

# ARCHIVED REPORT

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## Fighter/Attack Aircraft Design, Development and Inactive Programs

### Aircraft Programs

This section includes summaries of a number of proposed, developmental, or out-of-production fighter or attack aircraft programs.

**Dassault/Airbus New Generation Fighter.** In July 2017, the governments of France and Germany agreed to jointly develop a new combat aircraft system. The following April, Airbus and Dassault joined forces to develop and produce this system, which became known as the Future Combat Air System (FCAS).

The FCAS is envisioned as a system-of-systems, composed of a variety of elements. In February 2019, Airbus and Dassault were awarded a contract by France and Germany for a Joint Concept Study for the FCAS program.

In June 2019, Airbus and Dassault delivered a joint industrial proposal to the French and German governments for an initial demonstrator phase of the FCAS program. Also in June 2019, Spain officially joined the FCAS program.

In February 2020, France and Germany awarded Airbus, Dassault, and other FCAS partners an initial framework contract that launched the demonstrator phase of the FCAS program. The contract covered an initial 18-month period known as Demonstrator Phase 1A.

One of the key components of the FCAS is the Next Generation Weapons System, which is to consist of a manned New Generation Fighter (NGF), unmanned systems called Remote Carriers, and a networked Combat Cloud. Three NGF concepts and as many as 10 Remote Carrier concepts have been under evaluation.

The NGF is intended to supplement Eurofighter Typhoons and Dassault Rafales beginning in the 2040-2045 period, and eventually replace these aircraft.

Dassault is prime contractor for the NGF, with Airbus as main partner.

Airbus is prime contractor for the Remote Carrier and the Combat Cloud, with MBDA and SATNUS as main partners on the former and Indra Sistemas and Thales as main partners on the latter.

Safran, MTU, and ITP Aero are responsible for developing a new engine for the NGF. In April 2021, Safran and MTU formed a 50/50 joint venture, called EUMET GmbH, to develop the NGF engine. Safran is leading engine design and integration, and MTU is leading engine service activities. ITP joined the effort as a main partner of EUMET, resulting in an equal workshare between France, Germany, and Spain. ITP is fully integrated into the engine design process, and is also developing the low-pressure turbine, the nozzle, and other engine components.

In early December 2022, Dassault and Airbus reached an agreement regarding their roles in the NGF effort and to proceed with Demonstrator Phase 1B of the FCAS program.

In mid-December 2022, the French defense procurement agency Direction Generale de l'Armement (DGA) awarded Dassault, Airbus, Indra, EUMET, and their industrial partners a EUR3.2 billion (\$3.5 billion) contract for Phase 1B. The contract covers a period of approximately three and a half years. Phase 1B includes development of a flying demonstrator and required technologies, as well as project architecture consolidation.

Program plans call for the first flight of the NGF demonstrator during the 2028-2029 timeframe.

Belgium decided to join the FCAS program in 2023 as an observer. It plans to become a full partner in the program in June 2025.

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### FCAS

Source: Airbus SE

**Global Combat Air Programme (GCAP).** In July 2018, British Defence Secretary Gavin Williamson unveiled a full-scale model of a new fighter aircraft. Called the Tempest, the twin-engine fighter was intended as a future replacement for Eurofighter Typhoons in British Royal Air Force service. Initial Operational Capability of the Tempest was planned for 2035, with Full Operational Capability in 2040.

The new fighter is being designed by a consortium led by BAE Systems. The consortium, known as Team Tempest, also includes Leonardo UK, MBDA UK, Rolls-Royce, and the British Ministry of Defence. In mid-2020, seven companies signed agreements to collaborate with Team Tempest on the fighter project, including Bombardier, Collins Aerospace, GE Aerospace, GKN, Martin-Baker, QinetiQ, and Thales UK.

In July 2019, the governments of Sweden and the U.K. signed a Memorandum of Understanding (MoU) to explore the possibility of joint development of future combat air systems and capabilities. The agreement, though, stopped short of a formal partnership between the two nations on the Tempest program.

In September 2019, the government of Italy did agree to partner with the U.K. on the Tempest program. The Tempest has been envisioned as a replacement for Typhoons in the Italian Air Force fleet.

In December 2020, Italy, Sweden, and the U.K. signed a trilateral MoU regarding development of the Tempest aircraft. The agreement defined the general principles for cooperation between the three countries on Tempest research, development, and joint concepts. In December 2021, Japan and the U.K. signed a Memorandum of Cooperation to explore future combat aircraft technologies.

In July 2021, the U.K. Ministry of Defence awarded a contract, worth approximately GBP250 million, to Team Tempest for design and development work on the new aircraft. The contract officially marked the start of the Tempest program's concept and assessment phase. Under the contract, the team partners worked on the development of digital concepts and new tools and techniques intended to help define and evaluate the final design and capability requirements for the Tempest.

In December 2022, Italy, Japan, and the U.K. agreed to jointly develop a next-generation fighter aircraft under a new effort known as the Global Combat Air Programme (GCAP). The three partners are to formulate a cost-sharing arrangement for the program, based on a joint assessment of costs and national budgets. They will also collaborate on establishing the core platform concept for the new fighter.

In December 2023, Italy, Japan, and the U.K. signed a treaty establishing a joint organization to manage the

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GCAP. The headquarters of the program is to be located in the U.K. Launch of the joint development phase of the GCAP is scheduled for 2025. The new aircraft is to enter service by 2035.

The GCAP builds on the work performed earlier by Team Tempest. The Tempest effort has been absorbed into the new program. Japan's F-X fighter development project has been merged into the GCAP as well. The U.K. continues to refer to the aircraft being developed under the GCAP as the Tempest.

The GCAP partners anticipate that additional countries might join the program in the future or collaborate on wider capabilities. Sweden is not one of the partners in the GCAP, opting (for now) against joining the program.

In January 2023, a team of Italian companies signed a contract to support the Italian Ministry of Defense in the GCAP concept and assessment phase and related demonstration activities. Led by Leonardo SpA, the team also includes Avio Aero, Elettronica, and MBDA Italia. The team will work on technology development in support of the GCAP system-of-systems concept.

In April 2023, the U.K. Ministry of Defence awarded a GBP656 million (\$815 million) contract to BAE Systems, on behalf of the Team Tempest industrial partners, to continue work on design and development of the new combat aircraft. The Team Tempest partners will work to progress the maturity of more than 60 technology demonstrations, digital concepts, and new technologies. These will help shape the final requirements, in collaboration with Italy and Japan, for the combat air platform.

In September 2023, BAE Systems, Leonardo SpA, and Mitsubishi Heavy Industries entered into a Collaboration Agreement to devise the concept phase requirements for the new combat aircraft. The agreement will involve the companies in the maturing of integration, collaboration, and information sharing efforts toward the next phase of GCAP. The agreement also supports ongoing discussions to establish long-term working arrangements for the program.

BAE Systems is currently manufacturing a demonstrator of the Tempest. Initial flight of the demonstrator is planned to occur by mid-2027.



GCAP Fighter

Source: BAE Systems

**Fairchild A-10 Thunderbolt II.** The A-10 is a twin-turbofan-engine close air support (CAS) aircraft. A total of 713 A-10As were produced for the U.S. Air Force, with the final example delivered in February 1984. A portion of the USAF A-10A fleet was

subsequently converted to the OA-10 configuration for use in forward air control.

By mid-2011, more than 300 USAF A/OA-10s had been modified under an upgrade program known as the

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Precision Engagement modification, for which Lockheed Martin was the prime contractor. The modification included upgraded cockpit displays, a moving map, hands-on throttle and stick, digital stores management, Litening and Sniper targeting pod integration, the Situational Awareness Data Link, and provision of the ability to deliver GPS-guided weapons. Precision Engagement modified aircraft received the designation A-10C.

In early 2014, Defense Secretary Chuck Hagel announced plans to retire the USAF A-10 fleet over a period of five years. However, the proposal sparked considerable congressional opposition and, in FY15 and FY16 budgetary legislation, Congress blocked the Pentagon from retiring the attack aircraft.

In early 2016, the Air Force indicated that it intended to begin phasing out the A-10 fleet in FY18, with the type to be completely withdrawn from service by 2022. In September 2016, though, Air Force Secretary Deborah Lee James said that A-10 retirement could be further delayed. In May 2017, the Air Force announced that retirement of the A-10 fleet was postponed indefinitely.

Congress eventually allowed the Air Force to begin retiring A-10s in FY23, and the service planned to start with retirement of an initial batch of 21 A-10s. In March 2023, Air Force Chief of Staff Gen. Charles Brown said that the A-10 will probably be completely retired from USAF service by 2028 or 2029.

Officially, the Lockheed Martin F-35A fighter aircraft is slated to replace the A-10 in the USAF fleet. Some observers, though, have been skeptical about the ability of an agile and very fast fighter like the F-35A to fully perform all parts of the CAS mission, such as flying slow and low to the ground while absorbing small arms fire.

Several years ago, against this backdrop, the Air Force began to tentatively explore alternative A-10 replacement scenarios. The F-35A would still have been tasked to perform part of the CAS mission, but now some thought was being given to possible ways to supplement the F-35A in the CAS role.

One possibility under consideration was acquisition of an off-the-shelf light attack aircraft for use in permissive, low-threat environments. This effort was known as the Light Attack Aircraft program or, alternatively, the Observation Attack Replacement (OA-X) program.

The OA-X aircraft would have supplemented, and not replaced, the Air Force's A-10s. Besides CAS, the OA-X aircraft was also to be capable of a number of other missions, including armed reconnaissance, strike coordination and reconnaissance, interdiction, airborne forward air control, combat search-and-rescue, rescue escort, and maritime air support. The Air Force tentatively planned to acquire 359 OA-X aircraft.

In the summer of 2017, four aircraft participated in the initial phase of the Air Force's Light Attack Experiment. Also known as the OA-X demonstration, the Light Attack Experiment involved a series of flight trials designed to examine various issues regarding a potential USAF acquisition of a light attack aircraft. The four aircraft involved in the first phase were the Air Tractor/L3 AT-802L Longsword, the Beechcraft AT-6, the Embraer Super Tucano, and the Textron Scorpion.

Subsequently, the Air Force selected the AT-6 and the Super Tucano to participate in the second phase of the OA-X demonstration. As was the initial phase, the second phase was conducted at Holloman Air Force Base in New Mexico. The second phase began in May 2018 and concluded the following month.

In February 2020, the Air Force decided not to proceed with procurement of an OA-X aircraft.

Meanwhile, the Air Force continued to consider possible development of the A-X2, which would be an all-new, clean-sheet aircraft intended to replace the A-10. It would be used in medium-threat environments. As of late 2023, the Air Force had not made a decision as to whether it will proceed with acquisition of an A-X2 aircraft.

**Fighter/Attack Aircraft Design, Development and Inactive Programs**A-10

Source: U.S. Air Force

**Textron Scorpion.** A joint venture of Textron Inc and AirLand Enterprises LLC, Textron AirLand announced its Scorpion intelligence, surveillance, and reconnaissance (ISR)/strike aircraft in September 2013. Work on the new aircraft had been underway since January 2012.

The Scorpion has a composite airframe and a tandem cockpit. The aircraft is powered by two Honeywell TFE731 turbofan engines, rated approximately 4,000 lbst each. Maximum takeoff weight of the Scorpion is 9,979 kilograms (22,000 lb). Maximum speed is 450 knots, and ferry range (without auxiliary fuel) is 1,600 nautical miles. The aircraft can carry an internal payload of up to 1,361 kilograms (3,000 lb).

Six wing-mounted external hardpoints can carry a total of 2,812 kilograms (6,200 lb) of ordnance, including precision-guided munitions. The inboard hardpoints are "wet," enabling the carriage of external fuel tanks.

Textron markets the Scorpion for use in such missions as close air support, maritime patrol, irregular warfare support, border security, pilot training, emergency response, forward air control, and counterinsurgency operations.

A Scorpion prototype made its initial flight in December 2013. A production-representative aircraft took to the air in December 2016. Two more production-representative aircraft had flown by late 2017.

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Scorpion

Source: Textron Inc