



# Freightliner controls inventory “choke points” with Motorola RFID



Freightliner, the best-selling brand of heavy-duty Class 8 trucks in North America, affirmed its commitment to innovation and technology through the deployment of a world-class Motorola RFID solution to track inventory replenishment throughout their manufacturing facility in Portland, Oregon.

## Company overview

Freightliner-Western Star Trucks is the leading heavy-duty truck manufacturer in North America. Headquartered in Portland, Oregon, with truck manufacturing facilities located in Portland and throughout the United States, Freightliner designs, builds and markets the best-selling brand of medium, heavy-duty diesel and specialized chassis trucks on the continent, including long-haul highway tractors, heavy-duty construction and utility trucks, mid-range trucks for distribution and service, emergency service apparatus and recreational haulers. The company's eight North American parts distribution centers manage an inventory of more than 150,000 unique part numbers.

## The challenge: automate inventory tracking to improve accuracy and efficiency

Like many modern manufacturers, Freightliner faces constant pressure to improve the efficiency and accuracy of its resource handling in order to better control manufacturing costs. The Freightliner management team, headed by Plant Automation Project Manager Louis Fleischer, was looking for a way to streamline the tracking of parts movement from inventory to the factory floor in the Portland plant.

The team sought a solution that was:

- Automated, to reduce the labor costs associated with inventory handling and tracking, from picking through delivery
- Accurate and efficient, to help eliminate expensive delays that misdirected and erroneous parts handling could cause on the production line
- Integrated with existing asset management databases, in order to further streamline inventory replenishment and resource management
- Scalable, to enable enterprise-wide extension. Once the solution had been proven in Portland, Freightliner hoped to upgrade inventory control processes throughout its North American manufacturing and parts distribution centers.

Compsee, Inc., a leading Solutions Integrator and its RFID Solutions partner, System Concepts, Inc., were called upon to develop and deploy a complete parts tracking solution for the Freightliner plant.

## Customer Profile



### Company

Freightliner Trucks

### Location

Portland, Oregon

### Industry

Manufacturing

### Motorola Products

Motorola XR400 series RFID Readers and Industrial Antennas

### Application

System Concepts' TraxWare® Software Suite

### Partners

*Solutions Integrator*

Compsee Solutions Group  
Mt. Gilead, NC

*Software and Knowledge*

System Concepts, Inc.  
High Point, NC

### Benefits

- Increased inventory accuracy for shipping and production-line picking
- Reduction in labor involvement and costs associated with inventory control
- Reduction in inventory pick errors and mis-ships
- Reduction in receiving time and incorrect parts delivery



A process engineering study identified two choke points that could be used for automated RFID tracking of inventory as it moved in and out of the warehouse.

## The requirement: integrate streamlined inventory control with existing systems

The existing process called for parts needed on the production line to be put into inventory totes, placed on mobile tugs (approximately six to seven per tug) and then transferred onto the shop floor. The empty totes were then returned to the warehouse in groups of 10 to 12 per tug for replenishment. The Portland facility uses approximately 750 totes in five different sizes. While the existing system met Freightliner's needs for picking and movement, data collection processes were labor intensive and susceptible to error.

An external engineering study was commissioned for the Portland plant to examine Freightliner's existing systems and needs. The study involved:

- Interviewing management and line personnel
- Reviewing business processes
- Researching the physics of the areas designated as collection points
- Identifying the logistical implications of the totes and tugs that would carry the inventory
- Exploring methods of interfacing to the company's existing database.

The study also identified two 'choke points', portals that every inventory shipment had to pass to enter or leave the warehouse. These portals would be used as tracking points for all transactions in and out of inventory. The results of the study became a touchstone for business process analysis, solution design and acceptance, and ultimately, project execution.

## The solution: automate parts tracking in and out of the warehouse

Once the study had defined Freightliner's process requirements, the business case for an RFID solution was easily established and solution development began. Compsee and System Concepts recommended an automated RFID solution utilizing:

- Motorola advanced RFID hardware solutions incorporating the XR400 series of RFID readers and the AN series of industrial antennas at each portal.
- Metal mount RFID tags attached to the tugs. The tags were encoded with the EPC Standards' Global Returnable Asset Identifier (GRAI) format that is intended for assignment to individual objects and is the corporate standard for tote/tug identification.



Parts moved from inventory in the warehouse to the production floor in totes placed on mobile tugs. Previous inventory control relied on manual processes to accurately record and report parts movement.

## ***The installed solution has already proven itself at the Portland plant. Labor costs associated with inventory control have been reduced significantly, as have data errors and mis-ships.***



By tagging all totes and tugs and installing Motorola RFID readers and antennas at the doors of the warehouse, in and out movement of parts is automatically tracked and documented.

- A paper RFID 4" x 6" smart label attached to each tote (one on the side and one on the front) to provide as much tag exposure as possible to the scanning portals. The GRAI format was also used for these tags.
- System Concepts' TraxWare® Software Suite. These modular software products were specifically developed for use in RFID applications in Manufacturing and Industrial Control, Asset Tracking and EPC/DoD Compliance opportunities. The software readily integrates with Motorola's RFID hardware.
- Freightliner supplied printers and System Concepts software connected to the SQL database for receipt transactions.

The system identifies each tote and tug with Radio Frequency Identification (RFID) tags. Tote and tug movement is then tracked as each passes through one of the two dock door portals equipped with Motorola RFID readers and antennas. A transaction receipt is then automatically generated and sent to the Freightliner supplied SQL database on the corporate server. This receipt details the location, date and time the transaction occurred, as well as the tote and tug information.

Using these points of control, Freightliner has deployed a complete parts tracking solution that delivers the needed efficiency, accuracy and ability to trim labor costs.

### **The benefits**

Fleischer and the Freightliner executive team affirm that the key to success in their RFID deployment was the initial development of the business case for Supply Chain Management (SCM) material visibility. Especially when combined with an architecture selection that could be readily integrated into the existing enterprise database, the business case clearly justified an investment in their RFID-based inventory control system.

Freightliner's deployment started with a Proof of Concept (POC) for an RFID Solution to solve problems within their existing supply chain, rather than approaching it as an isolated application. RFID was introduced as a comprehensive tool that effectively integrated with the existing technology in use at the plant. Fleischer challenged his team to look beyond the RFID hype to understand the real value drivers in their business and how to undertake a full solution deployment. It was a team effort that spanned all departments and created a successful deployment.

"At this point in the evolution of data collection technology, a 'closed-loop' challenge is where RFID really excels," says L. Allen Bennett, President and CEO of System Concepts. "Working with Freightliner and its engineers who had this vision, this project was the perfect match for us. When you use the right hardware, with our asset tracking software, select the right RFID tags and labels to match the environment, and the knowledge to use them correctly, it's easy to solve these types of challenges."

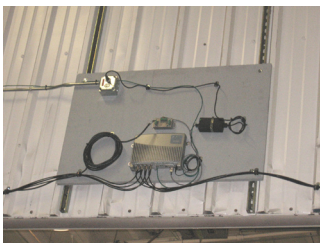
"Motorola's hardware was the right hardware for the Freightliner solution for a simple reason," Bennett continues. "It just works. The beauty of their solution is its ease of configuration and simplicity of interface. Motorola has the best RFID readers in the market, bar none."

### **Proven ROI**

Freightliner has already recognized that the solution installed at their Portland plant has had a direct return on investment. Labor costs associated with inventory control are down significantly, as are inventory pick errors and mis-ships, and production lines receive timely and correct parts.

Freightliner is currently working to develop a roll-out of this RFID-based inventory control solution for the rest of its North American plants.

*For more information about how Motorola's RFID solutions can help your company achieve a competitive advantage, contact your Motorola representative or visit [www.motorola.com/rfid](http://www.motorola.com/rfid).*



In addition to reducing errors, the system also automatically generates receipts to the corporate inventory control database, streamlining replenishment and cost management.



## About our partner

System Concepts, Inc. (SCI) develops software products that enable reliable Asset Tracking utilizing data collection technology. With a special emphasis with RFID (Radio Frequency Identification), SCI applications create value between enterprise systems and the customer's network edge tracking these assets. SCI products are sold directly and through RFID OEMs, Value-Added Resellers and Co-Marketing Partners. Founded in 1984, SCI provides industry-leading data collection software products and solutions for the manufacturing and process control, asset tracking and EPC/DoD compliance markets. TraxWare® solves the challenges of RFID systems optimizing RFID interactions and managing the enormous amounts of information these systems generate.

TraxWare's data collection methodologies, input techniques and filter algorithms monitor and manage RFID data between corporate IT systems and the edge of enterprise networks. TraxWare also monitors RFID readers and tags and includes implementation tools that ensure successful installation, operation and return on invested capital.



[www.motorola.com/rfid](http://www.motorola.com/rfid)

Part Number CS-RFIDFRTLNR. Printed in USA 04/08. MOTOROLA and the Stylized M Logo are registered in the U.S. Patent and Trademark Office. All other product or service names are the property of their registered owners. © Motorola, Inc. 2008. For system, product or services availability and specific information within your country, please contact your local Motorola office or Business Partner. Specifications are subject to change without notice.