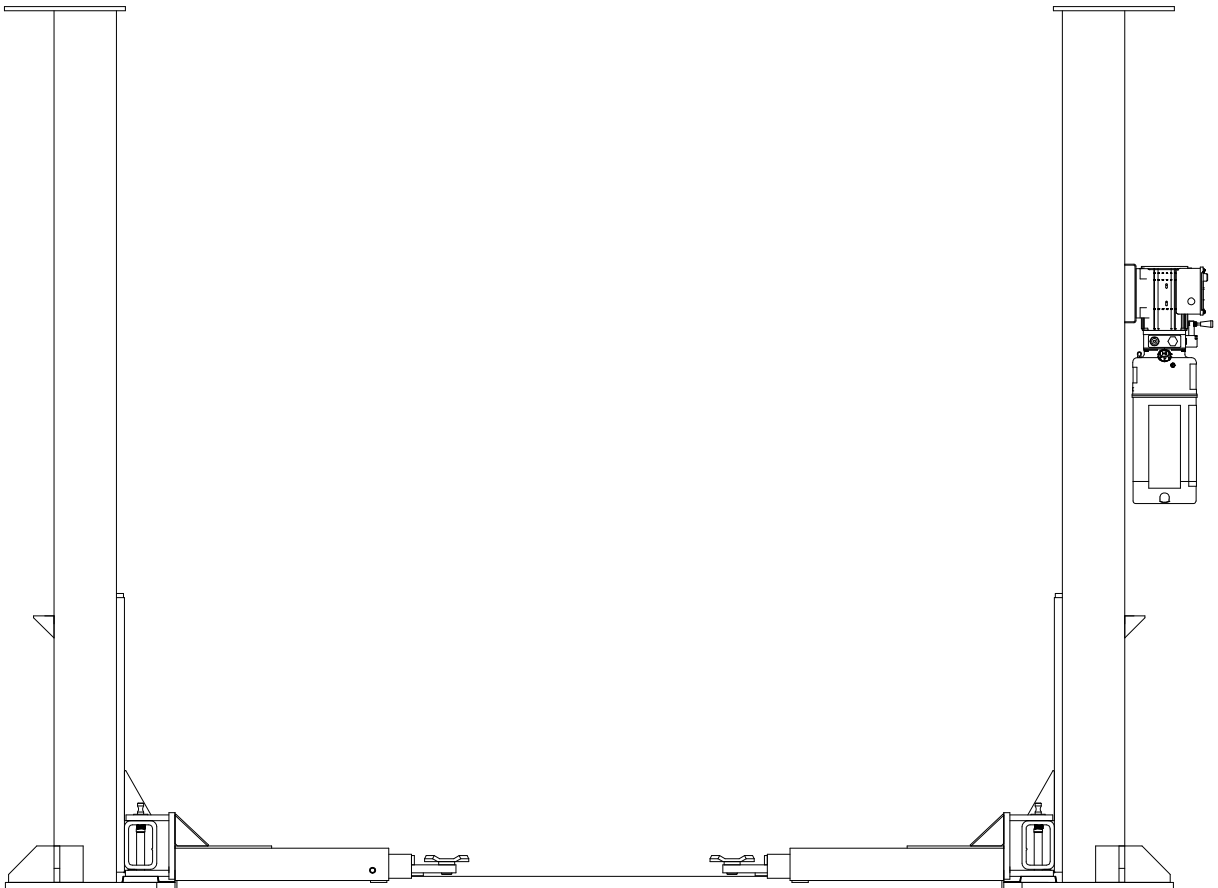


# TWO POST LIFT INSTALLATION AND OWNERS MANUAL

**9000B**

**Capacity 9,000 lbs.**

**I MAN 991022  
Revision C  
March 2003**



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## **Important Information:**

1. **Read this manual thoroughly** before installing, operating, or maintaining this lift.
2. This lift is designed for indoor use only, and should not be installed in a pit or depression.
3. The floor on which the lift is to be installed must be 4-1/4" inch minimum thickness concrete, with a minimum compressive strength of 3000 psi, and reinforced with steel bar.
4. The lift has specific electrical requirements as described in the Installation Instruction section of the manual.
5. The lift has a minimum ceiling height requirement as described in the Installation Instructions section of the manual.
6. **Failure by the owner to provide the recommended shelter, mounting surface, electrical supply, and ceiling height could result in unsatisfactory lift performance, property damage, or personal injury.**

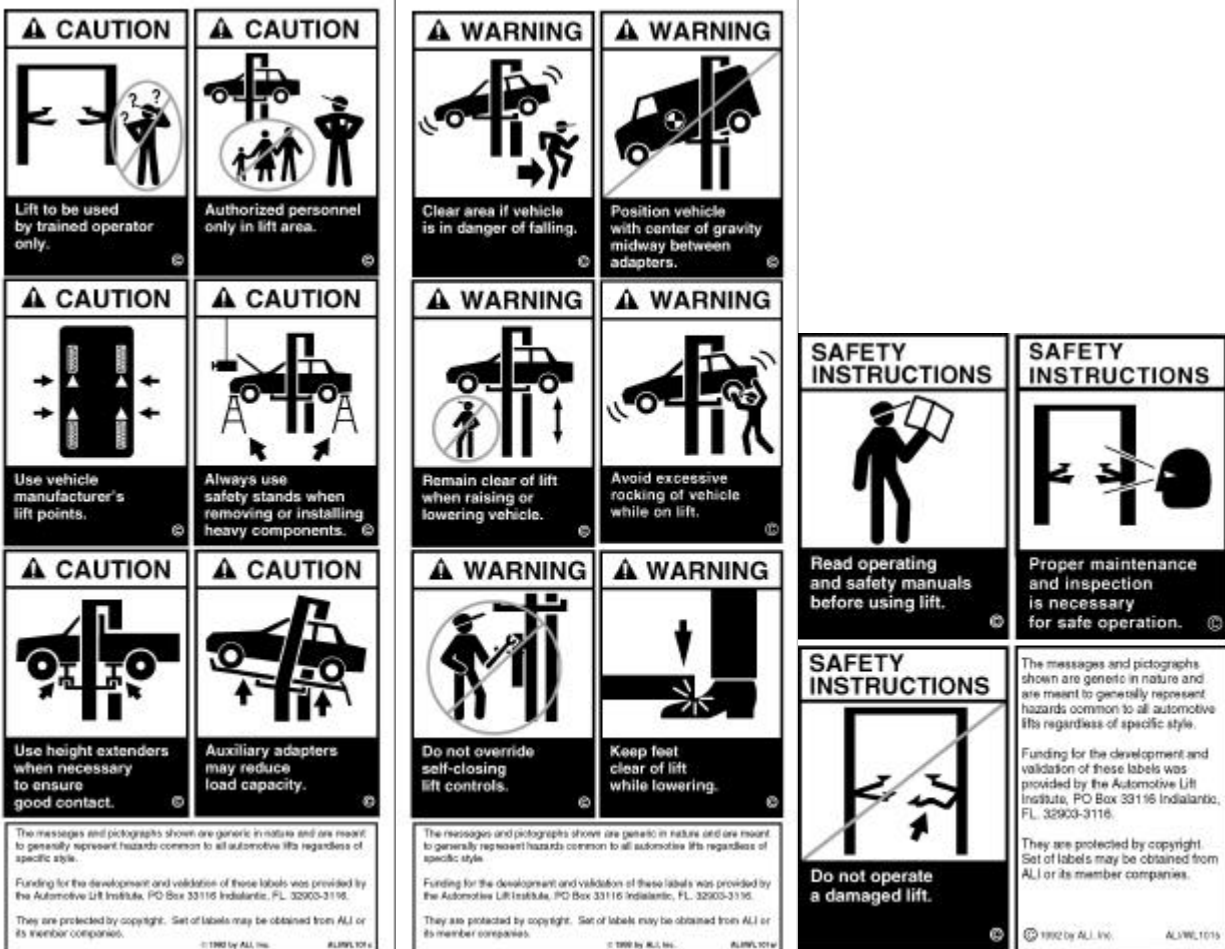
# Section 1

## Owner's Manual

### Safety Instructions:

1. **Do not raise a vehicle on the lift until the installation is completed as described in this manual.**
2. **Anyone who will be in the vicinity of the lift** when it is in use should read and refer to the following publications supplied with this lift:
  - “INSTALLATION AND OWNERS MANUAL”, I MAN 991022
  - “LIFTING IT RIGHT”, ALI SM93-1.
  - “AUTOMOTIVE LIFT SAFETY TIPS”, ALI-ST90.
  - “VEHICLE LIFTING POINTS FOR FRAME ENGAGING LIFTS”, ALI/LP-GUIDE.
  - “SAFETY REQUIREMENTS FOR OPERATION, INSPECTION, AND MAINTENANCE”, ANSI/ALI ALOIM-1994.
3. **Technicians** should be trained to use and care for the lift by familiarizing themselves with the publications listed above. The lift should never be operated by an untrained person.
4. **Always position the arms and adapters properly out of the way** before pulling the vehicle into, or out of the bay. Failure to do so could damage the vehicle and/or the lift.
5. **Do not overload the lift.** The capacity of the lift is shown on cover of this document.
6. **Positioning the vehicle** is very important. Only trained technicians should position the vehicle on the lift. Never allow anyone to stand in the path of the vehicle as it is being positioned.
7. **Position the arms to the vehicle manufacturer's recommended pickup points.** Raise the lift until contact is made with the vehicle. Make sure that the arms have properly engaged the vehicle before raising the lift to a working height.
8. **Keep everyone clear of the lift when the lift is moving, the locking mechanism is disengaged, or the vehicle is in danger of falling.**
9. **Unauthorized personnel** should never be in the shop area when the lift is in use.
10. **Inspect the lift daily.** The lift should never be operated if it has damaged components, or is malfunctioning. Only qualified technicians should service the lift. Replace damaged components with manufacturer's parts, or equivalent.
11. **Keep the area around the lift clear** of obstacles.
12. **Never** override the self-returning lift controls.
13. **Use safety stands** when removing or installing heavy vehicle components.
14. **Avoid excessive rocking** of the vehicle when it is on the lift.
15. **To reduce the risk of personal injury**, keep hair, loose clothing, fingers, and all body parts away from moving parts.

16. **To reduce the risk of electric shock**, do not use the lift when wet, do not expose the lift to rain.
17. **To reduce the risk of fire**, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
18. **Use the lift only as described in this manual**, use only manufacturer's recommended attachments.
19. Unusual vehicles, such as limousines, RV's, and long wheelbase vehicles, may not be suitable for lifting on this equipment. If necessary, consult with the manufacturer or the manufacturer's representative.
20. The troubleshooting and maintenance procedures described in this manual can be done by the lift's owner/employer. Any other procedure should only be performed by trained lift service personnel. These restricted procedures include, but are not limited to, the following: cylinder replacement, carriage and safety latch replacement, and leg replacement.
21. **Anyone who will be in the vicinity of the lift** when it is in use should familiarize themselves with following Caution, Warning, and Safety related decals supplied with this lift, and replace them if they are illegible or missing:



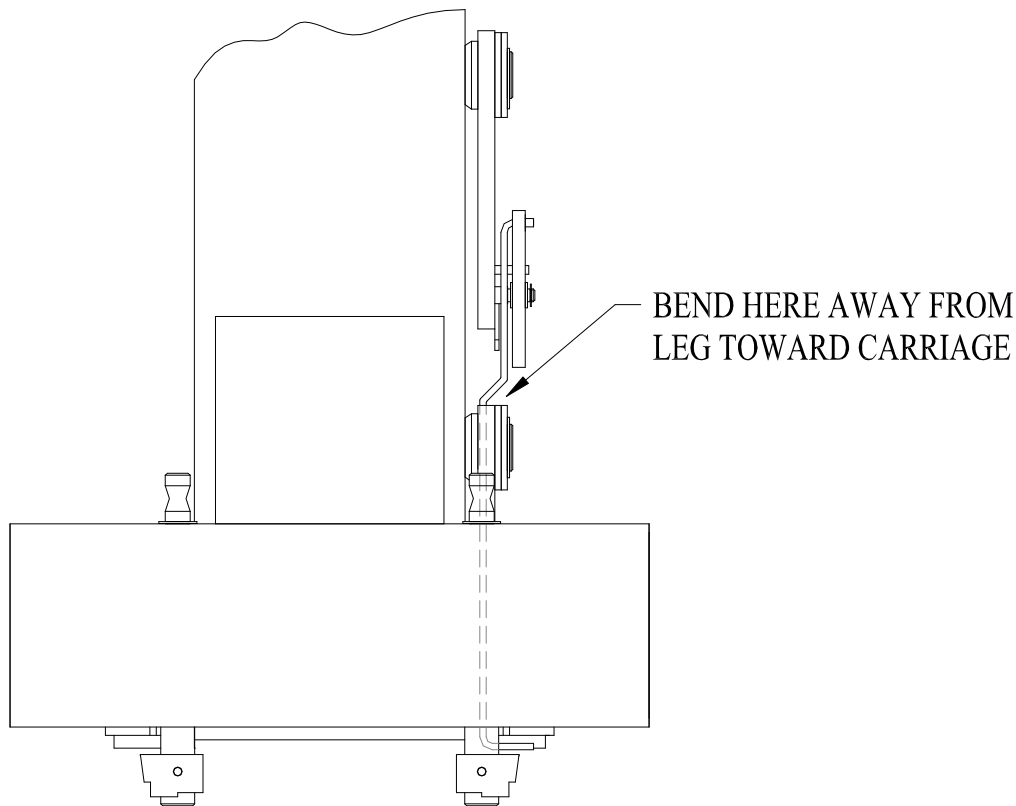
## **Monthly Maintenance:**

1. Lubricate the four inside corners of the legs with heavy duty bearing grease.
2. With lift lowered check the hydraulic fluid level. If necessary add oil as described in the Installation Instruction section of this manual
3. Check carriage latch synching: Latches should click at the same time. If necessary adjust cables as described in the Installation Instruction section of this manual.
4. Check tightness of all bolts.
5. Check anchor bolt tightness. If the anchor bolts are loose, they should be re-torqued to 90ft/lbs.
  - Check the nuts for tightness every week for the first month, and every month afterwards.
6. Replace worn or broken parts only with lift manufacturer's parts, or their equivalent.
7. Lubricate exposed chain surfaces.

## **Troubleshooting:**

8. The power unit does not run:
  - Check electrical supply breaker, or fuse.
  - Check micro-switch and connections in motor control box.
  - Check voltage to the motor.
9. The power unit runs but does not raise the lift:
  - Check the oil level.
  - Check that the lowering valve is not stuck open.
  - Check the connections and components on the suction side of the pump.
10. The power unit raises the lift empty, but will not lift a vehicle.
  - Make sure the vehicle is not above the rated capacity of the lift.
  - Make sure the vehicle is positioned properly.
  - Clean the lowering valve by running the power unit for 30 seconds while holding the lowering valve open.
  - Check the motor voltage.
11. Lift drifts down.
  - Check for external leaks.
  - Clean the lowering valve by running the power unit for 30 seconds while holding the lowering valve open. Repeat this procedure three times.
  - Clean the check valve seat.
12. Slow Lifting and/or oil foaming up.
  - Check that oil used meets the specification in the Installation Instruction section of this manual.
  - Tighten all suction line fittings.

13. Anchors continually work loose
  - If holes were drilled too large relocate the lift per the Installation Instruction section of this manual.
  - Floor is not sufficient to provide the necessary resistance, remove an area of concrete and repour as described in the Installation Instruction section of this manual.
14. Lift does not raise and lower smoothly.
  - Reposition vehicle for a more even weight distribution.
  - Check the four inside corners of the two legs for roughness. Any rust or burrs must be removed with 120 grit emery cloth.
  - Lubricate the leg corners with heavy duty bearing grease.
  - Use a level to check the legs for vertical alignment both side to side and front to back. Shim the legs as necessary per the Installation Instruction section of this manual.
  - Check the oil level.
  - Make sure there is no air in the hydraulic lines, bleed system as described in the Installation Instruction section of this manual.
15. The lift will only lower approximately, 1" then stops.
  - Check that the safety latch pull rods are disengaged.
    - \* If after disengagement of the pull rods, one of them moves back up as the lift is lowered, the pull rod is out of adjustment and is rubbing on the leg. Adjust the rod to clear the leg. Push down on the first bend of the rod just inside the leg. Bend the rod slightly to allow it to move freely between the leg and the carriage.



**Figure 1**

16. At full rise the latch will not disengage and the lift cannot be lowered.
- If the equalization cables are out of adjustment the carriages are out of sync, and when the lift is at full rise one of the safety latches may not have the clearance to disengage and allow the lift to lower.
    - \* To lower the lift
      - ⇒ Raise the lift to full height.
      - ⇒ **Push In** both safety latch pull rods to **engage** latches.
      - ⇒ Use a hydraulic jack and a length of pipe to raise the carriage with the lock which is sticking enough to disengage the safety latch. Pull the latch rod on that carriage only.
      - ⇒ Remove the jack and pipe.
      - ⇒ Pull the latch rod on the other carriage to disengage the latch.
      - ⇒ Lower the lift and remove the vehicle.
      - ⇒ Readjust the cables as described in the Installation Instruction section of this manual.
17. Power Unit will not stop running
- Switch is damaged, **turn off power to the lift** and replace switch.

# Section 2

## Installation Instructions

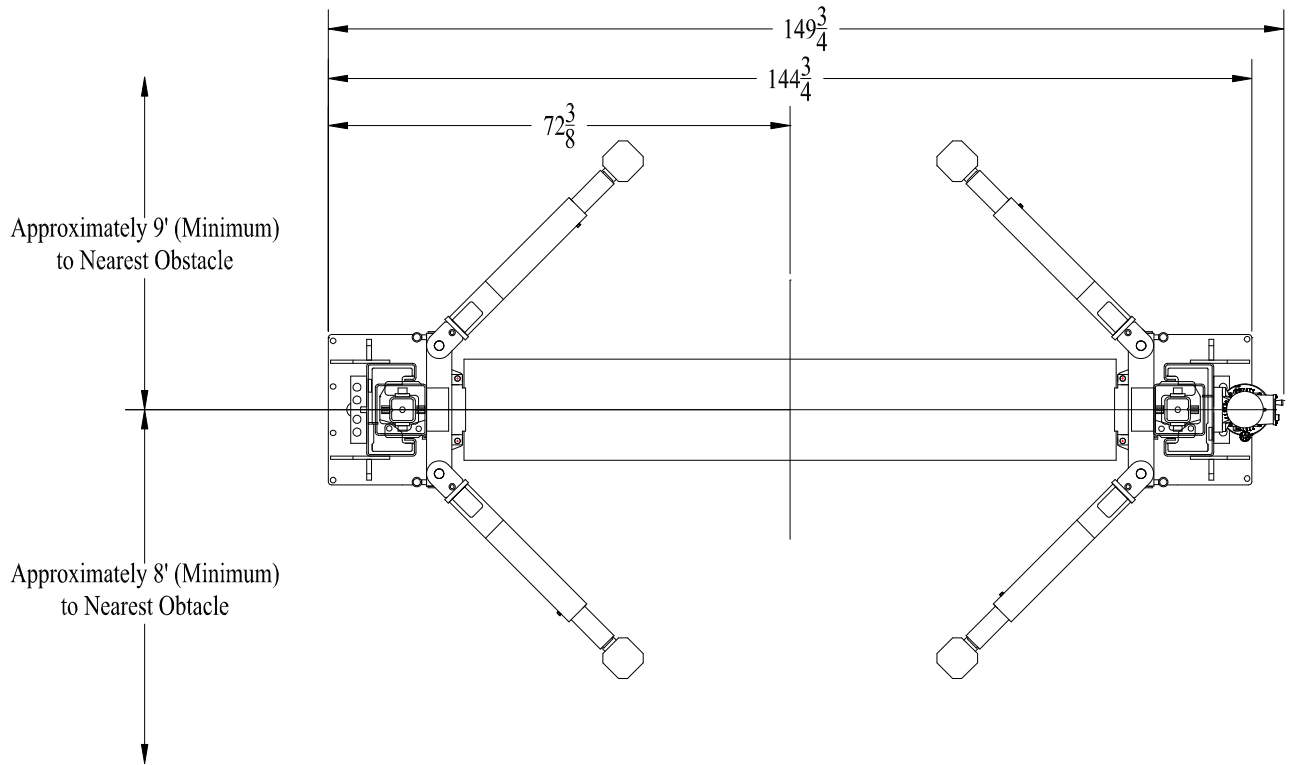
### **Tools required for installation:**

- Concrete hammer drill with 3/4" bit
- 11/16" open end wrench
- 3/4" open end wrench
- Torque wrench
- 15/16" deep socket or wrench
- 1-1/8" socket
- 13/16" open end wrench
- Level (18" minimum length)
- Vise grips
- Tape measure
- Funnel
- Hoist or Forklift (optional)
- Two 12' step ladders
- 1/4" drive ratchet with 5/16" socket

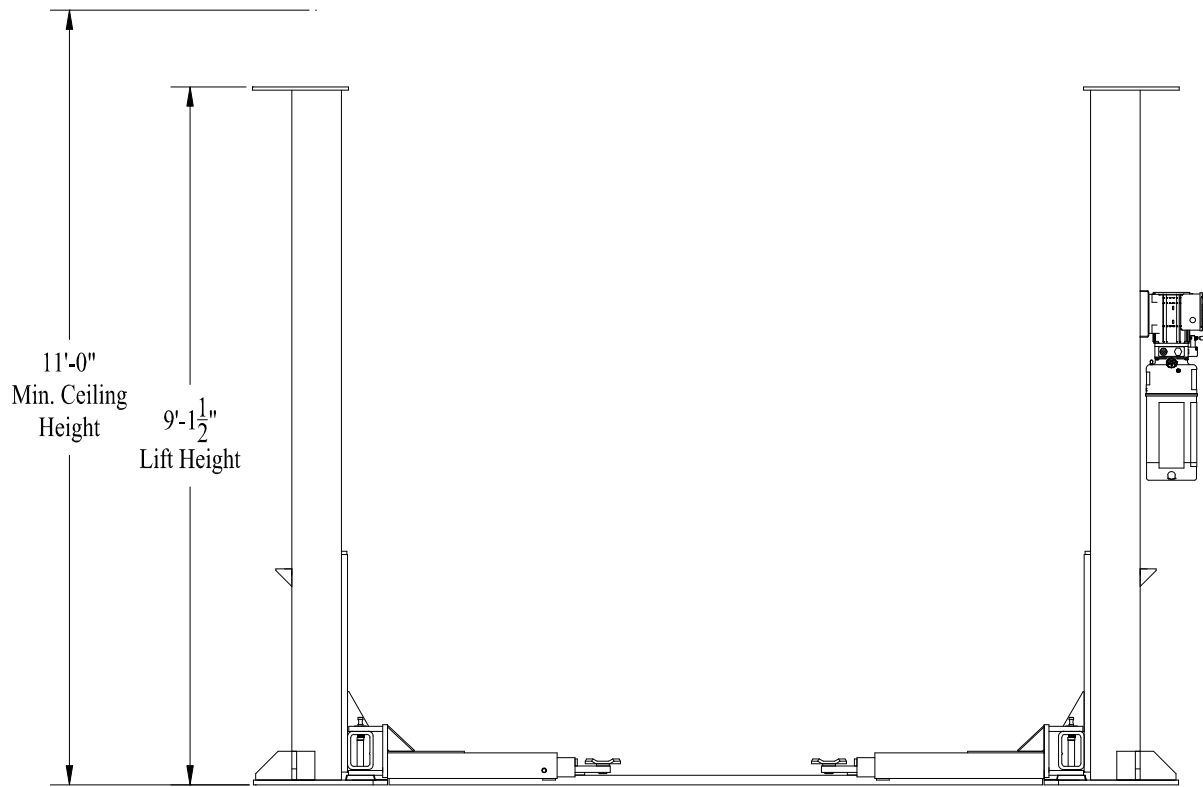
### **Procedure:**

1. **Read this manual thoroughly** before installing, operating, or maintaining this lift.
2. **Site Evaluation and Lift Location:**
  - A. Always use an architect's plan when provided. Before unpacking the lift entirely, determine if the site is adequate for the lift model being installed see figures 2 & 3 for typical bay layout and ceiling height requirements.



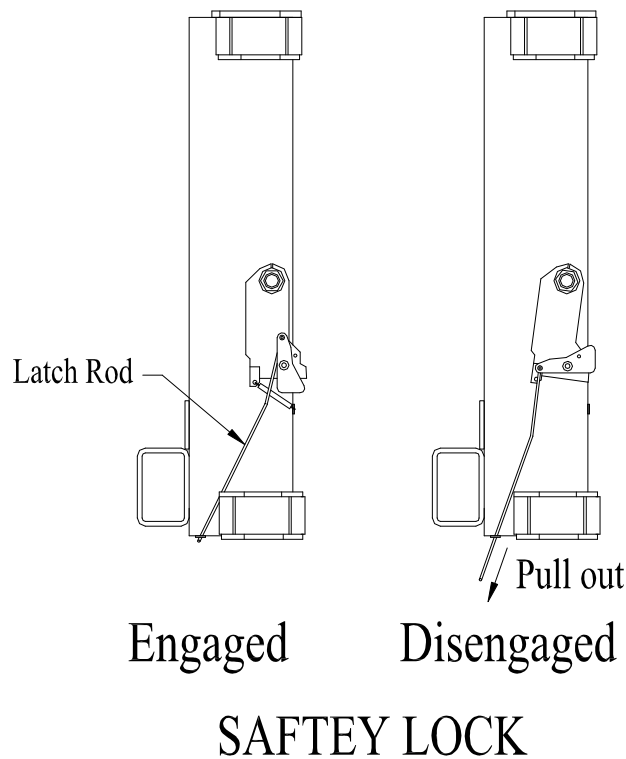


**Figure 2**



**Figure 3**

- B. Note the mainside leg has a mounting bracket on its back for the power unit and two holes in its back near the top. The mainside leg is typically located on the passenger side of the lift.
  - C. Layout and mark the floor for the leg placement locations.
3. **Unpack the lift. Save all packing hardware, as these components are necessary to complete the installation.**
- A. Do not stand legs up, instead lay the legs flat on their backs on the floor.
4. **Carriage Placement.** Disengage the latch by pulling out the latch rod at bottom of one carriage, figure 4. Slide the carriage to the leg's baseplate. Engage the latch by pushing the latch rod in. Slide the carriage up until the first "click" is heard. Repeat the process for the other carriage.

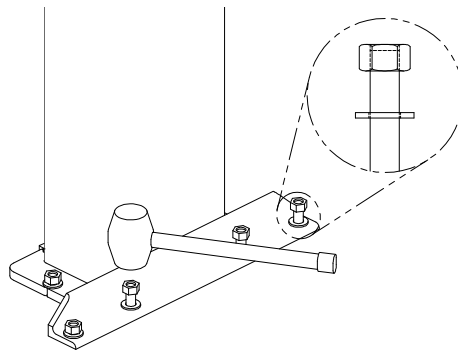


**Figure 4**

5. **Leg positioning and anchoring**

- A. **Raise the Mainside leg only** and position it and the floor plate where they are to be secured. Be certain that they are square with the desired mounting location.
- B. The anchor bolts must be installed at least 5-11/16" from any edge or seam in the concrete

- C. The concrete must be at least 4-1/4" thick with a compression strength of 3,000 psi.
- D. Using the Mainside Leg as a template, drill the two anchor bolt holes that match up with the floor plate
- \* Use a hammer drill with a Carbide tip, 3/4" diameter, solid drill bit. The bit tip diameter should be to ANSI Standard B95.12-1977. (.775" to .787").
  - \* Keep the drill perpendicular to the floor while drilling.
  - \* Let the drill do the work. Do not apply excessive pressure.
  - \* Lift the drill up and down to remove dust and reduce binding.
  - \* Holes should be 4-1/4" deep.
  - \* Clean the dust from the hole.
- E. Assemble the washers and nuts onto the anchor bolts. Thread the nuts onto the anchor bolts where the tops of the nuts are just above the top of the bolts, figure 5. Using a hammer, *carefully* tap the anchor bolts into the concrete until the washer rests against the baseplate. Do not damage the nuts or threads. **Do not tighten the nuts.**



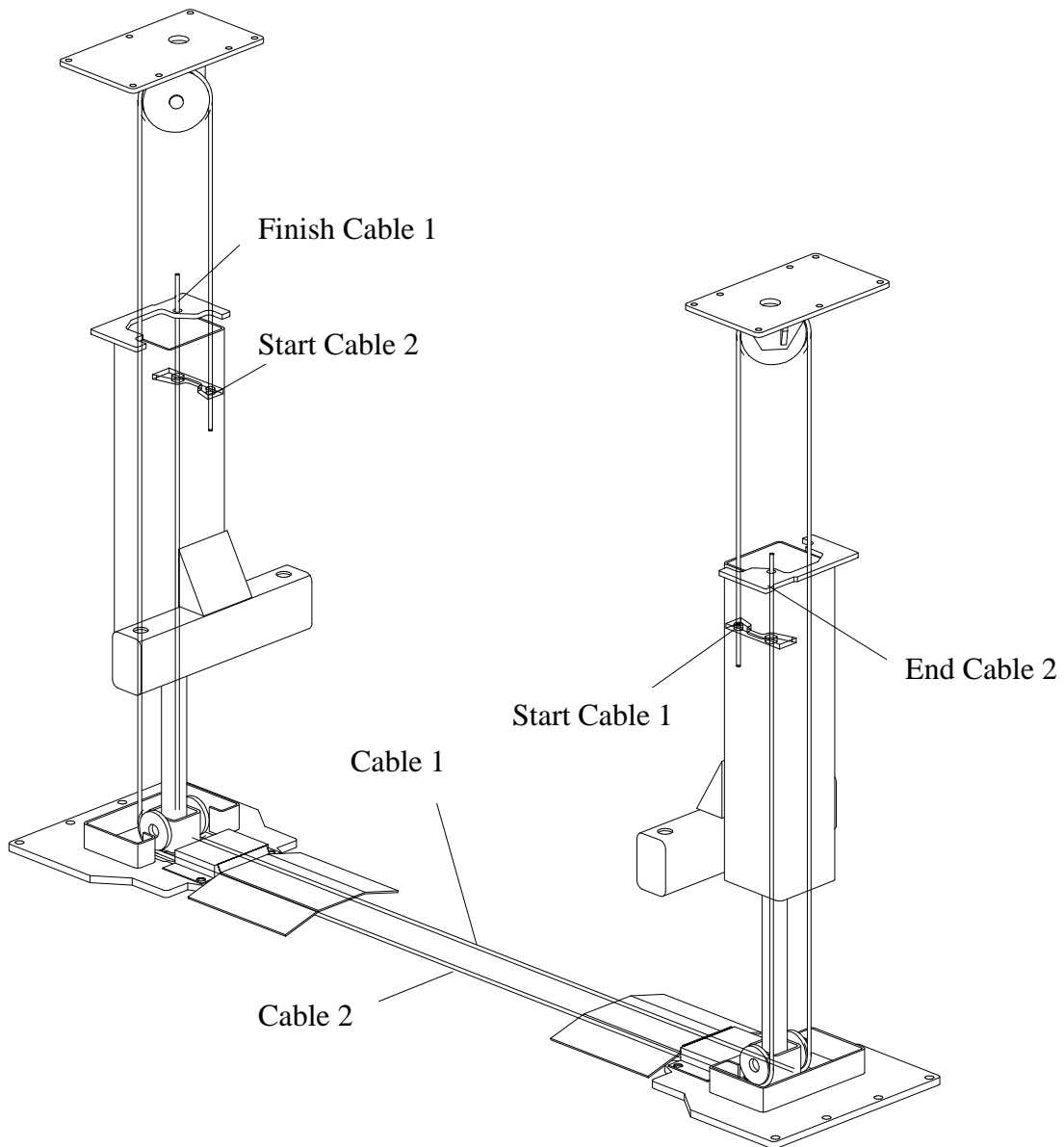
**Figure 5**

- F. Raise the offside leg and position it at the other end of the floor plate. Make sure the two legs and the floor plate are square with each other. Drill the two holes for, and install the anchor bolts that match up with the floor plate and the offside leg as described above.
- G. Using the legs as templates, drill the four remaining anchor bolt holes for each leg.
- H. Using a level, plumb the legs both side to side and front to back. Shim the legs as necessary next to and on both sides of the anchor bolts. If more than 1/2" of shimming is required, **do not** use the anchors and small shims provided with the lift. Use longer anchors and fabricate larger shims from steel flat, 1/4" or 1/2" thick by 2", or more, wide.
- I. Once the legs are plumb, remove the floor plate and tighten the other four anchor bolts on each leg to 150 ft-lbs. **Do not** use an impact wrench on anchor bolts.

- \* If after tightening the anchor supplied with the lift extends more than 2-1/4" above the floor the anchor does not have enough embedment.
  - \* **If an anchor will not reach 150 ft-lbs or does not have enough embedment or adequate spacing cannot be achieved, replace the concrete under the leg with a 4' X 4' X 6" thick pad of 3,000 psi concrete keyed under the existing floor. Let the concrete cure before reinstalling the lift.**
- J. Recheck the legs' plumbness after tightening the anchor bolts. Add shims if necessary.

## 6. Assemble carriage cables

- A. The carriages should be resting on the same safety rack tooth. Measure the height above the baseplate for each carriage. The measurements should be within 3/8" of each other. Make a note of the two measurements.
- B. Standing between the two legs looking at either carriage, push one end of a cable down through the front hole in the brace inside the carriage until the cable hits the floor.
- C. Attach a 5/8" NC nylon insert nut with an SAE washer to the end of the cable. Connect the nut to the cable so that approximately 1/8" of the cable end sticks past the end of the nut.
- D. Running the cables, figure 6.
- \* Thread the other end of the cable up and over the overhead pulley,
  - \* Down and around the left-hand pulley at the base of the leg,
  - \* Over and around the right-hand pulley at the base of the other leg,
  - \* Up and through the back hole in brace inside the carriage,
  - \* Up and through the carriage top plate.
- E. Secure the cable end with a 5/8" NC nylon insert nut and SAE washer. **Do not tighten** the cable at this time.
- F. Repeat the process for the other cable, taking care not to cross them.
- G. Take out the slack, but do not tighten, both cables by turning down the nuts on the top of each carriage top. Use vise grips to hold the cable end, but be very careful not to damage the threads.
- H. The carriages must remain at the same lock position while the cables are being tightened. Overtightening of one cable could raise the carriage in the opposite leg and cause the carriage safety latches to be out of sync.



**Figure 6**

- I. Alternately tighten the cable nuts at both carriages until the cables are tightened. Correct tension in the cables is indicated by approximately 1/4" deflection on the cable in the leg when pulled at its midpoint.
- J. Measure and compare the carriage heights to the earlier measurement, or check that the safety latch pull rod will not disengage to verify that neither carriage has been raised. If a carriage has been raised more than 1/8", loosen the cables and repeat the procedure.
- K. If the cables are installed correctly, both carriages will raise together. If equipment capable of lifting the carriages is readily available, lift one of them just enough to pull out the safety latch pull rods under both carriages and carefully lower to the ground. This will simplify the cylinder bleeding procedure.

7. **Mounting the power unit.** Attach four 5/16" x 1-1/4" bolts to the highest two and lowest two holes in the mounting bracket with 5/16" plain nuts. Attach the power unit, to these bolts and secure with 5/16" nylon insert nuts.
8. **Hydraulic System**
  - A. **Warning:** When using Teflon tape for hydraulic fitting connections, **DO NOT start the Teflon tape closer than 1/8" from the end of the fitting.** Failure to comply may cause damage to the hydraulic system.
  - B. **Warning:** When making tightening connections with flared (JIC) fittings, always follow the following tightening instructions. Failure to follow these instructions may result in cracked fittings and / or leaks.
    - \* Use the proper size wrench,
    - \* The nut portion of the fitting is the only part that should turn during tightening. The flare seat **MUST NOT** turn.
    - \* Screw the fittings together hand tight.
    - \* Use the proper size wrench to rotate the nut portion of the fitting 2-1/2 hex flats.
    - \* Back the fitting off one full turn.
    - \* Again, tighten the fitting hand tight, then rotate the nut portion of the fitting 2-1/2 hex flats.
  - C. The right side of the power unit from the controls has one open port. Attach the o-ring elbow to this port with the open end down.
  - D. Connect one end of the shortest hydraulic hose to the mainside cylinder fitting. This connection should be hand-tight only.
  - E. Connect the other end of the shortest hydraulic hose to the power unit fitting.
  - F. Connect the longest hose between the two cylinders, again hand tight.
  - G. Add fluid. Remove the fill level screw near the top of the power unit tank. Remove the fill-cap from the tank and fill with Dexron III ATF, **or** petroleum base hydraulic oil, ISO-32, non foaming, non detergent, until fluid reaches the bottom of the screw hole. Replace the screw and tank breather.

## 9. Electrical.

### A. SINGLE PHASE

- \* Have a certified electrician establish 208-230V, single phase, 60 Hz power supply with 20 amp time delay fuse to motor and overhead switch, figure 7.
- \* Use separate circuits for each power unit.
- \* Single phase motor cannot be run on 50 Hz. line without modifications in the motor.

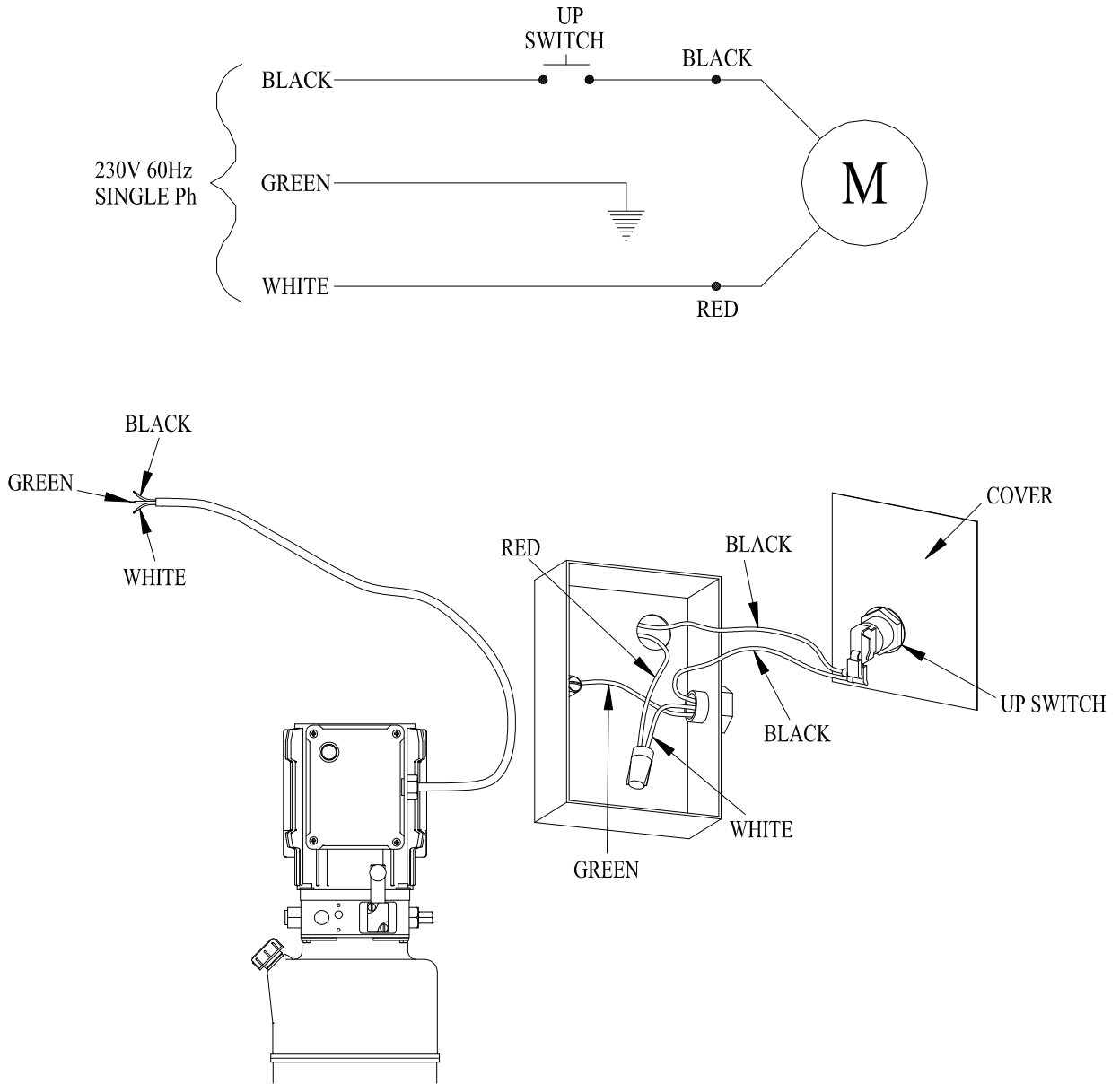


Figure 7

## B. THREE PHASE

- \* Have a certified electrician establish appropriate power supply to motor.
- \* Use separate circuits for each power unit.
- \* Motor Operating Data

⇒ Line Voltage	Line Frequency	Running Motor Voltage Range	Time Delay Fuse Size
⇒ 208-240V	50/60Hz.	197-253V	20 Amp
⇒ 400V	50Hz.	360-440V	10 Amp
⇒ 440-480V	50/60Hz.	396-528V	10 Amp
⇒ 575V	60Hz	518-32V	10 Amp

- \* Motor Rotation is counter clockwise.

- \* Wiring Diagram / Instructions, Figure 4

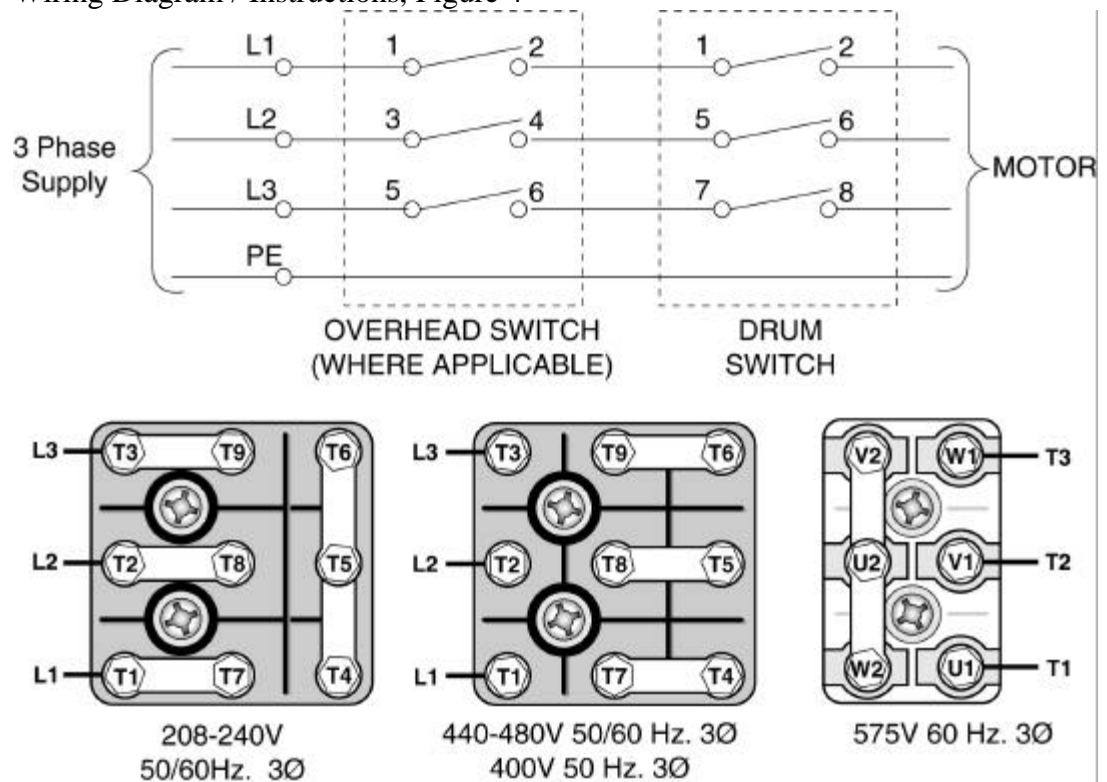


Figure 8



- \* The Control Box must be field mounted to the power unit.

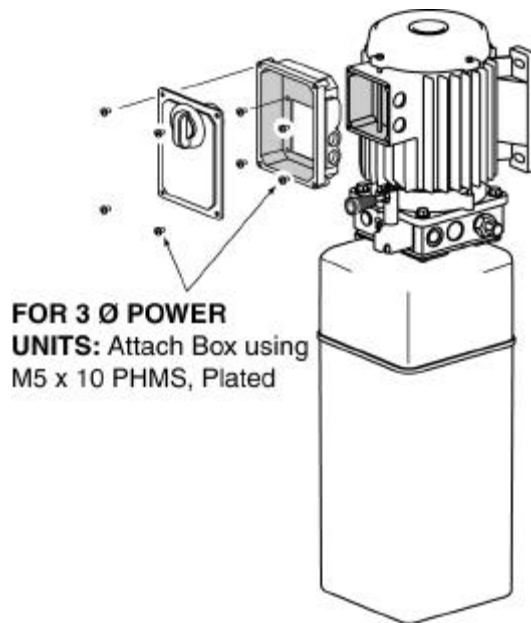


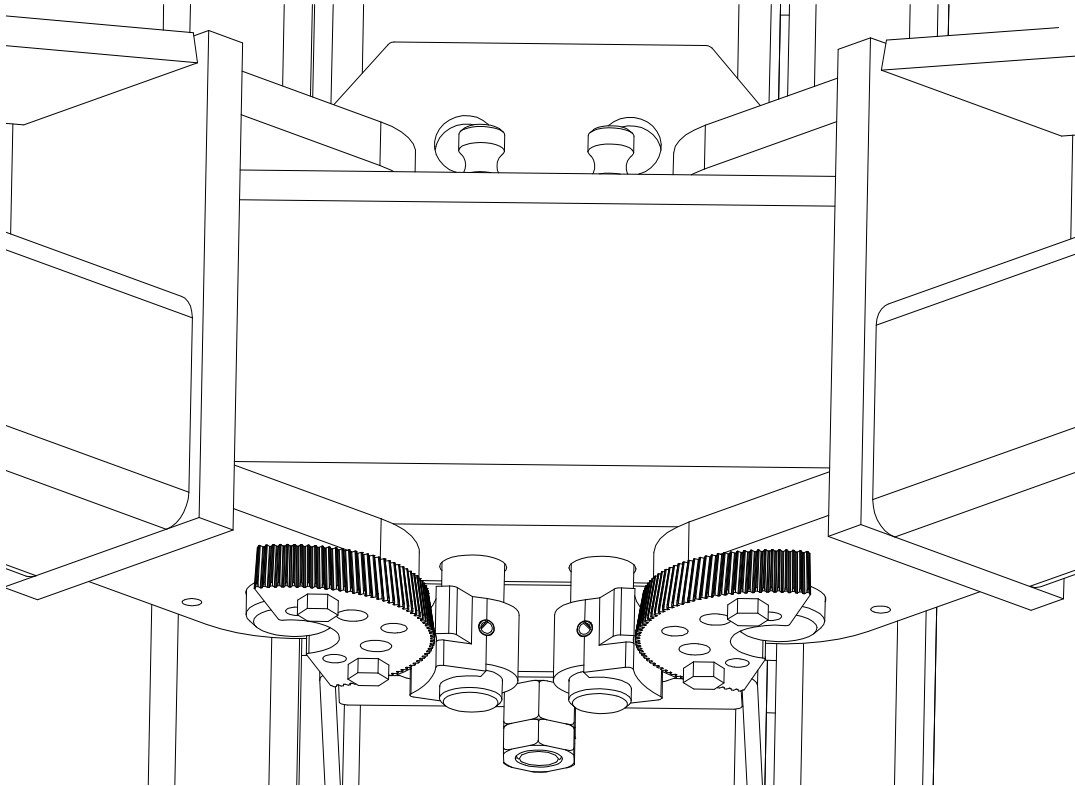
Figure 9

## 10. Bleeding the hydraulic system

- Loosen the connections **between the hoses and fittings** attached to the cylinders. **Do not** loosen the connections **between the fittings and the cylinders themselves**.
- Run the power unit until fluid appears at the mainside cylinder port. Tighten that hose connection.
- Run the power unit until fluid appears at the offside cylinder port and there is no more air. Tighten that hose connection.
- Lower the lift to the ground. If the lift is on the safety latches, raise the lift enough to disengage the latches and then lower.
- Add fluid to the system as previously described.

## 11. Assembling the arms and arm restraints

- A. Before installing the arms, install the restraint gears as follows.



**Figure 10**

- B. Position the gears with word TOP against the bottom of the arms in the orientation shown in figure 14. Attach the gears to the arms with (2) 3/8-16NC X 1-1/2 long HHCS. Do not tighten at this time.
- C. Position the restraint pawls on the carriage to mate with the gears on the arms.
- D. Install the swing arms and swing arm pins. If the arms are of different lengths, the longer arms go to the rear or drive in side of the lift, and the short arms go to the front, figure 2.
- \* Don't force the gears, it may be necessary to pull up on the restraint actuator pin in order to install the swing arm pin.
- E. Tighten the gear bolts to 30-34 ft-lbs.

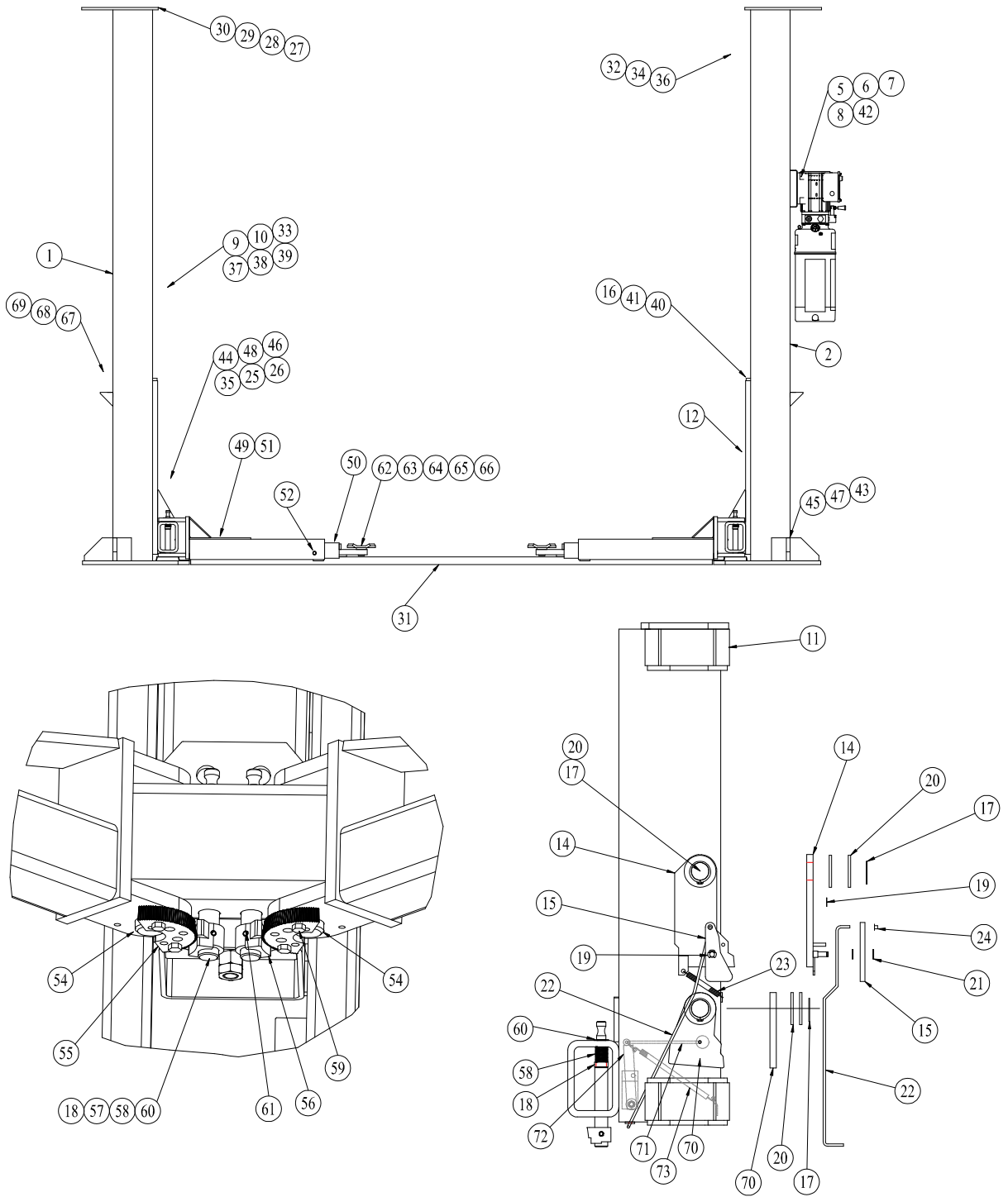
12. Lubricate the four inside corners of both legs with heavy duty bearing grease.

### 13. Final Adjustments

- A. If any problems are encountered, do not proceed with subsequent steps. Instead, resolve the problem before proceeding by referencing the Troubleshooting portion of the Owner's Manual section of this manual.
- B. Raise the lift to full height. Lower the lift onto the safety latches. Raise the carriages, pull out both latch pull rods, and lower the lift to the ground.
- C. Raise the lift **empty** to the top of its travel and lower it the floor three (3) times to remove the remaining air from the hydraulic system.
- D. The latches should click together as the lift is being raised.
- E. When the carriages are lowered onto the locks, neither pull rod should be capable of being pulled out.
- F. **The first time a vehicle is placed on the lift, raise it no higher than three feet.** Lower the vehicle onto the safety latches. Raise the lift a few inches and pull out both latch pull rods then lower the vehicle to the floor.
- G. Raise the vehicle to full height and lower the carriages onto the safety latches. Lower the vehicle to the floor.
- H. After cycling the lift ten times with a vehicle on it, recheck the tightness of the anchors to at least 90 ft-lbs.

# Section 3

## Parts Breakdown



**Figure 11**

1	Offside Leg	116201
2	Mainside Leg	116101
3	Shim	991127
4	3/4" X 5-1/2" Anchor Bolt	913828
5	Power Unit	992017-9A
6	5/16-18 Hex Nut	911701
7	5/16-18 Nylon Insert Lock Nut	911703
8	5/16-18 X 1-1/4" HHCS Grade 5	911751
9	Cylinder	992301
10	2-Post Chain	992613
11	Rub Block	995120
12	Carriage Assembly	116530
13	Carriage Weld	116531
14	Latch Weldment	106502
15	Latch Wipeout	070528M
16	Latch Pivot	106521
17	3/32 X 1-1/2 Cotter Pin	991077
18	1-14 X 2-1/2 HHCS Grade 8	914502
19	1-14 Hex Nut Grad 8	914402
20	1" Washer	914406
21	3/8" Washer	912005
22	Latch Pull Rod	90541
23	Latch Spring	991071
24	3/16 Cap Nut	991070
25	1/4-20 X 1-1/4 Shoulder Bolt (5/16 shoulder dia.)	911761
26	1/4-20 Nylon Insert Lock Nut	911403
27	Top Plate Weldment	070301
28	1/2-13 X 2-1/2 HHCS Grade 5	912701
29	1/2-13 Hex Nut	912601
30	1/2 Washer	912605
31	Floor Plate Weldment	090804
32	Sheave Bushings	991211
33	Yoke Roller	995060HT
34	1-3/8 Snap Ring	991030
35	4" Cable Sheave	995020
36	7" Cable Sheave	995040M
37	Bearing Shaft Weldment	051804

38	Bearing 1-1/4 Dia. X 1-3/4 Lg.	991224
39	1-1/4 Snap Ring	991223
40	Cable	992645
41	5/8-11 Nylon Insert Locknut	913203
42	9/16 O-Ring to 3/8 JIC Elbow	992410
43	Mainside Hose	992101
44	Offside Hose	992131
45	3/8 X 6 Schedule 80 Pipe Nipple	992405
46	3/8 Pipe Plug	992408
47	3/8 JIC X 3/8 NPT Elbow	992404
48	3/8 JIC X 3/8 NPT Nipple	992403
49	Swing Arm Assembly	0986600
50	Arm Slider Weldment	0986602
51	Arm Tube Weldment	0986601
52	3/8" x 1/2" long Self Tapping Screw	991487
53		
54	Arm Pin	995430
55	Arm Restraint Spring	991216
56	5/8 E-Ring	991209
57	5/8 Washer	913206
58	Arm Restraint Plunger	148705
59	Front Arm Restraint Slider	148707
60	Rear Arm Restraint Slider	148702
61	Arm Restraint Bumper	991269
62	Stackable Pad Weldment	106605
63	Swivel Pad Rubber Insert	991234
64	1/4-20 X 1-1/4 Elev. Bolt	991243
65	1/4-20 Hex Nut	911401
66	1/4 Washer	911405
67	6" Pad Extension	995550M
68	3" Pad Extension	995560M
69	1-1/2" Pad Extension	996220M
70	Slack Chain Latch	090540
71	Slack Chain Rod	090542
72	Slack Chain Lever	090502
73	Slack Chain Spring	991121