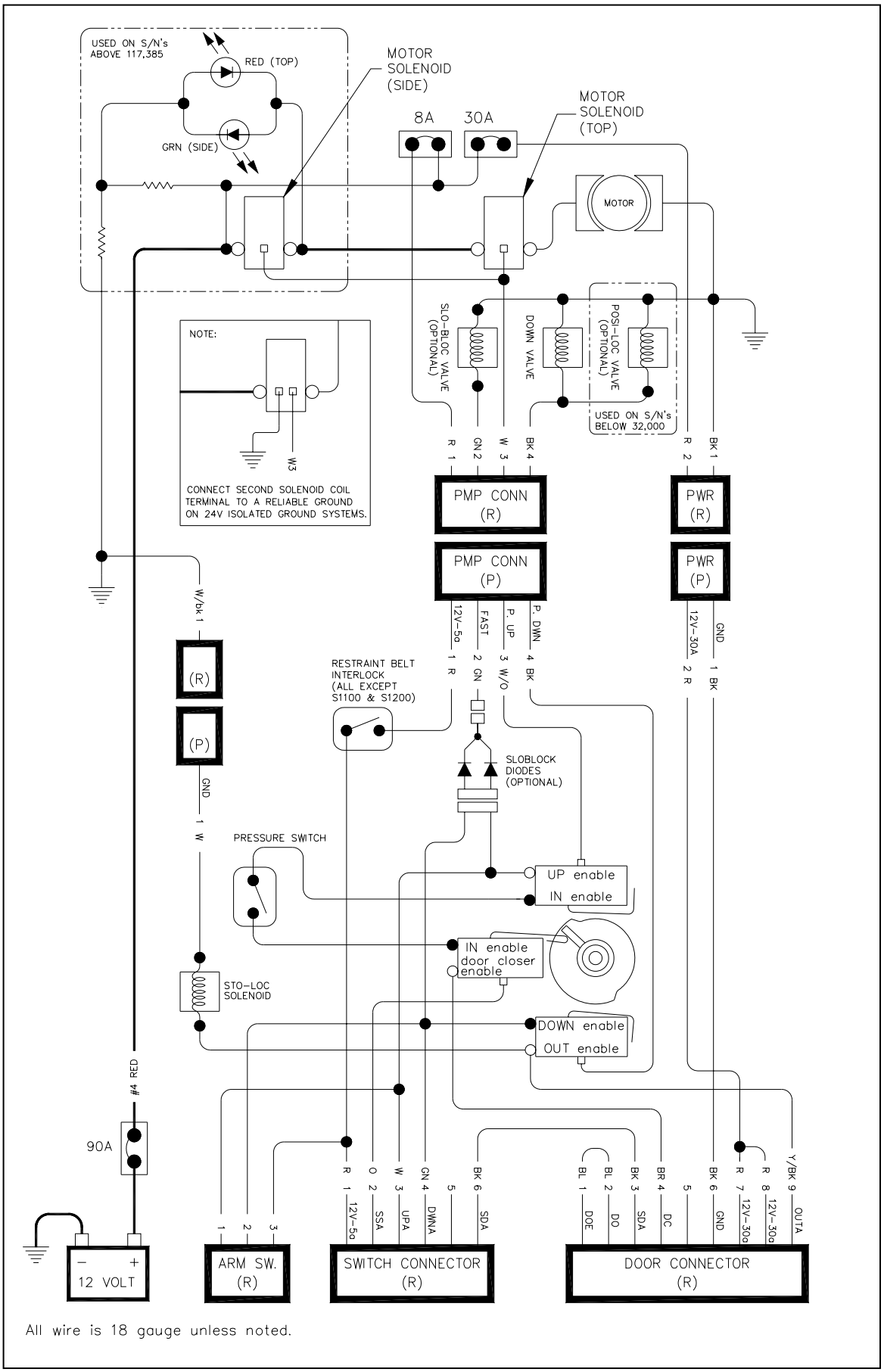


FIGURE 3-7: WIRING DIAGRAM FOR LIFT WITH DOOR OPERATOR

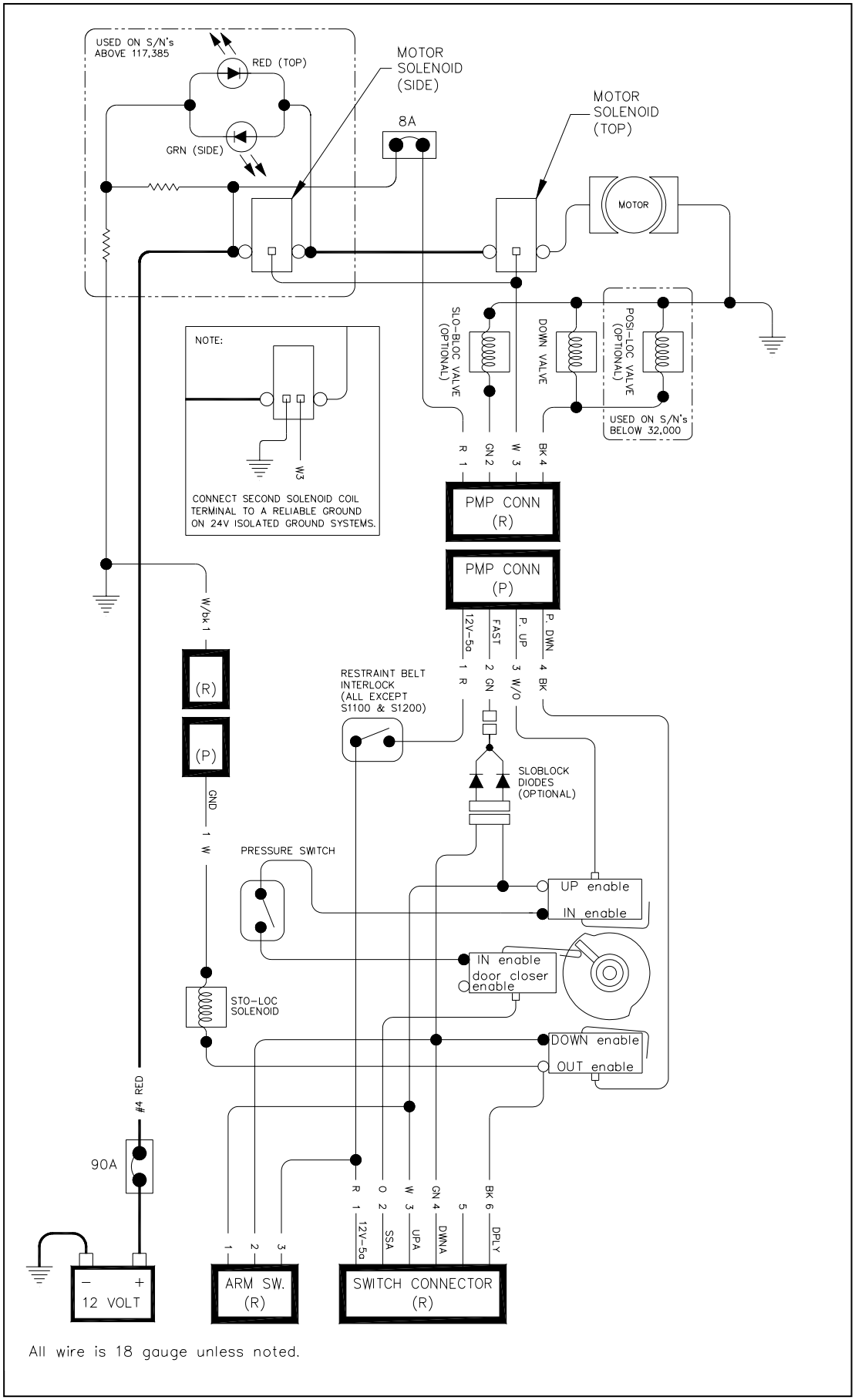


FIGURE 3-8: WIRING DIAGRAM FOR LIFT WITHOUT DOOR OPERATOR

IV. SPARE PARTS

This chapter contains parts diagrams and parts list for the Ricon K-series (KlearVue) Wheelchair Lift. The exploded views of major lift assemblies show individual, or kit components, referenced by numbers. On the associated lists are the reference numbers, part descriptions, quantities used, and Ricon part numbers. For part numbers of lift decals, refer to the "Decal Locations and Part Numbers" figure at the end of Chapter II of this manual.

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.

NOTE: Some major lift components that are typically painted gray may also be produced in other colors, such as red, yellow, blue, black, and white. These components include the platform assembly, handrails, vertical arms, top and bottom arms, and baseplate assembly. These colored components are available from Ricon as spare parts.

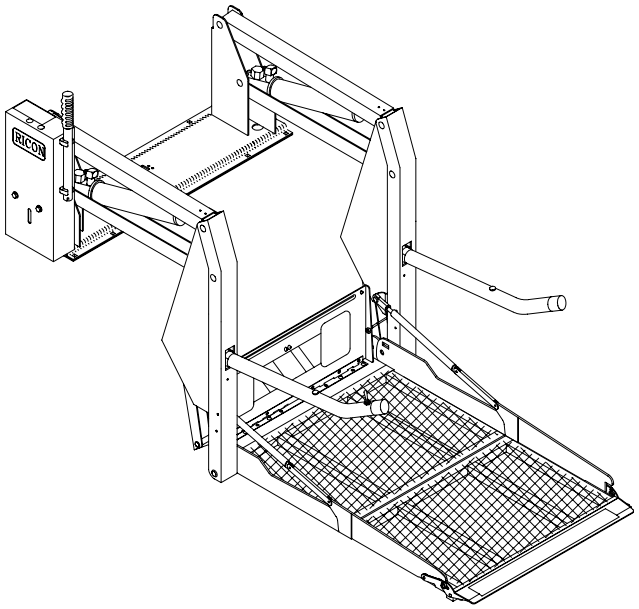


DIAGRAM ***PAGE***

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DATE: 05/05/04
DWG. SSX00001
REV K

MONARCH HYDRAULIC POWER UNIT #1
SERIAL NO's. 31000–31999
SERIAL NO's. 35000 – PRESENT

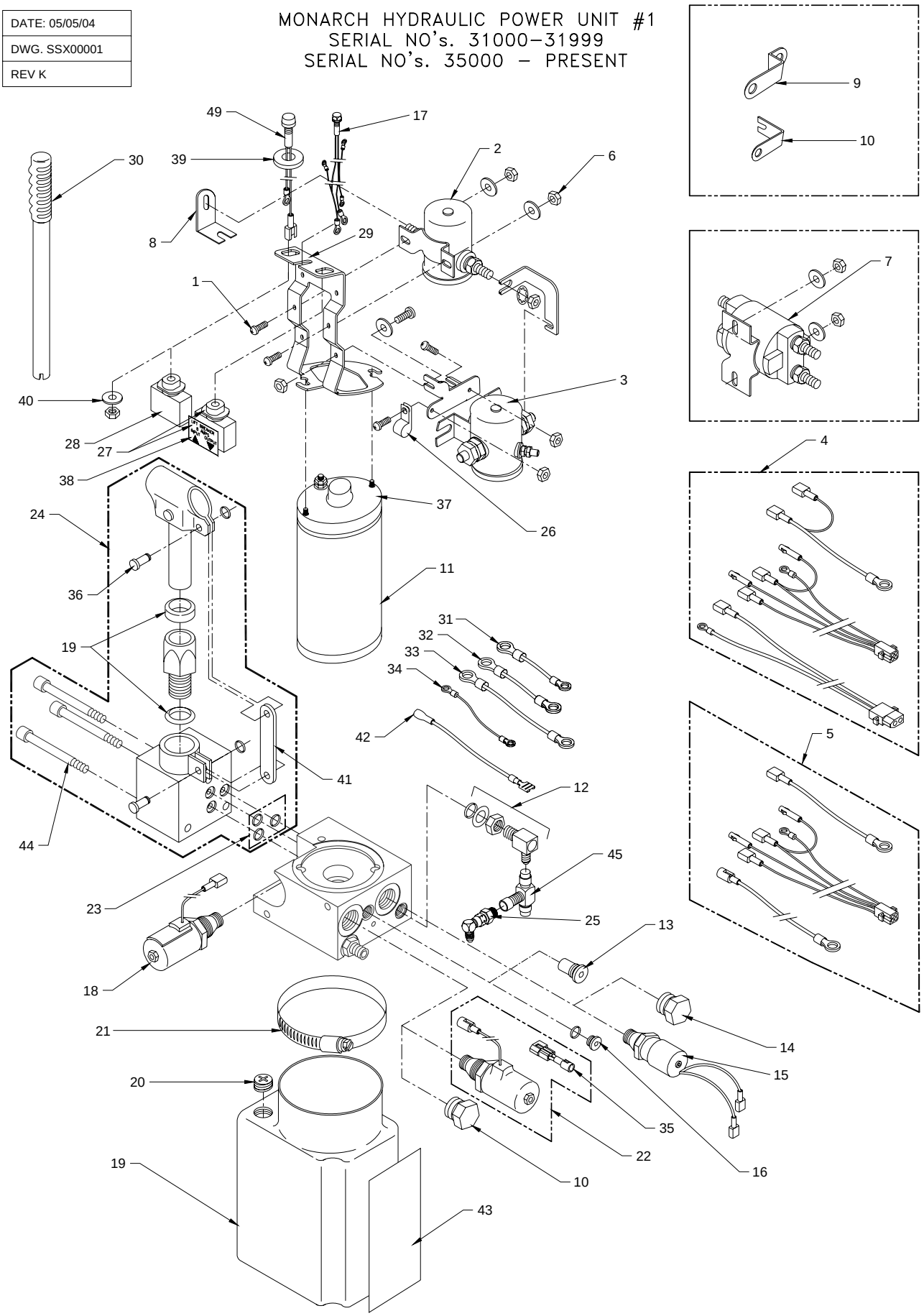

FIGURE 4-1: MONARCH HYDRAULIC POWER UNIT #1

FIGURE 4-1: MONARCH HYDRAULIC POWER UNIT

REF.	DESCRIPTION	QTY.	PART NO.
1	SCREW, PAN HEAD, 10-24 X ½, SELF THREAD	3	28111T
2	KIT, SOLENOID, 12V, DPST, CONT DUTY	1	20668
3	SOLENOID, SPST, 24V	1	26449
4	HARNESS, PUMP, w-DOOR INTERLOCK, (S/N's 32000-95999)	1	V2-ES-100
	HARNESS, PUMP, w-DOOR INTERLOCK, (SN's 96000 - present)	1	10069
5	HARNESS, PUMP, w/o DOOR INTERLOCK, (S/N's 32000-95999)	1	V2-ES-150
	HARNESS, PUMP, w/o DOOR INTERLOCK, (SN's 96000 - present)	1	10335
6	NUT, NYLON INSERT, 10-24, (BAG OF 10)	3	13382
7	KIT,SOLENOID,12V,DBL POLE, w/HDWR	1	20670
	KIT,SOLENOID,24V,DBL POLE, w/HDWR	1	20669
8	BUS BAR, MOTOR, SP SOLENOID, (S/N's 52456-95999) (DISCONTINUED)	1	V2-ES-034
	BUS BAR (SN 96000 - present)	1	10807
9	BUS BAR, MOTOR, DP SOLENOID, (S/N's 32000-95999) (DISCONTINUED)	1	UV-ES-040
10	BUS BAR (S/Ns' 96000 - present)	1	13087
11-1	MOTOR ASSY, 12V, 3", MONARCH PUMP (P/N V2-SH-115 DISCONTINUED)	1	14345
11-2	MOTOR ASSY, 24V, 3", MONARCH PUMP (P/N V2-SH-116 DISCONTINUED)	1	14346
11-3	MOTOR ASSY, 12V ISKRA (SN's 96000 - present) (DISCONTINUED)	1	14332
	MOTOR ASSY, w-BRACKET, 12V ISKRA	1	14345
11-4	MOTOR ASSY, 24V ISKRA (SN's 96000 - present) (DISCONTINUED)	1	14333
	MOTOR ASSY, w-BRACKET, 24V ISKRA	1	14346
12	FITTING ASSY, ELBOW, #4 STD THD X #4 JIC, w-HDWR	1	18235
13	DECELERATION VALVE ASSY	1	V2-SH-279
14	PLUG, 3/4-16 CAVITY, w-O-RING (DISCONTINUED)	2	V2-SH-001
15	KIT, PRESSURE SWITCH, W/INSTRUCTIONS (P/N 16640 SUPERSEDED)	1	42050
16	PLUG w/O-RING	1	V2-SH-182
17	LIGHT ASSY, INDICATOR, 12V (P/N 15207 DISCONTINUED)	1	35739
18-1	VALVE ASSY, POPPET, DELTROL, 12V	1	V2-SH-105
18-2	VALVE ASSY, POPPET, DELTROL, 24V (DISCONTINUED)	1	V2-SH-136
19	RESERVOIR, PUMP, PLASTIC w/DECAL & PLUG	1	30938
20	PLUG, BREATHER, RESERVOIR,	1	V2-SH-106
21	HOSE CLAMP	1	V2-SH-109
22-1	SPOOL VALVE ASSY, 12V, ADA APPLICATIONS	1	01176
22-2	SPOOL VALVE ASSY, 24V, ADA APPLICATIONS	1	01177
23	SEAL KIT, MANUAL BACK-UP PUMP	1	V2-SH-220
24	BACK-UP PUMP, MANUAL	1	V2-SH-210
25	FITTING ASSY, SNL, 1/4J X 1/4J, STEEL	1	VS-SH-06
26-1	CABLE CLAMP, 3/8", NYLON, (BAG OF 10)	1	18660
26-2	CABLE CLAMP, 3/16", NYLON, (BAG OF 10)	1	19798
26-3	CABLE CLAMP, 5/16", NYLON, (BAG OF 10)	1	19772
26-4	CABLE CLAMP, ½", NYLON, (BAG OF 10)	1	19774
27	CIRCUIT BREAKER, 8 AMP, w/HDWR & DECAL	1	V2-SH-005
28	CIRCUIT BREAKER, 30 AMP, w/HDWR	1	26510
29-1	BRACKET, SOLENOID MOUNTING (S/N's 32000-95999)	1	V2-SH-127
29-2	BRACKET, SOLENOID ISKRA (S/N's 96000 - present)	1	10507
30	HANDLE, MANUAL BACK-UP PUMP	1	V2-SH-111

REF.	DESCRIPTION	QTY.	PART NO.
31	JUMPER, DPDT SOLENOID, BLK, 10GA, 5.0”	1	ELJ00121
32	JUMPER, DPDT SOLENOID, w/ISOLATED GROUND, BLK, 10GA, 5.5”	1	ELJ00122
33	JUMPER, DPDT SOLENOID, RED, 10GA, 5.5”	1	ELJ02055
34	JUMPER, DPDT SOLENOID, ORG, 18GA, 5.0”	1	ELJ03061
35	DIODE BLOCK ASSEMBLY	1	08232
36	PIN & RETAINING RING	2	V2-SH-017
37-1	KIT, PUMP MOTOR BRUSH SET (S/N’s 32000-95999) (DISCONTINUED)	1	V2-SH-115B
37-2	KIT, PUMP MOTOR BRUSH SET (S/N’s 96000 - present)	1	14334
38	DECAL, 8 AMP CIRCUIT BREAKER (DISCONTINUED)	1	26290
39	ADAPTER, .625 D-HOLE TO .484 ROUND	1	V2-ES-059
40	WASHER, FLAT, 7/16 (S/N’s 61878 - present) (BAG OF 10)	1	19716
41	BRACKET, TENSION LINK, MONARCH PUMP	1	V2-SH-149
42-1	JUMPER, SWITCH, PRESSURE, RH PUMP	1	15860
42-2	JUMPER, SWITCH, PRESSURE, LH PUMP	1	15861
43	DECAL, OIL LEVEL WARNING	1	32-10-154
44	SCREW, HEX RECESS HEAD, 1/4-20X2	3	28490
45	FITTING, SRT, 1/4J, STEEL	1	V2-SH-012
46**	KIT, RETROFIT, 2nd SOLENOID, 12V	1	19068
47**	KIT, RETROFIT, 2nd SOLENOID, 24V	1	19843
48**	HARNESS, EXT, RH PUMP	1	V2-ES-155
49-1	LIGHT, LIFT ARMED INDICATOR, 12V (S/N’s 61878 - present)	1	UL-ES-034
49-2	LIGHT, LIFT ARMED INDICATOR, 24V (S/N’s 61878 - present)	1	V2-ES-016

** Item not shown

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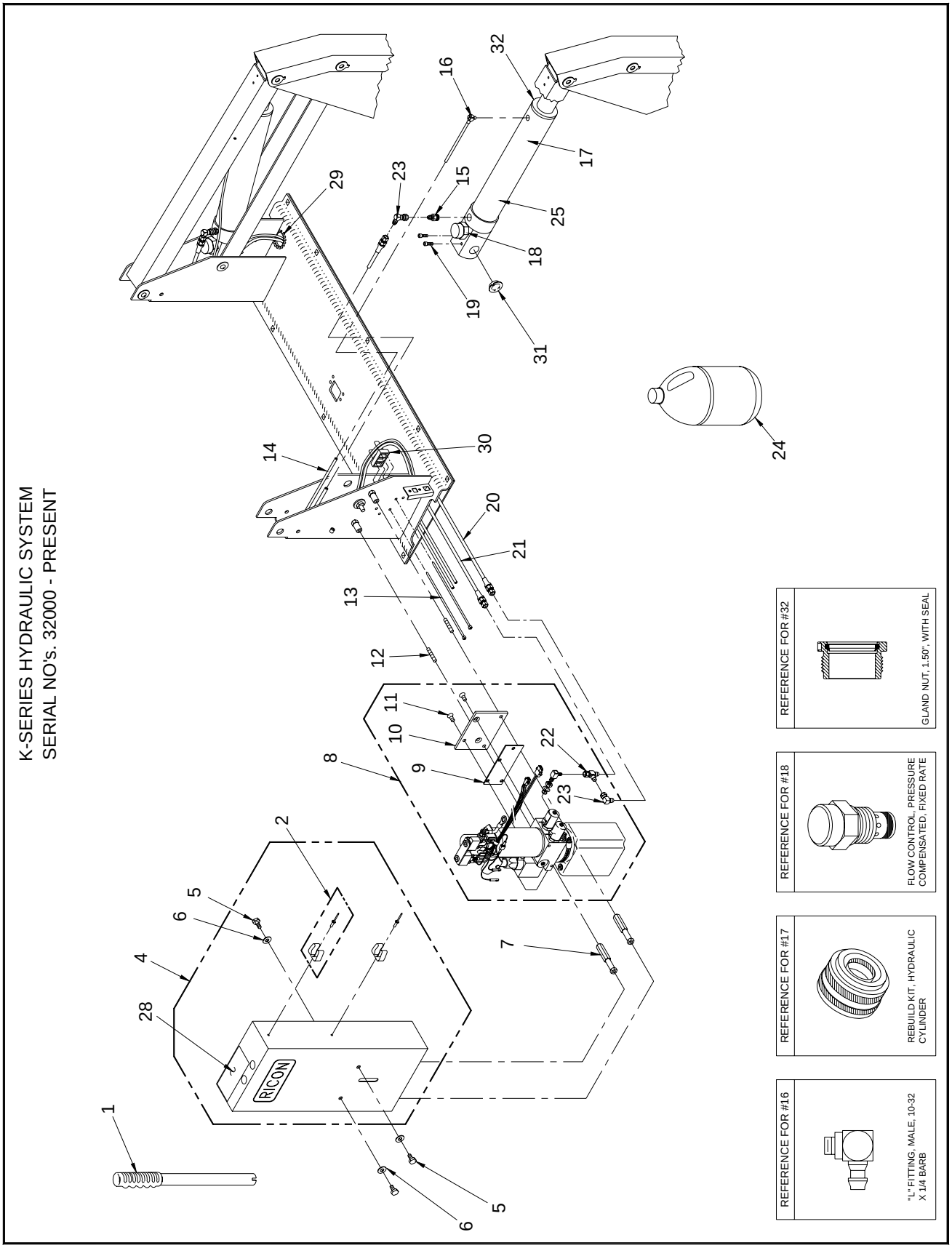


FIGURE 4-2: HYDRAULIC SYSTEM

FIGURE 4-2: HYDRAULIC SYSTEM

REF	DESCRIPTION	QTY	PART NO.
1	HANDLE, MANUAL BACKUP PUMP	1	V2-SH-111
2	KIT, TOOL CLIP, W/HDWR	2	19557
4-1	COVER, PUMP, RH	1	V2-CV-121
4-2	COVER, PUMP, LH (S/N's 31000-31999 & 35000-present)	1	V2-CV-220
5	SCREW, HEX HEAD, 5/16-18 X .625 (BAG OF 10)	3	14495
6	WASHER, FLAT, 5/16", SAE (BAG OF 10)	1	13350
7	HEX ROD, PUMP STANDOFF	2	V2-CV-015
8-1	HYDRAULIC PUMP, 12V, NOTOP, UV RES, 2KPSI	1	PM212002007
8-2	HYDRAULIC PUMP, 12V, W/INTLK & ANTIDRIFT (DISCONTINUED)	1	PM212090110
8-3	HYDRAULIC PUMP, 12V, COMMON BRKT (S/N's 31000 - 31999 & 35000 - present)	1	PM212090100
8-4	HYDRAULIC PUMP, 24V, COMMON BRKT (S/N's 31000 - 31999 & 35000 - present)	1	PM224110100
8-5	HYDRAULIC PUMP, 12V, COMMON BRKT (S/N's 32000 - 34999)	1	PM212090100
8-6	HYDRAULIC PUMP, 24V, COMMON BRKT (S/N's 32000 - 34999)	1	PM224110100
8-7	HYDRAULIC PUMP, 12V, COM BRKT, w/o INTLK, RH, DCL	1	PM212090308
8-8	HYDRAULIC PUMP, 24V, COM BRKT, w/o INTLK, RH, DCL	1	PM224100108
9	PLATE, PUMP COVER MOUNT	1	V2-AC-71
10	PLATE, PUMP MOUNTING	1	V2-AC-70
11	SCREW, FLAT HEAD, 5/16-18 X 3/4" (BAG OF 10)	2	14499
12	STUD, THREADED, 5/16-18 X 1.75" (BAG OF 10)	2	14500
13	CABLE TIE, 5.5", BLACK (BAG OF 10)	2	25697
14	TUBE, POLYURETHANE, 6MM x 4MM, BLACK	9'	22-02-230
15-1	ADAPTOR, STRAIGHT, 1/4 NPT MALE (S/N's 32000-63999)	2	V2-SH-84
15-2	ADAPTOR, # 6 SAE MALE X # 4 JIC MALE (S/N's 64000 - present)	2	26591
16	FITTING, "L", MALE 10-32 X 1/4 BARB	2	V2-SH-16
17	KIT, CYLINDER REPAIR, W-PISTON ASSY, GLAND NUT, AND SEAL	2	21829
18	KIT, FLOW CNTRL VALVE, PRESSURE COMPENSATED, FIXED RATE (2/KIT)	1	30968
19	SCREW, HEX RECESS HEAD, 1/4-20 X 1 (BAG OF 10)	4	14491
20	HOSE ASSY, 61" X 1/4 JIC X 1/4 JIC	1	V2-SH-009
21	HOSE ASSY, 26" X 1/4 JIC X 1/4 JIC	1	V2-SH-008
22	FITTING, RUN TEE, 1/4 JIC M-M-F	1	V2-SH-012
23	FITTING, "L", 1/4 JIC M-F SWIVEL	3	VS-SH-06
24	OIL, HYDRAULIC, TEXACO #15, MEETS MIL-H-5606G	1 GAL	20-16-051
25-1	CYLINDER ASSY, K-1100/1200	2	VS-SH-105
25-2	CYLINDER ASSY, K-2000	2	VT-SH-105
25-3	CYLINDER ASSY, K-5000	2	V5-SH-105
25-4	CYLINDER ASSY, K-55XX	2	30836
28	DECAL, MANUAL OPERATION (TOP, w/CB)	1	26214
29	GROMMET, CATERPILLAR, 3/16"	8.5"	26647
30	SPACER, CABLE, AND HOSE	2	25557
31	BUSHING, 3/4"ID X 3/8W	4	25381
32	GLAND NUT AND SEAL	2	13009

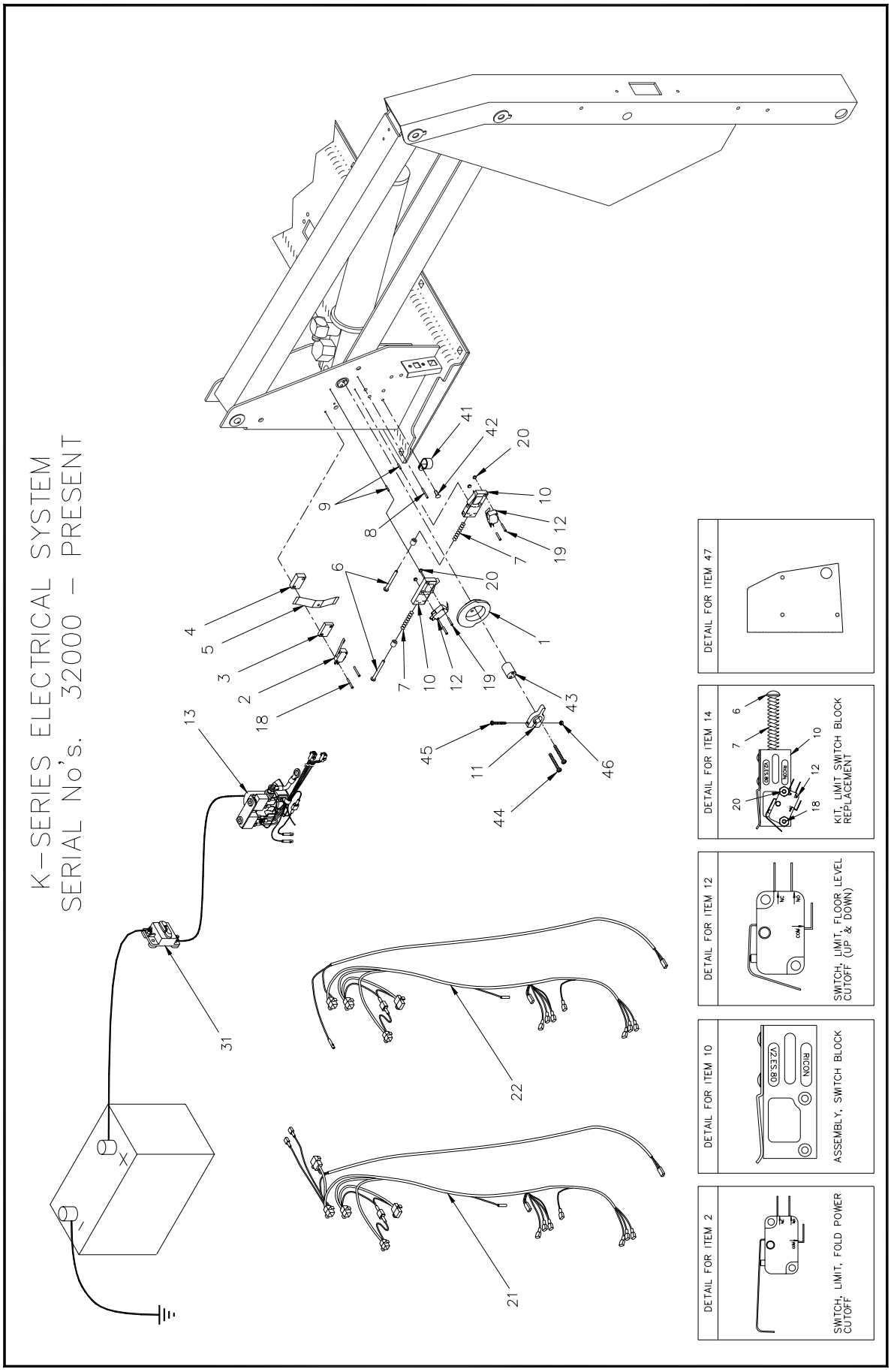


FIGURE 4-3: ELECTRICAL SYSTEM

FIGURE 4-3: ELECTRICAL SYSTEM

REF	DESCRIPTION	QTY	PART NO.
1-1	CAM, LIFT CONTROL w/SET SCREW (S/N's 32000-62559)	1	V2-ES-99
1-2	CAM, LIFT CONTROL (S/N's 62560 - present)	1	V2-AC-107
2	SWITCH, LIMIT, FOLD POWER CUTOFF	1	V2-ES-111
3	BLOCK, FOLD CUTOFF SWITCH OFFSET, 1/4" THICK	1	V2-ES-78
4	BLOCK, FOLD CUTOFF SWITCH OFFSET, 3/8" THICK	1	V2-ES-79
5	SPRING, RETAINING, UPPER AND LOWER SWITCH BLOCKS	1	V2-ES-95
6	SCREW, ROUND HEAD, 10-24 X 2" (ADJUSTING) (BAG OF 10)	2	14497
7	SPRING, COMPRESSION, .30 OD X 2.06L	2	V2-ES-93
8	ROLL PIN, .94 X 1.0 (TIMING PIN) (BAG OF 10)	1	14498
9	ROLL PIN, .94 X .50 (SWITCH BLOCK MOUNT) (BAG OF 10)	2	14496
10	SWITCH BLOCK ASSY, (UPPER & LOWER)	2	V2-ES-82
11-1	KIT, RETRO, CAM (V2-BU-89 SUPERSEDED)	1	01287
11-2	ACTUATOR, FOLD CUTOFF (S/N's 62560 - present)	1	V2-AC-089
12	SWITCH, LIMIT, FLOOR LEVEL POWER CUTOFF (UP & DOWN)	2	V2-ES-110
13	SOLENOID BRACKET COMPONENTS (for replacement parts, refer to hydraulic power unit parts list drawing)	—	—
13-1	CIRCUIT BREAKER, 8 AMP, BR8 (1908)	2	26401
14	KIT, LIMIT SWITCH BLOCK REPLACEMENT	2	V2-ES-61
18	SCREW, PAN HEAD, 4-40 X 1.25 (BAG OF 10)	2	15908
19	SCREW, PAN HEAD, 4-40 X .75 (BAG OF 10)	4	15909
20	NUT, HEX, 4-40, (BAG OF 10)	4	15903
21	ELECTRICAL HARNESS, MAIN, w/DOOR OPERATOR INTERCONNECT	1	V2-ES-051
22	ELECTRICAL HARNESS, MAIN, w/o DOOR OPERATOR INTERCONNECT	1	V2-ES-050
31	KIT, CIRCUIT BREAKER, MAIN (90a)	1	01010K
41	CLAMP, CABLE, 11/16'' (S/N's 53168 - present)	1	255161
42	MS, 10-24 X ½ PHIL PAN, (BAG OF 10)	1	13304
43	PIN, EXTENSION FOLD CUTOFF (S/N's 62560 - present) (BAG OF 10)	1	15914
44	MS 10-24 X 1 3/4 PHIL PAN (S/N's 62560 - present) (BAG OF 10)	2	15915
45	MS 8-32 X 1 1/4 PHIL PAN (S/N's 62560 - present) (BAG OF 10)	1	15906
46	NUT-HEX 8-32 NYLON INSERT (S/N's 62560 - present) (BAG OF 10)	1	15907
47	COVER, ELEC SYSTEM	1	V2-CV-110

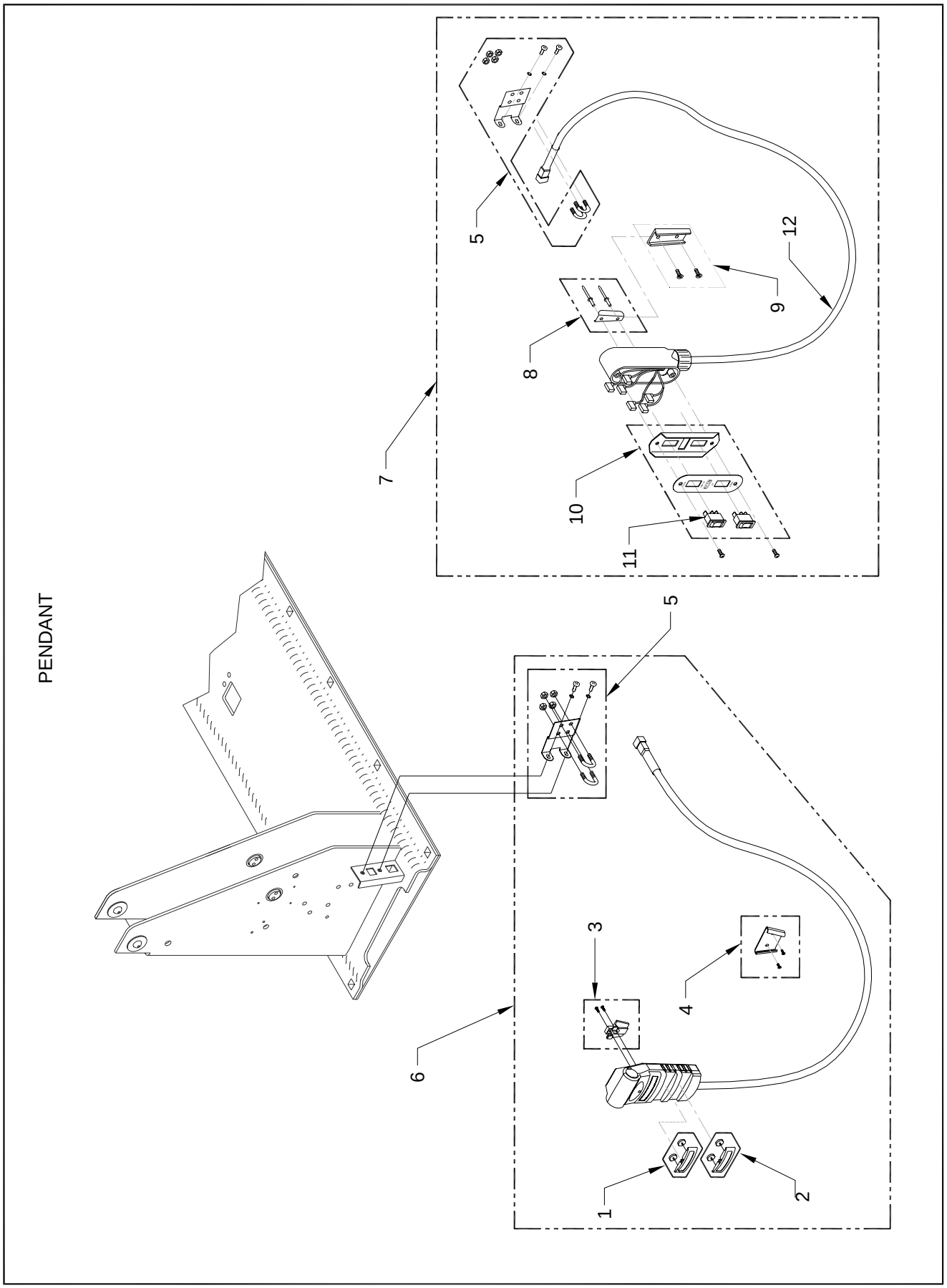


FIGURE 4-4: PENDANT

FIGURE 4-4: PENDANT

REF	DESCRIPTION	QTY	PART NO.
1	SPARE PARTS, STOW/DEPLOY BUTTON, K-SERIES	1	14731
2	SPARE PARTS, UP/DOWN BUTTON, K-SERIES	1	14732
3	SPARE PARTS, V-BRACKET, PLASTIC	1	14733
4	KIT, WALL MOUNT BRACKET, UNIVERSAL PENDANT	1	14709
5	KIT, CONTROL HARNESS STRAIN RELIEF, K-SERIES	1	01007
6-1	KIT, PENDANT, S-SERIES, 7 FT	1	14727
6-2	KIT, PENDANT, S-SERIES, COILED CORD	1	14728
6-3	KIT, PENDANT, S-SERIES, 10 FT	1	14729
6-4	KIT, PENDANT, S-SERIES, STEEL JACKETED CORD	1	14730
6-5	KIT, PENDANT, COIL CORD, FMVSS (33436 SUPERSEDED)	1	42968
7	KIT, PENDANT, OLD-STYLE (W/ROCKER SWITCH)	1	01008
8	KIT, CLIP, PENDANT, MALE W/RIVETS	1	28781
9	KIT, INSTL, PENDANT MTG CLIP	1	01118
10	FACEPLATE ASSY, PENDANT, SWITCH GD	1	V2-ES-035
11	SWITCH, SP ROCKER, ON-OFF-ON BLK	2	26455
12	HARNESS REPLACEMENT, 7FT CORD (for 01008 old style pendant, only)	1	V2-ES-024

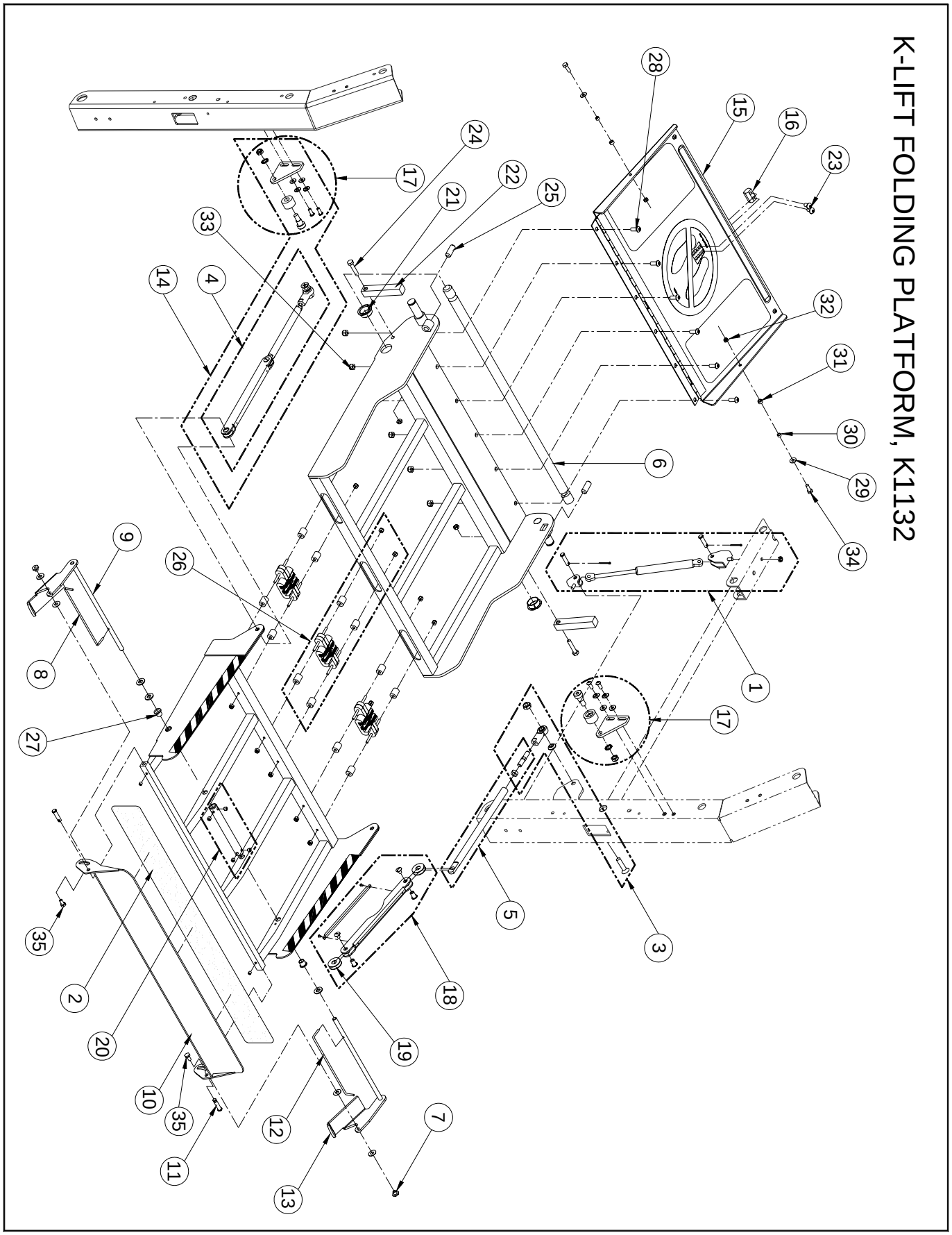


FIGURE 4-5: FOLDING PLATFORM ASSEMBLY, K1132

FIGURE 4-5: FOLDING PLATFORM ASSEMBLY, K1132

REF NO.	DESCRIPTION	QTY	PART
1	KIT, PNEUMATIC SPRING W-BRACKETS & HDWR	2	21647
2	SAFETREAD, 25.5" X 2/75", BLK	1	23047
3	ROD END ASSY, W/HDWR	1	29224
4	LINK ASSY	2	21645
5	KIT, LINK, REAR, 6.75", W/HDWR (left & right included in kit)	1	29244
6	SHAFT, MAIN, 1" X 32.50	1	VS-PI-14
7	T-NUT, ¼-20X1/4, SST (BAG OF 10)	2	14485
8	TORSION BAR, LH	1	V3-SP-21
9	ROLLSTOP ACTUATOR, LH	1	V1-PF-003
10	ROLLSTOP	1	22280
11	PIN, CLEVIS, 5/16X1-1¼ (BAG OF 10)	2	19513
12	TORSION BAR, RH	1	V3-SP-22
13	ROLLSTOP ACTUATOR, RH	1	V1-PF-002
14	KIT, LINK ASSY (GREY) & BRKTS (GREY), SHORTARM (left & right included in kit)		
	For serial numbers 169180 and above	1	32824
	For serial numbers below 169180	1	23359
15	ROLLSTOP ASSY, INBOARD	1	V1-PF-212
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRKTS, W/CAM FOLLOWER (left & right included in kit)		
	For serial numbers 169180 and above	1	31247
	For serial numbers below 169180	1	23386
18	LINK ASSY, FRONT PLATFORM	2	29222
19	WASHER, DELRIN, 1" ODX.38 ID, 0.031 THK (BAG OF 10)	8	25628
20	KIT, COLLAR, ROLLSTOP ACTUATOR, 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID, KIT OF 10	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X ½, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW, HEX HEAD, 5/16-18X 1 ½, GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1¼, W/NYLON INSERT (BAG OF 10)	2	19704
26	KIT, HINGE, W/HDWR	3	14352
27	BUSHING, .392 ID, BRONZE	2	V2-BU-195
28	SCREW, BUTTON HEAD, 5/16-18X ¾, SST, BLK OX (BAG OF 10)	6	15983
29	WASHER, FLAT, .28X.62X.06 (BAG OF 10)	2	17504
30	BUSHING, STEEL, .25 ID X .32 OD X .19L	2	V2-BU-003
31	SPACER, .25ID X .40 ODX .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18, SST (BAG OF 10)	9	14415
34	SCREW, HEX HEAD, ¼-20 X ¾, GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

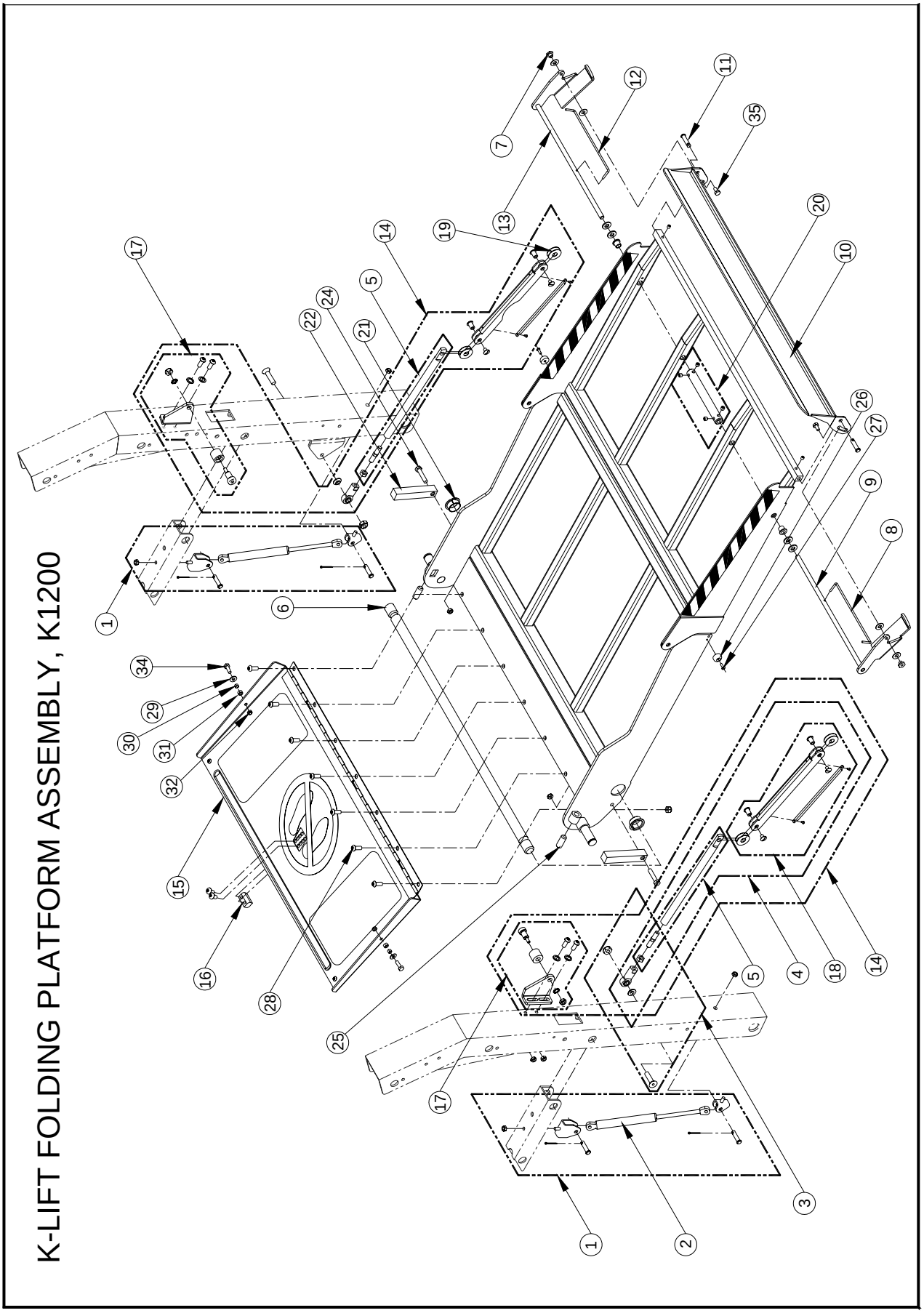


FIGURE 4-6: FOLDING PLATFORM ASSEMBLY, K1200

FIGURE 4-6: FOLDING PLATFORM ASSEMBLY, K1200

REF NO.	DESCRIPTION	QTY	PART
1	KIT, PNEUMATIC SPRING, RETROFIT (left & right included in kit)	2	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19507
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left & right included in kit)	1	29242
6	MAIN SHAFT, 1" DIA X 36.50"	1	VT-PI-43
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V3-SP-21
9	ACTUATOR, ROLLSTOP, LH	1	V2-FL-95
10	ROLLSTOP ASSY, 4"X30"	1	V2-PF-160
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V3-SP-22
13	ACTUATOR, ROLLSTOP, RH	1	V2-FL-94
14	KIT, LINK (YEL) & BRKTS (GRAY), HIGH MOUNT (left & right included in kit)		
	For serial numbers 169180 and above	1	31250
	For serial numbers below 169180	1	23360
15	ROLLSTOP ASSY, INNER, 30"	1	V2-PF-141
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRKTS (GRAY), HIGH MOUNT (left & right included in kit)		
	For serial numbers 169180 and above	1	31251
	For serial numbers below 169180	1	23339
18	LINK ASSY, FRONT PLATFORM	1	29222
19	WASHER, DELRIN, 1"ODX.38IDX.03 THK (BAG OF 10)	8	25628
20	KIT, COLLAR, ROLLSTOP ACTUATOR, 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID (KIT OF 10)	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW HEX HEAD, 5/16-18X 1½, GR5 (BAG OF 10)2	14403	
25	SETSCREW, ½-20X1/4, W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PANHEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾, SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .281 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, NYLON INSERT, 5/16-18, SST (BAG OF 10)	7	14415
34	SCREW, HEX HEAD, ¼-20 X ¾, GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

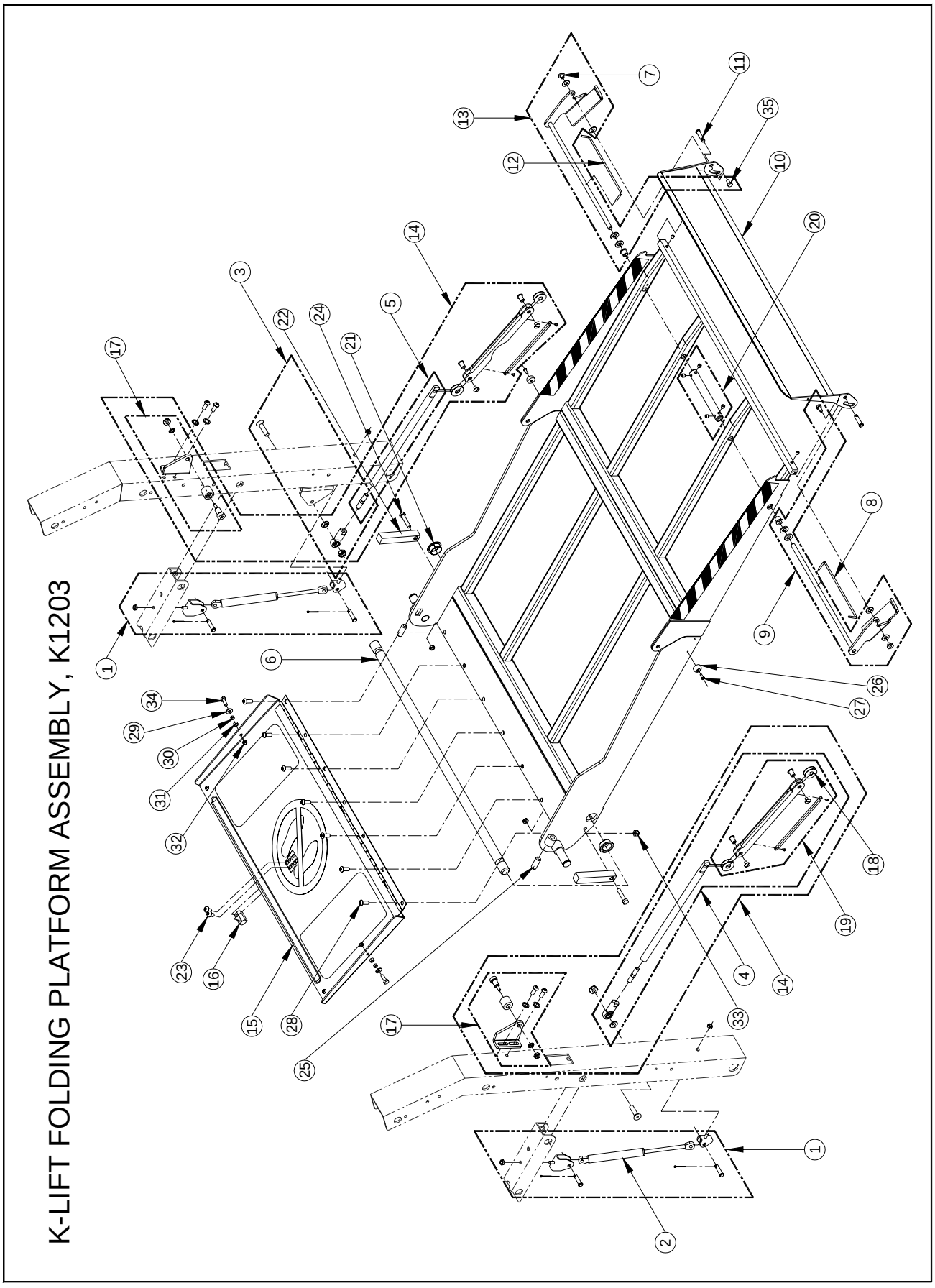


FIGURE 4-7: FOLDING PLATFORM ASSEMBLY, K1203

FIGURE 4-7: FOLDING PLATFORM ASSEMBLY, K1203

REF	DESCRIPTION	QTY	PART NO.
1	KIT, PNEUMATIC SPRING ASSY, RETROFIT (left & right included in kit)	2	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19522
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left & right included in kit)	1	29243
6	MAIN SHAFT, 1" DIA X 36.50"	1	VT-PI-43
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V2-SP-021
9	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, LH	1	22903
10	ROLLSTOP ASSY, 6"X30"	1	V2-PF-291
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V2-SP-022
13	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, RH	1	22902
14	KIT, LINK (YEL) & BRKTS (GREY) RH & LH (serial # 169180 & above)	1	31253
	KIT, LINK (GREY) & BRKTS (GREY) RH & LH (serial # 169180 & above)	1	31254
	KIT, LINK & BRACKETS, W/ROLLER RH & LH (serial #'s below 169180)	1	23357
15	ROLLSTOP ASSY, INNER, 30" PLATFORM	1	V2-PF-141
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRKTS W/ROLLER (left and right included in kit)		
	For serial numbers 169180 & above	1	31252
	For serials numbers below 169180	1	23356
18	WASHER, DELRIN, 1" ODX .388ID, 0.03 THK (BAG OF 10)	8	25628
19	LINK ASSY, FRONT PLATFORM	2	29223
20	KIT, COLLAR ROLLSTOP ACTUATOR 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID, KIT OF 10	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW, HEX HEAD, 5/16-18X 1½, GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1/4, W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PAN HEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾ SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .281 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18, SST (BAG OF 10)	7	14415
34	SCREW, HEX HEAD, ¼-20 X ¾ GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

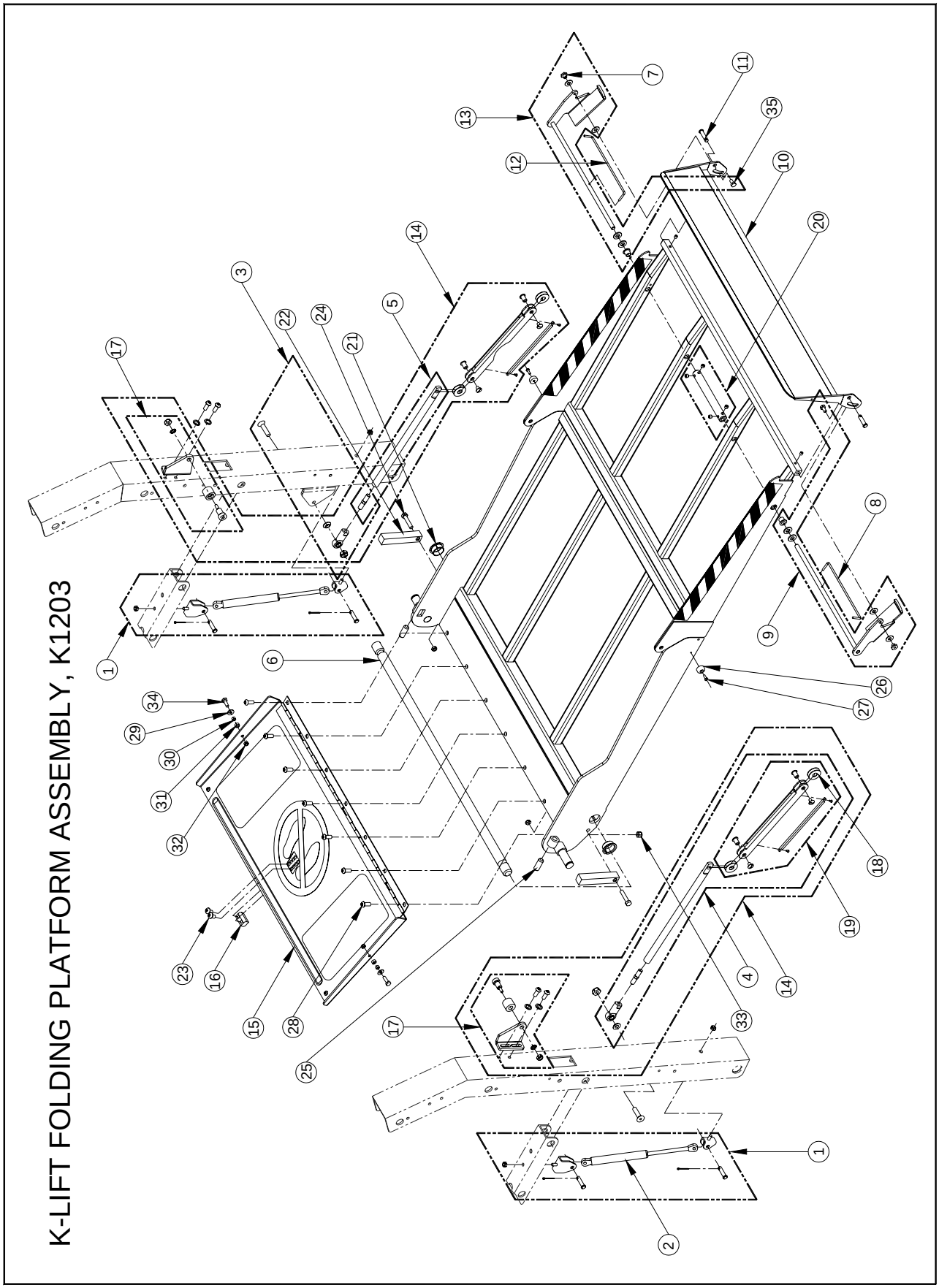


FIGURE 4-8: FOLDING PLATFORM ASSEMBLY, K1205

FIGURE 4-8: FOLDING PLATFORM ASSEMBLY, K1205

REF	DESCRIPTION	QTY	PART NO.
1	KIT, PNEUMATIC SPRING ASSY, RETROFIT (left & right included in kit)	2	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19523
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left & right included in kit)	1	29243
6	MAIN SHAFT, 1" DIA X 39.13"	1	VT-PI-49
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V2-SP-021
9	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, LH	1	22903
10	ROLLSTOP ASSY, 6"X32"	1	V2-PF-292
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V2-SP-022
13	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, RH	1	22902
14	KIT, LINK (YEL) & BRKTS (GREY) RH & LH (serial #'s 169180 & above)	1	31253
	KIT, LINK (GREY) & BRKTS (GREY) RH & LH (serial #'s 169180 & above)	1	31254
	KIT, LINK (GREY) & BRKTS (GREY) RH & LH (serial #'s below 169180)	1	23358
15	ROLLSTOP ASSY, INNER	1	V2-PF-142
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRACKETS W/ROLLER (left and right included in kit)		
	For serial #'s 169180 and above	1	31252
	For serial #'s below 169180	1	23356
18	WASHER, DELRIN, 1" ODX.38IDX.03 THK (BAG OF 10)	8	25628
19	LINK ASSY, FRONT PLATFORM	2	29222
20	KIT, COLLAR ROLLSTOP ACTUATOR, 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID KIT OF 10	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW HEX HEAD, 5/16-18X1½, GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1/4, W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PAN HEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾ SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .28 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18, SST (BAG OF 10)	7	14415
34	SCREW HEX HEAD, ¼-20 X ¾, GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

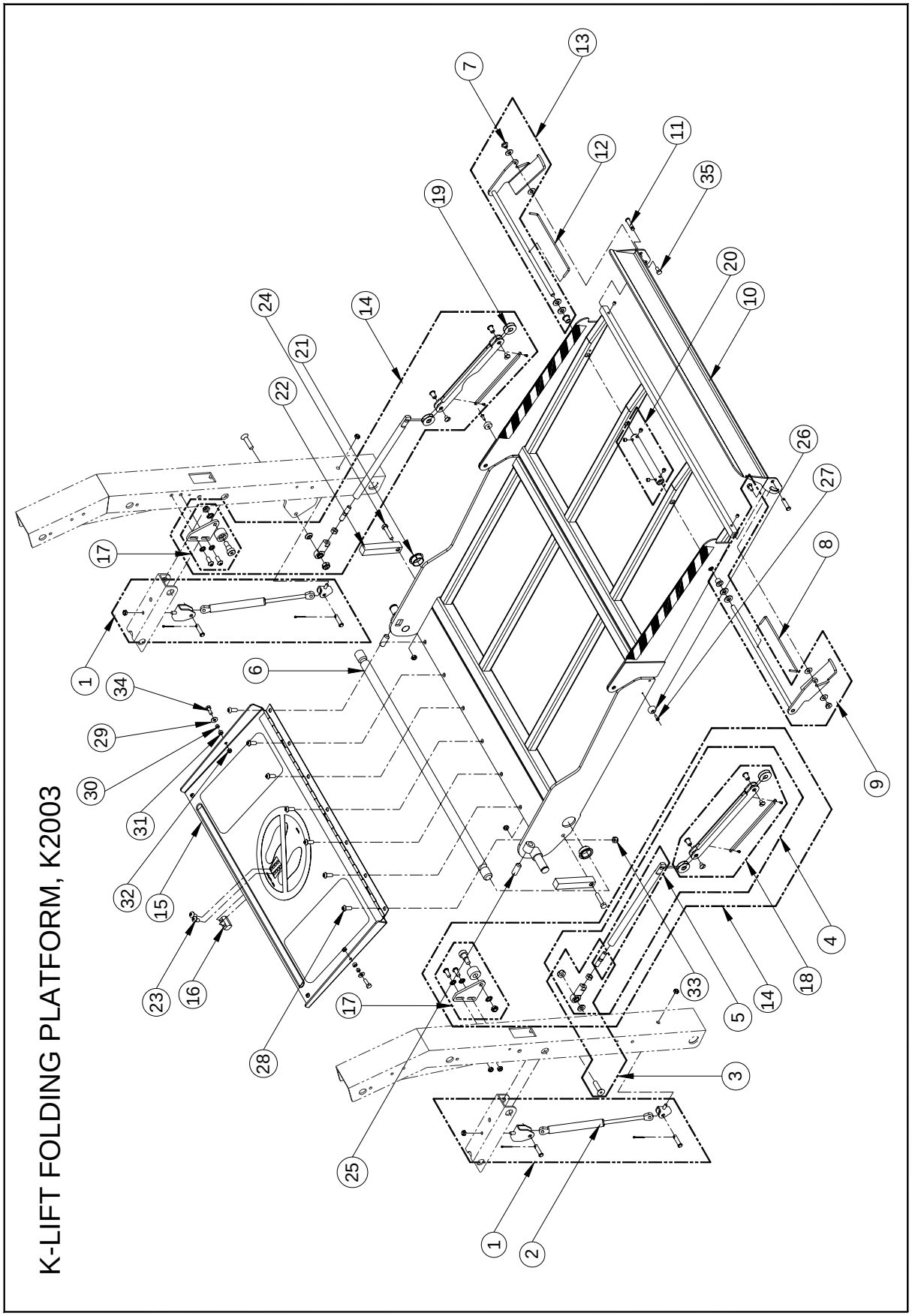


FIGURE 4-9: FOLDING PLATFORM ASSEMBLY, K2003

FIGURE 4-9: FOLDING PLATFORM ASSEMBLY, K2003

REF	DESCRIPTION	QTY	PART NO.
1	KIT, PNEUMATIC SPRING ASSY, RETROFIT (left & right)	2	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19522
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left &right)	1	29243
6	MAIN SHAFT, 1” DIA X 36.50”	1	VT-PI-43
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V2-SP-021
9	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, LH	1	22903
10	ROLLSTOP ASSY, 6”X30”	1	V2-PF-291
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V2-SP-022
13	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, RH	1	22902
14	KIT, LINK (YEL) & BRKTS (GREY) (right & left) serial #’s 169180 & above	1	31246
	KIT, LINK (RED) & BRKTS (RED) (right & left) serial #’s 169180 & above	1	31246R
	KIT, LINK (YEL) & BRKTS (YEL) (right & left) serial #’s 169180 & above	1	31246Y
	KIT, LINK & BRKTS (right & left) serial #’s below 169180	1	23338
15	ROLLSTOP ASSY, INNER, 30” PLATFORM	1	V2-PF-141
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRACKET W/CAM FOLLOWER (left and right included in kit)		
	For serial #’s 169180 and above	1	31247
	For serial #’s below 169180	1	23339
18	LINK ASSY, FRONT PLATFORM	2	29223
19	WASHER, DELRIN, 1” ODX.38IDX.03 THK (BAG OF 10)	8	25628
20	KIT, COLLAR ROLLSTOP ACTUATOR, 6.25”, W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1” ID, KIT OF 10	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW, HEX HEAD, 5/16-18X 1 ½ GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1/4, W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PAN HEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾ SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .28 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING, STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18,SST (BAG OF 10)	7	14415
34	SCREW, HEX HEAD, ¼-20 X ¾ GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

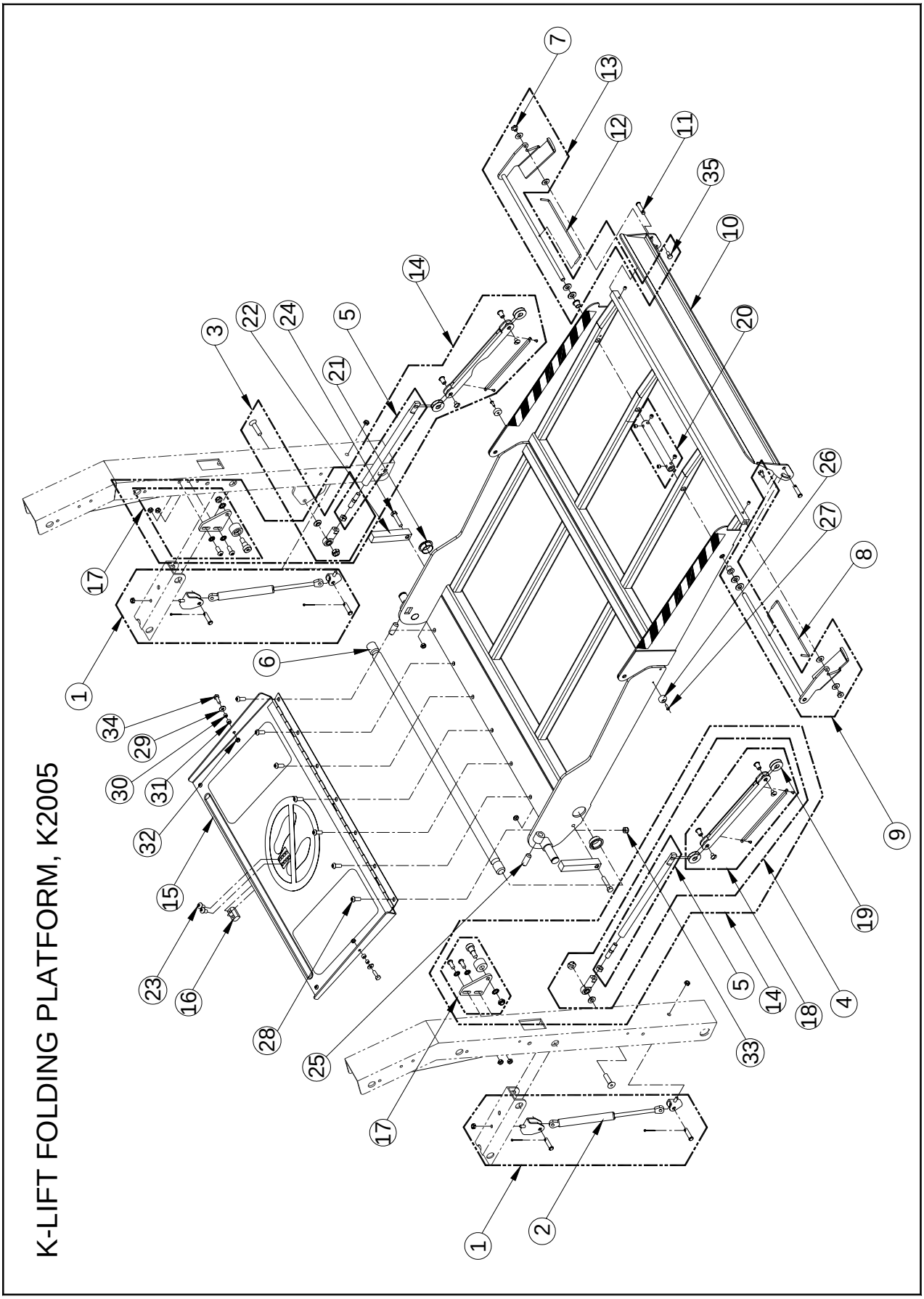


FIGURE 4-10: FOLDING PLATFORM ASSEMBLY, K2005

FIGURE 4-10: FOLDING PLATFORM ASSEMBLY, K2005

REF	DESCRIPTION	QTY	PART NO.
1	KIT, PNEUMATIC SPRING ASSY, RETROFIT (left & right included in kit)	1	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19522
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left & right included in kit)	1	29243
6	MAIN SHAFT, 1" DIA X 39.13"	1	VT-PI-49
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V2-SP-021
9	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, LH	1	22903
10	ROLLSTOP ASSY, 6"X32"	1	V2-PF-292
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V2-SP-022
13	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, RH	1	22902
14	KIT, LINK (YEL) & BRKTS (GREY) (right & left) serial #'s 169180 & above	1	31246
	KIT, LINK (RED) & BRKTS (RED) (right & left) serial #'s 169180 & above	1	31246R
	KIT, LINK (YEL) & BRKTS (YEL) (right & left) serial #'s 169180 & above	1	31246Y
	KIT, LINK & BRKTS (right & left) serial #'s below 169180	1	23338
15	ROLLSTOP ASSY, INNER	1	V2-PF-142
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRACKETS W/CAM FOLLOWER (left & right included in kit)		
	For serial numbers 169180 and above	1	31247
	For serial numbers below 169180	1	23339
18	LINK ASSY, FRONT PLATFORM	2	29223
19	WASHER, DELRIN, 1" ODX.38ID, .03 THK (BAG OF 10)	8	25628
20	KIT, COLLAR ROLLSTOP ACTUATOR 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID, KIT OF 10	2	19579
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2 SST, BLK OX (BAG OF 10)	2	14484
24	SCREW, HEX HEAD, 5/16-18X1½ GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1/4 W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PAN HEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾ SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .28 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING, STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18, SST (BAG OF 10)	7	14415
34	SCREW, HEX HEAD, ¼-20 X ¾ GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

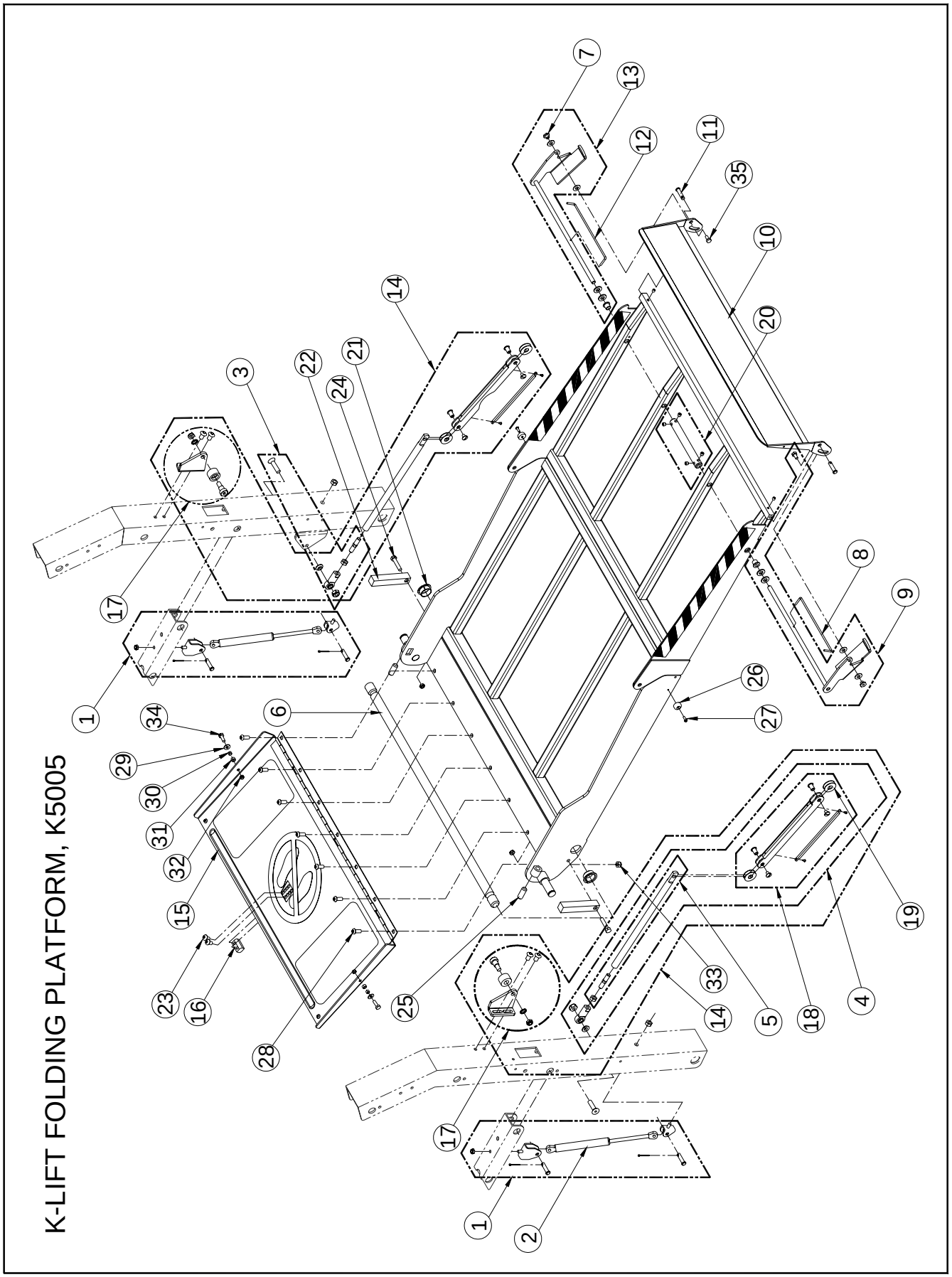


FIGURE 4-11: FOLDING PLATFORM ASSEMBLY, K5005

FIGURE 4-11: FOLDING PLATFORM ASSEMBLY, K5005/K5510

REF NO.	DESCRIPTION	QTY	PART
1	KIT, PNEUMATIC SPRING ASSY, RETROFIT (left & right)	1	19318
2	SPRING, PNEUMATIC ASSIST	2	R5-SP-502
3	ROD END ASSY, W/HDWR	2	29224
4	KIT, LINK ASSY	2	19522
5	KIT, LINK ASSY, REAR FOLDING PLATFORM (left & right)	1	29243
6	MAIN SHAFT, 1" DIA X 39.13"	1	VT-PI-49
6-1	KIT, SHAFT, MAIN, 1.00" X 40.50"L	1	34887
7	T-NUT, ¼-20, SST (BAG OF 10)	2	14485
8	TORSION SPRING, LH	1	V2-SP-021
9	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, LH	1	22903
10	ROLLSTOP ASSY, 6"X32"	1	V2-PF-292
10-1	ROLLSTOP ASSY, 6" X 34"W, OUTBOARD	1	16626
11	PIN, CLEVIS, 5/16X1-1/4 (BAG OF 10)	2	19513
12	TORSION SPRING, RH	1	V2-SP-022
13	KIT, ACTUATOR, ROLLSTOP REPLACEMENT, RH	1	22902
14	KIT, LINK (YEL) & BRKTS (GREY), HIGH MOUNT (left & right included in kit)		
	For serial numbers 169180 and above	1	31250
	For serial numbers below 169180	1	23340
15	ROLLSTOP ASSY, INNER, 30" PLATFORM	1	V2-PF-141
15-1	BRIDGEPLATE ASSY	1	30869
16	CATCH, BASE LATCH	1	V2-AC-103
17	KIT, BRACKETS (GREY), HIGH MOUNT W/CAM FOLLOWER (left & right included in kit)		
	For serial numbers 169180 and above	1	31251
	For serial numbers below 169180	1	23355
17-1	KIT, BRACKETS (GRAY), HIGH MOUNT, LH & RH	2	23355
18	LINK ASSY, FRONT PLATFORM	2	29223
19	WASHER, DELRIN, 1" ODX.38ID, .03 THK (BAG OF 10)	8	25628
20	KIT, COLLAR ROLLSTOP ACTUATOR, 6.25", W/HDWR	1	28775
21	KIT, FLANGED BEARING, 1" ID, KIT OF 10	2	19579
21-1	KIT, FLANGED BEARING, ¾" ID, KIT OF 10	2	19576
22	BLOCK, PLATFORM LEVEL ADJ	2	VT-AH-142
23	SCREW, BUTTON HEAD, 5/16-18X1/2, SST, BLK OX (BAG OF 10)	2	14484
24	SCREW, HEX HEAD, 5/16-18X1½, GR5 (BAG OF 10)	2	14403
25	SETSCREW, ½-20X1/4 W/NYLON INSERT (BAG OF 10)	2	19704
26	BUMPER, VHMW, .75DX.38T	2	V2-AC-027
27	SCREW, PAN HEAD, #8TEK X ½ (BAG OF 10)	2	15961
28	SCREW, BUTTON HEAD, 5/16-18 X ¾, SST, BLK OX (BAG OF 10)	7	15983
29	WASHER, FLAT, .28 X .625 X .065 (BAG OF 10)	2	17504
30	BUSHING, STEEL, .25ID X .32OD X.19L	2	V2-BU-003
31	SPACER, .25ID X .40OD X .2	2	UV-PF-839
32	NUT, W/NYLON INSERT, ¼-20 (BAG OF 10)	2	15919
33	NUT, W/NYLON INSERT, 5/16-18, SST (BAG OF 10)	7	14415
34	SCREW, HEX HEAD, ¼-20 X ¾, GR5 (BAG OF 10)	2	13308
35	SCREW, HEX HEAD, ¼-20 X ½, GR5 (BAG OF 10)	2	34518

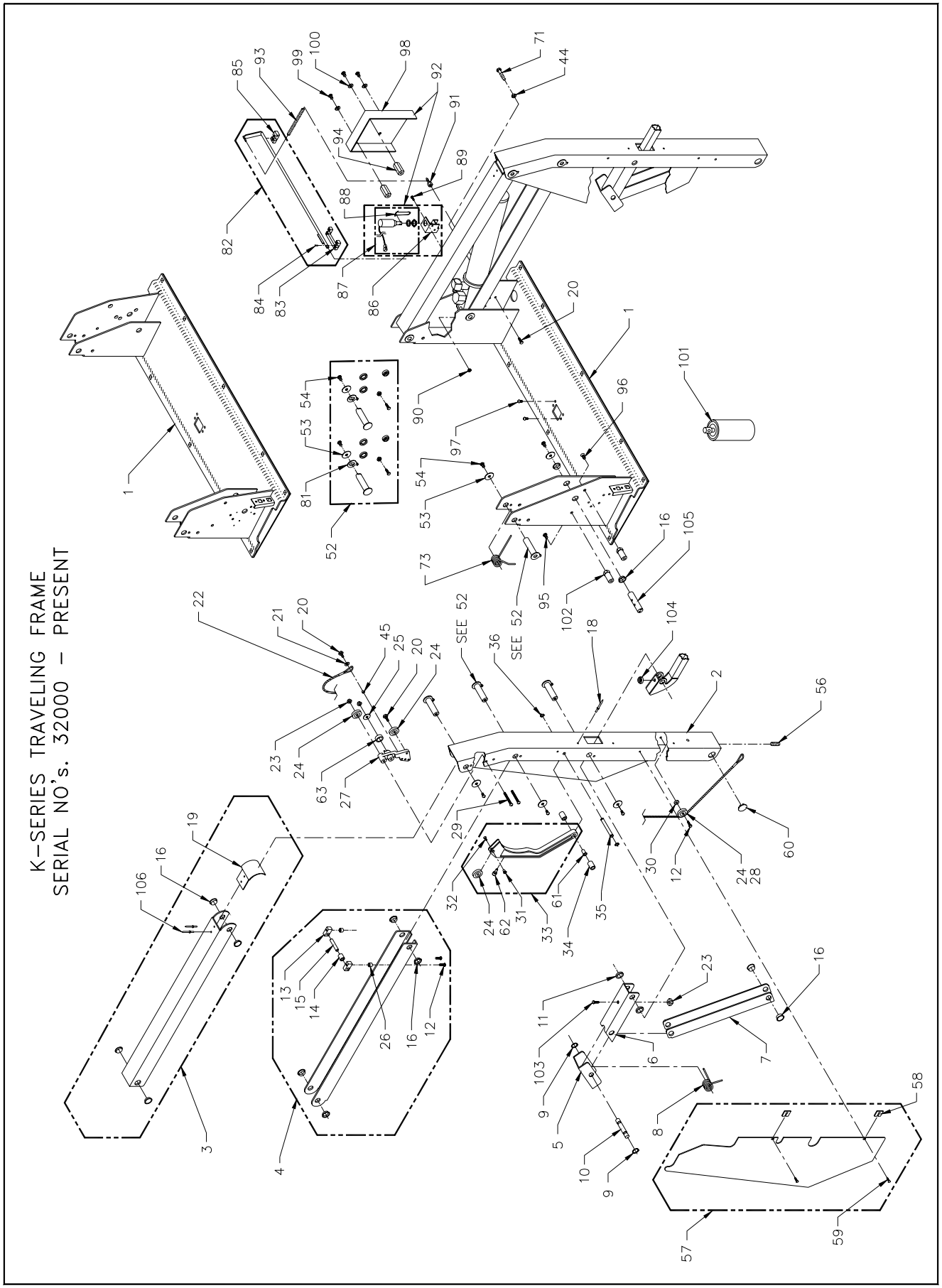


FIGURE 4-12: TRAVELING FRAME

FIGURE 4-12: TRAVELING FRAME

REF	DESCRIPTION	QTY	PART NO
1-1	BASEPLATE ASSY, 30”, w/o INTERLOCK	1	14452
	BASEPLATE ASSY, 30", w/o INTERLOCK, RH	1	14452R
	BASEPLATE ASSY, 30”, w/INTERLOCK	1	14453
1-2	BASEPLATE ASSY, 32”, w/o INTERLOCK	1	14454
	BASEPLATE ASSY, 32" ,w/o INTERLOCK, RH	1	14454R
	BASEPLATE ASSY, 32” w/INTERLOCK	1	14455
1-3 *	BASEPLATE WLDT	1	16618
2-1	VERTICAL ARM ASSY, RH, K1100	1	21604
	VERTICAL ARM ASSY, LH, K1100	1	21605
2-1	VERTICAL ARM ASSY, RH, K1200	1	15167
	VERTICAL ARM ASSY, LH, K1200	1	15166
2-2	VERTICAL ARM ASSY, K2000, RH	1	19328
	VERTICAL ARM ASSY, K2000, LH	1	19327
2-3	VERTICAL ARM ASSY, K5000, RH	1	22292
	VERTICAL ARM ASSY, K5000, LH	1	22293
2-4	VERTICAL ARM ASSY, K55XX, RH	1	30850
	VERTICAL ARM ASSY, K55XX, LH	1	30854
3-1	TOP ARM ASSY, K1100/K1200	2	VS-AC-250
3-2	TOP ARM ASSY, K2000	2	VT-AC-250
3-3	TOP ARM ASSY, K5000	2	V5-AC-250
3-4	TOP ARM ASSY, K55XX	2	30858
4-1	BOTTOM ARM ASSY, K1200	2	VS-AC-252
4-2	BOTTOM ARM ASSY, K2000	2	VT-AC-252
4-3	BOTTOM ARM ASSY, K5000	2	V5-AC-252
4-4	BOTTOM ARM ASSY, K55XX	2	30835
5	SADDLE ASSEMBLY	2	VT-AC-046
6	LINK, UPPER KNUCKLE LEVER ASSY	2	VT-AC-070
7-1	LINK, VERTICAL KNUCKLE ASSY, W/LOAD SENSOR K1200	1	VS-AC-058
7-2	LINK, VERTICAL KNUCKLE ASSY, W/LOAD SENSOR K2000	1	VT-AC-058
7-3	LINK, VERTICAL KNUCKLE ASSY, W/LOAD SENSOR K5000	1	V5-AC-058
7-4	LINK, VERTICAL KNUCKLE ASSY, K1100, W/O LOAD SENSOR	1	V1-AC-069
7-5	LINK, VERTICAL KNUCKLE ASSY, K1200, W/O LOAD SENSOR	2	VS-AC-069
7-6	LINK, VERTICAL KNUCKLE ASSY, K2000, W/O LOAD SENSOR	2	VT-AC-069
7-7	LINK, VERTICAL KNUCKLE ASSY, K5000, W/O LOAD SENSOR	2	V5-AC-069
7-8	KIT, KNUCKLE LEVER ASSY, K55XX, W/O LOAD SENSOR	2	34894
8	SPRING, KNUCKLE ACTUATOR	2	VT-SP-42
9	RETAINING RING, .75" EXT (BAG OF 10)	1	11796
10	PIN, SNAP RING, .75 OD X 2.15L	2	VT-PI-41
11	SPACER, KNUCKLE LINK	4	VT-BU-42
12	SCREW, BUTTON HEAD, 1/4-20 X 1", SST (BAG OF 10)	6	19715
13	RETAINER, CAM ROLLER	4	V2-AC-025
14-1	ROLLER, INNER ROLLSTOP CAM (K2000 & K5000)	2	V2-AC-124
14-2	ROLLER, INNER ROLLSTOP CAM (K1000 & K1200)	2	V2-AC-024
15	PIN, CAM ROLLER	2	V2-PI-094
16	FLANGED BUSHING, .75ID, (BAG OF 10)	3	19576
18	RIVET, BLIND, 3/16 X 1/2", ALUM, (BAG OF 10)	10	15918
19	CAP, UPPER PARALLEL ARM	2	V2-AC-89
20-1	SCREW, HEX HEAD, 1/4-20 x 3/4, GR5, (BAG OF 10)	4	13308
20-2	SCREW, FLAT HEAD, 1/4-20 x ½, (BAG OF 10)	1	15928

REF	DESCRIPTION	QTY	PART NO
21	WASHER, FLAT, .63OD x .28ID x .065, (BAG OF 10)	2	17504
22-1	CABLE ASSY, REPLACEMENT, IRS, K1100	1	13661
22-2	CABLE ASSY, REPLACEMENT, IRS, K1200	1	16093
22-3	CABLE ASSY, REPLACEMENT, IRS, K2000	1	16094
22-4	CABLE ASSY, REPLACEMENT, IRS, K5000	1	16095
22-5	KIT, CABLE ASSY W/SLEEVE, K55XX SERIES	2	34247
23	NUT, HEX ¼-20, W/NYLON INSERT (BAG OF TEN)	1	15919
24	BEARING, GROOVED	8	VS-AH-06
25	WASHER, FENDER, ¼"X1" OD, (BAG OF TEN)	2	25623
26	STAND-OFF, .38LG, ¼"IDX½"OD	4	V2-AC-011
27	BLOCK, PULLEY MOUNT, INNER ROLLSTOP	2	V2-AC-112
28	BEARING, 1" OD, GROOVED, .25ID, S1100	2	25374
29	SCREW, BUTTON HEAD, 1/4-20 x 2 1/4, SST, BLK OXIDE, (BAG OF 10)	1	19720
30	BUSHING, 5/8 OD X 3/16L	2	VS-AH-13
31	T-NUT, FLAT HEAD, 10-24 X .25 OD X .44L	2	V2-AC-015
32	SCREW, FLAT HEAD, 10-24 x ½, (BAG OF 10)	1	13303
33	CAM ASSY, INNER ROLLSTOP ACTUATOR	2	V2-AC-190
34	KIT, SPACER, RUBBER, INNER ROLLSTOP CAM (KIT OF 4)	4	01224
35	PIN, SNAP RING, .38OD X 3.09L	2	VS-PI-09
36	RETAINING RING, .38ID, (BAG OF 10)	1	11795
45	BUSHING, STEEL, 251D X 320D X .19L	2	V2-BU-003
52	KIT (RETROFIT), PIN, LINK, ARM ASSY	3	16679
53	WASHER, FENDER, 5/16, SST, (BAG OF TEN)	1	15921
54	SCREW, BUTTON HEAD, 5/16-18X½, SST, (BAG OF TEN)	1	14494
56	SET SCREW, 3/8-16X3/8", CUP POINT	4	11797
57	SEE FIGURE 4-13 "PINCH POINT SHIELDS"		
58	SPRING NUT,10-24, U-TYPE, (BAG OF 10)	1	11799
59	SCREW, PAN HEAD, 10-24 x ½, (BAG OF 10)	1	13304
60	PLUG, 1" LOW PROFILE, BLK NYLON	2	25563
61	BEARING, NYLINER, 3/8 IDX11/16 LONG	2	25562
62	BUMPER, BUTTON, IRS CAM, (BAG OF 10)	1	19783
63	BUMPER, IRS CAM, ANTI-RATTLE	2	V2-BU-090
71	SCREW, HEX HEAD, 1/4-20 X 1-3/4, GR5 (BAG OF 10)	1	25696
73	SPRING, UPPER PARALLEL ARM	2	V2-SP-97
80	SETSCREW, 5/16-18 x 1, CUP PT, (BAG OF 10)	1	15830
81	WASHER, KEYED	2	20258
82-1	KIT, LATCH RELEASE, 26", w/BLOCKS & HDWR	1	28767
82-2	KIT, LATCH RELEASE, 30", w/BLOCKS & HDWR	1	28768
82-3	KIT, LATCH RELEASE, 32", w/BLOCKS & HDWR	1	28769
83	BLOCK, CENTER MOUNTING, BASE LATCH	1	V2-AC-102
84	DOWEL PIN, .094 DIA X .38 L, (BAG OF 10)	1	25615
85	BLOCK, MOUNTING, BASE LATCH	1	V2-AC-001
86	BRACKET, STOW LOCK SOLENOID	1	V2-AC-108
87-1	SOLENOID ASSY, 12V	1	V2-ES-127
87-2	SOLENOID ASSY, 24V	1	V2-ES-128
88	CLIP, SPRING, BASE LATCH	1	V2-AC-009
89	SCREW, FLAT HEAD, 10-24 x ½, SST, (BAG OF 10)	1	14426
90	NUT, HEX, NYLON INSERT, 10-24, (BAG OF 10)	1	13382
91	PIN, SPRING MOUNTING	1	V2-PI-095
92-1	KIT, REPLACEMENT SOLENOID, 12V (S/N's 32000 - 50516)	1	01238

REF	DESCRIPTION	QTY	PART NO
92-2	KIT, REPLACEMENT SOLENOID, 24V (S/N's 32000 - 50516)	1	01239
93	SPRING, DOOR HELPER .38ODX3.5"	1	V2-SP-093
94	BUSHING, LATCH COVER	2	V2-BU-080
95	SCREW, HEX HEAD, 5/16-18 X 3/4", (BAG OF 10)	1	15901
96	SCREW, FLAT HEAD, 5/16-18X¾, (BAG OF 10)	1	14499
97	SCREW, BUTTON HEAD, ¼-20X½", SST, (BAG OF 10)	1	15902
98	COVER, BASE LATCH	1	V2-CV-123
99	SCREW, HEX HEAD, 5/16-18X.625, (BAG OF 10)	1	14495
100	WASHER, FLAT, .69OD x .34ID x .065, (BAG OF 10)	1	13350
101	SPRAY PAINT, TOUCH-UP, CHARCOAL	1	25340
102	BUSHING, E-COVER MOUNT	2	V2-BU-081
103	SCREW, HEX HEAD, ¼-20X1, GR5, (BAG OF 10)	1	14493
104	GROMMET, .30ID x .88OD x .44, (BAG OF 10)	1	23391
105	PIN, CONTROL CAM	1	V2-PI-091
106	RIVET, BLIND, 3/16ODX5/8L, STEEL (BAG OF 10)	4	34519
107**	COVER, PINCH POINT, 7"X12", PVC	2	V3-AC-26
108**	COVER, PINCH POINT, 3"X25", PVC	2	V3-AC-27
109**	COVER, PINCH POINT, 3"X29", PVC	4	V3-AC-28
110**	COVER, PINCH POINT, 3"X30", PVC	2	V3-AC-29
111**	COVER, PINCH POINT, 3"X5"X8", PVC	2	V3-AC-31

***** Item not shown

****** Item not shown: Part of the Articulating Pinch Point Set S20XX-XXXXXXX1X.

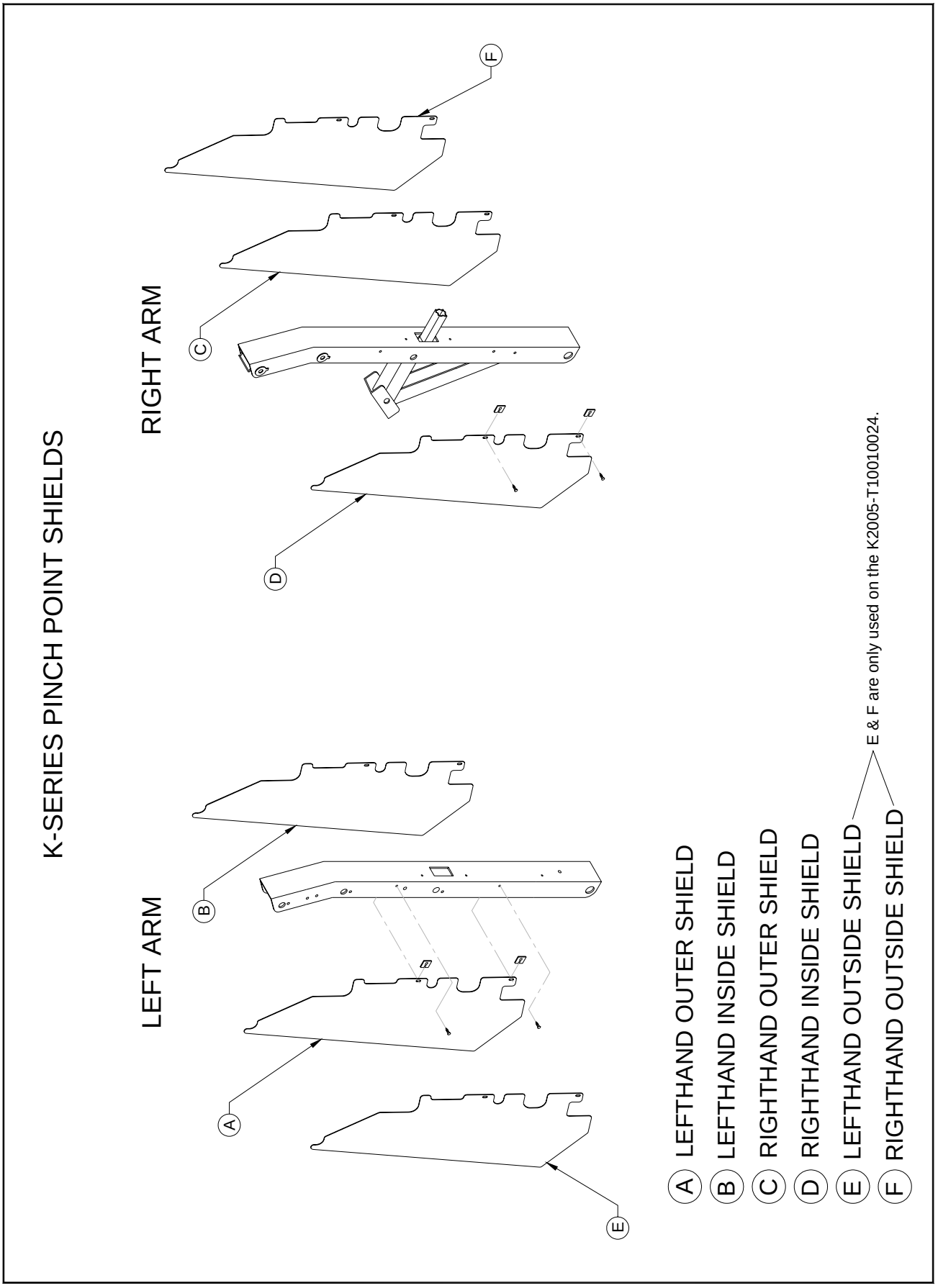


FIGURE 4-13: PINCH POINT SHIELDS

FIGURE 4-13: PINCH POINT SHIELDS

MODEL	A LEFT OUTER SHIELD	B LEFT INSIDE SHIELD	C RIGHT OUTER SHIELD	D RIGHT INSIDE SHIELD	E LEFT OUTSIDE SHIELD	F RIGHT OUTSIDE SHIELD
K1132	29167	29183	29183	29167	N/A	N/A
K1200 K1203 K1205	29162	29165	29178	29181	N/A	N/A
K2003 K2005 K2010	29162	29178	29178	29162	N/A	N/A
K2005- T10010024	29162	29178	29178	29162	29166	29182
K5005 K5010 K5511	29163	29179	29179	29163	N/A	N/A

HANDRAILS
SERIAL NO's. 32000 – PRESENT

K–SERIES
DATE: 05/17/04

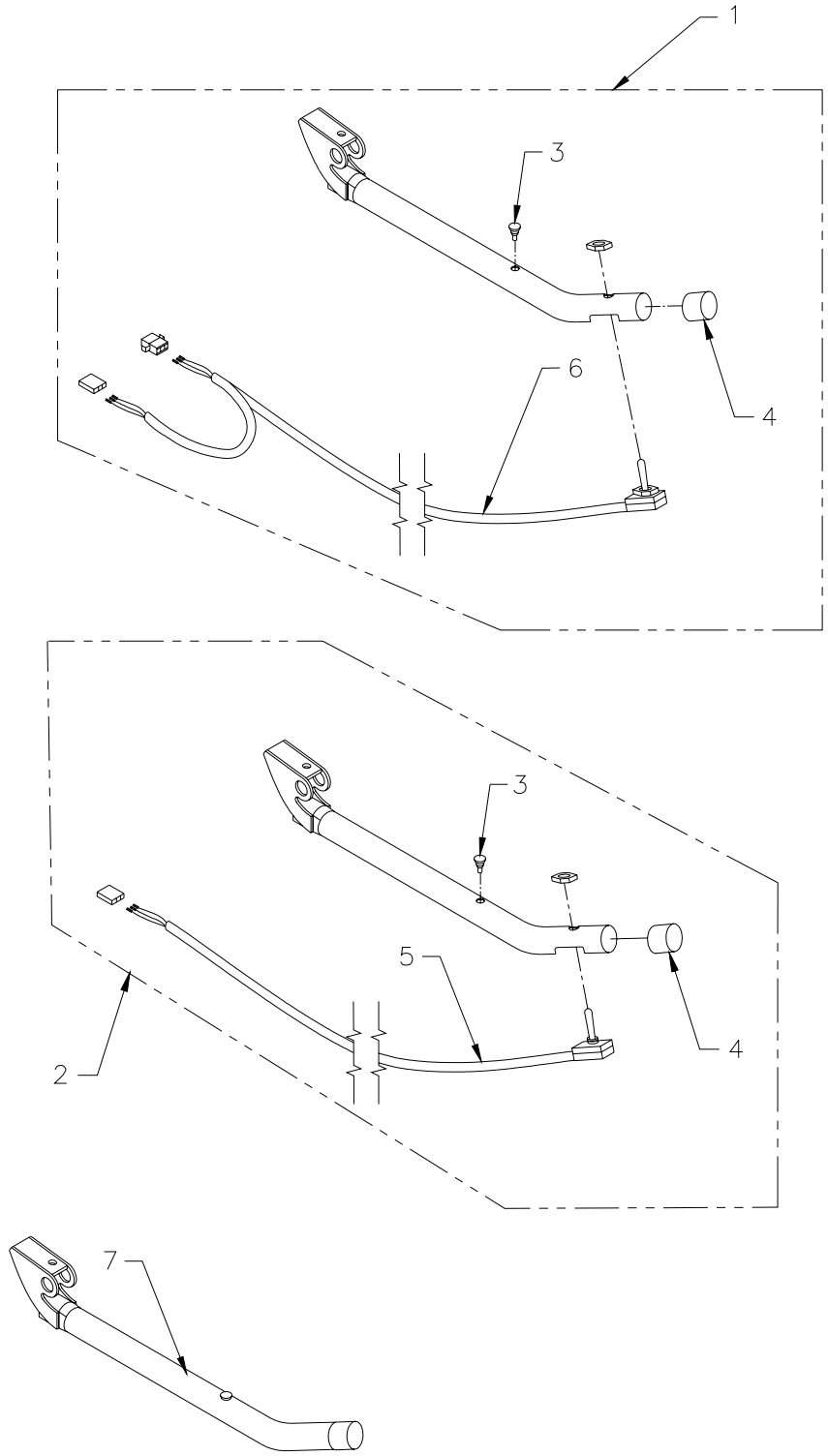


FIGURE 4-14: HANDRAIL ASSEMBLIES

FIGURE 4-14: HANDRAIL ASSEMBLIES

REF NO.	DESCRIPTION	QTY	PART
1	HANDRAIL ASSY, S1200, W/SWITCH, RH	1	VS-AC-161
1-1*	HANDRAIL ASSY, S2000, W/SWITCH, RH	1	VT-AC-281
2	HANDRAIL ASSY, S1200, W/SWITCH, LH	1	VS-AC-160
2-1*	HANDRAIL ASSY, S2000, W/O SWITCH, LH	1	VT-AC-282
2-2*	HANDRAIL ASSY, S2000, W/SWITCH, LH	1	VT-AC-284
3	BUMPER, RUBBER (BAG OF 10)	2	20653
4	CAP, ROUND BLACK	2	25550
5	HARNESS, HANDRAIL SWITCH	1	V2-ES-012
6	HARNESS, RIGHT HANDRAIL SWITCH	1	V2-ES-013
7	HANDRAIL ASSY, W/O SWITCH	1	VS-AC-159

***** Item not shown

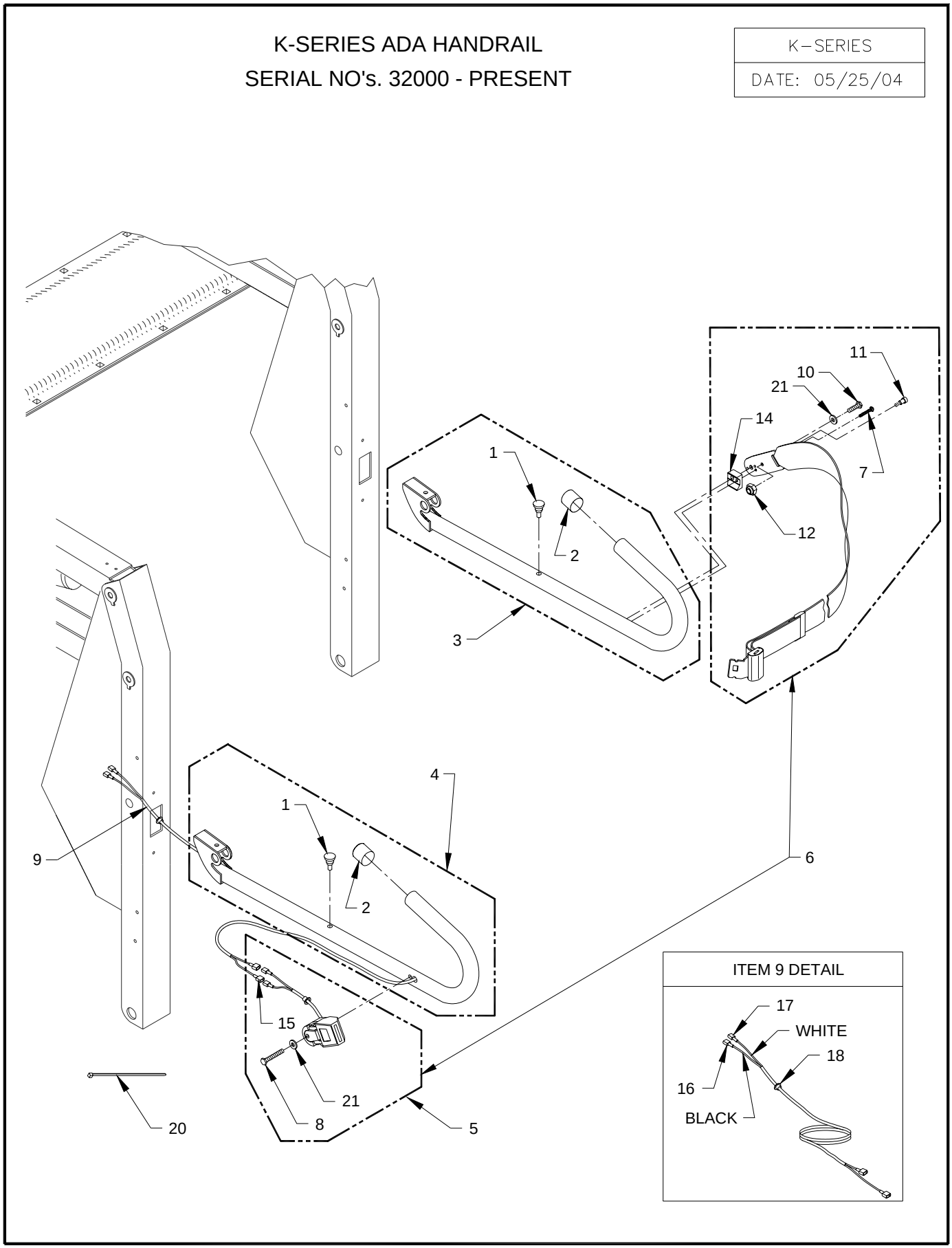


FIGURE 4-15: ADA HANDRAIL ASSEMBLIES

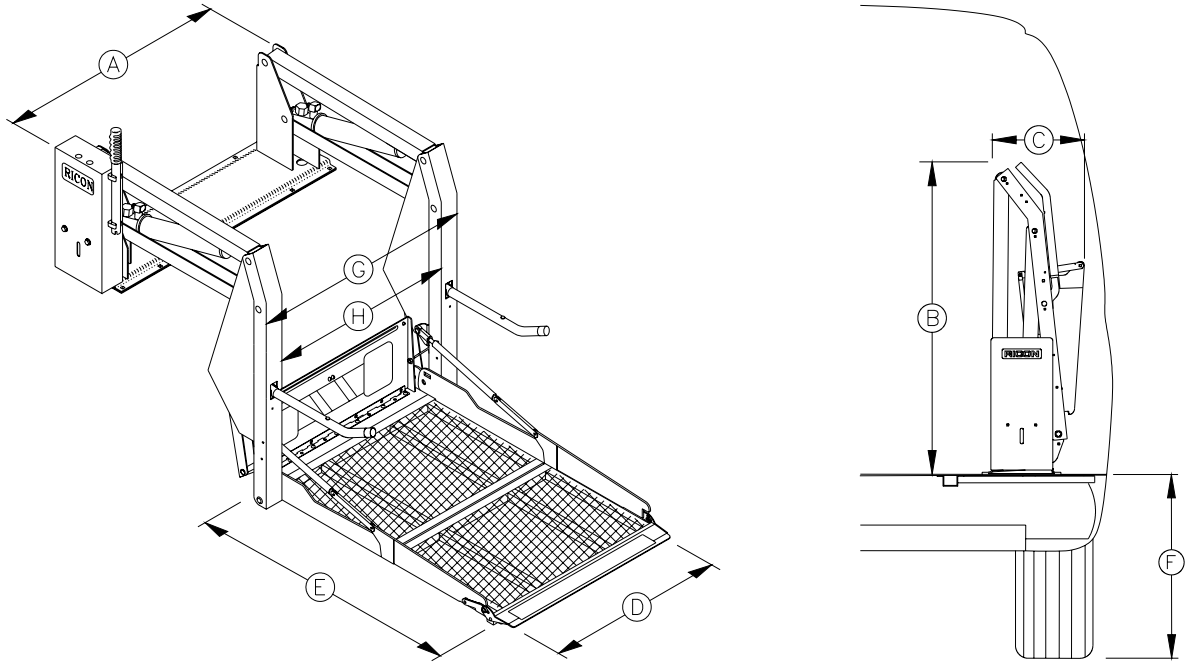
FIGURE 4-15: ADA HANDRAIL ASSEMBLIES

REF NO.	DESCRIPTION	QTY	PART
1	BUMPER, RUBBER	2	V2-AC-86
2	CAP, ROUND, BLACK	2	25550
3-1	HANDRAIL ASSY, ADA, LH, W/BUCKLE (P/N VT-AC-84 SUPERSEDED)	1	11714
3-2	HANDRAIL ASSY, ADA, S5000, LH (P/N V5-AC-84 SUPERSEDED)	1	11714
3-3	HANDRAIL ASSY, FMVSS, LH, W/BUCKLE	1	32479
4-1	HANDRAIL ASSY, ADA, S2000, RH (P/N VT-AC-85 SUPERSEDED)	1	11715
4-2	HANDRAIL ASSY, ADA, S5000, RH (P/N V5-AC-85 SUPERSEDED)	1	11715
4-4	HANDRAIL ASSY, FMVSS, RH, 34" W	1	32485
5	KIT, BUCKLE ASSY, W/SW & HARDWARE	1	12160
6-1	KIT, E-BELT INTERLOCK, 12VDC	1	13054
6-2	KIT, RESTRAINT BELT, 34”, ADA	1	16092
7	SCREW, PAN HEAD, 10-24 x 1-3/4 (BAG OF 10)	1	15957
8	SCREW, HEX HEAD, 5/16-18 X 1.75, SST (BAG OF 10)	2	14440
9	KIT, ELECTRICAL HARNESS, RESTRAINT BELT	1	01274
10	SCREW, HEX HEAD, 5/16-18 X ¾, SST (BAG OF 10)	1	17508
11	SCREW, 5/16-18 X 3/8, SST	1	28373
12	NUT, NYLON INSERT, 1/4-20, THIN, SST (BAG OF 10)	1	13339
14	SPACER, TRANSIT, HANDRAIL	1	V2-AC-063
15	TERMINAL, SLIP, MALE, 18-22, FULLINSUL (BAG OF 10)	2	13315
16	TERMINAL, SLIP, MALE, 14-16, FULLINSUL (BAG OF 10)	1	13317
17	TERMINAL, SLIP, MALE, 14-16, FULLINSUL (BAG OF 10)	1	13318
18	BUSHING, SNAP-IN	1	28-26-077
20	CABLE TIE, STD X 1.5 DIA, BLACK (BAG OF 10)	1	25697
21	WASHER, FLAT, .344X.688X.065 (BAG OF 10)	2	13350

APPENDIX 1

K-SERIES (KLEARVUE) LIFT SPECIFICATIONS

Power ..... electro-hydraulic (power-up/gravity-down)	Rated load capacity ..... 800 lbs
Pump rating: 12 volts DC ..... 65A avg/cycle, 1250 psi	Manual backup - raise ..... hand pump
24 volts DC ..... 32.5A avg/cycle, 1250 psi	Manual backup - lower ..... pressure release valve
Hydraulic cylinders ..... 2 ea, 1.5" dia	Lift weight ..... 310–325 lbs



DIMENSIONS – inches

Model	A Stationary frame width	B Height (folded)	C Installation depth (folded)	D Usable platform width	E Usable platform length	F Floor-to-ground travel	G Traveling frame width	H Clear entry width
K1101	47	38.6	15.5	30	38	24	37.5	29.25
K1132	43	38.6	15.5	26	38	24	33.5	25.25
K1200	47	43.5	15.5	30	44	28	37.5	29.25
K1203	47	43.5	15.5	30	51	28	37.5	29.25
K1205	49	43.5	15.5	32	51	28	39.5	31.25
K2003	47	47	15.5	30	51	37	37.5	29.25
K2005	49	47	15.5	32	51	37	39.5	31.25
K2005 ADA	49	55	15.5	32	51	37	39.5	31.25
K2010	50.5	47	15.5	34	54	37	41.5	33.25
K5005	49	60	15.5	32	51	43	39.5	31.25
K5010	50.5	60	15.5	34	54	43	41.5	33.25
K5503	45	60	15.5	30	51	48	37.5	29.25
K5505	49	60	15.5	32	51	48	39.5	31.25
K5510	50.5	60	15.5	34	54	48	41.5	33.25
K5511	50.5	60	15.5	34	51	48	41.5	33.25

NOTES:

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