

## *Case Study*



### *Magnys Helps Generate Significant Savings On Installation Of New Decking System at Ford - Oakville*

To support a new vehicle launch at its Oakville (Ontario) assembly facility, Ford Motor Company needed to modify an engine decking system. Fori Automation was tasked to install the new system, and they turned to Magnys to help ensure that the program would be completed on-time and on-budget.

Oakville's original decking system consisted of a single loop with 24 carts. However, the new system had to utilize two different tooling sets in order to accommodate a second engine style, which meant the system had to have the capability to swap out carts based on the plant's production schedule.

This random schedule resulted in Fori Automation developing a system that added a pair of storage spurs, where carts for each engine type queue until needed. After a cart decked its engine into a chassis, the system had to decide if it was needed on the loop for the next job in the production schedule, or if it should wait on its assigned spur.

The logic behind a system like this is extremely complex, making this system more easily envisioned than implemented. Among other issues, Fori engineers had to grapple with:

- 1) Time required for carts to travel through the spur –if a cart took too long it might enter the spur when it is not needed and be overdue by the time it exits
- 2) Variations in the production schedule –large groups of one cart type could stress the system and cause shortages of a particular cart type
- 3) Potential repairs and maintenance on the carts –carts flagged for repair had to be ignored when the system considered the carts needed the next time through the loop
- 4) Introduction of two automated track switches to route the carts to the appropriate locations –these switches were each very large (6 feet by 20 feet) and required many safety issues had to be addressed by the logic
- 5) Timeframe for implementing the code –the Oakville facility was already under full production, which meant these changes needed to be implemented over weekends and short holiday shutdowns

Magnys emulation was a natural solution.

Engineers were able to validate the PLC logic for the new spurs in a virtual environment, which meant they were able to test their new system without causing any disruptions to ongoing production. Furthermore, our model identified problems with portions of the loop that had been causing chronic downtimes in Oakville, meaning, the new engine decking system is at once more complex and more efficient than the one it replaced.



The cost benefits of reducing downtime are tremendous: if, for example, an assembly line produces 60 vehicles per hour at an average profit of \$1,500 per vehicle, an hour of downtime carries a cost of \$90,000. Magnys eliminates the need for plant managers to decide between losing money by disrupting production, or having engineers come in during evening or weekend hours to work on new systems.

Fori Automation told us that emulation substantially reduced on-site debug time for their new engine decking system. One of the Fori engineers managing the program told us that we made implementation at Oakville Assembly Plant much more painless than it would have been using more traditional debugging processes, and that finding and resolving all of the issues without our emulation would have caused many difficult and stressful production days within the plant.

The final word on the value Magnys brought to Ford Oakville as a result of our work with Fori came directly from Ford. The lead engineer on the project told us that our emulation is “a great tool that allowed prove-out of complicated logic without causing production losses! In my mind it was worth every penny.”

*To learn more about how Magnys can help your company save time and money in the commissioning of manufacturing, assembly and distribution systems, please contact Joe Hugan at (248) 449-2600, extension 125, or email him at [jhugan@magnys.com](mailto:jhugan@magnys.com).*



**Magnys Innovative Solutions**

42500 W. Eleven Mile Road, Suite B

Novi, MI 48375

248-449-2600

[www.magnys.com](http://www.magnys.com)