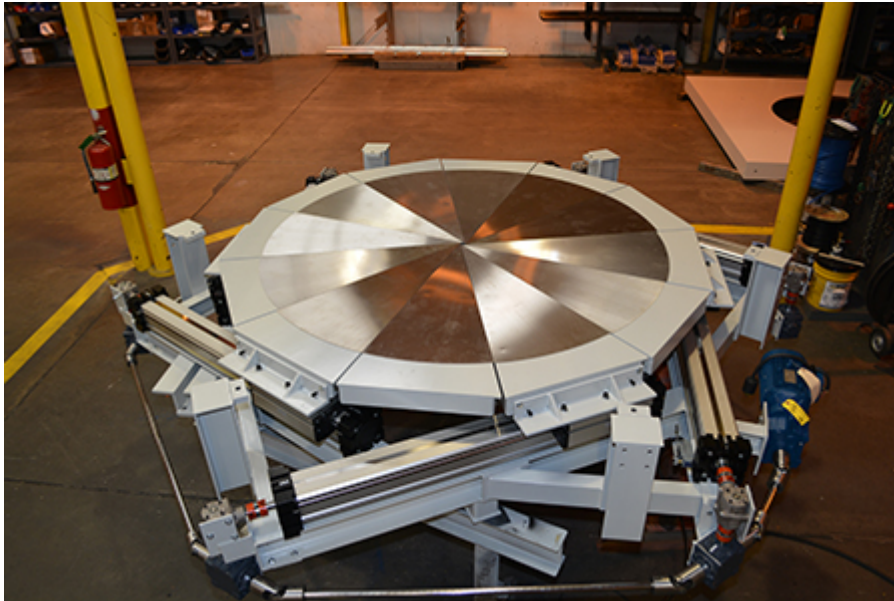


Custom Work Platform: Opening for Engine Assembly



The Challenge

A leading manufacturer and service provider of aircraft engines is opening a new facility and implementing a new vertical assembly station to keep up with increase demand in engine production. They installed a state of the art mezzanine structure that provides two assembly stations each custom built with two circular cutouts to raise the engines through for mechanics to work on from both the ground and mezzanine level. Our dealer, Warner Specialty Products, Inc. brought us the project to design and manufacture a custom lift system that will interface with the mezzanine configuration that the jet engine manufacturer already has in place.

The Autoquip Solution

Autoquip designed, manufactured, and engineered (2) custom lift systems that make up (3) separate lift units each to perform different functions for the assembly operation.

1. *The Engine Lift*- A Double Pantograph scissor lift that will raise the engine up to the mezzanine and push the engine through the circular cutout section.
2. *Aperture Work Platform*- A work platform that is automated to open/shut around the engine to fill in the space gap of the circular section on the mezzanine. (Simulates an aperture mechanism).
3. *The Kit Lift*- A vertical reciprocating conveyor lift or VRC materials lift to bring the kit parts and tools to the upper level service area on the mezzanine.

Custom features for each lift were uniquely designed for the customer's jet engine assembly process.



The Engine Lift, a custom Double Pantograph scissor lift that features an alignment fixture to secure the customer's engine stand. Once the engine is cradled in the stand, the mechanics can operate the scissor lift from the upper or lower level work station to position the engine to the different working heights. The Double Pantograph has a capacity of 9,000lbs with a 60-inch travel.

Scissor Lift Safety Features include:

- Full Accordion Skirt to protect the scissor lift mechanisms from dirt and debris.
- Electronic Bumper Switch to prevent the scissor lift from moving if a worker is leaning against it while performing their task, or it will stop the lift while in transition if the bumper encounters an obstruction.
- Emergency Stop Button for the upper and lower workstations.

The Aperture Work Platform, Autoquip is the leader in building custom work platforms with shuttles, extensions, sliders and drawers, and with this vast experience we launch a new design of what we call the "Aperture" design which allows the platform to close 360 degrees around the product. A gear motor and 6 linear actuators drive the Aperture that will "open/shut" steel skin wedges around the cylindrical engine (from fully open at 66" diameter, down to 2" diameter when fully closed) to allow safe, "walk-on" access. Even when the engine isn't present the aperture closes completely to allow safe egress across the work platform. The aperture work platform has a capacity of 500lbs.

Custom Aperture Work Platform (Aperture) Features include:

- Push button controls to operate the aperture.
- Limit switches to stop the platform from opening or closing if an object should come in contact with it.
- A hand crank in case loss of power occurs.
- A brush seal mounted to the circumference of the mezzanine platform to ensure no loose parts or debris can be wedged between the platform parts.

The Kit Lift, a pan style custom VRC material lift with a built in cart track that when employees roll the cart onto the carriage guided by the track, a photo-eye indicator will trigger the lock assembly and securely lock the cart in place; kit parts and tools are safely transferred to the upper mezzanine level. A horizontal sliding gate is used for safe entry and exit to load or remove the cart, and enclosures surround the non-accessible areas of the lift for added safety precaution in the facility.

Specifications: FLT-15, Pan Style – 64×66, 108" floor-to-floor travel with a 1,000lb capacity.

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The Solution Benefits

Custom turnkey lifting solutions from Autoquip give manufacturers like this one the substantial capacity to optimize production and experience immediate results, most notably:



- Productivity – the mechanics will be able to keep up with production volume by having two workstations and two custom lift systems to keep the assembly process moving more efficiently.
- Safety – lowers risk of injury by lifting the engine and tools to a safe working height for the employees, while the custom aperture work platform provides a safe working surface to conduct precise assembly work.
- Time savings – the lift systems were designed to interface with the new vertical assembly station and helps keep everything in one central location and moving between levels as the job requires.