



F-22

Raptor
Demo
Team

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F-22 Demonstration Team Fact Sheet

Mission

The F-22 Raptor Demonstration Team performs precision aerial maneuvers at airshows across the world to demonstrate the unique capabilities of the world's premier 5th generation fighter aircraft. The team also performs with the Air Force Heritage Flight Foundation to showcase modern day fighter jets flying in formation with World War II, Korean, and Vietnam era aircraft.

Background

The F-22 Raptor Demonstration Team is stationed at Joint Base Langley-Eustis in Hampton, Virginia. In March 2007, the team participated in its debut air show at Tyndall Air Force Base. Since then, the team has performed more than 250 demonstrations across the world.

Prior to 2016, the team consisted of the pilot, safety officer, superintendent, team chief, multiple crew chiefs, and avionics specialists. Now, the team has 14 total members to include public affairs and aircrew flight equipment technicians. Together, the team visits local schools, hospitals, and participates in various community events in addition to performing aerial demonstrations.





F-22 Raptor Fact Sheet

Mission

The F-22 Raptor is the Air Force's premier 5th generation fighter aircraft. Its combination of stealth, supercruise, extreme maneuverability, and integrated avionics represents an exponential leap in warfighting capabilities. The Raptor performs both air-to-air and air-to-ground missions that are vital to the 21st century Air Force.

The F-22, a critical component of the Global Strike Task Force, is designed to rapidly project air dominance at great distances while defeating threats attempting to deny access to our nation's Air Force, Army, Navy and Marine Corps. The F-22 cannot be matched by any known or projected fighter aircraft.



Features

A combination of sensor capability, integrated avionics, situational awareness, and advanced weaponry provides a first-look, first-kill opportunity against all enemies. The F-22 possesses a sophisticated sensor suite allowing the pilot to track, identify, shoot, and kill air-to-air threats before being detected. Significant advances in cockpit design and sensor fusion improve the pilot's situational awareness. In the air-to-air configuration, the F-22 Raptor carries six AIM-120 AMRAAMs and two AIM-9 Sidewinders.

The F-22 has an advanced capability of attacking surface targets as well. In the air-to-ground configuration, the aircraft can carry two 1,000-pound GBU-32 Joint Direct Attack Munitions internally and will use on-board avionics for navigation and weapons delivery support. Advances in low-observable technologies provide improved survivability and lethality against air-to-air and surface-to-air threats. The F-22 brings sophisticated stealth technology to the fight as well, allowing it to protect itself and stay virtually undetected from enemy radar.

The dual F-22 engines produce more thrust than any current fighter engine. The combination of sleek aerodynamic design and increased thrust allows the F-22 to cruise at supersonic airspeeds (greater than 1.5 Mach) without using afterburner – a characteristic known as supercruise. Supercruise greatly expands the F-22's operating envelope in both speed and range over other operational fighter aircraft who must use fuel-consuming afterburner to operate at supersonic speeds.

The sophisticated F-22 aero design, advanced flight controls, thrust vectoring, and high thrust-to-weight ratio provide the capability to outmaneuver all other current and projected aircraft. The F-22's design has been extensively tested and refined during the development process to produce a truly one-of-a-kind fighter aircraft.

The F-22's characteristics ensure its unmatched lethality against all advanced air threats. The combination of stealth, integrated avionics, and supercruise drastically shrink surface-to-air missile engagement envelopes and minimizes enemy capabilities to track and engage the F-22. The combination of reduced observability and supercruise accentuates the element of surprise in a tactical environment, one of the Raptor's most lethal characteristics.

The F-22 has better reliability and maintainability than any other fighter aircraft in history. This results in less manpower required to fix the aircraft, allowing the jet to operate more efficiently.



Background

The Advanced Tactical Fighter Program entered the Demonstration and Validation phase in 1986. Two prototype aircraft (YF-22 and YF-23) both completed their first flights in late 1990, competing against each other to be selected as the future 5th generation stealth fighter. Ultimately, the YF-22 was selected as the best of the two, and the engineering and manufacturing development effort began in 1991. Contracts were awarded to Lockheed Martin and Boeing (airframe) and Pratt & Whitney (engines). The Engineering & Manufacturing Development included extensive systems and flight that took place at Edwards Air Force Base, California.

The program received approval to enter low rate initial production in 2001. The Air Force Operational Test and Evaluation Center completed its assessment in 2004. The program received approval for full rate production in 2005. Air Education and Training Command, Air Combat Command, and Pacific Air Forces are the primary Air Force organizations flying the F-22. The F-22 cannot be exported to other countries under American federal law in order to protect its stealth technology and other high-tech features.

General Characteristics

- **Primary Function:** Air dominance, multi-role fighter
- **Contractor:** Lockheed-Martin, Boeing
- **Engines:** Two Pratt & Whitney F119-PW-100 turbofan engines with afterburners and two-dimensional thrust vectoring nozzles.
- **Thrust:** 35,000-pound class (each engine)
- **Wingspan:** 44 feet, 6 inches (13.6 meters)
- **Length:** 62 feet, 1 inch (18.9 meters)
- **Height:** 16 feet, 8 inches (5.1 meters)
- **Weight:** 43,340 pounds (19,700 kilograms)
- **Maximum Takeoff Weight:** 83,500 pounds (38,000 kilograms)
- **Fuel Capacity:** Internal: 18,000 pounds (8,200 kilograms); with 2 external wing fuel tanks: 26,000 pounds (11,900 kilograms)
- **Payload:** Same as armament air-to-air or air-to-ground loadouts; with or without 2 external wing fuel tanks.
- **Speed:** Mach 2 with super-cruise capability
- **Range:** More than 1,850 miles with 2 external wing fuel tanks
- **G-Limit:** +9 Gs
- **Ceiling:** 60,000 ft
- **Armament:** One M61A2 20-millimeter cannon with 480 rounds, internal side weapon bays carriage of two AIM-9 infrared (heat seeking) air-to-air missiles and internal main weapon bays carriage of six AIM-120 radar-guided air-to-air missiles (air-to-air loadout) or two 1,000-pound GBU-32 JDAMs and two AIM-120 radar-guided air-to-air missiles (air-to-ground loadout)
- **Unit Cost:** \$140 million





The 1st Fighter Wing

The 1st Fighter Wing operates and maintains the F-22 Raptor. To accomplish their mission, the men and women of the 1st Fighter Wing work in one of two groups: Operations Group or the Maintenance Group. Eight squadrons comprise the two groups, which include two fighter squadrons: 27th FS “The Fightin’ Eagles,” and the 94th FS “Hat-in-the-Ring Gang.”

Continuing the 1st FW's tradition of being the first to bring new fighter jets operational, the Air Force announced in 2002 that the 1st FW would become the first operation F-22 wing; paving the way for the future of air dominance.

In addition to the F-22, the 1st FW has tallied many other firsts throughout its distinguished history. In World War I, when it was known as the 1st Pursuit Organization and Training Center, the wing scored its first aerial victory when Lt. Douglas Campbell of the 94th Aero Squadron downed a German Phalz D-3 over France. By the time the war ended, the unit earned 202 confirmed kills.

During World War II, the 1st FW again excelled, earning three Distinguished Unit Awards for outstanding performance of duty. Re-designated as the 1st Fighter Group, the unit entered the war flying the P-38. Throughout the war, the 1st FG flew more than 20,000 sorties on 1,405 combat missions, and accumulated more than 400 aerial victories.

On Aug. 7, 1990, the 1st FW, then known as the 1st Tactical Fighter Wing, deployed to Saudi Arabia in support of Operation Desert Shield, adding to the list of firsts by becoming the first US unit to establish air superiority over Saudi Arabia. Through both Operations Desert Shield and Desert Storm, the wing flew more than 6,200 sorties and racked up nearly 25,000 flying hours. The wing also recorded an aerial victory when Capt. Steve Tate of the 71st FS shot down an Iraqi F-1 Mirage.

In 1991, the 1st TFW became known as it is today, the 1st Fighter Wing. For most of the 1990s, the wing practiced the lessons it learned during Desert Shield and Desert Storm; participating in numerous deployments and exercises throughout the world. This practice would pay off.

In 2003, the Air Force called once again to the 1st FW to provide air superiority in combat. The wing deployed to Southwest Asia in support of Operation Iraqi Freedom where it flew over 360 training and combat sorties.

Throughout its history, the 1st FW has led the way. On December 15, 2005, the 1st FW continued that tradition with the 27th Fighter Squadron becoming the Air Force's first operational F-22 fighter squadron. The wing's inventory of 40 F-22s, in the 27th and 94th Fighter Squadrons reached Full Operational Capability on December 12, 2007.



On Jan. 7, 2010, the 9th Air Force activated the 633rd Air Base Wing as the new host unit for Joint Base Langley-Eustis, Va., taking over for the 1st FW in this regard.

On Sept. 30, 2010, the last F-15 transitioned out of Langley, leaving the F-22 as the sole fighter operated and maintained by the wing.





Captain Samuel "RaZZ" Larson

Demonstration Commander/Pilot



Captain Samuel Larson is the United States Air Force F-22 Demonstration Team commander and pilot stationed at Joint Base Langley-Eustis, Va. As the F-22 Demo Team Commander, he is responsible for representing Air Combat Command, the United States Air Force, the Department of Defense, and the United States of America at more than 20 air shows annually. He leads the 14-member F-22 Demonstration Team, oversees maintenance actions performed on one of the most advanced fighter jets ever built, and showcases the Raptor's exceptional maneuverability for more than 10 million spectators around the world each year. He is an operational F-22 pilot assigned to the 1st Operations Group within the 1st Fighter Wing. Capt. Larson is from Davenport, Iowa. Growing up, he regularly attended his hometown airshow

and airshows around the Midwest as a photographer/writer for an aviation magazine. After high school, Capt. Larson attended the United States Air Force Academy in Colorado Springs, Colorado. During his time as a Cadet, Capt. Larson was a member of the United States Air Force Parachute Team "Wings of Blue". He accumulated over 700 free-fall skydives as a jumpmaster and instructor on the team. In 2015, Capt. Larson earned his commission and graduated from the Air Force Academy with a Bachelor of Science degree in management science.

Capt. Larson then attended undergraduate pilot training at Sheppard Air Force Base, Texas as part of the Euro-NATO Joint Jet Pilot training program. There he flew the T-6 Texan II and the T-38C Talon. He earned his pilot wings and was selected to fly the F-22 Raptor after completing the program in 2017.

Following pilot training and Introduction to Fighter Fundamentals, Capt. Larson attended the F-22 Raptor Basic Course at Tyndall AFB, Florida. Upon graduation, Capt. Larson was assigned to the 525th Fighter Squadron at Joint Base Elmendorf-Richardson, Alaska as an operational fighter pilot and Mission Commander. Capt. Larson was then assigned to the 27th Fighter Squadron, Joint Base Langley-Eustis, Virginia as an F-22 Instructor Pilot. While serving in the 27th FS, Capt. Larson was selected to be the F-22 Raptor Demonstration Team commander and pilot in August of 2022.

Capt. Larson is an experienced combat proven Fighter Pilot with over 850 hours flying the F-22 and multiple deployments to the Middle East and the Indo-Pacific region. Capt. Larson is thrilled to be a member of the F-22 Raptor Demonstration Team with the mission of showcasing American airpower and inspiring the next generation of pilots and maintainers.



F-22 Demonstration Team Contact List



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For specific questions or further information regarding the media kit, please contact the team Public Affairs Representative, Staff Sergeant Michael Bowman at (760) 200-6283 or email

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