Maintenance Manual Contains:
• Warranty Information
• Warnings
• Service Time Chart
• Periodic Maintenance Checklist
• Service and Maintenance Instructions
• Decals
• Hydraulic & Electrical System Diagrams
• Troubleshooting

BMR-A-ONE PIECE
BMR-A-CS
MAINTENANCE MANUAL

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**LIFTGATE WARRANTY**

<table>
<thead>
<tr>
<th>Type of Warranty:</th>
<th>Full Parts and Labor</th>
</tr>
</thead>
</table>
| Term of Warranty: | Standard Liftgates - 2 years from ship date or 6,000 cycles  
|                  | Premium Liftgates - 2 years from ship date or 10,000 cycles |

This warranty shall not apply unless the product is installed, operated, and maintained in accordance with MAXON Lift’s specifications as set forth in MAXON Lift’s Installation, Operation and Maintenance manuals. This warranty does not cover normal wear, maintenance, or adjustments, damage or malfunction caused by improper handling, installation, abuse, misuse, negligence, or carelessness of operation. In addition, this warranty does not cover equipment that has had unauthorized modifications or alterations made to the product.

MAXON agrees to replace any components which are found to be defective during the first 2 years of service, and will reimburse for labor based on MAXON’s Liftgate Warranty Flat Rate Schedule. (Copy of the Flat Rate is available at www.maxonlift.com.)

All warranty repairs must be performed by an authorized MAXON warranty facility. For any repairs that may exceed $500, including parts and labor, MAXON’s Technical Service Department must be notified and an “Authorization Number” obtained.

All claims for warranty must be received within 30 Days of the repair date, and include the following information:

1. Liftgate Model Number and Serial Number  
2. The End User must be referenced on the claim  
3. Detailed Description of Problem  
4. Corrective Action Taken, and Date of Repair  
5. Parts used for Repair, Including MAXON Part Number(s)  
6. MAXON R.M.A. # and/or Authorization # if applicable (see below)  
7. Person contacted at MAXON if applicable  
8. Claim must show detailed information i.e. Labor rate and hours of work performed

Warranty claims can also be placed online at www.maxonlift.com. Online claims will be given priority processing.

All claims for warranty will be denied if paperwork has not been received or claim submitted via Maxon website for processing by MAXON’s Warranty Department within 30 days of repair date.

All components may be subject to return for inspection, prior to the claim being processed. MAXON products may not be returned without prior written approval from MAXON’s Technical Service Department. Returns must be accompanied by a copy of the original invoice or reference with original invoice number and are subject to a credit deduction to cover handling charges and any necessary reconditioning costs. Unauthorized returns will be refused and will become the responsibility of the returnee.

Any goods being returned to MAXON Lift must be pre-approved for return, and have the R.M.A. number written on the outside of the package in plain view, and returned freight prepaid. All returns are subject to a 15% handling charge if not accompanied by a detailed packing list. Returned parts are subject to no credit and returned back to the customer. Defective parts requested for return must be returned within 30 days of the claim date for consideration.

MAXON Lift Corp.  
10321 Greenleaf Ave., Santa Fe Springs, CA 90670  
Attn: RMA#__

MAXON’s warranty policy does not include the reimbursement for travel time, towing, vehicle rental, service calls, oil, batteries or loss of income due to downtime. Fabrication or use of non Maxon parts, which are available from MAXON, are also not covered.

MAXON’s Flat Rate Labor Schedule takes into consideration the time required for diagnosis of a problem.

All Liftgates returned are subject to inspection and a 15% restocking fee. Any returned Liftgates or components that have been installed or not returned in new condition will be subject to an additional reworking charge, which will be based upon the labor and material cost required to return the Liftgate or component to new condition.

**PURCHASE PART WARRANTY**

| Type of Warranty: | Part replacement only. MAXON will guarantee all returned genuine MAXON replacement parts upon receipt and inspection of parts and original invoice.  
| Term of Warranty: | 1 Year from Date of Purchase |

All warranty replacements parts will be sent out via ground freight. If a rush shipment is requested, all freight charges will be billed to the requesting party.
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<td>42</td>
</tr>
</tbody>
</table>
Comply with the following WARNINGS and SAFETY INSTRUCTIONS while maintaining Liftgates. See Operation Manual for operating safety requirements.

⚠️ WARNING

• Do not stand, or allow obstructions, under the platform when lowering the Liftgate. **Be sure your feet are clear of the Liftgate.**

• Keep fingers, hands, arms, legs, and feet clear of moving Liftgate parts (and platform edges) when operating the Liftgate.

• Correctly stow platform when not in use. Extended platforms could create a hazard for people and vehicles passing by.

• Disconnect Liftgate power cable from battery before repairing or servicing Liftgate.

• If it is necessary to stand on the platform while maintaining the Liftgate, keep your feet and any objects clear of the inboard edge of the platform. Your feet or objects on the platform can become trapped between the platform and the Liftgate extension plate.

• Recommended practices for welding on steel parts are contained in the current **AWS (American Welding Society) D1.1 Structural Welding Code - Steel.** Damage to Liftgate and/or vehicle, and personal injury could result from welds that are done incorrectly.

• Recommended practices for welding on aluminum parts are contained in the current **AWS (American Welding Society) D2.1 Structural Welding Code - Aluminum.** Damage to Liftgate and/or vehicle, and personal injury could result from welds that are done incorrectly.

SAFETY INSTRUCTIONS

• Read and understand the instructions in this **Maintenance Manual** before performing maintenance on the Liftgate.

• Before operating the Liftgate, read and understand the operating instructions in **Operation Manual.**

• Comply with all **WARNING** and instruction decals attached to the Liftgate.

• Keep decals clean and legible. If decals are illegible or missing, replace them. Free replacement decals are available from **Maxon Customer Service.**

• Consider the safety and location of bystanders and location of nearby objects when operating the Liftgate. Stand to one side of the platform while operating the Liftgate.

• Do not allow untrained persons to operate the Liftgate.

• Wear appropriate safety equipment such as protective eyeglasses, faceshield and clothing while performing maintenance on the Liftgate and handling the battery. Debris from drilling and contact with battery acid may injure unprotected eyes and skin.

• Be careful working by an automotive type battery. Make sure the work area is well ventilated and there are no flames or sparks near the battery. Never lay objects on the battery that can short the terminals together. If battery acid gets in your eyes, immediately seek first aid. If acid gets on your skin, immediately wash it off with soap and water.
• If an emergency situation arises (vehicle or Liftgate) while operating the Liftgate, release the control switch to stop the Liftgate.

• A correctly installed Liftgate operates smoothly and reasonably quiet. The only noticeable noise during operation comes from the power unit while the platform is raised. Listen for scraping, grating and binding noises and correct the problem before continuing to operate Liftgate.

• Use only Maxon Authorized Parts for replacement parts. Provide Liftgate model and serial number information with your parts order. Order replacement parts from:

MAXON LIFT CORP. Customer Service  
11921 Slauson Ave., Santa Fe Springs, CA  90670

Online: www.maxonlift.com  
Express Parts Ordering: Phone (800) 227-4116 ext. 4345  
Email: Ask your Customer Service representative
CAUTION
Comply with welding CAUTION decals on Liftgate runners.

NOTE: See following pages to find the other decals on Liftgate.

! CAUTION !
When performing any electrical welding operations to the structure of this Lift, be careful to connect the ground lead to the Liftgate component being welded (e.g., runner assembly, column assembly, platform assembly), and as close to the area being welded as possible. Because the separate assemblies on the BMR series Lifts are insulated by self-lubricated bearings, failure to do so will cause severe damage to electrical components and metal parts.

FIG. 8-1
PERIODIC MAINTENANCE
DECALS

CAUTION DECAL (2 PLACES)
P/N 266508-01

DECAL “H”

ALIGN ARROWS
BEFORE FOLDING
OR UNFOLDING

SERIAL PLATE

PAINT DECAL
(BMR-A, 2 PLACES)
P/N 267338-01

DECAL “G”

FIG. 10-1

PAINT DECAL
(BMR-A, 2 PLACES)
P/N 267338-01
SAFETY INSTRUCTIONS
Read all decals and operation manual before operating liftgate.

1. Do not use liftgate unless you have been properly instructed and have read, and are familiar with, the operating instructions.
2. Be certain vehicle is properly and securely braked before using the liftgate.
3. Always inspect liftgate for maintenance or damage before using it. Do not use liftgate if it shows any sign of damage or improper maintenance.
4. Do not overload
5. Make certain the area in which the platform will open and close is clear before opening or closing the platform.
6. Make certain platform area, including the area in which loads may fall from platform, is clear before and at all times during operation of liftgate.
7. This liftgate is intended for loading and unloading of cargo only. Do not use this liftgate for anything but its intended use.

THE MAXIMUM CAPACITY OF THIS LIFT IS POUNDS
WHEN THE LOAD IS CENTERED ON THE LOAD CARRYING PLATFORM

(REFER TO TABLE 11-1)

CAUTION
Always stand clear of platform area.

CAUTION
Do not grease columns.

WARNING
Liftgate hazards can result in crushing or falling. Keep hands and feet clear of pinch points.
If riding liftgate, make sure load is stable and footing is solid.

Align arrows before folding or unfolding.

DECAL SHEET
FIG. 11-1

 Model | DECAL SHEET P/N | DECAL “C” |
-------|----------------|-----------|
BMRA-35 & BMRA35-CS | 268309-01 | 3500 POUNDS |
BMRA-44 & BMRA44-CS | 268309-02 | 4400 POUNDS |

DECAL SHEET PART NUMBERS
TABLE 11-1

FIG. 11-1
**PERIODIC MAINTENANCE**
**MAXON BMR-A LIFTGATE**
**PREVENTATIVE MAINTENANCE CHECKLIST**

PM Interval: 3 Months  
Date: __/__/__

Equipment:  
W/O #  
Location:  
Mechanic:  
Serial #  
Model #  

Check Appropriate Box. **"**

<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Repair Required</th>
<th>Corrected</th>
<th>PM Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>MAXON 1</strong>st, <strong>2</strong>nd and <strong>3</strong>nd Quarter Liftgate PM Procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Verify if the Quarterly or Annual PM is due by checking the PM sticker on the roadside Liftgate column</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Check for oil leaks at: cylinders, fittings, hoses, valves, oil filter and fittings inside of pump box</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 Check for damage: bent ramps, platform, column, runners and hydraulic tubes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 Check for loose or missing nuts, bolts, covers, roll pins, screws and pins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 Check for cracked welds at: columns, runners, platform, chain arms, pump box and door frame</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>6 Check platform lowering speed: Range is 15-25 seconds. Check “D” valves for proper operation</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>7 Check platform pins and couplers. Check roller assemblies</td>
</tr>
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<td></td>
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<td></td>
<td>8 Check platform raising speed: Range is 20-40 seconds</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>9 Check open and close speed: Range is 4-7 seconds in either direction. Adjust if necessary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 Check switches, circuit breaker and wiring connections at the gate as well as inside pump box. Also check ground straps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 Check the gear pump for unusual noise. i.e. squealing or extreme RPM output</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 Checking Oil Level: gravity down with the Liftgate open and on the ground the sight glass should be at half level. Power down open Liftgate and raise to bed height the sight glass should be at half level. Check for contamination, change if needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13 Check batteries: load test, corrosion, cables, hold downs and water level</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14 Dual pump units: Please switch the selector switch to opposite assembly at each PM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15 Check chains for twisting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16 Check operation of cart stop ramps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17 Check all charging and ground cable connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18 Complete a new PM sticker and install it on the roadside column of the Liftgate. The next PM date is 3 months from the completed PM date. Indicate on the PM sticker if 1<strong>st</strong>, 2<strong>nd</strong>, 3<strong>rd</strong> or 4<strong>th</strong> PM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Repair Required</th>
<th>Corrected</th>
<th>PM Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>MAXON 4</strong>th Liftgate PM. Note: Includes steps 1-18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19 Replace spin on filter in pump box. Change hydraulic fluid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20 Inspect wear on slide pads. See if shimming is required</td>
</tr>
</tbody>
</table>

For more detailed information, please refer to the product maintenance manuals. Use only genuine Maxon replacement parts for all repairs.

**TABLE 12-1**
PERIODIC MAINTENANCE CHECKLIST

**WARNING**
Never operate the Liftgate with parts loose or missing.

**NOTE:** Photocopy the PM CHECKLIST on the preceding page to help keep track of periodic maintenance on the Liftgate. Keep completed form with maintenance records.

### Annually
Change spin-on oil filter. Visually check the entire Liftgate for excessively worn parts and broken welds, especially the hinge pins. See Parts Manual for replacement parts. Also, do the Semi-annual and Quarterly Maintenance checks.

### Semi-annually
Visually check the platform hinge pins for excessive wear and broken welds. See Parts Manual for replacement parts. Also, do the Quarterly Maintenance checks.

### Quarterly
Check the hydraulic fluid level in the pump reservoir. Refer to the CHECKING HYDRAULIC FLUID procedure in the PERIODIC MAINTENANCE section.

- If hydraulic fluid appears contaminated, refer to the CHANGING HYDRAULIC FLUID procedure on following page.
- Keep track of the grade of hydraulic fluid in the pump reservoir. Never mix two different grades of fluid.
- Check hoses and fittings for chaffing and fluid leaks. Replace if necessary.
- Check electrical wiring for chaffing and make sure wiring connections are tight and free of corrosion. MAXON recommends using dielectric grease on all electrical connections.
- Check that all WARNING and instruction decals are in place and legible.
- Check that all roll pins are in place and protrude evenly from both sides of hinge pin collar. Replace roll pins if necessary.
- Check each end of the two platform chains to make sure they are fastened properly.
- Check for worn out links on each of the two platform chains.
- Grease zerk fittings on two lower pivot points.

**CAUTION**

Damaged cylinder seals and contaminated hydraulic fluid can result from painting the polished portion of the cylinder rod. To prevent damage, protect the exposed polished portion of the cylinder rod while painting.

- Check for rust and oily surfaces on Liftgate. If there is rust or oil on the Liftgate, clean it off. Touch up the paint where bare metal is showing.
PERIODIC MAINTENANCE
CHECKING HYDRAULIC FLUID

CAUTION
Keep dirt, water and other contaminants from entering the hydraulic system. Before opening the hydraulic fluid reservoir filler cap, drain plug and hydraulic lines, clean up contaminants that can get in the openings. Also, protect the openings from accidental contamination.

NOTE: Use correct grade of hydraulic fluid for your location.

+50 to +120 Degrees F - Grade ISO 32
Below + 70 Degrees F - Grade ISO 15 or MIL-H-5606
See TABLES 15-1 and 15-2 for recommended brands.

NOTE: If the hydraulic fluid in the reservoir is contaminated, do the CHANGING HYDRAULIC FLUID procedure in this section.

GRAVITY DOWN POWER UNIT
1. For a gravity down power unit, open the platform and lower it to the ground.

2. Check if the sight glass on the pump cover is half full of hydraulic fluid (FIG. 14-1).

3. If needed, add fluid to the reservoir as follows. Open the pump cover and remove filler cap (FIG. 14-2). Add hydraulic fluid to reservoir until the sight glass looks half full (FIG. 14-1). Re-install filler cap (FIG. 14-2).

POWER DOWN POWER UNIT
1. For a power down power unit, open the platform and raise it to vehicle bed height.

2. Check if the sight glass on the pump cover is half full of hydraulic fluid (FIG. 14-1).

3. If needed, add fluid to the reservoir as follows. Open the pump cover and remove filler cap (FIG. 14-2). Add hydraulic fluid to reservoir until the sight glass looks half full (FIG. 14-1). Re-install filler cap (FIG. 14-2).
### ISO 32 Hydraulic Oil

<table>
<thead>
<tr>
<th>Recommended Brands</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMSOIL</td>
<td>AWH-05</td>
</tr>
<tr>
<td>CHEVRON</td>
<td>HIPERSYN 32</td>
</tr>
<tr>
<td>KENDALL</td>
<td>GOLDEN MV</td>
</tr>
<tr>
<td>SHELL</td>
<td>TELLUS T-32</td>
</tr>
<tr>
<td>EXXON</td>
<td>UNIVIS N-32</td>
</tr>
<tr>
<td>MOBIL</td>
<td>DTE-13M, DTE-24, HYDRAULIC OIL-13</td>
</tr>
</tbody>
</table>

**TABLE 15-1**

### ISO 15 or MIL-H-5606 Hydraulic Oil

<table>
<thead>
<tr>
<th>Recommended Brands</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMSOIL</td>
<td>AWF-05</td>
</tr>
<tr>
<td>CHEVRON</td>
<td>FLUID A, AW-MV-15</td>
</tr>
<tr>
<td>KENDALL</td>
<td>GLACIAL BLU</td>
</tr>
<tr>
<td>SHELL</td>
<td>TELLUS T-15</td>
</tr>
<tr>
<td>EXXON</td>
<td>UNIVIS HVI-13</td>
</tr>
<tr>
<td>MOBIL</td>
<td>DTE-11M</td>
</tr>
<tr>
<td>ROSEMEAD</td>
<td>THS FLUID 17111</td>
</tr>
</tbody>
</table>

**TABLE 15-2**
PERIODIC MAINTENANCE
CHANGING HYDRAULIC FLUID

CAUTION
Keep dirt, water and other contaminants from entering the hydraulic system. Before opening the hydraulic fluid reservoir filler cap, drain plug and hydraulic lines, clean up contaminants that can get in the openings. Also, protect the openings from accidental contamination.

NOTE: Use correct grade of hydraulic fluid for your location.

+50 to +120 Degrees F - Grade ISO 32
Below + 70 Degrees F - Grade ISO 15 or MIL-H-5606
See TABLES 15-1 and 15-2 for recommended brands.

GRAVITY DOWN LIFTGATES

1. Place empty 5 gallon bucket under drain plug.
2. Open and lower platform. Remove the drain plug (FIG. 16-1). Drain hydraulic fluid from system. Reinstall drain plug.
3. Remove filler cap (FIG. 16-2). Refill reservoir until sight glass (FIG. 16-1) is half full.
4. Reinstall filler cap (FIG. 16-2).

POWER DOWN LIFTGATES

1. Place empty 5 gallon bucket under drain plug.
2. Open and raise platform to vehicle bed height. Remove the drain plug (FIG. 16-1).
3. Disconnect the white wire (FIG. 16-2) from motor solenoid. Lower the platform while draining hydraulic fluid from system. Reinstall drain plug. Reconnect the white wire to motor solenoid.
4. Remove filler cap (FIG. 16-2). Refill reservoir until sight glass (FIG. 16-1) is half full.
5. Raise platform to vehicle bed height. Check hydraulic fluid again and, if needed, add more hydraulic fluid until sight glass (FIG. 15-2) is half full.
6. Reinstall filler cap (FIG. 16-2).
BLEEDING HYDRAULIC SYSTEM

NOTE: Perform this procedure at a place where Liftgate platform can be lowered to lowest point of travel. Get a helper to operate Liftgate control switch.

1. Use **UP/DOWN** toggle switch to lower the opened platform to the ground.

2. Loosen, but do not disconnect, the cylinder line fitting from the pressure compensated flow control valve (FIG. 17-1) on top of both cylinders.

3. Set the **UP/DOWN** switch on the RH runner in the **UP** position for approximately one second and then release the switch. Wait ten seconds and then switch to **UP** and release. Repeat this step until there is no air bubbling from the loosened line fittings.

4. Tighten cylinder line fitting to pressure compensated flow control valve (FIG. 17-1).

5. Use **UP/DOWN** toggle switch to raise and lower the platform to make sure the Liftgate operates correctly.
1. The speed settings for the closing cylinder are regulated by the pressure relief needle valves located on the pump manifold (FIG. 18-1). One valve is marked “O” (open platform) and the other is marked “C” (close platform).

2. To decrease platform opening speed, turn opener valve adjustment (FIG. 18-1) clockwise. To increase platform opening speed, turn opener valve adjustment (FIG. 18-1) counter-clockwise.

3. To increase platform closing speed, turn closer valve adjustment (FIG. 18-1) clockwise. To decrease platform closing speed, turn closer valve adjustment (FIG. 18-1) counter-clockwise.

TYPICAL PUMP OPENER AND CLOSER ADJUSTMENTS
(Power Down Version Shown)

FIG. 18-1
REPLACING PARTS
CLOSING CYLINDER REPLACEMENT

1. UNFOLD the platform. Lower the platform (DOWN) to comfortable height for work. Upper pin must be lower than the bottom of the column (see FIG. 19-1).

2. Disconnect the hydraulic hose from lower end of cylinder (FIG. 19-2). Plug hose to prevent spills.

3. Remove the lower roll pin from inside coupling (FIG. 19-2) and then remove lower pin.

4. Remove the upper roll pin (FIG. 19-2) from the runner and then remove the upper pin.

5. Remove cylinder from runner (FIG. 19-2).

6. Place replacement cylinder in the correct position as shown in FIG. 19-2.

7. Install upper pin (FIG. 19-2) and roll pin in upper end of cylinder and runner.

8. Install lower pin (FIG. 19-2) and roll pin in lower end of cylinder and inside coupling.

9. Reconnect hydraulic hose to cylinder (FIG. 19-2).
1. Raise the open platform about 20" above the ground. Place a jack and jack stands under the platform (FIG. 20-1) for support. Measure and record the distance between the centers of upper and lower cylinder pins. Keep measurement for reference when installing new cylinder.

2. Remove cover from the top of the column (FIG. 20-1). Put empty oil drain pan under column.

3. Loosen and disengage nut #1 (FIG. 20-2) from elbow on top of cylinder. Remove elbow from cylinder (FIG. 20-2). Keep elbow to reinstall on new cylinder. Loosen and disengage nut #2 from bottom of flow compensator valve while pushing control switch DOWN at the same time.
4. Remove lower roll pin & lower pin from cylinder (FIG. 21-1). Clamp large, curved vise grip pliers around the hydraulic cylinder just above the top of the runner as shown in FIG. 21-1.

5. Remove upper roll pin & upper pin from cylinder (FIG. 21-2). Lift cylinder about 4” above top of column.

6. Attach a chain hoist or equivalent lifting device to support the upper end of cylinder (FIG. 21-2). Remove vise grip pliers from cylinder. Hoist the cylinder until it clears the top of column. Lower cylinder to the ground.

**CAUTION**

Move old cylinder out of the way to prevent possible trip hazard.

7. Remove plastic plug from line fitting on new cylinder. To prevent fluid spills, fasten a drain hose with 1/4” NPT female end to line fitting on bottom end of cylinder as shown in FIG. 21-3. Fully extend cylinder rod. Next, push cylinder rod into cylinder until distance measured between butt-end and rod-end pin bores is the same as distance recorded in Step 1.
REPLACING PARTS
LIFTING CYLINDER REPLACEMENT - Continued

NOTE: Before installing a new cylinder, get a helper. Have the helper look through square inspection hole on back of runner while cylinder is lowered. The helper can inform installer when rod end of cylinder is lined up with lower pin.

NOTE: To install cylinder correctly, make sure hydraulic lines on cylinder are facing the vehicle body.

8. To install new Lifting cylinder, reverse Steps 6, 5, 4, 3, and 2.

9. Remove jack stands. Lower jack and platform all the way (FIG. 22-1). Pressurize hydraulic system by pushing control switch to UP position. Release switch when platform is raised to bed height.

FIG. 22-1
RUNNER REPLACEMENT

1. Use Control Box to Lower the Platform (DOWN) to approximately 12" above the ground. Support Platform with 2 jack stands (FIG. 23-1). Make sure outboard edge of Platform is 4" higher than inboard edge.

2. Remove the Bolts and Pins (FIG. 23-2) holding Platform and Connector Bar to RH & LH Runners. Next, remove Cotter Pins and Pins to remove Chains from both Runners (FIG. 23-3). If Liftgate is equipped with CS Platform, remove Roll Pins and Pins to remove Railings from both Runners (FIG. 23-3). Unbolt and remove Cover from Runner.
3. Raise the platform (UP) slightly and place 2 more jack stands near the inboard edge (FIG. 24-1).

4. Use a forklift or equivalent lifting device to move the platform approximately 6" towards the front of the vehicle to clear the platform away from the attaching points on the runners (FIG. 24-2). Now that the platform is clear of runners, raise the runners a few inches and move platform toward the back of the vehicle for sufficient room to remove the runners. Use the control box to lower runners (DOWN) to the ground.
5. Disconnect runner switch cable from flexible cable near bottom of runner as shown in FIG. 25-1. Unclamp runner switch cable from runner by removing lock nut, clamp, and screw (FIG. 25-1). Next, remove clamp from runner switch cable.

6. Disconnect hydraulic hose from closing cylinder (FIG. 25-1). Use drain pan to collect hydraulic fluid from hose.

7. Pull spring guard, flexible cable, and hydraulic hose away from the channel at bottom of runner (FIG. 25-1).

8. Remove the upper and lower pad assemblies (FIGS. 25-2A & -2B) from runner (FIG. 25-2C) by loosening and removing (2) hex head bolts and (2) lock washers from each pad.

NOTE: If replacing LH runner, skip steps 6, 7, 8, and 9.
9. Remove tandem assemblies by loosening and removing bolts and washers from anchor pins (FIG. 26-1). Remove the anchor pins (FIG. 26-1) holding tandem assemblies to runner. Remove the tandem assemblies (FIG. 26-1).

10. Disconnect hydraulic line to cylinder. Hold cylinder firmly and remove upper roll pin and upper pin (FIG. 26-2).

11. Lower cylinder slowly to clear top of column. Disconnect hydraulic line on the top of cylinder (FIG. 26-3).
12. Use large round jaw vise grip pliers to clamp cylinder at the top of runner (FIG. 27-1).

13. Twist and walk runner out of column (FIG. 27-2). Then lay runner and cylinder on the ground.
14. Remove vise grip clamp, and mark cylinder at top of runner (FIG. 28-1).

15. Remove lower roll pin and lower pin. Pull out cylinder from runner (FIG. 28-2).

16. If RH runner is being replaced, do the CLOSING CYLINDER REPLACEMENT procedure in this section to remove closing cylinder.
17. If RH runner is being replaced, unbolt switch mounting bracket from runner by removing (2) bolts and (2) lock washers (FIG. 29-1). Pull runner switch, bracket, and cable from runner.

18. If RH runner is being replaced, reinstall runner switch, bracket, and cable in runner as follows. Make a wire fish by feeding 8 feet of small gauge wire through upper switch hole in runner (FIG. 29-1). Pull wire through channel at lower end of column. Leave enough wire at upper hole to attach to switch cable, and leave enough wire to pull at the lower end of runner. Tie upper end of wire fish to runner switch cable connector. Pull connector with cable through runner until connector exits lower end of column. Bolt switch mounting bracket to runner with (2) bolts and (2) lock washers (FIG. 29-1).

19. If RH runner is being replaced, do the CLOSING CYLINDER REPLACEMENT procedure, in this section, to reinstall closing cylinder.
20. Slide cylinder into runner. Re-install lower roll pin and lower pin (FIG. 30-1).

21. Clamp large round jaw vise grip pliers at mark on cylinder (FIG. 30-2). Line up with top of runner.
22. Stand the runner and cylinder upright. Twist and walk runner into column (FIG. 30-1).

23. Connect hydraulic line on top of cylinder (FIG. 31-2). Raise the cylinder slowly to top of column.
24. Holding the cylinder firmly, reinstall upper roll pin and upper pin (FIG. 32-1). Reconnect hydraulic line to cylinder.

25. Remove vise grip pliers from cylinder.

26. Place tandem assembly in replacement runner as shown in FIG. 31-2. Reinstall the anchor pin (FIG. 31-2) holding tandem assembly to runner. Bolt the anchor pin to runner (FIG. 31-2).
27. Reinstall or replace the upper and lower pads (FIGS. 33-1A & -31B) on the front and back of the runner (FIG. 33-1C). Use (2) hex head bolts and (2) lock washers to bolt each pad to runner.

**CAUTION**

Make sure electrical cable is not wrapped around hydraulic hose.

**NOTE:** If replacing LH runner, skip steps 28, 29, and 30.

28. Place spring guard, flexible cable, and hydraulic hose in channel at bottom of runner (FIG. 33-2).

29. Reconnect hydraulic hose to closing cylinder (FIG. 33-2).

**CAUTION**

Avoid making sharp bends in wiring.

**NOTE:** MAXON recommends using dielectric grease on all electrical connections.

30. Reconnect runner switch cable to flexible cable at bottom of runner (FIG. 33-2). Clamp the runner switch cable to runner with screw, clamp, and lock nut.
31. Use a forklift or equivalent lifting device to lift platform and line it up with attaching points on the LH runner (FIG. 34-1) and RH runner.

32. Reinstall bolts and pins (FIG. 34-2) holding platform and connector bar to RH runner (FIG. 34-2) and LH runner.
33. Use control box to lower (DOWN) platform on jack stands (FIG. 35-1) so inboard edge is 4” below ramp edge.

**NOTE:** Reinstall runner cover, with “ALIGN ARROWS” decal on LH runner.

34. Bolt runner cover to RH runner (FIG. 35-2). Then pin chain to RH runner (FIG. 35-2). If Liftgate is equipped with CS platform as shown in FIG. 35-2, pin railing to RH Runner. Repeat this step for LH runner.
HYDRAULIC SYSTEM DIAGRAMS
PUMP & MOTOR SOLENOID OPERATION

SOLENOID OPERATION

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>SOLENOID ENERGIZED</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>M</td>
<td>Motor runs; Oil flows from “B” Port, thru Flow Divider, thru “D” Valves to Lift Cylinders.</td>
</tr>
<tr>
<td>DOWN</td>
<td>GRAVITY - B &amp; D (FIG. 1 &amp; 3)</td>
<td>“B &amp; D” Valves open, allowing oil to return from Lift Cylinders to the Reservoir</td>
</tr>
<tr>
<td></td>
<td>POWER - M,B,C,&amp; D (FIG. 2 &amp; 3)</td>
<td>Motor runs; “B,C,&amp; D” Valves open, allowing oil to return from Lift Cylinders to Reservoir.</td>
</tr>
<tr>
<td>FOLD PLATFORM</td>
<td>M &amp; E</td>
<td>Motor runs; “E” Valve shifts, Oil flows from Port “A” to the Folding Cylinder.</td>
</tr>
<tr>
<td>UNFOLD PLATFORM</td>
<td>A</td>
<td>“A” Valve opens, allowing oil to return from the Folding Cylinder to Reservoir.</td>
</tr>
</tbody>
</table>

TABLE 36-1
HYDRAULIC SCHEMATIC, SINGLE PUMP GRAVITY DOWN

FIG. 37-1
HYDRAULIC SYSTEM DIAGRAMS
HYDRAULIC SCHEMATIC, DUAL PUMP GRAVITY DOWN

FIG. 38-1
HYDRAULIC SYSTEM DIAGRAMS
HYDRAULIC SCHEMATIC, DUAL PUMP POWER DOWN

FIG. 40-1
ELECTRICAL SYSTEM DIAGRAMS
SINGLE PUMP BOX, GRAVITY DOWN

(From receptacle on pump box wall)

FIG. 42-1
DUAL PUMP BOX, GRAVITY DOWN

FIG. 43-1

(From receptacle on pump box wall)
ELECTRICAL SYSTEM DIAGRAMS
WIRING SCHEMATIC, POWER DOWN

FIG. 44-1
SINGLE PUMP BOX, POWER DOWN

(From receptacle on pump box wall)

FIG. 45-1
ELECTRICAL SYSTEM DIAGRAMS
DUAL PUMP BOX, POWER DOWN

FIG. 46-1
WIRING HARNESS CONNECTOR IDENTIFICATION

“D” VALVE HARNESS (LH) (REF)

LH COLUMN
LEFT CYLINDER

R5

P5

PUMP BOX

PUMP BOX EXTENSION HARNESS (REF)

P1

CTRL

CONTROL BOX (REF)

P2

BMRA INTERCONNECT HARNESS (REF)

P6

FLEXIBLE CABLE (REF)

HARNESS WITH FUSES (RH) (REF)

RH COLUMN
RIGHT CYLINDER

FREEL MAN SWITCH & HARNESS (REF)

P8

P9

R8

R9

FIG. 47-1
TROUBLESHOOTING
PLATFORM WILL NOT RAISE, MOTOR WILL NOT RUN

**NOTE:** For dual pump system, check secondary pump and motor first.

1. Check for 12.6 volts dc input to motor solenoid by using voltmeter between terminal A (FIG. 48-1) and ground. If there is no power to the motor solenoid, make sure pump box master disconnect switch is **ON** and circuit breaker is set.

2. Find out if vehicle is equipped with optional battery box, truck charge line, tractor charge line, or trailer charge line. Check optional battery box cables and charge line cables for damage, dirty connections and loose connections. Replace damaged battery cables, clean dirty connections, and tighten loose connections.

3. Check if vehicle batteries and optional battery box batteries are fully charged. If required, fully charge batteries with a battery charger. Replace batteries that cannot be fully charged. If battery charger fully charges batteries, use vehicle manufacturer’s specifications to check the vehicle battery charging system. Do not operate Liftgate if vehicle charging system needs repair.

4. Use a 6" long, 10 gauge insulated wire as a jumper to connect pump motor solenoid terminal A and terminal C. Check for 12.6 volts dc output from motor solenoid by using voltmeter between terminal B (FIG. 48-1) and ground. If a low voltage or 0 volts is indicated on terminal B, replace motor solenoid. Also, check bus bar for damage, dirty connections, and loose connections. Replace damaged bus bar, clean dirty connections, and tighten loose connections. Use multimeter and applicable schematics in this manual to check switch controls and interconnecting wiring.
PLATFORM WILL NOT PICK UP RATED CAPACITY

1. Check for unequal cylinder operation (lagging cylinder first).

- **GRAVITY DOWN LIFTGATES**: Lower the platform to the ground. Disconnect the RETURN HOSE at the bottom of each column. Place a large container under cylinder to catch fluid. Set control box toggle switch to UP position to raise platform. Check if fluid is streaming from the fitting. A few drops of hydraulic fluid is okay; however, if fluid streams steadily from the fitting, replace piston seals.

- **POWER DOWN LIFTGATES**: Raise the platform to bed height. Disconnect both bottom POWER DOWN RETURN HOSES at the “T” connector between pump box and bottom of each cylinder. Place a large container to catch fluid from both hoses. Set control box toggle switch to UP position to raise platform. Check if fluid is streaming from the hoses. A few drops of hydraulic fluid is okay; however, if fluid streams steadily from a hose, replace piston seals in the cylinder connected to that hose.

2. Check vehicle charge line cables for damage, dirty connections and loose connections. If Liftgate battery box is installed, check for damaged battery cables, dirty cable connections and loose cable connections in battery box. Replace damaged cables, clean dirty connections and tighten loose connections.

3. Check for bent parts on the Liftgate that could interfere with normal operation.

**NOTE:** For dual pump system, check secondary pump and motor first.

4. Verify that relief valve pressure settings are correct. Refer to relief valve pressure setting procedure. If pressure settings can’t be corrected or if pump runs hot and excessively noisy, replace pump.

**NOTE:** Do the BLEEDING HYDRAULIC SYSTEM procedure in this manual with the following step.

5. Remove pump/motor assembly from reservoir (FIG. 47-1). Check if pump filter is clogged. Clean clogged filter and flush contaminated fluid from reservoir. Replace spin-on filter in pump box. Reinstall pump/motor assembly.

**TYPICAL PUMP/MOTOR REMOVED TO CHECK AND CLEAN FILTER (POWER DOWN VERSION SHOWN)**

FIG. 49-1
TROUBLESHOOTING
PLATFORM RAISES HALFWAY & STOPS

1. Check the hydraulic fluid level in the reservoir.

   - **GRAVITY DOWN LIFTGATES**: Lower the platform to the ground. Clean dirt and fluid from top of reservoir in pump box. Fill the reservoir to correct level indicated on sight glass (pump box).

   - **POWER DOWN LIFTGATES**: Raise the platform to bed height. Fill the reservoir to correct level indicated on sight glass (pump box).

2. Find out if vehicle is equipped with optional battery box, truck charge line, tractor charge line, or trailer charge line. Check optional battery box cables and charge line cables for damage, dirty connections and loose connections. Replace damaged battery cables, clean dirty connections, and tighten loose connections.

3. Check if vehicle batteries and optional battery box batteries are fully charged. If required, fully charge batteries with a battery charger. Replace batteries that cannot fully charge. If battery charger fully charges batteries, use vehicle manufacturer’s specifications to check the vehicle battery charging system. Do not operate Liftgate if vehicle charging system needs repair.

4. Check pump motor solenoid (FIG. 50-1) and bus bar connections in pump box. Make sure bus bar connections are clean and tight. Use a 6" long, 10 gauge insulated wire as a jumper between motor solenoid terminals “C” and “D” to activate solenoid. Replace solenoid if it fails to activate.

**NOTE:** For dual pump system, check secondary pump and motor first.
5. Check for bent parts on the Liftgate that could interfere with normal operation.

NOTE: Do the BLEEDING HYDRAULIC SYSTEM procedure in this manual with the following step.

6. Remove assembled pump and motor from reservoir (FIG. 51-1). Check if pump filter is clogged. Clean clogged filter and flush contaminated fluid from reservoir. Replace spin-on filter in pump box.

7. If pump runs hot and extremely noisy, replace it.

NOTE: Do the BLEEDING HYDRAULIC SYSTEM procedure in this manual with the following step.

8. Remove pressure compensation valve (FIG. 51-2) located at the top of each column. Check if the pressure compensation valves are contaminated. Disassemble, try to move plunger with small screwdriver, and then clean each valve as shown in FIG. 51-2. Reinstall or replace each valve if necessary.
TROUBLESHOOTING
PLATFORM RAISES AND LOWERS UNEVENLY

NOTE: Do the BLEEDING HYDRAULIC SYSTEM procedure in this manual with the following step.

1. Reverse the two 3/8" high pressure hose connections on output side of flow divider as shown in FIG. 52-1. Raise the platform. If the uneven platform position is the opposite of original symptom, replace flow divider.

2. Check each Lifting hydraulic cylinder.

   ■ GRAVITY DOWN LIFTGATES: Lower the platform to the ground. Disconnect the RETURN HOSE from the bottom of each cylinder. Place a large container under each cylinder to catch fluid. Raise the platform. Check if fluid is streaming from the fitting. A few drops of hydraulic fluid is okay; however, if fluid streams steadily from the fitting, replace piston seals.

   ■ POWER DOWN LIFTGATES: Raise the platform to bed height. Disconnect both bottom POWER DOWN RETURN HOSES at the “T” connector between pump box and bottom of each cylinder. Place a large container to catch fluid from both hoses. Raise the platform. Check if fluid is streaming from the hoses. A few drops of hydraulic fluid is okay; however, if fluid streams steadily from a hose, replace piston seals in the cylinder connected to that hose.

NOTE: Do the BLEEDING HYDRAULIC SYSTEM procedure in this manual with the following step.

3. Lower the platform to the ground and remove the pressure compensation valve (FIG. 52-2) located at the top of each column. Check if pressure compensation valves are contaminated. Disassemble, try to move plunger with small screwdriver, and then clean each valve if required (FIG. 52-2). Reinstall or replace each valve if necessary.

4. Check for bent parts on the Liftgate that could interfere with normal operation.
PLATFORM WILL NOT FOLD

1. Check the hydraulic fluid level in the reservoir.

- **GRAVITY DOWN LIFTGATES**: Lower the platform to the ground. Clean dirt and fluid from top of reservoir in pump box. Fill the reservoir to correct level indicated on sight glass (pump box).

- **POWER DOWN LIFTGATES**: Raise the platform to bed height. Fill the reservoir to correct level indicated on sight glass (pump box).

**NOTE**: For dual pump system, check secondary pump and motor first.

2. Check pump motor solenoid (FIG. 53-1) in pump box and bus bar connections in pump box. Make sure bus bar connections are clean and tight. Use a 6" long, 10 guage insulated wire as a jumper between motor solenoid terminals “C” and “A” to activate solenoid. Replace solenoid if it fails to activate.

3. Verify that relief valve pressure settings are correct. Refer to **RELIEF VALVE PRESSURE SETTING** procedure in this manual. Also, make sure flow control valve (on pump) is open. Perform platform opening & closing speed adjustment procedure. If pressure settings can’t be corrected, if platform opening and closing speed can’t be adjusted or if pump runs hot and excessively noisy, replace pump.
TROUBLESHOOTING
PLATFORM WILL NOT FOLD - Continued

⚠️ WARNING
Make sure Liftgate platform is open and resting on the ground before performing the following step.

4. Check the “E” valve (FIG. 54-1) stem by removing the coil assembly (ITEM 1, FIG. 54-2). Unscrew the valve stem (ITEM 2, FIG. 54-2) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8”), clean it. If the plunger does not move freely after cleaning, replace the valve stem.

5. Check for bent parts on the Liftgate that could interfere with normal operation.

6. Check if hydraulic fluid is streaming from breather plug.
WARNING

Before doing the following procedure, set up guarded area around the platform to keep people from entering.

NOTE: For dual pump system, check secondary pump and motor first.

1. Flow of hydraulic fluid may be restricted. Turn opener valve adjustment (FIG. 55-1) counter-clockwise to open the valve. If necessary, do the PUMP ASSEMBLY PRESSURE SETTING procedure in this section.

2. Check if the “A” valve (FIG. 55-1) is energized. Connect voltmeter to Terminal-1 and Terminal-2 as shown in FIG. 55-1. Activate the UNFOLD toggle switch and FOLD/UNFOLD toggle switches. Correct indication is +11 to +12.6 volts dc. If indication is incorrect, check control switch and wiring to “A” valve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required. If the voltmeter indicates +11 to +12.6 volts dc and “A” valve does not operate, replace “A” valve.

3. Check the “E” valve (FIG. 55-1) stem by removing the coil assembly (ITEM 1, FIG. 55-2). With platform supported, unscrew the valve stem (ITEM 2, FIG. 55-2) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8”), clean it. If it does not move freely after cleaning, replace the valve stem.
4. Check for damage and corrosion at platform pivot points. Steam clean corrosion from pivot points. Replace bushings at pivot points if required.

5. Check for bent and broken parts on the Liftgate that could interfere with normal operation. Look at columns, runners, tandem rollers and platform (bent pins).

6. Check for weak platform torsion spring. Replace if necessary.
PUMP ASSEMBLY PRESSURE SETTING

The pump pressure is set at the factory; however, if adjustment is needed, use the following procedure.

1. Open the platform. Turn closer valve adjustment (FIG. 57-1) all the way clockwise. Disconnect hose from folding port bulkhead fitting and connect 0-3000 PSI gauge to hose (FIG. 57-1).

2. Remove plug (covering pump pressure relief valve) from pump block (FIG. 57-2). Set Liftgate control box to FOLD. Turn the pump pressure relief valve (FIG. 57-2) to obtain proper pump pressure setting of 2750 PSI. Re-install plug.

3. If this is a dual pump system, do the following. Once pump 1 is set, select pump 2 with pump select switch (FIG. 57-2). Repeat Steps 1 and 2 for pump 2.

4. Disconnect 0-3000 PSI gauge from hose (FIG. 57-1) and reconnect hose to folding port bulkhead fitting.

5. Reset the closer valve adjustment (FIG. 57-2) to obtain platform closing speed cycle of 4-6 seconds.
Attach a 0-3000 PSI gauge, with thread adapter and swivel adapter, to pump pressure port as shown in FIG. 58-1 and FIG. 58-2. Use UP/DOWN toggle switch in UP position to run pump motor. Turn the relief valve to 2400 PSI.

NOTE: The relief valve pressure is set at the factory; however, if adjustment is needed, use the following procedure to set the pressure. At first, adjust pressure to 2100 PSI. Then slowly adjust pressure up to correct reading.
TROUBLESHOOTING - GRAVITY DOWN
PLATFORM WILL NOT RAISE, MOTOR RUNS

1. Check the hydraulic fluid level in the reservoir.

   - GRAVITY DOWN LIFTGATES: Lower the platform to the ground. Clean dirt and fluid from top of reservoir in pump box. Fill the reservoir to correct level indicated on sight glass (pump box).

   - POWER DOWN LIFTGATES: Raise the platform to bed height. Fill the reservoir to correct level indicated on sight glass (pump box).

2. Check for bent parts on the Liftgate that could interfere with normal operation. Look at columns, runners, and tandem rollers.

   **WARNING**
   Make sure Liftgate platform is open and resting on the ground before performing the following step.

   **NOTE:** For dual pump system, check secondary pump and motor first.

3. Check the high pressure relief valve (FIG. 59-1) for contamination or defective operation. Lower the platform to the ground. Remove the relief valve. Clean or replace valve as required.

4. Adjust relief valve operating pressure according to RELIEF VALVE PRESSURE SETTING procedure.
TROUBLESHOOTING - GRAVITY DOWN
PLATFORM WILL NOT LOWER

**NOTE:** For dual pump system, check secondary pump and motor first.

**NOTE:** Numbers for the electrical terminals shown in the illustration are not stamped on valve coil. Numbers shown are for reference only.

1. Try lowering platform (activate **DOWN** toggle switch). Only the motor solenoid and "B" valve (both located in the pump box) (**FIG. 60-1**) and "D" valve (on top of LH and RH columns) (**FIG. 60-2**) should be energized while lowering platform. Connect voltmeter to Terminal-1 and Terminal-2 on each valve shown in **FIG. 60-1**. Correct indication for "B" and "D" valves is +11 to +12.6 volts dc. If indications are incorrect, check control switch and wiring to that valve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required.

**WARNING**

Make sure Liftgate platform is open and resting on the ground before performing the following step.

2. Check valve stems (**FIG. 60-3**) by removing from the coil assembly (**ITEM 1, FIG. 60-3**). With platform supported, unscrew the valve stem (**ITEM 2, FIG. 60-3**) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8") clean it. If the plunger does not move freely after cleaning, replace the valve stem.
PLATFORM LOWERS SLOWLY

NOTE: For dual pump system, check secondary pump and motor first.

NOTE: Numbers for the electrical terminals shown in the illustration are not stamped on valve coil. Numbers shown are for reference only.

1. Check if the “B” valve coil (FIG. 61-1) (located in the pump box) is getting power. Connect voltmeter to Terminal-1 and Terminal-2 shown in FIG. 61-1. Activate the DOWN toggle switch. Correct indication is +11 to +12.6 volts dc. If the voltmeter does not indicate +11 to +12.6 volts dc, check control switch and wiring to “B” balve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required. If the voltmeter indicates +11 to +12.6 volts dc and valve still does not operate, replace the valve.

2. Check the valve stem (FIG. 61-2) by removing the coil assembly (ITEM 1, FIG. 61-2). With platform supported, unscrew the valve stem (ITEM 2, FIG. 61-2) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8"), clean it. If plunger does not move freely after cleaning, replace the valve stem.

3. Check the pressure compensation valves (see PLATFORM RAISES AND LOWERS UNEVEN).

4. Check for bent and broken parts on the Liftgate that could interfere with normal operation.

WARNING

Make sure Liftgate platform is open and resting on the ground before performing the following step.
TROUBLESHOOTING - POWER DOWN
PLATFORM WILL NOT RAISE, MOTOR RUNS

1. Check the hydraulic fluid level in the reservoir.
   - GRAVITY DOWN LIFTGATES: Lower the platform to the ground. Clean dirt and fluid from top of reservoir in pump box. Fill the reservoir to correct level indicated on sight glass (pump box).
   - POWER DOWN LIFTGATES: Raise the platform to bed height. Fill the reservoir to correct level indicated on sight glass (pump box).

   **NOTE:** For dual pump system, check secondary pump and motor first.

2. Try raising platform (activate UP toggle switch). Only the motor solenoid (FIG. 62-1) should be energized while raising platform. The “A”, “B”, “C” and “E” valves (FIG. 62-1) (located in the pump box) should not be energized. Connect voltmeter to Terminal-1 and Terminal-2 on each valve shown in FIG. 62-1. Correct indication is 0 volts dc. If voltmeter indicates +11 to +12.6 volts dc for any of the valves, check control switch and wiring to the valve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required.

   **WARNING**

Make sure Liftgate platform is open and resting on the ground before performing the following step.

3. The “E” valve solenoid may be stuck in the “open” position. Check solenoid valve stem (FIG. 62-2) by removing the coil assembly (ITEM 1, FIG. 62-2). With platform supported, unscrew the valve stem (ITEM 2, FIG. 62-2) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8”), clean it. If it does not move freely after cleaning, replace the valve stem.

4. Check for bent and broken parts on the Liftgate that could interfere with normal operation.
NOTE: For dual pump system, check secondary pump and motor first.

NOTE: Numbers for the electrical terminals shown in the illustration are not stamped on valve coil. Numbers shown are for reference only.

1. Try lowering platform (activate DOWN toggle switch). Only the motor solenoid, “B” valve and “C” valve (located in the pump box) (FIG. 63-1) and “D” valve (on top of LH and RH columns) (FIG. 63-2) should be energized while lowering platform. The “A” and “E” valves should not be energized. Connect voltmeter to Terminal-1 and Terminal-2 on each valve shown in FIG. 63-1. Correct indication for “A” and “E” valves is 0 volts dc. For “B”, “C” and “D” valves correct indication is +11 to +12.6 volts dc. If any indications are incorrect, check control switch and wiring to that valve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required.

WARNING
Make sure Liftgate platform is open and resting on the ground before performing the following step.

2. Check valve stems (FIG. 63-3) by removing from the coil assembly (ITEM 1, FIG. 63-3). With platform supported, unscrew the valve stem (ITEM 2, FIG. 63-3) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8") clean it. If the plunger does not move freely after cleaning, replace the valve stem.
TROUBLESHOOTING - POWER DOWN
PLATFORM LOWERS SLOWLY

NOTE: For dual pump system, check secondary pump and motor first.

NOTE: Numbers for the electrical terminals shown in the illustration are not stamped on valve coil. Numbers shown are for reference only.

1. Try lowering platform (activate DOWN toggle switch). Make sure motor solenoid (located in the pump box) (FIG. 64-1) is energized and “E” valve is not energized while lowering platform. Connect voltmeter to Terminal-1 and Terminal-2 on “E” valve shown in FIG. 64-1. The correct indication on voltmeter is 0 volts dc when “E” valve is not energized. If the voltmeter indicates +11 to +12.6 volts dc, check control switch and wiring to that valve (refer to ELECTRICAL SYSTEM DIAGRAMS section). Replace faulty wiring or control switch as required.

WARNING
Make sure Liftgate platform is open and resting on the ground before performing the following step.

2. Check solenoid valve stems (FIG. 64-2) by removing the coil assembly (ITEM 1, FIG. 64-2). With platform supported, unscrew the valve stem (ITEM 2, FIG. 64-2) from the pump. Push on the plunger, located inside the valve stem, with a small screwdriver. If the plunger does not move freely (approximately 1/8”), clean it. If plunger does not move freely after cleaning, replace the valve stem.

4. Check for bent and broken parts on the Liftgate that could interfere with normal operation.

5. Check the pressure compensation valves (see PLATFORM RAISES AND LOWERS UNEVEN).