USAF AIRCRAFT

A-10 THUNDERBOLT

A-10 Thunderbolt is a single man plane, with twin TF34-GE-100 turbofan engines, and usually supporting ground forces with close air support by taking out tanks and armored vehicles. It has good maneuverability at low speeds and altitude. Flies 180 knots (200mph) under 1000 feet with a visibility range of 1.5 miles, which makes it good at attacking ground troops because it gives you a chance to aim and plenty of time to fire. The cockpit and the flight-control system is protected by 900 lbs of titanium armor. A multi-layer nylon spall shield protects the pilot from fragmentation. Designed to re-fuel, re-arm, with minimal service. Its main weapon is the 30mm GAU-8/A Avenger Gatling gun which carries 1,350 rounds of 30mm armor piercing ammunition and fires 3,900 rounds per minute. Its other weapon is the AGM-65 Maverick for air-to air surface missile which has electro-optical targeting. A-10 is scheduled to stay in service with the USAF until 2028 then it may be replaced with the F35 Lightning II. Has a max takeoff weight of 50,000 pounds, can go up to 45,000ft. Introduced in March, 1977, and costs $9.8 million, there only 715 built, the manufacturer is Fairchild-Republic. USAF uses this plane.

AC-130J Ghostrider

The AC-130J Ghostrider's primary missions are close air support, air interdiction and armed reconnaissance. Close air support missions include troops in contact, convoy escort and point air defense. Air interdiction missions are conducted against pre-planned targets or targets of opportunity and include strike coordination and reconnaissance and overwatch mission sets. The AC-130J provides ground forces an expeditionary, direct-fire platform that is persistent, ideally suited for urban operations and delivers precision low-yield munitions against ground targets.

The AC-130J is a highly modified C-130J aircraft that contains many advanced features. It contains an advanced two-pilot flight station with fully integrated digital avionics. The aircraft is capable of extremely accurate navigation due to the fully integrated navigation systems with dual inertial navigation systems and global positioning system. Aircraft defensive systems and color weather radar are integrated as well. The aircraft is capable of air refueling with the Universal Air Refueling Receptacle Slipway Installation system.

Additionally, the AC-130J is modified with the Precision Strike Package, which includes a mission management console, robust communications suite, two electro-optical/infrared sensors, advanced fire control equipment, precision guided munitions delivery capability, as well as trainable 30mm and 105mm weapons. The mission management system fuses sensor, communication, environment, order of battle and threat information into a common operating picture.

B-1 Lancer

B-1 Lancer is a long-range strategic bomber one of the United States best long-range bombers. It has enhanced survivability because of its blended wing body, and the variable-geometry wing design, also has radar absorbent material so it has a low radar cross-section. It uses turbofan engines with maximum speed of Mach 1.2 (950mph), normal speed is around Mach .95 (about 700mph). It has a lot of radars that can see ground moving targets, terrain, altimeter, air targets, and Doppler navigation. Max takeoff weight of 477,000 pounds. Can go as high as 60,000 ft. Drops up to 96 if using four-packs or 144 if using six-packs, GBU-39 small diameter bombs with GPS guided, 84 Mk-62 naval mines, 30 CBU-97 sensor-fused weapon, 24 Mk-84 general purpose bombs. Used in USAF, built by Rockwell International Boeing, and costs $283.1 million.



B-2 Spirit

B-2 Spirit is a multi-role stealth aircraft which is capable of dropping conventional and nuclear weapons. Its low observable/stealth characters give it ability to penetrate the enemies heavily defended areas. It has a GPS Aided Targeting System (GATS) to help it accurately hit its targets. Its stealth comes from reduced infrared, acoustic, electromagnetic, visual and radar signatures, makes it hard to detect. Two-seater pilot in left seat, mission commander in the right seat. Max takeoff weight is 376,000 pounds. Flies up to 410 knots with thrust/weight .205, can go as high as 50,000 ft. Uses 80 Mk82, and 36 CBU class bombs. Used in USAF, manufactured by Northrop Grumman, the most expensive aircraft ever, costs $2.2 billion.



B-52 Stratofortess

B-52 Stratofortress is a long-range Strategic bomber; it has the longest range out of any bomber and carries heavy weapons. It can perform a variety of missions, it is capable of flying at subsonic speeds high in the air, and can carry a variety of weapons such as a nuclear or precision-guided munition, originally designed to carry two mammoth size thermonuclear weapons. This plane has most anti-fighter armaments, carries tail-mounted armament of four .50 caliber machine guns, and also may carry 20mm M61A1 Vulcan. For bombs it carries cluster bombs, Joint Direct Attack Munitions (JDAMs), and cruise missiles. Flies up to 560 knots with thrust/weight .51, and can go as high as 55,773 ft. B-52 was first made by Boeing in 1952, 744 have been built, and costs $14.43 million US dollars to make.

C-5 Galaxy

The gigantic C-5 Galaxy, with its tremendous payload capability, provides the Air Mobility Command airlift in support of United States national defense. The C-5 can carry fully equipped combat-ready military units to any point in the world on short notice and then provide field support required to help sustain the fighting force.

The C-5 is one of the largest aircraft in the world and the largest airlifter in the Air Force inventory. The C-5 can carry more than any other airlifter. It has the ability to carry 36 standard pallets and up to 81 troops simultaneously. The Galaxy also carries all of the Army's air-transportable combat equipment, including such bulky items as its 74-ton mobile scissors bridge from the United States to any theater of combat on the globe. It can also carry outsize and oversize cargo intercontinental ranges and can take off or land in relatively short distances. Ground crews are able to load and off-load the C-5 simultaneously at the front and rear cargo openings, reducing cargo transfer times.

C-17 Globemaster III

The C-17 Globemaster III is the newest, most flexible cargo aircraft to enter the airlift force. The C-17 is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases in the deployment area. The aircraft can perform tactical airlift and airdrop missions and can also transport litters and ambulatory patients during aeromedical evacuations when required. The inherent flexibility and performance of the C-17 force improve the ability of the total airlift system to fulfill the worldwide air mobility requirements of the United States.

The C-17 measures 174 feet long (53 meters) with a wingspan of 169 feet, 10 inches (51.75 meters). The aircraft is powered by four, fully reversible, Federal Aviation Administration-certified F117-PW-100 engines (the military designation for the commercial Pratt & Whitney PW2040), currently used on the Boeing 757. Each engine is rated at 40,440 pounds of thrust. The thrust reversers direct the flow of air upward and forward to avoid ingestion of dust and debris. Maximum use has been made of off-the-shelf and commercial equipment, including Air Force-standardized avionics.

The aircraft is operated by a crew of three (pilot, copilot and loadmaster), reducing manpower requirements, risk exposure and long-term operating costs. Cargo is loaded onto the C-17 through a large aft door that accommodates military vehicles and palletized cargo. The C-17 can carry virtually all of the Army's air-transportable equipment.

C-130 Hercules

The C-130 Hercules primarily performs the tactical portion of the airlift mission. The aircraft is capable of operating from rough, dirt strips and is the prime transport for air dropping troops and equipment into hostile areas. The C-130 operates throughout the U.S. Air Force, serving with Air Mobility Command, Air Force Special Operations Command, Air Combat Command, U.S. Air Forces in Europe, Pacific Air Forces, Air National Guard and the Air Force Reserve Command, fulfilling a wide range of operational missions in both peace and war situations. Basic and specialized versions of the aircraft airframe perform a diverse number of roles, including airlift support, Antarctic ice resupply, aeromedical missions, weather reconnaissance, aerial spray missions, firefighting duties for the U.S. Forest Service and natural disaster relief missions.

Using its aft loading ramp and door the C-130 can accommodate a wide variety of oversized cargo, including everything from utility helicopters and six-wheeled armored vehicles to standard palletized cargo and military personnel. In an aerial delivery role, it can airdrop loads up to 42,000 pounds or use its high-flotation landing gear to land and deliver cargo on rough, dirt strips.

CV-22 Osprey

The CV-22 Osprey is a tiltrotor aircraft that combines the vertical takeoff, hover and vertical landing qualities of a helicopter with the long-range, fuel efficiency and speed characteristics of a turboprop aircraft. Its mission is to conduct long-range infiltration, exfiltration and resupply missions for special operations forces.

This versatile, self-deployable aircraft offers increased speed and range over other rotary-wing aircraft, enabling Air Force Special Operations Command aircrews to execute long-range special operations missions. The CV-22 can perform missions that normally would require both fixed-wing and rotary-wing aircraft. The CV-22 takes off vertically and, once airborne, the nacelles (engine and prop-rotor group) on each wing can rotate into a forward position.

The CV-22 is equipped with integrated threat countermeasures, terrain-following radar, forward-looking infrared sensor and other advanced avionics systems that allow it to operate at low altitude in adverse weather conditions and medium- to high-threat environments.

E-3 Sentry

The E-3 Sentry is an airborne warning and control system, or AWACS, aircraft with an integrated command and control battle management, or C2BM, surveillance, target detection, and tracking platform. The aircraft provides an accurate, real-time picture of the battlespace to the Joint Air Operations Center. AWACS provides situational awareness of friendly, neutral and hostile activity, command and control of an area of responsibility, battle management of theater forces, all-altitude and all-weather surveillance of the battle space, and early warning of enemy actions during joint, allied, and coalition operations.

The E-3 Sentry is a modified Boeing 707/320 commercial airframe with a rotating radar dome. The dome is 30 feet (9.1 meters) in diameter, six feet (1.8 meters) thick, and is held 11 feet (3.33 meters) above the fuselage by two struts. It contains a radar subsystem that permits surveillance from the Earth's surface up into the stratosphere, over land or water. The radar has a range of more than 250 miles (375.5 kilometers). The radar combined with an identification friend or foe, or IFF, subsystem can look down to detect, identify and track enemy and friendly low-flying aircraft by eliminating ground clutter returns that confuse other radar systems.

E4B NAOC

The E-4B serves as the National Airborne Operations Center and is a key component of the National Military Command System for the President, the Secretary of Defense and the Joint Chiefs of Staff. In case of national emergency or destruction of ground command and control centers, the aircraft provides a highly survivable command, control and communications center to direct U.S. forces, execute emergency war orders and coordinate actions by civil authorities. The conduct of E-4B operations encompasses all phases of the threat spectrum. Additionally, the E-4B provides outside the continental United States travel support for the Secretary of Defense and his staff to ensure Title 10 command and control connectivity.

E8C Joint STARS

The E-8C Joint Surveillance Target Attack Radar System, or Joint STARS, is an airborne battle management, command and control, intelligence, surveillance and reconnaissance platform. Its primary mission is to provide theater ground and air commanders with ground surveillance to support attack operations and targeting that contributes to the delay, disruption and destruction of enemy forces.

The E-8C is a modified Boeing 707-300 series commercial airframe extensively remanufactured and modified with the radar, communications, operations and control subsystems required to perform its operational mission. The most prominent external feature is the 27-foot (8 meters) long, canoe-shaped radome under the forward fuselage that houses the 24-foot (7.3 meters) long, side-looking phased array antenna.

The radar and computer subsystems on the E-8C can gather and display detailed battlefield information on ground forces. The information is relayed in near-real time to the Army and Marine Corps common ground stations and to other ground command, control, communications, computers and intelligence, or C4I, nodes.

The antenna can be tilted to either side of the aircraft where it can develop a 120-degree field of view covering nearly 19,305 square miles (50,000 square kilometers) and is capable of detecting targets at more than 250 kilometers (more than 820,000 feet). The radar also has some limited capability to detect helicopters, rotating antennas and low, slow-moving fixed wing aircraft.

F-15 Eagle

F-15 Eagle is an all-weather tactical fighter that is designed to gain and maintain air superiority. This airplane has high thrust/weight ratio which enables it to turn sharply without losing airspeed. It can also climb high without wasting too much time. Its weapons and control systems were designed so one person can use them effectively in air-to-air combat. This aircraft has advanced radar, ultra-high frequency communications, instrument landing, and a tactical navigation system. This aircraft can use four different combinations of weapons, like AIM-7F/M Sparrow missiles, or AIM-120 AMRAAM air-to-air missiles, AIM9L/M Sidewinder or AIM-120 missiles, with an internal 20mm Gatling gun. This aircraft has an outstanding kill record of 104 kills to 0, so it's never been shot down by an enemy. F-15 can only carry one person. It flies up to Mach 1.2 at low altitudes and Mach 2.5 at high altitudes, thrust/weight 1.12, can go as high as 65,000 ft. This aircraft is made by McDonnell Douglas & Boeing, was made in 1972, used in the USAF, and costs $29.9 million US dollars.



F-16 Fighting Falcon

F-16 Fighting Falcon is a multirole fighter, which is designed as a lightweight fighter, which became a multirole fighter. Because of its versatility it became a good use to many countries that use it. This aircraft is used well in dogfights, because of its good visibility, and control stuck which eases control over high g-load. It uses an M61 Vulcan in the left-wing root, and commonly armed with two AIM-9 Sidewinder missiles that are on a rail on each wingtip. It was the first to use fly-by-wire which is also known as "the electric jet" to maintain outstanding performance. There are several different versions of the F-16. It is a single man plane, that uses guns like M61 Vulcan or 20mm, and Gatling gun with 511 rounds, carries CRV-7 rockets, carries missiles like (AIR-TO-AIR) AIM-9 Sidewinder, AIM-120 AMRAAM, Python-4, (AIR-TO-GROUND) AGM-65 Maverick, AGM-88 HARM, and (ANTI-SHIP) AGM-119 Penguin, and a variety of bombs. It flies up to Mach 2+, thrust/weight .898, goes as high as 55,000 ft. This aircraft is made by General Dynamics/Lockheed Martin, made in 1974, was used in the USAF, over 4000 were built, and costs $18.8 million US dollars.



F-22 Raptor

The F-22 Raptor is the Air Force's newest fighter aircraft. Its combination of stealth, supercruise, maneuverability, and integrated avionics, coupled with improved supportability, represents an exponential leap in warfighting capabilities. The Raptor performs both air-to-air and air-to-ground missions allowing full realization of operational concepts vital to the 21st century Air Force.

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

The F-22 has a significant capability to attack surface targets. In the air-to-ground configuration the aircraft can carry two 1,000-pound GBU-32 Joint Direct Attack Munitions internally and will use on-board avionics for navigation and weapons delivery support. In the future air-to-ground capability will be enhanced with the addition of an upgraded radar and up to eight small diameter bombs. The Raptor will also carry two AIM-120s and two AIM-9s in the air-to-ground configuration.



F-35 Lightning II

The F-35A is the U.S. Air Force’s latest fifth-generation fighter. It will replace the U.S. Air Force’s aging fleet of F-16 Fighting Falcons and A-10 Thunderbolt II’s and bring with it an enhanced capability to survive in the advanced threat environment in which it was designed to operate. With its aerodynamic performance and advanced integrated avionics, the F-35A will provide next-generation stealth, enhanced situational awareness, and reduced vulnerability for the United States and allied nations.

The conventional takeoff and landing (CTOL) F-35A gives the U.S. Air Force and its allies the power to dominate the skies – anytime, anywhere. The F-35A is an agile, versatile, high-performance, 9g capable multirole fighter that combines stealth, sensor fusion and unprecedented situational awareness.

The F-35A’s advanced sensor package is designed to gather, fuse and distribute more information than any fighter in history, giving operators a decisive advantage over all adversaries. Its processing power, open architecture, sophisticated sensors, information fusion and flexible communication links make the F-35 an indispensable tool in future homeland defense, Joint and Coalition irregular warfare and major combat operations.



KC-135 Stratotanker

The KC-135 Stratotanker provides the core aerial refueling capability for the United States Air Force and has excelled in this role for more than 50 years. This unique asset enhances the Air Force's capability to accomplish its primary missions of Global Reach and Global Power. It also provides aerial refueling support to Air Force, Navy and Marine Corps and allied nation aircraft. The KC-135 is also capable of transporting litter and ambulatory patients using patient support pallets during aeromedical evacuations.

Four turbofans, mounted under 35-degree swept wings, power the KC-135 to takeoffs at gross weights up to 322,500 pounds. Nearly all internal fuel can be pumped through the flying boom, the KC-135's primary fuel transfer method. A special shuttlecock-shaped drogue, attached to and trailing behind the flying boom, may be used to refuel aircraft fitted with probes. Some aircraft have been configured with the Multipoint Refueling System or MPRS.

KC-10 Extender

The KC-10 Extender is an Air Mobility Command advanced tanker and cargo aircraft designed to provide increased global mobility for U.S. armed forces. Although the KC-l0's primary mission is aerial refueling, it can combine the tasks of a tanker and cargo aircraft by refueling fighters and simultaneously carry the fighter support personnel and equipment on overseas deployments. The KC-10 is also capable of transporting litter and ambulatory patients using patient support pallets during aeromedical evacuations.

The KC-10 can transport up to 75 people and nearly 170,000 pounds (76,560 kilograms) of cargo a distance of about 4,400 miles (7,040 kilometers) unrefueled.

In addition to the three main DC-10 wing fuel tanks, the KC-10 has three large fuel tanks under the cargo floor, one under the forward lower cargo compartment, one in the center wing area and one under the rear compartment. Combined, the capacity of the six tanks carries more than 356,000 pounds (160,200 kilograms) of fuel - almost twice as much as the KC-135 Stratotanker.

KC-46 Pegasus

The KC-46A Pegasus is a widebody, multirole tanker that can refuel all U.S., allied and coalition military aircraft compatible with international aerial refueling procedures. Boeing designed the KC-46 to carry passengers, cargo and patients. The aircraft can detect, avoid, defeat and survive threats using multiple layers of protection, which will enable it to operate safely in medium-threat environments.

KC-46 has a maximum fuel capacity of 212,000lb. The aircraft is fitted with a flush-mounted air-to-air refueling receptacle capable of accepting fuel at 1,200gal/min. The refueling systems also include a digital fly-by-wire boom capable of offloading fuel at 1,200gal/min, as well as a permanent centerline drogue system and removable wing air refueling pods that can offload fuel at 400gal/min each.

Refueling systems aboard the KC-46 can be managed by boom operators from the crew compartment featuring an Aerial Refueling Operator Station (AROS). Cameras are placed at the fuselage to provide a full view of the field. The fly-by-wire boom system enables the boom operator to refuel all fixed-wing receiver aircraft irrespective of time and mission, and also be capable of carrying out simultaneous multipoint refueling through the wing air refueling pods.

The tanker is capable of carrying 18 cargo pallets, as well as transporting 58 passengers normally and up to 114 passengers during contingency operations. The tanker aircraft also provides urgent aeromedical evacuation by transporting 54 medical patients. The maximum takeoff weight of the tanker aircraft will be 415,000lb (188,241kg).



MC-130H Combat Talon II

The MC-130H Combat Talon II provides infiltration, exfiltration and resupply of special operations forces and equipment in hostile or denied territory. Secondary missions include psychological operations, and helicopter and vertical lift air refueling.

The aircraft features terrain-following and terrain-avoidance radars capable of operations as low as 250 feet in adverse weather conditions. Structural changes to a basic C-130 include the addition of an in-flight refueling receptacle and strengthening of the tail to allow high speed/low-signature airdrop. Their navigation suites include dual ring-laser gyros, mission computers and integrated global positioning system. They can locate and either land or airdrop on small, unmarked zones with pinpoint accuracy day or night.



MQ-9 Reaper

The Reaper is employed primarily as an intelligence-collection asset and secondarily against dynamic execution targets. Given its significant loiter time, wide-range sensors, multi-mode communications suite, and precision weapons, it provides a unique capability to perform strike, coordination, and reconnaissance against high-value, fleeting, and time-sensitive targets.

Reapers can also perform the following missions and tasks: intelligence, surveillance and reconnaissance, close air support, combat search and rescue, precision strike, buddy-lase, convoy and raid overwatch, route clearance, target development, and terminal air guidance. The MQ-9's capabilities make it uniquely qualified to conduct irregular warfare operations in support of combatant commander objectives.

The Reaper is part of a remotely piloted aircraft system. A fully operational system consists of sensor/weapon-equipped aircraft, ground control station, Predator Primary Satellite Link, and spare equipment along with operations and maintenance crews for deployed 24-hour missions.

The MQ-9 baseline system carries the Multi-Spectral Targeting System, which has a robust suite of visual sensors for targeting. The MTS-B integrates an infrared sensor, color, monochrome daylight TV camera, shortwave infrared camera, laser designator, and laser illuminator. The full-motion video from each of the imaging sensors can be viewed as separate video streams or fused.

RC-135 V/W Rivet Joint

The RC-135V/W Rivet Joint reconnaissance aircraft supports theater and national level consumers with near real time on-scene intelligence collection, analysis and dissemination capabilities.

The aircraft is an extensively modified C-135. The Rivet Joint's modifications are primarily related to its on-board sensor suite, which allows the mission crew to detect, identify and geolocate signals throughout the electromagnetic spectrum. The mission crew can then forward gathered information in a variety of formats to a wide range of consumers via Rivet Joint's extensive communications suite.

The interior seats more than 30 people, including the cockpit crew, electronic warfare officers, intelligence operators and in-flight maintenance technicians.

The Rivet Joint fleet was re-engined with CFM-56 engines with an upgraded flight deck instrumentation and navigational systems to FAA/ICAO standards. These standards include conversion from analog readouts to a digital "glass cockpit" configuration.

RQ-4 Global Hawk

The RQ-4 Global Hawk is a high-altitude, long-endurance, remotely piloted aircraft with an integrated sensor suite that provides global all-weather, day or night intelligence, surveillance and reconnaissance (ISR) capability. Global Hawk's mission is to provide a broad spectrum of ISR collection capability to support joint combatant forces in worldwide peacetime, contingency and wartime operations. The Global Hawk provides persistent near-real-time coverage using imagery intelligence (IMINT), signals intelligence (SIGINT) and moving target indicator (MTI) sensors.

Global Hawk is flown by a Launch and Recovery Element (LRE) and a Mission Control Element (MCE). The LRE is located at the aircraft base and functions to launch and recover the aircraft while en route to and from the target area. The MCE controls the Global Hawk for the bulk of the ISR mission. Like the LRE, the MCE is manned by one pilot, but adds a sensor operator to the crew. Command and control data links enable complete dynamic control of the aircraft. The pilot workstations in the MCE and LRE are the control and display interface (cockpit) providing aircraft health and status, sensors status and a means to alter the navigational track of the aircraft. From this station, the pilot also communicates with outside entities to coordinate the mission (air traffic control, airborne controllers, ground controllers, other ISR assets).

U-2 Dragon Lady

The U-2 provides high-altitude, all-weather surveillance and reconnaissance, day or night, in direct support of U.S. and allied forces. It delivers critical imagery and signals intelligence to decision makers throughout all phases of conflict, including peacetime indications and warnings, low-intensity conflict, and large-scale hostilities.

The U-2S is a single-seat, single-engine, high-altitude/near space reconnaissance and surveillance aircraft providing signals, imagery, and electronic measurements and signature intelligence, or MASINT. Long and narrow wings give the U-2 glider-like characteristics and allow it to quickly lift heavy sensor payloads to unmatched altitudes, keeping them there for extended periods of time. The U-2 is capable of gathering a variety of imagery, including multi-spectral electro-optic, infrared, and synthetic aperture radar products which can be stored or sent to ground exploitation centers. In addition, it also supports high resolution, broad-area synoptic coverage provided by the optical bar camera producing traditional film products which are developed and analyzed after landing.