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 VASARI 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 Flow Control Valve in each cylinder – to restrict free-fall of lift 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

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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***

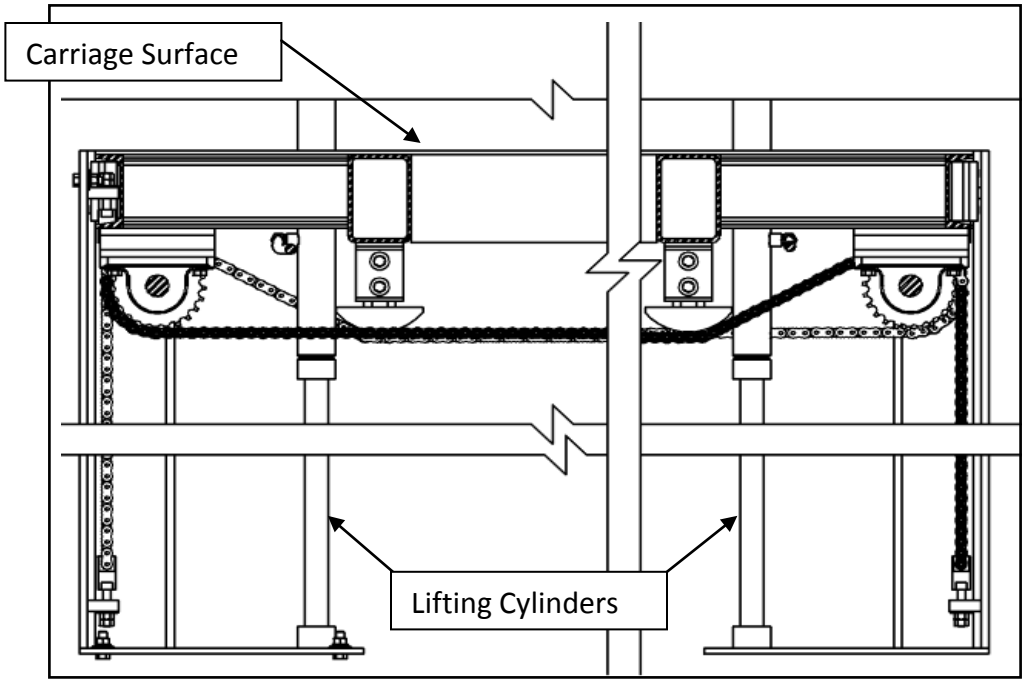

Figure 1 – Elevation View (cross-section)

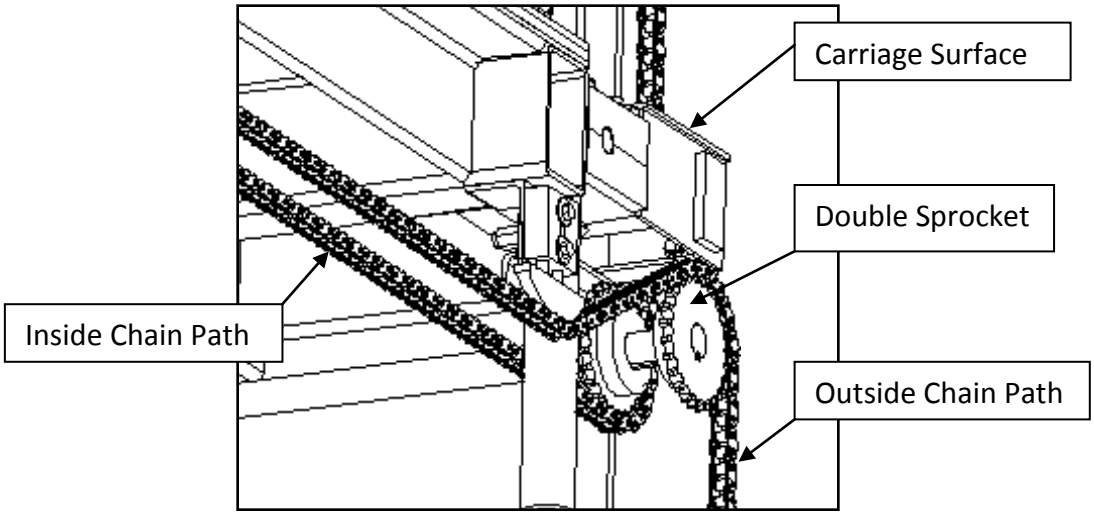

Figure 2 – Isometric View