



## Systems in Check at Airbag Component Manufacturer

**While upgrading some of its older systems, OEA turned to Rockwell Software RSSql™ Industrial Transaction Manager, improved efficiency and accuracy, and streamlined logging of crucial data.**

Successful manufacture of automotive safety devices requires going beyond assembly and shipment to include management of millions of records on production. Logging this information can be difficult and time-consuming, but OEA, Inc. made the job easier by working with the Rockwell Software RSSql Industrial Transaction Manager software. As a result, the company has improved its efficiency and effectiveness in a highly competitive environment where quality is everything.

Incorporated in 1957 under the name Ordnance Engineering Associates, Inc., OEA is a leader in designing and manufacturing state-of-the-art propellant-actuated devices for automotive airbag systems. With facilities in California, Colorado, Utah and France, OEA produces initiators and inflators for driver, passenger and side airbags. OEA's Automotive Safety Products Division has two primary product lines – initiators and inflators. Initiators are small, precision, propellant-actuated devices connected to crash impact sensors, and inflators generate the gas that fills the air bags.

### Putting it All Together

OEA manufactures a hybrid inflator which uses both propellant and compressed gas to inflate the air bag. Inflator manufacturing starts when several component parts are welded to form a shell. As the inflator moves down the line, automated processes add initiators, propellant, subassemblies and the proper amount of gas. In addition to being X-rayed to make sure each piece of the inflator is in the correct position, each inflator is subjected to several environmental, electrical and leak tests, as well as a final visual inspection before packaging and shipment. Each time an operation is performed, Allen-Bradley controllers send information on the product lot number, the machine performing the operation and the results of the operation to a Microsoft® SQL Server plant database. OEA uses this database for report generation and tracking of individual assemblies long after they are installed in an automobile.

Adding to the complexity of the operation is the fact that driver, passenger and side unit airbags each have a different size and shape, and each automobile has a different specification. For



instance, a driver-side inflator may look the same for a Honda Civic and a Saturn SL, but what's inside is quite different. Each type of inflator is customized by changing the propellant, gas load and several subassemblies. These changes allow OEA to tailor the amount of gas an inflator releases upon impact, at what pressure the gas is released and over what duration.

### Information Overload

According to Louis Hendrich, Network Administrator for OEA, keeping track of this information is a challenge. "Every second, we need to monitor about 8,000 individual pieces of information and log the information to the database at the appropriate time," he said. At the end of the assembly process, each piece of data in an inflator's data record is verified against the production specification to confirm that all the required parameters are recorded and within the correct range before the inflators are shipped. The record is then kept in a database as long as the part may be used, which is generally 15 years.

To meet the information transfer requirements of the application, OEA installed Rockwell Software RSSql software. RSSql offers bi-directional transaction capabilities designed specifically to help plant-level control systems interface cleanly and efficiently with plant- and enterprise-level databases. Through a simple point-and-click interface, the software allows OEA to create transaction-based links that bind data in plant floor programmable controllers to fields in the database tables. Transactions are triggered either on pre-determined schedules or as the result of events taking place on the plant floor.

The bi-directional capabilities of RSSql are critical for ensuring that each inflator gets a complete data record. When RSSql logs each test result to the database, it returns a confirmation code directly to the PLC® on the factory floor indicating whether or not the test data was correctly logged into the database. When the unit is complete, so is its data record. If there is a problem posting a test result somewhere along the assembly line, the affected unit is immediately scrapped before more cost is added to it. While OEA uses a Microsoft SQL Server 6.5 database, the software connects to any ODBC-compliant database, including Sybase® and Informix®, and to Oracle® databases via the Oracle Callable Interface (OCI).

"RSSql has been a valuable tool for logging data and ensuring that it is received by the database," said Hendrich. "And because it uses a graphical user interface, it is easy to configure and change. It also aids in troubleshooting because it helps technicians pinpoint the exact problem in the system."

The transaction manager software allowed OEA to solve its issues with custom coding and manual logging as well. "The system is automated and an operator doesn't need to be involved," Hendrich added. "RSSql will let us know when information isn't accurately recorded into the database, because it gives us the two-way communication that several older systems couldn't provide."

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