

718 TEST SQUADRON



MISSION

Responsible for the space and missile systems product area. Manages development and evaluation testing of space simulation, hypersonic, rocket propulsion, nuclear weapons effects and missile signature testing. Serves as primary customer interface and center planning and execution agent for performing the space and missile systems test mission. Responsible for developing and communicating the strategic roadmap for all aspects and support to the space and missile product area. Responsible for all aspects of the test mission including budgeting, business development, test planning, test execution and data analysis and reporting. Directs space and missiles analysis and evaluation program. Maintains national missile signatures database.

The 718th Test Squadron (TS) is responsible for ground testing space and missile weapon systems from subsonic to hypersonic conditions reaching Mach 20. The 718th TS provides hypersonic, rocket propulsion and space environmental Test and Evaluation (T&E) services and coordinates testing in more than 30 facilities. The facilities support the development of defensive ballistic and tactical missile interceptors, as well as weapons systems such as theater, cruise missile, high-speed aircraft and launch vehicles.

Additionally, the 718th TS is chartered with maintaining the nation's largest archive of missile and rocket hard-body and plume signature data at the Advanced Missile Signature Center (AMSC).

Leads a team of more than 200 government and contractor personnel conducting ground test and evaluation of solid rocket motors; hypersonic air-breathing propulsion; satellites, space components and materials; advanced sensors; hypervelocity ballistic projectiles, heating effects

from atmospheric reentry and high-speed flight; and signature collection, measurement, analysis and information archival of friendly and threat weapon systems. Serves as primary customer interface for DoD, NASA and commercial space and missile test programs. Develops and communicates the strategic roadmap for all center space and missile test and evaluation capabilities. Responsible for all aspects of the space and missile test mission including budgeting, business development, risk management, test planning, test execution, data analysis and reporting.

LINEAGE

718 Test Squadron constituted, 2 May 2006

Activated, 1 Jun 2006

Inactivated, 30 Jun 2010

Activated, 2 May 2022

STATIONS

Arnold AFB, TN, 1 Jun 2006-30 Jun 2010

Arnold AFB, TN, 2 May 2022

ASSIGNMENTS

704 Test Group, 1 Jun 2006-30 Jun 2010

804 Test Group, 2 May 2022

COMMANDERS

Lt Col James Colebank

HONORS

Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

EMBLEM

On a disc Sable an arch issuant from dexter base to sinister chief with nine pole stars in and around it, one in chief outside the arch, five within the arch, and three in sinister outside the arch all Or, above in dexter base a demi-terrestrial globe Azure landmasses Vert, all within a narrow border Yellow. Attached above the disc, a Black scroll edged with a narrow Yellow border and inscribed "SUPERVOLARE CETEROS" in Yellow letters. Attached below the disc, a Black scroll edged with a narrow Yellow border and inscribed "718TH TEST SQUADRON" in Yellow letters.

SIGNIFICANCE: Ultramarine blue and Air Force yellow are the Air Force colors. Blue alludes to the sky, the primary theater of Air Force operations. Yellow refers to the sun and the excellence required of Air Force personnel. The nine stars represent the nine distinct test capabilities for

which the unit is recognized. The arch represents earth orbits and missile/ballistic missile trajectories which encompasses the globe in an effort to support the defense of the nation from the skies and stars above. (Approved, 31 Oct 2007)

MOTTO

SUPERVOLARE CETEROS--To Fly Above The Rest

OPERATIONS

In fiscal year 2008, the 718th TS earned slightly more than \$15 million, a 10 percent increase in test revenue from fiscal year 2007. The 718th TS categorized its customer base into six strategic areas: missile defense, long-range strike, space access, space and near-space missions, persistent surveillance and nuclear deterrence. Fiscal Year 2008 Highlights

The AEDC Signature Measurement Team supported numerous Missile Defense Agency (MDA) flight test intercepts with state-of-the-art imagery and signatures of launch and intercept events using ground-based multi-spectral imagers (visible, near-infrared [IR], short, mid and long-wave IR). Support was also provided to the Advance Tactical Infrared Counter Measures (ATIRCM)/Common Missile Warning System (CMWS) Tonopah Measurement Support.

AEDC signature measurements team also deployed to the Tonopah Test Range to support Man-Portable Air Defense (MANPAD) testing. The team successfully collected visible, IR and ultraviolet data on 31 test articles.

Additionally, the team supported Aegis Ballistic Missile Defense (BMD) and the Japanese Navy during the JFTM-1 flight test at the Pacific Missile Range Facility (PMRF) in Kauai, Hawaii.

In the arc heaters, Defense Advanced Research Projects (DARPA) Falcon materials testing occurred in various arc heaters. These tests provided representative dwell times on a material candidate at pressures and temperatures seen in flight. The test runs also demonstrated the tripled H₂ run-time capability provided by new power supply cables.

Seven test runs and one equipment validation run were accomplished in H₂ to evaluate the suitability of candidate thermal protection system materials for use on the NASA Mars Science Lab (MSL) spacecraft and the NASA Orion Crew Exploration Vehicle (CEV). One key accomplishment of this series was to demonstrate that the new Mach 3.8 heater nozzle could provide the lower shear, and lower heat flux test point required by NASA for new Orion flight missions.

Minuteman III Stage 2 and Stage 3 production quality assurance motors were fired in the J-6 for the 526th Intercontinental Ballistic Missile (ICBM) Systems Group, Ogden Air Logistics Center, Hill Air Force Base, Utah. A total of eight Minuteman motors were fired in fiscal year 2008.

Also in J-6, a Minotaur IV Stage 3 solid rocket motor was tested at simulated altitude conditions. The motor static firing was in support of the Rocket Systems Launch Program (RSLP) aging and

surveillance test program sponsored by the Space Development Test Wing (SDTW), Launch Test Squadron (LTS), Kirtland Air Force Base, N. M. The primary test objective was to identify any age-related degradation in motor ballistic performance and sub-systems operation of this modified Peacekeeper (PK) Stage 3 motor. Motor performance was compared to results from 26 PK Stage 3 motors previously tested at AEDC for Trend Analysis Life Estimate (TALE) determination.

In the center's 7V chamber, Ball Aerospace's advanced early warning space sensor testing was successfully accomplished. During the course of the test, sponsored by AFRL Space Vehicles Directorate and Space and Missiles System Center (SMC), with Ball's sensor was calibrated and presented with realistic scenes for sensor performance evaluation. The data collected allowed for model corrections and performance evaluation.

The first calibration shot for the Terminal High Altitude Area Defense (THAAD) Live Fire Test and Evaluation (LFT&E) program was conducted in the Range G facility. This was the first of two shots to verify the performance of the solid rocket motors used to pitch the THAAD projectile prior to impact with a simulated threat target.

Furthermore, calibration of the Aerodynamic and Propulsion Test Unit (APTU) Mach 3, 4 and 6 nozzles were completed. The culmination of this checkout program marked the official addition of a customer-ready hypersonic propulsion test facility at AEDC. This will allow the DARPA Falcon Combined-Cycle Engine Technology (FaCET) demonstrator test to proceed. The nozzle calibrations used a Design-of-Experiments (DOE) matrix to ensure 95 percent confidence in nozzle/facility characterization.

AEDC Commander Col. Art Huber, 718th Test Squadron's leadership and staff celebrated the space and missile systems squadron's move to Building 1088, formerly known as the DECADE Facility, with a ribbon-cutting ceremony June 30.

"Moving to Building 1088 was an outstanding idea because it's not only the home now for the 718th Test Squadron, but it's also the future home of the 718th's newest capability, which is the Space Threat Assessment Testbed (STAT)," said Col. James Jolliffe, commander of the 704th Test Group. "Additionally, it's in closer proximity to the arc heaters and the space environments capabilities, so there is synergy provided by having this office space located where it is."

DECADE, which was built in the 1990s, was originally a test facility designed for nuclear weapons effects testing. Test systems within this facility were dismantled early in 2008. Lt. Col. James Colebank, the 718th Test Squadron commander, who gave Colonel Huber and Britt Covington, AEDC's executive director, a quick tour of the facility after the ribbon-cutting ceremony, said the formal celebration caps off a year-long team effort.

"This is a big day because it represents some fantastic AEDC teamwork in getting us to this point, from the test group that provided the resources to the civil engineering and communication squadrons that put us in the DECADE Building," Colonel Colebank said. "As the second squadron commander of the 718th Test Squadron, what I find really intriguing is that for many years this organization didn't have a home of its own, a symbol of its own identity." He also spoke about what lies ahead for the 718th as most of the test squadron's staff gets settled into their new headquarters. "What's rewarding about this is that we're also part of one of the newest

test capabilities now to enter the center and that's the Space Threat Assessment Test bed," he said.

Colonel Jolliffe also emphasized the teamwork that made the move into Building 1088 a smooth transition. "We're very excited and happy with the outstanding support that CE [civil engineering] and ATA provided to make sure this is a reality and a first-class location to bring our space and missile test customers," he said. "There were some very small modifications to fit the management offices. A few walls were moved, [but] everything else was pretty much in place. It's one of the newest buildings on the base and it was a smart decision to utilize this to house the squadron."

Regarding any future nuclear effects testing in the facility, he said, "At this point, we don't see that mission returning to the base, but certainly threats and missions change and we would certainly meet that concern if need be in the future." The 718th Test Squadron manages test and evaluation of space and missile systems and serves as the primary customer interface and center planning and execution agent in performing their mission

USAF UNIT HISTORIES

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Sources

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

The Institute of Heraldry. U.S. Army. Fort Belvoir, VA.

Air Force News. Air Force Public Affairs Agency.