

76th SOFTWARE MAINTENANCE GROUP

MISSION

The 76th Software Maintenance Group is recognized as one of the premier software development and production organizations in the Air Force. Approximately 546 personnel provide expert software support for the B-1, B-2, B-52 and E-3 aircraft. In addition, the group provides software maintenance for all cruise missiles. In support of the depot mission and warfighter shops, the group provides software design and maintenance for all assigned engines and a variety of individual components and systems.

SMXG is a respected Industry Leader in Depot and Intermediate Level Test System Design and Fabrication for Test Program Sets hardware and Software since the 1970's. We provide engineering solutions to the long-term supportability of TPS's for many major Avionics programs at Tinker AFB. Our extensive diversified experiences and comprehensive technical services enable the programs to sustain its core workload missions of repairing the sophisticated electronics circuit boards in the Avionics weapon systems at minimum turnaround.

Our expertise includes the design, development and maintenance of TPS from cradle to grave, including test fixture, software and hardware. Our sophisticated engineers keep our customers up to date with the latest Automated Test Equipment (ATE) platforms through innovative development and re-host efforts. In addition, our test facilities house the latest commercial-off-the-shelf automated test equipment for your specific testing needs. With our superb development processes and quality control management, you will assured that the product meets all your avionics testing needs and is delivered on time and within budget.

A TPS typically consists of software, interfacing hardware, and documentation necessary to detect and isolate the key failures in the Unit Under Test (UUT). A TPS is developed for use in testing analog and digital Circuit Card Assemblies (CCAs), Shop Replaceable Units (SRUs), and Line Replaceable Units (LRUs) on Automated Test Equipment.

Software Maintenance Group's (SMXG), mission includes positioning operational capabilities in the field, improving and adding to them through software development and sustainment The Group performs this mission for the E-3, B-1, B-2, and B-52, E-3 AWACS, KC-135, and for the Air

Launched Cruise Missile (ALCM), Conventional Air Launched Cruise Missile (CALCM), and Advanced Cruise Missile (ACM) weapons.

SMXG has been providing software deliveries (nuclear/conventional) since the early 1970's to our customers, who include the United States Air Force, NATO Air Force, United Kingdom's Royal Air Force, the French Air Force, and Royal Saudi Air Force customers. We pride ourselves in being responsive to our customer's need and situation. Example, we delivered an emergency software release during a conflict within four days of the reported threats.

Given the complexity and diversity of the software products we deliver, we rely on highly trained Engineers and Computer Scientists to apply their unique set of skills and experience to provide creative solutions in sophisticated electronic systems. With solid processes in place, evident by our 488 software deliveries during the Fiscal Years 2004-2006 (99% on time, 98% on budget), make us rare in the software industry. Another strength we have in our fielding avionics software is collaboration and teamwork between the program manager, system engineer, software developer, warfighter, and tester (noted by the above statistics).

76th Software Maintenance Group's (SMXG) test environments are crucial elements in successfully fielding avionics software deliveries. Our AISF emulate fielded Operational Flight Software systems to the maximum extent possible, thus reducing the risk of operational problems when the software is fielded. Each AISF provide our customers with one-of-a-kind capability to support a broad spectrum of technical and systems engineering inquiries; may have more than one hot mockup of the avionics.

We currently accommodate six AISFs supporting the E-3, B-52, B-1, B-2 avionics platforms as well as the ALCM, CALCM, and ACM weapons subsystem platform. The heart of the AISFs capability lies in their ability to provide end-to-end testing with real mission hardware and software. Beginning with a target coordinate, loading a weapon, exercising the hardware and software and ending with a weapon on target, the AISFs offer analysis capability un-matched anywhere. Our team of scientists and engineers support our customers day in and day out solving an array of avionics, software and weapon systems related issues. Our unique fully integrated facilities enable us to support our customers in the field real-time! Since our labs are comprised of actual operational hardware and software that matches the fielded aircraft configurations, technical issues are resolved quickly through direct interface with the customer.

We also have fault insertion tools and equipment to properly diagnose and analyze any of our customer's flight or ground anomalies. Our labs cater to our customers needs by performing systems, pylon/launcher, aircraft avionics, and weapons integration testing.

SMXG provides mission critical software products to the owners of automated test, industrial control, and logistics systems for the Air Force. SMXG supports in excess of 25 systems comprised of more than 625 software programs in support of almost every weapon system maintained at Tinker AFB.

Automated Test SMXG's Eddy Current Inspection (ECI) team is known throughout industry for the technical expertise and is the ECI supplier of choice. The team has recently started work on Ultrasonic Inspection (UTI), becoming one of the few in the world to develop fully automated inspections.

SMXG develops custom solutions for Management Decision Support. We implement desktop applications technology for Information Delivery and Management. We design, build and deploy proficient database and control systems which manage the flow of materials and direct manpower in the factory or warehouse workplace. Our application experience is scalable from a single desktop to a fully integrated Automated Storage and Retrieval System consisting of robotic vehicles, autonomous material handlers and powered conveyors connecting workspaces with opportunities.

Software Maintenance Group has designed and manufactured both the software and hardware components for several test systems. Test systems designed and built by SMXG with specific engine applications include the Depot DEC Test & Repair System, used for testing the F110 Digital Engine Control, the DEC Functional Test System, used for engine troubleshooting on the B2, and the AF Automated Jet Engine Test System, a PLC-based engine test system. SMXG has also developed several other systems for avionics test, nuclear hardness, engine trending, and other testing needs for many different Air Force customers.

SMXG has been awarded a prestigious contract to design and develop the Pacer Comet 4 (PC4) Test Cell System and associated TPSs. The new PC4 test cell system will replace the existing PC3 system at TAFB and incorporate many new technological advances to the test cell software, DAQ, intercom, video, and networking areas. PC4 will provide fully automated closed loop control capability and will be an important part of the Air Force's Engine Health Management (EHM) system.

LINEAGE

76th Software Maintenance Group established, 31 Jan 2005
Activated, 18 Feb 2005

STATIONS

Tinker AFB, OK, 18 Feb 2005

ASSIGNMENTS

76th Maintenance Wing, 18 Feb 2005
Oklahoma City Air Logistics Complex, 1 Oct 2012

ATTACHMENTS

Oklahoma City Air Logistics Complex, 10 Jul 2012

COMMANDERS

Dr Douglas Blake

HONORS

Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

Air Force Outstanding Unit Awards

1 Jan 2006-31 Dec 2007

1 Jan-31 Dec 2008

1 Jan 2010-31 Dec 2011

EMBLEM

MOTTO

NICKNAME

OPERATIONS

Air Force Order of Battle

Created: 23 Nov 2010

Updated: 31 Aug 2019

Sources

Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.