



Case Studies : General Motors

Fascia Delivery System

The Company: General Motors of Canada – Oshawa Car Assembly, Ontario

The Line: fascia (bumper) line for the Pontiac Grand Prix and the Buick Century / Buick Regal

The Situation: General Motors needed to replace an existing fascia delivery conveyor at their plant in Oshawa, Ontario. Automotive bumpers were required for assembly of the 2004 Pontiac Grand Prix (GMX 367), the Buick Century / Buick Regal (MS2000).

Our Track Record: Mainway has worked with fascia manufacturers since 1988 to convey and store their products. We have developed revolutionary methods of handling the light weight yet bulky fascias. Our Ford Crown Victoria and Windstar storage systems at Decoma's Polycon plant in Guelph Ontario, Canada was used as the basis of the GM over the road conveyance delivery concept.

The Challenges:

1. Fascias are to be delivered to the assembly station in exact sequence to match the assembly line car build.
2. To replace the heavy steel fascia shipping racks with a molded plastic slave pallet designed to carry a single fascia.
3. To design a plastic pallet that can carry and protect any one of several models of fascias, front and rear.
4. All equipment has to be supplied to meet Ontario's strict Health and Safety guidelines while meeting all production requirements.
5. To design and supply trailers with loading automation to carry fascias and empty pallets over the road between the warehouse and the assembly plant.
6. A restraint system for the parts is required to ensure fascias are not damaged while traveling over rough roads.
7. To design a system at the warehouse to stage, then load a trailer with 78 fascias.
8. To design/supply an automated conveyor at the warehouse to receive empty pallets at the same time, on the same trailer, as the sequenced fascias are loaded.
9. The floor area available in the warehouse for the conveyors is only 80 ft long by 10 ft wide.
10. To design an automated conveying system at the GM plant to offload fascias and load empty pallets.
11. The dock area available at GM required parts to travel up and over the assembly line on a single level of conveyor.
12. The assembly line unload station has minimal floor space beside the line.
13. Empty pallets need to be conveyed from the unload station and stacked automatically for return to the warehouse sequencing system.

The Solution:



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1. Mainway's solution is a lighter, faster, more flexible delivery conveyor that handled individual fascias all the way from the sequencing warehouse located in another facility to the car assembly line at GM.
2. The systems are designed to be fully automatic from the warehouse to the assembly line. Trailer loading/unloading sequence is maintained through every sorting or staging function.
3. Two styles of stackable vacuum formed plastic pallets were supplied to enable conveyance of the fascias while supporting and protecting the paint finish
4. Mainway consulted with professional safety Engineers prior to design of the systems. We selected low voltage (24 VDC) powered rollers for conveying the fascias and pallets. Conveyors are supplied with emergency pull cable stops mounted along the side.
5. A conventional trailer system was built with four levels of storage conveyor and pneumatic clamping for mutilation production while in transit. The conveyors on the trailer are operated by 24VDC power, control wiring, and air at the dock.
6. An overhead conveyor feeds and accumulates parts as a buffer between the warehouse load station and staged parts. Parts are staged for the trailer in a four level conveyor that is loaded by a vertical conveyor. The module docks with the trailer and loads three levels with sequenced parts while receiving one level of stacked empty pallets.
7. At the GM plant we provided a pivoting and telescoping belt conveyor to dock with the delivery trailer and strip each level of parts in sequence onto a single line. The parts are conveyed overhead on rollers toward the unload station.
8. The unload station receives parts on a steeply declining belt conveyor.
9. The unload station discharges the single empty pallet under the delivery line then conveys it overhead where it is stacked four high. Stacks are loaded into the trailer automatically by a second extendible belt at the same time the fascias are offloaded from the trailer.

The Results:

1. Heavy, expensive steel shipping racks weighing more than 10,000 lbs. per trailer load, replaced by durable, stackable, plastic fascias pallets that weigh less than 5 lbs each – 400 lbs/trailer load.
2. Fascias are always delivered to GM in the exact build sequence.
3. The system is very reliable, compact and easy to maintain.
4. The system loads a trailer at the warehouse in 45 seconds and offloads at GM in less than 7minutes.
5. Only three (3) trailers are required to supply two (2) shifts of assembly at General Motors.
6. There is no mutilation of parts in the system.
7. The trailer can return 104 empty pallets and deliver 78 fascias per trailer load.

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