Complex, cutting-edge aerospace systems require innovative maintenance and diagnostic technologies. Southwest Research Institute® (SwRI®) develops diagnostic equipment to support all levels of the maintenance process, including large, specialized, ground-based automatic test equipment and on-board, built-in test systems.

SwRI engineers are experienced in the philosophy and use of numerous standards related to the development of electronic test equipment. In some cases, staff members examine reliability and maintainability problems and redesign the system, subsystem or component causing problems.

TESTER AND SUPPORT EQUIPMENT DEVELOPMENT

- New workload support
- Correction of deficiencies (CND/RTOK)
- Elimination of obsolescence
- Test Program Set (TPS) development or rehosting
- Interface Test Adapter (ITA) development
- Instrument upgrade
- Test stand development/ integration

Sample Projects

- A-10 flightline tester
- Depot-level tester for the Integrated Flight and Fire Control Computer (IFFCC)
- IFFCC SRU tester
- F-15 power supplies TPS
- C-5B MADARS
- DTS Rehost
- AIS upgrade for F-16 RSU
- F-15 MSIP TPS
- Gyro ATE upgrades
- Gyro manual tester replacement

SwRI developed an operational-level (O-level) tester to provide troubleshooting and diagnostic capabilities for maintenance on the integrated avionics and weapons systems, subsystems and sensors for the A-10A and the A-10C precision engagement (PE) modified aircraft. The O-level tester provides system-level troubleshooting of the line replaceable units (LRU) connected to the MIL-STD-1553B avionics bus, RS-232 and Ethernet. The tester consists of the Portable Automated Test Station (PATS) hardware and the Operational Test Program (OTP) software. The O-level tester has the capability to verify the status of weapon stations on the A-10C PE aircraft using discrete data acquisition and through the MIL-STD-1760 bus.

This lightweight, ruggedized hand-held device acts as a remote terminal (RT) to download enhanced engine data used by the A-10 Engine Structural Integrity Program (ESIP) via the MIL-STD-1553B avionics bus. Equipped with a 5-gigabyte hard drive, Windows CE® operating system, and a touch screen LCD display, this mobile device enhances efficiency on the flightline while reducing the support equipment footprint.

SwRI developed Test Program Sets (TPS) for the IFFCC central processing unit, Voice Message Unit, Symbol Generator/Stroker, A/D-D/A, Command A, Command B, Discrete 1, Discrete 2, Heading, and 1553B R/T circuit card assemblies. SwRI performed detailed circuit analysis and developed full Test Requirements Documents (TRD) along with detailed Interface Test Adapter (ITA) designs that were approved by the government. The TPS software and ITAs were hosted on the Teradyne Spectrum 9100 test stand.

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Southwest Research Institute®

MAINTENANCE AND DIAGNOSTICS FOR AEROSPACE SYSTEMS

Complex, cutting-edge aerospace systems require state-of-the-art maintenance and diagnostic technologies. SwRI develops diagnostic equipment to support all levels of the maintenance process, including large, specialized, ground-based automatic test equipment and on-board, built-in test systems. Staff members are experienced in the philosophy and use of numerous standards related to the development of electronic test equipment. In some cases, the Institute examines reliability and maintainability problems and redesigns the system, subsystem or component causing problems.

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SwRI has developed hardware and test programs for a number of large, ground-based automatic test systems. This depot power supply tester was developed for F-15 aircraft support equipment.

We welcome your inquiries. For additional information, please contact:

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