

End of the Line Lift for Truck Assembly

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The Customer Requirement

A major truck manufacturer wanted a lift system to be used at the end of a tow chain conveyor system to raise the truck off of the tow chain for inspection and then to lower to ground level.

The Challenge

For flexibility in manufacturing purposes, a major truck manufacturer wanted to be able to process all size trucks on all assembly lines, not just certain size trucks dedicated to certain lines. This manufacturing approach then required a means to remove a wide range of truck weights and lengths from the end of a moving tow chain conveyor system. The unique design challenges for an end-of-line lift under these circumstances were: 1.) Must raise and lower two adjacent, 40-foot long lift platforms in unison, 2.) these independent platforms must not exceed a 1% incline during operation - regardless of the location of the center of gravity along the 40 foot platform, and 3.) must be cost-efficient (minimal number of scissors to support the load).

The Autoquip Solution

Upon review of the customer's design specifications for all size and weight trucks that were anticipated to be assembled on the line, Autoquip engineers recommended a synchronized lift system that included two (2) sets of two (2) low travel, high capacity scissors tables that would be mounted ten (10) feet apart and share a common 1-piece, 40-foot long "floating" deck. Each floating deck was synchronized front-to-back by using a flow "proportionator" at a common hydraulic power unit - which divided the oil

flow equally between the two (2) lifts for that common deck. To achieve divided flow in both the Up and DOWN circuits, the lift cylinders had to be double-acting (powered in both directions). A single operator pushbutton station started and stopped both sets of motors at the same time.

This solution provided the simplest and most stable lifting solution for the application. The number of scissors mechanisms was reduced to the minimum number possible to achieve the lifting capacity required, keep operating speeds as fast as possible, and to reduce overall costs.

Lift Specifications for this Unique Application:

- Lift Model: 42C8F100DL – (2) lifts required
- Total Lifting Capacity: 20,000 lbs
- Vertical Travel: 42"
- Platform Size: 36" x 480" per "floating" deck – (2) required
- Actuation: Double-acting Hydraulic

Solution Benefits

Through the use of Autoquip's synchronized scissor lift system, the process of removing a wide variety of truck sizes from a moving assembly line has dramatically reduced the incidences of line stoppages due to over-shooting this station, and has allowed inspection workers at this station to perform their tasks at a more ergonomic and efficient work height.

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