



Agriculture Assembly Transporters



The Situation

In 2011, the global CNH brands Case and New Holland decided to begin manufacture of grain (or “draper”) headers for combines. After completing their own proprietary combine header design, CNH engineers were tasked with creating a lean manufacturing facility in Burlington, Iowa.

After reviewing their competitors’ method of moving the combine headers through the line—many used carts with caster wheels and drive motors—CNH determined they needed a more flexible, ergonomic option that was also safe and proactively set the pace of production. They turned to the proven technology of affordable air bearings.

The Solution

Airfloat engineers created a “floating” assembly line that utilizes custom-designed and custom-built air-bearing transporters/upenders that are set up to run on a 60 minute takt time to drive production. These driverless combine header assembly transporters/upenders automatically move the combine heads from one assembly station to the next. The built-in “Pac-Man” upenders provide the option to rotate each head to the desired angle, up to 105°, allowing workers to more easily access the underside for an ergonomic work environment that is customized to their station.

Additionally, the custom Airfloat transporter provides the facility with the flexibility to produce multiple models of combine headers—ranging from 25 to 45 feet in length and weighing between 7,500 and 11,000 lbs—on the same line.

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The Result

For CNH, there are multiple benefits to their custom Airfloat transporters/upenders.

- *Maximum flexibility, lower cost.*
With costly drag chain conveyor systems, the whole line moves as one and moving or altering the system is an exhaustive process. Airfloat transporters, however, can move independently for easy minor adjustments or complete relocation at a significantly lower cost.
- *Automatic operation enhances throughput.*
Since no driver is required with Airfloat transporters an ideal pace of production is maintained.
- *Powerful technology enhances safety.*
With the Airfloat air bearing transporter, only 35 pounds of force is required to get the combine headers rolling, as opposed to 135 pounds with casters, making it much easier and safer for workers.
- *Improved ergonomics.*
With the upender's ability to rotate the combine headers up to 105°, ergonomics is greatly improved which thereby decreases the chance of worker injuries.