FOUR POST PHANTOMPARK SUBTERRANEAN LIFT
Unique Features & Benefits

Here are at least 10 reasons why the patent pending Four-post Subterranean beats the competition's Scissors-style Subterranean lift.

1. ***Cylinders Located Above Carriage*** – High pressure cylinders are the most maintenance prone component in any hydraulic parking lift design. But because the lifting cylinders of a four-post subterranean lift are mounted to, and accessed from, the top side of the carriage – it becomes much easier to perform:
    a. Visual Inspection. Easy visual inspection by any person standing on the lower carriage helps to notice small issues before they become large problems.
    b. Maintenance. When maintenance is required, the cylinders can be easily removed – while the lift is in the fully lowered position. This is impossible with a scissors-style design.

2. ***Carriage Support Throughout Lift Travel*** – The four lifting points on the lower carriage of a four-post lift remain in the same place throughout the lift travel – about 24" from the ends of the lift. Two of the four lifting points on a scissors-style lift move further and further from the end of the carriage as the lift raises – increasing the unsupported length of carriage deck to 4 or 5 feet. This means:

    a. Less Deflection. The four-post lift has much less unsupported carriage length in the raised position, and will more effectively resist deflection due to edge loads or off-center loads.
    b. More Level. The even spacing of the lifting points on a four-post carriage, coupled with the patent-pending mechanical synchronization system, ensures that the carriage remains perfectly level throughout its travel.

3. ***Clear Space Beneath Lift*** – The lifting cylinders of a four-post subterranean lift are mounted next to the lift, not beneath it. Therefore, a generous 18" of clear space is available beneath the entire lift structure when fully lowered for:
    a. Safety. 18" of clear space is a last line of defense against the event that a person is somehow beneath the lift when it is lowered during operation or maintenance.
    b. Accessibility. 18" of clear space allows a mechanic to access the entire drive system beneath the carriage when the lift is fully lowered.

4. ***Vertical Cylinders*** – In order to make scissors-style lifts as compact as possible, lifting cylinders must be laid in the legs in a near horizontal orientation. This places the cylinders at a tremendous mechanical disadvantage – and they must generate total thrust forces of 5 or 6 times the weight being lifted. Vertical cylinders do not have this disadvantage – and there is an efficient 1:1 ratio between lifting forces and weight being lifted. This translates into the following benefits:

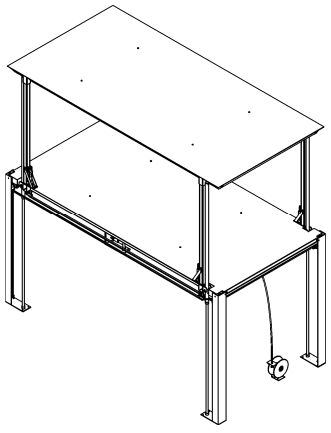
a. Faster Speed. Lower cylinder thrusts require smaller diameter cylinders. Smaller diameter cylinders require less oil volume, which means faster speeds at similar pump/HP ratings – 30% to 100% faster!
b. Lower Pressure. Lower cylinder thrusts often translate into lower system pressures. This extends the life of hydraulic components, plus it allows the pump rate to be higher for a given motor HP rating (higher speeds!).
c. Less Structural Stress. Unlike horizontally-mounted cylinders, vertical cylinders do not impose extremely high forces on the lift structure – and keep structural stress to a minimum. Lower stresses – longer life!

5. ***Largest Single Component Weighs Less*** – The largest single component in a four-post subterranean lift design are the platforms – the lower carriage and upper canopy. These weigh under 2 tons each. Here's why this is of benefit to you:
    a. Lower Handling Cost. Part of the total, installed cost of owning a residential parking lift is the equipment required on site to lower the lift into the subterranean pit. With component weights this low, there is no need for expensive cranes or cartage companies to handle off-loading.
    b. Lower Floor Pressures. Often, lower component weights translate into lower floor pressures transmitted into the pit floor – which may reduce concrete strength requirements and costs.

6. ***Overall Weight is Less*** – A complete four-post lift assembly weighs less than 8,000 pounds. Most competitive scissors-style designs will weigh 10% - 100% more than this due to the weight of the bulky scissors leg assembly. All that extra steel costs the manufacturer money – costs passed on to you! You save these costs with a non-scissors design.

7. ***In Summary*** – the benefits of a four-post lift over a scissors-style are:

- ***Less Expensive***
- ***Longer Life***
- ***Faster Speeds***
- ***Personnel "clear space"***
- ***More Accessible***
- ***Easier Maintenance***
- ***Less Deflection***
- ***Level Lifting – regardless of load location***
- ***Lower Handling / Off-loading Costs***
- ***Lower Floor Pressures***



FOUR POST SUBTERRANEAN LIFT

How Does it Work?

So what is behind the unique, patent pending "hydro-mechanical" equalization system that is setting the four post subterranean lift above and apart from the traditional scissors style vehicle lifts? How is it that the four post design can raise TWICE the live load of a scissors design in almost HALF the time – while weighing almost HALF as much? Because the mechanically-disadvantaged horizontal cylinders and heavy leg assembly associated with the scissors design have been replaced with more efficient vertical cylinders and a "four wheel drive" chain equalization system to stabilize and support the carriage throughout the lift travel.

Here's how the four post patent pending hydro-mechanical system works:

1. ***Lifting*** – Four vertical, direct acting cylinders are mounted to the lower carriage, one near each of the four corners. The cylinders push directly off the basement floor and provide ALL of the lifting power needed to raise and support the lift and its load.

2. ***Leveling*** – In concept, the patent pending mechanical synchronization system acts very much like a "four wheel drive" system where the front and rear shafts are forced to rotate in unison because they are mechanically linked together.

   So, regardless of weight distribution across the lift carriage, the four corners move up and down in perfect unison with each other because they are mechanically forced to do so: side-to-side because of the steel shafts, front-to-back because of the shared set of heavy duty synchronization chains.

3. ***Vertical Stability*** – The unique over-under wrap of the fixed-end synchronization chains around each of the four double sprockets and to their terminating points at the tops and bottoms of the corner guides effectively "trap" the sprockets – and carriage. In this way, the chains also provide added stability and resistance to deflection when an off-centered load is placed on the carriage, and as each axle is driven over the edge of the lift during vehicle loading & unloading.

4. ***Lateral Stability*** – Corner guide assemblies are installed at each of the four lift corners to provide lateral stability and guidance of the lower carriage throughout the lifts travel. All upper and lower termination points for each of the equalization chains are integrated into these guides.

5. ***Hydro-Mechanical Safety Features***:
   - Hydraulic Velocity Fuse in Each Cylinder – to stop free-fall of lift within 2" in the unexpected event of a catastrophic hose or fitting failure
   - 3 to1 Factor of Safety – Structural strength and Hydraulic component ratings
   - 6 to 1 Factor of Safety – Synchronization chain strength

6. ***In Summary*** –
    a. ***The vertical cylinders do all the lifting & holding of the carriage***
    b. ***The chains maintain leveling & vertical stability of the carriage***
    c. ***The corner guides provide lateral stability for the carriage***

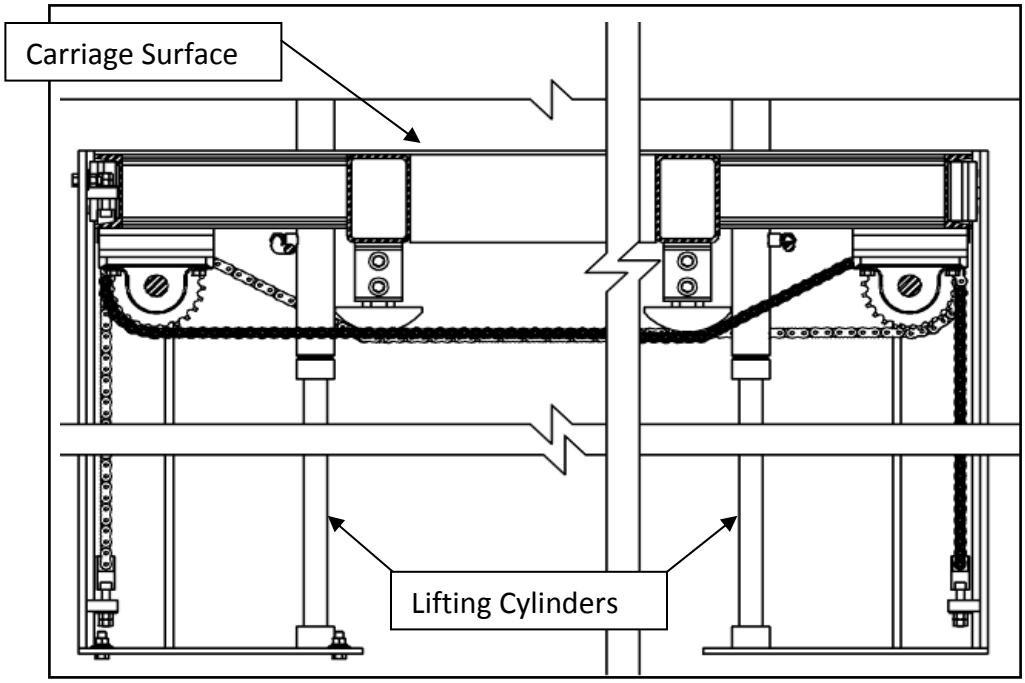


Figure 1 – Elevation View (cross-section)

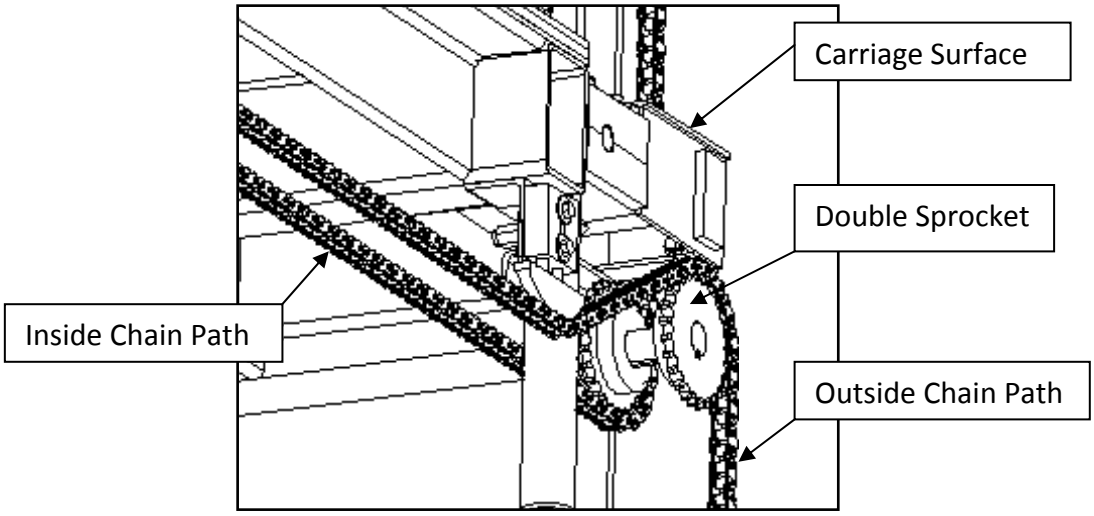


Figure 2 – Isometric View