

Aerospace Electronics and Information Technology

Southwest Research Institute combines its extensive hardware and software development expertise with comprehensive systems engineering to serve the needs of industry and government. Our services help clients produce, operate and manage systems through effective training, supply, transportation, distribution, testing, maintenance, repair and other logistic support functions.

In one of our longest-running programs, we are upgrading avionics and support equipment for the A-10 fleet of aircraft. Our client, Lockheed Martin Systems Integration - Owego, is leading the renewal of hardware and software to extend the service life of this integrated weapon system through 2028, increasing its flying hours, expanding its usage and improving structural collection data (aircraftsystems.swri.org). In 2008, we received Lockheed's Electronic Systems Business Area STAR Supplier Award, recognizing exemplary performance in quality,

SwRI engineers consider a variety of factors when designing jet engine test cell instrumentation systems, including engine control, safety and performance.

Courtesy U.S. Air Force, Tech. Sgt. Cecilio M. Ricardo Jr.

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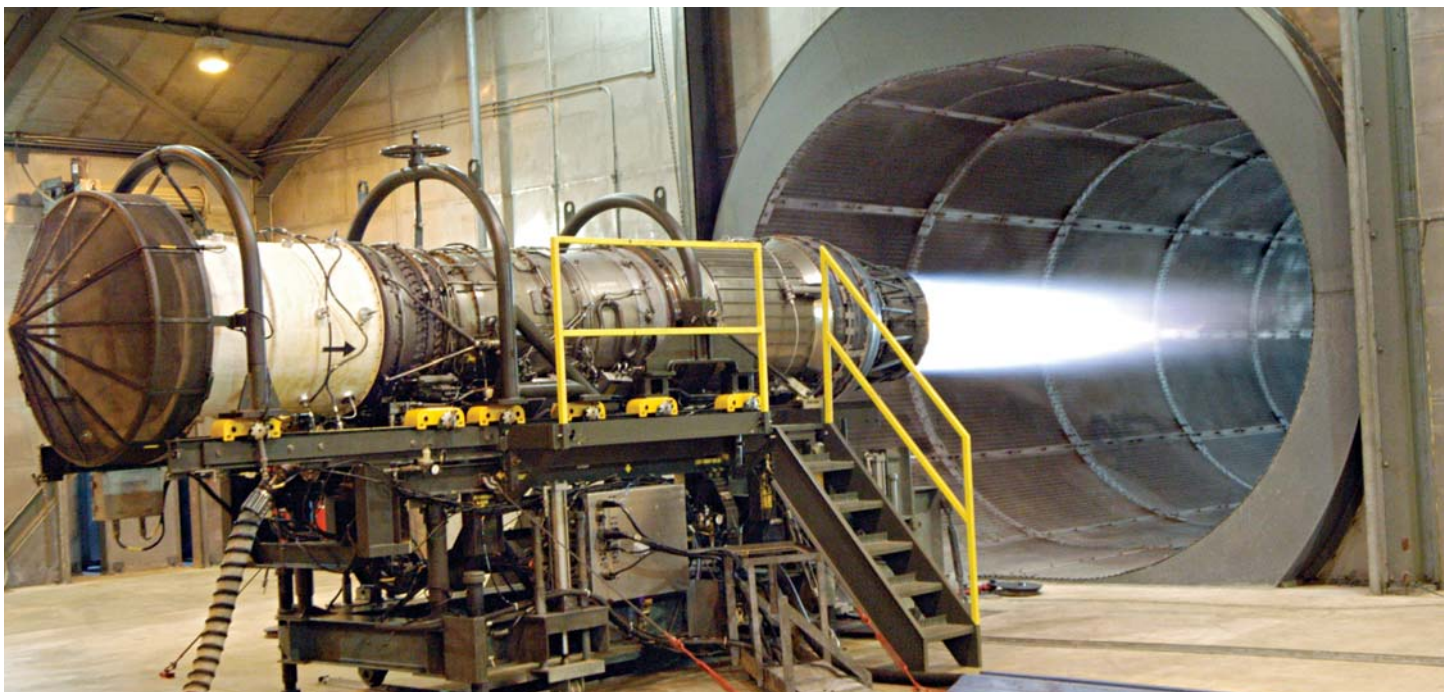
SwRI has supported the A-10 aircraft fleet since 1989 with design engineering modifications and upgrades designed to keep the aircraft flying longer. Engineers are designing new technologies to complement or replace legacy systems, as well as developing new technology for enhanced targeting, navigation and situational awareness.

delivery, affordability, and administration of goods and services.

Our engineers updated an existing Air

Force tester to replace an obsolete system at Hill Air Force Base, Utah, resulting in reduced lifecycle maintenance costs for the A-10. The system tests AIM-9 missile interface assemblies. The project involved development of test requirements, test program sets and interface test adapters; our staff upgraded the existing tester to support the new workload, developed new software and hardware, and performed integration and testing.

For many years, we have provided engineering support to Air Force Logistics Centers from satellite offices across the



D016456 Courtesy DOD

unmanned aerial vehicles • flight controls • foreign military sales (FMS) • turbine engine diagnostics
 ORACLE® databases • trigger-based management • natural language interfaces • aircraft data recorders
 flight-line testers • automatic test program set development • re-engineering electronics for F-16 aircraft
 A-10 prime program • engineering support for petroleum & water systems

country. Our Oklahoma City office provides jet engine propulsion services and expertise to support engine managers and maintainers through the development of trending and analysis tools with the goal of reducing engine maintenance, repair, and overhaul costs and engine downtime. We provide similar services to commercial clients in the propulsion world.

We also support the Department of Defense engine test and repair facilities. To complement the development of hardware, staff members develop software providing automated and semi-automated control of engine tests and calibration.

To expand our expertise in high-speed engines and propulsion, we conducted internally funded research projects to evaluate test cell performance, perform engine simulations, and improve trending and diagnostic capabilities.

We support multiple Air Force clients at the Warner Robins Air Logistics Center, performing updates to operational software for avionics, upgrading automated test systems and developing information management systems for weapon systems. SwRI engineers perform regular software block change cycle updates for the operational flight programs and automated test systems at Robins Air Force Base.

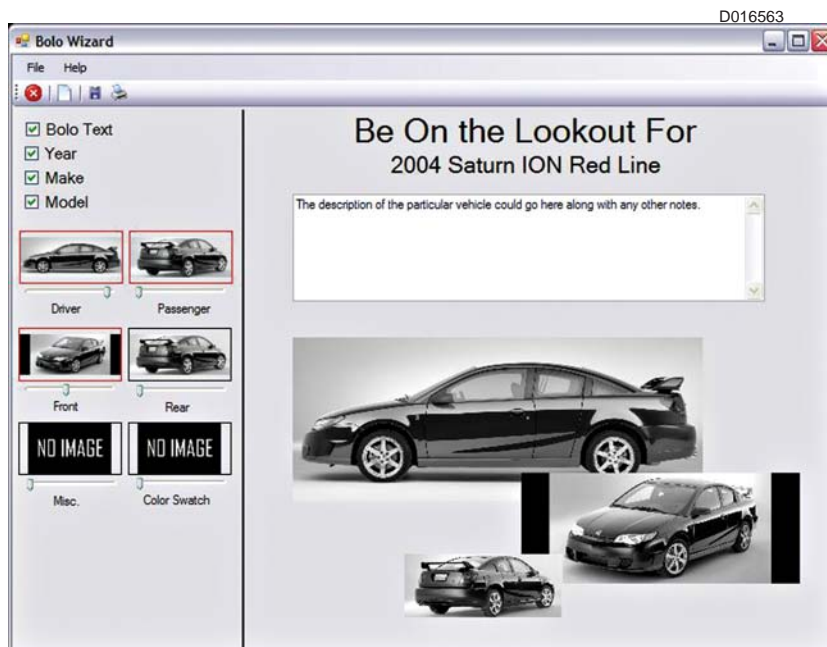
SwRI independently verifies and validates software to ensure the operational fidelity of system updates. Using a high-fidelity simulation/emulation system, our engineers test operational software in a simulated environment to measure its effectiveness, significantly reducing flight test costs and system update turnaround times.

All aerospace electronics and information technology efforts support government and commercial clients on schedule and within budget. In 2008, we were certified to the ISO 9001:2000 international quality standard, which includes design, development, production, installation and servicing activities. We are implementing additional processes to meet the AS9100 Quality Management System next year. ❖

Visit aerospaceelectronics.swri.org for more information or contact Vice President Richard D. Somers at (210) 522-3188 or richard.somers@swri.org



Staff members updated an existing Air Force tester to replace an outdated test system for AIM-9 missile interface components used on the A-10 aircraft. We developed test requirements, test program sets, and interface test adapters and provided system integration and testing. The new system reduces lifecycle maintenance costs for the aircraft.



To help law enforcement search for vehicles, we are updating the Digital Automotive Image System, an investigative forensic reference of automotive images and technical specifications. The database contains vehicles made in the last 20 years, allowing officers to search by year, make, model, class/type, door number or any combination of attributes.