

## Mobile Mezzanine Lift for Aerospace Assembly Line



### The Challenge

A large aerospace manufacturer production process is built around flexible, movable assembly lines. The challenge is what industrial lift they could use to move sizable materials carts containing wires and long fragile components up to a mezzanine level to complete final installation. If the mezzanine isn't in a fixed position, the lift has to be able move along with it.

The previous process involved one of three methods:

1. Employees manually carried the material up several flights of stairs.
2. A much larger drivable system was used which was too large to fit into the assembly areas and too expensive to have a fleet assigned to each assembly area.
3. A non-portable, integrated, freight lift that was too small to accommodate the materials needing to be raised to the upper level.

None of these methods had proved to be ideal and did not provide an efficient and feasible means of transporting the materials to the mezzanine level.

The aerospace manufacturer challenged Autoquip to design a lift that would meet the following requirements of the application:

1. Mobility: To be able to integrate with moving assembly line and to be able to easily transport to other assembly stations.
2. Integrate: The lift must integrate with the existing mezzanine. We couldn't make changes to their



existing mezzanine.

3. Size: The lift must meet the requirements to handle the material size load and transfer from ground level to mezzanine level.
4. Safe: The lift must meet stringent safety requirements yet operate in a dynamic work environment.

## The Autoquip Solution

Leveraging Autoquip's 65 years of lift design and engineering expertise, we combined and modified two existing designs which were typically used in other applications to provide the mobile mezzanine lift. The custom lift was built to the aerospace manufacturer's typical component specs and includes design features to meet the applicable code and load testing requirements.

Specifications and Features include:

1. Capacity: 7,000 lbs.
2. Platform size: 8' x 20'
3. Travel: 20FPM max speed and 120" travel height
4. Mobility
  1. Removable tow tongue attaches to the lift for transport to other assembly stations.
  2. Removable ramp for ease of relocating with the lift to other assembly stations for loading at the ground level.
5. Mezzanine Integration
6. Transition bridge from platform to mezzanine.
7. Adjustable pinning system to align edge of lift with upper landing.
8. Safety
  1. Vertical acting gates on carriage and on transport base. Exterior gates prevent workers from walking under the lift during operation. Interior gates protect transport of materials.
  2. Interlocks – prevents the gate from opening if the platform is not at landing.
  3. Expanded metal guarding on all non-accessible sides of carriage and transport base.
9. Controls
  1. HMI touch screen control panel includes programmable operation and detection and an emergency stop button.

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# The Solution Benefits

The mobile mezzanine lift will significantly reduce time spent transporting materials to the upper level and will keep production moving at a steady pace because now the employees will have all the components delivered to them so they have everything they need where and when they need it.

- Flexibility – The lift provides the flexibility of moving materials to different locations because of the mobility and size of the platform.
- Efficiency – Improves the amount of product lifted at one time and the time involved due to the speed of the lift.
- Integration – Fits easily into their production methods for mobility and existing mezzanine configuration.
- Safety – Controls, gates and enclosures were designed to insure safe operation and use.
- Durability – Autoquip builds durable material lifts. The customers past lifts were not designed for the environment. Critical delivery of fragile components was achieved for production lines where timeliness and safety are paramount.