53 TEST SUPPORT SQUADRON

MISSION

The 53 Test Support Squadron is responsible to the 53d Weapons Evaluation Group for technical and staff functions in support of USAF air-to-air/ground operational test programs to include the WSEP and other DoD weapons tests. They also provide, technical, engineering, acquisition, data automation/local area network, system configuration control and strategic planning support for the 53 WEG, including program management of all gulf range air-to-air systems, range control systems, aerial targets (full-scale/subscale) systems and payloads, missile scoring and data analysis telemetry, and communications systems. It provides weapons and tactics, threat replication via emerging threat intelligence, aerial targets and electronic systems development, and plans/programs support to accomplish the 53 WEG mission.

LINEAGE

475 Test Squadron constituted, 16 Sep 1974
Activated, 1 Jan 1975
Inactivated, 15 Oct 1983
Redesignated 475 Test Support Squadron, 9 Apr 1993
Activated, 15 Apr 1993
Inactivated, 13 Dec 1996
Redesignated 53 Test Support Squadron, 8 Dec 2004
Activated, 28 Jan 2005

STATIONS

Tyndall AFB, FL, 1 Jan 1975-15 Oct 1983.
Tyndall AFB, FL, 15 Apr 1993-13 Dec 1996
Tyndall AFB, FL, 28 Jan 2005

ASSIGNMENTS
Air (later, USAF Air) Defense Weapons Center, 1 Jan 1975
325 Fighter Weapons Wing, 1 Jul 1981-15 Oct 1983
475 Weapons Evaluation Group, 15 Apr 1993-13 Dec 1996
53 Weapons Evaluation Group, 28 Jan 2005

COMMANDERS

HONORS
Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations
Air Force Outstanding Unit Awards
1 Jul 1975-30 Jun 1976
1 Jul 1977-30 Jun 1978
1 Jul 1978-30 Jun 1980
1 Jul 1981-31 Mar 1983
1 Jan 1994-31 May 1995
1 Jun 2004-31 May 2006
1 Jun 2006-31 May 2008

Air Force Organizational Excellence Award
[15 Apr] -31 Dec 1993

EMBLEM

Approved, 22 Oct 1980

MOTTO

OPERATIONS

The 475 Test Squadron accomplished the operations, test and evaluation and maintenance portions of the complex United States Air Force Air Defense Weapons Center mission, which was directly related to combat readiness training for air defense. Primary aircraft were the F-106 and F-101.

The Airmen of the 53rd Test Support Squadron Special Devices Flight design and implement innovative solutions with the goal of providing answers to uncommon problems. They design, build and test tailored products for Air Force and Defense Department agencies that meet operational requirements in a timely and cost-effective manner. The services they provide save the military from having to use contracted or specialty services at top dollar. There are three sections within the special devices flight: engineering, avionics and fabrication. The engineering section serves the role of project management and design for the more than 110 projects the shop completes annually.

"On a day-to-day basis, we take people's ideas and make it a reality in support of the Weapons Systems Evaluation Program," said 1st Lt. Joseph Blanton, a 53rd TSS mechanical engineer. "We develop it from an idea to a design. We then make 3-D models and drawings, and our avionics and fabrication sections will actually make the product. "When compared to a commercial product design firm, we essentially have zero overhead cost here," Blanton continued. "We develop the list of required materials for whatever organization we're designing for, whether it be the Navy, Air Force or Army. We then give that list to the customer and they purchase the materials. We produce the product from those supplies." This system has allowed hundreds of thousands of dollars to be saved with previous projects, while still putting out a high-quality

product. “Our primary role is to support the WSEP, but those aren’t always going on,” Blanton said. “When in between WSEPs, we like to reach out to the other services like the Army and Navy to fix any problems they may have. We’re always ready to support our sister services.”

The flight has 20 to 40 different projects they are working on at any given time. Some developments are quick and can be easily solved, while others can take a couple of years to solve, depending on how long it takes for the flight to get the supplies they need. Designs are then brought to life by the avionics and fabrication sections. This type of hand-in-hand coordination between engineer and maintainer is what gives the special devices flight its ability to make user-friendly, cost-effective products.

The avionics section is able to maintain electrical devices used by the 53rd Weapons Evaluation Group providing cutting-edge electrical system design, troubleshooting and fabrication. They have the ability to fully produce circuit cards and parts based on customer requirements and reverse engineer schematics of obsolete motherboards for duplication. The section also builds many of the cables that enable the vital wiring within aircraft and support equipment. “The avionics section is filled with back-shop and flightline maintenance Airmen,” said Capt. Eric Baker, the special devices flight commander. “They know everything there is to know about soldering, making circuit cards, and maintaining Air Force cables and wiring. They’re able to sort out any electronic component our customer may be having issues with.” The flight is rounded out by the fabrication section. They are fully equipped with milling machines, lathes, welding capabilities, and even a waterjet. Computer-aided, design-based drawings from the engineers are taken and transformed from electronic designs into machining instructions for prototypes and functional parts. “There are both sheet metal and metal technologies Airmen within the fabrication section,” Baker said. “We’re able to produce all sorts of parts for our customers. We have three different types of welding: metal inert gas, tungsten inert gas, and arc. All of these skills and assets allow for us to produce the housings and parts that the customer will get at the end of the project to meet their requirements.”

Baker said that in the past the flight has made Air Force-wide modifications to altitude chamber railings that normally would have cost roughly $400,000, but the special devices flight was able to modify the products for just around $21,000, a twentieth of the cost a contractor had quoted for the same work. The combined efforts of these sections make it possible to take on any requirements they are given, and transition them through the concept, design and ultimately finished product stages of development. “We have a unique mission here,” Baker said. “We’re fixing a lot of obsolete parts that you can’t get from anywhere. In these fiscally tight times, the special devices flight is able to produce solutions and designs a lot cheaper and faster than our contracted counterparts. The flight is able to take projects from cradle to grave and ensure that it’s done perfectly for our customers. We really think that we embody innovation since we’re able to come up with quick turn solutions at a tenth of the cost of most firms.” 2016

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Sources
Air Force Historical Research Agency, U.S. Air Force, Maxwell AFB, Alabama.
Air Force News. Air Force Public Affairs Agency.