Gallery of USAF Weapons

2012 USAF Almanac

Bombers

B-1 Lancer
Brief: A long-range, air refuelable multirole bomber capable of flying intercontinental missions and penetrating enemy defenses with the largest payload of guided and unguided weapons in the Air Force inventory.
Function: Long-range conventional bomber.
Operator: ACC, AFMC.
First Flight: Dec. 23, 1974 (B-1A); Oct. 18, 1984 (B-1B).
IOC: Oct. 1, 1986, Dyess AFB, Tex. (B-1B).
Production: 104.
Inventory: 66.
Aircraft Location: Dyess AFB, Tex.; Edwards AFB, Calif.; Eglin AFB, Fla.; Ellsworth AFB, S.D.
Contractor: Boeing, AIL Systems, General Electric.
Power Plant: four General Electric F101-GE-102 turbofans, each 30,780 lb thrust.
Accommodation: pilot, copilot, and two WSOs (offensive and defensive), on zero/zero ACES II ejection seats.
Dimensions: span 137 ft (spread forward) to 79 ft (swept aft), length 146 ft, height 34 ft.
Weight: max T-O 477,000 lb.
Ceiling: more than 30,000 ft.
Performance: speed 900+ mph at S-L, range intercontinental.
Armament: three internal weapons bays capable of accommodating a wide range of weapons incl up to 84 Mk 82 (500-lb) or 24 Mk 84 (2,000-lb) general-purpose bombs; up to 84 Mk 62 (500-lb) or 8 Mk 65 (2,000-lb) Quick Strike naval mines; up to 30 CBU-87/89 cluster bombs or 30 CBU-103/104/105 WCMDs; up to 24 GBU-31 or 15 GBU-38 JDAMs; or any mix of these weapons (a different type of weapon in each of three weapons bays).

COMMENTARY
Proposed as replacement for the B-52. Four B-1A prototypes developed and tested in 1970s. Program canceled in 1977, but flight test continued. Program revived in 1981 as B-1B variant. Blended wing/body configuration, variable-geometry design, and turbofan engines provide long range, maneuverability, high speed, and survivability. Substantial payload and long loiter time. Offensive avionics include SAR for tracking-targeting-engaging moving vehicles, self-targeting of stationary targets, and following terrain. GPS-aided INS lets aircrews autonomously navigate without ground-based navigation aids and engage targets with precision.
Extant Variant(s)
B-1B. Vastly upgraded B-1A, with 74,000 lb increase in useable payload, improved communications, Sniper targeting pod added in mid-2008. Receiving Fully Integrated Data Link (FIDL) upgrade to include Link 16 and Joint Range Extension data link, enabling permanent LOS and BLOS C2 connectivity. FIDL mod also improves rear cockpit displays and adds an Ethernet infrastructure to provide high-speed transfer of aircraft data among all four crew stations and on-board weapons, enabling rapid airborne retargeting. Also undergoing radar reliability and maintainability improvement program (RMIP) enhancement to preclude diminishing manufacturing sources problem for offensive avionics.

B-2 Spirit
Brief: Stealthy, long-range multirole bomber that can deliver nuclear and conventional munitions anywhere on the globe.
Function: Long-range heavy bomber.
Operator: AFGSC, ANG.
First Flight: July 17, 1989.
IOC: April 1997, Whiteman AFB, Mo.
Production: 21.
Inventory: 20.
Aircraft Location: Whiteman AFB, Mo.
Contractor: Northrop Grumman, Boeing, Vought.
Power Plant: four General Electric F118-GE-100
turbofans, each 17,300 lb thrust.

Accommodation: two pilots, on zero/zero ejection seats.

Dimensions: span 172 ft, length 69 ft, height 17 ft.

Weight: max T-O 336,500 lb.

Ceiling: 50,000 ft.

Performance: speed high subsonic, estimated under radar being replaced. A new stealth coating on B-52s will be 5,000 miles, with one aerial refueling more than 10,000 miles.

Armament: in various combinations, up to nearly 60,000 pounds; military targets; with cruise missiles. B-52s will carry new operational cruise missiles.

Based on the flying wing concept. Combination of advanced technologies, LO stealth design, and high aerodynamic efficiency. Able to attack heavily defended targets and neutralize enemy defenses. First use of B-2s in combat on March 24, 1999, against Serb targets in Allied Force, with two aircraft each dropping 16 JDAMs. Smoothly blended “fuselage” section has two large weapons bays capable of carrying up to nearly 60,000 lb of weapons. No vertical tail surfaces. Quadrupe-redundant fly-by-wire digital flight-control system, actuating moving surfaces at the wing trailing edges that combine aileron, elevator, and rudder functions.

Extant Variant(s)

- B-2A Block 30, B-2 production went in three successions of blocks: Blocks 10, 20, and 30. All Block 10 and 20 aircraft have been upgraded to Block 30, with greatly enhanced weapons capability. Can employ either RLAs or BRAs in its weapon bays, carrying a combination of weapons (see above). Has fully operational defensive and offensive avionics, a sophisticated mission planning system, and many operating modes for the SAR. Link 16 digital data sharing capability added and fully operational. Block 30 and above have an updated Flight Control System introduced under the Alternative High Frequency Material program dramatically improves combat readiness. Planned upgrades include replacement of the aging AN/ALQ-131 radar system with the AEHF satcom system, enabling compatibility with legacy Milstar satellite constellations and future AEHF constellations.

B-52 Stratofortress

- B-52H. TF33 turbofans, providing increased fuel range, improved defensive armament. First flown July 1960. Total production of 102 aircraft, with deliveries between May 1961 and October 1962. USAF’s only nuclear/conventional cruise missile carrier. Can conduct CAS using GPS/INS guided weapons. First delivered LGBs in Operation Iraqi Freedom in 2003, with Litening targeting pods. ALCMs and LGBs carried on unique pylons or internally on a rotary launcher. FY13 budget decisions limit the Combat Network Communications Technology (CONECT) program to only replacing the multifunction displays (MFDs) at Remotely Operated Video Enhanced Receiver (ROVER) and AGM-86C/D CALCMs. Mk 62 sea mines, Mk 82/84 bombs, internally. Conventional weapons incl AGM-86C/D CALCMs, Boeing.

Barksdale AFB, La.; Edwards AFB, Calif.; Minot AFB, N.D.

Contractor: Boeing.

Power Plant: Pratt & Whitney TF33-P-3 turbofans, each 17,000 lb thrust.

Accommodation: two pilots, side by side, plus navigator, radar navigator, and EWO.

Dimensions: span 185 ft, length 159.3 ft, height 40.7 ft.

Weight: max T-O 488,000 lb.

Ceiling: 50,000 ft.

Performance: speed 650 mph, range 10,000+ miles.

Armament: 12 AGM-86B ALCMs externally, with provision for eight more ALCMs or gravity weapons internally. Conventional weapons incl AGM-86C/D CALCMs, Mk 62 sea mines, Mk 82/84 bombs, CBU-87/89 cluster bombs, CBU-103/104/105 WCMCs, GBU-31/38 JDAMs, AGM-158 JASSMs, and GBU-10/12/28 LGBs. Future weapons incl the JASSM-ER, Miniature Air Launched Decoy (MALD), and MALD-J jammer variant.

COMMENTARY

Many variants; all but one retired. Multimission capability; capable of long-range precision strike, CAS, electronic warfare, command, control, & communications. JTIDS Joint Tactical Information Distribution System.

LANTIRN, Low-Altitude Navigation & Targeting Infrared Forward-Looking Infrared.

LCD, liquid crystal display

LGB, laser guided bomb

LO, low observable

LOS, line of sight

LRIP, low-rate initial production

Masint, measurement & signature intelligence

MFD, multifunction display

MOP, massive ordinance penetrator

NVS, night-vision goggles

PQM, precision guided munition

ROVER, Remotely Operated Video Enhanced Receiver

RPA, remotely piloted aircraft

RWR, radar warning receiver

S-L, sea level

SAR, search and rescue

SAR, synthetic aperture radar

satcom, satellite communications

SDB, Small Diameter Bomb

SEAD, Suppression of Enemy Air Defenses

SHF, super high frequency

ship, shaft horsepower

Sigint, signals intelligence

SLQ, service life extension program

TACAN, tactical air navigation

TF/TA, terrain-following/terrain-avoidance

T-45, takeoff

WCMDS, Wind-Corrected Munitions Dispenser

Weapons Acronyms

AE, aeromedical evacuation

AEHF, Advanced Extremely High Frequency

AESS, active electronically scanned array

AGM, air-to-ground missile

AIM, air intercept missile

ALCM, Air Launched Cruise Missile

AMRAAM, Advanced Medium-Range Air-to-Air Missile

ATP, advanced targeting pod

BLOS, beyond line of sight

BLU, bomb live unit

BM, battle management

C2, control and command

C3, command, control, & communications

CALCM, Conventional ALCM

CAS, close air support

CBU, cluster bomb unit

CEM, combined effects munition

CEP, circle error probable

CFT, conformal fuel tank

COTS, commercial off the shelf

CSAR, Joint Air-to-Surface Rescue

CSO, combat systems officer

ECM, electronic countermeasures

EHN, extremely high frequency

ELINT, electronic intelligence

EO, electro-optical

ER, extended range

EW, electronic warfare

EWO, electronic warfare officer

FLIR, forward-looking infrared

FMV, full-motion video

GATM, Global Air Traffic Management

GBU, glide bomb unit

GPS, ground control station

GPS, Global Positioning System

HARM, High-Speed Anti-Radiation Missile

HEI, high-explosive incendiary

HJD, head-up display

IFF, identification, friend or foe

IIR, infrared

Imint, imagery intelligence

INS, inertial navigation system

IR, infrared

ISR, intelligence, surveillance, & reconnaissance

JASSM, Joint Air-to-Surface Standoff Missile

J DAM, Joint Direct Attack Munition

JSOW, Joint Standoff Weapon

JSUPT, joint specialized undergraduate pilot training

JTIDS, Joint Tactical Information Distribution System

LANTIRN, Low-Altitude Navigation & Targeting Infrared Forward-Looking Infrared.

LCD, liquid crystal display

LGB, laser guided bomb

LO, low observable

LOS, line of sight

LRIP, low-rate initial production

Masint, measurement & signature intelligence

MFD, multifunction display

MOP, massive ordnance penetrator

NVS, night-vision goggles

PQM, precision guided munition

ROVER, Remotely Operated Video Enhanced Receiver

RPA, remotely piloted aircraft

RWR, radar warning receiver

S-L, sea level

SAR, search and rescue

SAR, synthetic aperture radar

satcom, satellite communications

SDB, Small Diameter Bomb

SEAD, Suppression of Enemy Air Defenses

SHF, super high frequency

ship, shaft horsepower

Sigint, signals intelligence

SLQ, service life extension program

TACAN, tactical air navigation

TF/TA, terrain-following/terrain-avoidance

T-45, takeoff

WCMDS, Wind-Corrected Munitions Dispenser

Weapons systems officer

Fighter and Attack Aircraft

A-10 Thunderbolt II

Brief: A long-range, heavy multirole bomber that can carry nuclear or conventional ordnance or cruise missiles.

Function: Long-range heavy bomber.

Operator: AFGSC, AFMC, AFRC.

First Flight: April 15, 1952 (YB-52 prototype).


IOC: June 19, 1955.

Production: 744.

Inventory: 76.
F-15E Strike Eagle

Brief: A heavily modified, two-seat, dual-role variant of the original F-15, with weapons systems totally integrated for all-weather deep interdiction missions as well as air-to-air combat.

Function: Dual-role fighter.

Operator: ACC, AFCMC, USAFE.


Production: 236.

Inventory: 221.

Aircraft Location: Barksdale AFB, La.; Boise Air Terminal, Idaho; Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Fort Smith Arpt., Ark.; Fort Wayne Arpt., Ind.; Martin State Arpt., Md.; Moody AFB, Ga.; Nellis AFB, Nev.; Osan AB, South Korea; Selfridge ANGB, Mich.; Spangdahlem AB, Germany; Wright-Patterson AFB, Ohio; Fairchild Republic, now Lockheed Martin.

Contractor: Fairchild Republic, now Lockheed Martin.

Power Plant: Two General Electric TF34-GE-100 turbofans, each 9,065 lb thrust.

Accommodation: pilot; Dimensions: span 57.5 ft, length 53.3 ft, height 14.7 ft.

Weight: max T-O 51,000 lb.

Ceiling: 45,000 ft.

Performance: speed 518 mph, range 800 miles.

Armament: one 30 mm, seven-barrel GAU-8/A Gatling gun (1,174 rd), straight HEI, or anti-aircraft, rigid-piercing incendiary (API) combat mix; 11 hardpoints for up to 16,000 lb of ordnance, incl various types of free-fall or guided bombs, such as Mk 82, Mk 84, GBU-10/12/38, CBU-87, various WCMs, illumination rockets/flare, AGM-65 Maverick, and AIM-9 Sidewinders. Chaff and flares carried internally to counter radar or IR threats. Up to three 600-gallon fuel tanks can also be carried.

COMMENTARY
Deadly combination of large and diverse weapons payloads, loitering times, austere airfield capability, maneuverability, and wide combat radius. Can operate under 1,000 ft ceilings, and up to 25,000 ft with advanced targeting pods and GPS-guided munitions, in darkness with NVG. The 30 mm gun can destroy heavily armored tanks. Cockpit protected by titanium armor. First used in combat in 1991 Gulf War.

Extant Variant(s) — A-10C. Upgraded with precision engagement mod, new color MFDs, hands-on throttle and stick system, digital stores management, JDAM/WCMD integration. Listening and Sniper advanced targeting pod capability. Situational Awareness Data Link (SADL), and integration of sensors with aircraft systems. IOC in August 2007. First combat deployment September 2007. Undergoing wing replacements.

A-10C Thunderbolt II (A1C Benjamin Wiseman)

F-15E Strike Eagle

Brief: A heavily modified, two-seat, dual-role variant of the original F-15, with weapons systems totally integrated for all-weather deep interdiction missions as well as air-to-air combat.

Function: Dual-role fighter.

Operator: ACC, AFCMC, USAFE.


Production: 236.

Inventory: 221.

Aircraft Location: Barksdale AFB, La.; Boise Air Terminal, Idaho; Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Fort Smith Arpt., Ark.; Fort Wayne Arpt., Ind.; Martin State Arpt., Md.; Moody AFB, Ga.; Nellis AFB, Nev.; Osan AB, South Korea; Selfridge ANGB, Mich.; Spangdahlem AB, Germany; Wright-Patterson AFB, Ohio; Fairchild Republic, now Lockheed Martin.

Contractor: Fairchild Republic, now Lockheed Martin.

Power Plant: Two General Electric TF34-GE-100 turbofans, each 9,065 lb thrust.

Accommodation: pilot; Dimensions: span 57.5 ft, length 53.3 ft, height 14.7 ft.

Weight: max T-O 51,000 lb.

Ceiling: 45,000 ft.

Performance: speed 518 mph, range 800 miles.

Armament: one 30 mm, seven-barrel GAU-8/A Gatling gun (1,174 rd), straight HEI, or anti-aircraft, rigid-piercing incendiary (API) combat mix; 11 hardpoints for up to 16,000 lb of ordnance, incl various types of free-fall or guided bombs, such as Mk 82, Mk 84, GBU-10/12/38, CBU-87, various WCMs, illumination rockets/flare, AGM-65 Maverick, and AIM-9 Sidewinders. Chaff and flares carried internally to counter radar or IR threats. Up to three 600-gallon fuel tanks can also be carried.

COMMENTARY
Deadly combination of large and diverse weapons payloads, loitering times, austere airfield capability, maneuverability, and wide combat radius. Can operate under 1,000 ft ceilings, and up to 25,000 ft with advanced targeting pods and GPS-guided munitions, in darkness with NVG. The 30 mm gun can destroy heavily armored tanks. Cockpit protected by titanium armor. First used in combat in 1991 Gulf War.

Extant Variant(s) — A-10C. Upgraded with precision engagement mod, new color MFDs, hands-on throttle and stick system, digital stores management, JDAM/WCMD integration. Listening and Sniper advanced targeting pod capability. Situational Awareness Data Link (SADL), and integration of sensors with aircraft systems. IOC in August 2007. First combat deployment September 2007. Undergoing wing replacements.

A-10C Thunderbolt II (A1C Benjamin Wiseman)
aided and precision weapons and by 20 mm gun for strafing. Air-to-air capability based on array of radar guided and IR-homing weapons. Carries a large and varied ordnance load. Equipped with Link 16 and ARC-210 BLOS satcom. Ongoing mods include upgrading to the APG-82(V1) AESA radar. USAF plans to complete a full-scale fatigue test in 2015 to help determine the feasibility of a SLEP, but currently expects the aircraft to remain operational through at least 2035.

**F-16 Fighting Falcon**

**Brief:** Multirrole fighter aircraft that is highly maneuverable and proven in air-to-air combat, SEAD, and air-to-surface attack.

**Function:** Multirrole fighter.

**Operator:** ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.

**First Flight:** Dec. 8, 1976 (full-scale development).

**Delivered:** January 1979-2005.

**IOC:** October 1980, Hill AFB, Utah.

**Production:** 2,206.

**Inventory:** 858 (F-16C); 162 (F-16D).

**Aircraft Location:** Aviano AB, Italy; Edwards AFB, Calif.; Eglin AFB, Fla.; Eielson AFB, Alaska; Hill AFB, Utah; Homestead ARB, Fla.; Kunsan AB, South Korea; Luke AFB, Ariz.; Misawa AB, Japan; NAS JRB Fort Worth, Tex.; Nellis AFB, Nev.; Osan AB, South Korea; Shaw AFB, S.C.; Spangdahlem AB, Germany; and ANG in Arizona, California, Colorado, District of Columbia (flying out of Maryland), Iowa, Minnesota, New Jersey, Ohio, Oklahoma, South Carolina, South Dakota, Texas, Vermont, Wisconsin.

**Contractor:** Lockheed Martin, Northrop Grumman.

**Power Plant:** Block 40: one General Electric F110-GE-100 (29,000 lb thrust); Block 42: one Pratt & Whitney F100-PW-220 (24,000 lb thrust). Block 50: one F110-GE-129 (29,000 lb thrust); Block 52: one F100-PW-229 (29,000 lb thrust).

**Accommodation:** pilot.

**Dimensions:** span 32.8 ft, length 49.3 ft, height 16.7 ft.

**Weight:** F-16C: empty (F100-PW-229) 18,591 lb, (F110-GE-129) 18,917 lb; gross, with external load (Block 40/42) 42,000 lb.

**Ceiling:** 50,000 ft.

**Performance:** speed Mach 2, ferry range 2,002+ miles.

**Armament:** one M61A1 20 mm cannon (500 rd); up to six air-to-air missiles, AGMs, and ECM pods externally.

**COMMENTARY**

Workhorse of the USAF fighter fleet. A lightweight fighter supporting the majority of PGM taskings in combat operations. Among the most maneuverable fighters ever built, first flown by USAF in combat in 1991 Gulf War; USAF F-16s flew 13,500 missions, more than any other type. All Block 40/42 and 50/52 F-16s upgraded with the Common Configuration Implementation Program (CCIP), providing standardized cockpit configuration with color MFDs and software, modular mission computer, helmet mounted cueing system, and Link 16 data link.

**Extant Variant(s)**

- **F-16C/D**. Introduced in 1984, at production Block 25. Featured Multinational Staged Improvement Program (MSIP) II upgrades to cockpit, airframe, and core avionics plus addition of increased-range APG-68 radar. Block 25s also added the AIM-120 AMRAAM as a baseline weapon. With Block 30/32 came MSIP III mods, including expanded MFD memory; new engines (Block 30: F110-GE-100; Block 32: F100-PW-220); and additional weapons, including the AGM-88 HARM. USAF currently flies Block 40/42 and Block 50/52 aircraft, the newest variants but the majority of which are showing bulkhead cracks. Sustainment efforts to extend them to at least 2025 include a legacy SLEP and Combat Avionics Programmed Extension Suite for 300-350 aircraft.

- **F-16CG**. Block 40/42 aircraft, first delivered in 1988, specialize in night attack with PGMs and wide-angle HUD. Greater T-O weight and maneuvering limits, expanded envelope, nine-G capability. Introduced LANTIRN pods, including automatic terrain following, for high-speed penetration and precision attack at night and in adverse weather. Other upgrades included APG-68(V5) fire-control radar, GPS, ring-laser gyro INS, enhanced-envelope gunsight, digital flight controls, and diffraacted optics HUD.

- **F-16 CJ**. Block 50/52. First delivered in 1991, are optimized for SEAD, employing the AGM-88 HARM targeting system (HTS) and longer range APG-68 (V9) fire-control radar. Other upgrades include F110-GE-129 and F100-PW-229 increased performance engines, newer cockpit control and display technologies (ACM) with avionics growth capability, ring laser gyro INS, GPS, ALR-56M radar warning receiver, ALE-47 threat adaptive countermeasures system, and Enhanced IF-S weapons systems. Weapons improvements include use of Sniper and Litening ATPs. Downlink capability integrates with ROVER system to support joint terminal attack controllers (JTACs) on the ground.

**F-22 Raptor**

**Brief:** A fifth generation, multirrole fighter designed to penetrate advanced anti-air threats and achieve air dominance.

**Function:** Air dominance multirrole fighter.

**Operator:** ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.

**First Flight:** Sept. 7, 1997.

**Delivered:** 2002 (first production representative aircraft).

**IOC:** Dec. 15, 2005.

**Production:** 187 (planned).

**Inventory:** 179.

**Aircraft Location:** Edwards AFB, Calif.; Holloman AFB, N.M.; JB Elmendorf-Richardson, Alaska; JB Langley-Eustis, Va.; JB Pearl Harbor-Hickam, Hawaii; Nellis AFB, Nev.; Tyndall AFB, Fla.

**Contractor:** Lockheed Martin, Boeing.

**Power Plant:** two Pratt & Whitney F119-PW-100 turbofans, each 35,000 lb thrust.

**Accommodation:** pilot.

**Dimensions:** span 44.5 ft, length 62 ft, height 16.6 ft.

**Weight:** max T-O 83,500 lb.

**Ceiling:** above 50,000 ft.

**Performance:** max Mach 2 with supercruise capability, ferry range 1,850+ miles with two external wing fuel tanks.

**Armament:** one internal M61A2 20 mm gun (480 rds); two AIM-9 Sidewinders stored in side internal weapons bays; six AIM-120 AMRAAMs (air-to-air loadout) or two AIM-120s and two GBU-32 JDAMs (air-to-ground loadout) in main internal weapons bay.

**Commentary**

USAF’s newest operational fighter, built to operate day and night and in adverse weather, across full spectrum of missions. Flew its first operational sortie from Langley in 2006, as part of Noble Eagle. Combines stealth, supercruise, high maneuverability, and integrated avionics to counter and survive multiple anti-access threats and survive. Integrated avionics and infralight data link permit simultaneous engagement of multiple targets. Advanced flight controls, heavy structure, high-performance engines, thrust vectoring nozzles yield great maneuverability.

**Extant Variant(s)**

- **F-22A**. Cockpit fitted with six color LCD panels. The primary MFD provides a view of the air and ground tactical situation, including threat identity, threat priority, and tracking information, with two secondary MFDs showing air and ground threats, stores management, and air threat information. Two additional displays give navigation, communication, identification, and flight information. A HUD shows target status, weapon status, weapon envelopes, and target cueing. Other equipment includes APG-77 radar, an EW system with radar warning receiver...
and missile launch detector, JTIDS, IFF system, laser gyroscope inertial reference, and GPS. FY13 funding request includes continued retrofit of Increment 3.1 upgrade, including initial integration of the GBU-39B SDB I and JDAM retargeting capability.

**F-35 Lightning II**

**Brief:** Next generation strike aircraft.

**Function:** Multirole fighter.

**Operator:** AETC, AFMC. Planned: ACC, PACAF, USAFE.

**First Flight:** Dec. 15, 2006 (F-35A prototype).

**Delivered:** April 2011 (first LRIP aircraft).

**IOC:** 2016 (USAF).

**Production:** planned: 1,763 USAF (F-35A); 680 Navy and Marine Corps (F-35B/C); unspecified number Britain; unspecified number to eight development partner countries.

**Inventory:** 11 (USAF).

**Aircraft Location:** Edwards AFB, Calif.; Eglin AFB, Fla.; Nellis AFB, Nev.; other locations TBD.

**Contractor:** Lockheed Martin, with BAE Systems, Northrop Grumman, Pratt & Whitney.

**Power Plant:** F-35A: one Pratt & Whitney F135-PW-100, 40,000 lb thrust.

**Accommodation:** pilot.

**Dimensions:** span 35 ft, length 51.4 ft, height 14.4 ft.

**Weight:** max T-O 70,000 lb.

**Performance:** speed Mach 1.6 with full internal weapons load, range 1,380 miles.

**Armament:** F-35A: one 25 mm GAU-23/A cannon and up to 18,000 lb on 10 weapons stations—four stations inside two weapons bays (for maximum stealth) and three stations on each wing; standard internal loadout: two AIM-120 AMRAAMs and two GBU-31 JDAMs.

**COMMENTARY**

The F-35 is a joint and multinational program aimed at developing and fielding an affordable, highly common family of next generation strike fighters. For US forces, F-35A conventional takeoff and landing (CTOL) variant for the Air Force, the F-35B for USMC, and F-35C carrier variant (CV) variant for the Navy and Marine Corps (F-35B&C); unspecified number Britain; unspecified number to eight development partner countries. The F-35s are heavily armed aircraft using side-firing precision weapons capability. Originally AC-130E, gunship modified with gun systems, electronic defensive systems, in-flight refueling capability. Extant Variant(s) ■ AC-130H Spectre. Serves with 27th Special Operations Wing at Cannon. Equipped with digital fire-control computer, EO sensors, target-acquisition systems, including FLIR sensor and low-light-level television (LLTV), and capable of in-flight refueling. Advanced fire-control computers, navigation, communications, and sensor suites. Plan for phased replacement with J models.

**Special Operations Forces Aircraft**

**AC-130 Spectre/Spooky**

**Brief:** Heavily armed aircraft using side-firing weapons integrated with sophisticated sensor, navigation, and fire-control systems to provide precise firepower or area saturation for long periods, at night and in adverse weather.

**Function:** Attack aircraft.

**Operator:** AFSOC.

**First Flight:** 1967.

**Delivered:** 1968-present.

**IOC:** 1972 AC-130H; 1996 AC-130U.

**Production:** 43; incl four recent conversions.

**Inventory:** eight AC-130H; 17 AC-130U.

**Aircraft Location:** Cannon AFB, N.M. (H model); Hurlburt Field, Fla. (J model).

**Contractor:** Lockheed Martin (airframe); Boeing (electronic systems).

**Armament:** four Allison T56-A-15 turboprops, max T-O 60,500 lb.

**Weight:** max vertical T-O 52,870 lb; max rolling 40,000 lb.

**Performance:** speed 471 mph, combat radius 1,800 miles.

**Dimensions:** Span 132.6 ft, length 97.8 ft, height 38.5 ft.

**Weight:** gross 155,000 lb.

**Ceiling:** 22,100 ft.

**Accommodation:** officer: two pilots, navigator, fire-control officer, EWO; enlisted: flight engineer, TV operator, infrared detection set operator, loadmaster, four aerial gunners.

**Function:** Microwave gunship modified with gun systems, IR countermeasures (LAIRCM), and expanded precision weapons capability. Originally AC-130E, converted to H standard after Vietnam War. Plans call for phased replacement with J models.

**CV-22 Osprey**

**Brief:** A long-range, tilt-rotor, multimission transport aircraft designed to have the maneuverability and lift capability of a helicopter and the speed and range of a fixed-wing aircraft. It can operate in adverse weather and restricted visibility.

**Function:** Multimission airift.

**Operator:** AETC, AFSOC.

**First Flight:** March 19, 1989 (V-22).

**Delivered:** 2006.

**IOC:** 2009.

**Production:** 50 (planned).

**Inventory:** 19.

**Aircraft Location:** Hurlburt Field, Fla.; Kirtland AFB, N.M.

**Contractor:** Boeing, Bell Helicopter Textron.

**Power Plant:** two Rolls Royce-Allison AE1107C turboshafts, each 6,300 shp.

**Accommodation:** crew: two pilots; enlisted: two flight engineers. Load: 24 troops seated, 32 troops on floor, or 10,000 lb cargo.

**Dimensions:** span 84.6 ft, length 57.3 ft, height 22.1 ft, rotor diameter 38 ft.

**Weight:** max vertical T-O 52,870 lb; max rolling T-O 60,500 lb.

**Ceiling:** 25,000 ft.

**Performance:** cruise speed 277 mph, combat radius 575 miles with one internal auxiliary fuel tank, self-deploy 2,100 miles with one in-flight refueling.

**Armament:** one .50-caliber machine gun on ramp.

**COMMENTARY**

Multigun, dual-piloted, self-deployable, medium-lift vertical takeoff and landing (VTOL) tilt-rotor
aircraft, operated by both the US Air Force and US Marine Corps. First operational deployment, to Africa, took place in November 2008; first combat deployment, to Iraq, in summer 2009.

**Extant Variant(s)**
- CV-22B. Air Force's variant of the V-22 Osprey. Operates with forces of US Special Operations Command. Mission is long-range clandestine penetration of denied areas in adverse weather and low visibility to infiltrate, exfiltrate, resupply SOF. Optimized for special missions, including in nuclear, biological, and chemical (NBC) warfare conditions. Designed to operate from land bases, austere forward operating locations, and air capable ships without reconfiguration. Equipped with fully integrated precision navigation suite, a digital cockpit management system, FLIR, integrated NVG HUD, TF/TA radar, digital map system. Has robust self-defense avionics and secure anti-jam communications. Ongoing Block 20 improvements enhance reliability/maintainability, self-deployment capability, and avionics and communications/ navigation systems.

**MC-130E/H Combat Talon**

**Brief:** A modified C-130 able to provide global, day, night, and adverse weather capability to air-drop personnel and to deliver personnel and equipment to support US and allied SOF.

**Function:** SOF infiltration, exfiltration, and resupply.

**Operator:** AETC, AFSOC, AFRC.

**First Flight:** circa 1965 MC-130E; June 1984 MC-130H.

**Delivered:** initially 1966. IOC: 1966 MC-130E; June 1991 MC-130H.

**Production:** 12 MC-130E; 20 MC-130H.

**Aircraft Location:** Duke Field and Hurlburt Field, Fla.; Kadena AB, Japan; Kirtland AFB, N.M.; RAF Mildenhall, UK.

**Contractor:** Lockheed Martin (airframe), Boeing (integrated weapons system support).

**Power Plant:** four Allison T56-A-15 turboprops, each 4,910 shp.

**Accommodation:** MC-130E crew: officer: two pilots, two navigators, EWO; enlisted: flight engineer, radio operator, two loadmasters. MC-130H crew: officer: two pilots, navigator, EWO; enlisted: flight engineer, two loadmasters. MC-130H load: 77 troops, 52 paratroopers, or 57 litters.

**Dimensions:** span 132.6 ft, height 38.5 ft, length 110.8 ft (MC-130E); 99.8 ft (MC-130H).

**Weight:** max T-O 155,000 lb.

**Ceiling:** 33,000 ft (MC-130H).

**Performance:** speed 300 mph (MC-130H), range 3,105 miles.

**COMMENTARY**

Special operations mobility aircraft. Used primarily to conduct infiltration, resupply, and exfiltration of SOF. Capable of air refueling using Joint Precision Airdrop System, landing on austere and unmarked landing zones. Can support psychological operations with leaflet bundle drops. Equipped with TF/TA radars, precision navigation systems using INS/GPS, and electronic and IR countermeasures for self-protection. All models capable of aerial refueling as a receiver and tanker.

**Extant Variant(s)**
- MC-130E Combat Talon I. Fourteen modified C-130E aircraft were equipped with a pod-based system to air refuel SOF helicopters and tilt-rotor aircraft. Plans call for replacement by MC-130J variants.
- MC-130H Combat Talon II. C-130H aircraft modified with an integrated glass cockpit were acquired in the late 1980s and early 1990s to supplement the Combat Talon IIs. All are modified with a state-of-the-art pod-based aerial refueling system to augment the MC-130E and MC-130P aerial refueling fleet.

**MC-130P Combat Shadow**

**Brief:** Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refueling for SOF helicopters or for airdrop/resupply of special operations teams.

**Function:** Air refueling for SOF helicopters and airdrop.

**MC-130J Commando II**

**Operator:** AETC, AFSOC, ANG.

**First Flight:** Dec. 8, 1964 (as HC-130H).

**Delivered:** from 1985.

**IOC:** 1986.

**Production:** (converted).

**Inventory:** 27.

**Aircraft Location:** Hurlburt Field, Fla.; Kadena AB, Japan; Kirtland AFB, N.M.; Moffett Field, Calif.; RAF Mildenhall, UK.

**Contractor:** Lockheed Martin (airframe), Boeing.

**Power Plant:** four Allison T56-A-15 turboprops, each 4,910 shp.

**Accommodation:** officer: two pilots, two navigators; enlisted: flight engineer, communications systems operator, two loadmasters.

**Dimensions:** span 132.6 ft, length 98.8 ft, height 38.5 ft.

**Weight:** max T-O 155,000 lb.

**Ceiling:** 33,000 ft.

**Performance:** speed 290 mph, range 4,000+ miles.

**COMMENTARY**

Specialized tanker aircraft flies clandestine formation or single-ship intrusion of hostile territory missions to provide air refueling of SOF helicopters and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations.

**Extant Variant(s)**
- MC-130J Mods include fully integrated INS/ GPS system, NVG-compatible interior and exterior lighting, FLIR, radar and missile warning receivers, chaff and flare dispensers, satellite and data-burst communications.

**MC-130W Combat Spear/Dragon Spear**

**Brief:** Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide (Dragon Spear) armed overwatch or (Combat Spear) air refueling and airdrop for special operations activities.

**Function:** Armed overwatch or air refueling for SOF helicopter and tilt-rotor aircraft and airdrop.

**Operator:** AFSOC.

**First Flight:** Dec. 8, 1964 (HC-130H).

**Delivered:** June 2006.

**IOC:** 2007.

**Production:** 12 (converted).

**Inventory:** 12.

**Aircraft Location:** Cannon AFB, N.M.

**Contractor:** Lockheed Martin.

**Power Plant:** four Allison T56-A-15 turboprops, each 4,910 shp.

**Accommodation:** Combat Spear: officer: two pilots, two navigators; enlisted: flight engineer, two loadmasters. Dragon Spear: officer: two pilots, two CSOs; enlisted: flight engineer, two loadmasters/gunners.

**Dimensions:** span 132.6 ft, length 98.8 ft, height 38.5 ft.

**Weight:** max T-O 155,000 lb.

**Ceiling:** 33,000 ft.

**Performance:** speed 300 mph, range 3,105 miles.

**Armament:** Bushmaster II side-firing, trainable 30 mm Mk 44 cannon; PGMs.

**COMMENTARY**
A C-130H significantly modified to include an EW
capability, low-light-level operational capability, and a strengthened tail to permit high-speed, low-level air-drop operations. Converts to Dragon Spear mode with addition of roll-on/roll-off precision strike package (PSP). Mods include GPS/INS, advanced radar and missile warning receivers, chaff and flare dispensers, and active IR countermeasures.

Extant Variant(s)
- MC-130W Combat Search. Equipped with technically advanced refueling pods, providing the ability to refuel SOF helicopters and tilt-rotor aircraft. It also is capable of supporting limited C2 operations.
- MC-130W Dragon Spear (also known unofficially as AC-130W Stinger II). Configured with roll-on/roll-off PSP to perform armed overwatch and CAS reconnaissance over friendly positions for threat prevention. Still maintains limited mobility capability but also can provide strike coordination, nontraditional ISR, and C2. PSP mod includes BM system and sensors.

MC-130J Commando II
Brief: Aircraft that flies clandestine or low-visibility, low-altitude missions in denied areas as a highly survivable aircraft for refueling for SOF helicopters and tilt-rotor aircraft or to air-drop/resupply special operations forces.
Function: Air refueling for SOF helicopters and tilt-rotor aircraft and airdrop.
Operator: AETC, AFSCC.
First Flight: April 20, 2011.
Delivered: September 2011.
IOC: 2011.
Production: (converted).
Inventory: four.
Aircraft Location: Cannon AFB, N.M.; Kirtland AFB, N.M.
Contractor: Lockheed Martin (airframe), Boeing.
Power Plant: four Rolls Royce AE2100D3 turbofans, each 4,591 shp.
Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.
Weight: max T-O 164,000 lb.
Ceiling: 28,000 ft with 42,000 lb payload.
Performance: speed 416 mph, range 3,000 miles.

COMMENTARY
Specialized tanker aircraft flies clandestine formation or theater air refueling missions in denied areas as a highly survivable aircraft to provide air refueling of SOF vertical-lift and tilt-rotor assets and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations. Has secondary capability of refueling of leaflets airdrop. Replacing MC-130E and MC-130P tankers. USAF officially named change from Combat Shadow II to Commando II in March 2012.
Extant Variant(s)
- MC-130J. Mods include fully integrated INS/GPS systems, color LCDs, NVG lighting, HUDs, integrated defensive systems, digital moving map display, EO/IR system, dual satcom for voice/data, enhanced cargo-handling system, and enhanced service life wing. Also has fully populated CSO and auxiliary flight deck stations. Improvements over MC-130P reduces crew size, leaving the CSO to handle helicopter refueling process normally run by flight engineer, and loadmasters to handle other flight engineer and communications operator functions.

ISR/BM/C3 Aircraft

E-3 Sentry
Brief: Heavily modified Boeing 707-320B aircraft, fitted with an extensive complement of mission avionics providing all-weather air surveillance and C2 for tactical and air defense forces.
Function: Airborne early warning, tactical BM, and C2 of theater air forces.
Operator: ACC, PACAF, AFRC.
Delivered: March 1977-84.
Production: 33.
Inventory: 21 E-3B; nine E-3C; two E-3G.

E-3 Sentry (SrA. Brett Clashman)

E-3 Aircraft Location: JB Elmendorf-Richardson, Alaska; Kadena AB, Japan; Tinker AFB, Okla.; JB Elmendorf-Richardson, Alaska; Kadena AB, Japan; Tinker AFB, Okla.
Contractor: Boeing, Northrop Grumman (radar), Lockheed Martin (computer).
Power Plant: four Pratt & Whitney TF33-PW-100A turbofans, each 21,000 lb thrust.
Accommodation: four flight crew, 13-19 mission specialists.
Dimensions: span 145.8 ft, length 152.9 ft, height 41.8 ft.
Weight: max T-O 335,000 lb.
Ceiling: above 35,000 ft.
Performance: speed 360 mph, range 5,000+ miles.

COMMENTARY
Battle management aircraft—airborne warning and control system (AWACS)—capable of conducting surveillance from Earth’s surface to the stratosphere, over land or water, at a range of more than 200 miles. Coordinates actions of hundreds of strike, support, and cargo aircraft. Integrates C2, BM, surveillance, target detection, and tracking in one platform. Operates in direct subordination to joint or combined air operations center.
Extant Variant(s)
- E-3B. Upgrade of earliest E-3A. Equipped with much-enhanced computer capabilities, jam-resistant communications, austere maritime surveillance capability, upgraded radar communications, and five additional mission consoles. Completed in 1994. Received Block 30/35 mods, integrating and enhancing four mission consoles. The first Block 30/35 Sentry, 89-0124, was delivered to ACC in 1994. Received Block 30/35 mods, integrating and enhancing four mission consoles. Completed in 2001. Installing interim next generation IFF capability to ensure Block 30/35 aircraft meet new IFF requirements while awaiting Block 40/45 upgrade. E-3C. Upgrade from E-3A, including five additional mission consoles and Have Quick anti-jamming equipment. Received Block 30/35 upgrades. Also receiving interim next generation IFF.
- E-3G. Design applied to Block 40/45 upgraded aircraft. Two modified as of February 2012, with entire fleet conversion planned by 2020. Considered the most comprehensive upgrade in E-3 program history. Block 40/45 mod will enhance tracking and combat identification capabilities, enhance mission effectiveness, improve mission system reliability, and lower life-cycle costs. Mods include new mission computer system, using an open architecture with some 50 COTS computers and 24 COTS software products and automated processes to greatly reduce operator workload: new operator consoles; improved electronic support measures (ESM) passive surveillance capability; and full next generation IFF. USAF expects Block 40/45 IOC by fall 2014.

E-4 National Airborne Operations Center
Brief: A four-engine, swept-wing, long-range high-altitude airplane providing a highly survivable C3 center allowing national leaders to direct US forces, execute emergency war orders, and coordinate actions by civil authorities.
Function: Airborne operations center.
Operator: ACC.
First Flight: June 13, 1973 (E-4A); June 10, 1978 (E-4B).
Delivered: December 1974-85.
IOC: December 1974-84, January 1980 E-4B.
Production: four.
Inventory: four.
Aircraft Location: Offutt AFB, Neb.
Contractor: Boeing, Rockwell, Raytheon.
Power Plant: four General Electric CF6-50E2 turbofans, each 52,500 lb thrust.
Accommodation: up to 112 flight crew and mission crew.
Dimensions: span 195.7 ft, length 231.3 ft, height 63.4 ft.
Weight: max T-O 800,000 lb.
Ceiling: above 30,000 ft.
Performance: speed 602 mph, range 7,130 miles.

COMMENTARY
Militarized version of the Boeing 747-200. Performs tasks as a national airborne command post. Performs the airborne operations center (NADC) mission. Performs survivable C3 platform in all situations, including sustained operations in a nuclear environment.
Extant Variant(s)
- E-4B. Hardened against the effects of nuclear explosions, including electromagnetic pulse (EMP). A 1,200-kVA electrical system supports advanced system electronics as well as state-of-the-art communications and data processing equipment such as EHF Militar satellite terminals and six-channel International Maritime Satellite. A triband radome houses SHF communications antenna. The last aircraft has received the Modernization Block 1

E-4B National Airborne Operations Center (TSgt. Jerry Morrison)
upgrade, which updated the electronic and communications infrastructure, utilizing COTS hardware and software. However, this final aircraft received a different physical configuration for its Audio Infrastructure Upgrade (AIU) because of diminishing manufacturing sources, so USAF plans to retrofit the first three to ensure a standard AIU configuration.

**E-8 JSTARS**

**Brief:** A modified Boeing 707-300 series with long-range air-to-ground radar capable of locating, classifying, and tracking moving ground vehicles out to distances in excess of 124 miles.

**Function:** Ground surveillance, BM, C2 aircraft.

**Operator:** ACC and ANG.

**First Flight:** December 1988.

**Delivered:** May 1996-2005.

**IOC:** Dec. 18, 1997.

**Production:** 18.

**Inventory:** 18.

**Aircraft Location:** Robins AFB, Ga.

**Contractor:** Northrop Grumman, Motorola, Cubic, Raytheon.

**Power Plant:** four Pratt & Whitney TF33-102C turbojets, each 19,200 lb thrust.

**Accommodation:** flight crew: four; mission crew: 15 Air Force and three Army operators. Provides theater ground and air commanders with surveillance data to support attack operations. Evolved from Army and Air Force programs to develop capability to detect, locate, and attack enemy armor and ranges beyond the forward area of troops. The first two development aircraft deployed in 1991 to Desert Storm.

**Extant Variant(s)**
- E-BC: Production version delivered from 1996 to 2005. Earlier aircraft retrofitted to final production Block 20, featuring more powerful computers, an Internet protocol local area network, and BLOS connectivity. SOW as a broadcasting station for psychological warfare operations. Specialized mods include enhanced navigation systems, self-protection equipment, and worldwide color television configuration. Air refuelable. First entered service in 2004.
- EC-130H Compass Call
  - Brief: A heavily modified C-130 for electronic combat.
  - Operator: ACC.
  - IOC: 1983; Block 30 from February 1999.
  - Production: (converted).
  - Inventory: 14.
  - Aircraft Location: Davis-Monthan AFB, Ariz.
  - Contractor: Lockheed Martin.
  - Accommodation: officer: two pilots, navigator, two EWOCs; enlisted: flight engineer, mission crew supervisor (crypto logic experienced), four crypto logic linguists, acquisition operator, and airborne maintenance technician.
  - Dimensions: span 132.6 ft, length 99 ft, height 38 ft.
  - Weight: max T-O 160,000 lb.
  - Ceiling: 25,000 ft.
  - Performance: speed 300 mph at 30,000 ft.

**COMMENTARY**
- A medium-altitude, long-endurance RPA, providing joint force commanders with a multimission asset that combines imagery sensors with strike capability.
- Function: Armed reconnaissance, airborne surveill.
MQ-9 Reaper (SrA. Julianne Showalter)

Reconnaissance, target acquisition.

Operational use: AFsoc, ANG, AFRC.

Production: 268 air vehicles.

Inventory: 169.


Aircraft Location: Cannon AFB, N.M.; Creech AFB, Nev.; Fort Polk Airfield, La.; Fort Huachuca, Ariz.; Grand Forks AFB, N.D.; Holloman AFB, N.M.; March ARB, Calif.; Whiteman AFB, Mo.

Contractor: General Atomics Aeronautical Systems.

Power Plant: one Rotax 914F turbo engine.

Accommodation: GCS: pilot, sensor operator.

Dimensions: span 55 ft, length 27 ft, height 6.9 ft.

Weight: max T-O 2,250 lb.

Ceiling: 25,000 ft.

Performance: speed 84-135 mph, range 770 miles, max endurance 40 hr.

Armament: Two AGM-114 Hellfire missiles.

COMMENTARY

Fully operational system comprises four air vehicles, GCS, satellite link, and about 55 personnel for 24-hour operations. Became a fully USAF system in 1996. Systems armed with two Hellfire missiles since 2002, at which time designation changed from MQ-1 to MQ-1B to denote multimission capability. USAF forward deploys launch and recovery elements RQ-1 to MQ-1 to denote multimission capability. Since 2002, at which time designation changed from MQ-9C to MQ-9B Reaper. Operational in Afghanistan since 2007. The baseline aircraft has an MTS-B multispectral targeting system, integrating an EO/IR sensor, color/monochrome daylight TV camera, image-intensified TV camera, laser designator (enabling laser guided munitions), and laser illuminator in a single package. The MTS-B sensors provide FMV as separate video streams or fused together. Also employs SAR for GBU-38 JDAM targeting. Procurement of advanced Airborne Signals Intelligence Payload (ASIP-2C) has been delayed, with eight planned for FY14. Ongoing enhancements include upgrading current satcom capability to use government-owned Ka satcoms and continuing fielding of the Gorgon Stare payload on specially modified Reapers to provide ultra wideband (UWB) space and one flight follower; total seating: 35, incl space for foreign country representatives.


Weight: max T-O 10,500 lb.

Ceiling: 50,000 ft.

Performance: cruise speed 230 mph, range 1,150 miles, endurance 14+ hr.

Armament: combination of AGM-114 Hellfires, GBU-12/49 Paveway IIs, and GBU-38 JDAMs.

COMMENTARY

System comprises several aircraft, GCS, a Predator Primary Satellite Link (PPSL), and spare equipment and operations and maintenance crews for deployed 24-hour operations. Delivers capabilities using mission kits with various weapons and sensors payload combinations.

Extant Variant(s)

OC-135B. One vertical and two oblique KS-87E framing cameras, used for photography approximately 3,000 ft above the ground, and one KA-91C panoramic camera that provides a wide sweep for each picture and is used for high-altitude photography at approximately 35,000 ft. The data annotation and recording system notes position, altitude, time, roll angle, and other data for each photo.

RC-26 Condor

Brief: Specially configured variant of the Fairchild SA227 DC-26 Metro 23 with surveillance and communications equipment for use in domestic and overseas counterdrug efforts and for reconnaissance following natural and man-made disasters.

Function: Counterdrug-airborne day/night surveillance and C2.

Operator: ANG.

First Flight: 1990.
Delivered: C-26 first delivered 1989.
IOC: not available.

Production: 11.

Inventory: 11.


Contractor: Fairchild (airframe).

Power Plant: two Garrett TPE331-12AAR-701 turboprops, each 1,100 shp.

Accommodation: two pilots, one navigator-mission systems operator.

Dimensions: span 57 ft, length 59.5 ft, height 16.6 ft.

Weight: max T-O 16,500 lb.

Ceiling: 25,000 ft.

OC-135 Open Skies (A1C Willard E. Grande II)

IOC: October 1993.
Production: three.

Inventory: two.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing.

Power Plant: four Pratt & Whitney TF39-P-5 turbosfans, each 16,050 lb thrust.

Accommodation: flight crew: two pilots, two navigators, and two sensor maintenance technicians; Defense Threat Reduction Agency mission crew: mission commander, deputy, two sensor operators, and one flight follower; total seating: 35, incl space for foreign country representatives.

Dimensions: span 131 ft, length 135 ft, height 42 ft.

Weight: max T-O 297,000 lb.

Ceiling: 50,000 ft (basic C-135).

Performance: speed 500+ mph, range 3,900 miles.

COMMENTARY

A modified WC-135B used for special missions control treaty observation and imagery collection missions with framing and panoramic optical cameras in the rear of the aircraft.

Extant Variant(s)

OC-135B. One vertical and two oblique KS-87E framing cameras, used for photography approximately 3,000 ft above the ground, and one KA-91C panoramic camera that provides a wide sweep for each picture and is used for high-altitude photography at approximately 35,000 ft. The data annotation and recording system notes position, altitude, time, roll angle, and other data for each photo.

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Operator: ANG.

First Flight: 1990.
Delivered: C-26 first delivered 1989.
IOC: not available.

Production: 11.

Inventory: 11.


Contractor: Fairchild (airframe).

Power Plant: two Garrett TPE331-12AAR-701 turboprops, each 1,100 shp.

Accommodation: two pilots, one navigator-mission systems operator.

Dimensions: span 57 ft, length 59.5 ft, height 16.6 ft.

Weight: max T-O 16,500 lb.

Ceiling: 25,000 ft.
Ceiling: 35,000 ft.
Weight: max T-O 299,000 lb.
Performance: speed 500+ mph, range 3,900 miles.

RC-135S Cobra Ball
Brief: Designed to collect technical intelligence on adversary radio and radar systems.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Production: converted.
Inventory: 25.
Aircraft Location: Offutt AFB, Neb.; Kadena AB, Japan; RAF Mildenhall, UK.
Contractor: Boeing (original airframe), L3 Communications.
Power Plant: four CFM International F108-CF-201 turbosfans, each 21,600 lb thrust.
Accommodation: flight crew: two pilots, two navigators, two airborne systems engineers; mission control center: 10 EW officers, six or more electronic, technical, and mission area specialists.
Dimensions: max span 131 ft, length 135 ft, height 42 ft.
Weight: max T-O 299,000 lb.
Performance: speed 500+ mph, range 3,900 miles.

Extant Variant(s)
■ RC-135 S Cobra Ball. Provides the capability to collect optical and electronic data on ballistic missile-associated activity. Cobra Ball can deploy anywhere in the world in 24 hours and provide on-scene EC reconnaissance for treaty verification and theater ballistic missile proliferation.

RC-135V/W Rivet Joint
Brief: Contains highly advanced electronic signal collection systems to acquire real-time Elint and Sigint data for theater and tactical commanders.
Function: Electronic reconnaissance aircraft.
Operator: ACC.
First Flight: not available.
Production: converted.
Inventory: eight RC-135V; nine RC-135W; two RC-135W.
Aircraft Location: Offutt AFB, Neb.; Kadena AB, Japan; RAF Mildenhall, UK.
Contractor: Boeing (original airframe), L3 Communications.
Power Plant: four CFM International F108-CF-201 turbosfans, each 21,600 lb thrust.
Accommodation: flight crew: three pilots, two navigators, three EW officers, 14 intelligence operators, four airborne maintenance technicians, and up to six more depending on mission.
Dimensions: max span 131 ft, length 135 ft, height 42 ft.
Weight: max T-O 297,000 lb.
Ceiling: 50,000 ft.
Performance: speed 500+ mph, range 3,900 miles.

Extant Variant(s)
■ RC-135V/W Rivet Joint. A self-contained standoff airborne Sigint collection system. Used mostly to exploit electronic battlefield and deliver near-real-time ISR information to tactical forces, combatant commanders, and National Command Authorities. Onboard capabilities encompass rapid search, detection, identification, monitoring, and fusion of data from potentially thousands of electronic emitters. Planned upgrades include networking, expanded communications intelligence (Comint), precision Elint upgrade, global satcom, and enhanced cockpit avionics.

■ RC-135W. Used for training purposes.

RO-4 Global Hawk
Brief: A high-altitude, long-range, long-endurance RPA.
Function: Unmanned surveillance and reconnaissance aircraft.
Operator: ACC.
Delivered: from 1995 (Advanced Concept Technology Demonstration versions).
IOC: Block 30 August 2011; Block 40 FY14 (planned).
Production: TBD.
Inventory: 25.
Aircraft Location: Beale AFB, Calif.; Grand Forks AFB, N.D.; Andersen AFB, Guam. Planned: two other forward operating bases.
Contractor: Northrop Grumman, Raytheon, L3 Communications.
Power Plant: one Rolls Royce-North American F137-RR-100 turbofan, 7,600 lb thrust.
Accommodation: one launch and recovery element (LRE) pilot, one mission control element (MCE) pilot, one MCE sensor operator.
Dimensions: max span 130.9 ft, length 47.6 ft, height 15.3 ft.
Weight: max T-O 32,500 lb.
Ceiling: 60,000 ft.
Performance: speed 356.5 mph, range 10,000 miles.

Extant Variant(s)
■ Block 20 (Initial). Larger than original Block 10 (version retired in FY11), adding an enhanced integrated sensor suite (EISS) in an Imit-only configuration. Four being converted to new EQ-4...
communications relay configuration, employing the battlefield airborne communications node (BACN), a theater communications relay system employed in place of the EISS.

■ Block 30 (Multi-int). Employs the EISS ground target sensors and advanced Sigint program electronic signal collection sensor to provide a Multi-int capability. FY13 budget decision would terminate Block 30 variant which proved more expensive to operate than the U-2 aircraft it was intended to replace; USAF plans to place them in storage. Supported combat operations in Afghanistan, Iraq, and Libya and humanitarian relief efforts following Japan’s 2011 earthquake and massive tsunami.

■ Block 40. A multi mission platform expected to provide SAR/MTI, Imint, and BMC2 support, utilizing the multiphase radar technology insertion program (MP-RTIP) AESA radar to simultaneously collect imagery intelligence on stationary ground targets and track ground moving targets. IOC expected in FY14.

U-2 Dragon Lady

Brief: Single-seat, single-engine, high-altitude endurance reconnaissance aircraft carrying a wide variety of sensors and cameras.

Function: High-altitude reconnaissance.

Operator: ACC.


IOC: circa 1956.

Production: 35 (U-2S/ST).

Inventory: 35 (U-2S/ST).

Aircraft Location: Beale AFB, Calif.

Contractor: Lockheed Martin.


Accommodation: one (two for trainer).

Dimensions: span 105 ft, length 63 ft, height 16 ft.

Weight: max T-O 40,000 lb.

Ceiling: above 70,000 ft.

Performance: speed 410 mph, range 7,000+ miles.

COMMENTARY

The U-2 is the Air Force’s premier high-altitude reconnaissance platform, capable of carrying Multi-int sensors simultaneously. Although the U-2 was designed initially in the 1950s, current aircraft were produced primarily in the 1980s, when the production line was reopened to produce the TR-1, a significantly larger and more capable version of the aircraft. Conversion to S model configuration began in October 1994.

Extant Variant(s)

■ U-2S. A two-seat trainer aircraft. Each current operational U-2 is in Block 20 configuration, featuring a new glass cockpit using multifunction displays, a digital autopilot, a new EW system, and new data links. Sensor upgrades include the ASARS-2A SAR sensor; SYERS-2A EO imagery system (providing multispectral and IR capability); and enhanced RF intelligence capability. Optical bar camera is also still in use, providing broad-area synoptic imagery coverage. Additional mods planned to extend operations to 2040.

■ TU-2ST. A two-seat trainer aircraft.

WC-130 Hercules

Brief: A high-wing, medium-range aircraft flown into the eye of tropical cyclones or hurricanes to collect weather data from within the storm’s environment.

Function: Weather reconnaissance aircraft.

Operator: AFRC.


Production: 10.

Inventory: 10.

Aircraft Location: Keesler AFB, Miss.

Contractor: Lockheed Martin.

Power Plant: four Rolls Royce AE2100D3 turboprops, each 4,700 shp.

Accommodation: two pilots, navigator, aerial reconnaissance weather officer, weather recon loadmaster/dropsonde system operator.

Dimensions: span 132.5 ft, length 99.3 ft, height 38.5 ft.

Weight: max T-O 155,000 lb.

WC-135W Constant Phoenix (Josh Plueger)

U-2 Dragon Lady (1st Lt. Victoria Porto)

WC-130J. Weather reconnaissance version of the most recent C-130 model, operated by the 53rd WRS for weather reconnaissance duties. Includes two external 1,400-gallon fuel tanks and internal 1,800-gallon tank. Features include improved radar and Dowty 391 six-bladed composite propellers. Equipment includes the GPS Dropsonde Wind-finding System, equipped with HF radio and sensing devices and released about every 400 miles over water, measuring and relaying to the aircraft a vertical atmospheric profile.

WC-135 Constant Phoenix

Brief: Collects particulate and gaseous effluents and debris in the atmosphere in support of the 1953 Limited Nuclear Test Ban Treaty.

Function: Air-sampling and air collection.

Operator: ACC.

First Flight: 1965.

Delivered: 1965-96.

IOC: December 1965.

Production: 10, plus one converted EC-135C Looking Glass.

Inventory: two.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing.

Power Plant: four Pratt & Whitney TF33-P-5 turbofans, each 16,050 lb thrust.

Accommodation: seating for 33, incl cockpit crew.

Dimensions: span 131 ft, length 140 ft, height 42 ft.

Weight: max T-O 300,500 lb.

Ceiling: 40,000 ft.

Performance: speed 403 mph, range 4,600 miles.

COMMENTARY


Extant Variant(s)

■ WC-135W. Either a modified C-135B or EC-135C (former Looking Glass aircraft). Collection suite allows mission crew to detect radioactive “clouds” in real time. The aircraft has external flow-through devices to collect particulates on filter paper and a compressor system for whole air samples collected in holding spheres. Cockpit crew comes from 45th RS at Offutt, and special equipment operators from Det. 1, Air Force Technical Applications Center, at Offutt.

WC-135W Constant Phoenix

WC-130N/P King

Brief: An extended-range, CSAR-configured C-130
that extends the range of rescue helicopters through in-flight refueling and performs tactical delivery of pararescue jumper (PJ) specialists and/or equipment in hostile environments.

**Function:** Aerial refueling/transport.

**Operator:** ACC, AETC, ANG, AFRC.

**First Flight:** July 29, 2010.

**IOC:** 2013 planned.

**Production:** 33 converted N/P models.

**Power Plant:** four Allison T56-A-15 turboprops, each 4,591 shp.

**Contractor:** McDonnell Douglas (now Boeing).

**Power Plant:** three General Electric CF6-50C2 turbfans, each 52,500 lb thrust.

**Accommodation:** crew: two pilots, flight engineers, boom operator; AE crew: two flight nurses, three medical technicians; other crew depending on mission. Load: up to 75 people and 17 pallets or 27 pallets—a total of nearly 170,000 lb.

**Dimensions:** span 195.4 ft, length 181.6 ft, height 58 ft.

**Weight:** max T-O 590,000 lb.

**Performance:** speed 619 mph, range 11,500 miles, or 4,400 miles with max cargo.

**COMMENTARY**

USAF’s largest air-refueling aircraft. Combines tasks of tanker and cargo aircraft simultaneously, enabling it to support worldwide fighter deployments. Employs an advanced aerial refueling boom or a hose and drogue system to refuel a wide variety of US and allied aircraft within the same mission. Can be air refueled by a KC-135 or another KC-10.

**Extant Variant(s)**

- **KC-10A, DC-10 Series 30CF:** modified to include three large fuel tanks under the cargo floor, an air refueling operator’s station, aerial refueling boom and integral hose reel/drogue unit, a receiver refueling receptacle, and military avionics. FY13 budget included upgrades to communications, navigation, and surveillance equipment to meet civil air traffic requirements. Service life expected through 2045.

- **KC-46**: A modified Boeing 767-200R that will provide air refueling capability for any military fixed-wing aircraft and carry simultaneously a mixed load of passengers, patients, and palletized cargo.

**Function:** Aerial refueling/transport.

**Operator:** AMC.

**First Flight:** early 2015 (planned).

**Delivered:** from 2017 (planned).

**IOC:** TBD.

**Production:** 179.

**Inventory:** zero.

**Aircraft Location:** TBD.

**Contractor:** Boeing.

**Power Plant:** two Pratt & Whitney 4062, each 62,000 lb thrust.

**Accommodation:** 15 crew seats, incl aeromedical evacuation crew. Passenger load: 58 or up to 114 for contingency operations. AE load: 58 patients (24 litters and 34 ambulatory). Cargo load: 18 pallet positions, max 65,000 lb.

**Dimensions:** span 157.7 ft, length 165.5 ft, height 52.8 ft.

**Weight:** max T-O 415,000 lb.

**Performance:** cruise speed 530 mph, range 6,500 miles.

**COMMENTARY**

Boeing awarded contract for 179 KC-46A tankers, the first increment toward replacing USAF’s KC-135R fleet, on Feb. 24, 2011. Compared to

**KC-10 Extender** (TSgt. Charles Larkin Sr.)
the 50-year-old KC-135, the KC-46A will have enhanced refueling capabilities, including more fuel capacity, improved efficiency, and enhanced cargo and AE capability. Like the KC-10, it will employ both an advanced refueling boom and independently operating hose and drogue system.

Extant Variant(s)

- **KC-46A**: By early 2012, Boeing completed several major milestones in the design and development phase, leading USAF to expect on-time delivery of the first 18 combat-ready KC-46As by 2017.

**KC-135 Stratotanker**

**Brief**: A medium-range tanker aircraft, meeting the air refueling needs of USAF bomber, fighter, cargo, and reconnaissance forces, as well as any USN, USMC, and allied aircraft, also provides AE transport.

**Function**: Aerial refueling/airlift.

**Operator**: AEFC, AMC, AFRC, USAFE, ANG, AFRC.

**First Flight**: August 1956.

**Delivered**: January 1957-69.

**IOC**: September 1970.

**Production**: 313.

**Inventory**: 42 C-5A; 43 C-5B; two C-5C; seven C-5D.

**Aircraft Location**: Dover AFB, Del.; Delaware AFB, Ohio.

**Power Plant**: four General Electric TF39 turbofans, each 21,634 lb thrust.

**Accommodation**: flight crew: two pilots, boom operator, plus navigator depending on mission; AE crew: two flight nurses, three medical technicians (adjusted for patient needs). Load: 37 passengers, six cargo pallets, max 83,000 lb.

**Dimensions**: span 130.8 ft, length 136.3 ft, height 41.7 ft.

**Weight**: max T-O 840,000 lb.

**Performance**: speed 518 mph, range 2,473 miles with max payload (plus additional 575 miles after offloading).

**Extant Variant(s)**

- **KC-135R**: Re-engined KC-135As with CFM turbofan engines. Can operate from relatively short runways. First flight October 1968: deliveries started July 1984. Twenty were modified with the Multipoint Refueling System (MPRS), allowing the use of hose-and-drogue systems either on wing pods or attached to the end of the boom that enable them to refuel US Navy and NATO aircraft. The MPRS also allows them to refuel two aircraft at once, one on each wing pod. Other KC-135s may use the shuttlecock-shaped drogue attached to the boom. Updates include Pacer CRAG avionics and Block 30 safety mods (completed 2002) and GMTM mod (completed 2011). Link 16 capability also added to a limited number. Plans call for Block 45 flight deck mods, including a new digital flight director, digital radar altimeter, and electronic engine instrumentation displays. Fleet service life projected to 2045.

- **KC-135T**: The former KC-135Q can carry different fuels in the wing and body tanks. Underwing displays. Fleet service life projected to 2045.

**Avionics**: new digital radar altimeter, and electronic engine instrumentation displays. Fleet service life projected to 2045.

**Function**: Cargo and troop transport.

**Operator**: AMC, ANG, AFRC.

**First Flight**: June 30, 1968.

**Remarks**: The KC-135R is scheduled for 2017. Service life expected to at least 2040 for RERP aircraft.

**C-9 Nightingale**

**Brief**: A twin-engine, medium-range sweep-wing jet aircraft used for VIP duties.

**Function**: VIP duties.

**Operator**: AFRC.

**First Flight**: August 1968.

**Delivered**: August 1968-February 1975.

**IOC**: circa 1968.

**Production**: 24.

**Inventory**: three.

**Aircraft Location**: Scott AFB, Ill.

**Contractor**: Boeing (McDonnell Douglas).

**Power Plant**: two Pratt & Whitney JT8D-9A turbofans, each 14,500 lb thrust.

**Accommodation**: crew of three.

**Dimensions**: span 93.2 ft, length 119.2 ft, height 27.4 ft.

**Weight**: max T-O 108,000 lb.

**Performance**: cruise speed 565 mph at 25,000 ft, range 2,500 miles.

**Extant Variant(s)**

- **C-9A**

**C-9C**: Three specially configured C-9s, delivered to Andrews in 1975 for the special air mission support of the President and other US government officials. Flown by AFRC’s 932nd AW since 2005.

**Last aircraft retired in fall 2011.**

**C-12 Huron**

**Brief**: A twin-engine turboprop that provides diplomatic and special duty support passenger/cargo airlift and test support.

**Avionics**: (under Avionics Modernization Program) and new GE CF6-80C2 (F138) turbofans, with 200 percent increase in thrust. Equipped with other components installed under the Reliability Enhancement and Re-engining Program (RERP).


**C-5 Galaxy**

**Brief**: A heavy-lift, air refuelable cargo transport for massive strategic airlift over long ranges, including oversized cargo.

**Function**: Cargo and troop transport.

**Operator**: AMC, ANG, AFRC.

**First Flight**: June 30, 1958.
C-17 Globemaster III (SSgt. Taylor Worley)

Function: Special airlift.
Operator: AFMC, PAFAC.
First Flight: Oct. 27, 1972 (Super King Air 200).
Delivered: 1974-late 1980s.
Production: 88.
Inventory: 27.
Aircraft Location: Edwards AFB, Calif.; Holloman AFB, N.M.; Elindorf-Richardson, Alaska; Yokota AB, Japan; various US embassies.
Contractor: Beech.
Power Plant: (C-12J) two Pratt & Whitney Canada PT6A-65B turboprops, each 1,173 shp.
Accommodation: crew: two pilots; load: (C-12J) up to 19 passengers or 3,500 lb cargo.
Dimensions: (C-12J) span 54.5 ft, length 57 ft, height 15 ft.
Weight: (C-12J) max T-O 16,710 lb.
Ceiling: (C-12J) 25,000 ft.
Performance: (C-12J) speed 284 mph, range 1,669 miles.

COMMENTS
Military version of the Beechcraft King Air A200 series. Flight deck and cabin are pressurized for high-altitude flight. Incorporates a cargo door with an integral air-stair door.

Extant Variant(s)
- C-12C, Re-engined C-12As, with PT6A-41 turboprops, deployed to US embassies.
- C-12D, Similar to C-12E, with larger cargo doors and stronger wing. Also deployed to US embassies.
- C-12F, With updated PT6A-42 engines, up to eight passengers, accommodates AE litters.
- C-12J, A military version of the larger Beechcraft Model 1900C, operated by PAFAC. Can also transport two litters or 10 ambulatory patients for AE. Extensive avionics upgrade, including two MF/DS, three integrated GPS, two flight management systems, new autopilot, VHF/UHF radios, and weather radar.

C-21 Learjet (MSgt. David Lipp)

Function: Special airlift.
Operator: AETC, AFMC, AMC, PACAF, ANG, AFRC.
Production: 84.
Inventory: 54.
Aircraft Location: Bradley Arpt., Conn.; Buckley AFB, Colo.; Hector Arpt., N.D.; JB Andrews, Md.; Ramstein AB, Germany; Yokota AB, Japan; various US embassies.
Contractor: Gates Learjet.
Power Plant: two AlliedSignal TFE731-2 turbofans, each 3,500 lb thrust.
Accommodation: crew: two pilots; flight nurse, two medical technicians (adjusted as required). Load: eight passengers and 3,153 lb cargo; one litter or five ambulatory patients.
Dimensions: span 39.5 ft, length 48.6 ft, height 12.2 ft.
Weight: max T-O 18,300 lb.
Ceiling: 45,000 ft.
Performance: speed 530 mph at 41,000 ft, range 2,306 miles.

COMMENTS
Provides operational support for time-sensitive movement of people and cargo throughout the US and European Theaters, including AE missions if required.

Extant Variant(s)
- C-21A, Military version of the Learjet 35A. Upgrades included color weather radar, TACAN, and
C-27 Spartan
Brief: A small tactical transport capable of carrying heavy loads into a wide range of airfields, including unprepared strips at high altitude.
Function: Tactical airlift.
Operator: ANG.
First Flight: September 1999 (developmental aircraft).
Delivered: 2010.
IOC: 2011 (planned).
Inventory: 38 (planned).
Production: 38 (planned).
Contractor: L-3 Communications.
Power Plant: two Rolls Royce AE 2100-D2 turboprops, rated at 4,837 shp.
Accommodation: crew: two pilots, two loadmasters. Load: up to 68 troops or 24 paratroops; 36 litters plus six attendants; up to 25,353 lb cargo; 19,842 lb low velocity airdrop.
Dimensions: basic G.222 airframe span 94.1 ft, length 74.5 ft, height 32.1 ft.
Weight: max T-O 70,000 lb.
Ceiling: 30,000 ft.
Performance: speed 530 mph, range 6,325 miles.
COMMENTARY
Derived from Alenia G.222, selected in 2007 to fulfill the Joint Cargo Aircraft requirement. Acquired to support ground forces served only by the most basic airstrisps for missions where the C-130 would operate at half-load capacity. FY13 budget decision would terminate the program, with USAF likely storing already delivered aircraft. Army would like to retain/use current aircraft.
Extant Variant(s)
■ C-27J. Equipped with digital avionics suite, NVG-compatible cockpit. Floor strength is equal to that of the C-130, and the cargo bay can accommodate C-130 pallets.
C-32 Air Force Two
Brief: A modified Boeing 757-200 used to provide backup transportation for the President. It is the primary means of travel for the vice president, Cabinet, congressional and other high-ranking US and foreign officials.
Function: VIP air transport.
Operator: AMC, ANG.
Production: six.
Inventory: six.
Contractor: Boeing.
Power Plant: two Pratt & Whitney PW2040 turbofans, each 41,700 lb thrust.
Accommodation: crew: 16 (varies with mission). Load: up to 45 passengers.
Dimensions: span 124.8 ft, length 155.2 ft, height 44.5 ft.
Weight: max T-O 255,000 lb.
Ceiling: 42,000 ft.
Performance: speed 580 mph, range 7,650 miles.
COMMENTARY
Using COTS acquisition practices, contract award to first delivery in less than two years.
Extant Variant(s)
■ C-32A. Specially configured Boeing 757-200 airliner. Cabin divided into four sections: forward, communications center, galley, lavatory, 10 business-class seats; second, full-enclosed stateroom with private lavatory; two first-class swivel seats, convertible divan; third, conference and staff area with eight business-class seats; rear, 32 business-class seats; galley, two lavatories. Communications system provides worldwide clear and secure voice and data communications. Modern flight deck avionics are upgradeable.
C-40 Clipper
Brief: A Boeing 737-700 used primarily for medium-range airlift of senior military commanders, Cabinet officials, and members of Congress.
Function: Passenger transportation.
Operator: AMC, PACAF, USAFE, ANG, AFRC.
IOC: not available.
Production: 11.
Inventory: four C-40B, seven C-40C.
Aircraft Location: JB Andrews, Md.; JB Pearl Harbor-Hickam, Hawaii; Ramstein AB, Germany; Scott AFB, Ill.
Contractor: Boeing.
Power Plant: two General Electric CFM56-7.
turbofans, each 27,000 lb thrust. 
Accommodation: crew: 10 (varies with model and mission). Load: up to 69 passengers (C-40B); up to 111 (C-40C).
Dimensions: span 117.4 ft, length 110.3 ft, height 41.2 ft.
Weight: max T-O 171,000 lb.
Ceiling: 41,000 ft.
Performance: speed 530 mph, range 5,750 miles.

COMMENTARY
The C-40, which added winglets to Boeing 737-700, transports VIPs and performs other operational support missions. Both versions have modern avionics, integrated GPS and flight management system/electronic flight instrument system, and HJU. Each also has auxiliary fuel tanks and managed passenger communications.

Extant Variant(s)
- C-40B. Equipped with an office-in-the-sky arrangement, including clear and secure voice/data communication and broadband data/video.
- C-40C. Does not have the advanced communications of the B model. It does have a VIP area, include crew, accommodations, and can be configured to carry from 42 to 111 passengers.

C-130 Hercules
Brief: A rugged aircraft capable of operating from rough dirt strips to provide theater airlift and paratrooping of troops and equipment into hostile areas.

Power Plant: four General Electric CF6-80C2B1 turbofans, each 56,700 lb thrust.

Accommodation: E/H crew: two pilots, navigator, flight engineer, loadmaster. J/J30 crew: two pilots, navigator, flight engineer, loadmaster. J-30 crew: two pilots, navigator, flight engineer, loadmaster. E/H/J load: up to 92 combat troops or 64 pararescuemen or 72 litters or eight cargo pallets or 16 Container Delivery System (CDS) bundles or any combination of these up to max weight for each version. J-30 load: 128 combat troops or 92 pararescuemen or 97 litters or eight cargo pallets or 24 CDS bundles or any combination of these up to max weight.

Dimensions: span 132.6 ft, length 117.4 ft, height 41.2 ft.
Weight: max T-O 171,000 lb.
Ceiling: 41,000 ft.
Performance: speed 530 mph, range 5,750 miles.

Extant Variant(s)
- C-130E. Extended-range version of early Hercules. Total of 389 ordered, with first deliveries in 1962. Original wing modified to correct fatigue and corrosion. Self-contained nav system, with an integrated communications/navigation management suite, GPS capability, and a state-of-the-art autopilot.
- C-130H. Model generally similar to E, with updated turboprops, redesigned outer wing, improved pneumatic systems. First delivery in July 1974. Equipped with updated avionics, improved low-power color radar, NVG lighting. ANG LC-130Hs modified with wheel-ski gear and eight-bladed props to support Arctic and Antarctic operations. Modernized with digital displays, flight management systems, multifunction radar, new communications systems, and a single air data computer.
- C-130J. Features three-crew flight operations system, more powerful engines, all composite six-blade propeller system, digital avionics, and mission computers. Flies faster, higher, and farther than earlier C-130s. ANG and AFRC units began receiving J models in 1999, Active units in 2004. First wartime deployment in 2004.

VC-25 Air Force One
Brief: A specially configured Boeing 747-200B used for air transport of the President and his entourage. When the President is aboard, it has the radio call sign Air Force One.

Function: Air transport of the President.

Operator: AMC.

First Flight: first flown as Air Force One Sept. 6, 1990.
Delivered: August-December 1990.
IOC: circa 1990.
Production: two.
Inventory: two.

Aircraft Location: JB Andrews, Md.
Contractor: Boeing.

Power Plant: four General Electric CF6-80C2B1 turbofans, each 56,700 lb thrust.

Accommodation: crew: 26; load: up to 76 passengers.

Dimensions: span 195.7 ft, length 231.8 ft, height 63.4 ft.
Weight: max T-O 833,000 lb.
Ceiling: 45,100 ft.
Performance: speed 630 mph, range 7,800 miles.
**Helicopters**

**HH-60 Pave Hawk**

**Brief:** Specially modified helicopters used primarily for personnel recovery in hostile environments. Also conduct AE, civil SAR, disaster and humanitarian response, and other support missions.

**Function:** Personnel recovery medium-lift helicopter.

**Operator:** ACC, AETC, AFMC, PACAF, USAFE, ANG, AFRC.

**First Flight:** October 1974 (HH-60G).

**Delivered:** from 1982 (HH-60G).

**IOC:** circa 1982 (HH-60G), 1989 (HH-60GID), 1997 (HH-60M).

**Inventory:** 99 HH-60G; two HH-60M.

**Aircraft Location:** Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Francis S. Gabreski Arpt., N.Y.; Kirtland AFB, N.M.; Moffett Field, Calif.; Moody AFB, Ga.; Nellis AFB, Nev.; Patrick AFB, Fla.; RAF Lakenheath, UK.

**Contractor:** United Technologies/Sikorsky.

**Power Plant:** HH-60G: two General Electric T700-GE-700/701C turboshafts, each 1,560-1,940 shp; HH-60M: two GE T700-GE-701D turboshafts, 1,940-3,988 shp.

**Accommodation:** crew: two pilots, flight engineer, gunner. Load: mission dependent.

**Dimensions:** HH-60G: rotor diameter 53.6 ft, overall length 64.7 ft, height 16.7 ft, HH-60M: rotor diameter 53.7 ft, overall length 64.8 ft (fuselage 49.8 ft), height 16.9 ft.

**Weight:** max T-O 22,000 lb.

**Ceiling:** 14,000 ft (G).

**Performance:** speed 184 mph; range 580 miles (G).

**Armament:** two 7.62 mm miniguns or two .50-caliber machine guns.

**COMMENTARY**

Both versions are highly modified Black Hawk helicopters. The HH-60G was acquired by USAF in the early 1980s and has been in continuous use by Active Duty, ANG, and AFRC air rescue units. Under a short-term-fix operational loss replacement (OLR) program, USAF is procuring 24 HH-60Ms through the Army contract. Future plans call for a new Combat Rescue Helicopter competition to replace the entire Pave Hawk fleet, with contract award in 2013.

**Extant Variant(s)**

- **HH-60G.** Equipped with advanced communications/navigation suite that includes INS/GPS/Doppler navigation systems, satcom, secure/anti-jam communications, and a precision landing system (PLS) that provides range/steering data to survivor radios. Automatic flight-control system, NVG lighting, FLIR, color weather radar, engine/rotor blade anti-ice system, retractable in-flight refueling probe, internal auxiliary fuel tanks, and an integral external rescue hoist. Combat enhancements include RWR, IR jammer, flare and chaff countermeasures dispensing system, and two machine guns. FY13 funding would update the IFF system and make mission-critical avionics and safety of flight mods.

- **HH-60M.** Initial three aircraft purchased under OLR program are receiving minimal mods to be used as a noncombat-coded unit, freeing up three combat-coded Pave Hawks for deployed units. Subsequent OLR-purchased helicopters will be modified to the current HH-60G configuration.

**HH-1 Iroquois**

**Brief:** Modified Bell helicopter used to provide security and support for Air Force ICBM systems, undergraduate pilot training, combat aviation advisor training, and administrative airlift.

**Operator:** AETC, AFDM, AFGSC, AFMC, AFSOC, AMC, PACAF.

**First Flight:** Sept. 22, 1989 (Beechcraft 400A).


**IOC:** January 1993.

**Production:** 180.

**Inventory:** 178.

**Aircraft Location:** Columbus AFB, Miss.; Laughlin AFB and JBSA-Fort Worth, Tex.; Vance AFB, Okla.; NAS Pensacola, Fla.

**Contractor:** Hawker Beechcraft.

**Power Plant:** Two Pratt & Whitney Canada T410-L-733 turboshafts, 1,800 shp.

**Accommodation:** two HH-1 crew; two pilots, flight engineer; load: up to 13 passengers (depending on fuel and atmospheric conditions) or up to six litters or, without seats, bulky, oversize cargo.

**Dimensions:** HH-1: rotor diameter 48.0 ft, length 57 ft, height 13 ft. HH-1: rotor diameter 48.3 ft, length 57.1 ft, height 13.6 ft. HH-1N: rotor diameter 48.4 ft, length 57.1 ft, height 12.8 ft.

**Weight:** max gross 10,500 lb (TH-1), 9,500 lb (HH-1), 10,500 lb (HH-1N).

**Ceiling:** 15,000 ft (10,000 ft with 10,000+ lb).

**Performance:** (HH-1N) speed 149 mph, range 300+ miles.

**Armament:** (optional) two General Electric 7.62 mm miniguns or two 40 mm grenade launchers; two seven-tube 2.75-in rocket launchers.

**COMMENTARY**

HH-1N aircraft initially provided SAR capabilities, and then began replacing the HH-1Hs at missile wings and taking on other missions. With termination of the Common Vertical Lift Support Program (CVLSL) (also called the Common Support Helicopter), USAF may fly the 40-year-old HH-1N for at least another 10 years.

**Extant Variant(s)**

- **TH-1H.** Modified version of the HH-1H for use by the 23rd FTS at Fort Rucker for Air Force undergraduate helicopter pilot training.

- **HH-1H.** Single-engine version of HH-1 utility helicopter, based on Bell 205. AFSOC maintains two for combat aviation advisor training.

- **HH-1N.** Military version of the Bell 212. Most used for ICBM security and administrative/VIP IP airlift. Also used by AETC’s 58th SOW at Kirtland for training purposes and by the 336th TRG at Fairchild for aircrew survival training. AFSOC maintains two for combat aviation advisor training. With CVLSLP termination, AFSOC plans to provide selective mods, including an NVG-capable cockpit, upgraded sensors, and safety and sustainment improvements to extend fleet life and usefulness. USAF plans to purchase three or more USMC HH-1Ns to offset operational losses.

**Trainers**

**T-1 Jayhawk**

**Brief:** A medium-range, twin-engine jet trainer version of the Beechcraft 400A. Used by USAF to train student airlift and tanker pilots and student combat systems operators.

**Function:** Advanced pilot training.

**Operator:** AETC, AFCRC.

**First Flight:** Sept. 22, 1989 (Beechcraft 400A).


**IOC:** January 1993.

**Production:** 180.

**Inventory:** 178.

**Aircraft Location:** Columbus AFB, Miss.; Laughlin AFB and JBSA-Fort Worth, Tex.; Vance AFB, Okla.; NAS Pensacola, Fla.

**Contractor:** Hawker Beechcraft.

**Power Plant:** Two Pratt & Whitney Canada CT7-6 turboshafts, each 4,100 shp.

**Accommodation:** three pilots, two side by side, one to the rear.

**Dimensions:** span 43.5 ft, length 48.4 ft, height 13.8 ft.

**Weight:** max T-O 16,100 lb.

**Ceiling:** 41,000 ft.

**Performance:** speed 538 mph, range 2,555 miles.
COMMENTARY
Military version of Beech 400A used in the advanced phase of JSUPT for students selected to fly tanker or transport aircraft. Also used to train student CSOs.

Extant Variant(s)
- T-1A. Cockpit seating for instructor and two students. Mods include UHF/VHF radios, INS, TACAN, airborne detection finder, increased bird-strike resistance, and an additional fuselage fuel tank. CSO training aircraft also have GPS-driven SAR and simulated RWR and have a second student and second instructor station.

T-6 Texan II
Operator: AETC, USN.
First Flight: July 15, 1996.
Delivered: from May 2000 (operational aircraft).
Production: Planned: 452 (USAF); 315 (USN).
Inventory: 450 (USAF).
Aircraft Location: USAF: Columbus AFB, Miss.; Laughlin AFB, JB-RA Randolph, and Sheppard AFB, Tex.; Vance AFB, Okla. USN: NAS Corpus Christi, Tex.; NAS Whiting, Fla.; NAS Pensacola, Fla.
Contractor: Hawker Beechcraft (formerly Raytheon).

Power Plant: one Pratt & Whitney Canada PT6A-68 turboprop, 1,100 shp.
Accommodation: Two pilots, in tandem, on zero/zero ejection seats.
Dimensions: span 33.5 ft, length 33.4 ft, height 10.7 ft.
Weight: A basic 6,500 lb.
Ceiling: 31,000 ft.
Performance: Speed 320 mph, range 1,035 miles.

COMMENTARY
Trainer based on Swiss Pilatus PC-9 aircraft, modified to include a strengthened fuselage, zero/zero ejection seats, upgraded engine, increased fuel capacity, pressurized cockpit, bird-resistant canopy, and digital avionics.

Extant Variant(s)
- T-6A. Purchased by USAF to replace T-37 and Navy to replace T-34 as primary pilot trainer. (Navy also acquiring B model.) Student and instructor positions—one in front of the other—are interchangeable. May be flown by one pilot in front seat. Full aerobatic and features an anti-G system, ejection seats, upgraded engine, increased fuel capacity, pressurized cockpit, bird-resistant canopy, and digital avionics.
- T-6B. Navy is also purchasing this variant with upgraded glass cockpit avionics suite, including six MFDs, backup flight instrument, HUD, hands-on-throttle-and-stick functionality, and integrated computers.

T-38 Talon (SrA. Brian Ybarbo)
Brief: A twin-engine, high-altitude, supersonic jet trainer used in a variety of roles, primarily for undergraduate pilot, pilot instructor training, and introduction to fighter fundamentals training (IFFT).
Operator: AETC.
Delivered: April 1959.
Inventory: 50 T-38A; 471 T-38C.
Aircraft Location: Beale AFB and Edwards AFB, Calif.; Columbus AFB, Miss.; Holloman AFB, N.M.; JB Langley-Eustis, Va.; JB-RA Randolph and Sheppard AFB, Tex.; Tyndall AFB, Fla.; Vance AFB, Okla.
Contractor: Northrop Grumman.
Power Plant: two General Electric J85-GE-5 turbojets, each 2,900 lb thrust with afterburning.
Accommodation: Two pilots in tandem ejection seats.
Dimensions: span 25.3 ft, length 46.3 ft, height 12.8 ft.
Weight: max T-O 12,093 lb.
Ceiling: above 55,000 ft.
Performance: Speed 812 mph, range 1,093 miles.

COMMENTARY
Most used by AETC for advanced bomber-fighter training track in JSUPT and IFFT. Used to teach supersonic techniques, aerobatics, formation, night and instrument flying, and cross-country and low-level navigation. The aircraft is also used by the USAF Test Pilot School to train test pilots and flight-test engineers in experimental techniques, and by ACC as a companion trainer to maintain pilot proficiency. ACC also uses regeneraged T-38s as dedicated aggressor aircraft for F-22 training.

Extant Variant(s)
- T-38C. Redesignated after Avionics Upgrade Program, which added glass cockpit avionics, including HUD, color MFDs, mission computer, and INS/GPS. First model delivered 2002; last delivery 2007. Life sustaining measures include propulsion mods to replace major engine components to improve reliability and maintainability. FY13 funding includes Pacer Classic III, the latest structural renewal effort, which will replace major longerons, bulkheads/ formers, internal skins, and structural floors, and an escape system upgrade.
Service life expected to 2020.

T-41 Mescalero (Cessna 150M) max T-O 1,760 lb.
Brief: Short-range, high-wing aircraft used primarily by the USAF Flying Team during intercollegiate competitions.
Operator: AETC.
Delivered: 1970s.
Inventory: Three.
Aircraft Location: USAF, Colo.
Contractor: Cessna.
Power Plant: one Lycoming 0-320 E2D piston engine, 150 hp.
Accommodation: two, side by side.
Dimensions: span 33.3 ft, length 24 ft, height 8.5 ft.
Weight: (Cessna 150M) max T-O 1,760 lb.
Ceiling: 12,600 ft.
Performance: Speed 162 mph, range 450 miles.

Extant Variant(s)
- T-41A. Cockpit seating for instructor and two students. Modern avionics, GPS, and other equipment appropriate to its mission. Used for T-66/566 flight testing, USAFA flying team support, orientation flights.

T-51 Cessna
Brief: A short-range, high-wing aircraft used primarily by the USAF Flying Team during intercollegiate competitions.
Operator: AETC.
Delivered: 1990s.
Inventory: Four.
Aircraft Location: USAF, Colo.
Contractor: Cessna.
Power Plant: one Lycoming 0-320 E2D piston engine, 150 hp.
Accommodation: Two, side by side.
Dimensions: span 33.3 ft, length 24 ft, height 8.5 ft.
Weight: (Cessna 150M) max T-O 1,760 lb.
Ceiling: 12,600 ft.
Performance: Speed 162 mph, range 450 miles.

COMMENTARY
Military designation for civilian Cessna 150. All-metal, strut-braced, high-wing monoplane.

Extant Variant(s)
- T-51A. The aircraft is equipped with modern avionics, GPS, and other equipment appropriate to its mission.

TG-10 Merlin/Kestrel
Brief: TG-10B variant used as a Basic Soaring Trainer, while the TG-10C is used as an aerobatic glider for competitions and demonstrations.
Operator: AETC.
Delivered: May 2002.
Inventory: 12 (B); five (C).
Aircraft Location: USAF, Colo.
Contractor: Blanik.

Performance: Speed 182 mph, range 630 miles.

COMMENTARY
TG-10C Kestrel (Mike Kaplan)
Weight: 1,168 lb (B), 1,100 lb (C).
Performance: speed 142.6 mph (B), 146.1 mph (C); glide ratio 28.1 (B), 26.1 (C).
COMMENTS
Both USAF models, produced in the Czech Republic, have a common cockpit and control layouts, allowing cadets to move between the two as necessary.
Extant Variant(s)
- TG-10B Merlin. Civilian L-23 Super Blanik sailplane.
- TG-10C Kestrel. Civilian L-13AC Blanik sailplane.

UV-18 Twin Otter
Brief: Modified utility transport used for parachute jump training.
Function: Trainer/cross-country competition sailplane.
Operator: AETC.
IOC: December 1962, Malmstrom AFB, Mont.
Delivered: from August 1969.
Performance: speed 142.6 mph (B), high subsonic (C/D); range 1,500+ miles (B), 690 miles (C/D).
Warhead:
Guidance: W80-1 nuclear (B), blast/fragmentation (E/G/K).
Weight:
Dimensions: span 65 ft, length 51.9 ft, height 18.7 ft.
Performance: speed 210 mph, range 806 miles.

LGM-30 Minuteman III (USAF)
Weight: 3,150 lb.
Performance: speed 550 mph (B), high subsonic (C/D); range 1,500+ miles (B), 690 miles (C/D).
Warhead:
Guidance: inertial plus Terrain Contour Matching (B); inertial plus GPS (C/D).
Weight:
Dimensions: length 59.9 ft, diameter 5.5 ft.

Strategic Missiles
AGM-86 Air Launched Cruise Missile
Brief: A small, subsonic winged air vehicle, deployed on B-52H aircraft, which can be equipped with either a nuclear or conventional warhead.
Function: Strategic air-to-surface cruise missile.
Operator: AFGSC.
First Flight: June 1979 (full-scale development).
Delivered: from 1981.
Unit Location: Andersen AFB, Guam (conventional only); Satskdale AFB, La.; Minot AFB, N.D.
Contractor: Boeing.
Power Plant: Williams/Teledyne CAE F107-WR-10 turbofan, 600 lb thrust.
Guidance: inertial plus Terrain Contour Matching (B); inertial plus GPS (C/D).
Warhead: W80-1 nuclear (B), blast/fragmentation conventional (C), hard target penetration warhead (D).
Dimensions: span 12 ft, length 20.8 ft, body diameter 2 ft.

Tactical Missiles and Weapons
AGM-65 Maverick
Brief: A tactical, TV or IIR guided or laser guided air-to-surface missile carried by fighters and designed for use in CAS, interdiction, and defense suppression missions, having standoff capability and high probability of strike against a wide range of targets.
Function: Air-to-surface guided missile.
First Flight: August 1969.
Delivered: from August 1972.
Contractor: Raytheon.
Power Plant: Thiokol TX-481 solid-propellant rocket motor.
Guidance: EO TV guidance system (B/H/K); IIR seeker (D/G); laser seeker (E).
Warhead: 125-lb cone-shaped (B/D/H); 300-lb delayed-fuse penetrator (E/G/K).
Dimensions: span 2.3 ft, length 8.2 ft, diameter 12 in.
Performance: classified.
COMMENTS
First employed during Vietnam War; used extensively in Desert Storm and Iraq Freedom. Integrated with A-10 and F-16 for use against tanks and columns of vehicles and in the SEAD role.
Extant Variant(s)
- AGM-65B. A launch-and-leave, EO TV guided
AGM-154 Joint Standoff Weapon

(MSgt. Michael Ammons)

missile. Equipped with “scene magnification” TV seeker allowing pilot to identify and lock on to smaller or distant targets.

- AGM-65D. Employs an IIR seeker to overcome daylight only detection of B variant. Became operational in 1986 on A-10 aircraft.
- AGM-65E. Laser guided version used by USAF and USMC. Employs heavyweight penetrator warhead.
- AGM-88H. Upgraded B variant to increase capability. Undergoing tracker upgrade.
- AGM-65K. Modified G variant, replacing IIR guidance system with EO TV guided seeker. Undergoing tracker upgrade.
- AGM-65L. New laser Maverick to strike moving targets traveling at high speed. Will use EO TV seeker components with new semi-active laser (SAL) components.

AGM-88 HARM

Brief: A tactical air-to-surface missile designed to seek and destroy enemy radar-equipped air defense sites, using an advanced guidance system that senses and homes in on enemy radar emissions.


Delivered: 1982-98.
Contractor: Raytheon.
Power Plant: Thiokol dual-thrust, solid-propellant rocket motor.
Guidance: proportional with fixed antenna and seeker head in missile nose.
Warhead: high-explosive fragmentation.
Dimensions: span 3.7 ft, length 13.7 ft, diameter 10 in.
Performance: speed supersonic, range 30+ miles.

COMMENTARY
Joint USAF-Navy weapon. Great velocity and ability to cover wide range of frequencies with use of programmable digital processors in carrier aircraft’s avionics and missile. Highly effective against enemy ground radar. Carried by USAF F-16CJ Block 50/52s dedicated to SEAD mission.

Extant Variant(s)
- AGM-88B. Equipped with erasable and electronically programmable read-only memory, permitting in-field changes to missile memory.
- AGM-88C. Current production model. Has warhead more lethal than earlier variants. Control section mod replacing current navigation system with GPS and inertial measurement unit; upgraded missiles to be redesignated AGM-88F.
- AGM-154 Joint Standoff Weapon

Brief: Joint USAF and Navy family of low-cost glide weapons with a standoff capability.

Function: Air-to-surface guided missile.
Delivered: from 2000.
Contractor: Raytheon.
Guidance: GPS/INS.
Warhead: (see variants below).
Dimensions: length 13.3 ft, diameter 13 in.
Performance: range 13.8 miles low altitude, 73 miles high altitude.

COMMENTARY
Medium-range, GPS/INS guided, standoff air-to-ground weapon. Used to attack a variety of soft and armored area targets during day and night, and adverse weather conditions. USAF stopped its production in FY05.

Extant Variant(s)
- AGM-154A. In the baseline BLU-97 CEM variant for use against soft and area targets.
- AGM-154C. The BLU-117 variant provides antiarmor capability.

AGM-158 Joint Air-to-Surface Standoff Missile

Brief: An advanced weapon designed to attack heavily defended targets with high precision at great standoff range. Joint USAF-Navy program.

Function: Air-to-surface guided weapon.
First Flight: April 8, 1999.
Delivered: through FY19 (planned).
Contractor: Lockheed Martin, Raytheon, Honeywell.
Power Plant: Teledyne Continental Motors turbojet (baseline); Williams Intl. turbofan (ER).
Guidance: GPS/INS and IIR terminal seeker.
Warhead: 1,000-lb class penetrator.
Dimensions: length 14 ft.
Performance: 1,000-lb dual mode penetrator/blast-fragmentation warheads; range 200+ miles (baseline), 500+ miles (ER).

COMMENTARY
Autonomous precision strike weapon. Can attack both fixed and relocatable targets, from nonhardened above ground to moderately hardened buried targets.

Extant Variant(s)
- AGM-158 JASSM. Stealthy LO airframe equipped with GPS/INS guidance, IIR terminal seeker. Low operational support costs.
- AGM-158 JASSM-ER. Extended-range version. Utilizes same baseline body, but new engine and fuel system increase range to more than 500 miles.

AIM-9 Sidewinder

Brief: A supersonic, short-range, IR guided air-to-air missile with a high-explosive warhead. Equipped with “scene magnification” TV seeker allowing pilot to identify and lock on to smaller or distant targets.

Function: Air-to-air missile.
First Flight: September 1953.
IOC: circa 1983 (9M); 2003 (9X).

Contractor: Raytheon, Loral.
Power Plant: Thiokol Hercules and Bermite Mk 36 Mod 11 solid-propellant rocket motor.
Guidance: solid-state IR homing guidance.
Warhead: annular blast fragmentation.
Dimensions: span 2.1 ft, length 9.4 ft, diameter 5 in.
Performance: speed Mach 2+, range 10+ miles.

COMMENTARY
Developed by the Navy for fleet air defense, adapted by USAF for fighter aircraft use. Early versions used extensively in the Vietnam War.

Extant Variant(s)
- AIM-9X. A jointly funded Navy-USAF project. Employs same rocket motor and warhead as AIM-9M. Has fixed forward canards and smaller fins to increase flight performance. Employs IIR seeker.

AIM-120 AMRAAM

Brief: A supersonic, medium-range, active radar guided air-to-air missile with a high-explosive warhead.

Function: Air-to-air guided missile.
Contractor: Raytheon.
Power Plant: Allied boost-sustain solid-propellant rocket motor.
Guidance: active radar terminal/inertial midcourse.
Warhead: blast fragmentation.
Dimensions: span 1.7 ft, length 12 ft, diameter 7 in.
Performance: speed supersonic, range 20+ miles.

COMMENTARY
Joint USAF-Navy project, follow-on to AIM-7 Sparrow. Launch-and-maneuver capability.

Extant Variant(s)
- AIM-120B. Upgraded, reprogrammable variant of AIM-120A.
- AIM-120C. Weapon with smaller, clipped control surfaces to provide for internal carriage in F-22A and F-35, and involves high-angle off-boresight (HOBs) launch capability. In production.
- AIM-120D. Adds an enhanced electronic protection suite, two-way data link, improved HOBs, GPS-aided navigation, and increased range. Limited production began in 2006 for operational test and IOC requirements; completed engineering and manufacturing development (EMD) in 2009.

CBU-87/103 Combined Effects Munition

Brief: An area munition effective against light armor, materiel, and personnel and used by USAF and Navy fighters and bombers for interdiction.

Function: Area munition.
Contractor: Aerojet General, Honeywell, Alliant Tech.
Guidance: none (CBU-87).
Dimensions: length 7.7 ft, diameter 15 in.
Performance: dispenses 202 BLU-97 combined effects bomblets over an area roughly 800 ft x 400 ft.

COMMENTARY
A cluster bomb family of weapons which can be delivered as low-accuracy free-fall weapon or with near precision, given installation of a simple tail kit.

Extant Variant(s)
- CBU-103. Basic CBU-87 CEM with WCMD tail kit to increase accuracy when released from medium to high altitude.

CBU-89/104 Gator

Brief: An anti-armor/anti-personnel mine dispenser used by USAF and Navy fighters and bombers for interdiction.

Function: Scatterable mines.
Contractor: Honeywell, Aerojet General, Olan, Alliant Tech.
Guidance: none (CBU-89).
Dimensions: length 7.7 ft, diameter 15 in.

COMMENTS
Weapons system provides low-cost means to rapidly seed a battlefield with mines delivered from high-speed aircraft and able to destroy armor.

Extant Variant(s)
- CBU-104. Basic CBU-89 with WCMD tail kit to increase accuracy when released from medium to high altitude.

CBU-105 Sensor Fuzed Weapon
Brief: An anti-armor munition used by fighters and bombers for multiple kills per pass against moving and stationary land combat vehicles.
Function: Wide-area munition.
First Flight: circa 1990.
Contractor: Textron Systems.
Guidance: IR sensors in each warhead search for targets; then detonate over them.
Dimensions: length 7.7 ft, diameter 15 in.
Performance: delivers 40 lethal projectiles over an area of about 500 ft x 1,200 ft.

COMMENTS
Tactical munitions dispenser with a payload of 10 BLU-108 submunitions, each containing four seekers, for a total of 40 lethal projectiles that seek out their target. The seeker's active laser and passive IR sensors can detect a vehicle's shape and IR signature; if no target is detected, the warhead detonates after a preset time. Primary targets are massed tanks, armored personnel carriers, and self-propelled targets.

Extant Variant(s)
- CBU-105. Basic gravity-type CBU-97 with a WCMD tail kit for greater accuracy. Can be delivered from high altitude and in adverse weather. Combat debut came in April 2003 in Iraq.

CBU-107 Passive Attack Weapon
Brief: Provides the capability to attack nonhardened surface targets, with a minimum of collateral and environmental damage.
Function: Wide-area munition.
Delivered: 2002-03.
IOC: December 2002.
Contractor: General Dynamics, kinetic energy penetrator payload and canister; Lockheed Martin, WCMD; Textron, tactical munition dispenser kit.
Guidance: via WCMD.
Dimensions: length 7.7 ft, diameter 15 in.
Performance: delivers a high-speed volley of nearly 4,000 metal projectiles in three sizes from a single canister; projectiles: 15 in rods (350), 7 in rods (1,000), and small-nail size (2,400).
After release, weapon glides toward its target. Before impact, inner chamber begins to rotate and the projectiles are ejected in rapid succession by centrifugal force, penetrating a target within a 200-ft radius.

Extant Variant(s)
- CBU-107A. Weapon has no explosive. Ejects various-size, penetrating projectiles. WCMD guided for greater accuracy. Full production completed in six months. Used during Iraq Freedom.

GBU-12 Paveway II (USAF)

Performance: CEP 29.7 ft, range 9.2 miles.

COMMENTS
Folding-wing laser and GPS guided weapon used primarily for precision bombing against nonhardened targets but capable of penetration. Can operate in cloud ceilings down to 2,500 ft.

Extant Variant(s)
- GBU-10. Laser guidance provides high accuracy over distances up to 40,000 ft.

GBU-12/49 Paveway II
Brief: An unpowered LGB used to destroy high-value enemy targets from short standoff distances.
Function: Air-to-ground guided munition.
First Flight: early 1970s.
Delivered: from mid-1970s.
Contractor: Lockheed Martin, Raytheon.
Guidance: semiactive laser.
Warhead: Mk 82 (500 lb) blast/fragmentation bomb.
Dimensions: span 4.4 ft, length 10.8 ft, diameter 11-18 in.
Performance: CEP 29.7 ft, range about six miles.

COMMENTS
Improved versions of the earlier fixed wing Pave-way I.

Extant Variant(s)
- GBU-12. Used primarily to strike fixed armor. Can operate in cloud ceilings down to 2,500 ft.
- GBU-49. Features both laser guidance and onboard GPS for all-weather, precision delivery capability.

GBU-24 Paveway III
Brief: An unpowered low-level LGB equipped with an advanced guidance kit.
Function: Air-to-surface penetrating glide bomb.
Contractor: Raytheon.
Guidance: semiactive laser.
Warhead: BLU-109 2,000-lb bomb.
Dimensions: span 6.7 ft, length 14.4 ft, diameter 18 in.
Performance: range more than 11 miles.

COMMENTS
Precision weapon that is effective against a broad range of high-value targets. Can be dropped from low, medium, or high altitude.

Extant Variant(s)

GBU-28 Paveway III
Brief: A large 5,000 lb class air-to-ground penetrating warhead, known as the "Bunker Buster," equipped with an advanced laser guidance kit, used for striking and destroying hard and deeply buried targets.
Function: Air-to-surface guided glide bomb.

Contractor: Raytheon.
Guidance: laser.
Warhead: BLU-113 or BLU-122 5,000-lb bombs.
Dimensions: length approx 20 ft, diameter 15 in.
Performance: range more than 5.75 miles.

COMMENTS
Developed during Desert Storm for use against Iraq's deeply buried, hardened C2 facilities. Two used by F-111Fs against a bunker complex Feb. 27, 1991.

Extant Variant(s)
- GBU-28/B. Integrates GPS/INS guidance into the existing GBU-28 guidance control unit to provide poor weather capability and improved target location. Entered production in 1999.

GBU-31/32/38 Joint Direct Attack Munition
Brief: A joint USAF-Navy GPS/INS guided weapon, carried by fighters and bombers, that provides highly accurate, autonomous, all-weather conventional bombing capability.
Function: Air-to-surface guided bomb.
Contractor: Boeing, Textron, Honeywell.
Guidance: GPS/INS.
Warhead: 2,000-lb Mk 84/BLU-109 (31), 1,000-lb Mk 83/BLU-110 (32), 500-lb Mk 82/BLU-111 (38).
Dimensions: span 25 in (31), 19.6 in (32), 14 in (38); length (with JDAM and warhead) approx 12 ft (31), 10 ft (32), 7.8 ft (38).
Performance: range up to 15 miles, CEP with GPS 16.4 ft, CEP with INS only 98 ft.

COMMENTS
Upgrades the existing inventory of general-purpose bombs by integrating them with a GPS/INS guidance kit to provide accurate all-weather attack from medium/high altitudes. Acquires target information through aircraft's avionics system. Guided to target by inertial guidance kit with periodic GPS updates. FY13 budget continues production.

Extant Variant(s)
- GBU-31. Variant adds GPS/INS guidance kit to the 2,000-lb general-purpose Mk 84 bomb or BLU-109 penetrator. First used in combat March 24, 1999.
- GBU-32. Variant adds GPS/INS guidance kit to the 1,000-lb general-purpose Mk 83 bomb or BLU-110 penetrator.
- GBU-38. Variant adds GPS/INS guidance kit to the 500-lb general-purpose Mk 82 bomb or BLU-111 penetrator.

GBU-39 Small Diameter Bomb I
Brief: Extended-range all-weather, day/night 250- lb class near-POG. Provides increased loadout to achieve multiple kills per sortie and decreases collateral damage.
Function: Air-to-surface guided munition.
**GBU-39 Small Diameter Bomb (USAF)**

First Flight: May 23, 2003 (guided).
Delivered: from 2006.
Contractor: Boeing.
Guidance: GPS/INS.
Warhead: 250-lb class penetrating blast fragmentation munition.
Dimensions: bomb: length 6 ft, width 7.5 in; BRU-61/A carriage (four bombs) length 12 ft, width 16 in, height 16 in.
Performance: near-precision capability at standoff range up to 46 miles.

**COMMENTARY**

Extant Variant(s)
- GBU-43 MOAB Bomb
  - Brief: A massive weapon designed for use against large area or buried targets.
  - Function: Massive guided bomb.
  - Contractor: Boeing.
  - Guidance: GPS/INS.
  - Warhead: BLU-120/B 18,000-lb high explosive.
  - Dimensions: length 30 ft, diameter 3.3 ft.

**COMMENTARY**

Large, powerful, and accurately delivered conventional high-explosive bomb. Developed in only nine weeks to be available for the 2003 Iraq campaign. Given name Massive Ordnance Air Blast (MOAB), but known unofficially as “Mother of All Bombs.” Designed to be dropped from the rear of a C-130 without a parachute. Provides power to attack large area targets or enemy hidden in tunnels or caves.

Extant Variant(s)
- GBU-43/B. GPS guided munition with fins and inertial gyro for pitch and roll control. Weighs 21,000 lb, of which 18,700 lb is attributed to BLU-120/B warhead. History’s largest satellite guided, air-delivered weapon.
- GBU-53 Small Diameter Bomb II
  - Brief: Air-launched, precision strike standoff weapon for use against both fixed and moving targets in adverse weather conditions. Features higher loadout and less collateral damage similar to the SDB I.
  - Function: Air-to-surface guided munition.
  - First Flight: 2012 (planned).
  - Delivered: from 2013 (planned).

**IOC:** TBD.

**Contractor:** Raytheon.

**Guidance:** Tri-mode seeker, fusing millimeter-wave radar, uncooled IIR, and digital semiactive laser sensors on a single gimbal.

**Warhead:** 250-lb class munition.

**Dimensions:** not available (compatible with SDB I BRU-61/A carriage).

**Performance:** precision strike at standoff range up to 46 miles.

**COMMENTARY**

A joint USAF-Navy program designed to provide the capability to attack both mobile and stationary targets from standoff range and through adverse weather. Will provide multiple kills per pass, multiple ordnance carriage, precision strike, reduced munitions footprint, minimized collateral damage, reduced susceptibility to countermeasures, and network-enabled capability through Link 16 and UHF data links.

Extant Variant(s)
- GBU-54 Laser JDAM
  - Brief: A joint USAF-Navy INS/GPS-guided weapon equipped with a laser seeker, carried by fighters, providing highly accurate, autonomous, all-weather conventional bombing capability against stationary and moving targets.
  - Function: Air-to-surface guided bomb.
  - Delivered: from 2008.
  - Contractor: Boeing.
  - Guidance: GPS/INS with laser.
  - Warhead: Mk 82 500-lb munition.
  - Dimensions: length (with JDAM and warhead) approx 8 ft.
  - Performance: range up to 15 miles.

**COMMENTARY**

Combines a laser guidance kit with the GPS/INS-based navigation of existing GBU-38 JDAM. Boeing also developing GBU-31 and GBU-32 variants.

Extant Variant(s)
- GBU-54 Laser JDAM. Dual mode 500-lb guided weapon. Adds laser seeker to the JDAM’s existing GPS/INS guidance to provide capability to attack moving targets with precision. Identified as an urgent operational need, development and testing completed in less than 17 months. First delivered in May 2008. First combat use in August 2008 in Iraq.

**GBU-57 Massive Ordnance Penetrator**

Brief: A massive earth-penetrating weapon for use against hard and deeply buried targets.

**Function:** Massive precision guided bomb.

**Guidance:** GPS.

**Warhead:** 5,300-lb high explosive.

**Dimensions:** length 20.5 ft, diameter 31.5 in.

**COMMENTARY**


Extant Variant(s)
- GBU-57B. Integration testing for B-2A bomber completed June 2011.

**Satellite Systems**

**Advanced EHF Satellite System**

**Brief:** Satellite communications system that provides global, secure, protected, and jam-resistant strategic and tactical communications.

**Function:** Communications.

**Operator:** AFSPC.

**First Launch:** August 2010.

**IOC:** Late 2013 (planned).

**Constellation:** four.

**Design Life:** 14 years.

**Launch Vehicle:** Atlas V.

**Operational Location:** Schriever AFB, Colo.

**Orbit Altitude:** Geosynchronous at 22,000+ miles.

**Contractor:** Lockheed Martin, Northrop Grumman.

**Power Plant:** Solar arrays generating 20,000 watts.

**Dimensions:** length 31 ft, width 98 ft (with full solar array extension).

**Weight:** 13,400 lb.

**Performance:** 24-hr low, medium, and extended data rate connectivity from 65 north to 65 south latitude worldwide.

**COMMENTARY**

Replenishing existing Milstar satellites, operating at much higher capacity and data rate capability. Offers secure, anti-jam communications around the world. Uses cross-linked satellites, eliminating the need for ground relay stations. Collaborative program with Canada, Netherlands, and United Kingdom.

Extant Variant(s)

**Defense Meteorological Satellite Program**

**Brief:** Satellites that collect air, land, sea, and space environmental data to support worldwide strategic and tactical military operations.

**Function:** Space and Earth environmental data collection.

**Operator:** National Oceanic and Atmospheric Administration (NOAA).

***AEHF (Lockheed Martin)***
Orbit Altitude: 22,000+ miles in geosynchronous orbit.
Operational Location: Schriever AFB, Colo.
Launch Vehicle: Atlas II and EELV.
Contractor: Lockheed Martin.

Power Plant: solar arrays generating 1,269 watts, decreasing to 980 watts after 10 yr; 1,500 watts (SLEP).
Dimensions: rectangular body 6 x 6 x 7 ft, 38-ft span with solar arrays deployed.
Weight: 2,580 lb; 2,716 lb (SLEP).
Performance: employ six independent SHF transponder channels for secure voice and high-rate data communications.

COMMENTS
Workhorse of US military’s SHF communications. Provides military communications to troops in the field and commanders worldwide.
Extant Variant(s)
- DSCS III. Most recent configuration. Final (of 14) DSCS IIIs launched in 2003. Final four satellites received SLEP, providing higher power amplifiers, more sensitive receivers, and increased antenna connection options. Also carries a single channel transponder to disseminate emergency action and force direction messages to nuclear-capable forces.

Defense Support Program
Brief: An early warning spacecraft in geosynchronous orbit that provides alert of possible ballistic missile attack on US forces or homeland.
Function: Strategic and tactical launch detection.
Operator: AFSPC.
First Launch: November 1970.
Constellation: classified.
Design Life: Three yr requirement and five yr goal.
Launch Vehicle: Titan IV with inertial upper stage; Delta IV Heavy EELV.
Operational Location: Buckley AFB, Colo.; Schriever AFB, Colo.
Orbit Altitude: Geosynchronous at 22,000+ miles.
Contractor: TRW (now Northrop Grumman), Aerojet.
Power Plant: solar arrays generating 1,485 watts.
Dimensions: diameter 25 ft, height 32.8 ft, with solar paddles deployed.
Weight: approx 5,200 lb.

Performance: uses IR sensors to sense heat from missile and booster plumes against Earth’s background.

COMMENTS
Extant Variant(s)
- Block 1: Nine satellites in period 1989-present. This latest variant is more survivable than predecessors, includes a medium wavelength IR sensor for more mission utility, and accommodates 6,000 detectors.

Global Positioning System
Brief: A US space-based radio-positioning system that provides 24-hour worldwide highly accurate three-dimensional location information and precision velocity and timing services to military and civilian users.
Function: Worldwide navigation, timing, and velocity data.
Operator: AFSPC.
Constellation: at least 24 spacecraft.
Design Life: 7.5 yr (II/IIA); 12 yr (IIF); 7.5 yr (IIR/IIR-M); 15 yr (III/A).
Launch Vehicle: Delta II, Delta IV.
Operational Location: Schriever AFB, Colo.
Orbit Altitude: 10,988 miles.
Contractor: Boeing (II, IIA, IIF), Lockheed Martin (IIR, IIR-M, IIIA).
Power Plant: solar panels generating 700 watts (II/IIA); 1,136 watts (IIR/IIR-M); up to 2,900 watts (IIF).
Dimensions: (IIR/IIR-M) 5 x 6.3 x 6.25 ft, span

 Commentary
GPS IIF (USAF illustration)
Milstar (Lockheed Martin illustration)

**Milstar Satellite Communications System**

**Brief:** A joint service satellite communications system that provides global, secure, protected, and jam-resistant strategic and tactical communications.

**Function:** Communications.

**Operator:** AFSPC.

**First Launch:** Feb. 7, 1994.

**IOC:** July 1997 (Milstar I).

**Constellation:** Five.

**Design Life:** 10 yr.

**Launch Vehicle:** Titan IV/Centaur.

**Operational Location:** Schriever AFB, Colo.

**Orbit Altitude:** Geosynchronous at 22,000+ miles.

**Contractor:** Lockheed Martin, Boeing, TRW (now Northrop Grumman).

**Power Plant:** solar arrays generating 8,000 watts.

**Dimensions:** length 51 ft, width 116 ft with full solar array extension.

**Weight:** 10,000 lb.

**Performance:** Milstar I sats have low data rate (LDR) payload, transmitting 75 to 2,500 bps of data over 192 channels in EHF range. Milstar II sats have both LDR and medium data rate (MDR) payloads, transmitting 4,800 bps to 1.5 Mbps over 32 channels.

**COMMENTARY**

Backbone of strategic-tactical DOD communications. Provides secure, anti-jam communications around the world. Uses cross-linked satellites, eliminating the need for ground relay stations. Offers 24-hour-a-day capability. Last of six satellites launched in 2003.

**Extant Variant(s)**

- **Block I:** Two Milstar I satellites launched in the period 1994-95. Both still active.
- **Block II:** Four Milstar II satellites launched in period 1999-2003. First one was placed in nonuseable orbit. Other three are still active.

**Space Based Infrared System**

**Brief:** Advanced surveillance system for missile warning, missile defense, battlespace characterization, and technical intelligence. System includes IR sensor payloads on host satellites in highly elliptical orbit (HEO) and two IR sensors each on dedicated satellites in geosynchronous Earth orbit (GEO).

**Function:** space surveillance.

**Operator:** AFSPC.

**First Launch:** GEO 1, May 2011.

**IOC:** GEO 1, Dec. 5, 2008. (Increment 1, Dec. 8, 2001)

**Constellation:** four GEO sats, two HEO sats (planned).

**Weight:** approx 2,273 lb.

**Orbit Altitude:** 390 miles, sun-synchronous orbit.

**Contractor:** Boeing (system integration, ground segment, operations and sustainment); Ball Aerospace (satellite).

**Power Plant:** 750 watts, powered from solar arrays and batteries.

**Dimensions:** height approx 10 ft; 10 ft x 3.2 ft, plus solar panels.

**Performance:** approx 10 times the capability of a DSCS satellite.

**COMMENTARY**

Designed to track and collect optical signatures of Earth-orbiting objects, including space debris, from a space-based platform. First operational satellite (SSBS Block 10) launched in September 2010. Announcement of IOC anticipated in spring 2012.

**Wideband Global SATCOM**

**Brief:** Satellites that provide high-capacity communications for deployed forces (air, land, and sea).

**Function:** Communications.

**Operator:** AFSPC.

**First Launch:** October 2007.

**IOC:** April 16, 2008.

**Design Life:** 14 years.

**Launch Vehicle:** Atlas V, Delta IV.

**Operational Location:** Schriever AFB, Colo.

**Orbit Altitude:** Geosynchronous at 22,000+ miles.

**Contractor:** Boeing.

**Power Plant:** solar arrays generating 9,934 watts.

**Dimensions:** based on Boeing 702 Bus.

**Weight:** 13,000 lb at launch.

**Performance:** approx 10 times the capability of a DSCS satellite.

**COMMENTARY**

Designed to provide worldwide communications coverage for tactical and fixed users, augmenting and then replacing DSCS X-band frequency service and augments the one-way Global Broadcast Service Joint Program Ka-band frequency capabilities. WGS satellites also provide a new high-capacity two-way Ka-band frequency service.

**Extant Variant(s)**

- **Block I:** Three satellites (SV-1 thru SV-3) launched in October 2007, April 2009, and December 2009.
- **Block II:** Comprises satellites modified to better support the airborne ISR mission. SV-4 satellite launched Jan. 20, 2012, with SV-5 and SV-6 scheduled for 2013. In a U.S.-Australia partnership, codified in 2007, Australia provides funds to purchase SV-6. The US entered a multilateral partnership with Canada, Denmark, Luxembourg, Netherlands, and New Zealand, in which the new partners will fund acquisition and support for SV-9.