

The manufacturer of cargo management and protection systems for pickup trucks uses passive RFID EPC tags to verify that it has packed the correct components into each box.

By Beth Bacheldor

Jan. 22, 2007—[Durakon Industries](#), a maker of bed liners and other cargo management and protection systems for pickup trucks, is using passive RFID to help ensure product quality and monitor assembly operations at its Clinton, Tenn., plant.

At its factory, the company affixes 4-by-6-inch labels embedded with EPC Gen 2 RFID tags onto the underside of its new Duracover tonneau covers. The flat, lightweight plastic covers, first launched in June, fit over the beds of trucks. The RFID labels are also affixed to installation kits shipped with the Duracovers, as well as to the large boxes in which the Duracovers are packed for shipping. Gen 2-compliant interrogators from [Alien Technology](#) have been attached underneath assembly tables to scan the tags on the Duracovers, installation kits and boxes.



Joe Mawhinney

Durakon worked with systems integrator [IdentiTrak](#), which helped the manufacturer design and test the RFID hardware and software, then carry out the implementation, says Jay Fryman, executive director for IdentiTrak. Durakon is using IdentiTrak's Masterlink Edge RFID software, built on [GlobeRanger's](#) iMotion RFID platform, a middleware layer for managing RFID devices, networks, data and processes. IdentiTrak integrated iMotion with Durakon's manufacturing and warehouse management systems, which run on an [IBM AS/400](#) computer.

The implementation also includes a [Zebra Technologies'](#) 110Xi RFID printer-encoder, which encodes a unique ID number onto each RFID label. The device then prints the label with an associated bar code and basic product information, such as its name and associated components.

Durakon opted to use RFID to help ensure that it packaged each Duracover with the right assembly kit, says Joe Mawhinney, director of information systems for the Lapeer, Mich.-based manufacturer. "This started out as quality control," he explains. "This is one of our first boxed products, and we were having some errors. Some orders were getting out [to customers] with the wrong parts in the box."

Now, each install kit is prepackaged and tagged with an RFID label encoded with a unique ID number. That unique ID number is associated with a part number in Durakon's manufacturing and warehouse management systems.

In the Tennessee plant, workers glue the two halves of a tonneau cover in final assembly, then affix an RFID label onto it. The employees glue an installation kit into the bottom half of a large shipping box, then place the tagged cover in as well. Finally, they attach the top half of the shipping box, affixing a

third RFID label to the box.

When covered by the shipping box, an electric eye underneath the table activates the interrogator, which reads all three tags, then utilizes iMotion to communicate with the manufacturing management systems and determine if the correct components have been packed in the box. If they have, a light stack connected to the reader flashes a green light, alerting the workers to move the large box off the assembly table and onto a pallet for shipping. If the verification is negative, however, the labels are rechecked. If needed, the box is opened and the assembly is corrected.

Since the RFID system became operational about six months ago, Mawhinney says there hasn't been a single packaging error with the Duracovers, which the company sells to auto manufacturers and distributors. The quality improvement is a money-saver, he says, and helps to boost customer satisfaction. "This is a large item, and it is hard to ship. If we send a pallet out and there's one wrong product on it, it is expensive to send it back to us, and then for us to ship it back to the customer," he states. "Also, because this is a new product launch, we want everything to be right for our customers. We want to provide our customers what the need."

As Durakon ramps up production of its Duracovers and adds more assembly lines, the company may use the RFID system to track assembly times. The RFID readers can date- and time-stamp each read, and by tracking the time between each scan, Durakon can measure how long the final assembly of the covers takes. According to IdentiTrak's Fryman, the company needed a month and a half to plan, test and implement the hardware and software.

Durakon is considering expanding its use of RFID technology. Mawhinney says he'd like to put an RFID reader on the pallet wrapper to capture the RFID label data on the Duracover's outer box. This, he explains, would allow the firm "to identify each order that's ready for shipment, so we know which customer every single tonneau was shipped to."

Mawhinney would also like to extend RFID to the packaging processes of the company's rocker panels (protective metal strips that run along the bottom of the car body, beneath the doors). Durakon packages 49 identical rocker panels—each the same part number and color—in a single container and affixes RFID labels to all 49 panels and the outside container. In so doing, the company would be able to ensure each container contains the correct number and type of rocker panel. The RFID system could also help generate a master container list.