

# Land Rover Finds ROI in Tracking New Cars

At its plant in Solihull, England, the manufacturer says it is cutting costs by using an RFID system from WhereNet to monitor vehicles in its yard after production.

By Claire Swedberg

Feb. 7, 2008—One year after deploying an RFID-based system to newly assembled vehicles at its plant in Solihull, England, Land Rover reports it has seen a return on its initial technology investment. WhereNet's Vehicle Tracking and Management System (VTMS), the company says, is reducing the amount of labor needed to track vehicles in its yard, as well as ensuring vehicles aren't shipped at the wrong times.

Land Rover vehicles are built based on dealership orders and assigned a vehicle identification number (VIN), usually associated with a specific dealership, before they even come off the assembly line. Therefore, tracking each individual vehicle before it is shipped is critical. After Land Rover vehicles come off the assembly line, they undergo a series of procedures and are moved to various locations around the yard, making it difficult to pinpoint them. The RFID system simplifies the process of locating vehicles that need to be tested, serviced, stored or shipped, by tracking each vehicle's location history and status.

"Our biggest benefits have been in labor productivity, by being able to physically locate vehicles accurately based on varying criteria," says Dave O'Reilly, Land Rover's manufacturing and purchasing IT manager. Such criteria can include searching for vehicles with a specific VIN, or a particular part or model number. Using the RFID system, O'Reilly says, "enables us to ensure we minimize the time between off-track and dispatch, thus maximizing this portion of the order-to-cash process."

Land Rover, which manufactured about 186,000 vehicles at the Solihull site in 2007, had sought a method for expediting the movement of vehicles from the assembly line to shipping, and for making sure the correct processes were followed. Because the plant was already using a WhereNet solution for parts replenishment, it opted to employ a WhereNet solution for vehicle tracking as well.

In 2002, Land Rover deployed WhereNet's real-time locating system for parts replenishment messaging (PRM). Using the system, assembly line operators have been able to contact the parts replenishment department once they get close to needing more of a specific part, according to Gary Latham, product line manager in the Enterprise Solutions Group for WhereNet/Zebra Technologies.

WhereNet battery-powered RFID tags operate at 2.4 GHz and comply with the ISO 24730 standard for real-time locating systems. During assembly, if an operator notices the quantity of a specific part dwindling, he or she presses a WhereCall button on an active RFID tag on the assembly line. That button transmits its ID number, correlated to the specific part requiring replenishment. According to Latham, a WhereNet receiver—the WhereLAN Location Sensor (LOS)—installed on the facility ceiling captures that ID number and sends it wirelessly to a central receiver, the Locating Access Point (LAP), cabled to a PC. WhereNet software running on the PC then alerts warehouse staff regarding which particular part needs to be replenished, and where.

Pleased with how its parts replenishment system works, Latham says, the company saw an additional way in which it could use WhereNet's technology. "Land Rover had already made an investment in parts replenishment, and then they had another problem with tracking vehicles," he explains. "In this way, they were able to use the existing [WhereNet] infrastructure and add outdoor antennas."

With the VTMS system, Latham says, Land Rover has added another layer of RFID tracking: When a vehicle has completed assembly, a WhereNet tag is hung from the rearview mirror or attached to the vehicle's interior door handle. The tag's unique ID number is linked to the vehicle's VIN in Land Rover's back-end MS SQL system. The active tag beacons every four minutes as the vehicle leaves the assembly line and moves first to testing, then to repair or to the 308-acre yard, where it passes through several portals. At that time, a WherePort exciter instructs the tag to beacon immediately (instead of once every four minutes), ensuring that the WhereLAN Location Sensors will capture its movement from one area to another.

In all other locations at the plant, however, the tags transmit their signals every four minutes, detectable by WhereLAN Location Sensors up to 500 feet away. The system provides the company with the vehicles' real-time location based on the time difference of transmission arrival to multiple receivers. WhereNet's Visibility Server software enables Land Rover to view a vehicle's location on a graphical map within a parking slot space of about 9 feet.

During the launching of new vehicle models, the company builds up several weeks' worth of inventory prior to shipment. At such times, the tracking of vehicle quality (whether it needs additional work) and location becomes even more difficult due to the high volume of vehicles.

Land Rover provides its shipping yard staff with handheld RFID units, on which they can access data as to which vehicles need which particular action, thereby saving the employee a trip back to the office to check in with supervisors. Workers can also use the device to locate a shipment by reading the tags on the vehicles themselves.

If a vehicle in the shipping yard requires servicing—for instance, if a supplier indicates a faulty part needs to be replaced—the vehicle is put in "quality hold" status in the VTMS software system, which places a "logical lock" on the vehicles. If someone attempts to ship the vehicle before the removal of the locked status, the employee manning the plant's exit gates will see the quality hold on his own PC, and will not allow the vehicle to leave the premises.

About 130 WhereLAN Location Sensors have been installed around the facility to date, mostly outdoors in the shipping yard, in addition to the readers previously installed for parts replenishment. The company's VTMS application utilizes about 4,000 WhereNet tags, which are removed for reuse after the vehicles are released for shipment. Land Rover hosts its own Intranet-based server, allowing employees to access the system from multiple locations.

RELATED\_ARTICLES "We have been extremely pleased with the application since its implementation," O'Reilly says. "It was relatively simple to install and implement, and has proven to be a reliable and robust application."

In addition, Land Rover has begun piloting an RFID tracking system for automotive parts coming into the assembly facility, using a [Savi Technology](#) system (see [Land Rover Test Drives RFID to Track Parts Containers](#)).