**F-15 Eagle**

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| **F-15 Eagle** | |
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| USAF F-15C over Washington, D.C | |
| **Role** | [Air superiority fighter](http://en.wikipedia.org/wiki/Air_superiority_fighter) |
| **Manufacturer** | [McDonnell Douglas](http://en.wikipedia.org/wiki/McDonnell_Douglas) / [Boeing IDS](http://en.wikipedia.org/wiki/Boeing_Integrated_Defense_Systems) |
| **First flight** | 27 July 1972 |
| **Introduction** | 9 January 1976 |
| **Status** | Active |
| **Primary users** | [United States Air Force](http://en.wikipedia.org/wiki/United_States_Air_Force) [Japan Air Self-Defense Force](http://en.wikipedia.org/wiki/Japan_Air_Self-Defense_Force) [Royal Saudi Air Force](http://en.wikipedia.org/wiki/Royal_Saudi_Air_Force) [Israeli Air Force](http://en.wikipedia.org/wiki/Israeli_Air_Force) |
| **Number built** | F-15A/B/C/D/J/DJ: 1,198 |
| **Unit cost** | F-15A/B: US$27.9 million (1998) F-15C/D: US$29.9 million (1998) |
| **Variants** | [F-15E Strike Eagle](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle) [F-15 S/MTD](http://en.wikipedia.org/wiki/F-15_S/MTD) |

The [McDonnell Douglas](http://en.wikipedia.org/wiki/McDonnell_Douglas) (now [Boeing](http://en.wikipedia.org/wiki/Boeing)) **F-15 Eagle** is a twin-engine, all-weather [tactical](http://en.wikipedia.org/wiki/Military_tactics) [fighter](http://en.wikipedia.org/wiki/Fighter_aircraft) designed to gain and maintain [air superiority](http://en.wikipedia.org/wiki/Air_superiority) in aerial combat. Developed for the [United States Air Force](http://en.wikipedia.org/wiki/United_States_Air_Force), it first flew in July 1972, and is one of the most recognized modern fighters. The F-15 is expected to remain in service until 2025. Despite originally being envisaged as a pure air superiority aircraft, the design proved flexible enough that an all-weather strike derivative, the [F-15E Strike Eagle](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle), was later developed, and entered service in 1989.

**Development**

**Origins**

Following studies in 1964-1965, the US Air Force developed requirements for an air superiority fighter in October 1965. Then on 8 December 1965, the Air Force issued a request for proposals (RFP) for the new fighter. The request called for both air-to-air and air-to-ground capabilities. Eight companies responded with proposals. In the following study phase, four of these companies developed some 500 design concepts. Typical designs featured [variable-sweep wings](http://en.wikipedia.org/wiki/Variable-sweep_wing), weighed over 60,000 lb (27,200 kg), included a top speed of Mach 2.7 and a [thrust-to-weight ratio](http://en.wikipedia.org/wiki/Thrust-to-weight_ratio) of 0.75. The designs were not accepted by the Air Force as they compromised fighter qualities for ground attack qualities. Acceptance of the [Energy-Maneuverability (E-M) theory](http://en.wikipedia.org/wiki/Energy-Maneuverability_theory) by the Air Force led to a change in requirements for improved maneuverability by the spring 1967. The design mission weight was reduced to 40,000 lb (18,100 kg), top speed reduced to Mach 2.3-2.5 and thrust-to-weight ratio increased to 0.97.

In 1967 U.S. intelligence was surprised to find that the Soviet Union was building a large fighter aircraft, known as the [MiG-25 'Foxbat'](http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-25). It was not known in [the West](http://en.wikipedia.org/wiki/Western_world#Cold_War) at the time that the MiG-25 was designed as a high-speed [interceptor](http://en.wikipedia.org/wiki/Interceptor_aircraft), (not an air superiority fighter), so its primary asset was speed, not maneuverability. The MiG-25's huge [tailplanes](http://en.wikipedia.org/wiki/Tailplane) and [vertical stabilizers](http://en.wikipedia.org/wiki/Vertical_stabilizer) (tail fins) hinted at a very maneuverable aircraft, which worried the Air Force that its performance might be higher than its US counterparts. In reality, the MiG's large fins and [stabilators](http://en.wikipedia.org/wiki/Stabilator) were necessary to prevent the aircraft from encountering [inertia coupling](http://en.wikipedia.org/wiki/Inertia_coupling) in high-speed, high-altitude flight.

The [F-4 Phantom II](http://en.wikipedia.org/wiki/F-4_Phantom_II) of the USAF and [U.S. Navy](http://en.wikipedia.org/wiki/United_States_Navy) was the only fighter with enough power, range, and maneuverability to be given the primary task of dealing with the threat of Soviet fighters while flying with visual engagement rules. As a matter of policy, the Phantoms could not engage targets without positive visual identification, so they could not engage targets at long ranges, as designed. Medium-range [AIM-7 Sparrow](http://en.wikipedia.org/wiki/AIM-7_Sparrow) missiles, and to a lesser degree even the [AIM-9 Sidewinder](http://en.wikipedia.org/wiki/AIM-9_Sidewinder), were often unreliable and ineffective at close ranges where it was found that guns were often the only effective weapon. The Phantom did not originally have a gun, but experience in Vietnam led to the addition of a gun. An external [gun pod](http://en.wikipedia.org/wiki/Gun_pod) was tried and later the [M61 Vulcan](http://en.wikipedia.org/wiki/M61_Vulcan) was integrated internally on the F-4E.

**F-X program**

There was a clear need for a new fighter that overcame the close-range limitation of the Phantom while retaining long-range air superiority. After rejecting the U.S. Navy VFX program (which led to the [F-14 Tomcat](http://en.wikipedia.org/wiki/F-14_Tomcat)) as being unsuited to its needs, the U.S. Air Force issued its own requirements for the Fighter Experimental (F-X), a specification for a relatively lightweight air superiority fighter. The requirements called for single-seat fighter having a maximum take-off weight of 40,000 lb (18,100 kg) for the air-to-air role with a maximum speed of Mach 2.5 and a thrust to weight ratio of nearly 1 at mission weight. Four companies submitted proposals, with the Air Force eliminating [General Dynamics](http://en.wikipedia.org/wiki/General_Dynamics) and awarded contracts to [Fairchild Republic](http://en.wikipedia.org/wiki/Fairchild_(aircraft_manufacturer)), [North American Rockwell](http://en.wikipedia.org/wiki/North_American_Aviation), and [McDonnell Douglas](http://en.wikipedia.org/wiki/McDonnell_Douglas) for the definition phase in December 1968. The companies submitted technical proposals by June 1969. The Air Force announced the selection of McDonnell Douglas on 23 December 1969. The winning design resembled the twin-tailed F-14, but with fixed wings. It would not be significantly lighter or smaller than the F-4 that it would replace.



F-15A cockpit.

The Eagle's initial versions were designated **F-15A** for the single-seat configuration and **F-15B** (originally **TF-15A**, but this designation was quickly deprecated, as the F-15B is fully combat-capable) for the twin-seat. These versions would be powered by new [Pratt & Whitney F100](http://en.wikipedia.org/wiki/Pratt_%26_Whitney_F100) engines to achieve a combat [thrust](http://en.wikipedia.org/wiki/Thrust)-to-weight ratio in excess of 1 to 1. A proposed 25 mm Ford-Philco [GAU-7 cannon](http://en.wikipedia.org/wiki/GAU-7_cannon) with caseless ammunition was dropped in favor of the standard M61 Vulcan gun due to development problems. The F-15 retained conformal carriage of four Sparrow missiles like the Phantom. The fixed wing was put onto a flat, wide fuselage that also provided an effective lifting surface. Some questioned if the zoom performance of the F-15 with Sparrow missiles was enough to deal with the new threat of the high-flying MiG-25 "Foxbat", but its capability was eventually demonstrated in combat.



McDonnell Douglas F-15A (S/N 71-0280) first flight.

The first F-15A flight was made in July 1972 with the first flight of the two-seat F-15B (formerly TF-15A) following in July 1973.

The F-15 has a "[look-down/shoot-down](http://en.wikipedia.org/wiki/Look-down/shoot-down)" [radar](http://en.wikipedia.org/wiki/Radar) that can distinguish low-flying moving targets from ground clutter. The F-15 would use computer technology with new controls and displays to lower pilot workload and require only one pilot to save weight. Unlike the F-14 or F-4, the F-15 has only a single [canopy](http://en.wikipedia.org/wiki/Aircraft_canopy) frame with clear vision forward. The USAF introduced the F-15 as "the first dedicated USAF air superiority fighter since the [F-86 Sabre](http://en.wikipedia.org/wiki/F-86_Sabre)."

The F-15 would be favored by customers such as the [Israel Air Force](http://en.wikipedia.org/wiki/Israel_Air_Force) and [Japan Air Self-Defense Force](http://en.wikipedia.org/wiki/Japan_Air_Self-Defense_Force), and the development of the F-15E Strike Eagle would produce a strike fighter that would replace the [F-111](http://en.wikipedia.org/wiki/General_Dynamics_F-111). However, criticism from the [fighter mafia](http://en.wikipedia.org/wiki/Fighter_mafia) that the F-15 was too large to be a dedicated [dogfighter](http://en.wikipedia.org/wiki/Dogfight), and too expensive to procure in large numbers to replace the F-4 and [A-7](http://en.wikipedia.org/wiki/A-7_Corsair_II), led to the [Lightweight Fighter](http://en.wikipedia.org/wiki/Lightweight_Fighter) (LWF) program, which led to the USAF [F-16 Fighting Falcon](http://en.wikipedia.org/wiki/F-16_Fighting_Falcon) and the middle-weight Navy [F/A-18 Hornet](http://en.wikipedia.org/wiki/F/A-18_Hornet).

**Further development**



USAF F-15C taxiing for takeoff.

The single-seat **F-15C** and two-seat **F-15D** models entered production in 1978 with the models' first flights in February and June of that year. These new models have Production Eagle Package (PEP 2000) improvements, including 2,000 [lb](http://en.wikipedia.org/wiki/Pound_(mass)) (900 kg) of additional internal fuel, provision for carrying exterior conformal fuel tanks and increased maximum takeoff weight of up to 68,000 lb (30,700 kg). The additional takeoff weight allows internal fuel, a full weapons load, conformal fuel tanks, and three external fuel tanks to be carried. The C and D models also included strengthened landing gear, radar improvements, and a new digital central computer.

The F-15 Multistage Improvement Program (MSIP) was initiated in February 1983 with the first production MSIP F-15C produced in 1985. Improvements included an upgraded central computer; a Programmable Armament Control Set, allowing for advanced versions of the AIM-7, AIM-9, and AIM-120A missiles; and an expanded Tactical Electronic Warfare System that provides improvements to the ALR-56C radar warning receiver and ALQ-135 countermeasure set. The final 43 F-15Cs included the enhanced-capability Hughes APG-70 radar, which was developed for the F-15E. The earlier MSIP F-15Cs with the APG-63 were later upgraded to the APG-63(V)1, which significantly improves reliability and maintainability while providing performance similar to the APG-70. The improvements were retrofitted to existing F-15s.

Beginning in 1985, F-15C and D models were equipped with the improved P&W F100-220 engine. It added a digital engine control to allow for quicker throttle response, less wear, and reduces fuel burn. The original F100-100 engines were upgraded to a similar configuration with the designation F100-200E starting in 1997 and were ongoing as of 2007.

Recent upgrades include retrofitting 178 F-15C fighters with the [AN/APG-63(V)3](http://en.wikipedia.org/wiki/APG-63_and_APG-70_radars) [Active Electronically Scanned Array](http://en.wikipedia.org/wiki/Active_Electronically_Scanned_Array) (AESA) radar with delivery beginning in early 2009. Additionally, the Air Force also plans to upgrade other F-15s with the [Joint Helmet Mounted Cueing System](http://en.wikipedia.org/wiki/Joint_Helmet_Mounted_Cueing_System) (JHMCS).

**Design**



F-15C performing a maximum performance takeoff.

The F-15 has an all-metal [semi-monocoque](http://en.wikipedia.org/wiki/Monocoque) [fuselage](http://en.wikipedia.org/wiki/Fuselage) with a large [cantilever](http://en.wikipedia.org/wiki/Cantilever) [shoulder-mounted wing](http://en.wikipedia.org/wiki/Wing). The [empennage](http://en.wikipedia.org/wiki/Empennage) is all-metal twin fins and rudders with all-moving composite horizontal tail surfaces outboard of the fins. The F-15 has a spine-mounted [air brake](http://en.wikipedia.org/wiki/Air_brake_(aircraft)) and [retractable](http://en.wikipedia.org/wiki/Undercarriage#Retractable_gear) [tricycle](http://en.wikipedia.org/wiki/Tricycle_gear) [landing gear](http://en.wikipedia.org/wiki/Undercarriage). It is powered by two [Pratt & Whitney](http://en.wikipedia.org/wiki/Pratt_%26_Whitney) F100 [axial-flow](http://en.wikipedia.org/wiki/Axial-flow) [turbofan](http://en.wikipedia.org/wiki/Turbofan) engines with [afterburners](http://en.wikipedia.org/wiki/Afterburner) mounted side-by-side in the fuselage. The [cockpit](http://en.wikipedia.org/wiki/Cockpit) is mounted high in the forward fuselage with a one-piece windscreen and large canopy to increase visibility.

The F-15's maneuverability is derived from low [wing loading](http://en.wikipedia.org/wiki/Wing_loading) (weight to wing area ratio) with a high [thrust-to-weight ratio](http://en.wikipedia.org/wiki/Thrust-to-weight_ratio) enabling the aircraft to turn tightly without losing airspeed. The F-15 can climb to 30,000 ft (10,000 m) in around 60 seconds. The thrust output of the dual engines is greater than the aircraft's weight, thus giving it the ability to accelerate in a vertical climb. The weapons and flight control systems are designed so that one person can safely and effectively perform air-to-air combat. The A and C-models are single-seat variants that make up the bulk of F-15 production. B and D-models add a second seat behind the pilot for training. E-models use the second seat for a bombardier/navigator.

A multi-mission [avionics](http://en.wikipedia.org/wiki/Avionics) system includes a [head-up display](http://en.wikipedia.org/wiki/Head-up_display) (HUD), advanced radar, [inertial guidance system](http://en.wikipedia.org/wiki/Inertial_guidance_system) (INS), flight instruments, [ultra-high frequency](http://en.wikipedia.org/wiki/Ultra_high_frequency) (UHF) communications, and [Tactical Air Navigation](http://en.wikipedia.org/wiki/Tactical_Air_Navigation) (TACAN) and [Instrument Landing System](http://en.wikipedia.org/wiki/Instrument_Landing_System) (ILS) receivers. It also has an internally mounted, tactical electronic-warfare system, "[identification friend or foe](http://en.wikipedia.org/wiki/Secondary_surveillance_radar)" system, [electronic countermeasures](http://en.wikipedia.org/wiki/Electronic_countermeasures) suite and a central digital computer.



A wing over maneuver displays the clean lines and high-wing design of an F-15E from [Elmendorf AFB](http://en.wikipedia.org/wiki/Elmendorf_Air_Force_Base), AK.

The heads-up display projects, through a combiner, all essential flight information gathered by the integrated avionics system. This display, visible in any light condition, provides the pilot information necessary to track and destroy an enemy aircraft without having to look down at cockpit instruments.

The F-15's versatile [APG-63/70](http://en.wikipedia.org/wiki/APG-63_and_APG-70_radars) [Pulse-Doppler radar](http://en.wikipedia.org/wiki/Pulse-Doppler_radar) system can look up at high-flying targets and down at low-flying targets without being confused by ground clutter. It can detect and track aircraft and small high-speed targets at distances beyond visual range (the maximum being 120 nautical miles (220 km) away) down to close range, and at altitudes down to treetop level. The radar feeds target information into the central computer for effective weapons delivery. The capability of locking onto targets as far as 50 nautical miles (90 km) with an AIM-120 AMRAAM missile enables true beyond visual range (BVR) engagement of targets. For close-in dogfights, the radar automatically acquires enemy aircraft, and this information is projected on the head-up display. The F-15's electronic warfare system provides both threat warning and automatic countermeasures against selected threats.



F-15E with speed brake deployed and conformal tanks fitted.

A variety of air-to-air weaponry can be carried by the F-15. An automated weapon system enables the pilot to perform aerial combat safely and effectively, using the head-up display and the avionics and weapons controls located on the engine throttles or control stick. When the pilot changes from one weapon system to another, visual guidance for the required weapon automatically appears on the head-up display.

The Eagle can be armed with combinations of four different air-to-air weapons: [AIM-7F/M Sparrow](http://en.wikipedia.org/wiki/AIM-7_Sparrow) missiles or [AIM-120 AMRAAM](http://en.wikipedia.org/wiki/AIM-120_AMRAAM) advanced medium range air-to-air missiles on its lower fuselage corners, [AIM-9L/M Sidewinder](http://en.wikipedia.org/wiki/AIM-9_Sidewinder) or AIM-120 missiles on two pylons under the wings, and an internal M61A1 20 mm [Gatling gun](http://en.wikipedia.org/wiki/Gatling_gun) in the right wing root.

Low-drag [conformal fuel tanks](http://en.wikipedia.org/wiki/Conformal_fuel_tank) (CFTs) were developed for the F-15C and D models. They can be attached to the sides of the engine air intake trunks under each wing and are designed to the same load factors and airspeed limits as the basic aircraft. However, they degrade performance by increasing drag and cannot be jettisoned in-flight (unlike conventional external tanks). Each conformal fuel tank can hold 750 U.S. [gallons](http://en.wikipedia.org/wiki/Gallon) (2,840 [L](http://en.wikipedia.org/wiki/Litre)) of fuel. These tanks increase range thus reducing the need for [in-flight refueling](http://en.wikipedia.org/wiki/Aerial_refueling). All external stations for munitions remain available with the tanks in use. Moreover, Sparrow or AMRAAM missiles can be attached to the corners of the conformal fuel tanks. The 57 FIS based at Keflavik NAS, Iceland was the only C-model squadron to utilize CFTs on a regular basis due to its extended operations over the North Atlantic. With the closure of the 57 FIS the F-15E is the only U.S. variant to carry them on a routine basis. The American CFTs were also provided to Israel and Saudi Arabia but only Israel uses them (as needed) on their entire fleet.



[M61 Vulcan](http://en.wikipedia.org/wiki/M61_Vulcan) mounted on the side of right engine intake.

The [F-15E Strike Eagle](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle) is a two-seat, dual-role, totally integrated fighter for all-weather, air-to-air and deep [interdiction](http://en.wikipedia.org/wiki/Air_interdiction) missions. The rear cockpit is upgraded to include four multi-purpose CRT displays for aircraft systems and weapons management. The digital, triple-redundant [Lear Siegler](http://en.wikipedia.org/wiki/EG%26G) flight control system permits coupled automatic terrain following, enhanced by a [ring-laser gyro](http://en.wikipedia.org/wiki/Ring_laser_gyroscope) inertial navigation system. For low-altitude, high-speed penetration and precision attack on tactical targets at night or in adverse weather, the F-15E carries a high-resolution [APG-70](http://en.wikipedia.org/wiki/APG-63_and_APG-70_radars) radar and [LANTIRN](http://en.wikipedia.org/wiki/LANTIRN) pods to provide thermal imagery.

The [APG-63(V)2](http://en.wikipedia.org/wiki/APG-63(V)2) [Active Electronically Scanned Array](http://en.wikipedia.org/wiki/Active_Electronically_Scanned_Array) (AESA) radar has been retrofitted to 18 U.S. Air Force F-15C aircraft. This upgrade includes most of the new hardware from the APG-63(V)1, but adds an AESA to provide increased pilot situational awareness. The AESA radar has an exceptionally agile beam, providing nearly instantaneous track updates and enhanced multi-target tracking capability. The APG-63(V)2 is compatible with current F-15C weapon loads and enables pilots to take full advantage of [AIM-120 AMRAAM](http://en.wikipedia.org/wiki/AIM-120_AMRAAM) capabilities, simultaneously guiding multiple missiles to several targets widely spaced in azimuth, elevation, or range.

**Operational history**



F-15D from the 325 Fighter Wing based in [Tyndall AFB](http://en.wikipedia.org/wiki/Tyndall_Air_Force_Base), releasing flares

The largest operator of the F-15 is the [United States Air Force](http://en.wikipedia.org/wiki/United_States_Air_Force). The first Eagle (F-15B) was delivered November 14, 1974. In January 1976, the first Eagle destined for a combat squadron, the [555th TFS](http://en.wikipedia.org/wiki/555th_Fighter_Squadron), was delivered. These initial aircraft carried the [Hughes Aircraft](http://en.wikipedia.org/wiki/Hughes_Aircraft) (now [Raytheon](http://en.wikipedia.org/wiki/Raytheon)) [APG-63](http://en.wikipedia.org/wiki/APG-63_and_APG-70_radars) radar.

The first kill in an F-15 was by IAF ace Moshe Melnik in 1979. In 1979–81 during Israeli-[Lebanese](http://en.wikipedia.org/wiki/Lebanon) border disputes, F-15As downed 13 [Syrian](http://en.wikipedia.org/wiki/Syria) [MiG-21 "Fishbeds"](http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-21) and two Syrian [MiG-25 "Foxbats"](http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-25), the latter being the aircraft the F-15 was designed to kill. F-15A and B models were used by Israel during the [Bekaa Valley](http://en.wikipedia.org/wiki/1982_Lebanon_War) operation. During the [1982 Lebanon War](http://en.wikipedia.org/wiki/1982_Lebanon_War), the Israeli F-15s shot down 40 Syrian jet fighters (23 MiG-21 "Fishbeds" and 17 [MiG-23 "Floggers"](http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-23)) and one Syrian SA.342L [Gazelle helicopter](http://en.wikipedia.org/wiki/Gazelle_helicopter). Later on, in 1985, IAF Eagles, in [Operation Wooden Leg](http://en.wikipedia.org/wiki/Operation_Wooden_Leg), bombed the PLO headquarters in [Tunisia](http://en.wikipedia.org/wiki/Tunisia). This was one of the few times air superiority F-15s (A/B/C/D models) were used in tactical strike missions.

[Royal Saudi Air Force](http://en.wikipedia.org/wiki/Royal_Saudi_Air_Force) F-15C pilots shot down two [F-4E Phantom IIs](http://en.wikipedia.org/wiki/F-4_Phantom_II) flown by the [Iranian Air Force](http://en.wikipedia.org/wiki/Islamic_Republic_of_Iran_Air_Force) in a skirmish in June 1984, and shot down two Iraqi [Mirage F1s](http://en.wikipedia.org/wiki/Dassault_Mirage_F1) during the [Gulf War](http://en.wikipedia.org/wiki/Gulf_War).



A [Royal Saudi Air Force](http://en.wikipedia.org/wiki/Royal_Saudi_Air_Force) F-15 approaches a KC-135 for refueling during [Operation Desert Shield](http://en.wikipedia.org/wiki/Gulf_War#Operation_Desert_Shield).

The USAF deployed F-15C, D and E models to the Persian Gulf in 1991 in support of [Operation Desert Storm](http://en.wikipedia.org/wiki/Gulf_War) where they accounted for 36 of the 39 Air Force air-to-air victories. F-15Es were operated mainly at night, hunting [modified SCUD missile](http://en.wikipedia.org/wiki/Al_Hussein_(missile)) launchers and artillery sites using the LANTIRN system. According to the USAF, its F-15Cs had 34 confirmed kills of Iraqi aircraft during the 1991 Gulf War, mostly by missile fire: five MiG-29 "Fulcrums", two MiG-25 "Foxbats", eight MiG-23 "Floggers", two MiG-21 "Fishbeds", two [Su-25 "Frogfoots"](http://en.wikipedia.org/wiki/Sukhoi_Su-25), four [Su-22 "Fitters"](http://en.wikipedia.org/wiki/Sukhoi_Su-22), one [Su-7](http://en.wikipedia.org/wiki/Sukhoi_Su-7), six [Mirage F1s](http://en.wikipedia.org/wiki/Mirage_F1), one [Il-76](http://en.wikipedia.org/wiki/Ilyushin_Il-76) cargo plane, one [Pilatus](http://en.wikipedia.org/wiki/Pilatus_Aircraft) [PC-9](http://en.wikipedia.org/wiki/Pilatus_PC-9) trainer, and two [Mi-8](http://en.wikipedia.org/wiki/Mil_Mi-8) helicopters. After air superiority was achieved in the first three days of the conflict, many of the later kills were reportedly of Iraqi aircraft fleeing to Iran, rather than actively trying to engage U.S. aircraft. The single-seat F-15C was used for air superiority, and the F-15E was heavily used in air-to-ground attacks. An F-15E achieved an aerial kill of another Iraqi Mi-8 helicopter using a laser-guided bomb during the air war. The F-15E sustained two losses to ground fire in the Gulf War in 1991. Another one was damaged on the ground by a SCUD strike on [Dhahran](http://en.wikipedia.org/wiki/Dhahran) air base.



USAF F-15 Eagle video

They have since been deployed to support [Operation Southern Watch](http://en.wikipedia.org/wiki/Operation_Southern_Watch), the patrolling of the [No-Fly Zone](http://en.wikipedia.org/wiki/Iraqi_no-fly_zones) in Southern Iraq; [Operation Provide Comfort](http://en.wikipedia.org/wiki/Operation_Provide_Comfort) in [Turkey](http://en.wikipedia.org/wiki/Turkey); in support of NATO operations in [Bosnia](http://en.wikipedia.org/wiki/Bosnia_and_Herzegovina), and recent air expeditionary force deployments. In 1994, two U.S. Army [UH-60 Black Hawks](http://en.wikipedia.org/wiki/UH-60_Black_Hawk) were downed by USAF F-15Cs who thought they were Iraq Hinds in the Northern no-fly zone of Iraq in a [friendly fire incident](http://en.wikipedia.org/wiki/1994_Black_Hawk_shootdown_incident). USAF F-15Cs shot down four Yugoslav MiG-29s using [AIM-120](http://en.wikipedia.org/wiki/AIM-120) missiles during [NATO](http://en.wikipedia.org/wiki/NATO)'s 1999 intervention in [Kosovo](http://en.wikipedia.org/wiki/Kosovo), [Operation Allied Force](http://en.wikipedia.org/wiki/Operation_Allied_Force).

The F-15 in all air forces had an air-to-air combined record of 104 kills to 0 losses in air combat as of February 2008. To date, no air superiority versions of the F-15 (A/B/C/D models) have ever been shot down by enemy forces. Over half of the F-15's kills were made by [Israeli Air Force](http://en.wikipedia.org/wiki/Israeli_Air_Force) pilots.

**Satellite killer**



[ASM-135](http://en.wikipedia.org/wiki/ASM-135) ASAT test launch

From January 1984 to September 1986, two F-15As were used as launch platforms for the [ASM-135](http://en.wikipedia.org/wiki/ASM-135_ASAT) [anti-satellite (ASAT)](http://en.wikipedia.org/wiki/Anti-satellite_weapon) missile. The F-15As (76-0086 and 77-0084) were modified to carry one ASM-135 on the centerline station with extra equipment within a special centerline pylon. The launch aircraft executed a Mach 1.22, 3.8 g climb at 65° to release the ASAT missile at an altitude of 38,100 ft (11,600 m). The flight computer was updated to control the zoom-climb and missile release. The third test flight involved a retired communications satellite in a 345-mile (555 km) orbit, which was successfully destroyed by [kinetic energy](http://en.wikipedia.org/wiki/Kinetic_energy). The pilot, USAF Major Wilbert D. "Doug" Pearson, became the only pilot to destroy a satellite.

The ASAT missile was designed to be a standoff anti-satellite weapon, with the F-15A acting as a first stage. The Soviet Union could correlate a U.S. rocket launch with a spy satellite loss, but an F-15 carrying an ASAT would blend in among hundreds of F-15 flights. The ASAT program involved five test launches. The program was officially terminated in 1988.

**Structural defects**

All F-15 aircraft were grounded by the [U.S. Air Force](http://en.wikipedia.org/wiki/U.S._Air_Force) after a [Missouri Air National Guard](http://en.wikipedia.org/wiki/Missouri_Air_National_Guard) F-15C came apart in flight and crashed on 2 November 2007. The newer F-15E fleet was later cleared for continued operations. The U.S. Air Force reported on 28 November 2007 that a critical location in the upper [longerons](http://en.wikipedia.org/wiki/Longeron) on the F-15C model was suspected of causing the failure, causing the fuselage forward of the air intakes, including the cockpit and radome, to separate from the airframe.

F-15A through D-model aircraft were ordered grounded until the location received more detailed inspections and repairs as needed. The grounding of F-15s received media attention as it began to place strains on the nation's air defense efforts. The grounding forced some states to rely on their neighbors' fighter jets for air defense protection, and [Alaska](http://en.wikipedia.org/wiki/Alaska) to depend on [Canadian Forces](http://en.wikipedia.org/wiki/Canadian_Forces)' support.

On 8 January 2008, the USAF Air Combat Command (ACC) cleared a portion of its F-15A through D-model fleet for return to flying status. It also recommended a limited return to flight for units worldwide using the affected models. The accident review board report was released on January 10, 2008. The report stated that analysis of the F-15C wreckage determined that the longeron did not meet drawing specifications, which led to fatigue cracks and finally a catastrophic failure of the remaining support structures and breakup of the aircraft in flight. In a report released on 10 January 2008, nine other F-15s were identified to have similar problems in the longeron. As a result of these problems, General [John D. W. Corley](http://en.wikipedia.org/wiki/John_D._W._Corley) stated that "the long-term future of the F-15 is in question." On 15 February 2008, ACC cleared all its grounded F-15A-D fighters for flight pending inspections, engineering reviews and any needed repairs. ACC also recommended release of other U.S. F-15A-D aircraft.

**Future**



F-15C fires [AIM-7 Sparrow](http://en.wikipedia.org/wiki/AIM-7_Sparrow) in 2005.

The F-15C/D model is being supplanted in U.S. service by the [F-22 Raptor](http://en.wikipedia.org/wiki/F-22_Raptor). The F-15E, however, will remain in service for years to come because of their different air-to-ground role and the lower number of hours on their [airframes](http://en.wikipedia.org/wiki/Airframe). The USAF will upgrade 178 F-15Cs with the AN/APG-63(V)3 AESA radar, and upgrade other F-15s with the Joint Helmet Mounted Cueing System. The Air Force will keep 178 F-15Cs as well as the 224 F-15Es in service beyond 2025.

**Variants**

**Basic models**



USAF F-15C over Florida

F-15A

Single-seat all-weather air-superiority fighter version, 384 built 1972-79.

F-15B

Two-seat training version, formerly designated **TF-15A**, 61 built 1972-79.

F-15C

Improved single-seat all-weather air-superiority fighter version, 483 built 1979-85.

F-15D

Two-seat training version, 92 built 1979-85.



A view of an [F-15E](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle) cockpit from an [aerial refueling](http://en.wikipedia.org/wiki/Aerial_refueling) tanker.

F-15J

Single-seat all-weather air-superiority fighter version for the [Japan Air Self-Defense Force](http://en.wikipedia.org/wiki/Japan_Air_Self-Defense_Force) 139 built under license in Japan by [Mitsubishi](http://en.wikipedia.org/wiki/Mitsubishi) 1981-97, 2 built in St. Louis.

F-15DJ

Two-seat training version for the Japan Air Self-Defense Force. 25 Built under license in Japan by Mitsubishi 1981-97, 12 built in St. Louis.

F-15N Sea Eagle

The F-15N was a carrier-capable variant proposed in the early 1970s to the [U.S. Navy](http://en.wikipedia.org/wiki/U.S._Navy) as an alternative to the heavier and, at the time, considered as "riskier" technology program: [F-14 Tomcat](http://en.wikipedia.org/wiki/F-14_Tomcat). The F-15N-PHX was another proposed naval version capable of carrying the [AIM-54 Phoenix](http://en.wikipedia.org/wiki/AIM-54_Phoenix) missile. These featured folding wingtips, reinforced landing gear and a stronger tail hook for shipboard operation.

F-15E Strike Eagle

*See* [*F-15E Strike Eagle*](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle) *for F-15E, F-15I, F-15S, F-15K, F-15SG, F-15SE and other F-15E-based variants.*

**Research and test**



NASA's F-15B Research Testbed, aircraft #836 (*74-0141*), with the [Quiet Spike](http://en.wikipedia.org/wiki/Quiet_Spike) attachment designed to reduce and control a [sonic boom](http://en.wikipedia.org/wiki/Sonic_boom).

F-15 Streak Eagle (72-0119)

One stripped and unpainted F-15A, demonstrated the fighter's acceleration – broke eight time-to-climb world records between 16 January and 1 February 1975. It was delivered to the [National Museum of the United States Air Force](http://en.wikipedia.org/wiki/National_Museum_of_the_United_States_Air_Force) in December 1980.

[F-15 S/MTD](http://en.wikipedia.org/wiki/F-15_S/MTD) (71-0290)

The first F-15B was converted into a short takeoff and landing, maneuver technology demonstrator aircraft. In the late 1980s it received [canard](http://en.wikipedia.org/wiki/Canard_(aeronautics)) flight surfaces in addition to its usual [horizontal tail](http://en.wikipedia.org/wiki/Tailplane), along with square thrust-vectoring nozzles. It was used as a short-takeoff/maneuver-technology (SMTD) demonstrator.

[F-15 ACTIVE](http://en.wikipedia.org/wiki/F-15_S/MTD) (71-0290)

The F-15 S/MTD was later converted into an advanced flight control technology research aircraft with thrust vectoring nozzles.

[F-15 IFCS](http://en.wikipedia.org/wiki/Intelligent_Flight_Control_System) (71-0290)

The F-15 ACTIVE was then converted into an intelligent flight control systems research aircraft. F-15B 71-0290 is the oldest F-15 still flying as of January 2009.

F-15 MANX

Concept name for a tailless variant of the F-15 ACTIVE, but the NASA ACTIVE experimental aircraft was never modified to be tailless.

F-15 Flight Research Facility (71-0281 and 71-0287)

Two F-15A aircraft were acquired in 1976 for use by NASA's [Dryden Flight Research Center](http://en.wikipedia.org/wiki/Dryden_Flight_Research_Center) for numerous experiments such as: Highly Integrated Digital Electronic Control (HiDEC), Adaptive Engine Control System (ADECS), Self-Repairing and Self-Diagnostic Flight Control System (SRFCS) and Propulsion Controlled Aircraft System (PCA). 71-0281 was returned to the Air Force and became a static display at Langley AFB in 1983.

F-15B Research Testbed (74-0141)



Current operators of the F-15 in light blue, [F-15E](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle) in red, both in dark blue

Acquired in 1993, it was an F-15B modified and used by NASA's [Dryden Flight Research Center](http://en.wikipedia.org/wiki/Dryden_Flight_Research_Center) for flight tests.

**Operators**

See also: [F-15E Strike Eagle](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle)

for operators of F-15E-based variants.

[Israel](http://en.wikipedia.org/wiki/Israel)



* [Israeli Air Force](http://en.wikipedia.org/wiki/Israeli_Air_Force) has operated F-15s since 1977, received under [Peace Fox I](http://en.wikipedia.org/w/index.php?title=Peace_Fox_I&action=edit&redlink=1), II and III. These aircraft are currently organized into two squadrons of F-15A/B and one squadron of F-15C/Ds. The first 25 F-15A/B were early USAF production airframes, equipping IDFAF squadron 133rd. The second batch was temporarily embargoed as a result of the [1982 Lebanon War](http://en.wikipedia.org/wiki/1982_Lebanon_War). The IAF had 42 F-15A/C and 25 F-15I aircraft in service as of November 2008.



Two F-15J Eagles of the 202nd TFS, Japan Air Self-Defense Force, take off in formation during a joint USA/Japan exercise.

[Japan](http://en.wikipedia.org/wiki/Japan)



* [Japan Air Self-Defense Force](http://en.wikipedia.org/wiki/Japan_Air_Self-Defence_Force) acquired 203 F-15Js and 20 F-15DJs from 1981, of which 2 F-15Js and 12 F-15DJs were made in U.S. and the rest by Mitsubishi under license. These aircraft are currently operated by 2 *Hikotai* (squadron) of 2. *Kokudan* (Air Wing), [*Chitose Air Base*](http://en.wikipedia.org/wiki/Chitose_Air_Base), 1 Hikotai of 5. Kokudan, *Nyutabaru* AB, 1 Hikotai of 6. Kokudan, *Komatsu* AB, 2 Hikotais of 7. Kokudan, *Hyakuri* AB and 1 Hikotai of 8. Kokudan, *Tsuiki* AB. In June 2007, the Air Self-Defense Force decided to upgrade certain F-15 aircraft with [synthetic aperture radar](http://en.wikipedia.org/wiki/Synthetic_aperture_radar) pods; these aircraft will replace RF-4 aircraft currently in service. Japan had 157 F-15Js in use as of November 2008.

[Saudi Arabia](http://en.wikipedia.org/wiki/Saudi_Arabia)



* [Royal Saudi Air Force](http://en.wikipedia.org/wiki/Royal_Saudi_Air_Force) has operated 4 squadrons of F-15C/D (55/19) since 1981, received under [Peace Sun](http://en.wikipedia.org/w/index.php?title=Peace_Sun&action=edit&redlink=1). They are based at *Dhahran*, *Khamis Mushayt* and *Taif* air bases. A stipulation in the [Camp David Peace Agreement](http://en.wikipedia.org/wiki/Camp_David_Peace_Agreement) limited the number of Saudi F-15 to 60, holding surplus air frames in [Luke AFB](http://en.wikipedia.org/wiki/Luke_AFB) for RSAF pilot training. This limitation was later abandoned. The RSAF had 139 F-15C/S Eagles in operation as of November 2008.

[United States](http://en.wikipedia.org/wiki/United_States)



* [United States Air Force](http://en.wikipedia.org/wiki/United_States_Air_Force) operated 630 F-15 aircraft (499 in active duty and 131 in ANG, all variants) as of September 2008. The F-15 is being replaced by the newer F-22 Raptor.

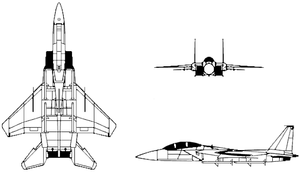
|  |  |
| --- | --- |
| * **Active Duty**   + [**Air Combat Command**](http://en.wikipedia.org/wiki/Air_Combat_Command)     - [1st Fighter Wing](http://en.wikipedia.org/wiki/1st_Fighter_Wing) - [Langley AFB](http://en.wikipedia.org/wiki/Langley_Air_Force_Base), [Virginia](http://en.wikipedia.org/wiki/Virginia)       * [71st Fighter Squadron](http://en.wikipedia.org/wiki/71st_Fighter_Squadron)     - [33d Fighter Wing](http://en.wikipedia.org/wiki/33d_Fighter_Wing) - [Eglin AFB](http://en.wikipedia.org/wiki/Eglin_Air_Force_Base), [Florida](http://en.wikipedia.org/wiki/Florida)       * [58th Fighter Squadron](http://en.wikipedia.org/wiki/58th_Fighter_Squadron)     - [53d Wing](http://en.wikipedia.org/wiki/53d_Wing) - [Eglin Air Force Base](http://en.wikipedia.org/wiki/Eglin_Air_Force_Base), [Florida](http://en.wikipedia.org/wiki/Florida)       * [85th Test and Evaluation Squadron](http://en.wikipedia.org/wiki/85th_Test_and_Evaluation_Squadron)       * [422d Test and Evaluation Squadron](http://en.wikipedia.org/wiki/422d_Test_and_Evaluation_Squadron), Nellis AFB, Nevada     - [57th Wing](http://en.wikipedia.org/wiki/57th_Wing) - [Nellis AFB](http://en.wikipedia.org/wiki/Nellis_Air_Force_Base), [Nevada](http://en.wikipedia.org/wiki/Nevada)       * [65th Aggressor Squadron](http://en.wikipedia.org/wiki/65th_Aggressor_Squadron)     - [366th Fighter Wing](http://en.wikipedia.org/wiki/366th_Fighter_Wing) - [Mountain Home AFB](http://en.wikipedia.org/wiki/Mountain_Home_Air_Force_Base), [Idaho](http://en.wikipedia.org/wiki/Idaho)       * [390th Fighter Squadron](http://en.wikipedia.org/wiki/390th_Fighter_Squadron)   + [**Air Education and Training Command**](http://en.wikipedia.org/wiki/Air_Education_and_Training_Command)     - [325th Fighter Wing](http://en.wikipedia.org/wiki/325th_Fighter_Wing) - [Tyndall AFB](http://en.wikipedia.org/wiki/Tyndall_Air_Force_Base), [Florida](http://en.wikipedia.org/wiki/Florida)       * [2d Fighter Squadron](http://en.wikipedia.org/wiki/2d_Fighter_Squadron)       * [95th Fighter Squadron](http://en.wikipedia.org/wiki/95th_Fighter_Squadron)   + [**Pacific Air Forces**](http://en.wikipedia.org/wiki/Pacific_Air_Forces)     - [3d Wing](http://en.wikipedia.org/wiki/3d_Wing) - [Elmendorf AFB](http://en.wikipedia.org/wiki/Elmendorf_Air_Force_Base), [Alaska](http://en.wikipedia.org/wiki/Alaska)       * [19th Fighter Squadron](http://en.wikipedia.org/wiki/19th_Fighter_Squadron)     - [18th Wing](http://en.wikipedia.org/wiki/18th_Wing) - [Kadena AB](http://en.wikipedia.org/wiki/Kadena_Air_Base), [Japan](http://en.wikipedia.org/wiki/Japan)       * [44th Fighter Squadron](http://en.wikipedia.org/wiki/44th_Fighter_Squadron)       * [67th Fighter Squadron](http://en.wikipedia.org/wiki/67th_Fighter_Squadron)   + [**United States Air Forces in Europe**](http://en.wikipedia.org/wiki/United_States_Air_Forces_in_Europe)     - [48th Fighter Wing](http://en.wikipedia.org/wiki/48th_Fighter_Wing) - [RAF Lakenheath](http://en.wikipedia.org/wiki/RAF_Lakenheath), [England](http://en.wikipedia.org/wiki/England)       * [493d Fighter Squadron](http://en.wikipedia.org/wiki/493d_Fighter_Squadron) | * [**Air National Guard**](http://en.wikipedia.org/wiki/Air_National_Guard)   + [Florida Air National Guard](http://en.wikipedia.org/wiki/Florida_Air_National_Guard)     - [125th Fighter Wing](http://en.wikipedia.org/wiki/125th_Fighter_Wing) - [Jacksonville International Airport](http://en.wikipedia.org/wiki/Jacksonville_International_Airport)/Jacksonville ANGB       * [159th Fighter Squadron](http://en.wikipedia.org/wiki/159th_Fighter_Squadron)   + [Hawaii Air National Guard](http://en.wikipedia.org/wiki/Hawaii_Air_National_Guard)     - [154th Wing](http://en.wikipedia.org/wiki/154th_Wing) - [Hickam AFB](http://en.wikipedia.org/wiki/Hickam_Air_Force_Base)       * [199th Fighter Squadron](http://en.wikipedia.org/wiki/199th_Fighter_Squadron)   + [Louisiana Air National Guard](http://en.wikipedia.org/wiki/Louisiana_Air_National_Guard)     - [159th Fighter Wing](http://en.wikipedia.org/wiki/159th_Fighter_Wing) - [NAS/JRB New Orleans](http://en.wikipedia.org/wiki/NAS/JRB_New_Orleans)       * [122d Fighter Squadron](http://en.wikipedia.org/wiki/122d_Fighter_Squadron)   + [Massachusetts Air National Guard](http://en.wikipedia.org/wiki/Massachusetts_Air_National_Guard)     - [104th Fighter Wing](http://en.wikipedia.org/wiki/104th_Fighter_Wing) - [Barnes Municipal Airport](http://en.wikipedia.org/wiki/Barnes_Municipal_Airport)/Barnes ANGB       * [131st Fighter Squadron](http://en.wikipedia.org/wiki/131st_Fighter_Squadron)   + [Montana Air National Guard](http://en.wikipedia.org/wiki/Montana_Air_National_Guard)     - [120th Fighter Wing](http://en.wikipedia.org/wiki/120th_Fighter_Wing) - [Great Falls International Airport](http://en.wikipedia.org/wiki/Great_Falls_International_Airport)/Great Falls ANGB       * [186th Fighter Squadron](http://en.wikipedia.org/wiki/186th_Fighter_Squadron)   + [Oregon Air National Guard](http://en.wikipedia.org/wiki/Oregon_Air_National_Guard)     - [142d Fighter Wing](http://en.wikipedia.org/wiki/142d_Fighter_Wing) - [Portland International Airport](http://en.wikipedia.org/wiki/Portland_International_Airport)/Portland ANGS       * [123d Fighter Squadron](http://en.wikipedia.org/wiki/123d_Fighter_Squadron)     - [173d Fighter Wing](http://en.wikipedia.org/wiki/173d_Fighter_Wing) - [Kingsley Field](http://en.wikipedia.org/wiki/Kingsley_Field)       * [114th Fighter Squadron](http://en.wikipedia.org/wiki/114th_Fighter_Squadron) |

**Notable accidents and incidents**

Main article: [List of F-15 losses](http://en.wikipedia.org/wiki/List_of_F-15_losses)

* On 1 May 1983, during an [Israeli Air Force](http://en.wikipedia.org/wiki/Israeli_Air_Force) training dogfight, an F-15D collided with an [A-4 Skyhawk](http://en.wikipedia.org/wiki/A-4_Skyhawk). Unknown to pilot Zivi Nedivi and his copilot, the right wing of the Eagle was sheared off roughly two feet (60 cm) from the fuselage. The F-15 entered an uncontrollable spin after the collision. Zivi decided to attempt recovery and engaged afterburner to increase speed, allowing him to regain control of the aircraft. The pilot was able to prevent [stalling](http://en.wikipedia.org/wiki/Stall_(flight)) and maintain control because of the lift generated by the large horizontal surface area of the fuselage, the [stabilators](http://en.wikipedia.org/wiki/Stabilator) and remaining wing areas. The F-15 landed at twice the normal speed to maintain the necessary lift, and its [tailhook](http://en.wikipedia.org/wiki/Tailhook) was torn off completely during the landing. Zivi managed to bring his F-15 to a complete stop approximately 20 ft (6 m) from the end of the runway. He was later quoted as saying "(I) probably would have ejected if I knew what had happened."
* On 19 March 1990, an F-15 from the 3rd Wing stationed at Elmendorf AFB, AK accidentally fired an [AIM-9M Sidewinder](http://en.wikipedia.org/wiki/AIM-9_Sidewinder) missile at another F-15. The damaged aircraft was able to make an emergency landing; it was subsequently repaired and returned to service.
* On 22 November 1995, during air-intercept training over the Sea of Japan, a Japanese F-15J flown by Lt. Tatsumi Higuchi was shot down by a AIM-9L Sidewinder missile accidentally fired by his wingman in an incident similar to the one that occurred on 19 March 1990. The pilot ejected safely. Both F-15Js involved were from [JASDF](http://en.wikipedia.org/wiki/JASDF) 303rd Squadron, Komatsu AFB.
* On 26 March 2001, during a low flying training exercise over the Scottish Highlands, two US Air Force F-15Cs crashed near the summit of Ben Macdui in the Cairngorms. Both, Lieutenant Colonel Kenneth John Hyvonen and Captain Kirk Jones died in the accident which would later result in a court martial for an RAF air traffic controller, who was later found not guilty.
* On 2 November 2007, a 27-year-old F-15C (s/n 80-0034 of the [131st Fighter Wing](http://en.wikipedia.org/wiki/131st_Fighter_Wing)) crashed during air combat maneuvering training near [St. Louis, Missouri](http://en.wikipedia.org/wiki/St._Louis,_Missouri). The pilot, Maj. Stephen W. Stilwell, ejected but suffered serious injuries. The crash was the result of an in-flight breakup due to structural failure. On 3 November 2007, all non-mission critical models of the F-15 were grounded pending the outcome of the crash investigation, and on the following day, grounded non-mission critical F-15s engaged in combat missions in the Middle East. By 13 November 2007 over 1,100 were grounded worldwide after Israel, Japan and Saudi Arabia grounded their aircraft as well. F-15Es were cleared on 15 November 2007 pending aircraft passing inspections. On 8 January 2008, the USAF cleared 60 percent of the F-15A-D fleet for return to flight. On 10 January 2008, the accident review board released its report stating the 2 November crash was related to the [longeron](http://en.wikipedia.org/wiki/Longeron) not meeting drawing specifications. The Air Force cleared all its grounded F-15A-D fighters for flight on 15 February 2008 pending inspections, reviews and any needed repairs. In March 2008, Stilwell, the injured pilot, filed a lawsuit against Boeing, the F-15's manufacturer.

**Specifications (F-15C Eagle)**



*Data from* USAF fact sheet, Jane's All the World's Aircraft, Davies 2002, GlobalSecurity

**General characteristics**

* Crew: 1
* Length: 63 ft 9 in (19.43 m)
* [Wingspan](http://en.wikipedia.org/wiki/Wingspan): 42 ft 10 in (13.05 m)
* Height: 18 ft 6 in (5.63 m)
* Wing area: 608 ft² (56.5 m²)
* [Airfoil](http://en.wikipedia.org/wiki/Airfoil): [NACA 64A006.6](http://en.wikipedia.org/wiki/NACA_airfoil) root, NACA 64A203 tip
* Empty weight: 28,000 [lb](http://en.wikipedia.org/wiki/Pound_(mass)) (12,700 kg)
* Loaded weight: 44,500 lb (20,200 kg)
* [Max takeoff weight](http://en.wikipedia.org/wiki/Maximum_Takeoff_Weight): 68,000 lb (30,845 kg)
* Powerplant: 2× [Pratt & Whitney F100](http://en.wikipedia.org/wiki/Pratt_%26_Whitney_F100)-100, -220 or -229 afterburning [turbofans](http://en.wikipedia.org/wiki/Turbofan)
  + Dry thrust: 17,450 [lbf](http://en.wikipedia.org/wiki/Pound-force) (77.62 kN) each
  + Thrust with [afterburner](http://en.wikipedia.org/wiki/Afterburner): 25,000 lbf for -220; 29,000 lbf for -229 (111.2 kN for -220; 129.0 kN for -229) each

**Performance**

* [Maximum speed](http://en.wikipedia.org/wiki/V_speeds#Vno):
  + High altitude: Mach 2.5+ (1,650+ mph, 2,660+ km/h)
  + Low altitude: Mach 1.2 (900 mph, 1,450 km/h)
* Combat radius: 1,061 nmi (1,222 mi, 1,967 km) for interdiction mission
* [Ferry range](http://en.wikipedia.org/wiki/Ferry_range): 3,450 mi (3,000 [nmi](http://en.wikipedia.org/wiki/Nautical_mile), 5,550 km) with conformal fuel tanks and three external fuel tanks
* [Service ceiling](http://en.wikipedia.org/wiki/Ceiling_(aeronautics)): 65,000 ft (20,000 m)
* [Rate of climb](http://en.wikipedia.org/wiki/Rate_of_climb): >50,000 ft/min (254 m/s)
* [Wing loading](http://en.wikipedia.org/wiki/Wing_loading): 73.1 lb/ft² (358 kg/m²)
* [Thrust/weight](http://en.wikipedia.org/wiki/Thrust-to-weight_ratio): 1.12 (-220), 1.30 (-229)



An F-15 with [intake ramps](http://en.wikipedia.org/wiki/Intake_ramp) in different positions

**Armament**

* **Guns:** 1× internally mounted [20 mm](http://en.wikipedia.org/wiki/20_mm) (0.787 in) [M61A1](http://en.wikipedia.org/wiki/M61_Vulcan) [gatling gun](http://en.wikipedia.org/wiki/Gatling_gun), 940 rounds
* **Hardpoints:** four wing, four fuselage, two wing stations, centerline station, optional fuselage pylons with a capacity of 16,000 lb (7,300 kg),
* **Missiles:**
  + [AIM-7 Sparrow](http://en.wikipedia.org/wiki/AIM-7_Sparrow)
  + [AIM-120 AMRAAM](http://en.wikipedia.org/wiki/AIM-120_AMRAAM)
  + [AIM-9 Sidewinders](http://en.wikipedia.org/wiki/AIM-9_Sidewinder)

**Avionics**

* **Radar:**
  + [Raytheon](http://en.wikipedia.org/wiki/Raytheon) [AN/APG-63 or AN/APG-70](http://en.wikipedia.org/wiki/APG-63_and_APG-70_radars) *or*
    - Although several F-15C aircraft were produced with APG-70 radar, all have been retrofitted to the AN/APG-63(V)1 configuration
  + Raytheon AN/APG-63(V)1 *or*
  + Raytheon AN/APG-63(V)2 Active Electronically Scanned Array (AESA) *or*
  + Raytheon AN/APG-63(V)3 Active Electronically Scanned Array (AESA)
    - Both active AF and ANG F-15Cs will receive another (up to) 48 V3 units between 2009-2015, over the existing 19 aircraft.
* **Countermeasures:**
  + AN/APX-76 or AN/APX-119 Identify Friend/Foe (IFF) interrogator
  + Magnavox [AN/ALQ-128](http://en.wikipedia.org/wiki/AN/ALQ-128) Electronic Warfare Warning Set (EWWS) -part of Tactical Electronic Warfare Systems (TEWS)
  + Loral AN/ALR-56 Radar Warning Receiver (RWR)-part of Tactical Electronic Warfare Systems (TEWS)
  + Northrop ALQ-135 Internal Countermeasures System (ICS) - part of Tactical Electronic Warfare Systems (TEWS)
  + AN/ALE-45 chaff/flare dispensers



Pratt & Whitney F100 turbofan engines of an F-15C Eagle

* **Others:**
  + Joint Helmet Mounted Cueing System
  + MXU-648 Cargo/Travel Pod - to carry personal belongings, and small pieces of maintenance equipment.

**Popular culture**

The F-15 was the subject of the [IMAX](http://en.wikipedia.org/wiki/IMAX) movie [*Fighter Pilot: Operation Red Flag*](http://en.wikipedia.org/wiki/Fighter_Pilot:_Operation_Red_Flag), about the [RED FLAG exercises](http://en.wikipedia.org/wiki/RED_FLAG_exercise). In Tom Clancy's nonfiction *Fighter Wing* (1995), a detailed analysis of the Air Force's premier fighter aircraft, the F-15 Eagle and its capabilities are showcased.

**See also**

|  |  |
| --- | --- |
|  | [***United States Air Force portal***](http://en.wikipedia.org/wiki/Portal:United_States_Air_Force) |

* [4th generation jet fighter](http://en.wikipedia.org/wiki/4th_generation_jet_fighter)

**Related development**

* [F-15E Strike Eagle](http://en.wikipedia.org/wiki/F-15E_Strike_Eagle)
* [F-15SE Silent Eagle](http://en.wikipedia.org/wiki/F-15SE_Silent_Eagle)
* [F-15 S/MTD](http://en.wikipedia.org/wiki/F-15_S/MTD)

**Comparable aircraft**

* [F-14 Tomcat](http://en.wikipedia.org/wiki/F-14_Tomcat)
* [Panavia Tornado ADV](http://en.wikipedia.org/wiki/Panavia_Tornado_ADV)
* [Sukhoi Su-27](http://en.wikipedia.org/wiki/Sukhoi_Su-27)

**Related lists**

* [List of fighter aircraft](http://en.wikipedia.org/wiki/List_of_fighter_aircraft)
* [List of active United States military aircraft](http://en.wikipedia.org/wiki/List_of_active_United_States_military_aircraft)