IV. F10X-SERIES COMPONENT SERVICE

This chapter provides instructions for major system repairs, system adjustments, and parts replacement on the RICON F10X-Series DOT Public Use Wheelchair and Standee lift.

- This chapter provides information for installations that are either right-handed or left-handed. As a result, some manual illustrations may appear reversed when compared to your installation.
- Maintain the lift at its highest level of performance by doing the required maintenance. Ricon recommends a thorough inspection every six months.
- A specific repair task might not require completion of all listed steps in a procedure.
- Additional component illustrations are available in the Spare Parts chapter.

A. GENERAL SAFETY PRECAUTIONS

⚠ WARNING!

THIS RICON PRODUCT IS HIGHLY SPECIALIZED. A RICON DEALER OR QUALIFIED SERVICE TECHNICIAN MUST PERFORM MAINTENANCE AND REPAIRS USING RICON REPLACEMENT PARTS. MODIFYING OR NOT PROPERLY MAINTAINING THIS PRODUCT WILL VOID THE WARRANTY, AND MAY RESULT IN UNSAFE OPERATING CONDITIONS.

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

- Do not attempt maintenance, repairs, or adjustments without the presence of a person capable of rendering first-aid.
- Take notice of all injuries, regardless of how slight. Administer first aid or seek medical attention immediately.
- Wear protective eye shields and appropriate clothing at all times.
- Work in a properly ventilated area. Do not smoke, or use an open flame, near the battery.
- Exercise caution when operating lift to avoid injury. Be certain that hands, feet, legs and clothing are not in path of the platform as it moves.
- Be cautious when using metallic (conductive) tools near the battery, or heavy gauge wires.
- If battery acid contacts skin, wash area immediately with soap and water.
- Check under vehicle before drilling or cutting to avoid damage to the frame, subframe members, wiring, hydraulic lines, etc.
- Thoroughly understand the operating instructions before attempting to operate lift.
- Keep others clear during lift operation.

⚠ WARNING

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

⚠ WARNING

THE SERVICE ACCESS PANEL IS HINGED ALONG THE REAR EDGE AND SHOULD BE HELD UP WHILE REMOVING THE RETAINING SCREWS AT THE FRONT EDGE. THIS WILL PREVENT PANEL FROM FALLING AND CAUSING INJURY OR DAMAGE.

B. LIFT ACCESS FOR SERVICE

Refer to **Figure 4-1.** Platform and lifting frame components can be accessed by deploying the travelling frame. Some components within the carriage can be accessed from the front of the carriage when it is deployed. Other components within the carriage, or inside the enclosure, must be accessed from the top of the enclosure. Some of these components may require repositioning of the carriage to allow access through the openings between the enclosure supports. These four supports, which tie the top flanges of the side channels together, are fastened in place. They can be removed for greater access.

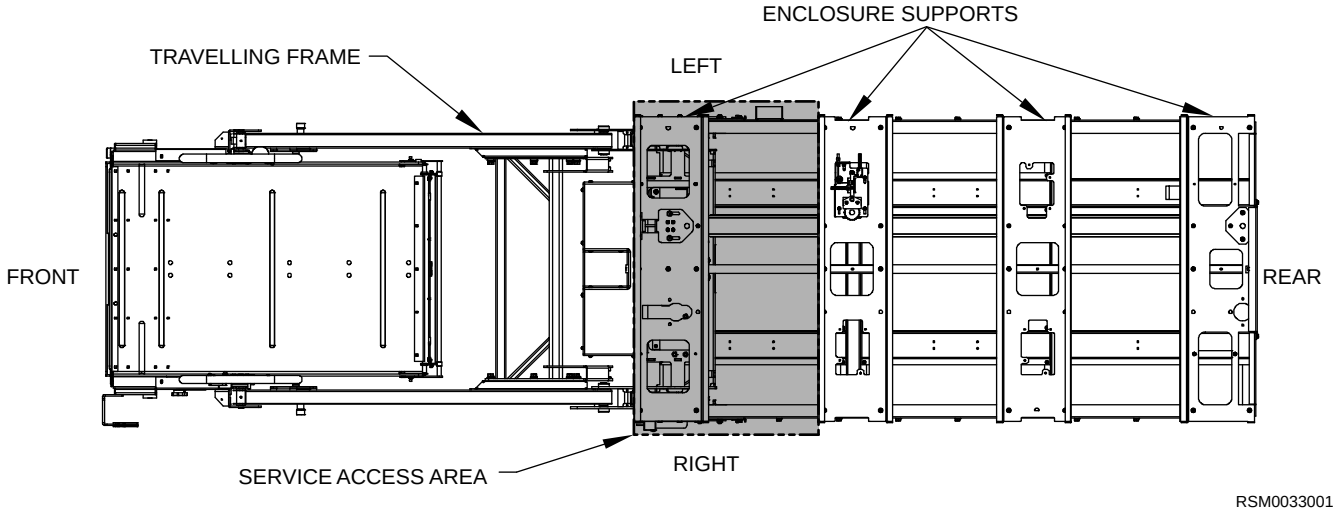


FIGURE 4-1: SERVICE ACCESS AREA (TOP VIEW)

C. TRAVELLING FRAME

Refer to **Figure 4-2.** The platform, lifting frame, and carriage are referred to as a “travelling frame” when assembled as a unit. This assembly locates on two rails inside the enclosure, and is able to move in and out of the enclosure.

The travelling frame should be removed from the enclosure by first separating the platform from the lifting frame, and then separating the lifting frame from the carriage. The carriage is then removed from the enclosure. This is the preferred approach because it avoids having to cope with the heavy weight of the assembled travelling frame.

Procedures describing the removal of the platform, lifting frame, and carriage are in the following sections.

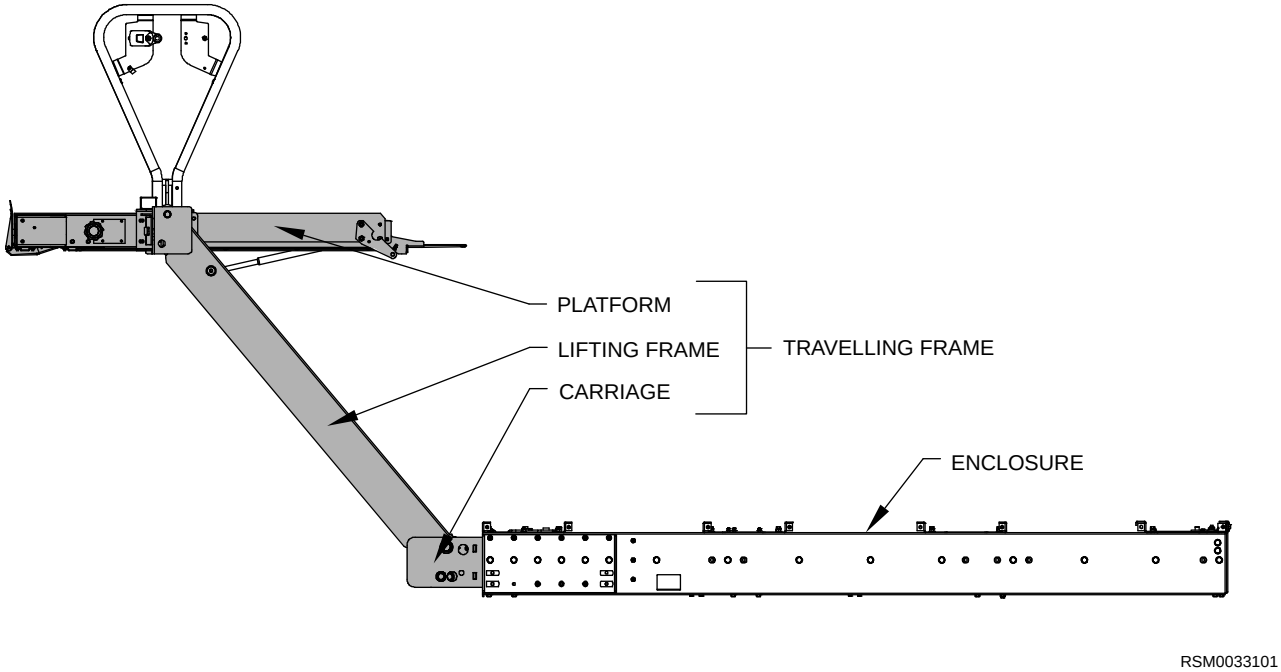


FIGURE 4-2: TRAVELLING FRAME

1. ROLLSTOP MAINTENANCE

a. Rollstop Lubrication

1) Deploy platform using control pendant (DEPLOY) and then support.

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

2) Disconnect positive battery cable at vehicle battery compartment.

3) Refer to **Figure 4-3.** Remove left and right rollstop covers (four screws and washers, each side).

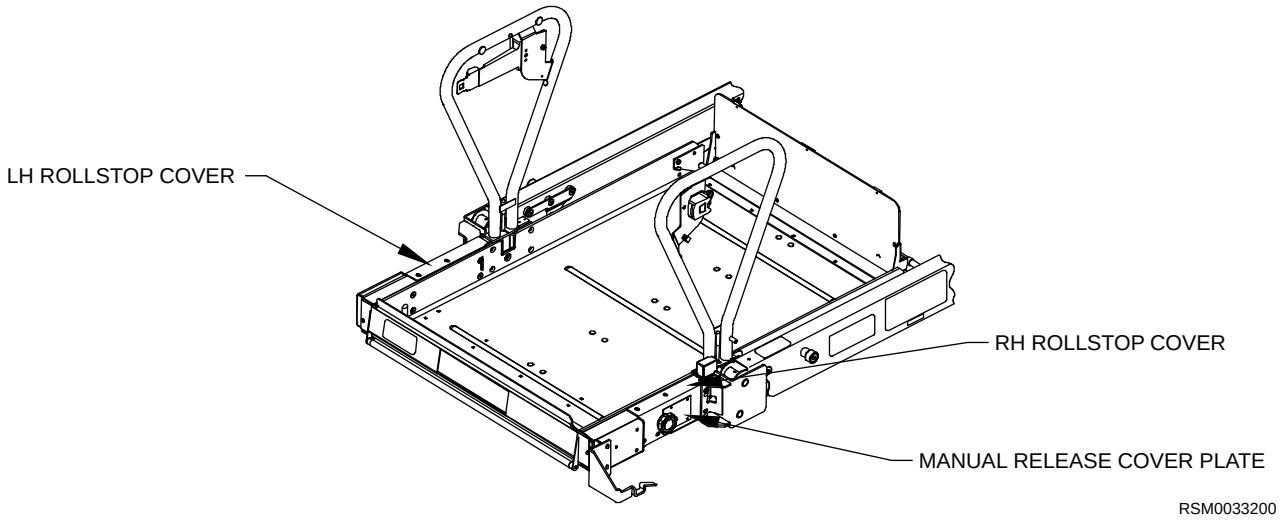


FIGURE 4-3: ACCESS COVERS FOR ROLLSTOP MECHANISM

> **⚠ CAUTION!**
>
> The manual rollstop control knob is made from a brittle material. Handle carefully.

4) Use a 1/8 in. (3mm) drift punch to remove retaining pin from manual rollstop control knob. Remove knob.

5) Remove right rollstop actuator bracket and left rollstop release bracket.

6) Refer to **Figure 4-4**. Lubricate rollstop pivot points and gears (both sides of platform) using light grease (ZEP PLS, P/N 497C, Curtisol® Red Grease P/N 88167, or equivalent). Wipe off excess grease.

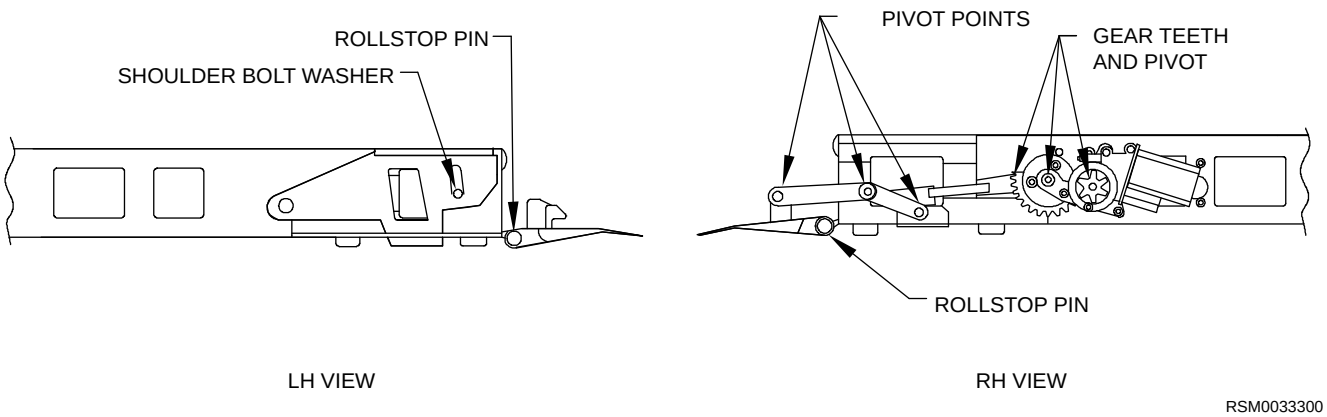


FIGURE 4-4: ROLLSTOP LUBRICATION POINTS

7) Reinstall right rollstop actuator bracket and left rollstop release bracket.
8) Reinstall right and left rollstop covers.
9) Reinstall manual rollstop control knob.
10) Reconnect positive battery cable at vehicle battery compartment.

b. **"Rollstop Open" Switch Adjustment**

NOTE: Refer to Electrical Controls section if replacement of rollstop "Open" switch is necessary.

1) Deploy platform using control pendant (Deploy), and then support.

⚠ WARNING!

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

2) Disconnect positive battery cable at vehicle battery compartment.
3) Remove left rollstop cover (four screws and washers).
4) Remove left rollstop release bracket.
5) Refer to **Figure 4-5**. Loosen actuator cam retaining screws, and pivot actuator cam away from switch activating wheel (roller).

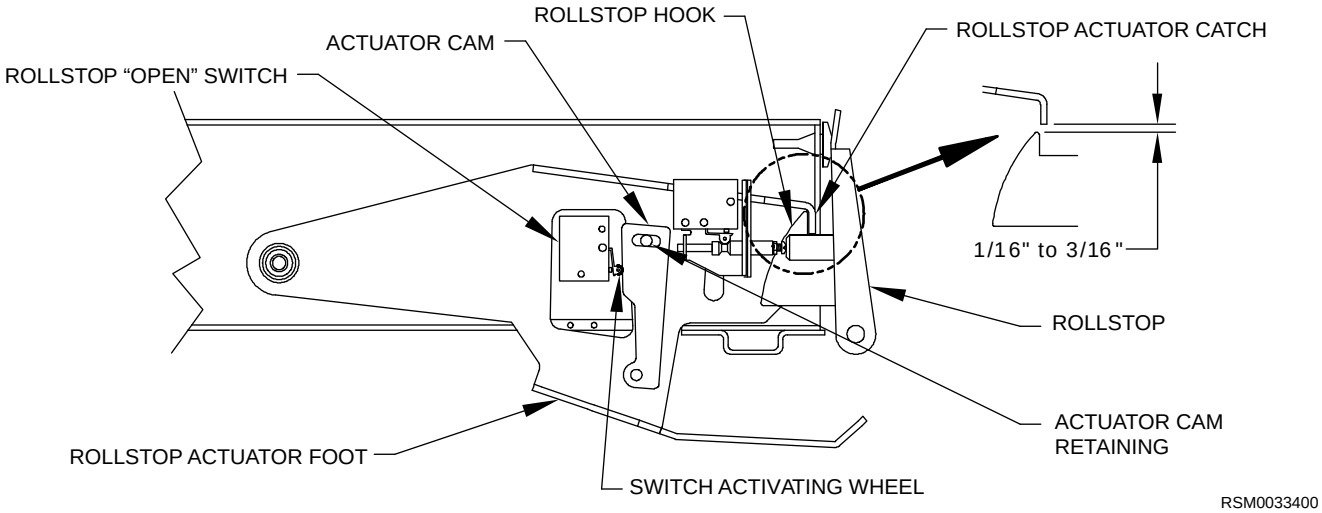


FIGURE 4-5: ROLLSTOP ACTUATION COMPONENTS

6) Manually raise rollstop actuator foot until its catch has a clearance above rollstop hook of 1/16 in. to 3/16 in. (1.6mm to 4.8mm) Hold foot at this gap.
7) Move cam toward switch activating wheel until a faint click is heard from the Rollstop Open switch. The change of state is also marked by the switch contact resistance becoming zero (short) when measured at pins four and five of the rollstop switch harness. Tighten the cam retaining screws.
8) Release rollstop actuator foot.
9) Re-check adjustment by raising actuator foot and observing the click or resistance change. Actuation must occur as described above. Move cam away from switch if switch does not change state. Repeat, as necessary.
10) Re-install left rollstop cover and left rollstop release bracket.
11) Reconnect the positive battery cable at the vehicle battery compartment.

c. **"Rollstop Closed" Position Adjustment**

1) Deploy platform using control pendant (OUT), and then support.

⚠ WARNING!

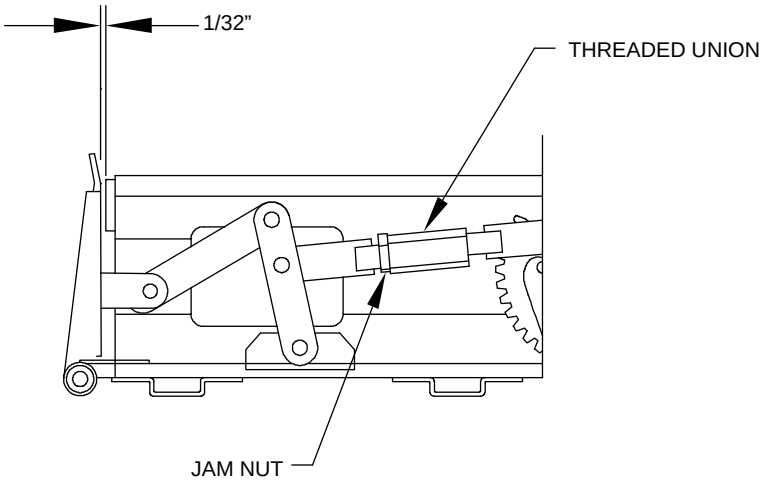
- WEAR PROTECTIVE CLOTHING AND EYE PROTECTION AT ALL TIMES. BATTERIES CONTAIN ACID THAT CAN BURN. IF ACID COMES INTO CONTACT WITH SKIN, IMMEDIATELY FLUSH AFFECTED AREA WITH WATER AND WASH WITH SOAP.
- WORK IN A PROPERLY VENTILATED AREA. DO NOT SMOKE OR USE AN OPEN FLAME IN THE VICINITY OF BATTERY.
-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

2) Disconnect positive battery cable at vehicle battery compartment.
3) Remove right rollstop cover (four screws and washers) and cover spacers.

⚠ CAUTION!

The manual rollstop control knob is made from a brittle material. Handle carefully.

4) Use a 1/8 in. (3mm) punch to remove retaining pin from manual rollstop control knob. Remove control knob.
5) Remove right rollstop actuator bracket.
6) Refer to **Figure 4-6**. Loosen jam-nut on link and adjust its length by turning the threaded union. Adjust link so that rollstop closes to within 1/32 in. (0.8mm) of rubber bumper (that rollstop contacts). Rotating the threaded union counterclockwise (viewed from rollstop) shortens the link, and turning it clockwise lengthens it.



RSM0033500

FIGURE 4-6: CLOSED ROLLSTOP ADJUSTMENT

7) Reinstall right rollstop cover and manual rollstop control knob.
8) Reconnect positive battery cable at vehicle battery compartment.

d. **“Rollstop Closed” Switch Adjustment**

Refer to Electrical Controls section if replacing a Rollstop Closed switch.

1) Deploy platform using control pendant (DEPLOY), and then support.

⚠ WARNING!

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

2) Disconnect positive battery cable at vehicle battery compartment.
3) Remove left rollstop cover (four screws and washers).
4) Remove left rollstop release bracket.
5) Have an assistant hold rollstop actuator foot up (refer back to **Figure 4-4**). Open rollstop with manual control knob (other hand assisting movement of rollstop).
6) Refer to **Figure 4-7**. Adjust "Closed" switch by loosening jam-nut and turning adjustment screw that protrudes from end of plunger. The enlarged view shows plunger position when rollstop is open. The plunger should move to position shown in upper view when rollstop is closed. Adjust screw so that switch roller is on outside diameter of plunger when rollstop is closed. Retighten jam-nut.

NOTE: The plunger may need to be held with a small pair of pliers to turn screw. Do not scratch outside surface of plunger with pliers; this could cause plunger to seize in its bore.

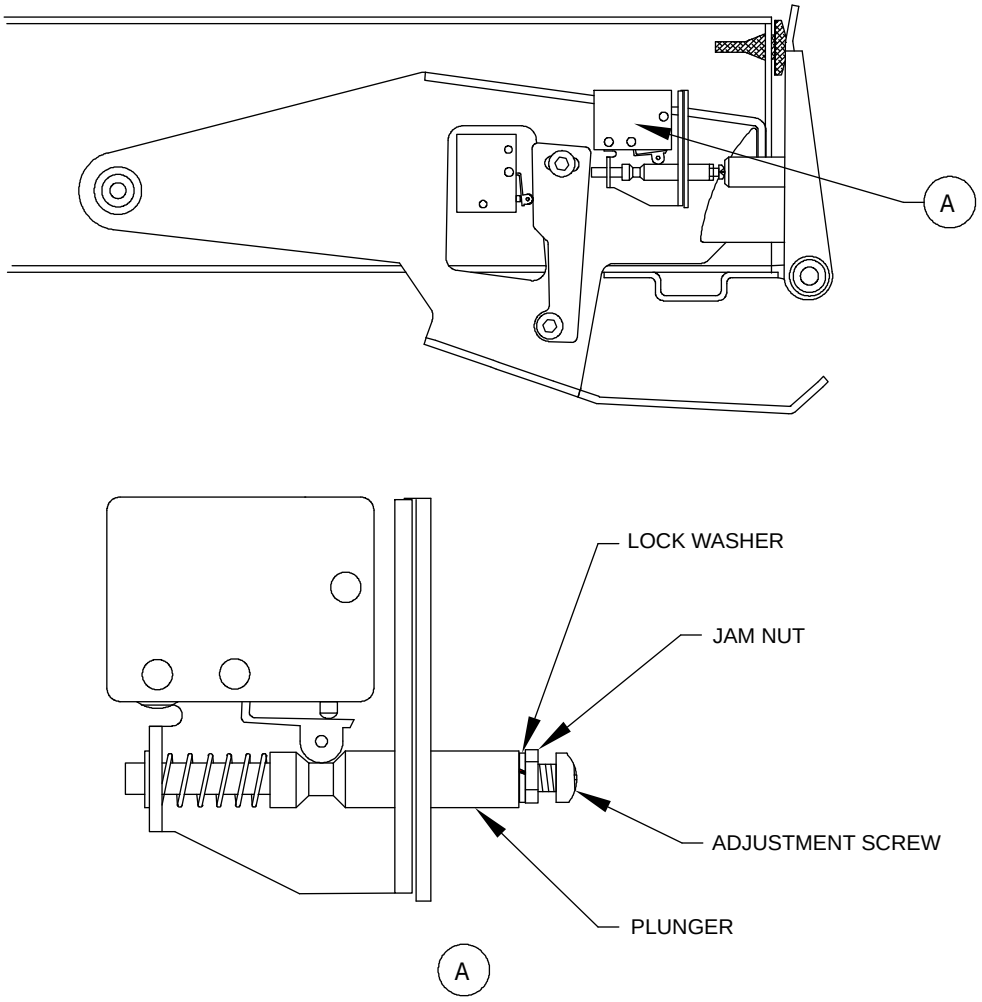


FIGURE 4-7: "CLOSED" SWITCH ADJUSTMENT

7) Close rollstop.
8) Re-install left rollstop cover and left rollstop release bracket.
9) Reconnect positive battery cable at vehicle battery compartment.

2. BRIDGEPLATE MAINTENANCE

a. Bridgeplate Lubrication

1) Deploy platform using control pendant (DEPLOY) and support.

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

2) Disconnect positive battery cable at vehicle battery compartment.

3) Refer to **Figure 4-8.** Lubricate the points indicated in the figure with light grease (ZEP PLS, P/N 497C, Curtisol® Red Grease P/N 88167, or equivalent). Wipe off excess grease. Repeat for other side of bridgeplate.

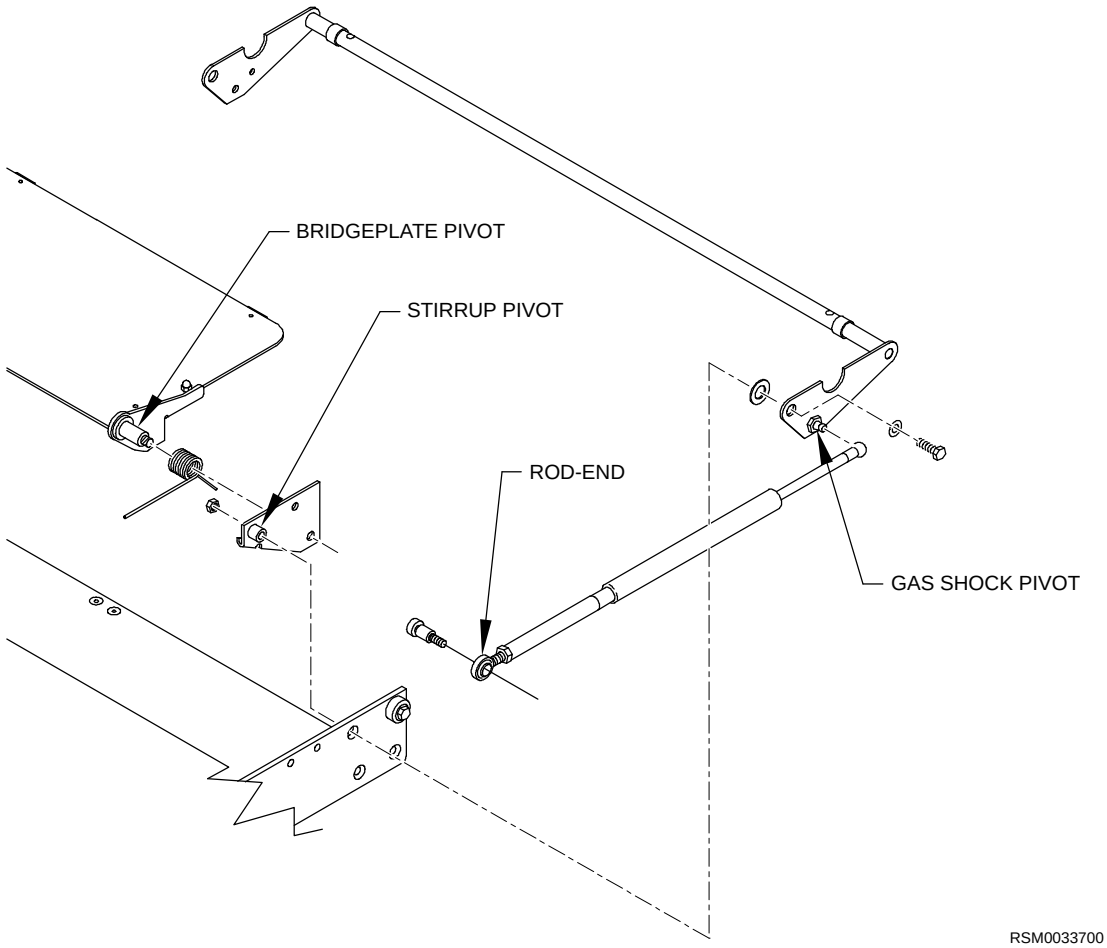


FIGURE 4-8: BRIDGEPLATE LUBRICATION POINTS

4) Reconnect positive battery cable at vehicle battery compartment.

b. Bridgeplate Actuator Rod Adjustment

Two actuator rods unfold the bridgeplate. The rod lengths control the angle of the bridgeplate relative to the platform. Adjust actuator rods so bridgeplate is fully unfolded when platform arrives at floor height. Refer to the Bridgeplate Actuator Rod Adjustment section in Chapter II for an adjustment procedure.

3. CARRIAGE AND LIFTING FRAME MAINTENANCE

Refer to **Figure 4-9.** There are two large carriage rollers on each side of carriage, and four small guide rollers on top. There are also two additional rollers on the forward end of lifting frame. These ten rollers require lubrication on a periodic basis, dependant upon usage and climate. Refer to the Maintenance Checklist in the Service chapter.

The large carriage rollers carry the weight of the travelling frame plus the platform occupant. Each has a grease fitting on its inboard end. Lubricate fittings with Aeroshell #22, or equivalent.

The small carriage guide rollers keep the carriage aligned with the enclosure.

The two lifting frame rollers provide additional alignment between the travelling frame and enclosure. Each has a grease fitting at its inner end. Remove the lifting frame rollers to gain access to their grease fittings. Lubricate with Aeroshell #22, or equivalent. Replace rollers on lifting frame.

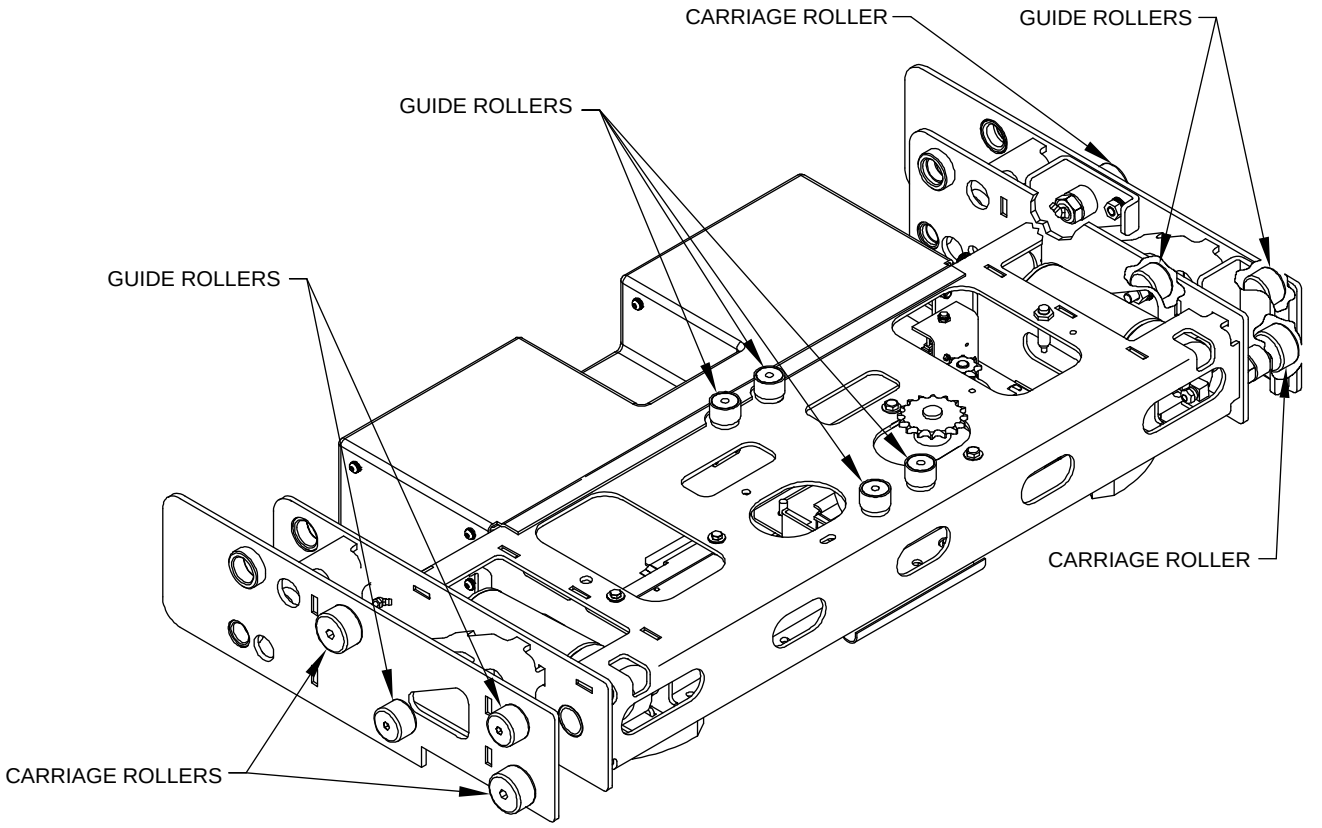


FIGURE 4-9: CARRIAGE ROLLERS AND GUIDE ROLLERS (grease fittings indicated with arrows)

4. PLATFORM REMOVAL

Refer to the end of this section for re-installation notes.

a. Deploy platform using control pendant (DEPLOY).

b. Refer to **Figure 4-10**. Remove lifting arm and lower arm set screws at left and right sides of platform.

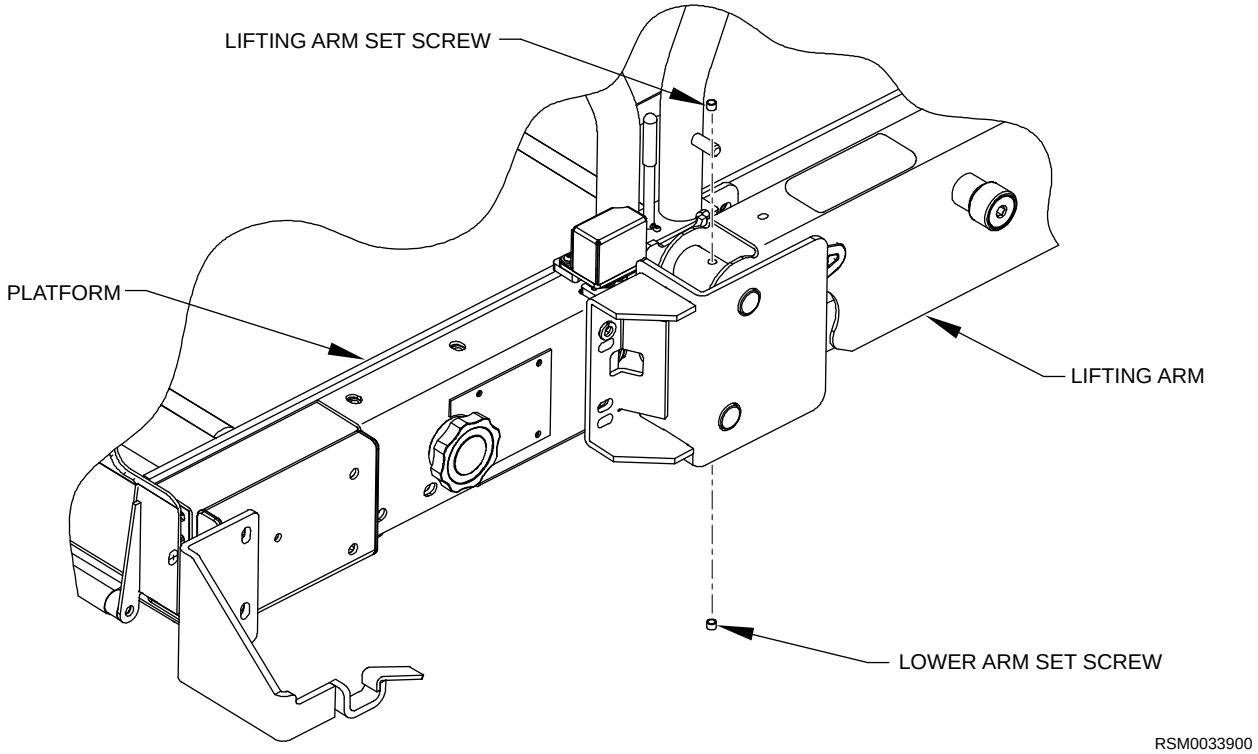


FIGURE 4-10: LIFTING FRAME AND LOWER ARM SET SCREWS

c. Raise platform to vehicle floor height using control pendant (UP), and then support.

⚠ WARNING!

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

d. Disconnect positive battery cable at vehicle battery compartment.

e. Refer to **Figure 4-11**. Locate right-side actuator rod assembly (right side of platform, at top of lifting frame). Loosen rod-end jam-nut.

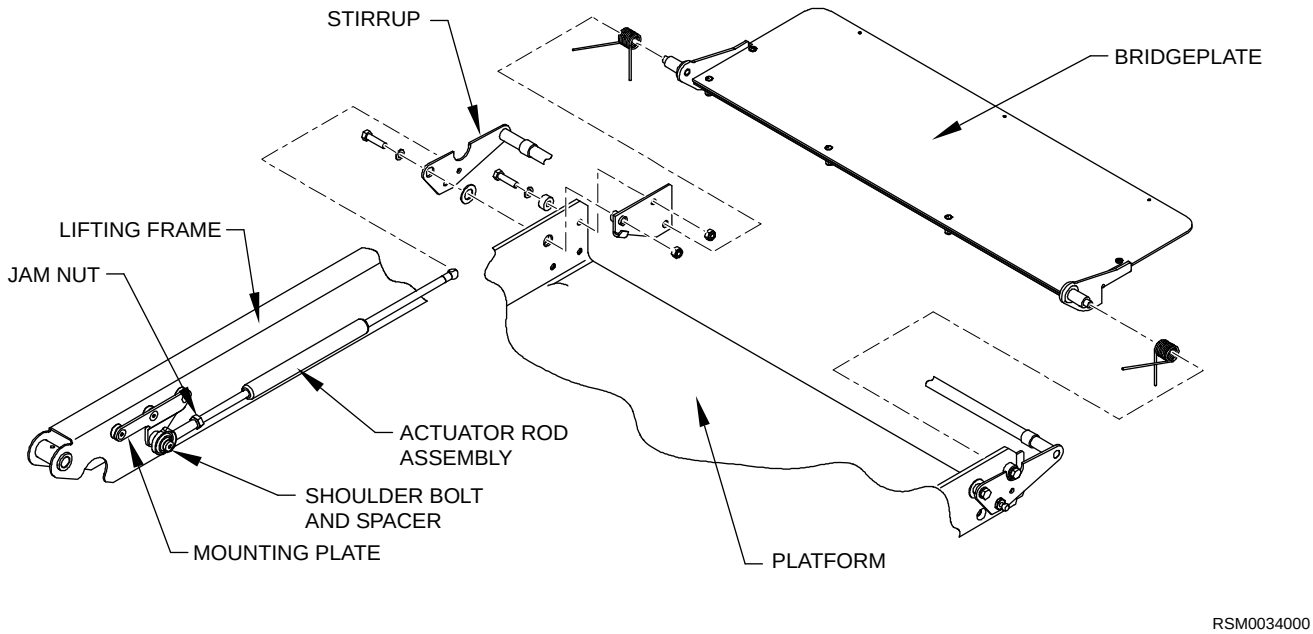


FIGURE 4-11: BRIDGEPLATE ACTUATOR ROD REMOVAL

f. Remove shoulder bolt that fastens actuator rod-end to mounting plate (on lifting frame arm).

g. Repeat for left-side actuator rod assembly.

h. Fold bridgeplate onto lift platform, and rotate actuator arms parallel to platform. Secure bridgeplate and actuator arms to platform with cable ties.

i. Remove right and left rollstop side covers (four screws and washers) and spacers.

j. Disconnect electrical harness at both sides of platform (rollstop switch at left side; rollstop motor at right). Cut black and white leads to the safety belt switch; cut leads adjacent to factory-crimped butt splices. Remove cable ties that hold harness in place. Remove rollstop switch and rollstop motor connectors from harness.

NOTE: Record connector pin position for each wire. This data will be used for platform re-installation; refer to wiring diagrams in Chapter 3. Crimp bridgeplate switch leads to harness with new butt splices when re-installing.

> **⚠ CAUTION!**
>
> Double-check the support holding platform up before removing lower mounting pins. The platform will be free to rotate when pins are removed.
>
> Do not damage outside surface of pins during removal. A pin should be replaced if its outer surface is pitted or grooved after removal.

k. Refer to **Figure 4-12**. Remove lower platform mounting pins from platform mounting brackets, and drop lower arms.

NOTE: The platform mounting pins can be removed by placing a small pry-bar between the outside of platform and inward end of pin. Push pin outward until it is flush with bracket, and then grasp other end of pin and pull out.

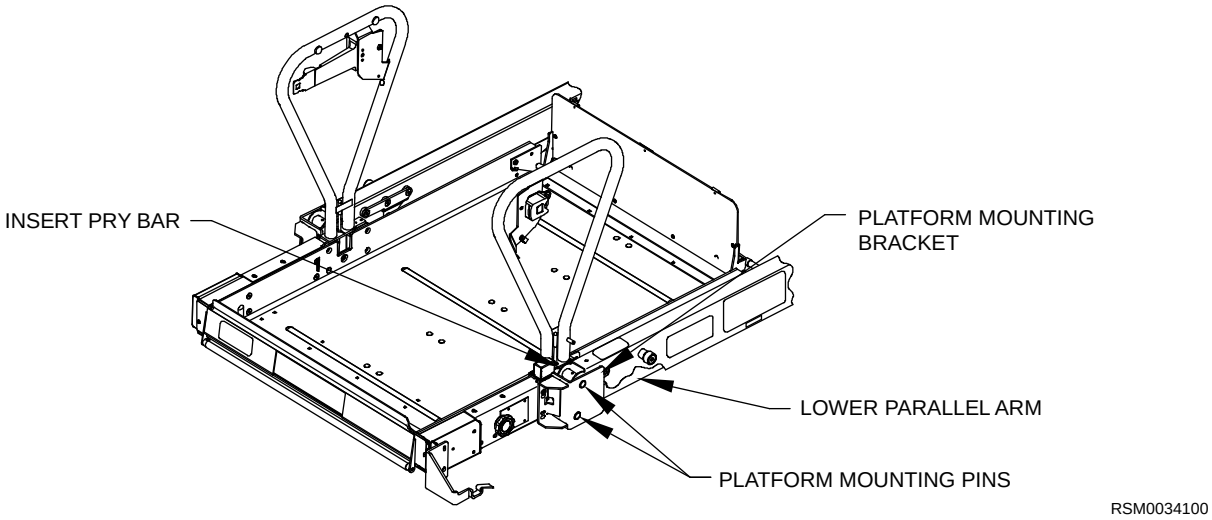


FIGURE 4-12: PLATFORM SEPARATION FROM LIFTING FRAME

l. Pass free ends of electrical harness through platform mounting brackets.

m. Remove upper pins from platform mounting brackets. Remove pins in same manner as lower pins.

n. Remove platform from lifting frame.

o. Separate platform from lifting frame.

p. Examine eight bushings installed in platform mounting brackets for excessive wear or damage.

q. Platform Re-installation:

Perform re-installation by reversing the removal steps, with the following considerations. Verify that platform mounting bracket holes and lifting frame holes are properly aligned, and then drive mounting pins in place using a soft, heavy hammer. Use a thread locker (such as loc-TITE® blue or omniFIT® blue) when reinstalling setscrews.

5. LIFTING FRAME REMOVAL

The following procedure describes removal of lifting frame **after** platform has been removed. Refer to Travelling Frame section at beginning of chapter for relevant notes. Refer to end of this section for re-installation notes.

a. Refer to the Platform Removal section and remove platform.

b. Refer to **Figure 4-13**. Raise lifting frame with manual backup pump until the rod end pivot pin is aligned with the access hole in side of carriage. Support lifting frame at this height.

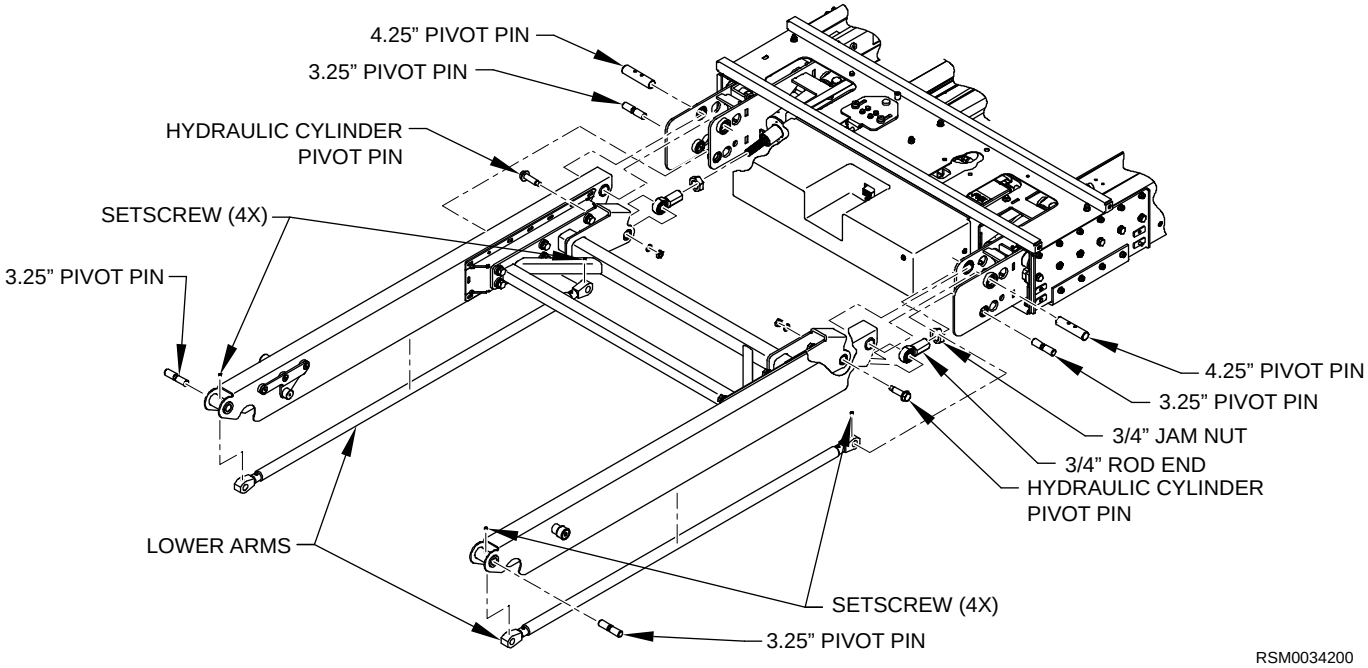


FIGURE 4-13: LIFTING FRAME COMPONENTS

c. Refer to **Figure 4-13**. Remove screw and washer securing left and right rod end pivot pins. Remove each rod end pivot pin from lifting frame by extracting through hole in side of carriage.

> **⚠ CAUTION!**
>
> Do not damage outside surface of pins during removal. A pin should be replaced if its outer surface is pitted or grooved.

d. Remove four locking setscrews that secure the four lifting frame pivot pins. Remove lower lifting frame pivot pins from carriage, and remove lower arms.

e. Remove upper lifting frame pivot pins, and separate lifting frame from carriage.

f. Examine the four lifting frame pivot pins for excessive wear or damage. Examine the eight bushings installed in the carriage and the four bushings installed in the lifting frame. Also, examine the eight bushings installed in the lower arms.

Lifting Frame Re-installation:

Perform re-installation by reversing removal steps, with the following considerations. Verify that carriage holes and lifting frame holes are properly aligned, and then drive pivot pins in place using a soft, heavy hammer. Use a thread locker (such as loc-TITE® blue or omniFIT® blue) when installing new setscrews and locking screws.

6. CARRIAGE REMOVAL

The following procedure describes removal of carriage **after** platform and lifting frame have been removed. Refer to Travelling Frame section at beginning of chapter for relevant notes. Refer to the end of this section for reinstallation notes.

a. Deploy platform using control pendant (DEPLOY).

b. Refer to Platform Removal section and remove platform.

c. Refer to Lifting Frame Removal section and remove lifting frame.

d. Verify that positive battery cable is disconnected.

e. Refer to **Figure 4-14**. The carriage stop block mounting screws are accessible from front of enclosure. Remove screws and stop blocks.

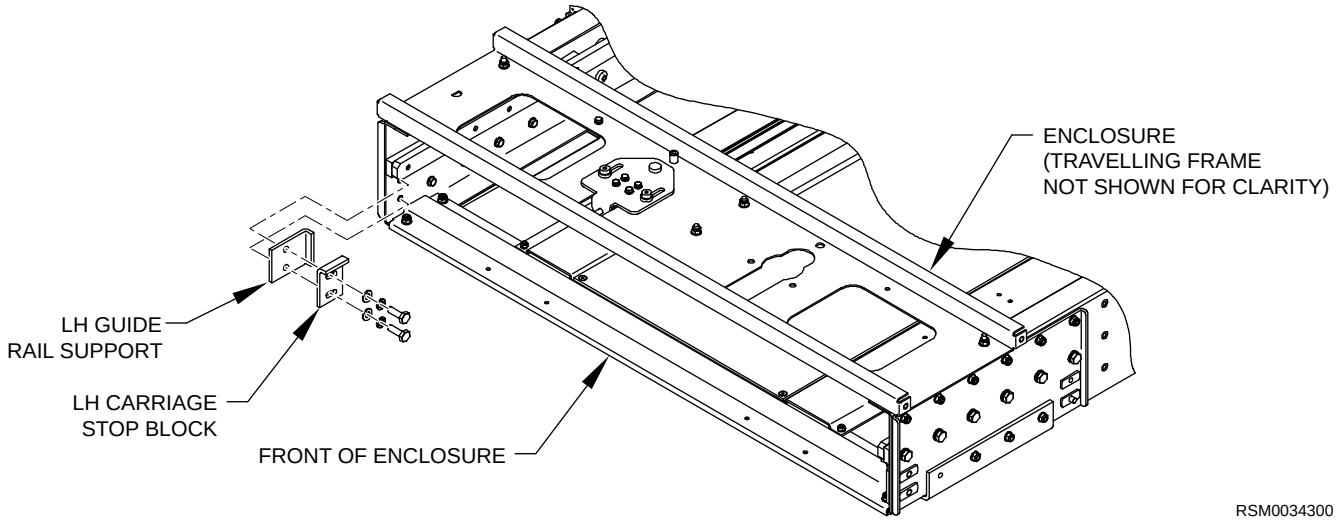


FIGURE 4-14: CARRIAGE STOP BLOCK LOCATIONS

f. Refer to **Figure 4-17**. Unlock the carriage drive chain by pulling the manual platform release handle upward (handle is located near hydraulic pump assembly).

g. Remove two nuts fastening hose retaining clamp (located at bottom, rear-center of carriage).

NOTE: The following step will spill hydraulic fluid; have dry rags on hand.

h. Refer to **Figure 4-15**. Disconnect hydraulic hose from quick-disconnect.

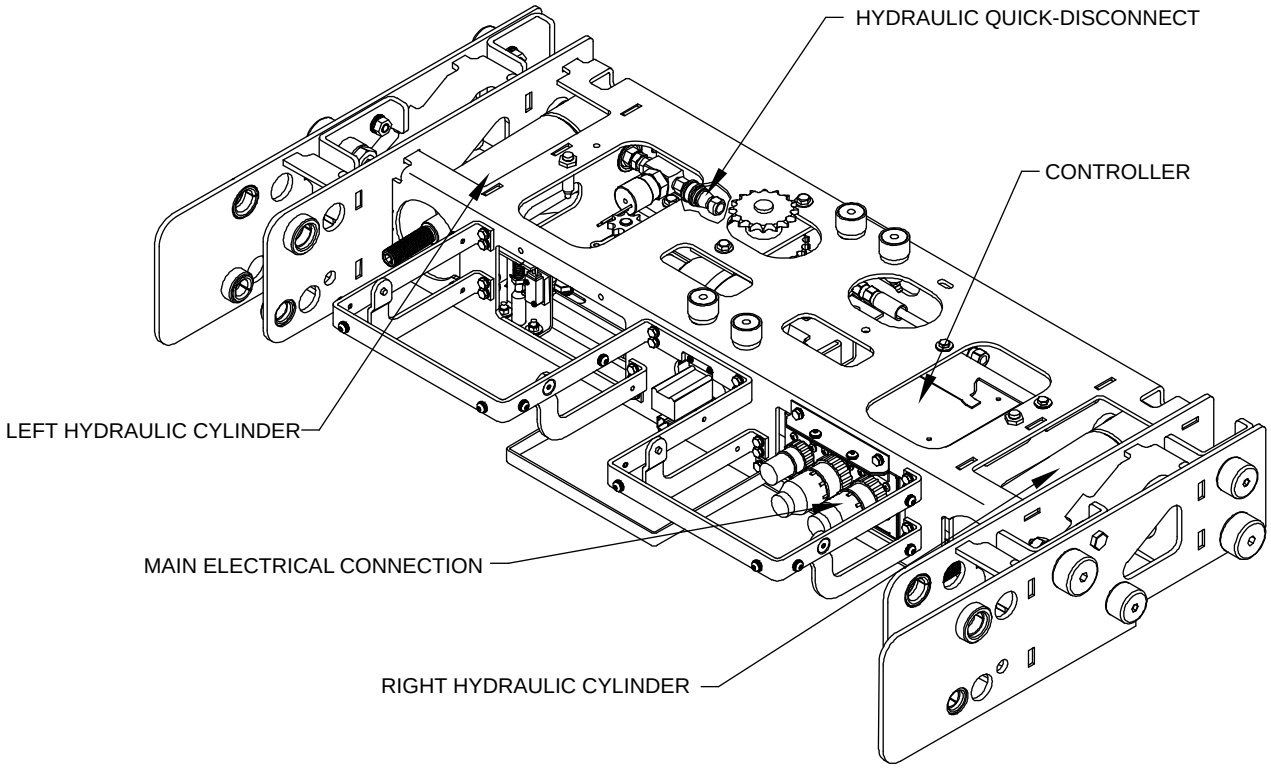


FIGURE 4-15: CARRIAGE COMPONENTS

i. Disconnect main electrical harness connector from electronic controller.

j. Position a support stand in front of enclosure to place carriage on.

⚠ WARNING!
THE CARRIAGE ASSEMBLY IS HEAVY AND REQUIRES TWO PEOPLE TO REMOVE.

k. Pull carriage out of enclosure, supporting each side, and place on support stand.

NOTE: Care is required while extracting carriage to avoid damage. Watch for possible points of interference.

Carriage Reinstallation

Perform reinstallation by reversing removal steps, with the following considerations. Pull hydraulic hose and electrical harness down through service access opening **before** inserting carriage into enclosure. Route hose and cable back into installed carriage in their original positions.

D. DEPLOYMENT SYSTEM SERVICE

Refer to **Figure 4-16**. Components in the deployment system move the travelling frame (carriage, lifting frame, and platform) out of the enclosure, or pull it back in. This section describes those components, including how they operate, how to remove and replace them, and how to perform adjustments.

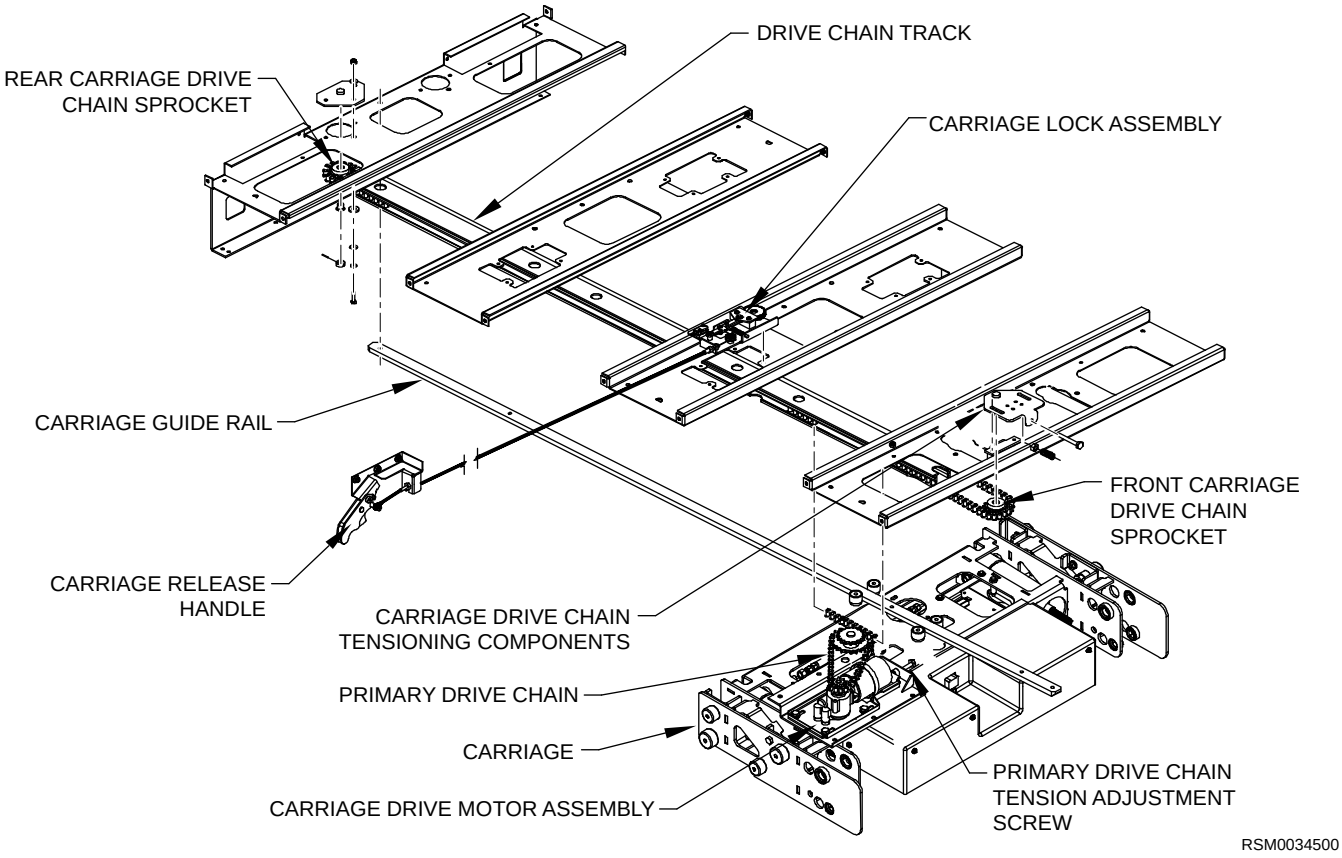


FIGURE 4-16: DEPLOYMENT SYSTEM COMPONENTS

1. CARRIAGE DRIVE MOTOR ASSEMBLY

The carriage drive motor propels the deployment system, receiving electric power from the on-board electronic controller. The polarity of the applied voltage determines the direction of motor rotation, which also determines whether the platform is moved out of the enclosure or pulled into it. The motor drives a gearbox, which reduces motor speed and increases torque. The gearbox turns the primary drive chain.

a. **Carriage Drive Motor Assembly Removal**

1) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

2) Disconnect positive battery cable at vehicle battery compartment.
3) Loosen jam nut on primary drive chain adjustment screw (located on mounting plate for carriage drive motor assembly) and turn screw CCW to slacken chain. Slip chain off of gearmotor sprocket and remove.
4) Label motor electrical leads for reinstallation, and then disconnect. Retain hardware.

5) Remove the six screws and nuts fastening gearmotor assembly to carriage. Slide gearmotor assembly forward, drop the rear-side down, and remove from carriage.
6) Remove the four screws fastening gearmotor assembly to its adjustable baseplate.
7) Remove motor retaining clamp and two nuts and washers that fasten gearbox to mounting plate.
8) Remove nuts and washers fastening motor to gearbox, and separate motor from gearbox; do not damage or lose rubber coupler.
9) Support chain sprocket and drive roll-pin out of sprocket. Pull sprocket off shaft.
10) Refer to next section for reinstallation.

b. **Carriage Drive Motor Assembly Installation**

1) Refer to **Figure 4-17**. Slide rubber coupler onto gearbox input shaft.

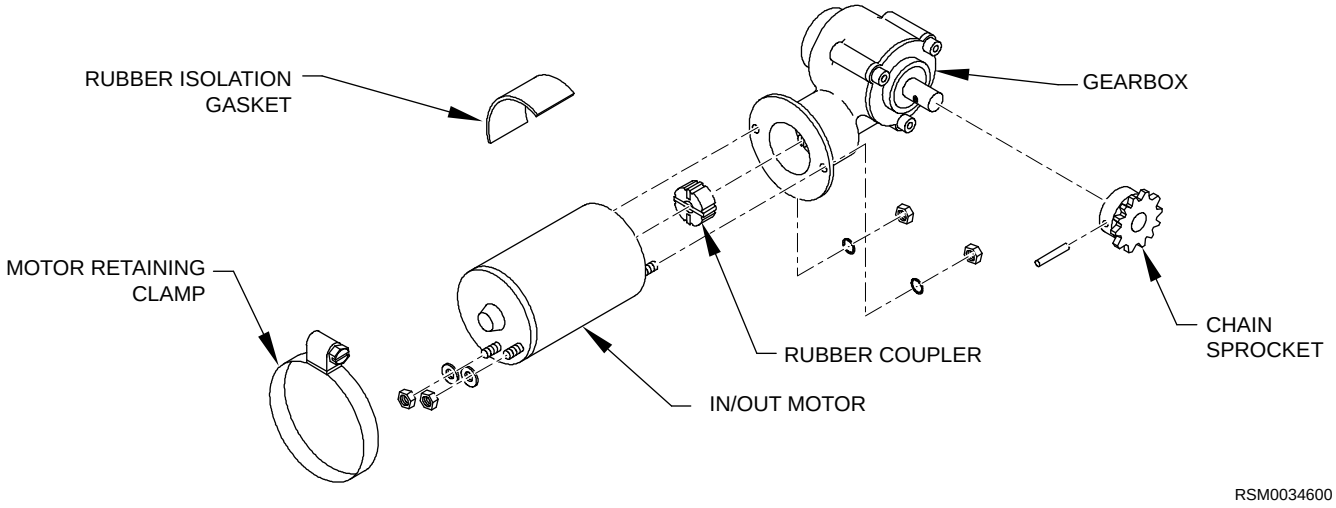


FIGURE 4-17: CARRIAGE DRIVE MOTOR ASSEMBLY

2) Insert motor output shaft into coupler, and then align motor and gear box:
- Hold motor with electrical connections pointed at you, and positioned at 5 o'clock.
- Hold gearbox with its output housing up.
- Align motor studs with holes in gearbox flange and assemble.

3) Install star-washers and nuts on motor studs, and tighten.
4) Place gearmotor assembly on mounting plate, with gearbox studs (and spacers) inserted in mounting plate. Install lock washers and nuts on gearbox studs; tighten.
5) Install motor retaining clamp; clamp fits over tab on gearmotor support bracket. Tighten clamp.
6) Refer to PRIMARY DRIVE CHAIN INSTALLATION section, and install primary drive chain. Refer to the PRIMARY DRIVE CHAIN ADJUSTMENT section and adjust the chain tension.
7) Reconnect the two electrical leads to motor.
8) Reconnect positive battery cable at vehicle battery compartment.

2. DRIVE CHAIN SERVICE

There are two chains in the deployment system. The primary drive chain couples the gearmotor to the carriage drive sprocket. The carriage drive sprocket is engaged with the carriage drive chain. The carriage drive chain is held stationary by the carriage lock assembly. Rotation of the carriage drive sprocket causes the carriage to be pulled along the stationary carriage drive chain.

a. **Removal Of Drive Chains**

æ PRIMARY DRIVE CHAIN

1) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

2) Disconnect positive battery cable at vehicle battery compartment.

3) Loosen jam nut on primary drive chain adjustment screw (located on mounting plate for carriage drive motor assembly) and turn screw CCW to slacken chain. Slip chain off of gearmotor sprocket and remove.

æ CARRIAGE DRIVE CHAIN

4) Deploy platform using control pendant (DEPLOY).

5) Unlock carriage drive chain to permit movement along its track. To do so, squeeze trigger on manual carriage release handle and pull handle upward; release trigger.

6) Refer back to **Figure 4-18**. Find the master link on carriage drive chain; hand-move carriage assembly forward or backward if the master link is not accessible.

⚠ WARNING!

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

7) Disconnect positive battery cable at vehicle battery compartment.

8) Loosen jam nut on carriage drive chain adjustment screw (screw is located on carriage drive chain tensioning assembly; jam nut is behind head of screw). Turn screw fully counter-clockwise to slacken chain.

9) Remove master-link from chain and remove chain.

NOTE: If there is not enough chain slack for removal of the master-link, move the carriage drive chain until the master-link is above one of the notches provided in chain track.

b. **Installation Of Drive Chains**

- PRIMARY DRIVE CHAIN

1) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

2) Disconnect positive battery cable at vehicle battery compartment.
3) Loosen jam nut on primary drive chain adjustment screw (located on mounting plate for carriage drive motor assembly) and turn screw clockwise. Position chain around both sprockets of carriage drive motor assembly (small gearmotor sprocket and 22 tooth sprocket located just below carriage drive sprocket).
4) Refer to Primary Drive Chain Adjustment section and adjust tension of primary drive chain.

- CARRIAGE DRIVE CHAIN

5) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

6) Disconnect positive battery cable at vehicle battery compartment.
7) Loosen jam nut on carriage drive chain adjustment screw (located on mounting plate for carriage drive chain tensioning assembly, behind head of adjustment screw) and turn screw fully clockwise.
8) Squeeze trigger on manual carriage release handle and pull handle upward; release trigger.
9) Install final drive chain around front and rear carriage drive chain sprockets, and route through the drive chain track. Bring ends together and install master link.
10) Refer to Carriage Drive Chain Adjustment section and adjust tension of carriage drive chain.

c. **Drive Chain Tension Adjustment**

Either drive chain can be adjusted first; the adjustment of one chain does not affect the other.

- CARRIAGE DRIVE SPROCKET

The carriage drive sprocket is constantly engaged with the carriage drive chain. The sprocket is mounted on an intermediate shaft that is driven by the primary drive chain. The shaft rotates on a bracket, which is fastened to the carriage with two screws. One of the screws passes through an adjustment slot in the bracket.

1) Loosen the four screws that fasten the drive motor assembly to its baseplate. Slide the drive motor assembly towards carriage drive chain.
2) Loosen the two screws that fasten the carriage drive sprocket bracket to the carriage.

NOTE: Loosen these screws just enough to allow movement of bracket.

3) Push bracket towards carriage drive chain with your hand. Push bracket just hard enough to make drive chain contact the bottom of its slot in the plastic track. Retighten screws.
4) Retighten the four screws that fasten the drive motor assembly to its baseplate, and then adjust primary drive chain (refer to following section).

- PRIMARY DRIVE CHAIN

NOTE: Adjust position of carriage drive sprocket **before** adjusting the primary drive chain. Refer to the Carriage Drive Sprocket section, above.

5) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

6) Disconnect positive battery cable at vehicle battery compartment.
7) Refer to **Figure 4-18.** Locate the primary drive chain tension adjustment screw (located at the inboard end of carriage drive motor assembly), and fully loosen its jam nut. Loosen the four screws that fasten the gearmotor assembly to the baseplate.

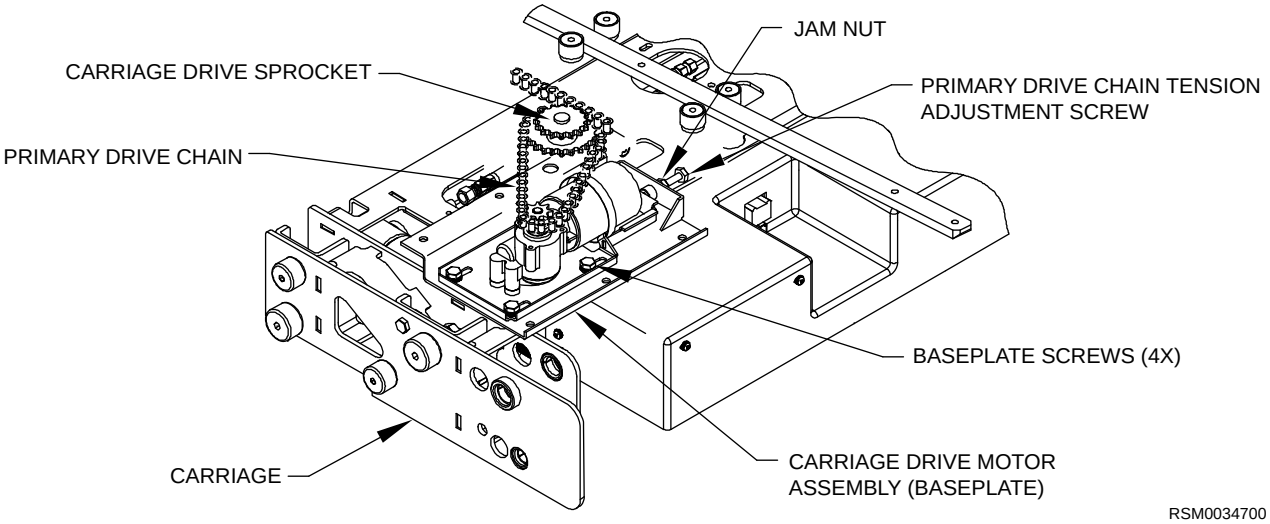


FIGURE 4-18: DEPLOYMENT SYSTEM–PRIMARY DRIVE CHAIN

NOTE: Loosen the four screws just enough to allow movement of gearmotor assembly.

8) Rotate tension adjustment screw CW until all chain slack is removed; do not over-tighten chain or attempt to stretch chain. Tighten jam nut. Tighten the four baseplate screws.

NOTE: Rotating the tension adjustment screw CW increases chain tension; CCW decreases tension.

9) Reconnect positive battery cable at vehicle battery compartment.

- CARRIAGE DRIVE CHAIN

10) Deploy platform using control pendant (DEPLOY).

⚠ WARNING!

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

11) Disconnect positive battery cable at vehicle battery compartment.
12) Refer to **Figure 4-19**. Locate the carriage drive chain tension adjustment screw at the front end of the carriage drive chain track. Loosen the jam nut located just behind the head of the adjustment screw. Loosen the two screws that fasten the baseplate to the enclosure.

NOTE: Loosen the two screws just enough to allow movement of the carriage drive chain tensioning assembly.

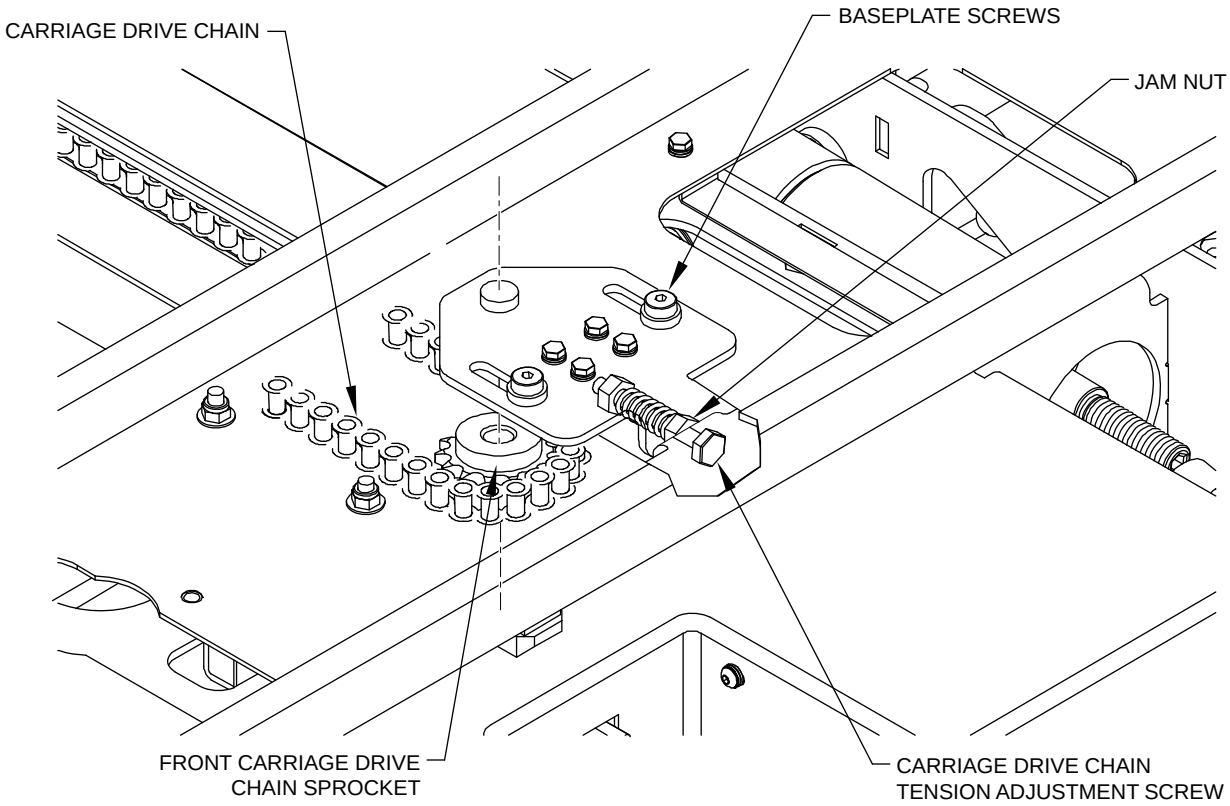


FIGURE 4-19: DEPLOYMENT SYSTEM–CARRIAGE DRIVE CHAIN

13) Unlock the carriage drive chain by pulling the manual platform release handle upward (handle is located near hydraulic pump assembly).
14) Verify that entire carriage drive chain is free to move in its track.
15) Rotate tension adjustment screw CW until it spins freely. Tighten jam nut. Tighten two baseplate screws.

NOTE: Rotate the tension adjustment screw CW to increase chain tension, or CCW to decrease.

16) Release manual platform release handle and reconnect positive battery cable at vehicle battery compartment.

3. CARRIAGE LOCK ASSEMBLY

Refer to **Figure 4-20.** The carriage drive chain is normally held stationary by the carriage drive chain lock assembly. The lock assembly is fastened to the enclosure. Moving the carriage (part of the travelling frame) by hand is difficult when the chain is held stationary because you must overcome the resistance of the deployment system. The carriage can be manually disengaged from the enclosure with the manual platform release handle (located near hydraulic pump assembly).

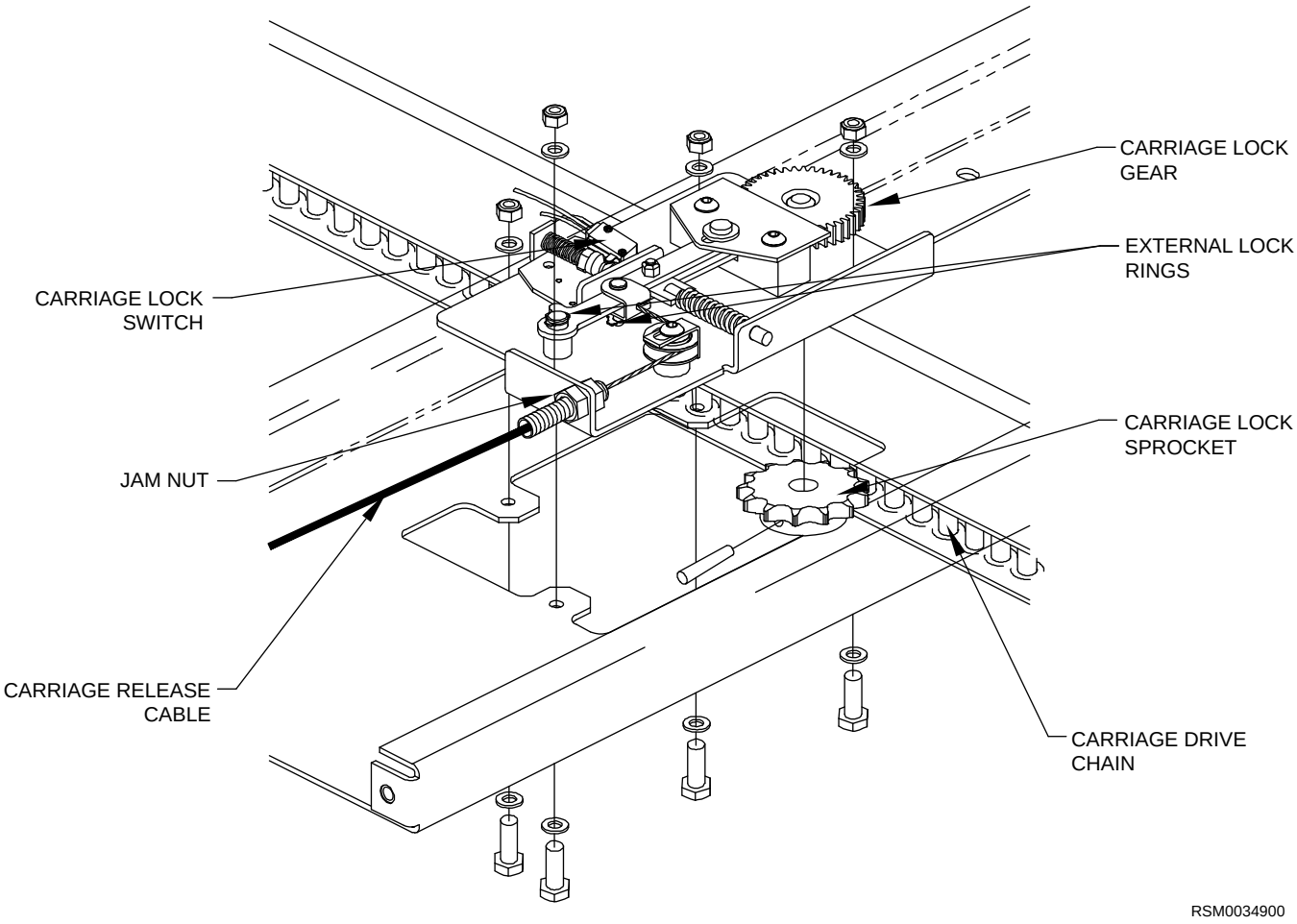


FIGURE 4-20: CARRIAGE DRIVE CHAIN LOCK ASSEMBLY

Pulling the release handle upward unlocks the carriage drive chain, allowing it to move freely along the chain track. The travelling frame is now easily moved by hand because it is separated from the deployment system.

Refer to the Maintenance Checklist in Chapter III. The carriage drive chain lock assembly is infrequently used, and normally requires little maintenance. It should be inspected periodically for wear and damage. It should be cleaned and lubricated if it does not operate smoothly and properly when the remote carriage release handle is used.

4. CARRIAGE RELEASE CABLE

This cable connects the release handle (located near hydraulic pump) to the carriage drive chain lock assembly (located on top side of enclosure). The cable is in two sections, with the junction located on the harness bracket (on outside of enclosure). Cable length adjustment is straightforward, and can be done at the harness bracket or at the carriage drive chain lock assembly. Adjust length by loosening and unthreading one of the jam nuts, then move the threaded portion of the cable housing in or out of its mounting hole. Retighten jam nut.

Under normal conditions, the lock sprocket is engaged with the carriage drive chain. If a residual tension is present in the release cable, the lock sprocket may be encouraged to disengage from the drive chain. Provide a slight amount of slack in the release cable to make certain the sprocket remains fully engaged with the chain.

Verify that the lock sprocket completely disengages from the carriage drive chain when the remote release handle is pulled.

5. CARRIAGE LOCK SWITCH

Figure 4-20 shows the carriage drive chain lock assembly in the locked state. In this state, the switch is held activated by a tab on the locking linkage, and there will be a closed circuit across its red and blue leads. When the manual release handle is pulled, the cable pulls the linkage away from the switch, and the switch returns to its normal state (unactivated).

If the switch is an open circuit when the chain is locked in place, loosen the two switch retaining screws and slide the switch towards the linkage tab. Retighten the screws. Verify that switch opens when the remote release handle is pulled.

E. HYDRAULIC SYSTEM

Refer to **Figure 4-21.** Major hydraulic system components are an electric motor, a gear-pump, a fluid reservoir, two hydraulic cylinders (rams), control valves, and a manual back-up pump.

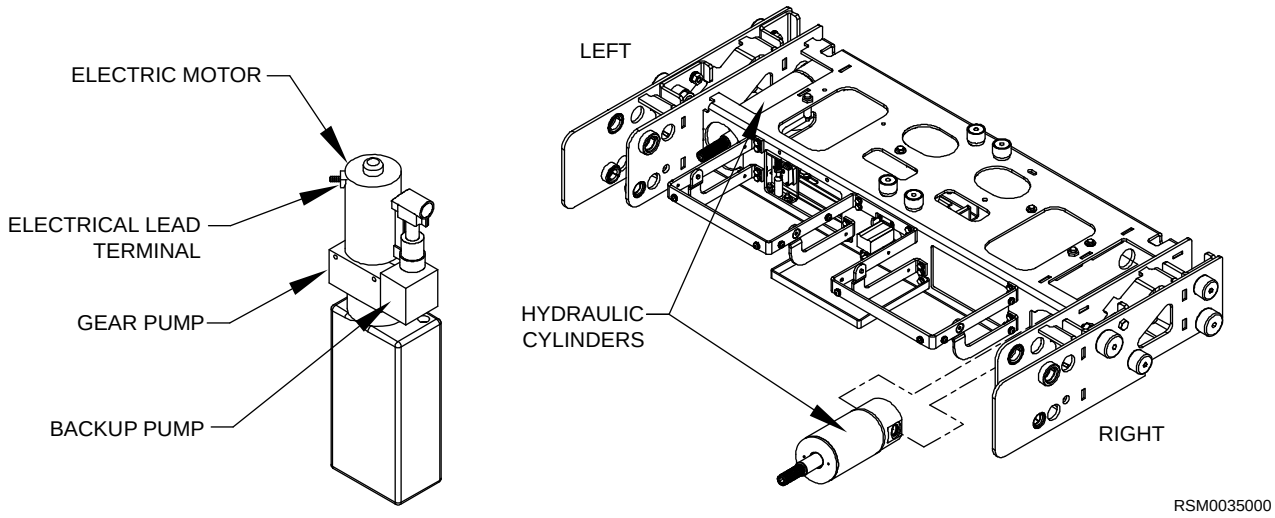


FIGURE 4-21: HYDRAULIC SYSTEM COMPONENTS

1. SYSTEM FLUID RENEWAL

a. Deploy platform using control pendant (DEPLOY).
b. Slowly open manual release valve (located on back-up pump) to release hydraulic pressure, and allow platform to lower to ground.
c. Loosen clamp fastening fluid reservoir to pump.
d. Carefully pull reservoir from bottom of pump and empty into an appropriate waste container.
e. Reinstall reservoir on pump, and tighten clamp.
f. Remove reservoir fill plug. Fill reservoir with Texaco 01554 Aircraft Hydraulic Oil, or equivalent U.S. mil spec H5606G fluid.
g. Close manual release valve.
h. Use control pendant to raise platform to floor level, and then lower it to ground level. Repeat cycle three times.
i. Slowly open manual release valve to release hydraulic pressure.
j. Repeat steps **c.** through **h.** and then proceed to step **k**.
k. Close manual release valve.
l. Refer to HYDRAULIC BLEEDING section in Chapter II and bleed system.

2. ELECTRIC PUMP MOTOR

a. **Pump Motor Removal**

1) Deploy platform using control pendant (DEPLOY), and then support.

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

2) Disconnect positive battery cable at vehicle battery compartment.

3) Refer to **Figure 4-22**. Disconnect heavy electrical lead from top of pump motor (electric terminal in figure is rotated 90^0 CCW, for clarity).
4) Remove motor body from pump body by unthreading the two long screws that pass through motor body; do not remove screws.

NOTE: Hold end caps in-place when removing motor body.

b. **Electric Pump Motor Installation**

This procedure assumes that pump motor has been removed.

1) Inspect shaft seal in pump body for signs of leakage; replace, if necessary.
2) Refer to **Figure 4-22**. Locate motor body assembly on pump body (hold motor assembly together).
3) Align screw holes in end caps, motor body, and pump body. Insert two long retaining screws and lightly tighten.
4) Connect a 24 VDC power source to motor assembly. Connect positive lead to motor terminal and negative lead to pump body.
5) Carefully tighten retaining screws as motor spins (hold upper end cap). Do not over tighten screws.
6) Raise platform to floor level. Repeat steps 4) and 5) if pump motor is noisy.
7) Check all hydraulic connections for leaks, and correct as required.
8) If seal in pump body was replaced, refer to HYDRAULIC BLEEDING section in Chapter II and bleed system.

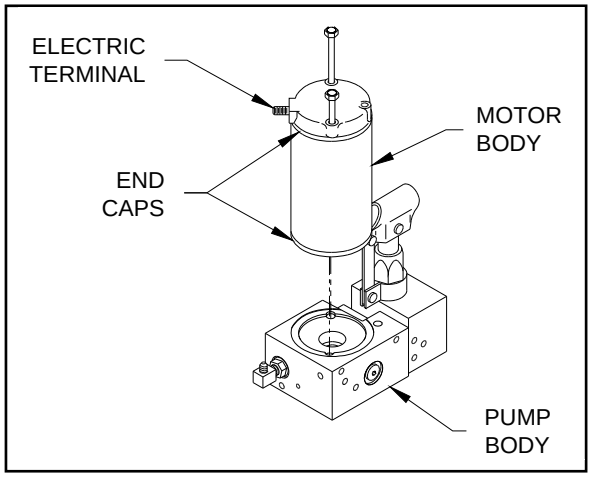


FIGURE 4-22: PUMP MOTOR ORIENTATION

3. HYDRAULIC CYLINDERS

Refer to **Figure 4-23.** The force required to lift the platform is provided by two hydraulic cylinders. The cylinders are located near the left and right sides of the carriage. One of the cylinders contains a linear potentiometer, and this cylinder is typically installed on the left side. The following procedures describe the removal and installation of one cylinder; the procedures are the same for the second cylinder.

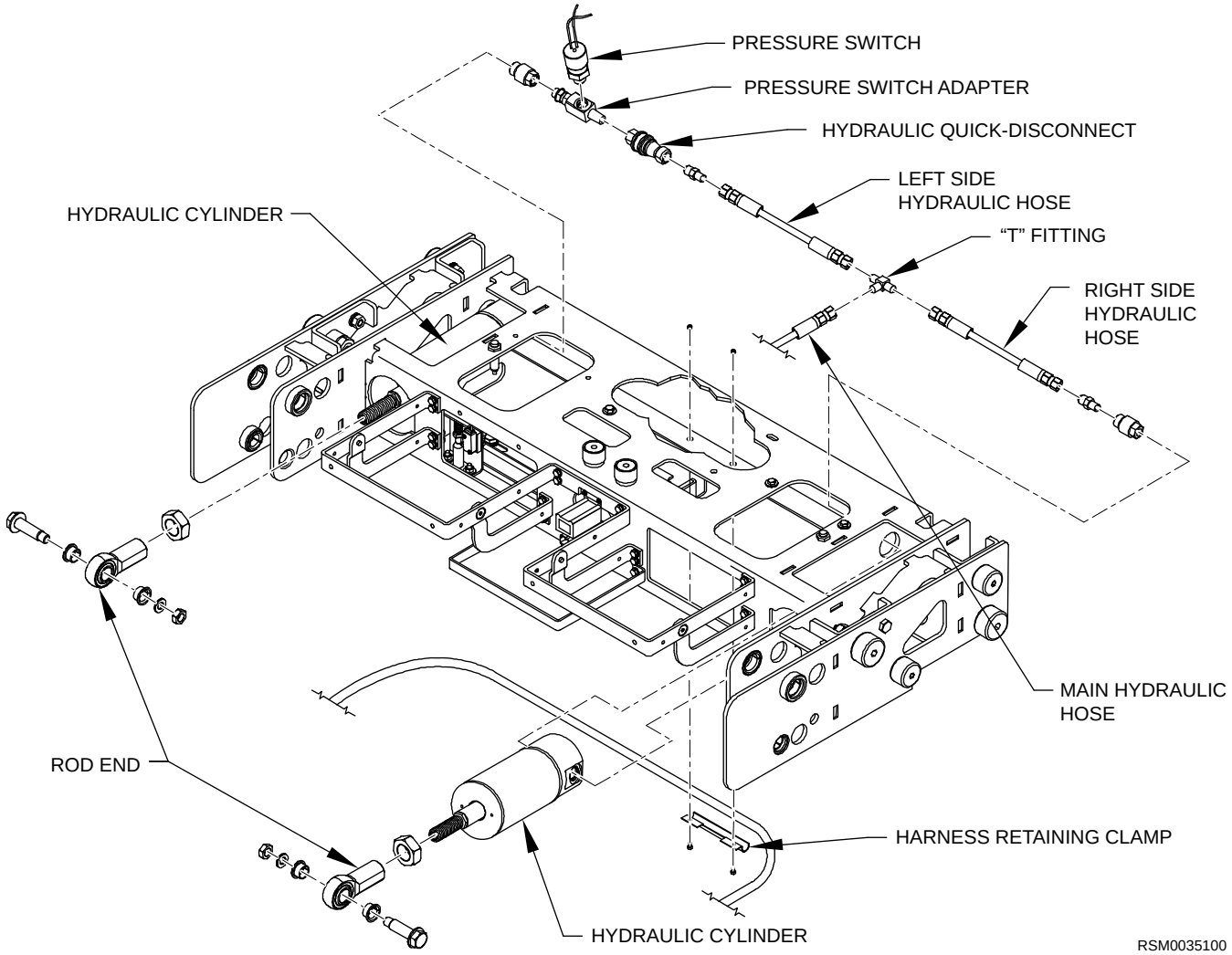


FIGURE 4-23: HYDRAULIC CYLINDERS AND RELATED COMPONENTS

a. **Removing a Hydraulic Cylinder**

The following procedure describes the removal and installation of one cylinder; the procedure is the same for the other cylinder.

1) Deploy platform using control pendant (DEPLOY).
2) Raise and support platform at a comfortable working height.

⚠ WARNING!

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

3) Disconnect positive battery cable at vehicle battery compartment.
4) Open manual release valve on hydraulic pump and leave open.
5) Remove cover at front of carriage.
6) Loosen jam nut then extract hydraulic cylinder pivot pin from the common bore that passes through the lifting frame arm and each 3/4 in. (19mm) rod end. Examine the pivot bushings installed in the lifting frame and for excessive wear or damage.
7) Push cylinder shaft (with rod end) towards cylinder body until rod end is clear of lifting frame. Don't remove rod end at this time.

8) Disconnect electrical harness from cylinder, if the cylinder is equipped with a linear potentiometer. Protect exposed connectors on harness and cylinder.

NOTE: The following step will spill hydraulic fluid; have dry rags on hand.

9) Remove hose retaining clamp at rear of carriage. Disconnect quick-disconnect fitting from pressure switch adapter.
10) Disconnect hydraulic hose from pivot fitting at right side cylinder; loosen and remove pressure switch from adapter at left side cylinder.
11) Unthread pivot fitting from inboard side of cylinder.
12) Support cylinder, and then unthread pivot plug from outboard side of cylinder; this will release cylinder from carriage.
13) Carefully remove cylinder and rod end assembly through front or top of carriage.
14) Examine the pivot bushings installed in the back of carriage for excessive wear or damage. Loosen jam nut on cylinder shaft, and remove rod end.
15) Repeat process for second cylinder, if necessary.

NOTE: Refer to **Figure 4-24.** To make reassembly and adjustment of the rod end easier, measure and record the length of the exposed threaded portion of the cylinder shaft. This length can be used as an initial setting when the rod end is reinstalled on the shaft.

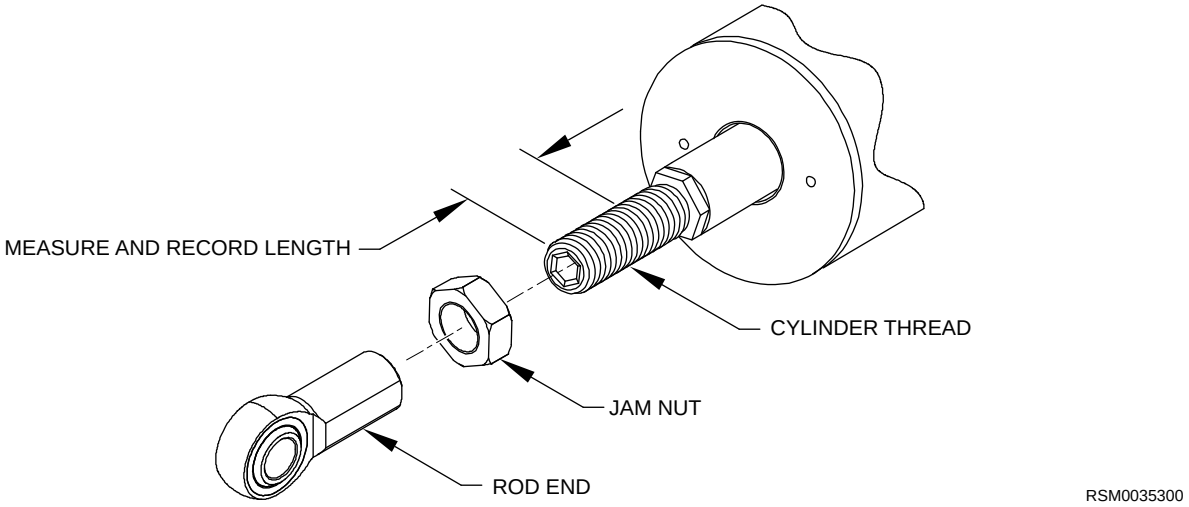


FIGURE 4-24: ROD END POSITION

b. **Hydraulic Cylinder Installation**

This procedure assumes the hydraulic cylinder has been removed.

⚠ CAUTION!
The cylinder shaft threads must engage with at least .75 in. (1905mm) of the rod end threads.

1) Refer back to **Figures 4-24** and **4-25.** Assemble jam nut and rod end onto hydraulic cylinder shaft. Position rod end on shaft with measurement taken during removal. Install two flanged cylinder pivot bushings into carriage frame (with flanges facing cylinder).
2) Insert rear of hydraulic cylinder through D-shaped opening in front of carriage, or drop assembly through rectangular opening on top of carriage.
3) Align cylinder ports with flanged bushings. Install pivot plug through cylinder pivot bushing (installed in carriage frame) and into outboard side of cylinder.
4) Install pivot fitting through cylinder pivot bushing and into inboard side of cylinder.
5) Reconnect hydraulic hose to pivot fitting at right side cylinder; reinstall pressure switch into adapter at left side cylinder.
6) Reconnect quick-disconnect fitting to pressure switch adapter. Reinstall hose retaining clamp.
7) Reconnect electrical harness to cylinder equipped with linear potentiometer.

8) Verify that hydraulic pump manual release valve is closed. Use the manual backup pump to extend rod end until its bushings align with the bushings in the lifting frame arm.
9) Insert rod end pivot pin into common bore passing through lifting frame bushings and rod end bushings. Center pivot pin in rod end, and replace setscrew. Apply a thread locker (such as loc-TITE® blue or omniFIT® blue) when reinstalling setscrew.
10) Repeat process for second cylinder, if necessary.
11) Replace cover at front of carriage.
12) Refer to HYDRAULIC BLEEDING section in Chapter II and bleed system.
13) Raise platform to maximum height possible using manual back-up pump. The platform must be 1 in.–1 ½ in. (25mm-38mm) above the floor at maximum height. Note whether platform needs to be raised or lowered. Refer to the PLATFORM VERTICAL TRAVEL LIMIT ADJUSTMENT section in Chapter II if adjustment is necessary.
14) Refer to PLATFORM HEIGHT ADJUSTMENT section in Chapter II, and program stow and floor height.
15) Refer to the ANTI-STOW PRESSURE SWITCH ADJUSTMENT section in Chapter II after installing components in the hydraulic system. The pressure switch should detect the presence of a 75 lb. load, or greater, on the deployed platform.

4. ANTI-STOW PRESSURE SWITCH ADJUSTMENT

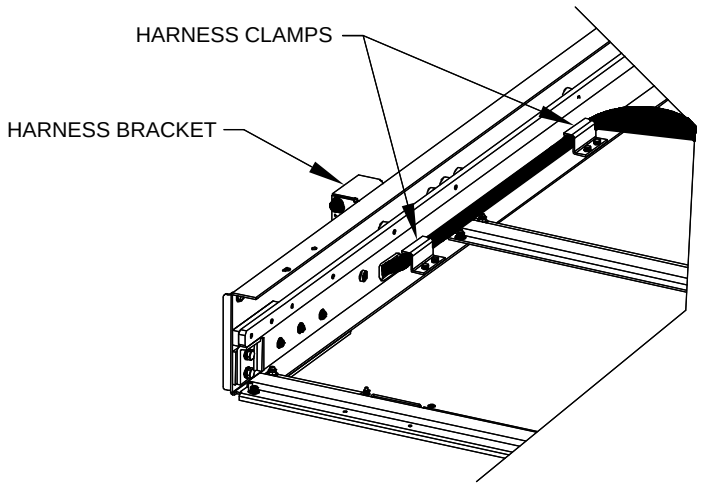
An adjustable, pressure sensing, electrical switch is installed in the hydraulic line connected to the hydraulic cylinders. The pressure switch can detect the presence of a 75 lb. load, or greater, on the platform. The switch will signal the controller when a load is present, and prevent stowage of the platform. This provides a margin of safety for lift users. Refer to the Anti-stow Pressure Switch Adjustment section in Chapter II after doing major repair or replacement of components in the hydraulic system.

5. HYDRAULIC HOSE AND MAIN ELECTRICAL HARNESS

A single flexible conduit, containing both a hydraulic hose and an electrical harness, is routed inside the enclosure. It is routed between the carriage and the enclosure harness bracket (located on the outside of the enclosure). This hydraulic hose is one section of a line connecting the hydraulic pump (located near hydraulic pump assembly) to the hydraulic platform lifting cylinders. The electrical harness provides power to the lift, and carries pendant and hydraulic pump motor signals to the carriage-mounted electronic controller.

c. Hydraulic Hose and Main Electrical Harness Removal

1) Refer to CARRIAGE REMOVAL section and remove platform, lifting frame, and carriage.
2) Refer to **Figure 4-25.** Remove hose retaining clamp from bottom of carriage. Remove two harness clamps (behind harness bracket, inside enclosure).



RSM0035200

FIGURE 4-25: HARNESS CLAMPS
(located in enclosure interior, behind enclosure harness bracket)

3) Disconnect main electrical harness from electronic controller (mounted in carriage). Also, disconnect main electrical harness from pendant harness connector and pump harness connector (at harness bracket).

NOTE: The following step will spill hydraulic fluid; have dry rags on hand.

4) Disconnect hydraulic hose from “T” fitting at rear of carriage, and from bulkhead fitting on harness bracket.
5) Note routing of conduit and how it is secured.
6) Remove main electrical harness and hydraulic hose from enclosure (cut nylon tie wraps, where necessary).

d. **Hydraulic Hose and Main Electrical Harness Installation**

This procedure assumes the conduit containing the main electrical harness and hydraulic hose has been removed.

1) Remove platform, lifting frame, and carriage, if present. Refer to CARRIAGE REMOVAL section.
2) Route main electrical harness and hydraulic hose conduit from harness bracket to carriage. Note that conduit is guided into rear of carriage by a curved barrier on the bottom of carriage.
3) Connect hydraulic hose to fitting on harness bracket. Connect main electrical harness to pendant connector and pump harness connector (also on harness bracket).
4) Route conduit to carriage.
5) Connect hydraulic hose to “T” fitting at rear of carriage. Connect electrical harness to electronic controller (mounted in carriage).
6) Position conduit so that it moves freely as carriage moves in and out of enclosure; it must not interfere with carriage movement. The conduit must lie flat against the bottom enclosure covers, and must not twist or loop as carriage moves. Secure conduit with nylon tie wraps, where necessary.
7) Refer back to **Figures 4-23** and **4-25.** Install hose retainer clamp on bottom of carriage. Install two hose clamps (behind pull box, inside enclosure).
8) Refer to end of Carriage Removal section for instructions to reinstall carriage.
9) Refer to HYDRAULIC BLEEDING section in Chapter II and bleed system.

6. STOW LOCK ASSEMBLY

The stow lock secures the lift when stowed. Stow lock striker weldment is attached to the right hand side platform and the stow lock assembly is attached to the enclosure.

a. **Stow Lock Striker Weldment Removal**

1) Refer to **Figure 4-26.** Deploy platform using control pendant (DEPLOY).
2) Remove two bolts and washers then detach Stow Lock Striker from PRS cover on right hand side of platform.

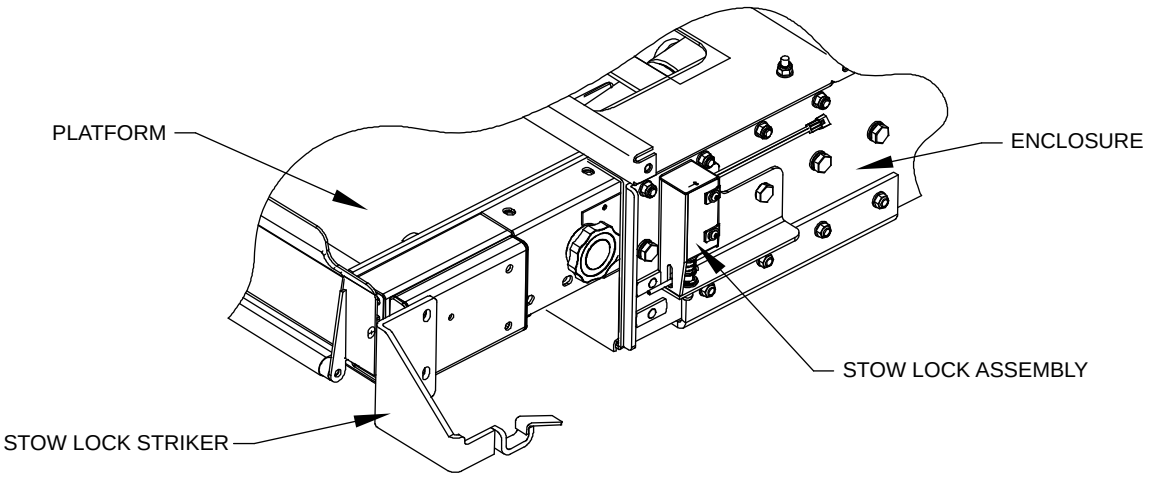


FIGURE 4-26: STOW LOCK ASSEMBLY

3) Retain hardware for reinstallation.

b. **Stow Lock Assembly Removal**

1) Refer to **Figure 4-27.** Deploy platform using control pendant (DEPLOY).
2) Detach cable connection of Stow Lock Solenoid Assembly.
3) Remove bolt and washer then detach Stow Lock from right hand side of enclosure.
4) Retain hardware for reinstallation.

F. ELECTRICAL CONTROLS

1. GENERAL PROCEDURE FOR REPLACEMENT OF LIMIT SWITCHES

There are several limit switches installed in the platform and carriage. The switches are hard-wired to a harness at the factory, but can be replaced in the field. Replacement switches are supplied with three wire-leads (pigtails). Use this procedure to wire a replacement switch into a harness.

⚠ WARNING!

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

a. Disconnect positive battery cable at vehicle battery compartment.
b. Note length and colors of wire leads on switch to be replaced (a red lead and a blue lead, a red lead and a yellow lead, etc).
c. Cut wire leads on replacement switch to appropriate length; cut leads extra-long if unsure of exact length. Strip 1/4 in. (6mm) of insulation off ends of wires.
d. Place a 1 in. (25mm) length of 1/4 in. (6mm) shrinkable tubing around each switch wire if you are going to solder the new connections. Slide tubing away from end of wire.
e. Connect each harness lead to appropriate lead on replacement switch. The leads can be joined with crimp-on butt connectors, or soldered.

NOTE: Contact Ricon Product Support if replacement switch leads are a different color than the switch being replaced

f. Verify integrity of each connection by attempting to pull it apart.
g. Slide the shrinkable tubing over soldered connections, and shrink with a heat gun.
h. Cut unused switch lead close to switch body.
i. Remove original switch from its bracket and mount replacement switch in its place.
j. Refer to appropriate Switch Adjustment section in this chapter and set switch position.
k. Reconnect positive battery cable at vehicle battery compartment.

2. REPLACEMENT OF ELECTRONIC CONTROLLER

The electronic circuitry inside the controller box receives command inputs from the pendant, and signal inputs from sensors in the carriage and lifting frame. It also monitors and controls all lift functions. There are no parts in the controller that can be replaced in the field. The entire controller must be replaced, if at fault. Verify that replacement controller is appropriate for the application being worked on.

⚠ CAUTION!

The electronic controllers used in the various Ricon Mirage models are visually similar and physically interchangeable. However, their programming and internal circuitry are different, and they must not be installed in a lift they were not designed for.

a. Fully deploy lift.
b. The controller is removed from the front of the carriage (through access window in carriage).
c. Disconnect three harness connectors from controller.
d. Remove two Phillips screws fastening connector-end of controller to its mounting bracket.
e. Slide controller off of rear bracket (fastened to rear of carriage), and remove controller from carriage.
f. Position replacement controller inside carriage. Slide loop (at top, rear of controller housing) onto mounting bracket tab.
g. Reinstall two Phillips screws fastening connector-end of controller.
h. Reconnect the three harness connectors to controller, and tighten securely.

NOTE: Each connector is uniquely keyed, and cannot be interchanged. However, do not attempt to force a connector plug onto a receptacle if you encounter resistance.

i. Reconnect positive battery cable at vehicle battery compartment.

3. HYDRAULIC HOSE AND MAIN ELECTRICAL HARNESS

A single flexible conduit, containing both a hydraulic hose and an electrical harness, is routed inside the enclosure. It is routed between the carriage and the enclosure harness bracket (located on the outside of the enclosure). This hose is one section of a hydraulic line connecting the hydraulic pump (located near hydraulic pump assembly) to the hydraulic platform lifting cylinders. The electrical harness provides power to the lift, and carries pendant and hydraulic pump motor signals to the carriage-mounted electronic controller. Refer to the Hydraulic Hose and Main Electrical Harness paragraph in the Hydraulic Power System section for removal and installation instructions.