

## Fighter aircraft



An [A-10 Thunderbolt II](#), [F-86 Sabre](#), [P-38 Lightning](#) and [P-51 Mustang](#) fly in formation during an air show at Langley Air Force Base, Virginia. The formation displays two generations of Air Force fighter aircraft, and an [attack aircraft](#) (the A-10).

A **fighter aircraft** is a [military aircraft](#) designed primarily for attacking other [aircraft](#), as opposed to a [bomber](#), which is designed to attack ground targets, primarily by dropping [bombs](#). Fighters are comparatively small, fast, and maneuverable. Fighter aircraft are the primary means by which armed forces gain [air superiority](#). At least since World War II, air superiority has been a crucial component of victory in most modern warfare, particularly "conventional" warfare between regular armies, and their acquisition and maintenance represent a very substantial proportion of military budgets in militaries that maintain modern fighter forces.

### Introduction

The word "fighter" did not become the official British term for a single seat fighter until after the First World War. In the RFC/RAF such aircraft continued to be called "scouts". The French and Germans both used (and still use) terms that literally mean "hunter". The Americans, perhaps originally due to a mistranslation of the French word "chasseur" called their fighters "pursuit" aircraft until after the [Second World War](#). By whatever name they are known, fighters were developed in response to the fledgling use of aircraft and [dirigibles](#) in [World War I](#) for reconnaissance and ground attack roles.

As [aerial warfare](#) became increasingly important, so did control of the airspace. By [World War II](#), fighters were predominantly all-metal monoplanes with wing-mounted or propeller-mounted cannons. By the end of the war, [turbojets](#) were already beginning to replace piston engines as the means of propulsion, and missiles to augment or replace guns.

For historical purposes, [jet fighters](#) are classified by generation. The generation terminology was initiated by Russian defense parlance in referring to the [F-35 Lightning II](#) as a "fifth-generation" plane. Years are not exact and intended as a guideline.

Modern jet fighters are predominantly powered by one or two turbofan engines, armed primarily with missiles (from as few as two on some lightweight [day fighters](#) to as many as eight to ten on air superiority fighters like the [Su-27 Flanker](#) or [F-15 Eagle](#)), with a cannon as backup armament (typically between 20 and 30mm in [calibre](#)), and equipped with a radar as the primary method of target acquisition.

## [\[edit\]](#) Prop-powered fighters

### World War I



A [Sopwith Camel 2F1](#) biplane at the [Imperial War Museum](#) in London

The word “fighter” was first used to describe a two seater aircraft, with sufficient lift to carry a machine gun and its operator as well as the pilot. The first such “fighters” belonged to the “gunbus” series of experimental gun carriers of the [Vickers](#) company which culminated in the [Vickers F.B.5 Gunbus](#) of 1914. The main drawback of this type of aircraft was its lack of speed. It was quickly realised that an aircraft intended to destroy its kind in the air needed at least to be fast enough to catch its quarry.

Fortunately another type of military aircraft already existed, which was to form the basis for an effective “fighter” in the modern sense of the word. It was based on the small fast aircraft developed before the war for such air races as the Gordon Bennett and Schneider trophies. The military **scout** aeroplane was not initially expected to be able to carry serious armament, but to rely on its speed to be able to reach the location it was required to “scout” or reconnoitre and return quickly to report – all the time making a difficult target for [AA artillery](#) or enemy gun-carrying aircraft. British “scout” aircraft in this sense included the [Sopwith Tabloid](#) and [Bristol Scout](#) – French equivalents included the light, fast [Morane-Saulnier N](#).

In practice, after the actual commencement of the war the pilots of small scout aircraft armed themselves with pistols, carbines and an assortment of improvised weapons with which to attack enemy aircraft – proving to be as successful in their efforts as specifically designed “fighter” aircraft.

It was inevitable that sooner or later means of effectively arming “scouts” would be devised. One method was to build a “pusher” scout, with the propeller behind the pilot. The main drawback was that the high drag of a pusher type's tail structure meant that it was bound to be slower than an otherwise similar [tractor](#) aircraft. The other was to mount the machine gun armament outside the arc of the propeller. Given the frail structure of early aeroplanes, and the tendency of early machine guns to jam (and hence the need for the pilot to have access to the gun's breech) this was highly problematic, although a scheme of mounting a machine gun on the top wing of a biplane to fire over the propeller arc was eventually to prove fairly satisfactory. (See [Foster mounting](#)).

So clear was the need to arm a tractor scout with a forward firing gun whose bullets actually passed through the propeller arc that various devices were tried – including fitting the propeller with special guards to deflect any bullets striking the propeller. [Roland Garros](#), the well known pre-war aviator, crashed behind enemy lines in a [Morane-Saulnier L](#) parasol monoplane fitted with such a device, and the German authorities, interested in its potential, passed it on to [Anthony Fokker](#), who had been supplying them with a line of steel framed adaptations of Morane designs.

Fortuitously, the deflector plate idea was totally impractical for the German Army – their machine gun bullets were simply too hard-cased and would have smashed the propeller, deflector plates and all, so Fokker was forced to reconsider the use, tried by others but rejected as too unreliable and dangerous, of [synchronising](#) the firing of the gun with the revolution of the propeller. The result was










the [Fokker Eindecker](#). The airframe was essentially that of a pre-war Morane racing monoplane – but it carried a machine gun fixed to fire forward in the direction of flight, and synchronised to miss the propeller blades (at least when it worked).

The success of the Eindecker started a cycle of improvement among the combatants, building ever more efficient single seat fighters. The [Albatros D.I](#) of late 1916 set the classic pattern followed by almost all such aircraft for about twenty years. Like the D.I, they were [biplanes](#) (only very occasionally [monoplanes](#), or [triplanes](#)). The strong box structure of the biplane wing allowed for a rigid wing that afforded accurate lateral control, essential for fighter-type manoeuvres. They had a single crew member, who flew the aircraft and also operated its armament. They were armed with two synchronised Maxim-type machine guns, which were much easier to synchronise than other types – firing through the propeller arc. The gun breeches were typically right in front of the pilot's face. This had obvious implications in case of accidents, but enabled jams (to which Maxim-type machine guns always remained liable) to be cleared in flight.



[Fokker Dr.I](#) replica at the [ILA 2006](#), the "[Red Baron](#)" triplane

Notable aircraft: (with year of introduction)

-  [United Kingdom](#) - [Vickers F.B.5](#) (1915)
-  [Netherlands](#) - [Fokker Eindecker](#) (1915)
-  [France](#) - [Nieuport 17](#) (1916)
-  [Germany](#) - [Albatros D.III](#) (1916)
-  [Netherlands](#) - [Fokker Dr.I](#) (1917)
-  [France](#) - [SPAD S.XIII](#) (1917)
-  [United Kingdom](#) - [Sopwith Camel](#) (1917)
-  [United Kingdom](#) - [Royal Aircraft Factory S.E.5](#) (1917)
-  [Netherlands](#) - [Fokker D.VII](#) (1918)

## 1919-1938



An early monoplane fighter: the [Boeing P-26 Peashooter](#) which first flew in 1932

Fighter development slowed between the wars, the most significant change coming late in the period, when the classic WWI type machines started to give way to metal [monocoque](#) or semi-monocoque monoplanes, with [cantilever](#) wing structures. Gun synchronisation became less and less important, as increasingly heavy armament tended to be mounted in the wings, outside the arc of the propeller.

Some [air forces](#) dabbled with "heavy fighters" (called "destroyers" by the Germans). These were larger aircraft, sometimes adaptations of [light](#) or [medium](#) bomber types, and usually with two engines. The idea did not take hold except for some specialized applications requiring a heavier payload. In particular, heavy fighters were no match for normal fighters in combat.

The primary driver of fighter innovation, right up to the period of rapid rearmament in the late thirties, were not military budgets, but civilian aircraft races. Aircraft designed for these races sported innovations like streamlining and liquid-cooled engines that would find their way into the fighters of World War II.

Notable aircraft:

- Biplanes
  -  [Czech Republic](#) - [Avia B-534](#)
  -  [United Kingdom](#) - [Bristol Bulldog](#)
  -  [Italy](#) - [Fiat CR.42](#)
  -  [United Kingdom](#) - [Gloster Gladiator](#)
  -  [United Kingdom](#) - [Hawker Fury](#)
  -  [Sweden](#) - [Svenska Aero Jaktfalken](#)
- Monoplanes
  -  [United States](#) - [Boeing P-26 Peashooter](#)
  -  [United States](#) - [F2A Brewster Buffalo](#)
  -  [Soviet Union](#) - [Polikarpov I-16](#)
  -  [Poland](#) - [PZL P.11](#)

## World War II



[Polish PZL P.11c](#) from the Eagle Owls squadron. On [1 September 1939](#), [Flight Lieutenant Hieronim Dudwał](#), flying this plane, shot down a German [He 111](#) over [Warsaw](#).



A [Supermarine Spitfire](#)

Aerial combat formed an important part of World War II military doctrine. The ability of aircraft to locate, harass, and interdict ground forces was an instrumental part of the German combined-arms doctrine, and their inability to seize air superiority over Britain rendered an invasion infeasible. [Erwin Rommel](#) noted the effect of airpower: "Anyone who has to fight, even with the most modern weapons, against an enemy in complete command of the air, fights like a savage against modern European troops, under the same handicaps and with the same chances of success."

Fighter aircraft of WWII introduced rockets as well as innovations of the 1930s including: the first jet engine- powered designs. Piston-engined fighters continued to be refined and developed with

increasing performance and capabilities, up until the advent of [jet aircraft](#) such as the [Messerschmitt Me 262](#) and [Gloster Meteor](#). Many of these fighters could do over 400 mph (600 km/h) in level flight, and were fast enough in a dive that they started encountering the transonic buffeting experienced near the speed of sound, occasionally breaking up in flight due to the heavy load placed on an aircraft near the so-called "sound barrier". [Dive brakes](#) were developed late in World War II to minimise these problems and restore control to pilots.

Radar, invented shortly prior to World War II, was fitted to some fighters, such as the [Messerschmitt Bf 110](#), [F6F Hellcat](#) and Northrop [P-61 Black Widow](#) to enable them to locate targets at night. Another innovation of this period was the strike fighter. Short on bombers, Marines in the [Pacific Theater](#) bolted bomb racks on to their [F4U Corsairs](#). This proved a versatile concept, as the fighters were able to fight enemy fighters once they had relieved themselves of their bombload. The F6F Hellcat was also used in similar fashion in late 1944 and 1945.

Notable Aircraft:






Focke-Wulf Fw 190

-  [Australia](#)
  - [CAC Boomerang](#)
-  [France](#)
  - [Bloch MB.150](#)
  - [Dewoitine D.520](#)
  - [Morane-Saulnier M.S.406](#)
-  [Finland](#)
  - [VL Myrsky](#)
-  [Germany](#)
  - [Messerschmitt Bf 109](#)
  - [Messerschmitt Bf 110](#)
  - [Focke-Wulf Fw 190](#)
  - [Messerschmitt Me 163](#)
  - [Messerschmitt Me 262](#)
  - [Heinkel He 100](#)
  - [Heinkel He 111](#)
  - [Heinkel He 112](#)
  - [Heinkel He 162](#)
-  [Italy](#)
  - [Macchi C.200](#)
  - [Macchi C.202](#)
  - [Macchi C.205](#)
  - [Fiat G.55](#)
  - [Fiat G.50](#)
-  [Japan](#)
  - [Kawanishi N1K-J](#)
  - [Nakajima Ki-43](#)

- [Nakajima Ki-44](#)
- [Nakajima Ki-84](#)
- [Kawasaki Ki-61](#)
- [Kawasaki Ki-100](#)
- [Mitsubishi Zero](#)
- [Mitsubishi J2M](#)
-  [Romania](#)
  - [IAR-80](#)



Yakovlev Yak-9

-  [Soviet Union](#)
  - [Yakovlev Yak-1](#)
  - [Yakovlev Yak-3](#)
  - [Yakovlev Yak-9](#)
  - [Lavochkin LaGG-3](#)
  - [Lavochkin La-5](#)
  - [Lavochkin La-7 'Fin'](#)
  - [Mikoyan-Gurevich MiG-3](#)
-  [United Kingdom](#)
  - [Supermarine Spitfire](#)
  - [Hawker Hurricane](#)
  - [Hawker Typhoon](#)
  - [Hawker Tempest](#)
  - [De Havilland Mosquito](#)
  - [Gloster Meteor](#)
  - [Boulton Paul Defiant](#)
-  [United States](#)



P-51 Mustang

- [Grumman F4F Wildcat](#)
- [Vought F4U Corsair](#)
- [Grumman F6F Hellcat](#)
- [Curtiss P-36 Hawk](#)
- [Lockheed P-38 Lightning](#)



- [Bell P-39 Airacobra](#)
- [Curtiss P-40 Warhawk](#)
- [Republic P-47 Thunderbolt](#)
- [North American P-51 Mustang](#)
- [Bell P-63 Kingcobra](#)

## Jet-powered fighters

### First-generation jet fighters (1944-1953)

The first generation represents the first attempts at using turbojets for propulsion, providing greatly increased speed (the efficiency of piston-driven propellers drops off considerably at transsonic speeds). Many of these early jets resembled their piston-driven counterparts in several ways. Many were straight-winged aircraft armed primarily with cannon; radar was not yet in common usage except on specialized [night fighters](#).

The first jets were developed during World War II and saw combat in its last year. Messerschmitt developed the first operational jet fighter, the [Me 262](#). It was considerably faster than piston-driven aircraft, and in the hands of a competent pilot, was practically untouchable. Due to German fuel shortages, however, it saw little use. Nevertheless the plane indicated the obsolescence of piston-driven aircraft. Spurred by reports of the German jets, Britain's [Gloster Meteor](#) entered production soon after and the two entered service around the same time in 1944. By the end of the war almost all work on piston powered fighters had ended. Mixed-propulsion designs such as the [Ryan FR Fireball](#) saw brief use, but by the end of the 1940s virtually all new combat aircraft were jet-powered.

Despite the advantages, the early jet fighters were far from perfect. Their operational lifespans could be measured primarily in hours; the engines themselves were fragile and bulky, and power could be adjusted only slowly. Innovations such as [swept wings](#), [ejector seats](#), and all-moving [tailplanes](#) were introduced in this period.

Notable aircraft:

-  [Germany](#)
  - [Heinkel He 280](#)
  - [Messerschmitt Me 262](#)
  - [Heinkel He 162](#)
  - [Arado Ar 234](#)
  - [Horten Ho 229](#)
-  [France](#)
  - [Dassault Ouragan](#)
  - [Dassault Mystère IV](#)
-  [Sweden](#)
  - [Saab Tunnan](#)
-  [Soviet Union](#)



## A MiG-15 in [Polish](#) markings

- [Mikoyan-Gurevich MiG-9 'Fargo'](#)
- [Mikoyan-Gurevich MiG-15 'Fagot'](#)
- [Mikoyan-Gurevich MiG-17 'Fresco'](#)
- [Lavochkin La-15 'Fantail'](#)
- [Yakovlev Yak-15/17 'Feather'](#)
- [Yak-23 'Flora'](#)
- [Yakovlev Yak-25 'Flashlight'](#)
- [United Kingdom](#)
  - [de Havilland Vampire](#)
  - [Hawker Hunter](#)
  - [Gloster Javelin](#)
  - [Gloster Meteor](#)
- [United States](#)
  - [Lockheed P-80 Shooting Star](#)
  - [Republic F-84 Thunderjet](#)
  - [North American F-86 Sabre](#)
  - [Northrop F-89J Scorpion](#)

## Second generation (1953-1960)



A "second-generation" North American [F-100 Super Sabre](#). This was the first American service aircraft to break the sound barrier in level flight.



[F-105 Thunderchief](#) fighter

The second generation describes the integration of many new technologies to greatly improve the fighting capability of the jet fighter. The introduction of guided missiles such as the [AIM-9 Sidewinder](#) and [AIM-7 Sparrow](#) moved combat to beyond visual range (though it often devolved into [dogfights](#) in visual range), necessitating the standardization of radar to acquire targets. Designers experimented with a variety of [aeronautical](#) innovations, such as the [swept wing](#), [delta wing](#), [variable-geometry](#) wings, and [area ruled](#) fuselages. With the aid of swept wing, these were the first production aircraft to break the sound barrier.

The primary specializations of this era were the [fighter-bomber](#) (such as the [F-105](#) and the [Sukhoi Su-7](#)), and the interceptor ([English Electric Lightning](#) and [F-104 Starfighter](#)). The interceptor was an outgrowth of the vision that guided missiles would completely replace guns and combat would take



place at beyond visual range. As a result, interceptors were designed with a large missile payload and a powerful radar, sacrificing agility in favor of speed and [rate of climb](#).

Notable aircraft:

-  [Canada](#)
  - [Avro Arrow](#)
-  [France](#)
  - [Dassault Étendard IV](#)
-  [India](#)
  - [HAL HF-24 Marut](#)
-  [Sweden](#)
  - [Saab Draken](#)
-  [Soviet Union](#)
  - [Mikoyan-Gurevich MiG-19 'Farmer'](#)
  - [Mikoyan-Gurevich MiG-21 'Fishbed'](#)
  - [Sukhoi Su-7 'Fitter-A'](#)
  - [Sukhoi Su-9/11 'Fishpot'](#)
-  [United Kingdom](#)
  - [English Electric Lightning](#)
  - [De Havilland Sea Vixen](#)
  - [Gloster Javelin](#)
-  [United States](#)
  - [Chance-Vought F-8 Crusader](#)
  - [Grumman F-11 Tiger](#)
  - [North American F-100 Super Sabre](#)
  - [Convair F-102 Delta Dagger](#)
  - [Lockheed F-104 Starfighter](#)
  - [Republic F-105 Thunderchief](#)
  - [Convair F-106 Delta Dart](#)

### Third generation (1960-1970)



A third-generation F-4 Phantom II



A Soviet third-generation MiG-25

The third generation is marked by maturity in the innovations introduced in the first generation. As this aeronautical development approached maturity, growth in combat capability grew via the introduction of improved missiles, radar, and other avionics. Most significantly, as a result of combat experience with guided missiles, designers conceded that combat could and would degenerate into close dogfights. Guns again became standard, and maneuverability was once again a priority.

These innovations, while greatly improving the capabilities of fighters (the F-4 could carry a payload greater than the [B-24 Liberator](#), a World War II heavy bomber), also came at a considerable increase at cost. Whereas militaries had previously specialized fighters for specific roles, such as night fighter, heavy fighter and strike fighter, in order to counter the growing cost of fighters, militaries began to consolidate missions. The McDonnell [F-4 Phantom II](#) was designed as a pure interceptor for the [United States Navy](#), but became a highly successful multi-role aircraft for the [Air Force](#), Navy and [Marine Corps](#) as well as many other nations. It is the only combat aircraft to be simultaneously flown by all three American service branches.

Notable aircraft:

-  [France](#)
  - [Dassault Mirage F.1](#)
  - [Dassault Super Étendard](#)
  - [Dassault Mirage III](#)
-  [Iran](#)
  - [Azarakhsh](#)
  - [Saeqeh](#)
-  [People's Republic of China](#)
  - [Shenyang J-8](#)
-  [Soviet Union](#)
  - [Mikoyan-Gurevich MiG-21MF/bis 'Fishbed'](#)
  - [Mikoyan-Gurevich MiG-23 'Flogger'](#)
  - [Mikoyan-Gurevich MiG-25 'Foxbat'](#)
  - [Sukhoi Su-15 'Flagon'](#)
  - [Sukhoi Su-17 'Fitter'](#)
  - [Tupolev Tu-28 'Fiddler'](#)
-  [United Kingdom](#)
  - [Hawker Siddeley Harrier](#)
-  [United States](#)
  - [McDonnell Douglas F-4 Phantom II](#)
  - [Northrop F-5](#)
  - [General Dynamics F-111](#)

#### **[edit]** Fourth generation (1970-1990)

*Main article: [4th generation jet fighter](#).*



A fourth-generation F-15 Eagle



The fourth-generation F-14 Tomcat

In reaction to the continually rising cost of fighters and the demonstrated success of the [F-4 Phantom II](#), multirole fighters became popular during this period, and even aircraft designed for a specific role (as the F-4 had) acquired multi-role capability. Fighters such as the [MiG-23](#) and [Panavia Tornado](#) have versions specially suited for various roles, while true multirole warplanes include the [F/A-18 Hornet](#) and [Dassault Mirage 2000](#). This was facilitated by avionics which could switch seamlessly between air and ground modes. As development costs increased, economics further pushed the development for multirole aircraft.

Unlike interceptors of the previous era, most modern air-superiority fighters have been designed to be agile dog-fighters. [Fly-by-wire](#) (The [U.S. Lockheed Martin F-16 Fighting Falcon](#) was the first fighter to use Fly-by wire, utilizing a token-passing digital control mechanism based on the Texas Instruments TI Falcon Chipset [TMS820/830] - a "Token Ring" network technology developed in conjunction with McDonald Douglas Aircraft - Military Division in St. Louis) controls and [relaxed stability](#) is common among modern fighters. Aircraft here make up most of the "fourth generations" of fighter jets.

Notable Aircraft:

-  [France](#)
  - [Dassault Mirage 2000](#)
-  [Iran](#)
  - [Shafaq](#)
-  [Israel](#)
  - [IAI Kfir](#)
-  [Japan](#)
  - [Mitsubishi F-2](#)
-  [People's Republic of China](#)
  - [JH-7 Flying Leopard](#)
  - [Shenyang J-8II](#)
-  [Republic of China \(Taiwan\)](#)
  - [AIDC F-CK-1 Ching-kuo](#)
-  [Sweden](#)
  - [Saab Viggen](#)
-  [Soviet Union](#)
  - [Mikoyan MiG-29 'Fulcrum'](#)
  - [Mikoyan MiG-31 'Foxhound'](#)
  - [Sukhoi Su-27 'Flanker'](#)
  - [Yakovlev Yak-38 'Forger'](#)
-  [United Kingdom](#) /  [Germany](#) /  [Italy](#)
  - [Panavia Tornado](#)
-  [United Kingdom](#) /  [United States](#)
  - [McDonnell Douglas / BAE Harrier II](#)
-  [United States](#)
  - [Grumman F-14 Tomcat](#)
  - [McDonnell Douglas F-15 Eagle](#)
  - [General Dynamics / Lockheed Martin F-16 Fighting Falcon](#)
  - [McDonnell Douglas F/A-18 Hornet](#)
  - [Northrop F-20 Tigershark](#)

## Generation 4.5 (1990-Present)

















Eurofighter Typhoon



Sukhoi Su-30MKI 'Flanker'

This half-generation has been coined to describe the next generation of fighters in service, marked by a stagnation of aerodynamic technologies (compared with the boom of the third-generation) matched with a tremendous advance in avionics and other flight electronics, as a result of applying the advances made in microchip and semiconductor technology in the 1980s and 1990s, as well as limited stealth shaping made possible with supercomputers. A prime example of this generation is the [F/A-18E/F Super Hornet](#), based on the 1970s Hornet design. While the basic aerodynamic features remain the same, the Super Hornet features improved avionics in the form of an all-[glass cockpit](#), a solid-state AESA fixed-array radar, new engines, the structural use of composite materials to reduce weight, and a slightly modified shape to minimize its radar signature. Of these, only the Super Hornet and the Rafale have seen combat action.

Notable examples:

-  [France](#)
  - [Dassault Rafale](#)
-  [India](#)
  - [HAL Tejas](#) (Limited Series Production begun)
-  [People's Republic of China](#)
  - [Chengdu J-10](#)
  - [Shenyang J-11B](#)
-  [People's Republic of China](#) /  [Pakistan](#)
  - [JF-17 Thunder](#) or [FC-1 Fierce Dragon](#)
-  [Russia](#)
  - [Mikoyan MiG-35 'Fulcrum'](#)
  - [Sukhoi Su-30/33/35/37 'Flanker'](#)
  - [Sukhoi Su-32/34 'Fullback'](#)
-  [Russia](#) /  [India](#)
  - [Su-30MKI 'Flanker'](#)
-  [Sweden](#)
  - [Saab JAS 39 Gripen](#)
-  [United Kingdom](#) /  [Germany](#) /  [Italy](#) /  [Spain](#)
  - [Eurofighter Typhoon](#)
-  [United States](#)
  - [Boeing F-15E Strike Eagle](#) and all later derivatives
  - [General Dynamics](#) / [Lockheed Martin F-16C/D Block 50/52](#) and all later derivatives

- [Boeing F/A-18E/F Super Hornet](#)

## Fifth generation (2000-Present)



F-22 Raptor



The X-35 JSF, a prototype "fifth-generation" jet fighter

The current cutting edge of fighter design combines previous emphasis on versatility with new developments such as [thrust vectoring](#), [composite materials](#), [supercruise](#), [stealth technology](#), advanced [radar](#) and sensors, and integrated [avionics](#) designed to reduce the pilot's workload while vastly improving situational awareness.

Of these, only the American [F-22 Raptor](#), put into production in 2004, is operational, and is often regarded as the first of a new generation of fighters, termed the "fifth-generation". The in-development [F-35 Lightning II](#) (formerly Joint Strike Fighter) and the F-22 has influenced the continued development of the fourth-generation designs, and the shape of design work for the Russian [PAK FA](#) and other countries' long-term fighter development projects (for instance, the rumoured Chinese [Shenyang J-XX](#) project, Indian [Medium Combat Aircraft](#) and South Korean [KFX](#)). There was some later cancelled technology demonstrators of fifth-generation fighter aircraft. Those include United States [YF-23 Black Widow II](#), [Boeing X-32](#) and [McDonnell Douglas X-36](#) plus [Soviet Union Project 1.42](#), later upgraded by Russia to version 1.44.

### Current Fighters:

- [United States](#)
  - [Lockheed Martin](#) / [Boeing F-22 Raptor](#)
- [United States](#) / [United Kingdom](#)
  - [Lockheed Martin](#) / [Northrop Grumman](#) / [BAE F-35 Lightning II](#)

### In Development:

- [China](#)
  - [Shenyang J-XX](#)
- [India](#)
  - [Medium Combat Aircraft](#)

-  [Russia](#)
  - [Sukhoi PAK FA](#)
-  [South Korea](#)
  - [KFX](#)

## See also

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## External links

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- [AirToAirCombat.com: Fighter and Military Aircraft Reference](#)