

Delphi Automotive / ARD Logistics



Delphi Automotive partnered with ARD Logistics in Cottondale, Alabama, a third-party logistics (3PL) provider to deliver vehicle wiring harnesses on a Just-In-Time/Just-In-Sequence (JIT/JIS) basis to two Mercedes assembly plants. Together, Delphi and ARD have created a synchronized manufacturing value chain that spans 1,200 miles, from harness production in Juarez, Mexico to the assembly lines in Alabama.

Problems and Challenges

Mercedes' philosophy of a made to order vehicle posed some specific requirements in designing a system to meet their needs. The biggest hurdle was distance with 1,200 miles between the



Solution Highlights

- A lean process: Build-to-customer order (high value approach) vs. build-to-inventory
- Assures 100% harness availability: Just-In-Time and Just-In-Sequence at the assembly line
- An agile process to support flexibility in scheduling release of vehicles to assembly operations
- Protects harness product through all manufacturing logistics and assembly operations
- Substantially improves employee ergonomics by handling the large (150 lb) load
- Long term Delphi contract with Mercedes enabled automation to justify the capital investment
- Expandable: Added the engine harnesses into totes and avoided extra investment in material handling systems; adjacent space exists for expanding the AS/RS buffer



- Improved load handling ergonomics
- Harness value and criticality to a specific vehicle
- Avoidance of sustained labor and equipment expense
- Avoidance of complications by manually storing and retrieving totes to decrease errors and the risk of missed deliveries

Automated storage was the only way that ARD/Delphi could support both the manufacturing and assembly facilities equally.

Another obstacle was the vehicle harness. Vehicle harnesses are complex and expensive making their storage an important issue. Daifuku developed a specialized wire harness stackable tote with top to bottom caps, one size fits all design for multiple harnesses, sized to include separate engine harness, and harness barcode labels on both ends. This unique design assured ARD/Delphi 100% harness availability, Just-In-Time and Just-In-Sequence at the assembly line.

manufacturing plant and the 3PL and the assembly plant. An AS/RS system would be required to hold three days worth of production, support two plants, error-proof receiving, capture a small floor space footprint, and deliver perfect orders 100% of the time. Daifuku was able to develop a value-chain solution using proven experience in material handling technology.

Solution Selection Process

Automated equipment was selected over conventional rack for a variety of reasons:

- One third footprint: 8,000 sq ft
- 100% automated tote selectivity and delivery to build station