

# TROY DESIGN & MANUFACTURING COMPANY HEIGHTENS DATA COLLECTION ACCURACY WITH LOWRY SOLUTIONS' REAL- TIME RFID TRACKING AND AUTOMATION



*Troy Design & Manufacturing Company enlists Lowry Solutions to implement Motorola RFID solutions to track and verify its vehicle conversions from receipt to completion – in real time.*

## SITUATION

Troy Design & Manufacturing (TDM), a Detroit-based Ford Motor Company metal stamping subsidiary, set out to expand its business to include vehicle conversion at its new Chicago Modification Center, where it planned to convert +150 base-model Ford vehicles into police interceptors each day. However, their manual, paper-based tracking system would not be efficient enough to handle these operations.

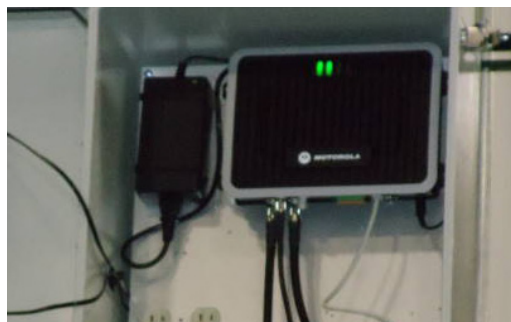
Since 1974, Lowry Solutions has been implementing technology innovations nationwide, and with over 10,000 customers, it has established itself as a premier system integrator focused on barcode and RFID, among other technologies.

TDM needed a highly automated, computerized infrastructure to track and report every step of the vehicle conversion process in real time, from receipt to completion. And, acting alone, barcode technology would not be able to provide the level of automation that TDM's new operations required.

## SOLUTION

TDM enlisted Lowry Solutions, a trusted Motorola partner, to implement a robust vehicle tracking solution with a powerful vision. The company felt confident selecting Motorola hardware due to Lowry's familiarity and history with its products. TDM conducted extensive research and heard numerous industry testimonials that set Motorola apart from its competitors.

TDM built its tracking infrastructure using the powerful combination of **Lowry's Work-In-Process software integrated with 7iD by collecting data from Motorola's FX9500 Fixed RFID Readers and AN200 RFID Antennae.**



## CUSTOMER PROFILE

Troy Design & Manufacturing Co.  
Redford, Michigan  
[www.troydm.com](http://www.troydm.com)

**Industry**  
Automotive

**Solution**  
FX9500 Fixed RFID Reader  
AN200 RFID Antennae  
LS4278 Handheld Scanner  
Lowry Work-In-Process Software

**Benefits**  
Real-time visibility  
Streamlined operations  
Increased consistency



## RESULTS

Using Motorola RFID solutions to automate TDM's workflow, Lowry was able to deploy a strong vehicle tracking infrastructure. Overall, the new processes that have been put in place as a result of the implementation have helped TDM's facility run much more smoothly.

RFID automation allowed TDM to realize advantages such as increased precision and accuracy of data collection processes and increased facility efficiency. For example, an automated workflow has allowed operators to focus less on paper-based documentation and more on performing vital tasks.

Lowry's implementation has also allowed TDM to augment vehicle visibility and conversion process data. The RFID data captured is reliable and consistent so the company's operators can glean increased insight into the facility's inventory and operations. They have been able to eliminate unnecessary steps in the data capture process to minimize downtime and expedite project turnover.

## REAL-TIME TRACKING REALIZED

Ford Motor Company, TDM's parent company, recommended Lowry because of the company's experience in the environment. Lowry's experts were able to establish a vision that met the specific needs of TDM's modification center, and guided TDM as it drafted a concept model.

After assessing their manual, paper-based documentation processes, they recognized TDM's need for a more robust, "hands-off" solution to track customer vehicles and meet production targets. In response, Lowry recommended that TDM implement a form of automatic data capture – either barcode or RFID technology – to not only increase vehicle visibility, but also streamline everyday operations.

"The application makes decisions and directs traffic flow based on the information in the system, and it's hands-off, so our operators aren't rifling through paper, trying to see where things go and needing to make decisions. It's all very visual."

- Chris Morgan, TDM IT Manager

In this implementation, Lowry's goal was to reduce the amount of steps required to complete tasks as well as create a clean, streamlined process to track the movement and timing of vehicles from receipt to completion.

Lowry's experts agreed that RFID technology would be the best fit for a vehicle tracking infrastructure. While barcode technology would certainly streamline TDM's workflow, it would still require operators to perform manual scans – whereas RFID technology would allow them to read data from anywhere in the facility.

"RFID tag data is captured each time a vehicle enters and exits a work cell; the data is passed to the Work-in-Process application, providing date and time stamps for each of these events," explained Jeff Polly, Lowry's Vice President of Technical Services. "This allows TDM production managers the data necessary to optimize the dwell time for vehicles in each work cell."

Lowry looked to Motorola to provide a robust, reliable RFID solution to reduce hands-on processes that require human intervention. TDM felt comfortable with Motorola as they had heard positive reviews from several industry professionals.





## **COLLABORATION FACILITATES EFFECTIVE IMPLEMENTATION**

To stay within TDM's budget and aggressive timeframe, Lowry conducted vigorous prototyping and testing while maintaining a steady dialogue with TDM throughout the development phase, sharing interactive progressions of prototype updates, and making adjustments based on TDM feedback.

Lowry's Agile Software Development process led to a **Work-In-Process** software application that seamlessly integrated with 7iD middleware and Motorola FX9500 Fixed RFID Readers and AN200 RFID Antennae.

Lowry's Vice President of Software Development Paul Rakowicz explained, "We received feedback from TDM, so when we got to the implementation phase, they already knew what they were getting because they were involved in the development. There were no surprises because they had seen, touched and participated in everything."

Timeframe demands were successfully met as a result of Lowry's hands-on tailoring and TDM's collaboration. The completed solution is able to commission RFID tags that link with complex work instructions, bill of materials and tracking numbers tied to the vehicle's VIN number right as each vehicle enters the facility. With this information, TDM operators can direct vehicles through production cells with real-time guidance from the WIP application solely from automated RFID scans and reads.



## **AUTOMATION EXCEEDS EXPECTATIONS**

During the test phase, time studies showed RFID scans shaving 5-7 seconds off total work station time compared against barcode scans, significantly saving time considering each of the +150 daily vehicle conversions can go through up to 10 work stations.

"Work instructions are displayed on-screen through the Work-in-Process software based on the RFID tag information read for each vehicle entering a particular work cell," Rakowicz said. "This maximizes the time workers have to install components versus looking for instructions, increasing the speed of cars through each work cell."

And because the Work-in-Process application interfaces with Ford Motor Company's corporate applications, TDM is able to use the RFID solution to report vehicle receipt, production progress and shipping updates back to Ford in real time.

The real-time visibility provided by RFID technology offered even more opportunities for streamlining operations than TDM had anticipated.

Morgan said, "Overall, I would say the infrastructure itself exceeded our expectations. With the improved tag read rates and consistency, and the overall visibility that the system provides, we are always able to see where vehicles are at in the modification process inside and outside of the facility with a higher level of efficiency than anticipated."

"The Work-in-Process application is tightly integrated with Ford Motor Company's system, automating the receiving process for TDM and saving substantial time on the receiving process," Rakowicz said. "Conversely, when a vehicle conversion is complete, the RFID infrastructure passes information – as the vehicle exits the plant – to the Work-in-Process application notifying Ford that the vehicle is complete."



### **WHAT'S NEXT?**

After a successful implementation of Motorola RFID solutions through Lowry, TDM is on the cutting edge of innovation. More than 90 percent of its operations are now automated by RFID – and the company is still seeking more opportunities to utilize the technology.

“There’s always the potential for expanding our current operations and our infrastructure,” Morgan said. “We’d like to add RFID to even more work stations to increase our visibility both inside and outside of the facility. Right now we’re still using barcodes in some areas, especially in slow content and repair areas, but we’re looking to expand capabilities.”

Rakowicz added, “From the beginning TDM always envisioned growing their operation, so the Work-in-Process application was developed with this in mind. Today, expansion and other changes are a natural part of the Work-in-Process software, enabling TDM to fulfill their vision as it unfolds.”

As TDM starts exploring even more ways to leverage RFID, Morgan said the reliability and consistency continues to provide him the gratification of “knowing that we successfully recorded every vehicle that has left the building.”



**Lowry Solutions, Inc.**

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