

## EW Lifts with Telescoping Deck for Fuselage Assembly



### The Challenge

1. The customer had a plank-type structure that extended into the aircraft fuselage. This structure had a limited load capacity, so any feasible lifting solution had to meet strict weight limitations.
2. The customer wanted an adjustable-height, elevated working surface that covered the entire area within the fuselage – yet be able to retract out of the way for tools and equipment that had to be pushed down a center aisle of the plank between builds.
3. Because of the fuselage's round shape, personnel guard rails needed to be adjustable – especially near the fuselage's walls, and equipped with sensors so as to not make contact with and damage the aircraft's aluminum structure.

### The Autoquip Solution

After working closely with the client to better understand the application and site limitations, Autoquip developed a synchronized system of six (6) custom scissor lifts that featured a combination of vertical travel and side-to-side platform shuttling that provided the adequate working height and reach for the entire assembly process. Utilizing a specialized control system, each lift was designed to operate to raise/shuttle independently or as one synchronized group. The design also included the ability to position all platforms at the same elevation, and in the fully shuttled position, to form one large common work platform. This hydraulically powered shuttle deck system was very unique, as it laterally extended or retracted the position of the platform



by almost 80% of the overall width of the lift while maintaining negligible platform deflection at the extended edge.

To lessen weight, the lifts were designed and constructed using a hybrid-materials approach in construction that utilized lightweight aluminum for the platform and accessories while maintaining a steel lifting structure. A system of manually telescoping platform handrails were designed to allow multiple indexing configurations while avoiding contact with the interior of the fuselage as the lift elevation changed. Additional safeguarding features were installed throughout the system, such as pressure sensitive safety mats to protect pinch points between adjacent scissor tables. Lift Specifications: Model: 60S40EXW 6-Lift System Capacity: 1,000 lbs. Travel: 60" Platform: 48" x 96" each scissor table 172" x 384" overall when synchronized & shuttled Shuttle: 38" Total Actuation: Hydraulic – lifting and shuttling

## The Solution Benefits

After start-up, this well-known aerospace company has benefited from Autoquip's customized, synchronized lift system by both increasing throughput and improving worker ergonomics. According to Autoquip project manager Roman Meeks, "The objective was to develop the most flexible and user-friendly system possible with safety at the forefront of the design." The fact that this customer has purchased multiple systems, as well as other material handling solutions for various other processes, speaks well to the successful implementation of this challenging application.