

F-22 Raptor



With the F-22 Raptor, the Air Force acquired unequaled power to project air dominance. Lockheed Martin's single-seat, twin-engined, all-weather fighter blended stealth, supercruise, great agility, and all-sensing avionics. Those features, plus high reliability and low maintenance, marked a huge leap in capability over USAF's own F-15 Eagle, long the class of air combat. Indeed, the F-22 could not be matched by any known or projected fighter.

The F-22, with clipped-delta wings, made heavy use of lightweight composite materials. Its turbofans generated thrust greater than any fighter engine and sported thrust-vectoring nozzles. Sleek aerodynamic design and great power enabled it to "supercruise"—or fly at supersonic speeds without resorting to afterburners. At the center of F-22 design was its stealthiness, evidenced in very low radar, infrared, acoustic, and even

visual signatures. Stealth greatly improved the fighter's survivability and lethality against air-to-air and surface-to-air threats. The result was a "first-look, first-shot, first-kill" combat capability.

The Raptor brought supreme air-to-air power; configured for air battle, it carried six AIM-120 and two AIM-9 missiles. It possessed significant air-to-ground capability—two 1,000-pound or eight 250-pound bombs. With advanced sensors and communications, it could function as a "mini-AWACS" to watch the battlespace and direct other fighters. Its primary weakness is low numbers. Secretary of Defense Robert Gates capped production at 187 despite a validated need for 381.

—Robert S. Dudley with Walter J. Boyne

This aircraft: USAF F-22A Raptor—#10194—as it looked in 2013 when assigned to 94th Fighter Squadron, 1st Fighter Wing, JB Langley-Eustis, Va.



USAF photo by SrA Kayla Newman

An F-22 during an exercise at JB Langley-Eustis, Va.

In Brief

Designed, built by Lockheed Martin and Boeing ★ function, air dominance ★ first flight Sept. 29, 1990 (YF-22); Sept. 7, 1997 (F-22) ★ number built 197 (187 production + eight test + two prototypes) ★ crew of one pilot ★ two Pratt & Whitney F119-PW-100 turbofan engines with thrust-vectoring nozzles ★ defensive armament, one 20 mm M61A2 Vulcan cannon; up to eight missiles (six AIM-120 AMRAAM + two AIM-9 Sidewinder, carried internally) ★ load, up to 2,000 lb (two 1,000-lb JDAM or eight 250-lb GBU-39 Small Diameter Bombs) ★ max speed 1,500+ mph ★ cruise speed 1,220 mph ★ max range 1,840 mi (with two external tanks) ★ combat radius 470 mi ★ weight (max T/O) 83,500 lb ★ span 44 ft 6 in ★ length 62 ft 1 in ★ height 16 ft 8 in ★ service ceiling 65,000+ ft.

Famous Fliers

F-22 Firsts: Kevin Sutterfield (first combat engagement); Steven Rainey (first USAF pilot); Dawn Dunlop (first female USAF pilot); Michael Schaner (first ANG pilot); Paul Moga (first demo team pilot). **Accident Fatalities:** Jeffrey Haney, David Cooley. **USAF Notables:** Mike Hostage, Burton Field, Stephen Hoog,

C. D. Moore, Darryl Roberson, Tod Wolters, Mark Barrett, Thomas Bergeson, Jeffrey Harrigan, James Hecker, Matthew Molloy, John McMullen; James Browne, Andrew Croft, Hubert Hegtvædt, John Hillyer, Kevin Huyck, David Krumm, Donald Lindberg, Robert Nolan, Thomas Tinsley. **Other Notable:** Michael Wosje (Navy F-22 pilot). **Test Pilots:** YF-22—Dave Ferguson (YF-22 first flight); William Jabour; Mark Shackelford (first USAF YF-22 pilot); Paul Metz (F-22 first flight); David Cooley; Carl Schaefer.

Interesting Facts

Won 2006 Collier Trophy ★ barred from export due to classified features ★ appeared in films "Transformers," "Iron Man," "Olympus Has Fallen" ★ named "F/A-22" for brief period ★ selected over Northrop YF-23 ★ considered—but rejected—as Navy carrier fighter ★ built with parts produced in 46 states ★ demonstrated Herbst Maneuver and Pugachev's Cobra ★ used titanium alloys and composites for 39 and 24 percent, respectively, of structure ★ posed radar cross section equal to steel marble.

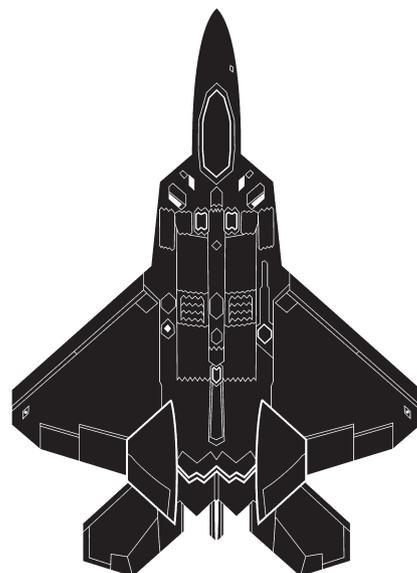


Illustration by Zaur Eylanbekov