National Auto Tools

Give your garage a lift.

NTO-11A Installation Manual



National Auto Tools

** CAUTION**

Never Start Lift Motor When
The Pump Is Under A Load.

Always Start Lift Motor From Ground Position
Or From Lift Locks.

Failure To Do This Can Burn Up Lift Motor
And Void Motor Warranty.

ATTENTION

1. **Lubricate all four corners of both columns. A good clean grease works the best. You must check this every 90 days. Good lubrication is vital to the long term keep of you your lift.**

2. **If you are not familiar with electrical hooks seek professional help. Check inside the switch box to make sure which wire is ground and read the plate on the outside of the motor to make sure you have the right voltage motor. You should have a 220 volt motor.**

3. **Do not over tighten the hydraulic fittings. This will cause leakage and will not be covered under warranty.**

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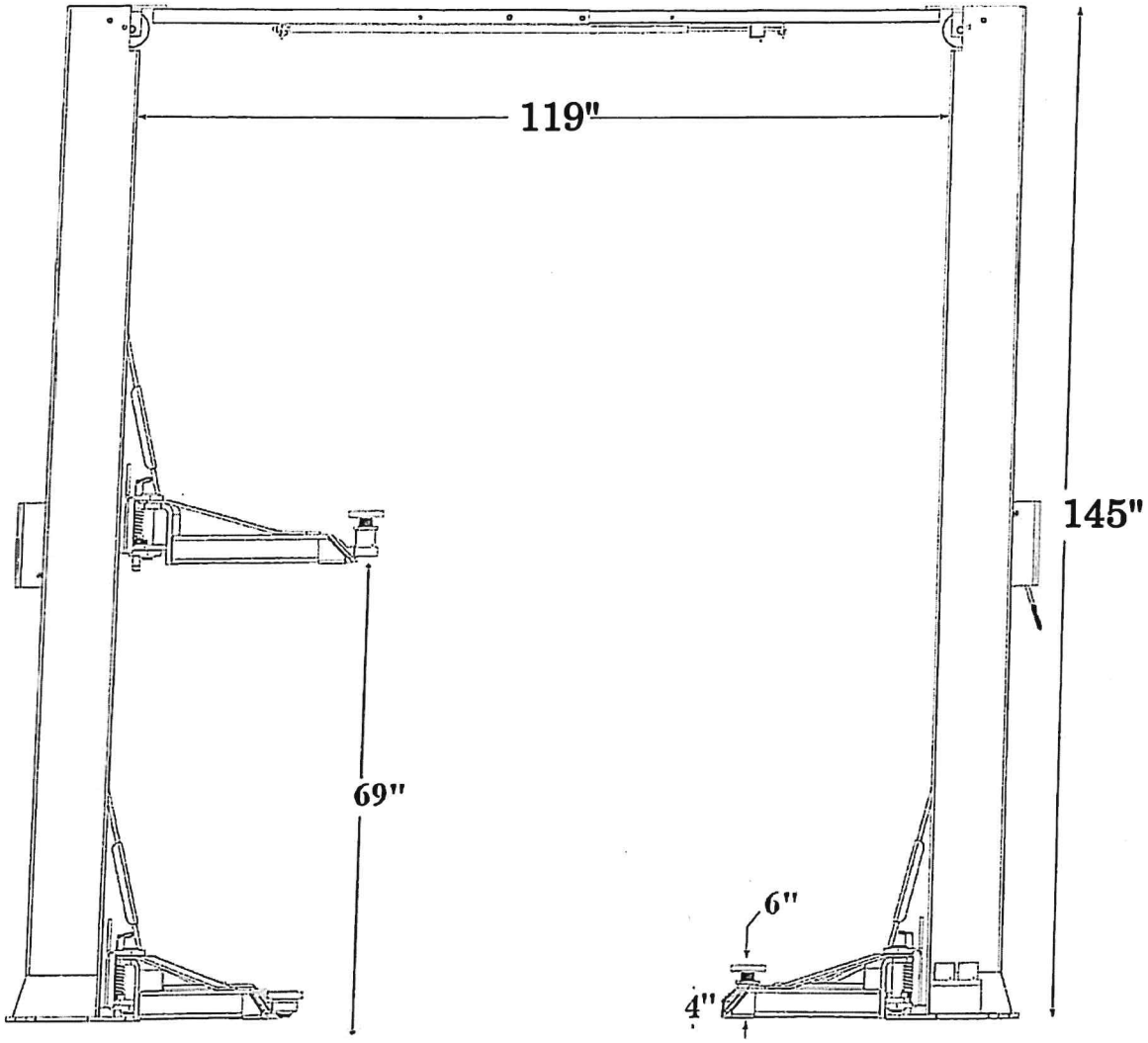
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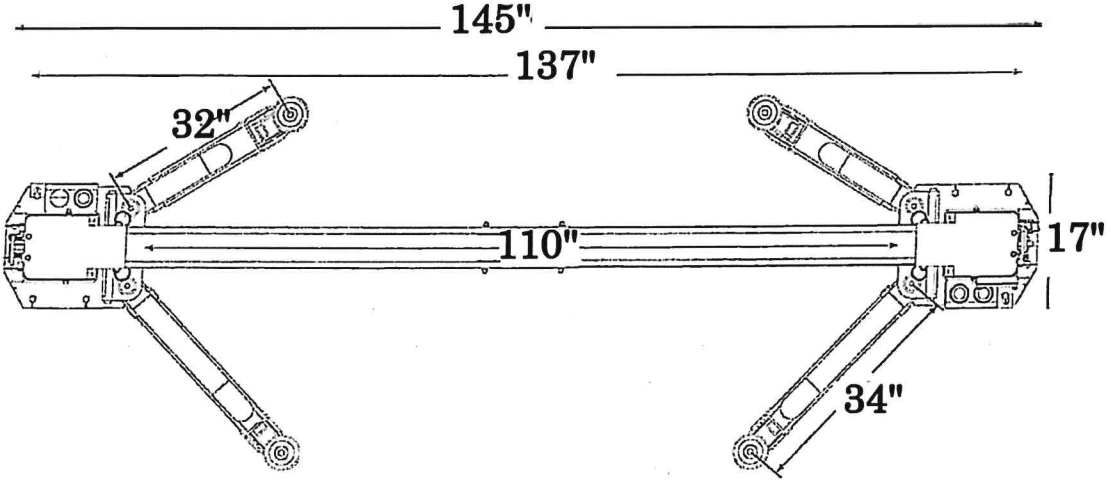
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DO NOT DRILL HOLES IN FLOOR AND ATTEMPT TO ANCHOR YOUR LIFT UNTIL BOTH COLUMNS ARE POSITIONED AND YOU HAVE BOLTED THE TOP PLATE/OVERHEAD BEAM. WE ARE NOT RESPONSIBLE FOR A MISTAKE IN MEASURING DIMENSIONS IF THIS ORDER IS NOT FOLLOWED.



NTO 11A



INSTALLATION INSTRUCTIONS

Choosing A Location

- **Use architects' plans when available.** See Floor Layout

Determine the entry end of the bay area and locate the lift center line 96" from any obstruction front or rear.

- **The Steel Reinforced Concrete** floor must be level, have a *minimum* thickness of 4 inches, and retain a*commercial rating* of 3500 psi. The concrete ***must*** be cured for a ***minimum of 28 days***.
- **Before making a Final Decision,** consider the amount of workday traffic flowing in and around thelocation you have chosen. Also consider the amount of room out front of the lift for a workbench or diagnostic equipment. There may also be some future building plans to consider. Are you satisfied with your selection?

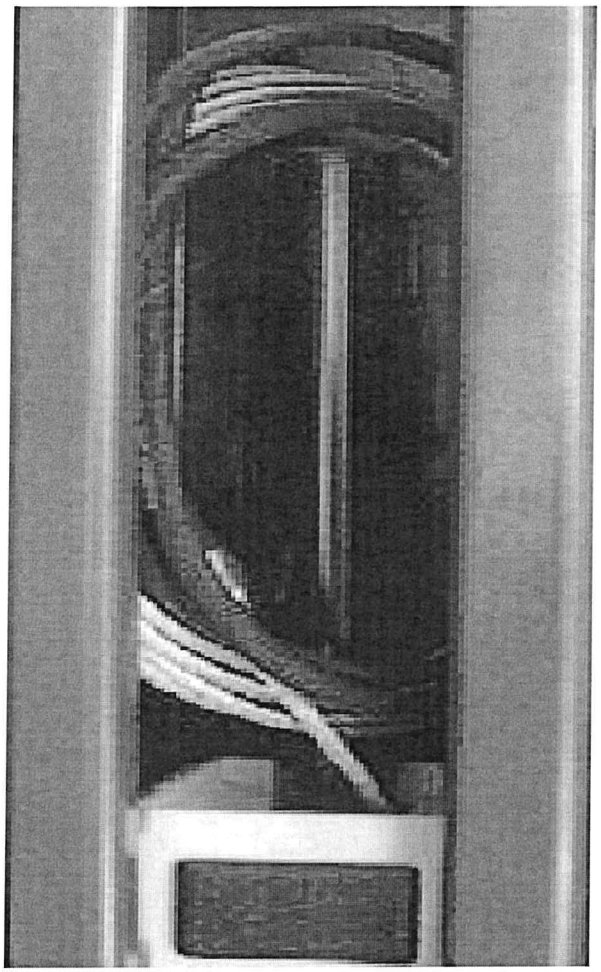
1. There are numerous blends and mixes and additives these days for concrete. All of these work well when used in the proper application. However, years of experience have shown that nothing beats a properly cured, steel reinforced concrete slab for this application. Another thing to watch is additives that claim to harden the concrete faster or reduce the cure time. Again, these things have their place, but not in this application! ***A steel rod or mesh reinforced slab cured 28-30 days with the slab kept properly hydrated gives the best results.***

2. Checking bolts for tightness to some people means that once a week they grab a wrench and go around yanking a quarter of a turn on every nut and bolt they see. This is, of course, not the proper way of handling any bolt, ***especially*** the stress anchors used to anchor your lift. ***When the anchors are installed, they must be torqued with a torque wrench to 150 foot-pounds initially***. After a period of time, they will loosen up some. This is normal. When checking the anchors just put a wrench on them and "feel of them" or apply a small amount of torque to the bolt. If it is tight, it is good to go. If it is loose, get a torque wrench and tighten it to 60-90 foot-pounds.

3. The lift is not designed for an outdoor installation because of the possible damage and degradation to the hydraulics and the electrical components caused by direct exposure to the elements. If the unit is installed in a building or outbuilding with a floor that is anything other than the recommended concrete floor, a pad can be poured. The size and construction of the pad can vary depending on the soil conditions and the local weather conditions. It is recommended that each of these situations be handled separately by a local engineer.
4. Never place a lift in a pit or depression in a garage area or any environment where gasoline is around. Gasoline fumes tend to gather at the floor and low areas, so the lift must be mounted on the main floor of the building and not in the basement or a pit.
5. Always remember that your lift is rated at 11,000 pounds. This means that the lift will safely and reliably lift a load of 11,000 pounds as long as that load is evenly distributed on all four arms. If the load is offset or unevenly distributed, then one post can actually be operating at a load greater than 11,000# and the lift can be overloaded with less than the rated load. So the lift load rating is ***11,000 pounds or 2750 pounds per arm. The***

Powerunit post must be located on the right (passenger) side.

The hoses and equalizer cables are already attached, so leave them rolled up inside the post until you get the posts anchored and the overhead assembly attached and bolted on.

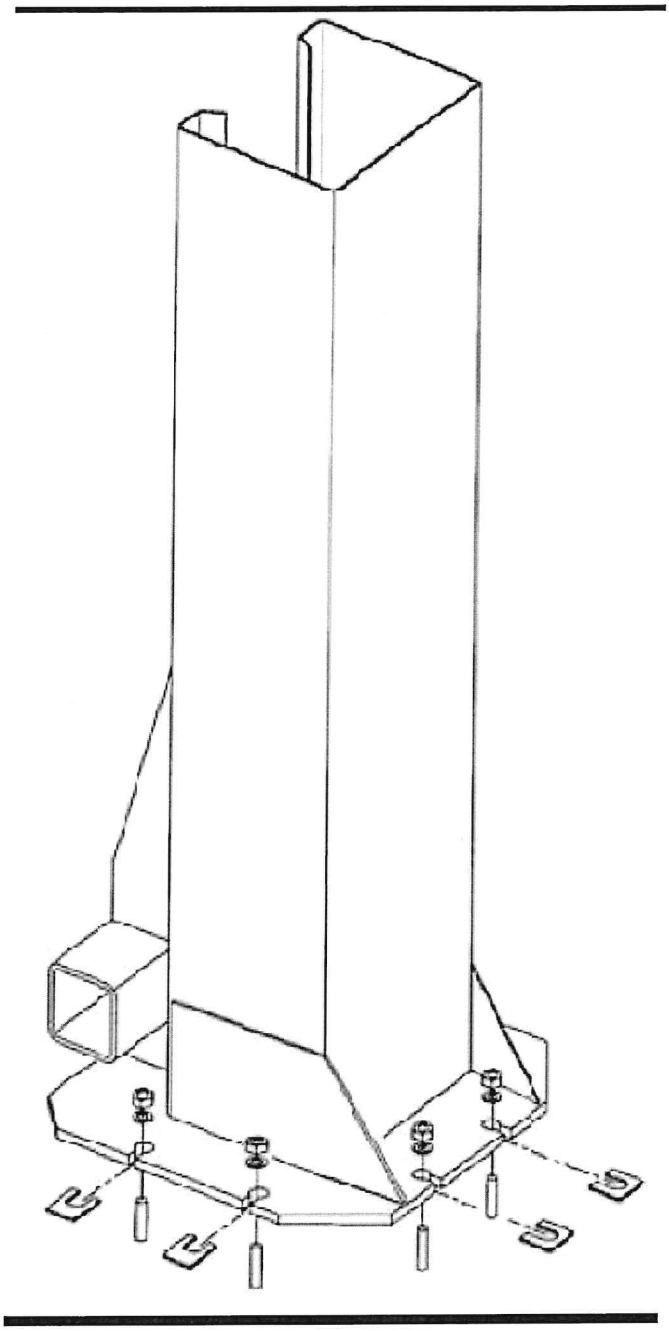


DO NOT DRILL HOLES IN FLOOR AND ATTEMPT TO ANCHOR YOUR LIFT UNTIL BOTH COLUMNS ARE POSITIONED AND YOU HAVE BOLTED THE TOP PLATE/OVERHEAD BEAM. WE ARE NOT PRESPONSIBLE FOR A MISTAKE IN MEASURING DIMENSIONS IF THIS ORDER IS NOT FOLLOWED.

Positioning the Post (Columns)

1. Starting with the power side column, drill the concrete with a ¾" concrete bit at least 4 ½" deep, do not ream the hole with the drill or allow the drill to wobble as this will enlarge the hole and reduce the holding power of the anchors, making the lift unsafe. Start at hole 1, be careful not to move the column. Drop a bolt into hole 1 (to help maintain alignment do not force the bolt down at this time), check the column alignment to the 90° chalk line. Drill a hole at hole on the other side of column, drop a bolt into hole 2, this should help prevent movement of the column. Drill the remaining 4 holes on this column.
2. Remove the bolts you dropped into the holes and clear all dust from all the holes and from under column base plate.

3. Assemble the washers and nuts onto each anchor, ensuring that the thread on the anchor is flush to the top of the nut, drop a bolt into each hole and tap down until the washer is about ½" above the base plate.
4. Roughly level column using shims as necessary under the base plate, when the column is plumb, tap down all bolts until the washers on the bolts contact the base plate. Tighten the nuts 2-3 turns and re-check the level, loosen, re-shim and retighten as necessary until the column is tight and dead plumb, it is very important that the column be plumb.
5. With the other column standing in place, (do not drill holes at this time), use a lifting device to raise the overhead cross bar and place into position on the top of the two columns (safety stop bar must be on the lower side of the crossbar). Using bolts provided, screw in the cross bar but do not tighten bolts at this time.
6. Measure the distance between the closest corners of the columns as shown on page 3, the distance between the top and the bottom of the columns at this point must be the same. Wiggle the loose column until the distance between the two columns is the same to and bottom (parallel).
7. Before drilling the Concrete for the other columns check all dimensions and locations. Repeat steps 1-3 above for loose column. Being careful not to move the column.
8. When you plumb this column it must only be plumbed front to back as the distance between the columns must be the same top and bottom. Tighten the cross bar bolts and ensure safety bar moves freely and activates the switch.



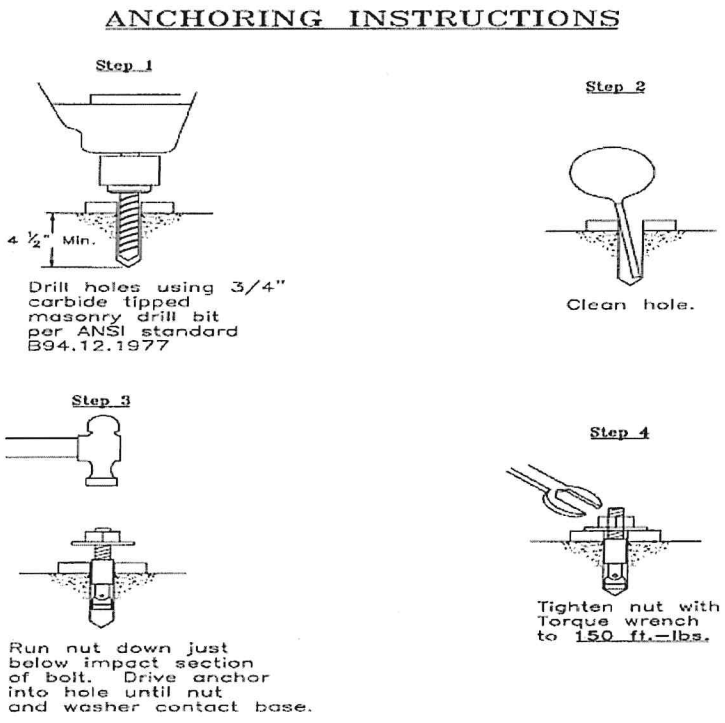
Drilling and Anchoring

A. Drill 3/4" x 4 1/2" (minimum depth) holes in the *concrete* floor using the holes in the baseplates as guides. Drill the holes perpendicular to the surface, being sure not to enlarge them by allowing the drill to wobble. Do not *ream-out* the holes. (See Anchoring Instructions, Figure 3). ***Be careful when drilling the holes, the posts can tip over.***

B. Blow all of the dust and debris from the holes, then clean around the openings with a wire brush. A clean hole will improve the prospect of solid anchoring.

2. To install Anchor:

A. Assemble the washer and nut onto the anchor bolt with nut just below impact section of bolt.
B. With a hammer, ***carefully*** tap the anchor bolt into the concrete until the washer is resting on the base of the column. **DO NOT DAMAGE THE NUT OR THREADS!**
C. Before tightening the nuts, level and plumb the columns, using the shims provided.
Note: If more than 1/2" of shims is required to level the post, **Do Not Use the Anchors supplied with this lift.**
D. When columns are level and plumb, tighten the nuts with a *Torque Wrench* to 150 ft lb. If anchors do not tighten to 150 ft-lbs in existing floor, replace concrete under each post with a 4' x 4' x 6" thick pad keyed into and flush with the existing floor. Concrete must be 3500 psi minimum.
NOTE: NEVER USE AN IMPACT WRENCH TO TIGHTEN ANCHOR BOLTS!



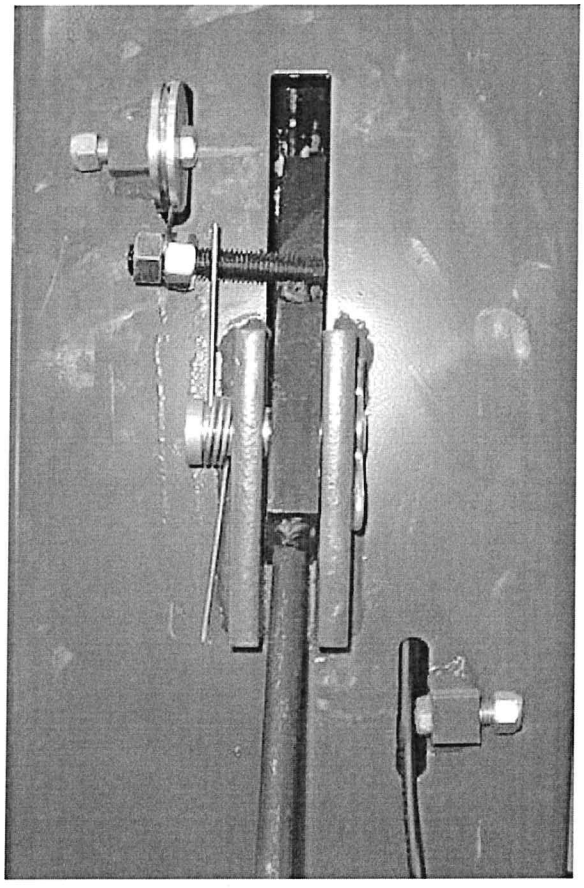
Attaching the Actuator Cables

1. From inside the power side column, route the cable under the wheel and attach to the release arm. Run the cable up the inside of the column over the small wheel on the outside of the overhead cross bar, across the cross bar, over and down the non-power side column in the same way, and attach to the non-power side lock.

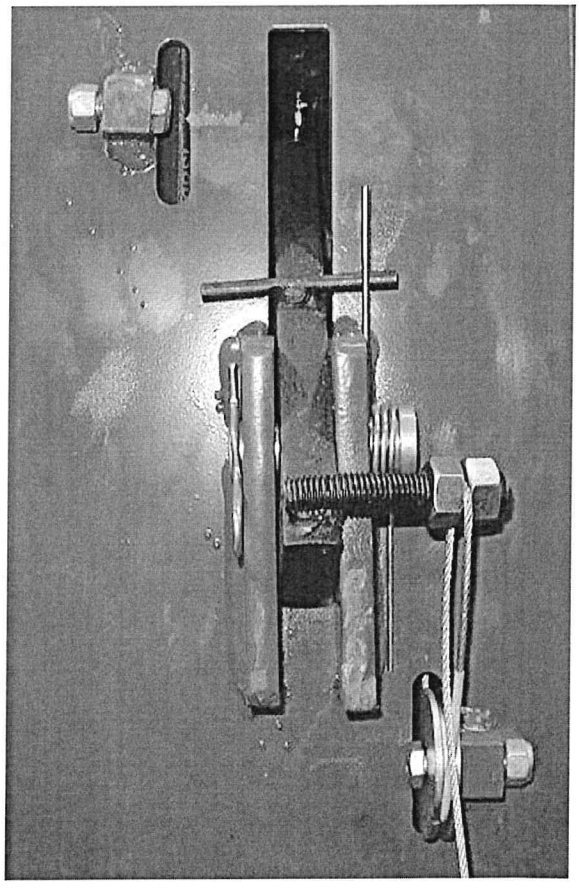
Be careful not to wrap the lock release cable around the synchronizing cable or other obstruction that will hinder the free movement of the cable.

3. Adjust the cable at each lock to ensure contact and release on both sides.
4. Install covers.
5. Run the carriages up and down several times to ensure smooth operation and that there is no interference.

POWERSIDE SAFETY **ASSEMBLY**

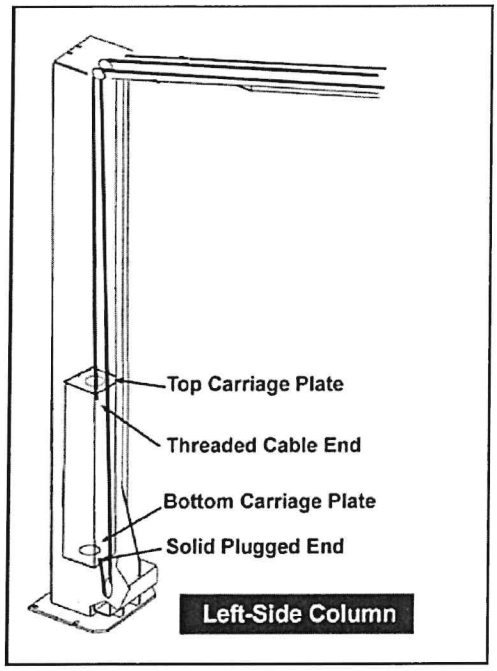


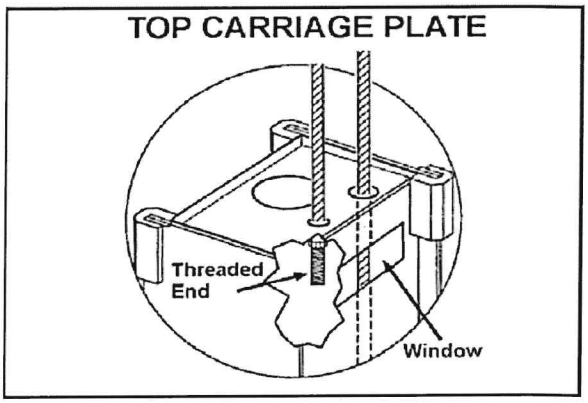
OFFSIDE SAFETY **ASSEMBLY**

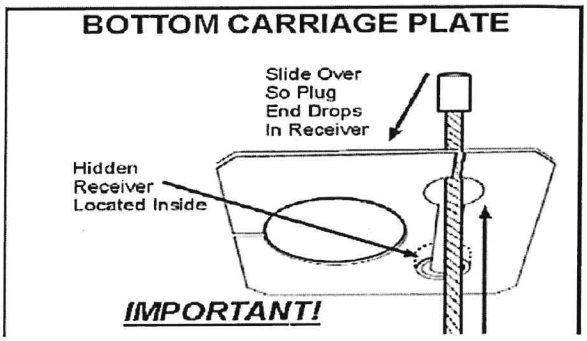


Installing the Equalizer Cables

1. Pull the cables out of the columns, leaving them attached to the carriages.
2. Raise each carriage by lifting them manually to a safety stop about 24" up. Ensure the safety locks are fully engaged and that both carriages are the same height before proceeding.
3. Route the end of the cable straight up through the column and close to the pulley and place the cable over it, replace the pulley back in the mounting. Now route the cable through the cross bar to the pulley on the other column. Remove and place the cable over this pulley as able. Route the cable down the column.
4. Install the second cable in the same way, ensuring that both cables are not twisted, rubbing, or otherwise distorted or jammed.
5. Attach each cable to its respective carriage: using one nut hand tight.
6. Re-check cable routing to ensure that the cables are not bound anywhere and that both cables are parallel above and below the carriages as well as through the cross bar. If adjustment is needed, loosen the cable and correct the misalignment. Also check bottom of carriage to make sure cable hasn't come out during shipping.
7. Tighten both cables until they are taught, like the string on a musical instrument.
8. Check that both carriages are still on the safety stops and that both cables have equal tension, if one carriage is off a stop, loosen the cable on this carriage or tighten the cable on the opposite carriage. At this time check the level between the two carriages if the level is out more than 1" in 8', you will have to shim the low column straight up the required amount, but do not exceed ½" of shim.







Power Unit Placement

1. Attach the power pack to the power side column using the supplied bolts and nuts.
2. Fill the reservoir with AW32 hydraulic oil only

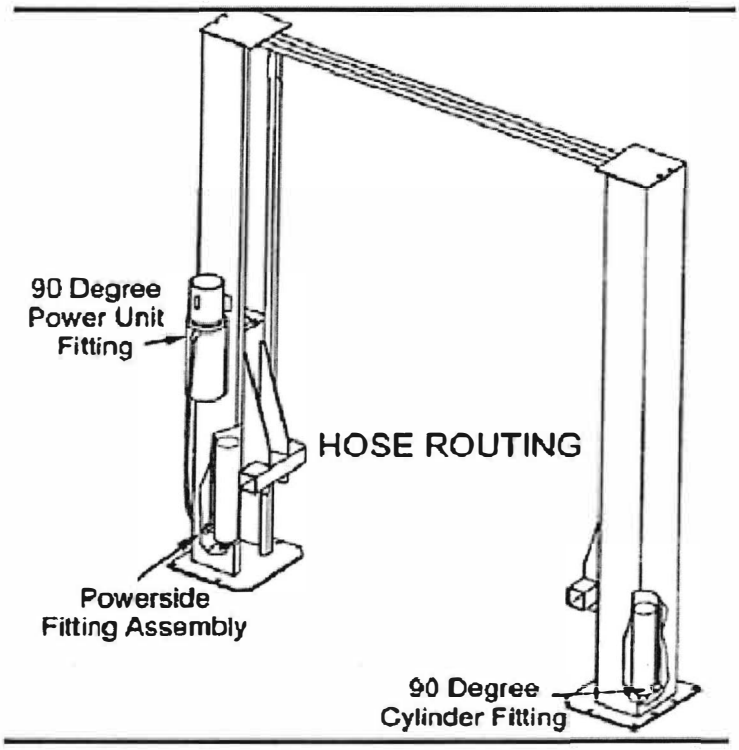
Please ensure the oil is not contaminated and that a very clean funnel is used.

NOTE: The main cause of premature pump failure is dirty oil.

Connection of the Hydraulic Hoses

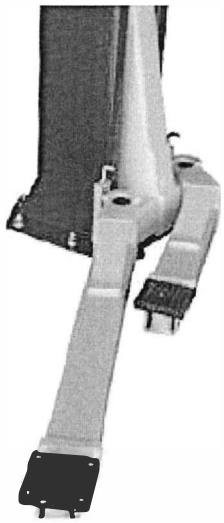
1. Feed the long hose down the column starting at the middle retaining loop above the carriage on the non power pack column. Feeding the hose down the front of the column as shown in below. Ensure the cable passes on the front side of the safety stop and does not interfere with the carriage travel path. Continue to feed the hose down until the end of the hose is visible at the bottom of the column.
2. Attach the hose to the elbow on the bottom of the ram; the top of this elbow should lean towards the front of the column.
3. Route the hose up the column to the top, through all retaining rings, then across the front of the cross bar.
4. Cross the hose over to the back of the power pack column and down through all retaining rings avoiding the safety stops and carriage travel.
5. Attach the hose to the tee at the bottom of the ram.
6. Attach the short hose to the tee as well and connect other end to power pack.

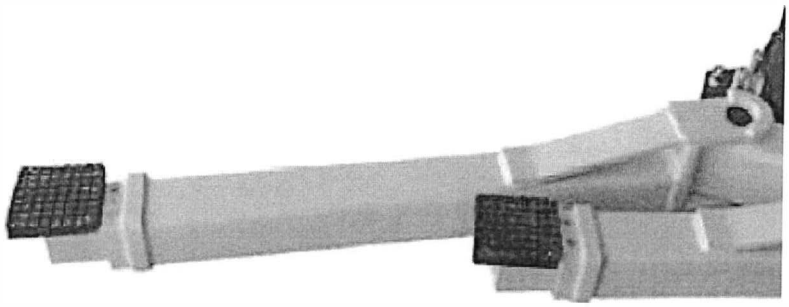
NOTE: DO NOT OVER-TIGHTEN THE HYDRAULIC HOSE CONNECTIONS!



Attaching the Swing Arms and Arm Restraints

1. Before Installing the Swing Arms, remember the *short* arms go to the front, and the *long* arms go to the rear.
2. Locate the arms, and arm pivot pins. Place the arm clevis end onto the tube on the carriage.
3. Slide the pivot pins through the arms and carriage until it bottoms out.
4. Check the operation of the arm restraints.





Electrical Connection

NOTE: WE STRONGLY RECOMMEND THAT YOU USE A LICENSED, PROFESSIONAL ELECTRICIAN TO INSTALL THE POWER TO YOUR TWO POST LIFT!

Filling the Hydraulic Fluid Tank

Remove the vent-cap from the top of the Hydraulic Fluid Tank attached to the Power Unit. Using a funnel, carefully pour in the Hydraulic Fluid (approximately 12 quarts) until fluid gets near the top of the tank. Replace the vent-cap.

****

0nly use AW-32 hydraulic oil

****

Bleeding the System

1. Actuate the power unit and hold the button until both carriages lift off the locks.
2. Carefully loosen the bleeding screw at top end of the cylinder and allow the trapped air to escape.

CAUTION! ***The air in the cylinders is under pressure.*** *Protect your eyes and cover the end of the cylinder with a rag because oil may spray out of the cylinder.*
3. Repeat the process for the other cylinder.

Adjusting the Equalizer Cables to Synchronize Carriages

Raise and lower the lift several times while listening to the *clicking* of the safety locks in each column. If the safety locks are not clicking in unison (at the same time), determine which carriage is running behind, and tighten (just a few turns) the adjustment bolt on the *opposite* side. When the cables are properly adjusted, they should feel fairly tight.

Final Assembly

1. ***Install the covers on the carriage latches*** by snapping them over the ears on the vertical bars on either side of the latch.

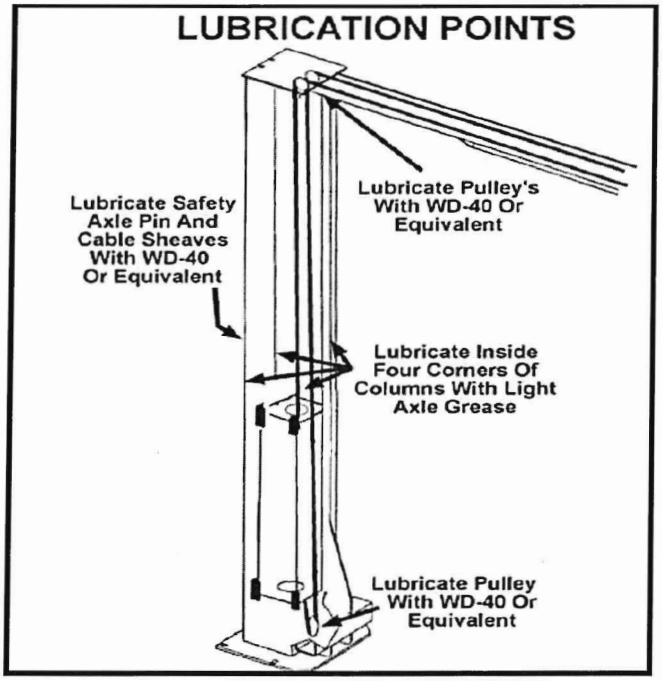
2. ***Check*** **all nuts and bolts**, making sure they are tight. Check the jam nuts on the equalizer cables for tightness.

3. ***Check*** **all of the hydraulic fittings** for possible leaks.

4. ***Make sure*** **the Carriages are synchronized**.

5. ***Make sure*** **posts are greased.**

6. **Place a vehicle on the lift**, raising the vehicle until it clears the floor. Lower the lift all the way to the floor and recheck all the anchor bolts. Raise the vehicle all the way to the top and lower all the way to the floor several times. This procedure will ready the lift for continued operation.



OPERATION

1. Center the vehicle left and right between the posts.

2. Position the swivel pads under the frame of the car at the ***proper lifting points***. (To find the proper lifting points, consult the vehicle's service manual or other approved publication.)

3. Push the up button and raise the lift until the swivel pads make contact with lifting points.

4. Check all swivel pads to make certain all adapters are making ***full and proper contact***. **NEVER** go under a vehicle unless all adapters are in secure contact with the vehicle.

5. Raise the vehicle approximately 2 feet and check the stability by rocking the vehicle. ***Make sure vehicle weight is centered***. Do not raise if weight is front or tail heavy.

6. Raise the vehicle to the desired height and lower on the carriage latches. **NEVER** go under a vehicle unless the carriage latches are engaged.

7. Before lowering, check the area under the vehicle to be sure it is clear. Raise lift slightly, pull the Latch Release Handle and hold, then pull down on the lowering release arm and lower **SLOWLY**. ***Keep feet clear***.

8. After lowering, rotate the swing arms back out of the way.

MAINTENANCE SCHEDULE

DAILY

1. Always keep bolts tight.
2. Check for oil leaks.

MONTHLY:

1. Re-torque the anchor bolts if necessary. (See CAUTION! below)
2. Lubricate chains/cables with spray lubricant.
3. Check all connectors, bolts and pins to insure proper mounting.
4. Make a visual inspection of all hydraulic hoses and lines for possible wear or interference.

CAUTION!

ALL ANCHOR BOLTS SHOULD ALWAYS BE TIGHT. Check the bolts periodically and tighten if necessary to 60-90 ft.-lbs. after the bolts have been set at installation. If any of the bolts do not function for any reason, the lift should be shut down until the bolt has been replaced.

EVERY SIX (6) MONTHS:

1. Make a visual inspection of all moving parts for possible wear, interference or damage.
2. Check all pulleys for proper lubrication. If pulleys seem to be dragging during lifting or lowering, lightly oil the axle.
3. Check and adjust as necessary, equalize tension to insure level lifting.
4. Check columns for plumbness.
5. Check fluid level of power unit.
6. Lube columns.

TROUBLESHOOTING THE LIFT

1. Motor does not run:	A.	Breaker or fuse blown.
	B.	Motor thermal overload tripped.
	C.	Defective UP switch. Replace.
	D.	Faulty wiring connections. Call electrician.
	E.	Check the overhead shut-off cable operation. It could be faulty or stuck-thus holding the switch open.
2. Motor runs but lift will not raise:	A.	Trash is under check valve. Push handle down and push the UP button at the same time. Hold for 15 seconds. This should flush the system.
	B.	Remove the check valve cover with an Allen wrench. Clean the ball and seat and replace the cover.
	C.	Oil level low. Oil level should be just under the vent cap port when the lift is down.
3. Motor runs but lift picks up partial load only:	A.	Faulty relief valve. Replace.
	B.	Oil is coming out of breather on cylinder.
	C.	Seals damaged.
4. Oil blows out of breather:	A.	Oil reservoir overfilled.
	B.	Lift lowered too quickly while under a heavy load.
5. Motor hums and will not run:	A.	Impeller fan cover is dented in. Take off and straighten.
	B.	Faulty wiring - Call an Electrician.
	C.	Bad capacitor - Call an Electrician.
	D.	Low voltage - Call an Electrician.

	E.	Lift over loaded.
6. Lift jerks up and down:	A.	Cables are too loose - (See Adjusting The Equalizer Cables).
	B.	Air in system - bleed the system. (See Installation Instructions - Bleeding the System)