Rocket Motor Production and Testing

Flexible Automation System Does Everything From HVAC Control and Security Monitoring to Rocket Assembly and Testing

Background

The Chemical Systems Division (CSD) of United Technologies' Pratt & Whitney Division assembles and tests solid rocket motors. Products include launch boosters, upper-stage motors, missiles, propulsion systems, and booster separation motors.

The solid rocket boosters for the Titan IV launch vehicle, produced at CSD, feature a seven-segment design. Each of the 10-foot diameter, 112-foot tall boosters produces 1.6 million pounds of thrust.

CSD also makes booster separation motors for Titan and Space Shuttle launches. These small but powerful motors require split-second timing and precise thrust to ensure safe booster separation. Over 11,000 booster separation motors have been used with a perfect performance record!

Project Requirements / Scope

Technical management of the 5200-acre facility is the responsibility of the Control Systems Engineering group. The first Opto 22 system was installed there nearly 10 years ago, and is still operating perfectly. Today, Opto 22 systems are used to do everything from chemical process data acquisition and control to environmental control systems, security systems, and HVAC control.

Initially, Optomux provided a means to collect data and control manufacturing systems over a large area because of its reliable serial communications. "We have facilities spread out all over our 5200-acre facility. Many of the installations have communications links in excess of 1200 feet" said Frank Thomas, Control Systems Engineering group leader.

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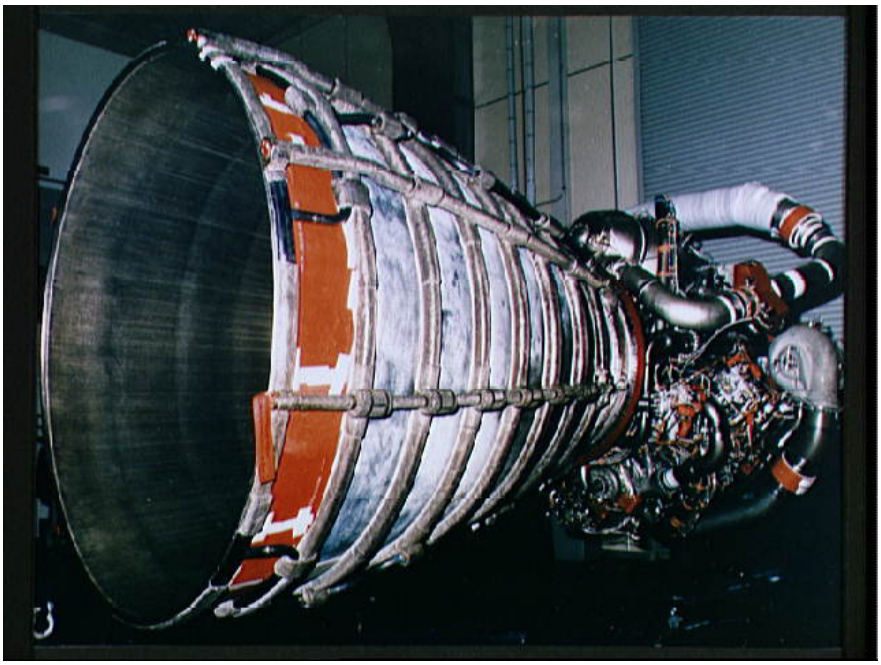
Incredible Reliability

The Company Standard

"Without a doubt the high quality and incredible reliability of Optomux led me to pursue use of the Mistic system."
"For the last 9 of the past 10 years, Opto 22 hardware has been the company standard."
"I have a history of preferring to write my own software because I didn't like what was available. FactoryFloor changed my view."



"For hardware, we used to use Burr-Brown, but it would not operate over large distances. For software, we did a lot of custom programming and used Intec Paragon software. Both became too expensive to continue with.

"Without a doubt the high quality and incredible reliability of Optomux led me to pursue use of the Mistic system."

"When writing custom code for Optomux, I found the driver to be extremely stable and reliable. I have since (in the last two years) found Cyrano/MMI and now FactoryFloor to continue to be a high-quality product."

"For the last 9 of the past 10 years, Opto 22 hardware has been the company standard. I have been at a point for about six years where I no longer review competitive products because we have exceeded our expectations with Optomux and now Mistic." Opto 22's commitment to PC-based automation has kept Opto 22 hardware and software at the forefront of performance and reliability. Whenever the state-of-the-art took a giant step forward, Opto 22 was there with cutting edge technology.

"I started very early with Pascal and MS Basic. I found the driver to be easy to use and stable. We have used Cyrano and MMI for 2 years and now FactoryFloor for half a year. I found the software extremely easy to use. I have a history of preferring to write my own software because I didn't like what was available. FactoryFloor changed my view."

"We have more than a dozen system installations. We have some with just an RTU to systems with a few bricks, to multiple systems with multiple controllers on long communications links."

Future plans include conversion to the Windows NT operating system with SQL Server capability so that any terminal in the facility can access all of the facility and production information. Anticipated benefits include better utilization of personnel resources and improved safety and efficiency.

Enterprise-wide Connectivity

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